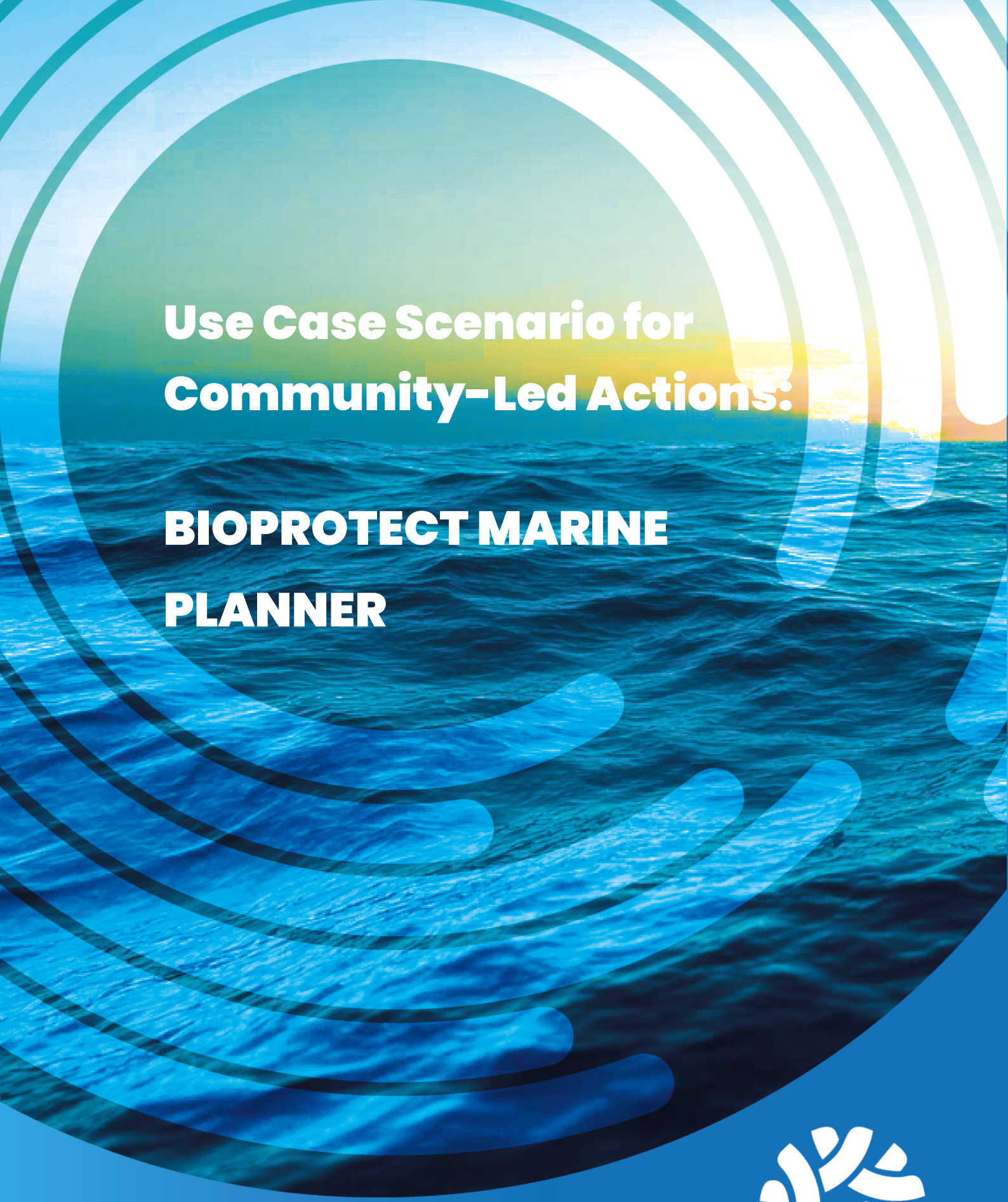
# Use Case Scenario for Community-Led Actions:

# BIOPROTECT MARINE PLANNER



**EMPOWERING COMMUNITY- LED ACTION IN THE ATLANTIC & ARCTIC**

This project has received funding from the European Union's Horizon Europe Research and Innovation programme under Grant Agreement number 101215504

BLUEACTIONAA

**Disclaimer:**

This document is NOT a BlueActionAA's deliverable. The information contained in this document has been collected ONLY with the purpose of developing the use case scenarios catalogue to inspire potential applicants to BAAC-01. Potential applicants are NOT allowed to use this information for their applications to BAAC-01 or for other purposes. The information contained in this document is presented as provided by the use case promoter. The information contained in this document has not been changed and has been presented below as received. For any further questions regarding the use of this use case, please contact the BlueActionAA's data controller at info@blueactionaa.eu.

