

Arctic Icebreaker Coordinating Committee (AICC)
November 13 & 14 2003 Meeting
Chinook Room
USCG Integrated Support Center
Pier 36 – 1519 Alaskan Way
Seattle, WA

Draft Minutes

1. [Summary](#)
2. [Recommendations](#)
3. [Action Items](#)
4. [Index of Appendices](#)
5. [Minutes](#)
6. [Appendices](#)

Summary:

The Arctic Icebreaker Coordinating Committee was hosted by the USCG for a meeting in Seattle on November 13 and 14, 2003. In addition to the committee members, representatives of the USCG, NSF, ONR, the Arctic Research Commission, as well as from ARCUS, Glostén, Syntech and Allied Technical Group attended the meeting. The success and lessons learned from 2002 and 2003 operations were reviewed with many recommendations coming from debriefs of last year's chief scientists. Plans were made to conduct debriefs of 2003 Chief Scientists in December. Planned schedules for 2004 and long range planning issues were reviewed. The Coast Guard described plans for the HEALY drydocking period just beginning as well as planned upgrades and maintenance for the POLAR Class vessels. A major topic continues to be the development of plans to either replace or invest in a Service Life Extension Program for the POLAR class vessels. Action will be required in the near future, especially since it is probable that two icebreakers will be needed for the McMurdo Station breakout for the foreseeable future. Other issues with regards to instrumentation, technical support and operational procedures were reviewed and discussed, with some recommendations being developed.

Recommendations for USCG and Science Funding Agencies:

New recommendations from the AICC meeting:

- That for at least one of the meetings with the native community that representatives of PACAREA, HEALY, AVDET and D17 be included in the meeting. State Department should be included in discussions.
- It will be important to get to deep water during shakedown. If you don't do the deepwater multibeam and other system testing during the shakedown, you run a technical risk.
- The POLAR SLEB engineering feasibility study should be made available to the PRB and the public.

- The Coast Guard should strive to provide open, standards based access to an email server so that scientists can access email through their own email clients. Local mail server should be independent of the communications mode (e.g., satellite system).
- The process being used by ATG and the Coast Guard to prioritize areas to focus their efforts should be articulated so that we can determine that AICC is being used effectively in helping to prioritize the need for change and improvements.

Past Recommendations with Status:

- FROM LAST MEETING – Need to add status
- Recommend that the winch control systems be simplified and unnecessary complicated equipment from the equipment that needs to be maintained by the Coast Guard.
- Kelly Falkner, NOAA, Rebecca Woodgate and Coast Guard need to work together and ensure that the proposal to collect quality multibeam data continuously gets funded. Need to find out who will fund this effort, when it can start and whether or not it will be possible for this effort to support this summer's cruises. **Status:** Data collection was financed by the Center for Coastal and Ocean Mapping (UNH) with promises of other support. In the future this effort should be fully funded.
- The recommendation is that the Coast Guard standardize Medical Requirements Policy between ships and publish procedures, such as for returning forms, etc. **Status:** Ongoing recommendation with further support from recent debriefings. Medical forms should be signed by a physician.
- Use RVTEC and UNOLS to locate shared use equipment that might be needed and not available from Coast Guard. **Status:** Ongoing recommendation.

Action Items for AICC and UNOLS

New Action Items:

- Letter to Rita Colwell, cc OPP, Lisa Rom, Renee Crain, EHR, etc. to revive TEAA or something just like it. Take into account existing programs, such as NOAA's Teachers at Sea program. **Status:** Lisa to write.
- EOS article regarding native community relations, lead by Lisa. Need other authors. Jon Berkson cautioned that we be very careful with the wording of this article and be sure the article is vetted through agencies. The EOS article purpose is to raise the issue with potential PIs. This article should draw primarily from the published principals for conduct of science in the Arctic. See the published principals on the OPP Arctic Sciences webpage. <http://www.nsf.gov/od/opp/arctic/conduct.htm> **Status:** Lisa to write with help.
- Schedule debriefs in the early part of December, with Hedy, Margo and Peter as volunteers to participate. **Status:** Scheduled and completed. Punch list to be created before next meeting.
- AICC chair contact ARVOC chair regarding the possibility of scheduling a joint meeting. **Status:** ARVOC chair contacted and their schedule will not

overlap ours in the near future, so next meeting will proceed separately. Will try for future meeting.

- AICC Role is to help define the goals (operational requirements) for multibeam performance in the future. Coherent position paper on what is required with options should be prepared. **Status:** Still pending, Margo to complete with help from Dale and others.
- AICC comment on Coast Guard Radiation policy. **Status:** Pending, need to circulate info to AICC again and ask for comment.
- Re-circulate SBI equipment list to AICC for comment, after update from Dave on what has been taken care of. **Status:** Need update from Dave, then circulate to AICC.
- Continuous Data Collection guidance: A specific list of data variables that should be collected. A statement about data ownership issues and perhaps what should be public domain data. Speak to the issue about where data should be archived and the desire that all data should be archived in its raw form with metadata. AICC should draft a paper based on Dale's report that can be evaluated in the committee and then post for community input. **Status:** Pending, Lisa to complete with help from Dale and AICC.

