



# Delivering the Goods

News from the U.S. Coast Guard Acquisition Directorate

November 2007

## Eye in the Sky: Coast Guard HC-144A Drops in On AIRSTA Washington

By Hunter C. Keeter

WASHINGTON—An HC-144A Ocean Sentry Maritime Patrol Aircraft (MPA) visited Air Station (AIRSTA) Washington in October 2007, demonstrating for congressional staff, the Commandant and other observers the impressive surveillance capabilities and mission characteristics of the newest Coast Guard airframe.

On hand for a up-close tour of the aircraft and its mission systems were Senate and House staff and others, including Coast Guard Commandant Adm. Thad W. Allen. In an interview aboard the aircraft, the Commandant shared his impressions of what the MPA brings to the service.

“With the HC-144A, this is the first time we were able to plan from scratch the acquisition of an airframe and the system to be embedded in the airframe, within the larger context of Coast Guard surface, air and information technology mission interoperability,” Allen said. “This gives us tremendous functionality, with the most capable aircraft, sensors and other surveillance capabilities that we have in the Coast Guard.”

The visit was part of the Coast Guard’s strategy of transparency in its acquisition programs, and an opportunity for the Acquisition Directorate (CG-9) to showcase an important asset in the recapitalization of the service’s air fleet.

The Coast Guard owns three HC-144A aircraft, and plans to order up to 36. The platform is derivative of



An HC-144A with its Mission Systems Pallet visited Air Station Washington on Oct. 11, 2007. The plane is one of 36 Maritime Patrol Aircraft the Coast Guard will acquire as it recapitalizes its MPA fleet. (USCG photo, credit PAC Sarah Foster)

EADS/CASA’s \$21.5 million CN-235 medium range aircraft, powered by two General Electric CT7-9C3 turboprop engines (the CT7-9C3 is similar to the T700-GE-401C used by the Coast Guard’s HH-60 helicopters). The CN-235 is flown by the armed forces of more than 23 nations worldwide.

The Coast Guard’s version of the aircraft is equipped with a state of the market Rockwell-Collins Flight 2 glass cockpit instrument panel, autopilot & avionics suite for a two-person aircrew; Telephonics’ APS 143C(V) multi-mode radar, and FLIR Systems’ Star Safire III electro-optical/infrared (EO/IR) sensor.

The Mission Systems Pallet (MSP) is the core of the HC-144A’s Coast Guard mission capability. The removable command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) pallet, developed by Lockheed Martin, allows two operators to control

the aircraft’s radar and EO/IR sensors and communications equipment—collecting, managing and transmitting mission data.

According to program officials, the combination of the high-endurance HC-144A aircraft with a package of sophisticated surveillance data collection and management equipment will help save lives and improve law enforcement mission capabilities.

The HC-144A’s endurance (almost nine hours airborne, depending upon the aircraft configuration) will allow an aircrew to use their radar

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and EO/IR sensors to track contacts of interest until an intercept is made by surface vessels—either to rescue mariners in distress or to interdict suspected criminals.

The HC-144A's mission pallet also contributes information to build what the Coast Guard calls "Maritime Domain Awareness." Information collected by the aircraft is transmitted to the Coast Guard's shore-based Maritime Domain Awareness Center, which in turn posts relevant data to a common operational picture shared by command centers, cutters and aircraft in the area.

With all assets in a given area sharing this common operational picture on their display screens, it will be easier for commanders to more efficiently use their forces — that means cutters and aircraft can be directed to act more effectively and cooperatively on rescue, law enforcement and defense missions.

"Sharing up-to-date information will help cut out a lot of the 'search' out of search & rescue, and will narrow our efforts down to just those contacts of interest on law enforcement missions," said Capt. Matthew J. Sisson, aviation acquisition program manager with the Coast Guard's Acquisition Directorate (CG-931).

The fuel efficiency of the Ocean Sentry design offers more endurance than the aircraft it will replace, the HU-25 Guardian (which

is based on Dassault's Falcon 20G commercial jet). Greater endurance allows the aircrew to remain on station longer, collect more information and track targets for longer periods of time.

For Lt. Cmdr. Christopher A. Buckridge, aircraft commander of HC-144A No. 2303, greater endurance translates to operational effectiveness.

