



Navigating the New Arctic (NNA) Investigators Meeting

16 April 2020 | Online via Zoom
Day 1 Focus: Introductions & Peer Support

Break-Out Discussion Notes for Session 1.2: Enhancing Collaboration Capacity

Discussion Questions for “Collaboration” Theme Break-out Groups

What does co-production of knowledge mean to you &/or the other investigators on your NNA project team?

How can you apply the concept of reciprocity in the context of research?

What kinds of resources and support do you need (and/or does the NNA community/larger Arctic research community need) to engage in collaborative and co-productive research with Arctic communities?

Discussion Questions for “Convergence” Theme Break-out Groups

What challenges do the NNA projects face with regard to working effectively across scientific disciplines to achieve the goal of research convergence?

What tools, techniques, or resources have been helpful in promoting successful research collaborations and how might they (or others) be applied to enhancing convergence outcomes and synthesis across the NNA projects?

How can the NNA community work together to overcome the existing barriers to convergence research and/or broader collaboration? (e.g. working internationally, working with business or policy sectors, connecting with other Arctic research efforts beyond NNA, etc.)

What support could be provided to help investigators successfully initiate, engage in, and foster convergence research?

Group #1

Facilitator: Betsy Turner-Bogren

Advisor: Brenden Raymond-Yakoubian

Group Theme: Community

Rapporteur: Ming Xiao

Notetaker: Vincent Tomalonis

Group Members: Sylvia Schreiner, Ming Xiao, Bruno Tremblay, Betsy Turner-Bogren, Vincent Tomalonis, Tatiana Degai, Peter DeCarlo, Brendon Raymond-Yakoubian

What does co-production of knowledge mean to you &/or the other investigators on your NNA project team?

Working with local communities.

Idea of a process involving relationships and ongoing dialogue.

Community liaisons who will stay throughout the project,

Have advisory boards (for research priorities)

Community representatives work with liaisons.

Social science, political science, physical sciences and indigenous knowledge holders are equal members of the research

Language is important

Consulting with teachers is also important

Get input from community bodies - concern is what is going to be most use to community.

Project examples:

held several community meetings,

working with them on research projects that they own

hoping to bring Alaska native knowledge holders to Kamchatka and

Chukotka and planning to organize trips from Russia to Alaska

Knowledge co-producing/creating knowledge equally

starts from the beginning and looks at local priorities

can be useful to set up institutional frameworks

Interpretation is important as well.

Not everything is coproductive. Important to think of what is not co-productive.

in the application stage, go back to model and refine outcome, and go back again.

How can you apply the concept of reciprocity in context of research?

Reciprocity framing questions:

What are you as a research team giving?

Are you making assumptions with regard to what people need and want?

What are we impacting?

What matters to people there?

What do people say about what is being done?

Social, economic considerations.

Would others agree with this research?

Importance of engaging with/returning to the community.

On field work trips/when gathering data there may be little time to engage with the community.

If you are there gathering data, the community also wants to see that researchers are a part of the community/coming back.

Including participants from the school may allow you to integrate more in the community.

Need to learn what people are comfortable with

Social aspects are important. Researchers showing up at social things is good.

Even though they have a rich body of knowledge, in some communities a lot of it has been lost or gone away pretty fast. Therefore it is important to document knowledge.

Still need to remember that there are emergent issues in the community and that you have power to support. Would be interesting to look at sea mammals and language topics.

When you publish community-friendly materials (such as books for children on language), they are not counted as peer reviewed articles. However this is a crucial part of the contemporary research - giving back to the community. Through community-friendly publications we support indigenous education, which in return provides input to socioeconomic development of the community too.

In academic circles, there is little encouragement to pursue community engagement, limited budgets.

It is a problem with international projects - swooping in to do measurements and then leaving w/o leaving something behind.

Need trust in the community.

The format of this call allows for the community aspect in a way that is more cohesive to the entire project. Want to applaud NSF.

would love to do more in rural communities but need to work on budgets. Reciprocity often missed. Economic reciprocity. What are the community's priorities?

Great benefit to involve community in the research itself.

Need to be aware of community differences. What part of the community are you involved in? Communities and sub-communities.

Research can be a tool for empowerment.

There are often different capacities with regard to engagement.

Be consciously aware about the communities you are trying to tap into.

Who are partners and resources that can allow us to do what we do?

What are the ways that we can reduce the negative impacts? How do we do that?

Having community liaisons helps a lot to reduce the negative impacts.

Who do we talk to? Need more coherent coordination around this question.

Differences between communities in Alaska vs. Russia may also make it difficult to define a community liaison role.

community liaisons may not always work.

Building trust takes years and grants are finite. Need local partners. How do facilitate relationships in long term years?

May need to recognize issues of fatigue. New waves of potential research too.

Be cognizant of diverse Arctic challenges, one place might be different from another. Challenges may be regionally specific.

As research picks up after COVID, there may be new/other challenges
Impacts to the community due to flights cancelling
take advantage of networks
communities sometimes can have adversarial relationships

DISCUSSION SYNTHESIS:

• What does it mean to use a research co-production approach and how might current and future NNA projects more fully adopt research co-production Principles?

Community engagement at an early stage, ask questions to understand the real community and scientific issues that should be resolved in the projects.

Involve communities to give them ownership of the project and to be part of the project.

Iterative process: scoping of research priority stage, data collection stage, outcome validation and application stage, etc.

Bring Alaska native knowledge holders to the projects

Also important to identify what is not knowledge co-production.

Avoid making assumptions of what local communities need/want?

Also to note:

Still need to remember that there are emergent issues in the community and that you have power to help.

In academia, there is little encouragement to pursue community engagement (outside of data collection), such as limited budgets.

• Is there still a way for researchers to work successfully with Arctic communities even when their science may seem less relevant to community priorities or Concerns?

Make efforts to be engaged/involved in the community activities and local life, to build trust.

Document the Indigenous heritage and knowledge of communities; support their Indigenous education systems

Also depend on Univ Alaska colleagues who work more closely with Alaskan communities.

Social reciprocity.

• What best practices for developing and improving working relationships with Arctic Indigenous and local communities should NNA projects adopt?

Need to build long-term relationships, such as through local liaison.

Have advisory board within NNA compiled of Indigenous representatives

• How can the NNA community work together to reduce the negative impacts of research on Arctic communities or increase the benefits communities receive for supporting or contributing to Arctic research?

The potential negative impact is well recognized and voiced by project groups and local communities. Solutions need to be found.
Community liaison, although the role and funding need to be discussed.
Note some challenges may be regionally specific.

Group #2

Facilitator: Bradley Barker
Group Theme: Convergence
Rapporteur: Mark Serreze
Notetaker: Anna Liljedahl
Group Members:

DISCUSSION NOTES:

What challenges do NNA projects face in working across disciplines to promote convergence research?

What do we mean by convergence research?

About using other disciplines, other peoples tools and ways of thinking, to solve problems within your own problem set. Projects focusing on risks have a focus, making convergence research easier.

We tend to have different languages, a huge barrier, and have our own lingo. Can be difficult to get a mutual understanding of what we mean and what we are each talking about.

Education is a big component of this. A steep learning curve. Really owe to the students to support their growth/confidence in engaging in convergence research.

Used to working in degrees or watts, convergence includes different metrics.

Convergence science is driven by the problem and not the place of where we are coming from (such as the lens of an engineer)

What tools, techniques, or resources have been helpful promoting successful collaborations across the NNA projects that can improve convergence outcomes?

Challenge of the different languages that we use in the different disciplines.

Helpful finding a way to find a mutual understanding, find a common ground so that everyone is understanding from their own point of view.

Having a translator who specializes in helping with communication and how people learn. Have to pre-plan for this and put it into your budget proposal.

Walking in the other person's shoes, taking the time to immerse yourself. Take time to spend the time in their environment.

Trust building takes a long time. Need to build a relationship and that doesn't happen overnight.

Know how to reach out, how to start a connection, before you can reach out to them. Making connections is the first step.

Discovering who is doing the same thing in a different (geographical) place.

Organize visiting a place so that we overlap in time. Spend time together in-person helps us remember each other. Great to know who else is gonna be there (could perhaps become part of the logistics support of NSF??)

Research is both a collaborative and competitive process. Competition is not always helpful in enabling collaboration. Competition works against collaboration. In some ways, NSF model works against collaboration.

How can NNA community overcome existing barriers to convergence research and/or broader collaboration? Internationally, policy, connection with other researchers etc.

Online meetings like this.

What can we do to better understand each other's language?

Follow the LTER model of regular large in-person meetings.

Online seminars organized by ARCUS with room for discussion

Many organizations are involved, but the coordination is not there. We could get more bang for the buck if NSF, NASA, NOAA, and DOE coordinated. Both bottom up and top down coordination is needed probably, just because each agency operates differently.

NNA is a really good place to build an early career community. Can even introduce NNA earlier, such as middle school age.

Value of field experience, such as Toolik at dinner time.

Cross disciplinary all hands meetings, online or in-person.

Cross disciplinary education such as talks at schools

Future in-person meetings will probably be smaller due to covid19.

Break-out format is useful in online meetings. Regular, perhaps quarterly.

We all are busy, what if we do a one-minute highlight video about a specific cool thing and share.

The competition hinders collaboration, we need to work together, promote each other.

What support can be provided to help investigators?

Find and learn the language, define the terminology. What do we mean with convergence research? Gonna be hard to engage until we are on the same page.

The indigenous perspective is always important in convergence research, the need to consider the whole ecosystem.

What is important to each of us is different too. We may come to realize that we do not fundamentally understand the problem we are working on.

Would we need a glossary?

The need for education that gets everyone on the same page on goals, limitations, larger questions etc that can only be answered once we start working differently and together. Get everyone out of their discipline (can be uncomfortable). We need education, but we can also describe/define convergence research ourselves.

Building confidence, can be scary to do something new/different, because you are using language beyond your typical language

Scientific curiosity that may overlap, but the expertise may not be there so you reach out to find someone.

Bridge between social and natural sciences are a main challenge so supporting efforts that aim to bridge the two would be helpful.

To continue to keep us engaged as a community. Such as a virtual platform that includes information about everyone and that allows interaction. Something to make it easier for us to connect with each other. Not just a booklet, something that is more "smart". Use AI to connect us in this virtual room??

The survey (not by NSF!) included 10 suggestions and really each one of them could be helpful

- Coordination of communication between projects

- Coordination and leveraging of broader impact activities between projects

- Facilitation of working groups focused on NNA PI/Co PI topics of interest

- Facilitation of collaborative activities between projects

- Assistance with the synthesis of NNA project results

- Dissemination of project results to the broader Arctic research community

- Dissemination of project results to the public via the media and social media

- Facilitation and organization of NNA related sessions at national/international society meetings

- Assist with short course and webinar development

Group #3

Facilitator: Colleen Strawhacker

Group Theme: Convergence

Rapporteur: Andrey Petrov

Notetaker: Julie Loisel

Group Members: Louise Farquharson, Skip Walker, Sierra Hlcks, Anja Kade, Julie Loisel, L' Na'ia Alessa

DISCUSSION NOTES:

Challenges about cross-disciplinarity:

- we focus on engaging Indigenous people but we might be missing large portions of the Arctic population;

- we should focus on, and engage, non-native communities;

we need better communication between scientists and industry (and government as well as other federal operational partners);
how to have the industry share their proprietary data to help advance science and adaptation;
we must broaden our definition of “community”;
the Arctic is larger than AK!
How to integrate more of the Arctic into the NNA vision;
the access to people is fundamental yet it is difficult to talk to different stakeholders (or people with different perspectives) about different aspects of communities and how to gain information;
how to bring together data?

Existing/Suggested Tools & techniques & resources:

milestones, metrics, workflows:
we can do more to develop those;
compile a bunch of existing and new data;
networks of people who share data during meetings or Slack-type exchanges (soup, science, and wine);
mentoring across projects and within projects between seasoned and newer scientists;
Reaching out to stakeholders that are not typically engaged: federal, state, local operators (e.g., law enforcement, resource managers, etc.)

How to overcome the existing barriers to convergence research:

workflow to solve complex and complicated problems with many moving pieces;
allow communities to come together;

What support could be provided to PIs to further convergence science:

a workflow diagram that shows how current NNA projects are not only connected (or how they could connect) but also how their outputs create a whole.
How this whole (this award cycle investment) moves us forward from a “previous” state of research, outreach and engagement.
We need to measure progress from a baseline.

Group #5

Facilitator: Helen V. Wiggins

Advisor: Julie Raymond-Yakoubian

Group Theme: Community

Rapporteur: Julie Brigham-Grette

Notetaker: Madeline Midyette

Group Members: Tom Birkland, Anne Jensen, James Temte, Mary Beth Jager, Julie Brigham-Grette, Jimenez, Daniel (phone)

DISCUSSION NOTES:

Research can be exploitative and condescending - how do we mitigate that?

How can we do science in a way that is beneficial to the people?

Discussion of co-production of knowledge - what does it mean to you?

Research fatigue - can come to an agreement on best practices if included from the beginning

Use research priorities and community interests in long-term relationships

What happens when NNA goes away? Want lasting value if the science isn't relevant to the communities. Moving away from colonialist perspective

Do your research before going to the community - look at documents that are available. Identify specific community individuals that can provide insight to questions you have. Then LISTEN.

Relational accountability - accountability to the communities. Accountable to the land, ancestors, animals, etc.

Host comes up with the agenda. Communities invite the researchers in.

Connect to the community - insight to the lifestyle and what they love about it.

Understanding government and government policy - multi-layer connections to help navigate those relationships.

Government doesn't understand ethnography.

Researchers ask the same questions - research is important prior to meeting with the communities.

Relationship with land owners, which may have connections to community land use.

Plan projects in anticipation that you won't get a planning grant. Take time to see what the community questions are.

Reroute funding to providing laptops, since travel is limited.

What other limitations? No internet. Limitations on fiber access.

Face-to-face is really important.

Acknowledge that a different relationship exists when conversation is limited to emails or phone conversations

Can't control co-researchers

Tools of co-production - trust and respect between each other, empowerment

Can be hard for the social scientist - especially if they are alone in their role.

Can be an issue with communicating the importance of relationships

Co-production paradigm - echoed with authorship on publications

Cross-cultural interactions - ways of doing a project and process (business, social science culture)

Recognize the original peoples of the land - not to separate, also not to group together without recognition of culture of discipline and culture of origin

Reciprocity - report back to the communities

Validate the outcome - need to know what works, need to know if it doesn't, and what to change

Pay people for their contributions! It takes their time, and they can re-invest the money into whatever they need

What products emerge that can help the community? Planning - practical applications

Want to have a collaborative relationship on top of compensation

Reciprocity - leaving a place better than you found it - education tools, products

Don't want to be a colonialist, rather want to focus on long-term projects and relationships

Support and build-up the community - language. We have the resources to have discussion about the community and their words - preservation of language and culture of that meaning - for educational projects

If I can't explain it to my grandma (given they don't have a background in the same discipline), what are we doing? It needs to be accessible to all.

Challenges of this program - how do we make theoretically dense concepts and findings accessible

Minimum - give back to the community!

Work with a science communicator?

Plain language!

Connecting with the community's language and their rhetoric

They vs. We (not a "we" most of the time when there isn't a community partner on the team)

Charter - "we" researchers - is action being taken or are boxes being checked? example charter (IFKN):

https://ifkn.org/sites/default/files/IFKN_final_charter_network.pdf

Funding, time, relationships, understanding (institutions)

Shift in academic culture - AGU - solution based science - what solution?

Researcher or the communities? (filter down to the institution and the powers that structure academia, including funding)

NNA - challenges that result from

- First instance of co-production mentioned

- More work to be done

- Earlier research negotiated social science away, leftover work was left undone

Resources:

- Planning grants

- Larger research community - beyond NNA

- Communicator - make sure that is supported and understood, even at the PO level

Group #6

Facilitator: Irina Dolinskaya

Group Theme: Convergence

Rapporteur: Xueke Li

Notetaker: Hiba Baroud

Group Members: Guangqing Chi, Xueke Li, Angie Zhang, Abigail York, Peter Ungar, Amanda Lynch, Alice DuVivier, Robin Bell, Hiba Baroud

DISCUSSION NOTES:

Institutional level

Universities can become barriers to pursue convergence research

Academia values disciplinary depths and excellence

Universities need to have bigger changes to facilitate and support interdisciplinary research

Need to educate university administration on the value of convergence and interdisciplinary research (e.g., large funding opportunities)

Need to seek support from higher level administrators in the university to identify future intellectual directions

There are specific challenges to early career researchers (e.g., job search, tenure and promotion)

Need to make sure graduates of interdisciplinary programs (such as NNA) have opportunities to excel in their careers

Existing journals do not support publication of interdisciplinary research

Some disciplines value specific disciplinary journal publications which can be challenging in large interdisciplinary teams

Need to have journals that are receptive to interdisciplinary/convergence research work (maybe not necessarily new journals)

Professional societies can be a platform to engage in convergence research

For example, AGU will be addressing both scientific and social challenges

Need to make sure that people engaged in convergence research efforts are rewarded

Research level

Publication

Navigate authorship of journals across disciplines

Be transparent across team members about expectations and be aware of junior researchers (e.g., adopt an opt in/opt out approach that allows researchers to choose whether they want to be part of focused disciplinary papers and if they want to opt out of large team-wise papers)

Whenever possible: include all authors.

Foreground junior people.

Communication

Fundamental differences in how we think about and address the same problem/question

Project timeline and budget should account for the time and effort requirement for team building without having to take any shortcuts (e.g., have multiple meetings and be open and willing to ask any question at anytime)

Need to spend time and effort to learn the science in other disciplines

Recognition of the importance of spending time communicating the basics and background of a discipline

Data

Need to identify mechanisms to collect, store, and share data from diverse sources and disciplines

Challenges: how to consolidate and share a final product of data resulting from convergence research

Opportunities: identify new ways to interpret and use data from one discipline to solve problems in another discipline

Need to have disciplinary experts in teams to help identify data sources and quality/availability of data

Fundamental mismatch between seeking to publish natural data and protecting human data

Data centers can provide a mechanism to overcome such a challenge

Support

There are various tools for collaboration that can facilitate collaboration in large interdisciplinary teams doing convergence research (e.g., box, slack, etc.)

There is concern about fatigue from having to learn about all the different tools to accommodate various teams

Successful examples of exercises and approaches to overcome barriers to convergence research:

Exercise/tool implemented at a workshop: identify a set of node points that represent key aspects of a discipline and ask participants to draw links across the nodes. The outcome provides a synthesis of how all team members and disciplines work together and identifies critical nodes

Determine boundary objects (e.g., event, document, person, etc.).

For instance, a boundary object in a research team can be a geo-database that links all the data of the team using GIS. The team becomes focused around this object and can build on it.

Other Notes:

Convergence is looking at urging [urgent/emerging?] issues.

Four dimensions of attack in pushing this issue: funders, institutions (universities etc), professional societies (AGU etc) and journals

We all think differently: communication is key. There are no stupid questions.