Past Action Items with Status:

- Formulate a working group, advertise to the science community, hold a discussion or workshop, include the ARVOC to make recommendations to the Coast Guard and funding agencies regarding science needs for POLAR Class refit or replacement. **Status:** Workshop held and preliminary report given to Coast Guard. Final report to be completed.
- Small meeting with ARC, NSF, Coast Guard, ARVOC and AICC chair to determine requirements and options for POLAR SLEP or Replacement. ARC will be asked to prepare a report to the President and Congress. **Status:** Meeting held at NSF in March.
- Get a copy of the MOU between NSF and Coast Guard and determine what it says about technical support. Make recommendations regarding changes needed to the MOU to provide for funding of technical services through a day rate of its own. **Status:** pending
- Consolidate and review list of cruise planning manual recommendations and provide a current and prioritized list to Dave. **Status:** continuing, need to complete.
- Terry Whittledge, Renee Crain, Dave Forcucci and Phil McGillivray will work on an article for EOS and/or ARCUS about planning for native community concerns. **Status:** Lisa to take the lead.
- Write a short blurb for Newsletter that says that an earlier proposal deadline is being considered for 2005 field work due to the opportunity for cooperating with a trans basin transect with the ODEN which is also still in planning stages. Run this text by NSF (Pyle, Stephenson, Tupas). **Status:** Completed
- Phil will find the previous submission to State regarding Barrow as a port of entry and forward that to Lisa. Lisa will raise issue with Council. **Status:** Issue raised with Council, but seen as State Dept./CG issue.

- Set up web space: Create web space on AICC for information about international icebreaker schedules, long term planning exercises and expeditionary efforts, etc. are displayed. Jon Berkeson has web sites for IGY.
- Interact with ARCUS and invite them to AICC meetings in the future. **Status:** Some information added, need to complete. May end up that this information is provided through the ALIAS page with a link from AICC.
- Organize a working group to focus on improving high latitude communications options: Dave Forcucci, Garry Brass, Robin Muench, and AICC reps. **Status:** Issue to be dealt with at the agency/international level by NSF and USCG through FARO, etc.
- Provide a written justification for a GPS aided inertial navigation system. (Dale Chayes). **Status:** Proposal submitted to NSF by LDEO.
- AICC to contact new users of HEALY (from debrief) **Status:** done for 2003 PI's.

[Index of Appendices](#)

- I. Agenda
- II. Attendees
- III. AICC Action Items (49.6KB PDF)
- IV. UNOLS Report (688KB)
- V. Report on CATS Cruise - Forcucci (3.9 MB PDF)
- VI. Healy AWS0302 (5.5 MB PDF)
- VII. USCG Headquarters report (1.91 MB PDF)
- VIII. B-15A Status (1 MB PDF)
- IX. 2003 UW Data Collection (36KB PDF)
- X. USCG MLC report (493KB PDF)
- XI. POLAR workshop Report (163 KB PDF)
- XII. Science Data Network (44.7 KB PDF)
- XIII. SDN ATG Brief (479KB PDF)
- XIV. Healy Multibeam Options (299 KB PDF)
- XV. Continuous Data Collection Issues (32 KB PDF)
- XVI. AMUNDSEN Report (5MB PDF)

Minutes of the AICC Meeting – November 13 & 14, 2003

0830 Meeting called to order by Lisa Clough, AICC Chair.

Lisa welcomed everyone to the meeting and then introductions were made around the room (list of participants - Appendix II). Lisa also acknowledged Larry Lawver and Terry Whitledge (in absentia) for service on AICC. Larry was a charter member of the committee and Terry joined shortly after it was formed. They were both thanked for their long service on the committee.

The minutes of the February 2003 AICC meeting were accepted.

Lisa reviewed the agenda and reviewed the action items from previous meetings. (see attached agenda - Appendix I and action items presentation - Appendix III).

Major Outstanding Action Items:

- ❖ Lisa is to complete the POLAR Workshop report.
- ❖ EOS article on native concerns and planning issues.
- ❖ GPS inertial navigation is the subject of proposal being submitted by Dale Chayes, which will include complete justification.
- ❖ MOU to be revised between NSF and USCG, check on technical support.
- ❖ Provide further recommendations regarding continuous U/W Measurements

Reviewed AICC recommendations to USCG

- ❖ Medical policy to be posted with other forms etc. on AICC webpage.
- ❖ Instrumentation documentation should be living documents.
- ❖ High Latitude Communications group should be a continuing discussion.

RVTEC report by Dale Chayes

- ❖ Uniform levels of service. First step was to define the items that should be defined.
- ❖ Annual meeting next week hosted by USCG.
- ❖ Liaison with other committees moving forward with RVTEC representation on the Fleet improvement committee, Safety Committee and RVOG and AICC set.

UNOLS report – Mike Prince (Appendix IV)

The top ten issues for UNOLS were reviewed (see attached report).

The issue of educational outreach sparked a discussion regarding the decision not to continue the Teachers Experiencing the Arctic and Antarctic (TEAA) program. TEAA is not being renewed, but there are continuing programs within the agencies with similar goals. The sense of the AICC is that TEAA was a tremendous program for education and in particular for outreach. The benefits of having teachers take part in research expeditions are numerous and the TEAA program provided the expertise and point of contact for selecting eligible teachers. It was felt that this component of the program would be difficult for individual investigators. Larry Lawver recommends a letter to NSF and others encouraging the continuation of TEAA.

