



## Testimony

Before the Subcommittee on Oceans,  
Atmosphere, Fisheries, and Coast Guard,  
Committee on Commerce, Science, and  
Transportation, U.S. Senate

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# COAST GUARD ACQUISITIONS

## Lessons Learned to Inform Coast Guard and NOAA Shipbuilding Efforts

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### Accessible Version

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# GAO Highlights

Highlights of [GAO-19-147T](#), a testimony before the Subcommittee on Oceans, Atmosphere, Fisheries, and Coast Guard, Committee on Commerce, Science, and Transportation, U.S. Senate

## Why GAO Did This Study

Both the Coast Guard—a component of the Department of Homeland Security (DHS)—and the Department of Commerce’s National Oceanic and Atmospheric Administration (NOAA) are investing significant resources to recapitalize their aging fleets of ships. Ensuring that the Coast Guard and NOAA maintain their ships and address potential capability gaps is vital for protecting national security and scientific interests.

This statement summarizes lessons that GAO has identified from its prior reviews of Coast Guard and Navy acquisitions, which can be applied to the Coast Guard’s and NOAA’s shipbuilding efforts. Specifically, this testimony provides information on, among other things, (1) long-term strategic planning for acquisitions, (2) the need for a sound business case, and (3) the leveraging of the Navy’s acquisition resources and shipbuilding expertise. In its prior work, GAO reviewed Coast Guard and Navy programs and interviewed officials. For this testimony, GAO obtained publicly available information on NOAA’s ship acquisition efforts.

## What GAO Recommends

GAO has previously recommended that the Coast Guard develop a 20-year fleet modernization plan, reflect acquisition trade-off decisions in its annual Capital Investment Plans, and address risks to establish a sound business case for its polar icebreakers acquisition. DHS concurred with these recommendations and is taking steps to implement them.

View [GAO-19-147T](#). For more information, contact Marie A. Mak at (202) 512-4841 or [makm@gao.gov](mailto:makm@gao.gov).

October 2018

# COAST GUARD ACQUISITIONS

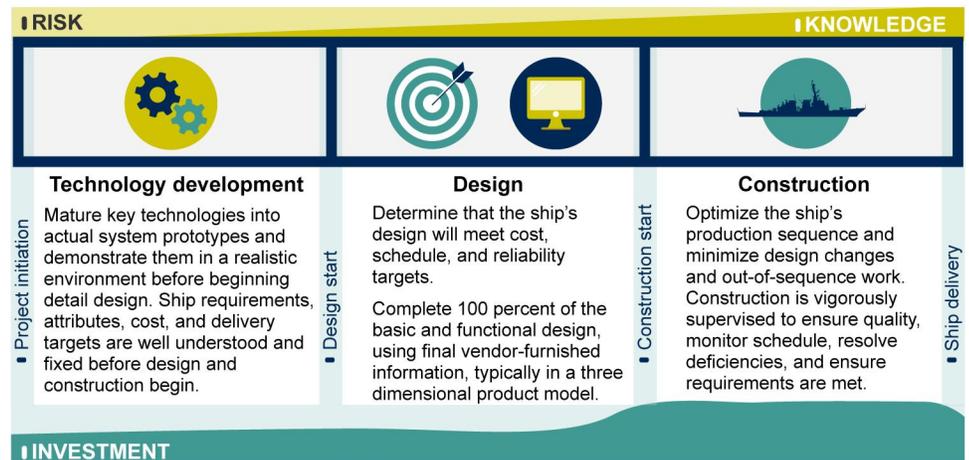
## Lessons Learned to Inform Coast Guard and NOAA Shipbuilding Efforts

### What GAO Found

GAO has found that acquisition programs can benefit from long-term strategic planning that identifies how tradeoff decisions would affect the future of the acquisition portfolio. In July 2018, GAO found the Coast Guard continues to manage its acquisitions through its annual budget process and the 5-year Capital Investment Plan. As a result of this planning process, the Coast Guard has continued to defer planned acquisitions to future years and left a number of operational capability gaps unaddressed. Incorporating the use of a long-term strategic plan and additional tradeoff discussion into the Capital Investment Plan could lead to more informed choices before irreversible commitments are made.

GAO’s prior work has also found that acquisition programs should start with solid business cases before setting program baselines and committing resources. At the heart of a business case is a knowledge-based approach—successful shipbuilding programs build on attaining critical levels of knowledge at key points in the shipbuilding process before significant investments are made (see figure).

### Executing a Strong Shipbuilding Case



Source: GAO depiction of notional shipbuilding process. | GAO-19-147T

### Accessible Data for Executing a Strong Shipbuilding Case

Technology development	Design	Construction
Mature key technologies into actual system prototypes and demonstrate them in a realistic environment before beginning detail design. Ship requirements, attributes, cost, and delivery targets are well understood and fixed before design and construction begin.	Determine that the ship's design will meet cost, schedule, and reliability targets.  Complete 100 percent of the basic and functional design, using final vendor-furnished information, typically in a three dimensional product model.	Optimize the ship's production sequence and minimize design changes and out-of-sequence work. Construction is vigorously supervised to ensure quality, monitor schedule, resolve deficiencies, and ensure requirements are met.