There is no shortcut to spending time together - build it in. In the field - dedicated time - really helps.

Younger generations have more experience with interdisciplinarity - perhaps it is slowly starting to be normalized.

Senior people need to reward so that it feels safe from a career standpoint (tenure and promotion.)

Group #7

Facilitator: Jacqueline Vadjunec, Jesus Alvelo

Group Theme: Convergence

Rapporteur: Ruth Varner

Notetaker: Bill Simpson

Group Members: Jacqueline Vadjunec, Jesus Alvelo, Colin Gleason, Ruth Varner, Ted Schuur, Valeriy Ivanov, Bill Simpson, Rich Camilli, Benjamin Jones

DISCUSSION NOTES:

Q1: What challenges do projects face with regard to convergence?

Getting a common understanding of what convergence means. Working in meetings to find edges between disciplines to make progress. Convergence takes time and effort to do (more than planned for).

Idea -- have investigators show their work to others and have breakouts led by others (non-experts).

Track 2 projects are interested in what other projects have learned about convergence. What NNA projects have been funded is on the NSF website and you can get information there.

Groups can interact with each other.

Summary - To do convergence research and to do it well it takes time. Time for a group of people to develop a shared understanding of convergence and time to develop a common language across disciplines. More time than you think and usually more time than you budgeted for.

Q2: What tools techniques, resources, etc can help convergence?

Short videos worked well. The idea of using short videos within teams is also interesting and a way to getting the discussion to a common level. Non experts talk about the expert statements.

Maybe the program office can be a way to glue together the projects together.

To facilitate an agreement on shared code of ethics and intellectual property protection so that trust is established - both within projects and across NNA projects. We may need an agreement to protect intellectual property shared within these meetings so that people who share ideas in the community are protected.

Q3: How do we work with others? Broader collaborations? Others outside of academia:

Had regional representatives ask in local meetings what the community wants. That gathering of information helps in gathering information.

Communities see the problems, but want it solved or help in solving it. That helps to connect with consultants who can then implement these solutions.

It can be difficult to get "buy in" on new technologies. Need interpersonal relationships and may need to operate. A repository for best practices in certain communities.

Local residents know a lot of local knowledge needs to be tapped to build connections and get access and answer questions.

Q4: What support could be provided to help:

NSF/NNA can help by having a centralized, facilitated space for best practices, connecting people and supporting relationships for both communities - local and indigenous - as well as working with international collaborators.

Best practices and a repository could help. Training would be great.

If NSF makes convergence a requirement, it can push people to make this happen.

Program office support meetings like this so that we can get over disciplinary boundaries. Hosted meetings can help as a NNA-wide activity

International projects need connections that are international. How do we incentivize people to be engaged in these activities? Maybe a clear set of rules on how to engage partners? Best practices for working with international partners.

Maybe getting graduate students into this type of meeting so that they understand what Convergence is about and there is a way that convergence research becomes more prevalent in the community into the future. NSF can facilitate interdisciplinary work.

Graduate students and postdocs can be the people who will work together to make the interdisciplinary / transdisciplinary work really happen.

This is the time when graduate students can be innovative and work across boundaries.

It takes time to develop relationships and to train the next generation so we need continued, long-term resources/commitment/funding to ensure these projects are truly convergent. Longer term funding to support the development of relationships and to complete convergent research.

Group #11

Facilitator: Kate Ruck

Advisor: Kaare Erickson

Group Theme: Community

Rapporteur: Andy Mahoney

Notetaker: Jennifer Schmidt

Group Members: Evie Fachon, Michael Livingston, Andy Mahoney, Keith Musselman, Cristina Poleacovschi, Jennifer Schmidt

DISCUSSION NOTES:

What does co-production of knowledge mean?

It is hard because there is no one answer.

Focus on what is realistic and practical.

There are multiple ways to assess success or occurrence of co-production.

Different forms of engagement, co-production is one of them.

Don't get bogged down with semantics.

Ways to evaluate engagement are relevance of the topic, amount of engagement with local people, etc.

Co-production sort of implies two entities but it is much more. Co-production has many entities ranging from elders, to archaeologists, engineers, many many pieces of the puzzle and try to put them together.

The amount of engagement that is appropriate differs from project to project.

There is a risk that trying to force co-production could backfire and lead to increased research fatigue.

Provide meaningful outcomes from the research and expand the application of the results.

How can you apply the concept of reciprocity in the context of research?

Manage expectations.

If projects are not funded still reach out to communities and let them know.

Reciprocity is key. With reciprocity everyone is sharing and benefitting, not just at the end but throughout the whole process.

It is nice when you have the benefit of being able to go to the communities and ask them what they think is important given your skills.

Reciprocity needs to be there at the beginning. Give and take relationships with respect and equality.

Reciprocity is deeply ingrained in Indigenous culture, if animals are not respected they will not come back.

What kinds of resources and support do you need to engage in collaborative and co-productive research with Arctic communities?

Maybe relate or increase awareness that co-production is not always needed or may be appropriate. NSF can support it by having events like this. Also NSF can provide patience given the challenges. Patience to allow research hypothesis and research questions to develop. NSF has an interagency relationship building events.

Supporting workshops in places that promote cultural identity such as in hubs or at fish camps. Use these venues to promote the exchange of ideas and workshop agendas.

Network of liaisons between researchers and community members. Having a local presence/contact where the scientists know who they can go to get a pulse of local needs and the locals can know they can go to someone local to get in contact with researchers.

Community engagement and training workshops that are in villages or hubs.

Understanding the difference between a grant and an award is important for understanding how to go about projects. Better mechanisms to compensate residents and community leaders. Pre-proposal support to help with development

Group #12

Facilitator: Kendra McLauchlan

Advisor: Nagruk Harcharek

Group Theme: Community

Rapporteur: Jana Peirce

Notetaker: Kathy Duderstadt

Group Members: Jessica Black, Jessica Ernakovich, Liming Xiong, Maria Vernet, Jana Peirce, Katharine Duderstadt, Ann Tickamyer

DISCUSSION NOTES:

What does co-production of knowledge mean to you?

Many forms of co-production -- all involve "working with the community"

“Knowledge” is based on perspective.

Co-production provides multiple perspectives

Ideally a stakeholder engagement plan is *integrated into* the Science Plan and not a separate section

Co-production is similar to Participatory Research

Practical issues of co-production can be overwhelming

Determining convergence of goals, time commitments, etc.

Main challenge does not involve understanding what co-production is but rather putting co-production into practice.

Social Scientists are very busy and in high demand for working on projects

Incorporate ways of working with communities

Project liaison, steering committees, regional and local advisory groups

Working with schools is a good way to starting working with communities

IRBs are even more difficult, however, when working with children.

Ideally have an expert on working with K12 outreach on a team

Limit number of events at schools throughout the year to 1 or 2 (from all research projects)

E.g., Science Fair with many researchers touring communities for 1 day
Utqiagvik has a good example

Co-production often discussed in language of social sciences

Difficult for engineers and physical scientists to engage in these discussions

Yet crucial to know community needs in order to identify the science questions

Challenge of how what scientists do can be translated into community needs

How can Arctic researchers with decades of experience in the field but little experience with communities begin to develop new relationships with communities?

Respect and Reciprocity

Respect and Reciprocity:

Importance of developing relationship with community without the expectation of communities engaging in knowledge co-production from the start

Engage the community at all stages of the project and be prepared to back off.

Building relationships and having honest conversations

Takes a long time and commitment to build these relationships

Can't really work around this need for time to develop relationships

Relationship needs to extend beyond the research project

Managing expectations among community members and projects

Scientists looking for ideas for solutions

Communities looking for tangible results (e.g., infrastructure)

Challenge of funding community partners -- identified as a crucial need

Working with community institutions that have built and done a lot of work

Need to be funded in order to achieve this reciprocity

Honorariums can be difficult logistically through NSF funding

Door-prizes for community events (researchers often pay out of pocket)

Need funds to implement solutions - e.g., new infrastructure not just ideas

Current funding protocols limit us in what we can give back to communities

How to move beyond extractive research toward reciprocity

Without being "transactional"

Concerns regarding success of early career researchers in developing relationships

Not necessarily time to commit to developing relationships in careers

Potential challenge of approaching communities to new projects, especially when past projects may not have been successful

Resources and Support needed

Utqiagvik has excellent research infrastructure (history evolving from NARL)

Indigenous communities need a platform to share ideas

Need a funding mechanism for research in international communities

Similar to the "Inter-American Institute for Global Change Research"

Currently no funding mechanisms to support Indigenous community participants in places like Greenland

Create a system to pair researchers (esp., early career) with communities

"Speed-dating for Scientists and Communities"

(similar to UAlaska "Partners for Sustainability")

Provide a filter between researchers and communities

Also ensures continuity

Resource-sharing mechanism for NNA projects

Data sharing platform

Ideally, NSF would take more leadership in policy needs of communities

Need for peer support *among communities* who are participating in co-production with scientists

Group #14

Facilitator: Stacey Stoudt

Advisor: Nikoosh Carlo

Group Theme: Community

Rapporteur: Melissa Chipman

Notetaker: Aaron Poe/Melissa Chipman

Group Members: Melissa Chipman, Dima Streletsky, Margie Turrin, Aaron Poe, Noor Johnson, Amber Budden, Xiong Zhang

DISCUSSION NOTES:

Question #1: What does co-production of knowledge mean to you /your specific project?

Initial investment in building community relationships needed even before projects are even constructed – difficult challenge to navigate

Building projects based on community needs

Community meetings are now difficult to do because of COVID – ie, beyond the long time investment that is already a challenge

We need to keep in mind the fact that communities are very different – keeping in mind differences in culture, population, access to computer networking, and community issues (food security versus coastal degradation)

Prioritizing indigenous voices and perspectives is very important – and a way to build that engagement is to take “us” out of the process a bit and play more of supporting role in these community engagement / networking initiatives

Indigenous-led projects are key – but difficulties with defining research questions in one go – this has to be an iterative process with dialogue, workshops, etc

Question #2: How to we assure mutual benefit/ information exchange

Defining guidelines/principles, and developing that with the group at the outset, can be very useful

Education is a center point for many communities: developing ways to share technologies and education materials that becomes part of the communities is a great way to build bridges

Technology as a bridging mechanism – but this could be difficult with Covid, but presents some good opportunities if done thoughtfully

We have to be open to being flexible – open to changing our roles within a project as it evolves - ie, considering how we may view leadership and roles in a project versus how it plays out as different members of the community become involved in different ways

Don't assume interests – ie, who we think should be involved at what level, etc

Go beyond publications – we need to focus on the production of knowledge that translates to the communities

Question #3: What kinds of resources or support to we need for success

Is there a way to curate what is happening in terms of existing projects in all these communities? – burnout is a very real issue – how do we make sure these communities are being heard? How can we figure out what is already happening in these places in terms of community engagement?

What are the best forms for giving data back to the communities? I.e., in ways that are useful – list of best practices for providing information / data

Regional science liaisons are extremely beneficial – someone who understands community needs and how to approach those communities - we need investment into these types of positions

Resources:

Indigenous Foods Knowledge Network:

https://ifkn.org/sites/default/files/IFKN_final_charter_network.pdf

ELOKA: <https://eloka-arctic.org/>

The Arctic Research Mapping Application (ARMAP, armap.org) and the Arctic Observing Viewer (AOV, www.arcticobservingviewer.org) are online applications and data services that support Arctic science by providing tracking information (who's doing what, when, and where) for Arctic based projects and observing sites respectively.

Principles for Conducting Research in the Arctic:

<https://www.nsf.gov/geo/opp/arctic/conduct.jsp>

A praxis for ethical research and scientific conduct in Greenland is a 2010 paper from Holm, Grenoble and Virginia

<https://pdfs.semanticscholar.org/6664/8c721ea2a5e5794b171f0606b4d94bc8b2d5.pdf>

<https://www.uaf.edu/caps/our-work/co-production-of-knowledge.php>

<https://www.uaf.edu/caps/our-work/policy-perspectives-files/PC-CAPS-Indigenous%20Peoples%20in%20Arctic%20Research-24Feb2020.pdf>

[parallel notes taken by A. Poe for group 14]

Land acknowledgements: Anchorage - Dena' ina; Syracuse University - Haudenosaunee; Cambridge, MA, the traditional territory of the Massachusett people; Santa Barbara - Chumash; DC - Anacostan; Nassau County NY - Nissaquogue; Princeton WV, Eastern Cherokee

What does co-production of knowledge mean to you and relative to your NNA Project:

Challenging because we are only there a short period of time and we've come to communities with ideas in place; have agreements in place with regional body but each community is different; had 4 community meetings planned for this summer--trying to navigate this now remotely? Feedback from community for example was 'you need to be here for 3 months to work with us' and realize this is not possible so trying

Last group talked about how building relationships is already hard and virtual may not work for remote communities without internet access but communities do have a tradition of teleconferences that folks are used to calling in on. Communities can feel overwhelmed by research interests and are frustrated that new researchers don't know what has already been done

Recognizing that there is diversity among arctic communities even just size range of communities and how to reach them; and there is also a diversity of interests

How different this method of co-production is in terms of the project needs; for example strengthening a research network is different an individual project; probably impossible if you are pre-defining research topics then coming into a community to work with them; prioritizing Indigenous voices and involvement in the project and the process; interested in seeing some guiding principles in for working with indigenous communities

What are some ways to show equity and reciprocity through these projects?

Bringing new technology to communities that they may be interested in (drones)--could technology be a bridge to learning how ways that communities might be interested in collecting information?;

Education is the center point for communities (Greenland example) so trying to find a way to give back in some lasting contribution to schools; this can be challenged by working through just teachers since many of these folk come and go in Greenland; so trying to figure out how to better contribute into communities in other ways

ELOKA example--a service provider for communities around ethical approaches to data management; allowing communities to decide how data is shared and managed; do a lot of thinking about technology but there are limitations particularly around bandwidth and access; drones do seem to have some unique appeal in terms of capturing interest but there are some issues that probably do need to be researched around technology

Individual people in communities often wear multiple hats having to be a community leader, researcher and policy interface too so there can be a lot of different connections to data and data needs; it would be helpful if more projects approached this as a research question--to understand what are the institutions at the local community level that could use data and information; social scientists can be especially useful at figuring this out.

If there are findings from your research that would work for communities be mindful of ways to do that with other communications pieces; example of the Point Lay 3 minute NNA video as doing this well; and these types of products are also useful to researchers--supplementing

What can NNA do to support co-development process in arctic research?

A lot of material available about what has already been done in that community--is there a way that NNA/NSF could help curate other science efforts have been done in other communities; even in this NNA cohort for example there are 3 research projects occurring in one community; here's one example of that right now shared at arctic observing summit: The Arctic Research Mapping Application (ARMAP, armap.org) and the Arctic Observing Viewer (AOV, www.arcticobservingviewer.org) are online applications and data services that support Arctic science by providing tracking information (who's doing what, when, and where) for Arctic based projects and observing sites respectively. Regarding data--what are the best forums/ways to provide data back to communities--could NNA program help figure this out for its researchers? Even a list of these existing resources could be helpful.

Regional science liaisons--is there a way to invest in positions that can be based in regions in the Arctic that could serve a role to help scientists connect better with communities and ensure their projects are done that are useful to the communities and promote equity

Also helpful to have a list of best practices for how to work with communities--here is one document like that:

<https://www.nsf.gov/geo/opp/arctic/conduct.jsp> another useful paper on this topic: A praxis for ethical research and scientific conduct in Greenland is a 2010 paper from Holm, Grenoble and Virginia. A resource bank of these types of documents--and recognizing that 'things change' so keeping these practices current

Group #15

Facilitator: Mark Hurwitz

Group Theme: Convergence

Rapporteur: Anne Garland

Notetaker: Ted Maksym

Group Members:

Ted Maksym, Anne Garland, Craig Allen, Marc Steiglitz, Alex Michaud, Breck Bowden, Laura Ray, Mark Hurwitz

DISCUSSION NOTES:

Q1: Challenges to NNA project to work effectively across disciplines to achieve convergence:

Sometimes not a shared vocabulary and terminology across disciplines
Different fields have different end points and outcomes they want to achieve, not just differences in tools

Resources need to be allocated specifically to build the understanding across disciplines.

Challenges in integrating different components given roadblocks like Covid-19, which impact timelines of different components in different ways.

A potential solution - can there be transdisciplinary training among project members, particularly students and postdocs? Are there resources out there for this?

Finding the time, particularly informal time to work together

Lack of shared definition of what convergence is, what does it look like, and how do you measure success? EPSCOR program may provide a good model for success.

Convergence includes the users of the information we are gathering. Facilitation of interactions are key.

Q2: What tools, techniques, or resources have been helpful in promoting successful research collaborations, and how may they be applied to enhancing convergence outcomes

Cross-disciplinary training workshops.

To make communication work you need to develop trust to overcome the different languages and goals. This takes time working together. This is maybe a "tool" that is needed to develop projects. When we get to co-generation of knowledge, another set of tools are needed, and Zoom is not enough. There is a center at U Maryland - SESYNC. Their goal is to bring together science of natural world with social science.

NSF research coordination networks

Even researchers who have worked in the Arctic for a long time, but based far away, it is challenging to build that trust. Is there a variant of RCNs that could be used to develop this trust. How do we maintain a full annual collaboration with people.

Antarctic program has a PO on the ice for a month or more; in the Arctic we don't have that presence. I.e. is there an opportunity for an NSF extension agent
Are there platforms like Slack where researchers in all disciplines and engaged communities can share input back and forth as the work is being done year-round, instead of just engagement when scientists are in there. This is a tool being used to bring multi-project teams together in other areas. Particularly using a tool the community is already familiar with.

Q3: How can NNA community work together to overcome existing barriers to convergence?

Mechanisms needed to force collaboration and foster emergent collaboration.

Zoom is limited; face-to-face is better.

A facilitator could help to “force” or foster these collaborations.

Possibly NSF can encourage coordination amongst the existing projects in some way.

We didn’t really converge on a great mechanism to encourage this.

Q4: NSF support for convergence research

NSF embracing higher-risk, higher-reward.

NSF’s support for working in global network of field stations (INTERACT?).

Can NSF support workshops so that funded projects with common themes/goals can work together, even if that means changing goals of individual projects somewhat.

Key outcomes:

Q1: Leaving time and space to develop shared vocabulary.

Q2: Building trust and maintaining communication long-term; not just when in the field (e.g. a slack channel or similar). Making sure you first build a robust framework for co-generation of knowledge is critical. Use communication tools that are familiar to the community.

Q3/4: This one was a challenge - need to put some work in here to better develop such means. SESYNC model is a good place to start.

[Per comment above Q4): Is this about NSF funding more “campaign” style (versus “collective” style) initiatives; i.e., gather proposals together then reconfigure to a common “super” goal?]

Group #16

Facilitator: Olivia Lee

Advisor: Raychelle Daniel

Group Theme: Community

Rapporteur: Don Anderson

Notetaker: Von Walden

Group Members: Von Walden, Mary Albert, Tom Ravens, David Porter, Don Anderson, Emily Kumpel

DISCUSSION NOTES:

Q1 - What does co-production mean to you?