Action Item: Letter to Rita Colwell, cc OPP, Lisa Rom, Renee Crain, etc. to revive TEAA or something just like it. Take into account existing programs, such as NOAA's Teachers at Sea program.

There was also a brief discussion about the importance of SMRs and how they could be used as part of the POLAR midlife process.

DESSC: Hedy Edmonds reviewed the items of discussion from the June DESSC meeting. (See DESSC section of UNOLS report)

RVOC: Dan Schwartz mentioned the meeting of RVOC in Duluth. Scheduling impacts are very large next year. There is a problem with the availability of qualified civilian mariners aggravated by several items. Entry level qualifications are becoming harder to obtain. Dan also reported on the IMO international port and ship security treaty. Congress passed the MTSA (maritime transportation security Act of 2002) as an implementing act. Ship security assessments and plans are required by the end of this year. Some impacts for science will include positive identification and receipt of packages at a ship in port; identification badges and procedures at the gangway will be needed. Multiple re-entry visas and valid passports will be required for all participants from other countries.

NSF – Simon Stephenson

The agenda covers most of the issues of importance to NSF. Simon thanked the Coast Guard and PI's for the successful season so far, including support for operations, planning and scheduling and for dealing with native planning issues.

The POLARS had been eliminated from the 2003 schedule early on. They had been interested in working with the Canadians as an alternative, but it was late in the planning process and they had other national priorities. The PALMER had about a five-month downtime period and they were glad to step in and conduct the survey cruise for SBI with Jim Swift as the PI. PALMER is not classified for work in multiyear ice, therefore the cruise was delayed by three weeks and a helicopter was taken for ice recon. It was not used, as the three-week delay providing the relief in ice conditions they needed.

ONR – Robin Muench

There is no longer a high latitude dynamics program at ONR and there is a drop back in sea ice research. Some arctic research may be funded through ocean sciences. John Freitag should probably be the main point of contact with ONR for AICC at this stage.

PALMER report by Larry Lawver

Palmer is enroute to Littleton after losing two of four engines. The engines will be replaced or overhauled in an effort to start the next cruise in late December on time.

There is an ARVOC steering committee meeting on PALMER replacement being held in DC simultaneously with this meeting. Preliminary design studies show a huge increase in desired capabilities, which looks like it will be more costly than planned budgets.

It appears to be important that AICC become involved in the PALMER replacement process, because if the vessel becomes more capable, the more this vessel becomes a potential resource for Arctic research. This would be especially true if Coast Guard Icebreakers are less available during POLAR refit.

The PALMER replacement issue is tied to the issue of upgrade or replacement of the POLARs.

Lisa asked about the need to debrief Jim Swift regarding his cruise on the PALMER this summer. Since Raytheon has probably already debriefed Jim it is not necessary to repeat and AICC will ask for a copy.

Arctic Research Commission – Garry Brass

UNCLOS Article 76. The Russians have filed a claim with the Commission on Limits to the Continental Shelf (CLCS). This claim would extend Russian authority to ~45% of the Arctic Ocean. The extension beyond the 200NM EEZ covers only the region on or under the seafloor and does not apply to the water above the claimed area. The CLCS has declined to approve the Russian claim, partly based on US objections focused primarily on geologic interpretations of the Mendeleev, Alpha and Lomonosov Ridge systems.

The Russians also held an international meeting in St. Petersburg this spring with the intention of building support for their claim. Garry Brass, along with Larry Lawver, Bernard Coakley and Art Grantz attended to present the US view.

The US has received an invitation to survey in the waters around Greenland; is wordsmithing an agreement with Canada; and is working on an invitation from Norway. If all of these potential partners agree we may be able to negotiate a four-nation claim without resolving internal boundaries.

The Senate Foreign Relations Committee held hearings on October 7th and 14th, in which all witnesses agreed that the Senate should give its advice and consent to the ratification of UNCLOS. The Canadians ratified UNCLOS this week.

The provisions of Article 76 extend the clearance regime to the entire claim area beyond the 200NM EEZ. Given Russian intransigencies over clearances, this can only make research more difficult.

POLAR SLEP – In Garry Brass' discussions on the Hill, there appears to be a positive view of the SLEP. HR2443 includes language directing USCG to sponsor a new study of icebreaker needs by the NAS/NRC PRB and Marine Board. This House Appropriations Bill also directs NSF to Provide an additional \$2.5M to the USCG for icebreaker support.

The International Polar Year will occur in 2007. The PRB has an IPY Planning Committee. (See Web Site: <http://dels.nas.edu/prb/ipy/>). The International Arctic Science Committee is planning another major Arctic planning exercise for 2005. This is a good time to build international partnerships.

The Ocean Commission report will be out just before or after Christmas. Garrett expects it to have strong recommendations for Arctic research.

The US sponsored a summit meeting on global observing systems. Jim Mahoney, Deputy Administrator of NOAA wants to discuss Arctic monitoring with the commission. We will emphasize SEARCH.

The Commission Offices are moving down one floor at 4350 N. Fairfax Drive. Our 800 number remains the same (800) AUR-ORAB (800-287-6722). There

are two new commissioners, Dr. Susan Sugai, associate director of the Alaska Sea Grant College Program and Duane Liable from The Glosten Associates.

