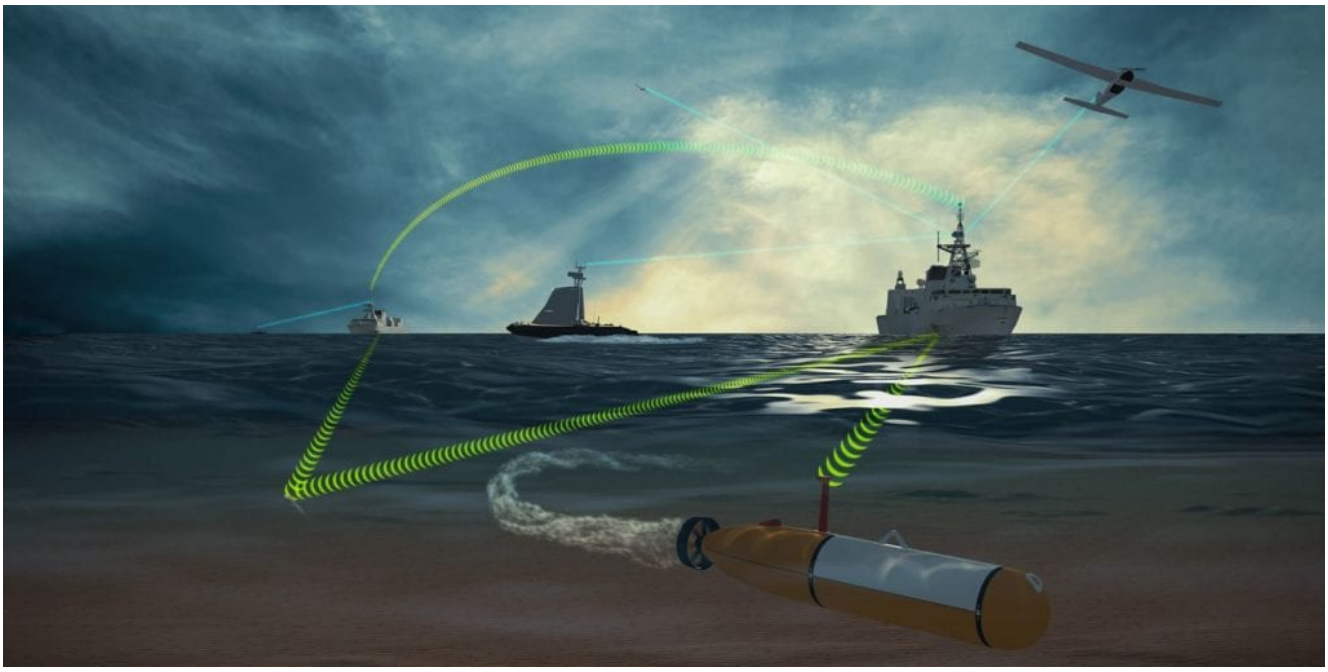
Team Cohort to Develop Multi-Domain, Multi-Autonomous Vehicle Control System for Canadian Warships



Team Cohort has been awarded a contract to develop a Multi-Domain, Multi-Autonomous Vehicle Control System for Canadian warships, as illustrated here. *Kongsberg Geospatial*

OTTAWA, Ontario – Team Cohort, a team of autonomous industry experts comprising Kongsberg Geospatial, Four DRobotics Corp and SeeByte, has been awarded a contract from Weir Marine Engineering to develop and test a Maritime Multi-Domain Control System (MMDCS), Kongsberg Geospatial said in a March 18 release. The system will allow operators to simultaneously operate multiple autonomous vehicles in the air, on the water, and underwater – all from a single shipboard control station.

The system could allow Royal Canadian Navy (RCN) warships to effectively extend their sensor range using autonomous vehicles, while providing protection from seaborne threats such as mines or hostile unmanned craft.

The MMDCS is a challenging project that requires experience with the deployment of autonomous unmanned vehicles, and operations of maritime control stations, as well as existing and emerging NATO standards including Stanag 4586 and 4817. This specialized knowledge and expertise is provided by the team of Kongsberg Geospatial and Four DRobotics Corp of Ottawa, Canada, and SeeByte of Edinburgh, Scotland.

For this project, Kongsberg Geospatial will provide operator control stations based on its IRIS UxS vehicle command and control software product, which provides an overall real-time picture of the terrain, airspace, and underwater environment where the ships and their supporting UxV (Unmanned [X] Vehicle) teams are operating.

