

**North Slope Science Initiative  
Science Technical Advisory Panel & Senior Staff Committee  
May 9-10, 2016  
Iñupiat Heritage Center, Barrow, AK  
MEETING NOTES**

**ATTENDEES**

**STAP Members**

Robyn Angliss, Chair  
Robert Meyer, Vice Chair  
Robert Bolton  
Linda Brewer  
David Cairns  
Lorene Lynn  
Jeff Organek  
Scott Pegau  
Robert Shuchman  
Liz Snyder  
Robert Suydam

**Senior Staff Committee**

Scott Carr, BSEE  
Heather Crowley, BOEM  
Lois Dalle-Molle, NPS  
Maria Gladziszewski, ADFG  
Nathan Hawkaluk, USFWS  
Qaiyaan Harcharek, NSB  
Melissa Head, ADNRR  
Brian Person, NSB  
Dave Yokel, BLM

**Oversight Group**

Taqulik Hepa, NSB

**NSSI Staff**

Denny Lassuy  
John Payne  
Jess Grunblatt

**Guests/Public**

Mayor Mike Aamodt, NSB  
Mayor Bob Harcharek, City of Barrow  
George Olemaun, ICAS  
Doreen Lampe, ICAS  
Aubie Gregg, ICAS  
Karl Newyear, UIC Science  
Craig George, NSB  
Denby Lloyd, NPRB  
Martin Jeffries, IARPC  
Sandy Starkweather, IARPC  
Scott Guyer, BLM

**Monday, May 9, 2016**

**01:00 – 01:30 PM** The meeting was opened by Denny Lassuy (Director, NSSI) and Robyn Angliss (Chair, STAP) with introductions, review and approval of the agenda, and a few opening remarks and questions. Taqulik Hepa, NSSI Oversight Group Chair and Director of the NSB Department of Wildlife Management, welcomes everyone to Barrow. Acting Mayor Mike Aamodt welcomed everyone and noted that the Borough had been seeing an increase in the number of inquiries about climate change from researchers, reporters and film makers. Others noted that Arctic Council Working Groups (most recently the Sustainable Development Working Group) had met in Barrow and that they would appreciate it if these bodies and/or NSSI could provide local residents with more opportunity for participation in such forums. A question was raised regarding the stability of NSSI funding and Denny responded that this would not be known until the Fiscal Year 2017 federal budget allocations are made, but that NSSI is hopeful that current funding, including level funding for STAP travel, would be maintained.

**01:30 – 02:00 PM    DOI Arctic Cumulative Effects Workshop Readout** Robert Suydam provided a summary of the workshop. He recounted that it had been a letter from Audubon to Secretary Jewell last Fall questioning the quality of current cumulative effects (CE) analyses that had initiated efforts to organize the workshop. DOI committed to co-hosting a workshop with NOAA to address this concern. The first day was an open meeting that agencies, as well as NGOs, could attend; there were a series of presentations and discussions; NGOs had the opportunity to share their position on challenges and needs; and these were followed by a general discussion of the nature of cumulative effects. The second day was an agency-only workshop (FOIA issues made this a closed meeting) in which the workshop organizers collected questions and recommendations from agencies on how to move forward. Topics included subjects like: basic questions about the NEPA process; current methods (and their shortcomings) for addressing CE; the transparency of current CE methods; and issues surrounding appropriate temporal and geographic scale, the role of human impacts, quantitative vs qualitative techniques, and various computational models. A summary report from the workshop is under development and is expected to be made widely available by the end of this summer – NSSI will circulate the final report to all STAP, SSC and Oversight Group members. The STAP then discussed how else NSSI may be able to help encourage this effort to improve CE methods and developed a draft recommendation for presentation to the Oversight Group at its next meeting (slated for Wednesday, June 22<sup>nd</sup> in Anchorage).