Larry Lawver reiterated the importance of the potential claims for the continental shelf, because it could lock out research in all but two very small regions of the arctic.

Coast Guard Headquarters Report – Jon Berkson reporting for Tom Wojahn

CG HQ is just about recovered from the flooding damage caused by Hurricane Isabelle. CDR Bodenstedt retired in May and was replaced by LCDR Tom Wohjan. Capt. Holland replaced Captain Lancaster.

Replacement for the MACKINAW is the GLIB which will also be named the MACKINAW. It will have buoy tender capabilities in addition to icebreaking. It will have the same type of power plant as HEALY and will be equipped with aziopods.

HR 2443 authorizes the Commandant to enter into an agreement for a study of CG Icebreaker requirements. Get language from the bill.

PACAREA report – April Brown.

Both POLARS are going on Deep Freeze. STAR is about to leave Honolulu and SEA will leave Seattle on Monday. The ice is still about 14 feet thick and under a lot of pressure. B15 has broken in half. B19 is long gone, but there are large cracks in the Ross Ice Shelf, so conditions are not necessarily going to get better.

Two icebreaker Deep Freeze operations for the near future are not out of the question and it is still a possibility that HEALY could be used in future years. Last year, the tanker could not make it into McMurdo station and they had to fuel over several miles of sea ice using flexible hose. They may go to a larger tank farm so that they could store two years of fuel.

NSF and Coast Guard will be working on revisions to the Icebreaker MOU. Now would be the time for input on science requirements.

Homeland Security Department Undersecretary for Science and Technology, Charles McQueary will be taken to see Deep Freeze Operations by the Vice-Commandant this year. This will raise the profile of Polar Operations within the new department.

2003 Science Operations

Dave Forcucci reported on the CATS cruise with Kelly Falkner as PI. (see appendix V for pictures)

Science operations included CTD and ADCP surveys along with three successful piston cores.

Coast Guard personnel did all of the diving for the program, which they have the depth, training and desire to support.

The ADCP was run continuously by Andreas Munchow and he will be a good resource for future users.

Deployed several anchor first and anchor last moorings. Anchor first moorings were suspended using Kevlar line and then released by cutting the line with pruning shears.

HEALY used the Northwest passage cruise as an ad-hoc underway data collection exercise with a research permit from Canada.

Dale reported on the NOAA funded mapping cruise. (see appendix VI) Ice center people were on board along with a very experienced Canadian Ice Observer, which proved to be a very valuable exposure for the ice center personnel.

Swap between science parties at Barrow was well organized for the most part.

SBI mooring cruise – Rebecca Woodgate

13 mooring recoveries, 15 mooring deployments, 321 CTD casts, 34 VPR casts, 11 net tows, XBTs, sonobuoys, ADCP and multibeam surveys.

Moorings crawlers for Rob Pickart performed beyond expectations. Like having a ship doing CTD's at the same spot for a year.

Report from Andreas Munchow about ADCP operations, 75 khz works well. 150 khz works badly.

Overall this cruise collected 70 GB of data.

CG HG report (Continued) by LCDR Thomas Wojahn

Tom made a presentation that he and April prepared (see appendix VII) and covered the following points:

- ❖ History of Icebreaking support in the Coast Guard,
- ❖ Studies about Icebreaking needs
- ❖ POLAR icebreaker maintenance requirements.
- ❖ POLAR Icebreaker Program issues
 - FY 03 HAPPS 2.5M reduction
 - FY 04 2.5M additional reduction and directed to renegotiate MOA
 - Revalidate or update the 1990 Presidential report on Polar Icebreaker requirements
- ❖ Replace or upgrade POLARS
 - mission and operational requirements FY 04
 - Major acquisition in FY06

Larry Lawver showed a series of slides, which shows the breakup of the B15 Iceberg. (see appendix VIII)

Whaling Impacts on SBI – Rebecca Woodgate

Whaling captains were concerned that the research activities would detour the lead whales, which would impact the entire whale migration and therefore their entire hunting season. SBI agreed to defer the stations to the east of Barrow until the end of the trip and came in behind the whale migration, which was a satisfactory compromise solution for all parties. Lessons learned: Put dates in writing; try to differentiate between HEALY and other vessels operating in the area; unless safety concerns dictate otherwise, helo ops into Barrow should approach from the southwest, making landfall southwest of Barrow; FAA and whaling interests need to communicate so that agreed upon flight patterns can be followed.

There was a discussion about the mechanisms that could be used to improve communications with the various entities and the community of Barrow.

RECOMMENDATION: That for at least one of the meetings with the native community that representatives of PACAREA, HEALY, AVDET and D17 be included in the meeting. State Department should be included in discussions.

ACTION ITEM: EOS article, lead by Lisa. Need other authors. Jon cautioned that we be very careful with the wording of this article and be sure to vet it through agencies. The EOS article purpose is to raise the issue with potential PIs. This article should draw primarily from the published principals for conduct of science in the Arctic. See the published principals on the OPP Arctic Sciences webpage. <http://www.nsf.gov/od/opp/arctic/conduct.htm>

UW Data Collection during 2003 – Dale Chayes (Appendix IX)

Dale reviewed the efforts taken during the HEALY AEWS 03 expedition to accomplish some level of continuous underway data collection. Their primary focus was on collecting multibeam and associated supporting data required to insure high quality, long-term results. This summer's efforts were financed by the Center for Coastal and Ocean Mapping with promises of support from others. Based on their experience this summer there are some key elements that are needed to make this type of effort successful.

