

Arctic Icebreaker Coordinating Committee (AICC)
Minutes ≠ Draft # 2
Room 1235 - Board Room
National Science Foundation, Arlington, Virginia
September 23 & 24, 2002 (Monday & Tuesday)

1. General business & reports.

Introductions were made around the room. A list of meeting attendees is attached as [Appendix I](#).

Review and approve minutes of last meeting:

<http://archive.unols.org/meetings/2002/200209aic/200209aicmi.html>

Minutes were approved as written.

Chair report - AICC Action items

Lisa reviewed the AICC action items and where we stand on each item. See attached [table of action items](#). Lisa also reviewed the [agenda](#).

UNOLS reports (Mike Prince)

A brief summary of the week's meetings and major issues such as:

- Fleet renewal
- Post Cruise Assessments
- Wire specifications
- Aircraft facilities

FIC Report (Terry Whitledge)

Science mission requirements being developed for Ocean and Regional Class vessels.
KILO MOANA
ARRV

Agency Reports

NSF/OPP (Tom Pyle)

Tom thanked the Coast Guard for another successful year of science support.

Issues important to NSF are:

- ❑ Recommendations on under way data collection such as weather data, XBT data and multi-beam data. Some interest expressed by the National Imagery and Mapping Agency (NIMA) and may get some funding support for some of this data collection.
- ❑ Cooperation with Native communities. We need to do a better job. We have made some progress because of the issues this summer, but we need to do more. We will need to get used to making good contact with the well organized and connected native community organizations as part of cruise planning processes.

NOAA (Kathy Crane)

NOAA used the Canadian Icebreaker LOUIS ST. LAURENT for a mostly Ocean Exploration funded project on a 24 day cruise. Canadian and Japanese participants brought half the funding for the expedition. Census of marine life all the way through the water column. Multi-disciplinary program with international co-operation. Looked at new tools and techniques for gathering data. Used a small ROV through the ice. Needed a portable system that could operate in the deep ocean (2,800 meters). Used a system from Deep Sea systems. Looked at the extent of Atlantic water in the Canadian basin. Overall a successful cruise. <http://oceanexplorer.noaa.gov/explorations/02arctic/>

Had a problem with immigration clearing into Barrow. Had to wait several days for an agent to fly to

Barrow. Had to determine who would pay for the agent to come to Barrow. If we want Barrow to be a serious port, then there may need to be an INS agent there during the summer.

Promoting international programs, probably with the Chinese next year. Chinese icebreaker might be used.

ONR (Dennis Conlon) Not present

NSF OCE (Mike Reeve)

Dr. Reeve mentioned that the committee should be given an update by Terry Whitledge about the status of the ARRV.

ARVOC report (Bill Detrich/Northeastern University)

Their next meeting will be in Port Hueneme on November 7 & 8.

GLOBEC expedition was successful. This was a two ship operation with NATHANIEL B PALMER (NBP) and the GOULD. Because of heavier ice, PALMER did survey work, while GOULD did station work at places where they could stay for 5 - 7 days. Also, they deadheaded all the way south and then worked north.

NBP multibeam - Simrad system problem has been replicated in the lab and traced to one board which they plan to replace when they come north for the Hazmat run.

Palmer lease has been renewed for 6 years with an option for another 4 years at which time the NBP will be 20 years old. They have been holding workshops on the needs for the eventual replacement of PALMER. They would like to see up to 50 berths, longer duration, better icebreaking capability and large moon pool for AUV, ROV operations.

Coastal research vessel for work around Palmer station was approved by the Palmer Area Users Committee (PAUC) and rejected by ARVOC. Going forward to OPP under PAUC recommendations.

Contact Bill as Chair of the National Academy of Sciences Polar Research Board's Committee on Frontiers in Polar Biology if you have an interest in that program.

Coast Guard Icebreaker Operations (Headquarters) report

Impact of USCG moving to Homeland Security on icebreaker operations: The move is supported by the President, Secretary Mineta and the Commandant. There is some discussion about splitting up the Coast Guard as part of the move. The Commandant strongly supports moving the Coast Guard as a whole unit. This would minimize the impact to Icebreaker operations.

The schedule for next year is limited to approximately 10 weeks for the Shelf Basin Interaction (SBI) project. There may be some opportunities for additional work.

Captain Lancaster thanked Tom Pyle for his kind words and said that the work of the AICC laid a lot of the groundwork for the success of the mission. He hopes to see that continue.

Jeff Garrett discussed briefly the prospects for the Coast Guard as a result of moving to Homeland Security. Strong support exists in Congress for the Coast Guard to continue its traditional missions in addition to the added focus on Homeland Security.

Coast Guard PACAREA Report (Dave Forcucci and LCDR April Brown) - [Appendix 2](#)

POLAR STAR will be going through two large availabilities and will be unavailable for science next year.

POLAR SEA will do next year's Deep Freeze by itself.

The Coast Guard is looking at what can be done to keep the POLARS operational for another ten years or so. A Service Life Extension Board (SLEB) has been convened to examine the options for overhaul and or replacement.

The USCG is working with JJMA to come up with design ideas for the bow wash and seawater systems

on HEALY, to be discussed later.

There may be a possibility of a 4 - 5 week deployment after deep freeze next year for POLAR SEA.

