

The Coast Guard's Integrated Deepwater System

Transforming America's "Sentinels of the Sea"

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"We are poised to transform our Coast Guard to meet the demands of the 21st century, confident in the enduring character of our service, strengthened by our core values of honor, respect, and devotion to duty, and renewed in our sense of purpose and commitment to serve America."

*Adm. Thomas H. Collins, USCG
Commandant of the Coast Guard
Commandant's Direction 2002*

Last June's award of the Coast Guard's Integrated Deepwater System (IDS) contract to the Integrated Coast Guard System [*Naval Forces*, 5/2002] launched a transformation of extraordinary scope—the largest acquisition program in the U.S. Coast Guard's proud 213-year history.

Deepwater's recapitalization of aging and technologically obsolete cutters, helicopters, and aircraft, along with the infusion of its modern IDS C4ISR [command, control, communications, computers, intelligence, surveillance, and reconnaissance] and integrated logistics systems, will markedly transform the Coast Guard's ability to provide higher levels of maritime homeland security, maritime domain awareness, and operational excellence in nearly all of its traditional missions.

The need to transform the U.S. armed forces to adjust to the national-security realities of the 21st century became even more urgent following the terrorist attacks of 9/11. This imperative for transformation is reflected in the new *U.S. National Security Strategy* and the *National Strategy for Homeland Security*. President Bush has stated on numerous occasions that protecting the American homeland is the nation's highest priority. With its responsibility as the nation's "maritime guardian," the Coast Guard is playing a critical role as the lead federal agency for maritime homeland security.

During the past year, the Coast Guard has aligned its strategy, resources, and programs to support the President's directives. As Commandant of the Coast Guard Adm. Thomas H. Collins testified to Congress in March, the service also must broadly transform how it delivers services so that it can maintain the highest standards of operational excellence needed to implement the President's strategies.

For transformation to occur, the Coast Guard's aging assets and infrastructure clearly must be recapitalized—one of the Coast Guard's three primary objectives for the year ahead. The fiscal year (FY) 2004 budget provides the resources to continue the Coast Guard's broad transformation. The president's FY-2004 request for \$500 million for Deepwater recapitalization will provide funding for our first National Security Cutter, conversion of five 110-foot Island-class patrol boats to 123-foot patrol craft, seven short-range "Prosecutor" small boats, continued development of the Deepwater integrated C4ISR and logistics systems, and enhancement projects for legacy surface and air platforms.

It is important to recognize, however, that the Deepwater's transformational alignment extends well beyond mere replacement of individual assets. Deepwater's transformation is fundamentally an ongoing *process*. It is about creating *joint competencies* from the capabilities of separate military services and federal agencies. As noted by Gen. Richard B. Myers, U.S. Air Force, the chairman of the U.S. Joint Chiefs of Staff, true transformation rests on the willingness—and courage—to embrace and manage *intellectual, cultural, and technological* change.

The Integrated Deepwater System offers profound opportunities to transform America's "sentinels of the sea" in each of these areas. It is a well-conceived recapitalization plan to give the men and women of the Coast Guard the modern tools they need to perform their mission.

The Operator's Mindset

The Deepwater program's embrace of *intellectual change* in the acquisition and transformation process mandates an operator's mindset—the mental agility to match capabilities to new and possibly unprecedented missions while balancing the total cost of ownership. The mission should not be forced to match capabilities. The Coast Guard's realignment under the Department of Homeland Security in March offers a telling example of the wisdom of this principle.

The Integrated Deepwater System will meet the nation's future maritime needs by providing important new capabilities and additional capacity for homeland security and the safety of the American people:

- Deepwater's upgraded or new cutters, patrol boats, aircraft, helicopters, and unmanned aerial vehicles (UAVs), complemented by a robust IDS C4ISR system, will allow America to push its maritime borders out to sea—away from ports and coastal waterways—so layered, in-depth maritime security operations can be conducted;
- The IDS C4ISR system will provide more capable sensors to collect the vital information necessary to enable maritime domain awareness—knowledge of all activities and events in America's massive maritime domain;
- IDS C4ISR also will lead to a true network-centric system so essential for the effective accomplishment of *all* Coast Guard missions;
- Deepwater's Integrated Logistics Systems will lead to major maintainability, reliability, and supportability improvements for all Deepwater assets—contributing directly to increased operational readiness, improved stewardship, and a focus on total ownership costs.

