MK-V S.O.C. Replacement Vessel

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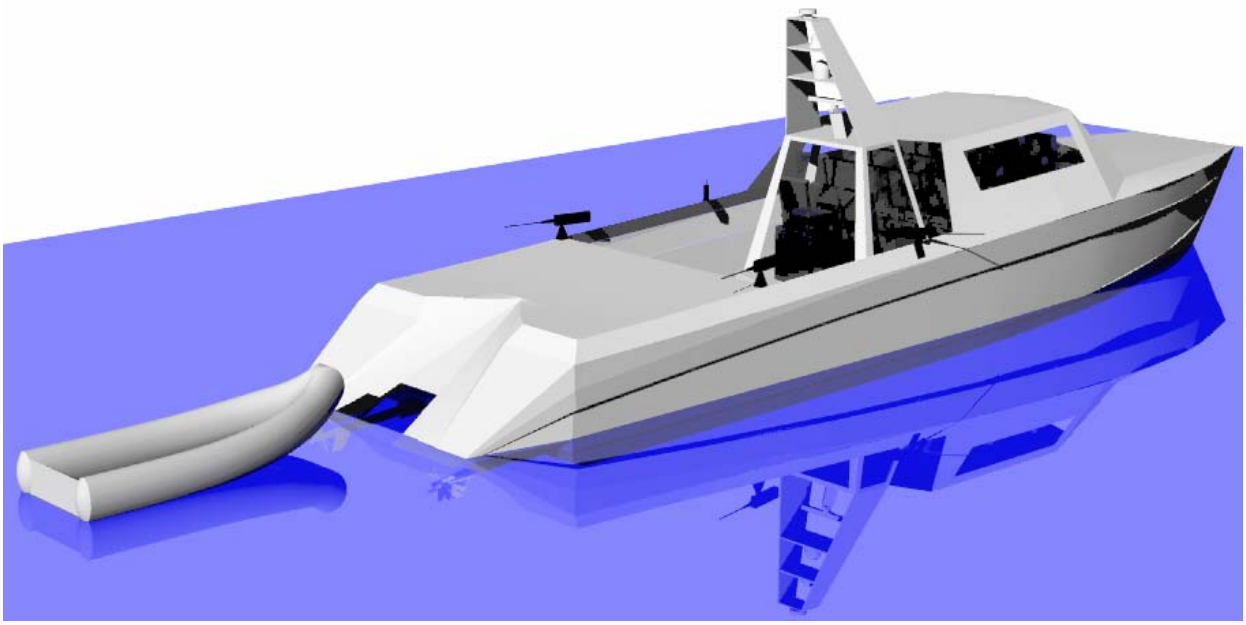

Events over the past seven years have produced a new breed of enemy, capable of unconventional operations in more restrictive waters. This new mode of operation requires the U.S. Navy to shift towards designs and a shipbuilding posture capable of fulfilling operations in the littoral areas rather than on the open ocean. To that effect, the Navy must build smaller, faster, and more versatile vessels to accomplish the mission of larger ships.

Over the past fifteen years the MK-V Special Operations Craft has proved to be a lethal component in the U.S. Navy's arsenal. However, the MK-V was originally designed with a fifteen year service life and in desperate need of replacement due to increasing maintenance cost and operator injuries. Programs launched in recent months illustrate the government's recognition of this issue; 1) a $10 million contract to rebuild the MK-V power plants and 2) a Maine shipyards bid to build a replacement including their launch of a new carbon fiber composite hull.

This study addresses new technologies and applications available to fulfill the current need as well as completing the current MK-V's mission with increased reliability, speed, and efficiency. The study considered different hull forms, engine configurations, propulsion systems, and armament in order to construct a vessel that meets or exceeds the needs of today's special operation forces with room for future expansion.

The final MK-V Replacement Craft design is built on a 70.3 feet long catamaran hull that is C-17 Globemaster transportable with a maximum draft of 3.1 feet allowing it to operate in even the most restrictive waters. The vessel is capable of a 500 nautical mile range and a top speed in excess of 55 knots in sea state two. The MTU 8V396 engines

are coupled to Arneson Surface Drives for increased maneuverability, reduced appendage drag, and better fuel efficiency.

This design is expected to save the Navy thousands of dollars each year in operating and maintenance expenses, while eliminating shock injuries to the operators and providing special operations forces with a more capable and stable platform.

Design Dimensions		
Full Load Weight	94985	lbs
Light Ship Weight	83755	lbs
Length Overall	70	ft
Waterline Length	64	ft
Demi-hull Separation	4.5	ft
Demi-hull Beam	6.5	ft
Engine Selection (2x)		
MTU 8V396	1501	hp
Fuel Required (Diesel)	11,230	lbs
Arneson Surface Drive (ASD-14)	8,500	ft-lbs
Weapons Outfit		
M 60	7.62	cal gun
M 240	7.62	cal gun
M 2	0.50	cal gun
MK 19	40	mm Grenade
FIM-962	MANPAD	Missile
M 224	60	mm Mortar
Performance		
Top Speed	57	knots
Cruise	35	knots
Design Cruise Sea State	3	
Manning		
Crew (minimum)	3	
Special Forces Personnel	16	
Additional Seating	2	
Equipment / Furnishing		
Hospital bunks	2	
Payload Margin	7,000	lbs
Combat River Raiding Craft	4	