

Workshop 1 Report



Cromarty Firth Sea the Value Workshop 1

Thursday 22nd June 2023 10am

National Hotel, Dingwall

The *Sea the Value* project aims to understand the different values communities hold towards their local marine environment, the diverse benefits it provides, and how nature-based solutions can support and integrate with community development. The project is focussing on two case studies in the UK, the Cromarty Firth in Scotland, and the Solent on the south coast of England. The project outputs will be used to inform the wider management and planning of marine biodiversity across the UK.

The University of Aberdeen and the Moray Firth Coastal Partnership facilitated a participatory mapping workshop to identify and map the features and benefits provided by the coastal ecosystems in the Cromarty Firth. The workshop was held at the National Hotel in Dingwall and was attended by a mix of stakeholders from 20 local organisations (Table 1). A full list of participants and their contact details is provided in Appendix 1.

Table 1: Workshop attendees organisations.

Organisation	
University of Aberdeen (Facilitator)	Highland Council
University of Portsmouth (Facilitator)	Marine Conservation Society
Moray Firth Partnership (Facilitator)	Opportunity Cromarty Firth
Mossy Earth	Invergordon Development Trust
Consultant / Black Isle Coastal Park	University of Aberdeen Lighthouse Field Station
Highland Council	RSPB
Clan Munro	Highland Council
Cromarty community member / Black Isle Coastal Park	Nature Scot
Scottish Water	Cromarty Boat Club
Marine Scotland	WDC
SAMS	Black Isle Partnership
Moray Ocean Community	

Participants collectively identified and mapped the natural, modified/managed, and man-made features around the Cromarty Firth and the benefits which they associate with these features. All the project outputs, including maps, data and reports will be provided back to stakeholders for future use. This report summarises the initial outcomes of the first Cromarty Firth workshop.

Session One: Introduction (Plenary)

Tavis Potts welcomed the attendees and thanked them for attending the event. Tavis introduced the Sea the Value project team (Table 2), the Sea the Value project and outlined the aims and objectives of the workshop.



Image 1: Tavis Potts introducing participants to the Project Team.

Table 2: The Project Team.

Name	Organisation	Role
Tavis Potts	Aberdeen University	Co-convener of the workshop, presenter, Co-Facilitator Cromarty Firth West.
Jeremy Anbleyth-Evans	Aberdeen University	Co-Facilitator Cromarty Firth West, post-workshop GIS mapping, production of satellite images.
Daryl Burdon	Daryl Burdon Ltd	Co-convener of the workshop, presenter, Co-Facilitator Cromarty Firth East.
Vicky Merriman	Moray Firth Coastal Partnership	Co-convener of the workshop, presenter, Co-facilitator of Cromarty Firth central.
Drew Ferguson	Moray Firth Coastal Partnership	Co-facilitator of Cromarty Firth East
Andrew Van Der Schatte Olivier	University of Portsmouth	Co-facilitator of Cromarty Firth Central

The remainder of the first session comprised two further introductory presentations: The Moray Firth Coastal Partnership: Vicky Merriman; Participatory Mapping: Daryl Burdon. The presentation slides presented on the day are included in Appendix 2.

Session Two: Identifying and Mapping Features & Sub-Features (3 Groups)

Following a brief introduction, participants were split across three tables to identify and map the features and sub-features of the Cromarty Firth. Features mapping is important to identify habitats and species in addition to the modified/managed and man-made features that make up the seascape of the Cromarty Firth. Identification of multiple features supports the investigation of the benefits which they provide which can improve societal welfare.

A recent Sentinel-2 satellite image from 30 May 2023 was downloaded from Copernicus EU open access (<https://scihub.copernicus.eu/dhus/#/home>) and was used for the workshop (Figure 1). Given the extent of the Cromarty Firth, the mapping exercises were split across the Western, Central and Eastern Cromarty Firth, respectively (Figure 2). The image was cropped to focus on the Cromarty Firth itself and was laid above an Ordnance Survey map of the area to aid participants in locating particular geographic areas and/or features (Figure 2).



Figure 1: Satellite images of the Cromarty Firth captured at 11:43 on 30 May 2023.

