



Capabilities and Services

ThayerMahan Offshore



Why Choose ThayerMahan?

We provide the equipment, technology, and U.S. labor all within regulatory guidelines so you can focus on your core business – bringing offshore wind energy to U.S. markets safely and efficiently.

Local People. ThayerMahan brings a local workforce with deep knowledge in the energy industry, hard to find unexploded ordnance disposal experts, and tested leadership ability from former U.S. military personnel.

Local Facilities. ThayerMahan is ideally positioned along the U.S. East Coast from Massachusetts to Virginia and quickly responds to operational needs. Our Washington D.C. office keeps us abreast of federal policy and provides the ability for policy input.

Local Content. Our full suite of systems provides advanced technology no one else offers. We have learned by bringing European expertise to U.S. waters, and we deliver unparalleled results using cutting edge technology.

Unparalleled Performance. We are a mission-driven team that provides a broad spectrum of offshore wind industry services using skilled, U.S. labor drawn from the scientific and regulatory agencies overseeing U.S. offshore wind development.



Our Advantage



Experience

- Energy industry
- Maritime industry
- Defense industry
- Ocean sciences
- U. S. Coast Guard
- U. S. Navy

Expertise

- Offshore operations
- Autonomous maritime systems
- Maritime data analysis
- Electrical, HVAC, safety, inspection
- Single Source USOW Support

Infrastructure

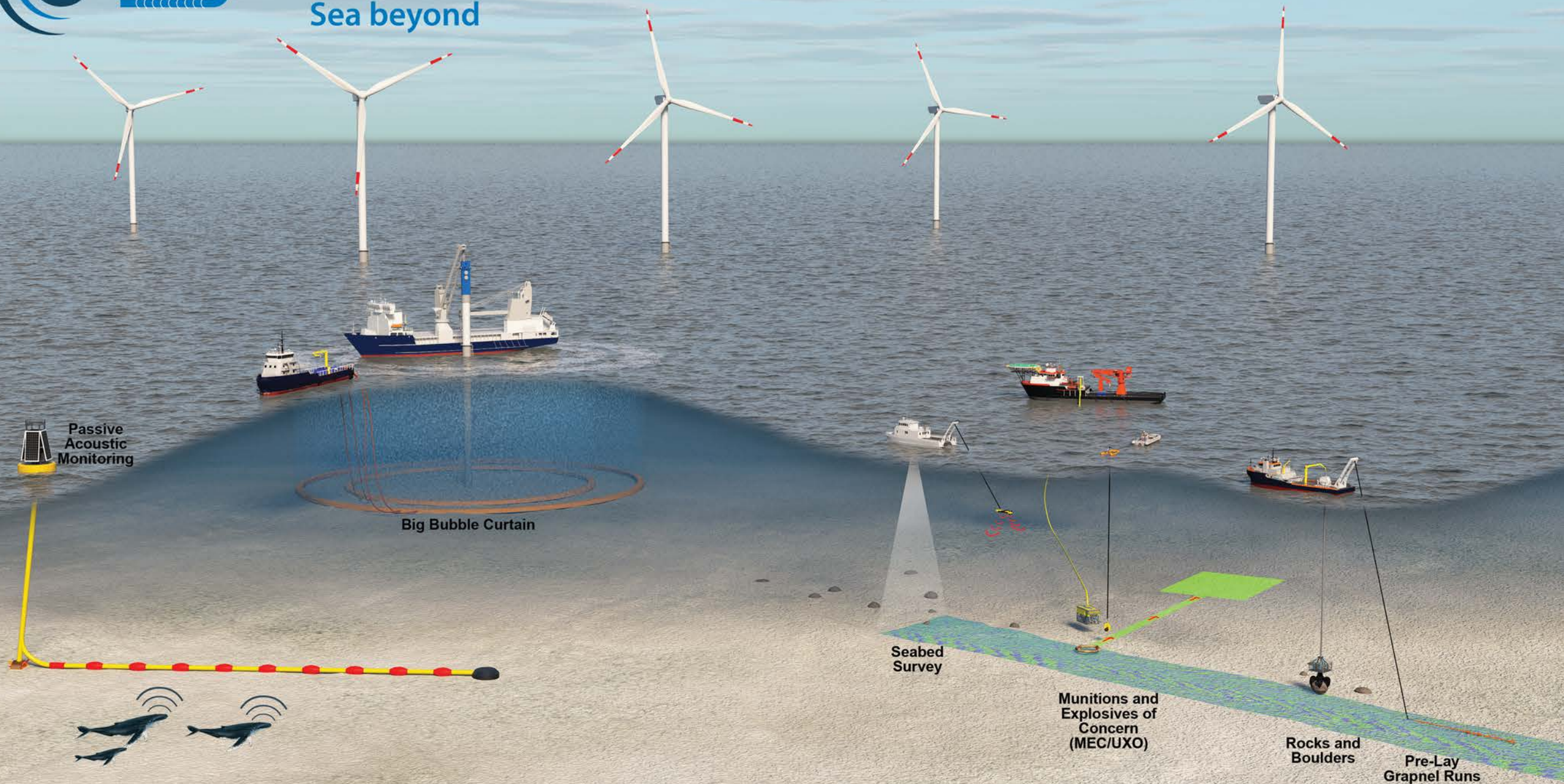
- ISO certified
- Robust HSE management
- Large warehouse, assembly, and maintenance facilities
- 24/7/365 operations

Technology

- Big Bubble Curtain
- Autonomous Passive Acoustic Monitoring
- UXO “lift and shift”
- MBES, Geophysical Survey
- ROV services - Defender systems
- Synthetic aperture sonar

Labor Pool

- Experienced mariners with significant offshore and national security experience
- STCW/GWO qualified
- Over 100+ ex-Military Offshore Operators

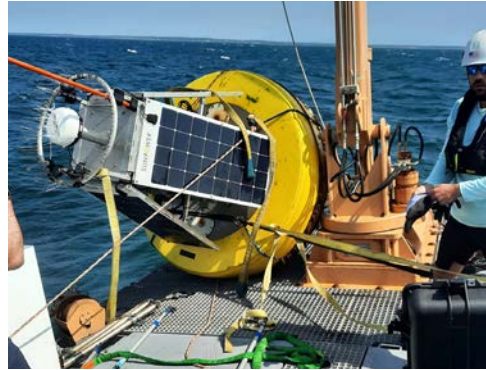


Our Services

Our systems deliver a better understanding of critical places under the sea, make unsafe places under the sea safe again, shield marine animals from harm, and protect nearly extinct whales.



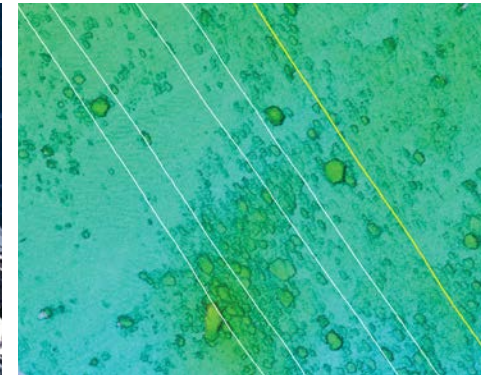
Noise Mitigation & Monitoring



Marine Mammal Monitoring



UXO Classification & Removal



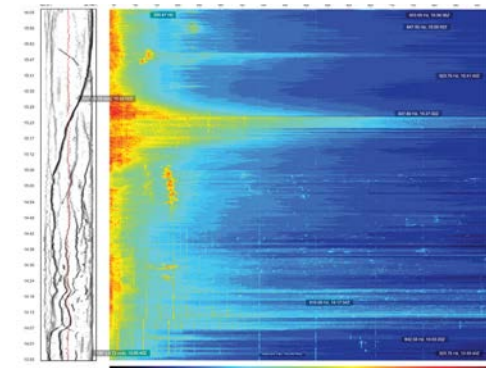
General Survey



Cable Services



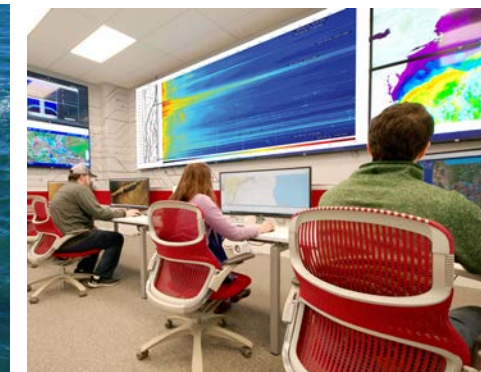
Precision Seabed Survey



Ocean Sciences



Offshore Vessel Support



Balance of Plant



Salvage

Big Bubble Curtain

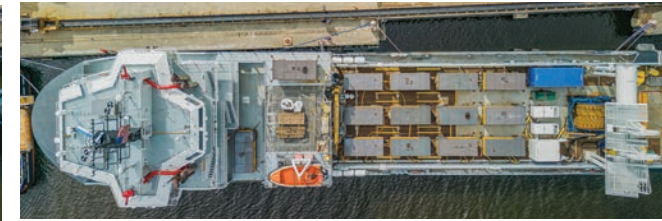
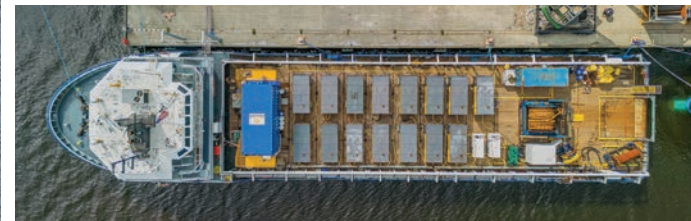
Acoustic mitigation for environmentally
responsible installation



