Offensive Anti-Surface Warfare (OASuW) Increment 1



In FY24, the Offensive Anti-Surface Warfare (OASuW) Increment 1 program continued the development of missile hardware and software to increase targeting capabilities and employment range over the previously fielded AGM-158C Long Range Anti-Ship Missile (LRASM 1.0). The Navy conducted modeling and simulation (M&S) events and an LRASM 1.1 integrated developmental/ operational weapon employment test event. The Navy performed LRASM 1.1 integrated flight test events in accordance with the DOT&E-approved Master Test Strategy (MTS). DOT&E concurred with the Navy's plan to collect operational test (OT) data during integrated test (IT), subject to final trial validation, with the understanding that the Navy would deliver the complete IOT&E plan before further OT data were collected. A DOT&E-approved IOT&E plan is expected in 1QFY25. Following IT, the Navy fielded LRASM 1.1 in November 2023 prior to dedicated OT beginning in July 2024. DOT&E published a classified early fielding report in April 2023. The Navy is currently developing the next missile upgrade, LRASM C-3, which brings an upgraded threat target library, greater employment range, and beyond line-of-sight communication capability.

SYSTEM DESCRIPTION

The OASuW Increment 1 is the first weapon of an incremental approach to produce an OASuW capability in response to an urgent U.S. Pacific Fleet operational need generated in 2008. AGM-158C LRASM, the weapon system for the OASuW Increment 1, is a longrange, conventional, air-to-surface, precision-standoff weapon intended for launch from the Navy's F/A-18E/F and the Air Force's B-1B aircraft. Once launched, LRASM guides to an initial point using a GPS guidance system and employs onboard sensors to locate, identify, and provide terminal guidance to the target.

To date, there are three LRASM variants that comprise the OASuW Increment 1 program, designated LRASM 1.0, LRASM 1.1, and LRASM C-3. In FY22, the Navy began development of LRASM C-3, which added extended range capability. The LRASM C-3 upgrade remains focused on surface warfare capabilities and includes a greater employment range, beyond line-of-sight communication capability, and threat target library improvements. The Navy continues to work through the details required to plan and execute test events to meet the LRASM C-3 early operational capability (EOC) in 4QFY26.

MISSION

Combatant commanders will use units equipped with LRASM to destroy adversary ships from standoff ranges.

PROGRAM

OASuW Increment 1 is an Acquisition Category IC program. It began as an accelerated acquisition program to procure a limited number of air-launched missiles in response to a U.S. Pacific Fleet urgent operational need generated in 2008. The program leveraged the near-term Defense Advanced Research Projects Agency (DARPA)'s LRASM initiative as the weapon system for OASuW Increment 1. DOT&E approved the LRASM 1.1 MTS in January 2020, in lieu of a TEMP. In 2QFY23, the Navy announced the intention to field LRASM 1.1. following FY22 IT events but before conducting the IOT&E. DOT&E published a classified early fielding report in April 2023, and the Navy fielded LRASM 1.1 in November 2023. DOT&E will publish a classified LRASM 1.1 combined IOT&E and LFT&E report at the completion of OT flights, M&S, and cyber survivability testing in FY25 to inform continual fielding.

The LRASM C-3 program was delayed by expanded program scope and does not plan to conduct integrated developmental/ operational weapon employment testing until 1QFY26, with EOC planned for 4QFY26. The Navy continued drafting the LRASM C-3 MTS in FY24. OASuW Increment 2 is intended to deliver anti-surface warfare capabilities to counter future threats. The DoD continues to plan for the development of OASuW Increment 2 via full and open competition, with EOC anticipated in FY29 and initial operational capability anticipated in FY31. The Navy funded LRASM C-3 to bridge the gap in capability against predicted threats until an OASuW Increment 2 program of record is established. The C-3 upgrade is intended to incorporate missile hardware and software improvements to address component obsolescence and increase missile range and targeting capabilities.

» MAJOR CONTRACTOR

 Lockheed Martin Missiles and Fire Control – Orlando, Florida

TEST ADEQUACY

The start of LRASM 1.1 dedicated OT activity was delayed due to hardware production delays. However, the Navy proceeded with IT events in accordance with the DOT&E-approved MTS. The IOT&E plan was not ready for DOT&E approval before collection of IOT&E data began in July 2024. An IOT&E test plan for DOT&E approval is expected in 1QFY25.

IOT&E data collection began in July 2024 and will continue into early FY25 after DOT&E approval of the IOT&E plan. IOT&E is composed of weapon employment test events, including one with

a live warhead, M&S-based test events, and cyber survivability test events. Weapon employment test events have occurred under benign environmental and threat conditions thus far; M&S events simulated more realistic conditions not easily replicated in live-range environments. Future open-air test events should include increased threat realism to the extent practicable to provide better validation data for the M&S tools. DOT&E will publish a classified combined IOT&E and LFT&E report in FY25 after operational flight, cyber survivability, and M&S tests are complete.

In March 2024, the Navy completed one IT event and engaged a moving maritime target with a salvo of four LRASM 1.1 free-flight evaluation missiles employed from F/A-18F aircraft. Three of the four missiles had undergone suitability testing on an aircraft carrier in FY23. In July 2024, the Navy conducted an OT event with an LRASM 1.1 All-Up Round employed from an F/A-18F aircraft against a maritime target. In FY24. the Navy continued development of the M&S environment and completed two M&S IT events.

The Navy continued to develop the LRASM C-3 MTS and OT plan in FY24. The Navy completed the missile concept of operations and system requirements during FY23, focusing on anti-surface warfare employment range and updating the missile target threat library compared to LRASM 1.1. The Navy should continue to work with DOT&E to develop and execute an adequate OT plan to support EOC in 4QFY26.

PERFORMANCE

» EFFECTIVENESS

Insufficient data are available for an assessment of the operational effectiveness of LRASM 1.1. However, FY24 test results show that LRASM 1.1 can successfully impact the target under the benign conditions used during the integrated flight test. Operational effectiveness will be assessed in the FY25 combined IOT&E and LFT&E report, once testing and data analysis are complete.

» LETHALITY

Testing accomplished in July 2024 focused on evaluating the lethality of LRASM 1.1, but the required data were not collected due to test instrumentation issues. DOT&E will assess lethality in the FY25 combined IOT&E and LFT&E report, once testing and data analysis are complete.

» SUITABILITY

Insufficient data are available for an assessment of the operational suitability of LRASM 1.1. DOT&E will provide an assessment of operational suitability in the FY25 combined IOT&E and LFT&E report, once testing and analysis are complete.

» SURVIVABILITY

Cyber survivability testing is scheduled for FY25. DOT&E will

assess operational survivability in the FY25 combined IOT&E and LFT&E report, once testing and analysis are complete.

RECOMMENDATIONS

As recommended in the FY23 Annual Report, the Navy should:

- 1. Complete development, verification, validation, and accreditation of the M&S environment to facilitate the evaluation of LRASM 1.1.
- Complete development of the LRASM C-3 MTS and OT plan and submit both for DOT&E approval.

Additionally, the Navy should:

- Submit for DOT&E approval an LRASM 1.1 IOT&E and LFT&E plan that includes operationally representative open-air scenarios and environments.
- 2. Complete LRASM 1.1 IOT&E to support continual fielding.
- Include an end-to-end LRASM C-3 lethality test event to collect lethality data the Navy failed to acquire from the LRASM 1.1 event in July 2024.