



June 2014

COAST GUARD ACQUISITIONS

Better Information on Performance and Funding Needed to Address Shortfalls

GAO Highlights

Highlights of [GAO-14-450](#), a report to congressional requesters

Why GAO Did This Study

The Coast Guard is managing a multi-billion dollar effort to modernize aging assets, including ships, aircraft, and information technology to provide new capabilities to conduct missions ranging from marine safety to defense readiness. GAO has reviewed the Coast Guard's acquisitions since 2001 and has found it faces challenges managing its portfolio. In 2007, the Coast Guard established a cost baseline of \$24.2 billion for 13 assets. GAO was asked to examine the Coast Guard's current and planned acquisition portfolio.

This report assesses: (1) operational performance and testing of selected assets; (2) the current cost of the Coast Guard's portfolio and funding plans; and (3) the extent to which the Coast Guard is experiencing capability gaps, if any, given known affordability issues. To conduct this work, GAO analyzed the operational performance and test reports for all 4 newly fielded assets that the Coast Guard planned to test and the costs and capabilities of its major system acquisition portfolio. GAO also interviewed Coast Guard, DHS, and Navy officials.

What GAO Recommends

Congress should consider requiring the Coast Guard to include additional information in its Capital Investment Plan. In addition, the Secretary of DHS should clarify when minimum performance standards should be achieved, conduct C4ISR testing, and develop a long-term modernization plan. DHS concurred with the recommendations, but its position on developing a long-term plan does not fully address GAO's concerns as discussed in the report.

View [GAO-14-450](#). For more information, contact Michele Mackin at (202) 512-4841 or mackinm@gao.gov.

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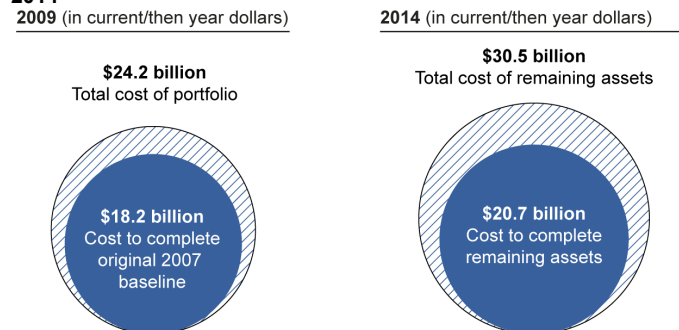
Better Information on Performance and Funding Needed to Address Shortfalls

What GAO Found

The selected Coast Guard assets that GAO reviewed are generally demonstrating improved performance—according to Coast Guard operators—but GAO found that they have yet to meet all key requirements. Specifically, two assets, the HC-144 patrol aircraft and Fast Response Cutter, did not meet all key requirements during operational testing before being approved for full-rate production, and Department of Homeland Security (DHS) and Coast Guard guidance do not clearly specify when this level of performance should be achieved. Additionally, the Coast Guard changed its testing strategy for the Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) system and, as a result, is no longer planning to test the system's key requirements. Completing operational testing for the C4ISR system would provide the Coast Guard with the knowledge of whether this asset meets requirements.

As acquisition program costs increase across the portfolio, consuming significant amounts of funding, the Coast Guard is farther from fielding its planned fleet today than it was in 2009, in terms of the money needed to finish these programs. In 2009, GAO found that the Coast Guard needed \$18.2 billion to finish its 2007 baseline, but now needs \$20.7 billion to finish these assets.

The Total Cost of and Cost to Complete the Coast Guard's Original 2007 Baseline in 2009 and 2014



Source: GAO analysis of Coast Guard data.

To inform Congress of its budget plans, the Coast Guard uses a statutorily required 5-year Capital Investment Plan, but the law does not require the Coast Guard to report the effects of actual funding levels on individual projects and, thus, it has not done so. For example, the Coast Guard has received less funding than planned in its annual budgets, but has not reflected the effects of this reduced funding in terms of increased cost or schedule for certain projects. Without complete information, Congress cannot know the full cost of the portfolio.

The Coast Guard has repeatedly delayed and reduced its capability through its annual budget process and, therefore, it does not know the extent to which it will meet mission needs and achieve desired results. This is because the Coast Guard does not have a long-term fleet modernization plan that identifies all acquisitions needed to meet mission needs over the next two decades within available resources. Without such a plan, the Coast Guard cannot know the extent to which its assets are affordable and whether it can maintain service levels and meet mission needs.

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June 5, 2014

The Honorable Bill Shuster
Chairman
Committee on Transportation and Infrastructure
House of Representatives

The Honorable Duncan Hunter
Chairman
Subcommittee on Coast Guard and Maritime Transportation
Committee on Transportation and Infrastructure
House of Representatives

The Coast Guard is managing a multi-billion dollar acquisition portfolio as it seeks to modernize its aging assets, including ships, planes, and information technology. Since 2001, we have reviewed the Coast Guard's acquisition programs and reported to Congress on the risks and uncertainties in its acquisition portfolio.¹ Our prior work has highlighted problems with the cost, management, and oversight of the Coast Guard's acquisition portfolio that have led to delivery delays and other operational challenges. For example, in a report issued in September 2012, we found that the cost and schedule of the Coast Guard's acquisition portfolio remains unknown because of outdated baselines and uncertainty surrounding affordability. We also found that opportunities exist to address affordability through the requirements process. Overall, we concluded that the Coast Guard had made strides in its efforts to improve its acquisition management capabilities, and the Department of Homeland Security (DHS) agreed with our recommendations to conduct a portfolio review and to identify the Executive Oversight Council as the body to oversee the Coast Guard's portfolio management approach.²

You asked us to review the Coast Guard's current and planned acquisition portfolio. We reviewed (1) how selected assets are performing operationally and to what extent they are achieving desired performance levels in testing; (2) the current cost of the Coast Guard's acquisition

¹ See list of related GAO products at the end of this report.

² GAO, *Coast Guard: Portfolio Management Approach Needed to Improve Major Acquisition Outcomes*, [GAO-12-918](#) (Washington, D.C.: Sept. 20, 2012).

portfolio as well as plans to fund its assets; and (3) the extent to which the Coast Guard is experiencing capability gaps, if any, given known affordability issues.

To assess the operational performance of Coast Guard assets, we selected all four major acquisition programs that were fielded between fiscal year 2007 and 2014 that the Coast Guard planned to test. These assets were also part of the Coast Guard's original 2007 baseline. The specific assets reviewed were the Maritime Patrol Aircraft (HC-144), Fast Response Cutter, National Security Cutter, and Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems. For each asset, we reviewed the operational performance through post deployment reports, test reports, and met with asset operators. We also interviewed officials at the Navy's Commander Operational Test and Evaluation Force (COTF) and DHS Office of Test and Evaluation to discuss observations and met with officials from the four programs. To assess the cost and schedule of the Coast Guard's portfolio and steps taken to address affordability concerns, we reviewed each asset's acquisition program baseline as well as the Coast Guard's budget and discussed the acquisition portfolio with Coast Guard, DHS, and Office of Management and Budget (OMB) officials and followed up on previous efforts to address affordability. We also reviewed the Coast Guard's Capital Investment Plan and compared it to the relevant law that specifies the contents of the plan.³ To assess what, if any, capability gaps exist given the Coast Guard's affordability issues, we reviewed funding needs, mission needs, future plans, and performance data and reviewed the Coast Guard's fiscal year 2014 and 2015 budgets. We reviewed the Coast Guard's estimates of its overall fleet performance in key areas and also reviewed any current or potential performance gaps. We also looked at the extent to which the Coast Guard is pursuing alternatives that could reduce costs. Appendix I contains more information regarding our scope and methodology.

³ 14 U.S.C. § 663. The Coast Guard's Capital Investment Plan is a 5-year plan presented to Congress that includes, among other things, projected funding for capital assets in such areas as acquisition, construction, and improvements. The Coast Guard updates the Capital Investment Plan annually, and submits it with the President's budget in any given year. The Capital Investment Plan is approved by DHS and OMB and, as we have reported in the past, is subject to significant change each year. See [GAO-12-918](#).

We conducted this performance audit from June 2013 to June 2014 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.

Background

The Coast Guard is a multi-mission, maritime military service within DHS. The Coast Guard's range of responsibilities includes maintaining the United States' maritime borders, facilitating the global movement of commerce, safeguarding marine resources, and protecting those at sea. To meet its statutory missions, the Coast Guard operates a number of vessels, aircraft, and information technology systems. Many of the assets that the Coast Guard operates were delivered between 1960 and 1992 and are approaching the end of or have exceeded the period for which they were expected to perform—known as the assets' service lives.

A Brief History of the Deepwater Program

The Coast Guard began a recapitalization effort in the late 1990s to modernize a significant portion of its entire surface and aviation fleet by rebuilding or replacing assets. The Coast Guard awarded a contract to Integrated Coast Guard Systems (ICGS) in June 2002 to be the systems integrator for the portfolio. The Coast Guard generally provided ICGS with broad, overall performance specifications—such as the ability to interdict illegal immigrants—and ICGS determined the assets needed and their specifications. A central aspect of this effort was to use information technology to connect its major assets through a single command and control architecture—C4ISR—to improve the accuracy and speed of conducting Coast Guard missions. This system of systems approach was the effort formerly known as Deepwater. In 2002, the Coast Guard conducted an analysis that determined the fleet, as designed by ICGS, would have significant capability gaps in meeting mission requirements that emerged after the September 11, 2001, terrorist attacks. The Coast Guard decided, due to fiscal constraints, not to make significant changes to the ICGS planned fleet, but did approve changes to several assets' capabilities. In 2012, we reported on the Coast Guard's progress in

achieving these capabilities, such as adding chemical, biological, and other decontamination capability.⁴

In 2006, the Coast Guard acknowledged that it had relied too heavily on contractors and, citing cost increases, took over the role of lead systems integrator. DHS approved a new baseline in May 2007 that established the total acquisition cost of the Deepwater program at \$24.2 billion and projected the Coast Guard would complete the acquisition in 2027. The Coast Guard also reconsidered the planned fleet mix, required to meet the established mission needs, through a series of analyses. We reviewed these analyses in May 2012 and found that the Coast Guard did not consider any assets with less capability than the Deepwater assets and that the Coast Guard used optimistic cost constraints to conclude that it could afford the portfolio.⁵ As of the approval of the fiscal year 2012 budget, DHS and the Coast Guard no longer use the term “Deepwater” for the program aimed at recapitalizing its surface, air, and information technology capacity. This effort is now called Coast Guard recapitalization and it includes many of the assets that made up the former Deepwater effort as well as other major acquisitions.

Overview of the Current Coast Guard Acquisition Portfolio

The Coast Guard has 11 major acquisition programs in its current portfolio, based on the Fiscal Years 2014 through 2018 Capital Investment Plan. Of these 11 programs, 8 were also a part of the 2007 recapitalization portfolio.⁶ Over time, the composition of the portfolio has changed. For example, since our last review in 2012, the Coast Guard has added 3 programs to its acquisition portfolio and another 7 programs are ending and, therefore, will no longer need additional acquisition funding. Table 1 provides information regarding each major acquisition program in the portfolio as well as the programs that do not need additional funding. Shaded assets were a part of the 2007 recapitalization

⁴ [GAO-12-918](#).

⁵ GAO, *Observations on the Coast Guard's and the Department of Homeland Security's Fleet Studies*, [GAO-12-751R](#) (Washington, D.C.: May 31, 2012).

