



# Knowledge, Assessment, and Management for AQUatic Biodiversity and Ecosystem Services aCROSS EU policies

## THE CHALLENGE

Aquatic ecosystems are rich in biodiversity and home to a diverse array of species and habitats, providing numerous economic and societal benefits to Europe. Many of these valuable ecosystems are at risk of being irreversibly damaged by human activities and pressures, including pollution, contamination, invasive species, overfishing and climate change. These pressures threaten the sustainability of these ecosystems, their provision of ecosystem services and ultimately human well-being.

AQUACROSS seeks to advance the application of ecosystem-based management for aquatic ecosystems in an effort to support the timely achievement of the EU 2020 Biodiversity Strategy and other international conservation targets. In this regard, AQUACROSS aims to develop and test an assessment framework which considers the full array of interactions, including human activities, within aquatic ecosystems.

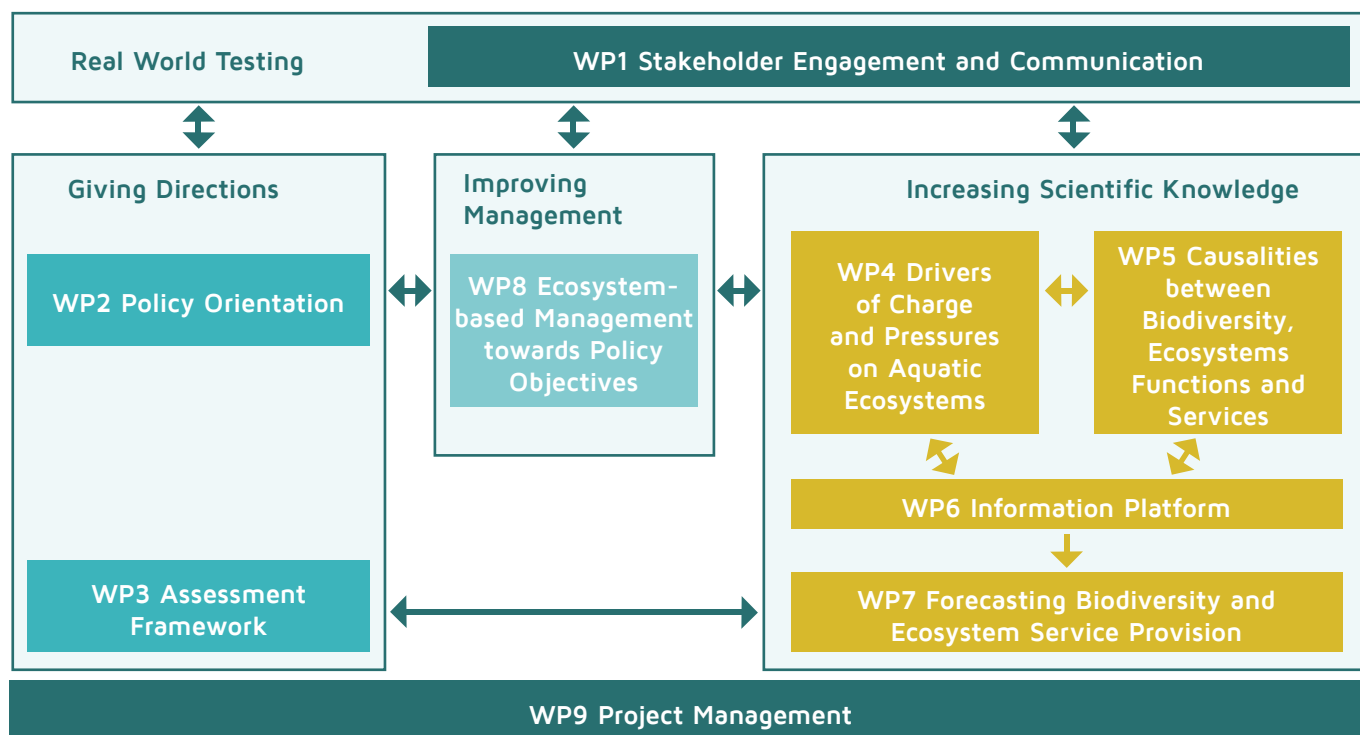
Existing EU policies have been unable to halt and reverse the trend of declining biodiversity of aquatic ecosystems. The current broad policy landscape such as the Water Framework Directive and Marine Strategy Framework Directive means that sustainable management solutions require coordination and cooperation between different policy areas spanning freshwater, coastal and marine ecosystems, in addition to innovative business solutions and public-private engagement.