USOW Acoustic Mitigation Operations

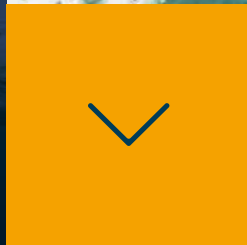
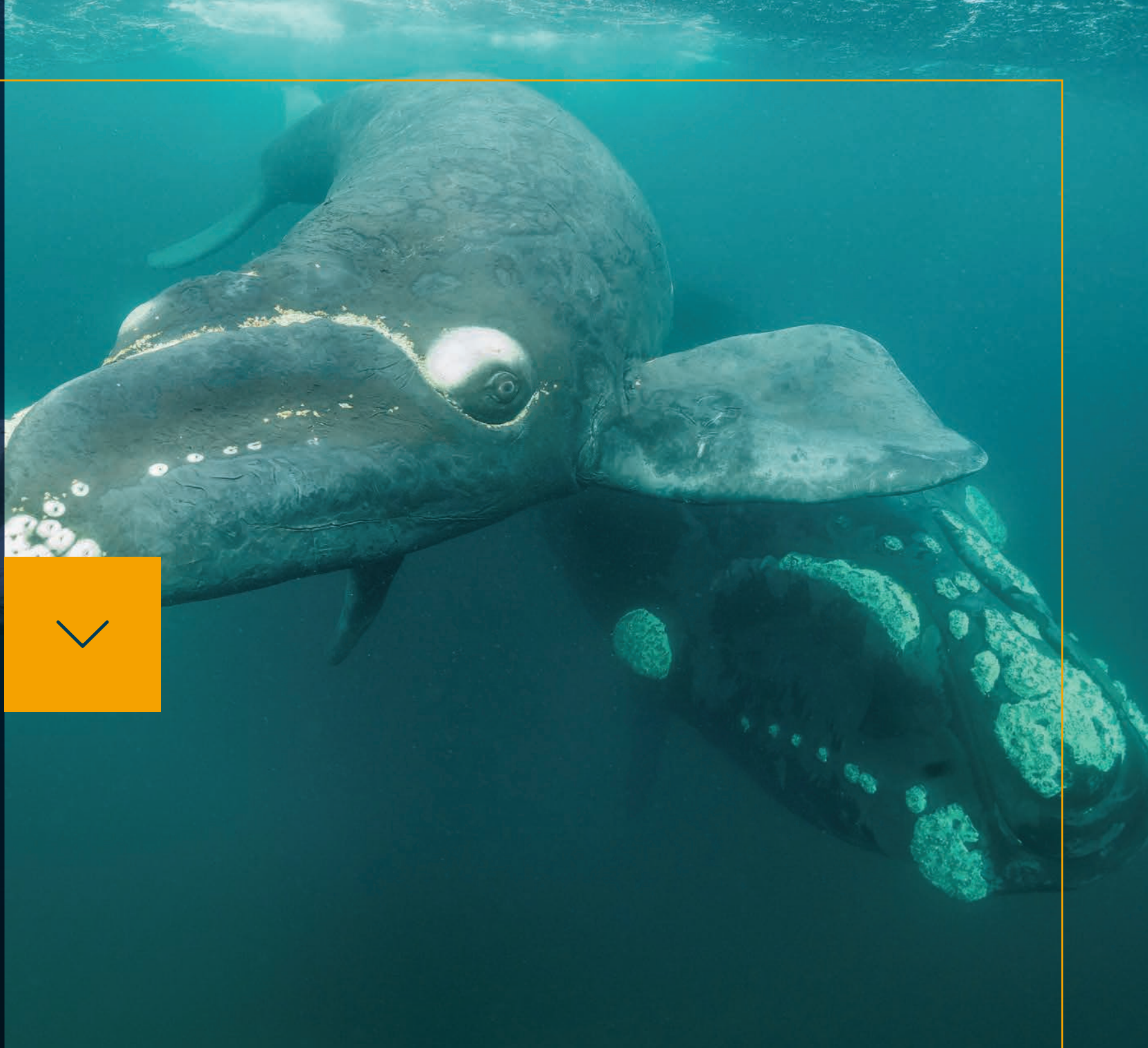


- ThayerMahan is the exclusive provider of Hydrotechnik Lubeck Big Bubble Curtain services to the Americas
- Fabrication, warehousing and servicing near lease sites
- Partnerships with Jones Act Compliant vessel providers
- Partnerships with U.S. compressor providers
- U.S. workforce with vital local knowledge



Marine Mammal Monitoring

Detect and Localize
Marine Mammals



8 / Acoustic and Visual Monitoring

SeaPicket Marine Mammal Monitoring Services

01

Acoustic and Visual Sensors

- Passive Acoustic Monitoring using fixed or mobile systems
- Acoustic sensors include
 - Bottom-mounted passive acoustic array
 - Towed passive acoustic array
 - High Frequency Linear Array
- Visual sensors include
 - Electro-optical camera
 - Infrared camera

02

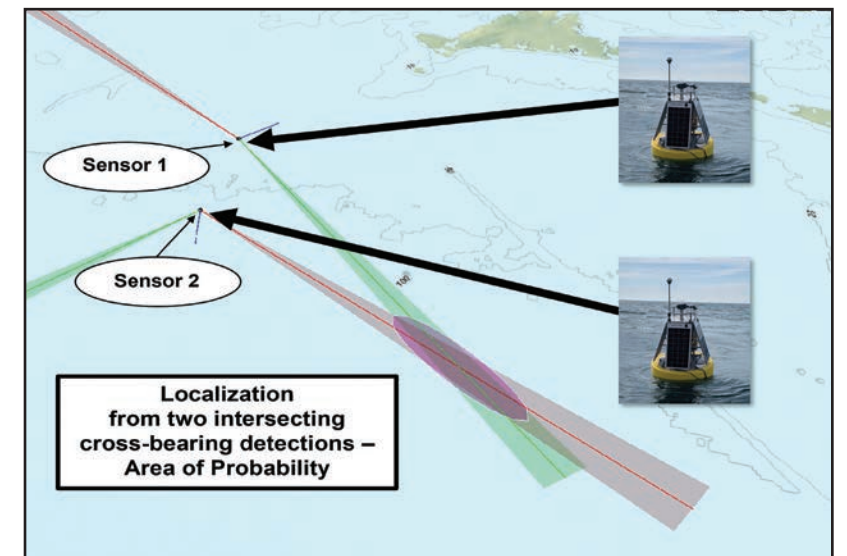
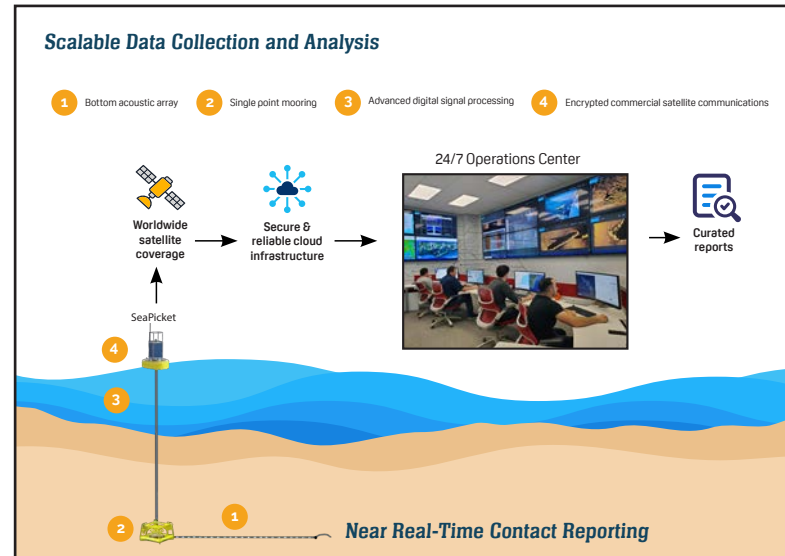
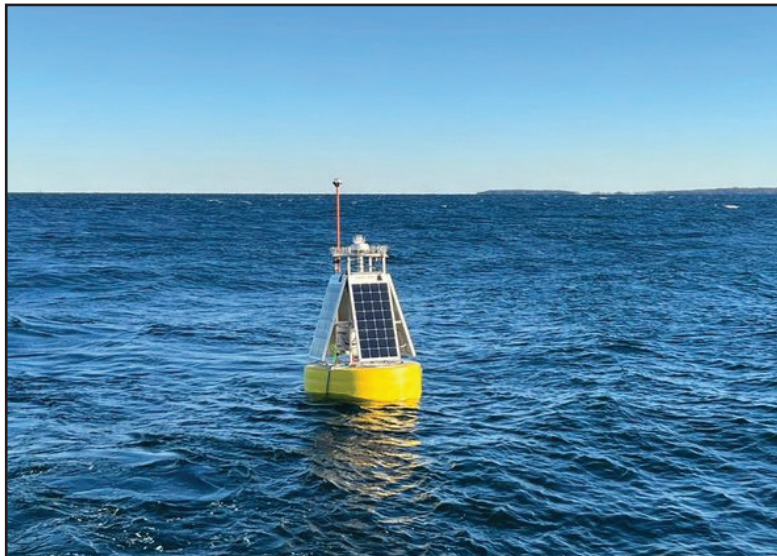
Monitoring Services

- Detect and classify whale species
- Marine mammal localization
- Receive curated contact reports in near-real-time
- Meets biological & environmental data collection and compliance regulations

03

Better Decisions

- Avoids delays and closures of offshore commercial operations due to marine mammal location uncertainty
- Mitigates environmental impact on marine mammal populations



9 / 24/7 Marine Mammal Monitoring Services

No One Can Hear Like We Can



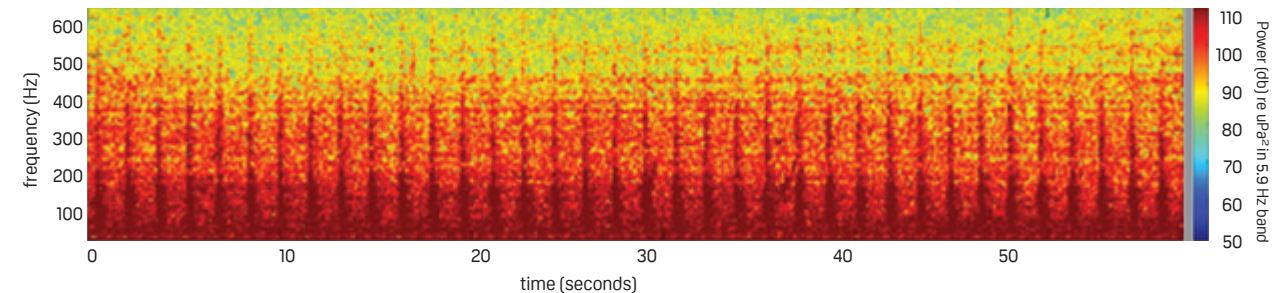
Operationally Tested,
Regulator Approved

