



PRIFYSGOL
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Sustainable Use of Fisheries Resources in Welsh Waters

Science User Advisory Group

2nd December 2013



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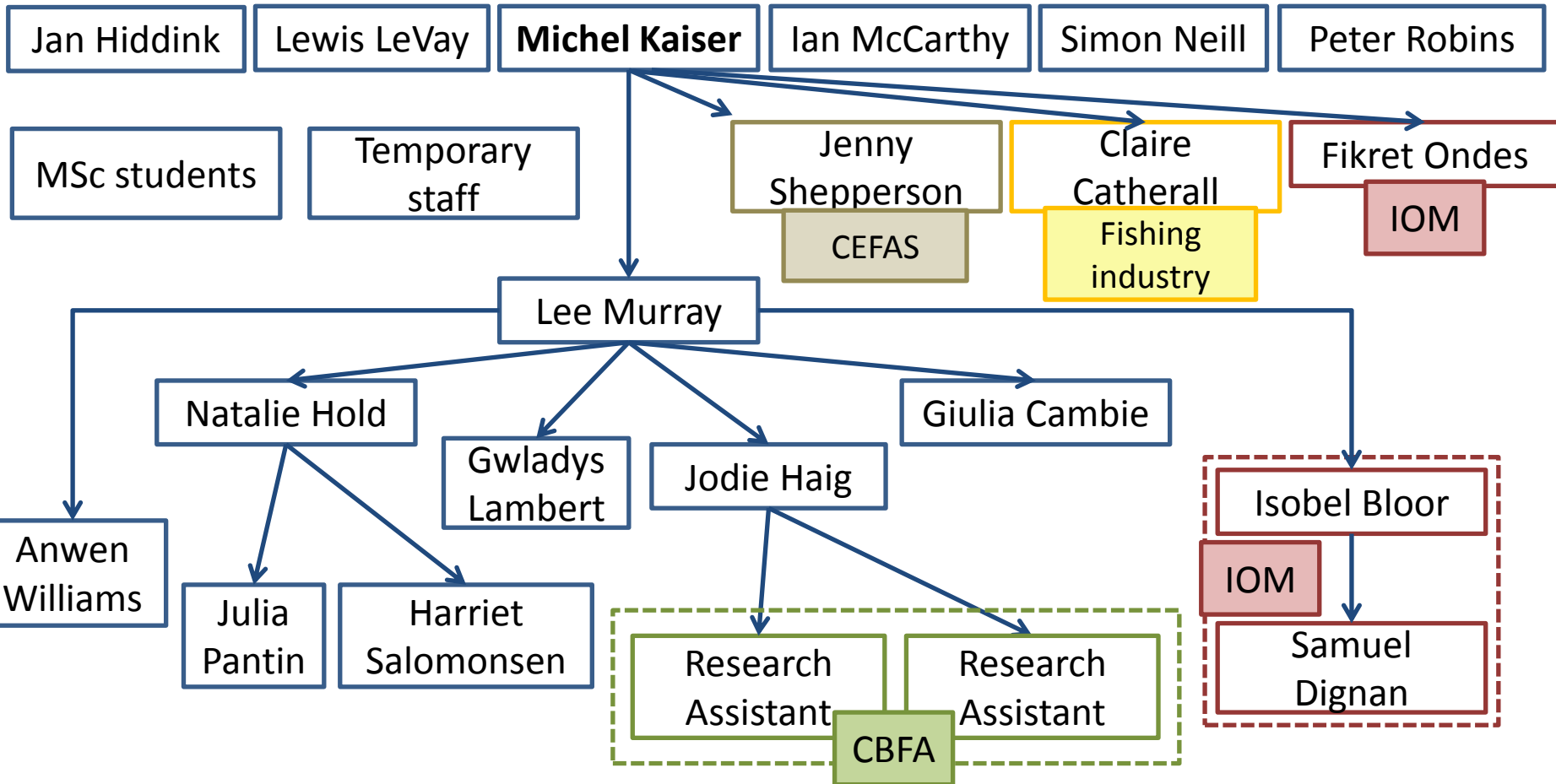
Project overview



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RESEARCH GROUP



ORIGINAL PLAN

Industry
questionnaire

Habitats and
ecosystems

Exploited
populations

Connectivity

Management
advice

Data collected

Data on fishing
grounds, fishing
practices,
exploited
populations

Map habitats
and benthic
fauna

Bass, crabs,
lobsters,
prawns,
scallops, whelks

Particle
tracking,
genetics
(scallops)

Management
strategy
evaluation,
technical
measures

Aims

Identify
temporal trends
in catches and
effort, and
changes in
fishing grounds

Quantify fishing
impacts,
identify new
fishing grounds

Identify
temporal trends
in abundance,
size, age,
maturity.

Identify
populations.
Larval sources
and sinks

Advice to
achieve
sustainable
fisheries



Project variation



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PROJECT VARIATION

Still able to employ the full team until May 2015

- University subsidising academic staff salaries

Decrease in Prince Madog funding

- University subsidising £40,000 of Prince Madog time.
- Only one cruise to monitor recovery in fishing experiment.

Removal of all subcontracting funding

- No collaboration with CEFAS – modelling in-house for scallops. Biological data for technical measures only for other species.
- All samples/videos will be processed in-house – slightly decreased capability for volume.



