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PROcoast

A PROactive approach for COmmunities
to enAble Societal Transformation

D5.2 – Case Study Implementation Report

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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

This deliverable builds directly on the methodological and analytical work undertaken across PRO-COAST. The case study assessments use the socio-ecological baselines established in **T5.1** as the reference point for identifying initial conditions, key pressures and governance challenges. They subsequently apply the **Integrated Assessment Methodology developed in T5.2**, including the case-specific Key Performance Indicators, monitoring plans and data collection

arrangements used to compare baseline and post-intervention conditions. The implementation and assessment activities also integrate results, tools and knowledge generated in other work packages. **WP2** provided the research design, stakeholder mapping and initial understanding of the actors, interests and governance relationships shaping each case study. **WP3** contributed the biodiversity management approaches and conservation actions implemented at local level, including habitat restoration, species management, pollution reduction and other context-specific interventions. **WP4** supported the operationalisation of the Social-Ecological Systems Framework, enabling ecological results to be interpreted in relation to governance, stakeholder interactions and broader socio-economic conditions. **WP6** contributed the stakeholder engagement, capacity-building and behavioural-change activities, as well as the associated indicators used to assess changes in awareness, participation, attitudes and conservation-related practices. Task 5.3 therefore represents the practical validation of the IAM across the ten case studies. By integrating monitoring data with evidence from implementation and stakeholder engagement, this deliverable assesses the performance of the selected indicators, identifies methodological and operational limitations, and examines the extent to which the implemented actions contributed to ecological and societal change.

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1. INTRODUCTION

This deliverable presents the implementation and assessment of the biodiversity conservation actions carried out across the ten PRO-COAST case studies. It documents how the activities planned during the earlier stages of the project were implemented within coastal territories characterised by different ecological conditions, socio-economic activities, governance arrangements and conservation challenges. The report provides a concise overview of the stakeholder engagement and co-creation processes that supported implementation, while referring to the relevant PRO-COAST deliverables for their detailed methodological development and results. Its main focus is therefore on the actions undertaken in each case study, their state of implementation and the environmental, social, economic, governance and behavioural changes observed during the project.

For each case study, the report describes the initial conditions and principal challenges, the interventions implemented and the results obtained through the project monitoring framework. Baseline and post-intervention data are compared using the Key Performance Indicators (KPI)selected for each case study under the Integrated Assessment Methodology (IAM). This enables the identification of progress, remaining pressures, limitations in the available evidence and areas where further action may be required.

The report concludes with a global assessment of implementation across the ten case studies, bringing together the main results obtained through the selected KPIs and highlighting the overall progress achieved during the project. This final assessment provides a consolidated view of the effectiveness of the implemented actions, the main limitations of the available evidence and the issues that may require continued monitoring or further intervention beyond the project period.

2. OVERVIEW OF THE INTEGRATED ASSESSMENT METHODOLOGY

The assessment presented in this report follows the Integrated Assessment Methodology (IAM) developed in **D5.2 – Integrated Assessment Methodology**. While Deliverable D5.2 established the methodological framework, indicator system and monitoring procedures, the present deliverable applies this framework to evaluate the implementation and outcomes of biodiversity conservation actions across the ten PRO-COAST case studies. In doing so, Work Package (WP) 5 moves beyond methodological development by generating an integrated assessment of

intervention effectiveness and deriving cross-case insights that support learning, policy recommendations and future replication. The IAM provides the common framework used across the ten PRO-COAST case studies to monitor and evaluate the implementation and outcomes of biodiversity conservation actions. It was designed to accommodate the ecological, socio-economic and governance diversity of the case studies while maintaining sufficient methodological consistency to support comparison and synthesis at project level.

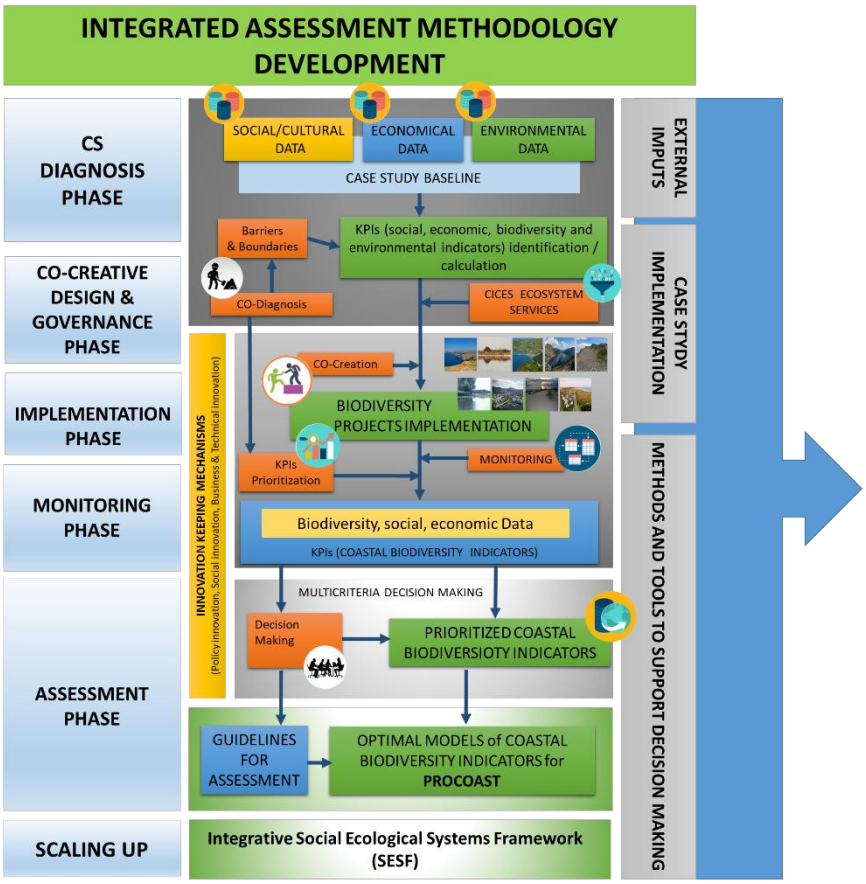


Figure 1. Methodological flow diagram of the integrated assessment process for identifying and prioritizing coastal biodiversity indicators.

The methodology adopts an integrated social-ecological perspective, recognising that biodiversity outcomes are influenced not only by ecological conditions, but also by human activities, governance arrangements, stakeholder behaviour and local economic dynamics. The Social-Ecological Systems Framework (SESF) was therefore used as a structuring framework to connect indicators with relevant components of each case study, including resource systems, actors, governance systems, interactions and outcomes. This allows environmental changes to be interpreted alongside social, economic, governance and behavioural developments. Rather than assessing these dimensions separately, the integrated assessment combines evidence across the Social-Ecological Systems Framework to explain how ecological outcomes are shaped by governance arrangements, stakeholder behaviour and socio-economic conditions. This integrated perspective enables a more comprehensive understanding of intervention effectiveness than the interpretation of individual indicators alone.

The IAM is organised around six interconnected phases: co-diagnosis, co-creative design and governance, implementation, monitoring, assessment and scaling up. The initial phases

supported the identification of local challenges, baseline conditions and relevant intervention priorities. During implementation and monitoring, each case study collected data through methods adapted to its context, including field observations, ecological surveys, sensors, citizen-science tools, stakeholder questionnaires, interviews, official databases and documentary review. The methodology was designed as an adaptive process, allowing indicators, monitoring procedures and data collection approaches to be refined where practical limitations or new information emerged.

Key Performance Indicators are the main operational component of the IAM. They provide measurable evidence of change across environmental, socio-cultural, economic, governance and behavioural dimensions. The indicator framework was structured using the Common International Classification of Ecosystem Services (CICES), which provides a consistent basis for linking the monitored changes to provisioning, regulating and maintenance, and cultural ecosystem services. Within this common structure, each case study selected and adapted a specific set of indicators according to its conservation challenges, stakeholder priorities, data availability and monitoring capacity.

The complete list of PRO-COAST project KPIs is provided in D5.2 Integrated Assessment Methodology, including the indicators selected for each case study, their definitions, units, data sources, monitoring frequencies, methodologies and links to the SESF. D5.2 also includes the monitoring plans and KPI control arrangements used to define responsibilities, reporting periods and data requirements. The present report builds directly on that framework, using the available baseline and post-intervention data to assess progress, identify remaining pressures and provide an integrated interpretation of the results obtained across the case studies.

3. STAKEHOLDER ENGAGEMENT AND CO-CREATION DURING IMPLEMENTATION

3.1. Role of Stakeholder Engagement in the Implementation Process.

Stakeholder engagement represented a fundamental pillar of the implementation strategy within the PRO-COAST project. Recognising that biodiversity restoration and sustainable coastal governance require broad societal participation, stakeholder engagement was integrated throughout the entire implementation process rather than being limited to consultation at predefined project milestones. The objective was to establish collaborative governance

structures that enabled local ownership, increased trust between actors, and supported the long-term sustainability of project outcomes. The stakeholder engagement approach developed in Work Package 6 provided the conceptual foundation for implementation. Through the identification of Change Agents, stakeholder mapping exercises, and the development of engagement strategies, local actors became active contributors to planning, implementation, monitoring, and evaluation processes rather than passive recipients of project interventions [1] [2] [3] [4] [5].

Throughout implementation, stakeholder engagement served several complementary functions:

- facilitating knowledge exchange between scientific and local actors;
- supporting joint decision-making and co-creation;
- strengthening governance capacities within local communities;
- increasing acceptance of biodiversity interventions;
- enabling adaptive management through continuous stakeholder feedback,
- testing our PRO-COAST tools (e.g CHUI)

Rather than considering stakeholder engagement as a separate project activity, PRO-COAST treated it as an enabling mechanism supporting successful implementation across all ten case studies.

3.2. Stakeholder Identification and Engagement Strategy.

Implementation activities were preceded by systematic stakeholder mapping within each case study. Stakeholders were identified and assessed according to their relevance, influence, expertise and potential contribution to biodiversity restoration activities. Depending on the local context, the process included local and regional authorities, protected area managers, NGOs,

[1] **PRO-COAST (2024).** *D6.1 – Mapping change agents to case studies*. PRO-COAST project, Grant Agreement No. 101082327.

[2] **PRO-COAST (2026).** *D6.2 – Final report on change capacity workshops*. PRO-COAST project, Grant Agreement No. 101082327.

[3] **Reed, M. S. (2008).** Stakeholder participation for environmental management: A literature review. *Biological Conservation, 141*(10), 2417–2431. https://doi.org/10.1016/j.biocon.2008.07.014

[4] **Ansell, C., & Gash, A. (2008).** Collaborative governance in theory and practice. *Journal of Public Administration Research and Theory, 18*(4), 543–571. https://doi.org/10.1093/jopart/mum032

[5] **Nienaber, A.-M., & Schewe, G. (2011).** What's important for trustful communication with customers? An empirical analysis. https://doi.org/10.1177/030630701103700201

community organisations, local citizens, businesses, researchers, educational institutions and policy makers. The mapping process enabled each case study to identify both key decision-makers and stakeholder groups that had traditionally been underrepresented in environmental governance. Particular attention was paid to ensuring that different interests, perspectives and forms of knowledge were represented throughout implementation. This provided the basis for developing context-specific engagement strategies adapted to the governance arrangements, stakeholder relationships and conservation challenges of each case study.

Following stakeholder identification, local Change Agents became the main facilitators of the engagement process [6] (Nienaber et al., 2023). Rather than acting as project managers, they served as intermediaries between scientific partners, local communities, public authorities and other relevant actors. Their responsibilities included establishing and maintaining relationships with stakeholders, facilitating communication among groups, organising workshops and engagement activities, identifying barriers to implementation, encouraging collaborative problem-solving and sustaining stakeholder motivation throughout the project. The Change Agent approach recognised that successful implementation depends not only on the availability of appropriate technical solutions, but also on the presence of individuals capable of building trust [5,7], facilitating dialogue and maintaining collaboration among stakeholders with different interests and levels of influence. By combining systematic stakeholder mapping with locally embedded facilitation, the case studies were able to design more inclusive engagement processes and strengthen the conditions for the implementation and long-term continuity of biodiversity conservation actions.

3.3. Co-creation During Case Study Implementation.

Co-creation formed the operational approach for implementing biodiversity interventions across all PRO-COAST case studies [8]. Instead of applying predefined solutions, implementation followed

[6] **Nienaber, A.-M., Spundflasch, S., & Soares, A. E. (2023).** Behavioural change in local authorities to increase organisational capacity. In A. Woodcock, J. Saunders, K. Fadden-Hopper, & E. O'Connell (Eds.), *Capacity Building in Local Authorities for Sustainable Transport Planning* (pp. 81–98). Springer Nature. https://doi.org/10.1007/978-981-19-6962-1_6

[7] **Nienaber, A.-M., Romeike, P. D., Searle, R., & Schewe, G. (2015).** A qualitative meta-analysis of trust in supervisor-subordinate relationships. *Journal of Managerial Psychology, 30*(5), 507–534. https://doi.org/10.1108/JMP-06-2013-0187

[8] **Voorberg, W. H., Bekkers, V. J. J. M., & Tummers, L. G. (2015).** A systematic review of co-creation and co-production: Embarking on the social innovation journey. *Public Management Review, 17*(9), 1333–1357. https://doi.org/10.1080/14719037.2014.930505

an iterative process in which stakeholders continuously contributed to shaping local activities [9]. Co-creation therefore extended beyond participatory workshops and became embedded within all implementation stages.

- **Planning:** During the planning phase, stakeholders jointly identified local challenges, priorities, and opportunities for biodiversity restoration. Existing governance structures, local knowledge, and institutional capacities were considered when defining intervention strategies [4,10]
- **Design of interventions:** Implementation measures were subsequently co-designed with local stakeholders. Discussions focused on selecting feasible interventions, identifying potential conflicts, allocating responsibilities, and agreeing upon implementation pathways.
- **Implementation:** During implementation, stakeholders actively participated in practical activities including biodiversity restoration measures, citizen science initiatives, environmental monitoring, educational activities, governance platforms, and awareness campaigns. The collaborative implementation process increased ownership of project activities while allowing local expertise to continuously inform practical decision-making.
- **Monitoring and Evaluation:** Stakeholders also participated in monitoring implementation progress through workshops, surveys, discussions, and reflection sessions.

Rather than evaluating project success solely through technical indicators, stakeholder feedback provided important insights into governance quality, collaboration, acceptance, and behavioural changes emerging throughout implementation.

3.4. Capacity Building through Change Capacity Workshops.

A central component supporting implementation was the Change Capacity Workshop Series organised under Work Package 6 [11, 12]. The workshops were designed not merely as training events but as iterative learning environments supporting implementation across the ten case

[9] **Ostrom, E. (1996).** Crossing the great divide: Coproduction, synergy, and development. *World Development, 24*(6), 1073–1087. https://doi.org/10.1016/0305-750X(96)00023-X

[10] **Emerson, K., Nabatchi, T., & Balogh, S. (2012).** An integrative framework for collaborative governance. *Journal of Public Administration Research and Theory, 22*(1), 1–29. https://doi.org/10.1093/jopart/mur011

[11] **PRO-COAST (2026).** *D6.3 – Manual for implementation of change to overcome loss of biodiversity in coastal ecosystems*. PRO-COAST project, Grant Agreement No. 101082327.

[12] **Nienaber, A.-M., Spundflasch, S., & Soares, A. E. (2023).** Behavioural change in local authorities to increase organisational capacity. In A. Woodcock, J. Saunders, K. Fadden-Hopper, & E. O'Connell (Eds.), *Capacity Building in Local Authorities for Sustainable Transport Planning* (pp. 81–98). Springer Nature. https://doi.org/10.1007/978-981-19-6962-1_6

studies. They enabled Change Agents and case study leaders to exchange experiences, reflect upon implementation challenges, jointly develop solutions, and continuously improve stakeholder engagement strategies.

The workshop programme consisted of:

- one Kick-off Workshop;
- four sequential Change Capacity Workshops;
- continuous reflection sessions between workshops.

Each workshop corresponded to a specific stage within the PRO-COAST Deep-Change Framework, gradually supporting case studies from stakeholder mobilisation towards implementation, evaluation, and long-term sustainability. Across the workshop series, participants shared experiences related to governance, stakeholder conflicts, citizen science activities, communication strategies, and implementation barriers. This process created opportunities for peer learning while simultaneously strengthening implementation capacities within each case study.

3.5. Adaptive Stakeholder Engagement During Implementation.

Stakeholder engagement within PRO-COAST was intentionally designed as an adaptive rather than static process[10]. As implementation progressed, case study teams continuously refined their engagement approaches based on stakeholder feedback, emerging governance challenges, and changing local conditions.

Examples of adaptive engagement included:

- expanding stakeholder networks when new actors became relevant;
- modifying communication strategies;
- adapting workshop formats;
- integrating additional citizen science activities;
- responding to stakeholder conflicts through facilitated dialogue;
- adjusting governance arrangements to local implementation needs.

This adaptive approach allowed stakeholder engagement to evolve alongside implementation rather than following a fixed engagement plan established at project initiation. The flexibility of the engagement strategy contributed to maintaining stakeholder commitment despite differing

governance structures, institutional contexts, and implementation challenges across the ten case studies[13]

3.6. Cross-case Experiences.

Although the case studies differed considerably regarding ecological settings, governance structures, and stakeholder constellations, several common implementation experiences emerged [16, 14, 15]

- **Success Factors.** Across the case studies, successful implementation was consistently associated with: early stakeholder involvement, continuous communication, strong local ownership, trusted Change Agents, transparent decision-making, opportunities for peer learning, and adaptive governance.
- **Common Challenges.** Several implementation challenges were repeatedly identified, including: balancing competing stakeholder interests, maintaining long-term engagement, limited resources and capacities, institutional changes, communication barriers, and integrating scientific and local knowledge.

Despite these challenges, the collaborative implementation approach enabled case study teams to develop locally appropriate solutions while strengthening governance capacities beyond the project duration.

4. CITIZEN SCIENCE ACTIVITIES AND OUTPUTS

Citizen science was implemented across the PRO-COAST case studies through locally adapted approaches reflecting the specific environmental challenges, monitoring needs and stakeholder communities of each coastal area. The socio-economic analysis and baseline developed for each case study in Deliverable 5.1 provided the foundation for these locally adapted

[13] **Newig, J., Challies, E., Jager, N. W., Kochskaemper, E., & Adzersen, A. (2018).** The environmental performance of participatory and collaborative governance: A framework of causal mechanisms. *Policy Studies Journal, 46*(2), 269–297. https://doi.org/10.1111/psj.12209

[14] **Reed, M. S. (2008).** Stakeholder participation for environmental management: A literature review. *Biological Conservation, 141*(10), 2417–2431. https://doi.org/10.1016/j.biocon.2008.07.014

[15] **Nienaber, A.-M., Spundflasch, S., Soares, A. E., & Woodcock, A. (2021).** Distrust as a hazard for future sustainable mobility planning: Rethinking employees' vulnerability when introducing new information and communication technologies in local authorities. *International Journal of Human-Computer Interaction, 37*(4), 390–401. https://doi.org/10.1080/10447318.2020.1860547

approaches. The activities combined digital participation tools, field based monitoring and community generated observations to support biodiversity assessment, the identification of environmental pressures and the documentation of changes in coastal social-ecological systems.

The approaches included biodiversity observations submitted through mobile applications, photographic monitoring of coastal change, wildlife camera data collection, marine litter assessment, monitoring of invasive and non indigenous species, participatory documentation of lost fishing gear and collaborative recording of governance processes. The following subsections present the activities identified by the case study partners as citizen science, implemented in accordance with the Integrated Assessment Methodology (IAM) and the Social-Ecological Systems Framework (SESF), involving stakeholders and local communities in co-creation processes that helped shape the biodiversity interventions.

4.1. Case Study 1 - Comino Island (Malta)

Citizen science activities in Comino focused on coastal change, waste accumulation and terrestrial biodiversity. Monthly waste audits were undertaken at Blue Lagoon, the campsite and Santa Maria Bay, with staff and volunteers photographing waste bins at three points during the day. This generated a repeated visual record of waste conditions across areas experiencing different levels of visitor pressure.

Two Wild Kemmuna events were organised through the iNaturalist platform to encourage visitors and community members to record biodiversity observations. Preparatory work was also undertaken for the installation of a CoastSnap monitoring point, through which visitors can contribute standardised photographs documenting changes in beach morphology over time.

Additional biodiversity data collection included the use of wildlife cameras and monitoring activities related to the blue rock thrush. Together, these activities produced observations relating to species presence, wildlife activity, coastal change and waste pressures. Continued iNaturalist observations, CoastSnap monitoring, waste audits and wildlife-camera data collection are foreseen during the remaining implementation period.

4.2. Case Study 2 - Apulia (Italy)

Citizen science in Aquatina di Frigole was integrated into marine-litter assessment and biodiversity monitoring. Students, non-governmental organisations, researchs institutions and other local stakeholders participated in field activities involving the collection, classification and recording

of marine and lagoon litter. The resulting information supported the spatial analysis of litter composition and the assessment of marine debris as an indirect driver of biodiversity change.

Citizen participation also contributed to biodiversity monitoring and the collection of observations on non indigenous species. To strengthen the continuity of these activities, the case study began preparing training on simplified biodiversity monitoring procedures, with the aim of establishing a local citizen science network capable of contributing observations through a shared approach.

The main outputs included records on marine litter composition, observations of non indigenous species and biodiversity-monitoring information that can be connected with the ecological indicators applied within the case study.

4.3. Case Study 3 - Area of Strunjan (Slovenia)

The Strunjan case study implemented a structured citizen science approach to wildlife monitoring (with specific focuses also on invasive mammals). Wildlife observations were collected through the SRNA mobile application, which enables participants to report the presence and location of mammals and birds. Since the beginning of the project, more than 300 records covering 16 mammal and bird species have been submitted in Strunjan and the surrounding area.

Camera trapping constituted a second major component of the monitoring system. More than 150,000 images were collected, through which 16 species were detected. Hunters were directly involved as citizen scientists in the deployment of camera traps, the collection of records and the interpretation of wildlife observations.

Participation was supported through certified micro-credential training in new approaches in wildlife monitoring and biological data collection. Further training was delivered to students, farmers and local community members. These activities generated wildlife-occurrence records, camera-trap images and information supporting analyses of species richness, occurrence and distribution, while also developing participants' capacity to apply standardised monitoring procedures.

4.4. Case Study 4 - Boka Kotorska Bay (Montenegro)

The citizen science component in Boka Kotorska Bay focused on establishing a participatory biodiversity-observation system. Following an assessment of available digital tools, the case study selected iNaturalist and registered a dedicated PRO-COAST project for Boka Kotorska. This provided a common digital space through which residents, visitors and local organisations can document species observations and contribute to the biodiversity evidence base for the bay.

The activity was supported through community engagement and cooperation with local authorities, researchers, civil society organisations and representatives of tourism-related sectors. The case study also considered the use of on-site QR-code materials to facilitate access to the iNaturalist project and encourage participation.

The principal output at this stage is the establishment of the digital infrastructure and stakeholder network required for participatory biodiversity monitoring. The approach offers a scalable and comparatively low-cost mechanism through which local communities, schools, non-governmental organisations and visitors may contribute observations in a coastal area experiencing substantial tourism pressure.

4.5. Case Study 5 - Sligo (Ireland)

Citizen science in Streedagh Beach centred on the repeated documentation of coastal change and the condition of the dune system. The community-based platform SCORE Photo Booth enabled citizens and visitors to take photographs from a consistent observation point, thereby generating a photographic time series through which changes in the beach and dune environment can be assessed.

Monitoring activities also addressed marram-grass coverage, dune restoration, biodiversity and the effects of human use. Baseline monitoring of restored dune areas and marram-grass distribution was continued, while suitable approaches for vegetation mapping and the organisation of future monitoring were discussed.

The photographic and field-based observations contribute to the assessment of coastal erosion, vegetation recovery and human impacts. Their repetition over time supports the evaluation of dune-restoration measures and provides evidence for the adaptive management of the site

4.6. Case Study 6 - Arne Parish (UK)

Citizen science activities in Arne Parish supported the assessment of conditions for the potential re-establishment of red squirrels. Local hunters contributed volunteer time to the sampling of grey squirrels for squirrelpox virus across several locations in Purbeck. Forty squirrels were tested, of which only five showed no evidence of previous exposure to the virus. These results provided evidence on disease prevalence and on the scale of grey-squirrel management that would be required before a red-squirrel reintroduction could be considered.

The case study also adapted the Garden Advice application to allow users to report the location, frequency and number of squirrels observed in their gardens. This extended the application towards the collection of spatially distributed squirrel observations contributed by residents [16].

The citizen science outputs therefore included biological samples collected with volunteer support, evidence on squirrelpox exposure and a digital mechanism for obtaining public observations of squirrels across the wider landscape.

4.7. Case Study 7 - Bergen (Norway)

Citizen science in the Bergen ghost-fishing case study connected public reporting and stakeholder knowledge with the identification of abandoned, lost or otherwise discarded fishing gear. Reports submitted through the Leisure Fishing application supported the selection of locations for underwater investigation and clean-up operations. Local diving organisations also contributed knowledge of affected areas and participated in underwater activities.

The citizen science approach additionally explored how participation could support a transition from the removal of existing ghost gear towards prevention. Fishers, divers and other stakeholders contributed perspectives on the causes of gear loss, the improvement of reporting mechanisms and the behavioural or operational changes that could reduce future losses.

Citizen-generated information complemented remotely operated vehicle operations. During the initial ROV pilot, conducted over 17 field days, 238 items of lost fishing gear were removed and

[16] Kenward B, Casey N, Bastid P, Buner F, Buffam I, Ewald J, et al. Reciprocal Environmental Decision Support (REDS): better tailored advice in return for data - Pre-print. bioRxiv. 2026

73 live animals were released. The participatory component supported the identification of affected areas and the development of prevention-oriented responses.

4.8. Case Study 8 - Kloogaranna-Laulasmaa (Estonia)

The Kloogaranna–Laulasmaa citizen science approach combined community participation with the monitoring of coastal biodiversity and tourism-related pressures. Monitoring focused particularly on soil biodiversity within coastal habitats. Soil traps were used during the 2024 and 2025 summer seasons to collect and identify invertebrates, while litter samples were analysed for pH, moisture, conductivity and microbial activity.

The monitoring generated comparative evidence across habitat types and climatic conditions. Coastal pine forests showed greater soil-invertebrate diversity than open sandy dunes, while diversity and abundance were higher during the wetter 2025 monitoring period. Dry and hot conditions reduced the abundance of moisture-dependent organisms. Ants, spiders, beetles, flies and millipedes were among the dominant groups, and the observations indicated that human disturbance negatively affected habitat quality and biodiversity.

Monitoring is planned to continue during summer 2026, allowing comparison over a longer period and supporting the communication of findings to local communities and municipal stakeholders.

4.9. Case Study 9 - Corbu Beach (Romania)

Citizen science activities at Corbu Beach focused on biodiversity observation, participatory mapping and the comparison of biodiversity patterns with tourism pressure. iNaturalist was used as the principal platform for recording observations. More than 1,500 observations had been registered in the Corbu area by May 2026, providing a substantial dataset on the species present within and around the case study area.

The observations contribute to biodiversity mapping and to the identification of locations or periods in which additional monitoring may be required. The case study aims to broaden participation through cooperation with non-governmental organisations, local businesses and visitors, supported by social media initiatives and participatory activities.

The citizen-generated dataset provides a basis for examining relationships between biodiversity, visitor distribution and tourism intensity. It can also support the identification of species and habitats that should be prioritised in conservation, communication and ecotourism activities.

4.10. Case Study 10- Eidsvika (Norway)

The Eidsvika case study used a collaborative digital timeline, developed through Padlet, as a citizen science-related tool to document developments associated with the proposed Kildn-Eidsvika project. The platform supported the organisation and communication of information concerning planning decisions, environmental concerns, stakeholder actions and the evolution of the local nature–development debate.

This activity was complemented by interviews and recurring meetings with local actors, including Friends of the Earth Askøy, participation in public events, and the review of political hearing documents and stakeholder submissions.

Together, these activities produced a structured body of information on the ecological values of Eidsvika, the concerns expressed by local stakeholders and the interaction between biodiversity protection and coastal planning. The collaborative timeline supported stakeholder participation, information exchange and the documentation of the governance processes surrounding the proposed development.

4.11. Summary of Citizen Science activities, outputs and cross-case biodiversity baseline

Citizen science was adapted to the specific environmental challenges, monitoring priorities and stakeholder contexts of each PRO-COAST case study. The activities covered biodiversity observation, wildlife and habitat monitoring, marine-litter assessment, documentation of coastal change, invasive-species monitoring, reporting of lost fishing gear and participatory recording of governance processes. Digital tools such as iNaturalist, SRNA, CoastSnap and collaborative online platforms were combined with field-based approaches, including camera trapping, photographic monitoring, biological sampling and environmental observations.

In parallel with these locally tailored activities, PRO-COAST introduced a complementary cross-case exercise to compile a broad biodiversity baseline using observations available in iNaturalist before the start of the project. This exercise was designed only for case studies that were not

already conducting their own biodiversity baseline analysis and was not intended to replace more detailed site-specific assessments.

iNaturalist emerged as the preferred common tool for this purpose because it provides access to broad biodiversity observations across different taxonomic groups and geographical areas. A simple and standardised protocol was therefore developed to guide the download and organisation of pre-project observations, optimising the consistency and usefulness of the information collected by considering elements such as observation effort, basic metadata and, where relevant, the representation of particular taxonomic groups.

This broad baseline is largely independent of the specific KPIs selected by each case study, but it provides an opportunity to connect KPI-related monitoring with citizen science activities, including training and stakeholder engagement. The analysis of the iNaturalist data is presented throughout the relevant sections of this deliverable. It complements the other baseline assessments by supporting comparison of biodiversity observations across case studies and by providing information on the level and distribution of public participation in biodiversity recording.

Together, the case-study activities and the cross-case iNaturalist exercise generated locally relevant observations, datasets and monitoring records, while strengthening the involvement of residents, visitors, students, fishers, hunters, divers, environmental organisations and other local stakeholders. These outputs supported the assessment of environmental pressures and ecological change and contributed to the implementation of the PRO-COAST Integrated Assessment Methodology.

5. SUSTAINABILITY CERTIFICATION: INTEGRATED CERTIFICATION PROTOCOLS

The Costa Nostrum – Sustainable Beaches certification is a voluntary sustainability standard developed to support the integrated management and sustainable development of Mediterranean beaches. Its primary objective is to help public authorities and private beach managers balance environmental protection, social well-being and economic development, while improving beach quality, visitor experience and the long-term resilience of coastal destinations. Costa Nostrum is designed not only as a certification scheme but also as a management and continuous improvement framework based on measurable sustainability indicators.

The strategy for the establishment and formal designation of a Costa Nostrum certification encompasses a structured sequence of key stages, that includes:

1. **Stakeholder engagement**, involving municipalities, regional authorities, local businesses and coastal communities.
2. **Implementation of a Management Plan**, including policy recommendations, operational improvements and behavioural change strategies.
3. **Assessment of indicators** through systematic monitoring and field evaluation.
4. **Certification and classification** of the beach according to its level of compliance.
5. **Promotion and dissemination** of certified beaches through the Costa Nostrum platform and communication channels.

At every stage of the planning implementation, and certification process, continuous monitoring and assessment mechanisms are applied to evaluate performance outcomes and to refine the initial management plan.

Assessment approach

Costa Nostrum adopts a holistic assessment framework, considering the three pillars of sustainability equally:

- Environmental sustainability, focusing on ecosystem protection and natural resource conservation.
- Social sustainability, addressing accessibility, safety, visitor satisfaction and community engagement.
- Economic sustainability, promoting sustainable tourism, local products and long-term economic resilience.

The certification evaluates beaches through a comprehensive set of criteria and measurable indicators covering environmental quality, management, infrastructure and visitor services. Each indicator is assigned a weighting factor from 1 to 4, according to its relative importance within the overall sustainability assessment, ensuring a transparent and objective scoring process. Beaches are classified into three categories - Organized Beaches, Non-Organized Beaches, and Natural Protected Beaches - each with its own certification scoring framework, as shown in Table 1.

Table 1. Costa Nostrum certification scoring system for different beach categories

Beach category				

Organized Beaches	40	41-67	68-99	100
Non-Organized Beaches	32	-	-	-
Natural protected beaches	36	-	-	-

One representative beach from each **PRO-COAST** case study was evaluated under the **Costa Nostrum** certification. A common assessment methodology was applied across all case studies to ensure consistency and comparability. The evaluation included the characterization of geographical, environmental, geomorphological and functional features, together with an ecological assessment of coastal and marine biodiversity, habitat types, protected and sensitive species and underwater ecological pressures and threats. Based on this assessment, each beach was classified and certified (see Table 2). Further details on the assessment methodology, certification criteria and individual case study results can be found in D7.6- PRO-COAST Legacy.

Table 2. Summary of the Costa Nostrum certification results for the PRO-COAST case studies

CS	Beach name	Location	Beach classification	Certification level
CS1	Blue Lagoon Beach	Comino Island (Malta)	Natural Protected Beach	*1 Seahorse*
CS2	Frigole Beach	Apulia (Italy)	Non-organized beach	*1 Seahorse*
CS3	Half Moon Beach / Strunjan Beach	Strunjan (Slovenia)	Natural Protected Beach	*1 Seahorse*
CS4	Pecka Beach / Verlja Spila Beach	Kotor (Montenegro)	Organized Beach	*2 Seahorses*
CS5	Streedagh Beach	Sligo (Ireland)	Non-organized beach	*Pre-Sustainable Beach*

CS6	Knoll Beach	Studland (United Kingdom)	Natural Protected Beach	 *1 Seahorse*
CS7	Malkeviken Beach	Bergen, Norway	Non-organized beach	 *Pre-Sustainable Beach*
CS8	Kloogaranna Beach	Estonia	Non-Organized beach	 *Pre-Sustainable Beach*
CS9	Corbu Beach	Romania	Natural Protected Beach	 *Pre-Sustainable Beach*

6. CASE STUDY IMPLEMENTATION OVERVIEW

This section presents a concise but structured overview of the implementation and assessment process for each of the ten PRO-COAST case studies. For every case study, it summarises the local context and initial conditions, the main conservation actions implemented, and the environmental, socio-cultural, economic, governance and behavioural changes identified during the monitoring period. The assessment is based on the comparison between baseline and post-intervention conditions using the KPIs selected within the Integrated Assessment Methodology. The purpose of this section is to provide an accessible synthesis of the main results rather than reproduce the complete monitoring evidence. It highlights the most relevant trends, achievements and remaining pressures in each case study, while also identifying limitations that may affect the interpretation of the results, such as short monitoring periods, low numbers of observations, changes in survey respondents or external factors unrelated to project interventions.

The detailed evidence supporting these summaries is provided in the annexes. Annex 1 contains the Excel files with the complete data collected and reported for each KPI, including the corresponding baseline and post-intervention values and other relevant monitoring information. Annex 2 presents the individual assessment of each KPI for all case studies, covering its context, methodology, comparison of results and interpretation. Together, these annexes provide the full

evidence base underlying the case study summaries and the global assessment presented later in the report.

6.1. Case Study 1 - Comino Island (Malta)

6.1.1 Case Study Overview



Comino is a Natura 2000 protected area with high ecological value, hosting important terrestrial and marine habitats such as vegetated sea cliffs and extensive Posidonia oceanica meadows, together with endemic plant species and protected fauna. Despite its protected status, the island experiences intense seasonal tourism, with up to approximately 5,000 visitors per day during summer, creating significant pressure on its ecosystems and management capacity.

The objective of the case study is to promote sustainable tourism and biodiversity conservation through stakeholder collaboration, policy improvement, environmental education and awareness-raising activities. The project also seeks to encourage sustainable land management practices, including soil restoration, while fostering behavioural change among tourists, local communities, authorities and tourism operators.

To address these challenges, the case study implemented a combination of environmental management actions, stakeholder engagement activities and public awareness initiatives aimed at promoting sustainable tourism and improving the conservation of Comino Island. Stakeholder engagement was carried out through surveys, meetings and consultations involving tourists, environmental authorities, tourism authorities, boat operators, local councils and the Ministry of Gozo. To maximise participation, the case study combined face-to-face engagement with online surveys and QR-code-based tools, enabling a broader range of stakeholders to contribute to the assessment and management process.

These activities were complemented by a wide range of awareness-raising actions, including social media campaigns, nature walks, on-site events, online dissemination activities and video campaigns promoted through ferry services to reach visitors before arriving on the island. In

parallel, an environmental education centre was developed to provide long-term educational resources and support continued public engagement beyond the duration of the project.

Practical conservation measures focused on waste reduction and habitat restoration. These included clean-up campaigns that removed more than two tonnes of marine litter, invasive species removal, dune restoration and the installation of educational signage to improve visitor awareness. Citizen science initiatives, such as CoastSnap and Wild Kemmuna, were also implemented to involve visitors and local stakeholders in environmental monitoring and data collection. Finally, these actions were supported by the promotion of a Zero Waste Island approach together with sustainable tourism management measures, including visitor caps, anchoring restrictions and eco-certification schemes, with the overall aim of reducing environmental pressures while supporting the long-term conservation of the island.

6.1.2 Baseline Conditions and Initial Assessment

The initial assessment identified a range of environmental and governance challenges affecting Comino Island. These included increasing seasonal tourism pressure leading to habitat degradation, pollution associated with tourism activities, damage to Posidonia oceanica meadows caused by boat anchoring, the spread of invasive species, limited coordination between terrestrial and marine protected area management, weak governance capacity and insufficient stakeholder participation.

The assessment also showed that Comino had received limited attention in terms of research, funding, enforcement and conservation measures despite the environmental importance of the island. At the beginning of the project, the main active conservation programme focused on seabird research and rodent control, while several management plans had remained under development for many years without being implemented. The assessment also identified important information gaps. There was no dedicated citizen science project to monitor terrestrial biodiversity across the island, and official information on tourism revenues could not be obtained despite repeated requests to the responsible authority. At the same time, increasing pressure on the Blue Lagoon had raised concerns among both local and foreign visitors, leading to discussions on introducing an environmental tax to support the conservation and management of the site.

During PRO-COAST, CS1 contributed to improving biodiversity monitoring and supporting conservation activities on Comino. A dedicated citizen science project was established through iNaturalist to collect both historical and new biodiversity observations, resulting in a significant increase in records and helping to fill existing data gaps. The restoration of the Old Bakery created new opportunities for collaboration with universities and environmental organisations, supporting

research on the Blue Rock Thrush, bat monitoring, wildlife camera deployment, reptile and butterfly studies, and other citizen science initiatives. These activities increased the number of conservation programmes active on the island and strengthened the knowledge available to support biodiversity conservation. Survey results also showed an increase in the proportion of visitors willing to pay an environmental tax to contribute to the conservation and management of Comino.

The social assessment showed that stakeholder participation was difficult to evaluate because the first survey received too few responses, preventing comparisons for several governance indicators. Throughout the project, Friends of the Earth Malta strengthened its collaboration with universities, environmental organisations and other stakeholders. Although transport to the island and weather conditions limited some on-site activities, the increasing demand for educational visits highlighted the need for a stronger long-term presence to continue supporting conservation and public awareness.

6.1.3 Pre-project iNaturalist Biodiversity Baseline

To complement the case-study baseline assessment, existing biodiversity observations recorded in iNaturalist on Comino before the start of PRO-COAST were compiled. The supplied dataset contains 316 observations recorded up to 31 October 2023, with records dating back to 24 February 2000, and represents 123 distinct taxa. All 316 observations had reached research grade, providing a substantial body of citizen-generated biodiversity information predating project implementation. The complete observation-level dataset is provided in the annexes.

The observations covered a broad range of terrestrial, coastal and marine organisms. Plants represented the largest group, with 138 observations, followed by reptiles with 78 observations. The dataset also included 26 observations of ray-finned fishes, 25 insects, 19 observations classified within other animal groups, 13 molluscs, 10 birds and 5 mammals, together with single observations of fungi and arachnids. In terms of taxonomic diversity, plants accounted for 56 distinct taxa, followed by insects (18 taxa), ray-finned fishes (15 taxa), other animal groups (12 taxa), birds (8 taxa), molluscs (7 taxa), reptiles (3 taxa) and mammals (2 taxa). Overall, the dataset comprised 177 animal observations, 138 plant observations and one fungal observation, illustrating the breadth of biodiversity previously documented across the island and its surrounding coastal environment.

As iNaturalist observations are generated through opportunistic public recording rather than a standardised ecological sampling design, these data should not be interpreted as a complete inventory of Comino's biodiversity or as a direct measure of species abundance. Nevertheless, they provide a valuable complementary baseline of biodiversity-recording activity prior to PRO-

COAST and establish a reference against which the subsequent expansion of observations through the *Wild Kemmuna* citizen science initiative can be considered.

6.1.4 Post-intervention Assessment and Comparison with Baseline

Compared with the baseline assessment, the environmental indicators showed clear improvements in biodiversity monitoring and conservation activities. A dedicated citizen science project was established for Comino, leading to a significant increase in biodiversity observations and helping to address previous information gaps. Additional collaborations with universities and environmental organisations also supported new research and monitoring activities, including studies on the Blue Rock Thrush, bats, reptiles, butterflies and other species. Compared with the initial situation, a greater number of conservation programmes and biodiversity initiatives were active on the island by the end of the project.

Economic indicators showed mixed results. Although official information on tourism revenues was still not available from the responsible authority, survey results indicated a higher willingness among visitors to contribute financially to the conservation of Comino through an environmental tax than at the beginning of the project.

The post-intervention social assessment also showed positive changes. Awareness-raising and educational activities increased throughout the project, while Friends of the Earth Malta expanded its collaborations with universities and environmental organisations. However, some governance indicators could not be directly compared because of the limited response rate in the first stakeholder survey. In addition, transport to the island and weather-dependent ferry services continued to limit the implementation of some activities, highlighting the importance of maintaining long-term engagement beyond the project duration.

6.2. Case Study 2 - Apulia (Italy)

6.2.1 Case Study Overview



Aquatina di Frigole is a Natura 2000 site comprising a coastal lagoon connected to the Adriatic Sea and a large surrounding marine area. The site hosts a wide diversity of habitats and protected species, including Posidonia oceanica meadows, Mediterranean coastal vegetation and numerous endemic flora and fauna.

The case study aims to develop an integrated biodiversity monitoring and governance model based on innovative environmental DNA (eDNA) technologies, combined with stakeholder engagement and improved management of land–sea interactions. It also seeks to strengthen biodiversity knowledge, promote citizen participation and integrate ecological, social and economic and governance information into environmental management.

To achieve these objectives, the case study implemented a combination of biodiversity monitoring, ecological research, stakeholder engagement and awareness-raising activities. Baseline biodiversity assessments were carried out using existing literature, available datasets and field observations, complemented by the implementation of innovative environmental DNA (eDNA) metabarcoding techniques to improve biodiversity monitoring. Ecological characterisation of the study area, ecosystem service assessments and monitoring of marine litter, microplastics and non-indigenous species provided a comprehensive understanding of the environmental conditions and the main pressures affecting the site.

Stakeholder engagement was promoted through participatory workshops following a quadruple helix approach involving academia, citizens, NGOs and policymakers. Citizen science initiatives, educational pathways and awareness-raising activities were developed to improve biodiversity knowledge and encourage public participation in biodiversity conservation. These actions were complemented by the dissemination of research results and the integration of ecological, socio-economic and governance information to support evidence-based decision-making and sustainable management of the protected area.

6.2.2 Baseline Conditions and Initial Assessment

The initial assessment identified several environmental and management challenges affecting the study area, including the accumulation of marine litter and microplastics, the spread of non-indigenous species, habitat degradation and fragmentation, tourism pressure on dune systems, pollution from anthropogenic activities, illegal fishing and improper waste disposal, limited integration of ecological information into management, weak stakeholder coordination, low public awareness of biodiversity conservation and the need to improve hydraulic connectivity between the lagoon and the Adriatic Sea and to strengthen biodiversity monitoring.

Aquatina di Frigole was already protected under the NATURA 2000 Network through the implementation of the EU Birds and Habitats Directives, with an established biodiversity conservation framework supported by routine monthly ecological monitoring carried out by the Research Centre for Fisheries and Aquaculture of the University of Salento. Within PRO-COAST, these existing monitoring activities were expanded through additional seasonal ecological assessments based on environmental DNA (eDNA) metabarcoding and bioinformatic analyses, complementing the conventional morphometric methods and enabling direct comparisons with previous biodiversity surveys.

The baseline environmental assessment evaluated the ecological status of the lagoon through eDNA metabarcoding of macrozoobenthic communities. Biodiversity was assessed using complementary indicators, including the Shannon Diversity Index, Pielou Evenness Index, species richness and a combined biodiversity index integrating these metrics. The assessment also evaluated habitat restoration, early detection of non-indigenous species, beach clean-up campaigns involving stakeholders together with the systematic quantification of marine debris remove, and the implementation of conservation measures, sustainable infrastructure and Nature-based Solutions across the protected area.

