



Gavia Offshore

AUTONOMOUS UNDERWATER VEHICLE

Complete Survey Solution in a Low Logistics AUV

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

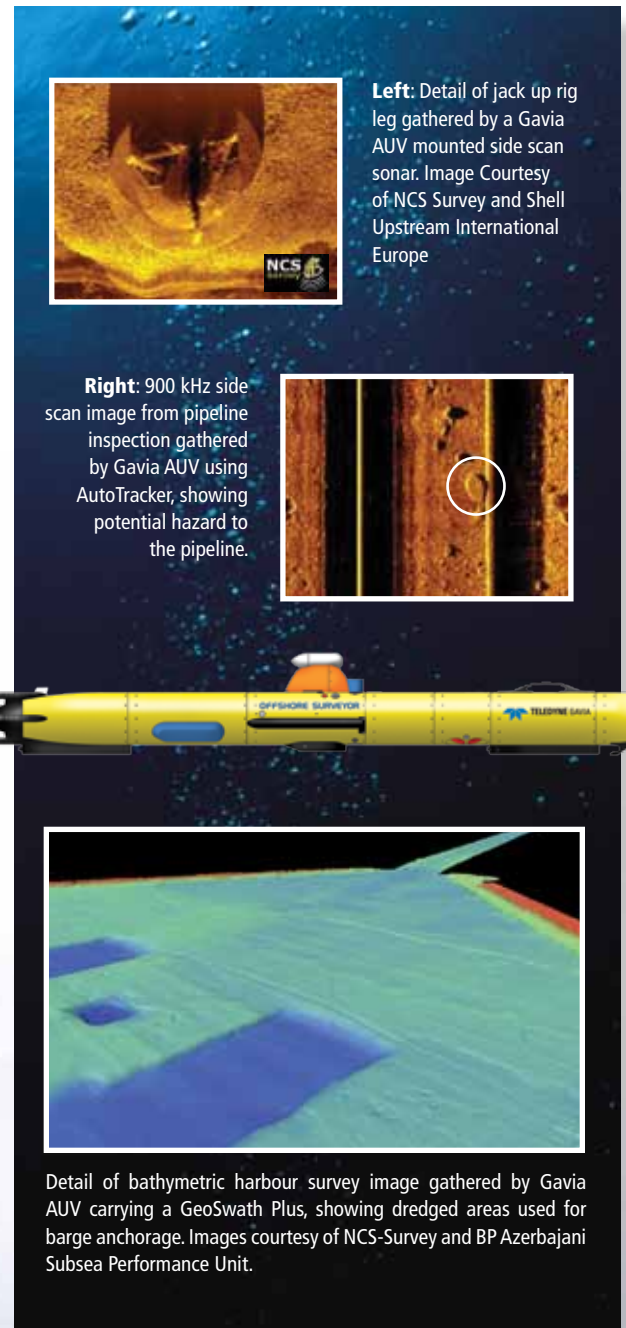
The Gavia AUV can be a productive asset to any commercial survey operation and has been proven in real world environments, providing cost effective data when compared to traditional means using surface vessels and ROVs.

Features:

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

Applications

- Bathymetric/sub-bottom/environmental surveys
- Exploration and construction support
- Inspection of pipelines and platforms
- Post hurricane inspection
- Pre/post lay, build and sub-bottom surveys



Left: Detail of jack up rig leg gathered by a Gavia AUV mounted side scan sonar. Image Courtesy of NCS Survey and Shell Upstream International Europe

Right: 900 kHz side scan image from pipeline inspection gathered by Gavia AUV using AutoTracker, showing potential hazard to the pipeline.

Detail of bathymetric harbour survey image gathered by Gavia AUV carrying a GeoSwath Plus, showing dredged areas used for barge anchorage. Images courtesy of NCS-Survey and BP Azerbaijani Subsea Performance Unit.



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INNOVATIVE UNDERSEA SYSTEMS TECHNOLOGY

TELEDYNE GAVIA AUV — OFFSHORE SURVEYOR

General Specifications

Length:	2.7m (typical, depends on configuration)
Weight in air:	70 - 80kg (typical, depends on configuration)
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 4 – 5 hours at 3 knots per rechargeable battery module with all sensors (including swath bathymetry). 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

High accuracy DGPS ready receiver
High-precision DVL-aided Kearfott T-24 Inertial Navigation System (INS) with Teledyne RDI Doppler Velocity Log (DVL) and direct sound velocity meter.
Positioning accuracy can be maintained over longer duration deployments by ranging to bottom-moored Long Baseline (LBL) transponders (optional).

Typical Configuration

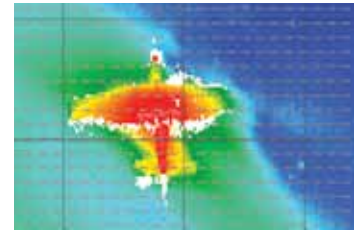
Offshore Surveyor base vehicle (500m or 1000m depth rating)
High-precision DVL aided Inertial Navigation System (INS)
Swath bathymetry module
Side scan sonar and camera
Sub-bottom profiler
Sound velocity meter
Obstacle avoidance sonar
AutoTracker from SeeByte
Spare battery module(s)

Northrop Data Sets

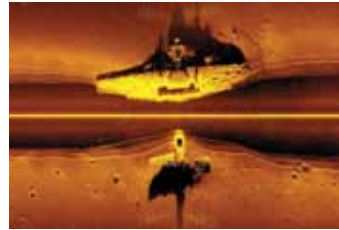
Crashed by Reykjavik Airport during WW2



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.



Offshore Surveyor Details

- Only low logistics portable AUV capable of performing a complete commercial survey (side scan, bathymetry, and sub-bottom).
- Using SeeByte's AutoTracker software, a Gavia AUV can autonomously detect and track a pipeline from onboard sensors while constantly maintaining a predetermined offset to optimize the data that is being collected. The AutoTracker can handle both expected and unexpected pipe burials.
- Gavia Offshore Surveyor vehicles are currently in use by numerous commercial survey companies for a variety of applications including pipeline inspection, hydrographic surveys, and post and pre- construction support activities globally.



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