Ships of the NOAA Fleet

Office of NOAA Corps Operations
Rockville, Maryland
June 1989

U.S. DEPARTMENT OF COMMERCE
Robert A. Mosbacher, Secretary

National Oceanic and Atmospheric Administration
Dr. William E. Evans, Under Secretary

Office of NOAA Corps Operations
RADM. Francis D. Moran

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INTRODUCTION

The ships of the NOAA Fleet are vessels which serve the needs of the Department of Commerce and the Nation. They are found operating in the Atlantic and Pacific Oceans, in the Gulfs of Mexico and Alaska, and in the Great Lakes.

The programs supported by the ships include the National Ocean Service's (NOS) nautical charting and marine assessment programs, the resource assessment activities of the National Marine Fisheries Service, and the research activities of the Environmental Research Laboratories. The particular tasks assigned to each ship may range from a hydrographic survey in an estuary to an extensive international oceanographic study spanning an entire ocean. Thus, the variety of configurations, characteristics, and equipment of the vessels included in this publication describe the versatility of the ships of the NOAA Fleet.

Management and operational support for the fleet is provided for through the Atlantic Marine Center in Norfolk, Va., and the Pacific Marine Center in Seattle, Wa. Both Marine Centers provide additional support through facilities in Woods Hole, Mass.; Miami, Florida; Pascagoula, Mississippi; San Diego, California; Anchorage, Alaska; and Honolulu, Hawaii.

Ships of the NOAA Fleet are identified by color scheme, letter-number designator, and by the display of the NOAA logo on both sides of the bow. The hull and superstructure are painted white; stacks are white with two tone blue bands; masts are buff; and boot tops are black. Letter-number designators appear on both sides of the bow, forward of the NOAA logo, and below the letters "NOAA". The designator is a three digit number preceded by the letter, "R" for research vessel, or "S" for survey vessel. The first number of the three digit identification is the class grouping for NOAA vessels and is determined from a combination of gross tonnage and its main propulsion plant's rated horsepower. The remaining digits are the vessel's hull number.

This presentation of NOAA's Fleet of ships will be revised as necessary to maintain an accurate description of each ship in an operational status. The data presented in this publication have been reviewed for accuracy. However, due to the variability of complements and the repair and/or replacement of equipment, the accuracy of these data must be verified with each vessel command.

Information on changes or omissions should be addressed to:

Director
Office of NOAA Corps Operations
Attn: OMOx3
6001 Executive Blvd.
Rockville, Md. 20852

(301) 443-8101

All major vessels of NOAA are classified based on the factor of power tonnage. Power tonnage is the combined horsepower and gross tonnage of any given vessel. Vessel classes are determined by specified ranges of power tonage, and for NOAA, the following classes are established:

Vessel Class	Power Tonnage
I	9000 - 5501
II	5500 - 3501
III	3500 - 2001
IV	2000 - 1001
V	1000 - 501
VI	500 and under, and not less than 65 ft length

This classification is for the purpose of establishing a uniform system of ship identification. It is used for operational, maintenance/replacement costs, budget planning, and compensation purposes.

The ship photographs are the most recent that are on file at the Office of NOAA Corps Operations. However, they may not agree with the current written description for that vessel. The written description should be used as the best most up-to-date capability of the vessel.

SHIPS OF THE NOAA FLEET

VESSEL	Designator	Gross Tons	Class	Page
OCEANOGRAPHER	R101	3,701	1	1
DISCOVERER	R102	3,701	1	5
MALCOLM BALDRIGE	R103	2,802	1	9
SURVEYOR	S132	2,653	1	15
FAIRWEATHER	S220	1,591	2	21
RAINIER	S221	1,591	2	25
MT. MITCHELL	S222	1,591	2	29
MILLER FREEMAN	R223	1,515	2	35
PEIRCE	S328	696	3	41
WHITING	S329	696	3	45
McARTHUR	S330	854	3	49
DAVIDSON	S331	854	3	53
OREGON II	R332	703	3	57
ALBATROSS IV	R342	1,115	3	61
TOWNSEND CROMWELL	R443	564	4	65
DAVID STARR JORDAN	R444	873	4	69
DELAWARE II	R445	483	4	73
CHAPMAN	R446	427	4	77
FERREL	R492	349	4	81
JOHN N. COBB	R552	185	5	85
RUDE	S590	150	5	89
HECK	S591	150	5	93
MURRE II	R663	189	6	97
APPENDIX A	Ship Photographs		.....	A-1

OCEANOGRAPHER R 101

LAUNCHED: April 1964
DELIVERED: April 1966
COMMISSIONED: July 1966
CALL LETTERS: WTEP

DESIGNER: Maritime Administration
BUILDER: Aerojet-General Shipyards
Jacksonville, Fla.
HOME PORT: Seattle, Wash.

CRUISING SPEED: 11 knts.
POWER: 5,000 SHP
FUEL CAPACITY: 319,000 gal.
ENDURANCE: 31 days

HULL: Welded steel/ice strengthened
DISPLACEMENT: 4,033 tons
GROSS TONNAGE: 3,701
NET TONNAGE: 1,095

LENGTH(LOA): 303 ft. (92.4 m)
BREADTH(moulded): 52 ft. (15.8 m)
DRAFT,MAXIMUM: 19.8 ft. (6.0 m)
SISTER SHIP(S): DISCOVERER

RANGE: 9,211 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 240 gal./hr.
ENDURANCE CONSTRAINT: Stability

OPERATIONAL COMMITMENTS

The OCEANOGRAPHER conducts worldwide oceanographic research. The ship normally operates in the Pacific Ocean and its adjoining seas.

HABITABILITY

BERTHING
Single staterooms: 21
Double staterooms: 46
Total bunks: 113

FOOD-SERVICE SEATING CAPACITY
Captain's cabin: 6
Wardroom: 27
Ship's officer's mess: 14
Technician's mess: 18
Crew's mess: 24

MEDICAL FACILITIES

Complete sickbay with five bunks, one medical technician.

SCIENTIFIC LABORATORY FACILITIES

Chemistry lab: 138 sq. ft.
Dry oceanographic lab: 1,800 sq.ft.
Wet oceanographic lab: 106 sq. ft.
Meteorological lab: 182 sq. ft.
Gravity lab: 176 sq. ft.
Photographic lab: 194 sq. ft.
CTD lab: 282 sq. ft.

COMPLEMENT

Commissioned Officers: 10
Crew: 49
Scientists: 24
Licensed officers: 4

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 26,800 gal.
Normal consumption: 6,500 gal./day
Maximum production: 8,000 gal./day

EVAPORATORS
Quantity: 2
Type: Steam-heat generated
Manufacturer: Aqua Chem

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Aerobic bacterial
Manufacturer: St. Louis Ship

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: Sigma
Holding capacity: 6,000 gal.

DECK MACHINERY

WINCHES

Quantity: 2
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Electrohydraulic
Line Speed: 400 ft./min.
Maximum pull: 1,500 lbs.
Drum capacity:
Upper: 10,000 ft. 3/8-in conductor cbl.
Lower: 15,000 ft. 3/16-in wire rope

Quantity: 1
Type: Deep-sea, w/traction unit
Manufacturer: Western Gear
Drive: Electrohydraulic
Line speed: 133 ft./min.-600 ft./min.
Maximum pull: 6,800-30,000 lbs. (TU)
Drum capacity: Front drum: 42,000 ft. of 1/2-in. wire rope.

CRANES AND BOOMS

Quantity: 1
Type: Telescoping boom
Manufacturer: Skagit
Boom length: 40 ft.
Location: Foward
Lifting capacity: 7,300 lbs.
(boom extended) 4,700 lbs.

Quantity: 1
Type: Fixed length boom
Manufacturer: Lake Shore
Boom length: 35 ft.
Location: Aft
Lifting capacity: 10,000 lbs.

A-FRAMES

Quantity: 1
Type: Movable
Clearance over side: 9 ft.
Location: Stern

GROUND TACKLE

Bower anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 4,850 lbs.

Anchor chain(s)
Quantity: 2
Size and type: 1-11/16in. stud link
Length (each): 135 fms.

ENGINEERING

PROPULSION PLANT — Type: Diesel electric
Main propulsion motors — Quantity: 2
Type: D.C. electric — Manufacturer: Westinghouse
Rated power(each): 2,500 hp.

Propulsion generators — Quantity: 4
Type: Diesel — Manufacturer: Westinghouse
Rated power: 1,150 kw

Auxiliary propulsion — Quantity: 1
Type: Through hull bow thruster — Drive: Diesel electric
Manufacturer: Murray & Tregurtha — Rated power: 400 hp

Propeller(s) — Quantity: 2
Type: Fixed pitch — Blades: 4
Diameter: 12 ft.

ELECTRICAL SYSTEM
Ship's service generators — Quantity: 3
Manufacturer: Fairbanks Morse/ Westinghouse — Output voltage: 450 V a.c.
Power rating: 400 kw

Emergency generator — Quantity: 1
Manufacturer: Fairbanks Morse/ GE — Output voltage: 450 V a.c.
Power rating: 100 kw

Electrical service: 440 V a.c. three phase, 110 V a.c. single phase

ELECTRONICS

COMMUNICATIONS

VHF/FM transceivers	HF transceivers
Teletype capability	Weather facsimile receiver
Emergency radio auto alarm	Portable emergency transceiver
EPIRB's	Satellite communications system

ACOUSTICS

Deepwater echo sounder	Shallow water echo sounder
Narrow beam stabilized transducer system	

NAVIGATION

Radar	Gyrocompass
Loran	Satnav
RDF	Omega
Global positioning system	

SCIENTIFIC EQUIPMENT

CTD system	XBT system
Rosette water sampling system	Gravity meter
Magnetometer	Accoustic doppler current profiler
Shipboard Environmental Acquisition System (SEAS)	

DATA ACQUISITION AND PROCESSING SYSTEM

The Data Processing System (DPS), known as SDS IIA, is based on the Digital Equipment (DEC) PDP 11/34 system. This system is capable of monitoring data quality in near real time as well as performing data validity checks during post processing. Data can be merged, plotted, and formated for reports during post processing.

The Data Acquisition System (DAS), known as SDS IIB, is comprised of two DEC LSI 11/23 micro-computers each of which can acquire data from sensors or devices. The two main subsystems are the Central Sensor Acquisition Module (SAM) and the navigation SAM. The SDS IIB DAS system can communicate all data to the SDS IIA DPS in real time.

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOAT — Quantity: 1
Hull type: Aluminum, Rigid hull inflatable
Manufacturer: Hurricane, model 7500
Length: 24 ft. — Propulsion: Diesel

SPECIAL FEATURES

Deep-sea anchoring capability.

DISCOVERER R 102

LAUNCHED: October 1964
DELIVERED: December 1964
COMMISSIONED: April 1967
CALL LETTERS: WTEA

HULL: Welded steel/ice strengthened
DISPLACEMENT: 4,033 tons
GROSS TONNAGE: 3,701
NET TONNAGE: 1,095

DESIGNER: Maritime Administration
BUILDER: Aerojet-General Shipyards
Jacksonville, Fla.
HOME PORT: Seattle, Wash.

LENGTH(LOA): 303 ft. (92.4 m)
BREADTH(moulded): 52 ft. (15.8 m)
DRAFT,MAXIMUM: 19.8 ft. (6.0 m)
SISTER SHIP(S): OCEANOGRAPHER

CRUISING SPEED: 11 knts.
POWER: 5,000 SHP
FUEL CAPACITY: 319,000 gal.
ENDURANCE: 31 days

RANGE: 9,211 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 240 gal./hr.
ENDURANCE CONSTRAINT: Stability

OPERATIONAL COMMITMENTS

The DISCOVERER conducts worldwide oceanographic research. The ship normally operates in the Pacific Ocean and its adjoining seas.

HABITABILITY

BERTHING
Single staterooms: 21
Double staterooms: 46
Total bunks: 113

FOOD-SERVICE SEATING CAPACITY
Captain's cabin: 6
Wardroom: 27
Ship's officer's mess: 14
Technician's mess: 16
Crew's mess: 20

MEDICAL FACILITIES

Complete sickbay with four bunks, one medical technician.

SCIENTIFIC LABORATORY FACILITIES

Meteorological lab: 160 sq. ft.
Dry oceanographic lab: 1,800 sq.ft.
Wet oceanographic lab: 156 sq. ft.
Gravity lab: 176 sq. ft.
Photographic lab: 165 sq. ft.

COMPLEMENT

Commissioned Officers: 10
Crew: 49
Scientists: 24
Licensed Officers: 4

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 26,800 gal.
Normal consumption: 5,000 gal./day
Maximum production: 8,000 gal./day

EVAPORATORS
Quantity: 2
Type: Steam-heat generated
Manufacturer: Aqua Chem

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Aerobic bacterial
Manufacturer: St. Louis Ship

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: Sigma
Holding capacity: 6,000 gal.

DECK MACHINERY

WINCHES
Quantity: 1
Type: Constant tension CTD winch
Manufacturer: Penpoint
Drive: Electrohydraulic
Line speed: 350 ft./min.
Maximum pull: 2,000 lbs.
Drum Capacity:10,000 m. Kevlar conductor cable

Quantity: 1
Type: Deep-sea, w/ traction unit
Manufacturer: Western Gear
Drive: Electrohydraulic
Line speed: 133 ft./min.-600 ft./min.
Maximum Pull:6,800-30,000 lbs.(TU)
Drum Capacity: 45,000 ft. of 1/2 inch wire rope, per drum (2).

Quantity: 1
Type: CTD winch
Manufacturer: Marco
Drive: Electrohydraulic
Line Speed: 330 ft./min.
Maximum Pull: 3,000 lbs.
Drum Capacity: 6,000 m. of 0.292 conductor cable

CRANES AND BOOMS
Quantity: 2
Type: knuckle extension booms
Manufacturer: Allied
Boom length: 50 ft.
Location: Port and stbd. aft
Lifting Capacity: 16,000 lbs.
(boom extended) 5,000 lbs.

Quantity: 1
Type: Telescoping boom
Manufacturer: Skagit
Boom length: 40 ft.
Location: Foward
Lifting Capacity: 7,300 lbs.
(boom extended) 4,700 lbs.

A-FRAMES
Quantity: 1
Type: Movable
Clearance over side: 9 ft.
Location: Stern

Quantity: 2
Type: Movable
Clearance over side: 9 ft./6 ft.
Location: Starboard/port quarters

GROUND TACKLE
Bower anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 4,850 lbs.

Anchor chain(s)
Quantity: 2
Size and type: 1-11/16" stud link
Length (each): 135 fms

ENGINEERING

PROPULSION PLANT
Main propulsion motors
Type: D.C. electric
Rated power(each): 2,500 hp.

Type: Diesel electric
Quantity: 2
Manufacturer: Westinghouse

Propulsion generators
Type: Diesel
Rated power: 1,150 kw

Quantity: 4
Manufacturer: Westinghouse

Propeller(s)
Type: Fixed pitch
Diameter: 12 ft.

Quantity: 2
Blades: 4

ELECTRICAL SYSTEM
Ship's service generators
Manufacturer: Fairbanks Morse/ Westinghouse

Quantity: 3
Output voltage: 450 V a.c.
Power rating: 400 kw

Emergency generator
Manufacturer: Fairbanks Morse / GE

Quantity: 1
Output voltage: 450 V a.c.
Power rating: 100 kw

Electrical service: 440 V a.c. three phase, 110 V a.c. single phase

ELECTRONICS

COMMUNICATIONS
VHF/FM transceivers
Teletype capability
Emergency radio auto alarm

HF transceivers
EPIRB's
Portable emergency transceiver
Satellite communication system

ACOUSTICS
Deepwater echo sounder
Multi-beam swath sonar (SEABEAM)

Shallow-water echo sounder

NAVIGATION

Radar	Gyrocompass
Loran	Satnav
RDF	Omega

SCIENTIFIC EQUIPMENT

CTD system	XBT system
Rosette water sampling system	Accoustic doppler current profiler

Shipboard Environmental Acquisition System (SEAS)

DATA ACQUISITION AND PROCESSING SYSTEM

The SEABEAM Data Acquisition System (DAS) and the Data Processing System (DPS) are based on the DEC PDP 11/84 computer systems. The SEABEAM DAS consists of two subsystems, the echo processor subsystem based on a Data General ECCLIPSE processor and a DEC 11/84 subsystem for the acquisition and logging of sonar and navigational data. The ECCLIPSE processor reduces and corrects sounding data from a 16-beam sonar array. Real-time sonar data may be contour plotted, displayed on a CRT, and passed to the PDP 11/84 data recording subsystem.

The DPS system processes the data to assure its quality, selects data for final plotting, plots the selected soundings, and provides a contour plot for each survey sheet. An additional SDS IIB system (DEC LSI 11/23) provides for the acquisition of CTD and gravity data.

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS

Hull type: Rigid hull inflatable	Quantity: 1
Manufacturer:Hurricane, model 7500	Length: 24 ft.
Propulsion: Diesel	

Hull type: Aluminum open boat	Quantity: 1
Manufacturer: Monark	Length: 18 ft.
Propulsion: Gasoline outboards	

Hull type: Inflatable rubber	Quantity: 1
Manufacturer: Zodiac	Length: 14 ft.
Propulsion: Gasoline outboards	

SPECIAL FEATURES

Deep-sea anchoring capability
Underwater observation chamber (viewing ports welded closed)
Classified document physical security system
Through hull bow thruster, diesel electric, 400 hp

MALCOLM BALDRIGE R 103

LAUNCHED: October 1968
DELIVERED: June 1970
COMMISSIONED: October 1970
CALL LETTERS: WTER

HULL: Welded steel/ice strengthened
DISPLACEMENT: 2,963 tons
GROSS TONNAGE: 2,802
NET TONNAGE: 946

DESIGNER: Maritime Administration
BUILDER: American Shipbuilding
Toledo, Ohio
HOME PORT: Miami, Fla.

