UNOLS Arctic Icebreaker Coordinating Committee (AICC) Meeting
November 27 and 28, 2007
Coast Guard Integrated Support Center - Rainier Room
Pier 36 - 1519 Alaskan Way
Seattle, Washington

Executive summary

A meeting of the UNOLS Arctic Icebreaker Coordinating Committee (AICC) was held on November 27 and 28, 2007 at the U.S. Coast Guard Integrated Support Center in Seattle, Washington. In addition to members of the committee, representatives from the U.S. Coast Guard, National Science Foundation, National Oceanic and Atmospheric Administration and the Arctic Research Commission attended the meeting. Topics of discussion included a review of the past years cruises, plans for the coming year and beyond. Plans for the major overhaul and shipyard period as well as plans for upgrades to science infrastructure and scientific support were discussed. Ongoing plans for maintaining good relations with the Arctic communities were addressed. The status of the USCGC *Polar Sea* and the possibility of conducting a science of opportunity cruise to the Arctic was reviewed and tentative plans for announcing this opportunity to the community were made. Other subjects included data collection efforts to support possible Extended Continental Shelf claims, planned re-organization of the Coast Guard and the Coast Guard's Arctic Domain Awareness initiatives.

AICC Action items

Task	Assignment
ASCI Web site (at AWI), make icebreaker cruises more visible. Urge 2008 PIs to use the AWI site.	Robin Muench
Increase awareness of Arctic logistic assets through town hall meetings at Nat.' meetings	AICC & UNOLS
Revise and release solicitation for new AICC members.	UNOLS Office & AICC
Identify dates for meeting in Arlington VA during Healy Seattle port time in May-June. (tentatively June 3 & 4)	Carin Ashjian
Identify desire for and dates for retreat in Alameda in late 2008.	Carin Ashjian and CG
Urge BEST PIs to let the NSF and CG know their 2010 cruise window ASAP.	Carin Ashjian
Start working on SOO announcement to be released ASAP.	Phil McGillivary, Renee Crain, Mike Prince & AICC
Check on Canadian SOO on Buoy Tenders.	Kate Moran
Review berthing policy on Icefloe Web site.	Dave Forcucci & *Healy*

Task	Assignment
Add information regarding watches to cruise planning questionnaire to assist in planning mid-rats.	Dave Forcucci
Urge Chief Scientists to supply information to XO regarding mid-rats needs and type.	Dave Forcucci & *Healy*
Provide information on appropriate use of internet bandwidth and urge PIs to provide thorough information on band width requirements and other requirements.	Dave Forcucci
Follow up regarding suggestions from debriefs for improving ice safety procedures.	Carin Ashjian
Document and bank the information about interactions with northern communities undertaken by AICC, USCG and PIs on what they have done and is being done, what works well and what to avoid.	Carin Ashjian & UNOLS Office
If Polar Sea goes north, then starting the process for interactions with BASC and AEWC. Glenn Sheehan has already been apprised of the possibility of the potential cruise as well as C130 flights. Coast Guard will be attending AEWC meeting to brief them.	USCG
AICC develop a recommendation regarding medical check-ups, forms and procedures. Use data on past evacuations and incidents to highlight the need for the policy recommendation. Also suggest how the present system can be improved to provide information to the Coast Guard in a timely manner.	Rebecca Woodgate & AICC, Renee Crain and Simon Stephenson
AICC to discuss the proposed berthing changes and make recommendations by correspondence.	AICC
AICC write to Taro in support of the PCO2 installation as long as the data is publicly available in real time, define data access and better define what the at sea support will be.	Carin Ashjian
AICC think about the proposed Radiosonde Van installation and provide advice to Coast Guard and NOAA. Need more information first. Scientifically, this would be valuable to have at least one launch a day and four a day would be required for good forecasting. Issues about cylinders, space, etc. Dale to follow up to get more details.	Dale Chayes & AICC
AICC review potential 2009/10 drydock items and make recommendations regarding priorities and additional items as soon as possible.	AICC, USCG & Dale Chayes

Proceedings of the meeting

Welcome and Introductions

The UNOLS Arctic Icebreaker Coordinating Committee (AICC) meeting was held on Tuesday November 27 and Wednesday November 28, 2007. Dr. Carin Ashjian, AICC Chair, called the meeting to order at 0830 and provided an opportunity for introductions. A list of participants is included as Appendix II

AICC Chair Report and Discussion Items (Appendix III)

Carin reviewed the planned schedule for the meeting.

AICC Role and Activities

Carin introduced the topic of AICC roles and activities by reviewing the charter language for AICC.

Carin asked if anyone had comments about the role and benefits of AICC

Capt. Lindstrom stated that the committee was very valuable to the Coast Guard, which is why so many of them are in the room.

Kate Moran felt that the last bullet about encouraging the advancement of cooperative international programs should receive stronger consideration. Doing work in the Arctic is inherently international. Peter Minnett thought that for the most part, forming international collaborations takes place at the grass roots level among colleagues and he was not sure what type of assistance AICC could provide. There may be difficulty in obtaining funds for people to work on foreign vessels, although getting invitations to participate in cruises doesn't seem to be too hard. Discussion about impediments to making international collaborations more successful and what the committee's role might be. Getting Healy into the eastern Arctic would be facilitated through collaboration with Europeans, although this would require much more advance notice of when Healy would be operating in the eastern Arctic than is normally known. Some advance (years) notice of projects that are funded would be helpful. Hedy Edmond thought that one thing that could be done would be to make information better known about planned work. The Arctic Ship Coordination during IPY (ASCI) site at the Alfred Wegener Institute (AWI) (http://www.asci-ipy.de/2008.html) was mentioned and several thought that it would be useful to use this site to encourage collaborations. This site was started for IPY: what is its longevity? Robin will contact Ursula Schauer about the longevity and other aspects of the site. There was further discussion about getting more information about *Healy* and *Polar Sea*/*Polar Star* plans and availability included on the site. The *Polar Sea* is not on the list, although Phil McGillivary recently sent information to the ASCI site.

http://www.asci-ipy.de/2008.html

Jeff Garrett and Dan Schwartz discussed the idea that the *Polar Sea* is an asset that is ready to be used but it is not being considered for use. This is felt to be based on budget priorities. But it appears to some that the use of *Polar Sea* is not even on the table. Several people felt that the *Polar Sea* is ready to go and for a relatively small incremental amount of money the science systems could be made operational as well. The ship is planning to go to the Arctic for training and the ship could be used for other projects.