Four DRobotics Corp and SeeByte will provide goal-based mission planning and reasoning (AI-supported) software systems to support autonomous mission development and execution for a UxV team consisting of an unmanned aerial vehicle, an unmanned surface vehicle, and an unmanned underwater vehicle.

The MMDCS will provide a tactical capability for the command and control and information management required to simultaneously support unmanned vehicles in all three naval operations domains, including air, surface, and subsurface.

The final objective of the project is to provide real-time or near-real-time situational awareness for warships in all three domains: underwater, on the water, and in the air, allowing improved threat assessment and target engagement.

The development and testing of the prototype MMDCS is expected to be completed by mid-2021.

Marine Corps to Procure 18 MQ-9 Reapers to 'Close Kill Chain,' General Says

An MQ-9A Reaper assigned to the 556th Test and Evaluation Squadron sits on the ramp at Creech Air Force Base carrying eight Hellfire missiles. *U.S. Air Force / SrA Haley Stevens*

ARLINGTON, Va.—The Marine Corps plans to procure a total of 18 MQ-9A extended range Reaper unmanned aerial vehicles to operate in support of distributed maritime operations and expeditionary base operations, particularly in the Indo-Pacific region.

The Corps currently operates two MQ-9As in the U.S. Central Command area of responsibility. The two are operated by a Marine UAV squadron (VMU).

"We will procure 16 more for a total of 18," said Lt. Gen. Eric M. Smith, commanding general, Marine Corps Combat

Development Command, testifying March 18 before the Seapower and Projection Forces Subcommittee of the House Armed Services Committee. “That’s three [VMU] squadrons of six [each].”

The Reapers – built by General Atomics Aeronautical Systems – being procured have the Block 5-20 upgrades, which will be updated because of the open architecture of the system and will be able “to keep pace with or outpace the threat,” Smith said, who noted that the Reapers have on board “systems that give both inflight protection and protection from tampering.”

Smith said the Reapers could operate from a variety of locations, including the continental United States, Hawaii, Guam, or a partner nation.

The MQ-9A is incredibly important to us to pass data across the battlefield, the closer of the maritime kill chain as we operate underneath an alternate precision navigation and timing network,” Smith said. “That system has the duration and the range to be operated from those bases that we do control and still give us the loiter time that we need to both close the kill chain and to move that asset around something as vast as the Indo-Pacific theater.”

Earlier, the Corps garnered extensive experience with the Reaper by using ISR (intelligence, surveillance and reconnaissance) services provided by General Atomics in support of Marine forces in Southwest Asia.

Coast Guard Commissions

Newest National Security Cutter

Fellow Aviators pay tribute to the USCGC Stone (WMSL- 758) during the commissioning ceremony at Coast Guard Base Charleston, S.C., Mar. 19, 2021. The cutter's namesake is the late Cmdr. Elmer "Archie" Fowler Stone, who in 1917 became the Coast Guard's first aviator and, two years later, was one of two pilots to successfully make a transatlantic flight in a Navy seaplane landing in Portugal. *U.S. Coast Guard / Petty Officer 3rd Class Vincent Moreno*

NORTH CHARLESTON, S.C., — The USCGC Stone (WMSL 758) became the Coast Guard's newest national security cutter during a commissioning ceremony March 19 at Coast Guard Base Charleston, the Coast Guard Atlantic Area said in a release.

Adm. Karl Schultz, commandant of the U.S. Coast Guard, presided over the ceremony. Laura Cavallo, the grandniece of the ship's namesake and ship's sponsor, was also in

attendance.

The cutter’s name comes from Cmdr. Elmer “Archie” Fowler Stone, who in 1917 became the Coast Guard’s first aviator and, two years later, was the pilot of the NC-4, a Navy airplane, which in 1919 was the first aircraft to accomplish a transatlantic flight, landing in Portugal.

The Stone is the ninth legend-class national security cutter in the Coast Guard’s fleet. The Legend class national security cutters can execute the most challenging national security missions, including support to U.S. combatant commanders.

They are 418 feet in length, 54 feet in beam, and 4,600 long tons in displacement. They have a top speed of more than 28 knots, a range of 12,000 nautical miles, an endurance of up to 90 days, and can hold a crew of up to 150. These new cutters are replacing the high-endurance Hamilton-class cutters in service since the 1960s.

