

Applying a Natural Capital Approach from Source to Sea: Blackwater and Colne Case Study



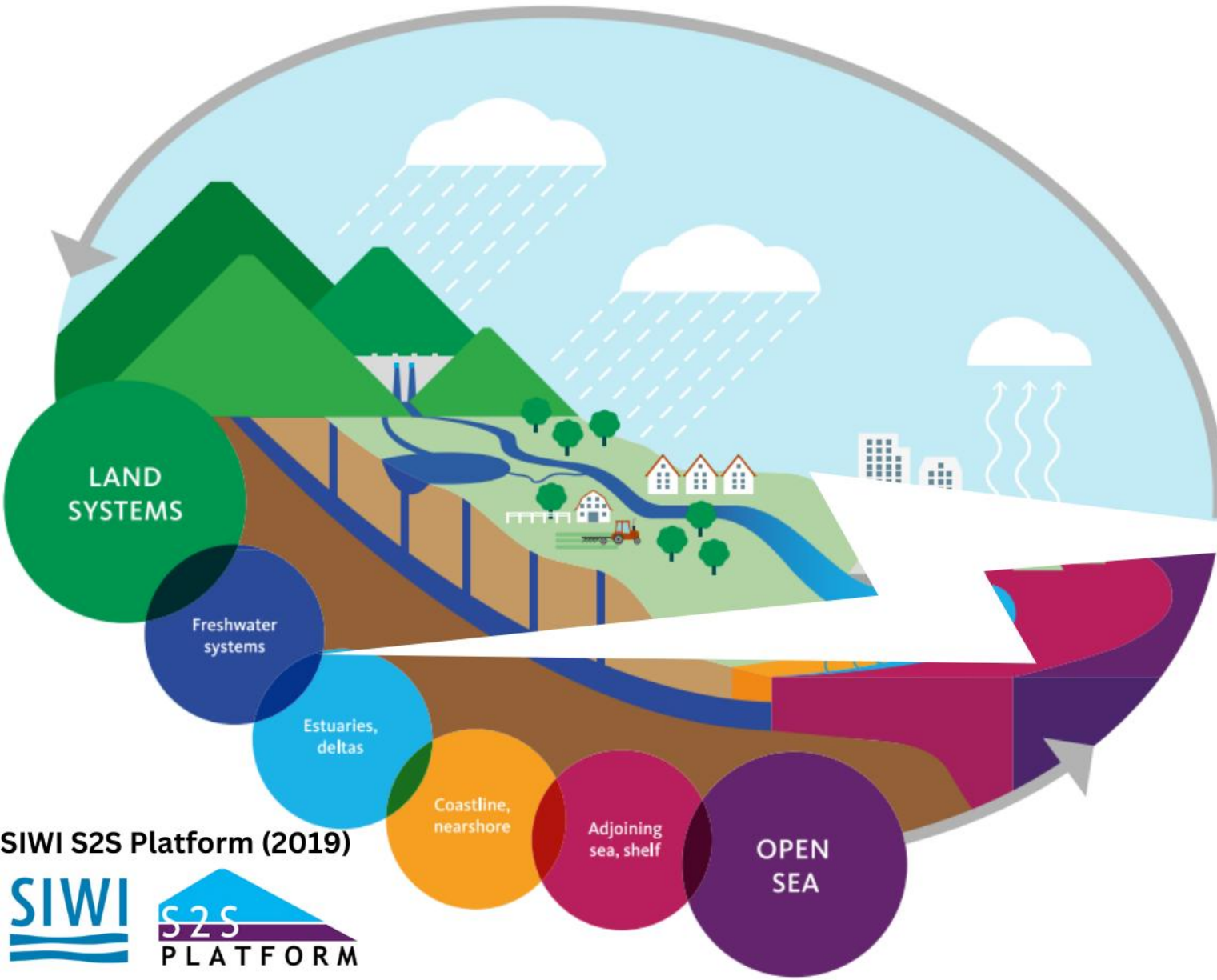
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Applying a Natural Capital Approach from Source to Sea: Blackwater and Colne Case Study



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Why do we need to take a Natural Capital approach from Source to Sea?



