

# DEEPWATER

## Integrated Deepwater System (IDS) Acquisition: A Tailored Strategy for a Critical Need

### Issue

The U.S. Coast Guard is ready to move the Deepwater Program beyond the design phase to develop and deliver a comprehensive Integrated Deepwater System (IDS). To move forward, the Coast Guard has developed a bold, aggressive and innovative strategy tailored to the unique needs of the Coast Guard in affordably meeting mission challenges of the future. The central tenets of this strategy involve the design, operation and sustainment of Deepwater ships, aircraft, C<sup>4</sup>ISR and logistics as an integrated system with a focus on capabilities, not assets. The Coast Guard will form a synergistic, collaborative partnership with industry for this success.

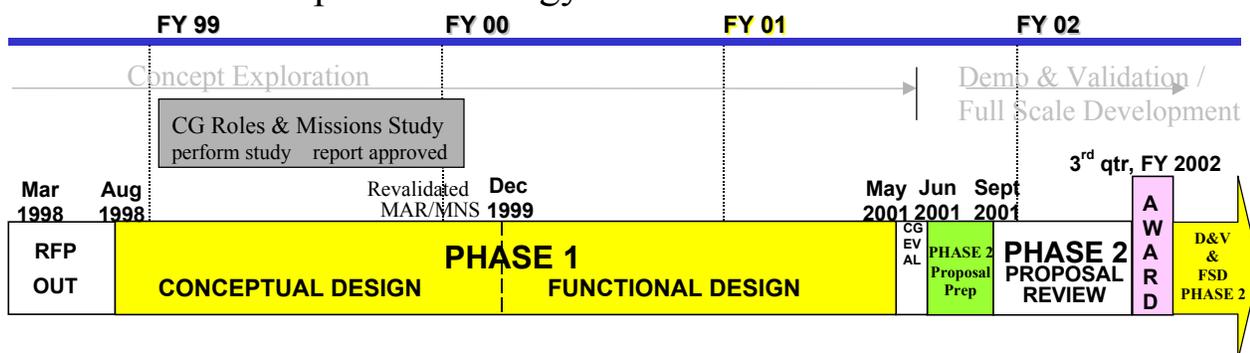
### Requirements

The Coast Guard is in critical need of replacing the capabilities of its aging and antiquated ships, aircraft, C<sup>4</sup>ISR and associated logistics infrastructure employed in carrying out its 14 federally mandated Deepwater missions. These missions span homeland security, law enforcement, search and rescue, environmental protection, and defense operations. Currently, the scope of the legacy Deepwater system involves some 93 cutters and 206 aircraft, their C<sup>4</sup>ISR systems and network, and the logistics infrastructure supporting the system. The end of planned service life for the cutters and aircraft range from 1997 for the HC-130 long-range surveillance aircraft to 2013 for the Famous Class medium endurance cutters. This is a challenging recapitalization and modernization task and is the largest systems engineering and acquisition program the Coast Guard has undertaken.

### Background

The Coast Guard has selected an innovative Mission-Based Performance Acquisition approach and has teamed with leaders in industry to develop IDS concepts that seek to maximize operational effectiveness while minimizing total ownership cost. Program conceptualization and requirements development began in 1995, and initial contract awards for conceptual design of the system were made in 1998. Three industry teams have completed the design phase of the program. The teams were led by Litton-Avondale Industries Inc., Science Applications International Corporation (SAIC), and Lockheed Martin Naval Electronics and Surveillance Systems.

## Deepwater Strategy and Award Schedule



### How was Deepwater Program Need Established?

The process of mission assessment and program definition for Deepwater has been developed by systematically working from mission need and technological opportunity through the program alternatives and budget process to the specification and evaluation of the performance and cost of the new or improved system.

The fourteen Coast Guard Deepwater mission areas were reviewed and validated by the government prior to commencing the Deepwater industry competition. In addition to the project Mission Analysis Report/ Mission Needs Statement, an Interagency Task Force on U.S. Coast Guard Roles and Missions conducted a study and issued a report in 2000 ([www.uscg.mil/news/rolesandmissions.html](http://www.uscg.mil/news/rolesandmissions.html)). In all of these examinations, a strong Coast Guard Deepwater mission need was validated and justified, confirming the continuing need for the Coast Guard to perform all of its statutorily mandated missions. Furthermore, the Roles and Missions Task Force recommended a shift

during recapitalization from a platform-centric to a network-centric approach. A ‘system of systems’ engineering and contracting strategy enables this to occur.

