U.S. Coast Guard Heavy Polar Icebreaker Requirements

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Icebreaker and Buoy Tender Policy and Capabilities

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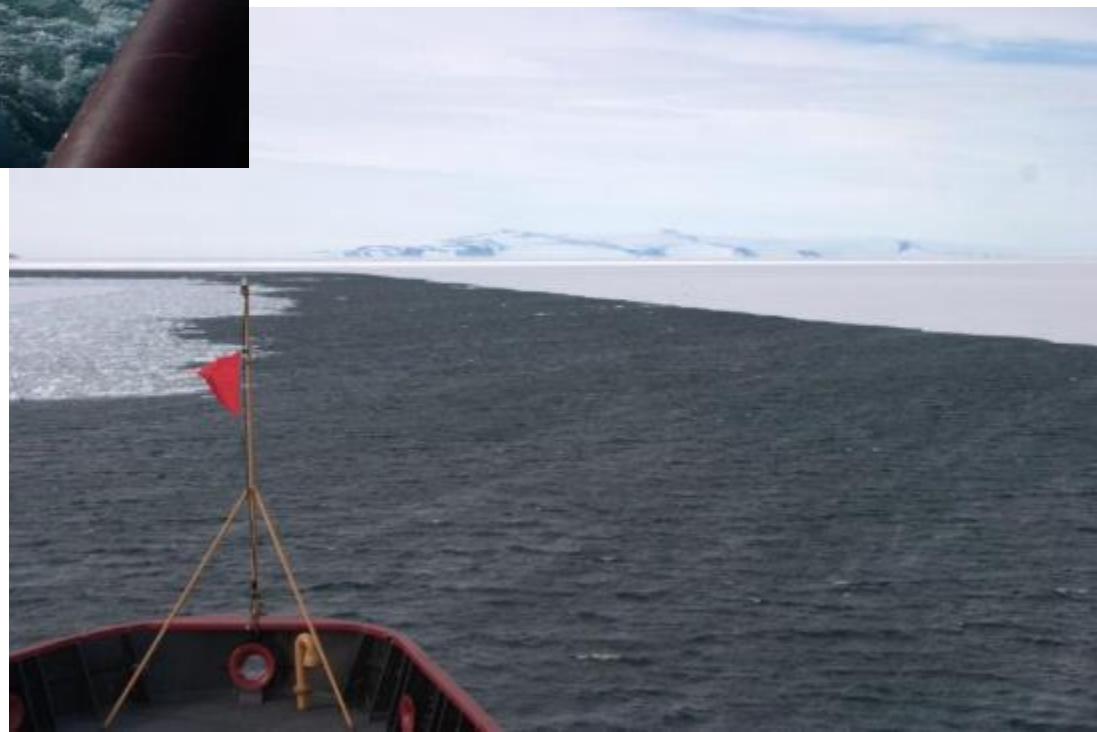
Overview

- USCG Polar Operations
- New Heavy Polar Icebreaker (HPIB) Acquisition
- Requirements Development
- USCG Maritime Missions
- Key Performance Parameters
- Interagency Support Requirements

