



BLUEMISSION AA

Building a coordination hub to support the mission implementation in the Atlantic and Arctic Basin

Baseline inventory of ecosystem restoration activities, actors and KPIs from recent and ongoing projects



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Table of Contents

Document information	2
Document history and changes	2
List of Figures	6
List of Acronyms	6
1. Introduction	7
1.1. Restoration in the European context – a policy framework	7
1.2. The BlueMissionAA project	8
1.3. Why an Inventory?	8
1.4. Objective of this baseline study	9
2. Methodology	11
2.1. Systemising information	11
2.2. Mapping activities	12
3. Downstream use of the inventory	14
4. Summary	16

List of Figures

Figure 1. A screenshot of a section of the inventory table9

List of Acronyms

Acronym	Meaning
NRL	Nature Restoration Law
KPI	Key performance Indicator
WP	Work Package

1. Introduction

1.1 Restoration in the European context – a policy framework

European nature is threatened in many places. Several of these threats are potentially irreversible actions leading to some nature and ecosystems being permanently replaced by anthropogenic land cover and features, or otherwise being so degraded that natural ecosystems are losing their distribution and function. While detrimental to the nature and ecosystems themselves, these threats are also jeopardising the economy and livelihoods of the European population by simultaneously challenging the ecosystem services they that the ecosystems provide.

When developing the European Green Deal package of various policies, strategies and regulations, the EU 2030 Biodiversity Strategy became a pivotal part. Its main goal is to halt the loss of biodiversity and restore the natural environment for the well-being of both people and the planet. This strategy and its focus are aligned with objective 1 of the Mission Restore our Ocean and Waters by 2030: Protect and restore marine and freshwater ecosystems and biodiversity that is the leading objective for the Mission projects and activities in its first phase, until 2025, for the Lighthouse Area Atlantic/Arctic.

The justifications provided in the EU 2030 Biodiversity Strategy for its need are multiple. At the time of its launch investing in nature protection and restoration was considered vital for Europe's economic recovery from COVID-19. The European Green Deal essentially guides this recovery, emphasising a sustainable economy that benefits people and nature. Biodiversity is essential for various industries and conserving it can lead to economic gains. For example, preserving marine fish stocks can boost the seafood industry's profits, and safeguarding wetlands can save the insurance industry from flood damage costs. A conservation program can in many cases have a significant benefit/cost ratio. Natural capital investment, such as habitat restoration and climate-friendly agriculture, is one of the key fiscal recovery policies with positive economic multipliers and climate effects. Biodiversity is crucial for food security, as it supports food systems, healthy diets, and livelihoods. The strategy has identified five primary drivers of biodiversity and nature loss; changes in land and sea use, overexploitation, climate change, pollution, and invasive alien species.

The strategy gives emphasis to nature conservation and states it should be given priority yet recognising the need for investing in restoration activities for severely damaged ecosystems. The EU 2030 Biodiversity Strategy noted that significant implementation and regulatory gaps hinder progress for restoration activities. For instance, there was neither a legal requirement for EU Member States to have biodiversity restoration plans, nor clear or binding targets and timelines or definition or criteria on restoration or on the sustainable use of ecosystems. As

consequence of this, the strategy proposed a new regulation that the Commission developed and first proposed in June 2022, a proposal known as the EU Nature Restoration Law (NRL). The proposed law aims to restore ecosystems, habitats and species across the EU's land and sea areas to enable the long-term and sustained recovery of biodiverse and resilient nature, to contribute to achieving the EU's climate mitigation and climate adaptation objectives and meet international commitments, not at least those agreed upon at the Convention of Biological Diversity Conference of Parties 15, an agreement known as the Kunming-Montreal Global Biodiversity Framework. The proposed Nature Restoration Law has proved to be controversial. and the discussions and negotiations in the EU Parliament have been challenging. For instance, whilst the Kunming-Montreal Global Biodiversity Framework has as a goal to ensure that by 2030 at least 30 per cent of areas of degraded terrestrial, inland water, and coastal and marine ecosystems are under effective restoration, in order to enhance biodiversity and ecosystem functions and services, ecological integrity and connectivity, the similar quantitative goal in the NRL in the agreed and compromised proposal now adopted in the EU Parliament declared 20 %.

In this context, the Mission Restore our Ocean and Waters by 2030, not at least its objective 1, Protect and restore marine and freshwater ecosystems and biodiversity, can be considered a knowledge-based supporting innovation program providing the necessary knowledge and replicable no-regret solutions that can boost the forthcoming national restoration plans.