"We can stay airborne —taking into consideration variables like total weight—about seven to nine hours useful time, vs. four hours maximum in a Falcon," Buckridge said. "So we will see twice the operational flight time."

Mission endurance will allow the powerful surveillance capabilities of the HC-144A's MSP to support other assets—such as helicopters—cooperate more effectively with the maritime patrol crew. For example, in the past a maritime patrol aircraft crew provided limited information to a partner helicopter, which would then descend to perform visual reconnaissance of each contact.

"A helicopter crew would have to descend to 150', get the door open, look out for the birds flying behind the trawler, get close enough to read the vessel's name, and write down any relevant information on a knee board," Sisson said. "Then he would have to fly back to his ship, give his knee board to a guy and say, 'This is what I saw and this is where I saw it.' If it was a hot contact we'd have to make up for lost time pursuing it. So with better sensing and information processing and sharing technology working for us we don't have to do all those approaches. We can stay at altitude, collect and share information from over the horizon ... and get that information to the boarding teams."

While very capable in its own

right, the HU-25 Falcon has limited endurance; it is able to jet out at high speed to a contact but it must soon return, leaving no one to direct the crucial end-game of rescue or interdiction mission.

"The HC-144A can park up there and share imagery and other information with the helicopter crew, showing them what to expect when they get on scene ... lifesaving information," Sisson added.

Another benefit aircrews see in the Ocean Sentry design is that its mission package is one of several configurations of the aircraft. The modularity of the HC-144A allows it to be reconfigured for a variety of missions, while retaining at least minimum functionality with the aircraft's sensors.

The aircraft's cargo compartment can be changed from the MSP and crew rest area to three cargo pallets with as much as 9,985 lbs. of materiel; or 40 passengers in troop seats; or 20 passengers in airline seats; or 12 litter patients and three attendants for medical evacuation operations.

Aviators and maintainers who work the HC-144A also are impressed with its design efficiency, according to Buckridge.

"I am a former HU-25 pilot and one thing the HC-144A brings us is a simpler design," Buckridge said. "Systems and equipment are much easier to get to, so maintenance is quicker. For long term supportability and cost savings, simpler is better."

Another plus, from the maintainability standpoint, is the aircraft's power plant: the GE CT7/T700 engine family has been in use throughout the world for many years, allowing maintainers access to a great deal of data for trend analysis. ■

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## Mission Effectiveness Project, Multi-Crewing are Stepping Stones to New Cutter Culture

By Hunter C. Keeter

ABOARD USCGC DECISIVE—The Coast Guard has taken a fresh approach to crew assignments aboard cutters being refurbished under the Mission Effectiveness Project (MEP), paving the way for a significant cultural shift in the surface force.

"[Atlantic Area Command] (LANTAREA) has made the choice, organizationally, that will pave the way for the National Security Cutter (NSC)—toward this permanent multi-crew environment and culture that the Coast Guard will embrace," Cmdr. Samuel 'Duke' Walker, Decisive's captain, said during an interview. "Our MEP and multi-crew approach provides a good stepping stone to the NSC, so that we can draw some lessons learned along the way and won't have to wait until the Bertholf and the Waesche are out and operating with four crews to figure out our lessons learned. We are doing that now."

The NSC project produces eight, technologically advanced high-endurance cutters, the first of which (Bertholf) is slated for delivery in 2008. The Coast Guard also is developing a new generation of medium-endurance cutters under the Offshore Patrol Cutter (OPC) project; and a new generation of advanced patrol boats under the Fast Response Cutter (FRC) project.

The MEP is the Coast Guard's solution to maintaining and sustaining the fleet's 110', 210' and 270' cutters until they are recapitalized by new assets, such as the FRC and OPC. MEP refurbishment is accomplished at the Coast Guard Yard, Curtis Bay, Md., near Baltimore.

While Walker's ship is undergoing MEP at the Yard, in January he and his crew will deploy aboard the 210' cutter Vigilant, which has recently completed MEP availability. The Coast Guard believes that multi-crewing will help crews maintain operational skill set proficiencies and keep up with their training regimes.

The multi-crew approach presents some practical challenges, but the Coast Guard believes these will be overcome through advanced scheduling and planning. Walker's Pascagoula-based crew will travel to Cape Canaveral, Fla., where Vigilant is home-ported. Displacing the Decisive's crew for the duration of their patrol, and arranging turn-over with the Vigilant's regular crew are complex tasks.

