CORPORATES: Cooperative <u>Participatory</u> Evaluation of Renewable Technologies on Ecosystem Services

www.corporatesproject.co.uk



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NERC KnowledgeExchange (KE)Biodiversity &EcosystemServiceSustainability(BESS)

The times they are a changing.....



GOAL of CORPORATES

To introduce <u>Ecosystem Services</u> and to design, with Stakeholders, methods (<u>a decision-support framework</u>) which address potential <u>ecological trade-offs</u> such as, climate change, marine renewable developments and MPAs

Series of 2 Workshops with Stakeholders Participation- not just consultation.

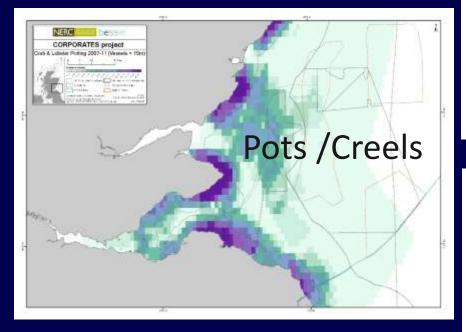
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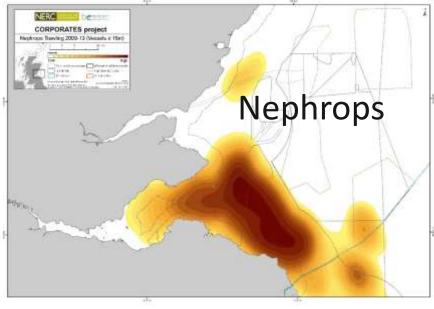


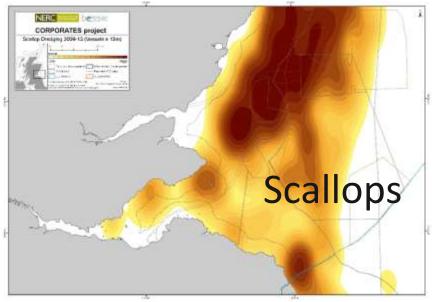
Montrose Bank

Energy Security and Climate Change = Offshore Renewables Loss of Biodiversity and need for resilience under Climate Change = Marine Protected Areas (MPAs)

Fishing in FOF







MSFD = Ecosystem Approach <u>REACTIVE to PROACTIVE</u>

PROBLEM: Ecosystems are complex and we don't understand exactly how they work

Bring in the use of "Ecosystem services" Which are the main outcomes of functioning ecosystems

What are ecosystem services?

Food

Habitat

Stewardship

Photosynti

Soil Forma

SUPPORTING

CULTURAL

Ecosystem Services What Nature provides us for free

Clean Air

Education

Recres

Clean Water

Cool Temperatures

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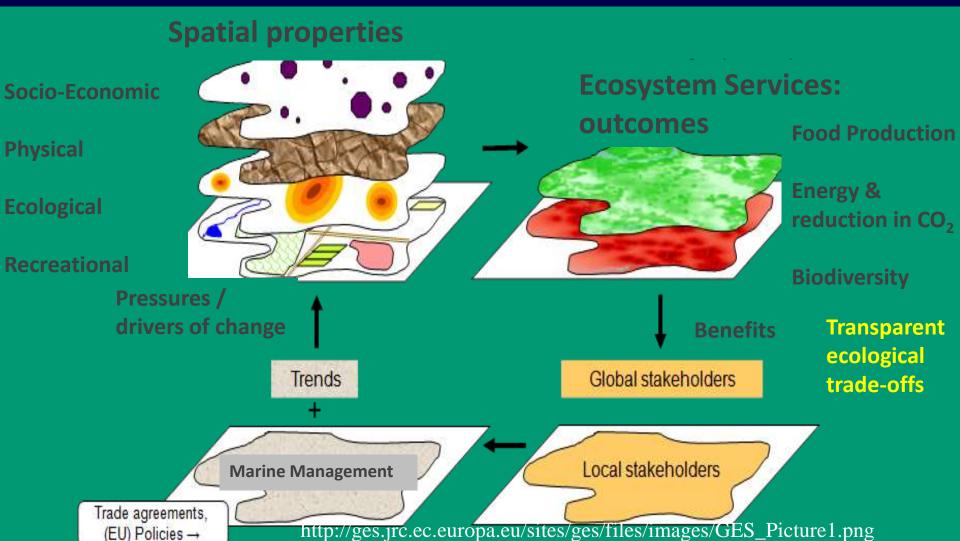
Store Carbon

PRC

LISIONING.

