

Fishery Activity Report

Background

This Association is required by statute to submit an Annual Report of cultivation activity within the Menai Strait to the Minister. The Annual Report is presented here for the Association's information, and a verbal report of fishing activity in the past few weeks will also be presented.

Recommendations

1. That the Annual Report for the fishery is accepted.

1. Annual Report 2010-2011

- 1.1 The Menai Strait Oyster and Mussel Fishery Order 1962 requires that the Grantees of the Order should "*...render to the Minister accounts of their income and expenditure under this Order and shall furnish to the Minister all other information required by him with reference to the fishery and in such form and at such times as the Minister may require...*" (at §15).
- 1.2 The reporting requirements for Fishery Orders have been formalised by the Welsh Assembly Government in a form entitled "Annual Report of the Grantee". A copy of the annual report for the year ending April 2011 is attached to this report.
- 1.3 The Association will note that over 5,000 tonnes of seed mussels were laid down in the fishery during 2010-11; and that over 12,000t were harvested. Most of the harvest (8,000t) was exported to Europe.

2. Recent Activity in the Fishery

- 2.1 The Menai Strait mussel dredgers, Valente and Mare Gratia, have been fishing for seed mussels in Morecambe Bay and the Dee Estuary during the summer of 2011. A verbal report of this activity will be given to the Association by Mr James Wilson.

October 2011



Welsh Assembly Government
Fisheries Unit
Rhodfa Padarn
Llanbadarn Fawr
Aberystwyth
SY23 3UR

Official Use Only

Sea Fisheries (Shellfish) Act 1967 (as amended)
Several and Regulating Orders

Annual Report of the Grantee

Year Ending April 2011
For Menai Strait East Fishery Order
PART 1 – REGULATING ORDERS

1. How many licences have been issued during the year? 2
2. How many licences were issued for: • Boat licences • Dredge licences
and
What charge was made per licence • Boat licences £ • Dredge licences £
3. What were total receipts from licence fees? £ 300
4. Were any other licences issued? YES ☐ NO x☒

If NO please go to question 5. If YES please give the following information

Type of licence	Number Issued	Cost per licence
Hand worked	2	£150.00

5. Are there any leases in the fishery? YES ☐ NO ☐

If NO go to Part 2. If YES please complete a, b and c below.

- a. How many leases are there in the fishery?
- b. What is the total amount of rents from those leases? £
- c. Please attach an up-to-date list of lessees and the size of the areas leased by each

PART 2 – SEVERAL ORDERS

6.

a.

What is the total number of grantee numbers?

5
- b.

Please attach:

●

an up-to-date list of names, addresses and occupations of all grantees or company members; and

●

the latest rule book of the grantee company (if different from previous year).
7.

Do you have a waiting list?

YES

x

☐

NO

☐

If YES please attach a copy
8.

Are there any leases in the fishery?

YES

x

☐

NO

☐

If NO go to Part 3. If YES please complete a, b and c below.

a.

How many leases are there in the fishery?

6

b.

What is the total amount of rents from those leases?

£ 12650.00

c.

Please attach an up-to-date list of lessees and the size of the areas leased by each. -(list as in previous years but attached)

PART 3 – SHELLFISH TAKEN FROM THE FISHERY

Type of Shellfish	For Consumption			For relaying to another fishery	
	Home Market (tonnes)	Export (tonnes)	Value (£1)	England and Wales (tonnes)	Export (tonnes)
Native Oysters					
Pacific Oysters					
Mussels	150	8,000	£4.28m	4400	200
Cockles					
Clams					
(specify					
species)					
Scallops					
Queens					
Lobsters					

PART 4 – SHELLFISH LAID DOWN IN THE FISHERY

Type of Shellfish	Quantity (tonnes/number (as appropriate))	Seed fattening (Enter YES or No)	Origin
Native Oysters			
Pacific Oysters			
Mussels	5380 / 400	Yes	Morecambe Bay (S America) / Caernarfon
Cockles			
Clams			
(specify			
species)			
Scallops			

Queens			
Lobsters			

PART 5 – ACTIVITY IN THE FISHERY

- a. Please specify what action you have taken to:
- carry out works of cultivation;
 - develop the fishery;
 - to control pests during the year;
 - comply with your management plan?

The Menai Strait Fishery Order Management Association (MSFOMA) took over responsibility for the 1962 Menai Strait East Fishery Order on the 1st April 2010. The composition of this group is intended to reflect the range of interested parties and includes participants from local government (Ynys Mon, Gwynedd), statutory agencies (CCW, EA), academia (Bangor University) and Industry (from both the licensed handpicking and the leased cultivating elements of the order), with a representative from the Welsh (assembly) government attending as an observer. This association is chaired by an independent member, Dr Sue Utting – a former CEFAS scientist who has considerable experience in matters associated with the management of shellfish. To facilitate effective functioning of the group, the association has had the benefit of the experience of Dr. Jim Andrews, who was for some time the Chief Sea fisheries officer of the North Western and North Wales Sea Fisheries Committee (NWNWSFC) (the body with responsibility for the order prior to 1st April 2010). Dr Andrews has traded as a consultant since 2007 and this association has engaged his services on a number of occasions during this first year of operation. Whilst not all participants have become members of the association to date (membership has been taken up by LA’s, Bangor University, Chair, Industry), all participants have played a full roll in considering issues.

The MSFOMA met quarterly during the year 1st April 2010 – 31st March 2011 to consider matters associated with the appropriate functioning of the order. A number of management measures have been carried over during the first 12 months to maintain a level of consistency with the management approaches taken by the NWNWSFC – such as the maintenance of the approach taken toward the issuance of handpicking licences. It is probable that, over time, if the Association is alerted to matters that require an alternative approach, that this will be considered in the appropriate context.

In respect of the licensed fishery – 2 permits were issued that took effect from 1st September 2010. An informal stock assessment of the biomass available to pick was undertaken in July 2010, which concluded that there had been only limited recruitment to the licensed area and as such, consistent with the NWNWSFC approach, licence were offered to those individuals who had held these in the immediate past Returns from this fishery have been collected which have been complied and suggest low intensity of activity

IN respect of the leased fishery – the operators have maintained and developed the different areas under cultivation, albeit within the overall framework indicated through the appropriate assessment (B Cook 2009) to ensure compliance with conservation management issues. IN excess of 8,000 metric tonnes of mussel was sent to the market place – although due to overall pressure on prices, the value of this output was lower than in recent years, with a total value of £4.3 million. Mussel seed was imported to the Fishery from both Caernarfon (in June 2010) and Morecambe Bay (August 2010), with only a small fishery evident in Caernarfon (<500t), a more significant amount being sourced from Morecambe (>4,000t)

IN December 2010, the Fishery and operators (through the identity of Bangor Mussel Producers Ltd (a Joint company equally owned Myti Mussels Ltd, Extramussels Ltd, Deepdock Ltd and Ogwen Mussels Ltd)) became the first enhanced fishery globally to be certified as fully sustainable by the Marine Stewardship Council (MSC) this being the culmination of a process some 18 months in structure. [Continued on Separate Sheet]

PART 5 – ACTIVITY IN THE FISHERY (CONTINUED)

b. What observations have you on the condition of the fishery, or any developments which made the operation of the fishery more difficult?

The period April 1st 2010 to 31st March 2011 represents the first year that MSFOMA has had the responsibility for the functioning of the order. The condition of the fishery in a general sense is good and the outlook is positive, significant amounts of mussel seed have once again been evident in the Morecambe bay area which bodes well for the output from the fishery in future years.