Personnel: ENS Tinsmann left PacArea for a new assignment and Dave Forcucci has moved his primary duty station to the HEALY at pier 36 in Seattle.

Dave gave a list of planned personnel changes for HEALY:

Position	Name	Due to Depart
CO	CAPT David Visneski	Summer 2003
XO	CDR Doug Russell	Summer 2003
OPS	CDR Joe Segalla	Summer 2003
EO	LCDR Gregory Stanclik	Summer 2004
MSO	LTJG Mike Woodrum	Summer 2003
MSO	LTJG Neal Amaral	Summer 2005
Lead MST	MSTCS Glenn Hendrickson	Summer 2003
Lead MST	MSTCS Mike Hamerski	Summer 2005
MST1	MST1 Sean Kuhn	Summer 2003
MST2	MST2 Bridget Cullers	Summer 2003
MST2	MST2 Josh Robinson	Summer 2005
MST3	MST3 Suzanne Scriven	Summer 2004

We may know the name of the new Commanding officer for HEALY soon and we should extend an invitation to the next AICC meeting. Captain Miller of the POLAR SEA has already been invited.

2002 Science Operations:

HEALY Arctic West Summer 2002 (AWS 02)

Shelf Basin Interactions (SBI)

Dave showed the Notice to Mariners concerning subsistence whaling in Alaska that indicates the potential for problems. HEALY departed two days late, on May 7th and changed the cruise track to accommodate subsistence whaling operations.

Two legs for SBI, 7 May - 15 June and 17 July - 23 August. On the first leg HEALY occupied 39 stations and completed 135 CTD casts. On the second leg they completed 159 CTD casts at 45 stations and also conducted 4 MOCNESS tows. ADCP data was only good when on station due to noise when icebreaking.

There was a problem with spikes in CTD data for about a year. The fix was simple. Putting a grounding strap on the slip rings got rid of the discharge of static that was building up and that eliminated the spikes in the data. Scripps CTD technician worked with MSTs to find the problem and provide the solution.

Set up a makeshift lab in the stern (after Bosn's hawser store room) to pump seawater through a hose stuck out transom through the XBT tube and using an air activated pump that did not lose prime. Worked well underway, even in the ice.

Incubators were installed on the bow. While on station, they filled the forward ballast tank with seawater and then used the water from the ballast tank to maintain temperature while underway. This was the fix to the problem with getting ambient temperature seawater to incubators from the installed seawater system. The Engineering Officer and crew spent quite a lot of time (450 hours) working to make this solution work. A plan was put in place to monitor the temperature of the water in the tank and to replenish it when needed.

Installation of the 75 khz ADCP was successful and the system provided good data when not breaking ice.

Marine Climate and Relative Sea Level Across Central Beringia (Brigham-Grette, Keigwin & Driscoll)

Conducted 18 Chirp Sonar Tows, 14 CTD casts, 24 Gravity Cores, 14 Vibra Cores and 9 Jumbo Piston Cores (JPC) (80 footer, HEALY's longest)

Used barges to load vans in Nome. Got it done, but not easy and not recommended for future trips.

Lost one JPC because the termination fitting failed and another due to a sheave pin not being removed. Also, a vibra core was lost during the second cruise.

POLAR STAR - Shelf Basin Interactions (SBI)

Completed 90 CTD casts, 13 Moorings and collected XCTD data. They used the capstan for mooring deployments and it went smoothly.

Chukchi Borderlands

Completed 100+ CTD's, 3 mooring deployments and at least two medivacs during this cruise.

Post cruise assessments (PCAR) and debriefs

One PCAR was received from Jackie Grebmier for SBI. Overall it was a good review. This was the first time looking at this type of report for HEALY. The assessment included:

- Suggestion for the officers to sail on UNOLS vessels to see how operations are conducted.
- Concerns about swap outs.
- Who makes the call about when and when not to deploy equipment belonging to scientists.
- Use of Aft con, not used as often.

SBI PI's plan to coalesce their comments and suggestions and make a presentation to AICC at the next meeting. Concern about this taking too much time. PCAR will be an optional source of feedback for Icebreakers and used in addition to de-briefs if received. The UNOLS office will add Lisa Clough to CG PCAR distribution.

AICC will schedule de-briefs after mid October with Terry Whitledge, Hedy Edmonds, Larry Lawver and Bob Bourke volunteering to be included as in one each.

3. Clearances

Larry Mayer (UNH) reported on Law Of Sea (UNCLOS) article 76.

<http://www.ccom.unh.edu/>

<http://www.ccom.unh.edu/unclos/index.htm>

Article 76 of the United Nations Convention on the Law of the Sea (UNCLOS) provides that coastal states may claim sovereignty over "submerged extensions of their continental margin" beyond the recognized 200 nautical mile limit of their Exclusive Economic Zone. Extension of jurisdiction is based on a set of rules that involve analysis of the depth and shape of the seafloor and the thickness of the underlying sediment. Therefore, implementation of Article 76 requires the collection, assembly, and analysis of a body of relevant hydrographic, geologic, and geophysical data.