"Nevertheless, because of the

over-the-horizon scheduling, all of the cutter crews and commanding officers are working up to a year ahead of time to slate their people for hard-to-get sea schools and other training, or leave," Walker said. "There is enough time to really use our planning period to good advantage ... and figure out where to best employ our people."

Another aspect of the multi-crewing approach is its potential benefit on the operational force's personnel tempo (PERSTEMPO). Typically, when a cutter crew would stay with their ship during maintenance availability, they would have six months of days away from home port that would count against their PERSTEMPO.

In the Coast Guard, crews have a PERSTEMPO limit of 185 days per



CGC Seneca (WMEC 906) of Boston is a 270' medium endurance cutter now undergoing MEP refurbishment at the Coast Guard Yard, Curtis Bay, Md. (USCG photo)



year. Six months spent in the Yard waiting for their ship may not be the best use of a crew's limited time. Multi-crewing allows personnel to return to their home port, and the Coast Guard to get more mission time out of their PERSTEMPO.

Perhaps the most significant challenge presented by multi-crewing is a cultural one, according to Cmdr. Neil E. Meister, project management chief at the Coast Guard Ship Yard.

"Multi-crewing is a huge cultural change for the Coast Guard," Meister said during an interview aboard *Decisive*. "Up until the MEP project started, every cutter that came in for maintenance and repair availability, the crew stayed with the ship, acting as inspectors and as the contracting officer's technical representative."

During a typical availability, a cutter's crew lives aboard their ship, or are assigned training or

other duties. One challenge is to keep the crews employed while waiting for their ship to come out of the Yard. Another challenge is that cutter availabilities must be scheduled so that operational commanders still meet their mission obligations. The old way of doing business also is costly, according to Meister.

"Normally when ships come in for major availabilities, we decommissioned the cutter, the flag came down off the mast, the crew dispersed to the four winds, we fixed the ship and then a new crew would come back and take the ship to sail it away," Meister said. "But now the Coast Guard has to do something with the crews, so the answer is to multi-crew other ships."

LANTAREA leadership proposed the multi-crewing initiative as a way to accelerate the maintenance processes under the MEP without sacrificing large percentages of

cutter hours or sustainment funds available to the operating force.

However, multi-crewing requires a new mind set on the part of cutter commanding officers. The Coast Guard has never before performed major overhaul where the captain walked away from his vessel. Under Coast Guard regulations, the captain is responsible for his ship, period, with the commanding officer of the Yard having some responsibilities for the care and feeding of cutters that are in for repair availability.

"So it is a huge cultural shift to get the cutter commanding officer to hand over responsibility for his ship while still signed for it, and go out and take over another crew's ship while they stay in port," Meister said. "This is paving the way for the Coast Guard to really start making some cultural changes and start doing things in a different way." ■

## Nationwide Automatic Identification System Stands Up Increment 1

*By NAIS Project Office*

Following a busy year of production, the Nationwide Automatic Identification System (NAIS) project office has completed installation of Increment 1 data reception capability at 55 crucial ports and nine coastal areas around the United States.

"The mission of NAIS Increment 1 is to establish a reliable network of Automatic Identification System (AIS) receivers in the vicinity of the nation's key ports and waterways as quickly and efficiently as possible," said Cmdr. James K. Ingalsbe, NAIS deputy project manager. "Having achieved initial operational capability in December 2006, we are nearly complete with

NAIS Increment 1. The team is busy completing steps to transition the equipment to operations and maintenance by the Coast Guard support community."

The NAIS project will improve maritime security, marine and navigational safety, search and rescue, and environmental protection services across the United States. NAIS complements other surveillance and intelligence systems and helps decision-makers respond to safety and security risks.

The system uses AIS –a maritime digital broadcast system that continually transmits and receives voiceless vessel data, including

vessel location, course and speed—to help form an overarching view of maritime traffic within or near U.S. and territorial waters.

After nearly four years of development, in January 2007 the Department of Homeland Security (DHS) granted NAIS approval to enter full rate production for Increment 1 and proceed with initial capability demonstration contracts for Increments 2 and 3.

