

The Lyme Bay Experimental Potting Project – How does commercial potting activity impact underwater reef habitats?

MB5204: The Lyme Bay Experimental Potting Project

What's the problem?

Studies have found that demersal (seabed) dredging and trawling has the greatest impact on marine habitats and their communities. These commercial fishing activities cause significant physical damage to the environment, often reducing the biomass of associated species. As a result, Marine Protected Areas (MPAs) are being introduced in targeted areas to protect marine communities from these impacts and encourage recovery in areas which have experienced such damage. Lyme Bay, off the UK's south west coast, is such an area in which a 206km² MPA has been in place since 2008. By banning demersal dredging and trawling, this MPA has helped recover its sensitive reef habitats which are home to a rich diversity of life; including the protected pink sea fan (*Eunicella verrucosa*). However, the impacts from other fishing activities are less understood, most significantly potting. The Lyme Bay Experimental Potting Project has been developed to understand the impact that a rise in commercial potting may have on reef habitats and how this can affect recovery and ultimately inform management.

What are the aims of the project?

The primary aim of this project is to investigate the impact of potting within the Lyme Bay MPA in order to inform management decisions for this site.

The project will monitor the biological changes that occur to Lyme Bay reefs under intensive potting activity. By manipulating potting intensity across a set of experimental areas, introduced throughout the Lyme Bay MPA, this project aims to determine both the impact of potting and at what level (if at all) commercial potting activity becomes environmentally unsustainable.

Data is collected on the most commercially important species caught in Lyme Bay (crab and lobster), as well as all other associated species, to quantify the effects of potting at a community level. Video sampling collects data on the more sessile (stationary) reef 'features', to monitor how the seabed assemblage changes over time under differing levels of potting. Spill over from the experimental areas will also be assessed.

This study is considered particularly novel in both its design and its procedure. The involvement of local fishermen in maintaining potting intensity, as well as in primary data collection can hopefully highlight the benefits of community led fisheries management. It is a great opportunity to develop a working relationship between scientists and fishermen alike.



Figure 1: Local fisherman involved in quantitative pot sampling (Image: Adam Rees).

Which policy areas will the research inform?

Results from this study could influence local and national management and advise a sustainable level for this unregulated UK fishery. Although the marine environment is highly heterogeneous, results from this study aim to be applicable to similar reef habitats around the UK. The evidence gathered can be applied to future Defra Impact Assessments, particularly those in support of the Marine Conservation Zone (MCZ) network commitment under the Marine and Coastal Access bill.

What are the results from the project and how will they be used?

The results from this project will help further our understanding on the effects of potting on the marine environment. A Lyme Bay working group, coordinated by the Blue Marine Foundation, brings together the stakeholders of Lyme Bay. The group has successfully introduced a code of conduct by which local fishermen have agreed to limit their potting effort. Experimental 500m x 500m areas of rocky reef have been established within the existing MPA boundaries in which potting intensity is manipulated. Four areas are assigned to each of the four ports involved, 16 in total, ranging from 'No potting', 'Low potting', 'Medium potting' and 'High potting'. Data is collected from these areas through a range of sampling approaches. Annual underwater baited and towed video surveys (developed by Plymouth University) have been conducted during summer 2013 and 2014 to assess changes to seabed features and the highly mobile species.

Over the winter period (December 2013 to March 2014) the South West experienced numerous unprecedented weather events, the combined set of storms being the most extreme recorded in 60 years and within the fishing community's cultural memory. As a result many fishermen lost substantial amounts of fishing gear from within Lyme Bay and along the SW Coast. Early results from the visual analysis of the video evidence collected through summer 2014 suggest that many of the key sessile reef features and associated mobile species have been reduced significantly as a probable impact of the storms through increased wave action causing damage to sensitive species (Figure 2).

This 'clean slate' effect has taken most of the reef areas back to a similar level, and clearly represent a severe unprecedented natural impact that some liken to the impact of towed gear. The result is that a much larger disturbance than that which was being instigated by the potting density work has affected the whole of the Bay region and thus negated any impact that the relative levels of potting may have started to build up. The storms have therefore removed the first year of the gradient that was built up to achieve the required three year period of study in order to give confidence in the results. The project has been

extended thanks to additional funding by DEFRA and will now run until 2017. Project milestones have been altered and will continue. In addition further quantitative potting will also commence in year 2 of the project to monitor any spill over that may occur from these areas.

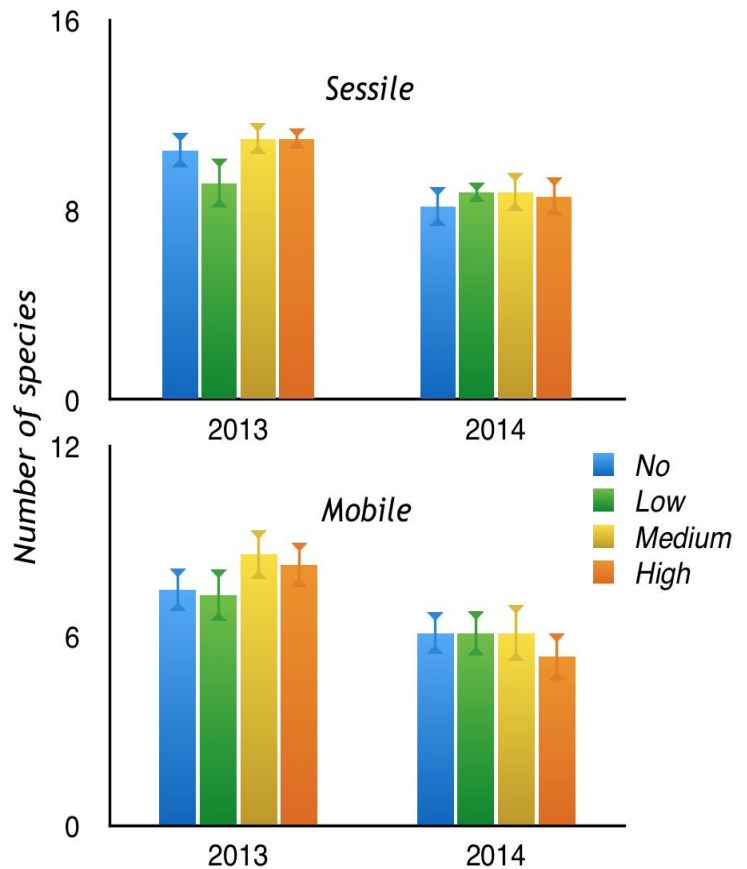


Figure 2 Number of sessile and mobile species showing a decline between 2013-2014

Where can I find further information about this and related research?

The project coordinator is Adam Rees (adam.rees@plymouth.ac.uk), who is leading the project on behalf of the Marine Institute Plymouth University:

<http://www1.plymouth.ac.uk/marine/Pages/default.aspx>

Alternatively, please contact Defra's Marine and Fisheries Science Unit:
marinescience@defra.gsi.gov.uk

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