GENERAL DESCRIPTION:
The R/V HUGH R. SHARP is an acoustically quiet, state of the art, general-purpose, regional class research vessel operated by the University of Delaware as part of the University-National Oceanographic Laboratory System (UNOLS) federal research fleet. The ship’s normal operating area is the Delaware and Chesapeake Bays and adjacent coastal waters out to 200 nautical miles. However, work is periodically conducted as far north as the Gulf of Maine, as far south as the Gulf of Mexico and as far offshore as Bermuda. The vessel is outfitted with a full range of oceanographic equipment and instrumentation. The Sharp is designed to meet ICES 209 sound emission standards and has an acoustically quiet mode as well as a Sound Guards self monitoring hydrophone system.

COMMUNICATIONS:
Voice, FAX, and Internet/e-mail via: Cellular and Fleet Broadband (Sailor 500)

MANEUVERING AND POSITIONING
Kongsberg KPOS-DP11 Dynamic Positioning System, Twin Schottel Z-Drives, Tunnel Bow Thruster

ELECTRICAL POWER:
480 Vac (3Φ), 208 Vac (1Φ and 3Φ)

FIXED SCIENCE HANDLING EQUIPMENT:
Starboard Trawl Winch: DYNACON, 3000m of ½” and 1500m of 9/16” 3x19 torque balanced wire rope; auto-render, 20,000 LBS Line Pull.
Port Trawl Winch: DYNACON, 2200m .681 fiber optic wire.
CTD Handling System: Caley Ocean Systems 4500m 0.322 cable, SWL 6700 LBS
Main Crane: Palfinger 48000 (SWL 15,400 LBS @ 18 ft; 3090 LBS @ 67 ft)
Stern A-Frame: SWL 20,000 LBS @ center overboarding sheave
        Clear Height: 18 ft  Clear Width: 11.8 ft  Reach outboard: 10.5 ft
        SWL 12,800 LBS P/S upper “T” extensions
Side Frame (port side preferred): Rapp Hydra Pro HP5/9A (DLT 11,600 lbs)
        Clear Height: 14.5 ft  Clear Width: 4.9 ft
        Reach Outboard: 10.6 ft  Reach Inboard: 9.3 ft

SEMI-PORTABLE SCIENCE HANDLING EQUIPMENT:
Hawboldt SPRE-2648/RS Mooring / Multipurpose Deck Winch (SWL 5,200 lbs. bare drum)
DYNACON 10010 Portable Deck Winch, 700m of 0.498”, 10 conductor cable.
DEME Portable Deck Winch, 1000m of ¼”, torque balanced wire.
Knuckle Boom Crane (“AUV Crane”): DMW Marine (SWL 1,000 lbs), 15.5 ft reach.

LAB AND DECK SPACE:
Main Deck Aft: 1500 sqft
Clear Rail Length (Starboard): 53 ft
Dry Lab: 340 sqft
Wet Lab: 260 sqft
Vans: Two (2) 20-foot van locations P/S on main deck aft.
        Isotope Van with Hewlett-Packard LSC
        General-Purpose Van
        AUV/ROV Van
        Cold and “Clean” vans available upon request
RETRACTABLE KEEL:
Three (3) 24” x 24” transducer bays for ship and science use. Changeable alongside.
  Flush with keel: 2.9 m below mean water line
  1.0 m down: 3.9 m below mean water line
  2.0 m down: 4.9 m below mean water line

SHIP’S STANDARD INSTRUMENTATION:
Sound Guard real time noise monitoring and recording program with hull mounted transducers.

Acoustic Doppler Current Profiler (ADCP): RDI “Workhorse Mariner” 300kHz or Rio Grand BB 600kHz.

Surface Mapping System (SMS): The SMS records navigation, meteorological and sea surface data every 10 seconds.

CTD System: SeaBird Electronics 911 plus CTD, Rosette is a 12-bottle Sea Bird 32 Carousel, outfitted with an array of 10 liter bottles.

Knudsen Chirp 3260 Deep Water Echo Sounder (3.5 and 200 kHz).

Applanix POS-MV v5 Positioning and Orientation sensor

RESON 7125 plus Multibeam System (200 and 400 kHz) mounted in retractable keel (additional day rate).

“Scanfish” GMI MKII Undulating Towed CTD with SeaBird Electronics 911 plus CTD (additional day rate).

Profiling Light Meter (Biospherical)  Lab-Grade Water Purifier
Ocean Instruments Box Corer (16” x 16”)  Gravity Corer (10 Foot)
Smith MacIntyre Bottom Grab  Deck Incubation Tables
Liquid Scintillation Counter (in 20-foot van)  Multicorer
“Clean” Sea Water Supply Available in Labs and Vans from dedicated science sea chest.

