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COAST GUARD

Update on Deepwater Program Management, Cost, and Acquisition Workforce

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GAO

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Highlights of [GAO-09-620T](#), testimony before the Subcommittee on Homeland Security, Committee on Appropriations, House of Representatives

Why GAO Did This Study

The Deepwater Program is intended to recapitalize the Coast Guard's fleet and includes efforts to build or modernize five classes each of ships and aircraft, and procure other key capabilities. In 2002, the Coast Guard contracted with Integrated Coast Guard Systems (ICGS) to manage the acquisition as systems integrator. After the program experienced a series of failures, the Coast Guard announced in April 2007 that it would take over the lead role, with future work on individual assets to be potentially bid competitively outside of the existing contract. A program baseline of \$24.2 billion was set as well. In June 2008, GAO reported on the new approach and concluded that while these steps were beneficial, continued oversight and improvement was necessary. The Coast Guard has taken actions to address the recommendations in that report. This testimony updates key issues from prior work: (1) Coast Guard program management at the overall Deepwater Program and asset levels; (2) how cost, schedules, and capabilities have changed from the 2007 baseline and how well costs are communicated to Congress; and (3) Coast Guard efforts to manage and build its acquisition workforce.

GAO reviewed Coast Guard acquisition program baselines, human capital plans and other documents, and interviewed officials. For information not previously reported, GAO obtained Coast Guard views. The Coast Guard generally concurred with the findings.

View [GAO-09-620T](#) or [key components](#). For more information, contact John Hutton at (202) 512-4841 or huttonj@gao.gov.

COAST GUARD

Update on Deepwater Program Management, Cost, and Acquisition Workforce

What GAO Found

The Coast Guard has assumed the role of systems integrator for the overall Deepwater Program by reducing the scope of work on contract with ICGS and assigning these functions to Coast Guard stakeholders. As part of its systems integration responsibilities, the Coast Guard has undertaken a fundamental reassessment of the capabilities, number, and mix of assets it needs; according to an official, it expects to complete this analysis by the summer of 2009. At the individual Deepwater asset level, the Coast Guard has improved and begun to apply the disciplined management process found in its *Major Systems Acquisition Manual*, but did not meet its goal of complete adherence to this process for all Deepwater assets by the second quarter of fiscal year 2009. For example, key acquisition management activities—such as operational requirements documents and test plans—are not in place for assets with contracts recently awarded or in production, placing the Coast Guard at risk of cost overruns or schedule slips.

Due in part to the Coast Guard's increased insight into what it is buying, the anticipated cost, schedules, and capabilities of many of the Deepwater assets have changed since the establishment of the \$24.2 billion baseline in 2007. Coast Guard officials have stated that this baseline reflected not a traditional cost estimate but rather the anticipated contract costs as determined by ICGS. As the Coast Guard has developed its own cost baselines for some assets, it has become apparent that some of the assets it is procuring will likely cost more than anticipated. Information to date shows that the total cost of the program may grow by \$2.1 billion. As more cost baselines are developed and approved, further cost growth may become apparent. In addition, while the Coast Guard plans to update its annual budget requests with asset-based cost information, the current structure of its budget submission to Congress does not include certain details at the asset level, such as estimates of total costs and total numbers to be procured. The Coast Guard's reevaluation of baselines has also changed its understanding of the delivery schedules and capabilities of Deepwater assets.

One reason the Coast Guard sought a systems integrator from outside the Coast Guard was because it recognized that it lacked the experience and depth in workforce to manage the acquisition internally. The Coast Guard acknowledges that it still faces challenges in hiring and retaining qualified acquisition personnel and that this situation poses a risk to the successful execution of its acquisition programs. According to human capital officials in the acquisition directorate, as of April 2009, the acquisition branch had 16 percent of positions unfilled, including key jobs such as contracting officers and systems engineers. Even as it attempts to fill its current vacancies, the Coast Guard plans to increase the size of its acquisition workforce significantly by the end of fiscal year 2011. While the Coast Guard may be hard-pressed to fill these positions, it has made progress in identifying the broader challenges it faces and is working to mitigate them. In the meantime, the Coast Guard has been increasing its use of support contractors.