Process should be iterative.

Best practices are a tool; focus on on-going challenges
Community members should lead from the beginning as Co-Investigators;
build in non-traditional rules
Difficult to bring different entities together due to working in AK.
Indigenous knowledge can help research
Working hard to co-produce surveys. Started with community meetings; different perspectives as to what's important. Survey design - how to study the natural system?
Co-production is joint search to solve problems between science and people who have live in locations (that have 1000s of years of knowledge)
Using planning grant, start with community meetings. But a lot of work has already been done; enough meetings. Now relying on key conversations with people to do potential work with. Action is now needed.
RCN about Arctic risk (erosion, flooding, ...), Need to be prepared for project to go in new directions (specific needs of communities can drive research)
Hoping to get insights on how to proceed given that different entities pull project in different directions
Research origination is important; conversations.
Understand what has already been done.
Pay attention to how you develop your research questions; both knowledge sources are important.
How to connect with communities (for those who don't already have them)?

Q2 - How can you apply the concept of reciprocity to research?

Making sure that people are paid fairly for their time, as you ask community leaders for their time (also paid to help write the proposal)
Transparency - find effective ways to share information and keep people informed
How do you have research projects continue in the communities after the funding ends?
Co-production at every stage of the research process
Writing science papers together, but also different styles of publications. (More diverse users and audiences involved than usual)
Working with Kaare, but he is very busy.
Mechanism is to engage in a way that locals are comfortable with
Leadership comes from both science lead and community leads in Greenland
Problem solving in engineering but also in just executing this type of research; academic in itself
Benefits from long relationship with locals
Is it appropriate to include salary for community leaders?
Some people in these communities are already funded to engage. But perhaps budget to include travel, ... to engage locals
Hopefully rebudgeting will be possible as investigators learn best practices

Good practice to ask up-front about funding for partners; some can accept, some can't

Might get suggestions from locals about who also could engage

Co-production should occur at all stages

In real life, it's the leaders of the communities that are important

Also need to work with community liaisons to make connections

Long-term relationships are critical for reciprocity

Q3 - What resources do we need to engage in collaboration and co-production?

Folks like Kaare are a great asset to all of us

The current call for a "community office" is great; coordination is needed

Avoid misunderstandings and misconceptions

Try to "limit science fatigue"

More training for actually how to do co-production of knowledge? Resources available.

Local customs; important to having community meetings

Make sense to reach out to local leaders; first point of contact; make a phone call instead

Sometimes there are possibilities with videoconferencing to reach more communities; enhanced internet within communities (wider reach)

Cultural humility is important; need to identify the appropriate mechanisms.

Grantees need help with this.

Coordination office is essential (but not at the expense of existing people)

Leveraging existing organizations; existing frameworks.

It is very important that Arctic communities aren't inundated by NNA researchers; a Coordination Office could be a buffer. (There are existing organizations in different regions, but these need to be made available to researchers.)

Essential to recognize regional and cultural differences.

Important to compensate indigenous knowledge holders.

Final Rapporteur Summary document:

Q1 - What does co-production mean to you?

Both sides are part of research origination; Pay attention to how you develop your research questions; both knowledge sources are important. One participant said that her research program came at the invitation of the community – she didn't think of the idea herself.

Recognize that you are often pursuing a problem where neither the scientists nor the community know the answer or solution, but both sides see the value in the other's contributions

Different complexity or nature of those contributions – can be equally valuable

Understand what has already been done, what outreach has been conducted by others already.

Recognize the need and value of connecting with communities (for those who don't already have those relationships)

Co-production should occur at all stages – proposal concept, proposal preparation, budgeting, data generation, data analysis and communication

Q2 - How can you apply the concept of reciprocity to research?

Long-term relationships are critical for reciprocity; some projects have this built into their projects more than others. Don't interact, then disappear; share information over time

Difficult to achieve the proper balance between research commitments and outreach and communication efforts; one way to do this is through continuous engagement, not just reporting out at the end of a project.

Good practice to ask up-front about funding for partners; some can accept, some can't; Get suggestions from locals about who also could engage

In real life, it's the leaders of the communities who are important; identify and work to include those leaders; leadership comes from both sides; they don't have to be PIs identified at the outset of writing a proposal

Need to work with NSF-funded community liaisons (like Kaare Erickson/UIC Science) to make connections

Q3 - What resources do we need to engage in collaboration and co-production?

Individuals supported by NSF can be critically important – e.g., Kaare Erickson, North Slope Science Liaison. But there is a concern that these key individuals will get overwhelmed with demands from multiple projects

NNA Coordination office would be very useful (but not at the expense of existing coordinators);

But it is also important to involve existing regional coordinating entities – recognize regional differences in societies and their receptivity to outreach and involvement; Essential to recognize regional and cultural differences.

Cultural humility is important; need to identify the appropriate mechanisms and approaches for communication. Grantees need help with this.

It is very important that Arctic communities aren't inundated by NNA researchers; a Coordination Office could be a buffer

Leverage existing organizations; existing frameworks (Sea Grant Extension agents).

Important to compensate indigenous knowledge holders and project participants. As a PI – the need for sustained team building and strong community relationships argues for sustained research support – need more than 3-year projects.

Group #17

Facilitator: Roberto Delgado

Advisor: Carolina Behe

Group Theme: Community

Rapporteur: Courtney Carothers

Notetaker: Johnny Ryan

Group Members: Shauna BurnSilver, Courtney Carothers, Johnny Ryan, Celso Ferreira, Dmitry Nicolsky, Karl Zinglensen

DISCUSSION NOTES:

Question 1: What does co-production mean to you?

Has to be in the context of process, coming together of ideas and people that can be quite different.

Reciprocal concerns and priorities, does not necessarily have an end-point

Has to recognize inequities, shared governance, sovereignty

Run into problems when research is already designed

Could take multiple years to design research before proposal is written and research begins

Equity, Indigenous knowledge focused on process, research has to be focused on process as well, different types of knowledge must be considered equally

Essential to define common terms/language

Bigger than Arctic

Difficulties include establishing relationships, continuity after project finishes.

What does it mean bringing together scientific and Indigenous knowledge?

Assumption that it converges

However, knowledge systems do not necessarily merge very well and it is OK if they disagree

Still useful to identify the differences

Elephant analogy (looks different from side and front but still an elephant)

quite useful as a starting point for discussion; but not as simple as this as co-production is a simple process where everyone brings their piece of the jig-saw puzzle and they fit neatly to make a whole.

It's a really hard process of bringing together very different knowledge systems with different histories; equity should be at the core. Recognition of historic and current inequities and deep ontological / worldview divides -- won't reach convergence, need to respect pluralism.

Have to be aware about our own discomforts

Lack of trust and respect is one of the biggest obstacles to co-production of knowledge

Trust needs to be rebuilt

Everyone expected to have conversations at someone else's table (equitable discussion)

Some people disillusioned by co-production because voices remain unheard, lack of equity

Question 3: Types of resources for supporting co-production

Do we need to shift attitudes?

We need to be able to be flexible in our activities, or even change budget depending on the needs of the community

NSF could lead cultural competency training

PIs take classes or have discussions about these ideas

Inviting and support for Indigenous scholars to part of PI meetings

Certification to work with human subjects could be implemented beyond the university level, best practices to become front and center

Dealing with legacies with previous researchers behaviour difficult to overcome

This takes time, hopefully this generation of NSF projects can do a better job

Funding to let community define how they engage with researchers

IRB could be more regional so can be governed by people in the region

How do we evaluate research impact?

Resources for project continuity

Question 2: Concept of reciprocity

Community level steering committees, people who want to be involved and are compensated for their time

Evaluate researchers

Courses for students to learn about community development and philosophies of engagement

IRB at UAF now includes specific training about Indigenous rights and knowledge in Alaska

Presently not much done in natural sciences or engineering

Difficult for some researchers to learn

Collaborative Institutional Training Initiative

<https://about.citiprogram.org/en/homepage/>

Most people used to sharing same worldview but need to be able to be open to other worldviews

We tend to underestimate the complexity within communities, language makes "community" sound unified, but actually there is a lot of diversity.

Group #18

Facilitator: Jielun Sun

Group Theme: Convergence

Rapporteur: Natalie Boelman

Notetaker: Natalie Boelman

Group Members: Andy Newman, Bruce Vaughn, David Bailey, Evan Thomas, Matt Druckenmiller, Nikolay Shiklomanov, Natalie Boelman, and Jielun Sun

DISCUSSION NOTES:

Question #1: Challenges our NNA projects face...

takes a lot of time to do this type of research
interfacing TEK with natural science data is challenging
must translate data from one discipline into a language that can be incorporated into a common model that includes data from all discipline
we speak different languages and have very different knowledge bases and even ways of thinking so we have to over communicate
natural and social scientists often have different notions of what 'scientific frameworks' and the resulting 'models' are for a given project.

Question #2: We find that it helps/would help to...

take time to define terms, clarify jargon etc. on monthly team calls or in some way
have project graduate students and postdocs from each lab group present on monthly project calls
have project graduate students or postdocs who are in/trained in an interdisciplinary program (ie. IGERT programs)
wondered if having geographers on board (i.e. broad training in both natural and social sciences)

Question #3: We could work together to overcome challenges by...

engaging with the IARPC community: the IARPC webinars are a great place to meet others in the Arctic research community
better defining what we mean by 'convergence research'

Question #4: Support that could be provided would be...

pulling together other agency lessons in a digested form so we can learn from the Arctic research community efficiently AND have discussions with others
a publicly accessible NNA postdocs, students, and job board
the NNA Community Office!

Plenary Chat Comments

- Could we talk about why we are *still* talking about these challenges....20 years later? How do we measure progress from a baseline? How can we work collectively toward tangible milestones and metrics of progress.
- by "communities" I hope we mean all Arctic communities, not just Native communities? Otherwise we lose broader buy-in for the Arctic as we are seeing more and more
- The way we assess the success of our projects and approaches is collaborative in and of itself. 'Measurement' of success is not one-size-fits-all. If you are doing co-productive or collaborative work, and community members are equal partners in the work, it is the team itself that determines if the co-productive process was successful. If only scientist team members think it was successful, but community team members don't (or vice versa) = not successful.
- I think that's more of a subjective metric that is important but I think metrics of success should also reflect tangible returns to a collective science that benefits our collective well-being, as a Region and a Nation. We can't forget that American taxpayer dollars are being used to support our work.
- We're including an adaptive workflow process that accommodates both quantitative and/or qualitative metrics. We are literally losing broader support for the Arctic because of narratives that create "us" vs "them" dichotomies. Native communities are capable of embracing many different approaches and methodologies. As someone who was raised in a "marginalized community" I'm hoping that, in my 50s, we can get away from the Native mind as something to be treated with kid gloves. Bottom line: no one should drop in and inundate another community. Period. The characterization of the "other" inevitably backfires in the end. Having experienced this first hand.
- NNA Coordination should include peer support option for communities themselves. That was one of the support needs our group discussed.
- SESYNC (<https://www.sesync.org/>) is the organization referenced.
- One of a number of synthesis centers based on the model for synthesis research pioneered at NCEAS (<https://nceas.ucsb.edu>).
- Heres is a valuable workshop I took part in at SESYNC that is relevant: <https://www.sesync.org/project/propose-a-workshop/indigenous-communities-promoting-social-and-ecological-sustainability-in> (Publications still forthcoming)
- Our Community discussion group had the same suggestion - a clearinghouse for community needs in search of researchers. Rather than researchers not knowing which communities might be interested in a question or problem.
- IASSA just published revised Principles and Guidelines for Conducting Ethical Research in the Arctic. <https://iassa.org/about-iassa/research-principles>
- IARPC: <https://www.iarpcollaborations.org/index.html>

- IARPC = Interagency Arctic Research Policy Committee
- If folks are interested in permafrost, please consider joining the IARPC Permafrost Collaboration Team:
<https://www.iarpcollaborations.org/teams/Permafrost>
- i always like to say that there is a need for multiple types of researchers - those that have an understanding a mile deep and one foot wide (those disciplinary experts!) and those that have an understanding a foot deep and a mile wide (perhaps those glue people?)
- There was a common theme that to achieve convergence (at whatever level you want to define that term), it takes time to develop common understanding and trust. That is hard to achieve with short term projects. What concrete examples can we point to that might be models for NSF investment?
- How about a map showing the locations of the various NNA projects?
- All NSF funded Arctic science projects are mapped here: <http://armap.org/>
- That map is VERY helpful! A map that was beyond just NSF-funded projects would be ideal... But that is a larger question, perhaps for IARPC and other non-federal funders to begin discussing with communities and others.
- Definitely a job for IARPC
- NASA ABoVE already has one on their website. I'm sure their project office would be happy to share the location data.
- "be vulnerable" - very much appreciated this insight
- ARMAP is a great resource - another great example, more on the local level, is the Barrow Area Informational Database (BAID)
- Does the map only show projects funded by certain directorates?
- Small clarification - ARMAP is not only NSF. It tried to represent all federally funded arctic projects. You can also filter by some Alaska State agencies as well
- This certainly seems like the year to consider local data collection and direct payment, especially if your data can be verified from afar. Western Alaska Partnership (was LLC) and Aleutian Bering Sea Initiative are both looking at how to stream line direct payment to communities and community members, as an idea.
- The [NSF] Arctic Sciences Section can help with logistics like these. We have a lot of resources to help with these aspects - so feel free to reach out!
- Great idea for international communication and collaboration
- SEARCH. <https://www.searcharcticsscience.org/vision>
- Another resource: <https://iasc.info/ASA>
- Arctic Council Agreement: <https://oaarchive.arctic-council.org/handle/11374/1916>
- US Arctic Research Commission - www.arctic.gov
- NSF Accelerating Research through International Network-to-Network

Collaborations (AccelNet) Program -

https://www.nsf.gov/funding/pgm_summ.jsp?pims_id=505584

Navigating the New Arctic (NNA) Investigators Meeting

Friday, 17 April 2020 | Online via Zoom

Day 2 Focus: Future Planning

Break-Out Discussion Notes for Session 2.1: Addressing Current Challenges

Group #1

Facilitator: Betsy Turner-Bogren

Rapporteur: Peter De Carlo

Notetaker: Maria Vernet

Group Members: Guangqing Chi, Katherine Duderstadt, Peter DeCarlo, Michael Livingston, Karen Pletnikoff, Maria Vernet

DISCUSSION NOTES:

**How has COVID-19 disrupted your project or field research plans?
How are you finding ways to adapt that could be relevant to others
in the NNA community?**

Short term, travel interruption. But what is the long-term implications, as the Inuit/Eskimo

Workshop related in the US: could we do it virtually? Not everyone has internet access. NNA meeting is a good example. Importance of taking it slow in future planning.

Travel replaced by virtual meetings, it is important to prioritize as we cannot do everything we had planned.

Difficult for young scientist, as post-doc work

Economic issues: is the source of pollution in Fairbanks going to change due to economic consideration, i.e. change the science.

Some programs already started at the end of 2019- 13 villages in Aleutian Islands.

Sharing information and data through the iCloud. Our program had lots of travel scheduled to our region; that travel has been cancelled, so we are regrouping to learn how to communicate with programs like Zoom, Google Sheets, Google Docs, and Google Share Drive.

cancel travel, go to virtual meetings when possible.

Some projects more affected than others, those depending on field work are more affected.

Challenges include changes in the science planned and the effect of delays on young scientists
Field work in winter of 2021 is still up in the air.

■ **Do COVID-19 disruptions present any opportunities for the NNA community to do things differently or to strengthen collaborations?**

Challenging us how to work with communities outside Inuit/Eskimo but “all” communities

Having virtual meetings will facilitate new researchers to the project.

No travel costs

More opportunities for new collaborations, i.e this NNA meeting - it shows this type of meeting can be very effective

Equalizing all partners, local communities and researchers now are in a level field- in the long-term it will make us more effective in carrying out

Chance to improve high-tech communication skills

Important to convert the lemons into lemonade

Significant impacts by COVID-19 and they will be long-term and take significant time to settle to new normal and to acclimatize to these changes

Big effects on transportation and local jobs with RAVN Air going bankrupt.

■ **How can you apply what you know/are learning about co-production and collaboration to this COVID19 situation? (i.e. in terms of relationship building, on the ground collaborations with communities when field work is cancelled or uncertain, using this as an opportunity to create longer-term modifications to how research is done, etc.)**

New research opportunities: end of May migrant workers coming to work in canneries.

Communities can build virtual capacity and will help us talk about emergent issues, i.e. sea level rise in New England communities.

Not everyone is sure how the long-term effects will play out. Still figuring out, local researchers could help, plan TownHalls in virtual setting.

Be flexible, willing to change plans

Need to develop backup Plan, this is similar to addressing natural challenges

■ **What could the NNA community achieve together over the next six months to a year given the current challenges and circumstances?**

Need for leadership within the NNA community. For example, what are successful examples?

NNA could use Slack to build up on the momentum built in the last 2 days. For example, to go from NSF’s approach from competition to collaboration and convergence.

Open new Slack channels on specific subjects. However new platforms take time to become part of the NNA community. There is a long learning curve.

Six months is a short-time frame, it would be beneficial to continue with NNA community support.

Top down effort will be crucial

Begin discussions about appropriate extensions and potential expansions of projects instead of an unequal application period

Technology is not available to a high level to everyone

NNA meeting often, maybe shorter, addressing specific subjects, sharing successes.

Internet service in local communities is key. For example, Anchorage connectivity could be challenging, more so the villages in Alaska.

Meeting planned for different personalities in the way information is shared: figuring out ways to share, acknowledging difficulty in internet access, or family voices, etc.

Importance of including different platforms and ways to interact, without losing the connectivity within the NNA community.

Homework assignment is valuable but not everyone could do it- important to highlight preparedness.

Unequal value of time in the participants...depending on funding. Do not overwhelm participants.

■ **How can these activities/actions serve as a stepping stone to what the NNA community might achieve together over the next 5+ Years?**

5+ years is too far off- we do know there will be effects but not sure which ones: more interaction through technology

Rural communities: charter flights that could have extra room to add freight free of charge, spend grant dollars in communities as COVID-19 will have a large effect in small communities "buy local".

Students with part-time jobs to pay tuition are facing similar challenges of seeing their source of income disappear.

Group #2

Facilitator: Bradley Barker

Rapporteur: Dima Streletskiy

Notetaker: Jessica Ernakovich

Group Members: Dima Streletskiy, David Bailey, Jennifer Schmidt, James Tempte, Jesus Alvelo, Jessica Ernakovich

DISCUSSION NOTES:

Disruptions from COVID:

Cancelled workshops, bad to lose the face-to-face connections, particularly hard in the planning phase especially when you have not met the community face to face.

Also, communities are very busy. Project meetings also cancelled, high north dialogue cancelled... perhaps moved online but major timezone problems (spanning AK to Norway).