LENGTH(LOA): 278.3 ft. (84.8 m)
BREADTH(moulded): 51 ft. (15.5 m)
DRAFT,MAXIMUM: 18.3 ft. (5.6 m)

CRUISING SPEED: 13.0 knts.
POWER: 3,200 SHP
FUEL CAPACITY: 203,000 gal.
ENDURANCE: 36 days

RANGE: 11,245 n.mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 176 gal./hr.
ENDURANCE CONSTRAINT: Stability

RENAMED: March 1988, previously NOAA Ship RESEARCHER.

OPERATIONAL COMMITMENTS

The MALCOLM BALDRIGE conducts worldwide oceanographic research. The ship normally operates in the Atlantic Ocean and its adjoining seas.

HABITABILITY

BERTHING
Single staterooms: 11
Double staterooms: 36
Total bunks: 83

FOOD-SERVICE SEATING CAPACITY
Captain's cabin: 8
Wardroom: 22
Ship's officer's mess: 10
Technician's mess: 14
Crew's mess: 14

MEDICAL FACILITIES

Complete sickbay with four bunks, one medical technician.

SCIENTIFIC LABORATORY FACILITIES

Wet oceanographic lab: 140 sq. ft. Gravity lab: 174 sq. ft.
Dry oceanographic lab: 1,598 sq.ft. Photographic lab: 100 sq. ft.

COMPLEMENT

Commissioned officers: 10
Crew: 46
Licensed officers: 4
Scientists: 28

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 24,800 gal.
Normal consumption: 7,000 gal./day
Maximum production: 8,000 gal./day

EVAPORATORS
Quantity: 2
Type: Steam-heat generated
Manufacturer: General Electric

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Aerobic bacterial
Manufacturer: Red Fox Industries
Holding capacity: 6,000 gal.

OILY WASTE CONTROL
Type: Oily Waste Separator
Manufacturer: Harco
Holding capacity:

DECK MACHINERY

WINCHES
Quantity: 1
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Electrohydraulic
Line speed: 400 ft./min.
Maximum pull: 3,000 lbs.
Drum capacity: 12,000 ft. of 0.292 inch wire; 30,000 ft. of 3/16 inch wire. (interchangeable drum)

Quantity: 1
Type: Deep-sea anchor/coring winch
Manufacturer: Western Gear
Drive: Electrohydraulic
Line speed: 133 ft./min.-460 ft./min.
Maximum pull:8,000-30,000 lbs.(TU)
Drum capacity: 45,000 ft. of 9/16 inch wire rope.

Quanity: 2
Type: GEK & magnetometer winch
Manufacturer: Industrial Electric
Drive: Electric
Line speed: 188 ft./min.
Maximum pull: 300 lbs.
Drum capacity: 750 ft. of 0.7 inch wire (interchangeable drum).

Quantity: 1
Type: Oceanographic winch
Manufacturer: Interocean Systems
Drive: Electrohydraulic
Line speed: 61 m./min.
Maximum pull: 4,536 KG
Drum capacity: 10,000 meters of .322 inch wire.

CRANES AND BOOMS

Quantity: 3
Type: Telescoping boom
Manufacturer: Grove Mfg.
Boom length: 34 ft.
Location: 1 aft, 2 fwd,port & Stb.
Lifting Capacity: 5,500 lbs.
(boom extended- lbs.)

Quantity: 1
Type: Telescoping boom
Manufacturer:Grove Mfg.
Boom length: 40 ft.
Location: Aft
Lifting capacity: 10,000 lbs.
(boom extended- 1,800 lbs.)

Quantity: 2
Type: Telescoping Boom
Manufacturer: Trident Maning Cranes
Boom Length: 45 ft. extended
Location: Aft, starboard, amidships
Lifting Capacity: 11,760 lbs.; 6,400 lbs. extended.

A-FRAMES

Quantity: 1
Type: Movable
Clearance over side: 12 ft.
Location: Stern

Quantity: 1
Type: Movable
Clearance over side: 5 ft.
Location: Port, amidship

J-FRAMES
Quantity: 1
Type: Movable
Clearance over the side:
Location: Stbd. amidship

GROUND TACKLE

Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 4,223 lbs.
(one spare aboard)

Anchor chain(s)
Quantity: 2
Size and type: 1- 3/4" stud link
Length (each): 120 fms.

Deep sea anchor: 250 lb. Danforth, 45,000 ft. of 9/16 inch wire rope.

ENGINEERING

PROPULSION PLANT

Main Propulsion Motors
Type: Diesel engines
Rated power(each): 1,600 hp

Type: Geared diesel
Quantity: 2
Manufacturer: Alco

Propeller(s)
Type: Controllable pitch
Diameter: 10.5 ft.

Quantity: 2
Blades: 3
Manufacturer: Bird Johnson

ELECTRICAL SYSTEM

Ship's Service Generators
Manufacturer: Detroit Diesel / Delco

Quantity: 2
Output voltage: 450 a.c.
Power rating: 500 KW

Emergency generator	Quantity: 1
Manufacturer: Detroit Diesel Delco	Output Voltage: 450 V a.c. Power rating: 125 kw
Auxiliary generator (bow thruster)	Quantity: 1
Manufacturer: Detroit Diesel	Output voltage: 450 V a.c. Power rating: 500 kw

Electrical service: 450 V a.c. three phase, 220 V a.c. three phase, 120 V a.c. single phase

ELECTRONICS

COMMUNICATIONS	
VHF/FM transceivers	HF transceivers
Teletype capability	Weather facsimile receiver
Emergency radio auto alarm	Satellite communications system
EPIRB's	
ACOUSTICS	
Deepwater echo sounder	Shallow water echo sounder
Doppler Speed Log	Narrow beam stabilized transducer
NAVIGATION	
Radar	Gyrocompass
Loran	Satnav
RDF	Omega
Global positioning system	
SCIENTIFIC EQUIPMENT	
CTD system	XBT system
Gravity meter	Magnetometer
Acoustic doppler current profiler	
Shipboard Environmental Acquisition System (SEAS)	

DATA ACQUISITION AND PROCESSING SYSTEM

The MALCOLM BALDRIGE is the first ship to be outfitted with an upgraded oceanographic system. This system is referred to as the Scientific Computer System (SCS).

The SCS consists of two MicroVAX computer systems which are networked together to provide for both data acquisition and processing functions. One MicroVAX system is dedicated to acquire, log, and display data in real time and performs real-time data quality assurance functions.

The second MicroVAX is dedicated to shipboard scientists for data analysis and direction of their research.

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS

Hull Type: Rigid hull inflatable — Quantity: 1
Manufacturer: Hurricane,model 7500 — Length: 24 ft.
Propulsion: Diesel

Hull Type: Inflatable rubber — Quantity: 1
Manufacturer: Zodiac — Length: 13 ft.
Propulsion: Gasoline outboard

Hull Type: Aluminum open boat — Quantity: 1
Manufacturer: Monark — Length: 21 ft.
Propulsion: Gasoline outboard

SPECIAL FEATURES

Lowerable stern ramp
Underwater observation chamber
Portable helicopter platform
Retractable bow thruster
Regulated power available

SURVEYOR S 132

LAUNCHED: April 1959
DELIVERED: April 1960
COMMISSIONED: April 1960
CALL LETTERS: WTES

HULL: Welded steel/ice strengthened
DISPLACEMENT: 3,440 tons
GROSS TONNAGE: 2,653
NET TONNAGE: 682

DESIGNER: Maritime Administration
BUILDER: National Steel and Shipbuilding, San Diego, Ca.
HOME PORT: Seattle, Wash.

LENGTH(LOA): 292.2 ft. (89.0 m)
BREADTH(moulded): 46 ft. (14.0 m)
DRAFT,MAXIMUM: 19.5 ft. (5.9 m)

CRUISING SPEED: 12.0 knts.
POWER: 3,200 SHP
FUEL CAPACITY: 241,000 gal.
ENDURANCE: 28 days

RANGE: 8,033 n. mi.
FUEL TYPE: NSFO or Bunker C
FUEL CONSUMPTION: 180 gal./hr.
ENDURANCE CONSTRAINT: Stability

OPERATIONAL COMMITMENTS

The SURVEYOR conducts worldwide oceanographic research and is capabable of conducting hydrographic surveys for nautical charting. The ship normally operates in Pacific and Alaskan waters.

HABITABILITY

BERTHING
Single staterooms: 15
Double staterooms: 21
Four bunk rooms: 16
Total bunks aboard: 121

FOOD-SERVICE SEATING CAPACITY
Captain's cabin: 4
Wardroom: 24
Ship's officer's mess: 11
Crew's mess: 52

MEDICAL FACILITIES

Complete sickbay with four bunks, one trained medical technician.

SCIENTIFIC LABORATORY FACILITIES

Wet oceanographic lab: 120 sq. ft. Gravity lab: 60 sq. ft.
Dry oceanographic lab: 105 sq. ft. Photographic lab: 102 sq. ft.

COMPLEMENT

Commissioned Officers: 10
Crew: 51
Scientists: 16
Licensed Officers: 4

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 27,800 gal.
Normal consumption: 5,000 gal./day
Maximum production: 7,000 gal./day

EVAPORATORS
Quantity: 1
Type: Steam-heat generated
Manufacturer: Cleaver-Brooks

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Aerobic bacterial
Manufacturer: St. Louis Ship
Holding Capacity:

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: Harco
Holding capacity:

DECK MACHINERY

WINCHES
Quantity: 1
Type: Oceanographic winch
Manufacturer: Jered
Drive: Electrohydraulic
Line speed: 350 ft./min.
Maximum pull: 2,000 lbs.
Drum capacity: 9,000 ft. of 3/8 inch wire

Quantity: 1
Type: Deep-sea w/traction unit
Manufacturer: Western Gear
Drive: Electrohydraulic
Line speed: 133 ft./min.- 460 ft./min.
Maximum pull: 8,800 - 30,000 lbs.(TU)
Drum Capacity: 30,000 ft. of 3/16 in. wire rope; 18,500 ft. of 1/2 in., 3 strand Am-Gal

Quanity: 1
Type: Trawl winch
Manufacturer: Rowe
Drive: Electrohydraulic
Line speed: 150 ft./min.
Maximum pull: 2,000 lbs.
Drum capacity: 2,100 ft. of 3/8 inch wire rope

Quantity: 1
Type: Oceanographic/hydrographic
Manufacturer: Wheeler
Drive: Electrohydraulic
Line speed: 350 ft./min.
Maximum pull: 960 - 1,200 lbs.
Drum capacity: 18,500 ft. of 5/32 inch wire rope

Quantity: 1
Type: Oceanographic winch
Manufacturer: Morgan
Drive: Electrohydraulic
Line speed: 200 ft./min.
Maximum pull: 5,000 lbs.
Drum capacity: 20,000 ft. of 7/16 inch single conductor cable.

CRANES AND BOOMS

Quantity: 2
Type: Telescoping boom
Manufacturer: Austin Western
Boom length: 24 ft.
Location: Foredeck
Lifting capacity: 1,400 lbs.,
(boom extended - 1,000 lbs.)

Quantity: 1
Type: Fixed length boom
Manufacturer: Western Gear
Boom length: 36 ft.
Location: Aft
Lifting capacity: 25,000 lbs.
(boom extended -)

A-FRAMES

Quantity: 1
Type: Movable
Clearance over side:4 ft. over bow
Location: Bow (deep sea anchor)

Quantity: 1
Type: Movable
Clearance over side: 7 ft.
Location: Stern

Quantity: 1
Type: Movable
Clearance over side: 6 ft.
Location: Starboard side

Quantity: 1
Type: Movable
Clearance over side: 6 ft.
Location: Starboard side

GROUND TACKLE

Bower anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 5,100 lbs.

Anchor chain(s)
Quantity: 2
Size and type: 1-11/16" stud link
Length (each): 150 fms.- port; 135 fms.- stbd.

Deep sea cable: 30,000 ft. of 5/8 inch wire rope.

ENGINEERING

PROPULSION PLANT

Main Propulsion Boilers
Type: Water tube
Design pressure: 465 psi.

Type: Steam diesel
Quantity: 2
Manufacturer: Combustion Engr.
Superheat temp: 750 deg. F

Propeller(s)
Type: Fixed pitch
Diameter: 13.0 ft.

Quantity: 1
Blades: 4

Propulsion Turbines
Type: Cross compound
Power rating: 3,200 SHP

Quantity: 2
Manufacturer: DeLaval

Auxillary Propulsion
Manufacturer: Harbormaster
Rated power: 200 hp.

Type: Stern mounted auxiliary
Drive: Electric

ELECTRICAL SYSTEM

Ship's service generators	Quantity: 2
Type: Steam Trubine	Manufacturer: Worthington/GE
Output Voltage: 450 V a.c.	Power rating: 400 kw
Emergency generator	Quantity: 1
Type: Diesel	Manufacturer: Detroit Diesel/Delco
Output Voltage: 450 V a.c.	Power rating: 100 kw

Electrical service: 450 V ac three phase, 110 V ac single phase.

ELECTRONICS

COMMUNICATIONS

VHF/FM transceivers	HF transceivers
Teletype capability	MF transmitters
Emergency radio auto alarm	Portable emergency transceiver
EPIRB's	VHF/AM aircraft transceiver
Satellite communications system	

ACOUSTICS

Deepwater echo sounder	Shallow water echo sounder
Multi-beam swath sonar (SEABEAM)	

NAVIGATION

Radar	Gyrocompass
Loran	Satnav
RDF	Precision positioning equipment

SCIENTIFIC EQUIPMENT

CTD system	XBT system
Rosette water sampling system	Shipboard Environmental Acquisition System (SEAS)

DATA ACQUISITION AND PROCESSING SYSTEM

The SURVEYOR is equipped with the SEABEAM system for bathymetric mapping.

LAUNCHES AND SMALL BOATS

Hull Type:Fiberglass motor whaleboat	Quantity: 2
Manufacturer: U.S. Navy	Length: 26 ft.
Propulsion: Diesel	
Hull Type: Fiberglass open boat	Quantity: 2
Manufacturer: Boston Whaler	Length: 16 ft.
Propulsion: Diesel	

Hull Type: Inflatable rubber
Manufacturer: Zodiac
Propulsion: Gasoline outboards

Quantity: 1
Length: 12 ft.

SPECIAL FEATURES

Helicopter flight deck
Power isolation protection

Seismic reflection profile gear

FAIRWEATHER S 220

LAUNCHED: March 1967
DELIVERED: January 1968
COMMISSIONED: October 1968
CALL LETTERS: WTEB

HULL: Welded steel/ice strengthened
DISPLACEMENT: 1,800 tons
GROSS TONNAGE: 1,591
NET TONNAGE: 578

DESIGNER: Maritime Administration
BUILDER: Aerojet-General Shipyards
Jacksonville, Fla.
HOME PORT: Seattle, Wash.

LENGTH(LOA): 231 ft. (70.4 m)
BREADTH(moulded): 42 ft. (12.8 m)
DRAFT,MAXIMUM: 14.3 ft. (4.2 m)
SISTER SHIP(S): RAINIER,MT MITCHELL

CRUISING SPEED: 11 knts.
POWER: 2,400 SHP
FUEL CAPACITY: 117,000 gal.
ENDURANCE: 22 days

RANGE: 5,898 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 120 gal./hr.
ENDURANCE CONSTRAINT: Stability

OPERATIONAL COMMITMENTS

The FAIRWEATHER is primarily designed and outfitted for hydrographic surveys in support of nautical charting. Scientific equipment on board is limited to that equipment which supports and is related to these survey operations. The ship normally operates off the U.S. Pacific Coast, in Alaskan waters, and off the Hawaiian Islands.

HABITABILITY

BERTHING
Single staterooms: 7
Double staterooms: 16
Four bunk rooms: 9
Total bunks: 75

FOOD-SERVICE SEATING CAPACITY
Captain's cabin: 4
Wardroom: 12
Ship's officer's mess: 12
Technician's mess: 18
Crew's mess: 21

MEDICAL FACILITIES

Sickbay administered by one medical technician. A separate two-bunk stateroom is available for emergency situations.

SCIENTIFIC LABORATORY FACILITIES

Dry oceanographic lab: 240 sq. ft.

COMPLEMENT

Commissioned officers: 10
Crew: 52
Scientists: 4
Licensed officers: 4

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 16,000 gal.
Normal consumption: 3,500 gal./day
Maximum production: 6,000 gal./day

EVAPORATORS
Quantity: 2
Type: Steam-heat generated
Manufacturer: Cuno Engr.

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Electrocatalytic
Manufacturer:Sigma Chapman Inc.
Holding Capacity: 4,000 gal.

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: SRS
Holding capacity: 1,700 gal.

DECK MACHINERY

WINCHES
Quantity: 1
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Electrohydraulic
Line speed: 400 ft./min.
Maximum pull: 1,500 lbs.
Drum capacity: Upper: 10,000 ft. of 0.292-in. conductor cable,
Lower: 15,000 ft. of 3/16-in. wire rope.

CRANES AND BOOMS
Quantity: 1
Type: Fixed length crane
Manufacturer: Skagit
Boom length: 40 ft.
Location: Aft
Lifting capacity: 5,000 lbs.
(at maximum radius)

Quantity: 1
Type: Telescoping boom crane
Manufacturer: Skagit
Boom length: 25 ft.
Location: Port/stbd, foward
Lifting capacity: 2,500 lbs

A-FRAMES
Quantity: 1
Type: Movable
Clearance over side: 3 ft.
Location: Starboard quarter

GROUND TACKLE
Quantity: 1
Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 3,000 lbs.

