

Semi-SWATH Small Ferry

Lockheed Martin



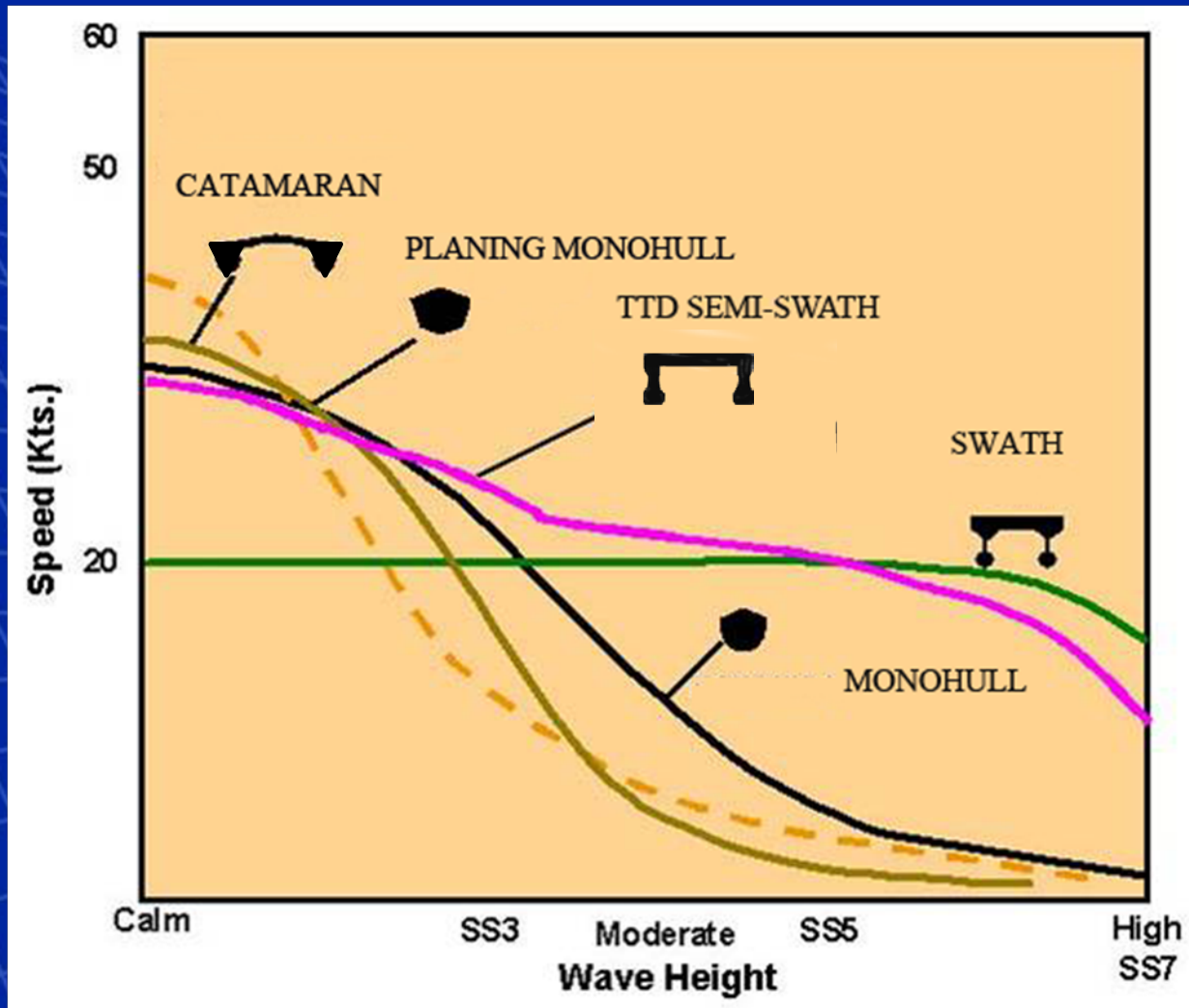
Information Property of Lockheed Martin

Evolution of the Tahoe Small Ferry



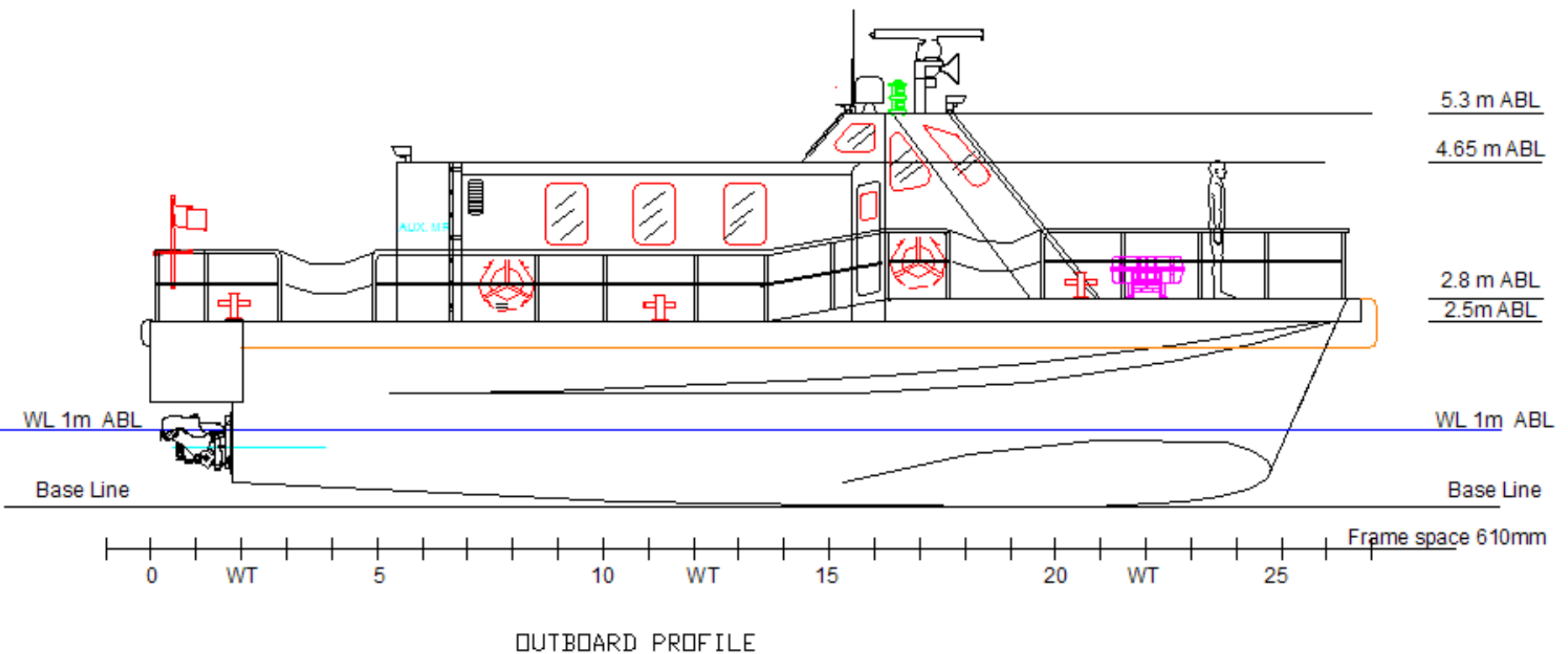
- Lockheed Martin has a long history of innovative ship design.
 - Four ferries for Alaska Marine Highway System
 - Sea Shadow; an advanced stealth demonstrator
 - Small Tactical Craft; a Small Waterplane Twin Hull demonstrator for special operations
- The Tahoe Small Ferry; a derivative of the Small Tactical Craft

