Acquisition Directorate

Surface Program

Polar Icebreaker (PIB) Acquisition Program Industry Engagement

The remarks today by Coast Guard officials involved in the PIB program are **not a guarantee** of the Coast Guard's course of action in proceeding with the PIB acquisition.

The information shared today represents current Coast Guard PIB program status and will change based on internal and external circumstances. The formal solicitation, when and if issued, is the only document that should be relied upon in determining the Coast Guard's official requirements.

Agenda

Check-in
Admin/Logistics/Ground Rules
Welcome/Opening Remarks
Current Program Status
Break
Concept of Operations and Requirements Overview
Technical Overview
Intermission
Q&A
Closing Comments/Next Steps
Depart

Next Engagement Event

One-on-One meetings between Coast Guard and Industry

- Signup will be available immediately following Industry Day via the Polar Icebreaker Industry Website: *http://www.uscg.mil/ACQUISITION/icebreaker/Industry_Day_031816.asp*
- Meetings will occur **Monday, March 28** through **Thursday, March 31, 2016**
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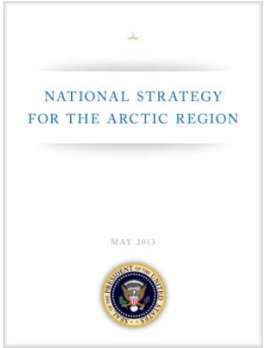
Introduction

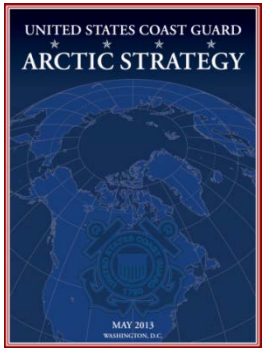
RDML Vojvodich	*Assistant Commandant for Acquisition & Chief Acquisition Officer*
RDML Haycock	*Director of Acquisition Programs & Programs Executive Officer*
Mr. Derrios	*Head of Contracting Activity*
CAPT Stanley	*Polar Icebreaker Program Manager*
CDR Boda	*Polar Icebreaker Sponsor's Representative*
Mr. Hecker	*Deputy Ship Design Manager*

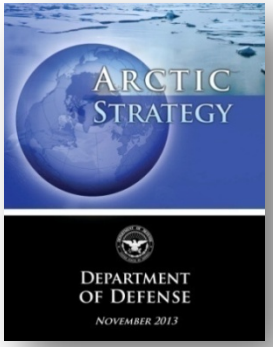
POLAR STAR Operation Deepfreeze 2016

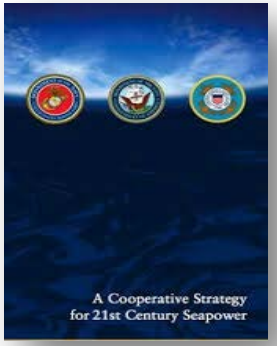
Arctic Strategy

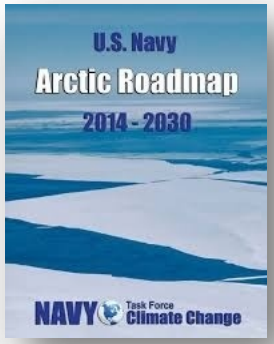
- Advance national security interests
- Pursue responsible Arctic Region stewardship
- Strengthen international cooperation