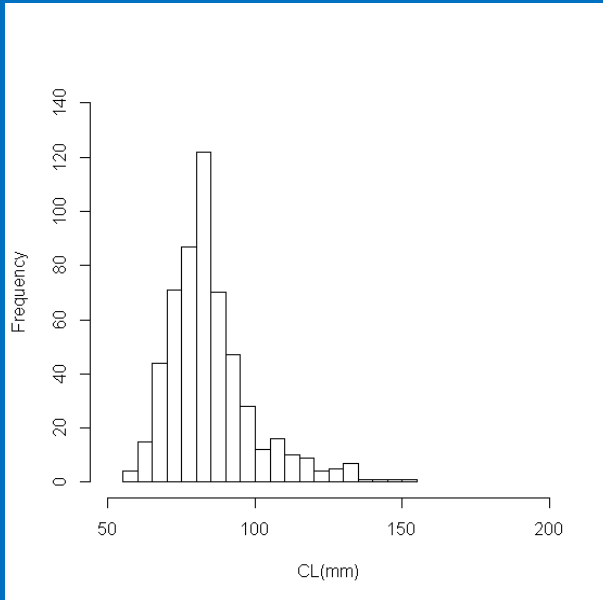
Lobsters



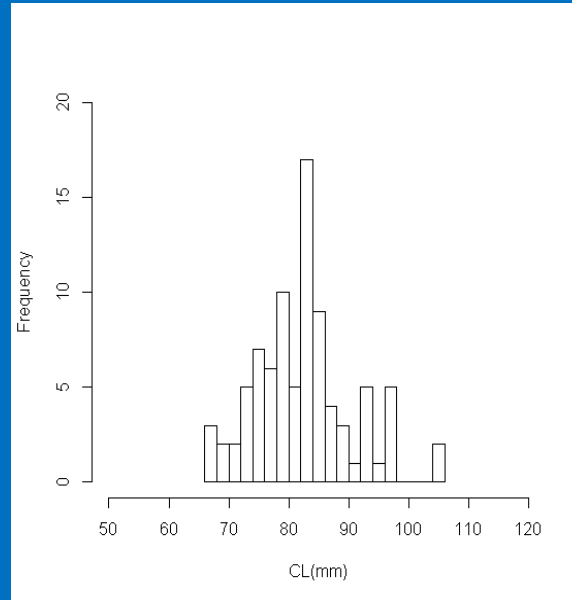
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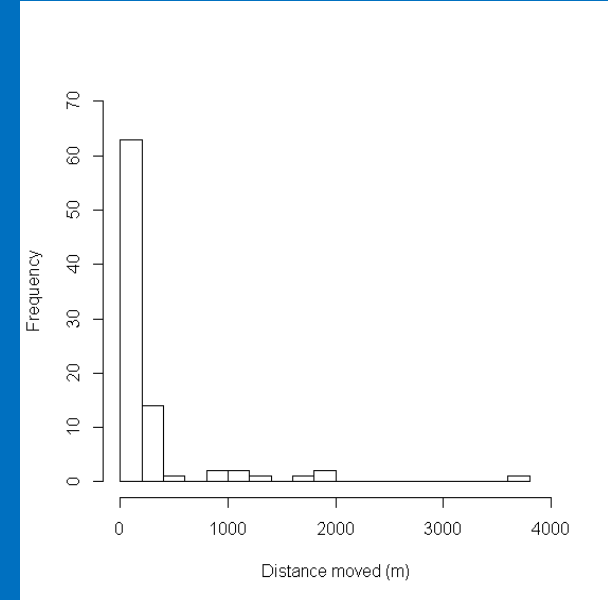
LOBSTER TAGGING



Lobsters tagged ranged in size from 56 mm – 151 mm CL



Lobsters re-caught ranged in size from 66 mm – 105mm CL

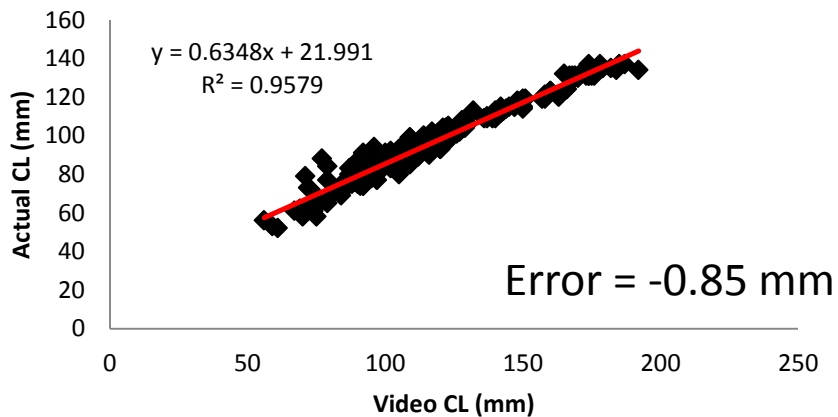


Lobsters moved a median distance of 114m with the majority of lobsters moving less than 200m. Maximum distance moved was 3.6km.

