U.S. GOVERNMENT ACCOUNTABILITY OFFICE
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Accessible Version

September 25, 2017
The Honorable John Thune
Chairman

The Honorable Bill Nelson
Ranking Member
Committee on Commerce, Science, and Transportation
United States Senate

The Honorable Bill Shuster
Chairman

The Honorable Peter DeFazio
Ranking Member
Committee on Transportation and Infrastructure
House of Representatives

Coast Guard: Status of Polar Icebreaking Fleet Capability and Recapitalization Plan

The Coast Guard is responsible for providing polar icebreaking capability for the United States and operates two polar icebreakers: a heavy icebreaker, the *Polar Star*, that is nearing the end of its expected service life, and the *Healy*, a medium icebreaker.[1] To maintain polar icebreaking capability to access the Arctic and Antarctic (i.e. the Polar Regions), the Coast Guard is seeking to recapitalize its polar icebreaking fleet through the acquisition of three new heavy polar icebreakers.

The National Defense Authorization Act for Fiscal Year 2017 included a provision for us to review various issues associated with U.S. polar icebreaking capabilities and the status of the Coast Guard's efforts to recapitalize its polar icebreaking fleet.[2] This report formally transmits information we provided to the committees on June 23, 2017 to meet our reporting requirement (see enclosure 1: *Status of the Coast Guard's Polar Icebreaking Fleet Capability and Recapitalization Plan, Information Presented to Congressional Committees*). It discusses: (1) the extent to which the Coast Guard's existing polar icebreaking capabilities address key mission requirements; (2) the status of the Coast Guard's efforts to recapitalize its heavy polar icebreaking fleet, and how it has addressed challenges it has identified in implementing the effort; and (3) the potential heavy polar icebreaking capability gap, if any, that the Coast Guard has identified and the plans of the Coast Guard, and other federal agencies that depend on its heavy polar icebreaking capability, to address it.

[1]The *Polar Star* has greater icebreaking capability than the *Healy*. According to the Coast Guard, the *Polar Star* can provide year-round access to both the Antarctic and Arctic, but is normally deployed to the Antarctic during the Austral summer, when the Antarctic ice is at its minimum. The *Healy* cannot access the Antarctic year-round or some Arctic areas in winter. An additional Coast Guard heavy polar icebreaker, the *Polar Sea*, has been inactive since experiencing a major engine casualty in June 2010. See enclosure 1 for more information on the status of the current Coast Guard polar icebreaking fleet.

[2]Pub. L. No. 114-328, § 3524, 130 Stat. 2000, 2794 (2016).

To assess the extent to which the Coast Guard has met key polar icebreaking mission requirements, we obtained and analyzed Coast Guard documents describing these mission requirements, and data showing the extent to which the Coast Guard met them during fiscal years 2010 through 2016. We interviewed knowledgeable officials about the data and reviewed it for errors or omissions and determined it was sufficiently reliable for our purposes. To assess the status of the Coast Guard's efforts to recapitalize its heavy polar icebreaking fleet, and how the Coast Guard is addressing challenges it has identified in implementing this effort, we obtained and analyzed Department of Homeland Security (DHS) and Coast Guard documentation for the acquisition program, such as acquisition decision memoranda, supporting acquisition planning documents, and cost and schedule information. We also interviewed Coast Guard and Navy officials representing the heavy polar icebreaker project's Integrated Program Office. We evaluated the Coast Guard's efforts based on DHS[3] and Coast Guard acquisition guidance.[4]

To describe the Coast Guard's potential heavy polar icebreaking capability gap and how the Coast Guard and other federal agencies plan to address it, we obtained and analyzed Coast Guard documentation identifying the potential gap, and assessments and strategy documents outlining planning options to address the gap through leasing or recapitalization of the existing heavy polar icebreaker fleet. We interviewed Coast Guard officials responsible for addressing the potential heavy polar icebreaking capability gap, as well as officials from the National Science Foundation (NSF) and the Department of Defense (DOD), which utilize Coast Guard heavy polar icebreaking capability. We evaluated Coast Guard actions based on risk assessment guidance outlined in *Standards for Internal Control in the Federal Government,*[5] Office of Management and Budget's (OMB), *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*,[6] and our *Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*.[7]

We conducted this performance audit from January to September 2017 in accordance with 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 findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Results in Brief

Various responsibilities drive the Coast Guard's determination of its polar icebreaking mission requirements, and the Coast Guard has been unable to address all polar icebreaking requests since 2010. For example, the Coast Guard reported fulfilling 78 percent (25 of 32) of U.S. government agency requests for polar icebreaking services during fiscal year 2010 through

[3]DHS policies and processes for managing its major acquisition programs are primarily set forth in Acquisition Management Directive (MD) 102-01 and DHS Instruction Manual 102-01-001, Acquisition Management Instruction/Guidebook. DHS issued the current version of MD 102-01 on July 28, 2015, and the current version of the Instruction Manual on March 9, 2016.

[4]U.S. Coast Guard, *Major Systems Acquisition Manual*, COMDTINST M5000.10D (Washington, D.C.: May 29, 2015).

[5]GAO, *Standards for Internal Control in the Federal Government*, GAO-14-704G (Washington, D.C.: Sept. 10, 2014).

[6]Office of Management and Budget (OMB), *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*, Circular A-94 (Oct. 29, 1992).

[7]GAO, *GAO Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, GAO-09-3SP (Washington, D.C.: March 2009).

2016. Coast Guard officials cited various factors affecting the Coast Guard's ability to meet all requests, particularly the unavailability of its heavy polar icebreakers.

The Coast Guard has taken various actions to advance its heavy polar icebreaker acquisition program since establishing it in 2013, such as partnering with the Navy and engaging the shipbuilding industry, but faces risks in implementing its accelerated acquisition schedule. In particular, in October 2016, the Coast Guard released a notional schedule for the heavy polar acquisition program showing delivery of the first of three heavy polar icebreakers in fiscal year 2023—three years sooner than initially planned. However, Coast Guard officials reported that should acquisition planning documents, including acquisition and lifecycle cost estimates, not be completed and approved by the end of fiscal year 2017, the program may not be able to meet its schedule for releasing the request for proposals for detail design and construction—a key step in the acquisition process—in mid-fiscal year 2018. This may then delay the contract award scheduled for fiscal year 2019 and extend the proposed delivery date.[8]

The Coast Guard plans to extend the service life of the *Polar Star* to bridge a potential heavy icebreaker capability gap, but has not completed assessments to determine the cost of the plan. According to Coast Guard planning documents, the Coast Guard faces a potential heavy polar icebreaker capability gap of up to three years between the end of the *Polar Star's* service life and the scheduled delivery of the lead replacement heavy icebreaker in fiscal year 2023. While the Coast Guard considered various options to bridge this potential heavy icebreaker gap, in a January 2017 study the Coast Guard reported that it was planning for a limited service life extension of the *Polar Star* to keep it operational until fiscal year 2025, at an initial cost estimate of $75 million. However, the Coast Guard has not completed a formal cost estimate for this effort and we have previously reported that the $75 million estimate may be unrealistic.[9] In keeping with OMB guidance on making decisions about federal programs, decisions about the limited service life extension should include comprehensive information about the benefits and costs associated with the planned upgrades, including its capability to meet operational objectives.[10] In addition, cost estimating best practices should be used when developing the formal cost estimate. These best practices outline the steps that should be followed to develop a credible cost estimate to include, but are not limited to, conducting a risk and uncertainty analysis that accounts for the probability of risk occurrence.[11]The Coast Guard would benefit from ensuring that it has completed its cost estimate before committing to this approach.

We recommended that the Coast Guard complete a comprehensive cost estimate for a limited service life extension of the *Polar Star* that follows cost estimating best practices before committing to this approach for bridging the potential capability gap. The Coast Guard concurred with our recommendation.

