

# HELIOS Laser Weapon System Delivered for Installation on USS Preble



An artist's rendering of Lockheed Martin's HeliOS system. *LOCKHEED MARTIN*

ARLINGTON, Va. – The Navy's newest laser weapon system has completed range testing at Wallops Island, Virginia, and is being installed on the U.S. Navy's Flight IIA Arleigh Burke-class guided-missile destroyer USS Preble in San Diego.

The first High-Energy Laser with Integrated Optical Dazzler and Surveillance, or HeliOS, built by Lockheed Mission Systems and Sensors, has started phased delivery to the Preble at the BAE Systems yard in San Diego. It will be the first laser weapon system to be integrated with a ship's Aegis Combat System and power and cooling systems, said Jon Rambeau, Lockheed Martin's vice president and general manager for Integration for Systems and Sensors, during a March 30

interview with *Seapower*.

The 60-kilowatt HELIOS is scalable, Rambeau said, up to 120 kilowatts with minor modifications such as the addition of more fiber-optic laser modules. It has replaced the Preble's forward Mk15 Close-In Weapon System.

"We believe the 60- to 120-kilowatt-range systems can be effective against an ASCM [anti-ship cruise missile]," Rambeau said. "We've done some modeling that demonstrates that, we believe, and also looking soon to be able to back that up with some real-world test data. Watch for some news that should be coming soon as we continue the test program."

The 60-kilowatt HELIOS also can be used for surveillance and as a counter-unmanned aerial system dazzler. The HELIOS also is adaptable to the Ship Self-Defense System on aircraft carriers and newer amphibious warships.

"After better than a decade of that question being out there, 'When are these systems going to demonstrate that they're tactically relevant,' we're really right at the threshold of that to the point where the conversation is not going to be anymore, 'Are those going to work?' and 'Are they going to be useful on the battlefield?'" Rambeau said. "Rather, the question is going to turn more to funding priorities, price points, the capacity of our industry primes, and the supply chain that could build these things in full quantities and at scale and then, ultimately, conversations around doctrine and how they would actually be employed in combat.

"It's really exciting time in lasers and it has been a long time in coming," he said.

The HELIOS contract was awarded to Lockheed Martin in January 2018. The company is also developing a layered laser weapon system for the U.S. Army.

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# Coast Guard Crew Offloads \$223 Million Worth of Drugs in San Diego



The Coast Guard Cutter Kimball (WMSL-756) crew offloads about 11,300 pounds of cocaine and roughly 4,000 pounds of marijuana worth more than \$223 million on March 31 in San Diego. *U.S. COAST GUARD / Petty Officer 3rd Class Alex Gray*

SAN DIEGO – The Coast Guard Cutter Kimball (WMSL 756) crew offloaded more than 11,300 pounds of cocaine and more than 4,000 pounds of marijuana worth more than \$223 million March 31 in San Diego, the Coast Guard 11th District said in a release.

The drugs were interdicted in international waters of the Eastern Pacific Ocean off the coasts of Central and South

America, including contraband seized and recovered during eight interdictions of suspected drug smuggling vessels between late February and early March.

“At-sea interdictions of pure cocaine are the most effective way to limit cartel’s destabilizing effects throughout the Western Hemisphere,” said Vice Adm. Michael McAllister, Coast Guard Pacific Area commander. “Coast Guard national security cutters like Kimball are the service’s most capable asset to strengthen maritime governance, but when team partners from the Royal Canadian Navy and U.S. Navy Littoral combat ships they leverage our network of international and interagency partners to reduce the availability of illicit drugs in the Western Hemisphere and facilitate U.S. Attorney’s efforts to close the cycle of justice.”

