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PROcoast

A PROactive approach for COmmunities
to enAble Societal Transformation

D5.2 – Integrated Assessment Methodology

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AUTHOR(S) – Bárbara Díez, Sandra Rodríguez, María Fernández, Esther San José (CARTIF), Irini Theodorakopoulou (UoC)



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BACKGROUND: ABOUT PRO-COAST PROJECT

The PRO-COAST project was launched to address the issue of biodiversity loss in European coastal ecosystems. Around 40% of Europeans live within 100km of the coast, relying directly on ecosystem services that are threatened by both quantitative and qualitative losses. Groups already facing socioeconomic vulnerabilities are likely to be disproportionately affected. PRO-COAST aims to empower local communities to support the restoration and maintenance of biodiversity and ecosystem services across Europe, integrating local knowledge into practice and policymaking. The project coordinates the efforts of 20 partners across 14 countries working in 9 unique areas on 10 case studies. These case studies cover multiple conservation approaches across various coastal ecosystems, testing different governance models and social incentives to engage local actors in adopting technologies and actions for biodiversity conservation.

An important element of PRO-COAST is its holistic, interdisciplinary approach, based on a conceptual framework that treats social-ecological systems as interconnected. By mapping relationships between ecosystem components and uncovering feedback dynamics, the project seeks to identify leverage points for transformative change. PRO-COAST promotes integrated bottom-up decision-making, recognizing that environmental issues cannot be separated from social, economic, and political factors. Through extensive citizen engagement guided by state-of-the-art conservation science, the project aims to build community capacity for biodiversity management, providing scalable solutions that balance conservation needs with local socioeconomic priorities. Now in its central stage, PRO-COAST hopes to inform adaptive, participatory approaches to governance that avoid biodiversity losses and ensure sustainable, equitable access to coastal resources. This document informs that process in the ongoing 10 case studies, in which volunteer-based efforts will continue beyond the project, aided by a Community Sustainability Platform that will be maintained, also to scale-out the lessons learned massively, until 2033.

LINKS WITH OTHER PROJECT ACTIVITIES

The methodology builds upon the socio-ecological baselines established in D5.1 and integrates insights and tools from WP2 (research design), WP3 (biodiversity management), WP4 (operationalisation of the SES framework), and WP6 (stakeholder engagement and behavioural change). It defines a set of Key Performance Indicators (KPIs) co-developed with local actors, grounded in international frameworks, and tailored to each case study's ecological and social context. The IAM will be validated during Task 5.3 and serves as a central tool for knowledge integration and policy-relevant assessment in PRO-COAST.

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1. INTRODUCTION

1.1. Scope of the document

This document presents the **Integrated Assessment Methodology (IAM)** developed under Task 5.2 of the PRO-COAST project. It provides a structured, co-created and operational framework for assessing the impacts of biodiversity-related interventions and Nature-based Solutions (NbS) across ten diverse coastal case studies. The IAM is designed to support the identification, implementation, monitoring, and evaluation of actions that contribute to ecological restoration, social transformation, and sustainable development in vulnerable coastal territories.

1.2. Alignment with PRO-COAST Objectives and SDGs

The IAM is tightly aligned with the overarching aim of PRO-COAST: to **enable societal transformation through biodiversity action in coastal territories**. Specifically, it supports the project's goal of co-creating and testing **replicable solutions** for halting biodiversity loss and enhancing ecosystem services while empowering **transformative communities** to lead change processes.

The methodology directly contributes to the following **PRO-COAST objectives**:

Objective 1: To identify socio-ecological barriers and drivers affecting coastal biodiversity and map their interactions using an integrative framework (SESF).

Objective 2: To design and apply co-created, locally tailored solutions for biodiversity conservation.

Objective 3: To develop a system of **Key Performance Indicators (KPIs)** for monitoring ecological, social, economic, and behavioural change in case studies.

Objective 4: To promote **transformative capacity** in communities through participatory methods, behavioural change workshops, and adaptive governance.

Objective 5: To synthesise and scale lessons learned for **policy guidance**, replication, and upscaling in other coastal areas

In doing so, the IAM also advances progress toward several **Sustainable Development Goals (SDGs)**:

- **SDG 14 – Life Below Water** and **SDG 15 – Life on Land**: by providing tools to monitor and restore biodiversity in coastal ecosystems;
- **SDG 13 – Climate Action**: by embedding ecosystem-based adaptation and mitigation strategies within the assessment;
- **SDG 11 – Sustainable Cities and Communities** and **SDG 16 – Peace, Justice and Strong Institutions**: by fostering inclusive governance and empowering communities through participatory monitoring and co-design;
- **SDG 17 – Partnerships for the Goals**: through the transdisciplinary, multi-stakeholder, and cross-country collaboration that underpins the IAM framework.

Additionally, the IAM supports key EU policy goals including the **EU Biodiversity Strategy for 2030**, the **Marine Strategy Framework Directive (MSFD)**, the **Mapping and Assessment of Ecosystems**

and their Services (MAES) initiative, and the targets of the **Kunming-Montreal Global Biodiversity Framework**.

1.3. Overview of Document Structure

This deliverable is organised into the following sections:

Section 2: Describes the background and characteristics of the ten PRO-COAST case studies, with a focus on contextual factors that shape KPI design and monitoring.

Section 3: Introduces the **Social-Ecological Systems Framework (SESF)** as the theoretical and operational foundation for the IAM.

Section 4: Details the **structure and sequential phases** of the IAM, from diagnosis to scaling up.

Section 5: Explains the participatory processes and stakeholder engagement mechanisms used to co-develop KPIs.

Section 6: Presents the full set of KPIs, including biodiversity, social, economic, and behavioural indicators, and outlines their formulation and use.

Section 7: Discusses the alignment of PRO-COAST indicators with international frameworks (e.g. MAES, CICES, MSFD) and addresses methodological gaps.

Section 8: Describes the monitoring and data protocols, including feedback mechanisms to refine KPIs through an adaptive process.

Section 9: Concludes with reflections on the scaling-up phase and the integration of results into the SESF for replication and policy use.

2. Case Study (CS) Backgrounds and Baseline Conditions

2.1. General overview

A wide variety of European coastal ecosystems, such as Mediterranean islands, Adriatic lagoons, Atlantic dunes, North Sea estuaries, and Nordic fjords, are represented by the ten PRO-COAST case studies (CSs). When taken as a whole, these CSs provide a comprehensive framework for implementing the Integrated Assessment Methodology (IAM), making it easier to assess biodiversity and governance issues in a variety of socio-ecological and cultural contexts.

There are a few characteristics that all CSs share:

- **Ecological Significance:** Every site includes species and habitats of national or European conservation significance, including areas designated as Biosphere Reserves, Natura 2000 sites, and Ramsar sites.
- **Socio-Economic Challenges:** These include overfishing, pollution, land-use changes, mass tourism, and climate-related hazards like storms and sea level rise.

- **Governance Issues:** Difficulties with fragmented institutional frameworks, feeble enforcement, and restricted opportunities for participation.
- **Cultural Importance:** For local communities, a lot of coastal areas have great historical, recreational, and symbolic significance.

2.2. Brief description of each case study

Each CS is situated in an ecologically significant area that is both heavily populated and frequently designated as Natura 2000 or a comparable protected status. These places include small islands like Comino, delicate dune ecosystems like Sligo, coastal lagoons like Apulia, bay and estuary areas like Boka Kotorska, and fjord and wetland complexes like Kildn/Eidsvika and Arne. They are characterized by complex relationship between governance systems, human use, and biodiversity, and they offer a range of opportunities and challenges for the implementation and testing of nature-based solutions (NbS). Building on this general framework, Table 1 provides a succinct overview of each research case, emphasizing its socio-ecological context and the challenges influencing the development and assessment of KPIs for each one.

Table 1. Overview of the ten PRO-COAST case studies, summarising their socio-ecological context and main challenges relevant for KPI design and monitoring.

Case Study	Brief description
CS1 – Comino (Malta)	Small island under intense seasonal tourism pressure, with high biodiversity value but weak enforcement. Focus on sustainable tourism management, dune restoration, waste reduction, and stakeholder awareness.
CS2 – Apulia (Italy)	Lagoon and marine habitats (*Posidonia* meadows) threatened by plastic pollution, invasive species, and over-tourism. Testing innovative eDNA monitoring, ecosystem service mapping, and educational activities.
CS3 – Strunjan (Slovenia)	Natura 2000 landscape park with cliffs, wetlands, and farmland. Challenges include invasive species, human–wildlife conflict, and unregulated tourism. Monitoring relies on camera traps, citizen science, and participatory governance.
CS4 – Boka Kotorska (Montenegro)	Large bay with rich biodiversity and cultural heritage, pressured by cruise tourism, urbanisation, and pollution. Emphasis on awareness, stakeholder dialogue, and pathways toward future protection.
CS5 – Sligo (Ireland)	Streedagh Beach dune system of ecological and cultural importance (Spanish Armada wrecks). Issues: erosion, storms, unsustainable recreation. Actions include dune restoration, citizen science, and behaviour change.
CS6 – Arne (UK)	Heathland and coastal Natura 2000 habitats in Dorset. Threats from invasive grey squirrels, habitat fragmentation, and tourism. Focus on red squirrel reintroduction, invasive control, and community engagement.
CS7 – Bergen Ghost Fishing (Norway)	Coastal waters impacted by abandoned fishing gear, threatening marine life. Combines ghost gear removal with circular economy pilots and behavioural change among fishers.
CS8 – Kloogaranna–Laulasmaa (Estonia)	Baltic coastal mosaics of dunes, forests, and beaches. Pressures: habitat loss, over-tourism, land-use conflicts. Monitoring combines biodiversity surveys, participatory planning, and sustainable tourism.
CS9 – Corbu (Romania)	Part of the Danube Delta Biosphere Reserve, one of the last wild beaches. Pressures include unregulated construction and mass tourism. Case promotes eco-tourism guidelines, awareness, and enforcement.
CS10 – Kildn/Eidsvika (Norway)	Coastal wetland and recreational area near Bergen under urban development pressure. Monitoring focuses on habitats, red-listed species, and political decision-making.

2.3. Ecological, socio-economic, governance, and cultural dimensions

From an ecological perspective, the CSs support species and habitats of European conservation significance, including heathlands, dunes, wetlands, *Posidonia* meadows, and seabird colonies. Threats and challenges include high tourist density, marine litter, coastal erosion, invasive species, habitat fragmentation, and climate change.

The primary socioeconomic factors are small-scale fishing and seasonal tourism, and local economies are often heavily dependent on the short-term exploitation of natural resources. Obstacles include unequal revenue distribution and a lack of reinvestment in conservation initiatives.

Limited enforcement capabilities, fragmented governance frameworks with overlapping responsibilities, and low stakeholder participation in decision-making processes are all common problems. However, some CSs exhibit active community engagement and significant NGO

involvement, providing opportunities for participatory governance. This is the case, for example, of Malta and Norway.

The cultural element adds even more complexity. Coastal places frequently have significant symbolic and heritage values, such as the Blue Lagoon in Malta, the traditional fishing landscapes in Apulia, or the Spanish Armada wrecks in Sligo. Local identities, public perceptions, and support for conservation initiatives are all influenced by these cultural identities.

3. THE SOCIAL-ECOLOGICAL SYSTEMS FRAMEWORK (SESF) IN PRO-COAST

Elinor Ostrom's Social-Ecological Systems Framework (SESF, Ostrom, 2009) provides a multi-tiered diagnostic architecture for understanding how people, institutions, and ecosystems interact within coupled human–nature systems. At its first tier, SESF distinguishes Resource Systems (RS), Resource Units (RU), Governance Systems (GS), Actors (A), Interactions (I), and Outcomes (O), embedded within Social, Economic, and Political Settings (S) and Related Ecosystems (ECO). This framework's strength lies in its ability to reveal the interdependencies and feedbacks that determine sustainability or collapse in common-pool resource systems.

The PRO-COAST project operationalizes SESF as the integrative backbone of its Integrated Assessment Methodology (IAM). In PRO-COAST, SESF is not merely a diagnostic model—it is a co-creative and reflexive framework guiding system diagnosis, participatory governance, and long-term transformation in ten European coastal case studies (CSs). The project adapts Ostrom's structure to the marine and coastal context, where fluid boundaries, transboundary governance, and high socio-ecological interconnectivity require methodological flexibility and participatory depth.

The Social-Ecological Systems Framework (SESF) was integrated into the PRO-COAST Integrated Assessment Methodology (IAM) as a second-layer structuring tool, after the initial design of the IAM. While the IAM was first developed as a practical, participatory methodology for monitoring biodiversity-related actions across coastal territories, the SESF was later used to strengthen its conceptual foundations and ensure systemic coherence across the project.

The integration process focused on aligning the IAM's core components—particularly its Key Performance Indicators (KPIs)—with the variables and structures of the SESF. This allowed for a more holistic and theory-informed understanding of the socio-ecological dynamics at play in each case study. For example, ecological indicators were mapped to SESF variables related to resource systems and ecosystem functions, while governance, social, and behavioural indicators were linked to actor networks, institutional arrangements, and collective-choice processes.

The version of the SESF adopted in PRO-COAST expands upon Ostrom's original framework to reflect the specificities of European coastal contexts. It introduces additional dimensions such as polycentric governance, place-based knowledge, and the role of local change agents, which are essential for understanding transformation processes at the territorial level.

Rather than dictating the structure of the IAM, the SESF acts as a meta-framework that enhances it—providing a systemic lens through which indicators can be interpreted, compared, and scaled. This approach preserves the flexibility and local relevance of the IAM, while enabling a more integrated and transferable analysis across the ten case studies.

SESF underpins all phases of the IAM:

1. Diagnosis: identification of key SESF variables and boundaries;
2. Co-Creation: participatory interpretation of SESF variables by stakeholders;
3. Implementation: SESF-guided interventions targeting leverage points;
4. Monitoring: tracking changes in SESF variables via key performance indicators (KPIs);
5. Assessment: evaluating ecological and social outcomes within SESF tiers;
6. Scaling Up: synthesizing findings into policy-relevant recommendations.



This integration ensures methodological coherence and allows comparability across case studies while maintaining context-specific flexibility. In summary, the SESF has been integrated into the IAM not as a starting point, but as a strategic layer that improves the internal coherence of the methodology, supports indicator alignment, and strengthens the project's capacity to inform biodiversity policy and systemic change.

4. Structure of the Integrated Assessment Methodology (IAM)

4.1. Phases of the IAM

1. Case Study (CS) Co-Diagnosis Phase

This initial phase focuses on establishing a comprehensive baseline across three key domains:

- **Social/Cultural**: Understanding local traditions, values, identities, and public perceptions of biodiversity and NbS.
- **Economic:** Mapping local livelihoods, dependency on natural resources, and economic vulnerabilities.
- **Environmental:** Assessing current ecosystem conditions, biodiversity status, and threats such as erosion, invasive species, or pollution.

In parallel, each case study undertakes an identification of barriers and boundaries—including institutional gaps, legal restrictions, land-use conflicts, and limitations in community engagement or data availability. This diagnostic effort is participatory in nature, involving an initial co-diagnosis with stakeholders through local meetings, sensing journeys, and empathy-based tools. These interactions help validate the baseline and ensure local relevance from the outset.

A key methodological component is the mapping of ecosystem services (ES) using the Common International Classification of Ecosystem Services (CICES), which allows for the identification of provisioning, regulating, and cultural services across the landscape. This ES mapping is essential for linking environmental variables with human well-being and supports a more integrated understanding of system dynamics.

Finally, this phase supports the early selection and formulation of KPIs, covering social, economic, biodiversity, and environmental dimensions. These initial indicators are co-developed with case study leaders and community representatives and serve as a first step toward a tailored monitoring and evaluation framework.

2. Co-Creative Design & Governance Phase

Building on the co-diagnosis, this phase moves into deeper co-creation with stakeholders, applying Theory U tools such as coaching circles, prototyping labs, and appreciative inquiry. These participatory spaces allow community members, local authorities, and other actors to refine the preliminary KPIs, share expectations, and collaboratively explore possible actions. This leads to the refinement and prioritisation of KPIs through a deliberative process. Indicators are discussed not only in terms of relevance and feasibility but also according to their resonance with local values, data availability, and governance structures. This process helps ensure that selected KPIs reflect context-specific priorities while remaining methodologically sound and aligned with broader EU frameworks. Simultaneously, this phase includes the preparation for local biodiversity project implementation, with actors identifying roles, designing interventions, and organising timelines for the application of NbS. Governance arrangements begin to crystallise, clarifying who does what, how monitoring will be shared, and what adaptive mechanisms will be in place.

3. Implementation Phase

This is the action phase, where local NbS and biodiversity initiatives are executed according to the co-designed plans. Activities range from physical interventions (e.g. dune restoration, ghost gear removal) to social and educational efforts (e.g. awareness campaigns, participatory mapping). Actions are tailored to the ecological and cultural context of each case. A defining feature of this phase is the integration of ecological and social interventions. For example, biodiversity actions are often accompanied by behavioural change initiatives or participatory monitoring tools, ensuring the interventions are embedded in local practice and perception. Implementation is not a one-way process—it incorporates continuous feedback via stakeholder platforms, where experiences are shared, problems identified early, and adjustments proposed. These feedback mechanisms, often facilitated by the case study leaders or local change agents, ensure that implementation remains flexible and adaptive to emerging needs or challenges.

4. Monitoring Phase

Monitoring is conducted in parallel to and beyond implementation, ensuring a robust evidence base for evaluation. It involves ongoing monitoring of biodiversity, social, and economic dimensions through a combination of field data, citizen science platforms, and stakeholder reporting. This monitoring aims to validate performance against KPIs, following procedures detailed for the list of KPIs (Annex 1) in the monitoring plans for them (Annex 2) and KPI control sheets. Ecological indicators may include species richness, habitat quality, or ecosystem condition; social and economic indicators may include stakeholder engagement levels, behaviour change signals, or perceived benefits of NbS. A critical part of this phase is the application of coastal biodiversity indicators, many of which are tailored to

specific ecosystem types (e.g. dunes, lagoons, wetlands) and aligned with frameworks like MAES and CICES. The integration of behavioural KPIs developed under WP6 is also embedded here, offering insights into community transformation and engagement.

5. Assessment Phase

Once we reach the final monitoring date defined for each case study, the project enters the assessment phase, which is structured around two core activities. First, each case study applies multicriteria decision-making tools to evaluate the performance of its selected indicators and prioritise outcomes. These tools allow for an integrated interpretation of ecological, social, economic, and behavioural dimensions, supporting evidence-based evaluation and learning. Second, the project works towards the production of practical guidelines for assessment, offering structured recommendations on how to interpret indicator results, address uncertainties, and ensure replicability across contexts. These guidelines also contribute to the alignment of local findings with EU policy frameworks. A key output of this phase is the development of tailored sets of coastal biodiversity indicators for each case study. These sets reflect the local socio-ecological context, the participatory co-creation process, and the cross-case coherence ensured by the IAM. They serve as the backbone for long-term monitoring, adaptive governance, and knowledge transfer beyond the project.

6. Scaling Up Phase

The final phase of the Integrated Assessment Methodology (IAM) focuses on scaling up the insights, tools, and indicator frameworks developed across the ten case studies. This begins with the synthesis of outcomes into the Social-Ecological Systems Framework (SESF), ensuring that the learnings from diverse local contexts are integrated into a shared conceptual and operational structure. The SESF acts as a scaffold for connecting ecological, social, and governance dimensions, enabling the project to draw broader conclusions about what drives successful biodiversity action and Nature-based Solutions (NbS) implementation in coastal areas. This synthesis provides the basis to support policy design, replicability, and transferability. By aligning indicators with frameworks like MAES, CICES, and the MSFD, and by anchoring the methodology in real-world practices and participatory governance, the IAM becomes a tool that can inform biodiversity strategies at local, national, and EU levels. Lessons learned and validated indicator sets are designed to be adaptable to other coastal territories, making the IAM a scalable methodology that can guide future interventions well beyond the original PRO-COAST case studies.

5. Co-Creation Approach and Participatory Methodologies

The co-creation approach adopted in PRO-COAST is a central pillar of the Integrated Assessment Methodology (IAM). This approach ensures that the development, implementation, and monitoring of Nature-Based Solutions (NbS) are built on inclusive, iterative, and participatory processes involving local communities, authorities, the private sector, and other relevant stakeholders.