Combined passive acoustic and visual marine mammal monitoring

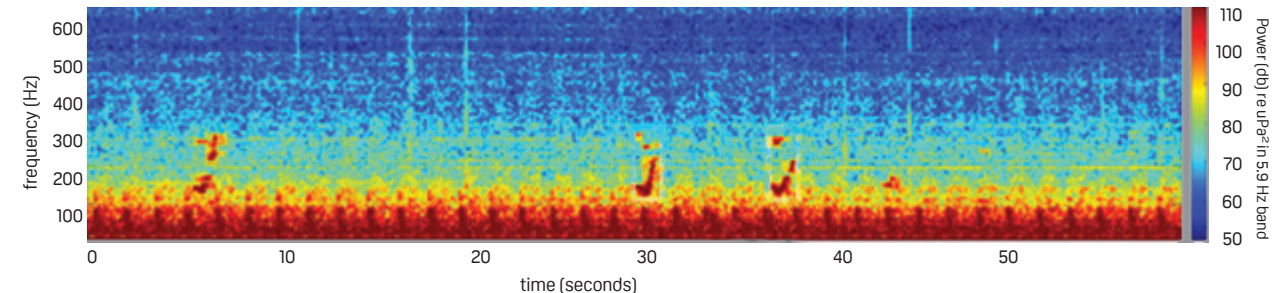
- > Nighttime marine mammal monitoring using acoustic and visual systems supports Alternative Monitoring Plans



Industry Standard to Date Can't hear a whale



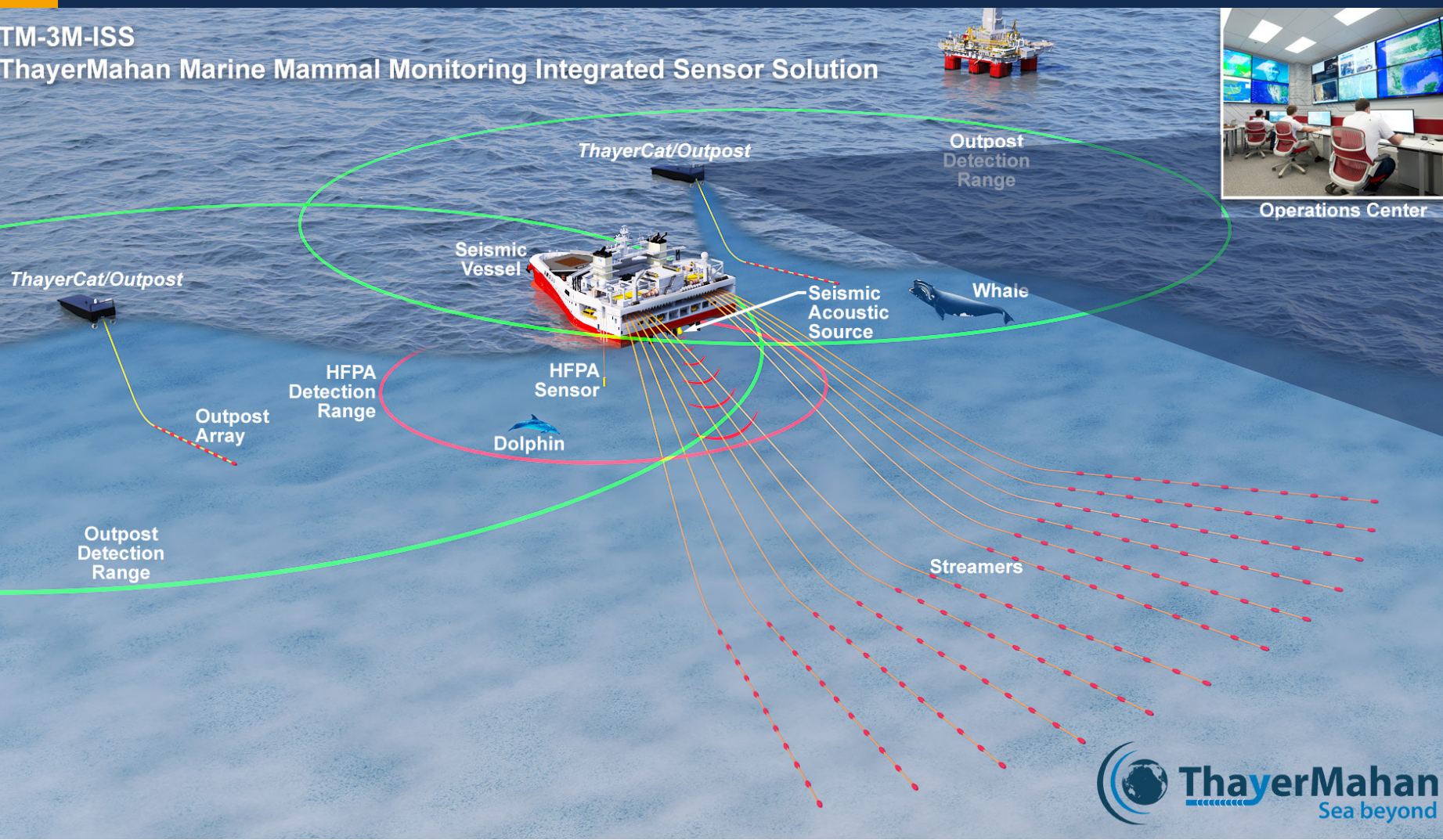
Next Generation: ThayerMahan The ONLY solution that can hear whales through pile driving



Integrated Sensor Solutions for Seismic Survey

Marine Mammal Protection

- > Use of autonomous vehicle
- > Negated need for additional vessels
- > Outpost system familiarity with regulatory community - NOAA, BOEM

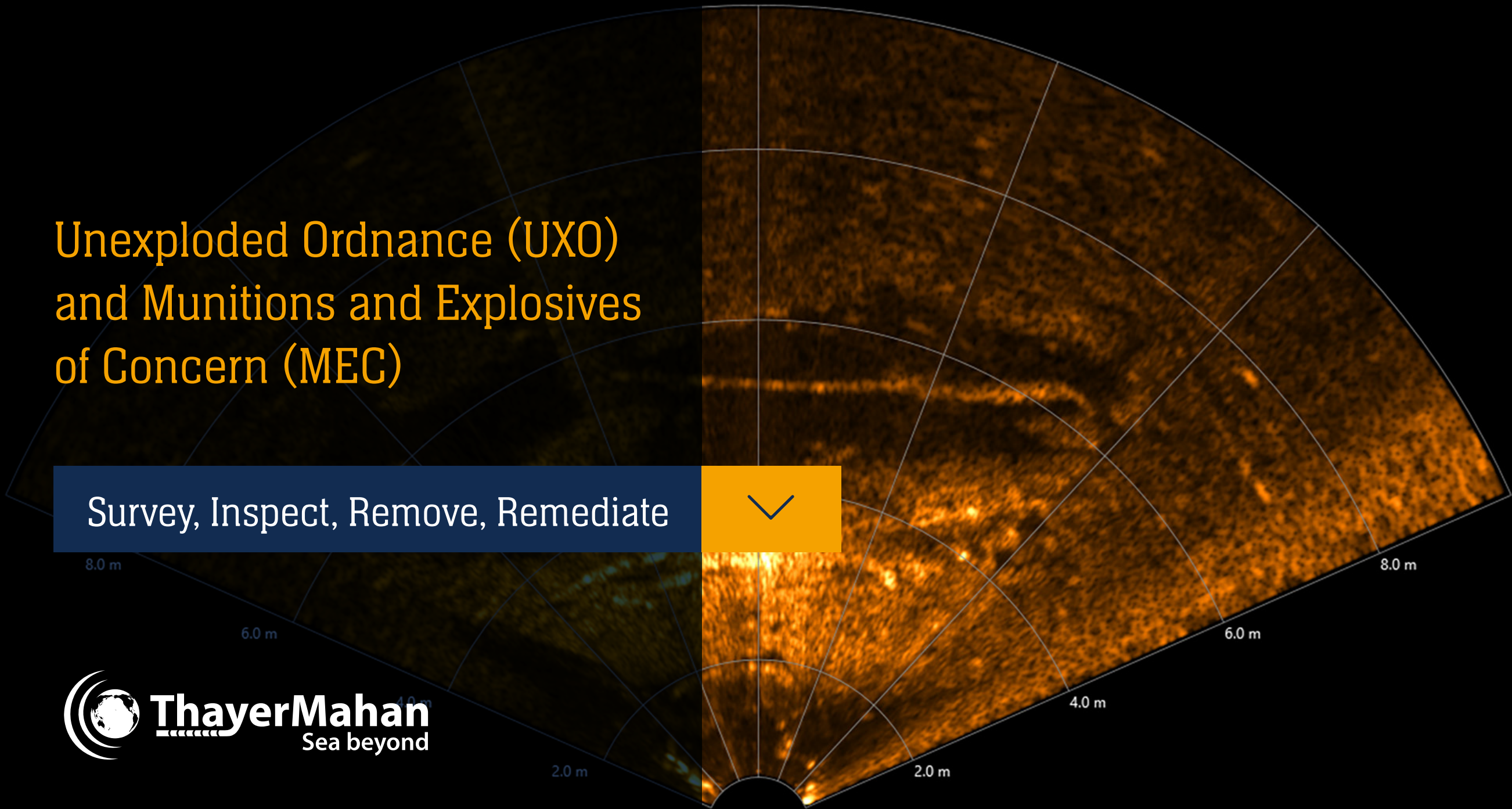


Critically Endangered Rice's Whale



Unexploded Ordnance (UXO) and Munitions and Explosives of Concern (MEC)

