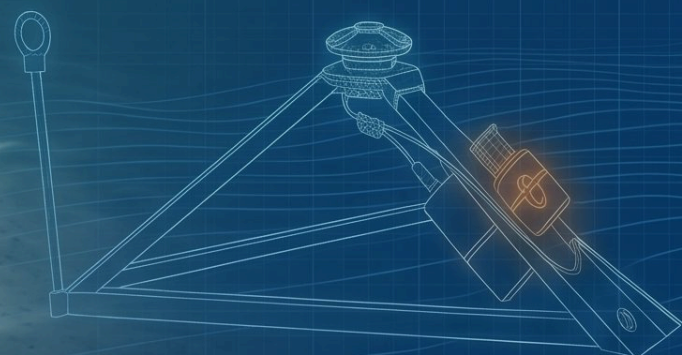
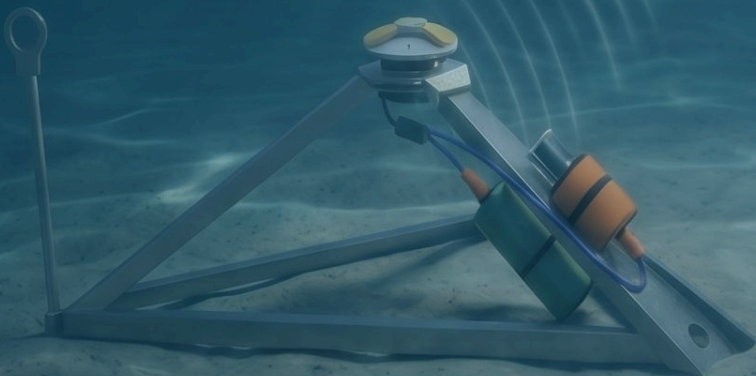
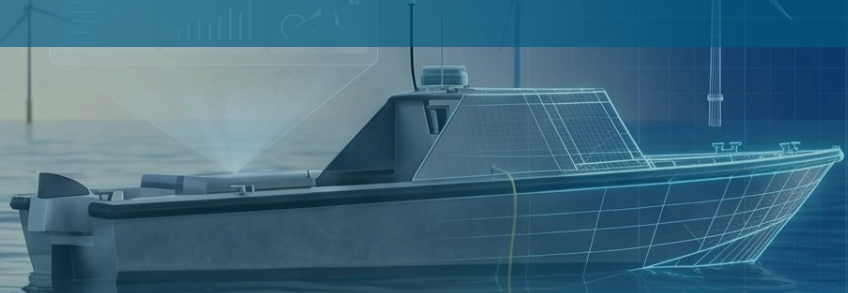


SOLUTION BRIEF

Autonomous Subsea Data Operations

Turning the seabed into a connected node, for recurring, vessel light subsea data.



The Challenge

For decades, the rule has been simple. If you want data from the seabed, you send a vessel to get it. Crews mobilize. Landers come up. Weeks pass before the data reaches the people who need it. Every campaign repeats the cycle, and every repeat means cost, risk, and lost time.

Offshore wind, oil and gas, and ocean science programs have outgrown this model. The sensors are ready. The science is ready. The bottleneck is the journey from seabed to shore.