Interoperability, an essential attribute for effectiveness in today's joint, multi-agency operational environment, is a key driver in the design of Deepwater platforms and systems. Today's aging inventory of Coast Guard platforms has

generated a significant “capabilities gap,” exacerbated by past “platform-centric” acquisition practices and a growing demand for Coast Guard services. Deepwater assets will be designed for seamless interoperability across the Coast Guard’s broad range of operations. It will lead to new opportunities to improve operational coordination and cooperation with federal, state, and local agencies.

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“To implement the President’s strategy, the Coast Guard must conduct a broad transformation of how we deliver services so that we can maintain the highest standards of operational excellence.”

*Adm. Thomas H. Collins, USCG
Commandant of the Coast Guard
Fiscal Year 2004 Budget Testimony
U.S. House of Representatives
March 13, 2003*

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Deepwater’s flexible framework was designed so that it can be adapted to address the changes the Coast Guard has encountered in recent years and to deliver critically needed improvements in operational excellence at affordable cost. The linkage between the Integrated Deepwater System and improved levels of maritime homeland security is clear. IDS will replace or modernize obsolete and maintenance-intensive assets that are simply incapable of meeting the demands of today’s operational tempo and complexity. The Deepwater recapitalization also will enable the Coast Guard to sustain growing traditional missions and an ability to respond to future threats to the nation.

In short, Deepwater contributes directly to the principal goals of the National Strategy for Homeland Security, as well as the strategic objectives of the Coast Guard’s Maritime Homeland Security Strategy.

Cultural Change as a Force Multiplier

The challenge of adopting *cultural change* as a way of life is formidable, but a commitment to do so will help to strengthen the Coast Guard's stewardship of the public trust. As Adm. Collins states in his *Commandant's Direction*, the Coast Guard must "...inspire a culture of innovation and process change, and ensure the creative infusion of technology in all mission areas to enhance productivity and reduce workload—while striving toward quality outcomes."

Change generates uncertainty, stress, and risk. It upsets the established routine. Pundits are inclined to criticize the U.S. military's fondness for a traditional way of doing things, but they often fail to credit its equally impressive ability to harness technology and operational concepts to develop new—if not revolutionary—capabilities and doctrines. Compared to Operation Desert Storm 12 years ago, the joint coalition's conduct of sea, air, and land combat operations during this spring's conflict in Iraq demonstrates a remarkable improvement in the ability to conduct precise, flexible, and netted operations with decisive effect on the battlefield.

Inherent in the transformation of any organization is the development of a culture that rewards risk taking—educated and calculated risks carefully weighed against potential benefits. Embracing innovation, technology, and effective management practices to achieve measurable outcomes can reduce the margin of risk. "Knowing *what* to do in our mission portfolio is important," Adm. Collins has written, "but engaging our strengths and capabilities, and unleashing our collective ingenuity and resourcefulness as we consider *how* to accomplish every mission is imperative."

The Integrated Deepwater System's "sail plan" and guidance for 2003 complement the *Commandant's Direction* and seek to develop a culture of *educated risk taking*—an environment in which the program's talented military and civilian professionals use their judgment to satisfy the program's near-term goals and long-range objectives. Given the Deepwater program's scope and complexity, this mandates cooperation at many levels—spanning multiple organizations and different agencies.

Deepwater is changing the culture of the acquisition process by its reliance on a system-of-systems, performance-based strategy. This approach for the design, development, and acquisition phases of the recapitalization program obliges Deepwater's industry partners in the ICGS to satisfy capabilities-based system performance specifications and system outcomes based on the overarching goals of maximizing operational effectiveness and reduced total-ownership costs.

This system-of-systems approach to the Coast Guard's core operational responsibilities will lay the foundation for a far better and more capable Coast Guard over the course of the next two decades and beyond.

Deepwater's effort to manage change has significant impacts on our traditional Coast Guard culture and organizational processes. We have not previously employed integrated process teams (IPTs) across the multiple domains of air, surface, C4ISR, and logistics, nor have we used this management technique for inter-directorate efforts of such a complex undertaking at Coast Guard headquarters. We find ourselves at the center of gravity of the largest reorganization of the U.S. federal government since World War II, and the full extent of this realignment is only beginning to unfold.