Quantity: 1
Anchor Chain(s)
Quantity: 2
Size and Type: 1- 3/8" stud link
Length (each): 165 fms.

ENGINEERING

PROPULSION PLANT
Main propulsion motors
Type: Diesel
Rated power(each): 1,200 hp.

Type: Geared diesel
Quantity: 2
Manufacturer: General Motors

Auxiliary propulsion
Type: Through hull bow thruster
Rated power: 200 hp.

Quantity: 1
Manufacturer: Detroit Diesel/Bird Johnson

Propeller(s)
Type: Controllable pitch
Diameter: 8.5 ft.

Quantity: 2
Blades: 3
Manufacturer: Bird Johnson

ELECTRICAL SYSTEM
Ship's service generators
Manufacturer: Detroit Diesel/GE

Quantity: 2
Output voltage: 450 V a.c.
Power rating: 300 kw

Emergency generator
Manufacturer: Detroit Diesel/GE

Quantity: 1
Output voltage: 450 V a.c.
Power rating: 75 kw

Electrical service: 450 V a.c. three phase, 120 V a.c. three phase, 120 V a.c. single phase.

ELECTRONICS

COMMUNICATIONS
VHF/FM transceivers
Teletype capability
Emergency radio auto alarm
Weather facsimile receiver

HF transceivers
EPIRB's
Portable emergency transceiver

ACOUSTICS
Deepwater echo sounder
Hydrographic survey sounders

Shallow-water echo sounder
Side scan sonar

NAVIGATION

Radar	Gyrocompass
Loran	Precision positioning equipment

SCIENTIFIC EQUIPMENT

CTD system (shallow water)	XBT system
Shipboard Environmental Acquisition System (SEAS)	

DATA ACQUISITION AND PROCESSING SYSTEM

The National Ocean Survey's Hydroplot system, a shipboard computer system, is dedicated to the real time acquisition and processing of hydrographic data. Identical Hydroplot systems are also installed in two 29 ft. survey launches aboard ship. The Hydroplot system uses a PDP 8/E computer with a 24 K memory to generate a real-time position corrected plot of sounding data, steering commands to the helmsman and a punched paper tape for shore based processing.

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS

Hull Type: Fiberglass whaleboat	Quantity: 2
Manufacturer:Triumph Storecrafters	Length: 26 ft.
Propulsion Diesel	

Hull Type: Fiberglass open boat	Quantity: 2
Manufacturer: Boston Whaler	Length: 16 ft.
Propulsion: Gasoline outboards	

Hull Type: Aluminum open boat	Quantity: 2
Manufaturer: Monark	Length: 17 ft.
Propulsion: Gasoline outboards	

SURVEY LAUNCHES

Hull Type: Type I aluminum	Quantity: 4
Manufacturer: The Boatyard (Jensen)	Length: 29 ft.
Propulsion: Diesel	

SPECIAL FEATURES

Power isolation protection for scientific equipment.

RAINIER S 221

LAUNCHED: March 1967
DELIVERED: April 1968
COMMISSIONED: October 1968
CALL LETTERS: WTEF

DESIGNER: Maritime Administration
BUILDER: Aerojet-General Shipyards
Jacksonville, Fla.
HOME PORT: Seattle, Wash.

CRUISING SPEED: 11 knts
POWER: 2,400 SHP
FUEL CAPACITY: 107,000 gal.
ENDURANCE: 22 days

HULL: Welded steel/ice strengthened
DISPLACEMENT: 1,800 tons
GROSS TONNAGE: 1,591
NET TONNAGE: 578

LENGTH(LOA): 231 ft. (70.4 m)
BREADTH(moulded): 42 ft. (12.8 m)
DRAFT,MAXIMUM: 14.3 ft. (4.2 m)
SISTER SHIP(S): FAIRWEATHER, MT. MITCHELL

RANGE: 5,898 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 120 gal./hr.
ENDURANCE CONSTRAINT: Stability

OPERATIONAL COMMITMENTS

The RAINIER is designed and outfitted primarily for hydrographic surveys in support of nautical charting. Scientific equipment normally aboard is limited to that equipment which supports and is related to these survey operations. The ship normally operates off the U.S. Pacific Coast, in Alaskan coastal waters, and off the Hawaiian Islands

HABITABILITY

BERTHING
Single staterooms: 5
Double staterooms: 18
Four bunk rooms: 9
Total bunks aboard: 79

FOOD-SERVICE SEATING CAPACITY
Captain's cabin: 4
Wardroom: 12
Ship's officers mess: 11
Technician's mess: 18
Crew's mess: 18

MEDICAL FACILITIES

Complete sickbay with two bunks, one medical technician.

SCIENTIFIC LABORATORY FACILITIES

Dry oceanographic lab: 240 sq. ft.

COMPLEMENT

Commissioned Officers: 10
Crew: 52
Scientists: 4
Licensed Officers: 4

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 16,000 gal.
Normal consumption: 3,500 gal./day
Maximum production: 6,500 gal./day

EVAPORATORS
Quantity: 2
Type: Steam-heat generated
Manufacturer: Cuno Engr.

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Electrocatalytic
Manufacturer: Sigma Chapman Inc.
Holding Capacity: 8,000 gal.

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: SRS
Holding capacity: 1,700 gal.

DECK MACHINERY

WINCHES
Quantity: 1
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Electrohydraulic
Line speed: 400 ft./min.
Maximum pull: 1,000 lbs.
Drum capacity: 12,000 ft. of 0.292 inch conductor cable and 30,000 ft. of 3/16-in. wire rope. (double drum)

Quantity: 1
Type: Dredge and trawl
Manufacturer: Northern Line
Drive: Electrohydraulic
Line speed: 400 ft./min.
Maximum pull: 3,000 lbs.
Drum capacity: 6,000 ft. of 3/8-in. wire rope

CRANES AND BOOMS
Quantity: 1
Type: Fixed length crane
Manufacturer: Skagit
Boom length: 40 ft.
Location: Aft
Lifting capacity: 5,000 lbs. (at maximum radius)

Quantity: 2
Type: Telescoping boom crane
Manufacturer: Skagit
Boom length: 25 ft.
Location: Port/stbd, forward
Lifting capacity: 2,500 lbs.
(boom extended) 2,500 lbs.

A-FRAMES
Quantity: 2
Type: Movable
Clearance over side: 3 ft.
Location: Port and starboard quarters

GROUND TACKLE

Bower anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 4,850 lbs.

Anchor chain(s)
Quantity: 2
Size and type: 1- 3/8" stud link
Length (each): 165 fms.

ENGINEERING

PROPULSION PLANT
Main propulsion motors
Type: Diesel
Rated power(each): 1,200 hp.

Type: Geared diesel
Quantity: 2
Manufacturer: General Motors

Auxiliary Propulsion
Type: Through hull bow thruster
Rated power: 200 hp.

Quantity:
Manufacturer: Detroit Diesel/Bird Johnson

Propeller(s)
Type: Controllable pitch
Diameter: 8.5 ft.

Quantity: 2
Blades: 3
Manufacturer: Bird Johnson

ELECTRICAL SYSTEM
Ship's service generators
Manufacturer: Detroit Diesel/GE

Quantity: 2
Output voltage: 450 V a.c.
Power rating: 300 kw

Emergency generator
Manufacturer: Detroit Diesel/GE

Quantity: 1
Output voltage: 450 V a.c.
Power rating: 75 kw

Electrical service: 450 V a.c. three phase, 120 V a.c. three phase, 120 V a.c. single phase.

ELECTRONICS

COMMUNICATIONS
VHF/FM transceivers
Teletype capability
Portable emergency transceiver
Weather facsimile receiver

HF transceivers
Emergency radio alarm receiver
EPIRB's
INMARSAT

ACOUSTICS
Deepwater echo sounder
Hydrographic survey sounder

Shallow-water echo sounder
Side scan sonar

NAVIGATION
Radar
Loran

Gyrocompass
Precision positioning equipment

SCIENTIFIC EQUIPMENT

CTD system (shallow water) XBT system
Shipboard Environmental Acquisition System (SEAS)

DATA ACQUISITION AND PROCESSING SYSTEM

A Shipboard computer system, the National Ocean Service's Hydroplot system, is dedicated to the real time acquisition and processing of hydrographic data. Identical Hydroplot systems are also installed in two 29 ft survey launches aboard ship. The Hydroplot system uses a PDP 8/E computer with a 24 K memory to generate a real time position corrected plot of sounding data, steering commands to the helmsman and a punched paper tape for shore based processing.

The Hydrographic Data Acquisition and Processing System (HDAPS) is also aboard. One 29 ft. survey launch is outfitted with a data acquisition system which uses a FALCON Positioning system and a HP 340 computer. A shipboard processing system is also installed aboard the ship.

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS

Hull Type: Aluminum open boat Quantity: 1
Manufacturer: Monark Length: 17 ft.
Propulsion: Gasoline Outboards

Hull Type: Fiberglass open boat Quantity: 2
Manufacturer: Boston Whaler Length: 16 ft.
Propulsion: Gasoline outboards

Hull Type: Inflatable rubber Quantity: 1
Manufacturer: Zodiac Length: 17 ft.
Propulsion: Gasoline outboards

SURVEY LAUNCHES

Hull Type: Type I aluminum Quantity: 4
Manufacturer: The Boatyard(Jensen) Length: 29 ft.
Propulsion: Diesel

SPECIAL FEATURES

Power isolation protection for scientific equipment

MT. MITCHELL S 222

LAUNCHED: November 1966
DELIVERED: October 1967
COMMISSIONED: March 1968
CALL LETTERS: WTEG

HULL: Welded steel/ice strengthened
DISPLACEMENT: 1,800 tons
GROSS TONNAGE: 1,591
NET TONNAGE: 578

DESIGNER: Maritime Administration
BUILDER: Aerojet-General Shipyards
Jacksonville, Fla.
HOME PORT: Norfolk, Va.

LENGTH(LOA): 231 ft. (70.4 m)
BREADTH(moulded): 42 ft. (12.8 m)
DRAFT,MAXIMUM: 14.3 ft. (4.2 m)
SISTER SHIP(S): FAIRWEATHER,RAINIER

CRUISING SPEED: 11 knts.
POWER: 2,400 SHP
FUEL CAPACITY: 111,000 gal.
ENDURANCE: 22 days

RANGE: 5,898 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 110 gal./hr.
ENDURANCE CONSTRAINT: Stability

OPERATIONAL COMMITMENTS

The MT. MITCHELL is designed and outfitted for hydrographic surveys involving nautical charting. Scientific equipment aboard supports swath survey operations in depths ranging from 1,000 meters and deeper. The ship normally operates off the U.S. Atlantic coast, Gulf coast, and in the Caribbean Island Territorial waters.

HABITABILITY

BERTHING
Single staterooms: 5
Double staterooms: 18
Four bunk rooms: 9
Total bunks aboard: 77

FOOD-SERVICE SEATING CAPACITY
General mess: 16
Wardroom: 16
Ship's officers mess: 11
Technician's mess: 12

MEDICAL FACILITIES

Complete sickbay with one bunk, one medical technician.

SCIENTIFIC LABORATORY FACILITIES

Dry oceanographic lab: 240 sq. ft.

COMPLEMENT

Commissioned officers: 11
Crew: 39
Scientists:
Licensed officers: 4

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 16,000 gal.
Normal consumption: 3,000 gal./day
Maximum production: 4,800 gal./day

EVAPORATORS
Quantity: 2
Type: Steam-heat generated
Manufacturer: Cuno Engr.

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Aerobic bacterial
Manufacturer:St Louis Ship
Holding Capacity: 90 days

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: Harco
Holding capacity: 6,800 gal. or 8 gpm. flow with 10 ppm. contaminant

DECK MACHINERY

WINCHES
Quantity: 1
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Electrohydraulic
Line speed: 120 m./min.
Maximum pull: 3,000 lbs.
Drum capacity: 3,000 m. of 0.322 inch cable; 6,000 m. of 0.255 inch CTD cable.

CRANES AND BOOMS

Quantity: 1
Type: Fixed length crane
Manufacturer: Skagit
Boom length: 40 ft.
Location: Aft
Lifting capacity: 5,000 lbs. (at maximum radius)

Quantity: 1
Type: Telescoping boom crane
Manufacturer: Skagit
Boom length: 25 ft.
Location: Port/stbd, forward
Lifting capacity: 2,500 lbs.

A-FRAMES
Quantity: 2
Type: Movable
Clearance over side: 3 ft. stbd., 6 ft. port
Location: Port/stbd quarters

GROUND TACKLE

Bower anchor(s)	Anchor chain(s)
Quantity: 2	Quantity: 2
Type: Stockless	Size and Type: 1- 3/8" stud link
Weight (each): 4,850 lbs.	Length (each): 165 fms.

ENGINEERING

PROPULSION PLANT	Type: Geared diesel
Main propulsion motors	Quantity: 2
Type: Diesel	Manufacturer: General Motors
Rated power(each): 1,200 hp.	
Auxiliary propulsion	Quantity: 1
Type: Through hull bow thruster	Manufacturer: Detroit Diesel/Bird Johnson
Rated power: 200 hp.	
Propeller(s)	Quantity: 2
Type: Controllable pitch	Blades: 3
Diameter: 8.5 ft.	Manufacturer: Bird Johnson

ELECTRICAL SYSTEM

Ship's Service Generators	Quantity: 2
Manufacturer: Detroit Diesel/GE	Output voltage: 450 V a.c.
	Power rating: 300 kw
Emergency Generator	Quantity: 1
Manufacturer: Detroit Diesel/GE	Output voltage: 450 V a.c.
	Power rating: 75 kw

Electrical service: 450 V a.c. three phase, 120 V a.c. three phase, 120 V a.c. single phase.

ELECTRONICS

COMMUNICATIONS

VHF / FM transceivers	HF transceivers
Weather facsimile receiver	Emergency radio auto alarm
Portable emergency transceiver	EPIRB's

ACOUSTICS

Multi-beam swath sonar (SEABEAM)	Shallow-water echo sounder

NAVIGATION

Radar	Gyrocompass
Loran C	Transit Satellite Navigator

SCIENTIFIC EQUIPMENT

Shipboard Environmental Acquisition system (SEAS)
XBT system
CTD casting system

DATA ACQUISITION AND PROCESSING SYSTEM

The shipboard computer system is capable of acquiring and processing both SEABEAM bathymetric and oceanographic data. The Data Acquisition System (DAS) is based on the DEC MircoVAX II computer for acquiring data from the ECCLIPSE echo processor and multiple navigational subsystems. Real-time tracklines and single swath contour plots are produced. The Data Processing System (DPS) is based on a DEC MicroVAX II and is used for post processing functions in support of SEABEAM EEZ operations.

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS

Hull Type: Fiberglass whaleboat	Quantity: 1
Manufacturer: Pacific Plastics	Length: 26 ft.
Propulsion: Diesel	

SURVEY LAUNCHES

Hull Type: Type I aluminum	Quantity: 2
Manufacturer: The Boatyard(Jensen)	Length: 29 ft.
Propulsion: Diesel	
Hull Type: Fiberglass open boat	Quantity: 1
Manufacturer: Boston Whaler	Length: 17 ft.
Propulsion: Gasoline outboard	
Hull Type: Aluminum skiff	Quantity: 1
Manufacturer: Monark	Length: 13 ft.
Propulsion: Gasoline outboard	
Hull Type: Fiberglass open boat	Quantity: 1
Manufacturer: Boston Whaler	Length: 22 ft.
Propulsion: Gasoline outboard	

SPECIAL FEATURES

Power isolation protection for scientific equipment.
Space on Boat Deck for three 10′ x 20′ vans
Space on Bow for one 8′ x 20′ scientific van
Space on Fantail for one 10′ x 20′ scientific van

MILLER FREEMAN R 223

LAUNCHED: 1967
DELIVERED: 1968
COMMISSIONED: 1974
CALL LETTERS: WTDM

HULL: Welded steel
DISPLACEMENT: 1,920 tons
GROSS TONNAGE: 1,515
NET TONNAGE: 680

DESIGNER: Philip F. Spaulding
BUILDER: American Shipbuilding
Lorain, Ohio.
HOME PORT: Seattle, Wa.

LENGTH(LOA): 215 ft. (66.0 m)
BREADTH(moulded): 42 ft. (12.5 m)
DRAFT,MAXIMUM: 20.0 ft. (6.1 m)

CRUISING SPEED: 12 knts.
POWER: 2,150 SHP
FUEL CAPACITY: 145,000 gal.
ENDURANCE: 31 days

RANGE: 12,528 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 125 gal./hr.
ENDURANCE CONSTRAINT: Fuel

OPERATIONAL COMMITMENTS

The MILLER FREEMAN conducts fishery and living marine resources research. The ship normally operates off the U.S. Pacific Coast and in the Alaskan waters.

HABITABILITY

BERTHING
Single staterooms: 3
Double staterooms: 22
Four bunk rooms: 1
Total bunks aboard: 51

FOOD-SERVICE SEATING CAPACITY
Wardroom: 20
Crew's mess: 20

MEDICAL FACILITIES

Emergency and first aid equipment, one medical technician.

SCIENTIFIC LABORATORY FACILITIES

Chemistry lab: 172 sq. ft.
Fish processing lab: 384 sq. ft.
Wet oceanographic lab: 336 sq. ft.
Survey office: 120 sq. ft.

Utility lab: 432 sq. ft.
Rough lab: 241 sq. ft.
Data plot: 261 sq. ft.

