UNOLS AICC MEETING

March 22 & 23, 2004

National Science Foundation
Arlington, VA

Executive summary

The Arctic Icebreaker Coordinating Committee (AICC) held their winter 2004 meeting at the National Science Foundation (NSF) in Arlington, Va. on March 22nd and 23rd. In addition to committee members, representatives of NSF, the National Oceanographic and Atmospheric Administration (NOAA), the Arctic Research Commission (ARC) and the United States Coast Guard (USCG) participated in the meeting. The AICC is a standing committee of the University-National Oceanographic System (UNOLS) with a primary purpose of providing oversight and advice to the U.S. Coast Guard for the purpose of enhancing facilities and science aboard their icebreaker fleet. During the meeting previous recommendations and action items were reviewed and new ones developed. Major issues discussed include the planning for 2004 science operations on the HEALY as well as recent and planned maintenance and overhaul of all three Coast Guard icebreakers. In particular, the planning and need for a major Service Life Extension Project (SLEP) for the POLAR STAR and POLAR SEA were reviewed by the Coast Guard, including details of how AICC can further support the process. Several operational and administrative details were discussed and recommendations made where appropriate. The Coast Guard provided guidance on the process for making engineering changes to the icebreakers that will influence the process of changing, adding or upgrading science systems. One example that was addressed by the committee is the need to provide justification and planning for future upgrades of the multibeam swath mapping system. Scheduling and planning for international collaborative operations was reviewed, along with a review of the current NSF policies and guidelines for coordinating science operations with Alaskan Native Communities. During the course of the meeting, Lisa Clough, outgoing Chair of AICC was presented with the Coast Guard's Distinguished Public Service Award.

Recommendations

1. NSF and USCG should examine their policies regarding physicals and medical information. They should examine what their elements of risk are and what the most reasonable options are for minimizing the impacts of health related problems during deployments. Report any need for changes at next meeting and ask for AICC feedback.

2. USCG should provide a clear draft policy on berthing assignments on board HEALY and the POLARs for comment by AICC.

3. The process for updating and keeping the web-based cruise-planning manual up to date and accurate should be reviewed and revised by the USCG as needed.

4. USCG should provide AICC and science users with a clear policy regarding availability of immersion suits and mustang suits provided by the Coast Guard.

5. USCG provide to AICC for review any proposed change to support for science operations that may be developed during the Mission Needs Analysis or other internal reviews.

6. NSF and USCG should develop a draft statement addressing lost equipment for review by AICC.

7. USCG should clarify and publish their definition of hazard materials and rules for their handling as part of their website/cruise-planning manual.

AICC Action items

Task	Assignment	
Participate in USCG Mission Needs Analysis and planning for POLAR Class SLEP	AICC	AICC Members will be contacted directly by USCG and their contractor.
Fall AGU posters	Margo, Josh, coordinate with Jim Swift, Dave and Dale (HEALY instrumentation)	Update HEALY ops, ALIAS, future AICC
Polar workshop report	Mike	Provide to CG, post on website for science comments
Start process to acquire new multibeam for HEALY	Margo, Dale, Dave, Bernie	Science justification plus engineering study. Dale to work with ship and science coordinator to initiate the ECR process.
Review USCG proposed policy regarding availability of immersion suits and mustang suits	USCG/AICC	
Plan for Coast Guard Science support; continuity, training and rotation. Review proposed plans from USCG	USCG/AICC	
Obtain and review Antarctic science needs reports.	Jim Swift/AICC	
Review AICC UNOLS Charter annex and the NSF/USCG MOU	AICC	Recommend changes and/or re-adoption
Contact Robin at ARVOC and volunteer to help with debrief of SBI cruise on PALMER, discuss roles with regard to POLARS	Margo	
Letter on Underway Data Collection. Forward to NSF and USCG.	Lisa/Margo	Incorporate edits from meeting.
AICC provide formal recommendation and request for a firm policy on berthing assignments.	Lisa/Margo	Incorporate suggestions in earlier emails to Captain.
Review latest iteration of the CG	AICC	Dave will coordinate

Radiation policy and comment.		with Hedy and then send around the revised policy. May change with the use of NSF procedures in the future.
Advertise call for new AICC committee members in UNOLS News, to UNOLS representatives and with Arctic Info.	UNOLS Office/Margo	

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Proceedings of the meeting

Welcome and Introductions

The UNOLS Arctic Icebreaker Coordinating Committee (AICC) meeting was held on Monday and Tuesday March 22nd and 23rd, 2004, at the National Science Foundation (NSF) in Arlington, VA. Dr. Margo Edwards (Univ. of Hawaii), AICC Chair, called the meeting to order at 0830 and provided an opportunity for introductions. A list of participants is included as Appendix II

Accept the minutes of the November 2003 AICC Meeting

A motion was made and approved to accept the minutes of the November 2003 AICC meeting.