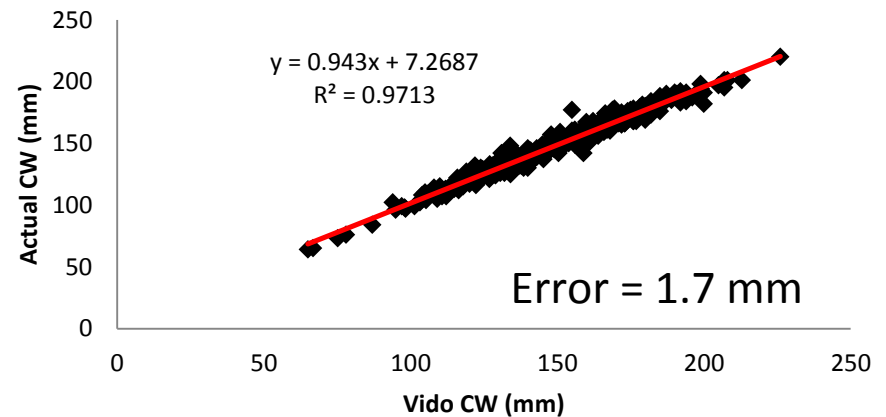


On-Board Camera

Lobster



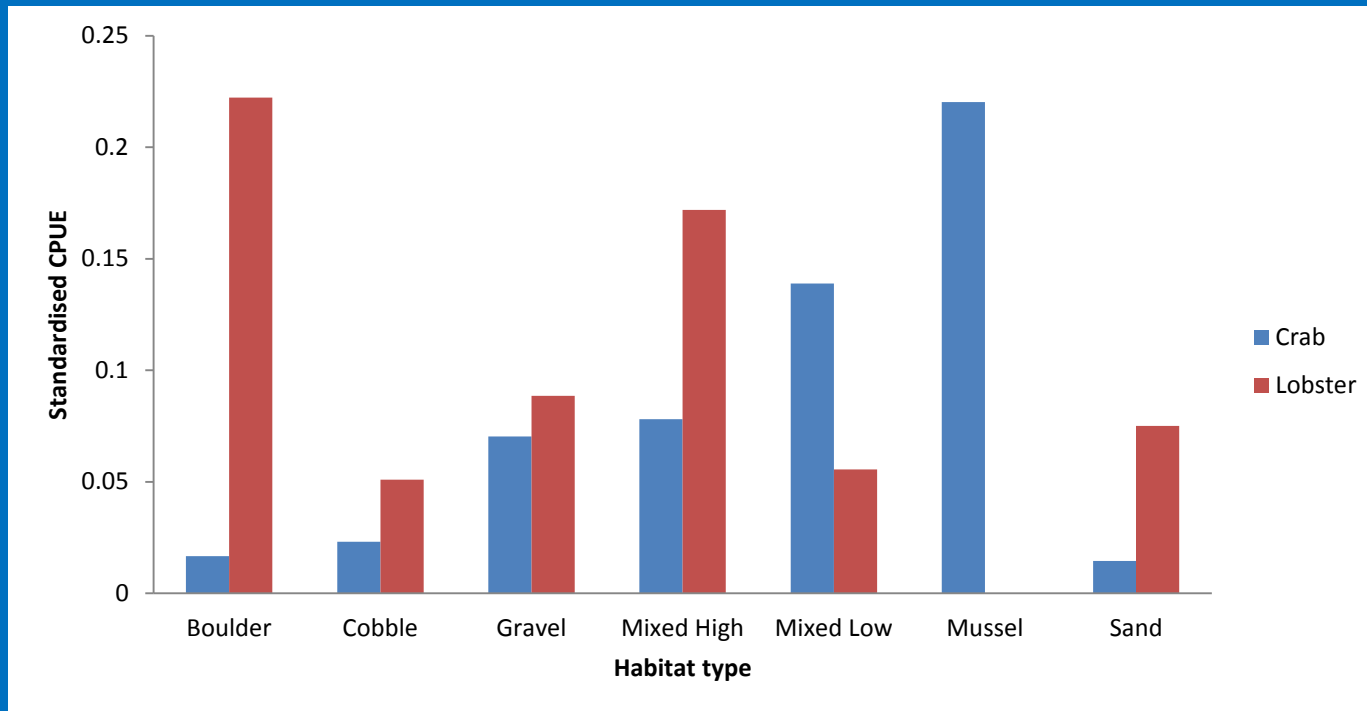
Crab

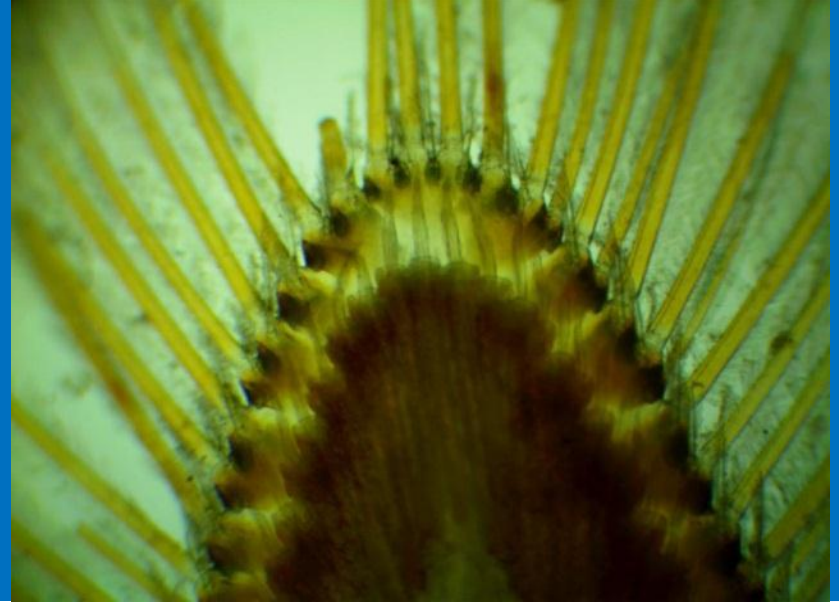
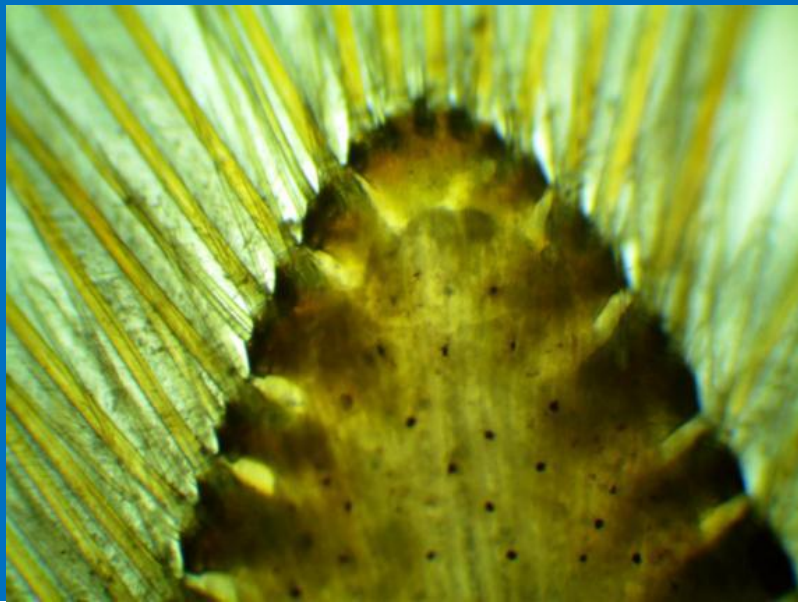
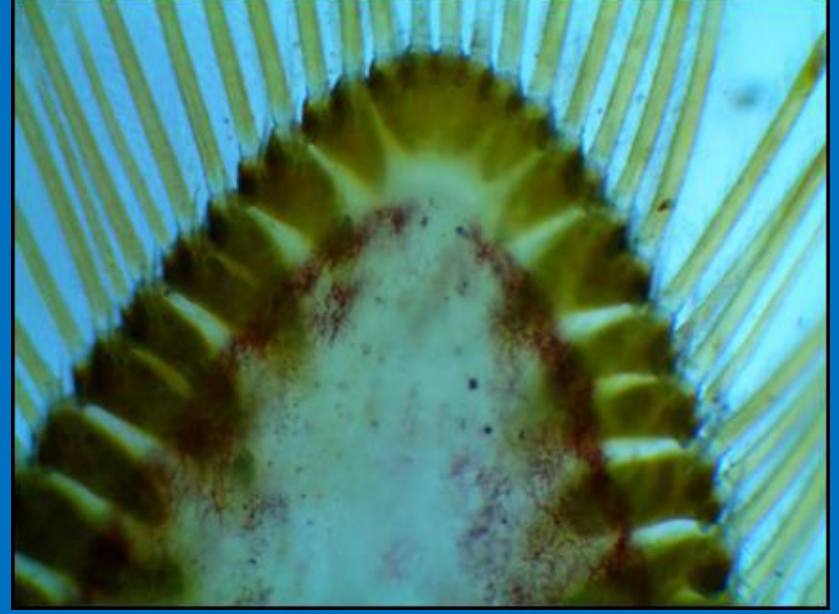
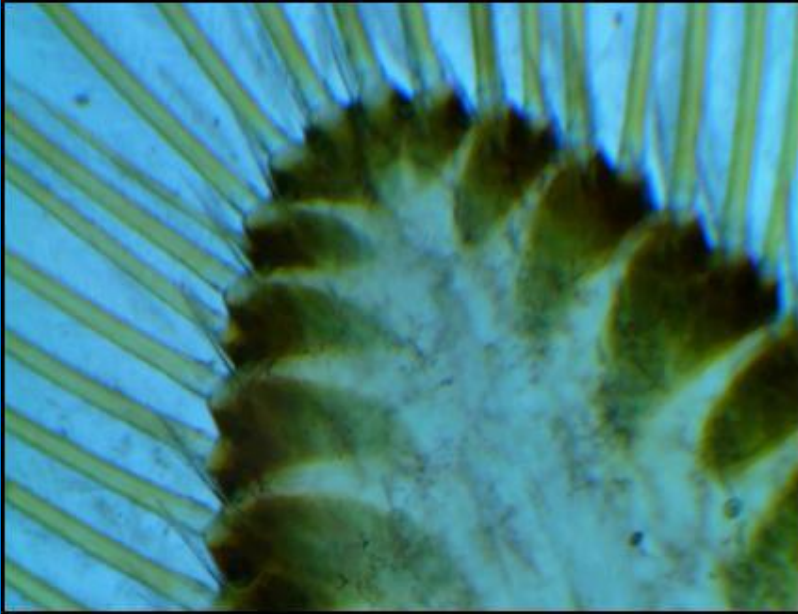


- Time for analysis is still main limitation.
- Searching for funding to help automate some of this



Juvenile Crustacean Survey





Crabs, prawns and whelks



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Brown Crab

Progress:

On-board camera data for north and south Wales

Juvenile habitat survey pilot complete

Observer data started

Morphometric & Fecundity project started



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Summer Projects:

Abundance and distribution of juvenile *Cancer pagurus*

Two summers of on-shore juvenile abundance data collected
8 Sites in North Wales 2012
4 Sites in North Wales / 5 sites in Pembrokeshire 2013

- Juveniles: 8-112 mm
- Juvenile crabs are picky about where they live!
- Patchy on shore and between shores
- Presence of boulders of a particular size are important
- Omnivorous feeders



Brown Crab



What's next:

Size at maturity study
(awaiting permit for collection of
undersized animals)

Possibility of postponement till next

Winter breeding season

On-board observing in addition to on-
board camera data





Common Prawn

Progress

Samples collected from Swansea to Anglesey (May 2013 – now)

Being processed in the lab

- Sex ratio
- Size at maturity
- Size frequency distribution
- Variations with water depth and habitat
- Tissue bank for future genetic work



