



February 2015

With just 3 months left we are busy analysing and writing up the results from the project. Over the coming months we will be releasing our reports so please keep an eye on our website and media pages for these. Thank you to all those that have helped us collect this data.



King scallop – *Pecten maximus*

We are progressing with the analyses of the physical and biological data collected during the surveys around the fishing experiment (in March, May and September 2014). We are also starting to meet up again with members of the fishing industry, the Welsh Government and Natural Resources Wales (NRW). This is to discuss the way forward for the management of the scallop fishery in Cardigan Bay by bringing to the table the evidence we have gathered so far. This month, we also participated in the GAP2 scallop workshop in France where we were involved in some very interesting debates. These focused on the management of the scallop fishery in the English Channel, discussing how to meet French and UK industry needs as well as defining sustainable management monitoring options and targets. A report will be made available on the GAP website (<http://gap2.eu/>).



Crustacea

Prawn – *Palaemon serratus*

- Brief breaks in the weather have allowed project officers to collect data at sea on-board commercial fishing boats in Cardigan Bay, looking at CPUE, bycatch rates and survivability of quota-species after release.
- Members of the Cardigan Bay Fisherman's Association (CBFA) have been discussing the potential economic impacts of various management measures in a questionnaire conducted this month – their input will be very useful for management proposals following the completion of the project.
- The Marine Stewardship Council (MSC) pre-assessment documentation has begun to be put together and will provide a clear appraisal of the prawn fishery against the MSC sustainability criteria.

- Samples collected during the summer of 2014 continue to be processed in the laboratories at Menai Bridge. Preliminary analysis shows recruitment patterns of juveniles in coastal habitats.



For more information please contact the project officers (based in Aberystwyth): Jack Emmerson j.emmerson@bangor.ac.uk and Georgia Robson g.robson@bangor.ac.uk

Brown crab – *Cancer pagurus*

The *Cancer pagurus* size at maturity study is on-going!

We have discussed this study in previous newsletters and now we are well underway. We have collected crabs from around the Welsh coast and are processing them this month. These samples will contribute to the wider study of regional variation in size at maturity for *Cancer pagurus* with samples from Ireland, the Isle of Man and England. This large scale collaboration is led by the Bangor fisheries team, but hopes to benefit all crab fisheries with better informed management.

Earlier this month we were at Hull University in Yorkshire working with Mike Roach who is undertaking a PhD on the European lobster and is also working with the Holderness Fishing Industry Group (HFIG). HFIG were extremely generous in their time and resources to arrange crabs for the size at maturity collaboration. Aside from helping to build a UK wide picture of crab size at maturity, HFIG will also be using the data from their area for better fisheries management of local stocks.



Mike Roach (Hull/Uni HFIG) & Harriet Salomonsen (Bangor Uni) dissecting Bridlington crabs for the study.

We are currently focusing on two Welsh *C. pagurus* studies: size at maturity and fecundity. We would like to know how the number and quality of eggs changes with crab body size and condition. To do this we are estimating total egg numbers and conducting elemental analysis. We are also taking a lot of measurements of the body and obtaining gonad and hepatopancreas (digestive gland) indexes.



(Left) A lovely crab but not such a handsome face; (Right) Julia Pantin measured a 220 mm wide crab from the North Wales samples

For more information on the *Cancer pagurus* projects contact Jodie Haig at: j.haig@bangor.ac.uk



Finfish

Sea bass – *Dicentrarchus labrax*

We are currently carrying out the analysis of all the data collected during 2013 and 2014. This will provide us with a picture of the population dynamics of the bass stock around Wales. We will be producing a report with all of the results which will be available by the end of the project.

Many thanks to all those fishers and processors who helped us by providing samples!



Economic questionnaire



We have been working hard to analyse the economic interviews we conducted with fishers across Wales. The interviews were used to inform us of the economic performance of the Welsh fleet and the fleet dynamic. The preliminary results from this analysis will be presented at the XXII Conference of the EAFE (European Association of Fisheries Economists) in Salerno (April 28-30, 2015). The title of the presentation is: “Does profit maximisation drive the choice of fishing métier in Welsh fisheries?”. The slides will be made available on our webpage in the future and we are working on a report that will be available by the end of the project.

