

# MEETING MINUTES

## UNOLS Arctic Icebreaker Coordinating Committee (AICC) Meeting June 3 & 4, 2008 National Science Foundation Stafford I, Room 1235 Arlington, VA

### Executive summary

A meeting of the UNOLS Arctic Icebreaker Coordinating Committee (AICC) was held on June 3rd and 4th, 2008 at the National Science Foundation in Arlington. In addition to members of the committee, representatives from the U.S. Coast Guard and their science facilities providers, National Science Foundation, National Oceanic and Atmospheric Administration the Arctic Research Commission, and the National Snow and Ice Center attended the meeting. Topics of discussion included a review of the past years cruises, plans for the coming year and beyond. Plans for the major overhaul and shipyard period as well as plans for upgrades to science infrastructure and scientific support were discussed. Ongoing plans for maintaining good relations with the Arctic communities were addressed. The status of the USCGC Polar Sea and the possibility of conducting science missions and science of opportunity cruises to the Arctic were discussed. The chair of the Arctic Research Commission discussed the possibility of science of opportunity cruises with Minerals Management System funding of research in the Arctic.

### AICC Action items

Task	Assignment	Status Update
Develop bibliography of publications resulting from past Healy and Polar(s) cruises	Dave, Phil, AICC	
Develop recommendation that the Polar Sea be effectively utilized and that refurbishment, upgrade and maintenance of science capabilities be done	AICC	DONE
Develop recommendation to at least maintain POLAR STAR in caretaker status	AICC	DONE
Identify clear process for approval of isotope use - who is the RSO, what are the limits or conditions of authorized use. (Look at	AICC, Dave, NSF	

old recommendation)		
Recommend that OPP buy the general purpose van, Coast Guard and/or OPP evaluate and if practical refurbish the old vans to UNOLS Check list	AICC	DONE
Determine how to take advantage of the potential science opportunities offered by industry as outlined by Mead Treadwell.	AICC, NSF, ARC	
Recommend that initial scheduling and cruise planning processes should take place earlier in the year, including identifying chief scientists and support for them.	AICC	
Recommendations from the debriefs regarding upgrades and priorities for equipment purchases, upgrades, replacements, repairs.	AICC – after 2008 debriefs	
Update web site to better describe berthing policy that indicates CG will use unused berths	Dave, AICC	
Document and Bank Interactions by AICC, USCG, Pis on what they have done, what works well, what to avoid	Update Draft at NSF	
AICC recommendations from August 2006 teleconference	Carin to remind Renee	DONE
Identify date for retreat in Alameda in late 2008	Carin and Don	Explored but not endorsed by the Admiral
Identify date for AICC meeting in December 2008	Carin	DONE
Add info to Healy cruise planning questionnaire re: mid-rats planning	Dave (and AICC?)	
Develop protocol for		

getting major science instrumentation for ice-breakers that involves science input	Renee and Lisa	
Provide and get information about the use of Internet bandwidth	ESU? Dave? AICC? Dale?	In Progress
Work on Recognition for Dan Oliver	Carin, Mike, AICC	In Progress
Work on Recognition for Ted Lindström	Carin, Mike, AICC	At Dec. Meeting
AICC to continue discussion of habitability and provide feedback to CG. CG to provide feedback on “experiment”	AICC, XO, OPS	
Request Town Hall Meeting at Fall AGU to discuss Icebreaker and Arctic Topics	Carin/AICC, John F./ARC, Jackie R-M/SCICEX	DONE by John F.
Disseminate action items to meeting attendees	Carin/Mike	DONE
Check in with the NSF re: the Medical Recommendation	AICC at next meeting	

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*All appendices are in PDF format unless noted otherwise. Large files are indicated with their size.*

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## **Proceedings of the meeting**

### **Welcome and Introductions**

The UNOLS Arctic Icebreaker Coordinating Committee (AICC) meeting was held on Tuesday June 3 and Wednesday June 4, 2008. Dr. Carin Ashjian, AICC Chair, called the meeting to order at 0830 and provided an opportunity for introductions. Carin recognized new members Erica Key and Don Perovich. A list of participants is included as [Appendix II](#)

### **AICC Chair Report and Discussion Items ([Appendix III](#))**

Carin reviewed the planned schedule for the meeting. The committee was asked to think about the dates for the next meeting and also about dates for a possible retreat at Alameda so that a decision could be made tomorrow morning.

