

Uncrewed Surface Vessels

A Ghost Fleet Overlord test vessel One of the Pentagon's two Overlord large unmanned surface vessels conducted a first-ever Panama Canal transit, sailing thousands of miles from the Gulf Coast to California in a major test of autonomous systems with few reliability issues along the way, the chief of naval operations told USNI News. The 59-meter USV, which was converted from a regular high-speed craft to a USV prototype last year, departed Mobile, Ala., on 18 September 2020. After operating in the Gulf of Mexico for some time, it made a Panama Canal transit and arrived in Port Hueneme, CA, on 5 November according to data provided to USNI News from the Marine-Traffic vessel tracking service.

“Recently, the Strategic Capabilities Office (SCO) in partnership with the Navy conducted a long-range autonomous transit with a Ghost Fleet Overlord vessel. During this voyage, the vessel traveled over 4,700 nautical miles, 97 percent of which was in autonomous mode — a record for the program. Ghost Fleet Overlord will continue fleet experimentation to inform the Navy's unmanned concept development,” Pentagon spokesman Cmdr. Josh Frey told USNI News 10 November 2020.

Chief of Naval Operations Adm. Mike Gilday told USNI News in a 5 November 2020 interview that the Navy has a good idea of its requirements for unmanned vehicles on the surface, under the sea and in the air, and that today the focus is boosting reliability of the prototypes. “You know, we just did transit of one unmanned [surface vessel] through the Panama Canal. Ninety percent of that transit, more than 90 percent was autonomous, with a very high-reliability rate,” he said, adding that there were “a couple of small casualties” during the voyage but that “we are learning, and what we are trying to do is develop a prototype with a very high degree of reliability that we can then double down on and scale.”

The Pentagon's Strategic Capabilities Office operates two Overlord large USV prototypes that came out of the 2017 kickoff of the “Ghost Fleet” effort. The vessels were converted to have autonomous navigation and engineering systems in early 2019, and late last year they advanced to Phase 2 of experimentation efforts. SCO will turn those over to the Navy's Surface Development Squadron One by the end of this fiscal year, or by September 2021.

SURFDEVRON Commodore Capt. Hank Adams previously told USNI News that, even prior to his squadron taking command of the vessel, he would be able to experiment with an Overlord USV paired with an ashore command and control node.

Adams said in a virtual panel event in September that, using an Overlord vessel in the end of Fiscal Year 2020 and into the beginning of FY 2021—or around now—he would create the first 24-hour watch “of a fleet-manned unmanned operations center ashore, UOC ashore. It's going to be here in San Diego. So, I'm going to have fleet operators, [surface warfare]-qualified junior officers who have got training in COLREGs and ship-handling and things like that, and senior enlisted personnel in relevant rates, are going to stand up this watch, and they're going to be sitting next to the technology developers that write the code for the supervisory control system. And for the duration of that transit, which will be some number of weeks, I'm going to have my guys in that UOC ashore,” Adams said in the panel.

“We’ll be getting feedback on what we think command and control looks like from a UOC ashore. We’re going to be giving direct feedback to the tech developers on how to improve the human systems integration piece for the supervisory control system. We’re going to begin looking at what is the proper information display that should be part of a UOC ashore, what’s the proper manning, did we get the training right.”

The Overlord USVs are based in the Gulf Coast—one in Mobile and one in New Orleans, according to vessel-tracking data, but will be moved to California to serve under the SURFDEVRON. As part of their prototype work while still under SCO, Navy leaders have publicly discussed a Gulf Coast to East Coast transit of an Overlord this year, which appears to have been conducted by the second Overlord vessel earlier this fall. That voyage to Norfolk, Va., and back to the Gulf Coast was about 1,400 nautical miles in distance, USNI News previously reported, compared to this most recent 4,700 nautical mile trip out to California. The USV that conducted the Panama Canal transit is owned by Seacor Marine and was built at Gulf Craft in Franklin, LA.

According to press reports, the SCO contracted with Gibbs & Cox and L3 ASV Global in 2018 to convert one craft each into unmanned prototypes. The Pentagon used special contracting rules to prevent disclosure of the contractors and the cost of the Overlord program. Additionally, the Navy has bought two Sea Hunter medium USV prototype vessels that are under SURFDEVRON control. The first of those vessels has already participated in two Surface Warfare Advanced Tactical Training (SWATT) events this past year and in FY 2021 will participate in multiple fleet exercises and training events. The craft is based in Point Loma, Calif. The second Sea Hunter is expected to deliver in the coming months.

Gilday said during the interview that “we have a really good sense of what we need. Under the sea we have a really good sense of what we want those platforms to deliver. On the sea, we know that we need larger unmanned as adjunct magazines, right, and medium unmanned to perform a number of other functions – and some of them are classified, and I don’t want to get into them, but they range from deception to command and control nodes. And so we know that that’s a valid requirement.” With the requirement for USVs and other unmanned systems validated, he said the next step is assuring their reliability and sustainability in the fleet.

In parallel, he added, “those vessels are useless unless we can command and control them with a very high degree of precision and reliability. And so that’s where we start talking about the Navy’s Project Overmatch that falls underneath or nests underneath JADC-2. And so there are four big pieces to that. It’s the networks. It’s the infrastructure. It’s the data standards. And then finally, it’s the capabilities, whether they’re battle management aids or whether they’re artificial intelligence and machine learning capabilities that we apply to that data that allow us to decide and act faster than the bad guy, and then deliver ordnance faster out of these unmanned platforms.