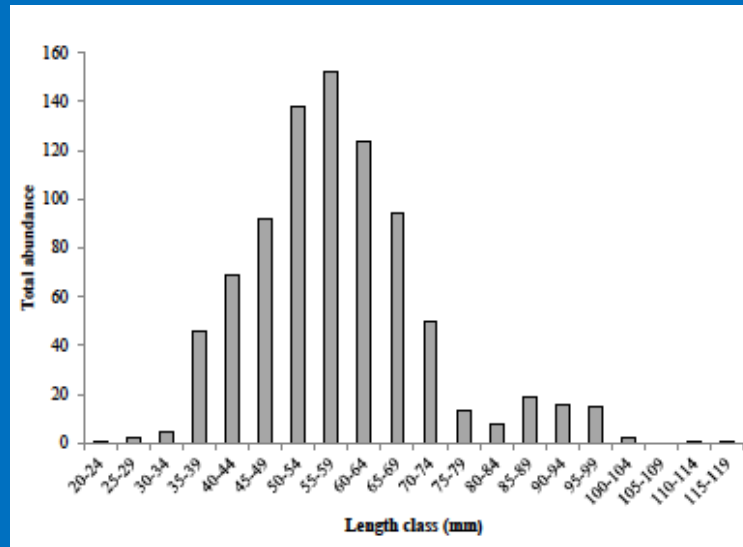
COMMON PRAWN

Two Summer projects
(June-July 2013)

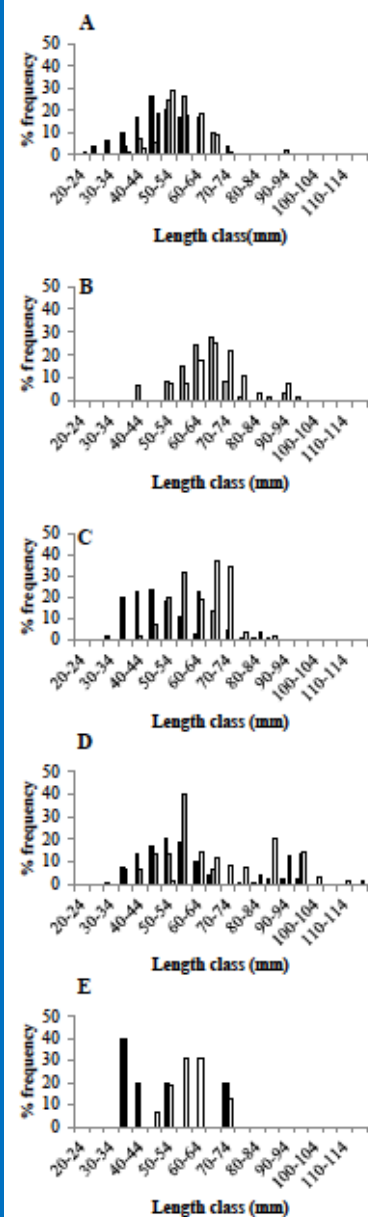
Summer inshore habitat use
by *Palaemon serratus*

North and South Wales

Report available on the
website



Female dominated inshore populations
Abundances much greater in northern inshore regions
Few gravid females in inshore populations



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Common Prawn

CBFA Project collaboration: Sustainable Management of the Cardigan Bay Prawn Fishery

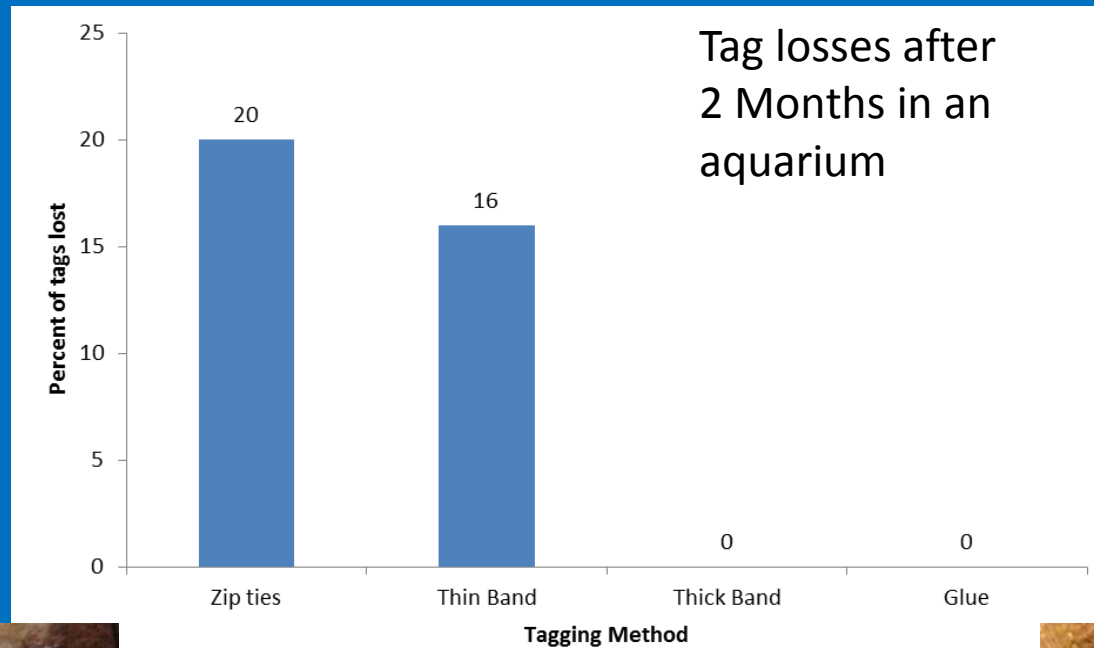
What's next:

Continued sampling for a full 14 month data set

Summer 2014: Inshore habitat use and recruitment patterns of *Palaemon serratus*



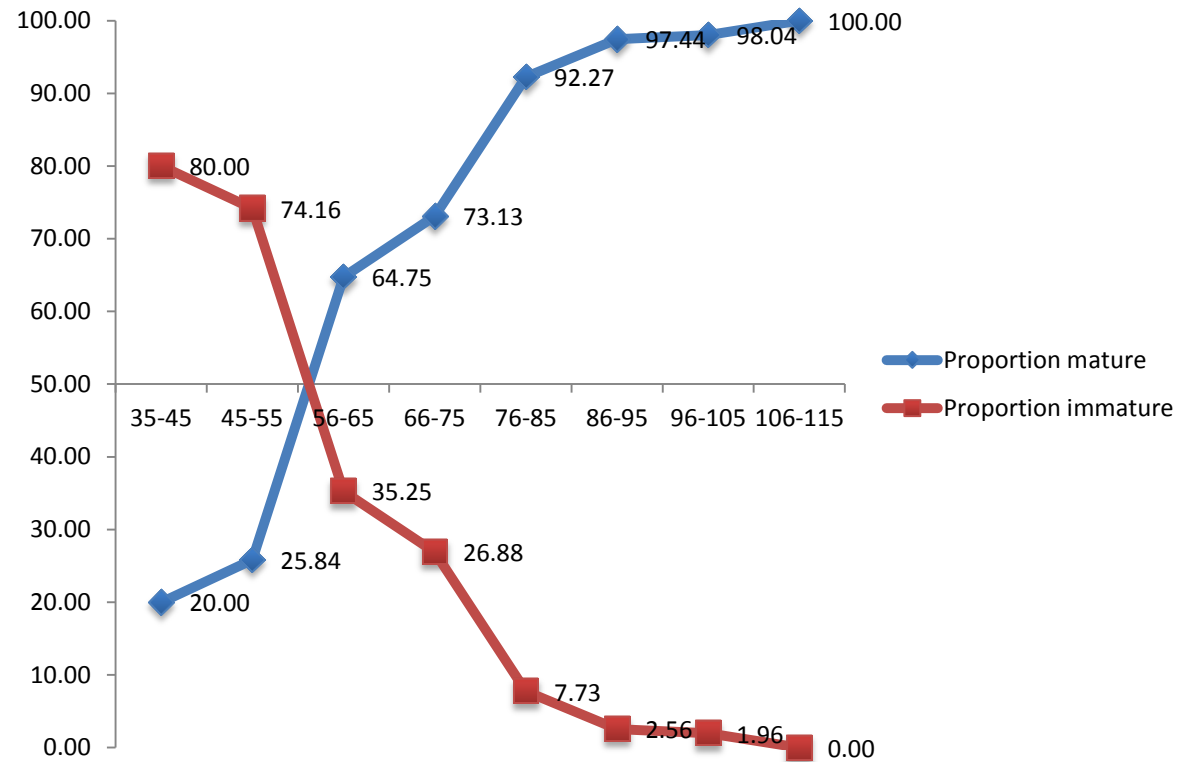
Whelk Tag Retention Study

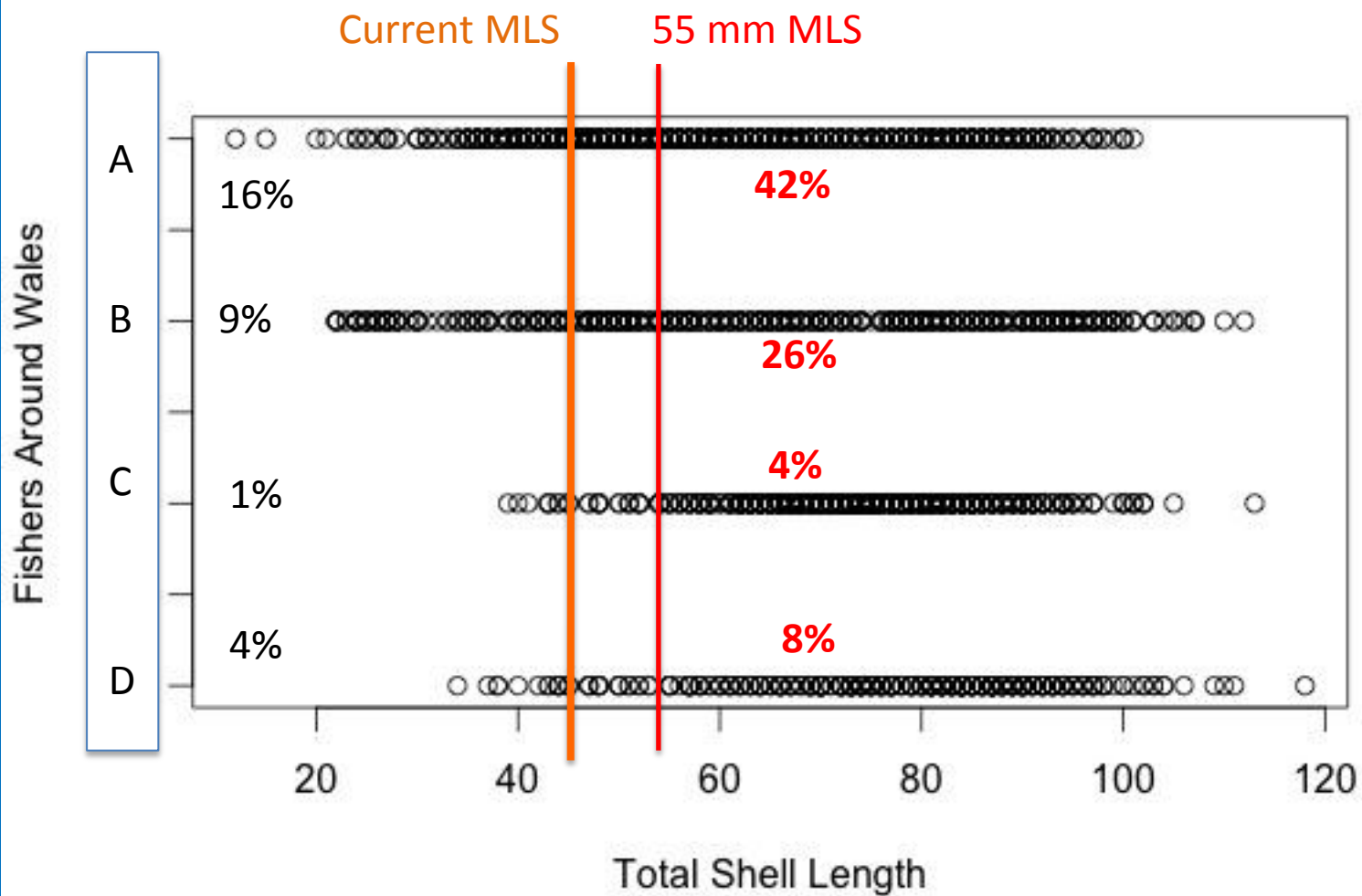


Whelks

Progress

- Processed 2807 whelks from Swansea to Anglesey (May 2013 – now)
- Sex ratio: 50:50
- Size at maturity:
- Proportion mature for each
- 10mm size class (all Welsh
- Data combined).





Escape hatches

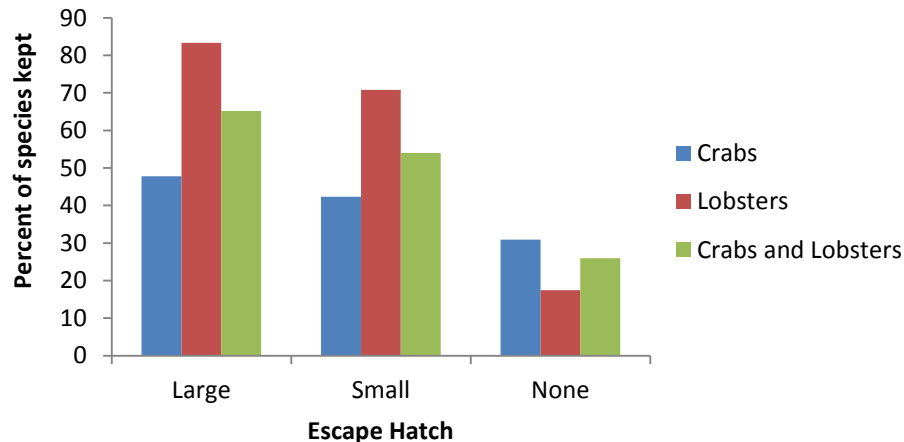


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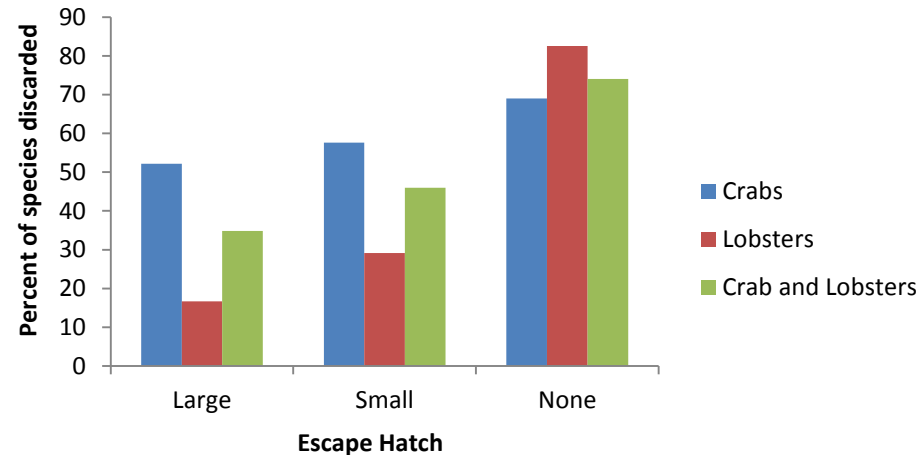