Margo acknowledged the contributions of Dr. Lisa Clough, who was attending her last meeting as a member of AICC, having served as an inaugural member of the committee and as Chair for the past three years.

Previous Action Items and Recommendations - update

Margo reviewed the list of previous action items and recommendations, providing a status and reviewing actions still pending. (Appendix III)

Table of AICC action items from November 2003 meeting

Item	Status	Comment
TEAA letter	Done	Need approval
EOS article	Pending	
2003 debriefs	Done	Disseminate to AICC
ARVOC/AICC meeting	Not possible this spring	Trying again for fall
Multibeam position paper	Pending	
Radiation policy	Done	www.icefloe.net
SBI equipment requests	Update from Dave F.	
U/way data collection	Desirables/letter done	Need to approve
New member for Lisa	Pending	

AICC Recommendations from November 2003 Meeting:

- That for at least one of the meetings with the native community, representatives of PACAREA, HEALY, AVDET and D17 should 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 SLEP 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.

UNOLS Report (includes FIC, Scheduling and RVOC) Mike Prince

Mike reviewed the major issues being dealt with by the UNOLS Council and standing committees. The next steps in the Fleet Renewal process are at the forefront of the agenda for FIC and the Council. Planning for the Regional Class and Ocean Class research vessels continues although no clear path for funding the Ocean Class yet exists. The funding path for the Regional Class is somewhat better defined, but remains to be implemented pending the actual approval of future year budgets for the NSF Ocean Sciences Division.

Scheduling was complicated this past year by an extraordinary level of approved fieldwork, especially those projects requiring large ships and submersible assets. Most ships in the UNOLS fleet were fully scheduled. This would have resulted in an incremental increase in the cost of support NSF fieldwork of a little over $12 million. An expected increase in NSF/OCE funding would have covered this added cost. However, the final budget for FY 04 did not include any increase for Ocean Sciences. This made it necessary to defer an addition $6 million worth of fieldwork to CY 05 and to cut $6 million from science

program budgets.

RVOC is focusing on new Security regulations, updating the Research Vessel Safety Standards (RVSS) and other safety training publications and on crew retention and training. They will hold their annual meeting in October, hosted by the Bermuda Biological Research Station.

DESSC – Hedy Edmonds

Dr. Hedy Edmonds of the University of Texas is a member of the Deep Submergence Science Committee (DESSC) as well as serving on AICC. She reviewed the January DESSC meeting held in Portland just prior to the ASLO Ocean Sciences meeting. Some of the subjects covered included:

- Training for new users
- Survey for Biologists tools
- New Alvin design
- Hybrid ROV

RVTEC – Dale Chayes

The UNOLS/RVTEC fall meeting was hosted by the US Coast Guard and held in Seattle, November 17-20, 2003. The meeting included a tour of the HEALY during her maintenance period at Todd Shipyard, and a reception and tour at Sea Bird Electronics. The Florida Institute of Oceanography will host the 2004 meeting in November at the University of South Florida.

Immediately following the 2003 meeting a two-day training class for POS/MV GPS aided inertial attitude, heading reference systems wasfunded by NSF/OCE, arranged by Bill Martin and hosted at UW. Peter Stewart of Applanix taught a classroom session followed by hands-on training in a survey launch provided by NOAA.

At the meeting the level of service working group (Barrie Walden, Woody Sutherland, Stuart Lamerdin and Bill Fanning) provided an updated outline for defining levels of service and the approach was endorsed by RVTEC.

A working group from RVTEC including Toby Martin, Val Schmidt, Geoff Davis and Steve Poulos has developed a protocol for ship-to-ship and ship-to-shore wireless access. The approach was reviewed at our meeting in November. The first shore-side installation was made in Hawaii at the UH Marine Facility and the KILO MOANA and the WECOMA have been equipped. Discussion is already underway with respect to outfitting additional ships and port sites.

INMARTECH 2004 will be held at BAS in Cambridge England September 20-24, 2004. RVTEC and at least one host institution, most likely WHOI, will host the next INMARTECH in the fall of 2006. We need to finalize plans in time to announce them in Cambridge.

Funding Agency Reports

NSF – Tom Pyle

As food for thought for the Committee Tom mentioned that the science plan for the Arctic drill ship AURORA BOREALIS is being completed. There is the potential for 40% German support and the potential for selling shares to other countries after construction. Need the committee to think about what the demand may be within the U.S.

Reference: http://www.polar.se/assw/infofiles/thiede.html

http://www.wissenschaftsrat.de/texte/5369-02.pdf

Simon Stephenson: Three SBI cruises and one NOAA cruise are on the HEALY 2004 schedule. For 2005, NSF is recommending the funding of one set of collaborative proposals to join ODEN on the third leg of their Beringia Expedition. An award will be announced in the near future. They are also reviewing other proposals for 2005 that could use HEALY earlier in the year. ODEN's third leg starts around mid-August from the vicinity of Barrow. This should leave time on HEALY for other projects before this trip. This leg would end around October 1st on the east coast. Besides HEALY they are using the LOUIS ST. LAURENT, ALPHA HELIX and KNORR for other OPP funded work.

