**May 2014**

Huge thanks to all the fishers who have helped us so far. Your contributions are really important to us and enable vital data to be gathered for the future of Welsh fisheries.

## Seafood Festivals

Last weekend the EFF team attended the "Taste of the Sea" festival held at Aberdaron. Please take a look at our Facebook page (https://www.facebook.com/fisheriesconservation) to see news and pictures from the event. This summer we will also be attending three other seafood festivals around Wales. Come and visit us at one of the following festivals:

June 28, 2014 – Pembrokeshire Fish Week (Milford Haven)

August 16, 2014 – Sea 2 Shore Festival (Aberystwyth)

August 30, 2014 – Menai Seafood Festival (Menai Bridge)

We'll be talking about all the different research we are doing, displaying the research equipment and fishing gear we use, and showing underwater videos we have taken. At some of the festivals we'll even have live animals on display.

Hope to see you there!

## Scallops

**The fishing intensity trial**

The fishing intensity trial was designed to assess the impact of scallop dredging in Cardigan Bay SAC. The first phase has been completed successfully.

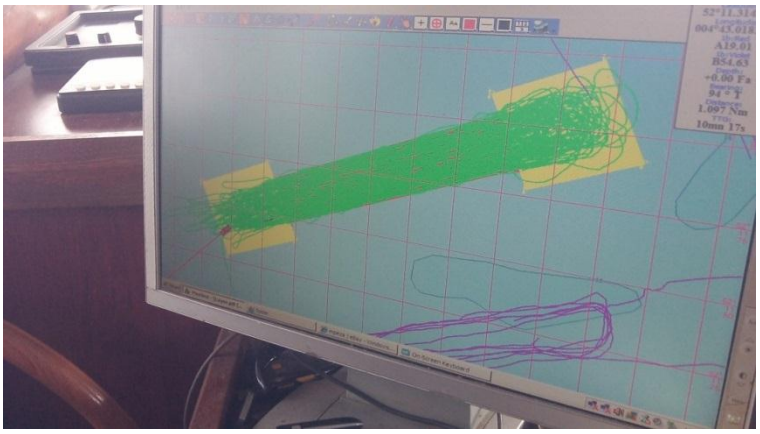
*Quick summary:*

We conducted a pre-impact survey on the RV Prince Madog in March within the closed area of Cardigan Bay SAC. Five scallop dredging vessels (4 from Wales and 1 from England) that were selected through an open tender process fished a total of 17 areas at pre-determined fishing intensities. A post-impact survey was carried out aboard the RV Prince Madog in May.

*The experiment in numbers:*

| | |
|---|---|
| Number of vessels participating: | 5 |
| Number of dredges used in total: | 50 |
| Number of hours fished: | 1118 |
| Number of dredge hours fished: | 12030 |
| Number of bags landed: | 7800* |
| Yield of scallop meat: | 29.6 tonnes* |
| Area of seabed fished: | TBC |
| Revenue generated: | £301 963.92 |
| Fees for fishing: | £246 017.79 |
| Funds generated for science: | £55 946.13 |

* = figures are approximate only at this stage



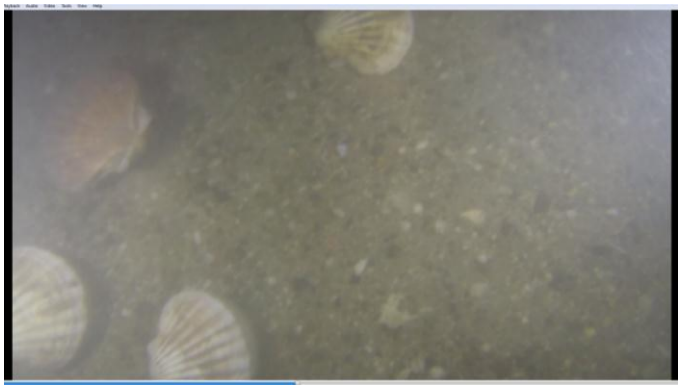
**Tracks of one of the fishing vessels in a heavily fished site. In green: the vessel's tracks, overlaying a red box in which the vessel was asked to fish; in yellow: the 2 areas where the vessel was asked to make its turns. The plot shows the high accuracy with which some fishing vessels can fish.**

The post impact survey was interrupted half way through because of strong westerly winds but we still managed to take a complete set of samples required for the science (multibeam, side scan, beam trawls, grabs and some videos).

