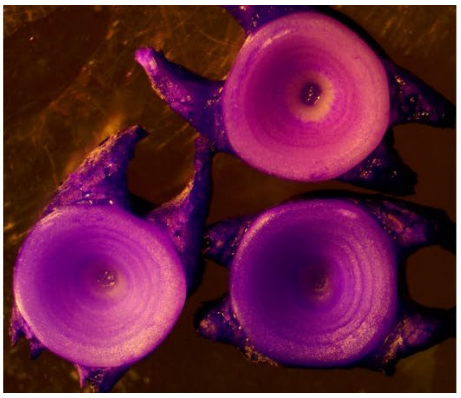
Pysgodfeydd Cynaliadwy Cymru
Sustainable Fisheries Wales

EMFF Fisher – Science Partnership for Sustainable Fisheries


Newsletter 2
August 2019

Welcome

Welcome to our second newsletter, since our last newsletter our team has grown, with Charlotte Heney (Charlie) joining us for six months as a research assistant. We have also received additional funding from EMFF – England to extend the bass and ray work north into English waters past the Dee estuary. Dr Alec Moore is heading up that project and will transfer onto the Welsh team in June 2020. Robin Bater is assisting Alec with the field and lab work for the English EMFF project. We have also had several students working with us this summer.

It has been a busy summer of fieldwork, collaborating with the fishing industry to collect samples and processing data in the University laboratories. We are very grateful to those fishers who have helped us so far (in between gale force winds!) but we are keen to increase our collaboration with the industry so please do pass the newsletter on to fellow fishers, processors or other industry partners.

What have we been doing so far?

Work with Fishers

We have collaborated with fishers across the commercial species of interest. Ray fishers have been instrumental in providing samples for our population biology work. Crustacean pot fishers have regularly taken us to sea to collect general fishery data such as size frequency, sex ratio and by-catch. They have also assisted us with collecting lobsters for dissection in the laboratory for a size at maturity study. Scallop fishers assisted us with king scallop samples in April and were ready to help us with sample collection throughout the summer for us to track gonad development and spawning. Dispensation for scallops as by-catch outside of the open season has not yet been granted so we hope to pick up this study next year. Bass fishermen are lined up to take us out to catch bass for tagging in September. We will be also collaborating with pot fishers to tag crabs and lobsters.

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Morfan III, Lucy and Harriet

Ray population biology

Ray dissection

We have had a successful summer with the ray maturity work, with plenty of thornback and spotted rays from north Wales and a few blonde rays from south Wales so far. Generally, we have been working with local fishers who are providing ray backs or banjos, which are usually discarded or landed for pot bait. We have been aging the vertebrae of these species, as well as assessing their maturity, size and collecting DNA and samples for stable isotope analysis. We are still in need of large thornback rays over 80/85 cm in length, blonde rays or cuckoo rays for north Wales and collecting many more samples of (thornback, blonde, spotted, cuckoo, smalleyed) from the south. If you are interested in the project, please do get in contact, we would love to hear from you.

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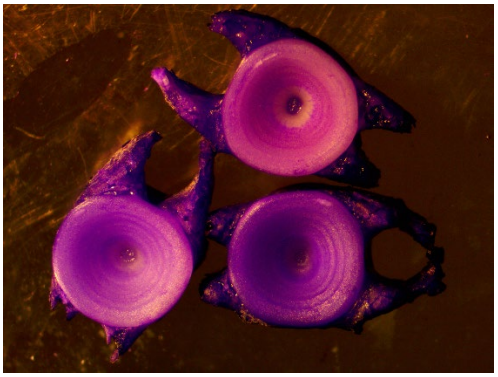

Skate vertebrae aging used crystal violet

Lobster size at maturity

We are currently collecting lobsters from both north and south Wales to estimate the size at which lobster first mature and the size at which we would expect 50% of the population to be mature. This information is then used to inform both stock assessment and the minimum conservation reference size/minimum landing size. We are comparing the terminal method of dissecting and staging the ovaries with non-terminal methods such as pleopod cement gland staging and body morphology.

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Dissected lobster showing mature green ovaries.

Scallops

The scallop work on the EMFF project began with a research cruise from the RV Prince Madog in April, which sampled king and queen scallops using dredges, at 45 stations in Welsh waters. The data obtained from this survey have been analysed and will be presented in a report published to the Bangor University Sustainable Fisheries Group website later in September 2019. The report also includes stock assessment work which has been conducted using previous survey data, and commercial data. The stock assessment approaches are discussed and these will be worked on further in the near future. Additional immediate work for the near future will encompass processing of king scallops caught during the survey to identify patterns in maturity, and a study using previous data to estimate the catch efficiency of multiple commercial dredge vessels. Quantifying the catch efficiency of dredge vessels is a step towards being able to conduct stock assessment by scaling catch rates to stock size.

Student projects

Thomas Chapman was awarded a Bangor University summer internship to work with our team and has spent time on boats, helping with seine netting and processing samples in the laboratory. He is progressing on to study for his MSci degree at Bangor University and will be studying scallop fecundity and size at maturity for his project. Melissa Woodhams carried out her MSc research project on the growth of scallops from the Isle of Man, Wales and the English Channel, looking at differences in growth over time and space. Hayden Saville carried out his MSc research project gathering fisher knowledge on ray population distribution in Welsh waters. Jenny Spencer completed her MSc project on population biology of rays in Welsh waters, comparing parameters such as growth and size at maturity of rays collected this summer with historical data. Results of these studies will be made available as soon as possible.