Escape Hatch Study in Cardigan Bay

Kept Crabs and Lobsters by Escape Hatch



Discarded Crabs and Lobsters by Escape Hatch

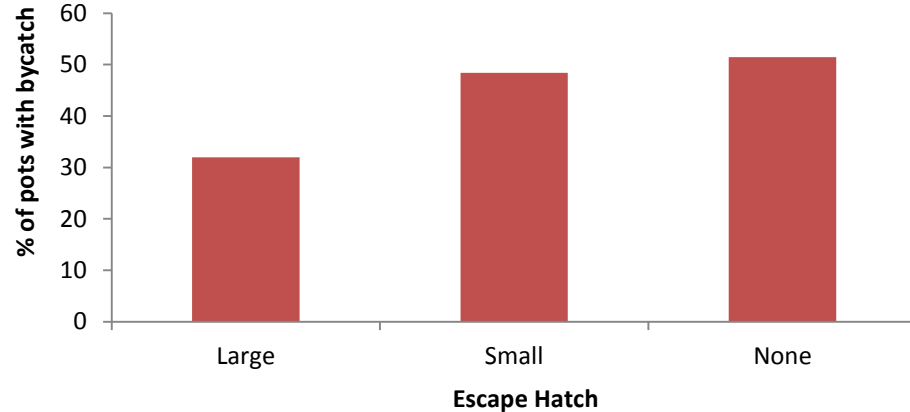


Based on preliminary results, more legal sized lobsters are caught in pots with escape hatches.

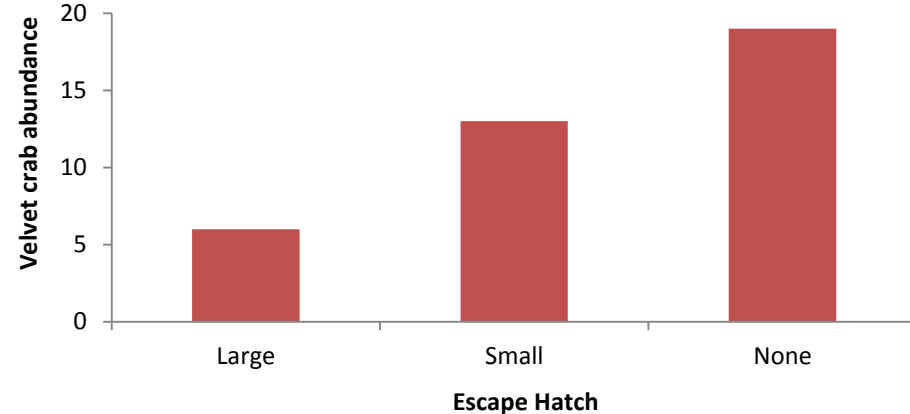


Bycatch with Escape Hatch Use

Percent of Pots with Bycatch by Escape Hatch



Velvet crab Abundance by Escape Hatch



Preliminary results suggest pots with large escape hatches catch less bycatch and consequently catch less velvet crabs.



Bass

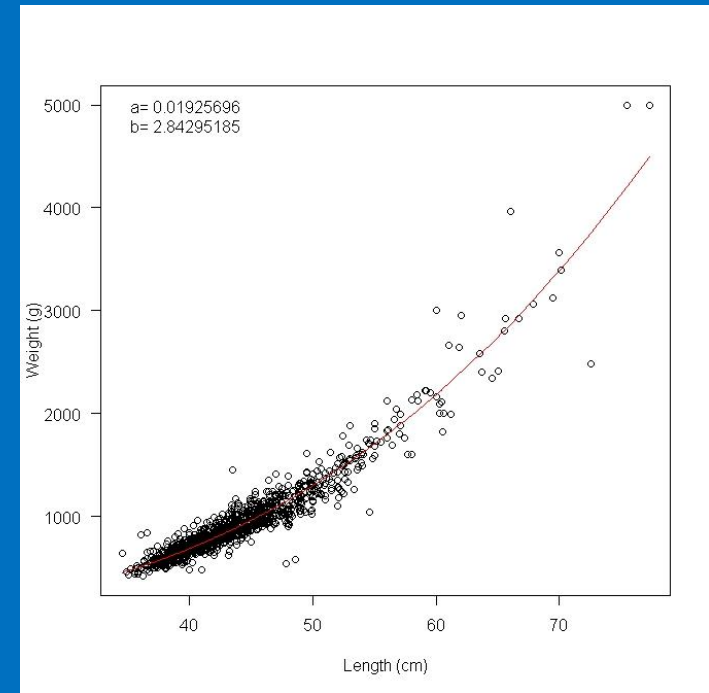
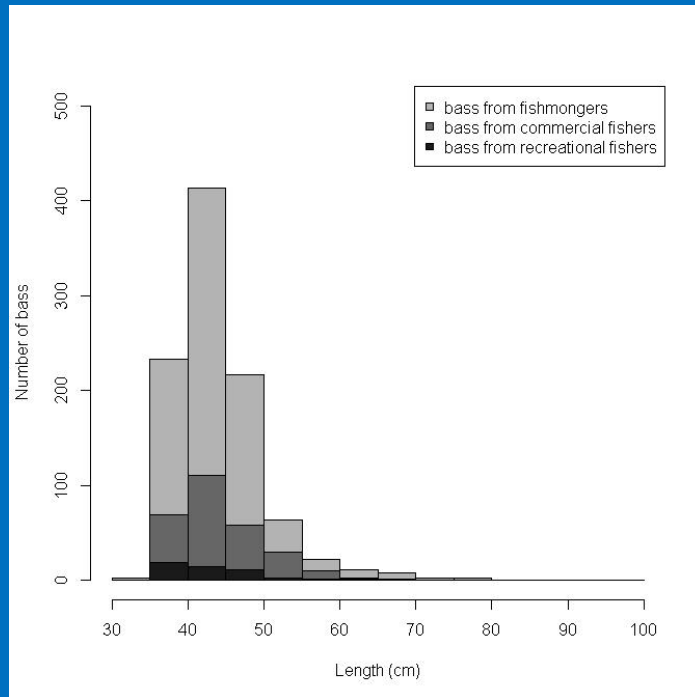