In the case of the case studies (CS) and the selection of KPIs, bilateral meetings have been held with each CSL (Case Study Leader) to explain the proposed indicators and carry out their selection jointly. This has ensured that CSLs are directly involved in each step of the process, fostering a shared understanding of objectives and promoting consistency across all case studies. This practical

application illustrates how the co-creation principles are being implemented from the very beginning of the project.

To support and structure these participatory processes, PRO-COAST applies **Theory U** as its core methodological framework. Presented in greater depth in *D4.3 – Case studies tools and collaborative methodology*, Theory U provides a structured pathway to accompany communities through processes of deep social transformation, addressing technical, organisational, cultural, and governance dimensions. Since the aforementioned deliverable focuses extensively on this theory, only its key concepts are presented here, as they serve as the methodological foundation for co-creation and the implementation of NbS within the project framework.

The objectives of Theory U are to:

- Facilitate the transition of local communities towards new organisational paradigms that allow them to overcome governance barriers;
- Foster a culture of collaboration and co-creation;
- Transform established social realities by shifting mental models and practices.

The methodology follows five iterative phases: **Co-initiating** (building trust and shared intention), **Co-sensing** (deeply understanding the system and multiple perspectives), **Presencing** (pausing, reflecting and connecting to shared vision), **Co-creating** (developing and testing small-scale solutions collaboratively), and **Co-evolving** (scaling and embedding successful initiatives sustainably). This structure reinforces the idea that participation is not a one-off event but an adaptive and iterative process, incorporating feedback loops and continuous learning.

Within this framework, co-creation is closely linked to the principles of polycentric governance, where decision-making is distributed across multiple actors and levels (community, institutional, and political). This allows for more legitimate, resilient, and sustainable governance processes in which responsibility for designing and implementing solutions is shared among the different parties involved.

To operationalise this approach, PRO-COAST integrates a set of participatory tools adapted to each stage of the “U”:

- In **Co-initiating**, techniques such as hosting, network mapping, and empathy walks are used to build trust and shared purpose.
- During **Co-sensing**, sensing journeys, interviews, and deep listening dialogues help capture perceptions and understand local dynamics.
- In **Presencing**, collective reflection, storytelling, and guided visualization exercises support the emergence of new shared perspectives.
- In **Co-creating**, prototyping labs, appreciative inquiry, and coaching circles are used to test small-scale solutions in a collaborative way.
- Finally, in **Co-evolving**, strategic planning, reflective harvesting, and peer learning help consolidate and scale up the most promising initiatives.

To operationalise these phases, tools such as focus groups, dialogue interviews, and coaching circles are used to build trust, foster mutual learning, and generate collaborative solutions.

Beyond the methodological framework described above, the co-creation process has also been strengthened through collective workshops involving case study leaders and other project partners during the consortium meetings. These workshops, which are described in detail in Section 9 of this document, provided structured spaces to align methodological principles with operational needs. They played a key role in refining the KPI framework, encouraging cross-learning among case studies, and strengthening the common monitoring strategy across the project.

In parallel, the Theory of Change (ToC) plays a complementary role as a logical structure. While Theory U defines how the transformation process unfolds, ToC offers the conceptual backbone that explains why and for what purpose changes are expected to occur, thereby establishing a clear link between actions and outcomes. Since its initial formulation, the methodology has been reinterpreted with slight variations in its basic outline, although the simplest and most generic application framework may be the one shown below (Ghate, 2018) in which the author proposed a 7-steps model.

Theory of Change provides a detailed account of the mechanisms through which, and the reasons why, change is expected to occur in a specific context. It establishes causal pathways linking interventions with their intended results and formulates these relationships as hypotheses that can be empirically tested. As part of this process, long-term goals are articulated first, followed by the identification of the necessary preconditions and intermediate steps required to achieve them (United Nations Development Group, 2017).

Since its initial formulation, this methodology has been reinterpreted with slight variations in its basic structure, but the simplest and most generic model is articulated through seven steps that clearly and sequentially reflect how change is expected to occur (Ghate, 2018). This framework, widely used in the planning and evaluation of social and environmental interventions, allows for an easy visualisation of causal relationships between actions, mechanisms, and expected results, thereby facilitating its practical application in complex contexts.

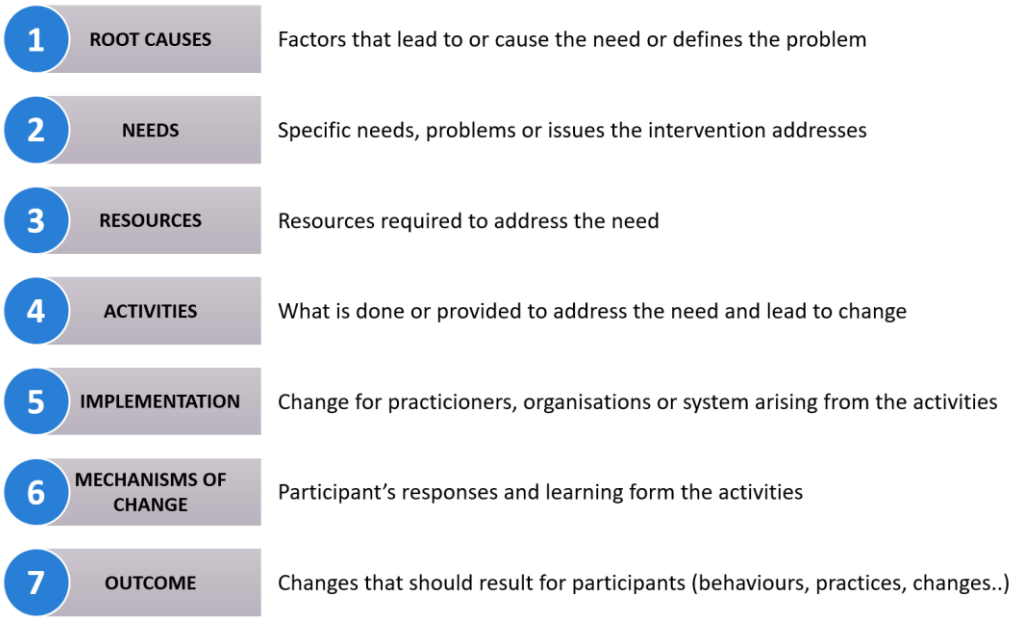


Figure 1. Theory of Change: Steps for Identifying and Linking Actions and Outcomes (adapted from Ghate, 2018)

In this way, ToC complements the participatory approach of Theory U by providing a structured framework that connects co-creation with strategic and measurable objectives, supporting planning, evaluation, and adaptive decision-making in the different case studies.

6. KEY PERFORMANCE INDICATORS (KPIS) FOR ECOSYSTEM AND SOCIETAL MONITORING

6.1 Purpose and Rationale

Key Performance Indicators (KPIs) are central to the PRO-COAST Integrated Assessment Methodology (IAM), providing the means to measure, monitor, and evaluate both ecological and social dimensions of transformation in coastal territories **(Annex 1)**. They translate the project's conceptual framework—linking biodiversity, ecosystem services, governance, and behavioural change—into a set of measurable, comparable metrics that can be applied across diverse case studies (CSs).

The PRO-COAST KPI system serves two complementary functions:

1. To offer a **comprehensive catalogue of recommended indicators** that can be used by any case study or external coastal initiative as a reference framework for integrated monitoring;

2. To define the **specific PRO-COAST KPIs** co-developed by CS leaders and partners (Annex 1), which are adapted from the general list to fit local contexts, data availability, and stakeholder priorities.

This two-tier approach ensures that the IAM remains both **standardised and flexible**—providing methodological coherence across sites while allowing for meaningful adaptation to local socio-ecological realities.

6.2 Structure and Selection Process

The KPI framework integrates indicators from multiple knowledge sources, including:

- EU and international biodiversity frameworks (**MAES**, **CICES**, **MSFD**, **SDGs**);
- Existing coastal and NbS monitoring tools from previous Horizon and LIFE projects;
- The SESF variables (resource systems, governance, actors, interactions, outcomes);
- Participatory inputs from stakeholders and CS leaders through co-creation processes (focus groups, coaching circles, and workshops).

Initial selection and clustering were conducted collaboratively during the early stages of WP5, and later aligned with the SESF (see Section 3). Each indicator is described according to:

- **Domain** (ecological, social, economic, governance, behavioural);
- **Level of application** (micro, meso, macro);
- **Type of data** (quantitative, qualitative, or mixed);
- **Expected source** (field monitoring, surveys, participatory sensing, or official data);
- **Alignment** with European and international frameworks.

6.3 General KPI Catalogue

The general catalogue of Key Performance Indicators (KPIs) presented in PRO-COAST draws on existing resources and indicator frameworks validated by the European Commission and other

international organisations (See Section 7). Rather than creating new or untested metrics, the project builds upon well-established and widely recognised methodologies to ensure scientific robustness, policy relevance, and compatibility with European monitoring and reporting requirements.

In particular, the PRO-COAST KPI catalogue integrates and harmonises indicators derived from:

- The Mapping and Assessment of Ecosystems and their Services (MAES) initiative
- The Common International Classification of Ecosystem Services (CICES)
- Outputs from recent Horizon 2020 and Horizon Europe projects addressing biodiversity, NbS, and transformative change

Because the general catalogue is extensive and designed for reuse beyond the PRO-COAST project, the full list is not reproduced within this document. Instead, the subsequent annex presents the subset of adapted KPIs that were specifically selected and validated for PRO-COAST case studies through participatory processes. This approach keeps the IAM concise while ensuring transparency and accessibility of the complete indicator database for future reference and replication.

6.4 PRO-COAST Case Study KPIs

From the general catalogue of indicators, a subset has been adapted and validated specifically for the PRO-COAST case studies**.** These KPIs were selected to reflect the local ecological conditions, governance contexts, and social dynamics of each site, while remaining fully consistent with the overarching Integrated Assessment Methodology (IAM) and the Social-Ecological Systems Framework (SESF).

The selection and adaptation process followed a co-creation logic, combining scientific, technical, and experiential knowledge:

- **Scientific and policy alignment** ensured that indicators remained compatible with European frameworks such as MAES, CICES, MSFD, and the SDGs.
- **Technical feasibility** guided the selection of indicators based on available data, existing monitoring programmes, and realistic capacity at local level.
- **Stakeholder relevance** was achieved through iterative workshops, focus groups, and coaching circles, where local actors and change agents validated the meaning, usefulness, and measurability of each indicator in their own contexts.

As a result, the PRO-COAST KPI set represents a **context-sensitive adaptation** of the general catalogue. It includes indicators covering the five IAM domains:

- **Environmental KPIs**, focused on habitat condition, biodiversity trends, and ecosystem functionality;
- **Socio-cultural KPIs**, reflecting perceptions, engagement, and social well-being;
- **Economic KPIs**, linked to sustainable livelihoods, tourism, and resource use;
- **Behavioural KPIs**, addressing awareness, capacity building, and willingness to adopt biodiversity-friendly practices.

Each case study (CS) has prioritised and contextualised a selection of these indicators according to its socio-ecological profile and available resources. This process ensures that the monitoring framework captures both comparable trends across sites and site-specific trajectories of change**.**

The complete list of adopted PRO-COAST KPIs, including their definitions, units, data sources, and linkage to SESF variables, is provided in Annex 1 with monitoring plans in Annex 2. These annexes constitute the operational reference for data collection, reporting, and future replication within and beyond the project.

7. INDICATOR FRAMEWORK ALIGNMENT

MAES knowledge gaps and selected indicators

The main framework used by the European Union to incorporate ecosystem services into environmental assessment and policy development is the Mapping and Assessment of Ecosystems and their Services (MAES) initiative. The goal of MAES, which is introduced in 2011 as part of the EU Biodiversity Strategy to 2020 (Action 5), was to create a standardized method for mapping ecosystems, evaluating their condition, and determining the services they offer to promote human well-being (Maes et al., 2020). The creation of the initiative is aligned with both, the EU's political commitment to include biodiversity and ecosystem services in sector-specific policies and worldwide developments in ecosystem services, particularly the Millennium Ecosystem Assessment (2005). The European Commission's Joint Research Centre (JRC) and the European Environment Agency (EEA) have played key roles in driving the MAES process forward.

A structured analytical framework offered by MAES makes a distinction between:

- Ecosystem extent: refers to the geographical dispersion and coverage of ecosystems.
- Ecosystem conditions: refers to resilience, ecological integrity, and service delivery capacity.
- Ecosystem services: refers to the contribution of society in the form of provision, regulation and culture.

Through its adoption of the Common International Classification of Ecosystem Services (CICES) and alignment with the UN System of Environmental-Economic Accounting – Ecosystem Accounting (SEEA EA), MAES facilitates the integration of assessments into national accounts and EU biodiversity reporting by ensuring that they are both policy relevant and scientifically sound (Maes et al., 2020).

The JRC and EEA have been conducting systematic EU ecosystem assessments using the MAES framework for the past ten years. Using information from CORINE Land Cover, EUNIS habitat classification, and Copernicus monitoring services, these assessments produced extensive EU-wide maps showing ecosystem extent, condition, and services (EEA, 2018; Maes et al., 2020). These efforts were combined in the 2020 EU Ecosystem Assessment, which provided standardized indicators for freshwater, marine, and terrestrial systems and demonstrated how MAES functions as a successful science-policy interface by offering indicators that are pertinent to policy and support the European Green Deal, the EU Biodiversity Strategy, and future restoration projects.

In PRO-COAST, MAES plays a crucial role in ensuring that the indicator framework captures not only ecological variables but also their translation into ecosystem services and societal benefits. Within Task 5.2 (Integrated Assessment Methodology), MAES alignment guarantees that, monitoring outcomes are consistent with EU and global standards, enabling cross-case comparability across the ten coastal case studies and facilitating the scaling-up of results into EU biodiversity strategies, the European Green Deal, and global agendas such as the SDGs and the Kunming–Montreal Global Biodiversity Framework.

The alignment process involved three main steps:

- identification of ecosystem services relevant to each coastal case study according to CICES and MAES typologies;
- mapping of these services to the corresponding SESF variables and challenges addressed; and
- co-creation of measurable KPIs with local partners and experts through participatory workshops and coaching circles.

The final KPI list includes, for each indicator, its associated ecosystem service, specific MAES category, measurement unit, data source, monitoring frequency and methodology, ensuring full traceability and comparability across case studies.

PRO-COAST also helps to fill in the knowledge gaps found in EU ecosystem assessments by aligning with MAES, especially regarding the health and service flows of coastal and marine ecosystems. These gaps are directly addressed by Task 5.2's choice of key performance indicators, which makes case study monitoring easier and contributes to a better understanding of coastal NbS and its advantages for society (Maes et al., 2020).

CICES classification

The Common International Classification of Ecosystem Services (CICES) is a key classification and systematisation system for the classification and evaluation of ecosystem services, which emerged in response to global recognition, from bodies such as the European Council in 1972, of the importance of the services that nature provides to human well-being. Its development began in 2009, consolidating in 2013 based on work inspired by the Millennium Ecosystem Assessment (2005) and evolving from the experience gained in scientific and political use (Haines-Young & Potschin, 2012). The European Environment Agency and the UN System of Environmental-Economic Accounting have been key drivers in the adoption and revision of the system.

It is a hierarchically structured classification system for identifying and categorising the contributions of ecosystems to human well-being, clearly differentiating these services from the material goods that people obtain. Its objective is to standardise methodologies for identifying, evaluating and comparing ecosystem services at an international level, facilitating their integration into public policy frameworks, environmental accounting and decision-making on conservation projects, land-use planning and sustainable development.

The basic structure proposed by CICES presents a hierarchical structure of nested levels (EEA, 2011):

- First, we have the ‘Theme.’ This level includes the three main types of services:
    - Provisioning services: products obtained from nature, material outputs from ecosystems such as biomass, water, or energy.
    - Regulating services: Ecological processes that regulate environmental conditions, including climate regulation, soil formation, and water purification, that enable human life.
    - Cultural services: Non-material values and benefits such as recreation, spiritual enrichment, and aesthetic values

- Next, we find the remaining levels, such as Division, Group, Class, and Class Type. Each of these represents an additional subclassification, providing greater detail and specificity of ecosystem services, allowing for comparative and standardised analysis.
- The most recent version of CICES expands the classification to cover both services dependent on living organisms and those derived from non-living components, such as water or geophysical processes (biotic and abiotic services).

Importantly, CICES is designed as a “living classification,” meaning it evolves to reflect advances in ecosystem service science and policy needs. The system has had different versions since its conception. The current version of the classification system is 5.2, which was recently released in July 2023 (Haines-Young, 2023).

During its nearly 15 years of development, CICES has been actively applied in ecosystem assessments and management in a wide variety of fields, as its framework allows for the detection, description and assessment of multiple ecosystem services.

In the PRO-COAST project, CICES plays a key role in ensuring methodological consistency for ecosystem service identification and monitoring across diverse European coastal contexts. In fact, the selected Key Performance indicators to monitor PROCOAST’s Case Studies are sustained on the bases of this Classification, ensuring the robustness of the evaluation by:

- The integration of ecological and socio-economic dimensions: CICES provides the foundation to link ecological functions with human benefits, a core requirement of the Social-Ecological Systems Framework (SESF) applied in PRO-COAST.
- Cross-case study comparability: Given that PRO-COAST works with ten representative case studies across European coastal regions, CICES ensures that ecosystem service assessments are coherent and comparable across scales and contexts.
- Policy relevance and upscaling: By grounding its indicator framework in CICES, PRO-COAST strengthens the transferability of results to EU biodiversity strategies, SDGs, and other international commitments.

Other relevant EU and global frameworks

Evaluating the impact of NBS: a handbook for practitioners

"Evaluating the Impact of Nature-based Solutions: A Handbook for Practitioners" (Dumitru & Wendling, 2021) is a comprehensive guide designed to support practitioners, policymakers, and researchers in assessing the effectiveness of Nature-based Solutions (NBS). The handbook provides methodologies and tools to evaluate the impact of NBS interventions across various ecological, social, and economic dimensions. It aims to enhance the understanding and implementation of NBS by offering practical guidance on measuring their outcomes and contributions to sustainable development goals.

This publication is the result of collaborative work carried out by researchers from 17 EU-funded Horizon 2020 NBS projects and collaborating institutions including the European Environment Agency (EEA) and the Joint Research Centre (JRC), as part of the European Taskforce for NBS Impact Assessment. Since its publication in 2021, this handbook has served as a reference document in the elaboration of evaluation frameworks for NBS implementation projects and policies.

The handbook includes a compendium of specific indicators with different methodologies, which contribute to the assessment of the impact of NBS around 12 societal challenge areas.

1. Climate Resilience
2. Water Management
3. Natural and Climate Hazards
4. Green Space Management
5. Biodiversity Enhancement
6. Air Quality
7. Place Regeneration
8. Knowledge and Social Capacity Building for Sustainable Urban Transformation
9. Participatory Planning and Governance
10. Social Justice and Social Cohesion
11. Health and Wellbeing
12. New Economic Opportunities and Green Jobs

The handbook has an extensive annex detailing each of the indicators proposed within each challenge. The indicators are presented in the form of factsheets, reflecting the associated challenges, a description, justification, definition and scale of application of the indicator. In more detail, the sheet provides information on more specific issues, such as measurement procedures, data sources, measurement frequencies or the level of expertise required. It also identifies synergies with other indicators, the possibility of applying citizen science, among other information.

Although the manual focuses on evaluating nature-based solutions in cities, the extensive appendix provides an interesting compilation of scientific indicators that can be valuable in evaluating different environmental and socio-economic aspects, and more specifically, within the challenges defined in the manual. That is why this manual has been a basic source of information for building the project's monitoring framework.

8. MONITORING, DATA COLLECTION , AND ADAPTIVE FEEDBACK

8.1 Data Collection Methods and Protocols

For proper assessment and monitoring of the actions in PRO-COAST Project, it has been necessary to select the most appropriate methods for data collection. To capture the wide range of ecological, social and economic indicators, a variety of data collection methods have been needed.