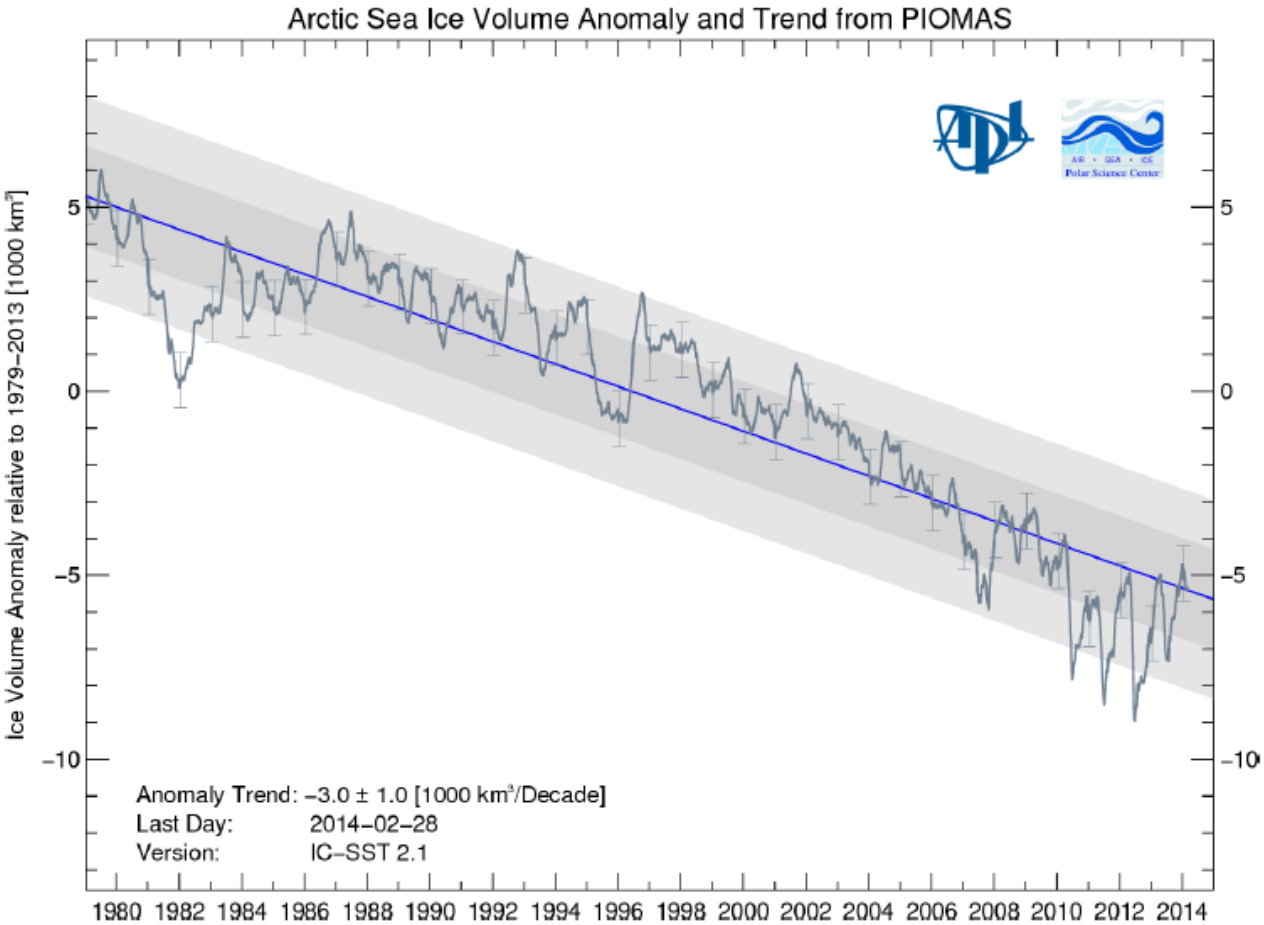






Mission Need

- Changing environment
- Increased economic and security interests
- Increased human activity in the polar regions
- Icebreakers support 9 of 11 CG Missions



Status of USCG Heavy and Medium Icebreakers

Platform	Year Commissioned	Design Service Life	Estimated End of Service Life[1]	Icebreaking Capacity
POLAR STAR	1976	30	2020-23	6ft @ 3kts / 21 ft back & ram
POLAR SEA	1978	30	2013	6ft @ 3kts / 21 ft back & ram
HEALY	2000	30	2030	4.5 ft @ 3kts / 8 ft back & ram