Fishers’ Knowledge Questionnaire

The report on the Fishers’ Knowledge Questionnaire is nearly complete. Sixty-six fishers were interviewed across Wales. Table 1 presents the spatial range of the completed interviews.

Table 1: The number of fishers and vessels interviewed in North, Mid and South Wales.

Region	Number of Fishers	Number of Vessels
North	29	30
Mid	11	13
South	26	33
Total	66	76

Examples of the results from the report:

Species abundance & size

Throughout Wales, there have been observed changes in species’ abundance and size over the years (see figure 1 below).

In North Wales:

- Prawn abundance fluctuates.
- There has been no change in the size of brown crab, prawn, whelk, and sea bass.

In Mid Wales:

- Sea bass have become more abundant and brown crab less abundant.
- Sea bass have increased in size, and there has been no change in the size of brown crab, lobster, prawn and whelk.

In South Wales:

- There have been decreases in the abundance of spider crab and sea bass, fluctuations in the abundances of prawn, and no change in the abundance of whelk.
- The size of sea bass has decreased with no change in the size of whelk.

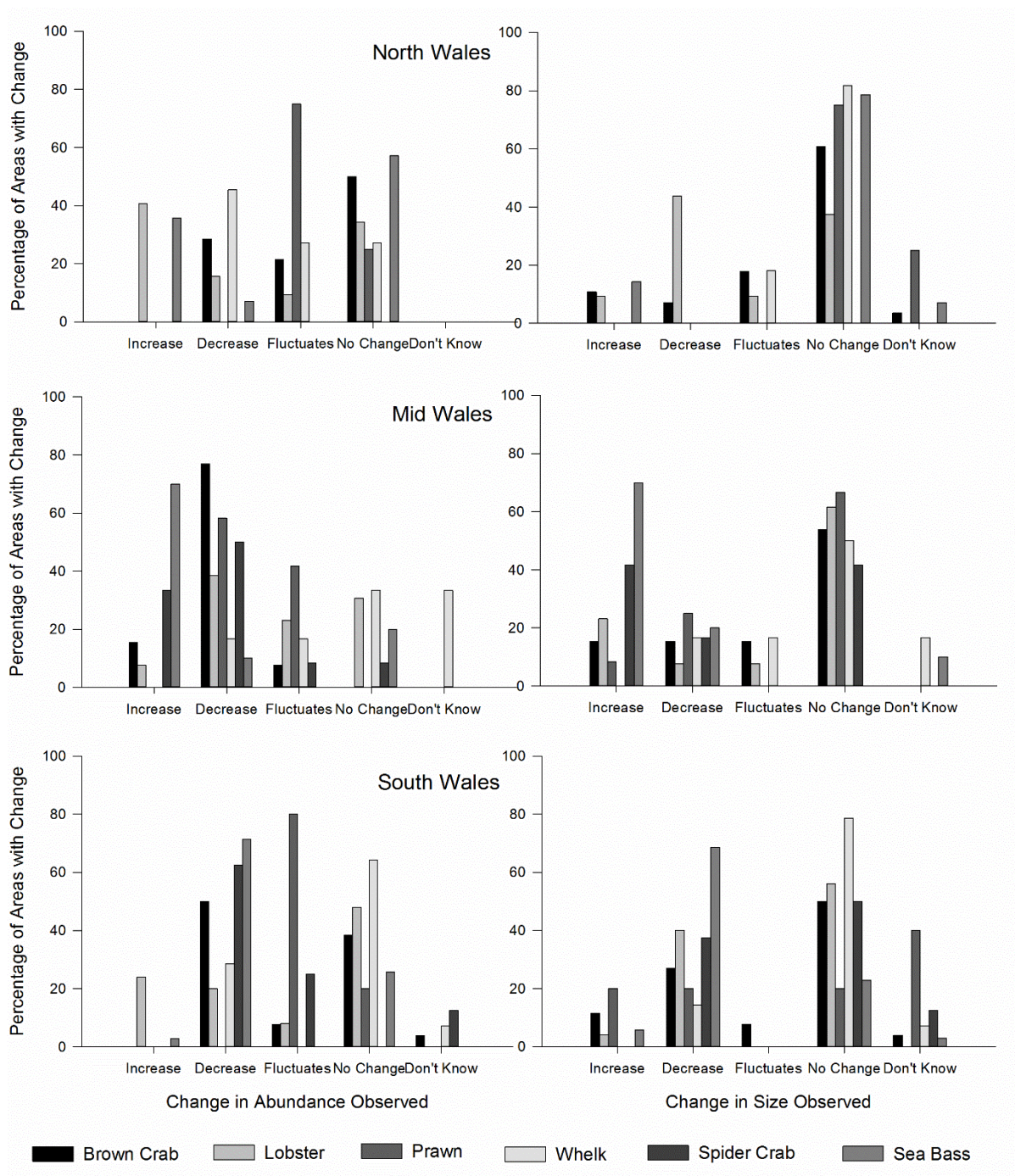


Figure 1: Changes in species' abundance and size observed by fishers in North Wales (top two figures), Mid Wales (middle two figures) and South Wales (bottom two figures).

The brown crab, lobster and whelk fisheries operate on a year round basis, the prawn and king scallop fisheries operate in winter and the spider crab and sea bass fisheries mainly operate in the summer months (Figure 2).

