

# SHIP'S EQUIPMENT AND CAPABILITIES

## 1. General

Length Overall:	86' 03"	Propulsion:	One Caterpillar 3508TA diesel, 775 BHP; reverse red. gear 4.07:1; kort nozzle; 5.5 SS 4-blade prop.
Waterline:	78' 04"		
Beam:	23' 04"	Aux. Power:	One Caterpillar C4.4: 83 KW, 3φ-208 v, 110 v.
Molded Depth:	13' 05"		One Caterpillar C4.4: 76 KW, 3φ-208 v, 110 v.
Draft, DWL:			
Forward	10'03"		
Aft	11' 09"		
Displacement		Tankage:	Fuel: 5,200 gals
DWL	275 Ltons		Freshwater 3,000 gals
Lightship	227 Ltons		Sewage 5,200 gals
Admeasurement:	<200 GRtons	Accommodations:	
Speed:			4 crew
Cruising:	9 knots		6 scientists + 1 marine tech.
Maximum:	10 knots	Science Areas:	Workdeck: 800 sq. ft.
Range:	21 days		Wet Lab: 240 sq. ft.
Endurance:	21 days		Dry Lab: 575 sq. ft.

Owner: The University of Minnesota  
Operator: The Large Lakes Observatory  
Built: 1985  
Home Port: Duluth, Minnesota  
Cellular phone: (218) 390-7501  
Marine Superintendent: (218) 726-7826  
FAX: (218) 726-6979

## 2. Winches and Wire Rope

- SeaMac 220 trawl winch with 2,100 ft 1/2" wire rope; level wind
- SeaMac 310 hydrographic winch with 1500 ft 1/4" wire rope; level wind
- SeaMac 305 electromechanical winch with 2,700 ft. .322" conducting cable; level wind
- SeaMac 210 trawl winch with 1,500 ft 1/2" wire rope

## 3. Deck Equipment and Capabilities

- Morgan Model 070 (HIAB) capable of lifting 1200 lb. at 30 ft.
- A-Frame (Hydraulic) 5 ton capacity, 13.5' vertical clearance, 7.5' horizontal clearance, 6' off-board reach, 4' in-board reach
- Power capstan (Electric) 2 ton capacity
- Anchor windlass (Hydraulic) 500 ft. chain

#### **4. Laboratories**

- a. Wet Lab- main deck, 10 x 24 ft., counters, clean and utility power lines, sink, hot and cold potable water, continuous flow of sea water can be provided.
- b. Dry Lab- lower deck, 23 x 25 ft., counters, electronics racks, clean and utility power lines, communication and computer links with pilot house.
- c. Laboratory Van- back deck, 10 x 10ft., counters, clean and utility power lines, hot and cold potable water, air conditioner, heater, liquid scintillation counter, fume hood.

#### **5. Instrumentation**

- a. Knudsen Model 320/R Echo Sounder with 28 kHz transducer, analog and digital output to computers in dry lab, wet lab and pilot house
- b. RDI Acoustic Doppler Current Profiler, 150 kHz
- c. TSS POS-MV 320 Motion Referencing Unit (Inertial with twin differential GPS)
- d. SeaBird Model 911 plus CTD (deck unit) with D.O. sensor, pH/ORP sensor, fluorometer, CDOM, transmissometer, PAR sensor, and altimeter.
- e. Seabird 32 Carousel with 12 8-liter bottle capacity
- f. Reson Sea Bat Model 7101 Multi-Beam Sonar, 240 kHz, 511 beams, 150 deg swath width, with side scan.
- g. Triaxus towed vehicle with 911+ CTD, fluorometer, transmissometer, D.O. sensor, PAR sensor and optical plankton counter (OPC).
- i. Underway sea surface water data with a SBE38 thermistor, fluorometer and transmissometer.

#### **6. Navigation**

- a. Two Furuno MFD8 GPS
- b. Furuno NavNet 3D radar, 12kw transmitter
- c. Furuno NavNet 3D radar 6kw transmitter
- d. Robertson AP45 Autopilot
- e. Furuno SC110 Satellite Compass
- f. TSS POS-MV Motion Referencing Unit
- g. AIS system and Furuno GPS

#### **7. Communications**

- a. Uniden UM 525
- b. Standard Horizon Infinity
- c. Cellular Telephone and intercom

#### **8. Other Available Instrumentation**

- a. Niskin bottles: 12 8-liter and 6 5-liter
- b. Ocean Instruments Multi-Corer
- c. Heavy Piston corer
- d. Kullenberg Piston corer
- e. Benthos gravity corer
- f. Plankton nets
- g. Geopulse High Resolution Seismic Reflection Profiling System (1-3 kHz)
- h. Bolt Model 600B airguns with 1, 5, 10 and 40" chambers

- i. Edgetech Side Scan/CHIRP system.
- j. 60' Stauffer midwater trawl with a trawl sonar system.
- k. bbe FluoroProbe III
- l. Satlantic ISUS V3 Nitrate analyzer

## **9. Priorities and Procedures**

### Equipment use priorities

- 1. NSF funded projects on the Blue Heron
- 2. Non-NSF funded projects on the Blue Heron
- 3. NSF funded projects by LLO investigators on other lakes
- 4. NSF funded projects on other vessels
- 5. Non-NSF funded projects on other vessels

Plans to use the shared-use equipment must be outlined in the P.I. Cruise Plan Form. Equipment may be unavailable (due to maintenance or use of the equipment by other investigators) therefore the principal investigator must contact the marine superintendent about his/her desire to use shared-use equipment prior to submission of the Cruise Plan Form.