Adaptation:

There may already be notes from community meetings and can possibly use those for planning.

Can NSF help with internet infrastructure for rural AK- many communities can't connect via Zoom, etc. This NNA meeting is awesome, a great opportunity to learn different ways of communicating.

Also, can possibly use this opportunity to think about deploying equipment and changing methodology to collect data autonomously (but need to get back for batteries and to retrieve data).

As possible, can engage with communities to help if you feel that it's appropriate given the circumstances. (And, if this can infuse cash into economy, this is great!)

Finding a proxy: social (work with community to collect your data, use previous meeting notes)

What could NNA community achieve together over the next 6 months to a year given the current challenges?

This should span beyond NNA and beyond NSF to reduce redundancies (with ABoVE, Belmont, etc). Maybe IARPC could help with this. ABoVE has a nice portal. Arctic Data Center is meant to be mandatory, as well.

NSF does have a portal to find what has previously been funded. But this could be better if it were more interactive (spatially and topically). Query by communities and also digging into abstracts there would be really helpful.

Adopt MOSAIC model: 2-week quarantine before on- and off-boarding. But, also need to consider whether the communities are allowing visitors.

NSF could be an advocate to get better internet for rural communities.

Adaptable funding structure: It would be good if NSF can be flexible for how funds are spent currently. Possibly, money for travel/data collection could be sent to a community member or company as a consultant. This might be especially pertinent for international colleagues and community members.

How can this serve as a stepping stone over the next 5 years?

We may all get much better at networking and team building remotely.

Does this delay afford an opportunity to educate community members on the "NSF process" and why there is this extra attention now?

More emphasis on slowing down and building genuine relationships, human connections not about the project. (A point was made about how some communities at the forefront of climate change likely feel this "COVID stress level" all the time.)

Need funding that can cross international borders more seamlessly. Maybe NNA can get more Arctic countries to be able to take part in these international efforts.

Group #3

Facilitator: Colleen Strawhacker

Rapporteur: Mary Albert

Notetaker: Breck Bowden

Group Members: Breck Bowden, Colleen Strahacker, Andy Mahoney, Mary Albert, Courtney Carothers, Lil Na'ia Alessa

DISCUSSION NOTES:

COVID-19 impacts on research

Being called on to do different things

Forced to lean more heavily on existing data

Revealing that there is a lot of misinformation on COVID-19

Revealing weakness in the way the public accesses sci info

Realization that attention on Arctic has disappeared

Opportunity: How can we avoid this in the future? Better Science/Community interaction/interface

May affect the focus and content of near future research workshops

Field work is pushed back.

Issue: Unable to talk with community leaders in places where internet is spotty

Delay in work due to inability to meet with community leaders

Impacts on early career could be an important issue

New opportunities?

Perhaps combine planning grant projects to reduce community meeting fatigue?

May have to shift our paradigm for how our work will proceed.

Get local observers to assist. [Perhaps expand their responsibilities?]

Foster independent nodes that can continue to operate independently.

Perhaps increase capacity to respond in the future?

Need to be clear about what we are trying to achieve

https://www.researchgate.net/publication/305501828_Best_Practices_for_Community-based_Observing_A_National_Workshop_Report

Research opportunity: How does the disruption of COVID-19 affect Arctic communities (health, economy, connectivity [Raven bankruptcy]) How do external factors impact/disrupt?

Applying co-gen/collaboration to the COVID-19 impacts

Put together a synthesis paper on this topic; e.g. Convergence topic

The ideal of opportunity for greater productivity (papers) is an illusion

All having to react to re-planning. Academics forced to move courses on-line

The way communities accept/receive info is different from the way the science community often operate

Many local communities have not even heard about NNA. Opportunity to reach out to communities to inform them about what NNA is. Opportunity for NNA-CO?

What can the NNA community do over the next few months?

Offer an on-line course in your area of expertise (sea ice geophysics, permafrost) University of the Arctic as host? For the future: NNA-CO?

5. How can this be a stepping stone to future activities

Develop curricula in Arctic Systems Science/NNA via coordinated on-line courses
Develop a “cohort” model for graduate students just entering into NNA projects now (following IGERT-type or NRT model) Another form of co-generated knowledge.
Perhaps NSF should think about developing an RFP relevant to this?

Group #4

Facilitator: Greg Anderson

Rapporteur: Aaron Poe

Notetaker: Anna Liljedahl

Group Members: Jana Pierce , Aaron Poe, Alex Michaud, Millie McKeown

DISCUSSION NOTES:

COVID19 disruptions:

Closing of Toolik, making contingency plans in case it won't be opened after July 1.

Cancelling workshops. Community lead monitoring efforts and planned to kick off with a workshop in Anchorage next week, which is now not happening. Trying to figure out if we can have a meaningful exchange online instead. 16 different collaborators.

Talking about climate and landscape change is not the priority for communities to discuss right now, COVID is the priority. (Can you talk about COVID and climate change??). We need to be respectful about what the actual concerns are for communities.

Cancelled fieldwork. Field seasons in Prudhoe (road system) and Point Lay (fly in). Fieldwork on the road system from UAF is continuing. Cancelled site visit to Point Lay. Probably won't be safe to Point Lay until 2021.

Not too optimistic to work with communities remotely. Working on a memorandum on the science collaboration. It is a challenge in developing the MOU as they do not meet in groups larger than 10 (due to COVID). They do not have good internet connectivity. Community really want us to come and visit to assess permafrost issues (once COVID is not an issue).

Question: Fieldwork may be improved due to a delayed season? If you are new to the site it would give more time to learn about the area.

Assuming communities are successful and preventing the spread of COVID19
People may be able to shift COVID focus--so may be a better window to work with them in fall.

How to handle the involvement of undergrads during the COVID situation? Work that can be done remotely will still proceed, even though that was not the original plan. Asking people during the hire how they feel about working remotely. If you have a group where one half is to work in the field and another on-campus, then you can have them meet in the beginning and then go out and come back and meet again.

Postdoc hires are delayed. Hire of graduate students will be delayed until travel is allowed.

Offices are closed, doing the best we can to work from home.

Travel disruptions, if it is allowed and if it is even worth risking the health of the local communities.

Cash problem in the community for the community to hire people to help in research

What tools, techniques, or resources have been helpful in promoting successful collaborations.?

Students can start with literature review etc remotely

Looking at a strategy "direct pay platform" as a foundation (Alaska Conservation Foundation) via Paypal, direct deposit, papercheck, venmo, etc. Hire local people who are willing and interested to do the data collection/monitoring. Ideally, leads to more engagement of local communities in doing science, while also reducing carbon footprint. Could be a small step toward co-production as relationships develop?

How to make sure it is done for the science needs and not only what the local community wants to do? Important to have a dialog so that both parties are onboard on the approach, that it interests both parties.

Matchmaking resources and efforts are helpful to enable direct pay platform
Each individual community provides travel restrictions (for COVID) is the best approach for the communities themselves. Communities suggest that researchers reach out to the communities about the travel situation.

Use of tent camps instead of hotel for fieldwork lodging

Connecting with schools remotely

How can the NNA community work together to overcome the existing barriers to convergence research and/or broader collaboration?

Encourage organizations to come up with restrictions/policy on how to deal with COVID travel to communities.

There is a need for clear guidance from organizations in regards to travel during the COVID so that people can plan. Unclear what the current guidelines are and how to interpret them. (ANTHC may be able to have compiled info on community restrictions?)

The communities are doing a great job in providing guidance, it would be helpful if NSF or USFWS etc and universities can aim for the same clarity, even if it means to just refer down to the local communities.

NSFs current COVID guidelines:

https://www.nsf.gov/news/news_summ.jsp?cntn_id=300302&org=OPP

Data collection sharing or specialized direct pay, such as hiring UAF researchers to collect data for non-Alaska based people

Identify a pay scale what is reasonable to pay local hire in communities

→ ***The COVID situation is creating an opportunity where the science community can increasingly engage with the local communities by engaging local hire (through direct pay) in field collection and monitoring. This also saves carbon emissions.***

Group #5

Facilitator: Helen V. Wiggins

Rapporteur: Ann Tickamyer

Notetaker: Madeline Midyette

Group Members: Bruno Tremblay, Celso Ferreira, Anne Garland, Natalie Boelman, Ann Tickamyer

DISCUSSION NOTES:

Disrupted field season - COVID 19

Look at data from previous field season - goals with data processing and refining models - extract and refine audio-visual modeling

Disrupted field season - allows time to go through last years data

Option to supervise remotely and continue with data collection for modeling

Long-term effort - Risk management

Plans are TBD

One scoping trip, and now on hold (planning to visit additional communities)

New data in year 2 + establishing new relationships with the communities

Hold on co-developing the objectives

Shift everything by one year? (NSF) - issues with timeline since post-doc on team and issues with shifting salaries

Mix of challenges and opportunities!

Opportunity to catch up and be more active next year

Hiring freeze for some - project managers are needed.

Balance of what NSF/institutions will allow

Impacts IRB permissions and data collection

Limitations with bandwidth - local communities might not have this established when working from home

Closed Facebook group - to communicate with the communities. Continuing education - questions - a popular option for some communities.

Contact with communities are on hold, even if some researchers are still in the field.

Long-term relationships are successful when built over decades - build trust.

Communities are skeptical of scientists coming in - they desire long-term relationships

Planning (maintaining relationships) by phone is an option. Some might not be comfortable but it is an option.

Science isn't a concern up there. Worried about staying healthy and alive - some find it disrespectful so limitations on interpersonal relationships and what is considered important.

Gauge receptiveness on continuing science on a one-by-one basis

Discussions don't necessarily end with a decision - develop over time

How has COVID-19 impacted your life vs. how does it impact your project.

Things have been dropped because they are no longer a top priority - priority shift

NNA Question -

meeting creates a sense of community

Community is moving beyond just the research group, and with other projects now.

Pop-up meetings - instead of leaving it up with the PI's or Co-PI's

Facilitated by NSF/NNA/other groups. A way to collaborate with smaller groups

Grouped by theme or topic (?)

Follow through on relationships after this meeting

Working groups - synthesis - BUT it is like having another project, except it isn't funded

Limitations - time commitment

Opportunities result in spreading everyone really thin. Maxed out with projects that are already funded. How would additional resources help? Possibly a NSF supplement? Hiring Post-Docs (?) NNA funded - thrown into NNA pot - find synthetic activities between projects. This way, it doesn't fall on the PI but on the Post-Docs with leadership experience

Opportunities for synthetic research have to be found, so that a plan can be made on how to move forward.

Sense of community is valuable - how to continue that over the next 6 months to a year - NNA Community Office

Until the office is funded - prep work for own projects, lay the groundwork for own projects

Adding more commitments isn't a great idea.

Adjustments for the short term - priority shift

Current networking has been profitable - longer time period to navigate permissions from the community

Have to think about homeschooling, childcare, teaching on Zoom, domestic commitments, etc.

Extensions to projects (?) - without hassle - plus supplement funding

This impacts the budget - no travel, but also spending money on other resources

Moving forward beyond the next 12 months

More Zoom meetings (now that we have more experience with Zoom)

Things can still be done while not traveling

Limitation with broadband access in the places where research is happening and at home institutions/ home

More extensive coverage for everyone

Group #6

Facilitator: Irina Dolinskaya

Rapporteur: Johnny Ryan

Notetaker: Lauren Culler

Group Members: Elise Miller, Karl Zinglensen, Hiba Baroud, Lauren Culler, Johnny Ryan

DISCUSSION NOTES:

Summary of main discussion points

Challenges: cancelled field work, recruiting students, online can't replace in person interaction/relationship building/cultural sharing especially with poor internet access/quality in the north

Opportunities: more time for modelling and basic science (embracing new datasets and analyses); building trust with community partners through relying on them to collect data; train students (and ourselves) to use and embrace technology and other creative approaches for 1) reaching a broader audience and 2) improving collaborations among researchers and with communities; develop online courses for polar science to engage more young students in learning about the polar regions

Actionable items: NSF could make it easy for PIs figure out how to shift budgets to pay community members as consultants; NSF or logistics contractors could invest in developing internet infrastructure that supports online interactions (this is helpful in the immediate and long term)

How has COVID-19 disrupted your project or field research plans? How are you finding ways to adapt that could be relevant to others in the NNA community?

Cancelled field work- loss of season for collecting data, running programs, building and maintaining relationships with partners and communities because virtual can't replace in person meetings (nothing comes close to standing on sea ice together sharing thoughts and ideas)

Recruiting has been main challenge, getting students to ensure they can start on projects due to travel restrictions (getting to the U.S., making sure students make it to campus by the fall)

Concerns about ramping things back up after such a major disruption

Not knowing how changes to timelines and job responsibilities (e.g., folks moving into faculty positions) will affect ability to do field work during academic year

Do COVID-19 disruptions present any opportunities for the NNA community to do things differently or to strengthen collaborations?

Opportunities to have people in communities do field work, or researchers based in the Arctic do data collection

Figuring out how to engage online- facebook offered as useful for keeping dialogue going; one project is working with teachers to have students do sea ice measurements (science and outreach combined)

Relying on NCE to shift field activities allows success with just more time

Opportunity to understand new science: connections between plant growth in the fall and sea ice in the following year, fall trip could be interesting to see how that TEK can inform sea ice predictions

Building online programs for science and education (JSEP is going online this year); this can broaden dissemination and participation since it's hard and expensive to get students to Arctic

Train graduate students in online teaching and mentoring

Testing how well online seminars, meetings, courses work

Time for more modeling, basic science, prepping measurements to share with community, continue to improve remote sensing, finding new datasets to work with

How can you apply what you know/are learning about co-production and collaboration to this COVID19 situation? (i.e. in terms of relationship building, on the ground collaborations with communities when field work is cancelled or uncertain, using this as an opportunity to create longer-term modifications to how research is done, etc.) See above

What could the NNA community achieve together over the next six months to a year given the current challenges and circumstances?

Help with internet infrastructure,
paying community members to help with research (make it easy);
discuss solutions that worked and didn't work;
share effective models for collaborating online

How can these activities/actions serve as a stepping stone to what the NNA community might achieve together over the next 5+years?

Better models for collaborating online that could facilitate community partnerships (if internet is available and not prohibitively expensive) and engaging broader audiences in Arctic research

Group #7

Facilitator: Jacqueline Vajunec

Rapporteur: Bruce Vaughn

Notetaker: Alice DuVivier

Group Members: Noor Johnson, Alice DuVivier, Bruce Vaughn, Jacqueline Vajunec, Marion Smith

DISCUSSION NOTES:

Challenges:

For community focused projects: In person meetings are likely impossible till at least late 2021. How can we engage people remotely without internet connections and what is our capacity to engage remotely. There is importance to being on the land or feeling of connection that in-person provides. For field projects: There is difficulty in planning field logistics when we don't know when these activities might be possible. Access to lab space for "non-essential" projects has been a challenge as well. All: For those with grant-funded salaries, if we defer a project, we must deal with how to get people paid in the interim. How to recruit students/personnel when access to buildings and in-person classes/meetings are uncertain for the near future.

Opportunities:

This pause gives communities a break to regroup without having to host researchers. There can be "fatigue" in communities engaging with scientists.

We now have more lead time for producing and testing technology to prepare for field season.

Flexibility of funds for students vs. established postdocs and such?

More time to work on manuscripts – Predict a bump in submitted manuscripts for those with enough data.

6 months goal ideas include:

Consider regional working groups of researchers for how to move forward?

Assessment of community needs to engage in remote research. Explore access to the Internet for communities and their interest in continuing any engagement? Explore co-funded support (redirecting funds from existing projects) for community liaison/research support.

Improve technology and central platforms. Approach the corporate world (e.g. AT&T) to provide access?

5+ year goals:

The Community Office type program will be helpful. Will this Timeline be useful?

Can we support communities and develop a new method for how to interact effectively? New framework and approach for working in Arctic communities at the end of this? Build and improve ways of paying collaborators to collect data?

Idea of a more centralized way to enter communities. Have health testing but also cultural sensitivity training. A bit more like the Antarctic program for entering the field?

Contingency plans for training local people can do the field-work. Needs to be above project level to support someone with full time salary otherwise they won't stay engaged. MUST have community engagement to determine how this could be done effectively.

What is NSF's goal? Produce the best science and engage locals? Or more of a cultural goal of changing how we interact and improve the lives of the communities in some way? How are broader impacts and intellectual merit really evaluated as co-equal?

Group #8

Facilitator: Anne Jensen

Rapporteur: David Emerson

Notetaker: David Emerson

Group Members: Carolina Behe, Craig Allen, Kevin Thompson, Nikolay Shikloma, Christina Poleachovschi

DISCUSSION NOTES:

Practical Discussion especially focused on challenges of working with native communities, primarily in Alaska, but also touched on Canada & Siberia.

Challenges:

Importance of understanding implications from Inuit and other natives perspectives, epidemics are not new to them and have been devastating in the past, thus need to respect their views on contact. Given this history native communities are likely to be very cautious in how they open up again. Major challenge is communication, normally best done in person to person contact with understanding of local customs around communication, which can be very different from our communication norms. Communication among communities will also be challenging. At this point there will be no cross border discussions between AK & Canada), 40 communities. Added challenge is technological. Internet connectivity especially with video is poor. Conventional comm. Is by radio, phone, mail; furthermore, major air carrier that provide services to N Slope has gone bankrupt, causing more difficulties. Communicating with native elders has its own social issues that don't translate that well to modern communications. Added challenges for new projects. How to contact communities virtually, especially without much previous experience of working with native comms. Challenge is in reaching out, but give people time, and don't be aggressive approaching native comms.

Opportunities:

Importance of knowing governance structure of local comms, this could be an opportunity for NNA researchers to step back and gain a better understand institutional context that is ultimately key to success. Communities want to be doing their own monitoring, however also monitor in their own ways - using their Indigenous Knowledge. Blending of 'indigenous knowledge lens with conventional science lens', are there opportunities to learn more about how this can be done. This is a special challenge, especially to long-term projects that maintain standardization of data collection. Use next 6 months to develop plans around using more native resources to how this can be achieved effectively. Given history of epidemics in native comms, Covid-19 is likely to be very cautious in how they open up again. Work with NSF to determine how and if virtual communication can be improved, and how this could be budgeted. Remember Inuit Communities are adaptable, underlying philosophy is that 'things will work out the way they should work out'.

Additional Notes.

Travel to many rural communities is not possible at the moment, it is important to understand the history of epidemics that have occurred in communities, to understand communities concerns and to take their direction on how they want to engage with the research community. Nikolay, danger of losing pan-Arctic observations. Will rely on community more, have a citizen science network that can tap into. Take some basic measurements. Grad student issues of losing their field data; this is a bigger

concern than losing data within the long term, since students need this information to finish theses, etc.

Local people have been a resource for working remotely in terms of providing field support. Needs training. People do need to be paid, requires budget flexibility.

Improvement of internet/remote access to native communities. Internet expensive in the arctic. Also not that culturally relevant. Is this a possibility? Could reaching out to internet industry help? NSF could help to understand the problem better and what resources could be available.

