

# DDG 1000 *Zumwalt*-Class Destroyer



In FY25, the Navy's Operational Test and Evaluation Force (OPTEVFOR) continued operational testing of the DDG 1000 *Zumwalt*-class destroyer with a surface strike missile exercise and concluded the modeling and simulation (M&S) testbed runs to evaluate the anti-air warfare capability against threat anti-ship cruise missiles (ASCMs) and aircraft. The *Zumwalt*-class Program Office has not funded or scheduled Full Ship Shock Trials (FSST) and does not plan to update ship survivability M&S to reflect the as-built configuration or the installation of Conventional Prompt Strike (CPS). *Zumwalt*-class survivability cannot be determined until the M&S update and FSST are complete.

## SYSTEM DESCRIPTION

*Zumwalt*-class ships are long range, low observable destroyers. They are equipped with: (1) a modified AN/SPY-3 Multi-Function (X-band) radar that adds a volume search capability; (2) 80 vertical launch cells to employ Tomahawk Land Attack Missiles, Standard Missiles (SM-2/SM-6), and Evolved

Sea Sparrow Missiles; and (3) two Mk 46 30mm close-in gun systems. The class is currently being modified to incorporate CPS modules to enhance the destroyers' strike warfare capability.

## MISSION

The joint force maritime component commander can

employ *Zumwalt*-class destroyers primarily for forward-deployed offensive surface strike missions, with a secondary mission of surface warfare dominance. As designed, the *Zumwalt*-class included undersea warfare capabilities; these capabilities are no longer required for the updated operational environment of the *Zumwalt*-class. The *Zumwalt*-class is designed for independent operations but can be integrated

into carrier or expeditionary strike group operations.

The Navy has begun the installation of CPS modules on USS *Zumwalt* (DDG 1000) and anticipates the completion of CPS module installation for the remainder of the *Zumwalt*-class in FY28. These modules will provide the *Zumwalt*-class additional strike warfare capability.

## PROGRAM

The *Zumwalt*-class is an Acquisition Category IC program. The President's Budget in 2011 truncated the class to three ships. The Navy commissioned USS *Zumwalt* (DDG 1000) in 2016, USS *Michael Monsoor* (DDG 1001) in 2019, and expects the delivery of USS *Lyndon B. Johnson* (DDG 1002) in FY27.

The Navy continues to update the *Zumwalt*-class TEMP due to significant modifications to the operational requirements and warfighting concept of operations. The Navy changed the *Zumwalt*-class's primary mission from land attack to open-ocean surface strike in 2019. The Navy codified additional changes in a June 2021 revision to the Operational Requirements Document, to include the integration of CPS. The Navy intends to update test requirements of the *Zumwalt*-class in the next revision of the TEMP, based on revised employment of the class.

The *Zumwalt*-class IOT&E started in October 2021. Due to the Navy's decision to operationally employ USS *Zumwalt* prior to completion of IOT&E, DOT&E published a

classified early fielding report in October 2022.

DOT&E previously reported in the FY24 Annual Report that expected completion of IOT&E was to occur in FY25, following the completion of testing of the *Zumwalt*-class primary mission of open-ocean surface strike. In 2QFY25, the program completed a Tomahawk live fire shot; however, there were other operational test events which were not completed prior to the deployment of USS *Michael Monsoor* in March 2025, which delayed the completion of IOT&E. DOT&E now expects IOT&E to continue into FY27 onboard USS *Zumwalt*, following completion of a Build Yard Modernization Period (BYMP). Due to the Navy's decision to operationally deploy USS *Michael Monsoor* prior to completion of IOT&E, DOT&E will publish a classified interim operational testing assessment in FY26.

Evaluation of SM-6 integration of *Zumwalt*-class is planned for FOT&E. DOT&E also recommends an FSST after completion of the Navy's shock qualification program, which will conclude following installation of CPS.

Testing of the *Zumwalt*-class with CPS will be conducted by Strategic System Programs. See the Annual Report entry on CPS for further details.

### » MAJOR CONTRACTORS

- Bath Iron Works, a subsidiary of General Dynamics Corporation – Bath, Maine
- HII – Pascagoula, Mississippi
- Raytheon, a subsidiary of RTX – Arlington, Virginia

## TEST ADEQUACY

In 2QFY25, the Navy conducted testing to evaluate the *Zumwalt*-class's primary mission of offensive surface strike with a Tomahawk missile launch, including shipborne strike planning events. The Navy conducted this testing in accordance with the DOT&E-approved test plan, and it was observed by DOT&E. USS *Michael Monsoor* was able to successfully launch a Tomahawk missile but was not able to complete secondary test objectives due to communication issues. The Navy continues to analyze data to determine the *Zumwalt*-class's offensive surface strike capability.