AS MSFOMA were tasked with undertaking responsibility for the Fishery order, as were Welsh Assembly Government so tasked with regard to inshore fisheries management. The applications that operators from the Menai Strait must make to fish mussel seed (juvenile mussels) within Welsh waters must thus be considered by WG. In the same sense that it has taken MSFOMA some little time to find its feet, the same is true with regard to WG and the specific issue of authorisation to access the seed resource – as it is not a conventional type of undertaking. A system of management had developed over some time with the SFC to facilitate this, and the hope is that likewise over time, and perhaps with the assistance of MSFOMA, WG can develop a system that functions in a timely efficient way that incorporates issues of environmental management, without jeopardising access to this ephemeral resource. However again, the indications are positive in this regard

Of considerable concern to MSFOMA has been the application for a Fishery Order in Morecambe Bay, given the significance of the South America seed resource to the Menai Strait sector. Representatives from MSFOMA held three meeting with the NWSFC / now NWIFCA to discuss the proposal and made comments on the draft reports dispersed. We have been greatly encouraged by this dialogue with both Dr Stephen Atkins (CEO of the NWIFCA) and Ms Mandy Knott (Scientific Officer of NWIFCA) and consider the development to be of great importance in ensuring the future sustainable utilisation of the mussel resource within the NE Irish Sea.

The MSFOMA remains on high alert with regard to activities that may directly or indirectly cause harm to the fishery, such as invasive non native species and ill thought out developments.

If necessary, please continue on a separate sheet and tick this box ☐

Signature

For and on behalf of

Name in BLOCK LETTERS

Date

Please tick the appropriate box(es) to indicate the documents attached:

	YES	NO		YES	NO
• an up-to-date list of lessees and the size of the areas leased by each (question 5(c))	<input type="checkbox"/>	<input type="checkbox"/>	• a waiting list (question 7)	<input type="checkbox"/>	<input type="checkbox"/>
• an up-to-date list of names, address and occupations of all grantees or company members (question 6(b))	<input type="checkbox"/>	<input type="checkbox"/>	• an up-to-date list of lessees and the size of the areas leased by each (question 8))	<input type="checkbox"/>	<input type="checkbox"/>
• the latest rule book of the grantee company (question 8(c))	<input type="checkbox"/>	<input type="checkbox"/>	• continuation sheet(s) for Part 5(b)	<input type="checkbox"/>	<input type="checkbox"/>
			• continuation sheet(s) for Part 5(a)	<input type="checkbox"/>	<input type="checkbox"/>

Part 5 a – (Contd)

This resulted in considerable favourable press attention for the operators and for the fishery on a local, national and international scale.

The Menai Strait seed mussel code of good practice has been utilised, in order to interpret the temporal opening available for movements of seed mussel from Morecambe – given the discovery of 2 individual Chinese mitten crab in the River Duddon in 2005 – a precautionary approach was taken in this instance. There is some belief within the community – including Natural England – that if this species had become established with this Estuary, then more individuals would have been discovered in the intervening period.

The Association supported in principle, the allocation of some funds toward the continuing programme to contain and eradicate the invasive ascidian, *Didenmun vexillum*, from Holyhead marina. CCW had initially thought that the approach taken in 2009/2010 had succeeded in removing this highly invasive sea squirt from the local environment – however this conclusion appeared to be premature as further investigation determined considerable resettlement. Given the threat that this species poses to the mussel beds within the fishery order, MSFOMA agreed to assist in whatever way deemed acceptable in respect of future management strategies.

MSFOMA was approached by the Isle of Anglesey County Council, seeking consent for activities associated with the refurbishment of Beaumaris pier – which after assurance were provided by the Council with regard to invasive non native species and any sedimentation – MSFOMA provided, as the southerly limit of the refurbishment extended within the boundaries of the Fishery Order – albeit into a non leased area.

Management of the fishery has been undertaken on a consistent and science based approach with due regard to other activities occurring within the local area and region.

BMP Research Plan

Background

The Bangor Mussel Producers Association (BMP) has recently produced a draft research plan. It has been presented to this Association for information and comment.

Recommendations

1. That the Research Plan is received.
2. That any comments by the members of this Association about this Research Plan are collated and forwarded to the BMP.

1. Introduction

- 1.1 The Bangor Mussel Producers Association Ltd (BMP) is composed of the four mussel farming companies operating in the Menai Strait (Deepdock, Myti Mussels, Extramussel and the Ogwen Fishermen's Cooperative).
- 1.2 In 2009 the BMP commissioned an assessment of the Menai Strait mussel fishery against the Marine Stewardship Council standard for sustainable fisheries. This assessment was carried out by MacAllister Elliot & Partners, and was completed in October 2010.
- 1.3 One of the conditions of MSC certification was that BMP should draw up a formal, strategic Research Plan for the fishery.
- 1.4 A draft Research Plan is attached to this report. It sets out research priorities for the fishery, identifies the progress that has been made against each priority to date, and a programme for future action.
- 1.5 BMP have asked MSFOMA for comments on this draft report.

2. Recent Research

- 2.1 Reports from recent research activity are also attached. These include:-
 - 2.1.1 Chinese Mitten Crabs - Management Protocol, survey results from the Dee Estuary.
 - 2.1.2 Non-target species - results of monitoring work in Morecambe Bay and Caernarfon Bar during 2010.
- 2.2 Further research (not yet formally reported) has been carried out into the genotype of the seed mussels imported into the Menai Strait in 2011. A verbal report of this research will be presented to the group.

October 2011

***** DRAFT *****

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 ERF 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

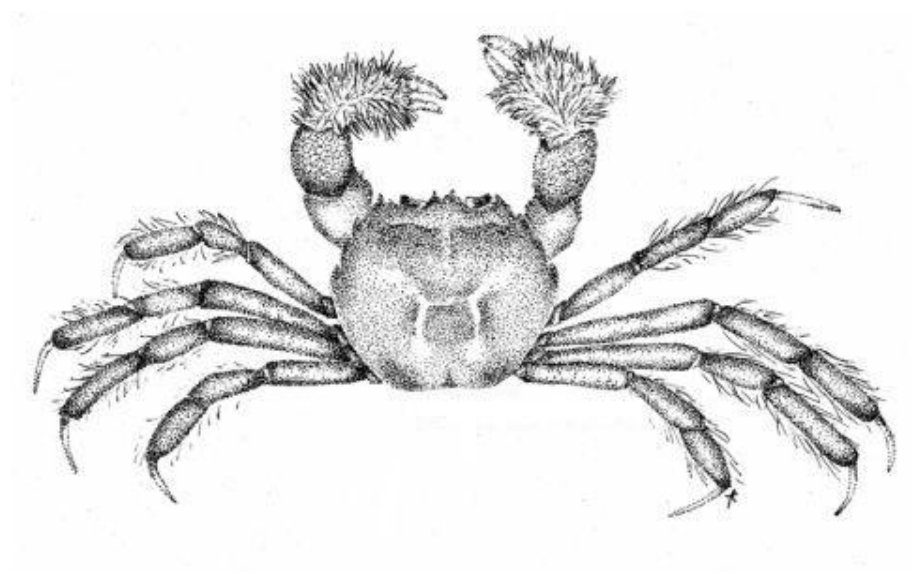
Our plans for future research are summarised in the table overleaf.

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	✓	✓				✓	✓			
Didemnum management		✓					✓	✓	✓	✓

Standard Operating Procedure for screening seed mussel beds for the Chinese mitten crab (*Eriocheir sinensis*)

Version: 1.2



Dr Andrew Woolmer

June 2011

Prepared for the Deepdock Ltd

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1. Harvest site screening

1.1 Intertidal Site Screening

Approach

The timed-search approach is a recognised methodology commonly employed to record and quantify rare or cryptic species (e.g. Goff *et al*, 1982, ;Metcalf-Smith *et al*, 2000; Smith, 2006). This approach was developed by Seafish has for the detection of slipper limpet *Crepidula fornicata* on seed mussel beds been successfully trialled in the Menai Straits and at Whiteford Point (Woolmer, 2008; 2009; 2011). Most recently this approach was accepted by the Department of Agriculture and Rural Development (DARD) as an appropriate method of screening seed mussels for movement to Northern Ireland.