⁶ A major acquisition is equipment, service, and/or intellectual property acquired by the Coast Guard with a lifecycle cost greater than \$300 million.

portfolio, formerly known as Deepwater. Appendix III shows the estimated cost of programs in the current portfolio.⁷

Table 1: Coast Guard Major Acquisition Portfolio as of March 2014

Name	Quantity delivered	Quantity planned	Description
Surface			
National Security Cutter	3	8	The 418-foot National Security Cutter is the flagship of the Coast Guard's fleet, with an extended on-scene presence, long transits, and forward deployment. The cutter, with its aircraft and small-boat assets, operates worldwide.
Offshore Patrol Cutter	0	25	The Offshore Patrol Cutter is intended to conduct patrols for homeland security functions, law enforcement, and search-and-rescue operations. It will be designed for long-distance transit, extended on-scene presence, and operations with deployable aircraft and small boats. The first ship is expected to be delivered in 2021.
Fast Response Cutter	9	58	The Fast Response Cutter, also referred to as the Sentinel class, is a 154-foot patrol boat that operates with a small boat and is designed to have high readiness, speed, adaptability, and endurance to perform a wide range of missions.
Icebreaker (new)	0	TBD	The heavy polar icebreaker is intended to replace the aging Polar Star and is intended to operate in both Arctic and Antarctic waters. This program is in the initial acquisition stages.
In-Service Vessel Sustainment (new)	N/A	N/A	New program for major operational fleet maintenance events, such as midlife maintenance and service life extensions. The Coast Guard intends for this to be a continuously funded line item in its acquisition budget.
Aviation			
HC-130H/J – Long Range Surveillance Aircraft	6	22	The HC-130H and HC-130J are four engine turbo-prop aircraft that the Coast Guard has combined into one project called Long Range Surveillance (LRS) that will increase its capabilities. The Coast Guard intends to update the HC-130H in multiple segments, but has paused further sustainment efforts while evaluating the recent addition of the C-27J to the Coast Guard's aviation fleet. The HC-130J is a new variant that the Coast Guard has deployed with improved interoperability, C4ISR, and sensors.

⁷ The 2007 baseline includes \$3.6 billion in "other costs including project management" that we exclude from our analysis of the cost of the Coast Guard's assets in appendix III.

Name	Quantity delivered	Quantity planned	Description
Maritime Patrol Aircraft (HC-144)	17	36	The HC-144 is a transport and surveillance, fixed-wing aircraft for search and rescue, enforcement of laws and treaties, and transportation of cargo and personnel. Congress recommended funding to the Coast Guard in fiscal year 2014 to pursue a new mission system that is currently in use by the U.S. Navy and DHS's Customs and Border Protection. Mission system refers to the hardware and software needed to operate equipment, such as radars and communications gear. This gear does not need to be replaced to operate with the new mission system. The recent receipt of C-27Js will likely reduce the number of HC-144s that the Coast Guard plans to purchase.
C-27J ^a (new)	0	14	In 2014, the Coast Guard was authorized to receive 14 C-27Js from the Air Force, which had purchased this two engine turbo-prop aircraft for transporting payloads to forward-deployed forces. According to program officials, these aircraft need C4ISR systems (i.e. a mission system pallet) before they can be used for all intended missions.
MH-65 (quantities reflect progress implementing segment IV)	66	102	The MH-65 Dolphin is the Coast Guard's short range recovery helicopter. It is being upgraded to improve its engines, sensors, navigation equipment, avionics, and other capabilities in multiple segments.
Unmanned Aircraft System	0	TBD	The Coast Guard is exploring the use of Unmanned Aircraft Systems to augment cutter and land-based aviation capabilities.
C4ISR			
Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR)	N/A	N/A	The Coast Guard is incrementally acquiring C4ISR capabilities, including upgrades to existing cutters and shore installations, acquisitions of new capabilities, and development of a common operating picture to provide operationally relevant information and knowledge across the full range of Coast Guard operations.
Assets no longer needing acquisition funding			
Response Boat-Medium	153	174	The Response Boat-Medium replaces the Coast Guard's fleet of 41-foot utility boats as well as other nonstandard boats. The last of 174 boats are planned to be delivered by the end of fiscal year 2015.
Medium Endurance Cutter Sustainment	25	27	This project replaces obsolete and unsupportable parts on aging cutters. The last of the 27 ships are planned to be completed by the end of fiscal year 2014.
Patrol Boat Sustainment	17	17	This project replaces obsolete and unsupportable parts on aging cutters. It has been completed.
MH-60	42	42	The MH-60 is a medium-range recovery helicopter designed to perform search and rescue missions in all weather conditions. The Coast Guard is not planning to fund the final two segments of the project, which include a surface search radar and information technology systems.
Nationwide Automatic Identification System	8	58	This data collection, processing and distribution system provides information to enhance safety of navigation and improve awareness. The project is scheduled to complete deployment to 58 ports by the end of fiscal year 2014.
Interagency Operations Centers	22	35	The Interagency Operations Centers are intended to improve joint coordinated emergency responses among other coordinated activities. The project is scheduled to complete deployment to 35 locations by the end of fiscal year 2017. This project was downgraded to a non-major acquisition in March 2013.

Name	Quantity delivered	Quantity planned	Description
Rescue 21	32	37	Rescue 21 is intended to improve legacy search and rescue capability by increasing system coverage and operational availability, and by providing and integrating additional communications, interoperability, position location, and recording/archiving/retrieving capabilities. The Rescue 21 project is planned to provide the full capability to all planned areas by the end of fiscal year 2017.

Source: GAO presentation of Coast Guard data.

^aWe added the C-27J to the Coast Guard's acquisition portfolio since this asset is planned to be transferred to the Coast Guard pursuant to the National Defense Authorization Act for Fiscal Year 2014, Pub. L. No 113-66, § 1098(e) (2013).

Coast Guard Acquisition Management

The Coast Guard has continued to strengthen its acquisition management capabilities when purchasing individual assets. For example, in response to one of our prior recommendations, the Coast Guard released a January 2013 update to its *Major Systems Acquisition Manual* to, among other things, better reflect cost and schedule estimation best practices and to clarify the roles and responsibilities of the Executive Oversight Council. The Executive Oversight Council is comprised of admirals and senior executives who regularly conduct oversight meetings to govern the acquisition process. As part of the budget process, the Executive Oversight Council provides recommendations to the Investment Board, which are presented to the Investment Review Board—a higher level group—and ultimately the Commandant for final investment decisions.

In addition, the Coast Guard has sought to maximize competition in its acquisitions and to buy commercial products when available. For example, the Coast Guard purchased a “reprocurement data licensing package” from Bollinger Shipyards, Inc. that contains the technical specifications and licenses necessary to build the Fast Response Cutter. The Coast Guard is planning to use this information to conduct a full and open competition for the remaining vessels. Our previous work has shown that when the government owns technical data rights, it does not need to rely on only one contractor to meet requirements.⁸ Further, the Coast Guard has developed a warranty provision under its contract with Bollinger Shipyards that has held the contractor responsible for production deficiencies. While the Coast Guard does not always have insight into how much it costs the contractor to fix these issues, after multiple deficiencies interrupted production, officials noted they are

⁸ GAO, *Defense Contracting: Actions Needed to Increase Competition*, [GAO-13-325](#) (Washington, D.C.: Mar. 28, 2013).

confident that the Coast Guard has received value from this warranty. The Coast Guard plans to use these strategies when purchasing the Offshore Patrol Cutter.

Operational Testing

DHS and Coast Guard acquisition guidelines provide that representative units of major acquisition assets should be operationally tested by an independent test agency before they are approved for full-rate production. The Coast Guard uses the Navy's Commander Operational Test and Evaluation Force (COTF) to conduct operational tests and other evaluations for its major acquisition assets. COTF serves as an independent evaluator of an asset's capabilities and has experience testing Navy assets. Operational testing characterizes the performance of an asset during a discrete period of time but testers may also use actual mission performance data when available. In conducting operational testing, COTF evaluates an asset's operational effectiveness and suitability:

- For operational effectiveness, testers determine whether or not an asset can meet its missions.
- For operational suitability, testers determine whether or not the agency can logistically support the asset to an acceptable standard, such as having the asset available for operations 80 percent of the year.

According to DHS and Coast Guard acquisition guidance, results of operational tests are used to evaluate the degree to which the capability or system being acquired meets its requirements and is able to operate in its intended environment, both before and often after full-rate production commences.

In addition to verifying that an asset is operationally effective and suitable, operational testing also tests key performance parameters, which are the capabilities considered essential for mission success. For example, a key performance parameter for the Fast Response Cutter is being able to reach a top speed of at least 28 knots. According to DHS and Coast Guard acquisition guidance, when programs fail to meet key performance parameters, program managers are required to file breach memorandums stating that the program failed to demonstrate the required performance threshold. Program managers are also required to formally notify Coast Guard leadership, DHS, and certain congressional committees and file a remediation plan within 30 days that proposes corrective actions to mitigate the issues that resulted in the breach. Within 90 days of filing the

breach notification the program should have accomplished one of the following three actions: (1) re-validate the original baseline parameters, (2) have a new baseline approved that revises the parameters that were breached, or (3) conduct a program review that evaluates the proposed baseline revisions and makes recommendations to the acquisition decision authority.

Operators Extol New Assets' Performance Compared to Aging Counterparts, but These Assets Have Yet to Meet All Key Requirements

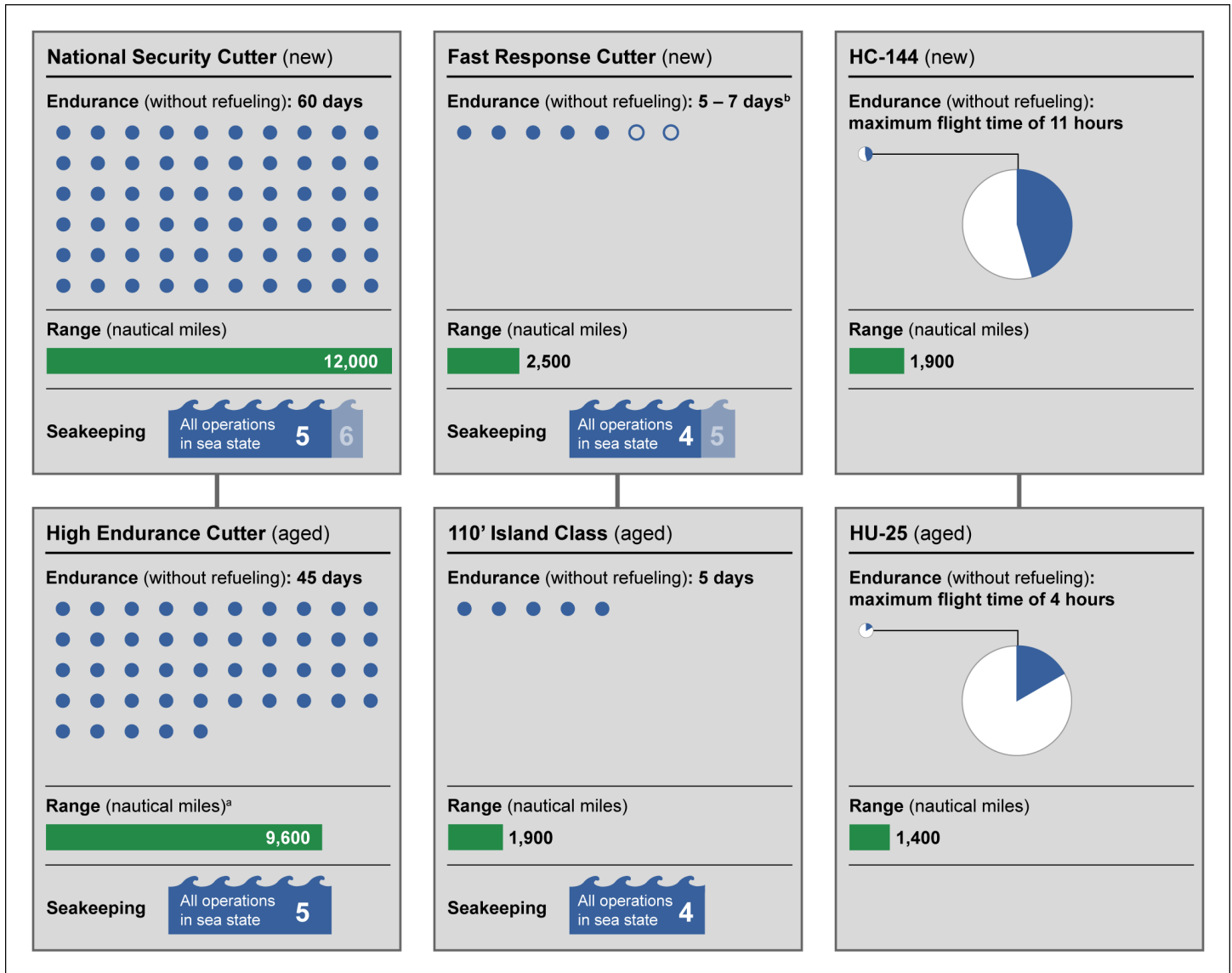
The Coast Guard's new asset classes that we reviewed—the National Security Cutter, Fast Response Cutter, HC-144, and the C4ISR information technology system—are generally demonstrating improved mission performance over the assets they are replacing, according to Coast Guard officials who operate these assets. For example, these new assets have greater fuel and food capacity, automation, and handling/sea-keeping, all of which increase endurance and effectiveness.⁹ However, the Coast Guard has not been able to prove that assets meet key requirements through operational testing. Of these four newly fielded asset classes, the Fast Response Cutter and the HC-144 completed initial operational testing, but did not successfully demonstrate many key requirements during these tests. For example, the Fast Response Cutter did not meet its operational availability requirement due to a key engine part that failed during testing. DHS and the Coast Guard approved both assets for full-rate production noting planned improvements, but DHS and Coast Guard acquisition guidance is not clear as to when a program needs to meet minimum performance standards. For example, the guidance does not specify whether the performance standards must be met before entering full-rate production. The National Security Cutter and C4ISR programs have not completed operational testing. The Coast Guard recently conducted testing on the National Security Cutter although seven of eight vessels are completed or currently under construction. Based on early assessments and mission performance of the first three National Security Cutters, the Coast Guard has determined that design changes costing at least \$140 million are necessary to meet requirements. Lastly, due to performance, maintenance, and obsolescence issues, the Coast Guard is replacing its initial C4ISR software, which cost about \$413 million to develop and field, on the National Security Cutter, HC-144, and HC-130J.

