



Delivering the Goods

News from the U.S. Coast Guard Acquisition Directorate

The Long View: Coast Guard Research & Development Program Boosts Acquisition of 'Game Changing' Technology

By Hunter C. Keeter

WASHINGTON—The Coast Guard’s Research & Development (R&D) program, an approximately \$20 million enterprise, is making a real difference behind the scenes providing the service with valuable insight on how state-of-the-market technology can deliver big payoffs in Coast Guard mission capability.

Since spring 2007, the R&D program—which consists of a headquarters office in Washington and the R&D Center, a research and analysis facility in Groton, Conn.—has been consolidated with the Coast Guard’s Acquisition Directorate. The directorate manages a \$27 billion investment portfolio of more than 20 major projects, many of which have benefited from R&D prototyping, analysis and engineering support.

Steven Cohen, Deputy Director for Research and Development, said he was confident the R&D program’s new connection with Coast Guard Acquisition, coupled with increased investment in R&D, will significantly reduce the service’s programmatic risks and improve operational performance.

BIOMETRICS

A good example of the payoff that can be gained from synergy between R&D and acquisition is the use of mobile at-sea biometric technology (digital fingerprinting equipment) to collect data during illegal migrant interdiction operations.

In 2003, Coast Guard District Seven recognized a mission challenge in illegal migrant



After 37 years at the University of Connecticut’s Avery Campus, the Coast Guard’s R&D Center is moving to a renovated former U.S. Navy facility at Fort Trumbull, New London, Conn. The R&D Center provides scientific analysis and technology prototyping in support of Coast Guard missions and acquisition programs. (USCG file photo)

interdiction. The Coast Guard tasked the R&D program to study the potential of fingerprinting to help stem the flow of illegal migrants through the Mona Pass area from the Dominican Republic and Haiti. The hypothesis was that fingerprinting would speed the identification of repeat offenders and others with criminal backgrounds, helping cutter crews identify subjects for arrest and prosecution by federal authorities.

“Before District Seven had identified its need, and before the Coast Guard had set up a proof of concept project, the R&D program had done more than a year and a half of market and requirements surveys into biometrics technology,” said Donald Cundy, Executive Director of the R&D Center. “Because of that pre-positioning we were able to go from a no-need-at-all posture to an articulated need and a workable system product in

three months. Not only was the technology successful, it essentially completely changed the migrant flow ... It became a ‘game changer’ and that is what you are looking for when you make investments up front in technology.”

During the proof-of-concept phase of the project, which began in November 2006, portable fingerprinting enabled 22 arrests of criminal aliens within 90 days. During the preceding seven years the Coast Guard made virtually no arrests of illegal migrants for repeat offenses or other criminal activity.”

inside:

- Acquisition News Briefs.....pg 3
- CG Foreign Military Sales....pg 4
- Master Chief Q&A.....pg 6

Between fiscal years 2000–08, the Coast Guard interdicted 31,192 Haitian and Dominican migrants in the Mona Pass area. The total includes more than 8,400 illegal migrants interdicted since 2006 (the first year of mobile at-sea biometric deployment). In fiscal year 2007 alone, biometric technology helped reduce successful illegal migrant landings from 5,552 in 2006 to 5,046 (a better than 9 percent reduction), and helped detain more than 72 individuals for prosecution.ⁱⁱⁱ

As of Feb. 22, 2008, the U.S. Attorney's office in San Juan, Puerto Rico has begun 112 prosecutions for violations of U.S. immigration laws and related offenses based in part on data obtained by the biometrics program.

DEPTH OF EXPERIENCE

Broadly, the R&D program's role in support of the acquisition community is to help program managers mitigate risk. This can range from assessing emerging technologies to adapting commercially available technologies, or technologies developed by other services, to meet the Coast Guard's unique requirements.

"The R&D program is uniquely qualified for this role," said Cohen. "Our personnel at the Center have impressive depth of experience. They know the Coast Guard, the mission and they have the knowledge—the average tenure at the Center is 20 years. Also, we can be relied upon to represent the best interest of the Coast Guard; an honest broker for acquisition managers, support managers and, of course, the sponsors and operators."

The service has a limited Acquisition, Construction and Improvement (AC&I) budget—which funds all modernization and

recapitalization efforts. So project managers must take low-risk approaches to buying the aircraft, ships, weapons and electronic systems that they deliver to the operating force.