The Forum of Arctic Research Operators (FARO) and the Arctic Ocean Sciences Board (AOSB) are working on ways to collaborate internationally on utilization of Arctic vessels and facilities. The first step is to describe the processes that are actually used to schedule all international Arctic research vessels. This will not be easy, but there is a need to make progress. The Arctic Research Consortium of the United States (ARCUS) program called Arctic Logistics Information and Support (ALIAS) on the web will be the forum for this scheduling and collaboration material.

NOAA – Kathy Crane

NDBC will use the HEALY for DART mooring turnarounds in May 2004. In response to a Congressional mandate to map seafloor that may fall under the jurisdiction of the United States should it ratify the Law of the Sea, NOAA's Center for Coastal and Ocean Mapping has funded a multibeam mapping expedition to the Chukchi Plateau and the Northwind Ridge. The University of New Hampshire will carry out this mapping onboard the HEALY during October 2004.

NOAA's Arctic Research Office and the Office of Ocean Exploration are carrying out a cooperative Russian Federation, U.S. expedition on the Russian Ice strengthened ship Khromov, to the Bering and Chukchi Seas during July-August, 2004. The expedition goals are to place a mooring in the western portion of the Bering Strait, map ecosystem-climate change parameters, take a census of marine life and investigate the presence of gas hydrates and hydrothermal venting in the Bering Sea and Chukchi Sea. The Russian-US expedition is called RUSALCA (Russian-American Long-term Census of the Arctic). It is hoped that this will be the first of several such expeditions, which may expand participation to other members of the Pacific-Arctic Group.

In 2005 – NOAA's Office of Ocean Exploration has requested 25 days for work in the Canada Basin. NOAA has also requested two berths and bow space to install equipment to monitor the fate of mercury in the atmosphere during the Arctic Ocean transect of the HEALY with ODEN.

NOAA-funded moorings in the Arctic Ocean will need servicing every year. They are located in the northern Bering Sea and on the Southern Chukchi Plateau.

Kathy states that Russian Embassy in Washington DC has announced that the Russian Federation will accept marine research clearance requests with two-three months lead time. This will need to be confirmed.

ARVOC – Jim Swift

The most recent meeting of the Antarctic Research Vessel Oversight Committee (ARVOC) took place 1-2 May 2003 at NSF Headquarters. Business of interest to the AICC from that meeting was reported at a previous AICC meeting. No ARVOC meeting is yet scheduled for 2004.

ARVOC business in the interim has focused almost 100% upon discussions and presentations regarding scientific planning for a next-generation polar research vessel (PRV), designed to meet logistical needs identified in two scientific community workshop reports in the first half of 2002. A PRV steering committee was created within ARVOC, and that group has been working with a design team on a conceptual design whose principal elements provide for the scientific needs identified in the community workshop reports.

The subcommittee is currently organized as follows (not all members are listed here):

New Generation Polar Research Vessel		
Working Groups		
Acoustics & Sonar	Jamie Austin Teri Chereskin	jamie@utig.ig.utexas.edu tchereskin@ucsd.edu
Communications, Infrastructure & Physical Plant	Paul Olsgaard Skip Owen	paul.olsgaard@usap.gov skip.owen@usap.gov
Geotechnical Drilling	Tom Janecek	janecek@quartz.gly.fsu.edu
Jumbo Piston Coring (Deck Layout)	Gene Domach Amy Leventer	edomack@hamilton.edu aleventer@mail.colgate.edu
Laboratory Vans (Portability & Exchange)	Chris Fritsen	cfritsen@dri.edu
Instrument Deployment	Jamie Austin Bruce Huber Bill Detrich Robin Ross	jamie@utig.ig.utexas.edu huber@ldeo.columbia.edu iceman@neu.edu robin@icess.ucsb.edu
ROV/AUV	Bruce Robison Barrie Walden	robr@mbari.org bwalden@whoi.edu
Underway Measurement	Steve Ackley Colm Sweeney	sackley@pol.net csweeney@splash.princeton.edu
Comments and feedback may also be submitted @ www.polar.org/prv		

Public presentations regarding the conceptual design were made at the Fall 2003 AGU meeting, the January 2004 AGU Ocean Sciences meeting, and the February 2004 ASLO/TOS Ocean Sciences

meeting. The file "PRV_poster_forAICC.ppt" is a page-sized rendition of the ARVOC poster presented at these meetings.

