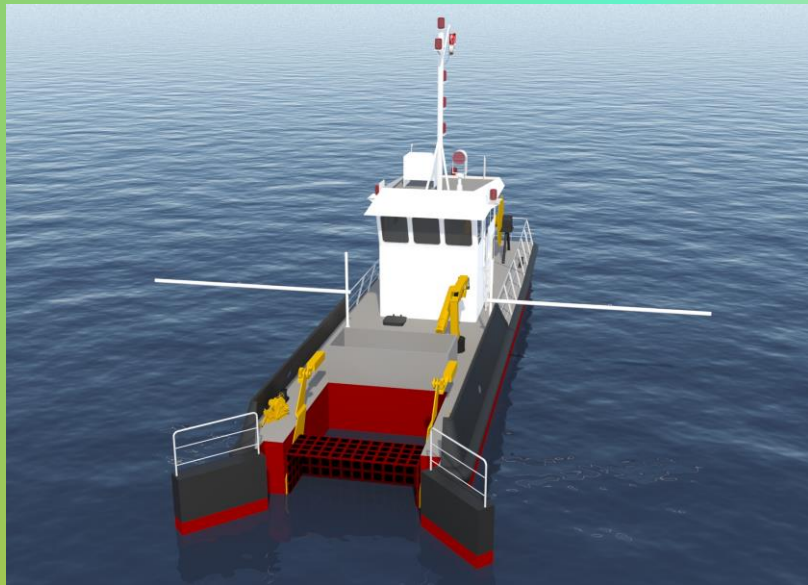




NAVNAUTIK'S PORTFOLIO ON DEBRIS COLLECTION & POLLUTION CONTROL VESSELS

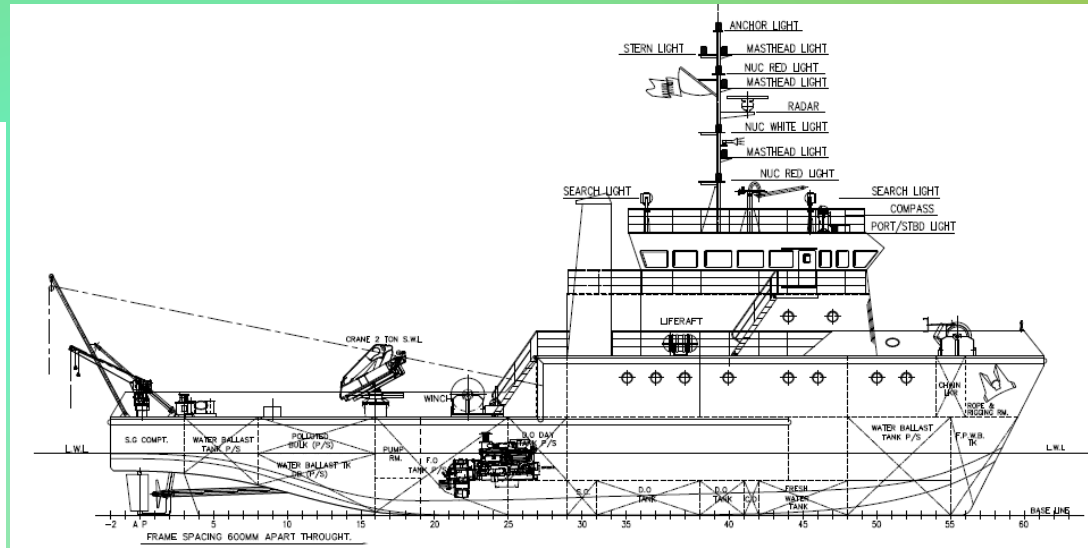


ENVIRONMENT PROTECTION VESSEL – AQUATIC CONSERVER



Aquatic Conserver was designed as a multipurpose vessel in order to be cost effectively engaged in various purpose as listed below.

