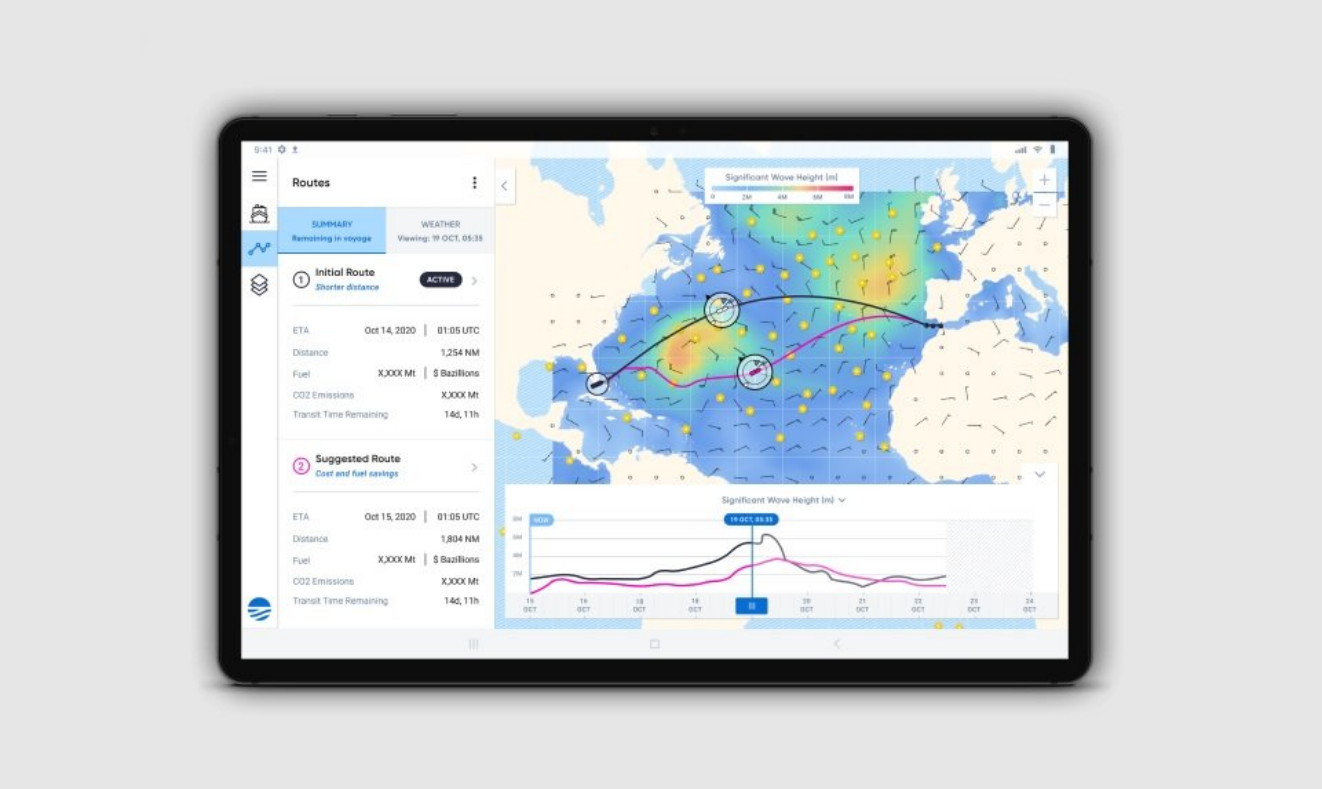
Sofar Launches Wayfinder Weather Routing for Dynamic Voyage Optimization



Sofar Ocean's new Wayfinder application. *SOFAR OCEAN*

SAN FRANCISCO, Calif. – Sofar Ocean has launched Wayfinder – The Dynamic Route Optimization Platform, a real-time, data-powered application to radically improve maritime route efficiency and reduce fuel emissions, the company said in a release.

Sofar's proprietary open ocean sensor network and weather forecasts, combined with real-time market variables and personalized vessel performance models, deliver high-accuracy weather routing and daily speed and routing guidance to ensure more efficient and safer routes.