Alaska Forum on the Environment, each year, February, native comm. Gather there, good opportunity to get word out communities about possibilities for collaboration.

Inuit activities, major review meetings need to be stopped, wait a month to let people adapt; Inuit are adaptive people. Involvement will need to be done by phone & radio, not video; i.e. being adaptable. Importance of being very flexible and responsive to what the Indigenous communities and Indigenous Knowledge holders - aware of harvesting seasons and time. Understanding the importance of putting the health and well-being of the communities above the research - take direction from the community. Good communication with NSF, changing budget, less travel, more research assts in local comm.

Group #11

Facilitator: Kate Ruck

Rapporteur: Kirsty Tinto

Notetaker: Bill Simpson

Group Members: Don Anderson, Julie Loisel, Keith Musselman, Andrey Petrov, Bill Simpson, Kirsty Tinto

DISCUSSION NOTES:

Q1: Disruption by COVID-19, adaptation? What can we learn from each other?

Research cruise on Healy likely to be canceled. May have a 14-day quarantine. Visits to communities seem unlikely. Need to protect indigenous community. Other ship efforts also seem unlikely. Possibly there could be a collaborative cruise with funded local partners. Difficulty in connecting with not-yet established communities. It is working for scientists, but most likely much more difficult to connect with communities.

Need local people on the ground to tell about local connections.

NSF guidance provided for social sciences. Unethical to go to communities in this next window.

Need a personal contact before Zoom can work to have discussions.

Short term -- facing the question of what to do about postdocs / students who are being paid now when they cannot get data now.

Impact on collaborators is significant. How do we think long term? Can we shift to more local connections?

How do communities feel about COVID-19?

Until risk is eliminated, we should not be showing up and possibly making people sick.

Statement from IASSA: <https://iassa.org/news-archive/82-covid-19-statement>

Not every project can shift to working with local liaisons. Some rely on infrastructure like ships or local investments.

Q2: How do disruptions strengthen collaboration?

Because communities are sheltering in place, they are more interested in communication. Maybe an opportunity.

Remote communication is becoming more prevalent, which helps bridge the gap.

Q3: How can you apply what you know / are learning about co-production and collaboration to the COVID-19 situation?

Shifting emphasis to the local communities may be able to enhance collaboration.

COVID-19 is a question for food security. Indigenous knowledge may be key to survival of communities.

Possibly, there could be meetings in transport hubs that would allow members to meet but not bring disease to communities.

Working with Yukon River Inter-tribal Watershed coalition. Trying to build new relationships. Challenging to do the work due to seasonality.

Citizen science can be an opportunity here for people to work with communities and get measurements. That can allow science to go forward without local people. Maybe pay for training as a way to make this happen.

Utility of citizen science data may be very large to get local measurements.

Industry or agencies could be possible partners that could make measurements.

Q4: What can NNA achieve over the next 6 months to year given these challenges?

We can reflect on how we are working and a coordination office could help.

Maybe there is an opportunity to come up with a remote interactive program.

Need local people on the ground.

Maybe an NNA-wide effort for community interactions via remote methods.

Consider getting devices into people's hands to enhance connectivity.

Q5: How can these act as a stepping stone to the NNA community over the next 5+ years?

Why don't we try to build up a connection network. So that we can do more remote work into the future.

Rural campuses help to connect to communities -- e.g. Utqiagvik. Don't de-fund the existing infrastructure.

Opportunity for communities to reflect and consider if they want the researchers and for what.

How do we change our modality of operation?

Local capacity is key. Invest in remote capacity.

Coordination office could look at which communities need to have local people on the ground. Thus, the coordination center could answer the question of where to invest.

How will this impact next proposals? If there are established community liaisons, then researchers could reach out to those local people.

Maybe future proposals would have a one-year preparation period where PIs make community connections.

The local relationships should be enhanced so that we don't switch into remote sensing and don't visit the communities. NNA's model of community connection is important and we don't want to go back to flying over.

Planning grants can help us to establish communications.

Some communities rely on science visitors for the local economy.

Possibly a pre-proposal that could start an investigator into the NNA model could be a way to connect to communities.

Group #12

Facilitator: Kendra McLauchlan

Rapporteur: Evie Fachon

Notetaker: Chris Little

(other) group Members: Ted Schuur, Dmitry Nicolsky, David Porter

DISCUSSION NOTES:

COVID disruptions

Community meetings and/or installation of equipment are often a necessary first step -- COVID has stopped the ability to do this

(Some difficulty in connecting to local communities even before COVID)

"Misinformation on top of uncertainty"

In addition to cancelling travel plans, people are distracted and very difficult to connect to local communities

often communities are anxious about outside visitors and don't want exposure

We don't know whether NNA related activities are essential and whether they are "safe" or not, especially for local communities -- need guidance from NSF.

Some communities/governments, especially at the local/individual level, view some long term data collection, etc, as non-essential.
Cruises -- especially sensitive to COVID related issues

Adaptations

the types of adaptations possible, and the ability of a project to adapt, are dependent upon the stage in project and/person

Does this hurt the planning proposals more given the short time frame and the emphasis on data gathering?

Maybe, but would track 1 project change depending on what we learned?

Yes, says one idealist!

Working on developing curriculum, more time for planning (both for field work and for community engagement)

Educational components are being moved forward -- time to develop materials, and there's more users (e.g. teachers in Greenland) -- projects are reprioritizing field/outreach activity

Zoom meetings have engaged more remote people more than they would have been

Have also shown that you can do workshops as well.

Are there tips for engaging community without being there in person. -- yes and no.

how to reach out to a remote community

Can we interact with other groups to leverage what they've learned about the same communities/issues (see next section...)

Looking forward...

Community office: a role for coordination

leveraging connections for local communities.

defining what is essential or not

Have topical breakout groups, either in a bigger NNA meeting, or in a separate event, where the breakouts are by: geography, stage of project, scientific objectives/topically, stage of career, etc?

Follow up on the self-identification exercises that were homework for this workshop.

Group #13

Facilitator: Jonathan Wynn

Rapporteur: Ted Maksym

Notetaker: Melissa Chipman

Group Members: Sierra Hicks, Melissa Chipman, Ted Maksym, Jack Dibb, Abigail York

DISCUSSION NOTES:

Question #1: How has COVID disrupted plans? Ways to adapt relevant to others in NNA?

Example – marine sea-ice project - Testing under sea-ice in Prudhoe for proof of concept this August - schedule being compressed because cannot access lab to get the initial engineering work done.

Also, trying to limit impact on Arctic communities (in terms of Covid, safety) - we need to be cognizant of this when making plans

Looking for alternative field sites? – Possible lakes with ice (in this example)? Or someplace in Canada? Will need flexibility.

Engineering work and getting field equipment ready – time is really getting compressed to get equipment ready for field seasons because of lack of access to labs

Looking for creative ways to do work without access to labs (in personal garages and workspaces, networking with other people in one's dept.)

Liability issues with asking students to meet in non-university places to get things ready (some institutions do not allow this)

Lack of access to field sites make it difficult to get indigenous input at the front end of projects – worries that it will turn into a traditional research project (which defeats the point of the NNA and convergent research)

Field work delays are making projects difficult. Big potential impacts on students and post-docs who need to do field research. How do we deal with paying students this year when the work is to be done later? How will this impact time to graduation, new students? Particularly difficult for new faculty and institutions that rely on soft money support to fund students.

International fieldwork is especially difficult at this time - how to get everyone to meet in remote places with travel restrictions?

Question #2: Do these disruptions present unique opportunities' for NNA to do things differently?

Longer extensions / flexibility in funding - realizing that with these delays to field work, students may need additional funding since their entire projects are being delayed, and there may not be extra money to support them for more time.

Similar with post-docs, whose entire projects may be wrapped up in a field season that may not be happening until later

What about deliverables in projects that may be difficult to impossible to get now, given how so many aspects of the projects have to change? – we need creative solutions for this (and some leeway)

Reorganizing some aspects of the projects could work for projects that have non-field based components. E.g., starting with modelling components, etc

But note not all projects have this flexibility

Grad students may be able to do some work in their homes when living with other graduates (e.g., getting prep work done, writing papers together)

In lieu of Arctic field work – consider local work to train new students to make field work more efficient (when it does happen) - also a way to develop new projects, etc - downside is the deliverables already proposed in the funded projects

Can we coordinate student training across projects to provide more experience?

Question #3: How can you apply what you are learning from this situation to co-production and collaboration?

Make field campaigns more productive - think about ways we can get more bang for our buck in field seasons

Potentially improve helicopter/remote-travel support in later field seasons (ie, invest in additional logistical support to maximize field seasons that have to double up on sampling from time missed this year)

Slack channel where folks put up their fieldwork schedule/plans – maybe there is an opportunity for folks to help each other collect samples, share resources – similar to MOSAIC project, where everyone works together to collect samples – this is common in oceanography and on big research vessels – could also be a way to build new collaborations and strengthen existing networks

Question #4: What can the NNA do over the next 6 months to 1-year given the current situation?

Community office will not be established for while – but could be a way to organize these projects in a way that leverages opportunities' for shared field work and new collaborations

this upside is that all of this may make us work together in new ways - why not invest in that and make it work for us?

Also could encourage collaborations between groups in different areas (e.g., sea ice studies in Greenland and Alaska, and Russia)

Look at the broad research questions - create synergies with other folks collecting samples that may be useful to you, etc

Group #14

Facilitator: Stacey Stoudt

Rapporteur: Thomas Ravens

Notetaker: Ruth Varner

Group Members: Vincent Tomalonis, Thomas Ravens, Ruth Varner, Raychelle Daniel, Vladimir Romanovsky, Skip Walker

DISCUSSION NOTES:

How has COVID-19 disrupted your project or field research plans? How are you finding ways to adapt that could be relevant to others in the NNA community?

Disruption:

Short term -projects are impacted more than longer term.

Traveling to remote villages and other travel for collaboration has been limited. Have to choose sites with close collaboration with local communities so this is limiting if these relationships are not established and makes it less efficient and less useful.

Technology limitations for communicating with partners. Generational technological comfort differences. Easier to reach out to folks if you already have a connection; harder at critical part of a relationship.

Adaptation:

Be flexible and do interviews over the phone; Need to redirect travel funds to support the projects.

Remote mode of relationship building to choose field sites. Will be delayed in the project for at least one year.

Do COVID-19 disruptions present any opportunities for the NNA community to do things differently or to strengthen collaborations?

Opportunities the nature of developing a proposal is rushed and the pause provides the opportunity to lay the foundation more thoroughly; more comfortable moving more slowly to start this relationship building; learn who is currently there and who they can collaborate with; learning who is important with logistics. Time to access previous studies and less accessible data that takes time to obtain before starting the research in the field. More time to get communities ready for the research.

Now that we have heard about other projects - this is giving us time to refine what we're doing and take time to really think. Including how the research applies to other issues (e.g., climate change, economic occurring in the greater landscape). Great opportunity to address the **New New Arctic** we are faced with.

Development of field courses online and share the Arctic with more people - "What happens in the Arctic doesn't stay in the Arctic" to be able to engage the other latitudes with the kind of work we do and the importance of this research.

Sharing our longer-term perspective on what this kind of pause in work can be a good thing for developing relationships and other opportunities for education.

How can you apply what you know/are learning about co-production and collaboration to this COVID19 situation? (i.e. in terms of relationship building, on the ground collaborations with communities when field work is cancelled or uncertain, using this as an opportunity to create longer-term modifications to how research is done, etc.)

Touched on some of this in #2.

What could the NNA community achieve together over the next six months to a year given the current challenges and circumstances?

Work geographically to support and optimize and use our joint resources in the most wise way because we have time to do it.

Given the chance to prepare our actions more thoroughly. Keep talking to each other and plan together.

Noted that there were a few communities that multiple research projects were including/interested in working (e.g., Pt. Lay). We had a discussion about the opportunity to help alleviate these impacts on communities. And a discussion about “research fatigue” and what that meant.

Tie sets of projects working in the same places?

Or think about thematic projects that bring international together with the AK region - learning from each other.

Develop network/systems map to see how projects are related and get them talking to each other.

Support early Career folks as they develop their ideas.

Get involved in AMAP. Get folks involved in international projects. IASC working group project (infrastructure) would be good to be involved in (MOSAIC project now; <https://mosaic-expedition.org/>). UArctic opportunities for education.

Suggestion for November meeting - team work - various NNA projects should come up with a plan of collaboration that could be presented in the November meetings.

How can these activities/actions serve as a stepping stone to what the NNA community might achieve together over the next 5+years?

Regional and thematic groups could communicate, share and produce synthesis papers. Opportunity to rethink how you build collaborations and co-develop projects (with local communities and with other researchers) which will actually make this an important piece of funding.

Hoping the outcome will be that NSF will recognize that these things take longer - continue to support planning grants and follow on grants.

Improved technology and methodology for folks to be able to collaborate remotely.

Group #15

Facilitator: Mark Hurwitz

Rapporteur: Mark Serreze

Notetaker: Marie Lowe

Group Members: Andy Newman, Mark Serreze, Margie Turrin, Laura Ray, Julie Raymond-Yakoubian

DISCUSSION NOTES:

Question 1: How has Covid impacted your project?

Inability to travel and develop relationships: 4 different communities in Greenland: big impact not being able to go; stands in the way of relationship building.

Communities focused on youth and education; Alternative activities: tried to link with teachers and beginning convos around educational pieces—hoping to use as an entry point. Won't be able to do what we'd hoped to do. Didn't want to lose everything, but making some progress.

Computer modelers able to continue with work: Rain on snow: not affected too greatly; trying to build algorithm so computer work can be done remotely. Some activities delayed with international partners. But otherwise rolling along. LEO network: Alaska-Canada focus but mostly Alaska; local observation network Wondering how to handle hired staff, post-docs, and students: Regional climate side—just started ramping up in Jan, but was supposed to have a big field season this year in several villages; coordinating with villages on Yukon River for observations and measuring; hiring is an issue: post-doc and PhD students.

Need visa for post-doc. 5 year project so can absorb some of the delays.

Balancing other faculty and personal responsibilities with project management: Instructional and administrative responsibilities; everything takes twice as long as if it were live. Wonder if students will continue to pay tuition. If overall budgets are affected, need to re-think processes—indirectly impacts research. NSF supplements can help. 5 year project, still have to pay your people. What are our contingency plans?

Wondering how best to communicate with remote communities In communities: some people don't have internet at home; phone is probably the best form of communication; probably won't want folks coming until there's a vaccine. ASK THEM.

Question 3: Apply what you know about collaboration and co-production in this situation

Hard one: need face time with collaborators.

Misery loves company! Getting better on Zoom. Opened our eyes to using tech for collaboration.

One flash talk was great in how it used imagery with some captions—use different ways to tell a story.

Whatsapp—to use with international colleagues.

Important to reach out to collaborators and find out how they are doing. Ask your partners—what is feasible?

Be aware of differing access to tech

Question 4: What can the NNA Group achieve together?

Projects with overlapping geography and topics—how can we collaborate rather than compete?

Social media: dividing or uniting? Slack channels for similar projects? Feds can't use Google, Slack, etc. Be open to potentially new platforms. Pros and cons of online forums

Pro: Some utility and efficiency in online forums, redirect conference travel funds into research; Carbon footprint reduction.

Con: But we're missing out in sidebar conversations and productivity from face to face interactions.

Solution: Hybrid models?

Into future: Community formation/development around NNA topic is exciting and should continue.

Group #16

Facilitator: Olivia Lee

Rapporteur: Matthew Druckenmiller

Notetaker: Julie Brigham-Grette

Group Members: Matthew Druckenmiller, Mary Beth Jager, Ming Xiao, Liming Xiong

DISCUSSION NOTES:

What is COVID19 doing to your research

Impacts having in place meetings

No-cost extensions possible? What is NSF recommending?

RCN is not as impacted, but fieldwork is on hold; this will put off many projects for a full year.

Track 2 planning -- face to face meeting need to be rescheduled but there is a great anxiety about when face to face meetings can happen.

Do we have to wait for a vaccine for everyone?

Campus based projects slowed down by campus closures

Find ways to communicate beyond Zoom, phone calls, fax, and mail. Go low tech as needed. Some of us are "zoomed out"

Build relationships by caring about how everyone's doing; doesn't need an ask involved in making connections.

What are the new opportunities presented by this situation?

Ethics of asking local communities can do for field work given that they might also be sheltering in place.

Can we develop new collaborations with similar projects

Could we develop a mechanism to use this time to develop collaborations to reduce duplicate efforts.

Let's not be so hard on ourselves, perhaps accept that expectations have to be lowered for some projects.

What could we as a community achieve together over the next six months.

We can build community between projects and let's not forget about them after things open up and fieldwork can resume.

We can build trust now and not lose it; let's not break trust.

Is there a means for compensating the community co-collaborators for the extra time ; also for enhancing the capacity for telecommunications.

We should share information between groups as to how partners are funded for working on NNA projects

How has the collapse of Raven Air impacted travel to remote areas? How will the influx of researchers into remote areas as things open up jeopardize the needs of communities to get supplies and travel? Are charters possible and shared by more than one project.

How can these activities/ actions serve as a stepping stone to what the NNA community might achieve together over the next 5 years.?

What can we expect from the new coordination office as researchers vs what might the communities, tribes and villages expect.

Should we develop local community liaisons in the villages?

The liaisons like Kaare Erickson in Barrow/Utqiagvik be developed for other regions?

This would help with building relevance.

Relevance and clear messaging for the role of the NNA-CO

Group #17

Facilitator: Roberto Delgado

Rapporteur: Kaare Erickson

Notetaker: Evan Thomas

Group Members: Jessica Black, Kaare Erickson, Evan Thomas, Guy Paxman, Fritz Nelson

DISCUSSION NOTES:

1) How has COVID affected research or plans?

limited impact, had not planned on field visits

field work data collection concentrated on Aug/Sep, so uncertain how field work will be affected (Barrow/Seward peninsula, land-based permafrost); provided time to work on papers instead?

hard to predict effects: two components: 1) community outreach in Greenland and 2) physical data collection. Ship-based data collection may still be possible in near future, but community outreach may be more difficult

can we reach out to PIs via email, or Slack, or individually?

handle things individually through logistics contractor, or program officers, or case-by-case. Considering no-cost extensions, supplemental funding, additional support on a case-by-case basis.

is everyone subscribed to IARPC?

should try to promote IARPC as well for communication to PIs brought onto an NNA project on a planning grant (Track 2); had initial planning meeting just before COVID outbreak but year 1 was entirely meant for building community relationships in-person. Not willing to work without relationship, so recommend extension from NSF for researchers to build relationships

UIC Science has tried to coordinate researchers visiting communities so efforts are more streamlined; found that very useful and also received some support

ability to handle interactions remotely is a challenge depending on infrastructure and familiarity with tools like Zoom; field stations are being shut down but still trying to support research by encouraging remote sensing or engaging with communities while maintaining safety

relationships can still be built despite quarantine using Zoom, etc, and will try to get those conversations started; have obtained a group Zoom account. Willing to expand role to help support other Arctic or NNA projects if possible (eg deploying buoys)

very appreciative of Toolik Lake field station where skeleton crew is still trying to support researchers. Have several remote sites which are accessible via road, but due to travel ban want to know if 3rd party can be hired to continue measurements?

may depend on local guidance or laws

it goes village by village for quarantine rules but will look into it whether science work is considered essential

experiencing similar impacts; some data collection is less of an issue since work is remote, so should we shift more of an emphasis to that aspect of projects?