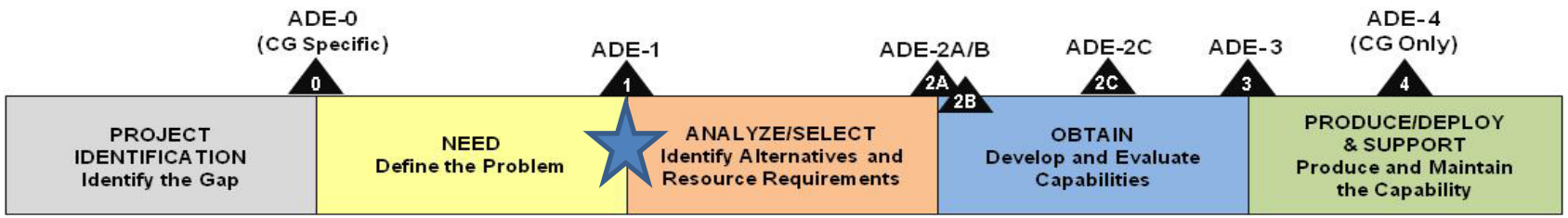
[1] Dates include additional service life provided by Service Life Extension Projects

The President's Polar Icebreaker Announcement

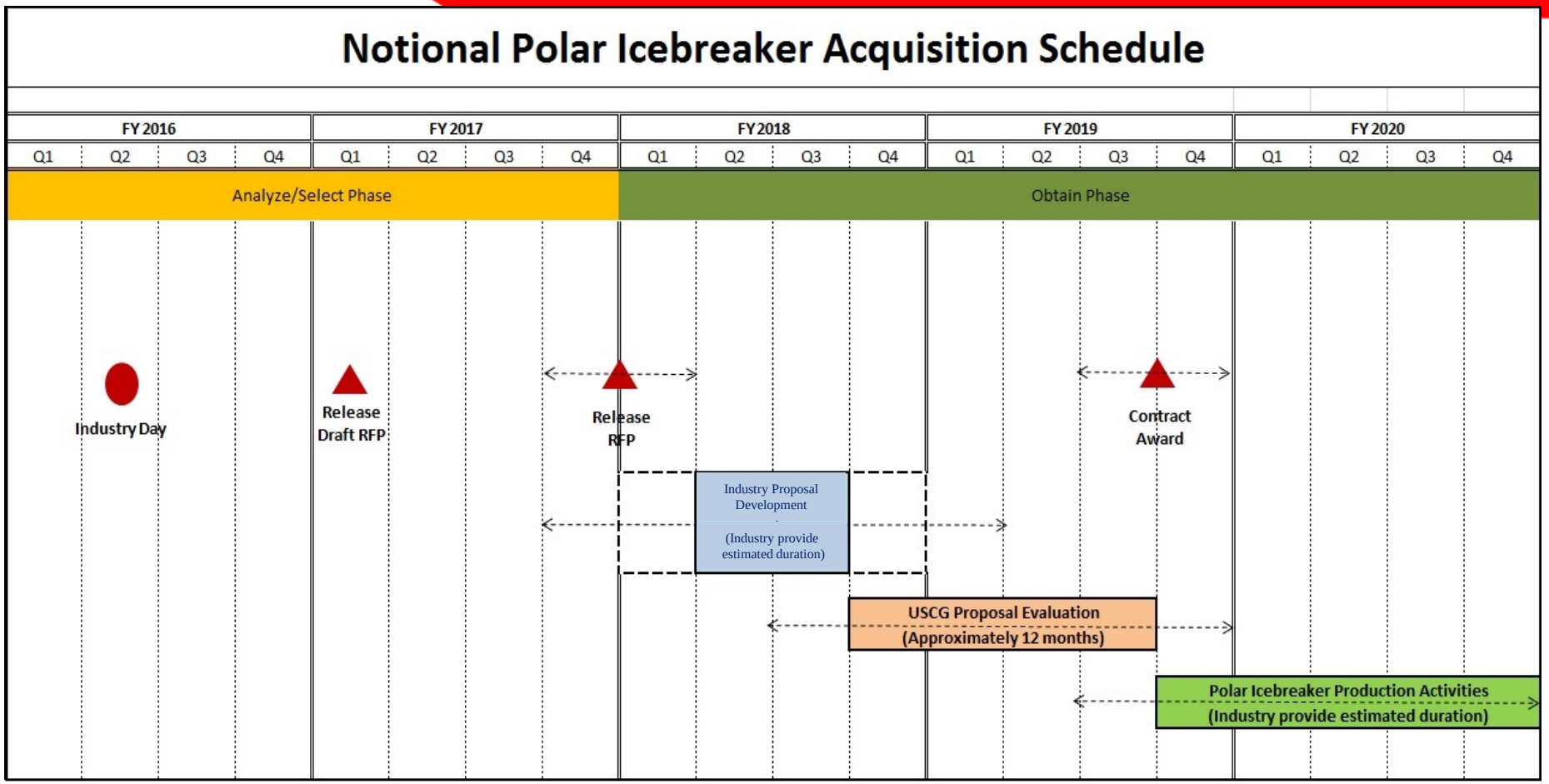
Polar Icebreaker Replacement Program

Program Status: *Completed Efforts*

Document	Status	Complete
✓ Acquisition Decision Event (ADE)-0 Memo	Approved by Coast Guard	JUL 12
✓ Preliminary Mission Need Statement (P-MNS)	Approved by Coast Guard	DEC 12
✓ Mission Need Statement (MNS)	Approved by DHS	JUN 13
✓ Concept of Operations (CONOPS)	Approved by Coast Guard	SEP 13
✓ Affordability Assessment (AAS)	Approved by Coast Guard	NOV 13
