Ships of the NOAA Fleet

U.S. DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Ocean Survey, Office of Fleet Operations
Rockville, Maryland 20852

SHIPS OF THE NOAA FLEET

January 1982
Rockville, Md.

U.S. DEPARTMENT OF COMMERCE
Malcolm Baldrige, Secretary

National Oceanic and Atmospheric Administration
John V. Byrne, Administrator

National Ocean Survey
H.R. Lippold, Jr., Director

INTRODUCTION

The ships of the NOAA Fleet are the vessels which serve the needs of the Department of Commerce and the Nation. They are found operating off the Atlantic and Pacific Coasts, in the Gulfs of Mexico and Alaska, and in the Great Lakes. They suffer through the bitter North Atlantic and Bering Sea winters and bask in the warmth of the tropical sun of Hawaii and the Caribbean Islands.

The operational duties assigned to the ships range from service with the National Ocean Survey's (NOS) nautical charting program to the scientific endeavors of the National Marine Fisheries Service or the research activities of the Environmental Research Laboratories. The particular tasks may be as well defined as a tide and current survey in a brackish estuary or may be an extensive international oceanographic study spanning an entire ocean. Thus, the variety of configurations, characteristics, and equippage of the vessels described in this publication reflects the versatility of the ships of the NOAA Fleet.

Centralized management of the NOAA Fleet is the responsibility of the Office of Marine Operations, an integral part of NOS. Regional management and operational support for the fleet is provided through the Atlantic Marine Center in Norfolk, Va., the Pacific Marine Center in Seattle, Wash., and their several satellite support facilities.

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

The loose-leaf presentation of NOAA's Fleet of ships will be revised as necessary to maintain an accurate description of each ship in an operational status.

Information on changes or omissions should be addressed to:

U.S. Department of Commerce, NOAA
WSC#1, 6001 Executive Boulevard
Office of Marine Operations, C7x4
Rockville, MD 20852
(301) 443-8131

SHIPS OF THE NOAA FLEET

OCEANOGRAPHER R101

LAUNCHED: April 1964
DELIVERED: April 1966
COMMISSIONED: July 1966

DESIGNER: Maritime Administration
BUILDER: Aerojet-General Shipyards, Jacksonville, Fla.
SISTER SHIP(S): DISCOVERER

CALL LETTERS: WTEP

HOME PORT: Seattle, Wash.

Complement:
COMMISSIONED OFFICERS: 14
LICENSED OFFICERS: 6
CREW: 57
SCIENTISTS: 30

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

LENGTH (LOA): 303.0 ft (92.4 m)
BREADTH (moulded): 52.0 ft (15.8 m)
DRAFT, MAXIMUM: 19.8 ft (6.0 m)

CRUISING SPEED: 15 kn
RANGE: 12,250 nmi
POWER: 5,000 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 297,000 gal
FUEL CONSUMPTION: 310 gal/h (normal cruising speed)
ENDURANCE: 34 d
ENDURANCE CONSTRAINT: Fuel

Operational Commitments:

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

HABITABILITY

Berthing
Single staterooms: 21
Double staterooms: 46
Total bunks aboard: 113

Food-Service Seating Capacity
Captain's cabin: 6
Wardroom: 27
Ships officer's mess: 14
Technicians' mess: 18
Crew's mess: 24

MEDICAL FACILITIES

The ship has a complete sickbay with five beds administered by a trained medical technician.

SCIENTIFIC LABORATORY FACILITIES

Chemistry lab: 138 ft^2
Dry oceanographic lab: 1,800 ft^2
Wet oceanographic lab: 106 ft^2
Meteorological lab: 182 ft^2
Gravity lab: 176 ft^2
Photographic lab: 194 ft^2
CTD lab: 282 ft^2

DECK MACHINERY

Winches
Quantity: 2
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Electrohydraulic
Line Speed: 400 ft/min
Maximum Pull: 1,500 lb
Drum Capacity:
Upper drum: 10,000 ft of 3-conductor cable
Lower drum: 15,000 ft of wire rope

Quantity: 1
Type: Deep-sea winch w/traction unit (TU)
Manufacturer: Western Gear
Drive: Electrohydraulic
Line Speed: 133 ft/min-600 ft/min (TU)
Maximum Pull: 6,800 lb-30,000 lb (TU)
Drum Capacity:
Front drum: 42,000 ft of ½-in. wire rope

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

Cranes and Booms
Quantity: 1
Type: Telescoping boom
Manufacturer: Skagit
Boom length: 40 ft
Lifting capacity: 7,300 lb
(boom extended) 4,700 lb
Location(s): Forward

Quantity: 1
Type: Fixed length boom
Manufacturer: Lake Shore
Boom length: 35 ft
Lifting capacity: 10,000 lb
(boom extended)
Location(s): Aft

A-Frames
Quantity: 1
Type: Movable
Clearance over side: 9 ft
Location(s): Stern

Ground Tackle
Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 4,850 lb
Anchor Chain(s)
Quantity: 2
Size and type: 1-11/16 in stud link chain
Length (each): 135 fm

ELECTRONICS

Communications

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

Navigation

Radar
Gyrocompass
Loran
Satnav
RDF
Omega

Acoustics

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

Scientific Equipment

CTD system
XBT system
Rosette water sampling system

Data Acquisition and Processing System:

A Shipboard Data System (SDS) is dedicated to the acquisition and processing of oceanographic data. The SDS comprises the Data Recording and Processing Subsystems. In the Data Recording Subsystem, the individual sensor signals are routed to a Sensor Acquisition Module (SAM) near the sensor array. The SAM acquires the multiple data inputs, synchronizes them, formats the data into a PCM-FM train, and records them on an analog magnetic tape recorder. The Processing Subsystem is a PDP 11/20 computer with a 24K memory. The computer is used to verify that accurate and complete data are being recorded and to advise scientific personnel of experiment status and provide information for experiment control.

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
Power rating: 1,150 kw

Auxiliary Propulsion
Type: Through hull bow thruster
Manufacturer: Murray and Tregurtha
Drive: Diesel electric
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 a.c.
Power rating: 400 kW

Emergency Generator
Quantity: 1
Manufacturer: Fairbanks Morse/GE
Output voltage: 450 a.c.
Power rating: 100 kW

Electrical Service
440 V a.c. three phase
110 V a.c. single phase

Power isolation protection available for sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 26,800 gal
Normal consumption: 6,500 gal/d
Maximum production: 8,000 gal/d

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

POLLUTION CONTROL

Sewage Waste Control
Type of treatment: Aerobic bacterial
Manufacturer: St. Louis Ship

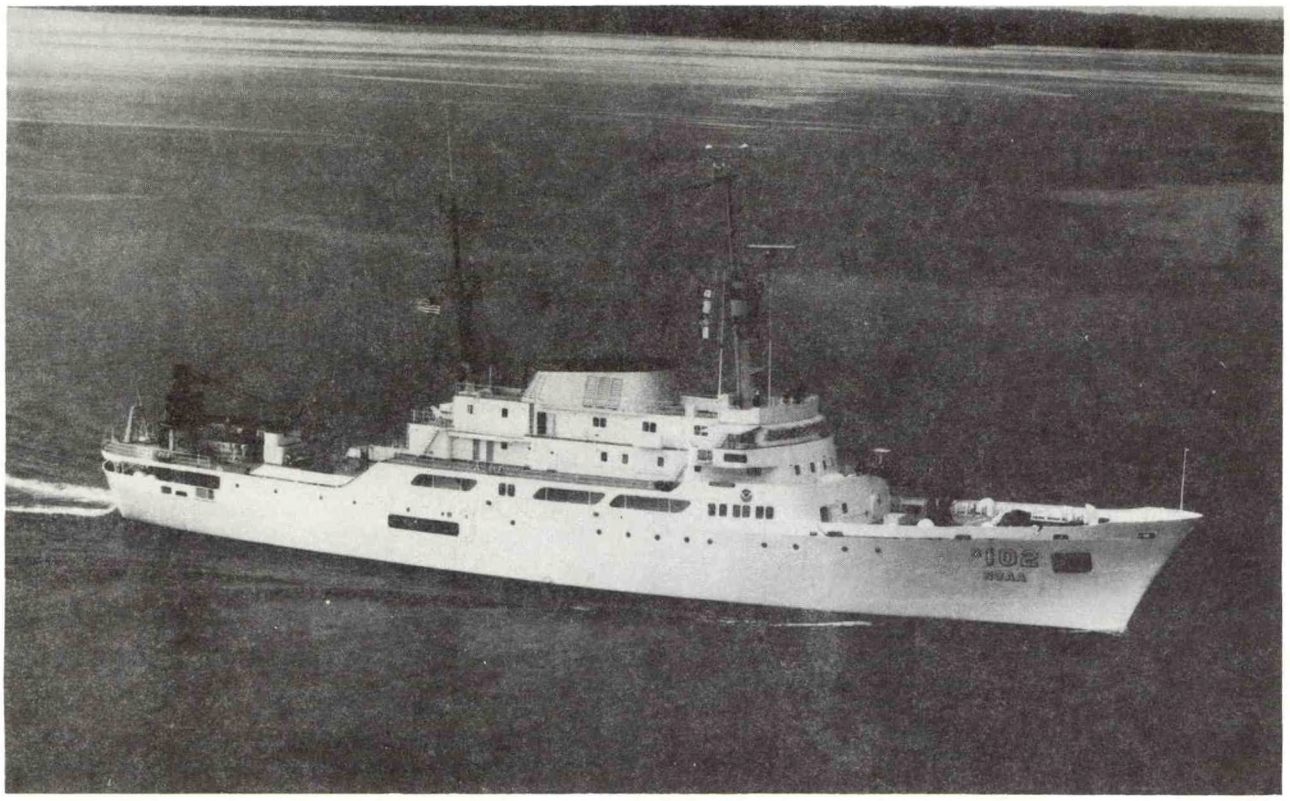
Oily Waste Control
Type of treatment: Oily water separator
Manufacturer: SRS
Holding capacity: 2,000 gal

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Fiberglass motor whaleboat
Quantity: 1
Manufacturer: U.S. Navy
Length: 26 ft
Propulsion: Diesel

SPECIAL FEATURES

Deep-sea anchoring capability
Underwater observation chambers
Diver's decompression chamber



DISCOVERER [R]102

LAUNCHED: October 1964
DELIVERED: December 1966
COMMISSIONED: April 1967

DESIGNER: Maritime Administration
BUILDER: Aerojet-General Shipyards, Jacksonville, Fla.
SISTER SHIP(S): OCEANOGRAPHER

CALL LETTERS: WTEA

HOME PORT: Seattle, Wash.

Complement:
COMMISSIONED OFFICERS: 13
LICENSED OFFICERS: 6
CREW: 60
SCIENTISTS: 24

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

LENGTH (LOA): 303 ft (92.4m)
BREADTH (moulded): 52.0 ft (15.8 m)
DRAFT, MAXIMUM: 19.8 ft (6.0 m)

CRUISING SPEED: 15 kn
RANGE: 12,250 nmi
POWER: 5,000 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 297,000 gal
FUEL CONSUMPTION: 310 gal/h (normal cruising speed)
ENDURANCE: 34 d
ENDURANCE CONSTRAINT: Fuel

Operational Commitments:

The DISCOVERER conducts worldwide oceanographic research. The ship normally operates in the Pacific Ocean and Alaska waters.

HABITABILITY

Berthing
Single staterooms: 21
Double staterooms: 46
Total bunks aboard: 113

Food-Service Seating Capacity
Captain's cabin: 6
Wardroom: 27
Ship Officers' mess: 14
Technicians' mess: 16
Crew's mess: 20

MEDICAL FACILITIES

The ship has a complete sickbay with four beds administered by a trained medical technician.

SCIENTIFIC LABORATORY FACILITIES

Dry oceanographic lab: 1,800 ft^2
Wet oceanographic lab: 156 ft^2
Meteorological lab: 160 ft^2
Gravity lab: 176 ft^2
Photographic lab: 165 ft^2

DECK MACHINERY

Winches
Quantity: 2
Type: Oceanographic winch
Manufacturer: Jered
Drive: Electrohydraulic
Line speed: 98 ft/min
Maximum pull: 2,500 lb
Drum capacity: 30,000 ft of 3/16-in wire rope

Quantity: 1
Type: C/STD winch
Manufacturer: Marco
Drive: Electrohydraulic
Line speed: 330 ft/min
Maximum pull: 3,000 lb
Drum capacity: 6,000 m of 0.292-in conductor cable

Quantity: 1
Type: Dredge and trawl winch
Manufacturer: Marco
Drive: Electrohydraulic
Line speed: 350 ft/min
Maximum pull: 2,000 lb
Drum capacity: 6,000 m of ⅜-in wire rope

Quantity: 1
Type: Deep-sea winch w/traction unit (TU)
Manufacturer: Western Gear
Drive: Electrohydraulic
Line speed: 133 ft/min-600 ft/min (TU)
Maximum pull: 6,800 lb-30,000 lb (TU)
Drum capacity:
Front drum: 42,000 ft of ½-in wire rope

Cranes and Booms
Quantity: 1
Type: Telescoping boom
Manufacturer: Skagit
Boom length: 40 ft
Lifting capacity: 7,300 lb
(boom extended) 4,700 lb
Location(s): Forward

Quantity: 1
Type: Fixed length boom
Manufacturer: Lake Shore
Boom length: 35 ft
Lifting capacity: 10,000 lb
(boom extended)
Location(s): Aft

A-Frames
Quantity: 1
Type: Movable
Clearance over side: 9 ft
Location(s): Stern

Quantity: 1
Type: Movable
Clearance over side: 6 ft
Location(s): Port quarter

Quantity: 1
Type: Movable
Clearance over side: 6 ft
Location(s): Portside aft

Ground Tackle

Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 4,850 lb

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

ELECTRONICS

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

Navigation
Radar
Gyrocompass
Loran C
Satnav
RDF
Omega

Acoustics
Deepwater echo sounder
Shallow-water echo sounders
Sea beam

Scientific Equipment
CTD system
XBT system
Rosette water sampling system

Data Acquisition and Processing System:

A Shipboard Data System (SDS) is dedicated to the acquisition and processing of oceanographic data. The SDS comprises the Data Recording and Processing Subsystems. In the Data Recording Subsystem, the individual sensor signals are routed to a Sensor Acquisition Module (SAM) near the sensor array. The SAM acquires the multiple data inputs, sychronizes them, formats the data into a PCM-FM train, and records them on an analog magnetic tape recorder. The Processing Subsystem is a PDP 11/34 computer with a 256K memory. The computer is used to verify that accurate and complete data are being recorded and to advise scientific personnel of experiment status and provide information for experiment control.

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
Power rating: 1,150 kW

Auxiliary Propulsion
Type: Through hull bow thruster
Manufacturer: Murray and Tregurtha
Drive: Diesel electric
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 a.c.
Power rating: 400 kW

Electrical Service
440 Va.c. three phase
110 Va.c. single phase

Emergency Generator
Quantity: 1
Manufacturer: Fairbanks Morse/GE
Output voltage: 450 a.c.
Power rating: 100 kW

Power isolation protection available for sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 26,800 gal
Normal consumption: 5,000 gal/d
Normal production: 6,500 gal/d
Maximum production: 8,000 gal/d

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

POLLUTION CONTROL

Sewage Waste Control
Type of treatment: Aerobic bacterial
Manufacturer: St. Louis Ship

Oily Waste Control
Type of treatment: Oily water separator
Manufacturer: SRS
Holding capacity: 2,000 gal

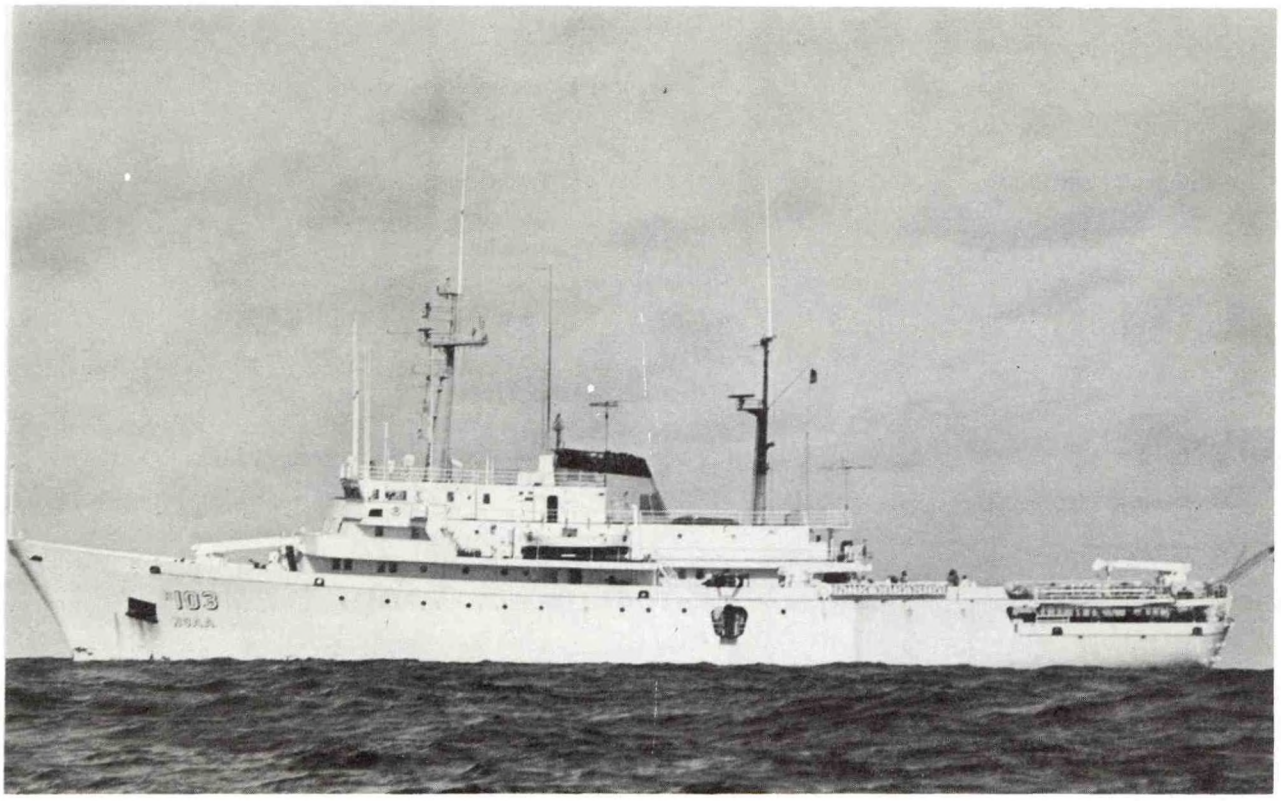
LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Fiberglass motor whaleboat
Quantity: 3
Manufacturer: U.S. Navy
Length: 26 ft
Propulsion: Diesel

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

SPECIAL FEATURES

Deep-sea anchoring capability
Underwater observation chambers



RESEARCHER R103

LAUNCHED: October 1968
DELIVERED: June 1970
COMMISSIONED: October 1970

DESIGNER: Maritime Administration
BUILDER: American Shipbuilding, Toledo, Ohio

CALL LETTERS: WTER

HOME PORT: Miami, Fla.

Complement:
COMMISSIONED OFFICERS: 13
LICENSED OFFICERS: 5
CREW: 50
SCIENTISTS: 14

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

LENGTH (LOA): 278.3 ft (84.8 m)
BREADTH (moulded): 51.0 ft (15.5 m)
DRAFT, MAXIMUM: 18.3 ft (5.6 m)

CRUISING SPEED: 12.5 kn
RANGE: 10,800 nmi
POWER: 3,200 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 180,000 gal
FUEL CONSUMPTION: 175 gal/h
(normal cruising speed)
ENDURANCE: 36 d
ENDURANCE CONSTRAINT: Fuel

Operational Commitments:

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

HABITABILITY

Berthing
Single staterooms: 10
Double staterooms: 36
Total bunks aboard: 82

Food-Service Seating Capacity
Captain's cabin: 4
Wardroom: 24
Ship officer's mess: 10
Technicians' mess: 14
Crew's mess: 16

MEDICAL FACILITIES

The ship has a complete sickbay with four beds administered by a Chief Pharmacist Mate.

SCIENTIFIC LABORATORY FACILITIES

Dry oceanographic lab: 1,598 ft^2
Wet oceanographic lab: 140 ft^2
Meteorological lab: 179 ft^2
Photographic lab: 100 ft^2
Gravity lab: 174 ft^2

DECK MACHINERY

Winches
Quantity: 2
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Electrohydraulic
Line speed: 400 ft/min
Maximum pull: 3,000 lb
Drum capacity:
12,000 ft of 0.292-in wire
30,000 ft of 3/16-in wire (interchangeable drum)

Quantity: 2
Type: GEK & magnetometer winch
Manufacturer: Industrial Electric
Drive: Electric
Line speed: 188 ft/min
Maximum pull: 300 lb
Drum capacity:
750 ft of 0.7-in wire (interchangeable drum)

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

Cranes and Booms
Quantity: 4
Type: Telescoping boom
Manufacturer: Grove Mfg.
Boom length: 34 ft
Lifting capacity: 5,500 lb
(boom extended)
Location(s): 2 foredeck port & stbd.
2 aft port & stbd.

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

A-Frames
Quantity: 2
Type: Movable
Clearance over side: 5 ft
Location(s): Amidships port & stbd.

Quantity: 1
Type Movable
Clearance over side: 12 ft
Location(s): Stern

Ground Tackle

Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 4,223 lb

Anchor Chain(s)
Quantity: 2
Size and type: 1-9/16-in stud link chain
Length (each): 120 fm

NOTE: Owing to transducers in bow bubble, vessel does not normally anchor.