Jim Holik of Raytheon Polar Services recently reported to ARVOC that NSF has decided, "there should be some high level reviews". These will take place both by the OPP Office Advisory Committee (OAC) and also by the National Academy/Polar Research Board. As a committee we have to wait to see what direction the NSF will take and will need to step back for a while from further work on the PRV conceptual design." There has been some fairly intense follow-on email discussion within ARVOC but there is nothing official yet to report.

U.S. Coast Guard Reports

USCG HQ: Tom Wojahn

NSF and USCG are reviewing and revising the MOU between their agencies. The Coast Guard has been directed to try to get more reimbursement for icebreaker operations.

Undersecretary of Homeland Security (Dr. McCury) visited the Antarctic during Deep Freeze operations with VADM Allen (Chief of Staff) to see first hand the challenges of that operation.

Captain Holland presented the Coast Guard's Distinguished Public Service Award to Lisa Clough for outstanding service as an inaugural member of AICC and as its most recent Chair.

PACAREA Report: (Appendix IV)

Dave Forcucci reported April Brown's plan to retire in September. LCDR Karen Arnold will fill April's billet for one year. Their boss, CAPT Bardo will also be transferring this summer.

Dave showed a list of changes in HEALY's personnel coming in the near future.

	Report	Transfer	Notes
CO	2003	2005	

XO	2003	2005	
OPS	2003	2005	
EO	2002	2004	2-day overlap mid July
MSO	2002	2004	Jessica Noel, July 1
MSTC	2000	2004	19 March/ July 5
MST1	2003	2006	Daniel Gaona
MST2	2000	2004	April 29th
MST2	2002	2005	Josh Robinson
MST3	2001	2004	Graduate 3/5/04

There were several questions and some discussion about the turnaround of personnel on HEALY. Tom Wojahn mentioned that as part of the mission analysis, they will be looking at potential alternative manning methods, as an example, MSTs could be assigned to an icebreaker marine science support unit and sail on ships as needed.

PACAREA funded ATG subcontracts with Scripps for the shakedown of hydrographic systems (CTD, TSG, XCTD, XBT, Science SW) during March. They are contracting with LDEO to provide support during the field season to provide:

- Science systems readiness- all systems
- Underway Data systems- configuration/operation
- Metadata archival system- underway systems
- Met, TSG, sub-bottom, Multibeam, ADCP

There will be a re-commissioning of the DP system during the shakedown cruise, after extensive rework of that system.

Dave reviewed the detailed schedule for 2004. HEALY will depart Seattle on April 30th for the Gulf of Alaska. They will conduct a seven-day cruise for the NOAA NDBC turning around moorings south of the Aleutians. They will then conduct two SBI process cruises, one SBI mooring cruise and a NOAA/UNH mapping cruise before returning to Seattle on November 8th. In preparation for this field season, an SBI pre-cruise planning meeting was held in December. There was a "hotel mode" sound survey at the end of the schedule, but it has been removed, unless funding for can be found.

Dave also gave an overview of the work accomplished during the HEALY dry-dock period. Science systems that were worked on included the multibeam and sonar transducers and windows, the 75 and 150kHz ADCPs, and the complete overhaul and modification of the science seawater system.

Phil McGillivary reported on the POLARs. POLAR STAR will do the next Deep Freeze. The new Captain will be Richard McCullough (Mac McCullough) when Captain McKenzie retires this summer. CDR Toney will become CO of POLAR SEA.

The MSTs on the POLARS have spent some time on UNOLS vessels and PALMER in order to get training in marine science operations. Steve Hartz, marine technician from the University of Alaska, sailed with POLAR STAR for shakedown training from Seattle to Honolulu at the beginning of this last Deep Freeze deployment.

ARC report – Garry Brass

The Arctic Research Commission (ARC) continues to support ratification of the Law of the Sea (UNCLOS). They would like to get a submarine up into the Arctic to contribute to the surveys necessary to make UNCLOS claims. The U.S., Canada and Greenland (Denmark) are considering submitting a joint claim, which would eliminate the need to settle internal boundaries prior to making a claim.

2003 Post Cruise Debrief Summary: (Appendix III)

Many kudos for HEALY: Everyone accomplished most if not more than all of their goals. These debrief summaries should be taken as constructive suggestions to further improve an excellent operation.

- Falkner: 90% of science goals accomplished.
- Mayer: 120% of surface mapping accomplished, but subbottom was down for the early part of the cruise and took too long to get back online.
- Woodgate: Record number of moorings recovered and CTD casts completed.

Communications

- Trip south did impact on the first program of 2003.
- On-line planning manual was very helpful. Some minor suggested additions, including:
- A chart of HEALY hierarchy to cruise planning manual.
- A photo gallery of the main lab spaces.
- A summary of routine ship evolutions (e.g. helicopter proficiency flights, pumping of grey water, etc.) that affect continuous science operations.
- Explanation of the rubbish sorting and burning routines.
- Clarification of expectations of cleaning etc. to be done by science party.
- A summary of agreements for data archived for others than the onboard science party.
- Need better flow of information between outgoing/incoming COs.