These include direct observation and in situ sensors, which provide real-time data on environmental variables; surveys and censuses, which collect quantitative and qualitative information from stakeholders and communities; and ad hoc laboratory experiments, which provide controlled conditions to study specific phenomena. In addition, existing databases are used to incorporate historical and contextual data, while modelling techniques simulate and predict the outcomes of NBS interventions. Finally, the role of citizen science is highlighted as a vital tool for involving the public in data collection, improving both the scope and relevance of the information collected.

Figure 2. Methods for data collection

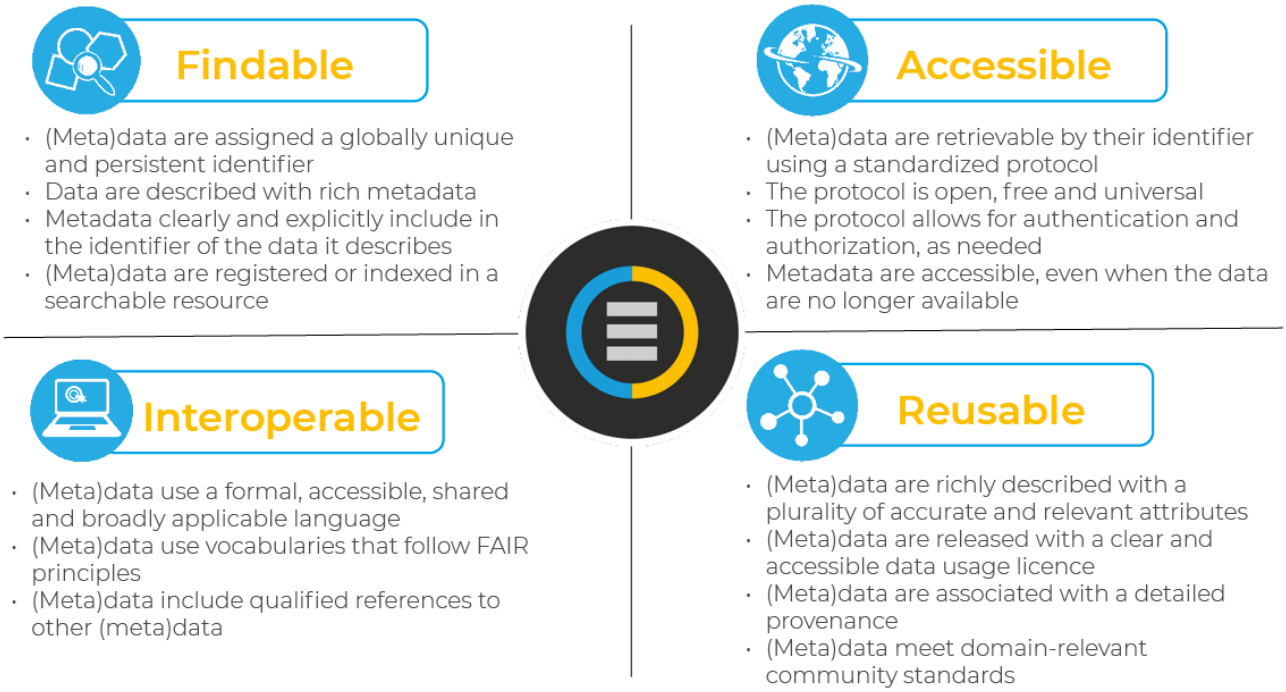


Source: (Dumitru & Wendling, 2021)

8.2 Monitoring of KPIs

The data collection protocols and the monitoring plans for ecological, social, economic, and behavioural indicators evaluated in PRO-COAST case studies, have been designed based on the FAIR (Findable, Accessible, Interoperable, Reusable) principles. The FAIR principles offer a structured approach to manage and share data generated during the project, enhancing the overall quality and utility of Monitoring, Evaluation and Assessment activities. The bases of the principle (Wilkinson et al., 2016) are summarized in the next figure.

Figure 3. The 4 pillars of the FAIR Principle



Source: (FAIR Data Principles | CCDC, n.d.)

The final objective, besides serving as an evaluation of the results for the project, is to generate a database that can be accessible, useful, and sustainable beyond the duration of the project.

To achieve a robust monitoring programme, a series of aspects (frequency, responsibilities, formats, and key information) have been defined and subsequently included in the **KPIs Control Sheets** to enable systematic monitoring of the progress of the monitoring work. These were distributed among the partners and are being used periodically to acquire information on each indicator performance. The sheets contain similar information for the ecological, social, economic, and behavioural indicators.

The KPI Control Sheets create a living document, which is responsible for recording progress and possible deviations during the monitoring process.

The aspects included in these control sheets are:

Responsibilities: The table under this tab seeks to define responsibilities beyond the leadership set out in the Grant Agreement. Thus, it also includes the definition of who provides the data, who calculates the indicator, or who monitors it. The following table shows in detail the requested items.

Table 3. Information contained in the "Responsibilities" Tab

Item	Description
Case Study	Code indicating the project case study
Data Manager	Partner responsible of this Indicator.
Technical manager	Partner responsible for selecting the methodology and calculating the indicator. Designate the entity and contact person. It can be the same as the Data manager.
Other	Independent partner to supervise the correct execution of the monitoring in the required time and format.

Calendar: This table defines the temporal issues linked to the monitoring of indicators: Date of acquisition of the raw data (data collection). This table is marked by two distinct concepts. One is the acquisition of raw data, which is called the data collection period; the other is the reporting of processed data, i.e. how and when the summarized and analysed data are presented. The following table shows in detail the requested items.

Table 4. Information contained in the "Calendar" Tab

Item	Description	Example
Indicator code	Unique code	CS01.EC.01
Partner in charge	Partner responsible for this Indicator	CARTIF
Data collection period	Indicate the start date and end date of the monitoring period.	DD/MM/YYYY - DD/MM/YYYY
Frequency of data collection	Indicate the frequency of data collection.	Hourly, monthly, yearly, etc.

Reporting period	Indicate the start date and end date of the reporting period.	DD/MM/YYYY - DD/MM/YYYY
Frequency of reporting	Indicate the frequency of reports.	Monthly, yearly, etc

Methodology. The table under this tab seeks to define logistic issues linked to the indicators' monitoring. Under this category, the typology of the indicator and its associated data, as well as the things needed to record the indicator, such as tools, methodologies and special requirements, are identified. The following table shows in detail the requested items.

Table 5. Information contained in the "Methodology" Tab

Item	Description	Example
Indicator code	Unique code	CS01.EC.01
Challenge addressed	The specific CS challenge, problem, or issue targeted or addressed by the KPI, indicating the purpose or objective of monitoring and evaluation efforts.	Overtourism
Indicator category	Indicator category according to project classification	Environmental
Indicator name	The name or title assigned to the Key Performance Indicator, providing a concise description of the aspect being measured or assessed	Comparison of long-term local revenue from tourism
Partner in charge	Partner responsible of this Indicator,	CARTIF
Methodology	Technique used in data collection.	Laboratory, calculate, models, surveys, etc.
Data type	Indicate if data are qualitative or qualitative	Qualitative, Quantitative
Data format	Type of datasets (file format)	txt, xls, doc, etc.
Data collection resources/needs	Indicate the specific resources for data collection.	Social science, on- field measures, etc.
Tools	Indicate the tools needed	Sensors, surveys, APPS....
Special requirements	If the data is personal or sensitive, or specific permission is needed to access it	Informed consent template, others…

8.3 Data format

Given the range of indicators managed by different partners and the potential to utilize various recording formats, the primary challenge was to identify the most common formats aligning with our final goals of being scalable and accessible to a broad audience, in accordance with FAIR principles.

To this end, a strong preference for .csv files emerged due to their versatility and suitability for various indicators. However, certain indicators may need to be stored in spatial formats, such as shapefiles (.shp) for spatial vector data or TIFF for raster imagery. Additionally, GeoJSON format may be used when compatibility is a key consideration. Reports requiring further explanation, particularly for social indicators, will continue to be delivered in .PDF format.

Each dataset shall be accompanied by a **metadata** file in xml format. The structure and content of this file record information on the owner of the data or the partner responsible for the KPI, overall status of the indicator, details on the indicator, and start and last collection frequency or measurement data, among other data. More in detail, this file includes:

- **Rights**: This block refers to the overall ownership of the data. The values in this group are static.
    - **Project**: The acronym that identifies the project
    - **Coordinator**: The coordinator of the project
    - **Funding**: Horizon Europe
- **Indicator**: This block refers to the indicator to which the data set refers.
    - **Code**: Unique identifier of the indicator, previously assigned.
    - **EcosystemService**: Name of the associated Ecosystem Service
    - **Name**: Name of the indicator
    - **Description:** Description of the indicator
    - **Units**: Units in which the indicator is expressed
    - **Owner**: Leader of the indicator.
    - **PublicationDate**: Date of publication of the last update of the dataset.
    - **Version**: Number of updates of the data set.
    - **Formats**: Predominant format of the dataset associated with the metadata.

8.4 Adaptive feedback

The IAM is designed as a living methodology, capable of evolving throughout the project in response to new data, lessons learned, and stakeholder input. Its adaptive feedback mechanism ensures that both the indicators and the assessment procedures remain relevant and effective across the different phases of implementation.

Several rounds of validation and adaptation were carried out together with the case study leaders to review the relevance, feasibility, and performance of the KPIs during the monitoring phase. Through these iterative exchanges, indicators were jointly assessed and refined, allowing the consortium to replace or adjust those that proved impractical or insufficiently representative. This collaborative process ensured that the final KPI set accurately captured the ecological, social, and governance dynamics observed in each local context.

Stakeholder engagement remains central to this adaptive process. Feedback gathered through coaching circles, change workshops, and co-creation meetings will be systematically incorporated into the evaluation of indicators. These participatory spaces enable local actors to validate whether indicators reflect real outcomes, identify emerging priorities, and propose adjustments grounded in lived experience and community perception.

Finally, the lessons learned from monitoring and validation activities will feed back into the continuous refinement of the IAM itself. Insights on data collection, stakeholder involvement, and governance effectiveness will inform future iterations of the methodology and its potential scaling and replication beyond the project. In this way, adaptive feedback ensures that the IAM remains responsive, participatory, and capable of supporting long-term transformative change in coastal social-ecological systems.

9. Training and Awareness Raising for Effective Implementation

Training and awareness are key to make sure that NbS are implemented effectively and in a sustainable way in the PRO-COAST case studies. Beyond being complementary actions, they are key instruments for building local capacity, fostering ownership of the interventions, and securing long-term impacts. These activities aim to improve the technical understanding of the NbS interventions, strengthen governance and organisational skills, and enhance social engagement at the local level.

A central element of this strategy has been the organisation of local events with stakeholders in each case study. These workshops are specifically designed as training-oriented events, providing a space where local actors, authorities, civil society organisations, and other relevant groups can familiarise themselves with the objectives, methodologies, and expected outcomes of the NbS being implemented. The content and format of these sessions are adapted to the local context, ensuring that technical concepts are communicated in an accessible way and that knowledge is co-developed rather than merely transferred. In many cases, these workshops have also served as opportunities to strengthen dialogue between different governance levels, align expectations, and reinforce trust among actors.

In addition to formal training activities, awareness-raising campaigns have been developed in all case studies, tailored to their specific socio-ecological contexts. These campaigns have included open community meetings, communication through local media, school engagement activities, participatory monitoring events, and public information stands. Their main goal is to increase community understanding and support for NbS interventions, foster behavioural change, and build a sense of shared responsibility in environmental management. By combining targeted messaging with inclusive communication strategies, these actions help to ensure that the benefits of NbS are visible and valued by the broader community.

Furthermore, these training and awareness actions complement the co-creation and participatory methodologies described in Section 5. While the latter provide the conceptual and methodological backbone for engagement, local events and awareness campaigns operationalise those principles on the ground, ensuring that the implementation of NbS is socially embedded and not merely technically driven. This combination of structured capacity-building and community outreach is essential for

scaling up successful interventions and for ensuring the durability of outcomes beyond the project's lifetime.

10. TRANSFERABILITY POTENTIAL ACROSS OTHER COASTAL SITES

The Integrated Assessment Methodology (IAM) developed within PRO-COAST combines scientific rigour with flexibility, making it **highly transferable to other coastal contexts** beyond the project's case studies. Its structure—built around six iterative phases, co-created Key Performance Indicators (KPIs), and the integration of the Social-Ecological Systems Framework (SESF)—provides a replicable model for adaptive, participatory assessment of biodiversity and societal transformation.

The **key methodological components** supporting transferability include:

- A **modular design**, which allows each phase (diagnosis, co-creation, implementation, monitoring, assessment, and scaling) to be applied independently or adapted according to local needs and resources;
- The use of **validated and standardised indicators** aligned with EU frameworks (MAES, CICES, MSFD, SDGs), ensuring comparability across regions while maintaining local relevance;
- A strong emphasis on **stakeholder participation and behavioural change**, making the methodology adaptable to varying governance systems and cultural contexts;
- The integration of **adaptive feedback loops** that allow the system to evolve based on stakeholder input and empirical learning;
- The embedding of the **SESF meta-framework**, which enables a systemic understanding of interactions between ecological, social, and institutional components.

These elements make the IAM a **scalable tool** for other coastal regions seeking to implement or evaluate Nature-based Solutions (NbS) and biodiversity restoration strategies. Its participatory structure supports both top-down policy integration and bottom-up community engagement, fostering ownership and continuity beyond project duration. Moreover, the alignment of the IAM with European and international standards ensures that it can contribute to **cross-project and cross-policy harmonisation**, supporting initiatives under the EU Biodiversity Strategy for 2030, the Marine Strategy Framework Directive, and the Kunming–Montreal Global Biodiversity Framework.

In summary, the IAM offers a **replicable, evidence-based, and participatory model** for coastal sustainability governance. By combining local co-creation with policy-level alignment, it provides a pathway for transferring the lessons and tools of PRO-COAST to a broad range of coastal and marine contexts across Europe and beyond.

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12. ANNEXES

Table 1. List of PRO-COAST KPIs

KPI category	Associated Ecosystem Service	KPI CODE | Name	Challenge addressed	SESF LEVELS (2&3)	Frequency and monitoring period (Units)	Data type | File Format | Partner in charge	Methdology and description
CS1- Comino							
Economic	Cultural	CS01.EC.01 | Comparison of long-term local revenue from tourism	Overtourism and stakeholders with economic interest	2-L | Economic development (S1) 3-L | S1a. Economic sectors	Annually: over whole project period (% of measurable tourist income)	Quantitative xls / pdf FoEM	Systematic desk-based review and compilation of secondary data, reports, and scientific literature relevant to the case study area. Requesting info from MTA annual reports
		CS01.EC.02 | Tourist Willingness to Pay for Conservation	Overtourism and stakeholders with economic interest	2-L | Economic development (S1) 3-L | S1a. Economic sectors	First survey in 2025, second in early 2026: During survey collection (number of responses)	Quantitative xls / pdf FoEM	Implementation of structured online questionnaires targeting visitors and participants from prior focus groups to collect quantitative perception data Survey responses to specific question
Environmental	Cultural	CS01.EN.02 | Number of species conservation programs actively supported	Biodiversity loss due to human pressure	2-L | Government resource policies (S4) 3-L | S4b. Environmental policies	Annually: at least until end of project (Number of programs)	Quantitative xls/pdf FoEM	Comparative assessment of site-specific management actions against Natura 2000 management plan objectives and monitoring indicators. Requesting info from Natura 2000 management body and Ornithological research by NGOs
	Regulating and Maintenance	CS01.EN.01 | Species diversity within defined area per Shannon Diversity Index	Biodiversity loss due to human pressure	2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	Continuous: at least until end of project (Shannon Diversity Index)	Quantitative xls /pdf FoEM	Critical review of peer-reviewed and grey literature combined with consultation and data exchange with research institutions and ongoing academic collaborations. Local citizen science and academic research
Socio-Cultural	Cultural	CS01.SC.01 | Level of stakeholder satisfaction or feedback regarding their involvement in decision-making.	Stakeholders feel a lack of consultation	2-L | Deliberation processes (I3) 3-L | I3c. Trust building processes	Twice: Both Survey periods (number of responses)	Quantitative xls/pdf FoEM	Administration of structured surveys to target groups for quantitative and data collection on stakeholder perceptions and practices. Survey responses to specific questions
		CS01.SC.02 | Level of community involvement in biodiversity conservation initiatives	Community does not feel a sense of stewardship	2-L | Deliberation processes (I3) 3-L | I3b. Knowledge about participation mechanisms and rights	Twice: Both Survey periods (number of responses)	Quantitative xls/pdf FoEM	Administration of structured surveys to target groups for quantitative and data collection on stakeholder perceptions and practices. Survey responses to specific questions
		CS01.SC.03 | Number of capacity building workshops, training sessions, or knowledge-sharing events conducted.	Lack of knowledge	2-L | Information sharing (I2) 3-L | I2a. Knowledge transmission	Annually: whole project period (Number of events)	Quantitative xls / pdf FoEM	Facilitation of participatory workshops bringing together key stakeholder groups for knowledge exchange, validation of indicators, and co-design of actions. Monitoring the number of events over time
		CS01.SC.04 | Stakeholder awareness of the biodiversity	Lack of awareness	2-L | Knowledge of SES/mental models (A7)	Annually: whole project period and	Quantitative xls / pdf FoEM	Organisation of citizen-science and environmental education events (e.g. field excursions, clean-up campaigns, and

KPI category	Associated Ecosystem Service	KPI CODE | Name	Challenge addressed	SESF LEVELS (2&3)	Frequency and monitoring period (Units)	Data type | File Format | Partner in charge	Methdology and description
		threats and the implications of developments		3-L | A7b. Knowledge of the potential disturbance patterns and their possible effects	beyond (Number of events)		interactive awareness activities) to enhance public engagement and data collection. Monitoring the number of events over time
CS2 - Apulia							
Economic	Cultural	CS02.EC.01 | Number of sustainable constructions adhering to biodiversity guidelines.	Improving the design and realisation of constructions integrated in the natural context and capable to have low or zero effect towards biodiversity and ecosystems.	2-L | Human constructed facilities (RS3) 3-L | RRS3a. Tourism industry infrastructure	Summed every three years: At least until end of Project (Number of constuctions)	Quantitative .csv UniSal	Assessment of sustainable infrastructure within the case study area through compliance analysis with current EU environmental construction standards. The amount of constuctions in the case study area compatible with the description
Environmental	Regulating and Maintenance	CS02.EN.02 | Species diversity within defined area per Shannon Diversity Index	Evaluating the biodiversity conservation effects of the case study by periodically evaluating the Shannon Diversity Index fluctuations over time.	2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	Annually: At least until end of Project (Diveristy Index)	Quantitative .csv UniSal	Application of environmental DNA (eDNA) metabarcoding for biodiversity assessment and computation of Shannon Diversity Index based on the relative abundance of operational taxonomic units (OTUs). A mathematical measure of species diversity in a community
		CS02.EN.03 | Number of species within defined area per Shannon Evenness Index	Evaluating the conservation of biodiversity in the case study by periodivally evaluating the Evenness Index fluctuations over time.	2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	Annually: At least until end of Project (Evenness Index)	Quantitative .csv UniSal	Use of eDNA metabarcoding data to calculate Pielou's Evenness Index, assessing the distribution uniformity of taxa detected within the sampled ecosystems. A mathematical measure of the commonness or rarity of species
		CS02.EN.04 | Species abundance (number of individuals / species)	Biodiversity monitoring in the case study by evaluating the relative abundance of species over time.	2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	Annually: At least until end of Project (Relative abunsance)	Quantitative .csv UniSal	Application of eDNA metabarcoding for quantifying species richness and relative abundance indices within the case study area. The number of species and their relative abundance
		CS02.EN.05 | Area of habitats restored	Habitats' surfaces area recovered through restoration and/or protection	2-L | Size (RS2) 3-L | RS2b. Size of different habitats or	Summed every three years: At least until end of Project (Hectares restored)	Quantitative .csv UniSal	Quantification of habitat restoration extent using high-resolution remote sensing imagery and GIS-based change detection analyses.

