Department of Homeland Security
Office of Inspector General

The Coast Guard's Polar Icebreaker Maintenance, Upgrade, and Acquisition Program

OIG-11-31

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U.S. Department of Homeland Security
Washington, DC 20528

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Homeland Security

Preface

The Department of Homeland Security (DHS) Office of Inspector General (OIG) was established by the *Homeland Security Act of 2002* (Public Law 107-296) by amendment to the *Inspector General Act of 1978*. This is one of a series of audit, inspection, and special reports prepared as part of our oversight responsibilities to promote economy, efficiency, and effectiveness within the department.

This report addresses the strengths and weaknesses of the Coast Guard's Polar Icebreaker Maintenance, Upgrade, and Acquisition Program. It is based on interviews with employees and officials of relevant agencies and institutions, direct observations, and a review of applicable documents.

The recommendations herein have been developed to the best knowledge available to our office, and have been discussed in draft with those responsible for implementation. We trust this report will result in more effective, efficient, and economical operations. We express our appreciation to all of those who contributed to the preparation of this report.

Anne L. Richards
Assistant Inspector General for Audits

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Abbreviations

DHS	Department of Homeland Security
FY	Fiscal Year
NASA	National Aeronautics and Space Administration
NOAA	National Oceanic and Atmospheric Administration
NSF	National Science Foundation
OIG	Office of Inspector General
USCG	United States Coast Guard

OIG

Department of Homeland Security
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Executive Summary

According to 14 U.S.C. § 2, 6 U.S.C. § 468, *Homeland Security Presidential Directive 25*, *Presidential Decision Directive 26*, the U.S. Coast Guard is required to develop, establish, maintain, and operate the United States icebreaking fleet in the Polar Regions. We audited the Coast Guard's Polar Icebreaker Maintenance, Upgrade, and Acquisition Program to determine the Coast Guard's need for heavy-duty icebreakers to accomplish its missions in the Polar Regions.

The Coast Guard does not have the necessary budgetary control over its icebreakers, nor does it have a sufficient number of icebreakers to accomplish its missions in the Polar Regions. Currently, the Coast Guard has only one operational icebreaker, making it necessary for the United States to contract with foreign nations to perform scientific, logistical, and supply activities. Without the necessary budgetary control and a sufficient number of icebreaking assets, the Coast Guard will not have the capability to perform all of its missions, will lose critical icebreaking expertise, and may be beholden to foreign nations to perform its statutory missions. The Coast Guard should improve its strategic approach to ensure that it has the long-term icebreaker capabilities needed to support Coast Guard missions and other national interests in the Arctic and Antarctic regions.

The Coast Guard agreed with our five recommendations to improve the operation and management of its Ice Operations Program.

Background

In 1965, the U.S. Navy transferred control of all United States icebreaking ships to the Coast Guard. The original fleet included eight polar-class ships capable of performing icebreaking missions in the Polar Regions.

According to 14 U.S.C. § 2, 6 U.S.C. § 468, *Homeland Security Presidential Directive 25 "Arctic Region Policy*," *Presidential Decision Directive/NSC-26 "U.S. Antarctic Policy*," and a Memorandum of Agreement with the U.S. Navy, the Coast Guard is charged with developing, establishing, maintaining, and operating the United States icebreaking fleet in the Polar Regions. Further, under 14 U.S.C. § 141, the Coast Guard provides icebreaking services to the National Science Foundation, which provides a platform for scientific research by keeping ice-laden waters open for navigation.

The Coast Guard commissioned two heavy-duty polar class icebreakers, the *Polar Star* in 1976 and the *Polar Sea* in 1978. The Coast Guard then decommissioned the rest of its aging fleet by the late 1980s, leaving only the *Polar Star* and *Polar Sea* capable of performing its polar icebreaking missions. Recognizing the need for scientific capabilities in the Arctic, the Coast Guard commissioned the *Healy* in 1999, bringing the number of polar-capable icebreakers to three. The *Healy* is a medium-duty icebreaker designed to conduct scientific research in the Arctic. Table 1 highlights the classification and capabilities for each type of icebreaker currently in the Coast Guard's fleet.