**02:00 – 02:30 PM    Preliminary Outcomes from Scenarios Project** In the absence of Scenarios Project Principal Investigator Dr. Olivia Lee (UAF), Denny provided a brief summary of the project's progress and preliminary outcomes. He reviewed the role the STAP had played in originating the project through its Emerging Issue Summaries (<http://northslope.org/issues>), publication of a "connectivities paper" ([http://northslope.org/nssi/media/doc/Streever\\_et\\_al\\_2011.pdf](http://northslope.org/nssi/media/doc/Streever_et_al_2011.pdf)), and subsequent recommendation to the NSSI Oversight Group. The focal question for the project was "What is the future of energy development, resource extraction and associated support activities on the North Slope and adjacent seas, through 2040?" The project has now completed its three component workshops – the first to review drivers of change and identify three plausible development scenarios (low, medium and high); the second to identify the physical, biological and social implications of those scenarios; and the third to translate those implications into relevant research and monitoring needs to inform resource management decisions in the future. In the time since the project began the price of oil has dropped precipitously and the value of an inclusive and participatory scenarios effort has become more evident. Various STAP, SSC and OG members participated in all three workshops – particularly the final workshop on research and monitoring. The "Top 5" preliminarily identified R&M priorities from that third workshop focused on (in no particular order): ecosystem health indicators for terrestrial systems that support species used in subsistence hunting and trapping; high resolution elevation data to support hydrographic and permafrost research; documentation of Traditional Knowledge relating to marine mammal subsistence; cumulative social and health impact assessments; and research on how to respond to oil spills from shipping accidents. At the conclusion of the presentation, the point was reiterated that these scenarios are not plans or predictions but solely "what if" exercises to inform discussions of future science investments ... and that this point is critical to any outreach that is undertaken. The draft final report and a summary document on the Scenarios Project are expected in June 2016 and all project data will eventually be made accessible through the NSSI website. The STAP requested that NSSI make sure the preparers of the final report (GeoAdaptive, LLC) made clear which R&M efforts were thought to apply across all three scenarios. Denny has since communicated this request and GeoAdaptive has agreed to do so.

**02:30 – 02:45 PM    Break**

**02:45 – 04:00 PM Strategic Planning Discussion (Review/Assess the NSSI Oversight Group’s 2011 Retreat Priorities).** This discussion was led by John Payne and Robyn Angliss, with John first providing a short PowerPoint to review the priorities identified at that retreat and the status of NSSI progress towards addressing those priorities.

Oversight Group priorities were closely tied to the STAP’s “connectivities paper” (cited above) and focused on assessment of potential development scenarios; assessment of potential climate scenarios; enhanced climate and weather data across North Slope; coordination of existing long-term monitoring (LTM) projects; and improving communication among managers, residents, and scientists (for example, through place-based workshops). The ongoing North Slope Development Scenarios Project (<http://northslope.org/scenarios>) directly addresses the first priority. The climate scenarios effort was deferred to the Arctic Landscape Conservation Cooperative (ALCC) and has not been as directly addressed as a scenarios project but the ALCC, working with groups like the Scenarios Network for Alaska + Arctic Planning (SNAP), has made significant progress assessing climate risks. The weather and climate data priority was addressed through the “Imiq” project (see: <http://catalog.northslope.org/catalogs/9622-imi-q-hydroclimate-database-and-data-portal>) which was primarily supported by the ALCC with some funding and technical assistance from NSSI. However, this project not yet settled on a means for sustaining its organization and dissemination. Long-term monitoring was reviewed by the STAP and SSC (<http://northslope.org/monitoring>) and LTM projects are accessible through the North Slope Science Catalog (<http://catalog.northslope.org>). To address the communications priority, NSSI hired a half-time communications specialist who has greatly enhanced NSSI’s presence on social media, the look and operability of its website, and monthly updates to the OG, STAP and SSC. However, an overall communications plan has not yet been developed and there continues to be strong interest in place-based workshops. While the Scenarios Project has been underway, place-based workshops have seen little action but are likely to become a focus – for example, see the next section regarding a potential aviation workshop. The STAP expressed concerns with what they saw as slow progress on communications and local workshops, as well as the lack of a single “central repository” of North Slope data. To the latter point, Jess Grunblatt explained the difficulties of “one-stop shopping” vs interoperability of individual agency data access and storage but noted that he will continue to discuss options with the UAA Arctic Domain Awareness Center. The STAP felt strongly that it needed to be represented at the next Oversight Group retreat (tentatively slated for this coming Fall/Winter) to clearly communicate STAP recommendations. The STAP plans to continue this discussion of NSSI priorities at its next meeting (likely in Sep/Oct timeframe) in preparation for its participation in that OG retreat. Robyn listed off preliminary thoughts on what to address at the next STAP meeting in this regard:

- Matrix of management needs from Scenarios Project and crosswalk this with Emerging Issues Summaries recommendations
- Identify what progress has been made where the two coincide, and identify gaps
- Revisit the Barrow workshop recommendations
- Revisit the communications plan

