

**GAO**

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**COAST GUARD**

**Coast Guard Efforts to  
Improve Management and  
Address Operational  
Challenges in the  
Deepwater Program**

Statement of Stephen L. Caldwell, Acting Director  
Homeland Security and Justice Issues





Highlights of [GAO-07-460T](#), a testimony before the Subcommittee on Oceans, Atmosphere, Fisheries, and Coast Guard, Committee on Commerce, Science & Transportation, U.S. Senate

## Why GAO Did This Study

The Coast Guard's Deepwater program is a 25-year, \$24 billion plan to replace or modernize its fleet of vessels and aircraft. While there is widespread acknowledgment that many of the Coast Guard's aging assets need replacement or renovation, concerns exist about the acquisition approach the Coast Guard adopted in launching the Deepwater program. From the outset, GAO has expressed concern about the risks involved with the Coast Guard's acquisition strategy, and continues to review Deepwater program management.

This statement discusses (1) the Coast Guard's acquisition approach for the Deepwater program; (2) previous GAO recommendations to the Coast Guard on Deepwater, highlighting the importance of Integrated Product Teams; and (3) operational challenges the Coast Guard is facing because of performance and design problems with Deepwater patrol boats.

## What GAO Recommends

GAO made 11 recommendations in 2004 in the areas of management and oversight, contractor accountability, and cost control through competition. In April 2006, we reported that the Coast Guard had implemented five of the recommendations, had begun to address five other recommendations, and declined to implement one recommendation.

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To view the full product, including the scope and methodology, click on the link above. For more information, contact Stephen Caldwell at (202) 512-9610 or [caldwells@gao.gov](mailto:caldwells@gao.gov).

# COAST GUARD

## Coast Guard Efforts to Improve Management and Address Operational Challenges in the Deepwater Program

### What GAO Found

In 2001, we described the Deepwater project as “risky” due to the unique, untried acquisition strategy for a project of this magnitude within the Coast Guard. The Coast Guard used a system-of-systems approach to replace deteriorating assets with a single, integrated package of aircraft, vessels, and unmanned aerial vehicles. The Coast Guard also used a system integrator—which can give the contractor extensive involvement in requirements development, design, and source selection of major system and subsystem subcontractors. The Deepwater program is also a performance-based acquisition, meaning that it is structured around the results to be achieved rather than the manner in which the work is performed. If performance-based acquisitions are not appropriately planned and structured, there is an increased risk that the government may receive products or services that are over cost estimates, delivered late, and of unacceptable quality.

GAO's reported concerns and related recommendations in 2004 and in subsequent assessments in 2005 and 2006 have centered on three main areas: program management, contractor accountability, and cost control through competition. In the area of program management, GAO's prior work has found that Integrated Product Teams—the Coast Guard's primary tool for managing the program and overseeing the contractor—have struggled to carry out their missions effectively. We have ongoing work reviewing Deepwater implementation and contract oversight and will continue to monitor the Coast Guard's implementation of our recommendations.

In addition to these management issues, the Coast Guard is facing operational challenges because of performance and design problems with Deepwater patrol boats. Specifically, problems with the conversion of 110-foot patrol boats to 123-foot patrol boats ultimately led the Coast Guard to suspend all normal operations of its converted 123-foot patrol boats on November 30, 2006; the Coast Guard is now exploring options to address the resulting operational gaps. In February 2006, the Coast Guard suspended design work on the Fast Response Cutter (FRC)—which was intended to replace the patrol boats—due to design risks. In moving forward with the FRC acquisition, the Coast Guard will end up with two separate classes of FRCs—an outcome that has resulted in a slippage of the anticipated FRC delivery date.