Phil McGillivary thought there were people with funding in hand that could take advantage of this asset. *Polar Sea* winches and other components of the science outfitting have not been funded for maintenance and operation for several years and should not be considered useable unless overhauled and tested.

Is there a worldwide dearth of resources and, if so, then why aren't the USCG breakers (Polar Class) being used given the large amounts of money that have been put into keeping them going? If not listed as available, then nobody will ask to use them.

Could we have a form requesting planned, proposed or funded activities. Form could be placed on a site and used by others to plan interactive work. How can we get word out that Polar class breaker is available for use. Is there an NSF or other bias against this use and, if so, how can that be fixed?

Funding available at NSF is a major issue with respect to funding icebreaker use. Icebreakers are actually a good deal, because major costs are already covered and primarily it's fuel costs that remain. In general, for comparison, UNOLS is already overspent and are not looking for ways to expand shipboard operations. Even if ships were funded, there is still the cost of funding scientists to work aboard. NSF has budget authority for Polar icebreakers and controls cost to outside users as appropriate. (McMurdo breakout an example: funds are committed and, if not used for McMurdo, could ship be used someplace else.) Day rate is very close to the fuel cost rather than to the full operating cost (maybe 40% of actual operating cost).

Discuss potential usage of *Polar Sea* at greater length offline.

Town hall meeting for discussion of US/foreign icebreaker availability: discuss offline. Maybe use Arctic Info? How to reach the broader audience? Eos article?

Action Item: Make better use of the ASCI website, make icebreaker scheduling more visible on the web. Google search metadata on the AICC website, better links on the website. Robin will contact Ursula Schauer.

Action Item: Consider Town Hall meeting at ASLO and/or future AGU meetings. Also, get involved in the international planning meetings.

Carin showed a list of what the AICC does do and what it does not do.

Mostly fosters communications and makes recommendations regarding the icebreakers. We do not schedule cruises or develop logistical details. Dale suggested adding a FAQ to the Icefloe website that provides this information to users of the *Healy*.

AICC Membership

Rolf Gradinger stepping down - do we need a committee member with a focus on ice related research, someone that actually works out on the ice?

Peter Minnett has served past his term, need to find a new member with satellite data acquisition expertise as well as expertise in ice imagery and Arctic meteorology.

Carin asked if there were other areas of expertise that should be represented on the committee. Peter Minnett emphasized the need to maintain Arctic Meteorology expertise on the committee. The two physical oceanographers use the data but would not be the

"experts." Phil mentioned Shaun Smith and Mark Borasa and the PI for their grant are working on met data and satellite data and have an interest in the Arctic.

Action Item: Revise the solicitation for committee members that include ice scientist, meteorologist, and satellite expertise. Also include the future need for a chemical oceanographer to replace Hedy Edmonds.

Future Meetings

Need to schedule meeting in May-June during *Healy* time in Seattle.

- Hold in DC/VA area to make it easier for agency representatives to attend.
- Schedule soon and get the word out.
- Coordinate with new *Healy* CO if possible, who will be identified in January and will relieve in June.

Traditionally AICC holds two meetings per year: one in Seattle and one at NSF. Latter makes it easier for more NSF personnel to attend. After the spring meeting at NSF the next AICC meeting will be in the December 2008 to January 2009 time frame.

The icebreaker retreat last year in Alameda worked well and we should do this again in the future. The new C.G. Pacific Area Commander is due on 29 May, so a chance to communicate with him would be useful. Consider next September in Alameda. USCG is willing to have meetings “at any time”. Some people participated in Alameda that don't typically make it to AICC meetings, which led to some good interactions.

Invite Alaskan area (17th District) Rear Admiral Gene Brooks, who is very interested in Arctic work. (Add him to our email list.)

Action Item: Plan dates in late May or Early June for meeting in DC area. Also, look at potential dates for winter meeting in Seattle.

Action Item: Explore the possibility of a retreat in Alameda a year from now. There will be a new Admiral by then. Probably have the retreat first and then AICC meeting afterwards.

Minutes from Previous Meeting.

The minutes from the January 2007 AICC meeting were approved with some minor editorial changes.

Previous AICC action items (see Appendix III)

Test of mailing list for State Dept notification regarding foreign vessels with research clearances to work off Alaska: test not actually done. Wanted them to let us know when foreign vessel requests clearance. Discussion still underway as to how this will actually be carried out..

Response from Simon Stephenson regarding August 2006 AICC recommendations. Wait for discussion with Renee.

Workshop regarding NAS icebreaker report recommendations – Wait on this until after Presidential determination or other guidance from NSF.

Community awareness that *Healy* is available for all seasons. Related article has not been acted on yet beyond discussion. Corollary issue of town hall meetings at AGU.

Develop protocol for major science instrumentation for shipboard use. Still interested, but no progress absent input from Renee or Simon. No RFP out as yet ... the ball is in their court.

More Alameda retreats. Simon said “sure”. Not sure it's in UNOLS budget. Agreed that it's a good idea.

Coordination of scientists and USCG regarding press releases. (e.g. US flag at North Pole, which was handled well?) More press releases are in the process at present. Serious attempts have been made to correlate press release preparation with PIs. No outstanding complaints.