Deep-Sea Anchor
Type: Danforth
Weight: 250 lb

Deep-Sea Cable
Size and type: 9/16-in wire rope
Length: 45,000 ft

ELECTRONICS

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

Navigation
Radar
Gyrocompass
Loran
Satnav
RDF
Omega

Acoustics
Deepwater echo sounder
Shallow-water echo sounders
Side scan sonar
Narrow beam stabilized transducer system
Doppler speed log
Subbottom profiler

Scientific Equipment
CTD system
XBT system
Gravity meter
Magnetometer

Data Acquisition and Processing System:
A Shipboard Data System (SDS) is dedicated to the acquisition and processing of oceanographic data. The SDS comprises the Data Recording and Processing Subsystems. In the Data Recording Subsystem, the individual sensor signals are routed to a Sensor Acquisition Module (SAM) near the sensor array. The SAM acquires the multiple data inputs, synchronizes them, formats the data into a PCM-FM train, and records them on an analog magnetic tape recorder. The Processing Subsystem is a PDP 11/34 computer with a 256K memory. The computer is used to verify that accurate and complete data are being recorded and to advise scientific personnel of experiment status and provide information for experiment control.

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
Quantity: 2
Type: Diesel engines
Manufacturer: Alco
Rated power (each): 1,600 hp

Propeller(s)
Quantity: 2
Type: Controllable pitch
Blades: 3
Diameter: 10.5 ft
Manufacturer: Bird Johnson

Auxillary Propulsion
Type: Retractable bow thruster
Manufacturer: Pleuger Underwasserpumpen GMBH
Drive: Diesel electric — Detroit Diesel/Delco
Rated power: 450 hp

Electrical System
Ship's Service Generators
Quantity: 2
Manufacturer: Detroit Diesel/Delco
Output voltage: 450 a.c.
Power rating: 500 kW

Emergency Generator
Quantity: 1
Manufacturer: Detroit Diesel/Delco
Output voltage: 450 a.c.
Power rating: 125 kW

Electrical Service
450 Va.c. three phase
220 Va.c. three phase
120 Va.c. single phase

Auxiliary Generators — Bow Thruster
Quantity: 1
Manufacturer: Detroit Diesel/Delco
Output voltage: 450 a.c.
Power rating: 500 kW

Power isolation protection available for sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 24,000 gal
Normal consumption: 7,000 gal/d
Normal production: 7,500 gal/d
Maximum production: 8,000 gal/d

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

POLLUTION CONTROL

Sewage Waste Control
Type of treatment: Bacterial digestion
Manufacturer: American Shipbuilding
Holding capacity: 6,500 gal

Oily Waste Control
Type of treatment: Holding tanks
Holding capacity: 15,000 gal

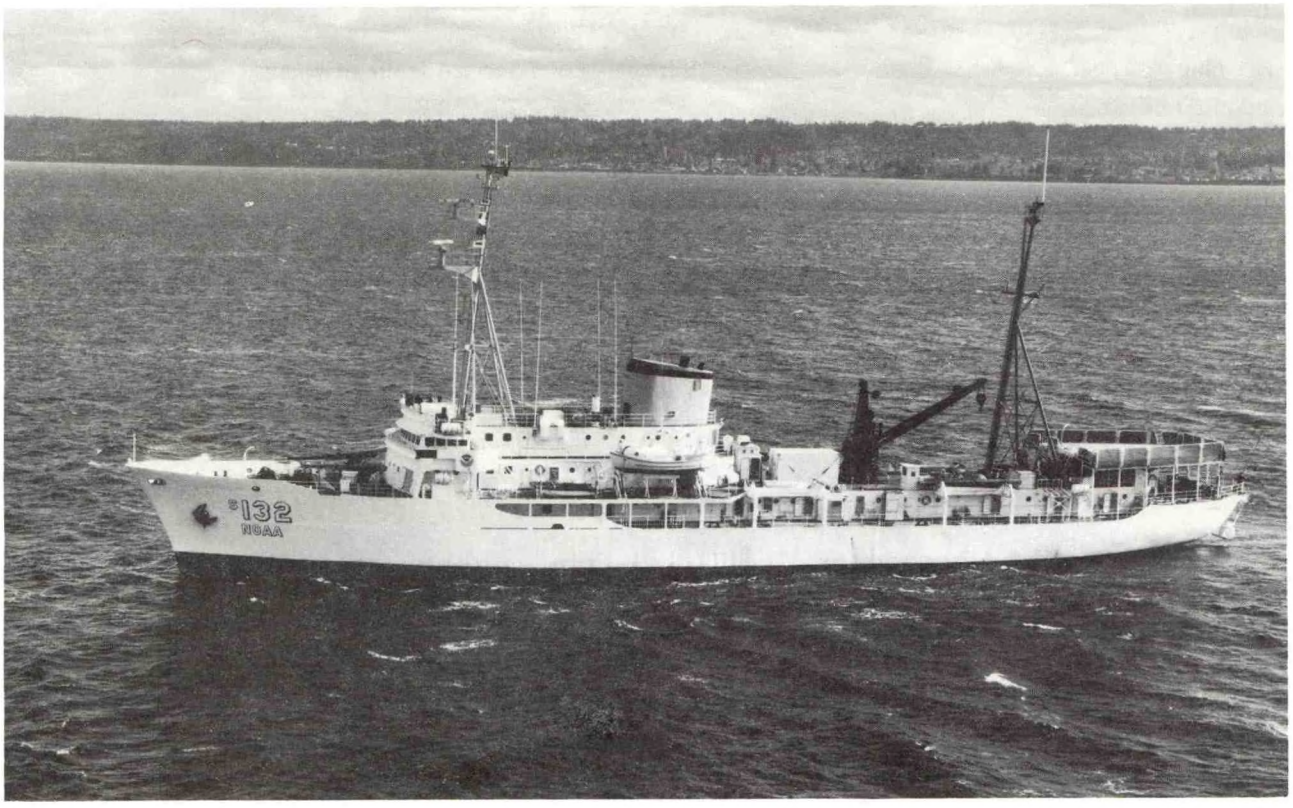
LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Fiberglass lifeboats
Quantity: 2
Manufacturer: Marine Safety Equip. Corp.
Length: 24 ft
Propulsion: Diesel

Utility Boats
Hull type: Fiberglass open boat
Quantity: 2
Manufacturer: Boston Whaler
Length: 17 ft
Propulsion: Gasoline outboard

SPECIAL FEATURES

Lowerable stern ramp
Underwater observation chambers
Seismic reflection profile compressors
Portable helicopter platform



SURVEYOR S132

LAUNCHED: April 1959
DELIVERED: April 1960
COMMISSIONED: April 1960

DESIGNER: Maritime Administration
BUILDER: National Steel & Shipbuilding Co., San Diego, Calif.

CALL LETTERS: WTES

HOME PORT: Seattle, Wash.

Complement:
COMMISSIONED OFFICERS: 12
LICENSED OFFICERS: 6
CREW: 58
SCIENTISTS: 16

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

LENGTH (LOA): 292.2 ft (89.0 m)
BREADTH (moulded): 46.0 ft (14.0 m)
DRAFT, MAXIMUM:: 19.5 ft (5.9 m)

CRUISING SPEED: 15 kn
RANGE: 13,680 nmi
POWER: 3,200 SHP

FUEL TYPE: NSFO or Bunker C
FUEL CAPACITY: 241,000 gal
FUEL CONSUMPTION: 224 gal/h (normal cruising speed)
ENDURANCE: 38 d
ENDURANCE CONSTRAINT: Fuel

Operational Commitments:
The SURVEYOR conducts worldwide oceanographic research and is also capable of conducting hydrographic surveys for nautical charting. The SURVEYOR normally operates in the Pacific Ocean and Alaska 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 officer's mess: 11
Crew's mess: 52

MEDICAL FACILITIES

The ship has a complete sickbay with four beds administered by a trained medical technician.

SCIENTIFIC LABORATORY FACILITIES

Dry oceanographic lab: 105 ft^2
Wet oceanographic lab: 120 ft^2
Photographic lab: 102 ft^2
Gravity lab: 60 ft^2

DECK MACHINERY

Winches
Quantity: 1
Type: Deep sea winch w/traction unit
Manufacturer: Western Gear
Drive: Electrohydraulic
Line speed: 460 ft/min-133 ft/min
Maximum pull: 8,800 lb-30,000 lb
Drum capacity: 30,000 ft of 5/8-in wire rope

Quantity: 1
Type: Trawl winch
Manufacturer: Rowe
Drive: Electrohydraulic
Line speed: 150 ft/min
Maximum pull: 2,000 lb
Drum capacity: 6,000 ft of 3/8-in wire rope

Quantity: 1
Type: Oceanographic winch
Manufacturer: Jered
Drive: Electrohydraulic
Line speed: 350 ft/min
Maximum pull: 2,000 lb
Drum capacity: 9,000 ft of 3/8-in wire rope

Quantity: 1
Type: Oceanographic/hydrographic
Manufacturer: Wheeler
Drive: Electrohydraulic
Line speed: 350 ft/min
Maximum pull: 960-1,200 lb
Drum capacity: 30,000 ft of 5/32-in wire rope

Cranes and Booms
Quantity: 2
Type: Telescoping boom
Manufacturer: Austin Western
Boom length: 24 ft
Lifting capacity: 1,400 lb
(boom extended) 1,000
Location(s): Foredeck

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

A-Frames
Quantity: 1
Type: Movable
Clearance over side: 4 ft over bow
Location(s): Bow (deep-sea anchoring)

Quantity: 1
Type: Movable
Clearance over side: 6 ft
Location(s): Stbd side

Quantity: 1
Type: Movable boom
Clearance over side: 6 ft
Location(s): Stern

Ground Tackle

Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 5,100 lb

Anchor Chain(s)
Quantity: 2
Size and type: 1-11/16-in stud link chain
Length (each): 150 fm — port
135 fm — starboard

Deep-Sea Cable
Size and type: 5/8-in wire rope
Length: 30,000 ft

ELECTRONICS

Communications

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

Navigation

Radar
Gyrocompass
Loran
Satnav
RDF
Precision positioning equipment

Acoustics

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

Scientific Equipment

CTD system
XBT system
Rosette water sampling system

Data Acquisition and Processing System:
The vessel has the National Ocean Survey's Hydroplot Data Processing System for nautical charting surveys.

ENGINEERING

Propulsion Plant
Type: Steam turbine

Main Propulsion Boilers
Quantity: 2
Type: Water tube
Manufacturer: Combustion Engr.
Design pressure: 465 psi
Superheat temp: 750°

Propulsion Turbines
Quantity: 2
Type: Cross compound
Manufacturer: DeLaval
Power rating: 3,200 SHP

Auxiliary Propulsion
Type: Stern-mounted auxiliary
Manufacturer: Harbormaster
Drive: Electric
Rated power: 200 hp

Propeller(s)
Quantity: 1
Type: Fixed pitch
Blades: 4
Diameter: 13 ft

Electrical System

Ship's Service Generators
Quantity: 2
Type: Steam turbine
Manufacturer: Worthington/GE
Output voltage: 450 a.c.
Power rating: 400 kW (each)

Emergency Generator
Quantity: 1
Type: Diesel
Manufacturer: Detroit Diesel/Delco
Output voltage: 450 a.c.
Power rating: 100 kW

Electrical Service
450 Va.c. three phase
110 Va.c. single phase

Power isolation protection available for sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 27,000 gal
Normal consumption: 5,000 gal/d
Maximum production: 7,000 gal/d

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

POLLUTION CONTROL

Sewage Waste Control
Type of treatment: Collecting tanks
Holding capacity: 400 gal

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Fiberglass motor whaleboat
Quantity: 2
Manufacturer: U.S. Navy
Length: 26 ft
Propulsion: Diesel

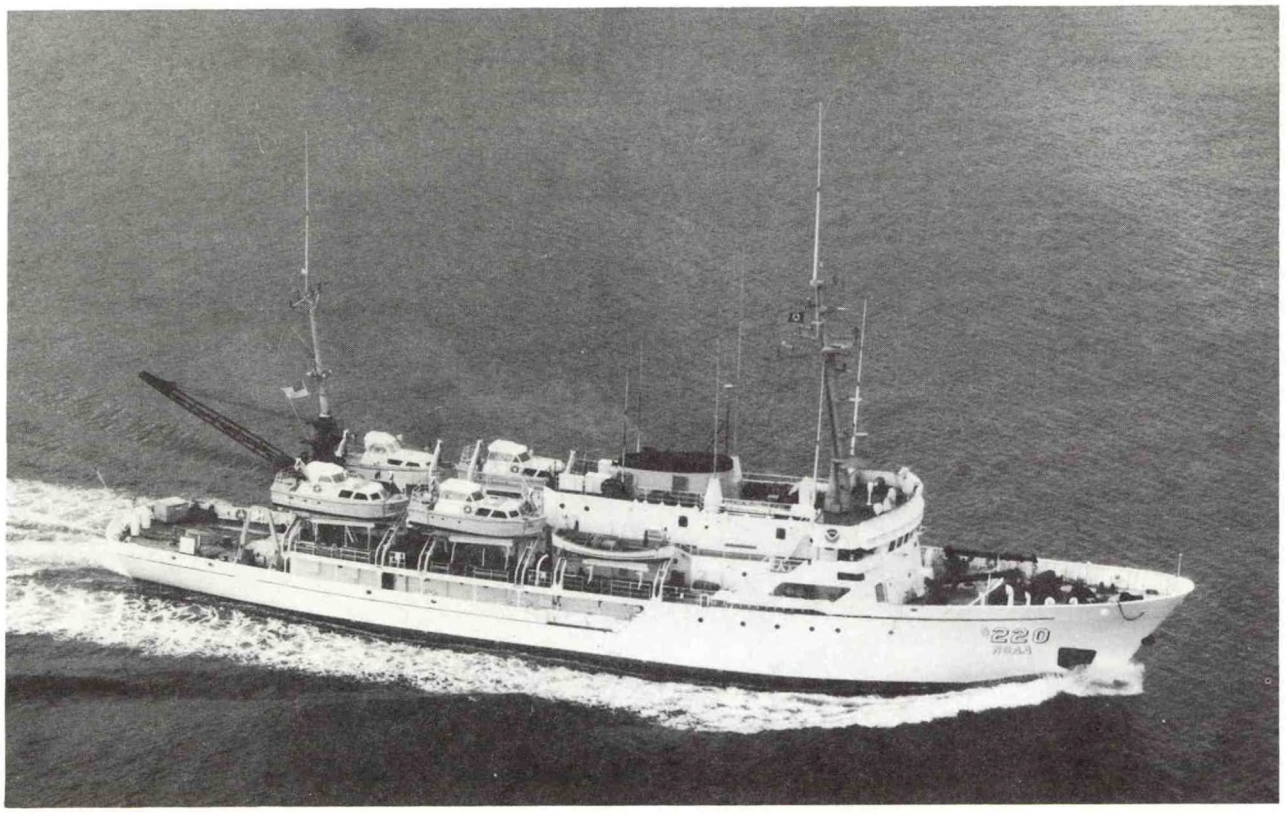
Survey Launches
Hull type: Wooden survey launch
Quantity: 3
Length: 36 ft
Propulsion: Diesel

Utility Boats
Hull type: LCVP — wood
Quantity: 1
Manufacturer: U.S. Navy
Length: 36 ft
Propulsion: Diesel

Hull type: Fiberglass open boat
Quantity: 2
Manufacturer: Boston Whaler
Length: 16 ft
Propulsion: Gasoline outboard

SPECIAL FEATURES

Helicopter flight deck
Seismic reflection profile compressors



FAIRWEATHER S220

LAUNCHED: March 1967
DELIVERED: January 1968
COMMISSIONED: October 1968

DESIGNER: Maritime Administration
BUILDER: Aerojet-General Shipyards, Jacksonville, Fla.

SISTER SHIP(S): RAINIER, MT. MITCHELL

CALL LETTERS: WTEB

HOME PORT: Seattle, Wash.

Complement:
COMMISSIONED OFFICERS: 12
LICENSED OFFICERS: 5
CREW: 52
SCIENTISTS: 4

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

LENGTH (LOA): 231.0 ft (70.4 m)
BREADTH (moulded): 42.0 ft (12.8 m)
DRAFT, MAXIMUM: 14.3 ft (4.2 m)

CRUISING SPEED: 13 kn
RANGE: 7,000 nmi
POWER: 2,400 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 112,000 gal
FUEL CONSUMPTION: 125 gal/h (normal cruising speed)
ENDURANCE: 22 d
ENDURANCE CONSTRAINT: Fuel/ballast

Operational Commitments:
The FAIRWEATHER is designed and outfitted for hydrographic surveys involving nautical charting. Scientific equipment normally 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 Alaska coastal waters, and off the Hawaiian Islands.

HABITABILITY

Berthing
Single staterooms: 5
Double staterooms: 19
Four-bunk rooms: 9
Total bunks aboard: 79

Food-Service Seating Capacity
Captain's cabin: 4
Wardroom: 12
Ship officer's mess: 11
Technicians' mess: 18
Crew's mess: 24

MEDICAL FACILITIES

The ship has a complete sickbay with two beds administered by a trained medical technician.

SCIENTIFIC LABORATORY FACILITIES

Oceanographic lab: 240 ft^2

DECK MACHINERY

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

Cranes and Booms
Quantity: 1
Type: Fixed length boom
Manufacturer: Skagit
Boom length: 40 ft
Lifting capacity: 3,000 lb
(boom extended) 2,500 lb
Location(s): Aft

Quantity: 2
Type: Telescoping boom
Manufacturer: Skagit
Boom length: 25 ft
Lifting capacity: 2,500 lb
Location(s): Port and starboard forward

A-Frames
Quantity: 1
Type: Movable
Clearance over side: 3 ft
Location(s): Starboard quarter

Ground Tackle
Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 4,850 lb

Anchor Chain(s)
Quantity: 2
Size and type: 1⅜-in stud link chain
Length (each): 165 fm

Deep-Sea Anchor
Type: Stockless
Weight: 700 lb

Deep-Sea Cable
Size and type: ⅜-in steel wire cable
Length: 1,800 ft

ELECTRONICS

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

Navigation
Radar
Gyrocompass
Loran
RDF
Precision positioning equipment

Acoustics
Deepwater echo sounder
Shallow-water echo sounders
Hydrographic survey sounders

Scientific Equipment
XBT system
TDC system (shallow-water)

Data Acquisition and Processing System:
A shipboard computer system, the National Ocean Survey's Hydroplot system, is dedicated to the real-time acquisition and processing of hydrographic data. An identical Hydroplot system is also installed in two 30-ft. survey launches aboard ship. The Hydroplot system uses a PDP 8/E computer with a 24K 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.

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
Quantity: 2
Type: Diesel
Manufacturer: General Motors
Rated power (each): 1,200 hp

Auxiliary Propulsion
Type: Through hull bow thruster
Manufacturer: Detroit Diesel/Bird Johnson
Drive: Diesel
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 a.c.
Power rating: 300 kW

Electrical Service
450 Va.c. three phase
120 Va.c. three phase
120 Va.c. single phase

Emergency Generator
Quantity: 1
Manufacturer: Detroit Diesel/Delco
Output voltage: 450 a.c.
Power rating: 75 kW

Power isolation protection available for sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 16,000 gal
Normal consumption: 3,500 gal/d
Normal production: 5,000 gal/d
Maximum production: 6,000 gal/d

Evaporators
Quantity: 2
Type: Steam-heat generated
Manufacturer: Cuno Engineering

POLLUTION CONTROL

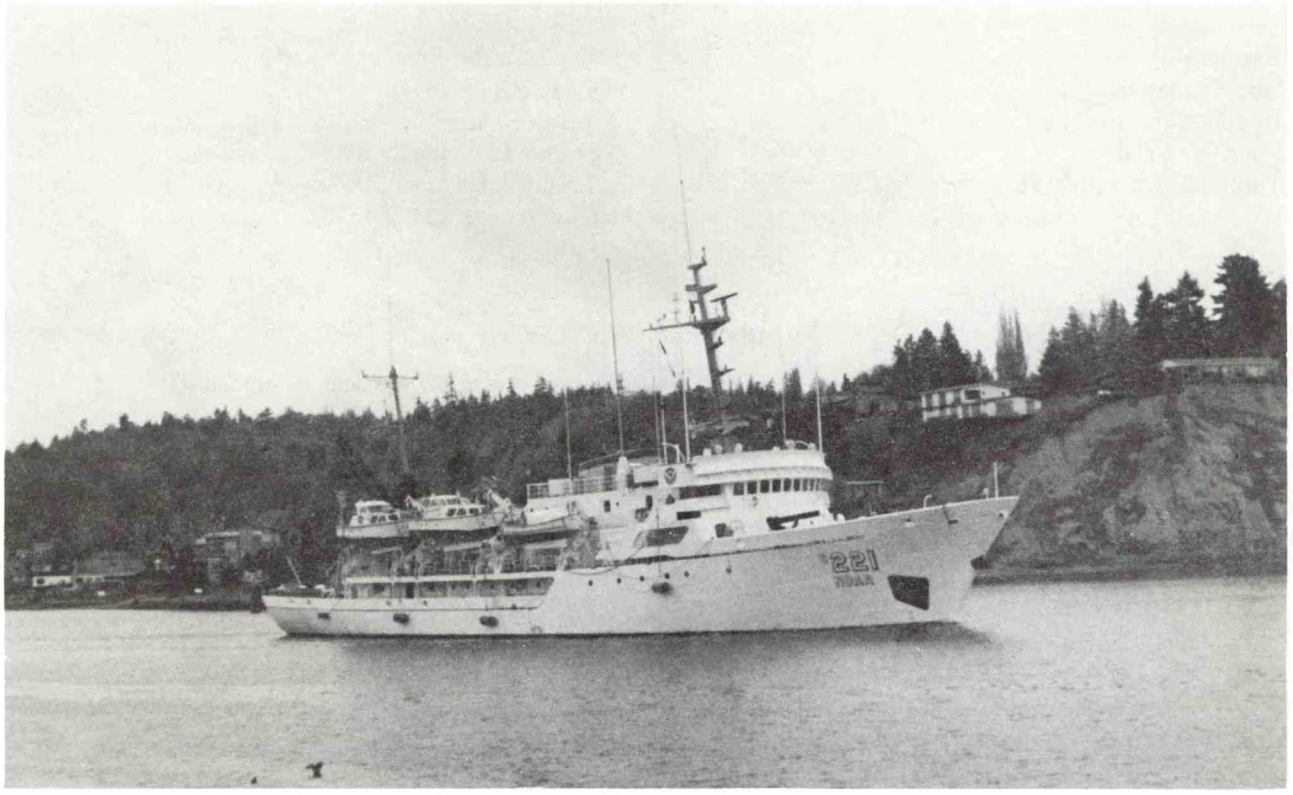
Sewage Waste Control
Type of treatment: Holding tank
Holding capacity: 8,000 gal

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Fiberglass motor whaleboat
Quantity: 2
Manufacturer: Triumph Storecrafters
Length: 26 ft
Propulsion: Diesel

Utility Boats
Hull type: Fiberglass open boat
Quantity: 3
Manufacturer: Boston Whaler
Length: 16 ft/13 ft
Propulsion: Gasoline outboard

Survey Launches
Hull type: Type I aluminum
Quantity: 3
Manufacturer: The Boatyard (Jensen)
Length: 29 ft
Propulsion: Diesel



RAINIER [S]221

LAUNCHED: March 1967
DELIVERED: April 1968
COMMISSIONED: October 1968

DESIGNER: Maritime Administration
Aerojet-General Shipyards, Jacksonville, Fla.