SIWI S2S Platform (2019)

Our **water environment is single system**

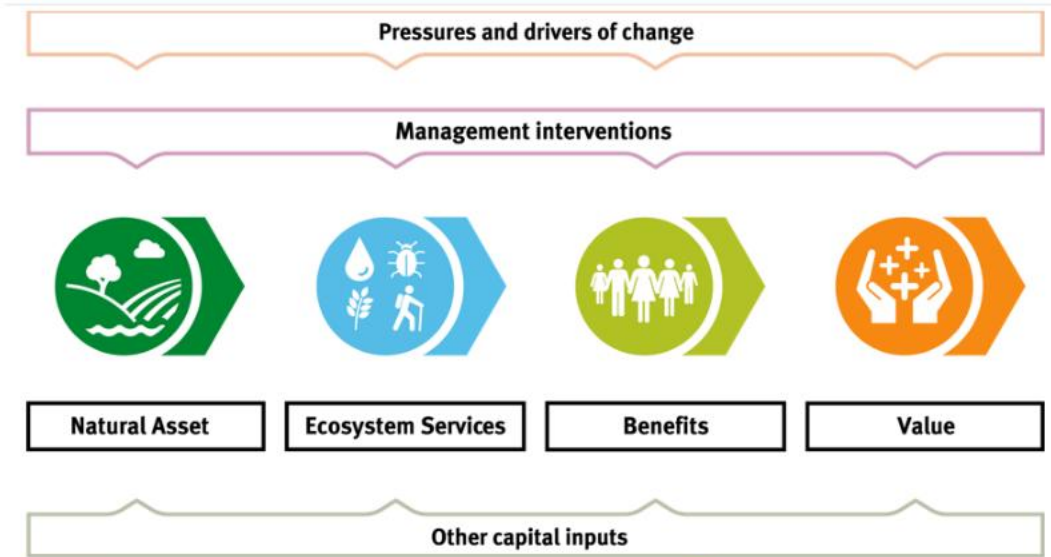
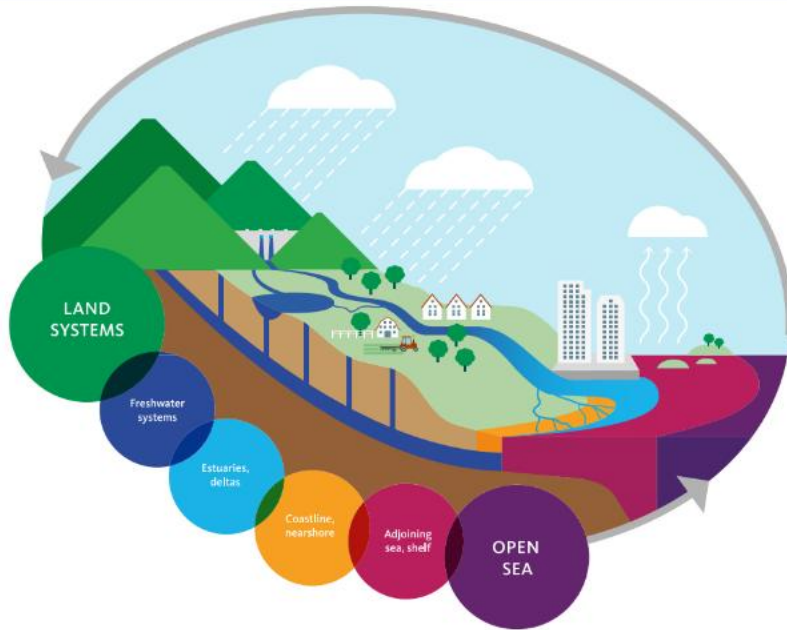
- it includes the land area that is drained by a river system, lakes and tributaries, connected aquifers and downstream recipients including estuaries, coastlines and near-shore waters, the adjoining sea and continental shelf as well as the open ocean.

BUT the way we manage it is not!