The social assessment examined the existing biodiversity monitoring framework together with stakeholder participation, research and innovation activities, capacity-building initiatives, public awareness actions and biodiversity protection measures implemented in the study area. Particular attention was given to participatory workshops, stakeholder consultations, citizen science initiatives, biodiversity assessments, research activities, local conservation actions and awareness campaigns involving local communities, schools, NGOs, researchers, fishermen and public authorities within the existing NATURA 2000 conservation framework.

6.2.3 Pre-project iNaturalist Biodiversity Baseline

A separate analysis based on iNaturalist or comparable biodiversity-recording platforms was not applied in this case study, as biodiversity change was assessed through case-specific KPIs specifically designed to measure biodiversity indices before and after the intervention. This tailored approach provided a more direct and context-sensitive basis for evaluating ecological change at the site, in line with the locally adapted procedures of the PRO-COAST Integrated Assessment Methodology.

6.2.4 Post-intervention Assessment and Comparison with Baseline

Compared with the baseline, the environmental assessment showed consistent improvements across all biodiversity indicators. The Shannon Diversity Index, Pielou Evenness Index, species richness and the combined biodiversity index all increased, reflecting changes in the composition of the macrozoobenthic community, including a reduction in dominant taxa and a more even distribution of species abundances. The application of eDNA metabarcoding also improved the resolution of biodiversity assessments, improved the capacity to identify a higher number of species and enabling the early detection of two additional non-indigenous species (*Penaeus aztecus* and *Mnemiopsis leidyi*) that had not previously been recorded through routine monitoring. Together with the increase in the number, frequency and resolution of biodiversity assessments, these advances enhanced the monitoring of non-indigenous and potentially harmful species and improved the identification of species distributions.

Habitat restoration activities increased the restored surface of protected beach and dune habitats through conservation actions supported by citizen science and Nature-based Solutions. At the same time, sustainable infrastructure interventions included green infrastructure, native reforestation, protected nature trails, ecological parking areas, pedestrian and cycling routes, restoration of safe coastal navigation and redevelopment of public coastal areas. These measures reduced dune trampling, promoted walking and cycling, prevented vehicle access to coastal dune systems and supported the conservation of sensitive coastal habitats. Beach clean-up campaigns were systematically recorded to determine the amount of marine debris removed during the project. More than 500 kg of marine debris were collected, properly managed and

disposed of through clean-up actions involving local citizens, NGOs, schools, academic institutions and local managers.

The social assessment also showed an expansion of biodiversity monitoring activities together with increased stakeholder participation, research and capacity-building actions. The existing routine monitoring programme was complemented by additional seasonal biodiversity assessments. Participatory workshops, stakeholder consultations and citizen science initiatives directly engaged local communities, researchers, students, fishermen, NGOs and local authorities. These activities helped identify stakeholders' needs, strengthened dialogue among different stakeholder groups and supported the integration of traditional expertise with scientific research and innovation, while training activities further reinforced capacity building. Research projects supported the application of innovative eDNA-based biodiversity monitoring. In parallel, awareness campaigns combined open scientific seminars with practical environmental actions, increasing public awareness of the main threats affecting coastal and marine ecosystems, particularly the ecological impacts of macro- and microplastics, non-indigenous species, climate change and dune trampling. Additional biodiversity protection measures, including sustainable fishing practices, the installation of a nature-based barrier to protect dune systems and restrictions on single-use plastics on the beach, were implemented alongside the existing NATURA 2000 conservation framework, further supporting the long-term management of the protected area.

6.3. Case Study 3 - Area of Strunjan (Slovenia)

6.3.1 Case Study Overview

The landscape park is a Natura 2000 protected area comprising a diverse mosaic of coastal cliffs, wetlands, saltpans, agricultural land and marine habitats that support a high biodiversity value. The area is characterised by a multifunctional landscape in which biodiversity conservation is closely intertwined with long-established human activities, including agriculture, salt production, and tourism. The main objective of the case study is to develop an integrated wildlife monitoring



and management system combining ecological monitoring techniques, citizen science and stakeholder engagement. The CS has aimed to contribute to biodiversity conservation, reduce human–wildlife conflicts and strengthen governance through better ecological data and stakeholder participation.

To achieve this objective, the case study established a coordinated system for collecting and integrating information on wildlife presence and abundance of species, tourism-related disturbance and agricultural damage caused by wildlife. Wildlife monitoring was conducted through camera traps deployed in areas subject to different levels of human and traffic pressure, while roadkill records and reported damage to agricultural fields, meadows and vineyards were compiled to assess the main forms of interaction between wildlife and human activities. The collected information was used to species abundance and occurrence to improve the evidence available for local management.

Citizen science formed an important part of this monitoring approach. The SRNA mobile Appa was upgraded and promoted to enable local stakeholders and members of the public to submit wildlife observations, complementing the information collected through field monitoring. The case study also supported the identification and mapping of conservation initiatives operating in the area and contributed to the development of new projects addressing issues highlighted through PRO-COAST. These ecological activities were complemented by a stakeholder engagement programme involving hunters, local residents, park representatives and other relevant actors. Pre- and post-intervention surveys were used to assess stakeholder perceptions, environmental awareness and satisfaction with their involvement. Four local community awareness campaigns and seven capacity-building and knowledge-sharing events were organised to present project findings, discuss biodiversity loss, tourism pressures and wildlife damage, and encourage the use of the SRNA application. Together, these actions sought to strengthen cooperation, improve information exchange and support a more integrated and evidence-based approach to wildlife management.

6.3.2 Baseline Conditions and Initial Assessment

The initial assessment confirmed that Landscape Park Strunjan area was already experiencing multiple interacting pressures linked to tourism, transport and traditional land uses within a protected Natura 2000 context. Increasing visitor numbers and associated activities had

previously been identified as affecting sensitive coastal habitats and wildlife, while road infrastructure was already known to add further mortality risks. At the same time, human–wildlife conflicts, particularly damage to agricultural areas such as fields, meadows and vineyards, were a recurrent and well-documented concern. These pressures were further compounded by the known presence of invasive species and the ongoing degradation of wetlands, saltpans and other coastal ecosystems, all of which were already recognised as key threats to the ecological integrity of the area. The initial assessment also identified important gaps in the information available to park managers and local stakeholders. Wildlife monitoring in the area has historically been fragmented, with ecological observations, roadkill records, and reports of wildlife damage collected through separate and largely uncoordinated systems. These limitations reduced the capacity to identify changes species composition, understand the effects of tourism and traffic, and design targeted management measures.

Within the timeframe of PRO-COAST, CS3 aimed to fill some of the knowledge gaps by providing updated data on the biodiversity baseline of the area. The ecological baseline established in 2024 recorded 14 wildlife species and a Shannon Diversity Index of 0.76. During the same year, 11 roadkill events were reported, indicating that traffic-related mortality was a relevant pressure, although annual figures had fluctuated considerably in previous years. Two wildlife damage incidents affecting agricultural land were also recorded, suggesting that the direct economic impact of wildlife was present but relatively limited.

On the other hand, the initial social assessment showed that stakeholder participation and coordination also required improvement. Satisfaction with involvement and with the functioning of relevant stakeholder groups was moderate, with an average score of 3.35 out of 5. By contrast, awareness of environmental threats was already very high, reaching 4.69 out of 5. This indicated that the main challenge was not simply to raise awareness, but to translate existing concern into greater participation, cooperation and practical involvement in conservation and wildlife management. Before PRO-COAST, no dedicated local community awareness campaigns had been organised under the case study, although two previous capacity-building or knowledge-sharing events provided an initial basis for stakeholder engagement.

6.3.3 Pre-project iNaturalist Biodiversity Baseline

A separate analysis based on iNaturalist or comparable biodiversity-recording platforms was not applied in this case study, as biodiversity change was assessed through case-specific KPIs specifically designed to measure biodiversity indices before and after the intervention. This tailored approach provided a more direct and context-sensitive basis for evaluating ecological

change at the site, in line with the locally adapted procedures of the PRO-COAST Integrated Assessment Methodology.

6.3.4 Post-intervention Assessment and Comparison with Baseline

The post-intervention assessment shows progress in biodiversity documentation, stakeholder participation and support for conservation activities, although the results do not indicate a consistent reduction in all environmental pressures. The number of wildlife species recorded increased from 14 in 2024 to 17 in 2025, with the European polecat, kingfisher and hedgehog detected during the second monitoring period. The Shannon Diversity Index also increased from 0.76 to 0.81. These results suggest that the case study produced a more complete picture of local biodiversity. However, the additional species were probably already present in the area, and the observed increase is likely to reflect, at least partly, improved monitoring and wider use of the SRNA application rather than a direct increase in wildlife populations. Reported wildlife damage decreased from two incidents in 2024 to one in 2025. Although this represents a 50% reduction, the small number of recorded events prevents firm conclusions regarding the effectiveness of the interventions. In contrast, roadkill increased from 11 events in 2024 to 21 in 2025. This remained below the 27 events recorded in 2023 but demonstrates that traffic-related wildlife mortality continues to be an important unresolved pressure and will require more targeted mitigation measures.

The clearest advances were observed in stakeholder engagement and local capacity. Satisfaction increased from 3.35 to 3.75 out of 5, suggesting a more positive perception following the engagement and knowledge-sharing activities. Awareness remained very high and broadly stable, changing only slightly from 4.69 to 4.62. The limited variation is consistent with the already high baseline and does not indicate a deterioration in environmental concern. Nevertheless, these survey results should be interpreted cautiously because the pre- and post-intervention surveys involved different respondents and the indicators provide indirect measures of satisfaction and awareness.

Overall, the case study strengthened the evidence base for wildlife management, expanded citizen-science participation, supported additional conservation initiatives and created more regular opportunities for dialogue among stakeholders. The results demonstrate the value of combining ecological monitoring with community involvement, while also showing that improved information and engagement alone are insufficient to address persistent pressures such as roadkill and tourism-related disturbance.

6.4. Case Study 4 - Boka Kotorska Bay (Montenegro)

6.4.1 Case Study Overview & implemented actions

Boka Kotorska Bay is a semi-enclosed coastal and marine system of high ecological, cultural and economic value, comprising marine ecosystems, coastal habitats and historic urban settlements. The area is strongly influenced by tourism, particularly cruise tourism, as well as maritime transport, construction, trade, fisheries and recreational activities, making integrated management of its natural resources particularly challenging.

The objective of the case study is to improve biodiversity conservation and the sustainable management of the bay through enhanced stakeholder engagement, stronger institutional



coordination and increased awareness of environmental pressures. The project also aims to reduce the impacts of tourism, most particularly effects of cruise industry and maritime activities while supporting policy development and improved governance for biodiversity conservation.

To address the identified challenges, the case study implemented a comprehensive programme combining stakeholder engagement, environmental assessment, awareness raising and policy development to support the sustainable management of Boka Kotorska Bay. Stakeholder consultations, questionnaire surveys and dedicated meetings were conducted to identify environmental awareness levels, local needs and management priorities, involving government authorities, research institutions, NGOs, tourism agencies, cruise operators and local communities. A series of participatory workshops facilitated discussions on ecosystem conservation, legal frameworks and sustainable management approaches, while communication and awareness campaigns targeting residents, tourists and other local stakeholders were delivered through workshops, social media, local media and tourist information points.

In parallel, existing environmental and biodiversity information was reviewed and complemented with the collection and analysis of environmental, tourism and cruise-related data to assess ecosystem services, environmental pressures and the impacts of tourism activities. Perception surveys were also designed and disseminated to evaluate public attitudes towards cruise tourism and its environmental implications. These activities were complemented by participatory scenario-building exercises to explore alternative management strategies for sustainable cruise tourism. Knowledge exchange was further strengthened through a study visit to Dubrovnik to share experiences on sustainable cruise tourism management and port operations. Finally, the evidence generated throughout the project informed the development of policy recommendations and a strategic roadmap aimed at strengthening environmental protection and promoting the integrated, long-term management of Boka Kotorska Bay.

6.4.2 Baseline Conditions and Initial Assessment

The baseline assessment identified a combination of environmental and governance challenges affecting the ecological integrity and sustainable management of Boka Kotorska Bay. Rapid growth in tourism, particularly cruise tourism, was recognised as one of the main pressures, generating seasonal overcrowding and increasing demands on coastal infrastructure and marine ecosystems. Marine pollution associated with wastewater and chemical discharges from cruise ships, together with insufficient urban sewage treatment, represented a significant threat to water quality. Additional environmental pressures included loss of marine biodiversity and habitat degradation caused by anchoring, overfishing and intensive port activities, the spread of invasive species, human–wildlife conflicts, and pollution from land-based sources, recreational boating and uncontrolled fishing. From a governance perspective, the baseline assessment revealed fragmented institutional responsibilities and limited cross-sectoral coordination among the organisations involved in environmental management.

Stakeholder surveys indicated a relatively high level of environmental awareness, with 85.7% of respondents considering environmental protection a priority. Community participation in biodiversity conservation was moderate, with approximately two-thirds of respondents reporting involvement in activities organised by environmental groups, reflecting a relatively engaged stakeholder base. Likewise, most respondents (77.1%) valued active participation and independence in decision-making processes, highlighting the importance of inclusive governance approaches. The baseline assessment also suggested favourable conditions for implementing conservation measures. Approximately 70% of respondents expressed a willingness to contribute financially to environmental protection through higher taxes, although 20% preferred not to answer, indicating some uncertainty regarding the economic implications of

conservation policies. Stakeholders also identified the need for increased financial resources and stronger management capacity to address the environmental impacts of cruise tourism, with tourism development programmes, regulatory frameworks and dedicated environmental funding considered key enabling factors. Ecologically, the formally protected area covered 4.77 ha, corresponding to the two designated protected marine sites (Sopot and Dražin Vrt). These areas represent highly valuable marine habitats and key colonies of protected species, but overall spatial coverage of formal protection remains limited and fragmented. The biodiversity assessment estimated a Shannon Diversity Index (H') between 1.8 and 2.3, providing a reference for evaluating future ecological changes resulting from management interventions.

Overall, these findings highlighted the need to strengthen integrated governance, improve stakeholder coordination, expand habitat protection and develop sustainable tourism management strategies capable of balancing biodiversity conservation with the socio-economic importance of cruise tourism.

6.4.3 Pre-project iNaturalist Biodiversity Baseline

To complement the case-study baseline assessment, existing biodiversity observations recorded in iNaturalist within the defined Boka Kotorska area were compiled for the pre-project period. The dataset contains 6,188 observations recorded between 25 January 2015 and 30 October 2023, representing 2,427 distinct taxon IDs. The records therefore provide a substantial source of citizen-generated biodiversity information predating the start of PRO-COAST. The complete observation-level dataset is provided in the annexes.

The observations covered a broad range of terrestrial, freshwater, coastal and marine organisms. Insects accounted for the largest group, with 2,552 observations, followed by plants with 1,997 observations and birds with 478 observations. The dataset also included arachnids (245), other animal records (240), reptiles (207), ray-finned fishes (158) and molluscs (153). Less frequently represented groups included fungi (53), mammals (52), amphibians (31) and chromists, including seaweeds and related organisms (17). Overall, animal groups accounted for 4,116 observations, compared with 1,997 plant observations, 53 fungal observations and 17 chromist observations.

Regarding data quality, 4,331 observations (70%) had reached research grade, while 1,857 observations (30%) required further identification. As iNaturalist data are generated through opportunistic observations rather than a standardised ecological sampling design, the records should not be interpreted as a direct measure of species abundance or the complete biodiversity of Boka Kotorska Bay. Nevertheless, they provide a valuable complementary baseline of the organisms previously documented in the area and demonstrate considerable biodiversity-

recording activity before project implementation. Beyond its role in establishing the pre-project baseline, the dedicated PRO-COAST iNaturalist project also enhances the visibility of the case study and supports citizen science by encouraging the public to contribute new biodiversity observations from the area.

6.4.4 Post-intervention Assessment and Comparison with Baseline

The post-intervention assessment indicates mixed but generally positive outcomes in terms of governance, stakeholder engagement and biodiversity conservation. Stakeholder awareness of biodiversity conservation remained high throughout the project. Although the proportion of respondents prioritising environmental protection over economic growth decreased slightly from 85.7% at baseline to 77% in the final assessment, environmental sustainability continued to be the dominant priority among stakeholders. Similarly, support for financing conservation measures remained positive, despite becoming more cautious over time. While the baseline survey showed strong support for higher environmental taxes, the post-intervention assessment revealed a shift towards more moderate levels of agreement, suggesting that economic considerations increasingly influenced respondents' willingness to contribute financially, without undermining the overall recognition of the need to invest in environmental protection. Additionally, baseline results from surveys suggests that both financial resources and improved management structures are seen as important for more effective planning, coordination, and sustainability in cruise tourism management.

The project also contributed to strengthening participatory governance. The proportion of stakeholders expressing a preference for active involvement and autonomy in decision-making increased from 77.1% to 90.7%, reflecting greater confidence in participatory management processes. In parallel, seven workshops, conferences and knowledge-sharing events were organised, providing opportunities for capacity building, dissemination of project results and collaboration among public authorities, research institutions, businesses and civil society. Public awareness was further reinforced through local outreach campaigns. Specifically, the Fair on EU Projects in Podgorica helped increase general awareness of PRO-COAST and its role in promoting sustainable coastal management and biodiversity protection among a broad audience. These activities significantly increased the visibility of the PRO-COAST project and promoted the exchange of knowledge on sustainable coastal and cruise tourism management.

From an ecological perspective, the total protected habitat area remained unchanged at 4.77 ha. However, an important institutional achievement was the formal designation of the Sopot and Dražin Vrt sites as protected areas, strengthening their legal status, improving management

capacity and enhancing their integration into spatial planning. Biodiversity indicators also showed a positive trend, with the estimated Shannon Diversity Index increasing from 1.8–2.3 at baseline to 2.1–2.6 in the post-intervention assessment, suggesting gradual improvements in ecosystem condition associated with enhanced protection and governance measures.

In contrast, community participation in biodiversity conservation initiatives declined during the project. The proportion of respondents reporting active or occasional involvement in environmental activities decreased from 65.8% to 38.2%, indicating that participation remained concentrated within a relatively small group of committed stakeholders. These findings highlight the need for more targeted outreach and long-term engagement strategies to broaden community participation and ensure the continuity of conservation actions beyond the project lifetime.

Overall, the case study demonstrated clear progress in strengthening environmental governance, improving stakeholder participation in decision-making and enhancing the institutional basis for biodiversity conservation. While changes in ecological conditions are expected to require longer timeframes to become fully evident, the project established a robust foundation for integrated coastal management and more sustainable governance of tourism-related pressures in Boka Kotorska Bay.

6.5. Case Study 5 - Sligo (Ireland)

6.5.1 Case Study Overview



Streedagh Beach is a dynamic coastal system comprising sandy beaches, dune systems and marine ecosystems. The area is exposed to natural coastal processes such as storms, wave action and erosion, while also experiencing increasing pressure from tourism and recreational activities. These combined pressures make the site particularly vulnerable to habitat degradation and climate change impacts.

The objective of the case study is to restore and protect coastal dune ecosystems while promoting sustainable behaviour among visitors and local communities. The project aims to improve the resilience of coastal habitats through monitoring, restoration activities and stakeholder engagement, while integrating scientific knowledge and local perspectives into coastal management.

To address the identified challenges, the case study implemented an integrated programme combining stakeholder engagement, ecosystem restoration, environmental monitoring and public awareness activities. Key stakeholders involved in coastal management were identified and actively engaged through meetings and participatory workshops and coaching circles to define management priorities, discuss major environmental challenges and collect feedback on proposed actions. Partnerships with local and national organisations were established to strengthen collaboration and support the implementation of restoration measures. In parallel, the impacts of human activities and climate change on dune erosion were assessed, and questionnaires were designed and implemented to capture local perceptions and evaluate changes in environmental awareness over time. Public awareness and education campaigns targeting both visitors and local communities complemented these activities. The case study also involved volunteers and experts in restoration activities and citizen science initiatives. Finally, a long-term monitoring programme was established to assess biodiversity, coastal dynamics and the effectiveness of dune restoration measures, with monitoring results systematically

incorporated into an adaptive management approach to support the continuous improvement of restoration and conservation strategies.

6.5.2 Baseline Conditions and Initial Assessment

The baseline assessment identified a combination of environmental, social and governance challenges affecting the long-term sustainability of the coastal dune ecosystem in Sligo. The site was experiencing ongoing coastal erosion driven by storms, wave action and long-term shoreline dynamics, while climate change was increasing the vulnerability of dune systems to extreme weather events and reducing ecosystem resilience. Habitat degradation associated with trampling, uncontrolled recreational activities and the loss of vegetation cover was contributing to dune destabilisation, with additional pressure arising from seasonal tourism and high visitor numbers. These pressures highlighted the need to reconcile habitat conservation with recreational use and the cultural value of the area.

From a governance perspective, the assessment identified limited integration of climate adaptation measures into local coastal management, together with insufficient stakeholder coordination and community involvement in conservation activities. The baseline surveys also revealed opportunities to improve public engagement and environmental awareness. Although most respondents recognised the importance of biodiversity conservation, some participants expressed neutral or negative views, or preferred not to answer questions related to biodiversity threats. Similarly, none of the respondents expressed a willingness to financially support conservation measures, indicating a relatively low level of engagement with conservation financing at the outset of the project. These findings confirmed the need to strengthen stakeholder participation, raise awareness of dune ecosystem services and establish long-term monitoring to support adaptive coastal management.

6.5.3 Pre-project iNaturalist Biodiversity Baseline

To complement the baseline assessment, existing biodiversity observations recorded in iNaturalist within the defined Streedagh case-study area were compiled for the pre-project period. The search covered the period from 27 March 2010 to 31 October 2023, with the retrieved observations themselves dating from 27 March 2010 to 6 August 2023. In total, 32 observations were identified, representing 30 distinct taxa. Some records were identified to species level, while others were classified at broader taxonomic levels. The complete observation-level dataset is provided in the annexes.

The observations covered a range of terrestrial, coastal and marine organisms. Plants accounted for the largest group, with 12 observations, followed by birds with 8 observations. The dataset also included 3 observations of seaweeds and other chromists, 3 mollusc observations, and 3 observations classified within other animal groups. In addition, one observation was recorded for each of the following groups: insects, arachnids and mammals. Overall, 17 observations corresponded to animals, 12 to plants and 3 to chromists.

Observation activity was concentrated particularly in 2021 and 2022, which together accounted for 21 of the 32 records. As iNaturalist records are generated through opportunistic public observations rather than systematic ecological sampling, this dataset is used as a complementary source of baseline information. It provides an indication of both the biodiversity previously documented in the area and the level of biodiversity-recording activity before the start of PRO-COAST.

6.5.4 Post-intervention Assessment and Comparison with Baseline

The ex-post assessment indicates positive progress in stakeholder engagement, public awareness and support for biodiversity conservation compared with the baseline situation. Public awareness of biodiversity threats improved over the course of the project, increasing 17%. While the baseline survey included a small number of respondents who disagreed, were neutral or preferred not to answer questions related to the importance of biodiversity conservation, all respondents in the post-intervention survey either agreed or slightly agreed that biodiversity threats require attention, indicating a more consistent understanding of the environmental challenges affecting the area. The project also significantly strengthened stakeholder engagement. Community awareness campaigns increased from two events during the baseline period (2024) to eleven events implemented between 2025 and 2026, reflecting an intensification of outreach efforts and communication activities led by the PRO-COAST consortium. Similarly, the number of capacity-building workshops, training sessions and knowledge-sharing events increased from one event in 2024 to seven events during the implementation period. The number of citizens participating in citizen science activities remained relatively stable throughout the project. Nevertheless, participation levels varied according to the type of activity, reflecting differences in the interests, availability and engagement of participants across the various initiatives.

One of the most notable changes was observed in visitors' willingness to financially support conservation actions. During the baseline survey, all respondents preferred not to answer questions regarding their willingness to pay for conservation measures, whereas in the post-

intervention survey approximately half of the respondents expressed a willingness to contribute financially, suggesting increased recognition of the value of biodiversity conservation.

Overall, the case study strengthened participatory governance by improving stakeholder engagement, increasing environmental awareness and fostering greater public support for biodiversity conservation. These outcomes provide a solid basis for adaptive coastal management and are expected to contribute to the long-term resilience and sustainability of the study area.

6.6. Case Study 6 - Arne Parish (UK)

6.6.1 Case Study Overview



The study area forms part of a lowland heath landscape of high biodiversity value, supporting a variety of habitats including heathlands, wetlands, salt marshes and woodlands. It also hosts important native species such as the woodlark, nightjar and Dartford warbler, with red squirrel on offshore islands. The area is increasingly affected by tourism, invasive species and habitat degradation, while also developing stronger support for ecological restoration and rewilding. The objective of the case study is to establish a framework for the potential restoration and long-term conservation of the red squirrel through invasive species control, habitat management and stakeholder engagement. The project also aims to restore ecosystem functionality, improve biodiversity conservation and strengthen collaboration among stakeholders involved in land management and conservation.

To support the future reintroduction of red squirrels on the mainland, the case study established an advisory and cooperation framework involving conservation organisations, ecological experts, wildlife managers, landowners and local authorities. Activities included the identification and assessment of areas potentially suitable for translocation, consideration of possible source populations and consultation with regulatory authorities regarding the ecological and practical requirements of a translocation programme. Habitat suitability and wider ecological conditions were also assessed to inform the selection of appropriate management areas. A central component of implementation was the control of invasive grey squirrels, which compete with red

squirrels and act as reservoirs for squirrel pox, a disease that is frequently fatal to the native species. Trapping activities were undertaken across selected parts of Purbeck with the participation of local landowners, wildlife managers and volunteers. Disease monitoring was used to evaluate squirrel pox prevalence and determine the level of control required before any future reintroduction could be considered. The project also explored ways to expand the suitability of trapping equipment and adapt trapping strategies to local conditions and safety considerations. Stakeholder engagement accompanied these field activities throughout the project. Local landowners and residents were involved in planning and implementing squirrel management, while workshops and practical training sessions covered the safe deployment and use of trapping equipment. Local conservation committee meetings and discussions with public bodies supported coordination and decision-making. Community events, presentations, leaflets and an online information platform were used to explain the ecological impacts of invasive grey squirrels and the rationale for red squirrel restoration. Citizen-science tools were also developed to support squirrel monitoring and public participation. The Garden Advice application, also referred to as a Reciprocal Environmental Decision Support System (REDS), was designed to allow residents to record squirrel observations and access wildlife-friendly land-management guidance[16]. Although community uptake was lower than expected, the development and testing process informed improvements to the tool, including the integration of existing woodland and spatial datasets.

6.6.2 Baseline Conditions and Initial Assessment

The initial assessment identified invasive species as a major threat to the biodiversity and ecological functioning of the area. Grey squirrels affected woodland regeneration and represented a direct obstacle to red squirrel restoration because of competition and the transmission of squirrel pox. Rhododendron and other invasive alien species placed additional pressure on native habitats. These challenges occurr within a wider landscape affected by tourism, land fragmentation, intensive grazing, hedge cutting, nutrient and phosphate run-off, mineral extraction and changes in land use. Climate change was expected to increase the vulnerability of the area through greater risks of fire, flooding and sea-level rise. Eutrophication also affected the ecological condition of Poole Harbour, while coastal, heathland, woodland and estuarine habitats were exposed to multiple interacting pressures.

Addressing these challenges require coordination across a landscape characterised by a high proportion of privately owned and actively managed land. At the beginning of the project, there was no established volunteer network specifically supporting the case study, and only one local landowner was actively involved. Available equipment was limited to 40 live traps, which was sufficient for initial work but inadequate for management across the wider target area.

Institutional support for restoration and rewilding was also uneven, and permissions for grey squirrel control were not available across all potentially relevant land. Initial habitat modelling and field observations indicated that grey squirrels were widely distributed across the Purbeck woodlands. Early disease testing also showed that squirrel pox prevalence was high, reaching 87.5% among the squirrels tested. This demonstrated that substantial and sustained grey squirrel reduction would be required before red squirrel reintroduction could be considered.

The social baseline showed generally positive but uneven levels of community support. In the 2025 survey, approximately 59% of respondents reported strong or very strong willingness to support the replacement of grey squirrels with red squirrels by reporting sightings. However, awareness of the ecological impacts of grey squirrels was more limited: around 44% of community respondents reported no understanding or only slight understanding of the threats to biodiversity and carbon sequestration, and no respondents selected the highest level of awareness. No project-led community awareness campaigns or capacity-building activities had taken place at baseline. The dedicated PRO-COAST in Purbeck website was also newly established and therefore had an initial value of zero visits. These conditions highlighted the need to combine practical invasive-species management with training, public communication and stronger involvement of landowners and local communities.

6.6.3 Pre-project iNaturalist Biodiversity Baseline

A separate analysis based on iNaturalist or comparable biodiversity-recording platforms was not applied in this case study, as biodiversity change was assessed through other case-specific monitoring mechanisms designed to evaluate ecological conditions before and after the intervention. This tailored approach provided a more direct and context-sensitive basis for assessing biodiversity change at the site, in line with the locally adapted procedures of the PRO-COAST Integrated Assessment Methodology.

6.6.4 Post-intervention Assessment and Comparison with Baseline

The case study substantially increased the human and material capacity available for grey squirrel management. Four core volunteers were recruited and became directly involved in trapping, data collection and coordination. The project purchased 15 additional traps and secured the loan of approximately 200 traps with an estimated value of £40,000. Safety concerns raised by community members meant that the loaned equipment could only be deployed in locations considered secure from interference, demonstrating how stakeholder feedback

directly influenced implementation decisions. Approximately 800 grey squirrels had been removed by the time of assessment. Although data analysis is still ongoing, the numbers present conform well to the predictions from the REDS of some 400 pre-breeding squirrels plus a similar number of young from spring litters. Comparisons between the 2025 habitat-based population estimates and the 2026 trapping results showed reductions below baseline estimates at four of the eight assessed sites. At two sites, however, measured densities were higher than originally estimated. These differences may reflect limitations in the modelled baseline, uneven trapping effort, immigration from surrounding areas, habitat quality and increased reproduction following a mast year. The results therefore provide partial evidence that trapping achieved local population suppression, but data from trapping planned in March 2027 will be needed to demonstrate a consistent landscape-scale reduction in grey squirrel numbers has resulted in a strong reduction in prevalence of Squirrel Pox virus. The citizen-science application generated insufficient squirrel observations to support the intended population assessment. Low uptake appeared partly related to the demographic profile of the community and difficulties using QR codes and mobile tools. The project consequently adopted an alternative approach combining woodland maps, habitat classifications and published squirrel-density estimates. This produced a broader spatial baseline and informed trapping priorities, while also identifying improvements needed to make the application more accessible and capable of incorporating existing spatial information.

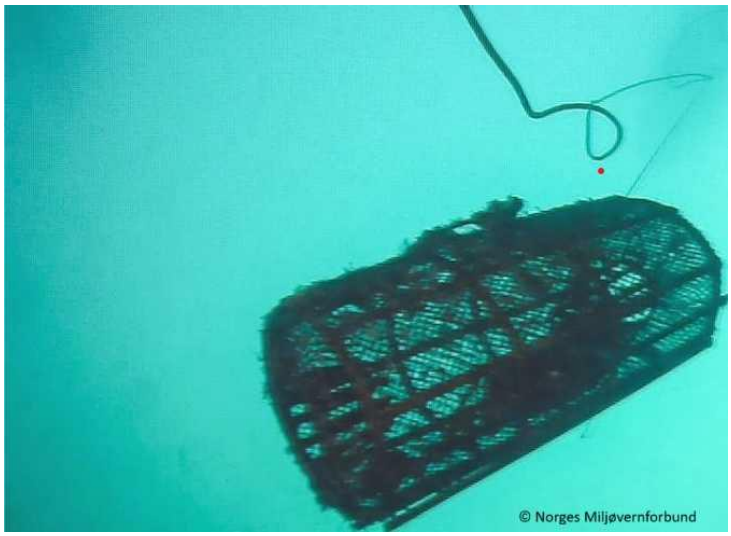
Stakeholder participation increased considerably. The number of actively involved landowners and wildlife managers rose from one to eight, and their local knowledge helped determine trapping areas, methods and equipment deployment. At least six practical training sessions were delivered to volunteers. Engagement remained constructive overall, and no decline in stakeholder satisfaction was identified, although this conclusion was based on qualitative feedback rather than a standardised satisfaction survey. Direct communication and email were more effective than the dedicated online forum for sustaining participation. Public communication and capacity building also expanded from a baseline of zero. A community event attended by 40 people was organised in October 2025, while presentations to local organisations reached a further 12 and approximately 30 participants. The project website recorded 690 page views from 276 active users between June 2025 and June 2026. Although only one dedicated community awareness campaign was delivered, it was supported by parish-wide leaflet distribution, local presentations, website content and stakeholder meetings. Survey results indicate a marked improvement in public awareness. In 2026, more than 70% of community respondents agreed or strongly agreed that they understood the threats posed by grey squirrels, compared with a baseline in which almost half reported little or no understanding.

Support for management also remained high and shifted towards stronger agreement, with approximately 65% selecting the highest support category in 2026. However, changes in question wording, response scales, stakeholder definitions and sample composition limit direct comparison between survey waves. Results for specialised stakeholder groups were also based on very small post-intervention samples.

The case study strengthened local capacity for invasive-species management, increased public awareness and support, expanded landowner participation and established a more robust evidence base for future red squirrel restoration. Nevertheless, red squirrel reintroduction had not yet taken place. Continued grey squirrel control, disease monitoring, habitat assessment, regulatory cooperation and long-term volunteer participation will be required before reintroduction can be considered ecologically viable.

6.7. Case Study 7 - Bergen Ghostfishing (Norway)

6.7.1 Case Study Overview



The area is characterised by rich marine biodiversity, including kelp forests, coral reefs and diverse marine species, while also supporting an important fishing industry with strong cultural and economic significance. The case study addresses the environmental impacts of abandoned, lost or discarded fishing gear (ghost fishing), which contributes to biodiversity loss, habitat degradation and marine plastic pollution. The project combines ecological restoration with stakeholder engagement, circular economy approaches and public awareness to promote more sustainable fishing practices. The objective of the case study is to reduce marine pollution by removing ghost gear, fostering stakeholder collaboration, and promoting gear recovery and reuse. It also seeks to promote awareness of regulations, support collaboration with enforcement agencies, and encourage behavioural change within the fishing sector.

To achieve these objectives, a pilot seabed clean-up operation was conducted to recover abandoned fishing gear and assess the feasibility of underwater removal activities. Activities in the pilot included the preparation of a technical report documenting the operation and providing evidence to support awareness-raising activities and future funding applications. The

operational requirements for scaling up the intervention were also assessed, including the equipment, logistics, personnel and financial resources needed to conduct larger and more regular clean-up operations. A circular-economy component was incorporated by examining whether recovered fishing gear could be repaired and returned to use. Salvaged items that could be restored to a saleable condition were resold through a collaborating second-hand shop. The case study also worked with environmental organisations on gear recovery and reuse and explored innovative removal technologies, including the testing of an underwater clean-up robot.

These activities were complemented by workshops, coaching circles and engagement events involving fishers, environmental organisations, marine agencies and other relevant actors. The events addressed ghost fishing, gear maintenance, reporting procedures, regulatory awareness and more sustainable fishing practices. Awareness campaigns, media outreach and collaboration with environmental NGOs were used to increase the visibility of below-surface marine pollution. Citizen-science activities encouraged fishers and members of the public to report lost gear through the designated national application, while participation in Change Agent workshops supported communication and collaboration across sectors. Initial engagement with funders and other stakeholders also contributed to planning follow-up actions and exploring opportunities for larger-scale implementation.

6.7.2 Baseline Conditions and Initial Assessment

The initial assessment identified abandoned, lost and discarded fishing gear as a persistent source of pressure on marine biodiversity. Once lost, nets, traps and other fishing equipment may continue trapping marine organisms and damaging seabed habitats for prolonged periods. This below-surface pollution is less visible than shoreline litter, which has contributed to limited public recognition of its extent and ecological consequences. The assessment also identified weaknesses in the systems available for preventing, locating and recovering lost gear. Although a national reporting application was already available, not all lost equipment was reported, and unreported gear had a very low probability of being recovered. Coordination among fishers, environmental organisations, public authorities and enforcement agencies was limited, while weaknesses in regulatory enforcement and awareness reduced the effectiveness of existing measures. Economic pressures within the fishing sector and the use of lower-quality equipment could also contribute to gear loss and unsustainable practices. Before the pilot, no systematic underwater clean-up or restoration-and-resale scheme for recovered fishing gear had been implemented within the case study. Baseline values for both the number of items removed from the seabed and the number repaired and resold were therefore zero. There was also no stable

funding mechanism specifically dedicated to underwater clean-up operations. The 2024 pilot depended on a one-off allocation of NOK 950,000, which covered both the clean-up operation and the subsequent technical report.

The national lost-gear reporting application had registered 23,907 reports by 19 August 2024. This provided a baseline for monitoring reporting behaviour, although it represented only the equipment reported by users rather than the total volume lost at sea. The first stakeholder survey showed that behavioural intention among participating fishers was already high. Average scores on a five-point scale reached 4.75 for gear maintenance, 4.73 for reporting lost gear and 4.64 for improving fishing practices. These results indicated that the principal challenge was not solely to improve attitudes, but to translate existing intentions into consistent practice, expand engagement beyond already motivated fishers and ensure that reporting was connected to effective recovery operations.

6.7.3 Pre-project iNaturalist Biodiversity Baseline

6.7.4 Post-intervention Assessment and Comparison with Baseline

The pilot operation demonstrated the practical feasibility of removing ghost gear and returning part of the recovered material to use. A total of 239 pieces of fishing gear were removed from the seabed, compared with a baseline of zero systematic removals. Of these, 35 items were restored to a saleable condition and resold through the collaborating second-hand shop. These results provide evidence that underwater clean-up can be combined with circular-economy practices. However, as they derive from a single pilot operation, they should be interpreted as proof of concept rather than evidence of sustained environmental improvement at scale.

Use of the national reporting application increased substantially during the monitoring period. Registered lost-gear reports rose from 23,907 in August 2024 to 35,767 in June 2026, an increase of 11,860 reports. This trend indicates greater use of the reporting system and potentially improves the likelihood that lost equipment can be located and recovered. Nevertheless, the indicator measures reporting activity rather than the amount of gear lost. The increase could therefore reflect improved awareness and reporting, a rise in actual losses, growth in the number of application users or a combination of these factors.

The post-intervention stakeholder survey continued to show positive behavioural intentions. Scores reached 4.4 for gear maintenance, 4.6 for reporting lost equipment and 4.8 for improving fishing practices. The results show no consistent direction of change compared with the baseline: maintenance and reporting scores decreased slightly, while the score for improved fishing practice increased. Moreover, only five fishers responded to the second survey, compared with 33 during the baseline wave. The differences cannot therefore be interpreted as reliable evidence of behavioural change. The findings instead suggest that future activities should focus on converting already positive intentions into observable practices and improving participation in subsequent assessments.

Funding remained the main constraint on continuity and upscaling. Following the NOK 950,000 provided for the 2024 pilot and report, no funding was secured in 2025. A further NOK 500,000 was obtained in 2026 for a second clean-up round, but the two amounts are not directly comparable because they cover different activities. The dependence on annual applications prevents continuous planning and limits the regularity of removal operations. Nevertheless, discussions with funding bodies indicated increasing recognition that underwater clean-ups may require a dedicated funding mechanism separate from general marine-litter programmes.

Overall, the case study successfully demonstrated that ghost gear can be removed, repaired and returned to use, while strengthening reporting, stakeholder collaboration and public visibility of below-surface marine pollution. Its longer-term environmental impact will depend on securing stable resources, repeating clean-up operations at a larger scale and maintaining collaboration among fishers, environmental organisations, enforcement agencies and public authorities.

6.8. Case Study 8 - Kloogaranna-Laulasmaa (Estonia)

6.8.1 Case Study Overview & implemented actions



The study area comprises a mosaic of coastal ecosystems, including sandy beaches, coastal forests and dune habitats. These ecosystems are highly sensitive and depend on natural coastal dynamics, while also providing important recreational, cultural and tourism values. The area is increasingly affected by tourism

growth, residential development and associated infrastructure, creating pressures on biodiversity and ecosystem functioning.

The objective of the case study is to promote sustainable coastal governance and biodiversity conservation by enhancing community participation, strengthening biodiversity monitoring, and supporting sustainable tourism through evidence-based coastal governance that balances ecological protection with local socio-economic benefits.

To achieve these objectives, the case study implemented an integrated participatory and monitoring framework combining stakeholder engagement, environmental assessment and awareness-raising activities. The study area was first defined and mapped, followed by stakeholder interviews to identify key environmental pressures, potential conflicts and local priorities. Local communities, conservation groups and seasonal residents were actively engaged through participatory workshops, stakeholder meetings, surveys and community events, which facilitated the validation of mapping results, supported participatory planning processes and fostered continuous dialogue throughout the project. In parallel, ecological monitoring activities, including soil trap deployment, litter analyses and coastal condition assessments, were carried out to evaluate environmental conditions, erosion processes and tourism-related pressures. The case study also carried out awareness-raising activities and field visits and communication promoting the ecological value of the area, access to environmental knowledge and continuous dialogue. Finally, project outcomes have been disseminated to stakeholders.

6.8.2 Baseline Conditions and Initial Assessment

The initial assessment identified a range of environmental, socio-economic and governance challenges affecting the long-term sustainability of the study area. The coastal ecosystems are exposed to degradation processes driven by erosion, vegetation loss and trampling associated with intensive tourism and recreational activities. These pressures are further exacerbated by climate change, which increases coastal erosion and ecosystem vulnerability. High seasonal visitor numbers generate additional impacts, including overcrowding, waste accumulation, wildlife disturbance and increased pressure on existing infrastructure. At the same time, tourism development, residential expansion and urbanisation associated with the proximity to Tallinn contribute to habitat fragmentation, land-use conflicts and pollution, placing further stress on biodiversity and ecosystem functioning. From a governance perspective, the assessment revealed limited community participation in conservation and land-use planning, together with weak coordination among responsible authorities and insufficient enforcement of environmental regulations. The local economy also remains highly dependent on seasonal mass tourism, with few sustainable alternatives currently available. Finally, the baseline highlighted important knowledge gaps, particularly the lack of systematic monitoring of visitor impacts, biodiversity

trends and cumulative environmental pressures, limiting the capacity to support evidence-based decision-making and adaptive coastal management.

6.8.3 Pre-project iNaturalist Biodiversity Baseline

The information required to undertake the iNaturalist-based biodiversity analysis for this case study was not available when this deliverable was finalised, as the relevant data were not received before the reporting deadline. As a result, the corresponding baseline and post-intervention comparison based on iNaturalist or similar biodiversity-recording platforms could not be included in this report.

6.8.3 Post-intervention Assessment and Comparison with Baseline

The post-intervention assessment indicates positive progress in community engagement, environmental awareness, knowledge exchange and stakeholder cooperation. Tourism and recreational activity remained high throughout the assessment period. Approximately 59,000 accommodated visitors were estimated in 2025, increasing slightly to around 60,000–61,000 in 2026. This suggests that tourism continued to represent an important activity and potential source of pressure in the Laulasmaa–Kloogaranna area. However, due to the lack of complete data on tourism revenues, no robust conclusions can be drawn regarding long-term trends.

Biodiversity monitoring provided an important ecological reference for the case study. The results showed clear differences among habitats and taxonomic groups, with mature forested habitats generally supporting higher diversity, richness and evenness than more exposed or disturbed coastal environments. Among the analysed taxa, Coleoptera presented the highest average Shannon Diversity Index, while Hymenoptera showed the lowest. As the available biodiversity data correspond to 2026, these results should be considered a reference for future monitoring and comparison. Conservation efforts were also supported through the existing connection between the case study and Pakri Landscape Protection Area and Natura 2000, which provide ongoing protection and monitoring of valuable habitats and species. These actions are implemented through integrated measures targeting species, habitats and protected areas, rather than as individual species conservation programmes.

Stakeholder participation and governance were also assessed during the project. The 2025 baseline survey (n=24) revealed moderate but uneven levels of trust among stakeholder groups, with 50% of respondents positively assessing stakeholders' ability to fulfil their responsibilities and approximately 41% positively assessing their competence. Perceptions of effectiveness, integrity

and ethical behaviour were more variable. The second survey conducted in 2026 achieved substantially broader participation, with 103 responses. However, as the analysis of these responses is still pending, changes in stakeholder satisfaction cannot yet be assessed.

A clear positive trend was observed in community involvement in biodiversity and environmental conservation initiatives. In 2025, 21 participants took part in the Kloogaranna coastal clean-up, while in 2026 community activities included tree planting with 30 participants, a coastal clean-up involving 26 participants and the Kloogaranna Experience Hike with approximately 50 participants. Additional initiatives, such as the invasive hogweed awareness campaign, further expanded opportunities for citizens to contribute to biodiversity conservation. Overall, these activities indicate continued and increasingly diversified opportunities for community involvement and environmental awareness.

