

A photograph of a Wave Glider underwater. The glider's long, cylindrical float is at the top, connected by a thin tether to the glider vehicle below. The glider has a hydrofoil-like shape with a large circular sensor or camera at the front. The background is a clear blue ocean with sunlight filtering through the water.

Wave Glider[®]

A Wave-Powered Unmanned Maritime Vehicle

Understanding climate change. Predicting weather patterns. Monitoring fragile marine ecosystems.

These are important missions that demand capable, durable, and persistent platforms. Liquid Robotics has developed the Wave Glider to meet these tough requirements.

The Wave Glider is a reliable and economical ocean going system that provides the flexibility and capability to complete missions efficiently and with minimal environmental impact.

With a robust history of long distance deployments in severe weather, the Wave Glider is the ideal platform to support a wide variety of commercial, defense and scientific missions.

AUTONOMOUS

Real-time satellite linked navigation & control

CONNECTED

Supports state-of-the-art sensing and communication

PERSISTENT

Maintenance-free for one year or longer at sea

VERSATILE

Flexible platform for ocean observation, data collection, intelligence, surveillance, and reconnaissance

SUSTAINABLE

Propulsion and payloads powered by wave motion and solar energy

Wave Glider®

Specifications

GENERAL

Vehicle Configuration	Submerged glider and surface float joined by a 7-meter tether
Dimensions	Float: 208 cm x 60 cm Glider: 40 cm x 191 cm Wings: 107 cm wide
Weight & Buoyancy	Mass: 90 kg / Displacement: 150 kg
Endurance	Up to 1 year (variable)
Water Speed	0.4 kts - 2.0 kts (variable)
Depth Rating	Continuous wash and salt spray Brief submergence to 2 m
Vehicle Observability	Silent propulsion system Minimal visual & radar signature
Transportation & Shipping	Two-person portable Air freight compatible

POWER

Propulsion	Mechanical conversion of wave energy into forward propulsion
Battery	665 Watt-hours Lithium-ion rechargeable
Solar Power	80 Watts (peak) for battery charging, onboard electronics & payloads
Command & Control	1.5 Watts continuous
Payload Power	Payload Ports (3): 3 A / 13.2 V PEP Port: 6 A / 13.2 V Glider Port: 1 A / 13.2 V System Maximum: 10 A continuous at 13.2 V

COMMS

Satellite	Iridium® 9601 or 9522B modem Short Burst Data (SBD) protocol
Local	Xbee-PRO® 2.4 GHz 802.15.4 modem 100 ft. range typical

NAVIGATION

Heading Sensor	Compass calibrated to +/- 1 degree accuracy
GPS Receiver	12 channel WAAS capable
Navigation Accuracy	3 m radius CEP50
Station Keeping	40 m radius CEP90 in WMO sea state 3 (current < 0.5 kts)

OPERATIONS

Mission Control	Chart-based GUI Waypoint & course generation
Status Monitoring	Text & visual status indicators accessible via web Email alerts with programmable inclusion/exclusion zones
Autonomous Navigation	Programmable waypoint course Follow course and hold/loop Station keeping at target position

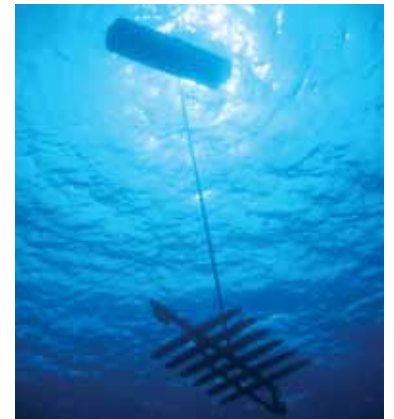
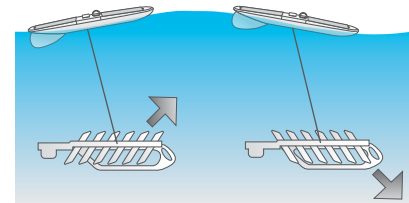
PAYLOAD

Architecture	Modular mechanical, electrical, & software interfaces to general-purpose housing Support for 3rd party payloads
Standard Payload Modules	Acoustic modem AIS Meteorological sensors Passive acoustic recorder

SAFETY

Emergency Location (optional)	Shore-activated marker light RF beacon
Health Sensors	Pressure, temperature, and leak sensors in dry boxes
Battery Compliance	Individual batteries are isolated from each other Automatic charge/discharge cut-off (temperature/voltage)
Marine Mammals	Passive pressure-actuated release separates float from tether & glider if an entangled animal submerges the system.

Wave motion translates to forward propulsion



Liquid Robotics brings the Silicon Valley entrepreneurial spirit to the ocean science & technology sector.

Headquarters in Sunnyvale, CA. Marine operations in Kawaihae, HI. Customers and collaborators across the globe.

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