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[8]As discussed later in this report and in enclosure I, the DHS acquisition framework includes five acquisition phases. The obtain phase in DHS's acquisition process requires the program manager to develop, test, and evaluate the selected option. This phase occurs once a need has been identified and alternative approaches to meeting the need have been fully examined. The obtain phase is the last phase before DHS pursues production and delivers the new capability to its operators to support the capability until it is retired.

[9]GAO, *Coast Guard Acquisitions: Limited Strategic Planning Efforts Pose Risk for Future Acquisitions,* GAO-17-747T (Washington, D.C.: July, 28, 2017).

[10]Office of Management and Budget (OMB), *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*, Circular A-94 (Oct. 29, 1992).

[11]GAO-09-3SP.

Coast Guard's Polar Icebreaking Capabilities Have Been Unable to Address All Mission Requirements

Various responsibilities drive the Coast Guard's determination of its polar icebreaking mission requirements, and the Coast Guard has been unable to address all polar icebreaking requests since 2010. Per statute and presidential and national security directives, the Coast Guard has an obligation to maintain the capability to conduct polar ice operations.[12] Coast Guard polar icebreakers do so by providing a scientific research platform for NSF and other federal agencies and enforcing U.S. laws and international treaty obligations in the Polar Regions. For example, to support the U.S. Antarctic program and NSF for national science missions, the Coast Guard provides reimbursable icebreaking services for the annual resupply of McMurdo Research Station.[13] However, the Coast Guard reports that it has been unable to address all agency requests for its polar icebreaking services. For example, the Coast Guard is often requested to provide polar icebreaking services for other U.S. government agency operations, and tracks its performance in meeting these requests. Specifically, the Coast Guard reported fulfilling 78 percent (25 of 32) of agency requests for polar icebreaking services during fiscal years 2010 through 2016. Coast Guard officials cited various factors affecting the Coast Guard's ability to meet all requests. In particular, the Coast Guard was unable to fulfill NSF requests for the McMurdo resupply during fiscal years 2010 through 2013 as its heavy polar icebreakers were inactive due to maintenance needs.

Coast Guard Faces Risks in Implementing Accelerated Heavy Polar Icebreaker Acquisition Schedule

The Coast Guard has taken various actions to advance its heavy polar icebreaker acquisition program since establishing it in 2013, but faces risks in implementing an accelerated acquisition schedule. In particular, the Coast Guard:

- **Established a partnership with the Navy.** In August 2016, the Coast Guard established an integrated program office with the Navy to leverage the Navy's shipbuilding expertise and collaborate on developing and implementing an acquisition approach.[14] Through this effort, the two services completed analysis in January 2017 confirming that their preferred alternative for meeting the Coast Guard's polar icebreaking capability needs is the construction of a new heavy icebreaker based upon an existing icebreaker design, modified

[12]14 U.S.C. § 2 establishes that one of the Coast Guard's required primary functions is to maintain icebreaking facilities for use on the high seas and on waters subject to U.S. jurisdiction, as well as, pursuant to international agreements, to maintain icebreaking facilities on waters other than the high seas and on waters not subject to U.S. jurisdiction—specifically, the Antarctic region. National Security Presidential Directive 66/Homeland Security Presidential Directive 25 and Presidential Decision Directive 26 provide specific direction and authority for polar missions and are focused on advancing U.S. interests in the Arctic and Antarctic. Their scope includes U.S. policy on national security and homeland security relevant to the Arctic and Antarctic—including protecting the environment and conserving biologic resources, among other issues. See White House, Arctic Region Policy, National Security Presidential Directive/NSPD-66 and Homeland Security Presidential Directive/HSPD-25 (Washington, D.C.: Jan. 9, 2009) and Presidential Decision Directive 26 (Washington, D.C.: June 9, 1994).

[13]The U.S. Antarctic program, managed by NSF, requires an annual delivery of fuel and cargo to McMurdo Station, a scientific research station in Antarctica. Because the tanker and cargo ships cannot access McMurdo Station independently, NSF has typically relied on the Coast Guard to provide icebreaking services to open a channel for these ships. During fiscal years 2007 through 2013, NSF leased commercial polar icebreakers for this. The Coast Guard reports that since 2014 the resupply has been the sole mission that the *Polar Star* has been able to complete annually, due to its extensive annual post-operation maintenance requirements.

[14]The Coast Guard and Navy formalized this partnership through a January 2017 Memorandum of Understanding.

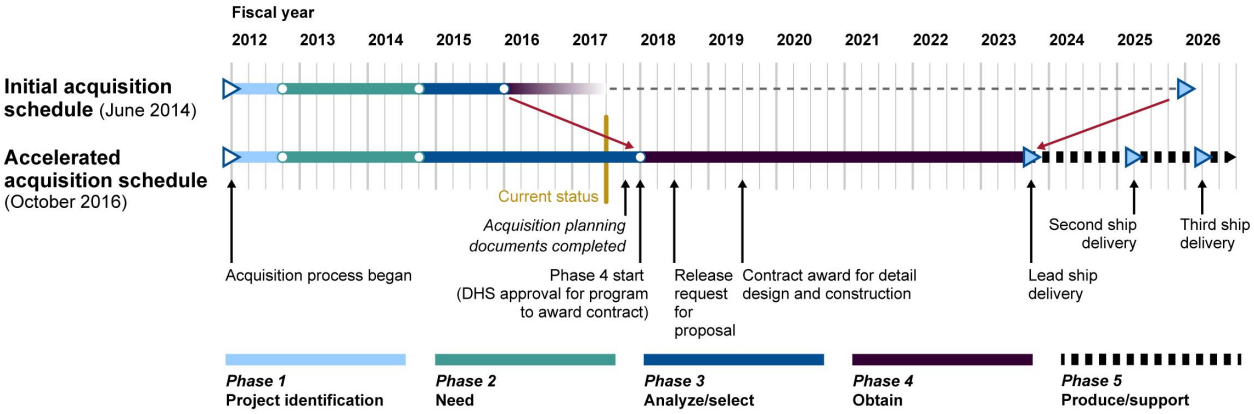
to meet Coast Guard operational requirements. According to this analysis, the Coast Guard and Navy estimated a preliminary $1.15 billion cost for the lead heavy icebreaker (in fiscal year 2019 dollars). In July 2017, officials said they had reduced the estimated cost to less than $1 billion.

- **Engaged with the shipbuilding industry:** The Coast Guard sought industry participation to inform its understanding of the domestic shipbuilding market and contract development approach. In October 2016, the Coast Guard issued a market research report based on these engagement efforts, highlighting that (1) no heavy polar icebreakers are available for lease that would enable Coast Guard to meet all polar mission requirements; (2) no heavy icebreakers are available for U.S. government purchase; and (3) multiple U.S. shipyards are interested in and capable of building a heavy polar icebreaker.

The Coast Guard has accelerated its planned schedule for acquiring new heavy polar icebreakers since first identifying a schedule in 2014.[15] In October 2016, the Coast Guard released a notional schedule for the heavy polar acquisition program. This schedule shows the Coast Guard obtaining delivery of the first of three heavy polar icebreakers in fiscal year 2023—three years sooner than initially planned. As of July 2017, the Coast Guard's heavy polar icebreaker acquisition program was in the analyze/select phase of the DHS Acquisition Framework.[16] Coast Guard officials reported plans for the program to achieve its next major acquisition milestone (DHS approval to enter the Obtain acquisition phase) in fiscal year 2018. The accelerated schedule shows the award of a contract for detail design and construction in fiscal year 2019.

Figure 1 compares the Coast Guard's initial and accelerated acquisition schedules for the heavy polar icebreaker acquisition program.

Figure 1: Polar Icebreaker Acquisition Program, Initial and Accelerated Schedules



Source: GAO analysis of U.S. Coast Guard information. | GAO-17-698R

The Coast Guard faces risks in implementing its accelerated acquisition schedule. Specifically, there is a risk that the acquisition planning documents required for DHS approval to begin development efforts—and which are necessary under DHS acquisition policy for the anticipated

[15]In September 2015, the President proposed that the Coast Guard accelerate its acquisition of replacement heavy icebreakers.

