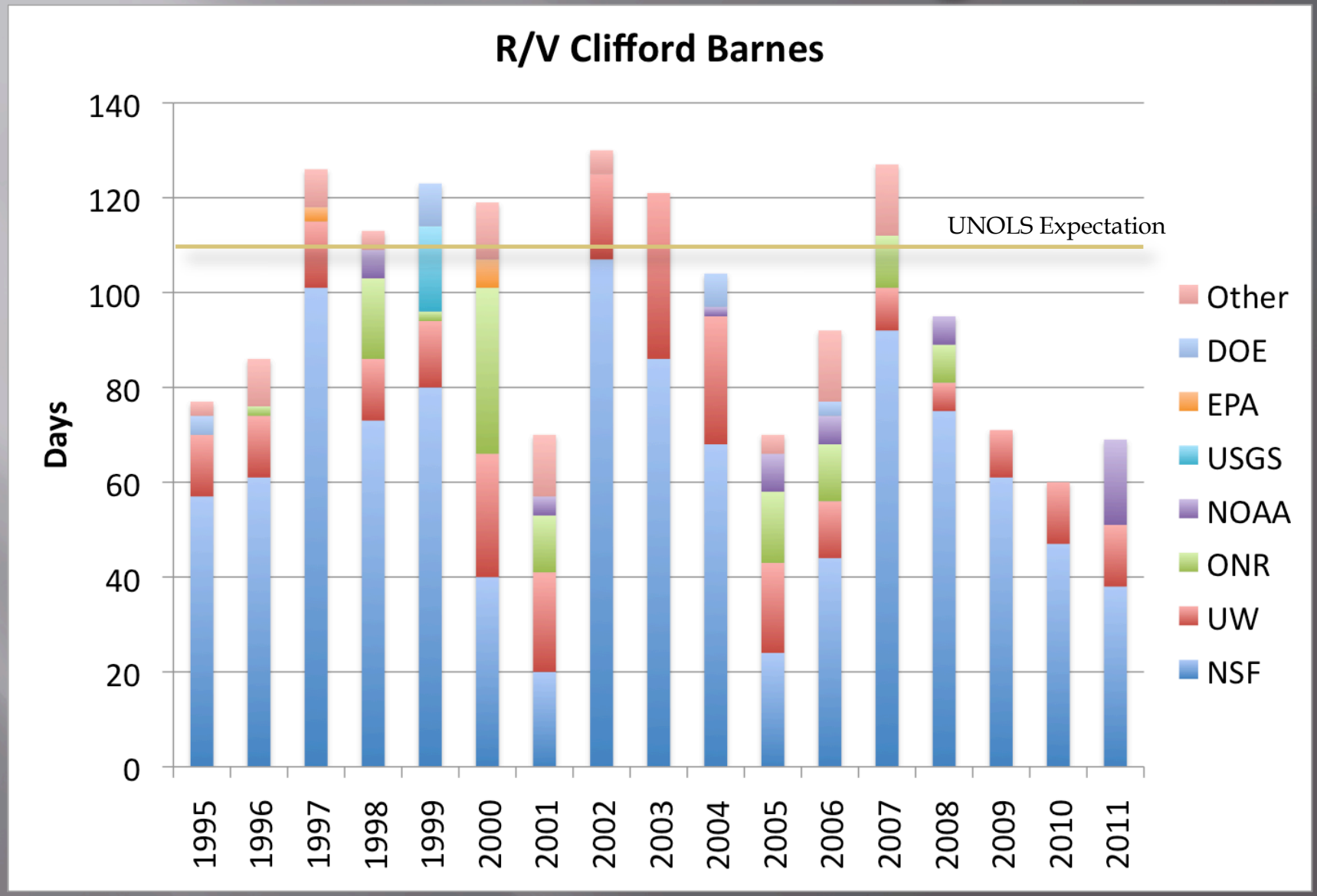
R/V CLIFFORD A. BARNES REPLACEMENT

School of Oceanography
University of Washington

R/V Clifford A. Barnes (CAB)

- 45 year old former USCG tug (65’)
- Limited scientific capability
- Limited berthing capacity

Historical Usage



To Date

- CAB Replacement Committee established
- Established requirements for a replacement vessel through meetings and survey of regular CAB users
  - Starting point – UW APL's R/V Jack Robertson
- Contracted Conceptual Design to Jensen Maritime
- Conceptual design has been through 2 iterations incorporating committee feedback

