

*HLY0901 debrief, held via teleconference (Rev 05/09)*

**June 19, 2009**

Present at Debrief: Lee Cooper (Chief Scientist), Carin Ashjian (AICC Chair), Bernie Coakley (AICC), Kate Moran (AICC), Renee Crain (NSF), Hedy Edmonds (NSF), Jon Alberts (UNOLS), Dave Forcucci (USCG), CDR Dale Bateman (XO, USCGC Healy), LCDR Eric St. Pierre (OPS, Healy), MSTC Mark Rieg (MSTC, Healy), LT Silas Ayers (MSO, Healy)

Notes compiled by C. Ashjian, J. Alberts, D. Chayes, and K. Moran based on written responses by Lee Cooper. Unless otherwise identified, all comments are those of Lee Cooper. "Dale" refers to Dale Chayes, "XO" refers to Dale Bateman.

*Please provide comments on the topics and questions that are appropriate for your cruise.*

*1) How satisfied were you with meeting the overall science objectives of the cruise? (Categorize 1-10, and/or comment)*

I think everyone left the ship very pleased with what we were able to do.

*1) What percentage of the planned science objectives was met during this cruise? Please specify contributing factors that affected the completion of the science objectives, especially if not all of the objectives were met (ie. weather, equipment failure, etc.).*

~95%. There were several cases where we didn't quite get what scientists set out to do, but these minor setbacks resulted from complex reasons and circumstances, including actions taken by the scientists on the cruise, and do not reflect any systemic dissatisfaction with ship operations.

99% is more the number....the reason that it isn't 100% is on account of the science party getting greedy....very successful cruise, everyone was very happy.

The numerical ranking depends on how you count.

Carin: We (AICC) haven't quite decided which question so both are here.

**2) Pre-Cruise Planning**

*a) How beneficial and useful is the cruise planning form and the Icefloe web site?*

I think there are still some input areas that could be improved in terms of explanations as to what information is needed; my cruise was not overly complex and I have been the chief scientist a number of times before, but most will not have those advantages.

It might be useful to have a web professional take a look and make suggestions.

*b) Is it clear what is required to be provided to the ship and the schedule for receipt of that information (schedules, lists, plans, forms)?*

By and large, the expectations seem clear, optimal schedules less so.

Dale: “optimal schedules”?

Lee: It’s probably not clear to chief scientists when things need to be submitted.

XO: We can work on providing clearer due dates.

*c) Were the questions on the pre-cruise questionnaire appropriate and easy to respond to?*

By and large, yes, but I think having more background information for less experienced prospective scientists would be helpful.

*d) Were you able to submit the questionnaire fairly early in the planning process?*

Yes, at least for my needs.

*e) Did an operations (cruise?) plan get submitted in a timely manner? Was it useful for you and the ship before and during the cruise?*

Yes, although perhaps there were too many versions of the cruise plan circulating, as the most recent versions weren’t always used close to or after the departure date from Seattle.

Dave Forcucci inquired if Lee was referring to changes after the ship left port and before the cruise started. Lee suggested that dating the forms would clarify some minor issues and that the architecture of the web site could be clearer to inexperienced users. Dave F. asked if it would be helpful to include the science party on the list that receives email notification that there have been changes. Lee thought not because that would be too many e-mails and they would ignore it. Carin pointed out though that she doesn’t trust the science party to check a web site on their own regularly, if she wants to get a message across to them she writes an explicit email. The XO inquired if there was a mechanism to only send emails when there are substantive changes, such as a “distribute” button? Lee thought about RSS feeds. Carin pointed out that we can discuss the form more next week.

*f) Do you have suggestions for how the website and questionnaire might be improved?*

The web site seems built incrementally with minor changes each year that make it more complex but not necessarily easier or informative to use. I think it would be of benefit to have a working group of scientists, Coast Guard and web professionals take a comprehensive look at form and function of the web site and see if it couldn’t be overhauled in ways that make it more user-friendly, less awkward and more informative for users.