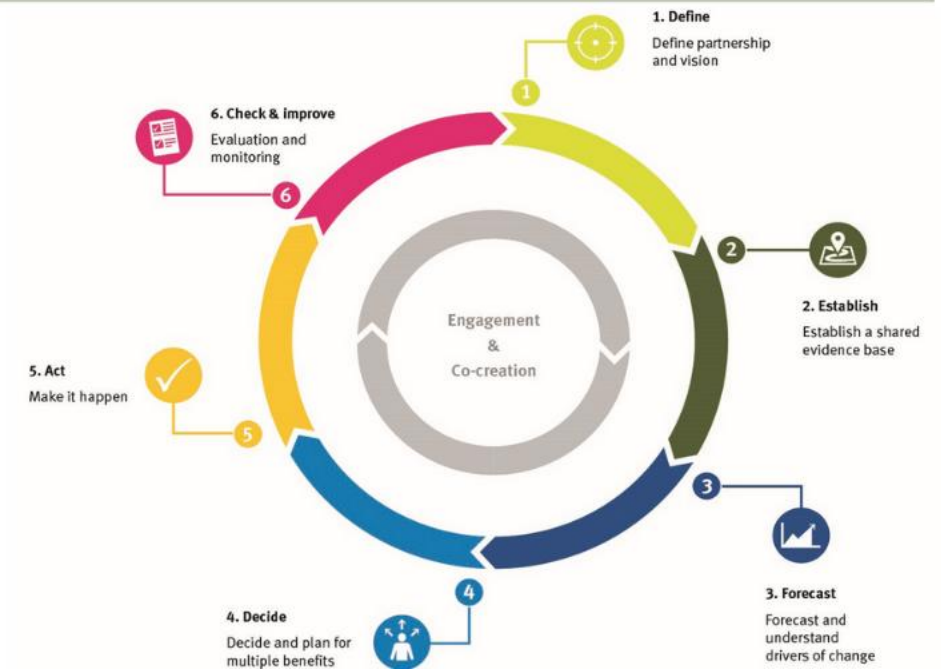
There is a **disconnect** in the monitoring, reporting, regulating and funding between freshwater and estuaries, coasts and the sea.

AND management is approached from singular priorities.

Why do we need to take a Natural Capital approach from Source to Sea?



A framework that connects the water environment **from source to sea** with other asset attributes, pressures, ecosystem services and the value resulting benefits provide to society.



A natural capital approach: Saltmarsh



Non-monetary
value is also
important

Natural Asset

- Quantity
- Quality
- Location
- Ecosystem processes and functions

Ecosystem Services

- Carbon uptake
- Storm buffer
- Sediment trap
- Fish nursery area
- Habitat for waterbirds
- Recreation

Benefits

- Climate regulation
- Flood prevention
- Water quality
- Physical and mental health