The University of New Hampshire (UNH) was funded by NOAA to evaluate the content and completeness of the bathymetric and geophysical data available in the U.S. to support a claim for extended jurisdiction. They created a compilation of all bathymetry, seismic and other data relevant to these potential claims. They attributed these data with relative "quality" to help determine where more or better data was needed. They put all of this data in an Oracle 9i database. This resulted in a database of 39861 tracklines from various ship cruises, 6037 bathymetry survey polygons and several millions of soundings. They used this data to locate areas where there was a potential for a claim by looking for a broad continental shelf and/or thick sedimentary wedge. They would then apply cutoff and formula lines to see if extension can be claimed.

For all the potential areas of an extended claim of continental shelf an argument can be made for better

bathymetric surveys in selected areas. The most critical need for new data is in the Arctic. The U.S. Arctic Commission has estimated a cost of 12 million dollars to survey the necessary areas of the Arctic. For the Arctic, a combination of icebreakers and USN nuclear submarines could be used to collect critical data.

Larry showed a suggested area for getting better seismic and bathymetric data. The fact that Icebreakers are going to this area means that we should be collecting multi-beam data on a continuous basis. This collection of data would support potential Law of the Sea claims and the general need for the data to be used with other projects such as ocean drilling.

There is 3.2 million dollars for UNCLOS surveys on the east coast and the Aleutians in the 2003 Senate markup of the budget that goes through NOAA and will probably be used with commercial surveyors.

Currently the HEALY multi-beam is on when underway, but not necessarily attended. Any data collected is better than none at all. There is also a need for continual good navigation and continuous water temperature data for the upper 200 meters to make the multi-beam data useful.

Garry Brass discussed the proposal made by the Arctic Research Commission (ARC) which recommends that the submarines collect bathymetric data at 18 knots and the HEALY collect seismic data (and multi-beam data). Data should and will all be made public.

Other nations have completed or are in the process of completing UNCLOS projects to survey their Exclusive Economic Zone (EEZ). Ireland, New Zealand and Australia have almost completely mapped their EEZs as UNCLOS claim projects. France and Norway are chipping away at their EEZs, but not as focused projects. Russia has made a claim. Canada has made a proposal for funding a project, but is has not been approved yet.

Larry's personal recommendation is that when the HEALY is in the Arctic that it should be collecting reasonably good data at all times. This might involve some incremental funding augmentation to make sure the data is properly collected.

Secondly, some specific surveys need to be done to collect seismic and/or bathymetric data on the required track lines. This would need to be a separate cruise dedicated to this purpose. This could be done from the POLARS (for seismic), or from HEALY for bathymetry or from some other appropriately equipped vessel.

Native Community and other permitting concerns

Working in the presence of whales, whaling activities, marine mammals.

Debrief of SBI issues by Renee Crain, NSF/OPP (summary of presentation and presentation file attached as an [appendix 3](#)):

Improving cooperation with arctic communities is an important priority for NSF and the research community. NSF is currently using a Cooperative Agreement with the Barrow Arctic Science Consortium (BASC) to help with this process. They are dedicated to the encouragement of research and educational activities pertaining to the North Slope and adjacent portions of the Arctic region. They also use the Alaska Eskimo Whaling Commission (AEWC), formed in 1977 as a point of contact.

NSF is taking a look at what happened this spring:

Planning: Cruise track of spring 2002 voyage was parallel to the bowhead migration route and was near the northwestern Alaska coastline during the whaling season.

Communications did not get this info to AWEC and the North Slope Borough effectively until December. Just prior to the cruise departure in April the AEWC sought an injunction, but a compromise was reached after communication between the chief scientist and the AEWC. The scientists ended up changing their cruise plan to minimize the effect on whaling activities and this ended up being a reasonably successful solution.

Planning for the Future:

PIs will need to communicate their research plans and cooperate with the native communities. Early and continuing communication is necessary, during planning and during voyages to minimize the impact of ocean research on whaling and other subsistence activities.

NSF is creating a document "Guidelines for Cooperation" which should provide planning and communication information for potential researchers and provide village representatives with information about the research community.

It is also important that, as a community, we meet our responsibility for dealing with the marine mammal protection act and the Endangered Species Act in a responsible manner.

Robert Syudam: reports that the borough of Barrow is very supportive of science. The SBI cruise in May took them by surprise because it was the first time a cruise has taken place so early in the season, when the whales are migrating. Issues for them include the affect on the whales and the safety of the people out on the ice involved in the hunt.

The solution for this past season worked out reasonably well. In the future, we should improve the communication. PIs have traditionally been the point of contact, but with more projects coming to the arctic it may be that a more coordinated approach among PIs and with organizations like BASC for communicating with the native communities will be more effective. Also, the community of whaling villages extends from St. Lawrence Island to the Alaska Canadian border (Kaktovik, Nuiqsut, Barrow, Point Hope, Wainright, Gambell, Kivalina, Savoonga and Wales).

Kathy Crane asked about getting the NSF guidelines to foreign vessels that might be operating in the area. It was suggested that the State Department be the conduit for this information to foreign vessels. Kathy also asked if BASC could help with foreign vessels communications and with immigration.

Tom Pyle reminded people that BASC is funded by NSF to do certain things and that if other agencies or foreign institutions or governments need their assistance they will need to contact them early and work out the details and funding.

Terry Whitlege mentioned that the process of communicating with the native communities is not a simple one and that you will have to meet with several different groups to get the message to all the right people. Also, there are a lot of divergent opinions about what is best. The bottom line is you need to tell everyone where you are going to be and when and many times this needs to be done in person.