- Harbour survey: Intended for the safe navigation of vessels near ports and their surroundings.
- Passage survey: Intended for safe navigation in main sea lanes.
- Coastal survey: Intended for safe navigation and gaining knowledge about the bottom topography, sea-bottom sediments, and more in offshore waters.
- Survey for correction: The survey for correction (general hydrographic survey) is designed to measure water depths, coastlines, and geological features after dredging, artificial fish-reef installation, and such, and change waterway related publications such as nautical charts accordingly.
- Environment control: Deployment of oil boom to restrict the spread of major oil spill. Deploy oil skimmer to recover spilled oil into vessel's recovery oil tank specially approved for flash point <60deg C.
- Pollution control: Spraying dispersant in case of minor oil spillage.

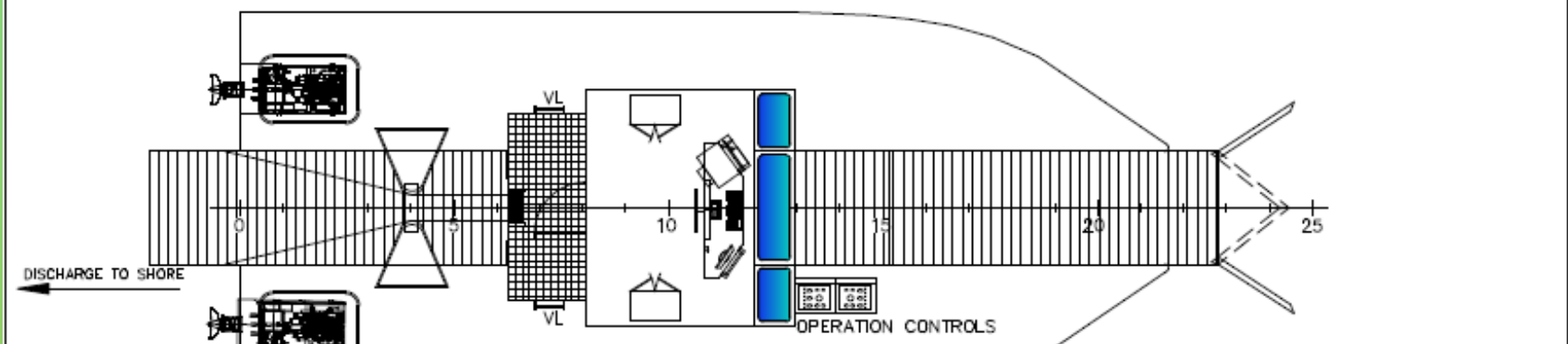
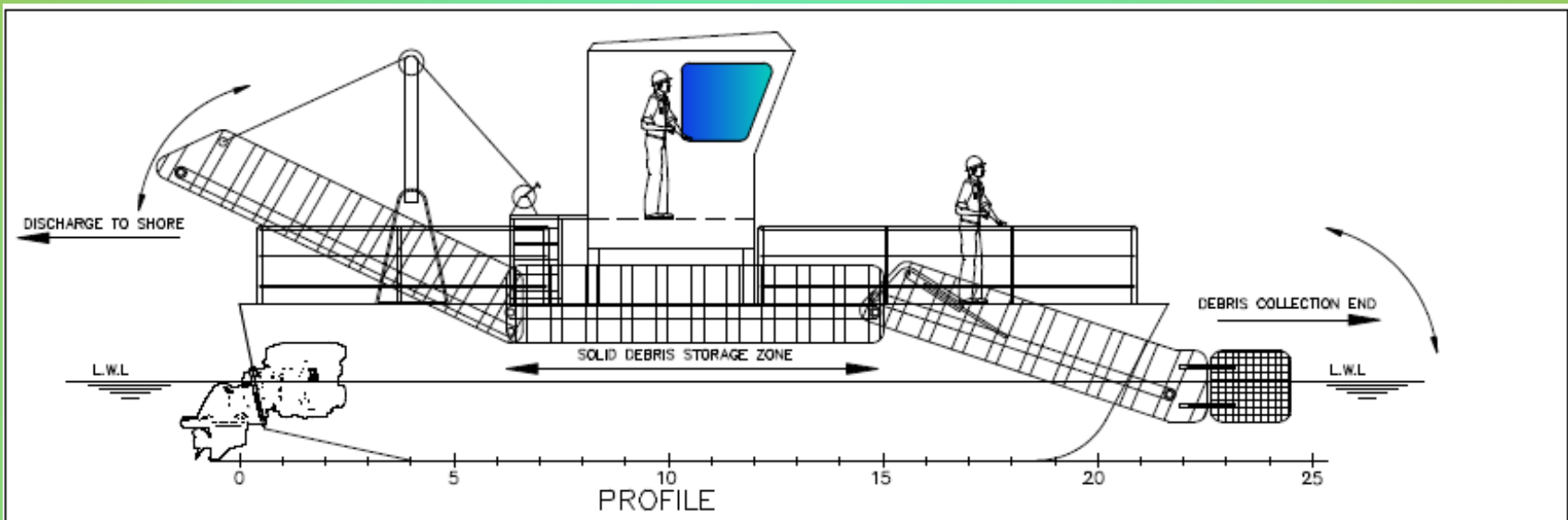


