Developing a Strategy for an Annual Summary of Long-Term Monitoring on Alaska's North Slope

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University of Alaska Fairbanks
Board of Regents Conference Room

Workshop Summary and Report

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WILDLIFE CONSERVATION SOCIETY

This workshop was dedicated to the memory of Dr. Bob Fechhelm, whose North Slope fish research spanned three decades. Bob's technical expertise, good nature, and cheerful attitude survive in the memories of many environmental scientists who have worked in northern Alaska.

EXECUTIVE SUMMARY

With support from BP Exploration (Alaska) Inc., the Long-Term Monitoring on Alaska's North Slope workshop explored the value and need of a formal means to share long-term ecological monitoring data from the North Slope. By the end of the one-day workshop, attendees acknowledged that more could and should be done to aggregate, summarize, and share data from the North Slope. And, while efforts at synthesis and/or compilation of aspects of the overall data available was called for by many, the group forwarded various caveats and considerations that would need to be addressed in order for such an effort to be a success. Most importantly, was the consideration that if an annual synthesis of a specific topic is considered, it should only be done if it can be done right. Second, some recommendations fell within the scope of current efforts by the North Slope Science Initiative (e.g., managing a database of existing research efforts), which would benefit from greater publicity and outreach. Third, is the consideration that a comprehensive compilation/summary effort, including one that includes some degree of synthesis, should not exceed reasonable expectations of near-term financial or personnel capacity.

Workshop participants concluded that most of what is desired from summarizing additional information sharing could be accomplished through a carefully designed and run North Slope Science Symposium (potentially recurring at a regular interval) accompanied by a comprehensive suite of products designed to target research and lay audiences. Finally, while most of the discussion focused on links between research and target audiences in Alaska, any efforts in this arena should be thoughtful about how to create products that are also of value to wider synthesis and policy efforts, including those at the Arctic Council.

A first step towards a science symposium would be the creation of a symposium convening committee. This committee would, among other things, identify key topics for synthesis and compilation and solicit feedback by target audiences (managers, communities, public, etc.).

Final DASAR retrieved in front of Northstar this year (BP File Photo)

WORKSHOP REPORT

Workshop purpose and goals

This workshop was conducted to provide North Slope stakeholders the opportunity to discuss what information-sharing opportunities should be considered to advance understanding of the North Slope and help address its management needs. While the North Slope Science Initiative is working to track all research efforts on the North Slope, and regional operators such as BP Exploration (Alaska) Inc.'s Environmental Studies Group and Conoco Phillips have produced annual reports over the last decade summarizing long-term ecological data on a number of topics related to their oilfields, there currently is not a comprehensive summary of long-term ecological monitoring trends in the region. As one workshop attendee stated: “we are drowning in information but short of understanding what it all means.”

Many stakeholders working in the North Slope have expressed interest in a summary report to provide more complete insights into trends across the North Slope. With recent efforts by the North Slope Science Initiative and the Arctic Landscape Conservation Cooperative, as well as increased interest in long-term monitoring activities by various groups across the North Slope, the time was right to assess how to share information and data on an annual or otherwise regular basis that would be valuable to a diversity of audiences.

Workshop Participation

Forty-nine people attended the workshop. Participants included individuals involved in long-term ecological monitoring projects on the North Slope, as well as those who have roles in synthesizing information about the North Slope, including industry and agencies. All participants shared an interest in ensuring that regional research trends are compiled and shared with the region’s stakeholders and managers. Please see Appendix 1 for a list of all participants.

Workshop Structure

The one-day workshop was designed to both exchange information and provide the opportunity for participants to collectively discuss the value and need for additional means of sharing long-term monitoring trends on the North Slope. The morning included 1) presentations about existing efforts (i.e., the North Slope Science Initiative, Arctic Landscape Conservation Cooperative, and the National Park Service’s Inventory and Monitoring Program) that track and/or synthesize the broad suite of North Slope research efforts; and 2) individual presentations from participants about their long-term monitoring efforts on the North Slope. All participants were invited to share their perspective on how more data sharing and/or synthesis could benefit their own efforts and contribute to a broader understanding of the North Slope’s natural resources.

