

Ecosystem-based management to protect aquatic ecosystems: practical tools and lessons from AQUACROSS

AQUACROSS

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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

16 partners

Introducing AQUACROSS

- **Problem:** Biodiversity in Europe's lakes, rivers, coasts, and seas is plummeting due to human pressures – threatening human well-being
- **AQUACROSS objective**: Effectively, efficiently, and equitably protect aquatic biodiversity for benefit of society
- **How?** Integrative across aquatic ecosystem types, transdisciplinary science and practical examples and guidance

What's EBM?

ECOSYSTEM-BASED MANAGEMENT OF AQUATIC ECOSYSTEMS

What is ecosystem-based management?

Any management or policy options intended to restore, enhance or protect the resilience of the ecosystem

Ecosystem-based management helps to

protect aquatic biodiversity and the benefits that people receive from aquatic ecosystems. It involves tackling the threats facing aquatic ecosystems in an integrated way throughout the entire water system from source to sea.

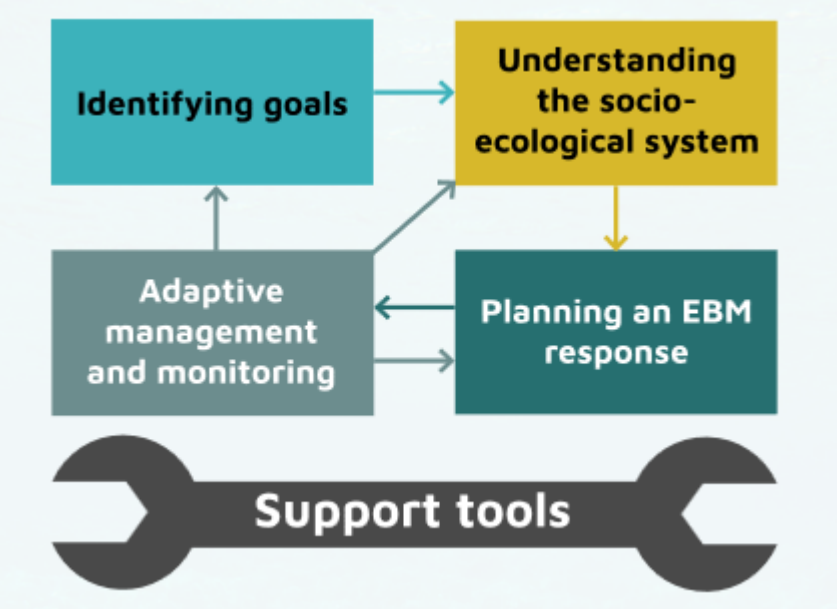
Benefits of ecosystem-based management

- Increased benefits for human wellbeing from ecosystems
- Improved ability of ecosystems to stay within environmental limits
- Increased ability to adapt to change
- Improved management of uncertainty
- Increased ability to meet multiple policy objectives

Key output 1: A practical guide to Ecosystem-based management: the AQUACROSS EBM cookbook

- **Cookbook** offers a short practical guide for policymakers and practitioners to apply ecosystem-based management to protect local aquatic biodiversity

  - Succinct **summary of AQUACROSS project** and **key lessons and conclusions**
  - **Interdisciplinary guidance** – combining economics, ecology, policy, and more
  - Based on AQUACROSS theory and practical EBM experience in **eight case studies**
  - Results **tailored to specific audiences**