1.2 The BlueMissionAA project

BlueMissionAA will be the coordination hub that will support the implementation of the EU Mission Restore our Ocean and Waters by 2030 in the Atlantic and Arctic basins. It will focus on restoration of marine and coastal ecosystems and increased climate resilience. BlueMission AA will have a structuring effect to consolidate and mobilise a wide community of relevant stakeholders and EU citizens towards the achievement of Mission objectives at basin level. It will deliver an effective governance framework aligned with policies, initiatives and actions at national, regional and EU level [WP1], build a well-coordinated monitoring framework to assess the progress of the implementation on an ongoing basis [WP2], provide a wide range catalogue of supporting services [WP3], foster an attractive innovation ecosystem for ecological restoration [WP4], and give the opportunity and empower EU citizens to engage in the preservation and restoration of oceans and waters through participative means [WP5]. Six case studies will be selected across a range of representative restoration approaches to represent restoration approaches (e.g protection, active restoration, sustainable harvesting) to represent existing and proven methodologies from recent and ongoing projects and networks. The case studies will deliver guidelines and recommendations in respect of optimum governance approaches for delivering environmental protection and restoration in marine, freshwater and transitional water systems and scalability for achieving mission objectives.

BlueMissionAA will develop two region-specific proposals towards an effective mission lighthouse governance, one for the Atlantic and one for the Arctic.

1.3 Why an inventory?

A well-maintained project inventory is a fundamental tool for the EU to achieve its mission of restoring oceans and waters by 2030. It supports efficiency, accountability, collaboration, and informed decision-making, ultimately driving the EU's commitment to environmental preservation and a sustainable future. We intend that this inventory be an open access, living document where evolves through community participation, optimizing its relevance, accuracy and utility.

A baseline inventory study of recent and ongoing projects helps researchers and practitioners understand the current condition of the research ecosystem and maps activities to better understand the scope, focus, geography and governance structure of current ecosystem restoration projects. Baseline studies provide data that can be used to establish clear, measurable objectives for restoration projects. They help identify what needs to be restored, how much it needs to be restored, and the time frame in which restoration goals should be achieved. Preparing a baseline study for recent and ongoing restoration projects is essential for effective planning, monitoring, and evaluation. It serves as the foundation for setting goals, allocating resources, and ensuring that restoration efforts are well-informed, accountable, and ultimately successful in achieving their intended objectives. Project inventories are the foundation for comprehensive planning. They provide a centralised repository of ongoing and proposed initiatives related to ocean and water restoration. When organisations and stakeholders know about ongoing projects, they can collaborate more effectively. They can share knowledge, resources, and expertise, which can enhance the overall impact of restoration efforts. Without a project inventory, there's a risk of redundancy and duplication of efforts. Maintaining a comprehensive inventory allows the EU to identify similar projects and encourage collaboration or merge initiatives to maximise their impact. To achieve the ambitious goal of restoring oceans and waters by 2030, it is essential to track progress accurately. Project inventories provide a framework for monitoring the status of ongoing projects, evaluating their effectiveness, and making necessary adjustments in real-time.

1.4 Objective of this baseline study

The major objective of this work was to prepare a baseline study of recent and ongoing EU and national R&I restoration programmes, projects, and national and European initiatives at basin level, contributing to monitor scientific, technical and data flow metrics for Mission KPIs. This was done by harvesting experience and engagement towards the development of an effective participatory observational and implementation framework integrating across the land-ocean

nexus. The product is an inventory of recent and ongoing projects researching an array of restoration activities.

2. Methodology

This section describes the methodology used to create an inventory of recent and ongoing EU and National R&I restoration programs, projects, and initiatives. The methodology is comprised of a stepwise approach, beginning with developing a table to map relevant activities from each lighthouse area. Information on relevant activities was gathered and compiled in the table via desktop work and web searches.

2.1 Systemising Information

Relevant activities related to conservation, restoration and nature inclusive harvesting were systematised in an Excel-table format, which categorised and coded activities on pre-selected fields (Figure 1). These categories aim to provide an overview of the restoration activity.

