



Arctic Research Plan Development Workshop

September 14-17, 2020

Summary of the Plan Development Workshop that convened 100+ participants from diverse backgrounds to recommend priority areas and foundational activities for the 2022-2026 Arctic Research Plan.

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Cover image by Lisa Hupp/USFWS

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Workshop Summary

The Arctic Research Plan Development Workshop was held virtually¹ on September 14-17, 2020. Over 100 people participated in the workshop, including representatives from academic institutions (22%); Indigenous organizations, private sector organizations, and nonprofits (21%); federal agencies (38%); the state of Alaska (5%); and IARPC collaboration team co-leads (14%); plus 11 staff members supporting the workshop (Appendix 1c). The aim of the workshop was to develop the potential priority areas for the 2022-2026 Arctic Research Plan for consideration by the IARPC Principals. For more details on the current stage of plan development, see the [IARPC Collaborations website](#).

During all phases of the plan development, IARPC strove to operate under three overarching principles:

1. **Sustained Engagement:** Ensure that engagement with Indigenous and Tribal organizations, northern communities, federal agencies, and all partners is respectful, responsive, and continuous.
2. **Inclusion & Equity:** Ensure that equity and inclusion are a key component of all activities by ensuring that everyone has the tools they need to succeed, and that they are welcomed and treated fairly and respectfully (Appendix 4b).
3. **Transparency & Accessibility:** Ensure activities conducted and decisions made are transparent and communicated clearly in an accessible format.

These principles will be carried forward throughout the drafting and implementation of the plan.

Participants received a number of pre-workshop documents to review, all of which are included as appendices to this report. The activities of the workshop are described day-by-day below.

Day One

Summary

Kelvin Droegemeier and Tim Gallaudet offered strong support for the plan development process and thanked all the participants for their time and commitment to the process. Participants received a list of 22 priority areas and four foundational activities that were consistently identified as priority considerations in input received during the public engagement phase. For more details on the engagement phase, see the [IARPC Collaborations website](#). On the first day of the workshop, the group established context for priority areas by discussing lessons learned from the Arctic Research Plan 2017-2021, considered a potential framework for the 2022-2026 plan, and reviewed overarching principles for the plan. Maija Lukin provided insights into many of the critical issues facing Indigenous communities in the Arctic.

¹The workshop was originally planned to take place in person in Washington, D.C.; however, workshop organizers migrated the meeting to an online format due to the COVID-19 pandemic.

List of Sessions

- Welcoming remarks: Workshop welcome (Kelvin Droegemeier, OSTP); Workshop purpose and goals (Tim Gallaudet, NOAA); Code of conduct (Liz Weinberg, IARPC)
- Breakout room discussion: A successful way forward: Lessons learned from the 2017-2021 plan. Workshop participants joined break-out rooms to discuss major strengths and drawbacks of the Arctic Research Plan 2017-2021
- A potential framework for the 2022-2026 plan (Nikoosh Carlo, IARPC) (Appendix 3a)
- Introduction to the overarching principles (Maija Lukin, NPS)
- Breakout sessions and report-out: Overarching principles of the next Arctic Research Plan: Inclusion & Equity, Sustained Engagement, Transparency & Accessibility

Key Outcomes

In the first breakout session, participants reflected on the Arctic Research Plan 2017-2021 and the current IARPC structure, including the collaboration teams, subteams, self-forming teams, and performance elements (appendices 5c and 5a). The broad aim and many performance elements in the 2017-2021 plan were seen as a double-edged sword, making IARPC more accessible and inclusive to different research interests but also resulting in a lack of integration across the different themes and teams. Many groups noted that IARPC has made progress in creating a diverse and inclusive community, but has more work to do to be inclusive of Indigenous Peoples and organizations, as well as to build its community of social scientists and early career researchers. The participants made many thoughtful suggestions, including focusing on applied research in the next plan, building in more collaboration across teams and with Arctic communities, and avoiding siloing interrelated topics.

The workshop participants acknowledged that Alaska faces many critical issues which will require research to inform decisions. The breakout groups had rich discussion on the three overarching principles. There was a strong focus on Arctic Indigenous communities, including creating priority areas that are important and responsive to Indigenous community needs and paying Indigenous individuals or entities for their time and expertise when they contribute to government efforts, academic research, and/or IARPC meetings.