The drugs were interdicted by the following ships (the total amount listed below is 11,301 pounds of cocaine and 4,076 pounds of marijuana):

- Kimball’s crew was responsible for one interdiction seizing approximately 2,295 pounds of cocaine.
- Coast Guard Cutter Legare’s (WMEC 912) crew was responsible for four interdictions, seizing approximately 4,714 pounds of cocaine and 1,826 pounds of marijuana.
- Coast Guard Cutter Spencer’s (WMEC 905) crew was responsible for one interdiction seizing approximately 635 pounds of cocaine and 2,250 pounds of marijuana.
- Jointly, Her Majesty’s Canadian Ship Yellowknife (MM 706) and Kimball’s crews were responsible for one interdiction, seizing approximately 331 pounds of cocaine.
- Jointly, the crews of the Kimball and Legare were responsible for one interdiction, seizing approximately 3,326 pounds of cocaine.

“This marks the first of likely many counter-drug patrols for

Kimball and I am extremely proud of our crew's preparation and hard work to make this an extremely successful deployment. Kimball's crew demonstrated that through teamwork we were able to remove over \$100 million dollars of cocaine, preventing it from ever crossing our borders or entering our neighborhoods, and further removing a source of illicit revenue from transnational criminal networks," said Capt. Thomas D'Arcy, commanding officer of the Kimball.

The Kimball is a 420-foot Legend-Class national security cutter and is homeported in Honolulu, Hawaii.

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## Students Help Coast Guard to Find Unmanned Smuggling Boats



A student-built unmanned autonomous surface vessel is brought

aboard a Coast Guard patrol craft to conduct detectability testing near Galveston, Texas. *U.S. COAST GUARD / Petty Officer 3<sup>rd</sup> Class Alejandro Rivera*

GALVESTON, Texas – A unique student project is helping the Coast Guard find small and hard to detect unmanned autonomous surface vessels that might be used to transport drugs into the U.S.

Several USVs have been recovered attempting to transit drugs across the maritime border with Mexico and into California. The boats can carry about 90 pounds of cargo, which could be illegal narcotics or other hazardous cargo.

To learn how these boats might be detected by sensors, the Coast Guard engaged the National Security Innovation Network, a Department of Defense office which collaborates with major universities and the venture community to develop solutions that drive national security innovation. With Coast Guard Sector San Diego as the project sponsor, NSIN capstone students at San Diego State University and Rice University in Houston, Texas, have been prototyping boats this semester.

Four USVs have been seized by federal law enforcement authorities in Southern California. The first was found in March 2018, another in December 2020, and two more in February and March of 2021, suggesting a high likelihood there are many more that have gone undetected.

The vessels are three to four feet long and have a freeboard of just seven inches. They navigate autonomously and can travel for about 66 nautical miles at a speed of about 2.5 knots.

According to information provided by the U.S. Coast Guard, their above-water profile is minimal, which makes it hard for existing maritime domain awareness tools and detection capabilities to see them. Not only are they capable of reaching uninhabited shores with illegal narcotics, they could also penetrate defense layers surrounding coastal and harbor-

based high value targets – military bases, power plants, or critical infrastructure – with explosives.

The purpose of the NSIN project is to improve coastal surveillance, detection and interdiction capabilities to threats posed by this evolving threat. The students were tasked with designing and testing a USV with similar characteristics to ones previously detected, and to test and demonstrate detection using an existing surveillance tool.

Students from Rice University built a replica boat that was “reverse engineered” and demonstrated in Galveston, Texas, March 29-30 to see how a special high-resolution and wide-angle camera called the WAV Surveillance System could be used to detect the boat in realistic conditions.

“The Rice student team designed and constructed a model that can be used to test existing systems leading to enhanced capabilities and also providing a roadmap for others to replicate similar platforms to routinely test their own system,” said Fritz Kuebler, Rice University’s Office of Research NSIN program director.

“This project has been underway for about two months and has involved extensive research, design and testing by the student team with regular interaction from the project sponsor,” Kuebler said.

“Coast Guard Sector Houston-Galveston has been an ardent supporter of this project and provided assets to assist with the testing including deploying and recovering the [unmanned vessel] on the testing days, and coordinated participation with local maritime security stakeholders,” said Kuebler.