✓ Capability Development Plan (CDP)	Approved by DHS	JUN 14
✓ ADE-1 Memo (Entered Analyze/Select phase)	Approved by DHS	JUN 14



Program Status: *Schedule*



Program Status: *Risk*

- A heavy icebreaker has not been constructed in the United States in the past forty years
- Uniqueness of design and construction have had significant impacts to Schedule and Cost in past Polar Icebreaker Acquisition programs
- **Mitigation Strategy**
  - Early Industry Engagement
  - Stable Requirements

40 Years of Change in Icebreaking

Moving Forward

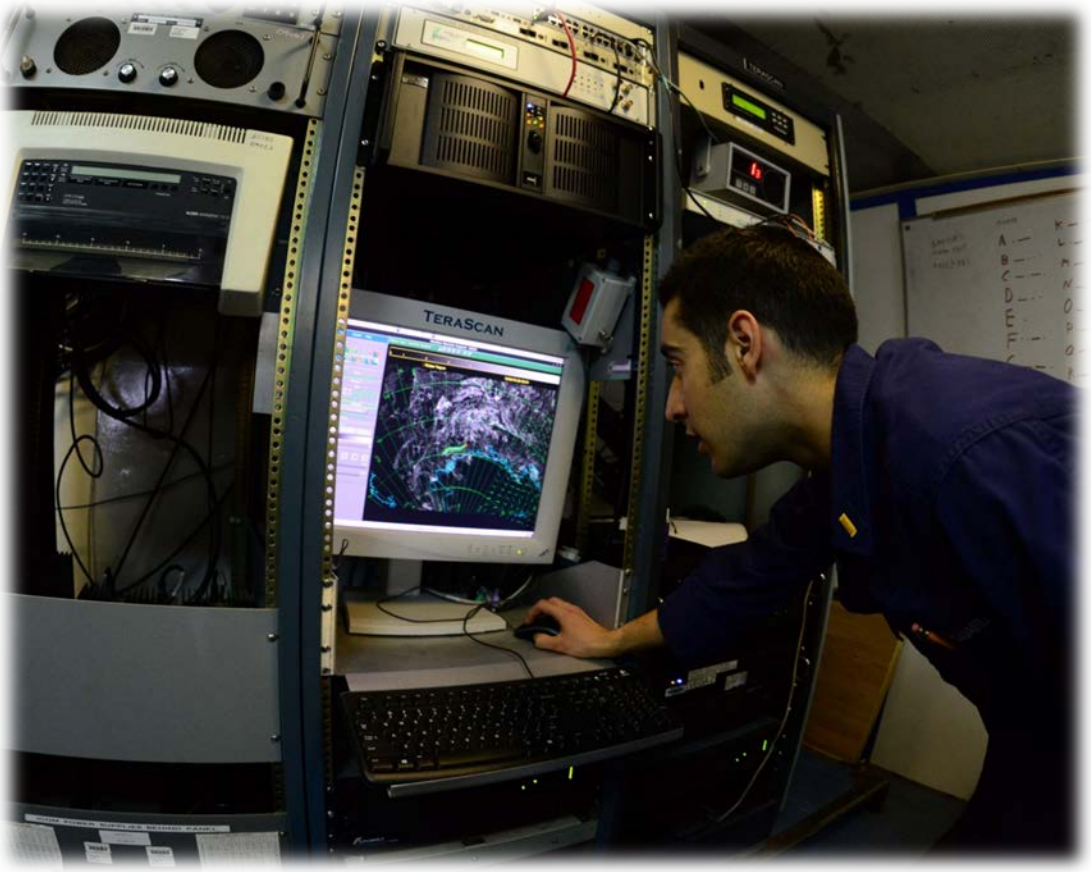
- **Best Practices**
  - Stable Requirements
  - Viable Acquisition Strategy
  - Industry Engagement
  - Risk Management