Value

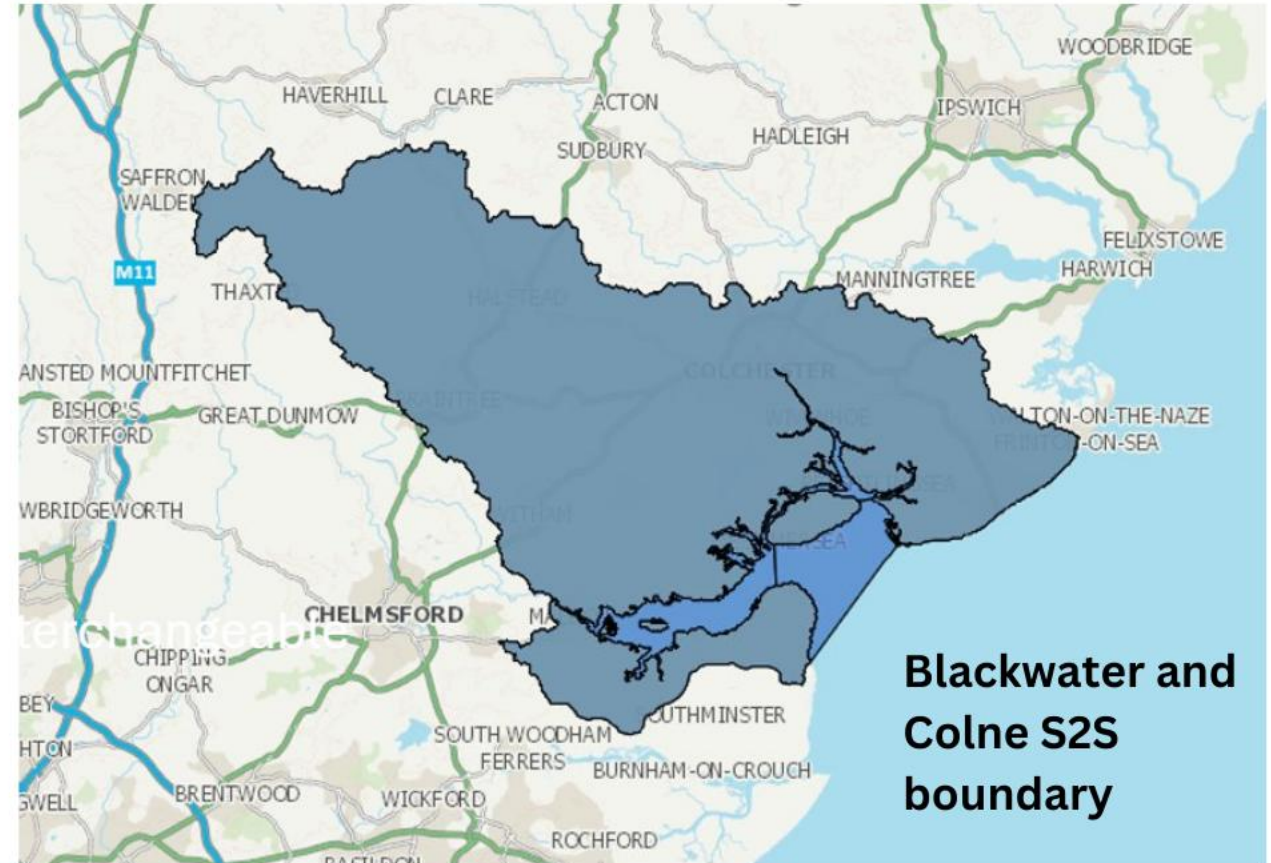
- Carbon trading
- Avoided costs of flooding
- Cost of water treatment
- NHS savings

Environmental data

Social data

Economic data

Blackwater & Colne case study



~60% is agricultural land but it is rich in natural assets.



Pressures from a growing urban population and limited water supply.



Strong partnership - including The University of Essex, Essex County Council, eNGOs, water companies and farm clusters.



Carbon net zero targets and one of the first Local Nature Recovery Strategies (LNRS)

Blackwater and Colne case study: Sense of Place

H. Wildfowling, on my own with my dog, at dusk and dawn, mainly watching the world go by but possibly harvesting a duck. Otherwise watching and listening the birds, especially the coastal dawn chorus. **High nature connectivity.**

I. Fingringhoe wildlife visitor centre. Fabulous place to **interact with the wildlife and wild places** of the Blackwater / Colne marshes



B. Cymbeline Meadows on the River Colne. Not just a nice section of river upstream from our abstraction but shows **partnership working** to help protect the water quality.



D. Wivenhoe. I love the **tranquillity of the estuary** at sunset or sunrise.



G. Working with farmers and wildflowers to improve resident duck nest success on the Blackwater and Colne.

F. Maldon oyster farm - the only one doing tressel oyster farming - where rock oysters are the key crop. Which brings challenges - as it's a non-native species. But it is a key **resource for employment** throughout the estuaries



