**Invitation to Tender (ITT):** **mNCEA** **Maerl and Sandbanks 2024 Project**

**SPECIFICATION OF REQUIREMENTS**

This section sets out the project requirements.

**1. Introduction**

## This project will provide important data on Maerl and Sandbank habitats within the Berwickshire and North Northumberland Coast Special Area of Conservation (BNNC SAC). As part of the marine Natural Capital and Ecosystem Assessment Programme (mNCEA) this will further knowledge regarding key habitats, obtained during the 2021Shallow Inlets and Bays Pilot Project (Fitzsimmons *et al.,* 2021). This project comprises two distinct phases with data collected during Part 1 surveys used to inform and direct Part 2 surveys.

This ITT is for analysis of data/samples collected during Part 1 and 2. Analysis of Part 1 data is to produce a brief field report and develop a sampling strategy to inform and direct sampling during Part 2 surveys. Following Part two surveys, the contractor will analyse data, samples, and produce a report with associated deliverables:

**Part 1 - Multibeam Surveys**

Data Collection (For Information Ony)

* Habitat mapping surveys (Multibeam) to be undertaken by Northumberland Inshore Fisheries and Conservation Authority (NIFCA) in May 2024.
  + Estimated 4 days sea time.
  + Data collection in two general areas of interest (Figure 1), previously identified during the Shallow Inlets and Bays Pilot Project (2021).
    - South Farnes Area (~54km2) Sandbank Area.
      * Multibeam.
      * Up to 5 sub areas within broader area of interest surveyed based on priority.
    - North Farnes Area (~13km2) Maerl on cobble-reef.
      * Multibeam.
      * Up to 2 sub areas within broader area of interest surveyed based on priority.

Data Analysis (Deliverable by contractor)

* Analysis of habitat mapping data collected by NIFCA during Part 1 surveys.
* Production of a brief field report detailing results and conclusions of data analysis including production of maps for each area.

Part 2 Survey Sampling Strategy (Deliverable by contractor)

* Production of a sampling strategy to direct Part 2 surveys (due to be undertaken in July 2024) based on results of Part 1 data analysis, specifically;
  + South Farnes - Sandbank Area
    - Recommendations for the locations of 12 grabs stations (x3 replicates at each station = total 36 grabs) spread over the area, including sandbank ridges and furrows.
  + North Farnes - Maerl on cobble reef
    - Recommendations for the location of up to 40 drop down video (DDV) transects to ground truth habitat mapping data results.

**Part 2 - Ground truthing/Sample Acquisition Surveys**

Data Collection (For Information Only)

* Ground truthing surveys to be undertaken by NIFCA in early July 2024 (based on the devised sampling strategy)
  + Estimated 7 days sea time.
  + 36 benthic grabs collecting sediment samples for Particle Size Analysis (PSA) and infauna analysis.
  + Data collection in Areas of Interest Surveyed during Part 1.
    - South Farnes - Sandbank Area
      * 12 grabs stations (x3 replicates at each station = total 36 grabs) spread over the area, including sandbank ridges and furrows.
    - North Farnes - Maerl on cobble reef
      * DDV transects to ground truth habitat mapping data results.
      * Semi quantitative data collection from video with still image acquisition and laser scaling.

Sample Processing / Data Analysis (Deliverable by contractor)

* Infauna and PSA analysis of samples resulting from 36 benthic grabs taken from Area 1.
* Analysis of up to 40 DDV transects resulting from tows undertaken at Area 2.

Written report / Data collation (Deliverable by contractor)

* Production of a written report (including maps) detailing the results of both Part 1 and Part 2 surveys and data analysis.
* Collation of survey data to produce datasets in a format that usable and can be made available to Natural England. See Annexes

## Natural England is seeking to procure a Contractor to deliver; see section 5.1 for specific Products and Deliverables

* **Part 1 multibeam data analysis and production of a field report with a survey/sampling strategy for Part 2.**
* **Part 2 DDV processing**
* **Data analysis of Part 2 DDV and Third Party PSA and Infauna results**
* **Production of a written report detailing the results of Part 1 & 2 surveys.**
  + **Broadscale habitat maps of areas of interest.**
  + **EUNIS classification to level 4-5, based on DDV and sediment PSA and infauna analysis.**
* **Collation of Part 1 & 2 data outputs in format that can be made available and useable by Natural England (see annexes).**

## The Contractor is expected to begin work as soon as possible after the contract start date. In addition, Part 1 data analysis and Part 2 survey/sampling strategy development are time critical to ensure that outputs can be used to inform surveys planned to occur in early July 2024.