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Pot sector technology

We are putting cameras on potting boats again. We are updating the camera system to make it easier for fishers to use, hard wiring it into boat power to avoid the need for charging batteries, and providing deck loggers for video to be downloaded to. In addition, we will have pot tags recording temperature, depth and soak time. These data will be used in the long-term for stock assessment and we are working with Welsh Government to try and to set up a system where-by the data can continue to be collected and stored even when grant money is unavailable to support scientists. It is important that this is collected over a long period of time with as few gaps in the data as possible. Eventually we hope to link these high resolution data from the video with e-log book/electronic catch data. Aberystwyth University are sub-contracted to develop computer software to automatically recognise crabs and lobsters, size them and sex them. Please contact Natalie for more information or to become involved (n.hold@bangor.ac.uk).

Camera mounted on winch up-right.

English EMFF work

To complement ongoing work on bass and rays in Welsh waters, the team have extended research into the waters of northwest England to gain a more complete picture of stock structure and population biology.
We have been busy establishing relationships with fishers, fish merchants, regulators (Northwestern IFCA, MMO, Natural England, Environment Agency), and landowners to gain all the appropriate consents for sampling, vital local on-the-ground knowledge, and samples. The team has been out in all weathers sampling estuaries, saltmarshes and beaches for tiny (3-5cm total length) bass, which has often been challenging, not least due to poor weather in August. Nevertheless, we successfully caught a number of these bass in the Wyre estuary, which will help inform our research on identifying bass spawning areas. We are also commencing collection of larger bass, as well as thornback rays, from commercial fisheries for analysis of various aspects of their population biology.

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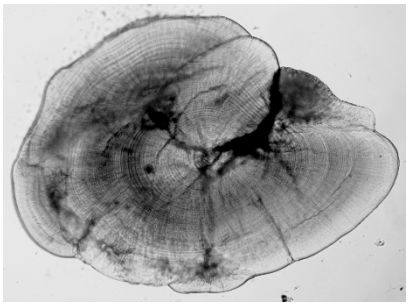
Bass Seine netting



Juvenile bass otolith

We have been busy netting in 6 estuaries around Wales looking for 0 group bass. We have been successful at 4 out of 6 sites with good catches, the final 2 sites we had either low catches or no bass. This work has been carried out under the Bluefish project, where we have been using the otoliths (fish ear bones) to find the ages of these bass recruits. Otoliths contain annual and daily growth rings (much like a tree) that can be counted to find the age of fish. These ages are entered into an oceanographic particle-tracking model run in reverse to find potential bass spawning grounds. We have run the model for 0-group bass collected in 2014 under the EFF grant and we are now hoping to re-run the model using 0-group bass collected in 2019 to see how the model output compares. Following on from this we are planning a survey in spring 2020 over the bass spawning season. We hope to ground truth our predicted areas from the model and see if we can find bass spawners in the potential spawning areas.

We will soon be looking for bass fishers to help us with this survey so please get in touch if you fish for bass in North or South Wales and might be interested in helping us with this work: h.lincoln@bangor.ac.uk

Upcoming work

Bass Tagging

We are hoping to tag sea bass with data storage tags at the end of September. The tags will help us to track and monitor the movements of seabass around Wales. Keep your eye out for tagged fish or bright orange tags washed up on beaches, we will provide a reward for returned tags! Contact details can be found on the tags.

Crab Tagging

One of the aims of the project is to determine movement patterns of brown crab around Wales and the Irish Sea, to help identify any areas important for their life cycle. While this will be the first crab tagging study we are aware of in Welsh waters, other studies around the UK and Ireland have shown females can move up to 300km, potentially across national borders – so having a much better understanding of this will inform sustainable management.

As part of this research, we will be tagging crabs onboard commercial potting vessels over the next year, using coloured plastic T-bar tags [pic attached] with a unique number. If you find a crab, please report it (01248 383504 or

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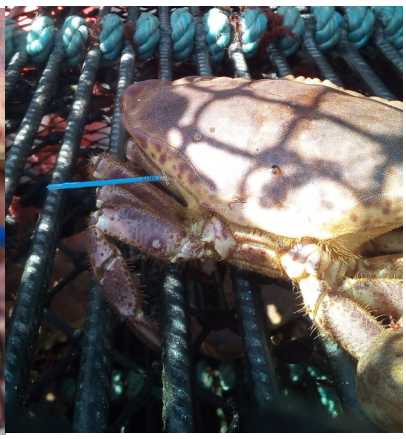
a.moore@bangor.ac.uk) providing the unique tag number, position (lat/long) and date of capture, carapace width and sex). ***prize draw – we will be having a raffle from the returned tags**.

Lobster Fecundity

We will be collecting data for our lobster fecundity study. We previously collected data under the EFF program (2012-2015) and want to add to this to improve the dataset. We want to take measurements of berried lobsters in October/November time. We will be trialling a non-invasive method that does not require the collection of the egg mass from all lobsters – just a small subset to validate our estimates. We will then do the same study in the spring/early summer before hatching to look at egg loss through the winter. Fecundity data is an important parameter in stock assessment methods. During the EFF project, we had a very stormy winter and we found that a lot of the lobsters we sampled had lost a large proportion of their egg masses so we are hoping for a less stormy (!) season to compare.

Lobster tagging

We will be tagging lobster again this autumn. During the EFF project, we tagged lobsters to look at movement. This time the primary aim is to see if we can recapture mature females to estimate how frequently lobsters berry-up (every year, every 2 years etc.) and whether this varies by size.

Please contact Natalie for more information on any of the lobster work: n.hold@bangor.ac.uk

Contact Us

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