In September 2018, GAO found the Coast Guard did not have this type of sound business case when it established the program baselines for its polar icebreaker program in March 2018 due to risks in technology, design, cost, and schedule. For example, the Coast Guard's planned delivery dates were not informed by a realistic assessment of shipbuilding activities, but rather were primarily driven by the potential gap in icebreaking capabilities once the Coast Guard's only operating heavy polar icebreaker reaches the end of its service life.

Agencies have partnered with the Navy to take advantage of its resources and shipbuilding expertise, including the Coast Guard when acquiring the polar icebreakers. For example, in September 2018, GAO found that the Coast Guard and the Navy had established an integrated program office and a ship design team. These teams provided input to Navy cost estimators, who developed the polar icebreaker program's cost estimate.

Chairman Sullivan, Ranking Member Baldwin, and Members of the Subcommittee:

I am pleased to be here today to discuss key lessons and insights we have identified from our prior work in Coast Guard and Navy acquisitions that may be useful in informing the Coast Guard's and the National Oceanic and Atmospheric Administration's (NOAA) current efforts to recapitalize their aging fleets of ships. The Coast Guard's multi-billion dollar ship acquisition portfolio includes the National Security Cutters, Offshore Patrol Cutters, Fast Response Cutters, and heavy polar icebreakers, which collectively perform critical missions such as search and rescue, law enforcement, and icebreaking. NOAA's research and survey ships comprise the largest fleet of federal research ships in the United States. Ensuring that the Coast Guard and NOAA maintain their ship fleets and address potential capability gaps is vital for protecting national security and scientific interests.

My statement today provides information on: (1) long-term strategic planning for acquisitions (2) the need for a sound business case when acquiring new ships (3) leveraging of the Navy's acquisition expertise and resources and (4) considerations when selecting contracting mechanisms. This statement is based on our extensive body of work examining the Coast Guard's and Navy's acquisition efforts, including our September 2018 report on the Coast Guard's polar icebreaker acquisition and July 2018 report on Coast Guard recapitalization.<sup>1</sup> For the reports cited in this statement, among other methodologies, we analyzed Coast Guard and Navy guidance, data, and documentation, and interviewed Coast Guard and Navy officials. Detailed information on our scope and methodology can be found in the reports cited in this statement. In addition to our prior work, for this statement we obtained publicly

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<sup>1</sup>GAO, *Coast Guard Acquisitions: Polar Icebreaker Program Needs to Address Risks before Committing Resources*, [GAO-18-600](#) (Washington, D.C.: Sept. 4, 2018), *Coast Guard Acquisitions: Actions Needed to Address Longstanding Portfolio Management Challenges*, [GAO-18-454](#) (Washington, D.C.: July 24, 2018); *Best Practices: High Levels of Knowledge at Key Points Differentiate Commercial Shipbuilding from Navy Shipbuilding*, [GAO-09-322](#) (Washington, D.C.: May 13, 2009); and *Defense Acquisitions: Realistic Business Cases Needed to Execute Navy Shipbuilding Programs*, [GAO-07-943T](#) (Washington, D.C.: July 24, 2007).

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available information from NOAA regarding its ship acquisition and recapitalization efforts; we did not assess its efforts.<sup>2</sup>

We conducted the work on which this statement is based 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 the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

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## Long-Term Strategic Planning in Acquisitions Enables Better Tradeoff Decisions

Key elements of strategic planning include establishing long-term goals and strategies for how those goals are to be achieved.<sup>3</sup> Specifically for managing Coast Guard acquisitions, we have noted that a long-term plan that includes acquisition implications would enable tradeoffs to be addressed in advance, which leads to better informed choices and makes debate possible before irreversible commitments are made to individual programs.<sup>4</sup> Without this type of plan, decision makers do not have the information they need to better understand and address an agency's long-term outlook. Similarly, according to the Office of Management and Budget's capital planning guidance referenced by the Coast Guard's Major Systems Acquisition Manual, each agency is encouraged to have a plan that justifies its long-term capital asset decisions. This plan should include, among other things, (1) an analysis of the portfolio of assets already owned by the agency and in procurement, (2) the performance gap and capability necessary to bridge the old and new assets, and (3) justification for new acquisitions proposed for funding.

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<sup>2</sup>We have prior work on NOAA's efforts to collect hydrographic data, which includes information on hydrographic survey vessels. See GAO, *Hydrographic Surveying: NOAA Needs Better Cost Data and a Strategy for Expanding Private Sector Involvement in Data Collection*, [GAO-17-510](#) (Washington, D.C.: June 15, 2017).

<sup>3</sup>See GAO, *Managing for Results: Critical Issues for Improving Federal Agencies' Strategic Plans*, [GAO/GGD-97-180](#) (Washington, D.C.: Sept. 16, 1997).