KPI category	Associated Ecosystem Service	KPI CODE | Name	Challenge addressed	SESF LEVELS (2&3)	Frequency and monitoring period (Units)	Data type | File Format | Partner in charge	Methdology and description
			programs in the case study.	ecosystem types within the resource system			Hectares of protected habitats restored within the case study area
		CS02.EN.06 | Reduction of invasive species	Number of non-indigenous species early identified in the case study allowing for preventive actions before spreading.	2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	Summed every three years: At least until end of Project (Number of early-identified NIS)	Quantitative .csv UniSal	Screening of eDNA-derived taxa against EU databases of non-indigenous species (e.g. EASIN) for early detection and reporting of potential invasive species. Application of innovative tools for biodiversity monitoring and early identification of NIS presence in the case study
		CS02.EN.07 | Amount of marine debris removed	Amount of collected marine and lagoon litter removed in the case study with actions involving stakeholders.	2-L | Ecological performance measures (O2) 3-L | O2c. Natural habitat condition	Summed every three years: At least until end of Project (Kilograms)	Quantitative .csv UniSal	Implementation of marine and lagoon litter removal campaigns, with systematic quantification of collected material (kg) as a proxy for pollution reduction. Kilograms of marine litter and lagoon litter removed in cleanup initiatives
		CS02.EN.08 | Baseline biodiversity index improvement	Monitoring the combined shifts of Diversity Index, Evenness Index, and species richness and abundance to reach overall improvements.	2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	Summed evesy three yeass: At least until end of Project (Diversity Index, Evenness Index, Species richness and relative abundances)	Quantitative .csv UniSal	Integration of multiple biodiversity indices derived from eDNA datasets (richness, evenness, diversity) to evaluate ecosystem condition and inform adaptive management recommendations. Combining the baseline biodiverisity indexes for improving biodiversity conservation
Socio-Cultural	Cultural	CS02.SC.01 | Number of species conservation programs actively supported	Actively and passively supporting local, macro-regional and global species conservation programs through scientific research in the case study.	2-L | Government resource policies (S4) 3-L | S4b. Environmental policies	Summed every three years: At least until end of Project (Number of programs)	Quantitative .csv UniSal	Inventory and assessment of active species conservation programmes benefiting from project-generated research outputs on biodiversity and habitat condition. The number of species conservation programs which gain support from research activities conducted in the case study area
		CS02.SC.05 | Number of capacity building workshops, training sessions, or knowledge-sharing events conducted.	Improving the awareness of the stakeholders concerning the main threats acting at local, macro-regional and global scales and providing them the baseline skills for acting against them.	2-L | Information sharing (I2) 3-L | I2a. Knowledge transmission	Summed every three years: At least until end of Project (Number of trainings)	Quantitative .csv UniSal	Facilitation of multi-stakeholder workshops for capacity building and awareness raising on biodiversity threats, supported by an on-site demonstration and learning area. Number of workshops and trainings aimed at improving stakeholders' awareness and skills

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		CS02.SC.06 | measures in place to protect biodiversity (and monitoring/compliance at a local level)	Assessing the number of measures in place aimed at protecting species and habitats biodiversity in the context of the case study area.	2-L | Government resource policies (S4) 3-L | S4a. Governmental regulatory framework for natural resources	Summed every three years: At least until end of Project (Number of measures)	Quantitative .csv UniSal	Compilation of current biodiversity conservation measures and evaluation of their scope, implementation level, and effectiveness. The number of existing measures aimed at biodiversity conservation in place in the case study area
		CS02.SC.08 | Number of local community awareness campaigns	Assessingand improving the existence and number of campaigns aimed at increasing the stakeholders' awareness aboout the main threats.	2-L | Information sharing (I2) 3-L | I2b. Information/knowhow sharing about SES variations	Summed every three years: At least until end of Project (Number of campaigns)	Quantitative .csv UniSal	Review and inventory of existing awareness and outreach campaigns addressing biodiversity and conservation within the case study area. The number of campaigns aimed at increasing the stakeholders' awareness
		CS02.SC.09 | Engagement of local stakeholders in biodiversity conservation	Actively training and involving the stakeholders in taking actions for protecting and preserving species and habitats biodiversity.	2-L | Norms/social capital (A6) 3-L | A6a. Traditional forms of collaboration	Summed every three years: At least until end of Project (Number of stakeholders visiting the case study)	Quantitative .csv UniSal	Monitoring stakeholder participation and visitor attendance at biodiversity-related activities as a proxy for engagement and conservation awareness. The number of stakeholders visiting the case study as a proxy for interest in biodiversity conservation
		CS2.SC.02 | Frequency of stakeholder consultations or participatory workshops conducted.	Communicating with stakeholders abouth the main threats and possible solutions in the case study.	2-L | Deliberation processes (I3) 3-L | I3c. Trust building processes	Summed every three years: At least until end of Project (Number of workshops)	Quantitative .csv UniSal	Establishment of an open-air learning and engagement hub to host participatory workshops and stakeholder round tables for co-learning and training on biodiversity management. Number of workshops organised for communicating with stakeholders
		CS2.SC.03 | Existence and frequency of biodiversity assessments	Assessing the existence, number, and frequency of biodiversity assessments in the context of the case study localisation.	2-L | Monitoring activities (I9) 3-L | I9a. Monitoring activities	Summed every three years: At least until end of Project (Number of biodiversity assessments)	Quantitative .csv UniSal	Compilation and analysis of existing biodiversity monitoring schemes, including frequency, scope, and methodological consistency. Number of biodiversity assessments existing within the case study area
		CS2.SC.04 | Investment in biodiversity-related research and development	Assessing the existence and number of biodiversity-related funded projects	2-L | Investment activities (I5) 3-L | I5a. Investment activities	Summed every three years: At least until end of Project (Number of projects)	Quantitative .csv UniSal	Mapping and quantitative analysis of ongoing and completed biodiversity-related projects covering the case study area. The number of funded projects focusing on

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			concerning the case study area.				biodiversity and including the case study area
		CS2.SC.07 | Stakeholder awareness of the biodiversity threats and the implications of developments	Evaluating the stakeholders' awareness about the main threats acting on the case study at a local, macro-regional and global scales.	2-L | Knowledge of SES/mental models (A7) 3-L | A7b. Knowledge of the potential disturbance patterns and their possible effects	Summed every three years: At least until end of Project (data)	(e.g., WP6 questionnaires responses) .csv UniSal	Organisation of participatory evaluation sessions to assess stakeholder awareness of biodiversity threats and their socio-economic implications, supported by in-situ training infrastructure. The level of understanding by stakeholders of the main threats acting on biodiversity and the impacts on the human dimensions
CS3 - Strunjan							
Environmental	Cultural	CS03.EN.03 | Number of species conservation programs actively supported	Loss of biodiversity due to tourism, climate change,...	2-L | Government resource policies (S4) 3-L | S4b. Environmental policies	Annually: at least until end of project (Number of programs)	Quantitative xls UP	Systematic review and mapping of ongoing conservation projects and initiatives operating within the case study boundaries. Review of projects involving conservation activities active in the CS area, that the UP team can support.
	Regulating and Maintenance	CS03.EN.01 | Species abundance (number of individuals / species)	Estimated abundance of different species to track changes during the years.	2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	Daily, summed annually: At least until end of project (Rate of sightings)	Quantitative xls UP	Data will be collected through the deployment of camera traps complemented by citizen reports submitted via the SRNA application for cross-validation. Number of different species detected and their numbers by camera traps in the area and by reports in the SRNA app.
		CS03.EN.02 | Species diversity within defined area per Shannon Diversity Index	Changes in biodiversity through the years	2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	Continous: at least until end of project (Shannon Diversity Index)	Quantitative xls UP	Monitoring will be conducted using a network of camera traps strategically positioned within the study area to record species presence and activity. Measured with camera trapping data and SRNA app reports.
		CS03.EN.04 | Decrease in wildlife disturbances due to tourism (measured by wildlife monitoring data such as roadkill)	Biodiversity loss due to human pressure	2-L | Equilibrium properties (RS5) 3-L | RS5d. Frequency of disturbances	Annually: whole project period (Activity pattern)	Quantitative xls UP	Retrieval and analysis of national wildlife–vehicle collision records complemented by camera trap data and traffic volume statistics to assess temporal trends. Monitoring of activity patterns of different species in areas with more or less tourism. Monitoring of number of observations/roadkill during different seasons.
		CS03.EN.05 | Wildlife as natural resources and economical benefits	Lack of knowledge	2-L | Resource value (RU4) 3-L | RU4b. Environmental value	Annually: whole project period (Number of events wildlife damage to fields)	Quantitative xls UP	Quantification of reported wildlife damage incidents using official records and stakeholder reporting systems. Damages done by wildlife to fields, meadows, vineyards,...

KPI category	Associated Ecosystem Service	KPI CODE | Name	Challenge addressed	SESF LEVELS (2&3)	Frequency and monitoring period (Units)	Data type | File Format | Partner in charge	Methdology and description
Socio-Cultural	Cultural	CS03.SC.01 | Level of stakeholder satisfaction or feedback regarding their involvement in decision-making.	Determine the level of stakeholder satisfaction with their involvment and find a way to improve their involvment.	2-L | Deliberation processes (I3) 3-L | I3c. Trust building processes	Annually: Between first and second surveys (Satisfaction score (average score reported in the surveys))	Quantitative xls UP	Data will be collected through targeted stakeholder surveys, primarily engaging hunting associations and individuals. Survey different stakeholders (but mainly hunters), to get their feedback and opinions
		CS03.SC.02 | Stakeholder awareness of the biodiversity threats and the implications of developments	Improve the awarness of the biodiversity threats to the local wildlife.	2-L | Knowledge of SES/mental models (A7) 3-L | A7b. Knowledge of the potential disturbance patterns and their possible effects	Two surveys, one in progress, one in 2026.: Between first and second surveys (Awarness score (average score reported in the surveys))	Quantitative xls UP	Implementation of pre- and post-intervention stakeholder surveys to evaluate changes in awareness and attitudes following community engagement campaigns. Awarness about different factors affecting and/or threatening the local biodiversity.
		CS03.SC.03 | Number of local community awareness campaigns	Improve the awarness of the local comunity about different issues impacting the area.	2-L | Information sharing (I2) 3-L | I2b. Information/knowhow sharing about SES variations	Multiple times per year: Until end of project (Number of campaigns)	Quantitative xls UP	Organisation of thematic workshops for diverse stakeholder groups, with systematic documentation of participant numbers through attendance records. Awarness campaing number targeting different issues (biodiversity loss, impact of tourism,...)
		CS03.SC.04 | Number of capacity building workshops, training sessions, or knowledge-sharing events conducted.	Increase knowledge	2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	Multiple times per year: Until end of project (Number of events)	Quantitative xls UP	Repetition of multi-stakeholder engagement events, tracked through participant registration forms and attendance monitoring. Number of different events organized for different stakeholder groups to improving their knowledge about different issues related to biodiversity loss, tourism impact...
CS4 - Boka Kotorska							
Economic	Cultural	CS04.EC.01 | Tourist Willingness to Pay for Conservation	Overtourism and stakeholders with economic interest	2-L | Economic development (S1) 3-L | S1a. Economic sectors	First survey in 2025, second in early 2026: During survey collection (number of responses)	Quantitative xls / pdf CEM	Topic is put in the survey that will be distributed among stakeholders in 2024 and 2026 and desk research Survey responses to specific question
		CS04.EC.02 | Rise in funding (to pay for renting equipment) or voluntary management levels	(en blanco)	2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	Twice: ()	Quantitative xls / pdf CEM	Topic is put in the survey that will be distributed among stakeholders in 2024 and 2026
Environmental	Regulating and Maintenance	CS04.EN.01 | Area of habitat protected	(en blanco)	2-L | Size (RS2) 3-L | RS2b. Size of different habitats or	: (Hectares)	Quantitative xls / pdf CEM	National document on enviroment protection

KPI category	Associated Ecosystem Service	KPI CODE | Name	Challenge addressed	SESF LEVELS (2&3)	Frequency and monitoring period (Units)	Data type | File Format | Partner in charge	Methdology and description
				ecosystem types within the resource system			
		CS04.EN.02 | Species diversity within defined area per Shannon Diversity Index	(en blanco)	2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	: (Unitless)	Quantitative xls / pdf CEM	Information will be gathered from the national enviroment reports (desk research)
Socio-Cultural	Cultural	CS04.SC.01 | Level of stakeholder satisfaction or feedback regarding their involvement in decision-making.	Stakeholders feel a lack of consultation	2-L | Deliberation processes (I3) 3-L | I3c. Trust building processes	Twice: Both Survey periods (number of responses)	Quantitative xls/pdf CEM	Topic is put in the survey that will be distributed among stakeholders in 2024 and 2026 and desk research Survey responses to specific questions
		CS04.SC.02 | Stakeholder awareness of the biodiversity threats and the implications of developments	Lack of awareness	2-L | Knowledge of SES/mental models (A7) 3-L | A7b. Knowledge of the potential disturbance patterns and their possible effects	Annually: whole project period and beyond (Number of events)	Quantitative xls / pdf CEM	Topic is put in the survey that will be distributed among stakeholders in 2024 and 2026 and desk research Monitoring the number of events over time
		CS04.SC.03 | Number of capacity building workshops, training sessions, or knowledge-sharing events conducted.	(en blanco)	2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	: (Number of workshops)	Quantitative xls / pdf CEM	We will organize events and attend events on simmilar topic organized by other relevant stakeholders and have sign up sheet for our events
		CS04.SC.04 | Participation rate in capacity building activities among target groups.	(en blanco)	2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	: (Number of participants)	Quantitative xls / pdf CEM	Sign up sheets will be used for events we organize
		CS04.SC.05 | Number of local community awareness campaigns	(en blanco)	2-L | Information sharing (I2) 3-L | I2b. Information/knowhow sharing about SES variations	: (Number of campaigns)	Quantitative xls / pdf CEM	Desk research
		CS04.SC.06 | Level of community involvement in biodiversity conservation initiatives	(en blanco)	2-L | Deliberation processes (I3) 3-L | I3b. Knowledge about participation mechanisms and rights	: ()	Quantitative xls / pdf CEM	Topic is put in the survey that will be distributed among stakeholders in 2024 and 2026
CS5 - Sligo							

KPI category	Associated Ecosystem Service	KPI CODE | Name	Challenge addressed	SESF LEVELS (2&3)	Frequency and monitoring period (Units)	Data type | File Format | Partner in charge	Methdology and description
Economic	Regulating and Maintenance	CS05.EC.01 | € benefit per one area of sand dune restoration	Enhaunced stakeholder's perception	2-L | Economic development (S1) 3-L | RU4b. Environmental value	Once: At the end of the project (€)	Quantitative CSV ATU	Application of cost–benefit analysis to estimate the monetary value of ecosystem services restored per unit area of rehabilitated sand dunes. Analysis of cost-benefits of sand dune restoration as a nature-based sollution
		CS05.EC.02 | Tourist Willingness to Pay for Conservation	Helps determine if tourists value environmental protection and are willing to contribute financially.	2-L | Economic development (S1) 3-L | RU4b. Environmental value	Twice: 2-year (Percentage)	Quantitative CSV ATU	Inclusion of a contingent valuation component within visitor surveys to assess the proportion of respondents expressing willingness to contribute financially to conservation efforts. Monitoring if visitors are willing to pay for conservation measures
Environmental	Regulating and Maintenance	CS05.EN.01 | Area of habitat restored	Coastal Erosion	2-L | Spatial and temporal distribution (RU7) 3-L | RS2b. Size of different habitats or ecosystem types within the resource system	Annually: Starting in Oct 2024 (Ha)	Quantitative CSV/Map ATU	Quantitative monitoring of Ammophila arenaria (marram grass) coverage using GIS-based land-cover classification from aerial or satellite imagery. Change in Area of grass
Socio-Cultural	Regulating and Maintenance	CS05.SC.01 | public awareness of the biodiversity threats and the implications of developments	Enhance local community awareness about Sand dune restoration.	2-L | Information sharing (I2) 3-L | I2b. Information/knowhow sharing about SES variations	Annually: 2-year (Percentage)	Quantitative xls ATU	Evaluation of public awareness trends through repeated administration of structured perception surveys. Change in public awareness
		CS05.SC.02 | Number of local community awareness campaigns	Enhance local community awareness about Sand dune restoration.	2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	Annually: Starting May-2024 (Number of campaigns)	Quantitative CSV ATU	Systematic recording and quantification of the number of outreach and engagement events held within the case study. To increase the number of local community awareness campaigns, various activities will be organized for different stakeholder groups.
		CS05.SC.03 | Number of capacity building workshops, training sessions, or knowledge-sharing events conducted	Enhance Awareness	2-L | Information sharing (I2) 3-L | I2c. Learning processes	Once: At the end of the project (Number of capacity building activities)	Quantitative CSV ATU	Documentation and quantification of capacity-building initiatives conducted, including type, scope, and participant metrics. Nomber of events
		CS05.SC.04 | Number of citizens attending the citizens science activities	Enhance community awareness	2-L | Information sharing (I2) 3-L | I2c. Learning processes	Annually: 2-year (Number of attendees)	Quantitative CSV ATU	Systematic registration and counting of participants involved in project-related activities as a measure of stakeholder engagement. measures the level of public engagement in

KPI category	Associated Ecosystem Service	KPI CODE | Name	Challenge addressed	SESF LEVELS (2&3)	Frequency and monitoring period (Units)	Data type | File Format | Partner in charge	Methdology and description
							citizen science initiatives by tracking the number of participants attending organized activities. These activities may include data collection through photo booths, environmental monitoring, educational workshops, and community-led research efforts. A higher number of attendees indicates greater public interest, awareness, and involvement in scientific and environmental projects, contributing to more inclusive and impactful research outcomes.
CS6 - Arne Parish							
Economic	Cultural	CS06.EC.01 | Rise in funding (to pay for renting equipment) or voluntary management levels	A substantial increase in volunteer effort, and possibly some extra funding beyond CS budget, will be needed for CS success.	2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	Annually: Until red squirrel establishment abandoned or 2033 (Finance (£), volunteer person-hours)	Quantitative xls ANA	Administration of follow-up volunteer surveys at regular annual intervals (October–December) to monitor behavioural and attitudinal changes over time. Value of equipment and time provided
Environmental	Regulating and Maintenance	CS06.EN.01 | Species abundance (number of individuals / species)	Number of grey squirrel sightings in the parish should fall towards zero, red squirrel sightings should increase	2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	Daily, summed annually: Until red squirrel establishment abandoned or 2033 (Rate of sightings)	Quantitative xls ANA	Monitoring digital citizen-science participation by quantifying active application users and biodiversity sighting submissions. Number of squirrel sightings per installed app
		CS06.EN.02 | Reduction of invasive species	Number of grey squirrels removed from the parish should fall towards zero	2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	Annually: Until red squirrel establishment abandoned or 2033 (Number removed)	Quantitative xls ANA	Compilation and analysis of volunteer-submitted reports on squirrel removal to evaluate management effectiveness and participation trends. Number of squirrels removed, from annual survey of volunteers
Socio-Cultural	Cultural	CS06.SC.01 | Level of stakeholder satisfaction or feedback regarding their involvement in decision-making.	The level of satisfaction should not decline with time	2-L | Deliberation processes (I3) 3-L | I3c. Trust building processes	Annually: Until red squirrel establishment abandoned or 2033 (Average satisfaction score)	Quantitative xls ANA	Calculation of mean survey response scores across successive data collection rounds (2025–2026) to assess temporal change. Surveyed stakeholder satisfaction score
		CS06.SC.02 | Number of capacity building workshops, training sessions, or knowledge-sharing events conducted.	There should be 1-3 physical events annually and 5-10 new content releases on the local website	2-L | Information sharing (I2) 3-L | I2a. Knowledge transmission	Summed annually: At least until end of Project (Number of events)	Quantitative xls ANA	Organisation of awareness and outreach events complemented by online dissemination materials, with periodic reporting aligned to annual monitoring cycles. The number of training and other outreach events