Principal Dimensions and Main Particulars

- Length Overall 38.00 m (approx)
- Breadth moulded 11.00 m (approx)
- Depth (moulded) to main deck camber 4.00 m (approx)
- Designed draught 2.50 m (approx)
- Classification: LRS+100A1 Oil Recovery Ship + LMC
- About 12 knots in deep and calm water condition with two main engines each operating at 1250 BHP at 1650 RPM.
- A-frame on aft Main deck used for launching and retrieval of scientific equipment for carrying out survey and research
- Oil Spill Response Equipment include Oil Spill Containment Boom & Oil skimmer
- Dispersant Spray Facility: A pair of spray arms with easily mounted by hinges at wheelhouse side bulkhead with associated piping and hoses connected to stainless steel dispersant tank and pump system. The spray nozzles shall be at about 2.0m above water level.

DEBRIS COLLECTOR (STEEL PONTOON)

Length Overall	16.00M
Pontoon Length	12.00M
Breadth Overall	5.00M
Pontoon Breadth	1.75M (each)
Pontoon Depth	2.00M
Design Draft	1.00M
Maximum Speed	8 knots
Loitering speed	~4 knots
Total Complement	2 persons
Solid Debris Collection	~5 tons
Construction Material	Steel (Hull and Superstructure)
Propulsion System	- 2 x Volvo Penta Aquamatic (~140 HP each)
Features:	Solid waste collection system equipped with Bow Sweep arm and Aft frame



PRINCIPAL DIMENSION (APPROX)	
LENGTH (OA)	~15.00M
LENGTH (PONTOON)	12.00M
BREADTH (OA)	5.00M
BREADTH (PONTOON)	1.75M
DEPTH (MLD)	2.00M
DRAFT (DESIGN)	1.00M