After meetings with the communities Terry wanted to know; "what do we know about the affects of noise on whales and in particular with bow head whales?"

Robert Syudam stated there is some data on the effect of ship noise on whales.

Larry Lawver mentioned another potential problem created when the icebreaker's path makes a long lead in the ice that might cut off a hunter on the ice in a snowmobile. The Barrow Search and Rescue service was a good point of contact for knowing where people were working on the ice and should be used to avoid people on the ice.

LCDR April Brown (USCG PACAREA) emphasized the need to keep the Coast Guard involved in the communications with the native communities early in the process. In particular the Coast Guard, District 17, already has contacts in place with the native communities and they need to maintain their positive relations with those communities.

Kathy Crane asked about the logistics and mechanisms for working with BASC to support other agencies.

Simon Stephenson said that NSF has supported BASC so that it would grow to be a viable entity to support science. Other agencies can make their own fiscal arrangements directly with BASC or can funnel support through NSF.

It was emphasized that the process of getting permissions and clearances for activities in Alaska will often require BASC or someone else from the science project to make face to face contact with native representatives early in the process. Canada, for example, requires research projects leaders to meet with the affected communities.

Foreign Clearances - Liz Tirpak, U.S. State Department

A pdf file of her report is attached as an appendix:

<http://archive.unols.org/meetings/2002/200209anu/200209anuap05.pdf>

Liz covered the organization of the State Department that relates to marine science as well as the impact of the U.N. Convention on the Law of the Sea (UNCLOS) on the State Department and research cruises.

UNCLOS requires clearance requests for marine science research go through official channels which means through her office to the embassy in the coastal state. Liz showed a table with the number of requests and clearances during the past year and also showed list of denials for permits. She noted that the U.S. was not alone, Norway and Japan are also having trouble getting clearances from Russia. Mexico absolutely requires 6 months notice and this causes late requests to be denied outright. Other guidelines for improving the chances of getting a clearance in the current international climate are:

- ❑ Meet deadlines for lead time requirements
- ❑ Foreign collaboration with proof
- ❑ Endorsement of ship operators
- ❑ Electronic submission
- ❑ Threat assessments are part of the process

The Research Vessel Clearance office webpage and contact info are:

<http://www.state.gov/g/oes/ocns/rvc/>
202-647-0238
tirpakej@state.gov

Terry Whitlege has heard that Russia will not approve any clearances until the World Ocean Science (WOS) agreement has been signed. Terry has heard that there is a new committee to approve requests that include military personnel. This may have occurred about 6 months ago which might explain why Norway and others have not had any luck with clearances for the past six months.

State has sent a cable to Russia regarding the WOS at the request of NOAA. Liz will send a copy to NOAA. There has been no response to date.

4. Scheduling and planning for 2003 & Beyond.

HEALY

6 weeks in the June/July time frame for an SBI service cruise

4 weeks in September time frame for an SBI mooring cruise

Cruises may end up being mixed mooring and hydrography cruises because of a lack of time to get all the mooring work done. The ship would like to make a port call in between cruises somewhere other than in Alaska. Simon recommends that the SBI mooring people talk to their science program managers about the potential for more time.

HEALY 2004 committed to SBI, 2005 is a blank slate

POLAR SEA

Deep Freeze

Possible Arctic mission in the summer

POLAR STAR

Scheduled for overhaul

Discussion of scheduling process:

Decided that scheduling meeting might be moved to July to ensure there is more funding information.

Garry Brass suggests that expeditionary planning is the best way for scheduling a single purpose ship. He recommends that AICC work on making this process work.

Simon and Tom do not believe that planning where the ship will go and then choosing the science that will be scheduled is the right way to proceed. They believe that the science has to drive where the ship goes. Most agreed with this concept, but felt that there should be a way to promote a body of good science for a particular area that could be chosen from. This would allow opportunities for more than one project to be proposed and funded for work in a remote region.

It was suggested that AICC could promote expeditionary collaboration in a number of ways. The AICC/UNOLS website should have information about how to plan expeditionary science on HEALY, how to use the long range planning documents, etc. This would be used a tool to promote a synergy of

good proposals in a common region that would justify expeditionary work with HEALY. We should include information about talking with NSF program managers in planning long-term proposals and expeditionary planning. Garry suggests that AICC actively pursue "heroes" for expeditionary planning. Lisa will talk with Patty Fryer, DESSC Chair, about how expeditionary planning worked for the Deep Submergence Facilities.

Long term expedition using Swedish Icebreaker ODEN

Berengia 2005 is an expedition being planned by Swedish scientists. The cruise track is from Sweden to Chukota and Alaska and back. Approximate timing of the legs would be; early June to mid July transit over, mid August to late September transit back. There will be a planning meeting from 25 to 27 November at the Royal Academy in Sweden.

Kathy Crane spoke about the international icebreaker meeting held at ASLO/Ocean Sciences. An important aspect that came out of the meeting was that there are a lot of assets available internationally that should be used collaboratively to expand opportunities for hypothesis driven research as well as exploration and survey.

There was also a commitment from the science community to push the re-signing of the World Ocean Science agreement between Russia and U.S. Garry asked why other existing agreements with Russia couldn't be used for supporting work in the Arctic. There are several cooperative agreements in place and most are accommodating of doing science. The general feeling was that promoting systematic collaboration and processes for getting permits for work in Russian waters was a hopeless case. Any headway seems to be made on a case-by-case basis.

