



## The Long-Range, High Endurance Unmanned Underwater Vehicle

### Seaglider has a range of practical applications for academic, agency and military oceanographers:

- Physical, Chemical and Biological Oceanography
- Tactical Oceanographic Surveys
- Marine Environmental Monitoring and Time Series Data Collection and Reporting

- Collect data from the ocean for months at a time...
- Perform persistent surveillance and reconnaissance...
- Acquire data at a fraction of the cost of traditional vessels and instruments...

*Seaglider is a deep-diving UUV designed for missions lasting many months and covering thousands of miles. Seaglider measures temperature, salinity and other quantities in the ocean, sending back data using global satellite telemetry. More than 80 Seaglider UUVs have been delivered worldwide, collecting ocean physical properties and performing various other missions for oceanographers, including the U.S. Navy, government agencies and research organizations.*

### Seaglider Milestones

- First to complete a 3,800-km mission
- First to complete a 7-month mission
- First to conduct a multi-glider mission

## iRobot Seaglider

*The long-range, high endurance  
Unmanned Underwater Vehicle*

Economically study the  
physical, chemical and  
biological properties  
of the ocean

Deploy for up to 10 months  
of data collection

Collect, refresh and  
redirect data from around  
the world in real time



*Seaglider uses state-of-the-art oceanographic instrumentation to precisely measure and report a multitude of data, including temperature and conductivity as a function of depth, dissolved oxygen concentrations, ocean current variation, backscatter and multiple trophic level biomass. These measurements enable the development of sound velocity profiles that are critical for characterizing acoustic propagation models and monitoring oceans in great detail. Seaglider's modular architecture accommodates a variety of sensors:*

- Sea-Bird CT
- Sea-Bird Dissolved Oxygen Sensor (43F)
- Paine Pressure Sensor
- Aanderaa 4330 Optode
- WET Labs Fluorescence and Backscatter (ECO Triplet)

### Applications

- Physical, chemical, and biological oceanography
- Tactical oceanography
- Long-term, long-range Maritime reconnaissance
- Navigation aid

### Operational Modes

#### Transect survey:

- Profiles through a sequence of waypoints

#### Virtual mooring:

- Continuous profiles at a single location

#### Surface drift:

- Remains in surface position with antenna up for GPS and data telemetry

#### Bottom loiter:

- Maintains negative buoyancy on bottom for specified time

#### Sub-surface porpoise:

- Profiles within specific depth range without surfacing

### Basic Robot Specifications

#### Body Size:

- 1.8 m long, 30 cm max. diameter

#### Wing span:

- 1 m

#### Antenna mast length:

- 1 m

#### Weight:

- 52 kg (dry)

#### Maximum Depth

- 1000 m

#### Maximum Travel Range / Duration

- 4600 km (650 dives to 1 km depth)

#### Battery Endurance

- Lithium primaries, 24V and 10V packs, 17 MJ
- Up to 10 month run-time (mission dependent)

#### Typical Speed

- 25 cm/s (1/2 kt)

#### Glide Angle

- 16-45° (1:3.5 to 1:1 slope)

#### Mechanical Features

- Isopycnal hull
- No external moving parts
- Low drag, flooded fiberglass fairing

#### Electrical Features

- Ultra-lower power micro-processor
- 256 MB Compact-FLASH memory
- 4 serial channels available for sensors
- 1 frequency channel available for sensors

#### RF Data Telemetry:

- Iridium satellite data telemetry

#### Software

- Complete data transmitted after every dive
- Web-based information interface
- Control and system commands transmitted on any dive

#### Guidance and Control

- Dead reckoning between surface GPS fixes using 3-axis digital compass
- Kalman filter prediction for mean and oscillatory currents
- Acoustic altimetry systems for near-bottom dives
- Bathymetry map system for low-energy dives



*This literature has been compiled for worldwide circulation. While general information, pictures and descriptions are provided, some illustrations and text may include product options and accessories NOT AVAILABLE in all regions. iRobot reserves the right to change specification, design and price of the products described in this literature without notice.*

© 2008-2009 iRobot Corporation. All Rights Reserved. iRobot is a registered trademark of iRobot Corporation. Seaglider has been supported by funding from the Office of Naval Research, the National Science Foundation, and the University of Washington. Seaglider is a trademark of the University of Washington. [Rev 0709\_v3].

iRobot Corporation  
Maritime Systems  
4625 Industry Lane, Durham, NC 27731  
919.405.3993  
www.irobot.com

Sales Contact  
888.776.2687 (Toll Free in USA)  
+(1) 781.430.3090 (International customers)  
sales@irobot.com

Media Contact  
781-430-3182  
publicrelations@irobot.com