SISTER(S): FAIRWEATHER, MT. MITCHELL

CALL LETTERS: WTEF

HOME PORT: Seattle, Wash.

Complement:
COMMISSIONED OFFICERS: 12
LICENSED OFFICERS: 5
CREW: 52
SCIENTISTS: 4

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

LENGTH (LOA): 231.0 ft (70.4 m)
BREADTH (moulded): 42.0 ft (12.8 m)
DRAFT, MAXIMUM: 14.3 ft (4.2 m)

CRUISING SPEED: 13 kn
RANGE: 7,000 nmi
POWER: 2,400 SHP
FUEL TYPE: #2 diesel
FUEL CAPACITY: 112,000 gal
FUEL CONSUMPTION: 125 gal/h
(normal cruising speed)
ENDURANCE: 22 d
ENDURANCE CONSTRAINT: Fuel/ballast

Operational Commitments:
The RAINIER is designed and outfitted for hydrographic surveys involving nautical charting. Scientific equipment normally 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 Alaska coastal waters, and off the Hawaiian Islands.

HABITABILITY

Berthing
Single staterooms: 5
Double staterooms: 19
Four-bunk rooms: 9
Total bunks aboard: 79

Food-Service Seating Capacity
Captain's cabin: 4
Wardroom: 12
Ship officer's mess: 11
Technicians' mess: 18
Crew's mess: 24

MEDICAL FACILITIES

The ship has a complete sickbay with two beds administered by a trained medical technician.

SCIENTIFIC LABORATORY FACILITIES

Oceanographic lab: 240 ft^2

DECK MACHINERY

Winches
Quantity: 1
Type: Dredge and trawl winch
Manufacturer: Northern Line
Drive: Electrohydraulic
Line speed: 400 ft/min
Maximum pull: 3,000 lb
Drum capacity: 6,000 ft of ⅜-in wire rope
(interchangeable drum)

Quantity: 1
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Electrohydraulic
Line speed: 400 ft/min
Maximum pull: 3,000 lb
Drum capacity: 12,000 ft of 0.298-in conductor cable
30,000 ft of 3/16-in wire

Cranes and Booms
Quantity: 1
Type: Fixed length boom
Manufacturer: Skagit
Boom length: 40 ft
Lifting capacity: 5,000 lb
(boom extended)
Location(s): Aft

Quantity: 2
Type: Telescoping boom
Manufacturer: Skagit
Boom length: 25 ft
Lifting capacity: 3,000 lb
(boom extended) 2,500 lb
Location(s): Port and starboard forward

A-Frames
Quantity: 2
Type: Movable
Clearance over side: 3 ft
Location(s): Port and starboard quarters

Ground Tackle
Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 4,850 lb

Deep-Sea Anchor
Type: Stockless
Weight: 700 lb

Anchor Chain(s)
Quantity: 2
Size and type: 1⅜-in stud link chain
Length: (each): 165 fm

Deep-Sea Cable
Size and type: ⅜-in steel wire cable
Length: 1,800 ft

ELECTRONICS

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

Navigation
Radar
Gyrocompass
Loran
Precision positioning equipment

Acoustics
Deepwater echo sounder
Shallow-water echo sounders
Hydrographic survey sounders

Scientific Equipment
XBT system
TDC system (shallow-water)

Data Acquisition and Processing System:
A shipboard computer system, the National Ocean Survey's Hydroplot system, is dedicated to the real-time acquisition and processing of hydrographic data. An identical Hydroplot system is also installed in two 30-ft. survey launches aboard ship. The Hydroplot system uses a PDP 8/E computer with a 24K 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.

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
Quantity: 2
Type: Diesel
Manufacturer: General Motors
Rated power (each): 1,200 hp

Auxiliary Propulsion
Type: Through hull bow thruster
Manufacturer: Detroit Diesel/Bird Johnson
Drive: Diesel
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 a.c.
Power rating: 300 kW

Emergency Generator
Quantity: 1
Manufacturer: Detroit Diesel/Delco
Output voltage: 450 a.c.
Power rating: 75 kW

Electrical Service
450 Va.c. three phase
120 Va.c. three phase
120 Va.c. single phase

Power isolation protection available for sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 16,000 gal
Normal consumption: 3,500 gal/d
Normal production: 5,000 gal/d
Maximum production: 6,500 gal/d

Evaporators
Quantity: 2
Type: Steam-heat generated
Manufacturer: Cuno Enginering

POLLUTION CONTROL

Sewage Waste Control
Type of treatment: Holding tank
Holding capacity: 8,000 gal

LAUNCHES AND SMALL BOATS

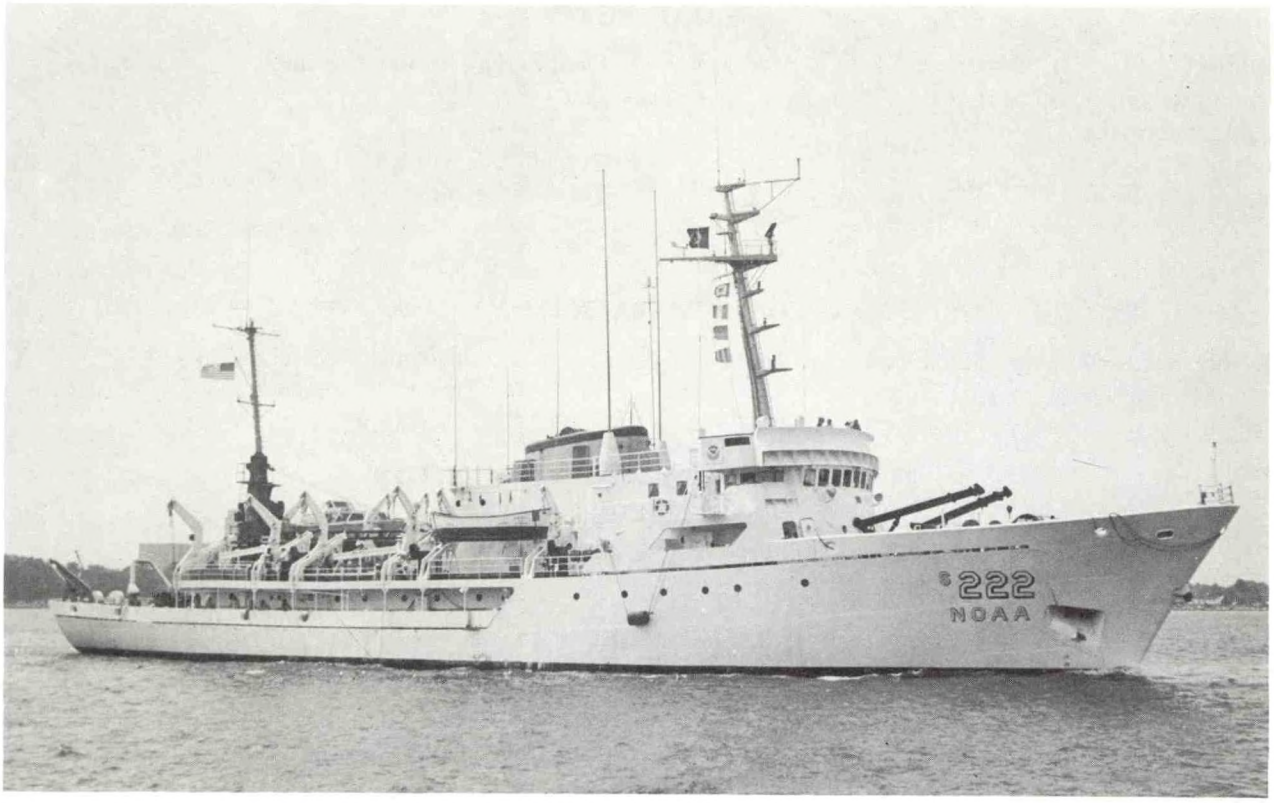
Utility/Rescue Boats
Hull type: Fiberglass motor whaleboat
Quantity: 2
Manufacturer: U.S. Navy
Length: 26 ft
Propulsion: Diesel

Hull type: Fiberglass
Quantity: 2
Manufacturer: Boston Whaler
Length: 16 ft
Propulsion: Gasoline outboard

Hull type: Aluminum skiff
Quantity: 2
Manufacturer: Starcraft
Length: 16 ft
Propulsion: Gasoline outboard

Survey Launches
Hull type: Type I aluminum
Quantity: 3
Manufacturer: The Boatyard (Jensen)
Length: 29 ft
Propulsion: Diesel

Hull type: Fiberglass
Quantity: 1
Manufacturer: Bertram
Length: 26 ft
Propulsion: Diesel



MT. MITCHELL S222

LAUNCHED: November 1966
DELIVERED: October 1967
COMMISSIONED: March 1968

DESIGNER: Maritime Administration
BUILDER: Aerojet-General Shipyards, Jacksonville, Fla.

SISTER SHIP(S): FAIRWEATHER, RAINIER

CALL LETTERS: WTEG

HOME PORT: Norfolk, Va.

Complement:
COMMISSIONED OFFICERS: 12
LICENSED OFFICERS: 5
CREW: 52
SCIENTISTS: 4

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

LENGTH (LOA): 231.0 ft (70.4 m)
BREADTH (moulded): 42.0 ft (12.8 m)
DRAFT, MAXIMUM: 14.3 ft (4.2 m)

CRUISING SPEED: 13 kn
RANGE: 7,000 nmi
POWER: 2,400 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 112,000 gal
FUEL CONSUMPTION: 125 gal/h (normal cruising speed)
ENDURANCE: 22 d
ENDURANCE CONSTRAINT: Fuel/ballast

Operational Commitments:
The MT. MICHELL is designed and outfitted for hydrographic surveys involving nautical charting. Scientific equipment normally on board is limited to that equipment which supports and is related to these survey operations. The ship normally operates off the U.S. Atlantic Coast, in the Gulf of Mexico, and in the U.S. Caribbean Island territorial waters.

HABITABILITY

Berthing
Single staterooms: 5
Double staterooms: 17
Four-bunk rooms: 10
Total bunks aboard: 79

Food-Service Seating Capacity
Captain's cabin: 4
Wardroom: 16
Ship officer's mess: 11
Technicians' mess: 16

MEDICAL FACILITIES

The ship has a complete sickbay with two beds administered by a trained medical technician.

SCIENTIFIC LABORATORY FACILITIES

Oceanographic Lab: 240 ft²

DECK MACHINERY

Winches
Quantity: 1
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Electrohydraulic
Line speed: 400 ft/min
Maximum pull: 3,000 lb
Drum capacity:
Front drum: 12,000 ft of 0.298-in electric cable
Rear drum: 30,000 ft of 3/16-in wire rope

Quantity: 1
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Electrohydraulic
Line speed: 400 ft/min
Maximum pull: 1,000 lb
Drum capacity:
Front drum: 12,000 ft of 0.250-in conductor cable
Rear drum: 30,000 ft of 3/16-in wire rope

Cranes and Booms
Quantity: 1
Type: Fixed length boom
Manufacturer: Skagit
Boom length: 40 ft
Lifting capacity: 5,000 lb
(boom extended)
Location(s): Aft

Quantity: 2
Type: Telescoping boom
Manufacturer: Skagit
Boom length: 25 ft
Lifting capacity: 3,000 lb
(boom extended) 2,500 lb
Location(s): Port and starboard forward

A-Frames
Quantity: 2
Type: Movable
Clearance over side: 3 ft
Location(s): Port and starboard quarters

Ground Tackle
Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight (each): 4,850 lb

Deep-Sea Anchor
Type: Stockless
Weight: 700 lb

Anchor Chain(s)
Quantity: 2
Size and type: 1⅜-in stud link chain
Length (each): 165 fm

Deep-Sea Cable
Size and type: ⅜-in steel wire cable
Length: 1,800 ft

ELECTRONICS

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

Navigation
Radar
Gyrocompass
Loran
Satnav
Precision positioning equipment

Acoustics
Deepwater echo sounder
Shallow-water echo sounders
Hydrographic survey sounders

Scientific Equipment
XBT system

Data Acquisition and Processing System:
A shipboard computer system, the National Ocean Survey's Hydroplot system, is dedicated to the real-time acquisition and processing of hydrographic data. An identical Hydroplot system is also installed in each 30-ft. survey launch aboard ship. The Hydroplot system uses a PDP 8/E computer with a 24K 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.

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
Quantity: 2
Type: Diesel
Manufacturer: General Motors
Rated power (each): 1,200 hp

Propeller(s)
Quantity: 2
Type: Controllable pitch
Blades: 3
Diameter: 8.5 ft
Manufacturer: Bird Johnson

Auxiliary Propulsion
Type: Through hull bow thruster
Manufacturer: Detroit Diesel/Bird Johnson
Drive: Diesel
Rated power: 200 hp

Electrical System
Ship's Service Generators
Quantity: 2
Manufacturer: Detroit Diesel/GE
Output voltage: 450 a.c.
Power rating: 300 kW

Emergency Generator
Quantity: 1
Manufacturer: Detroit Diesel/Delco
Output voltage: 450 a.c.
Power rating: 75 kW

Electrical Service
450 Va.c. three phase
120 Va.c. three phase
120 Va.c. single phase

Power isolation protection available for sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 16,000 gal
Normal consumption: 3,500 gal/d
Normal production: 5,000 gal/d
Maximum production: 6,000 gal/d

Evaporators
Quantity: 2
Type: Steam-heat generated
Manufacturer: Cuno Engineering

POLLUTION CONTROL

Sewage Waste Control
Type of treatment: Aerobic bacterial
Manufacturer: St. Louis Shipbuilding
Holding capacity: 90 d

Oily Waste Control
Type of treatment: Filter
Manufacturer: Harco
Holding capacity: 6,800 gal or flow with 10 ppm contaminant

LAUNCHES AND SMALL BOATS

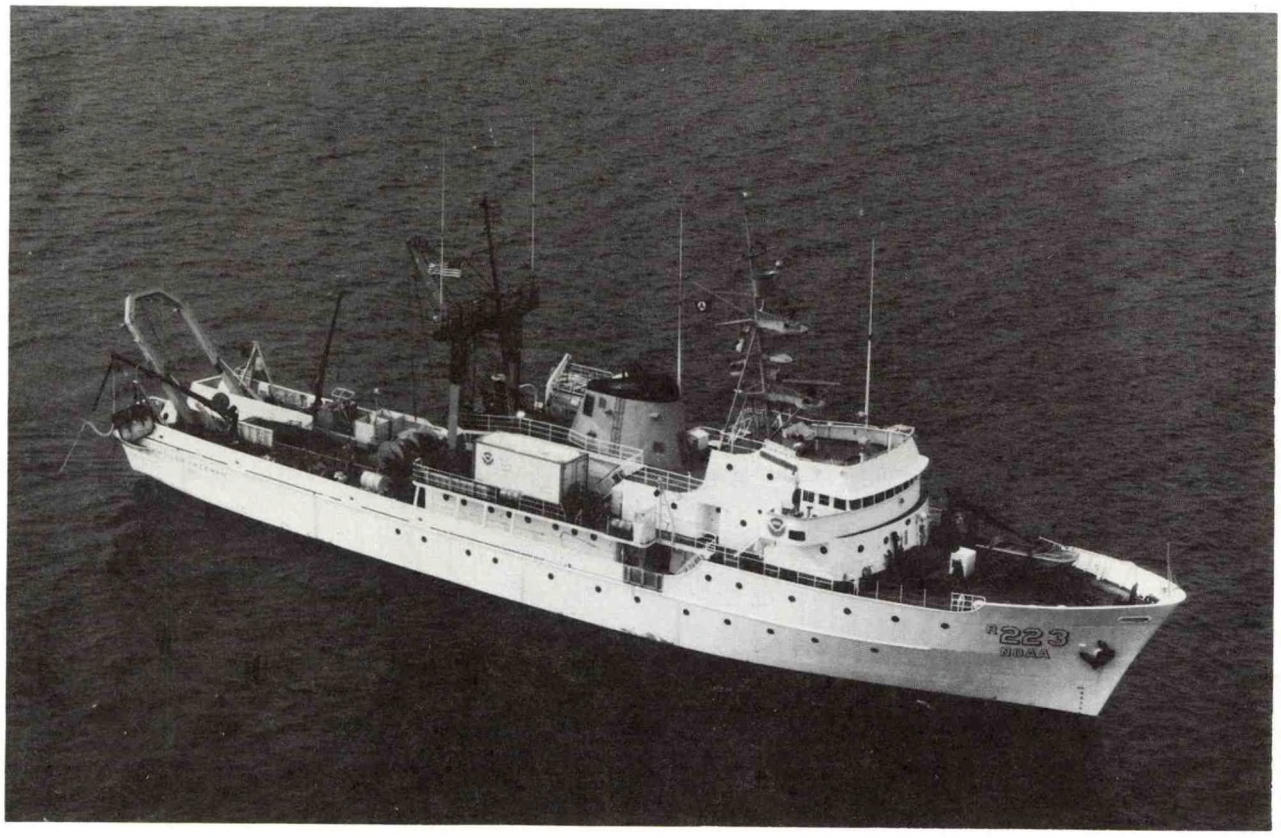
Utility/Rescue Boats
Hull type: Fiberglass lifeboat
Quantity: 1
Manufacturer: Pacific Plastics
Length: 26 ft
Propulsion: Diesel

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

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

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

Hull type: Aluminum skiff
Quantity: 1
Manufacturer: Monark
Length: 13 ft
Propulsion: Gasoline outboard



MILLER FREEMAN R223

LAUNCHED: 1967
DELIVERED: 1968
COMMISSIONED: 1974

DESIGNER: Philip F. Spaulding
BUILDER: American Shipbuilding
Lorain, Ohio

CALL LETTERS: WTDM

HOME PORT: Seattle, Wash.

Complement:
COMMISSIONED OFFICERS: 7
LICENSED OFFICERS: 4
CREW: 30
SCIENTISTS: 11

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

LENGTH (LOA): 215.0 ft (66.0 m)
BREADTH (moulded): 42.0 ft (12.5 m)
DRAFT, MAXIMUM: 20.0 ft (6.1 m)

CRUISING SPEED: 14 kn
RANGE: 13,800 nmi
POWER: 2,150 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 145,000 gal
FUEL CONSUMPTION: 125 gal/h
(normal cruising speed)
ENDURANCE: 41 d
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 Alaska 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

The ship has emergency and first-aid equipment administered by a trained medical technician.