The R&D program supports low risk acquisition strategies by helping project managers choose the best solutions for their products, based on proven technology and by leveraging existing programs, from the DHS Directorate for Science and Technology and from the other military and naval services.

Cundy noted that the Coast Guard leverages other military capabilities by working closely with organizations such as the Office of Naval Research, and the Naval Sea Systems Command Warfare Centers—the Navy's prototyping facilities for surface and undersea warfare technologies.

Another source of cooperation among S&T projects is through the Technical Support Working Group (TSWG), an inter-agency organization studying technologies potentially applicable to the Coast Guard's missions. For example, the TSWG is working on three-dimensional underwater imaging technology that could provide clearer pictures of murky port environments —potentially useful technology for defense, security and environmental protection applications.

Partnerships in the government and industry S&T community are important, but the Coast Guard has its own valuable resource in the R&D Center, where a team of scientists and engineers helps the service with crucial pre-acquisition planning, such as supporting the sponsor in requirements generation—an increasingly important role for the R&D program, Cohen noted.

"Once the requirements are

articulated and funding has been identified, we can spring into action in providing acquisition project managers the analysis and prototyping and support they need," Cundy said. "We provide for the Coast Guard a similar function that the 'military industrial complex' provides the Department of Defense. For the Coast Guard's unique mission set, there really is no 'military industrial complex' to support search & rescue, spill response and other core competencies. The R&D Center has experience in those areas that cannot easily be replicated in the commercial marketplace."

INVESTMENT APPROACH

The R&D program's investment approach has paid dividends in new technologies that enable Coast Guard men and women to do their jobs more safely, effectively and efficiently.

For example, the program created a differential Global Positioning System (GPS) that allows Coast Guard buoy tenders to efficiently service aids-to-navigation without needing to use a horizontal sextant, and the difficulty of sighting on known reference points and performing triangulation underway.

Another project that has benefited from the R&D Program's support is the Nationwide Automatic Identification System (NAIS). Building on a R&D program prototype developed in the 1990s, NAIS allows the Coast Guard to collect safety and security data from AIS-equipped vessels in United States territorial waters and adjacent seas out to approximately 2,000 nautical miles, and to share that data among Coast Guard units and with partner agencies.

In fiscal year 2008-09 the R&D program is continuing its analysis and evaluation of Unmanned Aerial

Systems (UAS) for the Acquisition Directorate. This R&D project helps acquisition program managers determine the best capability to fill the surveillance gap of Coast Guard major cutters.

The service has been studying a number of UAS designs—including the Navy’s Fire Scout—to determine if these have the payload capacity to carry an integrated multi-mode radar and electro-optical/infrared sensor package. R&D’s role is to study the risks and costs of various UAS designs and payload configurations, and provide technical support once the Coast Guard has decided on a product

for its UAS acquisition project.

Other plans include supporting the Heartland Waterway Vessel project, looking at ‘green’ propulsion technologies and vessel designs to support future inland-river and Great Lakes cutters.

The R&D program is investigating technologies and procedures associated with Coast Guard operations in the Arctic and Antarctic. The results of this analysis could inform acquisition decisions that address the opening of the Northwest Passage and other environmental changes.

Finally, R&D is developing a set of modeling and simulation tools that support acquisition decisions by reducing the cost of design, development, testing and evaluation of new aircraft, cutters and mission systems.

Meanwhile, the R&D Center is planning a move in spring 2009, to a renovated facility in New London, Conn. The facility is a former U.S. Navy research building, constructed in the 1990s, and will include two other offices, International Ice Patrol and the Marine Safety Laboratory. R&D will lease two floors of the building for project and office space. ■

ⁱApproximate average investment of appropriations (enacted, projected and requested), fiscal years 2007–2009

ⁱⁱStatus and Way Ahead: Biometrics Proof of Concept,” USCG memorandum, March 19, 2007

