



NATURAL ART REEF (NAR)

VALUE PROPOSITION

BY FISHERS, FOR FISHERS: CO-MANAGEMENT OF MARINE AND FRESHWATERS ECOSYSTEMS AND RESOURCES

Who are we

[Natural Art Reef \(NAR\)](#) is a marine research organisation and key local stakeholder in Mediterranean coastal management. We work to improve the understanding, management and sustainability of coastal and marine ecosystems through **long-term monitoring, applied science and local co-management frameworks**. A distinctive element of NAR's approach is the use of **ecosystem-building marine structures** as **scientific tools** to study ecological processes, species behaviour and management solutions under real-world conditions.

At the core of this approach lies [El Biotop](#), a **licensed concession area of nearly 20,000 m²** that functions as a **permanent place of study, observation and co-management**. El Biotop consists of a large rocky structure made of 40 tones of calcium carbonate rocks that acts as a **living laboratory embedded within the surrounding seascape**. It allows NAR and its partners to analyse how marine species use structured habitats, how communities develop over time, and how habitat-based measures can support connectivity, refuge and productivity when combined with appropriate governance strategies.

Overall, NAR acts as a **scientific observatory and territorial hub**, bringing together:

- **Scientific expertise** in marine ecology and ecological engineering;
- **Operational capacity** with vessels, professional scientific divers and port-based infrastructure;
- **A long-term ecological research programme**, with continuous monitoring;
- **A deep local network** of fishers, authorities, NGOs, research institutions and schools.

This combination makes NAR a **uniquely positioned partner** for European consortia seeking real-world conditions to design, test and scale ecosystem restoration-supporting innovations.

Long-term monitoring and coastal observation

NAR coordinates a **continuous coastal monitoring effort** along 42km² of the central Catalan coast built on **more than 20 years of accumulated ecological knowledge of the area**, including species distribution, habitat dynamics and seasonal processes. We gather **over two-years of key parameters** such as temperature, pH, currents and wave exposure through **in-situ environmental sensors**, complemented by targeted sampling of nutrients and other environmental variables.

This knowledge is being structured into an **open-access dynamic viewer**, combining biological, environmental and spatial information to support adaptive management, policy design and data sharing aligned with EU open science principles.

A central pillar of NAR's work is the **monitoring of species of fisheries interest**, documenting their interaction with ecosystem-building infrastructures and surrounding habitats. We have recorded life-cycle patterns of multiple species, identifying **spawning areas, nursery zones, growth phases and periods of higher vulnerability**. This evidence-based understanding integrated with the full set of ecological data through our dynamic viewer, enables NAR to **propose concrete and context-specific measures for sustainable fisheries management**, including spatial and temporal recommendations, gear adaptation and habitat-based approaches to stock recovery.

Fisheries-focused monitoring and co-management

A key strength of NAR lies in its **strong local anchoring and ongoing efforts to build a co-managed governance framework**, developed in close collaboration with local entities. NAR works directly with professional fishers, recreational fishers, municipalities, local administrations, diving centres, educational institutions and civil society, integrating ecological data, shared knowledge and awareness-raising actions to **support informed and participatory marine management**.

Through projects supported by **European fisheries and maritime funds**, NAR has implemented pioneering initiatives that connect scientific monitoring with local management needs. These projects are implemented in **close collaboration with the local Fishers' Guild**, integrating professional and recreational fishers from the outset. In the last years, the **MERPECE project** has focused on generating ecological data and shared knowledge with the recreational fishing sector, while the **MARLIN project** has centred on integrating environmental data into a marina data viewer and transferring this information to municipal authorities to support evidence-based local decision-making. This approach underpins all projects developed at El Biotop and along the surrounding coastline.

Governance, Education & Blue Economy Integration

El Biotop operates under fully real ecological and socio-economic conditions, where investment, applied research and local economic activity already converge. Economic mechanisms focus on translating ecosystem regeneration outcomes into **measurable blue capital returns, aligned with EU biodiversity and climate objectives**. Ongoing collaborations, co-funded actions and local economic engagement enable the **testing of capital return strategies associated with nature-based marine solutions**, including reinvestment models, ecosystem service valorisation and biodiversity-linked incentives, in a setting specifically designed for that purpose.

Through sustained **engagement with schools, the local community and sea users**, we promote a deeper understanding of marine ecosystems, the value of habitat regeneration and the role of society in supporting long-term stewardship and sustainable coastal management.

Key Strengths

Strength 1 — Logistical and operational capacity

NAR operates from the Port of Torredembarra, with access to vessels, professional scientific divers and field infrastructure, enabling the installation, maintenance and monitoring of experimental setups, sensors, moorings and pilots with high temporal resolution.

Strength 2 — Continuous and historical datasets

More than **100 scientific dives per year** support continuous ichthyological, benthic and coraligenous monitoring, generating long-term datasets that go beyond punctual campaigns and allow direct observation of ecological processes.

Strength 3 — 20,000 m² concession for experimentation

The licensed area allows rapid deployment of experimental actions aligned with ecological innovation, significantly reducing administrative barriers and increasing feasibility for long-term Living Lab activities.

Relevant Experiences

El Biotop has already been integrated as a **real-life experimental and monitoring site** within several projects supported by **European funding instruments**, demonstrating NAR's capacity to operate under EU requirements for data quality, stakeholder engagement, reporting and impact-oriented implementation.

- [MERPECE: Marine Ecosystem Recovery and Participatory Ecological Characterisation](#)
EU funding framework: *FEMPA (European Maritime, Fisheries and Aquaculture Fund)*
Lead entity: Natural Art Reef (NAR)
- [MARLIN: Marine Monitoring, Awareness and Resilience through Local Integrated Networks](#)
EU funding framework: *FEMPA (European Maritime, Fisheries and Aquaculture Fund)*
Lead entity: Natural Art Reef (NAR)
- [OCEAN CITIZEN: Methodologies for Gorgonian Ecosystem Monitoring and Regeneration](#)
EU funding framework: *HORIZON Europe*
Lead entity: Università di Salento (UNISAL)
- [REDMED+: Marine Reserves for the Conservation of biodiversity](#)
EU funding framework: *Interreg POCTEFA*
Lead entity: Universitat de Barcelona (UB)