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

Date of post-cruise teleconference debrief: not applicable

Chief Scientist and contact coordinates:
Russ Hopcroft (*rrhopcroft@alaska.edu*), Katrin Iken (*kbiken@alaska.edu*)

Name of Project:
Hidden Ocean: Chukchi Borderlands 2016

Name of Ship & Cruise Number:
Healy-1601

Start and end dates of cruise:
July 2 – August 10, 2016

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?

The original cruise plan had 13 stations at which 2 ROV dives would be completed (26 dives total) and 24 stations in total (11 in addition to those with ROV) where a generally full suite of traditional gears would be deployed. Ice stations were proposed to accompany all ROV stations. A mooring recovery and redeployment was planned during transit over the Chukchi Shelf. On paper, this plan was reasonable and included appropriate speed in and out of ice, as well as latency between specific operations.
We completed 18 working dives (and 3 shorter test dives), 13 traditional stations, 4 ice stations and the mooring work, so **depending in how these are weighted, success ranged from 30-70%**. This is decidedly lower than expectation

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: The science and ROV teams came extremely well prepared, no significant items were forgotten. After some initial lessons learned, the ship and science deck crew became highly efficient in gear deployments and retrievals.
Negative: Inadequate ice-imagery and a reluctance of both CG and science party to believe ice forecasts resulted in the ship becoming delayed nearly 4 days in thick multiyear ice. This experience resulted in down-time for repairs (e.g. rudder hydraulics) and may have contributed issues with the 9/16th winch required for ROV, box-corer and trawl deployments, leading to more down-time. Setup on station and particularly repositioning while on station consumed an unexpectedly high amount of time. Reluctance of Healy to conduct concurrent sea-ice operations under less than perfect conditions greatly compromised ice activities and number of ice stations accomplished. Frequency there was some latency in starting ROV operations, often associated with their somewhat fixed working hour schedule.

2) Pre-Cruise Planning

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

Adequate in most respects

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?

An operations plan with activities time-budget was submitted. It was useful in confirming that time budget seemed reasonable (although assumptions about station positioning/repositioning were not).

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

It needs to be much clearer on the website, and during planning/negotiations, that costs for STARC techs are in addition to ship costs for non-NSF funding agencies.

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?

This all went smoothly – no issues to address.

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?

The system took some time to get used to, but once communication channels were learned, we knew what to expect. Planning meeting were useful for updates and forward planning.

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.)

N/A operations were too far offshore

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

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

Overall, pretty well. We were surprised that crane operations (i.e. the rental) were scheduled for 8am, when the needs were not fully assessed and lifts didn't start until well after 10am. The need to remove a small vessel left in the way on the dock should have been resolved prior to beginning mob day.

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

No issues.

8) Laboratory and Other Vans

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

Other source, included with ROV, so most other questions N/A.

b) How did the procurement go?

N/A.

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?

N/A

e) How well did the vans perform?

No issues

f) Were they appropriately equipped with ship connections?

Electrical connection needs were resolved during planning process, as were deck mounts for ROV winch.

g) How well did load and offload go?

See above. Some discrepancies arose in terms of Healy indicating they could lift ROV van and winch, then later a crane needing to be hired for those lifts.

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 uni-strut adjusted appropriately to fit your needs?

No issues – ship provided assistance where needed

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?

No issues

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

No

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?

This all went very smoothly, positive experience all around.

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?

In general, it was all smooth.

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)

In general, it went well. It was very surprising that multibeam data from prior cruises were not available as a layer in mapserver - this would have been useful in station refinement for ROV and trawl activities.

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.).

Those required for our cruise worked well, with the exception of a controller issue with the 9/16th winch that interfered with operations at a number of stations and ultimately resulted in loss of station time.

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?

Planning went smoothly. There were issues initially with recovery of the ROV, partly driven by winds and chop, but once winds declined, a reliable procedure was developed.

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?
Aside from initial issues with recovery of the ROV, operations were safely executed – at time attention to safely was perhaps to excess (using O&G industry as a reference point).

