

U-MaVeRIC: UxV Augmented Surface Combatant

LT Ioannis Dages, HN; LT Casey Strouse, USN; LCDR Matthew Washko, USN

Throughout the last decade, the United States Navy has invested significant resources in the advancement of unmanned technologies in the air, surface, and undersea domains. Unmanned vehicles (UxVs) are rapidly evolving across all domains, and a robust future exists for military applications of Unmanned Air Vehicles (UAVs), Unmanned Surface Vehicles (USVs), and Unmanned Underwater Vehicles (UUVs). UxVs are already operating on many vessels within the Navy, but no surface combatant has been designed from the initial concept stage to support UxV operations as the central focus of their concept of operations.

This study evaluated a concept design for a surface combatant with the primary mission of launching, operating, recovering, supporting, and maintaining unmanned vehicles across the broad spectrum of both current and future unmanned vehicles. The team created a large design space based on sponsor and derived requirements, and then used set based design (SBD) to select several final variants. Incorporating the best elements from each of these final variants, the team generated a preferred variant outside the original design space. This preferred variant is named the UnManned Vehicle Rapid Insertion Combatant (U-MaVeRIC). A detailed design of the preferred variant, including outfitting, mission capabilities, and future flexibility, are also included.

The U-MaVeRIC is a modern surface combatant with a robust combat system similar to FFG(X), a vertical launch system, SeaRam, a 57mm gun, and a flexible arrangement for employment of UxVs across all domains. Manned and unmanned aircraft can embark and conduct operations from one of two flight decks and hangars. USVs and UUVs each have large storage areas with multiple options for launch and recovery. A stern ramp for USVs, port and starboard side-launch telescoping cranes for UUVs, and a new concept garage in the center of the vessel, designed to launch USVs and UUVs by opening a ballasted compartment, complete with an elevator and turntable, to the sea to allow launch and recovery at the waterline.

The U-MaVeRIC is a technically feasible and highly mission-capable design with a unique combination of surface combatant and unmanned vehicle carrier capabilities. The capabilities and concepts developed within this study will provide the Navy with the most technologically advanced, multi-mission surface combatant in the world. Augmented by the highest concentration of UxVs in the world, U-MaVeRIC brings an unlimited future potential due to the substantial incorporation of flexibility, commonality, and robustness of design.

U-MaVeRIC Characteristics	
Parameter	Value
LBP (ft)	668
Beam (ft)	93
Draft (ft)	29
Full Load Displacement (ton)	26428
Endurance Range (nm)	8000
Maximum Speed (kt)	30
USV Loadout (no./size)	6 Mk5
UUV Loadout (no./size)	6 LDUUV
UAV Loadout (no./size)	12 Fire Scout
Manned Aviation Loadout (no.)	2 MH-60