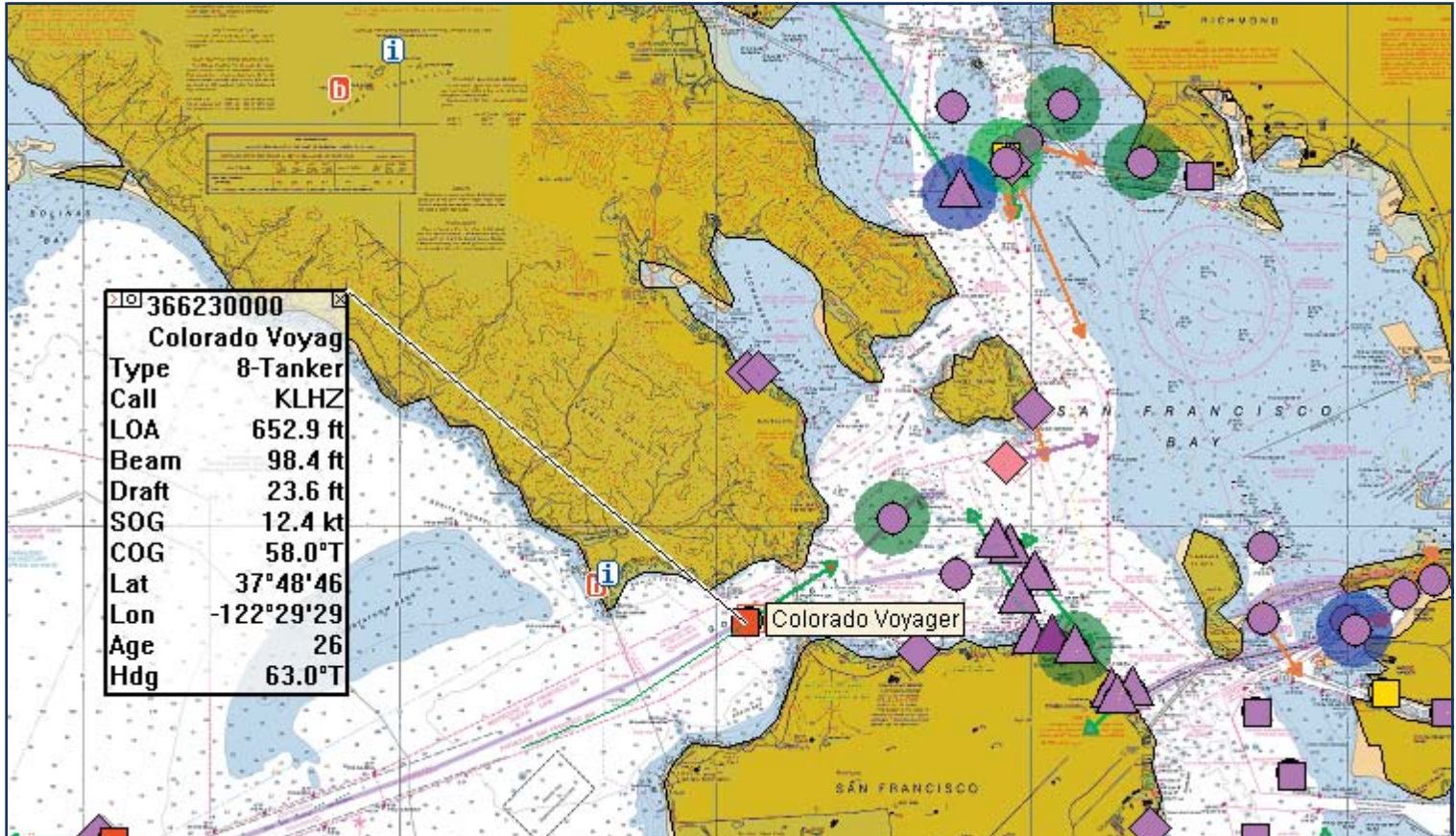
Initial Operational Capability (IOC) for the first Increment was achieved in 2006 at three sites in Sector Baltimore, covering the Chesapeake Bay. Since IOC, 76 other stations have been equipped

with Increment 1 capability and many other existing receivers, such as those at Vessel Traffic Centers, have been successfully connected to the NAIS. Operational test and evaluation of the system is complete and a declaration

of Full Operational Capability is imminent.