2/3) Do COVID disruptions present opportunities / enhance co-production?

reluctancy of scientists to put people at risks or even reach out; encourage scientists to instead just ask questions directly

NNA meeting has been a good demonstration of remote conferencing for large groups

20 years ago this would have been impossible; technology has allowed fairly normal discussion

how have people dealt with video conferencing with established collaborators vs building new relationships / trust? how feasible is that using Zoom or other remote tools?

we're all dealing with similar issues but only now discussing them across projects, could be due to competitiveness of proposal phase of funding. Once projects are funded need to be more proactive about communicating with other teams

NNA community office should help coordinate existing projects or new collaborations early on in the writing phase

what is NNA's duration?

originally a 5-year initiative, but committed to maintaining years of support

Group #18

Facilitator: Jielun Sun

Rapporteur: Tom Sharkey

Notetaker: Sylvia Schreiner

Group Members: Robin Bell Lamont, Xiong Zhang, Tom Sharkey, Tatiana Degai, Xueke Li, Sylvia Schreiner

DISCUSSION NOTES:

How has Covid-19 disrupted your project or field research plans? How are you finding ways to adapt that could be relevant to others in the NNA community?

Supposed to be working right now; most will have to push back fieldwork for one year;

Literature reviewing, pre-fieldwork modeling, etc. not affected; not possible to do most data gathering remotely

Projects that are already underway can inform participants/community members of the changes, and can work on data, etc. while waiting to be able to return to the field

Might be able to see whether the community partners could do more work than originally planned, and whether that might actually be a good thing in terms of getting them more involved

Do COVID-19 disruptions present any opportunities for the NNA community to do things differently or to strengthen collaborations?

This situation is leveling our situations in that we are all meeting via online platforms. More people might be able to take part in meetings now that they're online, since some might not have been able to travel to in-person meetings

Can provide researchers additional time to undertake review of the literature, plan, etc., this might benefit study design

Changed expectations of how we all interact on our projects (that is, online platforms, etc.) is beneficial--might help coordinate data collection efforts

How can you apply what you know/are learning about co-production and collaboration to this COVID19 situation?

Having community members more engaged with the research than even originally planned

Training of community members to "own" the research might be able to happen earlier than expected (might need innovative solutions for how to accomplish this training, if community internet connectivity is low)

What could the NNA community achieve together over the next six months to a year given the current challenges and circumstances?

If we take this time to collaborate among NNA researchers, we can hopefully avoid situations where researchers are reinventing the wheel or tripping over each other

We have more time and awareness to communicate with other researchers (especially for new projects who might be looking for more guidance)

Opportunity to exchange ideas between projects about how to accomplish communication and work with communities that don't have reliable internet access

Would maybe also be helpful to have some guidelines for this coming from NNA

How can these activities serve as a stepping stone to what the NNA community might achieve together over the next 5+ years?

Might be an opportunity to consider how to integrate insights from this time period into things like solicitations

An opportunity to grow collaborations between groups that might not have otherwise been unaware of each other

Plenary Chat Comments

- IASSA Statement on COVID-19 impacts and responses on social sciences in the Arctic: <https://iassa.org/news-archive/82-covid-19-statement>
- For an example of local support of research, look at: <https://www.arm.gov/tour/north-slope-overview.html> The site has been running with local support since 1996, and currently has 3 full-time local staff who handle day-to-day ops as well as troubleshooting, some calibrations of instruments, and also can act as hands for remote scientists. The site is operating normally at the moment.
- Another important contribution from Group 3 is the idea of developing curricula in Arctic Systems Science/NNA via coordinated on-line courses, and developing a “cohort” model for graduate students just entering into NNA projects now (following IGERT-type or NRT model) - as different form of co-generated knowledge.
- That's a nice link with education.
- Here is OPP's guidance re. COVID-19: https://www.nsf.gov/news/news_summ.jsp?cntn_id=300302&org=OPP
- And NSF FAQ: https://www.nsf.gov/bfa/dias/policy/covid19/covid19faqs_proposerandawardee.pdf

- I mentioned this article to many in my breakout groups. I assign it to my graduate students and I found it resonates across groups and peoples. Here is the citation for the article if you can't download the file: Harris & Wasilewski, 2004, Indigeneity, An Alternative Worldview: Four R's (Relationship, Responsibility, Reciprocity, Redistribution) vs. Two P's (Power and Profit). Sharing the Journey towards Conscious Evolution
- one more point: the importance of broadband access which is lacking in so many of our communities, in the Arctic but also in rural areas of the mainland.
- Here is a good one for the next data session - and bonus, its an open source downloadable book on Indigenous Data Sovereignty: <https://press.anu.edu.au/publications/series/caepr/indigenous-data-sovereignty>
- Another good link for materials on Indigenous data sovereignty <https://usindigenousdata.org/papers>
- I find this article very relevant to current discussions: <https://www.nature.com/articles/d41586-019-03534-z>
- one last thing was looking at new ways for training for students and post-docs. So this echoes what was written above about a grad student cohort effort. But also there can be inter-project training and sharing of resources and efforts.
- I think Skip Walker's project has an internal collaboration plan... so, think they might be a great resource for any ongoing discussion around an overall coordination plan across projects.
- This makes me realize that we need to write an overall collaboration plan for the Permafrost Discovery Gateway with other NNA projects that are interested.
- At UMass-Amherst, all research budgets have been frozen and we have to petition the Dean to spend anything. Is any other University doing this? Anything that is not absolutely needed before July 1 is being refused, including hiring.
- UNH has done similar, freezing all purchases and hiring. However, we have been told that waiver requests to spend grant funds should be nearly automatically approved.
- that's interesting. We're soft money, so need to charge something, but nobody knows what yet. There have been suggestions from OMB that we maybe can charge and just not get the work done, but that is pretty undesirable to say the least for many reasons.
- There has been no impact on research budgets at Washington State University (yet...). Feeling fortunate right now!
- The NNA slack channel will remain up and in use (we encourage you to participate after the meeting!) up until at least the meeting in November.
- I am curious whether the idea of trying to get community partners or "local" 3rd parties to do some of the work is realistic. Are their movements not also restricted?
- My sense is that might be a mid-term step after immediate social isolation restrictions are loosened but before they want to allow outside visitors into communities.
- Alaskans are fairly open to travel outside alone or with only household members, so, yes, most Alaskans can go to where the biological and physical data is.
- good news for AK, but some of these projects have plans in Russia, Greenland, etc

where things are still more restricted.

- NOAA researchers right now are having a conversation with their unions about the safety of working on ships for weeks even if NOAA says its safe
- We heard many suggestions for the new coordinating office. Can these suggestions be shared now with those who are planning to submit proposals? Its awkward because the RFP is already out there.
- The suggestion to develop an IPY-like "honeycomb" for the NNA projects is a good idea. The NNA-CO office should go beyond that to facilitate develop substantive interactions among the NNA projects and promote these interactions to the public.
- That could be a useful way of seeing your own projects' metrics and where there may be overlap with other projects.
- At this time, according to WHO, positive antibody test does not necessarily mean reinfection isn't possible
- I loved those ideas about building capacity. Any ideas for making those connections for new researchers?
- I think this is where making connections amongst projects is key (and NNA and the forthcoming coordination office can provide leadership to do this). Some have people with decades-long relationships that can be leveraged by those without those strong relationships to help establish contacts
- I think COVID19 is a great opportunity to partly change the course of how science is done, in a good way, both for the cost of the project, carbon emission, money to communities, and last but not least, strengthening the relationship between scientists and communities.
- Another "problem" with relying more on local help is that it is difficult (maybe extremely difficult) to use NSF \$ to pay locals that live in other countries (Canada, Greenland, Russia...)
- How do we avoid a mass rush into communities when travel restrictions are lifted? My question is about trying to avoid overwhelming communities whether with visits or the initial contact to try to schedule travel to communities.
- Coordinated efforts of field trips are important. For the coordinated effort of field trips back to various boroughs in Alaska, to begin with, set up a Google doc for the trip plans from each project, for this and next year.
- I think this is more complex (and important) than can be conveyed in a Google Doc.
- Good suggestion regarding coordination of NNA field travel, but bear in mind this will only capture NNA research
- NSF could ask that NNA PIs show a local invitation for rural travel.
- Expanding local hire would reduce the rush.
- We need to stagger it when we can. We all can't go in the summer, for example.
- I think this would be an excellent topic for a follow up discussion convened by NSF/ARCUS. (Per earlier suggestion that we develop some working groups as follow up to this meeting).
- I don't think we should leave it to communities to have to carry the burden of sorting this out.

- Kawerak's Board is about to release a statement regarding research and travel into communities in our region. They will be recommending that no region travel/meetings/research take place through the fall, possibly longer. And that all physical contact with Tribal members (be it in a village, or at a meeting in ANC that requires travel from villages) must be approved by the IRA in advance.
- I like the idea of NSF/ARCUS helping.
- I like the idea of NSF/ARCUS coordinated working groups that combine both early career and experienced researchers with Arctic and local community experience organized either topically or geographically as far as a research/project area.
- But, the NNA-CO is still under proposal submission phase. It'll be a while for it to be in place.
- This seems like a task for the Arctic Data Center. Users should be able to query all NNA groups, then subset according to location and/or keyword.
- We have worked in the past with Axiom Data Science based in Anchorage to develop a tool to share simple information about planned research trips via an interactive map portal
- Needs to include other projects than just NNA to be truly effective
- Then perhaps ArMap...
- ...or the future "Arctic Discovery Gateway" at the Arctic Data Center
- I think there are several levels of coordination. One is similarity in scope, one is similarity of region (so possible sharing of logistics and field efforts, even if projects are quite different. This will ease impact on the community). Another is just leveraging the experience in the community and community contacts
- Scientists also get thrown in the same pot as contractors.. and they come and go, usually without regard
- I think we use the "quiet" time to start to explore an effective mechanism of coordination. Need several people who have experience to take the lead.
- It strikes me this could be approached as a one or two mode stakeholder network analysis (using locations, projects, and topic areas) as possible ways to organize NNA projects and think about coordination?



Navigating the New Arctic (NNA) Investigators Meeting

Friday, 17 April 2020 | Online via Zoom
Day 2 Focus: Future Planning

Break-Out Discussion Notes for Session 2.3: Data Sharing & Community Office

Group #1

Facilitator: Betsy Turner-Bogren

Rapporteur: Raychelle Aluaq Daniels

Notetaker: Tom Sharkey

Group Members: Xueke Li, Skip Walker, Raychelle Aluaq Daniels, Aaron Poe, Tom Sharkey

DISCUSSION NOTES:

■ What strategies for data sharing across the project teams are Needed?

Planning for open-access to the data, modeling, and simulation resulting from work.

Wide range of data in projects; each discipline submits data to Arctic data center.

Produce data reports annually to summarize where projects are at each stage.

How can we coordinate across different disciplines?

Be specific in “work flow” of data in terms of how one discipline’s data feeds into other discipline’s works for a specific project; A picture of how projects are related to one another could help to do a data work flow over all NNA.

Need to understand if and when indigenous knowledge is incorporated into the data and it is important to communicate how this indigenous knowledge will be shared with other researchers and how it will be shared back with the community.

Who is doing what and where? We need to answer this as a precursor to data sharing.

■ What kinds of data/information do projects currently need to move their work forward?

Planning for open-access to the data, modeling, and simulation resulting from work.

■ **What additional data/information would be useful to help the NNA community produce new knowledge together?**

Need to understand how the projects fit into a broader landscape of projects in order to know who to connect to for data.

Introduce the idea of data clusters across projects.

There is a lot of data outside of the NNA community - how do we access this and become aware of the depth of the information that is already there?

How do we bring different knowledge systems together: there needs to be a better understanding of different disciplines and worldviews in terms of data, gathering approaches, etc.

Need to recognize that there is not a single place where past data is available.

■ **What other tools, activities, support services, etc. would the NNA Investigator community like to see implemented by the new NNA coordination office?**

Indigenous knowledge typically needs to be gathered through conversations and in-person connections - how can we make this information more available to scientists? It probably does not make sense to have a single NSF coordination organization since knowledge varies so much across regions - maybe build out capabilities of local indigenous organizations to gather this type of data if the communities are interested in this type of situation.

Resources for early career investigators to make connections to communities for data gathering.

We need to start standardizing data formats, especially as discipline X tries to access data discipline Y and/or use. This may not be possible across all disciplines and fields but can we start understanding best practices across pairs of disciplines. Can standardized archives be achieved across the circumpolar north?

■ **How can the community stay connected and continue working together before the NNA coordination office is in place?**

Map of where is everyone is working.

Make sure proposed connections are both for scientists and community members.

How do we visualize the connections and linkages between the different projects? There are lots of different ways to have "links" - community sites, research themes, species of focus.

Specific tool: mail-list of all NNA participants.

Our group voiced concern over slack - 5 of 6 of our group had this as our first time using it and had concern over the learning curve required to really

understand it. The 1 member that did use it previously said that it was best during really, really busy times.

■ **What would you like to see happen at the next NNA community meeting being planned for the fall.**

Between now and then, have each NNA project identify “must-meet” projects during the event and maybe organize sessions to make these connections for. Have community members that are going to be working/interacting with multiple projects should also be invited.

Other researchers that aren’t NNA currently.

Maybe make it virtual? This one really went well.

Group #2

Facilitator: Bradley Barker

Rapporteur: David Bailey

Notetaker: David Bailey

Group Members: David Bailey, Breck Bowden, Alice DuVivier, Elise Miller, Andy Newman

DISCUSSION NOTES:

■ **What strategies for data sharing across the project teams are needed?**

Metadata database. So many places. Discovery problem. Some sort of map. Making connections. DASH/Climate Data Guide. One stop shopping.

■ **What kinds of data/information do projects currently need to move their work forward?**

Social science data / traditional knowledge. Information on other projects. Overlaps. Guide to what people are collecting. Location of vessels. AS Hub. Satellite. Polar Geospatial Center. Cubesats.

■ **What additional data/information would be useful to help the NNA community produce new knowledge together?**

NNA coordination office. Not reinventing the wheel, by creating yet another data center.

■ **What other tools, activities, support services, etc. would the NNA Investigator community like to see implemented by the new NNA coordination office?**

Resources/liaison. Map/central guide. Maybe not the bandwidth? Existing data center? Central list of data centers/resources.

■ **How can the community stay connected and continue working together before the NNA coordination office is in place?**

IARPC webinars. Slack workspace. These meetings. Smaller zoom networks / email lists for overlapping interests. Working groups. Quarterly pop-in reports. Short project reports, maybe across all groups, but more informal.

■ **What would you like to see happen at the next NNA community meeting being planned for the fall.**

Virtual option still? A lot of overlap in the breakout reporting. More targeted breakout groups. Call for breakout sessions. More focused breakout on related topics. The information in advance wasn't used as much. Learn more about individual's topics. Length of days. More outside discussion time. Engagement activities. Fun games almost. Free thinking.

Group #4

Facilitator: Greg Anderson

Rapporteur: Michael Livingston and Alex Michaud

Notetaker: Matt Jones

Group Members: Greg Anderson, Matt Jones, Courtney Carothers, Alex Michaud, Anna Liljedahl, Michael Livingston, Millie McKeown

DISCUSSION NOTES:

What strategies for data sharing do we need across projects?

Unique strategies for sharing are needed at project front, middle, and back end; coordination of fieldwork already discussed; during analysis also needs sharing; Arctic Data Center currently covers traditional data preservation and that support could be expanded to enable more science end of project archival and access is clear, but do we also need access to in-process work during the project
different projects may need different types of data; creates a barrier;
Massive amount of diversity in projects and data; necessary heterogeneity and arbitrary heterogeneity (we didn't coordinate enough - this one can be managed if coordinated in advance). Starts at the proposal stage. Core set of data required to address questions/hypotheses. Input from data manager -- once a project already formed, it's hard. Need disciplinary standardization -- some fields have agreement, others fields haven't.

R-MAP (?) - coordinate protocols before people have started collecting data. These are long term challenges.

Data collected from different knowledge systems can also create incompatibilities

forethought to data sovereignty issues; respect and ownership and attribution issues

Data stolen from the Aleutian islands, without credit/attribution

What is the relationship to NNA goals for data sharing for building future resources?

Attribution is often to the researcher rather than the original knowledge holder; the original knowledge holder should be named
Anthropology and other SS disciplines moving to support co-authorship and knowledge co-production in promotion and tenure processes

Example of model kayak builder's work being cited under the buyer rather than the original creator

also need sharing support within project teams

Via local universities/EPSCOR offices?

Arctic Data Center can help with collaborative sharing during projects as well

Build in a slack-style tool into an online data sharing and collaboration platform as well

Use AI to make connections between people, projects, and data (so much info out there, need help to discover it all effectively)

Communications infrastructure in local communities and field locations needed to effectively connect those areas

NNA programs also have huge data challenges as well that stress even the best University systems and networks

communications issues and bandwidth needed in communities; trying to use Zoom; trying to get fiber to specific communities;

one size won't fit all; NNA program needs will range from petabyte data in massive Univ systems to extremely dispersed, low bandwidth connections to communities in the Arctic;

communications affordability is a huge challenge in communities

What data considerations should we be thinking about in the planning grants; e.g., UAF IRB says planning grant not "research", but lots of qualitative data will be generated from the planning grants -- on the research ecosystem and indigenous knowledge, and issues like decolonizing science, etc.; how to best capture and share these kind of data; recording meetings can be chilling to conversation; different perspectives on sharing and participation in these social science interviews and transcripts; how as a planning community can we come together and share what's being learned in the planning grants?

IRB is focused on ensuring anonymity and confirming confidentiality; assuming desire for anonymity is a western

construct; others want their name attached to their story; we ask everyone who participates in our projects - do they want to be named and acknowledged/thanked for their participation or not?? Interview shared at different levels? If shared w/ public in archive, the consent to share is pretty standardized.

Still could use more standardization & best practices across geography, economics, anthropology, etc.; maybe additional review, and IRB-type review organized by NSF?

NNA itself as a program is an example of science projects not connecting with the Arctic local communities;

Are Memoranda of Understandings common? Could they help between and within projects? Perhaps have proposals/projects write MOUs instead of statements of work?

NSF ideas labs to generate approaches in a meeting to discuss rich ideas; walk out with 4 or 5 fundable projects; requires trust to develop

Community office, should it have come before the NNA call itself?

For NNA, the ideas are new ways of doing business, too hard to solve with prior programs

How do we stay connected?

participate in existing programs, ARCUS, IARPC, IASC Arctic Data Committee, etc.