### **3) Pre-Cruise Communications**

*How were pre-cruise communications between the Coast Guard and the Science Party, especially the Chief Scientist? Were points of responsibility easily identified? Were responses to questions and concerns received in a timely manner? How were communications within the science party and did that impact communications between the Chief Scientist and the CG?*

Communications with the Coast Guard were excellent once planning started in earnest (~January 2009). There were some challenges given the short time frame between being designated chief scientist (October) and being asked to come to Seattle for a cruise planning meeting (in November; we pushed this back to early December). If I have a complaint about communication it is really the generic burden placed on the chief scientists who undertake a disproportionate effort (among the scientific party) to insure that these cruises succeed. I worked more than full-time the entire month of February for a longer period than the actual cruise to insure that this cruise was successful. In addition, I made five cross-country trips to Seattle between October 2008 and May 2009, 4 of which involved visits to the ship and in support of this cruise, plus another trip to the BEST-BSIERP planning meeting in October, and the separate trip to Savoonga in January 2009. In the past we have had some Coast Guard representation at science meetings of groups making a large-scale use of the ship (such as BEST), so while it isn't absolutely necessary, it would better inform the Coast Guard of science needs to have a few ship representatives come to science PI meetings of major programs when they could.

Lee also pointed out that too few people are doing the Chief Scientist job and that it seems some are scared away. It would be good to make it easier so that others will be the chief scientist.

Carin inquired further about the idea of having a CG representative at science meetings. Lee remembered that for SBI, there were some PI meetings at which there were CG folks in attendance (OPS, CO) and that this was helpful because it provided them with a fair bit of background in the long run. Carin pointed out that we do have a BEST/BSIERP PI meeting upcoming in October but that there would likely be little time for cruise planning. Lee suggested that perhaps someone in the CG would be interested in coming?

#### ***4) Communications and Coordination During the Cruise***

*How were communications and coordination during the cruise? Were lines of responsibility clear? Were the evening planning meetings effective for communicating information between the Coast Guard and the Science Party?*

Jeff Stewart, the Operations Officer was clearly my key contact for any action to be taken by the ship. He was invariably helpful and cooperative in trying to get all the pieces put together for all activities. The evening meetings were effectively conducted.

#### ***5) Environmental Permitting***

*a) Was any environmental permitting required?*

*b) If so, were these requirements identified at an early date and were there clear means to accomplishing those needs? In other words, how well did it go?*

We passed on information about activities planned on the cruise to environmental policy officer Polly Penhale at NSF. Jim Lovvorn and Chad Jay, as individual participants, took responsibility for all permitting relating to spectacled eiders and walruses, respectively

## **6) *Communications with Local Alaskan Native Communities***

*How well did communications between the CG and science and local Alaska Native communities go during the cruise? (Examples: notifications to local communication centers, communications between Chief Scientists and/or CG and entities such as village tribal governments (e.g. IRAs), village corporations, the Alaska Eskimo Whaling Commission and other appropriate wildlife co-management organizations, village whaling captains' associations, and other locally based interest groups.)*

I received very positive feedback including written e-mails from both Gambell and Savoonga commending us for efforts to share information about our cruise and the scientific results. Part of our success was no doubt due to the opportunity I had to visit Savoonga in January for a day. The North Pacific Research Board supported this travel, and I am grateful for their interest in improving community outreach as part of their support for the research program undertaken on Healy 09-01. The communities are very interested in our science. One nice outcome of my trip to Savoonga is that the school principal there and my PolarTrec teacher are working together to make their schools "sister schools" and potentially have student exchanges.

Dave F: When I was in Gambell, I was amazed at how interested in and knowledgeable of the wildlife around them the people were.