Table 1. Classifications of Icebreaking Ships

Types of Icebreakers	Heavy-Duty Icebreaker (*Polar Star* and *Polar Sea*)	Medium-Duty Icebreaker (*Healy*)
Icebreaking Capability	6 feet at 3 knots	4.5 at 3 knots
Ice-ramming Capability	21 feet thick	8 feet thick
Minimum Displacement	12,000 tons	8,000 tons
Operating Temperature	–60° Fahrenheit	–50° Fahrenheit
Year-Round Operating Capability	In all Arctic ice-covered waters	In moderate multiyear ice conditions

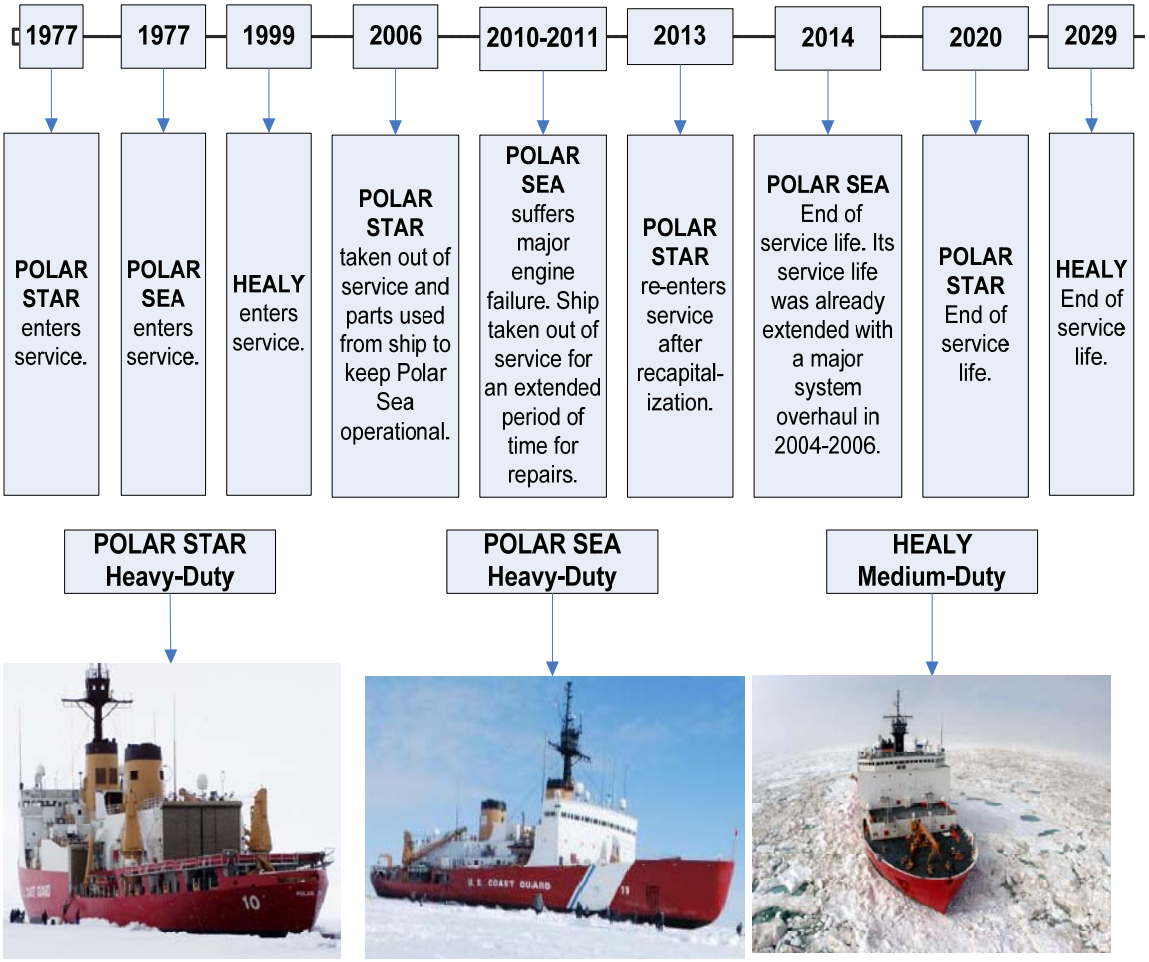
In 2006, the budgetary authority for the Coast Guard's icebreakers was transferred to the National Science Foundation (NSF) because it had been the primary user of the ships. However, the *Polar Star* was not kept operational, and in 2006 it was placed in an "in commission, special" status and is in the process of reactivation. Further, in May 2010, the *Polar Sea* suffered a critical engine failure and the Coast Guard immediately removed it from service. The ship is not expected to be operational until 2011. This leaves the *Healy* as the Coast Guard's sole operational icebreaker as of August 31, 2010.

