

# R/V Clifford A. Barnes Replacement

University of Washington

Capt. Doug Russell – Manager of Marine Operations



**W** COLLEGE *of the* ENVIRONMENT

# R/V Clifford A. Barnes (CAB)



- 45 year old former 65' USCG tug
- Limited scientific capability
- Limited berthing capacity

# Process to Date

- ❧ CAB Replacement Committee established
  - ❧ Dr. William Wilcock — Marine Geology & Geophysics
  - ❧ Dr. Rick Keil – Chemical Oceanography
  - ❧ Dr. Julie Keister – Biological Oceanography
  - ❧ Dr. Parker MacCready – Physical Oceanography
  - ❧ Dr. Andrea Ogston – Marine Geology & Geophysics
  - ❧ Ray McQuinn – Master, R/V Clifford A. Barnes
- ❧ Established requirements for a replacement vessel thru meetings and survey of regular CAB users
  - ❧ Starting point – UW APL's R/V Jack Robertson
- ❧ Issued Conceptual Design contract to Jensen Maritime
- ❧ Conceptual design has been through 2 iterations incorporating committee feedback

# CAB Replacement Conceptual Design

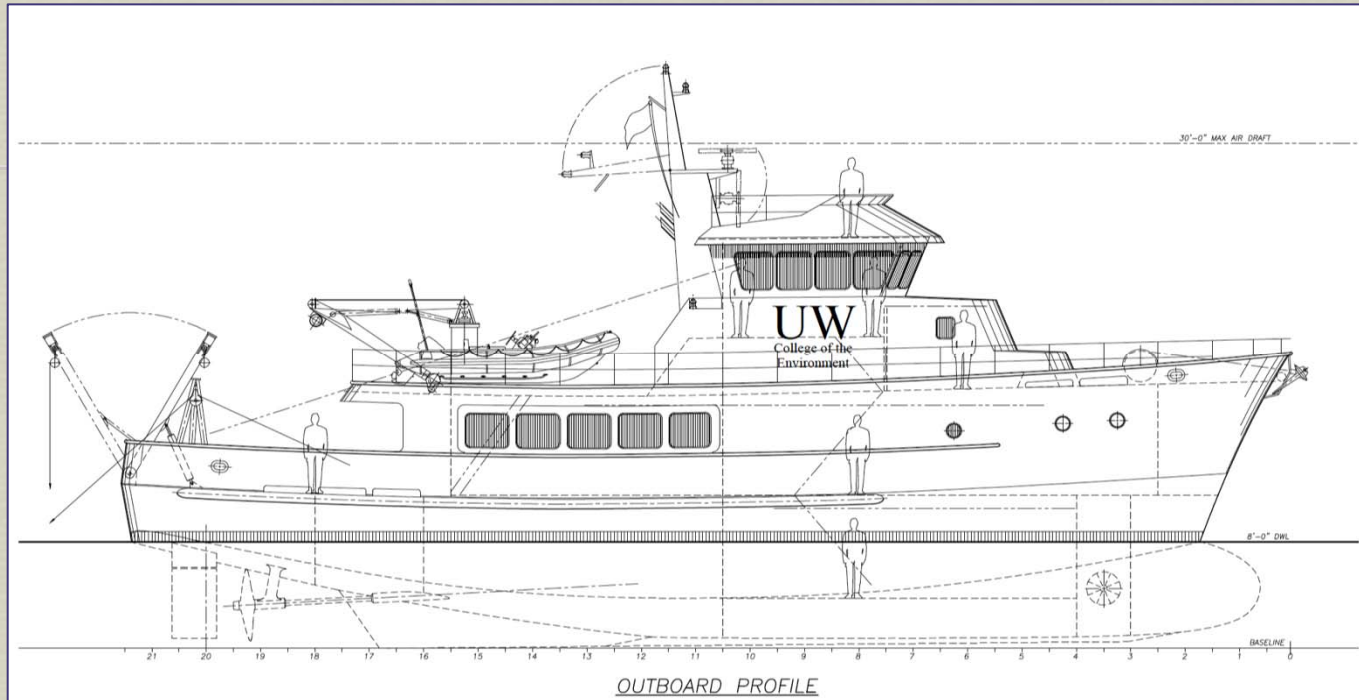
UNIVERSITY OF WASHINGTON  
COLLEGE OF THE ENVIRONMENT  
86' X 26' RESEARCH VESSEL



**JENSEN**  
Maritime Consultants  
A CROWLEY Company



# Outboard Profile



## PRINCIPAL CHARACTERISTICS

Designer . . . . . Jensen Maritime Consultants  
 Owner . . . . . University of Washington

