How is the linkage framework useful for the Marine Strategy Framework Directive (MSFD)?

WHAT IS THE AQUACROSS LINKAGE FRAMEWORK?

The AQUACROSS Linkage Framework is a tool that may be used by marine and coastal managers and planners to understand how human activities may impact the ecosystem and the services it provides. It can be used at differing levels of complexity – as part of a risk-based approach to simply prioritise the threats that compromised the achievement of specific objectives (as emerged from the initial assessment), together with more quantitative approaches, to evaluate (parts of) the programme of measures (see Linkage Framework).

WHY IS THE AQUACROSS LINKAGE FRAMEWORK USEFUL FOR MARINE MANAGERS AND PLANNERS?

It helps to better understand the full picture.

The specific ecosystem components covered by Descriptors 1,3,4 and 6 of the MSFD do not exist in isolation but lie in strong connectionwith each other. The achievement of good environmental status is affected by multiple human activities taking place at sea and on land. The Linkage Framework helps identify those human activities (e.g. fishing) that place pressures (e.g. abrasion of the seafloor) affecting specific ecosystem components (e.g. specific habitats, fish). Understanding the full picture helps understand the main causes of marine biodiversity loss and hence prioritise effective mitigation measures.

It considers the cumulative effects of multiple pressures.

Through its 11 Descriptors, the MSFD considers a large number of different pressures (i.e. invasive species, contaminants, marine litter, underwater noise etc.) on different marine species and habitats (i.e. birds, fish, mammals, reptiles, seabed and water column habitats). The Linkage Framework accounts for these different pressures, species and habitats and therefore allows for a holistic marine state assessment in line with the requirements of the MSFD.

It helps you identify where best to act.

The linkage framework can be used to identify the most important ecosystem components, and how these are impacted. This helps to focus key elements for action (e.g. specific human activities) and achieve good environmental status and locate potential knowledge gaps in order to prioritise monitor programs (e.g. specific habitats or pressures).

It helps to structure socio-economic assessments (Article 24 of the MSFD).

The Linkage Framework connects economic activities to ecological functions and ecosystem services. In this way, the assessments can be targeted towards understanding social and economic drivers of the human activities that put pressure on marine ecosystems, and analyse which require mitigation as required by each Member States' Programme of Measures.

It is useful for communicating the complexity of the social-ecological system and the centrality and value of biodiversity to stakeholders and financers.

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

BEST PRACTICE: TIPS FOR APPLYING THE AQUACROSS LINKAGE FRAMEWORK

TIP! Look beyond the borders of your managed marine area – human activities on land and at the coast affect marine biodiversity, and vice versa. The Linkage Framework can support collaboration with your Water Framework Directive and Birds and Habitats Directive-focussed colleagues, by showing links between freshwater, coastal and marine systems and by providing a common terminology for understanding these systems. It can also assist coordination with nature managers (e.g. of Natura 2000 sites) whose biodiversity goals affect and are affected by marine environmental management and spatial planning.

TIP! Be clever in mobilising 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 details – while the tool may potentially capture considerable complexity, which can be paralysing and confuse communication, it can also be used to simplify the system so that it only includes the most relevant elements. Focus on the key stories, elements, and links that come out. Here, working iteratively with stakeholders can help.

CASE STUDY EXAMPLE – THE NORTH SEA

AQUACROSS's North Sea case study (see Case Study: North Sea) used the Linkage Framework (see Linkage Framework) to understand how key sectors in the North Sea (fisheries and renewable wind energy) are affecting local biodiversity, and in turn affecting the North Sea's ability to supply specific ecosystem services such as the provisioning of seafood or regulation and maintenance ecosystem services, including climate regulation or mediation of waste. The Linkage Framework focused attention on key activities and parts of the ecosystem. The risk assessment based on the Linkage Framework allowed the researchers to estimate the contribution of the different activities and their pressures to specific parts of the ecosystem, and to assess the likely impact on food and energy provision of different management measures (such as new fishing methods or protected areas).

