

# Navy Selects BAE's 57mm Mk110 Gun for Constellation-Class Frigates



The Mk 110 57mm Gun Weapons System (GWS) is fired as part of a regular operational exercise aboard Independence-variant littoral combat ship USS Charleston (LCS 18), July 11. *U.S. NAVY / Mass Communication Specialist 3rd Class Adam Butler*

BAE Systems has received a \$26 million contract to equip the U.S. Navy's Constellation class frigates with the fully automatic 57mm Mk 110 naval gun, the company said in an Oct. 28 release.

The contract, awarded earlier this month, includes engineering support and calls for two Mk 110s for the USS Constellation (FFG 62) and USS Congress (FFG 63). The new Constellation class of multi-mission guided-missile frigates is designed to operate in blue water and in the littorals, for an increased forward naval presence.

The Mk110 gun system, known internationally as the Bofors 57 Mk 3, is the deck gun of choice for the Constellation class. It is a multi-mission, medium-caliber shipboard weapon, effective against air, surface, or ground threats without requiring multiple round types. The system is capable of firing up to 220 rounds per minute at an effective range of more than nine nautical miles using BAE Systems' six-mode programmable, pre-fragmented, and proximity-fused (3P) ammunition.

"The selection of the Mk 110 for the U.S. Navy's Constellation class frigates signifies confidence in the gun system and its ability to meet current and future needs in shipboard defense," said Brent Butcher, vice president of the weapon systems product line at BAE Systems "The Mk110 gun system

provides this next-generation frigate with the continued performance that our surface fleet has come to expect from its intermediate caliber guns.”

This contract also includes providing a Mk110 system to the U.S. Coast Guard’s third Argus Class Offshore Patrol Cutter, USCGC Ingham. Deliveries are expected to begin in 2023 under the contract with Naval Sea Systems Command Integrated Warfare Systems 3C (NAVSEA IWS).

The 57mm Mk 110 is currently in service on the Navy’s Littoral Combat Ship and the U.S. Coast Guard’s National Security Cutter. To date, BAE Systems is providing 39 Mk110 guns to the Navy and 15 to the Coast Guard. Worldwide, 103 Mk110/57 Mk 3 naval gun systems are under contract with nine nations.

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## **Navy Awards BAE Systems \$478 Million for SSP Systems Engineering, Integration**



An unarmed Trident II D5 missile launches from the Ohio-class ballistic missile submarine USS Nebraska (SSBN 739) off the coast of California. *U.S. NAVY / Mass Communication Specialist 1st Class Ronald Gutridge*

FALLS CHURCH, Va. – BAE Systems has been awarded a five-year Systems Engineering and Integration Support Services contract to continue supporting the U.S. Navy Strategic Systems Programs (SSP) office, the company announced Oct. 27. The contract, worth up to \$478 million, was awarded in September 2021.

“We are proud to continue providing full system-level lifecycle capabilities to SSP that will help advance their digital engineering strategy to ensure the readiness of the Navy’s strategic missions,” said Lisa Hand, vice president and general manager of BAE Systems Integrated Defense Solutions. “BAE Systems brings extensive systems integration expertise to a wide range of defense initiatives that support two-legs of the nation’s nuclear triad.”

The SSP oversees the Strategic Weapons System and Attack Weapons System on-board current U.S. Ohio and U.K. Vanguard class submarines, as well as on future U.S. Columbia and U.K. Dreadnought class submarines.

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## **Austal’s Electrowatch Awarded ONR Contract for Additive Manufacturing Process**

CHARLOTTESVILLE, Va. – The U.S. Navy Office of Naval Research (ONR) has awarded ElectraWatch, an Austal USA company, a highly competitive Manufacturing Science Program contract to identify new material processing pathways that use additive manufacturing for Copper-Nickel (CuNi) heat exchanger designs. ElectraWatch was one of only five organizations, and the only non-academic organization, to receive a contract award.

“I’m proud of the hard work our engineering team has done to make this contract award possible,” ElectraWatch General Manager Ryan Dunn said. “We are honored that this award puts us in a position to further champion the next generation of manufacturing capabilities and to best equip the Sailors who

protect and support our country and our allies.”