U.S. Coast Guard Polar Icebreakers

POLAR STAR Crew

Operation DEEP FREEZE
McMurdo Break In, January 2014



Operation DEEP FREEZE
McMurdo Station, February 2014

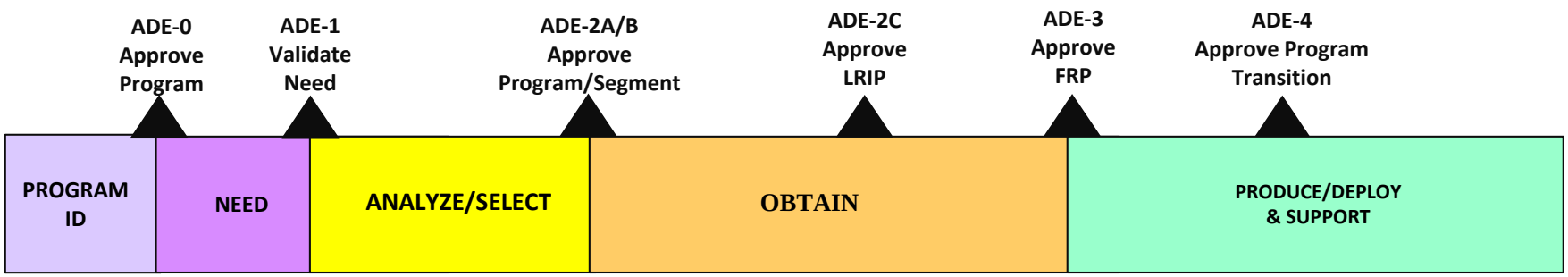
Arctic Science Operations

Arctic Science Operations

Operational Requirements for a New Heavy Icebreaker

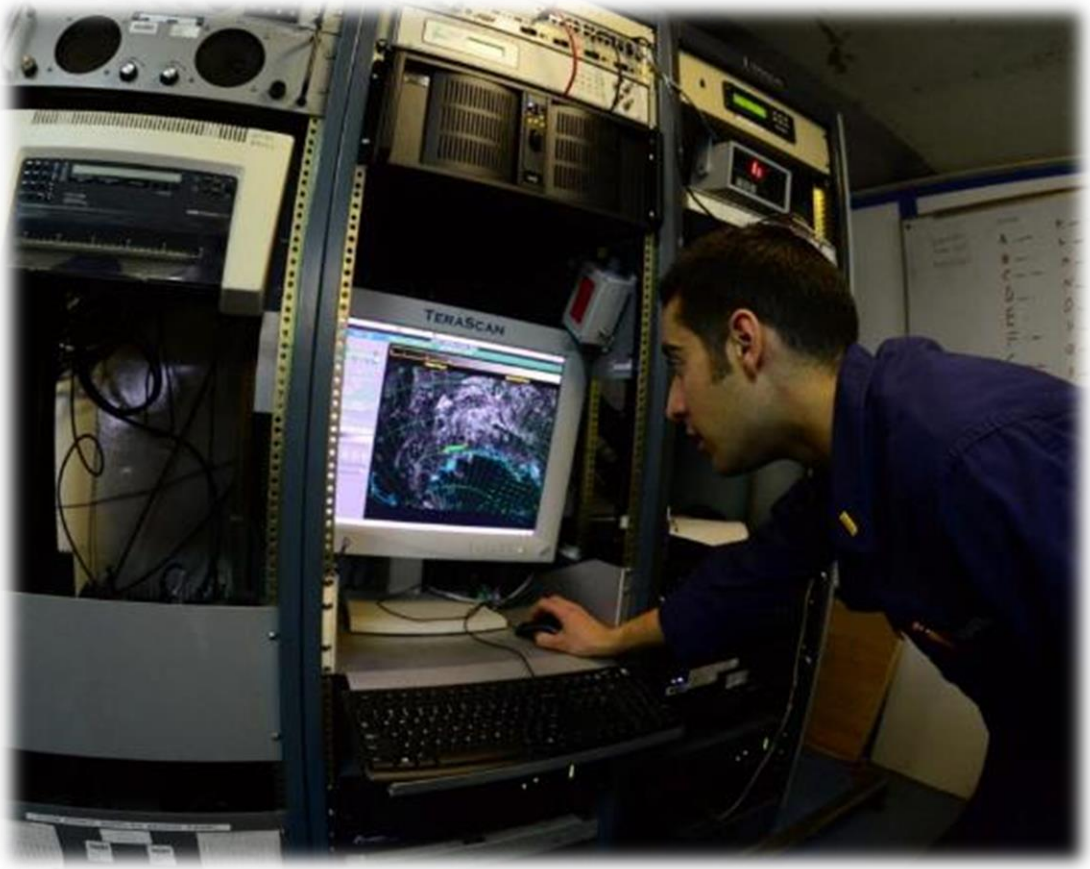
Coast Guard Acquisition Process

- During the "Need Phase", stakeholders are consulted and Operational Requirements are developed.
- During the "Analyze/Select Phase", affordability concerns are considered and tradeoffs are made on Operational Requirements.



Mission Needs

- Seeking a multi-mission capable, heavy icebreaking vessel
- Need to replace current capabilities
- Fit within/work with standard Coast Guard systems



Polar Icebreaker Missions

The Coast Guard mission is to ensure the safety, security and stewardship of the Nation's waters.

Defense Readiness

Ports, Waterways & Coastal Security

Living Marine Resources & Other Law Enforcement (i.e. EEZ Enforcement)

Marine Environmental Protection

Aids to Navigation

Search and Rescue

Marine Safety

Ice Operations

Concept of Operations

- Year round access to Arctic
- Seasonal access to Antarctic
- Ability to operate on scene with endurance to conduct a “campaign response” operation.
- Provide Command and Control to a variety of assets (aircraft, boats and ships)

Requirements Development Process

Department of State	National Science Foundation	Maritime Administration (MARAD)
US Marine Corps	US Navy – OPNAV Staff	US Transportation Command (TRANSCOM)
US Arctic Research Commission	US Northern Command (NORTHCOM)	National Oceanic and Atmospheric Administration (NOAA)
Department of Homeland Security HQ	US Coast Guard – Operational & Staff Elements	Commander, Operational Test and Evaluation Force (COMOPTEVFOR)
NAVSEA NAVAL SEA SYSTEMS COMMAND	Naval Sea Systems Command	

Constraints

- Worldwide deployable
- Climatic Envelope
- Panama Canal compliant

What Remained the Same?

- Need for long range, high endurance, independent operation, heavy icebreaking capability
- Need for flexibility in personnel support spaces/systems
- Interoperability to support Interagency and Interservice mission execution

What's Changed?