Design Requirements

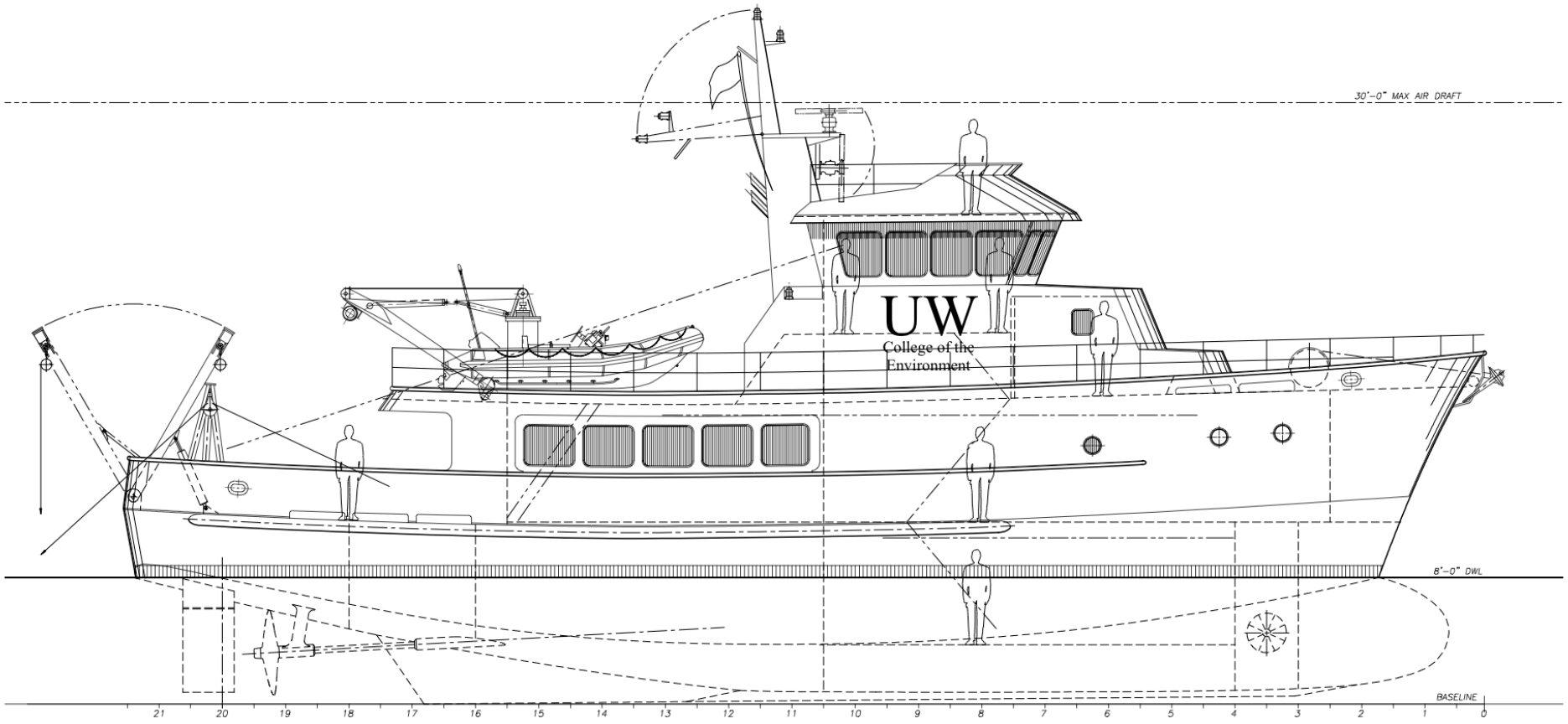
- Capability to operate further afield including offshore in summer
- Increased Cruising Speed (~12 knots)
- Improved maneuverability and station keeping
- Increased Berthing (10 scientists, up to 5 crew) and day use capacity (~30 students)
- Option for 24 hour operations (flexible day rate)
- Increased Deck Space
- Increased Lab Space (flexible wet and dry lab spaces)
- Expanded/Increased Scientific Capability

