

## **Healy & Polar Class cruise debrief, held via teleconference (Rev 01/10)**

**Date of post-cruise teleconference debrief: 1000 PST Thursday 9 November 2010**

**Chief Scientist: Brian D. Edwards**

**Name of Project: 2010 Extended Continental Shelf survey of Canada Basin (Arctic Ocean)**

**Name of Ship & Cruise Number: USCGC Healy (HLY1002)**

**Start and end dates of cruise: 2 August to 6 September 2010**

*Please provide comments on the topics and questions that are appropriate for your cruise.  
NOTE: This form must be submitted as either a \*.doc or \*.docx file.*

**Attending this debrief: Jon Alberts (UNOLS), Healy CO Capt. Bill Rall, Healy XO John Reeve, Healy OPS Eric St. Pierre, Healy MSO Chris Skapin, David Forcucci (USCG), Hedy Edmonds (NSF), Karen Frey (Clark U.), Robin Muench (ESR), Steve Hartz (U. Alaska), Luc Rainville (APL U. Washington), Bob Campbell (URI), Dale Chayes (LDEO), Brian Edwards (CS).**

### ***1) Overall Success of Cruise:***

NOTE: This was a joint two-icebreaker expedition with the Canadians (CCGS Louis S. St-Laurent)

*a) What percentage of the planned science objectives was met during this cruise?*

- US mission (joint and solo): 90%
- Canadian joint mission objectives: 40%

*b) Please summarize positive and negative factors that impacted completion of the science objectives (for example, personnel issues, equipment performance, ice and weather conditions).*

Positive:

- Captain Rall: Superior officer! Fully engaged and easy to work with.
- Ship's officers and crew: Excellent. Positive attitude. Station holding excellent.
- MSTs: Excellent. Safety conscious. Eager to learn new techniques. Always available.
- Science support team: Chayes et al. and computer support (Donny). MapSurfer is a superior tool.
- Ice: not a significant issue in US waters or potential US ECS

Negative:

- Unfortunate medical issues on CCGS *Louis S. St-Laurent* cost days of data collection and resulted in adjusting line locations (hence, US success at 90%). Impact was significantly greater on Canadian joint operations objectives (hence 40%).

**Brian Edwards: First time CS thought system worked well, even though came to the game late. Got useful advice from last season CS Debbie Hutchinson.**

## ***2) Pre-Cruise Planning***

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

- The cruise planning questionnaire and Icefloe Web site are both excellent tools for cruise planning and communication with CG about logistics. The questionnaire is easy to use and comprehensive. Dale Chayes' suggestions to John Childs and reminders were very helpful in assuring that the cruise plans were complete.

*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)?*

- All of the details that the CG requires and timeliness for submission were completely clear. Dave Forcucci was most helpful in assuring that these communications were effective.

**Brian Edwards: Shore support was also excellent.**

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

- Yes and yes

**Brian Edwards: Responses to questions were continuous and timely.**

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

- Yes – we were provided access to the questionnaire early in the planning process.

*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?*

- We hope that our cruise plans were submitted in a timely manner. In retrospect, we realize that we (USGS) could have done a better job of communicating several last-minute adjustments to the cruise plan through the questionnaire. For example, we decided rather late in the process to put a large amount of coring equipment aboard in Seward. These logistics were exchanged through email and phone calls, but were not completely included in the cruise questionnaire as they probably should have been.

**Dale Chayes: Will there be a coring program again next year? Any such plans for next year should be communicated to the chief scientist.**

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

- None.

### 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?*

- Generally good. Captain's meeting in Seattle was very useful. Although we discussed the need to "mobilize" USGS coring equipment in Seward, that information was not effectively transmitted to the ship. There was also some confusion for which USGS should take responsibility concerning whether our staff would be riding the ship on the transit from Seward to Dutch Harbor. In the end, we did not need to have anyone aboard for that transit.