Optimized voyage and speed profiles can produce massive reductions of greenhouse gas emissions according to the International Maritime Organization. According to the IMO,

with voyage optimization you can see anywhere from 1-10% reduction in GHG. With today's optimization solutions there is no concept of continuous weather monitoring and daily updates to ensure that ships are always on the most optimal path. Wayfinder's unique value is that it's powered by the best weather data with continuously optimized routing recommendations. This gives fleet operators and captains the most recent weather and routing context they need to maximize voyage profitability, minimize safety risks, and track closer toward carbon neutrality with each transit.

Several major commercial shipping companies including Singapore-based Berge Bulk, Greece-based Star Bulk and Seaven as well as U.S.-based Class society ABS are leveraging the new technology to streamline fleet efficiency by identifying more direct, cost-effective, and energy-efficient routes.

As a pioneer in shipping sustainability, Berge Bulk has aggressively pursued decarbonization strategies over the last decade. In support of this initiative, they were one of the first pilot customers of the Wayfinder platform. According to their CEO, James Marshall, "Wayfinder allows us to increase vessel utilization and efficiency, ensuring that we balance profitability with emissions reduction objectives. By using Wayfinder's data and voyage optimization, we've seen

efficiency gains in the range of 4.5% on dedicated voyages, which translates into as many as 14 additional sailing days per year per vessel."

"Wayfinder is the Google Maps or Waze of the ocean. It's your voyage partner – always looking out for the best options among the trillions of possible routes in the ocean," said Tim Janssen, CEO and cofounder of Sofar Ocean. "Like navigation apps on land, Wayfinder integrates seamlessly into the captain's workflow and is easy to use. It constantly updates its recommendations based on the latest weather data powered

by thousands of live weather sensors, variations in the bunker and charter market, and vessel performance dynamics. Ocean intelligence is in our team’s DNA, and Wayfinder is a big step toward our mission of building a more connected ocean.”

Marines Test JAGM From AH-1Z Viper

Marine Corps aviation ordnance Marines assigned to Marine Operational Test & Evaluation Squadron One (VMX-1) conduct operational checks on an AH-1Z Viper to ensure the aircraft remains ready during the operational test and evaluation of the joint air-to-ground missile, Nov. 4. *U.S. MARINE CORPS / Maj. Jay Hernandez*

ARLINGTON, Va. – Marines from Marine Operational Test & Evaluation Squadron 1 (VMX-1) conducted an operational test and evaluation of the joint air-to-ground missile (JAGM) from an AH-1Z Viper, Nov. 3-7 at Eglin Air Force Base in Florida, the Corps announced Dec. 2.

VMX-1 fired and evaluated the JAGM to determine its suitability and effectiveness to support expeditionary advanced base operations, such as conducting sea denial operations within the littorals and supporting sea control operations.

Personnel from Air Test and Evaluation Squadron 21 (HX-21), Naval Air Systems Command Direct and Time-Sensitive Strike program office (PMA-242), Army Program Executive Office Missiles and Space, Air Force 780th Test Squadron, as well as industry partners, were on location to observe and analyze the data from the test event. This event can lead to significant improvements in lethality of attack helicopters by arming them with newer munitions equipped with two sensor technologies and optimizes missile performance on maritime targets.

“Watching these professionals from across the services and industry come together to test the effectiveness and work on improvement for this weapon system is truly a phenomenal experience,” said VMX-1 Commanding Officer Col. Byron Sullivan. “The team is doing everything possible to ensure this capability will be the needed upgrade that enhances our ability to use precision strikes against fast-moving maritime targets.”

The team observed the test from locations across Eglin Air Force Base, honing in on weather considerations, telemetry and instrumentation, coordinating with the pilots, and observing the impact zone. Ultimately, the data collected will be analyzed to determine overall system effectiveness and develop the tactics, techniques, and procedures for its employment.

“Executing this type of concept development is very critical to get it right on paper and put more effective systems in the hands of the warfighter,” said Maj. Thomas Hutson, the Assault Support department head at VMX-1 and member of the JAGM test team.