Mr. Chairman and Members of the Subcommittee:

I am pleased to be here today to discuss the Coast Guard's management and oversight of its Deepwater Program. The Deepwater Program began in the late 1990s as an effort to recapitalize the Coast Guard's operational fleet and now includes projects to build or modernize five classes each of ships and aircraft, as well as to procure other capabilities such as improved command, control, communications, computers, intelligence, surveillance, and reconnaissance (C4ISR) and unmanned aircraft. Recognizing that it did not have in place the experience and depth in its workforce to manage the acquisition, the Coast Guard contracted with Integrated Coast Guard Systems (ICGS) as a systems integrator in June 2002. After experiencing a series of programmatic failures, the Commandant acknowledged in April 2007 that the Coast Guard had relied too heavily on contractors to do the work of government and that government and industry had failed to control costs. He announced several major changes to the acquisition approach for Deepwater, the key one being that the Coast Guard would take over the lead role in systems integration from ICGS, with future work on individual assets to be potentially bid competitively outside of the existing contract. In May 2007, soon after this announcement, the Department of Homeland Security (DHS) approved a revised acquisition program baseline of \$24.2 billion for the Deepwater Program.

In June 2008, we reported on our assessment of the preliminary steps the Coast Guard had taken to revise its acquisition approach and concluded that while these steps were beneficial, continued oversight and improvement was necessary to further mitigate risks.¹ The Coast Guard has taken actions to address the recommendations we made in that report. My statement is based largely on ongoing work for this subcommittee.² We plan to provide a more complete analysis of the Deepwater issues raised in this statement in a report this summer.

My focus today will be on:

¹GAO, *Coast Guard: Change in Course Improves Deepwater Management and Oversight, but Outcome Still Uncertain*, [GAO-08-745](#) (Washington, D.C.: June 24, 2008).

²Our ongoing work is also being done for the Subcommittee on Homeland Security, Committee on Appropriations, U.S. Senate.

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- Coast Guard efforts to manage the Deepwater Program at both the overall system and asset levels;
 - how cost, schedules, and capabilities have changed from the 2007 baseline, and how well costs are communicated to Congress; and
 - Coast Guard efforts to manage and build its acquisition workforce.

As part of our ongoing work, we reviewed key Coast Guard documentation such as the Coast Guard's *Major Systems Acquisition Manual*, approved acquisition program baselines, and human capital plans. We also interviewed Coast Guard officials in the acquisition directorate, including program managers and contracting officers, and in other directorates such as those responsible for human capital issues and for assessing and developing operational requirements for Deepwater assets. This work was conducted between September 2008 and April 2009. We also relied on our past work regarding the Deepwater Program. Appendix I lists our selected reports on the Deepwater Program. All work for this statement was conducted in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives. For issues where our observations are based on work that has not been previously reported, we obtained Coast Guard views on our findings and incorporated technical comments where appropriate. The Coast Guard generally concurred with our findings.

Background

The Coast Guard is a multimission, maritime military service within DHS. The Coast Guard's responsibilities fall into two general categories—those related to homeland security missions, such as port security and vessel escorts, and those related to non-homeland security missions, such as search and rescue and polar ice operations. To carry out these responsibilities, the Coast Guard operates a number of vessels and aircraft and, through its Deepwater Program, is currently modernizing or replacing those assets.

At the start of the Deepwater Program in the late 1990s, the Coast Guard chose to use a system-of-systems acquisition strategy. A system-of-systems is defined as a set or arrangement of assets that results when independent assets are integrated into a larger system that delivers unique capabilities. As the systems integrator, ICGS was responsible for designing, constructing, deploying, supporting, and integrating the Deepwater assets

into a system-of-systems. Under this approach, the Coast Guard provided the contractor with broad, overall performance specifications—such as the ability to interdict illegal immigrants—and ICGS determined the asset specifications. According to Coast Guard officials, the ICGS proposal was submitted and priced as a package; that is, the Coast Guard bought the entire solution and could not reject any individual component. In November 2006, the Coast Guard submitted a cost, schedule, and performance baseline to DHS that established the total acquisition cost of the ICGS solution at \$24.2 billion and projected that the acquisition would be completed in 2027. In May 2007, shortly after the Coast Guard had announced its intention to take over the role of systems integrator, DHS approved the baseline.

Table 1 describes in more detail the assets the Coast Guard is planning to procure according to approved baselines.