WAV is a long-range video surveillance solution for homeland security applications and other situations that require persistent visual-domain awareness of very wide areas. It was designed by and developed by Innovative Signal Analysis Inc., of Richardson, Texas, and has both commercial and military

applications. WAV is uniquely able to function as both a wide-angle and zoom camera at the same time, and is currently deployed in San Diego Harbor.

“The WAV surveillance system is capable of finding these low probability of intercept targets, because it can survey a wide area, 90-degrees, at a high resolution at a higher refresh rate than a standard point-to-zoom camera,” said Jonathan Ray of Innovative Signal Analysis of Richardson, Texas, the company that makes WAV. “We take advantage of these components in our algorithms to build a history of detects of the object to improve location accuracy and object detection confidence.”

WAV’s imagery led to the eventual discovery of the autonomous USVs.

“This project highlights the value of bright, dedicated STEM students working with national security experts to make a real difference,” Kuebler. “It also serves as a proof of concept and example for how creative thinking and new methodologies advances broader U.S. strategic objectives regarding maritime security and the value of this critical infrastructure.”

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## **Keel Authenticated for Future USS Patrick Gallagher**



The keel for the future USS Patrick Gallagher (DDG 127) was ceremonially laid at General Dynamics Bath Iron Works on March 30. *GENERAL DYNAMICS BATH IRON WORKS*

WASHINGTON – The keel for the future USS Patrick Gallagher (DDG 127) was ceremonially laid at General Dynamics Bath Iron Works on March 30, Team Ships Public Affairs said March 31.

The ship is named for Marine Corps Cpl. Patrick Gallagher, who received the Navy Cross for heroism during the Vietnam War when he managed to jump on and throw an enemy grenade into a river. He was killed in action just one year later. The keel laying marks the 55th anniversary of his death.

A contemporary keel laying ceremony recognizes the moment of a ship's construction when two significant pieces of the hull structure are welded together and joined, constituting a major portion of the ship's shape. The authentication or etching of the ship sponsors' initials into a ceremonial keel plate will take place during the ceremony. The sponsors of DDG 127 are Gallagher's three sisters: Teresa Keegan, Rosemarie Gallagher and Pauline Gallagher.

“The future USS Patrick Gallagher will strengthen our maritime dominance and bring proven capability to the fleet,” said Capt. Seth Miller, DDG 51 class program manager, Program Executive Office – Ships. “This ship and all who serve aboard it will be a reminder of the steadfast commitment to our country that Cpl. Gallagher exhibited.”

The final Arleigh Burke-class destroyer built in the Flight IIA configuration, DDG 127 is equipped with the Aegis Baseline 9C2 Combat System, which brings crucial Ballistic Missile Defense capabilities to the Fleet in addition to the ship’s primary missions of anti-air, anti-surface, anti-submarine, and strike warfare.

BIW is also currently in production on the future USS Carl M. Levin (DDG 120), USS John Basilone (DDG 122), USS Harvey C. Barnum Jr. (DDG 124), USS Louis H. Wilson Jr. (DDG 126), USS William Charette (DDG 130), and USS Quentin Walsh (DDG 132).

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## **Norfolk-based E-2D Advanced Hawkeye Crashes, Two Injured, One Fatality**



E-2D Advanced Hawkeye aircraft conduct a test flight near St. Augustine, Florida. U.S. NAVY

NORFOLK, Va. – A Navy E-2D Advanced Hawkeye assigned to an East Coast Airborne Command and Control Squadron (VAW) crashed in the vicinity of Wallops Island and Chincoteague, Virginia, March 30, the commander of Naval Air Force Atlantic public affairs said in a release. One crew member has died and two have been injured.

The E-2D crashed at approximately 7:30 p.m. Two crew members were rescued by Maryland State Police and transported to Wallops Island for follow-on medical treatment for non-life-threatening injuries. The names of injured crewmembers will not be released due to privacy concerns.