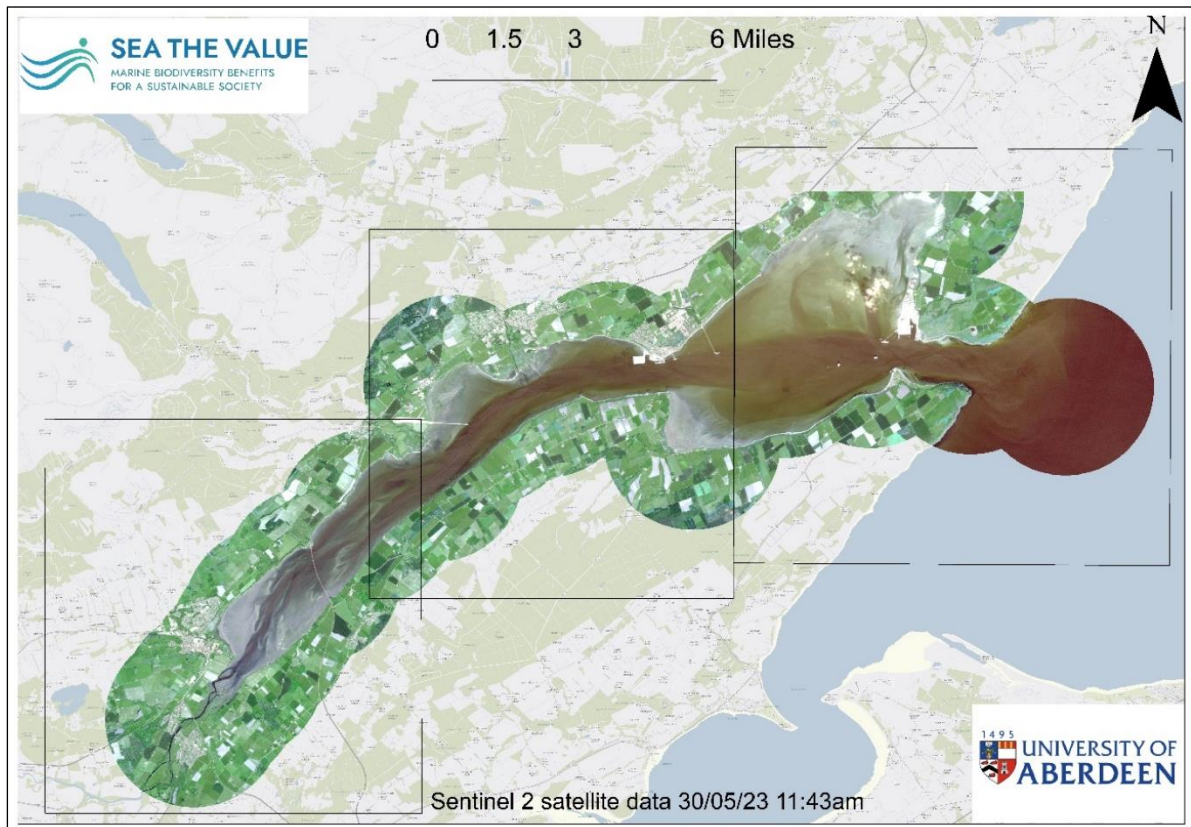


Figure 2: Division of the Cromarty Firth used in the workshop.

Following a brief introduction to the activity, each group was tasked with the following:

- ☐ Introduce yourselves within your group
- ☐ Familiarise yourselves with the case study maps
- ☐ Spend 5 minutes individually making a list of features/sub-features
- ☐ Compile a list of features/sub-features on the flipchart as a group
- ☐ Map the features/sub-features which are visible from the satellite image creating your own key for each feature directly on the map.

After 60 minutes, each group was given the opportunity to view, comment and contribute to the lists and mapping undertaken at the other two case study tables.



Image 2: Participants undertaking the features mapping exercise.

A summary of the features/sub-features identified by each group are presented below (Table 3). These lists have been taken directly from the flip-charts and some post-workshop standardisation may be required before the maps are digitised.

A photo record of the pre-digitised maps from session two is included in Figure 3.

Table 3: Summary of features/sub-features identified by each group.

