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

Date of post-cruise teleconference debrief: not applicable

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Name of Project:

North Slope Mooring Cruise (AON)

Name of Ship & Cruise Number:
USCGC Healy 14-02

Start and end dates of cruise:
July 5 – July 29, 2014

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?

85%

The cruise was very successful. One objective that was not met was to sample the western Chukchi slope early during the cruise. This was important because it represented timely follow-on measurements to the earlier SUBICE mission (HLY1401). We began the sampling in the region, but could not complete all of the hydrographic transects because the ship was directed to Pt. Barrow for a SAR mission. The mission took roughly 48 hours (and thankfully was successful), but at that point we could not afford the time to steam back to the western part of the study area. I do want to acknowledge the impressive efforts of the crew during the SAR mission, and afterwards there was a sense of urgency to make up the lost time, for which I was very thankful.

A second objective that was not met was to turnaround both of the Scripps acoustic moorings. The second mooring was lost (Note: this was a release problem, not a ship issue).

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 aspects: The cruise took place during a challenging time of year for mooring operations. All but one of our mooring sites was covered with 7/10 to 8/10 pack ice. The ship did a marvelous job on deciding when to release the moorings, taking into account the wind, currents, type of floes, etc. It didn't matter what time of day or night it was, the ship was ready to mobilize when it was deemed the opportune time in terms of the elements. The ice also made it impossible for us to do our normal recovery procedure of steaming past the top float after it surfaced. Instead, the small boat did a fantastic job of maneuvering and towing the top float/mooring to the stern. Kudos to everyone involved in this process. We successfully recovered all of the moorings (sans the one that did not release). We also had to alter our mooring deployment procedure and carry out an anchor-first deployment of the tall AON mooring. The ship and crew did a fabulous job with that as well.

Nearly all of our CTD work was done in considerable ice. The ship handling was excellent and we wasted little to no time finding leads to do the casts. I was very impressed and thankful for this.

The attitude and work ethic of the crew were superb. Everyone was engaged in the science and it was clear that they wanted us to succeed to the fullest extent possible. It was a pleasure to work in such a positive atmosphere. As mentioned above, we had a nearly 48-hour interruption of science operations due to the SAR mission, and everyone seemed to strive even harder to help us make up some of this lost time. I am very indebted to the officers and crew for this.

Our planning meetings prior to the mooring work were well attended and informative.

The ice information from NIC was timely and very helpful for the planning of our operations. I want to offer a special thanks to the two STARC technicians who provided a daily summary of the ice information in jpeg form, including for the week prior to the cruise (which was especially helpful). This information was good to have during the cruise, and will also be useful during the scientific analysis later.

All of the equipment worked well throughout the cruise, and the deck force was tremendous. It's easy to get spoiled having this much help on deck!

Negative aspects: There were problems with the vessel-mounted ADCP which negatively impacted the quality of the data as well as the time spent on station. See below for details.

The weather in Dutch Harbor is often foggy and/or nasty, and Penn Air is infamous for losing or delaying the arrival of luggage. This combination often makes it challenging to embark and disembark the science party in timely fashion. I realize that this is not a ship issue per se, but I feel that we should re-open the dialogue about transferring people to/from the ship in Nome or Barrow to minimize delays (this includes delays for personnel departing the Healy for other

cruises).

2) Pre-Cruise Planning

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

The cruise planning form is useful from my end because it forces me to outline the entire cruise beforehand and make sure that nothing is falling through the cracks. I like that fact that one can continually update the form.

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.

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

Yes.

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 I was made aware of the cruise plan in a timely fashion.

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

Not at this time.

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?

In my opinion the communication between the chief scientist and USCG was excellent.

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?

From my end the communication between science and the USCG was superb throughout the cruise. The operations officer was new, but you never would have known it. He did a great job keeping me abreast of all issues, and was incredibly responsive to all of our science needs. As was the case last year, the leadership of the officers was tremendous and it filtered down through the entire crew. It was clear that they wanted the science to succeed just as much as we did!

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?

N/A.

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.)

Luckily for us, the cruise took place in between the spring and autumn Bowhead whale hunts. Nonetheless, it was important to inform the nearby communities of our activities to ensure that there were no issues. Our community observer, Jason Christensen, did a fabulous job liaising between the ship and the various operation centers ashore throughout our cruise.

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

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

The on-load went well, and I'm assuming that the off-load will too.

b) How did materials handling, including hazmat, go during onload/offload and during the cruise?
There were no issues with hazmat.

8) Laboratory and Other Vans

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

This question is not applicable to the cruise.

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?

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?

Everything went well.

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

The TSE mooring winch. We've discussed this in previous years, and I would like again to express my desire to have this capability as part of the USGC equipment inventory. Often times (this year included) we do not have the inventory (nor does the west coast winch pool) to put a TSE winch on the ship in Seattle, and it is very expensive to ship winches to Seward or Dutch Harbor. The TSE is very versatile and can be used for other operations besides mooring work (incidentally, it proved quite useful during the SAR mission).

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?

I was very pleased with the IT situation on the ship. We were informed well before the cruise of what to expect and were told what information we needed to provide to get onto the ship's network. The IT technician was in constant communication with me and the rest of the science party, promptly dealing with any problems that arose and also alerting us beforehand of potential issues.

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 excellent. The science party was able to share data readily among themselves. The data collected from the ship's systems (e.g. CTD, bathymetry, vessel-mounted ADCP) were easily and quickly accessible.