17-Foot Semi-Rigid Work Boat (SafeBoats) with 90hp engine
Modular Scientific Refrigerators and Freezers
Scientific Bow Tower and Scientific Antenna Mounts on Main Mast

SCHEDULING:
The R/V HUGH R. SHARP is scheduled through the UNOLS process. Preliminary schedules for the next calendar year are drafted the prior Spring - Summer. As the funding decisions for the various proposed projects become known the schedule is finalized. All investigators, regardless of which agency or institution is providing the funding, should submit a Ship Time Request through UNOLS as early as possible (www.unols.org). We are happy to accommodate additional cruises in the current year as the ship’s schedule permits. We encourage all investigators to contact Marine Operations early in the planning stages of the project.

CONTACT: Jon Swallow, Director of Marine Operations
Phone: (302) 645-4341 / (302) 396-8565
e-mail: jswallow@udel.edu
## Principle Characteristics

**R/V HUGH R. SHARP**

| Operating Area               | Mid-Atlantic/Coastal
<table>
<thead>
<tr>
<th></th>
<th>Maine to Florida and the Gulf of Mexico</th>
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<tbody>
<tr>
<td>Length Overall</td>
<td>146’ (44.5 m)</td>
</tr>
<tr>
<td>Length at Waterline</td>
<td>135’</td>
</tr>
<tr>
<td>Beam</td>
<td>32’</td>
</tr>
<tr>
<td>Draft</td>
<td>9.5’</td>
</tr>
<tr>
<td>Freeboard (aft deck)</td>
<td>5’</td>
</tr>
<tr>
<td>Maximum Antenna Height (SSB)</td>
<td>75’</td>
</tr>
<tr>
<td>International Tonnage</td>
<td>495</td>
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<tr>
<td>Domestic Tonnage</td>
<td>256</td>
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<tr>
<td>Displacement Tonnage</td>
<td>598</td>
</tr>
<tr>
<td>Cruising Speed</td>
<td>9-10 knots</td>
</tr>
<tr>
<td>Range (Average speed 7 knots, 10% reserve)</td>
<td>3500 nm</td>
</tr>
<tr>
<td>Endurance (Limiting Factor: Fuel)</td>
<td>~14 days</td>
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<tr>
<td>Propulsion Plant</td>
<td>Diesel-Electric</td>
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<tr>
<td>Main Propulsors:</td>
<td>Schottel Twin Z-drives (5-bladed, fixed pitch)</td>
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<tr>
<td>Bow Thruster:</td>
<td>Schottel Tunnel Thruster</td>
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<tr>
<td>Dynamic Positioning:</td>
<td>Simrad &quot;Green&quot; DP (rated &quot;DPS-0&quot;)</td>
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<tr>
<td>US Coast Guard Inspection Status:</td>
<td>Uninspected</td>
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<tr>
<td>ABS Classed</td>
<td>*A1, Maltese Cross, AMS, Circle E</td>
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<tr>
<td>Load Line</td>
<td>Yes</td>
</tr>
<tr>
<td>Total Permanent Berths (2-person staterooms)</td>
<td>22</td>
</tr>
<tr>
<td>Routine Crew (Including technician)</td>
<td>6-8</td>
</tr>
<tr>
<td>Routine Scientific</td>
<td>14</td>
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<tr>
<td>Acoustic Capabilities</td>
<td>Below ICES 209 limits at 8.0 knots</td>
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<tr>
<td>Stack Emissions</td>
<td>“Low” per EPA requirements</td>
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<tr>
<td>Bollard Pull</td>
<td>33,000 lbs</td>
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<tr>
<td>Routine Lifting/Towing</td>
<td>20,000 lbs</td>
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<tr>
<td>Science Payload</td>
<td>30 tons (26.78 long tons)</td>
</tr>
</tbody>
</table>
**Science Transducer Locations**

- **RESON 7125 Mount**
- **Knudsen 320 BR 200/12 KHz**
- **RDI ADCP 600 or 300 KHz**

Transducer keel: this is adjustable to recessed, flush to the hull, 1m below the hull and 2m below the hull.

- **RDI ADCP Transducer either 600 or 300 KHz**
- **Knudsen 320BR 200/12 KHz Transducer**
- **Open Science Transducer Bay w/ 19 3/4" x 19 3/4" opening**

**R/V HUGH R. SHARP**

**Transducer Locations**

Size: N/A

FSCM NO: 120321DRW-B

DWG NO: 001

Sheet: 1 OF 1

**DRAWN:** Bay Marine Inc; Dave Bonney

**ISSUED:** Timothy W. Deering