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Madame Chair and Members of the Subcommittee:

Thank you for inviting me here today to discuss our reviews of the U.S. Coast Guard's \$24 billion Deepwater program. While there is widespread acknowledgment that many of the Coast Guard's aging assets need replacement or renovation, concerns also exist about the acquisition approach the Coast Guard adopted in launching the Deepwater program. From the outset, we have expressed concern about the risks involved with the Coast Guard's acquisition strategy.<sup>1</sup> The subsequent changes in the Deepwater asset mix and delivery schedules only increased these concerns. In 2004, we reported that well into the contract's second year, key components needed to manage the program and oversee the system integrator's performance had not been effectively implemented.<sup>2</sup> Accordingly, we made 11 recommendations to address three broad areas of concern: improving program management, strengthening contractor accountability, and promoting cost control through greater competition among potential subcontractors.

My statement today will discuss our prior work on the Coast Guard's Deepwater program. Specifically, I will discuss

- the Coast Guard's acquisition approach for the Deepwater program;
- previous GAO recommendations to the Coast Guard on Deepwater, highlighting the importance of Integrated Product Teams; and
- operational challenges the Coast Guard is facing because of performance and design problems with Deepwater patrol boats.

This testimony is based on our prior work on the Deepwater program. That work was conducted in accordance with generally accepted government auditing standards. We have ongoing work across all of the issues discussed in this statement.

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<sup>1</sup> GAO, *Coast Guard: Progress Being Made on Deepwater Project, but Risks Remain*, [GAO-01-564](#) (Washington, D.C.: May 2, 2001).

<sup>2</sup> GAO, *Contract Management: Coast Guard's Deepwater Program Needs Increased Attention to Management and Contractor Oversight*, [GAO-04-380](#) (Washington, D.C.: Mar. 9, 2004).

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## Summary

In 2001, we described the Deepwater program as “risky” due to the unique, untried acquisition strategy for a project of this magnitude within the Coast Guard. The Coast Guard used a system-of-systems approach to replace deteriorating assets with a single, integrated package of aircraft, vessels, and unmanned aerial vehicles, to be linked through systems that provide command, control, communications, computer, intelligence, surveillance, and reconnaissance (C4ISR), and supporting logistics. In a system-of-systems, the delivery of Deepwater assets are interdependent, thus schedule slippages and uncertainties associated with potential changes in the design and capabilities of any one asset could increase the overall risks that the Coast Guard might not meet its expanded homeland security performance requirements within given budget parameters and milestone dates. The Coast Guard also used a system integrator—which can give the contractor extensive involvement in requirements development, design, and source selection of major system and subsystem subcontractors. The Deepwater program is also a performance-based acquisition, meaning that it is structured around the results to be achieved rather than the manner in which the work is performed. If performance-based acquisitions are not appropriately planned and structured, there is an increased risk that the government may receive products or services that are over cost estimates, delivered late, and of unacceptable quality.

Our reported concerns and related recommendations in 2004 and in subsequent assessments in 2005 and 2006 have centered on three main areas: program management, contractor accountability, and cost control through competition. In the area of program management, among other things, our prior work has found that Integrated Product Teams (IPTs)—the Coast Guard’s primary tool for managing the program and overseeing the contractor—have struggled to effectively carry out their missions. We recommended that, among other things, Coast Guard improve the IPTs by initiating actions to establish timely charters and training. In terms of contractor accountability, in 2004 we found that the Coast Guard had not developed quantifiable metrics to hold the system integrator accountable for its ongoing performance, the process by which the Coast Guard assessed performance after the first year of the contract lacked rigor, and the Coast Guard had not begun to measure the system integrator’s performance on the three overarching goals of the Deepwater program—maximizing operational effectiveness, minimizing total ownership costs, and satisfying the customer. Thus, one recommendation we made for improving contractor accountability was to devise a time frame for measuring the contractor’s progress toward improving operational effectiveness. We also reported in 2004 that, although competition among subcontractors was a key vehicle for controlling costs, the Coast Guard

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had neither measured the extent of competition among the suppliers of Deepwater assets nor held the system integrator accountable for taking steps to achieve competition. Consequently, we recommended that Coast Guard develop a plan to hold the contractor accountable for ensuring adequate competition among suppliers. While we recognize that the Coast Guard has taken steps to address our findings and recommendations, aspects of the Deepwater program will require continued attention.