### **Minutes from Previous Meeting**

The minutes for the November 2007 AICC meeting were approved with editorial edits by Robin Muench and Carin Ashjian.

### **Action items from last meeting**

The items from the last meeting were reviewed and the current status was reported.

- Make use of the ASCI Web Site – The Chief Scientists have sent in their information, but nothing has been posted to the website.
- Determine longevity of ASCI Web Site - Robin wrote to Ursula, but the response was not very encouraging regarding the viability of this website due to a lack of support for maintaining the content.
- Town Hall Meeting at ASLO/AGU - At last year's AGU, AICC included an updated poster at the UNOLS Booth. Consider combining with Arctic Research Commission at next December's AGU. A plan for AGU will be developed prior to the summer deadline.
- New Committee Members – Two new members appointed to replace Rolf Gradinger and

Peter Minnett. For the chemical oceanographer position, replacing Hedy Edmonds later this year, AICC decided to resend the announcement to UNOLS and ArcticInfo and to include it in the next UNOLS Newsletter.

- Science Of Opportunity (SOO) for Polar Sea – This announcement was not done at the request of NSF. Discussion about whether or not Science of Opportunity can take place in the future. It has happened in the past, but then there were two Polar Class icebreakers operating and the Coast Guard had control of the budget. The Coast Guard will not be engaged in a formally announced science of opportunity effort, unless the schedule and operation has been approved by the NSF. The consensus seems to be that working on the schedule so that it is possible to properly structure Science of Opportunity announcements that are a little more open is an important goal. The key to doing an open call for Science of Opportunity is to have the lead-time to put it together. Consensus is to try for 2009 scheduling year. Captain Uchytel asked what the critical path would be for putting together a Science of Opportunity cruise on Polar Sea. Renee said that there may be paid cruises on Polar Sea and this could lead to Science of Opportunity availability. There was further discussion about when a schedule could be set. Waiting until the end of the year is problematic. Kate Moran recommended that AICC put together a paper on how to conduct the SOO.
- Check with Canadians regarding SOO research they have been able to accomplish from buoy tenders – Kate Moran wrote and received a report back indicating they do limited work involving CTD casts and Bongo nets. They also suggest that they plan to improve their capability in the future.
- Update website to better describe berthing - not done, need to check with Dave and Healy Ops for status.
- Document and Bank Interactions by AICC, USCG, PIs on what they have done, what works well, what to avoid. - Not done. Discussed how to get this done. Could create an appendix with current contact information to include with the NSF guidelines. Phil mentioned that meeting reports, if they can be found will have current contacts. BASC is a good resource for updating contacts.
- Discussions with northern communities on Polar Sea deployment - done by Coast Guard and cruise set up to avoid conflicts with whaling.
- Medical recommendations letter was sent to NSF on December 28, 2007.
- Retreat in Alameda with new VADM and staff - work on details during this meeting.
- Find out what the cruise windows from BEST PIs for 2009 and 2010 are – BEST PIs and program managers will be holding a meeting right after this meeting to look at the need for early deployment.
- Mid Rats info in the cruise planning manual - not done.
- Chief Scientists coordinate with XO on mid rats requirements. This has not been formalized in the questionnaire, but is being done by current Chief Scientists.
- Provide more information on Internet bandwidth in Icefloe website - not done.

- More detailed prospectus to be developed for each cruise with authorship and content clearly define - the cruise- planning form is a good document for the ship and science support people and it will also help future Chief Scientists see what is being requested. Carin will circulate a template provided by Kate.
- Teleconference with Dale on shipyard and equipment items – done on February 25th.
- PCO2 recommendations and contact with the PI, T. Takahashi - done.
- Recognition for Dan Oliver – plan for December 2008 meeting.
- Add District 17 Commander and staff to AICC\_Plus list – Done.
- Update Cruise Synopsis for AEWG to include 2nd Pickart Cruise – Done.
- Discuss proposed berthing plans and provide AICC feedback – started.
- Add info on Icefloe and UNOLS website about what AICC does and does not do – not done.

Older action items:

Revisit with Renee and Simon the recommendations from August 2006 teleconference - will send email to Renee after meeting for her review.

Discuss having workshop in response to NAS report. Write proposal if appropriate for holding a workshop - will wait on this until an appropriate time.

EOS article - started as the community contacts and then moved towards updating the community on Healy capabilities and availability. Bernie said that the two concepts should be separate. Bernie volunteered to write an article about community relationships.