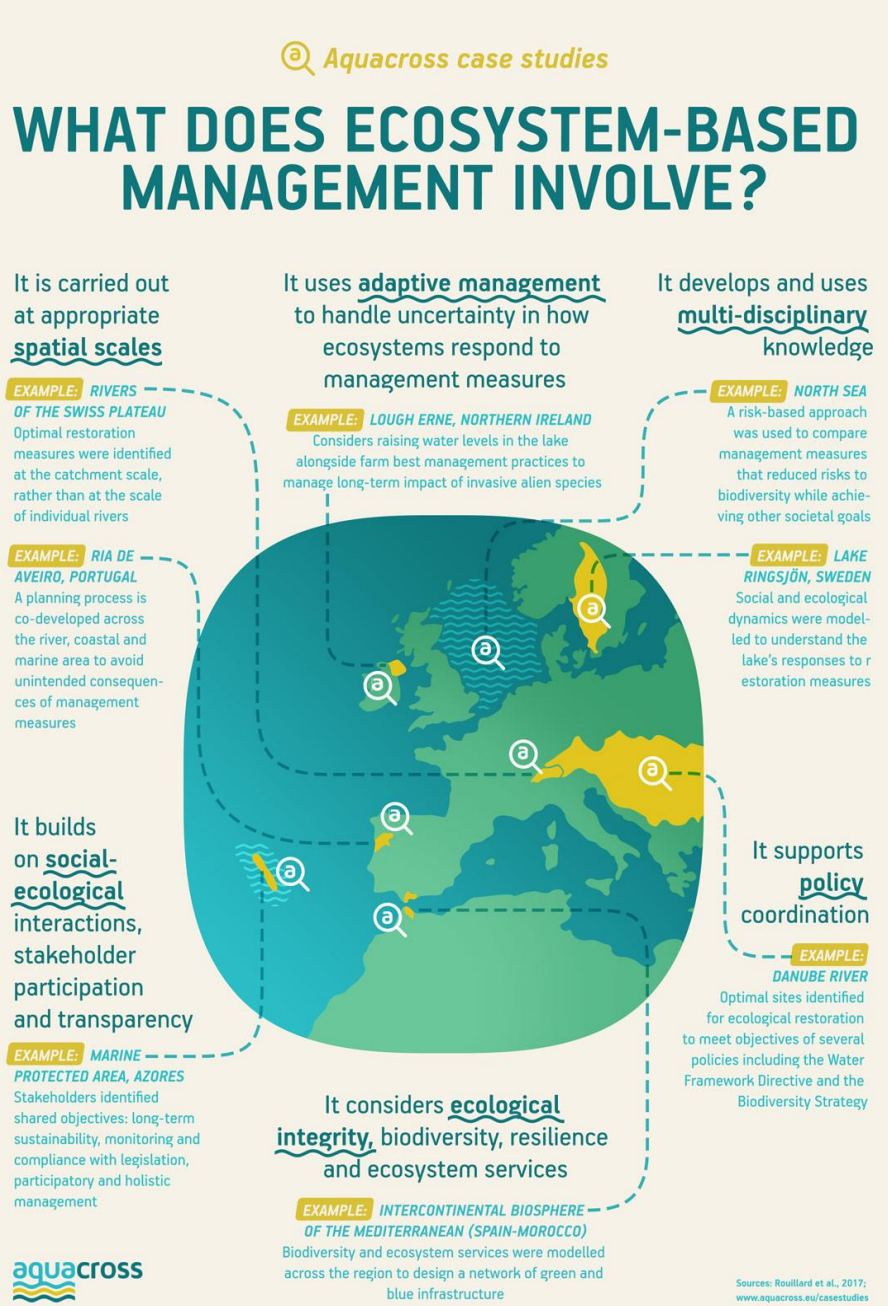


Ecosystem-based management cookbook: guidance section

https://aquacross.eu/results

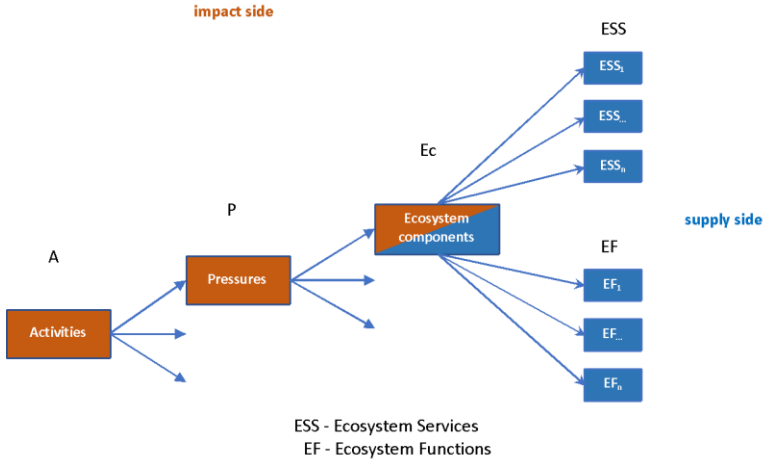
Key output 2: Practical examples of Ecosystem-based management

- AQUACROSS applied ecosystem-based management in eight case studies across Europe's lakes, rivers, coasts and seas.
- These practical examples of nature-based solutions provide evidence of usefulness of EBM, key challenges and lessons.
- More info:
  - https://aquacross.eu/casestudies
  - https://oppla.eu/aquacross-share-case-studies-oppla

