





Acknowledgement: Pete Smith (University of Aberdeen)

Austin, W., Cohen, F., Coomes, D., Hanley, N., Lewis, S., Luque-Lora, R., Marchant, R., Naylor, L., Queirós, A. M., Savaresi, A., Seddon, N., Smith, A., Smith, P. and Wheeler, C. (2021) Nature-based solutions for climate change, people and biodiversity. COP26 Universities Network Briefing.

“Investments in NbS should meet four high-level principles: (a) NbS are not an alternative to decarbonising the economy and must be accompanied by swift, deep emissions cuts; (b) they should encompass protection, restoration and sustainable management of a wide range of ecosystems on land and in the sea; (c) they must be designed with and for local communities; and (d) they must deliver measurable benefits for biodiversity.”

COP26 UNIVERSITIES NETWORK BRIEFING / MARCH 2021

NATURE-BASED SOLUTIONS FOR CLIMATE CHANGE, PEOPLE AND BIODIVERSITY

Global Ocean Decade Programme for Blue Carbon (GO-BC)

William E.N. Austin

University of St Andrews

(wena@st-andrews.ac.uk)

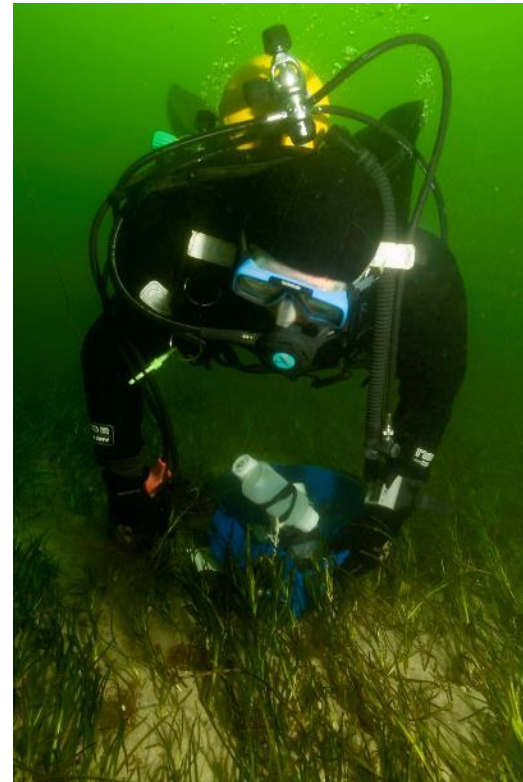
Miguel Cifuentes-Jara

Conservation International

(mcifuentes@conservation.org)



2021
2030 United Nations Decade
of Ocean Science
for Sustainable Development



“The science we need for the ocean we want”

Carbon Storage in Blue Carbon Habitats

CRITICAL STORAGE
OCEAN + COASTAL HABITATS

83%

GLOBAL CARBON

2%

COVERAGE

50%

SEDIMENT CARBON

83% of the global carbon cycle is circulated through the ocean. Coastal habitats cover less than 2% of the total ocean area, but account for approximately half of the total carbon sequestered in ocean sediments.

