



# Delivering the Goods

News from the U.S. Coast Guard Acquisition Directorate

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## Acquisition Success Story: the Marine Protector-class Patrol Boat Project

By Hunter C. Keeter

As the 69th Marine Protector-class 87-foot Coastal Patrol Boat is delivered, Coast Guard officials look back with pride at a record of achievement managing cost, schedule and contract performance.

“Our philosophy is that we have the perfect model for building and delivering assets to the fleet,” said Allen K. Harker, contracting officer for the Coast Patrol Boat Project Resident Office at Lockport, La. “Everything we do is predicated on a point in time when we will hand the asset over to the operational community, and they will be ready to take that asset and perform their mission. We provide all of our customers with the same high level of service.”

To date, 68 Marine Protector-class patrol boats are in Coast Guard service, including the Oct. 15 delivery of CGC Crocodile to St. Petersburg, Fla. The project also has delivered two of a total of four boats for the U.S. Navy. The Navy uses the 87-foot WPBs to escort nuclear powered ballistic missile submarines at Kings Bay, Ga., and Bremerton, Wash. and the Republic of Malta has purchased two of the boats for missions similar to those of the U.S. fleets.

In Coast Guard service, the 87-foot WPBs are crucial assets for maritime law enforcement, national security and safety patrols from 48 boat stations throughout the United States. According to Harker, the boats contribute about 120,000 patrol hours per year, estimated on the order of 65 percent of the Coast Guard’s total patrol boat operating hour requirement.



GULF OF MEXICO—Diamondback, an 87-foot Coastal Patrol Boat, makes way during builder’s trials in October. In November, the vessel will be delivered to St. Petersburg, Fla., on its way to home port at Miami. Diamondback will be the 69th Marine Protector-class vessel in Coast Guard service. Other users include the U.S. Navy and the Republic of Malta. U.S. Coast Guard photo

At Lockport, Bollinger Shipyards, Inc., builds the Marine Protector-class based on the Damen Stan Patrol 2600 design. As built, the boats accommodate crews of 11 with an endurance of 72 hours, and can make maximum speed of better than 25 knots, on two MTU, eight-cylinder turbocharged diesel engines of more than 1,429 horsepower each.

### Proven Capabilities

Each boat’s pilot house provides a 360-degree field of view to enhance the crew’s situational awareness. A state-of-the-market electronic aids to navigation suite includes a depth sounder, global positioning system,

and automatic direction finder. Its electronic chart display system features more than 10,000 nautical charts, covering most of the world, a useful feature for foreign customers, such as the Maltese.

The 87-foot WPB’s external communications and sensors suite

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consists of an X-band/S-band surface search radar, high frequency, very high frequency and ultra high frequency radios, cellular telephone and Inmarsat satellite telephone.

One of the most advanced features of the Marine Protector-class design is its capability to launch and recover small boats astern. Each 87-foot WPB hosts a Zodiac Hurricane 558 10J 5.4 meter (approx. 17.7 feet) rigid inflatable boat. The launch and recovery system is based on a mother-daughter design that Bollinger derived from the United Kingdom's North Sea fishery patrol vessels.

While launching and recovering small boats at sea always will represent some risk, particularly at night and in rough weather, the Marine Protector's stern launch system is an improvement in performance and safety that has won advocates throughout the Coast Guard's surface force.

"Traditionally, on the 110-foot WPBs, and even on the larger cutters like the ... 270s, 225s, and 378s, you have a davit launch system that requires a catch line and a fence post, with a lot of people on deck and heavy weight swinging overhead," said Master Chief Louis L. Kitchin, officer in charge, CGC Sea Lion, an 87-foot WPB based at Bellingham, Wash. "Stern launch revolutionized that; we can now do it with just two people on deck. The boat approaches from aft; it rides up onto the 10-degree ramp; a crewman throws out a line to capture the boat's Samson post, and we winch the boat into place."

A similar stern launch and recovery system is installed aboard the National Security Cutter, and will be a feature of the new Sentinel-class patrol boats.

## Acquisition Strategy

Operational capability coupled with high reliability delivered to the Coast Guard and to other customers is one of several reasons the Coastal Patrol Boat project has been a success story. The project's acquisition strategy also has proven to be a model for the best practices that the Acquisition Directorate is implementing throughout the Coast Guard's acquisition enterprise.