Table 1: Information on Deepwater Assets

Asset	Quantity	Description
National Security Cutter	8 ships	The NSC is intended to be the flagship of the Coast Guard’s fleet, with an extended on-scene presence, long transits, and forward deployment. The cutter and its aircraft and boat assets are to operate worldwide.
Offshore Patrol Cutter	25 ships	The OPC 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 multiple aircraft and boats.
Fast Response Cutter	58 ships	The FRC is conceived as a patrol boat with high readiness, speed, adaptability, and endurance to perform a wide range of missions.
Medium Endurance Cutter Sustainment	27 ships	The cutter sustainment project is intended to improve the cutters’ operating and cost performance by replacing obsolete, unsupportable, or maintenance-intensive equipment.
Patrol Boat Sustainment	20 ships	The patrol boat sustainment project is intended to improve the boats’ operating and cost performance by replacing obsolete, unsupportable, or maintenance-intensive equipment.
Cutter Small Boats	124 boats	Cutter small boats are an integral component of the planned capabilities for the larger cutters and patrol boats and are critical to achieving success in all operational missions. The Coast Guard is currently restructuring its cutter small boat programs.
Maritime Patrol Aircraft	36 aircraft	The MPA is intended to be a transport and surveillance, fixed-wing aircraft used to perform search and rescue missions, enforce laws and treaties, and transport cargo and personnel.
HC-130J Long-Range Surveillance Aircraft	6 aircraft	The HC-130J is a four-engine turbo-prop aircraft that the Coast Guard intends to deploy with improved interoperability, C4ISR, and sensors to enhance surveillance, detection, classification, identification, and prosecution.

Asset	Quantity	Description
HC-130H Long-Range Surveillance Aircraft	16 aircraft	The HC-130H is the legacy Coast Guard long-range surveillance aircraft, which the Coast Guard intends to update with structural sustainability, improved interoperability, C4ISR, and sensors to enhance surveillance, detection, classification, identification, and prosecution.
HH-65 Multimission Cutter Helicopter	102 aircraft	The HH-65 Dolphin is the Coast Guard's short-range recovery helicopter which is being upgraded in phases to improve its engines, communications equipment, avionics, and other capabilities.
HH-60 Medium Range Recovery Helicopter	42 aircraft	The HH-60J is a medium-range recovery helicopter designed to perform search and rescue missions offshore in all weather conditions. The Coast Guard intends to upgrade the helicopters' avionics, C4ISR, and other systems.
Unmanned Aerial System	To be determined	The Coast Guard has deferred acquisition of this asset because of challenges in technology maturation of the ICGS proposed design. The Coast Guard continues its analysis of needs and alternatives, with an acquisition plan for this asset in development.
C4ISR	n.a.	The Coast Guard's acquisition of C4ISR capabilities includes upgrades to existing cutters and shore installations, acquisitions of new assets, and development of a common operating picture to provide operationally-relevant information and knowledge across the full range of Coast Guard operations.

Source: GAO analysis of Coast Guard data.

In deciding to take over the systems integrator role from ICGS, the Coast Guard has taken steps to increase government control and accountability by, among other things, applying the disciplined program management processes in its *Major Systems Acquisition Manual* (MSAM) to Deepwater assets. The MSAM requires documentation and approval of acquisition decisions at key points in a program's life-cycle by designated officials at high levels. The Coast Guard has established a number of goals and deadlines for completing these activities in its *Blueprint for Acquisition Reform*, which was initially released in July 2007 and was last updated in July 2008.

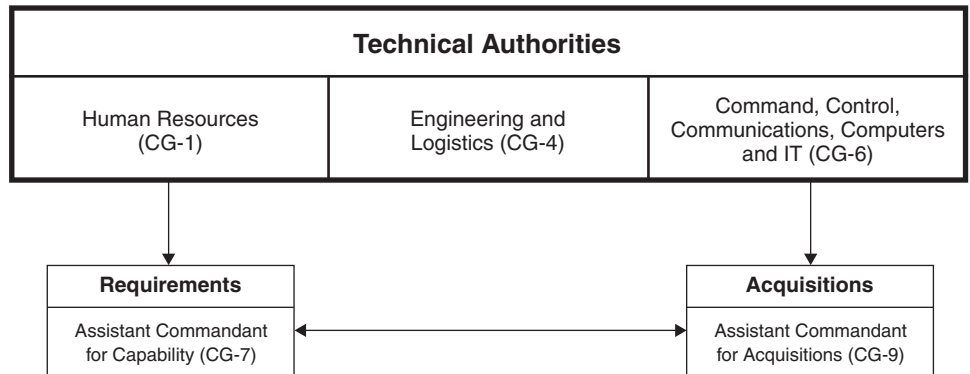
Coast Guard Has Assumed the Role of Systems Integrator But Lags In Applying Disciplined Asset-Level Processes as It Continues with Procurements

The Coast Guard has taken three major steps to become the systems integrator for the Deepwater Program. It has defined and assigned systems integrator functions to Coast Guard stakeholders, begun to reassess the capabilities and mix of assets it requires, and significantly reduced the contractual responsibilities of ICGS. While the Coast Guard has made progress in applying the disciplined MSAM acquisition process to its Deepwater assets, it did not meet its goal of being fully compliant by the second quarter of fiscal year 2009. In the meantime, the Coast Guard continues with production of certain assets and award of new contracts in light of what it views as pressing operational needs.