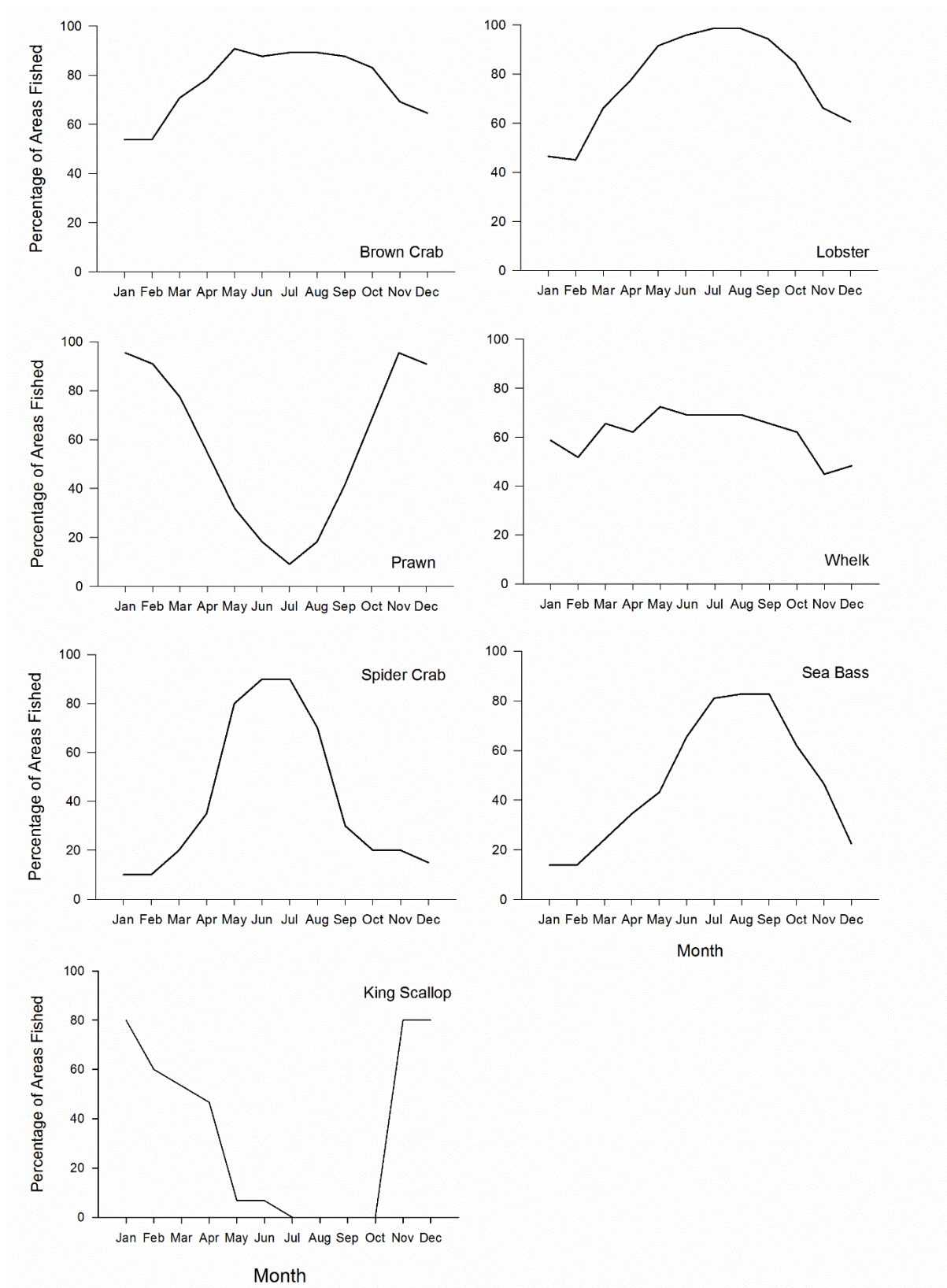


Figure 1: The average annual fishing activity for seven fisheries in Welsh waters.

Fishers experience a variety of conflicts with other marine users. The main conflict for fishers with mobile gears is conservation legislation. The static gear fishers encounter a much larger variety of

conflicts. The most common conflicts occurring with hobby potters and fishers for the same species (Figure 3).