⁹ Seakeeping refers to a vessel's ability to withstand harsh sea states to conduct operations or survive. Sea states refer to the height, period, and character of waves on the surface of a large body of water.

Operators Report That New Assets Have Improved the Coast Guard's Capabilities Compared to Legacy Assets

Coast Guard operators and commanding officers in several locations told us that the National Security Cutter, Fast Response Cutter, and HC-144 are performing well during missions and are an improvement over the vessels and aircraft they are replacing. Operators primarily attribute the performance improvements to better endurance and communication capabilities, which help to position and keep these assets in high threat areas. Specifically, these new assets have greater fuel capacity and efficiency, engine room and boat launch automation, handling/sea-keeping, and food capacity, all of which increase endurance and effectiveness. Operators stated that these new assets, using information technology systems, can also share pictures and locations of vessels, and communicate more frequently and accurately with shore-based operational commanders than the legacy vessels being replaced. For example, operators said they now use chat rooms on secure networks in addition to radios. These chat rooms improve communication because multiple parties can communicate at the same time and messages remain available on the screen for reference. Figure 1 below compares endurance-related capabilities of the National Security Cutter, Fast Response Cutter, and HC-144 with the assets they are replacing.

Figure 1: Planned Endurance-Related Capabilities of New Coast Guard Assets Compared with Assets They Are Replacing



● 1 day
○ 1 potential day

Source: GAO analysis of Coast Guard data (data); ArtExplosion (images).

^aAccording to the Coast Guard, High Endurance Cutters have a range of 9,600 nautical miles under normal circumstances. The High Endurance Cutters can achieve a 14,000 nautical mile range if they ballast their fuel tanks once the tanks are depleted, a procedure that is rarely undertaken.

^bThe seakeeping parameter for the National Security Cutter as well as the seakeeping and endurance values for the Fast Response Cutter are expressed in terms of threshold and objective values. The Coast Guard has yet to fully test the new assets.

According to operators of the National Security Cutter and the Fast Response Cutter, other new capabilities are also increasing operational effectiveness. For example, the Fast Response Cutter has a stern launch and recovery ramp—a space at the end of the vessel that stores and deploys the cutter’s small boat and is open to the water. Using this ramp, according to operators, they launch the cutter’s small boat in 10 to 15 seconds while the ship is actively pursuing a target. By comparison, the legacy 110’ patrol boat requires a significant number of personnel to launch the cutter’s small boat using a crane attached to the center of the vessel—a complex process that takes significantly longer and has potential safety risks. The National Security Cutter also has a stern launch ramp, which, in addition to launching and recovering small boats, was used by the ship’s crew to hold a seized boat while they dismantled it to find drugs hidden in hard-to-reach compartments. In addition, operators told us that the larger flight deck on the National Security Cutter allows the Coast Guard to more safely operate the helicopter in rougher seas than the legacy vessel and, based upon early demonstrations, conduct unmanned aircraft system operations in conjunction with the helicopter.¹⁰ These and other capability improvements allow Coast Guard operators to more effectively accomplish their missions.

To date, the improved capabilities of the four newly fielded assets have led to mission-related successes, according to Coast Guard asset commanders. For example, officials from Air Station Miami reported that since they began regularly operating the HC-144 in fiscal year 2011, the aircraft has had a significant role in improving the effectiveness of the Coast Guard’s counterdrug and alien migrant interdiction operations in this area. In addition, one National Security Cutter completed a 160-day deployment in fiscal year 2013 during which it performed 6 drug interdictions totaling 570 kilograms of cocaine. Cutter officers stated that the ship’s intelligence capabilities and the small unmanned aircraft system, which are both new capabilities that are not on the 378’ High Endurance Cutter, were crucial to these drug interdictions. In addition,

¹⁰ The National Security Cutter does not currently deploy with an unmanned aircraft system. Officials said that a small unmanned aircraft system was being demonstrated on the National Security Cutter during this mission to determine if such a solution is possible.

Coast Guard operators stated that the ability to interoperate with foreign navies during joint exercises was greatly enhanced by the communication features on the National Security Cutter.

Guidance Unclear As to When Minimum Performance Requirements Must be Demonstrated

DHS approved the Fast Response Cutter and HC-144 for full-rate production in September 2013 and October 2012, respectively. However, neither asset met all key requirements during initial operational testing. The Fast Response Cutter partially met one of six key requirements while the HC-144 met or partially met four of seven. The Fast Response Cutter was found to be operationally effective (with the exception of its cutter boat) though not operationally suitable, and the HC-144 was found to be operationally effective and suitable. As we have previously found for Department of Defense (DOD) programs, continuing with full-rate production before ensuring that assets meet key requirements risks replicating problems in each new asset until such problems are corrected.¹¹ DHS officials stated that they approved both assets for full-rate production because the programs had plans in place to address most major issues identified during testing, such as supplying the Fast Response Cutter with a small boat developed for the National Security Cutter. However, DHS and Coast Guard acquisition guidance are not clear regarding when the minimum performance standards should be met, such as prior to entering full-rate production. For example, DHS and Coast Guard guidance provide that the Coast Guard should determine if the capability meets the established minimum performance standards, but do not specify when this determination should be made. By comparison, DOD acquisition guidance requires that specific minimum performance standards, which are defined at the time assets are approved for system development, be met prior to entering full-rate production.

In addition, DHS and Coast Guard acquisition guidance do not clearly specify how agency officials determine when a breach occurs and what triggers the need for a program manager to submit a performance breach memo. According to DHS and Coast Guard acquisition guidance, when programs fail to meet key performance parameters, program managers are required to file breach memorandums stating that the program did not demonstrate the required capability. Even though threshold key

¹¹ GAO, *Missile Defense: Opportunity Exists to Strengthen Acquisitions by Reducing Concurrency*, [GAO-12-486](#) (Washington, D.C.: Apr. 20, 2012).

performance parameters on the HC-144 and Fast Response Cutter were not met during operational testing, the Coast Guard did not report that a breach had occurred. Acquisition guidance is unclear as to whether or not failing to meet key requirements during operational testing constitutes a breach. According to Coast Guard officials, if the Coast Guard plans to re-test or re-design a deficiency in order to meet the threshold value, then a breach has not yet occurred. For example, the Fast Response Cutter small boat did not meet the threshold seakeeping requirement, but a new cutter small boat has since been tested on its own and fielded to all Fast Response Cutters. The Coast Guard plans to test this new cutter small boat with the Fast Response Cutter during follow on testing. Program officials are confident that the cutter's new small boat meets this requirement and that—therefore—a breach has not occurred. DHS acquisition guidance specifies the performance criteria used to determine whether or not a breach has occurred, but does not identify a triggering event for determining when a breach occurs. DHS's Program Accountability and Risk Management officials stated that a program breach is not necessarily related to its performance during initial operational testing, which they state is a snapshot of a single asset's performance during a defined test period. Without clear acquisition guidance, it is difficult to determine when or by what measure an asset has breached the threshold values of its key performance parameters and—therefore—when to notify DHS and certain congressional committees.

Specific information on testing outcomes for each asset follows.

Fast Response Cutter

COTF determined in July 2013 that the Fast Response Cutter, without the cutter's small boat, is operationally effective—meaning that testers determined that the asset enables mission success. The cutter's small boat was determined to not be seaworthy in minimally acceptable sea conditions and—therefore—could not support the cutter's mission set. Further, COTF determined that the Fast Response Cutter is not operationally suitable because a key engine part failed, which lowered the amount of time the ship was available for missions to an unacceptable level. Despite the mixed test results, COTF and DHS testers as well as Coast Guard program officials all agree that the Fast Response Cutter is a capable vessel. Ultimately, COTF recommended that the Coast Guard proceed to field the vessel, but also recommended that the issues with the cutter's small boat be remedied expeditiously and that follow-on operational testing be conducted once corrective actions have been implemented. Since the test, the Coast Guard has delivered a new small

boat that meets the Fast Response Cutter's needs and determined that the engine part failure was an isolated event.

The Navy also examined the extent to which the Fast Response Cutter meets key requirements. The test demonstrated that it partially met only one out of its six key requirements; the other five requirements did not meet minimum performance levels or were not tested. Table 2 displays each key performance parameter for the Fast Response Cutter, the test results, and a discussion of these results.

Table 2: Key Performance Parameter Test Results for the Fast Response Cutter

Key performance parameter (threshold requirement)	Was KPP tested?	KPP met?	Test result	Discussion
Top speed (28 knots)	No	N/A	N/A	Speed was not tested during initial operational testing due to a fuel oil leak. Speed has been assessed during preliminary acceptance trials and the vessel has reached top speed following the replacement of the original propeller. Since this change, all 9 FRCs have demonstrated at least 28 knots during other test events.
Fuel endurance (5 Days)	No	N/A	N/A	Not assessed due to inaccurate fuel level indicators.
Independent operations duration (5 days)	No	N/A	N/A	The Coast Guard's ability to independently operate the vessel was not tested. The cutter was still under warranty; thus, all maintenance was the responsibility of the shipbuilder at the time of the test.
Sea-keeping (conduct all operations in sea state 4)	Yes	No	The cutter small boat could not conduct operations in sea state 4.	Since the test, the Coast Guard has purchased new cutter small boats that are performing well according to crews. These boats have gone through their own testing and will be tested with the Fast Response Cutter during follow-on operational testing, which is scheduled to commence by the end of fiscal year 2015.
Interoperability (share information with internal and external partners)	Partial	Partial	Radios and some data transfers were successfully tested.	Communication with operational headquarters, intelligence units, external DHS, DOD and local assets, as well as other shore installations, were not tested.
Operational availability (85 percent)	Yes	No	47 percent	A key engine part failed during testing and it took 11 days to receive the part and conduct repairs, resulting in significant downtime during testing. Thus, the ship's availability to conduct missions during the test period was limited. Since testing was completed the FRC has experienced additional engine issues, including at least two generations of faulty cylinder head gaskets.