The afternoon consisted of breakout sessions and discussion. The following topics were discussed in small groups: 1) what roles could a summary report for the North Slope serve for academia, researchers, industry, state and federal agencies, and the interested public; 2) what format should be used to make a summary report as useful as possible to intended audiences; 3) how often should a synthesis report be completed; and 4) who is best positioned to lead such an effort. After each breakout session, the group returned to plenary session to share and discuss small group outputs.

Summary of Workshop Findings

Below is a summary of perspectives shared on the topics posed and discussed during the one-day workshop. These findings were used to inform the "Bringing these Findings Together" and "Next Steps" sections that follow.

1. Is there value in a form of long-term monitoring report?[1]

   Participants concluded that a well-planned and executed report that summarizes the "State of the North Slope" would be valuable for the region and its stakeholders. Several attendees reiterated the point that the research community has collected significant amounts of data across the region, but little compilation or synthesis of the data has been completed. A report that compiles and summarizes existing data could help to:

   a. Identify unanticipated lag effects (e.g., delayed vegetation impacts from changes in groundwater flow after a new road is constructed) or long-term (decadal scale) trends (e.g., changes in phenology of birds as a result of changing timing of snow melt).
   b. Provide context for individual studies.
   c. Identify gaps in science topics, spatial coverage, or logistics/capacity.
   d. Fill a niche that science and agency grey literature otherwise leaves unaddressed.

   While the value of a report was made clear, strong caveats to moving forward toward synthesis were shared amongst the group. The following sentiments were shared:

   a. If such a synthesis effort could not be done well, it should not be done at all.
   b. A synthesis effort should be synergistic, and not duplicative of other efforts by entities such as the North Slope Science Initiative.

[1] Some topics were raised that, although valuable, were more an extension of current products and efforts. For example a database to help make connections among North Slope scientists (networking) or with outside scientists (bridging roles) are within the purview of the current NSSI database of Long-Term Monitoring effort. Nevertheless, summarizing opportunities from this type of resource database may still be of value. A key opportunity is summarizing opportunities for piggybacking on logistics (e.g., vessels of opportunity) and sample collection at remote sites (e.g., an avian researcher collecting local soil or vegetation samples at their camp).

c. A realistic budget needs to be created and fully funded for any effort to be successful.
d. A clear justification of the additive value of a North Slope report should be found, given the existence of the broader Arctic Report Card. In other words, justifying the value of synthesizing and understanding sub-regional Arctic changes will be important in making a case for the effort's value to stakeholders and policy makers.

2. Who would the audience be for such a summary report?
   Following is a list of audiences based on workshop feedback:
   a. Alaska and federal agencies (regulatory and permitting)
   b. Industry
   c. Local communities
   d. Broad public
   e. Academia and researchers
   f. Congressional delegation
   g. North Slope workforce

   While each of these audiences deserve attention, the report should target the highest priority audiences to ensure that it meets the needs of those who need additional information about the North Slope the most. Additional work may be necessary to make the information accessible to other priority audiences.

3. What considerations should be addressed in such a summary report?
   Participants concluded that the report should:
   a. Bring together older (e.g., Outer Continental Shelf Environmental Assessment Program) and newer (Alaska Ocean Observing System) data.
   b. Provide a compilation/summary of data about a specific variable (across time or space)
   c. Ensure transparency regarding data processing and availability (i.e., where it is archived and how it can be accessed).
   d. Promote the need for shared data collection and analysis protocols.