COMPLEMENT

Commissioned officers: 7
Crew: 33
Scientists: 11
Licensed officers: 4

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 7,350 gal.
Normal consumption: 2,000 gal./day
Maximum production: 2,400 gal./day

EVAPORATORS
Quantity: 2
Type: Vapor boiler desalinator
Manufacturer: Riley - Beard

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Electrocatalytic
Manufacturer: Sigma-Chapman, Inc.
Holding Capacity:

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: SRS
Holding capacity:

DECK MACHINERY

WINCHES
Quantity: 1
Type: Oceanographic winch
Manufacturer: Marco
Drive: Hydraulic
Line speed: 328 ft./min.
Maximum pull: 10,000 lbs.
Drum capacity: 19,980 ft. of 7/16 inch wire rope

Quantity: 1
Type: Oceanographic winch
Manufacturer: Markey
Drive: Hydraulic
Line speed: 250 ft./min.
Maximum pull: 2,750 lbs.
Drum capacity: 12,500 ft. of 0.294-in. conductor cable

Quanity: 1
Type: Oceanographic winch
Manufacturer: Marco
Drive: Hydraulic
Line speed: 340 ft./min.
Maximum pull: 3,000 lbs.
Drum capacity: 19,980 ft. of 0.294 inch conductor cable.

Quantity: 2
Type: Trawl winch, constant tension
Manufacturer: Rapp-Hydema
Drive: Hydraulic
Line speed: 300 ft./min., programable
Maximum pull: 22,000 lbs.
Drum capacity: 6,000 ft. of 1 inch wire cable

WINCHES

Quantity: 2
Type: Ramp haul-in winch
Manufacturer: Lantec
Drive: Hydraulic
Maximum pull: 30,000 lbs.
Drum capacity: 200 ft. of 1 inch wire cable.

Quantity: 1
Type: Third wire / netsonde
Manufacturer:
Drive: Hydraulic
Maximum pull: 1,000 lbs.
Drum Capacity: 6,600 ft. of 1/2-in. insulated coaxial cable

Quantity: 1
Type: Double drum net reel
Manufacturer: Rapp - Hydema
Drive: Hydraulic
Maximum pull: 8,000 lbs.

CRANES AND BOOMS

Quantity: 2
Type: Telescoping boom
Manufacturer: Rowe Machine
Boom length: 28 ft.
Location:
Lifting capacity: 6,000 lbs.
(boom extended) 3,000 lbs.

Quantity: 1
Type: Telescoping boom
Manufacturer: Daybrook
Boom length: 18 ft.
Location:
Lifting capacity: 2,400 lbs.
(boom extended) 1,800 lbs.

Quantity: 1
Type: Fixed length boom
Boom length: 40 ft.
Lifting capacity: 20,000 lbs.

Quantity: 1
Type: Fixed length boom
Boom length: 8 ft.
Lifting capacity: 750 lbs.

A-FRAMES

Quantity: 1
Type: Movable stern gantry
Clearance over side: 4 ft.
Location: Stern

GROUND TACKLE

Bower anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 3,815 lbs.

Anchor chain(s)
Quantity: 2
Size and Type: 1- 7/16" stud link
Length (each): 120 fms.

ENGINEERING

PROPULSION PLANT

Main propulsion motors
Type: Diesel
Rated power(each): 2,200 hp.

Type: Geared diesel
Quantity: 1
Manufacturer: General Motors

Auxiliary propulsion
Type: Lowerable bow thruster
Rated Power: 400 hp.

Quantity: 1
Manufacturer: Schottle

Propeller(s)	Quantity: 1
Type: Controllable pitch	Blades: 3
Diameter: 10.1 ft.	Manufacturer: Bird Johnson

ELECTRICAL SYSTEM

Ship's service generators	Quantity: 2
Manufacturer: Caterpillar/GE	Output voltage: 450 V a.c.
	Power rating: 350 kw
Emergency Generator	Quantity: 1
Manufacturer: Caterpillar/GE	Output voltage: 450 V a.c.
	Power rating: 100 kw

Electrical service: 450 V a.c. three phase, 120 V a.c. single phase

ELECTRONICS

COMMUNICATIONS

VHF/FM transceivers	HF transceivers
Teletype capability	EPIRB's
Emergency radio auto alarm	Portable emergency transceiver
	Satellite communications system

ACOUSTICS

Deepwater echo sounder	Shallow water echo sounder
Fish finder and net sonde	Fish sonar

NAVIGATION

Radar	Gyrocompass
Loran, Sea Plot	Precision positioning equipment
RDF	Satnav

SCIENTIFIC EQUIPMENT

CTD system	XBT system
Rosette water sampling system	CAMAC system

Shipboard Environmental Acquisition System (SEAS)
Winch Instrumentation System

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS

Hull type: Aluminum workboat	Quantity: 1
Manufacturer: MonArk	Length: 26 ft
Propulsion: Diesel	Features: Hydraulic drum winch, 6 ft. A-frame, depth sounder, VHF/FM transceivers
Hull type: Fiberglass,semi-rigid	Quantity: 1
Manufacturer: Avon	Length: 17 ft.
Propulsion: Gasoline outboard	
Hull Type: Inflatable rubber	Qunatity: 1
Manufacturer: Zodiac	Length: 15.5 ft.
Propulsion: Gasoline Outboard	

SPECIAL FEATURES

Stern ramp

Lowerable stabilizing centerboard
(increases draft by 10.5 ft.)

Specimen Freezer Storage Capability:

A. Fish processing lab
   Type: Blast Freezer, upright cabinet
   Capacity: 42 cu. ft.
   Temperature: -18 to -6 deg. F

B. Specimen Freezer
   Type: walk-in compartment
   Capacity: 200 cu. ft.
   Temperature: 0 deg. F

Specimen Freezer
   Type: Blast Freezer, reach-in cabinet (adjoins walk-in)

PEIRCE S 328

LAUNCHED: October 1962
DELIVERED: May 1963
COMMISSIONED: May 1963
CALL LETTERS: WTEQ

HULL: Welded steel/ice strengthened
DISPLACEMENT: 907 tons
GROSS TONNAGE: 696
NET TONNAGE: 151

DESIGNER: Maritime Administration
BUILDER: Marietta Mfg. Co.
Pt. Pleasant, W.Va.
HOME PORT: Norfolk, Va.

LENGTH(LOA): 163 ft. (49.7 m)
BREADTH(moulded): 33 ft. (10.1 m)
DRAFT,MAXIMUM: 11.2 ft. (3.4 m)
SISTER SHIP(S): WHITING

CRUISING SPEED: 12 knts.
POWER: 1,600 SHP
FUEL CAPACITY: 42,700 gal.
ENDURANCE: 20 days

RANGE: 5,764 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 80 gal./hr.
ENDURANCE CONSTRAINT: Fuel

OPERATIONAL COMMITMENTS

The PEIRCE is designed and outfitted for hydrographic surveys involving nautical charting. Scientific equipment aboard supports and is related to survey operations. The ship normally operates off the U.S. Altantic coast, Gulf of Mexico, and the U.S. Caribbean Island teritorial waters.

HABITABILITY

BERTHING
Single staterooms: 3
Double staterooms: 8
Four bunk rooms: 5
Total bunks aboard: 39

FOOD-SERVICE SEATING CAPACITY
Wardroom: 8
Crew's mess: 23

MEDICAL FACILITIES

Emergency and first aid equipment, administered by trained vessel personnel.

COMPLEMENT

Commissioned officers: 7
Crew: 30

Scientists: 2
Licensed officers: 3

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 5,400 gal.
Normal consumption: 1,000 gal./day
Maximum production: 3,600 gal./day

EVAPORATORS
Quantity: 1
Type: Steam-heat/waste-heat
Manufacturer: Baldwin Lima Hamilton

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Aerobic bacterial
Manufacturer: St Louis Ship
Holding capacity: 30 days

OILY WASTE CONTROL
Type: Oily waste separator
Manufacturer: Harco
Holding capacity: 500 gal. or 4 gpm. flow with 10 ppm. contaminant

DECK MACHINERY

WINCHES
Quantity: 1
Type: Oceanographic double drum winch
Manufacturer: Northern Line
Drive: Hydraulic
Line speed: Upper: 400 ft./min., Lower: 35 ft./min.
Maximum pull: 1,500 lbs.
Drum capacity: 10,000 ft. of 0.30-in. electric cable (upper), 15,000 ft. of 5/16-in. cable (lower).

CRANES AND BOOMS

Quantity: 1
Type: Telescoping boom
Manufacturer: C.H. Wheeler
Boom length: 27 ft.
Location: Foredeck
Lifting capacity: 2,500 lbs.

Quantity: 1
Type: Articulating boom
Manufacturer: HIAB
Boom length: 27 ft.
Location: After deck
Lifting capacity: 2,768 lbs.

A-FRAMES
Quantity: 1
Type: Movable:
Clearance over side: 3 ft.
Location: Starboard side amidship.

GROUND TACKLE

Bower anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 2,050 lbs.

Anchor chain(s)
Quantity: 2
Size and Type: 1-1/4 inch stud link
Length: 105 fms. (each)

ENGINEERING

PROPULSION PLANT	Type: Geared diesel
Main propulsion motors	Quantity: 2
Type: Diesel	Manufacturer: General Motors
Rated power(each): 800 hp.	
Propeller(s)	Quantity: 2
Type: Controllable pitch	Blades: 3
Diameter: 6.0 ft.	Manufacturer: Bird Johnson
ELECTRICAL SYSTEM	
Ship's service generators	Quantity: 2
Manufacturer: Detroit Diesel / Delco	Output Voltage: 225/450 V a.c.
	Power rating: 150 kw
Emergency Generator	Quantity: 1
Manufacturer: Detroit diesel / Delco	Output voltage: 225/450 V a.c.
	Power rating: 60 kw

Electrical Service: 450 V a.c. three phase, 225 V a.c. three phase, 120 V a.c. single phase

ELECTRONICS

COMMUNICATIONS	
VHF/FM transceivers	HF transceivers
Teletype capability	Portable emergency transceiver
EPIRB's	Emergency radio auto alarm
Weather facsimile receiver	
ACOUSTICS	
Deepwater echo sounder	Shallow-water echo sounder
Hydrographic survey sounder	
NAVIGATION	
Radar	Precision positioning equipment
Loran	Gryocompass
Doppler speed log	Satnav
SCIENTIFIC EQUIPMENT	
XBT system	CTD system (shallow water)

Shipboard Environmental Acquisition system (SEAS)

DATA ACQUISITION AND PROCESSING

A shipboard computer system, the National Ocean Service's Hydroplot System, is dedicated to the real-time acquisition and processing of hydrographic data. An identical Hydroplot system is also installed in each survey launch aboard ship. The Hydroplot

system uses a PDP/8E computer with a 32 K memory to generate a real-time position corrected plot of sounding data, steering commands to the helmsman, and a punched paper tape for shore based processing.

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS
Hull type: Fiberglass open boat — Quantity: 1
Manufacturer: Boston Whaler — Length: 16 ft.
Propulsion: Gasoline outboard

Hull type: Aluminum open boat — Quantity: 1
Manufacturer: Monark — Length: 17 ft.
Propulsion: Gasoline outboard

SURVEY LAUNCHES
Hull type: Type I aluminum — Quantity: 2
Manufacturer: The BoatYard(Jensen) — Length: 29 ft.
Propulsion: Diesel

SPECIAL FEATURES

Power isolation protection for scientific equipment.

WHITING S 329

LAUNCHED: November 1962
DELIVERED: July 1963
COMMISSIONED: July 1963
CALL LETTERS: WTEW

HULL: Welded steel/ice strengthened
DISPLACEMENT: 907 tons
GROSS TONNAGE: 696
NET TONNAGE: 151

DESIGNER: Maritime Administration
BUILDER: Marietta Mfg. Co.
Pt. Pleasant, W.Va.
HOME PORT: Norfolk, Va.

LENGTH(LOA): 163 ft. (49.7 m)
BREADTH(moulded): 33 ft. (10.1 m)
DRAFT,MAXIMUM: 11.2 ft. (3.4 m)
12.2 ft. with IDSSS dome
SISTER SHIP(S): PEIRCE

CRUISING SPEED: 12 knts.
POWER: 1,600 SHP
FUEL CAPACITY: 43,500 gal.
ENDURANCE: 20 days

RANGE: 5,700 n.mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 80 gal./hr.
ENDURANCE CONSTRAINT: Fuel

OPERATIONAL COMMITMENTS

The WHITING is designed and outfitted for hydrographic surveys involving nautical charting. Scientific equipment aboard supports and is related to survey operations. The ship normally operates off the U.S. Altantic coast, Gulf of Mexico, and the U.S. Caribbean Island territorial waters.

HABITABILITY

BERTHING
Single staterooms: 3
Double staterooms: 8
Four bunk rooms: 5
Total bunks aboard: 39

FOOD-SERVICE SEATING CAPACITY
Wardroom: 8
Crew's mess: 22

MEDICAL FACILITIES

Emergency and first aid equipment, administered by trained vessel personnel. WHITING subscibes to the Medical Advisory Service (MAS). During an emergency situation, MAS personnel are contacted via radio.

COMPLEMENT

Commissioned officers: 8
Crew: 25

Scientists: 2
Licensed officers: 3

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 5,400 gal.
Normal consumption: 1,200 gal./day
Maximum production: 3,600 gal./day
Normal production: 1,500 gal./day

EVAPORATORS
Quantity: 1
Type: Steam-heat/waste-heat
Manufacturer: Baldwin Lima Hamilton

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Aerobic bacterial
Manufacturer: St Louis Ship
Holding Capacity: 30 days

OILY WASTE CONTROL
Type: Oily waste separator
Manufacturer: Harco
Holding capacity: 500 gal. or 4 gpm. flow with 10 ppm. contaminant

DECK MACHINERY

WINCHES
Quantity: 1
Type: Bathythermograph winch
Manufacturer: Northern Line
Drive: Electric/hydraulic
Line speed: 100 ft./min.
Maximum pull: 1000 lbs.
Drum capacity: Length unknown of 3/16-in. wire rope (lower drum)
4,000 m. of 1/4-in. wire rope (upper drum)

CRANES AND BOOMS

Quantity: 1
Type: Telescoping boom
Manufacturer: C.H. Wheeler
Boom length: 27 ft.
Location: Foredeck
Lifting capacity: 2,500 lbs.

Quantity: 1
Type: Articulating boom
Manufacturer: HIAB
Boom length: 27 ft.
Location: After deck
Lifting capacity: 2,768 lbs.

A-FRAMES
Quantity: 1
Type: Movable (electric/hydraulic)
Clearance over the side: 6.5 ft.
Height above deck: 16 ft.
Dimensions: 8 ft. wide at base, 5 ft. wide at top
Lifting capacity: 6250 lbs. maximum load, 5000 lbs working load
Location: Starboard side amidships

GROUND TACKLE

Bower anchor(s)
Quantity: 3
Type: Stockless
Weight: 2,050, 2,500, 1,775 lbs.

Anchor chain(s)
Quantity: 2
Size and type: 1-1/8 inch stud link
Length: 105 fms. (each)

ENGINEERING

PROPULSION PLANT	Type: Geared diesel
Main propulsion motors	Quantity: 2
Type: Diesel	Manufacturer: General Motors
Rated power(each): 800 hp.	
Propeller(s)	Quantity: 2
Type: Controllable pitch	Blades: 3
Diameter: 6.0 ft.	Manufacturer: Bird Johnson
ELECTRICAL SYSTEM	
Ship's service generators	Quantity: 2
Manufacturer: Detroit Diesel / Delco	Output Voltage: 225 /450 V a.c.
	Power rating: 220 kw
Emergency Generator	Quantity: 1
Manufacturer: Detroit diesel / Delco	Output voltage: 225 / 450 V a.c.
	Power rating: 60 kw

Electrical Service: 450 V a.c. three phase, 225 V a.c. three phase, 120 V a.c. single phase

ELECTRONICS

COMMUNICATIONS	
VHF/FM transceivers	HF transceivers
Teletype capability	Portable emergency transceiver
EPIRB's	Emergency radio auto alarm
Weather facsimile receiver	Satellite communications system
Celluar mobile telephone	FAX
ACOUSTICS	
Deepwater echo sounder- 12Khz.	Shallow-water echo sounder-100Khz

Hydrographic survey sounder- 24 and 100 Khz
Side Scan Sonar
Intermediate Depth Swath Survey System (IDSSS)- 36 Khz

NAVIGATION	
Radar	Gyrocompass
Loran	
Satnav	Doppler speed log
SCIENTIFIC EQUIPMENT	
XBT system	CTD system (shallow water)

Digital Micro-Vax II 32 bit data processor
Macintosh II

DATA ACQUISITION AND PROCESSING SYSTEM

Data Acquisition Systems:
Hydrographic Data and Processing System (HDAPS)
Intermediate Depth Swath Survey System (IDSSS), Hydrochart II
Scientific Environmental Acquisition System (SEAS)

The WHITING underwent a major upgrade in 1989. Hydrochart II was installed which utilizes a Micro-Vax computer system to acquire and process hydorgraphic data. Real-time bottom contour charts with a swath width of approximately 2 1/2 times the water depth, ranging from 10 to 1000 meters, can be generated. Traditional hydrographic methods have also been retained.

