



Gavia Scientific

AUTONOMOUS UNDERWATER VEHICLE

Data Collection: Under Ice to Seafloor

The Gavia Autonomous Underwater Vehicle (AUV) is a self contained, two man portable, modular survey platform capable of delivering high quality data while operating from vessels of opportunity or from the shore.

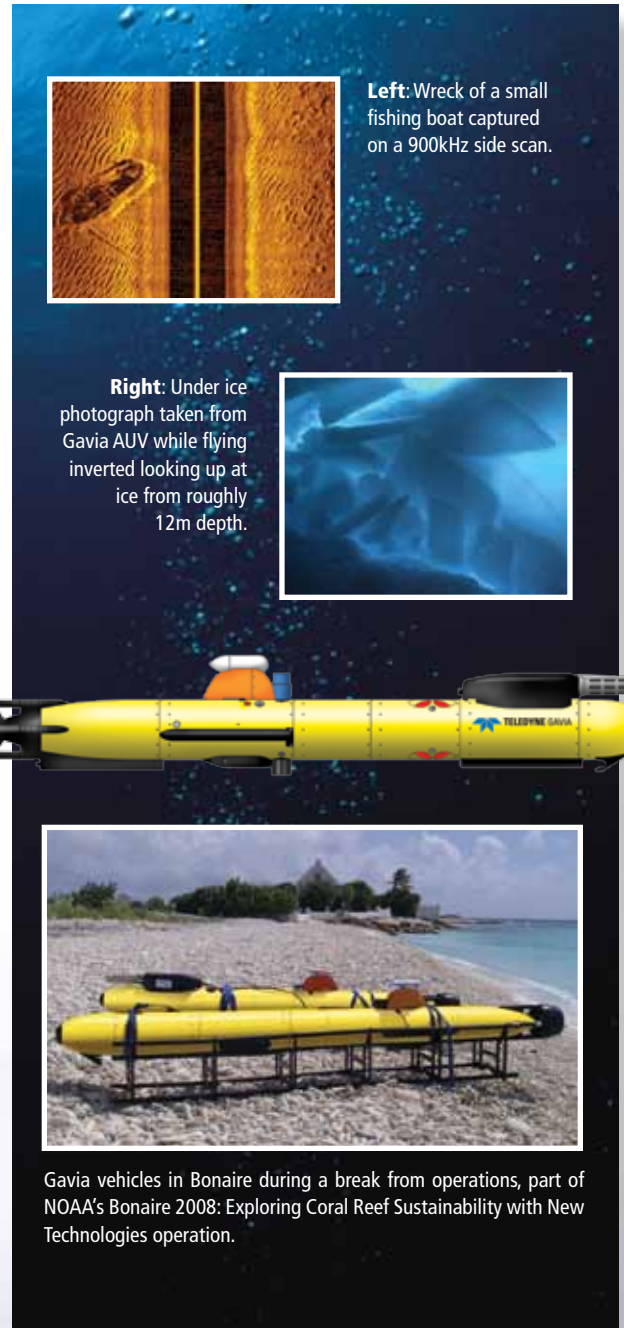
The Gavia AUV has the ability to carry both user designed payload modules and an array of typical scientific standards, which makes it the ideal tool for researchers gathering a variety of data in depths up to 1000m.

Features:

- 2-man deployable
- Compact, optimized for overnight shipping
- Modular construction, maximum flexibility
- Chart-based graphical user interface
- A wide array of additional sensors available
- No installation or calibration of peripherals required
- Over the horizon communications through Iridium

Applications

- Oceanography, limnology, habitat assessment
- Hydrography, bathymetric surveys
- Archeology, wreck location & mapping
- Bottom type classification, mid-water analysis
- Current profiling & under ice surveying



Left: Wreck of a small fishing boat captured on a 900kHz side scan.

Right: Under ice photograph taken from Gavia AUV while flying inverted looking up at ice from roughly 12m depth.