In addition to the duties assigned under 14 U.S.C § 2, the Coast Guard has 11 statutory missions outlined in section 888 of the *Homeland Security Act of 2002* (codified at 6 U.S.C. § 468). These missions include both Homeland Security missions and non-Homeland Security missions, such as ice operations. The Coast Guard's icebreaking ships are managed by its Ice Operations Program. Ice Operations missions include facilitating the movement of commerce through ice-laden waters, conducting International Ice Patrol, assisting other government agencies with scientific activities, and supporting the performance of Coast Guard programs in waters constrained by ice.

Both 14 U.S.C. § 2 and 6 U.S.C. § 468 require the Coast Guard to perform multiple missions in the Polar Regions, including defense readiness; ice operations; search and rescue; marine environmental protection; and ports, waterways, and coastal security. The Coast Guard has traditionally had an extensive role in the Arctic and Antarctic, as it provides the principal U.S. presence in those regions.

Figure 1 provides a timeline of icebreaker service and depicts the icebreakers' current inability to meet Coast Guard missions.

Figure 1. Coast Guard Icebreaker Assets – Service Timeline



Source (Photos): U.S. Coast Guard

Arctic Region

The Coast Guard currently provides the *Healy* to the NSF for scientific research in the Arctic region. The Coast Guard uses icebreakers to support Arctic research, including biology, sea ice, marine geology, marine physics, cartography, oceanography, and atmospheric science. The Coast Guard also uses icebreakers to collect multibeam sonar and topography data to help resolve claims for offshore natural resources. Additionally, the Coast Guard is responsible for search and rescue missions while ensuring the nation has assured access to exercise its rights and responsibilities in its territorial waters and the Exclusive Economic Zone. It also must provide the Department of Defense assured access to ice-impacted international Arctic waters.

While the United States currently has only three icebreakers in its fleet, with the *Healy* as its sole operational icebreaker today, foreign nations with interests in the Polar Regions have more significant fleets, as indicated by table 2.

Table 2. Operational Foreign Icebreaker Fleets

Country of Origin	Icebreaking Fleet
Russia	18
Finland	9
Canada	6
Sweden	5

The United States is one of eight nations participating in the Arctic Council, a regional intergovernmental forum that addresses all aspects of sustainable development affecting Arctic nations. In 2005, the Arctic Council published *The Arctic Climate Impact Assessment*, which reported on the ongoing rapid and severe climate changes in the Arctic. It noted that reduced sea ice is very likely to increase marine transportation and improve access to resources. The Arctic Council and the National Oceanic and Atmospheric Administration (NOAA) have noted a sharp decline in sea ice cover. Estimates of Arctic Ocean sea ice thickness between 2004 and 2008 have shown an overall thinning. Computer models predict that within 30 years, the Arctic could be almost completely free of ice during the summer months.

The Coast Guard will face new operational challenges as conditions in the Arctic change. In the coming years, scientific data indicate that passageways will become more navigable for resource exploration, commercial shipping, tourism, science, and fishing. However, even as the sea ice retreats, significant ice-covered areas remain in the Polar Regions. As ships begin to traverse newly opened passageways, Coast Guard response will be required for hazards such as ships grounded by underwater icebergs or trapped by floating sea ice. Also, the Coast Guard will be required to respond in the event of oil spills or ship failures. Icebreakers will be the primary platform the Coast Guard uses to respond to these events.

Antarctic Region

The United States has an extensive role in the Antarctic, dating back to the *Antarctic Treaty of 1959*. The Coast Guard is required

by 14 U.S.C. § 2 to develop, establish, maintain, and operate icebreaking facilities to promote safety in U.S. waters and also in non-U.S. waters pursuant to international agreements. The United States maintains three NSF-operated year-round stations in the Antarctic: McMurdo Station, Palmer Station, and the Amundsen-Scott South Pole Station. This presence protects the United States' stance on Antarctic sovereignty, secures its role in the Treaty's decision-making system, and helps maintain the political and legal balance necessary for success of the treaty. In 1994, President Clinton issued a decision directive[1] on the Antarctic and presented four objectives for the United States: (1) protecting the unspoiled environment of Antarctica and its ecosystems, (2) conducting scientific research, (3) maintaining Antarctica as an area of international cooperation reserved exclusively for peaceful purposes, and (4) ensuring the conservation of the oceans surrounding Antarctica.