Semi-SWATH Small Ferry

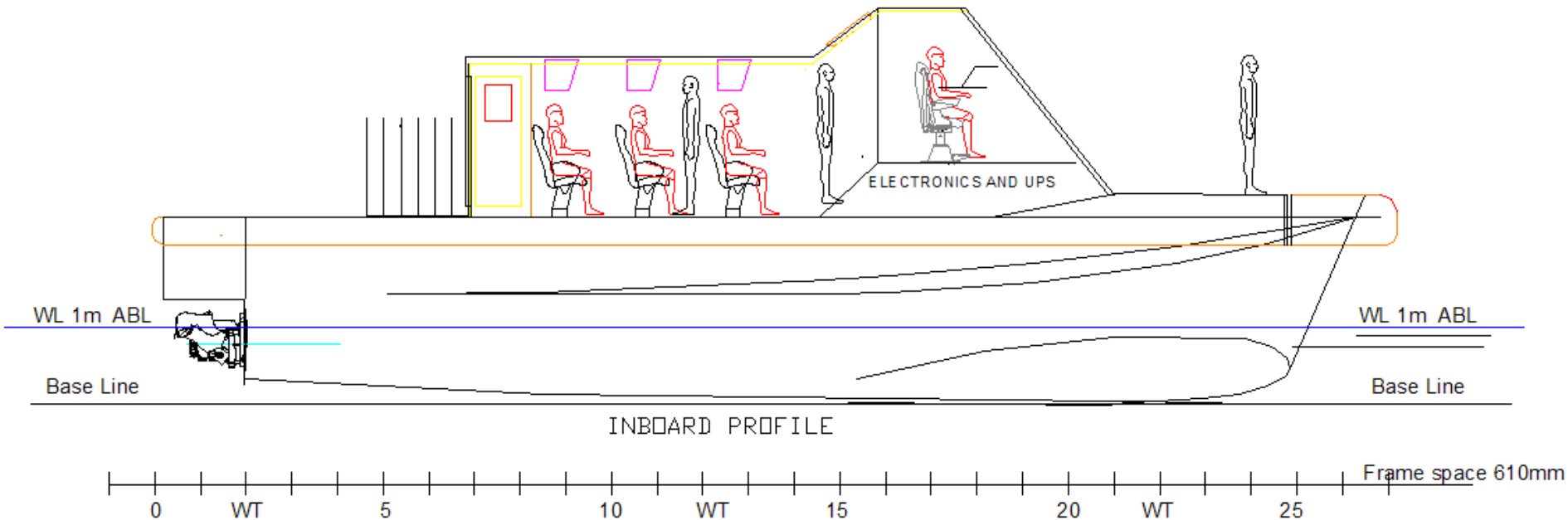


The Tahoe Small Ferry is a Semi-Swath design providing optimal mix of sea keeping for a smooth comfortable ride and hydrodynamic efficiency for speed at low fuel consumption.

Tahoe Transportation District Semi-SWATH Small Ferry



Tahoe Transportation District Semi-SWATH Small Ferry



Semi-SWATH Water Shuttle - Principal Characteristics



Tahoe Transportation District Small Ferry			
Tahoe Transportation District Specifications		STC Demonstrator	TTD Semi-SWATH Small Ferry
Passenger Capacity	10 -20	12 (as currently configured)	24
Length	25' - 45'	40'	~53'
Draft	24"	30"	33"
Operating Speed @ 80% MCR, knots	18+	35+(@ 90% MCR)	21 - Preliminary based on Caterpillar C7 Acert @ 80% MCR
Fuel Burn at Operating Speed, gph	< 6		32 - Preliminary based on Caterpillar C7 Acert @ 21 kts
Nautical Miles per gallon at operating speed	> 2.75	2 @ 30 kts	0.7 - Preliminary based on Caterpillar C7 Acert @ 21 kts
Range, nmi	300	160 nmi. @ 30 kts	300
Noise Level at Operating Speed, dBA	80		80
Propulsion	Single Diesel or Diesel-Electric Hybrid Other Outdrive, shaft & Prop, pod or jet	Twin Seatek 820 Plus (840 HP each) Gearboxes ZF 305-2 with PTO NAMJ Nomera 800.1	Twin diesels + waterjets.

Other requirements in accordance with TTD Specifications for Pilot Project Small Ferry Vessel

Lockheed Martin

STC (Small Tactical Craft) - Overview



Information Property of Lockheed Martin

Lockheed Martin - STC Prototype Vessel



Information Property of Lockheed Martin

Lockheed Martin - STC Prototype Vessel



Information Property of Lockheed Martin

Lockheed Martin - STC Prototype Vessel



Information Property of Lockheed Martin

STC - Features and Benefits



Feature	Description	Benefit
Advanced Hull Form	Semi-SWATH Hullform combines best features of Catamaran and SWATH hulls	<ul style="list-style-type: none">- Superior Sea keeping and Maneuverability without Sacrificing Speed- Hull design provides stable smooth ride to aid crew comfort not discomfort (Which leads to crew fatigue and payload damage)- Superior towing capability
Rapid Re-Configurability	Ability to quickly change mission packages Versatile “Pick-Up Truck” for Green/Brown Water Ops Reconfigurable Mission Deck Space <ul style="list-style-type: none">– 4,500 lb Capacity– Remove / Re-install, 30 Min.– Approx 18’L X 11.5’W	Operational flexibility supports multiple missions
Transportable	The vessel is trailer-able using a commercial low-boy trailer or boat hauler.	The vessel can be moved between locations without special equipment and easily handled by standard marina travel-lift equipment.

