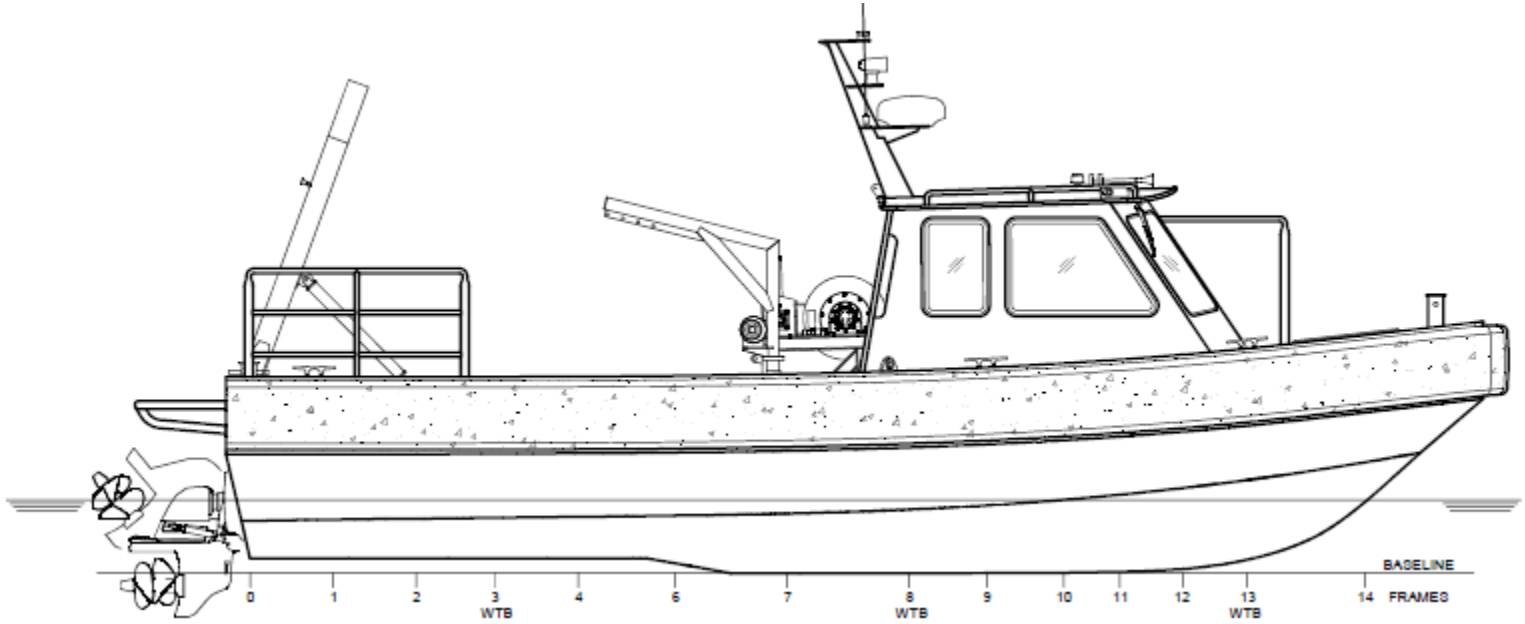
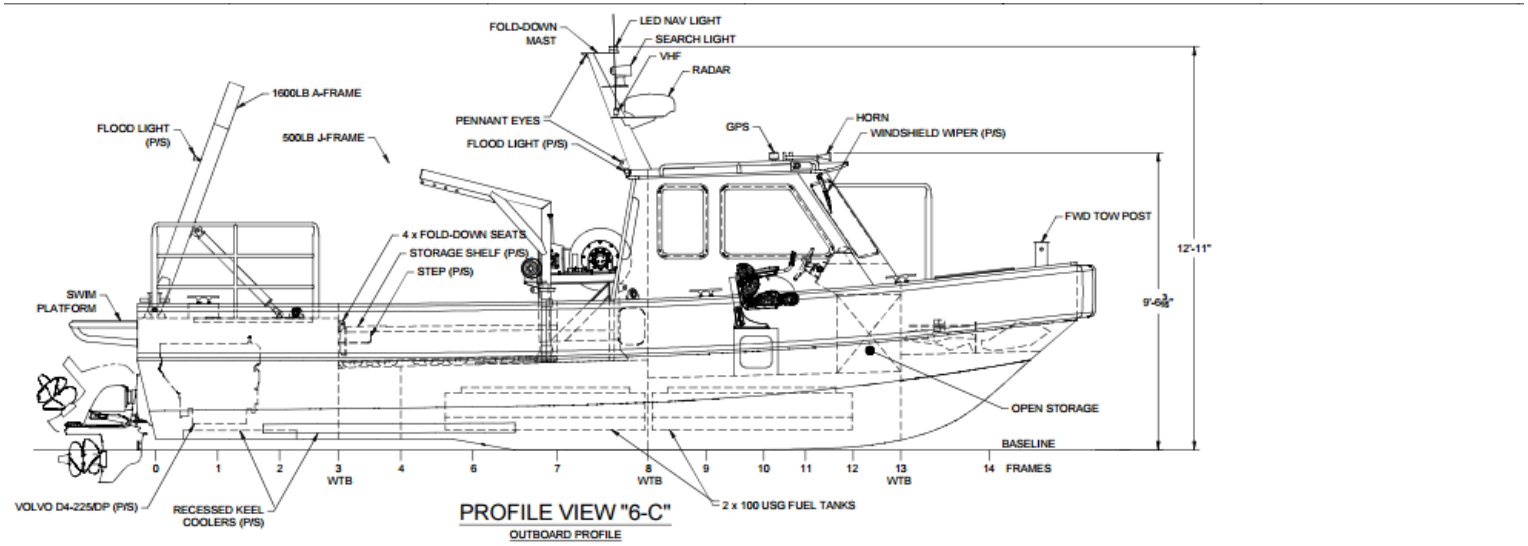
USAP Rigid-Hulled Inflatable Boat (RHIB)