REGULATING

At the moment – from SEA through EIA process Use of multiple layers of information. How are trade-offs made?



Exercise 1: Mapping (S) - then Benefits (M)



List of Benefits

Benefit	Sector
Family continuity	Fishing/Maritime
Learning about immediate environment	Fishing/Maritime
Feel good factor/satisfaction – My hobby is my work	Fishing/Maritime
Daily life in peripheral communities	Fishing/Maritime
Employment opportunities	Fishing/Maritime
Provision of employment	Fishing/Maritime
Use of natural resources to make a living	Fishing/Maritime
Contribute to local economy	Fishing/Maritime
Employment in infrastructure	Fishing/Maritime
Historical markets: Spectacle in modern times - Tourist	
attraction	Fishing/Maritime
Cultural heritage	Fishing/Maritime
Food provision	Fishing/Maritime
Fishing catch as local delicacy	Fishing/Maritime
Food as a nutrition	Fishing/Maritime
Food exports	Fishing/Maritime
Salmon & Sea trout recreation	Fishing/Maritime
Salmon & Sea trout food	Fishing/Maritime
Salmon & Sea trout as cultural heritage	Fishing/Maritime
Tourist industry & employment	Fishing/Maritime
Scotland's history	Fishing/Maritime
Infrastructure and main fuel access points	Fishing/Maritime
Community preservation/sense of community	Fishing/Maritime
Renewable energy generation	Renewables
Reduction of carbon emissions	Renewables
Contribution towards mitigation of climate change	Renewables

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Job creation (operation, manufacturing, maintenance)	Renewables
Infrastructure associated to renewables (e.g. Fife Energy	
Park)	Renewables
Employment/ Job creation	Recreation & Tourism
Economy	Recreation & Tourism
Tourism & economic	Recreation & Tourism
Wealth – via property prices	Recreation & Tourism
Education/Knowledge	Recreation & Tourism
Contributing to Science/research/academic study into	
ecological receptors	Recreation & Tourism
Weather event	Recreation & Tourism
Seasonal	Recreation & Tourism
Relaxation/Calm/Enjoyment/Leave problems behind	Recreation & Tourism
Friendships (working with groups on projects)	Recreation & Tourism
Shared experience	Recreation & Tourism
Long term friends	Recreation & Tourism
Social interactions/development	Recreation & Tourism
Youth activities	Recreation & Tourism
Personal development	Recreation & Tourism
Fitness/physical fitness	Recreation & Tourism
Testing your limits	Recreation & Tourism
Adventure	Recreation & Tourism
Well-being/Spiritual wellbeing	Recreation & Tourism
Freedom/Escape	Recreation & Tourism
Health/fresh air	Recreation & Tourism
Understanding heritage	Recreation & Tourism
Sporting success	Recreation & Tourism
Environmental appreciation	Recreation & Tourism
Nature/Closeness to nature	Recreation & Tourism
Introduces people to new activities and environments	Recreation & Tourism
Enjoying the scenery	Recreation & Tourism
Experience natural environment	Recreation & Tourism
Get away from man made things	Recreation & Tourism
Closeness to nature	Recreation & Tourism
closeness to nature	Recreation & rounsin
History (uncovering history)/ Natural history awareness	Recreation & Tourism
Mental challenge/Good for your soul	Recreation & Tourism
Food	Recreation & Tourism
Renewable electricity	Recreation & Tourism
Play with boys toys (underwater photography)	Recreation & Tourism
Enjoyment of the natural world	Conservation & Ecological (Human)
Wildlife tourism (Isle of May/Bass Rock)	Conservation & Ecological (Human)
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Social interactions/development	Recreation & Tourism
Youth activities	Recreation & Tourism
Personal development	Recreation & Tourism
Fitness/physical fitness	Recreation & Tourism