## Potential Contractors are requested to provide costings Part 1 and Part 2 separately (including VAT, if applicable/VAT status should be clearly indicated) for:

* Part 1
  + multibeam data analysis.
  + Production of Part 2 survey/sampling strategy report.
* Part 2
  + Processing of benthic grab samples (x36) for PSA and infauna.
  + Analysis of Part 2 DDV transect footage and stills (up to 40 tows).
  + Production of written report and data collation.
  + Production of GIS data outputs.

## The contractor will be expected to undertake quality assurance on work delivered and ensure it is compliant with the requirements of the Joint Code of Practice for Research

## (see:<https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/413154/pb13725-research-code-practice.pdf>)

**2. Background**

**2.1 Site details**

Table 1 and Figure 1 outlines the areas of the BNNC SAC that Natural England is primarily interested in surveying. Whilst subtidal sand (which would form the basis of sandbank interests) is a qualifying feature of the site, maerl beds are not. The information presented below provides an overview of what is expected to be found at each site and proposed survey methodologies for Part 1 and Part 2 surveys.

A screenshot of a computer

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Figure 1: North Farnes (Maerl) and South Farnes (Sandbanks) Areas of Interest (note numbering indicates Part 1 survey prioritisation).

Table 1. Berwick and North Northumberland Coast Special Area of Conservation Survey Areas of Interest.

|  |  |
| --- | --- |
| **Survey Area of Interest** | **Survey Activities** |
| Area 1 | **Sandbank Area – South of Farne Islands (~54km2)**   * **Part 1 Surveys**   + Multibeam in up to 5 sub areas within broader area of interest surveyed based on priority and time availability. * **Part 2 Surveys**   + 12 grabs stations (x3 replicates at each station = total 36 grabs) spread over the area, including sandbank ridges and furrows. |
| Area 2 | **Maerl on Cobble-Reef – North of Farne Islands (~13km2)**   * **Part 1 Surveys**   + Multibeam in up to 2 sub areas within broader area of interest surveyed based on priority and time availability. * **Part 2 Surveys**   + Up to 40 DDV transects to ground truth habitat mapping data results. |

**2.2 Reasoning**

Work undertaken during previous projects, including the 2021Shallow Inlets and Bays Project (Fitzsimmons *et al*., 2021), provided initial evidence suggesting the presence of key habitats within the BNNC SAC, including potential maerl beds and stable sandbanks. See also Figure 2 for a OLEX snapshot of potential sandbank data. As part of the mNCEA, this project aims to verify this evidence through targeted surveys in key areas, and further Natural England’s understanding the extent and quality of these habitats within the BNNC SAC.

A computer screen shot of a map

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Figure 2: OLEX data for sandbank area of interest.

**3. Objectives**

**3.1 Project objectives**

The objectivesfor this contract are stated in section 1.2.

**4. Methods**

**4.1 Survey methodology**

Development of general survey methodologies will be handled by NIFCA. However, the Contractor will be expected to produce a sampling strategy for Part 2 surveys based on the results of Part 1 survey data analysis.

**4.2 Survey data format**

Part 1 data will be collected using WASP multibeam and will be provided by NIFCA in .xyz format.

**5. Products and deliverables**

**5.1 Products and deliverables**

To enable successful delivery, the Contractor is expected to:

* Undertake analysis of Part 1 multibeam data collected from Areas 1 and 2, following collection by NIFCA in May 2024.
* Produce Part 2 survey/sampling strategy report based on findings of Part 1 data analysis.
* Complete the above in good time to inform Part 2 surveys (scheduled for July 2024).
* Processing and analysis of Part 2 benthic grab samples (x36) for PSA and infauna. This activity could be subcontracted if necessary (in this case arranging and managing subcontractors will be the Contractor’s responsibility).
* Procurement and management of benthic grab sample consumables (e.g. storage containers, fixing agents such as Formalin etc.).
* Analysis of Part 2 DDV transect footage and stills (up to 40 tows).
* Collation of survey data in a format readily accessible to Natural England including GIS outputs {see annexes].
* Production of a final written report detailing the results of Part 1 and Part 2 surveys including 1 review.

Timelines for delivery of objectives and final reports, and associated products, are detailed in section 5.3.