<http://thebluecarboninitiative.org/blue-carbon/>

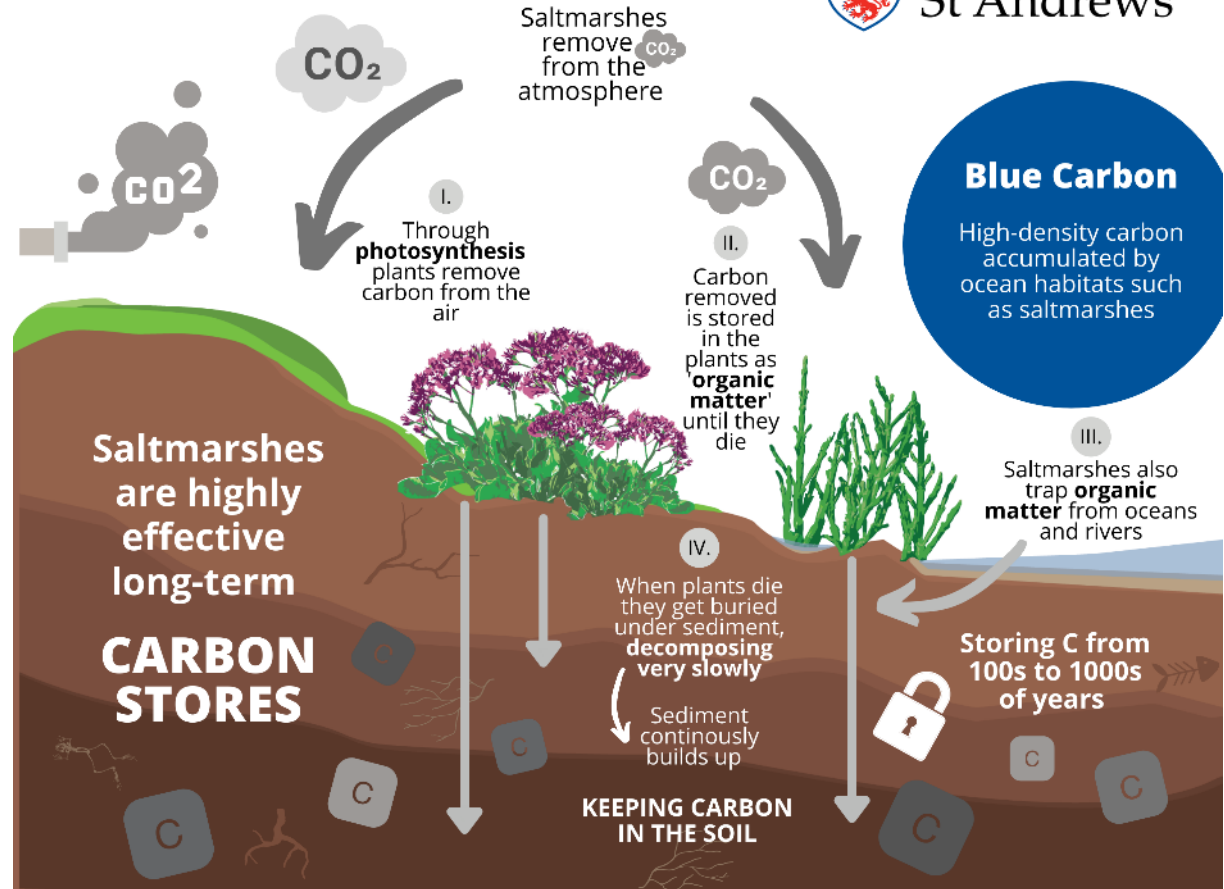
©DANIEL URIBE

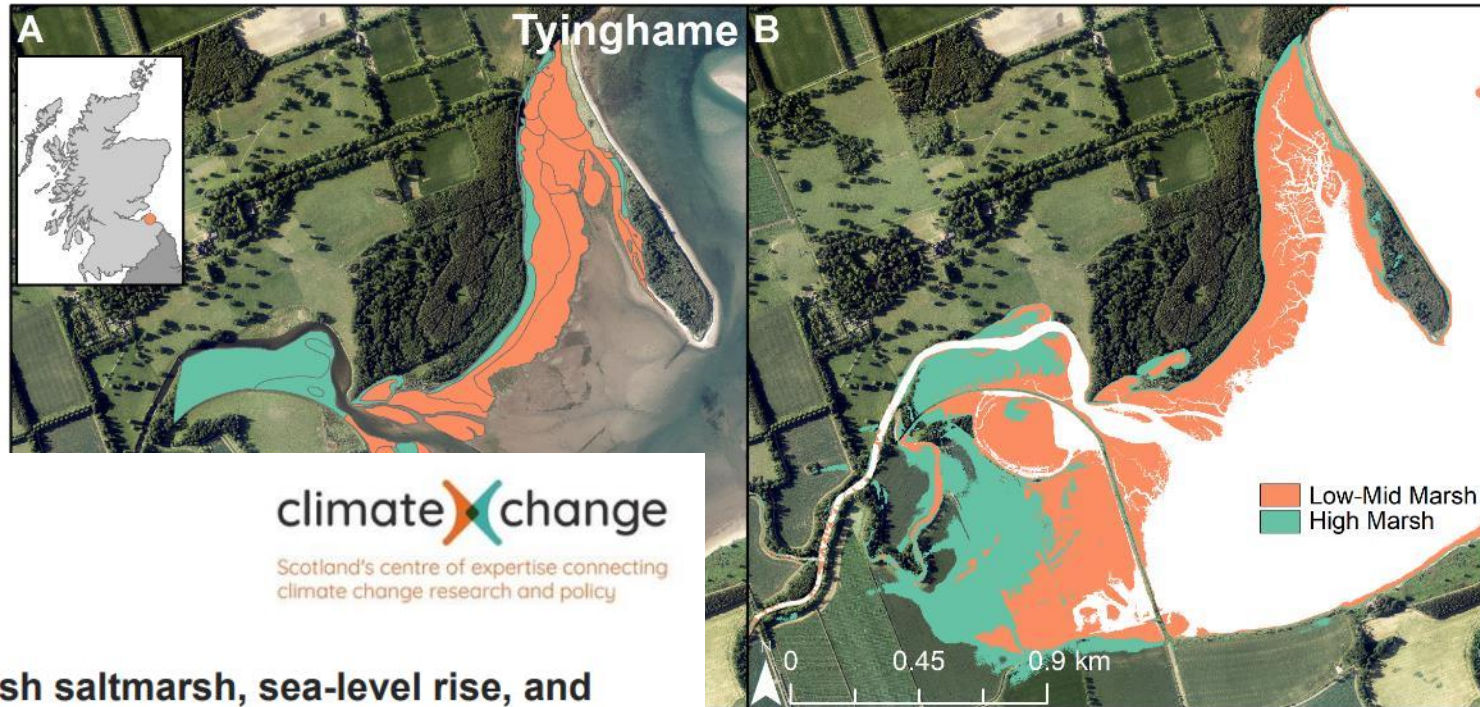