5. Science of Opportunity (SOO).

There is a very slim possibility that there will be an opportunity for a SOO cruise on the POLAR SEA next summer. This will depend on several variables. The determination to schedule a cruise to the Western Arctic will not be made until early next year. This will mean short notice for any scientific work and funded science would take precedence. AICC will revisit the possibility next year.

6. Science Modifications, Infrastructure and Equipment

HEALY: Planning for the 2003/04 dry-docking (11/03 ≠ 2/04)

This will be the first regularly scheduled dry-dock availability.

List of potential items:

- Seawater system design from JJMA
- Tow bitt relocation or alternative towing arrangement
- Bow wash system redesign
- Survey of multi-beam sensors and other items
 - Bill Martin/UW will give sample spec to Dave Forcucci

AICC should get any input from debriefs to Neil Meister for drydock items as they are aware of them.

ADCP update

A new 75 kHz ADCP was installed during the March 2002 drydocking. NSF purchased transducer and the Coast Guard paid for the installation. SBI scientist, Charlie Flagg, was involved in testing and evaluation of the ADCP systems as part of his involvement in the SBI program. A complete report of the results of his evaluation and procedures for effectively using the ADCP system is included as an appendix at: <http://archive.unols.org/aicc/200209aic/200209aicap03a.html>. These procedures should be preserved on board for future users of the system.

Seawater systems

Coast Guard has contracted with naval architects, JJMA, to design modifications to the seawater system to fix the problems associated with the sea chest clogging in ice. There was some discussion about whether the goal was to meet original specifications or some perceived greater need based on the demands of the SBI program. We need to ask Neal what his target design for capabilities of the seawater system is (original specs or SBI requirements - 150 gallons per minute). We also would like to know if

there will be two systems for the two requirements (incubators and underway flow through). During SBI an attempt was made to use refrigerated vans to maintain incubator water at ambient seawater temperature, but this did not work well. The ship's crew, led by the Engineering Officer put forth a considerable effort to devise and implement an alternative solution. This method consisted of using a forward ballast tank to hold seawater which was then used for the incubators. Water was distributed to incubators located on the bow through a manifold. Approximate volume needed was around 150 gallons per minute. A procedure was set up to monitor the temperature of the seawater from the tank and to dump and/or replenish the water in the tank when needed to maintain a temperature within 1°C of ambient surface water temperature going into the incubators. The procedures are attached as an appendix at: <http://archive.unols.org/aicc/200209aic/200209aicap03b.html>

High latitude communications

Operations planned for the next couple of years will probably occur at less than 75 degrees north, allowing full coverage by INMARSAT. During AWS02, NSF supported 2 hours at 85 cents per min. Use of the Coast Guard leased line carried a hidden 50 cent per minute charge from the earth station, so they have now negotiated a lease that makes the total cost to science \$1/min. The ultimate goal for the future is to work towards 100% connectivity at a reasonable cost and a reasonably high data rate. The Coast Guard should work with the funding agencies and other ship operators, especially those in the Arctic to achieve this goal.

Multi-beam system (survey of sensors)

The need to conduct a survey of the multi-beam transducers and other key components of the system such as navigation antennae and the vertical reference unit has been a long standing recommendation. This survey will benefit the quality of multi-beam data and other systems that rely on precise position information. As noted above, the specific information necessary to write an appropriate specification for this procedure needs to be provided to the Coast Guard (Dave Forcucci & Neil Meister) in the near future so that this can be included in the 03/04 yard package. Bill Martin stated that UW recently completed such as survey on the THOMPSON as part of the installation of the EM300 system. Bill will provide the report from that survey and any information he has about specifications for the survey to the Coast Guard.

GPS aided inertial navigation system

Need information on the justification for improved navigation input to SeaBeam, ADCP and other systems, description of the improvements necessary, the cost of the improvements and what needs to be done during the drydock (i.e. survey in the sensors and unit). AICC should form this into a coherent recommendation for the Coast Guard.

Status of Science Data Network (all vessels)

Jim Moore provided a report on what he did to support the SBI science and what is needed to make the system work in the future. The Coast Guard has prepared a draft statement of work that would be used as part of a Request for Proposals (RFP) to provide technical support on the icebreakers. There was some discussion about the statement of work and whether or not it was adequate or went too far. Many felt that the RVTEC should be asked to help refine the statement of work and provide input on what was needed. The Coast Guard will have to be careful that they do not eliminate potential sources of support by having them too intimately involved in creating an RFP or statement of work. There was also some discussion about whether the requirement was limited to support for the data network and on board computing resources or if it extended to all science instrumentation. Several expressed the desire to make the science experience on the icebreakers more like a "UNOLS experience."

We need a clear statement of the requirements and we need to define the gap between what the Coast Guard can provide and what the ideal "UNOLS experience" is. The contracted support would then be designed to fill that gap. The Coast Guard MSTs have proved that they are very willing and, in many areas, able to provide excellent support to the science project. In the area of network administration and general computer support it has been acknowledged that greater expertise and continuity of support than can be provided by the Coast Guard MSTs would improve the service provided. It would also remove a major burden from the MSTs allowing them to focus more on the oceanographic instrumentation and over the side science operations. The AICC needs to read the Coast Guard's statement of work and make

a recommendation about whether or not it meets the requirements.