- ❖ Planning
- ❖ Continuity (experienced personnel) requires rotation
 - Need experienced people on the ship actually doing this
 - Need rotation, so that you can get experienced people to do it.
- ❖ Depth of experience with supported data systems and data types
- ❖ Support from shore
- ❖ Need a shakedown post drydock to ensure systems are functioning properly.

This summer's program included the following legs during which there was at least one experienced multibeam operator on board.

- ❖ Seattle to Puerto Vallarta

- ❖ St. Johns to Thule
- ❖ Thule to Barrow
- ❖ Barrow to Barrow
- ❖ Barrow to Nome

There were still large transit segments during which there was no dedicated data collection effort or experienced operator present. This was a one-time effort and it will be a waste if there is not follow-through to have this type of data collection become a regularly funded operation.

For UNOLS ship operators, if they have a system, they are funded to operate those systems effectively. What is needed now is a well-worded call for proposals that defines what is needed to support a set of core measurements on a continuous basis. The Coast Guard should be consulted and be able to state (in writing) their ability to support and/or accept any proposal submitted.

2003 Debriefs:

Schedule debriefs in the early part of December, with Hedy, Margo and Peter as volunteers to participate.

Scheduling Review.

HEALY is in going into Dry-dock on Nov 22nd

March 22 – April 2 tentative dates for shakedown, 7 days for ship systems, 3 days for helo ops, 2 days science system testing.

Recommendation: It will be important to get to deep water during shakedown. If you don't do the deepwater multibeam and other system testing during the shakedown, you run a technical risk.

April 5 – 16 science on load

May 1 – Nov 10 Arctic West 04

- Two SBI 40 day process cruises

- SBI mooring cruise in September

- NOAA mapping cruise

- DART buoy turnaround

- Port calls in Japan, Russia, Dutch Harbor and Nome

- Acoustic noise survey off Ketchikan.

193 days deployment

POLAR Schedules

POLAR icebreakers are not available for summer 04

If only one POLAR is used for deep freeze 05 then one may be available for summer 05. Robin suggested that if a POLAR was available in 2005, it could

cover the excess work that may be funded for work with the ODEN Beringia expedition.

NSF believes that they may be able to make decisions in December 03 about proposals to use HEALY with ODEN during leg three of the Beringia expedition.

NOAA may be interested in involvement with this expedition as well.

ARCUS/ALIAS presentation by Josh Klauder

Josh reviewed the Arctic Logistics Information and Support (ALIAS) web pages. ALIAS is a service of the Arctic Research Consortium of the United States (ARCUS). <http://www.arcus.org/ALIAS/index.html>

ALIAS is a searchable database of Arctic research vessel and other logistics information. The database and site are under construction. They have a lot of structure for details about vessels, there are some schedules and cruise tracks, but a lot of the data has not been filled in. Getting this information if it is not already posted to the web is difficult.

NSF has asked UNOLS to work with ALIAS in developing some of the contacts and content for research vessel information and schedules. The goal is to provide guidance to ARCUS on developing their site so that it not only provides information about schedules, but also scheduling contacts and procedures. Since there are not that many different ships operating in the Arctic it should not be that difficult, but will require some work to make sure the content is kept current and accurate. Being able to draw directly from the responsible ship schedulers and operators in a way that does not duplicate effort will require guidance from the Arctic research vessel operators.

The Arctic Ocean Sciences Board (AOSB) and The Forum of Arctic Research Operators (FARO) meet jointly in Iceland April 21 – 28, 2004. It was suggested that Mike Prince and Josh or other ALIAS representative attend this meeting since the use of ALIAS will be on their agenda.

Expeditionary Planning: Nothing new was presented on this issue. It was mentioned that the 2005 Beringia expedition will be a good test case for how expeditionary planning can be carried out in the U.S., especially in conjunction with an international effort. AICC should maintain contact with US scientists that attempted or successfully participated in Beringia to get their feedback on how this type of planning can be supported or facilitated in the future.

Combining Arctic and Antarctic oversight more effectively: Because Antarctic logistic support is having an impact on Arctic science and because of issues such as the POLAR Class SLEP and PALMER replacement, there is a growing need for more interaction between the AICC and ARVOC. Garry Brass suggested that AICC and ARVOC have a joint meeting.

ACTION ITEM: AICC chair contact ARVOC chair regarding the possibility of scheduling a joint meeting.

GLACIER restoration update – none provided. Word is they may have around a 200 million dollar donation to complete the project and undertake the medical mission.

Research from research vessels from several different nations, a comparison – Peter Minnett

Over 8 years, his group has conducted 31 cruises, 13 from icebreakers including the Coast Guard icebreakers and several from other countries.

Peter reviewed the research experience from several aspects of a cruise, rated for each country (US, Canada, Germany, Australia).

The rated aspects include: Pre-cruise logistics, Set-up, At sea experience, Facilities, Technical Support, Quality of life, General atmosphere.

This presentation made a comparison between the research experience on Coast Guard Icebreakers compared to icebreakers from other nations. Coast Guard operations were generally good and improving. This report was designed to show some of the areas where other operators excel and therefore, could serve as an example for Coast Guard operations.