In response to themes from Maija Lukin's presentation, several breakout groups discussed the need for equitable inclusion of Indigenous Peoples throughout the plan development process. Participants mentioned the need to bring increased awareness of subsistence calendars and to take care to not ask for Indigenous community engagement during busy times of the year or pursuing research activities that interfere with subsistence activities. Participants also raised the issue of the digital divide that prevents many in remote communities, including Indigenous communities, from participating in virtual web-based events, equitably or at all, due to the high cost of internet, frequent connectivity disruptions, and need for familiarity with the technology used for virtual

meetings. Language was emphasized – both specifically translating and circulating the plan into Indigenous languages (written or oral) and, more broadly, being inclusive and open-minded in IARPC’s communication. One barrier mentioned in the plan development process as outlined is the lack of Indigenous Peoples engaged in the drafting phase of the plan. While Indigenous communities were asked for their input to the plan and will have an opportunity to provide feedback once the draft is released for public review, the drafting team itself is restricted to federal employees.

Day Two

Summary

On the second day, participants discussed criteria for narrowing priority areas (Appendix 3c) and worked together to reduce the initial list of 22 priority areas to eight and increase the list of foundational activities to six.

List of Sessions

- Opening talks: Overview of priority areas (Sorina Stalla, IARPC; Larry Hinzman, OSTP) (Appendix 3b); Criteria for narrowing priority areas (Simon Stephenson, NSF) (Appendix 3c)
- Breakout session and report out: Workshop participants consider priority areas from the perspective of the selection criteria and reduce the priority area list

Key Outcomes

Several additional themes were presented for consideration as priority areas: Indigenous-Centered Research, Arctic Systems Science, Geography and Mapping, Sustainable Economies, and National Security and Defense. Participants agreed to include these new ideas, as they considered the four criteria that any priority area must fulfill:

1. Respond to at least one policy driver
2. Address missions of two or more federal agencies
3. Respond to non-federal and Arctic resident needs
4. Cut across multiple fields of research

Additionally, Co-Production of Knowledge and Research Ethics were presented as potential foundational activities. The proposed Indigenous-Centered Research priority area would center Indigenous-driven projects and research along with Indigenous methodologies, whereas, the foundational activities would focus on developing and researching better processes for Co-Production of Knowledge.

During the breakout session and report out, participants reflected many different ways to describe and categorize the priority areas. Participants debated the role of national security and defense, considering whether it was included in the other priority areas or should be a standalone topic, and the proper role of the plan in shaping or following federal priorities. Some groups expressed that it is easier to convene crosscutting, interdisciplinary groups and maintain momentum when the group can focus on applying

research to solve specific problems.

Initially, workshop organizers had planned to poll participants in order to determine the narrowed list of priority areas. However, feedback on that approach led the organizers to change strategy and instead receive input from the breakout rooms via plenary reports. The plenary reports provided guidance for a small team from the IARPC secretariat (Appendix 1d) led by Larry Hinzman and Nikoosh Carlo to identify eight priority areas for the workshop participants to consider the next day. These were:

- Arctic Systems Change
- Community Health, Community Resilience & Cultural Connectivity, Relocation
- Sustainable Economies
- Energy, Building, Communications, and Transportation Infrastructure
- Co-Production of Knowledge and Indigenous-Led Research
- Water and Food Security/Socio-Ecological Systems
- Risk Management and Hazard Mitigation
- National Security and Defense

An updated list of priority areas and foundational activities was emailed to workshop participants in the evening of the second day (appendices 2a and 2b).

Day Three

Summary

Based on the discussion on Day 2 regarding polling, the Day 3 agenda was adjusted to include an update from Larry Hinzman on the eight priority areas and IARPC's attempt to create a more consensus-driven approach. Participants joined a breakout session, and there was an extended report back to the full group. The list was discussed, considered, and collaboratively reduced to a list of five priority areas and four foundational activities.

List of Sessions

- Approach to selecting refined number of priority areas (Larry Hinzman, OSTP)
- Breakout session and report out: Workshop participants refine and clarify the priority areas
- Full group: Discussion & finalization of priority areas (Moderator: Nikoosh Carlo, IARPC)

Key Outcomes

After the breakout session, each rapporteur described how their group prioritized and reorganized the eight priority areas. Compiled notes were shared live with the participants via Zoom and Google Docs. Some common themes emerged, but diverse perspectives and interrelated topics led to different approaches to the consolidation process. "Arctic

Systems Change,” which encompassed many of the Western physical science disciplines, and “Co-Production of Knowledge and Indigenous-Led Research” themes were most consistently identified by each breakout group. The other topics were reorganized and prioritized in different ways in each breakout group. For example, most groups considered “Sustainable Economies” as an overarching theme with several sub-categories; one group considered it a subarea under “Sustainable Communities”; and another included it underneath “Holistic Health.”