POLARS

Reliability Improvement Program (RIP) status and plans

With regard to the Reliability Improvement Project (RIP), the Coast Guard is currently in year 12 of what was originally a 4-yr program to renovate some of the systems on board the Polar-class ships. \$30M has been spent over the last 10 years with another \$2M expected in FY03 and \$10M in FY04.

The Coast Guard has also set up a Service Life Extension Board (SLEB). The Coast Guard has contracted with an engineering design firm to research and validate the operational requirements for continued service of both Polar-class icebreakers. The contractor will develop a draft resource proposal for FY-05 to complete a mid-life overhaul on the POLAR STAR and POLAR SEA to extend the service life of these cutters another 25 years. As part of the SLEB a Ship's Structure and Machinery Evaluation Board was conducted on board POLAR SEA to evaluate the ship's structure, machinery, and systems to determine their remaining service life, and develop a list of items requiring repair or replacement. By December 2002, the contractor will develop an estimate of the cost to do a mid-life on the POLAR Class and an estimate on what it would cost to replace them.

Garry Brass has brought this issue up with the Arctic Research Commission. Because of the time line for building new ships it is a good idea to think in a collaborative way with the Coast Guard about what is needed to replace the capability provided by the POLAR Class Icebreakers.

The mid life renovations will probably not improve the science capabilities of the POLARS according to Joe Bodenstedt, but rather focus on hull, propulsion and service life extension. AICC feels the need to ask what, if any, upgrades to science their might be needed or considered. Joe also responded to a question about the prospects for replacing the POLARS by saying that the Coast Guard's deep water recapitalization project will not be complete for about 20 years. Planning for replacement of the POLARS would probably have to wait until it would not have to compete with the Deep Water Project for appropriations and procurement efforts.

The consensus is that the Coast Guard should work with multiple agencies and entities to define the science mission requirements for POLAR replacements. It would not necessarily need to happen for another ten years but they would be ready to work on this at any time if desired. The Deep Freeze mission to support McMurdo station will continue for at least the next 20 to 25 years. Arctic science requirements will continue to grow and it would be undesirable to leave Arctic science without support if HEALY was required to cover Antarctic needs. A careful examination of the science requirements should be used to evaluate the need for replacement of the POLAR icebreakers. AICC and others should review the last study of icebreaker requirements and look at the process and requirements.

AICC and ARVOC should send a joint letter or complimentary letters to the Polar Research Board (???) supporting the service life extension work and eventual replacement of the POLAR class icebreakers to support science operations in the Arctic and Antarctic.

AICC should also examine the SMRs for the Alaska Region Research Vessel and the FIC SMRs for Ocean Class vessels, evaluate the post cruise debriefs for the POLAR STAR and generate a list of potential science upgrades that might be considered as part of the mid life work on the POLARS.

EQUIPMENT PURCHASES - 2002 equipment purchase report

HEALY Equipment Purchases 2002

- | | |
|--|------------|
| <input type="checkbox"/> Calibrations | \$5,500 |
| <input type="checkbox"/> Repairs | \$2,500 |
| <input type="checkbox"/> New Equipment | \$35,000 |
| <input type="checkbox"/> ADCP Install | ~\$200,000 |

HEALY Equipment Items during 2002

- Metered Sheave
- Updated ADCP 150 computer with mult serial ports

- ❑ Debubbler - SBI Ice TSG
- ❑ Seabird NMEA Box- SBI Ice TSG
- ❑ Seabird TSG water Jacket - SBI Ice TSG
- ❑ Wet Labs C-Star Transmissometer-Ice TSG
- ❑ Sippican MK21 and Launcher for XCTDs
- ❑ Turner Design SCUFA Chl Fluorometer

HEALY Future needs

- ❑ Replace 2 x- 4k lb JPC Core
- ❑ Identify equipment for Mooring deployment
- ❑ GPS Inertial Nav \$?

POLAR STAR 2002 equipment items

- ❑ Knudsen bathymetric transceivers
- ❑ Teflon coated springs for CTD.

Replacement of lost equipment

There was a discussion related to what the policies should be for replacement of equipment that is lost at sea. Coast Guard and NSF or other funding agencies will determine on a case by case basis who will replace equipment. There was one suggestion that there be some formal process for assigning responsibility for equipment deployment decisions and losses. There was more consensus that instead, there should be a warning to be cautious, but not a formal assignment of responsibility for replacement. Exercising normal responsibility and care regarding equipment should be emphasized. A statement in the users manual about assessing the impact of equipment deployment decisions on other users of the vessel might be in order.

Equipment needed or planned for 2003

There will be a consolidated and prioritized list of equipment from SBI PIs in the near future. There will be a request for an ice machine included in that list.

Longer range plans

There was a question about whether a .681 fiber optic cable should be purchased in the future. The winch will handle the cable and there is one available at Scripps that could be used if needed in the near term.

Scintillation counter for HEALY should be considered.

7. Science operations and technical support

Identification of 2003 Arctic icebreaker technical support requirements.

None known at the moment. SBI will create a consolidated request if needed.

Status of RFP/Sources sought for technical assistance

Covered earlier in the meeting during the discussion of the Science Data Network.