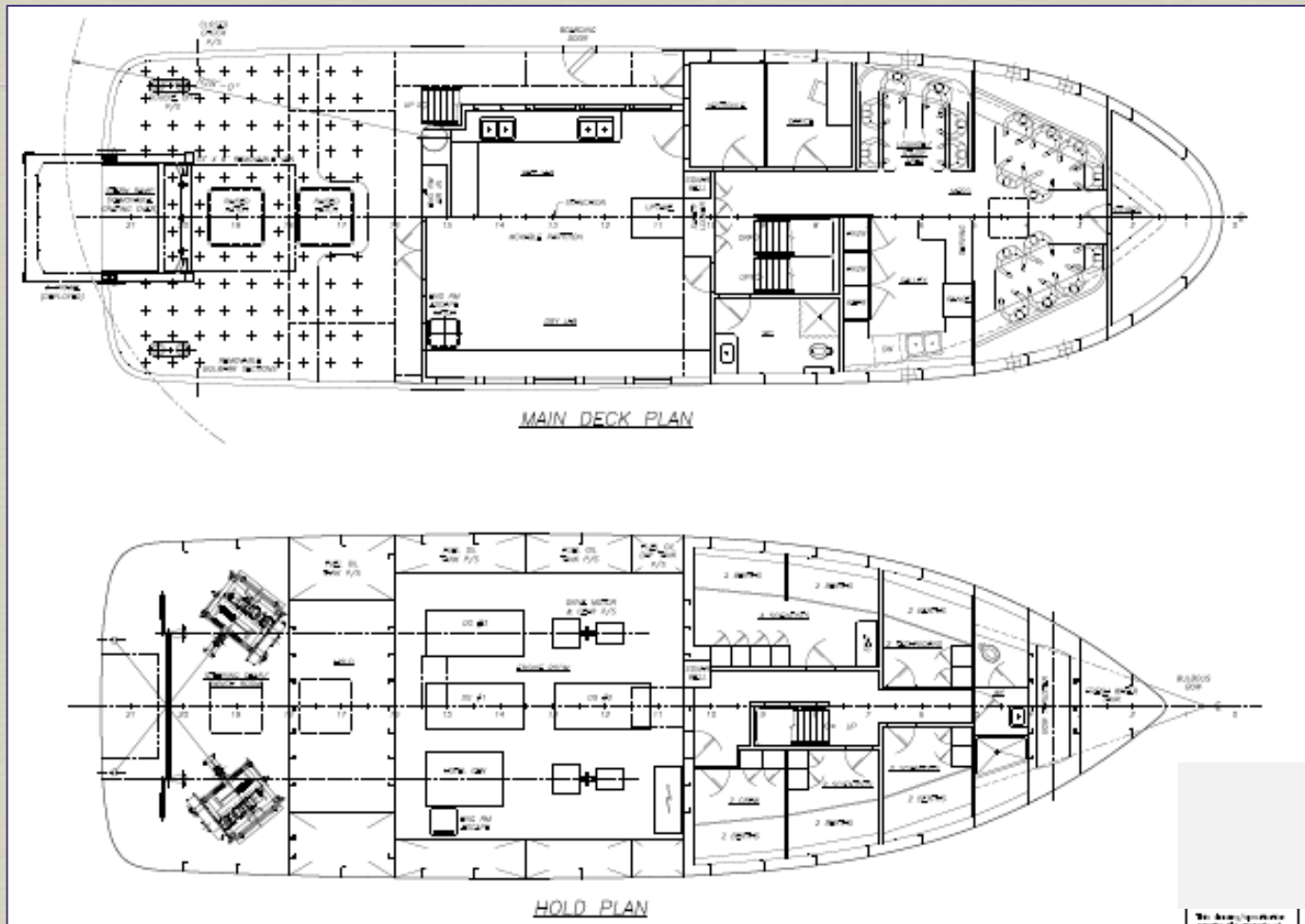
Length (overall) . . . . . 86' - 0" (26.2 m)  
 Beam . . . . . 26' - 0" (7.92 m)  
 Depth . . . . . 10' - 8" (3.25 m)  
 Draft (Full Load) . . . . . 9' - 0" (2.74 m)  
 Displacement (Full Load) . . . . . 250 LT