This test is part of a larger effort to upgrade the AH-1Z and UH-1Y aircraft, in alignment with the Commandant’s vision of force modernization vision to maintain a competitive edge against potential adversaries.

The mission of VMX-1 is to conduct operational test and evaluation of Marine Corps aviation platforms and systems.

HII Delivers Guided Missile Destroyer Frank E. Petersen Jr. to U.S. Navy

Signing ceremonial documents declaring delivery of Frank E. Petersen Jr. (DDG 121) from Ingalls Shipbuilding to the U.S. Navy are, from left, Navy Cmdr. Daniel Hancock, prospective commanding officer DDG 121; Billy Oaks, superintendent, Aegis Combat System, Supervisor of Shipbuilding, Gulf Coast; and Donny Dorsey, Ingalls DDG 121 ship program manager. In the background are Cmdr. Sean Doherty, left, DDG program manager's representative; and Chief Petty Officer Yamina Bolar, DDG 121 chief Aegis fire controlman. *HUNTINGTON INGALLS INDUSTRIES / Shane Scara*

NEWPORT NEWS, Va. – Huntington Ingalls Industries' Ingalls Shipbuilding division delivered the Arleigh Burke-class guided missile destroyer Frank E. Petersen Jr. (DDG 121) to the U.S. Navy during a signing ceremony Nov. 30. This milestone officially transfers custody from HII to the U.S. Navy.

"I am again very proud of our DDG team today," said Kari Wilkinson, Ingalls Shipbuilding president. "Not only have they completed another major program milestone, but they have done so in the face of a pandemic. This team, and all of our shipbuilders across our entire portfolio, are what

shipbuilding is all about."

Delivery of DDG 121 marked the 33rd destroyer Ingalls has built for Navy, with four more currently under construction, including Lenah Sutcliffe Higbee (DDG 123), Jack H. Lucas (DDG 125), Ted Stevens (DDG 128) and Jeremiah Denton (DDG 129).

Arleigh Burke-class destroyers are highly capable, multi-mission ships and can conduct a variety of operations, from peacetime presence and crisis management to sea control and power projection, all in support of the United States military strategy. Guided missile destroyers are capable of simultaneously fighting air, surface and subsurface battles. The ship contains myriad offensive and defensive weapons designed to support maritime defense needs well into the 21st century.

DDG 121 is named for Frank E. Petersen Jr., who was the U.S. Marine Corps' first African-American aviator and general officer. After entering the Naval Aviation Cadet Program in 1950, Petersen would go on to fly more than 350 combat missions during the Korean and Vietnam wars.

Construction Begins on Future USS Robert E. Simanek

Construction started on the fifth Expeditionary Sea Base, the future USS Robert E. Simanek (ESB 7), at General Dynamics National Steel and Shipbuilding Co. in San Diego Dec. 1. *U.S. NAVY*

SAN DIEGO – Construction started on the fifth Expeditionary Sea Base (ESB), the future USS Robert E. Simanek (ESB 7), at General Dynamics National Steel and Shipbuilding Co. in San Diego during a small ceremony, Dec. 1, Team Ships Public Affairs said in a release.

The ESB ship class is highly flexible and used across a broad range of military operations supporting multiple operational phases, similar to the Expeditionary Transfer Dock class. Acting as a mobile sea base, they are part of the critical access infrastructure that supports the deployment of forces and supplies to provide prepositioned equipment and sustainment with flexible distribution.

“ESBs are optimized to support the core capabilities of aviation facilities, berthing, special operations, equipment staging support, and command and control operations,” said Tim

Roberts, Strategic and Theater Sealift program manager, Program Executive Office Ships. “The ESBs have demonstrated their ability to enhance the fleet’s flexibility and capability as they operate around the world. The addition of the future USS Robert E. Simanek will help continue to provide critical access in the maritime domain.”

The ship is named in honor of Marine Corps veteran Robert E. Simanek, who was awarded the Medal of Honor after he threw himself on an enemy grenade shielding his fellow Marines during the Korean War.

