

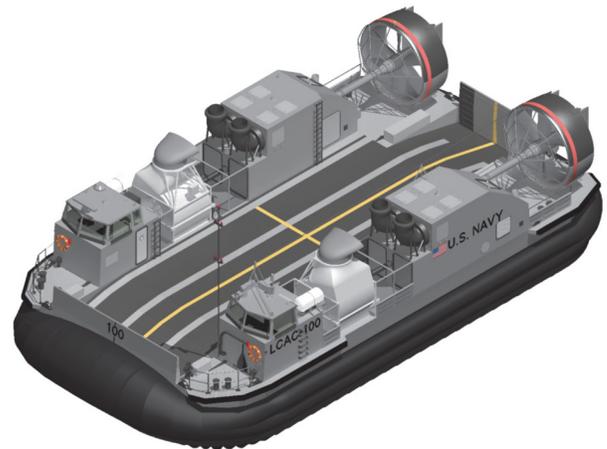
Ship-to-Shore Connector (SSC)

Executive Summary

- This is the first annual report for this program and it only addresses LFT&E.
- In June and July 2015, the Navy conducted full scale hull tests of the Ship-to-Shore Connector (SSC) hull and skirt system against an under-hull explosion and blast/fragmentation threat using a Landing Craft Air Cushion (LCAC) as a surrogate. The full hull tests generated data that will be used to evaluate the potential for crew and troop casualties and characterize the weapons effects on craft structure and machinery.
- The Navy tested the topside modules and structure of the LCAC, the system the SSC is replacing, against weapons effects from shaped charge, indirect fire, and land mine threats during its development in 2011 and 2012. The SSC Program Office used the results of these tests to identify knowledge gaps for the SSC and accordingly fund and plan additional testing to address these gaps.
- The first craft is scheduled for delivery in FY17, and initial operational capability for the SSC is projected to occur in FY20.

System

- The SSC is a fully amphibious air cushion vehicle intended to replace the existing LCACs.
- Compared to the existing LCAC, the Navy intends the SSC to have increased payload, reliability, and availability.
- The Navy intends to operate the SSC from the well decks of current and planned Navy amphibious ships and onboard the planned Mobile Landing Platform.



Mission

Commanders will employ amphibious crews equipped with the SSC to transport equipment, personnel, and weapons systems from ships through the surf zone and across the beach to landing points beyond the high water mark in a variety of environmental conditions.

Major Contractor

Textron Systems – New Orleans, Louisiana

Activity

- In 2011 and 2012, sections of an LCAC structure and topside modules were used to characterize the weapons effects from shaped charge, indirect fire, and land mine threats when the craft was on cushion. Data from these tests were used to develop the full hull test plan.
- In July 2013, the Navy conducted a test using a 1/10 scale SSC in a wave tank to evaluate the craft's ability to survive a 10-foot significant wave height sea condition. The scalability of these data will be validated by instrumented trials using the first SSC after delivery from the shipbuilder in FY17.
- In June and July 2015, the Navy completed full hull testing using an operational LCAC as a surrogate for the SSC. This included two tests against mines emplaced under the hull and skirt, as well as a full hull test against a blast/fragmentation threat. The Navy intends to install energy-attenuating seats in the Command Module of the SSC to increase ride comfort of the crew, but these seats were not available for the under-hull test.

- Armor characterization is scheduled for early FY16, pending procurement of the armor that meets the SSC specifications.
- The Navy conducted all testing in accordance with a DOT&E-approved test plan.

Assessment

- The LFT&E conducted to date have provided data that can be used to refine craft damage predictions and crew and troop casualty predictions. These data should be incorporated into the modeling and simulation of the SSC and the engineering assessments that will be utilized in the Navy's SSC survivability assessment.
- The energy-attenuating seats were unavailable for installation on the full hull test, but the Navy collected data to facilitate future analyses to evaluate the performance of the new seats, when they become available.

FY15 NAVY PROGRAMS

- Findings from the completed full hull testing are based on using LCAC as a surrogate. The Navy should complete an engineering assessment to determine if additional testing to examine SSC-specific components is required.

Recommendations

- Status of Previous Recommendations. This is the first annual report for this program.
- FY15 Recommendations. The Navy should:
 1. Evaluate the classified findings from the full hull test to determine if the risk for personnel casualties can be reduced.
 2. Evaluate the results of the full hull test to determine if the LCAC component performance following the weapons effects presented is adequately representing the predicted performance of SSC components and/or to determine if additional SSC-specific component testing is warranted.
 3. Test the energy-absorbing seat design for the pilot and co-pilot at the structural load levels measured during the full hull test. These seats were not available for installation at the time of the test.