Knowledge, Assessment, and Management for AQUAtic Biodiversity and Ecosystem Services aCROSS EU Policies (AQUACROSS)

Project Concept and Structure

Ecologic Institute

The Project

≈ **Name:** Knowledge, Assessment, and Management for AQUAtic Biodiversity and Ecosystem Services aCROSS EU Policies (AQUACROSS)

≈ **Type of project:** Research and Innovation

≈ **Funding:** Horizon 2020

≈ **Budget:** ca. 7 million EUR

≈ **Duration:** 1 June 2015—30 November 2018

≈ Biodiversity provides ecosystem services crucial for human well-being. As biodiversity is declining, despite existing environmental policies, there is an urgent need to both **document** and **evaluate :**

1. effects of drivers of change to biodiversity,
2. links between biological diversity, ecosystem functions and resilience, and in turn to ecosystem service provision

These actions will help ensure effective **policy** and **sustainable development**.

Image Sources: Wikipedia Commons
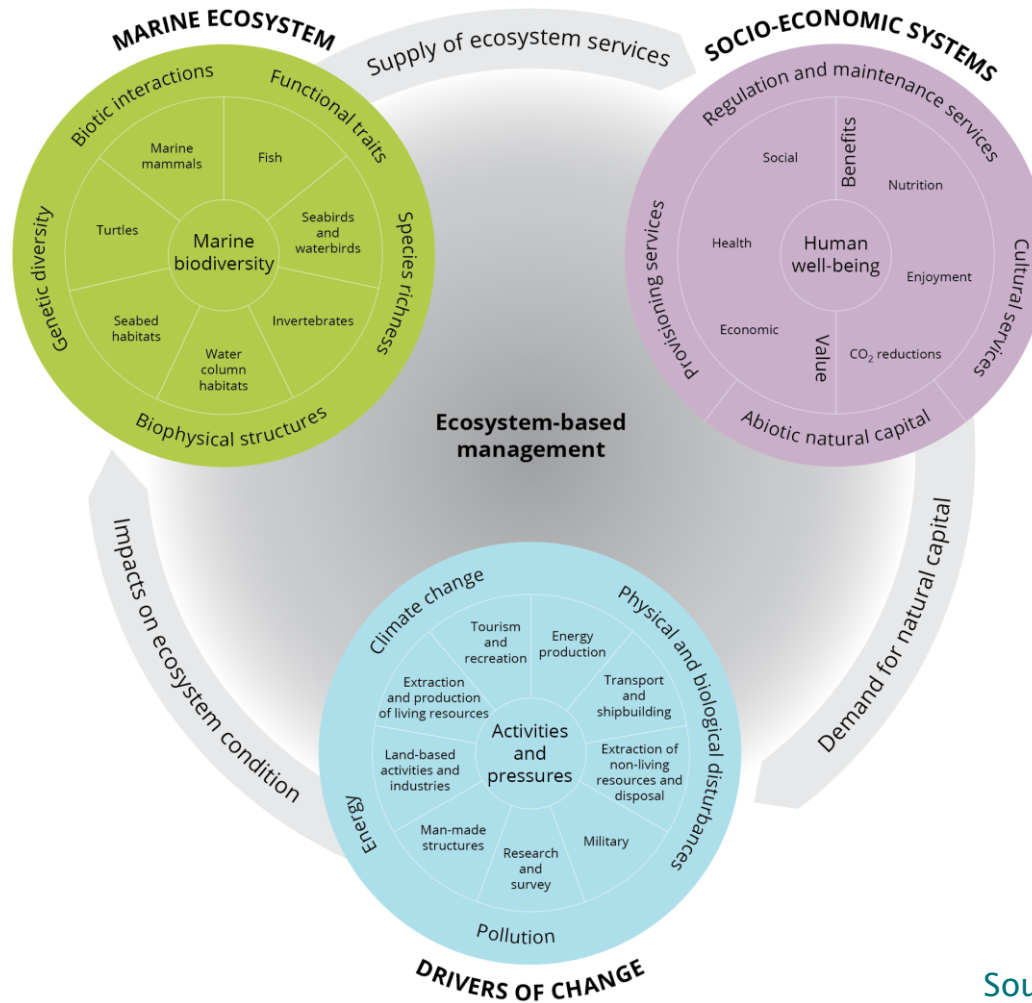
AQUACROSS Objectives