ⁱⁱⁱUSCG Posture Statement, 2008

ACQUISITION NEWS BRIEFS

NAIS INCREMENT ONE ONLINE

The Nationwide Automatic Identification System (NAIS) will soon celebrate the achievement of full operational capability for Increment One of the new system, which seeks to provide real-time identification and location data on all major vessels operating near the United States and its territories. Increment One provides AIS receive-only coverage at 55 high priority ports and nine coastal areas. Increment Two provides AIS receiver and transmission capability nationwide, extending receiver coverage to 50 nautical miles from shore and transmission reach to 24 nautical miles from shore. Increment Three provides AIS long-range receiver coverage to 2,000 nautical miles by fiscal year 2014. >>Learn more online at www.uscg.mil/acquisition/nais

FIRST THREE HC-144A MISSION SYSTEM PALLETS ACCEPTED

During March, the Coast Guard formally accepted the first three integrated Mission Systems Pallets for its HC-144A Ocean Sentry Maritime Patrol Aircraft. The MSP is a modular suite of electronic equipment that enables the aircrew to collect, analyze and transmit data from the aircraft’s integrated radar and electro-optical/infrared sensors. The pallet’s networked command and control system is interoperable with Coast Guard, DoD and partner agency surface vessels, aircraft, law enforcement and shore facilities. The MSP’s communications suite includes UHF/VHF, HF and commercial satellite radios as well as the Coast Guard’s first airborne access to the Department of Defense’s Secure Internet Protocol Router Network (SIPRNET). With the pallet having been accepted, the HC-144A now begins a formal period of operational test and evaluation prior to achieving operational status in 2009. >>Learn more online at www.uscg.mil/acquisition/mrs

FIRST RB-M DELIVERED

On March 31, the Coast Guard accepted delivery of the first Response Boat Medium (RB-M), which will be delivered to CG Station Little Creek, Va., where the new boats will undergo operational test and evaluation. The Coast Guard will acquire 180 RB-M to replace its aging 41-foot and non-standard utility boats. The RB-M project recently completed significant technical milestones, including a demonstration of the boat’s self-righting capability. During the demonstration, the RB-M design showed its ability to endure a complete roll and return upright because of the stability and buoyancy of the pilot house. The self-righting demonstration was conducted near Seattle, Wash., at the manufacturer’s (Kvichak Marine Industries) facility by Lake Union. The boat was tethered to the shore off the port side and a winch on the starboard shore was attached to the straps that wrapped around the hull and were used to provide the upsetting moment, according to the project office. >>Learn more online at www.uscg.mil/acquisition/rbm

HITRON's MH-65Cs IN MAJOR COCAINE BUST

Building on a strong record of saving lives and enforcing U.S. law, the MH-65C Multi-mission Cutter Helicopter (MCH) recently facilitated the seizure of approximately 1.5 tons of cocaine off Port Everglades, Fort Lauderdale, Fla. On March 18, the Dolphin crew from Helicopter Interdiction Tactical Squadron (HITRON), Jacksonville, Fla., worked with USCGC BEAR, and a Coast Guard HC-130H Hercules from Air Station Clearwater, Fla., to interdict a go-fast vessel. Warning signals, and shots from the helicopter's weapons, caused the go-fast crew to ditch 3,200 pounds of their cargo before escaping. BEAR's crew recovered 50 bales of cocaine, worth approximately \$100 million. HITRON is equipped with six MH-65Cs fully modified for the Airborne Use of Force (AUF) mission set. The MCH project is upgrading 95 Coast Guard Dolphins with new engines and other equipment, including the A and B AUF kits. Kit A includes airframe wiring; communications equipment; aerial gunnery mounts (for the M240B 7.62mm general purpose machine gun and M107 .50 cal. precision fire weapon); and law enforcement lighting. Kit B includes head-up-display; airframe ballistic armor; hardware for vertical insertion; long range communications; electro-optical/infrared sensor; and an IR searchlight filter. Kit A will be installed on all Coast Guard rotary wing aircraft, thereby making them AUF ready. Kit B will only be installed when an AUF capability is required (such as the HITRON's aircraft). >>Learn more online at www.uscg.mil/acquisition/mch

Coast Guard Strengthens Foreign Military Sales Program

By Hunter C. Keeter

WASHINGTON—Building upon solid past performance transferring retired cutters and a variety of small boats to allied nations, the Acquisition Directorate is building an even stronger Foreign Military Sales (FMS) program—to better support government security assistance objectives and bolsters the presence of U.S. industry abroad.