## **7) *Cargo/Hazmat/Materials Handling***

*a) How did any and all aspects (scheduling, communication, etc.) of the cruise onload and offload go?*

We really weren't given much flexibility on the dates for the onload and offload. Gas cylinders weren't removed according to the pre-arranged schedule and I was asked to investigate the reasons why even though they were not cylinders used by scientists on my cruise. I was also given no flexibility for dealing with the one pallet of gear and some samples for two scientists who were unable to come on the offload date specified. It fell to me as chief scientist to get those samples and gear off the base for these two scientists as well as to make sure that hazardous chemicals two other scientists left onboard were removed. We were fortunate that the weather was good overnight during the offload so that the pick-up of materials the day after equipment was moved off the ship was not a problem. This didn't work quite as well during the onload as equipment brought from NOAA Sand Point sat out in the rain on the pier as it was not loaded on the ship until the day after it was brought to the pier. There were a few misplaced items in this process, including gear in wet cardboard boxes.

A comment from a scientist present for the offload: "Security at the gate turned away my freight carrier even though I called repeatedly and informed them to expect it --not sure if the Coast

Guard can change the quality of the rent-a-cops. Perhaps the gate could be told to direct all freight carriers to the Healy on off-load day.”

My own experience was on behalf of a scientist from Healy 09-02 that I offered to help with his gear. The trucking company came to the gate and apparently the guard gate would not call Healy without a contact name aboard the ship. The trucker did not have a contact name on Healy only the name of the shipper (scientist). How busy would the quarterdeck be anyway that they wouldn't be able to field a call from the guard house and confirm that a pallet or two was on the pier waiting to be picked up? Who on the base devised that policy? The trucking company had to return the next day after I intervened and gave them the phone number for Healy and Silas' name as a contact.

XO: We are working to correct this problem and we apologize for the inconvenience.

Another comment as the cruise was started: “I had some communication problems, when for example the Healy sleds were not found and it took several days to locate them.” From what I know of this situation, there wasn't common knowledge of where all science gear had been stored on the ship during the onload.

SHIP: Mark Rieg found them, he didn't really know where they were but he was the one who located the sleds.

Dave F: Those ships are part of the ship's science gear.

Carin: There should be a box on icefloe to check if you need the sleds, then the ship can find them well in advance of the cruise.

For our cruise, the complexities with the actual onload and offload of materials used on the cruise weren't enormous; we've put more equipment and gear on the ship before for longer and more complex sets of cruises. So maybe there was too much emphasis on having to come to Seattle on specified dates to manage the onload and offload. I think this is part of the generic problem where we need to figure out ways to lighten the load for the chief scientists, both in Seattle as well as in the ports of embarkation and disembarkation where there is no centralized logistical help.

*b) How did materials handling, including hazmat, go during onload/offload and during the cruise?*

No problems in the onload; all HAZMAT arrived as expected. Some HAZMAT left behind post-cruise as I mentioned above, but I took care of it.

### **8) Laboratory and Other Vans**

*a) Did you use vans from the UNOLS van pool or from another source (specify)?*

*b) How did the procurement go?*

*c) Were lines of responsibility clear for obtaining appropriate vans and for setting up and maintaining the vans on board?*

*d) Was adequate time available to obtain the vans?*

- e) How well did the vans perform?*
- f) Were they appropriately equipped with ship connections?*
- g) How well did load and offload go?*

I expressly thank Carin Ashjian for taking responsibility for the van deliveries. We did not use the vans to any great extent, but the one use planned by Rolf Gradinger was not successful because the heating system in the van was non-functional and his research required temperatures above freezing. I think there also needs to be some clearer lines of responsibility for taking care of problems with the vans such as the damage that occurred prior to our cruise to the rad van, but had a follow-on impact primarily on Healy 09-02. I was asked for example if I could pay for a heater for the rad van before the ship left Kodiak. I have a procurement card issued by my University, so I probably could have, but I am not sure how I would have been reimbursed. It seems like there ought to be a clearer chain of responsibility to take care of problems that occur to shared resources like vans once the ship leaves Seattle.