Features		
Cromarty Firth West	Cromarty Firth Central	Cromarty Firth East
Peffer side park	Agricultural fields	Coastal realignment
Football stadium Victoria Park	Arable fields producing barley for whisky	Coastal paths
Artificial Tern raft	Beaches	Cromarty bridge
Fishing boffs	Bridges (was Cromarty Bridge only, but then amended)	Yacht club
Bridges	Core paths	Fishing archaeology
Housing	Cruise liners	Car park
Wrecked fishing boats	Derelict Land (ex-industrial) brownfield	Jetty
Target stones	Distillery	Hard defences
Findhorn quarry (Disused)	Dolphins & Porpoise areas	Waste water treatment
Wastewater treatment centre	Dredging zone	Dredge disposal
Russian revolution graffiti carved in trees	Fish nursery grounds	Distillery
Airstrip	Flotsum & Jetsom (seaweed & litter)	Heat exchange point for woodchip plant
Farmer's livestock market	Golf Courses	Rigs
River Peffer channel modification	Harbour / Dock	Port harbour
Stepping stones across saltmarsh	High Streets	Church
Farmland barley, potatoes, wheat, grass	Historical Wrecks	Reclaimed land from firth
Livestock farmland	Housing	Zostera seagrasses
Plantation forest	Industry Outlets	Shipwrecks
Munro foreshore	Levies / Coastal barriers	Mussels

Features		
Cromarty Firth West	Cromarty Firth Central	Cromarty Firth East
Dingwall beach	Lifeboats	Horse mussels
Seagrasses	Managed Woodland	Cetacean routes
Mudflats	Mooring Areas	Cliff
Saltmarshes	Motor Boat / leisure	Cliff nesting
Blue mussels	Mudflats	Sheep grazing area
Sandbanks	Mussel Beds	Woodland
Firth channel	Mussel Farm	Lateral navigation marker
Dunglass Island	Natural deep water channel	Bird hide
Burns	Natural woodlands	Ferry crossing
Community woodland	Navigation lane	Community woodland
Oak woodland (deciduous) SSSI	Old oyster beds	Whale and Dolphin shorewatch sites
Woodland (conifer)	Swimming / paddleboarding area	
Woodland (deciduous)	Piers	
Cetacean limit	Water exchange for biomass plant	
Seal area	Marine sewerage	



Figure 3: Images of the features maps from each table (outputs from Session 2)

Session Three: Identifying and Mapping Benefits (3 Groups)

This session started with an introductory presentation on natural capital and ecosystem services followed by an introduction to the second activity (Daryl Burdon). Each group was tasked with the following:

- ☐ Individually make a list of benefits that society gets from the Cromarty Firth on post-it notes.
- ☐ Compile the list of benefits, with participants taking it in turn to contribute to the list.
- ☐ Assign a number to each benefit using pre-defined list or using additional numbers where required.
- ☐ Using numbered sticky dots, map which features/sub-features deliver each benefit.

After 60 minutes, each group was given the opportunity to view, comment and contribute to the lists and mapping undertaken at the other two case study tables. A summary of the benefits identified by each group is presented below (Table 4). Numbers were assigned to each benefit for the purpose of the mapping exercise. This information was taken straight from the flip-charts and some degree of post-workshop standardisation may be required across the sites.

A photo record of pre-digitised maps from session two is included in Figure 4.

Table 4: Summary of benefits identified by each group.

Benefits					
Western Cromarty Firth		Central Cromarty Firth		Eastern Cromarty Firth	
4	Clean and clear water / (Fresh and salt) / Run of river	1	Primary production	12	Carbon sequestration – woodland, saltmarsh, mudflats, seagrasses
5	Functioning ecosystems	4	Water quality	13	Fishing, agriculture, potting locations
5	Habitat	11	Treating pollution (organic)	20	Soft and hard sea defences
5a	Whiskey (barley)	12	Carbon sequestration	21	Bioremediation / waste removal
12	Carbon sink / Carbon sequestration	13	Food	22b	Bird watching
13	Food growing / fishing	20	Flood prevention	22c	Rowing / kayaking – common everywhere
19	Flood prevention	22	tourism	22d	Cruising / boat trips
21	Bioremediation	22j	sailing	22i	Recreational fishing
22	Tourism economic benefit / NC 500 / attractions wider economic benefit potential	23	Mental wellbeing	22j	boating
22b	Bird watching	23a	Physical wellbeing	22k	Wild swimming
22c	Sailing club – potential for more paddle boards / social water sports	25	Education / research	22n	Wildfowling- no RSPB licencing
22i	Recreational fishing	31	Water resources	23	Spiritual wellbeing – any churches or WW sites
22k	Swimming	32	Historical	24	Great views / Viewpoints / coastal areas
22p	Cycling	36	Biodiversity	25	Education
23	Cultural / Social cohesion	37	Sense of place	26	Physical health benefits – footpaths / beaches other natural features
23a	Accessible pathways = health and wellbeing future benefit as current paths aren't that accessible			27	Psychological benefits