<sup>4</sup>GAO, *Coast Guard Acquisitions: Limited Strategic Planning Efforts Pose Risk for Future Acquisitions*, [GAO-17-747T](#) (Washington, D.C.: July 25, 2017); and *Coast Guard Acquisitions: Better Information on Performance and Funding Needed to Address Shortfalls*, [GAO-14-450](#) (Washington, D.C.: June 5, 2014).

In June 2014, we found that the Coast Guard—a component within the Department of Homeland Security (DHS)—did not have a long-term fleet modernization plan that identified all acquisitions needed to meet mission needs over the next two decades within available resources.<sup>5</sup> Without such a plan, the Coast Guard repeatedly delayed and reduced its capabilities through its annual budget process and did not know the extent to which it could meet mission needs and achieve desired results. We recommended that the Coast Guard develop a 20-year fleet modernization plan that identifies all acquisitions needed to maintain the current level of service and the fiscal resources necessary to build the identified assets. DHS agreed with our recommendation but it has not yet approved a 20-year plan.

Further, in July 2018, we found the Coast Guard continues to manage its acquisitions through its annual budget process and the 5-year Capital Investment Plan, which is congressionally mandated and submitted to Congress annually.<sup>6</sup> Coast Guard officials told us the Capital Investment Plan reflects the highest priorities of the department and that trade-off decisions are made as part of the annual budget process. However, the effects of these trade-off decisions, such as which acquisitions would take on more risk so others can be prioritized and adequately funded, are not communicated in the Capital Investment Plan to key decision makers. Over the years, this approach has left the Coast Guard with a bow wave of near-term unfunded acquisitions, negatively affecting recapitalization efforts, and limiting the effectiveness of long-term planning. As a result of this planning process, the Coast Guard has continued to defer planned acquisitions to future years and left a number of operational capability gaps unaddressed that could affect future operations. We recommended that the annual Capital Investment Plans reflect acquisition trade-off decisions and their effects. DHS concurred with this recommendation and plans to include additional information in future Capital Investment Plans to address how trade-off decisions could affect other major acquisition programs. According to Coast Guard officials, the Coast Guard plans to implement this recommendation by March 2020.

Examples of other fleet modernization plans include the Navy's annual naval vessel construction plan (also known as the Navy's long range shipbuilding plan), which reflects the quantity and categories of assets

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<sup>5</sup>[GAO-14-450](#).

<sup>6</sup>[GAO-18-454](#).

that the Navy needs to buy as well as the total number of assets in operation for each year. While we found in March 2006 that the Navy faced challenges associated with its long range shipbuilding plan, we also observed that such a plan is beneficial in that it lays out a strategic approach for decision making.<sup>7</sup> In October 2016, NOAA—which is within the Department of Commerce—approved a fleet plan that is intended to identify an integrated strategy for long-term recapitalization, including acquisition of up to eight new ships. In March 2017, NOAA indicated that long-term recapitalization of the NOAA fleet requires an annual, stable funding profile on the order of its fiscal year 2016 appropriations—about \$80 million. NOAA noted that it will continue to proceed on schedule, as laid out in its fleet plan, or make adjustments based on available funding.

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## Successful Acquisition Programs Begin with Sound Business Cases

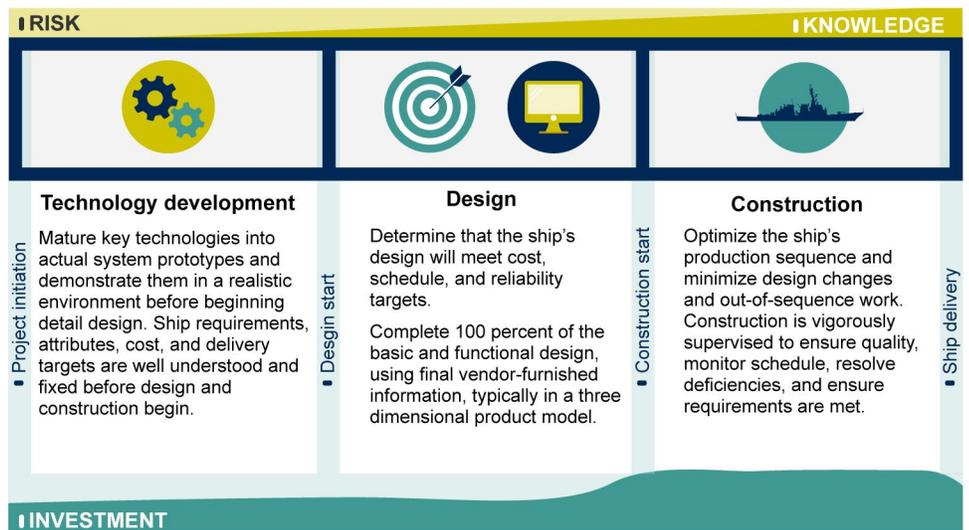
Our prior work has repeatedly found that successful acquisition programs start with solid, executable business cases before setting program baselines and committing resources.<sup>8</sup> A sound business case requires balance between the concept selected to satisfy operator requirements and the resources—design knowledge, technologies, funding, and time—needed to transform the concept into a product, such as a ship. At the heart of a business case is a knowledge-based approach—we have found that successful shipbuilding programs build on attaining critical levels of knowledge at key points in the shipbuilding process before significant investments are made (see figure 1).

