

Highlights of [GAO-06-764](#), a report to congressional requesters.

Why GAO Did This Study

The Coast Guard has been pursuing a replacement vessel for its aging and deteriorating patrol boats as part of the Integrated Deepwater System (or Deepwater) acquisition. Originally, all 49 of the Coast Guard's 110-foot patrol boats were to be converted into 123-foot patrol boats as a bridging strategy until a replacement vessel, the 140-foot Fast Response Cutter (FRC) came on line beginning in 2018. The initial conversions of the 110-foot patrol boats proved unsuccessful, though, and this prompted the Coast Guard to cancel further patrol boat conversions and accelerate the design and delivery of the FRC from 2018 to 2007. Early design efforts called for the FRC's hull, decks, and bulkheads to be made from composite materials rather than steel. Recently, design problems with the FRC's hull shape and weight have raised questions about the viability of the FRC design and use of composite materials.

This report examines (1) the factors that went into the decision to use composite materials for the FRC hull, (2) the types of composite materials that have been selected for the FRC hull, (3) the extent of contingency plans developed for use if the prototype hull fails to meet Coast Guard performance requirements, and (4) the status of design efforts for the FRC.

The Coast Guard concurred with the findings in this report.

www.gao.gov/cgi-bin/getrpt?GAO-06-764.

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.

COAST GUARD

Status of Deepwater Fast Response Cutter Design Efforts

What GAO Found

The Deepwater system integrator, Integrated Coast Guard Systems, decided to use composite materials for the FRC's hull because, according to contractor analyses, use of such materials instead of steel generally offers several advantages, including lower maintenance and life cycle costs, a longer service life, and reduced weight. Other potential advantages, according to the Office of Naval Research, include corrosion prevention and decreased damage from impacts.

The current FRC design calls for the use of two types of composite materials: (1) a solid laminate form to be used for the hull and (2) a "sandwich" form which is to be used on decks and bulkheads. Composite materials are not commonly used for vessels with comparable naval operations and have not been used on any prior Coast Guard vessels.

The Coast Guard does not have a formal, documented contingency plan should the FRC fail to meet performance requirements. However, Coast Guard officials said it plans to pursue certain mitigation strategies, such as repairing deteriorated hull structures and replacing obsolete or unsupportable equipment and systems, to keep the current patrol boats operating longer.

The Coast Guard suspended FRC design work in late February 2006 because of design risks, such as excessive weight and horsepower requirements. To address these and other risks, the Coast Guard is pursuing three strategies. The first strategy involves the system integrator purchasing design plans for and building an off-the-shelf patrol boat that could be adapted for Coast Guard use as a way to increase patrol hours until the FRC design is finalized. The first of these replacement patrol boats is to be operational in late 2009. The second strategy is to revise the necessary capabilities of the FRC in order to allow for modifications to the current FRC design. The third strategy is to have a third party reassess the analyses used in the decision to use composite materials for the FRC to determine if the use of composite materials will, in fact, reduce total ownership costs.

One of the Current Patrol Boats to Be Replaced by a Fast Response Cutter



Source: Courtesy of the U.S. Coast Guard.