Dr. Scott Kasen, ElectraWatch’s principal engineer, explained that the enormous heat loads of future naval vessels require advanced designs for seawater heat exchangers which may only be achievable by leveraging the design freedom afforded by Additive Manufacturing (AM). “Despite the tremendous advancements in AM,” Kasen said, “existing modalities are unable to easily process CuNi alloys which are chosen for their high thermal conductivity, demonstrated corrosion performance, and biofouling resistance in marine environments.”

To overcome the challenges of existing approaches, ElectraWatch partnered with Metallum3D to propose a novel AM capability which uses the unique combination of a bound pellet extrusion process and microwave sintering.

This project reinforces Austal USA’s position as a global leader in advanced ship manufacturing and sustainment. Investing in these future capabilities demonstrates the commitment of Austal USA and ElectraWatch to continue expanding post-delivery support and sustainment offerings, while also supporting multiple shipbuilders, maintenance providers, and the U.S. Navy across a broad range of military ships deployed in the U.S. fleet.

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**Thales Expands its ALFS  
Repair Capabilities in the**

# United States



The sonar dipping transducer of an MH-60R Seahawk, attached to the “Saberhawks” of Helicopter Maritime Strike Squadron (HSM) 77, assigned to the Ticonderoga-class guided-missile cruiser USS Shiloh (CG 67) is hoisted during an subsurface detection exercise. *U.S. NAVY / Mass Communication Specialist 1st Class Rawad Madanat*

CLARKSBURG, Md. – Thales Defense & Security Inc. has serviced more than 1,300 Airborne Low Frequency Sonar (ALFS) subsystems over the past eight years, a key milestone in the primary sustainment activities for ALFS, the company announced Oct. 28.

For more than 20 years, Thales Defense & Security Inc. has been the primary sustainment service provider for ALFS, demonstrating a continued commitment to onshore maintenance in the United States.

Thales, a leader in antisubmarine warfare (ASW) systems, continues to support the U.S. Navy and various countries eligible for Foreign Military Sales program via production, maintenance, and logistics support of the ALFS.

For more than 20 years the U.S. Navy has deployed the ALFS system which is based on the FLASH (Folding Light Acoustic System for Helicopters) dipping sonar family of products.

Onboard the U.S. Navy and other navies’ ASW MH-60R helicopters, the ALFS anti-submarine warfare system is capable of detecting and classifying submarines.

Thales Defense & Security Inc. is increasing its U.S. based sustainment capabilities by bringing additional repair operations onshore to further increase the throughput of repairs already performed in the U.S. These new processes bring a majority of the repairs closer to the Navy providing

shorter turnaround times that enhance readiness. Additionally, this will enable the development of new skills and create more U.S. jobs.

This further supports the recent contract Thales signed with Lockheed Martin RMS for additional ALFS system deliveries and for continued sustainment support under Seahawk Performance-Based Logistics.

“We are very proud to expand our domestic U.S. support to the U.S. Navy for the ALFS systems,” said Mike Sheehan, president and CEO, Thales Defense & Security, Inc. “It is a decisive advantage to be closer to our customer and reaffirm our commitments to providing U.S. based capabilities.”

“Thanks to this new achievement, Thales strongly raises its ability to support the U.S. Navy from the USA whilst providing the best of breed antisubmarine warfare operational systems and technology for the benefit of the U.S. Navy,” said Gwendoline Blandin-Roger, managing director, underwater systems.

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## **Cutter Kimball Returns to Homeport after Patrol in Bering Sea and Arctic**



The crew of the Coast Guard Cutter Kimball (WMSL 756) underway in the Pacific, April 4, 2021. *U.S. COAST GUARD*

JUNEAU, Alaska – The crew of Coast Guard Cutter Kimball returned to homeport in Honolulu, Hawaii Oct. 27 following a 66-day patrol in the Bering and Chukchi Seas, the Coast Guard

14<sup>th</sup> District said in a release.

The crew traveled nearly 13,000 nautical miles since departing Honolulu Aug. 21, including through the Bering Strait and into the Arctic Ocean. With Arctic sea ice melting, these distant travels are important in helping the U.S. Coast Guard conduct a range of operations in the high latitudes as fish stocks and maritime traffic moves north.