SCIENTIFIC LABORATORY FACILITIES

Chemical lab: 370 ft^2
Oceanographic wet lab: 320 ft^2
Fish processing lab: 384 ft^2
Utility lab: 432 ft^2
Rough lab: 288 ft^2
XBT room: 160 ft^2

DECK MACHINERY

Winches
Quantity: 1
Type: Oceanographic winch
Manufacturer: Marco
Drive: Hydraulic
Line speed: 328 ft/min
Maximum pull: 10,000 lb
Drum capacity: 19,685 ft of 7/16-in wire rope

Quantity: 1
Type: Oceanographic winch
Manufacturer: Marco
Drive: Hydraulic
Line speed: 340 ft/min
Maximum pull: 3,000 lb
Drum capacity: 9,480 ft of 0.294-in conductor cable

Quantity: 1
Type: Oceanographic winch
Manufacturer: Markey
Drive: Hydraulic
Line speed: 250 ft/min
Maximum pull: 2,750 lb
Drum capacity: 9,480 ft of 0.294-in conductor cable

Quantity: 2
Type: Trawl winch
Manufacturer: Northern Line
Drive: Hydraulic
Line speed: 175 ft/min
Maximum pull: 20,000 lb
Drum capacity: 3,300 ft of 1-in wire cable

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

Quantity: 1
Type: Double drum net reel
Manufacturer: Pacific Fisherman
Drive: Hydraulic

Cranes and Booms
Quantity: 2
Type: Telescoping boom
Manufacturer: Rowe Machine
Boom length: 28 ft
Lifting capacity: 6,000 lbs
(boom extended) 3,000 lb

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

Quantity: 1
Type: Articulated boom
Manufacturer: Daybrook
Boom length: 18 ft
Lifting capacity: 2,400 lb
(boom extended) 1,800 lb

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

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 lb

Anchor Chain(s)
Quantity: 2
Size and type: 1-7/16-in stud link chain
Length: 120 fm

ELECTRONICS

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

Acoustics
Deepwater echo sounder
Shallow-water echo sounders
Fish finder and net sonde
Fish sonar

Navigation
Radar
Gyrocompass
Loran
Satnav
RDF
Precision positioning equipment

Scientific Equipment
STD system
XBT system
Rosette water sampling system
CAMAC system

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion
Quantity: 1
Type: Diesel
Manufacturer: General Motors
Rated power (each): 2,200 hp

Auxiliary Propulsion
Type: Lowerable bow thruster
Manufacturer: Schottle
Drive: Electric
Rated power: 400 hp

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 a.c.
Power rating: 350 kW

Electrical Service
450 a.c. three phase
120 a.c. single phase

Emergency Generator
Quantity: 1
Manufacturer: Caterpillar/GE
Output voltage: 450 a.c.
Power rating: 100 kW

Power isolation protection available for sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 7,350 gal
Normal consumption: 2,000 gal/d
Normal production: 2,000 gal/d
Maximum production: 2,400 gal/d

Evaporators
Quantity: 2
Type: Steam-heat generated
Manufacturer: Cuno Engineering

POLLUTION CONTROL

Sewage Waste Control
Type of treatment: Holding tank
Holding capacity: 7,600 gal

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Aluminum workboat
Quantity: 1
Manufacturer: Monark
Length: 26 ft
Propulsion: Diesel

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

SPECIAL FEATURES

Stern ramp
Lowerable stabilizing centerboard
(increases draft by 10.5 ft)

PEIRCE S328

LAUNCHED: October 1962
DELIVERED: May 1963
COMMISSIONED: May 1963

DESIGNER: Maritime Administration
BUILDER: Marietta Mfg. Co., Pt. Pleasant, W.V.

SISTER SHIP(S): WHITING

CALL LETTERS: WTEQ

HOME PORT: Norfolk, Va.

Complement:
COMMISSIONED OFFICERS: 8
LICENSED OFFICERS: 3
CREW: 30
SCIENTISTS: 2

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

LENGTH (LOA): 163.0 ft (49.7 m)
BREADTH: (moulded: 33.0 ft (10.1 m)
DRAFT, MAXIMUM: 11.2 ft (3.4 m)

CRUISING SPEED: 12 kn
RANGE: 5,700 nmi
POWER: 1,600 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 44,000 gal
FUEL CONSUMPTION: 80 gal/h
(normal cruising speed)
ENDURANCE: 20 d
ENDURANCE CONSTRAINT: Fuel

Operational Commitments:
The PEIRCE is designed and outfitted for hydrographic surveys involving nautical charting. Scientific equipment normally on board is limited to that equipment which supports and is related to these survey operations. The ship normally operates off the U.S. Atlantic Coast, in the Gulf of Mexico, the Great Lakes, and the U.S. Caribbean Island territorial waters.

HABITABILITY

Berthing
Single staterooms: 2
Double staterooms: 9
Four-bunk rooms: 5
Total bunks aboard: 40

Food-Service Seating Capacity
Wardroom mess: 8
Crew's mess: 23

MEDICAL FACILITIES

The ship has emergency and first-aid equipment administered by designated vessel personnel.

DECK MACHINERY

Winches
Quantity: 1
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Hydraulic
Line speed: 400 ft/min
Maximum pull: 1,500 lb
Drum capacity: 10,000 ft of ¼-in wire rope

Cranes and Booms
Quantity: 1
Type: Telescoping boom
Manufacturer: C. H. Wheeler
Boom length: 27 ft
Lifting capacity: 2,500 lb
(boom extended)
Location(s): Foredeck

Ground Tackle
Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight: 2,050 lb

Anchor Chain(s)
Quantity: 2
Size and type: 1⅛-in stud link chain
Length: 105 fm

ELECTRONICS

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

Navigation
Radar
Gyrocompass
Loran
Precision positioning equipment

Acoustics
Deepwater echo sounder
Shallow-water echo sounders
Hydrographic survey sounders

Scientific Equipment
XBT system
TDC system (shallow-water)

Data Acquisition and Processing System:
A shipboard computer system, the National Ocean Survey'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 24K 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.

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
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 a.c./450 a.c.
Power rating: 220 kW

Emergency Generator
Quantity: 1
Manufacturer: Detroit Diesel/Delco
Output voltage: 225 a.c./450 a.c.
Power rating: 60 kW

Electrical Service
450 Va.c. three phase
225 Va.c. three phase
120 Va.c. single phase

Power isolation protection available for sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 5,400 gal
Normal consumption: 2,000 gal/d
Normal production: 2,000 gal/d
Maximum production: 3,600 gal/d

Evaporators
Quantity: 1
Type: Steam-heat generated
Manufacturer: Baldwin Lima Hamilton

POLLUTION CONTROL

Sewage Waste Control
Type of treatment: Aerobic bacterial
Manufacturer: St. Louis Ship (FAST)
Holding capacity: 30 d

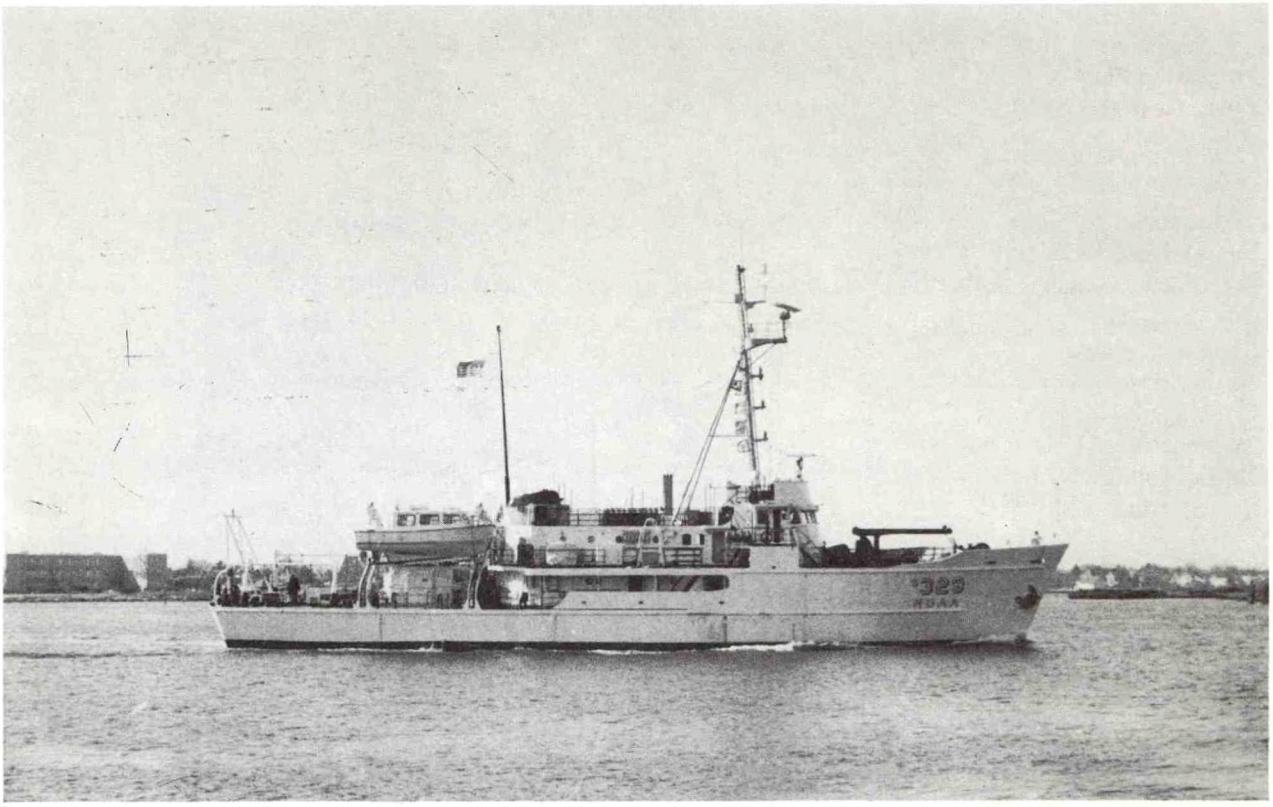
Oily Waste Control
Type of treatment: Oily water separator
Manufacturer: HARCO
Holding capacity: 500 gal or flow with 10 ppm contaminant

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Fiberglass open boat
Quantity: 1
Manufacturer: Boston Whaler
Length: 16 ft
Propulsion: Gasoline outboard

Utility Boats
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 Boat Yard (Jensen)
Length: 29 ft
Propulsion: Diesel



WHITING [S]329

LAUNCHED: November 1962
DELIVERED: July 1963
COMMISSIONED: July 1963

DESIGNER: Maritime Administration
BUILDER: Marietta Mfg. Co., Pt. Pleasant, W.V.

SISTER SHIP(S): PEIRCE

CALL LETTERS: WTEW

HOME PORT: Norfolk, Va.

Complement:
COMMISSIONED OFFICERS: 8
LICENSED OFFICERS: 3
CREW: 28

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

LENGTH (LOA): 163.0 ft (49.7 m)
BREADTH (moulded): 33.0 ft (10.1 m)
DRAFT, MAXIMUM: 11.2 ft (3.4 m)

CRUISING SPEED: 12 kn
RANGE: 5,700 nmi
POWER: 1,600 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 44,000 gal
FUEL CONSUMPTION: 80 gal/h
(normal cruising speed)
ENDURANCE: 20 d
ENDURANCE CONSTRAINT: Fuel

Operational Commitments:
The WHITING is designed and outfitted for hydrographic surveys involving nautical charting. Scientific equipment normally on board is limited to that equipment which supports and is related to these survey operations. The ship normally operates off the U.S. Atlantic Coast, in the Gulf of Mexico, and in 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 mess: 8
Crew's mess: 23

MEDICAL FACILITIES

The ship has emergency and first-aid equipment administered by designated vessel personnel.

DECK MACHINERY

Winches
Quantity: 1
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Hydraulic
Line speed: 400 ft/min
Maximum pull: 1,500 lb
Drum capacity: 10,000 ft of ¼-in wire rope

Cranes and Booms
Quantity: 1
Type: Telescoping boom
Manufacturer: C. H. Wheeler
Boom length: 27 ft
Lifting capacity: 2,500 lb (boom extended)
Location(s): Foredeck

A-Frames
Quantity: 1
Type: Movable
Clearance over side: 5 ft
Location(s): Starboard side amidship

Ground Tackle

Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight: 2,050 lb

Anchor Chain(s)
Quantity: 2
Size and type: 1⅛-in stud link chain
Length: 105 fm

ELECTRONICS

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

Navigation
Radar
Gyrocompass
Loran
Precision positioning equipment

Acoustics
Deepwater echo sounder
Shallow-water echo sounders
Hydrographic survey sounder

Scientific Equipment
XBT system
TDC system (shallow-water)

Data Acquisition and Processing System:
A shipboard computer system, the National Ocean Survey'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 carried aboard ship. The Hydroplot system uses a PDP/8E computer with a 24K 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.

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
Quantity: 2
Type: Diesel
Manufacturer: General Motors
Rated power (each): 800 hp

Electrical System
Ship's Service Generators
Quantity: 2
Manufacturer: Detroit Diesel/Delco
Output voltage: 225 a.c./450 a.c.
Power rating: 220 kW

Electrical Service
450 Va.c. three phase
225 Va.c. three phase
120 Va.c. single phase

Propeller(s)
Quantity: 2
Type: Controllable pitch
Blades: 3
Diameter: 6.0 ft
Manufacturer: Bird Johnson

Emergency Generator
Quantity: 1
Manufacturer: Detroit Diesel/Delco
Output voltage: 225 a.c./450 a.c.
Power rating: 60 kW

Power isolation protection available for sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 5,400 gal
Normal consumption: 2,000 gal/d
Normal production: 2,000 gal/d
Maximum production: 3,600 gal/d

Evaporators
Quantity: 1
Type: Steam-heat generated
Manufacturer: Baldwin Lima Hamilton

POLLUTION CONTROL

Sewage Waste Control
Type of treatment: Aerobic bacterial
Manufacturer: St. Louis Ship (FAST)
Holding capacity: 30 d

Oily Waste Control
Type of treatment: Oily water separator
Manufacturer: HARCO
Holding capacity: 500 gal or flow with 10 ppm contaminant

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Fiberglass open boat
Quantity: 2
Manufacturer: Boston Whaler
Length: 16 ft
Propulsion: Gasoline outboard

Utility Boats
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 Boat Yard (Jensen)
Length: 29 ft
Propulsion: Diesel

McARTHUR S330

LAUNCHED: November 1965
DELIVERED: November 1966
COMMISSIONED: December 1966

DESIGNER: Maritime Administration
BUILDER: Norfolk Shipbuilding and Drydock, Norfolk, Va.

SISTER SHIP(S): DAVIDSON

CALL LETTERS: WTEJ

HOME PORT: Seattle, Wash.

Complement:
COMMISSIONED OFFICERS: 8
LICENSED OFFICERS: 3
CREW: 27
SCIENTISTS: 2

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

LENGTH (LOA): 175.0 ft (53.3 m)
BREADTH (moulded): 38.0 ft (11.6 m)
DRAFT, MAXIMUM: 12.1 ft (3.7 m)

CRUISING SPEED: 12 kn
RANGE: 6,000 nmi
POWER: 1,600 SHP

FUEL TYPE: #2 Diesel
FUEL CAPACITY: 59,000 gal
FUEL CONSUMPTION: 120 gal/h (normal cruising speed)
ENDURANCE: 17 d
ENDURANCE CONSTRAINT: Fuel

Operational Commitments:
The McARTHUR now is assigned to operations involving circulatory studies and is outfitted for these operations. This ship was originally designed and outfitted for hydrographic survey operations involving nautical charting. The ship normally operates off the U.S. Pacific Coast and in Alaska coastal waters.

HABITABILITY

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

Food-Service Seating Capacity
Wardroom mess: 8
Crew's mess: 22

MEDICAL FACILITIES

The ship has emergency and first-aid equipment administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Oceanographic lab: 150 ft²

DECK MACHINERY

Winches

Quantity: 1
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Electrohydraulic
Line speed: 400 ft/min
Maximum pull: 3,000 lb
Drum capacity: 30,000 ft of 3/16-in wire rope or 11,000 ft of 5/16-in wire rope (interchangeable drum)

Quantity: 1
Type: Oceanographic winch
Manufacturer: Braden
Drive: Electrohydraulic
Line speed: 150 ft/min
Maximum pull: 16,000 lb
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 lb
Drum capacity: 820 ft of ¾-in wire rope

Cranes and Booms

Quantity: 1
Type: Telescoping boom
Manufacturer: Baldwin-UMA-Hamilton
Boom length: 32 ft
Lifting capacity: 5,700 lb
(boom extended) 2,410 lb
Location(s): Foredeck

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

A-Frames

Quantity: 1
Type: Movable
Clearance over side: 6 ft
Location(s): Stern

Ground Tackle

Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight: 2,000 lb

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

ELECTRONICS

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

Navigation
Radar
Gyrocompass
Loran
Precision positioning equipment

Acoustics
Deepwater echo sounder
Shallow-water echo sounders
Acoustic release system
CAMAC system

Scientific Equipment
C/STD system
XBT system
TDC system (shallow-water)
Current meter system
Tide gages

Data Acquisition and Processing System
The vessel is equipped with a PDP 11/34 computer with a 128K memory and a CAMAC interface system which are used for processing and analyzing current measurement data.

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
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/GE
Output voltage: 450 a.c.
Power rating: 220 kW

Emergency Generator
Quantity: 1
Manufacturer: Detroit Diesel/GE
Output voltage: 450 a.c.
Power rating: 60 kW

Electrical Service
450 Va.c. three phase
120 Va.c. single phase

Power isolation protection available for sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 6,000 gal
Normal consumption: 1,500 gal/d
Normal production: 1,500 gal/d
Maximum production: 2,500 gal/d

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

POLLUTION CONTROI

Sewage Waste Control
Type of treatment: Holding tank
Holding capacity: 5,000 gal

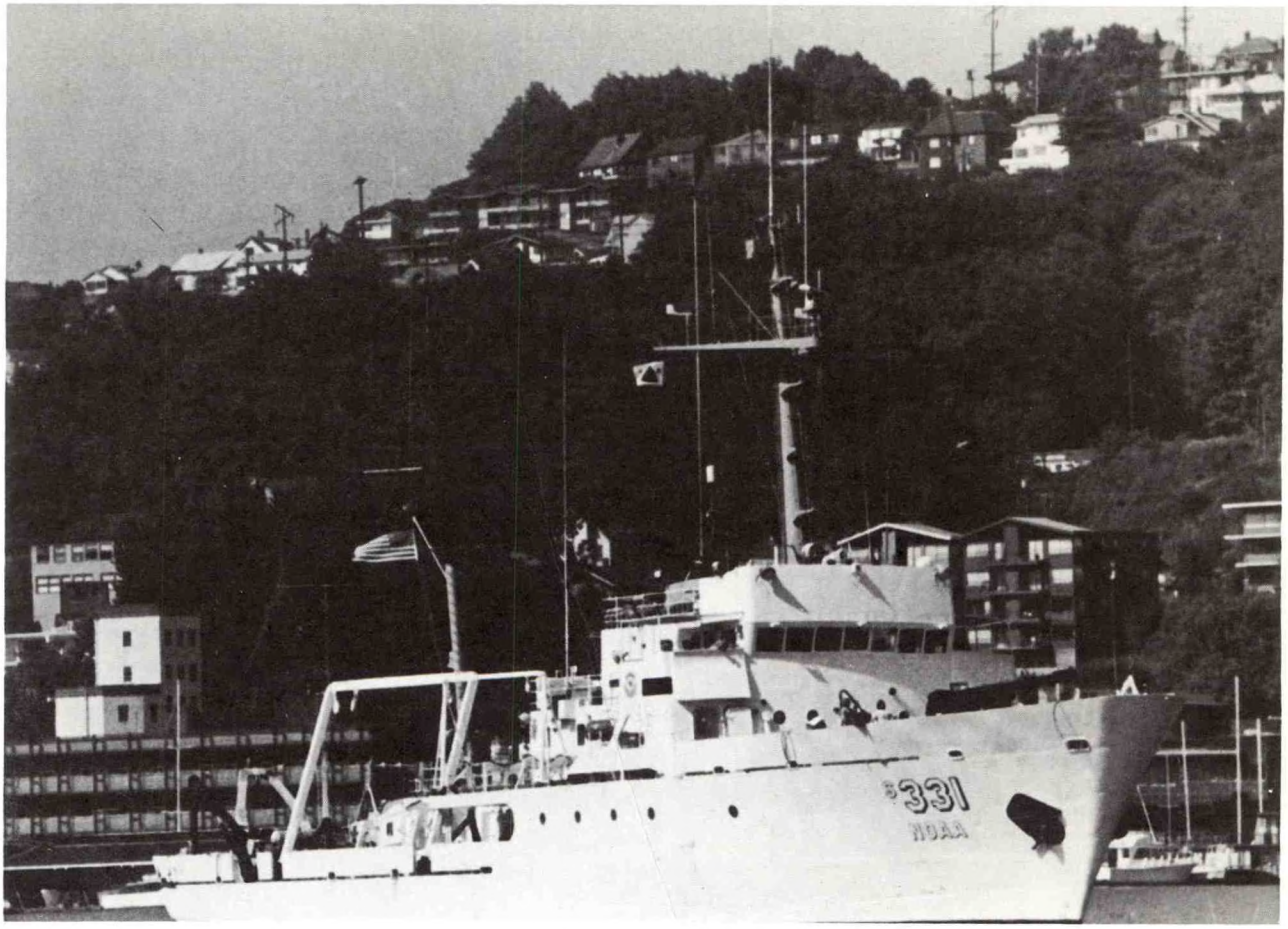
LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Aluminum workboat
Quantity: 1
Manufacturer: Monark
Length: 26 ft
Propulsion: Diesel

Utility Boats
Hull type: Aluminum skiff
Quantity: 1
Manufacturer: Alumacraft
Length: 12 ft
Propulsion: Gasoline outboard

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

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



DAVIDSON S331

LAUNCHED: May 1966
DELIVERED: February 1967
COMMISSIONED: March 1967

DESIGNER: Maritime Administration
BUILDER: Norfolk Shipbuilding and Drydock, Norfolk, Va.

SISTER SHIP(S): McArthur

CALL LETTERS: WTEK

HOME PORT: Seattle, Wash.

Complement:
COMMISSIONED OFFICERS: 8
LICENSED OFFICERS: 3
CREW: 29

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

LENGTH (LOA): 175.0 ft (53.3 m)
BREADTH (moulded): 38.0 ft (11.6 m)
DRAFT, MAXIMUM: 13.3 ft (4.1 m)

CRUISING SPEED: 12 kn
RANGE: 6,000 nmi
POWER: 1,600 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 59,000 gal
FUEL CONSUMPTION: 120 gal/h (normal cruising speed)
ENDURANCE: 17 d
ENDURANCE CONSTRAINT: Fuel

Operational Commitments:
The DAVIDSON is designed and outfitted for hydrographic surveys involving nautical charting. Scientific equipment normally 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 and in Alaska coastal waters.