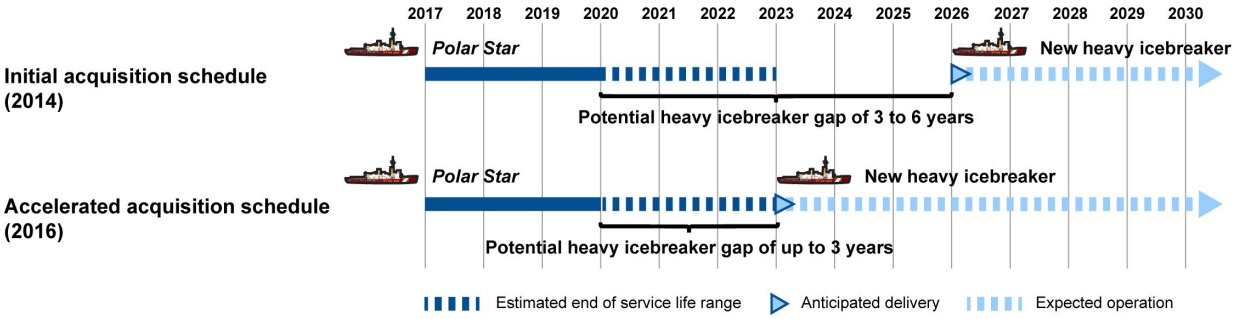
[16]In the Analyze/Select phase, the agency explores material solutions to meet need, evaluates the feasibility of options, and develops cost and schedule estimates. See enclosure 1 for more information on the phases of the DHS Acquisition Framework.

contract award in fiscal year 2019—might not be completed on schedule.[17] In particular, according to the Coast Guard's January 2017 annual program review, the current schedule to complete acquisition planning documents to support DHS's approval for the obtain phase is aggressive. The Coast Guard stated that should the acquisition planning documents not be completed and approved by the end of fiscal year 2017, the program may be unable to meet its schedule for entering the obtain phase in early fiscal year 2018. As a result, it may be unable to release the request for proposals for detail design and construction—a key step in the acquisition process—as scheduled in mid-fiscal year 2018. This may then delay the Coast Guard's schedule for awarding the contract in fiscal year 2019 and extend the proposed delivery date. Coast Guard officials reported several acquisition planning documents were under development as of July 2017, including the official program schedule, and acquisition and life cycle cost estimates. The Coast Guard's actions for acquiring the new icebreakers to date have been consistent with DHS and Coast Guard acquisition guidance. We will continue to examine the Coast Guard's polar icebreaker acquisition efforts as part of our ongoing work.

Coast Guard Plans Ship Service Life Extension to Address Potential Capability Gap, but Has Not Completed Assessments

According to Coast Guard planning documents, the *Polar Star's* useful service life will end between fiscal years 2020 and 2023. This creates a potential Coast Guard heavy polar icebreaker capability gap of up to three years between the end of the *Polar Star's* service life and the Coast Guard's scheduled delivery of the lead replacement heavy icebreaker scheduled for fiscal year 2023. The Coast Guard previously experienced a heavy icebreaking capability gap, most recently during fiscal years 2011 through 2013, when its heavy icebreakers were inactive. During this time, NSF leased a commercial heavy icebreaker for its McMurdo resupply. In spring 2017, NSF officials told us their contingency plan would be to again lease a commercial icebreaker if the *Polar Star* was unavailable. Figure 2 shows the Coast Guard's potential heavy polar icebreaker capability gap under the initial and accelerated acquisition schedules.

Figure 2: Coast Guard Potential Heavy Polar Icebreaker Capability Gap Under Initial and Accelerated Acquisition Schedules



Source: GAO analysis of U.S. Coast Guard documents. | GAO-17-698R

[17]According to DHS acquisition requirements, the program must complete several acquisition planning documents to ensure it is prepared to obtain the icebreaker and effectively implement design and construction. Moreover, allowing time to ensure the acquisition information is properly understood and approved helps the program office better ensure the program is on a path to succeed through all acquisition phases. In addition, Coast Guard acquisition guidance states that a program does not conduct obtain phase activities until it is approved to obtain the asset—after key documents such as the cost estimate, program baseline, and acquisition plan are complete and approved.

The Coast Guard has reported its commitment to maintaining heavy polar icebreaking capability, and has been exploring options to sustain this capability until the delivery of the first heavy icebreaker. In January 2017, the Coast Guard reported the results of its statutorily mandated assessment of four options and their associated costs to sustain heavy icebreaking capability, as shown in table 1.[18] However, the Coast Guard determined these options—for reactivating the *Polar Sea* or extending the *Polar Star* for at least seven years—were not cost effective as a bridging strategy for addressing the potential capability gap, nor would they address the potential heavy icebreaker capability gap. For example, officials said that the option for extending the *Polar Star* for 7-10 years would not address the potential gap since it would require the *Polar Star* to be inactive over a 3-year period during the project.

Table 1: Coast Guard Options and Their Estimated Costs to Bridge Potential Heavy Polar Icebreaker Capability Gap as Identified in January 2017 Assessment

	Reactivate *Polar Sea* for 7-10 years	Reactivate *Polar Sea* for 10-15 years	Reactivate *Polar Sea* for 15-20 years	Extend *Polar Star* for 7-10 years
Estimated total acquisition cost	$489	$551	$641	$426
Estimated lifecycle cost	$984	$1,347	$1,729	$934
Project duration	8 years	8.5 years	9 years	7.5 years

Source: Coast Guard information. GAO-17-698R

Note: Dollars in millions.

Based on these findings, the Coast Guard decided to take a different approach. In its January 2017 assessment, the Coast Guard reported that it is developing plans for a limited service life extension of the *Polar Star*. According to Coast Guard officials, the extension is intended to keep the *Polar Star* operational and available for the annual NSF McMurdo resupply until fiscal year 2025, while mitigating the risk if delivery of the lead ship is delayed past fiscal year 2023. However, the January 2017 assessment did not include an analysis of the limited service life extension option.

The Coast Guard's Capital Investment Plan for fiscal years 2018-2022 includes $60 million of a planned $75 million for polar icebreaker sustainment, which officials reported as being the rough estimate for the *Polar Star's* limited service life extension.[19] Coast Guard officials stated that the $75 million rough estimate is based on the cost of the *Polar Star's* prior 7-10 year service life extension which was completed in fiscal year 2013. However, in July 2017 we reported that the Coast Guard has not completed a cost estimate for this effort, and that the $75 million estimate

[18]See Pub. L. No. 114-120, § 207(b), 130 Stat. 27, 37-38 (2016).

