aquacross

How is the linkage framework useful for the Birds and Habitats Directive?

WHAT IS THE AQUACROSS LINKAGE FRAMEWORK?

The AQUACROSS Linkage Framework is a semi-quantitative tool designed for environment managers, such as managers of Natura 2000 sites, to understand the links between human activities and the ecological system. It is a structured framework for understanding how human activities impact aquatic ecosystems, and how these ecosystems provide benefits to human society. It can be used at differing levels of complexity – simply to highlight priority elements or, more quantitatively, to assess risk and vulnerability within the system (see Linkage Framework).

WHY IS THE AQUACROSS LINKAGE FRAMEWORK USEFUL FOR NATURE MANAGERS?

It helps to better understand the full picture.

A Natura 2000 site is not an island – local biodiversity is affected by external drivers, and it delivers benefits beyond its borders. The linkage framework helps identify all human activities (e.g. fishing) that place pressures (e.g. abrasion of the seafloor) on each element of aquatic ecosystems (e.g. specific habitats, fish, reptiles). It then identifies how each element of the aquatic ecosystem delivers valuable goods and services to society (e.g. fish, carbon sequestration) and finally reveals the links and rela-tionships between these. Understanding the full picture helps understand the cause of biodiversity loss, and to prioritise effective protection measures.

It helps you identify where best to act.

The linkage framework can be used to identify the most central, at risk, or vulnerable parts of the system, and what they affect or are affected by. This helps to target actions to protect aquatic ecosys-tems (e.g. focusing on specific human activities) and prioritise what to monitor (e.g. specific habitats or pressures).

It helps you mobilise the right stakeholders to protect biodiversity in your Natura 2000 site.

The linkage framework identifies which sectors impact your Natura 2000 site, and who benefits from it, which is useful for gathering their support and engagement.

It is useful for communicating the importance and value of biodiversity to stakeholders and financers.

The linkage framework provides a conceptual basis to discuss complex social-ecological systems and illustrate the importance of sustainable aquatic ecosystems with stakeholders.

> **TIP!** Seizing the opportunities of the LIFE Programme. The EU LIFE Programme aims to contribute to the implementation, updating and development of EU environmental and climate policy and legislation, through the co-financing of environmental projects that deliver value. The most recent LIFE programme (2014-2020) prioritises 'integrated projects', which support synergies between different policy objectives and sectors. This requires that socio-economic impacts on the environment are accounted for and measures are selected that provide the greatest benefits to environmental conservation to local stakeholders. The Linkage Framework can be useful for this task.

BEST PRACTICE: TIPS FOR APPLYING THE AQUACROSS LINKAGE FRAMEWORK

> **TIP!** Look beyond the borders of your Natura 2000 site – human activities beyond the boundaries of the site affect its biodiversity. The Linkage Framework can support collaboration with your Water Framework Directive and Marine Strategy Framework Directive-focussed colleagues by showing links between the parts of the system of interest for each policy.

> **TIP!** Mobilise existing information – this includes identifying data and stakeholder knowledge. Involving stakeholders in the development of the Linkage Framework increases accuracy and also supports buy-in and understanding.

> **TIP!** Don't get lost in the detail – while the tool captures considerable complexity, this can be paralysing and confuse communication. Focus on the key stories, elements, and links that come out. Here, working iteratively with stakeholders can help.

CASE STUDY EXAMPLE – FAIAL-PICO CHANNEL MARINE PROTECTED AREA, AZORES

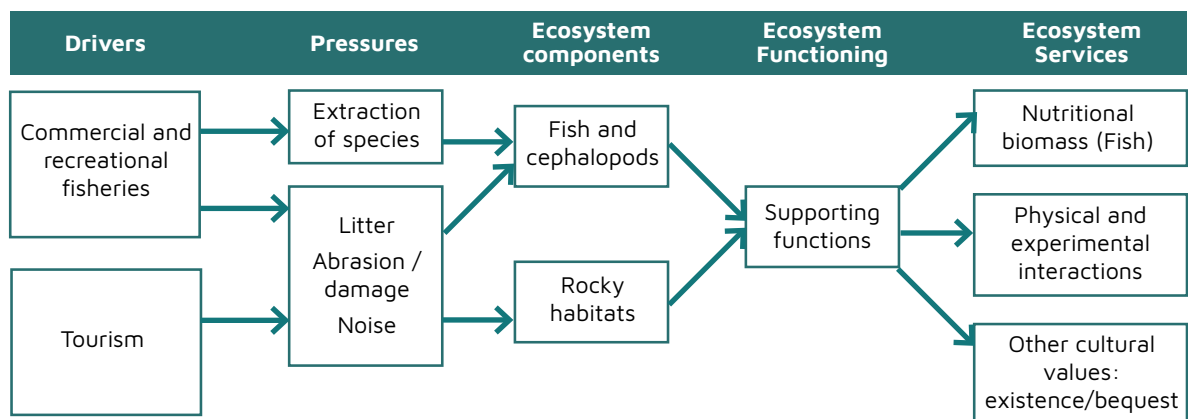| Drivers	Pressures	Ecosystem components	Ecosystem Functioning	Ecosystem Services
Commercial and recreational fisheries	Extraction of species	Fish and cephalopods	Supporting functions	Nutritional biomass (Fish)
Tourism	Litter Abrasion / damage Noise	Rocky habitats		Physical and experimental interactions
				Other cultural values: existence/bequest

Figure 4 Simplified version of the AQUACROSS linkage framework developed for the Faial-Pico Channel MPA in the Azores case study.

The AQUACROSS Azores case study (see Case Study: Azores) applied the Linkage Framework to manage the Faial-Pico Marine Protected Area (MPA), which includes Natura 2000 sites. The Linkage Framework was focussed on a broad spatial scale that extended beyond the MPA to include the neighbouring waters and towns. While fishing has the biggest impact on biodiversity, the Linkage Framework identified that tourism also has an impact, and is an important beneficiary of biodiversity. This suggested new policies for management, including a sustainability tax and/or diving fee to fund biodiversity monitoring. It was also useful to mobilise tourism stakeholders (diving operators), who now understood the importance of biodiversity protection for their business, and wanted to contribute to policy.

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:

- McDonald et al. (2018) Ecosystem-based solutions to solve sectoral conflicts on the path to sustainable development in the Azores. Deliverable 9.2, Case Study 8. European Union's Horizon 2020 Framework Programme for Research and Innovation grant agreement No. 642317. (Report and Executive Summary)

- 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)

- Teixeira et al. (2018) Assessment of causalities, highlighting results from the application of meta-ecosystem analysis in the case studies. Deliverable 5.2, European Union's Horizon 2020 Framework Programme for Research and Innovation grant agreement No. 642317. (Deliverable and Executive Summary)

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