**Terms of Reference – Benefits to commercial fishing species from coastal blue carbon habitat restoration and protection project**

1. **Background**

The ocean covers over 70% of our planet’s surface[[1]](#footnote-2) and is home to a breath-taking diversity of species, habitats, and ecosystems. However, since 1970, we have seen global biodiversity decline by 68%, with marine biodiversity accounting for 36% of this decrease[[2]](#footnote-3).

Coastal blue carbon habitats are some of the most threatened and degraded ecosystems on earth. These habitats are generally found around our coastlines and include mangroves, tidal marshes, seagrasses, and kelp forests. They are critical in our fight against climate change, as they are shown to sequester and bury carbon per unit area more efficiently and at a greater rate (10x faster) than terrestrial ecosystems such as rainforests[[3]](#footnote-4). Over the last century, these habitats have become degraded and lost due to sea level rise and increased storm surges linked to climate change, anthropogenic development, increased eutrophication[[4]](#footnote-5), as well as other human pressures such as fishing and aquaculture [[5]](#footnote-6).

Globally, it’s estimated coastal blue carbon habitats and their ecosystems are being destroyed at a rate of 340,000 – 980,000 hectares per year and we have already lost up to 67%, 35% and 29% of global coverage of mangroves, tidal marshes, and seagrass meadows respectively[[6]](#footnote-7). UK coastal blue carbon habitats are following the same trend. It’s estimated that the UK has lost 92% of its seagrass meadows[[7]](#footnote-8), around 85% of its saltmarshes[[8]](#footnote-9) and although national estimates on kelp forest losses are unclear, local estimates are as high as 96%[[9]](#footnote-10).

Despite our knowledge of these habitats’ ecosystem services (benefits of nature to humanity) - in terms of acting as natural sea defences preventing shoreline erosion and flooding, water quality regulators, and as carbon sinks - their role in supporting our aquatic food systems is less well known or understood. The loss and degradation of these habitats leads to a loss in ecosystem services; increased flooding, coastal erosion, decreased water quality, and net increases to GHG carbon dioxide, which significantly contributes to climate change[[10]](#footnote-11). A key question that remains unclear however, is to what effect their loss affects aquatic species that are important to our commercial fisheries.

The protection and restoration of these critical coastal blue carbon habitats is receiving increasing attention, both globally and here in the UK. Many projects are being setup to restore degraded areas such as the UK’s seagrass LIFE Recreation ReMEDIES project, led by Natural England, and the Restoring Meadow, Marsh, and Reef (ReMeMaRe) initiative, chaired by the Environment Agency. These projects are largely focusing on the conservation of threatened habitats, as well as blue carbon opportunities. Their success relies on the collaboration of key stakeholders, but the commercial fishing sector is often not involved in these discussions.

1. **Project Scope**

This report will focus on UK coastal blue carbon habitats (saltmarshes, seagrass beds and kelp forests) and the commercial aquatic species that utilise these areas during their life cycles. It will focus on the projected benefit to the wild capture sector of restoring and protecting (removal of fishing activities) 15-30% of coastal blue carbon habitats in the UK.

1. **Overarching Purpose:**

This project aims to assess the potential environmental benefits to commercial aquatic species from the protection and restoration of 15-30% of the UKs degraded and lost coastal blue carbon habitats (saltmarshes, seagrass beds and kelp forests) and the potential socio-economic benefits to wild capture fisheries. This project will also consider how kelp farming and the UKs future seaweed aquaculture sector may benefit the commercial sector.

It seeks to bring seafood production into the discussion on the protection and restoration of coastal blue carbon habitats, allowing a greater understanding amongst fishers to the benefits these projects present to their livelihoods and the future of the fishing community. These habitats are important for both commercial species targeted by fisheries, as well as the fish in the food chain that support these commercial species. When compared to unvegetated seabed’s, tidal marshes have been found to provide 1700 more fish (64kg equivalent) of fish per hectare per year[[11]](#footnote-12).

This project will align with the WWF Basket Marine outcome, of ‘100% seafood from sustainable sources’, by increasing the understanding of the how the seascape approach can help to improve the sustainable production of seafood within the UK. By highlighting the value to commercial fisheries from protecting and restoring these ecosystems, it is hoped that fishers will benefit from and therefore be more supportive of project to protect and restore these areas going forward, leading to better management of these areas.