Gavia vehicles in Bonaire during a break from operations, part of NOAA's Bonaire 2008: Exploring Coral Reef Sustainability with New Technologies operation.

INNOVATIVE UNDERSEA SYSTEMS TECHNOLOGY



**TELEDYNE
GAVIA ehf.**

A Teledyne Technologies Company

TELEDYNE GAVIA AUV - SCIENTIFIC

General Specifications

Length:	From 1.8m for base vehicle
Weight in air:	From 49kg for base vehicle
Diameter:	200mm
Depth rating:	500m or 1000m
Battery module:	1.2 kW lithium ion rechargeable cells per module
Max speed:	> 5.5 knots
Endurance:	Dependent on speed and exact configuration. Typically around 7 hours with DVL INS and greater when using acoustic positioning. Vehicle can be operated with two batteries for increased endurance (roughly doubled) or batteries can be field swapped for continuous operations.

Communication

Wireless LAN:	IEEE 802.11G compliant
Satellite communications:	Full global coverage via Iridium link
Acoustic modem:	For tracking and status updates

Navigation

As standard GPS and Fluxgate Compass
Optional DVL aided Inertial Navigation System (INS)
Optional DVL aided Long Baseline (LBL)

Typical Scientific Configurations

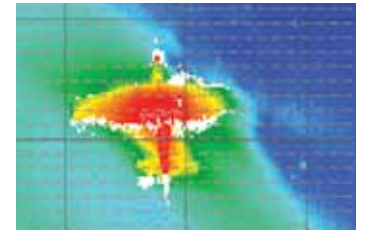
Gavia base vehicle (500m or 1000m depth rating)
DVL INS or LBL positioning
Side scan sonar and camera
Sound velocity meter
Obstacle avoidance sonar
Typical options: CTD (Seabird SBE 49), ADCP, Environmental characterization optics (Wetlabs ECO Pucks), O₂, swath bathymetry module, sub-bottom profiler module, spare battery module(s) and custom payload modules for user supplied instrumentation.

Northrop Data Sets

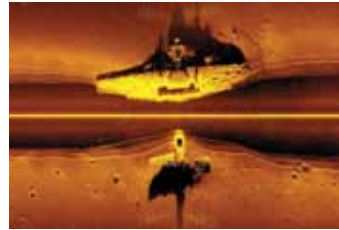
Crashed by Reykjavik Airport during WW2



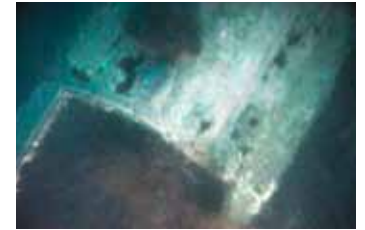
Northrop N-3PB.



Binned GeoSwath MBES image of target.



1800 kHz Side Scan Sonar image of target



Detail of bottom hatch from the Gavia camera system.



The modular construction of the Gavia AUV allows the user to conduct a variety of missions with field-changeable modules. Additional Gavia AUV modules can be purchased at later dates to increase capability as mission requirements dictate.

The Gavia AUV began as a joint development effort between the University of Iceland and Hafmynd ehf (now Teledyne Gavia), in 1997. Since then, numerous Gavia vehicles have been sold to military, commercial, and scientific users in Iceland, Australia, Canada, Denmark, Japan, Portugal, Russia, the United Kingdom, and the United States.



Gavia Scientific Payload Package

- A key feature of the Gavia AUV is user changeable payload modules to carry custom sensors.
 - A typical 400mm long payload module has roughly 295mm usable space with a usable inside diameter of 178mm.
- A payload package consists of the Gavia interface kit, module controller firmware with serial to Ethernet port forwarding and serial payload operator software with configurable serial interfaces that allows serial payload devices to be controlled from within the Gavia user interface.
- A custom module shell can be flooded, if desired, in the form of a nose cone payload.