State and Outlook of U.S. Icebreaker Fleet

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Overview

- History
- Current Missions
- Emerging Missions
- Polar Icebreaker Fleet & Status
History

1885
Cutter BEAR explores Alaskan waters for 40 years

1900
WWII
USCG/USN Wind class & MACKINAW

1936-1941
USCG initiated intensive study of heavy icebreaker design

1946
Operation High Jump – Admiral Byrd’s Antarctic expedition

1955-56
First Operation Deep Freeze permanent U.S. presence on Antarctica

1965-66
USN transfers all icebreakers to USCG – 8 icebreakers

1950’s
DEW stations built - required icebreakers for re-supply

Late 1970’s
POLAR STAR & POLAR SEA built

1955-56
First Operation Deep Freeze permanent U.S. presence on Antarctica

1960s
Alaskan north slope oil discovered – polar icebreakers receive national interest

1970s
DEW stations built - required icebreakers for re-supply

1980’s
Older icebreakers decommissioned - by 1989 only POLAR STAR & POLAR SEA remain

1980’s
USN transfers all icebreakers to USCG – 8 icebreakers

1999/2000
USCG HEALY: Planned in 80’s, funded 90’s, operational in 2000 to support Arctic Research

2000
Multimission: Enforcement, Security, and Discovery

2006-2009
PSTAR in caretaker status

2006-2011
NSF has budget authority for CG polar icebreakers

2010-2013
PSTAR reactivation

2001-6
Severe Antarctic ice conditions
Current Mission: Budget Authority

- Budget authority for CG Polar Icebreakers rests with NSF; based on 2006 OMB decision to align funding agency with primary mission (science).

- High level discussion between NSF and CG to return the icebreaker budget authority to CG; MOA already signed.

- Icebreaker budget authority included with Coast Guard FY12 request.
Current Mission: Operating Areas

Arctic

Antarctica

McMurdo Station
Current Mission - Arctic Science Research

Primarily multi-year, multi-investigator studies:
- Bering Ecosystem Study (NSF)
- Biogeochemical study (NASA)
- Hydrographic and acoustic moorings (ONR)
Current Mission: Extended Arctic Continental Shelf Mapping

- Bathymetry
  - 2003-2004
  - 2007-2011

- Seismic
  - Joint Canadian Coast Guard mission
  - Dual ship ops again planned for 2011
Current Mission - Antarctic Re-supply

Operation DEEP FREEZE
McMurdo Station, Antarctica

- Primary infrastructure and supply point for U.S. Antarctic Program; requires annual sealift re-supply (cargo, fuel)
- Break-in and sealift escort mission conducted by CG from 1955 until 2007
- NSF, concerned with rising CG icebreaker costs and reliability as the assets aged, signed five-year contract for Swedish icebreaker ODEN in 2006
- USCGC POLAR SEA provided back-up icebreaker (on standby in Seattle) for Deep Freeze 2008 through 2010.
- No backup for Deep Freeze likely until USCGC POLAR STAR returns to service
Current Mission - Arctic Re-supply

Operation PACER GOOSE
Thule Air Base, Greenland

- Part of distant early warning (DEW) network, requires annual sealift re-supply
- 1992 Canada/U.S. reciprocity agreement for icebreaking:
  - Since 1993, Canada provides icebreaker support on behalf of USCG for Thule resupply.
  - Reciprocity possible with CG icebreakers ready to support Canadian interests in the western Arctic.
Emerging Missions

- U.S. Sovereignty: As polar regions become more accessible, U.S. needs a national maritime presence to assert Arctic jurisdictional claims and support the Antarctic Treaty.

- Security:
  - Other countries are expanding Arctic capabilities
  - Diminishing ice and changing shipping patterns resulting in increased shipping in Arctic

- Traditional CG missions:
  - Search and rescue
  - Environmental response
  - Enforcement of U.S. laws and treaties

- Continued Science Support

- Energy Security: Arctic contains ~25% of untapped energy reserves

Figure 15: NSR, Northwest Passage, and Hybrid Routes
Polar Icebreaker Fleet

POLAR STAR and HEALY are the only U.S. surface assets capable of supporting U.S. national mission needs and operating in the polar regions year-round.

**POLAR Characteristics:**
- Heavy Icebreaker
- Length: 399’ Width: 83.5’
- Draft: 28’ Displacement: 13.1k LT
- Propulsion: Diesel-Electric/Turbine
- SHP: 18,000 HP (Diesel)
- 60,000 HP (Turbine) / 75K (Burst)
- Fuel: 1.3M gals
- Continuous icebreaking: 6’ @ 3kts
- Backing & ramming: 21’
- Science: up to 35 scientists

POLAR STAR commissioned 1976
POLAR SEA commissioned 1978; to be decommissioned 2011

**HEALY Characteristics:**
- Arctic Research Vessel/Medium Icebreaker
- Length: 420’ Width: 82’
- Draft: 29.3’ Displacement: 16k LT
- Propulsion: Diesel-Electric AC/AC
- SHP: 30,000 HP
- Fuel: 1.22M gals
- Continuous icebreaking: 4.5’ @ 3kts
- Backing & ramming: 8’
- Science: up to 50 scientists

HEALY commissioned 1999
HEALY

- Only operational Arctic icebreaker in U.S. inventory
- Underway on 7-month Arctic summer & autumn science deployment
- Increased demand for use of HEALY forecasted
POLAR SEA and POLAR STAR

POLAR STAR

- Expected to return to service in late 2013 for another 7 – 10 years.
- Caretaker status since 2006 (crew reduced to 34 from 134)
- 2009-2010 appropriation provided $62.8M to reactivate and extend service life 7-10 years.

POLAR SEA

- Scheduled for decommissioning in 2011, with disposal to follow. Crew and funding to be applied to POLAR STAR.
- Remained on standby in Seattle from 2007-10 (Dec-Jan) for McMurdo resupply mission
- Conducted 2008 / 2009 deployments to Arctic in support of USCG District 17 missions (including fisheries law enforcement) and training
- Completed spring 2010 Bering Ecosystem Study (BEST) deployment
Questions?