1. **Aim:**

The aims of this project are:

1. To provide information on the commercial aquatic species supported by coastal [blue carbon] habitats and the ecological benefits from protecting and restoring 15-30% of these.
2. To present socio-economic benefits to wild capture fisheries, based on restoration and protection scenarios presented in Point 1.
3. To engage and inform UK government on supporting the restoration and protection of coastal blue carbon habitats, from a wider nature focused context other than conservation of habitat forming species and blue carbon opportunities, detailing stacked services.
4. To engage and inform the UK wild-catch sector to promote support for coastal blue carbon habitat restoration and protection projects, based on their role in supporting the commercial aquatic species they target.
5. **Objective:**

The objectives of this report are:

* To assess the quantity of UK commercial aquatic species reliant on coastal blue carbon habitats for an aspect of their life histories e.g., forage grounds, nursery grounds, etc.
* To determine to what extent fishers know and understand the role that coastal blue carbon habitats play in supporting the species that they target.
* To assess the potential impact on commercial species from further degradation/loss of coastal blue carbon habitats. This would cover environmental, social, and economic impacts both to the stock as well as fishers in terms of reduced quota.
* To identify the value of restoring and protecting 15-30% the UKs coastal blue carbon habitats could have on the UKs commercial aquatic species (socio-economic and environmental).
* To assess the wider benefits to restoring and protecting coastal blue carbon habitats in terms of other ecosystem services e.g., water quality, recreational fishers, aquaculture, flood defence, blue carbon etc.
* To develop recommendations on how UK wild-catch fishing sector can engage with restoration and protection projects.
* To develop recommendations to government on how to support the wild-catch sector in engaging on coastal blue carbon habitat restoration and protection projects.

1. **Focal topics and methodology:**

The priority topics of interest of this report are:

Determine the impact that degradation and loss of coastal blue carbon habitats has had on commercially targeted aquatic species, and therefore the impact it has had on the UKs wild-catch fishing sector. It will then assess the benefits that restoration and protection of 15-30% of these habitats will have on these commercial aquatic species, in terms of stock health (environmental), and socio-economically from fishery perspectives.

1. Identify the impact of the degradation and loss of UK coastal blue carbon habitats has had on commercial aquatic species:
2. Identify commercial species that utilise coastal blue carbon habitats and at what point in their life cycle/ how they are used in daily activities e.g., foraging.
3. Identification and present in a map (where possible) the % degradation/loss of UK coastal blue carbon habitats since mid-1800’s (where possible).
4. Quantify how commercial aquatic populations would be supported (e.g., numbers per m2) if these habitats were restored to full coverage.
5. Estimate the impact this would have (socio-economic) to the UK commercial fishing sector.
6. Identify the impact and potential for the restoration and protection of 15-30% of the UKs coastal blue carbon habitats:
7. Quantify the benefits to commercial aquatic species (e.g., numbers per m2).
8. Estimate the socio-economic benefits to the commercial fishing sector.
9. Identify and discuss wider socio-economic and environmental benefits from improvements to wider ecosystem services e.g., flood defence, water quality regulations etc.
10. Identify how fishers can be involved in the coastal blue carbon restoration and protection projects.
11. Identify how government can support these projects and the involvement of the UK commercial fishing sector.
12. **Deliverables:**

The outputs of this study will be:

* A full report including focal topics on how the restoration and protection of the UKs coastal blue carbon habitats can have a wider positive impact to the domestic wild-catch fishing fleet.
* An industry facing infographic detailing the benefits of restoration and protection of coastal blue carbon habitats can have on UK commercial seafood species.

The methods used in this study should be replicable and scalable, such that the baseline data generated in this project can be compared against data gathered for future modelling around increased aquatic habitat protection and restoration projects and can be adopted by wider WWF offices.

The consultant will deliver a report of sufficient quality and depth so that the aims and objectives of the project are answered.

The consultant will provide, within the final report, a full description of the data and the date on which it was collected. Any uncertainties/limitations surrounding the accuracy of the data should also be highlighted. The final report and the data will be owned by WWF-UK but attributed to the contractor.

1. **Consultant identification**

Interested consultants should **submit a project proposal by 10th May 2023** and clearly outlines the proposed methodologies and how they meet all objectives listed in the ‘Objective’ section and that covers all the Priority Topics in the Focal topics & methodology sections. The proposal should demonstrate the alignment of this study with the above mentioned Risky and Riskier Business reports. The proposal should also provide a realistic but ambitious timeline, resources allocation on delivering the report, CVs with relevant experience and any applicable charging.

1. **Project Management**

The project will be managed professionally and ensure timely completion of the deliverables.