The FMS and Excess Defense Articles (EDA) programs, resident in the Office of International Acquisition (CG-922), are important elements of the Coast Guard's security assistance function. The programs help achieve foreign policy and security goals through the sale and transfer to friendly governments U.S. platforms (ships and aircraft) and mission equipment.

The Coast Guard views FMS activity as 'cost-neutral' (foreign customers pay only the actual costs incurred, and excess funds are returned to the FMS customer). However, sales of platforms, equipment and services may benefit the Coast Guard by helping to drive down unit costs for ships and aircraft still in production. The

FMS/EDA programs also benefit the U.S. economy by supporting production lines and jobs in industry.

Coast Guard FMS accounts for approximately \$21.5 million annually.

NICHE MARKET

While a relatively small concern compared with the FMS programs of the Department of Defense, the Coast Guard is building its enterprise into what Assistant Commandant for Acquisition, Rear Adm. Gary T. Blore, called a "niche market" for technologies that fulfill a unique set of mission requirements.

"There are only two or three navies in the world like the U.S. Navy; all others are more like the Coast Guard," Blore said during an interview. "So many foreign navies have an affinity with us because they tend to be less focused on global reach and more focused on the mission set that is like our own—maritime border security, law enforcement, search and rescue, environmental protection and national defense."

In the beginning the programs focused on transfer of used Coast Guard cutters and small boats. Since 1997, the Coast Guard has transferred more than 116 decommissioned vessels to 26 nations through EDA. The service has sold more than 91 new construction vessels to 12 nations through FMS. The programs also provide training, logistics and technical support to the platforms' new host nations.

The goal, according officials from the Acquisition Directorate, is to create a manageable program that is large enough to support Coast Guard and national policy objectives, while also providing a boost to American industry.

"FMS is finding its stride as more of a Coast Guard-unique element of selling U.S.-made products," Rear Adm. Blore said. "I think within the next two or three years, the niche market that we are building in Coast Guard FMS is going to develop branches and really expand its portfolio into a well-run unique division of our acquisition business. ... We are going to sell some new products that we have brought online, and that will help

us in unit cost and it is going to be good for U.S. industry. Meanwhile, we can continue to sell small boats and used Coast Guard cutters as well.”

EXPANDING CATALOGUE

The Coast Guard’s FMS catalogue of products is expanding. As new assets arrive—such as the HC-144A Ocean Sentry Maritime Patrol Aircraft and its mission system pallet, or the upgraded sensor suite aboard the HC-130J Hercules Long Range Surveillance aircraft—the Coast Guard is planning ways of marketing these products as well.

The Coast Guard also has enjoyed significant improvement to its search & rescue capabilities with the aircraft-mounted Direction Finder 430 system, which began saving lives almost as soon as it was approved for operational use. The DF-430 system may soon be on offer for FMS.

Meanwhile, utility boat sales have proven to be a major FMS success for the Coast Guard. The service is selling a variety of types of small boats, which are being used in innovative ways by many customers, including the naval and maritime law enforcement forces of partners such as Nigeria



Ex-Coast Guard Cutter GENTIAN at anchor off Port-au-Prince, Haiti. On Oct. 15, 2007, the government approved the transfer of GENTIAN to the Armada Nacional de Colombia as part of the Coast Guard’s security assistance program. (USCG photo by PA3 Cindy Marshall)

and Iraq.

The Response Boat-Medium (RB-M) project is slated to begin Operational Test and Evaluation (OT&E) at Coast Guard Station Little Creek, Va. These utility boats will replace the service’s fleet of 41-foot and other non-standard boats, and, once testing is completed, will provide a very capable platform for marketing through the FMS program.

Completing OT&E is an important step, not only because it marks an important transitional phase in an acquisition project—certifying that the product is operationally suitable and effective—but also because completing OT&E is an important

signal to potential customers that the platform or system is ready for sale.

“We only sell what the admiral buys; so this year we have to get through OT&E for the National Security Cutter, the Maritime Patrol Aircraft, the HC-130J and the RB-M,” said Joseph Shea, who works for the Office of International Acquisitions. “We are ... talking with international partners about their requirements and how our products could fulfill some of those.”