KPI category	Associated Ecosystem Service	KPI CODE | Name	Challenge addressed	SESF LEVELS (2&3)	Frequency and monitoring period (Units)	Data type | File Format | Partner in charge	Methdology and description
		CS06.SC.07 | Number of local landowners participating in workshops	An increase in the number of landowners participating is intended	2-L | Information sharing (I2) 3-L | I2a. Knowledge transmission	Averaged annually: At least until end of Project (Average number of landowners participating per workshop)	Quantitative xls ANA	Implementation of brief post-event questionnaires capturing participant feedback and categorisation by stakeholder group. Landowner participation rate
		CS06.SC.08 | Community support for squirrel management (measured by survey results)	It is intended that the score for supporting squirrel management should increase in the stakeholder survey	2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	First survey complete, second in early 2026: Between first and second surveys (Increase in average score)	Quantitative xls ANA	Analysis of longitudinal survey data to evaluate shifts in stakeholder support for squirrel population management interventions. Community squirrel management support score
		CS6.SC.03 | Participation rate in capacity building activities among target groups.	It is intended that numbers of the local community who attend physical capacity-building events and visit the website should increase	2-L | Information sharing (I2) 3-L | I2a. Knowledge transmission	Summed annually: At least until end of Project (Number of participants per annum)	Quantitative xls ANA	Delivery of hybrid in-person and online engagement activities, with systematic documentation of participant attendance and engagement metrics. Participation at physical events and website visits
		CS6.SC.04 | Public awareness of the biodiversity threats and the implications of developments	It is intended that the score for awareness of damage by AIS should increase in the stakeholder survey for community members not in specific stakeholder groups	2-L | Information sharing (I2) 3-L | I2b. Information/knowhow sharing about SES variations	First survey complete, second in early 2026: Between first and second surveys (Increase in average score)	Quantitative xls ANA	Measurement of temporal change in community-level awareness of aquatic invasive species (AIS) through comparative analysis of survey data across monitoring periods. Community AIS-damage awareness score
		CS6.SC.05 | Stakeholder awareness of the biodiversity threats and the implications of developments	It is intended that the score for awareness of damage by AIS should increase in the stakeholder survey for community members in specific stakeholder groups	2-L | Information sharing (I2) 3-L | I2b. Information/knowhow sharing about SES variations	First survey complete, second in early 2026: Between first and second surveys (Increase in average score)	Quantitative xls ANA	Comparative evaluation of AIS awareness within identified stakeholder categories based on longitudinal survey results. Stakeholder AIS-damage awareness score

KPI category	Associated Ecosystem Service	KPI CODE | Name	Challenge addressed	SESF LEVELS (2&3)	Frequency and monitoring period (Units)	Data type | File Format | Partner in charge	Methdology and description
		CS6.SC.06 | Number of local community awareness campaigns	It is important for this KPI, probably the only one comparable across all CS, to have an agreed definition for what constitutes a separate campaign	2-L | Information sharing (I2) 3-L | I2b. Information/knowhow sharing about SES variations	Continuous: Until October 2026 (Number of campaigns using agreed definition)	Quantitative xls ANA	Coordination of targeted engagement events across stakeholder categories, with systematic participant tracking and attendance records. Awareness campaign frequency
CS7 - Bergen							
Economic	Cultural	CS07.EC.01 | Fundraising amount to pay for clean-up activities	To clean the sebaed is cost intensive and funders have not hadthese operations on their priorities yet	2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	Funding conceivement, 2 points in time: Before the pilot phase 2024 and start of main phase 2025 (Norwegian kroner)	Quantitative xls / pdf UiB	Comparative financial analysis of allocated and received funding across implementation phases to evaluate resource utilisation efficiency. This will give us information about the money provided by funders for the cause of ghostfishing
		CS07.EN.01 | Resale of salvaged fishing gear	It is more environmental friendly to buy used gear with high quality than (cheap) new gear with low quality that gets lost easily	2-L | Economic development (S1) 3-L | S1a. Economic sectors	at least 2 points in time: Comparing the pilot phase with the large phase (Pieces of gear)	Quantitative xls / pdf UiB	Monitoring and reporting of the quantity of resold fishing or marine gear to assess circular economy performance within the sector. Amount of gear that was removed from the seabed, fixed and resold in the partnering thrift shop
Environmental	Regulating and Maintenance	CS07.EN.02 | Amount of marine debris removed	There is a large amount of ghost gear in the sea that keeps fishing and destroys ecosystems	2-L | Ecological performance measures (O2) 3-L | O2c. Natural habitat condition	(at least) 2 points in time: Comparing the pilot phase with the large phase (Pieces of gear)	Quantitative xls / pdf UiB	Quantification and documentation of retrieved and removed fishing or marine gear items as a measure of marine litter reduction. Amount of gear that was removed from the seabed
Socio-Cultural	Cultural	CS07.SC.01 | Behavioral intention to improve fishing practice (maintenance of gear, fishing skills, reporting)	Some of the loss of the gear happens due to inadequate fishing practices and knowledge. Not all fisher are yet aware about how to report their lost gear most effectively	2-L | Distinctive characteristics (RU6) 3-L | RU6c. Behavioral patterns that can be identified in resource units and affect actors behaviour towards the resource	First survey complete, second in early 2026: Between the two stakeholder surveys (Mean increase of the Likert-scale of these three items)	Quantitative xls / pdf UiB	Statistical comparison of mean responses across survey questions and time periods to assess change in stakeholder attitudes. Maintenance of gear, fishing skills, reporting when gear gets lost.
		CS07.SC.02 | Number of reports of missed fishing gear in the designated app	Lost gear that is reported has the change to be removed whereas unreported gear has	2-L | Monitoring activities (I9) 3-L | I9a. Monitoring activities	continously: Start of the project until the end (Absolute number increase)	Quantitative xls / pdf UiB	Compilation and analysis of lost-gear reports from recreational fishers using publicly available datasets from the fisheries directorate to identify trends and reporting behaviour.

KPI category	Associated Ecosystem Service	KPI CODE | Name	Challenge addressed	SESF LEVELS (2&3)	Frequency and monitoring period (Units)	Data type | File Format | Partner in charge	Methdology and description
			a really low change of being removed				The higher the reports by the leisure fisher, the lower the dark-number and the higher the awareness
CS8 - Klogaranna							
Economic	Cultural	CS08.EC.01 | Comparison of long-term local revenue from tourism	Balancing Tourism and Economic Interests	2-L | Economic development (S1) 3-L | S1a. Economic sectors	Annually: Starting in spring 2025 and continuing over the whole project period (Tourism Contribution to Local Economy (%))	Quantitative xls / pdf TALTECH	Comprehensive desk-based research to compile existing datasets, reports, and grey literature relevant to the case study context. We will actively follow and, when possible, co-facilitate community events that are either political in nature or aimed at strengthening the connection between the community and the area in question. This includes nature-related seminars, guided hikes, start-ups, clean-up initiatives, and similar engagement activities. Additionally, we will monitor long-term local tourism revenue in the Kloogaranna-Laulasmaa region by assessing key factors such as tourism infrastructure development, visitor growth, extended stays, international tourism, and eco-cultural tourism.
Environmental	Cultural	CS08.EN.02 | Number of species conservation programs actively supported	Impacts of Tourism and Climate Change on Biodiversity	2-L | Government resource policies (S4) 3-L | S4b. Environmental policies	Annually: Starting in spring 2025 and continuing over the whole project period (Number of programs)	Quantitative xls / pdf TALTECH	Evaluation of active conservation initiatives in the case study area, focusing on objectives, implementation status, and synergies with project activities. Desk Research – A thorough review of existing species conservation programs will be conducted to identify those actively supported in the region. This will include researching habitat restoration efforts, species monitoring, and strategies addressing threats such as invasive species or climate change.
	Regulating and Maintenance	CS08.EN.01 | Species diversity within defined area per Shannon Diversity Index	Long-Term Biodiversity Changes	2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	Annually: Starting in spring 2025 and continuing over the whole project period (Shannon Diversity Index)	Quantitative xls / pdf TALTECH	Review of current research outputs and maintenance of active collaborations with academic and research partners for knowledge exchange and data integration. Application of the Shannon Diversity Index – Regular biodiversity monitoring will be conducted using this index to evaluate species richness and distribution within the area. Research and Data Collection – Existing

KPI category	Associated Ecosystem Service	KPI CODE | Name	Challenge addressed	SESF LEVELS (2&3)	Frequency and monitoring period (Units)	Data type | File Format | Partner in charge	Methdology and description
							research will be reviewed, and collaboration with academic institutions will be established to enhance biodiversity studies. Stakeholder Involvement – Local communities, conservationists, and policymakers will be engaged to discuss biodiversity conservation strategies and sustainable development. The Laulasmaa Landscape Protection Area, established under the Government of the Republic's Regulation No. 158 on July 7, 2005, is designated to preserve and protect its natural and cultural heritage.
Socio-Cultural	Cultural	CS08.SC.01 | Level of stakeholder satisfaction or feedback regarding their involvement in decision-making.	Perceived Lack of Stakeholder Engagement	2-L | Deliberation processes (I3) 3-L | I3c. Trust building processes	Annually: Starting in spring 2025 and continuing over the whole project period (Satisfaction score (average score reported in the surveys))	Quantitativeand descriptive xls / pdf TALTECH	Quantitative KPI assessment via stakeholder survey designed to capture perceptions, attitudes, and behavioural indicators. A survey will be distributed among stakeholders to address concerns regarding the strict conservation status of the Laulasmaa Landscape Protection Area. This survey will explore the impact of conservation measures on local economic opportunities and resource access, as well as community involvement in decision-making. The aim is to find a balance between conservation efforts and sustainable development, ensuring the local community benefits while maintaining the area's environmental and cultural values.
		CS08.SC.02 | Level of community involvement in biodiversity conservation initiatives	Lack of Community Ownership in Conservation	2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	Annually: Starting in spring 2025 and continuing over the whole project period (Number of responses)	Quantitativeand descriptive xls / pdf TALTECH	Integration of stakeholder survey data with participation metrics from capacity-building seminars to evaluate outreach effectiveness. Relevant seminars will be organized to foster discussions about biodiversity conservation, and a survey will be distributed among stakeholders to gather feedback and ensure their concerns are addressed in the conservation process.
		CS08.SC.03 | Number of capacity building workshops, training sessions, or knowledge-sharing events conducted.	Enhance Awareness	2-L | Information sharing (I2) 3-L | I2a. Knowledge transmission	Multiple times per year: Starting in spring 2025 and continuing over the whole project period (Number of events)	Quantitativeand descriptive xls / pdf TALTECH	Systematic event tracking through attendance logs and participant registration forms for quantitative monitoring of engagement levels. In order to increase community involvement in biodiversity conservation, a series of

KPI category	Associated Ecosystem Service	KPI CODE | Name	Challenge addressed	SESF LEVELS (2&3)	Frequency and monitoring period (Units)	Data type | File Format | Partner in charge	Methdology and description
							capacity-building workshops, training sessions, and knowledge-sharing events will be organized for different stakeholder groups.
		CS08.SC.04 | Number of local community awareness campaigns	Enhance local community awareness about various issues affecting the area.	2-L | Information sharing (I2) 3-L | I2b. Information/knowhow sharing about SES variations	Annually: Starting in spring 2025 and continuing over the whole project period (Number of campaigns)	Quantitative xls / pdf TALTECH	Systematic event tracking through attendance logs and participant registration forms for quantitative monitoring of engagement levels. To increase the number of local community awareness campaigns, various activities will be organized for different stakeholder groups. These will include audiovisual resources (such as videos, social media posts, and articles), exhibitions, media engagements, and community events like hikes, clean-ups, workshops.These efforts aim to educate and engage the community in biodiversity conservation, fostering a greater understanding of the importance of preserving local ecosystems and species.
CS9 - Corbu							
Economic	Cultural	SC09.EC.01 | Tourist Willingness to Pay for Conservation	The increasing popularity of this tourist destination puts pressure on the ecosystem, and a possible protection mechanism could be the introduction of an ecological tax or a voluntary contribution system.	2-L | Economic development (S1) 3-L | S1a. Economic sectors	Annually: summer of 2025/2026 (Percentage of people willing)	Quantitative Xls TOT	Survey responses to specific question
		SC09.EC.02 | Increased eco-tourism revenue from sustainable initiatives	Lack of ecological education	2-L | Economic development (S1) 3-L | S1a. Economic sectors	Annually: summer of 2025/2026 (Percentage)	Quantitative Xls TOT	Monitoring and comparing if ecotoursim generates more revenue compared with mass tourism (The number of bookings in eco-friendly accommodations compared to standard accommodation, for example)
Environmental	Regulating and Maintenance	SC09.EN.01 | Species abundance (number of individuals / species)	The rich biodiversity of Corbu Beach, including various bird species, marine life, and plant ecosystems, makes	2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	Annually: Once during the project (Number of species)	Quantitative Xls TOT	Regular biodiversity monitoring will be conducted to evaluate species richness and distribution within the area.

KPI category	Associated Ecosystem Service	KPI CODE | Name	Challenge addressed	SESF LEVELS (2&3)	Frequency and monitoring period (Units)	Data type | File Format | Partner in charge	Methdology and description
			it an attractive destination for ecotourism.				
		SC09.EN.02 | Decrease in wildlife disturbances	Agricultural intensification often involves clearing land and changing natural landscapes, which can lead to habitat loss for species that depend on the coastal and nearby environments. This can directly affect Corbu Beach, as its biodiversity might be compromised if nearby agricultural land disrupts ecosystems critical to birds, fish, and other wildlife, potentially affecting eco-tourism opportunities.	2-L | Equilibrium properties (RS5) 3-L | RS5d. Frequency of disturbances	Annually: whole project period (Activity pattern)	Quantitative Xls TOT	Monitoring of activity patterns of different species in areas with more or less tourism. Monitoring of number of observations/roadkill during different seasons.
Socio-Cultural	Cultural	CS09.SC.01 | Public awareness of the biodiversity threats and the implications of developments	Enhance public awareness (local and national level) on the importance of the area)	2-L | Information sharing (I2) 3-L | I2b. Information/knowhow sharing about SES variations	Annually: summer of 2025-end of project (Number of people reached)	Quantitative Xls TOT	increase the number of Romanians -nation wide level about the importance of the Corbu beach through media exposure, social media exposure & local events
		CS09.SC.02 | Number of local community awareness campaigns	Enhance public awareness (local and national level) on the importance of the area	2-L | Information sharing (I2) 3-L | I2b. Information/knowhow sharing about SES variations	Annually: summer of 2025-end of project (Number of activities)	Quantitative Xls TOT	increase the number of Corbu & nearby residents level about the importance of the Corbu beach through social media activities, local media, flyers, etc.
CS10 - Kildn/Eidviska							
Environmental	Regulating and Maintenance	CS10.EN.01 | Area of habitat protected	The area as it is now has rich biodiversity, building development would mean habitat loss	2-L | Size (RS2) 3-L | RS2b. Size of different habitats or ecosystem types within the resource system	before (project start) and after political decision made: over whole project	Quantitative xls / pdf UiB	Systematic event tracking through attendance logs and participant registration forms for quantitative monitoring of engagement levels.

KPI category	Associated Ecosystem Service	KPI CODE | Name	Challenge addressed	SESF LEVELS (2&3)	Frequency and monitoring period (Units)	Data type | File Format | Partner in charge	Methdology and description
					(Square kilometer [0,43 km2; x])		Area of coastal habitat protected against any kind of development
		CS10.EN.02 | Red-listed species protection	Red-listed species were found (5) who's habitat would get lost if building development would start in that area	2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	before (project start) and after political decision made: over whole project period (Number of species [0;5])	Quantitative xls / pdf UiB	Analysis of environmental impact assessments and local planning documents to determine the number of red-listed species and associated habitats potentially affected by proposed development projects. Following plans/realization of infrastructure/buildings in the area in question and its meaning for the species
Socio-Cultural	Cultural	CS10.SC.01 | Number of local community awareness campaigns	Engagement of the local community is important to create efficacy/power in the political decision-making process	2-L | Information sharing (I2) 3-L | I2b. Information/knowhow sharing about SES variations	Continuous: over whole project period (Number of events)	Quantitative xls / pdf UiB	Observation and documentation of community and policy-related events (e.g., guided field visits, clean-up campaigns) to assess civic engagement and local participation in conservation discourse Monitoring the number of events related to the Eidsvika area over time.
		CS10.SC.02 | Online community engagement in accessing and discussing information	Receiving or sharing information and dicussing the topic is a key driver of collective action.	2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	Continuous: over whole project period (Number of followers in the designated group)	Quantitative xls / pdf UiB	Monitoring of online community engagement (e.g., number of followers, participation rate) correlated with key milestones in the local policy and public debate on the development issue. Tracking the number of followers over time
		CS10.SC.03 | Coverage of the case in editor-reviewed media	Journalistic attention for the local case is of importance to gain public attention and engagement	2-L | Media organization (S6) 3-L | S6a. Presence of media	Continuous: over whole project period (Total number over time)	Quantitativeand descriptive xls / pdf UiB	Execution of a systematic content analysis of media and editor-reviewed publications using keyword frequency tracking to map public discourse dynamics against major decision-making events. Frequency analysis of editor-reviewed media outputs about the Eidsvika case
		CS10.SC.04 | Maintenance of recreational use	The area is used for recreational activities of the local community and the area is defined as such (zoning plan). Monitoring the use enables to understand and communicate the importance for it to stay accessible for the activities	2-L | Resource unit value (RU4) 3-L | RU4c. Strategic value	1) before and after polticial decision 2) continously: 1) over whole project period 2) starting spring 2025 (1) dichotomous 2) number of contributions into the shared gallery)	Quantitative xls / pdf UiB	Monitoring of the municipal zoning plan revision process to document proposed land-use changes (e.g., from recreation/grazing to harbour use), complemented by the establishment of a public participatory visitor-counting system to track community interaction with the site. 1) Following the political process about the zoning regulation of the area 2) Padlet (citizen science approach)

Case Study	KPI Name
CS1 - Comino Island	Percentage of environmental ministry representatives who believe the current N2K management plan for terrestrial land is effectively implemented
	Percentage of environmental ministry representatives who believe the current N2K management plan for terrestrial land is effectively implemented
	Percentage of environmental ministry representatives who believe that enforcement is prioritized across all aspects
	Percentage of environmental ministry representatives who believe adequate funding is allocated for the Natura 2000 site
	Percentage of Malta tourism authority representatives who believe the presentation of Comino should be changed - from emphasis on sandy beaches to emphasis on its prospected status and biodiversity
	Percentage of Malta tourism authority representatives who support the introduction of tourist ecotax
	Percentage of Malta tourism authority representatives who support greater limitation and checks of tourist operations
	Percentage of tour/boat operators who understand the dangers of not protecting the area for their long-term interest.
	Percentage of tour/boat operators who think that tourists should be informed about site rules
	Percentage of tour/boat operators who acknowledge that any commercial activity on Comino cannot rely on mass tourism but must adapt to sustainable practices
	Percentage of beach services operators on Comino who understand that the failure to not protect the area endangers their source of income
	Percentage of beach services operators on Comino who support the creation of a sustainable business model tailored to Comino
	Percentage of beach services operators on Comino who acknowledge that any commercial activity on Comino cannot rely on mass tourism but must adapt to sustainable practices
	Percentage of Ministry of Gozo and local council representatives who support the implementation of proper waste management practices on Comino
	Percentage of Ministry of Gozo and local council representatives who understand the uniqueness of Comino and actively work towards enhancing the island's protection
	Percentage of Ministry of Gozo and local council representatives who believe there should be stronger enforcement by regulatory bodies on Comino, including implementation of the management plan
	Percentage of tourists who believe their actions as a tourist can significantly impact the nature of Comino Island

	Percentage of tourists who made conscious decisions to have less impact on nature when visiting Comino
	Percentage of tourists who believe that the authorities are managing Comino effectively to protect its nature
	Percentage of tourists who believe tourism development on Comino Island should be carefully managed to protect its natural environment
	Percentage of tourists who would be willing to pay fee or contribute to conservation efforts to help protect the nature of Comino Island
	Percentage of tourists who would support restrictions on certain tourist activities if it meant better protection for Comino Island's nature
	Percentage of tourists who would avoid visiting a destination if they knew that tourism was harming its nature
	Percentage of tourists that are more likely to recommend a destination that has strong nature conservation practices
	Percentage of tourists who believe that learning about the local culture and its relationship with the natural environment enhances their travel experience
	Percentage of tourists who believe sustainable tourism practices should be promoted more heavily in tourist destinations like Comino Island
CS2 - Apulia	Percentage of higher education representatives who believe higher education institutions are effectively sharing knowledge about dune degradation and plastic pollution.
	Percentage of higher education representative institutions who believe higher education institutions are organising sufficient campaigns for beach clean-ups.
	Percentage of higher education representatives who believe higher education institutions should find better strategies for dune restoration and protection.
	Percentage of higher education representatives who would be willing to join a joint task force to address issues related to dune degradation and litter management.
	Percentage of NGO representatives who believe NGOs raise awareness about the negative impacts of plastic pollution in the lagoon effectively
	Percentage of NGO representatives who believe that NGOs raise awareness about dune degradation and protection effectively.
	Percentage of NGO representatives who would join a joint task force to address dune degradation and plastic pollution in the lagoon.
	Percentage of local government representatives who believe the local government is aware of the severity of dune degradation in the area.
	Percentage of local government representatives who believe the local government should implement more actions to restore and protect dunes.

