

Shared infrastructure for living systems

Getting onto the water is the hard part.

BIUTOPIC builds and operates shared aquatic research infrastructure. Laboratories, authorities and NGOs book the platform, the instruments and the crew, then go to work.



Monitoring is mandatory. Access is not.

63%

of Europe's surface water bodies are not in good or high ecological status.

120,000+

water bodies that the Water Framework Directive obliges Europe to monitor.

Major gaps in monitoring remain, in spatial coverage and in assessment confidence.

« It is always very complicated for our universities to secure nautical means. »

In his letter of support, 12 December 2025

Dr Johnny Gasperi

Directeur de Recherche, Université Gustave Eiffel

One system, three platforms.



HYDRO-01

Field tested

Compact autonomous survey platform. Designed to be launched and recovered from EXO.

Supervised autonomous navigation • solar energy management • acoustic and water quality payloads



L'Hydronaute

In integration

Shared floating laboratory on a Renaud 8000 hull from 1987.

Pooled navigation, equipment and crew • mooring framework in preparation, subject to authorisations



EXO-01

In build

Reversible exoskeleton adding solar energy, electric propulsion and science capacity.

Two 5 kW rim drive pods • 30 kWh solar design target • aluminium structure in build

EXO is an architecture, not a boat.

Host hull

a workboat already in service

+

Configured EXO

reversible modules, minimal permanent modification

=

Mission platform

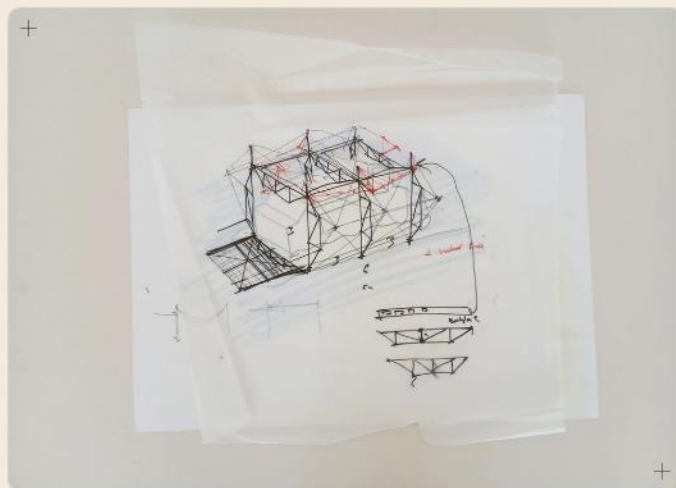
science capacity added without a new vessel



L'Hydronaute fitted with EXO-01. Modular structure on floats, observation deck.

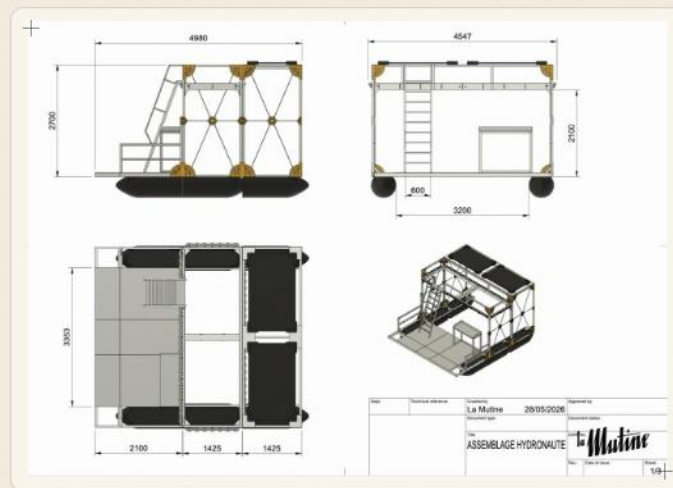
⚡	Energy	Solar integration. Design target approximately 30 kWh onboard.
⚙️	Propulsion	Two 5 kW rim drive pods. Zero direct emissions in electric operation.
📡	Science	Deck and power for heavier sensors and samplers.
🤖	Robotics	Stability, and launch and recovery for HYDRO-01.
🔄	Adaptation	Designed to minimise permanent modification of the host hull.

From paper to the real world.



01

Drawn. Structure study on tracing paper, node triangulation and connection points.