Timed-search surveys are carried out at a series of 10 x 10 m (100 m²) survey areas spaced evenly across the seed mussel bed using a 100 x 100 m (1ha) grid design. The number of survey stations and size of grid depends on the size and extent of the seed mussel bed and the amount of time that the bed is safe to survey a tide; this should be discussed with relevant authorities before the survey is undertaken.

At these survey stations each surveyor searches for a period of 10 minutes and records the presence of mitten crab or other non-natives. If mitten crabs are present the surveyor records the numbers found during the 10 minute search period; this provides a standardized quantification of their abundance (n^{-10 minutes}) that can be used to establish a baseline to monitor the site against.

In addition to mitten crab the non-native species that may be included are the 8 ‘most wanted’ highlighted by Countryside Council for Wales as likely to be transported in mussel shipments:

- **Carpet sea squirt** (*Didemnum vexillum*)
- **Violet sea squirt** (*Botrylloides violaceus*)
- **Solitary sea squirt** (*Styela clava*)
- **Slipper limpet** (*C. fornicata*)
- **American jack knife clam** (*Ensis directus*) although unsuitable habitat.
- **Veined rapa whelk** (*Rapana venosa*)
- **Wakame** (*Undaria pinnatifida*)

Equipment for screening intertidal seed mussel beds:

- Waterproof notebook, ‘**Timed-Search Record Sheet**’ or clipboard and pencils
- Handheld GPS in waterproof case
- **Mitten crab/non-native species identification guide/photos** (this should be available from the conservation agency or fishery management body)
- Watch or clock with alarm
- Labelled sample bags
- Safety equipment including mobile phone, VHF radio, flares, personal protective clothing, first aid kit, life jacket and **tide tables**

Step-by-step instructions for timed-search screening of intertidal seed mussel bed

1. Consult tide tables to ensure that you have sufficient time to get on and off the shore safely
2. Focus your effort on the area of seed mussel that you wish to harvest choose an area of dense mussel and record a waypoint on the GPS – this is your 1st screening site

OR

If you are using survey design based upon a grid, proceed to mussel patches closest to your 1st waypoint

3. Fill out the date, time, screening site boxes on the **‘Timed-Search Record Sheet’**
4. Carefully search the immediate are around the survey station waypoint – the aim is to cover an area 10m x 10 m in 10 minutes.
5. When searching take time to look carefully at the surface of the mussels and the seabed for any signs of mitten crabs or other non-natives.

Any mitten crabs found should be collected and placed in sample bags

6. When the 10 minutes are up collect a large bag of mussels (minimum of 150) from the surface of the mussel bed for microscopic examination for juveniles
7. Walk to the next to be a screening site/waypoint. Take time to examine the seabed and mussels along the route for signs of mitten crabs or other non-natives.
8. Repeat steps 1-5 until you both have achieved a good coverage of the bed or have worked through the predetermined grid of waypoints – be aware of the incoming tide and the time at all times.
9. Samples for microscopic screening should be either put into a cool box with ice packs or frozen until they can be examined. It may be best practice to examine this at the site in order to prevent the inadvertent transport of mitten crabs to another area.
10. Following the guidance for **microscopic examination** described below the samples should be carefully inspected for juvenile mitten crabs

Refer to the photographic identification guides

2. Subtidal site screening

Screening of a subtidal seed mussel bed can be carried out during the preliminary investigation and prospecting stage of the harvest operation. By following the step-by-step guide you will very quickly be able to determine whether there are mitten crabs or other non-natives present on the seed mussel bed under consideration.

Visual screening – Timed Searches of dredge hauls

The aim of this stage is to carry out a series of **thorough searches** of a **set amount of time** through a series of seed mussel samples hauled on board the vessel.

Set times have been recommended for this stage this approach ensures a standard amount of effort is spent searching and that adequate volumes of mussel seed are examined.

Visual screening at sea

1. A series of samples should be taken inside of the seed mussel bed. As a rule of thumb at least 1 sample should be taken per hectare
2. A sample should be obtained by towing either a mussel dredge or small naturalists dredge for a short period of time – 30 seconds or 1 minute is recommended

It is important that the tow time is the same at each sample station

3. Take 10 minutes to sort through hauls looking for signs of mitten crabs or other non-natives
4. Pick up handfuls of mussels and pick apart any clumps of mussels mitten crabs may be buried and other non-native may be attached
5. The use of a 1 mm sieve is recommended for washing out mud but retaining small crabs
6. Retain a subsample of the haul for microscopic examination

Refer to the photographic identification guides

Sampling for adults – 2 m beam trawl

If there is a risk that adult mitten crabs could be present at the site during their migrations through the estuary in autumn and spring the use of a 2 m beam trawl rigged with light chains is recommended. Such trawls are commonly used by scientists to capture epibenthic fauna and would be effective in capturing mobile adults. A series of 10 minute tows across the seed mussel bed and in areas of seabed adjacent should be worked and the haul closely inspected.

Microscopic screening – looking for the juveniles

If there is a requirement from the regulator or the nature conservation agency to undertake microscopic examination of samples of mussel seed you will need to examine a number of individual mussels under a magnifying lamp or magnifying glass.

It is unlikely that mitten crabs will be attached to the individual mussels but may be associated with the byssal threads and amongst the mussel clumps. Other non-natives may be attached to the mussel shells.

This is not a difficult task but requires you to take some time to examine each of the mussels carefully.

Equipment for screening harvested seed mussel beds

- A bright source of light
- A white tray
- Magnifying lamp/magnifying glass
- **Mitten crab Identification Guide/Photos**

Microscopic Screening Procedure

1. Place your sample in a white tray or on a white surface and spread it out under a bright light taking care to separate clumps of mussels.
2. If you are using a 1 mm sieve juvenile crabs are retained in the mesh below the mussels so take care to examine bottom of the sieve.
3. Working from the top left of the sample closely examine each mussel clump and the associated material moving it away as you progress through the sample.
4. If you are searching for other non-natives examine the mussels by eye under a bright light using a magnifying lamp if available, examine both valves ensuring that you work systematically to cover the whole of the surface.
5. All juvenile crabs should be examined under magnification.

This is not as time consuming as you may think and may be worth the effort to prevent the introduction of mitten crabs or other non-natives to your lays

Important Note:

If you discover mitten crab or any other non-native at any stage of the screening do not under any circumstances return them to the sea or shore – this could lead to their spread

3. Screening imported seed mussel

The aim of this operation is to detect the presence of adult and juvenile mitten crabs in seed mussel transported by road

Visual screening – Timed Searches of imported seed mussel

The aim of this stage is to carry out a series of **thorough searches** of a **set amount of time** through a series of seed mussel samples arriving from other areas by road whilst still in the bags.

Set times have been recommended for this stage this approach ensures a standard amount of effort is spent searching and that adequate volumes of mussel seed are examined.