# APPROACH

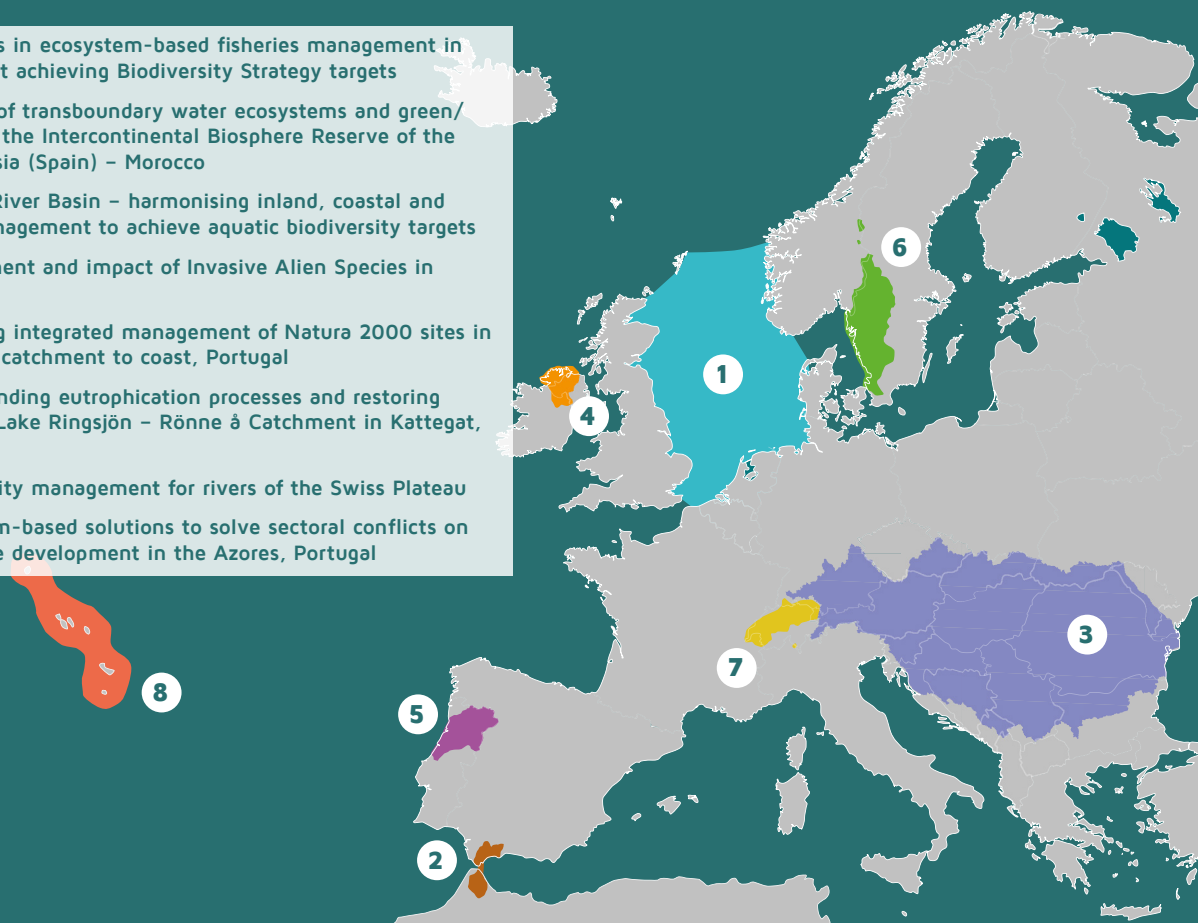
The AQUACROSS approach is built around four pillars of work developed in collaboration with eight local case studies:

- **Pillar 1: Real world testing** — ensures stakeholder engagement, knowledge exchange and social learning to achieve practical policy solutions and end-user uptake. Representatives from science, policy, business and AQUACROSS case studies will help steer project activities and validate results.
- **Pillar 2: Giving direction** — considers existing political processes and legislation to identify synergies and barriers to aquatic ecosystem management. AQUACROSS develops an Assessment Framework to assess aquatic ecosystems in line with integrated management, including concepts of resilience and uncertainty.
- **Pillar 3: Increasing scientific knowledge** — seeks to identify and assess drivers and pressures of aquatic ecosystems; understand causalities between biodiversity, ecosystem functions and services; ensure exchange of data, information and research results through an information platform; and forecast biodiversity and ecosystem service provision.
- **Pillar 4: Improving management** — builds on work undertaken in the previous pillars to develop concepts, practices and tools for better implementation of ecosystem based management. This includes identifying and understanding the linkages between aquatic ecosystems and human well-being and identifying innovative management responses for aquatic ecosystems.
- **Case studies** — are a major source of information and data and ensure interaction across aquatic ecosystems as well as disciplines. Case study stakeholders help co-create concepts and develop products, share experiences with implementing policy and respective management approaches, as well as provide critical feedback on project outputs.



## CASE STUDIES

- Case Study 1 Trade-offs in ecosystem-based fisheries management in the North Sea aimed at achieving Biodiversity Strategy targets
- Case Study 2 Analysis of transboundary water ecosystems and green/blue infrastructures in the Intercontinental Biosphere Reserve of the Mediterranean Andalusia (Spain) – Morocco
- Case Study 3 Danube River Basin – harmonising inland, coastal and marine ecosystem management to achieve aquatic biodiversity targets
- Case Study 4 Management and impact of Invasive Alien Species in Lough Erne in Ireland
- Case Study 5 Improving integrated management of Natura 2000 sites in the Vouga River, from catchment to coast, Portugal
- Case Study 6 Understanding eutrophication processes and restoring good water quality in Lake Ringsjön – Rönne å Catchment in Kattegat, Sweden
- Case Study 7 Biodiversity management for rivers of the Swiss Plateau
- Case Study 8 Ecosystem-based solutions to solve sectoral conflicts on the path to sustainable development in the Azores, Portugal



## EXPECTED IMPACTS

AQUACROSS responds to pressing societal and economic needs, tackling policy challenges from an integrated perspective and building on available knowledge. The expected impacts of AQUACROSS are three-fold:

- 1 **Advance science and knowledge** by contributing to the integration of biodiversity, freshwater, coastal and marine knowledge, concepts, information, methods, and tools across multiple research fields. This includes an Assessment Framework which links human activities to the state of aquatic ecosystems, and how this link affects the provision of ecosystem services and human well-being.
- 2 **Connect policy, businesses and society** by improving ecosystem-based management; thus, resulting in broader constituencies for conservation and expanded possibilities to guide decision-making, as well as opportunities to add or create new value to protected areas and manage aquatic ecosystems sustainably outside of these areas.
- 3 **Support the achievement of EU and international biodiversity targets** by delivering a consolidated and coherent outlook on EU policy for aquatic ecosystems; increasing knowledge on biodiversity and drivers of aquatic ecosystem change; supporting the management of Natura 2000 sites and invasive alien species; and testing business models for the provision of ecosystem services that will contribute to ecosystem protection.



## THE AQUACROSS PARTNERS

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**Ecologic Institute** (ECOLOGIC) | Germany

**Leibniz Institute of Freshwater Ecology and Inland Fisheries** (FVB-IGB) | Germany

**Intergovernmental Oceanographic Commission of the United Nations Educational, Scientific and Cultural Organization** (IOC-UNESCO) | France

**Stichting Dienst Landbouwkundig Onderzoek** (IMARES) | Netherlands

**Fundación IMDEA Agua** (IMDEA) | Spain

**University of Natural Resources & Life Sciences, Institute of Hydrobiology and Aquatic Ecosystem Management** (BOKU) | Austria

**Universidade de Aveiro** (UAVR) | Portugal

**ACTeon – Innovation, Policy, Environment** (ACTeon) | France

**University of Liverpool** (ULIV) | United Kingdom

**Royal Belgian Institute of Natural Sciences** (RBINS) | Belgium

**University College Cork, National University of Ireland** (UCC) | Ireland

**Stockholm University, Stockholm Resilience Centre** (SU-SRC) | Sweden

**Danube Delta National Institute for Research & Development** (INCDDD) | Romania

**Eawag – Swiss Federal Institute of Aquatic Science and Technology** (EAWAG) | Switzerland

**International Union for Conservation of Nature** (IUCN) | Belgium

**BC3 Basque Centre for Climate Change** (BC3) | Spain

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