Unfortunately, the third crew member was found deceased in the aircraft. The Worcester County Fire Department Dive Team supported the search and recovery of the deceased. The name of the crew member killed will not be released at this time, pending primary next of kin notification.

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# NAVCENT Commander: Goal of 100 USVs in Area by Summer of 2023



A Saildrone Explorer unmanned surface vessel is being towed out to sea in the Arabian Gulf off Bahrain's coast, Jan. 27. U.S. Naval Forces Central Command began operationally testing the USV as part of an initiative to integrate new unmanned systems and artificial intelligence into U.S. 5th Fleet operations. *U.S. ARMY / Specialist Natianna Strachen*

ARLINGTON, Va. – The commander of the U.S. 5th Fleet/Naval Forces Central Command said he is pleased with the results of the experimentation with unmanned vessels and artificial intelligence in his area of operations and predicts a significant expansion of their use in his area of

responsibility in the near future.

Vice Adm. Brad Cooper, speaking March 28 in an online discussion sponsored by the Washington think tank the Middle East Institute, said his task force for unmanned vehicle experimentation, Task Force 59, "has exceeded our every expectation."

Unmanned systems are not new to the 5th Fleet; it has operated RQ-4A Global Hawk surveillance unmanned aerial vehicles and Mk18 mine countermeasures unmanned underwater vehicles for years. But Cooper said the maturation of unmanned surface vessels is relatively new and has enabled a great expansion in their use in the role of maritime domain awareness, allowing his command to "put more eyes out on the water."

The admiral said by linking two USVs together, they could use "artificial intelligence to map the waters around them ... detecting when something is unusual – smuggling, illegal fishing, you name it, and then sending the information back to the command center.

"That process has allowed us to expand our maritime domain awareness two or three times," he said, noting that with more nations using USVs, the maritime domain awareness in the region could expand to 30 times the coverage.

"Our goal is to have 100 of these USVs patrolling around the waters of the Middle East by the summer of 2023," Cooper said. "It a heavily partnered effort; it would mostly be an investment by partners. ... We're going to find ourselves in a pretty good spot because the capabilities speak for themselves."

In January and February, about 80 unmanned systems were deployed in International Maritime Exercise 2022 in scenarios ranging over the Persian Gulf, North Arabian Sea, Gulf of Oman and the Red Sea.