In 2019, the Navy made the decision to commission all Expeditionary Sea Base ships to allow them to conduct a broader and more lethal mission set, compared to original plans for them to operate with a USNS designation. ESBs are commanded by a Navy O-6 with a hybrid-manned crew of military personnel and Military Sealift Command civilian mariners. This designation provides combatant commanders greater operational flexibility as to how the platform is employed.

GD-NASSCO has delivered three other ESBs and is currently constructing the future USS John L. Canley (ESB 6).

Harry S. Truman Carrier Strike Group Departs on Deployment

The Harry S. Truman Carrier Strike Group departed Naval Station Norfolk, Virginia, and Mayport, Florida for a regularly scheduled deployment Dec. 1. *U.S. NAVY*

ARLINGTON, Va. – The Harry S. Truman Carrier Strike Group (HSTCSG) departed Naval Station Norfolk, Virginia, and Mayport, Florida for a regularly scheduled deployment, Dec. 1, the USS Harry S. Truman Carrier Strike Group Public Affairs said in a release.

Elements of the strike group, commanded by Rear Adm. Curt Renshaw, include flagship USS Harry S. Truman (CVN 75), commanded by Capt. Gavin Duff; the nine squadrons of Carrier Air Wing (CVW) 1; staffs of Carrier Strike Group (CSG) 8; and the Ticonderoga-class cruiser USS San Jacinto (CG 56).

In addition, the strike group will include the guided-missile destroyers of Destroyer Squadron (DESRON) 28 commanded by Capt. Todd Zenner which includes USS Bainbridge (DDG 96), USS Cole (DDG 67), USS Gravely (DDG 107), and USS Jason Dunham (DDG 109). The Royal Norwegian Navy's frigate HNoMS Fridtjof Nansen (F310) will join the strike group, and operate as part

of the strike group throughout the entire deployment.

The Harry S. Truman Carrier Strike Group will be conducting operations to support maritime security and stability in international waters across the globe. Carrier strike groups have a wide range of capabilities to respond wherever and whenever required through a variety of mission sets. Additionally, strike groups possess the flexibility and sustainability to fight major wars and ensure freedom of the seas.

The deployment follows months of intense training and preparation to include the Board of Inspection and Survey as well as various international maritime exercises such as Group Sail and Composite Training Unit Exercise, an intense multilateral combined exercise that assessed the strike group's abilities to conduct military operations at sea and project power ashore in late October.

"The team within the strike group has come together in an impressive manner these last few months," said Rear Adm. Curt Renshaw, commander, CSG 8. "They have become an integrated, multi-mission team capable of conducting the full spectrum of combat operations to ensure security in the maritime. I have no doubt that we are prepared for any challenge while on this deployment."

The strike group units will work alongside allied and partner maritime forces, focusing on theater security cooperation efforts, which help to further regional stability.

"During this training cycle, we have learned how to train and fight side by side whether it is onboard the same ship, in the skies, or across the seas," Duff said. "While we serve as the flag ship, we are never nearly as capable or as strong as we are when we deploy as a strike group."

HNoMS Fridtjof Nansen (F310) joined the strike group under the

Cooperative Deployment Program, which emphasizes the strengthening of defense partnerships and capabilities between the United States and bilateral or multilateral partners.

“HNoMS Fridtjof Nansen is ready and excited to embark upon this important deployment. The hospitality and professionalism [the] U.S. Navy has provided during our harbor stay and sea periods have been excellent, ensuring that we are an integrated asset of Carrier Strike Group 8. It is truly an honor for us to be the first Norwegian cooperative deployer in history. And this marks yet another milestone in the overall defense cooperation between Norway and our most important ally, USA,” said Commanding Officer Ruben Grepne-Takle.