1. To **support the coordinated implementation** of the EU 2020 Biodiversity Strategy and international biodiversity targets;

2. To explore, advance and support the implementation of the **EBM** concept across aquatic ecosystems;

3. To specifically identify and test **robust, cost-effective and innovative management and business models and tools**; and,

4. To **mobilise policy-makers, scientists, businesses and societal actors** to learn from real-world experiences, co-build and test project work, and ensure end-users' uptake of project results.

- ≈ Biodiversity Strategy
- ≈ Birds and Habitats Directives
- ≈ Water Framework Directive
- ≈ Marine Strategy Framework Directive
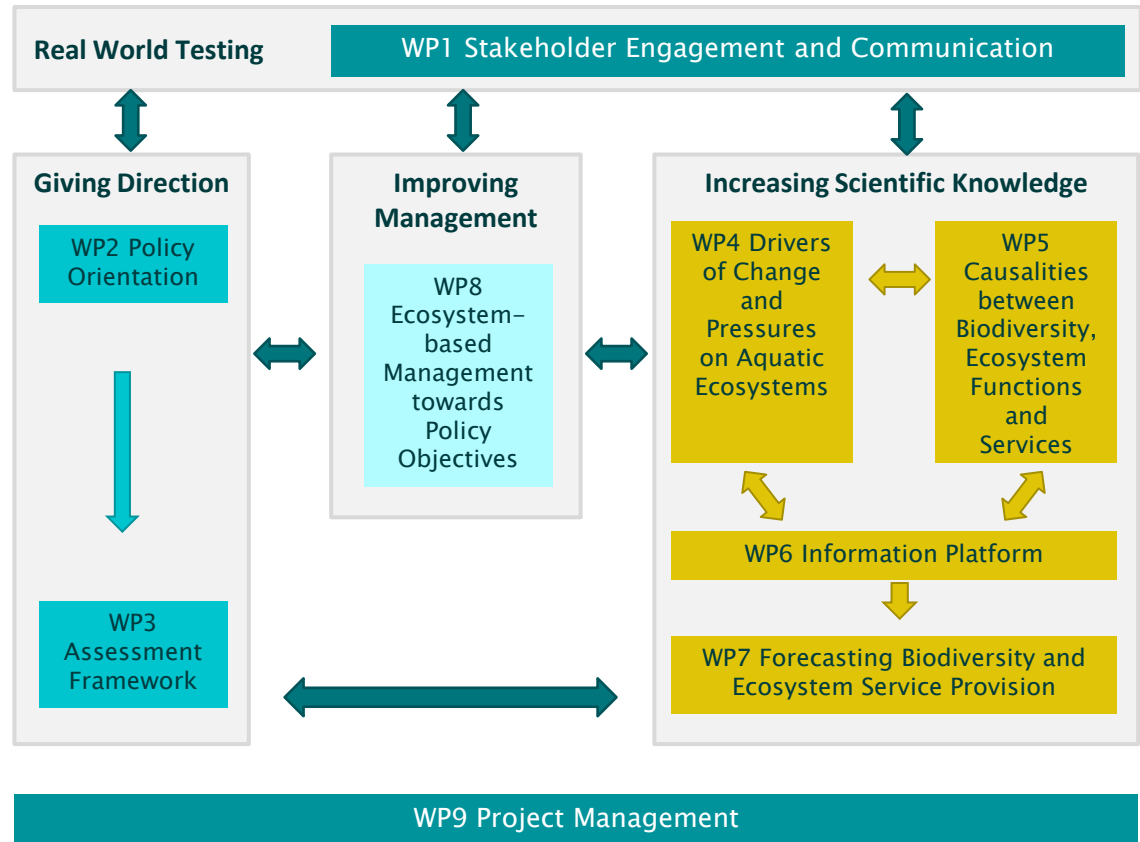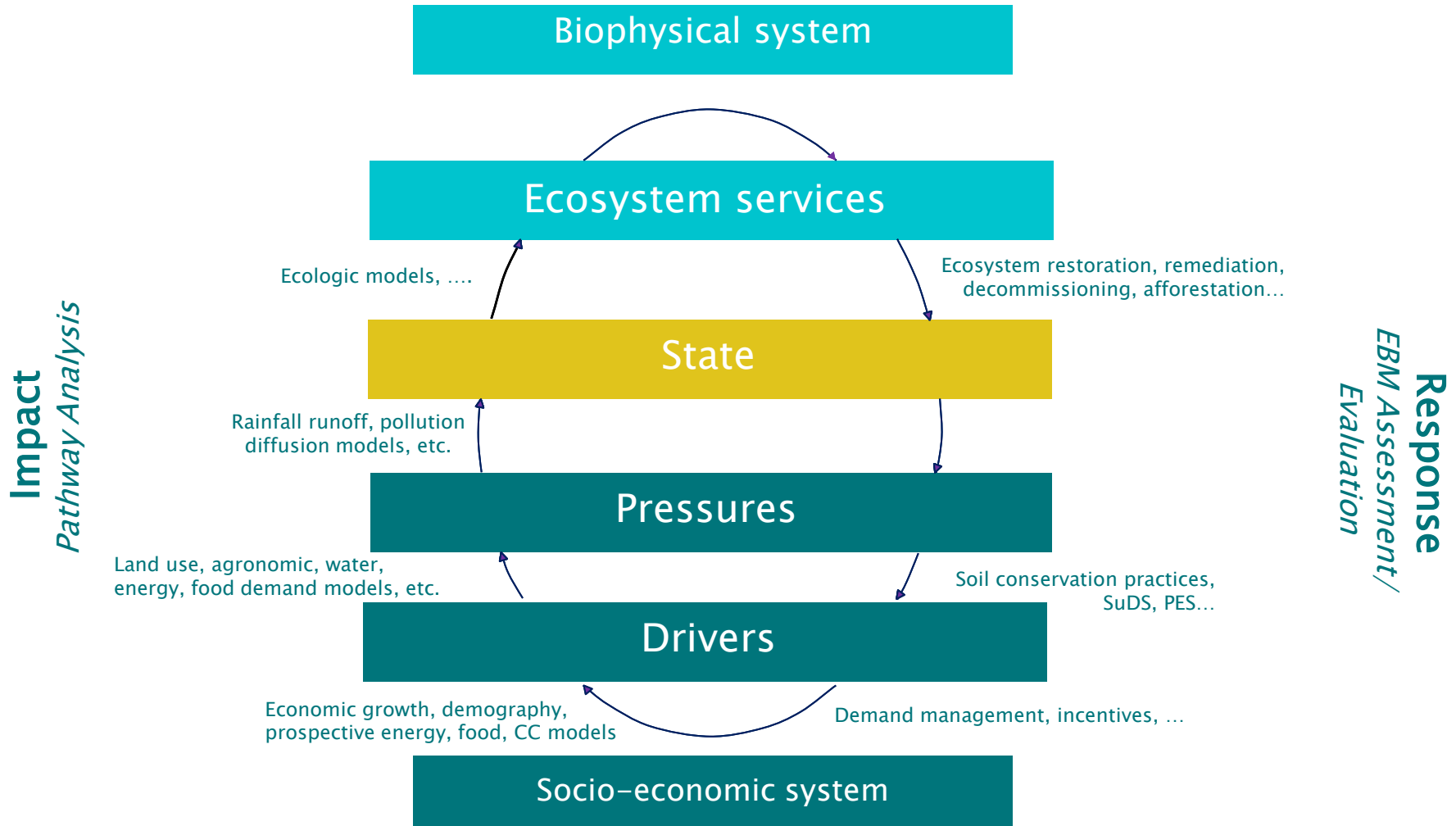
Understanding EBM

