Healy and Polar class cruise debrief (Rev 12/2013)

Date of post-cruise teleconference debrief: not applicable

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Name of Project:
US Arctic GEOTRACES

Name of Ship & Cruise Number:
USCGC Healy 15-02

Start and end dates of cruise:
Aug 9 2015- Oct 12 2015

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

1) Overall Success of Cruise:

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

About 90%

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

It was clear that the ship's command was sincerely interested in the success of this mission. Communication with Captain Hamilton was open and OPS Woityra was always accessible and interested/involved in science activities. Cmdr. Woityra was instrumental in facilitating the day-to-day planning and execution of our activities. The ship's crew worked hard to achieve the goals of our mission, and displayed a positive, energetic attitude throughout. This reflects well on the ship's leadership and the commitment of the Coast Guard to the Healy's science mission.

We have numerous comments below that center on things that did not go as well as we would have liked; there were issues that could be improved upon. But this does not detract from the fact that the mission was a great success and we owe the HEALY our gratitude.

We have made numerous comments in this document, including:
1. Loading in Seattle - see item 8g below.
2. Gasoline storage - item 2c
3. Over the side, deck operations - item 12

4. Food service - Item 16.
5. Medical planning - item 18
6. Ice operations - end of report.
7. Operations problems-see below under various headings

2) Pre-Cruise Planning
a) How beneficial and useful is the cruise planning form and the Icefloe web site?

Useful, but incomplete. Not all information was acted on appropriately--dietary matters were a concern for example, and is discussed below.

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)?

Yes. If there were questions Dave Forcucci was available to answer them.

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

Generally yes, but this was inconsistent. For example, there was no mention of gasoline requirements, and we did bring gasoline. In Seattle, we were told that we could not bring as much as we needed. Although this could have been highly detrimental to our ice work the Bosun was inflexible in meeting our requirements. If gasoline storage is an issue then scientists need to be notified explicitly what the limitations are.

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

YES

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. Yes.

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

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?

It was very good that Bosun Tully and OPS Woityra came to the planning meeting in January. This set a good tone and helped our planning for Seattle and beyond. I felt that OPS took care in communicating with me throughout the lead up to the cruise. In coordination with Bosun Tully it facilitated communication of special needs such as adequate electrical supply for deck work and lab space. This was excellent. In addition OPS made us aware of potential problems with our

initial cruise plans with regards to heavy ice conditions at the outset. This stimulated important discussions which eventually led to an adjustment of our cruise plans.

Points of responsibility could have been better defined however. There was confusion over how responsibilities between Chief Aquino and Bosun Tully were divided, particularly for the loading in Seattle. This eventually was cleared up but contributed to some difficulty in the beginning.

Generally, I found that responses to questions and concerns were received in a timely manner. Myself and Co-chief Landing strove to facilitate communications within the science party by sending out numerous emails requesting data to forward to the Coast Guard. This was fairly successful but when dealing with so many individuals perfection was not possible.

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?

This was generally good. It improved along the way as well. The evening meetings were very useful and important. As mentioned above, discussions about the cruise plans and ultimate early track adjustment were very important. Subsequently, the evening meetings allowed me and the ship's command to plan and adjust our activities continuously and in a timely manner.

As discussed below however deck operations could have been better if communication between science and deck crew was better. In addition, there were times when the science party did not know what was going on with respect to ship's positioning and setting up on station. The science party had a "lead" scientist on watch 24/7 (either the chief scientist or the co-chief scientist) yet we were often not kept informed as to set-up progress. For example, setting up on station in the ice requires extra time, but we often had the science team ready to commence sampling only to have the ship spend an additional 30-90 minutes setting up, without informing anyone in the science party what was happening. I would recommend that the bridge team be instructed to keep the science party informed and to notify the science party (through the "lead" scientist on watch at any given time) when the ship is on station and sampling operations are ready to commence.

5) Environmental Permitting

a) Was any environmental permitting required?

No.

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?

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.)

We sent a representative to the Kawerak conference in June, 2015 to describe our work. Local news outlets picked up this information and conducted interviews with our representative.

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

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

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

It seemed as though we were the first science party to ever generate chemical waste on the Healy, because we were told that no discharge of any kind would be allowed, and that we were responsible for arranging for storage of chemical waste and disposal after the cruise. The CG offered no help with this. The science leaders had to find a local hazmat company that would provide containers for the cruise and would carry the chemical waste away from the ship after the cruise. The CG should add information on this to their pre-cruise planning documents at icefloe-net, and suggest a local company that they have worked with in the past.