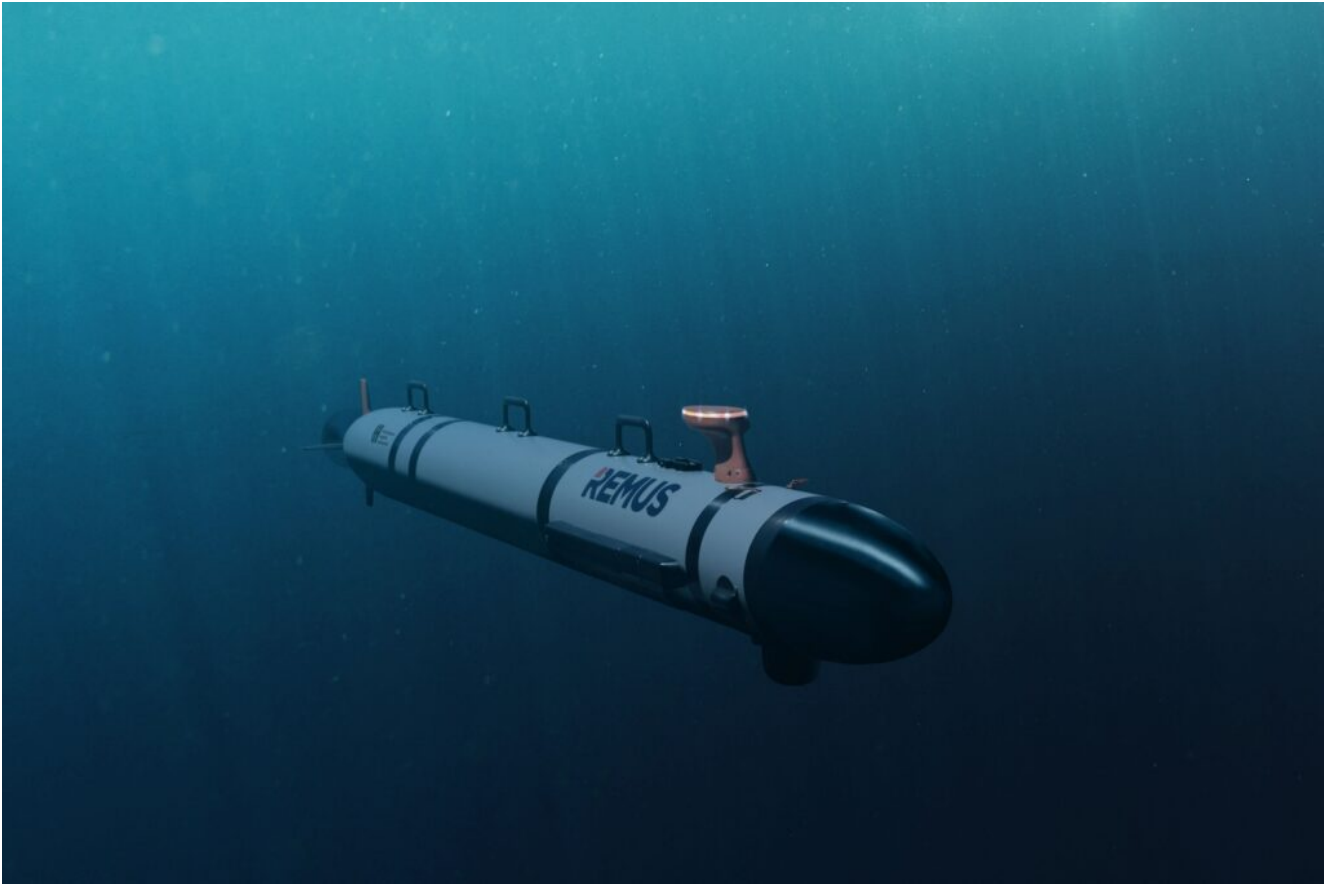
Task Force 59 has accrued more than 7,000 hours of operating USVs. One type of USV stayed at sea for 45 days without need of additional fuel or maintenance.

For example, TF-59 has deployed high-endurance Saildrone USVs, which were controlled from Alameda, California, to patrol the Gulf of Aqaba. In another example, MARTAC provided five of its high-speed USVs for the experiments.

Cooper said for the price of one Arleigh Burke-class guided-missile destroyer, he could buy or lease around 2,000 Saildrone USVs.

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## **HII's REMUS 300 Selected as Navy's Next-Generation Small UUV**



HII's REMUS 300 unmanned underwater vehicle, selected as the U.S. Navy's next-generation small UUV program of record. *HII* MCLEAN, Va. – HII announced March 30 its advanced unmanned underwater vehicle, REMUS 300, was selected as U.S. Navy's next generation small UUV program of record. REMUS 300 technology was designed to advance distributed maritime operations by conducting critical underwater missions.

The initial phase of the program includes the production and testing of REMUS 300 UUVs over the next year.

"HII is proud of our longstanding partnership with the U.S. Navy and now, to lead in this important direction on behalf of our customer," said Chris Kastner, president and CEO of HII. "This program demonstrates the value of our investment in autonomous and unmanned systems, and our customer familiarity. We are confident that these technologies will both support the Navy mission and enhance effectiveness for the all-domain force."

The vehicle incorporates advanced modularity and open

architecture into a compact, man-portable design.

“REMUS UUVs have been extending the capabilities of the warfighter since they were first used in combat during Operation Iraqi Freedom in 2003,” said Duane Fotheringham, president of the unmanned systems business group in HII’s Mission Technologies division. “We’ve been enhancing, maturing and refining this technology since then, and are pleased the REMUS 300 meets needs for the Navy’s next generation UUV program.”