Coast Guard Has Assumed Key Roles and Responsibilities from ICGS in Becoming the Systems Integrator

The role of systems integrator involves planning, organizing, and integrating a mix of assets into a system-of-systems capability greater than the sum of the capabilities of the individual parts. ICGS's role as systems integrator for the Deepwater Program included requirements management, systems engineering, and defining how assets would be employed by Coast Guard users in an operational setting. In addition, the contractor had technical authority over all asset design and configuration decisions. In 2008, the Coast Guard acknowledged that in order to assume the role of systems integrator, it needed to define systems integrator functions and assign them to Coast Guard stakeholders. Through codified changes to internal relationships, policies, and contractual arrangements, the Coast Guard has done so. For example, the Coast Guard formally designated certain directorates as technical authorities to establish, monitor, and approve technical standards for Deepwater assets related to design, construction, maintenance, logistics, C4ISR, and life-cycle staffing and training. The Coast Guard's capabilities directorate determines operational requirements and the asset mix to satisfy those requirements and establishes priorities. This directorate is expected to collaborate with the technical authorities to ensure that the Coast Guard's technical standards are incorporated during the requirements development process. Further, the acquisition directorate's program and project managers are to be held accountable for ensuring that the assets it procures fulfill operational requirements and the technical authority standards. The relationships between Coast Guard directorates in executing their systems integrator roles are represented graphically in figure 1.

Figure 1: Directorate Relationships



Source: GAO analysis based on Coast Guard documents.

When it contracted with ICGS, the Coast Guard had limited insight into how the contractor’s proposed solution would meet overall mission needs, limiting its ability to justify the proposed solution and make informed decisions about possible trade-offs. To improve its insight, the capabilities directorate has initiated a fundamental reassessment of the capabilities and mix of assets the Coast Guard needs to fulfill its Deepwater missions. The goals of this fleet mix analysis include validating mission performance requirements and revisiting the number and mix of all assets that are part of the Deepwater Program. A specific part of the study will be to analyze alternatives and quantities for the Offshore Patrol Cutter, an asset which accounts for a projected \$8 billion of the total Deepwater costs. According to an official, the results of this analysis are expected in the summer of 2009. Coast Guard leadership plans to assess the results and make future procurement decisions based on the analysis.

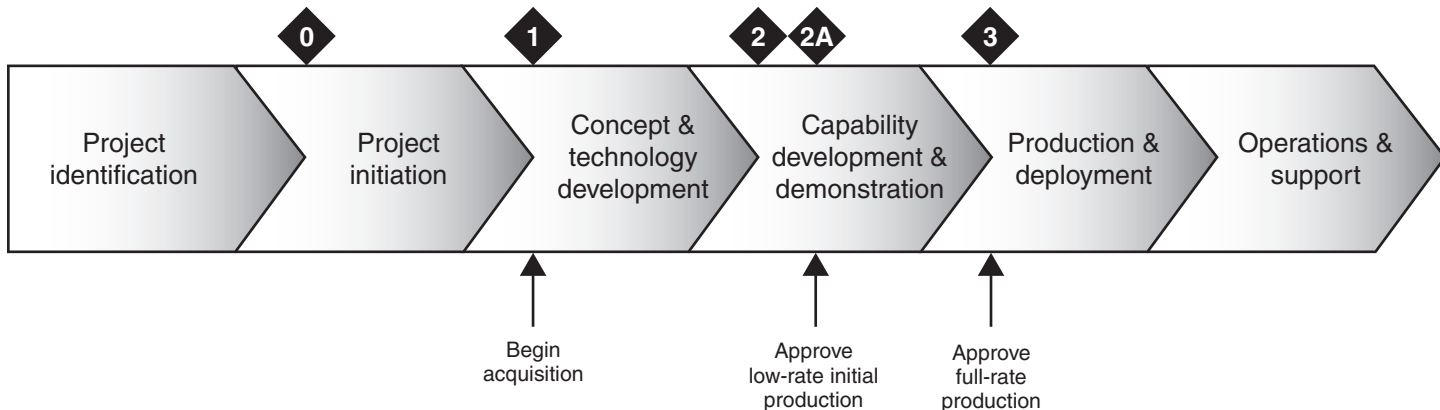
In conjunction with its assuming the role of systems integrator, the Coast Guard has significantly reduced the scope of work on contract with ICGS. In March 2009, the Coast Guard issued a task order to ICGS limited to tasks such as data management and quality assurance for assets currently under contract with ICGS including C4ISR, the Maritime Patrol Aircraft (MPA), and the National Security Cutter (NSC). The Coast Guard is currently developing plans to transition these functions from ICGS to the Coast Guard or an independent third party by February 2011 when this task order expires. For assets procured or planned to be procured outside of the ICGS contract such as the Offshore Patrol Cutter, systems engineering and program management functions are expected to be carried out by the Coast Guard with support from third parties and contractors. According to officials, the Coast Guard has no plans to award

additional orders to ICGS for systems integrator functions within the current award term or for any work after the award term expires in January 2011.³