Source: GAO analysis of Navy and Coast Guard data.

The Coast Guard proactively sought to test the Fast Response Cutter early in the acquisition process, but early testing limited the ability to fully examine the vessel. For example, the Coast Guard did not test the top speed of the vessel due to a fuel oil leak. As noted above, DHS approved the Fast Response Cutter for full-rate production, but directed the program to develop corrections for the issues identified during operational testing and to verify those corrections through follow-on operational testing by the end of fiscal year 2015.

Maritime Patrol Aircraft (HC-144)

In July 2012, COTF determined the HC-144 to be operationally effective and operationally suitable and recommended that the Coast Guard continue to field the aircraft. Even though testers expressed confidence in the aircraft to meet its missions, the test also showed that the HC-144 achieved—or partially achieved—four out of seven key requirements. Table 3 contains each key performance parameter for the HC-144, the test results, and a discussion of these results.

Table 3: Key Performance Parameter Test Results for the HC-144 Maritime Patrol Aircraft

Key performance parameter (threshold requirement)	Was KPP tested?	KPP met?	Test result	Discussion
Search and rescue (arrive on scene 300 nautical miles away within 120 minutes of notification)	Yes	No	133.8 minutes	Coast Guard officials stated that they have amended operational tactics, such as prepositioning the plane for quicker launch.
Availability (71 percent)	Yes	No	65.1 percent	Due to a lack of spare parts, crews stated they have been forced to take parts from operational aircraft in order to keep other aircraft operating. The Coast Guard has recently taken steps to improve this problem, such as creating a parts catalog with the primary contractor, but the results are not yet known.
Detection (main detection target is 75 percent of close targets)	Yes	No	62.5 percent probability of detection	We have previously reported on the problems with the mission system. ^a The Coast Guard is planning to replace the mission system with a system used on Navy and Customs and Border Protection aircraft. The Coast Guard has accepted this limitation based upon other available sensors.
On scene time (minimum 3 hours)	Yes	Yes	3.95 hours	The HC-144 met the requirement.
Transportation (load and unload a standard pallet with mission system on board)	Yes	Partial	The HC-144 met range and passenger thresholds	The HC-144 met range and passenger thresholds. However, the maximum cargo and passenger loads were not tested because fully testing this parameter was not in the test plan.

Clean wing low altitude patrol speed (maximum of 180 knots when flying below 1,000 feet)	Yes	Yes	162.4 knots	The HC-144 met the requirement.
Interoperability (share information with internal and external partners)	Partial	Partial	Radios and other tools were successful but the mission system was inconsistent.	The HC-144 was able to regularly communicate with other aircraft, surface vessels, and shore installations using multiple frequencies. However, the ability to transmit data from the mission system to other Coast Guard assets and facilities was hindered by a satellite receiver that operated inconsistently.

Source: GAO analysis of Navy and Coast Guard data.

^aGAO, *Coast Guard: Action Needed as Approved Deepwater Program Remains Unachievable*, GAO-11-743 (Washington, D.C.: July 28, 2011).

The Coast Guard did not test all key performance parameters, but is pursuing corrections following approval for production. The HC-144 did not meet the minimum performance level for detecting targets at sea with its radar and C4ISR mission system. While the mission system did not meet requirements, the aircraft was considered operationally effective because operators can supplement these systems by looking out of the windows of the aircraft. DHS approved the HC-144 for full-rate production, but directed the program to develop a plan to correct deficiencies. Coast Guard program officials told us that they are addressing the deficiencies discovered through the test as funding becomes available and through changes in operational tactics. According to the officials, the HC-144 program will likely be truncated because the Coast Guard is receiving similar assets (C-27 aircraft) from the Air Force at no cost, which would render the production decision of the HC-144 inconsequential.

National Security Cutter

The Coast Guard has some knowledge about the performance of the National Security Cutter, gained through operational deployments and preliminary test events, and the field portion of operational testing was recently conducted. The Coast Guard has been operating the vessel since 2008, conducted a preliminary operational test in 2011, and has received certifications to fully operate and maintain helicopters as well as, according to officials, to use the cutter's information technology systems on protected networks. In addition, Coast Guard program officials stated that the National Security Cutter has demonstrated most of its key performance parameters through a myriad of non-operational tests and assessments, but a few key performance parameters, such as those relating to the endurance of the vessel and its self-defense systems have yet to be assessed. Verification of an asset's ability prior to operational testing may be beneficial, but, as we have previously found, only

operational testing can ensure that an asset is ready to meet its missions.¹²

Prior to testing, the Coast Guard encountered several issues that require retrofits or design changes to meet mission needs based upon operations, certifications, and non-operational testing. The total cost of these changes is not yet known, but changes identified to date have totaled approximately \$140 million, about one-third of the production cost of a single National Security Cutter. The Coast Guard must pay for all of these and future changes due to the contract terms under which the first three ships were constructed and because the warranty on the remaining ships does not protect the Coast Guard against defects costing more than \$1 million. Table 4 lists the retrofits and design changes costing more than \$1 million. The table does not include all changes because the Coast Guard did not have data for some of the modifications. In addition to the \$140 million in identified changes, the Coast Guard has established a program to supply the National Security Cutter with cutter small boats for an additional \$52.1 million because the small boats originally planned to be delivered with the vessel did not meet requirements.

Table 4: Retrofits and Design Changes on the National Security Cutter Class Costing over \$1 Million as of December 2013

Retrofits and design changes	Cost (in millions)
Primary information system replacement	\$88.5
Structural enhancements	to be determined ^a
Remove Aircraft Ship Integrated Secure and Traverse tracks in flight deck ^b	to be determined
Gantry crane that aids in launching small boats from stern ramp	\$31
Side davit crane for small boat operations	\$12.5
Two ammunition hoists	\$6.3
Breathing apparatus replacement	\$1.6
Total cost	\$140^c

Source: GAO presentation of Coast Guard data.

Notes: The Coast Guard reported these numbers for all eight hulls. However, for some items, such as the information system replacement, the costs primarily cover retrofitting some or all of the first four hulls.

¹² GAO, *Navy Shipbuilding: Significant Investments in the Littoral Combat Ship Continue Amid Substantial Unknowns about Capabilities, Use, and Cost*, GAO-13-530 (Washington, D.C.: July 22, 2013).

^aThe work package is being developed and, according to program officials, initial estimates are about \$19 million per vessel.

^bIn January 2011, Coast Guard officials canceled the Aircraft Ship Integrated Secure and Traverse—a system intended to automate the procedure to land, lock down, and move the HH-65 helicopter from the deck to the hangar on the National Security Cutter—after significant deficiencies were identified during testing conducted by the U.S. Naval Air Warfare Center. The Coast Guard invested approximately \$27 million to install the system on three National Security Cutters, including putting tracks in the flight deck that must now be removed.

^cSeveral funding accounts, including acquisition funding and operations and maintenance funding, are being used for these corrections.

Additional changes may be needed because the Coast Guard has not fully validated the capabilities of the National Security Cutter, though seven vessels have been delivered or are in production. This situation could result in the Coast Guard having to spend even more money in the future, beyond the current changes, to ensure the National Security Cutter fleet meets requirements and is logistically supportable. For example, the cutter is experiencing problems operating in all intended environments. The National Security Cutter requirements document states that the cutter will conduct assigned missions in a full spectrum of climate and maritime weather conditions, to include tropical, dry, temperate, and arctic climates. This document adds that although the National Security Cutter will operate in regions in which ice is frequently encountered, it will not have an ice-breaking mission. However, Coast Guard engineering reports from December 2012 discuss problems operating in both warm and cold climates. These reports discuss several warm weather problems, including cooling system failures, excessive condensation forming “considerable” puddles on the deck of the ship, and limited redundancy in its air conditioning system—which, among other things, prevents the use of information technology systems when the air conditioning system needs to be serviced or repaired. In addition, according to operational reports, during a recent deployment, the Commanding Officer of a National Security Cutter had to impose speed restrictions on the vessel because of engine overheating when the seawater temperature was greater than 77 degrees. Cold climate issues include the National Security Cutter not having heaters to keep oil and other fluids warm during operations in cold climates, such as the arctic. Further, Coast Guard operators state that operating near ice must be done with extreme caution since the ice can move quickly and can “spell disaster” if the National Security Cutter comes in contact with it. Senior Coast Guard officials acknowledged that there are issues to address and stated that the Coast Guard has not yet determined what, if any, fixes are necessary and that it depends on where the cutter ultimately operates.

C4ISR Information Technology Systems

The Coast Guard does not plan to operationally test the C4ISR system's key performance parameters. The Coast Guard initially planned to test the C4ISR system separately from the operational testing of its planes and vessels, such as the HC-144 and Fast Response Cutter. Coast Guard officials then decided to test the C4ISR system in conjunction with the planes and vessels to save money and avoid duplication. However, the C4ISR system was not specifically evaluated during the HC-144 and Fast Response Cutter tests because testing the effectiveness and suitability of the C4ISR system was not fully integrated into the assets' test plans. For example, the HC-144 was unable to meet its key requirement for detection, which uses the C4ISR software in conjunction with the HC-144's radar and other sensors. In addition, COTF found that the HC-144's ability to detect and share target data was cumbersome and time-consuming.¹³ These results were not evaluated against the C4ISR system's requirements. While testing the C4ISR system at the same time as the assets can work, this strategy is not consistent with Coast Guard acquisition guidance if the C4ISR system's key performance parameters are not tested. Acquisition guidance states that the Coast Guard should test the C4ISR system, as it does with all major acquisitions, to ensure it is operationally effective, operationally suitable, and meets its basic requirements. By not testing the system, the Coast Guard has no assurance that it is purchasing a system that meets its operational needs. In responding to a draft of this report, the Coast Guard stated that it now plans on testing the C4ISR system's key performance parameters during follow on testing for the National Security Cutter.

The Coast Guard has also encountered several issues with the C4ISR system that have required significant and costly changes, including replacing the original system. The original C4ISR system, which cost \$413 million to develop and field, was designed and built as a tightly integrated system bundling large commercial and government software programs with contractor-proprietary software, which made it difficult and costly to maintain—primarily due to its unique characteristics and large size. For example, according to program officials, the Coast Guard relied on the contractor to conduct even basic system updates, which required new software code because of how the system was integrated.

¹³ For more information on the common operational picture, see GAO, *Clarifying the Application of Guidance for Common Operational Picture Development Would Strengthen Program*, [GAO-13-321](#) (Washington, D.C.: Apr. 25, 2013).

As a result, in 2010, the Coast Guard began replacing the C4ISR software in two steps. First, to address immediate issues, the Coast Guard separated the weapons and command and control/navigation portions of the software but maintained the ability to share data between these portions of the system. Second, the Coast Guard has developed and is now installing a new software package that shares data between proven systems, which makes the system easier to maintain. For example, the communication/navigation system is largely based upon the Navy's Global Command and Control System, a long-standing system maintained by DOD. In addition, the combat system is adapted from the Navy's Aegis system. While the previous version of the C4ISR system also contained this software, the Coast Guard's new configuration keeps these systems independent to improve performance and maintenance, while still allowing data to be passed back and forth between the software packages within the system.