The Kimball crew conducted 18 targeted living marine resources boardings; the most a national security cutter has completed during a single patrol in the 17th District area of responsibility.

“These law enforcement boardings maximized our presence in the Bering Sea,” said Petty Officer 1st Class Samuel Cintron, Kimball lead law enforcement petty officer. “Each boarding team member was instrumental to the success of the operation and reinforced the Coast Guard’s position on protecting national security and domestic fisheries.”

More than 65 percent of fish caught in the United States is harvested from Alaskan waters, generating more than \$13.9 billion annually.

The Kimball crew conducted at-sea drills with key maritime partners including the Royal Canadian Naval Ship Harry DeWolf and Japanese Maritime Self-Defense Force training vessel Kashima. In each instance, the ships operated alongside one another and exchanged visual communications, followed by honors. This display of maritime cooperation and mutual respect emphasizes the United States’, Canada’s, and Japan’s continued commitment to one another and to partnership at sea.

During the deployment, Kimball crew observed four ships from the People’s Liberation Army Navy (PLAN) operating as close as 46 miles off the Aleutian Island coast. While the PLAN ships

were within the U.S. exclusive economic zone, they followed international laws and norms and at no point entered U.S. territorial waters. All interactions between the Kimball and PLAN were in accordance with international standards set forth in the Western Pacific Naval Symposium's Code for Unplanned Encounters at Sea and Convention on the International Regulations for Preventing Collisions at Sea.

The Kimball crew conducted astern refueling at sea with Coast Guard Cutter Oliver Berry, a fast response cutter also homeported in Honolulu. This capability significantly extends the operational range of FRCs.

Commissioned in 2019, Kimball is the Coast Guard's seventh national security cutter. These assets are 418 feet long, 54 feet wide and have a displacement of 4,600 long tons. With a range of 13,000 nautical miles, the advanced technologies of this class are designed to support the national objective to maintain the security of America's maritime boundaries and provide long range search and rescue capabilities.

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## **Navy Budget Admiral: Topline a Challenge for New Ship Programs**



Rear Adm. John E. Gumbleton gives remarks at a press conference in the Port of Los Angeles, March 27, 2020. *U.S. NAVY / Mass Communication Specialist 1st Class David Mora Jr.*  
ARLINGTON, Va. – The U.S. Navy is facing a bow wave of fiscal challenges as it launches or proceeds new major ship, aircraft and shipyard programs as it seeks to build the fleet the

nation needs, the Navy's budget director said.

"The elephant in the room is, of course the availability of funding," said Rear Adm. John Gumbleton, deputy assistant secretary of the Navy for Budget (FMB) and director, Fiscal Management Division, N82, Office of the Chief of Naval Operations, speaking in a webinar sponsored by the Navy League of the United States and Huntington Ingalls Industries and moderated by Dr. Jerry Hendrix, a retired Navy captain and vice president of the Telemus Group.

"Here we are in 2021, and we're looking at our Columbia-class [ballistic-missile submarine] coming on line, consuming large values in R&D [research and development] as well as our SCN [Ship Construction, Navy] appropriation; and at the same time trying to invest in the next large surface combatant R&D [DDGX], SSNX [Next-Generation Attack Submarine] R&D, and also the Next-Generation Air Dominance at the same time," Gumbleton said. "[Plus] the extra 'bonus' of trying to recapitalize our century-old dry dock facilities, so, essentially, reinvesting in a modern shipyard.

"All these are Navy challenges and our cross to bear so to speak, but, in a capital-intensive service, where you're trying to keep production of destroyers, frigates, aircraft carriers [going], it just speaks to the enormous challenge of trying to do this in a smart fashion within a topline granted," the admiral said.

Asked about the Navy's force structure – which currently is a subject of a Defense Department global force review – Gumbleton said a range in the number ships may be more useful for planning rather than a fixed number.

"Any plan – you put any number out there, is guaranteed to be wrong," he said. "It is helpful to say, 'How precise can we be?' We introduce the capabilities that these platforms may need to bring to bear and what type of mix – manned or

unmanned, etc. – and what that might mean to a future force structure. An incredibly complex effort. I think a range speaks to the assumptions that underly any study. So, if we were to assume that we were going to have a manned/unmanned mix, that they have very different capabilities, that implies that there might be a future state where this range can reflect what choices we take with those assumptions.”