Survey, Inspect, Remove, Remediate



UXO / MEC Technology Capabilities

- Unequaled UXO field experience
- Experts in U.S. “Lift and Shift” process
- Exquisite and exclusive knowledge of local U.S. government infrastructure

Safety Summary for December 2024

Continuous 24/7 Complex Operations (Mission-Environment-Technology) on multiple vessels worldwide: 13,270 HRS for December

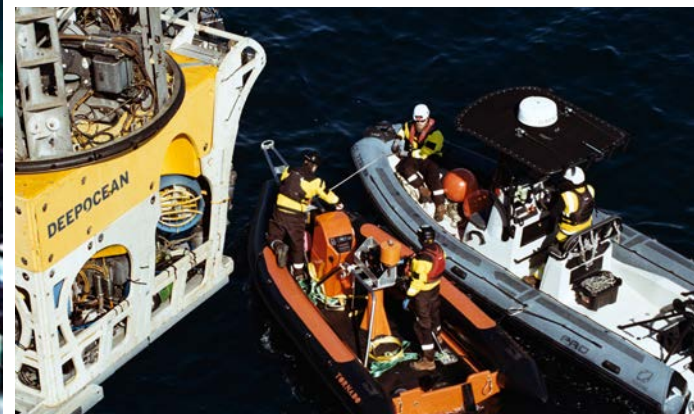
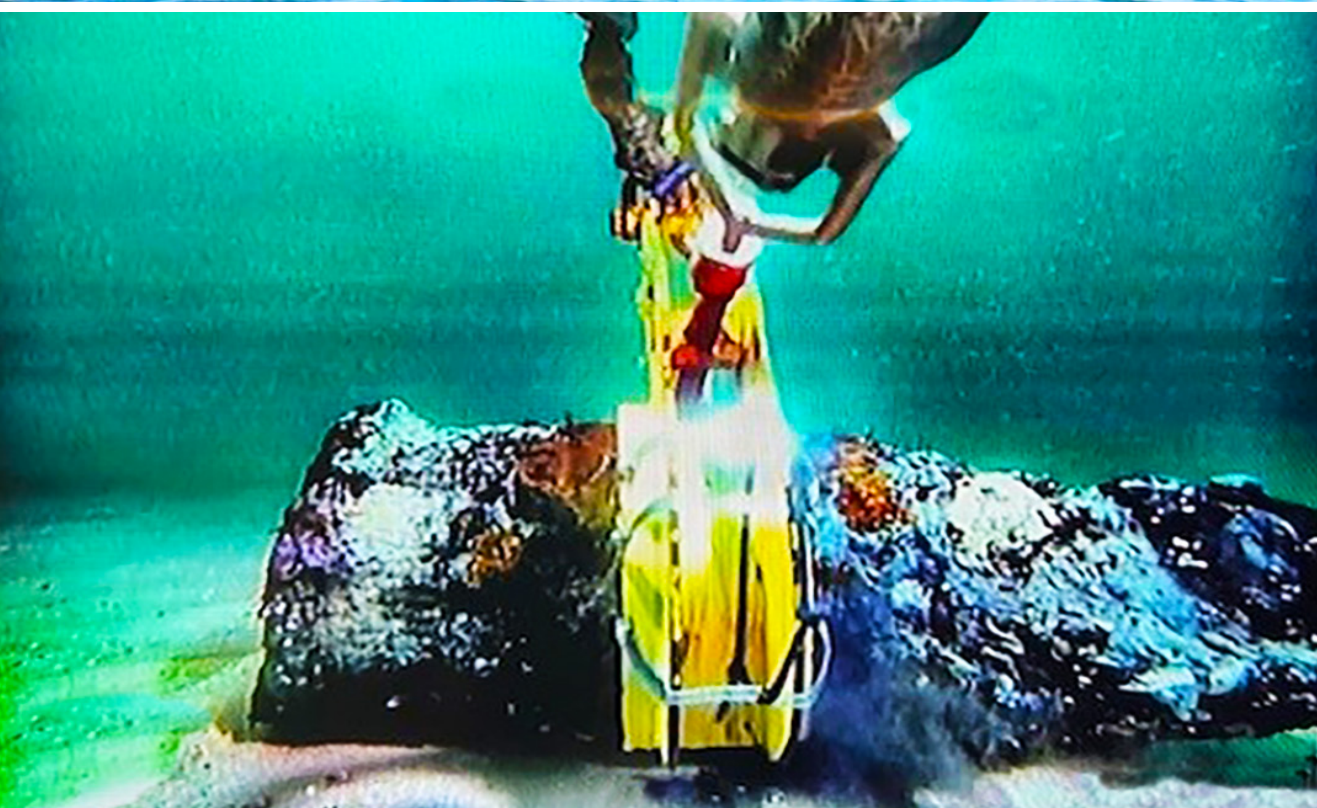
- BBC - DEME acoustic mitigation support 5,380 HRS
- UXO - EW MEC Relocation Planning, training and process development: 4,308 HRS
- TM Fleet OPS: 1,743 HRS
- PAM: 200 HRS

CVOW: 1,056,304 project man-hours without incident - 24/7 ops

Since VOW: 458 consecutive days with vessels at sea without incident

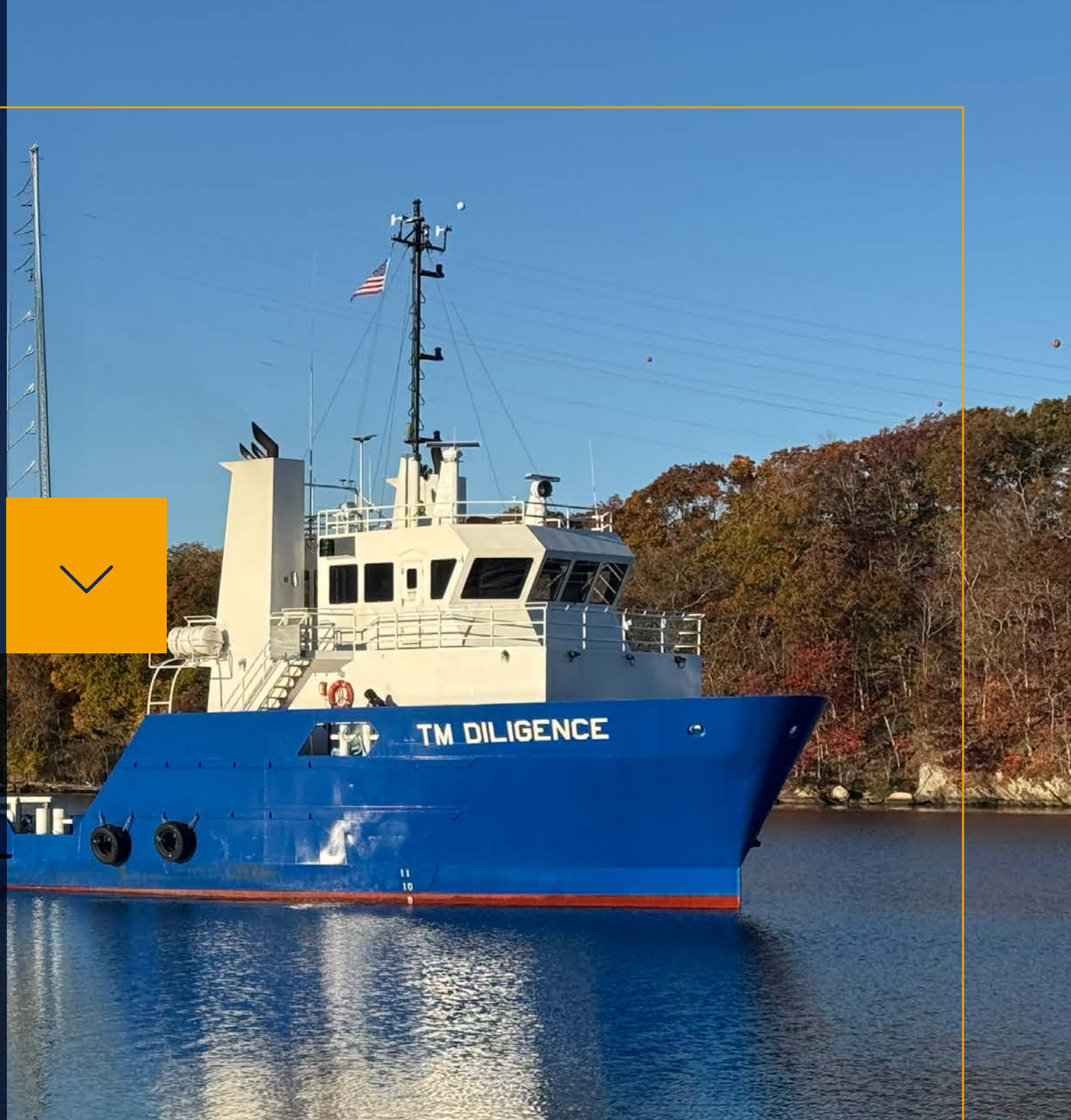
Key HSSE Objectives

- ⊖ Harm
- ⊖ Accidents
- ⊖ Injuries
- ⊖ Environmental Incidents
- ⊖ Regulatory Enforcement Notices



Precision Seabed Monitoring

Content, Knowledge
& Experience



Multibeam

Multibeam Echo Sounder (MBES)