- **Moving Ahead**
  - The challenge is to balance these to meet the Coast Guard and Nation's need for heavy icebreaking capability and fulfill the President's Direction to commence Production Activities by 2020.

Concept of Operations (CONOPS) and Operational Requirements

CONOPS & Requirements Overview

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



Select PIB Missions

Defense Readiness

Ports, Waterways & Coastal Security

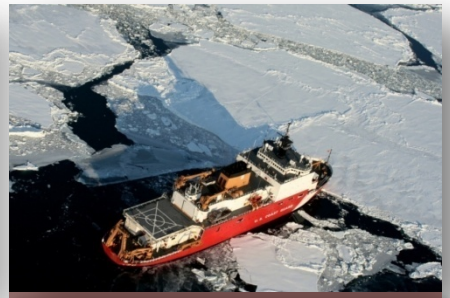
Living Marine Resources & Other Law Enforcement (i.e. EEZ Enforcement)

Marine Environmental Protection

Aids to Navigation

Search and Rescue

Marine Safety



Ice Operations

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

Key Performance Parameters

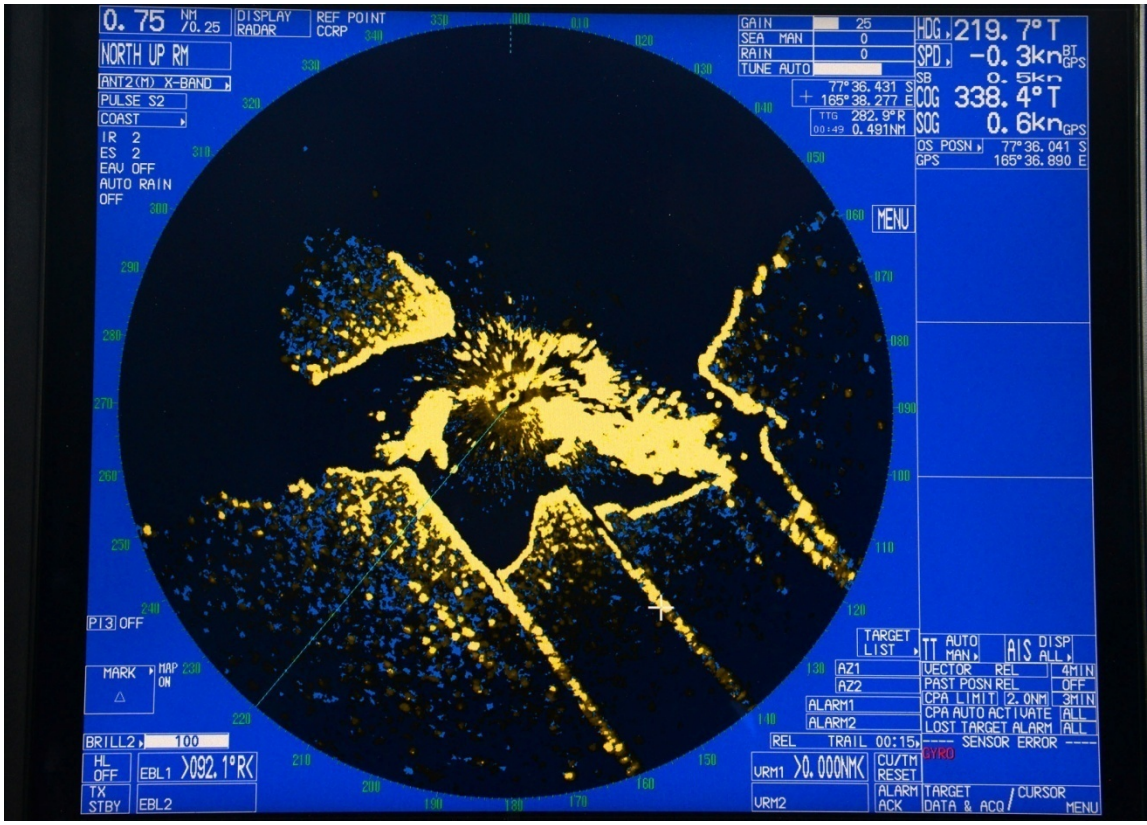
- Icebreaking
  - 3 knots through 6 feet (threshold) / 8 feet (objective) ice
  - Break through ridged ice of 21 feet
- Endurance
  - No replenishment for 80 days (threshold) / 90 days (objective)
- Interoperability
  - Exchange voice & data with DHS/USCG, DOD, stakeholders