Blue Carbon: saltmarshes can help us fight climate change



University of
St Andrews



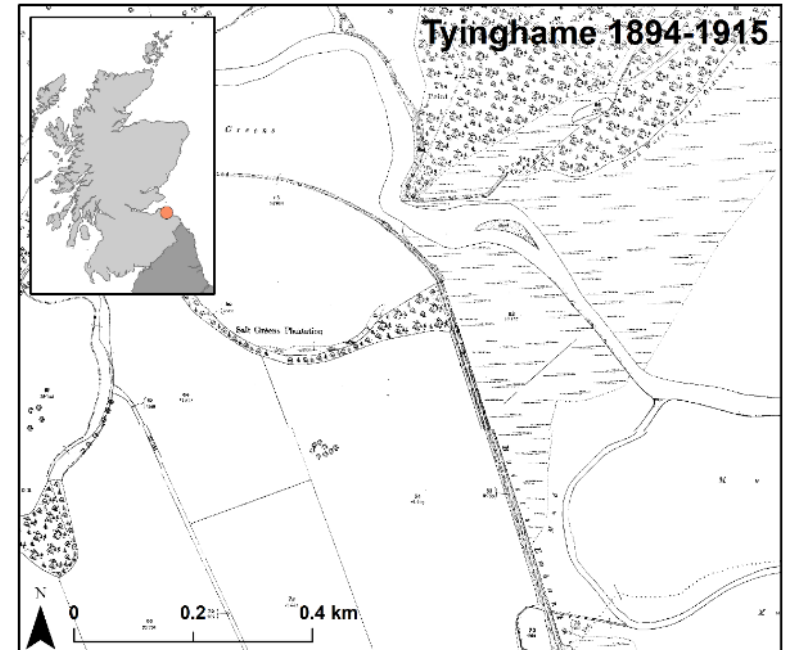
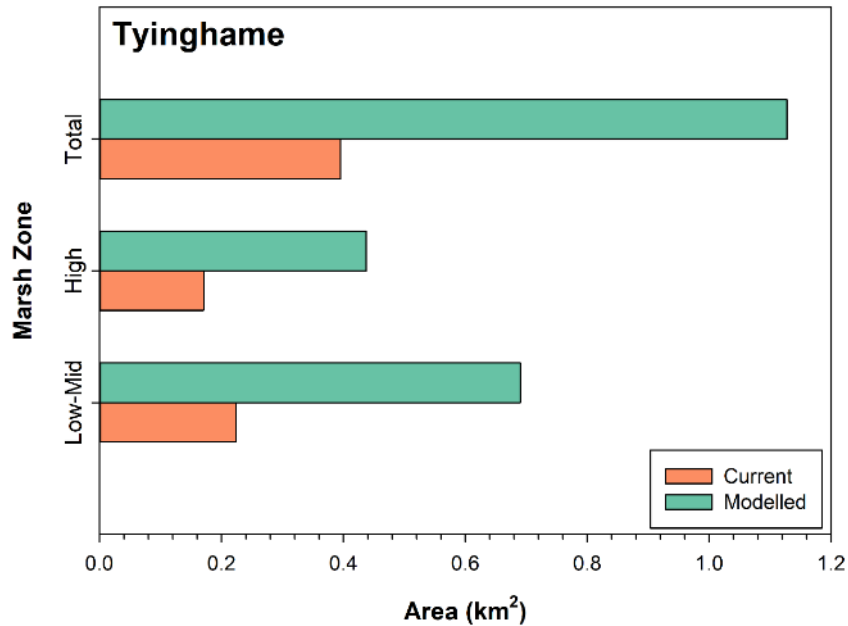