The data is now being processed and the results will be made available as soon as possible. We hope to be in a position to share our conclusions with you by the end of the year. These will include conclusions about the physical impact of scallop dredging on the seabed and its impact on the fauna living both in and on the seabed.
There will be another survey to monitor seabed recovery in the experimental area in the autumn, the results of which will be available by the end of the project in May 2015.

*Some preliminary observations:*

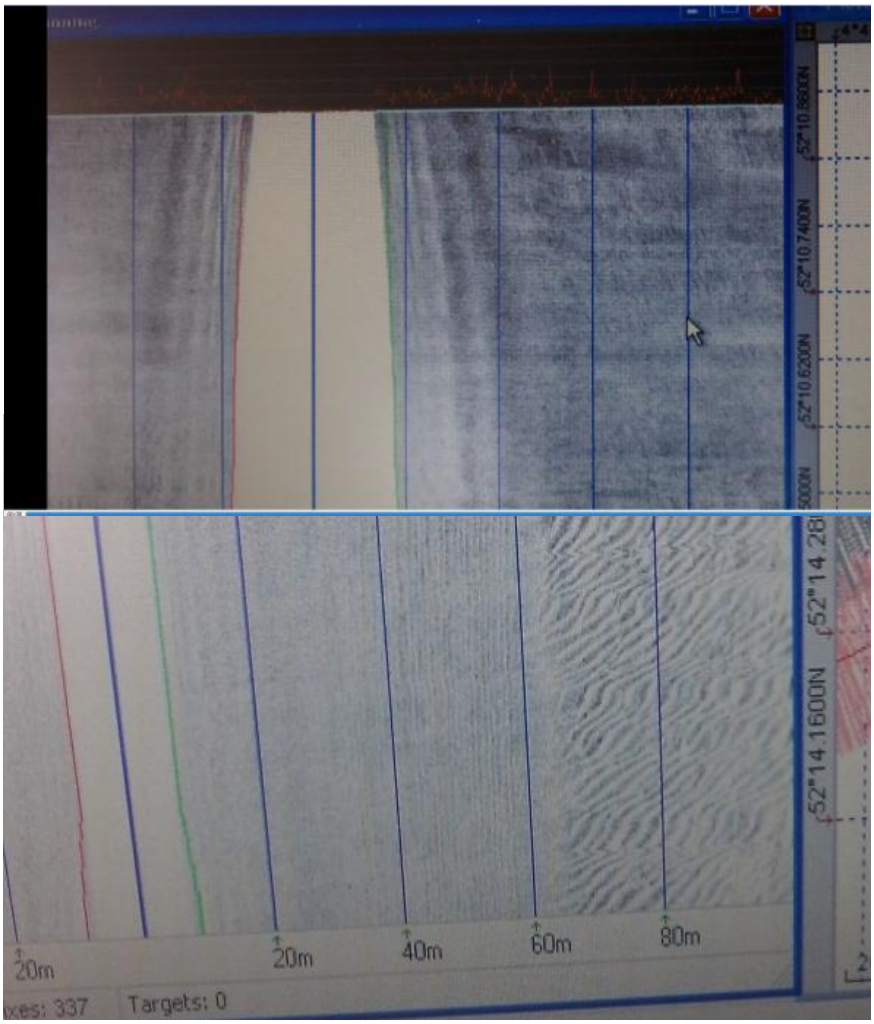
- During the pre and post surveys, a few videos showed high densities of scallops living on top of the sediment or even turned upside down on the seabed, when they are usually known to slightly burry themselves into the sediment, flat shell on top



