

ARV Preliminary Design Placemat – January 31, 2023



REFERENCE MISSION

Range	17,000nm
Duration	90 days

DIMENSIONS

Length, Overall	365.0 ft
Length, BP	356.5 ft
Beam, Overall	80.0 ft
Beam, WL	79.2 ft
Draft, Limit	32.5' ft
Depth (Excluding Box Keel)	41.0' ft
Draft, Lightship	TBD ft

ACCOMMODATIONS

Ships Crew	29
NSF Science Party	55
ADA Accessible	2
Scientists	53
Wastewater (days)	20 T / 60 O

PROVISIONS

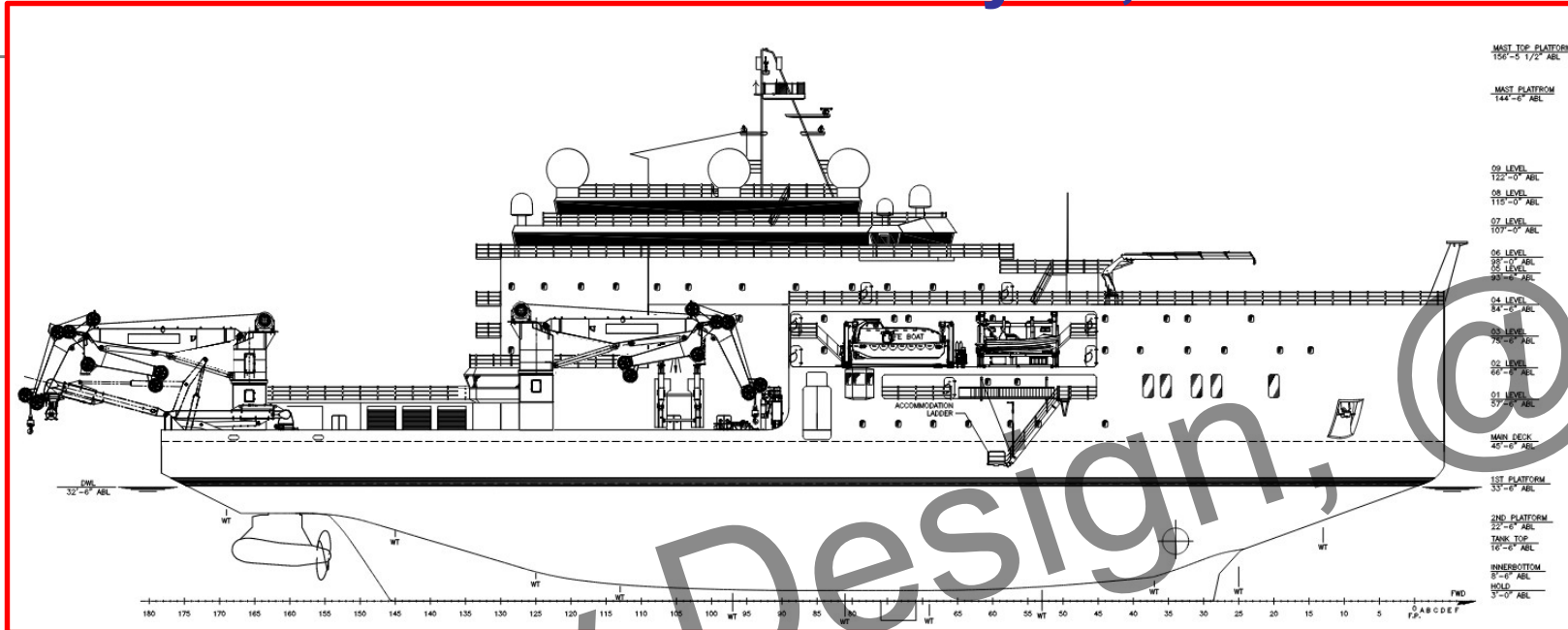
Freeze	90 days
Chill	45 days
Dry	90 days

AVIATION

UAV Launch/Recovery	150 lbs
UAV Hangar	No JP-5
UAV Workshop	

COMMUNICATIONS

HF Transmit and Receive	
C-Band SATCOM	
UHF SATCOM	
GMDSS	
INMARSAT F	



MACHINERY SYSTEMS

Fixed Pitch Azipod	2 x 9.5 MW
Bow Thrusters	1 x 1.9 MW
Ship Power Plant	22.3 eMW
Propeller	2 x 16.0ft FPP

NAVIGATION

AIS	
ECDIS	
S & K Band Radar	
Ice Radar	
DGPS	

PERFORMANCE

Open Water	
Cruise	11 kt T / 12kt O
Quiet	8 kt
Ice	
Continuous 3 kt	4.5 ft + 1ft. snow
Continuous 6 kt	1.6 ft
Turning out	4.5 ft
Range	>17,000 nm

AUXILIARY SYSTEMS

A/C Plants	Qty 3 @ 205t
Fire Suppression	Novec and Water Mist
Mission Fuel Capacity	60,000 gal
Ship Service Battery	3.2 MWh

MISSION EQUIPMENT

Main Deck Crane	2
Aft Deck Utility Crane	1
Forward Crane	1
Meteorology Mast	1
Piston Core LARS	40m T / 50 m O
Towing	
4 kt	25,000 lbs
6 kt	10,000 lbs
Sonar Suite	
Drop Keel (below keel)	3 ft / 10 ft
Observation Bridge	
Ice Radar	
UNOLS Lab Van (TEU)	20 T / 24 O

WEIGHTS

	Weight (LT)	VCG (ft ABL)
Full Load (EOSL)	~ 12,815	34.11
SWBS 100	5,604	36.60
SWBS 200	799	26.62
SWBS 300	549	38.24
SWBS 400	58	61.76
SWBS 500	1033	46.73
SWBS 600	555	51.40
SWBS 700 (Science)	44	54.96
Margins	917	2.24
SLA	383	0.36
Full Load (EOSL)	13,198	36.47

CLASSIFICATION

ABS □A1	Oceanographic
AMS	ILM
ACCU	BWT+
Unrestricted service	CCO-Polar
HAB++(WB)	ENVIRO
ESS-LIBATTERY	HYBRID IEPS
ILM	UWILD
Ice Class	PC3
NIBS	(NIBS, CS-2, and
DPS-1	DPS-1 Priority is
CS-2	meeting performance
	not obtaining
	notation)

MISSION SPACES

UNOLS Lab Vans	8 in Science Hold
Lab Area, Total	8,396 ft ²
Aft Work Deck	7,260 ft ²
Science Stores	34,678 ft ³
Side Deck Length	170 ft.
Baltic Room Area	703 ft ²