The SUUV program, also called Lionfish, is the next-generation Mk18 Mod 1 Swordfish program, which also utilizes HII’s REMUS technology. The selection follows a two-year rapid prototyping effort involving multiple user evaluations and spiral developments to refine the REMUS 300 design. The acquisition was facilitated by the Department of Defense’s Defense Innovation Unit and their commercial solutions opening process via the other transaction authority.

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## **Marine Corps Hornet Squadron Repositioned to Eastern Europe**



U.S. Marines with Marine Fighter Attack Squadron (VMFA) 312 assigned to 2nd Marine Aircraft Wing, II Marine Expeditionary Force, depart in F/A-18C Hornets from Marine Corps Air Station Beaufort, South Carolina, Feb. 26, to participate in Exercise Cold Response (Ex CR22) in Norway. *U.S. MARINE CORPS / Cpl. Aidan Parker*

ARLINGTON, Va. – The Defense Department has added another tactical jet squadron to eastern Europe to shore up U.S. European Command and possible NATO forces in the region, the Defense Department said.

Defense Department spokesman John F. Kirby told reporters March 29 that a 10-plane Marine Corps F/A-18 squadron based at Marine Corps Air Station Beaufort, South Carolina, would be dispatched to an airfield – which he did not name – in eastern Europe.

Kirby did not name the squadron but referred to the recent Exercise Cold Response in Norway, where Marine Fighter Attack Squadron 312 (VMFA-312) was deployed. It is likely that VMFA-312 was the squadron chosen. VMFA-312 operates F/A-18C/D

Hornets. Other Hornet squadrons based at Beaufort include VMFA-115, VMFA(AW)-224 and VMFA(AW)-533.

Kirby also announced that “a couple of Marine C-130s” were also going to be repositioned to eastern Europe. These likely are KC-130J Super Hercules tanker/transporters from Marine Aerial Refueler/Transport Squadron 252, base at MCAS Cherry Point, North Carolina.

Also deploying from Exercise Cold Response to Lithuania are Marines assigned to Marine Air Control Group 28, Kirby said.

On March 29, Kirby announced that a Navy EA-18G Growler electronic attack squadron, VAQ-134, arrived at Spangdahlem Air Base, Germany, to strengthen U.S. forces on NATO’s Eastern Flank.

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## **Marine Corps’ Black Sheep to Ride the Lightning**



An AV-8B Harrier and an F-35B Lightning II are staged during the change of command and re-designation ceremony for Marine Fighter Attack Squadron 214 aboard Marine Corps Air Station Yuma, Arizona, March, 25. *U.S. MARINE CORPS / Sgt. Samuel Ruiz* ARLINGTON, Va. – The Marine Corps’ famous Black Sheep squadron has a new designation as it upgrades to from its AV-8B Harrier II attack jet to its new aircraft, the Lockheed Martin F-35B Lightning II strike fighter.

Marine Attack Squadron 214 (VMA-214) – the Black Sheep – was re-designated Marine Fighter Attack Squadron 214 (VMFA-214) at Marine Corps Air Station (MCAS) Yuma, Arizona, on March 25, marking the beginning of its transition from the AV-8B to the F-35B.

VMA-214 was the last AV-8B squadron based at Yuma and based near the West Coast. Three other AV-8B squadrons – VMAs 223, 231, and 542 – remain in service at MCAS Cherry Point, North Carolina. The Harrier is scheduled to serve with the Marine Corps until fiscal 2028.

Having flown the Harrier since 1989, the Black Sheep routinely deployed six-plane detachments on board amphibious assault ships as part of the Air Combat element of a Marine Expeditionary Unit and flew combat missions in numerous operations.

