

RESEARCH PLAN

Bangor Mussel Producers Association Ltd

2011

1 Introduction

The Bangor Mussel Producers Ltd (BMP) was formed in 2010 by the four companies that farm mussels in the Menai Strait.

Our Members have worked with scientists and regulators for many years to support, facilitate, and participate in research into seed mussel harvesting and mussel cultivation to address the information needs associated with managing the fishery.

Research has focussed on a number of key areas: the interaction between the fishery and bird populations; the effects of mussel farming on seabed habitats; and the fishery for shore crabs in the Menai Strait area. The results of this research have been published in peer reviewed journals and as reports to help guide management of the fishery.

BMP is committed to carrying forward the tradition of stimulating and supporting research that will help to improve the understanding and management of the mussel farming industry in the Menai Strait.

In October 2010 the North Menai Strait Mussel Dredge Fishery won MSC Certification. It was the first enhanced bivalve fishery in the world to attain this standard. There were two conditions of certification for the fishery. One of these was to develop a formal, strategic research plan. This document is a response to that condition. It sets out our priorities and plans for future research into the Menai Strait mussel fishery.

As well as addressing some issues that are relevant to the MSC scheme, this research plan also includes plans for research into issues such as water quality that are not directly relevant to the MSC

2 Development of the Research Plan

This research plan has been developed following discussions with fishery managers and statutory nature conservation agencies about the information requirements for managing the mussel fisheries in the Menai Strait, Caernfarfon Bar and Morecambe Bay.

During 2011, BMP has also been involved in discussions with the Environment Agency about research requirements associated with the seed mussel fishery in the Dee Estuary.

These discussions are all part of the ongoing statutory requirements associated with each element of the Menai Strait mussel fishery. They ensure that research requirements are kept under regular review by a wide range of organisations outside the BMP.

3 Research Priorities

We have agreed on a suite of research priorities for the different parts of the fishery. These are briefly summarised below.

- Water quality
- Mussel population dynamics
- Seed mussel stock status
- Non-target species
- Ecosystem effects - interactions between seed mussels and other species (especially birds);
- Non-native species
- Dissemination of information - making the results of research available to interested parties.

Some of these priorities have little or no bearing on the MSC standard (notably those associated with water quality). Others (such research connected with target and non-target species) are directly relevant to the MSC standard. Likewise, some of the priorities are only relevant to certain parts of the fishery, while others are relevant to all aspects of it. These relationships are illustrated in Table 1.

4 Progress

We have made significant progress with our research activities during 2010 and 2011. Key aspects of this include:-

- Water quality
 - We have funded two PhD research projects which are now underway, looking at:-
 - Microbial Water Quality in the Menai Strait and Conwy area.
 - Viral contamination in Seawater, Sediment and Shellfish: Protecting human health in Wales.
 - We are working in partnership with the School of Ocean Sciences to secure EFF funding for a project looking at:-
 - Human pathogens and shellfish in the Conwy, Menai Strait and Burry Inlet (bacteria, viruses and biotoxins).
- Mussel population dynamics
 - We have commissioned analysis of the genotype of mussels from the Morecambe Bay and Dee Estuary seed mussel fisheries in 2011.
 - We are developing a PhD project proposal in partnership with the School of Ocean Sciences to study dispersal patterns of mussel larvae in the Irish Sea.
- Seed mussel stocks
 - Morecambe Bay - we have carried out surveys of the seed mussels in Morecambe Bay before and during mussel harvesting here, and provided the equipment resources to enable two survey visits to this area by the North West IFCA and Natural England to ensure that the fishery was appropriately managed.
 - Dee Estuary - in partnership with the Environment Agency we have surveyed the seed mussel stock at Salisbury Bank in the Dee Estuary before agreeing a TAC and fishing this area.
 - Caernarfon Bar - surveys were carried out using ground discriminating sonar and drop-down underwater video in early 2011. No seed mussel settlement was observed, and no fishing took place here in 2011.
- Non-target species
 - Seed mussel fishery - we commissioned a study of the seed mussel fishery at Caernarfon Bar and in Morecambe Bay in 2010. This has provided quantitative information about the type and quantity of non-target species that are caught in the fishery in these areas.
- Ecosystem effects
 - We are discussing options for progressing research into interactions between the seed mussel fishery and eider duck in Morecambe Bay with Natural England and Cumbria Wildlife Trust (further to earlier research that we contributed to).
- Non-native species
 - Slipper limpets (*Crepidula fornicata*)

- We have funded a PhD on “*The distribution, spread and impacts of the invasive marine gastropod Crepidula fornicata in Welsh waters*” (Thesis submitted in 2011, not yet published).
- Monitoring work carried out in the Menai Strait has confirmed that the area is now free of this species
- Chinese mitten crabs (*Eriocheir sinensis*)
 - We have commissioned the production of a management protocol for this species, a survey of seed mussel beds in the Dee Estuary and subsequently monitoring of seed mussel catches in this area.
- Carpet sea squirt (*Didemnum vexillum*)
 - We have worked with the Countryside Council for Wales, Holyhead Harbour authority and scientists from the School of Ocean Sciences to develop a management and monitoring plan designed to contain the spread of this species.

5 Timetable for Research

Our plans for future research are summarised in the table overleaf.

Table 1: Menai Strait Mussel Fishery: summary of research priorities, progress and plans.

Topic	Relevant to MSC standard	Location				Timetable				
		Menai Strait	Caernarfon Bar	Morecambe Bay	Dee Estuary	2010	2011	2012	2013	2014
Water quality										
Microbial water quality		✓					✓	✓	✓	
Viral contamination		✓					✓	✓	✓	
Human pathogens		✓						✓	✓	✓
Mussel population dynamics										
Genetic monitoring	✓	✓	✓	✓	✓		✓	✓	✓	✓
Larval dispersal	✓	✓	✓	✓				✓	✓	✓
Seed mussel stocks										
Annual stock monitoring	✓		✓	✓	✓	✓	✓	✓	✓	✓
Non-target species										
Initial monitoring	✓		✓	✓		✓				
Establish & implement routine monitoring	✓		✓	✓	✓			✓	✓	✓
Ecosystem effects										
Mussel - bird interactions	✓	✓		✓				✓		
Non-native species										
Monitoring	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Review code of practice	✓	✓	✓	✓	✓		✓	✓		
Slipper limpet PhD	✓	✓				✓	✓			
<i>Didemnum</i> management		✓					✓	✓	✓	✓