As Asset-level Management Gets Underway, Production and Award of New Contracts Are Proceeding Despite Some Gaps in Knowledge

Since our June 2008 report on the Deepwater Program, and taking into account our recommendation, the Coast Guard has improved its MSAM process.⁴ For example, the process now dictates that the acquisition project and program managers work collaboratively with the technical authorities as described above. The MSAM process was revised to require acquisition planning and an analysis of alternatives for procurement to start at an earlier stage, which is intended to help inform the budget and planning processes. Other improvements include the adoption of our recommendation for a formal design review, Milestone 2A, before authorizing low-rate initial production. The MSAM phases and milestones are shown in figure 2.

Figure 2: Major Systems Acquisition Manual (MSAM) Phases and Milestones



Source: Coast Guard.
 Note: Black diamonds denote milestones.

³In June 2002, the Coast Guard awarded the Deepwater contract to ICGS. The award was an indefinite delivery, indefinite quantity contract with a 5-year base period and five potential extensions of the contract (award terms) of up to 5 years each. Based on the government’s assessment of its performance, ICGS earned one award term of 43 months. According to Coast Guard officials, the Coast Guard and ICGS have executed a bilateral contract modification removing any future award terms from the ICGS contract.

⁴GAO-08-745.

Because the Coast Guard previously exempted Deepwater from the MSAM process, assets were procured without following a disciplined program management approach. Recognizing the importance of ensuring that each acquisition project is managed through sustainable and repeatable processes and wanting to adhere to proven acquisition procedures, in July 2008, the Coast Guard set a goal of completing the MSAM acquisition management activities for all Deepwater assets by the second quarter of fiscal year 2009. However, of the 12 Deepwater assets in the concept and technology development phase or later, 9 are behind plan in terms of MSAM compliance. In the meantime, the Coast Guard has proceeded with production and awarded new contracts without all of the knowledge it needs to ensure that the capabilities it is buying will meet Coast Guard needs within cost and schedule constraints.

For assets already in production, such as the MPA and the NSC, the Coast Guard has made some progress in the past year in retroactively developing acquisition documentation with the intent of providing the traceability from mission needs to operational performance that was previously lacking. For example, the Coast Guard approved an operational requirements document for the MPA in October 2008 to establish a formal performance baseline and identify attributes for testing. Through this process, the Coast Guard discovered that ICGS's requirement for operational availability (the amount of time that an aircraft is available to perform missions) was excessive compared to the Coast Guard's own standards. According to a Coast Guard official, the ICGS requirement would have needlessly increased costs to maintain and operate the aircraft.

Even as the Coast Guard gains this additional knowledge about MPA requirements, it is continuing with this procurement despite not having completed operational testing. According to the MSAM, testing in an operational environment should be completed with the initial production variants of an asset to demonstrate that capabilities meet requirements before committing to larger purchases. An approved test plan helps ensure that the tests conducted are clearly linked to requirements and mission needs. While the MPA began an operational assessment in July 2008, the Coast Guard still lacked, as of March 2009, a test plan approved by DHS and endorsed by its independent test authority, the Navy's Commander Operational Testing and Evaluation Force. With 11 of 36 MPAs already on

contract, the Coast Guard has completed the operational assessment⁵ but does not plan to complete operational testing until the fiscal year 2011 time frame. Similarly, according to Coast Guard officials, operational testing of the NSC, also conducted by the Coast Guard's independent test authority, has begun in the absence of an approved test plan, which is now expected in July 2009. By the time testing is scheduled to be completed in 2011, the Coast Guard plans to have six of eight NSCs either built or on contract.

According to the MSAM process, operational requirements must be approved before procuring an asset. However, since committing to the MSAM process, the Coast Guard has awarded new contracts for assets without having all required acquisition documentation in place, due to its determination that the need for these capabilities is pressing. This situation puts the Coast Guard at risk of cost overruns and schedule slips if it turns out that what it is buying does not meet requirements.