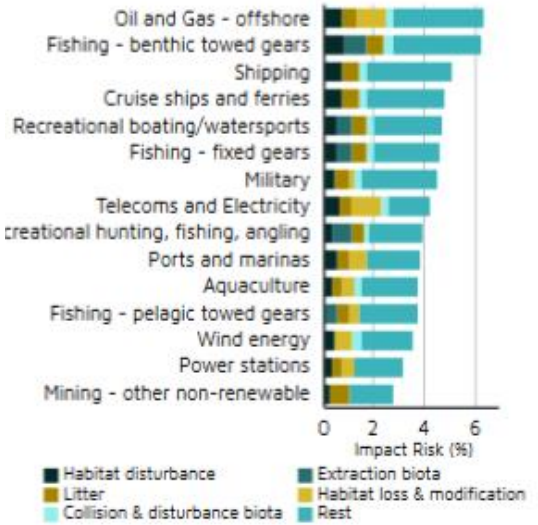


Key output 3: AQUACROSS Linkage Framework

- **What**? A methodological approach for understanding all interactions between human activities and ecosystem services in a particular ecosystem.
- **How**? Simple set of linked matrices in excel, to be completed by experts
- **Benefits**:
  - Visualise complex links between social and ecological systems linking Drivers and Pressures to State and Ecosystem Services indicators
  - Supports integrative management and prioritisation of key activities or ecosystem services