The Coast Guard has spent nearly \$2 million to develop this new system, called Seawatch, which will have to be further developed for each asset on which it is fielded. For example, it will cost an additional \$88.5 million in acquisition funds to purchase the software and hardware needed to field the system on the National Security Cutters. In addition, the Coast Guard is replacing the mission systems on the HC-144 and HC-130J airframes with a proven Navy system to address obsolescence, maintenance, and performance issues. Initial cost estimates are being developed for this project.

Cost Increases Are Consuming Funding and Affordability Issues Have Not Been Addressed or Accurately Represented

As acquisition program costs increase across the portfolio, consuming significant amounts of funding, the Coast Guard is farther from fielding its planned fleet today than it was in 2009, in terms of the money needed to finish these programs. In 2009, we found that the Coast Guard needed \$18.2 billion to field its original baseline,¹⁴ but it now needs \$20.7 billion to finish fielding these same assets. For example, the estimated funding needed to complete the National Security Cutter increased by \$2.2 billion since original estimates. Given these cost increases and funding constraints, the Coast Guard and key stakeholders have acknowledged that the Coast Guard's acquisition portfolio is not affordable but, thus far, efforts to address this issue have not led to the significant trade-off

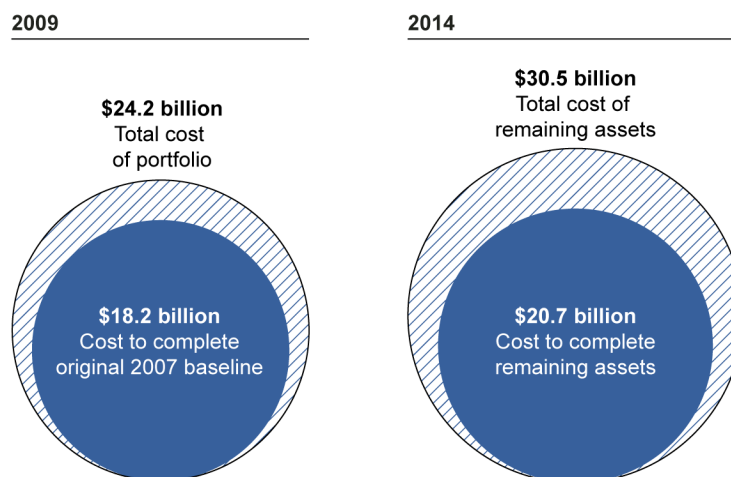
¹⁴ GAO, *Coast Guard: As Deepwater Systems Integrator, Coast Guard Is Reassessing Costs and Capabilities but Lags in Applying Its Disciplined Acquisition Approach*, [GAO-09-682](#) (Washington, D.C.: July 14, 2009).

decisions needed to improve its affordability. To balance its portfolio, Coast Guard budget officials stated that they use the 5-year Capital Investment Plan. However, this plan presents data in a manner that makes the portfolio appear more affordable than it really is. For example, in the Fiscal Years 2014 through 2018 Capital Investment Plan, the Coast Guard proposed purchasing two Fast Response Cutters per year, instead of four or six per year, but did not capture the up to \$800 million in total cost increases associated with this reduced quantity.

Cost Increases Are Consuming Funding

As program cost increases consume significant amounts of funding, the Coast Guard is farther from fielding its planned fleet today than it was in 2009, in terms of the money needed to finish these programs. Figure 2 shows the total cost of and cost to complete the Coast Guard's original 2007 baseline in 2009 and 2014.

Figure 2: The Total Cost of and Cost to Complete the Coast Guard's Original 2007 Baseline in 2009 and 2014



Source: GAO analysis of Coast Guard data.

Note: In current/then-year dollars. This means that numbers have not been normalized for inflation.

This is the result of \$11.3 billion in cost increases realized since 2007 for these programs, according to the most recent program baselines. For example, the Coast Guard experienced a \$2.2 billion cost increase to the National Security Cutter project since the 2007 estimate. In addition, the anticipated cost to complete the Offshore Patrol Cutter has increased by \$4 billion since 2007 and, therefore, will also consume a significant portion of future funding. Since our last review, the Coast Guard, in

conjunction with DHS, has updated many of its cost estimates.¹⁵ Senior Coast Guard acquisition officials told us that many of the cost increases are due to changes from preliminary initial estimates and that they expect to meet their current cost estimates. However, the Coast Guard has yet to construct the largest asset in the portfolio—the Offshore Patrol Cutter—and if the planned costs for this program increase, difficulties in executing the portfolio as planned will be further exacerbated.

Decision Makers Have Yet to Address Ongoing Affordability Concerns

Coast Guard, DHS, and OMB officials have acknowledged that the Coast Guard cannot afford to recapitalize and modernize its assets in accordance with the current plan at current funding levels. According to budget documents, Coast Guard acquisition funding levels have been about \$1.5 billion for each of the past 5 years and the President's budget requests \$1.1 billion for fiscal year 2015. At the same time, DHS is struggling to match acquisition needs with available resources across all of its component agencies, including the Coast Guard. Coast Guard acquisitions comprise about 16 percent of the total DHS acquisition budget. In a December 2012 memo signed by the Chief Financial Officer, DHS estimated that funding requirements for all of its major acquisitions exceed available resources by 30 percent.¹⁶ OMB officials have also told us that they recognize that the Coast Guard's acquisition portfolio is not affordable at current funding levels given the fiscal constraints faced by all federal agencies.

Efforts are underway to address this issue, but, so far, these efforts have not led to the significant trade-off decisions needed to improve the affordability of the Coast Guard's portfolio. A senior Coast Guard official recently stated that external reviews of the Coast Guard's planned acquisitions have been conducted by DHS and White House organizations, such as the President's Policy Councils, and, often, additional demand for Coast Guard missions is identified, rather than deciding upon reductions. OMB officials stated that these reviews are not conducted in conjunction with budget policy and do not incorporate capital investment strategies. Examples of the steps OMB, DHS, and the Coast

¹⁵ [GAO-12-918](#).

¹⁶ GAO, *Homeland Security Acquisitions: DHS Could Better Manage Its Portfolio to Address Funding Gaps and Improve Communications with Congress*, [GAO-14-332](#) (Washington, D.C.: April 17, 2014).

Guard have taken to address the affordability of the Coast Guard's acquisition portfolio are described below:

- OMB conducts annual performance and mission based reviews of the Coast Guard, in conjunction with other White House staff, as part of the annual budget process. OMB officials told us that there has been little progress in efforts to identify the trade-offs that would make the recapitalization portfolio more affordable, such as adjusting the quantities or capabilities of assets needed to meet mission needs. The officials stated that reviews regarding the fiscal year 2015 budget process were focused heavily on the sequestration funding caps and, therefore, did not focus on long term issues.
- DHS has conducted two annual Coast Guard acquisition portfolio reviews, but according to DHS program reviewers, the most recent review—scheduled for September 2013—was cancelled as a result of the lapse in federal government appropriations. According to a DHS official who led the reviews, the earlier reviews provided updates to DHS leadership on the status of the Coast Guard's acquisitions and efforts to address affordability, but no trade-off decisions were made to reduce planned quantity or capability. DHS officials told us that the Secretary recently directed a review of the Coast Guard's acquisition portfolio over the next 20 years. We have previously reported that DHS has taken steps to address affordability issues at acquisition decision events, but it has rarely directed affordability trade-offs.¹⁷ In the case of the Fast Response Cutter, DHS approved the vessel for full-rate production in September 2013 even while acknowledging that the cutter faces affordability challenges and that the program did not meet DHS's requirement to verify that sufficient funding is available. DHS has proposed two consecutive budgets, one before and one after the production decision, with a funding level for the Fast Response Cutter that supports purchasing two cutters per year rather than the four cutters per year that form the basis for the cost and schedule estimates in the asset's acquisition program baseline.
- We have previously reported on the Coast Guard's efforts to address affordability and recommended that the Coast Guard develop a plan to match needs and resources.¹⁸ In response to our recommendation

¹⁷ [GAO-14-332](#).

¹⁸ [GAO-11-743](#) and [GAO-12-918](#).

in September 2012, DHS stated that the Coast Guard is developing a process to make trade-off decisions that will result in a portfolio that contains a balanced mix of assets that meets mission needs within affordability constraints. However, the Coast Guard has yet to document how this new process will work and it is not clear who in the Coast Guard has the authority to make trade-off decisions. Officials who support the Executive Oversight Council stated that the goal is to better inform Council members so that they understand the full consequences of annual budget decisions. These officials told us that they are striving to establish this process in time to inform the fiscal year 2016 budget. While the Coast Guard continues to concur with our previous recommendation that the Executive Oversight Council should be closely involved in making trade-off decisions to balance the portfolio, the Coast Guard could not provide documentation that this group has made any decisions to balance needs and funding as of May 2013. In addition, Coast Guard budget officials told us that the Executive Oversight Council does not have full authority to make these decisions, as final decisions are made by the Commandant, in conjunction with the Investment Review Board.

Capital Investment Plan Does Not Capture the Full Effect of Annual Budget Decisions

The Coast Guard's Fiscal Years 2014 through 2018 Capital Investment Plan complies with the law specifying its contents.¹⁹ Each year, the Coast Guard is required to submit a 5-year Capital Investment Plan to certain congressional committees when the President's budget is submitted. This plan is required to include, among other things, the appropriations in the current budget, projected funding levels for each of the next five fiscal years, and estimated total cost and schedule in current program baselines. To date, the Coast Guard has not submitted the Fiscal Years 2015 through 2019 plan, which was due in conjunction with the President's Budget delivered in March 2014.

The law does not require the Coast Guard to include total cost of its projects at planned funding levels. In the Fiscal Years 2014 through 2018 Capital Investment Plan, cost and schedule totals did not match the funding levels presented for many programs. For example, the plan proposed lowering the Fast Response Cutter procurement to two per year but still showed the total cost and schedule estimates for purchasing three or six per year—suggesting that this reduced quantity would have

¹⁹ 14 U.S.C. § 663.

no effect on the program's total cost and schedule. Given that decreasing the quantity purchased per year would increase the unit and total acquisition cost, the Coast Guard estimated that the decision to order fewer ships will likely add \$600 million to \$800 million in cost and 5 years to the cutter's final delivery date, but this was absent from the plan. Coast Guard officials stated that they are required to report the assets' cost and schedule per the acquisition program baseline. However, these officials also acknowledged that this plan does not consistently reflect current cost and schedule estimates or the effects of the trade-offs that are made as part of the annual budget cycle. Reporting total cost and delivery dates that do not reflect funding levels could lead to incorrect conclusions about the effect of these decisions on the program's total cost and schedule. That is, Congress may conclude that the Coast Guard's acquisition portfolio is more affordable than it actually is.

Future Capabilities Uncertain as Coast Guard Makes Annual Budget Decisions; Alternatives Could Improve Outlook

The Coast Guard is repeatedly delaying and reducing its capability through its annual budget process, but does not know the extent to which its mission needs can be tailored and still achieve desired results. Thus, its ability to meet future needs is uncertain. For example, the Coast Guard has already experienced a gap in heavy icebreaking capability and is falling short of meeting current and future major cutter operational hours. These capability gaps may persist as funding replacement assets will remain difficult at current funding levels. A key indication of this situation is that several current and additional acquisitions will have to compete for a small percentage of the Coast Guard's acquisition funding between 2018 and 2032 while the Offshore Patrol Cutter is being built. This asset will likely absorb about two-thirds of the Coast Guard's acquisition funding during this timeframe. The Coast Guard does not have a long term plan that demonstrates how it will maintain today's service level and meet identified needs. While making annual budget decisions, the Coast Guard is pursuing some cost effective means of providing specific capabilities, though it has yet to fully realize potential savings.