[19]Coast Guard officials reported that an additional $15 million is planned for fiscal year 2023, but is not included because it is beyond the scope of the current five-year Capital Investment Plan.

may be unrealistic based on the assumptions the Coast Guard used, such as continuing to use parts from the *Polar Sea* as has been done in previous maintenance events.[20] As a result of the finite parts available from the *Polar Sea*, the Coast Guard may have to acquire new parts for the *Polar Star* that could increase the $75 million estimate. Coast Guard officials stated they were conducting ship engineering inspections on the *Polar Star* to determine the work needed for the limited service life extension, which will then inform the development of a formal cost estimate. Coast Guard officials also stated they did not yet have a specific date for completing the inspections or the development of a formal cost estimate and approach for implementing the extension plan, but are aiming to do so by December 2017. However, in keeping with OMB guidance on making decisions about federal programs, decisions about the limited service life extension should include comprehensive information about the benefits and costs associated with the planned upgrades, including its capability to meet operational objectives.[21] In addition, cost estimating best practices should be used when developing the formal cost estimate. These best practices outline the steps that should be followed to develop a credible cost estimate to include, but not limited to, conducting a risk and uncertainty analysis that accounts for the probability of risk occurrence.[22]

Furthermore, although the Coast Guard identified various options for bridging a potential heavy icebreaker gap in its January 2017 study, we found that Coast Guard officials had not been fully collaborating with relevant federal stakeholders to ensure that they have assessed all potential options for bridging the potential gap. For example, the bridging strategy planning reports and assessments the Coast Guard has issued thus far have not included input from relevant federal stakeholders such as NSF, the sole mission requester of the *Polar Star*, to ensure that all alternatives are fully considered. Coast Guard officials stated that the Coast Guard meets regularly with NSF through bi-weekly meetings to discuss a range of icebreaking issues, but had not specifically involved NSF in technical working groups of an engineering nature since this is a Coast Guard responsibility. NSF officials confirmed in April 2017 that they had not been included in the Coast Guard's development of the current bridging strategy approach and believed their involvement in the development of this approach would help inform the effort and support decision makers. As of August 2017, NSF officials reported that the situation had changed and that collaboration had improved as the Coast Guard had taken steps to engage NSF regarding the bridging strategy.

Conclusions

It is important for the Coast Guard to ensure it is investing in cost effective solutions for managing its polar icebreaking capability. In January 2017, the Coast Guard identified a limited service life extension of the *Polar Star* as its strategy to bridge the potential gap between the end of this vessel's projected service life and the planned delivery of the first new heavy icebreaker. However, the Coast Guard decided on this approach without complete cost information. A complete cost analysis can help the Coast Guard better ensure that Congress and decision makers have the information they need on the cost of the Coast Guard's planned option, as well as any other possible alternatives for managing the potential capability gap, before committing to an approach.

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[20]GAO-17-747T.

[21]Office of Management and Budget (OMB), *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*, Circular A-94 (Oct. 29, 1992).

[22]GAO-09-3SP.

Recommendation for Executive Action

The Commandant of the Coast Guard should complete a comprehensive cost estimate for a limited service life extension of the *Polar Star* that follows cost estimating best practices before committing to this approach for bridging the potential capability gap. (Recommendation 1)

Agency Comments

We provided a draft of this report to DHS, DOD, and NSF for review and comment. DHS provided written comments on September 8, 2017, which are presented in enclosure II. In commenting on the draft report, DHS stated that it concurred with our recommendation and identified actions planned or underway to implement it. DHS, DOD, and NSF also provided us with technical comments, which we incorporated as appropriate.

We are sending copies of this report to the appropriate congressional committees, the Secretary of Defense, the Secretary of Homeland Security, the Commandant of the Coast Guard, and the Director of the National Science Foundation. In addition, the report will be available at no charge on our website at http://www.gao.gov.

If you or your staff have questions concerning this report, please contact me at (202) 512-7141 or groverj@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. Key contributors to this report include Dawn Hoff (Assistant Director) and Jason Berman (Analyst-in-Charge), Chuck Bausell, Lisa Canini, John Crawford, Richard A. Cederholm, Michele Fejfar, Laurier Fish, Eric Hauswirth, Camille Henley, Tracey King, Ben Nelson, Hugh Paquette, and Adam Vogt.

Jennifer Grover

Director, Homeland Security and Justice Issues

Enclosures - 2

Enclosure 1, Powerpoint Presentation

Status of the Coast Guard's Polar Icebreaking Fleet Capability and Recapitalization Plan

Information Provided to the Committees
on
Commerce, Science, and Transportation, U.S. Senate
and
Transportation and Infrastructure,
House of Representatives

Introduction and Mandate

- Since 1965, Coast Guard (USCG) has been responsible for providing polar icebreaking capability for the United States.
- USCG has two active polar icebreakers, one of which is a heavy polar icebreaker—which has greater icebreaking capability—and is nearing the end of its expected service life.
- To maintain its polar icebreaking capability, USCG is seeking to recapitalize its polar icebreaking fleet through acquisition and sustainment activities.
- Section 3524 of the National Defense Authorization Act for Fiscal Year 2017 (Pub. L. No. 114-328) included a provision for GAO to review U.S. polar icebreaking capabilities.

Contents

- **Objectives**
  - To what extent do USCG's existing polar icebreaking capabilities address key mission requirements?
  - What is the status of USCG's efforts to recapitalize its heavy polar icebreaking fleet, and how has USCG addressed challenges it has identified in implementing the effort?
  - What, if any, potential heavy polar icebreaking capability gap has USCG identified and what plans do USCG, and other federal agencies that depend on USCG heavy polar icebreaking capability, have to address it?
- **Scope and Methodology**
- **Background**
- **Summary**
- **Findings**

Scope and Methodology

- To assess the extent USCG has met key polar icebreaking mission requirements, we obtained and analyzed documents from USCG describing these mission requirements, and data showing the extent to which USCG met these requirements during fiscal years 2010 through 2016. By questioning knowledgeable officials about the data and reviewing it for errors or omissions, we determined it was sufficiently reliable for our purposes. We also interviewed officials regarding the factors affecting USCG performance in meeting mission requirements during this period.

- To assess the status of USCG's efforts to recapitalize its heavy polar icebreaking fleet, and how USCG is addressing challenges it has identified in implementing this effort, we obtained and analyzed Department of Homeland Security (DHS) and USCG documentation for the acquisition program (program), such as acquisition decision memoranda, supporting acquisition planning documents, and cost and schedule information. We also interviewed USCG and Navy officials representing the heavy polar icebreaker project's Integrated Program Office. We evaluated USCG efforts based on DHS and USCG acquisition guidance and GAO's identified best practices for Navy shipbuilding (GAO-09-322).

Scope and Methodology

- To describe USCG's potential heavy polar icebreaking capability gap and how USCG and other federal agencies plan to address it, we obtained and analyzed USCG documentation identifying the potential gap, and USCG assessments and strategy documents outlining planning options to address the gap through leasing or recapitalization of the existing heavy polar icebreaker fleet. We also interviewed USCG officials responsible for addressing the potential heavy polar icebreaking capability gap, as well as officials from the National Science Foundation (NSF) and Department of Defense (DOD), which utilize USCG heavy polar icebreaking capability. We evaluated USCG's actions based on risk assessment guidance outlined in *Standards for Internal Control in the Federal Government* , Office of Management and Budget Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs, and our Cost Estimating and Assessment Guide for Best Practices for Developing and Managing Capital Program Costs.

Summary

- USCG's existing polar icebreaking capabilities have been unable to address all mission requirements.
- USCG faces risks in implementing accelerated heavy polar icebreaker acquisition schedule.
- USCG plans ship service life extension to address potential capability gap, but has not completed assessments.

