

POLARS workshop

June 11 and 12, 2003

Seattle, WA

~30 participants (Arctic and Antarctic
researchers, agency, USCG)

Topics Covered

- Charge: What to change about POLARS while staying within the basic size/ configuration of the ships (did NOT get into refit versus replacement)
- WISH LIST (60+ items, certainly draws on POLARS debriefs)
- Science Drivers

Overall SCIENCE Objectives

- With importance of Law of the Sea, want to include seismic and mapping work.

One Option: General-purpose ship(s) that can support seismic work and mapping.

Another Option: One general purpose science ship and one more specialized vessel.

- Increased Availability/Reliability of the POLAR Class Vessels (Availability for science is affected by demand for and availability for logistics support, among many other things)

Priority areas for improvement to Polar icebreakers

- *Lab space and quality*
- *Deck space amount*
- *Habitability*
- *Station keeping*
- *Systematic continuous underway data collection in all oceans and both poles*

Accommodations and habitability

Accommodations

Keep 35 science berths while improving habitability of berthing areas (get rid of triple bunks)

Habitability

Joiner bulkheads and suspended overheads - habitability improvements

False overheads and joiner bulkheads can create maintenance obstacles, which should be avoided through good design

Common head on the main deck and elsewhere

Icing on deck and lighting for safe passage

HVAC, sewage, temperature control, noise levels, lighting levels

Sea keeping

Enhance to the extent possible with improved station keeping.

Anti-roll tanks or other methods that won't affect icebreaking capability

Station keeping

Bow thruster for station keeping in ice or open water ops

Improve station keeping capabilities for operations such as mooring ops, ctds, rovs ops, etc.

Track line following

Ship control

Improve command and control during over the side operations

Icebreaking capability

Maintain as much as possible, consider the ramifications of decreased power, but increased availability on icebreaking mission requirements

Working deck area

CTD launching deck area is too small for safe handling

Add deck space in the aft deck area for winches, buoys, etc.

One stack and move flight deck and hanger forward for more aft deck space

Availability of high power and other ship's services to working decks, consider increasing what is currently available.

Make forward deck useable for science work or vans

Heated decks that go all the way to the edge.

Wooden decks?

Access to and from the ship to the ice

Van locations that can be accessed by ship's cranes, self-service vans and reconfigure van locations

Tow bitt designed to be re-locatable.

Multiple power outlets on the bridge, flying bridge and foredeck for science systems

Flowing seawater, freshwater and hot water on deck for rinsing nets, cleaning equipment etc.

U/W data collection & sampling

Flow through seawater systems needs to be upgraded, operational in ice,
sensors upgraded, temperature control

Hull mounted Gravimeter & magnetometer

Acoustic systems

Need ADCP (may require cutting hole in hull)

One option is an ADCP on a strut

Sonar systems

Multibeam system (may require cutting hole in hull)

Autonomous vehicles for multibeam mapping systems as option

Minimize the acoustic impacts of new propulsion systems

Recommendations:

The need to SLEP, replace POLARS or consider other options should be carefully evaluated, evaluate the costs of different options using historical data on fuel usage and other costs.

Include upgrading science capabilities in any variation of the plan, consider various options to achieve this goal.

Develop an SMR for converted POLAR Class vessel

Develop an SMR for additional Arctic science icebreaker

Review the Franklin conversion for lessons learned

Conclusions and Caveats

Sooner is better, time for decision and funding is now.

Coast Guard recognizes the impending train wreck, seriously considering SLEP options

This is an opportunity to also improve the science capabilities.