Develop a written protocol for how to obtain major science instrumentation for the icebreakers that would include input from the science community – to be drafted by NSF and USCG.

Retreats in Alameda - on the agenda for this meeting.

Hook science into CG press releases and CG into science press releases - this is being done.

Update the wiring diagrams and USCG contact info. There are some errors in current listing.

### **AICC activities**

Carin talked with Debbie Hutchinson, who is a new PI from the USGS in Woods Hole about community relations/outreach and cruise planning for *Healy*.

AICC updated AEWG and BASC on planned *Healy* cruises. Also continue to advise scientists and USCG on a range of issues including northern community communication and *Healy* science equipment.

Discussed the need to inform northern communities of foreign research clearances/trips. DOS

agreed to inform NSF about clearances. Phil just checked with DOS and so far there are no requests for clearances, which seems odd because there are some known planned cruises by Chinese ships and others. Kathy Crane, NOAA, mentioned discussing this issue with the Pacific Arctic Group (PAG).

Phil McGillivary mentioned that State Department has links to info on communicating with northern communities. It is still problematic because current contact information is hard to get and it is not translated into other languages.

Renee suggested putting together a presentation or document with current guidance that can be given to foreign vessel PIs would be a good plan.

Wrote recommendation to the NSF regarding medical clearances for Healy (and other CG icebreaker) cruises

Carin Ashjian and Capt. Ted Lindström attended the AEWG meeting in December to discuss the spring Healy cruises (in particular, the long BEST cruise)

Wrote recommendation to the NSF that action be taken to insure that the Healy Multibeam replacement proceed during the late 2009 drydock (4/11/2008)

Conducted debrief of Sambrotto/BEST cruise.

### **Increasing the reputation and profile of CG icebreaker based science**

Ned Cokelet suggested creating a bibliography of scientific and other articles published based on Healy and Polars. An example is the SBI Bibliography.  
[http://sbi.utk.edu/sbi\\_publications\\_list.htm](http://sbi.utk.edu/sbi_publications_list.htm)

### **Report by Mead Treadwell - Chair of the Arctic Research Commission**

The commission is very supportive of Arctic science in general. It is in their charter to promote Arctic science. During a recent meeting in Iceland of the five Arctic nations they passed a resolution urging greater transparency for access and data sharing among the Arctic nations. Urged that the SOO announcements and access to the icebreakers serve as a model for other nations.

The Minerals Management Service (MMS recently received 2.7 billion dollars in bids for resources in the Chukchi Sea. They are planning on spending 100 million dollars on Arctic research in the future. They are interested in determining how to include Science of Opportunity on their vessels. A lot of the science would be independent peer reviewed science.

Kate suggested the idea of a conference call on this opportunity. Carin asked if the basic offer was space on the industry research vessels. It would be this and also, they would offer dedicated time on their vessels that they might not otherwise be used. Robin suggested that industry scientists be invited to AICC meetings to develop a better dialog about what we are doing and what they are doing. Renee asked if the data would be published or at least shared. Some of what is being done is compliance data that is submitted to agencies. Other includes peer reviewed science. Renee said in particular the community would be interested in data on underwater noise. This is a multi-year opportunity, but they want to get it kicked off the right

way. There has already been contact with NSF from Tom Weingartner regarding Shell support, so that line of communication may already be started.

### **Alaska Region Research Vessel (ARRV) - Hedy Edmonds**

The University of Alaska – Fairbanks (UAF) was awarded the contract by NSF for the construction and operation of the ARRV. The oversight committee was formed last fall and is chaired by Margo Edwards. Hedy Edmonds and Jim Swift are other AICC people on the committee. The first step is to complete the Final Design Review (FDR) and final budget estimate. This all has to be completed successfully and approved in order to get funding in the FY10 NSF budget request. The project execution plan is being reviewed and must be approved by NSF. One of the catch 22 items is that the delay in making accurate cost estimates causes cost increases. Robin asked what would constitute a successful FDR. This will be a four day event where every detail will be looked at. The goal is to have a robust budget estimate, accurate schedule and a robust contingency (funding and execution). If all goes well the earliest the construction design and actual construction could start would be early 2010.

### **Healy Schedule 2008 overview - Dave Forcucci [Appendix IV](#) and [Appendix V](#).**

Had to tweak the schedule to add mobilization days for the SBI cruises in Dutch Harbor. In the future there is a need to plan for these days and make it part of the in port plan and charge days.