Topic(s)	Project acronym	Website	Objectives/key words	Lead/coordinator	Contact	Location and site	Lighthouse area	Ecosystem types
H2020-SC5-2014-2015	ECOPOTENTIAL	ecopotential-project.eu	observation	Italy (CNR)	antonello.provenza@cnr.it	Atlantic (France, Spain, UK)	Mediterranean	ecosystem
modernisation and sustainability of fisheries policies	ECOSTOPE	and efficient ecosystem-based approaches to fisheries management (ecoscopium.eu)	aims to promote effective and efficient, ecosystem-based approach to fisheries	Thessaloniki, Greece, (Athanasios Tsikiras & Sophie Manousi)	stsik@bio.auth.gr	Sea, North Sea, Israeli Eez, Black sea, Balearic Islands, Baltic Sea, Adriatic Sea	Mediterranean, Baltic, North Sea	Marine ecosystem
management options – collaboration with US & Canada	EMPAFISH	Empafish (um.es)	evaluating, ameliorating and implementing the use of marine protected areas (MPAs) as tools	Universidad de Murcia	angelpr@um.es	Medes Islands (Spain, Italy, U.K.)	Atlantic, Mediteranean	Marine and coastal ecc
BG-07-2019-2020 - The Future of Seas and Oceans Flagship Initiative	EURO-BASIN	https://cordis.europa.eu/project	Ecosystems in the North Atlantic Ocean are crucial for the ecological, economic and	Danmarks tekniske universitet		North Atlantic	Atlantic-Arctic	North-atlantic and shel ecosystems
	EuroSea	Office Online Frame eurosea	Our oceans are a vital source of wealth, but ocean monitoring systems are inadequate and bring together disparate marine ecosystem models to help better understand and project	GEOMAR	ttanhua@geomar.de	Euro-Atlantic	Atlantic	Marine ecosystem
	Fishmip	https://www.isimip.org/about/marine-ecosystems-fisheries/	Seeks to provide socially and economically viable solutions based on ecosystems and the	University of Tasmania	julia.blanchard@utas.edu.au	Worldwide	All	Marine ecosystem
H2020-1C-CL4-2018-2019-2020	FutureMARES	HOME FutureMARES	The EU-Funded project	STICHTING NEDERLANDSE WETENSCHAPPELIJK ONDERZOEK INSTITUTEN	myron.peck@nioz.nl	Baltic, Norway, France, Portugal,	Atlantic, Mediteranean, Baltic	Coastal and marine ecc
stressors on coastal and marine biodiversity, ecosystems and their services	GES4SEAS	Homepage - GES4SEAS	GES4SEAS will inform and guide marine governance with a view	FUNDACION AZTI - AZTI FUNDAZIOA	aborja@azti.es	Multiple sites: https://www.ges4seas.eu/the-p	Atlantic, Mediteranean, Baltic, North Sea	Coastal and marine ecc
	GO-BC	Global Ocean Decade Programme for Blue Carbon - Ocean Decade	Enhance understanding of the ocean-climate nexus and generate new knowledge and	University of St.Andrews	wena@st-andrews.ac.uk	All ocean basins	Worldwide	Marine and coastal ecc

Figure 1. A screenshot of a section of the inventory table

The table includes the following types of information for each activity:

Topic(s) This information includes which topic(s) that the activity belongs to. This is mainly relevant to Horizon 2020 or Horizon Europe projects.

Project acronym This column represents an easy way to identify each individual project

Website A website link is provided to provide more in-depth information about the activity.

Objectives/key words This column represents a short description of the activity and what it aims to do.

Lead/coordinator The lead institution of the activity is included in this column.

Contact point This column includes a contact point, i.e., work email address of either the Project coordinator, or the shared-email address of the project.

Location and site This column includes a detailed description of where the activity is taking place (different locations and sites)

Lighthouse area Complementary to the above category, the activities are then divided into which lighthouse area the activity represents.

Ecosystem types This column aims to describe which ecosystems is the point of research of the activity.

Restoration category studied. This column aims to give an overview of which type of restoration is studied in the activity.

Project partners This column includes either a link to the project website with project partners or a list of partners.

Schedule As the inventory is meant to demonstrate both ongoing and recent restoration activities, a column of the time schedule of the project is included.

Status Complementary to the above column, this column shows the status of the activity with a filtering option of "completed" or "ongoing".

Funding This column shows which funding scheme the activity goes under.

Type of project This column aims to show which type of project the activity is, whether it is research and/or innovation, coordination and support project or other types of projects.

Comments The last column includes a comment section, which aims to give additional relevant information that does not fall under any of the previous columns.