W1 Exercise 2 Categorising Benefits Exercise 1



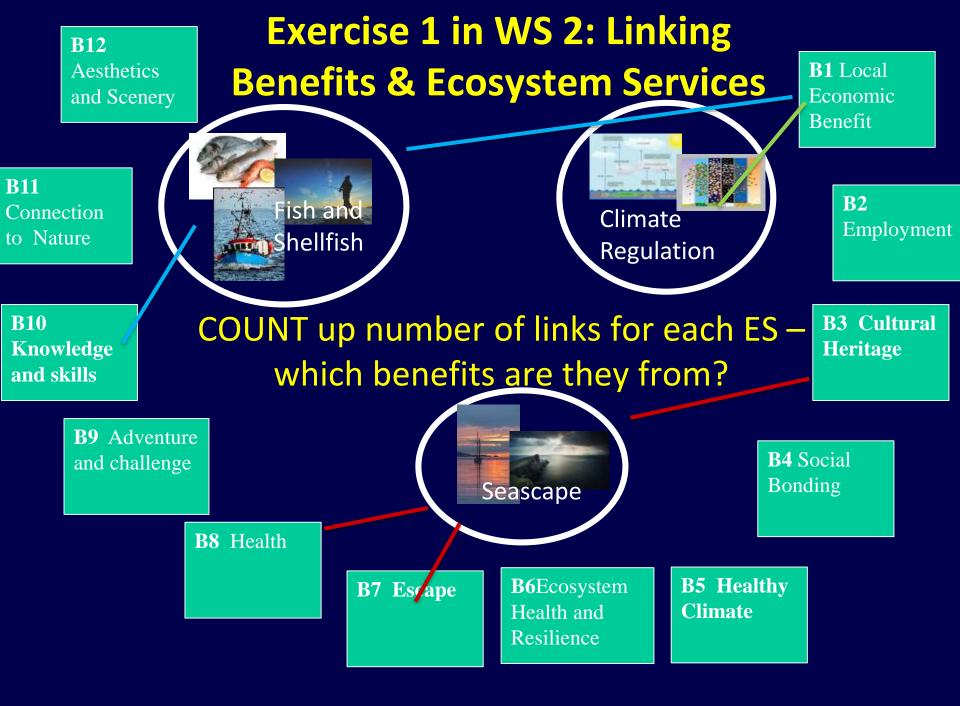
Workshop 2 is about translating between Benefits and Ecosystem services: 3

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Leading to transparent ecological trade-offs

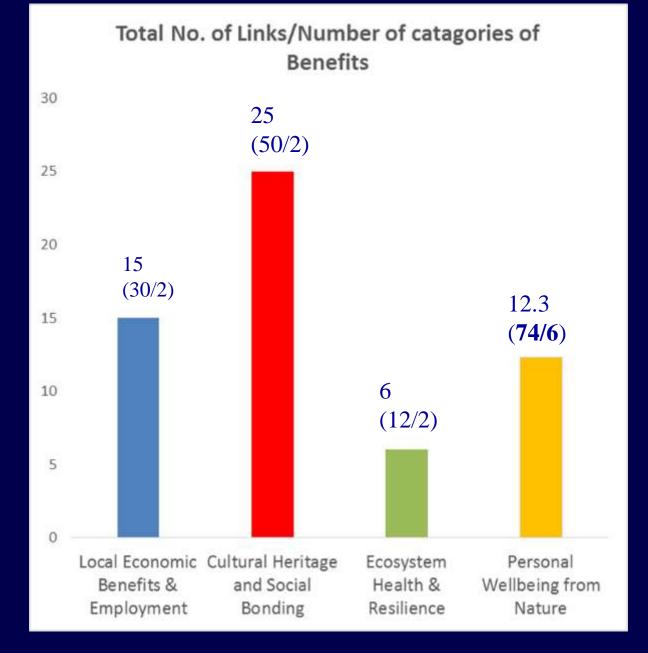




How do Stakeholders link Benefits to Ecosystem Services ?



Many more cultural /personal benefits than anticipated

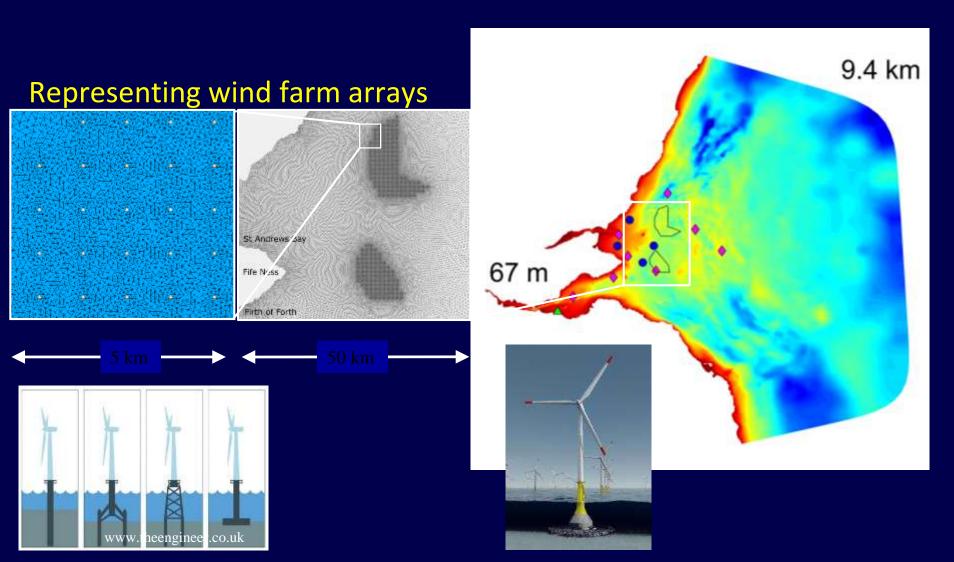


W2 Exercise 2 Conceptual Model

Aim: Conceptual Systems Model (CSM) :