Wire diagram for USCG icebreaker operations. (Old one, on website, is out of date with respect to names etc.) Needs to be updated; however the USCG is working through some organizational changes that will need to be accounted for.

AEWC meeting has been pursued and Simon contacted. This meeting is on track for participation by Coast Guard and PI’s.

Equipment list prioritization underway and on schedule.

“Acknowledgment of Dan Oliver's USCG service” discussion ... something for his new office. Try to get him to an AICC meeting as a special guest?

The question was asked about what had been done about medical protocols? Added as an action item for this meeting?

2007 AICC Activities

Wrote to DOS regarding e-mail list for information when foreign research vessel (icebreaker) has requested clearance. This is under discussion.

Contacted AEWC regarding Healy science and CG presentations at AEWC meeting; attended AEWC meeting in Feb. 2007 with 3 chief scientists and Dave Forcucci. There was some discussion about how the interactions with the northern communities.

Communication from Larry Mayer should take place later. Hutchinson's cruise may have impact on Canadian native groups, so having that contact information is important. Andy Armstrong will follow up on this. Rolf mentioned that work in the Bering Sea should also consider keeping the Eskimo Walrus Commission informed. Jackie Grebmeier and Ray Sambrotto have worked with these groups in the past and Carin will contact Ray to find out what is done in the past.

Provided assessment of Dale Chayes’ proposed upgrades/modifications to science spaces and instrumentation on board Healy.

• Conducted debriefs of Grebmeier/Lovvorn and Mayer 2007 Cruises; debrief of Sambrotto/BEST cruise remains to be scheduled.

Discussed community outreach and cruise planning with Debbie Hutchinson, Chief Scientist for 2008 USGS cruise. Work is in international waters, primarily. Exact seismic lines not yet planned (will be in January workshop), but some possibly in Canadian

waters. International, but likely beneficial to both Canada and the US. Need to be sure native community in Canada is represented, but previously responsible person no longer in position and new person not yet installed. *Healy* needs name of native science representative from Canada, etc., as needed to coordinate with them and with any Canadian efforts. (Corollary issue of Bering Sea coastal native groups south of St. Lawrence Island not being part of this structure, though work is being done in the Bering (BEST).) Involve Grebmeier? In past, Jackie has worked with USCG and with the Eskimo Walrus Commission, so have a background for this sort of interaction. Alaska Fish and Game personnel are also on the Bering Sea islands and can be contacted for information regarding people to contact.

Recently (past few weeks) synopsis of next year's science activities sent to Harry Brower of Barrow. Sheehan reports that Harry is not too worried about cruises planned for the coming year. May be no need for chief scientists to attend AEWC meeting this year. In general, a dialogue has been started and seems to be going well. Provision of potential cruise tracks to Sheehan would be very much appreciated.

Several levels of interactions among scientists, USCG and the Native American community. Need to get information to them early for review and comment. This has generally been done well. They want to make sure that everything is communicated to them, particularly as they don't know the whale migration window in advance.

No date yet for meeting, but plan is to present an overview of the cruise. Work with CS to decide who will do what and when.

UNOLS Report (Appendix IV)

UNOLS has three goals for 2008.

* Enlarge the group of supporters for the UNOLS fleet both in terms of capitalization and operations.

* Extend our planning horizon to ensure that we are building a UNOLS fleet that really meets what the infrastructure needs will be for ocean sciences in the coming decades.

* Continuously work to lower barriers to effective use of UNOLS ships caused by disabilities, gender, or other special situations.

In the area of new facilities, the current ongoing and planned activities are taking place. Title for the *R/V Marcus Langseth* was just transferred to the NSF from Columbia University. The shakedown and calibration cruises are ongoing through mid-January.

ARRV is in final design cycle, a Cooperative Agreement for construction and operation was awarded to UAF, and shipyard bids will be forthcoming over next year.

NSF is funding design effort with two shipyard and naval architect teams for 3 regional research vessels. The initial design and cost estimates are due in spring of next year.

NSF is also involved in other infrastructure efforts especially the ocean observing network. This effort has been de-scoped several times because of the costs of implementation and maintenance.

We can’t rely completely on the NSF and ONR to fund research vessels based on their current budgets and predictions and therefore the goal to seek out other partners. To

maintain diversity of facilities for ocean science, there needs to be more diversity in financial support for those facilities.

We also need to design ships (either originally or during refit) for science that will be done over next 10-30 years rather than for science that will be obsolete shortly.

There are still anecdotal reports of problems with harassment on ships within science parties (not necessarily between science and crews). The UNOLS Council wants more attention and perhaps training directed at eliminating these problems.

There has been considerable work completed recently towards accommodating persons with disabilities to try to meet ADA criteria in both ship designs and in shipboard procedures. Draft UNOLS Guidelines are currently in the process of review and approval.

New UNOLS ship time request and scheduling system is being used by schedulers and tested by some PIs. It is almost ready for use and beta testing by all PIs.

Hedy Edmonds mentioned that DESSC has adopted a debrief procedure for the deep submergence facility PIs based on the AICC process.

RVOC and RVTEC are working together on a number of issues; foremost being the challenges associated with recruiting and retaining experienced and qualified technical support personnel and professional mariners with the appropriate licenses or certificates.

At the recent RVTEC meeting, the largest contingent of technicians present were the Coast Guard MST's and other Coast Guard personnel such as Dave Forcucci, Phil McGillivary and James Wilson.

Overarching issue of concern: not enough science funded to keep the ship's busy. (~20% decrease in ship science days over the past five years or so.) Similar to the icebreaker sea time and science funding issue. Agencies generally trying hard to avoid laying up any ships. Overall operational deficit has improved over the past year.