The Stone launched Oct. 4, 2019, for sea trials. Following sea trials, the crew conducted its first voyage, Operation Southern Cross, a patrol to the South Atlantic supporting counter illegal, unreported and unregulated fishing.

Taking the newly accepted cutter on its shakedown cruise, Stone’s crew covered over 21,000 miles (18,250 nautical miles) over 68 days. A mutual interest in combating IUUF activities offered an opportunity to collaborate for Stone’s crew. They interacted with partners in Guyana, Brazil, Uruguay and Portugal, strengthening relationships and laying the foundation for increased partnerships to counter illicit maritime activity.

Ship commissioning is the act or ceremony of placing a ship in active service.

Winston S. Churchill Returns to Homeport after 9-Month Deployment

The guided-missile destroyer USS Winston S. Churchill (DDG 81) steams in the Arabian Sea. Winston S. Churchill is deployed to the U.S. 5th Fleet area of operations in support of naval operations to ensure maritime stability and security in the Central Region, connecting the Mediterranean Sea and Pacific Ocean through the western Indian Ocean and three critical chokepoints to the free flow of global commerce. *U.S. Navy / Mass Communication Specialist 1st Class John Philip Wagner, Jr*

NORFOLK, Va. – The guided-missile destroyer USS Winston S. Churchill (DDG 81) returned to homeport in Naval Station Norfolk March 19, after nearly nine months deployed in the U.S. 5th and 6th Fleet areas of operation, U.S. 2nd Fleet

Public Affairs said in a March 19 release.

Winston S. Churchill participated in important training exercises with international partners to foster positive relationships while encouraging freedom of navigation and maritime security.

“I’m so proud of the Churchill Team, the crew and their families are the most resilient people I have ever come across,” said Capt. Timothy F. Stanley, commanding officer of Winston S. Churchill. “Returning today is almost nine months since the crew was last with their friends and family.”

Winston S. Churchill, along with the embarked Helicopter Maritime Strike Squadron (HSM) detachment, traveled nearly 60,000 miles during the deployment and completed 26 strategic choke point transits, escorting a total of 23 vessels over 14 of those transits. She transited the Strait of Gibraltar twice, the Suez Canal twice, the Straits of Bab-el-Mandeb 14 times (nine transits with escort duties), and the Strait of Hormuz eight times (five transits with escort duties).

“Churchill has nearly completed the equivalent of three laps around the Earth meeting important fleet tasking, all the while consistently meeting mission requirements, and keeping sea lines of communication open through the majority of the world’s key straits,” Stanley said.

Winston S. Churchill participated in a 14-Day Restriction of Movement on June 22, 2020, prior to getting underway for pre-deployment exercises and training in order to combat the effect of COVID-19 on ship’s readiness. It officially deployed on Aug. 10, 2020.

Winston S. Churchill conducted a landmark port visit in Port Sudan, Sudan, the first U.S. Navy warship to do so in over 30 years. The visit served to build a foundation of military cooperation between the U.S. and Sudan. Additionally, Winston S. Churchill visited Souda Bay, Djibouti, and Bahrain, where

the crew was restricted to the pier.

“Amongst a global pandemic, these sailors have met their personal and professional goals, making themselves and the Navy better,” Stanley said. “This team onboard has been galvanized through this deployment, and I’d argue is the best, most synergized, and resilient tactical-level force in the Navy.”

Churchill conducted counter-smuggling operations with embarked Advanced Interdiction Team, comprised of U.S. Coast Guardsmen, U.S. Army Soldiers and U.S. Navy Sailors. AIT boarded two stateless dhows flying no flags in international waters off the coast of Somalia in accordance with international law. A large cache of weapons was discovered while conducting maritime security operations in the U.S. Central Command area of operations. The weapons disposed of included thousands of AK-47 assault rifles, light machine guns, heavy sniper rifles, rocket-propelled grenade launchers and crew served weapons. Other weapon components disposed of include barrels, stocks, optical scopes and weapon systems.

The only U.S. warship named after a Briton, Winston S. Churchill worked with the Royal Navy HMS Trent in the Eastern Mediterranean. The cooperation demonstrates the long-standing high-end warfare capabilities of the Alliance, which will culminate in the deployment of the international Queen Elizabeth Strike Group this summer.

While in the Mediterranean, Winston S. Churchill also sailed with the Tunisian navy, reinforcing the commitment to African Maritime security.