In addition to the Deepwater program management issues discussed above, the Coast Guard is facing operational challenges because of performance and design problems with Deepwater patrol boats. Specifically, the conversion of legacy 110-foot patrol boats to upgraded 123-foot patrol boats was stopped at eight hulls (rather than the entire fleet of 49) due to deck cracking, hull buckling, and shaft alignment problems. These patrol boat conversion problems ultimately led the Coast Guard to suspend all normal operations of the eight converted 123-foot patrol boats on November 30, 2006. The Coast Guard is now exploring options to address the resulting short-term operational gaps. There have also been design problems with the new Fast Response Cutter (FRC), intended to replace all 110-foot and 123-foot patrol boats. In February 2006, the Coast Guard suspended design work on the FRC due to design risks such as excessive weight and horsepower requirements.<sup>3</sup> In moving forward with the FRC acquisition as planned, the Coast Guard will end up having to operate two classes of FRCs—which has resulted in a slippage of the anticipated FRC delivery date. One class will be based on an adapted design from a patrol boat already on the market and another class that would be redesigned to address the problems in the original FRC design plans. Thus, the Coast Guard is also facing longer-term operational gaps related to its patrol boats. As with the 123-foot patrol boats, the Coast Guard is looking at options to address these long-term operational gaps.

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## Background

For about a decade, the Coast Guard has been developing an Integrated Deepwater System (or Deepwater) acquisition program, a long-term plan to replace or modernize its fleet of vessels and aircraft. Many of these legacy assets are at or approaching the end of their estimated service lives. Deepwater is the largest and most complex acquisition project in the Coast Guard's history. The acquisition is scheduled to include the

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<sup>3</sup>GAO, *Coast Guard: Status of Deepwater Fast Response Cutter Design Efforts*, [GAO-06-764](#) (Washington, D.C.: June 23, 2006).

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modernization and replacement of an aging fleet of over 90 cutters and 200 aircraft used for missions that generally occur beyond 50 miles from the shore. As originally conceived, Deepwater was designed around producing aircraft and vessels that would function in the Coast Guard's traditional at-sea roles, such as interdicting illicit drug shipments or rescuing mariners from difficulty at sea.

After the terrorist attacks on September 11, 2001, however, these aircraft and vessels began taking on additional missions related to protection of ports, waterways, and coastal areas. As a result, the Coast Guard began revising the Deepwater implementation plan to provide replacement assets that could better address these added responsibilities. In August 2005, the Coast Guard issued the revised Deepwater implementation plan detailing the assets it planned to modify or acquire, along with the proposed cost and schedules for doing so. Then, in February 2006, the Coast Guard again updated its Deepwater plan to align with its fiscal year 2007 budget submissions. The revised plan increased overall program costs from the original estimate of \$17 billion to \$24 billion. Overall, the acquisition schedule was lengthened by 5 years, with the final assets now scheduled for delivery in 2027.<sup>4</sup>

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## Coast Guard's Acquisition Approach to Deepwater Program

In 2001, we described the Deepwater program as "risky" due to the unique, untried acquisition strategy for a project of this magnitude within the Coast Guard. The approach included the development of a system-of-systems, a single system integrator, and a performance-based contract.

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### System of Systems

Rather than using the traditional approach of replacing classes of ships or aircraft through a series of individual acquisitions, the Coast Guard chose to use a system-of-systems acquisition strategy that would replace its deteriorating assets with a single, integrated package of aircraft, vessels, and unmanned aerial vehicles, to be linked through systems that provide C4ISR,<sup>5</sup> and supporting logistics. Through this approach, the Coast Guard

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<sup>4</sup> GAO, *Coast Guard: Changes to Deepwater Plan Appear Sound, and Program Management Has Improved, but Continued Monitoring is Warranted*, GAO-06-546 (Washington, D.C.: April 28, 2006).

<sup>5</sup> C4ISR refers to command, control, communications, computer, intelligence, surveillance, and reconnaissance.