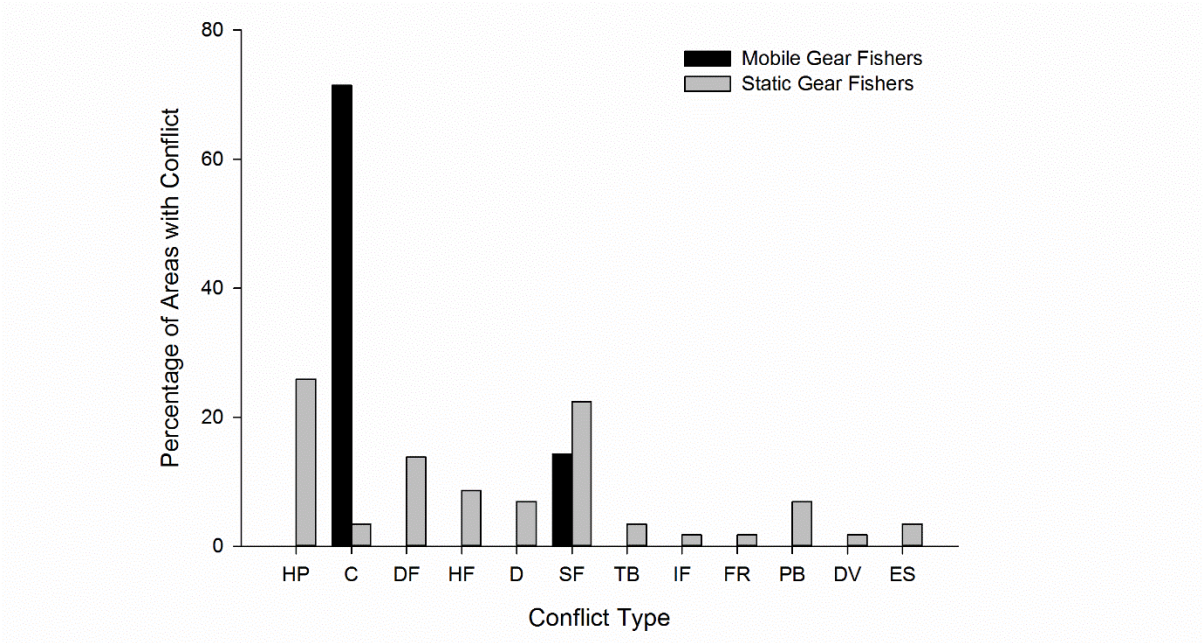


Figure 2: The conflicts of marine use identified by fishers using mobile and static gear in Welsh waters. HP: hobby potters, C: conservation, DF: fishers targeting different species, HF: hobby fishers, D: divers, SF: fishers targeting the same species, TB: tourism boats, IF: illegal fishers, FR: firing range, PB: pleasure boaters, DV: development, ES: energy sector.