CONCEPTUAL

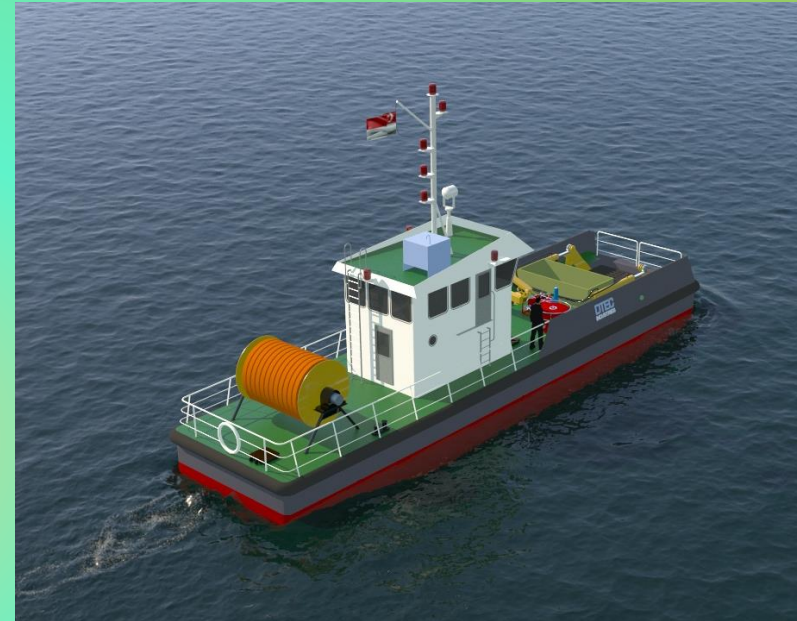
REV	DESCRIPTION OF ALTERATION	DATE	BY

DESIGNER: JIB	SCALE: 1:10	PROJECT: DEBRIS COLLECTOR (STEEL PONTOON)	DRAWN BY: NAVNAUTIK PVT. LTD.
CHECKED: JIB	DATE: 22/07/20	PROJECT: DEBRIS COLLECTOR	DATE: 22/07/20
APPROVED BY: JIB	DATE: 22/07/20	PROJECT: DEBRIS COLLECTOR	DATE: 22/07/20
APPROVED BY: JIB	DATE: 22/07/20	PROJECT: DEBRIS COLLECTOR	DATE: 22/07/20

OIL RECOVERY RESPONSE VESSEL

Principal Dimensions and Main Particulars (Approx.)

- Length Overall 29.00M
 - Breadth Moulded 9.60M
 - Depth Moulded 5.00M
 - Design Draft 3.65M
 - Lightship Draft 1.85M
 - Maximum Speed 12 knots
 - Loitering speed ~4 knots
 - Total Complement 3 + 17 persons
 - Recovered Oil Capacity ~100 m³
 - Construction Material Steel (Hull and Superstructure)
 - Sea state: Capable of operating in Sea State up to 5
 - Beaufort Scale: Capable of operating in Wind Force up to BF 6
 - Operating Profile: Total 12 hours per day, 300 days per year
- Classification: BV: +HULL +MACH; Oil Recovery; Special Service Sea Area 3 or equivalent





Special features:

- Bow door cum Sweep arm
- Portable oil spill response equipment
- Solid waste collection system
- Oil Dispersant System
- A foldable knuckle boom crane suitable for the transport of floating solid refuse and the daughter boat
- A telescopic pole for day-night camera mounting (for air surveillance monitoring system)

Main Propulsion System & Generators:

- Engine: 2 x 1000 HP @1400 RPM
- Two (2) CPP Propeller driven through a stainless steel shaft connected to main engine.
- Two (2) units of diesel generators each of 125 kW/440V/3ph/60Hz