Structure of AQUACROSS Linkage Framework

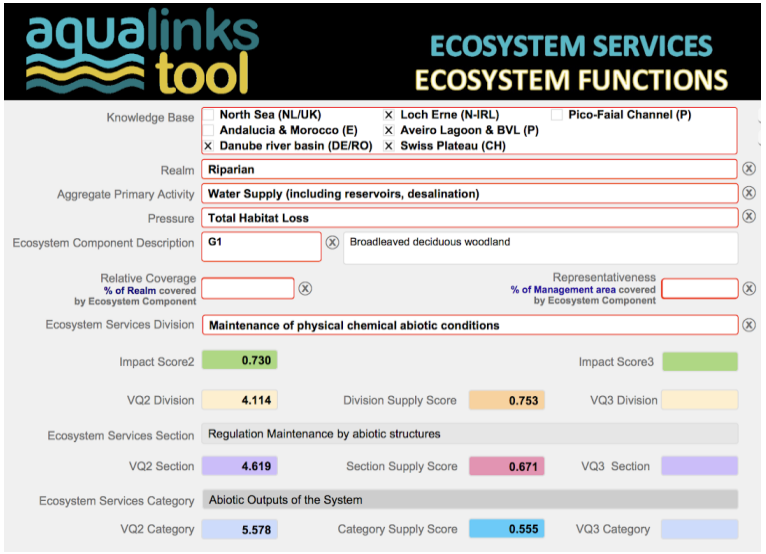


Example of Linkage Framework output - North Sea

More info: https://aquacross.eu/sites/default/files/D3_3_10.pdf

Key output 4: AQUALINKS tool

- **What**? A practical tool for understanding the vulnerability of habitats in an ecosystem, what human activities/pressures are driving this, and what ecosystem-services might be affected.
- Based on data from applying the AQUACROSS Linkage Framework in the eight case studies.
- **Benefits**:
  - Supports policy makers to understand complex links within ecosystems
  - Identify which management measures/policies will protect biodiversity.
- https://aquacross.eu/sites/default/files/D3_3_12.pdf
- https://zenodo.org/record/1101159#.XH04aqAo_ct



Screenshot of AQUALINKS tool and outputs

WHY IS THE AQUACROSS LINKAGE FRAMEWORK USEFUL FOR RIVER BASIN MANAGERS?

- It helps to better understand the full picture
- It helps you identify where best to act
- It incorporates aquatic biodiversity into river basin planning
- It helps to structure socio-economic assessments (under article 5 of the WFD)
- Link to Ecosystem Services can capture the broad values of multi-functional measures
- useful for communicating the added value of the Water Framework Directive to stakeholers and financers.