Renee: The idea is that whatever organization is tasked to be the science support provider (through a solicitation) would be the point person to take care of this kind of thing.

Lee: Will in-port logistics (renting vans, missing luggage, finding a heater etc.) be a part of this solicitation?

Renee: The idea is to pay the “ship operator” (in the UNOLS parlance) to handle at least some of this. Such as sorting out the MOCNESS inspection in Kodiak. Grant specific issues of course would be covered by a grant.

Lee: Comment from the major user of vans on our cruise: “vans and all other ship mounted equipment (e.g. incubators, temperature control rooms) should be checked in Seattle prior to deployment to Arctic waters. The heating in the stable isotope van was not working and required major changes in the way we did our work. It negatively impacted our work, as the second van we had to use was also used by other groups, who needed open access to the working deck for long periods (often close to one hour). Our water samples froze and could not be processed several times because of this issue.

### ***9) Lab and Your Science Equipment Setup/Installation***

*a) How well did set-up of the labs and science equipment go? For example, were you able to have the lab counters and unistrut adjusted appropriately to fit your needs?*

*b) Did installation of science equipment outside of the ship's equipment go well? Were there any unexpected surprises in terms of needs or ability to support such scientific equipment? How clearly were special requirements for science equipment defined prior to the cruise?*

*c) Was anything identified during your cruise that should be recommended as a permanent addition to the ship's science equipment?*

Lab set up went fine as expected. We did experience very cold temperatures during the cruise and it was a continuing challenge to keep water flowing on the back deck. The water outlets in the vestibule between the lab and starboard side van were not winterized before the ship left Seattle and they immediately froze up. For most of the cruise our only practical solution was to run flowing seawater and hot freshwater out of sinks in the main lab, which required the lab doors to be open while on station. A comment from one of the scientists affected: “The temperature in the main lab was sometimes below freezing point for more than an hour, because hoses with running hot water were needed for successful benthic sampling at these cold air temperatures. For future missions it would help to either have a hot water supply directly on the fan tail or b) have a freezer door strip curtain in the entrance area of the main lab.

Dale: Could have pushed the hoses out through the penetrator.

Lee: Would have been awkward to get them back in and thawed out.

XO: If the hoses on deck were freezing how does having outlets on deck help?

Lee: The outlets would be close to the “right place” near the crane. Perhaps reduce the length from 75’ to 25’.

Dale: and convert to CamLok fittings for ease of removal when frozen.

A comment from a science user on the bridge:

“We are using a web-based program to log the ice conditions during the ship expeditions. We had developed this form in 2002 as part of SBI and it has since then been used by several other science teams. It would help to have one dedicated computer on the bridge for this purpose. We again organized one laptop on the port side of the bridge to be connected to the science network, but it would help, if this would be the standard.”

## ***10) Information Technology On Board and On Shore***

*a) Communications (Local and remote E-mail, account set-up, internet access, data transfer on/off and within ship or between ships, Inmarsat and Iridium, radio). Were you satisfied with the capabilities? Were there computing resources or communications enhancements that you could have used but that were not available on board?*

*b) How did the shipboard data collection, management, and archiving go? Were these services provided efficiently and made available in ways that promote rapid transfer of data to users?*

*c) How well did operational technology work? (Map Server, board of lies, web cameras on board, monitors for changing among closed-circuit cameras, functionality of the closed-circuit cameras on board, winch display on back deck)*

It would help to have the monitor changing stations for closed-circuit cameras restored to their prior functionality. Apparently the parts aren’t available anymore, so parts are being scavenged and some cameras can no longer be changed (e.g. Science conference room). I also had at least a modest degree of interest in the winch display on the back deck. When it worked, it did help us with knowing from the back deck whether cores had successfully collected sediments from the sea floor. I’m not sure it is worth tens of thousands of dollars to fix, but it is a shame if such a large capital expense only lasted a year or two. We received help with use of the Inmarsat when

requested and we used the Inmarsat phones system several times for very positive educational outreach efforts. The public outreach is very good and important but if it's costing too much money, someone please let me know.