The principal role of the Coast Guard in the Antarctic has been to provide logistics support by breaking a channel into McMurdo Sound for the resupply of McMurdo Station by tanker and cargo ships. In addition to the resupply of McMurdo Station, the Coast Guard is required to design, procure, maintain, and deploy icebreaking ships to provide a platform for Antarctic research. Until recently, the NSF depended entirely on Coast Guard icebreakers to resupply McMurdo Station. However, since 2005, due to mechanical problems with the Coast Guard's heavy-duty icebreakers, the NSF has contracted with foreign-owned icebreakers to assist or conduct these missions.

Antarctic ice conditions can vary from year to year. In years with heavier ice, two heavy-duty icebreakers are needed to clear the channel into McMurdo Sound to allow ships to carry supplies to the science stations. In years with lighter ice conditions, one icebreaker is necessary to clear the channel, with one additional icebreaker on standby in the event it is needed.

Results of Audit

The Coast Guard does not have the necessary budgetary control over its icebreakers, nor does it have a sufficient number of icebreakers to accomplish its missions in the Polar Regions. The Coast Guard Ice Operations Program is facing

[1] Presidential Decision Directive/National Security Council-26 Memorandum, *United States Policy on the Arctic and Antarctic Regions*, dated June 9, 1994.

major challenges during a critical time in the Polar Regions. Currently, the Coast Guard has only one medium-duty operational icebreaker, making it necessary for the United States to contract with foreign nations to perform scientific, logistical, and supply activities. Without the necessary budgetary control and a sufficient number of icebreaking assets, the Coast Guard will not be able to perform all of its missions, will lose critical icebreaking expertise, and will be at the mercy of foreign nations to perform its statutory missions. The Coast Guard should improve its strategic approach to ensure that it has the long-term icebreaker capabilities needed to support Coast Guard missions and other U.S. interests in the Arctic and Antarctic regions.

The Coast Guard Needs Budgetary Authority Over Its Icebreakers

Currently, the Coast Guard does not have the necessary budgetary control of its icebreakers to accomplish its missions in the Polar Regions. In 2006, Congress approved an Administration request to shift funding for the Coast Guard's icebreakers to the NSF, since the icebreakers were used primarily by NSF to perform scientific operations. According to Congress, NSF was required to use those funds to reimburse the USCG for any icebreaking services provided under a Memorandum of Agreement (MOA) between the USCG and NSF. Congress continued to fund the icebreaking mission in this manner until fiscal year 2009, at which time it shifted partial funding to USCG for reactivation of the *Polar Star*.[2] Then, in fiscal year 2010, Congress transferred $54 million from NSF to USCG to cover the year's anticipated operation and maintenance costs for icebreaking services.[3] In the accompanying conference report, Congress noted that it expected USCG to request polar icebreaking funding for FY 2011 and directed USCG and NSF to update their MOA to reflect the change in budget authority. However, USCG did not request that funding transfer in its FY 2011 budget request as directed by Congress.

The transfer of funding to the NSF has spread management decisions related to the polar icebreakers across two agencies. The NSF is now effectively responsible for the Coast Guard icebreaking program's financial decisions that drive mission decisions. Under the MOA in effect since 2005, the Coast Guard must submit a yearly budget plan for approval by the NSF. Even though the MOA hinges such approval on mutual agreement between the parties, since 2006 (with the exception of 2010), the NSF has effectively determined how funding will be spent on maintenance, upgrades, and tasking of the USCG's icebreakers. Thus, the Coast Guard agreed to terms in the MOA that left it tasked with operating

[2] See FY 2009 appropriations laws and accompanying conference reports.
[3] See FY 2010 appropriations laws and accompanying conference reports.

ships for which it has little budgetary or management control. In effect, the Coast Guard is unable to conduct its own icebreaking missions without first obtaining the NSF's approval.

Further, NSF's budgetary authority does not require NSF to conduct maintenance on the icebreaking ships. As a result, maintenance has been deferred, which has affected the ships' long-term operability. Because the NSF's primary use of icebreakers has been to conduct scientific research, it schedules the ships to fulfill that mission. The Coast Guard's missions go beyond science support. The Coast Guard should have the funding and authority to perform the full range of mission responsibilities within its icebreaking program.

An example of this problem is the underutilization of the *Polar Sea*. This heavy-duty icebreaker is available 185 days per year to conduct missions. The ship is scheduled for maintenance and repair the remaining 180 days. Over the past 3 years, the NSF has only used the *Polar Sea* an average of 101 of the available 185 days because this ship does not have the robust scientific research capabilities of other icebreakers, such as the *Healy* and Sweden's *Oden*. The Coast Guard has been unable to use the ship's remaining days to meet its mission requirements because it does not have budgetary control for the ship. For the remaining 84 days per year, this icebreaker sits in its Seattle port, fully staffed.