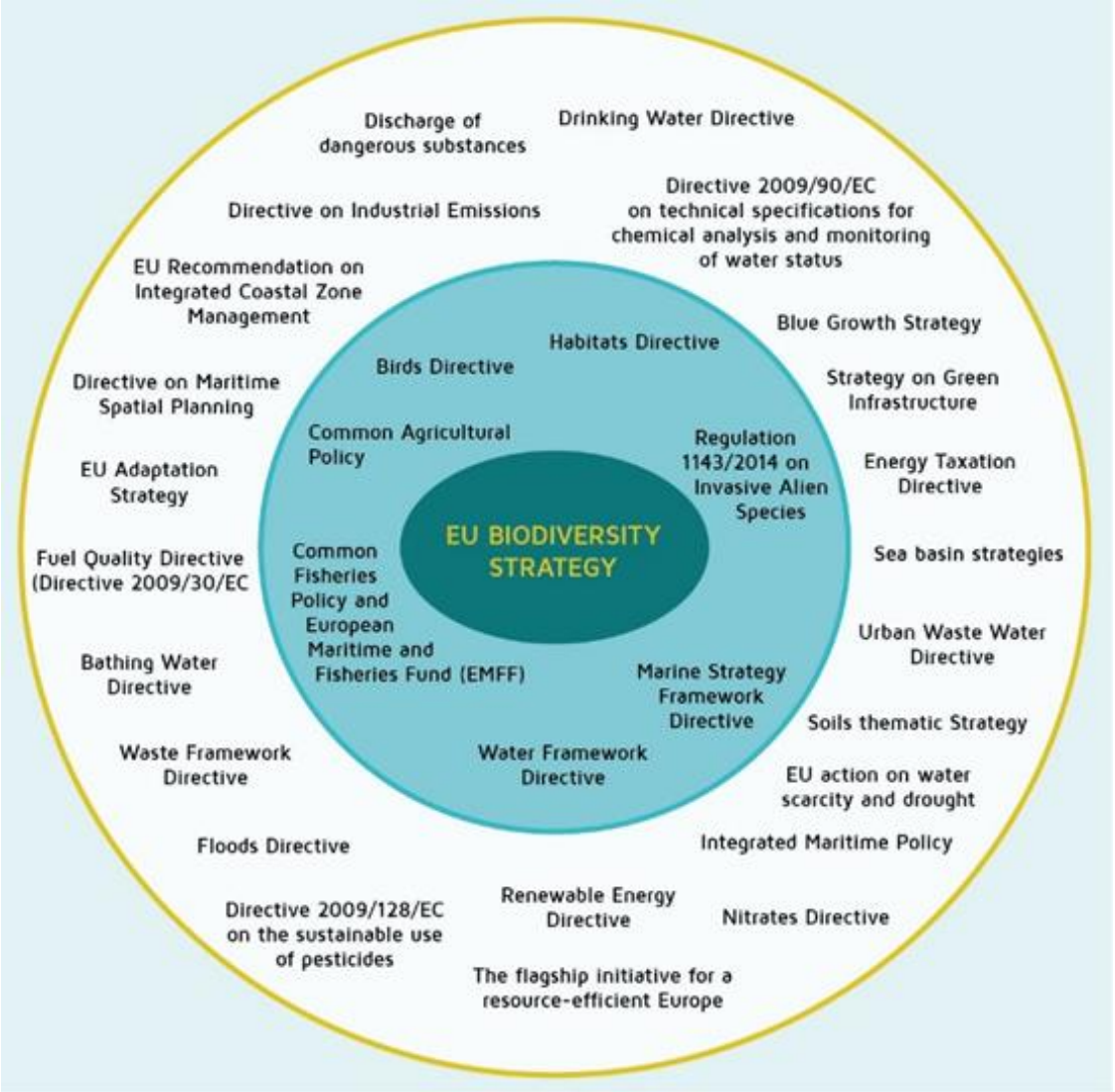
AQUACROSS: Further information

- **Website**: https://aquacross.eu/
- **Coordinators**: Manuel Lago, Ecologic Institute (Berlin, Germany)
- **Contact**: aquacross@ecologic.eu

– Please contact us if you would like more information. We are happy to discuss or present all aspects of the project – NEXT STOP:

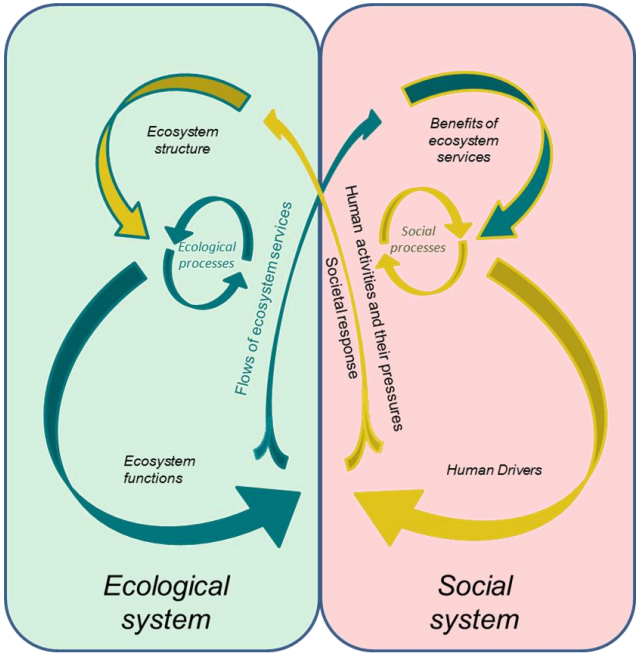
- web seminar on AQUACROSS results (27th June – 10:00 CEST) as part of the WFD Peer to Peer Commission project: http://www.aquacoope.org/peertopeer/en/project/p2p-webinar