**Brian Edwards: Lack of clarity as to how important IceFloe is to the CG. Not commed to IceFloe how much support would be needed to load gear.**

**Brian Edwards: USGS takes responsibility for comm issues about gear loading and onboard sampling procedures. Track could not be loaded in Seattle, so shipped to Seward. Insufficient details were provided in advance to the CG concerning mounting of the equipment on deck (welding to deck, etc., presence of NASA vans on fantail, ultimately removed in Seward, other).**

**Healy: IceFloe would probably not have solved the comms issue.**

**Healy: make sure to look out for similar situation next summer, especially, whether the large coring apparatus will be used on the ECS cruise.**

**Dale Chayes: Have Larry Mayer make the communication.**

### 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?*

- Communication and coordination was very good. Lines of responsibility were clear. Evening meetings were effective.

### 5) *Environmental Permitting*

a) Was any environmental permitting required?

- Yes –the seismic reflection profiling in the US EEZ was conducted under the provisions of an Incidental Harassment Authorization issued by NMFS under the Marine Mammal Protection Act. In addition, NMFS was consulted regarding endangered species (principally bowhead whales) and FWS consulted regarding an interaction plan pertaining to walruses and polar bears.

*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?*

- Yes, requirements were identified early on, but the process became much more involved than anticipated. Part-way through the process, NMFS requested that an analysis of the environmental effects of icebreaking per se be included in the IHA application. The late receipt of the IHA almost delayed start of seismic reflection work in US waters.

**Brian Edwards: John Childs took lead on permitting, requirements identified early on, but more paperwork than anticipated. Could have proceeded more rapidly, and got authority only barely in time to avoid aborting the seismic work.**

#### **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.)*

- Communications proceeded very well (starting with a pre-cruise meeting with AEWC in February). Community observer (Ralph Kaleak) was cruise member and assisted in mammal observations. Effective communications were conducted effectively between CG and Barrow tribal members re: approaches of Healy to Barrow.

**Brian Edwards: I was at the native meeting, but the presentation was made by Debbie Hutchinson. The onboard native observer worked out well, and comms with natives were solid and constructive.**

**Capt. Rall: D17 continues a high level of interaction with the native groups and has been very helpful.**

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

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

- Cruise on-load in Seattle was good. Early discussions regarding on-loading a USGS marine tech van (and deciding not to) was particularly useful.

- Strong support for HLY1002 was provided by off-loading NASA vans in Seward. Doing so provided deck space for the USGS coring track and contributed significantly to deck safety.
- The magnitude of work required to mobilize USGS coring equipment in Seward was not appreciated by CG (although I thought that had been well communicated). Apparently, I failed in properly identifying the need on Icefloe. Nonetheless, the on-load in Seward went smoothly with USGS hiring a shore crane.
- Issues with fantail deck sockets being frozen were resolved by crew members prior to installing the coring equipment.

**Dale Chayes: "frozen" in this case means corroded (seized up, or threads gone) to the point where they were nonfunctional.**

- Offload in Seattle was very smooth. CG personnel were very understanding and provided excellent support when shipping trucks failed to arrive on schedule. CG stood by with good cheer to the final (and late) onload and contributed significantly to our marine tech (MT Jenny White) catching her flight.

**Brian Edwards: Physical sampling was lower priority (3rd) compared with multibeam (2nd) and seismic sampling (1st). Hence, some decisions occurred relatively late in the planning process, and there was little prior information on how much time would be available for the core sampling.**

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

- Everything proceeded smoothly. The only significant issues we encountered were commercial shipping trucks (including refrigerated trucks) not arriving on schedule. Communication at the guard gate contributed to the confusion in one case by not understanding that the shipment was at dockside beside Healy and not at shipping & receiving (after shipping & receiving closed for the day). Guards sent the truck away.

**Brian Edwards: The CG was very understanding in helping take care of these issues.**

**Capt. Rall: A permanent fix for this issue will be difficult. Need to make sure delivery trucks have the *Healy* phone number as a point of contact, so that the guard can call the ship, rather than the address. Might help if guard can call the ship.**

**Brian Edwards: Other than the delivery issues, gate security was good and did have complete personnel lists.**

**Capt. Rall: The deck sockets are a work force and time management issue. Can free them up if they know they'll be used, so, prior notice can help out with this.**

*8) Laboratory and Other Vans*

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

- No external vans were used. Initially considered using USGS marine tech van but that became untenable and was not used.