Status of RFP for web site/cruise planning manual assistance

PACAREA has arranged for a contract through GSA to build and maintain a website for all the icebreakers. In the interim, changes can be made to the existing website.

Status of science planning documentation (HEALY & POLAR Cruise Planning Guides)

The planning documentation will be updated as part of the new contract. Cruise planning forms are available online:

- [AWS 2002 Cruise plans as samples of Coast Guard forms \(doc & pdf files\)](#)
- [Blank cruise planning forms \(Word files\)](#)

Lisa passed on the recommendation that AICC formally call PIs to make sure they were aware of pre-

cruise planning requirements and the sources of information that AICC can provide. Also putting new PIs in touch with previous PIs doing similar work could be undertaken. AICC to make a punch list and contact info for previous PIs to provide to new PIs. Recommended that the use of cruise planning forms continue and that all PIs fill them out if necessary and send to the Chief Scientist and Coast Guard.

Continuous collection of underway data

SeaBeam (presentation provided by Margo Edwards): Lisa presented information from Margo. On AMORE there was a continuous watch on SeaBeam as part of the science project. Inexperienced watch standers could provide a good watch with just a small amount of training. Protocols were developed during the AMORE cruise for cleaning up data and making it ready for map making.

When Margo looked at unattended data from SeaBeam (120 hours) taken during ALTEX, only about 5 hours were not useable, using the AMORE protocols. This means that reasonably good data can be collected in a semi-unattended mode, especially if some care is taken to set up proper automatic controls. Margo has made recommendations regarding three possible approaches (level of effort) that could be made. Hedy suggested that a middle ground approach might be possible in some cases where members of the science party could monitor the system and make sure the data is collected properly. On other cruises, an on board expert may be needed. There should be a protocol set up that always allows data to be collected with some quality control. Don't throw away any data! AICC should recommend that data be collected, develop potential methods and develop costs. Larry Mayer has volunteered to work with Margo and Dale Chayes to write an informal proposal for all to review. He will contact Coast Guard, NEMA, State Department and NSF to make sure their requirements are met by the proposal.

ADCP: AICC will add a statement to the letter of recommendation for continuous data collection that ADCP data be collected at all times and made available to data archives. Charlie Flagg is volunteering to be a hero for the ADCP data. The data would be provided to him unless objected to by the PI.

Met sensors: Sea keepers may come to next meeting and provide more detail on what would be required. The Coast Guard currently submits weather reports on a regular schedule. It would not be difficult to incorporate weather sensors into a continuous data collection scheme.

XBT's: Need to determine if XBTs are needed on a regular schedule to support the SeaBeam data collection, who does it, who pays. If it is needed for the SeaBeam data it will be part of the SeaBeam data collection proposal.

Thermosalinograph: can it be logged automatically and archived? Add to letter as a recommendation.

Others Systems: Hero(s) for data collection and quality should be sought out as part of making recommendations for collecting that data.

Radiation use policies and procedures

Coast Guard is trying to have a consistent policy for all the icebreakers. The process for seeking approval is to complete the cruise planning form, get approval from the PIs agency or institutional Radiation Safety Officer (RSO), submit to PACAREA who will then review and approve the protocol. PACAREA will send a letter to the ship approving the protocol. Current policy is that no radioactive materials will be used inside the skin of the ship and all use will be restricted to the vans. The Coast Guard does not have the expertise to monitor the activities at sea and this has to be reflected in the proposed procedures. Issues that need to be addressed include who will make sure swab tests are taken, that the vans get cleaned up and logs are kept.

Bill Martin or others in RVTEC can review procedures, SWAB folks at RVTEC may help and Hedy volunteers to provide scientific advice when needed on particular requests.

ROV/AUV operations from icebreakers (Kathy Crane)

Difficult to do horizontal transects, but vertical profiles are possible and valuable.

Issues related to the arctic

- Moving the equipment to the ship and having it stay on the ship for a full deployment can get expensive. Staging it to the arctic can be expensive and difficult because of the winch,

wire, weight in addition to the ROV.

- Compass did not work well, other practicalities of working in the Arctic need to be taken into account by operating engineers not used to the Arctic.

Science logistics in away ports, loading, embarking, disembarking

Science logistics for loading heavy equipment and vans in the western Arctic is really only viable in Dutch Harbor. Using barges out of Nome was very problematic. In the future, heavy equipment should be loaded in Dutch Harbor or in Seattle (preferable). Need to define what is heavy. Items such as vans, winches, large cores, etc. Coast Guard will better define these limitations.

There are some potential plans to improve the harbor at Nome, but that is not certain at this point.

In the Eastern Arctic, Coast Guard will need to determine if they can go into Svalbard. There was a question regarding the existence of a clear record on whether or not they have been denied use of this port and for what reasons. If so, the Coast Guard and others may be able to work at removing the obstacles.

Traveling to and from Barrow for the next two years will be more difficult than normal, because of work at the airport.

Berthing arrangements

Discussed the problems associated with having the on coming science party arrive before the off going scientists have departed. This should be avoided if possible and managed when necessary. It is necessary when using helicopters and small boats to transfer personnel because it is not prudent to miss safe opportunities to transfer people.

Discussed the berthing assignments, and use of science berths. Coast Guard wants to make the policy that science berths will be used as two berth staterooms by scientists as a default. The Coast Guard policy is that they reserve the right to use every berth on the vessel. They will update the information provided regarding berthing so that expectations are clear.