Permitting

- Whaling was an issue, discussed later.

Logistics

- USCG needs to clarify/make available their definitions of HazMat.
- Some issues with agents on first leg.

Construction

- Nothing but praise from scientists.
- USCG would like advance warning on mods.

IT/Comms

- More bandwidth/drops at high latitudes.
- More reliable email system.
- Need more personnel (not MSTs) to support ship's data network (SDN).

Lab Operations

- High praise for experienced MSTs.
- Some concerns that junior MSTs don't have much experience with many systems.
- Falkner thought deck operations during her cruise were sometimes "dicey," but Mayer thought that his one short gravity core operation went smoothly.
- Aft conning station didn't work well for first survey.
- HEALY shouldn't depend on "visiting scientific personnel" to repair systems.
- Took a while to learn how to communicate via chain of command – suggest ship address at first onboard briefing.

Lab Equipment

- Seabeam
- Antiquated system.
- Does not (by design) work well in water depths less than 200-300m.
- Dedicated support personnel were valuable, but…
- …Seabeam berth an issue for SBI programs
- Knudsen/ODEC subbottom sonars didn't work well– sea chest was dry.
- 150 KHz ADCP not working.
- Need to clarify who maintains CTD rosette.

- Address distilled water system water purity.

Diving

- Used only on Falkner trip.
- Divers were great, but a bigger survey boat would have helped speed up operations.

Science Technical Services

- Deck capstan was too slow.
- Tie down points on deck were drilled before use.
- Illumination for aft-deck needs fixing.
- Moving the CTD console to nearer the winch control would be advantageous for CTD operator/winch operator communications.
- Better drainage in the CTD sampling room would also be an improvement.
- Make navigation display available in the main lab for science planning.
- A technical library on board, with general information and manuals, would be useful.

Small boat operations

- Supplement communications with an Iridium phone.
- Climbing the long ladder into and out of the boat is dangerous. Work out alternate loading strategy.

Helo Operations

- The helicopter was used to transfer of science party to and from shore or for science reconnaissance.
- Things went smoothly and pilots had good attitudes.
- Some issues with routing to Barrow/whaling.

Food Service

- Great, but can snacks be left out between midrats and breakfast?

Housing/Janitorial

- Streamline check-in procedures.
- All staterooms need soundproofing.
- Clarify expectations for the science party involvement in rubbish burning and lab cleaning (during and at the end of the cruise).

- Mattresses lumpy.

Safety

- Safety awareness was commendably high.

- Adequate number of drills during programs.

- Hazards on the ship appear to be structural. For example, emergency breathing device boxes are mounted in hazardous locations. Remove the tripping hazards in the CTD rosette room where people have to circulate. Likewise consider tripping hazards on the aft working deck.

- It would be helpful to list the range of sizes for the science-available mustang suits so that people with extreme size requests know to bring their own, or insure that the vessel has a full range of sizes.

Miscellaneous Supplies

- Provide an inventory of available printers, supplies, etc.

- Final program ran out of some supplies.

- Provide whiteboard for messages in main lab.

Medical

- Require a physician's signature to participate on HEALY.

- Electronic submission of forms was problematic due to file size limitations for email attachments.

Travel

- Thanks to ship/BASC for in-port shuttling.

Ship/Science Interactions

- Daily/nightly meetings very helpful.

- The Chief Scientist and Officer of the Deck need to be clear about whether positioning or wire angle is more important for a given over-the-side operation. This information needs to be passed between watches.

Larry Mayer (UNH) has some comments for the Coast Guard.

He is not happy with the dates of this year's cruise, because of the problems with more ice on manuverablity and the performance of the seafloor mapping systems. He also thought that chief scientists should be invited to the AICC meetings before their cruises. He had some other issues that were referred to Dave Forcucci that were properly handled as pre-cruise planning issues.

This led to a discussion about the role of AICC with regards to scheduling and listening to chief scientists about pre-cruise planning during meetings. It was decided that AICC only has an advisory role in scheduling and that the UNOLS Executive Secretary will continue to serve as liaison to scheduling meetings. Contact will be made with new chief scientists to make sure they are aware of the resources

and assistance that AICC can provide. They would not be formally invited to AICC meetings, but we would make them aware of those meetings in case they wanted to attend.

Operations, Scheduling and Long Range Planning

Phil McGillivary reviewed the ice conditions in McMurdo and the potential impact on Deep Freeze operations for next year.

Breezed by scheduling issues, since there is not much to report yet on plans for 2005. The scheduling meeting will most likely be held in September.

Bernard Coakley mentioned proposals that were submitted for joining the ODEN's Beringia Expedition. Two of 3 proposals were declined and resubmitted based on reviews. They are hoping to join the expedition, which is tentatively being planned as a joint HEALY/ODEN transit across the Arctic.