EU Biodiversity Strategy



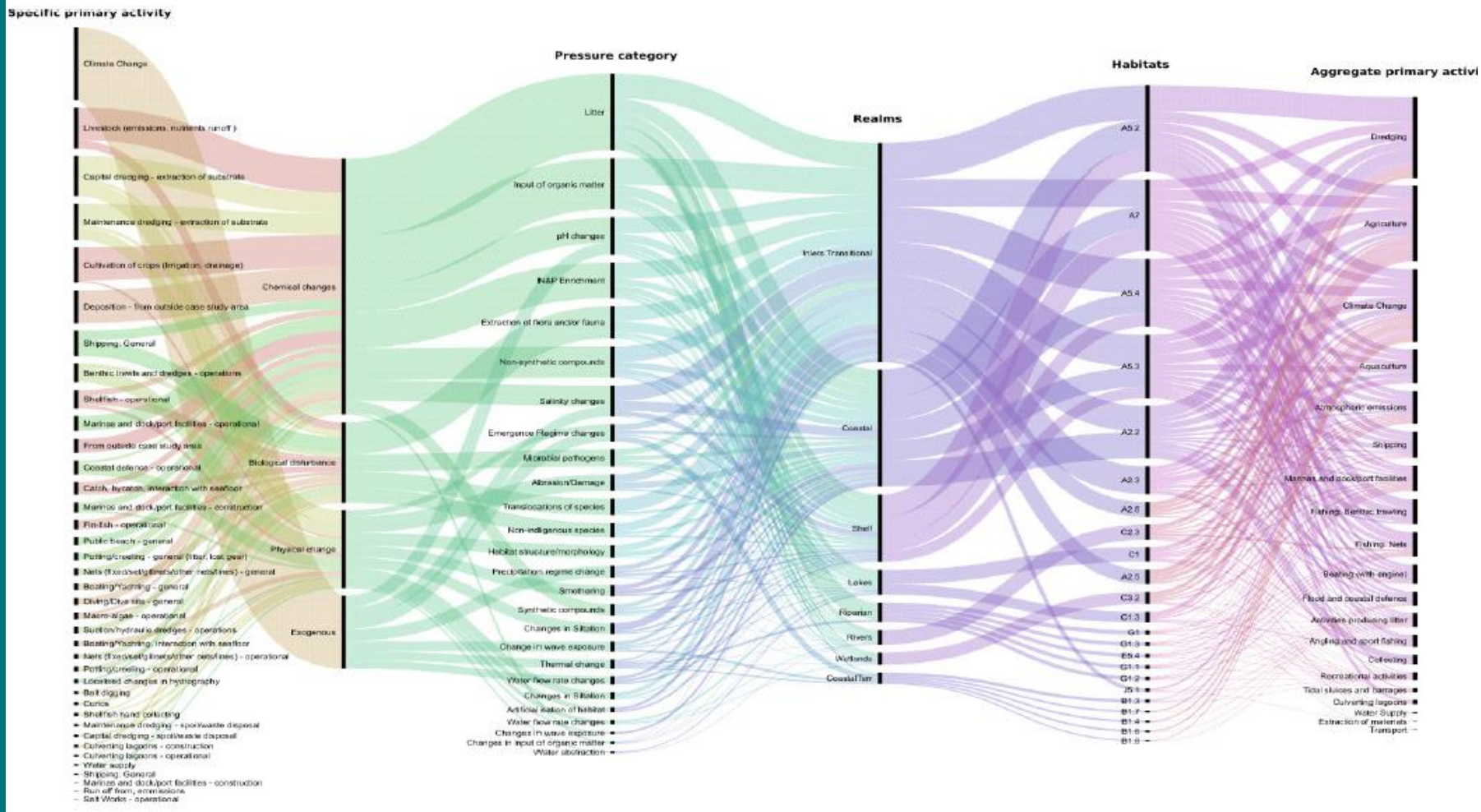
AQUACROSS EBM proposed strategies consider

1 EBM considers ecological integrity, biodiversity, resilience and ecosystem services	- joint value of all ecosystem services - protects the integrity of the ecosystem as a means to preserve ecosystem services and biodiversity - focus on multiple benefits or env. services
2 EBM is carried out at appropriate spatial scales	- taking into account ecosystem boundaries
3 EBM develops and uses multi-disciplinary knowledge	- understanding of the ecological and social systems to be managed
4 EBM builds on social-ecological interactions, stakeholder participation and transparency	- balance ecological and social concerns - prominence to transparent and inclusive decision-making - advance collective action by building consensus on a shared vision for the future (e.g. the array of ecosystem services to be preserved)
5 EBM supports policy coordination	- break silos and create new opportunities of pursuing different policy objectives simultaneously
6 EBM incorporates adaptive management	- ability to respond to a range of possible future scenarios.