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)

I mentioned this last year, but it would be good to have a permanent high-speed readout of the Knudsen on the bridge (so that the STARC techs don't have to set up a lap top for each mooring deployment).

Mapserver was much improved from last year, but still needs some work to bring it up to the impressive level of previous years (for instance, being able to access the archived multi-beam data as well as those collected on the current cruise).

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.)

(1) There were problems with the OS150 ADCP such that the data were error prone when the ship was steaming. This is reminiscent of calibration errors. Our ADCP tech performed a bottom track calibration shortly after we left Dutch Harbor, which suggested an adjustment of the ADCP amplitude was needed. However, rather than the typical constant amplitude scale factor, the calculated amplitude adjustment appeared to be a function of water depth. This is highly unusual and unrealistic, suggesting that other causes were present.

We contacted ADCP expert Jules Hummon (UHawaii) during the cruise, who suspected electrical interference as a potential culprit. Such issues are notoriously difficult to identify. The Healy has made several modifications over the years to address them, including adjusting the transducer cable runs prior to this year's field season.

Towards the end of our cruise we ran reciprocal ADCP tracks to further illuminate the problem. These data have been passed on to Hummon for further analysis. Notably, the OS75 (with similar cable routing, etc.) did not exhibit analogous underway/on-station velocity differences nor a depth (time) dependent amplitude scale factor.

I do hope that this can be addressed before the next field season, especially because the OS150 is the pertinent instrument to use on the Chukchi and Beaufort shelves.

(2) The Milli-Q distilled water system did not work in the Wet Lab, so the only accessible system was in the Main Lab. With the small science party on our cruise this was not a major problem, but it would have been nice to have both systems up and running.

(3) The walk-in freezer attached to the Wet Lab runs through a defrost cycle that brings the temperature up to much warmer than desired (near 0˚C) when scientists opened the freezer during the defrost cycle, which was frequently necessary on our cruise. The best case scenario would be to reduce the normal temperature of that freezer to -20˚C, which would be better for the samples that are stored.

All other science systems worked very well. Despite the large amount of ice, the underway seawater system worked fine.

b) Do you think anything needs to be upgraded?

Here is what I said in my last two debriefs at the recommendation of our lead mooring tech: "It would be good if the deck tie-down plugs on the fantail could be replaced with stainless plugs. Some of the ones that are in place now are steel and are in pretty bad shape. There is not much

thread left, making this a concern for securing our winch, fair-lead plate, and deck cleats." My mooring technician informed me that many of these are still in bad shape. This is becoming a safety concern and I hope that it is addressed.

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?

Deck operations went extremely well. As mentioned above, the planning meetings were effective, allowing us to hash out all issues well before operations began. This was especially important this year in light of the large amount of pack ice at the mooring sites. The mooring briefs before each evolution were useful, and the "walk throughs" on deck were beneficial.

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?

All operations were conducted in a safe and efficient manner.

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

Absolutely. See my comments above under "Overall Success of the Cruise".

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?

I was very pleased and appreciative of the ice information received on the cruise. Here is an excerpt from an email that I asked the operations officer to share with NIC during our steam home: "Since our science operations are now complete and we have passed south into open water, we won't be needing any more ice imagery. Could you please inform NIC? Please tell

them that the service they provided for this mission was superb! It helped me greatly with planning the science activities and knowing what was in store in each of our areas of operation. I would like to offer them my sincerest thanks for their efforts." See also my comments above under "Overall Success of the Cruise".

14) Small Boat Operations

Normally we use the small boat during our mooring recoveries to attach a messenger line to the top float of the mooring. As I mentioned above under "Overall Success of the Cruise", this year was especially challenging because of the pack ice, and we needed the small boat to tow the top-float/mooring through the ice to the stern of the ship. The crew did an excellent job assessing the situation each time, and safely performed this task.

In addition, at the start of the cruise it was necessary to transfer a significant amount of mooring gear from the Healy to another vessel (The Norseman II). This was done just outside the harbor in Nome. I am most thankful that the ship allowed us to do this and performed the operation in a timely and safe manner. It enabled some of my moorings to remain in the water longer and collect valuable data during the summer season.

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

15) Helicopter Operations

There were no helicopter ops on the cruise.

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

16) Food Service

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

There was always a vegetarian option, which was greatly appreciated.

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 quality of the food and the service were superb. I want to offer my sincere thanks to the food service department for doing such an outstanding job.

c) Other

I wanted to pass along a special thanks to the food service department for providing snacks in between meals. I understand that there has been a change in USCG policy in this regard, but we were not informed of this beforehand and were not prepared for it. Thank you very much for your flexibility on this front.

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

a) How did all aspects of housekeeping go?

Very well.

b) How did the berth assignments go?

Very well.

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

Very efficient and well-run.

d) Other

18) Medical

a) Were needs, if any, met?

We did have a need, and it was met in timely and effective fashion. Please pass my thanks to the ship's doctor.

b) Medical history questionnaires

i) Could the forms be improved?

No issues here.

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

Everything went well from my perspective.

19) Other comments (if any)

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?

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?

3) Operations on the ice

a) Were on-ice operation briefings adequate?

b) Was appropriate safety equipment provided and readily available?

c) Were science needs and requirements adequately identified?

d) How well did the operations go overall?

e) Other on-ice operations issues?

4) Science Support in Barrow