	Percentage of local government representatives who would be willing to join a joint task force to address issues related to dune degradation and litter management.
	Percentage of community members who are willing to participate in regular beach-cleaning activities in their community.
	Percentage of community members who are aware of the impact of human activities on dune degradation.
	Percentage of community members who actively avoid walking on or trampling dunes to protect them from further damage.
	Percentage of school children who believe we should all do more to protect nature.
	Percentage of school children who believe it is important to regularly discuss the protection of nature at school and at home.
	Percentage of school children who would be willing to give up some of my pocket money to help save the environment.
	Percentage of school children who believe it is important to have rules on how to protect the beaches and nature and animals there.
CS3 - Strunjan	Percentage of community members who support improving knowledge about data collection and monitoring species densities in agricultural landscapes and suburban zones to enhance the management of wildlife and invasive species.
	Percentage of community members who are open to collaboration with hunters and decision-makers in developing mitigation tools for decreasing human-wildlife conflicts.
	Percentage of hunters who believe hunters are adequately informed about the environmental impacts of invasive species
	Percentage of hunters who believe invasive alien species are problematic for local biodiversity
	Percentage of hunters who believe human – wildlife conflicts affect wildlife management
	Percentage of hunters who believe hunters and local communities collaborate effectively in reducing conflicts with wildlife?
	Percentage of hunters who think researchers adequately communicate their results with hunters
	Percentage of protected area practitioners that support increasing knowledge in data collection and species density in urban/suburban areas and contribute to data collection and interpretation.
	Percentage of protected area practitioners that are open to collaborating with the local community and tourist sector in mitigation measures for invasive/commensal species.
	Percentage of protected area practitioners that regularly contribute to public awareness regarding biodiversity conservation and human-wildlife conflicts.
	Percentage of farmers willing to support increasing knowledge in data collection and species density in agricultural landscapes to improve the management of wildlife and invasive species.
	Percentage of farmers open to collaboration with hunters and decision-makers in developing mitigation tools for decreasing human-wildlife conflicts.

CS4 - Boka Kotorska	Percentage of respondents who believe the effect of cruise tourism is negative
	Percentage of respondents who are concerned about long-term environmental effects of cruise tourism
	Percentage of respondents who believe measures should be put in place to reduce the negative impact on tourism
	Percentage of respondents who believe the number of cruise ships should be limited to protect the environment
	Percentage of respondents who believe the current regulations and management adequately address environmental impacts of cruise tourism
	Percentage of respondents that support further development of cruise tourism
	Percentage of respondents who believe local communities should have a greater say in regulating cruise tourism to protect the environment
	Percentage of national and local government representatives who believe local communities should be involved in the decision-making processes for sustainable tourism development to ensure their needs and priorities are considered.
	Percentage of national and local government representatives who advocate for policymakers to adopt sustainable practices and support conservation initiatives in tourism development.
	Percentage of private sector representatives who believe local communities should be involved in the decision-making processes for sustainable tourism development to ensure their needs and priorities are considered.
	Percentage of private sector representatives who advocate for policymakers to adopt sustainable practices and support conservation initiatives in tourism development.
	Percentage of community members and residents who believe local communities should be involved in the decision-making processes for sustainable tourism development to ensure their needs and priorities are considered.
	Percentage of community members and residents who advocate for policymakers to adopt sustainable practices and support conservation initiatives in tourism development.
CS5 - Sligo	Percentage of respondents believing sand dune protection is highly important.
	Percentage of respondents who believe it is important to maintain and protect vegetation on the sand dunes.
	Percentage of respondents who think it is okay to alter the dune environment in the name of economic growth.
	Percentage of respondents who think sand dunes are important to protect the local economy.
	Percentage of respondents who think funding is necessary to protect and preserve sand dunes.
	Percentage of respondents who are willing to contribute to help sand dune by engaging in maintenance and restoration efforts
	Percentage of farmers that believe grazing intensity should be reduced to prevent overgrazing on the dunes.

	Percentage of farmers that believe controlled access to the dunes should be implemented to minimize trampling by livestock and machinery.
	Percentage of farmers that believe participation in restoration programs and collaboration with conservationists is important.
	Percentage of business representatives who believe it is necessary to source products and services from environmentally responsible suppliers, prioritizing those that support conservation efforts.
	Percentage of business representatives who believe participation in restoration programs and collaborate with conservationists is necessary
	Percentage of business representatives who believe it is necessary to raise awareness among tourists about the importance of sand dunes and encourage responsible recreation.
	Percentage of NGO representatives who believe it is necessary to promote volunteerism and organize volunteer days.
	Percentage of NGO representatives who believe it is necessary to advocate for policies at local, regional, and national levels that protect sand dunes and promote sustainable coastal management.
	Percentage of NGO representatives who believe it is necessary to engage the community through education and awareness initiatives.
	Percentage of Sligo City council representatives who believe support for restoration projects is prioritized.
	Percentage of Sligo City Council representatives who believe visitor facilities are developed to minimize environmental impact, such as designated walking paths and car parks.
	Percentage of Sligo City Council representatives who believe development plans and safety enforcement are effectively focused on.
	Percentage of Wildlife and National Service representatives who believe there is a priority on supporting native vegetation planting.
	Percentage in Wildlife and National Services representatives who believe that monitoring and enforcement of SAC policies are effectively enhanced through data collection.
	Percentage of Wildlife and National Serviced representatives who believe there is a strong focus on securing funding from governmental and non-governmental sources and ensuring that resources are used efficiently to maximize the impact of restoration efforts.
CS6 - Arne Parish	Percentage of conservation professionals who support granting licenses to translocate red squirrels and predators of grey squirrel
	Percentage of conservation professionals who support the expansion of restoration efforts for red squirrels beyond Arne Parish.
	Percentage of hunters who are committed to the removal of grey squirrels
	Percentage of hunters who are prepared to tolerate predators that target grey squirrels (e.g. pine martens)
	Percentage of landowners who are prepared to help report observations of red and grey squirrels to help restore red squirrels
	Percentage of landowners who are prepared to facilitate the removal of grey squirrels

	Percentage of community members who understand the threats from grey squirrels to nature and carbon sequestration
	Percentage of community members who would help the replacement of grey squirrels by red squirrels by reporting sightings of red and grey squirrels in gardens and elsewhere
CS6 - Bergen	Percentage of fishers who are willing to take better care of their fishing equipment, ensuring it is updated and renewed when needed.
	the percentage of fishers who are willing to report lost fishing gear through the designated app.
	Percentage of fishers willing to improve my know-how and knowledge about good fishing practices
	Percentage of funders who are willing to prioritize funding actions against ghostfishing above other environmental causes.
	Percentage of diver's and underwater cleaners who would be willing to educate themselves and train on how to clean the seabed from the lost gear safely and how to report it
	Percentage of divers and underwater cleaners who would be willing to organise or participate under-water cleaning activities within their community.
	Percentage of divers and underwater cleaners who would be willing to share information and pictures of the lost-gear in the seabed on their personal or my clubs social media channels.
	Percentage of environmental NGO representatives who would be willing to include the topic of lost gear and its consequences in their educational work.
	percentage of environmental NGO representatives who would be willing to invest more time and money to extend their clean-ups to take place over and under-water.
	Percentage of Directorate of fisheries representatives whose priority would be to ensure that the app is well-known among all people who fish and may lose equipment.
	percentage of Director or fisheries representatives who would gladly enthusiastic to collect feedback and improve the design of the app if necessary.
CS8 - Kloogaranna-Laulasmaa	Percentage of local authority representatives who believe there is improved capacity to incorporate biodiversity values into the spatial planning process and enhance recreational infrastructure
	Percentage of local authority representatives who believe their increased capacity and motivation to engage in dialogue with national conservation institutions to reach agreements on the optimal recreational use of the protected area and the continuous use of local resources in biodiversity protection
	Percentage of community members who believe there is improved capacity to hold constructive dialogue with both national and local governmental institutions

	Percentage of community members who believe awareness has been raised about the necessary biodiversity conservation measures
	Percentage of community members who believe awareness has been raised about the community's potential to contribute to biodiversity conservation
	Percentage of national conservation institutions representatives that believe there is a high level of recognition and understanding of the local community's interest in using the protected area for recreational purposes
	Percentage of national conservation institutions representatives who believe communication with the local community and local authorities has improved in explaining the vital need for strengthened regulations
	Percentage of national conservation institutions who believe there is increased flexibility to design appropriate and balanced conservation measures in a participatory manner using local resources
	Percentage of people interested in recreational sport in the area believing there is an improved capacity to hold constructive dialogue with both national and local governmental institutions
	Percentage of people interested in recreational sport in the area believing awareness has been raised about the community's potential to contribute to biodiversity conservation
	Percentage of people interested in recreational sport in the area believing that motivation has been raised to adapt activities in coastal regions to avoid biodiversity loss
CS9 - Corbu Beach	Percentage of investors who believe investors do not integrate biodiversity into investment decisions, focusing solely on profits and not considering the environmental impact of their investments
	Percentage of investors who believe investors should prioritize sustainable development by incorporating eco-friendly practices into their projects, ensuring that resorts and other infrastructure developments minimize their ecological footprint and contribute positively and actively to the conservation of the surrounding natural areas
	Percentage of investors believing investors should take an active role in the protection and restoration of the ecosystems where they invest, supporting conservation projects, reducing habitat destruction, and working with local communities to promote sustainable tourism that benefits both nature and people
	Percentage of landowner believing landowners should adopt sustainable practices that protect and enhance biodiversity, such as maintaining natural habitats and using environmentally friendly agricultural practices.
	Percentage of landowners who believe landowners should actively participate in conservation initiatives and collaborate with environmental organizations, including setting aside portions of their land for conservation, restoring degraded ecosystems, and supporting wildlife corridors.

	Percentage of landowners who believe landowners should continue with the current land use, which primarily includes agriculture and small-scale tourist facilities, while also encouraging eco-friendly practices such as bioproduct farming, environmental tourism focused on nature education, birdwatching, and operating small eco-friendly guesthouses.
	Percentage of local authorities' representatives believing local authorities should strengthen the implementation and enforcement of environmental laws and regulations
	Percentage of local authorities' representatives who believe authorities should encourage and support sustainable development practices by delimiting areas suitable for development and nature conservation.
	Percentage of local authorities' representatives who believe that local authorities should actively engage the community in biodiversity conservation efforts
	Percentage of local authorities' representatives who believe environmental regulations should be strictly enforced, even if it results in higher costs for development projects
	Percentage of local authorities who support penalties for businesses or individuals who violate environmental laws, even if it may negatively impact local economic growth
	Percentage of local authorities' representatives who believe protecting natural habitats and biodiversity should be the top priority for local authorities when planning new developments
	Percentage of local authorities' representatives who believe it is important that areas for development and conservation are clearly defined, even if it means limiting available land for future development
	Percentage of local authority representatives who are willing to personally participate in or support community initiatives aimed at protecting local biodiversity
	Percentage of local authorities' representatives who would support environmental protection over economic development in cases of conflict
	Percentage of local authority representatives who believe local authorities should place a high priority on involving the community in biodiversity conservation efforts
	Percentage of tourists who believe tourists should choose accommodations, tours, and activities that prioritize sustainability by supporting businesses committed to eco-friendly practices, such as using renewable energy, conserving water, and protecting local ecosystems.

	Percentage of tourists who believe tourists should avoid disturbing wildlife and natural habitats, including not feeding animals, staying on designated paths, and refraining from collecting plants or other natural materials.
	Percentage of tourist who believe tourists should minimize their environmental footprint
	Percentage of small-scale business owners believing companies should ensure biodiversity consideration is part of their business strategy
	Percentage of small-scale business owners who believe companies should focus on both profits and the environmental impact of their operations, ensuring that biodiversity considerations are part of their business strategies.
	Percentage of small-scale business owners who believe companies should prioritize environmental protection by ensuring that their temporary facilities do not harm nature conservation areas.

PRO-COAST

A PROactive approach for COmmunities to enAble Societal Transformation



Monitoring Plan in line with T.5.2

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Responsible Author: María Fernández, Bárbara Díez

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Monitoring plan CS1: Comino Island, Malta

Introduction

Geographical Location: Comino Island, located in the Maltese Archipelago, between the islands of Malta and Gozo in the Mediterranean Sea.
Lead Partner(s): Friends of the Earth Malta (FoEM).
Key Ecosystem and Socio-ecological Characteristics: Comino is a Natura 2000 site and one of the smallest islands of the Maltese archipelago, known for its high biodiversity value, natural coastline, and clear waters, especially at Blue Lagoon. Despite its protected status, the island faces seasonal overtourism, marine litter, damage to vegetation and dunes, and increasing degradation of ecosystem services due to uncontrolled tourism activities and weak enforcement. Cultural and natural values co-exist, but public awareness and participation are limited.

Main Challenges Addressed:

- High concentration of tourism in a small area, causing ecosystem degradation.
- Inadequate enforcement of environmental regulations and poor site management.
- Pollution from mass tourism, including waste, noise, and marine disturbances.
- Lack of coordinated planning for terrestrial and marine protected areas.
- Limited infrastructure for waste management, education, and enforcement.
- Uneven distribution of tourism revenues, with limited reinvestment in conservation.
- Poor stakeholder consultation and lack of awareness among tourism operators.
- Overdevelopment through unregulated structures, vehicles, and food stalls.
- Neglect of key habitats such as dunes, with no proactive restoration.

Objective of the Case Study: To promote sustainable tourism and biodiversity conservation through improved stakeholder collaboration, policy reform, and awareness activities. The aim is to test a multi-stakeholder approach combining monitoring, education, and advocacy for zero-waste and ecologically sustainable site management.

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Actions implemented

Action	Description	Period	Actors Involved
A1	Stakeholder engagement via surveys and meetings with tourists, ferry operators, beach vendors, and local councils	Sep–Dec 2024	FoEM, Ministry of Gozo, boat operators
A2	Awareness-raising through social media, nature walks, and onsite events	Ongoing	FoEM, NGOs
A3	Waste reduction and restoration activities (clean-ups, invasive species removal, sand dune restoration, signage).	Ongoing	FoEM, community, volunteers

Indicators and Methodology

KPI ID	KPI	Justification	Methodology	Frequency
CS01.EC.01	Comparison of long-term local revenue from tourism and conservation	Assesses whether economic activity in Comino is shifting toward sustainable models in response to tourism reforms and conservation measures.	Desk research and collection of info.	Annually
CS01.EC.02	Tourist Willingness to Pay for Conservation	Evaluates how much tourists value ecological protection.	Visitor surveys (online and on-site) with targeted questions about conservation support.	Twice (2025 & 2026)
CS01.EN.01	Species diversity (Shannon Diversity Index)	Reflects ecosystem health under pressure from trampling and crowding. Reflects ecological restoration and protection efforts.	Review of existing research and ongoing collaboration with academic entities.	Continuous

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CS01.EN.02	Number of species conservation programs active on-site	Indicates institutional and project-level engagement in biodiversity restoration and management across the Natura 2000 site.	Comparison with N2K management plan.	Annually
CS01.SC.01	Level of stakeholder satisfaction or feedback regarding their involvement in decision-making	Measures perception of inclusion and transparency among key actors (e.g. boat operators, beach vendors, NGOs), often cited as a weakness in local governance.	Targeted stakeholder surveys and interviews.	Twice (2025 & 2026)
CS01.SC.02	Level of community involvement in biodiversity conservation initiatives	Tracks participation in restoration and monitoring.	Survey.	Annually
CS01.SC.03	Number of capacity building workshops, trainings or school activities delivered	Measures outreach and ecological literacy outcomes	Workshops with various stakeholders	Annually
CS01.SC.04	Stakeholder awareness of the biodiversity threats and ecological value of Comino	Gauges learning and perception changes	Will facilitate educational activities such as exhibitions and information boards	Annually

Timeline

Period	Monitoring Activities
Q4 2024	Launch awareness campaign planning and baseline perception surveys (Action 1; KPI CS01.SC.04)

Q1 2025	Conduct tourist surveys and educational activities; assess awareness changes (Action 1; KPIs CS01.EC.02, CS01.SC.03)
Q2–Q3 2025	Begin biodiversity monitoring and stakeholder feedback activities (Action 2; KPIs CS01.EN.01, CS01.SC.01)
Q4 2025	Implement restoration actions and monitor community engagement (Action 3; KPIs CS01.EN.02, CS01.SC.02)
Q1 2026	Repeat ecological monitoring and finalize evaluation reports (Actions 2, 3; KPIs CS01.EN.01, CS01.SC.01)

Monitoring plan CS2: Apulia, Italy

Introduction

Geographical Location: Adriatic coast, Salento peninsula, Apulia region, southern Italy, coastal and marine areas within and around NATURA 2000 borders.

Lead Partner(s): University of Salento

Key Ecosystem and Socio-ecological Characteristics: Aquatina di Frigole is a coastal Natura 2000 site (IT9150003) spanning 3,163 ha, of which 95% lies within the Adriatic Sea. The Apulia coastal area is characterized by its Mediterranean maquis vegetation, extensive *Posidonia oceanica* meadows, and habitats important for endemic and protected species.Despite its ecological relevance, Aquatina di Frigole today faces several challenges. One of these is represented by the need to improve the hydraulic connections between the lagoon and the sea in order to have a better management of water exchanges. The accumulation of plastic on the beach and, due to wind transport, the accumulation of microplastics in the coastal lagoon represent other key challenges in this area. The area is of elevated tourist interest, and the high concentration of tourists during the summer season poses a risk to the coastal dunes due to trampling. The site hosts the Research Centre for Fisheries and Aquaculture of Aquatina di Frigole, which has the triple mission of developing innovative research methods, training students and young researchers, and involving local residents, small-scale fishermen, and key stakeholders in Citizen Science and co-creation actions aimed at studying and conserving biodiversity and ecosystems that characterize the area. The local economy is mainly based on small artisanal fishing activities, tourism-related activities, and recreational or educational initiatives that promote interaction with the ecosystem.

Main Challenges Addressed:

- Marine litter accumulation on the Aquatina di Frigole beach area.
- Presence and Impact of invasive non-indigenous species in the habitats.
- Application of advanced methodologies for biodiversity monitoring.
- Improvement of stakeholder engagement and coordination in governance processes.

- Increase awareness among residents and visitors about the ecological value of the area.
- Improve knowledge about key species through educational paths.
- Enhance scientific research by involving local residents and visitors.
- Assess the interconnectedness between marine litter and response to ecological and socio-economic systems.

Objective of the Case Study: To develop an integrated biodiversity monitoring and governance model using innovative DNA-based technologies and stakeholder engagement. The project promotes sustainable land-sea interactions, active restoration, and enhanced awareness of biodiversity value among local actors.