A similar situation arose regarding compressed gas cylinders. Our cruise did involve a very large number of cylinders, however the ship is poorly prepared to store cylinders on the deck and in the labs. We had to arrange for Oxarc to provide cylinder racks for on-deck storage, and we had to bring all of our own clamps and straps to secure cylinders in the labs. Once again, this should be covered on icefloe.net, so that the science party is not surprised late in the planning process.

8) Laboratory and Other Vans

a) Did you use vans from the UNOLS van pool or from another source (specify)?
YES. There were 6 vans

b) How did the procurement go?
Fine
c) Were lines of responsibility clear for obtaining appropriate vans and for setting up and maintaining the vans on board?
Yes
d) Was adequate time available to obtain the vans?
Yes
e) How well did the vans perform?
Fine
f) Were they appropriately equipped with ship connections?
No. As alarms cannot be heard in the vans, each van needs a phone line connection and intranet cabling. I believe intranet cables were strung to some vans, but I do not think phone lines were.

g) How well did load and offload go?

The loading in Seattle was not so smooth. Science had a plan for stowing material but in the end it was largely ignored and material was stuffed into the cargo hold without sufficient order. This was further complicated by the need to load things for the cruise before ours.

Communication between the Bosun, Chief, and science could have been better. There was confusion as to what responsibilities were between Bosun Tully and Chief Aquino. The outcome of the Seattle load required us to spend extensive time in Dutch Harbor reorganizing and repacking our gear. Operations in Dutch were much better and eventually communications did improve.

Offload in Seattle went very well. No complaints at all.

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

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?

The provision of suitable electrical power, both for deck and lab space, was well attended to by the coast guard. I was pleased with the attention paid to this matter.

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

Yes, the ship should have what is often called a "stopper", a clamping device that can be attached to any wire over the side in order to take the tension off the wire between the winch and/or the block and/or the waterline. When the hydrocable got fouled on the sheave, the crew had no idea how to resolve the problem, and it was only resolved after one of the experienced members of the science party rigged a stopper on the cable using Kevlar line.

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?

We were generally satisfied with these capabilities.

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?

This was ok.

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)

This was ok.

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.)

It was required that the supply of deionized water for the ultrapure water systems be manually turned on and off every time someone wanted to make ultrapure water. Since storing ultrapure water in carboys often defeats many of the purposes for which ultrapure water is needed, this should be changed.

b) Do you think anything needs to be upgraded?

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?

There were problems here. Aft deployments were difficult in weather. This was exacerbated by
1. Inexperienced coast guard crew and ship drivers.
2. Hesitancy on the part of some deck supervisors to heed advice from highly experienced scientists with many, many years of deck-board experience on UNOLS vessels.
3. Non-functioning bow thrusters.

In regards to number 1, we realize that part of the Healy's mission is training. However, we were not notified of this in the January planning meeting in Miami. This is, in fact, an "overhead" that science must pay. However, during difficult seas it would be best if only the most experienced crew had the prime responsibilities. Also, scientists complained that once new deck people were trained, then brand new people would show up for future operations and this resulted in some deck-confusion. The need for training and implementation of how training should be performed in context of science work should be explained to the chief scientist prior to the expedition.

In regards to number 2, there was resistance to allowing scientists to actually be involved in deployments and recoveries, and resistance to following the wishes of the science party regarding safe deployment and recovery of our gear. Efficient deployment of McLane pumps was only possible when a scientist was eventually allowed to be involved in the lead role. Recovery of a fully-loaded rosette at the stern under any open water conditions should always

require two “hooks” followed by use of cleats to stabilize the package before it is brought out of the water. Requests from the science party to recover the rosette this way were initially ignored, but ultimately were followed after a demonstration on safe rosette recovery by a member of the science party.

We suggest that Healy officers and deck leaders participate in some UNOLS vessel expeditions to be better acquainted with the deck operations that are highly successful. This might contribute to a better understanding of the "cultural" differences between UNOLS scientists and coast guard personnel.

Finally, given the difficulty of station keeping under windy conditions, suitably powerful bow thrusters should have been functional and available. On one instance when it was attempted to use the bow thrusters, they overheated and had to be shut down in the middle of an extremely difficult rosette deployment off the stern.

b) Was appropriate and appropriately sized safety equipment available?