Visual screening of road shipments

1. Carefully sort through each bag as far as practicable turning over the top layers for **10 minutes each bag** looking for signs of mitten crabs or other non-natives; or

Empty out a and search through it for **10 minutes** carefully looking for adult or mitten crabs
2. Pick up handfuls of mussels and pick apart any clumps of mussels mitten crabs may be buried and other non-native may be attached
3. The use of a 4 mm sieve is recommended for washing and retaining small crabs
4. Retain a subsample of the haul for microscopic examination

Refer to the photographic identification guides

4. References

- Goff, F. G., G. A. Dawson and J. J. Rochow. 1982. *Site examination for threatened and endangered plant species*. Environmental Management 6(4):307-316.
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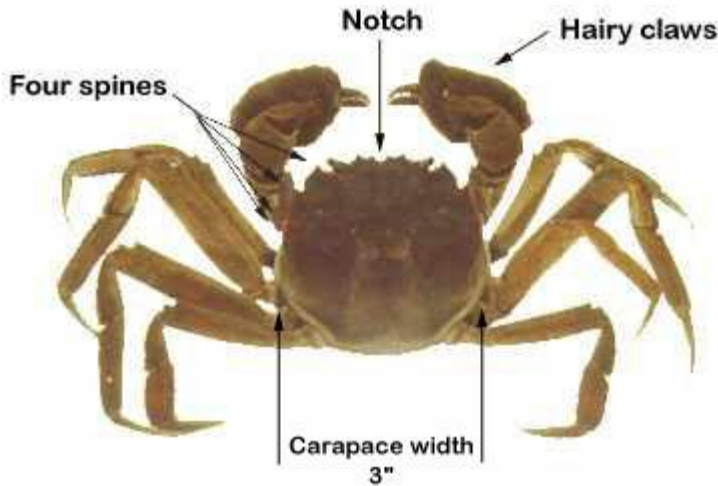
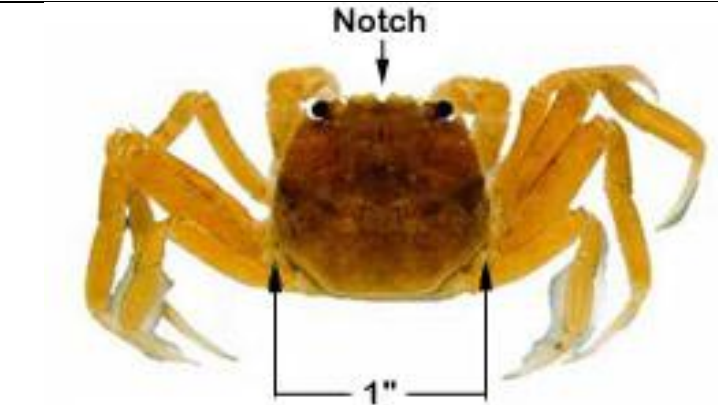
5. Appendix I: Recording Sheet

Sample Waypoint Name	Latitude	Longitude
Time Start	Time Finish	Notes
Number of Adult Mitten Crabs	Number of Juvenile Mitten Crabs	
Number of Other non-native species		
Carpet sea squirt/Violet sea squirt		
Solitary sea squirt		
Slipper limpet		
American jack knife clam		
Veined rapa whelk		
Wakame		
Sample Waypoint Name	Latitude	Longitude
Time Start	Time Finish	Notes
Number of Adult Mitten Crabs	Number of Juvenile Mitten Crabs	
Number of Other non-native species		
Carpet sea squirt/Violet sea squirt		
Solitary sea squirt		
Slipper limpet		
American jack knife clam		



Veined rapa whelk
Wakame

6. Appendix II: Chinese Mitten Crab Identification Guide

Chinese mitten crabs are most often found in areas where green shore crabs are also common. This guide highlights the distinguishing characteristics between the two species. These are particularly relevant when examining juvenile individuals.

<p>Chinese mitten crab (<i>Eriocheir sinensis</i>)</p>  <p>(Photo source:http://www.dfg.ca.gov/delta/mittencrab/identification.asp)</p>	<p>Adult</p> <ul style="list-style-type: none"> • The overall body shape characteristically rounded • Chelae (claws) are evenly sized and conspicuously hairy <ul style="list-style-type: none"> ◦ Chelae may have white tips • Distinct notch in the carapace between the eyes • The widest part of the carapace is always in the lower 1/3 of the animal <ul style="list-style-type: none"> ◦ Maximum width 80 mm (3 inches) • Four spines on the side of the carapace <ul style="list-style-type: none"> ◦ The fourth spine is smaller than the others • Legs are more than 2 x as long as the carapace
<p>Chinese mitten crab (<i>Eriocheir sinensis</i>)</p>  <p>(Photo source:http://www.dfg.ca.gov/delta/mittencrab/identification.asp)</p>	<p>Juvenile</p> <ul style="list-style-type: none"> • The overall body shape characteristically rounded • The widest part of the carapace is always in the lower 1/3 of the animal* • Distinct notch in the carapace between the eyes* • Legs are more than 2 x as long as the carapace • Chelae are evenly sized but may only have hairs if the specimen has a carapace width over 20 mm <p>* Distinctive characteristics in juveniles</p>

(See over for green shore crab)

Green shore crab (<i>Carcinus maenus</i>)	Adult
	<ul style="list-style-type: none"> • The overall body form characteristically kite shaped • The widest part of the carapace is always in the upper or front 1/4 of the animal <ul style="list-style-type: none"> ◦ Can grow to 90 mm (3.5 inches) • 3 distinct spines on carapace between the eyes <ul style="list-style-type: none"> ◦ No notch between eyes • Legs are no more than 1.5 x as long as the carapace • Chelae are evenly sized never have conspicuous covering of hair
Green shore crab (<i>Carcinus maenus</i>)	Juvenile
	<ul style="list-style-type: none"> • The overall body form characteristically kite shaped* • The widest part of the carapace is always in the upper or front 1/4 of the animal * • 3 distinct spines on carapace between the eyes <ul style="list-style-type: none"> ◦ No notch between eyes* • Legs are no more than 1.5 x as long as the carapace • Chelae are evenly sized never have conspicuous covering of hair <p>* Distinctive characteristics in juveniles</p>

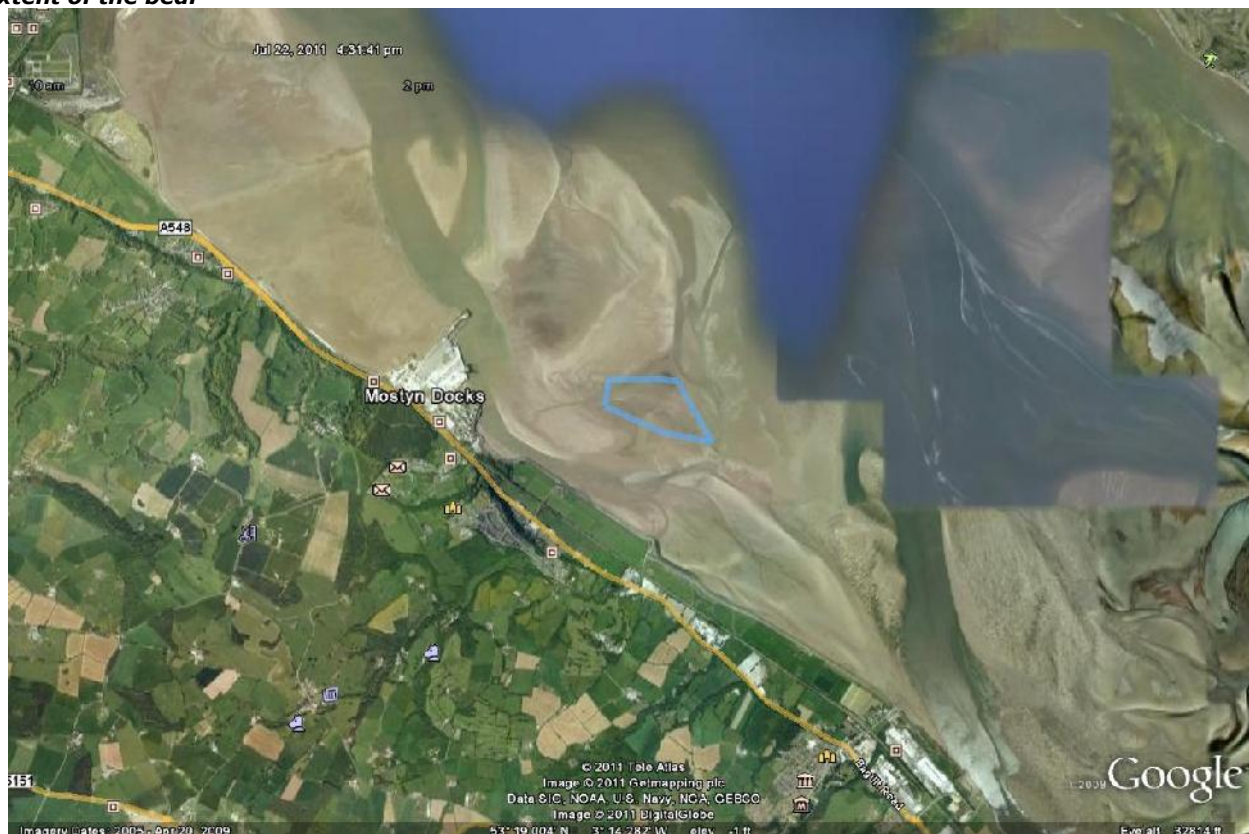
Chinese mitten crab (*Eriocheir sinensis*) Assessment Salisbury Bank Seed Mussel Bed (Dee Estuary): Dredge Survey