Coast Guard Modernization - Capt. Toney

The Coast Guard has been "modernizing" ever since August 4th, 1790. The new plan is to get rid of the stovepipe organization and reduce redundancy and bilateral decision making. The plan is to replace the Area Commands with a Force Readiness Command at Alameda and Commander CG Operations in Portsmouth, VA. Force Readiness will ensure that all operational units are supported and ready for mission execution. All cutters, air stations, sectors and District commands will report to the Commander of Coast Guard Operations for operational matters. This will provide for more uniform policies and procedures across all parts of the Coast Guard.

Icebreakers will be under Force Readiness until deployed, and then change to CG Operations Command when deployed. Contacts for the science community with the Coast Guard will remain the same for the time being. Rajiv Khandpur is CG 5.1.2 Waterways management and Lisa Mack is CG 5.1.2.3 icebreaker desk. PACAREA contacts remain LCDR Peltonen, Dr. Phil McGillivary and Dave Forcucci as well as direct contact with the ship's Captain and crew.

2008 Plans - Dave Forcucci

Dave showed the planned schedule for 2008 season. *Healy* 2008 has 147 science days, more than the usual 100-120 days of the recent past. Feb shakedown for system and science system testing. 7 March depart Seattle for Dutch en route to BEST (Grebmeier and Cooper, then Ashjian). Return to Seattle, then back to Bering for more BEST in June, followed by short ONR cruise. Then July seismic profiling cruise followed by more ECS mapping until mid-October return to Seattle: 196 days total port to port, with 147 science days. Louis St. Laurent will carry seismic sounding gear for the seismic ops. *Healy* will clear ice for St. Laurent, as needed. Hutchinson cruise uncertain at present, which would impact later part of schedule by advancing it a month. This schedule includes the first ONR funding ever for *Healy*, and first nearly equal funding split between NSF and NOAA.

Some questions about the plan for the Hutchinson seismic cruise with the Canadian icebreaker Louis St. Laurent. There will be a workshop in January during which they will develop a more complete plan for this cruise. This will have to be negotiated with the Canadians and may be better known by early spring.

Pickart's second cruise is right during the whaling period and this new date should be made known to the whaling communities.

Have to look carefully at days away from home port (have to be around 160+) Approx three weeks (20 days) will be required for TACT, CART and STAN in FY09

2009 Plans

BEST is asking for March 1st start, which means deploying in February.

Polar Bear project that is tentatively planned for September 2009 if funded. The Polar Bear project and potentially the NOPP program could go on *Polar Sea* to make sure *Healy* is available for dry dock earlier.

11/11/09 to 4/6/10 for a 143-day dry dock including the multibeam installation.

In order to shift the dry-dock earlier in order to accommodate early departure for BEST in 2010, MLC will have to know by early spring at the latest.

In FY09 the *Healy* would be restricted to about 145 days away from homeport. This is because of the extra days in 2008 and the need for training in 2009.

Polar Sea

Polar Sea is ready to go and will be on 96 hour standby until January and then on 48 hour standby until breakout is done as the standby ship for McMurdo. If *Polar Sea* does not go to the Antarctic, they would get underway for a crew training cruise and would like to be available for science of opportunity and for Coast Guard missions in D17. The Coast Guard has asked NSF for approval of a 90 day cruise to the Arctic. Approval is still pending.

They are hoping to deploy in mid to late March and early April at the latest. The science gear has not been maintained since 2003, so they do not have the ability to do CTD's or

other similar work unless they get a budget to overhaul this equipment. It was mentioned that winches and CTDs could be brought by the science party.

If making SOO cruise is approved then Coast Guard would look for assistance in making the announcement and deciding on what science should go.

A question was asked about whether or not a dry-docking would be needed if the *Polar Sea* went north. This would depend on the type of icebreaking encountered.

A question was asked about whether or not the *Polar Sea* would be made available to escort the Chinese research vessel *M/V Xuelong* (Snow Dragon). A serious request to have the *Sea* provide this escort will depend on whether or not they are successful in obtaining a Russian icebreaker escort.

Phil and Capt Toney emphasized that the *Polar Sea* has been repaired to a point well beyond what has been done in the past and the reliability is significantly improved. *Polar Sea* has been laid up for 27 months pending mechanical repairs, and is now in very good mechanical condition – perhaps the best in 10-15 years. Very important that AICC understand that power plant has been more than repaired, rather, they've been completely redone and should now be highly reliable. Diesel electric plant alone should be more than adequate for typical first-year type Arctic ice.

Very short fuse on Arctic cruise planning, because whether or not ship goes south won't be known until completion of Deep Freeze. Should be put out as an announcement of "possible opportunity"(?). Who should put out the announcement, and how should it be phrased? Unlikely that NSF will have funds for SGER proposals. Participants can be solicited from other agencies, though. Area of cruise would be the western Arctic.

Extensive discussion about when an announcement for letters of interest in science of opportunity and who would coordinate it. A north trip has been formally proposed to NSF by the Coast Guard. NSF has to at least say it is possible. Also, whether or not the Sea is involved in the escort of the Chinese ship needs to be sorted out. Susanne M. LaFratta, a senior advisor in the OPP front office needs to sign off on the budget proposal. Renee will look at whether there would be funds for refurbishment of the *Polar Sea* science outfitting and if not, look at including this in future budgets. Training would take place by virtue of making the cruise and so would be consistent with the escort cruise and science of opportunity. Jeff Garrett made the point that if the escort cruise (a paid cruise) was scheduled, then there would probably be a need for a shakedown and training cruise prior to the actual mission.

Action Item: Get started on the science of opportunity announcement. Renee will determine when a decision might be made at NSF about approving the north trip plan. Phil work on announcement details draft. Mike Prince will dig up the old SOO announcements and procedures. Make the announcement contingent on where *Polar Sea* goes, whether or not they do the escort cruise, funding is approved and how long the cruise will be. Make the announcement request a letter of interest.