Capacity building and knowledge exchange were maintained consistently, with five relevant activities documented in both 2025 and 2026. Although the number of activities remained stable, their formats and target audiences diversified over time, including stakeholder meetings, study visits, webinars, lectures, networking events and practical environmental activities. These initiatives involved local communities, public authorities, entrepreneurs, NGOs, tourism professionals, fishermen and international partners, contributing to strengthened knowledge exchange and cooperation among stakeholder groups.

Public awareness activities also showed a clear increase. The number of documented local community awareness campaigns rose from three in 2025 to seven in 2026. Particularly relevant was the integration of awareness raising with direct participation through coastal clean-ups, tree planting and invasive species initiatives, enabling citizens to engage with environmental issues through practical action.

Overall, the post-intervention assessment shows evident progress in the social and governance dimensions, particularly through increased and diversified community engagement, awareness raising, capacity building and knowledge exchange. Existing conservation frameworks continued to support biodiversity protection, while ecological monitoring established an important reference for future assessment.

6.9. Case Study 9 - Corbu Beach (Romania)

6.9.1 Case Study Overview

Corbu Beach is one of the few remaining relatively untouched coastal areas in Romania and forms part of the Danube Delta Biosphere Reserve and the Natura 2000 network. The site

comprises sandy beaches, riparian forests, lakes and marine habitats that support a rich biodiversity, while also being increasingly threatened by tourism development and land-use change.

The objective of the case study is to implement an eco-tourism strategy that balances economic development with biodiversity conservation by promoting sustainable practices, improving stakeholder collaboration and increasing environmental awareness. The project also seeks to strengthen environmental governance and encourage community participation in coastal management and conservation.



To achieve these objectives, the case study implemented a range of complementary actions, including stakeholder mapping and engagement with local authorities, residents, landowners and tourism developers; environmental and socio-ecological assessments supported by field visits, media monitoring and data collection; citizen science initiatives focused on erosion monitoring, biodiversity assessment and tourism impacts; awareness and communication campaigns through educational activities, local events, media outreach and information materials for visitors; the preparation of a communication strategy in collaboration with local stakeholders; the development and promotion of sustainable construction and land-use guidelines; support for the implementation of environmental regulations and landscape conservation measures; community surveys to assess local perceptions and increase environmental awareness; and the continuous monitoring and adaptation of communication and outreach activities based on stakeholder feedback and project results.

6.9.2 Baseline Conditions and Initial Assessment

The initial assessment identified a range of environmental and governance challenges affecting the long-term conservation of Corbu Beach. Despite its high ecological value as part of the Danube Delta Biosphere Reserve and the Natura 2000 network, the area was experiencing the loss of natural habitats caused by unregulated construction, illegal buildings and uncontrolled land development, together with increasing pressures on biodiversity and marine ecosystems from tourism, pollution and overfishing. Coastal habitats, including sandy beaches, forests, lakes

and sandbanks, were already affected by environmental pressures threatening their ecological integrity.

The assessment also highlighted several governance and social challenges. These included limited awareness of sustainable development and eco-tourism principles among residents, businesses and visitors, weak stakeholder coordination, insufficient enforcement of environmental regulations, the lack of an effective supervisory body with expertise in coastal ecosystem management, development driven primarily by short-term economic interests rather than biodiversity conservation, and limited community engagement and awareness of the ecological value of the area.

6.9.3 Pre-project iNaturalist Biodiversity Baseline

To complement the case-study baseline assessment, existing biodiversity observations recorded in iNaturalist within the Corbu Beach area prior to the project implementation were compiled. The baseline dataset contains 700 observations recorded over a 19-year period between 2004 and October 2023. This dataset reflects long-term opportunistic recording effort across the site's coastal and marine habitats prior to structured project interventions.

The baseline observations spanned several primary taxonomic groups, with birds representing the largest proportion at 332 observations, followed by insects with 168 observations and plants with 136 observations. Because these pre-project data were generated through uncoordinated public recording rather than a systematic sampling protocol, they do not constitute an exhaustive ecological inventory of the site. Nevertheless, they establish a valuable reference point for historical recording activity within the Danube Delta Biosphere Reserve and Natura 2000 network prior to targeted citizen science engagement.

6.9.3 Post-intervention Assessment and Comparison with Baseline

Compared with the baseline assessment, biodiversity monitoring activity expanded substantially during the project implementation period. The establishment of dedicated citizen science initiatives focused on biodiversity assessment, erosion monitoring, and tourism impacts successfully increased community and visitor participation in coastal ecological recording.

Between 2023 and 2026, a total of 1,100 new biodiversity observations were recorded in the Corbu Beach area on iNaturalist. In just three years, the volume of newly generated data exceeded the total number of observations accumulated over the entire 19-year baseline period (700 records). This shift represents a nearly tenfold increase in annual monitoring intensity, rising from a baseline average of 37 observations per year to 366 observations per year during the project period.

Despite this dramatic surge in data volume, the overall proportional distribution across major taxonomic categories remained remarkably consistent. Birds continued to constitute the dominant share at over 50% of total records (650 observations), while insects (154 observations) and plants (142 observations) accounted for approximately 14% and 13%, respectively. The remaining ~20% of observations captured a broader diversity of lower-density taxa, including reptiles (26), mammals (26), molluscs (31), arachnids (25), amphibians (11), and fungi (5).

While the marked increase in observations reflects greater sampling effort and public engagement rather than a direct expansion of species abundance, it indicates a significant strengthening of citizen-based ecological monitoring. This provides a considerably richer evidence base to support ongoing coastal governance, land-use planning, and conservation management along Corbu Beach.

6.10. Case Study 10- Eidsvika (Norway)

6.10.1 Case Study Overview



The study focuses on Eidsvika, a coastal area of high ecological and recreational value, located in Askøy Island, that comprises bogs, wetlands, forests, rocky shores and beach environments. The area supports valuable biodiversity, including habitats for red-listed bird species, while also providing important ecosystem services and recreational opportunities for local communities. The objective of the case study is to ensure that biodiversity and climate considerations are systematically integrated into local planning processes. The project seeks to strengthen stakeholder participation, document ecological values and land-use conflicts, and support transparent and evidence-based decision-making regarding future development proposals.

To achieve these objectives, the case study combined ecological documentation, community engagement and close monitoring of the planning process associated with the proposed Kildn cruise terminal, which endangers the area ecosystem. Local residents, environmental organisations and volunteers collected and communicated information on the area's habitats and protected species. Bird observations were supported by digital identification tools, including

WhoBird, iNaturalist and Merlin, helping to document red-listed species that had not been adequately reflected in official maps or the developer's initial documentation. Community awareness campaigns used pamphlets, posters, public meetings and local events to communicate the ecological and recreational importance of Eidsvika. Stakeholder engagement involved local residents, NGOs, community organisations and public authorities, while interviews and meetings were used to collect perspectives on the development proposal, local land-use conflicts and the wider governance context. The case study also participated in public consultations and collaborated with local environmental organisations to strengthen stakeholder dialogue and improve the representation of biodiversity concerns in planning processes. Digital participation tools were developed to facilitate access to information and citizen involvement. These included project timelines, online communication platforms and the Friends of Eidsvika Facebook group, which provided a forum for sharing updates and discussing the future of the area. A shared online gallery was also used to document recreational activities and demonstrate the importance of the site to the local community. In parallel, the project monitored political discussions, planning decisions, public consultations and editor-reviewed media coverage related to the proposed development.

6.10.2 Baseline Conditions and Initial Assessment

The initial assessment identified the proposed cruise terminal and its associated infrastructure as potential sources of significant pressure on the coastal habitats and biodiversity of Eidsvika. The development could affect bogs, wetlands, forests, rocky shores, beach habitats and bird nesting areas through direct land-use change, habitat fragmentation and disturbance. Proposed access roads, tunnels and increased traffic represented additional pressures on the site and the surrounding landscape.

Eidsvika is one of the last undeveloped and publicly accessible coastal areas on Askøy Island, giving it considerable ecological and recreational value. However, these values were insufficiently recognised in the available planning information. Official maps and commercial development plans did not identify the presence of red-listed bird species and presented the site as having limited ecological importance. The baseline value of zero red-listed species therefore reflected the absence of documented species in the planning process rather than their confirmed absence from the area.

The governance context was characterised by conflict between economic development interests, municipal priorities and local community concerns. Askøy has experienced rapid population growth, while its dispersed settlement pattern and limited transport and social

infrastructure have encouraged the municipality to promote new development hubs. Within this context, conservation considerations had not always been given sufficient priority. Local communities also had limited organisational capacity and lacked well-established forums through which to access information, coordinate their positions and influence decision-making.

At baseline, the area potentially affected by the development covered approximately 0.43 km² and had not received additional formal protection. Ten community awareness activities had been documented by June 2024, and the Friends of Eidsvika online group had approximately 1,050 followers. The case received 79 mentions in editor-reviewed media during the year preceding June 2024, indicating that the proposal had already attracted considerable public attention. However, conservation groups lacked systematic evidence demonstrating the extent of recreational use, and no contributions had yet been recorded in the shared recreational gallery.

6.10.3 Pre-project iNaturalist Biodiversity Baseline

To complement the initial assessment, existing citizen-science biodiversity records were compiled for an area of approximately 2.3 km² centred on Eidsvika. The dataset covers the period from 1 January 2022 to 31 December 2023 and comprises 105 occurrence records representing 44 taxa. All records were classified as human observations and were retrieved through GBIF from five contributing datasets, including the Norwegian Species Observation Service, Fuglevennen.no, Observation.org, Pl@ntNet and eBird. The corresponding species-level summary is provided in the annexes.

Birds accounted for most of the available evidence, with 83 records representing 26 taxa, followed by vascular plants with 20 records representing 16 taxa and mammals with two records representing two taxa. The bird records were dominated by species associated with gardens, woodland edges and residential environments, while the plant observations included species characteristic of coastal heath and open birch scrub, together with introduced taxa such as Sitka spruce and Cotoneaster bullatus. Only a small number of observations related to marine or waterside birds, and no intertidal or subtidal organisms were documented in the dataset. The records therefore provide an initial indication of the biodiversity documented within the wider Eidsvika area, but do not constitute a comprehensive inventory of the coastal and marine environment.

The records were generated through opportunistic observation rather than a standardised ecological survey, and recording effort varied considerably across locations, months and

taxonomic groups. Observations were concentrated around residential areas on the slopes inland from the bay, approximately 90% of the records were collected during five months, and vascular plants were recorded only in 2022. The dataset should therefore be interpreted as a minimum documented occurrence baseline rather than as evidence of abundance, complete community composition or ecological trends. Nevertheless, it provides a useful starting species list and highlights opportunities for subsequent community-based monitoring to improve the spatial, seasonal and taxonomic coverage of biodiversity information for Eidsvika

6.10.3 Post-intervention Assessment and Comparison with Baseline

The post-intervention assessment shows clear progress in ecological documentation, public participation and the visibility of the area's recreational value. However, the final conservation outcome remains unresolved because no definitive political decision on the proposed cruise terminal had been reached by June 2026. The monitored area therefore remained unchanged at 0.43 km². This means that no habitat loss had occurred during the assessment period, but also that no additional formal protection had been secured. The proposal continued to face objections from coastal, regional and national authorities, while remaining within the municipal planning process subject to further modifications. A major improvement concerned the ecological evidence available for decision-making. While no red-listed species had been identified in the baseline planning documentation, monitoring by local organisations and volunteers documented five red-listed bird species by June 2026. Recording and publicising these observations strengthened the case for conserving the site and allowed previously overlooked biodiversity information to be introduced into the planning debate. Nevertheless, the habitats supporting these species remain potentially exposed to future development while the political process is pending.

Community awareness activities increased from 10 to 25, representing 15 additional activities during the monitoring period. Online engagement also expanded substantially, with membership of the Friends of Eidsvika group increasing from approximately 1,050 to 1,600 followers, a rise of around 52%. The platform supported information sharing, discussion of planning developments and the exchange of biodiversity observations, while helping to strengthen community networks and local organisational capacity. Media attention remained high, although annual coverage was lower than during the baseline year. The case received 79 mentions in the year preceding June 2024, followed by 49 and 50 mentions in the two subsequent years. The combined post-intervention total of 99 articles is not directly comparable with the one-year baseline figure, but it shows that substantial journalistic and public interest was maintained. Although a causal

relationship with project activities cannot be established, continued media coverage contributed to public scrutiny and ensured that ecological and community concerns remained visible.

The shared gallery generated new evidence of the site's recreational importance. From a baseline of zero, 212 photographs documenting recreational use were uploaded by June 2026. Although this does not provide a complete estimate of visitor numbers, it demonstrates active community use and offers evidence that had previously been absent from the development debate. Overall, the case study strengthened ecological knowledge, community networks, public participation and the documentation of recreational values. These outcomes improved the evidence available to challenge incomplete planning assumptions and increased the representation of biodiversity and community interests. However, the absence of a final political decision means that continued monitoring, stakeholder engagement and participation in the planning process will be necessary until the future status of Eidsvika is resolved.

7. OVERALL IMPLEMENTATION OUTCOMES AND IMPACT ASSESSMENT

The implementation of the PRO-COAST case studies demonstrates that biodiversity conservation in coastal social-ecological systems requires the combination of ecological intervention, stakeholder participation, behavioural change, institutional coordination and continuous monitoring. Across the case studies, the project implemented a broad range of locally adapted measures, including habitat restoration, invasive-species control, wildlife and biodiversity monitoring, marine-litter and ghost-gear removal, citizen-science activities, sustainable tourism measures, public awareness campaigns and participation in local planning processes. Although the nature, scale and maturity of the interventions differed considerably between sites, the results show that the Integrated Assessment Methodology provided a sufficiently flexible framework to organise the evidence and evaluate progress across highly diverse ecological, social and governance contexts.

The most consistent achievements were observed in stakeholder engagement, awareness raising, knowledge generation and the strengthening of local implementation capacity. Most case studies expanded their stakeholder networks, created new opportunities for dialogue and increased the involvement of residents, landowners, fishers, environmental organisations, researchers, volunteers and public authorities. Change Agents and locally embedded

organisations played an important role in maintaining communication, facilitating cooperation and adapting project activities to local conditions. Capacity-building workshops, community events, training sessions and knowledge-sharing activities supported the practical implementation of conservation measures while also improving understanding of biodiversity pressures. In several cases, survey results indicated increased environmental awareness, stronger support for conservation measures or greater satisfaction with stakeholder participation. However, these changes were not uniform, and some survey comparisons were affected by differences in sample size, respondent composition, stakeholder definitions or questionnaire design.

Citizen science and participatory monitoring represented an important cross-cutting outcome of implementation. The case studies used a combination of mobile applications, online platforms, wildlife cameras, photographic monitoring, field observations, biological sampling and community-generated records. These tools increased the amount of locally available environmental information and, in several cases, documented biodiversity values or environmental pressures that had previously been insufficiently recognised. Examples include the identification of red-listed bird species in Eidsvika, the expansion of wildlife observations in Strunjan, the recording of lost fishing gear in Bergen and the generation of biodiversity datasets through iNaturalist and other platforms. The results also showed that citizen-science tools require careful adaptation to the intended users. Digital participation was effective in some contexts but limited in others by low uptake, technological barriers or uneven participation. Face-to-face engagement, practical training and simplified reporting systems often remained necessary to complement digital approaches.

Environmental outcomes were positive in several case studies, although they were generally more variable and more difficult to attribute directly to project interventions than the social and governance outcomes. Practical results included the removal of marine debris and ghost fishing gear, restoration of coastal habitats, control of invasive grey squirrels, improvement of biodiversity documentation, implementation of sustainable infrastructure and formal strengthening of protected-area management. Some ecological indicators showed improvements in species richness, diversity indices, habitat condition or the number of conservation actions implemented. Nevertheless, ecological processes frequently operate over periods longer than the project duration, meaning that the full environmental effects of restoration, species management and governance interventions may not yet be visible. In addition, several indicators measured implementation outputs—such as the number of items removed, events organised or observations recorded—rather than long-term ecosystem recovery. These outputs provide

evidence of progress and operational feasibility, but continued monitoring will be necessary to determine whether they result in sustained biodiversity improvements.

The assessments also highlighted persistent pressures that were not fully resolved during the implementation period. Tourism, coastal development, traffic-related wildlife mortality, invasive species, pollution, habitat fragmentation and insufficient enforcement continued to affect several case-study areas. In some sites, the final conservation outcome depended on political decisions, regulatory permissions or funding mechanisms that remained unresolved. The Eidsvika case, for example, improved the evidence and community participation associated with the proposed cruise-terminal development, but the future protection of the area remained uncertain. In Arne Parish, considerable progress was made in grey-squirrel control and community support, but the conditions required for red-squirrel reintroduction had not yet been fully achieved. In Bergen, the removal and reuse of ghost gear was successfully demonstrated, but implementation remained dependent on annual funding applications. These examples illustrate that project interventions can strengthen the conditions for conservation without necessarily resolving the broader institutional, financial or political barriers affecting long-term outcomes.

Furthermore, the assessment process revealed several methodological limitations. Baseline data were not equally available or equally robust across all case studies, and some initial values were based on estimates, previous monitoring programmes or incomplete information. Monitoring periods were often short, and the frequency and quality of data collection varied according to local resources and capacity. Some indicators lacked directly comparable pre- and post-intervention values, while others were affected by small sample sizes or changes in methodology. Despite these constraints, the application of the IAM across the case studies provides practical validation of an integrated and adaptable assessment approach. The use of environmental, socio-cultural, economic, governance and behavioural KPIs made it possible to examine not only ecological change but also the enabling conditions required for biodiversity conservation. The assessment shows that improvements in governance, stakeholder trust, local knowledge and monitoring capacity are relevant project outcomes in their own right and may precede measurable ecological recovery. It also confirms that indicators need to remain locally relevant while retaining sufficient consistency to support project-level synthesis. The longer-term value of the case-study implementation will depend on the continuation of monitoring and stakeholder collaboration beyond the project period. Several interventions require repeated action, stable funding, institutional ownership and integration into local or regional planning frameworks. Future work should therefore prioritise the maintenance of local partnerships, the consolidation of citizen-science and monitoring systems, the improvement of baseline data, and the establishment of clear mechanisms for transferring responsibility after project completion. The

results and lessons generated through the ten case studies provide an evidence base for adaptive management, policy development, replication and upscaling. Overall, PRO-COAST has demonstrated that locally grounded and participatory conservation approaches can strengthen the capacity of coastal communities and institutions to address biodiversity loss, while also identifying the practical, methodological and governance conditions that must be sustained for these changes to generate long-term impact.

ANNEXES

- **Annex 1. Individual KPI Assessments.**

  Annex 1 contains the complete individual assessment of each Key Performance Indicator applied across the ten PRO-COAST case studies. For every KPI, it presents the relevant background and context, monitoring approach, baseline and post-intervention results, interpretation of the observed changes, and the main methodological limitations affecting the assessment. These individual assessments provide the detailed evidence supporting the case study summaries and the global assessment presented in the main body of the report.

- **Annex 2. Case Study KPI Data.**

  Annex 2 contains the Excel files compiling the monitoring data reported by the ten case studies for their selected KPIs. The files include the available baseline and post-intervention values, indicator characteristics, data collection periods, methodologies, responsibilities and other relevant supporting information. Together, these datasets constitute the quantitative and qualitative evidence base used to prepare the individual KPI assessments and the comparative analysis included in this deliverable.

1. CS1 Comino Island (Malta) 2
2. CS2 Apulia (Italy) 17
3. CS3 Strunjan (Slovenia) 51
4. CS4 Boka Kotorska (Montenegro) 69
5. CS5 Sligo (Ireland) 95
6. CS6 Arne Parish (UK) 108
7. CS7 Bergen (Norway) 144
8. CS8 Kloogaranna - Laulasmaa (Estonia) 154
9. CS10 Eidsvika (Norway) 168

1.1 KPI CS01.EC.01. Comparison of long-term local revenue from tourism.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS01.EC.01	Martin Galea De Giovanni	Project duration
Specific Challenge	***Data provider***	***Frequency of data collection***
Overtourism and stakeholders with economic interests	Malta Tourism Authority	Annual
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Michelangelo galea	
SESF Variables	***Technical supervisor***	***Other***
2-L | Economic development (S1) 3-L | S1a. Economic sectors	Annalise Falzon	

Relation with…			
	Results		***Specific Objectives***
R1	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO1	Validate bottom-up biodiversity conservation actions through case studies
R2		SO2	Support transferability and upscaling of biodiversity conservation measures
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative	Requesting info from Malta Tourism Authority annual reports
Data type	***Tools***
Annually: over whole project period (% of measurable tourist income)	Email contact, In person meetings
Output data	***Other needs***
n/a	
Data collection methods	
Official request to national authority via emails/calls /meetings	

Results
Background and context
No information passed from the Authority. Multiple communication attempts were conducted.
Results (baseline vs post-intervention)
Unsuccessful due to lack of information sharing
Discussion

1.2 KPI CS01.EC.02. Tourist Willingness to Pay for Conservation

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS01.EC.02	Martin Galea De Giovanni	2025 and 2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Overtourism and stakeholders with economic interest	Pro-Coast survey	Once in 2025 and once in 2026
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Michelangelo Galea	Twice
SESF Variables	***Technical supervisor***	***Other***
2-L | Economic development (S1) 3-L | S1a. Economic sectors	Annalise Falzon	

Relation with…			
Results		***Specific Objectives***	
R1	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO1	Support transferability and upscaling of biodiversity conservation measures
R2	RO1/2.3: Stakeholder analysis & Mapping (WP2)	SO2	Strengthen stakeholder engagement and co-creation processes
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative	HR, Sponsored ads, posters, postcards
Data type	***Tools***
Survey-based	Online Survey
Output data	***Other needs***
xls/pdf	

Data collection methods

Widespread online sharing of survey and in person contacts, Mailouts, newsletter, Activities on site, Adverts on social media, social media posts, Website, Sharing with other NGOs and collaborators, sharing on Tourist information groups on social media.

Results

Background and context

The idea of having an ecotax for Blue Lagoon has long been mentioned both by past management plans for the area as well as in public discourse. Most local visitors are fully aware of the increased and unsustainable pressures put on this location

and are feeling pushed out from their own recreational spaces. On the other hand foreign visitors have long been complaining about the situation on site - especially vis a vis the way it is advertised - and do not need much environmental management expertise to realise it is too chaotic and far from their expectations.Many visitors who have travelled internationally are used to paying entry fees to help manage important sites and would not be shocked by such a system.

Results (baseline vs post-intervention)

There was an increase in percentage of visitors who would agree to pay an ecotax for visiting the site.

Discussion

Some of the difficulties included having a very long survey which was difficult to get filled from start to end as well as limitations in terms of some difficulty in the system or website glitches or lack of wifi. The survey did not focus specifically on Comino so some were confused about the need of certain questions asked. The second survey worked more smoothly but would have been useful to have more responses in the summer season.

1.3 KPI CS01.EN.02. Number of species conservation programs actively supported.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS01.EN.02	Martin Galea De Giovanni	Project duration
Specific Challenge	***Data provider***	***Frequency of data collection***
Biodiversity loss due to human pressure	Academia/NGOs	Annually
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Michelangelo Galea	Once
SESF Variables	***Technical supervisor***	***Other***
2-L | Government resource policies (S4) 3-L | S4b. Environmental policies	Annalise Falzon	

Relation with…			
Results		***Specific Objectives***	
R1	RO3/2.1: Local Biodiversity Program for Coastal Ecosystems (WP6)	SO1	Validate bottom-up biodiversity conservation actions through case studies
R2	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO2	Support transferability and upscaling of biodiversity conservation measures
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative	HR
Data type	***Tools***
Numerical	Data exchange and collaborations
Output data	***Other needs***
xls/pdf	

Data collection methods

Collaboration with academia and NGOs involved in site management

Results

Background and context

Comino has often been left on the wayside of research, funding, enforcement and conservation measures with the exception of ornithological research by an eNGO in Malta. Management plans and measures had been in the pipeline for over 20 years in some cases and some never materialised.

Results (baseline vs post-intervention)

At the start of the project, the main active programme on Comino was related to seabird research and rodent control. As FoEMalta's project at the Old Bakery in Comino started to come into being it started acting as a base for awareness and research activities through collaborations with various entities from academia as well as eNGOs.

This resulted in supporting various research projects and citizen science initiatives as well as FoEM's own management measures on site. These included: Research into the National Bird the Blue Rock Thrush; Monitoring of bat activity in the surroundings with specialised equipment; Installation of wildlife cameras for detection of both wildlife and possible rodent issues; Citizen science initiatives related to data collection of orchids as well as of general wildlife; Data collection of reptile sightings; University research on butterflies.

Discussion

Some of the difficulties included having a very long survey which was difficult to get filled from start to end as well as limitations in terms of some difficulty in the system or website glitches or lack of wifi. The survey did not focus specifically on Comino so some were confused about the need of certain questions asked. The second survey worked more smoothly but would have been useful to have more responses in the summer season.

1.4 KPI CS01.EN.01. Species diversity within defined area per Shannon Diversity Index

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS01.EN.01	Martin Galea De Giovanni	2025-2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Biodiversity loss due to human pressure	iNaturalist	Continuous
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance	Michelangelo Galea	
SESF Variables	***Technical supervisor***	***Other***
2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	Annalise Falzon	

Relation with…			
Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Validate bottom-up biodiversity conservation actions through case studies
R2	RO3/2.1: Local Biodiversity Program for Coastal Ecosystems (WP6)	SO2	Support transferability and upscaling of biodiversity conservation measures
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative	HR
Data type	***Tools***
Numerical	iNaturalist, EpiCollect
Output data	***Other needs***
xls/pdf	

Data collection methods

Citizen Science using iNaturalist and a dedicated project page.
Citizen Science using EpiCollect icw a local Orchid research group

Results

Background and context

There was no dedicated citizen science project on terrestrial biodiversity for Comino so a project was created specifically for the whole island to capture also past observations.

Results (baseline vs post-intervention)

There was a significant increase in inaturalist observations on Comino which started to fill some data gaps while also serving as a very useful tool for other botanic researchers as well as for ornithologists and herpetologists providing valuable data to their own research initiatives (which cover the whole of the Maltese Islands but had very little data from Comino itself).

Discussion

The limitations of the inaturalist app are related to the fact that sometimes people forget to upload after they have done their sightings and not having an internet connection on site made it a bit more challenging. The observations also focus on main beaten tracks and so some areas are left as gaps. Visitors are much less in numbers in the winter season which means that some species are under-represented due to the winter season being one of the best times for flora in Malta..

1.5 KPI CS01.SC.01. Level of stakeholder satisfaction or feedback regarding their involvement in decision-making.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS01CS01.SC.01	Martin Galea De Giovanni	2025, 2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Stakeholders feel a lack of consultation	Procoast survey	Twice
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Michelangelo Galea	
SESF Variables	***Technical supervisor***	***Other***
2-L | Deliberation processes (I3) 3-L | I3c. Trust building processes	Annalise Falzon	

Relation with…			
Results		***Specific Objectives***	
R1	RO1/2.3: Stakeholder analysis & Mapping (WP2)	SO1	Strengthen stakeholder engagement and co-creation processes
R2		SO2	Promote behavioural change and capacity building for biodiversity conservation
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative	HR, Sponsored ads, posters, postcards
Data type	***Tools***
Numerical	Online Survey
Output data	***Other needs***
xls/pdf	

Data collection methods

Widespread online sharing of survey and in person contacts

Results
Background and context
Results (baseline vs post-intervention)

1.6 KPI CS01.SC.02. Level of community involvement in biodiversity conservation initiatives

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS01.SC.02	Martin Galea De Giovanni	2025-2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Community does not feel a sense of stewardship		Twice
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Michelangelo Galea	
SESF Variables	***Technical supervisor***	***Other***
2-L | Deliberation processes (I3) 3-L | I3b. Knowledge about participation mechanisms and rights	Annalise Falzon	

Relation with…			
Results		***Specific Objectives***	
R1	RO1/2.3: Stakeholder analysis & Mapping (WP2)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	RO4/2.3: Development of Key Performance Measures Behavioural change (WP6)	SO2	Promote behavioural change and capacity building for biodiversity conservation
R3		SO3	Maximise project impact through communication and knowledge transfer

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative	
Data type	***Tools***
Numerical	
Output data	***Other needs***
xls/pdf	

Data collection methods

Widespread online sharing of survey and in person contacts, Mailouts, newsletter, Activities on site, Adverts on social media, social media posts, Website, Sharing with other NGOs and collaborators, sharing on Tourist information groups on social media.

Results
Background and context

Results (baseline vs post-intervention)

Discussion

Could not be compared as the first survey had lack of answers.

1.7 KPI CS01.SC.03. Number of capacity building workshops, training sessions, or knowledge-sharing events conducted.

Basic information	Responsibilities	Calendar
Code	*Indicator Leader*	*Data collection period*
CS01.SC.03	Martin Galea De Giovanni	Duration of project
Specific Challenge	*Data provider*	*Frequency of data collection*
Lack of knowledge		Annually
Ecosystem Service	*Technical manager*	*Frequency of reporting*
Cultural	Michelangelo Galea	
SESF Variables	*Technical supervisor*	*Other*
2-L | Information sharing (I2) 3-L | I2a. Knowledge transmission	Annalise Falzon	

Relation with…			
Results		*Specific Objectives*	
R1	RO4/2.3: Development of Key Performance Measures Behavioural change (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2		SO2	Maximise project impact through communication and knowledge transfer
R3		SO3	

Methodology	
Type of measuring	*Data collection resources/needs*
Quantitative	HR
Data type	*Tools*
Numerical	Excel list / Word/ Photo records of events
Output data	*Other needs*
xls/pdf	

Data collection methods

Updating of both a Word and excel list to keep track of sessions organised and activities held.

Results

Background and context

At the start of the ProCoast project, Friends of the Earth Malta had just started increasing its focus on Comino despite the offices being on mainland Malta. The start of the Old Bakery restoration project brought the area to the attention of widespread stakeholders and institutions and this increased collaborations on many fronts both on and off site.

Results (baseline vs post-intervention)

It was difficult to determine due to lack of survey data in first round.

Discussion

1.8 KPI CS01.SC.04. Stakeholder awareness of the biodiversity threats and the implications of developments

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS01.SC.04	Martin Galea De Giovanni	Project duration
Specific Challenge	***Data provider***	***Frequency of data collection***
Lack of awareness		Annually
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Michelangelo Galea	
SESF Variables	***Technical supervisor***	***Other***
2-L | Knowledge of SES/mental models (A7) 3-L | A7b. Knowledge of the potential disturbance patterns and their possible effects	Annalise Falzon	

Relation with…			
Results		***Specific Objectives***	
R1	RO4/2.3: Development of Key Performance Measures Behavioural change (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2		SO2	Maximise project impact through communication and knowledge transfer
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative	HR
Data type	***Tools***
Numerical	Excel, Word, Photographic evidence
Output data	***Other needs***
xls/pdf	

Data collection methods

Updating of an excel list to keep track of events.

Results

Background and context

Friends of the Earth Malta has had a long history of awareness raising and activities for the public and it has largely increased its focus on Comino in the past 3 years.
This KPI relates much to CS01.SC.03 as some activities were overlapping in terms of workshops/events/ skillshare

Results (baseline vs post-intervention)

A significant Increase in activities as FoEM focused more energies on Comino and organised activities for various age groups and audiences both on and off site.

Discussion

The limitation for activities on site was mainly due to logistical issues due to the ferry crossing depending on the weather and on the extra costs of having return trips to pay for. An increase in demand for Comino educational activities on site was noted and human resources and time constraints made it clear that FoEM presence on the island needs to increase so as to be in a better position to offer on site visits upon demand.

2.1 KPI CS02.EC.01. Number of sustainable constructions adhering to biodiversity guidelines.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS02.EC.01	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
Improving the design and realisation of constructions integrated in the natural context and capable of having a low or zero effect towards biodiversity and ecosystems.	Official public channels.	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural.	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Human constructed facilities (RS3). 3-L | RRS3a. Tourism industry infrastructure.	University of Salento.	

Relation with…			
Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Develop a framework for biodiversity conservation planning and implementation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Validate bottom-up biodiversity conservation actions through case studies
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative.	Publicly available data.
Data type	***Tools***
Numerical.	Online research.
Output data	***Other needs***
Number of constructions.	

Data collection methods

Data were collected by consulting publicly available data on sustainable construction projects that adhere to biodiversity guidelines. The results were then used to determine the total number of sustainable constructions that are compatible with biodiversity guidelines.

Results

Background and context

1) Tramareterra: cycle/pedestrian paths and green infrastructure connecting Borgo Piave, Frigole, and the coast, with native reforestation.

2) Restoration of safe navigation for boaters and fishermen without impactful dredging, and redevelopment of onshore areas.

3) Creation of a panoramic plaza on Lungomare Bergamini, protected nature trails, and draining ecological parking to remove vehicles from the coastal dunes.

Results (baseline vs post-intervention)

Positive impact on the area. Reduced trampling of dunes, improved use of bicycles and increased walking, and no more cars reaching the coastal dunes.

Discussion

These infrastructure improvements successfully balance human access with ecological preservation. By replacing vehicular traffic with pedestrian-focused spaces and sustainable navigation, the project results in minimising dune trampling, protecting sensitive habitats, and fostering a more resilient, low-impact social-ecological system for the Aquatina di Frigole site.

2.2 KPI CS02.EN.02. Species diversity within a defined area per Shannon Diversity Index

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS02.EN.02	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
Evaluating the biodiversity conservation effects of the case study by periodically evaluating the Shannon Diversity Index fluctuations over time.	University of Salento.	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance.	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Productivity of system (RS4). 3-L | RS4c. Biodiversity index.	University of Salento.	

Relation with…

Results		*Specific Objectives*	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Develop a framework for biodiversity conservation planning and implementation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Validate bottom-up biodiversity conservation actions through case studies
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	

Methodology

Type of measuring	*Data collection resources/needs*
Quantitative.	Benthic macroinvertebrate diversity results from the eDNA-based monitoring studies conducted in the Aquatina di Frigole lagoon.
Data type	***Tools***
Numerical.	Environmental DNA (eDNA) metabarcoding.
Output data	***Other needs***
Shannon Diversity Index.	

Data collection methods

The Shannon Diversity Index was calculated from benthic macroinvertebrate diversity in the Aquatina di Frigole lagoon, identified using the innovative eDNA metabarcoding biodiversity monitoring tool. Specifically, the number of reads associated with each identified Operational Taxonomic Unit (OTU) was used as a proxy for calculating the Shannon Diversity Index and comparing it across sampling sites along an environmental gradient of salinity and temperature.

Results

Background and context

Shannon Diversity Index, calculated as the average of three years of monitoring macrozoobenthic diversity in the Aquatina di Frigole lagoon, increased with respect to previous studies using the same methodology, indicating a positive impact on the area derived from the conservation and protection actions put in place in the protected area of Aquatina di Frigole.

Results (baseline vs post-intervention)

The increase in the Shannon Diversity Index suggests that the area has become more biologically diverse. There is now a wider variety of species identified in the lagoon, making the overall examined community more complex. At the same time, the analysed macrozoobenthic community showed a reduction in dominant taxa, leading to a more stable distribution of abundances across taxa.

Discussion

The observed increase in the Shannon Diversity Index confirms that local conservation efforts have successfully enhanced the biological health of the Aquatina di Frigole lagoon. By curbing dominant species and promoting a more equitable distribution of taxa, these actions have fostered a more complex, balanced, and ecologically stable macrozoobenthic community.

2.3 KPI CS02.EN.03. Number of species within defined area per Pielou Evenness Index

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS02.EN.03	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
Evaluating the conservation of biodiversity in the case study by periodically evaluating the Evenness Index fluctuations over time.	University of Salento.	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance.	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Productivity of system (RS4). 3-L | RS4c. Biodiversity index.	University of Salento.	

Relation with…

Results		*Specific Objectives*	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Develop a framework for biodiversity conservation planning and implementation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Validate bottom-up biodiversity conservation actions through case studies
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	

Methodology

Type of measuring	*Data collection resources/needs*
Quantitative.	Benthic macroinvertebrate diversity results from the eDNA-based monitoring studies conducted in the Aquatina di Frigole lagoon.
Data type	***Tools***
Numerical.	Environmental DNA (eDNA) metabarcoding.
Output data	***Other needs***
Pielou Evenness Index.	

Data collection methods

The Pielou Evenness Index was calculated from benthic macroinvertebrate diversity in the Aquatina di Frigole lagoon, identified using the innovative eDNA metabarcoding analysis tool. Specifically, the number of reads associated with each identified Operational Taxonomic Unit (OTU) was used as a proxy for calculating the Pielou Evenness Index and comparing it across sampling sites along an environmental gradient of salinity and temperature.

Results

Background and context

Pielou Evenness Index, calculated as the average of three years of eDNA-based monitoring macrozoobenthic diversity in the Aquatina di Frigole lagoon, increased with respect to the baseline data obtained from previous results using similar methods. This increase indicates a positive impact on the area of the effects deriving from conservation and protection efforts and measures applied.

Results (baseline vs post-intervention)

The increase in Pielou Evenness Index suggests that the investigated macrozoobenthic community has become more evenly distributed over time. The efficiency in the monitoring tools to improve the resolution at which species are identified, coupled with the tendency in the community to a reduction in dominant taxa, shows that the individuals belonging to different species are now more equally distributed among them. The results generally show more species identified and less dominant taxa, in favour of a more stable distribution of abundances across taxa.

Discussion

The increase over time in the Pielou Evenness Index, captured through innovative eDNA-based biodiversity monitoring, confirms that protection and conservation efforts had very positive impacts on the structural health of the Aquatina di Frigole lagoon. By reducing the weight of dominant taxa and increasing individuals distributed more equally across a broader range of species, the lagoon has transitioned toward a more stable, resilient, and balanced macrozoobenthic community.

2.4 KPI CS02.EN.04. Species richness (number of species)

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS02.EN.04	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
Biodiversity monitoring in the case study by evaluating the relative abundance of species over time.	University of Salento.	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance.	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Productivity of system (RS4). 3-L | RS4c. Biodiversity index.	University of Salento.	

Relation with…

Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Develop a framework for biodiversity conservation planning and implementation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Validate bottom-up biodiversity conservation actions through case studies
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative.	Benthic macroinvertebrate diversity results from the eDNA-based monitoring studies conducted in the Aquatina di Frigole lagoon.
Data type	***Tools***
Numerical.	Environmental DNA (eDNA) metabarcoding.
Output data	***Other needs***
Species abundance.	

Data collection methods

Species richness was calculated from benthic macroinvertebrate diversity in the Aquatina di Frigole lagoon, identified using the innovative eDNA metabarcoding analysis methodology. Specifically, the number of Operational Taxonomic Units (OTUs) annotated up to the species level was used as a proxy for evaluating species richness and comparing it across sampling sites along an environmental gradient of salinity and temperature.

Results

Background and context

By comparing the results obtained during the last three years with the baseline data derived from previous studies based on the same methodology, it appears evident that the average number of macrozoobenthic species, calculated as the average of three years of monitoring macrozoobenthic diversity in the Aquatina di Frigole lagoon through eDNA metabarcoding, increased. Such results indicate a positive impact on the area deriving from the conservation and protection actions implemented in the Aquatina di Frigole protected area.

Results (baseline vs post-intervention)

The increase in the number of species highlights the increase in the resolution potential in species identification of the innovative eDNA-based biodiversity survey. At the same time, these results suggest that the area has become more biologically diverse. There is now a greater number of species, increasing the complexity of the overall macrozoobenthic community.

Discussion

The increase in the average number of macrozoobenthic species confirms the positive ecological impact of the conservation actions implemented in the Aquatina di Frigole protected area. This increase demonstrates both the increased resolution potential of innovative eDNA metabarcoding for biodiversity monitoring and a concrete shift toward a more biologically diverse, complex, and resilient coastal lagoon macrozoobenthic community.

2.5 KPI CS02.EN.05. Area of habitats restored

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS02.EN.05	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
Habitats' surface area recovered through restoration and/or protection programs in the case study.	University of Salento.	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Size (RS2). 3-L | RS2b. The size of different habitats or ecosystem types within the resource system.	University of Salento.	

Relation with…

Results		*Specific Objectives*	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Develop a framework for biodiversity conservation planning and implementation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Validate bottom-up biodiversity conservation actions through case studies
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	Strengthen stakeholder engagement and co-creation processes

Methodology

Type of measuring	*Data collection resources/needs*
Quantitative.	Longitudinal land-use and habitat-cover studies conducted over time by the University of Salento.
Data type	***Tools***
Numerical.	Geographic Information System software.
Output data	***Other needs***
Hectares restored.	

Data collection methods

The quantification of habitat restoration extent was conducted using high-resolution remote sensing imagery and GIS-based change detection analyses, interpolating land-use and habitat-cover data over time. By overlapping the geographic information available over the years, it was possible to calculate the hectares of protected habitats restored within the case study area.

Results

Background and context

The approximate surface area of protected habitats restored in the Aquatina di Frigole protected area increased. Specifically, the area relative to the beach and the dune system was restored thanks to conservation and restoration actions actively carried out in the case study area. The hectares of restored habitats increased in the protected area of Aquatina di Frigole, indicating a positive effect of transformative change, sensitisation of stakeholders and decision-makers, and efficient conservation and protection actions, including citizen science and nature-based solutions for habitat restoration.

Results (baseline vs post-intervention)

The increase in the surface area of protected habitats restored suggests that stakeholders and decision makers were efficiently involved in the transformative change framework provided by the Pro-Coast project. Also, the obtained results demonstrate that stakeholders and decision-makers were efficiently integrated in the broader social-ecological system framework characteristic of the Aquatina di Frigole protected area case study.

Discussion

The expansion of restored beach and dune surface areas highlights the success of combining nature-based solutions with active citizen science in the Aquatina di Frigole protected area. This ecological milestone proves that local stakeholders and decision-makers have been successfully integrated into the Pro-Coast project's social-ecological framework, turning environmental awareness into collaborative, transformative action.

2.6 KPI CS02.EN.06. Reduction of invasive species

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS02.EN.06	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
The number of non-indigenous species (NIS) early identified in the case study, allowing for preventive actions before spreading.	University of Salento.	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance.	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Productivity of system (RS4). 3-L | RS4c. Biodiversity index.	University of Salento.	

Relation with…

Results		*Specific Objectives*	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Develop a framework for biodiversity conservation planning and implementation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Validate bottom-up biodiversity conservation actions through case studies
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	Strengthen stakeholder engagement and co-creation processes

Methodology

Type of measuring	*Data collection resources/needs*
Quantitative.	Benthic macroinvertebrate diversity results from the eDNA-based monitoring studies conducted in the Aquatina di Frigole lagoon.
Data type	***Tools***
Numerical.	Environmental DNA (eDNA) metabarcoding.
Output data	***Other needs***
Number of early-identified NIS.	

Data collection methods

To early-identify the presence of new non-indigenous species (NIS) in the Aquatina di Frigole lagoon, the eDNA-derived taxa were searched against the EU databases of non-indigenous species (e.g., EASIN). The early detection and reporting of potential new invasive species was carried out through the application of innovative tools for biodiversity monitoring and early identification of NIS presence in the Aquatina di Frigole case study.

Results

Background and context

Before the start of the Pro-Coast project, only the non-indigenous species (NIS) *Callinectes sapidus* was known in the Aquatina di Frigole lagoon. During the project, the application of innovative molecular tools for ecological monitoring (eDNA metabarcoding) allowed for the early detection in the area of two other NIS present at very low concentrations, namely *Penaeus aztecus* and *Mnemiopsis leidy*.

Results (baseline vs post-intervention)

The increase in early-detected NIS suggests an efficient improvement of the monitoring strategies and tools exploited for biodiversity and ecological assessments in the Aquatina di Frigole case study area. This efficiency in early detection makes it possible to have prompt communication with stakeholders and decision-makers for rapid and efficient action, mitigating the risk of new NIS spread in the area.

Discussion

The shift from knowing a single invasive species (*Callinectes sapidus*) to detecting additional non-indigenous species (*Penaeus aztecus* and *Mnemiopsis leidyi*) underscores the power and resolution of the application of innovative biodiversity monitoring tools like eDNA metabarcoding. This change reflects an improvement in local monitoring resolution. By detecting biological threats at low concentrations, this technical advancement provides decision-makers with the early warning needed to launch prompt mitigation strategies before new biological invasions can spread.

2.7 KPI CS02.EN.07. Amount of marine debris removed

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS02.EN.07	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
Amount of collected marine and lagoon litter removed in the case study with actions involving stakeholders.	University of Salento.	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance.	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Ecological performance measures (O2). 3-L | O2c. Natural habitat condition.	University of Salento.	

