

# Pre-conditions for “making ecosystem-based management happen”

Conventional management practices (including sectoral approaches) are not necessarily well-suited for the uptake of ecosystem-based management ([see Introducing Ecosystem-based Management \(EBM\)](#)). Ecosystem-based management implementation is a social and political challenge rather than merely a scientific / technical one. The focus on ecosystems and ecosystem services entails a departure from traditional practice on environmental policy and natural resources management.

Successful design and effective implementation of EBM alternatives requires uptake in a policy-making environment characterised by legacy issues. Institutions, standard technological choices, well-established and commonly accepted assessment methods and criteria, and even the science-policy dialogue to date, have been shaped by an intense path dependency.

## WHAT IS NEEDED FOR ECOSYSTEM-BASED MANAGEMENT IMPLEMENTATION?

On **institutional grounds**, effective coordination mechanisms need to be built within and across relevant policy domains. For example, biodiversity concerns should be included in areas such as water, energy, spatial development, tourism and fishing, amongst others. Some of this policy integration has already been achieved, and is (partially) visible in the design of EU policy (e.g. EU Water Framework Directive, Marine Strategy Framework Directive), even if the outcomes of those processes may be disputable.

- Institutions are seen as a factor hindering the implementation of EBM. This is widely illustrated by the situation in the North Sea ([see Case Study: North Sea](#)), where despite overarching EU strategies and regulations, the scale of the ecosystem contrasts with action plans defined at national scales where responses are shared by mid-level administrative units in charge of managing activities, services, and impacts. A better coordination at both national and international scales may be the basis for a comprehensive response to the North Sea challenges ([D8.2](#)).

On **technological grounds**, seamless, comprehensive multi-purpose solutions (such as green infrastructure, river restoration, etc.) rather than individual techniques to tackle one problem at a time (such as pumps, desalination and wastewater plants, fishing gears, etc.) are required under ecosystem-based management.

On **knowledge and assessment grounds**, a meaningful body of transdisciplinary scientific knowledge must be mobilised and integrated in a way that can be used and co-produced by stakeholders. This allows complex links between society and nature to be represented and collective action responses to be supported. Compelling explanations are required of how one thing leads to another (causal relationships) and of how human activities and policy choices explain the existing problems in the surrounding environment.

- The importance of the capacity to integrate knowledge on aquatic social-ecological systems in a way that can actually be taken up by stakeholders is shown in the Ria de Aveiro case study ([see Case Study: Ria de Aveiro, Portugal](#)). The need to gain social acceptance for ecosystem restoration to prevent saline intrusion, rather than extending the protected area and reducing agricultural land, is emphasised.

**Good information is needed** for carrying out an integrated assessment. Gaps in data availability pose challenges when making an assessment across aquatic realms, particularly with regards to indices and metrics for quantifying human activities and pressures, and especially for assessing the current state of an ecosystem, its deficits, and their causes (D4.2).

**Ecosystem-based management approaches are easier when there is a pre-existing agreement to jointly manage the ecosystem at hand.** If the benefits of the ecosystem's improvement are shared, the mutual interest of the different parties self-enforces the agreement. Limitations emerge when there are no suitable mechanisms in place.

- Implementing the spatial optimisation approach proposed in the Danube (see [Case Study: Danube](#)), for example, would imply that financial resources provided by one country are used for river restoration in another country. These agreements provide an institutional framework in which policy is at the level of ecosystems (the entire river basin, the biosphere reserve, or the marine protected area) (D8.2).
- The success of ecosystem-based management also depends on the ability to assess and compare the effectiveness (objectives achievement) and robustness (the degree to which the alternative courses of action would work even in the presence of potential failures) of management responses. This is relevant for example when comparing mechanical removal of alien invasive species vs. ecosystem renaturalisation through seasonally raising water levels in the Lough Erne (see [Case Study: Lough Erne](#)).

Evaluations of effectiveness show that AQUACROSS **EBM approaches are more effective in reaching biodiversity targets, in particular by more effectively choosing where to implement measures and where to invest available financial resources.** The more holistic perspective allows consideration of some trade-offs, and therefore also of other societal goals. Evidence from the case studies indicates that solutions proposed following the application of the AQUACROSS assessment framework seem also to be more efficient (although only a subsection of the costs and benefits could be considered and estimated in monetary values for the individual case studies) (D8.2).

<a href="#">← Go to Brief #28: EBM: Added value</a>	<a href="http://www.aquacross.eu/results">www.aquacross.eu/results</a>	<a href="#">Go to Brief #30: EU policy at the local level →</a>
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#### Further information

This is one of 38 short briefs summarising the key results of the AQUACROSS Project. For more detailed information on the topics covered in this brief, see the following:

- Costea et al. (2018) Assessment of drivers and pressures in the case studies. Deliverable 4.2, European Union's Horizon 2020 Framework Programme for Research and Innovation grant agreement No. 642317. ([Deliverable](#) and [Executive Summary](#))
- Mattheiß et al. (2018) Evaluation of Ecosystem-Based Management Responses in Case Studies. Deliverable 8.2, European Union's Horizon 2020 Framework Programme for Research and Innovation grant agreement No. 642317. ([Deliverable](#) and [Executive Summary](#))



AQUACROSS has received funding from the European Union's Horizon 2020 Programme for Research, Technological Development and Demonstration under Grant Agreement no. 642317.