### **How Does Deepwater Address Coast Guard/Navy Relations and Responsibilities?**

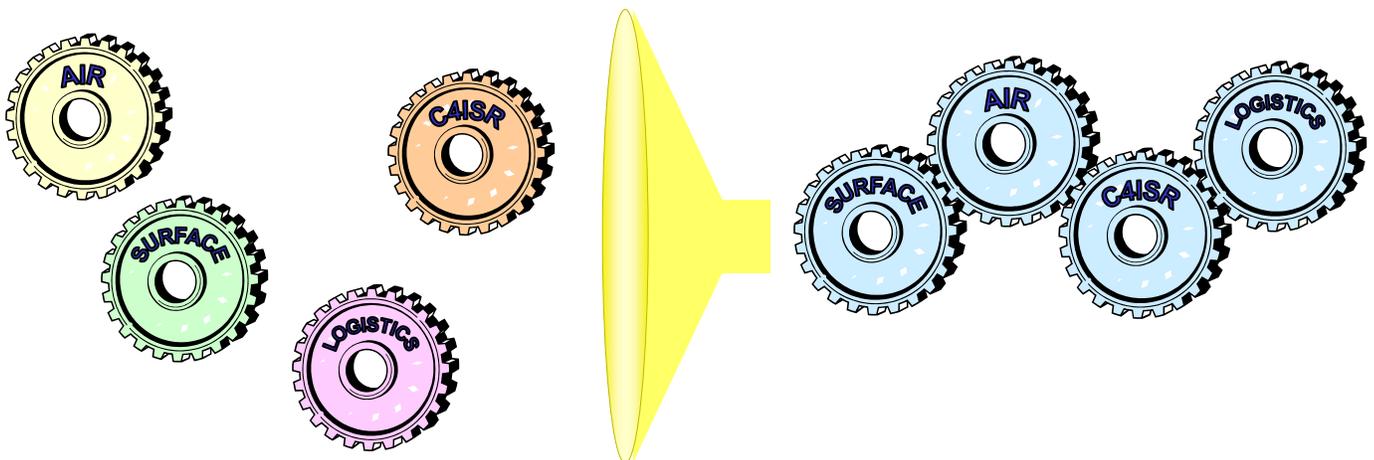
In 1998, the Chief of Naval Operations and the Commandant of the U.S. Coast Guard signed a joint policy statement on the National Fleet. It commits the Navy and the Coast Guard “to shared purpose and common effort” and calls for coordination in a National Fleet comprised of multi-mission Navy surface warships and Coast Guard maritime security cutters to maximize joint effectiveness. The Integrated Deepwater System is positioned for strong support of this statement and has been structured to advance this policy by a combination of:

- ◆ Performance specifications with clear requirements for Coast Guard-Navy interoperability;
- ◆ Utilization of industry teams in a competitive environment, drawing from the same industrial base; and,
- ◆ Close coordination with numerous Navy commands for C<sup>4</sup>ISR, specification development, test and evaluation, and other technical expertise.

The Navy’s significant role will ensure Deepwater assets are complementary and useful to the Navy in low-threat mission areas (e.g. sealift escort, maritime interdiction, coastal patrol, and general defense operations).

### **What factors drive the Deepwater Acquisition Strategy?**

The acquisition strategy and management philosophy, central to the execution of the Deepwater concept and program, was selected from a number of possible models. An outsourcing strategy was required to establish the breadth of development needed. In general, a “system of systems” approach encompassing design, acquisition and life cycle support was selected to enable integration efficiencies and critical mass for needed change.



System Integration

Each competing industry team had the design freedom to consider varying balances of Deepwater asset production and support in developing their system solution. Service life extension remains a viable alternative for some assets to maximize use of existing capabilities and address funding limitations. Although the emphasis is on commercial, off-the-shelf technology, limited new development is also a feasible alternative if budget and schedule permits for a break-through in capability or cost. These decisions have been proposed and assessed within each industry team’s concept, and are being evaluated in the competition between the three teams.