- Building a picture of the social-ecological system
- Looking at interactions between ecosystem services, activities, benefits and drivers of change (energy generation, MPAs, fisheries policy)
- Starting with the ecological model, then adding social components
- Learning from each other!
- It's not about drawing a perfect diagram, but about the discussion

Use of Ecological and Law & Policy Interludes – how much do they help?



Cards for CSM exercise: the intermediate and Ecosystem Services

1 Formation of Habitats/Habitat Diversity	4 A Supply	7 Ecosystem health & resilience
² Species Diversity	₅ Image: sequestration	⁸ Quantity of fish & shellfish
3 Solution Primary Production & Nutrient Cycling	6 Climate regulation & stability	Degree of • naturalness, wildness & vastness

The Actions and Benefits

¹⁰ Number of cultural-historic features	₁₃ Marine Tourism/ Recreation	¹⁶ Offshore Wind Energy
5 11 Fishing Catch	¹⁴ Personal Wellbeing from Nature	Number/size of Marine Protected Areas
12 Cultural heritage & identity	¹⁵ Local Economic Benefits	



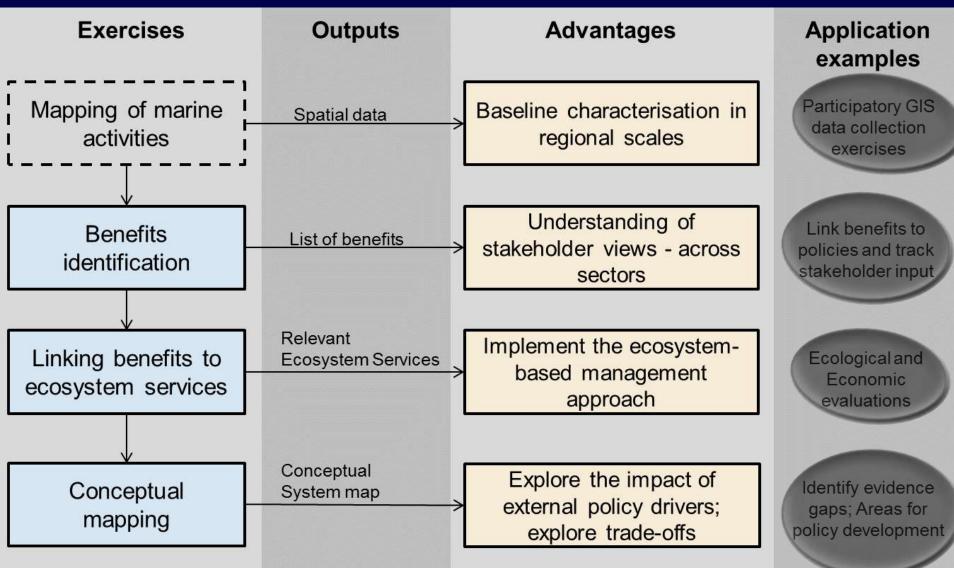


Exercise 2 Conceptual Medel

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Using CORPORATES in Marine Regional Planning: roadtest by 22 planners



A Good Tool? Feedback from workshops

Stakeholders

- "Liked working in a mixed group"
- "Interaction with other organisations was very useful – gaining understanding of others view."
- ✓ "Enjoyable"
- ✓ "Good interaction with other contributors – personal/social learning process"
- "People were prepared to listen level of engagement between sectors was interesting"

Planners

- "Identification of ecosystems services is essential, but how do you actually use them to create policy? This process is a good way of explaining it."
- The process brings sectors and communities together in understanding. At a community level it could help an understanding of what policy meant personally to them, so it would not just be a consultation.
- "Outcomes of this process include a 'communal agreement', knowledge exchange and co-production between planners and stakeholders, and human interactions."

CORPORATES: ^some of The Team

www.corporatesproject.co.uk

The CORPORATES REPORT: http://www.gov.scot/Publications/2016/02/4961 ISBN: 9781785449758

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