**5.3 Timeline for project delivery:**

|  |  |
| --- | --- |
| **Timeline** | **Date** |
| Project meeting between Natural England, NIFCA and Contractor via video conferencing | Asap |
| Analysis of Part 1 data and production of Part 2 survey/sampling strategy report. | Completed by late June 2024 at the latest |
| Analysis of Part 2 benthic grab samples | End October 2024 |
| Analysis of Part 2 DDV transect footage and stills | End of October 2024 |
| Production of collated data package including GIS outputs | End of November 2024 |
| Production of draft written report detailing the results of Part 1 and Part 2 | Beginning December 2024 |
| Final report and associated products to be delivered | End of January 2025 |

Any delays to this timetable should be immediately discussed with NE project lead(s).

# **6. Other considerations**

In support of this contract, Natural England will provide the contractor with:

Project support from dedicated project lead.

Relevant available data held by Natural England.

Opportunity to feedback and discuss progress with the project leads.

# **7. INNS**

Invasive non-native species (INNS) are considered to be one of the top five pressures directly driving biodiversity loss globally. Prevention is the key focus, particularly in marine environments. The contractor shall be aware of and work in accordance with standard good practice biosecurity measures to avoid spread of INNS:

A list of INNS species considered as a priority under the UK marine strategy can be found on the Great Britain Non-native species secretariat [website](https://www.nonnativespecies.org/home/index.cfm). This list includes species that might be considered as high risk and horizon species which are also relevant from an impact on designated sites perspective as well.

INNS species previously recorded in this region and/or to particularly look out for during this survey include:

*Hommarus americanus*

*Magallana gigas*

The contractor must report any records of INNS observed on site recorded DDV imagerye against the [UK Marine Non-Indigenous Species Priority List](https://www.nonnativespecies.org/assets/UK_Marine_NIS_priority_list_2020-1.pdf)1 on Marine Recorder and to the Natural England project officer as part of the survey report. Any species currently listed as ‘alert’ species should be flagged immediately to the GB Non-Native Species Secretariat ([Species alerts » NNSS (nonnativespecies.org)](https://www.nonnativespecies.org/non-native-species/species-alerts/)). More information and guidance including ID guides can be found at [www.nonnativespecies.org](http://www.nonnativespecies.org/) and <https://core.ac.uk/download/pdf/341301316.pdf>.

**Annex 1.**

**Data Standards**

All data acquired as part of Natural England commissioned survey work needs to comply with certain standards to ensure it is compatible with the Natural England Marine Evidence Base and is suitable for publication.

As a minimum, where data are acquired through survey work, these should adhere to the MEDIN data standard, any spatial data should be compatible with ArcGIS and any point source biological data should be suitable for entry into Marine Recorder.

MEDIN Standards

All supplied data should be provided with a MEDIN metadata record, which meets the MEDIN metadata discovery standard. The contractor is required to export the resultant .xml file and provide this with the final deliverables. They are not required to save the record to the MEDIN portal. Guidance for contractors on MEDIN data can be found in Annex 1.

Geospatial data Standards

All GIS datasets need to be provided in ESRI ArcGIS format compatible with ArcGIS 10.2 and have attached metadata.

All GIS files containing habitat data for each individual survey need to be produced to the [MESH translated habitat Data Exchange Format (DEF)](https://emodnet.ec.europa.eu/sites/emodnet.ec.europa.eu/files/public/step3_guidance_dataexchangeformats_v4_1.pdf) to the most detailed EUNIS habitat level possible. MNCR ([v15.03](http://jncc.defra.gov.uk/MarineHabitatClassification)) data should be added to the ORIG\_HAB column. The GUI provided by Natural England for each survey will be used, and as much information as possible (e.g., survey name, originally assigned feature/habitat name etc.) from the original dataset, as well as any documentation provided (where available) should be included in the resulting datasets to maintain a useful audit trail. As specified in the [MESH DEF](https://emodnet.ec.europa.eu/sites/emodnet.ec.europa.eu/files/public/step3_guidance_dataexchangeformats_v4_1.pdf), data files must be provided as ESRI Shapefiles or as a feature class data within a geodatabase using the WGS1984 geographic coordinate system and (lat/long coordinates. If not included in the GIS data layers listed above all sampling locations, vessels track, and links to data obtained should also be included as a single GI layer.

Marine Recorder

Projects acquiring sample data should clearly state within the specification the requirement for sample data to be uploaded to Marine recorder. All sample data (e.g. grab sample analyses, video/still photography analysis, diver survey species, PSA analysis and biotope lists, biological taxon data) need to be entered into [Marine Recorder](https://www.esdm.co.uk/marine-recorder) NBNdata and an exported snapshot file of the data should be provided for QA.

