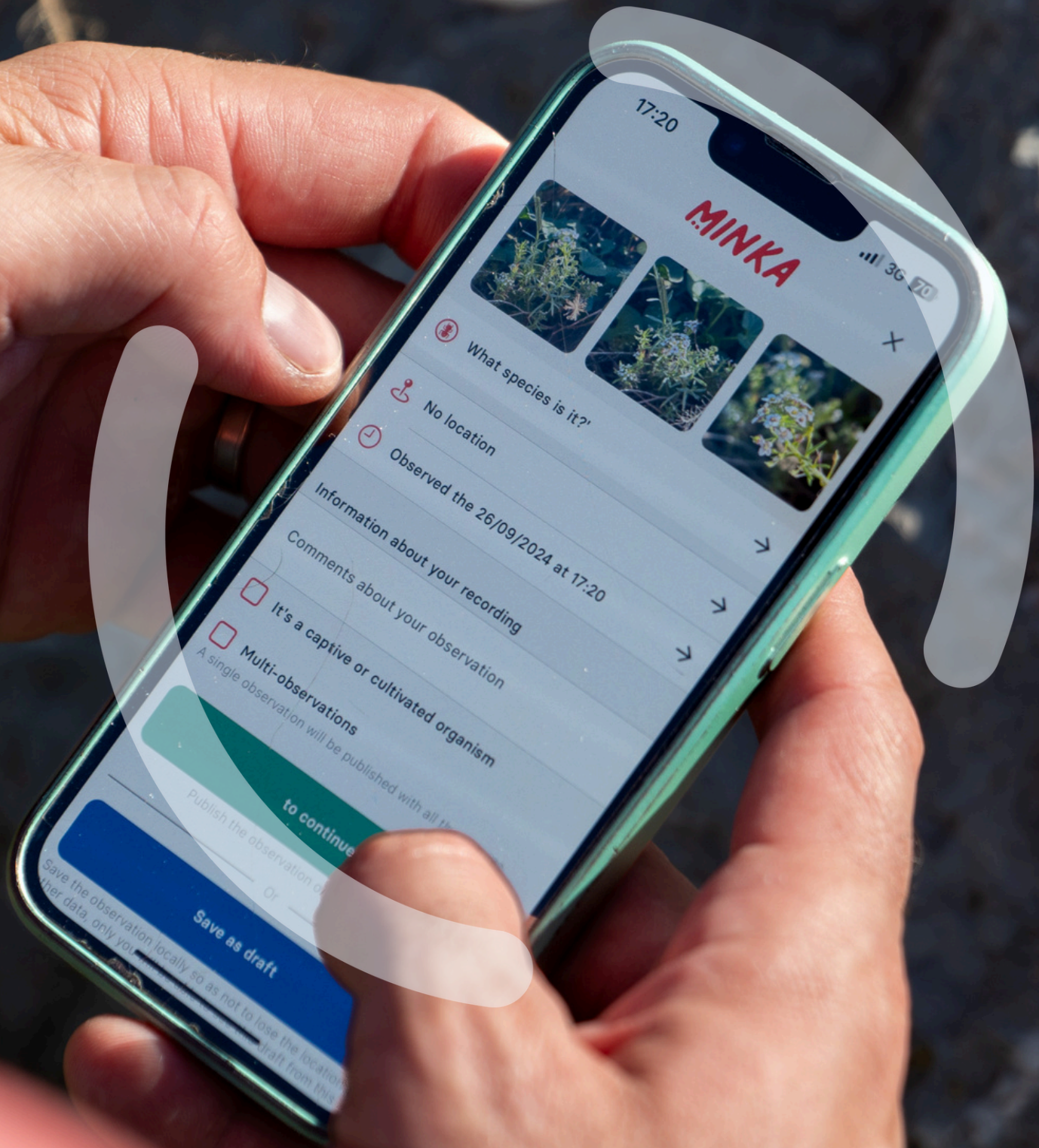


Citizen Science in ENHANCE

Empowering Coastal Monitoring
and Decision-Making





What is Citizen Science

Citizen science refers to the **active involvement of citizens** in scientific processes, from **data collection** and observation to interpretation and validation. By contributing **local knowledge**, observations, and measurements, citizens help expand the spatial and temporal coverage of scientific data while strengthening the **connection between science and society**. When properly designed, citizen science produces data that complements institutional and satellite-based sources and supports **evidence-based decision-making**.