After disembarking the HSM-70 detachment to its homeport at Naval Air Station, Jacksonville, Florida, Churchill will return to homeport in Naval Station Norfolk.

ATI, NAC Partner with Naval Surface Warfare Center Indian Head to Tackle Energetics Challenges

SUMMERVILLE, S.C. – Advanced Technology International (ATI), in partnership with the National Armaments Consortium (NAC), has signed an agreement to develop the Naval Energetic Systems and Technologies (NEST) Program. The NEST Program is a collaboration executed under an Other Transaction Agreement (OTA) with the Naval Surface Warfare Center Indian Head Division (NSWC IHD) to address the most significant energetics-related challenges facing the Navy and Marine Corps.

This effort is critical in enabling the Navy, Marine Corps and the entire Department of Defense to address current and future threats in the surface, subsurface, air, ground, littoral and expeditionary environments. The partner organizations will foster a collaboration among the engineers, researchers, and technologists at NSWC IHD and NAC's 900+ members from industry and academia. The OTA has a term of six years with a four-year option.

"ATI is delighted to continue its longstanding partnership with the National Armaments Consortium in executing this important Naval Energetics Systems and Technologies Program," said Chris Van Metre, CEO and president of ATI. "NAC members have a proven history of delivering innovative energetics technology solutions and eagerly anticipate the opportunity to continuing doing so in support of NSWC IHD."

“The NAC is honored to partner with ATI and the Naval Surface Warfare Center Indian Head Division to develop a collaborative partnership focused on solving the biggest energetics challenges facing our nation,” said Charlie Zisette, NAC executive director. “Our members look forward to working with the incredible workforce at Indian Head to accelerate the development, adoption, and deployment of energetics-related technologies to provide our warfighters the decisive edge on the battlefield.”

The NSWC IHD is the Navy’s premier organization for ordnance, energetics and explosive ordnance disposal (EOD) solutions. Its workforce provides energetics R&D, manufacturing technology, engineering, testing, manufacturing and fleet support. Energetics are used in propulsion systems and ordnance, and include explosives, propellants, pyrotechnics, reactive materials, related chemicals and fuels.

NSWC IHD’s capabilities address all aspects of the energetics technical discipline including basic research, applied technology, technology demonstration and prototyping, engineering development, acquisition, low-rate production, in-service engineering/mishaps, failure investigations, surveillance, EOD technology/information and demilitarization.

General Dynamics Delivers First Knifefish Surface MCM UUV to U.S. Navy

The first Knifefish surface mine countermeasure UUV system has been delivered to U.S. Navy six months after final acceptance tests were completed. *General Dynamics Mission Systems*

QUINCY, Mass. – General Dynamics Mission Systems recently delivered the first Knifefish surface mine countermeasure unmanned underwater vehicle (UUV) system under a contract awarded by the U.S. Navy on Aug. 26, 2019, the company said in a March 18 release.

The contract, awarded immediately after a successful Milestone C decision and approval to enter low-rate initial production, calls for the procurement of five Knifefish systems (10 total UUVs) and support equipment.

Knifefish is a medium class mine countermeasure UUV intended for deployment from the Navy's littoral combat ship and other Navy vessels of opportunity. Knifefish will reduce risk to personnel by operating within minefields as an off-board sensor while the host ship stays outside the minefield boundaries.

"Together with the U.S. Navy's Program Executive Office for Unmanned and Small Combatants, our Knifefish team has worked to deliver critical mine countermeasure mission capabilities

to protect our Sailors," said Carlo Zaffanella, vice president and general manager at General Dynamics Mission Systems. "We designed Knifefish using an open architecture concept that can be quickly and efficiently modified to accommodate a wide range of missions."

General Dynamics Mission Systems is the prime contractor for the Knifefish program. The company designed the tactical UUV using an open architecture concept that can be quickly and efficiently modified to accommodate a wide range of missions. The Knifefish SMCM UUV is based on the General Dynamics Bluefin Robotics Bluefin-21 deep-water autonomous undersea vehicle.

Navy's Future Carrier Air Wing Could Reach 40% Unmanned Aircraft, Use Manned/Unmanned Teaming, Admiral Says

Boeing conducts MQ-25 deck handling demonstration at its facility in St. Louis, Missouri, in 2018. *U.S. Navy / Boeing*

ARLINGTON, Va. – The Navy's forthcoming fielding of its first carrier-based unmanned aircraft could presage a much larger UAS presence in the future carrier air wing, a senior admiral said, and may include manned/unmanned teaming.