### Discussion of 2009 schedule [Appendix VI](#)

The proposed Spring BEST starting date in 2009 is a key to the timing of other cruises and the start of the availability is tied to when BEST can start in 2010. Timing of the summer BEST will be a factor along with what the requirements will be for the Extended Continental Shelf (ECS) program. There will be a requirement for multibeam testing in 2010 after the installation of the new system. ECS programs are encouraged to submit ship time requests.

### **POLAR SEA report Capt Uchytel [Appendix VII](#)**

*Polar Sea* was in standby for Deep Freeze. They also completed Navy training and flight deck certification. On the patrol they worked for Coast Guard District 17 (Alaska) doing law enforcement and other Coast Guard missions. They conducted an ice seal survey in the Bering Sea, which helped gain the best survey data on these seals in 20 years. One of the species is being petitioned to be on the endangered species list and this data will help make that decision.

Captain Uchytel has instructed his crew to begin maintenance and upgrade of the science handling equipment and data network. He would do this with his crew and ship's funds. He plans to start work on the CTD system and handling systems such as the knuckleboom crane, frames and winches.

The Captain stated that from the point of view of operational reliability the *Polar Sea* is as ready as it ever has been for work and science support.

Kathy Crane has some mooring work in the Chuchi Sea that could potentially use the *Polar Sea* or a Coast Guard buoy tender.



## **Preliminary Cruise and Debrief Comments** [Appendix VIII](#)

Carin reviewed preliminary comments from HLY0801. The actual debrief is scheduled for June 10.

Lee Cooper, reported that the cruise was successful though challenging due to the cold. They appreciated the support of the Coast Guard for a complex cruise that included involvement by agency representatives and the media. Some modest suggestions for improvement were made and are detailed in the appendix.

*Healy* 0802 debrief is scheduled for June 16. Some preliminary comments from Carin Ashjian, who served as Chief Scientist were provided. Again, the cruise was very successful and they were able to accomplish more than their planned objectives. The Coast Guard crew was very helpful and the MSTs and MSO were exceptional in their support. Berthing assignments and other logistics went very well. Suggestions for improvements are included in the appendix. It was noted that the Radioisotope form is not appropriate for stable isotopes.

Every available bit of lab and van space was used and the vans were absolutely critical to conducting this cruise, not only for space but to isolate radio and stable isotopes from people measuring naturally occurring isotopes.

Multi PI cruises without an early identification of a Chief Scientist are very difficult to coordinate. When it is not an integrated proposal and grant the process for who coordinates and who has the responsibility for coordinating the activities of all the various PIs is not always determined ahead of time. There often is no funding for a program office. BEST does not have a program office and there won't be funding one. The committee discussed ideas about how to create the time and or funding for a Chief Scientist or to provide support for a Chief Scientist in cases such as this. Chief Scientists have to be identified early enough to take care of long lead-time items. Another missing piece is that the requirements for ship support that are in the proposals as required by the RFP for BEST were not really assembled for each cruise. Figuring out the Helicopter requirements clearly ahead of time is absolutely necessary.

### **Discussion of Vans**

OCE is funding one more radioisotope van for the east coast pool. OPP is considering funding an additional general-purpose van. Also, there are two Coast Guard vans that need to be evaluated and refurbished. Carin has requested two general-purpose vans and one radiation van from the UNOLS Pool for 2009. This will have a major impact on the availability of these vans for other programs.

### **NOAA Reports**

Kathy Crane provided a detailed report about various programs in the Arctic using Coast Guard icebreakers and other vessels. Kathy also reported on the Pacific Arctic Group (PAG), which is a group of institutes and individuals having a Pacific perspective on Arctic science. Organized under the International Arctic Science Committee (IASC), the PAG has as its mission to serve as a Pacific Arctic regional partnership to plan, coordinate, and collaborate on science activities of mutual interest. Specifics of Kathy's report are contained in [Appendix IX](#).

Andy Armstrong reported on the Extended Continental Shelf (ECS) work that has taken place over the last few years. Data is available on the web at <http://www.ccom.nh.edu>. This work is being conducted under the rules set in the UNCLOS article 76. Key defining bathymetric features must be identified such as the 2,500 meter isobath and the foot of the continental slope in order to make claims beyond the 200 nautical mile limit of the Exclusive Economic Zone (EEZ). See [Appendix X](#) for details of the survey's conducted so far.