Squadrons of CVW 1 include Strike Fighter Squadrons (VFA) 11 “Red Rippers;” VFA-211 “Fighting Checkmates;” VFA-34 “Blue Blasters;” VFA-81 “Sunliners;” Electronic Attack Squadron (VAQ) 137 “Rooks;” Carrier Airborne Early Warning Squadron (VAW) 126 “Seahawks;” Helicopter Sea Combat Squadron (HSC) 11 “Dragon Slayers;” Helicopter Maritime Strike Squadron (HSM)72 “Proud Warriors;” and a detachment from Fleet Logistics Support Squadron (VRC) 40 “Rawhides.”

NGC to Increase Inventory of AARGM for US Navy and German AF

An AGM-88E2 AARGM is launched from an F/A-18 during testing. *NORTHROP GRUMMAN*

LOS ANGELES – Northrop Grumman has received a $153 million dollar contract award from the U.S. Navy for full-rate production of lots 10 and 11 of the AGM-88E2 Advanced Anti-Radiation Guided Missile (AARGM), the company said Dec. 1. The contract includes production of missiles for the U.S. Navy and German air force.

“As threats continue to evolve, AARGM remains an affordable solution to continue protecting the U.S. Navy and our allies with their critical missions every day,” said Gordon Turner, vice president, advanced weapons, Northrop Grumman. “The ability to detect and defeat the rapid proliferation of today’s surface-to-air-threats, while remaining out of harm’s way, is paramount to mission success.”

Northrop Grumman has produced more than 1,500 AARGM missiles for the international cooperative acquisition program with the U.S. Navy, serving as the executive agent, and the Italian air

force. The missile provides a supersonic, air-launched tactical missile system that upgrades legacy AGM-88 HARM systems with advanced capability to perform suppression and destruction of enemy air defense systems.

AARGM is the most advanced system for pilots against modern surface-to-air threats. Providing a combination of precision, survivability and lethality, the system is able to rapidly engage land- and sea-based air-defense threats as well as striking time-sensitive targets.

As a prime contractor, Northrop Grumman also is developing the Advanced Anti-Radiation Guided Missile – Extended Range (AARGM-ER) in partnership with the U.S. Navy. The AARGM-ER will include a new rocket motor and warhead to provide an advanced capability to detect and engage enemy air defense systems. AARGM is currently deployed with the U.S. Navy and U.S. Marine Corps on the F/A-18C/D Hornet, F/A-18E/F Super Hornet, and U.S. Navy and Royal Australian Air Force EA-18G Growler aircraft; AARGM is also integrated on the Italian air force’s Tornado Electronic Combat aircraft.

Coast Guard Buoy Tender Departs San Francisco for Major Maintenance Period

The Coast Guard Cutter Aspen (WLB 208) departs the San Francisco Bay Area Nov. 29. The Aspen served the California coastline since Sept. 28, 2001. *U.S. COAST GUARD / Petty Officer 3rd Class Taylor Bacon*

ALAMEDA, Calif. – The Coast Guard Cutter Aspen (WLB 208) and crew departed the Bay Area Nov. 29 for the last time as a San Francisco-based cutter and are en route to the Coast Guard Yard in Baltimore to undergo major maintenance and overhaul, the Coast Guard 11th District said Nov. 30.

This marks the end of two decades of service along the California Coastline for the Aspen as one of 16 of the nation's Juniper class sea-going buoy tenders. The 225-foot ship and its 48-person crew have been stationed at Yerba Buena Island since Sept. 28, 2001.

Aspen's area of responsibility encompassed the coastal areas from the Oregon-California border to San Diego. In addition to its primary buoy tender operations, the cutter also has a long history in search and rescue, drug and migrant interdiction

and marine pollution prevention and response missions. Since 2005, the cutter has worked with U.S. partners in Mexico to interdict tens of millions of dollars in illicit narcotics in support of U.S. Southern Command and Joint Interagency Task Force South objectives, most recently interdicting $3.2 million worth of cocaine in 2017. In 2007, Aspen responded to the Cosco Busan oil spill in San Francisco and the Deepwater Horizon oil spill in the Gulf of Mexico in 2010 to assist in oil spill cleanup efforts.

The crew is slated to travel approximately 6,000 miles over the course of 40 days and pass from the Pacific to the Atlantic by way of the Panama Canal. The Aspen is scheduled to undergo a $20 million, 12-month major maintenance availability (MMA) overhaul.