Use and build upon existing software to build an online platform that can enable collaboration within and between NNA projects, create an online "collaboration ecosystem". There is especially a need to support collaboration at the "middle stage" of a project.

COVID-19 and villages issues need to be communicated and organized centrally before the community office forms

Can ARMAP help share this type of logistics and planning information

Summary: NNA projects are collecting vastly different types of data that needs to be attributed, stored, and shared in different ways. Establishing consistent methods, where possible, will improve the impact of all projects. NNA projects also contain sensitive data that may be subject to IRB or require attribution to the appropriate source (especially important considerations for Indigenous Knowledge). NNA is also producing lots of data that will require suitable storage facilities and sharing capability that is sometimes not possible to remote villages where internet access is a challenge. Need data sharing solutions that span these diverse needs and situations. Participation in existing programs like IARPC, ARCUS, and IASC/SAON groups can help connect our communities for sharing data and information.

Group #5

Facilitators: Helen V. Wiggins & Carolina Behe

Rapporteur: [Karen/all to chat/raise hands]

Notetaker: Marie Lowe

Group Members: Anne Jensen, Madeline Midyette, Helen Wiggins, Carolina Behe, Maria Vernet, Tatiana Degai, Marie Lowe, Laura Ray, Karen Pletnikoff

DISCUSSION NOTES:

What kinds of data/information do projects currently need to move their work forward?

Indigenous knowledge data needs to be treated differently.

NSB has list of propriety information about traditional (archeological) sites that they likely won't want to share.

Recorded interviews—need to figure out a way to preserve and preserve. Who should be holding access to permission to the data?

Multiple factors to consider. Ethics important.

How do we best convey traditional Indigenous knowledge in contemporary research settings?

What are the communities' data information needs?

Let's not make assumptions re: data. Every community is going to be different and they need to be consulted. Data sovereignty plans need to be reviewed. Communities need to know what the data could be used for. Honesty is important.

Need sharing of methodologies in how to collect and share Indigenous knowledge. Indigenous knowledge is not a commodity.

NSF: ICorps program—realizing broader impacts of the research

Sometimes it's a struggle to create research products that are usable by local communities

Need for NSF to understand how hard it is to archive personally identifiable, qualitative data

NNA-CO Office and Next Meeting

Coordinating Office: Needs to coordinate these discussions about data sharing, best practices for incorporating, preserving, and protecting Indigenous knowledge

For the meeting: More Indigenous participation

For the meeting: Maybe concentrate on a few important themes

Group #6

Facilitator: Irina Dolinskaya

Rapporteur: Richard Camilli

Notetaker: Richard Camilli

Group Members: Irina Dolinskaya, Nikolay Shiklomanov, Noor Johnson, Robin Bell, Richard Camilli, Abigail York

DISCUSSION NOTES:

What data would we want to share and how?

- Sharing of logistics information for field work

- How/why would this be different from existing tools/data available the Arctic Data Center and others such as

 - Data management

 - Websites

- How to integrate/assimilate/access international data (e.g., Russia, Canada, Denmark)

 - Certain scientific data sets can be sensitive because of strategic/national security issues

- Diversity of data can make archival and dissemination difficult

- Sharing/archival of social science data can present its own sensitivities

Requirements/useful sharing based on

- Arctic field studies this season

 - Unlikely

 - Potentially use alternate study sites? What would this require?

 - PIs should coordinate closely with their program officers to maintain flexibility and maximize probability of success.

- No field season

 - Can there be coordination for improved scale of economy for logistics & field operations?

 - Adapt strategies for indigenous communities to continue operations, including additional training, rebudgeting to provide travel money for local communities to continue operations at study sites. Empower indigenous partners.

 - Share strategies to improve coordination/ coordinate support with community partners.

 - Align the way data is collected

 - Potentially coordinate funding so that participants may achieve "critical FTE mass".

 - Request convening of open working group by NSF/Arcus to coordinate pre/post summer field season in 2020

 - Maintain communication in advance of November to improve collective knowledge base

 - When delayed field programs come back on line they will be operating with less situational awareness,

 - how do we maintain science support infrastructure

 - maintain updates regarding environmental state, community

 - Is it necessary to centralize this information and convene a followup coordination meeting?

Rethink research methods, e.g., re-use existing data

Group #9

Facilitator: Jonathan Wynn

Rapporteur: Mary Beth Jager

Notetaker: Michael Mandel

Group Members: Keith Musselman, Michael Mandel, Jessica Ernakovich, Margie Turrin, Mary Beth Jager, Kaare Sikuaq Erickson

DISCUSSION NOTES:

communication/collaboration between projects is tough because funding is so competitive. In the proposal development phase, there is no sharing of ideas because of the competition. Then once they get funded, they bump into each other. There has to be some sort of communication at the proposal level.

scientists are reluctant to release data before a paper is published. On another project there is a big push to get data out immediately. What other suggestions do people have? What kinds of data are being collected between the different projects? Social sciences, atmospheric, sea ice, etc.

I share data once it's published, but that's not what we're trying to do now. But people are worried about competition, but also feel insecure that their data isn't cleaned up enough or isn't nice enough to put out there.

We had that issues with some gravity data that we had, two different collaborating groups wanted to do different kinds of processing to the data. Processed data isn't useful much later, you want to go back to the raw data so you can make your own assumptions and run your own consistent analysis on the whole thing.

Another reluctance later is a worry that you might be proven wrong or shown to be making a mistake, cutting corners.

different philosophies: some people want to get it out there and get comments on it, other people want to collect all of the data in the world and get a complete story.

it's hard to know what other data is out there. We work with climate models and try to get our data out there as soon as possible. Knowing who needs that data and who would use that data would be very helpful. Also use other things as inputs, e.g., mapping permafrost, if there is a better permafrost model, it would help us.

There is a scholar at Univ Ariz, she has been working with indigenous scholars on things like coproduction. Are the communities getting the data they want? Can you protect certain sites that shouldn't be open? CARE principles and SHARE principles for figuring out how that would work on the ground.

at AGU in december there was a poster someone was presenting from work in an indigenous community and they were unable to share some data because it was sacred to the group they were working with.

we do have things like that. ELOKA is another good resource for that at UC Boulder. When there are products, it is not publicly disclosed and people who are authorized are given access to it. We have a document where everyone in it has approved being in it.

When companies fund work we allow them to say that it's proprietary. "Well, they did the R&D for this, so I guess it's ok." So would be good to consider the same for indigenous information.

everyone on our team has worked at many remote locations (not next to a village), didn't already come in having relationships, so what our researchers need is to know how and whether people in the arctic want to know more about it and want to be involved. Say, "Who would be interested in permfrost information?"

Related to discussion earlier about map of resources.

Would also be good for community members.

Looking at rivers and impacts of climate on communities, fish, and river ice. We're actively trying to find communities who have concerns about river ice and communication. Can we use participatory mapping for ice corridors that are useful. And fisheries information. Working with USGS, Yukon north to the arctic ocean.

What we have in Barrow, Toolik was located conveniently away from communities, in Barrow we are located in a community. The history of science in the north slope started in the 1800s, inherited naval station in the 1950s for science, use personal knowledge to help the scientists. We provide a lot of education to scientists as they come in. Have very strict rules on land use permits, forces the scientists to work out kinks with the communities, full system model. It's a good model, but if you don't have a research campus and the infrastructure, it's hard to do this. It's a bad thing for the big picture because it's unique. The Navy built this for 1000 people, no more of those around. Want to develop online platform for education and orientation for scientists and PIs about specific villages and communities. A community engagement platform to provide scientists with rentals, people to work with, captains licenses, etc. It's hard to know when you're doing a proposal who to contact. Over 1000 native organizations in Alaska. Provide early career advice. There is just so much responsibility attached to this. Native community engagement we have covered, but data sharing between scientists is too much to bite off. Might need to be a consortium of institutions outside the Arctic. I am an anthropologist by training. It sounds like you have a lot of resources for the community and invite you run a community office

I would second that. There are university partners who would like to do the data part.

Having this office would give you more support as well

What other tools, activities, support services, etc. would the NNA Investigator community like to see implemented by the new NNA coordination office?

It feels like whatever entity is going to tackle this should have strong roots in the Arctic. Need to be visible and an active communicator with all of the different players. Which means they need to be present. Either physically or just in the conversation, or witnessing the conversation, it's going to be important. We've learned over the past decade how important it is to have the Arctic voice leading the conversation

It's important for this office to have this office elevate Arctic voices from other communities and countries. Seems easier in Alaska than in Greenland and Canada.

Whatever happens in Alaska will have impacts in Russia and other Arctic countries. Sharing the knowledge and making sure it's a cohesive package as opposed to having isolated packages.

We hear from scientists in other places that they don't interact with the local communities in other places. Maybe once a year. People around Shishmaref can understand the Greenland language, making them strongly connected. At the last AGU, people asked if we could help mediate between communities and scientists in Greenland. In Alaska, the taxpayer thing comes up a lot too, why are we working with other nations? But when you start talking about actionable research, it's necessary. One good thing about budget cuts from the administration, people wanted to make their research more actionable and tangible, so people came and asked what they could do to make their research have positive impacts on people in Alaska.

At the end of the last IPY (2009), the wrap-up theme was on going from research to action. Not surprisingly, that meeting was held in Canada, where there is a strong indigenous voice. There was a strong push to make sure that voice was represented equally.

With the coordination office, one question is what data do villages want? The network brings lots of indigenous scholars together. How do you build that capacity? How is this getting explained out to people in villages? In indigenous languages. How does this fit into our lives? As opposed to fit into the office's life? What do you recommend for that? For my PhD, my goal was that my mom understand the introduction at least. How do we work to make sure we can translate things to someone else's grandma?

I think it's about building relationships with the people so that they have an understanding. Lydia Jennings works on soil science in the southwest. Has great instagram stories explaining science to people. Uses scientific language, but tells stories about it. How can we get past the buzz-words and keep them legitimate? There is momentum from academic institutions, funding agencies, etc. We might still be having this conversation in 50 years. But hopefully we'll be shifting something else.

ARCUS had exactly this conversation in 1999, had people from Barrow, brought together scientists, NSF, etc. Findings: You should ask the community what would be useful to them. You should do things that are useful to the

communities. I think we have too little institutional memory in the academic communities. New people learning the same things the program managers were learning 20 years ago. Also at the research institution level. New scientists should learn this in school. Coproduction of knowledge people learned that as they were, hired two elders as a fair wage to work with them and work together. Led to UAC sea ice group. Would be good at the funding level to allow people to learn from past mistakes so they are not just recreating the wheel. At the institution level, if you are going to have an arctic research program, you need to have a standardized training.

So an accreditation for Arctic research studies.

You need to have the right people doing the accreditation. Is it an elder doing it? Or someone else? Who is in the room.

A lot of native institutions feel like the federal entities take comments and comments and comments and then close the door when it's time to make the decision. We were trying to locate indigenous people within federal agencies, but could find very few.

You go through IRB training, but you don't really have any training to working with people who have different values. There was a great film put together by ICC Alaska, it would be wonderful to have something like that to do a training for us.

What if a group of indigenous groups or individuals came together to make a training that researchers had to do before visiting, coming onto our land, working with us, etc.

Could be a good job for this community office. We don't have a mechanism for this at the moment, but would be a good goal for this office to have. We are trying to set those goals.

If there was something like that out there, I would really encourage myself and my students to do it. It would be enriching and help me make my work better
All of us could benefit from being immersed in this different approach

Our main takeaways:

Make Kaare the director of everything

Arctic people could propose some kind of training for researchers

CARE principles: <https://www.gida-global.org/care>

Natural possessiveness of data, reasons people don't want to share data: insecurity, don't want to be scooped. Need how we are judged to be changed (for promotion, etc)

How do we move the conversation forward, so we're not repeating the conversation from 1999 in 2059?

In computer science there is a lot of open source code, open data, reproducible research. Environmental sciences is becoming more like that with people releasing code and data for a paper. That level of transparency is refreshing.

Students want to learn R so they can make their code available. Need to train our students to make co-production the norm.

Make sure that what the center is, it is what the people in the villages want, not just what the scientists want.

Group #11

Facilitator: Kate Ruck

Rapporteur: Amber Budden

Notetaker: Andy Mahoney

Group Members: Amber Budden, Bill Simpson, Bruce Vaughn, Dmitry Nicolsky, Bruce Vaughn, Ming Xiao

DISCUSSION NOTES:

Strategies for data sharing

Identify projects working in same geographic area:

- Coordinate data collection

- Allow expansion of data network

- Require standardization of methods, etc

- Need to look outside NNA community too

Data coordination will also allow management of any post-COVID rush

Arctic Data Center: <https://arcticdata.io>

ARMAP: <http://armap.org/>

Barrow Area Information Database 2 (BAID2):

<http://barrowmapped.org/front-page/about/>

Pre publication data sharing across the NNA community

What kinds of data/information do projects currently need to move their work forward?

Some projects might benefit from information about how to engage with local communities

What additional data/information would be useful to help the NNA community produce new knowledge together?

Cultural shift required to encourage/facilitate data sharing before publication

What other tools, activities, support services, etc. would the NNA Investigator community like to see implemented by the new NNA coordination office?

NNA CO could help facilitate project activities in different communities

- Help bring related projects together

- Help reduce research burden on communities

Important to make sure NNA CO doesn't increase reporting burden for PIs

Travel funding for students

Like ARCSS had available for student participation at all-hands meetings

Could there be a way to aggregate broader impacts of individual projects across NNA program?

How can the community stay connected and continue working together before the NNA coordination office is in place?

Some ideas already mentioned above

What would you like to see happen at the next NNA community meeting being planned for the fall.

Do we really need to meet in person?

This meeting seemed to work well

Consider carbon footprint

In-person meetings still have a lot of value though

Would it have to be in D.C.?

Somewhere more central would help reduce carbon footprint

Also important to have meetings held somewhere culturally relevant to the Arctic

Online meeting support inclusion of students

Geographic and thematic break-out groups

Data/info needs

Advisory board / panel

Top takeaway for report out:

NNA office should support both data and community activities with low administrative burden for participation by NNA researchers: Searchable database of planned research - with a focus on geographical breakouts, facilitate/coordinate project activities in local communities.

Group #12

Facilitator: Kendra McLauchlan

Rapporteur:

Notetaker:

Group Members: Jana, Hiba, Sierra, Anne, Andrey, Fiamma

DISCUSSION NOTES:

Strategies for data sharing:

Annual data reports published on project website, google Drive to share with other teams before archiving or publishing (sharing data in real time), archive at Arctic Data Center of course.

Heterogeneous data sources (sea ice, climate, etc.), historical data used for modeling, qualitative data from shippers and stakeholders, using modeling approaches to fill certainty gaps(?). At this point, data

management is mostly focused on our group. We will have to figure out how to consolidate data from various sources. Have talked with other projects where there is a lot of overlap and we may be able to use a subset of their data. Sharing is especially important with data that is very expensive to collect.

Working with community monitors (for several years), making connections across other projects, doing letters of permission. Data housed at Alaska Coastal Hazards (DGGS) and will be shared from that website as well as the Arctic Data Center. Social science data is different, with IRB considerations.

Data sharing within projects for different types of data (physical and social science data) For qualitative data, suggest putting all of the primary participants on the project on IRB if they are supposed to be seeing the data. We plan to bring our physical scientists with us when we do interviews. Easier if you have everyone on IRB. Only publish summaries and quotes, etc. Need to think about how we share the effort of data collection. Many stages of data collection, processing and curation - good to think about sharing at each stage. Internationally, another challenge to make sure data is translated and compatible.

Planning to take advantage of data training in October, which is open to everyone.

In working with international partners: we need to consider their needs for data. Every country has its own national data portal. Usual repositories may not be useful or accessible especially for people in other countries, with other languages. Need to think about data synthesis: how to optimize data synthesis so it can be useable to communities who might want to use it for something else we haven't even thought about.

One researcher went to law office of regional entity to see what data policy applied because they couldn't find them otherwise..

One researcher works often with Russian colleagues where there is no IRB, and suggests that if we have international partners, we use the best practices (highest standard). Especially important in working with communities or partners where there is no data policy.

Data restrictions imposed by partners, industry or sources, make data sharing more complicated. PIs can't assume ownership of data, and it takes time to figure out what data policies or restrictions are in place.

Data/info needed to move work forward:

Information on data policies.

Additional data/info would be useful to NNA community to produce new knowledge together

Other tools/activities/support services would NNA investigator community like to see implemented by the new NNA CO?

How to facilitate data exchange with other partners and jurisdictions.

Coordinating data sharing agreements at the program level.

Training on data policies. Whether international or community partner, PIs need to know what policies and restrictions are. Would be great to have someone you can call for information or assistance, and a place where that information is compiled and discoverable.

Advice on how to share, use and store data.

It would help to see different scenarios or templates of data policies and data sharing that we might want to adopt in our projects, that we may not be aware of when we start. Basically, help formulating data policies and best practices for PIs and those working on proposals. No one has to reinvent the wheel ADC or ELOKA have this info

Possibly in future: guidance for those who would LIKE to do research in the Arctic. Would result in better proposals. We need to think beyond NNA..

How can community stay connected and continue working together before the NNA CO is in place?

Ideas for November meeting?

Important to share general info about the project (Phase 1 of knowledge sharing about the project). At the November meeting will also need to learn about the new group of NNA projects.

Take Home Message

Group 12: One of the challenges NNA PIs face is data exchange with international, industry, private partners who have their own data policies and data practices. This is even more true for social sciences data.

How to improve: NNA CO should support PIs (and proposers) across all stages on best data practices through education and training on the range of data policies Arctic scientists might encounter. Use Arctic Data Committee to advise on how to deal with diverse data policies.

Group #14

Facilitator: Stacey Stoudt

Rapporteur: Julie Brigham-Grette

Notetaker: Evie Fachon

Group Members: Julie Brigham-Grette, Evie Fachon, Mark Serreze, Mary Albert, Matthew Druckenmiller, Sylvia LR Schreiner

DISCUSSION NOTES:

What strategies for data sharing across the project teams are needed?

Focus from outset on commonality in format - data management needs to be agreed upon across projects. Need to establish commonalities in metadata, establish a common baseline across fields. Metadata standards need to be high to improve search and use.

Needs are unique in terms of managing data that has been co-produced, this isn't necessarily built into current data portals. Social science/community data needs to be managed carefully, and open sharing may not always be possible with community privacy taken into consideration. Data stewardship agreements are important.

Shoreline data for Alaska is poor quality, opportunities to improve this across projects. Climate Resilience Toolkit - includes shoreline erosion data, how could project data contribute to this? Challenges to formatting data in order to serve audience broader than the original researchers.