HABITABILITY

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

Food-Service Seating Capacity
Wardroom mess: 8
Crew's mess: 22

MEDICAL FACILITIES

The ship has emergency and first-aid equipment administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Oceanographic lab: 150 ft²

DECK MACHINERY

Winches
Quantity: 1
Type: Oceanographic winch
Manufacturer: Northern Line
Drive: Electrohydraulic
Line speed: 400 ft/min
Maximum pull: 3,000 lb
Drum capacity:
12,000 ft of 0.292-in 6-conductor cable
30,000 ft of 3/16-in wire rope
6,000 ft of ⅜-in wire rope (interchangeable drums)

Cranes and Booms
Quantity: 1
Type: Telescoping boom
Manufacturer: Baldwin-UMA-Hamilton
Boom length: 32 ft
Lifting capacity: 10,000 lb
(boom extended) 2,800 lb
Location(s): Foredeck

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

A-Frames
Quantity: 1
Type: Movable
Clearance over side: 4 ft
Location(s): Stern

Ground Tackle
Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight: 2,000 lb

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

ELECTRONICS

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

Navigation
Radar
Gyrocompass
Loran
Precision positioning equipment

Acoustics
Deepwater echo sounder
Shallow-water echo sounders
Bathymetric swath survey system (M53)
Hydrographic survey sounders

Scientific Equipment
TDC system (shallow-water)
XBT system
Tides measurement system

Data Acquisition and Processing System
A shipboard computer system, the National Ocean Survey's Hydroplot System, is dedicated to the real-time acquisition and processing of hydrographic data. Each survey launch aboard ship has an identical Hydroplot

System. The Hydroplot System uses a PDP/8E computer with a 24K 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.

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
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/GE
Output voltage: 450 a.c.
Power rating: 220 kW

Emergency Generator
Quantity: 1
Manufacturer: Detroit Diesel/GE
Output voltage: 450 a.c.
Power rating: 60 kW

Electrical Service
450 Va.c. three phase
120 Va.c. single phase
Power isolation protection available for sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 6,000 gal
Normal consumption: 1,500 gal/d
Normal production: 1,500 gal/d
Maximum production: 2,500 gal/d

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

POLLUTION CONTROL

Sewage Waste Control
Type of treatment: Holding tank
Holding capacity: 5,000 gal

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Aluminum open boat
Quantity: 2
Manufacturer: Monark
Length: 17 ft
Propulsion: Gasoline outboard

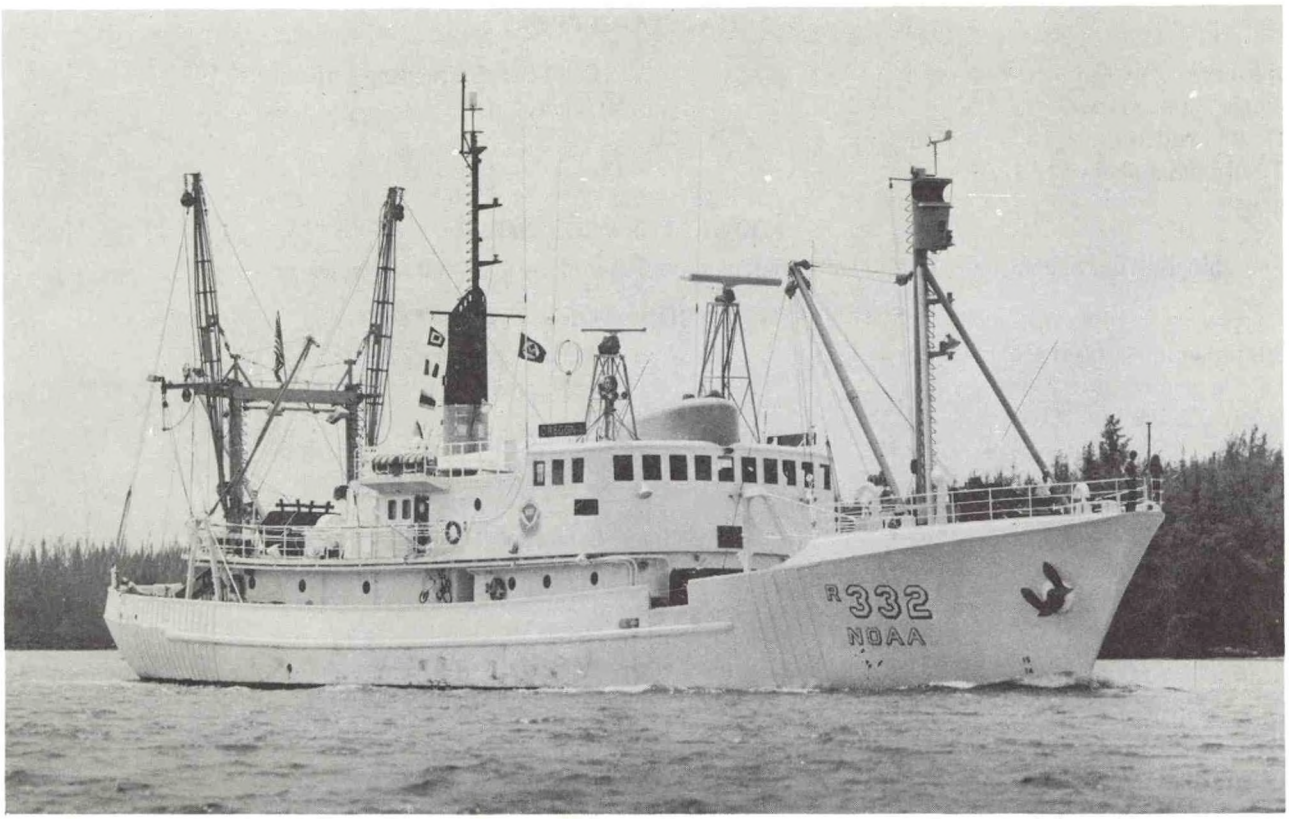
Hull type: Fiberglass motor whaleboat
Quantity: 1
Manufacturer: U.S. Navy
Length: 26 ft
Propulsion: Diesel

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

Survey Launches
Hull type: Type I aluminum
Quantity: 2
Manufacturer: The Boat Yard (Jensen)
Length: 29 ft
Propulsion: Diesel

SPECIAL FEATURES

A bathymetric swath survey system is installed aboard the DAVIDSON for evaluation and development purposes.



OREGON II R332

LAUNCHED: February 1967
DELIVERED: August 1967

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

CALL LETTERS: WTDO

HOME PORT: Pascagoula, Miss.

Complement:
LICENSED OFFICERS: 6
CREW: 10
SCIENTISTS: 15

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

LENGTH: (LOA): 170.0 ft (51.8 m)
BREADTH (moulded): 34.0 ft (10.4 m)
DRAFT, MAXIMUM: 14.0 ft (4.3 m)

CRUISING SPEED: 12 kn
RANGE: 9,500 nmi
POWER: 1,600 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 80,900 gal
FUEL CONSUMPTION: 85 gal/h (normal cruising speed)
ENDURANCE: 33 d
ENDURANCE CONSTRAINT: Fuel

Operational Commitments:
The OREGON II conducts fishery and living marine resources research. The ship normally operates off the U.S. Southeast Atlantic Coast, in the Gulf of Mexico, the Caribbean Sea, and South Atlantic Ocean.

HABITABILITY

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

Food-Service Seating Capacity
General mess: 12

MEDICAL FACILITIES

The ship has emergency and first-aid equipment administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Specimen lab: 100 ft^2
Live specimen lab: 75 ft^2
Hydrographic lab: 210^2
Wet laboratory: 275 ft^2
Instrumentation lab: 75 ft^2

DECK MACHINERY

Winches

Quantity: 1
Type: Trawl winch (former usage)
Manufacturer: Marco
Drive: Hydraulic
Line speed: 105 ft/min
Maximum pull: 42.000 lb
Drum capacity: 7,500 ft of ⅞-in wire rope

Quantity: 1
Type: Seine/trawl winch
Manufacturer: Marco
Drive: Hydraulic
Line speed: 68 ft/min
Maximum pull: 30,000 lb
Drum capacity: 1,200 ft. of 9/16-in. wire rope

Quantity: 1
Type: Hydrographic winch
Manufacturer: New England Trawler
Drive: Hydraulic
Line speed: 190 ft/min
Maximum pull: 3,700 lb
Drum capacity: 28,000 ft of ¼-in wire rope

Quantity: 1
Type: Bathythermograph winch
Manufacturer: Tsurumi-Seikiosaku-Sho
Drive: Electric
Line speed: 7 ft/min
Drum capacity: 1,000 ft of 3-mm wire

Cranes and Booms

Quantity: 1
Type: Fixed length boom
Boom length: 32 ft
Lifting capacity: 6,000 lb
Location(s): Well deck

Quantity: 1
Type: Fixed length boom
Boom length: 25 ft
Lifting capacity: 6,000 lb
Location(s): Aft

A-Frames

Quantity: 1
Type: Movable
Clearance over side: 6 ft
Location(s): Portside forward

Quantity: 1
Type: Fixed
Location(s): Starboard side forward

Ground Tackle

Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight: 2,275 lb

Anchor Chain(s)
Quantity: 2
Size and type: 1¼-in stud link chain
Length: 105 fm

ELECTRONICS

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

Navigation
Radar
Gyrocompass
Loran
RDF
Omega
Satnav

Acoustics
Shallow-water echo sounders
Netsonde
Vertical fish finder
Steerable sonar

Scientific Equipment
XBT system

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
Quantity: 2
Type: Diesel
Manufacturer: Fairbanks Morse
Rated power (each): 800 hp

Electrical System
Ship's Service Generators
Quantity: 2
Manufacturer: Fairbanks Morse
Output voltage: 450 a.c.
Power rating: 200 kW

Electrical Service
450Va.c. three phase
120 Va.c. single phase

Propeller(s)
Quantity: 1
Type: Controllable pitch
Blades: 4
Diameter: 7.5 ft
Manufacturer: Bird-Johnson

Emergency Generator
Quantity: 1
Manufacturer: Onan
Output voltage: 450 a.c.
Power rating: 12 kW

FRESHWATER SYSTEM

System Capacities
Storage capacity: 8,000 gal
Normal consumption: 1,000 gal/d
Normal production: 800 gal/d
Maximum production: 960 gal/d

Evaporators
Quantity: 2
Type: Exhaust waste heat generation
Manufacturer: American Machine and Foundry

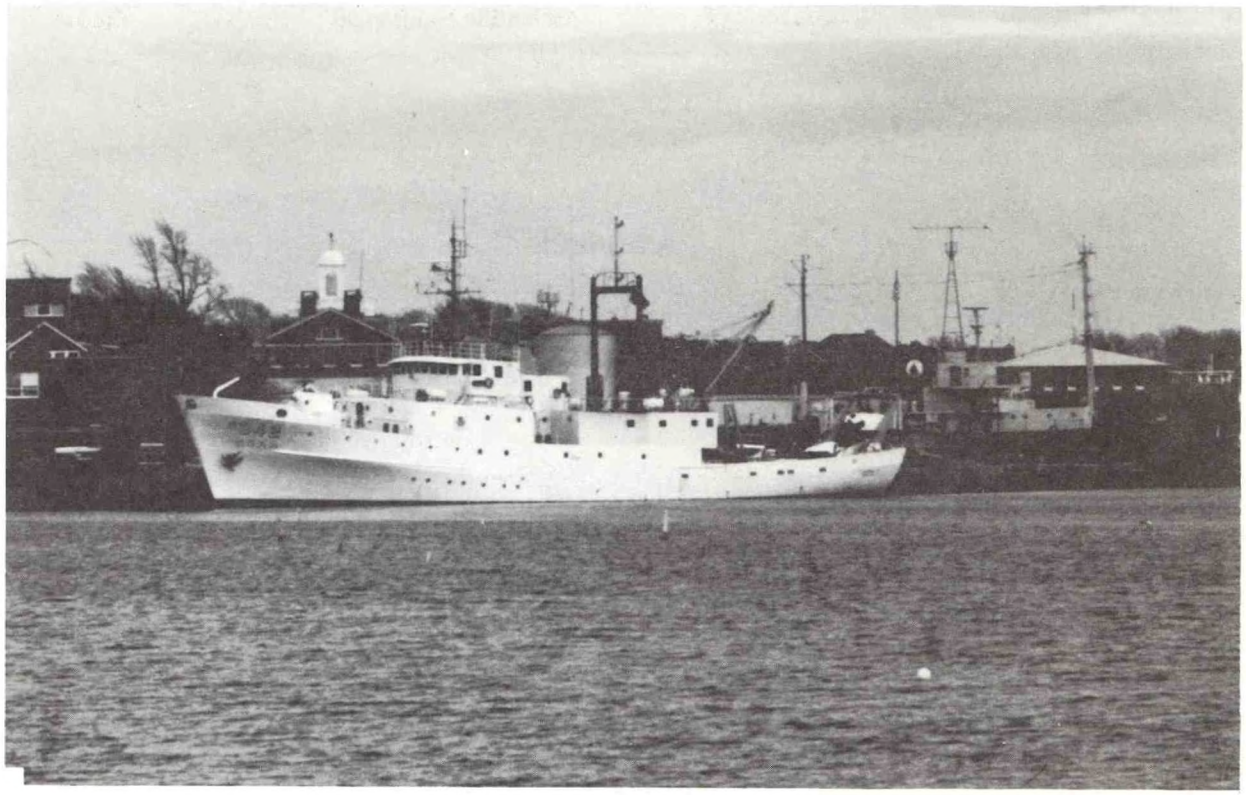
POLLUTION CONTROL

Sewage Waste Control
Type of treatment: Aerobic bacterial
Manufacturer: St. Louis Ship (FAST)
Holding capacity: 30 d

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Fiberglass open rescue
Quantity: 1
Manufacturer: Willard
Length: 18 ft
Propulsion: Diesel

Survey Launches
Hull type: Fiberglass open skift
Quantity: 1
Manufacturer: Sea Pip
Length: 12 ft
Propulsion: Gasoline outboard



ALBATROSS IV [R]342

LAUNCHED: April 1962
DELIVERED: November 1962
DEDICATED: May 1963

DESIGNER: Dwight S. Simpson Asso.
BUILDER: Southern Shipbuilding
Slidell, La.

CALL LETTERS: WMVF

HOME PORT: Woods Hole, Mass.

Complement:
LICENSED OFFICERS: 7
CREW: 15
SCIENTISTS: 15

HULL: Welded steel/ice strengthened
DISPLACEMENT: 1,089 tons
GROSS TONNAGE: 931
NET TONNAGE: 300

LENGTH (LOA): 187.0 ft (57.0 m)
BREADTH (moulded). 33.0 ft (10.0 m)
DRAFT, MAXIMUM: 16.2 ft (4.9 m)

CRUISING SPEED: 12 kn
RANGE: 4,300 nmi
POWER: 1,130 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 47,270
FUEL CONSUMPTION: 46 gal/h
(normal cruising speed)
ENDURANCE: 15 d
ENDURANCE CONSTRAINT: Stability
considerations

Operational Commitments:

The ALBATROSS IV conducts fishery and living marine resources research. The ship normally operates off the U.S. Northeast Atlantic Coast.

HABITABILITY

Berthing
Single staterooms: 9
Double staterooms: 7
Three-bunk rooms: 5
Total bunks aboard: 38

Food-Service Seating Capacity
Ship's officers' mess: 14
Crew's mess: 8

MEDICAL FACILITIES

The ship has emergency and first-aid equipment administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Dry oceanographic lab: 156 ft^2
Wet oceanographic lab: 125 ft^2
Photographic lab: 30 sq. ft
Biological lab: 350 ft^2
Plankton lab: 120 ft^2
Electronics lab: 412 ft^2

DECK MACHINERY

Winches
Quantity: 1
Type: Dredge winch
Manufacturer: New England Trawler
Drive: Electrohydraulic
Line speed: 220 ft/min
Maximum pull: 4,000 lb
Drum capacity: 3,900 ft of ⅝-in steel cable

Quantity: 1
Type: Trawl winch
Manufacturer: New England Trawler
Drive: Electric
Line speed: 215 ft/min
Maximum pull: 16,000 lb
Drum capacity: 6,000 ft of ⅞-in steel cable

Quantity: 1
Type: Hydrographic winch
Manufacturer: New England Trawler
Drive: Electric
Line speed: 250 ft/min
Maximum pull: 3,800 lb
Drum capacity: 20,000 ft of ¼-in wire rope

Quantity: 1
Type: Neuston winch
Manufacturer: New England Trawler
Drive: Electrohydraulic
Line speed: 200 ft/min
Maximum pull: 3,500 lb
Drum capacity: 6,000 ft of ⅜-in wire rope

Cranes and Booms
Quantity: 1
Type: Fixed length boom
Lifting Capacity: 2,000 lb
Location(s): Main deck aft

Quantity: 2
Type: Fixed length boom
Lifting capacity: 2,000 lb
Location(s): Port and starboard boat deck aft

A-Frames
Quantity: 1
Type: Movable
Location(s): Starboard amidships boat deck

Quantity: 1
Type: Movable
Location(s): Starboard boat deck

Quantity: 1
Type: Movable gantry
Location(s): Stern

Ground Tackle
Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight: 2,000 lb

Anchor Chain(s)
Quantity: 2
Size and type: 1½-in stud link chain
Length: 105 fm

ELECTRONICS

Communications
VHF/FM Transceivers
HF transceivers
Emergency radio auto alarm
Portable emergency transceiver
EPIRB's

Navigation
Radar
Gyrocompass
Loran
Satnav

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

Scientific Equipment
XBT system

Data Acquisition and Processing System:

The vessel is equipped with a Computer Automated Measurement and Control (CAMAC) interface system that integrates oceanographic and navigational data measured by shipboard sensors.

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
Quantity: 2
Type: Diesel
Manufacturer: Caterpillar
Rated power (each): 565 hp

Auxiliary Propulsion
Type: Through hull bow thruster
Manufacturer: Reliance
(drive train) Murrey & Tregurtha
Drive: Electric
Rated power: 125 hp

Propeller(s)
Quantity: 1
Type: Controllable pitch/Kort nozzle
Blades: 3
Diameter: 6 ft
Manufacturer: Liaaen

Electrical System
Ship's Service Generators
Quantity: 3
Manufacturer: Caterpillar
Output voltage: 450 a.c.
Power rating: 150 kW

Electrical Service
450 Va.c. three phase
120 Va.c. single phase
240 Vd.c.
120 Vd.c.

Emergency Generator
Quantity: 1
Output voltage: 240 d.c.
Power rating: 25 kW

FRESHWATER SYSTEM

System Capacities
Storage capacity: 21,770 gal
Normal consumption: 1,100 gal/d
Normal production: 800 gal/d
Maximum production: 1,920 gal/d

Evaporators
Quantity: 2
Type: Exhaust waste heat generated
Manufacturer: American Foundry

POLLUTION CONTROL

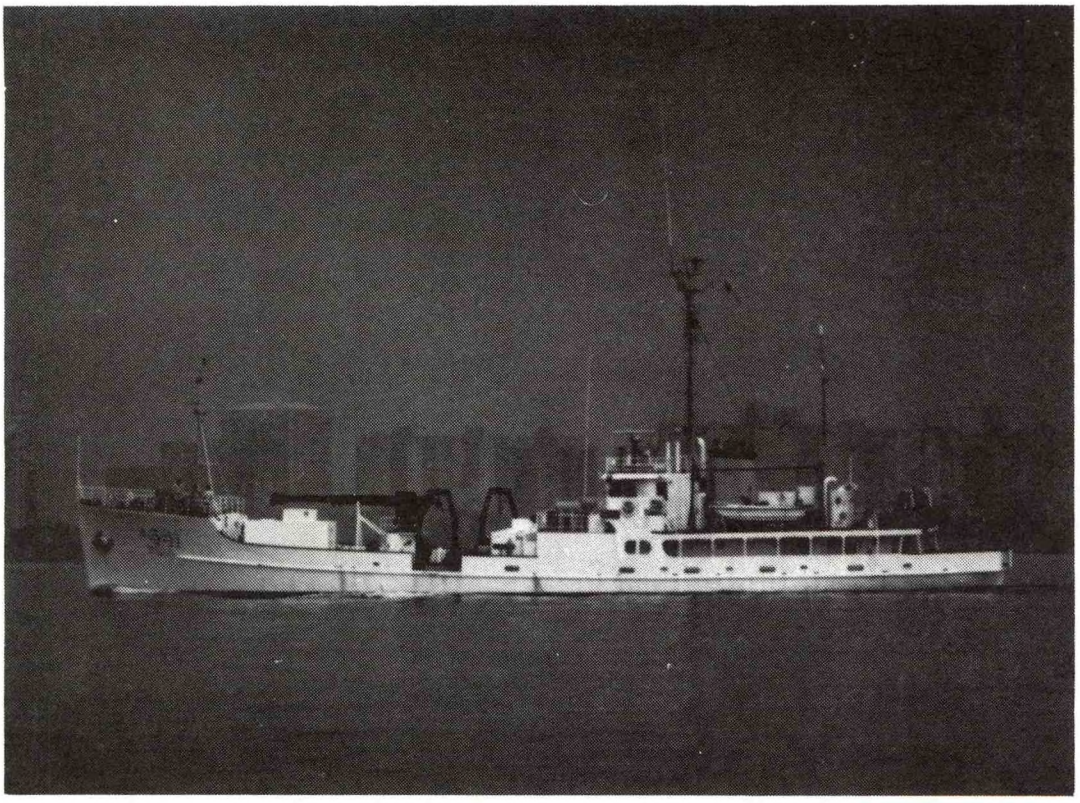
Sewage Waste Control
Type of treatment: Holding tank
Holding capacity: 1,000 gal

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull Type: Fiberglass open rescue
Quantity: 1
Manufacturer: Willard
Length: 18 ft
Propulsion: Diesel

SPECIAL FEATURE

Stern ramp



GEORGE B. KELEZ [R]441

LAUNCHED: 1944
DELIVERED: 1944 (Army)
COMMISSIONED: March 1975 (NOAA)
DEDICATED: 1964 (BCF)

DESIGNER: Sturgeon Bay Shipbuilding
BUILDER: Ingalls Shipyard
Decatur, Ala.

SISTER SHIP(S): Converted U.S. Army FS400 supply vessel

CALL LETTERS: KNBG

HOME PORT: Norfolk, Va.