The MMA is a planned dry dock event at the Coast Guard Yard, the first such major availability in the life of this class of ship. The availability will recapitalize many of the ship's critical systems, to include complete crane replacement, topside preservation work and technology modernization. The availability is designed to ensure that the cutter can reach its designed 30-year service life. Aspen will be the 11th 225-foot Juniper Class buoy tender to begin the MMA period.

The Coast Guard Cutter Alder (WLB 216) formerly homeported in Duluth, Minnesota, is slated to be brought back into service in summer of 2022 by the former Aspen crew and re-homeported in San Francisco. The Aspen's scheduled final destination will be Homer, Alaska, in early 2023.

"It has been a privilege to serve along California's rugged, oftentimes austere coastline; the beauty is without parallel, and the Pacific Ocean's winds, current, fog and constant swells offshore continue to mold us as the stern teachers they are," said Lt. Cmdr. Paul Ledbetter, the Aspen's commanding officer. "The U.S. is and always has been a maritime nation,

and my crew relishes the challenges of keeping the maritime transportation system up and running in our capacity as a WLB. We look forward to continuing to serve this great country when we return to San Francisco aboard the Coast Guard Cutter Alder next year.”

Coast Guard Aids to Navigation Team San Francisco will be standing by to perform routine maintenance on the Aspen’s buoys throughout the Bay Area. Additionally, the Coast Guard Cutter George Cobb, a 175-foot buoy tender homeported in San Pedro, is slated to maintain all aids to navigation south of San Francisco and the Coast Guard Cutter Elm, a 225-foot buoy tender homeported in Astoria, Oregon, is also slated to assist throughout Northern California in spring 2022.

Electrowatch Completes Revere Sensitization Treatments on USS Vicksburg

The Ticonderoga-class guided missile cruiser USS Vicksburg (CG 69), shown here awaiting dry dock flooding in June 2021. *U.S. NAVY / Mass Communication Specialist 3rd Class Brandon Roberson*

Norfolk, Va. – ElectraWatch, an Austal USA company, completed two successful reverse sensitization treatments of aluminum alloy in service on the U.S. Navy Ticonderoga-class guided missile cruiser USS Vicksburg (CG 69) in September 2020 and July 2021.

The process of reverse sensitization involves careful heating to restore shipboard aluminum to near-factory condition from a "sensitized" state, an out-of-spec condition susceptible to cracking that can develop at sea. This treatment reduces the need for replacement of the material or alternative surface treatment which is costly and time-consuming. Follow-up measurements verified the material had been returned to within specification.

"I'm proud of the hard work our engineering team has done to accomplish these treatments," ElectraWatch General Manager

Ryan Dunn said. “These results validate the Navy’s confidence in ElectraWatch and the process we have developed. Our cutting-edge tools and processes represent a major improvement over previous methods and will serve to extend the service life of the Ticondergoa-class ships.”

Donald Tubbs, ElectraWatch’s Senior Test & Research Engineer, explains: “These tests are the result of several years of collaboration with waterfront managers and the Navy’s technical and research and development communities.”

5000-Series Aluminum Alloy (Marine Grade) is used extensively on U.S. Navy guided-missile cruiser superstructures. The specific alloy used, AA5456, can become sensitized after long exposures to elevated temperatures, such as those that arise at sea during solar heating. Once sensitized, the combination of a corrosive environment like seawater and stress can lead to cracking of the plate.

By carefully controlling time and temperature, the reverse senstization treatment can return to near-factory condition or “heal” aluminum alloy that may have previously required costly complete replacement. Used in tandem with ElectraWatch’s proprietary non-destructive Degree of Sensitization Probe, which has been successfully used to conduct over 9,000 fleet-based sensitization measurements, the Navy now has a turnkey solution to conduct better-informed, cost-saving maintenance planning that limits scope creep and reduces the amount of aluminum replaced.