The MQ-25A Stingray UAS now being tested by Boeing and the Navy is designed to be a tanker for aerial refueling of other carrier-based aircraft such as the F-35C Lightning II and F/A-18E/F Super Hornet strike fighters; EA-18G Growler electronic attach aircraft; E-2D Advanced Hawkeye battle management aircraft; and CMV-22B Osprey carrier on-board delivery aircraft.

"The MQ-25 has great promise for us," said Vice Adm. James Kilby, deputy chief of naval operations for Warfighting Requirements and Capabilities, testifying March 18 before the Seapower and Projection Forces Subcommittee of the House Armed Services Committee. "Our initial focus is to introduce this platform and get it introduced into the air wing where it can serve its role initially in tanking and limited ISR [intelligence, surveillance and reconnaissance]. But what we

are focusing on is launching, landing, moving it around on the deck, bringing it up, taking it down to the hangar bay, how do we position those assets, how can we support the air wing.

“So, step one: get the fighters out of the business of refueling fighters and use the MQ-25 to do that, initially close aboard the carrier but eventually at range,” Kilby said. “But there is some payload capacity in that vehicle that we think has great promise for us. So, I think initially we would transition to ISR but in an air wing of the future view … we think we could get upwards of 40% of the aircraft in an air wing that are unmanned and then transition beyond that.”

Kilby said the logical step would be, “crawl, walk run, figure how to handle it within the air wing, let’s move to ISR, maybe electronic attack, strike, and then other things as complexity grows across that mission set. The MQ-25 most certainly will provide promise to us because perhaps it would exceed the endurance of a maned aircraft.”

The admiral pointed out that while there will be a control center on each aircraft carrier for unmanned aircraft, the Navy’s aspiration is for manned unmanned teaming in the future so that manned aircraft could control unmanned aircraft.

Navy’s Orca XLUUV to Have Mine-Laying Mission, Adm. Kilby says

Boeing's Echo Voyager, forerunner of the Orca extra-large unmanned underwater vehicle, or XLUUV. *Boeing*

ARLINGTON, Va. — The Navy is planning on mine laying as the initial mission for the Orca extra-large unmanned underwater vehicle (XLUUV), a Navy official said.

"The XLUUV is a migration from the Echo Voyager from Boeing, with a mission module placed in the middle of it, to initially carry mines," said Vice Adm. James Kilby, deputy chief of naval operations for Warfighting Requirements and Capabilities, testifying March 18 before the Seapower and Projection Forces Subcommittee of the House Armed Services Committee. "We are pursuing that vehicle because we have operational needs from a combatant commander to go solve this specific problem."

The Orca, five of which are being built by Boeing, will be an open-architecture, reconfigurable UUV that will be modular in construction and have a modular payload bay. The XLUUV core vehicle will provide guidance and control, navigation, autonomy, situational awareness, core communications, power distribution, energy and power, propulsion and maneuvering,

and mission sensors. The length will be greater than 80 feet. The Orca, too large to be carried by a submarine, will be pier-launched.

“We need to get that initial prototype built and start employing it to see if we can achieve the requirements to do that mission set,” Kilby said. “If we can’t meet our milestones, we need to critically look at that and decide if we have to pursue another model or methodology to get after that combatant need. In the case of the XLUUV, we haven’t even had enough run time of that vessel to make that determination yet. Certainly, there [are] challenges with that vehicle.”

The Navy is developing new types of mines: the cylindrical-shaped Clandestine Delivered Mine and the Hammerhead, an encapsulated torpedo designed to lie in wait for submarines. The capsule for the torpedo would be anchored to the ocean floor, much like the Mk60 CAPTOR mine of Cold War vintage that housed a Mk46 antisubmarine torpedo. (The CAPTOR was withdrawn from the Navy’s inventory in 2001.) The Hammerhead is designed to have modular architecture to allow for technology insertion.

Panel Examines Strategic Balance: Is the Navy You Have the Navy You Need?

Seaman Zachery Douglas, from Dansville, New York, looks through binoculars on the bridge as the Arleigh Burke-class guided-missile destroyer USS Mustin (DDG 89) conducts routine operations in the Taiwan Strait. Mustin is forward-deployed to the U.S. 7th Fleet area of operations in support of security and stability in the Indo-Pacific region. *U.S. Navy / Mass Communication Specialist 3rd Class Cody Beam*

A March 16 webinar on "Maritime Competition and the Maritime Strategy," hosted by the Center for Strategic and Budgetary Assessments examined several recently published papers dealing with maritime strategy, the role of the U.S. Navy and the composition of peacetime and wartime fleets in the current era of great power competition.