The use of the *Polar Sea* has diminished over the past 3 years. The Coast Guard has 141 crewmembers assigned to the *Polar Sea*, who stay with the ship even when it is in port. In 2007, crewmembers spent 142 days conducting ice operations missions. That number dropped drastically to 82 days in 2009. Without experience operating the ship in the Polar Regions, crewmembers' operational proficiency conducting ice operations continues to decline. The *Polar Sea* utilization is outlined in table 3.

Table 3. *Polar Sea* Service Chart

Fiscal Year	Number of Days Utilized
2007	142
2008	79
2009	82

The Coast Guard Is Unable to Accomplish Its Arctic Missions With Current Icebreakers

The Coast Guard is unable to accomplish its Arctic missions with the current icebreaker resources. The NSF uses the *Healy*, the Coast Guard's sole medium-duty icebreaker, to perform scientific research. NOAA and the National Aeronautics and Space Administration (NASA) also have scientific requirements necessitating the use of icebreaking ships, which the *Healy* is unable to accommodate due to the NSF demand. In addition, the Coast Guard has other mission requirements in the Arctic, including fisheries enforcement, and tribal outreach in Alaska that are largely going unfulfilled.

The Coast Guard's icebreaking resources are unlikely to meet future demands. Table 4 outlines the missions that Coast Guard is unable to meet in the Arctic with its current icebreaking resources.

Table 4. Arctic Missions Not Being Met

Requesting Agency	Missions Not Being Met
United States Coast Guard	• Fisheries enforcement in Bering Sea to prevent foreign fishing in U.S. waters and overfishing • Capability to conduct search and rescue in Beaufort Sea for cruise line and natural resource exploration ships • Future missions not anticipated to be met: – 2010 Arctic Winter Science Deployment
NASA	Winter access to the Arctic to conduct oceanography and study Arctic currents and how they relate to regional ice cover, climate, and biology
NOAA and NSF	Winter research
Department of Defense	Assured access to ice-impacted waters through a persistent icebreaker presence in the Arctic and Antarctic

Further, the Coast Guard has not followed its life cycle replacement plan, which requires replacement of icebreaking ships after 30 years in service. The Coast Guard has not requested replacement of its aging icebreaker fleet, but has performed major reliability maintenance. In 2004 through 2006, *Polar Sea* underwent a service life extension project, which added an additional 7-10 years of service life. The *Polar Star* is currently

undergoing a 30-month reactivation, which should also add an additional 7-10 years of service life.

Should the Coast Guard not obtain funding for new icebreakers or major service life extensions for its existing icebreakers with sufficient lead-time, the United States will have no heavy icebreaking capability beyond 2020 and no polar icebreaking capability of any kind by 2029. Without the continued use of icebreakers, the United States will lose its ability to maintain a presence in the Polar Regions, the Coast Guard's expertise to perform ice operations will continue to diminish, and missions will continue to go unmet.

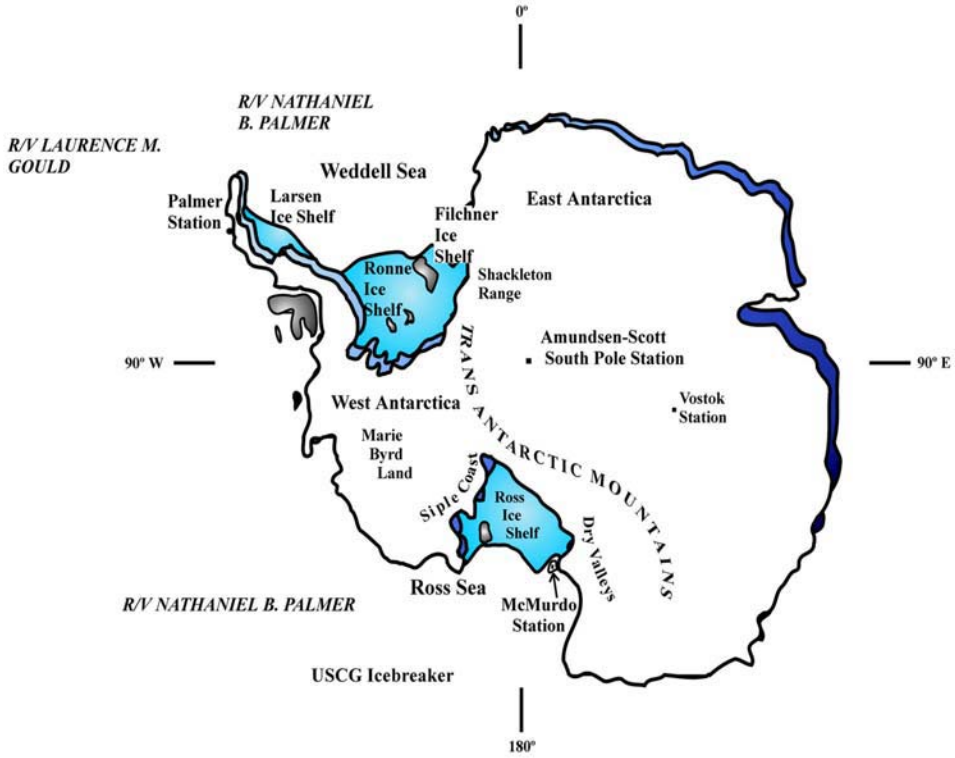
The Coast Guard Is Unable to Accomplish Its Antarctic Missions With Current Icebreakers