## SUPPORTED BY | IN PARTNERSHIP WITH

AIR CENTRE

Foras na Mara Marine Institute

ESF Your Partner in Science

SINTEF

PLOCAN Plataforma Oceánica de Canarias

NIVA Norwegian Institute for Water Research

universidade de aveiro

SDU University of Southern Denmark

## Use case Overview

### Use case title

BioProtect Marine Planner

### Short Description

The BioProtect Marine Planner is a web-based conservation planning support tool developed under the EU-funded BioProtect project (Grant Agreement 101157341). It enables users to identify case-specific areas of priority for conservation in the marine environments, based on human activities, cumulative impacts and biophysical data. The tool supports the establishment of conservation areas, such as MPAs or other spatial conservation measures. The tool is designed on an interconnected multi-scale grid that allows large-scale and small-scale events to be mutually influenced. It includes a stakeholder engagement platform that allows collaborative planning process via the collection of spatial local knowledge, updating planning scenarios on the main app. All data is stored on a unique server that informs all components – biodiversity features, human activities, pressures, costs layers, grid – supporting evidence-based and collaborative conservation decision-making.

### Country and Region

Multi-country: Norway, Iceland, Ireland, Portugal (North-East Atlantic)

### Domain/Sector

Marine Science; Environmental Protection; Coastal Management

### Current status

Pilot

### Geographical scope

Regional Sea: North-East Atlantic

### Organization's categorizaton

Research organisations and academia

### Promoter's information

- Organisation's name: University of Galway (formerly National University of Ireland Galway – NUIG)


Funded by the European Union

- Place: Norway, Iceland, Ireland, Portugal
- EU Mission Restore Our Oceans and Seas related project: BIOPROTECT

### Use case duration

- From Year 2024 to Year 2028
- Number of Months: 48

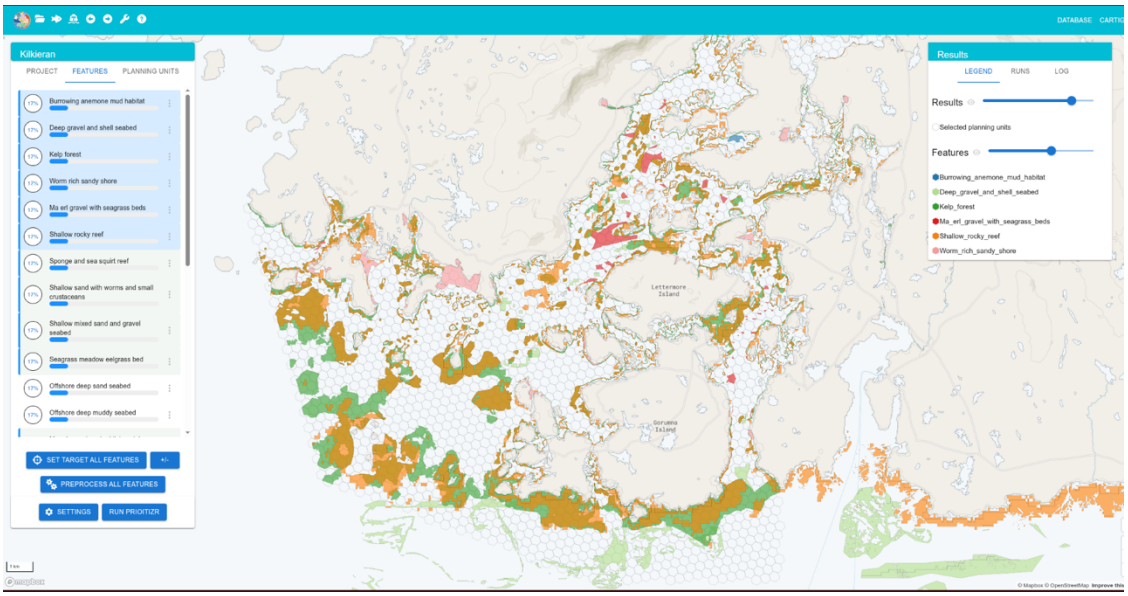
### Keywords

Marine Conservation Planning / Spatial Decision Support / Cumulative Impacts

### Website link

https://bioprotect-project.eu/bioprotect-marine-planner/

### Use case picture




## Design

### Briefly describe how the use case is aligned/contributes to the objectives of the EU Mission Restore Our Oceans and Waters 2030.