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1. Size distribution

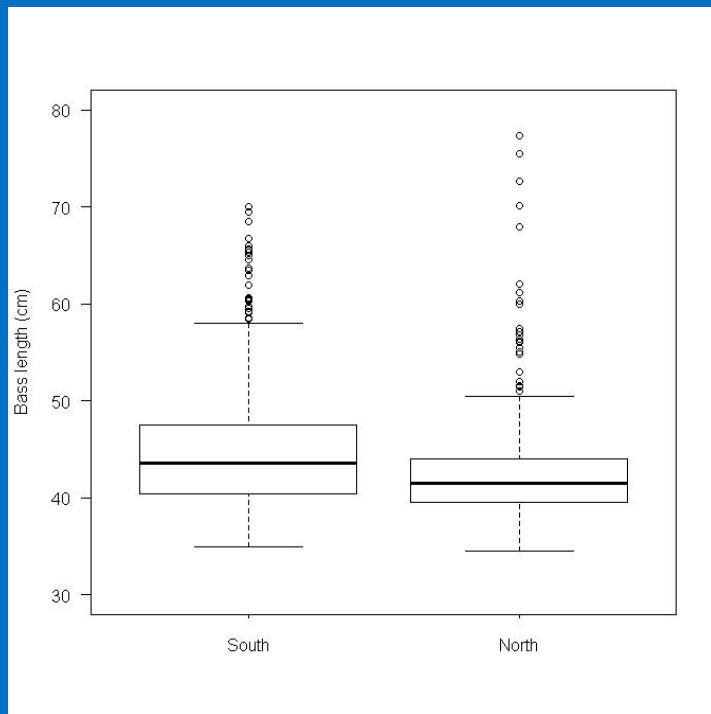
A total of 1304 bass were sampled between May and November 2013, 280 from commercial fishermen (n = 6), 49 from recreational fishermen (n = 4) and 975 from fish processing industries (n = 7)



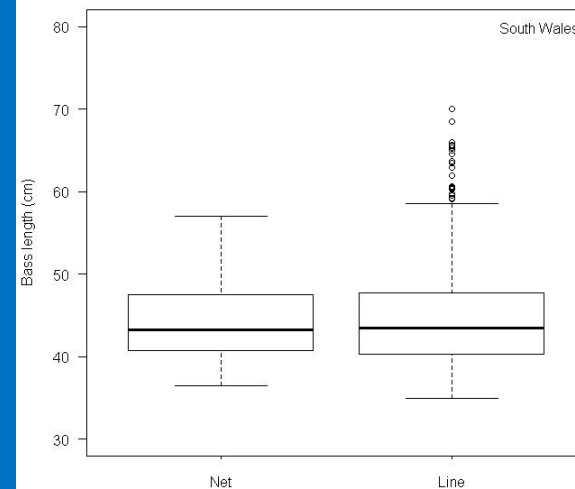
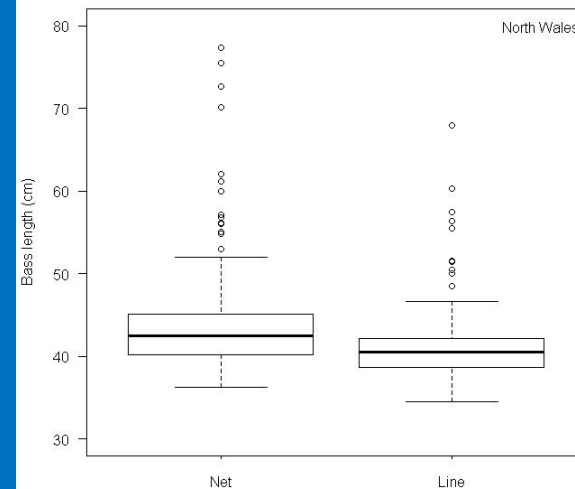
Length-weight relationship ($Weight = a * Length^b$) has been estimated from 1205 fish, 827 from South, 371 from North and 7 from Mid Wales



1. Size distribution

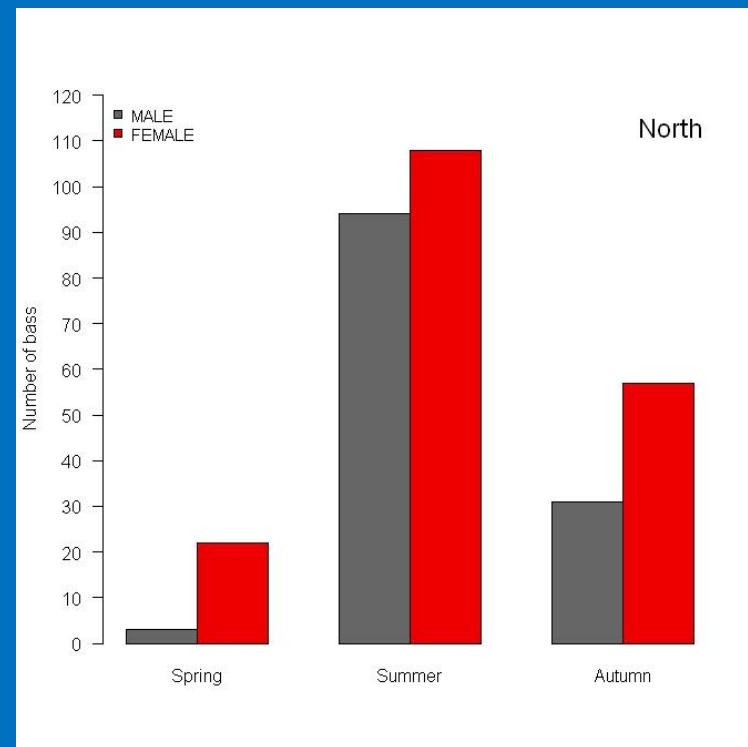
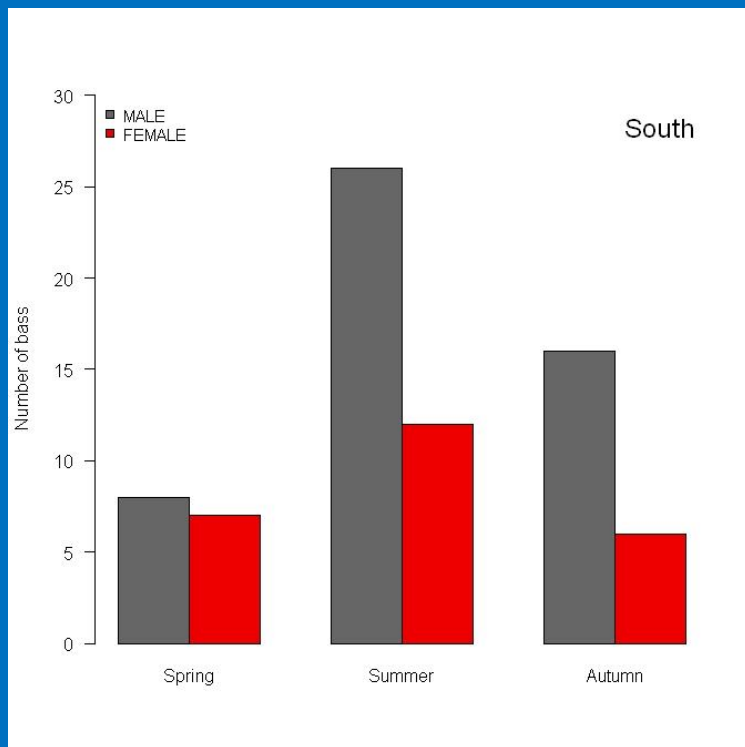


Differences in the mean body size of the bass caught between North (42.81 cm) and South (44.58 cm) have been detected



2. Male/female ratio and maturity stage

A total of 390 fish were sexed, 315 from North Wales and 75 from South.