- Scallop yields were reported to be poorer in the experimental area than in other parts of Welsh waters at the same time

- While there was a diversity of small fauna collected in the small mesh size beam trawls during the RV Prince Madog surveys, there was very little by catch and a low diversity of species caught in the dredges on board the fishing vessels (*numbers will be given in future reports*)

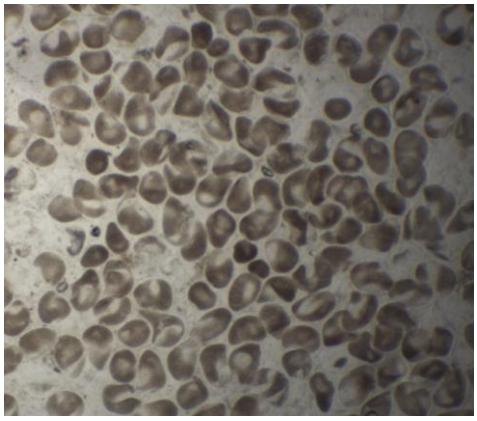
- The backscatter from the multibeam survey did not show the scars left by dredges on the seabed while the side scan survey showed clear marks in certain types of habitats.




**Snapshots of side scan onboard the RV Prince Madog. Top: No indication of fishing impact – potentially gravelly ground. Bottom: Clear difference between fishing on the left where you can still see the marks left by the dredges and on the right where you can still see the sand ripples, which suggests no or less intense fishing.**

**Note: these images still have to be examined in relation to the position of the fishing tracks – it is likely that contrasts between fished and unfished areas will be more visible on sand ripples than in gravel straight after dredging, and dredging usually occurs on gravelly grounds, the preferred habitat type of scallops.**

**Summer sampling**



**King scallop eggs under the microscope. We are working on a method to extract and count the eggs from mature scallops to see if there is a difference in fecundity with age.**

Thanks to several fishers involved we have been able to start our study looking at the reproduction of the King scallop, *Pecten maximus*. We are collecting scallops weekly from different areas to look at their maturity across the coming year. By sampling weekly we hope to see reproductive patterns and discover whether they have multiple spawning times during the year, and if this differs in timing between different areas. We are also developing a method to count the number of eggs (fecundity) within a mature individual. We hope to then compare the fecundity of scallops of different ages to see if there is a particular age when scallop are reproducing at their maximum.

**Finfish**

**Sea bass**

**Shown here female bass gonads ready to spawn, in the ripe/running stage**

Data collection of bass gonads during this spawning season (November 2013-April 2014) has just ended with around 220 bass analysed. The interesting picture coming from this data collection is that the peak of the spawning season 2013-2014 was in March, when the gonad-somatic index was high, for both males and females. Comparisons with previous data collected around the UK between

1982 and 1990 (Pawson & Pickett, 1996) show a current reduction in the duration of the spawning season. This could be related to the climatic condition during the 2013-2014 season. Similar data collection will be carried out during the next spawning season to assess a possible variation in this pattern.

The analysis of the length at maturity still has to be carried out, but preliminary results indicate a decrease in the size of maturity of bass compared to 30 years ago. However, the gear selectivity of the gill net (the main fishing gear used during the bass spawning season) didn't allow us to collect a significant number of bass under 38 cm length, which has prevented a robust picture of the size at first maturity. A new dispensation request for collecting undersized bass with different gear will be submitted to fill in the gaps for the next spawning season.

The first stable isotopes analyses have been completed on bass scales sampled from 8 key areas around Wales. This has shown really interesting preliminary results with a general gradient in the nitrogen signal by latitude. Although the discrimination analysis of the groups of bass caught in North, Mid and South Wales shows a degree of separation between regions, an increase in the sample size is required to have a better picture of the patterns identified and to possibly increase the separation of the isotopic finger print between groups.