Gaps Are Materializing as the Coast Guard Shapes Its Capability through the Budget Process

As the Coast Guard continues to make decisions through the budget process, it is experiencing capability gaps in the following areas:

- **Icebreakers**—According to program officials, due to funding constraints, the Coast Guard chose not to invest in either of its heavy icebreakers as they approached the end of their service lives. Thus, both heavy icebreakers were out of service from 2010 to 2013 and the Coast Guard could not complete missions, such as resupplying a

science laboratory in Antarctica. The Coast Guard has recently returned one of these heavy icebreakers back to service, but still has one fewer heavy icebreaker than it has historically operated and several fewer than it needs, according to the Coast Guard's June 2013 heavy icebreaker mission need statement.

- **River Buoy Tenders**—The Coast Guard is also facing a gap in its river buoy tender fleet and the Coast Guard has yet to formalize an acquisition project to replace this fleet, which is estimated to cost over \$1.5 billion.
- **Drug Interdiction Performance**—The Coast Guard and DHS Inspector General recently reported that the Coast Guard was not able to meet the target for its drug interdiction mission performance measure for four of the last five years because of potential factors including the advancing age and deteriorating condition of the Coast Guard's cutter fleet.²⁰ For more information, we will be issuing a report this spring that discusses the resources provided by the Coast Guard for drug interdiction operations.
- **2013 Major Cutter and Patrol Boat Hours**—The Coast Guard is also currently experiencing a performance gap in its major cutter and patrol boat fleets. The Coast Guard's major cutter fleet—comprised of the National Security Cutter and the in-service high and medium endurance cutters—must operate 136,620 hours per year to meet its missions. In fiscal year 2013, partly due to sequestration, the Coast Guard's major cutter fleet operated 99,342 hours—falling 27 percent short of its goal. The Coast Guard estimates that it would have been 6,078 hours short of its needs even if sequestration was not in effect. The Coast Guard's patrol boat fleet operated for 178,000 hours last year, falling short of its 247,000 hour goal. The Coast Guard would have also fallen short of this goal even if sequestration were not in effect.

In addition, there is little room in its budget to deal with unexpected developments in operations. For example, in 2012, the Commandant wrote about the emerging need for established forces in the Arctic, but

²⁰ DHS Inspector General, *Independent Review of U.S. Coast Guard's Reporting of FY 2013 Drug Control Performance Summary Report*, OIG-14-35 (Washington, D.C.: Feb. 2014).

the Coast Guard's major cutters may need additional equipment to operate in these areas.

The Coast Guard may fall even further below its operational hour goal for major cutters as the Offshore Patrol Cutter is being built. The Coast Guard has stated that delays in the delivery of the Offshore Patrol Cutter will lead to greater operational capacity shortfalls due to increased downtime for maintenance and other issues that reduce the current medium endurance cutters' operational availability.²¹ For example, in 2013, three 210' medium endurance cutters had to be put in a dry dock for emergency hull repairs. Coast Guard engineers stated that repairs like these are likely to become more frequent as these assets age.

Even after the Coast Guard builds the Offshore Patrol Cutter, it may not achieve the 136,620 hour goal. To meet this goal, the Coast Guard needs the National Security Cutter and the Offshore Patrol Cutter to operate for a total of 4,140 hours each year. The National Security Cutter is currently operating 3,330 hours per year and the Coast Guard has a plan to increase this to 3,830 per year by fiscal year 2017. However, Coast Guard operators have significant concerns about maintaining the vessel at this high tempo, primarily due to logistics and personnel concerns. According to officials, the Coast Guard is still planning to operate the National Security Cutter and Offshore Patrol Cutter 4,140 hours per year by using a crew rotation concept. We are currently conducting a review of National Security Cutter operations, including the status of implementing rotational crewing.

As the budget process takes the place of a knowledge-based acquisition process, the Coast Guard is repeatedly delaying and reducing its portfolio on an annual basis to address budget constraints, rather than pursuing an affordable set of long-term needs.²² This approach puts pressure on future budgets and delays fielding capability, which may reduce planned performance. Despite these delays, the Coast Guard continues to follow its current plan, but does not know the extent to which this plan can be

²¹ GAO, *Coast Guard: Legacy Vessels' Declining Conditions Reinforce Need for More Realistic Operational Targets*, [GAO-12-741](#) (Washington, D.C.: July 31, 2012).

²² Our best practices work shows that there are three critical junctures at which firms must have knowledge to make large investment decisions. See GAO, *Best Practices: Using a Knowledge-Based Approach to Improve Weapon Acquisition*, [GAO-04-386SP](#) (Washington, D.C.: January 2004).

tailored through the budget process and still achieve desired results. Thus, the Coast Guard does not know what capability it will be able to provide and whether or not this capability will meet mission needs. We have previously found that by continuing to pursue only a portion of planned capability without re-evaluating the portfolio as a whole, the Coast Guard further increases the risk that it may not accomplish its mission needs.²³ According to best practices, agencies should implement a knowledge-based acquisition approach to pursue a long term set of affordable needs. We have previously found that acquisitions that continue without this knowledge frequently experience poor outcomes.²⁴ Without such an approach, the Coast Guard does not have reasonable assurance that its assets are planned to meet established cost, schedule, and performance baselines, in turn leading to sound investment decisions.²⁵

The Coast Guard Has No Long-Term Plan as Cutter Delays Bring About an Era of Continuous Acquisition

If funding levels remain constant, several current and additional acquisitions will have to compete for a small percentage of the Coast Guard's acquisition funding between 2018 and 2032 while the Offshore Patrol Cutter is being built. According to current funding levels and cost and schedule estimates, the Offshore Patrol Cutter will absorb about two-thirds of the Coast Guard's acquisition funding during this timeframe. Primarily due to a 14 year delay to the Offshore Patrol Cutter and a 10 year delay to the Fast Response Cutter realized since 2007, the Coast Guard is now in the position of having to continually rebuild its assets rather than rapidly modernize as was originally planned. Thus, the Coast Guard has a number of significant additional programs that will require funding while the Offshore Patrol Cutter, Fast Response Cutter, and other assets in the current portfolio are still being built. The Coast Guard is in the process of assessing its needs in many of these areas. These potential acquisitions fit into three categories:

²³ [GAO-12-918](#).

²⁴ GAO, *Defense Acquisitions: Major Weapon Systems Continue to Experience Cost and Schedule Problems under DOD's Revised Policy*, [GAO-06-368](#) (Washington, D.C.: Apr. 13, 2006).

²⁵ GAO, *Best Practices: Better Matching of Needs and Resources Will Lead to Better Weapon System Outcomes*, [GAO-01-288](#) (Washington, D.C.: Mar. 8, 2001).

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- **Surface Fleet Recapitalization**—This project includes conducting a service life extension program for the 13 270' medium endurance cutters, replacing or extending the Coast Guard's 87' coastal patrol boat fleet (73 cutters), and funding other sustainment projects for vessels that are in-service, such as the Coast Guard's large fleet of river buoy tenders. As discussed earlier, the Coast Guard is also looking into additional icebreaker investments beyond the current single heavy icebreaker program, as the medium icebreaker will also need to be replaced or extended during this period.
 - **Aircraft Recapitalization**—The primary aircraft need will be replacing or extending the MH-60 and MH-65 helicopter fleets, which approach a life-limiting milestone between 2022 and 2026. Regardless of the future path, significant acquisition dollars will be required to maintain annual flight hours for the next 20 years, according to Coast Guard program officials. Another significant project, these officials added, will be replacing the C4ISR system on the Coast Guard's aircraft—some of which need new systems while other systems need to be replaced due to obsolescence. According to Coast Guard program officials, the prototypes are planned to be completed by the end of fiscal year 2016, at which point the new mission systems will need funding for production.
 - **Additional Costs for New Assets**—As with other cutter classes, the Fast Response Cutter and the National Security Cutter will need to undergo planned repair and maintenance work when the respective fleets reach their service life midpoints beginning in 2025 and 2028, respectively. The Coast Guard cannot skip these maintenance periods; they are needed to overhaul major components because older equipment is not supported over a cutter's 30 year service life. In addition, the future operational bases from which the Offshore Patrol Cutter will operate need an estimated \$431 million for upgrades to intended home ports.

The Coast Guard is not currently required to develop a long-term fleet modernization plan that considers its current service levels for the next 20 years in relation to its expected acquisition funding. Without such a plan, the Coast Guard does not have a mechanism to aid in matching its requirements and resources. For example, the Coast Guard does not know if it can meet its other acquisition needs while the Offshore Patrol Cutter is being built, which according to current plans will conclude in about 20 years. In addition, as we have previously found, the Coast Guard is deferring costs—such as purchasing unmanned systems or replacing its Buoy Tender fleet—that could lead to an impending spike in

the requirement for additional funds.²⁶ The Coast Guard has no method in place to capture the effects of deferring such costs on the future of the acquisition portfolio.

The Coast Guard's acquisition guidance supports using a long range capital planning framework. According to OMB capital planning guidance referenced by the Coast Guard's Major Systems Acquisition Manual, each agency is encouraged to have a plan that defines 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. OMB officials stated that they support DHS and the Coast Guard conducting a long term review of the Coast Guard's acquisitions to assess the capabilities it can afford.

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 that the Navy needs to buy as well as the total number of assets in operation for each year. While we have previously noted challenges associated with the Navy's plan, we also observed that such a plan is beneficial in that it lays out a strategic approach for decision making. A long-term plan can enable trade-offs to be seen and addressed in advance, leading to better informed choices and making debate possible before irreversible commitments are made to individual programs. Without this type of plan, decision makers do not have the information they need to better understand the Coast Guard's long term outlook.²⁷ In its naval vessel construction plan, the Navy also assesses capability gaps and planned construction over the short term, middle term and long term—each 10-year periods in the plan. The Secretary of Defense transmits the plan to Congress to aid in decision making.²⁸ As a result, the Navy has some knowledge of its future funding challenges. For example, the Congressional Budget Office estimates that if the Navy

²⁶ [GAO-12-918](#).

²⁷ GAO, *Defense Acquisitions: Challenges Associated with the Navy's Long-Range Shipbuilding Plan*, [GAO-06-587T](#), (Washington, D.C.: Mar. 30, 2006).

²⁸ Department of Defense, *Report to Congress on the Annual Long-Range Plan for Construction of Naval Vessels for FY2014* (Washington, D.C.: May 2013).

continues to receive the same percentage of DOD funds for shipbuilding as it has in the past, the Navy can only fund 70 percent of the current long range plan. When we discussed such an approach with the Coast Guard, the response was mixed. Some Coast Guard budget officials stated that such a plan is not worthwhile because the Coast Guard cannot predict the level of funding it will receive in the future. However, other Coast Guard officials support the development of such a plan, noting that it would help to better understand the effects of funding decisions. Without such a plan, it will remain difficult for the Coast Guard to fully understand the extent to which future needs match the current level of resources and its expected performance levels—and capability gaps—if funding levels remain constant.

The Coast Guard Has Been Pursuing Less Expensive Means of Filling Some Capability Gaps

The Coast Guard is currently pursuing cost effective alternatives that could begin the process of building a viable long term modernization plan.