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## Future USS Fort Lauderdale Completes Builder's Trials



The future USS Fort Lauderdale (LPD 28) was successfully launched at the Huntington Ingalls Industries (HII) Ingalls Division shipyard in Pascagoula, Mississippi, on March 28.

*HUNTINGTON INGALLS INDUSTRIES*

WASHINGTON – The future USS Fort Lauderdale (LPD 28), the Navy's 12th San Antonio class-amphibious transport dock ship, conducted builder's sea trials Oct. 26, Team Ships Public Affairs said Oct. 27.

Builder's trials consist of a series of in-port and at-sea demonstrations that allow the Navy and the shipbuilder, Huntington Ingalls Industries' (HII) Ingalls Shipbuilding Division, to assess the ship's systems and readiness prior to acceptance trials and delivery to the Navy.

“The completion of builder's trials is a great first step in ensuring operational readiness of the vessel and the capabilities it will soon bring to the fleet,” said Capt. Scot Searles, San Antonio Class Program Office, program manager, Program Executive Office (PEO) Ships. “The collaboration between the Navy and our industry partners ensures that we'll

have a capable and ready ship for our Sailors.”

The San Antonio-class is designed to support embarking, transporting, and landing Marines and their equipment by conventional or air-cushioned landing craft. The ship’s capabilities are further enhanced by its flight deck and hangar, enabling the ship to operate a variety of Marine Corps helicopters and the MV-22 Osprey tiltrotor aircraft. Because of the ships inherent capabilities, they are able to support a variety of amphibious assault, special operations, expeditionary warfare, or disaster relief missions, operating independently or as part of Amphibious Readiness Groups, Expeditionary Strike Groups or Joint Task Forces.

HII’s Ingalls Shipbuilding Division is currently in production of the future USS Richard S. McCool (LPD 29) and the future USS Harrisburg (LPD 30). LPD 28 and 29 will serve as transition ships to LPD 30, the first LPD 17 Flight II ship.

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## **Rapid HIMARS Deployment to Remote Location Demonstrates Distributed Lethality**



The U.S. long-range artillery rocket system HIMARS is launched on Swedish territory. *Joel Thungren/Försvarsmakten*  
GOTLAND, Sweden – Sweden and the United States conducted a recent exercise to deploy a mobile rocket launcher to a remote location and quickly engage targets.

Both Swedish and American C-130 Hercules aircraft demonstrated the ability to land on roads in a remote location on the

island of Gotland in the Baltic Sea Oct. 23.

A U.S. MC-130J Commando II Special Operations aircraft carried a Wisconsin Army National Guard M142 HIMARS (High Mobility Artillery Rocket System) long-range artillery system on board. The HIMARS was promptly unloaded and assembled for firing, then loaded onto the Swedish C-130H (designated as a TP 84 in the Swedish Air Force) and flown to another location in the northern part of the country, escorted by Swedish air force JAS 39 Gripen fighters, for a live firing event. The launch was successful.

According to the Swedish armed forces, "Within a few minutes, the system was assembled and ready to launch. It was then loaded on board the aircraft again and transported up to northern Sweden to demonstrate live firing. It was the first time this feature was fully exercised."

"During the ongoing special forces exercise, new capabilities and weapon systems have been tested to enhance the joint operational capability in the vicinity of Sweden," said a statement from the Swedish Ministry of Defense.

"Everything went very well. The joint exercises conducted this past weekend demonstrate how far we've come in our cooperation with the U.S.," said Swedish Army Lt. Gen. Michael Claesson, Sweden's chief of joint operations.

Gotland is Sweden's largest island, and one of tens of thousands of islands strategically located in the Baltic Sea. Sweden is a neutral and independent country, and not a member of NATO treaty. It does, however, follow NATO military procedures and frequently participates in NATO and U.S. bilateral exercises.

The exercise demonstrates the ability to rapidly deploy lethal capabilities to remote locations, a key to the Navy and Marine Corps distributed maritime operations concept.