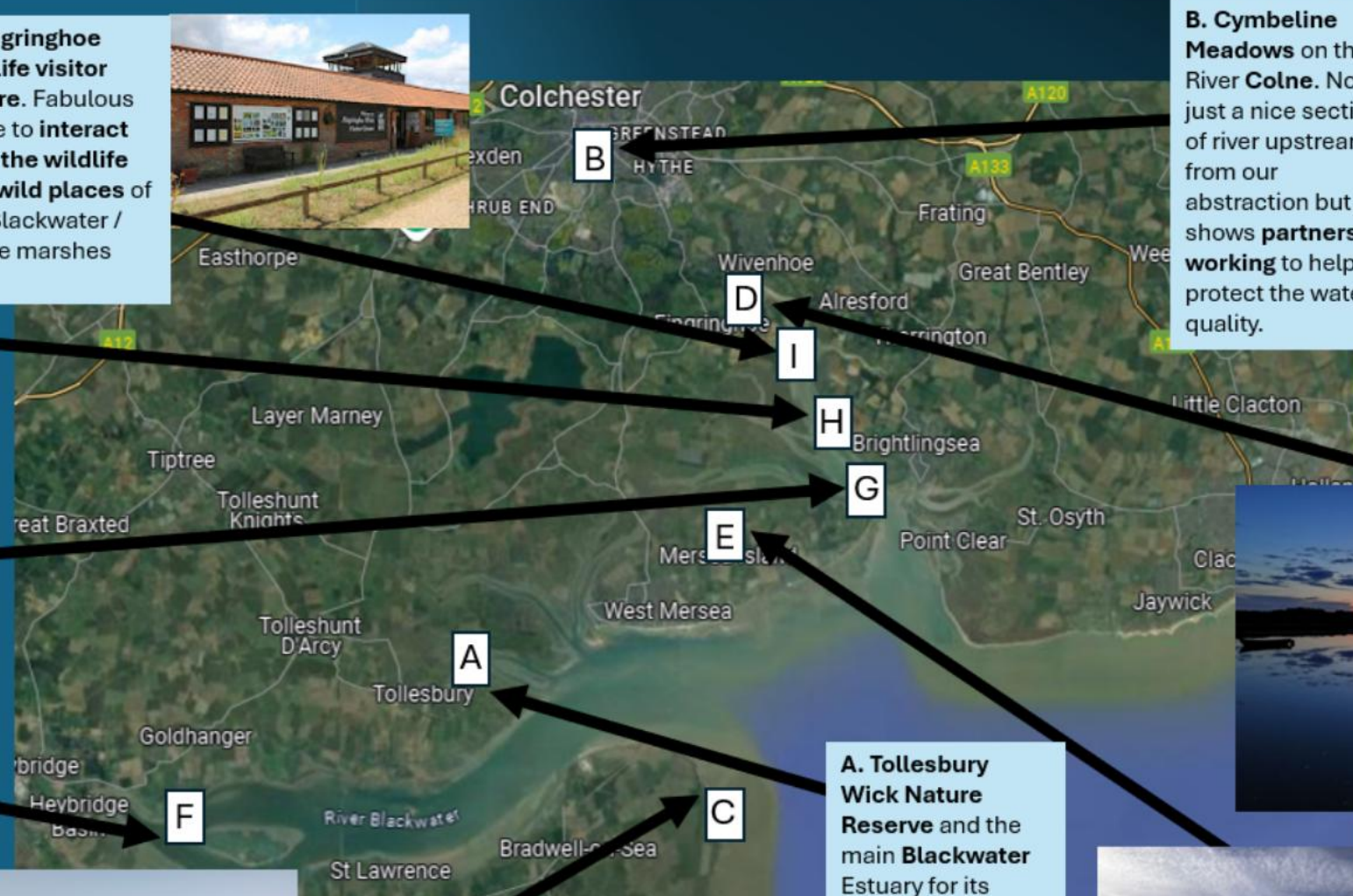
C. Bradwell on Sea chapel of St Peter's - **wild, quiet, close to nature, winter family walks.**



A. Tollesbury Wick Nature Reserve and the main **Blackwater Estuary** for its **saltmarsh and coastal grazing habitats** plus the **wildlife** it supports. Highly designated estuary.



E. Mersey Island - recreation, day trips out, **connection to the coast and local livelihoods** (love the local and fresh oysters)



**Source to Sea
systems
understanding**

**Natural
Capital
baseline of
estuary and
coast**

**S2S Integrated
Appraisal**

**EA NCEA S2S
data,
evidence,
indicators &
metrics**

Understanding and embedding a S2S approach

Understanding the seascape

University of Essex have been developing a detailed NC baseline for the **sea** part of our S2S project.

Improving understanding of:

- the relationship between asset **quantity, quality, location**, and **connectivity** and the provision of ecosystem services.
- the upstream pressures impacting this area.

Prioritise habitat restoration for maximum ecological and economic benefits.