What Capabilities Have 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

Why Did the Capabilities Stay the Same?

- High Latitude Mission Analysis
- Ice Trends Analysis
- Arctic & Antarctic Maritime Activity Trends



Coast Guard Cutter Polar Star's radar picture shows three entrance channels the cutter's crew has broken into the fast ice near the National Science Foundation's McMurdo Station, Antarctica, Jan. 15, 2015.

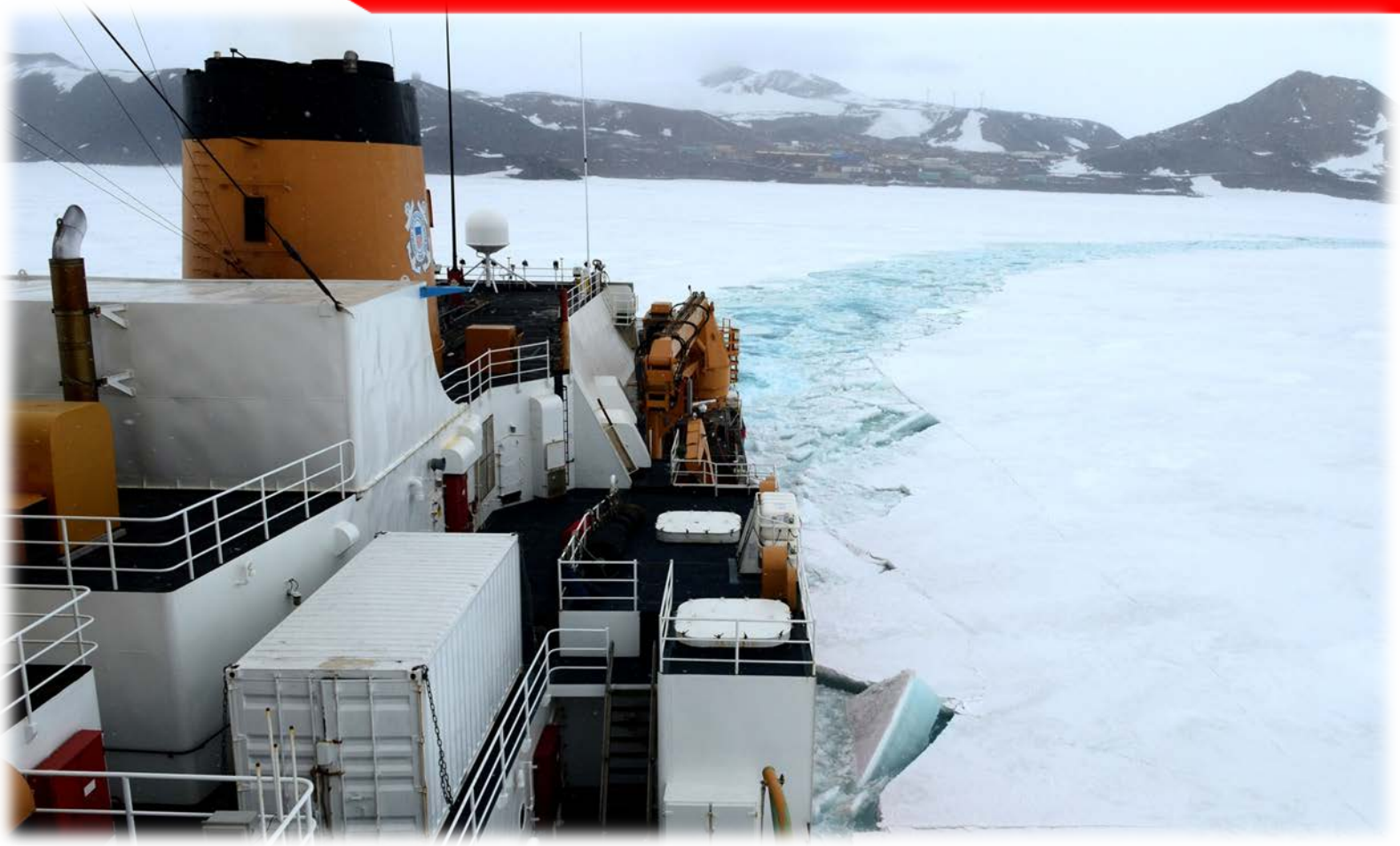
What Capabilities Have Changed?