In May 2025, OPTEVFOR completed Probability of Raid Annihilation M&S testbed runs. These M&S runs are intended to predict the *Zumwalt*-class's probability of defeating inbound ASCMs and aircraft across an expanded set of scenarios from the previously identified live fire test events. The program office completed a review of the M&S testbed federation in December 2024 and recommended accreditation to OPTEVFOR. DOT&E continues to work with OPTEVFOR to ensure the appropriate use of the M&S testbed.

Evaluation of *Zumwalt*-class employment of CPS will occur as described in the CPS Annual Report entry, following completion of BYMP.

The Navy has yet to fund or schedule an FSST for the *Zumwalt*-class. As previously identified in the FY22 – 24 Annual

Reports, this test is required to adequately assess ship survivability against underwater threat weapons and determine residual mission capability following such an occurrence.

In FY25, the Navy completed the final vulnerability assessment report, which included survivability findings gathered from the program’s LFT&E activities to date. However, the Navy did not update the survivability M&S supporting this report to reflect the class as-built and did not conduct verification, validation, and accreditation of the M&S. Without these updates and M&S accreditation, the survivability findings included in the report cannot be validated as accurate.

The Navy reports that current budget and schedule shortfalls preclude updates to vulnerability and recoverability M&S to reflect the as-built *Zumwalt*-class and inclusion of CPS when installed.

» **EFFECTIVENESS AND SUITABILITY**

Insufficient data are available to determine *Zumwalt*-class operational effectiveness and suitability or change the preliminary assessments provided in DOT&E’s classified early fielding report from October 2022. In FY26, DOT&E will publish a classified interim operational testing assessment, updating the assessments of *Zumwalt*-class operational effectiveness and suitability for those areas where additional test data is available.

» **SURVIVABILITY**

Assessment of *Zumwalt*-class cyber survivability is classified. Failure and recoverability mode testing aboard USS *Michael Monsoor*, conducted in 2022, provided insight into the recoverability of the class after damage. However, testing was not sufficient to resolve associated LFT&E critical issues due to limitations on the systems under test. DOT&E will address the strategy for completing the LFT&E assessment of the *Zumwalt*-class’s mission system recoverability as part of the upcoming TEMP revision.

Data remain insufficient to determine *Zumwalt*-class survivability against threat weapons because the Navy did not update the outdated survivability M&S to credibly represent the ships as-built. DOT&E cannot evaluate shock survivability of the class without conducting a shock trial or alternate shock assessment. DOT&E will recommend that the survivability M&S be updated and validated as part of the upcoming TEMP revision and will hold open the requirement to conduct a shock trial unless an adequate alternate approach to shock survivability assessment is planned and funded.

In FY26, DOT&E will publish a classified interim operational testing assessment that includes an assessment of the *Zumwalt*-class cyber survivability as well as LFT&E survivability for those areas where data is available, including findings from testing aboard the ship in 2022.

**RECOMMENDATIONS**

The Navy should:

1. Complete remaining IOT&E events, as recommended in the FY23 and FY24 Annual Reports.
2. Submit for DOT&E approval a revision of the TEMP for modifications to the operational requirements and employment of the *Zumwalt*-class to include installation of CPS, as recommended in the FY24 Annual Report.
3. Submit for DOT&E approval an update to the LFT&E Strategy that includes evaluation of the as-built *Zumwalt*-class following the installation of CPS, as recommended in the FY24 Annual Report.
4. Fund and schedule an FSST of a *Zumwalt*-class ship with CPS installed, as recommended in the FY23 and FY24 Annual Reports, or engage with DOT&E to determine an alternate method of assessing the risk of shock events to the class.
5. Document the risk to the warfighter associated with incomplete component shock qualification and lack of an FSST, as recommended in the FY22 – 24 Annual Reports.
6. Sufficiently fund modernization and sustainment of the *Zumwalt*-class to include improvements determined from failure and recoverability mode testing documented in the Navy’s report on the event, as recommended in the FY22 – 24 Annual Reports.