**04:00 – 04:30 PM AWSC Communications Protocol Workshop Update** Since new STAP member and Arctic Waterways Safety Committee workshop facilitator Martin Robards was unable to attend the STAP meeting, Robert Suydam provided his insights on the workshop. The AWSC is trying to come up with a way to reduce potential conflicts between subsistence hunters and ocean researchers. NSSI hopes to learn from AWSC’s deliberations to see if their approach may help inform how similar concerns with aviation-based research and land-based subsistence activities might be

addressed. The AWSC had developed a “standard of care” protocol that they hoped would guide scientists on how to communicate with communities about research intentions and get permissions. Apparently, after a December 2015 meeting, many involved in AWSC deliberations thought the standard of care protocol would be implemented in March 2016. However, this timetable was not vetted with all stakeholders and the March 2016 meeting with researchers, scientists, and ship operators “got a little tense” and the protocol was not agreed to. Researchers are now providing feedback – for example, on notification timelines, permitting authorities and sovereignty concerns. While the protocol would be voluntary, some STAP and SSC members felt it had important implications for federally-funded research and that finalization should involve participants from at least the Departments of the Interior, Commerce and State. Regardless of remaining technical issues, Robert noted that at its base, better communication with the vessel operators need to be fostered so that they can accommodate researcher needs as well as subsistence hunting needs and that this same principle will likely apply when addressing aviation concerns. The AWSC continues to work on the standard of care, with hopes of implementing it in 2017. The next AWSC meeting is planned for November 2016. The standard of care protocol does not currently address concerns with increasing visits by cruise ships and Arctic adventurers.

**04:30 – 05:00 PM Public Comment** The meeting was opened to public comment and Doreen Lampe (Executive Director, Inupiat Community of the Arctic Slope) provided comments on a range of topics, some relating to NSSI agencies and others to broader interests – for example:

- She noted concerns and limitations in dealing with increased cruise ship activities, citing her attendance at a meeting about the Crystal Sovereignty cruise ship where some community representatives suggested that cruise ships slow down to avoid harming bowhead whales and travel in pairs so they can save themselves; she suggested that in the absence of such arrangements, ships are depending on coastal communities for aid but these same communities do not receive economic benefit or incentives (gave example of potential for 2000 passenger ship, rescue plan with capacity for 600, depending on a Pt. Lay population of 200 to help respond). She hopes to be involved in future AWSC deliberations.
- Ms. Lampe described a new ICAS Hunter/Gatherer Commission, formed to protect and enhance the traditional hunting and gathering of renewable natural resources (other than those under the jurisdiction of the AEWC). She noted that she hoped this commission would be able to address concerns that cross jurisdictions – e.g., aviation concerns (citing the intensity of local frustration with both research and energy industry-driven flights), incidents like the recent adrift tanker, ESA listings, and subsistence harvest limitations. On the latter, harvest limitations, she referred to “selective enforcement” and cited the example of continued commercial fisheries by-catch in the Bering Sea while limitations are placed on Alaska Native harvest in the rivers. She added that she supports the commercial fishing ban in the Arctic to “protect the existing ecosystems” that support subsistence species.
- She also cited health and safety concerns, specifically the high rates of respiratory disease in Nuiqsut, a lack of baseline data on health and the risks from oil and gas development activities, and suggested using energy industry mitigation funds to address these concerns.
- She expressed ongoing concerns with Legacy Wells in the NPR-A, especially any that are near the coast and thus susceptible to erosion risks, and other general contaminants concerns – for example, their potential relationship to locally observed incidents like lesions on marine mammals, fungus on freshwater fish, and toxins in the livers of some fish that she noted are preferred by many elders.
- Ms. Lampe concluded by saying that “we love our ecosystems” and that if “we could work better with agencies, we’d be OK.”

The meeting adjourned for the day at 5:00 PM and resumed the following morning at 8:30 AM.

## **Tuesday, May 10, 2016**

**08:30 – 08:50 AM Welcome/Recap of Day 1** Denny Lassuy and Robyn Angliss recapped the Day 1 activities, the identified future plans (e.g., above-noted preliminary list of topics for the next STAP meeting), and reviewed the draft language for a STAP recommendation to the NSSI Oversight Group regarding cumulative effects analysis. The draft language is still under review by individual STAP members and will be shared with the NSSI Oversight Group at their upcoming meeting (slated for June 22 in Anchorage).