There followed a discussion about outreach concerning expeditionary planning and utilization of HEALY for AGU and Ocean Sciences meetings in the future. This year's AGU will have an Arctic/SBI focus. Jim Swift, Margo Edwards and Hedy Edmonds will coordinate joining the poster/special sessions on Arctic resources. Posters from AICC, USCG, ARCUS and others could be included.

Other Icebreakers/Foreign Clearances

Due to time constraints this agenda item was passed over quickly, with the comments that PALMER had served well as an alternative platform for SBI work and that the CASES project was working well.

Whaling and Native Community issues: - Renee Crain (NSF)

NSF/OPP has worked with PI's and Alaskan Whaling Communities to reach agreements on how to conduct research cruises without negative impact on the native communities. Renee has been working on guidelines for communications with the Arctic Whaling communities. With early advance cooperation and communication, SBI has attempted to avoid the whales, which keeps them from having to get IHA permits, etc. Helo and small boat operations have an impact and need to be worked out as well. The Alaskan whaling community has asked about having observers (or community participants) go on cruises to serve as a source of information for their communities about what the research program is doing and to verify that the research program is following the guidelines agreed to. The written guidelines will be available online for review and use in the near future.

There followed some discussion about how the process is improving and seems to be working well. Need to be sure that the Ship Operator (Coast Guard or other) is included in discussions about agreements and changes to operating plans. The idea that PIs provide post cruise debriefs to the communities that let them know what was accomplished was mentioned as a very good practice.

Lisa will coordinate with Renee on writing the EOS article on this subject.

Phil McGillivary mentioned the need to address more southern communities that may not be represented well in the Barrow community. The whaling captains do have representation within the forum currently being used.

POLAR STAR and POLAR SEA Status report – LCDR Neil Meister

LCDR Neil Meister (USCG) reviewed DF04 operations and maintenance issues for POLAR STAR and POLAR SEA. (Appendix V). Main motors are very dirty and are very difficult to clean due to the very tight clearances for getting at the motors. They have never been thoroughly cleaned to the level being planned.

- Both POLAR STAR and POLAR SEA deployed on Deep Freeze 2004 due to extreme ice conditions in Antarctica
- POLAR STAR was the lead icebreaker and returns OOA 15 April 2004
- POLAR SEA was released early and will return OOA 01 April 2004
- Operationally the mission was highly successful, but significant engineering casualties resulted, though not the usual suspects such as hubs

POLAR STAR will go right into dry-dock upon completion of this year's Deep Freeze.

- DD to replace props, repair engines & boiler
- DD w/major industrial repairs. 19 Apr-27 Aug 04
- Load bank power plant. September 2004
- Shakedown, unplanned repairs, load out. Oct 04
- Underway on DF05. First week November 04

POLAR SEA:

- Dock side to clean & repair main motors, renew 4 MDE
- DD to repair prop shaft bearing lands and swap prop hubs.

Neil then reviewed HEALY's status. They will be conducting a dedicated set of sea trials during the upcoming shakedown cruise to make sure the DP system is tuned correctly.

- Dry Dock 05 Nov 03-03 Feb 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 & ASW Interlocks, GEM Relocation)
- Science Winch Info Display on WX Decks

- DPS Fault Correction & Dedicated Trials
- POS-MV Precision Heading System
- CTD Console Relocation

Mission Needs Analysis – USCG Icebreakers – CDR Tom Wojahn

CDR Tom Wojahn (USCG) presented a report on the Polar icebreaker Mission Analysis, which is the first step in any Coast Guard major acquisition process. (Appendix VI) They will use a contractor and are close to finalizing the contract. There will be a major outreach from the contractor to past, present and future users of the POLAR class icebreakers. The purpose is to evaluate "national" polar icebreaking mission needs through the year 2020. Their plan is to be done with the mission analysis within the next 6 months. The process will include the following elements:

- Identify & analyze past, current & potential future polar missions through the year 2020.
- Identify current capability shortfalls.
- Identify technological improvements that could improve mission effectiveness and efficiency.
- Identify viable alternative methods of mission success.
- Identify & quantify polar region logistics & science support.
- Identify potential icebreaker support for future NW passage or northern sea route marine operations.
- Evaluate, analyze and quantify various systems that could most efficiently and effectively accomplish USCG polar region missions through the year 2020.
- Evaluate equipment & science communication needs onboard polar icebreakers.
- Evaluate USCG science personnel support and determine most viable & effective method to meet science research needs.
- Evaluate level of aerial asset support currently provided and needed in the future.

There was some discussion about how to make sure we get good community input to the mission needs analysis. The contractor will be contacting individual "customers" directly and CDR Wojahn and Jon Berkson will insure that the appropriate people are contacted by coordinating with AICC.

Upgrades and changes to science equipment - CDR Mark Lebeau, USCG Engineering Logistics Center.