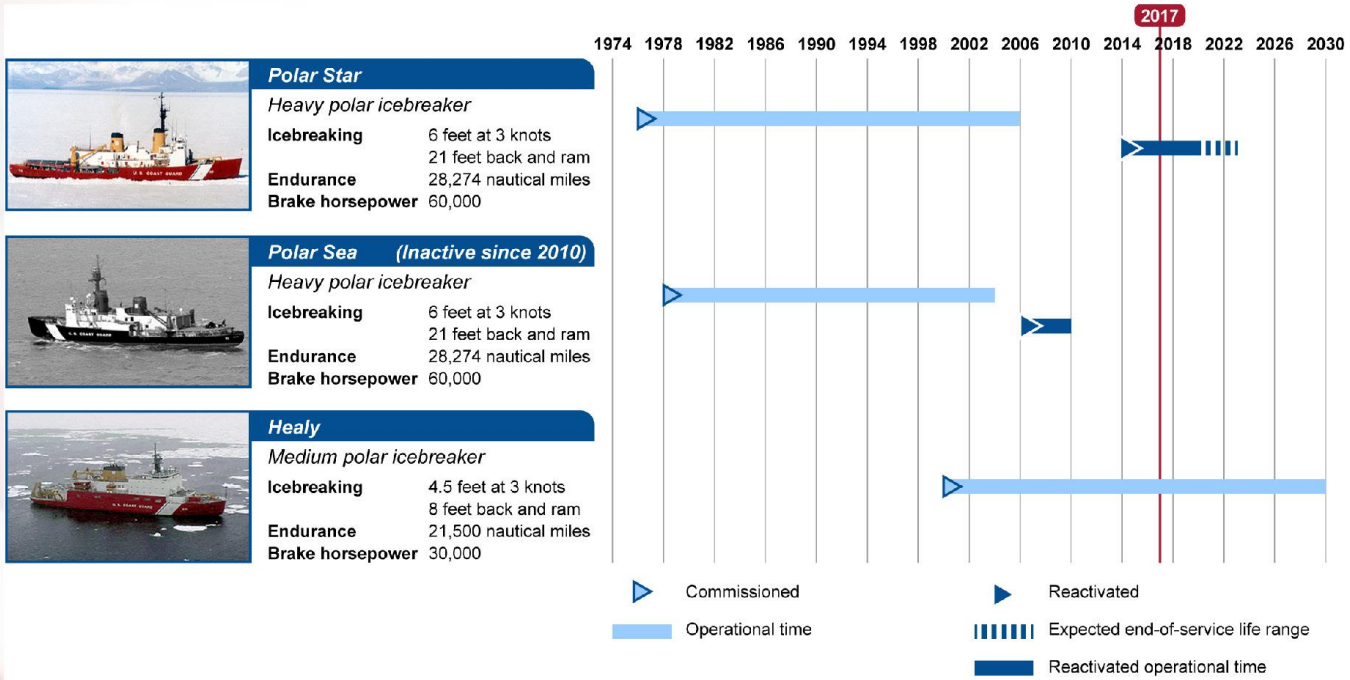
Background

USCG has two active polar icebreakers—the *Polar Star*, a heavy icebreaker, and the *Healy*, a medium icebreaker. An additional USCG heavy icebreaker, the *Polar Sea*, has been inactive since experiencing major engine casualties in June 2010.

- The *Polar Star* can provide year-round access to both Polar Regions, while the *Healy* is capable of carrying out a wide range of activities but cannot access the Antarctic year-round, nor some Arctic areas in winter.
- USCG projects the *Polar Star's* service life will end by fiscal year 2023, and the *Healy's* by fiscal year 2030.
- USCG initiated a recapitalization program in 2013 to maintain heavy icebreaker capability after 2023. In September 2015, the President proposed accelerating acquisition of replacement heavy icebreakers.
- Figure 1 shows USCG's polar icebreakers and their expected service lives.

Background

Figure 1: USCG's Polar Icebreakers and Expected Service Lives



Source: GAO analysis of U.S. Coast Guard documents; U.S. Coast Guard (photographs). | GAO-17-698R

Objective 1: USCG's Existing Polar Icebreaking Capabilities Have Been Unable to Address All Mission Requirements

Various Responsibilities Drive USCG's Determination of Polar Icebreaking Mission Requirements

Statutory and Policy Authorities

- Per statute and presidential directives, USCG has an obligation to maintain the capability to conduct polar ice operations.

- Presidential and National Security Directives (National Security Presidential Directive 66/Homeland Security Presidential Directive 25 and Presidential Decision Directive 26) provide specific direction and authority for polar missions and are focused on advancing U.S. interests in the Arctic and Antarctic. Their scope includes U.S. policy on national security and homeland security relevant to the Arctic—including protecting the environment and conserving biologic resources, among other issues.

USCG's Existing Polar Icebreaking Capabilities Have Been Unable to Address All Mission Requirements

NSF and Antarctic Icebreaking Mission Requirements

USCG polar icebreakers support U.S. Arctic and Antarctic policy objectives including providing a scientific research platform for NSF and enforcing U.S. laws and international treaty obligations in both polar regions.

- In its 2013 Polar Icebreaker Recapitalization Project Mission Need Statement, USCG reported that national and strategic directives require it "to make all reasonable efforts to assure the availability of icebreaker services as requested by NSF."
- In support of the U.S. Antarctic program and NSF for national science missions, USCG provides reimbursable icebreaking services for the annual resupply of McMurdo Research Station. During fiscal years 2007 through 2013, NSF leased commercial polar icebreakers for this when USCG polar icebreakers were inactive because of sustainment projects or, in the case of the *Polar Sea*, an unexpected major casualty.
- The *Polar Star* has conducted the resupply since 2014 following its reactivation from a multi-year service life extension project. USCG reports that the resupply is the sole mission that the *Polar Star* is able to complete annually, due to its extensive annual post-operation maintenance requirements.
- USCG polar icebreakers also support requests from other government agencies. For example, USCG may also deploy a heavy icebreaker to support Department of State enforcement of the Antarctic Treaty of 1959.

USCG's Existing Polar Icebreaking Capabilities Have Been Unable to Address All Mission Requirements

DOD Polar Icebreaking Mission Requirements

In December 2016, DOD reported to Congress that it had no specific defense requirement for icebreaking capability because Navy Arctic requirements are met by undersea and air assets which can provide year-round presence.

- DOD reported in April 2017 that its only potential defense requirement—for the Thule Air Force Base resupply in Greenland—is met by the Canadian Coast Guard through a Memorandum of Understanding with USCG.
- USCG's 2013 Polar Icebreaker Mission Needs Statement identified polar icebreaker capacity needs as partly based on the 2010 Naval Operations Concept—joint maritime security strategy implementation guidance for the Navy, Marine Corps, and USCG—which stated that U.S. naval forces had a demand for year-round polar icebreaking presence in the Arctic and Antarctic.
- In April 2017, DOD joint staff officials confirmed that DOD and Naval defense strategy had been updated and does not include icebreaking requirements. DOD officials in charge of operations in the Pacific said that although they do not have a requirement for a heavy icebreaker, icebreakers play a key role in aiding the icebreaking mission to McMurdo.
- According to Presidential Memorandum 6646, DOD and DHS (through USCG) shall provide logistical support to the U.S. Antarctic Program.

USCG's Existing Polar Icebreaking Capabilities Have Been Unable to Address All Mission Requirements

USCG Polar Icebreaker Missions

USCG reports its polar ice operations support 9 of its 11 statutory missions.

- According to our preliminary analysis of federal and international law, and discussions with USCG officials, and as shown in figure 2, USCG:
  - may use a leased vessel for 4 missions,
  - generally must use either a public vessel or warship for 5 missions.
- USCG reported that the use of a public vessel or warship enables it to meet all of the 9 statutory missions, while leasing a vessel does not.

USCG's Existing Polar Icebreaking Capabilities Have Been Unable to Address All Mission Requirements

Figure 2: Potential USCG Statutory Missions in Polar Regions and Whether USCG May Execute Them Using a Leased or Public Vessel or Warship

Vessel type	Search and rescue	Aids to navigation	Ice operations	Marine environmental protection	Ports, waterways, and coastal security[a]	Living marine resources	Other law enforcement[b]	Marine safety[b]	Defense readiness[b]
Lease[c]	✓	✓	✓	✓	—	—	—	—	—
Public vessel or warship	✓	✓	✓	✓	✓	✓	✓	✓	✓

✓ USCG may use this type of vessel to conduct this mission.

— USCG may not use this type of vessel to conduct this mission

Source: GAO analysis of US and international law, and U.S. Coast Guard officials. | GAO-17-698R

[a] Federal law provides that the Ports, Waterways, and Coastal Security mission must be carried out with public vessels or private vessels tendered gratuitously for that purpose. 33 U.S.C. § 1234. A public vessel is defined as a government-owned vessel or a demise charter. 46 U.S.C. § 2101(24). Under a demise charter , also known as a bareboat charter, USCG would take responsibility for the crewing, operation, and maintenance of the vessel as described in 46 C.F.R. § 169.107.