CAB Replacement Conceptual Design

UNIVERSITY OF WASHINGTON
COLLEGE OF THE ENVIRONMENT
86' X 26' RESEARCH VESSEL

JENSEN
Maritime Consultants
A CROWLEY Company

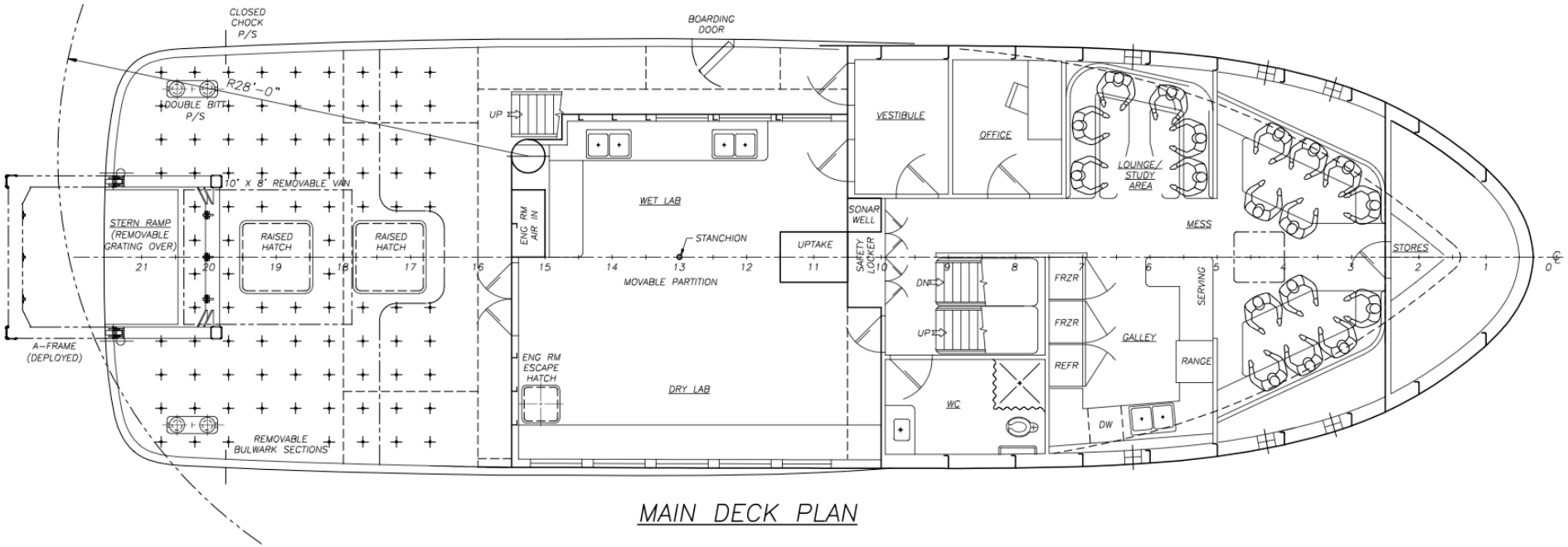
Outboard Profile



PRINCIPAL CHARACTERISTICS

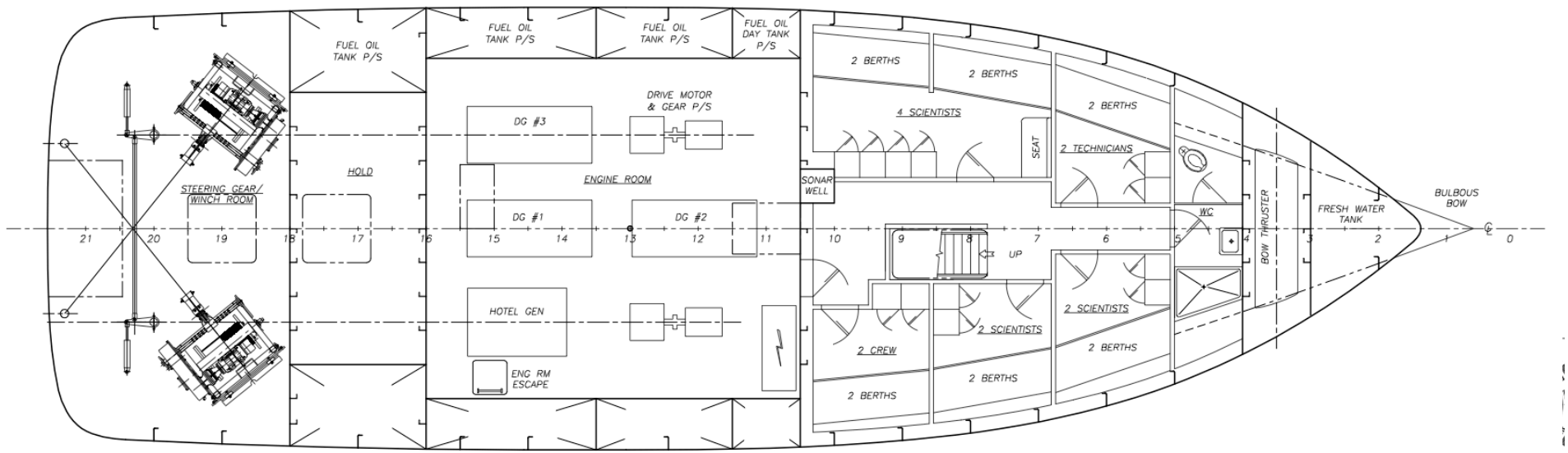
Designer	Jensen Maritime Consultants
Owner	University of Washington
Length (overall)	86' - 0" (26.2 m)
Beam	26' - 0" (7.92 m)
Depth	10' - 8" (3.25 m)
Draft (Full Load)	9' - 0" (2.74 m)
Displacement (Full Load)	250 LT
Speed, Full Load	12.0 knots
Propulsion	Diesel Electric, Twin Screw
Propulsion Motors	2 x 325 kW (nom)
Bow Thruster	1 x 125 kW (nom)
Generators	4, 1200 kW Total
Propellers	64" (1.6 m), 4-blade
Capacities:	
Fuel	TBD Gallons
Water	TBD Gallons
Berthing	15 total