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS
Hull Type: Fiberglass open boat — Quantity: 1
Manufacturer: Boston Whaler — Length: 16 ft.
Propulsion: Gasoline outboard

Hull Type: Aluminum open boat — Quantity: 1
Manufacturer: Monark — Length: 17 ft.
Propulsion: Gasoline outboard

SURVEY LAUNCHES
Hull Type: Type I aluminum — Quantity: 2
Manufacturer: The BoatYard(Jensen) — Length: 29 ft.
Propulsion: Diesel

SPECIAL FEATURES

Power isolation protection for scientific equipment.
FERRUPS unit - Uninterruptable power supply

McARTHUR S 330

LAUNCHED: November 1965
DELIVERED: November 1966
COMMISSIONED: December 1966
CALL LETTERS: WTEJ

HULL: Welded steel/ice strengthened
DISPLACEMENT: 995 tons
GROSS TONNAGE: 854
NET TONNAGE: 207

DESIGNER: Maritime Administration
BUILDER: Norfolk Shipbuilding and Drydock, Norfolk, Va.
HOME PORT: Seattle, Wash.

LENGTH(LOA): 175 ft. (53.3 m)
BREADTH(moulded): 38 ft. (11.6 m)
DRAFT,MAXIMUM: 12.1 ft. (3.7 m)
SISTER SHIP(S): DAVIDSON

CRUISING SPEED: 10 knts.
POWER: 1,600 SHP
FUEL CAPACITY: 63,000 gal.
ENDURANCE: 28 days

RANGE: 6,615 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 80 gal./hr.
ENDURANCE CONSTRAINT: Stability

OPERATIONAL COMMITMENTS

The McARTHUR conducts oceanographic research and assessments primarily throughout the area of the exclusive economic zone of the Pacific Coast of the United States. The ship engages in measurements of chemical, meteorological and biological sampling of several large scale programs within NOAA.

HABITABILITY

BERTHING
Single staterooms: 2
Double staterooms: 19
Total bunks aboard: 40

FOOD-SERVICE SEATING CAPACITY
Wardroom: 8
Crew's mess: 22

MEDICAL FACILITIES

Emergency and first aid equipment, administered by trained vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Oceanographic lab: 150 sq ft

COMPLEMENT

Commissioned officers: 5
Crew: 25

Scientists: 6
Licensed officers: 3

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 6,000 gal.
Normal consumption: 1,500 gal./day
Maximum production: 2,500 gal./day

EVAPORATORS
Quantity: 1
Type: Steam-heat generated
Manufacturer: American Machine and Foundry

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Electrocatalytic
Manufacturer: Sigma Chapman, Inc.
Holding Capacity: 1,000 gal

OILY WASTE CONTROL
Type: Oily waste separator
Manufacturer: Sigma
Holding capacity:

DECK MACHINERY

WINCHES
Quantity: 1
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Electrohydraulic
Line speed: 400 ft./min.
Maximum pull: 3,000 lbs.
Drum capacity: 30,000 ft. of 3/16 inch wire rope or 11,000 ft of 5/16 inch wire rope

Quantity: 1
Type: Oceanographic winch
Manufacturer: Braden
Drive: Electrohydraulic
Line speed: 150 ft./min.
Maximum pull: 16,000 lbs.
Drum capacity: 4,000 ft. of 5/16-in. wire rope

Quantity: 1
Type: A-Frame winch
Manufacturer: Braden
Drive: Hydraulic
Line speed: 120 ft./min.
Maximum pull: 4,000 lbs.
Drum capacity: 820 ft. of 3/4 inch wire rope

CRANES AND BOOMS
Quantity: 1
Type: Telescoping boom
Manufacturer: Baldwin-UMA-Hamilton
Boom length: 43 ft.
Location: Foredeck
Lifting capacity: 5,700 lbs.
(boom extended - 3,200 lbs.)

Quantity: 1
Type: Articulated boom
Manufacturer: Husky Hydraulics
Boom length: 22 ft.
Location: Starboard quarter
Lifting capacity: 12,500 lbs.
(boom extended - 4,500 lbs.)

A-FRAMES
Quantity: 1
Type: Movable
Clearance over side: 6 ft.
Location: Stern

Quantity: 1
Type: Movable
Clearance over side: 6 ft.
Location: Starboard quarter

GROUND TACKLE

Bower anchor(s)
Quantity: 2
Type: Stockless
Weight: 2,000 lbs.

Anchor chain(s)
Quantity: 2
Size and type: 1-3/16-in. stud link
Length: 165 fms.

ENGINEERING

PROPULSION PLANT

Main propulsion motors
Type: Diesel
Rated power(each): 800 hp.

Type: Geared diesel
Quantity: 2
Manufacturer: General Motors

Propeller(s)
Type: Controllable pitch
Diameter: 6.8 ft.

Quantity: 2
Blades: 3
Manufacturer: Bird Johnson

ELECTRICAL SYSTEM

Ship's service generators
Manufacturer: Detroit Diesel / Delco

Quantity: 2
Output Voltage: 450 V a.c.
Power rating: 220 kw

Emergency generator
Manufacturer: Detroit diesel / GE

Quantity: 1
Output voltage: 450 V a.c.
Power rating: 60 kw

Electrical service: 450 V a.c. three phase
120 V a.c. single phase

ELECTRONICS

COMMUNICATIONS

VHF/FM transceivers
Teletype capability
EPIRB's
Satellite communications system

HF transceivers
Portable emergency transceiver
Emergency radio auto alarm

ACOUSTICS

Deepwater echo sounder
Acoustic release system

Acoustic release system

NAVIGATION

Radar
Loran

Gyrocompass

SCIENTIFIC EQUIPMENT

CTD system
Shipboard Environmental Acquisition System (SEAS)

Salinometer

DATA ACQUISITION AND PROCESSING SYSTEM

The vessel is equipped with a PDP 11/34 computer with a 128 K memory and CAMAC interface system capability which is used for processing STD data. The vessel also has two personal type computers for ship administration purposes.

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS

Hull type: Fiberglass open boat	Quantity: 1
Manufacturer: Boston Whaler	Length: 16 ft.
Propulsion: Gasoline outboard	

Hull type: Aluminum open boat	Quantity: 1
Manufacturer: Monark	Length: 17 ft.
Propulsion: Gasoline outboard	

Hull type: Fiberglass whaleboat	Quantity: 1
Manufacturer: Triumph Storecrafter	Length: 26 ft.
Propulsion: Diesel	

Hull type: Aluminum workboat	Quantity: 1
Manufacturer: Monark	Length: 26 ft.
Propulsion: Diesel	

SPECIAL FEATURES

Power isolation protection for scientific equipment.

DAVIDSON S 331

LAUNCHED: May 1966
DELIVERED: February 1967
COMMISSIONED: March 1967
CALL LETTERS: WTEK

HULL: Welded steel/ice strengthened
DISPLACEMENT: 995 tons
GROSS TONNAGE: 854
NET TONNAGE: 207

DESIGNER: Maritime Administration
BUILDER: Norfolk Shipbuilding and Drydock, Norfolk, Va.
HOME PORT: Seattle, Wash.

LENGTH(LOA): 175 ft. (53.3 m)
BREADTH(moulded): 38 ft. (11.6 m)
DRAFT,MAXIMUM: 14.0 ft. (4.3 m)
SISTER SHIP(S): McARTHUR

CRUISING SPEED: 10 knts
POWER: 1,600 SHP
FUEL CAPACITY: 63,000 gal.
ENDURANCE: 23 days

RANGE: 5,788 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 80 gal./hr.
ENDURANCE CONSTRAINT: Stability

OPERATIONAL COMMITMENTS

The DAVIDSON is designed and outfitted for hydrographic surveys involving nautical charting. Scientific equipment aboard supports and is related to survey operations. The ship normally operates off the U.S. Pacific coast and in Alaskan waters.

HABITABILITY

BERTHING
Single staterooms: 2
Double staterooms: 20
Total bunks aboard: 42

FOOD-SERVICE SEATING CAPACITY
Wardroom mess: 10
Crew's mess: 24

MEDICAL FACILITIES

Emergency and first aid equipment, administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Dry oceanographic lab: 250 sq. ft.

COMPLEMENT

Commissioned officers: 7
Crew: 29

Scientists: 2
Licensed officers: 3

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 6,000 gal.
Normal consumption: 1,500 gal./day
Maximum production: 2,500 gal./day

EVAPORATORS
Quantity: 1
Type: Steam-heat generated
Manufacturer: Aqua-Chem

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Electrocatalytic
Manufacturer: Sigma Chapman, Inc.
Holding capacity: 750 gal.

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: SRS
Holding capacity:

DECK MACHINERY

WINCHES
Quantity: 1
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Electrohydraulic
Line speed: 400 ft./min.
Maximum pull: 3,000 lbs.
Drum capacity: 30,000 ft. of 3/16 inch wire rope or 6,000 ft. of 3/8 inch wire rope or 12,00 ft. of 0.292 conductor cable.

CRANES AND BOOMS

Quantity: 1
Type: Telescoping boom
Manufacturer: Baldwin-UMA-Hamilton
Boom length: 32 ft.
Location: Foredeck
Lifting capacity:10,000 lbs.
(boom extended - 2,800 lbs)

Quantity: 1
Type: Articulated boom
Manufacturer: Husky Hydraulics
Boom length: 22 ft.
Location: Starboard quarter
Lifting capacity: 12,500 lbs.
(boom extended - 4,550 lbs.)

A-FRAMES
Quantity: 1
Type: movable
Clearance over the side: 5 ft.
Location: Stern

GROUND TACKLE

Bower anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 2,000 lbs.

Anchor chain(s)
Quantity: 2
Size and type: 1-3/16-in. stud link
Length: 165 fms.

ENGINEERING

PROPULSION PLANT	Type: Geared diesel
Main propulsion motors	Quantity: 2
Type: Diesel	Manufacturer: General Motors
Rated power(each): 800 hp.	
Propeller(s)	Quantity: 2
Type: Controllable pitch	Blades: 3
Diameter: 6.8 ft.	Manufacturer: Bird Johnson
ELECTRICAL SYSTEM	
Ship's service generators	Quantity: 2
Manufacturer: Detroit Diesel / Delco	Output Voltage: 450 V a.c. Power rating: 160 kw
Emergency generator	Quantity: 1
Manufacturer: Detroit diesel / GE	Output voltage: 450 V a.c. Power rating: 60 kw

Electrical service: 450 V a.c. three phase, 120 V a.c. single phase

ELECTRONICS

COMMUNICATIONS	
VHF/FM transceivers	HF transceivers
Teletype capability	Portable emergency transceiver
EPIRB's	Emergency radio auto alarm
ACOUSTICS	
Deepwater echo sounder	Acoustic release system
Hydrographic survey sounder	Bathymetric swath survey system (M53)
NAVIGATION	
Radar	Precision positioning equipment
Loran	Gyrocompass
SCIENTIFIC EQUIPMENT	
XBT system	CTD system (shallow water)
Shipboard Environmental Sys.(SEAS)	Tides measurement system

DATA ACQUISITION AND PROCESSING SYSTEM

The shipboard data system known as the Bathymetric Swath Survey System (BSSS) acquires data from a multibeam shallow water sonar subsystem interfaced to a PDP 11/34 data acquisition system (DAS). The PDP 11/34 DAS system acquires sonar and navigational data; corrects depths; provides navigational control; and plots a contour strip chart, trackline, and swath coverage limits.

A second PDP 11/34 system performs data quality checks as well as selecting and ploting final soundings.

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS

Hull type: Aluminum open boat — Quantity: 3
Manufacturer: Monark — Length: 17 ft.
Propulsion: Gasoline outboard

Hull type: Inflatable rubber — Quantity: 1
Manufacturer: Avon — Length: 16 ft.
Propulsion: Gasoline outboard

SURVEY LAUNCHES

Hull type: Type I aluminum — Quantity: 2
Manufacturer: The BoatYard(Jensen) — Length: 29 ft.
Propulsion: Diesel

SPECIAL FEATURES

Power isolation protection for scientific equipment.
Bathymetric Swath Survey system for evaluation and development.

OREGON II R 332

LAUNCHED: February 1967
DELIVERED: August 1967
COMMISSIONED:
CALL LETTERS: WTDO

HULL: Welded steel
DISPLACEMENT: 952 tons
GROSS TONNAGE: 703
NET TONNAGE: 228

DESIGNER: Robert H. Macy
BUILDER: Ingalls Shipbuilding
Pascagoula, Miss.
HOME PORT: Pascagoula, Miss.

LENGTH(LOA): 170 ft. (51.8 m)
BREADTH(moulded): 34 ft. (10.4 m)
DRAFT,MAXIMUM: 14.0 ft. (4.3 m)

CRUISING SPEED: 12 knts.
POWER: 1,600 SHP
FUEL CAPACITY: 71,500 gal.
ENDURANCE: 31 days

RANGE: 7,810 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 78 gal./hr.
ENDURANCE CONSTRAINT: Stability

OPERATIONAL COMMITMENTS

The OREGON II conducts fishery and living marine resources research. The ship normaly operates off the Southeast Atlantic coast, in the Gulf of Mexico, the Caribbean Sea, and the South Atlantic Ocean.

HABITABILITY

BERTHING
Single staterooms: 3
Double staterooms: 13
Total bunks aboard: 29

FOOD-SERVICE SEATING CAPACITY

General mess: 14

MEDICAL FACILITIES

Emergency and first-aid equipment aboard, administered by trained vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Wet oceanographic lab: 275 sq. ft.
Instrumentation lab: 75 sq. ft.
Specimen lab: 100 sq. ft.
Hydrographic lab: 210 sq. ft.

COMPLEMENT

Scientists: 12
Crew: 11
Licensed officers: 6
Commissioned Officers: 2

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 7,640 gal.
Normal consumption: 1,000 gal./day
Maximum production: 960 gal./day

EVAPORATORS
Quantity: 2
Type: Exhaust waste heat generated
Manufacturer: American Machine and Foundry

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Aerobic bacterial
Manufacturer: St Louis Ship
Holding Capacity: 30 days

OILY WASTE CONTROL
Type: Oily waste separator
Manufacturer: SRS
Holding capacity: flow rate: 4 gpm

DECK MACHINERY

WINCHES
Quantity: 1
Type: Sein / trawl winch
Manufacturer: Marco
Drive: Hydraulic
Line speed: 68 ft./min.
Maximum pull: 30,000 lbs.
Drum capacity: 1,200 ft. of 9/16 inch wire rope

Quantity: 1
Type: Hydrographic winch
Manufacturer: Marco
Drive: Hydraulic
Line speed: 21 - 33 ft./min.
Maximum pull: 3,000 lbs.
Drum capacity: 19,700 ft. of 0.292 inch wire rope

Quantity: 1
Type: Hydrographic winch
Manufacturer: New England Trawler
Drive: Hydraulic
Line speed: 190 ft./min.
Maximum pull: 3,700 lbs.
Drum capacity: 28,000 ft. of 1/4 inch wire rope

CRANES AND BOOMS
Quantity: 1
Type: Articulated boom, Sea Crane
Manufacturer: HIAB-FOCO, Mdl 120
Boom length: 27 ft.
Location: Foredeck, Stbd. side
Lifting Capacity: 8,000 lbs. at 10 ft. extension.

Quantity: 1
Type: Fixed length boom
Manufacturer:
Boom length: 25 ft.
Location: Aft
Lifting Capacity: 6,000 lbs.

A-FRAMES

Quantity: 1	Quantity: 1
Type: Movable	Type: Fixed
Clearance over side: 6 ft.	Clearance over side:
Location: Portside foward	Location:
Lifting capacity:	Lifting capacity: 2,000 lbs.

GROUND TACKLE

Bower anchor(s)	Anchor chain(s)
Quantity: 2	Quantity: 2
Type: Stockless	Size and type: 1 1/4-in. stud link
Weight: 2,275 lbs.	Length: 105 fms

ENGINEERING

PROPULSION PLANT	Type: Geared diesel
Main propulsion motors	Quantity: 2
Type: Diesel	Manufacturer: Fairbanks Morse
Rated power(each): 800 hp.	
Propeller(s)	Quantity: 1
Type: Controllable pitch	Blades: 4
Diameter: 7.5 ft.	Manufacturer: Bird Johnson

ELECTRICAL SYSTEM

Ship's service generators	Quantity: 2
Manufacturer: Fairbanks Morse	Output Voltage: 450 V a.c.
	Power rating: 220 kw
Emergency generator	Quantity: 1
Manufacturer: Onan	Output voltage: 450 V a.c.
	Power rating: 12 kw

Electrical service: 450 V a.c. three phase, 120 V a.c. single phase

ELECTRONICS

COMMUNICATIONS

VHF/FM transceivers	HF transceivers
Teletype capability	Portable emergency transceiver
EPIRB's	Emergency radio auto alarm
Satellite Communication	

ACOUSTICS

Shallow-water echo sounders	Netsonde
Vertical fish finder	Steerable sonar

NAVIGATION

Radar	Gyrocompass
Loran	Satnav
Omega	

SCIENTIFIC EQUIPMENT
XBT system
Shipboard Environmental Acquisition system (SEAS)

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS

Hull type: Fiberglass open boat	Quantity: 1
Manufacturer: Dana	Length: 18 ft.
Propulsion: Diesel	

Hull type: Fiberglass open skiff	Quantity: 1
Manufacturer: Sea Pip	Length: 12 ft.
Propulsion: Gasoline outboards	

SPECIAL FEATURES

Power isolation protection for scientific equipment.

ALBATROSS IV R 342

LAUNCHED: April 1962
DELIVERED: November 1962
DEDICATED: MAY 1963
CALL LETTERS: WMVF

HULL: Welded steel/ice strengthened
DISPLACEMENT: 1,089 tons
GROSS TONNAGE: 1,115
NET TONNAGE: 413

DESIGNER: Dwight S. Simpson Assoc.
BUILDER: Southern Shipbuilding
Slidell, La.
HOME PORT: Woods Hole, Mass.

