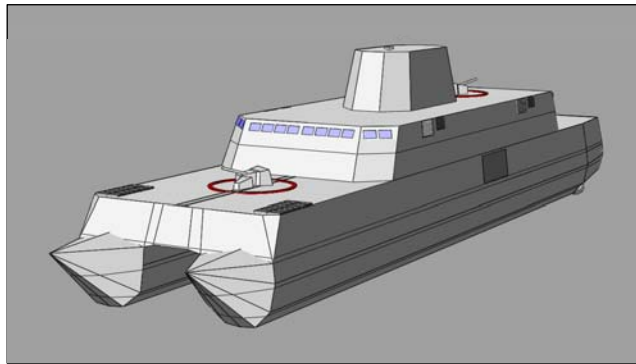


SEA TENTACLE – TRACK, ENGAGE, & NEUTRALIZE THREATS – ASYMMETRIC & CONVENTIONAL IN THE LITTORAL ENVIRONMENT

The Navy is currently undergoing a transformation with a focus centered on littoral warfare. In order to successfully operate in the littorals, a mastery of the littoral Anti-Submarine Warfare (ASW) situation is required. One approach deals with the deployment of large Unmanned Underwater Vehicles (UUV's) to establish a littoral ASW sensor grid. The ship designed for the carrying, deployment, and maintenance of these UUV's is the catamaran SEA TENTACLE.



SEA TENTACLE is a high-speed catamaran that is capable of conducting operations in shallow water. It is designed to either act independently or in conjunction with other naval forces. The design is focused around the capability to carry, deploy, and maintain large numbers of UUV's. In addition the ship's combat system provides for robust offensive and defensive capabilities in the realm of ASW, Surface Warfare, and Anti-Air-Warfare.

SEA TENTACLE Characteristics	
Displacement	6912 LT
Length	394 ft
Beam	82 ft
Designed Draft	17 ft
Metacentric Height	53 ft

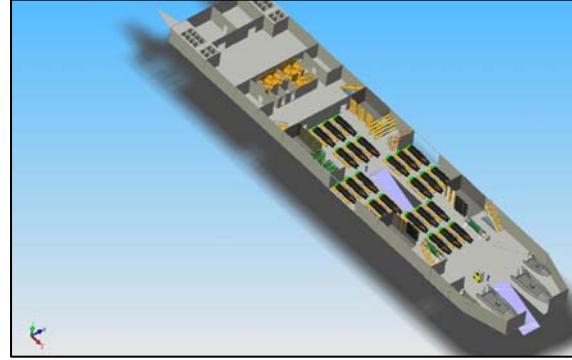
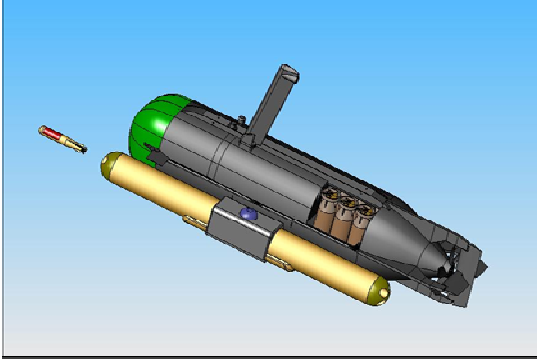
SEA TENTACLE Operational Requirements	
Range	5400 nm @ 20 kts
Max Speed	40 knots
Sustained Speed	35 knots
Installed HP	96762 hp
Manning	107

Core Combat Systems

The vessel is equipped with an Advanced Multi Function RF system, a sonar suite, 32 Extended Sea Sparrow missiles, a Millennium Gun, two 7 meter Rigid Hull Inflatable Boats (RHIB), two 11 meter RHIB's, two Vertical Take Off Unmanned Ariel Vehicles, and two SH-60R Helicopters. The ship can also be used to fire boxed weapons such as ASROC. Through its Helicopters, the ship is able to deliver ASW torpedoes. The combat system suite is designed to be open and compatible with other navy systems.

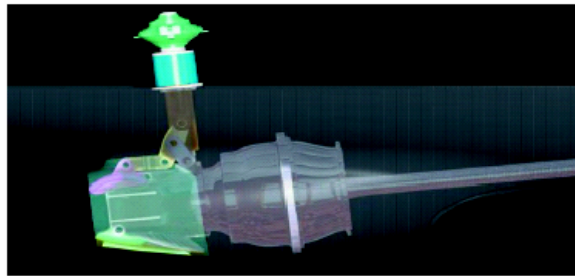
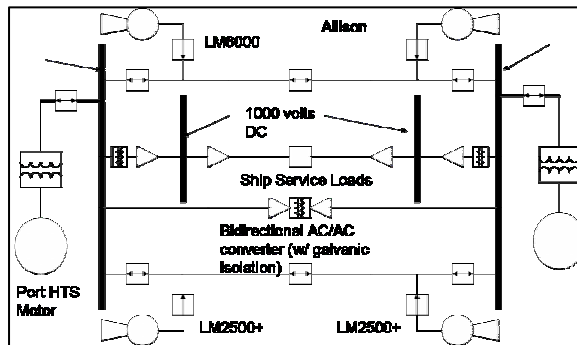
UUV Payload

The UUV Payload is based on the load out of 48 Sea Predators, each mated with a sled. When launched, the Sea Predator will travel to its target destination, which may be up to 200 nm. Once there, the sled forms the “hub” of a sensor network. Additional UUV’s deploy from the Sea Predator and provide power and signal processing capabilities to the network. Although designed for Sea Predators, the Sea Tentacle can be used to carry any other UUV covered in the Navy’s UUV master plan.



Propulsion/Electrical System

Two LM2500+’s, a LM6000 and a 3 MW Allison Generator, for emergency use, power the SEA TENTACLE. Two 37 MW synchronous high temperature superconducting (HTS) motors drive two Rolls Royce Bird-Johnson AWJ-21 waterjets as the primary means of propulsion. Two-podded propulsors located on each demihull provide 500 SHP for low speed maneuverability. Port and starboard AC Buses provide 13.8 KVAC 3-phase power for propulsion and combat systems. Port and starboard DC buses provide 1000 VDC power for ships service, combat systems and auxiliaries. The integrated design allows for continuity of power under casualty conditions.



View showing AWJ-21™ and underwater nacell

The Naval Postgraduate School’s Total Ship Systems Engineering Program is comprised of:

Faculty: Professors Fotis Papoulias, Robert Harney, Mike Green, Bill Solitario, and Robert Ashton.

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