Benefits					
Western Cromarty Firth		Central Cromarty Firth		Eastern Cromarty Firth	
23b	Nature connection			34	Settlements, also dispersed
24	Views /Aesthetic benefits			35	Place to work – almost everywhere
26	Social intertidal walks / run / recreation			37	Sense of place
27	Stress relief / Psychological health benefits			39	Brewing / distilling
28	Wind farms			40	Deepwater channel / ferry connections, coastal roads
32	Historical net and cobble salmon farming / History identity / architecture can promote area / natural museum			41	Cruise ships
33	Industry related to natural resources				
33a	Forestry				
34	Place to live				
35	Economic better access to work / Job creation / Place to work				
36	Habitat biodiversity / species biodiversity				



Figure 4: Benefits mapping from the West, Centre and East Cromarty Firth (outputs from Session 3).

Discussion Points from Cromarty Firth West

- Hydroelectric potential was noted in the Evanton Black gorge, Clan Munro's area since at least 1025.
- Oysters were noted at least until 1890 by the bridge.
- 8,940 litres flowed into the Cromarty Firth per day in the Dingwall area.
- There has been significant litter built up on the Castle Craig shoreline.
- The catchment area of the Ardross Wind zone was different to Nigg, and the benefits needed to be shared locally through a community development organisation.
- There was discussion over whether farming fields such as barley and forests are carbon sequestering or carbon positive, and the relationship to shoreline habitats.
- There was a question of whether removal of spartina invasive cordgrass was an improvement and a benefit.
- The 'Bad Mud' site was flagged as an area that needed further investigation and baseline mapping at low tide with the drone but dangerous to walk on.
- In contrast, the stepping stones were marked as both a natural feature enhancing the landscape whilst offering a modified path benefit across the saltmarsh.

Discussion points from Cromarty Firth Central

- There was discussion regarding biodiversity –the group wanted to add both positive and negative aspects because some things increase biodiversity and some decrease it – e.g., spraying of farmland leads to less insects, but then re-introduction of hedgerows in agricultural fields leads to increase in wildlife etc. There was also discussion around structures in the water potentially reducing biodiversity as destroying habitats but could be creating new ones.
- Dredging sites not included as the ones from the Port of Cromarty Firth are just dumped back at the mouth of the Sutors, it's not used for making concrete or other uses as it is normally done down south.
- Some discussion regarding mental and physical well-being, all agreed that physical wellbeing is likely to improve mental health, but it might not always be true the other way round - ultimate decision made that it does, and that anywhere on the map could be a place to improve both types of health.
- Discussion regarding areas that might have a negative impact on health – e.g., noise pollution from boats, lights from port disturbing sleep – but then that's very subjective and what bothers one person could be soothing to another, so they didn't split this out. Big discussion regarding what was meant by 'Water quality' – originally used 31 but change to whole new number 38 which includes natural filtering (like mussel beds) with water treatment – includes all rivers.

Discussion points from Cromarty Firth East

- RSPB's coastal realignment site was missed off the top of the map however it was agreed to include this area post-workshop - it was noted that there was potential to expand the site at Udale Bay.
- All coastal footpaths on the map were supplied from work undertaken on The Black Isle.
- Comments were made that we should note noise hotspots within the Cromarty Firth.

Session Four: Discussion (Plenary)

An open discussion session was co-chaired by Tavis Potts and Daryl Burdon. The following issues were raised and discussed amongst the group:

- Daryl Burdon and Tavis Potts emphasised that the workshop would support the socio ecological evidence baseline by integrating community stakeholder's understandings of the Cromarty Firth environment. Moving towards the next workshop, it would be important to take the users' perspective on future scenarios, considering the benefits.
- A question was raised as to how we could share with a wider audience around the Cromarty Firth? Could there be an open-source wiki style map where people could add more information through the website? Sea sketch was raised as a possible way of achieving this. Tavis confirmed that there is a desire to engage with groups online and face-to-face in between workshops and with the digital outputs of Workshop 1.
- There is a potential option to undertake some semi-structured interviews to allow for more detailed discussion of local areas with certain stakeholders historical and cultural knowledge of place making and ecology, but within the constraints of the project resources.
- A participant explained how he had gone about creating his map for the Transition Black Isle, and that he had several copies available for perusal which he would make available for anyone interested.

