

Sub-Sahara: Security and Support Vessel

LT Perry Branch, USN, LT Ashley Fuller, USN, LT Andrew Gillespy, USN



The Sub-Sahara security platform (Waterborne Patrol Craft Security or WPCS) will fill an emerging gap in the security of coastal African nations and be instrumental in the continued success in long-term prosecution of the Global War on Terror. Multiple sources, including the *Seafarers Assistance Program* and *The Standard*, report that over 150 hostages were taken from the Sub-Saharan region in the first half of 2006. Statistics like these highlight one of many security deficiencies in this region. The WPCS will fill this growing security gap by enhancing maritime security and combating terrorism. Additionally, this platform will address coastal natural resource security, official coastal replenishment needs and humanitarian evolutions such as non-combat evacuation, coastal interdiction and rescue. The Concept of Operations (CONOPS) for this platform is unique in the fact that the ship will cover an unconventionally wide spectrum of operations and support a multinational array of stakeholders. The platform will also strike a balance between technical flexibility and maintainability. Therefore, the WPCS will weight operational robustness over advanced technology employment. The target date for integration, training and employment in the Sub-Sahara region is FY-10.

Through detailed gathering of customer needs and directly mapping those needs to missions, the design team was able to build a ship that fulfilled the requirements of customers throughout the life cycle. The mission statements were further mapped to engineering requirements for the ship design. The WPCS was then designed using a combination of the Pugh Concept Selection Methodology and Design of Experiments. Pugh was used to narrow down the larger concepts such as hull type, screw arrangement and prime mover type. Once the larger concept decisions were set the team used design

of experiments (DOE) to establish clarity on the final design variables. DOE provided the team with functional descriptions of how the control variables affected the response variables of performance, cost and complexity.

Most importantly, the process resulted in a ship that has the ability to meet the original stakeholder needs and the likely complex array of required employment scenarios in the region. The design team conducted a thorough review of all the missions for the WPCS and determined that the ship was satisfactory in each one. In addition, because of the thorough design approach, the design team is confident that the resultant ship provides the customer true value for their purchase. The ship is an optimized package designed to meet the customer needs affordably and efficiently.

Principle Characteristics	
Full Load Displacement	201 LT
Design Draft	7.7 ft
Length Overall	116.4 ft
Hull Form	NPL High Speed Round Bilge
Performance Characteristics	
Maximum Speed	23 knots
Mission Endurance	7.3 days
Range	878 nm
Powering and Electrical	
Propulsion Engines	(2) Niigata FX 12V16 – 2240 BHP
Electrical Engines	(2) MTU 6V331 – 400kW
Mission Outfitting	
Primary Weapons	Mk 38 25mm gun
Secondary Weapons	(6) 0.50 caliber mounts
Armor	0.25" steel hull plus additional 0.25" above waterline
Environmental Cleanup	250m of boom, capability to clean up 95% of 3000 gal oil spill contained within boom, can deploy biological agent to breakdown oil
Passenger Area	Carry up to 10 passengers
Radar	Bridgemaster E Series X and S band
C4I System	GCCS-M to TADIL integration equivalent
Communications	IFF, IMARSAT, AN/WSC-3, AN/URT 23E R2368(A)
Cost	
Acquisition Cost	\$27.9M