**Brian Edwards: We knew all this well ahead of time.**

*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?*

**Brian Edwards: It was crucial in our case for the chief scientist to look over deck layout in Seattle before deployment. This wasn't possible at the Captain's meeting, although there was a very informative drydock tour, but was done during the onload.**

### ***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?*

- Yes. Excellent and spacious laboratory space.
- Minor issue with DI water system – change filter issue (on-board knowledge seemed to be limited regarding these systems). No actual lab support person aboard (e.g., Scott from Scripps). Dale & Steve provided excellent support (particularly since not much DI was needed). Potentially a more significant issue next year if ocean acidification work continues and is expanded (more analytical work on board, more DI, fume hood use).

**Dale Chayes: This is the first I've heard that there was trouble with the DI water filters. I did show Chris how to turn on the feed water for the system.**

**Brian Edwards: It was needed for ocean acidification work, and may be needed again next summer. There might be more analytical work aboard, some requiring fume hood use. Next summer's chief scientist is in the discussion loop on this.**

**Dale Chayes:** The mercuric chloride that the following cruise had brought aboard may have been needed by Chris, who might therefore have some insight into what happened to it.

**Brian Edwards:** Will contact Chris and continue to work with Dave Forcucci to sort out this issue.

**Hedy Edmonds:** It seemed initially possible that this cruise used some reagents that were intended for the following cruise (the mercuric chloride issue). This was initially verified by the ship. Chris did bring some mercuric chloride, got more samples than planned, and ran out. He subsequently requested permission to use some of that stored aboard for the following cruise.

**Dave Forcucci:** Chris's request was apparently never answered, and he did not use any of the mercuric chloride. While the entire episode had no impact on the following Pickart cruise, some of the mercuric chloride remains unaccounted for. Dave Forcucci is following up on this.

- Dale & MSTs provided excellent support for CTD casts.
- Walk-in refrigerators and freezers: both were critical to our mission objectives. Refrigerators and freezers were properly maintained during HLY1002, the subsequent cruise HLY1003 and the transit back to Seattle. Well done and thank you!

**Brian Edwards:** Walk-ins were crucial, and were well maintained through cruise and end of field season when samples were acquired in Seattle. The cruise required little lab support.

*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?*

- Generally, all installation went well.
- Many of the deck sockets on fantail were frozen prior to mobilization of coring equipment in Seward (general maintenance issue). Ship's crew worked on sockets after we identified location of piston core track and the mobilization in Seward went smoothly.
- Geochemists for ocean acidification studies brought their own equipment. Basically just needed bench space and access to water and navigation. Other than minor DI issue mentioned above, all went well.

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

- Consider installing sediment traps in sink (or sinks) if sediment sampling is commonly used from Healy.

**Brian Edwards:** The ship might consider installing sediment traps in the lab drains. This was not an issue on this cruise, and this is simply a precautionary statement.

**Capt. Rall:** I'm not familiar with these, but the CG will look into it. We hesitate to make additions if there is no problem

**Brian Edwards:** They are installed in drain plumbing to prevent sediment from entering the sewer system, and are standard lab plumbing system components that are used in all USGS lab facilities.

### *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?*

- Communication capabilities ranged from excellent to adequate. Internet access and data transfer at 3MB south of about 75degN was a delightful surprise.

**Dale Chayes:** This last comment applies to possible attachment sizes, not to a high transfer rate.

- Communication between ships using the ship-to-ship radio network link was very effective (and very important) when within about 5 n.mi. Very difficult to coordinate between science parties for two-ship operations without this capability.

**Brian Edwards:** A greater range would have been extremely helpful.

*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?*

- Very effective. Chayes' group provided excellent support.

*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)*

- All operated well. MapSurfer – wow! What a tool.
- Only issue: moisture on aloftconn camera housing.

**Dale Chayes:** This is in reference to the CCTV camera.

### *11) Shipboard 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.)*

- All excellent. No concerns.

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

- No

## **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?*

- Discussions and communication proceeded very well. Safety briefs were effective. Deck operations seemed slow but that likely resulted from lack of familiarity with equipment and some specialized aspects of deck operations with USGS-provided equipment.
- Communication and cooperation between USGS marine technicians (MTs) and CG MSTs was very good.