Next Steps

Daryl Burdon outlined the following next steps for the project:

- The workshop will be summarised and sent out to participants and anyone else interested.
- All outputs from the workshop will be digitised, features and benefits will be standardised across the sites, and will be converted into an interactive pdf for the Cromarty Firth. These outputs will be circulated to all attendees for comment and will be used in Workshop #2.
- Workshop #2 is planned for October 2023. The aim of Workshop #2 will be to progress from the interactive pdfs created within Workshop #1, along with other resources, to discuss potential trade-offs of benefits under different future scenarios.
- Finally, all participants were reminded to complete the feedback forms, and to indicate whether they wish to attend Workshop #2. A summary of feedback is provided in Appendix 3.

Acknowledgements

The Sea The Value Project Team wishes to thank all of the attendees for their enthusiasm and valuable inputs to the workshop. The project team also wish to thank UKRI for funding the project and to Vicky Merriman and Drew Ferguson from the Moray Firth Coastal Partnership for their assistance in organising the workshop.

Appendix 1: Participants

Name	Organisation
Andy Goldie	Opportunity Cromarty Firth
Ben Leyshon	NatureScot
Col Gordon	Invergordon Development Trust
Colin Macrae	Consultant / Black Isle Coastal Park
Fiona Richardson	Highland Council
Francis Williams	Moray Ocean Community
George Sylvester	Cromarty Boat Club
Hector Munro	Clan Munro
Helen Ross	Highland Council
Iain Gatward	SAMs
Ingrid Robertson	Cromarty community member / Black Isle Coastal Park
Isla Graham	University of Aberdeen Lighthouse Field Station
Isla McLeod	Mossy Earth / Moray Ocean Community
Jethro Watson	Highland Council
Judith Harvey	Cromarty Boat Club
Julien Paren	Black Isle Partnership
Marcia O'Hara	Highland Council
Sarah Macdonald Taylor	WDC
Steph Elliott	RSPB
Stephan Walker	Scottish Water
Terri Sawyer	Moray Ocean Community
Tom Bannerman	Marine Conservation Society
William Ellison	Marine Scotland

Appendix 2: Workshop Presentations




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Workshop One – Cromarty Firth

Thursday 22 June 2023, The National Hotel, Dingwall

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Welcome and Introductions

Prof. Tavis Potts, University of Aberdeen

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Housekeeping



- Parking
- Fire Alarms
- Fire Exits
- Toilets
- Consent Forms
- Refreshments



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The Cromarty Firth Project Team



Prof Tavis Potts



Dr Jeremy Anbleyth-Evans



Dr Daryl Burdon



Vicki Paxton







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Workshop One Structure



09:30 – 10:00	Registration - Tea & Coffee Available.
10:00 - 10:45	Session One: Introduction
10:45 - 12:20	Session Two: Identifying and Mapping Features
12:20 - 13:00	Lunch
13:00 - 14:30	Session Three: Identifying and Mapping Benefits
14:30 - 14:45	Comfort break
14:45 - 15:30	Session Four: Discussion



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Vision

A Wellbeing Economy:
Thriving across economic, social and environmental dimensions.

Ambition

Fairer Ensuring that work pays for everyone through better wages and fair work, reducing poverty and improving life chances.	Wealthier Driving an increase in productivity by building an internationally competitive economy founded on entrepreneurship and innovation.	Greener Demonstrating global leadership in delivering a just transition to a net zero, nature positive economy, and rebuilding natural capital.
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Programmes of Action

Entrepreneurial People and Culture	New Market Opportunities	Productive Businesses and Regions	Global Resilience	A Fairer and More Equal Society
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A Culture of Delivery



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The Sea the Value Project

- Sea the Value has received funding from NERC and ESRC under the Economics of Biodiversity programme.
- Collaboration between 8 project partners, led by Prof Nicola Beaumont at PML.













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The Sea the Value Project




Vision...

Supporting how 'natural capital' approaches can support a transformative shift in our understanding, conservation, use and management of marine biodiversity.

To understand the different benefits that local coastal and marine coastal biodiversity provides, who benefits from it, how we value it, and what do we do with it?

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The Sea the Value Project



- Explore the links between marine ecosystems (natural capital) and the wide range of benefits they provide, in the context of local communities.
- Exploring the trade-offs between benefit provision under different management interventions and scenarios.
- Understanding how communities can access, use and benefit from the natural capital and design future schemes that improve biodiversity and social welfare.