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<sup>7</sup>GAO, *Defense Acquisitions: Challenges Associated with the Navy's Long-Range Shipbuilding Plan*, [GAO-06-587T](#) (Washington, D.C.: Mar. 30, 2006).

<sup>8</sup>GAO, *Navy Shipbuilding: Past Performance Provides Valuable Lessons for Future Investments*, [GAO-18-238SP](#) (Washington, D.C.: June 6, 2018); *Weapon System Requirements: Detailed Systems Engineering Prior to Product Development Positions Programs for Success*, [GAO-17-77](#) (Washington, D.C.: Nov. 17, 2016); [GAO-09-322](#); and [GAO-07-943T](#).

**Figure 1: Executing a Strong Shipbuilding Case**



Source: GAO depiction of notional shipbuilding process. | GAO-19-147T

**Accessible Data for Figure 1: Executing a Strong Shipbuilding Case**

Technology development	Design	Construction
Mature key technologies into actual system prototypes and demonstrate them in a realistic environment before beginning detail design. Ship requirements, attributes, cost, and delivery targets are well understood and fixed before design and construction begin.	Determine that the ship's design will meet cost, schedule, and reliability targets. Complete 100 percent of the basic and functional design, using final vendor-furnished information, typically in a three dimensional product model.	Optimize the ship's production sequence and minimize design changes and out-of-sequence work. Construction is vigorously supervised to ensure quality, monitor schedule, resolve deficiencies, and ensure requirements are met.

We have previously found that key enablers of a good business case include firm, feasible requirements; plans for a stable design; mature technologies; reliable cost estimates; and realistic schedule targets.<sup>9</sup> Without a sound business case, acquisition programs are at risk of experiencing cost growth, schedule delays, and reduced capabilities.

<sup>9</sup>GAO-17-77; GAO-07-943T; and *Best Practices: Using A Knowledge-Based Approach To Improve Weapon Acquisition*, GAO-04-386SP (Washington, D.C.: Jan. 1, 2004).

In September 2018, we found the Coast Guard did not have this type of sound business case when it established the cost, schedule, and performance baselines for its polar icebreaker program in March 2018.<sup>10</sup> This was primarily due to risks in four key areas:

- **Technology.** The Coast Guard intends to use proven technologies for the program, but did not conduct a technology readiness assessment to determine the maturity of key technologies—which include the integrated power plant and azimuthing propulsors— prior to setting baselines.<sup>11</sup> As a result, the Coast Guard does not have full insight into whether these technologies, which we believe are critical technologies and merit such an assessment, are mature. Without a technology readiness assessment, the Coast Guard is potentially underrepresenting technical risk and increasing design risk.
- **Cost.** The cost estimate that informed the program’s \$9.8 billion cost baseline—which includes lifecycle costs for the acquisition, operations, and maintenance of three polar icebreakers—substantially met our best practices for being comprehensive, well-documented, and accurate, but only partially met best practices for being credible.<sup>12</sup> The cost estimate did not quantify the range of possible costs over the entire life of the program, such as the period of operations and support. As a result, the cost estimate was not fully reliable and may underestimate the total funding needed for the program.
- **Schedule.** The Coast Guard’s planned delivery dates of 2023, 2025, and 2026 for the three ships were not informed by a realistic assessment of shipbuilding activities, but rather were primarily driven by the potential gap in icebreaking capabilities once the Coast

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<sup>10</sup>[GAO-18-600](#).

<sup>11</sup>A technology readiness assessment is a systematic, evidence-based process that evaluates the maturity of critical technologies—hardware and software technologies critical to the fulfillment of the key objectives of an acquisition program. According to our best practices, a technology readiness assessment should be conducted prior to program initiation. For more information, see *GAO Technology Readiness Assessment Guide: Best Practices for Evaluating the Readiness of Technology for Use in Acquisition Programs and Projects*, [GAO-16-410G](#) (Washington, D.C.: Aug. 11, 2016).

<sup>12</sup>The GAO Cost Estimating and Assessment Guide was used as criteria in this analysis. A cost estimate is considered reliable if the overall assessment ratings for each of the four characteristics—comprehensive, accurate, well documented, and credible—are substantially or fully met. For more information, see *GAO Cost Estimating and Assessment Guide: Best Practices for Developing and Managing Capital Program Costs*, [GAO-09-3SP](#) (Washington, D.C.: Mar. 2, 2009).

Guard's only operating heavy polar icebreaker—the *Polar Star*—reaches the end of its service life (see figure 2).