- In September 2008, after conducting a full and open competition, the Coast Guard awarded an \$88.2 million contract for the design and construction of a lead Fast Response Cutter. However, the Coast Guard does not have an approved operational requirements document or test plan for this asset. Recognizing the risks inherent in this approach, the Coast Guard developed a basic requirements document and an acquisition strategy based on procuring a proven design. These documents were reviewed and approved by the Coast Guard's capabilities directorate, the engineering and logistics directorate, and chief of staff before the procurement began. According to a Coast Guard official, the Coast Guard intends to have an approved operational requirements document before procuring additional ships.
- In February 2009, the Coast Guard issued a \$77.7 million task order to ICGS for a second segment of C4SIR design and development, before developing its requirements for performance. Design and development costs for the first segment increased from \$55.5 million to \$141.3 million. According to Coast Guard officials, this increase was due in part to the structure of the ICGS contract under which the Coast Guard lacked visibility into the software development processes and

⁵The focus of an operational assessment is on significant trends noted in development efforts, programmatic voids, risk areas, adequacy of requirements, and the ability of the program to support operational testing. An operational assessment may be conducted at any time using technology demonstrators, prototypes, mock-ups, engineering development models, or simulations, but is not to substitute for initial operational testing and evaluation.

requirements. Furthermore, ICGS's C4ISR solution for the Deepwater Program contains proprietary software. The Coast Guard has acquired data rights to the software and, according to Coast Guard officials, has determined that the capabilities it is buying meet Coast Guard technical standards for maintenance, logistics, and interoperability.

Coast Guard Developing More Realistic Cost Estimates for Deepwater Assets, but Cost Reporting May Not Keep Congress Fully Informed

Since the establishment of the \$24.2 billion baseline for the Deepwater program in 2007, the anticipated cost, schedules, and capabilities of many of the Deepwater assets have changed, in part due to the Coast Guard's increased insight into what it is buying. The purpose of the 2007 baseline was to establish cost, schedule, and operational requirements for the Deepwater system as a whole; these were then allocated to the major assets. Coast Guard officials have stated that this baseline reflected not a traditional cost estimate but rather the anticipated contract costs as determined by ICGS. Furthermore, the Coast Guard lacked insight into how ICGS arrived at some of the costs for Deepwater assets.

As the Coast Guard has assumed greater responsibility for management of the Deepwater Program, it has begun to improve its understanding of costs by establishing new baselines for individual assets based on its own cost estimates. These baselines begin at the asset level and are developed by Coast Guard project managers, validated by a separate office within the acquisition branch and, in most cases, are reviewed and approved by DHS. The estimates use common cost estimating procedures and assumptions, and may account for costs not previously captured. Beginning in September 2008 the Coast Guard began submitting new baselines to DHS. To date, 10 asset baselines have been submitted to DHS and 4 have been approved. These new baselines are formulated using various sources of information depending on the acquisition phase of the asset. For example, the baseline for the NSC was updated using the actual costs of material, labor, and other considerations already in effect at the shipyards. The baselines for other assets, like the MPA, were updated using independent cost estimates. As the Coast Guard approaches major milestones, such as the decision to enter low-rate initial production or begin system development, officials have stated that the cost estimates for all assets will be reassessed and revalidated.

Better-informed Baselines Suggest Deepwater Costs Could Exceed \$24.2 Billion

As the Coast Guard has developed its own cost baselines for Deepwater assets, it has become apparent that some of the assets it is procuring will likely cost more than anticipated. While the Coast Guard is still in the process of communicating the effect and origin of these cost issues to

DHS, information available to date for assets shows that the total cost of the program will likely exceed \$24.2 billion, with potential cost growth of approximately \$2.1 billion through the life of the Deepwater Program. As more baselines are approved by DHS, further cost growth may become apparent. Table 2 provides the estimates of asset costs available as of April 2009. It does not reflect the roughly \$3.6 billion in other Deepwater costs, such as program management, that the Coast Guard states do not require a new baseline.

Table 2: Changes from 2007 Deepwater Baseline (Then-year dollars in millions)

Asset	2007 baseline	Current estimate (as of April 2009)	Change
National Security Cutter	3,450	4,749	1,299
Offshore Patrol Cutter	8,098	baseline in development, due November 2009	
Fast Response Cutter ^a	3,206	baseline with DHS	
Medium Endurance Cutter Sustainment	317	321 ^b	4
Patrol Boat Sustainment	117	194 ^b	77
Maritime Patrol Aircraft	1,706	2,223	517
HC-130J Long-Range Surveillance Aircraft	11	167 ^c	156
HC-130H Long-Range Surveillance Aircraft	610	baseline with DHS	
HH-65 Multimission Cutter Helicopter	741	baseline with DHS	
HH-60 Medium Range Recovery Helicopter	451	baseline with DHS	
Cutter Small Boats	110	baseline in development, due June 2009	
Unmanned Aerial System	503	baseline in development	
C4ISR	1,353	baseline with DHS	

Source: GAO analysis of Coast Guard documentation.