The point was made that this situation is probably not a one-year issue. There will be a continuing need to run the ship at least 90 days a year. Even that is not enough to train the engineering personnel. "Ship of opportunity" means that a user has to go where the

Coast Guard wants to take the ship, which needn't necessarily coincide with the wishes of the participating scientists. Longer is better, from this viewpoint.

Arctic Domain Awareness (Appendix V)

Coast Guard presence in the Arctic will become more and more important. There is already increased commercial traffic with more cruise ships. Shell Oil alone has 18 vessels operating in the Arctic. There is an increasing risk of spills, accidents and other types of incidents that would require Coast Guard response.

The challenge is how this affects the Coast Guard Missions in the Arctic Ocean Region. Some recent initiatives include D-17 C-130 over flights in the Arctic including the first ever over flight of the North Pole by a Coast Guard C-130. This provides valuable training for pilots and crews in northern latitudes. In addition the USCGC Spar was sent north to determine future needs for ATN in the Arctic.

District 17 has started planning for Forward Operating Locations (FOL) in Prudhoe Bay and Barrow. They want to know what is available and what might be needed to deploy units to these areas. There will be contacts with the Northern Communities.

This has created the possibility for science of opportunities on the C-130s and possibly on helicopters, small boats and the Spar. The Canadian buoy tenders have been doing 6 weeks or so of science between deploying and recovering buoys in the Arctic for years.

Science requests should filter through Dave and Phil up to Don Peltonen to see what could go on C130s and Spar.

Action Item: Kate Moran will check with Canadian Colleagues to see what type of science of opportunities they have been able to accomplish with similar trips to the Arctic.

C130s have Forward Looking Infra-Red RADARS (FLIR), drop tubes and other possible assets for possible science use. Phil is going to investigate what can be accommodated on the standard C130.

The last flight was November 22nd and may start up again towards the end of January. Last flight left from Kodiak and then flew the coast from Prudhoe Bay to the west.

Phil has been talking with NASA and NOAA folks that already have roll on roll off systems for C130 and with some others. Need to move this to be more broadly disseminated information.

Polar Star

Despite rumors, there is no plan for what to do with *Polar Star* and is still in commission special. They are not planning to decommission the vessel and the condition is not as bad as some may think. They have looked at what would be needed to re-activate the *Polar Star*.

Renee asked what the life span estimate is for *Polar Sea* and *Polar Star*. Capt. Toney said the estimate is 7 - 10 years. The hulls and drive train are in excellent condition on *Sea* and could be made the same on *Star*.

Debriefs for 2007 Cruises (Appendix VI)

2006 debrief summaries are still pending from Margo.

Mayer Cruise Preliminary Key Points:

Helicopter needs have to be better planned and anticipated. There were some obvious trips that had not been planned for. Planning took into account the specific flights for Larry's work, but the normal mail trips, transfer of personnel for Coast Guard and community interaction trips were not counted in the planning. Most of these are legitimate and they just needed to be planned for.

Safety on ice: some issues that might need better training or preps when going on the ice. After we get more specific info, might want to make this a follow up item.

Steve Roberts was praised for integrating ice maps into the ship's systems. NIC support worked well, but it will take planning and coordination every time. High level personnel from NIC that are normally at the other end were on board and saw first hand how their products were used and what needed to be done to make them useful.

Mid Rats - how many people will be standing watch at night. What is expected, leftovers, sandwich materials, what? Should be part of the cruise planning process with the Chief Scientist.

Cruise planning should be clearer about berthing plans, what the watch standing plan is.

Grebmeier/Lovvorn Cruise - Key Points

Internet use issue has been dealt with.

Suggested backup freezers in the hold.

Helos were considered critical in spring and winter cruises for ice re-con.

Need to put more effort into planning for helicopter use such as was done the first year commercial helicopters were used. More mid-rats

Renee made the statement that currently there is only one vendor qualified to do the at sea helicopter work. NSF is willing to pay to get more helicopters and pilots qualified if it is made part of the planning.

Action Item: Web site does not include the berthing policy worked out earlier that includes the fact that Coast Guard will use unused berths. Other information about cruise planning details related to personnel and berthing.

Action Item: Follow up regarding suggestions from debriefs for improving ice safety procedures.

DAY TWO

Reviewed action items from day one (see Appendix VII). Added an item to provide and get information about the use of Internet bandwidth.

- Make icebreaker cruises more obvious on the AWI website. Get PIs to use the AWI site. (Robin)
- Use townhall meetings to increase visibility.
- Release solicitations for new AICC members. (Mike, AICC)

- Set dates or May-June AICC meeting in Arlington: Suggest 3-4 June (Monday travel day) (Carin)
- Identify need for Alameda meeting in late 08. (Carin and CG)
- Get PIs to let NSF and CG know 2010 cruise windows. (Carin)
- SOO announcement released ASAP (Phil, Renee, Mike, AICC)
- Check Canadian SOO on buoy tenders (Kate Moran)
- Review berthing policy on Icefloe website.
- Add info on watch standers to cruise planning questionnaire in order to allow for midrats. (Dave F.)
- Get CS to furnish info to XO concerning mid rats. (Dave F. and Healy)

Agency Reports

NSF - Renee Crain

No formal report. Simon is now Arctic Program Division Director. Renee and Pat Haggerty are logistics section. Pat – facilities and much Antarctic experience. Renee has more science expertise, plus Arctic icebreaker portfolio.

NOAA - Andy Armstrong

No formal report. NOAA has a mapping cruise for Larry Mayer and if the appropriation goes through they will fund the USGS Seismic Mapping cruise. Larry's cruise is already in his budget and is not impacted by the Continuing Resolution.

