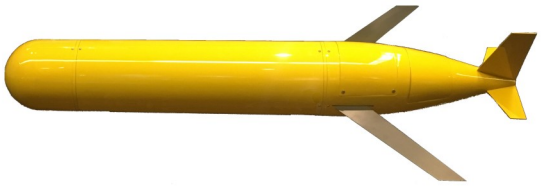
Coastal Glider



FEATURES	• Large 5 kg Payload, 8.6 L dry bay • Transits between salt and fresh water without re-ballasting • Modular Sensor Bay • Variable Speed, up to 2 kts • Automatic Emergency Recovery
SENSORS	• Five external sensor mounting locations (two forward and three aft) • Supports numerous sensors, including up to 11 field-exchangeable sensors at once • Regulated and unregulated power • Onboard data storage
COMMS	• Satellite - Iridium • UHF – Freewave radio modem • LAN (WiFi)
MANEUVERS	• Waypoint • Spiral • Hover • Station Keep / Loiter • Drift / Reposition • Min / Max Depth • Heading, Speed • Sleep

Overview

The Exocetus Coastal Glider is an autonomous underwater vehicle (AUV) that utilizes a patented buoyancy engine to efficiently move through the water. This engine enables very large payloads and an ability to transit through coastal areas without manual re-ballasting, making it ideal for long duration observation, monitoring and measurement.

The Coastal Glider was developed under a contract from the Office of Naval Research. Its design is the result of extensive hydrodynamic and maneuvering modeling. Eighteen gliders were delivered to the US Navy, and the glider fleet has thousands of operating hours.

Design Benefits

Designed for Coastal Waters - The vehicle automatically compensates for variations in water density. Water density variations in coastal waters can be caused by salinity changes from fresh water rivers, runoff and tides. Unlike other gliders, the Coastal Glider does not require advance manual calibration for these changes. The large buoyancy engine also enables operation in high coastal currents, up to 2 kts.

Modular Sensor Design – The Coastal Glider sensor interface readily accommodates a variety of sensors. The modular design includes a watertight, universal sensor bay with power for sensor electronics, communication with the vehicle's computer to record data, field-changeable sensor heads, and a hull that accommodates sensors with minimal-to-no changes to the glider housing. There is also the option for a customer-supplied science computer.

Large Payload – The 5 kg (11 lbs) payload is exceptional for a glider of this size, allowing integration of any number of sensors. Payload can be further increased by adding syntactic foam in flooded areas fore and/or aft.

Emergency Recovery System – A lift bag automatically inflates if battery power is depleted, a leak is detected or a critical fault occurs, causing the vehicle to surface for recovery.

The Coastal Glider utilizes a GreenSea System, integrating the OPENSEA operating platform and the Balefire control interface.

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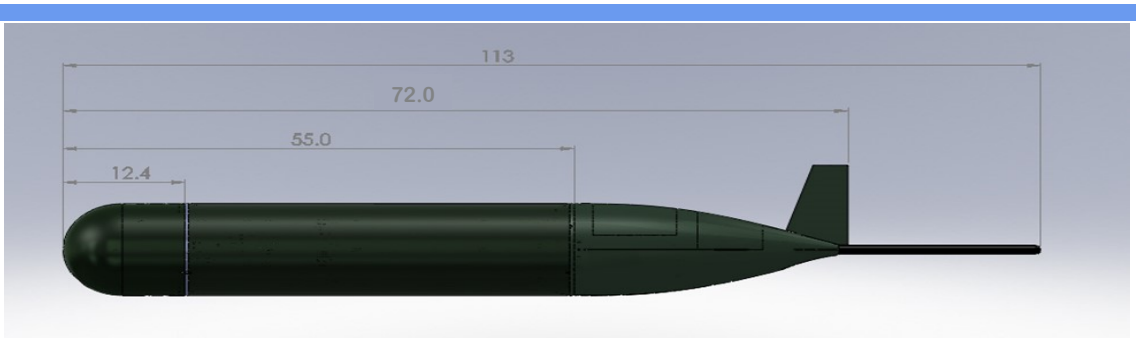

Dimensions	Length: 182.9 cm (72 in), excluding antenna Diameter: 32.4 cm (12.75 in) Wingspan: 106.2cm (41.8 in)
Weight	109 kg (240 lbs)
Payload	5 kg (11 lbs). Can be increased by adding syntactic foam in flooded areas
Horizontal Speed	Commandable from 0.7 to 2 kts
Current	Up to 2 kts. Station Keep: 2 kt current
Depth Capability	200 m (650 ft)
Shallow Water	Operates in 10 m (32 ft) shallow water (with reduced speed and maneuvering)
Salinity Range	10 – 37 ppt without manual re-ballasting. Can transit between fresh and salt water
Mission Duration	15 days with alkaline batteries 60 days with lithium batteries
Sea State	Launch: 0 to 3; operating: Unrestricted
Environmental	Air temperatures: -2.2° to 51.7° C (28° to 125° F) Sea temperatures: -2.2° to 37.8° C (28° to 100° F)
Sensor Electronics Bay	Length: 19.1 cm ID x 30.5 cm (7.5 in ID x 12 in length) Volume: 8.6 L (525 in^3)
Sensor Bay Power	12 VDC (3 amp max) through a GPIO switch 5 VDC, 3.5 VDC through an expansion board 18 - 33 VDC unregulated raw
Batteries, Primary	Alkaline: 3,850 W-Hrs (14 MJ), weight: 32 kg (70 lbs) Lithium: 18,600 W-Hrs (67 MJ), weight: 32 kg (70 lbs)
Base Sensors	Acoustic Altimeter; CTD or SVT&P
Acoustic Sensors	Mounting points: nose, tail, port, starboard
Communications	Iridium satellite Freewave radio modem (line of sight) 802.11 LAN (near ship / in shop)
Shipping	2 containers, 132 cm x 71 cm x 71 cm (52 in x 28 in x 28 in) each Transports glider, handling cart and launch equipment