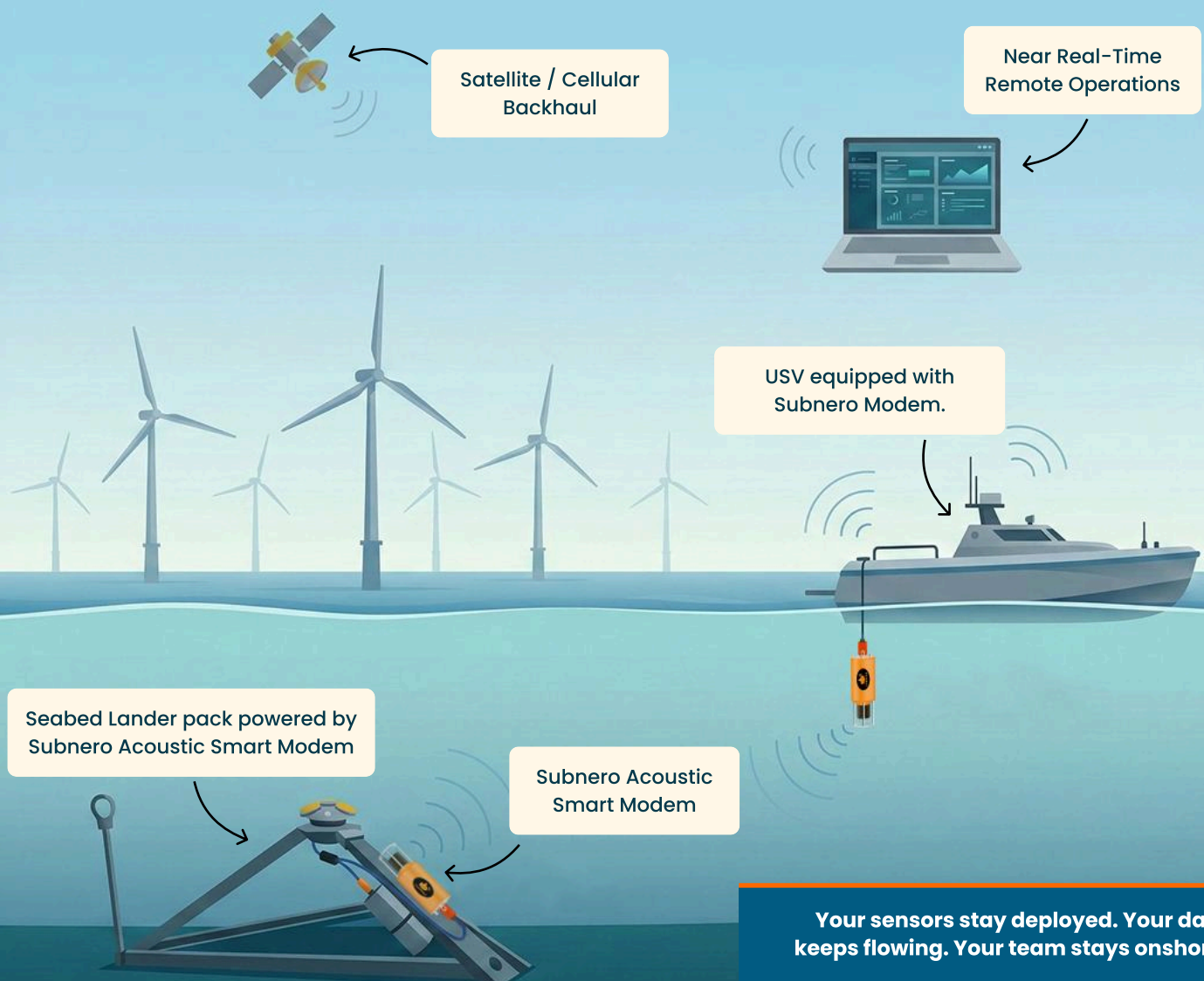
The Solution

Subnero's Autonomous Subsea Data Operations platform is the communications layer that turns any Unmanned Surface Vehicle (USV) into an intelligent data mule.

Through acoustic data harvesting, seabed landers fitted with industry standard sensors link acoustically to a Subnero Acoustic Smart Modem on board the USV. Harvested information is then relayed over satellite or cellular backhaul to the user's cloud endpoint or operations center. The entire path from seabed to shore is managed by Subnero, leaving the USV operator free to focus on the mission.

This challenge spans a wide range of applications, including:

- ✓ Offshore wind site characterization and metocean monitoring
- ✓ Subsea cable and pipeline intrusion detection
- ✓ Oil and gas asset and environmental monitoring
- ✓ Aquaculture and fisheries monitoring
- ✓ Passive acoustic monitoring and underwater noise mapping
- ✓ Seagrass, blue carbon, and coastal habitat studies



Key Advantages



One system, end to end

Seabed sensors, USV, backhaul, and user endpoint, all connected through a single Subnero communication layer.



Intelligence at the edge

Subnero Acoustic Smart Modems process data where it is generated, so what reaches you is information, not noise.



Software defined, link agnostic

Subnero's networking stack intelligently routes data across satellite, cellular, or terrestrial links, all the way to your endpoint.



Reduced reliance on recovery vessels

Replaces routine vessel mobilization with recurring autonomous USV missions, cutting day rate, fuel, and crew costs from every campaign.



Scalable underwater networks

One mission, many landers, one site wide dataset.



USV agnostic by design

Integrate with the surface platform of your choice. No lock in to a single vessel ecosystem.

A Smart, Integrated System

The Autonomous Subsea Data Operations platform is built as one system, not a stack of parts. Seabed landers carry your chosen sensors. A Subnero equipped USV transits the site and harvests data acoustically. Satellite or cellular backhaul carries it to the user's cloud or operations center, where analytics turn it into decisions.

Subnero Acoustic Smart Modems sit at every seabed sensor node and on the USV, running edge

intelligence that processes data where it is generated. Above the surface, Subnero's software defined networking stack takes over, intelligently routing that data across available links such as satellite, cellular, or terrestrial, all the way to the user's endpoint.

One communication layer, spanning the entire path from seabed to shore.



Subnero smart modems

How It Works

1. Seabed landers fitted with your chosen sensors are deployed for extended monitoring campaigns. Subnero Acoustic Smart Modems process data at the edge, turning sensor streams into the information that matters.
2. On schedule or on demand, a USV equipped with a Subnero modem transits autonomously to the site.
3. The USV's Subnero Acoustic Smart Modem harvests processed information from one or more landers across the underwater network.
4. Information is relayed over satellite or cellular link to your cloud endpoint or operations center.
5. The right information lands in your environment, ready for your analytics, your models, your decisions.

The Ocean, Always On

The next decade of offshore activity will demand more data, from more sensors, in more places, more often. Sending a vessel for every dataset is no longer the answer. The Acoustic Data Harvesting Solution is built for an ocean that is always monitored, always connected, and always delivering.

Working With Partners

Subnero collaborates with leading USV operators, sensor manufacturers, and survey companies to bring the Acoustic Data Harvesting Solution to programs worldwide. Whether you operate your own USV fleet, partner with a vessel provider, or are evaluating a new deployment, the solution is designed to integrate cleanly into your existing operations.

Proven in the Field

The solution is in active deployment across multiple regions and applications, including seagrass habitat monitoring, bathymetric survey support, and tide gauge data collection. Each deployment hardens the technology against real ocean conditions and broadens the catalog of sensors, mission profiles, and environments the platform supports.



Get in Touch

To discuss deployments, integrations, or collaborations, contact Subnero at info@subnero.com or visit subnero.com.