**Economic interviews**

The analysis of the economic interviews has started and the identification of the fleet segments from a technical and economic point of view is under assessment. All the analysis will be based on the information of the economic structure collected during the interviews, with a total of 56 vessels recorded. Thanks again to all fishers involved in this survey.

**Fisher questionnaire**

The fishers' knowledge questionnaire is currently being conducted with fishers across Wales and will continue into the spring and summer. So far 60 questionnaires have been completed; 29 in North Wales, 10 in Mid Wales, and 21 in South Wales. We hope to have the majority of the questionnaires completed by the end of summer 2014 and can move onto the analysis stage. We are looking to schedule interviews with fishers, so if you are interested please contact Julia (j.pantin@bangor.ac.uk).

You can also register on our website (just click on the 'Get Involved' link at http://fisheries-conservation.bangor.ac.uk).

***This questionnaire is vitally important as it will identify those areas of the coast that are most important to fishers, provide a portfolio of independent evidence for the fishing industry to use going forward, and inform our understanding of the biology of the commercially important species in Wales.***

## Crustacea

### Nursery habitat survey

This summer we have a student from the Netherland's working with us who will be carrying out the juvenile crustacean surveys. A warm welcome to Babette! Sampling will be carried out using prawn pots with a small mesh size, set from fishing vessels. We will sample on different habitat types to find out which the juvenile stages of brown crab and lobster prefer. This work continues our surveys from last summer.

### Lobster

Due to the warm waters this spring we have been monitoring good numbers of lobster since the end of March. The purpose of the at-sea and port sampling has been to monitor moult stage, reproductive timing, presence of berried females, egg development stage and tagged lobster re-captures. This is in addition to the usual size frequency, length-weight, sex ratio and catch per unit effort data.

**Reproductive timing, egg development stage and fecundity**

**Lobster eggs under the microscope – you can see the eyes and begin to see the shape of the lobster larvae**

Our MSc student has begun work on his project with us this summer looking at the reproductive timing, egg development stage and fecundity of lobster. We also have two students carrying out a summer internship based in the south carrying out on-board observation work, and lobster morphometric measurements. More news to follow as the projects get underway!

For any more information on any of this work please contact Natalie Hold

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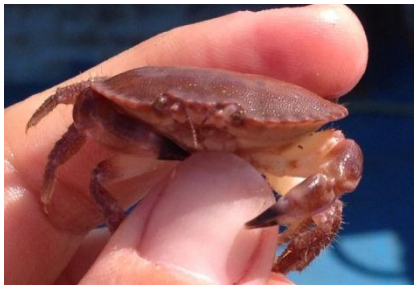
01248 382850

## Brown crab



**Juvenile brown crab, *Cancer pagurus***

### Moult increment

Another Bangor University group is looking at the stress responses in Brown crab, *Cancer pagurus,* under different climate change scenarios. Whilst they are holding the crabs in the aquaria we are taking advantage of the opportunity to measure the crabs before and after they moult to look at how much they grow between each moult. This project will be complete by late June!

### Masters project

Our MSc student has begun work looking at the recruitment of Brown crabs. More news to follow!

### Processor sampling

We are sampling from processors in the north and south of Wales to gather time series data on weight, moult stage, length frequency and sex ratio of crabs and lobsters. As monthly landings data is only recorded as weight per month this will provide some insight into how landings change from month to month.

## Whelks

### Masters projects

Our two MSc students have begun work. They have been out with Jodie tagging whelks in north Wales, with another trip set to tag in the south. We will be estimating local abundances and the short term movement of whelks. We are using thick elastic bands (a method found to be most reliable over short term studies) for tagging. The two students currently have a second tag retention

study underway assessing the bands we will use and another experiment looking at post-tagging behaviour.

More news and photos of the work soon!

Y Gronfa Pysgodfeydd Ewropeaidd:
Buddsoddi mewn Pysgodfeydd Cynaliadwy
European Fisheries Fund:
Investing in Sustainable Fisheries

Llywodraeth Cymru
Welsh Government