Scottish saltmarsh, sea-level rise, and the potential for managed realignment to deliver blue carbon gains

William Austin*, Craig Smeaton, Alex Houston (University of St Andrews) and Thorsten Balke (University of Glasgow)

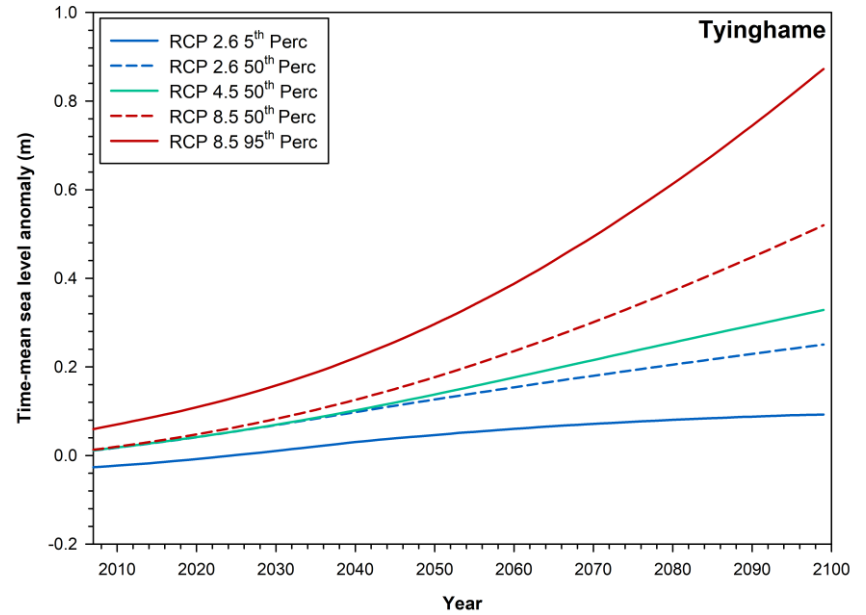
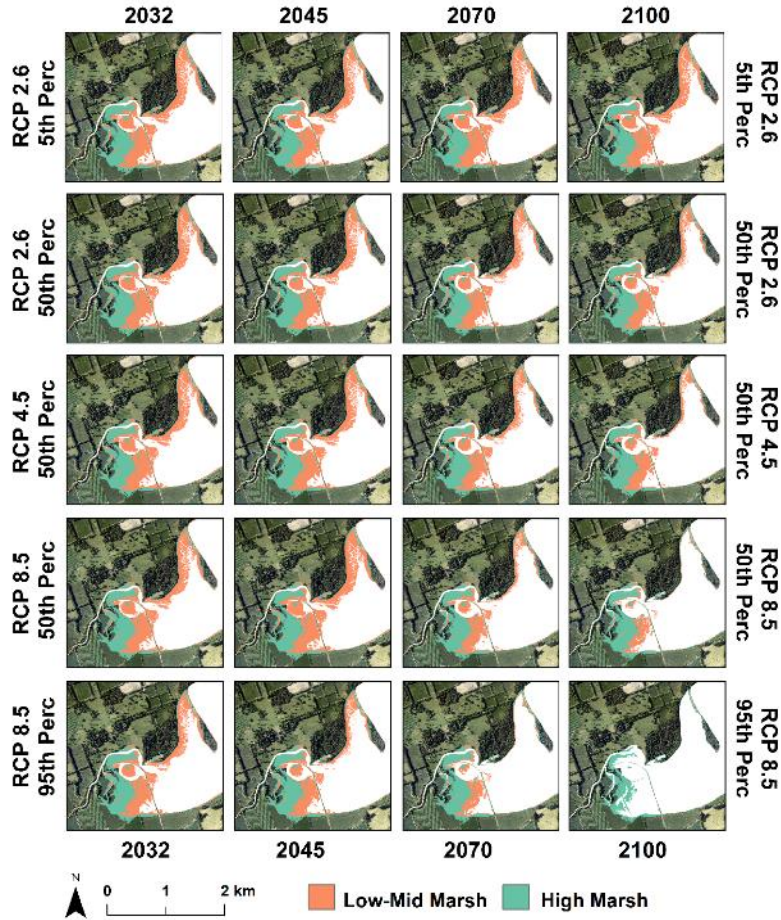
March 2022