**08:50 – 09:20 AM BAID Decision Support Tools Development** Allison Gaylord (NUNA Technologies, <http://www.nunatech.com>) gave a presentation on recent Barrow Area Information Database (BAID) tools for displaying geographic information intended to support research and community planning. Barrow has a long history of research activities and many layers of data and imagery are thus available specifically for the Barrow area. Allison gave brief descriptions of some of the tools available through the website (<http://barrowmapped.org>), for example a “coastal erosion viewer,” a “community planning tool,” and a “research sites viewer.” Jess Grunblatt said he would work with Allison to make this data accessible through the North Slope Science Catalog on NSSI’s website. Questions arose regarding the “shelf life” of wetlands mapping data (10-yr review would be useful); database maintenance (hosted by University of Texas, additional funds requested); and BAID’s role in working with the Landscape Conservation Cooperatives on “Coastal Resilience” workshops (none yet). On the coastal resilience workshops, Denny Lassuy noted that he had discussed with the LCCs the option of holding a workshop in Barrow and that NSSI was willing to assist in whatever way it could to help.

**09:20 – 10:05 AM Interagency Arctic Research Policy Committee** Drs. Martin Jeffries and Sandy Starkweather co-led a presentation and discussion of the ongoing IARPC 5-year (2017-2021) planning process and the opportunities for input into that process. The Interagency Arctic Research Policy Committee is a federal research coordinating body supported by the National Science Foundation and run out of the White House Office of Science and Technology Policy. They are in the midst of gathering input on research priorities for their next 5-year plan. IARPC is currently taking input from federal agencies and will release a first draft report of the new plan for public comment around the end July. Since the STAP will not be meeting again before the comment period opens, it was suggested that STAP members could work collaboratively remotely to develop collective input. NSSI will alert members when the document becomes publically available (comment period is 30 days from release). Changes from the current IARPC 5-year plan include expanding the “health” goal to “health and well-being” (note: this nicely coincides with the Scenarios Project implications category of “Health and Community Well-being) and the addition of a “coastal” goal. STAP, SSC and public questions of the IARPC presenters included:

- how international research would be handled – IARPC plan focuses on existing international partnerships, e.g., Arctic Council working groups;
- how research impacts on communities would be addressed – State Department has a team working on this, IARPC invites comment on this component during the public comment period, also NSF produced guidance on “Principles for the Conduct of Research in the Arctic” (which primarily focused on research on human subjects) and is open to feedback on that document (see: <https://www.nsf.gov/geo/plr/arctic/conduct.jsp>). Denny added that it would be

very appropriate and much appreciated if the IARPC could maximize the participation of community members in plan finalization;

- to what extent will agencies be accountable to the plan & what is the timeline – response was that the plan was “not aspirational” but “actionable” and should all be implemented (over 2017-2021) because it is based on federal agency input but is dependent on current and future agency funding;
- how will cumulative effects be addressed in the plan, specifically will it include air quality concerns – response noted there is a health and wellbeing goal, and Dr. Jeffries indicated that he would highlight the air quality concerns to the plan authors but noted that the plan is focused on research, not necessarily mitigation, and acknowledged the inadequacies in communicating research/data in a timely fashion to be useful to the communities themselves – especially in instances of immediate impacts (e.g. like air quality).

**10:05 – 10:15 AM Outline Coordination Session** Jess Grunblatt gave a brief presentation on the North Slope Science Catalog (<http://catalog.northslope.org>) noting that are over 3,000 projects filed (581 of which are ongoing), 700-800 hits and over 200 downloads per month. Jess had compiled information on these projects agency-by-agency and shared them with Senior Staff Committee members to help enable their presentations. Denny reminded meeting participants to visit and use NSS Catalog and that their agency presentations should focus on those projects most suited to added partnerships or collaboration.

**10:15 – 10:30 AM Break**

**10:30 AM – Closing (Coordination Session contd):** From 10:30 AM through the remainder of the day (except for lunch and a brief recap at the end of the day), the NSSI member agencies and others presented highlights of their ongoing or anticipated projects on the North Slope and adjacent seas. The following are some highlights from that extended discussion. Individual presentations, to the extent they have been shared with NSSI staff, are available upon request.