The Coast Guard needs additional icebreakers to accomplish its missions in the Antarctic. The Coast Guard has performed the McMurdo Station resupply in Antarctica for decades, but with increasing difficulty in recent years. The Coast Guard's two heavy-duty icebreakers are at the end of their service lives, and have become less reliable and increasingly costly to keep in service.

In recent years, the Coast Guard has found that ice conditions in the Antarctic have become more challenging for the resupply of McMurdo Station. The extreme ice conditions have necessitated the use of foreign vessels to perform the McMurdo break-in. In 2005, the Coast Guard recommended the use of a second ship to assist the *Polar Star* in completing the resupply mission due to the extreme ice conditions. The *Polar Sea* was undergoing repairs and no other U.S. icebreakers were available. It was necessary to lease the Russian icebreaker *Krasin* to assist the *Polar Star* in the resupply mission. In 2006, ice conditions lessened and only one ship, the Swedish icebreaker *Oden*, was needed to complete the resupply, with the *Polar Sea* in standby status. Heavy ice conditions occurred again in 2007, and the *Polar Star* was in caretaker status and unavailable. The *Oden* was hired to assist the *Polar Sea* in completing the resupply mission. In 2008 and 2009, the *Oden* performed the resupply mission with the *Polar Sea* on standby.

Figure 2 identifies the location of McMurdo, Amundsen-Scott South Pole, and Palmer stations, and shows the operating areas of research ships and Coast Guard icebreakers.

Figure 2. U.S. Research Stations in Antarctica



Source: National Science Foundation

As ice conditions continue to change around the Antarctic, two icebreakers are needed for the McMurdo break-in and resupply mission. Typically, one icebreaker performs the break-in and the other remains on standby. Should the first ship become stuck in the ice or should the ice be too thick for one icebreaker to complete the mission, the Coast Guard deploys the ship on standby. Since the *Polar Sea* and *Polar Star* are not currently in service, the Coast Guard has no icebreakers capable of performing this mission. Table 5 outlines the missions that will not be met without operational heavy-duty icebreakers.

Table 5. Antarctic Missions Not Being Met

Requesting Agency	Missions Not Being Met
NSF	Missions not anticipated to be met: – 2010–2011 Operation Deep Freeze – McMurdo Station Resupply
Department of State	Additional inspections of foreign facilities in Antarctica to enforce the Antarctic Treaty and ensure facilities' environmental compliance

Conclusion

With an aging fleet of three icebreakers, one operational and two beyond their intended 30-year service life, the Coast Guard is at a critical crossroads in its Polar Icebreaker Maintenance, Upgrade, and Acquisition Program. It must clarify its mission requirements, and if the current mission requirements remain, the Coast Guard must determine the best method for meeting these requirements in the short and long term.

Recommendations

We recommend that the Assistant Commandant for Marine Safety, Security, and Stewardship:

Recommendation #1: Request budgetary authority for the operation, maintenance, and upgrade of its icebreakers.

Recommendation #2: In coordination with the Department of Homeland Security, request clarification from Congress to determine whether Arctic missions should be performed by Coast Guard assets or contracted vessels.

Recommendation #3: In coordination with the Department of Homeland Security, request clarification from Congress to determine whether Antarctic missions should be performed by Coast Guard assets or contracted vessels.