**Figure 2: The Coast Guard's Heavy Polar Icebreaker, Polar Star**

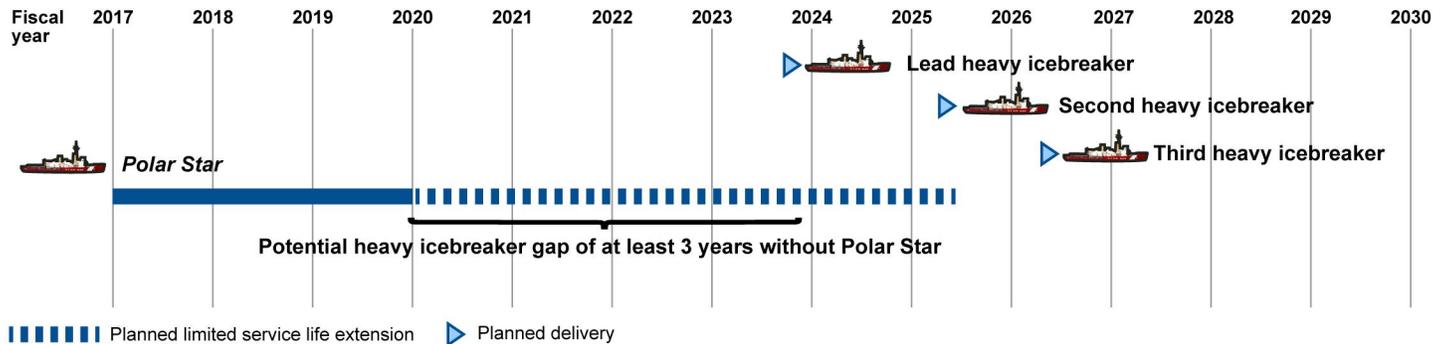


U.S. Coast Guard Cutter Polar Star

Source: U.S. Coast Guard. | GAO-19-147T

The *Polar Star's* service life is estimated to end between fiscal years 2020 and 2023. This creates a potential heavy polar icebreaker capability gap of about 3 years, if the *Polar Star's* service life were to end in 2020 and the lead polar icebreaker were to be delivered by the end of fiscal year 2023 as planned. If the lead ship is delivered later than planned in this scenario, the potential gap could be more than 3 years. The Coast Guard is planning to recapitalize the *Polar Star's* key systems starting in 2020 to extend the service life of the ship until the planned delivery of the second polar icebreaker (see figure 3).

**Figure 3: The Coast Guard’s Potential Heavy Polar Icebreaker Capability Gap and Planned Delivery of New Heavy Polar Icebreakers**



Source: GAO analysis of U.S. Coast Guard documents. | GAO-19-147T

Further, our analysis of selected lead ships for other shipbuilding programs found the icebreaker program’s estimated construction time of 3 years is optimistic. An unrealistic schedule puts the Coast Guard is at risk of not delivering the icebreakers when promised and the potential gap in icebreaking capabilities could widen.

- **Design.** The Coast Guard set program baselines before conducting a preliminary design review—a systems engineering event that is intended to verify that the contractor’s design meets the requirement of the ship specifications and is producible—which puts the program at risk of having an unstable design, thereby increasing the program’s cost and schedule risks. Although the Coast Guard set the program baselines prior to gaining knowledge on the feasibility of the selected shipbuilder’s design, it has expressed a commitment to having a stable design prior to the start of lead ship construction. This is consistent with shipbuilding best practices we identified in 2009.<sup>13</sup>

To address these four areas and other risks, we made six recommendations to DHS, Coast Guard, and the Navy in our September 2018 report.<sup>14</sup> DHS concurred with all six recommendations and identified actions it planned to take to address them.

In its October 2016 fleet plan, NOAA indicated the need to construct up to eight new ships by 2028 to maintain its capabilities for at-sea

<sup>13</sup>GAO-09-322.

<sup>14</sup>GAO-18-600.

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requirements. Ensuring a sound business case for each acquisition will be important as NOAA moves forward.

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## Leveraging Navy's Shipbuilding Experience May Create Efficiencies

Given the Navy's experience in shipbuilding, agencies have partnered with the Navy to take advantage of its expertise. For example, in April and September 2018, we found examples of how the Coast Guard had leveraged the Navy's resources and acquisition approaches when acquiring the polar icebreakers, including:<sup>15</sup>

- **Establishing an integrated program office and potentially using funding from both organizations.** In 2016, in response to a congressional report, the Navy and the Coast Guard established an integrated program office to acquire the icebreakers for Coast Guard operations. This relationship was officially memorialized through three memorandums in 2017.