- **Cutter-Based Unmanned Aircraft Systems**—The Coast Guard is in the process of demonstrating a small unmanned aircraft system on the National Security Cutter and, to date, these demonstrations have shown that a smaller system is feasible. As opposed to the 2007 estimate of \$503 million, the Coast Guard preliminarily estimates that it can outfit each of the planned eight National Security Cutters with two unmanned aircraft and a control station on each vessel for \$48 million. However, according to Coast Guard officials, it is too early to fully understand the costs. Once this system is purchased, the Coast Guard still plans to pursue a bigger solution in conjunction with the Navy that meets all of the Coast Guard’s requirements.
- **Land-Based Unmanned Aircraft System**—The Coast Guard has also begun a partnership with U.S. Customs and Border Protection to share and operate that component’s 10 land-based unmanned aircraft systems. In the past year, the Coast Guard has been able to use this asset to conduct over 500 hours of surveillance for Coast Guard missions and officials expect that this number may increase. While this program is growing, the Coast Guard continues to pursue its own land-based unmanned aircraft.
- **Heavy Icebreaker**—The Coast Guard is working closely with international and U.S. agency partners in gaining knowledge to support its heavy icebreaker acquisition. So far, while there are more than 10 U.S. agencies that have requirements for a heavy icebreaker,

such as the Navy and National Science Foundation, no plans have emerged for funding this vessel.

Conclusions

As the Coast Guard's newest assets move through operational testing they are demonstrating capability, but problems have been identified. This is not unexpected; identifying problems is the purpose of the testing. In general, project and acquisition oversight officials evaluate these test results, among other data, and make a business case as to whether the government is taking on undue risk by mass producing these assets. This approach can be reasonable, but the parameters for making this case—including defining when an asset must meet a minimum level of acceptable performance prior to this decision and determining at what point a breach occurs—are not clearly set forth in Coast Guard or DHS guidance. Moreover, without a defined point in the acquisition process by which the Coast Guard must satisfy minimum requirements, the breach process, with regards to performance, loses meaning. Further, the Coast Guard no longer plans to operationally test the C4ISR system—always intended to be a linchpin of the recapitalization program—even though such testing is required of all major acquisitions. Without testing to ensure that these systems meet minimum performance standards, the Coast Guard cannot ensure that they meet mission needs and that the taxpayer receives a good value for the investment.

As the Coast Guard has continued to refine cost estimates for its major acquisitions, it is realizing that the cost of its acquisition portfolio has grown and is now much greater than initially planned. This increased cost is consuming a large portion of the Coast Guard's acquisition budget. Our previous recommendations, regarding the need for a process to make the trade-off decisions needed to balance resources and needs, still stand.²⁹ In the meantime however, the extent of expected costs—and how the Coast Guard plans to address them through budget trade-off decisions—is not being clearly communicated to Congress. The mechanism in place for reporting to certain congressional committees, the Capital Investment Plan, does not reflect the full effects of these trade-off decisions on the total cost and schedule of its acquisition programs. This information is not currently required by statute, but without it, decision makers are unable to understand the full extent of funding that will be required to complete the Coast Guard's planned acquisition programs.

²⁹ [GAO-11-743](#) and [GAO-12-918](#).

A pressing concern the Coast Guard faces is that the growing affordability gap for its major acquisitions will be exacerbated by impending requirements and capability needs. Annual budget decisions and the cost saving measures the Coast Guard is pursuing may be sufficient for the short term, but they do not position the Coast Guard to address future needs. In other words, short term budget decisions may not amount to a good long term investment strategy. Without a long term plan that sets forth needed capabilities and the funding it will take to meet them, the Coast Guard is not well positioned to identify how it will meet these mission needs. A long term plan of this nature is particularly critical in light of the looming Offshore Patrol Cutter procurement, which is currently estimated to account for about two-thirds of the acquisition budget.

Matter for Congressional Consideration

To help ensure that it receives accurate information on the full effect of funding decisions on acquisition programs, Congress should consider amending the law that governs the 5-year Capital Investment Plan to require the Coast Guard to submit cost and schedule information that reflects the impact of the annual President's budget request on each acquisition across the portfolio—in addition to the current practice of reporting the cost and schedule estimates in current program baselines.

Recommendations for Executive Action

To ensure that Congress and other decision makers are properly informed regarding the status of programs, we recommend that the Secretary of Homeland Security and the Commandant of the Coast Guard revise their acquisition guidance by taking the following two actions:

- Specify when minimum performance standards should be met, such as prior to entering into full-rate production.
- Clarify the performance data that should be used to assess whether or not minimum performance criteria have been met, prior to full-rate production, to determine whether a performance breach has occurred.

To ensure that the Coast Guard's C4ISR system meets mission needs, we recommend that the Commandant of the Coast Guard take the following action:

- Assess the operational effectiveness and suitability of the C4ISR system by fully integrating this assessment into other assets' operational test plans or by testing the C4ISR program on its own.

To help the Coast Guard improve the long-term outlook of its portfolio, we recommend that the Commandant of the Coast Guard take the following action:

- 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. The plan should also consider trade-offs if the fiscal resources needed to execute the plan are not consistent with annual budgets.

Agency Comments and Our Evaluation

We provided a draft of this report to DHS for review and comment. In its comments, DHS concurred with all of our recommendations. DHS's written comments are reprinted in appendix II. We also provided draft sections of the report to OMB and COTF, which provided us with technical comments via email; we incorporated their comments as appropriate.

Regarding the first two recommendations, on the timing of reporting and actions to be taken when assets do not meet performance standards in testing, DHS stated that it plans to make changes to its acquisition guidance by June 30, 2015.

In concurring with the third recommendation, regarding the testing of the C4ISR system, DHS noted that it plans to provide clearer guidance in the next update of its acquisition policy, currently scheduled for June 30, 2015. Additionally, DHS stated that it still plans to test the C4ISR system in conjunction with the vessels and aircraft on which the system is installed. This strategy would be acceptable as long as the Coast Guard incorporates the key performance parameters specifically related to the C4ISR system into the vessel and aircraft test plans. In its response, DHS disagreed in general with our description of the C4ISR system as not meeting goals, noting that, according to the Coast Guard, the original system was closed as a result of obsolescence and not due to performance and maintenance problems. While it is true that much of the original system—developed as part of Deepwater—is obsolete because it was inextricably linked to the commercial vendor's proprietary software, performance problems were also an issue. We have previously reported on these problems, such as assets not having the capability to share data as envisioned and the system needing to be restarted during operations. In short, the system of systems capability that was the original intent has not been achieved. While DHS states that the C4ISR program is one example of where the Coast Guard made tough decisions to provide the

greatest capability of equipment while using the least amount of dollars, the Coast Guard invested \$413 million to develop and field the original system that is now being replaced with Seawatch.

While DHS concurred with our fourth recommendation to develop a 20-year fleet modernization plan, the response does not fully address our concerns or set forth an estimated date for completion, as the response did for the other recommendations. DHS stated that the Coast Guard values long term planning and can assemble a profile of the anticipated service lives of the various assets and project this information to the future. However, the response also reaffirmed the very reason we made this recommendation—that trade-off decisions considering the cost, schedule, and performance of acquisitions are made during the annual budget process. There is no evidence that these short-term budget decisions will amount to a good long-term strategy and, as we have previously noted, the Coast Guard’s annual, budget-driven approach creates continual churn as program baselines must continually re-align with budget realities instead of budgets being formulated to support program baselines. In the case of the Coast Guard, this budget-driven process is pushing tough trade-off decisions—between capability and cost—into the future. Without a long-term plan, as we have recommended, no one knows what taxpayers are ultimately going to get for their approximately \$1.5 billion annual investment in Coast Guard acquisitions. We continue to believe that a properly constructed 20-year plan is necessary to illuminate what is feasible in the long term and will also provide a basis for informed decisions that align the Coast Guard’s needs and resources.

DHS and the Coast Guard also provided technical comments that we incorporated into the report as appropriate.

We are sending copies of this report to the Secretary of the Department of Homeland Security, Commandant of the Coast Guard, and Director of the Office of Management and Budget. In addition, the report is available on our website at <http://www.gao.gov>.

As agreed with your offices, unless you publicly announce the contents of this report earlier, we plan no further distribution until 13 days from the report date. At that time, we will send copies to your offices. In addition, the report will be available at no charge on the GAO Web site at <http://www.gao.gov>.

If you or your staff have any questions about this report, please contact me at (202) 512-4841 or mackinm@gao.gov. Contact points for our Offices of Congressional Relations and Public Affairs may be found on the last page of this report. GAO staff who made key contributions to this report are listed in appendix IV.



Michele Mackin
Director, Acquisition and Sourcing Management

Appendix I: Scope and Methodology

In conducting this review, we relied in part on the information and analysis in our past work, including reports completed in 2008 through 2012. Additional scope and methodology information on each objective of this report follows.

To assess how selected assets are performing operationally and to what extent they are achieving desired performance levels in testing, we selected key assets that are being used in operations that were a part of the original 2007 baseline—the Maritime Patrol Aircraft (HC-144), Fast Response Cutter, National Security Cutter, and the Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems—and reviewed test reports and operational data for these assets. We also reviewed the Coast Guard’s Major Systems Acquisition Manual and Department of Homeland Security (DHS) Acquisition Management Directive 102-01 to review regulations and directions for operational testing. We assessed operational test reports for the HC-144 and Fast Response Cutter to determine what issues were discovered during testing and interviewed officials from the DHS’s Science and Technology directorate and the Navy’s Commander, Operational Test and Evaluation Force (COTF) to discuss the results and limitations of these tests and plans for future testing. For the National Security Cutter and C4ISR programs, we reviewed preliminary tests and changes being made to the systems as a result of knowledge gained through early testing or operations that has led to retrofits or design changes. We compared the results of these tests and operational data with operational requirements documents for each program to determine if these assets are performing as planned. We interviewed Coast Guard officials with the capabilities and resource directorates, and officials and operators with the National Security Cutter, Fast Response Cutter, HC-144, and C4ISR programs to gain a greater understanding of operational challenges and how they are being addressed. We met with National Security Cutter operators at U.S. Coast Guard Base Alameda in Alameda, California and we met with the District Commander for the Coast Guard’s Seventh District, Fast Response Cutter operators at Coast Guard Sector Miami, and HC-144 operators at U.S. Coast Guard Air Station Miami in Miami, Florida and discussed the C4ISR operations aboard each of these assets to discuss how these assets are performing operationally. We interviewed contractor representatives from Huntington Ingalls Industries for the National Security Cutter and Bollinger Shipyards for the Fast Response Cutter and toured their respective shipyards to discuss issues related to the production of these assets.

To determine the current cost of the Coast Guard's acquisition portfolio as well as plans to fund its assets, we reviewed the Coast Guard's budget and capital investment plan and identified the programs that are currently in its acquisition portfolio. Based upon our definition, the Coast Guard's current acquisition portfolio consists of all major acquisitions that are planned to receive funding in the current budget year and/or within the next 5 years. We reviewed the approved acquisition program baselines for programs currently in the portfolio to determine their cost and schedule. We compared current baselines to previous baselines to evaluate whether there has been any cost or schedule growth in these programs. In comparing original costs to revised baseline costs, if a revised baseline presents both threshold costs and objective costs, threshold costs were used. In determining the cost to complete, we took the total estimated cost of the acquisition in its current baseline and subtracted the funding that the program has received as of and including fiscal year 2014. For some assets, such as the HC-130J which received funding not included in the Coast Guard budget, we derived the cost to complete by totaling the funds required to finish the program based upon the current cost estimate. We also reviewed the Coast Guard's Major Systems Acquisition Manual for guidance on acquisition program baselines. We interviewed officials from the Office of Management and Budget and the Department of Homeland Security's Program Accountability and Risk Management directorate and Program Analysis and Evaluation directorate to determine what, if anything, they are doing to balance the Coast Guard's needs with anticipated funding.