Highlights from the Zoom chat:

In addition to the plenary discussion, there was a substantive discussion in the Zoom chat box about Tribal sovereignty, and the desire for and logistics of formal government-to-government Tribal consultation. Participants had an impassioned discussion of Indigenous engagement, including comments that the plan’s public input phase, including the Federal Register notice, was not a sufficient form of engagement. Many participants expressed interest in building capacity among federal agencies, researchers, and Indigenous communities to execute better partnerships with Indigenous communities. Other participants expressed opinions that the workshop discussion was overly focused on this issue.

Participants also raised questions about how far reaching the plan can or should be in terms of driving federal research priorities and how it would be used. For example, one participant asked if the plan would guide federal activity broadly in the Arctic, or only research activities. The plan is not regulatory, but the priority areas and foundational activities in the new plan will help to guide federal agency research investments.

In an email to participants after Day 3 (see Appendix 2C), Larry Hinzman and Nikoosh Carlo acknowledged this discussion and the need for it to continue after the workshop. They wrote, “[we] want to acknowledge that there was robust discussion around a number of other important topics in the chat box today that we were unable to address as fully as we would like in the time that we have for this workshop. There are issues around tribal consultation and sovereignty that we are committed to addressing. Please bear with us as we conclude the important work at hand for this workshop so that we can come back to these other issues and have meaningful deliberations.”

After the meeting adjourned for the day, a small team from the IARPC Secretariat (Appendix 1d) led by Larry Hinzman and Nikoosh Carlo considered all the suggestions from the plenary report-outs and identified areas of consensus. Using this information, they narrowed the list to five priority areas with associated subareas, and ensured there was no duplication among the priority areas, foundational activities, or subareas.

The list of priority areas and foundational activities emailed to workshop participants the evening of Day 3 (appendices 2c and 2d):

Priority Areas and Subareas:

- Community Resilience & Health
 - Water and Food Security
 - One Health
 - Community Security
 - Cultural Connectivity
- Co-Production of Knowledge & Indigenous-Led Research
 - Research/collaboration infrastructure & relationship-building
 - Capacity development for communities and agencies
 - Work to define Co-Production of Knowledge and create common understanding
 - Improve understanding of how Co-Production of Knowledge activities relate to other activities
- Arctic Systems Interactions
 - Atmospheric Processes
 - Oceanic Processes
 - Socio-Ecological Systems
 - Permafrost Controls on Ecosystem and Climatic Processes
 - Ecosystem & Species Dynamics
 - Land & Sea Ice
 - Global Linkages
- Sustainable Economies and Livelihoods
 - Emissions & Pollutants
 - Infrastructure (Transportation, Communication, Energy, and Construction)
 - Natural Resource Development
 - Shipping
- Risk Management and Hazard Mitigation
 - Wildfire
 - River & Coastal Erosion
 - Community Relocation
 - Extreme Events

Foundational Activities:

- Data Management
- Education
- Monitoring, Observing, Modeling, & Predictability
- Technology

Day Four

Summary

On the final day, participants were presented with the consensus list of priority areas and foundational activities and discussed implementation. A panel reflected on the workshop process and results, and the workshop was concluded.

List of Sessions

- Review of the priority areas and foundational activities and introduction to implementation discussion (Gary Geernaert, DOE)
- Breakout session: How will implementation work? Focus: Address questions on collaboration team engagement for each priority area and all the foundational activities.
- Panel discussion reviewing workshop outcomes (Moderator: Gary Geernaert, DOE)
 - Mellisa Johnson, Bering Sea Elders Group
 - Steve Masterman, State of Alaska
 - Jason Weale, Cold Regions Research and Engineering Laboratory
 - Elizabeth Marino, Oregon State University
 - Raychelle Daniel, Pew Charitable Trusts

Key Outcomes

The breakout groups discussed creating new collaboration teams² and realigning existing teams to address the recommended priority areas and foundational activities. Groups identified the need to further define and scope the priority areas and foundational activities and to build strong links among them. The federal drafting teams will take on this responsibility, using the notes from the breakout sessions and other reference materials.