Affordability is a major consideration in developing an achievable Deepwater program strategy. For decades, the Coast Guard has been losing ground in attempting to maintain capabilities in the face of persistent budget constraints. With a large portion of the annual budget going towards life cycle support, the best means of saving on these long term costs involve (1) integration across assets, (2) using state-of-the-market technology in new, integrated designs, and (3) consideration of the entire system capabilities and costs, including people, equipment, infrastructure, and operations. Deepwater requires an investment in commercial outsourcing at the ‘system of systems’ level sufficient to enable a much needed recapitalization of the Coast Guard’s Deepwater assets and, over the long term, garner minimized Total Ownership Cost.

Deepwater's management philosophy is that partnership is the key to success. In its relationship with the winning contractor, Deepwater will rely less on management by contract, more on management by relationship. Open, ongoing communication and a mutually beneficial relationship are considered essential. Integrated Product Teams are being used to ensure alignment and a shared vision across the Coast Guard's internal directorates. Once selected, contractor personnel will be integral members of these teams.

In addition to maintaining a close working relationship with the Navy, the Deepwater Program is partnering with other federal agencies to share best practices and lessons learned. Central to this initiative is the formation of the Government Executive Modernization Council. Comprised of federal agencies undergoing similar acquisitions, this council provides a forum for the exchange of information that is beneficial to all.

### **What are the Benefits of the Selected Acquisition Strategy?**

After reviewing various acquisition strategy options, the Deepwater Program selected a Total Systems Integration Responsibility (TSIR) and "system of systems" commercial outsourcing strategy. This model is championed at the Department of Defense by a series of Defense Science Board reports, which estimate potential overall DoD reductions due to acquisition reform of approximately 18%.

The selected acquisition strategy was studied in several efforts, most recently the Federal Projects Acquisition Study conducted by the Deepwater Program (March 2001). In that study, two dozen acquisition programs with full or partial implementation of Total Systems Integration Responsibility were reviewed and six of them studied in closer detail to determine successful tactics to be used (and unsuccessful tactics to be avoided). Examples include the seminal Air Force F-117 TSPR, NASA Performance Based Contracting, and the Navy's Arsenal Ship Program (Section 845).

The Federal Projects Acquisition Study found that considerable industrial latitude in the systems engineering tasking is advisable and that performance-based rather than asset-based specifications should be used. By focusing on capabilities, industry can be innovative in their use of commercial technologies that are supportable, interoperable, and more affordable.

The study also found that the systems engineering and support scope of the TSIR contract must be large enough for the contractor to revise and improve the overall system to achieve support requirement efficiencies through long term and large scale system engineering. The Deepwater Program estimated that FY98 operating expenditures supporting the entire legacy Deepwater system were approximately \$1.1B. Some of these expenditures were recognized to be outside the control of the industry teams. Of the \$1.1B, \$996.2M (in fiscal year 1998 dollars) was estimated to be within the scope of industry's IDS proposals. This was provided to industry as an operating cost target.

Risk was considered and the system integration commercial outsourcing approach, which is an adaptation of successful commercial practice, was found to be lower risk than the government's traditional, fragmented, heavily specified contracting strategies. It requires fewer people for program management and is less costly. The notional annual acquisition cost (AC&I) funding stream that industry used in developing their Deepwater Program solutions is \$300M in the first year and \$500M (FY98 dollars) in subsequent years. In contrast, if the Coast Guard's legacy Deepwater assets were replaced on a business as usual basis—platform class-by-platform class—the average annual acquisition cost requirement would be about \$538M in FY98 dollars. Additionally, this level of AC&I investment would result in an average annual operating expense cost for Deepwater capability of approximately \$1.29B in FY98 dollars over the 40-year period compared to the \$1.1B expended in FY98.