Other Deliverables

Draft reports should be provided in electronic MS Office Word \*.DOCX format for comment. A template and guidance exists for writing Natural England commissioned reports and will be sent to the contractor upon award of the tender. All reports should retain a clear suggested citation stating that it is a ‘Report to Natural England’

Data must be interpreted, analysed and presented in light of the overarching hypotheses stated in the survey objectives. Raw formats of sample data information should comply to MEDIN data standards and be interrogatable. The submission of raw data as a PDF is not acceptable and may lead to acquired evidence being more difficult or impossible to use in the future.

Standard survey imagery (stills & video) is to be provided in their raw format electronically or on USB compliant external hard drives. Video and still camera filenames must include the recording start date and time. Position data must be included within the overlay information of both the stills and video footage.

All data products and electronic files must be appropriately named so they sufficiently describe the contents and are not purely a numerical value. All products should be named appropriately so that they can be clearly linked to the report/project.

Any species lists submitted will be compliant with current taxonomic names and synonyms (e.g., [Marine Species of the British Isles and Adjacent Seas (MSBIAS)](http://www.marinespecies.org/msbias/), World Register of Marine Species (WoRMS)).

**Annex 2.**

**MEDIN – GUIDANCE TO CONTRACTORS**

Natural England endorses the MEDIN (Marine Environmental Data and Information Network) initiative. For all surveys it is expected that contractors create a MEDIN metadata record, meeting the [MEDIN metadata discovery standard](https://www.medin.org.uk/medin-discovery-metadata-standard). The metadata record should be completed as fully as possible and saved as an xml file from the MEDIN Discovery Metadata Editor or Metadata Maestro Tool. The contractor is only required to create and export an xml file, the record should not be saved on to the MEDIN portal.

**Requirements**

1.  The contractor should be aware of and follow the MEDIN metadata guidance notes <https://www.medin.org.uk/medin/sites/medin/files/documents/MEDIN_Schema_Documentation3_1_brief.pdf>

2.  One metadata record should be created for each survey.

3.  NE will provide the contractor with a **Unique Resource Identifier** code. There are two parts to this, a code and a codespace. The code is a unique reference following the format NE\_XXXX (where xxxx is a sequential 4 digit number). The code will be generated internally and will be passed to the contractor by the project lead or NE data manager. The codespace is just the NE website <https://www.gov.uk/government/organisations/natural-england>

4.  The **resource title** should follow the naming convention below;

‘Date’ ‘Natural England (NE)’ ‘Location’ ‘Type of survey’

· 2014 Natural England (NE) Land’s End - Intertidal sediment Phase I, Phase II rMCZ Verification Survey

· 2014 Natural England (NE) Flamborough Head SAC – Subtidal reef drop down video survey

5.  The **resource abstract** should list all deliverables for the project (raw GIS, background info, camera stills) as well as sufficient information on the aims of the project and any important caveats to the data.

**6.  Resource locator** – If the data from the survey is going to be passed to DASSH to archive then the following should be added (with the correct survey code at the end);

<http://www.dassh.ac.uk/datadownload/NaturalEngland/NE_XXXX>

**7.  Search Words** – Please ensure the keywords are completed, if the project involves mapping marine habitats please use ‘Habitat Extent’ and/or ‘Habitat Characterisation’.

**8.  Limitations on public access**– Unless the project officer specifically informs you that the data is restricted then please complete as ‘otherRestrictions’ and in additional information ‘No restrictions to public access’

**9.  Conditions applying for access and use**- Unless the project officer specifically informs you that the data is restricted then please complete as ‘Data is freely available for research or commercial use providing that the originators are acknowledged in any publications produced.

10.  Once completed the metadata record should be exported as an xml file. It is important that if you are given the option you **DO NOT** export it to the MEDIN portal. Natural England will compile multiple xml files and archive through Data Archive Centres (DACs) in batches. Please submit your xml file along with the other project deliverables.

11.  Natural England will QA the metadata record. Please verify the file in the MEDIN metadata editor before sending to the project officer. If errors are found during the QA process it will be returned for amendment.

**References**

Fitzsimmons, C., Tinlin-Mackenzie, A., Scott, C., Aitken, A., Southerton, M., Richardson, S., Basset, A. (2021) Shallow Inlets & Bays Pilot Project 2021. Report to Natural England