Dr Andrew Woolmer
22nd July 2011

1. Introduction

The seed mussel bed on the Salisbury Bank in the Dee Estuary represents a commercially important resource for the members of the Bangor Mussel Producers Association (BMPA) who wish to harvest and relay seed on their lays in the Menai Straits, Figure 1. Chinese mitten crabs (*Eriocheir sinensis*) have been reported in the upper Dee estuary at Connahs Quay, Chester wier and at the confluence of the Alyn and Dee rivers (pers. comm. Bryan Jones, Environment Agency; Higgs *et al*, 2010). An assessment of their presence in this seed mussel bed was therefore necessary in order to prevent their introduction to the Menai Strait.

Figure 1. The location of seed mussel bed on Salisbury Bank in the Dee Estuary. Blue polygon indicates the extent of the bed.



2. Approach and Methodology

This assessment closely followed the methodology described in the BMPA Standard Operating Procedure for screening seed mussel for Chinese mitten crab (Woolmer, 2011a) that accompanies this report.

The initial survey strategy of a series of 4 transects consisting of 35 tows covering the majority of the seed mussel bed was abandoned due to tidal constraints; the seed bed was only covered by sufficient water to work 1.5 hours before high water. An ad hoc approach was adopted that attempted to place sample stations in as wide an area across the bed as possible. This approach was envisaged to provide representative samples from both edge and centre of the bed (Figure 2).

At each sample station a hand-hauled mussel dredge was towed for 1 minute at ~1.5 knots from a small fishing vessel (7 m Colne Cat). The dredge was hauled aboard and samples emptied into a 4 mm stainless steel sieve (Endecotts). The samples were first examined by eye and then washed to

remove the mussel mud if necessary (3-4). The samples were picked through by hand for ten minutes and all crabs discovered were closely examined. Close attention was paid to the sieve mesh after washing.

3. Results

The assessment took place over the spring high tides on 22nd July 2011.

Table 2. Summary of results from time-search station

Sample Station	Latitude	Longitude	Mitten Crab (<i>Eriocheir sinensis</i>)	Green shore crab (<i>Carcinus maenas</i>) (including juveniles)
1	53° 19.068'N	3° 14.436'W	Nil	Present
2	53° 19.030'N	3° 14.062'W	Nil	Present
3	53° 19.055'N	3° 13.848'W	Nil	Present
4	53° 19.172'N	3° 13.932'W	Nil	Present
5	53° 19.150'N	3° 14.227'W	Nil	Present
6	53° 19.223'N	3° 14.400'W	Nil	Present
7	53° 19.144'N	3° 14.461'W	Nil	Present

Figure 2. Position of sample station (1 minute dredge tows)



No Chinese mitten crab were found in any dredge samples but further intertidal survey will be carried out to ensure that a precautionary level of assessment has been carried out to prevent the spread of this species outside of this site (see Woolmer, 2011b)

Figure 3. Washed mussel sample being visually examined



Figure 4. Example of juvenile *Carcinus maenas* common in washed dredge samples



References

Higgs, S., Seeley, B., Lear., D. Adams, L., Wilkes, P., Bilewitch, J. and Evans, J., 2010. *Accessing and developing the required biophysical datasets and data layers for Marine Protected Areas network planning and wider marine spatial planning purposes*. Report No 17: Task 2D. Mapping of Non-Native Species. Report to Defra. Contract number MB0102. Available from: <http://randd.defra.gov.uk/Default.aspx?Menu=Menu&Module=More&Location=None&Completed=0&ProjectID=16368>

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Chinese mitten crab (*Eriocheir sinensis*) Assessment Salisbury Bank Seed Mussel Bed (Dee Estuary): Timed Search Foot Survey

Dr Andrew Woolmer
2nd August 2011

1. Introduction

The seed mussel bed on the Salisbury Bank in the Dee Estuary represents a commercially important resource for the members of the Bangor Mussel Producers Association (BMPA) who wish to harvest and relay seed on their lays in the Menai Straits, Figure 1. Chinese mitten crabs (*Eriocheir sinensis*) have been reported in the upper Dee estuary at Connahs Quay, Chester wier and at the confluence of the Alyn and Dee rivers (pers. comm. Bryan Jones, Environment Agency; Higgs *et al*, 2010). An assessment of their presence in this seed mussel bed was therefore necessary in order to prevent their introduction to the Menai Strait.

A previous dredge survey has been undertaken from a vessel at high water using a hand-hauled mussel dredge (Woolmer, 2011a). Although this approach was successful in obtaining samples of byssus bound mussels along with associated fauna including large numbers of juvenile shore crabs (*Carcinus maenas*) the author in discussion with the operator considered further survey effort was necessary to more confidently determine the presence of *E. sinensis* at the site.

The current survey, carried out over low water and involving the use of timed-searches, aimed to increase areal coverage of the survey by employing visual searches and increased numbers of samples collected. This survey also represented an opportunity to further develop the BMPA Standard Operating Procedure for screening seed mussel for *E. sinensis* (Woolmer, 2011b)

Figure 5. The location of seed mussel bed on Salisbury Bank in the Dee Estuary. Blue polygon indicates the extent of the bed.



2. Approach and Methodology

This assessment closely followed the methodology described in the BMPA Standard Operating Procedure for screening seed mussel for Chinese mitten crab) that accompanies this report (Woolmer, 2011b). A brief overview is presented here but refer to the latest version of the SOP for current procedures.

The mussel bed was accessed via fishing vessel (7 m Colne Cat) which was beached adjacent to the bed 3.5 hours before low water. The bed was accessible by foot ~2.5 hours before low water. A safety time at which surveyors would return to the vessel was established for 30 minutes after low water at which time the tide would begin to flood.

Timed-search surveys were carried out at a series of 10 x 10 m (100 m²) survey stations spaced along 4 transects place to ensure that the main areas of the seed mussel bed were included. These transects were located to include channels, bed peripheries, high density muddy areas and low density sandy areas (Figure 2). At each survey stations each surveyor visually searched the surface of the bed for a period of 10 minutes, during this period successive mussel clumps were closely examined and the presence of mitten crab, shore crab and habitat type recorded. At the end of 10 minutes the surveyor collected a large bag of mussels (minimum of 150) from the surface of the mussel bed for microscopic examination.

Each surveyor was equipped with:

- A series of Timed-Search Record Sheets (included in SOP)
- Handheld GPS loaded with waypoints
- Laminated mitten crab photographic ID guide (included in SOP)
- Labelled sample bags
- Safety equipment including mobile phone, life jacket and tide tables

Samples collected during the survey returned for expert examination. Samples were washed through a 1 mm sieve in a large container of water (builder's trug). The byssus bound mussels were picked through by hand and sieve mesh was closely examined. All crabs found were examined and their identity confirmed under magnification using a hand lens. A series of 10 reference samples were retained for quality assurance purposes.