4. What considerations are there about the format of such a summary report?
   a. Due to multiple potential audiences, reporting should offer access to a series of products that are user-friendly and nested to provide some users with more general information and others with more specific details.
   b. Given the consistent desire of workshop participants to nest information in a tiered manner, a paper report would not work well as an output.
   c. As an approach to informing the wider public, efforts could be made to engage teachers to develop teaching aids as another means of widening the use of the data.

5. <u>What considerations are there if a synthesis component to the summary report is desired?</u>
    a. Comprehensive compilation or synthesis of all potential topics would not be possible, so one issue or a subset of issues should be chosen for any synthesis effort.
    b. A synthesis should create a wider context and meaning for a specific topic (i.e., across specific variables).[2] Delphi or teams of experts are potential approaches to accomplishing a peer-reviewed synthesis of a specific topic.

6. <u>What should be the subjects of such a summary report?</u>

    Numerous ideas were raised for what should be compiled or synthesized, including the following:

    a. North Slope Science Initiative's 14 emerging issues.
    b. North Slope Science Initiative's database of current monitoring efforts. This would require asking stakeholders what they would like to synthesize from these collective efforts.
    c. North Slope Science Initiative's Science Technical Advisory Panel's seven primary topics.
    d. North Slope Borough's subsistence species.
    e. Other priority calls for synthesis.
    f. Variables within the Distributed Biological Observatory.
    g. Arctic Nearshore Impact Monitoring in Development Areas (ANIMIDA).
    h. While not the focus of such a report, stochastic events should be included.
    i. If building from BP's monitoring report, 11 of the 15 current chapters are animal-focused. As such, additional breadth around vegetation studies would be valued.
    j. Traditional Ecological Knowledge (e.g., Arctic Borderlands).
    k. Remote sensing.
    l. Human infrastructure.
    m. Small mammals are largely unaddressed despite their ecological importance.
    n. Water flows on rivers should be collated.

Bringing themes and recommendations together:

Workshop participants concluded that possibly the best way to address the need for sharing long-term North Slope monitoring data would be through 1) continuation of a summary report, and 2) a North Slope Science Symposium. Such a gathering would bring together researchers

[2] We define compilation as a summary of existing data on a topic across a region or time (with no interpretation) – perhaps with an executive summary. A synthesis would be the interpretation of that data in the context of other variables.

and agency managers around the specific topics of long-term monitoring interest (included in the annual summary) and be followed by proceedings from the symposium.

If managed well, a symposium could meet the needs of providing desired opportunities for researchers to network, ensuring agency personnel and industry can learn about regional trends that should be factored into management decisions, and giving other stakeholders the opportunity to engage and learn. And, media outreach could ensure that the public was learning about the North Slope through print and electronic media coverage.

There wasn't consensus about how often a North Slope Science Symposium should be held, or when and where for the first one. Reasonably, a first meeting could be envisioned for Barrow in 2016, followed as needed (potentially every 3-5 years) by follow-up gatherings. The Glacier Bay Science Symposium offers a close model for a regional synthesis of information and a multi-year periodicity of meetings.

And, while the topic of synthesis was discussed at great length, no consensus on this topic was achieved. That said, one possible way forward might be a periodic synthesis on different specific topics of interest (e.g., the impacts of reduced permafrost on North Slope ecology). New topics could be established through outreach with target audiences (e.g., managers, scientists, local communities). Once a synthesis topic is established, an expert group could be convened to provide the synthesis, including the necessary managers and academic researchers to cover both the annual data collection and scientific interpretation of that data.

Next steps

The next step would be to a) ensure the longevity of the annual summary of long-term monitoring; and b) convene an organizing committee to discuss the goals and desired outcomes of a North Slope Science Symposium. Such a committee should be comprised of representatives from existing stakeholders in the region (e.g., LCC, NSSI, UAF, NPS). A North Slope science symposium could be modeled on the Alaska Marine Science Symposium or the Glacier Bay Science Symposium and would benefit from locating in Barrow.

