

# Offensive Anti-Surface Warfare (OASuW) Increment 1



The Offensive Anti-Surface Warfare (OASuW) Increment 1 program continues the development of missile hardware and software to increase targeting capabilities as an incremental upgrade to the currently fielded air-to-ground missile (AGM)-158C Long Range Anti-Ship Missile (LRASM). In October 2021, the program began flight test bed events with the goal of testing improved hardware and software resident in LRASM 1.1. Integrated captive carry events were conducted in July 2022 to provide risk reduction data prior to missile free-flight integrated test events (ITEs) completed on August 15 and September 23, 2022. The goal of ITE was to capture telemetry data to be used for modeling and simulation (M&S) verification, validation and accreditation (VV&A) for future IOT&E of LRASM 1.1 and support the FY22 Quick Reaction Assessment (QRA) report and planned declaration of early operational capability (EOC) in 1QFY23.

## SYSTEM DESCRIPTION

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The OASuW Increment 1 program is the first weapon of an incremental approach to produce an OASuW capability in response to a U.S. Pacific Fleet Urgent Operational Need generated in 2008. OASuW Increment 1 began as an accelerated acquisition program to procure a limited number of air-launched missiles leveraging the near-term Defense Advanced Research Projects Agency's LRASM initiative. LRASM is a long-range, conventional, air-to-surface, precision standoff weapon that can be launched from the Navy's F/A-18E/F and the Air Force's B-1B aircraft. LRASM, designated as the AGM-158C, is derived from the Joint Air-to-Surface Standoff Missile – Extended Range (JASSM-ER). 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 which comprise the OASuW Increment 1 program, designated LRASM 1.0, LRASM 1.1, and LRASM C-3. In FY21, the Navy introduced LRASM C-3, a version adding land strike capabilities while removing components to reduce unit cost. The Navy is working on the details required to plan and execute test events in order to meet the LRASM C-3 EOC planned for 4QFY24. LRASM 1.0 is

currently fielded to the fleet while LRASM 1.1 entered ITEs in FY22.

OASuW Increment 2, the follow-on program to OASuW Increment 1, will deliver long-term anti-surface warfare capabilities to counter future threats. The DOD continues to plan for OASuW Increment 2 to be developed via full and open competition, and initial operational capability is anticipated in FY28-30. Due to congressional budget reductions for OASuW Increment 2, the Navy funded LRASM 1.1 to bridge the gap until an OASuW Increment 2 program of record is established. This upgrade incorporates missile hardware and software improvements to address component obsolescence and increase targeting capabilities. LRASM 1.1 is currently in the integrated test phase.

## MISSION

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

## PROGRAM

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DOT&E approved the LRASM 1.1 Master Test Strategy in January 2020. Developmental flight testing of LRASM 1.1 components on a Sabreliner flight test bed started in March 2021 and completed in January 2022. The Navy conducted a captive carry flight test in July 2022 as risk-mitigation for free-flight evaluation missiles (FFEM) prior to entering the free-flight integrated test phase.

Integrated testing occurred in August and September 2022 at Point Mugu Sea Range with three inert warhead shots at unmanned mobile maritime targets employed from F/A-18E/F aircraft. The Navy will use telemetry and impact data collected from ITEs to validate M&S and support accreditation for use in operational testing. Operational testing is composed of FFEM shots, including one with a live warhead in 2024, M&S-based test events, and cyber operational test events.

The Navy planned to complete verification and validation of the LRASM M&S suite by the end of FY22 before LRASM 1.1 EOC; however, M&S accreditation was not possible during FY22 due to insufficient open-air test flight data. As ITEs began in August 2022, validation and verification data will become available, but not until 1QFY23. Therefore, the decision was made to remove M&S from the QRA. DOT&E will write an operational test report in 2025 after operational flight, cyber, and M&S tests are complete.

The Navy plans to conduct an integrated test shot for LRASM C-3 in 1QFY24 and reach EOC in 4QFY24. The C-3 will compete for limited M&S resources already reserved for LRASM 1.1 operational testing.

## » MAJOR CONTRACTOR

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- Lockheed Martin Missiles and Fire Control – Orlando, Florida

## TEST ADEQUACY

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The LRASM 1.1 Master Test Strategy (MTS) was approved on January 30, 2020. The Navy is proceeding in accordance with the MTS, but LRASM 1.1 dedicated operational test activity did not occur in 2022. However, integrated test phase-1 began in August 2022, which can be used as operational test data. Data collected during integrated test phase-1 will produce open-air test data required to support the Operational Test and Evaluation Force's QRA required for the Navy to make a LRASM 1.1 EOC decision.

LRASM 1.0 integrated testing in FY17-19 was in accordance with the DOT&E-approved test plan but had limited operational realism. The Navy plans to increase operational realism in LRASM 1.1 IOT&E through replication of an operationally representative environment during M&S events. LRASM 1.1 will also undergo cyber operational testing using a signal processor-in-the-loop lab environment. The

Navy is developing the LRASM 1.1 operational test plan.

No LRASM C-3 operational test activity occurred in 2022. The Navy needs to complete development of the LRASM C-3 concept of operations and system requirements, and work with DOT&E to plan and execute an adequate operational test to support full-rate production and EOC in 4QFY24. LRASM C-3 will require M&S resources to develop and test the new land strike capability. M&S resources are already limited for LRASM testing, so the Navy needs to ensure adequate resources remain for LRASM 1.1 when including C-3 test needs.

## PERFORMANCE

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### » EFFECTIVENESS, SUITABILITY, AND SURVIVABILITY

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Operational effectiveness, suitability, and survivability assessments will be addressed

in the FY25 IOT&E report, once testing and analysis are complete.

## RECOMMENDATIONS

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The Navy should:

1. Plan and execute operational testing before full-rate production of LRASM Increment 1 weapons.
2. Complete development and validation of the M&S environment to facilitate the operational effectiveness evaluation of LRASM 1.1.
3. Ensure adequate M&S resources remain for LRASM 1.1 operational testing when adding LRASM C-3 operational requirements.