The virtual forum featured leading international security scholars, each of whom has contributed to a recent special issue of the journal Security Studies (Volume 29, Issue 4), as well as several companion pieces from a recent series published by War On The Rocksentitled Maritime Strategy on the Rocks.

The discussion was moderated by Evan Braden Montgomery, CSBA's director of research and studies, who was also one of the authors in the collection. He was joined by panel of experts, including Jonathan Caverley, professor of strategy at the U.S. Naval War College; Fiona Cunningham, assistant professor of political science and international affairs at George Washington University; Peter Dombrowski, professor of strategy at the U.S. Naval War College; Erik Gartzke, professor of political science at the University of California at San Diego; Jon Lindsay, assistant professor at the University of Toronto; Paul van Hooft, senior strategic analyst at the Hague Center for Strategic Studies; and Sara McLaughlin Mitchell, professor of political science at the University of Iowa.

Also participating was Dr. Doyle Hodges, executive editor of Texas National Security Review, who served as curator and editor of the series.

The papers focused on the Indo-Asia-Pacific region, which is primarily a maritime theater. The authors looked at how naval officers and scholars think about the INDO-PACOM maritime domain, and noted that they often viewed things quite differently.

The authors commented on the new tri-service strategy, and the distinct strength that of each of the three sea services bring to the security calculus. They also noted the U.S. is basically providing presence far from home, while China is essentially defending what it perceive as its home waters. As such, the U.S. cannot face China alone and requires commitments from allies and partners in the region. In the Taiwan scenarios, however, the authors debated whether other countries would join the U.S. in coming to the aid of Taiwan if China were to invade.

Beyond simple territorial disputes, the authors examined various triggers and thresholds that have led to armed conflict in the past, including resources like fisheries and

oil and gas.

The panelists debated the right mix of ships in the Navy fleet, and the relative merits of highly visible platforms as a form of deterrence, like carrier strike groups, and those less visibly but perhaps more potent, like ballistic missile submarines.

There may be reluctance to take the risk of fully committing very expensive platforms. Less expensive platforms are more affordable and can be built in larger quantities, but the ships need to be credible. Furthermore, ships that are good at fighting might not be so good at preventing combat, or performing missions short of combat.

The panelists talked about how China's strength exactly targets U.S. weaknesses, and that the U.S. today must go to greater lengths to be reassuring to allies and a deterrence to adversaries.

Navy MQ-25A Basing Assessment Finds No Significant Environmental Impact

The MQ-25A Stingray carrier-based unmanned aircraft system, which will be home based at Naval Base Ventura County, Point Mugu, California. *Boeing*

ARLINGTON, Va. — The Navy has released a final environmental assessment (EA) and Finding of No Significant Impact for home-basing the MQ-25A Stingray carrier-based unmanned aircraft system at Naval Base Ventura County, Point Mugu, California, the Navy said in a March 17 release.

The proposed action is to establish facilities and functions at NBVC Point Mugu to support home basing and operations of the MQ-25A Stingray. Under the proposed action, the Navy would home base 20 Stingray systems, construct a hangar, training facilities, and supporting infrastructure, perform air vehicle maintenance, provide training for operators and maintainers, conduct approximately 960 Stingray annual flight operations and station about 730 personnel, plus their family members.

The Stingray will enhance aircraft carrier capability and versatility through the integration of a persistent, sea-

based, multi-mission aerial refueling and intelligence, surveillance, and reconnaissance UAS into the carrier air wing, the Navy said. The Stingray will extend the range and reach of carrier air wings on the West Coast to meet current and future threats and enhance refueling and intelligence, surveillance, and reconnaissance capabilities in support of national defense objectives and policies.

Based on analysis presented in the environmental assessment, which has been prepared in accordance with the requirements of the National Environmental Policy Act, and in consultation with the U.S. Fish and Wildlife Service and California Coastal Commission, the Navy finds implementation of the proposed action will not significantly impact the quality of the human environment. Therefore, an environmental impact statement is not required.

The assessment prepared by the Navy is on file and interested parties may obtain a copy by downloading it from the project website: https://www.nepa.navy.mil/stingray.