The BioProtect Marine Planner directly supports Objective 1 (Protecting and restoring marine and freshwater ecosystems and biodiversity) by providing decision-makers, researchers, and marine planners with evidence-based spatial tools to designate marine protected areas (MPAs) and other area-based conservation measures. By operationalising a complex multi-scale

Systematic Conservation Planning workflow on a user-friendly spatial inferface, the tool identifies priority conservation zones that optimises the preservation of marine ecosystems, including livelihoods.
It also contributes to Objective 2 (Preventing and eliminating pollution) by mapping human activity pressures, including pollution sources, in the marine environment. The visualization of cell costs, along with the stakeholder engagement platforms enable planners to visualise pressure hotspots and supports dialogue between decision-makers and stakeholders on pressure sources and potential pathways for mitigation; aligning with the Mission's cross-cutting objective of mobilising science, citizens, and governance for ocean restoration.

### Challenge's definition and Primary Objective

Marine ecosystems face growing threats from climate change, pollution, overfishing, coastal development, and other human activities. Despite increasing policy ambition — such as the EU Biodiversity Strategy 2030 target to protect 30% of seas — decision-makers and marine spatial planners often lack accessible, integrated tools to identify where conservation efforts will be most effective. Existing tools for systematic conservation planning tend to require significant technical expertise, are not web-accessible, and do not allow stakeholder knowledge to communicate with formal data. This creates a gap between conservation science and practical implementation. The primary objective of the BioProtect Marine Planner is to bridge this gap by providing an intuitive, web-based platform that: (1) visualises costs of the presence or absence of conservation solutions in a case-specific workflow; (2) harmonises dense spatial data necessary for conservation planning — including biodiversity features, human activities, pressures, planning grids, and cost layers; (3) runs optimised conservation solution algorithms to identify priority areas; and (4) enables local knowledge to directly contribute to conservation planning through a participatory data collection interface.
The tool supports marine planners and managers, local and regional authorities, as well as researchers in making evidence-based decisions on where and how to establish or expand MPAs and other area-based conservation measures.

### End users

Primary end users include: marine spatial planners and national/regional marine authorities; marine protected area (MPA) managers; conservation

scientists and researchers; environmental NGOs and consultancies; and policymakers at EU and national level.

### Gender equality and diversity

The BioProtect project promotes gender equality and diversity through its consortium composition and stakeholder engagement practices. The tool is designed to be accessible to a wide range of users regardless of technical background, lowering barriers for under-represented groups in marine science and planning. The development team is multidisciplinary (engineering, biology, software engineering, socioecology), includes both senior and early-career researchers, and is diverse in nationalities and gender. The iterative co-design process of the tool ensures that all stakeholders and potential end-users are involves in the development process. This includes multidisciplinary experts from local, regional and international agencies, small and large-scale communities, respecting an integrated and fair inclusion process. Once used and properly implemented, the BioProtect Marine Planner ensures all actors of marine conservation are included in the decision-making process, reinforcing equity in planning processes.

## Implementation

### Implementers

Regional or local (public) authority; NGOs, foundations (public and private), professional association, community-based organisations including civil society and citizen associations; Research organisations and academia.

### Concrete Solutions and Actions taken

The BioProtect Marine Planner uses an iterative co-design process throughout its development. When a prototype has been conceived, it is tested during in-person workshops with stakeholders and potential end-users to gather feedback on tool suitability and clarity. This has been done in Ireland (country of development) and will be spread in other case studies across the Northeast Atlantic. The tool will also be brought to small-scale communities during community events to 1) raise awareness and build capacity for collaborative conservation planning amongst small-scale stakeholders 2) collect further spatial data and feedback on the tool and 3) reach out to small-scale planners who constitute potential end-users; thus spreading the use of the tool across all relevant scales and cases. Once

adopted, the BioProtect Marine Planner will support the designation of novel or extended MPA network across all regions.

### Community Engagement Needs

The BioProtect Marine Planner supports case-specific and area-based conservation solutions by following collaborative processes. The tool collects and analyses local challenges through formal and informal spatial data and generates solutions tailored to the chosen scale for the planning process. It also facilitates dialogues between decision-makers and communities by simplifying the showcase of planning scenarios and updating the latter directly with stakeholders. In Ireland, Norway, and other use-cases adopting the BioProtect Marine Planner, conservation implementation has been slow due to the complexity of harmonizing the data to create coherent plan, and due to the difficulty to effectively dialogue with communities on concrete actions. The tool fully bridges the above challenges, ensuring conservation is community-informed.

### Community Engagement Measures

Demonstration workshops at the five BioProtect sites with local marine authorities, fishers, and NGOs to gather feedback on tool suitability and clarity. Communities of Practice (CoPs) established within BioProtect to gather ongoing user feedback and ensure the tool reflects real stakeholder needs. Integration of PPGIS (Public Participation GIS) outputs from the broader BioProtect platform into the Marine Planner datasets. Capacity-building workshop to train end-users in adopting the tool for their planning project/scale.