Actions implemented

Action	Description	Period	Actors Involved
A1	Mapping and ecological definition of the case study area	2024	University of Salento, GIS experts
A2	Identification local, macro-regional and global challenges	2024-2025	Research team, stakeholder groups
A3	Stakeholder engagement and participatory meetings/workshops	2024-2025	Quadruple helix actors (NGOs, citizens, academia, policy makers)
A4	Biodiversity baseline assessment using literature sources	2024-2025	University of Salento, researchers
A5	Testing DNA-based biodiversity monitoring techniques	2024-2026	University of Salento, molecular biology labs
A6	Mapping ecosystem services and their value at multiple scales	2024-2025	University of Salento
A7	Awareness-raising among local population and visitors	2024-2026	University of Salento, communication staff
A8	Creation of an educational path to improve species literacy	2025-2026	University of Salento, Education specialists, local schools/groups

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A9	Dissemination of research results to local and visiting public	2025-2026	University of Salento, NGOs, civil society
A10	Marine litter and invasive species assessment	2024-2026	University of Salento, marine biologists
A11	Monitoring iconic species and applying biodiversity indicators	2024–2026	University of Salento, scientific staff

Indicators and Methodology

KPI ID	KPI	Justification	Methodology	Frequency
CS02.EC.01	Number of sustainable constructions adhering to environmental standards	Indicates progress toward sustainable land use practices in tourism development	Review of permits and land use data from local authorities	Every 3 years
CS02.EN.01	Species diversity within defined area per Shannon Diversity Index	Tracks the ecological health of habitats	eDNA analysis for biodiversity assessments in the case study area and calculate the Diversity Index according to the relative abundance of annotated OTUs	Annually
CS02.EN.03	Number of species within defined area per Shannon Index	Measures diversity quantity contributing to monitoring of restoration effectiveness	Innovative molecular-based approach (eDNA) for biodiversity assessments in the case study area and calculate the Evenness Index according to the relative abundance of annotated OTUs	Annually
CS02.EN.04	Species abundance per defined habitat (individuals per species)	Measures ecological balance and presence of	Innovative molecular-based tools (eDNA) for biodiversity assessments in the case study area	Annually

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		dominant or rare species	and calculate the Species richness and relative abundance	
CS02.EN.05	Area of habitats restored	Tracks ecological restoration efforts and surface area recovered through interventions	Innovative remote sensing and field validation	Every 3 years
CS02.EN.06	Reduction of invasive species	Monitors control efforts and restoration success	innovative molecular-based tools for biodiversity assessments and search all annotated species in the most updated NIS databases to early identify the presence of potentially new NIS in the area	Every 3 years
CS02.EN.07	Amount of marine debris removed	Reflects tangible outcomes of clean-up campaigns	Campaigns and collection tracking	Every 3 years
CS02.EN.08	Baseline biodiversity index improvement	Compares new data with initial baseline for impact evaluation	Based on eDNA/metagenomic updates vs baseline and identify best practices to improve it if needed	Every 3 years
CS02.SC.01	Number of species conservation programs actively managed	Measures institutional commitment and ongoing biodiversity strategies	Review of implemented species conservation programsin the case study area	Every 3 years
CS2.SC.02	Frequency of stakeholder consultations or participatory workshops conducted	Tracks engagement levels and participatory governance practices	Record of workshops and stakeholder roundtables	Every 3 years

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CS2.SC.03	Existence and frequency of biodiversity assessments	Assesses consistency and regularity of ecological evaluation	Review of reports and official documents and their frequency	Every 3 years
CS2.SC.04	Investment in biodiversity-related research and development	Indicates prioritization of biodiversity in financial planning	Analysis of funding allocation focusing on biodiversity	Every 3 years
CS02.SC.05	Number of capacity building workshops, training sessions, or knowledge-sharing events conducted.	Measures public engagement and scientific literacy	Event records and participation logs	Every 3 years
CS02.SC.06	Measures in place to protect biodiversity (and monitoring/compliance at a local level)	Assesses institutional/legal preparedness and compliance	Assess and identify the number of existing measures aimed at biodiversity conservation which are set up	Every 3 years
CS2.SC.07	Stakeholder awareness of the biodiversity threats and the implications of developments	Evaluates perception change and campaign effectiveness	Workshops and round tables with stakeholders aimed at evaluating the stakeholders' level of understanding of the main threats acting on biodiversity and the impacts on the human dimensions	Every 3 years
CS02.SC.08	Number of local community awareness campaigns	Measures outreach intensity and citizen involvement	Campaign tracking	Every 3 years
CS02.SC.09	Engagement of local stakeholders in biodiversity conservation	Tracks participation and ownership in conservation efforts	Workshop participation records	Every 3 years

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Timeline

Period	Monitoring Activities
Q4 2024	Define CS area, map ecosystems, identify pressures, set biodiversity baseline (Actions 1, 2, 4)
Q2 2024	Launch awareness and education campaigns, and school/university activities (Actions 3, 7, 9)
Q3 2026	Perform field validation, ecosystem service mapping, and install didactic path (Actions 6, 8, 10)
Q3 2026	Conduct DNA-based monitoring, invasive species protocols, and capacity-building workshops (Actions 5, 2, 6)
Q4 2026	Policy recommendations, decision support setup, and stakeholder dissemination (Actions 10, 11)
Q4 2026	Finalize biodiversity indicator application and publish results (Action 11)

Monitoring plan CS3: Strunjan, Slovenia

Introduction

Geographical Location: Strunjan Landscape Park and surrounding areas, southwestern Slovenia, Adriatic coast.

Lead Partner(s): University of Primorska

Key Ecosystem and Socio-ecological Characteristics: Strunjan Landscape Park represents one of the few preserved segments of the Adriatic coastline. It comprises coastal cliffs, wetlands, meadows, Mediterranean scrub, and traditional farming landscapes. The area is part of Natura 2000 and serves as a critical habitat for mammals, birds, small mammals, and other terrestrial vertebrates and invertebrates as also marine life. However, the site experiences human-wildlife conflict, invasive species, over numbered tourism, and growing infrastructure pressures. Effective biodiversity conservations, decrease of human-willife conflicts and participatory governance are central challenges.

Main Challenges Addressed:

- Disturbance to wildlife from tourism and arising infrastructure.

- Limited understanding and monitoring of invasive species and local biodiversity.
- Human-wildlife conflict (e.g., wild boars, rodents).
- Low stakeholder engagement in nature conservation.
- Lack of awareness among community and tourism actors regarding importance of environmental protections.

Objective of the Case Study: To develop and implement an integrated wildlife monitoring system to reduce human–wildlife conflict, improve management of invasive species, and assess tourism impacts. It emphasizes participatory approaches, using camera traps, citizen science app (e.g. SRNA), eDNA tools, and stakeholder engagement to promote biodiversity-sensitive land use and conservation.

Actions implemented

Action	Description	Period	Actors Involved
A1	Wildlife monitoring and management	Start July 2024	Park rangers, reseachers, students
A2	Use of CS app and camera traps to record wildlife	On going: Q3 2024–Q4 2025	Researchers and students of University of Primorska, citizen scientists
A3	Trapping small mammals to estimate rodents' density	Q3 2024 and Q3 2025	Wildlife monitoring team
A4	eDNA to detect local community and invasive species	Q2–Q3 2025	Researchers and students of University of Primorska, lab technicians
A5	Improve management of invasive and commensal species	Q2 2025	Landscape Park staff, local experts
A6	Develop strategy together with hunters, practitioners and farmers	Q4 2025	Stakeholders, community leaders, NGOs
A7	Explore opinions on human-wildlife conflicts (via interviews/workshops)	Start November 2024	Social scientists, farmers, hunters

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A8	Meeting with the Landscape Park management	Q3 2024	Park administration, researchers
A9	Field work and workshops with local farmers, stakeholders	Q3 2025	Agricultural advisors, University of Primorska
A10	Interviews with local community, farmers and hunters	Q3 2025	Social scientists, project team
A11	Online survey in CS App and interviews with important actors	Q4 2025	University of Primorska, stakeholders

Indicators and Methodology

KPI ID	KPI	Justification	Methodology	Frequency
CS03.EN.01	Species abundance (number of individuals / species)	Tracks trends in biodiversity status through population counts	This will be done with the aid of camera traps and citizen science app	Annually
CS03.EN.02	Species diversity within defined area per Shannon Index	Reflects ecosystem richness and variation	This will be done with the aid of camera traps and citizen science app	Continuous
CS03.EN.03	Number of species conservation programs actively managed	Indicates long-term biodiversity commitment	Review of projects involving conservation activities at the site	Annually
CS03.EN.04	Decrease in wildlife disturbances due to tourism	Measures effectiveness of awareness and zoning actions	Check national database for roadkill data tied to tourist periods	Annually

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CS03.EN.05	Wildlife as natural resources and economical burden indicator	Monitors human-wildlife conflict and perceived costs	Number of reported events related to damages by wildlife	Annually
CS03.SC.01	Level of stakeholder satisfaction or feedback with governance decisions	Measures legitimacy of decision-making and stakeholder inclusion	Done via survey for stakeholders, mainly hunters	Annually
CS03.SC.02	Stakeholder awareness of the biodiversity threats and ecological value of the area	Tracks perception and learning from engagement	Done via survey for stakeholders. One before and one after interventions	Two surveys, one in progress, one in 2026.
CS03.SC.03	Number of local community awareness campaigns	Gauges outreach effort to residents and interest groups	Events will be organised for different stakeholder groups	Multiple times per year
CS03.SC.04	Number of capacity building workshops, trainings or school activities delivered	Reflects efforts to increase ecological literacy	Events will be organised for different stakeholder groups	Multiple times per year

Timeline

Period	Monitoring Activities
Q3 2024	Launch camera trap setup and CS app usage for wildlife monitoring (Actions 1, 2, aligned with KPIs CS03.EN.01, CS03.EN.02)
Q3 2024	Rodent trapping, ticks monitoring and first biodiversity sampling (Actions 3, 4, aligned with KPIs CS03.EN.01, CS03.EN.02, CS03.EN.05)
Q2 2025	Invasive species management and strategic development with stakeholders (Actions 5, 6, aligned with KPIs CS03.EN.03, CS03.SC.01)

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Q3 2025	Fieldwork and workshops addressing conflict resolution (Actions 7, 8, 9, 10, aligned with KPIs CS03.EN.04, CS03.EN.05, CS03.SC.02, CS03.SC.04)
Q4 2025	Dissemination of survey results and awareness campaign evaluations (Action 11, aligned with KPIs CS03.SC.01, CS03.SC.02, CS03.SC.03)
Q4 2024	Final KPI evaluation and stakeholder feedback synthesis (summarizes Actions 1–3; aligns with all KPIs)

Monitoring plan CS4: Boka Kotorska Bay, Montenegro

Introduction

Geographical Location: Boka Kotorska Bay area, southwestern Montenegro, non-EU southeast Adriatic coast.

Lead Partner(s): Chamber of Economy of Montenegro (CEM)

Key Ecosystem and Socio-ecological Characteristics: Boka Kotorska is the largest bay in the Adriatic Sea, combining rich marine biodiversity with cultural heritage. While not part of the EU Natura 2000 network, it holds significant conservation potential. The area faces pressures from mass tourism (notably cruise ships), urban development, pollution from overurbanization in the limited area, and biodiversity loss due to low environmental awareness and inconsistent of governance mechanisms.

Main Challenges Addressed:

- Unregulated tourism growth, especially from cruise ships, leading to seasonal overcrowding and pressure on infrastructure and ecosystems.
- Marine pollution caused by wastewater and chemical discharges from cruise ships and inadequate urban sewage systems.
- Loss of marine biodiversity and habitats due to anchoring, overfishing, and intensive port activities.
- Presence of invasive species and wildlife conflicts, including introduced fish due to climate changes and mammals such as wild boars.
- Fragmented institutional coordination and weak cross-sectoral governance in a multi-use protected area context.

Objective of the Case Study: To raise awareness about the ecological potential of Boka Kotorska, promote community and visitor engagement in sustainable resource use, and evaluate legal and scientific pathways toward conservation designation. The initiative also seeks to balance economic development

with biodiversity protection, leveraging local knowledge, marine biology expertise, and policy review to guide stakeholder dialogue and future governance models.

Actions implemented

Action	Description	Period	Actors Involved
A1	Local stakeholder consultations and questionnaire survey to identify environmental awareness, needs, and priorities.	Sept–Nov 2024	CEM, local NGOs, municipalities
A2	Communication campaign aimed at educating residents and tourists about ecosystem services and threats.	Nov 2024–Mar 2025	Institute of Marine Biology, CEM, NGOs, tourist info points
A3	Review of Marine Biology Institute data and identification of ecosystem services, pressures, and conservation gaps.	2025	CEM, scientific advisors
A4	Scenario-building and dialogue on cruise tourism impacts and sustainable management measures.	March–April 2026	CEM, port authority, stakeholders
A5	Development of roadmap and policy proposals to integrate Boka Kotorska into future protection schemes.	Mid–Late 2026	CEM, legal and planning consultants

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Indicators and Methodology

KPI ID	KPI	Justification	Methodology	Frequency
CS04.EC.01	Tourist Willingness to Pay for Conservation	Evaluates support for financing conservation initiatives	Topic is put in the survey that will be distributed to tourists	First survey in 2025, second in early 2026
CS04.EC.02	Rise in funding (e.g. equipment, boat rental fees for conservation)	Tracks economic investment in biodiversity efforts	Topic is put in the survey that will be distributed to stakeholders	Twice
CS04.SC.01	Level of stakeholder satisfaction or feedback with governance decisions	Assesses perception of participatory governance quality	Topic is put in the survey that will be distributed to stakeholders	Twice
CS04.SC.02	Stakeholder awareness of the biodiversity threats and ecological value of the area	Measures knowledge increase due to outreach efforts	Topic is put in the survey that will be distributed to stakeholders	Twice
CS04.SC.03	Number of capacity building workshops, trainings or school activities delivered	Measures public and institutional engagement in conservation education	We will organize events and attend events on selected topics	

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CS04.SC.04	Participation rate in capacity building activities	Gauges community response to educational outreach	Sign up sheets will be used for events we organize	
CS04.SC.05	Number of local community awareness campaigns	Assesses outreach intensity and civic participation	Desk research	
CS04.SC.06	Level of community involvement in biodiversity actions	Captures degree of local ownership in conservation	Topic is put in the survey that will be distributed to stakeholders	
CS04.EN.01	Area of habitat protected	Tracks progress toward official protection measures	National document on environment protection	Annually
CS04.EN.02	Species diversity within defined area per Shannon Index	Measures biodiversity baseline and post-intervention status	Information will be gathered from the national statistical office	

Timeline

Period	Monitoring Activities
Q4 2024	Stakeholder consultations and distribution of environmental awareness questionnaires (Action 1, aligned with KPIs CS04.SC.01, CS04.SC.02, CS04.SC.06)
Q1–Q2 2025	Public awareness campaign and tourist education actions (Action 2, aligned with KPIs CS04.SC.03, CS04.SC.04, CS04.SC.05)

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Mid 2025	Data review of ecosystem services and pressures from Marine Biology Institute (Action 3, aligned with KPIs CS04.EN.02, CS04.EN.01)
Q1–Q2 2026	Participatory scenario-building with stakeholders on cruise tourism (Action 4, aligned with KPIs CS04.EC.03, CS043.SC.01)
Mid–Late 2026	Roadmap development and drafting of policy proposals for conservation designation (Action 5, aligned with KPIs CS04.EN.01, CS04.EC.02, CS04.SC.06)

Monitoring plan CS5: Sligo, Ireland

Introduction

Geographical Location: Streedagh Beach, County Sligo, Northwest Ireland

Lead Partner(s): Atlantic Technological University (ATU)

Key Ecosystem and Socio-ecological Characteristics: Streedagh Beach is an ecologically valuable coastal area within a Natura 2000 site, including sand dunes and salt marsh habitats under pressure from unsustainable tourism, agricultural practices, and climate change. It also hosts historical shipwrecks, drawing interest from both tourists and heritage authorities. Stakeholder engagement, education, and habitat restoration are central to achieving long-term sustainability.

Main Challenges Addressed:

1. Coastal erosion and dune degradation
2. Climate-related impacts (storms, sea-level rise)
3. Unsustainable recreational activities (e.g., trampling, dog walking)
4. Agricultural runoff and overgrazing
5. Heritage preservation under ecological pressure

Objective of the Case Study: To implement participatory monitoring and awareness-raising activities targeting ecological protection, and to explore solutions for balancing environmental, cultural, and economic values of the site.

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Actions implemented

Action	Description	Period	Actors Involved
A1	Stakeholder identification	Q4 2024	ATU, NPWS, local council
A2	Meeting with key stakeholders and identification of major challenges	Q4 2024	ATU, NPWS, Clean Coasts
A3	Organize participatory events to present the project and receive feedback	Q1 2025	ATU, community leaders
A4	Assessing human and climate impacts on sand dune erosion	Q1 2025	ATU, NPWS, coastal scientists
A5	Build partnerships with local and national organizations	Q1 2025	ATU, NGOs, IFA, tourist offices
A6	Develop and administer a questionnaire to collect local perspectives	Q1 2025	ATU, students, community volunteers
A7	Hosting community workshops and local events	Q2 2025	ATU, local groups, schools
A8	Launch campaigns to raise awareness and educate the public	Q2 2025	ATU, NGOs, Sligo County Council
A9	Distribute the questionnaire again to measure change in awareness	Q3 2025	ATU, researchers
A10	Assessing effectiveness of restoration measures on dunes	Q3 2025	ATU, NPWS, ecologists
A11	Engage local volunteers and experts in hands-on restoration and citizen science	Q3–Q4 2025	ATU, Clean Coasts, youth groups

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A12	Establishing a regular monitoring schedule to track the effectiveness of conservation interventions.	Q4 2025 onward	ATU, NPWS, Clean Coasts, ciudadanos voluntarios

Indicators and Methodology

KPI ID	KPI Name	Justification	Methodology	Frequency
CS05.SC.01	Public awareness of the biodiversity threats and ecological value of the area	Ensures education and engagement efforts are effective	Public awareness level will be tracked through surveys	Annually
CS05.EN.01	Area of habitat restored	Indicates ecological gains from restoration	Area of marram grass will be tracked by land-cover analysis	Annually
CS05.SC.02	Number of local community awareness campaigns	Tracks intensity and outreach of engagement strategy	The number of events will be tracked	Annually
CS05.SC.03	Number of capacity building workshops, trainings or school activities delivered	Captures educational reach of the project	The number of capacity building activities will be recorded	Qnce
CS05.EC.01	€ benefit per one area of sand dune restoration	Helps assess the value of restoration measures	Through cost-benefit analysis, monetary benefits of restoration per area will be estimated	Once
CS05.SC.04	Number of citizens attending the citizens science and restoration activities	Measures public participation and engagement	The number of participants will be tracked	Annually

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CS05.EC.02	Tourist Willingness to Pay for Conservation	Indicates perceived value and support for conservation	The same survey will also measure visitors' willingness to pay for conservation	Annually

Timeline

Period	Monitoring Activities
M06–M08 (Q4 2024)	Stakeholder identification and initial consultations (Action 1 and Action 2, aligned with KPIs CS05.SC.01)
M08–M12 (Q1 2025)	Community engagement, baseline survey, partnerships (Acion 3–Action 6, aligned with KPIs CS05.SC.01, CS05.EC.02)
M12–M18 (Q2 2025)	Educational campaigns and school workshops (Action 7 and Action 8, aligned with KPIs CS05.SC.03, CS05.SC.02, CS05.SC.04)
M18–M22 (Q3 2025)	Resurvey and preliminary evaluation of dune conditions (Action 9 and Action 10, aligned with KPIs CS05.EN.01, CS05.EN.02, CS05.EC.01)
M22–M26 (Q4 2025)	Community-based restoration actions and regular monitoring initiation (Action 11 and Action 12, alignes with CS05.EN.01, CS05.SC.04)
M26–M36 (2026)	Long-term effectiveness tracking and final assessment (aligned with KPIs CS05.EN.01, CS05.EC.01, CS05.EC.02, CS05.SC.01)

Monitoring plan CS6: Arne Parish, United Kingdom

Introduction

Geographical Location: Arne Parish, Dorset, Southern England (UK).

Lead Partner(s): Anatrack Ltd

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Key Ecosystem and Socio-ecological Characteristics: The Arne Peninsula is part of a lowland heath landscape of high biodiversity value. It contains both terrestrial and marine Natura 2000 sites, supporting populations of red squirrels, heathland species, and rare plants. The area faces increasing pressure from tourism, invasive species (especially grey squirrels and Rhododendron), habitat degradation, and limited institutional support for rewilding. Anatrack seeks to restore ecological integrity through local partnerships, invasive species management, and citizen science.

Main Challenges Addressed:

- Invasive species are displacing native wildlife and disrupting forest regeneration.
- Habitat degradation is escalating due to unregulated tourism and land fragmentation.
- Low community involvement is weakening conservation outcomes.
- Public awareness on ecological threats remains insufficient.
- Climate change poses growing risks like fire, flooding, and sea-level rise.
- Tourism and gentrification are reshaping local land use and stability.Socioeconomic pressures from nature-based tourism and gentrification are impacting local land dynamics and stability.