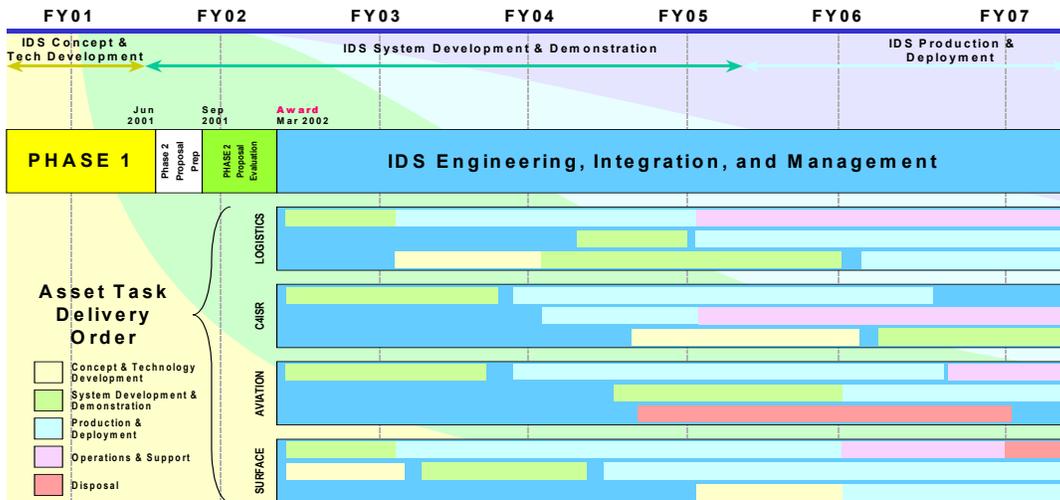
The Coast Guard not only provided industry with the notional AC&I funding stream and operating cost target, but it will also provide the winning contractor incentives for achieving and surpassing baseline performance requirements. The performance measurement and tracking plan will be developed around the contractor's solution and linked to contractor-provided metrics. Flexibility has been designed into the strategy to account for future variations due to changing Coast Guard missions, desired force size, or budget estimates. The contractor will also be rewarded for suggestions that improve performance or reduce cost. Further, the export potential of Deepwater assets has been considered, and industry has been encouraged to consider export leverage for increased Deepwater affordability.

### **How Does the Deepwater Strategy Coordinate the Various Systems during Development & Production?**

The soon-to-be-selected IDS integrating contractor is tasked to lay out a schedule of asset design, development and production based upon their winning concept, evolving resource parameters and Coast Guard feedback. They have

been charged with this requirement since conceptual design when they were developing their proposed design, force structure and implementation plan. To provide a general idea of how the system may be built out, the Coast Guard has laid out a notional categorization of assets (e.g. ships, aircraft and other major systems), for which asset-specific phased development and acquisition will be planned and executed by the integrating contractor.

## *Notional Order Chronology Overlay*



### **How does Deepwater Address Budget Constraints and Affordability Concerns?**

Program funding requirements have been predicated on a notional first year AC&I funding stream of \$300M, in current year dollars, and \$500M in each of the subsequent years in FY98 dollars. Industry and independent affordability analyses have supported this estimate as the basis for cost effective Deepwater recapitalization. The estimates beyond FY02 are provided for strategic planning purposes. Deepwater budget requirements will become more closely defined as the iterative design process is executed concurrent with the annual cycle of budget deliberations. Some portion of Deepwater’s defense oriented subsystems may be funded through Department of Defense budget additions to the program budget. There is precedence for this and discussions are ongoing with DoD about this possibility and will become more definitive in the future.

### **Summary**

The United States Coast Guard Deepwater Program is an important and well-planned effort, using a bold acquisition and support strategy of increased commercial outsourcing to meet Coast Guard mission needs well into the 21<sup>st</sup> century. It is in the process of evaluating industry team solutions, after which the selection to a single commercial team will occur, and the Program will progress into detailed design. The strategy of using a “system of systems” design and support approach, with a long term partnership with and appropriate incentives to a commercial provider, provides the best opportunity to recapitalize and support the aging Coast Guard resources that have served the Nation well in the past, but which desperately require improvement in both capability and affordability.

We Must “... Be Bold and Aggressive ... the Deepwater Project ... Is Our Future.”

Admiral James M. Loy, U.S. Coast Guard Commandant