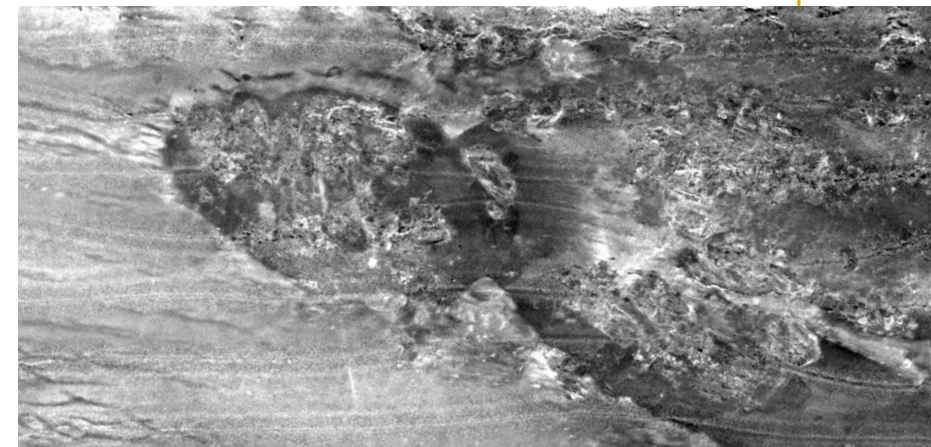
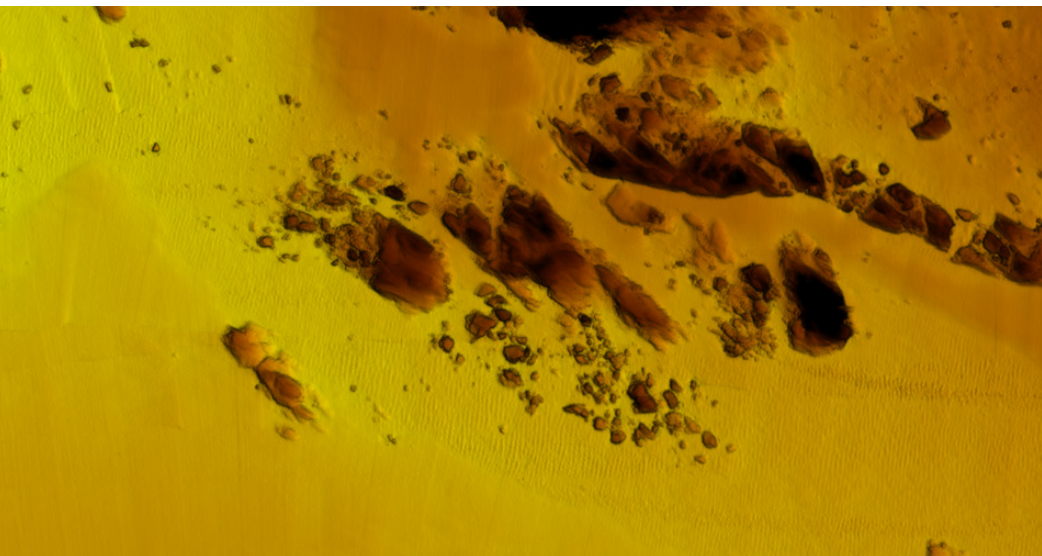
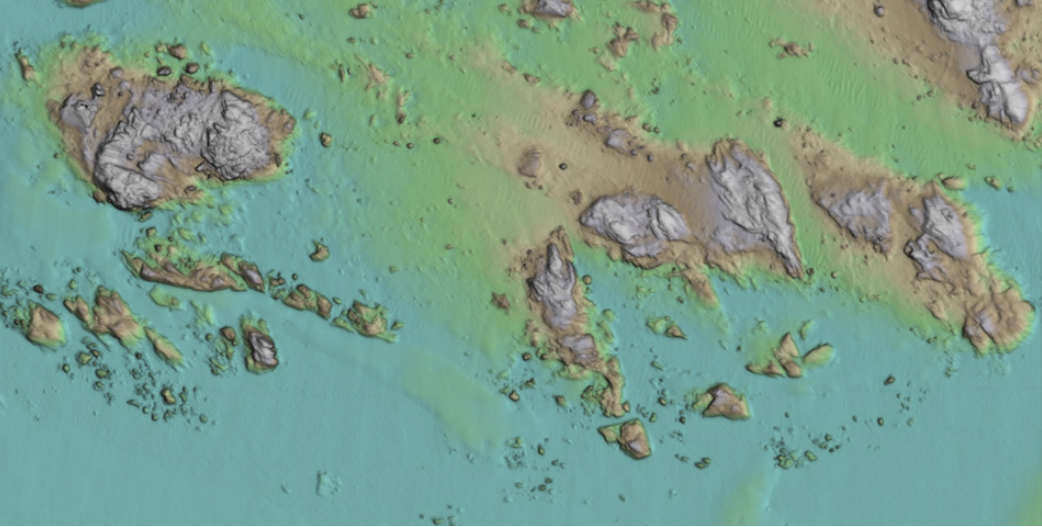
High Resolution Mapping

Quickly and accurately, capturing fine-scale features like:

- **Bathymetry:** Water depth measurements with high precision.
- **Seabed Topography:** Detailed contours of the seabed, including slopes, ridges, and depressions.
- **Seabed Classification:** Identification of different sediment types (e.g., sand, mud, rock) based on acoustic backscatter.
- **Object Detection:** Identification of underwater objects like wrecks, pipelines, and cables.

Features

- Vessel Mounted System stabilizes the sensor, improving data quality.
- In-House Hydrographers ensure proper data acquisition and processing, accurate data interpretation and analysis, and high-quality tailored deliverables for customer specific needs.
- Proven Track Record of successful projects



Synthetic Aperture Sonar (SAS)

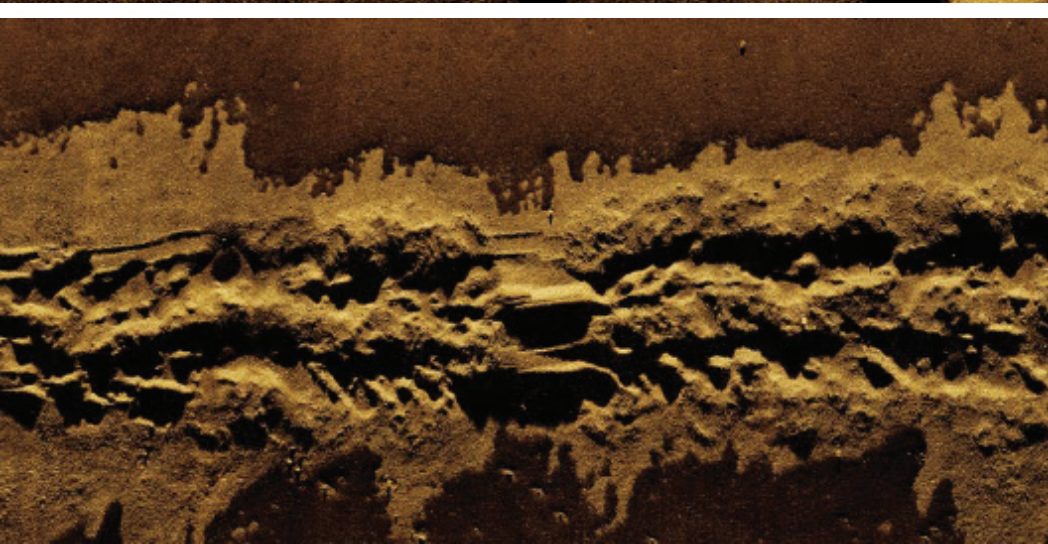
Unmatched Resolution

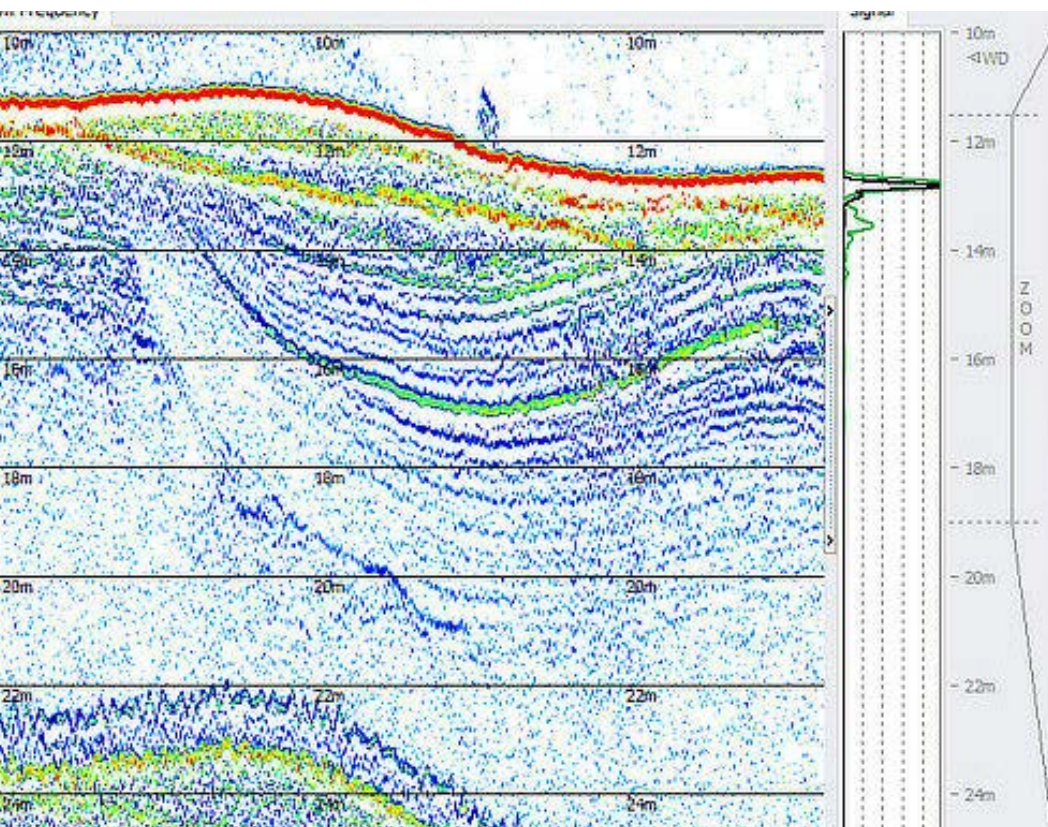
Comprehensive Seafloor Mapping

- Survey speed up to 8kts
- 4km²/hr Area Coverage Rate
- 3cm x 3cm resolution @ 200m
- Bathymetry vertical accuracy 10cm
- Real-time beam forming, georeferencing, mosaicing, and digital terrain modeling
- Data collection rate of 30MB/sec
- Operated in depth or altitude modes and includes automated bottom avoidance capabilities
- Mission Sets: Mapping/navigation, environmental assessment, infrastructure assessment, security/seabed threat monitoring
- Expeditionary Capability