Day two:

Lisa reviewed the agenda for the day.

Richard Saunders mentioned the contract with Allied Technology Group for technical support. They may have the need to hire at sea technicians on occasion. They passed around a contact sheet.

Clearances: Dave Forcucci mentioned that the clearance process for recent years went well, but they are starting to get notices of non-compliance from the State Department for some of the 2001 projects. Dave and Simon will follow up with the PI.

ADCP performance: Dave reported that the new 75kHz ADCP worked very well on this summer's cruises. There were problems with the 150 kHz system, which Dave will follow up on to correct.

Alaska Region Research Vessel (ARRV): Dirk Kristensen of Glosten Associates gave an update on changes to the design for the ARRV. He mentioned plans for developing handling systems. They have spoken to Dynacon and Markey and both have indicated that installing a motion-compensated CTD handling system in the Baltic room would be difficult. Markey has formed a partnership with Allied Crane of Oregon in order to be competitive for supplying a total handling package.

SLEP Report, PACAREA MLC – Neil Meister (see appendix X)

FY 2004 Repair plan summary

Both POLARs are scheduled for Deep Freeze 2004 and are departing now. They are assuming that two POLARs will be required for DF 2005.

Planned repairs (assumes both ships return in generally good condition and that at least one ship returns with CPP hubs w/no apparent damage)

- ❖ POLAR STAR: renewal of three of the four main diesel engine blocks.
- ❖ POLAR SEA: Dry dock and replace all three propeller hubs along with bearing land repairs for all three shafts. This will require a three-month dry-dock.

Contingency Plan 1

Ships return with moderate CPP/shafting damage to the wing shafts requiring the dry-docking of both ships. Would also require an accelerated overhaul of the POLAR SEA hubs for the POLAR STAR.

Contingency Plan 2

Catastrophic CPP/shafting casualty to either ship will make it impossible to have both POLARs available.

Plan would be to make the easiest ship ready for Deep Freeze and then operational commander decides if two ships are necessary and if so, then send HEALY.

POLAR SLEP STATUS

Neil has provided a series of briefs on the problem and potential impacts (NSF brief Feb, CG HQ flag brief Apr, NAS PRB May, Science workshop June, CG Commandant July).

This has led to the realization within the Coast Guard that this falls into the category of a Major Acquisition. There is a proscribed internal CG process for starting up a major acquisition (Mission Needs Survey (MNS) & P-ORD studies)

CG HQ will be engaging a contractor to do the mission needs analysis and will be using AICC participants as a resource. This report would be very important to get right and AICC and funding agency representatives are ready to review and provide input.

In addition to the operational analysis, the engineering feasibility has already been conducted.

SLEB Operational Cost Effectiveness Results (rank ordered):

1. 60 K integrated Electric Drive with 4 Cat Diesels, 2 LM 2500+ GTRBs
2. 45k Integrated Electric Drive with 4 Sulzer Diesels
3. New Build

Recommendation: This engineering study should be made available to the PRB and public.

HEALY

Dry Dock 11/5/03 through 2/3/04

Major Science System projects

- ❖ Science Seawater system redesign
- ❖ Science sensor precision survey
- ❖ Acoustic systems maintenance
- ❖ A-Frame pivot pin redesign
- ❖ Science winch operation safety improvements (sheave block pin and ASW interlocks)
- ❖ Science winch info display on WX decks
- ❖ DPS Fault correction & dedicated trials

Tow Bitt redesign solution is still being developed and plans are to take care of it in the 2005 maintenance period.

POLAR Workshop – Lisa Clough (Appendix XI - POLAR workshop report)

Lisa briefly reported on the POLARS workshop held June 11 and 12, 2003 in Seattle, WA. There were around 30 participants including Arctic and Antarctic researchers, agency representatives and from the USCG. The Charge was: What to change about POLARS while staying within the basic size/configuration of the ships (did NOT get into refit versus replacement). The participants generated a WISH LIST (60+ items, many drawn from the POLARS debriefs). They also identified Science Drivers for upgraded POLAR Class Icebreakers with improved science capabilities.

Overall SCIENCE Objectives

- ❖ With importance of Law of the Sea, want to include seismic and mapping work.
 - One Option: General-purpose ship(s) that can support seismic work and mapping.
 - Another Option: One general purpose science ship and one more specialized vessel.
- ❖ Increased Availability/Reliability of the POLAR Class Vessels
 - Availability for science is affected by demand for and availability for logistics support, among many other things

Priority areas for improvement to Polar icebreakers

- ❖ Lab space and quality
- ❖ Deck space amount
- ❖ Habitability
- ❖ Station keeping
- ❖ Systematic continuous underway data collection in all oceans and both poles

Accommodations and habitability

- ❖ Keep 35 science berths while improving habitability of berthing areas (get rid of triple bunks)

Habitability

- ❖ Joiner bulkheads and suspended overheads – habitability improvements
- ❖ False overheads and joiner bulkheads can create maintenance obstacles, which should be avoided through good design
- ❖ Common head on the main deck and elsewhere
- ❖ Icing on deck and lighting for safe passage
- ❖ HVAC, sewage, temperature control, noise levels, lighting levels