Given potential plans to fund the polar icebreaker program with both Navy and Coast Guard appropriations, the Navy and the Coast Guard had a memorandum of agreement with a budgeting and financial management appendix. In September 2018, however, we found that the Coast Guard and the Navy interpreted the meaning of "cost overruns" differently in the context of their agreement.<sup>16</sup> We also found that the agreement itself did not address how the Coast Guard and the Navy plan to handle any cost growth stemming from changes to the scope, terms, and conditions of the detail design and construction contract. We recommended that the Coast Guard, in collaboration with the Navy, revise the agreement to clarify and document how cost growth in the polar icebreaker program, including changes in scope, will be addressed between the two organizations. The Coast Guard concurred with this recommendation and plans to update the agreement by March 2019.

- **Establishing an integrated ship design team.** The ship design team includes Coast Guard and Navy technical experts who develop ship

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<sup>15</sup>[GAO-18-600](#); GAO, *Coast Guard Acquisitions: Status of Coast Guard's Heavy Polar Icebreaker Acquisition*, [GAO-18-385R](#) (Washington, D.C.: Apr. 13, 2018).

<sup>16</sup>[GAO-18-600](#).

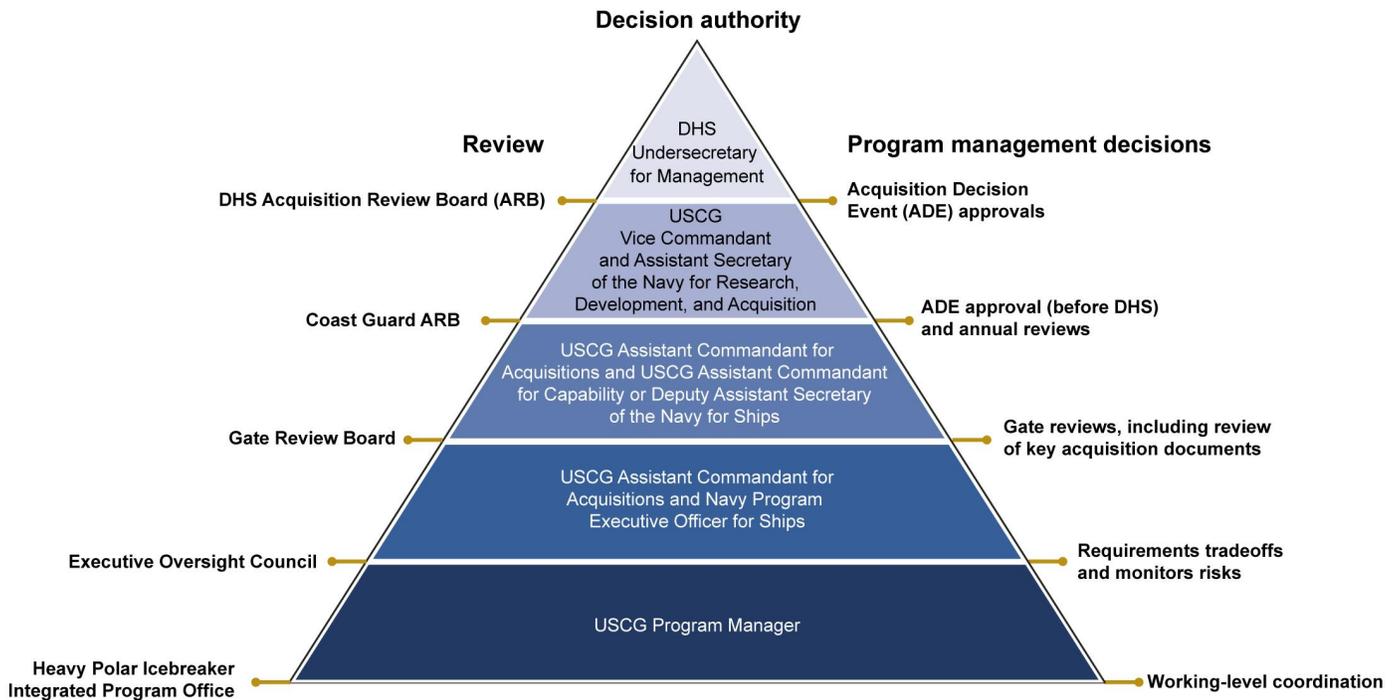
specifications based on the polar icebreaker program's operational requirements document. The ship design team is under the supervision of a Coast Guard ship design manager, who provides all technical oversight for development of the polar icebreaker's design.

- **Leveraging Navy cost estimating and contracting functions.** With input from the integrated program office and ship design team, Navy cost estimators developed the polar icebreaker program's cost estimate, which informed the program's cost baselines and affordability constraints. In addition, the Navy plans to award the polar icebreaker's detail design and construction contract under the Navy's contracting authority and use a tailored DHS acquisition process.
- **Supplementing the DHS acquisition process with the Navy's gate review process.** Coast Guard and Navy agreed to manage the polar icebreaker program using a tailored acquisition approach that supplements DHS acquisition decision event reviews with additional "gate" reviews that were adopted from Navy's acquisition processes.<sup>17</sup> The gate reviews allow both Coast Guard and Navy leadership to review and approve key documents before proceeding to the acquisition decision events. Each acquisition decision event is also overseen by acquisition oversight board with members from both the Coast Guard and the Navy (see figure 4).