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The Sea the Value Project



The Cromarty Firth
Photo: D. Burdon



The Solent
Photo: A. Van Der Sijde-Older

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The Cromarty Firth Workshops



- **Workshop 0** (online) to introduce the project team, the Sea the Value project and the Cromarty Firth workshops to local stakeholders.
- **Workshop 1** (in person) to examine the broader benefits provided by local coastal ecosystems (featured) in the Cromarty Firth.
- **Workshop 2** (in person) to develop and explore potential scenarios and trade-offs around the wider benefits with Cromarty Firth stakeholders.
- **Workshop 3** (in person) to identify how benefits are distributed amongst stakeholders and support local knowledge on how natural capital measures can be delivered in a local context.

This approach is driven by the stakeholders at every stage through the workshops.

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Moray Firth Coastal Partnership

Vicki Paxton, Moray Firth Coastal Partnership

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Moray Firth Coastal Partnership – An Overview



- **Local Coastal Partnership for Moray Firth**
Duncansby Head in Cairness to Fraserburgh, Aberdeen-Shire
- **Our vision**
To be the most sustainable marine region in Scotland by 2030
- **Our strategic directions**
 - Support our people and places
 - Conserve our coastal environment
 - Sustainably cultivate the resources available from our seas



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What We Do




- Stakeholder Engagement
- Marine & Coastal Litter
- Marine Literacy
- Regional Marine Planning
- SAC Management Group
- Partnership Working

Project Update
Total Litter collected: 428.65kg
Total volunteers: 193

Image: MFCP

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The Cromarty Firth - Geography



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The Cromarty Firth – Species & Habitats



- Bottlenose Dolphins
- Harbour Porpoise
- Minke Whale
- Harbour seal
- Turnstone
- Guillemot
- Curlew
- Fulmar
- Osprey
- Common Tern
- Kittiwake
- Oyster Catcher
- Norway Lobster
- Common Brittle Star
- Atlantic Mackerel
- Blue & Horse Mussels
- Native Oysters
- Lugworms / Nematode Worms

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The Cromarty Firth - History




Image: St Duac's Church, Tain – ARCH


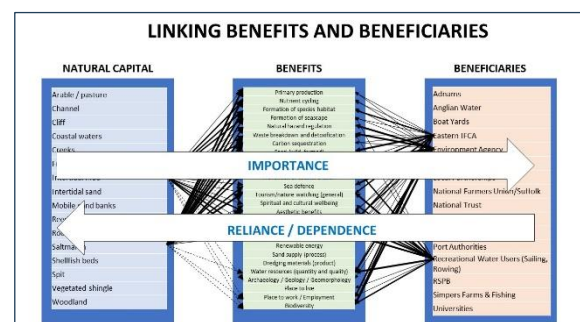


Image: Sea Cottage, Cromarty – The Cromarty Archive



Image: Royal Navy in the Firth - Invergordon Archive



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Lessons Learnt from Deben Estuary Study

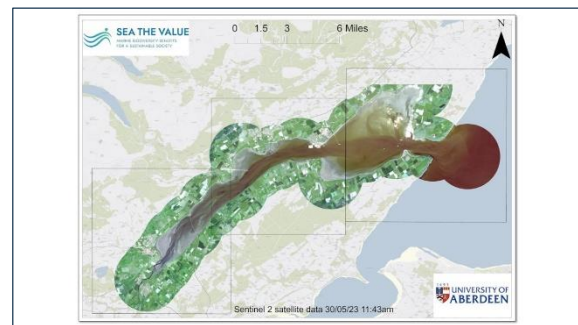
- Demonstrates the need for a **place-based, stakeholder-driven** process to understanding and enhancing natural capital.
- Connects stakeholders with a **common language** to natural capital.
- Provides **data** relating to natural and man-made features, ecosystem services and trade-offs.
- Provides **visual products** that stakeholders can use to support the improvement of nature.
- Supports **learning and research** about the inter-connections between nature and well-being, and identify what assets communities can manage.
- Supports **all phases of the policy process** from scoping, design, appraisal, implementation, and review.
- Important for decision-making as it can **identify who may be impacted** under different policies.

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Activity 1: Identifying and Mapping Features

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Introduction to Features

- Think of features in the broadest sense.
- The will include:
 - Natural features;
 - Managed features;
 - Man-made features.
- Aim is to cover the full area of the map!