To determine the extent to which the Coast Guard is experiencing capability gaps, if any, given known affordability issues, we assessed the Coast Guard's performance targets and compared these targets with acquisition plans. In addition, we interviewed officials from the Coast Guard's acquisitions and resource directorates to identify the challenges the Coast Guard faces reaching these targets using current funding levels and to understand actions taken by the Systems Integration Team and Executive Oversight Council to address these challenges. We also reviewed actions the Coast Guard is taking to improve the affordability of recapitalizing its assets. We interviewed officials with the Coast Guard's acquisition directorate and the program managers for all of the programs currently in the portfolio to discuss the cost of the portfolio and future funding plans. To determine the condition and expected service life of legacy assets, we reviewed Coast Guard analysis of these assets and prior GAO work on legacy assets.

We conducted this performance audit from June 2013 to June 2014 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.

Appendix II: Comments from the Department of Homeland Security

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



**Homeland
Security**

May 23, 2014

Michele Mackin
Director, Acquisition and Sourcing Management
U.S. Government Accountability Office
441 G Street, NW
Washington, DC 20548

Re: Draft Report GAO-14-450, "COAST GUARD ACQUISITIONS: Better Information on Performance and Funding Needed to Address Shortfalls"

Dear Ms. Mackin:

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's) work in planning and conducting its review and issuing this report.

The Department is pleased to note GAO's acknowledgement that the U.S. Coast Guard (USCG) has "made strides in its efforts to improve its acquisition management capabilities." The USCG is proud of its long record of public safety and law enforcement service to the American people. The USCG must manage and balance a wide range of missions mandated by DHS priorities, as well as those required by existing statutes. Aside from managing and securing our borders, the USCG must manage and enforce maritime safety, environmental laws, and respond to emergencies of all types as required. It is also a vital component of the U.S. defense readiness strategy. As such, all capital acquisitions must consider the broadest range of mission contingencies in order to provide for the greatest flexibility and utilization of equipment from tax payer dollars. This approach provides a greater return on investment to the Nation as compared to an acquisition plan that only builds new assets to address single mission areas.

DHS is concerned, however, that GAO described the legacy Command, Control, Communications, Computers, Intelligence, Surveillance, and Reconnaissance (C4ISR) systems program as one that did not meet program goals. According to the USCG, the old C4ISR program was closed as a result of obsolescence and not due to performance and maintenance issues. The C4ISR software replacement was required because the current commercial operating system was becoming unsupportable through the commercial vendor. The project recognized this issue and instituted an effective approach to manage a known, impending technology obsolescence issue. Incorporating commercial items (particularly software) into government systems can reduce cost, but by doing so, the government inherently carries the risk of having to update systems due to obsolescence when the commercial entity changes portions of, or the entire system. This is but one example of where the USCG has made tough decisions to provide the greatest capability of equipment while using the least amount of dollars. Sometimes those decisions require identifying and cutting losses before they grow out of control. DHS believes

this example highlights, among others, where USCG has performed as a positive and effective systems evaluator and integrator.

The draft report contained four recommendations with which the Department concurs. Specifically, GAO recommended that the Secretary of Homeland Security and the Commandant of the Coast Guard revise their acquisition guidance to:

Recommendation 1: Specify when minimum performance standards should be met, such as prior to entering into full rate production.

Response: Concur. The USCG Assistant Commandant for Acquisition (CG-9) intends to update its Major System Acquisition Manual (MSAM) policy to address when minimum acquisition project performance standards should be met. Estimated Completion Date (ECD): June 30, 2015.

Recommendation 2: Clarify the performance data that should be used to assess whether or not minimum performance criteria have been met, prior to full rate production, to determine whether a performance breach has occurred.

Response: Concur. The USCG CG-9 intends to update its MSAM policy to address when minimum acquisition project performance standards have been met relative to a performance breach. ECD: June 30, 2015.

GAO also recommended that the Commandant of the Coast Guard:

Recommendation 3: Assess the operational effectiveness and suitability of the C4ISR system by fully integrating this assessment into other assets' operational test plans or by testing the C4ISR program on its own.

Response: Concur. The draft report states that the USCG will no longer test C4ISR systems, which could be confusing to some readers. It is important to note that the USCG is already testing a C4ISR system as part of its assessment of new assets, including the Fast Response Cutter. As C4ISR systems are integral to the operational performance of the asset, they are installed and their performance will be tested concurrently with the boat, cutter or aircraft they support. Since the overarching common C4ISR architecture originally envisioned by the Deepwater Program no longer exists, there is no single system per se to be operationally tested in isolation, separate from the supported asset. All installed C4ISR systems are operationally tested concurrently with the supported asset. The USCG CG-9 intends to provide clearer guidance with respect to testing of C4ISR systems in the next update to its MSAM policy to address how to test the C4ISR within the supported assets operational test plans. ECD: June 30, 2015.

Recommendation 4: 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. The plan should also consider trade-offs if the fiscal resources needed to execute the plan are not consistent with annual budgets.

Response: Concur. The USCG values long-term planning and will work closely with DHS to initiate longer term capital plans, as appropriate, among other topics and related assumptions, including the frequency of these efforts. The USCG can assemble a profile of the anticipated service lives of the various assets in its inventory and project them into the future. Such recapitalization plans are generally requirements driven; however, acquisitions do take into account affordability assessments upon entering into the acquisition decision process and at milestone events throughout the lifecycle. As a result, if annual budgets change during the acquisition cycle, recapitalization plans can be adjusted. The trade-off decisions considering cost, schedule and performance as a result of a changing fiscal environment or other program factors are made during the annual budget process and during acquisition program reviews to further account for future budgetary uncertainties. ECD: To Be Determined.

Again, thank you for the opportunity to review and provide comments 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

Appendix III: Coast Guard Acquisition Portfolio Costs

The Coast Guard has 11 major acquisition programs in its current portfolio, based on the Fiscal Years 2014 through 2018 Capital Investment Plan. Of these 11 major acquisition programs, 8 were also a part of the 2007 recapitalization portfolio.¹ Over time, the composition of the portfolio has changed. For example, since our last review in 2012, the Coast Guard has added 3 programs to its acquisition portfolio and another 7 programs are ending and, therefore, will no longer need additional acquisition funding. We excluded \$3.6 billion in “other costs including project management” from our analysis of the Coast Guard’s current portfolio of assets because these costs are not periodically re-baselined. Thus, the total cost of the original 2007 baseline excluding these costs is \$20.563 billion. Table 5 lists the total acquisition cost for each of the programs in the Coast Guard’s current portfolio as well as the cost increases and cost to complete for the programs in the original 2007 baseline.

Table 5: Acquisition Cost Estimates, Including Cost to Complete, for Coast Guard Portfolio of Major Programs as of March 2014 (dollars in millions)

Dollars in millions

Asset	Original 2007 Baseline	Current Baseline (threshold costs) ^a	Cost Increases Since 2007	Cost to Complete (as of the end of fiscal year 2015) ^p
National Security Cutter	\$3,450	\$5,682	\$2,232	\$1,316
Offshore Patrol Cutter	8,098	12,101	4,003	11,939
Fast Response Cutter	3,206	4,243	1,037	2,547
HC-130H/J ^c	621	3,038	2,417	1,829
HC-144	1,706	3,169	1,463	2,127 ^d
HH-65	741	1,150	409	570
C4ISR	1,353	1,123	(230)	353
Unmanned Aircraft System (Cutter-Based Only)	503	N/A	N/A	N/A
Icebreaker	N/A	831 ^e	N/A	N/A
In-Service Vessel Sustainment	N/A	221 ^f	N/A	N/A

¹ A major acquisition is equipment, service, and/or intellectual property acquired by the Coast Guard with a lifecycle cost greater than \$300 million.

Appendix III: Coast Guard Acquisition Portfolio Costs

Dollars in millions

Asset	Original 2007 Baseline	Current Baseline (threshold costs)^a	Cost Increases Since 2007	Cost to Complete (as of the end of fiscal year 2015)^p
C-27J	N/A	TBD	N/A	TBD
Programs No Longer Planned to Receive Funding (Total) ^q	885	N/A	N/A	N/A
Total	\$20,563^h	\$31,558	\$11,331	\$20,681

Source: GAO Analysis of Coast Guard data

Note: In current/then-year dollars in millions. This means that numbers have not been normalized for inflation. Numbers may not add due to rounding.

^aThe revised baselines present both threshold costs (the maximum costs allowable before a breach occurs) and objective costs (the minimum cost expected), threshold costs are used. For those programs that comprised the former Deepwater program, this allows traceability to the original \$20.6 billion Deepwater baseline (the original baselines) while also showing how much programs could now cost based upon revised baselines.

^bCost to complete is calculated as the current baseline minus the funding provided to the program to date. Thus, it represents the amount of funding needed from fiscal year 2015 until the end of each program based on current estimates.

^cThe total cost of this program reflects a fleet of 22 HC-130Js.

^dThe Coast Guard has yet to make an official decision on the future of the HC-144 program; however, Coast Guard officials told us that it is likely that they will end procurement of the HC-144 program as the C-27Js come on line. The HC-144 program is currently paused.

^eEstimate is preliminary and not based upon a full program life cycle cost estimate

^fEstimate only includes two projects. This funding line is intended to encompass all fleet maintenance as it is needed.

^gThe programs no longer planned to receive additional funding as of 2013 are: HH-60, Medium Endurance Cutter Sustainment, and Patrol Boat Sustainment.

^hThe original cost of the Deepwater baseline was \$24.2 billion, but we have excluded program management costs.

Appendix IV: GAO Contact and Staff Acknowledgements

GAO Contact

Michele Mackin, (202) 512-4841 or mackinm@gao.gov.

Staff Acknowledgments

In addition to the contact above, Katherine Trimble, Assistant Director; Laurier R. Fish; Peter W. Anderson; William Carrigg; John Crawford; Sylvia Schatz; and Lindsay Taylor all made key contributions to this report.

Related GAO Products

Defense Contracting: Actions Needed to Increase Competition. [GAO-13-325](#). Washington, D.C.: March 28, 2013.

Coast Guard: Clarifying the Application of Guidance for Common Operational Picture Development Would Strengthen Program. [GAO-13-321](#). Washington, D.C.: April 25, 2013.

Coast Guard: Portfolio Management Approach Needed to Improve Major Acquisition Outcomes. [GAO-12-918](#). Washington, D.C.: September 20, 2012.

Observations on the Coast Guard's and the Department of Homeland Security's Fleet Studies. [GAO-12-751R](#). Washington, D.C.: May 31, 2012.

Coast Guard: Legacy Vessels' Declining Conditions Reinforce Need for More Realistic Operational Targets. [GAO-12-741](#). Washington, D.C.: July 31, 2012.

Missile Defense: Opportunity Exists to Strengthen Acquisitions by Reducing Concurrency. [GAO-12-486](#). Washington, D.C.: April 20, 2012.

Coast Guard: Action Needed as Approved Deepwater Program Remains Unachievable. [GAO-11-743](#). Washington, D.C.: July 28, 2011.

Coast Guard: Deepwater Requirements, Quantities, and Cost Require Revalidation to Reflect Knowledge Gained. [GAO-10-790](#). Washington, D.C.: July 27, 2010.

Coast Guard: As Deepwater Systems Integrator, Coast Guard Is Reassessing Costs and Capabilities but Lags in Applying Its Disciplined Acquisition Approach. [GAO-09-682](#). Washington D.C.: July 14, 2009.

Coast Guard: Better Logistics Planning Needed to Aid Operational Decisions Related to the Deployment of the National Security Cutter and Its Support Assets. [GAO-09-497](#). Washington, D.C.: July 17, 2009.

Best Practices: High Levels of Knowledge at Key Points Differentiate Commercial Shipbuilding from Navy Shipbuilding. [GAO-09-322](#). Washington, D.C.: May 13, 2009.

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