People and partnerships are at the heart of Deepwater's process for adjusting to this significant cultural sea change. We are committed to establishing a learning organization, excelling at human-capital management, leveraging diversity, and fully addressing human-systems integration at the start of the design stage of acquisition. To be successful, our IPTs must achieve high levels of trust and teamwork, focus on performance improvement and mission accomplishment, and improve communications across the organization.

Good *stewardship* and *accountability* are accepted as straightforward requirements in the management of the complex Deepwater undertaking. We must balance cost, schedule, and performance with the need to serve our customer—the men and women in the field. We are aligning our business procedures with the Coast Guard's Business Plan and its requirement for

streamlined acquisition processes. We will deliver measurable results and use the “Balanced Scorecard” to chart our progress along the way.

Enduring Partnerships

Enduring partnerships also will allow the Deepwater program to accept cultural change as a normal way of doing business. IDS has formed a strong public-private partnership with the Integrated Coast Guard System, a joint venture between the Lockheed Martin and Northrop Grumman corporations.

As a performance-based contract, the relationship between the Coast Guard and ICGS is very unique in government procurement—we are breaking new ground. The delivery schedule for Deepwater’s entire system solution has been divided into six five-year award terms—a five-year base award with the option to award up to five additional five-year award terms. During each of these terms, the Coast Guard will evaluate the progress made by ICGS in terms of delivery schedule, effectiveness, and adherence to the terms of the contract.

This approach forces us to take a step back to begin with the “end in mind” so that we can provide a system-performance specification to industry for the design of any new platform or system. Industry proposals are evaluated on the performance construct of what we are trying to accomplish—operational effectiveness and reduced total ownership cost. This process encourages our partners in industry to be innovative. By telling them to design the best possible system to achieve desired results, you do not encumber them with countless constraints. You maximize their opportunity to trade design features and capability through the use of well-conceived and measurable outcomes.

Our work to establish enduring partnerships also is aimed at creating *joint competencies* from the capabilities of separate military services and federal agencies. The Coast Guard’s alignment under the Department of Homeland Security offers exciting new possibilities to partner with many of its 21 other federal agencies.

The philosophy underlying such adjustments to cultural change and transformation is reflected in the agreement between the Commandant of the

Coast Guard and the Chief of Naval Operations to build a National Fleet that will maximize the effectiveness of Coast Guard and Navy forces across our maritime and naval missions.

This joint Navy/Coast Guard policy statement, updated last summer by Adm. Collins and Chief of Naval Operations Adm. Vern Clark, provides specific sailing points as we navigate the Deepwater system toward successful execution. The Navy and Coast Guard are committed to a shared purpose and common effort focused on tailored operational integration of our multimission platforms, infrastructure, and personnel. We seek to achieve full cooperation and integration of our non-redundant and complementary capabilities to ensure the highest level of maritime capabilities and readiness for the nation's investment.

The Coast Guard's contribution to the National Fleet includes its statutory authorities (including law enforcement), multi-mission cutters, boats, aircraft, and C4ISR systems designed for the full spectrum of Coast Guard missions. The Integrated Deepwater System will be designed to be totally interoperable, wholly compatible, and completely seamless with the world of work of Rear Adm. Charles Hamilton II, the Navy's Deputy Program Executive Officer for Ships, and other selected sea-service acquisition programs.

Last April Rear Adm. Hamilton and I signed a Memorandum of Understanding between our two services to establish a working group to specify common technologies, systems, and processes critical to both the Navy's future Littoral Combat Ship (LCS) and the design and development of the Coast Guard's Deepwater National Security Cutter, Medium Endurance Cutter, and patrol boats.

This linkage is supported with regular meetings and exchanges at all levels in our staffs to ensure that we will derive mutual benefits through a cooperative technical approach in areas of common interest. A number of the Coast Guard's assigned missions, for example, have the possibility of high commonality with LCS mission areas. Close cooperation and, when it makes sense to do so, collaboration will allow our two future forces to obtain common benefits as our programs mature.

The LCS design construct of modularity, scalability, flexibility, and transformational capabilities is the right direction to address our joint naval requirements and to ensure a seamless intersection between our two services in providing for the maritime security and defense of the littorals. The vision is quite straightforward: On one end, LCS could be white with a stripe; on the other end, gray—each packed with the appropriate systems and modular force packages. In the middle of the spectrum there is an opportunity to have multiple international partners define their own requirements for the LCS to make it a unique international naval asset for the 21st century.