Carin asked about the RUSALCA project. Kathy Crane is at a planning meeting today and will go to Russia next week. They are pursuing a Russian Icebreaker (nuclear) and would go to the Pole. They may be pursuing the idea of having the Russian Icebreaker escort both the RUSALCA vessel and the Chinese icebreaker *Xuelong* on its expedition to the Arctic. *Polar Sea* could be considered for the escort vessel role and may be offered by the Coast Guard.

ARC - John Farrell

U.S. Government efforts to delimit the Extended Continental Shelf (ESC) are on the upswing, and will likely continue to be a significant priority of government over the next ten years or so. The Arctic Ocean ECS is of particular importance, since it constitutes over 50% of the total ECS area that will ultimately be delimited by the U.S. An interagency governmental task force is coordinating the ECS delimitation effort. The force is chaired by a representative from the Department of State, and is co-chaired by representatives from the Departments of Commerce and Interior. To support this activity, the President's FY08 budget includes a request for $8M, allocated in NOAA's OAR/Ocean Exploration budget. The FY08 budget has yet to be approved by Congress, and a continuing resolution is in progress. One activity that may be supported by this budget is a two-vessel field program involving the Healy, and a Canadian vessel, to collect multi-channel seismic reflection data in the area of the Beaufort Sea region that is of common interest to both the U.S. and Canada. If this expedition comes to fruition, it will likely be led by the U.S. Geological Survey, and the PI may be Debbie Hutchinson. For the expedition to occur, several things must happen. For example, funding needs to

be provided, and an agreement has to be reached with the Canadians. Efforts to collect bathymetric data in the Arctic are ongoing and are successful, as led by scientists from the Univ. of New Hampshire (Larry Mayer) and NOAA (Andy Armstrong). An expedition is planned for summer 2008.

Kate Moran asked through what agency the funds would come for the ECS effort. John said the rough estimate for the ten-year effort was around $70M. In FY08, the President's request was for $8M, in NOAA's budget, but in future years, the budget may be distributed among several agencies, depending on the activities.

On another topic, Farrell mentioned that the U.S. government has a policy on the Arctic, which was written in 1994 during the Clinton Administration. Due to many recent changes in the Arctic, such as those induced by climate change, and a focus on ECS, natural resources, Arctic shipping, and other factors, the government, under the leadership of the Natural Security Council and the Department of State, is reviewing this policy to determine if revisions or updating is necessary. NSF and the U.S. Arctic Research Commission are participating in the process, and are ensuring that scientific research is taken into consideration.

Farrell concluded his presentation with an informational item on the Scientific Ice Experiments (SCICEX) program, as defined in a MOU involving the National Science Foundation and the Office of Naval Research. The Scientific Advisory Committee (SAC) to SCICEX has been reconstituted, and will meet at the Arctic Submarine Lab on December 6-7. One of their goals will be to develop a science plan that describes the types of science, and the methodologies, for using nuclear submarine as platforms of opportunity for scientific research. Phil provided a brief to the committee last week.

Coast Guard HQ – Rajiv Khandpur (Appendix VIII)

With the shift of budget authority for icebreakers to NSF and the MOA signed by USCG and NSF in 2005 there is a process for developing the next fiscal years operating plan and budget. NSF would normally identify mission needs to the Coast Guard by June 1 each year, the Coast Guard would then submit a program plan to NSF by July 1 and after negotiations they would have an approved Program Plan by the start of the Fiscal Year on October 1, however this often slips some.

In 2007, NSF hired Jamestown Marine Services (JMS) to do an independent review of polar icebreaker maintenance requirements and operations. A report is expected soon.

Due to several challenges with the current budget arrangements, they are working with NSF and OMB to return the Budget Authority to the Coast Guard. This will require a new MOA with NSF. Question asked about whether or not the OMB is open to returning the Budget Authority to the Coast Guard. Answer is that they are listening.

Discussed whether it will be time to start thinking about the science capabilities of any new icebreakers. Should this discussion wait until the policy report from the government working group or should we start thinking about that now? Due to the long lead time for facilities acquisition there is some need to identify what facilities are needed to support the policy while that is being developed.

Continue to pay attention to “Science of Opportunity” issue, given the effort involved in getting a platform to the Arctic. Corollary issue relates to CG filling of empty berths:

Some berths should be retained for opportunistic science use rather than being filled by CG personnel, i.e., want berthing to serve science in the best way possible.

Coast Guard PACAREA - Capt. Toney

Most everything covered yesterday. They are looking forward to assistance on the SOO.

Kate Moran stated that she would like to see flexibility in the assignment of berthing through a dialog between the Chief Scientists and CO/XO.

Interactions with others

AEWC meeting interaction is being planned now. Dale Chayes asked if the interaction was going to be coordinated effort such as it was last year. The dialog started with AEWC by Ted Lindstrom and Carin Ashjian. Working from Barrow is fairly straightforward by going through BASC and the AEWC. They have received an informal response from AEWC that they are interested in a report, but don't see the need for all the PIs to attend at this point.

Renee Crain thought that the leadership provided by AICC is the right way to go, providing contacts and leadership to colleagues on providing information to the northern communities. Renee also mentioned that attending the NOAA open water meeting might be a good idea. This is a meeting that industry/oil companies attend and having science attend would put science activities in a good light. This should not be the first notice of these activities. Carin thought this was an interesting suggestion and a new idea. Renee said that NSF has attended in the past and she believes that Bernie Coakley attended prior to his cruise.

BEST comes across as a major touch point because of its size, duration and visibility. AEWC is group needing continued interaction. Other northern communities or activities may be appropriate. Some cruises get examined more thoroughly than others, and not always clear where the scrutiny will show up.

Need similar interaction if *Polar Sea* should go north, especially with respect to an announcement for science of opportunity. An advance heads-up to people like Glenn Sheehan could be a good idea: Phil notes that Glenn has already been appraised of the possibility, and that CG will stay in touch with him on this issue.