Objective of the Case Study: To establish a sustainable framework for the reintroduction of Red Squirrels through collaborative stakeholder processes, habitat suitability assessment, pox-level monitoring, and invasive species control. The case also aims to engage local communities in monitoring and education.

Actions implemented

Action	Description	Period	Actors Involved
A1	Create and agree plans with expert advisory group and local committee	Q4 2024	Anatrack, local committee, expert advisors
A2	Define initial translocation area	Q4 2024–Q1 2025	Anatrack, landowners
A3	Confirm initial positive response across community	Q1 2025	Anatrack, residents, local council
A5	Manage grey squirrels in translocation area & ELISA test for pox	Q2–Q3 2025	Anatrack, volunteers, wildlife agencies

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Indicators and Methodology

KPI ID	KPI	Justification	Methodology	Frequency
CS06.EC.01	Rise in funding (to pay for renting equipment) for squirrel control	Reflects community and institutional investment in control efforts	Survey	Annually
CS06.EN.01	Species abundance (number of individuals / species of interest)	Tracks the recovery of native species (e.g., red squirrel)	Count the number of apps in use and the records of squirrel sightings to indicate abundance	Daily, summed annually
CS06.EN.02	Reduction of invasive species	Indicates success of grey squirrel removal	Count the number of squirrel removal reports	Annually
CS06.SC.01	Level of stakeholder satisfaction or feedback on ecosystem conservation activities	Measures acceptance and engagement of stakeholders	Average scores from survey in October of 2025 and 2026, probably in December thereafter	Annually
CS06.SC.02	Number of capacity building workshops, trainings or school activities delivered	Assesses effort invested in community knowledge transfer	Arrange events plus web-content and report counts of each.	Annually
CS06.SC.03	Participation rate in capacity building activities	Measures inclusiveness and engagement quality	We will arrange events plus web-content and report counts of each.	Annually
CS06.SC.04	Public awareness of the biodiversity threats and ecological value of the area	Gauges outreach campaign effectiveness	Report change in the score for the questionnaire comparing October 2024 with March 2026.	Beginning and end of project
CS06.SC.05	Stakeholder awareness of the biodiversity	Complements public awareness	Report change in the score for the questionnaire comparing	Beginning and end of project

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	threats and ecological value of the area	by focusing on key actors	October 2024 with March 2026.	
CS06.SC.06	Number of local community awareness campaigns	Measures frequency of engagement	Events will be organised for different stakeholders and the number and type of events will be reported.	Continuous
CS06.SC.07	Number of local landowners participating in workshops or conservation actions	Reflects landowner support for rewilding	There will be a short questionnaire for each workshop participant.	Annual
CS06.SC.08	Community support for squirrel management (measured via acceptance rate in questionnaire)	Measures social license to operate the reintroduction	Report change in the score for the questionnaire comparing October 2024 with March 2026.	Beginning and end of project

Timeline

Period	Monitoring Activities
M06-M08 (Q4 2024)	Stakeholder engagement and planning setup (Action 1-Action 3, aligned with KPIs CS06.SC.01, CS06.SC.03, CS06.SC.07)
M08-M12 (Q1 2025)	Permitting and logistics preparation (Action 4 and Action 5, aligned with KPIs CS06.GV.01, CS06.SC.08)
M12-M18 (Q2-Q3 2025)	Grey squirrel management and invasive species control (Action 6 aligned with KPIs CS06.EN.02, CS06.EC.01)
M18-M22 (Q4 2025)	Red squirrel release and citizen monitoring launch (Action 7 and Action 8, aligned with KPIs CS06.EN.01, CS06.SC.02, CS06.SC.04)

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M22-M30 (2026)	Education campaigns (Action 9 and Action 10 aligned with KPIs CS06.EN.02, CS06.SC.06, CS06.SC.05, CS06.SC.02)
M30-M36 (late 2026)	Long-term follow-up on ecosystem responses and social feedback (Aligned with KPIs CS06.EN.01, CS06.SC.01, CS06.EC.01, CS06.SC.08)

Monitoring plan CS7: Bergen Ghost Fishing, Norway

Introduction

Geographical Location: Bergen coastal waters, Norway

Lead Partner: University of Bergen

Key Ecosystem and Socio-ecological Characteristics: This case study focuses on addressing the problem of ghost fishing in coastal areas surrounding Bergen, where lost or abandoned fishing gear continues to trap marine life. It targets both ecological restoration and behavioral change in the local fishing community. Collaboration with stakeholders, waste reuse, and public awareness are central.

Main Challenges Addressed:

- Marine pollution from abandoned/lost fishing gear.
- Threats to marine biodiversity and habitat from ghost gear entanglement.
- Lack of effective systems for gear recovery and reuse.
- Limited stakeholder awareness of the environmental impact of ghost fishing.
- Need for new behavior norms and reporting mechanisms among fishers.

Objective of the Case Study: To reduce marine pollution and promote sustainable fishing practices by removing ghost gear, fostering stakeholder engagement, and creating circular economy models through gear recovery and reuse.

Actions implemented

Action	Description	Period	Actors Involved

A1	Pilot clean-up operation conducted by environmental NGO, targeting ghost fishing gear on the sea floor.	Q3-Q4 2024	eNGO, divers, University of Bergen
A2	Report on pilot phase prepared as a basis for awareness and outreach activities.	Q1 2025	University of Bergen, communication team
A3	Initial engagement with stakeholders to plan follow-up actions and scale-up.	Q2 2025	University of Bergen, fishers, marine agencies

Indicators and Methodology

KPI ID	KPI	Justification	Methodology	Frequency
CS07.EC.01	Fundraising amount to pay for clean-up activities	Indicates capacity to support operations and engage sponsors	Compare, in percentage terms, how much funding major actors have allocated for marine litter cleanup in a given year and the previous year	Two points in time (2024, 2026)
CS07.EN.01	Resale of salvaged fishing gear	Reflects the potential for circular economy application	We will monitor and report the number of resold items.	At least 2 points in time
CS07.EN.02	Amount of marine debris removed	Measures success in reducing marine litter	We will monitor and report the number of removed fishing gear and weight/volume.	At least 2 points in time
CS07.SC.01	Behavioral intention to improve fishing practices	Gauges change in awareness and intent through surveys	We will compare the mean of the questions in the stakeholder surveys.	Two times (2024 and 2026)
CS07.SC.02	Number of reports of missed fishing gear in the area	Monitors engagement and behavior change in fishers	We will monitor and report the number of reports of lost fishing gear.	Continuously

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Timeline

Period	Monitoring Activities
Q3-Q4 2024	Pilot ghost gear removal and funding collection (Action 1, KPIs CS07.EC.01, CS07.EN.02, CS07.SC.02)
Q1 2025	Report preparation and salvaged gear analysis for resale (Action 2, KPIs CS07.EN.01)
Q2 2025	Stakeholder outreach and planning for scale-up (Action 3, CS07.SC.02, CS07.SC.01)
Q3 2026	Final clean-up and stakeholder survey (follow-up assessment, KPIs CS07.SC.02, CS07.SC.01)

Monitoring plan CS8: Kloogaranna–Laulasmaa, Estonia

Introduction

Geographical Location: Kloogaranna–Laulasmaa coastal area, Estonia

Lead Partner: Tallinn University of Technology

Key Ecosystem and Socio-ecological Characteristics: The site features a diverse mosaic of coastal ecosystems, including sandy beaches, coastal forests, and dune habitats along the Baltic Sea. The area forms part of the Natura 2000 network and includes several protected nature reserves and landscape protection areas. These habitats support a range of biodiversity, including rare and sensitive species dependent on undisturbed coastal dynamics and forest continuity. The region is under increasing socio-ecological pressure due to rapid tourism growth, expanding residential development, and related infrastructure. These trends contribute to habitat fragmentation, trampling of vegetation, erosion of dunes, and disturbance of wildlife. Seasonal overcrowding, especially during summer months, intensifies the pressure on natural resources and local infrastructure, impacting both the ecological balance and residents' quality of life. At the same time, the area holds high recreational and cultural value for locals and visitors alike. It is a popular destination for hiking, swimming, birdwatching, and nature photography. Local communities are deeply connected to the landscape, but also concerned about the long-term sustainability of both nature and livelihoods.

Main Challenges Addressed:

- Habitat degradation driven by coastal erosion, trampling, and vegetation loss, unregulated tourism and recreational activities, and climate change.

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- High and uneven visitor pressure during summer months causing environmental stress.
- Limited and fragmented community involvement in land-use and conservation planning.
- Poor enforcement of environmental regulations due to fragmented governance.
- Economic dependency on short season, mass tourism with unsustainable practices.
- Data gaps on visitor impact and long-term ecosystem change.
- Growing land-use conflicts between conservation objectives, housing developments, and infrastructure expansion.

Objective of the Case Study: To promote sustainable coastal governance and biodiversity conservation by enhancing community participation in planning and decision-making processes, strengthening monitoring species diversity and ecosystem health, and developing an inclusive, nature-based tourism model that balances ecological protection with local economic benefits.

Actions implemented

Actions	Description	Period	Actors Involved
A1	Define and map the case study area	Q4 2024	TalTech, local planners
A2	Interview stakeholders to identify pressures and potential conflicts	Q4 2024-Q1 2025	TalTech, municipalities, NGOs
A3	Engage with local community, conservation groups, and summer residents	Q1-Q2 2025	TalTech, community groups, residents
A4	Organize participatory events to share mapping and stakeholder findings	Q2 2025	TalTech, stakeholders, facilitators
A5	Promote awareness of the site's potential and access to knowledge	Q3 2025	TalTech, tourist boards, NGOs
A6	Participate in community events and outreach with diverse audiences	Q3-Q4 2025	TalTech, schools, municipalities

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A7	Run participatory activities sharing mapping and interviews	Q1 2026	TalTech, stakeholders, NGOs
A8	Monitor people–place dynamics and communicate outcomes to stakeholders	Q2 2026	TalTech, monitoring teams

Indicators and Methodology

KPI ID	KPI	Justification	Methodology	Frequency
CS08.EC.01	Comparison of long-term local revenue from tourism before and after interventions	Evaluates the economic impact of ecotourism strategies	Desk research and local statistics	Annually
CS08.EN.01	Species diversity within defined area per Shannon-Diversity Index	Measures biodiversity status and response to interventions	Evaluation of existing research and continued partnership with academic institutions	Annually
CS08.EN.02	Number of species conservation programs actively supported	Tracks institutional investment in biodiversity	Assessment of ongoing conservation projects in the CS area	Annually
CS08.SC.01	Level of stakeholder satisfaction or feedback regarding their involvement in decision-making	Measures stakeholder engagement effectiveness	The KPI will be measured through a survey distributed to stakeholders	Annually
CS08.SC.02	Level of community involvement in biodiversity conservation initiatives	Reflects participatory governance and local empowerment	The number of seminars conducted and the results of the stakeholder survey will be used	Annually
CS08.SC.03	Number of capacity building workshops, trainings sessions, or	Captures outreach and capacity building efforts	The number of events will be tracked, and sign-up sheets will be used to	Multiple times per year

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	knowledge-sharing events conducted		monitor participant attendance	
CS08.SC.04	Number of local community awareness campaigns	Indicates community outreach and education	The number of events will be tracked, and sign-up sheets will be used to monitor participant attendance	Annually

Timeline

Period	Monitoring Activities
Q4 2024	Stakeholder mapping and definition of case study area (Action 1)
Q4 2024 – Q1 2025	Interviews with stakeholders and monitoring protocol development (Action 2)
Q1 – Q2 2025	Biodiversity baseline assessment and local engagement activities (Action 3 and Action 4, KPIs CS08.EN.01, CS08.SC.01, CS08.SC.02, CS08.SC.03)
Q3 – Q4 2025	Awareness campaigns and citizen science monitoring implementation (Action 5 and Action 6, KPIs CS08.SC.03, CS08.SC.04, CS08.EN.01)
Q1 – Q2 2026	Participatory review and synthesis of monitoring outcomes (Action 7 and Action 8, KPIs CS08.EC.01, CS08.EN.02, CS08.SC.01, CS08.SC.02)

Monitoring plan CS9: Corbu Beach, Romania

Introduction

Geographical Location: Corbu Beach, Constanța County, Romanian Black Sea Coast

Lead Partner(s): Total PR

Key Ecosystem and Socio-ecological Characteristics: Corbu Beach is one of the few remaining untouched beaches along the Romanian coast and is part of the Danube Delta Biosphere Reserve and Natura 2000. It is renowned for its biodiversity, particularly avifauna, and supports numerous protected

habitats. Increasing tourism, however, is causing unsustainable development and pressure on ecosystems. The region faces challenges such as poor awareness of eco-tourism principles, unregulated land sales, and biodiversity ignorance among the public and businesses.

Main Challenges Addressed:

- Loss of natural habitats due to chaotic construction
- Pressure on biodiversity and marine ecosystems
- Insufficient awareness and education on sustainable development
- Poor stakeholder coordination and lack of regulations

Objective of the Case Study: To implement an eco-tourism strategy to balance development with biodiversity protection, raise awareness among all stakeholders, create local guidelines for sustainable construction, and enhance the enforcement of environmental regulations.

Actions implemented

Actions	Description	Period	Actors Involved
A1	Informative meetings with local authorities, citizens, and business developers to define sustainable development practices.		Total PR, local authorities, tourism stakeholders
A2	Educating tourists and developing information materials about the ecological uniqueness of Corbu.		Total PR, NGOs, Danube Delta Reserve Administration
A3	Drafting and promoting a guideline for sustainable construction and land use practices in the area.		Total PR, local NGOs, urban planners
A4	Campaigning for enforcement of ecological regulations and engagement of landowners to preserve the natural landscape.		Total PR, local government, landowners

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Indicators and Methodology

KPI ID	KPI	Justification	Methodology	Frequency
CS09.EN.01	Species abundance (number of individuals / species)	Indicates biodiversity health and habitat quality in ecologically sensitive areas impacted by development		Annual
CS09.EN.02	Decrease in wildlife disturbances	Reflects effectiveness of zoning, awareness campaigns, and reduced human pressures on fauna		Annual
CS09.SC.01	Public awareness of the biodiversity threats and ecological value of Corbu	Demonstrates whether tourists and locals understand the conservation relevance of the site and its species		Annual
CS09.SC.02	Number of local community awareness campaigns	Indicates community-level efforts to promote ecological knowledge and long-term stewardship		Annual
CS09.EC.01	Tourist Willingness to Pay for Conservation	Gauges the perceived value of nature and conservation services among visitors		Annual
CS09.EC.02	Increased eco-tourism revenue from sustainable businesses	Reflects economic viability of nature-positive tourism models promoted by the case study		Annual

Timeline

Period	Monitoring Activities
Q3 2024	Conduct stakeholder meetings; initiate pre-visit tourist awareness baseline surveys (Actions 1, 2; KPIs CS09.SC.01)

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Q4 2024	Monitor public education activities and publish sustainable construction guidelines; record community campaign activities (Actions 2, 3; KPIs CS09.SC.01, CS09.SC.02)
Q1 2025	Begin ecological surveys for species abundance and wildlife disturbance (Actions 3, 4; KPIs CS09.EN.01, CS09.EN.02)
Q2 2025	Launch and monitor eco-tourism communications and willingness-to-pay analysis (Action 4; KPIs CS09.EC.01, SC09.EC.02)
Q3 2025	Repeat awareness surveys and track revenue indicators for eco-tourism (Actions 2, 4; KPIs CS09.CS.01, SC09.EC.02)
Q4 2025	Final evaluation of species indicators, campaign effectiveness, and economic metrics (Actions 3, 4; KPIs CS09.EN.01, CS09.EN.02, CS09.EC.01)

Monitoring plan CS10: Kildn/Eidsvika

Introduction

Geographical Location: Kildn and Eidsvika, Askøy Island, near Bergen, Norway

Lead Partner: University of Bergen (UiB)

Key Ecosystem and Socio-ecological Characteristics: Eidsvika is a coastal area of high ecological and recreational value, composed of bogs, wetlands, forest, and beach environments. It is an important local amenity for bathing, hiking, climbing, and educational visits, while also functioning as a carbon sink and potential nesting ground for red-listed bird species.

Main Challenges Addressed:

- Threat to local habitat and biodiversity: the proposed cruise port development endangers valuable coastal ecosystems where two red-listed bird species have been identified.
- Destruction of one of the last undeveloped beachfronts on Askøy Island, reducing both ecological and recreational values.
- Infrastructure impacts: the planned tunnel and access roads would disrupt natural systems and increase local traffic congestion and pollution.
- Lack of integration of ecological information in environmental impact assessments and planning decisions.
- Conflict between business and political interests and local community/NGO opposition, reflecting limited participation and transparency in the decision-making process.

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Objective of the Case Study: To ensure that biodiversity and climate considerations are systematically integrated into local planning processes. The project aims to document conflicts, strengthen stakeholder participation, and highlight ecological and cultural values of the site, supporting informed and democratic decision-making.

Actions implemented

Actions	Description	Period	Actors Involved
A1	Community mobilisation and awareness campaigns (meetings, pamphlets, school visits, events).	Q1–Q3 2024	University of Bergen, Friends of the Earth Norway, residents, NGOs
A2	Online and media monitoring (Facebook group, petitions, press coverage).	Q2 2024 – Q1 2025	University of Bergen, NGOs, journalists, community activist
A3	Documentation of ecological values (habitats and red-listed species) and follow-up of political decisions on development.	Q2 2024 – Q1 2025	University of Bergen, volunteer, municipal representatives

Indicators and Methodology

KPI ID	KPI	Justification	Methodology	Frequency
CS10.EN.01	Area of coastal habitat protected	Tracks whether political/legal decisions safeguard natural ecosystems	Follow municipal/regional planning and legal decisions. Monitor how many square kilometer of habitat for coastal species (terrestrial) will be protected against building development	Before (project start) and after political decisions

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CS10.EN.02	Red-listed species protection	Ensures that threatened identified species are considered in planning	Track political decision-making and use the public ecological risk assessment to monitor how many red-listed species and their habitats would be threatened by the proposed development	Before (project start) and after political decisions
CS10.SC.01	Number of local community awareness campaigns	Measures mobilisation and awareness-building at community level	Count of events and participation records	Continuous (2024–2025)
CS10.SC.02	Online community engagement in accessing and discussing information	The number of group followers and online petitions are central instruments of activism and mobilisation	Track the number of followers/members and their evolution over time, aligned with key public debate moments	Continuous (2024–2025)
CS10.SC.03	Coverage of the case in editor-reviewed media	Captures visibility of the conflict in public debate and media. Media attention is essential to create public visibility and political pressure around the case	Systematic frequency and content analysis of editor-reviewed media articles using defined keywords	Continuous (2024–2025)
CS10.SC.04	Maintenance of recreational use	The area is officially zoned for recreation; documenting whether this status is maintained in planning is critical	1) Follow the zoning plan discussions and political decisions. 2) Use a citizen gallery/counting tool to record visits	1) Before and after political decision. 2) Continuous (from spring 2025)

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Timeline

Period	Monitoring Activities
Q1-Q2 2024	Launch community awareness campaigns (A1; KPIs CS10.SC.01, CS10.SC.02)
Q2-Q4 2024	Conduct stakeholder interviews and mapping and prepare species observations (A2-A3; KPIs CS10.SC.03 and CS10.EN.02)
Q3 2024 – Q1 2025	Document political and planning processes (habitat protected, species and zoned for recreational use) (A3; KPIs CS10.EN.01, CS10.EN.02 and CS10.SC.04)
Spring 2025	Launch citizen gallery/counting tool to record visits (A3; KPI CS10.SC.04)
Q2-Q3 2025	Continue monitoring events, online engagement and media coverage. (A1–A2; KPIs CS10.SC.01, CS10.SC.02 and CS10.SC.03)
Spring 2025	Evaluate zoning after the municipal council decision/political decision (A3; KPIs CS10.EN.01, CS10.EN.02 and CS10.SC.04)
Q4 2025	Synthesis and final reporting on all KPIs, assessing the impact of political decision and community mobilisation

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