Participants also discussed how IARPC can support sustained engagement with an array of partners and stakeholders within each priority area and with the foundational activities. Suggestions included using different platforms to make meetings more accessible, gathering multiple collaboration teams around a given specific problem, diversifying team leads, creating and sustaining open communication with northern and Indigenous

²Under the current Arctic Research Plan, nine collaboration teams and three subteams tied to plan goals support implementation of the plan through research and community engagement. Collaboration teams include members from federal agencies, state of Alaska agencies, Indigenous communities and organizations, nongovernmental organizations, academic institutions, and the private sectors.

communities, and building bridges to social scientists and early career individuals.

The closing panel included several representatives from the cross-section of partners who participated in the workshop and engage in IARPC and Arctic research. Overall, the group was supportive and optimistic about the recommendations coming out of the workshop.

The panelists were asked to address three main questions:

- Do the priority areas identified address needs of local and Indigenous communities?
- Do they address the needs of federal agencies in Alaska?
- What must be done in the implementation phase to ensure sustained engagement from non-federal partners?

Mellisa Johnson opened the panel discussion by reflecting on Indigenous knowledge, which is dynamic, holistic, and guided by generations of Elders. She emphasized the importance of valuing Indigenous perspectives, co-producing knowledge, and creating equity in plan development and its implementation. Steve Masterman noted the value of applied research to the state of Alaska and local and regional organizations. Jason Weale expressed concern that the workshop recommendations were too focused on Alaska rather than taking a pan-Arctic perspective. Elizabeth Marino suggested that IARPC collaboration teams engage with and conduct research regarding Arctic policy and governance as a means for understanding and building collaborative solutions with Indigenous and non-Indigenous Arctic communities. Raychelle Daniel said that the plan needs to be agile and able to respond to new changes and challenges that communities face, and that there should be a link to decision-making frameworks. She also discussed the need for researchers and agencies to better understand history from an Indigenous perspective. The panelists echoed themes from throughout the workshop, such as developing pay structures for Indigenous community members that lead or participate in research, and prioritizing food security.

The meeting was adjourned by Larry Hinzman and Nikoosh Carlo with many warm and supportive comments and with thanks to the National Science Foundation for providing financial support for the workshop.

Workshop Recommendations for the Five-Year Plan

The recommendations coming out of the workshop are as follows.

Priority areas and subareas:

- Community Resilience and Health
 - Water and Food Security
 - One Health
 - Community Security
 - Cultural Connectivity
- Co-Production of Knowledge and Indigenous-Led Research
 - Research/collaboration infrastructure & relationship-building
 - Capacity development for communities and agencies
 - Work to define Co-Production of Knowledge and create common understanding around it
 - Better understanding of how Co-Production of Knowledge activities relate to other activities
- Arctic Systems Interactions
 - Atmospheric Processes
 - Oceanic Processes
 - Socio-Ecological Systems
 - Permafrost Controls on Ecosystem and Climatic Processes
 - Ecosystem and Species Dynamics
 - Land and Sea Ice
 - Global Linkages
- Sustainable Economies and Livelihoods
 - Emissions and Pollutants
 - Infrastructure (transportation, communication, energy, and construction)
 - Natural Resource Development
 - Shipping
- Risk Management and Hazard Mitigation
 - Wildfire

- River and Coastal Erosion
- Community Relocation
- Extreme Events

Foundational Activities:

- Data Management
- Education
- Monitoring, Observing, Modeling, and Predictability
- Technology

Takeaways for IARPC: Summary of Post-Workshop Survey

The workshop organizing committee distributed a survey following the workshop. Twenty-eight participants responded: 17 from federal agencies, 7 from academic institutions, 4 from non-profit organizations, 2 Indigenous participants, 2 from Alaska state agencies, 1 who identified as international, and 0 from the private sector. These numbers do not add up to 28 because respondents could identify with multiple categories. Because only about 25% of workshop participants responded to the survey with disproportionate representation from federal agencies and academic institutions, IARPC recognizes that the survey does not offer a complete picture of participant views. Nevertheless, the staff found value in compiling these takeaways using comments from the post-workshop survey, as well as reflections from IARPC staff members and feedback shared during the workshop.

Virtual vs. In-Person Format

The 2020 plan development workshop was held virtually due to the COVID-19 pandemic. The benefit was that more participants could join without the expense and additional time of travelling. However, the virtual setting created barriers for participation for those with poor internet connection and those who could join by phone only. These challenges disproportionately impacted Indigenous participants. While efforts were made to mitigate these difficulties, such as numbering the slides and sharing them before each day and copying the chat into a separate Google Doc, the virtual setting still had a significant impact on individuals' ability to participate equitably. The virtual setting also eliminated informal conversations between sessions, and made group discussions more difficult to facilitate. It also sometimes resulted in simultaneous yet disparate conversations happening in verbal discussion and in the chat, which were both helpful supplements and also difficult conversations to moderate and for staff to respond to.

