



**PROJECT** PREDICTIVE MAPPING OF PROTECTED SEABED FEATURES WITHIN SCOTTISH TERRITORIAL WATERS

**CLIENT** SCOTTISH NATURAL HERITAGE (SNH)

## PROJECT DESCRIPTION

Predictive mapping of protected seabed features within selected Special Protection Areas of Conservation (SACs) and existing and proposed Nature Conservation Marine Protected Areas (NC MPAs) in Scottish territorial waters was carried out using a broad range of available datasets. Geographical Information Systems (GIS) and the R statistical programming language and environment were used to carry out the analyses and create a shapefile for use in future habitat assessments and overlap analysis.

## SERVICES PROVIDED

**FEATURE MODELLING** Use of a hybrid approach to generate predicted habitat polygons across 28 sites. The approach taken combined:

- Aerial imagery classification,
- Statistical modelling, and,
- Rule-based modelling

**CONFIDENCE ASSESSMENT** Application of a confidence index reflecting the quality of the underlying data supporting the delineation and classification of each polygon.

**DATA APPRAISAL** Collation and review of data available to inform predictive habitat mapping including publicly available data and data provided under contract. This was used to indicate the modelling approach that could be applied to each site.

**DESK-BASED REVIEW** A review covering the biotopes occurring within each target habitat, the known environmental constraints of habitat subtypes and the currently known distribution of the target habitats.

## ADDED VALUE

This work:

- builds on existing work using rule-based modelling by combining three distinct classification methodologies: image analysis, statistical modelling and rule-based modelling, to optimally exploit available data.
- highlights habitat types and/or sites for which additional data collection would be beneficial allowing effective targeting of survey effort if required.



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