Features

- Archaeological surveys
- Defense and Security
- Environmental monitoring
- On-the-spot decision-making
- Increase in operational efficiency
- Reliable navigation charts
- Precise mapping for infrastructure projects
- Real-time collaboration
- Improved mission coordination
- Detailed maps for a wide range of applications
- Complete understanding of the seafloor
- Global reach
- Unique expertise in cutting-edge technology





Geophysical Surveys

Side Scan Sonar

Capabilities

- High Resolution Imaging
- Wide Area Coverage
- All-Weather Operation
- Depth Range
- In-House Expertise in Data Analysis and Interpretation

Use Cases

- Underwater Objects: shipwrecks, aircraft, pipelines, cables, unexploded ordnance (UXO), and other debris
- Seabed Features: rocks, boulders, reefs, trenches, and other geological formations

Sub Bottom

Capabilities

- SBP system uses low frequency to penetrate seafloor
- SBP provides unique views of seafloor geology
- Coarse sediments resist sound more than fine ones
- SBP locates buried objects like UXO, pipelines

Use Cases

- Pre route surveys, pipeline/cable surveys, UXO and boulder detection, decommissioning surveys, marine archaeology

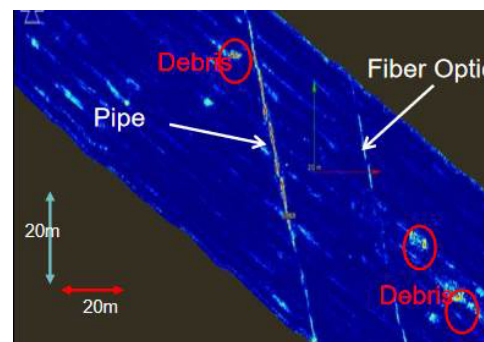
Magnetometer

Capabilities

- Detection of Magnetic Anomalies
- Mapping Magnetic Fields
- Depth of Detection

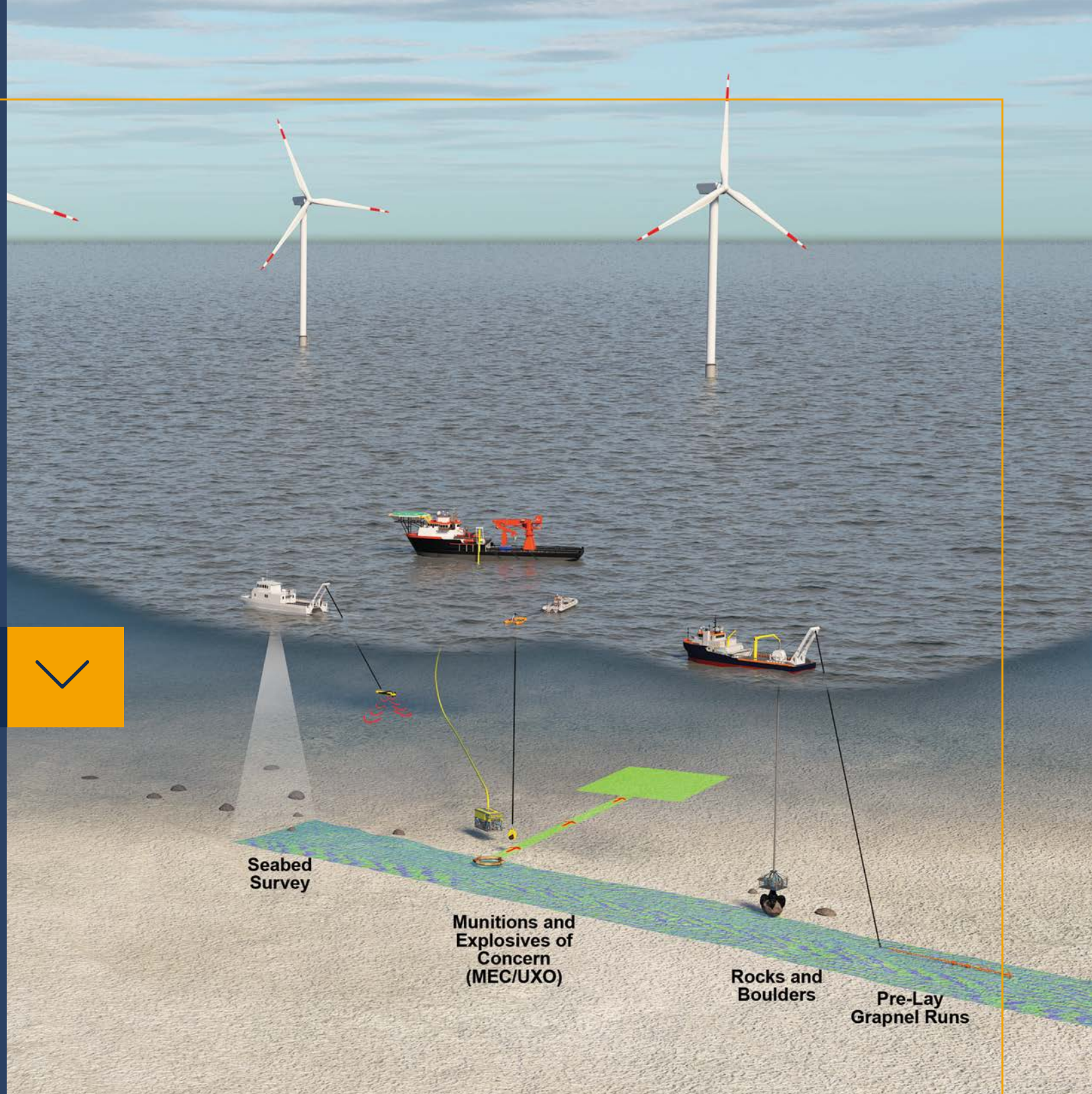
Use Cases

- Archaeology
- Geophysics: mapping geological structures, mineral exploration etc
- Engineering: locating buried utilities, pipelines, and other infrastructures