Communication with WWF-UK will be regular and include in-person and/or remote (e.g. email, telephone, Zoom, etc.) communications as required. At a minimum, a biweekly verbal update will be anticipated and there to be a presentation of interim findings/project updates. If a need is identified for *ad hoc* meeting(s), then this will be arranged between WWF-UK and the consultant.

Meetings (telecoms) may be required with other consultants who are undertaking similar work in the WWF network; this will be advised as the projects progress.

Coordinated by the Project manager, an internal WWF working group will be set up to provide guidance throughout the production of the report.

Project Manager: Lief Hendrikz, Sustainable Seafood Officer, WWF-UK

Email: [lhendrikz@wwf.org.uk](mailto:lhendrikz@wwf.org.uk)

1. **Budget and Fee Schedule and Payment:**

Up to £20,000 (+VAT) and the proposals should include total cost.

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| --- | --- |
|  | **Payment** |
| Submission of the draft report | 50% |
| Acceptance of the final and summary report | 50% |

1. **Contracting with WWF-UK:**

It is our preference that an appointed external partner adopts our standards terms and conditions for engaging with us. These are included within the tender documents. Please confirm you are willing to accept these terms. Should you have any amends you wish to make, these will need to be discussed with the WWF-UK legal team.

WWF-UK asks all suppliers to comply with the Supplier Code of Conduct and WWF-UK 3rd Party Expenses Policy. Both documents are enclosed within the tender pack. Please confirm your acceptance of both.

All contracted suppliers are required to register on Panda Purchasing (WWF-UK’s PO and invoice system). Should you be successful in your bid, please confirm you will be willing to register on the system.

1. **Timeframe:**

The report is anticipated to be delivered within three months upon the contract is granted to the successful contractor(s).

1. [How much water is in the ocean? (noaa.gov)](https://oceanservice.noaa.gov/facts/oceanwater.html) [↑](#footnote-ref-2)
2. [Living Planet Report 2022 | WWF (panda.org)](https://livingplanet.panda.org/en-GB/) [↑](#footnote-ref-3)
3. [Coastal Blue Carbon (noaa.gov)](https://oceanservice.noaa.gov/ecosystems/coastal-blue-carbon/#:~:text=Current%20studies%20suggest%20that%20mangroves,equivalent%20area%20than%20tropical%20forests.) [↑](#footnote-ref-4)
4. [Saltmarshes – the unsung heroes of our coasts! | The Wildlife Trusts](https://www.wildlifetrusts.org/blog/guest/saltmarshes-unsung-heroes-our-coasts) [↑](#footnote-ref-5)
5. [Sussex Kelp Restoration Project Rewilding Project | Rewilding Britain](https://www.rewildingbritain.org.uk/rewilding-projects/sussex-kelp-restoration-project#:~:text=Since%201987%20over%2096%25%20of,trawling%20and%20other%20human%20pressures.) [↑](#footnote-ref-6)
6. [What is Blue Carbon? — The Blue Carbon Initiative](https://www.thebluecarboninitiative.org/about-blue-carbon) [↑](#footnote-ref-7)
7. [Frontiers | Historical Analysis Exposes Catastrophic Seagrass Loss for the United Kingdom (frontiersin.org)](https://www.frontiersin.org/articles/10.3389/fpls.2021.629962/full?utm_source=fweb&utm_medium=nblog&utm_campaign=ba-sci-fpls-historical-analysis-exposes-catastrophic-seagrass-loss-for-the-United-Kingdom) [↑](#footnote-ref-8)
8. [UK Saltmarsh Code | UK Centre for Ecology & Hydrology (ceh.ac.uk)](https://www.ceh.ac.uk/our-science/projects/uk-saltmarsh-code) [↑](#footnote-ref-9)
9. [Sussex Kelp Restoration Project Rewilding Project | Rewilding Britain](https://www.rewildingbritain.org.uk/rewilding-projects/sussex-kelp-restoration-project#:~:text=Since%201987%20over%2096%25%20of,trawling%20and%20other%20human%20pressures.) [↑](#footnote-ref-10)
10. <https://www.frontiersin.org/articles/10.3389/fclim.2021.710546/full> [↑](#footnote-ref-11)
11. Janes, H., Macreadie, P.I., Ermgassen, P.S.E.Z., Gair, J.R., Treby, S., Reeves, S., Nicholson, E., Ierodiaconou, D., & Carnell, P. 2020. Quantifying fisheries enhancement from coastal vegetated ecosystems. Ecosystem Services. 43, https://doi.org/10.1016/j.ecoser.2020.101105 [↑](#footnote-ref-12)