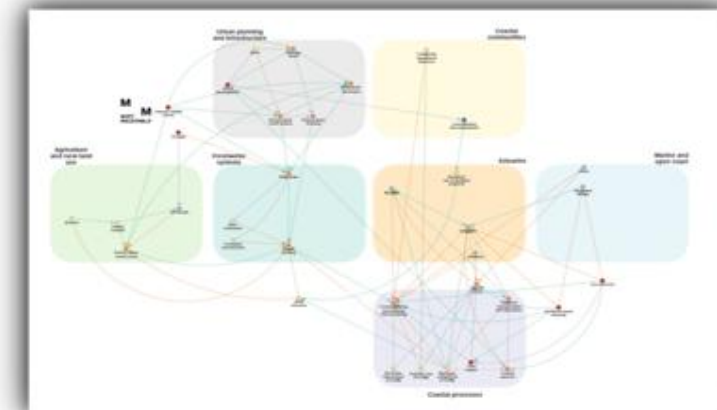
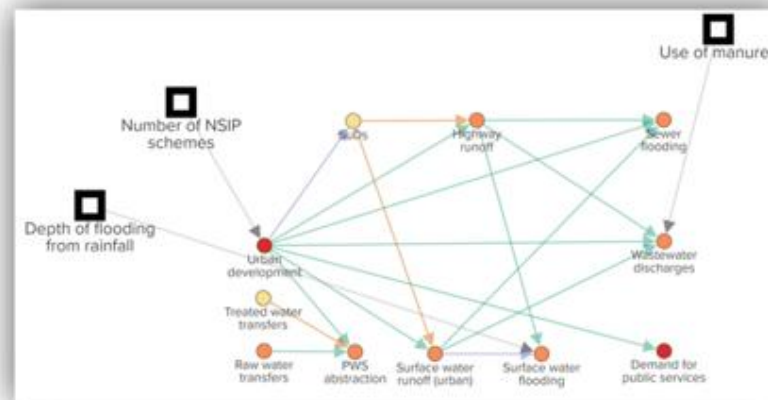
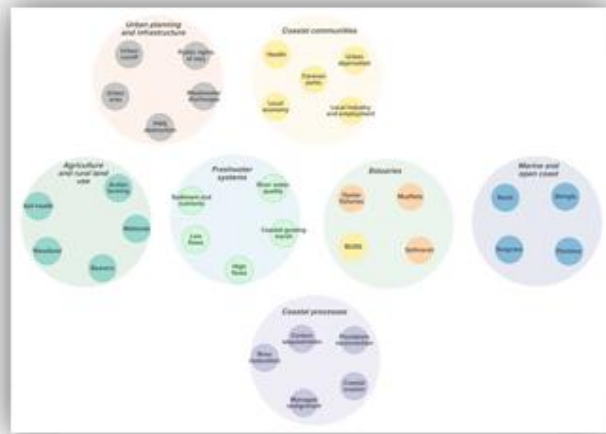
Image, Terry Joyce