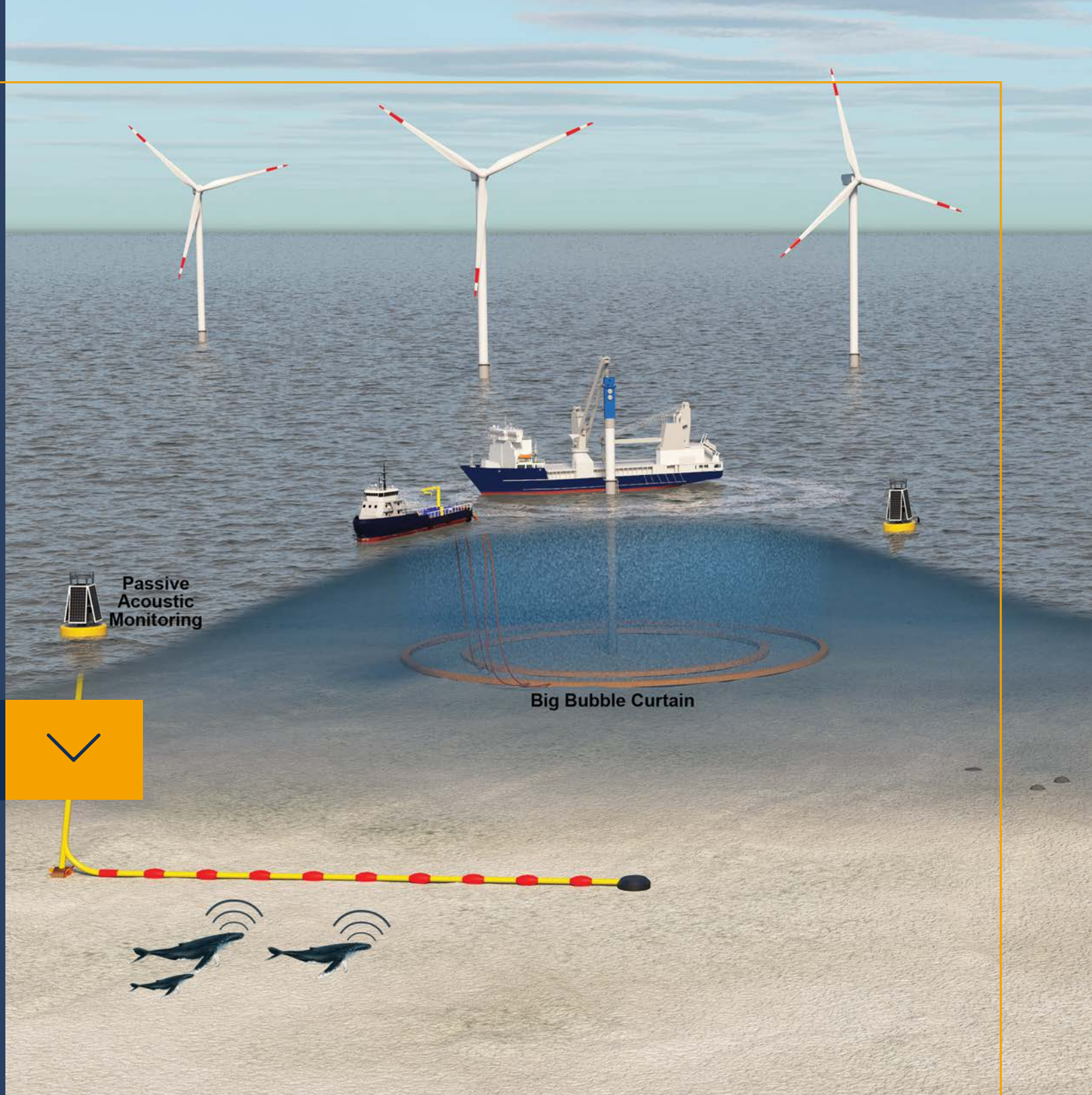
One Stop Cable Support Services

Pre-Lay and Post Lay Services



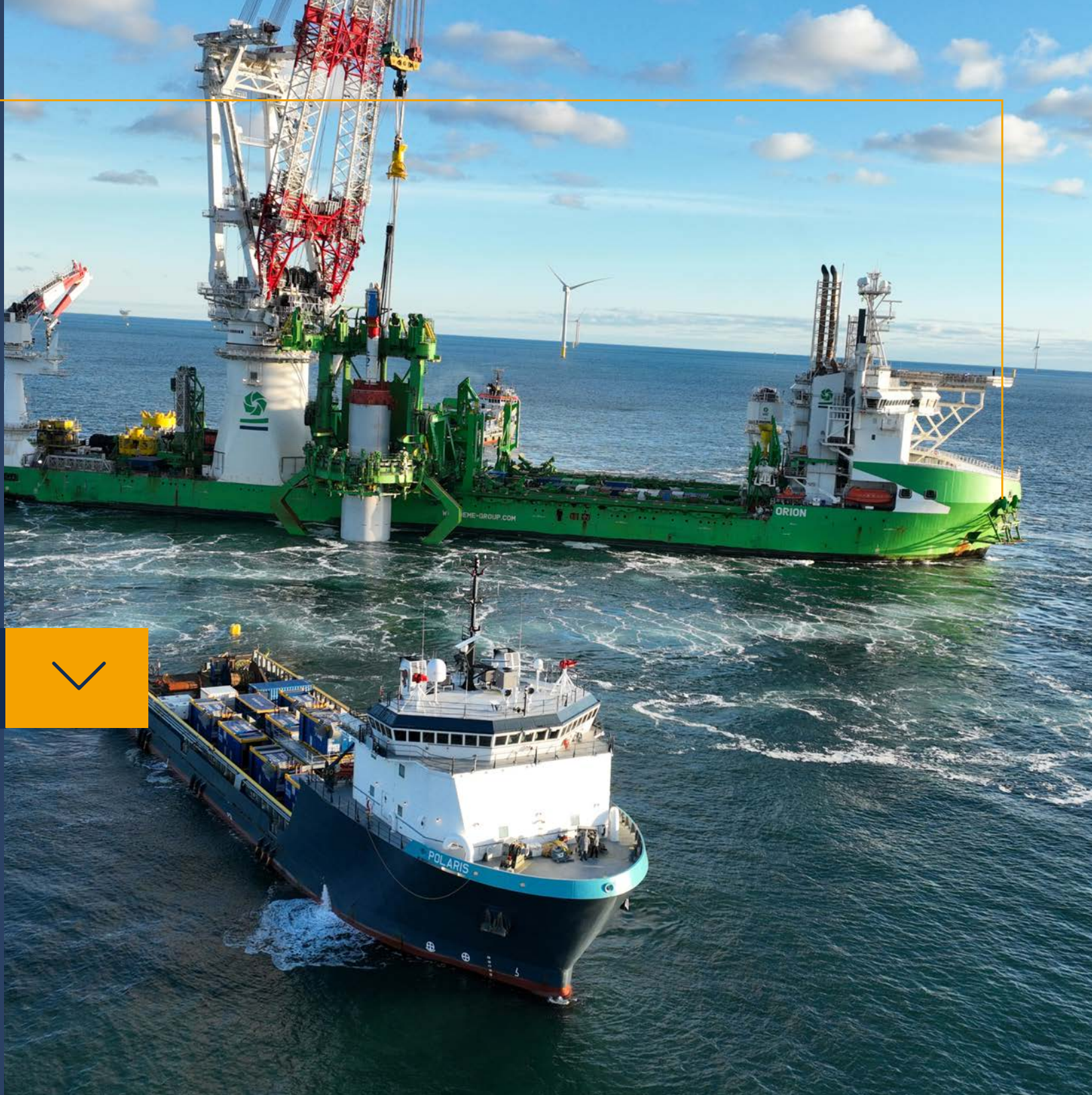
One Stop Shop Construction Services

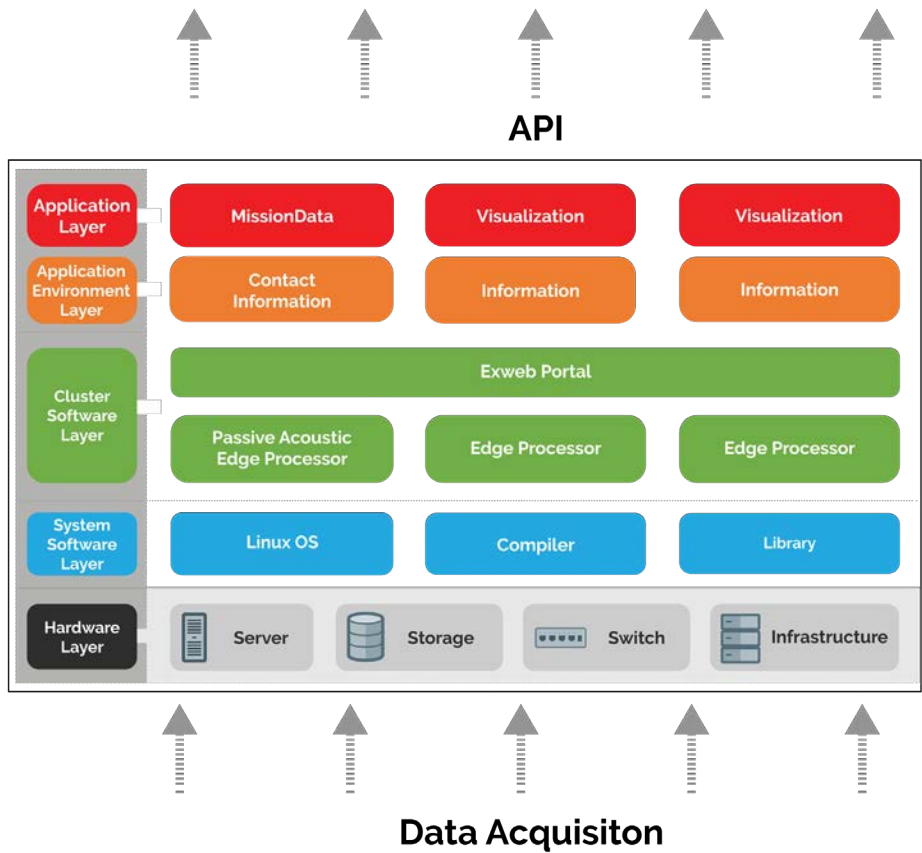
Continuous Construction Operations



Vessel Management, Charters, & Marine Coordination

Vessel Services

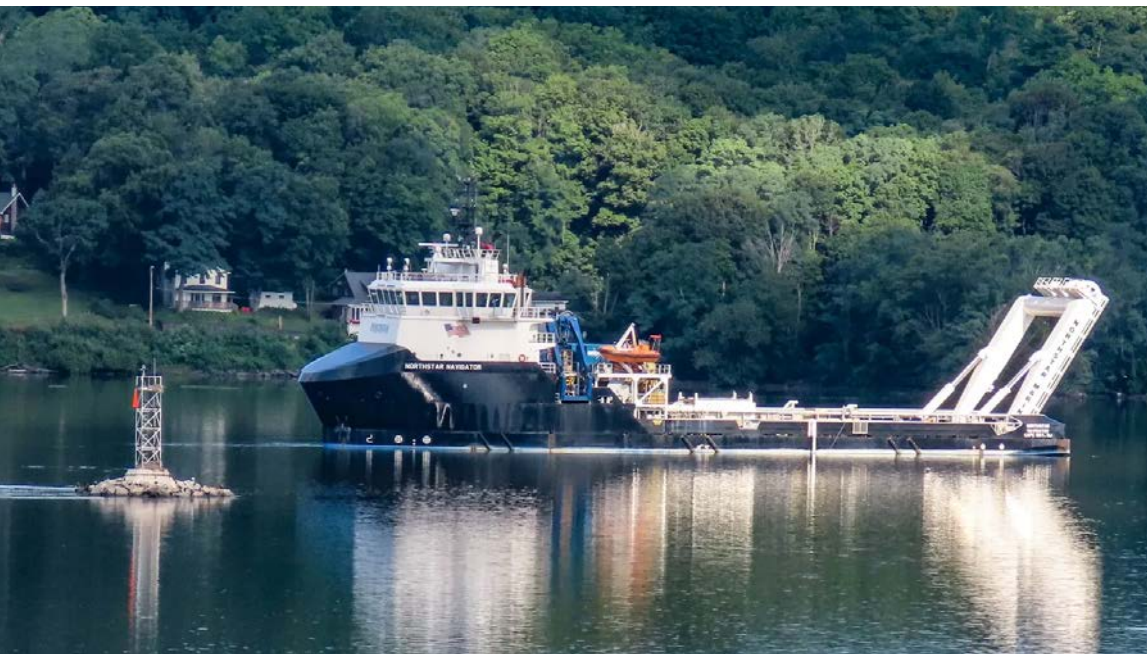




Vessel Management

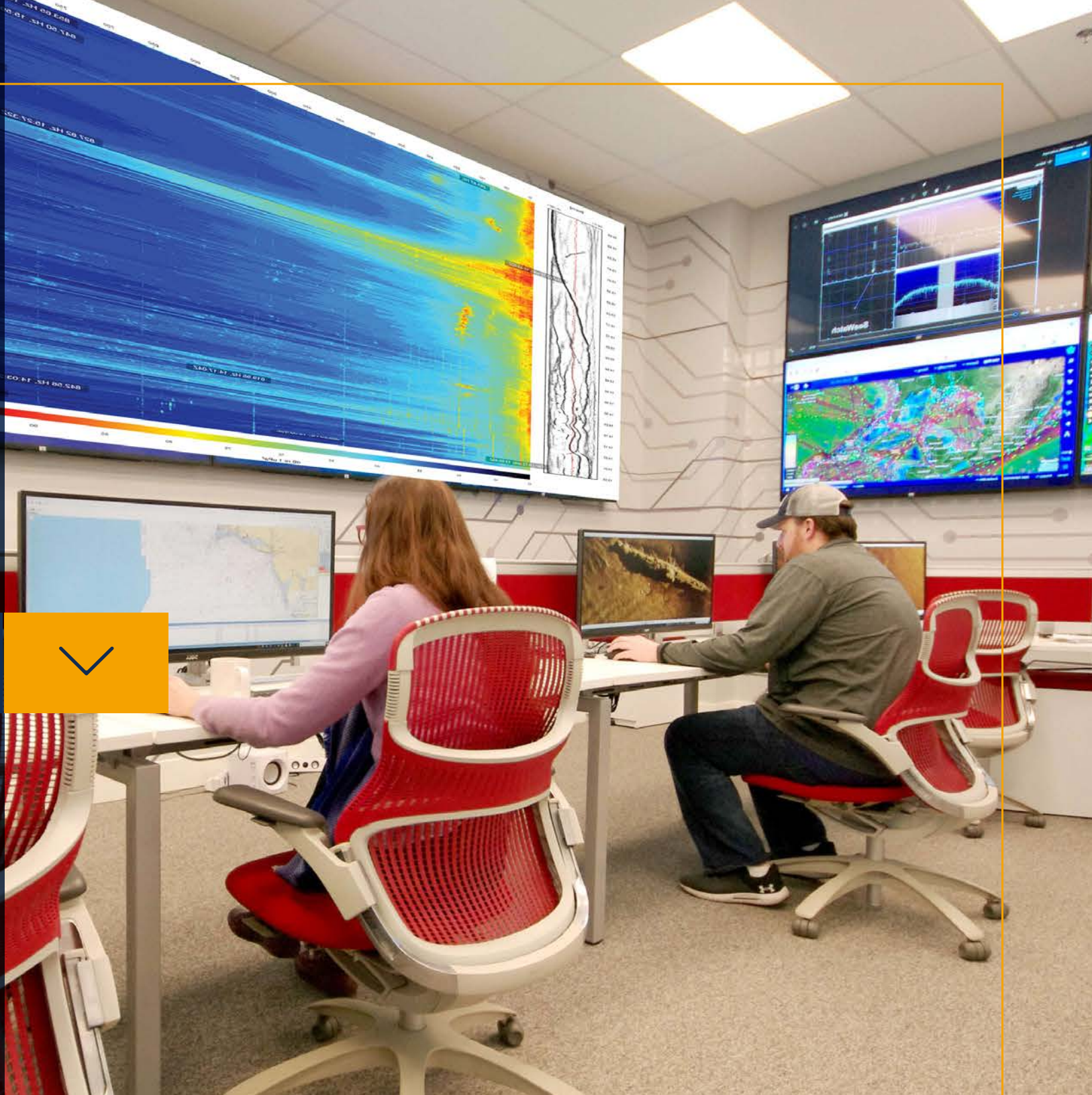
Marine Coordination

- Dedicated, experienced personnel who maximize the potential of each asset, ensuring peak performance.
- Quick mobilization and immediate response times with local expertise.
- Reduced mobilization costs through proximity to offshore project sites.
- TransparenSea central repository and processing hub for data ecosystem efficiency.
- Comprehensive offshore support from planning through to decommissioning.
- Enhanced operational flexibility to adapt to site-specific challenges.
- Reduced transport costs due to streamlined operations.
- Long-term cost benefits through efficient asset utilization across diverse services.



Operations & Maintenance Support

Balance of Plant



Operations & Maintenance Technology Capabilities

Below-water Structure and Cabling Inspection

- Synthetic aperture sonar (SAS) imaging, MBES
- ROV Inspections and scanning

Above-water Inspection

- UAV with optical monitoring
- Statutory Inspections (electrical and structural)

Substation and Electric Service Platform

- Statutory Inspections
- Electrical, structural, safety

Monitoring Services

- Environmental monitoring
- Passive acoustic monitoring for vessel transit



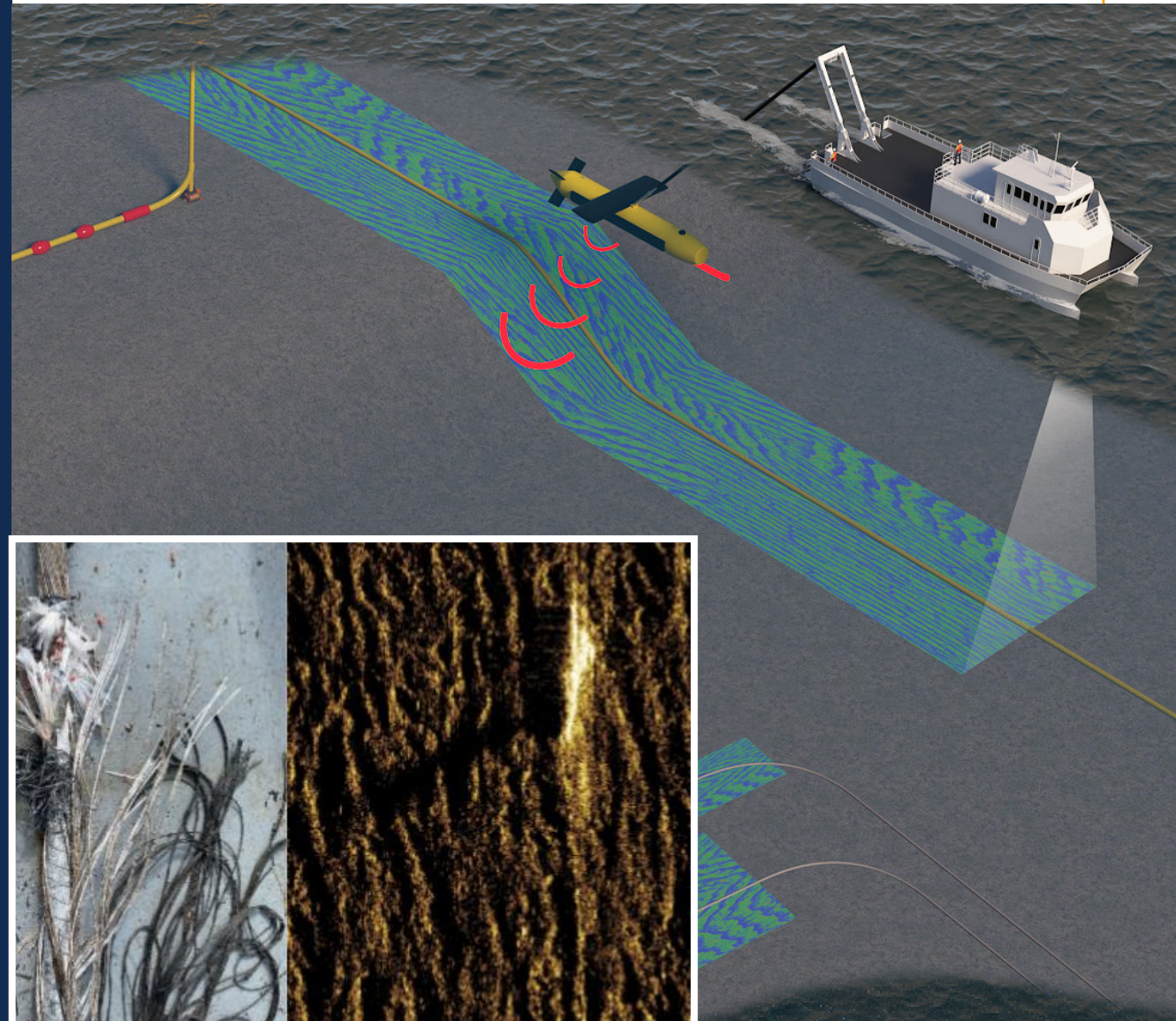
Pre-Lay & Post-Lay Capabilities

Pre-Lay

- Pre-installation cable survey (multibeam or synthetic aperture sonar)
- Pre-lay grapnel runs
- Boulder grab positioning support
- Mattress installation

Post-Lay