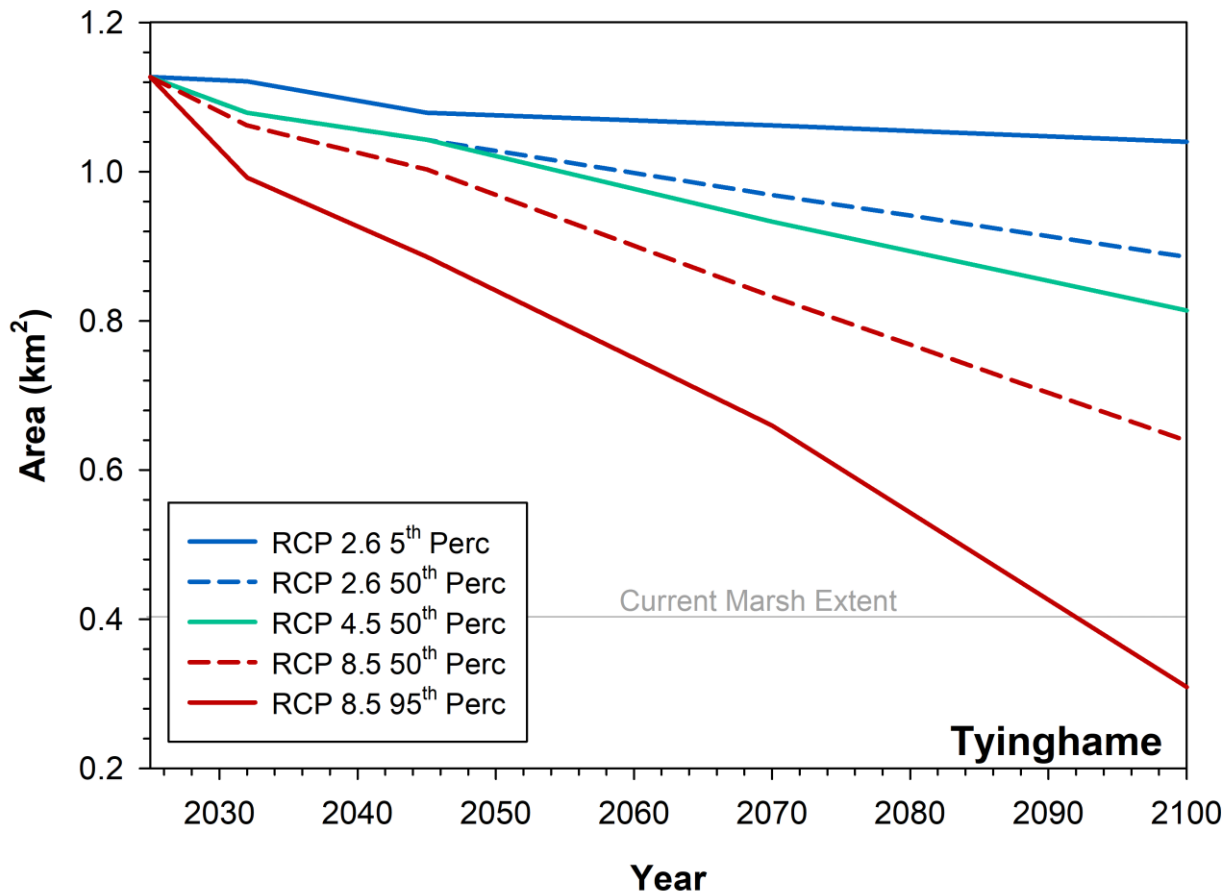
DOI: <http://dx.doi.org/10.7488/era/2370>