Sea keeping

- ❖ Enhance to the extent possible with improved station keeping.
- ❖ Anti-roll tanks or other methods that won't affect icebreaking capability

Station keeping

- ❖ Bow thruster for station keeping in ice or open water ops
- ❖ Improve station keeping capabilities for operations such as mooring ops, CTDs, ROV ops, etc.
- ❖ Track line following

Ship control

- ❖ Improve command and control during over the side operations

Icebreaking capability

- ❖ Maintain as much as possible, consider the ramifications of decreased power, but increased availability on icebreaking mission requirements

Working deck area

- ❖ CTD launching deck area is too small for safe handling.
- ❖ Add deck space in the aft deck area for winches, buoys, etc.
- ❖ One stack and move flight deck and hanger forward for more aft deck space.
- ❖ Availability of high power and other ship's services to working decks, consider increasing what is currently available.
- ❖ Make forward deck useable for science work or vans.
- ❖ Heated decks that go all the way to the edge. Or wooden decks to mitigate effects of cold decks on working conditions.
- ❖ Access to and from the ship to the ice
- ❖ Van locations that can be accessed by ship's cranes, self-service vans and reconfigure van locations

- ❖ Tow bitt designed to be re-locatable.
- ❖ Multiple power outlets on the bridge, flying bridge and foredeck for science systems
- ❖ Flowing seawater, freshwater and hot water on deck for rinsing nets, cleaning equipment etc.

U/W data collection & sampling

- ❖ Flow through seawater systems needs to be upgraded, operational in ice, sensors upgraded, temperature control.
- ❖ Hull mounted Gravimeter & magnetometer
- ❖ Acoustic systems
- ❖ Need ADCP (may require cutting hole in hull).
 - One option is an ADCP on a strut
- ❖ Sonar systems
 - Multibeam system (may require cutting hole in hull)
 - Autonomous vehicles for multibeam mapping systems as option
 - Minimize the acoustic impacts of new propulsion systems

Workshop Recommendations:

- ❖ The need to SLEP, replace POLARS or consider other options should be carefully evaluated, evaluate the costs of different options using historical data on fuel usage and other costs.
- ❖ Include upgrading science capabilities in any variation of the plan, consider various options to achieve this goal.
- ❖ Develop an SMR for converted POLAR Class vessel
- ❖ Develop an SMR for an additional Arctic science icebreaker
- ❖ Review the Franklin conversion for lessons learned.

Conclusions and Caveats:

- ❖ Sooner is better, time for decision and funding is now.
- ❖ Coast Guard recognizes the impending train wreck, seriously considering SLEP options
- ❖ This is an opportunity to also improve the science capabilities.

Science Network report by Jim Wilson (Appendix XII)

Jim Wilson reported on action taken by the Coast Guard and their contractor during 2003 and plans for 2004 to improve the science data network, email connectivity, data collection and communications. Dale made comments about their plans for providing email connectivity through the use of specific email clients.

Recommendation: The Coast Guard should strive to provide open, standards based access to an email server so that scientists can access email through their own email clients. Local mail server should be independent of the communications mode (satellite system).

ATG report by Andrew Mungin (Appendix XIII)

Andrew is the program manager for the contractor providing technical services support for HEALY. He hires subcontractors for each system as needed, such as SIO, UDEL, LDEO and U. Alaska. Also hire ship riders. Can purchase equipment with about 7.5% pass through.

Simon asked that the process being used by ATG and the Coast Guard to prioritize areas to focus their efforts should be articulated so that we can determine that AICC is being used effectively in helping to prioritize the need for change and improvements.

AVDET report – CDR Marinello

Coast Guard is looking at the next evolution for the HH65 © They have a history of problems with the engines. They are looking at a couple of options for new engines. After an objective analysis they will choose an engine and then make a fleet wide change out (approx. 93 aircraft)

2000 lb hook will be the limiting factor on lift capacity

Fuel consumption will be about the same, but power will be increased, so speed will be increased, but range will be about the same.

Operating restrictions were reviewed and flight ops procedures are being modified and reviewed.

High Latitude Communications

There has been a recommendation that a working group looking at opportunities for high latitude communications be formed. Discussion about whether or not AICC should be the driver for putting together this working group. Dale and Simon felt this was outside of the purview and scope of AICC. This is more of a US National issue and/or an International issue. Simon felt that this is something Simon will pursue, perhaps with the FARO group and report back to AICC on any progress.

Multibeam System Status and Sensors – Dale Chayes (Appendix XIV)

Dale covered the current status along with his recommended for short term and long-term plans and needs.

Current Status:

- ❖ Found at least 17 failed hydrophones during annual check.
- ❖ Multibeam and sub-bottom profiler head tanks non-functional.
- ❖ Remedial efforts in a few weeks – during shipyard.
- ❖ Must understand the failure modes if we hope to prevent future failures.

- ❖ Possible failure modes: manufacturing failure, window strength, exceptional event, or ?
- ❖ Need post remedial evaluation

Current Dry Dock

- ❖ Replace failed hydrophones and/or cables
- ❖ Check hydrophones, projectors and cables
- ❖ Check windows and replace if necessary
- ❖ Evaluate failure modes
- ❖ Fix multibeam head tanks
- ❖ Survey components while windows are down
- ❖ Need to document and validate what is actually there now for multibeam installation so that options can be properly evaluated.