Action Item: document and bank information about the interactions with northern communities undertaken by AICC, USCG and PIs on what they have done and is being done, what works well and what to avoid.

Action Item: If *Polar Sea* goes north, then starting the process for interactions with BASC and AEWC. Glenn Sheehan has already been apprised of the possibility of the potential cruise as well as C130 flights. Coast Guard will be attending AEWC meeting to brief them.

Medical Recommendations:

Renee wanted to get some additional data on whether medivacs were the result of injuries or pre-existing conditions. Rolf made the point that the location and duration of cruises should be taken into account in deciding what pre-cruise examinations and forms would

be required. Most other icebreaker operators require more than what is required for *Healy*. The Antarctic model is the extreme, but something more might be required than what we are doing now.

This is an old action item to look into this. Present rules require only filling out a form. Need to get a written suggestion from AICC to the NSF on this issue. UNOLS fleet can also provide statistics on med-evacs and such for UNOLS and for a lot of other maritime clients if requested from their medical services provider. Need to make sure that medical personnel associated with vessels do look at medical forms before the ship leaves the dock. Healy has never turned anyone away for lack of a filled-out medical form, but this sort of a decision needs to be elevated to higher levels than the ship.

Action Item: AICC to develop a recommendation regarding medical check-ups, forms and procedures. Use data on past evacuations and incidents to highlight the need for the policy recommendation. Also suggest how the present system can be improved to provide information to the Coast Guard in a timely manner.

Extended Continental Shelf (ECS) Initiative - DOS - Barbara Moore (Appendix IX)

US now has an interagency task force to look at ECS issues. At least a 10-year effort is envisaged. Maggie Hayes, DOS is the Chair, Tim Petty. Interior and Craig McLean, NOAA are Co-Vice Chairs. In June 2009, the ECS Task Force will provide a project plan that lays out the ten-year effort.

The Arctic is probably the largest ECS area, but it is also the area about which we know the least.

Kate asked Barbara about the planned office, what its mandate would be, and what level of effort. Barbara said that it will probably be about five or six people with the expertise to work out the claim submission. In the US case the office may draw on expertise from others.

Renee asked what the timeline was for submitting a claim. The answer is that you have ten years after acceding to the UNCLOS.

Rolf asked if the data will be in the public domain. Barbara had mentioned that some of the data behind other claims was confidential. Barbara said that they will make the data open to the public as much as possible, but some data may be held in reserve until the claim is made. NGDC will be the repository of the data that is public.

200 nm Exclusive Economic Zone (EEZ) is automatic. Shelves extending past 200 nm can be delimited past the 200 mile limit if they meet certain criteria under Article 76 of UNCLOS. Coastal State has sovereign rights of whatever is on or beneath the seafloor, not in the water column, however. Bathymetric and seismic data are crucial to establishing extended continental shelves. ~60 states have potential ECSs, and 9 have already submitted in whole or part.

Multibeam Replacement (see Appendix X)

Existing sonar is old, hard to maintain, and provides mediocre data in deep water and worse in shallow water. Engineering change request has been submitted, and installation

concept completed. Next issue is to get funds, followed by detailed engineering, installation, testing and acceptance. Shallow water performance is an unknown (30-150 m, which covers a high proportion of the Arctic shelf). Aiming for 2009/10 dry dock installation, with testing in spring 2010. Issue with testing in ice, which needs to happen later in the summer. Approximate total cost ~$3.5M total. Kongsberg EM22 is the proposed system. Contingency number has not been added here: might add 20%, which would reflect exchange rate and additional costs for installation, etc. The entire AICC committee supports this multibeam upgrade.

Carin asked how we would obtain the funding for this. The Coast Guard is partially funded through the Continuing Resolution with funds for the detailed engineering. They don't have the funding vehicle for purchase of the equipment yet. To meet the deadline for the dry dock installation, they need the detailed engineering money now, which is in place. They will need to have funding in place and be able to place the order at least six months before the dry dock and they need to be careful to ensure the equipment purchased is what was designed for.

Berthing Upgrade Proposal CDR Dale Bateman *Healy* XO (Appendix XI)

The Coast Guard is committed to provide fifty berths for science. They also have a need to provide berths for Coast Guard personnel to sail for training or maintenance.

These decisions are made after the requirements for the science party are worked out according to the berthing policy. The policy stated on Icefloe will be updated to provide this information more clearly.

XO is committed to providing the best possible living conditions and food.

Proposed Upgrades/Changes to Science Berthing – see Appendix XI for details

Reorganization of the 04 Deck and changes to staterooms on 02 deck.

Move Chief Scientist to Starboard side (401), which is currently the VIP stateroom.

His sense is that the conference room adjacent to the C.S. room is not well used.

Discussion about the potential for using the extra berths to move more staterooms to crew use rather than science. Concern that the institutional policies be put in place that maintains the flexibility for use by the science party.

02 deck staterooms: all are designed as 3-rack staterooms, however, 3rd rack isn't all that great. Proposal is to convert 6 of 12 cabins by replacing fold-down beds with 2-high racks. While this will increase racks by one per staterooms, the new racks will be much more habitable (privacy curtains, reading lights). Remove file cabinets, which are almost never used. This adds berthing flexibility, as possible to pack 4 persons into some of the cabins. General concerns voiced about the CG forcing filling of all the three-man, as well as the new four-man, staterooms by claiming extra berths for CG personnel. Folding beds are not considered suitable for regular use by scientists.

Suggestion that the concept be tried with one stateroom and look at this as an opportunity to improve layout, lighting, and most importantly sound insulation. This should be a pre-cursor to real upgrade to berthing.

Action Item: AICC to discuss the proposed berthing changes and make recommendations by correspondence.