Recommendation #4: Conduct the necessary analysis to determine whether the Coast Guard should replace or perform service-life extensions on its two existing heavy-duty icebreaking ships.

Recommendation #5: Request appropriations necessary to meet mission requirements in the Arctic and Antarctic.

Management Comments and OIG Analysis

We obtained written comments from the Coast Guard and the National Science Foundation. We have included a copy of the Coast Guard's comments in Appendix B. We also reviewed the Coast Guard's and NSF's technical comments and made changes where appropriate.

The NSF provided informal comments to the draft report, which outlined its responsibilities in the Polar Regions. While the NSF also plays a critical role in operations in the Polar Regions, our report focuses on the Coast Guard's role for providing icebreakers in both the Arctic and Antarctic regions. The NSF did not object to the report recommendations and welcomes the opportunity to continue discussions on how best to meet icebreaking needs in the U.S. Antarctic Program.

The Coast Guard concurred with all five of the recommendations and is initiating corrective actions. We consider the recommendations open and unresolved. The Coast Guard provided information on some of its ongoing projects that will address the program needs identified in the report. A summary of the Coast Guard's responses to the recommendations follow.

Management Comments to Recommendation 1:

Concur: The Coast Guard concurred with our recommendation to request budget authority for the Polar Icebreakers and will work with the Administration for the return of budget authority. The Coast Guard has already agreed to a new Memorandum of Understanding with NSF to take effect with the return of budget authority.

OIG Analysis

We consider this recommendation open and unresolved. This recommendation will remain unresolved until the Coast Guard provides an action plan to address the recommendation that includes responsible officials and the targeted completion date. This recommendation will remain open until the Coast Guard provides documentation of its budget request for the Polar Icebreakers' operation, maintenance, and upgrade.

Management Comments to Recommendation 2:

Concur: The Coast Guard concurred with our recommendation to request congressional clarification on Coast Guard's Arctic missions and will work with the Administration to clarify Arctic mission requirements.

OIG Analysis

We consider this recommendation open and unresolved. This recommendation will remain unresolved until the Coast Guard provides an action plan to address the recommendation that includes responsible officials and the targeted completion date. This recommendation will remain open until the Coast Guard provides documentation of its request for Congressional clarification on the Coast Guard's Arctic missions.

Management Comments to Recommendation 3:

Concur: The Coast Guard concurred with our recommendation to request congressional clarification on Coast Guard's Antarctic missions and will work with the Administration to clarify Antarctic mission requirements.

OIG Analysis

We consider this recommendation open and unresolved. This recommendation will remain unresolved until the Coast Guard provides an action plan to address the recommendation that includes responsible officials and the targeted completion date. This recommendation will remain open until the Coast Guard provides documentation of its request for Congressional clarification on the Coast Guard's Antarctic missions.

Management Comments to Recommendation 4:

Concur: The Coast Guard concurred with our recommendation to conduct the necessary analysis to determine whether the Coast Guard should replace or perform service-life extensions on its two existing heavy-duty icebreaking ships. Coast Guard has begun a business-case analysis. This analysis, scheduled for completion in early 2011, will evaluate the business case for replacing or performing service-life extensions on the Coast Guard's two heavy icebreakers.

OIG Analysis

We consider this recommendation open and unresolved. This recommendation will remain unresolved until the Coast Guard provides an action plan to address the recommendation that

includes responsible officials and the targeted completion date. This recommendation will remain open until the Coast Guard provides a copy of the completed business case analysis.

Management Comments to Recommendation 5:

Concur: The Coast Guard concurred with our recommendation to request the appropriations necessary to its meet mission requirements in the Arctic and Antarctic. The Coast Guard is currently analyzing long-term Arctic and Antarctic mission needs, which will be used to determine resource requirements. The Coast Guard will work with DHS and the Administration to request appropriations to meet these mission requirements, as appropriate.

OIG Analysis

We consider this recommendation open and unresolved. This recommendation will remain unresolved until the Coast Guard provides an action plan to address the recommendation that includes responsible officials and the targeted completion date. This recommendation will remain open until the Coast Guard provides a copy of the budget request sufficient to meet its Arctic and Antarctic mission requirements.

Appendix A
Purpose, Scope and Methodology

We performed an audit of the Coast Guard's Polar Icebreaker Maintenance, Upgrade, and Acquisition Program. The objective of our audit was to determine the Coast Guard's need for heavy-duty icebreakers to accomplish its missions in the Polar Regions.