Complement:
COMMISSIONED OFFICERS: 7
LICENSED OFFICERS: 3
CREW: 15
SCIENTISTS: 5

HULL: Welded steel
DISPLACEMENT: 936 tons
GROSS TONNAGE: 550
NET TONNAGE: 262

LENGTH (LOA): 176.5 ft (53.8 m)
BREADTH (moulded): 32.0 ft (9.8 m)
DRAFT, MAXIMUM: 12.5 ft (3.8 m)

CRUISING SPEED: 10.5 kn
RANGE: 3,800 nmi
POWER: 900 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 26,000 gal
FUEL CONSUMPTION: 60 gal/h
(normal cruising speed)
ENDURANCE: 15 d
ENDURANCE CONSTRAINT: Fuel

Operational Commitments:
The GEORGE B. KELEZ conducts coastal oceanographic and fishery research. The ship normally operates off the U.S. Atlantic Coast.

HABITABILITY

Berthing
Single staterooms: 4
Double staterooms: 12
Four-bunk rooms: 1
Total bunks aboard: 32

Food-Service Seating Capacity
General mess: 18

MEDICAL FACILITIES

The ship has emergency and first-aid equipment administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Oceanographic dry lab: 32 ft^2
Oceanographic wet lab: 80 ft^2

DECK MACHINERY

Winches
Quantity: 1
Type: Oceanographic winch
Manufacturer: Rowe
Drive: Hydraulic
Line speed: 300 ft/min
Maximum pull: 10,000 lb
Drum capacity: 20,000 ft of 7/16-in wire rope

Quantity: 1
Type: Hydrographic winch
Manufacturer: Hydrohoist
Drive: Hydraulic
Line speed: 33 ft/min
Maximum pull: 500 lb
Drum capacity: 2,000 ft of 3/16-in multiconductor cable

Quantity: 1
Type: Trawl winch
Manufacturer: Marco
Drive: Hydraulic
Line speed: 233 ft/min
Maximum pull: 10,000 lb
Drum capacity: 3,000 ft of 9/16-in wire rope

Quantity: 1
Type: BT winch
Drive: Hydraulic

Cranes and Booms
Quantity: 1
Type: Telescoping boom
Manufacturer: Austin-Western
Boom Length: 35 ft
Lifting capacity: 3,500 lb
(boom extended) 1,750 lb
Location(s): Well deck

A-Frames
Quantity: 2
Type: Movable
Clearance over side: 6 ft
Location(s): Well deck, port and starboard

Ground Tackle
Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight: 1,500 lb

Anchor Chain(s)
Quantity: 2
Size and type: 1-3/16-in stud link chain
Length: 105 fm

ELECTRONICS

Communications
VHF/FM transceivers
HF transceivers
Teletype capability
Portable emergency transceiver
EPIRB's

Navigation
Radar
Gyrocompass
Loran
Precision positioning equipment

Acoustics
Deepwater echo sounder
Shallow-water echo sounders

Scientific Equipment
XBT system
C/STD system
Rosette water sampling system

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
Quantity: 2
Type: Diesel
Manufacturer: General Motors
Rated power (each): 450 hp

Propeller(s)
Quantity: 2
Type: Fixed pitch
Blades: 3
Diameter: 6 ft

Electrical System
Ship's Service Generator
Quantity: 1
Manufacturer: Detroit Diesel/Delco
Output voltage: 225 a.c.
Power rating: 150 kW

Auxiliary Generator
Quantity: 1
Manufacturer: General Motors/Delco
Output voltage: 225 a.c.
Power rating: 60 kW

Electrical Service
225 Va.c. three phase
110 Va.c. single phase
230 Vd.c.
115 Vd.c.

Auxiliary Generators
Quantity 2:
Manufacturer: Cleveland/Allis Chalmers
Output voltage: 230 d.c.
Power ratings: 100 kW

Power isolation protection available for sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 24,000 gal
Normal consumption: 1,000 gal/d

POLLUTION CONTROL

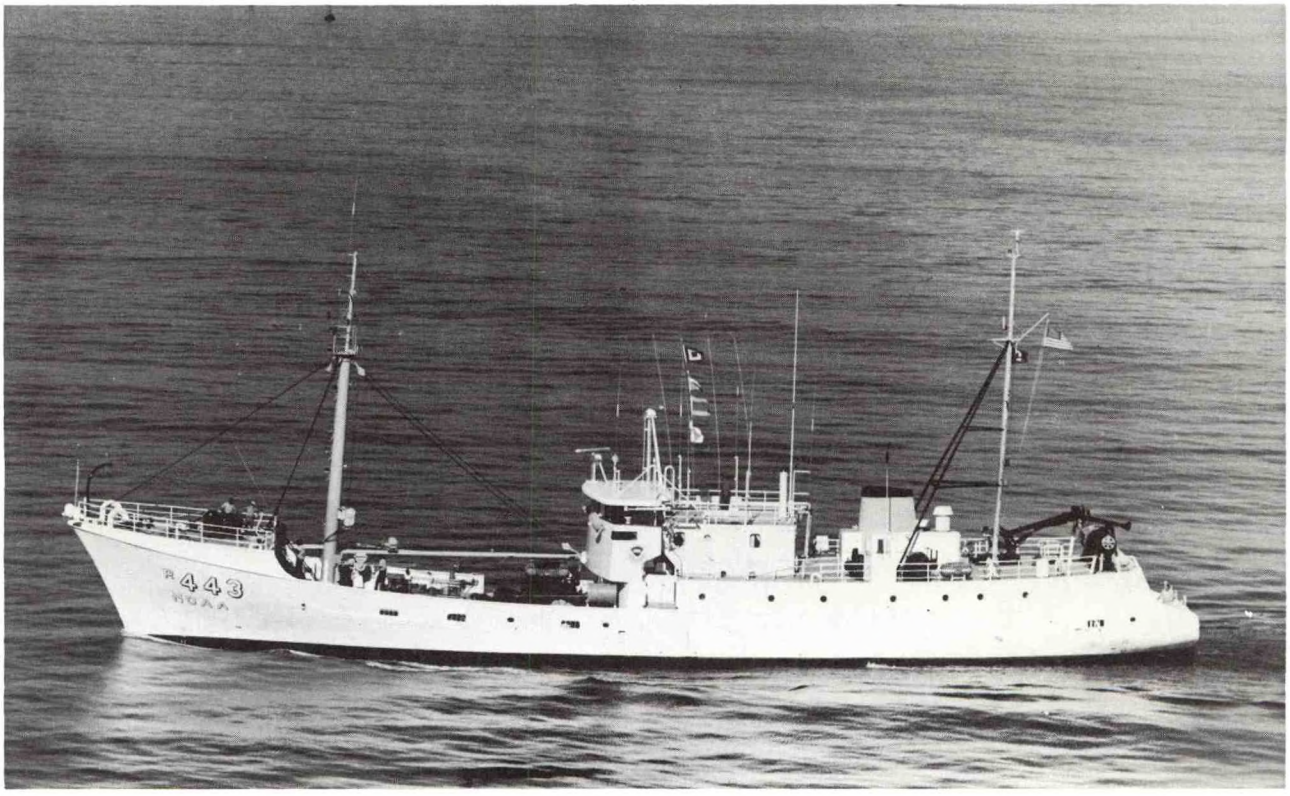
Sewage Waste Control
Type of treatment: Holding tank
Holding capacity: 3,000 gal

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull Type: Aluminum open boat
Quantity: 1
Manufacturer: Monark
Length: 19 ft
Propulsion: Gasoline outboard

SPECIAL FEATURES

Equipped to handle laboratory and dormitory portable vans.



TOWNSEND CROMWELL R443

LAUNCHED: July 1963
DELIVERED: November 1963
COMMISSIONED: June 1975 (NOAA)
DEDICATED: July 1963 (BCF)

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

CALL LETTERS: WTDF

HOME PORT: Honolulu, Hawaii

Complement:
COMMISSIONED OFFICERS: 4
LICENSED OFFICERS: 3
CREW: 10
SCIENTISTS: 9

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

LENGTH (LOA): 163.0 ft (49.7 m)
BREADTH (moulded): 33.0 ft (10.0 m)
DRAFT, MAXIMUM: 12.7 ft (3.9 m)

CRUISING SPEED: 11.5 kn
RANGE: 8,300 nmi
POWER: 800 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 42,000 gal
FUEL CONSUMPTION: 50 gal/h
(normal cruising speed)
ENDURANCE: 30 d
ENDURANCE CONSTRAINT: Fuel

Operational Commitments:
The TOWNSEND CROMWELL conducts fishery and living marine resources 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: 22

MEDICAL FACILITIES

The ship has emergency and first-aid equipment administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Oceanographic lab: 290 ft^2

DECK MACHINERY

Winches
Quantity: 1
Type: Net reel winch
Manufacturer: Wheeler
Drive: Electrohydraulic
Line speed: 350 ft/min
Maximum pull: 1,200 lb
Drum capacity: 30,000 ft of 5/32-in wire rope

Quantity: 2
Type: General purpose winches
Manufacturer: Rowe
Drive: Hydraulic
Drum capacity: 3,600 ft of 5/8-in wire rope

Quantity: 1
Type: Oceanographic winch
Manufacturer: Markey
Drive: Hydraulic
Line speed: 240 ft/min
Maximum pull: 2,750 lb
Drum capacity: 30,000 ft of 3/16-in wire rope

Cranes and Booms
Quantity: 1
Type: Fixed length boom
Boom length: 32 ft
Lifting capacity: 20,000 lb
Location(s): Well deck

Quantity: 1
Type: Articulated boom
Manufacturer: Husky Mariner
Boom length: 25 ft
Lifting capacity: 2,000 lb
Location(s): Starboard side aft

A-Frames
Quantity: 1
Type: Fixed gallows
Clearance over side: 2 ft
Location(s): Well deck, starboard side

Quantity: 1
Type: CTD boom
Clearance over side: 4 ft
Location(s): Well deck, starboard side

Ground Tackle
Bower Anchor(s)
Quantity: 1
Type: Stockless
Weight: 1,365 lb

Anchor Chain(s)
Quantity: 1
Size and type: 1⅛-in stud link chain
Length: 165 fm

ELECTRONICS

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

Navigation
Radar
Gyrocompass
Loran
Satnav
RDF
Omega

Acoustics
Deepwater echo sounder
Shallow-water echo sounders
Steerable sonar
Netsonde

Scientific Equipment
CSTD system
XBT system
Rosette water sampling system

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
Quantity: 2
Type: Diesel
Manufacturer: White-Superior
Rated power (each): 400 hp

Propeller(s)
Quantity: 2
Type: Controllable pitch
Blades: 3
Diameter: 5.5 ft
Manufacturer: Liaaen Shipbuilding

Electrical System

Ship's Service Generators
Quantity: 2
Manufacturer: Caterpillar
Output voltage: 450 a.c.
Power rating: 175 kW

Emergency Generator
Quantity: 1
Manufacturer: Onan
Output voltage: 120 a.c.
Power rating: 6 kW

Electrical Service
450 Va.c. three phase
225 Va.c. three phase
110 Va.c. single phase

Power isolation protection available for sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 13,000 gal
Normal consumption: 750 gal/d
Normal production: 750 gal/d
Maximum production: 1,800 gal/d

Evaporators
Quantity: 2
Type: Exhaust-waste-heat generated
Manufacturer: Triton

POLLUTION CONTROL

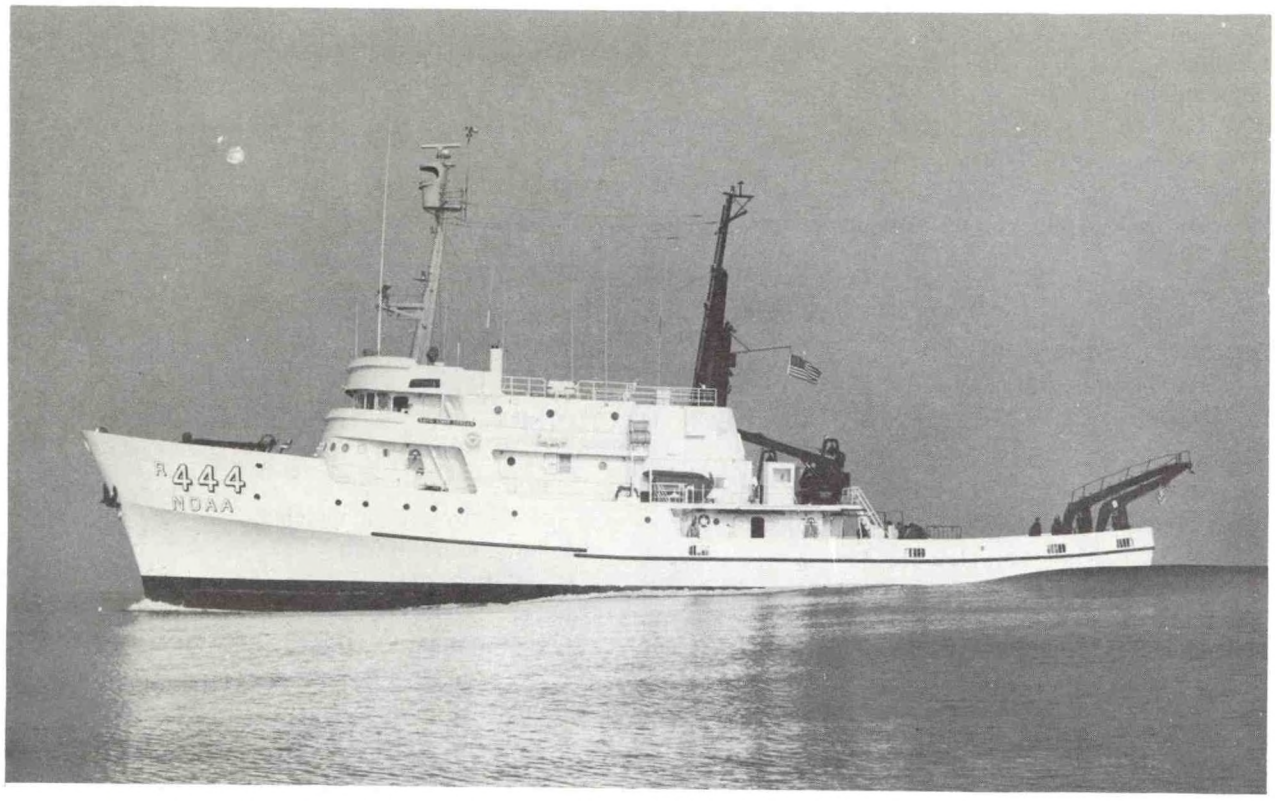
Sewage Waste Control
Type of treatment: Holding tank
Holding capacity: 200 gal

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Fiberglass open boat
Quantity: 1
Manufacturer: Boston Whaler
Length: 16 ft
Propulsion: Gasoline outboard

SPECIAL FEATURES

Bow underwater observation chamber



DAVID STARR JORDAN R444

LAUNCHED: December 1964
DELIVERED: October 1965
DEDICATED: January 1966

DESIGNER: Harco Engineering
BUILDER: Christy Corporation
Sturgeon Bay, Wis.

CALL LETTERS: WTDK

HOME PORT: San Diego, Calif.

Complement:
LICENSED OFFICERS: 6
CREW: 10
SCIENTISTS: 13

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

LENGTH (LOA): 171.0 ft (52.1 m)
BREADTH (moulded): 36.6 ft. (11.2 m)
DRAFT, MAXIMUM: 12.5 ft (3.8 m)
16.0 ft (4.8 m) (sonar dome down)

CRUISING SPEED: 11.5 kn
RANGE: 8,560 nmi
POWER: 1,068 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 56,865 gal
FUEL CONSUMPTION: 58 gal/h
(normal cruising speed)
ENDURANCE: 31 d
ENDURANCE CONSTRAINT: Fuel/ballast

Operational Commitments:
The DAVID STARR JORDAN conducts fishery and living marine resources research. The ship normally operates off the U.S. Pacific Coast and the Pacific Coasts of Central and South America.

HABITABILITY

Berthing
Single staterooms: 3
Double staterooms: 16
Total bunks aboard: 35

Food-Service Seating Capacity
General mess: 27

MEDICAL FACILITIES

The ship has emergency and first-aid equipment administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Chemical oceanography lab: 370 ft^2
Physical oceanography lab: 210 ft^2
Biological oceanography lab: 53 ft^2
Constant temperature room: 76 ft^2
Dark room: 40 ft^2

DECK MACHINERY

Winches
Quantity: 1
Type: Hydrographic winch
Manufacturer: Marco
Drive: Hydraulic
Line speed: 780 ft/min
Maximum pull: 1,600 lb
Drum capacity: 15,000 ft of 5/16-in wire rope
Quantity: 1
Type: Combination winch
Manufacturer: Marco
Drive: Hydraulic
Line speed: 160 ft/min
Maximum pull: 6,500 lb
Drum capacity: 6,080 ft of 3/8-in wire rope

Quantity: 1
Type: Hydrographic winch
Manufacturer: Marco
Drive: Hydraulic
Line speed: 780 ft/min
Maximum pull: 1,600 lb
Drum capacity: 30,000 ft of 3/16-in wire rope
Quantity: 2
Type: Trawl winches
Manufacturer: Marco
Drive: Hydraulic
Line speed: 200 ft/min
Maximum pull: 12,000 lb
Drum capacity: 8,830 ft of 5/8-in wire rope

Cranes and Booms
Quantity: 1
Type: Articulated telescoping boom
Manufacturer: Bucyrus Erie
Boom length: 47 ft
Lifting capacity: 10,000 lb
(boom extended) 2,500 lb
Location(s): Foredeck

Quantity: 1
Type: Articulated boom
Manufacturer: Husky Marine
Boom length: 18 ft
Lifting capacity: 4,650 lb
(boom extended) 1,800 lb
Location(s): Centerline aft

A-Frames
Quantity: 1
Type: Movable
Clearance over stern: 8 ft
Location(s): Stern

Ground Tackle
Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight: 1,940 lb

Anchor Chain(s)
Quantity: 2
Size and type: 1-3/16-in stud link chain
Length: 105 fm

ELECTRONICS

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

Navigation
Radar
Gyrocompass
Loran
Satnav
RDF
Omega

Acoustics
Deepwater echo sounder
Shallow-water echo sounders
Steerable sonar
Vertical fish finder

Scientific Equipment
CSTD system
XBT system
CAMAC system

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
Quantity: 2
Type: Diesel
Manufacturer: White Superior
Rated power (each): 543 hp

Auxiliary Propulsion
Type: Lowerable bow thruster
Manufacturer: Schottle
Drive: Electric
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 a.c.
Power rating: 200 kW

Emergency Generator
Quantity: 1
Manufacturer: General Motors/Delco
Output voltage: 450 a.c.
Power rating: 30 kW

Electrical Service
450 Va.c. three phase
225 Va.c. three phase
110 Va.c. three phase
20 kW or regulated power available for frequency sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 8,000 gal
Normal consumption: 1,000 gal/d
Normal production: 2,280 gal/d

Evaporators
Quantity: 2
Type: Exhaust-waste-heat generated
Manufacturer: Cuno Engineering

POLLUTION CONTROL

Sewage Waste Control
Type of treatment: Aerobic bacterial
Manufacturer: Hamworthy
Holding capacity: 30 d

Oily Waste Control
Type of treatment: Separator
Manufacturer: Harco

LAUNCHES AND SMALL BOATS

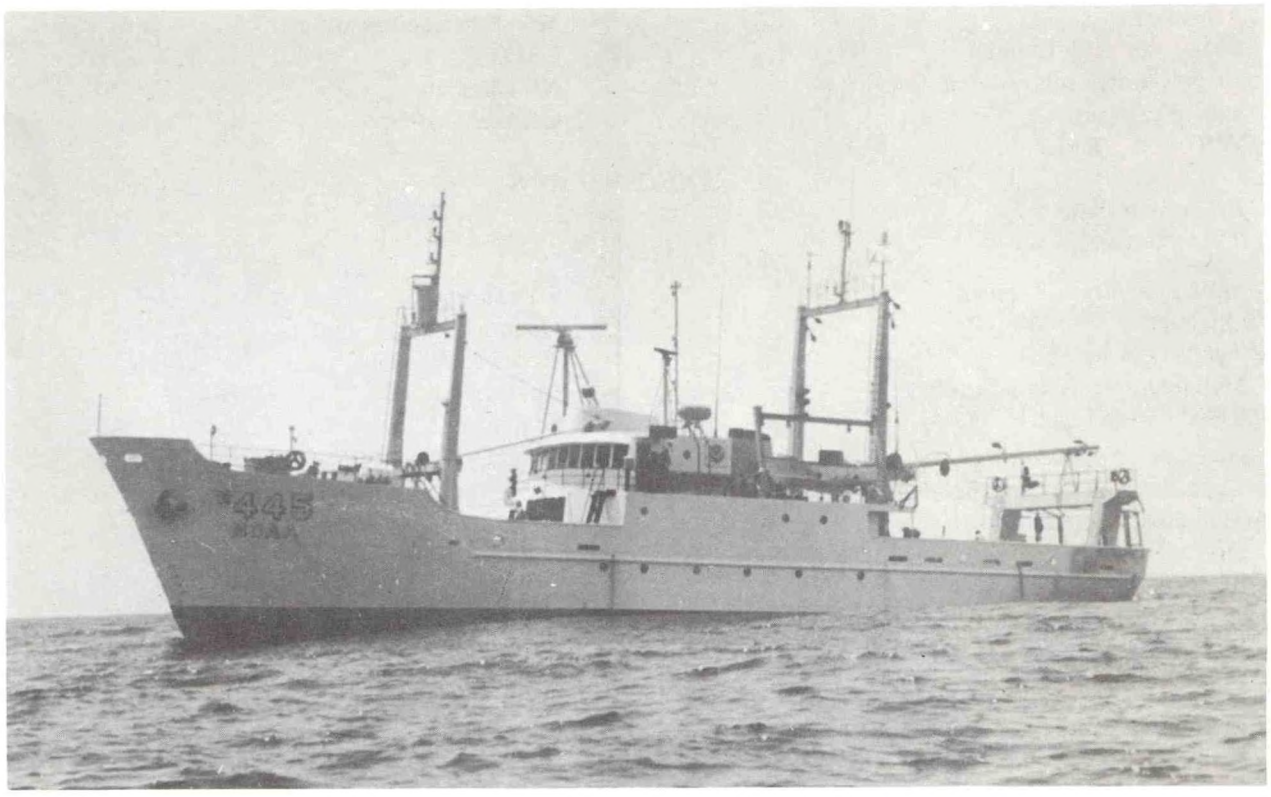
Utility/Rescue Boats
Hull type: Fiberglass rescue boat
Quantity: 1
Manufacturer: Willard Co.
Length: 18 ft
Propulsion: Diesel

Hull type: Fiberglass open boat
Quantity: 1
Manufacturer: Boston Whaler
Length: 12 ft
Propulsion: Gasoline outboard

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

SPECIAL FEATURES

Bow underwater observation chamber



DELAWARE II R445

LAUNCHED: December 1967
DELIVERED: October 1968

DESIGNER: George C. Sharp, Inc.
BUILDER: South Portland Engineering
South Portland, Maine

CALL LETTERS: KNBD

HOME PORT: Woods Hole, Ma.