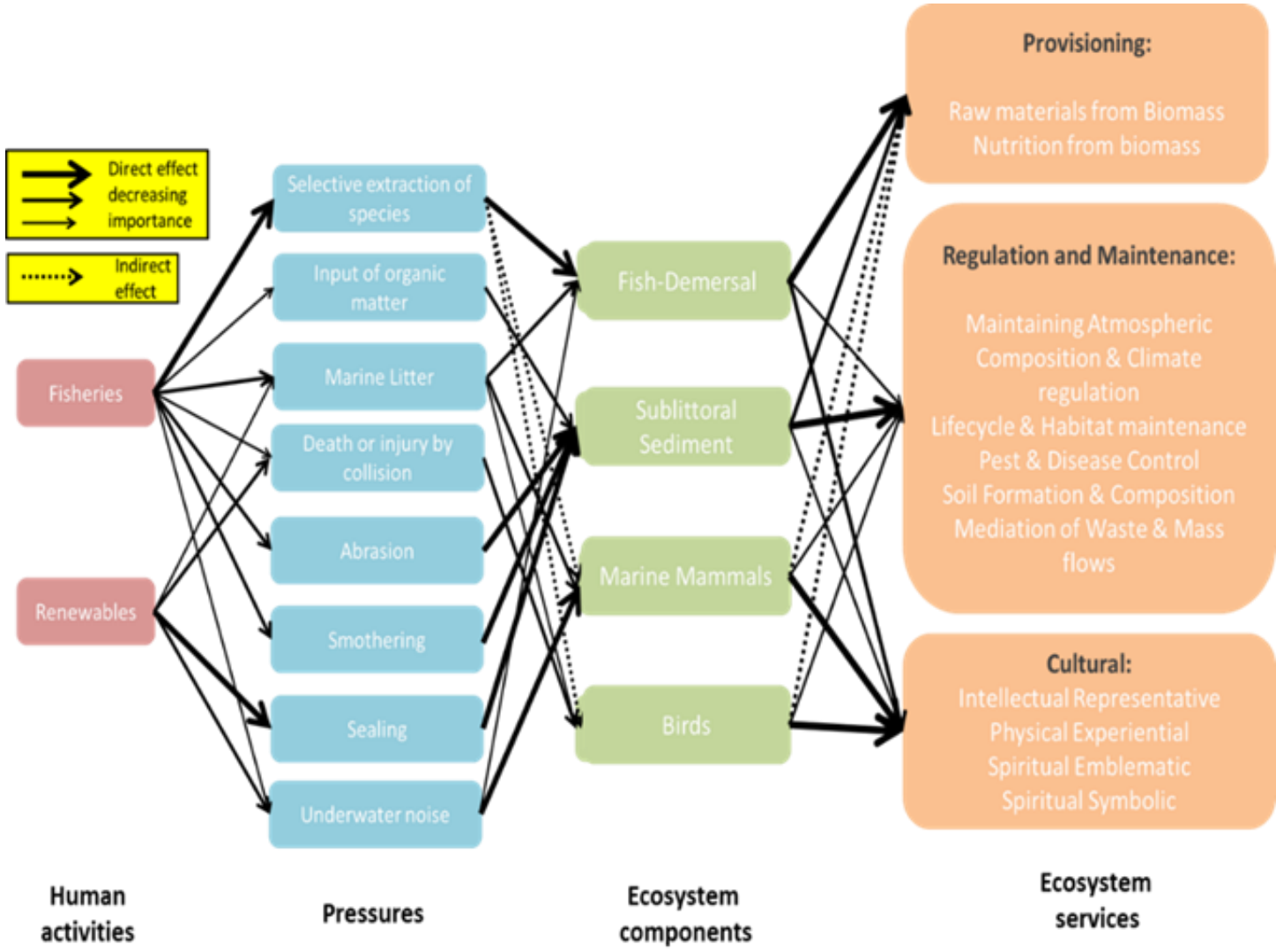


AQUACROSS ASSESSMENT FRAMEWORK

Linking drivers and pressures in the Vouga river coastal watershed



Simplified linkage framework for North Sea case study



Ecosystem Services – communication

Serviços dos Ecossistemas (seres vivos)