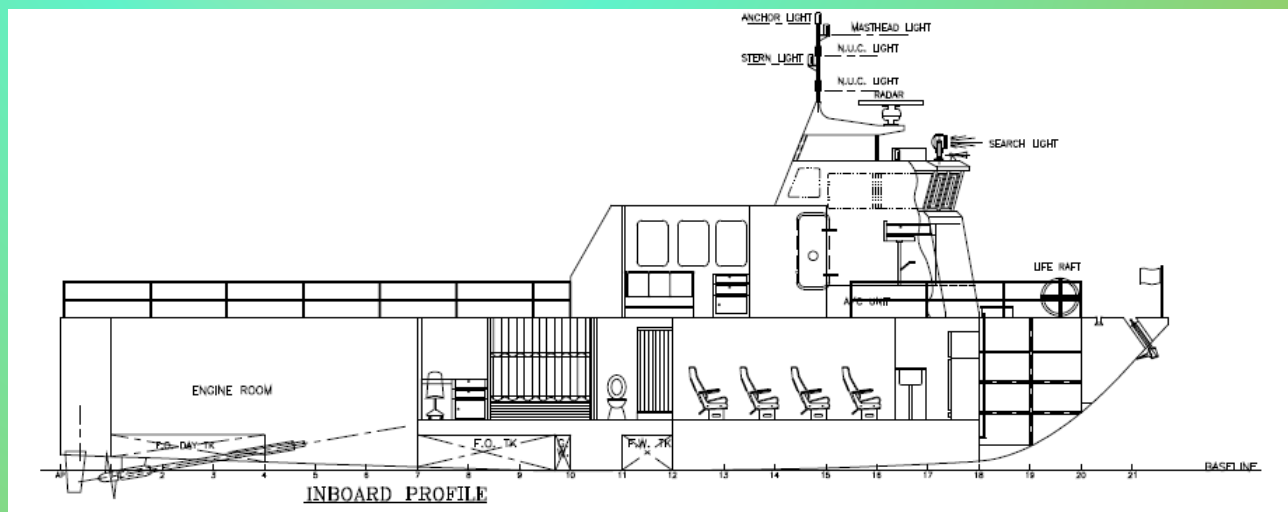
OIL SPILL RESPONSE (OSR) BOAT

Principal Dimensions and Main Particulars

Length Overall	21.70 m (approx.)
Breadth (moulded)	5.20 m (approx.)
Depth (moulded) to main deck camber	3.00 m (approx.)
Designed draught	1.50 m (approx.)
Classification	: Bureau Veritas 100A5 + MC Oil Spill Response Boat or equivalent
Diesel Oil	: 3 tons
Fresh Water	: 0.5 tons
Dispersant	: 3 tons

Performance:

About 14 knots in deep and calm water condition with two main engines each operating at 600 kw at 2100 RPM.

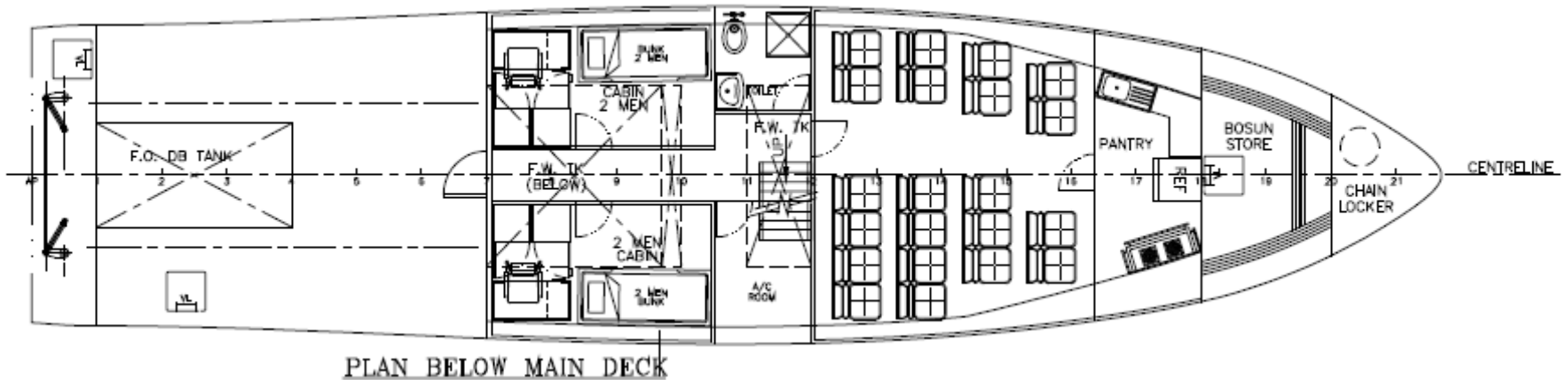
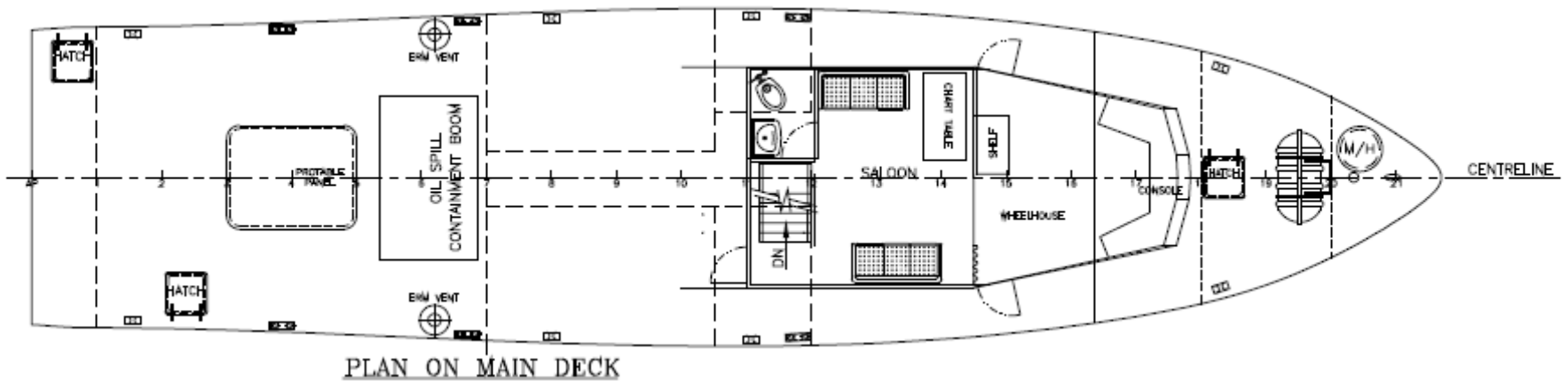