Workshop Preparation and Background Materials

Prior to the workshop, a set of background materials were shared with participants. (These documents are also included as appendices to this report.) While these materials were helpful, there was still a significant gap in participants' familiarity with IARPC. In the future, IARPC should consider holding an introductory webinar prior to the workshop and/or provide more necessary context at the beginning of the workshop.

Code of Conduct

Including a workshop code of conduct proved to be beneficial and should have been part of the daily orientation and opening as a reminder for everyone. More clarity needs to be provided in the future about the consequences of violating the code of conduct.

Workshop Facilitation

The workshop organizers strove to create a setting that fostered open communication and was inclusive of multiple perspectives, including Indigenous worldviews; however, some survey respondents said more could be done, such as hiring a facilitator with specific background in Indigenous culture and with cross-cultural competency. Additionally, the chat function was a useful tool for inviting participants to ask questions, add comments, or share resources without interrupting presentations, but it created an unexpected challenge in terms of maintaining an open and respectful dialogue. At times, the chat was distracting and created conversations that were not fully voiced within the plenary workshop sessions. In the future, having an assigned chat moderator would help the facilitators maintain the code of conduct and ensure comments in the chat are addressed within the plenary session.

Breakout Sessions

Many survey respondents said that the breakout sessions were successful and engaging, allowing participants to interact with each other and contribute to the workshop process. Some participants noted that they needed more time in breakout sessions. In a virtual setting, breakout sessions need to be small and well-facilitated. All facilitators and notetakers participated in pre-meeting training and had templates to follow, but even so, with multiple groups running simultaneously, it was difficult to ensure consistent quality facilitation and note-taking across the groups. It was also difficult to interpret notes from breakout group sessions after the fact, particularly distinguishing between notes that reflect group consensus versus individual comments. Plenary report-outs from the breakout group sessions provided a useful summary and general consensus from the small group discussions. Better training of facilitators and notetakers to appreciate and understand different worldviews and cultures would be useful.

Consensus Building, Decision Making, and Transparency

The workshop organizing team initially decided that polling would be the best decision-making process. During the workshop, it became clear that participants preferred to use consensus discussion to winnow priority areas. A small group of IARPC staff gathered each afternoon following the workshop to reorganize and narrow the priority areas. This method helped the workshop move towards consensus; however, there was a sense that final decisions were being made from the top down and behind closed doors, exacerbated by the fact that there was an active discussion in the chat box while the new process was being introduced. In the future, more effort needs to be put into transparency and communication, and the workshop organizing committee and facilitator should consider different options for reaching consensus and decision making.

List of Appendices

1. Workshop Logistics
 - a. [Agenda](#)
 - b. [Code of conduct](#)
 - c. [Participants](#)
 - d. List of Workshop Organizers
 - e. List of IARPC Agencies
2. Additional Communications
 - a. Email Communication for Workshop Participants Following Day 2
 - b. Consensus Research Priority Areas Following Day 2
 - c. Email Communication for Workshop Participants Following Day 3
 - d. Consensus Research Priority Areas Following Day 3
 - e. Email Communication for Workshop Participants Following Day 4
 - f. [Post-Workshop September 2020 Newsletter](#)
3. Arctic Research Plan 2022-2026 Documents
 - a. [Framework Infographic and Terminology](#)
 - b. [Initial Priority Research Areas](#)
 - c. [Priority Selection Criteria](#)
4. Background Plan-Related Documents
 - a. [Background Paper on Policy Drivers](#)
 - b. [Background Paper on Equity and Inclusion](#)
 - c. [Introduction to and Overview of Strategic Document Syntheses](#)
 - d. [Federal Document Synthesis](#) (existing public documents, 2015-2020)
 - e. [Northern Communities Document Synthesis](#)
 - f. [International Document Synthesis](#)
 - g. [State Document Synthesis](#)
 - h. [Federal Input Synthesis](#) (input provided by federal agencies through IARPC Staff Group, spring-summer 2020)
 - i. [Full List of Comments Received](#)

5. Background Big-Picture Documents

- a. [IARPC Overview](#)
- b. [Principles for Conducting Research in the Arctic](#)
- c. [Arctic Research Plan 2017-2021](#)
- d. [Biennial Report 2019](#)
- e. [IARPC Accomplishments in Northern Communities](#)