Figure 2. Chart showing the location of seed mussel bed and survey stations worked during time-search foot survey 2nd August 2011



3. Results

Table 3. Summary of field results from time-search foot survey

Sample Station (Waypoint name)	Latitude	Longitude	Mitten Crab (<i>Eriocheir sinensis</i>)	Green shore crab (<i>Carcinus maenas</i>) (including juveniles)	Notes
DEEMU1	N53.320383	W003.241685	-	-	Off edge of bed. Sandy area not sampled due to time/tide constraints
DEEMU2	N53.318159	W003.242071	Nil	Present	Clean sandy ground off main bed. Area adjacent (120 m South) Mixed sediment (sand/mud/shell), cockle/mussel crumble.
DEEMU3	N53.316013	W003.234007	Nil	Present	Edge of bed. Sparse mussel crumble with cockles
DEEMU4	N53.315284	W003.227111	-	-	Off edge of bed. Sandy area not sampled due to time/tide constraints
DEEMU5	N53.318727	W003.230558	Nil	Present	Off main bed. Sandy area with cockles. Few shore crabs seen.
DEEMU6	N53.320313	W003.231939	Nil	Nil	Off main bed. Firm sand. Some cockles. No crabs seen. No crabs in sieved sample
WP0202	N53.319636	W003.240012	Nil	Present	Sparse mussel. <i>C. edule</i> and firm mud.
WP0203	N53.319178	W003.238723	Nil	Present	Sparse mussel/cockle present. Firm mud.
WP0204	N53.318742	W003.237397	Nil	Present	Sparse mussel in small clumps. <i>C. edule</i> and <i>Corophium</i> present. Firm mud.
WP0205	N53.318283	W003.236108	Nil	Present	Sparse mussel in small clumps. <i>C. edule</i> and <i>Corophium</i> present. Firm mud.
WP0206	N53.317847	W003.234782	Nil	Present	Seed mussel bed. Very muddy. Some standing water.
WP0207	N53.317411	W003.233493	Nil	Present	Seed mussel bed. Very muddy. Some standing water.
WP0208	N53.316953	W003.232204	Nil	Present	Seed mussel bed. Very muddy. Some standing water.
WP0209	N53.316517	W003.230878	Nil	Present	Seed mussel bed. Very muddy. Some standing water.
WP0210	N53.316081	W003.229552	Nil	Present	Seed mussel bed. Very muddy.
WP0211	N53.315689	W003.228302	Nil	Present	Edge of bed. Sparse mussel crumble with cockles incorporated
WP1103	N53.316916	W003.233591	Nil	Present	Middle of mussel bed. Very muddy. Some standing water.
WP1104	N53.317796	W003.233204	Nil	Present	Middle of mussel bed. Very muddy
WP1105	N53.318655	W003.232741	Nil	Present	Middle of bed, some standing water, anoxic mud. Very muddy.

Sample Station (Waypoint name)	Latitude	Longitude	Mitten Crab (<i>Eriocheir sinensis</i>)	Green shore crab (<i>Carcinus maenas</i>) (including juveniles)	Notes
WP1106	N53.319536	W003.232353	Nil	Present	Green seaweed (<i>Enteromorpha intestinalis</i>), <i>C. edule</i> , brown shrimp (<i>Crangon crangon</i>). Muddy.
WP1203	N53.318259	W003.240573	Nil	Present	Some cockles away from main bed
WP1204	N53.318343	W003.239037	Nil	Present	Firm sandy ground. Edge of bed. Sparse mussels. Cockles.
WP1205	N53.318404	W003.237500	Nil	Present	Mud. Cockle / sparse mussels.
WP1206	N53.318486	W003.236038	Nil	Present	Edge of bed. 50% cockle bed/50% mussels. Mud. Standing water
WP1207	N53.318547	W003.234539	Nil	Present	Very muddy. Seed mussel bed. Standing water with shrimps.
WP1208	N53.318688	W003.231766	Nil	Present	Very muddy. Middle of seed mussel bed.
WP1303	N53.317808	W003.240710	Nil	Present	Edge of bed. Sandy ground. Cockle/mussel crumble
WP1304	N53.317396	W003.239272	Nil	Present	Sandy ground. <i>Lanice conchilega</i> . Cockle crumble
WP1305	N53.317029	W003.237873	Nil	Present	Sandy ground. Edge of bed. Cockle and mussel crumble.
WP1306	N53.316639	W003.236473	Nil	Present	Channel running off mussel bed. Some mussel/cockle crumble. Many cockles
WP1307	N53.316315	W003.235225	Nil	Present	Edge of bed. Sparse seed mussel. Cockles in sediment.

Table 4. Summary of results from microscopic sample examination

Sample Station (Waypoint name)	Mitten Crab (<i>Eriocheir sinensis</i>)	Green shore crab (<i>Carcinus maenas</i>) (including juveniles)
DEEMU1	-	-
DEEMU2	Nil	Present (>10)
DEEMU3	Nil	Present (>10)
DEEMU4	-	-
DEEMU5	Nil	Present (>10)
DEEMU6	Nil	Nil
WP0202	Nil	Present (>10)
WP0203	Nil	Present (>10)
WP0204	Nil	Present (>10)
WP0205	Nil	Present (1 only)
WP0206	Nil	Present (>10)
WP0207	Nil	Present (>10)
WP0208	Nil	Present (>10)
WP0209	Nil	Present (>10)
WP0210	Nil	Present (>10)
WP0211	Nil	Present (>10)
WP1103	Nil	Present (>10)
WP1104	Nil	Present (>10)
WP1105	Nil	Present (>10)
WP1106	Nil	Present (>10)
WP1203	Nil	Present (>10)

Sample Station (Waypoint name)	Mitten Crab (<i>Eriocheir sinensis</i>)	Green shore crab (<i>Carcinus maenas</i>) (including juveniles)
WP1204	Nil	Present (>10)
WP1205	Nil	Present (>10)
WP1206	Nil	Present (>10)
WP1207	Nil	Present (>10)
WP1208	Nil	Present (>10)
WP1303	Nil	Present (>10)
WP1304	Nil	Present (>10)
WP1305	Nil	Present (>10)
WP1306	Nil	Present (>10)
WP1307	Nil	Present (>10)

4. Discussion

No *E. sinensis* was found at any of the timed-search stations or in any of the samples taken at these sites. During the timed-searches *C. maenas* were observed to be abundant across the majority of the site moving both on the surface amongst the mussels and in the pools and standing water. Examination of the mussels and byssal masses revealed large numbers of juvenile and small *C. maenas* due to the cryptic nature of juveniles. It is thought likely that juvenile *E. sinensis* would adopt a similar cryptic behaviour in order to avoid predation and therefore highlights the importance of close examination of byssal masses and mussel clumps during these assessments.

Visual examination of the mussels and byssal masses was found to be adequate in the field and during subsequent close examination of the samples. Magnification was only necessary when confirming the species identity of very small *C. maenas*. The provision of photographic identification and the taxonomic diagnostic characteristics, particularly the presence/absence of the *E. sinensis* inter-ocular notch or *C. maenas* inter-ocular spines and carapace morphology, were found to be useful aids to identification. These characteristics could be determined by eye under sufficient lighting both in the field and during subsequent sample processing.

The process of washing samples in a deep 1 mm sieve was found to be effective in releasing small *C. maenas* from byssal masses and mussel mud. By placing the sample in the sieve and washing in a water container (builder’s trug), mussel mud was removed allowing the byssal mass to be picked through by hand. Very often > 90% of small *C. maenas* were washed into the sieve by this process.

Discussions with the operators suggested that harvested seed mussel can be readily washed on site by washing gear fitted to the fishing vessel. It is recommended that harvested seed mussels should be washed on board the vessel over the harvest site and the discards returned before the vessel leaves the area. This process will further reduce the risk of transporting *E. sinensis* between sites.