**BOEM:** A brief presentation was made on an upcoming BOEM-funded project relating to developing a mechanism to regularly access Traditional Knowledge (TK) that could benefit from NSSI member agency partnership and support. The project is being developed in close coordination with the North Slope Borough Department of Wildlife Management. This proposal will also be shared with the NSSI Oversight Group at its next meeting (slated for June 22<sup>nd</sup>). For more information, contact Dee Williams, BOEM Environmental Studies, at [dee.williams@boem.gov](mailto:dee.williams@boem.gov). Denny indicated his personal support for this approach and George Olemaun (ICAS Council President) emphasized that TK isn't learned by reading, but by living. Heather Crowley of BOEM also highlighted current and planned 2017 and 2018 projects and Martin Jeffries (IARPC) noted that a planned 2018 Office of Naval Research “ice camp” in 2018 that may provide a platform for collaboration between BOEM and ONR.

**BLM:** Dave Yokel summarized BLM's 2016 projects and noted their extensive pre-season planning cooperation. He particularly highlighted one project called “What Have You Guys Done with My Comments?” – a project intended to investigate and relate back to the communities how effective their contributions had been. Doreen Lampe (ICAS) requested the opportunity for ICAS to be involved in this study and cited the importance of a paper called “The Inupiat View” (copy available at: <http://www.inupiatgov.com/wp-content/gallery/npra/TheInupiatView.pdf>).

**UIC Science (Ukpeaġvik Inupiat Corporation):** Karl Newyear of UIC Science noted that they provide research support for about 35 projects per year, including cultural resources management,



research planning, instrumentation support, arctic science support, logistics, and local Traditional Knowledge. He invited attendees to visit <http://www.barrowbulletin.com> to learn more.

**USFWS and Arctic LCC:** There is a new Arctic LCC Coordinator, Dr. Wendy Loya, who is a former member of the NSSI Science Technical Advisory Panel and most recently worked in Greenland. A full listing of ALCC project can be found at their website (<http://arcticlcc.org>). Highlighted projects included Imiq (an ALCC/NSSI collaboration on a hydroclimate database); the Terrestrial Environmental Observation Network (TEON) which initiated field work in 2015 and is looking for a funding partner for future work; Fish Café, which is an interdisciplinary project that is a field study involving mapping and modeling water connections; a polar bear den modeling effort; and a cooperative project with other LCCs on coastal resilience workshops. The ALCC strategic plan will be updated soon and this should provide NSSI an opportunity to inform that process.

**NPS:** Lois Dalle-Molle highlighted the NPS monitoring program for “Vital Signs” of ecosystem health and the status and trends of selected park resources (e.g., climate, vegetation, fire regime, lakes and lagoons, and a range of species like brown bears, Dall sheep, and loons). She also noted studies of shipping and coastal erosion. However, she added that much of NPS’s ability engage studies is being taken up with responding to a request for a new East/West road south of the Brooks Range.

**NOAA:** After a brief presentation by Robyn Angliss on NOAA project, Roberty Suydam specifically thanked NOAA for avoiding overflights of communities during their aerial surveys but he also noted that because polar bears are coming into town more and more they may be missed in aerial monitoring that avoids communities. When questioned about data access, Robyn noted that NOAA generally does make its data available but that the data may not meet all requesters needs in terms of resolution.

**BSEE:** Scott Carr said BSEE’s primary focus areas were on ice mechanics, pipelines, Arctic outer continental shelf structures, and Arctic freeze-up. On this latter topic, BSEE anticipates future studies on freeze-up and break-up in the Chukchi and Beaufort Seas and its relation to the suitability of “Jack-up Rigs” for use in these waters; also on “source control and containment systems vs. same season relief wells.” For these latter studies, he noted that since Shell has pulled out as a funding partner for the foreseeable future, the studies will be more expensive but the tradeoff will be that the data will be more publically available. George Olemaun (ICAS) stated some concerns regarding lab-based studies of ice and suggested it’s better to observe in the field.

**ADNR:** Melissa Head noted that ADNR is continuing to do snow depth/snow density work in land between the NPR-A and the Arctic National Wildlife Refuge (as it has for the past 10 years) and monitors ice road and tundra travel on a case by case basis. She added that the ADNR Division of Geologic and Geophysical Services is going out into portions of the Brooks Range to do energy mapping, including coal and geothermal.