LENGTH(LOA): 187 ft. (57.0 m)
BREADTH(moulded): 33 ft. (10.0 m)
DRAFT,MAXIMUM: 16.2 ft. (4.9 m)

CRUISING SPEED: 10 knts
POWER: 1,130 SHP
FUEL CAPACITY: 44,700 gal.
ENDURANCE: 16 days

RANGE: 3,933 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 50 gal./hr.
ENDURANCE CONSTRAINT: Stability

OPERATIONAL COMMITMENTS

The ALBATROSS IV conducts fishery and living marine resource research. The ship normaly operates off the U.S. Northeast Atlantic coast.

HABITABILITY

BERTHING
Single staterooms: 7
Double staterooms: 10
Three bunk rooms: 4
Total bunks aboard: 39

FOOD-SERVICE SEATING CAPACITY
Ship's officer's mess: 14
Crew's mess: 8

MEDICAL FACILITIES

Emergency and first aid equipment aboard, administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Photographic/Oceanographic/Chemistry lab: 110 sq. ft.
Scientific Study lab: 100 sq. ft.
Biological lab: 300 sq. ft.
Plankton lab: 110 sq. ft.
Electronics lab: 180 sq. ft.

COMPLEMENT

Commissioned officers: 4
Crew: 19
Scientists: 16
Licensed officers:

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 22,324 gal.
Normal consumption: 1,100 gal./day
Maximum production: 1,920 gal./day

EVAPORATORS
Quantity: 2
Type: Exhaust waste heat generated
Manufacturer: Maxim

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Physical/Chemical
Manufacturer: Maryland Environmental Systems
Holding Capacity: 400 gal.

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: Harco Mgr. co.

Holding capacity: flow rate 4 gpm or 1,000 gal.

DECK MACHINERY

WINCHES
Quantity: 1
Type: Dredge winch
Manufacturer: New England Trawler
Drive: Electrohydraulic
Line speed: 185 ft./min.
Maximum pull: 4,000 lbs.
Drum capacity: 3,900 ft. of 5/8 inch steel cable

Quantity:
Type: Trawl winch
Manufacturer:New England Trawler
Drive: Electric
Line speed: 215 ft./min.
Maximum pull: 16,000 lbs.
Drum capacity: 6,000 ft. of 7/8 inch steel cable

Quantity: 1
Type: Hydrographic winch
Manufacturer: New England Trawler
Drive: Electrohydraulic
Line speed: 250 ft./min.
Maximum pull: 3,800 lbs.
Drum capacity: 20,000 ft. of 1/4 inch wire rope

Quantity: 1
Type: Oceanographic winch
Manufacturer: New England Trawler
Drive: Electrohydraulic
Line speed: 200 ft./min.
Maximum pull: 3,500 lbs.
Drum capacity: 6,000 ft. of 3/8 inch wire rope

CRANES AND BOOMS
Quantity: 1
Type: Fixed length boom
Manufacturer:
Boom length: 35 ft.
Location: Boat deck aft
Lifting capacity: 10,000 lbs.

A-FRAMES
Quantity: 1
Type: Movable
Clearance over the side: 13 ft.
Location: Starboard boat deck

Quantity: 1
Type: Movable
Clearance over the side: 12 ft.
Location: Starboard amidship

Quantity: 1
Type: Movable gantry
Clearance over side: 11 ft
Location: Stern

GROUND TACKLE

Bower anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 2,000 lbs.

Anchor chain(s)
Quantity: 2
Size and type: 1.5" stud link
Length (each): 105 fms.

ENGINEERING

PROPULSION PLANT
Main propulsion motors
Type: Diesel
Rated power(each): 565 hp.

Type: Geared diesel
Quantity: 2
Manufacturer: Caterpillar

Auxillary Propulsion
Type: Through hull bow thruster
Rated power: 125 hp.

Quantity: 1
Manufacturer: Murray & Tregurtha
Drive: Electric (Reliance)

Propeller(s)
Type: Controllable/Kort nozzle
Diameter: 6 ft.

Quantity: 1
Blades: 3
Manufacturer: Liaaen

ELECTRICAL SYSTEM
Ship's service generators
Manufacturer: Caterpillar

Quantity: 3
Output voltage: 450 V a.c.
Power rating: 150 kw

Emergency generator
Manufacturer: John Deere

Quantity: 1
Output voltage: 450 V d.c.
Power rating: 45 kw

Electrical service: 450 V a.c. three phase, 120 and 220 V a.c. single phase, 230 V d.c., 120 V d.c.

ELECTRONICS

COMMUNICATIONS
VHF/FM transceivers
Emergency radio auto alarm
EPIRB's

HF transceivers
Portable emergency transceiver

ACOUSTIC

Deepwater echo sounder	Shallow-water echo sounder
Vertical fish finder	Doppler speed log

NAVIGATION

Radar	Gyrocompass
Loran	Satnav

SCIENTIFIC EQUIPMENT
XBT system
Shipboard Environmental Acquisition system (SEAS)

DATA ACQUISITION AND PROCESSING SYSTEM

This vessel is equipped with a DASCON data collection system which integrates navigational and environmental data for both display and logging purposes.

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS

Hull type: Fiberglass open boat	Quantity: 1
Manufacturer: Willard	Length: 18 ft.
Propulsion: Diesel	

SPECIAL FEATURES

Power isolation protection for scientific equipment.
Stern ramp
Stern trawler
Stern: 1080 sq ft of open deck space which is accessible by 5 ton boom, and of sufficient area to house two standard deck lab containers.

TOWNSEND CROMWELL R 443

LAUNCHED: July 1963
DELIVERED: November 1963
COMMISSIONED: June 1975
CALL LETTERS: WTDF

HULL: Welded steel
DISPLACEMENT: 652 tons
GROSS TONNAGE: 564
NET TONNAGE: 384

DESIGNER: W. C. Nickum & Sons
BUILDER: J. Ray McDermott Co.
Morgan City, La.
HOME PORT: Honolulu, Hawaii

LENGTH(LOA): 163 ft. (49.7 m)
BREADTH(moulded): 33 ft. (10.0 m)
DRAFT,MAXIMUM: 12.7 ft. (3.9 m)

CRUISING SPEED: 10 knts.
POWER: 800 SHP
FUEL CAPACITY: 42,000 gal.
ENDURANCE: 30 days

RANGE: 8,160 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 44 gal./hr.
ENDURANCE CONSTRAINT: Fuel

OPERATIONAL COMMITMENTS

The TOWNSEND CROMWELL conducts fishery and living marine resource research. The ship normally operates off the Hawaiian Islands and in the Central Pacific Ocean.

HABITABILITY

BERTHING
Single staterooms: 4
Double staterooms: 11
Total bunks aboard: 26

FOOD-SERVICE SEATING CAPACITY
General mess: 20

MEDICAL FACILITIES

Emergency and first aid equipment aboard, administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Wet lab: 390 sq. ft.
Electronic lab: 120 sq. ft.
Scientific Specimen Freezers: 200 sq. ft.

COMPLEMENT

Commissioned officers: 4
Crew: 10
Scientists: 9
Licensed officers: 3

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 13,000 gal.
Normal consumption: 750 gal./day
Normal production: 600 gal./day

EVAPORATORS
Quantity: 2
Type: Exhaust waste heat generated
Manufacturer: Triton

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Holding tank
Manufacturer:
Holding Capacity: 7,600 gal.

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: SRS
Holding capacity: 400 gal.

DECK MACHINERY

WINCHES
Quantity: 1
Type: Net reel winch
Manufacturer: Pacific Fisherman
Drive: Hydraulic
Line speed: 50 ft./min.
Maximum pull: 2,000 lbs.
Drum capacity: Aberdeen Bottom Trawl or OSU Rope Trawl

Quantity: 1
Type: CTD winch
Manufacturer: Markey
Drive: Hydraulic
Line speed: 240 ft./min.
Maximum pull: 2,750 lbs.
Drum capacity: 30,000 ft. of 3/16 inch wire rope

Quantity: 2
Type: Main deck winches
Manufacturer: Rowe Machine Works
Drive: Hydraulic
Line speed: 250 ft/min.
Maximum pull: 1,200 lbs.
Drum capacity: 15,000 ft. of .322 conductor cable

CRANES AND BOOMS
Quantity: 1
Type: Telescoping boom
Manufacturer: Alaska Marine
Boom length: 40 ft.
Location: Well deck
Lifting capacity: 2,000 lbs.

Quantity: 1
Type: Articulated boom
Manufacturer: Husky Mariner
Boom length: 25 ft.
Location: Boat deck, midship
Lifting capacity: 1,000 lbs.

A-FRAMES
Quantity: 1
Type: Movable
Clearance over the side: 7 ft.
Location: Well deck, stbd. side Aft.

Quantity: 1
Type: Plankton boom
Clearance over the side: 8 ft.
Location: Well deck, stbd side

GROUND TACKLE

Bower anchor(s)	Anchor chain(s)
Quantity: 1	Quantity: 1
Type: Stockless	Size and Type: 1-1/8 inch stud link
Weight (each): 1,450 lbs.	Length (each): 165 fms.

Deep Sea anchor: 1,000 lbs.; 1,200 ft 3/4 inch cable, 15 fathoms 3/4 inch chain.

ENGINEERING

PROPULSION PLANT	Type: Geared diesel
Main propulsion motors	Quantity: 2
Type: Diesel	Manufacturer: White-Superior
Rated power(each): 400 hp.	
Propeller(s)	Quantity: 2
Type: Controllable	Blades: 3
Diameter: 5.5 ft.	Manufacturer: Liaaen

ELECTRICAL SYSTEM

Ship's service generators	Quantity: 2
Manufacturer: Caterpillar	Output voltage: 450 V a.c.
	Power rating: 175 kw
Emergency generator	Quantity: 1
Manufacturer: General Motors	Output voltage: 440 V a.c.
	Power rating: 20 kw

Electrical service: 450 V a.c. three phase, 110 V a.c. single phase.

ELECTRONICS

COMMUNICATIONS

VHF / FM transceivers	HF transceivers
Emergency radio auto alarm	Portable emergency transceiver
EPIRB's	Teletype capability
	Inmarsat

ACOUSTICS

Deepwater echo sounder	Shallow-water echo sounder
Acoustic doppler current profiler	Netsonde
Cable metering and angle system	Chromoscope echo sounder

NAVIGATION

Radar	Gyrocompass
Loran C	Satnav / Omega
RDF	Satnav / GPS

SCIENTIFIC EQUIPMENT

XBT system
Rosette water sampling system
IBM personal computer
MicroVax
CTD system (Plessey)
Otter trawl equipment
Shipboard Environmental Acquisition System (SEAS)

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS

Hull type: Fiberglass open boat
Manufacturer: Boston Whaler
Propulsion: Gasoline outboard
Quantity: 1
Length: 17 ft.

Hull type: Inflatable rubber
Manufacturer: Zodiac
Propulsion: Gasoline outboard
Quantity: 1
Length: 15 ft.

SPECIAL FEATURES

Power isolation protection for scientific equipment.
Two saltwater bait wells, 4,000 gal. each.

DAVID STARR JORDAN R 444

LAUNCHED: December 1964
DELIVERED: October 1965
DEDICATED: January 1966
CALL LETTERS: WTDK

HULL: Welded steel
DISPLACEMENT: 993 tons
GROSS TONNAGE: 873
NET TONNAGE: 262

DESIGNER: Harco Engineering
BUILDER: Christy Corporation
Sturgeon Bay, Wis.
HOME PORT: San Diego, Calif.

LENGTH(LOA): 171 ft. (52.1 m)
BREADTH(moulded): 36.6 ft. (11.2 m)
DRAFT,MAXIMUM: 12.5 ft. (3.8 m)

CRUISING SPEED: 10 knts.
POWER: 1068 SHP
FUEL CAPACITY: 54,000 gal.
ENDURANCE: 31 days

RANGE: 8,335 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 46 gal./hr.
ENDURANCE CONSTRAINT: Stability

OPERATIONAL COMMITMENTS

The DAVID STARR JORDAN conducts fishery and living marine resource research. The ship normally operates off the U.S. Pacific Coast and the Pacific coasts of Central and South America.

HABITABILITY

BERTHING
Single staterooms: 4
Double staterooms: 15
Total bunks aboard: 34

FOOD-SERVICE SEATING CAPACITY
General mess: 30

MEDICAL FACILITIES

Emergency and first aid equipment aboard, administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Scientific Info Center: 200 sq. ft.
Chemical oceanography lab: 370 sq. ft.
Physical oceanography lab: 210 sq. ft.
Biological oceanography lab: 53 sq. ft.
Constant Temperature room: 76 sq.ft

COMPLEMENT

Commissioned officers: 2
Crew: 12
Scientists: 13
Licensed officers: 4

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 8,000 gal.
Normal consumption: 1,000 gal./day
Normal production: 2,280 gal./day

EVAPORATORS
Quantity: 2
Type: Jacket water heat generated
Manufacturer: Riley-Beard Inc.

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Electrochemical
Manufacturer: Omnipure
Holding capacity: 30 days

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: Harco
Holding capacity:

DECK MACHINERY

WINCHES

Quantity: 1
Type: Hydrographic winch
Manufacturer: Marco
Drive: Hydraulic
Line speed: 780 ft./min.
Maximum pull: 1,600 lbs.
Drum capacity: 15,000 ft. of 5/16 inch wire rope

Quantity: 1
Type: Hydrographic winch
Manufacturer: Marco
Drive: Hydraulic
Line speed: 780 ft./min.
Maximum pull: 1,600 lbs.
Drum capacity: 30,000 ft. of 3/16 inch wire rope

Quantity: 1
Type: Combination winch
Manufacturer: Marco
Drive: Hydraulic
Line speed: 160 ft./min.
Maximum pull: 6,500 lbs.
Drum capacity: 6,080 ft. of 3/8 inch wire rope

Quantity: 2
Type: Trawl winches
Manufacturer: Marco
Drive: Hydraulic
Line speed: 200 ft./min.
Maximum pull: 12,000 lbs.
Drum capacity: 8,830 ft. of 5/8-in. wire rope

CRANES AND BOOMS

Quantity: 1
Type: Telescoping boom
Manufacturer: Alaska Marine
Boom length: 50 ft.
Location: Centerline aft
Lifting capacity: 11,838 lbs.
(boom extended - 3,750 lbs.)

Quantity: 1
Type: Articulated boom
Manufacturer: Husky Mariner
Boom length: 18 ft.
Location: Foredeck
Lifting capacity: 4,650 lbs.
(boom extended - 1,800 lbs.)

A-FRAMES

Quantity: 1
Type: Movable
Clearance over the side: 8 ft.
Location: Stern

GROUND TACKLE

Bower anchor(s)	Anchor chain(s)
Quantity: 2	Quantity: 2
Type: Stockless	Size and Type: 1 3/16-in. stud link
Weight (each): 1,940 lbs.	Length (each): 105 fms.

ENGINEERING

PROPULSION PLANT	Type: Geared diesel
Main propulsion motors	Quantity: 2
Type: Diesel	Manufacturer: White Superior
Rated power(each): 534 hp.	
Auxiliary Propulsion	Quantity: 1
Type: Lowerable bow thruster	Drive: Electric
Manufacturer: General Motors/Delco	Rated power: 200 hp.
Propeller(s)	Quantity: 2
Type: Controllable pitch	Blades: 3
Diameter: 5.7 ft.	Manufacturer: Bird Johnson

ELECTRICAL SYSTEM

Ship's service generators	Quantity: 2
Manufacturer: General Motors/Delco	Output voltage: 450 V a.c.
	Power rating: 200 kw
Emergency generator	Quantity: 1
Manufacturer: General Motors/Delco	Output voltage: 450 V a.c.
	Power rating: 30 kw

Electrical service: 450 V a.c. three phase, 225 V a.c. three phase, 110 V a.c. single phase.

ELECTRONICS

COMMUNICATIONS

VHF / FM transceivers	HF transceivers
Emergency radio auto alarm	Portable emergency transceiver
EPIRB's	Teletype capability
Satellite Communications System	Weather Facsimile

ACOUSTICS

Deepwater echo sounder	Shallow-water echo sounder
Vertical fish finder	

NAVIGATION

Radar	Gyrocompass
Loran	Omega
Transit/GPS Satnav	

SCIENTIFIC EQUIPMENT

XBT system
CTD system
CAMAC system
Shipboard Environmental Acquisition system

DATA ACQUISITION AND PROCESSING SYSTEM

The DAVID STARR JORDAN is equiped with a molecular supermicro 15-8 computer for data acquisition and processing.

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS

Hull type: Rigid Hull Inflatable	Quantity: 1
Manufacturer: Zodiac	Length: 18.5 ft. (5.5 m.)
Propulsion: Gasoline outboard	
Hull type: Rigid hull inflatable	Quantity: 1
Manufacturer: Avon	Length: 18 ft. (5.4 m.)
Propulsion: Gasoline outboard	
Hull type: Fiberglass	Quantity: 1
Manufacturer: Boston Whaler	Length: 12.0 ft (3.7 m.)
Propulsion: Gasoline outboard	Misc: aboard by request only

SPECIAL FEATURES

Power isolation protection for scientific equipment.
Bow observation chamber
Helicopter flight deck (removable)

DELAWARE II R 445

LAUNCHED: December 1967
DELIVERED: October 1968

CALL LETTERS: KNBD

DESIGNER: George C. Sharp, Inc.
BUILDER: South Portland Engineering, S.Portland, Maine
HOME PORT: Woods Hole, Mass.

