

Case Study:

NTNU's AutoNauts Lead Multi-Month Mission in Frohavet

Location: **Frohavet, Norway**
Client: **Norwegian University of Science and Technology (NTNU)**
Duration: **Feb - May 2025**
Platforms: **Red AutoNaut ("RAN") and Yellow AutoNaut ("YAN")**



Mission at a Glance

NTNU deployed two AutoNauts, nicknamed RAN and YAN, to monitor marine ecosystems in the coastal waters of Frohavet. These uncrewed vessels ran for over three months, collecting biological and optical data to support several major marine science projects.

With the longest endurance of any platform on site, the AutoNauts played a key role in NTNU's "observational pyramid", capturing data from the sea surface all the way to satellite orbit.



Key Sensors

RAN

- McLane PPS sampler for algae blooms
- Dual Trios Ramses sensors (upward/downward sunlight measurement)

YAN

- Kongsberg EK80 echosounder for zooplankton tracking

Both

- Weather station
- Satellite tracker
- Radar reflector
- AIS system
- Onboard computers

Partners

- NTNU AURIab (Underwater Robotics)
- Cybernetics Dept. (UAV Lab) Biology & Chemistry Departments

What Made It Special

- Only vessels able to operate continuously for days in the field
- Used to track **algae blooms**, **zooplankton**, and validate **satellite images**
- Supported four major projects: **SFI Harvest**, **DiverSea**, **AWAS**, and **HYPSCI**
- Deployed alongside LAUVs, ASVs, and satellites for full-spectrum ocean insight
- Mission control operated remotely from Trondheim, with field teams based on the Mausund archipelago



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