CDR Lebeau (USCG) presented information on the Coast Guard's Engineering Change Process (ECR) (Appendix VII), which is used to approve and track changes to Coast Guard Cutters. The Engineering Change process is used by the Coast Guard to manage (track) the configuration management process, which allows them to ensure that the current equipment configuration on each class of cutter is approved, consistent and known. Changes to cutters and boats, which initially seem to be minor and simple, often accumulate to negatively impact and undermine existing configuration management and logistics support efforts.

All engineering changes are initiated through the submission of an ECR and may originate at any organizational level. The process is completed in four phases: Concept, Validation, Development, and Deployment. Because the process involves considerable cost and effort to carryout, ECRs should only be considered when they are necessary to meet operational commitments, to correct critical safety problems, or where significant cost savings make ECRs likely to be approved. For science systems on the icebreakers, this would mean the change is necessary to complete the science mission. The AICC, funding agencies and science users would assist the Coast Guard by providing justification and prioritization for needed changes and upgrades.

There are two categories of ECRs. The first is a system engineering change, which is defined as one that: creates a change to any system, part, component, or subassembly that is documented on an Allowance Parts List (APL); is a change to an approved system software, fluid, or paint system; is a form, fit or functional change to a closure or fitting; or is a damage control classification change. The second type is a platform engineering change. This would include any change that results in a change in KG greater than 0.001, more than 1/20 of 1% of the full load displacement, changes to hull structure, space allocations, water tight integrity or compartmentation or results in changes to mission characteristics or capability. These thresholds mean that many, if not all significant changes to science equipment and systems should be documented and approved with an ECR. There is also an ECR method for prototypes. The current POS/MV installation is being done as a prototype.

The responsibility for initiating most of the ECRs would rest with the ship, the science coordinator (Dave Forcucci), NESU or ESU. Simple ECRs take up to ten months to complete, complex ones can take two years or more. The ship and PACAREA should get some clarification on what the thresholds are for triggering the need for an ECR. Members of AICC thought that some means of streamlining the system for routine changes to science systems should be explored, so that upgrading those systems could take place, while still adhering to the intent of the ECR process.

An example of a contemplated change that would need an approved ECR would be installation of a new multibeam system. The next opportunity to change out to new multibeam equipment is in 2006 or 2009, to make that happen an ECR process needs to be started soon. Dale Chayes is tasked to work with Dave Forcucci and the Healy EO to start this process.

Replacement of lost equipment

There was a discussion about who is responsible for equipment that is lost over the side. Coast Guard is not responsible for replacing lost science-owned equipment. It is not clear whether Coast Guard will be able to replace all lost Coast Guard owned equipment.

RECOMMEDATION: Coast Guard should draft a clear written policy regarding their responsibility for lost science equipment.

Multi-beam replacement

The long-range plan for replacement of the multibeam system on HEALY was discussed. The ECR process would involve a science justification for what is needed and to define the requirements. Definition of the concept and requirements is what the AICC should take on. Engineering design will be needed and we would be hard pressed to complete this in time for 2006, so 2009 might be a more realistic target date. However, waiting until 2009 for a new system may be unacceptable. Some immediate effort should be put into this process with the target of being ready for 2006 if possible. Simon would be willing to fund the effort through UNOLS office/AICC to put some time into coming up with the science

requirements/justification for changing out the Multibeam.

ACTION ITEM: Form a subcommittee to address justification for upgrading multibeam system and to define the requirements. (Margo)

ACTION ITEM: Dale work with science coordinator and ship to initiate the ECR process.

Other Equipment

Bernard Coakley reported that they have installed a gravimeter on HEALY, which is on loan from NAVO for the summer. It is integrated into the ship's data systems and will be onboard for the whole summer.

Dale reported on installation of a POS-MV system on HEALY for navigational data (heading, pitch, roll, heave, position) for multibeam, ADCP and navigation. The system will also include a large-scale display of navigational information in the labs.

Day two:

Margo put up a list of action items for AICC (Appendix VIII). The ensuing discussion resulted in modifications and additions.

There was a discussion about the role of AICC and ARVOC regarding science operations on the Polar Class icebreakers. The committee decided that AICC is still interested primarily in support for Arctic Science. AICC should strengthen cooperation with ARVOC in developing action items from Polar Class debriefs to improve support for science and Arctic science in particular.

ACTION ITEM: Coordinate with ARVOC on the conduct of debriefs of POLAR class science missions so that AICC can track the need for improvements to science systems and support.

POLAR Class SLEP management and status

LtJG Mike McDonnell (USCG) is the project manager for the POLAR Service Life Extension Project (SLEP) process. He provided a brief on where this project is headed (Appendix IX). Mike will provide us with the Service Life Extension Board (SLEB) report. Mike is responsible for making sure that the SLEP moves ahead and that everyone stays informed.

