



▲ Rear Admiral Patrick M Stillman, USCG programme executive officer of the Integrated Deepwater System.

# A deeper meaning

Rear Admiral Patrick M Stillman, USCG programme executive officer of the Integrated Deepwater System, talks to Gordon I Peterson.

**UV** Would you please describe the Deepwater Program's plan to acquire unmanned aerial vehicles as part of the recapitalisation of the US Coast Guard's inventory of ships, aircraft and supporting systems?

**PS** UAVs figure significantly in the Deepwater Program's goals of maximising the Coast Guard's operational effectiveness at the lowest total ownership cost. In the near term, the HV-911 Eagle Eye tiltrotor vertical take-off and landing UAV will satisfy our requirement for a cutter-based platform able to provide surveillance and tactical information for targets at ranges out to 100 nm. Our programme of record currently calls for the procurement of 69 Eagle Eyes over the course of the 20-plus-year Deepwater Program. The first is projected to complete its operational test and evaluation and be operationally ready following the delivery of Deepwater's large Maritime Security Cutter [formerly the National Security Cutter] in 2007.

Our long-range plans call for the acquisition of a high altitude endurance UAV [HAE-UAV] in approximately 12 years, although that projection could change depending upon evolving operational requirements and priorities associated with improving the Coast Guard's ability to acquire maritime domain awareness.

**UV** How is the Eagle Eye programme progressing?

**PS** Very well. It passed a critical acquisition milestone early this year with the highly successful completion of its preliminary design review. Independently, Bell Helicopter plans to

fly a full-scale prototype by the end of this year. The company had great success flying a 7/8th-scale demonstrator of this remarkable craft during the 1990s under a Navy contract.

**UV** Why did the Coast Guard opt for this vertical take-off and landing design for its cutter-based UAV requirements?

**PS** Eagle Eye was determined to be the best UAV platform to satisfy our Coast Guard's multi-mission requirements in the areas of surveillance, search, and law enforcement. Its tiltrotor technology combines the benefits of traditional UAVs – range, endurance, higher airspeeds and sensor payloads – with the landing versatility of a rotary-wing UAV.

These platform characteristics are important for shipboard operations. It will be able to launch, transition quickly to fixed-wing mode, and proceed at a dash speed of 210 knots to intercept and survey high-value targets. It then can loiter overhead for several hours if necessary before being directed to other search areas or returning for recovery. The VTOL UAVs design characteristics also are appealing for shipboard operations. With its

low centre of gravity, it will be very stable on the flight deck.

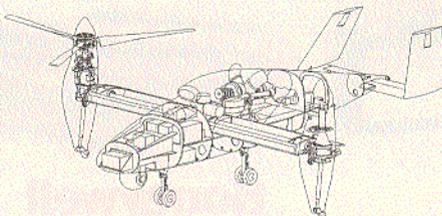
**UV** What type of sensor package will Eagle Eye carry and how will it improve the Coast Guard's surveillance capabilities today?

**PS** The craft's 200 lb sensor package will be of great help in allowing the Coast Guard to implement its layered, defense-in-depth strategy for maritime homeland security extending from ports and coastal areas hundreds of miles to sea. It also will be of immense importance in the performance of most of the Coast Guard's other missions, including our responsibilities to support US combatant commanders overseas in our expeditionary role as a branch of the US armed forces.

Eagle Eye's sensors will include an EO/FLIR [electro-optical/forward-looking infrared] system, an air-to-air/air-to-sea/weather multimode radar, integrated GPS [global positioning system], encryptable digital data links and radio-relay capabilities. Its capabilities will help to close some of the performance gaps that now exist in detecting, identifying, and classifying targets in the maritime domain – night or day.

**UV** How do you envision Eagle Eye will be employed operationally?

**PS** The Coast Guard will develop a concept of operations and supporting tactical doctrine to guide Eagle Eye's introduction to the fleet for what promises to be an exciting opportunity to achieve an estimated two- to three-fold improvement in our open-water



▲ Cut-away schematic of the Eagle Eye. (Image: Bell Helicopter)

surveillance capabilities. Cutter commanding officers could use Eagle Eye to provide 'eyes overhead' for small boat crews conducting boarding-and-search operations or other potentially hazardous missions. Platforms could be assigned to Coast Guard stations ashore to provide added capacity for port and coastal security missions and search-and-rescue operations.

Control stations on our cutters will be able to download data and real-time video and still imagery from this aerial platform and relay it to other platforms or joint agencies. This will significantly improve situational awareness and our ability to make more informed operational decisions – leading to higher levels of maritime domain awareness.

for peacetime missions, homeland security, crisis response or wartime tasks.

DoD stipulates the requirement to develop such standards in its *2002 UAV Roadmap* so that interoperability is maximised within each class of UAV. There also is a need for some appropriate degree of interoperability between classes of UAVs. DoD is revising its *UAV Roadmap* and a joint working group is addressing this important issue. I hope that the necessary steps will be taken to move forward in this area with an appropriate sense of urgency.

The other key issue facing the United States military – and civil aviation, for that matter – relates to the use of UAVs in controlled US airspace. A regional office of



▶ A 7/8 scale model of the Eagle Eye HV-911 VTOL UAV. (Photo: Bell Helicopter)

**UV** Are there any major policy or programmatic hurdles for Eagle Eye to clear?

**PS** There are two key requirements that must be resolved satisfactorily and each is playing out in our interagency process here in the United States. The Department of Defense (DoD) needs to establish and ensure adherence to joint interoperability standards for the armed forces' UAV programmes. The Coast Guard and the US Navy, for example, are mandated by the National Fleet policy agreement to develop compatible, interoperable ships, boats and aircraft. Our UAVs must be interoperable if our two sea services are to provide necessary force depth

the Federal Aviation Administration (FAA) now must grant a 'certificate of authorisation' (COA) for UAV operations in non-special-use airspace on a case-by-case basis. This process will be unwieldy and unsuitable for the regular employment of UAVs in US airspace when Eagle Eye reaches the fleet in just a few years.

The key issue, of course, is how best to satisfy the FAA's 'see-and-avoid' requirements for mid-air collision avoidance through the use of on-board systems – air-search radar, for example – operator training and certification, and operating procedures. Again, the DOD *2002 UAV Roadmap* addresses the goal of ▶

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▲ *Deepwater assets*  
– *the look of things to come.*

working with the FAA to replace the requirement for using the COA process for all UAVs with one using a standard DOD military flight plan for qualifying UAVs. The co-ordination to revise FAA policy in this area was to have been completed in fiscal year 2003. It is behind schedule.

A joint, inter-agency working group also is addressing this matter. Its work needs to assume increased visibility and a higher priority in DoD and the FAA in my judgment.

**Admiral Stillman, thank you very much.**