Renee: I'll let you know.

I had a couple comments that web access limitations were too onerous.

“Suggestion: Make the electronic communication between the Coast Guard side and Scientist side easier.

For example: Most of the Coast Guard was not allowed to view the internal teacher webpage that described the science. If they were allowed, to some extent, then they could have viewed photos, movies, and articles about the science and life on the ship. What a great outreach opportunity to engage the Coast Guard.”

“Pull back on the FireWall constraints. They are a bit draconian to say the least. Never heard of an EXCEL spread sheet being a threat to National Security....”

I had my own run-in the web restrictions, as I tried to check [www.mustangsurvival.com](http://www.mustangsurvival.com) to see if they make a MSD-9000 in an extra small size for a participant on the Healy 0902 cruise. It was a relatively small detour to get the restriction on access to that website removed on the path to more information, but I think it points out a generic problem with the system. It seems like as a sledgehammer approach. Instead of simply banning almost all websites with .com addresses, couldn't a more enlightened approach be used that assessed the web pages that are typically visited and then make common sense judgments as to whether those uses advance the work people on the ship are trying to do. Sure facebook.com is a pretty easy call, but in most other cases, I think people are just trying to get work done.

Lee: The very restrictive web access strategy is biased “against” access instead of “for” the things we are doing.

XO: The restriction seems to be somewhat random and we will continue to fight that battle as well.

## ***11) Healy Science Systems***

*a) How well did these perform? This includes deionized water, multibeam, winches, environmental chambers, freezers, refrigeration, science seawater, underway data acquisition systems, ADCPs, depth sounders, etc.)*

The clearest failure we had with the shipboard systems was one of the environmental chambers. It was not discovered that it was broken until after the ship had left Seattle. The chamber was repaired after parts arrived in Kodiak, but it took about two weeks for the chamber to reach a stable temperature after repair and the experiment that was conducted in the chamber was compromised because the temperatures were not constant. It was a disappointment to me because there were plenty of opportunities to test the environmental chamber during the shake-down



cruise, but it apparently was never turned on. We also had to work against a mistaken notion that ship systems (e.g. freezers) need not be turned on until the scientists had boarded the ship, when in fact some of these systems must be working before the ship leaves Seattle to not compromise the planned scientific work.

Finally, we need to have the two stand-up incubators that were purchased by the Coast Guard in the mid-1990's either serviced and repaired or replaced with new equipment

*b) Do you think anything needs to be upgraded?*

I think the suggestion made elsewhere about providing winterized flowing seawater and fresh hot water to the back deck more directly from beneath the fantail has a lot of merit.

### ***12) Deck Operations and Deployment/Recovery of Science Gear***

*a) How well did the planning, understanding of responsibilities and approaches, and implementation go for both science and crew?*

*b) Was appropriate and appropriately sized safety equipment available?*

*c) Were operations safe? Did everyone comply with safety requirements? Were any unexpected safety issues identified and were they dealt with?*

*d) Was there enough assistance as needed and/or requested with deployments and recoveries?*

*e) Were communications effective with the bridge and winch control during deployments?*

*g) Other*

I think by and large deck operations were conducted safely and efficiently with good coordination with the bridge and winch operators. The assistance we had from the MST team on deck was outstanding under very cold and difficult conditions.

### ***13) Ice Conditions***

*How well was information about the ice conditions in the area of operations provided to the ship and to the scientific party?*

The information about ice conditions we had access to was pretty accurate and helpful. Kudos to Steve Roberts for incorporating imagery into the map server. We didn't have an ice specialist on board. Steve's efforts were very helpful. We did change where we were going continuously in order to find walruses, eiders, etc.