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hoped to avoid “stovepiping” the acquisition of vessels and aircraft, which might lead to a situation where they could not operate optimally together.

Our past work on Deepwater noted that decisions on air assets were made by one subcontractor, while decisions regarding surface assets were made by another subcontractor. This approach can lessen the likelihood that a system-of-systems outcome will be achieved if decisions affecting the entire program are made without the full consultation of all parties involved. Our more recent work on the Fast Response Cutter (FRC)—which is discussed in more detail later—indicated that changes in the design and delivery date for the FRC could affect the operations of the overall system-of-systems approach. Because the delivery of Deepwater assets are interdependent within the system-of-systems acquisition approach, schedule slippages and uncertainties associated with potential changes in the design and capabilities of the new assets have increased the risks that the Coast Guard may not meet its expanded homeland security performance requirements within given budget parameters and milestone dates.

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## System Integrator

In June 2002, the Coast Guard awarded the Deepwater contract to Integrated Coast Guard Systems (ICGS). ICGS—a business entity jointly owned by Northrop Grumman and Lockheed Martin—is a system integrator, responsible for designing, constructing, deploying, supporting, and integrating the Deepwater assets to meet Coast Guard requirements. This type of business arrangement can give the contractor extensive involvement in requirements development, design, and source selection of major system and subsystem subcontractors. This management approach of using a system integrator has been used on other government programs that require system-of-systems integration, such as the Army’s Future Combat System, a networked family of weapons and other systems.

Government agencies have turned to the system integrator approach when they believe they do not have the in-house capability to design, develop, and manage complex acquisitions. Giving contractors more control and influence over the government’s acquisitions in a system integrator role creates a potential risk that program decisions and products could be influenced by the financial interest of the contractor—which is accountable to its shareholders—which may not match the primary interest of the government, maximizing its return on taxpayer dollars. The system integrator arrangement creates an inherent risk, as the contractor is given more discretion to make certain program decisions. Along with

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this greater discretion comes the need for more government oversight and an even greater need to develop well-defined outcomes at the outset.

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## Performance-based Acquisition

The Deepwater program has been designated as a performance-based acquisition. When buying services, federal agencies are currently required to employ—to the maximum extent feasible—this concept, wherein acquisitions are structured around the results to be achieved as opposed to the manner in which the work is to be performed. That is, the government specifies the outcome it requires while leaving the contractor to propose decisions about how it will achieve that outcome. Performance-based contracts for services are required to include a performance work statement; measurable performance standards (i.e., in terms of quality, timeliness, quantity, etc.) as well as the method of assessing contractor performance against these standards; and performance incentives, where appropriate. If performance-based acquisitions are not appropriately planned and structured, there is an increased risk that the government may receive products or services that are over cost estimates, delivered late, and of unacceptable quality.

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## Deepwater Indicative of Broader, Systemic Acquisition Challenges

Some of the problems the Coast Guard is experiencing with the Deepwater program (as discussed later in this statement), in principle, are indicative of broader and systemic challenges we have identified for complex, developmental systems. These challenges, based mostly on our reviews of Department of Defense programs, include:

- Program requirements that are set at unrealistic levels, then changed frequently as recognition sets in that they cannot be achieved. As a result, too much time passes; threats may change; and/or members of the user and acquisition communities may simply change their minds. The resulting program instability causes cost escalation, schedule delays, fewer quantities, and reduced contractor accountability.
- Program decisions to move into design and production are made without adequate standards or knowledge.
- Contracts, especially service contracts, often do not have measures in place at the outset in order to control costs and facilitate accountability.
- Contracts typically do not accurately reflect the complexity of projects or appropriately allocate risk between the contractors and the taxpayers.
- The acquisition workforce faces serious challenges (e.g., size, skills, knowledge, and succession planning).



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- Incentive and award fees are often paid based on contractor attitudes and efforts versus positive results, such as cost, quality, and schedule.
  - Inadequate government oversight results in little to no accountability for recurring and systemic problems.