[b] According to the Law of the Sea Convention, to exercise immunity on the high seas, a USCG vessel must be a warship or government vessel on noncommercial service. See Law of the Sea Convention, Articles 95, 96. Additionally, only commissioned, warrant, and petty officers may board other vessels as an exercise of USCG's law enforcement authority. 14 U.S.C. § 89. Generally, a public vessel would be crewed by such officers; however, USCG officials noted that a short-term leased vessel could operate with a law enforcement attachment that would conduct law enforcement operations.

[c] For purposes of this table, a lease means a short-term or time lease, in which USCG leases a vessel for a specific period of time and the vessel is crewed by the owner of the vessel.

USCG's Existing Polar Icebreaking Capabilities Have Been Unable to Address All Mission Requirements

Mission Performance – Requests for Icebreaking Services

- USCG is often requested to provide polar icebreaking services for other U.S. government agency operations, and USCG tracks its performance in meeting these requests.
- USCG reported fulfilling 78 percent (25 of 32) of agency requests for polar icebreaking services during fiscal year 2010 through 2016.
- USCG officials cited various factors affecting USCG's ability to meet some requests. For example, officials reported the *Healy* was not available to meet some agency requests because of time constraints.
- USCG was unable to fulfill NSF requests for the McMurdo resupply during fiscal years 2010 through 2013 as its heavy polar icebreakers were inactive. USCG reported meeting all NSF annual requests for the McMurdo resupply since the *Polar Star* was reactivated in fiscal year 2014.

USCG's Existing Polar Icebreaking Capabilities Have Been Unable to Address All Mission Requirements

Mission Performance – Operational Hours

- USCG tracks operational hours conducted by its major cutters, and our preliminary analysis of these data show:

- During fiscal years 2014 through 2016, the *Healy* expended:
  - an average 97 percent (8,157 of 8,379) of its mission hours on ice operations
  - other mission hours expended included Other Law Enforcement and Defense Readiness missions

- During fiscal year 2014 through 2016, the *Polar Star* expended:
  - an average 94 percent (6,734 of its 7,188) of its mission hours on ice operations
  - other mission hours expended included Search and Rescue, Other Law Enforcement, and Defense Readiness missions

Objective 2: USCG Faces Risks in Implementing Accelerated Heavy Polar Icebreaker Acquisition Schedule

As of July 2017, the heavy polar icebreaker acquisition program was in the analyze/select phase of the DHS Acquisition Framework.

DHS Acquisition Framework phases:

1. Program identification: DHS or agency identifies a capability gap.
2. Need: Agency describes the functional capabilities required to address the specific capability gaps.
3. Analyze/select: Agency explores material solutions to meet need, evaluates feasibility of options, develops cost and schedule estimates.
4. Obtain: Agency demonstrates feasibility of the preferred alternative, refines, and buys solution.
5. Produce/Deploy/Support: Agency deploys and maintains the asset.

USCG Faces Risks in Implementing Accelerated Heavy Polar Icebreaker Acquisition Schedule

Highlights of DHS and USCG Actions Taken to Further Acquisition

2014 Program identification—Need and Priorities Established

- DHS approved need for 3 heavy and 3 medium icebreakers
- USCG reported focusing its acquisition effort on heavy icebreakers first
- USCG planned for first new heavy icebreaker in fiscal year 2026

2017 Analyze/Select phase—Establishing Acquisition Approach

- Heavy icebreakers will be built by a single U.S. shipbuilder
- Mature technology and proven ship design should be used
- USCG is planning for delivery of the first of three new heavy icebreakers in fiscal year 2023

USCG Faces Risks in Implementing Accelerated Heavy Polar Icebreaker Acquisition Schedule

Established Partnership with the Navy

- In response to Congressional direction, in August 2016 USCG established an integrated program office to leverage Navy shipbuilding expertise and collaborate on developing and implementing acquisition approach.
  - USCG and the Navy formalized partnership with an MOU in January 2017.
  - In January 2017, USCG and the Navy confirmed USCG's analysis that the preferred alternative for meeting USCG polar icebreaking capability needs is construction of a new heavy icebreaker based upon existing icebreaker design that is modified to meet USCG operational requirements.
  - According to this analysis, USCG and the Navy determined a $1.15 billion preliminary cost estimate for the lead heavy icebreaker in FY2019 dollars. These two services reported collaborating to reduce this cost estimate through the remainder of fiscal year 2017. In July 2017, officials said they had reduced the estimated cost to less than $1 billion.

USCG Faces Risks in Implementing Accelerated Heavy Polar Icebreaker Acquisition Schedule

Continued Engagement with the Shipbuilding Industry

- Integrated program office sought and obtained industry participation to inform its understanding of the domestic shipbuilding market, and inform its contract development approach.

- In October 2016, USCG issued a market research report based on its shipbuilding industry engagement efforts. Report highlights include:
  - No heavy icebreakers are available for lease that meet all USCG polar missions requirements; build-to-lease may do so, but would not be cost effective.
  - No heavy icebreakers are available for U.S. government purchase.
  - Multiple U.S. shipyards are interested and capable of building a heavy icebreaker.

USCG Faces Risks in Implementing Accelerated Heavy Polar Icebreaker Acquisition Schedule

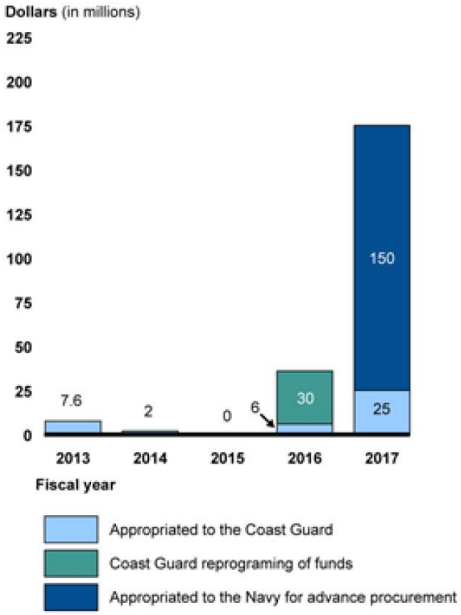
USCG Released Notional Approach and Schedule in October 2016, highlighting:

- Priority to acquire 3 heavy icebreakers through single contract for design and construction.
- Plan to obtain delivery of first heavy icebreaker in fiscal year 2023—three years sooner than initially planned.
- Plan to obtain delivery of two additional heavy icebreakers, in fiscal years 2025 and 2026, respectively.
- Plan to release request for proposal for the completion of what is known as detail design and construction in fiscal year 2018; award contract in fiscal year 2019.

USCG Faces Risks in Implementing Accelerated Heavy Polar Icebreaker Acquisition Schedule

- Since fiscal year 2013, Congress has funded the heavy polar icebreaker acquisition program, including, in total, $41 million for USCG and $150 million for the Navy for advance procurement.
- USCG reprogrammed $30 million in fiscal year 2016 funds for the program.
- Figure 3 shows funding for the heavy polar icebreaker acquisition from fiscal year 2013 to July 2017.

Figure 3: Heavy Polar Icebreaker Acquisition Funding, Fiscal Year 2013 – July 2017



Source: GAO analysis of U.S. Coast Guard information. | GAO-17-698R

USCG Faces Risks in Implementing Accelerated Heavy Polar Icebreaker Acquisition Schedule

USCG Has Addressed Some Acquisition Risks, but Accelerated Schedule Poses Continuing Challenges

- USCG reported that it has identified and taken steps to mitigate certain cost-related risks since starting the acquisition program in 2014. For example:
  - Program officials initially believed that the limited number of shipyards able to build a polar icebreaker and limited expertise in domestic polar icebreaking design and shipbuilding would negatively impact affordability.
  - In January 2017, program officials reported that these risks were unlikely to occur as a result of their mitigation efforts. Specifically, through industry engagement, market analysis, and industry study contracts, USGC determined that a sufficient number of shipyards were interested and able to build the vessel, and obtained design and shipbuilding expertise.