Speed, Full Load . . . . . 12.0 knots

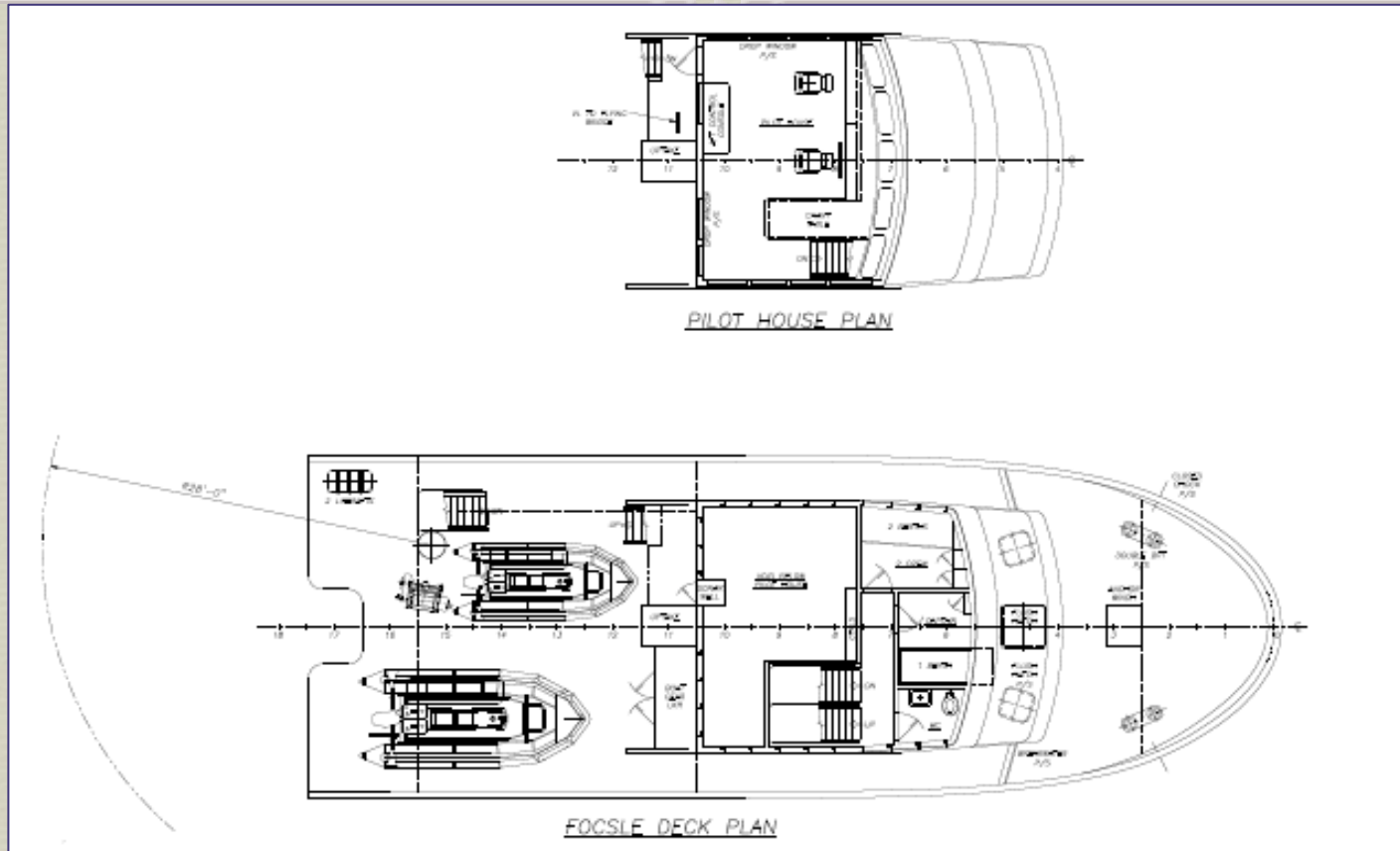
Propulsion . . . . . Diesel Electric, Twin Screw  
 Propulsion Motors . . . . . 2 x 325 kW (nom)  
 Bow Thruster . . . . . 1 x 125 kW (nom)  
 Generators . . . . . 4, 1200 kW Total  
 Propellers . . . . . 64" (1.6 m), 4-blade

Capacities:  
 Fuel . . . . . TBD Gallons  
 Water . . . . . TBD Gallons  
 Berthing . . . . . 15 total

# Main Deck & Hold Plan Arrangements



# Pilot House & Foc'sle Deck Plans





# Preliminary Cost Estimate

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- ∞ Estimated Cost – Preliminary Rough Order of Magnitude
  - ∞ \$7.1M - \$9.5M – incl.
    - ∞ Design Engineering
    - ∞ Shipyard Engineering
    - ∞ Construction Supervision
    - ∞ Delivery Costs
    - ∞ Construction: hull, machinery, & outfit
    - ∞ 5% Contingency

# Next Steps

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- Survey potential customers to identify need / desire to use such a vessel with more capability, more capacity, more flexibility
- Determine the Day Rate
- Identify potential sources of funds

# Fly By Video



# Questions?



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# Preliminary ROM Cost Estimate

## Preliminary Order of Magnitude Cost Estimate

Item	Costs		Notes
	Low	High	
<b>Hull - Structure and Outfit</b>	\$ 4,500,000	\$ 5,250,000	Includes outfit, installation of equipment, steel and piping
<b>Machinery:</b>			
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
<b>Outfit: (not included in above)</b>			
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
<b>Construction Support:</b>			
Design Engineering	\$ 150,000	\$ 300,000	Contract Design issued to yard for Contract bid-out
Shipyards 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
<b>Approximate Vessel Cost</b>	<b>\$ 6,760,000</b>	<b>\$ 9,220,000</b>	Excludes any state and local taxes, UW Facilities Supervision fees and UW Development "taxes"
<b>Recommend Contingency</b>	<b>\$ 338,000</b>	<b>\$ 461,000</b>	5%