Mike presented a timeline for the process. The first ship would enter into a two-year availability in FY2008 and would be ready for service in FY2010. The second ship starts in FY2010 and is back in service in FY2012. HEALY would be backup vessel for Deep Freeze during these four years. The first "key decision point" is the completion of the Mission Needs Analysis by the end of 2004. Funding and detailed planning must start in 2005 in order to complete the process by mid 2011. The appendix gives a good overview of the process and timeline.

The Coast Guard and science community need to work together to incorporate the desired science capabilities into the SLEP acquisition process.

The science capabilities will have a large impact on the overall project.

From an acquisition perspective, it is important that we begin right away to refine the desired science capabilities in order to address the technical feasibility and budget for the overall design. Cutting holes in the hull will have to be done to remove and replace propulsion. Therefore, cutting holes in the hull for

science systems is not out of the question. Again the mission needs statement will drive what gets included and is key to marketing the need to do this project within CG, DHS, OMB and Congress.

PALMER Replacement

Al Sutherland (NSF) talked about replacement of R/V NATHANIEL B. PALMER. The current lease contract is broken into two periods, 2002 to 2008 and then at NSF's discretion 2008 to 2012. His feeling is that they will have to extend beyond 2008 and probably until 2012. They held two workshops on science needs for a new vessel. One capability they would like is a shallow water drilling capability. Also, the ability to launch AUVs in the ice is desired, perhaps through a moon-pool. Lastly, a big requirement is the ability to operate in the winter in Antarctic waters. The PALMER was recently stuck in the ice and this is a limiting factor. Icebreaking capability now is 3 kts at 3 feet. They would like to go up to 3 kts at 4.5 ft. MARAD and the architectural firm are looking at alternatives and the costs associated with them. Early cost estimates are in the range of $150M to $180M. They would like to put out an RFP in early FY 2007, and if they don't, may have to look at extension of the PALMER contract. They are backing off somewhat, pending a NSB study on the needs. There were several questions and a discussion about the process of designing and building the new vessel. One question regarded the need for one or two vessels for next year's Deep Freeze operations. Al thinks they will still need two, which is different from what the Coast Guard appears to be planning. Also, he feels that AICC should go ahead with debrief of Jim Swift for the PALMER North trip.

2004 Arctic icebreaker technical support requirements

Last year Larry Mayer funded and Dale (working with Margo) put together a support team, mostly focused on multibeam and its supporting data systems. This effort was paid for out of the UNH funds. This paradigm cannot be sustained in the future. A meeting was held after November's AICC meeting to draft a plan for providing this type of support in the future. It became clear that a long-term science support process was not going to be in place by the 2004 field season. Dave Forcucci put out a request, which LDEO responded to, to provide on-board support for the 2004 field season and some long term planning support. The time frame for implementing the contract was very short. There needs to be much better communications with ESU, NESU and ATG (Coast Guard's contractor for SDN support) and they should be at (portions of) AICC meetings in the future.

The working group meeting after the last AICC meeting put together a letter regarding the need for underway data and that this should be delegated to a UNOLS institution. This implies using science berths (up to two). This need for berths led into a discussion of the berthing issue letter. AICC is waiting on a response from the Captain to previous email exchanges. It is clear that the Coast Guard needs to provide clear policy statement that is acceptable to the science community/AICC, NSF, and the Coast Guard so that it is not subject to different interpretations in the future.

There was discussion about the conflict between the science communities desire for improved on-board technical support and access to all 51 "science" bunks. On UNOLS vessels the on-board technical support personnel occupy "science" bunks. It is not possible to have high quality onboard support without bunks. At least two bunks, and perhaps three are required to provide the breadth and depth of expertise as well as 24 x 7 support for the season.

ACTION ITEM: AICC will forward the underway data collection letter to USCG and NSF as edited during the meeting. (Appendix X)

ACTION ITEM: AICC will include in these minutes a formal recommendation to the USCG that they

draft a firm policy on the berthing assignments, including suggestions from the correspondence with the Captain and provide to AICC for comment.

Web-based cruise-planning manual

The committee discussed the need for a process to maintain an up to date, accurate cruise-planning manual. Also, what priority and what resources should be applied to updating the web site for cruise planning.

The need for a medical form or physical with a doctor's signature was also discussed. There was no clear consensus, but it appears that AICC is not in the position to make a completely informed recommendation about what the policy should be. AICC can make a recommendation that NSF and Coast Guard take a look at what their options could be and how they might want to handle this.

RECOMMENDATION: NSF examine with the Coast Guard what their elements of risk are and what the most reasonable options are for minimizing the impacts of health-related problems during deployments.

New Members

ACTION ITEM: Send out an announcement out looking for biological or chemical oceanographers, or ice scientists to serve on AICC.

Next Meeting

AICC needs an update on the International Polar Year at its next meeting.

Discussion about when and why the next meeting should be held. Decided on January 12 & 13, 2005.

The meeting adjourned at 1230.