

SHIP'S EQUIPMENT AND CAPABILITIES

1. General

Length Overall:	86' 03"	Propulsion:	One Cat. 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 Cat. 3304: 65 KW, 480 v, 3φ-208 v, 110 v.
Molded Depth:	13' 05"		One Lister AC: 30 KW, 3φ-208 v, 110 v.
Draft, DWL:		Tankage:	Fuel: 8000 gals
Forward	10'03"		Freshwater 2400 gals
Aft	11' 09"		Sewage 2500 gals
Displacement		Accommodations:	4 crew
DWL	262 Ltons		4 scientists + 1 marine tech.
Lightship	195 tons	Science Areas: Workdeck:	800 sq. ft.
Admeasurement:	<200 GRTons	Wet Lab:	240 sq. ft.
Speed:		Dry Lab:	575 sq. ft.
Cruising:	9 knots		
Maximum:	10 knots		
Range:	3000 nautical miles		
Endurance:	14 days		

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

2. Winches and Wire Rope

- a. SeaMac 220 trawl winch with 2,150 ft 1/2" wire rope
- b. SeaMac 310 hydrographic winch with 1,500 ft 1/4" wire rope
- c. SeaMac 305 electromechanical winch with 2,500 ft. .322" conducting cable
- d. SeaMac 210 trawl winch with 3,000 ft 1/2" wire rope

3. Deck Equipment and Capabilities

- a. Morgan Model 070 (HIAB) capable of lifting 1200 lb. at 30 ft.
- b. A-Frame (Hydraulic) 5 ton capacity, 13.5' vertical clearance, 7.5' horizontal clearance, 6' off-board reach, 4' in-board reach
- c. Power capstan (Electric) 2 ton capacity
- d. 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 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 19-01 CTD (internal recording) with fluorometer and transmissometer
- e. SeaBird Model 911 plus CTD (deck unit) with fluorometer, transmissometer, PAR sensor, D.O. sensor, pH meter and altimeter.
- f. Seabird 32 Carousel with 12 8-liter bottle capacity
- g. Reson Sea Bat Model 8101 Multi-Beam Sonar, 240 kHz, 101 beams, 150 deg swath width, with side scan.
- h. Triaxus towed vehicle with 911+ CTD, fluorometer, transmissometer, D.O. sensor, PAR sensor and optical plankton counter (OPC).

6. Navigation

- a. Northstar 800 LORAN
- b. Two Northstar 941X with differential GPS
- c. Furuno Model 1721 radar
- d. Furuno Model 7112 radar with ARPA
- e. Robertson AP45 Autopilot
- f. GPS Gyro Furuno
- g. TSS POS-MV Motion Referencing Unit
- h. AIS system and Furuno GPS

7. Communications

- a. SEA 157 VHF
- b. standard VHF radio
- 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. Piston corer
- d. Benthos gravity corer
- e. Plankton nets

- f. Geopulse High Resolution Seismic Reflection Profiling System (1-3 kHz)
- g. Bolt Model 600B airguns with 1, 5, 10 and 40" chambers
- h. Edgetech sidescan-sonar/CHIRP system (model 2000C with tow body)
- i. 60' Stauffer midwater trawl with a trawl sonar system.

9. Priorities and Procedures

Below is an outline of equipment use priorities

1. NSF funded projects on the Blue Heron
2. NSF funded projects on the R/V Noodin
3. Non-NSF funded projects on the Blue Heron
4. NSF funded projects by LLO investigators on other lakes
5. NSF funded projects on other vessels
6. Non-NSF funded projects on the R/V Noodin
7. Non-NSF funded projects on other vessels

Plans to use the shared-use equipment must be outlined in the P.I. Cruise Plan Form. Since equipment may be unavailable (due to maintenance or use of the equipment by other investigators), the principal investigator must contact the ship coordinator about the planned use of shared-use equipment prior to submission of the Cruise Plan Form.