### Community Engagement benefits

Communities will benefit from: (1) greater transparency in conservation planning decisions that affect their livelihoods and marine access; (2) a formal mechanism to contribute local ecological knowledge into spatial planning, giving their input scientific and policy visibility; (3) improved marine governance outcomes, as plans based on integrated local and scientific knowledge are more likely to be effective and supported by communities; (4) access to a free, open web tool that empowers local managers and authorities to conduct their own preliminary conservation planning analyses.

## Monitoring and Evaluation

### Technical Risks

The tool needs to run on a working online server, currently hosted by the University of Galway. The posterity of the tool relies on the material capacity to support the server and the software engineering team.

### Operational constraints

The tool requires some training for non-GIS users to use advanced planning features effectively. It also requires stakeholder engagement experience to reach out to communities to use the engagement platform.

### Legal/Regulatory Constraints

Constraints may include: compliance with GDPR for any personal data collected through the stakeholder data submission service; data licensing restrictions on certain national spatial datasets that may limit their redistribution through the platform; intellectual property considerations for algorithmic outputs used in policy decisions.

### Ethical and Social Considerations

Ethical considerations may include: data privacy — all user-submitted stakeholder data must be handled in compliance with GDPR; equity — ensuring that marginalised coastal communities (e.g. small-scale fishers) have meaningful access to and representation in the tool; potential conflicts between conservation objectives and the livelihoods of fishing communities, requiring careful co-design of planning scenarios.

## Results & Impacts

### Outputs

The outputs of the tool are designation of new or reformed areas of conservation more adapted to both biophysical and socioeconomic reality of local, regional and international realities of marine ecosystems. It introduces more effective governance models and regulations accelerating conservation efforts. Additionnally, the use of collaborative tool development and planning processes empowers communities and encourages further and simplified integration of informal knowledge and community-informed measures in conservation frameworks.



Funded by the European Union

### Outcomes

- Environmental impacts: Improved identification and designation of marine protected areas and effective area-based conservation measures; better understanding and mapping of cumulative human pressures on marine biodiversity; contribution to EU and national targets to protect 30% of marine areas by 2030;
- Economic impacts: More efficient use of conservation budgets through spatial prioritisation tools that identify high-value conservation areas with lower conflict costs; potential reduction in costs associated with poorly-planned MPAs that generate community resistance; support for sustainable blue economy activities by clearly delineating protection zones;
- Social impacts: Enhanced participation of coastal communities, local authorities, and civil society in marine spatial planning; greater transparency and legitimacy of MPA designation processes; improved trust between conservation bodies and marine stakeholders through co-designed planning tools.

### Operational benefits

By facilitating data harmonization and generation of conservation solutions, the BioProtect Marine Planner minimizes the costs of conservation planning by reducing research workload, accelerating stakeholder input into planning scenarios and grouping conservation-related assessment into a stand-alone user-friendly tool. The use of stakeholder engagement might also increase measure acceptance, further facilitating marine governance for conservation.

### Lessons learned and take aways for the future

Developing a software is resource demanding. While the tool itself will reduce resource needs for decision-makers, tool developers requires substantial financial support to thoroughly develop the tool and provide users support once adopted. Future developments of the BioProtect Marine Planner will require more allocated time and financial support to development team.

### Scalability

Local -> Regional; Regional -> Global.

### Replicability

The BioProtect Marine Planner is designed to be replicable. The five BioProtect demonstration sites (Norway, Iceland, Ireland, NW Portuguese Margin, Azores) already span diverse marine environments and governance contexts, demonstrating multi-region replicability. Beyond the BioProtect project, the platform could be adopted by marine authorities across the EU, associated countries, and globally.

### Transferability

While developed for marine conservation planning, the core architecture of the Marine Planner — a web-based spatial planning tool integrating participatory data collection, multi-criteria analysis, and planning algorithms — is transferable to: freshwater and terrestrial conservation planning; marine spatial planning for blue economy sectors (aquaculture siting, offshore wind).

### Post project sustainability

The long-term vision is for the Marine Planner to become a standard resource for systematic marine conservation planning across EU Atlantic and Arctic waters, updated iteratively as new datasets and conservation planning science become available.

BLUEACTIONAA

EMPOWERING COMMUNITY-LED ACTION IN THE ATLANTIC & ARCTIC

This project has received funding from the European Union´s Horizon Europe Research and Innovation programme under **Grant Agreement 101215504**