

# → Novel Applications of Autonomy to Asset Inspections for OSW

## → Background

The recent Executive Order from President Biden's administration targets 30 GW of offshore wind in the United States by 2030. These ambitious goals and the corresponding construction of offshore infrastructure will result in a vast number of seabed assets, each critical to the goal of transferring energy produced by windfarms to nearby coastal areas. Since infrastructure at sea is substantially more difficult to inspect and maintain, it is critical that new technologies and techniques be employed to enable frequent and thorough asset monitoring while reducing cost, human presence, and schedule delays due to foul weather.

## → Objective

Anduril Maritime and partner Metron Inc., are developing an autonomous, subsea survey platform to service seabed assets which require inspection and monitoring for use in the offshore wind-farms and other commercial survey applications. Our solution requires little or no human operators offshore and, depending on the operational area, could potentially have zero surface presence while the DIVE-LD autonomous underwater vehicle (AUV) conducts its monitoring and inspection missions. This approach to subsea asset survey drastically reduces cost, minimizes risk to human operators, allows for operations across a wider range of weather conditions.

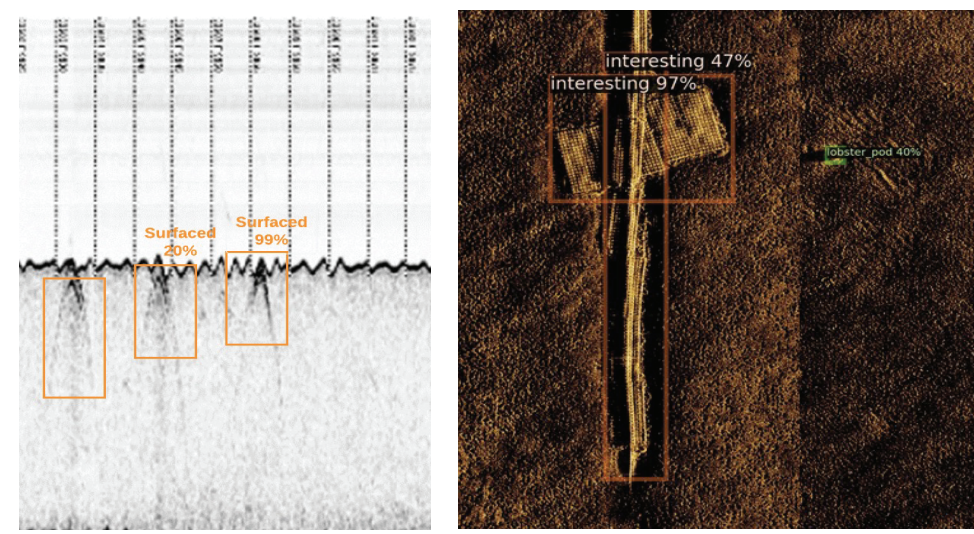
## → Concept of Operation

The DIVE-LD Commercial Survey Product will conduct a sub bottom profiler (SBP) scan of the Point Judith to Block Island power transmission cable. Cable burial depth data will be processed real time on the AUV using our proprietary AI and ML trained automatic target recognition (ATR) algorithm. The onboard advanced mission autonomy software will re-task the AUV to use the onboard Voyas camera to take photos of the surfaced portions of cable.

## Enabling Technologies

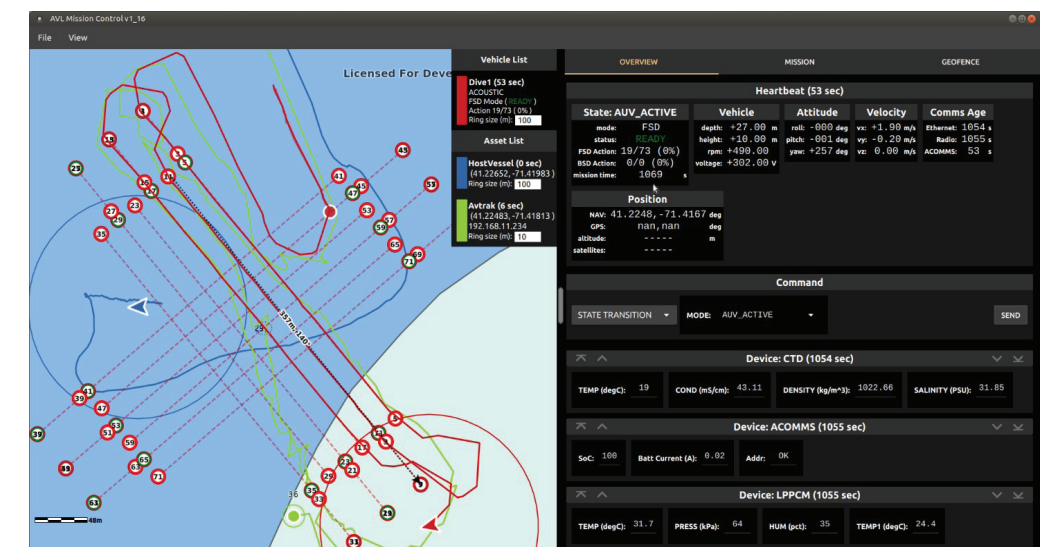
### Automatic Target Recognition (ATR) Algorithm

Through ML algorithms, our ATR technology will be able to automatically tag and classify objects of interest in sonar data.



### Advanced Mission Autonomy

The AI informed autonomy solution will independently plan and update sorties based off predefined priorities, known bathymetry, current models, potential targets of interest, and in situ sensor data. Automatic Target Recognition will allow the AUV to be re-tasked when targets are ID'ed in real-time.



## Proof of concept



Block Island to Point Judith Power Transmission Cable

## Project Schedule

- Month 4  
Detailed Design
- Month 6  
HWIL Simulation
- Month 9  
At Sea Testing
- Month 12  
Proof of Concept Demo

## DIVE-LD Commercial survey vehicle

- Multibeam Echosounder**  
Teledyne Reson T-50s  
—3-D Bathymetric Geospatial Survey
- Sidescan Sonar**  
Edgetech 2205  
—2-D high resolution survey
- Sub-bottom Profiler**  
Edgetech 2205  
—Sub-seafloor object detection and bottom type ID
- Magnetometer**  
OFG Self Compensating  
—High-resolution auto compensating magnetic data
- Camera**  
Voyas Observer  
—With LED Panels