Relation with…

Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Validate bottom-up biodiversity conservation actions through case studies
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative.	Beach cleanup actions involving stakeholders realised in the case study by the University of Salento.
Data type	***Tools***
Numerical.	Participatory approach and citizen science.
Output data	***Other needs***
Kilograms of marine debris removed.	

Data collection methods

Data concerning the amount of marine debris removed were obtained through the Implementation of marine and lagoon litter removal campaigns involving all stakeholder target groups, including local citizens, NGOs, research institutions, schools, and local managers. Kilograms of marine litter and lagoon litter removed in cleanup initiatives were obtained with systematic quantification of collected material (kg) as a proxy for pollution reduction.

Results

Background and context

Despite different beach cleanup initiatives occurring in the Aquatina di Frigole Beach prior to the start of Pro-Coast, the actual amount of marine debris removed was never systematically registered. Anyway, during Pro-Coast, the monitoring of the amount of plastic debris collected during beach cleanup initiatives involving stakeholders was carried out. The results showed more than 500 kg of marine debris removed and correctly managed and disposed of, demonstrating the high involvement of NGOs, local citizens, schools, local managers, and academic institutions.

Results (baseline vs post-intervention)

The monitoring and increased amount of marine debris removed from the Aquatina di Frigole beach during beach cleanups involving NGOs, local citizens, local managers, schools and academic institutions suggest an efficient improvement in sensitisation toward the most emergent themes in environmental protection. Such results allow to effectively appreciate the transformative change in action, with local citizens, NGOs, local managers, schools and academic institutions acting together for a common goal.

Discussion

The shift from unrecorded historical beach cleanups to the systematic removal and disposal of over 500 kg of marine debris highlights a major operational success under the Pro-Coast project. By introducing data tracking alongside physical cleanup efforts, the project provides concrete evidence of heightened environmental sensitisation. More importantly, this milestone captures transformative change in action, demonstrating that local citizens, schools, NGOs, managers, and researchers can effectively align to tackle plastic pollution through a unified, shared goal.

2.8 KPI CS02.EN.08. Baseline biodiversity index improvement

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS02.EN.08	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
Monitoring the combined shifts of Diversity Index, Evenness Index, and species richness to reach overall improvements.	University of Salento.	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance.	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Productivity of system (RS4). 3-L | RS4c. Biodiversity index.	University of Salento.	

Relation with…

	Results		*Specific Objectives*
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Develop a framework for biodiversity conservation planning and implementation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Validate bottom-up biodiversity conservation actions through case studies
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	

Methodology

Type of measuring	*Data collection resources/needs*
Quantitative.	Benthic macroinvertebrate diversity results from the eDNA-based monitoring studies conducted in the Aquatina di Frigole lagoon.
Data type	***Tools***
Numerical.	Environmental DNA (eDNA) metabarcoding.
Output data	***Other needs***
Pielou Evenness Index, taking into account both species richness and Shannon Diversity Index.	

Data collection methods

The results were obtained through the integration of multiple biodiversity indices derived from the eDNA-based benthic macroinvertebrate datasets (richness, evenness, diversity) to evaluate ecosystem condition and inform adaptive management recommendations in the Aquatina di Frigole lagoon. The combination of baseline biodiversity data previously obtained with similar methods and the newly available data obtained through the eDNA biodiversity survey conducted by the University of Salento in the Aquatina di Frigole lagoon further allowed for spatiotemporal comparisons of the results.

Results

Background and context

The Pielou Evenness Index was calculated as the main output, as this index takes into account the results from both species richness analysis and Shannon Diversity Index computation. It was calculated as the average of three years of monitoring macrozoobenthic diversity in the Aquatina di Frigole lagoon through the innovative approach of eDNA metabarcoding for biodiversity assessments. The results showed that the Pielou Evenness Index increased, indicating a positive impact on the area deriving from the conservation and protection efforts put in place, other than from the increased efficiency and resolution of the surveillance method.

Results (baseline vs post-intervention)

The increase in the Pielou Evenness Index suggests that the community appears to be more evenly distributed. The observed species richness increased, mainly thanks to the increase in monitoring programs and in efficiency and resolution of eDNA metabarcoding in species identification, but the individuals are now also distributed more equally among them, reducing the dominant taxa in favour of a more stable distribution of abundances across taxa.

Discussion

By combining species richness and the Shannon Diversity Index, the increase in the Pielou Evenness Index provides a comprehensive confirmation of the lagoon's ecological improvement. This positive trend reflects both a physical reason, where individuals are more equally distributed and dominant taxa are limited, and a technical reason, as the efficiency and resolution at which eDNA metabarcoding analyses can identify species are particularly high. So, the transition to high-resolution eDNA metabarcoding has successfully expanded monitoring efficiency, proving that advanced surveillance tools are essential for accurately describing and managing coastal ecosystems.

2.9 KPI CS02.SC.01. Number of species conservation programs actively supported

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS02.SC.01	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
Actively and passively supporting local, macro-regional and global species conservation programs through scientific research in the case study.	University of Salento through scientific research in the Aquatina di Frigole protected area.	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural.	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Government resource policies (S4). 3-L | S4b. Environmental policies.	University of Salento.	

Relation with…

Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Develop a framework for biodiversity conservation planning and implementation
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	Support transferability and upscaling of biodiversity conservation measures

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative.	Data were obtained through active participation of the University of Salento in supporting species conservation programs.
Data type	***Tools***
Numerical.	Participation in supporting species conservation programs.
Output data	***Other needs***
Number of programs and supporting conservation actions.	

Data collection methods

The data collection was carried on by assessing and producing and inventory 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 was then incremented by identifying the number of supporting conservation actions put in place by the University of Salento in the Aquatina di Frigole protected area.

Results

Background and context

Prior to Pro-Coast and still today, the Aquatina di Frigole protected area is actively protected under the NATURA 2000 Network, with a conservation framework aimed at species and habitat conservation. During Pro-Coast, two actively supporting conservation actions were implemented by the University of Salento in the Aquatina di Frigole protected area. In particular, the macrozoobenthic biodiversity monitoring framework in the Aquatina lagoon through innovative molecular tools, and the eDNA-based early-warning system targeting Non-Indigenous Species (NIS) in Aquatina di Frigole lagoon, were implemented supporting the conservation actions provided by the NATURA 2000 Network.

Results (baseline vs post-intervention)

The active support delivered by the macrozoobenthic biodiversity monitoring framework in the Aquatina lagoon through innovative molecular tools, and by the eDNA-based early-warning system targeting Non-Indigenous Species (NIS) in Aquatina di Frigole lagoon, represents a concrete bridge connecting academic research institutions, regional and international conservation management, demonstrating how standardising advanced workflows effectively improves the protection effectiveness.

Discussion

Building upon the established NATURA 2000 Network conservation framework, the implementation of the macrozoobenthic biodiversity monitoring through eDNA metabarcoding and the eDNA-based early-warning system for NIS detection by the University of Salento marks a major operational upgrade for the Aquatina di Frigole protected area. By introducing high-resolution molecular tools to track habitat health and target non-indigenous species, the project creates a concrete bridge between academic research and regional management. This active institutional support demonstrates that standardising advanced workflows directly elevates the practical efficiency and effectiveness of coastal conservation.

2.10 KPI CS2.SC.02. Frequency of stakeholder consultations or participatory workshops conducted

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS2.SC.02	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
Communicating with stakeholders about the main threats and possible solutions in the case study.	University of Salento and Aquatina di Frigole.	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural.	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Deliberation processes (I3). 3-L | I3c. Trust-building processes.	University of Salento.	

Relation with…

Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Strengthen stakeholder engagement and co-creation processes
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative.	Number of stakeholder consultations and participatory workshops involving University of Salento and Aquatina di Frigole.
Data type	***Tools***
Numerical.	Participatory approaches.
Output data	***Other needs***
Number of workshops.	

Data collection methods

Data were collected through the establishment of an open-air learning and engagement hub aimed at hosting participatory workshops, stakeholder consultations and stakeholder round tables for co-learning, co-developing and training on common strategies and best practices for biodiversity conservation and management. The resulting data were expressed as the number of workshops organised in which it was possible to actively communicate with stakeholders.

Results

Background and context

During Pro-Coast, multiple participatory dialogue sessions were conducted together with stakeholders, directly engaging the main local actors, and specifically targeting local citizens, professional fishermen, local managers, schools and NGOs. The participatory sessions allowed to identify stakeholders' needs, to increase the interconnection and dialogue among different stakeholders, and to integrate traditional expertise with innovation and scientific research.

Results (baseline vs post-intervention)

The increase in workshops and participatory dialogue sessions with the stakeholders suggests a highly effective application of the transformative change framework, successfully building shared responsibility, shared knowledge, and aligning stakeholder needs with biodiversity protection objectives.

Discussion

The introduction of multiple participatory dialogue sessions represents a successful shift toward collaborative coastal governance at the Aquatina di Frigole protected area. By bridging the gap between local citizens, professional fishermen, schools, and researchers, these sessions seamlessly integrate Local Ecological Knowledge (LEK) with innovative scientific research. This collaborative approach demonstrates a highly effective application of the transformative change framework, cultivating shared knowledge and responsibility while successfully aligning local community needs with long-term biodiversity protection objectives.

2.11 KPI CS2.SC.03Existence and frequency of biodiversity assessments

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS2.SC.03	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
Assessing the existence, number, and frequency of biodiversity assessments in the context of the case study localisation.	University of Salento.	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural.	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Monitoring activities (I9). 3-L | I9a. Monitoring activities.	University of Salento.	

Relation with…

	Results		*Specific Objectives*
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Develop a framework for biodiversity conservation planning and implementation
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	Validate bottom-up biodiversity conservation actions through case studies

Methodology

Type of measuring	*Data collection resources/needs*
Quantitative.	Biodiversity assessments conducted in the Aquatina di Frigole protected area by the University of Salento.
Data type	***Tools***
Numerical.	Biodiversity assessments organised by the University of Salento in the Aquatina di Frigole protected area.
Output data	***Other needs***
Number of assessments.	

Data collection methods

Data concerning the number and frequency of biodiversity assessments conducted in the Aquatina di Frigole protected area were compiled and analysed considering the existing biodiversity monitoring schemes and programs. The total number of biodiversity assessments existing within the case study area was primarily assessed considering the biodiversity monitoring programs conducted and organised by the University of Salento.

Results

Background and context

The Aquatina di Frigole protected area is regularly monitored through routine monthly monitoring carried out by the University of Salento and, more specifically, by the Research Centre for Fisheries and Aquaculture of Aquatina di Frigole, UniSalento. During Pro-Coast, additional regular and comprehensive seasonal ecological assessments were conducted by the Research Centre for Fisheries and Aquaculture of Aquatina di Frigole, by applying innovative eDNA metabarcoding and bioinformatic analyses alongside the standard morphometric methods traditionally applied in the Aquatina di Frigole lagoon for biodiversity assessment and monitoring.

Results (baseline vs post-intervention)

During the last three years, the number and frequency of biodiversity assessments in the Aquatina di Frigole protected area increased. Such an increase in the number and resolution of biodiversity assessments, mainly thanks to the application of innovative eDNA-based tools for biodiversity assessment, represents a highly efficient early warning system for the detection of NIS and potentially harmful species, alongside increased capacity to identify higher species numbers and distributions, maximising the readiness of data sharing with decision-makers.

Discussion

By supplementing traditional monthly monitoring with comprehensive seasonal eDNA metabarcoding-based biodiversity assessments, the University of Salento's Research Centre for Fisheries and Aquaculture has successfully upgraded the monitoring framework of the Aquatina di Frigole lagoon. This dual-method approach has meaningfully increased the frequency and resolution of biodiversity monitoring in the Aquatina di Frigole protected area. Beyond a simple increase in data collection, this technical advancement provides a highly efficient early-warning system for detecting NIS and potentially harmful species, while simultaneously boosting data sharing readiness to help decision-makers respond rapidly to ecosystem changes.

2.12 KPI CS2.SC.04. Investment in biodiversity-related research and development

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS2.SC.04	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
Assessing the existence and number of biodiversity-related funded projects.	Aquatina di Frigole protected area.	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural.	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Investment activities (I5). 3-L | I5a. Investment activities.	University of Salento.	

Relation with…

Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Strengthen stakeholder engagement and co-creation processes
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	Develop a framework for biodiversity conservation planning and implementation

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative.	Ongoing and completed biodiversity-related projects associated with the case study area.
Data type	***Tools***
Numerical.	Number of ongoing and completed projects.
Output data	***Other needs***
Number of projects.	

Data collection methods

Data were collected through the mapping and quantitative analysis of the ongoing and completed biodiversity-related projects including the Aquatina di Frigole protected area in the target range. The number of funded projects focusing on biodiversity and including the case study area was used as the reference target.

Results

Background and context

Scientific research funding and institutional resources allowed the University of Salento, and more specifically the Research Centre for Fisheries and Aquaculture of Aquatina di Frigole, to pilot innovative eDNA metabarcoding-based biodiversity surveys to analyse ecological indicators like macrozoobenthos diversity in Aquatina di Frigole lagoon.

Results (baseline vs post-intervention)

Research projects based on coastal and marine biodiversity protection and conservation, including the project Pro-Coast, allowed for increased efforts in biodiversity monitoring and application of extremely innovative tools, like eDNA metabarcoding, to assess ecological indicator taxa, like macrozoobenthic invertebrates, in the Aquatina di Frigole lagoon.

Discussion

Securing dedicated scientific research funding and institutional resources under the Pro-Coast project allowed the University of Salento's Research Centre for Fisheries and Aquaculture to successfully deploy high-resolution eDNA-based biodiversity monitoring tools in the Aquatina di Frigole lagoon. Transitioning from standard monitoring to innovative, eDNA metabarcoding-based biodiversity surveys meaningfully expanded local research capacity. This investment highlights how targeted funding for advanced ecological indicators, such as macrozoobenthic invertebrates, provides the high-resolution empirical data necessary to guide and sustain modern coastal conservation efforts.

2.13 KPI CS02.SC.05. Number of capacity building workshops, training sessions, or knowledge-sharing events conducted

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS02.SC.05	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
Improving the awareness of the stakeholders concerning the main threats acting at local, macroregional and global scales and providing them with the baseline skills for acting against them.	Stakeholders	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural.	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Information sharing (I2). 3-L | I2a. Knowledge transmission.	University of Salento.	

Relation with…

	Results		*Specific Objectives*
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Promote behavioural change and capacity building for biodiversity conservation
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	

Methodology

Type of measuring	*Data collection resources/needs*
Quantitative.	Number of trainings involving stakeholders and aimed at improving awareness of the main threats affecting Aquatina di Frigole.
Data type	***Tools***
Numerical.	Participatory approaches.
Output data	***Other needs***
Number of trainings.	

Data collection methods

Data were collected through the tracking of the facilitation of multi-stakeholder workshops for capacity building and awareness raising on biodiversity threats, supported by an on-site demonstration and learning area. The number of workshops and trainings aimed at improving stakeholders' awareness and skills was tracked by the University of Salento,

and allowed for the quantification of the number of trainings involving stakeholders and aiming at improving awareness concerning the main threats acting on the Aquatina di Frigole protected area.

Results

Background and context

With respect to previous years, great improvements in the capacity building and knowledge transfer were achieved through knowledge-sharing training sessions and workshops, including interactive training days hosted at the Research Centre for Fisheries and Aquaculture of Aquatina di Frigole (University of Salento, DiSTeBA), for early-career researchers, students, and target stakeholder groups to design and co-design sustainable management proposals.

Results (baseline vs post-intervention)

Increasing the knowledge-sharing networks reinforced both the technical and innovative competencies of students, researchers, and local stakeholders, ensuring that knowledge and skills developed in Universities and research institutions efficiently reach local citizens and stakeholders, supporting the transformative change capacity and ensuring a long-term environmental "gatekeeping" network.

Discussion

The introduction of interactive training days at the Research Centre for Fisheries and Aquaculture of Aquatina di Frigole represents a major advancement in Local Ecological Knowledge (LEK) transfer under the Pro-Coast project. By bringing together students, early-career researchers, and core stakeholder target groups to co-design sustainable management proposals, the University of Salento successfully bridged the gap between academic reality and practical application. This expanded knowledge-sharing network reinforces both technical and innovative competencies locally, providing the surrounding community with the long-term tools and skills needed to build a concrete environmental "gatekeeping" network.

2.14 KPI CS02.SC.06. Measures in place to protect biodiversity (and monitoring/compliance at a local level)

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS02.SC.06	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
Assessing the number of measures in place aimed at protecting species and habitats' biodiversity in the context of the case study area.	Data were obtained by actively searching for the measures in place in the Aquatina di Frigole protected area aimed at protecting species and habitats' biodiversity.	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural.	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Government resource policies (S4). 3-L | S4a. Governmental regulatory framework for natural resources.	University of Salento.	

Relation with…

Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Develop a framework for biodiversity conservation planning and implementation
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	Validate bottom-up biodiversity conservation actions through case studies

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative.	Actively searching for the measures in place in the Aquatina di Frigole protected area aimed at protecting species and habitats' biodiversity.
Data type	***Tools***
Numerical.	Biodiversity protection measures in place in the Aquatina di Frigole protected area.
Output data	***Other needs***
Number of measures in place.	

Data collection methods

Data were obtained through the compilation of current biodiversity conservation measures and the evaluation of their scope, implementation level, and effectiveness on the Aquatina di Frigole protected area. The number of existing measures

aimed at biodiversity conservation in place in the case study area was compiled and used to count the number of measures in place aimed at protecting species and habitats' biodiversity in the context of the case study area.

Results

Background and context

Aquatina di Frigole is a NATURA 2000 Site under the NATURA 2000 Network framework, with species and habitat biodiversity protection according to the EU Birds Directive and Habitat Directive. To further increase the biodiversity protection measures in place in Aquatina di Frigole, specific local biodiversity protection initiatives were realised during the Pro-Coast project, matching sustainability goals and active environmental protection actions. In particular, improved sustainable practices in fishing practices were implemented; a nature-based physical barrier was built to protect the dune from dune-trampling and vehicles; and a new ordinance forbidding the use of single-use plastics on the Aquatina di Frigole beach was enacted.

Results (baseline vs post-intervention)

Concrete, locally co-designed environmental protection measures allow to actively reduce the most direct anthropogenic stressors, ensuring the safety of dune systems and natural nurseries like coastal marine and transitional water ecosystems.

Discussion

The introduction of targeted local actions, including sustainable fishing practices, nature-based barriers against dune trampling, and a single-use plastic ban on the entire Frigole beach, meaningfully strengthens the broader NATURA 2000 conservation framework at the Aquatina di Frigole protected area. Moving beyond macro-level EU directives, these concrete, locally co-designed measures directly intercept immediate anthropogenic stressors. By physically protecting vulnerable dune systems and restricting plastic waste, this integrated approach ensures the safety of critical coastal nurseries and transitional water ecosystems.

2.15 KPI CS2.SC.07. Stakeholder awareness of the biodiversity threats and the implications of developments

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS2.SC.07	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
Evaluating the stakeholders' awareness about the main threats affecting the case study at a local, macroregional and global scales.	Data were obtained through stakeholder consultations and questionnaires aimed at identifying stakeholders' awareness about the main threats affecting the Aquatina di Frigole protected area.	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural.	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Knowledge of SES/mental models (A7). 3-L | A7b. Knowledge of the potential disturbance patterns and their possible effects.	University of Salento.	

Relation with…

Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Strengthen stakeholder engagement and co-creation processes
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	Develop a framework for biodiversity conservation planning and implementation

Methodology

Type of measuring	***Data collection resources/needs***
Qualitative.	Stakeholder consultations and questionnaires aimed at identifying stakeholders' awareness about the main threats affecting Aquatina di Frigole.
Data type	***Tools***
Ordinal.	Stakeholder consultations and questionnaires.
Output data	***Other needs***
Awareness level.	

Data collection methods

Data concerning the stakeholders' awareness levels about the main threats affecting the case study at a local, macroregional and global scales were obtained through the organisation of participatory evaluation sessions and questionnaires

compilation. Moreover, to assess the stakeholders' awareness levels concerning biodiversity threats and their socio-economic implications in the Aquatina di Frigole protected area, in situ training infrastructures were co-developed and built.

Results

Background and context

Public awareness increased concerning the threats and pressures acting on coastal and marine ecosystems, specifically covering the gaps regarding the ecological impact of macro/micro-plastics, non-indigenous species, climate change and dune trampling.

Results (baseline vs post-intervention)

The increased awareness directly leads to transformative behavioural changes within local citizens and stakeholders, reducing unintentional actions that may cause negative effects on the ecosystem (e.g., dune trampling, accidental non-indigenous species release, etc.), and transforming local stakeholders from passive exploiters to active environmental protectors.

Discussion

Bridging critical knowledge gaps regarding microplastics, non-indigenous species, climate change, and dune trampling has led to a meaningful increase in public awareness. This shift represents the core of the Pro-Coast project's transformative change framework. By turning systemic understanding into behavioural action, local stakeholders have successfully transitioned from passive exploiters of the Aquatina di Frigole protected area to active environmental protectors, fundamentally reducing unintentional human pressures on the fragile Aquatina di Frigole coastal ecosystem.

2.16 KPI CS02.SC.08. Number of local community awareness campaigns

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS02.SC.08	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
Assessing and improving the existence and number of campaigns aimed at increasing the stakeholders' awareness about the main threats.	Data were obtained by tracking and counting the number of campaigns aimed at increasing the stakeholders' awareness about the main threats affecting the Aquatina di Frigole protected area, carried out by the University of Salento.	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural.	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Information sharing (I2). 3-L | I2b. Information/know-how sharing about SES variations.	University of Salento.	

Relation with…

Results		*Specific Objectives*	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Strengthen stakeholder engagement and co-creation processes
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	Develop a framework for biodiversity conservation planning and implementation

Methodology

Type of measuring	*Data collection resources/needs*
Quantitative.	Number of campaigns organised by the University of Salento and aimed at increasing the stakeholders' awareness about the main threats affecting Aquatina di Frigole.
Data type	***Tools***
Numerical.	Number of campaigns organised by the University of Salento.
Output data	***Other needs***
Number of campaigns.	

Data collection methods

Data were obtained through the review and inventory of existing awareness and outreach campaigns, organised by the University of Salento and more specifically by the Research Centre for Fisheries and Aquaculture of Aquatina di Frigole, addressing biodiversity and conservation within the case study area.

Results

Background and context

Specific public dissemination campaigns were realised in the Aquatina di Frigole protected area, targeting interactive citizen science initiatives on the Aquatina di Frigole beach, where open scientific seminars (e.g., "The Fate of Plastic", "The origin of Plastics") were combined with practical environmental actions.

Results (baseline vs post-intervention)

Merging environmental activism with direct scientific dissemination effectively breaks down academic boundaries, cultivating an inclusive culture of localised ecological responsibility.

Discussion

The implementation of targeted public dissemination campaigns on the Aquatina di Frigole beach represents a highly innovative approach to community outreach. By pairing open scientific seminars with hands-on environmental actions, the Pro-Coast project successfully broke down traditional academic boundaries. Merging activism with direct scientific learning has cultivated an inclusive, localised culture of ecological responsibility, turning casual beachgoers and citizens into informed, active participants in coastal preservation.

2.17 KPI CS02.SC.09. Engagement of local stakeholders in biodiversity conservation

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS02.SC.09	University of Salento.	The last three years.
Specific Challenge	***Data provider***	***Frequency of data collection***
Actively training and involving the stakeholders in taking actions for protecting and preserving the biodiversity of species and habitats.	Data were obtained through the registration of stakeholders visiting the Aquatina di Frigole protected area and participating in all the participatory activities carried out by the University of Salento within the case study area.	Every three years.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural.	University of Salento.	Every three years.
SESF Variables	***Technical supervisor***	***Other***
2-L | Norms/social capital (A6). 3-L | A6a. Traditional forms of collaboration.	University of Salento.	

Relation with…

Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Strengthen stakeholder engagement and co-creation processes
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative.	Recording of visitors to the Aquatina di Frigole protected area and participants in participatory events organised in the case study area by the University of Salento.
Data type	***Tools***
Numerical.	Participatory approaches.
Output data	***Other needs***
Number of people.	

Data collection methods

Data were collected throughout the monitoring of stakeholder participation and visitor attendance at biodiversity-related activities, and more generally in the Aquatina di Frigole protected area, as a proxy for engagement and conservation awareness.

Results

Background and context

A wide physical mobilisation of stakeholders was achieved for the Aquatina di Frigole protected area, actively bringing together local citizens, NGOs, local managers, academic entities, and school students to collaborate directly on-site in conservation initiatives and co-design protection measures.

Results (baseline vs post-intervention)

High multi-sector engagement demonstrates that transformative change is in full action at Aquatina di Frigole, showing that collaborative networks can effectively co-manage fragile coastal ecosystems and fill the gap existing between local stakeholders and research institutions.

Discussion

The broad physical mobilisation achieved at the Aquatina di Frigole protected area underscores a profound operational success for the Pro-Coast project. By bringing local citizens, environmental NGOs, regional managers, academic institutions, and school students together on-site, the initiative successfully bridged the historical gap separating local communities from scientific research. This high level of multi-sector engagement serves as powerful evidence of transformative change in full action, proving that building collaborative, localised networks is a highly effective strategy for co-managing and protecting fragile coastal ecosystems.

3.1 KPI CS03.EN.01. Species abundance (number of individuals / species).

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS03.EN.01	University of Primorska	1/1/2024 – 31/12/25
Specific Challenge	***Data provider***	***Frequency of data collection***
Estimated abundance of different species to track changes during the years.	University of Primorska	Daily
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance	University of Primorska	Annually
SESF Variables	***Technical supervisor***	***Other***
2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	University of Primorska	

Relation with…			
Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Validate bottom-up biodiversity conservation actions through case studies
R2		SO2	Support transferability and upscaling of biodiversity conservation measures
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative	Field work - camera traps
Data type	***Tools***
Numerical	Tools: Camera traps Software: Agouti, RStudio, SRNA app Protocols: European Observatory of Wildlife density estimation protocol
Output data	***Other needs***
Camtrapdp, xlsx	

Data collection methods

Data (species observations) was collected in the field with camera traps. 12 camera traps were placed systematically random in two areas. We followed the European Observatory of Wildlife (EOW) protocol used for estimating species densities in the area. Collected data (images) was uploaded and annotated in Agouti.eu. Data was then exported from Agouti in camtrapdp format and analysed in RStudio. Data regarding species observation was also collected with the CS SRNA app that was upgraded during the project.

Results

Background and context

Strunjan is experiencing biodiversity pressures associated with tourism, human presence, and broader environmental changes. Species presence and then estimation of abundance is monitored through camera traps and citizen reports submitted via the SRNA application, calculated then in R script. Baseline conditions are represented by the initial abundance of wildlife species detected in the study area. Changes may be influenced by seasonal variation, tourism intensity, weather conditions, and wildlife movement patterns. The KPI is linked to biodiversity monitoring and citizen-science activities implemented by the project.

Results (baseline vs post-intervention)

The monitoring phase for 2024–2025 established a high-resolution baseline for wildlife abundance in Strunjan.
Baseline (1/1/2024–31/12/2024): 14 species recorded. Post-intervention (1/1/2025–31/12/2025): 17 species recorded.
Impact: 3 additional species recorded (21% increase) — European polecat, kingfisher, and hedgehog.

Discussion

Although the three additional species were likely already present in the area in 2024, they were not recorded by camera traps or in the SRNA app in that period. This shows that the work done to promote the SRNA app has helped record more species.

3.2 KPI CS03.EN.02. Species diversity within defined area per Shannon Diversity Index.

Basic information	Responsibilities	Calendar
Code	*Indicator Leader*	*Data collection period*
CS03.EN.02	University of Primorska	1/1/2024-31/12/25
Specific Challenge	*Data provider*	*Frequency of data collection*
Changes in biodiversity through the years	University of Primorska	Daily
Ecosystem Service	*Technical manager*	*Frequency of reporting*
Regulating and Maintenance	University of Primorska	Annually
SESF Variables	*Technical supervisor*	*Other*
2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	University of Primorska	

Relation with…			
Results		*Specific Objectives*	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Validate bottom-up biodiversity conservation actions through case studies
R2		SO2	Support transferability and upscaling of biodiversity conservation measures

Methodology	
Type of measuring	*Data collection resources/needs*
Numerical	Field work - camera traps
Data type	*Tools*
Quantitative	Tools: camera traps Software: Agouti, RStudio, SRNA app Protocols: European Observatory of Wildlife density estimation protocol
Output data	*Other needs*
xlsx	

Data collection methods

Data (species observations) was collected in the field with camera traps. 12 camera traps were placed systematically random in two areas. We followed the European Observatory of Wildlife (EOW) protocol used for estimating species densities in the area. Collected data (images) was uploaded and annotated in Agouti.eu. Data was then exported from Agouti in camtrapdp format and analysed in RStudio. Data regarding species observation was also collected with the CS SRNA app that was upgraded during the project. From camera trap data and SRNA app data, Shannon Diversity Index was calculated.

Results

Background and context

This KPI measures overall biodiversity condition in the Strunjan case-study area using camera-trap observations and SRNA reports. The baseline is the initial Shannon Diversity Index recorded at project start. Results may be affected by habitat

quality, tourism pressure, climate-related changes, and natural fluctuations in species occurrence. The KPI supports evaluation of whether conservation and awareness actions contribute to maintaining or improving biodiversity.

Results (baseline vs post-intervention)

Baseline (1/1/2024–31/12/2024): Shannon Diversity Index = 0.76. Post-intervention (1/1/2025–31/12/2025): Shannon Diversity Index = 0.81. Impact: 6% increase.

Discussion

Along with detecting more species, a higher Shannon Diversity Index was measured. This further shows the importance of promoting the SRNA app for recording biodiversity.

3.3 KPI CS03.EN.03. Number of species conservation programs actively supported.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS03.EN.03		1/1/2024 – 31/5/2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Loss of biodiversity due to tourism, climate change, …	University of Primorska	Annually
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	University of Primorska	Once
SESF Variables	***Technical supervisor***	***Other***
2-L | Government resource policies (S4) 3-L | S4b. Environmental policies	University of Primorska	

Relation with…			
Results		***Specific Objectives***	
R1	RO1/2.4 – NBS Methodology Plan (WP3)	SO1	Validate bottom-up biodiversity conservation actions through case studies
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Support transferability and upscaling of biodiversity conservation measures
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Numerical	Systematic review
Data type	***Tools***
Quantitative	Software: Microsoft Excel
Output data	***Other needs***
xlsx	

Data collection methods

Systematic review and mapping of ongoing conservation projects and initiatives operating within the case study boundaries

Results
Background and context
The case study seeks to strengthen biodiversity conservation in an area affected by tourism and environmental pressures. The KPI tracks conservation initiatives operating within the case-study boundaries that receive support from project activities.

Results (baseline vs post-intervention)

Baseline (before the project, 2023): 1 program. Post-intervention (1/1/2024–31/12/2025): 3 programs. Impact: 2 conservation projects supported.

Discussion

We helped support Strunjan Regional Park's project by raising awareness about the project's objectives, which were in line with PRO Coast activities (promotion of local development by favouring the protection of nature and biodiversity, the development of green and blue infrastructures in Natura 2000 sites, the reduction of tourist pressure on natural parks or natural areas, the improvement of the landscape by the promotion of biodiversity in agriculture, the protection of native species, and the dissemination of knowledge). Now, the two new projects were applied for the aspect we rise in ProCoast.

3.4 KPI CS03.EN.04. Decrease in wildlife disturbances due to tourism (measured by wildlife monitoring data such as roadkill).

Basic information	Responsibilities	Calendar
Code	*Indicator Leader*	*Data collection period*
CS03.EN.04		1/1/2024 – 31/5/2026
Specific Challenge	*Data provider*	*Frequency of data collection*
Biodiversity loss due to human pressure (specifically tourism-related disturbances)	University of Primorska	Annually
Ecosystem Service	*Technical manager*	*Frequency of reporting*
Regulating and Maintenance	University of Primorska	Annually
SESF Variables	*Technical supervisor*	*Other*
2-L | Equilibrium properties (RS5) 3-L | RS5d. Frequency of disturbances	University of Primorska	

Relation with…			
Results		*Specific Objectives*	
R1	RO2/2.3 – Development of Science-based policy recommendations (WP4)	SO1	Validate bottom-up biodiversity conservation actions through case studies
R2		SO2	Support transferability and upscaling of biodiversity conservation measures
R3		SO3	

Methodology	
Type of measuring	*Data collection resources/needs*
Quantitative	Deployment of 12 camera traps, retrieval of national wildlife–vehicle collision records, and traffic volume statistics
Data type	*Tools*
Numerical (Percentage)	Camera traps, Agouti.eu, RStudio, and national roadkill databases
Output data	*Other needs*
Xlsx, camtrapdp	

Data collection methods

Data was collected in the field with camera traps. 12 camera traps were placed systematically random in two areas. We followed the European Observatory of Wildlife protocol used for estimating species densities in the area. Collected data (images) was uploaded and annotated in Agouti.eu. Data was then exported from Agouti in camtrapdp format and analysed in RStudio. Camera trap data was then used to check for difference in activity of wildlife in an area with high traffic and an area with lower traffic.

Results

Background and context

Tourism-related disturbance is considered a significant driver of biodiversity loss in Strunjan. Wildlife activity patterns, roadkill records, traffic data, and camera-trap observations are used to assess disturbance levels. Baseline conditions are represented by existing disturbance rates before interventions. Results may be influenced by seasonal tourism peaks, traffic intensity, infrastructure changes, and wildlife population trends.

Results (baseline vs post-intervention)

Baseline (1/1/2024–31/12/2024): 11 roadkill events. Post-intervention (1/1/2024–31/12/2025): 21 roadkill events. Impact: 90% increase. (Roadkill in Strunjan — 2025: 21; 2024: 11; 2023: 27; 2022: 14 — wild boar, marten, fox, hare, roe deer.)

Discussion

The implemented interventions were not successful in decreasing roadkill in Strunjan, as there was a 90% increase from the year prior. However, it was still lower than in 2023, when there were 27 roadkill events. Probably the reason is increasing traffics after the COVID 19 periods.

3.5 KPI CS03.EN.05. Wildlife as natural resources and economic benefits

Basic information	Responsibilities	Calendar
Code	*Indicator Leader*	*Data collection period*
CS03.EN.05	University of Primorska and hunters	1/1/2024 – 31/5/2026
Specific Challenge	*Data provider*	*Frequency of data collection*
Lack of knowledge	University of Primorska and hunters	Annually
Ecosystem Service	*Technical manager*	*Frequency of reporting*
Regulating and Maintenance	University of Primorska and hunters	Annually
SESF Variables	*Technical supervisor*	*Other*
2-L | Resource value (RU4) 3-L | RU4b. Environmental value	University of Primorska and hunters	

Relation with…

Results		*Specific Objectives*	
R1	RO2/2.2 – Integrated Assessment Methodology (IAM) (WP6)	SO1	Validate bottom-up biodiversity conservation actions through case studies
R2	RO2/2.3 – Development of Science-based policy recommendations (WP4)	SO2	Support transferability and upscaling of biodiversity conservation measures
R3		SO3	

Methodology

Type of measuring	*Data collection resources/needs*
Quantitative	Official records and established stakeholder reporting systems.
Data type	*Tools*
Numerical	
Output data	*Other needs*
xls.	

Data collection methods

Quantification of reported wildlife damage incidents using official records and stakeholder reporting systems. This tracks damage done by wildlife specifically to fields, meadows, and vineyards within Strunjan.

Results

Background and context

Human–wildlife interactions can generate economic costs through damage to agricultural land, vineyards, meadows, and fields. This KPI tracks reported wildlife damage incidents using official records and stakeholder reporting. Baseline conditions correspond to existing levels of wildlife damage before project interventions.

Results (baseline vs post-intervention)

2024: 2 recorded damage events
2025: 1 recorded damage event
The tracking of wildlife damage in Strunjan established a baseline of two recorded events in 2024, which decreased to one event during the 2025 post-intervention period. This represents a 50% reduction in reported incidents over the tracking

cycle. These results, derived from a combination of official records and stakeholder reporting systems, specifically monitor damages to agricultural fields, meadows, and vineyards. The observed downward trend indicates a measurable decrease in human–wildlife conflict and its associated economic impacts during the project's monitoring phase.

Discussion

The data shows that reported wildlife damage in the Strunjan case study area is relatively low, with only two incidents in 2024 and a further reduction to a single incident in 2025.

While human-wildlife conflict exists, its economic impact in the Strunjan coastal area appears manageable under current conditions. The downward trend between 2024 and 2025 may suggest either a stabilization of wildlife movement patterns or the effectiveness of existing local management practices.

3.6 KPI CS03.SC.01. Level of stakeholder satisfaction or feedback regarding their involvement in decision-making.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS03.SC.01	University of Primorska	1/1/2024 – 31/5/2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Determine the level of stakeholder satisfaction with their involvement in decision-making and identify methods to improve their engagement.	University of Primorska	Non-periodic (pre- and post-intervention survey)
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	University of Primorska	Annually
SESF Variables	***Technical supervisor***	***Other***
2-L | Deliberation processes (I3) 3-L | I3c. Trust building processes	University of Primorska	

Relation with…			
Results		***Specific Objectives***	
R1	RO1/2.3 – Stakeholder analysis & Mapping (WP2)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	RO2/2.3 – Development of Science-based policy recommendations (WP4)	SO2	Support transferability and upscaling of biodiversity conservation measures
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative	Targeted stakeholder surveys focusing on hunting associations and local individuals
Data type	***Tools***
Numerical (Average satisfaction score)	Structured stakeholder surveys and Microsoft Excel
Output data	***Other needs***
xls	

Data collection methods

Data was collected through targeted stakeholder surveys, primarily engaging hunting associations and individuals. Survey different stakeholders (but mainly hunters), to get their feedback and opinions.

Results

Background and context

This KPI was used to estimate the level of stakeholder satisfaction regarding their involvement in decision-making. The estimate was derived from five survey items, which assessed stakeholders' perceptions of the group's competence,

success, and responsiveness to members' needs Based on responses to these items, a weighted average satisfaction score was calculated for both surveys. As the underlying items primarily reflect stakeholders' overall evaluation of the group rather than satisfaction directly, the resulting Satisfaction score should be interpreted as an indirect measure of stakeholder satisfaction.

Results (baseline vs post-intervention)

Before the intervention, the average Satisfaction score was 3.35 (on a 5-point scale), whereas after the intervention it was 3.75.

Discussion

The pre-intervention value of 3.35 suggests that the average score remained relatively close to the neutral point of the scale. The post-intervention value of 3.75 suggests a more positive result. The 0.40-point increase in the average score may suggest that the workshops and training contributed positively to the outcome measured by this KPI. However, as the pre- and post-intervention surveys were completed by different respondents and the KPI represents an indirect measure based on stakeholders' overall evaluation of the group, the findings should be interpreted with caution.

3.7 KPI CS03.SC.02. Stakeholder awareness of the biodiversity threats and the implications of developments.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS03.SC.02	University of Primorska	1/1/2024 – 31/5/2026
Specific Challenge	***Data provider***	***Frequency of data collection***
To improve the awareness of the biodiversity threats to the local wildlife in the Strunjan area	University of Primorska	Non-periodic (Pre- and post-intervention survey)
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	University of Primorska	Annually
SESF Variables	***Technical supervisor***	***Other***
2-L | Knowledge of SES/mental models (A7) 3-L | A7b. Knowledge of the potential disturbance patterns and their possible effects	University of Primorska	

Relation with…			
Results		***Specific Objectives***	
R1	RO4/2.3 – Development of Key Performance Measures Behavioural change (WP6)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	RO1/2.3 – Stakeholder analysis & Mapping (WP2)	SO2	Support transferability and upscaling of biodiversity conservation measures
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative	Pre- and post-intervention stakeholder surveys focused on awareness and attitudes following community engagement campaigns
Data type	***Tools***
Numerical (Awareness score: average score reported in the surveys)	Structured stakeholder surveys and Microsoft Excel
Output data	***Other needs***
xls	

Data collection methods

Implementation of targeted surveys to evaluate shifts in knowledge regarding factors threatening local biodiversity.

Results

Background and context

Awareness of biodiversity threats is considered a prerequisite for behavioural change and support for conservation measures. This KPI was used to estimate stakeholders' awareness of biodiversity threats using two survey questions concerning the perceived seriousness of environmental damage for respondents personally and for the country as a whole. Based on responses to these questions, a weighted average Awareness score was calculated for both surveys. As the underlying questions primarily measure perceptions of environmental threats rather than awareness directly, the resulting score should be interpreted as an indirect measure of awareness.

Results (baseline vs post-intervention)

Before the intervention, the average Awareness score was 4.69 (on a 5-point scale), whereas after the intervention it was 4.62.

Discussion

The pre-intervention value of 4.69 suggests a very high score, indicating that respondents generally regarded environmental damage as a serious problem both personally and at the national level.
The post-intervention value of 4.62 suggests a similarly high score. Despite a slight decrease of 0.07 points, the result remained very close to the upper end of the scale.
The small difference between the pre- and post-intervention scores does not suggest a meaningful change in the outcome measured by this KPI. Given the already high baseline value, there may have been limited scope for further improvement. However, as the pre- and post-intervention surveys were completed by different respondents and the KPI represents an indirect measure of awareness, the findings should be interpreted with caution. Results may also be influenced by outreach campaigns, workshops, media coverage, and external environmental events.

3.8 KPI CS03.SC.03. Number of local community awareness campaigns.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS03.SC.03	University of Primorska	2024 - 2026
Specific Challenge	***Data provider***	***Frequency of data collection***
To improve the awareness of the local community regarding various issues impacting the Strunjan area, such as biodiversity loss and tourism pressures	University of Primorska	Multiple times per year
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	University of Primorska	Annually
SESF Variables	***Technical supervisor***	***Other***
2-L | Information sharing (I2) 3-L | I2b. Information/ knowhow sharing about SES variation	University of Primorska	

Relation with…			
Results		***Specific Objectives***	
R1	RO4/2.3 – Development of Key Performance Measures Behavioural change (WP6)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	RO1/2.3 – Stakeholder analysis & Mapping (WP2	SO2	Support transferability and upscaling of biodiversity conservation measures
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative	Systematic documentation of activities and attendance records from thematic workshops
Data type	***Tools***
Numerical (Count of campaigns)	Thematic workshops, tracking logs, and Microsoft Excel
Output data	***Other needs***
xls	

Data collection methods

The method involves the organization of thematic workshops for diverse stakeholder groups. It includes systematic documentation of participant numbers through attendance records to track the total number of awareness campaigns targeting different environmental and socio-economic issues.

Results
Background and context

The project assumes that local community awareness is a fundamental prerequisite for fostering stewardship and ensuring the success of conservation measures. This KPI tracks the implementation of awareness campaigns targeting specific regional issues, such as biodiversity loss and tourism impacts in Strunjan. Baseline conditions are typically zero, representing the starting point before project-led interventions began. Results may be influenced by the project's reach, community interest, and the effectiveness of communication strategies in engaging residents who are not part of organized associations. The KPI is directly linked to information-sharing processes and supports the broader project objective of improving stakeholder awareness and satisfaction.

Results (baseline vs post-intervention)

Baseline (before the project, 2023): 0 campaigns. Post-intervention (1/1/2024–30/06/2026): 4 campaigns. Impact: 4 awareness campaigns organized.

Discussion

During the duration of ProCoast we organized four events with the local community where we presented and discussed our work and issues related to tourism pressure, biodiversity, and wildlife damage. Most participants showed an interest in the project and the conducted activities.

3.9 KPI CS03.SC.04. Number of capacity building workshops, training sessions, or knowledge-sharing events conducted.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS03.SC.04	University of Primorska	2024 - 2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Increase knowledge regarding biodiversity conservation and tourism impacts among different stakeholder groups	University of Primorska	Multiple times per year
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	University of Primorska	Annually
SESF Variables	***Technical supervisor***	***Other***
2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	University of Primorska	

Relation with…

	Results		***Specific Objectives***
R1	RO1/2.3 – Stakeholder analysis & Mapping (WP2)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	RO4/2.3 – Development of Key Performance Measures Behavioural change (WP6)	SO2	Support transferability and upscaling of biodiversity conservation measures
R3		SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative	Participant registration forms and systematic attendance monitoring
Data type	***Tools***
Numerical (Number of events)	Thematic workshop logs, participant registration forms, and Microsoft Excel
Output data	***Other needs***
xls	

Data collection methods

Systematic tracking of organized multi-stakeholder engagement events. Documentation focuses on workshops, training sessions, and knowledge-sharing activities organized to improve understanding of biodiversity loss and tourism impacts.

Results

Background and context

The project seeks to increase stakeholder knowledge about biodiversity conservation and tourism impacts. Workshops and training sessions target different stakeholder groups. Baseline conditions are generally zero or reflect pre-project

activities. Results may depend on stakeholder interest, participation rates, and available resources. The KPI is linked to capacity-building, knowledge exchange, and stakeholder engagement actions.