Increment 2 will provide AIS receive coverage out to 50 nautical miles and AIS transmit capability out to 24 nautical miles along the

entire U.S. and territorial coastline. The third increment will extend AIS receive coverage out to 2,000 nautical miles by using satellite communications and VHF services on offshore platforms and deep ocean buoys. ■



The Nationwide Automatic Identification System (NAIS) continually transmits and receives vessel data to provide an overarching view of maritime traffic. A snapshot of maritime traffic within San Francisco Bay is provided via the NAIS dashboard.

## HH-65C to Receive Airborne Use of Force Equipment, other Enhancements

By Hunter C. Keeter

The Multi-mission Cutter Helicopter (MCH) project will improve the U.S. Coast Guard's HH-65C aircraft fleet, including the addition of Airborne Use of Force (AUF) equipment.

The MCH project adds a variety of capabilities that provide aircraft and cutter crews with important tools to combat narcotics smugglers and

other law enforcement contacts of interest.

For the end-game, when helicopters overtake a go-fast boat or other potentially dangerous or evasive target, the MCHs will have weapons and self defense equipment, provided in AUF packages. Cmdr. Edward W. Sandlin, AUF platform

manager with the Office of Aviation Forces at Coast Guard headquarters, explained that the armed helicopter capability is provided in two kits.

"The A-kit includes all the wiring and basic accommodation for armed operations, night vision goggle/infrared-compatible formation



flying lights and cockpit displays, and an upgraded hailing system, mounts and internal stowage for ammunition and weapons," Sandlin said. "Some aircraft will receive the AUF B-kit, which protects the aircrew and provides firepower should the rules of engagement permit the use of force."

Included in the B-kit are ballistic armor for aircrew protection, one M240 7.62mm general purpose machine gun and one RC50 .50 cal. precision rifle.

The B-kit also provides a pilot's head-up display, night vision optics and a Forward Looking Infrared (FLIR) sensor to enhance the aircrew's ability to operate around the clock and interdict targets taking advantage of the cover of darkness. The FLIR provides aircrews with operational advantages, including the ability to clearly visualize targets at night, and from a distance.

While all MH-65Cs will have the ability to accommodate the full AUF suite, the B-kit equipment will be organic to some units and transferable to others on an as-needed basis, Sandlin noted.

"If unit x needs the B-kit, and unit y has it, the equipment and trained personnel could be transferred quickly to where they are required for a specific mission," Sandlin said.

Once AUF capability has been added, the HH-65Cs' mission designation is changed to MH-65C. The MH-65Cs will perform a variety of mission sets, including the replacement of eight Agusta MH-68 Stingray helicopters, whose lease expires in 2008.

The Coast Guard's Stingrays are based with the Helicopter Interdiction Tactical Squadron (HITRON) at Jacksonville, Fla. Following the end of the lease, 10

fully AUF equipped MH-65Cs will take over the HITRON's role, which is a specialized unit whose primary mission is counter narcotics/counter-terrorism. Six MH-65Cs will provide initial operational capability, with four others to be transitioned later.

Other than AUF equipment, the MCH project also adds new communications systems –such as the AN/ARC-210 military satellite communications radio, AN/ARC-220 high frequency Automatic Link Establishment (ALE) radio, and the RT5000 multi-band radio, which connects an aircrew with federal, state & local law enforcement agencies and emergency services.

Improving the helicopters' over-the-horizon communications capabilities enables aircrews to take full advantage of their aircraft's

ability to operate 150 nautical miles from an air station or a host cutter. Extended communications range provides great tactical advantage interdicting go-fast targets, such as narcotics smugglers, as well as improving aircrew safety in case of mishap.

The MCHs also will have a variety of navigation and mission enhancements, such as a ring laser gyroscope with integrated Global Positioning System, an inertial navigation system and a DF-430 direction finding system.

Coast Guard HH-65Cs operate from air stations across the United States and its territories. The helicopters have been equipped with new Turbomeca Arriel 2C2-CG turboshaft engines during phase one of the MCH project. ■



The Multi-mission Cutter Helicopter project will provide Coast Guard HH-65C Dolphins with weapons and other equipment for missions that require Airborne Use of Force (AUF) capability. AUF ready MH-65Cs will replace the MH-68 Stingray in the Coast Guard's Helicopter Interdiction Tactical Squadron. (USCG photo by PA1 Donnie Brzuska)