Pillars of AQUACROSS

- ≈ **Pillar 1**: Real world testing
- ≈ **Pillar 2**: Giving direction
- ≈ **Pillar 3**: Increasing scientific knowledge
- ≈ **Pillar 4**: Improving management
- ≈ **Case studies across all pillars**

Real World Testing — WP1 Stakeholder Engagement and Communication

Giving Direction
- WP2 Policy Orientation
- WP3 Assessment Framework

Improving Management
- WP8 Ecosystem-based Management towards Policy Objectives

Increasing Scientific Knowledge
- WP4 Drivers of Change and Pressures on Aquatic Ecosystems
- WP5 Causalities between Biodiversity, Ecosystem Functions and Services
- WP6 Information Platform
- WP7 Forecasting Biodiversity and Ecosystem Service Provision

WP9 Project Management

AQUACROSS Assessment Framework

Biophysical system

Ecosystem services

Ecologic models, ….

Ecosystem restoration, remediation, decommissioning, afforestation…

State

Rainfall runoff, pollution diffusion models, etc.

Pressures

Land use, agronomic, water, energy, food demand models, etc.

Soil conservation practices, SuDS, PES…

Drivers

Economic growth, demography, prospective energy, food, CC models

Demand management, incentives, …

Socio-economic system

Impact
Pathway Analysis

Response
EBM Assessment/ Evaluation
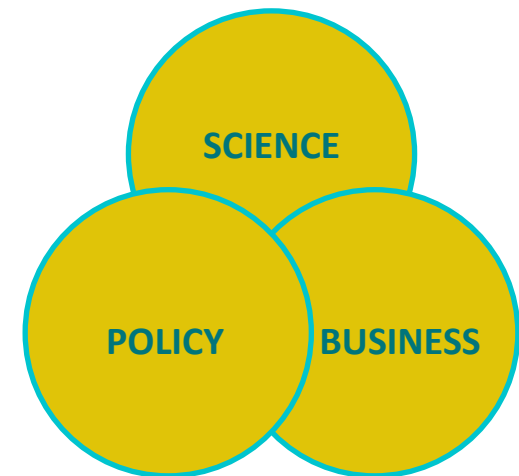
www.aquacross.eu/

Stakeholder Engagement

A key objective of AQUACROSS is to mobilise policy-makers, scientists, businesses and societal actors....

- ≈ Dedicated task on stakeholder engagement within case studies and project workshops

- ≈ Science-Policy-Business Think Tank
  - Acts as external advisory board
  - Provides expert advice and consultation
  - Composed of 10 high-level experts and 8 case study representatives

SCIENCE

POLICY   BUSINESS

Location of AQUACROSS 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
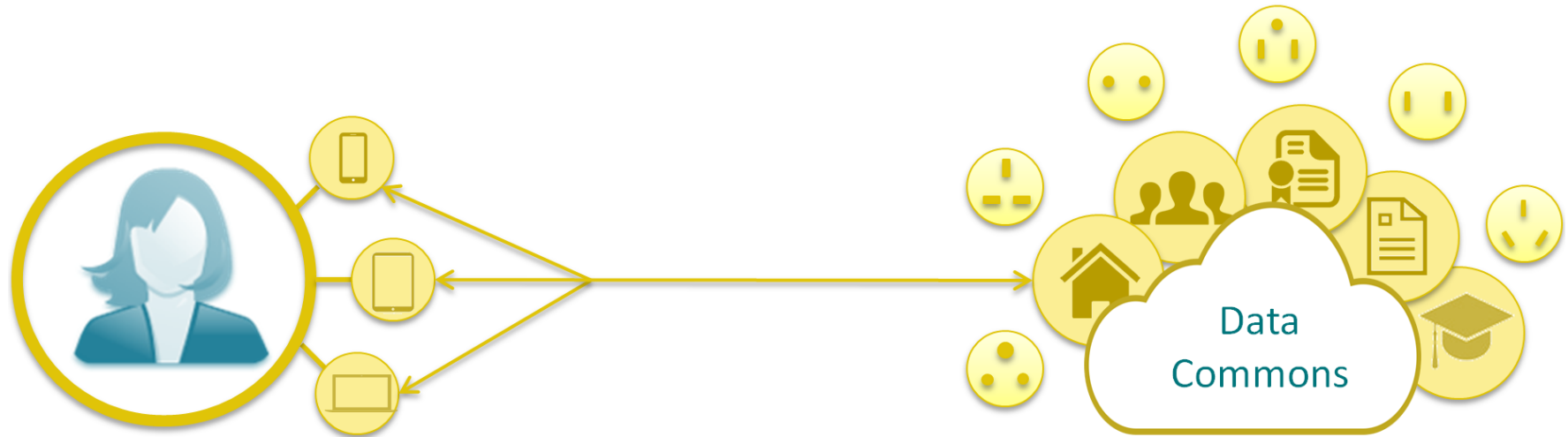
Policy Assessment