^aIn the 2007 baseline, costs for two variants of the Fast Response Cutter were presented. The new baseline will represent the total costs for the recently awarded design.

^bReflects the threshold, or maximum allowable, cost.

^cReflects estimate presented in the Coast Guard's Fiscal Year 2008 Deepwater Expenditure Plan. The initial estimate of \$11 million only included fleet introduction costs and did not include the acquisition cost of the aircraft or installation of the mission systems.

The effort by the Coast Guard to develop new baselines provides not only a better understanding of the costs of the Deepwater assets, but also insight into the drivers of any cost growth. For example, the new NSC baseline attributes a \$1.3 billion rise in cost to a range of factors, from the additional costs to correct fatigue issues on the first three cutters to the rise in commodity and labor prices. The additional \$517 million needed to procure all 36 MPA is attributed primarily to items that were not

accounted for in the previous baseline, including a simulator to train aircrews, facility improvements, and adequate spare parts. By understanding the reasons for cost growth, the Coast Guard may be able to better anticipate and control costs in the future.

The Coast Guard has structured some of the new baselines to show how cost growth could be controlled by making trade-offs in asset quantities and/or capabilities. For example, the new MPA baseline provides cost increments that show the acquisition may be able to remain within its initial allotment of the overall \$24.2 billion if 8 fewer aircraft are acquired. Coast Guard officials have stated that other baselines currently under review by DHS present similar cost increments. This information, if combined with data from the fleet mix study to show the effect of quantity or capability reductions on the system-of-systems as a whole, offers a unique opportunity to the Coast Guard for serious discussions of trade-offs.

The Coast Guard's reevaluation of baselines has also changed its understanding of the delivery schedules and capabilities of Deepwater assets. According to the new baselines, a number of assets will be available for operational use later than originally anticipated. This includes a 12-month delay for the NSC to reach its initial operating capability and an 18-month delay for the MPA. Coast Guard officials stated that the restructuring of the unmanned aircraft and small boat projects has delayed the deployment of these assets with the NSC and affects the ship's anticipated capabilities in the near term. We plan to report later this summer on the operational effect of the delays in the NSC project.

Current Budget Reporting Lacks Detail at Asset Level, and May Not Adequately Inform Congress

While the Coast Guard plans to update its annual budget requests with asset-based cost information, the current structure of its budget submission could limit Congress's understanding of details at the asset level. The budget submission presents total acquisition costs only at the overall Deepwater system level (\$24.2 billion), and the description of funding for individual assets does not include key information such as costs beyond the current 5-year capital investment plan, i.e., life-cycle costs, or the total quantities of assets planned. For example, while the justification of the NSC request includes an account of the capabilities the asset is expected to provide, how these capabilities link to the Coast Guard's missions, and details on what activities past appropriations have funded, it does not include estimates of total program cost, future award or delivery dates of remaining assets, or even the total number of assets to be procured.

Our past work has emphasized that one of the keys to a successful capital acquisition, such as the multibillion-dollar ships and aircraft the Coast Guard is procuring, is budget submissions that clearly communicate needs.⁶ A key part of this communication is to provide decision makers with information about cost estimates, risks, and the scope of a planned project before committing substantial resources to it. Good budgeting also requires that the full costs of a project be considered upfront when decisions are made. Other agencies within the federal government that acquire systems similar to those of the Coast Guard capture these elements in justifications of their requests. To illustrate, table 3 provides a comparison of the information found in the NSC budget justification with that used by the Navy for its shipbuilding programs.

Table 3: Comparison of Budget Justifications

	Prior year allocation	Current request	5-year outlook	Future contract awards	Total acquisition cost	Total asset quantities
Coast Guard (NSC)	X	X	X			
Navy	X	X	X	X	X	X

Source: GAO analysis.

While the Coast Guard does include some of this information in its asset-level Quarterly Acquisition Reports to Congress and the Deepwater Program Expenditure Report, these documents are provided only to the appropriations committees, and the information is restricted due to acquisition sensitive material.

