A Changing Climate for Maritime Biodiversity: linking science to practice – Case Study

Slipper Limpet Management and Utilisation in the Fal

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Slipper limpet 'carpet' can change seabed

Unique historical sail/manual haul oyster fishery

Slipper limpets cover oysters, overwhelming dredges

Utilisation of flesh and shell. e.g as rendering

Overview

Slipper Limpets are non-native to the UK but are beginning to be found in greater numbers in the South West, including in the Fal Estuary in Cornwall. Slipper Limpets have been able to successfully colonise here because they have efficient reproductive and feeding strategies, few predators, are able to disperse themselves effectively and have a wide environmental tolerance.

SW England first experienced slipper limpets in the 1950s, with a low level of growth throughout the 20th Century. In the last 10 years the level of slipper limpet biomass has increased significantly. Reproductive performance is strongly influenced by temperature and the population increase is likely to be partially related to rising sea temperatures.

The presence of this non-native species has the potential to have an effect on native biodiversity and fishery performance in the South West. Industry and conservation bodies must work in partnership to find sustainable management systems and utilise these pests.


Photo: Sally Sharrock

Impacts of Slipper Limpets

Slipper limpets can out-compete other species for food and space, although they do not directly harm other species and can in some areas actually increase species diversity. However, when populations reach superabundant levels they can transform habitats through the deposition of faeces and fine sediment. This can ultimately lead to loss of habitat biodiversity. Slipper limpets are therefore recognised as an 'invasive' non-native species and considered a threat to the Fal Special Area of Conservation which supports the native oyster and maerl beds, both of which are protected under the UK Biodiversity Action Plans (BAP).

Slipper Limpets also impact upon fisheries by leading to;

- Increased competition for other species
- Infestation of mussel and oyster beds
- Increased sorting time for fishers
- Handling difficulties
- Movement restrictions

Management and Utilisation

Surveys and monitoring of slipper limpets in the Fal Estuary, led by the Centre for Environment, Fisheries and Aquaculture Science (CEFAS), showed that the number of slipper limpets is increasing and allowed calculation of the biomass growth rate. Learning from work done in northern France, management options were explored to allow a minimum removal of at least 25 tonnes per year of slipper limpets to keep pace with population growth rates.

Potential treatment options included removal by suction dredge, killing by smothering, crushing and brine rinsing. Removal of slipper limpets using low impact dredges was seen as the most effective method of extracting slipper limpets, with efforts from both the oystermen retaining by-catch and the Harbour Authority as the fishery regulator.

A range of local partners and applications were identified to utilise this material to generate income to support management. This requires co-operation throughout the supply chain from fishery to product marketing. For example, a local scallop processor is willing to *shuck* the slipper limpet flesh during 'quiet' periods, whilst a sports-fishing bait supplier is happy to trial packs of frozen product for the aquarium/angling bait market.

Other utilisation options include:

- Shells can be used for a variety of purposes e.g. specialist aggregates in waste water treatment or for wall rendering or as bulk aggregates in resin bound permeable pavements or decorative garden products.
- Flesh, although edible, is not a good product for human consumption. However, it has great potential as a potting bait for whelk, crab or lobster. This would support local industry and reduce pressure on other food species currently used for bait.


Photo: Sally Sharrock

Challenges

The principal focus of UK non-native management is upon preventative measures and early action to eliminate potential founding colonies. Little is done to limit established non-natives such as slipper limpets until they reach superabundant levels and form significant pests and impact upon key economic activities. There is a potential to have pre-emptive management of slipper limpets in some areas before critical levels are reached.

Management of slipper limpets remain problematic with limited concerted action between conservation agencies and industry and no resources to halt increasing infestation levels. Work on the Fal oyster fishery has provided a range of utilisation options to help fund management. A trial season to develop a long term management approach has been proposed with the following key components:

- Utilisation of a range of slipper limpet by-products is seen as the only cost-neutral approach to a long term sustainable solution.
- Local solutions requires multi-partner involvement with utilisation applications tailored to each area and the level of slipper limpet biomass removed.
- Better co-operation between shellfishermen and conservationists can support industry to act 'on the ground' helping the long term viability of their fishery and to meet wider environmental objectives.

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Relevant links:
Port of Truro Oyster Management Slipper Limpet report:
http://www.seafish.org/resources/publications.asp
Slipper_Limpet_Report_Final_Small[1].pdf