- AQUACROSS will identify policies affecting the achievement of EU and international biodiversity objectives.

- Project work will assess the operational policy demand for aquatic biodiversity protection and identify synergies and operational policy barriers.

- Ultimately, this will result in policy recommendations to protect aquatic biodiversity

Identify Relevant Policies → Assess Policy Demand / Synergies and Barriers → Policy Recommendations

Data Integration

≈ Data Information Platform
- Integrates various datasets into a data catalogue (metadata)
- Provided direct access to datasets and information compiled from the project
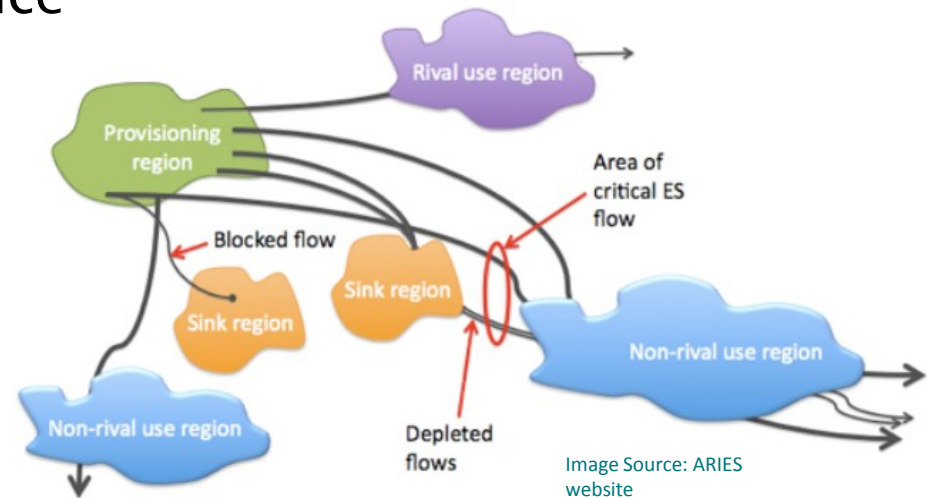
≈ Data Viewer
- Based on Open Source SmartAtlas technology
- Used to facilitate visual identification of project analysis

Mapping ecosystem services
- ARIES (Artificial Intelligence for Ecosystem Services)

Forecasting biodiversity and ecosystem service provision:
- Participatory modelling
  - Narratives
  - Cognitive mapping
- Social–ecological modelling

Image Source: ARIES website

AQUACROSS Expected Impacts

AQUACROSS will directly support policy-makers and managers of aquatic ecosystems in the following ways:

≈ A consolidated outlook on EU policy for biodiversity and aquatic ecosystems (i.e. objectives, terminology, concepts).

≈ A coherent set of EBM assessment methods and models and clear guidance on the selection of EBM measures and supporting/financing instruments.

≈ Improving EBM will result in:
  - (i) the development of broader constituencies for conservation and expanded possibilities to guide decision-making;
  - (ii) opportunities to add or create new value to protected areas; and
  - (iii) further opportunities to manage aquatic ecosystems sustainably outside of protected areas.

AQUACROSS Key Outputs

≈ AQUACROSS Assessment Framework

≈ Policy recommendations

≈ Policy and innovation briefs

≈ Guidance on indicators, methods and tools for assessing ecosystem services and functions

≈ Data information platform

Many Thanks!