HULL: Welded steel
DISPLACEMENT: 758 tons
GROSS TONNAGE: 483
NET TONNAGE: 231

LENGTH(LOA): 155 ft. (47.2 m)
BREADTH(moulded): 30 ft. (9.2 m)
DRAFT,MAXIMUM: 14.7 ft. (4.5 m)

CRUISING SPEED: 11 knts.
POWER: 1,230 SHP
FUEL CAPACITY: 41,900 gal.
ENDURANCE: 24 days

RANGE: 5,318 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 52 gal./hr.
ENDURANCE CONSTRAINT: Stability

OPERATIONAL COMMITMENTS

The DELAWARE II conducts fishery and living marine resource research. The ship normally operates off the U.S. Atlantic Coast.

HABITABILITY

BERTHING
Single staterooms: 2
Double staterooms: 8
Four bunk rooms: 2
Total bunks aboard: 26

FOOD-SERVICE SEATING CAPACITY
General mess: 15

MEDICAL FACILITIES

Emergency and first-aid equipment aboard, administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Oceanographic labs (two): 650 sq. ft.

COMPLEMENT

Licensed officers: 6
Crew: 9
Scientists: 9

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 7,300 gal.
Normal consumption: 600 gal./day
Maximum production: 2,400 gal./day

EVAPORATORS
Quantity: 1
Type: Steam heat generated
Manufacturer: Maxim Aquafresh

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Aerobic bacterial
Manufacturer: St. Louis Ship
Holding capacity: 30 days

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: Harco
Holding capacity: flow rate 4 gpm

DECK MACHINERY

WINCHES
Quantity: 1
Type: Oceanographic winch
Manufacturer: Hathaway Machinery
Drive: Hydraulic
Line speed:
Maximum pull: 4,000 lbs.
Drum capacity: 3,000 meters of 1/4 inch wire.

Quantity: 1
Type: Trawl winch
Manufacturer: Marine Engines Inc.
Drive: Hydraulic
Line speed: 119 ft./min.
Maximum pull: 20,000 lbs.
Drum capacity: 12,000 ft. of 3/4-in. wire rope

Quantity: 1
Type: Constant tension winch
Manufacturer: Control Data, Canada Ltd.
Drive: Hydraulic
Line Speed: 320 ft./min.
Maximum pull: 400 lbs.
Drum Capacity: 1,080 ft. of 1/2-in. wire rope

CRANES AND BOOMS
Quantity: 1
Type: Fixed length boom
Manufacturer:
Boom length: 45 ft.
Location: Centerline aft
Lifting Capacity: 10,000 lbs.

A-FRAMES
Quantity: 1
Type: Gallows frame
Clearance over the side:
Location: Stern

Quantity: 1
Type: Movable
Clearance over side: 4 ft.
Location: Starboard side, forward

GROUND TACKLE

Bower anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 1,140 lbs.

Anchor chain(s)
Quantity: 1
Size and Type: 1 1/16-in. stud link
Length (each): 135 fms.

ENGINEERING

PROPULSION PLANT

Main propulsion motors
Type: Diesel
Rated power(each): 1,230 hp.

Type: Geared diesel
Quantity: 1
Manufacturer: General Motors (EMD)

Propeller(s)
Type: Fixed pitch
Diameter: 64 inches

Quantity: 1
Blades: 4
Manufacturer: Columbian Bronze

ELECTRICAL SYSTEM

Ship's service generators
Manufacturer: General Motors/Delco

Quantity: 2
Output voltage: 440 V a.c.
Power rating: 150 kw

Emergency generator
Manufacturer: Hercules/Cato

Quantity: 1
Output voltage: 440 V a.c.
Power rating: 10 kw

Electrical service: 440 V a.c. three phase, 220 V a.c. three phase, 110 V a.c. single phase.

ELECTRONICS

COMMUNICATIONS

VHF / FM transceivers
Emergency radio auto alarm
EPIRB's

HF transceivers
Portable emergency transceiver

ACOUSTICS

Steerable sonar
Fish finder

Shallow-water echo sounder
Doppler speed log

NAVIGATION

Radar
Loran

Gyrocompass
Satnav

SCIENTIFIC EQUIPMENT

XBT system	Shipboard Environmental Acquisition System (SEAS)

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS

Hull Type: Fiberglass rescue boat	Quantity: 1
Manufacturer: Dana	Length: 18 ft.
Propulsion: Diesel	

SPECIAL FEATURES

Power isolation protection for scientific equipment.

CHAPMAN R 446

LAUNCHED: December 1979
DELIVERED: May 1980
COMMISSIONED: July 1980
CALL LETTERS: WTED

HULL: Welded steel
DISPLACEMENT: 520 tons
GROSS TONNAGE: 427
NET TONNAGE: 290

DESIGNER: Bender Shipbuilding
BUILDER: Bender Shipbuilding and Repair Co., Inc.
HOME PORT: Pascagoula, Miss.

LENGTH(LOA): 127 ft. (38.7 m)
BREADTH(moulded): 29.6 ft. (9.1 m)
DRAFT,MAXIMUM: 14.0 ft. (4.3 m)

CRUISING SPEED: 9 knts.
POWER: 1,250 SHP
FUEL CAPACITY: 41,600 gal
ENDURANCE: 14 days

RANGE: 3,024 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 41 gal/hr
ENDURANCE CONSTRAINT: Water

OPERATIONAL COMMITMENTS

CHAPMAN conducts fishery and marine resource research. The ship normally operates in the Gulf of Mexico and Caribbean Sea.

HABITABILITY

BERTHING
Single staterooms: 2
Double staterooms: 8
Total bunks aboard: 18

FOOD-SERVICE SEATING CAPACITY
General mess: 10

MEDICAL FACILITIES

Emergency and first-aid equipment aboard, administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Dry laboratory: 163 sq. ft.

Wet laboratory: 202 sq. ft.

COMPLEMENT

Commissioned officers: 3
Crew: 7

Scientists: 6
Licensed officers: 1

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 4,880 gal.
Normal consumption: 600 gal./day
Normal production: 400 gal./day

EVAPORATORS
Quantity: 1
Type: Exhaust waste heat generated
Manufacturer: Riley Beard

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Aerobic bacterial
Manufacturer: Red Fox
Holding capacity: 782 gal.

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: Sarex
Holding capacity: 2,185 gal. or 2 gpm.

DECK MACHINERY

WINCHES
Quantity: 2
Type: Trawl winches
Manufacturer: Marco
Drive: Hydraulic
Line speed: 150 ft./min.
Maximum pull: 20,000 lbs.
Drum capacity: 6,000 ft. of 3/4 inch cable

Quantity: 1
Type: Net Sonde winch
Manufacturer: Svendberg
Drive: Hydraulic
Line speed: variable
Maximum pull: variable tension
Drum capacity: 1,200 m.
SWL: 500 lbs.

Quantity: 1
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Hydraulic
Line speed: 95 ft./min.
Maximum pull: 840 lbs.
Drum capacity: 3,250 ft. of 3/16 inch steel cable

CRANES AND BOOMS
Quantity: 1
Type: Fixed length boom
Manufacturer:
Boom length: 40 ft.
Location: Amidship
Lifting capacity: 7,500 lbs.

A-FRAMES
Quantity: 1
Type: Movable
Clearance over the side: 5 ft.
Location: Starboard
SWL: 1,000 lbs.

GROUND TACKLE

Bower anchor(s)
Quantity: 2
Type: Danforth, stockless
Weight : 750 lbs., 500 lbs.

Anchor chain(s)
Quantity: 1
Size and type: 1-in. stud link/wire
Length (each): 45 fms. chain, 90 fms. 1-in wire rope.

ENGINEERING

PROPULSION PLANT
Main propulsion motors
Type: D 399
Rated power: 1,250 hp.

Type: Geared diesel
Quantity: 1
Manufacturer: Caterpillar

Auxiliary propulsion
Type: Waterjet bow thruster
Manufacturer: Omnithruster

Quantity: 1
Drive: Electric
Rated power: 150 hp.

Propeller(s)
Type: Controllable pitch
Diameter: 1,900 mm.

Quantity: 1
Blades: 4
Manufacturer:

ELECTRICAL SYSTEM
Ship's service generators
Manufacturer: Caterpillar

Quantity: 2
Output voltage: 440 V a.c.
Power rating: 210 kw

Emergency generator
Manufacturer: Lister

Quantity: 1
Output voltage: 440 V a.c.
Power rating: 17.5 kw

Electrical service: 440 V a.c. three phase, 210 V a.c. single phase, 120 V a.c. single phase.

ELECTRONICS

COMMUNICATIONS
VHF / FM transceivers
Emergency radio auto alarm
EPIRB's

HF transceivers
Portable emergency transceiver
Weather facsimile receiver
Cellular Telephone

ACOUSTICS
Sonar
Fish finders
Doppler speed log

Shallow-water echo sounder
Net sonde

NAVIGATION
Radars
Lorans

Gyrocompass
Satnav

SCIENTIFIC EQUIPMENT
XBT system
Shipboard Environmental Acquisition system (SEAS)
Hull mounted temperature sensor

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS
Hull Type: Fiberglass open boat Quantity: 1
Manufacturer: Boston Whaler Length: 16 ft.
Propulsion: Gasoline outboard

FERREL R 492

LAUNCHED: April 1968
DELIVERED: May 1968
COMMISSIONED: June 1968
CALL LETTERS: WTEZ

HULL: Welded steel
DISPLACEMENT: 360 tons
GROSS TONNAGE: 349
NET TONNAGE: 86

DESIGNER: Zigler Shipyards, Inc.
BUILDER: Zigler Shipyards, Inc.
Jennings, La.
HOME PORT: Norfolk, Va.

LENGTH(LOA): 133 ft. (40.5 m)
BREADTH(moulded): 32.0 ft. (9.8 m)
DRAFT,MAXIMUM: 6.5 ft. (2.1 m)
SISTER SHIP(S):

CRUISING SPEED: 9 knts.
POWER: 750 SHP
FUEL CAPACITY: 14,000 gal
ENDURANCE: 9 days

RANGE: 2,678 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 40 gal/hr
ENDURANCE CONSTRAINT: Water

OPERATIONAL COMMITMENTS

The FERREL conducts coastal and estuarine oceanographic studies. The ship normally operates off the U.S. Atlantic Coast and in the Gulf of Mexico.

HABITABILITY

BERTHING
Double staterooms: 11
Total bunks aboard: 22

FOOD-SERVICE SEATING CAPACITY
General mess: 20

MEDICAL FACILITIES

Emergency and first aid equipment aboard, administered by trained vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Wet oceanographic lab: 40 sq. ft. Electronic workshop: 500 sq. ft.

COMPLEMENT

Commissioned officers: 5
Crew: 9

Scientists: 6
Licensed officers: 2

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 9,000 gal.
Normal consumption: 1,000 gal/day
Normal production:

EVAPORATORS
None

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Aerobic bacterial
Manufacturer: St Louis Ship
Holding capacity: 30 days

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: Harco
Holding capacity: flow rate 4 gpm.

DECK MACHINERY

WINCHES
Quantity: 1
Type: Oceanographic winch
Manufacturer: Beebe Brothers Inc.
Drive: Electric
Line Speed: 60 ft./min.
Maximum Pull: 6,000 lbs.
Drum Capacity: 500 ft. of 5/16 inch wire rope

Quantity: 1
Type: Deck winch
Manufacturer: Sea Mac
Drive: Electrohydraulic
Line Speed: 0-150 ft./min.
Maximum Pull: 6,000 lbs.
Drum Capacity: 5,000 ft. of 1/2-in. wire

Quantity: 1
Type: Deck winch
Manufacturer: Skipper
Drive: Electrohydraulic
Line Speed: 60 ft./min.
Maximum pull: 6,000 lbs.
Drum Capacity: 800 ft. of 3/8 inch wire rope

CRANES AND BOOMS
Quantity: 1
Type: Telescoping boom
Manufacturer: Austin Western
Boom length: 35 ft.
Location: Amidships
Lifting Capacity: 4,500 lbs.
(boom extended - 1,050 lbs.)

Quantity: 1
Type: Articulated boom
Manufacturer: Appleton
Boom length: 40 ft.
Location: Port side aft
Lifting Capacity: 12,000 lbs.
(boom extended - 2,000 lbs.)

A-FRAMES
Quantity: 1
Type: Movable
Clearance over the side: 6 ft.
Location: Starboard quarter

GROUND TACKLE

Bower anchor(s)	Anchor chain(s)
Quantity: 2	Quantity: 2
Type: Danforth	Size and Type: 3/4 inch stud link
Weight (each): 1,500 lbs.	Length (each): 60 fms.

ENGINEERING

PROPULSION PLANT	Type: Geared diesel
Main propulsion motors	Quantity: 2
Type: Diesel	Manufacturer: Caterpillar
Rated power(each): 375 hp.	
Auxiliary propulsion	Quantity: 1
Type: Through hull bow thruster	Drive: Electric
Manufacturer: General Electric	Rated power: 100 hp.
Propeller(s)	Quantity: 2
Type: Fixed pitch	Blades: 4
Diameter: 5.0 ft.	Manufacturer:
ELECTRICAL SYSTEM	
Ship's service generators	Quantity: 2
Manufacturer: Caterpillar	Output voltage: 440 V a.c.
	Power rating: 150 kw
Emergency generator	Quantity:
Manufacturer:	Output voltage:
	Power rating:

Electrical Service: 440 V a.c. three phase, 220 V a.c. three phase, 110 V a.c. three phase.

ELECTRONICS

COMMUNICATIONS	
VHF / FM transceivers	HF transceivers
Emergency radio auto alarm	Portable emergency transceiver
EPIRB's	
ACOUSTICS	
Shallow-water echo sounder	
Deep-water echo sounder	
NAVIGATION	
Radar	Gyrocompass
Loran	

SCIENTIFIC EQUIPMENT
CTD system (shallow water)
Shipboard Environmental Acquisition system (SEAS)

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS
Hull Type: Fiberglass open boat Quantity: 1
Manufacturer: Sea Ox Length: 23 ft.
Propulsion: Gasoline outboard

Hull type: Aluminum open boat Quantity: 1
Manufacturer: MonArk Length: 19 ft.
Propulsion: Gasoline outboard

SPECIAL FEATURES

Power isolation protection for scientific equipment.

JOHN N. COBB R 552

LAUNCHED: January 1950
DELIVERED: February 1950
DEDICATED: February 1950
CALL LETTERS: WMVC

HULL: Wood
DISPLACEMENT: 250 tons
GROSS TONNAGE: 185
NET TONNAGE: 78

DESIGNER: W.C. Nickum and Sons
BUILDER: Western Boatbuilding Co.
Tacoma, Wa.
HOME PORT: Seattle, Wash.

LENGTH(LOA): 93 ft. (28.3 m)
BREADTH(moulded): 26.0 ft. (7.9 m)
DRAFT,MAXIMUM: 11.0 ft. (3.3 m)

CRUISING SPEED: 9 knts.
POWER: 325 SHP
FUEL CAPACITY: 8,200 gal.
ENDURANCE: 13 days

RANGE: 3,505 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 20 gal./hr.
ENDURANCE CONSTRAINT: Fuel

OPERATIONAL COMMITMENTS

The JOHN N. COBB conducts fishery and living marine resource research. The ship normally operates in Southeast Alaska and in U.S. Pacific coastal waters.

HABITABILITY

BERTHING
Double staterooms: 4
Forecastle bunks: 5
Total bunks aboard: 13

FOOD-SERVICE SEATING CAPACITY
General mess: 8

MEDICAL FACILITIES

Emergency and first aid equipment aboard, administered by trained vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

General lab: 150 sq. ft.

COMPLEMENT

Crew: 4
Licensed officers: 4

Scientists: 4

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 6,000 gal.
Normal consumption: 500 gal./day
Normal production: 750 gal./day

DESALINATORS
Quantity: 1
Type: Reverse Osmosis
Manufacturer: Sand and Sea Industry

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Holding tank
Manufacturer:
Holding capacity: 2,200 gal.

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: SRS
Holding capacity: 200 gal.

DECK MACHINERY

WINCHES
Quantity: 1
Type: Trawl winch (double drum)
Manufacturer: Rowe
Drive: Hydraulic
Line speed:
Maximum pull: 14,000 lbs.
Drum capacity: 4,800 ft. of 9/16 inch wire rope, 7,200 ft. of 1/2 inch wire rope.

Quantity: 1
Type: Net reel winch
Manufacturer:
Drive: Hydraulic
Line speed:
Maximum pull:
Drum capacity: Pot hauler, line coiler, automated long line.

Quantity: 1
Type: Oceanographic winch
Manufacturer:
Drive:
Line speed:
Maximum pull:
Drum capacity: 6,000 ft. of 3/16 inch wire rope

CRANES AND BOOMS
Quantity: 1
Type: Fixed length boom
Manufacturer:
Boom length: 30 ft.
Location: Aft
Lifting capacity: 4,800 lbs.

GROUND TACKLE

Bower anchor(s)
Quantity: 2
Type: Stockless
Weight (each):

Anchor chain(s)
Quantity: 1
Size and Type: 3/4 inch cast iron and 7/8 inch steel cable
Length: 165 fm. chain, 125 fm. cable

ENGINEERING

PROPULSION PLANT
Main propulsion motors
Type: Diesel
Rated power(each): 325 hp.

Type: Geared diesel
Quantity: 1
Manufacturer: Fairbanks Morse

Propeller(s)
Type: Fixed pitch
Diameter: 5.0 ft.

Quantity: 2
Blades: 3
Manufacturer:

ELECTRICAL SYSTEM
Ship's service generators
Manufacturer: General Motors/ Elec. Machine

Quantity: 2
Output voltage: 240 V a.c.
Power rating: 30 kw

Emergency generator
Manufacturer:

Quantity:
Output voltage:
Power rating:

Electrical Service: 240 V a.c. three phase, 220 V a.c. single phase, 110 V a.c. single phase.