Why Citizen Science

Citizen science plays a **key role in strengthening environmental monitoring** and decision-making by directly involving citizens in the production of knowledge. It:

- **Fills data gaps** in complex and rapidly changing environments
- **Complements traditional monitoring** with local and real-time data
- **Strengthens public engagement** and environmental awareness
- **Builds trust** through direct citizen involvement in science
- **Supports more actionable** and locally relevant decision-making



Citizen Science in ENHANCE

In **ENHANCE**, citizen science is a **core data source** supporting the **One Health approach** to coastal management. Citizen-generated observations through the [MINKA platform](#) complement **Copernicus Marine Service** data and other **Earth observation** inputs, enriching analyses of **water quality, biodiversity, and environmental pressures**.

These contributions feed into **ENHANCE Data Exchange Platform** and data fusion infrastructure, and are operationalised through the **One Health Toolkit**, helping deliver more dynamic, context-aware products for policy makers, researchers, and coastal stakeholders.

Barcelona Urban Beaches & Ebro Delta **Case Study: An Example in Citizen Science**

Citizen science is a central pillar of **ENHANCE Case Study #1**, complementing satellite and in-situ monitoring with locally generated biodiversity data. The **MINKA Citizen Science Observatory**, hosted by the **Institut de Ciències del Mar (ICM-CSIC)**, mobilises divers, snorkellers, beachgoers and Blue Schools students to upload georeferenced observations of coastal species. The platform currently hosts more than **62,200 volunteer observations** from over 1000 marine species for **Barcelona** and **more than 3,400** from 632 species for **Ebro Delta area**.

In **Barcelona's metropolitan beaches**, citizen observations focus on **coastal fauna and flora**, including protected and invasive species. In the **Ebro Delta**, the emphasis is mainly on **aquatic flora and invasive species** linked to nutrient enrichment and ecosystem change. MINKA also contributes to the **animal health dimension of the One Health approach**.

In collaboration with the **Universitat Autònoma de Barcelona**, citizen observations are helping detect **groupers** (*Epinephelus marginatus*) showing symptoms associated with [betanodavirus infection](#). These reports support **early detection of disease outbreaks** and provide **valuable spatial information** for researchers studying marine wildlife health.





How is this community of practice mobilised and engaged?

Participation is strengthened through a structured community network: the **Catalan Federation of Underwater Activities (FECDAS)**, coastal SMEs such as dive centres and surf schools, and NGOs actively recruit and train volunteers. From their side, the **Barcelona City Council** and regional authorities facilitate **field activities** and help embed results into coastal management. Other academic institutions, such as the **Institut Botànic de Barcelona**, also contribute to species identification, reinforcing the scientific reliability of **coastal flora records**.

Specific events and **bioblitzes** are key engagement moments too. In April, ENHANCE will support the **Barcelona City Nature Challenge**, the [BioDiverCiutat](#), a city-wide bioblitz that invites citizens to **document urban biodiversity** over a concentrated period using digital platforms such as MINKA.



This initiative encourages **residents, schools, divers and coastal users** to actively record species in coastal environments, generating a **high volume of observations in a short timeframe**. All this information is **shared with** coastal managers and **public authorities** to support **practical decisions**, including invasive species removal actions, **designation of protection areas**, updates of biodiversity catalogues, and **improved environmental management strategies**, while also contributing to **awareness-raising** and collective knowledge of urban coastal ecosystems.

Through **ENHANCE**, citizen science becomes an operational pillar of coastal management. This approach reflects the **European Commission's** commitment to **open science, public participation, and evidence-based policy**. By combining Earth observation technologies with **citizen-generated data**, ENHANCE contributes to the objectives of the **European Green Deal**, strengthening environmental monitoring, climate resilience, and **sustainable coastal governance** across Europe.

Partners Involved



A project coordinated by
Singular Logic

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Upload your beach observations to
MINKA. Help keep our coasts healthy!



Contribute to MINKA
Citizen Science Observatory
<https://minka-sdg.org>

MINKA



Join our community!
enhance-onehealth.eu



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