Current integration status

- ❖ Heading and attitude reference needs to be replaced
- ❖ Navigation input is unstable, bridge system issues
- ❖ Proposal has been submitted to NSF
- ❖ Ship's onboard processing system for multibeam is marginal and not spared.

Long-term multibeam issues

- ❖ The current system does not work well in water depths less than about 250m where HEALY spends a lot of time
- ❖ Manufacturer is unable to supply some spares due to component availability.
- ❖ There have been response time issues for vendor support
- ❖ The current system is currently a full generation out of date now and likely to be at least two to four generations old by the time it is updated.

Options

- ❖ Upgrade the existing sonar (SB2112)
 - Incrementally
 - In one shot
- ❖ Replace the existing sonar
- ❖ Issues for either:
 - Changes to the under-hull

- Strength of windows, which are based on PALMER requirements, might be too low. Requirement should be evaluated to be sure they are suitable for HEALY operations.
- Integration with ship's systems
- Re-training
- Operational support

ACTION ITEM: AICC Role is to help define the goals (operational requirements) for multibeam performance in the future. Coherent position paper on what is required with options should be prepared.

POS – MV (position & orientation system – marine vessels) justification:

The POS MV is the product name for an aided inertial navigation system. The system provides extremely accurate attitude, heading, heave, position and velocity data. During previous meetings the need to provide justification for purchasing and installing this system on HEALY was identified. Taking this one step further, a proposal has been submitted to NSF by LDEO for purchase and installation of the system, which includes the appropriate justification.

Radiation Policy will be circulated to AICC for review and comment. A goal of this effort should be to make the policy for Coast Guard as close to as identical to UNOLS policy as possible. The Coast Guard has to make their policy compatible with the Antarctic policies on the POLARs.

ACTION ITEM: AICC comment on Coast Guard Radiation policy.

Equipment:

POLAR STAR has a new Seabird 911

Berthing Policy:

HEALY will provide up to 51 science berths and will leave crew behind if necessary to do that. However, the CO would like to retain the ability to take as many Coast Guard personnel to sea as possible in order to accomplish training and maintenance requirements.

Action item: Captain will prepare a written policy statement, which AICC will comment on.

SBI equipment lists – asked Dave to feedback on what has been taken care of.

ACTION ITEM: Re-circulate SBI equipment list, after update from Dave, on what has been taken care of to AICC for comment.

Continuous Collection Issues - Dale Chayes (Appendix XV)

Dale reviewed the issues that are central to establishing a coherent continuous data collection program on HEALY. A successful program will need:

- ❖ Policy statement is required – what is a baseline data set, access, distribution, archive, oversight.
- ❖ Technical support

- ❖ Long term planning
- ❖ Acquisition
 - All of it all the time
 - As emitted by sensors
 - With accurate time stamps
- ❖ Backups
- ❖ Quality assessment
- ❖ General-purpose onboard computing resources

Need to decide what ships will be supported; Healy, Polar Star, Polar Sea, Others?

Need to define the scope of the program:

- ❖ Acquisition
- ❖ Real-time scientific and operational displays
- ❖ Real-time automatic QC
- ❖ Metadata generation
- ❖ Onboard QC
- ❖ Archiving
- ❖ Data distribution
- ❖ Other?

Need to define data types

- ❖ Underway data
 - Navigation, attitude, heading, other?
 - Hull mounted sensors (ADCP, TSG, Sonars, Fluourometer,...)
- ❖ Station Data? (Such as CTDs, water samples, etc.)
- ❖ Observations
 - Mammals and birds
 - Clouds
 - Other?

ACTION ITEM: A specific list of data variables that should be collected. A statement about data ownership issues and perhaps what should be public domain data. Speak to the issue about where data should be archived and the desire that all data should be archived in its raw form with metadata. AICC should draft a paper based on Dale's report that can be evaluated in the committee and then post for community input.

Canadian Icebreaker Amundsen - report provided sent by Martin Fortier
(Appendix XVI)

Adjourned to a meeting of AICC members only:

Reviewed AICC email lists.

Membership:

Current Committee:

- ❖ Bio-oceanography
 - Carin Ashjian (1st term)
 - Lisa Clough (departing in January)
- ❖ Chemical Oceanography
 - Hedy Edmonds (1st term)
 - Terry Whitledge (departing now)
- ❖ Geological Oceanography
 - Margo Edwards (1st term)
 - Larry Lawver (departing now)
- ❖ Physical Oceanography
 - Bob Bourke (1st term)
- ❖ Atmospheric Science
 - Peter Minnett (1st term)

Need Geological, Physical Oceanography and Biological scientists. Discussed possible candidates and decided to announce the need for candidates and seek recommendations from the community.

Decisions regarding Chair

Margo Edwards volunteered to be chair. Due to travel requirements and icebreaker experience issues, Hedy Edmonds and Carin Ashjian would be officially designated as vice chairs to help cover meetings, etc. and Margo will be recommended to the UNOLS Council as the next chair of AICC for a two year term.

Next meeting will be planned after consultation with ARVOC about the possibility of holding a joint meeting, perhaps some time in March in DC.

Lisa Clough was recognized for her long service on AICC and for the outstanding job that she has done as the Chair.

Meeting Adjourned at 12:45 pm.