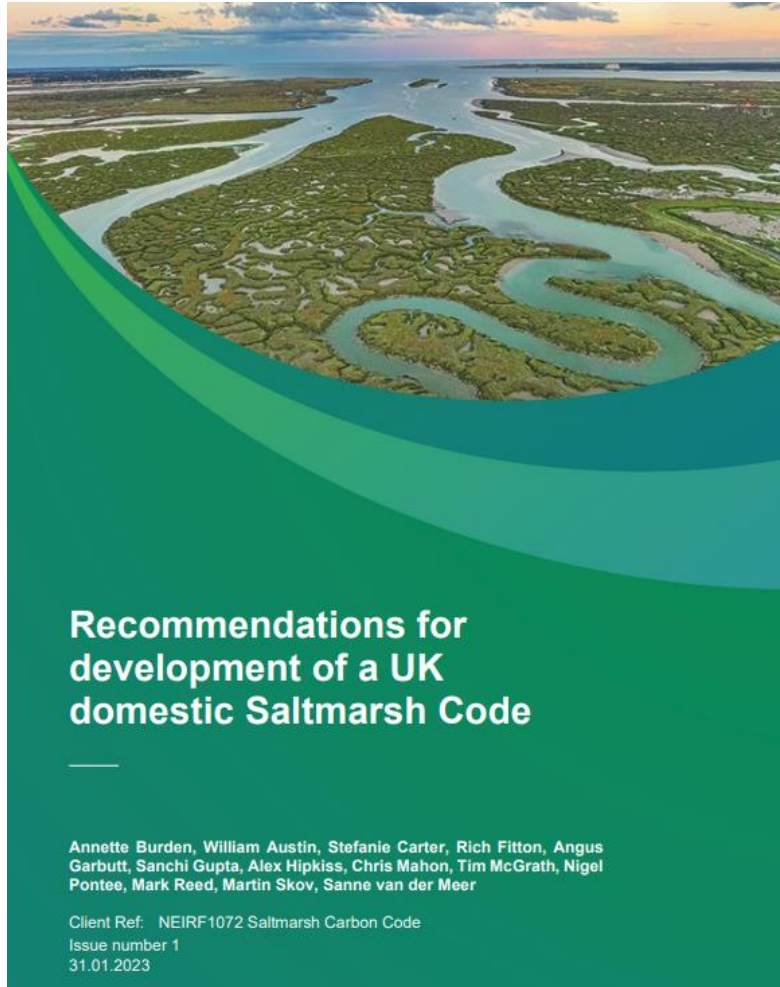




Tyinghame







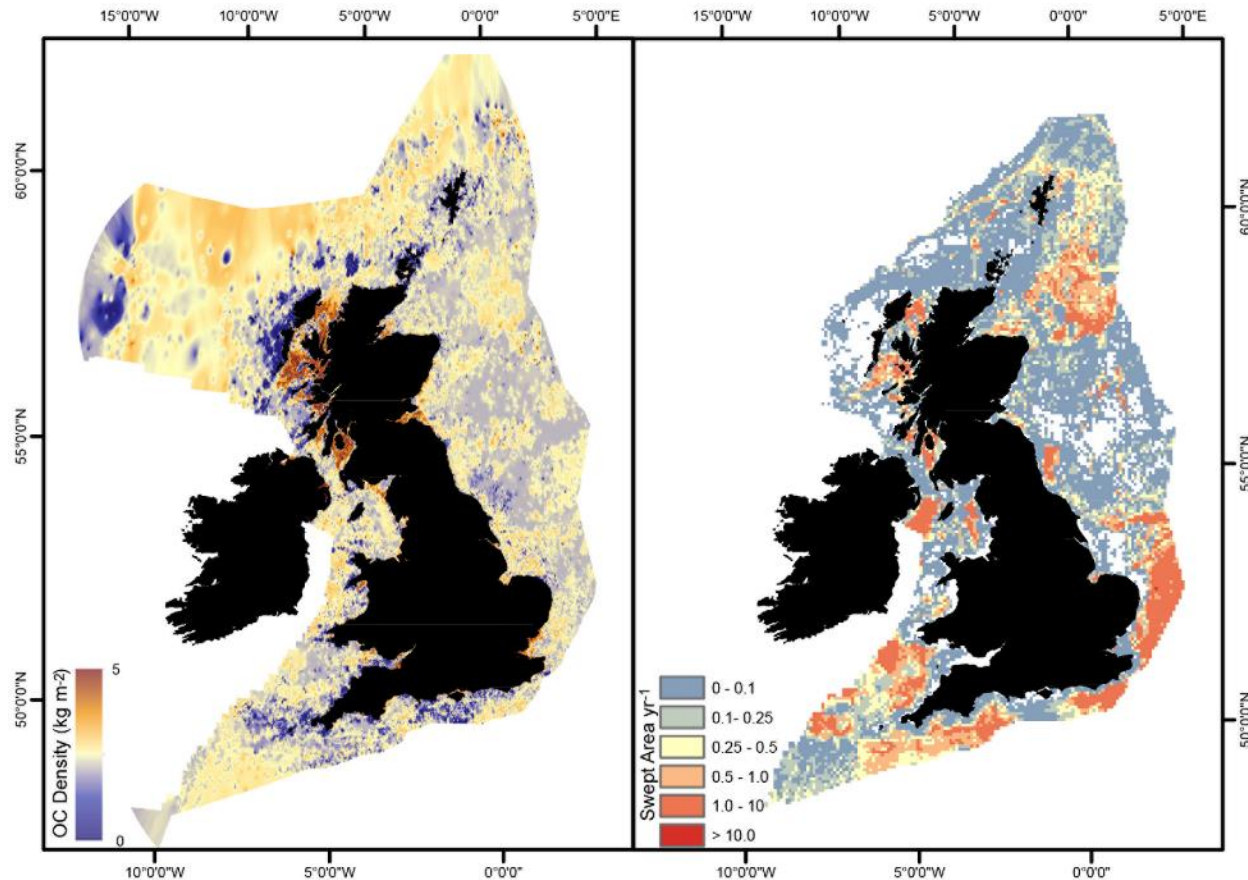
CHAPTER 9

Carbon Storage in UK Intertidal Environments

WILLIAM E.N. AUSTIN, CRAIG SMEATON, PAULINA RURANSKA, DAVID M. PATERSON, MARTIN W. SKOV, CAI J.T. LADD, LUCY McMAHON, GLENN M. HAVELOCK, ROLAND GEHRELS, ROB MILLS, NATASHA L.M. BARLOW, ANNETTE BURDEN, LAURENCE JONES and ANGUS GARBUTT

Using citizen science to estimate surficial soil Blue Carbon stocks in Great British saltmarshes

Craig Smeaton^{1*†}, Annette Burden^{2†}, Paulina Ruranska¹, Cai J. T. Ladd^{3,4}, Angus Garbutt², Laurence Jones², Lucy McMahon⁵, Lucy C. Miller¹, Martin W. Skov⁴ and William E. N. Austin^{1,6}



... some reflections on the vulnerability of offshore sedimentary organic carbon stores
("beyond the inventory")

ORIGINAL RESEARCH article

Front. Mar. Sci., 28 July 2020

Sec. Coastal Ocean Processes

<https://doi.org/10.3389/fmars.2020.00588>

Quantifying Marine Sedimentary Carbon: A New Spatial Analysis Approach Using Seafloor Acoustics, Imagery, and Ground-Truthing Data in Scotland

 Corallie Hunt^{1*},  Urška Demšar¹,  Dayton Dove²,  Rhys Cooper² and  William E. N. Austin^{1,3}

ORIGINAL RESEARCH article

Front. Earth Sci., 04 March 2021 |

<https://doi.org/10.3389/feart.2021.593324>

Marine Sedimentary Carbon in the United Kingdom's Exclusive Economic Zone

 Craig Smeaton^{1*},  Corallie A. Hunt¹,  William R. Turrell² and  William E. N. Austin^{1,3}

¹School of Geography and Sustainable Development, University of St Andrews, St Andrews, United Kingdom

²Marine Scotland Science, Aberdeen, United Kingdom