Operated for the
National Science Foundation Office of Polar Programs
by

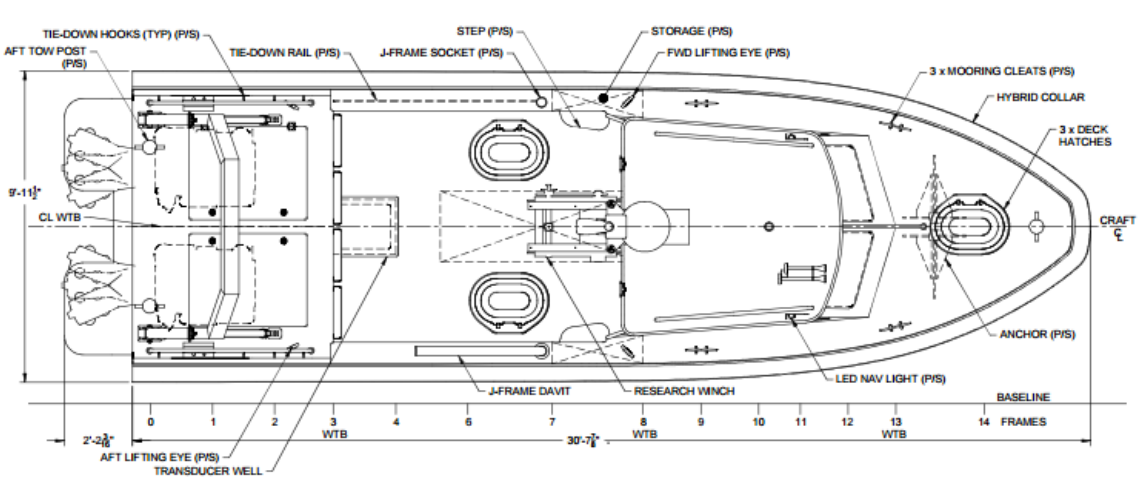
leidos

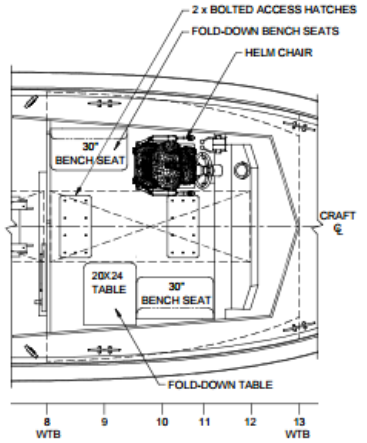
ASC
ANTARCTIC SUPPORT CONTRACT



PROFILE VIEW "6-C"

OUTBOARD PROFILE





PLAN VIEW "3-A"

PILOTHOUSE ARRANGEMENT

In 2016, two Rigid Hull Inflatable Boats (RHIBs) were built for the National Science Foundation for use at Palmer Station, Antarctica. The RHIBs were purpose built to increase boating and sampling safety, expand the Palmer boating area, and enhance other scientific capabilities at Palmer Station.

Highlights include: rigid aluminum hull with a hybrid inflatable collar and integrated foam floatation; heated house for protection from inclement weather/seas; safety rated and hydraulically driven overboarding systems with both J-frame and A-frame; dive ladders; sonar well; full navigation suite; keel coolers for engine coolant; and low-speed docking control.