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## Previous GAO Recommendations Have Focused on Three Areas

Our assessment of the Deepwater program in 2004 found that the Coast Guard had not effectively managed the program or overseen the system integrator.<sup>6</sup> We specifically made 11 recommendations to the Coast Guard, which can be found at Table 1 on page 12. Our reported concerns in 2004 and in subsequent assessments in 2005 and 2006 have centered on three main areas: program management, contractor accountability, and cost control through competition. Each of these three areas is discussed in more detail below.

While we recognize that the Coast Guard has taken steps to address our findings and recommendations, aspects of the Deepwater program will require continued attention. A project of this magnitude will likely continue to experience other problems as more becomes known. We have ongoing work to monitor and evaluate the Coast Guard's efforts.

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## Program Management and the Importance of Integrated Product Teams

Our previous work and recommendations were based on concerns about the Coast Guard's program management. For example, we reported in 2004 that the Coast Guard had not adequately communicated to its operational personnel decisions on how new and old assets would be integrated and how maintenance responsibilities would be divided between government and contractor personnel. We also found that the Coast Guard had not adequately staffed its program management function. Despite some actions taken to more fully staff the Deepwater program, we reported that in January 2005 shortfalls remained. While 244 positions were assigned to the program, only 206 were filled, resulting in a 16 percent vacancy rate.

One of the key program management concerns we had, and one that is worth highlighting, is the effectiveness of IPTs. IPTs are the Coast Guard's primary tool for managing the Deepwater program and overseeing the system integrator. Our past work has found that IPTs can improve both

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<sup>6</sup>[GAO-04-380](#).

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the speed and quality of the decision-making process.<sup>7</sup> They can make decisions involving significant trade-offs without relying unduly on other organizations for information or approval. In our prior work, we studied successful IPTs in commercial firms and found that effective teams have (1) expertise to master different facets of product development, (2) responsibility for day-to-day decisions and product delivery, (3) key members who are either physically colocated or connected through virtual means to facilitate team cohesion and the ability to share information, and (4) control over their membership, with membership changes driven by each team's need for different knowledge.

We identified two elements as essential to determining whether a team is in fact an IPT: the knowledge and authority needed to recognize problems and make cross-cutting decisions expeditiously. Knowledge is sufficient when the team has the right mix of expertise to master the different facets of product development. Authority is present when the team is responsible for making both day-to-day decisions and delivering the product. If the programs are experiencing problems, the teams either did not have the authority or the right mix of expertise to be considered IPTs. If a team lacks expertise, it will miss opportunities to recognize potential problems early; without authority, it can do little about them.

The Deepwater IPTs—comprised of Coast Guard, ICGS, and subcontractor employees from Lockheed Martin and Northrop Grumman—are responsible for overall program planning and management, asset integration, and overseeing the delivery of specific Deepwater assets. We reported in 2004 that the teams had struggled to effectively carry out their missions. We identified four major issues that had impeded the effective performance of the IPTs.

- First, the teams lacked timely charters to vest them with authority for decision making. More than merely a paperwork exercise, sound IPT charters are critical because they detail each team's purpose, membership, performance goals, authority, responsibility, accountability, and relationships with other groups, resources, and schedules.
- Second, the system integrator had difficulty training IPT members in time to ensure that they could effectively carry out their duties, and

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<sup>7</sup> GAO, *Best Practices: DOD Teaming Practices Not Achieving Potential Results*, [GAO-01-510](#) (Washington, D.C.: April 10, 2001).

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program officials referred to IPT training as deficient. IPT training is to address, among other issues, developing team goals and objectives, key processes, use of a Web-based system intended to facilitate communication, and team rules of behavior. According to a Coast Guard evaluation report from December 2002, IPT training had been implemented late, which contributed to a lack of effective collaboration among team members.