CULTURAL

INTERAÇÕES FÍSICAS E INTELECTUAIS COM O AMBIENTE

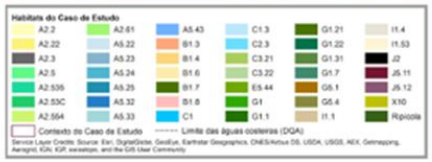
INTERAÇÕES FÍSICAS (CONTACTO DIRETO)

CÓDIGO
ESS_C_PhysIntel_PhysicalExperientialInteractions

SE10

DESCRIÇÃO
Interações físicas entre o Homem e a Natureza para fins de entretenimento

EXEMPLOS
Observação de aves, *snorkeling*, mergulho, caminhada, escalada, passeios de barco, pesca de lazer (pesca à linha) e caça de lazer



HABITAT(S) ONDE OCORRE:

A (A2.2, A2.22, A2.3, A2.5, A2.535, A2.53C, A2.61, A7)
Habitats marinhos
Praias, sapais costeiros, pradarias marinhas, bancos de areia, lodaçais e coluna de água

B (B1.3, B1.4, B1.6, B1.7, B1.8)
Dunas costeiras
Dunas herbáceas, arbustivas e arbóreas (pinhal litoral)

C (C1, C1.3, C2.3, C3.21, C3.22)
Lagos, Rios e Zonas húmidas de água doce
Lagos, rios, juncais e caniçais dulçaquícolas

E5.44 e G1 (G1.1, G1.21, G1.22 G1.31)
Habitats ripícolas
Habitat ripícola arrelvado, bosque paludoso, amial ripícola, ulmeiros e freixos

J5 (J5.11, J5.12)
Habitats construídos, industriais e artificiais
Aquacultura e Salinas (Marinhas)

X10
Bocage
Mosaico de campos de cultivo e pastagens

Serviços dos Ecossistemas (seres vivos)

PROVISIONAMENTO

NUTRIÇÃO

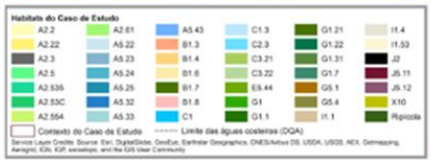
BIOMASSA

CÓDIGO
ESS_P_Nut_Biomass

SE5

DESCRIÇÃO
Produção de bens alimentares

EXEMPLOS
Peixes de água doce (sável); Peixes migradores (enguia, lampreia); Peixes de água salgada (solha, robalo); Marisco (crustáceos, moluscos); Cereais (arroz, trigo, milho); Aquacultura (dourada, robalo, ostras, bivalves)



HABITAT(S) ONDE OCORRE:

A (A2.2, A2.22, A2.3, A2.5, A2.535, A2.53C, A5.22, A5.23, A5.25, A5.32, A5.33, A5.43, A7)
Habitats marinhos
Praias, sapais costeiros, bancos de areia, lodaçais, sedimento infralitoral e coluna de água (ria e mar)

C (C1, C1.3, C2.3)
Lagos e Rios
Lagos, lagos permanentes eutrofizados e rios

E5.44 & G1 (G1.1, G1.21, G1.22 G1.31)
Habitats ripícolas
Habitat ripícola arrelvado, bosque paludoso, amial ripícola, ulmeiros e freixos

I1 (I1.1, I1.5)
Agricultura
Terrenos aráveis e cultivados, pousios.

J5 (J5.11, J5.12)
Habitats construídos, industriais e artificiais
Aquacultura e Salinas (Marinhas)

X10
Bocage
Mosaico de campos de cultivo e pastagens