According to Harker, an important aspect of the 87-foot WPB acquisition strategy is effective on-site presence, embodied in the Coastal Patrol Boat Project Resident Office, which is located at Lockport, in the shipyard where the boats are built.

"We have a very aggressive contractor oversight process, onsite," Harker said. "This approach is fair; it is not over-inspection, but we work with the contractor to make sure that when the boat is delivered we have accomplished all our objectives."

As noted above, the Coastal Patrol Boat project used a parent craft acquisition strategy (developing the WPB from the proven Damen design), with a firm fixed price contract for the initial design and construction of the lead ship. Bollinger delivered the first boat on April 7, 1998, and the next eight vessels, during the project's low rate initial production phase, at 45 day intervals. Subsequent boats were built under full rate production, and delivered at 28 day intervals, demonstrating the shipyard's and the Coast Guard's progress along the learning curve of building the Marine Protector-class.

"Including the six boats we are building now, we will have built 75 boats, 69 for the Coast Guard, four for the Navy and two for Malta," Harker said. "So, 75 boats, 20 spare engines, 20 spare generator sets, 24 sets of propellers, rudders and shafts, for a total cost of \$338 million. That

is a great value for the taxpayer and our service, when you look at the numbers."

The project's business methods, such as selecting components and systems for long life and high reliability, have resulted in some impressive statistics for the Marine Protector-class, including a reported mission capable rate of better than 95 percent for the boats in the field.

## Customer Service

Another significant feature of the project is its approach to life-cycle support, including a robust warranty period that covers the 87-foot WPBs' hull, mechanical and electrical systems and other components during the first year of operation. Harker noted that the project has taken a hands-on approach to customer service, addressing more than 5,000 warranty items, class-wide, since the first delivery.

"It is very important we are very responsive to the end user in the field," he said. "The measure of success in the project is how well we manage our problems; today's become tomorrow's, in line behind other problems. You have to solve problems every single day."

As the patrol boats approach the date for their first major maintenance availabilities, the project office also has worked with the Coast Guard's surface support community, to help ensure that tools and processes are in place.

"At the 87-foot WPB matures as a platform, we are starting to address issues like major overhaul of the main diesel engines," said Maurice Peterson, 87-foot logistics manager at the Coast Guard Engineering Logistics Center, Curtis Bay, Md. "The project office has worked very well with us [at the Engineering Logistics Center], ensuring that we

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## Coast Guard Logistics Modernization, Part 2: Changing the Culture of Life-Cycle Support

By Hunter C. Keeter

This is the second article in the series on how the Coast Guard's logistics enterprise is evolving through process and technology improvements.

The Coast Guard is developing new processes for providing life-cycle support to 194 aircraft, 252 cutters and patrol boats, 1,660 small boats, 945 shore units and more than 62,000 personnel in the field. The Engineering and Logistics Directorate leads this massive undertaking, in collaboration with the directorates of Information Technology, Resources, and Acquisition.

Part of the Commandant's comprehensive modernization initiative, logistics transformation will replace inefficient and stove-piped processes and a multitude of IT tools with an integrated logistics system to enhance the effectiveness of the Coast Guard's aircraft, boats, cutters, command and control, and shore facilities.

The transformed logistics system will include some new tools, such as software applications that will manage databases of maintenance and configuration management information. However, perhaps the most significant aspect of the transformation will be the development, implementation and enforcement of new processes that

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have the spare parts, engines and documentation we need to provide excellent support to the field."

Main engine maintenance is a significant life-cycle cost driver for any ship class. According to Harker and Peterson, one of the benefits of the Marine Protector-class is the longevity of its power plant. The oldest boats in service (those delivered beginning in 1998 and having been in operation for approximately 12,000



KODIAK, Alaska—At aviation maintenance facilities throughout the Coast Guard, such as Air Station Kodiak's MH-60 maintenance department, disciplined processes are the norm. For example, tools are kept in form-fitting trays, organized for accountability and easy access by technicians. Coast Guard Photo by Petty Officer 3rd Class Richard Brahm

change the "culture" of Coast Guard logistics.

Ultimately, the service wants the ability to link operational readiness

hours), only now are coming due for overhaul.

"By contrast, some of the 110-foot Island C-class WPBs get about 7,000 hours to 7,500 hours before needing a major overhaul," Harker said. "So by reducing a large number of overhauls, this makes the [87-foot WPB] platforms relatively low-cost to operate."