- Third, very few of the operating IPTs were entirely colocated, (that is, all members were not in the same building) even though the Coast Guard's Deepwater program management plan identified collocation of IPT members as a key program success factor, along with effective communications within and among teams. ICGS developed a Web-based system for government and contractor employees to regularly access and update technical delivery task order<sup>8</sup> information, training materials, and other program information, in part to mitigate the challenges of having team members in multiple locations. However, the Deepwater program executive officer reported that, while the system had great potential, it was a long way from becoming the virtual enterprise and collaborative environment required by the contractor's statement of work.
- Fourth, we reported that most of the Deepwater IPTs had experienced membership turnover and staffing difficulties, resulting in a loss of team knowledge, overbooked schedules, and crisis management. In a few instances, such as the national security cutter and maritime patrol aircraft, even the IPT leadership had changed.

In 2005, we found that the Coast Guard had taken some positive steps in that (1) the IPTs had been restructured, (2) 20 IPTs had charters setting forth their purpose, authority, and performance goals, and (3) entry-level training had been implemented for team members. However, some of the problems continued. A Coast Guard assessment of the system integrator's performance found that roles and responsibilities in some teams continued to be unclear. Decision making was to a large extent stove-piped, and some teams lacked adequate authority to make decisions within their realm of responsibility. One source of difficulty for some team members was that each of the two major subcontractors has used its own

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<sup>8</sup> In the context of the Deepwater contract, the Coast Guard considers delivery task orders as orders for supplies or services placed against the contract.

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management systems and processes to manage different segments of the program.

In 2005, we also noted that decisions on air assets were made by Lockheed Martin, while decisions regarding surface assets were made by Northrop Grumman. We reported that this approach can lessen the likelihood that a system-of-systems outcome will be achieved if decisions affecting the entire program are made without the full consultation of all parties involved. In 2006, we reported that Coast Guard officials believed collaboration among the subcontractors to be problematic and that ICGS wielded little influence to compel decisions among them. For example, when dealing with proposed design changes to assets under construction, ICGS submitted the changes as two separate proposals from both subcontractors rather than coordinating the separate proposals into one coherent plan. According to Coast Guard performance monitors, this approach complicates the government review of design changes because the two proposals often carried overlapping work items, thereby forcing the Coast Guard to act as the system integrator in those situations.

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## Contractor Accountability

In 2004, we also made recommendations related to contractor accountability. We found that the Coast Guard had not developed quantifiable metrics to hold the system integrator accountable for its ongoing performance and that the process by which the Coast Guard assessed performance after the first year of the contract lacked rigor. For example, the first annual award fee determination was based largely on unsupported calculations. Despite documented problems in schedule, performance, cost control, and contract administration throughout the first year, the program executive officer awarded the contractor an overall rating of 87 percent, which fell in the “very good” range. This rating resulted in an award fee of \$4.0 million of the maximum of \$4.6 million.

We also reported in 2004 that the Coast Guard had not begun to measure the system integrator’s performance on the three overarching goals of the Deepwater program—maximizing operational effectiveness, minimizing total ownership costs, and satisfying the customers. Coast Guard officials told us that metrics for measuring these objectives had not been finalized; therefore the officials could not accurately assess the contractor’s performance against the goals. However, at the time, the Coast Guard had no time frame in which to accomplish this measurement.

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## Cost Control through Competition

Further, our 2004 report had recommendations related to cost control. We reported that, although competition among subcontractors was a key vehicle for controlling costs, the Coast Guard had neither measured the extent of competition among the suppliers of Deepwater assets nor held the system integrator accountable for taking steps to achieve competition.<sup>9</sup> As the two major subcontractors to ICGS, Lockheed Martin and Northrop Grumman have sole responsibility for determining whether to provide the Deepwater assets themselves or to hold competitions—decisions commonly referred to as “make or buy.” We noted that the Coast Guard’s hands-off approach to make-or-buy decisions and its failure to assess the extent of competition raised questions about whether the government would be able to control Deepwater program costs.

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## Coast Guard Efforts Related to GAO Recommendations

We made 11 recommendations in 2004 in the areas of management and oversight, contractor accountability, and cost control through competition. Table 1 provides details on these recommendations.

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<sup>9</sup> [GAO-04-380](#).