Coast Guard-Navy technical linkage extends to other IDS elements and Navy acquisition programs, including our critical C4ISR system. As noted, Deepwater's integrated C4ISR system will be a key enabler for developing maritime domain awareness and a common operational picture for Coast Guard operational commanders. Coupled with Deepwater's upgraded and modern platforms, it will allow us to employ our forces far more productively and efficiently.

The unique opportunity and durable intersection between the United States Navy and the United States Coast Guard as it pertains to the Littoral Combat Ship also extends to other IDS platforms—including replacements for our obsolete medium-endurance and high-endurance cutters, and such platforms as the vertically launched unmanned aerial vehicle (VUAV).

As one manifestation of Deepwater's growing cooperation with Navy acquisition programs, the IDS UAV platform manager is assigned to the Navy's UAV Program Office (PMA-263) at the Patuxent River Naval Air Station, Md. We are keenly interested in identifying ways to increase VUAV platform interoperability across the sea services. Our goal is to cooperate in as many ways as possible and, when it makes sense to do so, to collaborate to avoid duplicative research-and-development efforts.

Cooperation and collaboration will allow us to leverage our future in ways that were unimaginable just a decade ago. The need for the Coast Guard and the Navy to be wholly interoperable, totally non-redundant, and absolutely

compatible to attend to the maritime security and defense needs of this nation goes without saying.

International Engagement

Similar partnering opportunities exist internationally. Deepwater's international engagement and Foreign Military Sales (FMS) arm resides in the Deepwater International Office. This office serves as a critical link between the overall U.S. Coast Guard acquisition effort and the international community. Deepwater International is focused on the Deepwater systems and platforms with the ultimate goal of achieving heightened cooperation and interoperability with U.S. allies, increased efficiency of acquisition, and worldwide visibility of the technological superiority in maritime domain awareness that the Deepwater Program will bring to the 21st century.

During the past year, the Deepwater International Office has provided information to educate prospective international customers and the security-assistance community. The Deepwater staff continuously studies potential foreign markets for Deepwater system and subsystem applicability. To this end, the staff works closely with defense attachés, embassy personnel, and security assistance officers. The office also engages the international community at various national and international expositions, forums, and conferences such as EURONAVAL, EXPONAVAL, South African Aero Space and Defense, Latin American Defense, Pacific 2002, the Navy League's Sea-Air-Space Exposition, and the International Maritime Defense Exhibition.

In addition to promoting the Deepwater System's platforms and systems through FMS, the IDS International Office focuses on building partnerships throughout the security assistance community. The Deepwater Office is presently working, for example, with the Director of Security Assistance and Arms Transfers in the Department of State. In the Department of Defense, the office works directly with the Defense Security Cooperation Agency (DSCA) and the U.S. Navy International Programs Office (Navy IPO)

Deepwater staff officers maintain close ties with the Navy IPO for the explicit purpose of advocating the international market potential of the Coast Guard's IDS system of systems. As the lead implementing agency for maritime security assistance and associated support, Navy IPO functions as Deepwater's proponent in pursuit of foreign military sales opportunities. Interested nations route all international queries, informal "Requests for Information/Proposal (RFI/RFP)," and formal "Letters of Request" (LOR) directly to Navy IPO.

After appropriate review of the request for releasability and technology-transfer issues, Navy IPO tasks the IDS International Office to provide information, pricing, and availability (P&A) data and/or technical input to the U.S. Government Letter of Offer and Acceptance (LOA) that will formally offer the requested Deepwater system, subsystem, or asset to the requesting government. This relationship with Navy IPO provides the U.S. Coast Guard with the appropriate Department of Defense conduit for successful execution of FMS functions that will eventually help to reduce overall costs in the Deepwater acquisition due to increased production runs and economies of scale.

The Department of Commerce and the Deepwater International Office have signed an agreement with the Bureau of Industry and Security (BIS), under which BIS promotes Deepwater platforms to maritime forces around the world. BIS, in cooperation with the U.S. Trade and Development Agency, is exploring unique avenues to develop country and region-specific business plans.