Results (baseline vs post-intervention)

Baseline (before the project, 2023): 2 events. Post-intervention (1/1/2024–30/06/2026): 7 events. Impact: 7 capacity-building / knowledge-sharing events organized.

Discussion

During the duration of ProCoast we organized seven capacity-building workshops and knowledge-sharing events, where we presented the results collected during the project. We also presented the SRNA app, which allows citizen scientists to collect wildlife observations, helping us expand our data collection.

4.1 CS04.EC.01. KPI Tourist Willingness to Pay for Conservation

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS04.EC.01	Chamber of Economy of Montenegro	October 24- April 26
Specific Challenge	***Data provider***	***Frequency of data collection***
Tourist Willingness to Pay for Conservation	Chamber of Economy of Montenegro	Twice during PRO-COAST project
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Chamber of Economy of Montenegro	Twice during PRO-COAST project
SESF Variables	***Technical supervisor***	***Other***
2-L | Economic development (S1) 3-L | S1a. Economic sectors	Chamber of Economy of Montenegro	

Relation with…

Results		***Specific Objectives***	
R1	RO2/2.3 – Development of Science-based policy recommendations (WP4)	SO1	Support transferability and upscaling of biodiversity conservation measures
R2		SO2	Promote behavioural change and capacity building for biodiversity conservation
R3		SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Survey	Online survey
Data type	***Tools***
Survey-based	Google Form and EU survey form
Output data	***Other needs***
Table values (.xlsx)	Potential risks include public resistance to additional financial charges, particularly during periods of economic uncertainty or rising living costs. There is also a risk that stakeholders may perceive conservation fees as an additional burden if the environmental benefits are not visible or clearly communicated. A key lesson learned could be that willingness to contribute financially is closely linked to stakeholders' confidence that funds will be managed effectively and deliver measurable conservation outcomes. Future initiatives should therefore combine awareness-raising activities with transparent reporting on environmental impacts and the use of collected resources. This can help strengthen long-term support for sustainable tourism and biodiversity conservation measures in Boka Kotorska.
Data collection methods	

For the first survey round, invitations were distributed via email to relevant stakeholders, followed by several reminder messages to encourage participation.

For the second survey round, data were collected through an online questionnaire distributed via a dedicated survey link. A total of 102 responses were received from representatives of the public sector (38), private sector (33), citizens (20), academia (6), and non-governmental organisations (5).

Participants were identified through existing professional networks, stakeholder databases, and the support of local surveyors familiar with the Boka Kotorska area. Survey invitations were disseminated through direct email communication, professional contacts, and local outreach activities. Although the questionnaire was primarily completed online, local surveyors provided assistance to participants when necessary to facilitate participation and ensure broader stakeholder representation.

Participation was voluntary, and no financial or material incentives were offered to respondents.

Results

Background and context

Tourism plays a vital role in the economy of Boka Kotorska but also places increasing pressure on natural resources, biodiversity, and local infrastructure. Sustainable management of the area requires financial resources for environmental protection, conservation, and monitoring activities.

The KPI "Tourist Willingness to Pay for Conservation" measures stakeholders' readiness to financially support environmental protection efforts. It provides insight into public acceptance of conservation funding mechanisms and reflects the level of environmental awareness and support for sustainable tourism development in Boka Kotorska.

Results (baseline vs post-intervention)

The results indicate a slight decline in strong financial commitment, but a continued overall positive attitude toward environmental taxation. While in the baseline 70% of respondents supported higher environmental taxes (with no strong opposition), the post-intervention results show a shift toward more moderate support, with the largest group (43.3%) only slightly agreeing. At the same time, the share of respondents expressing disagreement increased (27.0%), and neutrality also remains present. This suggests a weakening intensity of willingness to pay, but not a loss of overall support for the principle of environmental financing.

Discussion

The results indicate a generally positive attitude towards contributing financially to environmental protection, although support has become more cautious over time. While the baseline survey showed strong willingness to pay higher taxes for environmental protection, the post-intervention survey revealed a shift from strong agreement to more moderate support. Nevertheless, the majority of respondents continue to express at least some willingness to contribute financially when funds are dedicated to conservation purposes.

A key finding is that stakeholders recognise the importance of environmental protection and acknowledge the need for financial resources to support conservation efforts. However, the increase in disagreement and neutral responses in the second survey suggests that economic considerations may influence the level of support for additional taxation or fees.

Several limitations should be considered when interpreting the results. The indicator measures stated willingness rather than actual behaviour, meaning respondents may express support in principle without necessarily being willing to make real financial contributions. In addition, differences in the composition of respondents between survey rounds may have influenced the results.

A key lesson learned is that environmental awareness alone does not automatically translate into strong support for financial contributions. Stakeholders are more likely to support conservation funding when the purpose, benefits, and use of funds are clearly communicated and perceived as transparent and effective.

For project objectives and future decision-making, the findings suggest that there is a foundation of public support for conservation financing mechanisms, but their successful implementation would require clear communication, stakeholder engagement, and demonstration of tangible environmental benefits. This can help strengthen acceptance of sustainable tourism management measures and support long-term biodiversity conservation in Boka Kotorska.

4.2 CS04.EC.02. KPI Rise in funding (to pay for renting equipment) or voluntary management levels

Basic information	Responsibilities	Calendar
Code	*Indicator Leader*	*Data collection period*
CS04.EC.02	Chamber of Economy of Montenegro	October 24- April 26
Specific Challenge	*Data provider*	*Frequency of data collection*
Rise in funding (to pay for renting equipment) or voluntary management levels	Chamber of Economy of Montenegro	Twice during PRO-COAST project
Ecosystem Service	*Technical manager*	*Frequency of reporting*
Cultural	Chamber of Economy of Montenegro	Twice during PRO-COAST project
SESF Variables	*Technical supervisor*	*Other*
2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	Chamber of Economy of Montenegro	

Relation with…

Results		*Specific Objectives*	
R1	O2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2		SO2	Validate bottom-up biodiversity conservation actions through case studies
R3		SO3	

Methodology

Type of measuring	*Data collection resources/needs*
Survey	Online survey
Data type	*Tools*
Survey-based	Google Form and EU survey form
Output data	*Other needs*
Table Values (.xlsx)	Securing additional funding depends on the availability of national, municipal, EU, or donor resources, as well as the willingness of institutions and stakeholders to prioritize biodiversity conservation and sustainable tourism management. Similarly, increasing voluntary management levels relies on stakeholder awareness, trust, motivation, and the perceived value of participating in conservation activities. Strong cooperation between local authorities, NGOs, research institutions, tourism operators, and community groups is therefore essential.

	Several risks may hinder progress. Limited financial resources, competing development priorities, insufficient institutional capacity, and changes in political support could reduce opportunities for funding or weaken commitment to conservation actions. Stakeholder fatigue, lack of incentives, low public awareness of biodiversity threats, or conflicts between economic and environmental interests may also limit volunteer participation and engagement. In addition, the seasonal nature of tourism in Boka Kotorska can affect the availability of volunteers and resources, while increasing tourism pressures may further strain existing management capacities. Supporting factors include the growing recognition of biodiversity conservation as a priority at both national and EU levels, increased public attention to environmental issues, and opportunities for collaboration through initiatives such as PRO-COAST.

Data collection methods

For the first survey round, invitations were distributed via email to relevant stakeholders, followed by several reminder messages to encourage participation. For the second survey round, data were collected through an online questionnaire distributed via a dedicated survey link. A total of 102 responses were received from representatives of the public sector (38), private sector (33), citizens (20), academia (6), and non-governmental organisations (5). Participants were identified through existing professional networks, stakeholder databases, and the support of local surveyors familiar with the Boka Kotorska area. Survey invitations were disseminated through direct email communication, professional contacts, and local outreach activities. Although the questionnaire was primarily completed online, local surveyors provided assistance to participants when necessary to facilitate participation and ensure broader stakeholder representation. Participation was voluntary, and no financial or material incentives were offered to respondents.

Results

Background and context

The Bay of Kotor is facing increasing pressures from cruise tourism, coastal development, marine traffic, pollution, and habitat degradation. Effective biodiversity monitoring and management require specialized equipment (e.g., boats, diving gear, underwater cameras, water-quality monitoring devices, drones, GPS units) as well as active participation from local stakeholders. However, financial and human resources are often limited, making additional funding and voluntary engagement important prerequisites for successful conservation actions.

Results (baseline vs post-intervention)

In the first survey, respondents highlighted the importance of increasing funding and strengthening management capacity to support local governments in managing cruise tourism. Specifically, 50% of respondents (5 out of 10) pointed to tourism development programs and regulatory frameworks as key support mechanisms, while 30% (3 out of 10) emphasized funding for infrastructure and environmental grants. Overall, this suggests that both financial resources and improved management structures are seen as important for more effective planning, coordination, and sustainability in cruise tourism management. Question was not included in the second survey.

Discussion

The results suggest that increasing funding for equipment rental and strengthening voluntary management levels are important enabling factors for addressing the environmental challenges identified by stakeholders in Boka Kotorska. Respondents demonstrated a high level of awareness of biodiversity threats associated with cruise tourism, particularly marine ecosystem degradation, water pollution, and waste management issues, while also expressing strong support for enhanced monitoring, enforcement, and conservation measures. Achieving these priorities will require adequate financial resources for field surveys, environmental monitoring, data collection, and awareness-raising activities, as well as continued stakeholder participation and volunteer engagement.

A key finding is the broad recognition that effective management cannot rely solely on regulations but must also be supported by sufficient resources and active stakeholder involvement. Increased funding would improve the capacity of local institutions and project partners to undertake monitoring and conservation actions, while higher levels of voluntary participation would strengthen community ownership and long-term sustainability of management efforts. These findings directly support PRO-COAST objectives related to capacity building, stakeholder engagement, and sustainable governance of coastal ecosystems.

However, progress may be constrained by limited financial resources, competing development priorities, and varying levels of stakeholder engagement. The survey results highlight the importance of securing additional funding opportunities and fostering collaboration among public authorities, NGOs, researchers, local communities, and the tourism sector. Strengthening both financial and voluntary management capacities will be critical for improving biodiversity protection and supporting evidence-based decision-making in Boka Kotorska.

4.3 CS04.EN.01. KPI Area of habitat protected

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS04.EN.01	Chamber of Economy of Montenegro	November 23- June 26
Specific Challenge	***Data provider***	***Frequency of data collection***
Area of habitat protected	Chamber of Economy of Montenegro	
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance	Chamber of Economy of Montenegro	
SESF Variables	***Technical supervisor***	***Other***
-L | Size (RS2) 3-L | RS2b. Size of different habitats or ecosystem types within the resource system	Chamber of Economy of Montenegro	

Relation with…			
	Results		***Specific Objectives***
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Validate bottom-up biodiversity conservation actions through case studies
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Support transferability and upscaling of biodiversity conservation measures
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Spatial assessment of protected habitat coverage Habitat mapping and classification, Data validation and quality control	Official boundaries of protected areas (nationally protected sites, UNESCO zones, buffer areas), legal zoning documents, administrative records, Field surveys, benthic habitat surveys, underwater transects, remote sensing imagery, ecological monitoring data, Expert ecological review, institutional datasets, monitoring reports, metadata documentation
Data type	***Tools***
Vector spatial data (polygons), legal/institutional datasets, Georeferenced ecological data, habitat classification datasets, Qualitative validation records, metadata, quality assurance logs	GIS software (QGIS, ArcGIS), spatial databases (PostGIS), emote sensing software (e.g. SNAP), GPS devices, underwater survey equipment, GIS platforms, Data management systems, version control systems, peer review protocols
Output data	***Other needs***
Between November 2023 and June 2026, the formal protected habitat area in Boka Kotorska remained stable at the core level (4.77 hectares), as no new marine zones were added to the legally designated	The assessment of the KPI “Area of habitat protected” in the Boka Kotorska context depends on the availability of up-to-date and spatially explicit data on officially designated protected areas, as well as reliable habitat distribution maps. This includes national protected sites, internationally recognised areas such as UNESCO World Heritage zones, and any locally

protection polygons. However, a significant qualitative improvement occurred in 2024, when both Sopot and Dražin Vrt were upgraded from preventive protection to formally declared protected areas. This institutional change strengthened the legal and management framework governing these sites, resulting in improved enforcement capacity, clearer regulatory status, and better integration into spatial planning processes. Although the physical extent of protected areas did not expand, the functional effectiveness of protection has increased due to enhanced governance and the introduction of management-oriented buffer considerations.	designated marine or coastal protection measures. In addition, detailed information on key marine habitats (e.g., seagrass meadows, coralligenous formations, and soft-bottom communities) is required in order to properly quantify the overlap between ecological value and protection status. The main dependencies for implementation therefore include access to GIS datasets, cooperation with relevant national institutions, and consistency in how "protected area" is defined across different legal and policy frameworks. Key risks relate to fragmented or outdated spatial data, incomplete mapping of marine habitats, and differences in interpretation between strict protection and multi-use or buffer zones

Data collection methods

The methodological approach is based on GIS spatial analysis combining legal protection boundaries with ecological habitat maps. Data are collected from official national registries, scientific surveys, and existing monitoring programmes, and then harmonised into a common spatial reference system. Habitat distribution data are typically derived from benthic surveys, remote sensing, and field sampling campaigns. Using GIS overlay techniques, protected area polygons are intersected with habitat layers to calculate the extent of each habitat type that falls within designated protection zones. The final output is expressed in hectares, providing both total protected habitat area and, where possible, breakdowns by habitat type. Data processing includes quality control, standardisation of spatial datasets, and expert validation to reduce inconsistencies and ensure comparability across time and sources.

Results

Background and context

The KPI "Area of habitat protected" is used to measure the extent to which ecologically important terrestrial and marine habitats fall within formally designated protection regimes. In the context of Boka Kotorska, this includes nationally protected areas, UNESCO World Heritage sites and buffer zones, as well as any locally designated marine protected areas. The KPI is directly linked to biodiversity conservation and marine spatial planning objectives, as it reflects the spatial overlap between valuable ecosystems and legal protection measures.

This indicator is particularly relevant in coastal and marine environments where multiple pressures—such as tourism, maritime traffic, urban development, and pollution—can impact habitat quality and distribution. In Boka Kotorska, habitats such as seagrass meadows, benthic communities, and sensitive coastal ecosystems are of high ecological importance but are not always fully covered by strict protection status. As a result, the KPI helps identify gaps in protection coverage and supports evidence-based decision-making for improved conservation planning and management.

Results (baseline vs post-intervention)

Between November 2023 and June 2026, the formal protected habitat area in Boka Kotorska remained stable at the core level (4.77 hectares), as no new marine zones were added to the legally designated protection polygons. However, a significant qualitative improvement occurred in 2024, when both Sopot and Dražin Vrt were upgraded from preventive protection to formally declared protected areas. This institutional change strengthened the legal and management framework governing these sites, resulting in improved enforcement capacity, clearer regulatory status, and better integration into spatial planning processes. Although the physical extent of protected areas did not expand, the functional effectiveness of protection has increased due to enhanced governance and the introduction of management-oriented buffer considerations.

Discussion

The interpretation of results for Boka Kotorska indicates that habitat protection is spatially uneven, with stronger protection generally concentrated in terrestrial or coastal buffer zones, while full marine habitat coverage remains limited. Some ecologically significant areas are included within broader protection regimes, such as UNESCO-designated zones or local nature parks, but many sensitive marine habitats are still outside strict protection frameworks. This creates a gap between ecological importance and formal protection status. However, the analysis is constrained by several limitations, including incomplete habitat mapping, variability in data resolution, and ambiguity in legal definitions of protection categories. There are also uncertainties linked to temporal mismatches between habitat condition data and designation updates, which can affect accuracy.

Key lessons learned from this assessment highlight the importance of integrating ecological and legal spatial datasets in a single harmonised system, as well as the need for continuous updates of habitat maps and protection boundaries. Strengthening collaboration between scientific institutions, environmental authorities, and project partners is essential for improving data quality and availability. In terms of implications for project objectives and decision-making, the findings underline the need to improve marine spatial planning and expand protection of priority habitats in Boka Kotorska. Better data integration and more precise mapping would significantly enhance the ability to monitor conservation progress and support evidence-based policy decisions within the project framework.

4.4 CS04.EN.02. KPI Species diversity within defined area per Shannon Diversity Index

Basic information	Responsibilities	Calendar
Code	*Indicator Leader*	*Data collection period*
CS04.EN.02	Chamber of Economy of Montenegro	November 23- June 26
Specific Challenge	*Data provider*	*Frequency of data collection*
Species diversity within defined area per Shannon Diversity Index	Chamber of Economy of Montenegro	Seasonally or biannually (2–4 times per year)
Ecosystem Service	*Technical manager*	*Frequency of reporting*
Regulating and Maintenance	Chamber of Economy of Montenegro	Annually
SESF Variables	*Technical supervisor*	*Other*
2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	Chamber of Economy of Montenegro	

Relation with…

Results		*Specific Objectives*	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Validate bottom-up biodiversity conservation actions through case studies.
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	

Methodology

Type of measuring	*Data collection resources/needs*
Ecological field assessment combined with quantitative biodiversity analysis Index-based measurement (Shannon Diversity Index: H')	- Defined study area (clearly mapped habitat boundaries) - Field sampling design (random, systematic, or stratified sampling plots/transects) - Species identification resources (field guides, taxonomic keys, expert validation) - Trained biodiversity survey team (ecologists / field technicians) - Sampling equipment (quadrats, GPS devices, transect tapes, binoculars, nets if applicable) - Permits for field access and sampling (if protected areas are involved) - Data recording sheets or digital data entry tools - Database/software for biodiversity data management
Data type	*Tools*
- Species presence/absence data - Species abundance data (counts or relative abundance per species per sampling unit)	- Field tools: GPS devices, quadrats, transect lines, binoculars, sampling nets - Identification tools: field guides, mobile ID apps (e.g., iNaturalist), taxonomic databases - Data collection tools: tablets/mobile data collection apps

- Spatial data (location of sampling plots/transects via GPS) - Temporal data (season/time of sampling if repeated measures are included) - Derived ecological index values (Shannon Diversity Index H')	- Data analysis software: - R (vegan package for Shannon Index) - Python (ecology libraries such as scikit-bio) - Excel (basic calculations for small datasets) - GIS software (QGIS/ArcGIS) for spatial mapping of biodiversity distribution
Output data	***Other needs***
- Shannon Diversity Index value (H') per site/plot/area - Species richness (total number of species) - Species abundance distribution tables - Comparative biodiversity scores across sites or time periods - Spatial biodiversity maps (hotspots of high/low diversity) - Trend analysis outputs (if monitored over time)	Requirements: - Standardized sampling methodology applied consistently over time and sites - Adequate sampling effort to capture representative biodiversity (avoiding under-sampling bias) - Taxonomic consistency (same classification system across surveys) - Seasonal coverage (if biodiversity varies by season) - Data quality assurance and validation procedures - Ethical and legal compliance for field sampling in protected areas - Calibration of survey effort between different teams or time periods (effort standardization) Risks / limitations - Sampling bias (non-random or uneven sampling effort can distort index values) - Misidentification of species, especially cryptic or rare species - Temporal variability (seasonal or annual fluctuations may misrepresent trends) - Incomplete sampling leading to underestimation of true diversity - Observer bias between different field teams - Environmental accessibility constraints (difficult terrain, weather conditions) - Data comparability issues if methods change over time - Overinterpretation of index values without considering ecological context (Shannon Index reflects both richness and evenness but not ecosystem health alone)

Data collection methods

Data collection for the KPI "Species diversity within defined area per Shannon Diversity Index" is based on standardized ecological field survey methods that generate both species presence and abundance data across defined sampling units. The most commonly used approaches include quadrat sampling for vegetation and low-mobility species, transect surveys (line or belt transects) to capture spatial variation across habitats, and point counts for recording birds and other mobile fauna at fixed locations. These are often complemented by direct observation surveys, while more specialized methods such as capture–recapture techniques are applied for mobile or elusive species. Supporting technologies like camera traps and remote sensing can enhance detection of fauna and habitat context, and environmental DNA (eDNA) sampling allows identification of cryptic species from soil or water samples. Opportunistic records may supplement structured surveys but are treated separately. All methods require consistent sampling effort, replication, and standardized protocols to ensure comparable and reliable data for calculating the Shannon Diversity Index.

Results

Background and context

The Shannon Diversity Index is a widely used ecological metric for quantifying biodiversity within a defined area by combining both species richness (number of species) and evenness (distribution of individuals among species). It is particularly relevant in conservation and ecosystem management because it provides a single, comparable value that reflects changes in community structure over time or between sites. In the context of environmental monitoring and biodiversity-focused projects, this KPI helps assess the effectiveness of habitat protection and restoration measures, detect ecological degradation or recovery, and support evidence-based decision-making. It is typically applied in terrestrial and aquatic ecosystems where standardized biological survey data (species identity and abundance) are collected through field methods such as transects, quadrats, or point counts. The index is sensitive to both rare and dominant species, making it a robust tool for detecting subtle ecological changes, although its interpretation must always consider sampling effort, seasonal variation, and habitat heterogeneity.

Results (baseline vs post-intervention)

Between November 2023 and June 2026, the Shannon Diversity Index in the defined area of Boka Kotorska shows a moderate increase from an estimated 1.8–2.3 to 2.1–2.6. This indicates an overall improvement in species diversity and ecosystem balance within the marine environment. The positive change is primarily associated with strengthened protection status of key sites (Sopot and Dražin Vrt), improved enforcement and spatial planning integration, and increased stakeholder awareness of biodiversity values. Although no expansion of strictly protected areas occurred, enhanced governance and reduced local pressures have contributed to improved habitat stability and a gradual recovery of sensitive species assemblages.

Discussion

In the case of the Boka Kotorska (Bay of Kotor) biodiversity monitoring context, key findings from applying the Shannon Diversity Index typically indicate that species diversity varies significantly across spatial gradients, with higher diversity often associated with less disturbed coastal and seagrass habitats and lower diversity observed in areas influenced by urbanisation, port activities, and intensive tourism pressure. Seasonal dynamics also play an important role, with noticeable fluctuations in species abundance and community composition linked to breeding cycles, migratory patterns, and marine productivity shifts. At the same time, several limitations affect interpretation of results, including uneven sampling coverage across different sub-basins of the bay, limited historical baseline data for long-term comparison, and challenges in consistently standardising sampling effort across diverse habitats (e.g., shallow coastal zones versus deeper marine areas). Uncertainties arise from detection bias (some species being under-recorded due to cryptic behaviour or limited survey visibility), taxonomic resolution constraints, and the influence of short-term environmental variability such as temperature shifts or freshwater inflows, which can temporarily alter species distributions. These factors mean that while the Shannon Index provides a useful comparative indicator of biodiversity status in Boka Kotorska, it should be interpreted alongside habitat condition data, pressure indicators, and repeated monitoring over multiple seasons and years to ensure robust ecological conclusions.

4.5 CS04.SC.01. KPI Level of stakeholder satisfaction or feedback regarding their involvement in decision-making.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS04.SC.01	Chamber of Economy of Montenegro	October 24- April 26
Specific Challenge	***Data provider***	***Frequency of data collection***
Level of stakeholder satisfaction or feedback regarding their involvement in decision-making.	Chamber of Economy of Montenegro	Twice during PRO-COAST project
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Chamber of Economy of Montenegro	Twice during PRO-COAST project
SESF Variables	***Technical supervisor***	***Other***
2-L | Deliberation processes (I3) 3-L | I3c. Trust building processes	Chamber of Economy of Montenegro	

Relation with…			
Results		***Specific Objectives***	
R1	RO2/2.2 – Integrated Assessment Methodology (WP6)	SO1	Develop a framework for biodiversity conservation planning and implementation
R2	RO2/2.3 – Development of Science-based policy recommendations (WP4)	SO2	Strengthen stakeholder engagement and co-creation processes
R3	RO1/2.3 – Stakeholder analysis & Mapping (WP2)	SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Survey	Online survey
Data type	***Tools***
Survey-based	Google Form and EU survey form
Output data	***Other needs***
Table values (.xlsx)	Considering the data for this KPI is gathered from survey, key requirements include a well-structured and validated questionnaire that uses consistent scales (e.g., Likert scales) to measure satisfaction, clarity in defining the target stakeholder groups to ensure representative sampling, and a sufficiently large and balanced response rate to allow meaningful interpretation. It is also important to ensure that questions are neutral, culturally appropriate, and tested in advance (pilot testing) to avoid misinterpretation, and that data is systematically cleaned and processed using a transparent aggregation method for comparability over time. Key risks include low response rates, which can skew results toward more engaged stakeholders, sampling bias if certain stakeholder groups are

	underrepresented, and response bias where participants provide overly positive or negative feedback due to perceptions of the project or facilitation context.

Data collection methods

For the first survey round, invitations were distributed via email to relevant stakeholders, followed by several reminder messages to encourage participation.

For the second survey round, data were collected through an online questionnaire distributed via a dedicated survey link. A total of 102 responses were received from representatives of the public sector (38), private sector (33), citizens (20), academia (6), and non-governmental organisations (5).

Participants were identified through existing professional networks, stakeholder databases, and the support of local surveyors familiar with the Boka Kotorska area. Survey invitations were disseminated through direct email communication, professional contacts, and local outreach activities. Although the questionnaire was primarily completed online, local surveyors provided assistance to participants when necessary to facilitate participation and ensure broader stakeholder representation.

Participation was voluntary, and no financial or material incentives were offered to respondents.

Results

Background and context

In the context of the Boka Kotorska (Bay of Kotor) case study, the KPI "Level of stakeholder satisfaction or feedback regarding their involvement in decision-making" is particularly relevant due to the bay's complex governance landscape, where environmental management decisions directly affect multiple stakeholder groups, including coastal municipalities, tourism operators, port authorities, fisheries, local communities, and environmental organizations. Boka Kotorska is a highly sensitive socio-ecological system characterized by strong pressures from tourism development, maritime traffic, urban expansion, and conservation needs, making participatory decision-making essential for balancing economic use with environmental protection. Within this context, the KPI reflects how effectively stakeholders perceive their involvement in planning processes such as coastal zone management, biodiversity protection measures, and sustainable tourism development initiatives. Survey-based feedback is used to capture whether stakeholders feel adequately informed, consulted, and able to influence decisions that impact both ecological integrity and local livelihoods. High satisfaction levels would indicate functioning participatory governance mechanisms, while lower levels may signal gaps in communication, inclusiveness, or trust between institutions and stakeholders, which is particularly critical in a multi-use and environmentally sensitive area such as Boka Kotorska.

Results (baseline vs post-intervention)

The results show a further strengthening of perceived autonomy and self-determination among stakeholders. The share of respondents agreeing or slightly agreeing that it is important to make their own decisions increased from 77.1% in the baseline to 90.7% post-intervention, indicating a notable shift toward stronger preference for independent decision-making. At the same time, disagreement decreased to a minimal level (1.9%), suggesting reduced uncertainty or resistance regarding personal agency in decision-making processes.

Discussion

In the Boka Kotorska case study, survey results on the KPI "Level of stakeholder satisfaction or feedback regarding their involvement in decision-making" typically indicate that satisfaction is generally higher among stakeholders who are directly and regularly engaged in formal consultation processes (such as local authorities and institutional partners), while lower or more variable satisfaction is often observed among less formally represented groups such as small tourism operators, fishers, and local community members.

Key findings suggest that stakeholders value opportunities for participation, but often perceive limitations in how much their input actually influences final decisions, particularly in highly regulated or top-down planning processes. Uncertainties also arise from subjective interpretation of satisfaction questions, differences in expectations between stakeholder groups, and external influences such as ongoing development pressures or political sensitivities that may shape responses at the time of data collection.

Lessons learned highlight the importance of continuous and structured stakeholder engagement rather than one-off consultations, clearer communication on how stakeholder input is used in decision-making, and the need to strengthen feedback loops to improve trust and transparency. Additionally, combining survey data with qualitative methods (e.g., interviews or focus groups) is essential to better understand underlying reasons behind satisfaction levels and to improve the overall effectiveness of participatory governance in the Boka Kotorska context.

4.6 CS04.SC.01. KPI Stakeholder awareness of the biodiversity threats and the implications of developments

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS04.SC.01	Chamber of Economy of Montenegro	October 24- April 26
Specific Challenge	***Data provider***	***Frequency of data collection***
Stakeholder awareness of the biodiversity threats and the implications of developments	Chamber of Economy of Montenegro	Twice during PRO-COAST project
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Chamber of Economy of Montenegro	Twice during PRO-COAST project
SESF Variables	***Technical supervisor***	***Other***
2-L | Knowledge of SES/mental models (A7) 3-L | A7b. Knowledge of the potential disturbance patterns and their possible effects	Chamber of Economy of Montenegro	

Relation with…			
Results		***Specific Objectives***	
R1	RO4/2.3 – Development of Key Performance Measures Behavioural change (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2		SO2	
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Survey	Online survey
Data type	***Tools***
Survey-based	Google Form and EU survey form
Output data	***Other needs***
Table values (.xlsx)	- Following risks are identified within this KPI: - Low response rates leading to non-representative results and biased conclusions - Sampling bias if certain stakeholder groups (e.g., less digitally connected or marginalized groups) are underrepresented - Social desirability bias, where respondents overstate their awareness to appear informed - External influences (media coverage, political debates, recent development projects) temporarily affecting awareness levels

	- Data processing errors or inconsistent scoring of awareness indicators across survey rounds

Data collection methods

For the first survey round, invitations were distributed via email to relevant stakeholders, followed by several reminder messages to encourage participation. For the second survey round, data were collected through an online questionnaire distributed via a dedicated survey link. A total of 102 responses were received from representatives of the public sector (38), private sector (33), citizens (20), academia (6), and non-governmental organisations (5). Participants were identified through existing professional networks, stakeholder databases, and the support of local surveyors familiar with the Boka Kotorska area. Survey invitations were disseminated through direct email communication, professional contacts, and local outreach activities. Although the questionnaire was primarily completed online, local surveyors provided assistance to participants when necessary to facilitate participation and ensure broader stakeholder representation. Participation was voluntary, and no financial or material incentives were offered to respondents.

Results

Background and context

The KPI "Stakeholder awareness of biodiversity threats and the implications of developments" measures the extent to which relevant actors understand environmental pressures affecting ecosystems and the potential ecological consequences of planned or ongoing development activities. In the context of survey-based assessment, it captures both factual knowledge (e.g., recognition of key biodiversity threats such as habitat degradation, pollution, or overdevelopment) and perceived understanding of how different types of development influence ecological integrity and ecosystem services. Within the Boka Kotorska (Bay of Kotor) case study, this KPI is particularly important due to the area's high ecological sensitivity and its strong exposure to multiple development pressures, including tourism expansion, coastal urbanisation, maritime transport, and infrastructure growth. The bay is a complex socio-ecological system where biodiversity values—such as marine habitats, seagrass meadows, and coastal ecosystems—are closely intertwined with economic activities that directly depend on environmental quality. As a result, stakeholder awareness plays a critical role in shaping support for sustainable management measures and compliance with conservation objectives. Measuring this KPI through surveys provides insight into how well different stakeholder groups, including local communities, tourism operators, public authorities, and civil society, understand environmental risks and trade-offs, thereby informing targeted awareness-raising activities and improving the effectiveness of participatory coastal governance in Boka Kotorska.

Results (baseline vs post-intervention)

The KPI remains positively achieved overall, as a clear majority continues to prioritise environmental protection over economic growth. However, the observed shift indicates a marginal weakening of environmental prioritisation, which may reflect increased sensitivity to economic considerations or external contextual factors. The results confirm sustained high awareness of biodiversity threats, but also highlight the need for continued communication and engagement to maintain strong environmental prioritisation in decision-making processes.

Discussion

In the Boka Kotorska case study, survey results on stakeholder awareness of biodiversity threats and the implications of development typically show that awareness is relatively high regarding visible and widely discussed issues such as marine pollution, coastal urbanisation, and the impacts of intensive tourism, while understanding of more complex or less visible ecological processes (e.g., habitat fragmentation, cumulative impacts, or underwater ecosystem degradation) is more limited, particularly among non-expert stakeholder groups. Institutional actors and environmental organisations generally demonstrate higher and more detailed awareness compared to local community members or some private sector actors, indicating uneven knowledge distribution across stakeholder categories.

However, interpretation of these findings is constrained by several limitations, including reliance on self-reported survey data that may overestimate actual knowledge due to social desirability bias, variability in respondents' environmental literacy, and potential sampling imbalances that underrepresent certain groups such as seasonal workers or less formally organised stakeholders.

Additional limitations include the difficulty of distinguishing between perceived awareness and actual factual understanding, as well as the influence of external events (such as recent development controversies or media attention) that may temporarily increase awareness levels without reflecting long-term knowledge retention.

4.7 CS04.SC.03. KPI Number of capacity building workshops, training sessions, or knowledge-sharing events conducted.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS04.SC.03	Chamber of Economy of Montenegro	November 23- June 26
Specific Challenge	***Data provider***	***Frequency of data collection***
Number of capacity building workshops, training sessions, or knowledge-sharing events conducted.	Chamber of Economy of Montenegro	
Ecosystem Service	***Technical manager***	***Frequency of reporting***
	Chamber of Economy of Montenegro	
SESF Variables	***Technical supervisor***	***Other***
2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	Chamber of Economy of Montenegro	

Relation with…

Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	
R3	RO1/2.3 – Stakeholder analysis & Mapping (WP2)	SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative monitoring of implemented capacity-building activities (count of events),	Project partners, event organizers, attendance lists, agendas, reports, funding/project records
Data type	***Tools***
Direct recording at events (attendance lists), post-event reporting by organizers, centralized reporting system, compilation of partner reports	Registration forms, attendance sheets (Excel/Google Sheets), event reports, surveys, project management platforms (e.g. MS Teams, SharePoint, Trello), monitoring templates
Output data	***Other needs***
Number of workshops/trainings/knowledge-sharing events; breakdown by type, location, target group; participation numbers	

Data collection methods

Clear definition of capacity building event, Standardized reporting template across partners, GDPR-compliant participant data handling

Results

Background and context

This KPI refers to the monitoring of the number of implemented capacity-building activities, including workshops, training sessions, and knowledge-sharing events carried out within the project to strengthen the knowledge, skills, and collaboration of relevant stakeholders. In this context, key requirements for data collection and validation include a clearly defined methodology for determining what qualifies as a capacity-building activity, a standardized reporting system across all project partners, and consistent documentation for each event (such as attendance lists, pictures, agendas, reports, and supporting materials).

Overall, this framework not only enables quantitative tracking of implemented activities but also ensures their alignment with project objectives and their contribution to strengthening the capacities of target groups.

Results (baseline vs post-intervention)

During the PRO-COAST implementation period, the CEM team participated in seven workshops and conferences organized by relevant institutions and by the Chamber itself. All events focused on blue growth, sustainable coastal management, and biodiversity conservation, providing valuable opportunities for knowledge exchange, networking, and stakeholder engagement. In February 2026, the team participated in the national TEAMFORADRIS event, where the PRO-COAST project was presented to a diverse audience of key stakeholders, including representatives of the Faculty of Maritime Affairs, the Public Enterprise for Coastal Zone Management of Montenegro, private sector organizations, and the media. During the event, the findings of the first stakeholder survey and the CHUI index were presented, generating considerable interest and discussion on the role of evidence-based tools in supporting sustainable coastal management and informing future policy development.

Furthermore, on 25 June 2026, the CEM team presented the PRO-COAST project, its objectives, activities, and preliminary results at the "Sea of Opportunities" event organized by the Chamber of Economy of Montenegro. The event brought together a wide range of relevant stakeholders from public institutions, academia, businesses, civil society organizations, and the maritime sector. The presentation increased the visibility of the project, facilitated the exchange of experiences with other initiatives promoting the blue economy, and strengthened collaboration with stakeholders whose involvement is essential for the long-term sustainability and uptake of the project's results.

Discussion

During the PRO-COAST implementation period, participation in seven workshops and conferences demonstrated a strong level of engagement of the CEM team in relevant regional and national processes related to blue growth, sustainable coastal management, and biodiversity conservation. These events served as important platforms for knowledge exchange, allowing the project team to interact with key stakeholders and stay aligned with current sector developments. A particularly significant milestone was the participation in the national TEAMFORADRIS event in February 2026 and "Sea of Opportunities" event organized by the Chamber of Economy of Montenegro, where the PRO-COAST project was presented to a diverse and highly relevant stakeholder group, including academia, public institutions, the private sector, and the media.

Despite the positive engagement and visibility achieved through participation in multiple events, the scope of impact is limited by the fact that these activities were primarily based on dissemination and knowledge exchange rather than structured follow-up mechanisms to track how stakeholder inputs were integrated into decision-making processes. Additionally, while the events reached a relevant mix of stakeholders, participation remained event-based and may not ensure sustained engagement of all relevant actors over time. Another limitation is that the assessment of impact from these events relies largely on qualitative feedback and observed interest, without systematic measurement of longer-term behavioural or policy changes resulting from the presented findings.

4.8 CS04.SC.04. KPI Participation rate in capacity building activities among target groups.

Basic information	Responsibilities	Calendar
Code	*Indicator Leader*	*Data collection period*
CS 04.SC.04	Chamber of Economy of Montenegro	November 23- June 26
Specific Challenge	*Data provider*	*Frequency of data collection*
Participation rate in capacity building activities among target groups.	Chamber of Economy of Montenegro	
Ecosystem Service	*Technical manager*	*Frequency of reporting*
Cultural	Chamber of Economy of Montenegro	
SESF Variables	*Technical supervisor*	*Other*
2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	Chamber of Economy of Montenegro	

Relation with…			
Results		*Specific Objectives*	
R1	RO1/2.3 – Stakeholder analysis & Mapping (WP2)	SO1	Strengthen stakeholder engagement and co-creation processes
R2		SO2	Promote behavioural change and capacity building for biodiversity conservation
R3		SO3	

Methodology	
Type of measuring	*Data collection resources/needs*
Percentage-based quantitative measurement of participation of defined target groups in capacity-building activities	Attendance lists, registration databases, event organizers, partner reports, target group lists (baseline stakeholder mapping), project monitoring system
Data type	*Tools*
Output + participation data (number of participants per target group, total invited, participation rate %)	Registration forms (online/offline), attendance sheets (Excel/Google Sheets), CRM or stakeholder database, M&E tracking templates, survey tools (e.g. Google Forms, MS Forms)
Output data	*Other needs*
Participation rate (%) per target group; number of participants per category (e.g. community, public sector, private sector, academia); comparison between planned vs. actual participation	Clear definition of target groups, updated stakeholder mapping, consistent categorization of participants, standardized reporting across partners, GDPR compliance for personal data, agreed methodology for calculating participation rate (denominator definition: total target population vs. invited vs. registered
Data collection methods	
Event-based registration tracking, attendance recording at each activity, post-event reporting by partners, aggregation and calculation of participation rates against target group lists	

Results

Background and context

Within the PRO-COAST case study, the KPI “Participation rate in capacity building activities among target groups” is used to assess the level of engagement of key stakeholders in workshops, training sessions, and knowledge-sharing events aimed at strengthening capacities for sustainable coastal and biodiversity management. The case study focuses on a multi-stakeholder environment in which actors such as public institutions, research organizations, the private sector, and civil society are expected to actively participate in project activities and contribute to knowledge exchange processes. In this context, participation rate is not only a quantitative measure of attendance, but also an important proxy for the inclusiveness and reach of the project’s capacity-building efforts, particularly in relation to raising awareness of biodiversity threats and supporting evidence-based decision-making in coastal zone management (e.g. through tools such as the CHUI index and survey findings).

Results (baseline vs post-intervention)

The national TEAMFORADRIS event was attended by 12 representatives of stakeholders from the blue economy and biodiversity sectors.

"Sea of Opportunities" event organized by the Chamber of Economy of Montenegro had 33 participants.

Other events had an estimated attendance ranging from approximately 15 to 130 participants per event.

Discussion

As the KPI was not formally set in advance, therefore no quantitative target exists for comparison. However, the implemented activities demonstrate strong performance in terms of outreach and stakeholder engagement. The range of participants across events indicates effective dissemination at both targeted (specialised stakeholder group) and broader (multi-sectoral audience) levels. Overall, the activities provided clear added value by increasing visibility of the PRO-COAST project and supporting knowledge exchange, although future activities would benefit from defining specific participation targets to enable more precise impact measurement.

4.9 KPI CS04.CS.05. KPI Number of local community awareness campaigns

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS04.CS.05	Chamber of Economy of Montenegro	November 23- June 26
Specific Challenge	***Data provider***	***Frequency of data collection***
Number of local community awareness campaigns	Chamber of Economy of Montenegro	
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Chamber of Economy of Montenegro	
SESF Variables	***Technical supervisor***	***Other***
2-L | Information sharing (I2) 3-L | I2b. Information/knowhow sharing about SES variations	Chamber of Economy of Montenegro	

Relation with…

Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Maximise project impact through communication and knowledge transfer
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Promote behavioural change and capacity building for biodiversity conservation
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative	- List of all awareness campaigns implemented (dates, locations, topics) - Attendance records or participant lists - Event reports from organizers/partners - Communication materials (flyers, posters, social media posts) - Budget or activity tracking sheets (if available)
Data type	***Tools***
- Numerical data (number of campaigns) - Descriptive supporting data (event summaries, reports) - Attendance data (optional disaggregation by group)	- Excel / Google Sheets for tracking campaigns - Event reporting templates - Registration forms (online or paper) - Survey tools (e.g. Google Forms, SurveyMonkey) - Social media analytics tools (for online campaigns) - Internal project management tools (e.g. dashboards, logs)
Output data	***Other needs***
- Total number of awareness campaigns conducted	- Clear definition of what qualifies as an “awareness campaign” - Coordination with local partners and stakeholders for reporting - Standardized reporting format across all partners

- Breakdown by type (workshops, public events, online campaigns) - Number of participants reached (if included) - Geographic distribution of campaigns - Basic summary reports per campaign	- Consent for collecting participant data (if personal data is recorded) - Alignment on reporting frequency (monthly, quarterly, annually)

Data collection methods

- Event reporting by implementing partners
- Attendance tracking at in-person events
- Online engagement tracking (for digital campaigns)
- Post-event surveys or feedback forms
- Compilation of partner reports into a central database

Results

Background and context

Prior to the intervention, public awareness of the PRO-COAST project among the wider community in Montenegro was relatively limited, with communication activities primarily reaching specialised stakeholders engaged in environmental protection and coastal management.

The Fair on EU Projects in Podgorica (8 June 2024) significantly enhanced the visibility and public outreach of the PRO-COAST project. The presentation of the project video and its objectives reached a broad audience, including representatives of public institutions, the private sector, the diplomatic corps, and citizens. This marked an important expansion of the project's communication scope beyond its usual target groups. As a result, general awareness of PRO-COAST increased, particularly in relation to its role in promoting sustainable coastal management and biodiversity protection. The event contributed to strengthening public understanding of EU-funded environmental initiatives in Montenegro and improved the project's overall visibility.

Results (baseline vs post-intervention)

The Fair on EU Projects in Podgorica (8 June 2024) significantly contributed to the visibility and public outreach of the PRO-COAST project. The presentation of the project video and its objectives reached a broad audience, including representatives of public institutions, the private sector, the diplomatic corps, and citizens. This helped increase general awareness of PRO-COAST and its role in promoting sustainable coastal management and biodiversity protection. The event strengthened the project's communication reach beyond specialised stakeholders, contributing to wider public understanding of EU-funded environmental initiatives in Montenegro.

Discussion

The KPI was not formally set in advance, therefore it is not possible to assess the activity against predefined quantitative or qualitative targets. However, the implementation of the Fair on EU Projects provided a relevant and effective dissemination opportunity for the PRO-COAST project. The event successfully reached a diverse audience, including representatives of public institutions, the private sector, the diplomatic corps, and citizens, indicating strong outreach potential.

4.10 CS04.SC.06. KPI Level of community involvement in biodiversity conservation initiatives

Basic information	Responsibilities	Calendar
Code	*Indicator Leader*	*Data collection period*
CS04.SC.06	Chamber of Economy of Montenegro	October 24- April 26
Specific Challenge	*Data provider*	*Frequency of data collection*
Level of community involvement in biodiversity conservation initiatives	Chamber of Economy of Montenegro	Twice during PRO-COAST project
Ecosystem Service	*Technical manager*	*Frequency of reporting*
Cultural	Chamber of Economy of Montenegro	Twice during PRO-COAST project
SESF Variables	*Technical supervisor*	*Other*
2-L | Deliberation processes (I3) 3-L | I3b. Knowledge about participation mechanisms and rights	Chamber of Economy of Montenegro	

Relation with…

Results		*Specific Objectives*	
R1	RO1/2.3 – Stakeholder analysis & Mapping (WP2)	SO1	Develop a framework for biodiversity conservation planning and implementation
R2	RO4/2.3 – Development of Key Performance Measures Behavioural change (WP6)	SO2	Promote behavioural change and capacity building for biodiversity conservation
R3		SO3	

Methodology

Type of measuring	*Data collection resources/needs*
Survey	Online survey
Data type	*Tools*
Survey-based	Google Form and EU survey form
Output data	*Other needs*
Table values (.xlsx)	

Data collection methods

For the first survey round, invitations were distributed via email to relevant stakeholders, followed by several reminder messages to encourage participation.