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Introduction to Features

11:00 Activity 1: Identifying and Mapping Features

- ▢ Introduce yourselves
- ▢ Individually make a list of features
- ▢ Compile list of features on the flipchart
- ▢ Map features on the satellite images

12:00 Swap Tables #1

12:10 Swap Tables #2

12:20 Lunch

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Activity 2: Identifying and Mapping Benefits

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Introduction to Benefits

Natural Capital (Stock) → Ecosystem Services (Flows) → Societal Benefits (Well-Being)

Provisioning services are the products obtained from the ecosystem;
Regulating services are the benefits obtained from the regulation of ecosystem processes;
Cultural services are the nonmaterial benefits people obtain from ecosystems; and
Supporting services are those that are necessary for the production of all other ecosystem services, but do not yield direct benefits to humans.

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Introduction to Benefits

Natural Capital (Stock) → Ecosystem Services (Flows) → Societal Benefits (Well-Being)

Marine Ecosystem (Natural capital) → Seascape (Cultural Service) → Wildlife watching (from a Cultural service)

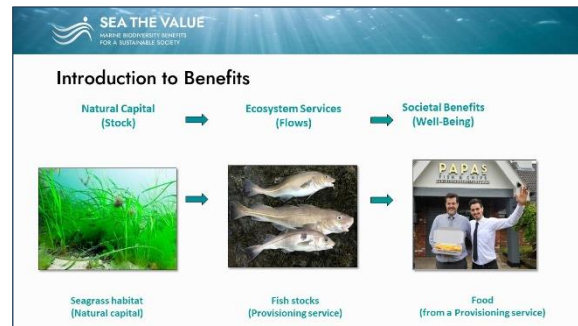
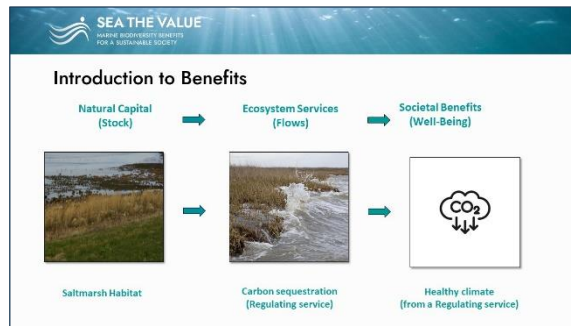
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Introduction to Benefits

Natural Capital (Stock) → Ecosystem Services (Flows) → Societal Benefits (Well-Being)

Saltmarsh Habitat → Natural hazard regulation (Regulating service) → Natural sea defence (from a Regulating service)

Wall height (m): 12, 10, 8, 6, 4, 2, 0, 10, 20, 30, 40, 50, 60, 70, 80
(On wall) (Off wall)



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Activity 2: Identifying and Mapping benefits

- Individually make a list of benefits from the estuary
- Facilitators compile list of benefits on flip chart and assign each a number
- Use numbered sticky dots to identify which features/sub-features deliver each benefit

13:10 Activity 2: Identifying and Mapping benefits

14:10 Swap Tables #1

14:20 Swap Tables #2

14:30 Comfort Break

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Activity 3: Discussion and Next Steps

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Project Contact Details:

Prof Tavis Potts tavis.potts@seathevalue.org

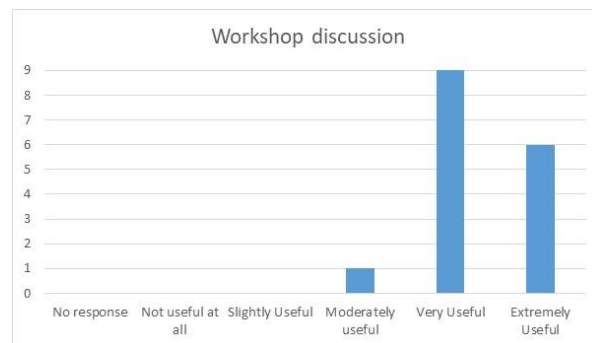
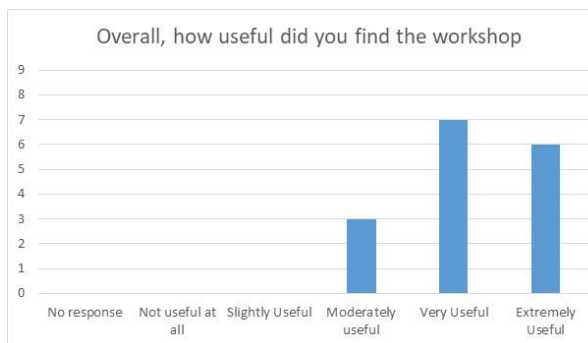
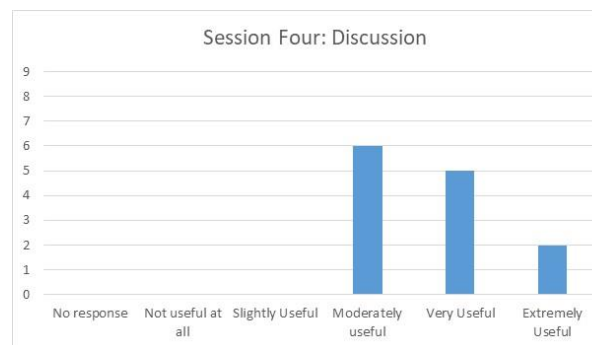
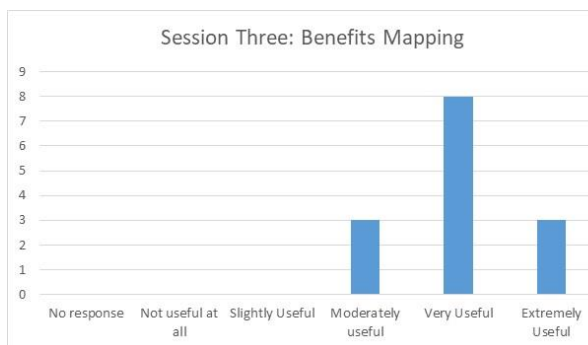
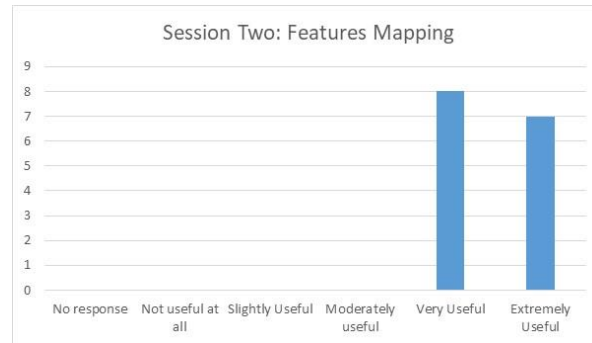
Vicki Paxton vicki@morayfirth-coastal-partnership.org

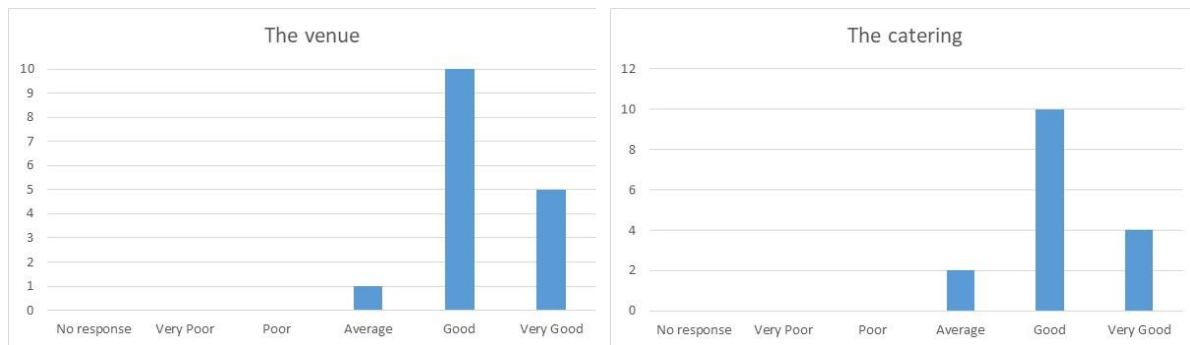
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Appendix 3: Summary of Workshop Feedback





Sample comments on what was most useful about the workshop:

"Interesting to meet and network with other stakeholders."

"Meeting others. Renewing relations and making new ones. Learning about the area. Meeting the STV project team and the process."

Sample comments on how the workshop could be improved in the future:

"More frequent breaks or shorter sessions".

"Please think about timing – all my CC counterparts in the relevant area could not attend due to day time."

"The tiny little stickers could be better! Maybe bigger?"

"Quality of the projector. Microphone so all the speakers could be heard".