### **NSF Report – Renee Crain**

Planning for funds and timing of the 2009-10 dry-dock are being worked on. NSF is also planning on the purchase of a new general-purpose van if Renee can find the funds in the logistics budget.

NSF would like debrief items identified that would be high priority for funding, either through the icebreaker budget or the NSF science support budget.

With regards to the medical forms, Renee asked if it was the intent to screen out cruise participants or to just keep people informed of medical issues.

Helicopters are provided through a commercial contract, which have significant costs. Helicopters are the only reliable means for getting scientists on and off the ship in Barrow, but this could be handled with helicopters staged in Barrow for the appropriate period of time rather than from the ship. These costs are over and above the ship costs and have to be included in the reimbursement scheme for other users of the icebreakers. A key point is that the helicopters have to have a real science requirement to justify deployment with the ship. There was some discussion about how the costs are distributed and about the fact that the helicopter can optimize the use of ship time by targeting ship tracks or by doing actual fieldwork or surveys from the ship.

There is funding in the Healy budget for purchase of the multibeam. Renee wants to meet with the Coast Guard and this will be discussed tomorrow.

Captain Uchtyl asked what the plan was for the Polar Star. Renee said that this was being worked on at higher levels. She thought that the vessel would be maintained in caretaker status but not to be used by NSF. The FY09 budget request from NSF specifically stated that the caretaker status for Polar Star would not be continued starting in FY09 but there are indications that this will in fact happen either through the Coast Guard budget or the NSF icebreaker budget.

### **Arctic Research Commission (ARC) – John Farrell, Executive Director**

John thanked us for the opportunity to have the ARC Chair speak this morning. ARC is working with higher levels on Arctic policy as it relates to all the missions that Coast Guard undertakes in the Arctic.

The commission is working hard with the Coast Guard on the Arctic shipping assessment. It will be reported out in 2009.

They had a very successful meeting with the Interagency Arctic Research Policy Committee (IARPIC). This was a ministerial meeting in Greenland of the five Arctic states. The U.S. was represented by John Negroponte. Increased access to the Arctic through multilateral and

bilateral agreements was a major topic. Data sharing is also a key part of these efforts.

## **Day Two**

### Action Items from Day One - [Appendix XI](#)

- Next meeting and Retreat. Don Peltonen will contact the VADM Pekoski and RADM Brooks to see what their availability is for a retreat the week before AGU or some other alternative dates. The VADM would do the invites and would probably invite Karl Erb and Dr. Bement.
- Dates for the next AICC meeting could be right before or right after the retreat. Alternate dates would be just after the OPP deadline on November 10. Carin will work with Don Peltonen to determine the date for the retreat and then see how that would fit with the AICC meeting.
- Develop bibliography of publications resulting from past Healy and Polar(s) cruises.
- Develop recommendation that the Polar Sea be AICC effectively utilized and that refurbishment, upgrade and maintenance of science capabilities be done
  - A question was raised about the recommendation to refurbish the science equipment on Polar Sea - should this happen at the expense of work on the Healy? Need to address this in the recommendation.
- Develop recommendation to at least maintain AICC Polar Star it in caretaker status.
- Identify clear process for approval of isotope use - who is the RSO, what are the limits or conditions of authorized use. (Look at old recommendation)
  - Radioisotope procedure recommendations and others like it might fit in the RFP for technical services support.
- Recommend that OPP buy the general-purpose AICC van, Coast Guard and/or OPP evaluate and if practical refurbish the old vans to UNOLS check list (RVSS).
- Determine how to take advantage of the potential science opportunities offered by industry as outlined by Mead Treadwell.
- Recommend that initial scheduling and cruise-planning processes should take place earlier in the year, including identifying chief scientists and support for them.

Previous Action Items still needing attention were reviewed. Healy Ops Officer will take care of the berthing policy item.

Dave Forcucci asked if AICC would make a recommendation regarding getting ice imagery given the reduction in availability of RADARSAT 1 images. Discussed the idea of

developing a baseline requirement for support of the Healy's operational needs. This level could be included in the program support costs and included in the day rate. Based on particular science needs, there would be predetermined choices and costs for additional support as needed. How this would be paid for would be determined by NSF and other agencies.

John Farrell asked if the town hall meeting item was still on the list – yes.

USCG HQ report - CDR Lisa Mack – [Appendix XII](#)

CDR Mack covered budget authority issues and the details of the 2005 memorandum of understanding with NSF.