Each craft has redundant engines, electrical systems, and hydraulic systems for added safety and to allow the vessel to operate for a full 12 hours while retaining a sufficient fuel safety reserve.

The two RHIBs are named following the naming convention for small boats at Palmer Station: southern hemisphere navigational stars. *RIGIL (*Hull #1) is also known as Alpha Centauri and is the 3rd brightest star in the entire sky. *HADAR* (Hull #2) is also known as Beta Centauri, is the 10th brightest star in the sky, and is actually a pair of twin B-class stars. Both stars are part of the Centaurus constellation and together point to the Southern Cross.

RHIB Principal Features and Technical Information

General

Owner	National Science Foundation
Builder	Willard Marine, Inc.
Commissioned	2016
Hull	Aluminum
Collar	Hybrid Inflatable
Build Classification	ISO 12215-5:2008

Principal Dimensions

Length Overall	33.5 ft
Breadth	10 ft
Draft	2.32 ft
Displacement	14,500 lbs
Light Ship Weight	12,490 lbs
Weight on Trailer	16,000 lbs

Propulsion

Engines	2ea Volvo Penta D4 -225/DP
Crank Horsepower	450 hp / 330 kW
Prop Horsepower	430 hp / 316 kW
Propellers	2 each counter rotating sets
Drive Type	Volvo Penta Stern I/O Drive
Fine Control System	Volvo Penta IPS Docking
Fuel Type	Diesel
Number of Tanks	2
Total Fuel Capacity	200 Gallons

Accommodation

Crew	1
Passengers	7 (3+1 crew inside wheelhouse)
Cargo Capacity max	1,600 lbs

RHIB Principal Features and Technical Information

Heating and Cooling

Cabin Heat	Diesel fuel heaters and window defogger
Engine Cooling	Flush mounted keel coolers
Hydraulic Cooling	Flush mounted keel coolers
Fluid Heating Systems	In-line heating for fuel, coolant and hydraulic systems

Over-the-Side Equipment

A-Frame	1,600 lb SWL
J-Frame movable	Hydraulic cat head winch; deploys port or starboard; 500 lb capacity
RIGIL Research Winch	InterOcean winch with 1,100m of .312" mechanical cable (Dyneema), 1,000 lb capacity
HADAR Capstan Winch	Sound Ocean Systems Pedestal Capstan 1,600 lb SWL
Power for Winches	Redundant, switchable hydraulic pumps driven by main engines

Additional

Swim step extending over stern drives	Electrical service 120 VAC and 12 VDC
Antiskid deck	Back deck flood lights
Tow bollards fore and aft	Search lights
Crane lifting points	Depth display
Cabin storage and deck storage	Integrated navigation AIS and radar display
Independent engine compartments and full redundancy	Dive ladder for starboard and port side boarding

Sonar

Transducer Well (Both boats)	In hull 21" x 24" window with Zelux® windows
Sonar (*RIGIL* only)	Simrad EK-80 Wide Band 120 kHz split beam

RHIB Principal Features and Technical Information

Operations

Max range from Palmer Station or other RHIB	20 nautical miles
Maximum cruising speed	25 knots
Required training	Competent crew, Boating I
Required ASC operator	1
Survival gear	Mustang Ocean Commander
Launch and recovery	Via Trailer and IT-28

Electrical Service

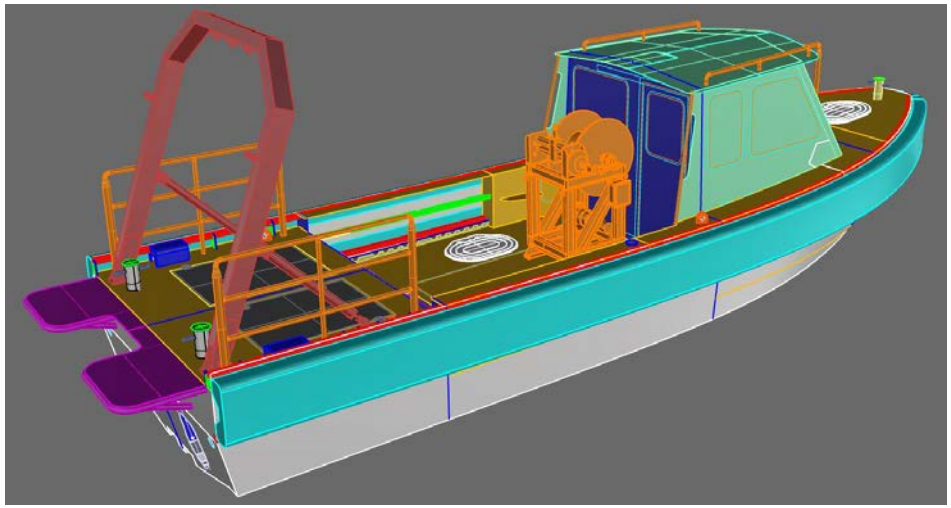
2 ea 15 Amp 120 VAC circuits with outlets in wheelhouse and on deck	1 ea 30 Amp 12 VDC circuit to wheelhouse
1 ea 20 Amp 12 VDC circuit to back deck with 4 outlets	1 ea 20 Amp 12 VDC circuit to wheelhouse with 4 outlets

