

Project title:

Dredging up the Past – Assessing Current Scallop Dredging Impacts in Northumberland & Tracking Recovery from Historic Fishing Effort

Supervisors:

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Key Research Gaps and Questions:

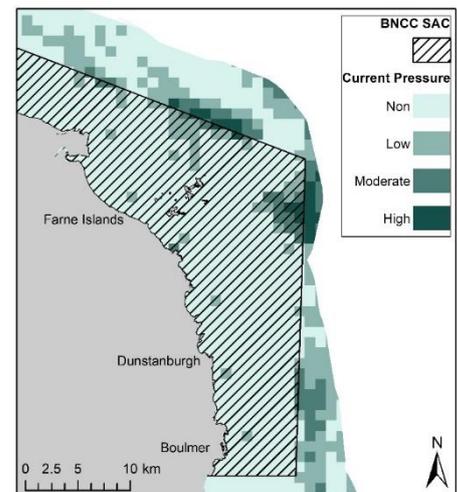
Addresses critical knowledge gaps for dredge fishery impacts in Northumberland:

- What impact are scallop dredgers having on the benthos in Northumberland?
- To what extent are scallop dredgers effecting the target species, *Pectin maximus*, in Northumberland?
- Is current fisheries management effectively protecting the benthos from mobile fishing gears?
- Have benthic communities in protected areas recovered from the effects of historic scallop dredging?

Project Rationale:

The inshore waters of Northumberland offer a unique opportunity to investigate the impacts of scallop dredging on both the target species and benthic communities. Management for scallop dredging has been put in place in a Marine Protected Area (Berwickshire and North Northumberland Coast Special Area of Conservation (BNNC SAC)) in the region since 2014, and dredging continues around the boundaries.

Fishing is considered one of the major human activities affecting marine ecosystems globally. Towed bottom fishing gears damage the benthos, with scallop dredging responsible for the most damaging effects, removing both epifauna and infauna, modifying the biomass, diversity, and productivity of benthic communities. The localised impacts in Northumberland are largely unknown and undocumented to date, with evidence urgently required to support regional fisheries management decisions.



Dredging pressure maps 2016-2019.

Project Description:

This research will investigate the impacts of scallop dredge fishing effort on the abundance and size of the king scallop, the condition of benthic communities, and the effect of a closed area on these factors in the NIFCA district. Impacts will be assessed using fishing pressure maps produced using MMO supplied VMS data combined with biological data extracted from underwater imagery of the benthos.

Benthic imagery was collected in 2019 using a SeaSpyder camera system, targeting sites along a fishing pressure gradient (pressure categories: none, low, moderate). Further data collection is planned at sampling sites which were subject to dredging pressure prior to the ban of mobile gear within the BNCC SAC, enabling the assessment of recovery.

Images will be quality assessed, scaled, all observed taxa identified and enumerated, and live scallop shell widths measured. Resulting taxa matrices will be analysed using a combination of univariate and multivariate statistical techniques to answer the research questions.



Benthic imagery collected in 2019.

Prerequisites:

Highly motivated with a keen interest in the ecology and management of benthic ecosystems and fisheries. You should hold at least an upper 2:1 BSc degree in a relevant subject, and have a sound understanding of marine monitoring and policy. Experience using mapping software such as ArcMap would be beneficial, as would ID skills of benthic fauna. Strong communication skills are essential; you must be keen to work with the project partners.

Course Details and Applications:

Visit <https://www.ncl.ac.uk/postgraduate/courses/degrees/marine-ecosystems-governance-mres/#profile> to find out more information about the course and to apply online. Applications consist of a personal statement, CV, and research project proposal. Proposals must be discussed with the supervisors prior to applying. For more information, please contact: ashleigh.tinlin@newcastle.ac.uk and/or clare.fitzsimmons@newcastle.ac.uk