**ADFG:** Maria Gladziszweski confirmed that most of the 24 projects listed in the NSS Catalog are ongoing, in addition to other studies on subsistence fish life history research, bear den location research on the North Slope, marine mammal research, and a pilot study on polar bear hair to enumerate individuals. Denny inquired whether any of the ADFG studies may be imperiled by the precarious state budget situation – Maria responded that they were not in jeopardy. George Olemaun (ICAS) asked about the possibility of co-locating fish studies at residents’ fish camps and Maria noted that a lot of fisheries studies have been done in collaboration with local cabin owners.

**NSB:** Brian Person worked from the NSS Catalog summary of NSB projects and noted that while the funds from Shell were winding down, a project on the effect of oil and whale baleen and juvenile salmon was ongoing and that there was a health/contaminants component to these NSB projects. He also noted the sharp increase in snow geese over the years and that population monitoring is ongoing.

**USGS:** A project summary handout was provided, but nobody from USGS was there to provide an update. Listed projects included studies of the effects of temperature change on fish growth and food webs in the Barrow/Atkasuk watershed area, shoreline change near Barter Island, snow goose and black brant ecology on the Colville River Delta and across the NPR-A.

**NPRB:** Denby Lloyd (Exec. Dir., North Pacific Research Board) provided a brief review of NPRB history, research focus (primarily marine) and upcoming funding opportunities. NPRB was created by Congress in 1997 and has focused on marine fisheries issues, puts out an annual request for proposals, and funds around 25 proposals of 1-4 years in length and has an annual operating budget of about \$9 million. Their Arctic Integrated Ecosystem Research Program (IERP) will be looking at physical forming functions in supporting upper trophic levels and availability of subsistence resources (note: immediately after the STAP meeting on May 11, NPRB published its Arctic IERP funding decisions (see: <http://www.nprb.org/news/detail/nprb-announces-funding-decisions-for-arctic-integrated-ecosystem-research-p>). George Olemaun invited NPRB to their next ICAS meeting and noted that ICAS would like to figure out how to better access local marine food resources. Denby replied that there is interest in putting into place an Arctic Community Development Quota Program. Further information on NPRB projects and opportunities can be found at: <http://www.nprb.org>.

#### **STAP Members:**

*Scott Pegau* highlighted upcoming OSRI projects including oil degradation studies, toxicity studies, work with Defenders of Wildlife for existing maps regarding oil spill response.

*Bob Shuchman* gave a short PowerPoint presentation highlighting MTRI work on the use of SAR to detect polar bear dens (ExxonMobil funding) in collaboration with USFWS and noted that the study will be repeated in conjunction with FLIR studies in December 2016 in the Deadhorse area.

*Lorene Lynn* (Red Mountain Consulting) noted that as far as she knows, all discretionary studies by the oil industry have been stopped or put on hold, but Robyn Angliss noted that publication of complete studies may still be published. Robert Suydam suggested this reinforces the value of requiring studies and their publication as a permit condition.

*Bob Bolton* (UAF) gave a brief presentation on the DOE-funded Next Generation Ecosystem Experiments (NGEE) Arctic Project and noted its relevance to the IARPC goals. With sites from the Barrow area to the Seward Peninsula, NGEE's goal is to understand the Arctic's role in global carbon flux. He also described an Integrated Ecosystems Modeling effort funded through the Arctic LCC and USGS Alaska Climate Science Center to improve understanding of the nature and rate of landscape change – noting that even small changes induced by thermokarst can dramatically alter bird habitats.

**04:15 PM Recap and Wrap-up:** A question of the utility of these interagency coordination meetings was raised and (former STAP Chair) Scott Pegau noted that it was these meetings that were the reason he asked to join the NSSI STAP. There was general agreement that such meetings should continue, but as indicated by Denny at the outset of this meeting, should be held much earlier in the year (e.g.,



January or February) to better enable collaboration for the coming field season. The use of a consistent format was also suggested, as was the value of in-person presentations, and that it is most useful to enhancing potential collaboration when the presentations include projects 1-2 years out.

Regarding other means to enable better coordination, for example between aviation-based research and local residents, Robert Suydam suggested NSSI might want to pursue a terrestrial project mapping effort akin to the AOOS “Arctic Assets” effort. Jess noted that while a variation of this may be possible, the project location data that agencies provide when populating the NSS Catalog would need to be improved for such a map to be fully useful – and thus may benefit from OG members urging this improvement in agency contributions. Allison Gaylor (Nunatech) added that she is working on an Arctic Observer map that help with this; also has some data organization templates on their website. Finally, it was also noted that inclusion of industry and NGO project information would also be useful.

**04:30 PM     Adjourn**