**Table 1: Status of GAO Recommendations to the U.S. Coast Guard Regarding Management of the Deepwater Program, as of April 28, 2006**

<b>Areas of concern</b>	<b>Recommendations to the U.S. Coast Guard</b>	<b>Recommendation status</b>
Key components of management and oversight are not effectively implemented	Put in place a human capital plan to ensure adequate staffing of the Deepwater program	Implemented
	Improve integrated product teams (IPTs) responsible for managing the program by providing better training, approving charters for sub-IPTs, and improving systems for sharing information between teams	Partially implemented
	Provide field operators and maintenance personnel with timely information and training on how the transition to Deepwater assets will occur and how maintenance responsibilities are to be divided between the system integrator and Coast Guard personnel	Partially implemented
Procedures for ensuring contractor accountability are inadequate	Develop measurable award fee criteria consistent with guidance from the Office of Federal Procurement Policy	Implemented
	Provide for better input from U.S. Coast Guard performance monitors	Implemented
	Hold the system integrator accountable in future award fee determinations for improving effectiveness of the IPTs	Implemented
	Establish a baseline for determining whether the acquisition approach is costing the government more than the traditional asset replacement approach	Will not be implemented
	Establish a time frame for when the models and metrics will be in place with the appropriate degree of fidelity to be able to measure contractor's progress toward improving operational effectiveness	Partially implemented
	Establish criteria to determine when to adjust the project baseline and document the reasons for change	Partially implemented
Control of future costs through competition remains at risk because of weak oversight	For subcontracts over \$5 million awarded by the system integrator to the two major subcontractors, require notification to the Coast Guard about decision to perform the work in-house rather than contracting it out	Implemented
	Develop a comprehensive plan for holding the system integrator accountable for ensuring adequate competition among suppliers	Partially implemented

Source: GAO-04-380 and GAO-06-546.

In April 2006, we reported that the Coast Guard had implemented five of the recommendations. Actions had been taken to

- revise the Deepwater human capital plan;
- develop measurable award fee criteria;
- implement a more rigorous method of obtaining input from Coast Guard monitors on the contractor's performance;
- include in the contractor's performance measures actions taken to improve the integrated product teams' effectiveness; and

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require the contractor to notify the Coast Guard of subcontracts over \$10 million that were awarded to the two major subcontractors.<sup>10</sup>

The Coast Guard had begun to address five other recommendations by

- initiating actions to establish charters and training for integrated product teams;
- improving communications with field personnel regarding the transition to Deepwater assets;
- devising a time frame for measuring the contractor's progress toward improving operational effectiveness;
- establishing criteria to determine when to adjust the project baseline; and
- developing a plan to hold the contractor accountable for ensuring adequate competition among suppliers.

In our April 2006 report, we determined that, based on our work, these recommendations had not been fully implemented.

The Coast Guard disagreed with and declined to implement one of our 11 recommendations: to establish a baseline to determine whether the system-of-systems acquisition approach is costing the government more than the traditional asset replacement approach.

We will continue to review Deepwater implementation and contract oversight. We are currently reviewing aspects of the Deepwater program for the House and Senate Appropriations Committees' Subcommittees on Homeland Security.<sup>11</sup> As part of that effort, we will review the status of the Coast Guard's implementation of our 2004 recommendations on Deepwater contract management for improving Deepwater program management, holding the prime contractor accountable for meeting key program goals and facilitating cost control through competition. We will share our results with those committees in April of this year.

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<sup>10</sup> Our 2004 recommendation was to use a \$5 million threshold because Lockheed Martin, one of the major subcontractors, uses that amount as the threshold for considering its suppliers major. The Coast Guard decided to use the \$10 million threshold based on the criteria in the make-or-buy program provisions of the Federal Acquisition Regulation.

<sup>11</sup> This work is based on Conference Committee Report language (H.R. Conf. Rep. No. 109-699, at 113 (2006)) incorporating GAO reporting provisions contained in a House Appropriations Committee Report (H.R. Rep. No. 109-476, at 64 (2006)).