At the ELC, the Coast Guard is making significant organizational

and mission capability directly to logistics data and life-cycle costs. This linkage would provide a powerful risk management capability for decision-makers, demonstrating how much

changes, which will improve depot-level support for the patrol boats and other cutters in the fleet. Peterson noted that the service is shifting away from asset-specific maintenance models to a product line approach, analogous to the way the Coast Guard's aviation support community does business. The result will be dedicated facilities, tool sets, spare parts, and more personnel focused on supporting each asset class. ■

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capability a given level of investment will deliver, as well as the operational impact of funding shortfalls.

“The business model we are talking about has implications not only for logistics, but for finance as well,” said Jim Sylvester, Chief of Logistics Systems and principal member of the Logistics Transformation Program Integration Office. “Our resource plans [which estimate funding for the life cycle support for a given asset] should be linked to the data derived from the logistics processes that deliver operational capability.”

The Coast Guard’s transformed logistics culture will feature strict control of asset configuration, as-acquired and as-maintained. Today, with many type/model series of aircraft, boats and cutters in the field, and variations within each series, logisticians face a major challenge in codifying and enforcing standards across groups of assets.

“It takes time, effort and money to build the maintenance requirements list and the procedures that make sure we are doing things the same way, and to make sure that we have the spare parts out there to support the process,” said Cmdr. Daniel P. Taylor, a project manager with the Acquisition Directorate’s Integrated Logistics Program. “Part of the price we must pay [to improve the Coast Guard’s logistics system] is learning to maintain the assets according the accepted standards.”

Another aspect of the transformation will be a collective approach to logistics resources. For example, in the aviation community parts are shared among air stations and the AR&SC, in a system that allows one unit to order parts from another as easily as from the warehouse, vendor or supplier. The same process will be applied to other operational domains.

“Everybody likes their stuff, and it



CHRISTANSTED, St. Croix—A 25-foot Response Boat-Small from Sector San Juan, Puerto Rico, stands by during a mission following Hurricane Omar. On Oct. 1, 2008, at the Engineering Logistics Center, Curtis Bay, Md., the Coast Guard opened the Small Boat Product Line as part of a new logistics model. Although centered at the Coast Guard Yard, the geographically distributed approach aligns all small boat support resources, nationwide, under a single entity with authority and accountability for maintenance and logistics. U.S. Coast Guard photo by PA1 Christopher Evanson

was hard, initially, to do the parts pooling that the [aviation logistics] system allowed,” Taylor said. “Until people realized that giving up one of my parts may be good for my neighbor today, but it will be good for me tomorrow when I need support.”

The aviation support community also has been successful implementing a product-line approach to asset configuration and maintenance at the depot, Coast Guard Aviation Repair and Support Center, Elizabeth City, N.C. At AR&SC, each aircraft type/model series is supported by dedicated infrastructure of shops, tools, supply chains and personnel. The Coast Guard Yard, Curtis Bay, Md., is adopting a similar product line approach for boats and cutters.

Change can be painful, and a transformation of the scale now underway in the Coast Guard’s

logistics community warrants thoughtful analysis. Improving the efficiency and effectiveness of the logistics enterprise is the first priority, but Sylvester noted that a significant business case also may be made.

“Going back to 2004, when the Commandant directed that we look at the costs associated with our numerous logistics IT systems, different processes and diverse business models, we realized that logistics accounted for approximately \$3.3 billion, or about one half the Coast Guard’s annual budget [in fiscal year 2005],” Sylvester said. “If we can improve those tools and processes, and achieve even one-half of 1 percent savings, that would be substantial.”

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## **Integrated Capabilities**

While process improvements are developed and implemented, and requirements are drawn for a new generation of logistics IT tools, the Coast Guard is applying lessons learned from its most successful legacy systems.

For example, the Engineering and Logistics Directorate is replicating for boat forces the functionality of the Aviation Logistics Management Information System. ALMIS is a web-based application on the Coast Guard's intranet that provides a single inventory control point and centralized management of the aviation community's maintenance databases for more than 5,000 user accounts.

ALMIS, and the process that govern its use by the aviation support community, allows operators to standardize maintenance practices, schedule resources, track the availability and status of people and assets, and identify non-standard parts. Sector Baltimore has developed a prototype of an expanded ALMIS that includes the Response Boat-Small, as an example of the system's scalability.

ALMIS is somewhat limited, however, so the Coast Guard plans to develop a new system that will gradually replace it, as well the functionality of other major logistics tools, such as the Vessel Logistics System and the Shore Asset Management system.