■ **What kinds of data/information do projects currently need to move their work forward?**

Higher quality shoreline data/projections for Alaska are needed

Local observing network data - this will be most vulnerable to Covid delays

Early on in a project, data isn't always connected to larger datasets

There is a difference between primary data and tools that are developed around it which include visualization and predicting tools that are accessible and useful to a broader audience

■ **What additional data/information would be useful to help the NNA community produce new knowledge together?**

display contact information for primary data producer more prominently in the metadata

more visual tools would be helpful for data exploration, this is something that could be enhanced by the coordinating office

■ **What other tools, activities, support services, etc. would the NNA Investigator community like to see implemented by the new NNA coordination office?**

***** clear point of contact for data consultation who can help investigators navigate existing datasets - this should be someone both scientists and communities can call and reach out to for data*****

this person should also be knowledgeable about all existing projects

profiles should be created for each project (objectives, data types, communities/locations of study)

coordination office should have knowledge of science operations funded by other agencies

more community science liaisons are needed

■ **How can the community stay connected and continue working together before the NNA coordination office is in place?**

additional meetings with breakout rooms sorted by discipline or geographic area
guidance needed from NSF on how to stay organized between now and when the coordination office is in place
more meetings but shorter meetings

■ **What would you like to see happen at the next NNA community meeting being planned for the fall?**

online format seems to work well
share a thorough summary of what was discussed during this meeting well in advance
organize focused breakout rooms by project subject/location, allow for some more self-selection in this
central repository or website of contact information for the investigators, content similar to the youtube and program book

Group #15

Facilitator: Mark Hurwitz

Rapporteur: Xiong Zhang

Notetaker: Katharine Duderstadt

Group Members: Guy Paxman, Ann Tickamyer, Julie Raymond-Yakoubian, Karl Zinglensen, Xiong Zhang, Katharine Duderstadt

DISCUSSION NOTES:

What strategies for data sharing across the project teams are Needed?

Communication surrounding COVID-19 data gaps

Data Respondent Fatigue - because of number of projects and components of each project

What primary social science data is being collected by each group? Who is conducting interviews in which communities?

Would this be top-down? Or within each community?

E.g., collecting data on food security and migration in a community need to be coordinated and not separate

Are there opportunities for combining efforts? (even shared content - interview questions?)

Also impacts timing of when to approach communities

More communication on data collection could enhanced collaborations among disciplines -- to know what other groups doing

Difference between presenting raw data and results of the analysis

- Help interpreting data outside of the project

- Consent forms need to be done ahead of time.

- MOUs if someone else wants to use that data

- Communities, for example, may need to be included in analysis

 - Need to request access to community's data

Data Management Plan

- NSF NNA wants raw data archived and released in short time after project completed

What kinds of data/information do projects currently need to move their work forward?

Physical data (temp, soil moisture, etc.) might be needed for projects involving infrastructure

- Currently if that information is not available, assume values as placeholder until that data can be collected with COVID-19

Physical and social science data - timing and order in collection regarding pandemic

Need crystal ball to tell us when we can get back into the field

Issues of sharing data internationally involving joint funding

What additional data/information would be useful to help the NNA community produce new knowledge together?

Introductory videos and 1-page summaries and Workshop Book are a good start

- More is needed -- and more formally

- Spreadsheet

 - Types of data collected by each project

 - Geographic location

 - Types of expertise held by each investigator

- Summary Map

 - Location of work

 - Information collected

What other tools, activities, support services, etc. would the NNA Investigator community like to see implemented by the new NNA coordination office?

Idea of a West Coast and East Coast location for Community Office (one being a sub-hub) --e.g., representing Alaska and lower-48 (to better include North Atlantic Arctic, mid-latitude and global impacts)

- A sub-office might help to address the goal of the NNA Big Idea to understand the global effects of Arctic change, including pan-Arctic research and impacts to mid-latitudes. Also would link with other

non-Arctic NSF initiatives as well as help participate in international dialogues on Arctic Change
International aspects of NNA - ICC and Indigenous involvement
Indigenous organizations helping led the Community Office and coordinate with local communities in Alaska for research
Help to bring in early career researchers
Help to organize all the entities that need to be considered and contacted in order to help negotiate research -- (currently a maze)

■ **How can the community stay connected and continue working together before the NNA coordination office is in place?**

Pairing of project - matchmaking of which projects might be able to coordinate responding to shifts needed to because of COVID-19
First coordinate on smaller scale -- bring a small numbers of projects together first (e.g., based on region) and then expand back to larger community

■ **What would you like to see happen at the next NNA community meeting being planned for the fall.**

Training session in cultural awareness - going into more detail on co-production of knowledge.

Also would be interesting to learn differences across communities in the Arctic

Pan-Arctic comparisons

Forum for Early Career researchers (students, postdocs)

Projects reporting progress and local problems to be used for future projects

Similar to conference -- with more detailed presentations of research and discussions

Topical

Short videos are superficial -- next meeting could provide opportunity to learn more details

Even if in person - still have an online option since travel is difficult for many and this format works well

Discussed benefits of virtual meetings versus in person -- missing the in person collaborations that emerge in informal connections in sidebars

Group #16

Facilitator: Olivia Lee

Rapporteur: Shauna Burnsilver

Notetaker: Shauna Burnsilver

Group Members: Vincent Tomalonis, Ted Shuur, Tom Ravens. Shauna BurnSilver, Marty Anderies, Vladimir Romanovsky

DISCUSSION NOTES:

Q1: What strategies for data sharing across the project teams are Needed?

Officially - there is an NSF data repository based on a data policy, but currently it is unwieldy and not dynamic (not useful).

So one role for new NSF coord. Office should take on this role

Making sub-groups within NNA would be useful based on subject and geographic region.

There is a lot of additional data being collected outside of NSF - How to coordinate/share data?

 This is both about coordination of activities between projects

 And data sharing

Point: Start from what we want - what are the key goals of the data sharing effort?

Using NEON as an example: the goal is a searchable database for data, and it's not been successful (so far). Also applies to AON.

Alternative example: An SES library created and maintained on a shoestring

So think really hard about what is the right way to do this strategically/efficiently

 Should not be driven by each project

 Managed and driven by NSF NNA Coordination office?

 Or alternatively - use the already existing Arctic data center as a hub repository

 And don't recreate the wheel

Take away: Discussion focused on structures that currently are the foundation for strategies.

What kinds of data/information do projects currently need to move their work forward?

Existence of data/databases that are relevant to current questions that are available

What additional data/information would be useful to help the NNA community produce new knowledge together?

Example: 5 RCNs active in Alaska, PIs have decided to have a workshop. 32 points on a map, vs just being happy that there are 32 points on the map

Current bottleneck for data sharing - trying to change the culture of data sharing itself

 Wait until the end rather than periodically

 Open data sources

 Assigning a DOI offers the opportunity to change the framing around data sharing

 Means that datasets become citable objects (which is useful for graduate students and postdocs)

 Implies changing behaviors about data sharing

What other tools, activities, support services, etc. would the NNA Investigator community like to see implemented by the new NNA coordination office?

What are our “asks” for the NNA Coordination Office?

Offer projects enabled Zoom support and meeting space

Push alterations within NSF culture: there has been a shift from pure research toward doing research that is useful

Address the needs of projects within NNA, but also outside in terms of stakeholders (e.g. engineers working in cold climate housing)

Person power to manage Arctic relevant databases and project pages (The idea of cairns on a trail) in real time

We are trying to build a coordination network, so thinking about this problem from a network (structural perspective) could be helpful

Example: Do qualitative network analysis of the project 1-pagers submitted for this meeting.

Next Steps:

The next Fall meeting should leverage potential collaborations or opportunities to coordinate between projects

Timing: between now and the Fall

During the next meeting projects with common interests should have time to meet and coordinate.

NSF should incentivize collaboration between NNA projects - find natural groupings

How? Supplemental mos?

Group #17

Facilitator: Roberto Delgado

Rapporteur: Jennifer Schmidt

Notetaker: Julie Loisel

Group Members: Kirsty Tinto, James Temte, Julie Loisel, Von Walden, Jennifer Schmidt, Jessica Black

DISCUSSION NOTES:

What strategies for data sharing across projects are needed?

look at existing models that work and improve them

difficult to integrate social science data; maybe can be addressed using permissions (eg, a database user could see data exists but then has to request access)

put together a library of different reports (CO office?)

accept people’s bibliographies into data centers; would be a valuable resource for data ingestion (eg, Zotero, Mendeley, Endnote)

What kinds of data/information do we need?

- bathymetric maps
- where are the fish?
- notes based on dialogs and conversations to improve knowledge co-production
- info that helps answering questions about which hazards are impacting communities most? Identify the right stakeholders to answer the questions
- vegetation maps, permafrost thickness maps, etc
- how to handle data ownership issues?
- how to be better prepared for IRB? (eg, better structures consent forms)
- how to handle this issue in our proposals? (ie, data management plans)

What would be useful to help the NNA community produce new knowledge?

- make data available via data centers
- dig into existing documents
- discuss and address data sovereignty challenges (e.g., how to share these data, which might have IP issues?)
- discuss data ownership
- Exchange bibliographies

What other tools, activities, services, etc would we like to see implemented by the new CO?

- a place for researchers to connect with different organizations and offices
- a facilitator role to help build relationships between researchers and communities (tribes, non-profits, industry, gov offices etc)
- a liaison role to make sure researchers are connected
- fund points-of-contacts in different regions
- connect the projects to help the PIs understand how we can relate and interact (could be a clickable map for PIs but also for the general public (contacts, abstracts, publications, etc.)
- bring unity to the NNA group (a good example is the NASA ABoVE platform, or NSF's Critical Zone)
- a place where communities can tell NNA what their interests and questions are - so that it works for the communities wanting to reach out to researchers too!
- use it to engage scientists with communities more! (eg, citizen science, jobs, etc.)
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How can the community stay connected and continue working together before the CO office is in place?

- people need to find ways to self-organize and connect (eg, Slack channel, Zoom discussions)

monthly? Small webinars (2-4h blocks?) with more focused groups (region- or discipline-coherent for networking with those who think about the same things as you!)

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connect with IARPC more <https://www.iarpccollaborations.org/index.html>

What we would like to see happen at the next NNA meeting (Fall)?

training for use of data center

outreach/communication training on how to better produce outputs for communities (infographics, story maps)

plenary demo to see what's out there in terms of having a map/platform for NNA people learn how to reduce their travel!

Group #18

Facilitator: Jielun Sun

Rapporteur: Johnny Ryan

Notetaker: Johnny Ryan

Group Members: Guangqing Chi, Jack Dibb, Evan Thomas, Johnny Ryan, Ted Maksym

DISCUSSION NOTES:

We were group mainly interested in collection of physical data (e.g. sea ice). We agreed that more coordination between projects was required because many teams are collecting data (in places) that could be of interest to others. This should be a priority of the NNA Research Coordination Office. Perhaps Slack channel could be useful to encourage this in the meantime.

Also noted that rapid data sharing is already required by NASA and EU projects. These could provide templates for NNA data sharing activities. We all agreed that Arctic Data Center is a great resource but questions remain about quality control and level at which data is shared (e.g. raw data vs. validated products).

Plenary Chat Comments

- NNA office should support both data and community activities with low administrative burden for participation by NNA researchers: Searchable database of planned research - with a focus on geographical breakouts, facilitate/coordinate project activities in local communities.
- One of the challenges NNA PIs face is data exchange with international, industry, private partners who have their own data policies and data practices. This is even more true for social sciences data. How to improve: NNA CO should support PIs (and proposers) across all stages on best data practices through education and training on the range of data policies Arctic scientists might encounter. Use Arctic Data Committee to advise on how to deal with diverse data policies.
- Re: data sharing, we need to know who is doing what and where? We need to answer this as a precursor to data sharing. Need to understand if and when indigenous knowledge is incorporated into the data and it is important to communicate how this indigenous knowledge will be shared with other researchers and how it will be shared back with the community.
- Assuming field seasons are delayed: NNA researchers should adapt strategies that empower indigenous partners/communities to continue operations, including additional training, rebudgeting to provide travel money for local communities to continue operations at study sites.
- Additionally, share strategies to improve coordination/ coordinate support with community partners. Finally, request convening of open working group by NSF/Arcus to coordinate pre/post summer field season in 2020.
- Group Takeaways:
 - Protocols for Diverse data sets specific to NNA for the Arctic data Center
 - We really need clear guidance about the next few months because of COVID and before there is a coordination office starts up. The office may not be in place for a year.
 - Most important that the Coordination office Become the Clear Point of Contact that works in all directions....using the idea of Hub with spokes that work in and out to researchers and in and out to the villages and tribes. They need to be familiar with all of the projects and contacts.
 - Short term need to maintain a website with has all of our documents.
- What additional data/information would be useful to help the NNA community produce new knowledge together?
 - Need to understand how the projects fit into a broader landscape of projects in order to know who to connect to for data.
 - Introduce the idea of data clusters across projects.

- There is a lot of data outside of the NNA community - how do we access this and become aware of the depth of the information that is already there?
- How do we bring different knowledge systems together: there needs to be a better understanding of different disciplines and worldviews in terms of data, gathering approaches, etc.
- Need to recognize that there is not a single place where past data is available.
- The importance of what data, accessible to who and how it can be accessed were discussed. Asking NSF to assist coordinating project data and community interactions.
- NNA projects are collecting vastly different types of data that needs to be attributed, stored, and shared in different ways. Establishing consistent methods, where possible, will improve the impact of all projects. NNA projects also contain sensitive data that may be subject to IRB or require attribution to the appropriate source (especially important considerations for Indigenous Knowledge). NNA is also producing lots of data that will require suitable storage facilities and sharing capability that is sometimes not possible to remote villages where internet access is a challenge. Need data sharing solutions that span these diverse needs and situations. Participation in existing programs like IARPC, ARCUS, and IASC/SAON groups can help connect our communities for sharing data and information.
- Discovery problem. Some sort of map/diagram of all projects and data. What about social science data / traditional knowledge? We don't need yet another data center. IARPC webinars and informal quarterly meetings until coordination center is established. More focused breakout sessions in the Fall. Maybe a call for sessions?
- mapping came up in our group and other groups
- We also spent quite some time on it during the first breakout today.
- See ARMAP re mapping
- I agree. It should be searchable on various variables (location, disciplines, topics addressed, etc).
- on the mapping of projects, I do encourage people to update their information in ARMAP, and talk to the Arctic Data Center about community portals.
- Just went onto armap.org and searched for NNA under funding agencies (after clicking down on NSF). This returned a list. I think you can also make it have a map output following a text search.
- To the point of a mapping of NNA projects: one way to frame would be a qualitative network analysis of the 1-pagers we generated prior to the meeting.

Whoever could use these to pull out linkages by geographic interest, people, research questions, etc.

- We need to do "intellectual mapping" in addition to "spatial mapping" of the NNA projects.
- How does the Arctic Data Center handle social science data / traditional knowledge?
- good question, and let's follow up. ADC is holding a workshop on that topic next week - <https://arcticdata.io/social-scientific-data-workshop/>
- Also, another good resource for Indigenous Knowledge 'data archiving' in the Arctic is ELOKA: eloka-arctic.org
- The army.org is really useful - but it's unwieldy even geographically. For example our project ARC-NAV is working in 4 communities on both sides of the Bering and we have 4 collaborative Universities collaborating. So in each community, ARC-NAV is listed 4 (unique) times under each PI.
- During the next meeting projects with common interests should have time to meet, synthesize and coordinate. Between now and the Fall how can NSF incentivize projects to identify these connections?
- We were a group mainly interested in collection of physical data (e.g. sea ice). We agreed that more coordination between projects was required because many teams are collecting data (in places) that could be of interest to others. This should be a priority of the coordination office. Perhaps Slack channel could be useful to encourage this.
- What strategies for data sharing across the project teams are needed?
 - Communication surrounding COVID-19 data gaps
 - Data Respondent Fatigue - because of number of projects and components of each project
 - What primary social science data is being collected by each group? Who is conducting interviews in which communities?
 - Would this be top-down? Or within each community?
 - E.g., collecting data on food security and migration in a community need to be coordinated and not separate
 - Are there opportunities for combining efforts? (even shared content - interview questions?)
 - Also impacts timing of when to approach communities
 - More communication on data collection could enhance collaborations among disciplines
- accept people's bibliographies into data centers; would be a valuable resource for data ingestion (eg, Zotero, Mendeley, Endnote)

- People are protective and competitive of their data particularly due to funding and their institutions. Need for institutional change to deter this competitiveness. Move the conversation forward so we are not having the same conversations from 1999-2009-2020 to future meetings. There has been some changes like a greater level transparency in sharing codes, making co production the norm, a possible training designed by Indigenous Peoples of the Arctic that is required for all researchers to take, the coordination office making sure Native villages data needs being met/ ability to govern the data too, also it has be able to relevant to the villages
- Also noted that rapid data sharing is already required by NASA and EU projects. These could provide templates for NNA data sharing activities. We all agreed that Arctic Data Center is a great resource but questions remain about quality control and level at which data is shared (e.g. raw vs. data products)
- There's a need for NSF to understand how hard it is to archive personally identifiable, qualitative data.
- For the fall meeting - also think about inviting community members who are going to be participating in projects to attend.
- I second the suggestion to make the fall meeting a virtual meeting - low carbon footprint!
- Have the next PI meeting at fishcamp
- Yes to fishcamp!
- NNA Project, Indigenous Foods and Knowledges Network (led by Noon Johnson and Mary Beth Jager here) has found fish camp meetings incredibly productive!
- (Also, great meals)
- yes, to meeting at fish camp
- Group 9 talked about the CARE Principles around Indigenous Data Sovereignty/ Governance-<https://www.gida-global.org/care>
- The data sharing effort needs to begin from a clear understanding of the goals. There are many (many) examples of data sharing efforts that end up being unsuccessful, unwieldy and unsustainable. How can the effort learn from what has been done before? How can we not try to reinvent the wheel - perhaps leverage existing data hubs?
- Like the idea of opening virtual meeting channel and designing themes for future meeting.
- This would allow us to self organize.
- I also liked seeing the lightening talks. And I was wondering if we can share these? And specifically to community members and others doing similar work.
- The YouTube channel for NNA should be advertised to the villages and native corporations etc.

- Second this suggestion!
- We are going to ask people specifically for permission to share lightning talks and project reports. We'd ask that you wait until we do that (polling next week) before sharing those materials outside of the NNA community.
- Regarding the lightning talks, many were hard to hear. Is there some way to boost the volume on You Tube.
- I strongly second what was being said about funding and support to bring community partners to in person meeting.
- It would probably be better in ANC than in DC to maximize the ability for village residents.
- I would like community partners to have their own peer support through NNA.
- Great idea ("community partners to have their own peer support through NNA")
- I agree with the comment about encouraging more participation from Arctic residents. If we do have an in-person meeting, we should consider holding it somewhere more culturally appropriate to the Arctic. I like the fish-camp suggestions above!
- I think an early career (undergrads / grads / postdocs) working group on NNA peer support
- Group 15 discussed if it is worthwhile to have West Coast and East Coast location for Community Office (one being a sub-hub) --e.g., representing Alaska and lower-48 hubs (to better include North Atlantic Arctic, mid-latitude and global impacts)
- Strongly support this suggestion!