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<sup>17</sup>Acquisition decision events are milestone reviews in which the Coast Guard and DHS assess and verify an acquisition program's successful satisfaction of established exit criteria, affordability, and a readiness to move forward to the next acquisition phase.

**Figure 4: Heavy Polar Icebreaker Oversight Boards and Approval Authorities**



DHS = Department of Homeland Security  
 Source: GAO analysis of Coast Guard data. | GAO-19-147T

**Accessible Data for Figure 4: Heavy Polar Icebreaker Oversight Boards and Approval Authorities**

Review	Decision authority	Program management decisions
DHS Acquisition Review Board (ARB)	DHS Undersecretary for Management	Acquisition Decision Event (ADE) approvals
Coast Guard ARB	USCG Vice Commandant and Assistant Secretary of the Navy for Research, Development, and Acquisition	ADE approval (before DHS) and annual reviews
Gate Review Board	USCG Assistant Commandant for Acquisitions and USCG Assistant Commandant for Capability or Deputy Assistant Secretary of the Navy for Ships	Gate reviews, including review of key acquisition documents

Review	Decision authority	Program management decisions
Executive Oversight Council	USCG Assistant Commandant for Acquisitions and Navy Program Executive Officer for Ships	Requirements tradeoffs and monitors risks
Heavy Polar Icebreaker Integrated Program Office	USCG Program Manager	Working-level coordination

By collaborating with the Navy, the Coast Guard is leveraging the Navy’s experience in ship design, cost estimating, contracting, and other shipbuilding processes. This partnership may allow the Coast Guard to more efficiently manage the polar icebreaker program.

In March 2017, NOAA indicated that it had partnered with the Navy through an interagency agreement to leverage the Navy’s acquisition expertise for Auxiliary General Purpose Oceanographic Research Vessels, which will be the basis for a new class of NOAA ships. In April 2018, the Navy released the request for proposal for the preliminary contract design of this new class of ships.

## Estimated Savings and Requirements Stability Should be Considered When Selecting Contracting Mechanisms

When acquiring multiple quantities of a product, agencies generally have several options for contracting mechanisms. Annual contracting, which can be considered the typical method, refers to awarding a contract for one year’s worth of requirements. Annual contracting allows for the use of options for subsequent requirements. Options give the agency the unilateral right to purchase additional supplies or services called for by the contract, or to extend the term of the contract. Besides annual contracting with options, agencies may also be able to choose among other contracting mechanisms—multiyear contracting and “block buy” contracting, which are discussed in more detail below.

### Multiyear Contracting Requirements and Considerations

Multiyear contracting allows agencies to acquire known requirements for up to 5 years under a single contract award, even though the total funds ultimately to be obligated may not be available at the time of contract

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award. Before DOD and Coast Guard can enter into a multiyear contract, certain criteria must be met.<sup>18</sup> Table 1 provides some of the multiyear contracting requirements for DOD and the Coast Guard.

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<sup>18</sup>10 U.S.C. § 2306b, implemented by Federal Acquisition Regulation (FAR) 17.105-1(b). NOAA may enter into a multiyear contract if the head of the contracting activity determines that the need is reasonably firm and continuing over the life of the contract and the contract will serve the best interests of the United States by encouraging full and open competition or promoting economy in administration, performance, and operation of the agency's programs. See FAR 17.105-1(a).

**Table 1: Key Statutory Requirements for Department of Defense and Coast Guard Multiyear Procurement Candidates**

Criteria	Description
Substantial savings	The head of the agency must find that use of a multiyear contract will result in significant savings in the total estimated costs when compared to the use of a series of annual contracts for the same procurement.
Stability of the requirement	The head of the agency must find that the minimum need to be purchased in terms of total quantity, production rate, and procurement rate is expected to be substantially unchanged during the multiyear contract period.
Stability of funding	The head of the agency must find that there is a reasonable expectation that sufficient funding will be requested to carry out the contract and avoid cancellation over the proposed multiyear contract period.
Stable design	The head of the agency must find that they have technical risks that are not excessive over the multiyear period and there is a stable design.
Realistic cost estimates	The head of the agency must find that estimates of contract cost and projected multiyear savings / cost avoidance through the use of a multiyear contract strategy are realistic.
National security	In the case of a purchase by the Department of Defense, the head of the agency must find that the use of a multiyear contracting strategy will promote the national security interests of the United States government.

Source: GAO analysis and 10 U.S.C. § 2306b. | GAO-19-147T

Multiyear contracts are expected to achieve lower unit costs compared to annual contracts through one or more of the following sources: (1) purchase of parts and materials in economic order quantities, (2) improved production processes and efficiencies, (3) better utilized industrial facilities, (4) limited engineering changes due to design stability during the multiyear period, and (5) cost avoidance by reducing the burden of placing and administering annual contracts.<sup>19</sup> Multiyear procurement also offers opportunities to enhance the industrial base by providing contractors a longer and more stable time horizon for planning and investing in production and by attracting subcontractors, vendors, and suppliers. However, multiyear procurement entails certain risks that must be balanced against the potential benefits, such as the increased costs to the government should the multiyear contract be changed or canceled and decreased annual budget flexibility for the program and across an agency’s portfolio of acquisitions.