USCG Faces Risks in Implementing Accelerated Heavy Polar Icebreaker Acquisition Schedule

Accelerated Acquisition Schedule Poses Continued Risks

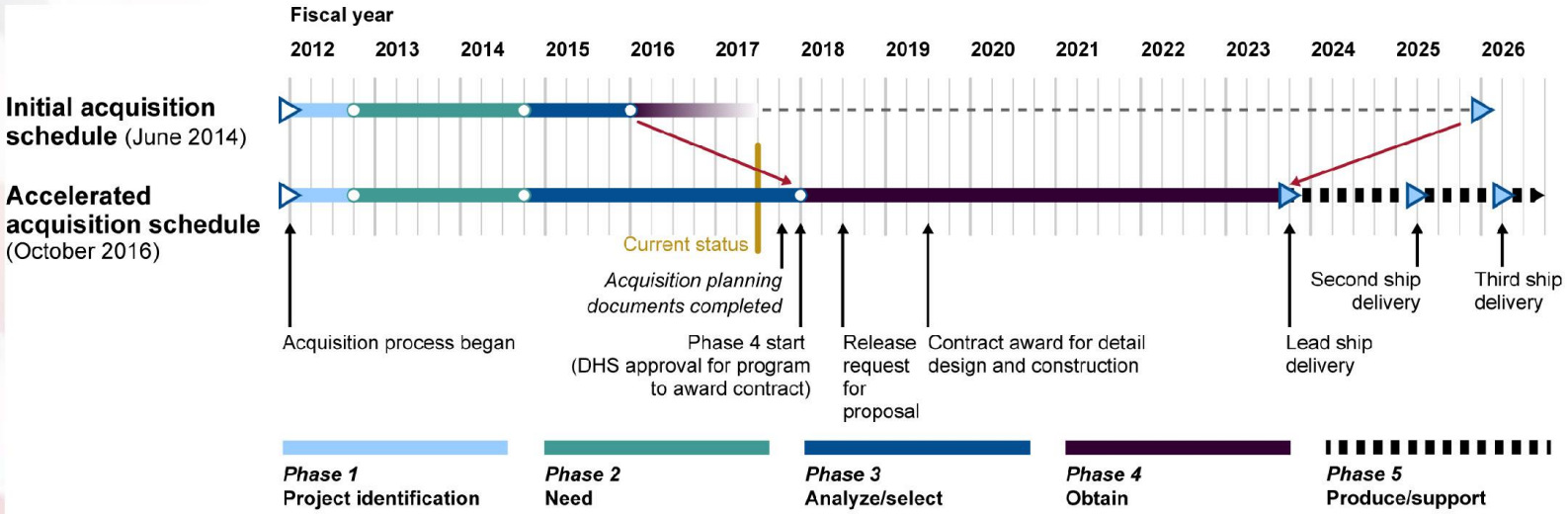
According to USCG's January 2017 annual program review, the current schedule to complete acquisition planning documents to support DHS's approval for the obtain phase is aggressive and program risks remain.

- In accordance with DHS acquisition requirements, the program must complete several acquisition planning documents to ensure it is prepared to obtain the icebreaker and, in doing so, effectively implement design and construction.
- USCG officials reported several acquisition planning documents were under development as of March 2017, including the official program schedule, and acquisition and life cycle cost estimates.
- However, USCG officials reported that should the acquisition planning documents not be completed and approved by the end of fiscal year 2017, the program may be unable to meet its schedule for entering the obtain phase in early fiscal year 2018. As a result, it may be unable to release the request for proposal for detail design and construction in mid-fiscal year 2018. This may then lead it to delay its schedule for awarding the contract in fiscal year 2019 and extend the proposed delivery date.

USCG Faces Risks in Implementing Accelerated Heavy Polar Icebreaker Acquisition Schedule

- USCG officials reported their plan for the program to achieve its next major acquisition milestone—DHS approval to enter the obtain acquisition phase—and award a contract for detail design and construction in late fiscal year 2019. See figure 4.

Figure 4: Polar Icebreaker Acquisition Program, Original and Accelerated Schedules



Source: GAO analysis of U.S. Coast Guard information. | GAO-17-698R

USCG Faces Risks in Implementing Accelerated Heavy Polar Icebreaker Acquisition Schedule

- According to guidance in USCG's Major Systems Acquisition Manual, a program does not conduct obtain phase activities until it is approved to obtain the asset—after key documents such as the cost estimate, program baseline, and acquisition plan are complete and approved.

- DHS acquisition guidance states that allowing time to ensure the acquisition information is properly understood and approved helps the program office better ensure the program is on a path to succeed through all acquisition phases.

USCG Faces Risks in Implementing Accelerated Heavy Polar Icebreaker Acquisition Schedule

To meet its accelerated acquisition schedule, the first icebreaker—currently estimated at nearly $1 billion—needs to be fully funded in fiscal year 2019.

- In fiscal year 2017, Congress appropriated a total of $150 million for the Navy for advance procurement, which, in effect, authorizes the program to begin acquisition.
- USCG is planning to begin key detail design activities in fiscal year 2019, but officials said the program may start some aspects of design in fiscal year 2018.
- USCG actions for acquiring the new icebreakers to date have been consistent with USCG and DHS acquisition guidance.
- At this time it is unknown what USCG's fiscal year 2018 funding may be for the polar icebreaker recapitalization program—both the amount and its purpose.

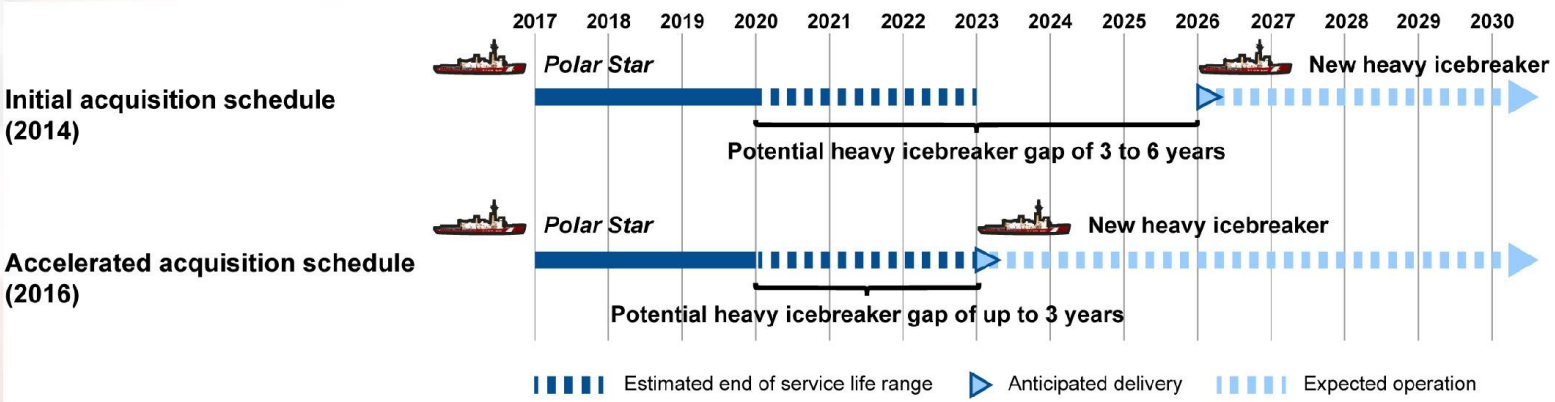
Objective 3: USCG Plans Ship Service Life Extension to Address Potential Capability Gap, but Has Not Completed Assessments

USCG Plans Limited Service Life Extension of the *Polar Star*

- According to USCG planning documents, the *Polar Star's* useful service life will end between fiscal years 2020 and 2023. This creates a potential gap in USCG's heavy icebreaking capability between the end of the *Polar Star's* service life and the arrival of the lead replacement heavy icebreaker, scheduled for delivery in 2023.
- This potential up-to-3-year heavy icebreaking capability gap is shorter than USCG would have faced under its initial heavy icebreaker acquisition schedule, which estimated lead ship delivery in 2026. See figure 5.
- USCG has previously experienced a heavy icebreaking capability gap, most recently during fiscal years 2011 through 2013, when its heavy icebreakers were inactive. During this time, NSF leased a commercial heavy icebreaker for its McMurdo resupply.
- NSF officials told us in spring 2017 that their contingency plan would be to lease a commercial icebreaker if the *Polar Star* were to be unavailable for use in the future.