The requirement for getting the following years program requirements from NSF by June 1 usually does not happen and the Coast Guard builds their program plan and costs based on the assumptions that Healy will operate the maximum number of days away from home port and the Polar Sea will be in standby for Deep Freeze.

The Coast Guard is working on getting the budget authority for icebreakers back from NSF. They were working with NSF and OMB, but this effort is currently stalled.

Arctic Initiatives – CDR Mack provided a list of activities by Coast Guard in support of major Arctic issues.

*Polar Star* – The Commandant intends to keep this vessel in caretaker status. They have looked at the maintenance and manpower requirements and are looking at sources for FY09 funding since it was not in the NSF budget. They have a plan for reactivation if it is necessary.

*Polar Sea* - NSF will probably have Polar Sea in standby status for Deep Freeze again next year. They are looking at a possible Arctic Deployment. The escort of the Chinese vessel Xue Long is still a possibility.

*Healy* – The MOA with the NOAA Corps for the Marine Science Officer is in place. During FY08 conducted a study of increased Days Away From Home Port (DAFHP). Also, the Healy was visited by the Commandant and Secretary of Homeland Security.

Kate asked if the RFP for technical services would be affected by any change in budget authority. Renee thought that this change of budget authority would be transparent.

Discussion about the focus of operations and benefits of moving budget authority. NSF is neutral, they are not working for moving budget authority, nor are they fighting it.

### **Environmental Compliance issues.**

Joined on the phone by Frank Espisto, Kebby Kelley and Ed Mondel from USCG legal/environmental.

Renee reviewed the NSF position on conducting Environmental Assessments for seismic work and they have worked with the appropriate agencies regarding impacts on marine mammals and endangered species. They are not conducting EAs with regards to making

noise from the ship operation or ice breaking.

There is some concern or interest in what the Healy's responsibility is regarding the escorting of a seismic vessel.

Renee felt that the approach of keeping the native communities informed and consulted about the scientific activities go a long ways towards allowing the science going forward without senseless mitigation measures. Largely, the native communities and the NGOs agree that the scientific investigation of the ecosystem is important and they are supportive.

Bernie mentioned that for his and Larry Lawver's seismic cruises there was substantial mitigation with monitoring and observers. Their work is differentiated from industry in that the sources are much smaller and they generally work in areas away from any subsistence related habitats.

It was noted that there has been some research on the ambient noise from ice in the ice pack that could show that the noise from the icebreakers and their activities was minimal compared to the overall ambient noise levels.

Phil McGillivary is working on a bibliography with John Hildebrand on workshops and papers having to do with noise from ships, etc. in the Arctic. Phil also mentioned that there is an outreach organization (Ocean Institute) that is working with Larry Mayer to have someone go on his cruise. They have experience with outreach on these issues and could help educate others about what is really happening.

The Bibliography will be on line through the MTS website.

Robin mentioned the best practices and codes of conduct for research ships in the Arctic and Antarctic. The Germans are being very proactive and strict in this regard. Mike Prince also showed the International Ship Operators (ISOM) code of conduct for research vessels.

### ***Polar Sea report - Phil McGillivary [Appendix XIII](#)***

Phil reviewed science that was completed recently and some that was delayed.

The CO2 sensor comparison through the Alliance for Coastal Technology (ACT) was delayed to get more industry involvement.

Some of the Options for a Summer 2009 cruise (PSEA AWS09) including among others (see appendix):

- More ice seal counts
- NOAA NURP planned KOK work cancelled due to the broken shaft could be done from POLAR SEA off Barrow.
- NAVY spring 09 SCICEX ice camp support studies
- Canada seismic escort, NE Beaufort

Phil showed updates about international icebreakers.

Draft guide for doing science from CG C-130's is available – contact Phil.

Phil has a post cruise debrief from NOAA on the Polar Sea seal counting cruise. It will be distributed and posted on the Icefloe website.

Submergence assets in polar regions. AUVs have been looked at for use in ice-covered regions, but the OPP funding for these efforts is limited and somewhat piecemeal. DESSC will have a discussion about whether there is a need for a more dedicated program for development of vehicles for use in polar regions and under the ice.

### **Multibeam update - LT Sam Jackson, USCG [Appendix XIV](#)**

The purchase price for the multibeam equipment is approximately \$2,930,000, which was recently updated for currency exchange rates, but does not include any contingency for further changes.