ELECTRONICS

COMMUNICATIONS
VHF / FM transceivers
Emergency radio auto alarm
EPIRB's

HF transceivers
Portable emergency transceiver

ACOUSTICS
Shallow-water echo sounder

Fish finder

NAVIGATION
Radar
Loran

SCIENTIFIC EQUIPMENT

XBT system — Shipboard Environmental Acquisition System (SEAS)

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS

Hull Type: Fiberglass open boat — Quantity: 1
Manufacturer: Boston Whaler — Length: 17 ft.
Propulsion: Gasoline outboard

SPECIAL FEATURES

Power isolation protection for scientific equipment.

RUDE S 590

LAUNCHED: August 1966
DELIVERED: December 1966
COMMISSIONED: March 1967
CALL LETTERS: WTET

HULL: Welded steel
DISPLACEMENT: 220 tons
GROSS TONNAGE: 150
NET TONNAGE: 42

DESIGNER: Maritime Administration
BUILDER: Jakobson Shipyard
Oyster Bay, New York .
HOME PORT: Norfolk, Va.

LENGTH(LOA): 90 ft. (27.4 m)
BREADTH(moulded): 22.0 ft. (6.7 m)
DRAFT,MAXIMUM: 7.2 ft. (2.2 m)
SISTER SHIP(S): HECK

CRUISING SPEED: 9 knts.
POWER: 800 SHP
FUEL CAPACITY: 3,900 gal.
ENDURANCE: 3 days

RANGE: 770 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 47 gal./hr.
ENDURANCE CONSTRAINT: Fuel

OPERATIONAL COMMITMENTS

The RUDE conducts wire drag and hydrographic operations off the U.S. Atlantic and Gulf coasts.

HABITABILITY

BERTHING
Double staterooms: 4
Triple staterooms: 1
Total bunks aboard: 11

FOOD-SERVICE SEATING CAPACITY
General mess: 8

MEDICAL FACILITIES

Emergency and first aid equipment aboard, administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

None

COMPLEMENT

Commissioned officers: 4
Crew: 6

Scientists: 0
Licensed officers: 1

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 3,800 gal.
Normal consumption: 500 gal./day

EVAPORATORS
None

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Physical/Chemical
Manufacturer: Envirovac

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: Harco
Holding Capacity: flow rate 4 gpm.

DECK MACHINERY

WINCHES
Quantity: 1
Type: Side scan
Manufacturer: KEM Equipment
Drive: Hydraulic
Line speed:
Maximum pull:
Drum capacity:

Quantity: 1
Type: Wire drag winch
Manufacturer: New England Trawler
Drive: Hydraulic
Line speed: 130 ft./min
Maximum pull: 2,800 lbs.
Drum capacity: 10,000 ft. of 1/4-in. wire rope

CRANES AND BOOMS
Quantity: 1
Type: Telescoping boom
Manufacturer: Apptleton
Boom length: 27 ft.
Location: Aft
Lifting Capacity: 7,500 lbs.
(boom extended - 2,000 lbs.)

GROUND TACKLE
Bower anchor(s)
Quantity: 2
Type: Stockless
Weight: 560 lbs.

Anchor chain(s)
Quantity: 2
Size and type: 3/4 inch stud link
Length: 70 fms.

ENGINEERING

PROPULSION PLANT
Main Propulsion Motors
Type: Diesel
Rated power(each): 400 hp

Type: Geared diesel
Quantity: 2
Manufacturer: Cummins

Auxiliary Propulsion
Type:
Manufacturer:

Quantity:
Drive:
Rated power:

Propeller(s)
Type: Fixed pitch, Kort nozzle
Diameter: 3.5 ft.

Quantity: 2
Blades: 4
Manufacturer:

ELECTRICAL SYSTEM
Ship's service generators
Manufacturer: Detroit Diesel/Delco

Quantity: 2
Output voltage: 230 V a.c.
Power rating: 60 kw

Emergency generator
Manufacturer:

Quantity:
Output voltage:
Power rating:

Electrical service: 230 V a.c. three phase, 110 V a.c. single phase

ELECTRONICS

COMMUNICATIONS
VHF / FM transceivers
Emergency radio auto alarm
EPIRB's

HF transceivers
Portable emergency transceiver
Weather facsimile receiver

ACOUSTICS
Deepwater echo sounder
Side scan sonar

Shallow-water echo sounder

NAVIGATION
Radar
Loran C

Gyrocompass
Precision positioning equipment

SCIENTIFIC EQUIPMENT
Shipboard Environmental Acquisition system (SEAS)

DATA ACQUISITION AND PROCESSING SYSTEM

The vessel is equipped with a PDP 11/34 computer with a 128 K memory for the processing of data.

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS

Hull type: Fiberglass workboat	Quantity: 1
Manufacturer: SISU	Length: 22 ft.
Propulsion: Diesel	

Hull type: Fiberglass open boat	Quantity: 1
Manufacturer: Boston Whaler	Length: 16 ft.
Propulsion: Gasoline outboard	

HECK S 591

LAUNCHED: August 1966
DELIVERED: December 1966
COMMISSIONED: March 1967
CALL LETTERS: WTEY

HULL: Welded steel
DISPLACEMENT: 220 tons
GROSS TONNAGE: 150
NET TONNAGE: 42

DESIGNER: Maritime Administration
BUILDER: Jakobson Shipyard
Oyster Bay, New York.
HOME PORT: Norfolk, Va.

LENGTH(LOA): 90 ft. (27.4 m)
BREADTH(moulded): 22.0 ft. (6.7 m)
DRAFT,MAXIMUM: 7.2 ft. (2.2 m)
SISTER SHIP(S): RUDE

CRUISING SPEED: 9 knts.
POWER: 800 SHP
FUEL CAPACITY: 3,900 gal.
ENDURANCE: 3 days

RANGE: 770 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 41 gal./hr.
ENDURANCE CONSTRAINT: Fuel

OPERATIONAL COMMITMENTS

The HECK conducts wire drag and hydrographic operations off the U.S. Atlantic and Gulf coasts.

HABITABILITY

BERTHING
Double staterooms: 4
Triple staterooms: 1
Total bunks aboard: 11

FOOD-SERVICE SEATING CAPACITY
General mess: 8

MEDICAL FACILITIES

Emergency and first aid equipment aboard, administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

COMPLEMENT

Commissioned officers: 4
Crew: 7

Scientists: 0
Licensed officers: 1

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 3,800 gal.
Normal consumption: 500 gal./day

EVAPORATORS
None

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Physical/Chemical
Manufacturer: Envirovac

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: Harco
Holding Capacity: flow rate 4 gpm.

DECK MACHINERY

WINCHES
Quantity: 1
Type: Side scan
Manufacturer: KEM Equipment
Drive: Hydraulic
Line speed:
Maximum pull:
Drum capacity:

CRANES AND BOOMS
Quantity: 1
Type: Telescoping boom
Manufacturer: Appleton
Boom length: 27 ft.
Location: Aft
Lifting Capacity: 7,500 lbs.
(boom extended - 2,000 lbs.)

GROUND TACKLE
Bower anchor(s)
Quantity: 2
Type: Stockless
Weight: 560 lbs

Anchor chain(s)
Quantity: 2
Size and type: 3/4 inch stud link
Length: 70 fms

ENGINEERING

PROPULSION PLANT	Type: Geared diesel
Main propulsion motors	Quantity: 2
Type: Diesel	Manufacturer: Cummins
Rated power(each): 400 hp.	
Auxiliary Propulsion	Quantity:
Type:	Drive:
Manufacturer:	Rated power:
Propeller(s)	Quantity: 2
Type: Fixed pitch, Kort nozzle	Blades: 4
Diameter: 3.5 ft.	Manufacturer:

ELECTRICAL SYSTEM

Ship's service generators	Quantity: 2
Manufacturer: Detroit Diesel/Delco	Output voltage: 230 V a.c.
	Power rating: 60 kw
Emergency generator	Quantity:
Manufacturer:	Output voltage:
	Power rating:

Electrical service: 440 V a.c. three phase, 230 V a.c. single phase

ELECTRONICS

COMMUNICATIONS

VHF / FM transceivers	HF transceivers
Emergency radio auto alarm	Portable emergency transceiver
EPIRB's	Weather facsimile receiver

ACOUSTICS

Deepwater echo sounder	Shallow-water echo sounder
Side scan sonar	

NAVIGATION

Radar	Gyrocompass
Loran C	Precision positioning equipment

SCIENTIFIC EQUIPMENT
Shipboard Environmental Acquisition system
Hydrographic Data Acquisition and Processing System

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS

Hull Type: Fiberglass workboat	Quantity: 1
Manufacturer: SISU	Length: 22 ft.
Propulsion: Diesel	

Hull type: Fiberglass open boat	Quantity: 1
Manufacturer: Boston Whaler	Length: 16 ft.
Propulsion: Gasoline outboard	

MURRE II R 663

LAUNCHED: 1943
DELIVERED:
DEDICATED:
CALL LETTERS: KJLM

HULL: Wood
DISPLACEMENT: 295 tons
GROSS TONNAGE: 189
NET TONNAGE: 95

DESIGNER: Converted U.S. Army
BUILDER: Powered barge by Maritime Shipyards, Seattle, Wa.
HOME PORT: Juneau, Alaska

LENGTH(LOA): 86 ft. (26.1 m)
BREADTH(moulded): 26.8 ft. (8.2 m)
DRAFT,MAXIMUM: 7.5 ft. (2.3 m)

CRUISING SPEED: 9 knts
POWER: 436 SHP
FUEL CAPACITY: 5,000 gal.
ENDURANCE: 8 days

RANGE: 1,620 n. mi.
FUEL TYPE: #2 diesel
FUEL CONSUMPTION: 24 gal./hr.
ENDURANCE CONSTRAINT: Fuel

OPERATIONAL COMMITMENTS

The MURRE II conducts fishery research and cargo shipment operations in Southeast Alaskan waters.

HABITABILITY

BERTHING
Single staterooms: 3
Double staterooms: 1
Three bunk rooms: 1
Total bunks aboard: 8

FOOD-SERVICE SEATING CAPACITY
General mess: 7

MEDICAL FACILITIES

Emergency and first-aid equipment aboard, administered by trained vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Chemical lab: 130 sq. ft.

Biological lab: 200 sq. ft.

COMPLEMENT

Commissioned officers: 1
Crew: 2

Scientists: 5
Licensed officers: 1

FRESHWATER SYSTEM

SYSTEM CAPACITIES
Storage capacity: 1,720 gal.
Normal consumption:
Normal production:

EVAPORATORS
None

POLLUTION CONTROL

SEWAGE WASTE CONTROL
Type: Physical/Chemical
Manufacturer: Microphor, Inc.
Holding capacity: 1 day

OILY WASTE CONTROL
Type: Oily water separator
Manufacturer: SRS
Holding capacity:

DECK MACHINERY

WINCHES
Quantity: 1
Type: Trawl winch
Manufacturer: Marco
Drive: Hydraulic
Line speed:
Maximum pull:
Drum capacity: 2,500 ft. of 3/8 inch wire rope.

Quantity: 1
Type: Hydrographic winch
Manufacturer: New England Trawler
Drive: Hydraulic
Line speed:
Maximum pull:
Drum capacity: 3,250 ft. of 5/32 inch wire rope.

CRANES AND BOOMS
Quantity: 1
Type: Fixed length boom
Manufacturer:
Boom length: 40 ft.
Location: Amidship
Lifting Capacity: 4,000 lbs.

A-FRAMES
Quantity: 1
Type: Movable
Clearance over the side: 8 ft.
Location: Starboard side amidship

GROUND TACKLE

Bower anchor(s)
Quantity:
Type: Danforth
Weight (each):

Anchor chain(s)
Quantity:
Size and type: 3/8-in. chain, 1-in. steel cable
Length: 90 ft. chain, 600 ft. cable

ENGINEERING

PROPULSION PLANT
Main propulsion motors
Type: Diesel
Rated power(each): 218 hp

Type: Geared diesel
Quantity: 2
Manufacturer: Detroit Diesel

Propeller(s)
Type: Fixed pitch
Diameter: 3.0 ft.

Quantity: 2
Blades: 3
Manufacturer:

ELECTRICAL SYSTEM
Ship's service generators
Manufacturer: General Motors

Quantity: 2
Output voltage: 120 V d.c.
Power rating: 30 kw

Emergency Generator
Manufacturer:

Quantity:
Output voltage:
Power rating:

Electrical service: 110 V d.c., 32 V d.c., 24 V d.c., 12 V d.c., 110 V a.c.

ELECTRONICS

COMMUNICATIONS
VHF/FM transceivers
Emergency radio auto alarm
EPIRB's

HF transceivers

ACOUSTICS
Fish finder

Shallow-water echo sounder

NAVIGATION
Radar
Loran

LAUNCHES AND SMALL BOATS

UTILITY/RESCUE BOATS
Hull Type: Fiberglass open boat Quantity: 1
Manufacturer: Boston Whaler Length: 13 ft.
Propulsion: Gasoline outboard

SPECIAL FEATURES

None

APPENDIX A

OCEANOGRAPHER, R 101

DISCOVERER, R 102

MALCOLM BALDRIGE, R 103

SURVEYOR, S 132

FAIRWEATHER, S 220

RAINIER, S 221

MT. MITCHELL, S 222

MILLER FREEMAN, R 223

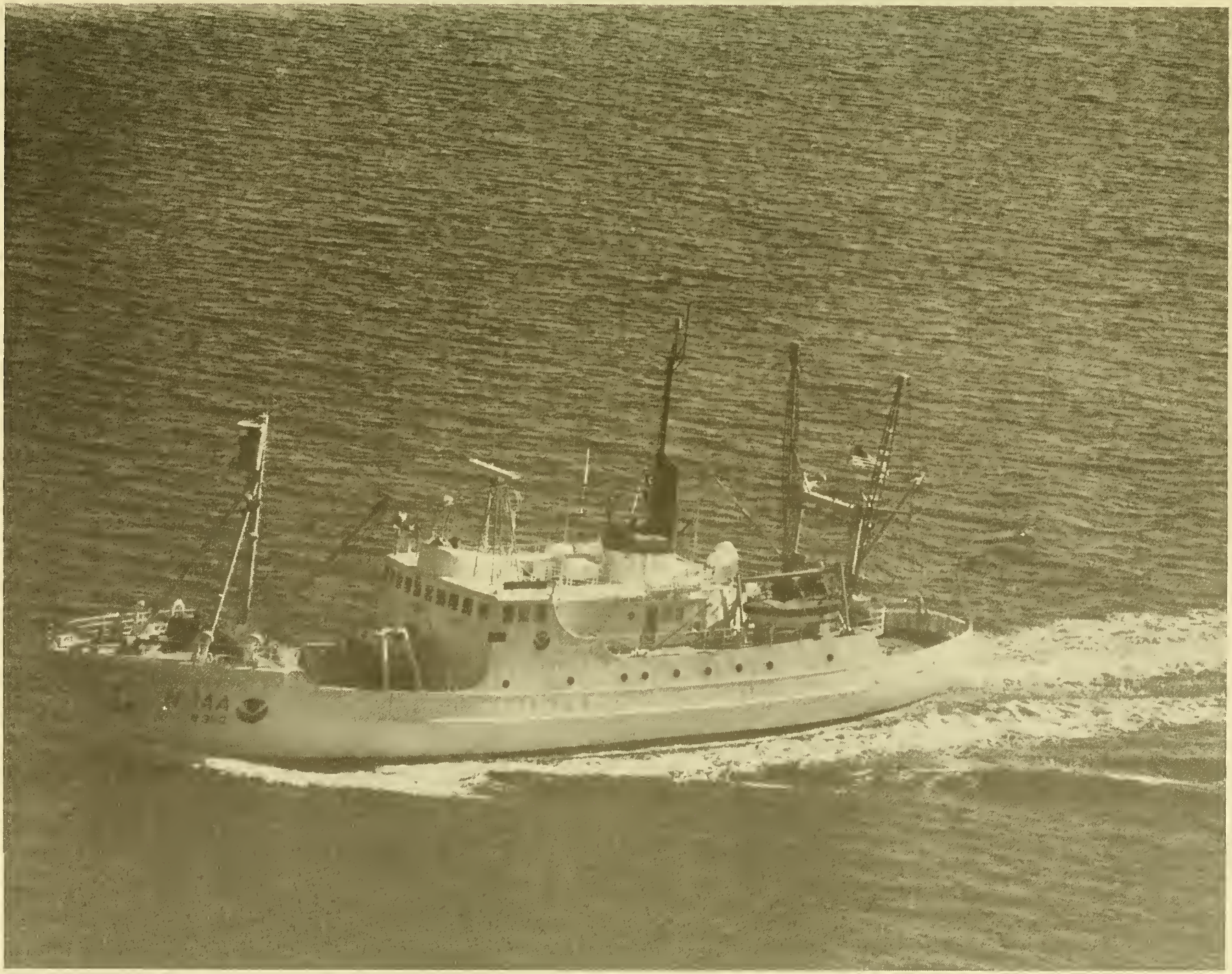
PEIRCE, S 328

WHITING, S 329

McARTHUR, S 330

DAVIDSON, S 331

OREGON II, R 332



ALBATROSS IV, R 342

TOWNSEND CROMWELL, R 443

DAVID STARR JORDAN, R 444

DELAWARE II, R 445

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FERREL, S 492

RUDE, S 590

HECK, S 591

MURRE, R 663

JOHN N. COBB, R 552

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