Complement:
LICENSED OFFICERS: 6
CREW: 9
SCIENTISTS: 9

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

LENGTH (LOA): 155.0 ft (47.2 m)
BREADTH (moulded): 30.1 ft (9.2 m)
DRAFT, MAXIMUM: 14.7 ft (4.5 m)

CRUISING SPEED: 11.5 kn
RANGE: 6,600 nmi
POWER: 1,230 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 41,900 gal
FUEL CONSUMPTION: 60 gal/h
(normal cruising speed)
ENDURANCE: 24 d
ENDURANCE CONSTRAINT: Fuel

Operational Commitments:
The DELAWARE II conducts fishery and living marine resources 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: 18

MEDICAL FACILITIES

The ship has emergency and first-aid equipment administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Oceanographic labs: (two) 650 ft²

DECK MACHINERY

Winches
Quantity: 1
Type: Oceanographic winch
Manufacturer: Hathaway Machinery
Drive: Hydraulic
Maximum pull: 4,000 lb

Quantity: 1
Type: BT winch
Manufacturer: American Chain & Cable
Drive: Electric
Line speed: 200 ft/min
Maximum pull: 400 lb
Drum capacity: 3,000 ft of 3/32-in wire rope

Quantity: 1
Type: Trawl winches
Manufacturer: Marine Engines Specialties
Drive: Hydraulic
Line speed: 119 ft/min
Maximum pull: 20,000 lb
Drum capacity: 12,000 ft. of ¾-in wire rope

Quantity: 1
Type: Constant tension winch
Manufacturer: Control Data, Canada Ltd.
Drive: Hydraulic
Line speed: 320 ft/min
Maximum pull: 400 lb
Drum capacity: 1,000 ft of ½-in wire rope

Cranes and Booms
Quantity: 1
Type: Fixed length boom
Boom length: 45 ft
Lifting capacity: 10,000 lb
Location(s): Centerline forward

Quantity: 1
Type: Fixed length boom
Boom length: 23 ft
Lifting capacity: 2,000 lb
Location(s): Centerline aft

A-Frames
Quantity: 1
Type: Gallows frame
Location(s): Stern

Quantity: 1
Type: Movable A-frame
Clearance over side: 4 ft
Location(s): Starboard side forward

Ground Tackle
Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight: 1,140 lb

Anchor Chain(s)
Quantity: 1
Size and type: 1-1/16-in stud link chain
Length: 135 fm

ELECTRONICS

Communications
VHF/FM transceivers
HF transceivers
Portable emergency transceiver
EPIRB's
Emergency radio auto alarm

Navigation
Radar
Gyrocompass
Loran

Acoustics
Shallow-water echo sounders
Steerable sonar
Fish finder
Doppler speed log

Scientific Equipment
XBT system

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
Quantity: 1
Type: Diesel
Manufacturer: General Motors
Rated power (each): 1,230 hp

Propeller
Quantity: 1
Type: Fixed pitch
Blades: 4
Diameter: 8 ft

Electrical System
Ship's Service Generators
Quantity: 2
Manufacturer: General Motors/Delco
Output voltage: 440 a.c.
Power rating: 150 kW

Emergency Generator
Quantity: 1
Manufacturer: Hercules/Cato
Output voltage: 440 a.c.
Power rating: 10 kW

Electrical Service
440 Va.c. three phase
220 Va.c. three phase
110 Va.c. three phase
Power isolation protection available for sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 7,300 gal
Normal consumption: 600 gal/d
Normal production: 1,800 gal/d
Maximum production: 2,400 gal/d

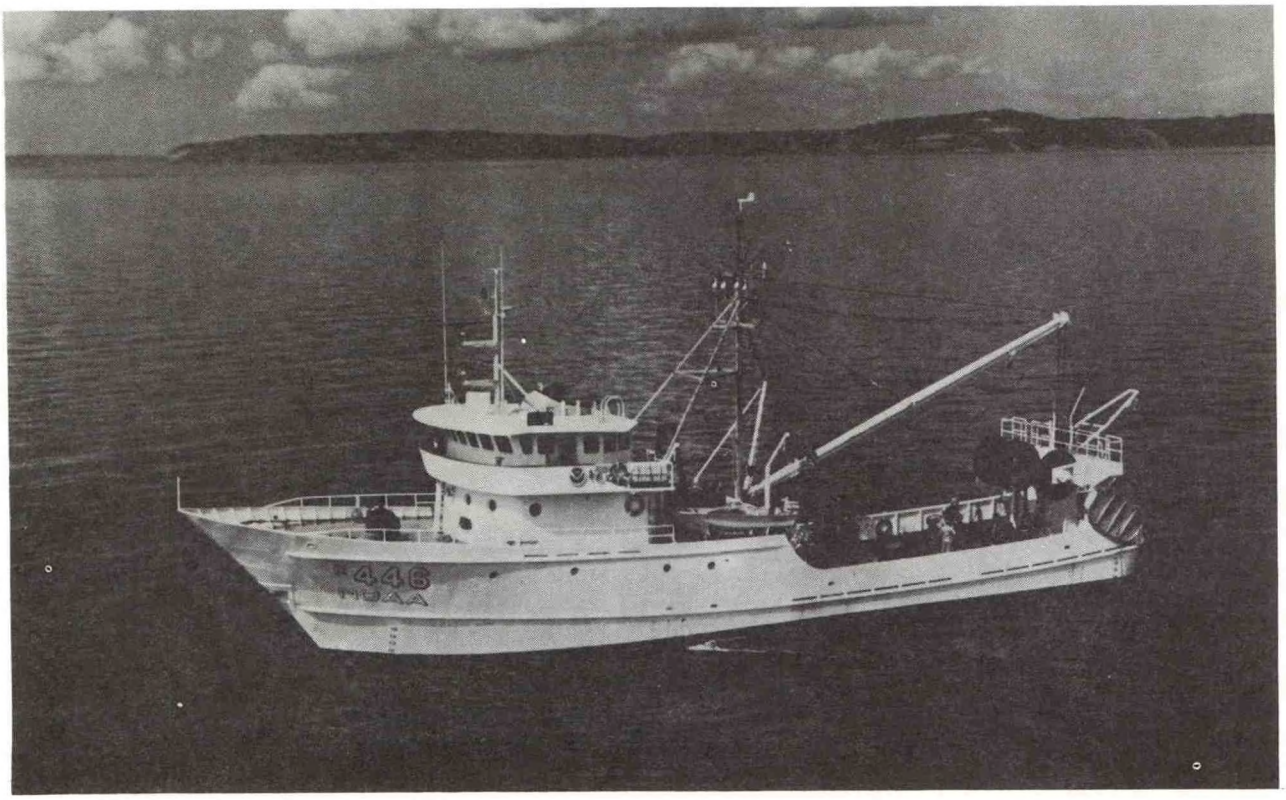
Evaporators
Quantity: 1
Type: Steam-heat generated
Manufacturer: Maxim Aquafresh

POLLUTION CONTROL

Sewage Waste Control
Type of treatment: Aerobic bacterial
Manufacturer: St. Louis Shipbuilding
Holding capacity: 30 days

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Fiberglass rescue boat
Quantity: 1
Manufacturer: Willard
Length: 18 ft
Propulsion: Diesel



CHAPMAN R446

LAUNCHED: December 1979
DELIVERED: May 1980
COMMISSIONED: July 1980

DESIGNER: Bender Shipbuilding and Repair Co., Inc.
BUILDER: Bender Shipbuilding and Repair Co., Inc.

CALL LETTERS: WTDL

HOME PORT: Seattle, Wash.

Complement:
COMMISSIONED OFFICERS: 3
LICENSED OFFICERS: 1
CREW: 7
SCIENTISTS: 6

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

LENGTH (LOA): 127.0 ft (38.7 m)
BREADTH (moulded): 29.6 ft (9.1 m)
DRAFT, MAXIMUM: 14.0 ft (4.3 m)

CRUISING SPEED: 11 kn
RANGE: 6,000 nmi
POWER: 1,250 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 40,000 gal
FUEL CONSUMPTION: 900 gal/d
(normal cruising speed)
ENDURANCE CONSTRAINT: Water

Operational Commitments:
This vessel conducts fishery and living marine resources research. The ship normally operates in the Pacific Northwest and Alaska coastal waters.

HABITABILITY

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

Food-Service Seating Capacity
General mess: 13

MEDICAL FACILITIES

The ship has emergency and first-aid equipment administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Dry laboratory: 163 ft²
Fish processing laboratory: 202 ft²

DECK MACHINERY

Winches
Quantity: 2
Type: trawl winches
Manufacturer: Marco
Drive: Hydraulic
Line speed: 40 ft/min
Maximum pull: 20,000 lb
Drum capacity: 1,000 ft of ¾ in cable
Quantity: 1
Type: CTD winch
Manufacturer: Northern Line
Drive: Hydraulic
Line speed: 410 ft/min
Maximum pull: 2,562 lb
Drum capacity: 6,000 m

Quantity: 1
Type: Net sonde winch
Manufacturer: Svendberg
Drive: Hydraulic
Line speed: Variable
Maximum pull: Variable tension
Drum capacity: 1,500 m
Marco King-hauler: Pot hauler
Marco King-coiler: Line coiler

Cranes and Booms
Quantity: 1
Type: Fixed length boom
Boom length: 40 ft
Lifting capacity:
Location(s): Amidships

A-Frames
Quantity: 1
Type: Movable
Clearance over side: 5 ft
Location(s): Starboard

Ground Tackle
Bower Anchor(s)
Quantity: 2
Type: Danforth, Navy Stockless
Weight (each): 1,000 lb

Anchor Chain(s)
Quantity: 1
Size and type: 1-in stud link chain; 1-in wire rope
Length (each): 30 fm; 100 fm wire rope

Electronics
Communications
VHF/FM transceivers
HF transceivers
Portable emergency transceiver
EPIRB's
Emergency radio auto alarm

Navigation
Radar
Gyrocompass
Loran
Satnav

Acoustics
Sonar
Shallow-water echo sounders
Fish finder
Net sonde
Doppler speed log

Scientific Equipment
CTD system
XBT system

Data Acquisition and Processing System:

The vessel is equipped with a Computer Automated Measurement and Control (CAMAC) interface system that integrates oceanographic and navigational data measured by shipboard sensors.

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
Quantity: 1
Type: D 399
Manufacturer: Caterpillar
Rated power (each): 1,250 hp

Auxiliary Propulsion
Type: Waterjet bow thruster
Manufacturer: Omnithruster
Drive: Electric
Rated power: 150 hp

Propeller(s)
Quantity: 1
Type: Controllable pitch
Blades: 4
Diameter: 1,900 mm

Electrical System

Ship's Service Generators
Quantity: 2
Manufacturer: Caterpillar
Output voltage: 440 a.c
Power rating: 210 kw

Electrical Service
440 Va.c. three phase
210 Va.c. single phase
120 Va.c. single phase

Emergency Generator
Quantity: 1
Manufacturer: Lister
Output voltage: 440 a.c.
Power rating: 17.5 kW

FRESHWATER SYSTEM

System Capacities
Storage capacity: 4,700 gal
Normal consumption: 600 gal/d
Normal production: 450 gal/d
Maximum production: 700 gal

Evaporators
Quantity:1
Type: Exhaust waste-heat-generated
Manufacturer: Riley Beaird

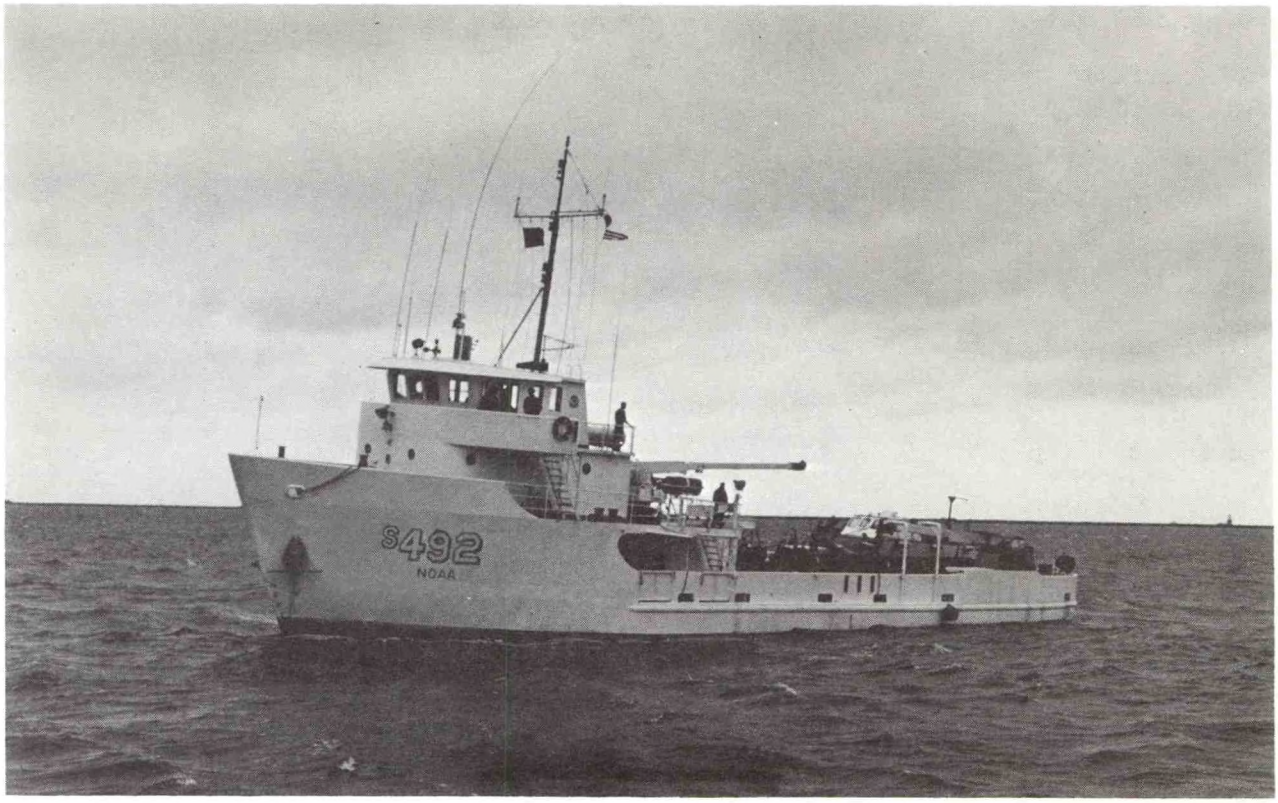
POLLUTION CONTROL

Sewage Waste Control
Type of treatment: Aerobic bacterial
Manufacturer: Red Fox 750 M
Holding capacity:

Oily Waste Control
Slop tank
Holding capacity:

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Fiberglass open boat
Quantity: 1
Manufacturer: Boston Whaler
Length: 16 ft
Propulsion: Gasoline outboard



FERREL S492

LAUNCHED: April 1968
DELIVERED: May 1968
COMMISSIONED: June 1968

DESIGNER: Zigler Shipyards, Inc.
BUILDER: Zigler Shipyards, Inc., Jennings, La.

CALL LETTERS: WTEZ

HOME PORT: Norfolk, Va.

Complement:
COMMISSIONED OFFICERS: 5
LICENSED OFFICERS: 2
CREW: 12

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

LENGTH (LOA): 133 ft (40.5 m)
BREADTH (moulded): 32 ft (9.8 m)
DRAFT, MAXIMUM: 8.0 ft (2.5 m)

CRUISING SPEED: 10 kn
RANGE: 2,200 nmi
POWER: 750 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 14,600 gal
FUEL CONSUMPTION: 47 gal/h
(normal cruising speed)
ENDURANCE: 9 d
ENDURANCE CONSTRAINT: Water

Operational Commitments:

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

HABITABILITY

Berthing
Double staterooms: 10
Total bunks aboard: 20

Food-Service Seating Capacity
General mess: 23

MEDICAL FACILITIES

The ship has emergency and first-aid equipment administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Wet oceanographic lab: 40 ft²
Electronics workshop: 500 ft²

DECK MACHINERY

Winches
Quantity: 1
Type: Oceanographic winch
Manufacturer: Beebe Brothers Inc.
Drive: Electric
Line speed: 60 ft/min
Maximum pull: 6,000 lb
Drum capacity: 500 ft of 5/16-in wire rope

Quantity: 2
Type: Utility winch
Manufacturer: U.S. Synchrogear
Drive: Electric
Line speed: 96 ft/min
Maximum pull: 400 lb

Quantity: 1
Type: CTD winch
Manufacturer: Plessey
Drive: Electric
Line speed: 50 ft/min
Maximum pull: 400 lb
Drum capacity: 2,100 ft of 0.1-in conductor cable

Quantity: 1
Type: BT winch
Manufacturer: ACCD Equipment
Drive: Electric
Line speed: 60 ft/min
Maximum pull: 35 lb
Drum capacity: 500 ft of 5/16-in wire rope

Cranes and Booms
Quantity: 1
Type: Telescoping boom
Manufacturer: Austin Western
Boom length: 35 ft
Lifting capacity: 4,500 lb
(boom extended) 1,050 lb
Location(s): Amidships

Quantity: 1
Type: Articulated boom
Manufacturer: Appleton
Boom length: 40 ft
Lifting capacity: 12,000 lb
(boom extended) 2,000 lb
Location(s): Portside aft

Ground Tackle
Bower Anchor(s)
Quantity: 2
Type: Danforth
Weight: 800 lb

Anchor Chain(s)
Quantity: 2
Size and type: ¾-in stud link chain
Length: 60 fm

ELECTRONICS

Communications
VHF/FM transceivers
HF transceivers
Portable emergency transceiver
EPIRB's
Emergency radio auto alarm

Navigation
Radar
Gyrocompass
Loran
Precision positioning equipment

Acoustics
Shallow-water echo sounders

Scientific Equipment
CTD system (shallow-water)
Current measurement system

Tide gages

Data Acquisition and Processing System
The FERREL is equipped with a PDP 11/34 computer with a 128K memory and a CAMAC interface system which are used for processing and analyzing current measurement data.

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
Quantity: 2
Type: Diesel
Manufacturer: Caterpillar
Rated power (each): 375 hp

Propeller(s)
Quantity: 2
Type: Fixed pitch
Blades: 4
Diameter: 5 ft

Auxiliary Propulsion
Type: Through hull bow thruster
Manufacturer: General Electric
Drive: Electric
Rated power: 100 hp

Electrical System
Ship's Service Generators
Quantity: 2
Manufacturer: Caterpillar
Output voltage: 440 a.c.
Power rating: 150 kW

Electrical Service
440 Va.c. three phase
220 Va.c. three phase
110 Va.c. three phase

Power isolation protection available for sensitive equipment.

FRESHWATER SYSTEM

System Capacities
Storage capacity: 9,000 gal
Normal consumption: 850 gal/d

POLLUTION CONTROL

Sewage Waste Control
Type of treatment: Aerobic bacterial
Manufacturer: St. Louis Shipbuilding
Holding capacity: 30 d

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Aluminum Workboat
Quantity: 1
Manufacturer: Lafco
Length: 28 ft
Propulsion: Diesel

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

Hull type: Fiberglass open boat
Quantity: 1
Manufacturer: Mako Marine
Length: 17 ft
Propulsion: Gasoline outboard

JOHN N. COBB R552

LAUNCHED: January 1950
DELIVERED: February 1950
DEDICATED: February 1950

DESIGNER: W. C. Nickum & Sons
BUILDER: Western Boatbuilding Co., Tacoma, Wash.

CALL LETTERS: WMVC

HOME PORT: Seattle, Wash.