Main Propulsion System

- Main engine: 2 x 600 kw at 2100 rpm
- Two fixed pitch four bladed manganese bronze propellers.

Special features:

- Oil Spill Containment Boom
- Dispersant Spray Facility
- Fire-Fighting Equipment



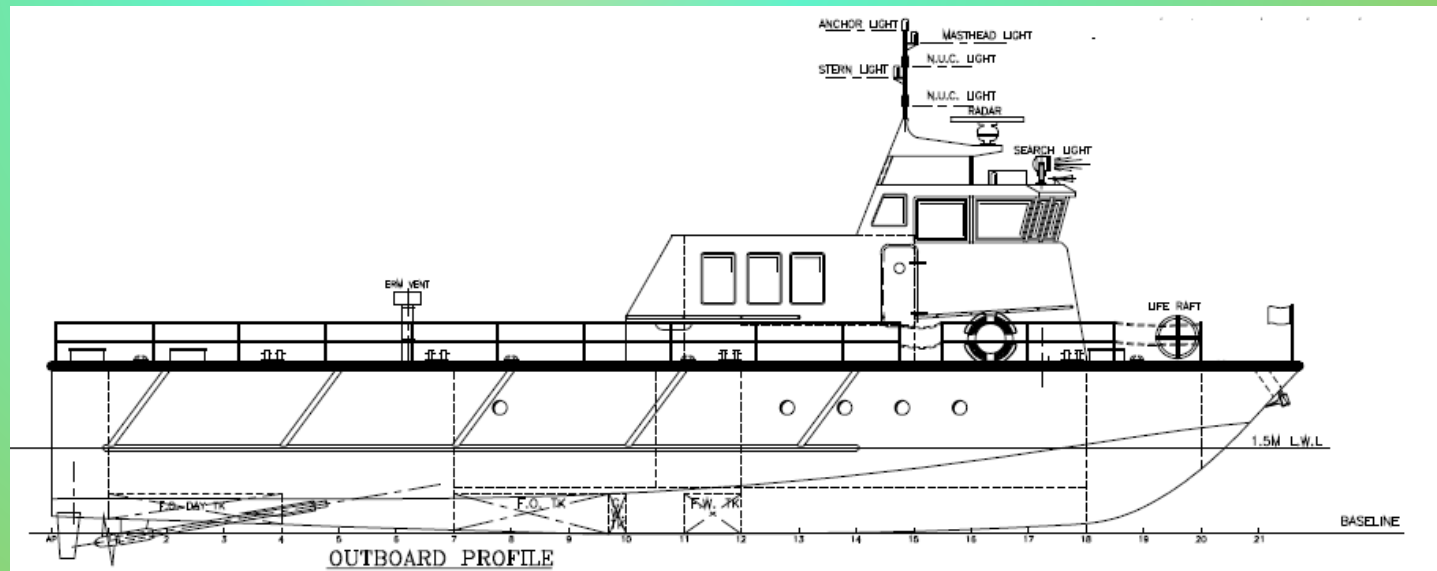
The main function of the boat shall be :

- Hull material shall be AH36 High Tensile Steel
- Deployment and maintenance of reel-mounted oil spill containment booms and associated anchoring of boom.
- Dispersant spraying on oil spills
- Fire fighting
- Mooring workboat duties

The boat shall be capable of deploying and storing reeling mounted oil spill containment boom and performing other designated functions in the following environmental conditions :

- 35 knots wind velocity
- 6 feet waves
- 90 feet water depth
- 3 knots currents

A wide flat open deck at aft as large as possible is provided as a safe and stable work platform, storage of oil spill equipment.



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