USCG Plans Ship Service Life Extension to Address Potential Capability Gap, but Has Not Completed Assessments

Figure 5: USCG Potential Heavy Polar Icebreaker Capability Gap Under Initial and Notional (Accelerated) Acquisition Schedules



Source: GAO analysis of U.S. Coast Guard documents. | GAO-17-698R

USCG Plans Ship Service Life Extension to Address Potential Capability Gap, but Has Not Completed Assessments

- USCG has reported its commitment to maintaining heavy polar icebreaking capability, and has been exploring options to sustain this capability until the delivery of the first heavy icebreaker.
- In January 2017, USCG reported the results of its statutorily mandated assessment of four options and their associated costs to sustain heavy icebreaking capability, as shown in figure 6. USCG determined these options were not cost or operationally effective as a bridging strategy for addressing the potential capability gap.

Figure 6: USCG Options and Their Estimated Costs to Bridge Potential Heavy Polar Icebreaker Capability Gap, as Identified in January 2017 Assessment

	Reactivate Polar Sea for 7-10 years	Reactivate Polar Sea for 10-15 years	Reactivate Polar Sea for 15-20 years	Extend Polar Star for 7-10 years
Total acquisition cost (Dollars in millions)	$489	$551	$641	$426
Lifecycle cost (Dollars in millions)	$984	$1,347	$1,729	$934
Project duration	8 years	8.5 years	9 years	7.5 years

Source: GAO analysis of Coast Guard information.| GAO-17-698R

USCG Plans Ship Service Life Extension to Address Potential Capability Gap, but Has Not Completed Assessments

- USCG reported in its January 2017 assessment that instead it is developing plans for a limited service life extension of the *Polar Star*. However, the assessment did not include an analysis of this approach.
- This extension of the *Polar Star* is intended to keep it operational and available for the annual NSF McMurdo resupply until fiscal year 2025.
- USCG officials stated this extension would mitigate the risk if the lead ship, scheduled for delivery in fiscal year 2023, is delayed.
- The Coast Guard's Capital Investment Plan for fiscal years 2018-2022 includes $60 million of a planned $75 million for polar icebreaker sustainment, which officials reported as being the rough estimate for the *Polar Star's* limited service life extension.

USCG Plans Ship Service Life Extension to Address Potential Capability Gap, but Has Not Completed Assessments

- Officials stated in May 2017 that this $75 million estimate is based on the cost of the *Polar Star's* prior 7-10 year service life extension which was completed in fiscal year 2013.
- However, in July 2017 we reported that the Coast Guard has not completed a cost estimate for this effort, and that the $75 million estimate may be unrealistic.
- To refine its rough cost estimate, USCG officials stated in April 2017 they were conducting ship engineering inspections (e.g. structure and machinery) on the *Polar Star* to determine the work needed for the limited service life extension. USCG officials also stated they did not yet have a specific date for completing the inspections nor the development of a formal cost estimate and approach for implementing the planned extension, but are aiming to do so by December 2017.
- In keeping with OMB guidance on making decisions about federal programs, decisions about the limited service life extension should include comprehensive information about the benefits and costs associated with the planned upgrades, including its capability to meet operational objectives. In addition, cost estimating best practices should be used when developing the formal cost estimate. These best practices outline the steps that should be followed to develop a credible cost estimate to include, but not limited to, conducting a risk and uncertainty analysis that accounts for the probability of risk occurrence.

USCG Plans Ship Service Life Extension to Address Potential Capability Gap, but Has Not Completed Assessments

- Coast Guard officials had not been fully collaborating with relevant federal stakeholders to ensure that they have assessed all potential options for bridging the potential gap.
- For example, the bridging strategy planning reports and assessments the Coast Guard has issued thus far have not included input from relevant federal stakeholders such as NSF, the sole mission requester of the *Polar Star*, to ensure that all alternatives are fully considered.
- Coast Guard officials stated that the Coast Guard meets regularly with NSF through bi-weekly meetings to discuss a range of icebreaking issues, but had not specifically involved NSF in technical working groups of an engineering nature since this is a Coast Guard responsibility.
- NSF officials confirmed in April 2017 that they had not been included in the Coast Guard's development of the current bridging strategy approach and believed their involvement in the development of this approach would inform the effort and support decision makers.
- As of August 2017, NSF officials reported that the situation had changed and their collaboration had improved as the Coast Guard had taken steps to engage NSF regarding the bridging strategy.

Enclosure II Comments from the Department of Homeland Security

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

Homeland Security

September 8, 2017

Jennifer Grover
Director, Homeland Security and Justice Issues
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Re: Management's Response to Draft Report GAO-17-698R, "Coast Guard: Status of Polar Icebreaking Fleet Capability and Recapitalization Plan"

Dear Ms. Grover:

Thank you for the opportunity to review and comment on this draft report. The U.S. Department of Homeland Security (DHS) appreciates the U.S. Government Accountability Office's (GAO) work in planning and conducting its review and issuing this report.

The Department is pleased to note GAO's positive recognition of the Coast Guard's efforts to meet its polar icebreaking missions. To effectively meet its mission requirements, the Coast Guard requires three new heavy icebreakers to support the country's economic, commercial, maritime and national security needs. The new icebreakers will be national assets that will ensure access to both polar regions and be capable of executing key Coast Guard missions, including defense readiness; marine environmental protection; ports, waterways and coastal security; and search and rescue. The ships will operate worldwide and face the range of extreme environmental conditions found in the polar, tropical and temperate regions.

The draft report contained one recommendation with which the Department concurs. Please see the attached for our detailed response to this recommendation.

Again, thank you for the opportunity to review and comment on this draft report. Technical comments were previously provided under separate cover. Please feel free to contact me if you have any questions. We look forward to working with you in the future.

Sincerely,

JIM H. CRUMPACKER, CIA, CFE
Director
Departmental GAO-OIG Liaison Office

Attachment

Attachment: DHS Management Response to Recommendation Contained in GAO-17-698R

GAO recommended that the Commandant of the Coast Guard:

Recommendation 1: Complete a comprehensive cost estimate for a limited service life extension of the *Polar Star* that follows cost estimating best practices before committing to this approach for bridging the potential capability gap.

Response: Concur. The Coast Guard Assistant Commandant for Acquisition (CG-9), the Assistant Commandant for Engineering and Logistics (CG-4), and the Assistant Commandant for Capability (CG-7) communities have initiated an Integrated Project Team to review requirements for a POLAR STAR service life extension program (SLEP), informed by engineering survey and analysis, and develop a notional work list for execution. From this proposed work list, the Coast Guard will develop detailed cost estimates. From these estimates, the Coast Guard will evaluate several options for completing the POLAR STAR SLEP to balance external constraints including: budget limitations, operational schedule, and commercial shipyard/organic workforce limitations.

The Coast Guard plans to complete this cost estimate by the end of third quarter of FY 2018, which will inform future POLAR STAR SLEP acquisition events (e.g., ADE-1, etc.). Estimated Completion Date: June 30, 2018.

2

Text of Enclosure II Comments from the Department of Homeland Security

Page 1

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Departmental GAO-OIG Liaison Office

Attachment

Page 2

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