YES

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

Yes. Safety was given high priority.

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

YES.

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

YES

g) Other

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?

Within the internet/email capability of the ship, this was ok.

14) Small Boat Operations

If appropriate, please comment on:

a) Adequacy of boat briefs

Quite adequate, if not over done.

b) Provision and availability of appropriate safety equipment

OK

c) Identification of science needs and requirements

OK

d) How well the operations went

Things went well

e) Other

15) Helicopter Operations

If appropriate, please comment on:

Not required for our science

16) Food Service

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

Poorly. This was a point of contention. I took pains to canvass the scientists as to their dietary needs, and quite clearly spelled this out in the questionnaire. Inexplicably, this information was forwarded to coast guard medical people who made the determination as to whether vegetarian needs would be met. Why did it not go to the appropriate department (i.e. galley). As a consequence, the needs of vegetarians were not met. For a 65 day leg this was a hardship. Vegetarians are a fact of life, not just with scientists but with coast guard personnel as well. I strongly urge the coast guard to take this matter seriously.

Once this issue was brought up, the galley did try to improve the situation but at that point the ship's provisions were set and there were limited options for resolution.

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)?

The overnight provision was good.

c) Other

1. I mentioned that often, the food was overwhelming too salty. Overwhelming. No need for this to happen. People can salt to taste.
2. “Saving plates” for working scientists did not work out because of some regulation that a plate cannot be stored for more than one hour (??). We had scientists often working for extended periods of time, and they simply missed consecutive meals because plates could not be saved for them. On UNOLS ships, some food from one meal is generally saved in a common access reefer until the next meal so that people who were working can “help themselves”. It takes no more time or effort to dispose of food immediately before an upcoming meal as it does immediately after a meal is finished. This can generate extra dishes, so perhaps paper plates could be made available for between meals.

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

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

18) Medical

a) Were needs, if any, met?
YES.

b) Medical history questionnaires
i) Could the forms be improved?

Medical issues. This is a potentially serious problem. In Seattle I was notified by the Medical officer on board that 3 of the medical questionnaires received "red flags". One was a cardiac issue, and the two others, even more problematically, were mental concerns. The problem was that I had to make decisions on these individuals, and I am not trained to do so. I pressed the cardiac individual to submit tests that indicated that he could do this trip. However, it was impossible for me to evaluate the mental issues. The individuals involved could have presented issues during the cruise, and it could have been bad. The coast guard-or UNOLS- has to implement a more exact procedure for dealing with these red flags. Certainly in consultation with the chief scientist--but not depending on the chief scientist to make judgment calls as to the suitability of participation. Again, this is a serious issue.

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

With reference to the above, potential problems should be addressed earlier.

19) Other comments (if any)

1.The supply of white board markers was inadequate. If the science party is supposed to bring them, we need to know this in advance.

2. At times Coast Guard "discipline" was heavy handed. Examples: criticizing a student for making a snow angel; criticizing a student for throwing a snowball. I do not expect scientists to adhere to military discipline, and such comments could erode relations between science and coast guard when more serious issues arise. By the way, young Coast Guard folks were observed doing similar antics. My advice -lighten up and don't sweat the insignificant stuff.

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

1) Multibeam

Operated by STARC; they would have to address any issues with it.

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?

There was often no accurate readout of the depth during rosette deployments that were intended to go very close to the bottom.

2) Diving
If you conducted scientific diving on your cruise, how did it go?
Not applicable

3) Operations on the ice

a) Were on-ice operation briefings adequate?
YES

b) Was appropriate safety equipment provided and readily available?
YES

c) Were science needs and requirements adequately identified? see below

d) How well did the operations go overall? see below

e) Other on-ice operations issues?

Summary: Sea ice operations were at times problematic. It is difficult to argue against safety, and this is of highest priority with the Coast Guard. The Coast Guard took a conservative approach to ice operations. Within the parameters set by the Healy, ice operations were limited to only the most ideal conditions (ice thickness, visibility, weather). I have been on Canadian vessels and things were not as stringent, and more ice work was accomplished.

It was suggested to me by the Coast Guard that with diminishing ice cover in the Arctic, expeditions requiring ice work should not be scheduled for late summer. However, ice DOES exist at that time and scientific study will REQUIRE that such studies be undertaken. If the Coast Guard feels that it is unsafe to undertake this work, then UNOLS must find other means/platforms to accomplish this work.

4) Science Support in Barrow

Not applicable