In February 2008, we found that it is difficult to precisely determine the impact of multiyear contracting on procurement costs.<sup>20</sup> For example, for

<sup>19</sup>Contracting for economic order quantities or bulk quantities generally refers to the purchase of parts in larger more economically efficient quantities to minimize the cost of these items.

<sup>20</sup>GAO, *Defense Acquisitions: DOD’s Practices and Processes for Multiyear Procurement Should Be Improved*, [GAO-08-298](#) (Washington, D.C.: Feb. 7, 2008).

three multiyear procurements (Air Force's C-17A Globemaster transport, the Navy's F/A-18E/F Super Hornet fighter, and the Army's Apache Longbow helicopter), we identified unit cost growth ranging from 10 to 30 percent compared to original estimates, due to changes in labor and material costs, requirements and funding, and other factors. In some cases, actual costs for the multiyear procurement were higher than original estimates for annual contracts. We noted that we could not determine how cost growth affected the level of savings achieved, if any, because we did not know how an alternative series of annual contracts would have fared. Although programs using annual contracts also have unit cost growth, it is arguably more problematic when using multiyear contracting because of the up-front investments and the government's exposure to risk over multiple years.

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## Block Buy Contracting Considerations

Block buy contracting generally refers to special legislative authority that agencies seek on an acquisition-by-acquisition basis to purchase more than one year's worth of requirements, such as purchasing supplies in economic order quantities. Unlike multiyear contracting, block buy contracting does not have permanent statutory criteria and, therefore, can be used in different ways.

We have previously analyzed several cases where block buy contracts were considered or used and have not found evidence of savings. For example:

- In September 2018, we found that for the polar icebreaker program, the Navy gave offerors an opportunity to provide the estimated savings that the government could achieve if it were to take a "block buy" approach in purchasing the ships or purchasing supplies in economic order quantities.<sup>21</sup> The Navy told us that they did not receive any formal responses from industry on potential savings from block buys or economic order quantities.
- In April 2017, we found that the Navy's Littoral Combat Ship contracts' block buy approach could affect Congress's funding flexibility.<sup>22</sup> Specifically, the block buy contracts provided that a failure to fully fund

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<sup>21</sup>[GAO-18-600](#).

<sup>22</sup>GAO, *Littoral Combat Ship and Frigate: Delaying Planned Frigate Acquisition Would Enable Better-Informed Decisions*, [GAO-17-323](#) (Washington, D.C.: Apr. 18, 2017).

a purchase in a given year would make the contract subject to renegotiation, which provides a disincentive to the Navy or Congress to take any action that might disrupt the program because of the potential for the government to have to pay more for ships.

- In February 2005, we found that the Navy believed that a block-buy contract contributed to increased material costs for the Virginia class submarine.<sup>23</sup> Under this block-buy contract, subcontracts for submarine materials were for single ships spread over several years. According to the Navy, this type of acquisition approach did not take advantage of bulk-buy savings and incurred the risk that funding will not be available in time to order the material when needed.

Based on our prior work, it is important for agencies to consider multiple factors such as estimated savings, the stability of the requirements, quantities required, and potential contract terms and conditions before committing to a contracting mechanism approach.

In conclusion, as the Coast Guard and NOAA continue investing taxpayer dollars to modernize their fleets, they could benefit from the lessons learned from prior recapitalization and acquisition efforts. It is important for agencies to develop strategic and comprehensive approaches for managing their respective portfolios so that future requirements and capability gaps can be addressed in a timely manner. For each acquisition within their portfolios, agencies should ensure that they have established a sound business case before committing significant resources. Additionally, leveraging the Navy's resources and expertise in shipbuilding, such as by establishing integrated teams, could be beneficial by helping agencies be more efficient. Finally, when it comes to contracting mechanisms, factors such as estimated savings and program risks should be assessed before committing to a particular approach.

Chairman Sullivan, Ranking Member Baldwin, and Members of the Subcommittee, this concludes my prepared statement. I would be pleased to respond to any questions.

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<sup>23</sup>GAO, *Defense Acquisitions: Improved Management Practices Could Help Minimize Cost Growth in Navy Shipbuilding Programs*, [GAO-05-183](#) (Washington, D.C.: Feb. 28, 2005).

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## GAO Contact and Staff Acknowledgments

If you or your staff have any questions about this statement, please contact Marie A. Mak, (202) 512-4841 or [makm@gao.gov](mailto:makm@gao.gov). In addition, contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this statement. Individuals who made key contributions to this testimony include Rick Cederholm, Assistant Director; Peter Anderson; Laurier Fish; Kurt Gurka; Claire Li; and Roxanna Sun.

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