

The University of Texas Marine Science Institute *R.V. Proteus*

For marine operations on the northern Alaskan Arctic coast (Beaufort Sea), the University of Texas Marine Science Institute (UTMSI) owns and operates the *R.V. Proteus*, a 30-foot North River Seahawk (2019 Almar Hull, 10-foot beam). The *R.V. Proteus* and its predecessor, a 1980 25-foot Boston Whaler (now retired), have been used almost continuously since 1980 for coastal marine research on grants funded to Dr. Ken Dunton (funding agencies include NSF, USGS, BOEM, USF&WS, BP, Exxon) on the Beaufort Sea coast. Areas of operation have extended from the Colville River to Demarcation Bay (Canadian Border). The *R.V. Proteus* can also be readily transported on a triple axle trailer to other launch sites in the Greater Prudhoe Bay area.

The *R.V. Proteus* is based at Endicott Island in Prudhoe Bay, Alaska (AK). The vessel is outfitted for working in the coastal waters of the Beaufort Sea, predominantly inside the barrier islands or within the 15-m isobath. The vessel is designed to support field science through collaborative research grants in formal affiliation with Dr. Ken Dunton in the Department of Marine Science. The *R.V. Proteus* is fully equipped for oceanographic sampling and diving. Its experienced crew of nearly 20 years in the Beaufort Sea includes a USCG licensed captain and a marine survey technician (MST). Both assist scientists with vessel loading, gear deployment, maintenance and repair of field gear and instrumentation.

The U.S. Coast Guard approved the *R.V. Proteus* vessel as an Oceanographic Research Vessel (ORV) on 11 June 2019 according to Title 46 United States Code 2101 (18), subpart 3.05-3. The vessel is maintained to the safety standards specified by the U.S. Coast Guard through biennial renewal of its ORV designation. The vessel is fully licensed by the USCG. A Certificate of Documentation for the *Proteus* (Official Number 1295861) was first issued on 28 June 2019 and is renewed annually in July every year.

The *R.V. Proteus* is a unique asset for scientists that wish to conduct studies in shallow water lagoons and deltas owing to her versatility, speed (cruise speed 35 knots) and shallow draft (2 feet). The vessel is powered by twin 300 HP Yamaha outboard engines and has a range of over 250 nm. It is capable of moving to multiple sampling stations on a daily basis and outfitted for overnight anchorage or continuous operations. In addition to its two-man crew, the *Proteus* can berth up to three scientists and carries sufficient fuel, food, water for remote operations of up to three days or more. As a University owned vessel, no alcohol, smoking, or vaping is permitted on or around the vessel.

Navigation equipment on board includes a NavNet TZT9 Multifunction Display with Raster charts that are integrated to a DRS4DNXT Doppler radar and a Navman GPS, and two depth sounders. Deck communications include marine VHF and a satellite telephone with externally mounted antennas to maximize reception.

For safety, the *R.V. Proteus* contains three water tight compartments within the keel, brushed aluminum bow, stern, roof and aft cabin rails, a water activated satellite emergency locator transmitter (EPIRB), a Spot 2-Way Satellite messaging system, survival suits for crew and scientists, medical kits, two hand-held portable VHF radios, and a five person inflatable Achilles

inflatable raft. The Achilles is powered by a 20 HP Yamaha outboard and can be readily deployed from the roof of the cabin for shore-based work or for simultaneous operations with R.V. *Proteus*. Radio contact is maintained with small boat crews by the vessel master who conducts safety orientations and is prepared to activate an agreed upon emergency response plan.

The 8 by 10-foot working deck (overall dimensions) includes an optional canvas enclosure for inclement weather and is an excellent platform from which to deploy and retrieve instruments and sampling gear, process samples and perform diving operations. The deck contains a 24-inch starboard transom door for swim platform access (for divers) or deployment of personnel for shore operations. A port side loading 40-inch boarding door (flushed with deck) optimizes the deployment of benthic grabs, beam trawls, plankton nets, and electronic gear using an electric winch on a davit with a lifting capacity of 500 lbs. Multiple seawater and freshwater wash-down pumps are available on the forward and aft decks for benthic grab and trawl deployments.

The interior science cabin contains lab work benches and storage cabinets, and a portside dinette working space with reversible front seat space that converts to a science berth. The starboard side work bench and storage cabinet is also convertible into a second science sleeping berth. The entire interior cabin (both main cabin and wheelhouse) is insulated and heated. USB, DC (12 V) and AC (120V) power outlets are available in the interior cabin. All areas of the vessel are accessible to crew and scientists, but the science cabin is separated from the pilot house (helm) by a sliding door which provides access for two crew V-berths in the cuddy. A separate crew access side-door provides immediate access to the forward deck by the crew.

Vessel Specifications:

Hull: Built by North River, Roseburg, OR. Aluminum, Almar construction, 0.25” thickness with additional “beaching plate” keel protector (0.25” thickness, 18’ wide, x 12” long). Vessel length 30’ (9.1 meters), beam 10’ (3.1 meters), draft 24” (0.6 meters). Hull includes three water-tight compartments within the keel and two 2000 GPH high capacity bilge pumps (one forward and one aft).

Power: Twin Yamaha 2019 Outboard engines, 300 hp each. Top speed is 42 knots; cruise speed 30-35 knots.

Electrical: 12-volt, four batteries in two-battery bank systems (house and engine cranking)

Fuel: 250 gallons gasoline.

Electronics and Navigation: NavNet TZT9 Multifunction Display with Raster charts integrated to a DRS4DNXT Doppler radar and to a Navman GPS that utilizes C-map nautical charts; BBDS1 depth sounder with SS60 transducer (50/200 khz); Faria stand-alone fathometer. Horizon GX1600 marine VHF. Iridium satellite telephone with externally mounted antennas to maximize reception. Ritchie B51 magnetic compass.

Safety Equipment: US Coast Guard approved immersion suits for all crew and scientists. Satellite 406 EPIRB (Emergency Position Indicating Radio Beacon). US Coast Guard required

flares. Two handheld fire extinguishers. Spot 2-Way Satellite messaging system and a five-person inflatable Achilles inflatable raft. Two portable hand-held VHF radios for small-boat operations or shore parties.

Main Cabin: Ventilated and heated cabin contains six-foot starboard workbench (convertible to science berth) with storage cabinets below. Port side dinette table, storage cabinets, and seating convertible to a second science berth. Duplex GFCI 120 V Outlet, five USB power sockets, 12 V outlets. Wheelhouse with steering, electronics, two crew V-berths, and option for third berth.

Deck: Dual station /dual control system for Yamaha engines. A 24-inch starboard transom door provides access to swim platform for divers or personnel for shore operations. Internal stern deck/work area is approximately 8'4" (2.5 m) wide x 9' (2.7 m) long. Davit, 500 lb. capacity on stbd side matched with 40-inch boarding door (flushed with deck) for easy access deployment/retrieval of trawls, nets, grabs, and other gear to deck. Freshwater and saltwater wash-down pumps on the stern provide either seawater, freshwater (or both) for cleaning and washing grab samples. LED deck lights provide ample illumination over entire working deck and interior for night operations. An inflated five-person Achilles inflatable is secured on the cabin roof. (a 20 HP outboard engine is mounted on the stern for easy access).

(document updated 8 July 2020)



The R.V. *Proteus* in Kaktovik Lagoon, August 2019 with crew (image by Katrin Iken).