Coast Guard Having Difficulty Staffing Government Acquisition Positions but Working To Improve Processes

One reason the Coast Guard originally sought a systems integrator was because it recognized that it lacked the experience and depth in its workforce to manage the acquisition internally. Now that the Coast Guard has taken control of the Deepwater acquisition, it acknowledges that it faces challenges in hiring and retaining qualified acquisition personnel and that this situation poses a risk to the successful execution of its acquisition programs. According to human capital officials in the acquisition directorate, as of April 2009, the acquisition branch had funding for 855 military and civilian personnel and had filled 717 of these positions—

⁶GAO, *Executive Guide: Leading Practices in Capital Decision-Making*, GAO/AIMD-99-32 (Washington, D.C.: December 1998).

leaving 16 percent unfilled. The Coast Guard has identified some of these unfilled positions as core to the acquisition workforce, such as contracting officers and specialists, program management support staff, and engineering and technical specialists. Even as it attempts to fill its current vacancies, the Coast Guard plans to increase the size of its acquisition workforce significantly by the end of fiscal year 2011.

Coast Guard Has Expanded Collaboration with Independent Third Parties and Increased Use of Support Contractors to Assist with Acquisition

To supplement and enhance the use of its internal expertise, the Coast Guard has increased its use of third-party, independent experts outside of both the Coast Guard and existing Deepwater contractors. For example, a number of organizations within the Navy provided independent views and expertise on a wide range of issues, including testing and safety. In addition, the Coast Guard will use the American Bureau of Shipping, an independent organization that establishes and applies standards for the design and construction of ship and other marine equipment, as an advisor and independent reviewer on the design and construction of the Fast Response Cutter. The Coast Guard has also begun a relationship with a university-affiliated research center to augment its expertise as it executes its fleet mix analysis.

In addition to third party experts, the Coast Guard has been increasing its use of support contractors. Currently, there are approximately 200 contractor employees in support of the acquisition directorate—representing 24 percent of its total acquisition workforce—a number that has steadily increased in recent years. These contractors are performing a variety of services—some of which support functions the Coast Guard has identified as core to the government acquisition workforce—including project management support, engineering, contract administration, and business analysis and management. While support contractors can provide a variety of essential services, their use must be carefully overseen to ensure that they do not perform inherently governmental roles. The Coast Guard acknowledges this risk and is monitoring its use of support contractors to properly identify the functions they perform, as well as developing a policy to define what is and what is not inherently governmental.

Coast Guard Has Made Progress in Identifying and Mitigating Acquisition Workforce Challenges

While the Coast Guard may be hard-pressed to fill the government acquisition positions it has identified both now and in the future, it has made progress in identifying the broader challenges it faces and is working to mitigate them. The Coast Guard has updated two documents key to this effort, the *Blueprint for Acquisition Reform*, now in its third iteration,

and the *Acquisition Human Capital Strategic Plan*, which is in its second iteration. Each document identifies challenges the Coast Guard faces in developing and managing its acquisition workforce and outlines initiatives and policies to meet these challenges. For example, the *Acquisition Human Capital Strategic Plan* lays out three overall challenges and outlines over a dozen strategies the Coast Guard is pursuing to address them in building and maintaining an acquisition workforce. The discussion of strategies includes status indicators and milestones to monitor progress, as well as supporting actions such as the formation of partnerships with the Defense Acquisition University and continually monitoring turnover in critical occupations. The *Blueprint for Acquisition Reform* supports many these initiatives and provides deadlines for their completion. In fact, the Coast Guard has already completed a number of initiatives including

- achieving and maintaining Level III program manager certifications,
- adopting a model to assess future workforce needs,
- incorporating requests for additional staff into the budget cycle,
- initiating tracking of workforce trends and metrics,
- expanding use of merit-based rewards and recognitions, and
- initiating training on interactions and relationships with contractors.

Concluding Observations

In conclusion, I'd like to emphasize several key points as we continue to oversee the various Coast Guard initiatives discussed today. It is important to recognize that Coast Guard leadership has made significant progress in identifying and addressing the challenges in taking on the role of systems integrator for the Deepwater Program. The Coast Guard is continuing to build on this progress by starting to follow a disciplined program management approach that improves its knowledge of what is required to meet its goals. An important component of this approach is gaining realistic assessments of needed capabilities and associated costs to enable the Coast Guard and Congress to better execute decision making and oversight. The Coast Guard's ability to build an adequate acquisition workforce is critical, and over time the right balance must be struck between numbers of government and contractor personnel. Until the Coast Guard gains a thorough understanding of what it is buying and how much it will cost, and is able to put in place the necessary workforce to manage the Deepwater Program, it will continue to face risks in carrying out this multibillion dollar acquisition.

Mr. Chairman, this concludes my statement and I would be happy to respond to any questions the committee may have.

GAO Contact and Acknowledgements

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Related GAO Products

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