TWO-WAY STREET

Many allied navies have duties that include maritime border

OVERVIEW OF RECENT FMS CASES

- Early 2008—Submitted for Department of Defense approval: potential sale of 11 Defender-class and 19 Arch Angel-class response boats to the Republic of Chile.
- Nov. 8, 2007—In support of the Cooperative Strategy for 21st Century Seapower, sold to the Iraqi Navy 26 Fast Response Boats, spare parts, tools, training and other support valued at a total of \$8.3 million.
- Oct. 15, 2007—Transferred to the Armada Nacional de Colombia the 180-foot ex-buoy tender Gentian valued at \$2.7 million, plus \$890,000 for navigation and communications equipment.

FOREIGN MILITARY SALES/EXCESS DEFENSE ARTICLES CATALOGUE

- 25-foot Defender-class Response Boat-Small (RB-S)
- 33-foot Special Purpose Craft-Law Enforcement (SPC-LE)
- 42-foot Arch Angel-class Fast Response Boat
- Response Boat-Medium (RB-M)
- Cutter Boat-Over the Horizon (CB-OTH)
- Trailerable Aids to Navigation Boat (TANB)
- National Security Cutter (NSC)
- HC-144A Ocean Sentry Maritime Patrol Aircraft (MPA)
- HC-130J mission systems
- Fast Response Cutter-B-class (FRC-B)
- Offshore Patrol Cutter (OPC)
- Medium and High Endurance Cutters

patrol, illegal migrant interdiction, fisheries protection, piracy and other missions that are closely analogous to those of the U.S. Coast Guard.

Mission commonality helps to inform a potential overseas customer base for Coast Guard products, while at the same time providing a venue for the U.S. Coast Guard to benefit from cooperation and learn some helpful lessons of its own.

"This represents a huge opportunity to bring all the ocean-centric nations together and speak to them about how they are applying technology to the law enforcement, maritime security and national defense missions set," Blore said.

For example, Blore recently visited Australia where he met with that nation's acquisition officials and discussed common requirements for technologies to support naval and federal law enforcement requirements.

"Because we have a lot of commonality, we can really learn

from one other," Blore said. "The Australians showed us some of the innovative things they are doing with their navy patrol boats. Up on the bridge, for example, they have the captain, a conning officer and the engineer all sitting next to each other. That's not the way we run patrol boats in the U.S. Coast Guard but it is very interesting to see how the Australians do it and how that concept of operation is reflected in the design of the platforms."

Geography also provides some advantages for allies, enabling real-world testing of interesting hardware that would be problematic in some U.S. locations. For example, Australia's maritime border is less densely populated than the coastline of the United States, allowing more unrestricted airspace for testing Unmanned Aerial Systems (UASs), such as the RQ-1 Predator robot aircraft.

Internationally, General Atomics markets a variant of its Predator called the 'Mariner.' In September 2006, the Australian Defence Science and Technology Organisation

(DSTO) tested Mariner during a 29-day exercise emulating operations against illegal fishing, smuggling and illegal immigration.

During the exercise the Royal Australian Air Force flew the Mariner for more than 75 hours at between 1,000 feet and 40,000 feet altitude. The UAS shared radar sensor data with Royal Australian Navy patrol boats to model operations of the Joint Offshore Protection Command.

Australia's naval and federal law enforcement organizations have experimented with the Predator in maritime surveillance mode. In the United States, such testing might interfere with the civil air traffic control system.

"We gain valuable insights into how things worked for them," Blore said. "What worked well and what didn't work so well. The Australians and other partners can test and evaluate technologies and we can learn from that, and vice versa. That is a very important aspect of our relationship." ■

Dear Master Chief:

QUESTION: Regarding the National Security Cutter, how many are we buying? I have heard eight but understand we only paid for three?

ANSWER: Our intentions are still to acquire eight NSCs. Currently we are under contract for three, with the long lead time parts for the fourth on order.

QUESTION: Under the Crew Rotation Concept (CRC), where will our families be located?

ANSWER: Under the current concept, the families will be collocated at the crews' homeport.

QUESTION: Will funding for the 378's be cut as the NSCs come on line?

ANSWER: The current plan is to maintain 378' funding until the vessels are removed from service and retired. Initially there will be some overlap as the first NSC comes on line, but we hope to reduce that overlap as the second and subsequent NSCs are delivered.



[To submit a question for an upcoming Acquisition Directorate newsletter, please email Master Chief Marvin Wells directly at: Marvin.R.Wells@uscg.mil or acquisitionwebsite@uscg.mil.]