We recommend the organizing committee do the following:

- Revisit summary topics included in the BP report and assess key new topics to include in a wider Slope-wide effort.
- Assess opportunities for engagement by the National Science Foundation's Arctic Observing Network Program.
- Identify key topics for synthesis and compilation and solicit feedback by key target audiences (managers, local communities, public, etc.) (Perhaps one topic could be chosen by each group of stakeholders).
- Determine which topics would be targeted for synthesis or compilation at the symposium.

- Enlist a Delphi or expert group to take first cut at synthesizing a specific topic that would receive further discussion at the symposium.
- Identify keynote speakers on these synthesis topics and invite presentations and posters from researchers in the region.
- Develop a media outreach plan to connect the public to the symposium through media coverage of the focal synthesis topics.
- Ensure a web presence before and after the symposium so the public can continue to learn from what is discussed at the symposium.
- Determine a format and approach for publishing proceedings from the symposium. The proceedings could be archived online or could use an existing journal/vehicle such as *Witness the Arctic* or *Arctic Journal*.
- Ensure connections with Pan-Arctic efforts through communication with the U.S. Arctic Ambassador and Alaska Congressional Delegation.
- Prospectively assign the timing of the 2nd North Slope Science Symposium.

APPENDIX 1 – PARTICIPANT LIST

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APPENDIX 2 – NEED/PURPOSE AND AUDIENCE – GROUP FINDINGS

Group 1:

Need: enhance collaboration (creating and sharing of information); value in sharing information; enhance NEPA

Audience: academics, researchers, industry, agencies, and interested public

Comment: needs to be done well, or not at all

Group 2:

Need: Bring together older (OSCEP) and newer (AOOS) systems

Audience: regulators, industry, general public

Comment: Series of products that are user-friendly; nested to provide some users with more general information and others with more details; the products need to be informed by the resources that are available to develop them.

Group 3:

Need: inform gap analysis; inform where to send resources; identify information dissemination needs; help field researchers coordinate; include contact information; table of who is doing research and what data is being collected

Comment: Fundability needs to be considered

Group 4:

Audience: interested public; agencies

Comment: It is not possible to scale up a paper report, so need to find a medium that is workable at scale; focus on NSSI's 14 emerging issues; methodologies need to be very clear if a synthesis is the goal; consider choosing one issue or a subset of issues each year (e.g., permafrost, early ice break-up); this should not be a data-sharing effort.

Arctic LCC:

Audience: resource managers, local communities

NSSI:

Audience: government, agencies, industry, local communities
Biggest users: state and local government; permitting and regulatory agencies

APPENDIX 3 – FORMAT FOR A SUMMARY REPORT – GROUP FINDINGS

Group 1:

- Conference (presenters and posters) and proceedings
- Utilize an existing journal/vehicle such as *Witness the Arctic* or *Arctic Journal*. Choose one issue a year that focuses on a specific issue or theme – this would result in more of a piecemeal sharing of topics.
- If you focus on the NSSI's 14 emerging issues, it could be limiting (e.g. the boulder patch would not be covered)

Group 2:

- Symposium and proceedings with a heavy web presence
- Outreach products
- Before symposium, identify key issues that require synthesis and focus symposium on those key issues.
- Media at symposium to reach the general public
- Presentation of stochastic events (e.g., storms)

Group 3:

- Summary and synthesis
- Publication may entice participation
- Symposium could lead to synthesis
- Identify subprojects
- Keep topics diverse and broad
- Web – create structure, but make it interactive

Group 4:

- Compilation – expert/Delphi approach; one compiler
- Team
- Biannual symposium – could kick off reporting compilation
- Pre-identify an outcome such as proceedings
- Focus on question or topic identified by managers

Final thoughts:

- Resource managers and community members are both target audiences of LCC and NSSI
- Compilation
- Peer review with clear methodology
- Scope (theme versus NSSI's emerging issues)
- Format: North Slope Science Symposium; utilize existing North Slope websites (LCC, NSSI, UAF, other)