S2S Systems mapping

Step 1: Scoping and sub-system maps

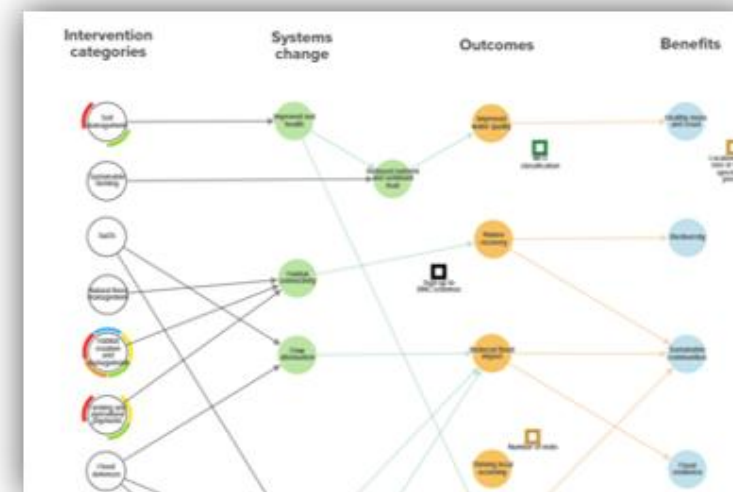
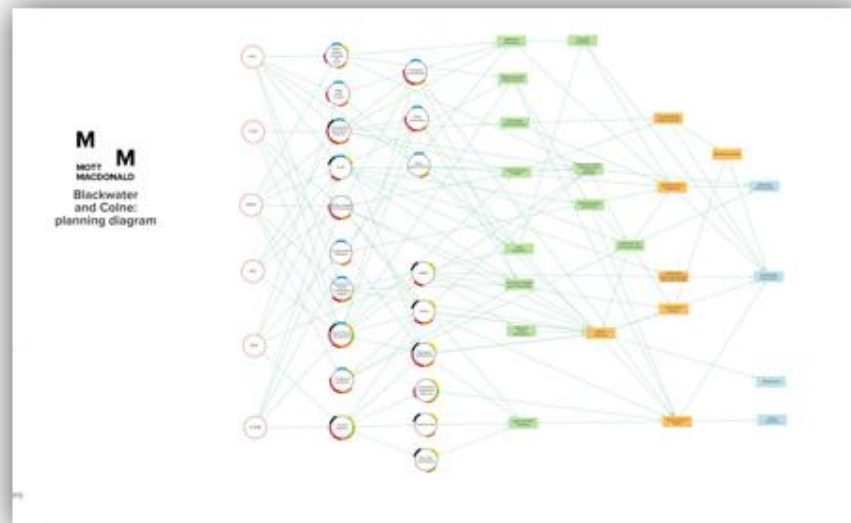
Step 2: Review sub-system maps

Step 3: Integration workshop



Step 5: Validation workshop

Step 4: Planning diagram



Blackwater & Colne case study: Integrated Appraisal

JBA
consulting



Natural Capital Approach



Natural Capital
and Ecosystem
Assessment



Water quality first

Management will focus on improving water quality



Biodiversity first

Interventions will prioritise maximising natural assets from S2S



Coastal erosion and flood risk first

Reduce the risk of coastal erosion and flooding

Combined S2S Option

Interventions will focus on maximising the benefits across all priority ecosystem services **from S2S**

Combined Option - excluding estuaries & coasts

Interventions will be applied in the catchment only - not the estuarine and coastal waters - to highlight the additional value a S2S approach brings



The **Integrated Appraisal** options will apply **Nature Based Solutions (NbS)** as interventions to manage the S2S area for different priority ecosystems services, while recognising that multiple benefits will be realised.



We will use a combination of qualitative and quantitative evidence to understand the multiple benefits each option provides.



Local

Blackwater & Colne S2S Area

- Understand assets, how improving them boosts ecosystem services, and the value of these benefits.
- Identify key pressures and opportunities to reduce or eliminate them.

Use the outputs from UoE, the SM and the IA to build business cases and secure collaborative funding for implementing on-the-ground interventions.



Wider application

Apply framework in another S2S area

- Assess the effectiveness of the S2S approach in the Blackwater & Colne.
- Plan the development of tools to improve usability for S2S.
- Select a new S2S site to test the approach's robustness.

Develop a proven method to apply the NC approach from S2S in a new location, incorporating lessons learned, and ensure it can be implemented in-house using existing data and NC/NCEA tools.



Strategic

Integrate into the development of Future Water Framework

- Use insights and tools from the S2S work and other NC catchment projects to create a framework that addresses a variety of strategic challenges.

Identify opportunities to embed the NC S2S approach into the Future Water Framework for more holistic management of the water environment.

Timeline, challenges, next steps



Challenges so far

- Existing tools
 - use broad habitat quantity not quality;
 - limited marine evidence and data.
- Limited evidence of the effectiveness of Nature Based Solutions.
- Limited evidence of impact of upstream interventions on downstream assets without specialist modelling.

Next steps

- Use the evidence and learning from the S2S work to inform future plans for water management.
- Continue to take further steps towards achieving the aims (previous slide):
 - Publish;
 - Communicate;
 - Embed.

Big thank yous to....



Laura Hayton



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Mike Nelson



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Roger Proudfoot



Graham Underwood
and team



Brendan, Justin,
Kate & Xanthe



Jenny, Lydia,
Steph & Angus



Thank you!
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Some of the Blackwater & Colne partnership at Abbott's Hill Farm marshes (Essex Wildlife Trust HQ), Sept 2024