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## Performance and Design Problems Creating Operational Challenges for Coast Guard

In addition to overall management issues discussed above, there have been problems with the performance and design of Deepwater patrol boats that pose significant operational challenges to the Coast Guard.

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### Performance Problems with the Converted 123-Foot Patrol Boats

The Deepwater program's conversion of the legacy 110-foot patrol boats to 123-foot patrol boats has encountered performance problems. The Coast Guard had originally intended to convert all 49 of its 110-foot patrol boats into 123-foot patrol boats in order to increase the patrol boats' annual operational hours. This conversion program was also intended to add additional capability to the patrol boats, such as enhanced and improved C4ISR capabilities, as well as stern launch and recovery capability for a small boat. However, the converted 123-foot patrol boats began to display deck cracking and hull buckling and developed shaft alignment problems, and the Coast Guard elected to stop the conversion process at eight hulls upon determining that the converted patrol boats would not meet their expanded post-9/11 operational requirements.

The performance problems illustrated above have clear operational consequences for the Coast Guard. The hull performance problems with the 123-foot patrol boats led the Coast Guard to remove all of the eight converted normal 123-foot patrol boats from service effective November 30, 2006. The Commandant of the Coast Guard has stated that having reliable, safe cutters is "paramount" to executing the Coast Guard's missions.<sup>12</sup> Thus, removing these patrol boats from service impacts Coast Guard's operations in its missions, such as search and rescue and migrant interdiction. The Coast Guard is exploring options to address operational gaps resulting from the suspension of the 123-foot patrol boat operations.

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### Design Problems with the Fast Response Cutter

The FRC—which was intended as a long-term replacement for the legacy 110-foot patrol boats—has experienced design problems that have operational implications. As we recently reported, the Coast Guard suspended design work on the FRC due to design risks such as excessive

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<sup>12</sup> U.S. Coast Guard, Office of Public Affairs, *Coast Guard Suspends Converted Patrol Boat Operations*, November 30, 2006,.



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weight and horsepower requirements.<sup>13</sup> Coast Guard engineers raised concerns about the viability of the FRC design (which involved building the FRC's hull, decks, and bulkheads out of composite materials rather than steel) beginning in January 2005. In February 2006, the Coast Guard suspended FRC design work after an independent design review by third-party consultants demonstrated, among other things, that the FRC would be far heavier and less efficient than a typical patrol boat of similar length, in part, because it would need four engines to meet Coast Guard speed requirements.

One operational challenge related to the FRC, is that the Coast Guard will end up with two classes of FRCs. The first class of FRCs to be built would be based on an adapted design from a patrol boat already on the market to expedite delivery. The Coast Guard would then pursue development of a follow-on class that would be completely redesigned to address the problems in the original FRC design plans. Coast Guard officials now estimate that the first FRC delivery will slip to fiscal year 2009, at the earliest, rather than 2007 as outlined in the 2005 Revised Deepwater Implementation Plan. Thus, the Coast Guard is also facing longer-term operational gaps related to its patrol boats. In regard to the suspension of FRC design work, as of our June 2006 report, Coast Guard officials had not yet determined how changes in the design and delivery date for the FRC would affect the operations of the overall system-of-systems approach.

We will continue to review Coast Guard operational challenges related to Deepwater patrol boats. Our ongoing work for the House and Senate Appropriations Committees' Subcommittees on Homeland Security includes a review of the history of the contract, design, fielding, and grounding of the converted 123-foot patrol boats and operational adjustments the Coast Guard is making to account for the removal from service of the 123-foot patrol boats.

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Madame Chair, that concludes my statement. I would be happy to respond to any questions you or other Members of the Subcommittee may have at this time.

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<sup>13</sup> [GAO-06-764](#).

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## Contacts and Acknowledgements

For information about this testimony, contact Stephen L. Caldwell at (202) 512-9610 or John Hutton at (202) 512-4841. Other individuals making key contributions to this testimony include Michele Mackin, Christopher Conrad, and Adam Couvillion.

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