Complement:
LICENSED OFFICERS: 4
CREW: 4
SCIENTISTS: 4

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

LENGTH (LOA): 93.0 ft (28.3 m)
BREADTH (moulded): 26.0 ft (7.9 m)
DRAFT, MAXIMUM: 11.0 ft (3.3 m)

CRUISING SPEED: 9.3 kn
RANGE: 2,900 nmi
POWER: 325 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 7,800 gal
FUEL CONSUMPTION: 22 gal/h (normal cruising speed)
ENDURANCE: 13 d
ENDURANCE CONSTRAINT: Fuel

Operational Commitments:

The JOHN N. COBB conducts fishery and living marine resources research. The vessel 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

The vessel has first-aid and emergency equipment administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

General lab: 150 ft²

DECK MACHINERY

Winches
Quantity: 1
Type: Trawl winch (double drum)
Manufacturer: Rowe
Drive: Hydraulic
Maximum pull: 14,000 lb
Drum capacity:
4,800 ft of 9/16-in wire rope
7,200 ft. of ½-in wire rope

Quantity: 1
Type: Net reel winch
Drive: Hydraulic

Quantity: 1
Type: Oceanographic winch
Drum capacity: 6,000 ft of 3/16-in wire rope

Cranes and Booms
Quantity: 1
Type: Fixed length boom
Boom length: 30 ft
Lifting capacity: 6,000 lb
Location(s): Aft

Ground Tackle
Bower Anchor(s)
Quantity: 2
Type: Stockless

Anchor Chain(s)
Quantity: 1
Size and type: ¾-in cast iron chain; ⅞-in steel cable
Length: 165 fm chain; 125 fm cable

ELECTRONICS

Communications
VHF/FM transceivers
HF transceivers
Portable emergency transceiver
EPIRB's
Emergency radio auto alarm

Navigation
Radar
Loran

Acoustics
Shallow-water echo sounders
Fish finder

Scientific Equipment
XBT system

ENGINEERING

Propulsion Plant
Type: Geared diesel

Main Propulsion Engines
Quantity: 1
Type: Diesel
Manufacturer: Fairbanks Morse
Rated power (each): 325 hp

Propeller
Type: Fixed pitch
Blades: 3
Diameter: 5 ft

Electrical System
Ship's Service Generators
Quantity: 2
Manufacturer: General Motors/Elec. Mach.
Output voltage: 240 a.c.
Power rating: 30 kW

Electrical Service
240 Va.c. three phase
110 Va.c. single phase
220 Va.c. single phase (isolated)

FRESHWATER SYSTEM

System Capacities
Storage capacity: 6,000 gal
Normal consumption: 500 gal/d

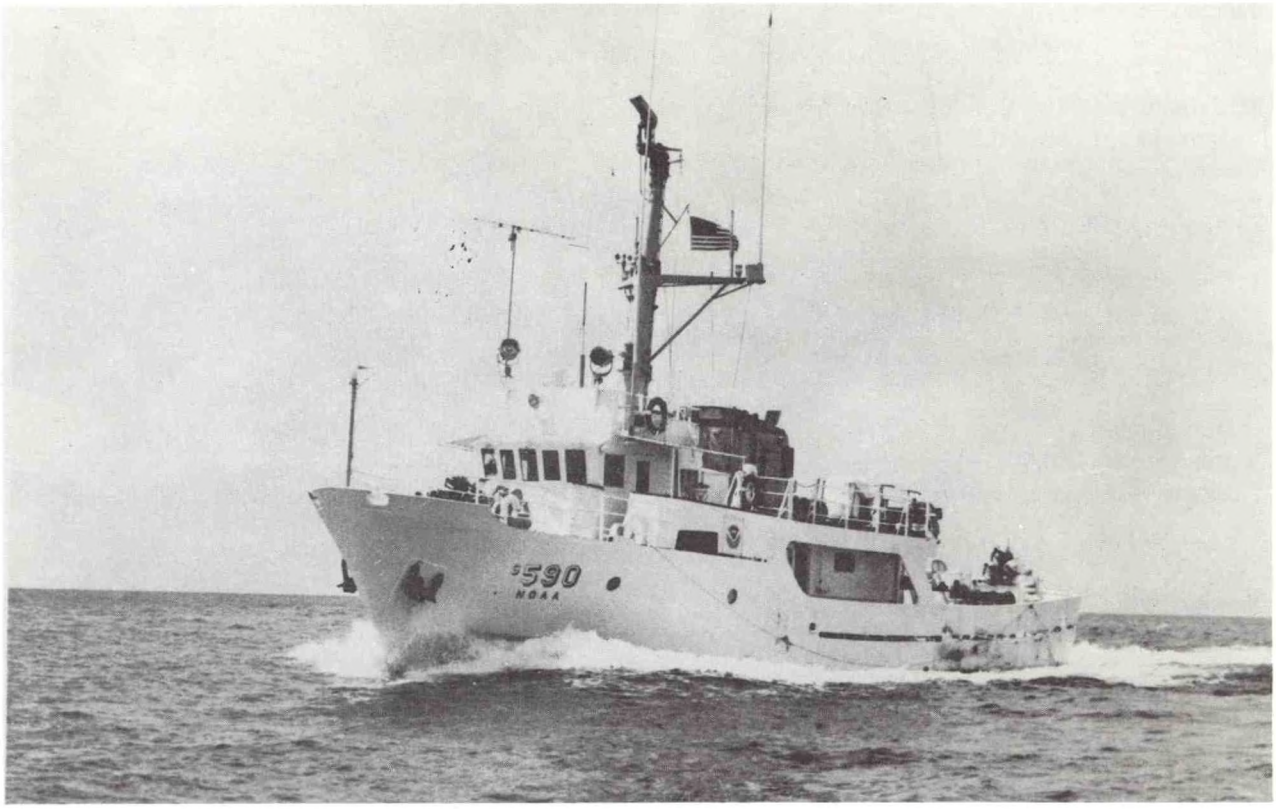
POLLUTION CONTROL

Sewage Waste Control
Holding capacity: 2,200 gal

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Fiberglass open boat
Quantity: 1
Manufacturer: Boston Whaler
Length: 13 ft
Propulsion: Gasoline outboard

Hull type: Wooden open boat
Quantity: 1
Manufacturer: Fairliner
Length: 18 ft
Propulsion: Gasoline inboard



RUDE S590

LAUNCHED: August 1966
DELIVERED: December 1966
COMMISSIONED: March 1967

DESIGNER: Maritime Administration
BUILDER: Jakobson Shipyard, Oyster Bay, N.Y.

SISTER SHIPS(S): HECK

CALL LETTERS: WTET

HOME PORT: Norfolk, Va.

Complement:
COMMISSIONED OFFICERS: 3
LICENSED OFFICERS: 1
CREW: 7

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

LENGTH (LOA): 90.0 ft (27.4 m)
BREADTH (moulded): 22.0 ft (6.7 m)
DRAFT, MAXIMUM: 7.2 ft (2.2 m)

CRUISING SPEED: 10 kn
RANGE: 800 nmi
POWER: 800 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 3,900 gal
FUEL CONSUMPTION: 42 gal/h
(normal cruising speed)
ENDURANCE: 3 d
ENDURANCE CONSTRAINT: Fuel

Operational Commitments:
The RUDE operates with her sister ship, the HECK, in making wire drag surveys and was built and outfitted for such operations. The vessels normally operate off the U.S. Atlantic and Gulf coasts.

HABITABILITY

Berthing
Double staterooms: 5
Total bunks aboard: 10

Food-Service Seating Capacity
General mess: 8

MEDICAL FACILITIES

The ship has emergency and first-aid equipment administered by designated vessel personnel.

DECK MACHINERY

Winches
Quantity: 1
Type: Wire drag winch
Manufacturer: New England Trawler
Drive: Hydraulic
Line speed: 130 ft/min
Maximum pull: 2,800 lb
Drum capacity: 10,000 ft of ¼-in wire rope

Cranes and Booms
Quantity: 1
Type: Telescoping boom
Manufacturer: Appleton
Boom length: 27 ft
Lifting capacity: 7,500 lb
(boom extended) 2,000 lb
Location(s): Aft

Ground Tackle
Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight: 560 lb

Anchor Chain(s)
Quantity: 2
Size and type: ¾-in stud link chain
Length: 60 fm

ELECTRONICS

Communications
VHF/FM transceivers
HF transceivers
Portable emergency transceiver
EPIRB's
Emergency radio auto alarm

Navigation
Radar
Gyrocompass
Precision positioning equipment

Acoustics
Shallow-water echo sounders
Side scan sonar

Data Acquisition and Processing System
The vessel is equipped with a PDP 11/34 computer with a 128K memory for the acquisition and processing of data.

ENGINEERING

Propulsion Plant
Type: Geared diesel
Main Propulsion Engines
Quantity: 2
Type: Diesel
Manufacturer: Cummins
Rated power (each): 400 hp
Auxiliary Propulsion
Quantity: 2
Type: Hydraulic
Manufacturer: Pumps — DeLaval/Lucas
Motors — Staffa
Rated power (each): 70 hp

Propellers(s)
Quantity: 2
Type: Fixed pitch, Kort nozzle
Blades: 4
Diameter: 3.5 ft

Electrical System
Ship's Service Generators
Quantity: 2
Manufacturer: Detroit Diesel/Delco
Output voltage: 230 a.c.
Power rating: 60 kW

Electrical Service
230 Va.c. three phase
110 Va.c. single phase

FRESHWATER SYSTEM

System Capacities
Storage capacity: 3,800 gal
Normal consumption: 500 gal/d

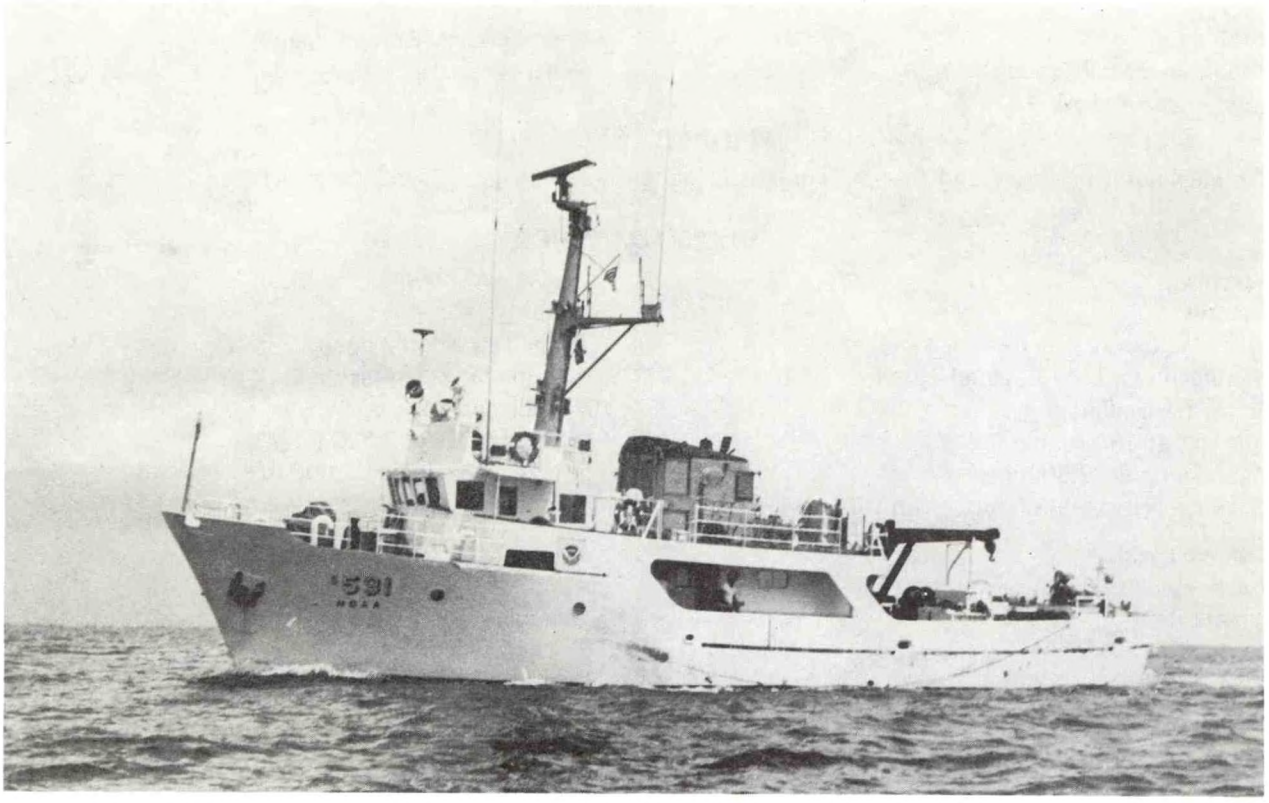
POLLUTION CONTROL

Oily Waste Control
Type of treatment: Oily water separator
Manufacturer: Harco

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Fiberglass Workboat
Quantity: 1
Manufacturer: Gull of Bristol
Length: 20 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

DESIGNER: Maritime Administration
BUILDER: Jakobson Shipyard
Oyster Bay, N.Y.

SISTER SHIP(S): RUDE

CALL LETTERS: WTEY

HOME PORT: Norfolk, Va.

Complement:
COMMISSIONED OFFICERS: 2
LICENSED OFFICERS: 1
CREW: 7

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

LENGTH (LOA): 90.0 ft (27.4 m)
BREADTH (moulded) 22.0 ft (6.7 m)
DRAFT, MAXIMUM: 7.2 ft (2.2 m)

CRUISING SPEED: 10 kn
RANGE: 800 nmi
POWER: 800 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 3,900 gal
FUEL CONSUMPTION: 42 gal/h
(normal cruising speed)
ENDURANCE: 3 d
ENDURANCE CONSTRAINT: Fuel

Operational Commitments:
The HECK operates with her sister ship, the RUDE, in making wire drag surveys and was built and outfitted for these operations. The vessels normally operate off the U.S. Atlantic and Gulf Coasts.

HABITABILITY

Berthing
Double staterooms: 5
Total bunks aboard: 10

Food-Service Seating Capacity
General mess: 8

MEDICAL FACILITIES

The ship has emergency and first-aid equipment administered by designated vessel personnel.

DECK MACHINERY

Winches
Quantity: 1
Type: Wire drag winch
Manufacturer: New England Trawler
Drive: Hydraulic
Line speed: 130 ft/min
Maximum pull: 2,800 lb
Drum capacity: 10,000 ft of ¼-in wire rope

Cranes and Booms
Quantity: 1
Type: Telescoping boom
Manufacturer: Appleton
Boom length: 27 ft
Lifting capacity: 7,500 lb
(boom extended) 2,000 lb
Location(s): Aft

Ground Tackle
Bower Anchor(s)
Quantity: 2
Type: Stockless
Weight: 560 lb

Anchor Chain(s)
Quantity: 2
Size and type: ¾-in stud line chain
Length: 60 fm

ELECTRONICS

Communications
VHF/FM transceivers
HF transceivers
Portable emergency transceiver
EPIRB's
Emergency radio auto alarm

Navigation
Radar
Gyrocompass
Precision positioning equipment

Acoustics
Shallow-water echo sounders
Side scan sonar

ENGINEERING

Propulsion Plant
Type: Geared diesel
Main Propulsion Engines
Quantity: 2
Type: Diesel
Manufacturer: Cummins
Rated power (each): 400 hp
Auxiliary Propulsion
Quantity: 2
Type: Hydraulic
Manufacturer: Pumps — DeLaval/Lucas
Motors — Staffa
Rated power (each): 70 hp

Propeller(s)
Quantity: 2
Type: Fixed pitch, Kort nozzle
Blades: 4
Diameter: 3.5 ft

Electrical System
Ship's Service Generators
Quantity: 2
Manufacturer: Detroit Diesel/Delco
Output voltage: 230 a.c.
Power rating: 60 kW

Electrical Service
230 Va.c. three phase
110 Va.c. single phase

FRESHWATER SYSTEM

System Capacities
Storage capacity: 3,800 gal
Normal consumption: 500 gal/d

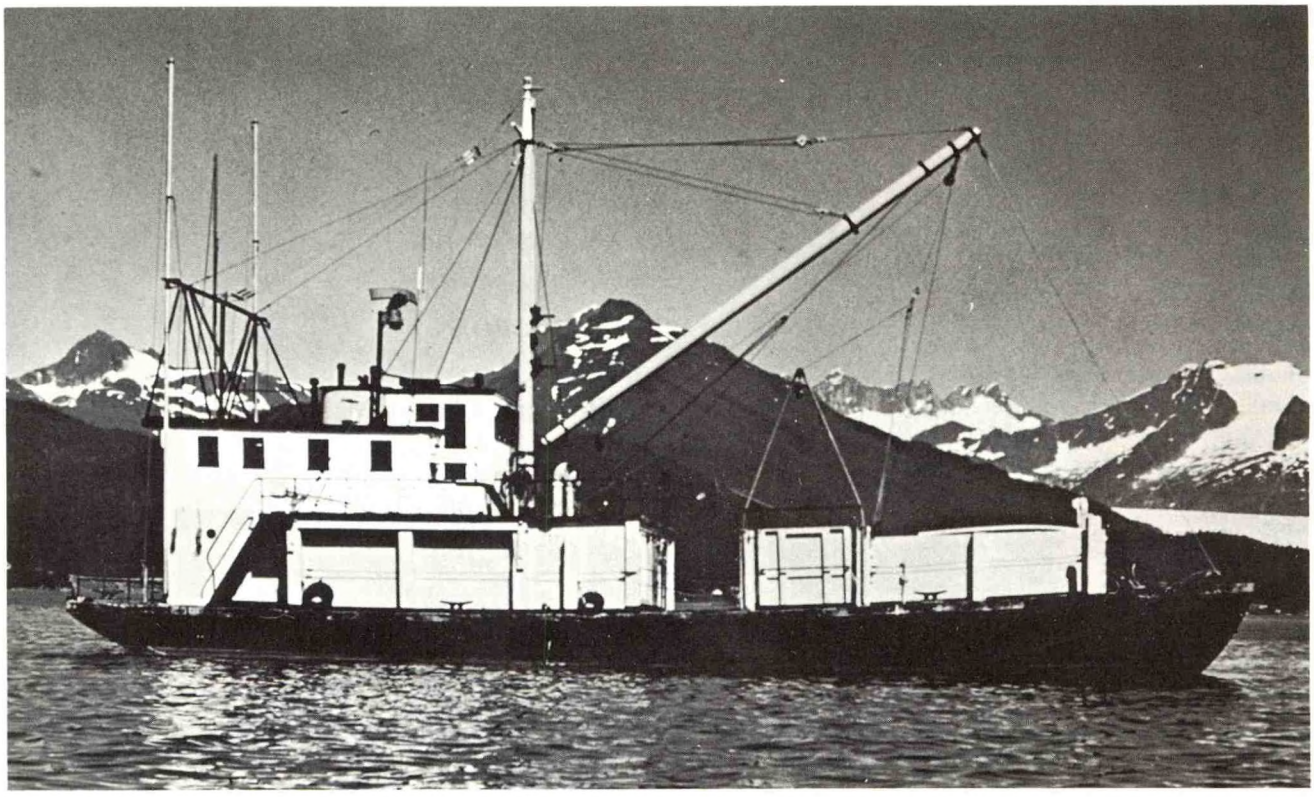
POLLUTION CONTROL

Oily Waste Control
Type of treatment: oily water separator
Manufacturer: Harco

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Fiberglass workboat
Quantity: 1
Manufacturer: Gull of Bristol
Length: 20 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

DESIGNER: Converted from U.S. Army
BUILDER: powered barge by Maritime Shipyards, Seattle, Wash.

CALL LETTERS: KJLM

HOME PORT: Juneau, Alaska

Complement:
LICENSED OFFICERS: 2
CREW: 1
SCIENTISTS: 5

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

LENGTH (LOA): 86.0 ft (26.1 m)
BREADTH (moulded) 26.8 ft (8.2 m)
DRAFT, MAXIMUM: 7.5 ft (2.3 m)

CRUISING SPEED: 8 kn
RANGE: 1500 nmi
POWER: 208 SHP

FUEL TYPE: #2 diesel
FUEL CAPACITY: 5,000 gal
FUEL CONSUMPTION: 25 gal/h (normal cruising speed)
ENDURANCE: 8 d
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

The vessel has first-aid and emergency equipment administered by designated vessel personnel.

SCIENTIFIC LABORATORY FACILITIES

Chemical lab: 130 ft^2
Biological lab: 200 ^{2}

DECK MACHINERY

Winches
Quantity: 1
Type: Trawl winch
Manufacturer: Marco
Drive: Hydraulic
Drum capacity: 1,800 ft of 5/8-in wire rope

Quantity: 1
Type: Hydrographic Winch
Manufacturer: New England Trawler
Drive: Electric
Drum capacity: 3,250 ft of 5/32-in wire rope

Cranes and Booms
Quantity: 1
Type: Fixed length boom
Boom length: 40 ft
Lifting capacity: 4,000 lb
Location(s): Amidships

A-Frames
Quantity: 1
Type: Movable
Clearance over side: 8 ft
Location(s): Starboard side amidships

Ground Tackle
Bower Anchor
Type: Danforth

Anchor Chain
Size and type: 7/8-in, steel cable
Length: 100 fm

ELECTRONICS

Communications
VHF/FM transceivers
HF transceivers
EPIRB's
Emergency radio auto alarm

Navigation
Radar

Acoustics
Shallow-water echo sounders
Fish finder

ENGINEERING

Propulsion Plant
Type: Geared Diesel

Main Propulsion Engines
Quantity: 2
Type: Diesel
Manufacturer: Caterpillar
Rated power (each): 165 hp

Propeller(s)
Quantity: 2
Type: Fixed pitch
Blades: 3
Diameter: 3 ft

Electrical System

Ship's Service Generators
Quantity: 1
Manufacturer: General Motors
Output voltage: 32 d.c.
Power rating: 30 kW

Electrical Service
110 Vd.c.
32 Vd.c.
24 Vd.c.
12 Vd.c.

Emergency Generator
Quantity: 1
Manufacturer: General Motors
Output voltage: 12 d.c.
Power rating: 30 kW

FRESHWATER SYSTEM

System Capacities
Storage capacity: 2,000 gal

LAUNCHES AND SMALL BOATS

Utility/Rescue Boats
Hull type: Fiberglass open boat
Quantity: 1
Manufacturer: Boston Whaler
Length: 13 ft
Propulsion: Gasoline outboard