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?
In general, yes, although there were several instances of short delays due to either bridge or winch misunderstanding if permission to procedure was granted. Communication from the bridge to the deck crew and scientists on deck about time needed for repositioning was typically grossly underestimated.

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?
Lack of adequate ice imagery contributed to an avoidable 4-day delay from encountering multiyear ice. This was resolved later in the cruise by ordering appropriate ice imagery. Given the daily operations cost, there is no excuse for not having gapless SAR imagery to make decisions on a daily basis when in ice.

14) Small Boat Operations
If appropriate, please comment on:

a) Adequacy of boat briefs
Adequate

b) Provision and availability of appropriate safety equipment
For the most part fine, but we were told mid-cruise that our sea ice team would have had more opportunities to go on ice IF they had brought dry-suits so ensure safer operations. They would have brought those had we been notified in advance.

c) Identification of science needs and requirements
On occasions when we were allowed to deploy, it went OK.

d) How well the operations went.
On occasions when we were allowed to deploy, it went fairly smoothly.

e) Other
The Healy has unusually restrictive parameters involved in small boat operations, such as wind speed when one is working in fully ice-damped conditions. When wind is light, then fog becomes an issue. So the window for safe operations is in practice very small.

15) Helicopter Operations: N/A

16) Food Service

a) How well were special dietary requirements (vegetarian, vegan, low-fat, etc.) identified and met?
Minor comments where received from some vegetarians about fresh produce later in the cruise, which is not surprising given the cruise duration.

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)?
No complaints

c) Other
None

17) Berthing and shared spaces (science conference room, gyms, laundry)
a) How did all aspects of housekeeping go?
No complaints

b) How did the berth assignments go?
No complaints

c) How were the check-in/check-out processes?
No complaints

d) Other
None

18) Medical
a) Were needs, if any, met?

b) Medical history questionnaires
i) Could the forms be improved? Most people found them adequate
ii) How did the submission process go? (timing, acknowledgement of receipt, etc.)
There was some initial confusion in who was to receive forms, and several needed to be resubmitted

19) Other comments (if any)
While it is understood that the Captain is the ultimate authority on ship and personnel safety, we did not always feel that meeting science objectives were the highest priority after absolute safety, among CG's multi-mission agenda. This was particularly obvious with respect to conducting ice operations, when the Healy had been alongside an ice floe for 10-12 hours without any issues, but scientists were still not allowed on the ice because the floe might break apart. Leadership that puts more emphasis on accomplishing science goals (without compromising reasonable safety, of course) would be desirable.

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

1) Multibeam
N/A we observed and recorded but did process data

2) Diving
N/A

3) Operations on the ice

a) Were on-ice operation briefings adequate?
Yes

b) Was appropriate safety equipment provided and readily available?
For the most part, yes. BUT but we were told mid-cruise that has our sea ice team would have had more opportunities to go on ice IF they had brought dry-suits to ensure safer operations (i.e., getting off small boat onto ice). They would have brought those had we been notified in advance. Despite this sudden change in policy, the CG was unwilling to loan (or sell) any of their dry suits to the science team.

c) Were science needs and requirements adequately identified?
More or less, if one ignores getting on the ice as a requirement. During over 3 weeks in the operations area we were only able to get on the ice 4 times (twice via man-basket and twice by small boat operations), despite large blocks of time when the deck crew was unoccupied during ROV dives.

d) How well did the operations go overall? see below
Once on the ice OK, however, there was panic on the bridge at a station when fog began to roll in at a distance, and the station was abandoned before the majority of on-ice sampling was completed.

e) Other on-ice operations issues?
Paradoxically, the CG appeared incapable of putting people on ice by basket or small vessel on most occasions. Safety was most frequently cited as the excuse, but conditions were seen as safe by scientists highly experienced in sea-ice work. Those conditions would have been considered acceptable on most non-US icebreakers. We all strive for safety, but it is also too easily used as a reason not to do something rather than to find a way to accomplish things safely.

4) Science Support in Barrow
N/A