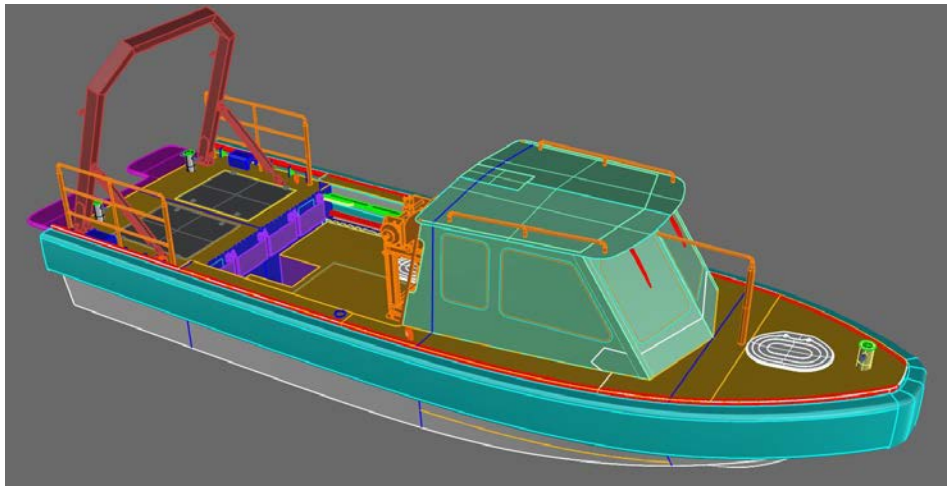
Scientific Deployments Possible via A-Frame / J-Frame

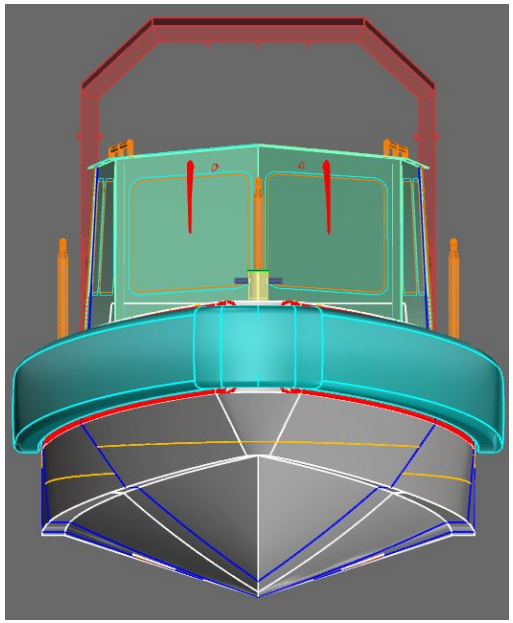
Six Bottle CTD (SBE55 ECO Rosette) (USAP provided)	Deployment / Recovery of Small Fish Traps
Light Bottom Trawls	Light Benthic Grabs
Shallow Tow-Body Support	Net Tows: Plankton, Bongo

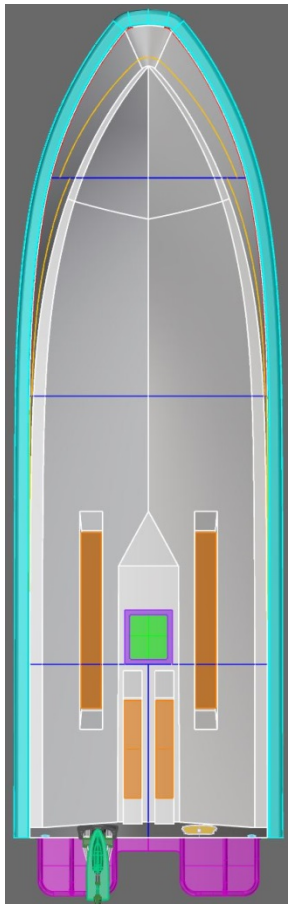
Wheelhouse

Seating for four passengers	Folding worktable
Electrical outlets for laptops and deck boxes with pass through to transducer well	Internal storage for scientific gear









ASC-17-240