It is the author’s opinion that the use of timed-searches to survey is an effective approach to assess the presence of *E. sinensis* and other non-natives on mussel beds especially when combined with the collection of samples from each site. The visual search at a series of sites and during transit between sites would certainly detect the presence of adult or larger juvenile

E. sinensis particularly if they were mobile during the period. It is essential that mussels and byssal masses are examined on site and samples are taken as the majority of juvenile crabs were observed with in the material.

The association of juvenile crab species with the byssal mass and with the mussel bed in general suggests that the use of dredge samples are a no less effective method of obtaining samples for assessment of juveniles as large quantities of mussels can be obtained for close examination in this manner. This approach could be considered in areas where foot access is difficult or unsafe, or where the mussel bed is subtidal. The constraining factor at Salisbury Bank is the short high-water period over which it is possible to work from a vessel (Woolmer 2011a). Clearly when there is a risk of adult *E. sinensis* being present (autumn – spring) dredge survey may be less effective in capturing mobile and less cryptic specimens and alternative approaches should be considered e.g. the use of a 2 m beam trawl or visual time-search in intertidal areas. The effectiveness of all these methods can only truly be assessed by employing them in an area with a confirmed *E. sinensis* infestation e.g. the Thames Estuary; it is recommended that a study should be developed with the aim trialling these and other approaches.

References

Higgs, S., Seeley, B., Lear., D. Adams, L., Wilkes, P., Bilewitch, J. and Evans, J., 2010. *Assessing and developing the required biophysical datasets and data layers for Marine Protected Areas network planning and wider marine spatial planning purposes*. Report No 17: Task 2D. Mapping of Non-Native Species. Report to Defra. Contract number MB0102. Available from:
http://randd.defra.gov.uk/Document.aspx?Document=MB0102_9176_TRP.pdf

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Woolmer, A.P. 2011b. *Standard Operating Procedure for screening seed mussel beds for the Chinese mitten crab (Eriocheir sinensis)*. Report to Bangor Mussel Producers Association. pp 11

North West IFCA: New Management Measures

Background

This report provides a brief update on some management proposals being developed by the IFCA which could affect the seed mussel fishery in north-west England.

Recommendations

1. That the proposed changes to the management of fisheries in the NWIFCA District are noted.
2. That this Association makes an appropriate response to these proposed changes.
3. That this Association should ask the NWIFCA to be included in its list of stakeholders for consultation over any future changes to the management regime for the mussel fishery within its District.

1. Introduction

- 1.1 The North West Inshore Fisheries and Conservation Authority (IFCA) has jurisdiction over the seed mussel beds in Morecambe Bay that are vital for mussel cultivation in the Menai Strait.
- 1.2 Changes to the fishery management regime in north-west England could have significant consequences for the future of the Menai Strait fishery. It is therefore appropriate and important for this Association to be informed about management proposals that might affect the mussel fishery so that an informed response can be made to the IFCA by this Association whenever necessary.

2. Morecambe Bay Fishery Order Proposal

- 2.1 Members will recall that a comprehensive presentation about the proposed Morecambe Bay Fishery Order was given by Ms Mandy Knott at the last meeting of this Association in May 2011.
- 2.2 Shortly after that meeting, a proposal to increase the levy that would be charged to vessels operating in Morecambe Bay was considered by the IFCA Committee, but was ultimately dropped.
- 2.3 The NWIFCA has now made a formal application to Defra requesting the creation of the Fishery Order. No timescale has been announced for progress with this, but it is understood that there will be a formal public consultation on the proposal before the proposed Fishery Order is established.
- 2.4 Updates on future progress will be made to the Association.

3. New IFCA Byelaws

- 3.1 The NW IFCA is undertaking a review of the byelaws that it inherited from its predecessor organisations (the North West Sea Fisheries Committee and the Cumbria Sea Fisheries Committee). At its recent meeting on the 30th September 2011, the Committee discussed proposals to revise the byelaws setting the

maximum length for mechanically propelled vessels that can operate within its District and also the minimum legal size for mussels that can be removed from its District. A brief report on the implications of each byelaw is given below.

3.2 Vessel Size Byelaw

- 3.2.1 The NWIFCA has proposed to make a new “Byelaw 2” to replace the previous SFC byelaws that regulated the maximum size of vessels that could fish within its District. A copy of the proposed byelaw is attached at Annex A. Copies of the predecessor byelaws are attached at Annexes B and C. The background report submitted with the proposed new byelaw is attached at Annex D.
- 3.2.2 There are some changes in the proposed new byelaw (notably in section 3(a)) and its predecessors. It may be appropriate for the Association to seek clarification as to the purpose of these changes.

3.3 Mussel size byelaw

- 3.3.1 The NWIFCA has proposed to make a new “Byelaw 4” to replace the previous SFC byelaws regulating the minimum legal size of mussels. A copy of this byelaw is attached at Annex E.
- 3.3.2 The Association is advised that this byelaw retains the key features of its predecessors.

4. Wider issues

- 4.1 This Association was not formally consulted about the changes to the NWIFCA byelaws. They have been “made” by the IFCA with no formal consultation with this Association.
- 4.2 It would seem to be appropriate to request that the NWIFCA should consult with this Association whenever any future changes to the management regime affecting the mussel industry in north-west England are being contemplated.

October 2011

ANNEX A: PROPOSED NEW IFCA VESSEL SIZE BYELAW

NORTH WESTERN INSHORE FISHERIES AND CONSERVATION AUTHORITY

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YOUR REF:

MARINE AND COASTAL ACCESS ACT 2009

The North Western Inshore Fisheries and Conservation Authority in exercise of its powers under Section 155 of The Marine and Coastal Access Act 2009 hereby makes the following byelaw.

BYELAW 2

MECHANICALLY PROPELLED VESSELS MAXIMUM-LENGTH.

1. No mechanically propelled vessel which exceeds 15 metres overall length shall be used in fishing for or taking of sea fish within that part of the District that lies between 3 and 6 nautical miles offshore as measured from the baselines.
2. No mechanically propelled vessel which exceeds 10 metres overall length shall be used in fishing for or taking of sea fish within that part of the District enclosed by a line drawn 3 nautical miles offshore as measured from the baselines.
3. This Byelaw shall not apply to the following vessels:
 - a. Vessels used for the trans-shipment and relaying of Mussels (*Mytilus edulis*) operating under permit issued by the Authority.
 - b. Vessels used for the purpose of angling by means of rod and line or handline.
4. Vessels exceeding the length restrictions described in sections 1 and 2 may be used provided that:
 - a. It can be demonstrated that the vessel held fishing entitlement for appropriate parts of the District and was built prior to the date of the introduction of this Byelaw.
 - b. That the owners of the vessel have obtained an authorisation permitting the use of the said vessel within the appropriate parts of the District.
5. Newly constructed or purchased vessels exceeding the length restrictions set out in sections 1 and 2 of this Byelaw may be issued with an authorisation under section 4 of this Byelaw provided that:

- a. The owner(s) can demonstrate that prior to the date of this Byelaw being made, they had entered into an enforceable financial commitment to construct or purchase such a vessel; and
- b. The owner(s) can demonstrate that the date of delivery prevented compliance with section 4 of this Byelaw.

For the purpose of this Byelaw:

The overall length of a vessel shall be that as recorded on the Certificate of Registry as issued by the Registrar of Shipping and Seamen.

The "District" referred to in this Byelaw shall be the district of the North Western Inshore Fisheries and Conservation Authority as described in Section (3) of Statutory Instrument 2010 No:2200.

Explanatory note: In order to provide protection for important inshore nursery areas this Byelaw restricts the maximum length of mechanically propelled fishing vessels that may be used within the area enclosed by a line drawn 3 nautical miles to seaward of the baselines to 10 metres, and within that part of the District that lies between 3 and 6 nautical miles of the baseline to 15 metres overall length.