For the second survey round, data were collected through an online questionnaire distributed via a dedicated survey link. A total of 102 responses were received from representatives of the public sector (38), private sector (33), citizens (20), academia (6), and non-governmental organisations (5).

Participants were identified through existing professional networks, stakeholder databases, and the support of local surveyors familiar with the Boka Kotorska area. Survey invitations were disseminated through direct email communication, professional contacts, and local outreach activities. Although the questionnaire was primarily completed online, local surveyors provided assistance to participants when necessary to facilitate participation and ensure broader stakeholder representation.

Participation was voluntary, and no financial or material incentives were offered to respondents.

Results

Background and context

he assessment of the level of community involvement in biodiversity conservation initiatives is based on data collected through a structured survey targeting local stakeholders and community members in the Boka Kotorska area. The survey was designed to capture perceptions, participation patterns, and the extent of engagement in activities related to biodiversity protection, including awareness campaigns, workshops, and local conservation actions.

This KPI is important for understanding the baseline level of public participation in conservation efforts and for identifying changes over time resulting from project interventions. The collected data provides insight into how actively local communities are engaged in biodiversity-related initiatives and highlights both opportunities and barriers to stronger involvement in environmental decision-making and action at the local level.

Results (baseline vs post-intervention)

Between October 2024 and April 2026, community involvement in biodiversity conservation initiatives shows a decline in self-reported participation in environmental group activities. In the baseline survey, a majority of respondents (65.8%) reported active or occasional participation, indicating a relatively engaged community. However, in the post-intervention survey, this share decreased to 38.2%, while the proportion of respondents reporting non-participation increased to 47.0%. Neutral responses and non-response rates remain relatively low.

Overall, the results suggest a weakening in reported participation levels, indicating that engagement in biodiversity-related activities is concentrated within a smaller group of active participants rather than broadly distributed across the community.

Discussion

The KPI indicates a negative trend in community involvement in biodiversity conservation initiatives over the observed period. While initial results suggested moderate to strong engagement, the post-intervention data reflects reduced participation levels and increased disengagement among respondents. The KPI is therefore not achieved in terms of expected improvement, as no positive progression in participation is observed.

However, the results provide an important insight into engagement dynamics, showing that biodiversity-related activities continue to attract a committed core group, but fail to maintain or expand broader community participation. Future efforts should focus on strengthening outreach strategies, improving accessibility of initiatives, and increasing the attractiveness of engagement opportunities in order to reverse the downward trend and broaden community involvement.

5.1 KPI CS05.EC.01 Economic benefit per one area of sand dune restoration

Basic information	Responsibilities	Calendar
Code	*Indicator Leader*	*Data collection period*
CS05.EC.01	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	At the end of the project (€)
Specific Challenge	*Data provider*	*Frequency of data collection*
Enhanced stakeholder's perception	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	Once: At the end of the project (€)
Ecosystem Service	*Technical manager*	*Frequency of reporting*
Regulating and Maintenance	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	Once: At the end of the project (€)
SESF Variables	*Technical supervisor*	*Other*
2-L | Economic development (S1) 3-L | RU4b. Environmental value	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	We are stalled on this KPI due to support shortage, see explanation below.

Relation with…			
Results		*Specific Objectives*	
R1		SO1	
R2		SO2	
R3		SO3	

Methodology	
Type of measuring	*Data collection resources/needs*
Data type	*Tools*
Output data	*Other needs*
Data collection methods	

Results
Background and context
Results (baseline vs post-intervention)
Discussion

5.2 KPI CS05.EC.02. Tourist Willingness to Pay for Conservation

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS05.EC.02	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	2024-2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Helps determine if tourists value environmental protection and are willing to contribute financially	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	Twice
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	Once: At the end of the project
SESF Variables	***Technical supervisor***	***Other***
2-L | Economic development (S1) 3-L | RU4b. Environmental value	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	

Relation with…

Results		***Specific Objectives***	
R1	Ro1/2.3 stakeholder analysis & Mapping (WP2)	SO1	Objective 1: To develop a framework for guiding the planning and implementation of biodiversity conservation
R2		SO2	
R3		SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Surveys	Survey distribution
Data type	***Tools***
Numerical assessment	Online surveys
Output data	***Other needs***
Numerical	

Data collection methods

Distributed online survey during two separate three-month periods via QR codes in person and online links distributed to relevant listservs.

Results

Background and context

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

Results (baseline vs post-intervention)

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

Discussion

In the first wave of the survey, all visitors said "prefer not to answer" about willingness to pay for conservation. About 50% of visitors said they were willing to pay for conservation on the survey wave 2.

5.3 KPI CS05.EN.01. Area of habitat restored.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS05.EN.01	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	2024-2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Enhanced stakeholder's perception	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	Annually
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	Once: At the end of the project
SESF Variables	***Technical supervisor***	***Other***
2-L | Spatial and temporal distribution (RU7) 3-L | RS2b. Size of different habitats or ecosystem types within the resource system	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	We are stalled on this KPI due to support shortage, see explanation below.

Relation with…			
Results		***Specific Objectives***	
R1		SO1	
R2		SO2	
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Percentage	GIS
Data type	***Tools***
Land coverage	GIS
Output data	***Other needs***
Percentage change	
Data collection methods	

Results
Background and context

Results (baseline vs post-intervention)

We were employing a doctoral student to measure marram grass, but they needed to withdraw for personal reasons. Because we have the baseline data, we will use this to measure in the future.

Discussion

5.4 KPI CS05.SC.01. Public awareness of the biodiversity threats and the implications of developments

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS05.SC.01	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	2024-2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Enhance local community awareness about Sand dune restoration.	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	Annually
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	Once: At the end of the project
SESF Variables	***Technical supervisor***	***Other***
2-L | Information sharing (I2) 3-L | I2b. Information/ knowhow sharing about SES variations	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	

Relation with…			
Results		***Specific Objectives***	
R1	Ro1/2.3 Stakeholder analysis & Mapping (WP2)	SO1	Objective 1: To develop a framework for guiding the planning and implementation of biodiversity conservation
R2	Ro2/2.3 Development of Science-based policy recommendations WP4	SO2	Objective 4: To support and facilitate take-up and sustainability of project practice
R3	Ro3 /2.3 Qualitative & Quantitative methodologies WP5	SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Surveys	Online survey distribution/ platform
Data type	***Tools***
Numerical	Online platform
Output data	***Other needs***
Numerical	

Data collection methods

Distributed online survey during two separates three month periods via QR codes in person and online links distributed to relevant listservs.

Results

Background and context

Evaluation of public awareness trends through repeated administration of structured perception surveys. Change in public awareness

Results (baseline vs post-intervention)

Most respondents in survey wave 1 put "slightly agree" or "agree" for questions about the importance of biodiversity threats (Qs 1 & 2), with one putting "disagree", "neither agree or disagree" or "prefer not to answer". All respondents on the second survey responded with "slightly agree" or "agree" on the survey wave 2 to questions about the importance of biodiversity threats.

Discussion

5.5 KPI CS05.SC.02. Number of local community awareness campaigns.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS05.SC.02	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	2024-2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Enhanced stakeholder's perception	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	Annually
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	Updated project documents following events
SESF Variables	***Technical supervisor***	***Other***
2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	

Relation with…

Results		***Specific Objectives***	
R1	Ro1/2.3 stakeholder analysis & Mapping (WP2)	SO1	Objective 1: To develop a framework for guiding the planning and implementation of biodiversity conservation
R2	Ro3 /2.3 Qualitative & Quantitative methodologies WP5	SO2	Objective 4: To support and facilitate take-up and sustainability of project practice
R3	Ro3 /2.3 Qualitative & Quantitative methodologies WP5	SO3	Objective 2: To validate the project's bottom-up biodiversity conservation actions,

Methodology

Type of measuring	***Data collection resources/needs***
Mixed-Methods	Facilitators, stakeholders willing to distribute materials, educational materials
Data type	***Tools***
Numerical	Online platforms/ distribution methods
Output data	***Other needs***
Numerical	

Data collection methods

Organised regular (every 4-6 weeks) community awareness events to engage with stakeholders and raise profile. Worked with community collaborators (county council, other academia, government employees) to distribute materials.

Results

Background and context

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.

Results (baseline vs post-intervention)

2 events occurred in 2024, and 11 occurred between 2025-2026. The efforts of PRO-COAST members increased during the project, sharing objectives and training.

Discussion

5.6 KPI CS05.SC.03. Number of capacity building workshops, training sessions, or knowledge sharing events conducted

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS05.SC.03	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	2024-2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Enhance Awareness	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	Once
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	Updated project documents following events
SESF Variables	***Technical supervisor***	***Other***
2-L | Information sharing (I2) 3-L | I2c. Learning processes	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	

Relation with…

Results		***Specific Objectives***	
R1	Ro1/2.3 stakeholder analysis & Mapping (WP2)	SO1	Objective 1: To develop a framework for guiding the planning and implementation of biodiversity conservation
R2	Ro3 /2.3 Qualitative & Quantitative methodologies WP5	SO2	Objective 4: To support and facilitate take-up and sustainability of project practice
R3	Ro3 /2.3 Qualitative & Quantitative methodologies WP5	SO3	Objective 2: To validate the project's bottom-up biodiversity conservation actions,

Methodology

Type of measuring	***Data collection resources/needs***
Mixed-Methods	Facilitators, stakeholders willing to distribute materials, educational materials
Data type	***Tools***
Numerical	Online platforms/ distribution methods
Output data	***Other needs***
Numerical	

Data collection methods

Organised semi-regular (2-4/ year) training and/or knowledge sharing events (workshops, beach clean-ups, lectures) to engage with stakeholders and increase community engagement. Worked with community collaborators (county council, other academia, government employees) to distribute materials and organise events

Results

Background and context

Documentation and quantification of capacity-building initiatives conducted, including type, scope, and participant metrics.

Results (baseline vs post-intervention)

1 event occurred in 2024, and 7 were held between 2025-2026. The efforts of PRO-COAST members increased during the project, sharing objectives and training.

Discussion

5.7 CS05.SC.04 | Number of citizens attending the citizens science activities

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS05.SC.04	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	2024-2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Enhance Awareness	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	Annually
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	Updated project documents following events
SESF Variables	***Technical supervisor***	***Other***
2-L | Information sharing (I2) 3-L | I2c. Learning processes	Originally: Mahdieh Raji & Fred Otieno; April 2025 onward: Sara Ayoub and Emily Schwalbe	

Relation with…

Results		***Specific Objectives***	
R1	Ro1/2.3 stakeholder analysis & Mapping (WP2)	SO1	Objective 1: To develop a framework for guiding the planning and implementation of biodiversity conservation
R2		SO2	Objective 4: To support and facilitate take-up and sustainability of project practice
R3		SO3	Objective 2: To validate the project's bottom-up biodiversity conservation actions,

Methodology

Type of measuring	***Data collection resources/needs***
Mixed-Methods	Sign-ins at events, people to collect data
Data type	***Tools***
Numerical	Online platforms/ distribution methods to advertise, attendance recording
Output data	***Other needs***
Numerical	

Data collection methods

Collected attendance at community awareness, training, and other project events. Recorded numbers to track across the duration of the project.

Results

Background and context

Systematic registration and counting of participants involved in project-related activities as a measure of stakeholder engagement. measures the level of public engagement in 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.

Results (baseline vs post-intervention)

Over the course of the project we conducted different types of citizen science activities that varied in levels of engagement. Some, like workshops and beach cleanups had a higher level of engagement (18-22 members). Others, like classroom lectures, had less. It does demonstrate, however, a sustained level of interest in the project goals.

Discussion

6.1 KPI CS06.EC.01 Rise in funding (to pay for renting equipment) or voluntary management levels

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS06.EC.01	Robert Kenward	2023 - 2026
Specific Challenge	***Data provider***	***Frequency of data collection***
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.	Robert Kenward	Annually: Until red squirrel establishment abandoned or 2033 (Finance (£), volunteer person-hours)
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Robert Kenward	
SESF Variables	***Technical supervisor***	***Other***
2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	Robert Kenward	

Relation with…

	Results		*Specific Objectives*
R1	RO1/2.3 – Stakeholder analysis & Mapping (WP2)	SO1	Validate bottom-up biodiversity conservation actions
R2	RO2/2.3 – Development of Science-based policy recommendations (WP4)	SO2	Strengthen stakeholder engagement and co-creation processes.
R3		SO3	

Methodology

Type of measuring	*Data collection resources/needs*
Quantitative	The primary resources required to increase volunteer involvement and funding were digital communication tools, such as email and phone contact, used to reach individuals, organisations, and private companies. The second key resource was time, particularly that spent on recruiting and training volunteers.
Data type	***Tools***
Quantitative xls	Excel spreadsheets
Output data	***Other needs***
Numerical	

Data collection methods

The number of volunteers and traps were recorded throughout time in notebooks and then transcribed on dedicated Excel spreadsheets. The number of traps loaned was tracked via a spreadsheet, supported by documentation and email correspondence with the lending company.

Results

Background and context

Baseline conditions: At the outset of the project, there was no existing volunteer engagement. Given the scale of the area requiring grey squirrel clearance, involvement from the local community was essential to meet the project's objectives.

Initially, the available equipment for culling local grey squirrels was limited to 40 live traps, which were adequate for initial baseline work in 2025 but insufficient for the target area beyond Arne Parish that was agreed with stakeholders for 2026. Efforts were therefore made to increase the number of traps available and 15 more were purchased. In the course of reaching out to individuals and organisations with a potential interest in the project, contact was made with the founder of the company behind the creation of the Norbury Trap, who expressed interest in participating.

Site characteristics and relevant factors: The local community included hunters and gamekeepers already culling squirrel populations on their own land, making them well-suited as potential volunteers. Community members within the relevant areas who were likely to have an interest in the project were identified and contacted on an individual basis. The project was presented to them directly, and they were invited to participate as volunteers.

Results (baseline vs post-intervention)

In total, 4 volunteers were recruited. Although a small number, all were heavily involved and crucial to the success of the case study and the collection of data on local grey squirrel populations. One volunteer helped primarily with the general organisation of the work, including delivering traps and liaising with other volunteers. The remaining 3 were responsible for installing traps on their land, catching squirrels, and collecting data on the squirrels trapped. In a second phase, some volunteers were offered partial payment in recognition of the significant time and effort their involvement in a new area required.

The search for additional trapping equipment proved very successful, resulting in a loan of traps valued at £40,000 secured for the purposes of the case study. This loan had the potential to significantly expand trapping efforts and contribute to reducing local squirrel pox levels. However, following a safety concern raised by one volunteer community member regarding the use of the traps, it was ultimately decided to deploy this new equipment only in areas safe from tampering.

Discussion

Implications for project objectives: Recruiting volunteers locally was essential to carrying out the work planned for the target areas. Fulfilling this objective was also a prerequisite for meeting other key performance indicators, including the local reduction of invasive species and raising community awareness of the biodiversity threats posed by Invasive Alien Species.

Implications for decision making: The number of volunteers directly influenced decision making, as it set practical limits on the area that could be covered and the number of squirrels culled. Volunteers' individual availability and opinions were also taken into account, and they were actively involved in decisions regarding trapping strategy and methods.

The loan of 200 traps proved particularly significant in shaping the direction of the project, especially as it coincided with the discovery of high squirrel pox levels in Purbeck. Given the threat this poses to future red squirrel reintroduction plans, further reducing grey squirrel populations in the area became a priority. In this context, the loan represented an opportunity to substantially expand trapping efforts and drive squirrel pox levels down. It gave the project renewed momentum, prompting a revised trapping strategy thanks to the additional equipment available.

Lessons learned: Be flexible, and adjust the plan as the human and material resources fluctuate.

6.2 KPI CS06.EN.01 Species abundance (number of individuals / species)

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS06.EN.01	Robert Kenward	2023 - 2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Species abundance (number of individuals / species): Number of grey squirrel sightings in the parish should fall towards zero, red squirrel sightings should increase	Robert Kenward	Daily, summed annually: Until red squirrel establishment abandoned or 2033 (Rate of sightings)
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance	Robert Kenward	
SESF Variables	***Technical supervisor***	***Other***
2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	Robert Kenward	

Relation with…

Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Develop a framework for biodiversity conservation planning and implementation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Validate bottom-up biodiversity conservation actions through case studies
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Numbers and densities of squirrels	Digital tool used for recording squirrel sightings: the Garden Advice application, developed during the project. Digital tool used to create estimates of grey squirrel populations in woodlands: QGIS, existing geospatial and environmental data resources. Fieldwork in woodlands: a GPS-enabled smartphone, data recording sheet, transportation to survey sites by car. Traps for ground-truthing estimates.
Data type	***Tools***
Quantitative xls	Mapping tools, analysis tools, traps
Output data	***Other needs***
Numerical	Volunteer effort
Data collection methods	

Method 1: The initial objective was to collect data through the Garden Advice application (also referred to as REDS), which enabled local residents to record grey squirrel sightings in their gardens. Users could map their gardens, including different land-use types, and log grey squirrel observations. The application recorded information on sighting frequency, the number of squirrels observed, and the locations of sightings within gardens. However, this approach proved unsuccessful due to low levels of community engagement with the application, resulting in insufficient data for analysis.

Method 2: To address this limitation, an alternative method was adopted to assess local grey squirrel populations. Woodland habitats within the Purbeck area were evaluated for their suitability to support grey squirrels, providing both (1) a basis for informing trapping strategies and (2) a baseline against which future population changes could be compared. Existing woodland classification datasets and habitat maps were used to identify and characterise woodland areas across the Isle of Purbeck. Field surveys were undertaken at selected sites to refine habitat assessments, particularly where more detailed information on tree species composition was required. Using QGIS, woodland suitability maps were then produced, from which estimated grey squirrel population densities were derived for each woodland area. A REDS application enabling land-management stakeholders to do this without QGIS skills was then built and tested.

Results

Background and context

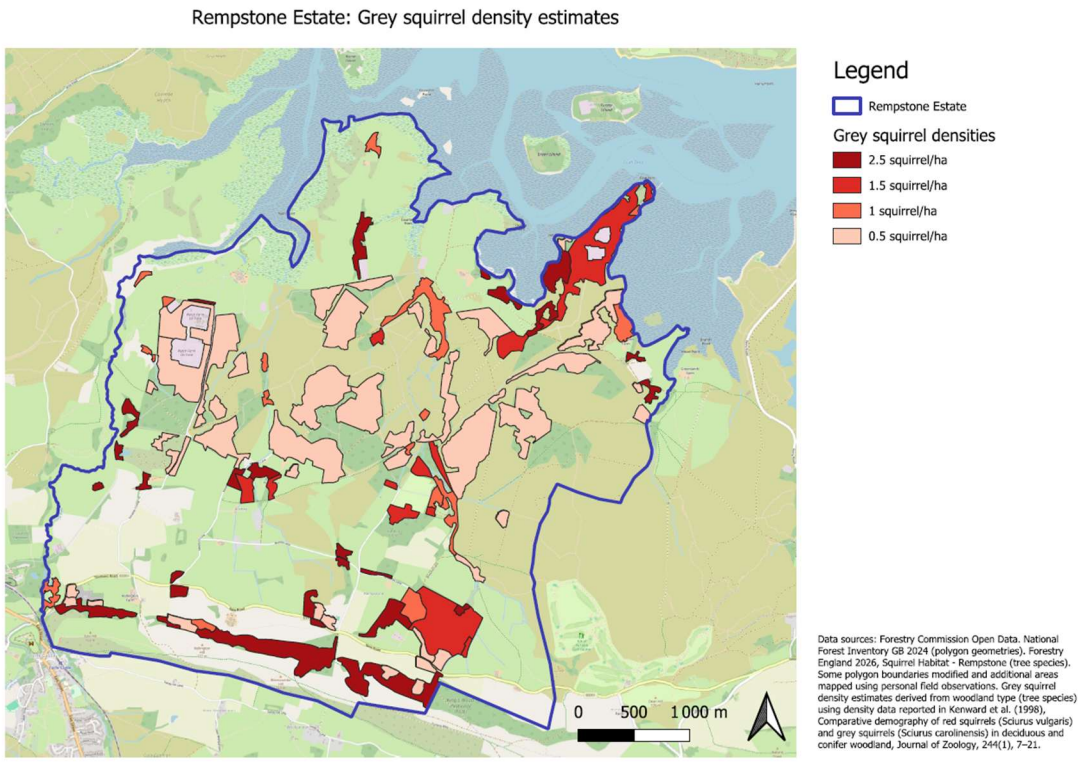
Method 1: The Garden Advice application was successfully developed and made available online, and was launched locally at the Community Drop-in Event (23/10/2026) organised in the local parish. During the event, the app and its purpose were presented to local residents, who were encouraged to use it to record squirrel sightings. However, uptake of the app was low, which may in part be attributed to the demographic profile of attendees, many of whom were older residents less familiar with this type of technology.

Method 2: We knew that detailed woodland habitat maps for the area already existed, and that published studies were available which provided estimates of grey squirrel population densities for different UK woodland types. Therefore, an opportunity was identified to combine this information to generate estimates of grey squirrel abundance across Purbeck independently of the Garden Advice application. By linking woodland classifications to published density estimates, it was possible to produce spatial estimates of grey squirrel populations throughout Purbeck. This informed trapping efforts and provided a baseline against which future changes in grey squirrel populations could be assessed.

Results (baseline vs post-intervention)

Method 1: As a result of low engagement with the Garden Advice application, only very limited data on squirrel sightings within Arne Parish was recorded through the application. However, informal observations suggest that squirrel sightings have declined. Observations from the local CS leader and Change Agent in the Stoborough area, where trapping has been carried out, as well as feedback from volunteers conducting trapping on their own land, all point to a noticeable reduction in the number of squirrels seen locally.

Method 2: The results of the woodland suitability mapping are presented on Map 1. For the area of Purbeck that was mapped, the estimated grey squirrel populations, provide a baseline against which future population changes can be measured. As grey squirrel control efforts are ongoing, the population within the woodlands of Purbeck is currently being reassessed. To date, about 500 grey squirrels have been removed through trapping. Future assessments at the end of the trapping period will help evaluate the effectiveness of the trapping strategy in reducing grey squirrel numbers.



Map 1: Grey squirrel density estimates in Rempstone Estate.

Discussion

Implications for the project objectives: Low uptake of the Garden Advice app prevented a citizen science-informed assessment of local grey squirrel populations and monitoring of their decline during culling. While this KPI fell short, the project's core objectives (i.e. reducing invasive grey squirrel numbers locally and raising awareness of the damage they cause) were not compromised.

Implications for decision-making: Although the missing data was an obstacle, an alternative strategy was developed to estimate grey squirrel population levels across different areas of Purbeck (a much larger area than originally intended but at the request of conservation & landowning interests).

Limitations: Although woodlands are key habitats for grey squirrels, the new strategy could not assess the role of gardens as a habitat supporting squirrel populations.

Lessons learned: Engaging older, less digitally familiar communities with phone-based citizen science tools proved challenging. Participants were enthusiastic during the meeting and eager to help, but difficulties observed on the day (such as trouble scanning QR codes and accessing the app) appear to have created barriers to use of the application. Therefore, when engaging with local communities, it is essential to develop tools that are easy for them to use to ensure their successful adoption.

Mapping woodlands across Purbeck to estimate grey squirrel populations also led to improvements in the Garden Advice application. The process highlighted that, alongside citizen science data, integrating existing spatial data and maps is essential to create a fully operational app capable of combining established datasets with new user inputs. The app is currently being updated to support the transfer of maps and spatial data.

6.3 KPI CS06.EN.02 Reduction of invasive species

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS06.EN.02	Robert Kenward	
Specific Challenge	***Data provider***	***Frequency of data collection***
Reduction of invasive species: Number of grey squirrels removed from the parish should fall towards zero.	Robert Kenward	Annually: Until red squirrel establishment abandoned or 2033 (Number removed)
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance	Robert Kenward	
SESF Variables	***Technical supervisor***	***Other***
2-L | Productivity of system (RS4) 3-L | RS4c. Biodiversity index	Robert Kenward	/

Relation with…

Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Develop a framework for biodiversity conservation planning and implementation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Validate bottom-up biodiversity conservation actions through case studies
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	Strengthen stakeholder engagement and co-creation processes

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative	Four volunteers deployed 55 live traps across an area of more than 400 km². Resources required included plastic sheets to cover traps, identification labels, bait, a GPS-enabled smartphone, data recording sheets, and vehicle transport to survey sites. For the Norbury traps, their deployment also required the installation of wooden support poles.
Data type	***Tools***
Quantitative xls	Volunteers were also provided with recording forms to document trapped squirrels. Paper maps of the woodlands were also provided.
Output data	***Other needs***
Numerica (Number of squirrels trapped).	

Data collection methods

Volunteers were also provided with recording forms to document trapped squirrels. For each squirrel trapped the forms included information on: the location of the trap, the date of trapping, sex of squirrel, weight, breeding status, type of trap, type of bait, and a section for comments if necessary.

Results

Background and context

Objective: The primary objective was to cull grey squirrels within the Rempstone Estate (RE) in order to reduce squirrel pox prevalence to levels low enough to prepare the ground for a future potential red squirrel reintroduction. Grey squirrel populations act as a reservoir for squirrel pox, a disease fatal to red squirrels, and prior studies have demonstrated that low grey squirrel densities correlate with significantly reduced pox levels.

Study Area: Rempstone Estate encompasses approximately 400 ha of woodland, of which roughly 60% is coniferous and 30% broadleaved. The estate is located on the Isle of Purbeck, a peninsula whose natural geography provides effective barriers to squirrel migration: the sea defines the eastern and southern boundaries, while a river and open land limit movement along the western edge. This geographical containment made RE a particularly suitable site for a targeted culling programme.

Stakeholder Engagement: As approximately 30% of RE is managed by Forestry England, several meetings were held with them alongside other local conservation and land management bodies to inform them of the project and explore opportunities for cooperation. Following multiple discussions and the submission of a formal project plan, Forestry England decided not to support the project and declined to grant permission for trapping on their land. Fortunately, the majority of woodland under their management within RE consists of Corsican Pine, a habitat of limited value to grey squirrels, meaning this restriction was not considered a significant obstacle. Trapping therefore proceeded across the remaining areas of RE not under Forestry England management.

Volunteers: Local landowners and residents of RE were recruited as volunteers. It is worth noting that many had already been culling grey squirrels on their own land prior to this programme, albeit at a slow rate.

Phase 1 (2025) Initial trapping campaign: Work began in spring 2025 with a first trapping campaign focused on the Stoborough and Goathorn areas located in the North East and North West of Purbeck, respectively. This phase had two aims: to begin reducing the local grey squirrel population ahead of a broader, volunteer-supported effort, and to assess squirrel pox prevalence in order to estimate the scale of culling required to bring levels down sufficiently. A total of 40 squirrels were trapped during this campaign. Testing results indicated that pox levels in the area were high and therefore intense culling would be required in order to bring contamination levels down and create a large buffer of low infection around Goathorn Peninsula.

Phase 2 (2026) Scaled culling campaign: A second culling campaign commenced in spring 2026, with the involvement of local volunteers and additional traps provided by Norbury Park. Multiple traps were distributed to each volunteer, who were each assigned specific areas in which to lay them at a pre-defined density and set them on a pre-defined schedule. To monitor progress, volunteers were provided with a link to an online form through which they could log their catches and record associated information. A paper-based alternative was also made available for those who preferred it. Additional materials and support were provided to volunteers as needed.

Results (baseline vs post-intervention)

Baseline:

During Phase 1 (2025), 30 squirrels were trapped in the area of the Goathorn Peninsula, which encompasses approximately 53 ha of woodland consisting predominantly of Scots Pine. In the Stoborough area, 16 squirrels were trapped across approximately 11 ha of mostly mixed broadleaved woodland. Squirrel pox testing indicated that 87.5% of trapped squirrels were infected.

Population estimates for RE were also produced as a baseline indicator. Detailed woodland habitat maps for the area were available, and published studies provided grey squirrel population density estimates for different UK woodland types. These two sources were combined to generate estimates of grey squirrel densities across Purbeck.

Post-intervention: 2025 estimates vs 2026 trapping results

The comparison between the 2025 mapped estimates (based on woodland type and published data on squirrel densities) and the 2026 post-trapping field measurements shows a mixed pattern across the study areas, where overall 82 grey squirrels were trapped by one volunteer and in excess of 350 by another (this work is ongoing). At four sites, trapping appears to have successfully reduced density below the 2025 baseline estimates: Site 2 fell from an estimated 1 squirrel/ha to 0.12 squirrel/ha, Site 3 fell from 2.5 squirrel/ha to 0.62 squirrel/ha, Site 5 fell from 1 squirrel/ha to 0.33 squirrel/ha, and Site 7 settled at 0.5 squirrel/ha, the low end of its 0.5 to 2.5 squirrel/ha estimated range. These results suggest trapping was effective relative to what the woodland-type model predicted.

At two sites, however, measured densities came in well above the 2025 estimates. Site 4 rose from an estimated 2.5 squirrel/ha to 6.87 squirrel/ha, nearly triple the prediction, and Site 8 reached 3.4 squirrel/ha against an estimated range of just 0.5 to 1 squirrel/ha. This could reflect underestimation by the original mapping, or local factors such as immigration from untrapped areas, higher reproduction, or habitat quality.

Overall, the results suggest spatial heterogeneity in population response: some sites show clear reductions which might be attributed to trapping impacts, while others show higher-than-expected densities, likely reflecting a combination of underestimation in the original mapping approach and local population dynamics. The South West region shows the widest variability, from a strong apparent reduction at Site 3 to a marked increase at Site 4, pointing to local-scale differences in population response rather than a consistent regional pattern.

It is worth noting that the previous year (2025) was a "mast year," meaning that trees such as oak and beech produced an unusually large seed crop. This abundance of food typically boosts squirrel survival and breeding success, which would have encouraged greater-than-normal reproduction. In addition, trapping began in May, shortly after new litters were born in April, which would have temporarily inflated population counts. Given these factors, it is likely that without trapping, squirrel densities in the north-east of RE would have been higher than pre-intervention estimates; the fact that densities have remained within or close to the expected range suggests that trapping is likely to be having a measurable effect in suppressing population growth in this area. These data are purely indicative of what has been achieved, with much data for 2026 still to be collated and analysed.

Table 1: Grey Squirrel Density by Site: 2025 Baseline Estimates vs. 2026 Post-Trapping Results

Area	Sites	Baseline squirrel/ha (2025)	Result estimated squirrel/ha (2026)	Number of squirrels trapped in 2026
South West RE	1	No estimate	0,9	2
South West RE	2	1	0,1	1
South West RE	3	2,5	0,6	8
South West RE	4	2,5	6,9	18
Center RE	5	1	0,3	2
South West RE	6	No estimate	1,5	14
North East RE	7	0,5 - 2,5	0,5	3
North East RE	8	0,5 - 1	3,4	34

Discussion

Implications for the project objectives: The results offer partial evidence that trapping is having an effect. At four of the eight sites, post-trapping densities fell below the 2025 baseline, showing that removals can achieve local reductions. At two sites, however, densities came in well above the estimate. However, these conclusions

must be interpreted cautiously due to the uncertainty in baseline estimates and the lack of analysis that trapping effort has been as originally specified.

Limitations: Several limitations affect the ability to precisely quantify reductions in grey squirrel populations across the study areas. First, the pre-intervention baseline estimates (2025) were derived from woodland type classifications and literature-based density assumptions rather than direct field counts, introducing substantial uncertainty into the initial population figures. As a result, these values should be interpreted as broad approximations rather than precise measurements of local abundance. Second, some trapping zones used in 2025 were not repeated in 2026 due to practical constraints for volunteers, making direct year-on-year comparisons within the same areas impossible. In addition, there are limitations concerning the 2026 density estimates derived from trapping data. Volunteers report the number of squirrels captured within approximate area boundaries, but we have not yet been able to confirm that the standardized trapping effort was applied (e.g. spatial coverage intensity). This makes it difficult to distinguish true differences in squirrel density from variation in trapping intensity. Consequently, the resulting squirrel-per-hectare estimates for 2026 should be interpreted with caution and regarded as indicative rather than precise measures of population density.

Lessons learned: A key lesson from the project is the difficulty of providing fully standardised -data on a time schedule required by need to submit deliverables with an uncertain level of required details. While more detailed recording would improve accuracy, it is not realistic to expect volunteers, who already contribute significant time, to collect highly detailed scientific data, as this may reduce participation. Although recording can be incomplete, the current level of reporting still provides valuable information. A practical lesson is therefore to prioritise a flexible approach: allow volunteers freedom in how and where they deploy traps, while encouraging a minimum level of consistent recording through simple reporting methods. In addition, it was not possible to strictly control where volunteers trapped, as they were given broad areas with some freedom to choose exact locations to reduce burden and maintain engagement. However, this flexibility introduced inconsistency in spatial coverage, which has complicated direct comparison with the 2025 trapping data, where different areas were surveyed. Ideally, the initial wave of trapping in 2025 should have been designed in coordination with the volunteer groups who carried out the 2026 trapping, ensuring that survey areas aligned more closely between years. Slow decisions within Pro-Coast on baseline data collection gave too little time for this approach.

6.4 KPI CS06.SC.01. Level of stakeholder satisfaction or feedback regarding their involvement in decision-making.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS06.SC.01	Robert Kenward	
Specific Challenge	***Data provider***	***Frequency of data collection***
Level of stakeholder satisfaction or feedback regarding their involvement in decision-making: The level of satisfaction should not decline with time.	Robert Kenward	Annually: Until red squirrel establishment abandoned or 2033 (Average satisfaction score)
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Robert Kenward	
SESF Variables	***Technical supervisor***	***Other***
2-L | Deliberation processes (I3) 3-L | I3c. Trust building processes	Robert Kenward	

Relation with…

Results		***Specific Objectives***	
R1	RO1/2.3 – Stakeholder analysis & Mapping (WP2)	SO1	Strengthen stakeholder engagement and co-creation processes
R2		SO2	Promote behavioural change and capacity building
R3		SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Qualitative assessment based on stakeholder feedback and engagement.	Staff time for stakeholder engagement and facilitation of meetings and discussions.
Data type	***Tools***
Qualitative	The information was collected through qualitative engagement tools, including online stakeholder meetings, structured and semi-structured discussions, and informal feedback captured during ongoing project communications.
Output data	***Other needs***
Qualitative summaries of stakeholder feedback, engagement, meeting notes, and stakeholder comments relating to their involvement in project decision-making.	
Data collection methods	

Information on stakeholder views and perceptions of involvement in decision-making was gathered qualitatively through ongoing engagement activities. This included feedback from online meetings, direct discussions, and informal communications with key organisations, local landowners, and local authority stakeholders. These interactions provided insight into stakeholder sentiment and engagement levels. The information collected was qualitative rather than quantitative, and no standardised surveys or scoring systems were used as too little time was available to prepare them.

Results

Background and context

The project engaged multiple stakeholder groups across Arne and the wider Purbeck area, with involvement beginning at the earliest stages of project design.

Local conservation organisations were among the first stakeholders contacted, including Natural England, National Trust, Forestry England, RSPB, and Dorset Wildlife Trust. Several online meetings were held with these organisations early in the project to seek their support. Initial engagement was positive, with many individual members expressing strong enthusiasm, particularly around the potential synergies between the project and pine marten conservation. To sustain this early momentum, representatives from these organisations were brought together on a dedicated forum hosted on the Pro-Coast website, allowing discussions initiated in meetings to continue online.

Local landowners were also engaged from an early stage, particularly those within the Rempstone Estate, where squirrel-related fieldwork was planned. This group showed strong early interest in the project, having already been culling squirrel on their own land prior to project involvement, which gave them a direct interest in the project.

While the majority of these groups appeared initially enthusiastic and positive about the project, this early sentiment was gathered informally through meetings and discussions rather than through a structured assessment. As such, no quantified baseline was established at this stage.

Results (baseline vs post-intervention)

Baseline: At the start of the project, feedback from early engagement activities indicated a generally positive level of stakeholder support and enthusiasm. Conservation organisations, local landowners, and local authority representatives expressed interest in the project's objectives and were supportive of being involved in its development.

Results:
Stakeholder engagement remained positive overall throughout the project, although the effectiveness of different engagement methods varied. The dedicated online forum was used less than anticipated, while email discussions proved to be a more effective means of engagement, generating active exchanges on successful red squirrel reintroduction projects elsewhere in the UK and their potential application in Purbeck.

Forestry England was a key stakeholder throughout the project, with multiple meetings and the submission of a detailed project proposal. Although they ultimately decided not to support the proposed activities due to resource constraints and requested that squirrel trapping was not undertaken on land under their management, this decision was respected. The discussions were constructive and helped refine the project's approach, and a positive working relationship was maintained. Engagement remained constructive overall, good relationships were maintained, and there was no evidence that stakeholder satisfaction or willingness to engage declined over the course of the project.

Engagement with local landowners strengthened throughout the project. Many became actively involved in project delivery, either as volunteers or through modest financial support for their contributions. As their involvement increased, they played a greater role in informing project decisions. For example, they were consulted on the proposed deployment of Norbury traps provided by a donor and raised concerns about their safety, leading to the decision not to use these traps. Their local knowledge also informed the selection of trapping locations based on their experience of the woodlands and squirrel activity. This approach helped build trust and made landowners feel that their views were listened to and taken into account. Overall, stakeholder satisfaction within this group appeared to increase over the course of the project.

Discussion

Implications for the project objectives: The strong relationship developed with local landowners had a positive impact on project delivery. As landowners became more involved in decision-making and implementation, they actively supported squirrel trapping, allowing greater trapping effort across the project area and contributing to the reduction of this invasive species. Although Forestry England decided not to support trapping activities on land under its management, this did not significantly affect the project's objectives and constructive relationships with Forestry England were maintained for future collaboration.

Limitations: The absence of an anonymous stakeholder satisfaction survey meant that satisfaction could not be measured quantitatively or compared over time using standardised metrics. However, introducing a formal survey at the start of the project would have been challenging, as many stakeholders had only recently become involved and had limited experience of collaborating with the project. Nevertheless, ongoing qualitative feedback from meetings, discussions, and continued stakeholder engagement suggests that relationships remained positive throughout the project.

Lessons learned: Early and continuous stakeholder engagement helped build trust and encouraged greater participation in the project. The project also demonstrated that different stakeholder groups prefer different methods of communication, with direct discussions (e.g. WhatsApp groups) and email proving more effective than an online forum for maintaining engagement.

6.5 KPI CS06.SC.02 Number of capacity building workshops, training sessions, or knowledge-sharing events conducted.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS06.SC.02	Robert Kenward	
Specific Challenge	***Data provider***	***Frequency of data collection***
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.	Robert Kenward	Summed annually: At least until end of Project (Number of events)
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Robert Kenward	
SESF Variables	***Technical supervisor***	***Other***
2-L | Information sharing (I2) 3-L | I2a. Knowledge transmission	Robert Kenward	/

Relation with…			
Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Promote behavioural change and capacity building for biodiversity conservation
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	Maximise project impact through communication and knowledge transfer

Methodology	
Type of measuring	***Data collection resources/needs***
	Data collection required project staff time to maintain records of training sessions, community events, website updates, and participant attendance.
Data type	***Tools***
Quantitative xls	
Output data	***Other needs***
Quantitative	

Data collection methods

The number of training sessions and community events was recorded throughout the project using project records.

Results

Background and context

The project included three complementary capacity-building components. The first focused on developing the practical skills of volunteers involved in the case study, providing training on the safe and effective use of trapping equipment to support field activities. The second aimed to increase awareness within the wider local community by sharing knowledge on the impacts of invasive grey squirrels and the conservation of native red squirrels. The third focused on maintaining an active presence on the local project website (Pro-Coast in Purbeck) by regularly publishing updates and other content to keep local stakeholders informed and share information about the Purbeck case study with a wider audience.

Results (baseline vs post-intervention)

Results: The project exceeded the target for in-person capacity-building activities. Each volunteer received at least two practical training sessions: one on the safe and effective use of live traps, covering trap deployment, pre-baiting, checking frequency, and trap density, and a second on the installation and use of Norbury traps. These hands-on sessions allowed volunteers to handle the equipment, observe demonstrations, and ask questions. In total, at least six in-person training sessions were delivered. Protocols for all stakeholder activities were provided to ensure that regulatory and ethical requirements were met during practical wildlife management.

In addition, a community knowledge-sharing event was held on 23 October at the local parish hall. Leaflets distributed to all households throughout Arne Parish invited local residents to learn about the project's work on squirrel populations, and 40 people attended. The event presented the results of the local Pro-Coast survey, explained the impacts of grey squirrels on native red squirrels and woodland ecosystems, and explored topics including squirrel pox and the role of pine martens. The promotional leaflets also served as a knowledge-sharing resource by providing information on the ecological impacts of grey squirrels.

The local Pro-Coast website was regularly updated throughout the project, meeting the objective of providing ongoing information to local stakeholders and the wider public. Content included updates on project activities in Purbeck, information on the impacts of invasive grey squirrels and native red squirrel conservation, and guidance on the Garden Advice app developed as part of the case study. The website also hosted a private forum, which was used to facilitate communication and information sharing with local conservation organisations and landowners during parts of the project.

Discussion

Implications for the project objectives: Capacity-building activities made an important contribution to the project's objectives. Practical training enabled volunteers to carry out squirrel trapping safely and effectively, increasing the project's capacity to control grey squirrel populations. Knowledge-sharing activities and website content also helped raise awareness of the impacts of grey squirrels and the benefits of their management, contributing to greater understanding and support for the project's conservation objectives within the local community.

Limitations: In-person community events were effective for engaging local residents but proved more challenging in attracting younger audiences. They were also resource-intensive, requiring considerable time, planning, and financial investment. Given the need to prioritise resources for field activities, including squirrel trapping, the number of large community events that could be organised during the project was necessarily limited.

6.6 KPI CS06.SC.07 Number of local landowners participating in workshops.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS06.SC.07	Robert Kenward	
Specific Challenge	***Data provider***	***Frequency of data collection***
Number of local landowners participating in workshops: An increase in the number of landowners participating is intended	Robert Kenward	Averaged annually: At least until end of Project (Average number of landowners participating per workshop).
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Robert Kenward	
SESF Variables	***Technical supervisor***	***Other***
2-L | Information sharing (I2) 3-L | I2a. Knowledge transmission	Robert Kenward	

Relation with…

Results		***Specific Objectives***	
R1	RO1/2.3 – Stakeholder analysis & Mapping (WP2)	SO1	Strengthen stakeholder engagement and co-creation processes
R2		SO2	Promote behavioural change and capacity building
R3		SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative (number of participating landowners)	Attendance records.
Data type	***Tools***
Quantitative xls	Workshop attendance, meeting notes and records
Output data	***Other needs***
Number of local landowners participating in workshops and training sessions.	

Data collection methods

Recording attendance at workshops, training sessions, and project meetings.

Results

Background and context

Context: Much of Arne Parish and the wider Purbeck area is privately owned, making landowner engagement essential for project delivery. More than 70% of the Dorset National Landscape, which includes Arne Parish and Purbeck, is actively

farmed and predominantly under private ownership. Within Purbeck, the privately owned Rempstone Estate covers approximately 2,000 hectares, representing around 20% of the Isle of Purbeck. As a result, securing the support and permission of local landowners was a prerequisite for undertaking grey squirrel trapping and delivering the case study, as much of the work was required to take place on private land.

Results (baseline vs post-intervention)

Baseline: At the start of the project, we had contacts with a small number of local landowners, although only one (one of the two change agents) was actively involved in the project at that stage.

Post-intervention: Throughout the first year of the project, we strengthened relationships with existing contacts and established new partnerships with local landowners. In the initial phase of the project, training sessions were also delivered to two wildlife managers from the Rempstone Estate, who subsequently became project volunteers. As the project progressed, a further two wildlife managers from the Stoborough area were recruited as volunteers and also participated in training sessions. In addition to the training, formal and informal meetings were held with the participating landowners and wildlife managers (a total of 8) throughout the project. These sessions provided opportunities to collaborate on the case study and exchange knowledge. Many of these sessions can be considered workshops, as they provided opportunities for collaboration and shared learning.

Overall, the project increased the number of local landowners and wildlife managers from one at the outset to eight actively engaged volunteers, participating to meetings and training sessions.

Discussion

Implications for the project objectives: The involvement of private landowners and wildlife managers was essential for delivering project activities on privately owned land. Securing the support and permission of local landowners was a prerequisite for undertaking grey squirrel trapping and implementing the case study, as much of the work took place on privately owned land. Their participation also facilitated knowledge exchange, strengthened local collaboration, and helped build the relationships needed to support effective landscape-scale management.