The Department of Commerce and the Deepwater International Office also are working in tandem with the U.S. Export-Import Bank. Due to the Coast Guard's unique role as a multimission military service and law-enforcement agency, we see a real potential for many of the Deepwater platforms and subsystem components to be acquired by our allies through non-defense related loans guaranteed by the U.S. Export-Import Bank.

Technological Change

It is important to recognize the Deepwater's transformation of the Coast Guard of tomorrow entails far more than *technological change*. Modern cutting-

edge technology certainly is a driver for change, but changes to doctrine, organization, training, and logistics will make the most telling difference in transforming the force.

Just as the Navy is transforming its forces, technologies, and operational concepts with its *Sea Power 21* vision to improve warfighting effectiveness and enhance homeland security, the Integrated Deepwater System has embarked on a similar sail plan. There are a number of places where each service's plan for transformation intersect.

With regard to the National Fleet, the intersection between homeland security and homeland defense warrants the collective focus of the best minds in the Coast Guard and Navy. The foundation and essence of *Sea Power 21* rests with the network-centric capability that the Navy's Cooperative Engagement Capability and FORCEnet will give to the battle force commander—an evolutionary but dramatic transition to a force that can share information and data seamlessly between far-distant air, surface, and submerged platforms.

A similar vision guides the development of Deepwater's platforms and C4ISR system. Deepwater C4ISR will serve as a critical enabler for attaining maritime domain awareness (MDA)—knowledge management—an essential ingredient in our ability to provide needed levels of maritime homeland security for the American people.

MDA not only allows the Coast Guard to anticipate and respond to potential threats in a timely way, but it also optimizes the deployment of valuable assets. Deepwater's significant capability improvements in surveillance and communications will vastly improve the Coast Guard's ability to build MDA with advanced land, air, and sea-based sensors; access to real-time voice, video, data streams, and the databases of other federal agencies; and secure data streams that can be used for reliable and protected communication.

Unlike today's platform-centric Coast Guard, Deepwater's fully interoperable C4ISR system will provide the means to communicate information and data quickly and securely between all Coast Guard units and other agencies. This transformation will see Coast Guard air and surface platforms serving as

nodes for shared information and operational knowledge with command centers ashore—a potent force multiplier that will enable units to conduct their missions as a connected, distributed force.

Deepwater’s Integrated Logistics System (ILS) also is serving as an important driver for change.

In addition to its significant potential to reduce annual operational and maintenance costs, Deepwater’s Integrated Logistics System will enable the Coast Guard to achieve higher levels of reliability and maintainability—leading to increased operational readiness, lower total ownership costs, improved stewardship of Deepwater assets, and markedly improved working conditions for sailors.

Operational excellence is not simply a factor of bringing new assets with improved capabilities on line—it also entails the ability to operate, maintain, and support them at high levels of readiness and reduced total ownership costs. This is the ILS domain—effective stewardship.

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The Integrated Deepwater System: A Vision for the Future

“Keeping the U.S. Coast Guard the world’s best ... properly equipped and fully prepared to meet every maritime challenge of the 21st century.”

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At Deepwater’s asset level for air, surface, and C4ISR platforms and systems, the integration of ILS performance specifications across all domains will help to drive designs as such factors as supportability, maintainability, reliability, and total ownership costs are incorporated. ILS improvements also will leverage the use of technology through the increased use of automation to reduce operator workload and training requirements, and to enable condition-based maintenance. An Integrated Support System (ISS) will be designed based on best-business processes and performance-based logistics principles.

Every effort will be made to reduce the most significant contributor to total life-cycle costs—crew manning requirements—by following human-centered design principles and leveraging ILS with the Coast Guard’s cutter-crewing analysis and manning assessments.

Deepwater’s transformational foundation for its air and surface platforms, and its C4ISR and ILS systems, will be built block by block by relying on a host of “market-edge” technologies and design principles—open-systems architecture, modularity and commonality, interoperability, human-systems engineering, and cost as an independent variable. How successfully and creatively the Coast Guard’s enterprising men and women *use* their improved platforms and systems during the years ahead will prove to be the true measure of Deepwater’s transformational power.

The Time is Now

The need for transformation is real; change is essential to deploying the Integrated Deepwater System. The time is now; a sense of urgency defines Deepwater’s multimission responsibilities and its homeland security efforts. If the Coast Guard is properly equipped and fully prepared to meet every maritime challenge it will face during the 21st century, then Deepwater will have attained the essence of operational excellence and its vision for the future.