STC - Modular Payload Design



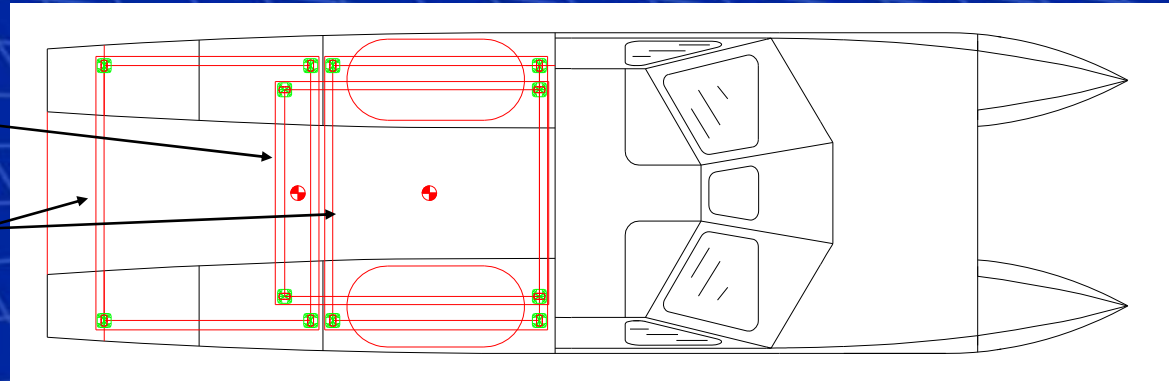
Payload Attached



Payload Removed

Single 10 Ft
ISO Container
Longitudinally
on Centerline

Dual 10 Ft
ISO Containers
Athwart ship

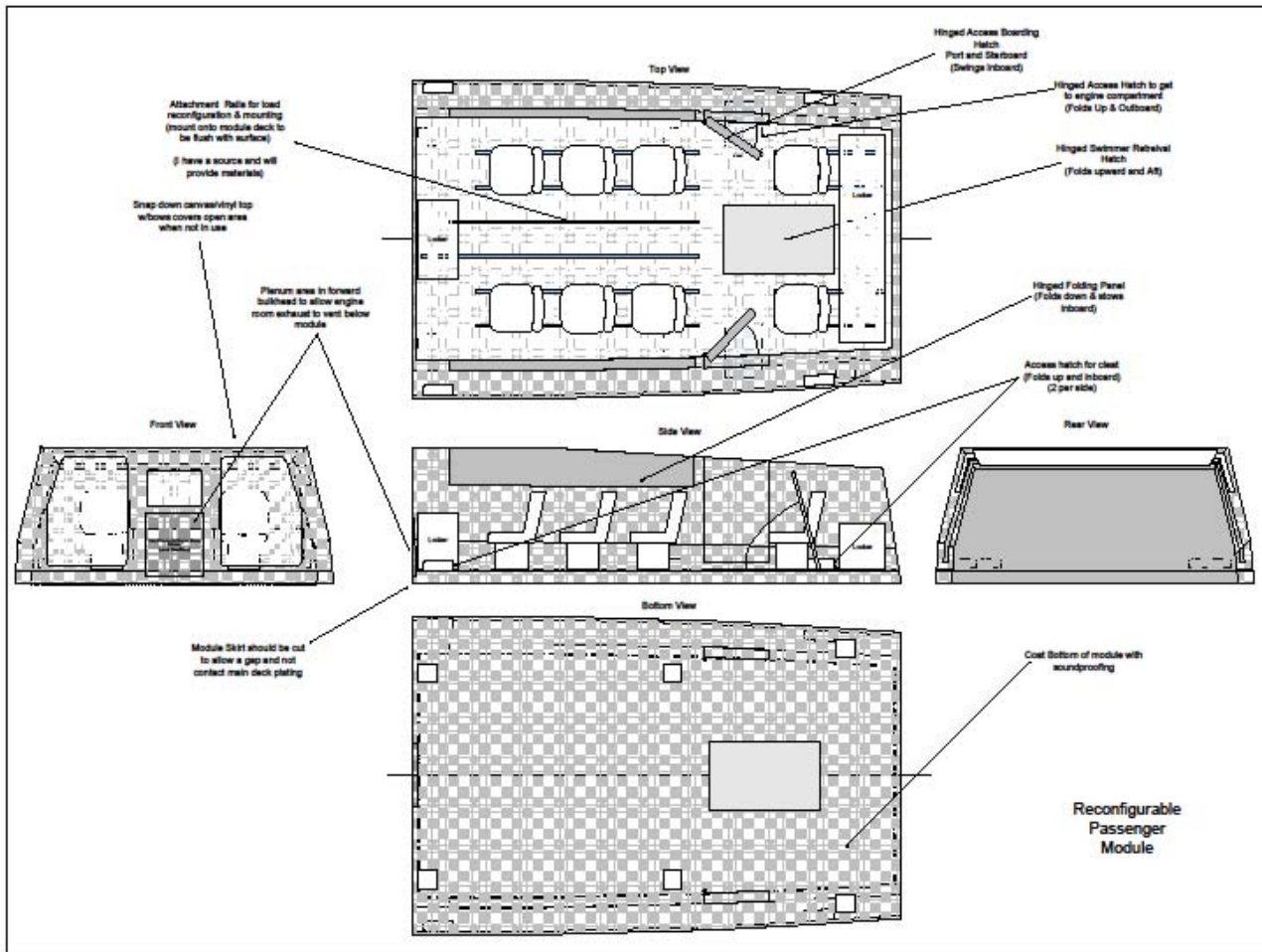


Maximum Payload Characteristics

- Weight Capacity: 4,500 lb
- Dimensions: 216" L x 138" W
- Area: 207 Sq. Ft.

**Flexible Rapid Mission Package
Change-Out**

Lockheed Martin - STC Seating/Demonstration Module

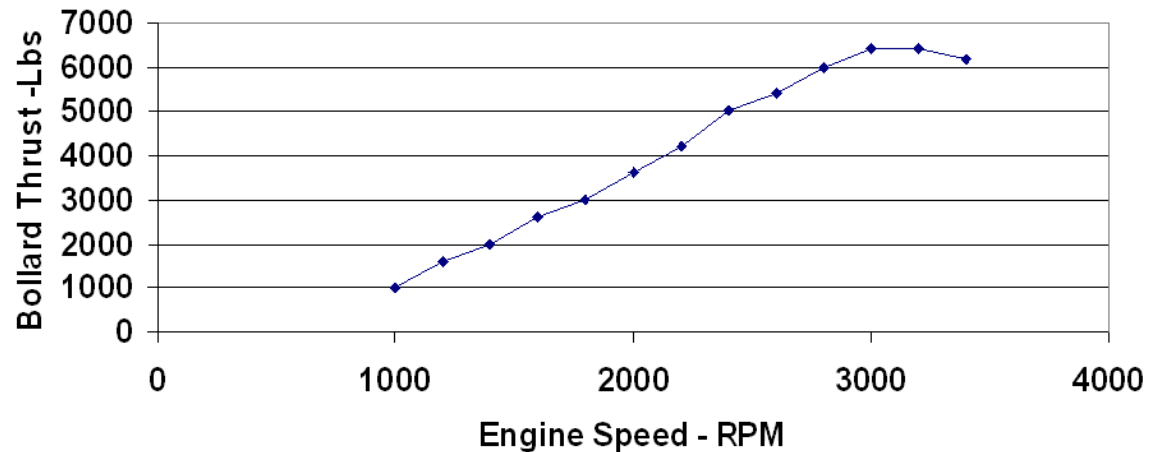


STC Towing Capability – Bollard Tow Force Measurement



Large Water jet Impeller Diameter
Produces High Thrust

Small Tactical Craft Bollard Thrust Test
North American Marine Jet Nomera 800 with "C" Impeller
Port Angeles, Washington September 5, 2008 4:14 PM



STC – Specifications Overview



Vessel Performance

Operational	Sea State 4
Survivability	Sea State 6
Cruising Speed	20 - 30 kts
Sprint Speed	35 kts
Power	1650 HP
Modular Payload	4500 lbs
Range	160 NM @ 30 kts
Fuel Capacity	320 Gallons
Fuel Consumption	2 Gal / NM @ 30 kts
Crew	2 - 3