Limitations: Effective training and support required regular engagement, practical supervision, and ongoing communication. Working with a smaller group allowed for meaningful knowledge exchange, tailored guidance, and stronger collaboration, whereas involving more participants could have reduced the quality of training and support provided.

6.7 KPI CS06.SC.08 Community support for squirrel management (measured by survey results)

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS06.SC.08	Robert Kenward	2025 and 2026
Specific Challenge	***Data provider***	***Frequency of data collection***
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.	Robert Kenward	First survey complete, second in early 2026: Between first and second surveys (Increase in average score).
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Robert Kenward	Twice in 2025 and once in 2026
SESF Variables	***Technical supervisor***	***Other***
2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	Robert Kenward	

Relation with…

Results		***Specific Objectives***	
R1	RO4/2.3 – Development of Key Performance Measures Behavioural change (WP6)	SO1	Promote behavioural change and capacity building
R2		SO2	Maximise project impact through communication and knowledge transfer
R3		SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative	The surveys were delivered and collected by members of the project team during door-to-door distribution and collection. Data entry and analysis were carried out by project staff using the EUSurvey platform, Microsoft Excel, and other statistical software.
Data type	***Tools***
Quantitative xls	EUSurvey questionnaires (online and paper), Microsoft Excel, and statistical analysis software.
Output data	***Other needs***
Stakeholder survey responses	

Data collection methods

As part of Wave 1 of the Pro-Coast stakeholder survey, leaflets were distributed to residents of Arne Parish inviting them to participate in the survey. The leaflets included both a web link and a QR code providing access to the online questionnaire on the EU Survey platform. To improve response rates, door-to-door visits were also conducted, and paper copies of the questionnaire were provided to a small number of residents upon request. These completed questionnaires were collected later the same day. This approach resulted in over 90 completed responses. Responses from the paper questionnaires were manually entered into the EUSurvey platform before being exported to Excel and other software packages for analysis.

For Wave 2 of the Pro-Coast stakeholder survey (2026), paper questionnaires were distributed to a random sample of households within Arne Parish. Door-to-door visits were again undertaken to encourage participation and maximise response rates. To incentivise survey completion, respondents who returned a completed paper questionnaire received a small reward (a box of chocolates worth approximately £6). This approach proved successful, resulting in over 96 completed responses. All paper questionnaires were manually entered into the EUSurvey platform, and the resulting dataset was exported to Excel and other software for further analysis.

Additional data were collected during a Community Drop-in Event held on 23 October 2025 at the local Parish Hall. Previous to the meeting, leaflets had been distributed to invite members of the Arne Parish to participate to the meeting. Questionnaires were distributed to attendees both before and after a series of presentations on the impacts of grey squirrels and the proposed work as part of the case study. The aim was to assess community attitudes towards grey squirrel management and determine whether the presentations influenced participants' views. Questionnaire 1 was distributed on arrival and collected before the presentations started, while Questionnaire 2 was distributed immediately after the presentations and collected before attendees left the event. Overall, 40 people attended the event, 33 people completed the 1st questionnaire and 29 completed the 2nd questionnaire, allowing changes in attitudes to be assessed.

Results

Background and context

Building community support for grey squirrel management is essential to the long-term success of the project. Achieving effective grey squirrel control is necessary to improve woodland habitats, enhance carbon sequestration, and create the conditions required for the successful reintroduction of red squirrels. These objectives can only be achieved with the support and cooperation of local residents, making community engagement and acceptance a key component of the project's success.

Results (baseline vs post-intervention)

Baseline (2025 survey):

The 2025 stakeholder survey established a strong baseline of community support for grey squirrel management (Figure 1). The largest proportion of respondents (approximately 41%) stated that they would strongly support the replacement of grey squirrels with red squirrels by reporting sightings. A further 18% indicated that they would very strongly support this action, meaning that around 59% of respondents expressed a high level of support. Around 18% reported support to some extent, while only around 6% selected not at all and a further 6% to a slight extent. Overall, the baseline survey indicated that the majority of respondents were already supportive of grey squirrel management, although there remained scope to increase the proportion expressing the highest level of support. Sadly, stakeholder definitions changed between Wave 1 (baseline) and Wave 2 surveys, so that the sampling differs.

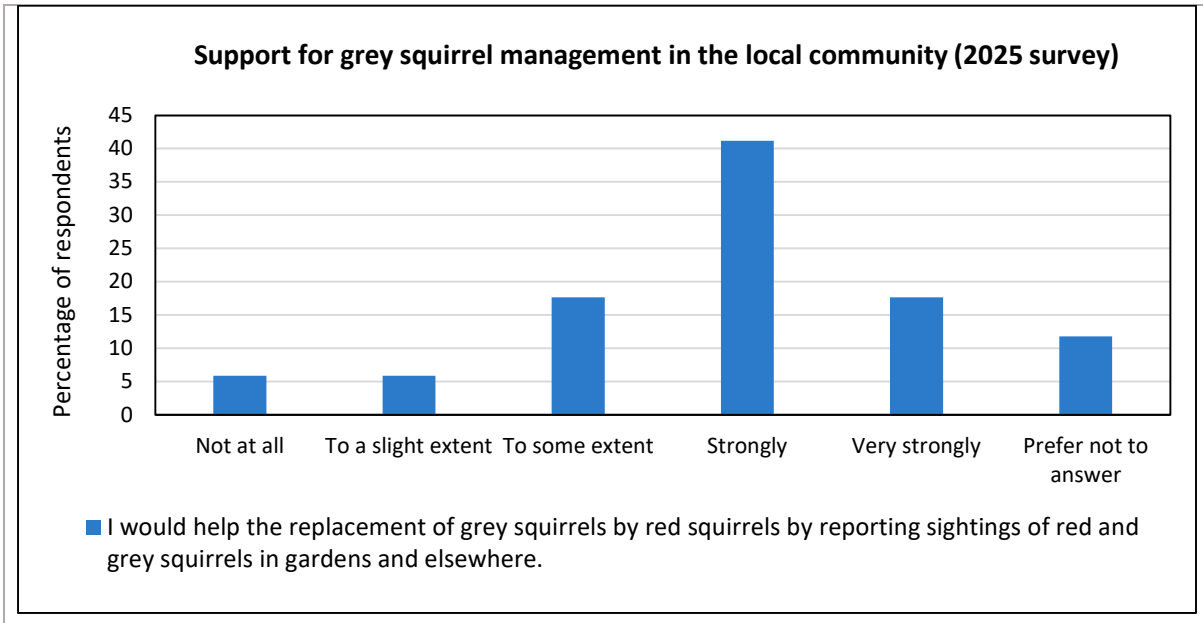


Figure 1: Support for grey squirrel management in the local community. Results from the 2025 survey (n=17).

Post-intervention (2026 survey)

The 2026 stakeholder survey demonstrated very strong community support for grey squirrel management (Figure 2). Nearly two-thirds of respondents (approximately 65%) strongly agreed (score of 5) that they would help the replacement of grey squirrels by red squirrels by reporting squirrel sightings. A further 13% selected 4 (agree), while around 10% selected 3 (neither agree nor disagree). Only around 8% of respondents disagreed (scores of 1 or 2), and approximately 3% did not provide an answer. These findings indicate that the vast majority of respondents expressed positive attitudes towards supporting grey squirrel management.

The comparison between the two surveys indicates that community support for grey squirrel management increased between 2025 and 2026. While the baseline survey already showed generally positive attitudes, the 2026 results reveal a shift towards stronger levels of agreement. The proportion of respondents expressing the highest level of support increased from approximately 59% reporting "strongly" or "very strongly" in 2025 to around 65% selecting "strongly agree" in 2026. In addition, only a small minority of respondents expressed disagreement in 2026.

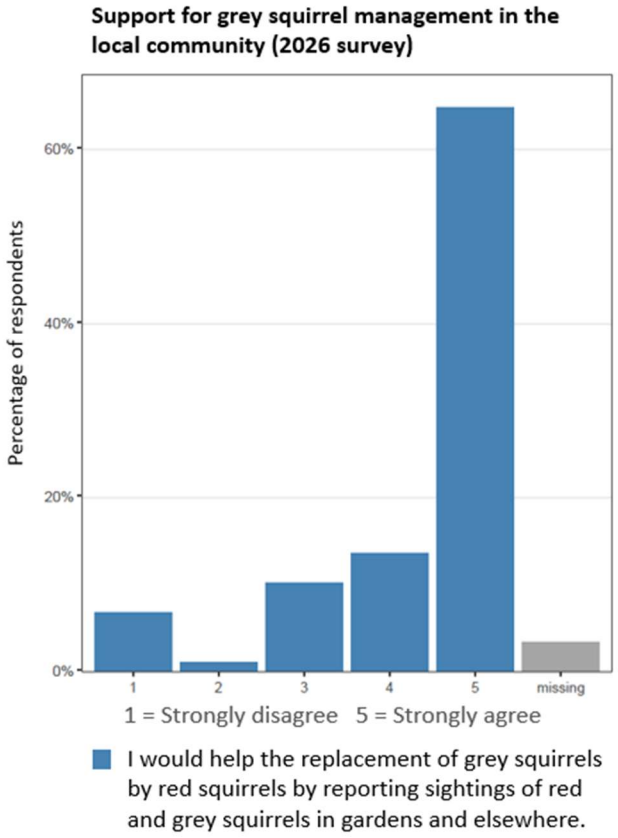


Figure 2: Support for grey squirrel management in the local community, results from the 2026 survey (n=85).

An additional survey was conducted during the Community Drop-in Event on 23 October 2025, which was attended exclusively by residents of Arne Parish. Participants completed a questionnaire before and after presentations explaining the impacts of grey squirrels and the rationale for their management. The results indicate that attitudes were already generally favourable before the presentations, with the majority of attendees expressing strong support for grey squirrel control to facilitate the re-establishment of red squirrels (Figure 3). Following the presentations, there was a small increase in the number of respondents expressing strong support and a corresponding reduction in those indicating more moderate support or strong opposition. Although the changes were modest, the findings suggest that providing clear information about the ecological impacts of grey squirrels can help strengthen public support for their management. These results are consistent with the wider stakeholder surveys, which also indicate generally high and increasing levels of community support for grey squirrel management in Arne Parish.

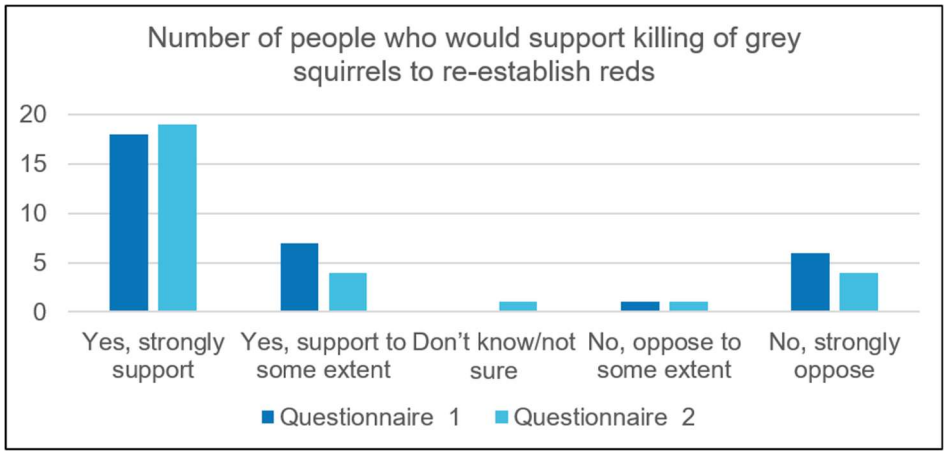


Figure 3: Number of people who would support killing of grey squirrels to re-establish red squirrels. Data collected at the

Community Drop-in Event (23 October 2025). Questionnaire 1 was distributed on arrival and collected before the presentations; Questionnaire 2 was distributed and collected after.

Discussion

The survey results indicate that community support for grey squirrel management in Arne Parish is high and has increased over the course of the project, suggesting that engagement and awareness-raising activities have been effective. The Community Drop-in Event also demonstrated that providing information on the ecological impacts of grey squirrels can further strengthen public support. A limitation is that the 2025 and 2026 surveys used slightly different response scales. Nevertheless, the findings provide strong evidence that the project has successfully built local support for grey squirrel management, which is essential for achieving the project's long-term objectives of improving woodland condition, enhancing carbon sequestration, and enabling the successful reintroduction of red squirrels.

6.8 KPI CS6.SC.03 Participation rate in capacity building activities among target groups.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS6.SC.03	Robert Kenward	Throughout the project
Specific Challenge	***Data provider***	***Frequency of data collection***
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.	Robert Kenward	Summed annually: At least until end of Project (Number of participants per annum).
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Robert Kenward	
SESF Variables	***Technical supervisor***	***Other***
2-L | Information sharing (I2) 3-L | I2a. Knowledge transmission	Robert Kenward	

Relation with…

Results		***Specific Objectives***	
R1	Stakeholder analysis & Mapping (WP2)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	Development of Key Performance Measures Behavioural change (WP6)	SO2	Promote behavioural change and capacity building
R3		SO3	Maximise project impact through communication and knowledge transfer.

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative and qualitative	Project staff, event organisers, Google Analytics, project documentation
Data type	***Tools***
Quantitative and qualitative	Attendance sheets, Google Analytics, project website, activity logs
Output data	***Other needs***
Event attendance records, website analytics	

Data collection methods

Attendance records, Google Analytics, project activity logs.

Results

Background and context

The success of the project relies not only on delivering practical work in the area but also on ensuring that local communities understand the reasons behind the project. Providing opportunities for people to engage with the project helps to raise awareness of its objectives and encourages support for its long-term aims. Community engagement activities provide opportunities to raise awareness of grey squirrel management and encourage local interest in the project. The project's dedicated website also serves as a source of information on its objectives, progress, and activities, allowing members of the public to access updates and learn more about the work being undertaken.

Results (baseline vs post-intervention)

Baseline:

A dedicated website, *Pro-Coast in Purbeck*, was developed in early 2025 specifically for the Arne case study (https://pro-coast-purbeck.sycl.net/1/home). As the website was newly created for the project, the baseline number of website visits was zero. The website was established to provide a central source of information on the case study and its activities. It includes information on the project's objectives and work on the Isle of Purbeck. The website also introduces the Garden Advice app, which enables members of the public to record squirrel sightings and access guidance on wildlife-friendly gardening. In addition, a discussion forum was created to encourage communication between project partners, such as local conservation. The website was intended to support capacity building by making project information easily accessible to local communities and stakeholders, while also providing opportunities for people to engage with the project outside of organised events.

At the start of the project, no capacity-building activities had been delivered to local communities in relation to the Purbeck case study. Consequently, the baseline level of participation in project-led capacity-building activities was zero. The project therefore sought to increase awareness and understanding of grey squirrel management through community engagement events, presentations and discussions with local groups and stakeholders.

Post-intervention result: Website

Following the launch of the *Pro-Coast in Purbeck* website, the site was actively promoted through project activities and stakeholder engagement. The website was shared with local community members during the community event held at the local parish hall on 23 October 2025, where QR codes linking directly to the website were displayed on information posters and attendees were encouraged to explore the site. It was also used during meetings and communications with local stakeholders, including conservation groups, providing a simple way to communicate the project's objectives, activities and progress. The website's discussion forum was used to initiate conversations between local conservation stakeholders.

Between June 2025 and June 2026, the website recorded 690 page views from 276 active users. Visitors viewed an average of 2.5 pages per visit, indicating that many users explored multiple sections of the website rather than visiting a single page. As shown in Figure 4, the highest number of page views was recorded in October 2025, coinciding with the community engagement where the website was promoted. A smaller increase in activity was also observed around January 2026. Although monthly page views declined after the initial peak, the website continued to receive visits throughout the reporting period, indicating ongoing use as a project information resource.

Overall, although website traffic remained relatively modest, the website fulfilled its intended role as a central hub for project information. The increase in page views following its promotion through community events and stakeholder meetings suggests that face-to-face engagement can be an effective way of raising awareness of the website and encouraging people to access project information online.

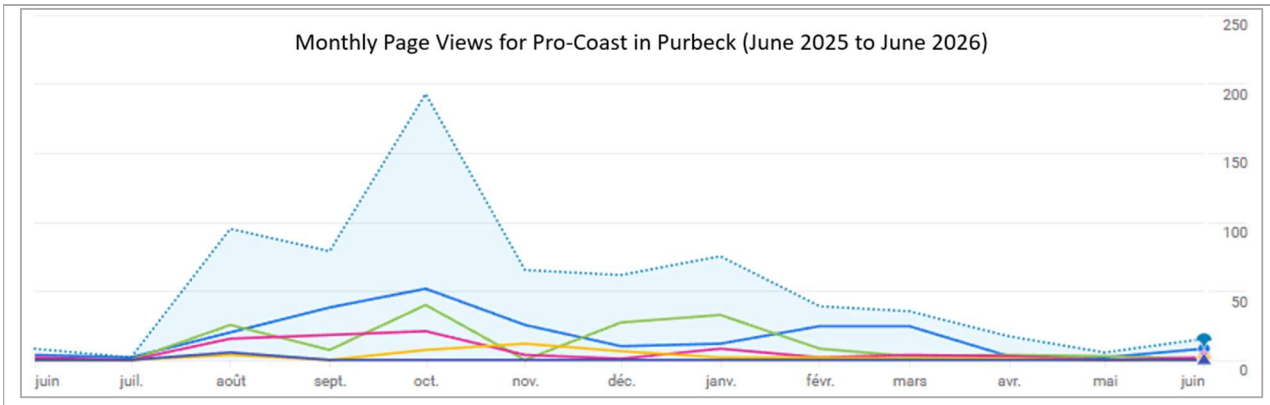


Figure 4: Total number of page views per month, shown on a scale from 0 to 250. The dotted light blue line represents the combined total across all pages. Individual pages are shown as solid-coloured lines: Home (blue), Forum for Purbeck (green), Our work on the Isle of Purbeck (pink), Contact Us (yellow), and Forum Purbeck Island (dark blue). Source: Screenshot from Google Analytics.

Post-intervention result: Capacity-building activities

The project delivered a range of engagement activities aimed at increasing awareness of grey squirrel management and building local understanding of the objectives of the case study. Although only one dedicated community capacity-building event was organised, additional presentations and talks to local organisations helped extend the project's reach and engage a wider audience.

The principal capacity-building activity was the community event held at Stoborough Village Hall on 23 October 2025, which was attended by 40 participants. The event introduced the objectives of the Purbeck case study, explained the rationale for grey squirrel management, presented the REDS initiative, and provided opportunities for discussion and feedback. This event represented the main opportunity for direct engagement with local community members and for exchanging information and addressing questions about the project.

Capacity building was further supported through presentations delivered to local organisations. A presentation to the Arne Natural History Group in July 2025 reached 12 attendees, providing an opportunity to explain the project's objectives and discuss local conservation issues with an audience already interested in wildlife management. A further presentation to Blackmore Vale Hall in January 2026 attracted approximately 30 attendees, extending awareness of the project to another local audience and encouraging discussion around grey squirrel management and woodland conservation.

In addition to these public-facing activities, the project maintained regular engagement with local conservation groups, landowners, volunteers and other stakeholders through meetings and discussions held throughout the reporting period. While these activities contributed to increasing knowledge, sharing information and strengthening collaboration between organisations and individuals involved in local conservation.

Discussion

The results indicate that the project made progress towards increasing participation through a combination of face-to-face engagement and online communication. The community event and presentations to local organisations provided valuable opportunities to share information about the project, explain its objectives, answer questions, and participate to discussion among local communities and stakeholders. Additionally, the project website provided an accessible platform where participants and other stakeholders could continue to access information and resources after these events.

6.9 KPI CS6.SC.04. Public awareness of the biodiversity threats and the implications of developments

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS6.SC.04	Robert Kenward	2025 and 2026
Specific Challenge	***Data provider***	***Frequency of data collection***
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.	Robert Kenward	First survey complete, second in early 2026: Between first and second surveys (Increase in average score).
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Robert Kenward	Once in 2025 and once in 2026
SESF Variables	***Technical supervisor***	***Other***
2-L | Information sharing (I2) 3-L | I2b. Information/knowhow sharing about SES variations.	Robert Kenward	

Relation with…			
Results		***Specific Objectives***	
R1	RO4/2.3 – Development of Key Performance Measures Behavioural change (WP6)	SO1	Promote behavioural change and capacity building
R2		SO2	Maximise project impact through communication and knowledge transfer
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative	The surveys were delivered and collected by members of the project team during door-to-door distribution and collection. Data entry and analysis were carried out by project staff using the EUSurvey platform, Microsoft Excel, and other statistical software.
Data type	***Tools***
Quantitative xls	EUSurvey questionnaires (online and paper), Microsoft Excel, and statistical analysis software.
Output data	***Other needs***
Stakeholder survey responses	

Data collection methods

As part of Wave 1 of the Pro-Coast stakeholder survey, leaflets were distributed to residents of Arne Parish inviting them to participate in the survey. The leaflets included both a web link and a QR code providing access to the online questionnaire on the EU Survey platform. To improve response rates, door-to-door visits were also conducted, and paper copies of the questionnaire were provided to a small number of residents upon request. These completed questionnaires were collected later the same day. This approach resulted in 86 completed responses. Responses from the paper questionnaires were manually entered into the EUSurvey platform before being exported to Excel and other software packages for analysis.

For Wave 2 of the Pro-Coast stakeholder survey (2026), paper questionnaires were distributed to a random sample of households within Arne Parish. Door-to-door visits were again undertaken to encourage participation and maximise response rates. To incentivise survey completion, respondents who returned a completed paper questionnaire received a small reward (a box of chocolates worth approximately £6). This approach proved successful, resulting in 95 completed responses. All paper questionnaires were manually entered into the EUSurvey platform, and the resulting dataset was exported to Excel and other software for further analysis.

Results

Background and context

Building community support for grey squirrel management is essential to the long-term success of the project. Effective grey squirrel control is necessary to improve woodland habitats, enhance carbon sequestration, and create the conditions required for the potential reintroduction of red squirrels. These objectives can only be achieved with the support and cooperation of local communities, making public engagement and acceptance a fundamental component of the project's success.

Developing this support first requires raising awareness of the impacts that invasive non-native species, particularly grey squirrels, have on local woodland ecosystems and biodiversity. A greater understanding of these impacts is expected to increase public acceptance of management measures. For this reason, increasing public awareness of the damage caused by invasive species is an important aspect of the project's progress towards long-term behavioural and attitudinal change.

Results (baseline vs post-intervention)

Baseline (2025 survey)

The baseline survey found that awareness of the ecological impacts of grey squirrels among local community members was mixed (Figure 5). Approximately one-fifth of respondents (19%) reported that they did not understand the threats posed by grey squirrels to nature and carbon sequestration. A further 25% indicated that they understood the threats only to a slight extent. In contrast, 25% reported understanding the threats to some extent, while another 25% stated that they understood them strongly. No respondents selected the highest level of awareness ("Very strongly"). Overall, these findings suggest that while around half of respondents had at least a moderate understanding of the impacts of grey squirrels, there remained a substantial proportion of the community with limited awareness.

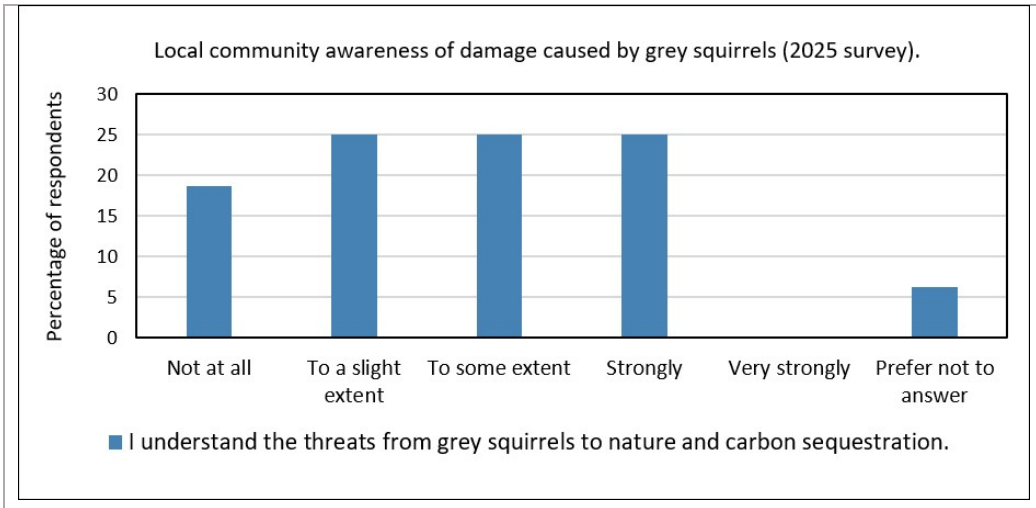


Figure 5: Local community awareness of damage caused by grey squirrels (2025 survey, n=16)

Post-intervention (2026 survey)

The post-intervention survey indicates a higher overall level of awareness among local community members. Around 56% of respondents strongly agreed that they understood the threats posed by grey squirrels to nature and carbon sequestration, while a further 15% agreed. Approximately 16% neither agreed nor disagreed with the statement, and only around 2% agreed only slightly. Just 9% of respondents strongly disagreed, indicating that they did not understand the threats. Overall, the findings demonstrate that a clear majority of respondents reported a good understanding of the impacts that grey squirrels have on nature and carbon sequestration.

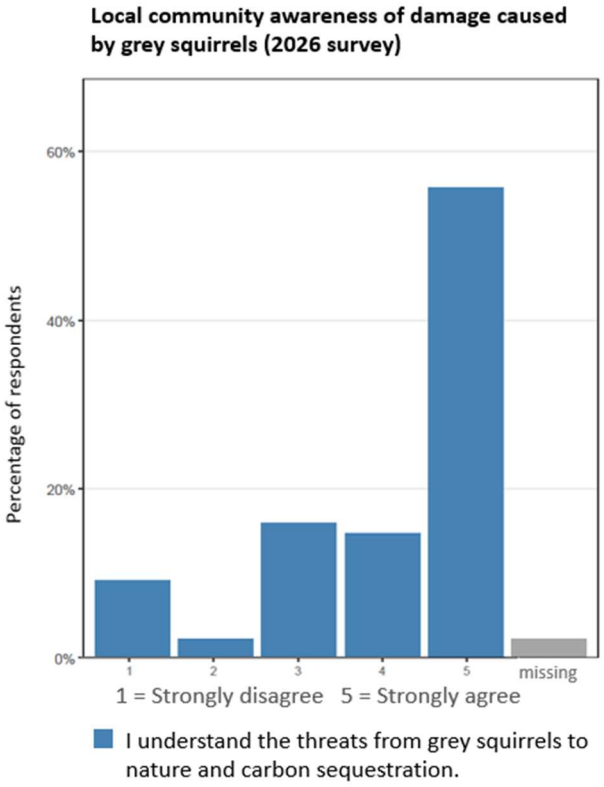


Figure 6: Local community awareness of damage caused by grey squirrels (2026 survey, n=86)

Comparison of baseline and post-intervention

Comparison of the baseline and post-intervention surveys indicates a clear increase in public awareness of the impacts of grey squirrels. In 2025, responses were distributed relatively evenly across the different levels of understanding, with almost half of respondents reporting little or only slight awareness of the threats posed by grey squirrels. By contrast, in 2026 over 70% of respondents agreed or strongly agreed that they understood these threats, with more than half selecting the highest level of agreement. At the same time, the proportion of respondents reporting little or no understanding fell considerably. This shift suggests that the project's engagement and communication activities have been effective in increasing public understanding of the impacts of invasive grey squirrels.

Discussion

The results indicate that public awareness of the impacts of invasive grey squirrels increased over the course of the project, suggesting that the project's communication has been effective. Improved awareness is an important step towards increasing community support for grey squirrel management and therefore support woodland restoration and red squirrel reintroduction. The results highlight the importance of community engagement to maintain public support for invasive species management.

6.10 KPI CS6.SC.05 Stakeholder awareness of the biodiversity threats and the implications of developments.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS6.SC.05	Robert Kenward	Once in 2025 and once in 2026
Specific Challenge	***Data provider***	***Frequency of data collection***
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.	Robert Kenward	First survey complete, second in early 2026: Between first and second surveys (Increase in average score).
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Robert Kenward	Once in 2025 and once in 2026
SESF Variables	***Technical supervisor***	***Other***
2-L | Information sharing (I2) 3-L | I2b. Information/knowhow sharing about SES variations	Robert Kenward	

Relation with…

	Results		*Specific Objectives*
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Strengthen stakeholder engagement and co-creation processes
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	Develop a framework for biodiversity conservation planning and implementation

Methodology

Type of measuring	*Data collection resources/needs*
Quantitative	The surveys were delivered and collected by members of the project team during door-to-door distribution and collection. Data entry and analysis were carried out by project staff using the EUSurvey platform, Microsoft Excel, and other statistical software.
Data type	***Tools***
Quantitative xls	EUSurvey questionnaires (online and paper), Microsoft Excel, and statistical analysis software.
Output data	***Other needs***

Stakeholder survey responses	

Data collection methods

As part of Wave 1 of the Pro-Coast stakeholder survey, leaflets were distributed to residents of Arne Parish inviting them to participate in the survey. The leaflets included both a web link and a QR code providing access to the online questionnaire on the EU Survey platform. To improve response rates, door-to-door visits were also conducted, and paper copies of the questionnaire were provided to a small number of residents upon request. These completed questionnaires were collected later the same day. This approach resulted in 86 completed responses. Responses from the paper questionnaires were manually entered into the EUSurvey platform before being exported to Excel and other software packages for analysis.

For Wave 2 of the Pro-Coast stakeholder survey (2026), paper questionnaires were distributed to a random sample of households within Arne Parish. Door-to-door visits were again undertaken to encourage participation and maximise response rates. To incentivise survey completion, respondents who returned a completed paper questionnaire received a small reward (a box of chocolates worth approximately £6). This approach proved successful, resulting in 95 completed responses. All paper questionnaires were manually entered into the EUSurvey platform, and the resulting dataset was exported to Excel and other software for further analysis.

As part of both questionnaire (2025 and 2026 surveys), respondents were asked to identify the stakeholder group(s) they belonged to (e.g. conservation professionals). Based on these responses, participants were presented with a set of questions specific to their stakeholder category. This approach enabled the survey to analyse attitudes and perceptions both across the wider community and within individual stakeholder groups.

Results

Background and context

Building local stakeholder support for grey squirrel management is essential to the long-term success of the project. Achieving these objectives depends on the support and cooperation of local stakeholders, including conservation professionals, farmers, landowners, gamekeepers, and hunters, whose decisions and management practices directly influence the success of control measures. Developing this support first requires increasing awareness of the impacts that invasive non-native species, particularly grey squirrels, have on woodlands. Improved understanding of these impacts is expected to increase stakeholders' willingness to support the project, take part in activities to reduce grey squirrel populations, and help create conditions for the future reintroduction of red squirrels.

Results (baseline vs post-intervention)

Baseline (2025 survey)

In 2025, most cultivators showed a positive attitude towards grey squirrel management (Figure 7). Around half of respondents were strongly prepared to report squirrel observations to support red squirrel restoration, while willingness to facilitate grey squirrel removal was more evenly distributed. Overall, responses indicated moderate to high awareness of the impacts of grey squirrels and support for management actions.

Hunters generally expressed support for grey squirrel management (Figure 8). Most respondents indicated at least some commitment to grey squirrel removal and were willing to tolerate predators that target grey squirrels, although responses were spread across several categories because of the small sample size.

Conservation professionals demonstrated the highest levels of awareness and support among the stakeholder groups (Figure 9). Most respondents strongly supported both the licensing of red squirrel and predator translocations and the expansion of red squirrel restoration beyond Arne Parish, indicating a high level of understanding of the ecological issues.

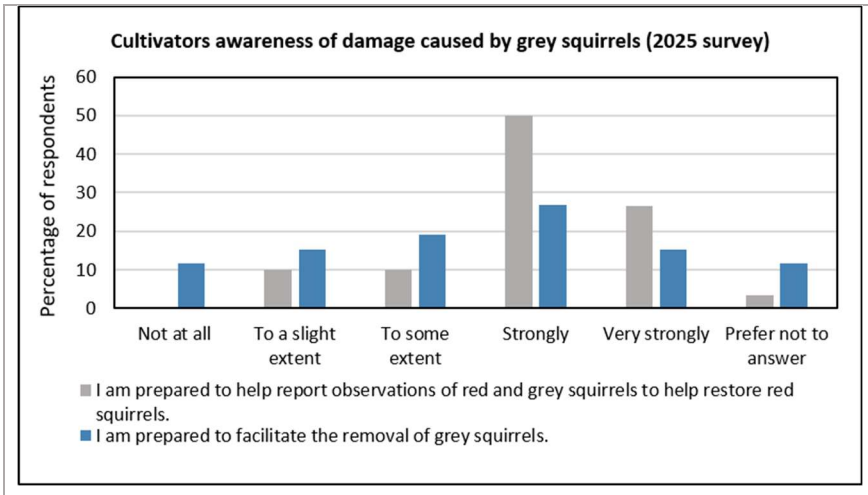


Figure 7: Land cultivators' awareness of damage caused by grey squirrels (2025 survey, n=26)

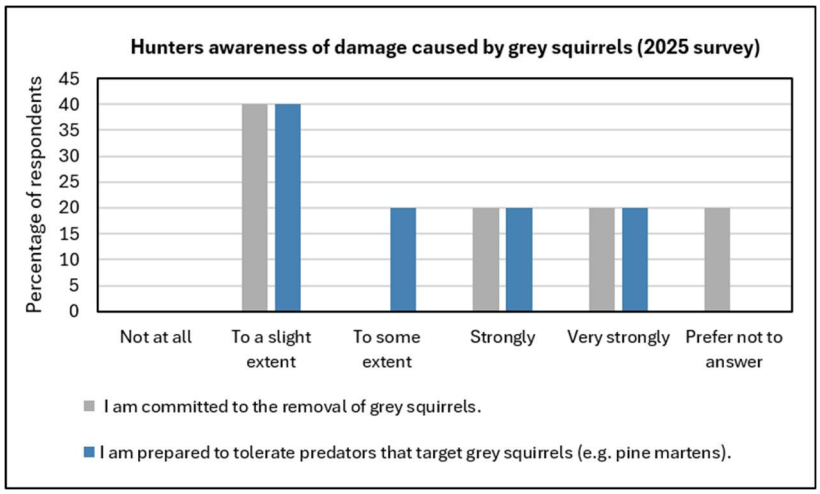


Figure 8: Hunters awareness of damage caused by grey squirrels (2025 survey, n=5)

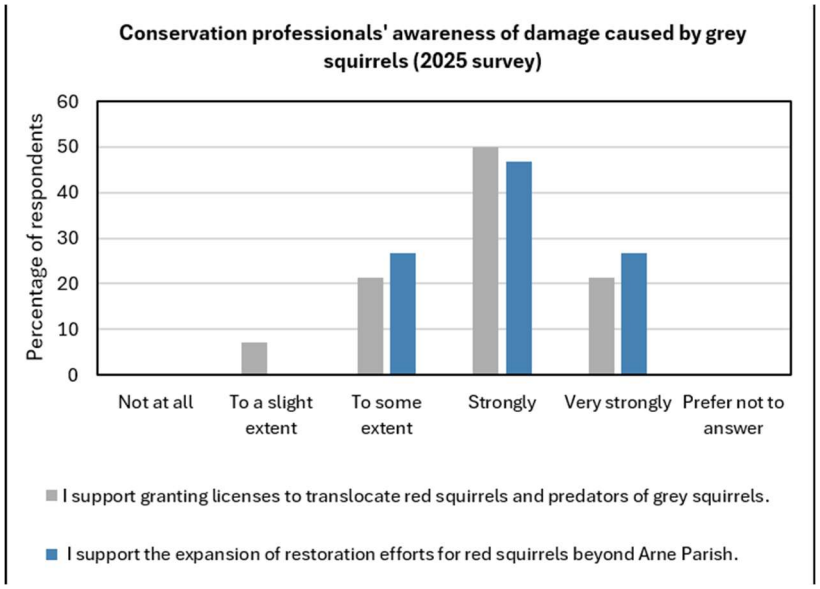


Figure 9: Conservation professional's awareness of damage caused by grey squirrels (2025 survey, n=14)

Post-intervention (2026 survey)

Amongst the farmers and foresters who responded to the 2026 survey, two-thirds strongly agreed that they understood the threats posed by grey squirrels to biodiversity and carbon sequestration, while all respondents strongly agreed that they would support red squirrel restoration by reporting squirrel sightings (Figure 10). Although based on a very small sample, responses indicate a high level of awareness.

In the case of hunters, both respondents either agreed or strongly agreed that they understood the threats posed by grey squirrels, and all strongly agreed that they would support red squirrel restoration by reporting squirrel sightings (Figure 11).

Only one respondent identified as a conservation professional. This respondent strongly agreed with both statements relating to understanding the impacts of grey squirrels and supporting red squirrel restoration (Figure 12).

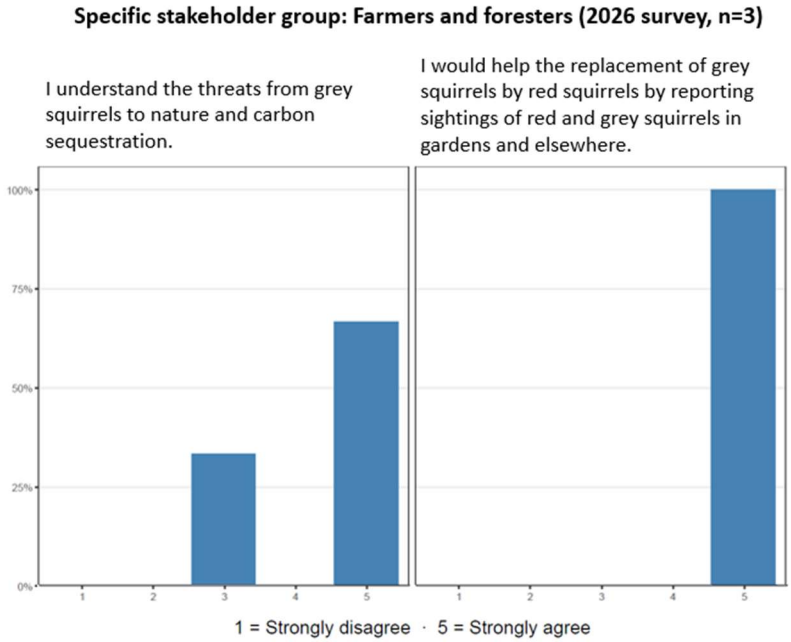


Figure 10**:** Farmers and foresters' awareness of damage caused by grey squirrels (2025 survey, n=3)

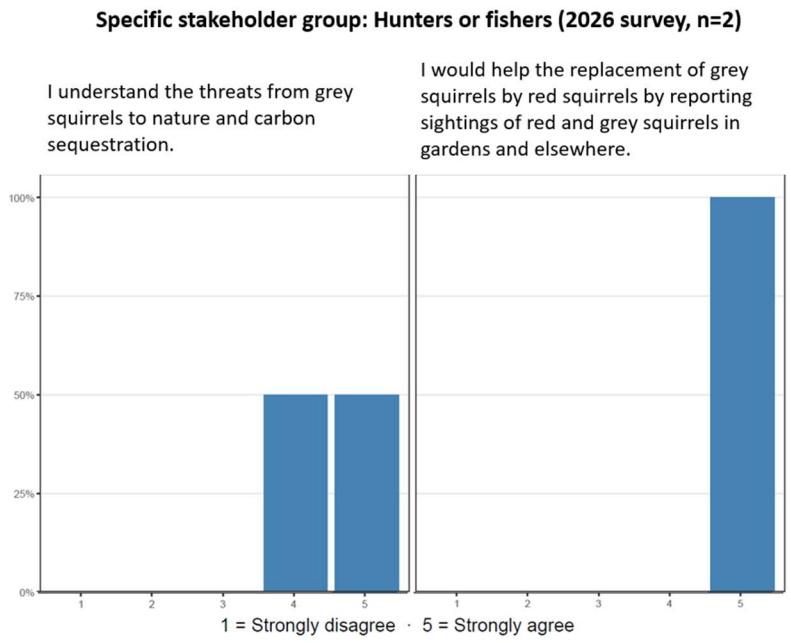


Figure 11: Hunters and fishers' awareness of damage caused by grey squirrels (2025 survey, n=2)

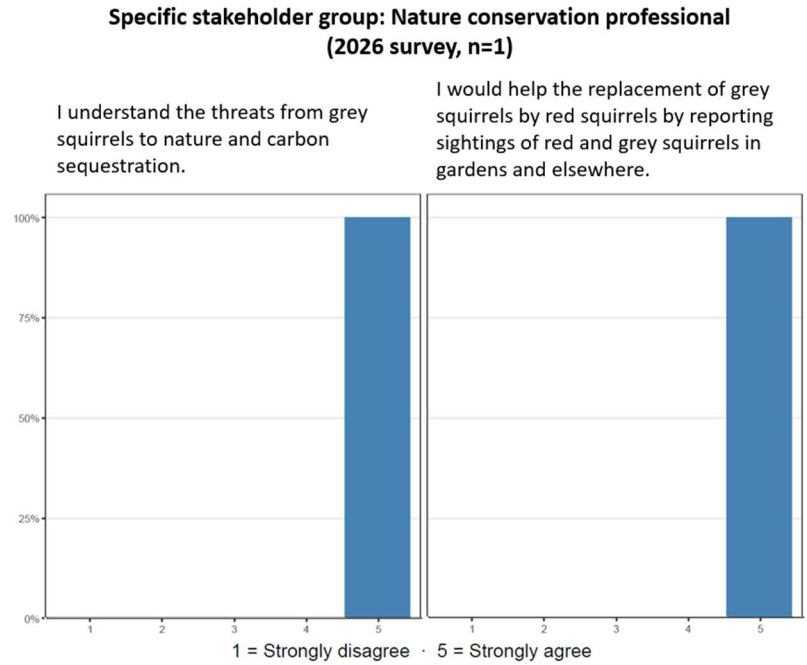


Figure 12: Hunters and fishers' awareness of damage caused by grey squirrels (2025 survey, n=1)

Comparison between baseline and post-intervention

Direct comparison between the 2025 and 2026 surveys should be interpreted with caution because stakeholder categories changed slightly between surveys, the survey questions were revised, and sample sizes for several stakeholder groups in 2026 were very small. These differences limit the extent to which quantitative changes can be attributed to the project. Overall, results suggest that awareness of the impacts of grey squirrels and support for management actions remained high across all stakeholder groups. Respondents consistently agreed or strongly agreed that they understood the ecological threats posed by grey squirrels and expressed a willingness to contribute to restoration activities, such as reporting squirrel

sightings. Overall, the findings suggest that the project has likely further strengthened stakeholder awareness of the impacts of grey squirrels and reinforced support for management actions.

Discussion

Key findings: The survey results indicate that stakeholder awareness of the impacts of grey squirrels on woodland ecosystems is generally high across the stakeholder groups surveyed. Responses from both surveys suggest that stakeholders understand the ecological threats posed by grey squirrels and are supportive of management actions, including contributing to monitoring and future red squirrel restoration. Overall, the findings suggest that project engagement activities have likely helped to strengthen stakeholder awareness.

Limitations: First, stakeholder categories and some survey questions differed slightly between the 2025 and 2026 surveys, limiting the extent to which direct comparisons can be made. Second, the number of respondents within several stakeholder groups in the 2026 survey was very small, particularly for conservation professionals and hunters and fishers. These small sample sizes increase uncertainty and mean that the results may not fully represent the views of the wider stakeholder group.

Lesson learned: stakeholder surveys can provide valuable insights into awareness and attitudes, but obtaining sufficiently large samples from specific stakeholder groups can be challenging. Future surveys would benefit from more targeted engagement with underrepresented groups to improve sample sizes.

6.11 CS6.SC.06. KPI Number of local community awareness campaigns

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS6.SC.06	Robert Kenward	
Specific Challenge	***Data provider***	***Frequency of data collection***
Number of local community awareness campaigns	Robert Kenward	Continuous: Until October 2026 (Number of campaigns using agreed definition).
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	Robert Kenward	
SESF Variables	***Technical supervisor***	***Other***
2-L | Information sharing (I2) 3-L | I2b. Information/knowhow sharing about SES variations.	Robert Kenward	

Relation with…

Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Strengthen stakeholder engagement and co-creation processes
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	Maximise project impact through communication and knowledge transfer.

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative and qualitative	Project staff, event organisers, project documentation
Data type	***Tools***
Quantitative and qualitative	Attendance sheets, activity logs
Output data	***Other needs***
Event attendance records	

Data collection methods

Attendance records, project activity logs.

