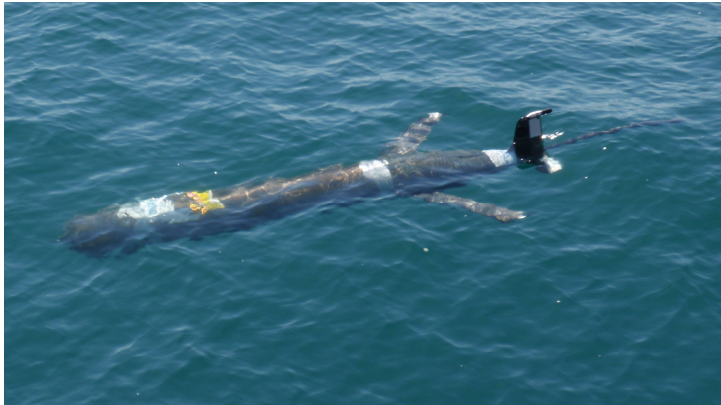


EXOCETUS



Exocetus Coastal Glider



The **Exocetus Development LLC Coastal Glider** was developed under funding from the Office of Naval Research during a 6-year period. Eighteen gliders were delivered to the US NAVY during these six years, and the gliders have a combined 4,500 hours of operation. **Exocetus [x-o-seat-us] Coastal Gliders** were designed to operate in coastal waters where high currents and large water densities occur due mostly to the fresh water entering these coastal waters from rivers. Legacy gliders [the Slocum, the Seaglider, and the Spray], which were

developed over the past 15 years and were designed for open-ocean operations, do not have the capability to operate in coastal waters due to design limitations. Unlike legacy gliders, the **Exocetus Coastal Glider** was designed to easily add more sensors without any, or minimal changes to the glider housing.

The **Exocetus Coastal Glider** has a buoyancy engine more than 7 times larger [5 liters] than the legacy gliders which allow operations over wide variations of water densities by use of a proprietary adaptive ballasting system. The ballasting system allows the **Exocetus Coastal Glider** to be deployed without the pre-ballasting requirement of the legacy gliders. This larger buoyancy engine also permits the **Exocetus Coastal Glider** to easily operate in waters with up to 2 knots of current. The **Exocetus Coastal Glider** can operate down to depths of 200 meters which is more than adequate for most, if not all, coastal applications.

The **Exocetus** basic glider model is designed to operate for approximately 14 days with an alkaline battery pack and for 60 days with a lithium pack; however, these operating times can be extended using the glider's variable speed capability and using fewer excursions to the surface for data telemetry. The glider has four modes of communication: Iridium satellite, Service ARGOS (being implemented), Freewave [UHF] line-of-sight and WiFi. Acoustic modems can be added for communication with underwater devices.

Also, the **Exocetus** basic glider model has an AML Oceanographic CTD/SVTP sensor and a Tritech acoustic altimeter. Additional sensors integrated in the glider during the past several years include omnidirectional hydrophones by Reson, vector sensor hydrophones by Wilcoxon, WetLabs water quality sensors, and RINKO fast response DO2 sensors. Designs also exist for the SeaBird pumped CTD sensor suite, the Satlantic SUNA nitrate sensor and a LND gamma ray [calibrated for Cesium-137] sensor.

The following types of Coastal Glider systems are now in our fleet of gliders.

- Hypoxia Glider with a CTD, DO2 and water quality sensors
- Wind Assessment Glider with a set of hydrophones
- Mammal Monitoring Glider with a set of hydrophones
- Radiation Monitoring Glider with a Cesium-137 sensor



Exocetus Coastal Glider (CG) Specifications



Physical

- Diameter: 12.75 inch (32.4 cm)
- Length (incl. antenna): 113 inches (2.87 m)
- Weight: 240 lbs (109 Kg)

Buoyancy Engine (BE)

- Total Volume: 5 L
- Total Buoyancy Variation: +/- 5.5 lbs (24.4 N)

Electronics Bay (EB)

- 7.5" ID x 12" length standard (~80% or 420 in³ dry volume available for sensor integration)
- 19.1 cm ID x 30.5 cm length standard (~80% or 7 L dry volume available for sensor integration)
- 12 VDC (3 amp max) power available via GPIO switch
- 5 VDC, and 3.5 VDC power available via expansion board
- 18-33 VDC unregulated raw battery power is available
- 5 Kg (11 lb) nominal payload capacity
- Note: Additional payload capacity can be added by including syntactic foam in flooded areas (fore and/or aft). Contact Exocetus for specific cases
- Plug plane separation from CG body eases payload swapping

Battery

- Single battery used as pitch/roll reaction mass
- Alkaline Primary
- 3,850 W-Hrs (14 MJ)
- ~70 lbs (~32 Kg)
- Lithium Primary (Prototype)
- 18,600 W-Hrs (67 MJ)
- ~70 lbs (~32 Kg)

Communications Modalities

- Iridium satellite communications
- Service ARGOS satellite communications (under development)
- Freewave line-of-sight communications (900 MHz)
- Wi-Fi short range communications for rapid data download
- GPS

Hull Penetrations

- The CG has (6) hull penetrations for sensor integration, two in the bow and four in the stern
 - Two penetrations are in the bow, above the BE, in the flooded nose cone
 - One is used for the altimeter and the BE safety magnetic interlock
 - One is available and plugged with an Exocetus-supplied plug
- Four penetrations are in the stern of the glider, around the flange of the EB
 - These access the flooded tail cowling section
 - One is used for the AML CTD/SVTP (if installed)
 - One is used for the Exocetus Emergency Lift Bag system (if installed)
 - Two are available and plugged with Exocetus-supplied plugs

Exterior Surface

- All wetted surfaces are either 316 SS, fiberglass, or treated 6061-T6 aluminum
- All wetted aluminum surfaces are treated with the Endura™ 100R-V/CR process