We performed the audit at Coast Guard Headquarters in Washington, DC; Pacific Area Command in Alameda, California; District 17 in Juneau, Alaska; District 13 in Seattle, Washington; and the National Science Foundation in Ballston, Virginia. Our audit included analysis of the Coast Guard's current and future missions, other federal agency requirements necessitating the use of icebreakers, the Coast Guard's icebreaking assets, icebreaking assets of other nations, and the ice conditions in the Arctic and Antarctic.

We reviewed applicable federal laws and regulations, national policies, interagency Memorandums of Agreement, prior Government Accountability Office reports, Congressional Research Service reports, and congressional hearings. We interviewed officials at Coast Guard Headquarters and Area Command, NSF, NOAA, NASA, and the Department of State. We also interviewed icebreaking agencies from foreign nations, including Canada, Finland, and Sweden.

We analyzed program plans, budget data, after-action cruise reports, and maintenance records. We also obtained and analyzed a draft copy of the *High Latitude Study*, the most recent study being completed on the Coast Guard's Arctic and Antarctic missions. We reviewed and tested internal controls pertinent to our overall objective and used this information to plan the audit and determine the nature, timing, and extent of our review and analysis.

We conducted this audit between January and August 2010 under the authority of the *Inspector General Act of 1978*, as amended, and according to generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our audit findings and conclusions based on our audit objectives. The evidence obtained provides a reasonable basis for our audit findings and conclusions based on our audit objectives.

Appendix B
Management Comments to the Draft Report

U.S. Department of Homeland Security
United States Coast Guard

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United States Coast Guard

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MEMORANDUM

From: K. A. TAYLOR, RDML
COMDT (CG-8)

Reply to Attn of: Audit Manager, Mark Kulwicki (202) 372-3533

To: Anne L. Richards
Assistant Inspector General for Audits

Subj: COMMENTS ON DHS OIG DRAFT REPORT: "THE COAST GUARD'S POLAR ICEBREAKER MAINTENANCE, UPGRADE AND ACQUISTION PROGRAM"

Ref: (a) DHS Inspector General Draft Report OIG-10-050-AUD-USCG of October, 2010

1. This memorandum summarizes the Coast Guard response to the subject report, per your request.

2. The Coast Guard has no objection to the five recommendations as noted below:

   a. Recommendation #1: The Coast Guard will continue to work with the Administration for the return of budget authority. A Memorandum of Understanding between the Coast Guard and the National Science Foundation to take effect with return of budget authority has been approved by both agencies.

   b. Recommendation #2: The Coast Guard will continue to work with the Administration to clarify Arctic mission requirements.

   c. Recommendation #3: The Coast Guard will continue to work with the Administration to clarify Antarctic mission requirements.

   d. Recommendation #4: The Coast Guard has begun a business-case analysis, as directed in the Coast Guard Authorization Act, P.L. 111-281 Sec. 307(f). This analysis, scheduled for completion in early 2011, will evaluate the business case for replacing or performing service-life extensions on the Coast Guard's two heavy icebreakers.

   e. Recommendation #5: The Coast Guard is currently analyzing long term Arctic and Antarctic mission needs which will be leveraged to determine resource requirements. The Coast Guard will work with DHS and the Administration to request appropriations to meet these mission requirements as appropriate. As the first step toward providing required resources for Arctic/Antarctic mission requirements, the Coast Guard will continue to work with DHS and the Administration to transfer budget authority for polar icebreaking back to the Coast Guard consistent with Recommendation #1.

Appendix B
Management Comments to the Draft Report

Subj: COMMENTS ON DHS OIG DRAFT REPORT: "THE COAST GUARD'S POLAR ICEBREAKER MAINTENANCE, UPGRADE AND ACQUISTION PROGRAM"

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3. The Coast Guard provides points for factual clarification in the enclosed comment matrix. The Coast Guard has no objection to public release of this report once factual clarification comments are incorporated.

4. If you have any questions, my point of contact is Mr. Mark Kulwicki at (202) 372-3533. Alternatively, my Chief of External Coordination, CDR Todd Offutt, can be reached at (202) 372-3535.

#

Enclosure: (1) USCG Comment Matrix

Copy: CG-5, CG-7, CG-55

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Appendix C
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General Counsel
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Director, GAO/OIG Liaison Office
Assistant Secretary for Office of Policy
Assistant Secretary for Office of Public Affairs
Assistant Secretary for Office of Legislative Affairs
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Congressional Oversight and Appropriations Committees, as appropriate

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