Results

Background and context

The success of the project relies not only on delivering practical work in the area but also on ensuring that local communities understand the reasons behind the project. Providing opportunities for people to engage with the project helps to raise

awareness of its objectives and encourages support for its long-term aims. Community engagement activities provide opportunities to raise awareness of grey squirrel management and encourage local interest in the project.

Results (baseline vs post-intervention)

Baseline:

At the start of the project, no local community awareness campaigns had been delivered to raise awareness of the impacts of invasive grey squirrels on local woodlands and the need for their management to support woodland conservation. The project therefore sought to increase public awareness through a dedicated community awareness campaign, supported by presentations to local organisations and the dissemination of project information through the website and other communication materials.

Post-intervention:

A local community awareness campaign was delivered through a community event held at Stoborough Village Hall on 23 October 2025, which was attended by 40 participants. Prior to the event, leaflets were distributed throughout Arne Parish to promote the event and encourage local residents to learn about the project's work on squirrel populations. In addition to serving as invitations, the leaflets provided information on the impacts of grey squirrels on local woodlands and carbon sequestration, helping to raise awareness of these issues across the local community, including among residents who did not attend the event. The event itself included presentations on the PRO-COAST project and the Purbeck case study, ongoing monitoring activities, and the Garden Advice application. The programme also featured a presentation by Craig Shuttleworth, one of the UK's leading experts on red squirrel reintroductions. The event generated considerable interest among attendees, with an active question-and-answer session and productive discussions that provided valuable opportunities to engage directly with members of the local community and address their questions.

To assess the effectiveness of the awareness campaign, questionnaires were completed by participants before and after the presentations. Thirty-three participants completed the pre-event questionnaire and twenty-nine completed the post-event questionnaire. The results showed a consistently high level of support for the re-establishment of red squirrels (approximately 91%) and suggested a small increase in support for the management actions required to facilitate their return. Although changes in attitudes were modest, the findings indicate that the event successfully engaged participants and increased awareness of the project's objectives.

The awareness campaign was further supported through presentations to local organisations, including the Arne Natural History Group and Blackmore Vale Hall, which helped extend the project's reach beyond the main event. The project website was also promoted throughout these activities, providing local communities with continued access to project information and resources. Overall, the campaign raised awareness of the project and its objectives while encouraging engagement from local communities.

Discussion

The awareness campaign provided an opportunity for local communities to engage with the project and learn about the impacts of grey squirrels on woodlands and carbon sequestration. Face-to-face engagement proved to be particularly valuable for sharing information, addressing questions and encouraging discussion. A limitation was that only one dedicated community awareness event could be delivered during the reporting period, which inevitably restricted the overall reach of the campaign. Nevertheless, the campaign successfully engaged local communities and contributed to building awareness and support for the project's conservation objectives.

7.1 KPI CS07.EC.01. Fundraising amount to pay for clean-up activities

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS07.EC.01	University of Bergen	1st October 23 – 25th June 26
Specific Challenge	***Data provider***	***Frequency of data collection***
To clean the sebaed is cost intensive and funders have not had these operations on their priorities yet	NMF	Continuous
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Economic Cultural	N/A	N/A
SESF Variables	***Technical supervisor***	***Other***
2-L | Networking activities (I8) 3-L | I8c. Partnership and cooperation	N/A	N/A

Relation with…

Results		***Specific Objectives***	
R1	RO1/2.3 – Stakeholder analysis & Mapping (WP2)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	RO2/2.3 – Development of Science-based policy recommendations (WP4)	SO2	
R3		SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative	
Data type	***Tools***
Numerical	
Output data	***Other needs***

Data collection methods

Received the number from NMF

Results

Background and context

The KPI is about how much funds have been received to clean up the seabed. Reported in Norwegian kroner (NOK), in line with the KPI table. Baseline: 950,000 NOK for the 2024 pilot phase (22.04.2024–04.06.2024), provided by Agenda Vestland, which covered the pilot clean-up and the subsequent NMF report. Post-intervention: 500,000 NOK secured in 2026 for a second clean-up round. No funding was provided in 2025. Funding must be applied for annually and spent within the year. Because the 2024 figure covered both clean-up and reporting while the 2026 figure covers clean-up only, the two amounts are not directly comparable.

Discussion

Funding for under-water clean-up was secured in two separate rounds rather than as sustained, continuous support: 950,000 NOK for the 2024 pilot (which also covered the subsequent NMF report) and 500,000 NOK for a second clean-up round in 2026, with no funding in 2025. Because the pilot figure covered both clean-up and reporting while the 2026 figure covers clean-up only, the two amounts are not strictly comparable and no reliable percentage change can be derived. The more significant finding sits behind the figures: the application for the second round was initially declined by the main marine-pollution funder, but on grounds acknowledging the need for a dedicated funding track for under-water clean-ups, separate from the general marine-pollution stream. This is an early signal that funders are beginning to treat under-water clean-up as a distinct priority, which is consistent with the case study aim of moving seabed clean-up onto funders' agendas. The main limitation is that funding still depends on annual applications that must be spent within the year; systematic upscaling is anticipated but has not yet materialised.

7.2 KPI CS07.EN.01. Resale of salvaged fishing gear

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS07.EN.01	University of Bergen	1st October 23 – 25th June 26
Specific Challenge	***Data provider***	***Frequency of data collection***
It is more environmentally friendly to buy used gear with high quality than (cheap) new gear with low quality that gets lost easily	NMF	Continuous
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Environmental	N/A	N/A
SESF Variables	***Technical supervisor***	***Other***
2-L | Economic development (S1) 3-L | S1a. Economic sectors	N/A	N/A

Relation with…

Results		***Specific Objectives***	
R1	RO2/2.3 – Development of Science-based policy recommendations (WP4)	SO1	Validate bottom-up biodiversity conservation actions through case studies.
R2	RO2/2.2 – Integrated Assessment Methodology (WP6)	SO2	Support transferability and upscaling of biodiversity conservation measures
R3		SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative	
Data type	***Tools***
Numerical	
Output data	***Other needs***

Data collection methods

Received the number from NMF

Results

Background and context

The KPI indicates how many fishing gears have been restored and then resold throughout the period by the NMF. This KPI measures the number of salvaged fishing gear items that were restored to a saleable standard and resold through the partnering second-hand shop. The baseline is zero, as no restoration-and-resale scheme for recovered gear existed before the 2024 pilot. The rationale is environmental: high-quality used gear that is repaired and returned to use is preferable to cheap new gear of lower quality, which is more easily lost and becomes ghost gear. NMF provides the count of restored and resold items; the resale itself takes place through the partnering thrift shop. Data covers the pilot phase (22.04.2024 to 04.06.2024); a large-scale phase has not yet taken place, so only a single measurement point is available.

Results (baseline vs post-intervention)

0 items restored and resold before the pilot. Post-intervention: 35 items restored and resold following the 2024 pilot. The figure therefore increased from 0 to 35 over the pilot period.

Discussion

The resale figure moved from a baseline of zero to 35 pieces of restored gear sold through the partnering thrift shop during the 2024 pilot. With no large-scale phase yet completed, the result functions as a proof of concept rather than a trend: it demonstrates that gear recovered from the seabed can be restored to a saleable standard and returned to use, supporting the environmental argument that high-quality used gear is preferable to cheap new gear that is more easily lost. The key limitation is the single data point; a second measurement from a scaled phase will be needed before resale volume can be assessed as a sustained outcome. For interpretation, the figure should be read as evidence of feasibility, not yet of impact at scale.

7.3 KPI CS07.EN.02. Amount of marine debris removed

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS07.EN.02 | Amount of marine debris removed	University of Bergen	1st October 23 – 25th June 26
Specific Challenge	***Data provider***	***Frequency of data collection***
There is a large amount of ghost gear in the sea that keeps fishing and destroys ecosystems	NMF	Continuous
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Environmental	N/A	N/A
SESF Variables	***Technical supervisor***	***Other***
2-L | Ecological performance measures (O2) 3-L | O2c. Natural habitat condition	N/A	N/A

Relation with…

	Results		***Specific Objectives***
R1	RO1/2.1: 1.2 Improvement Plan (IP) on coastal resources	SO1	Validate bottom-up biodiversity conservation actions through case studies
R2		SO2	Support transferability and upscaling of biodiversity conservation measures
R3		SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative	
Data type	***Tools***
Numerical	
Output data	***Other needs***

Data collection methods

Will receive the number from NMF

Results

Background and context

This KPI measures the number of pieces of fishing gear (ghost gear) removed from the seabed. The baseline is zero, as no systematic under-water removal had taken place before the 2024 pilot. The rationale is environmental: ghost gear left on the seabed continues to trap and kill marine life and damages habitats, so its removal directly reduces ongoing ecosystem harm. NMF provides the count of items removed. Data covers the pilot phase (22.04.2024 to 04.06.2024); a large-scale phase has not yet taken place, so only a single measurement point is available and a baseline-versus-trend comparison is not yet possible.

Results (baseline vs post-intervention)

0 pieces removed before the pilot. Post-intervention: 239 pieces of fishing gear removed from the seabed during the 2024 pilot. The figure therefore increased from 0 to 239 over the pilot period.

Discussion

A total of 239 pieces of fishing gear were removed from the seabed during the 2024 pilot, against a baseline of zero. As the large-scale phase has not yet taken place, this is a single-period total rather than a before-and-after comparison, so its value lies in establishing both feasibility and a quantified baseline for future phases. The result is closely tied to the funding position reported under CS07.EC.01: removal volume in subsequent years will depend on whether annual funding is secured and, more durably, on whether the emerging dedicated funding track for under-water clean-ups is established. The main uncertainty is therefore not the method but the continuity of resourcing.

7.4 KPI CS07.SC.01. Behavioral intention to improve fishing practice (maintenance of gear, fishing skills, reporting)

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS07.SC.01	University of Bergen	1st October 23 – 25th June 26
Specific Challenge	***Data provider***	***Frequency of data collection***
Some of the loss of the gear happens due to inadequate fishing practices and knowledge. Not all fishers are yet aware about how to report their lost gear most effectively	Pro-coast survey wave 1 + 2	2 times
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	N/A	N/A
SESF Variables	***Technical supervisor***	***Other***
2-L | Distinctive characteristics (RU6) 3-L | RU6c. Behavioral patterns that can be identified in resource units and affect actors behaviour towards the resource	N/A	N/A

Relation with…

Results		***Specific Objectives***	
R1	RO4/2.3 – Development of Key Performance Measures Behavioural change (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO2	
R3		SO3	

Methodology

Type of measuring	***Data collection resources/needs***
Quantitative	
Data type	***Tools***
Surevy-based	EUSurvey
Output data	***Other needs***

Data collection methods

Posting in facebook forums, outreach with local population, published in local newspaper

Results

Background and context

This KPI measures fishers' behavioural intention to improve practice across three items: gear maintenance, reporting lost gear, and better fishing practice. It is measured on a five-point Likert scale through the Pro-Coast stakeholder survey, comparing Wave 1 (baseline) with Wave 2. The aggregation method is the mean score per item. A key contextual limitation is the difference in response numbers between waves: 33 fishers responded in Wave 1 but only 5 in Wave 2, which weakens the basis for direct comparison. Respondents were reached through Facebook fishing forums, outreach with the local population, and coverage in the local newspaper.

Results (baseline vs post-intervention)

On a scale from 1-5 where 1 is disagree, 2 is somewhat disagree, 3 is neither disagree nor agree, 4 is somewhat agree and 5 is agree; these were the results:

Wave 1 (33 (out of a survey total of 57) fishers responded):
Maintenance: 4,75. Reporting lost gear: 4,73. Better fishing practice: 4,64

Wave 2 (5 fishers out of a survey total of 89 responded):
Maintenance: 4,4. Reporting lost gear: 4,6. Better fishing practice: 4,8.

Measured on a Likert scale from 1 to 5 (1 = disagree, 2 = somewhat disagree, 3 = neither agree nor disagree, 4 = somewhat agree, 5 = agree).

Wave 1, baseline (n=33): maintenance 4.75, reporting lost gear 4.73, better fishing practice 4.64.

Wave 2 (n=5): maintenance 4.4, reporting lost gear 4.6, better fishing practice 4.8.

Discussion

Behavioural intention was already high at baseline across all three items (maintenance 4.75, reporting lost gear 4.73, better fishing practice 4.64 on a five-point scale). Wave 2 shows mixed movement, with maintenance and reporting dipping slightly while better fishing practice rose, but no firm conclusion can be drawn because the second wave drew only 5 respondents against 33 in the first. At this sample size, differences of a few tenths of a point fall within normal variation and cannot be read as real attitudinal change; this is the principal limitation of the indicator. The more useful finding is the consistently high baseline itself: fishers who engage with the survey already report strong intent to improve practice, which suggests the challenge lies less in changing attitudes than in converting existing intent into behaviour and in reaching fishers beyond the already-engaged group. Improving the Wave 2 response rate should be a priority for any future measurement so that change can be assessed reliably.

7.5 KPI CS07.SC.02. Number of reports of missed fishing gear in the designated app

Basic information	Responsibilities	Calendar
Code	*Indicator Leader*	*Data collection period*
CS07.SC.02	University of Bergen	1st October 23 – 25th June 26
Specific Challenge	*Data provider*	*Frequency of data collection*
Lost gear that is reported has a chance of being removed, whereas unreported gear has a very low chance of being removed.	NMF with the baseline data, and Fiskeridirektoratet (The Norwegian Directorate of Fisheries) for the most recent data	continuous
Ecosystem Service	*Technical manager*	*Frequency of reporting*
socio-Cultural	N/A	N/A
SESF Variables	*Technical supervisor*	*Other*
2-L | Monitoring activities (I9) 3-L | I9a. Monitoring activities	N/A	N/A

Relation with…			
Results		*Specific Objectives*	
R1	RO4/2.3 – Development of Key Performance Measures Behavioural change (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2		SO2	
R3		SO3	

Methodology	
Type of measuring	*Data collection resources/needs*
Quantitative	
Data type	*Tools*
Numerical	
Output data	*Other needs*

Data collection methods

Data is drawn from two sources: the Norwegian Directorate of Fisheries (Fiskeridirektoratet) webpage for their Fritidsfiskeappen, which provides the current report figures, and the NMF pilot report, which provides the baseline.

Results

Background and context

This KPI measures the cumulative number of lost-gear reports logged by recreational fishers in the Fritidsfiskeappen (the reporting app run by the Norwegian Directorate of Fisheries). The rationale is that reported gear has a meaningfully higher chance of being recovered, whereas unreported gear is rarely removed, so rising reports indicate growing awareness and engagement. The baseline figure was provided by NMF; the most recent figure is drawn from the publicly available dataset of the Directorate of Fisheries. Data collection is continuous over the project period. The reported total should be understood as a floor rather than a measure of all gear lost, as actual losses are certainly higher than what is reported.

Results (baseline vs post-intervention)

Increased use of the app; Baseline: 23,907 lost-gear reports registered as of 19 August 2024. Post-intervention: 35,767 reports registered as of 23 June 2026. The figure therefore increased by 11,860 over the period.

Discussion

This is a clear upward trend drawn from publicly available directorate data rather than self-report, which makes it the most robustly sourced of the five indicators. The rise reflects growing active use of the reporting app among recreational fishers, which is the intended direction, since reported gear has a meaningfully higher chance of being removed than unreported gear. For correct interpretation, the figure should be read as a floor rather than a measure of total gear lost: the true volume of lost gear is certainly far higher than what is reported, so the indicator tracks reporting behaviour and awareness rather than the underlying loss itself. The main limitation is that increases cannot distinguish between more gear being lost and better reporting of existing losses, though in context the latter is the more plausible and more desirable reading.

8.1 KPI CS08.EC.01. Comparison of long-term local revenue from tourism

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS08.EC.01	TalTech	Summer 2025 – Autumn 2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Balancing tourism development with local economic benefits while ensuring the long-term sustainability of the Kloogaranna–Laulasmaa area. The KPI assesses whether tourism contributes positively to the local economy without compromising environmental and community values.	TalTech, based on publicly available statistics and local tourism data.	Annually, starting in Summer 2025 and continuing throughout the project period.
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	TalTech	Annually
SESF Variables	***Technical supervisor***	***Other***
S1 – Economic development; S1a – Economic sectors	TalTech	N/A

Relation with…			
Results		***Specific Objectives***	
R1	RO2/2.2 – Integrated Assessment Methodology (WP6)	SO1	Support transferability and upscaling of biodiversity conservation measures
R2		SO2	Strengthen stakeholder engagement and co-creation processes
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative, using desk research and secondary data analysis of tourism statistics, reports, and other existing datasets.	Public tourism statistics, municipal and national reports, existing datasets, scientific literature, internet access, and personnel for desk research and data analysis.
Data type	***Tools***
Quantitative, numerical, temporal (annual time-series), secondary statistical data (XLS/PDF).	Desk research, public tourism statistics, municipal and national reports, scientific literature review, and secondary data analysis.

Output data	*Other needs*
Excel spreadsheets containing numerical data and summary tables, with supporting documentation in PDF format.	Depends on the availability of reliable tourism statistics and local datasets. Changes in data availability or methodology may affect comparability over time.

Data collection methods

Data are collected through a systematic desk-based review of publicly available tourism statistics, municipal and national reports, and relevant scientific and grey literature. Information on tourism infrastructure, visitor numbers, overnight stays, international tourism, and eco-cultural tourism is compiled annually. The collected data are organised in Microsoft Excel, checked for consistency, and compared across reporting periods to assess changes in the contribution of tourism to the local economy. Where possible, the same data sources and indicators are used each year to ensure comparability over time.

Results

Background and context

The Kloogaranna–Laulasmaa case study aims to promote sustainable coastal management by balancing tourism development with environmental protection and local community interests. Tourism is an important economic activity in the area, but increasing visitor numbers may create pressure on natural resources and local infrastructure. This KPI monitors the long-term contribution of tourism to the local economy by analysing changes in tourism-related indicators over the project period. The results support the evaluation of whether project activities contribute to sustainable tourism development while maintaining the environmental and cultural values of the area.

Results (baseline vs post-intervention)

Baseline conditions were established during Summer 2025. Post-intervention data collection is currently ongoing. The comparison between baseline and post-intervention values will be completed once all tourism-related data for the reporting period have been compiled and validated.

Discussion

The KPI provides an indication of the long-term contribution of tourism to the local economy and supports the assessment of sustainable tourism development within the Kloogaranna–Laulasmaa case study. At the time of reporting, data collection and validation are still ongoing; therefore, no final conclusions regarding project impacts can yet be drawn. One limitation is the availability and consistency of tourism-related statistics, as some datasets may become available with a time lag or may differ in methodology between reporting periods. The final assessment will be based on the complete dataset at the end of the project and will provide evidence to support future decision-making on sustainable tourism and coastal management. The results will also support adaptive management of tourism and biodiversity conservation within the case study area.

8.2 KPI CS08.EN.01. Species diversity within defined area per Shannon Diversity Index

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS08.EN.01	TalTech	Spring 2026 – Autumn 2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Long-Term Biodiversity Changes	TalTech	Annually
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Regulating and Maintenance	TalTech	Annually
SESF Variables	***Technical supervisor***	***Other***
RS4 – Productivity of system; RS4c – Biodiversity index	TalTech	N/A

Relation with…			
	Results		***Specific Objectives***
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Develop a framework for biodiversity conservation planning and implementation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Validate bottom-up biodiversity conservation actions through case studies
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative biodiversity monitoring using the Shannon Diversity Index.	Biodiversity monitoring data, species occurrence records, scientific literature, collaboration with research institutions, and personnel for data collection and analysis.
Data type	***Tools***
Quantitative numerical biodiversity data (species occurrence and abundance), annual monitoring data (XLS/PDF).	Shannon Diversity Index, biodiversity datasets, scientific literature review, and collaboration with research institutions.
Output data	***Other needs***
Microsoft Excel (.xlsx) and PDF (.pdf).	Reliable biodiversity monitoring data and continued collaboration with research institutions are required. Differences in monitoring methods or incomplete datasets may affect comparability over time.

Data collection methods

Data are collected through a systematic desk-based review of publicly available tourism statistics, municipal and national reports, and relevant scientific and grey literature. Information on tourism infrastructure, visitor numbers, overnight stays, international tourism, and eco-cultural tourism is compiled annually. The collected data are organised in Microsoft Excel,

checked for consistency, and compared across reporting periods to assess changes in the contribution of tourism to the local economy. Where possible, the same data sources and indicators are used each year to ensure comparability over time.

Results

Background and context

The Kloogaranna–Laulasmaa case study aims to balance nature conservation with sustainable coastal use. Monitoring species diversity provides an indication of ecosystem health and helps assess whether project activities contribute to maintaining or improving biodiversity within the protected landscape. The Shannon Diversity Index is used to evaluate changes in species richness and distribution over the project period.

Results (baseline vs post-intervention)

Baseline biodiversity conditions were established during Spring 2026. Post-intervention monitoring is ongoing, and biodiversity data are currently being compiled and validated. A comparison between baseline and post-intervention values will be completed once all monitoring data for the reporting period have been analysed.

Discussion

The Shannon Diversity Index provides an indicator of biodiversity status and ecosystem health within the case study area. At the time of reporting, monitoring and data validation are still ongoing; therefore, no final conclusions regarding biodiversity changes can yet be drawn. The main limitations relate to the availability and consistency of biodiversity monitoring data and the need to maintain comparable monitoring methods throughout the project. Final results will support adaptive biodiversity management, future conservation planning, and evidence-based decision-making within the Kloogaranna–Laulasmaa case study.

8.3 KPI CS08.EN.02. Number of species conservation programs actively supported

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS08.EN.02	TalTech	Spring 2025 – Autumn 2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Impacts of Tourism and Climate Change on Biodiversity.	TalTech	Annually
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	TalTech	Annually
SESF Variables	***Technical supervisor***	***Other***
S4 – Government resource policies; S4b – Environmental policies.	TalTech	N/A

Relation with…			
Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Develop a framework for biodiversity conservation planning and implementation
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	Support transferability and upscaling of biodiversity conservation measures

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative, based on desk research and review of species conservation programmes.	Existing conservation programme documentation, public databases, governmental and NGO reports, scientific literature, and personnel for desk research and data analysis.
Data type	***Tools***
Quantitative numerical data on active conservation programmes (XLS/PDF).	Desk research, Microsoft Excel, public databases, governmental reports, NGO reports, scientific literature review, and secondary data analysis.
Output data	***Other needs***
Microsoft Excel (.xlsx) and PDF (.pdf).	The assessment depends on the availability of up-to-date information on active conservation programmes. Differences in reporting practices or limited access to programme documentation may affect data completeness and comparability.

Data collection methods

Data are collected through a systematic desk-based review of existing species conservation programmes within the Kloogaranna–Laulasmaa case study area. Publicly available reports, governmental databases, scientific publications, and information from conservation organisations are reviewed annually. The identified programmes are compiled, verified, and

assessed to determine whether they are actively implemented and supported within the project area. Data are recorded in Microsoft Excel using consistent criteria to ensure comparability over time.

Results

Background and context

The Kloogaranna–Laulasmaa case study promotes biodiversity conservation alongside sustainable coastal development. Supporting species conservation programmes contributes to protecting habitats and species affected by tourism, climate change, and other human pressures. This KPI measures the number of active conservation programmes within the study area and provides information on ongoing conservation efforts during the project implementation.

Results (baseline vs post-intervention)

Baseline conditions were established during Spring 2025. Data collection on active species conservation programmes is ongoing. The comparison between baseline and post-intervention values will be completed once all available information has been collected, validated, and analysed for the reporting period.

Discussion

This KPI provides an overview of conservation activities supporting biodiversity within the Kloogaranna–Laulasmaa case study area. At the time of reporting, data collection and validation are still ongoing; therefore, no final conclusions regarding changes in the number of supported conservation programmes can yet be drawn. The main limitation is the availability and consistency of information from different organisations and public sources. The final assessment will provide evidence on how conservation initiatives contribute to biodiversity protection and will support adaptive biodiversity management, evidence-based conservation planning, and future management decisions within the Kloogaranna–Laulasmaa case study.

8.4 KPI CS08.SC.01. Level of stakeholder satisfaction or feedback regarding their involvement in decision-making.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS08.SC.01	TalTech	Spring 2025 – Autumn 2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Perceived Lack of Stakeholder Engagement.	TalTech	Annually
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	TalTech	Annually
SESF Variables	***Technical supervisor***	***Other***
I3 – Deliberation processes; I3c – Trust building processes.	TalTech	N/A

Relation with…			
	Results		***Specific Objectives***
R1	RO1/2.3 – Stakeholder analysis & Mapping (WP2)	SO1	Strengthen stakeholder engagement and co-creation processes
R2		SO2	
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative and descriptive, based on stakeholder surveys.	Structured stakeholder questionnaires, survey platform or paper questionnaires, participant contact lists, and personnel for survey administration and data analysis.
Data type	***Tools***
Quantitative survey data (average satisfaction score) and qualitative stakeholder feedback (XLS/PDF).	Structured stakeholder survey, Microsoft Excel, statistical analysis, and descriptive analysis of stakeholder feedback.
Output data	***Other needs***
Microsoft Excel (.xlsx) and PDF (.pdf).	The quality of the assessment depends on stakeholder participation and response rates. Low participation or incomplete responses may affect the reliability and representativeness of the results.

Data collection methods

Stakeholder satisfaction is assessed through a structured questionnaire distributed to relevant stakeholder groups involved in the Kloogaranna–Laulasmaa case study. The survey collects quantitative satisfaction scores together with qualitative comments regarding stakeholder involvement in decision-making. Responses are compiled in Microsoft Excel, quality-

checked, and analysed to calculate the average satisfaction score and identify common themes in stakeholder feedback. The same questionnaire and evaluation criteria are used throughout the project to ensure comparability over time.

Results

Background and context

The Kloogaranna–Laulasmaa case study aims to improve cooperation between local communities, authorities, landowners, and other stakeholders while balancing biodiversity conservation with sustainable coastal development. Stakeholder involvement is an important component of the project, and this KPI evaluates how stakeholders perceive their participation in planning and decision-making processes throughout project implementation.

Results (baseline vs post-intervention)

Baseline stakeholder perceptions were established during Spring 2025. Follow-up data collection is ongoing, and stakeholder responses are currently being compiled and analysed. A comparison between baseline and post-intervention satisfaction scores will be completed after all survey responses have been collected and validated.

Discussion

This KPI provides information on stakeholder perceptions of their involvement in project-related decision-making processes. At the time of reporting, survey data collection and analysis are still ongoing; therefore, no final conclusions regarding changes in stakeholder satisfaction can yet be drawn. The reliability of the assessment depends on achieving sufficient participation from different stakeholder groups and maintaining consistent survey methods throughout the project. The final results will support future stakeholder engagement strategies, adaptive management, and evidence-based decision-making within the Kloogaranna–Laulasmaa case study.

8.5 KPI S08.SC.02. Level of community involvement in biodiversity conservation initiatives

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS08.SC.02	TalTech	Spring 2025 – Autumn 2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Lack of Community Ownership in Conservation.	TalTech	Annually
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	TalTech	Annually
SESF Variables	***Technical supervisor***	***Other***
I8 – Networking activities; I8c – Partnership and cooperation.	TalTech	N/A

Relation with…			
Results		***Specific Objectives***	
R1	Stakeholder analysis & Mapping (WP2)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	RO4/2.3 – Development of Key Performance Measures Behavioural change (WP6)	SO2	Promote behavioural change and capacity building for biodiversity conservation
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative and descriptive, based on stakeholder surveys and participation records.	Structured questionnaires, seminar attendance records, participant registration lists, survey platform, and personnel for survey administration and data analysis.
Data type	***Tools***
Quantitative survey data (number of responses) and participation records (XLS/PDF).	Structured stakeholder survey, seminar attendance records, Microsoft Excel, and descriptive statistical analysis.
Output data	***Other needs***
Microsoft Excel (.xlsx) and PDF (.pdf).	The assessment depends on active community participation and adequate survey response rates. Low participation or incomplete attendance records may affect the completeness and representativeness of the results.

Data collection methods

Community involvement is assessed through structured stakeholder surveys and participation records from biodiversity-related seminars and project workshops, awareness events, and biodiversity-related activities. Surveys collect information on community participation and perceptions of biodiversity conservation initiatives, while attendance records provide

additional evidence of engagement. Responses and participation data are compiled in Microsoft Excel, quality-checked, and analysed using consistent methods throughout the project to ensure comparability over time.

Results

Background and context

The Kloogaranna–Laulasmaa case study seeks to strengthen community participation in biodiversity conservation by encouraging cooperation between local residents, stakeholders, and project partners. Seminars, outreach activities, and stakeholder engagement are intended to increase awareness and encourage active participation in conservation initiatives. This KPI measures the level of community involvement throughout the project implementation.

Results (baseline vs post-intervention)

Baseline conditions were established during Spring 2025. Follow-up data collection is ongoing, and survey responses and participation records are currently being compiled and validated. A comparison between baseline and post-intervention results will be completed once all data for the reporting period have been analysed.

Discussion

This KPI provides information on the extent of community participation in biodiversity conservation activities within the Kloogaranna–Laulasmaa case study. At the time of reporting, data collection and validation are still ongoing; therefore, no final conclusions regarding changes in community involvement can yet be drawn. The main limitations relate to stakeholder participation rates and the availability of complete participation records. The final assessment will help evaluate the effectiveness of community engagement activities and provide evidence-based recommendations to improve stakeholder participation, support adaptive stakeholder engagement, and strengthen biodiversity conservation planning within the Kloogaranna–Laulasmaa case study.

8.6 KPI CS08.SC.03. Number of capacity building workshops, training sessions, or knowledge-sharing events conducted.

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS08.SC.03	TalTech	Spring 2025 – Autumn 2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Enhance Awareness.	TalTech	Multiple times per year
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	TalTech	Annually
SESF Variables	***Technical supervisor***	***Other***
I2 – Information sharing; I2a – Knowledge transmission.	TalTech	N/A

Relation with…			
Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Strengthen stakeholder engagement and co-creation processes
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Promote behavioural change and capacity building for biodiversity conservation
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative and descriptive, based on event monitoring and attendance records.	Event registration forms, attendance lists, workshop documentation, agendas, training materials, and personnel responsible for organising events and recording participation.
Data type	***Tools***
Quantitative numerical data (number of events and participants), supported by event documentation (XLS/PDF).	Attendance registers, participant registration forms, Microsoft Excel, event reports, and descriptive statistical analysis.
Output data	***Other needs***
Microsoft Excel (.xlsx) and PDF (.pdf).	Consistent documentation of all workshops, training sessions, and knowledge-sharing events is required. Complete attendance records and event reports are essential to ensure accurate and comparable monitoring throughout the project.
Data collection methods	
Information on workshops, training sessions, and knowledge-sharing events is collected through attendance registers, participant registration forms, and event reports. Each activity is documented, including the date, location, target audience,	

and number of participants. Data are compiled in Microsoft Excel, quality-checked, and analysed to monitor the number of events conducted throughout the project using consistent reporting procedures.

Results

Background and context

The Kloogaranna–Laulasmaa case study aims to strengthen stakeholder knowledge and capacity for biodiversity conservation and sustainable coastal management. Capacity-building workshops, training sessions, and knowledge-sharing events provide opportunities for local communities, landowners, authorities, and other stakeholders to exchange knowledge, improve awareness, and encourage active participation in project activities. This KPI measures the implementation of these engagement activities throughout the project.

Results (baseline vs post-intervention)

Baseline conditions were established during Spring 2025. Information on workshops, training sessions, and knowledge-sharing events is currently being compiled from project records. A comparison between baseline and post-intervention values will be completed after all events within the reporting period have been documented and verified.

Discussion

This KPI measures the implementation of capacity-building activities supporting stakeholder engagement and knowledge exchange. At the time of reporting, data collection and validation are still ongoing; therefore, no final conclusions regarding the effectiveness or impact of these activities can yet be drawn. The assessment depends on complete documentation of all organised events and consistent recording of participation. The final evaluation will provide evidence of how capacity-building activities contribute to improving stakeholder knowledge and biodiversity conservation, while supporting adaptive stakeholder engagement, future capacity-building activities, and evidence-based planning within the Kloogaranna–Laulasmaa case study.

8.7 KPI CS08.SC.04. Number of local community awareness campaigns

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS08.SC.04	TalTech	Spring 2025 – Autumn 2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Enhance local community awareness about various issues affecting the area.	TalTech	Annually
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Cultural	TalTech	Annually
SESF Variables	***Technical supervisor***	***Other***
I2 – Information sharing; I2b – Information/know-how sharing about SES variations.	TalTech	N/A

Relation with…			
Results		***Specific Objectives***	
R1	RO2/2.2: Integrated Assessment Methodology – IAM (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2	RO2/2.3: Development of Science-based policy recommendations (WP4)	SO2	Strengthen stakeholder engagement and co-creation processes
R3	RO3/2.3: Qualitative & Quantitative methodologies (WP5)	SO3	Develop a framework for biodiversity conservation planning and implementation

Methodology	
Type of measuring	***Data collection resources/needs***
Quantitative, based on monitoring and documentation of awareness campaigns.	Campaign records, event documentation, attendance lists (where applicable), communication materials, social media records, media publications, and personnel responsible for campaign coordination and data collection.
Data type	***Tools***
Quantitative numerical data (number of campaigns), supported by campaign documentation (XLS/PDF).	Campaign records, Microsoft Excel, attendance registers, communication materials, social media analytics, media reports, and descriptive analysis.
Output data	***Other needs***
Microsoft Excel (.xlsx) and PDF (.pdf).	Consistent documentation of all awareness campaigns is required. Activities delivered through different communication channels (e.g. social media, exhibitions, workshops, media articles, community events) should be recorded using common reporting criteria to ensure comparability throughout the project.

Data collection methods

Information on local community awareness campaigns is collected through project records, event reports, communication materials, media publications, and social media activities. Each campaign is documented, including the date, target audience, communication channel, and campaign objectives. Data are compiled in Microsoft Excel, verified for completeness, and analysed annually to monitor the number of awareness campaigns implemented during the project. Consistent reporting procedures are applied throughout the monitoring period.

Results

Background and context

The Kloogaranna–Laulasmaa case study aims to increase public awareness of biodiversity conservation and sustainable coastal management. Awareness campaigns are organised to inform local communities and visitors about biodiversity, ecosystem services, and the importance of protecting the coastal environment. Activities include community events, guided hikes, clean-up initiatives, exhibitions, media engagement, educational materials, and online communication. This KPI measures the implementation of these awareness-raising activities throughout the project.

Results (baseline vs post-intervention)

Baseline conditions were established during Spring 2025. Information on local community awareness campaigns is currently being compiled from project records and communication activities. A comparison between baseline and post-intervention values will be completed once all campaigns implemented during the reporting period have been documented and verified

Discussion

This KPI measures the implementation of awareness-raising activities designed to improve public understanding of biodiversity conservation and sustainable coastal management. At the time of reporting, data collection and validation are still ongoing; therefore, no final conclusions regarding the impact of the campaigns can yet be drawn. The assessment depends on comprehensive documentation of all communication and outreach activities carried out during the project. The final evaluation will help assess the effectiveness of awareness campaigns and support future community engagement, biodiversity communication, and evidence-based planning within the Kloogaranna–Laulasmaa case study.

10.1 CS10.EN.01. KPI Area of habitat protected

Basic information	Responsibilities	Calendar
Code	***Indicator Leader***	***Data collection period***
CS10.EN.01	David Herbert	01.06.2024-01.06.2026
Specific Challenge	***Data provider***	***Frequency of data collection***
Conserving sensitive area (rare accessible coastline, wetland, bird nesting site) against proposal to build cruise liner port	Friends of the Earth, Friends of Eidsvika (EV)	Before and after political decision
Ecosystem Service	***Technical manager***	***Frequency of reporting***
Biodiversity conservation, recreational access (Regulating and Maintenance)	N/A	Information accessed via EV website whenever a political discussion was held
SESF Variables	***Technical supervisor***	***Other***
O2c. Natural habitat condition	N/A	

Relation with…			
Results		***Specific Objectives***	
R1	RO3/2.1 – Local Biodiversity Program for Coastal Ecosystems (WP6)	SO1	Validate bottom-up biodiversity conservation actions through case studies
R2		SO2	
R3		SO3	

Methodology	
Type of measuring	***Data collection resources/needs***
Area protected	Local partner, FoE Askøy, Eidsvika branch, provided the information https://naturvernforbundet.no/hordaland/eidsvikas-venner/
Data type	***Tools***
Land area	Information provided by local partner, based on national mapping
Output data	***Other needs***
Quantitative	-
Data collection methods	
N/A used data from local partner as described	

Results
Background and context
The case concerns an area of beach and wetland where developers want to put a cruise harbour. The case keeps on being advised against by coastal, regional, and national authorities and put back into the area plan by the municipality, with the developers asked to work on modifications.
Results (baseline vs post-intervention)
The protection status of the land has not changed as no political decision has been taken on whether to give permission to the cruise harbour (Kildn) project.
Discussion

10.2 CS10.EN.02. KPI Red-listed species protection

Basic information	Responsibilities	Calendar
Code	*Indicator Leader*	*Data collection period*
CS10.EN.02	David Herbert	01.06.2024-01.06.2026
Specific Challenge	*Data provider*	*Frequency of data collection*
Official maps and commercial plans for the site have not assessed red-listed species	Friends of the Earth, Friends of Eidsvika (EV)	Before and after political decision
Ecosystem Service	*Technical manager*	*Frequency of reporting*
Biodiversity conservation, (Regulating and Maintenance)	N/A	Baseline and project end
SESF Variables	*Technical supervisor*	*Other*
O2c. Natural habitat condition	N/A	

Relation with…			
Results		*Specific Objectives*	
R1	RO3/2.1 – Local Biodiversity Program for Coastal Ecosystems (WP6)	SO1	**Validate bottom-up biodiversity conservation actions through case studies**
R2	RO2/2.2 – Integrated Assessment Methodology (WP6)	SO2	
R3		SO3	

Methodology	
Type of measuring	*Data collection resources/needs*
App assisted observation and identification	Local partner, FoE Askøy, Eidsvika branch, provided the information https://naturvernforbundet.no/hordaland/eidsvikas-venner/
Data type	*Tools*
Number of species	Information provided by local partner and volunteers
Output data	*Other needs*
Quantitative	-

Data collection methods

Apps (WhoBird, iNaturalist, Merlin) used to identify bird species

Results

Background and context

Official maps did not list the presence of red-listed species at the site and developer plans stated there was nothing of importance present.

Results (baseline vs post-intervention)

Recording, documenting and publicising red listed bird species provides platform for campaigning to conserve the site, but as yet no political decision has been taken on whether to give permission to the cruise harbour (Kildn) project.

Discussion

10.3 CS10.SC.01. KPI Number of local community awareness campaigns

Basic information	Responsibilities	Calendar
Code	*Indicator Leader*	*Data collection period*
CS10.SC.01	David Herbert	01.06.2024-01.06.2026
Specific Challenge	*Data provider*	*Frequency of data collection*
Limited local awareness of the biodiversity resources and recreational opportunities might lead to unreflective decision to develop site	Friends of the Earth, Friends of Eidsvika (EV)	continuous
Ecosystem Service	*Technical manager*	*Frequency of reporting*
Cultural	N/A	continuous
SESF Variables	*Technical supervisor*	*Other*
A7a. Local knowledge on SES	N/A	

Relation with…			
Results		*Specific Objectives*	
R1	RO4/2.3 – Development of Key Performance Measures Behavioural change (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2		SO2	
R3		SO3	

Methodology	
Type of measuring	*Data collection resources/needs*
Counting	Local partner, FoE Askøy, Eidsvika branch, provided the information https://naturvernforbundet.no/hordaland/eidsvikas-venner/
Data type	*Tools*
Number of events organized	Information provided by local partner and volunteers
Output data	*Other needs*
Quantitative	-
Data collection methods	
Data gathered from Friends of Eidsvika Facebook group site	

Results
Background and context
Askøy is an island with limited social and transport infrastructure that has experienced rapid population growth in the last 30 years, with local government keen to boost economic growth and create hubs to counter the scattered settlement pattern and fragmented infrastructure, where conservation has tended not to be given a high priority
Results (baseline vs post-intervention)
Increased engagement and knowledge of biodiversity and other conservation challenges
Discussion

10.4 CS10.SC.02. KPI Online community engagement in accessing and discussing information

Basic information	Responsibilities	Calendar
Code	*Indicator Leader*	*Data collection period*
CS10.SC.02	David Herbert	01.06.2024-01.06.2026
Specific Challenge	*Data provider*	*Frequency of data collection*
The communities accessing the beach are dispersed with limited social networks connecting them and lacking organisational capacity and forums for discussion	Friends of the Earth, Friends of Eidsvika (EV)	continuous
Ecosystem Service	*Technical manager*	*Frequency of reporting*
Cultural	N/A	continuous
SESF Variables	*Technical supervisor*	*Other*
GS3b. Community networks	N/A	

Relation with…			
Results		*Specific Objectives*	
R1	RO1/2.3 – Stakeholder analysis & Mapping (WP2)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2	RO4/2.3 – Development of Key Performance Measures Behavioural change (WP6)	SO2	
R3		SO3	

Methodology	
Type of measuring	*Data collection resources/needs*
Counting	Local partner, FoE Askøy, Eidsvika branch, provided the information https://naturvernforbundet.no/hordaland/eidsvikas-venner/
Data type	*Tools*
Number of participants on Friends of Eidsvika FB group.	User count on FB site
Output data	*Other needs*
Quantitative	-
Data collection methods	
Data gathered from Friends of Eidsvika Facebook group site	

Results

Background and context

As for 10.3 - Askøy is an island with limited social and transport infrastructure that has experienced rapid population growth in the last 30 years, with local government keen to boost economic growth and create hubs to counter the scattered settlement pattern and fragmented infrastructure, where conservation has tended not to be given a high priority.

Results (baseline vs post-intervention)

The site has increased engagement and knowledge of biodiversity and other conservation challenges and debate about the future of the site. It also builds social capital, encourages information sharing and debate.

Discussion

10.5 CS10.SC.04. KPI Coverage of the case in editor-reviewed media

Basic information	Responsibilities	Calendar
Code	*Indicator Leader*	*Data collection period*
CS10.SC.04	David Herbert	01.06.2024-01.06.2026
Specific Challenge	*Data provider*	*Frequency of data collection*
Journalistic attention for the local case is of importance to gain public attention and engagement	Norwegian Public Information Service Retriever: https://retriever.no/medieovervakning-mediearkiv	continuous
Ecosystem Service	*Technical manager*	*Frequency of reporting*
Cultural	N/A	continuous
SESF Variables	*Technical supervisor*	*Other*
S6c. Interest of media in socio-environmental issues	N/A	

Relation with…			
Results		*Specific Objectives*	
R1	RO4/2.3 – Development of Key Performance Measures Behavioural change (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2		SO2	
R3		SO3	

Methodology	
Type of measuring	*Data collection resources/needs*
Data base search	Norwegian Public Information Service Retriever: https://retriever.no/medieovervakning-mediearkiv
Data type	*Tools*
Numerical - Number of mentions of 'Kildn' in Norwegian news sources	Norwegian Public Information Service Retriever: https://retriever.no/medieovervakning-mediearkiv
Output data	*Other needs*
Quantitative	-

Data collection methods

Data gathered from Norwegian Public Information Service Retriever: https://retriever.no/medieovervakning-mediearkiv

Results

Background and context

Media attention is critical for public information, stimulating public debate and airing different standpoints.

Results (baseline vs post-intervention)

Although it is difficult to demonstrate a causal connection, it is plausible that maintaining a high media profile helps maintain public awareness and scrutiny of decision-making.

Discussion

10.6 CS10.SC.04. KPI Maintenance of recreational use

Basic information	Responsibilities	Calendar
Code	*Indicator Leader*	*Data collection period*
CS10.SC.04	David Herbert	01.06.2024-01.06.2026
Specific Challenge	*Data provider*	*Frequency of data collection*
The proposed development plan underplays current use. Monitoring and documenting the use helps to demonstrate its value to the local community	Friends of Eidsvika Facebook site	continuous
Ecosystem Service	*Technical manager*	*Frequency of reporting*
Cultural	N/A	continuous
SESF Variables	*Technical supervisor*	*Other*
I9a. Monitoring activities	N/A	

Relation with…

Results		*Specific Objectives*	
R1	RO4/2.3 – Development of Key Performance Measures Behavioural change (WP6)	SO1	Promote behavioural change and capacity building for biodiversity conservation
R2	RO1/2.3 – Stakeholder analysis & Mapping (WP2)	SO2	
R3		SO3	

Methodology

Type of measuring	*Data collection resources/needs*
Counting	
Data type	*Tools*
Numerical	
Output data	*Other needs*
Quantitative	-

Data collection methods

Manual counting of photos posted in each period

Results

Background and context

Conservationists had previously lacked recorded evidence of recreational use of the site

Results (baseline vs post-intervention)

The gallery has an instrumental value in campaigning, but also promotes engagement and interest in the area as a conservation and recreation site.

Discussion