I hereby certify that the above Byelaw
was made by the Authority at its meeting
on 30th September 2011

Dr. STEPHEN ATKINS
Chief Executive

ANNEX B: NWSFC BYELAW 9

BYELAW 9 **MECHANICALLY PROPELLED VESSELS -MAXIMUM LENGTH**

1. No mechanically propelled vessel which exceeds 12 metres overall length shall be used in fishing for or taking sea fish within that part of the District to the west of a line drawn 0000 (T) from The Old Lighthouse, Great Ormes Head (53° 20.53'N, 03° 52.13'W, WGS 84 datum)
2. No mechanically propelled vessel which exceeds 15 metres overall length shall be used in fishing for or taking sea fish within that part of the District to the east of a line drawn 0000 (T) from The Old Lighthouse, Great Ormes Head (53° 20.53'N, 03° 52.13'W, WGS 84 datum)
3. This byelaw shall not be enforceable for those vessels:
 - (a) used in fishing for mussels (*Mytilus edulis*) using dredges; or
 - (b) used in angling with rod and line; or
 - (c) referred to in paragraph 4 and 5 below.
4. Vessels exceeding the length restrictions described in sections 1 and 2 above may be used provided:
 - (a) the vessel fished in the District for at least 60 days within the 24 months immediately prior to this byelaw being made; and
 - (b) the vessel remains in the same legal and beneficial ownership as on the date of this byelaw being made; and,
 - (c) the owner(s) of the vessel obtain an authorisation permitting the use of the vessel within the NW&NWSFC District within 6 months of this byelaw coming into force.
5. Newly constructed or purchased vessels exceeding the length restrictions set out in sections 1 and 2 above may be issued with an authorisation under paragraph 4(c) above provided that:
 - (a) the owner(s) can demonstrate that prior to the date of this byelaw being made they had entered into an enforceable financial commitment to construct or purchase such a vessel; and
 - (b) the owner(s) can demonstrate that the date of delivery prevented compliance with paragraph 4(a) above.
6. Authorisations issued under paragraph 4(c) above shall not permit a mechanically propelled vessel to be used in fishing for or taking sea fish within 3 nautical miles of baselines if it exceeds the following limitations:
 - (a) In the part of the District lying between the Northern boundary at Haverigg Point (54° 11.31'N, 03° 19.08'W, WGS 84 Datum) and Rhyl Coastguard/Lifeboat Station (53° 19.48'N, 03° 29.56'W, WGS 84 Datum), a registered length of 13.7 metres.
 - (b) In that part of the District lying between Rhyl Coastguard/Lifeboat Station (53° 19.48'N, 03° 29.56'W, WGS 84 Datum) and the Southern boundary at Cemaes Head (52° 07.07'N, 04° 43.91'W, WGS 84 Datum), a registered length of 15.24 metres.
7. For the purpose of this byelaw:

(a) the overall length shall be the overall length as shown on the Certificate of Registry of a British Fishing Vessel; and

(b) the registered length shall be the registered length as shown on the Certificate of Registry of a British Fishing Vessel.

ANNEX C: CUMBRIA SFC BYELAW 3

Byelaw No. 3 - size limit of boats allowed inside the district

No person shall fish for sea fish

- (i) in that part of the Cumbria Sea Fisheries District from low water mark for a distance of three nautical miles to seaward, from any mechanically propelled vessel exceeding 13.72 metres registered length except with hooks and lines;
- (ii) within the remainder of the part of Cumbria Sea Fisheries District to which these Byelaws apply from any mechanically propelled vessel exceeding 21.34 metres registered length except with hooks and lines.

For the purposes of this Byelaw the registered length of a vessel shall be that which is recorded on the vessels Certificate of Registration as issued by the Registrar of Shipping.

Explanatory Note:

This byelaw prohibits fishing by vessels exceeding 13.72 m registered length from fishing within the 3 mile belt and by vessels exceeding 21.34 m registered length in the area within the Committee's district that extends 3 nautical miles to seaward of the bay closing line in the Solway Firth. This measure is designed to ease fishing effort on local white fish and shellfish stocks by large, high powered vessels.

ANNEX D: EXTRACT OF “EVIDENCE AND JUSTIFICATION STATEMENT” SUBMITTED TO THE NW IFCA

[...]

NWIFCA Byelaw 2 Mechanically propelled Vessels maximum length

7. Byelaw 2 replaces Cumbria Byelaw 3 and NWSFC Byelaw 9. The byelaw creates a consistent measure throughout the NWIFCA District by combining the NWSFC and CSFC measures in force under the old byelaws.

8. The new byelaw makes very little change to existing vessel length limits in both parts of the District. It does make a minor tightening to the vessel size regulations by limiting the length of vessel permitted to fish within 3 miles to 10m. This measure received strong support from the fishing industry when it was discussed at the NWIFCA.

9. **Requirement for the byelaw.** This byelaw is essential to provide protection for inshore fish nursery areas and to protect both the 0-3 mile and the 3-6 mile zones from overfishing.

10. Objectives of the byelaw.

- i. To limit the size of vessel permitted to fish within the 3 mile and 6 miles zones
- ii. To increase sustainable exploitation of fish stocks within the District.

11. **Options considered:** The NWIFCA has considered not making a vessel length byelaw and various other length limits which could be applied. In the current climate of increasing environmental protection and pressure on fish stocks, the priority was to reduce pressure on inshore fish stocks. Further tightening of the regulations would have socio-economic impacts on the fishing industry which would be unacceptable. The proposed slight tightening of the regulations provides some additional protection for wildlife interests while protecting the livelihoods of small scale inshore fishers in the District.

NWIFCA Byelaw 4 Minimum removal; size for mussels

12. Byelaw 4 replaces Cumbria Byelaw 5 and NWSFC Byelaw 15. It creates no change to the existing measures except to establish a consistent mussel minimum landing size for the Dee Estuary.

13. **Requirement for the byelaw.** This byelaw is required to create a consistent regulatory framework for the mussel minimum landing size throughout the NWIFCA District. It replaces different size limits by the SFC and the EA as operated in the Dee Estuary prior to April 2011.

14. Objectives of the Byelaw:

- i. To create a common mussel minimum landing size throughout NW England and North Wales.
- ii. To protect mussel stocks by ensuring juvenile mussels are left to mature.

iii. To protect wildlife interests, in particular birds which utilize mussels as a food source, by ensuring a consistent supply of small mussels.

15. **Options considered:** No other options have been considered. The size of 45 mm is well established over many years and no alteration is required

[...]

ANNEX E: PROPOSED NEW MUSSEL MINIMUM SIZE BYELAW

NORTH WESTERN INSHORE FISHERIES AND CONSERVATION AUTHORITY

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YOUR REF:

MARINE AND COASTAL ACCESS ACT 2009

The North Western Inshore Fisheries and Conservation Authority in exercise of its powers under Section 155 of The Marine and Coastal Access Act 2009 hereby makes the following byelaw.

BYELAW 4

MINIMUM REMOVAL SIZE FOR MUSSELS.

1. No person shall remove from any fishery within the District any mussel measuring less than 45 millimetres in length.
2. It shall not be an offence under this Byelaw to remove mussels of less than 45 millimetres in length for:
 - a. Scientific purposes.
 - b. Relaying or stock management purposes.

Provided that written authorisation has first been obtained from the Authority.

Explanatory Note:- This Byelaw sets the minimum removal size for mussels. This measure is designed to protect small and immature stock that has not had a chance to spawn and enhance the bio-mass of the species. This byelaw also makes the provision for the Authority to grant permission for the removal of mussels of less than 45 millimetres in length when it is deemed necessary for scientific, relaying or stock management purposes.

I hereby certify that the above Byelaw
was made by the Authority at its meeting
on 30th September 2011