Shelley A. Diedrich, logistics process team leader and Deputy Program Manager for LTPIO, noted that requirements for the new, consolidated IT system are based on the cultural change that is taking place across the logistics enterprise.

"We need to have acquisition and logistics business models that ensure

we consistently deliver capability to the American people," Diedrich said. "It isn't just about buying IT systems; in order to deliver repeatable, consistent results we have to develop a culture that manages, monitors and controls for non-variable outcomes."

In other words, the Coast Guard is developing a more deterministic approach to logistics that includes processes and tools designed to give decision-makers a clearer, more accurate picture of the operational force's readiness and capabilities. The Coast Guard has launched an acquisition project to develop a new IT system that will complement this approach.

It is called the Coast Guard Logistics Information Management System, or CG-LIMS, and will evolve into a centrally-managed, integrated, enterprise-wide information management tool that consolidates and replaces the functions of legacy logistics systems. To keep pace with the exponential improvement rate of modern IT systems, CG-LIMS will be developed using commercial off-the-shelf software and hardware, adapted to integrate with the life-cycle support requirements of the entire service.

Emphasizing that the cultural change noted earlier is the basis for CG-LIMS requirements, Integrated Logistics System Program Manager, Capt. Brad W. Fabling, said the products his office delivers will complement the common business model developed by the LTPIO.

"Acquisition is coming alongside the Engineering and Logistics Directorate to further their cause and provide a tool that will support logistics transformation," Fabling said. "It isn't the software system that makes the process work, it is the discipline, the checks and balances. The power is in the process ... This allows [the

users] to tie logistics to operational readiness."

CG-LIMS gradually will integrate the logistics support functions for aviation and boats; Deepwater assets (including the National Security Cutters, the Sentinel-class patrol boats, and the Offshore Patrol Cutters); command, control, communication, computers and intelligence (C4I) assets; all cutters; and facilities.

As is the case more broadly for logistics transformation, there is a business case for consolidating the Coast Guard's logistics systems. CG-LIMS Project Manager Cmdr. Dan Taylor noted that recent studies have shown a significant amount of money may be saved by consolidating the Coast Guard's logistics systems and processes.

"Having a logistics system with a common configuration, that enables us to stock only as many spare parts as we need, and that manages how much support we need to deliver, enterprise-wide, will decrease inventory and management costs overall," Taylor said.

As the Coast Guard modernizes the processes governing its key logistics functions, such as configuration management and maintenance, CG-LIMS will help users at the unit and depot levels through improved situational awareness of service-wide asset inventories, support requirements, and the availability of resources. ■

## Acquisition News Briefs

### Eye in the Sky

The U.S. Coast Guard's Capabilities Directorate, CG-7, and Acquisition Directorate, CG-9, recently met with Department of Homeland Security Deputy Secretary Paul A. Schneider, to discuss UAS technologies for Coast Guard applications. The Coast Guard is studying both land-based and cutter-based UAS technologies to determine the way forward for potential research and development and acquisition projects. The Coast Guard is working with other agencies, including the U.S. Navy and U.S. Customs and Border Protection, to learn more about UAS maritime operations and payloads.

### The Long, Cold Journey

At the beginning of October, the Coast Guard completed International Ice Patrol testing with its HC-130J Hercules long range surveillance aircraft. The Coast Guard is adding mission capability to six HC-130Js, including the installation of an upgraded radar that will be used to spot icebergs. Ice patrol reconnaissance missions last approximately seven hours and cover 1,700 nautical miles, for which the long-endurance of the Hercules is ideally suited. IIP operations ramp up between January and August, actively tracking icebergs from the air and issuing bulletins to mariners. Three HC-130Js have been missionized; a fourth recently has begun the process.



HC-130J Hercules long range surveillance aircraft.

### The Rain in ...

The Coast Guard's HC-144A Ocean Sentry medium range surveillance aircraft project will soon pass another milestone with the delivery in Spain of the sixth aircraft. The plane is slated to arrive at Elizabeth City, N.C., by mid-December. Meanwhile, pilot training for six aircrew members continues at the EADS/CASA facility, Seville, Spain. In the near future, the Coast Guard plans to relocate stateside the training program for HC-144A aircrews. The service is investing in simulator space and other facility improvements to accommodate the HC-144A at Aviation Training Center, Mobile, Ala.



HC-144A Ocean Sentry medium range surveillance aircraft.