- Improve reliability, maintainability, supportability, availability, & redundancy
- Meet modern environmental standards
- Enhance C4ISR
- Improved ship control
- Modern habitability & Human Systems Integration
- Aviation & boat launch/recovery upgrades
- SWAP for specialized capabilities

Why Did the Capabilities Change?

- Sustainment of current icebreakers is time consuming & costly
- Increasing polar activity requires ability to execute CG and Interagency missions
- Environmental regulations & technology have evolved significantly

Technical Overview



USCG Naval Engineering Roles

- Technical Arm of Project Management and KO - Technical Warrant Holder for all CG Acquisition Projects.

- Ship Design Team –
  - Multi-disciplined team of Naval Architects and Marine Engineers
  - Experience with all USCG Cutter Designs
  - Experience in all facets and phases of ship design

- Interface and coordinate reach back to all Technical Authorities (CG, DHS, DOD, IACS, etc.)

- Develop RFP Technical Data Package, specifications/CDRL's; Reviews industry deliverables, and Provide test and verification support

USCG Cutter Design Basics

USCG Cutter Design Standards:

Not Military

- Low Threat Environment
  (but – not, NO threat)
- No Shock Requirements
- No Major Weapon Systems

Not Commercial

- Rigorous Damage Control and Recoverability
- Aviation Requirements in accordance with USCG policy and NAVAIR Bulletin

Primary Design Drivers:
- Safety of Personnel
- Continued Independent Operational Capability

Technical Standards

- Applicable US and International Environmental Regulations
- Structural Design and Ice Classing
- Winterization: Low Temperature Operation
- Science Requirements: Detailed in Specification
- Transit Requirements: US & International Waters

Areas of Design Focus

Capability

Category	*Threshold*	*Objective*
Level Icebreaking at 3 kts	6 ft	8 ft
Endurance	80 days	90 days
Operational Tempo	3300 hrs/yr	4050 hrs/yr
Operational Availability	0.85	0.92
Communication Workspace Size	Space & Weight	Installed

Technical

- Hull Form Performance
- Propulsion Plant Configuration
- Propulsor Type
- Integrated Power
- HVAC Design
- Topside Design

Intermission

Q&A Session

Panelists	
Mr. Ahmed Majumder	*Polar Icebreaker Deputy Program Manager*
Mr. Neil Meister	*Polar Icebreaker Technical Director*
Mr. Carl McGill	*Director, Surface Systems Contracts Division*
CDR Ken Boda	*Polar Icebreaker Sponsor's Representative*
Mr. Marty Hecker	*Deputy Ship Design Manager*

Q&A

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