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# NAVCENT Task Force Completes First Unmanned Integration Exercise at Sea



On Oct. 26, U.S. Naval Forces Central Command completed exercise New Horizon, the first at-sea evolution for its new unmanned task force. *NAVCENT*

NAVAL SUPPORT ACTIVITY, Bahrain – U.S. Naval Forces Central Command (NAVCENT) completed exercise New Horizon, the first at-sea evolution for its new unmanned task force, the command's public affairs said Oct. 26.

During the two-day training exercise, Task Force 59 integrated and evaluated new MANTAS T-12 unmanned surface vessels (USV) that operated alongside manned U.S. patrol craft and Bahrain Defense Force maritime assets.

This marked the first time NAVCENT integrated USVs with manned assets at sea in the U.S. 5th Fleet area of operations. New Horizon was also the first time for NAVCENT's integration of USVs with manned assets at sea alongside partner forces.

"Working with our regional partners on unmanned systems integration is crucial to enhancing collective maritime domain awareness," said Vice Adm. Brad Cooper, commander of NAVCENT, U.S. 5th Fleet and Combined Maritime Forces. "Bahrain, as our first regional partner to collaborate with Task Force 59 during an at-sea exercise, demonstrates the strengthening of our strategic relationship."

The first phase of New Horizon, conducted Oct. 20, featured operators controlling the USVs aboard patrol coastal ship USS

Firebolt (PC 10), while the vessels conducted high-speed maneuvers in formation.

The final phase on Oct. 26 brought together a larger force of manned and unmanned maritime and aerial assets from NAVCENT, the Royal Bahrain Naval Force and Bahrain coast guard. Participating units also included patrol boat USCGC Maui (WPB 1304), an MH-60S helicopter, a V-BAT unmanned aerial vehicle and Bahrain naval force patrol craft.

Both U.S. and Bahraini forces practiced operating the vessels in formation to strengthen mutual understanding and interoperability.

“This is a significant milestone for our new task force as we accelerate the integration of unmanned systems and artificial intelligence into complex, cross-domain operations at sea,” said Capt. Michael Brasseur, commander of Task Force 59. “Real-world evaluation is essential.”

NAVCENT established the task force Sept. 9 to focus U.S. 5th Fleet efforts on unmanned systems and artificial intelligence integration.

The U.S. 5th Fleet area of operations encompasses about 2.5 million square miles of water area and includes the Arabian Gulf, Gulf of Oman, Red Sea and parts of the Indian Ocean. The expanse is comprised of 21 countries and includes three critical choke points at the Strait of Hormuz, the Suez Canal and the Strait of Bab al Mandeb at the southern tip of Yemen.

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# CORAS to Support U.S. Navy's Shipboard Systems with AI/ML



TYSONS, Va. – CORAS, an enterprise decision management software company in Tysons, Virginia, has won a prototype project agreement under the other transaction authority with the U.S. Navy's Naval Information Warfare Center Atlantic for the Information Warfare Research Project (IWRP).

The focus of the prototype is to improve and troubleshoot shipboard information technology systems. As part of this effort, CORAS will leverage artificial intelligence and natural language processing software from Plasticity Inc. Other transaction authority refers to the authority of the Department of Defense to carry out certain prototypes, research, and production projects.

The combined efforts of the IWRP team, Advanced Technology International, the manager of the IWRP consortium, and CORAS staff were critical in the speed of awarding the PPA.

CORAS President Dan Naselius said, "We are excited to expand CORAS' footprint within the U.S. Navy. Implementing Plasticity's superior AI/NLP capabilities within CORAS' FedRAMP High Cloud security will help the Navy leverage data and root cause analysis to run tactical systems expediently and efficiently, and simultaneously gather and identify more information."

Alexander Sands, Plasticity cofounder, said, "Natural language processing is driving even deeper insights from data to power government and commercial decision-making. We're excited to integrate Plasticity into CORAS' OTA effort to bring secure, state-of-the-art NLP to a tactical DoD environment."

Plasticity provides NLP and machine learning software to

companies across a variety of industries including government, finance, commerce, and healthcare. Plasticity's software is used by more than 200 companies for semantic language understanding, question answering, and entity extraction, as well as in machine learning pipelines.