2.2. Mapping activities

The following sources were screened to identify relevant activities:

- The database/list from "Baseline study for the implementation of lighthouses of Mission Restore our Ocean by 2030" final report.
- European or cross-border regional projects that are relevant to the topic (Community Research and Development Information Service (CORDIS) and INTERREG projects. For CORDIS, the search was made using filtering options of relevant key terms such as but not limited to "restoration", "water", "ocean", "atlantic", "arctic" and "basin". A filtering process was also conducted with regards to the time-schedule of the activities as the purpose of the inventory is to include both ongoing and recent activities.
- Webpages and other information sources from organisations/platforms of international character such as Convention for the Protection of the Marine

Environment of the North-East Atlantic (OSPAR), Arctic Council Working groups and JPI Ocean for the Atlantic/Arctic.

- Keyword based web searches targeting restoration activities in English and national languages relevant to the different lighthouse areas and research institutions. Web searches were carried out using mostly non-academic search engines such as Google.

In this initial process of mapping relevant restoration activities, a total of 68 activities have been identified: 43 activities for Atlantic/Arctic, 28 activities for the Mediterranean, 18 activities for the Baltic and the North Sea and 3 activities for Danube. However, it is worth noting that 2 activities are not yet accounted for, and several activities concern multiple lighthouse areas.

It should be noted that most of the activities included in this initial inventory are funded under Horizon 2020 or Horizon Europe, while only a few activities are of national nature (initiatives and programs) or other types of programs. However, this inventory is a living document and will be adjusted in line with further development and cooperation with other partners. This may include adding new columns of information relevant to the activity and/or adding additional projects not already included.

3. Downstream use of the inventory

The inventory will guide the BlueMissionAA Specific Project Objectives. It informs to **Build and mobilise governance frameworks and networks through multidisciplinary and multi-sectoral cooperation (SO1)** by identifying experience in regional and basin restoration activities to promote better understanding in regulatory process and cross-sectoral and international cooperation. The inventory is the catalysis for the project to **Develop and deploy a comprehensive monitoring and reporting framework (SO2)** to measure the progress of the implementation of the Mission in the Atlantic and Arctic Sea basins on an ongoing basis. Accordingly, it has independently developed an initial set of indicators in coordination with the Mission Implementation Platform, the PREP4BLUE project and all other lighthouse projects in the four sea and river basins. It has provided a benchmark to **Develop and maintain a FAIR catalogue of existing scientific and practical actionable knowledge as well as innovative solutions (SO3)** and making it accessible for stakeholders in the Atlantic and Arctic basins and beyond to enable researchers to make their work available to industry policy makers, and citizens to ensure expertise can be easily accessed for preservation and restoration projects. The inventory delivers key examples of existing and mature initiatives to **Develop a dynamic entrepreneurial innovation ecosystem in the Atlantic and Arctic basin (SO4)**, building on and aligning with existing initiatives identified in the catalogue, with the goal of supporting mature technologies and solutions on their path to market and productive use through the connection to investments, funders, donors as well as public and private customers. Finally, the information in the inventory is now ready to **Engage and empower citizens to contribute to the Mission and boost society uptake of new solutions (SO5)** by performing a systematic and meaningful involvement of all relevant stakeholders, towards the implementation of a holistic evaluation framework, and guiding a dissemination and an exploitation strategy for the whole project.

The indicators tested and provided here will inform and contribute to the indicator and knowledge needs analysis in T2.3. We have developed and tested an initial suite of indicators that can be incorporated into the short, medium and long-term monitoring in collaboration with relevant Mission structures. The information from this inventory will be used within the BlueMissionAA project to inform and train the automatic data pipelines in T2.2. to integrate publicly available data about the R&I programmes, projects and initiatives collected into BlueMissionAA database along with PREP4BLUE towards an integrated inventory based on the optimisation of best-indicators through a optimised dashboard. This will facilitate a major verification of the BlueMissionAA objectives through the guidance of the tool to reach 1000 restoration projects and activities to assess the progress of the Mission and to inform actors, stakeholders and the general public. Using this inventory as a springboard we, along with T2.4, will bridge with the EC-funded IAs (HORIZON-MISS-2021-OCEAN-02-02 and OCEAN-02-03) in the Atlantic and Arctic Sea basin, and exchange the outputs with the CSAs for other sea basins.

4. Summary

This report documents the development of an initial baseline survey of restoration projects and actions at the European scale. The product will be shared and discussed with other mission projects, e.g. PREP4BLUE to co-design and co-produce an ultimate product for mapping restoration activities and associated research. Actors, regulators, investors and general public can already use the information from the inventory to inform policy decisions related to coastal conservation, restoration investments, land use management influencing transitional and coastal zones, and environmental protection. Sharing information about ongoing projects through this inventory with the public can help raise awareness about the work done on restoration, both generally and locally relevant to them, on the importance and success of ecosystem restoration. This should garner support for conservation efforts.