The Black Sheep began as Marine Fighter Squadron 214, activated with F4F Wildcat fighters on July 1, 1942, in Hawaii. In August 1943, Maj. Gregory "Pappy" Boyington and Maj. Stan Bailey formed a group of unassigned pilots into a combat squadron with the callsign "Black Sheep" and flew their F4U-1 Corsair fighters to an outstanding record in the Solomon Islands.

The squadron has built a solid legacy with numerous aircraft types in combat in World War II, the Korean War, the Vietnam War, Somalia, Iraq and Afghanistan and many other crises. For the official history of the Black Sheep, see this link: <https://www.3rdmaw.marines.mil/Units/MAG-13/VMA-214/History/>

"Having previously served in VMA-214 and flown the AV-8B for many years, the Black Sheep and the Harrier hold a special place in my heart," said Maj. Gen. Bradford J. Gering, the commanding general of 3rd Marine Aircraft Wing, in a Marine Corps release. "As 3rd MAW says a bittersweet farewell to the Harrier, we are excited to increase our number of F-35B squadrons with the re-designation of VMFA-214."

"The re-designation of VMA-214 to VMFA-214 is the end of a legacy for the Black Sheep and Marine Aircraft Group-13," said Lt. Col. Keith Bucklew, the outgoing commander of VMA-214. "This symbolic event finalizes the sundown for Harriers on the West Coast and closes the chapter on 58 years of attack aircraft operations for the Black Sheep.

"Finishing this mission with a successful 11th Marine Expeditionary Unit deployment is a testament to the viability and performance of the Harrier over the last 33 years and,

more importantly, the talent of the Marines who managed them,” Bucklew said. “The AV-8B will be missed in the skies of Yuma, but it is time to transition to the next generation of fighter attack aircraft.”

“The F-35’s fifth-generation strike fighter capability brings more lethality and flexibility to combatant commanders than any other fighter platform,” said Lt. Col. Christopher Kelly, the commanding officer of VMFA- 214. “The STO/VL capability inherent in the F-35 B variant allows the Marine Corps to operate expeditiously and from remote locations, making the model uniquely qualified at supporting expeditionary advanced base operations.”

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## **Coast Guard Cutter Tampa Returns to Homeport following 70-day Patrol**



The USCGC Tampa tows the fishing vessel Jenna Lee, being towed east of Cape Cod, Feb. 6. *U.S. COAST GUARD / Seaman Ryan Lloyd* PORTSMOUTH, Va. – The crew of the U.S. Coast Guard Cutter Tampa returned to their homeport in Portsmouth, Virginia, March 26, after a 70-day patrol in the North Atlantic Ocean, the Coast Guard Atlantic Area said March 29.

Throughout the patrol, Tampa's crew conducted search and rescue, law enforcement and living marine resources missions. The Tampa boarded 26 vessels to ensure that commercial vessels were adhering to mandates regarding catch size, catch amount, gear type and catch area. In addition, boarding teams found eight violations while inspecting the vessel's safety equipment for compliance and recommended one vessel to return to port to correct safety of life at sea regulation compliance violations.

Tampa's crew focused on mainly on scallop, sole, cod, haddock, redfish, pollock and lobster populations off of the New England coast. The mission includes ensuring the country's protected marine species are provided the protection necessary

to help their populations recover to healthy and sustainable levels.

“Our crew performed admirably in trying sea-going conditions, often facing extreme weather and frigid temperatures. Their perseverance to effect mission execution was truly inspiring. We cherished the opportunity to operate in New England, working with our partners to enforce regulations that sustain fish and shellfish stocks for future generations, while keeping fishing vessel crews safe,” said Cmdr. Sky Holm, commanding officer of Tampa.

Coast Guard Cutter Tampa is a 270-foot Famous-class medium-endurance cutter homeported in Portsmouth, Virginia. The crew routinely deploys in support of counter-drug, migrant interdiction, fisheries enforcement, search and rescue and homeland security missions in support of U.S. Coast Guard operations throughout the Western Hemisphere.