BAE Systems Provides First

Zero-Emission Fuel Cell Propulsion System for U.S. Vessel

BAE Systems successfully installed its zero-emission propulsion system in the first U.S. hydrogen fuel cell powered marine vessel, the Sea Change. *BAE SYSTEMS*

SAN FRANCISCO and ENDICOTT, N.Y. – BAE Systems successfully installed its zero-emission propulsion system in the first U.S. hydrogen fuel cell-powered marine vessel, the Sea Change, the company said Nov. 30.

BAE Systems provided its HybriGen Power and Propulsion solution to Zero Emission Industries for integration on the Sea Change vessel that will operate in the San Francisco Bay Area. The Sea Change project is funded and owned by SWITCH Maritime, an impact investment firm building the first fleet of zero-carbon, electric-drive maritime vessels for adoption by existing ship owners and operators.

BAE Systems' propulsion system interfaces with a hydrogen and

fuel cell system provided by Zero Emission Industries and lithium-ion batteries to power the vessel without the need for a traditional combustion engine. The all-electric system eliminates diesel fuel use and reduces engine maintenance to create a clean mode of transportation.

“We are committed to getting our customers to zero emissions with highly reliable and flexible systems that are proven on land and in the water,” said Steve Trichka, vice president and general manager of Power & Propulsion Solutions at BAE Systems. “This historic milestone is the next step on that journey, as we provide San Francisco with an innovative solution that reduces emissions and creates a new clean form of daily transportation for hundreds of commuters.”

BAE Systems worked with the vessel’s builder, All American Marine, and designer, Incat Crowther, after previously teaming with both companies on multiple projects. BAE Systems uses proven controls and components that have passed certification and inspection by the U.S. Coast Guard.

The project is also partially funded by a $3 million grant from the California Air Resources Board, administered by the Bay Area Air Quality Management District, that comes from the California Climate Investments initiative, a California statewide program that puts billions of cap-and-trade dollars to work reducing greenhouse gas emissions, strengthening the economy, and improving public health and the environment, particularly in disadvantaged communities.

Oshkosh Defense Receives

$591.6M JLTV Order for Army, Marine Corps, Others

U.S. Marines with Battalion Landing Team 3/5, 31st Marine Expeditionary Unit land on the beach in a joint light tactical vehicle (JLTV) to begin a light armored reconnaissance raid reherasal at Camp Schwab, Okinawa, Japan, June 19. *U.S. MARINE CORPS / Sgt. Daisha R. Ramirez*

OSKOSH, Wis. – The U.S. Army Contracting Command – Detroit Arsenal (ACC-DTA) has awarded Oshkosh Defense a $591.6 million order for 1,669 Joint Light Tactical Vehicles (JLTV), 868 companion trailers and associated packaged and installed kits, the company said Nov. 29.

The order includes Oshkosh Defense JLTVs for the U.S. Army, Marine Corps, Air Force and Navy. As part of the order, 125 vehicles will also be delivered to NATO and allied partners, including Brazil, Lithuania, Montenegro and Slovenia.

Since winning the competitive JLTV contract in 2015, Oshkosh Defense, a wholly owned subsidiary of Oshkosh Corp., has built

more than 14,000 JLTVs, and that number continues to grow.

“Our team takes great pride in designing and building a versatile platform that can survive the extreme demands of future combat,” said George Mansfield, vice president and general manager of Joint Programs for Oshkosh Defense. “That’s what we do and what we’ve been doing for decades. And Oshkosh’s vast tactical wheeled vehicle experience, expertise and knowhow grows with every vehicle that comes off our production line.”

International momentum surrounding the Oshkosh Defense JLTV also continues to grow as customers seek a light tactical vehicle with lethal capabilities, fleet commonality attributes and design flexibility.

“Integrated lethality on an agile and protected vehicle like the Oshkosh JLTV is quickly filling capability gaps that exist in many international militaries,” said John Lazar, vice president and general manager of International Programs for Oshkosh Defense. “This past year, we’ve seen an increased interest in the Oshkosh JLTV from international customers with dynamic demonstrations and live fires across Europe, with more planned for 2022.”