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

- USGS provided safety equipment for critical science deck crew. Some CG safety equipment was used by some science crew and all were appropriate. Thanks to the CG for providing this equipment.

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

**Brian Edwards: There were some safety concerns during transfer of winch control between different systems.**

**Capt. Rall: We recognize this as an issue and are looking into solutions. Shifting between winches is difficult, so it's hard to put them both on a single A-frame. Might add an additional control box to control 2 winches at the same time.**

- Operations were safe and clearly, safety was a #1 priority for both the USGS and CG. Well done.
- The bosun noticed a potential foot-safety issue on a metal plate that was part of USGS-provided coring system. He quickly provided and installed non-skid strips to the plate.

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

- Yes. Excellent deck support.

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

- Yes.

g) *Other*

- Station holding in deep but open water was excellent. My compliments to the bridge officers and crew.

### ***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?*

- Excellent, coordinated information. Very solid.

**Brian Edwards: This was my first experience working in ice, and it all seemed to flow very smoothly due in part to the evening meetings and planning efforts.**

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

*If appropriate, please comment on:*

- Small boat not used for science operations – only for CG mission.

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*

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

*If appropriate, please comment on:*

a) *Adequacy of flight briefs*

Adequate

b) *Provision and availability of appropriate safety equipment*

Adequate

c) *Identification of science needs and requirements.*

Adequate

*d) Other*

**Brian Edwards: Helo ops for science transfers were minimized per the request of the CS on the *Louis St. Laurent* because of operational constraints imposed on the *Healy* by helo ops. Used only for ice recon and med issues.**

***16) Food Service***

a) How well were special dietary requirements (vegetarian, vegan, low-fat, etc.) identified and met?

• Fine

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)?

• Fine

*c) Other*

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

a) How did all aspects of housekeeping go?

• Fine

b) How did the berth assignments go?

• OK. I made the berthing assignments for the science party. I was unfamiliar with Healy and specific noise issues (rooms adjacent to major fans etc.). Unfortunately I placed some of my science personnel (including a senior scientist) in loud rooms while releasing a “quiet” room for use by the CG. Providing the chief scientist with a room plan and identifying potential issues would be useful.

**Brian Edwards: This sort of information would be useful for future chief scientists.**

**John Reeve (Healy XO): Apologizes for the noise issues, attributing this in part to lack of personnel experience with most of the science staterooms. He will make inquiries, and also thanks the science party for allowing CG use of the spaces.**

**Robin Muench: Efforts are underway to develop a coherent berthing document with information on noise issues, etc.**

**Hedy Edmonds: These details get lost, and we are trying to capture them.**

**Dave Forcucci: The berthing layouts are on IceFloe.**

**Brian Edwards: We were able to make some adjustments, and things eventually worked out fine.**

c) How were the check-in/check-out processes?

- Just fine

d) Other

- Pagers are critical. Thanks for providing them.

### ***18) Medical***

a) Were needs, if any, met?

- Yes

b) *Medical history questionnaires*

i) Could the forms be improved?

- Forms are appropriate

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

- Submission process was fine. Acknowledgement of receipt was fine.

19) Other comments (if any)

- Having the PA on-board proved to be a true benefit – both for the US and Canadians.

**Brian Edwards: We did have one injury, but it was not serious, and the PA was very helpful in verifying that it wasn't serious. The support that Healy provided to the Louis St. Laurent was very much appreciated.**

**Capt Rall: A PA is now permanently attached to the ship.**

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*Appendix – Additional Questions for Specific Activities or Instruments. Answer only if appropriate for your cruise.*

### ***1) Multibeam***

a) How much real-time watchstander effort was required?

- 24/7

b) How much onboard ping editing was done in the post-processing?

- probably 95%+

c) In both cases, who provided the people? Who was responsible for training the people?

- USGS provided people and training for those individuals.
- Canadians also provided a hydrographer.

d) Other Multi -Beam issues?

- None – Chayes and group provided excellent support.

**Brian Edwards: From our perspective, it worked very well.**

***2) Diving***

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

N/A