



Environmental & Biodiversity Monitoring

WSense's mesh wireless underwater monitoring system is transforming marine biodiversity protection. Unlike traditional cabled or sampling solutions, it uses real-time, wireless acoustic technology that avoids heavy infrastructure and minimizes disturbance to fragile habitats such as Posidonia oceanica meadows, coral reefs, and areas frequented by marine mammals. This flexibility enables continuous monitoring in large, remote, or protected zones where cables would be impractical or harmful, ensuring uninterrupted communication. By tracking key indicators in these habitats, the system supports early detection of threats and informed conservation actions.

Functionality Overview

AUV Patrolling

Synchronizes Autonomous Underwater Vehicles for data collection and MPA preservation.

Digital Twin Integrated Subsea-Surface

Combines underwater sensor data with surface vehicles, satellite imagery and remote sensing.

Noise Alerting System

Detects and alerts about abnormal acoustic signals in the marine environment.

Diver Messaging & Localization

Enables real-time communication and precise positioning of divers for mapping biodiversity.

Water Column Parameters

Measures essential water quality metrics such as salinity, temperature, turbidity, currents, pH etc.

Biodiversity Indexing

Uses AI to identify species and biodiversity health from underwater images and acoustics.

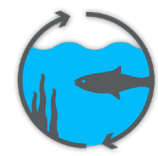
Benefits of IoUT for Environmental and Biodiversity Monitoring



Improves safety, coordination, and efficiency during marine research.



Helps identify potential hazards (e.g., illegal vessel traffic, seismic and volcanic hazards) and protect marine life.



Provides a holistic view of environmental conditions and cross validation of observed events (Eg. Harmful Algae Bloom)



Supports biodiversity mapping, validates conservation efforts, and enables automated reporting.



Enables early detection of pollution, provides relevant time series data into climate impact studies.

WSense's IoUT in action

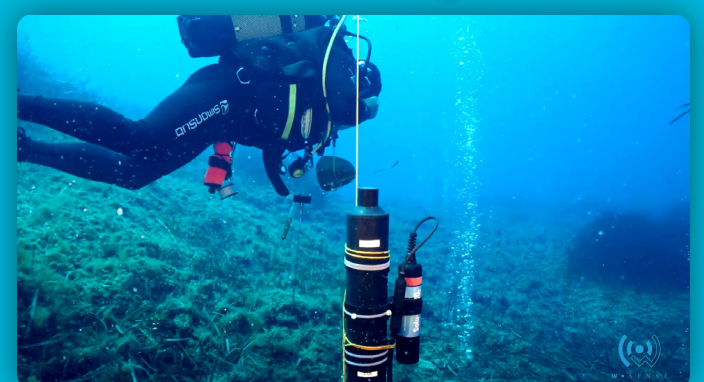
WSense's wireless Underwater IoT technology has been deployed in more than 10 marine protected areas across the Mediterranean and the Red Sea.

WSense partnered with ISPRA MER to deploy an advanced underwater wireless monitoring system in the Gulf of Follonica, revolutionizing marine ecosystem protection. By replacing traditional periodic sampling with real-time, continuous data collection, the system delivers over

1,500 daily measurements on water quality and currents—compared to just a handful with conventional methods.

This big data approach enables predictive analytics and AI applications, ensuring early detection of anomalies, reducing environmental risks, and supporting sustainable practices. WSense transforms monitoring into a proactive, data-driven process that safeguards marine biodiversity and optimizes resource management.

1500+
daily measurements



Read more on wsense.it or get in touch at wsense@wsense.it