Main Deck Plan



MAIN DECK PLAN

Hold Plans


FUEL OIL TANK P/S
FUEL OIL TANK P/S
FUEL OIL TANK P/S
FUEL OIL DAY TANK P/S
2 BERTHS
2 BERTHS
2 BERTHS
4 SCIENTISTS
SEAT
2 TECHNICIANS
DRIVE MOTOR & GEAR P/S
DG #3
ENGINE ROOM
SONAR WELL
STEERING GEAR/ WINCH ROOM
HOLD
DG #1
DG #2
WC
BOW THRUSTER
FRESH WATER TANK
BULBOUS BOW
UP
HOTEL GEN
2 SCIENTISTS
2 SCIENTISTS
2 CREW
2 BERTHS
2 BERTHS
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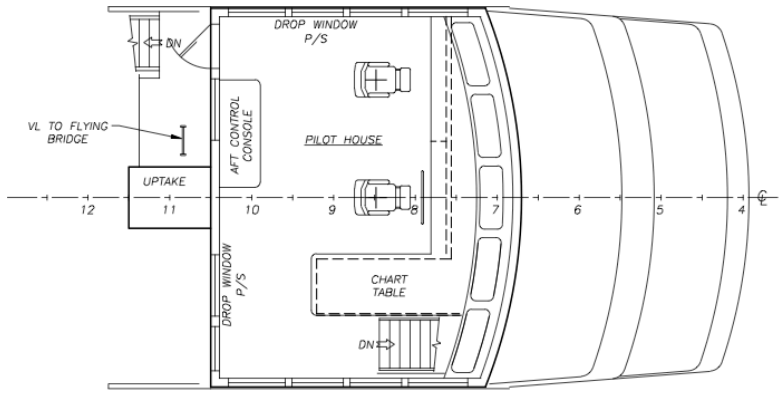
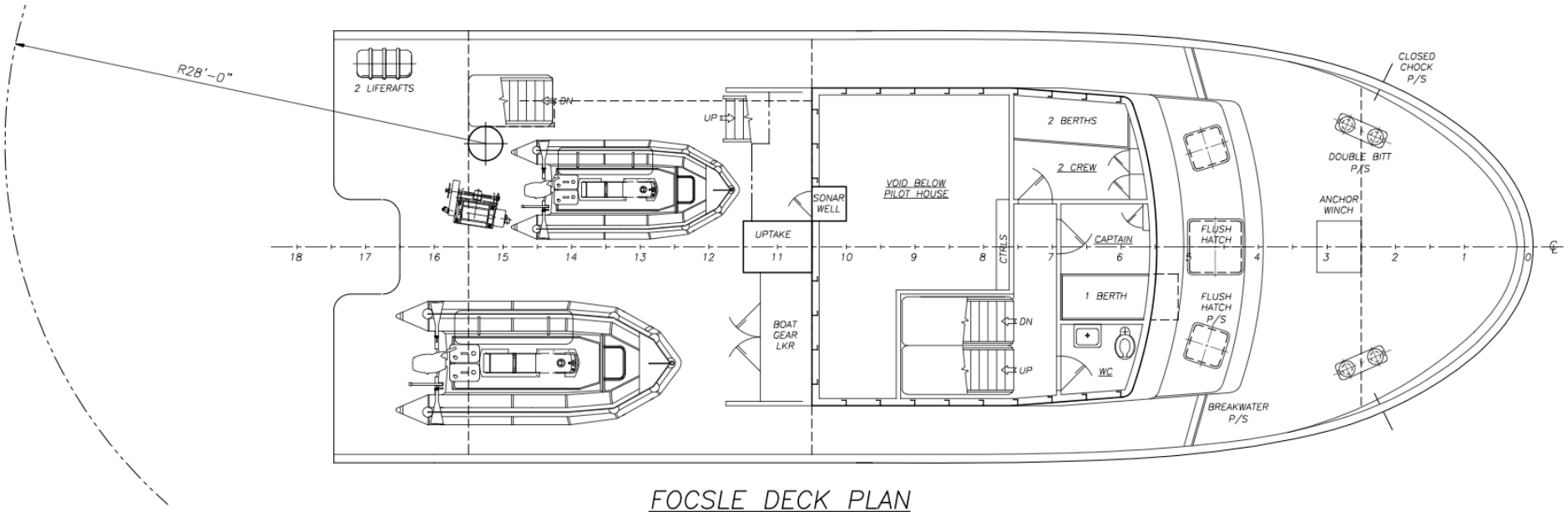
Forecastle Deck and Pilot House Plans