Dale: Much of the ice image data came to Steve from NIC.

Carin: Working in a relatively small area helps NIC.

### ***14) Small Boat Operations***

*If appropriate, please comment on:*

*a) Adequacy of boat briefs*

*b) Provision and availability of appropriate safety equipment*

- c) Identification of science needs and requirements*
- d) How well the operations went*
- e) Other*

We did not use the small boats.

#### ***14.5) Ice Operations***

*If appropriate, please comment on:*

- a) Adequacy of ice briefs*
- b) Provision and availability of appropriate safety equipment*
- c) Identification of science needs and requirements*
- d) How well the operations went*
- e) Other*

Comment from the lead scientist for the ice operations: “overall a successful cruise. We got very good overall support for research from the ship, specifically for our work regarding the ice deployments (polar bear watch, gear to ice, etc).” Rolf was happy.

#### ***15) Helicopter Operations***

*If appropriate, please comment on:*

- a) Adequacy of flight briefs*
- b) Provision and availability of appropriate safety equipment*
- c) Identification of science needs and requirements.*
- d) Other*

The helicopter support was excellent and was critical to the success of the mission. However, some of the science needs that were articulated in the memo to NSF requesting and justifying the helicopter use in October 2008 were not passed on to the aviation management authorities at the Department of the Interior and Maritime Helicopters. As a result, when the Department of the Interior aviation division authorities became aware of the science need for airborne CTDs (in late January), they stated that insufficient time had been allowed to plan for such deployments and the request was denied. I recommend that the chief scientist should be brought directly in to provide information on possible science needs much earlier in the contracting process and there should be better communication among the chief scientist, the appropriate authorities within the Department of the Interior and the contracted helicopter supplier. Since the civilian contracting process started in 2006, we have never had much more than one weeks’ notice before the cruise as to the identity of the federal helicopter oversight personnel and the helicopter supplier. They are similarly unaware of much of the science mission until they board the ship.

Renee: I appreciate your comments. Communication needs to be improved and the planning process can be improved. . I was a little mystified too about how long it took for AMD to get the information (planning documents). One problem is the scheduling/planning person who also handles Antarctica (Mark Rieg?) and was down there at the time.

## ***16) Food Service***

- a) How well were special dietary requirements (vegetarian, vegan, low-fat, etc.) identified and met?*
- b) How was the quality of service and food, including outside of the three main meals of the day (e.g., (quality and availability of food/experience for those working overnight)?*
- c) Other*

Overall not a lot of negative comments about the food, and the availability of fresh fruit was complimented. I had only one other written comment: “More choice in cereals besides kids cereals I didn’t like 45 years ago.” Personally my impression relative to prior cruises was that the cooking was a little uninspired. Nothing really wrong with the ingredients or availability, but I didn’t see as much creativity as I had seen in the past. The late night food choices remain an area where improvements are needed for the ship to be fully operational on a 24 hour basis for science.

## ***17) Berthing and shared spaces (science conference room, gyms, laundry)***

- a) How did all aspects of housekeeping go?*
- b) How did the berth assignments go?*
- c) How were the check-in/check-out processes?*
- d) Other*

Getting people moved into their rooms was well-worked out and went smoothly. There were complaints that some rooms weren’t clean and the two education specialists assigned to the modified room on the third deck were definitely not happy with it. Having looked at it, I don’t think it is well designed for accommodating scientists (or Coast Guard either?). Since there have been shifts in scientist berths versus Coast Guard berths on the ship on the 03 and 04 decks, I think the designation/changes of science spaces needs to be carefully considered by the AICC in conjunction with the Coast Guard so that both Coast Guard and science needs can be balanced.

Dale Bateman: There were some problems with the heat in that room but it has been rectified. The room is very large and has a lot of storage.

A few additional comments provided to me:

“Lights for the "3rd bunk".  
A shelf or at least an alarm clock for the "3rd bunk".  
More than 1 hook per person in the cabins.”