- Improve reliability, maintainability, supportability, availability, & redundancy
- Meet modern environmental standards
- Enhance C5/ISR for Domain Awareness
- Modern habitability & Human Systems Integration
- Aviation & boat launch/recovery upgrades
- Space, weight and power for specialized capabilities

Key Performance Parameters

- Icebreaking
  - 3 knots through 6 feet (threshold) / 8 feet (objective) ice
  - Break through ridged ice of 21 feet
- Endurance
  - No replenishment for 80 days (threshold) / 90 days (objective)
- Interoperability
  - Exchange voice & data with DHS/USCG, DOD, stakeholders

Basic Vessel Constraints

- Length overall less than 460 feet.
- Crew size estimated at 136 people.
- Detachment size 35 threshold/ 50 objective.
- Three propulsors, at least two azimuthing – adds tremendous maneuverability

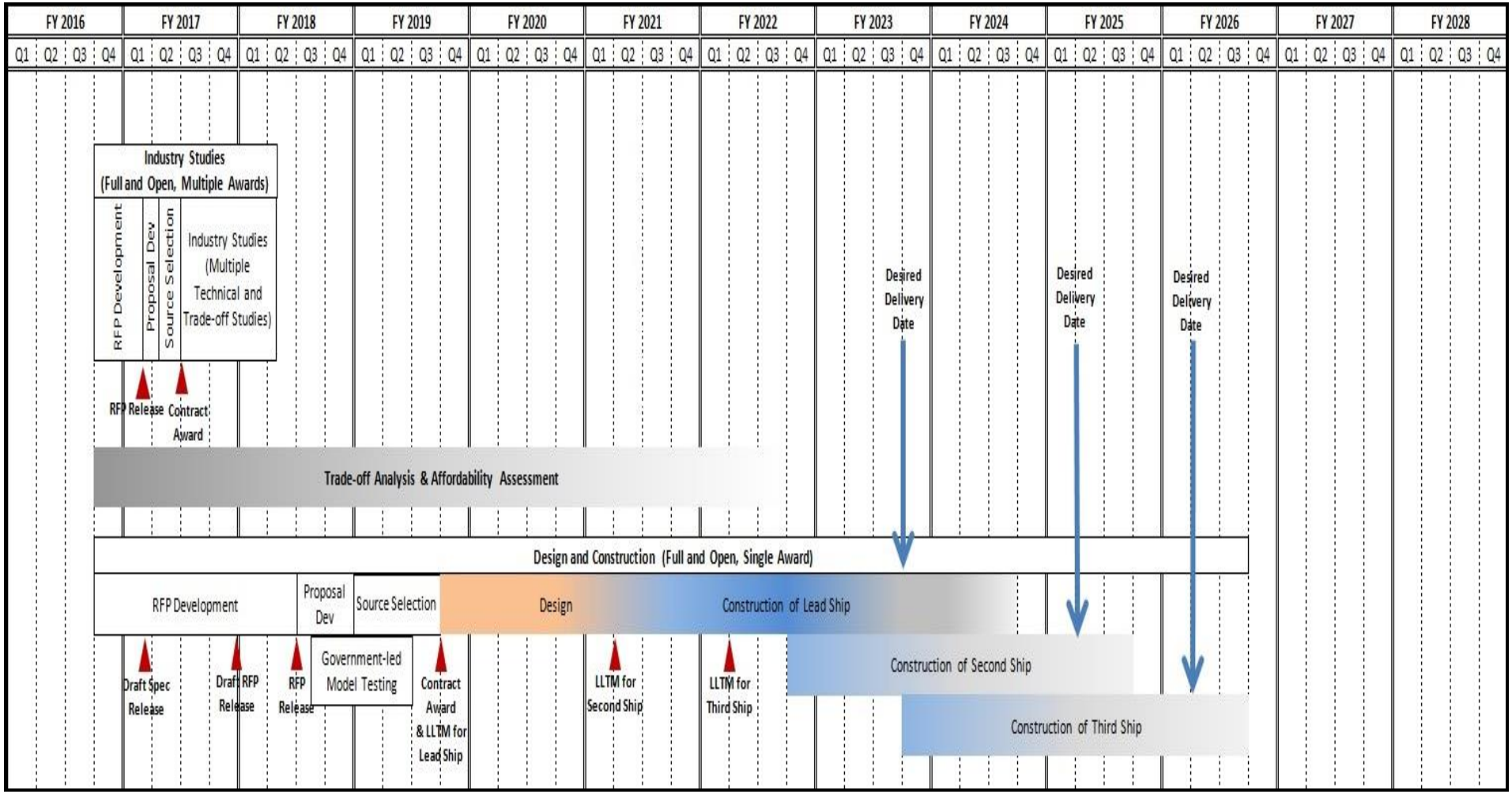
Science & Survey Requirements

- Hydrographic CTD casts.
- Multibeam sonar to support hydrographic survey capability in accordance with International Hydrographic Organization standards.
- Continuous measurements and data recording of oceanic properties.

Multi-mission Requirements

- Reconfigurable interior work spaces (AGOR design)
- Space for 4 threshold/ 6 objective UNOLS standard science containers.
- UNOLS standard 2’ square deck sockets for portable equipment on working decks.

Acquisition Timeline



Any Questions?