- As-Built Surveys ensuring depth of burial
- O&M Surveys of environmental changes like sediment build, scour/cable protection mattresses, rock bags and exposed/unburied cable
- Real-time monitoring for critical seabed infrastructure



US Offshore Wind Support Services

- Deep maritime knowledge and skill sets
- Connecticut HQ location in heart of U.S. offshore wind market
- Robust supply chain & commercial partnerships allow rapid asset deployment
- Utilize U.S. vessels, equipment, and additional capabilities
- Expanded, developed, and trained our U.S. maritime offshore workforce
- Vetted provider supporting all major OSW developers
- Trusted by the U.S. government regulatory framework
- Local labor and content supporting all U.S. States



Continuous Construction Operations

Developers/ Installers



Pile driving at night significantly reduces construction time/cost; addresses shortage of heavy load installation vessels.

Marine Mammals (especially the NARW)



Better monitoring results in better protection for all species; better understanding of behaviors.

Environment



Reduced vessel operating time means reduced carbon emissions; reduced installation time means reduced impact on seabed, marine environment.

Energy Customers



Reduced construction costs translate directly to lower levelized cost of energy, reduced energy rates; shortened construction time gets turbines delivering sustainable energy sooner.

Offshore Worker Safety



Fewer workers at sea for a shorter time reduces risk, increases safety margin.

Academia



Sophisticated acoustic and visual sensors provide a vastly larger body of behavioral data and can foster a better understanding of behaviors and the marine ecosystem. Employment of AI/ML will enhance understanding of behavioral, migration, and transiting patterns.



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