³Scottish Association for Marine Science, Scottish Marine Institute, Oban, United Kingdom



Geophysical Research Letters / Volume 49, Issue 5 / e2021GL097481

Research Letter | [Open Access](#) |  

Quality Not Quantity: Prioritizing the Management of Sedimentary Carbon in Cross Continental Shelf Seas

Justin

1 2022

2021GL097481

Supplemental data



2,439

total views



le

Ocean

:

This article is part of the Research Topic

Blue Carbon: Beyond the Inventory

[View all 16 Articles >](#)

Potential vulnerability of sedimentary carbon stores to disturbance within the UK EEZ



Kirsty E. Black^{1*}



Craig Smeaton¹



William R. Turrell² and



William E. N. Austin^{1,3}

SUMMARY: GO-BC will enhance understanding of the ocean-climate nexus and generate new knowledge and solutions to mitigate the effects of climate change. Recognising the multiple roles BC ecosystems play beyond mitigation, including adaptation and resilience to the effects of climate change, allows GO-BC to address climate responses comprehensively, while supporting people and biodiversity. GO-BC actions will go beyond the traditional focus on coastal ecosystems to deliver new outcomes across estuarine-coastal-open ocean environments.

GO-BC will address SDGs 13, 14 and 17 through enhanced scientific cooperation at all levels, including: (1) codesign and implement new research to promote Nature-based Solutions for better ocean sustainability; (2) enhance global to regional collaborative efforts; (3) coordinate capacity building in blue carbon science; and (4) communicate and deliver outputs to policy makers and communities.