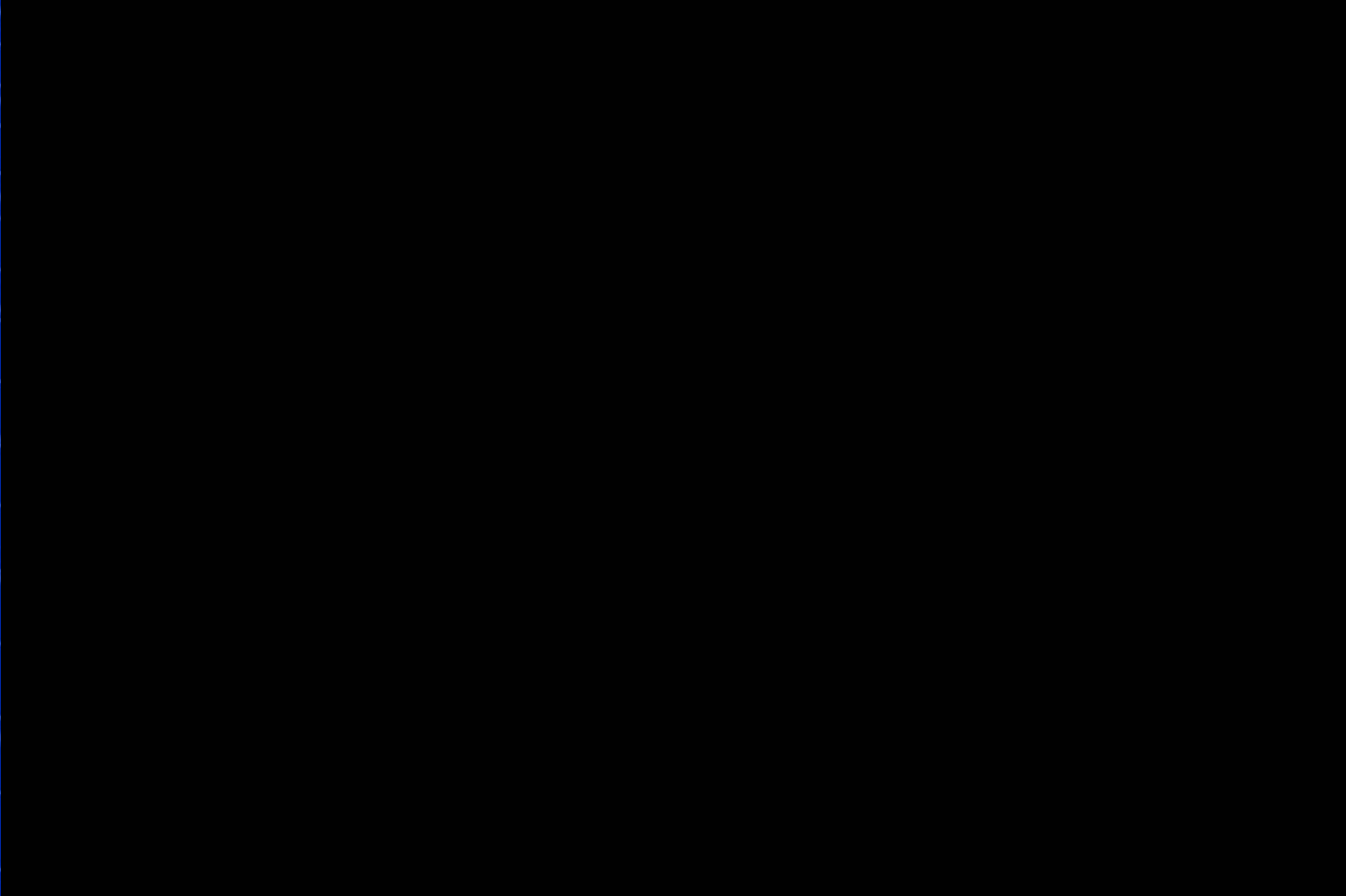
Vessel Hull

Semi-Swath Catamaran Hull	
Length Overall	39.5 ft
Beam Overall	11.5 ft
Height	10.8 ft
Draft (Full Load)	2.5 ft
Lightship Displacement	17,450 lbs
Full Load Displacement	22,200 lbs

Shipboard Systems

Diesel Engines	Twin Seatek 820 Plus (840 HP each)
Gearboxes	ZF 305-2 Reversing gearbox to provide waterjet backflushing (clear the intake)
Water jets	NAMJ Nomera 800.1
	Adjustable Trim +/- 13°
Ballast System	(4) Independent seawater tanks
Power generation	DC Alternators (80A each)
	DC / AC Inverter 4KW (2)
Fire Suppression System	Fireboy 500 cu. ft. Halon HFC-227ea (1) in each engine compartment
	Automatic engine shutdown system integrated into fire system
Electronics / Navigation	4KW Radome
	VHF / AIS
	Chart plotter / Sounder / GPS
	Satellite Weather

Tahoe Transportation District Small Ferry based on proven performance of Lockheed Martin Small Tactical Craft (STC)



Tahoe Transportation District Semi-SWATH Small Ferry



Information Property of Lockheed Martin



LOCKHEED MARTIN

We never forget who we're working for™