## ***18) Medical***

- a) Were needs, if any, met?*

I was the only science party member who had a serious medical emergency and the medical care I received was excellent and professional.

*b) Medical history questionnaires*

*i) Could the forms be improved?*

*ii) How did the submission process go? (timing, acknowledgement of receipt, etc.)*

Yes, I think the medical form could be improved. Some of the questions, such as the names of doctors who may have provided hospital care decades earlier do not seem to serve any useful function. It is hard for me to know where to draw the line between those questions that have no information value and those that have some value and those that provide important medical information. I suggest that a working group including a full-time medical professional design a more up-to-date form that reflects the short period of time that scientists are onboard the ship, and the potential need for critical information in medical emergencies. The current form does not focus enough on this most likely scenario for need. Transfer of the forms to the Coast Guard is improving. I still think an on-line secure web-based form with an immediate confirmation of electronic receipt would be better.

Bernie: my cruise was 9 weeks. I'd rather have more info than less.

Lee: some of the info e.g. the name of the knee surgeon decades ago.

Bernie: Yes, but don't predicate it for 2 weeks or 4 weeks.

XO: We are updating the medical screening process with the flight surgeon that our PA reports to when we are underway so that we are properly prepared in the event of a serious problem.

---- more discussion ---

XO: We have inquired further in a few cases over the last two years bases on the content of the forms. We will review the "are we collecting more info than we need" with our flight surgeon.

Lee: I guess there is a difference between having enough info to treat someone in an emergency compared with screening to be sure that someone going out to sea is suitable for the situation.

Carin: AICC has been talking about this for a few years and we can talk about it more.

*19) Any other comments?*

**Two safety related concerns (perhaps there should be a specific question on the form as I didn't find another place to bring these up):**

"We were subjected to constant loud noise working in the helicopter maintenance room. Much of this noise was unavoidable due to the ship operations and power plants, however, some of the noise appeared to be due to a fault in the steam pipes. We experienced regular sharp banging noises that emanated from the forward starboard quarter of the helo maintenance room. The noise was similar in intensity to rifle fire at close range. Perhaps something may be done to alleviate this and protect the hearing of those who work in this area."

I think the freight elevator ought to be given a thorough safety evaluation and modified if necessary with adequate documentation provided to users. I was told by another scientist and a MST that the lockbar that injured me had also caused near- or minor injuries to them. I have

used the elevator a hundred or more times over a decade, so my injury really wasn't due to a lack of experience or familiarity with the equipment.

Kate: Have others been injured?

Lee: An MST and a scientist each told me that they had been hit by the same lock bar. Something should be done if it can't be changed.

Finally, two other comments from science party members that I couldn't fit in anywhere else, but that I am happy to include below. I think it helps to remind us as scientists not to take for granted the great opportunity and privilege that comes with working on Healy in terms of advancing our science and contributing to our national research agenda:

“Overall, the Coast Guard did a fantastic job as usual. I'm not certain that you can address this, but the crew was clearly exhausted from day 1. In chatting with them, I found that they did not receive their typical time off prior to the cruise and consequently were not rested. This suggests a disconnect between upper command and the boots on the ground.”

“The coast guard rocks- the whole experience was one of the best”

Lee: We had a great cruise. It's always a pleasure to be out on that ship and do science.

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***Appendix – Additional Questions for Specific Activities or Instruments. Do not answer unless appropriate for your cruise.***

***1) Multibeam***

- a) How much real-time watchstander effort was required?*
- b) How much onboard ping editing was done in the post-processing?*
- c) In both cases, who provided the people? Who was responsible for training the people?*
- d) Other Multi -Beam issues?*

***2) Diving***

*If you conducted scientific diving on your cruise, how did it go?*

Multibeam was on and the data are almost always used by specialists at a later date, but we did not actively use it onboard during the cruise. There were no diving activities.