PILOT HOUSE PLAN



FOCSLE DECK PLAN

Preliminary Cost Estimate

Preliminary Order of Magnitude Cost Estimate

Item	Costs Low	Costs High	Notes
Hull - Structure and Outfit	$ 4,500,000	$ 5,250,000	Includes outfit, installation of equipment, steel and piping
Machinery:			
Diesel generators	$ 360,000	$ 440,000	2 x 450 kW, 1 x 350 kW, 1 x 250 kW - Caterpillar or equal
Deck Crane and A Frame	$ 90,000	$ 135,000	HydroPro, high includes SST fitting and HPU unit. Hinged A-Frame - removeable
Winches	$ 485,000	$ 485,000	Markey - 2 x Com10, 1 x Com4, electric drives with panels
DE Propulsion System	$ 500,000	$ 900,000	Motors, inverters, switchboard and control systems - Note 1
Bow Thruster	$ 50,000	$ 75,000	24", Electric Driven, nominally 100 BHP, 2 control stations
Transmission Gears	$ 75,000	$ 85,000	Includes Gear, shafting, bearings and fixed pitch propellers - Note 1
HVAC	$ 25,000	$ 65,000	Heating, fans and AC for accommodations
Pumps, Steering Systems	$ 40,000	$ 60,000	Includes exhaust, Fuel and water pumps and pressure sets, steering system
Outfit: (not included in above)			
Pilot House Electronics	$ 100,000	$ 300,000	Navigation and Electronics - radars, sonars, radios, internal communications
Laboratory Equipment	$ 50,000	$ 150,000	Allowance for Chem hoods, sinks, refrigerators/freezers, scales
Oceanographic electronics	$ 100,000	$ 300,000	Mission Specific - excludes winches above
Construction Support:			
Design Engineering	$ 150,000	$ 300,000	Contract Design issued to yard for Contract bid-out
Shipyard Engineering	$ 100,000	$ 300,000	Includes working drawings and lofting
Construction Supervision	$ 125,000	$ 300,000	Low is local yard, support from the office, high is 1 person on site for 9 months
Delivery Costs	$ 10,000	$ 75,000	low is local yard, high is from the Gulf Coast
Approximate Vessel Cost	$ 6,760,000	$ 9,220,000	Excludes any state and local taxes, UW Facilities Supervision fees and UW Development "taxes"
Recommend Contingency	$ 338,000	$ 461,000	5%

Next Steps

- Survey potential UNOLS science customers to identify need / desire to use such a vessel with more capability, more capacity, more flexibility. Estimate likely usage.
- Explore educational uses
  - Oceanography
  - College of the Environment
  - UW Tacoma
  - Western Washington University
  - Community Colleges
- Explore other uses (non-traditional UNOLS users)
- Evaluate how other institutions acquired their vessels
- Evaluate options for acquiring & modifying an existing vessel
- Estimate Day Rates (24-hour, 12-hour & 8 hour operations)
- Identify potential sources of funds for construction and educational usage

GIFFORD A. BARNES
SEATTLE


UW
College of the
Environment