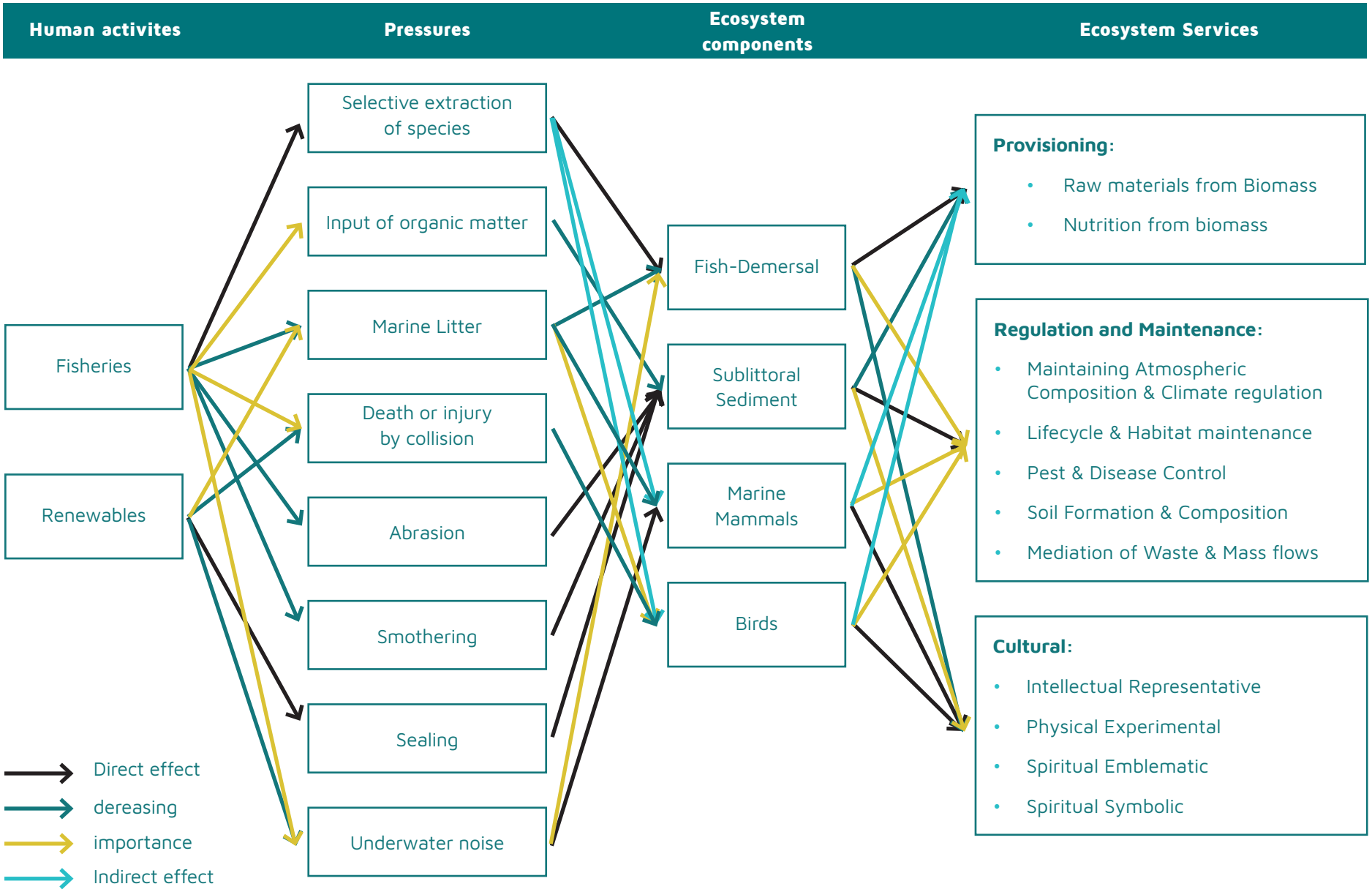

Figure 3 Simplified linkage framework for North Sea case study.

← Go to Brief #24: AQUACROSS Linkage Framework: Freshwater | www.aquacross.eu/results | Go to Brief #26: AQUACROSS Linkage Framework: Birds/Habitats →

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:

- Piet et al. (2018) Trade-offs in ecosystem-based fisheries management in the North Sea aimed at achieving Biodiversity Strategy targets. Deliverable 9.2, Case Study 1. 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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