There was a brief discussion about media on board. The Coast Guard will consult with Chief Scientists about the inclusion of media on board a cruise, however in the end the Coast Guard has the final call.

Vans (loading, services provided, number supported)

The Coast Guard will formalize and update the information about what they can support.

Previous issues (update as needed)

Status of training videos (mooring video and AMORE videos)

UNOLS office will call Jack Bash and Bob Collier about mooring video.

Hedy will check on AMORE videos regarding dredging.

Dredging videos from Ice Trials may be available, Dave Forcucci should check on this.

Helicopter operations concurrent with other science operations

AVDET now has 6 helicopters available.

No formal change to procedure or delineation of concurrent operations yet.

Ed Cubanski might be able to come to next meeting.

8. AICC business and Other issues

Quality of life issues for crew - scheduling impacts

Need at least 3 days in Nome for personnel transfers

Need better port calls than Dutch Harbor, Nome and Kodiak.

Recommend Ice Liberty or some other break for science ops that last more than two weeks.

Report of AICC Recommendations

Action items from science testing reports

Recommendations from PCAs & debriefs

These were reviewed earlier and will be updated in a more timely manner in the future.

Long range plans for POLAR class replacement

Covered earlier in the meeting.

Alaska Regional Research Vessel

Terry Whitledge provided an update on the ARR.V. This is a general purpose, ice capable research vessel with fishing capabilities and a small moon pool.

Recent Design changes:

Removed Helo Facility, use for boats and incubators

Rearranged Boats, put workboat where Helo pad was

Relocated Mess/Galley

Reduced Stateroom Size and increased # of scientists from 24 to 27, showed comparison of other vessels for stateroom size: Get slides of staterooms and layout to figure out the square footages.

Segregated Crew/Scientist Staterooms - crew on 02 deck and scientists on 01 with mess deck and galley

Small moon pool for instruments and coring

Long coring plan developed along starboard side.

Propulsion: Azipod arrangements Noise investigation:

ABB data received

Schottel Z-drive noise estimate

Neither option meets ICES

Further investigation required for comparative evaluation, have set up a noise measurement of the REVELLE in November. Noise data for the THOMPSON is available from UW.

Z-drive presents adverse design impacts - require more space below decks.

Overall vessel dimensions remain the same: 226 ft with 18 ft draft.

Science labs 2000 sqft, deck 2700 sqft, storage 8000 cuft, science load 100 tonnes.

Designed for seasonally ice covered seas, such as year round in the Bering Sea and a four to six month operations in the Chukchi sea and year round in the Gulf of Alaska.

Model test results exceed requirements for ice operations, expect seakeeping report at the end of November, resistance and flow report received. Pending items are the noise report and the seakeeping report. This will complete the preliminary design effort and they will proceed with the detail design so they can be ready when funding for construction is appropriated.

Lisa asked whether the facilities that will be planned for Seward would accommodate the Coast Guard icebreakers. Terry thought that the depth of water would be sufficient and the facilities should be able to handle icebreakers.

Bob Bourke asked about the possibilities of facilities in Barrow and Nome. Terry thought that Barrow would not be a good choice, but that Nome may upgrade their facilities in the future that may allow the ARR.V to enter and would allow decent supply boats to service the icebreakers. Dutch Harbor is always a

good option.

Other Arctic resources

Canadian icebreaker

Louis Fortier will come to the next meeting to provide an update on the Canadian Icebreaker FRANKLIN GLACIER society - <http://www.glaciersociety.org/>

Presentation by Ben Koether of the Glacier Society about the restoration and plans for the GLACIER. They hope to restore the GLACIER and operate it as a working museum ship capable of conducting research in the ice.

Arctic Instrumentation Workshop

There will be an [Arctic Instrumentation Workshop](#) at the Monterey Bay Aquarium Research Institute (MBARI) in Moss Landing, California on October 16 - 18, 2002. Lisa Clough, Dave Forcucci, April Brown and others plan to attend. The workshop is being organized by Jim Bellingham/MBARI and Robert Sohn/WHOI and is sponsored by NSF, WHOI and the Packard Foundation. The workshop will focus on instrumentation, sensors and to some extent platforms for conducting science in the Arctic. The keynote speaker is Bernard Coakley from the University of Alaska.

AICC membership

Departing members

Jim Swift will stay on through Feb 2003

Terry Whitledge and Larry Lawver cycle off in September 2003

New members

An SBI connection should be considered.

Jim Moore

John Christensen

Program may nominate a volunteer

Use Arctic info as a call for nominations.

AICC Communications (email lists, etc.)

Will be covered offline.

Future Meetings - dates, venue, agenda

AGU Town Hall meeting - December 6, 2002 - San Francisco, Ca.

Topics for Town Hall meeting

Heroes for long range expeditionary planning

Panel in the AICC booth

Need some posters and info on previous cruises with handouts on contacts for previous PIs

Need to coordinate with Garry (ARC) and other meetings

Following year would take place at ASLO

Winter meeting - Seattle, Wa. - Move to February 2003.

Fall 2003 meeting (move later to include shipboard personnel)

Next year we may move later due to Lisa's schedule and to include the Ship's personnel.

Meeting was adjourned at 1208 to a round of applause for the Chair.