PCO2 system (Appendix XII – also see Appendix X for installation drawings)

Carin's Slides summarize issue, Dale's slides show installation plans.

Dale showed the plan for installation. Recognizing the level of technical support needed for this installation should be well understood, especially the daily on board support and what to do with failures and repairs. Also, it should be made clear that the data should be made publicly available. Rolf and Kate strongly support this installation as long as the data are available in real time.

Solution offered is to situate in Portside 01 passageway, ready to propose this to NSF, and ECR documentation is ready at this time. This would be a permanent install with no impact on existing or foreseen lab space. In line with thermosalinograph, fluorometer, dissolved O2, etc. New plumbing and unistrut needed, but cost very small. Taro Takahashi has committed to raising funds for purchase of CO2 system and will archive data at LDEO, to be available a few months following each cruise. Data will be logged along with other data (e.g. thermosalinograph) and would actually likely be available in near real-time during each cruise and should be included in end of cruise data distribution (sense that this condition is necessary for AICC approval of the system). No feeling that Takahashi would consider these data proprietary.

Action Item: AICC write to Taro in support of the PCO2 installation as long as the data is publicly available in real time, define data access and better define what the at sea support will be.

Healy Science systems and equipment - Dale Chayes (see Appendix X)

AICC ranking of the proposed upgrades. Showed the rank ordering of the items on Dale's list.

Right behind the Multibeam is the idea that the dark room be made a useable lab space capable of being dark.

Other items added since this list was created include getting one of the UNOLS gravimeters on the *Healy*.

Science Communications: Use Iridium for the bulk of science email and other communications. 128K bit INMARSAT shared with the Coast Guard side. This may not be available indefinitely due to Coast Guard's increasing need and increasing security requirements that will become prohibitive.

Walk in Chambers

They meet the SOR, are inherently high maintenance. They don't meet the desires of some science parties. Need to define the actual requirements and then do some engineering.

Lab Renovation

Won't write a proposal until indication funding is available. Renovation of the computer lab is a technical support issue and will proceed under ESU work.

New Met System.

Data going to SAMOS with good feedback from them. They will do a thorough evaluation during shakedown and spring cruises.

ADCP Issues

Software and technical support from the manufacturer has not met needs, thinking about switching to the UH software. UH (Firing/Hummons) writing a proposal to be the technical support for ADCP, but probably not in place for next season.

Proposed Radiosond Van

Proposal from NOAA to put a radiosond van onboard. Probably not a good place for an automatic launcher. They assume NOAA would pay all the costs. Peter Minnett has found that there is no good substitute for a manual launch.

Action Item: AICC think about this installation and provide advice to Coast Guard and NOAA. Need more information first. Scientifically, this would be valuable to have at least one launch a day and four a day would be required for good forecasting. Issues about cylinders, space, etc. Dale to follow up to get more details.

Equipment purchases:

What does the ship provide and what is brought by the science party?

Equipment for 2008+

- New met system - done
- Replace the network disk store ESU - underway
- Racks for window servers and disk store
- Small additional disk space for backups
- Aircraft Non-Directional Beacon (NDP) ECR has been written, need 20K funding, source not known
- Science INMARSAT? Needed eventually but need to determine source.
- Gravimeter

Longer Term Issues

Need for a 0.68" fiber-optic two cable has been and will continue to be episodic on *Healy*. Each event so far has been accommodated by temporarily installing a large, complex and heavy traction winch on the fantail. These installations are complicated and expensive and consume much of the working deck. When we anticipate the next need, we propose to purchase a cable, wind off the existing .680 (copper only) tow cable and wind the fiber on for the season. We would remove the fiber at the end of the season to avoid storing it for long periods of time under tension. No such need exists for the 2008 field season.

Science and science technical support on Healy needs 24x7 Internet connectivity. This is provided on all of the large UNOLS vessels using a very small aperture satellite terminal (VSAT). At present, this capability is provided on *Healy* by sharing the CG's leased 128kbps Inmarsat connection. In the future this sharing arrangement will be precluded by CG needs for bandwidth and/or security restrictions. We are continuing to plan for the

installation of a large (3m) VSAT antenna and routing hardware on *Healy*. Current cost estimates suggest that purchasing the equipment and leasing "air" time is the most cost effective solution.

The sub-bottom profiler transducers on Healy have been in service since 2000 and should be overhauled. The traditional method is to purchase a spare set and install them. The used units can then be overhauled and reinstalled in the future.

2008/2009 Dry dock items

Ran out of time. Need to be discussed by email soon and at next meeting. Can't wait until after next meeting if we intend to have a meaningful input into the dry dock planning process.

- Multibeam replacement
- VSAT (or 2008?)
- Winch changes?
- Helo hanger access?

The multibeam replacement is (so far) on track for completion during the next scheduled drydock.

The VSAT antenna installation should be done before then, but could be done then.

It is probably too late to plan for substantial winch changes in 2010 but we should start thinking about that.

There is no way to access the interior of the ship from the hanger. This needs to be addressed.

There were three additional subjects in Dale's presentation that we did not have time to cover. They are included at the end of Appendix X and include: External data flow to the National Ice Center; 2008 science support personnel; and a table of responsibilities for operation, maintenance and upgrading of the science (and science related) systems on *Healy*.

Action Item: AICC should review potential 2009/10 Drydock items and make recommendations regarding priorities and potential additional items as soon as possible. Waiting until the next meeting may be too late for including any new items.

Electronic Support Unit (ESU) Report - James Wilson (Appendix XIII)

Provide feedback to Jim Wilson on support provided by ESU.

Membership Changes

Carin provided Rolf and Peter certificates of appreciation for their service on AICC.

Next Meeting – Tentatively June 3 and 4, 2008 at NSF or in DC area.

The meeting adjourned at 1220.