Total costs include the cost of about 20 days of acceptance testing ship days. Cost is around \$7.5M including some 25% contingency for installation costs.

The timeline for getting funds is that USCG needs the \$4M+ by October 1st of this year in order to be ready for the dry-dock period. A continuing resolution will impact the ability to do this, but prioritization of any CR funds could allow it.

The JMS report did look at the multibeam update as part of the 3-year maintenance program. This report should be available soon.

### **Science Seawater System - including incubator support.**

On the Sambrotto cruise, there will probably not be a problem due to the lack of ice. Just need to make sure the pumps all work.

Using a ballast tank to hold water and circulate it is a viable solution for work in heavy ice as long as the pumps work.

For the non-incubator work, they need to include a separate small pump for the flow-through system to keep its flow rate constant regardless of other seawater use in the labs, especially the episodic use from sinks, etc. that now have a negative impact on the flow rate for the flow through system. This will probably require a modification to the planned reconfiguration of the seawater system.

Discussion about the requirements for the incubator water - for BEST it is 300 liters/minute within 1 degree of ambient. Dale had a question about whether more than 300 l/m would be needed in the future. Not sure, but probably not much. Perhaps design for 400 l/m if possible to give 33% growth capability.

### **Science systems support - Dale Chayes [Appendix XV](#)**

Dale started by showing the AICC prioritized list science system upgrades and installations.

Science Communications - this is critical infrastructure for keeping science systems running and for science planning and execution. Science uses shared INMARSAT access at lower

latitudes with the USCG network. They also use Iridium for higher latitudes. Coast Guard loses their connectivity at the higher latitudes.

Adding a VSAT for science would anticipate loss of access to the Coast Guard INMARSAT, which is inevitable. It would provide 24x7 connectivity for science south of 80 degrees. Discussions with NSF about funding a science VSAT is ongoing.

The thermosalinograph location in the passageway is proceeding along with adding the PCO2 sensor.

Walk-in Chambers meet the SOR requirements, but are inherently high maintenance. Need to add labor to ships force and carry more spares to keep them running. There is usually one qualified HVAC person on board along with one rotating off or one in training. Probably could use one more qualified person on board.

Need to quantify the actual requirements over and above the SOR to figure out what needs to be done to make these units meet current science desires.

### **Lab Renovation:**

They are using the AICC 2007 review, where some renovations are highly rated. A proposal is in the works to NSF. Trying to do this before or during the dry-dock may be difficult.

Science Met Sensor - new system is running on the jackstaff. For survivability reasons, they are moving all but the wind sensors to the mast. Data is going to SAMOS.

ADCP proposed changes - engage the community technical experts, specifically Eric Firing, Jules Hummon et al., at the University of Hawaii (UH). They are drafting a proposal for support, pending a cost estimate from UH.

### **Equipment purchases:**

What does science and technical support actually need? What are the appropriate items for the core facility to provide on a regular basis versus and what are the requirements for specific programs? What are the specific science proposals that are to be supported? AICC should provide guidance on what should always be available, either for every cruise or available on request from the standard instrumentation and services.

### **Equipment for 2008 and beyond:**

The list of items that has been accomplished includes the Met system, replacement of network disk storage, racks for Windows servers and disk storage, additional disk space for backups, Aircraft Non-Directional Beacon for civilian aircraft and a Gravity Meter. There was a question about the availability of the Gravity Meter. It is always on and data can be processed by Bernie Coakley.

### **Still needed:**

Science INMARSAT

Dredges for Larry Mayer's cruise



Science AIS receiver to keep track of the Louis St Laurent

### **Longer-term items**

Fiber optic cable when needed.

Science VSAT

Items for the CY 2009/10 Dry-dock - multibeam replacement, VSAT, Winch changes (can be done dockside), internal access to the Helo Hanger (need to check to see if this is in the plan for the dry-dock).

**ESU report - report by Richard Saunders [Appendix XVI](#)**

See the appendix for full report.

### **Icelfloe Website**

The Committee talked about the organization of the Icelfloe website and how it is not obvious what the Chief Scientists responsibilities are. A top link for the cruise planning page should be added with a checklist and description of what the Chief Scientists' responsibilities are. Also, a better link to what equipment is available in a standard way.

### **Membership Changes**

Carin thanked Hedy for her service, although we might try to get her to attend the meeting in December.

**Next Meeting** – Tentatively November/December in Seattle.

*The meeting adjourned at 1200.*