02

Dimensioned. Assembly sheet: elevations, plan and isometric, dated 05/2026.



03

Cut. The frames standing, aluminium assembled at the workshop.

Made possible by Bpifrance and by the PL2i grant that funded the EXO-01 design phase.

The next hulls are already in the water.

EXO is built for L'Hydronaute first, but nothing about it is specific to our boat. The same reversible structure, and the same control stack proven on HYDRO-01, fit working hulls that already exist.



Electric retrofit

Fit solar and electric propulsion to a working boat instead of replacing it. Fuel and direct emissions come down without a new build.

VNF's PAMI plan funds the greening of the French river fleet.



Remote repositioning

Move a hull not fit for an ocean crossing without a skipper aboard and without fuel. The stack is the one already flown on HYDRO-01.

EUR 100,000 reported for one NGO vessel transfer, Brittany to Martinique.



Sensor capacity

Add scientific payloads to boats already working, so capacity grows with the fleet that exists.

22,289 bathing waters are monitored every season across Europe.

Supervised navigation and remote communications are field-proven on HYDRO-01 across 47 hours of logged navigation. Communication redundancy and progressive autonomy remain open, and operating a crewed-size hull without a skipper depends on a regulatory framework that is not settled.

EXO-01 architecture, roadmap beyond the first build. Transfer cost reported to BIUTOPIC in 2026, not published.

We compete on the whole mission.

	The constraint	What we add
Research vessel	Ageing European fleet, reinvestment needed [1]	Shared access for smaller local missions
Off the shelf USV	Most carry under 300 kg of payload [2]	A mission built around the platform
Sensor supplier	Scope is the instrument, not the mission	The vessel, the crew and the field time
Local workboat	Scope is transport, not science operations	Power, stability and ASV handling

Platform, instruments, integration, crew and data, from one operator.

[1] European Marine Board, Position Paper 25, Next Generation European Research Vessels, 2019. [2] de Andrade, Sales and Fernandes, Automation 2025, 6, 17. Rows 3 and 4 state category scope, not measured performance.

Access is the product.

01

Launch offer

EUR 150 excl. VAT per researcher per day aboard L'Hydronaute.

02

Programmes

Microplastics in the Loire, cyanobacteria, bird monitoring. Four to ten runs each.

03

Lease

Lease EXO to other operators so they replicate the ecosystem on their own hulls.

The closest published benchmark

EUR 2,000	Dulra na Mara, 12.3 m inshore vessel, 12 passengers. Published.
EUR 600	Half a day on the Loire, unfitted fishing boat. Reported.
EUR 150	Per researcher aboard L'Hydronaute.

Why we can price it there

- | Solar and electric. No fuel bill for a day on the water.
- | Assisted navigation. The skipper is a scientist on the mission, not extra headcount.
- | Open source and AI-assisted. We build on work thousands of people have already done instead of paying to redo it.
- | One navigation carries several compatible programmes, so the day is shared.

Marine Institute Ireland, vessel day rates 2026. One of the few European operators that publishes a rate card at all; most quote on request, which is part of the access problem.

Real conditions show
what simulations do not.

North Atlantic

HYDRO-01 tested and deployed in real marine conditions, Faroe Islands 2026.

EXO-01

In build at atelier La Mutine, Nantes. Design phase funded by a EUR 7,000 PL2i grant.

ESUS

Social utility written into the statutes, verified annually by a comité de mission.

Letters of support from research institutions. Backed by Bpifrance, France Active, Réseau Initiative Nantes and Région Pays de la Loire under France 2030.

HYDRO-01 configuration before a sortie, Faroe Islands, 2026. Photo Aaron Gekoski.



More teams on the water. Better evidence for action.

BIUTOPIC provides boats, robotics, sensors and field operations as one shared service, so researchers, NGOs and public authorities can work in real conditions without owning the infrastructure.



The team aboard L'Hydronaute.

Shared infrastructure for living systems.

biutopic.com

Elven Villecourt

Vision, strategy, nautical operations and communication

David Aznaurov

Robotics and AI

Claudia Rosales

Research, biodiversity and HSE

Arpi Mangasaryan

Architecture, design and research

Accessible Use the infrastructure without buying and maintaining a fleet.

Measurable Generate field evidence that can be repeated and verified.

Scalable Move from HYDRO surveys to onboard testing and larger EXO-equipped vessels.