GOAL 13: Climate Action
GOAL 14: Life Below Water
GOAL 17: Partnerships to achieve the Goal



HIGH-LEVEL OBJECTIVES: The GO-BC programme aims to identify and provide evidence-based actions for blue carbon as Nature-based Solutions that go beyond climate mitigation, highlighting benefits for biodiversity, society, as well as climate adaptation and resilience. It will: (1) provide a platform to identify and obtain data and knowledge needed to develop and implement applicable BC Nature-based Solutions for climate, people and biodiversity; (2) increase and augment the capacity of ocean scientists globally, especially in the global south, to conduct and synthesise research on BC at local and regional scales; (3) facilitate just and fair activities for BC that co-design science and actions with communities and stakeholders for community and stakeholder benefits, particularly where these actions can further support developing countries to protect the marine environment and reduce poverty.

Outcome 2: A healthy and resilient ocean. GO-BC will support the Glasgow Climate Pact by providing essential knowledge, capacity, and outreach to expand and accelerate understanding, protection, restoration, and improve efforts to manage BC resources. A central contact point for this scientific challenge area will identify mechanisms and strategies to mitigate and adapt to environmental, economic, and societal damages arising from BC habitat loss and degradation. Best practice guidelines still lack globally applicable approaches to assess the full extent, net greenhouse gas potential, wider ecosystem services of even the most studied BC habitats. GO-BC will facilitate the delivery of knowledge and detailed information at local and regional scales to inform communities of high vulnerability and elevated risks.

Outcome 3: A productive ocean. GO-BC will spot-light that approximately 3 billion people, many of them living in poverty, rely on the ocean for their food security and livelihoods. GO-BC will work to support livelihoods by providing compelling new evidence, including improved climate mitigation potential and biodiversity benefits, that highlight the value of protection and enhancement of marine ecosystems, reducing pressures and increasing resilience, and enabling sustainable and equitable access to, and use of, these resources.

Outcome 6: An accessible ocean. GO-BC will increase and augment the capacity of ocean scientists globally to conduct and synthesize research on BC at local and regional scales to improve the efficient flow of attention, human, technical, and financial resources to where they are most urgently required. GO-BC will co-design and implement innovative observation/mapping strategies in collaboration with data/information producers and end-users, building capacity to ensure vulnerable areas are adequately monitored.

GO-BC Executive Committee (10 members, + programme chair & co-chair)

4 meetings per year (quarterly). Agenda and Papers. Governance of the programme - to consider advice from the co-chairs/secretariat and agree new actions, approve regional hub activities, endorse new projects/actions, consider and advise on partnerships and take an overview on the programme's direction of travel and performance. The following 10 Executive Committee Members have been Recruited: Stephanie Ockenden (Defra), Caroline Culshaw (Defra), Bill Turrell (Marine Scotland), Sophie Philbrick (Marine Scotland), Kirsten Isensee (IOC-UNESCO), Siobhan Fennessy (Convention on Wetlands), Catherine Lovelock (IPBC), Frida Sidik (IPBC), Emily Pidgeon (CI), and TBC**

GO-BC seeking nominations to join the *GO-BC Science Committee* and to support the establishment of *Regional GO-BC Hubs*

- Please join us – we aim to support your Ocean Science needs!



GO-BC and the IPBC:

1. ***Help to Drive the Science by supporting the GO-BC science working group (open for nominations now).***
2. ***Help Drive the Science through new actions (e.g. global seagrass habitat mapping; global GHG fluxes initiative, etc.).***
3. ***Support (and leadership) for Regional Hub development (e.g. JPI-Oceans scoping for BC in Europe).***
4. ***Integration of new or existing projects within GO-BC – benefits will include alignment with UN DOS through GO-BC endorsement of your project/actions.***
5. ***Support capacity building actions (e.g. host visiting scientists).***
6. ***Support the GO-BC global graduate school.***





University of
St Andrews



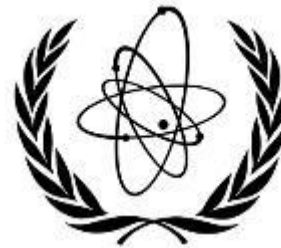
2021
2030

United Nations Decade
of Ocean Science
for Sustainable Development



Options for strengthening
ocean and coasts under
pressure

October 2022



IAEA

International Atomic Energy Agency

Atoms for Peace and Development

www.st-andrews.ac.uk

IPBC – UNESCO, Paris (February 2023)