

Riparian Support Boat (RSB)

LT Michael Rowles, LT Roxane Powers, LTJG Mert Gokdepe

Naval Expeditionary Forces (NEF) currently use ad hoc shore basing and contracted local service providers for logistics support. This is expensive, operationally inefficient, and overly reliant on unpredictable contingency funding. Dedicated afloat support vessels would be operationally desirable, but are expensive. An effective compromise capability is the use of containerized mission support modules installed as needed on a mission utility landing craft (LCU).

The module host platforms is a modified LCU 1646 sub class craft that will be maintained by the existing Assault Craft Units (ACU), and will be available for general tasking when not needed for expeditionary support. Included in the modifications will be propulsion, electrical, auxiliary, and C4I system updates to extend service life of the final design.

The design approach of the Riparian Support Boat (RSB) consisted of a tradespace exploration focused on enhancing capabilities that would act as a force multiplier. Pertinent aspects of the RSB were analyzed using three separate paradigms: 1) the relative benefit of the RSB to each warfare customer, 2) the scope and occurrence of changes that can be applied to the conversion, and 3) the ranking of each improvement category's influence to the RSB's overall success. Analysis results showed that the design's performance benefited more from engineering and capacity changes than combat systems and capability improvements.

The final design included an Integrated Propulsion System, Foldable Knuckle Boom Crane, permanent RO Unit, and additional 3-man berthing compartment in the deckhouse.

The RSB final concept design is a capable and cost-effective craft inland connector, forward basing, and expeditionary mission support capabilities. The increased facilities engineering capabilities of the craft will enhance its functionality in expeditionary operations and increase the potency of these mission areas. The RSB provides vital operational support in the riparian environment where other platforms can't operate and without the use of costly "rented" solutions or dedicated acquisitions.

RSB Characteristics	
Parameter	Value
<i>LOA</i>	135.2 feet
<i>LBP</i>	134 feet
<i>Beam</i>	29.8 feet
<i>Draft (Full Load)</i>	6.6 feet
<i>Depth</i>	8 feet
<i>Lightship Displacement</i>	208.8 LT
<i>Full Load Displacement</i>	472 LT
<i>Endurance Range</i>	1,200 miles at 8 kts
<i>Maximum Speed</i>	11 kts
<i>Military Lift</i>	125 tons or 400 troops 2,185 sq. ft. cargo area (~10 TEU)
<i>Propulsion and Electrical</i>	2 STIAVELLI W22 High Efficiency IE2 electric motor @ 325kW (8poles) ea. 3 Hitachi SJ700B-1320 HFUF Power Conversion Modules @ 264 kW ea. 3 CAT C9 Diesel Generators @ 250 kW ea.
<i>Crew</i>	10 crew, 7 transient

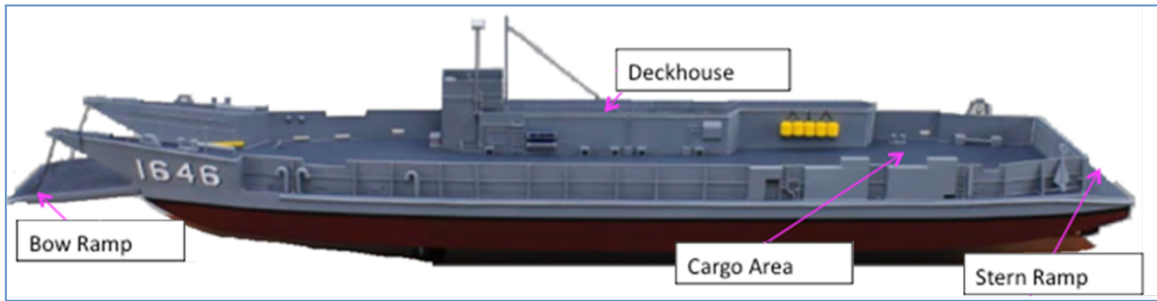


Figure 1: Original LCU 1646 sub class

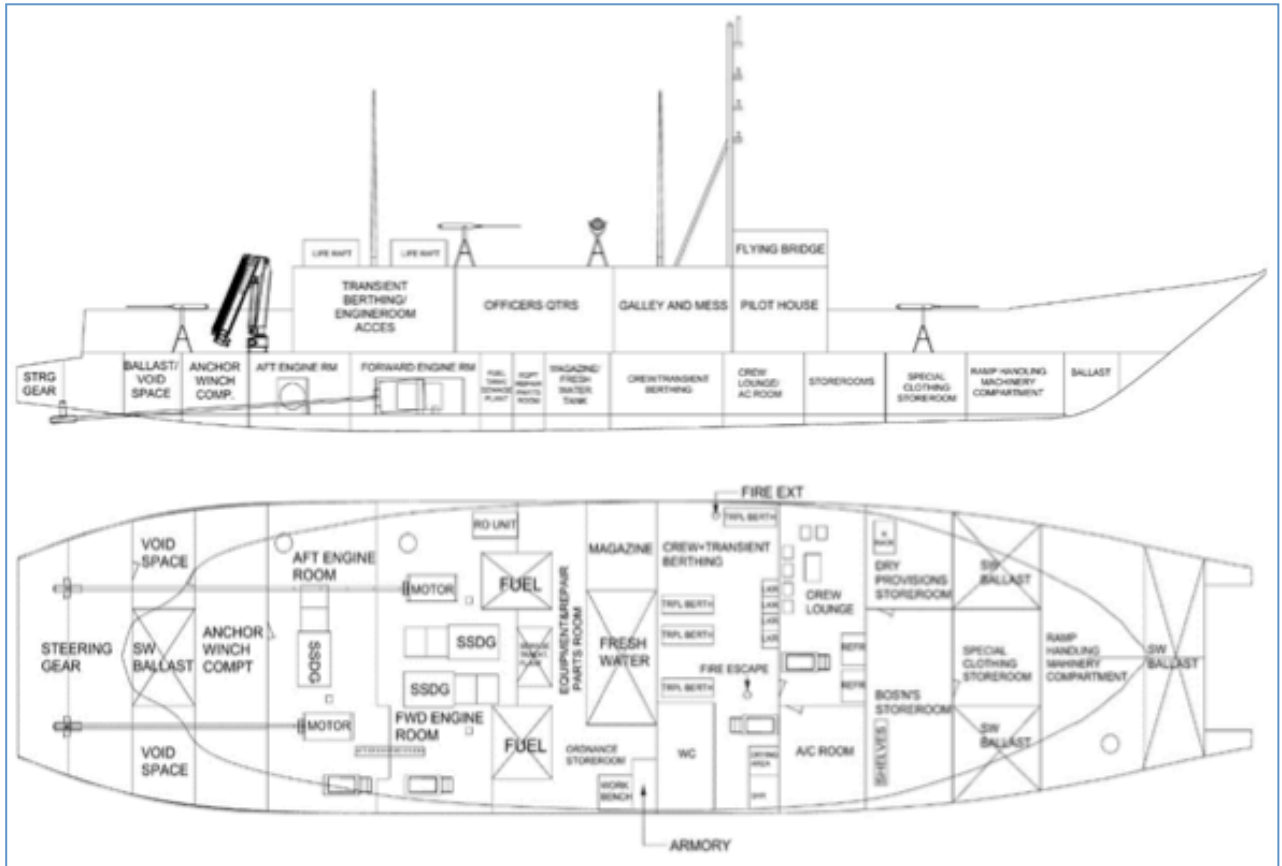


Figure 2: RSB