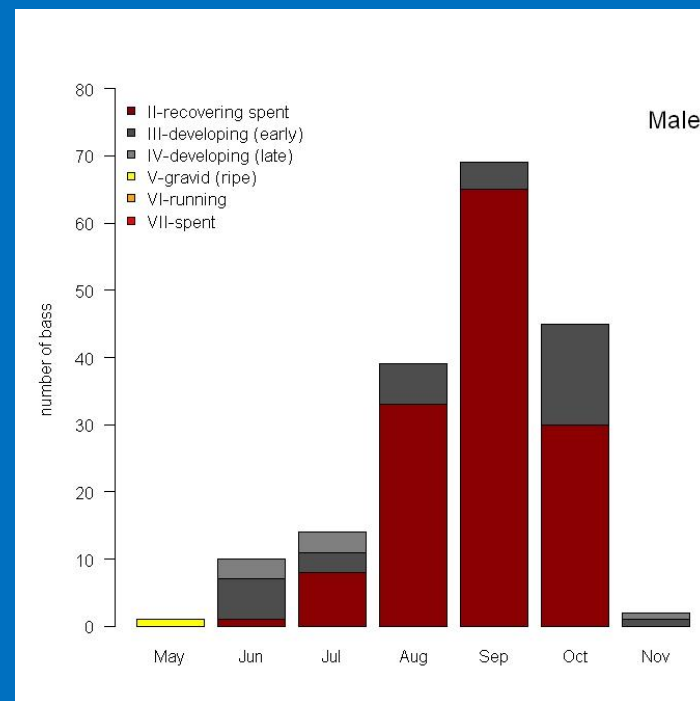
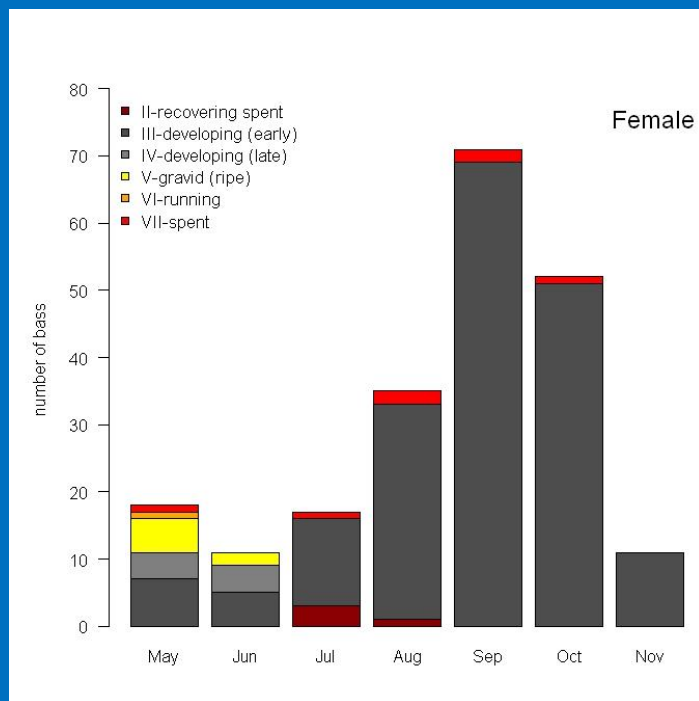


Although these preliminary results show that in South Wales the captures were mainly composed of males (67% of males vs. 33% of females), more data need to be collected to have a robust and representative picture of the exploited stock in that area.



2. Male/female ratio and maturity stage

The maturity stage of the bass caught by month is consistent with the life cycle described in Pawson and Pickett (1996). Ripe females appeared only in May and June.

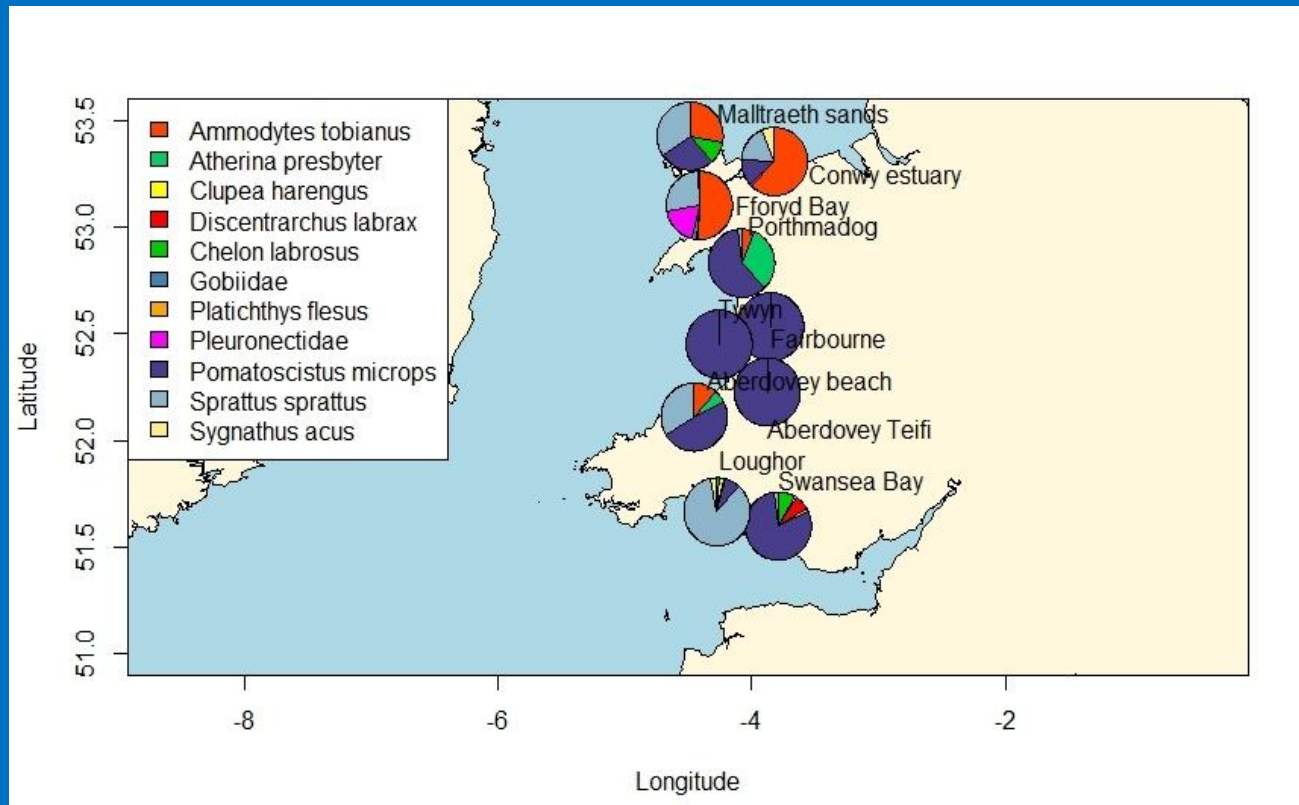


Considering the male/female ratio in North (M = 41%, F = 59%) and South Wales (M = 67%, F = 33%) and the related size distribution, 44% (North Wales) and 45% (South Wales) of the females caught were < 42 cm.



3. Nursery areas and recruitment index

A total of 10 sites (coastal areas and estuaries) were sampled from July till October 2013 with a micromesh seine net (4 mm mesh size).



3. Nursery areas and recruitment index

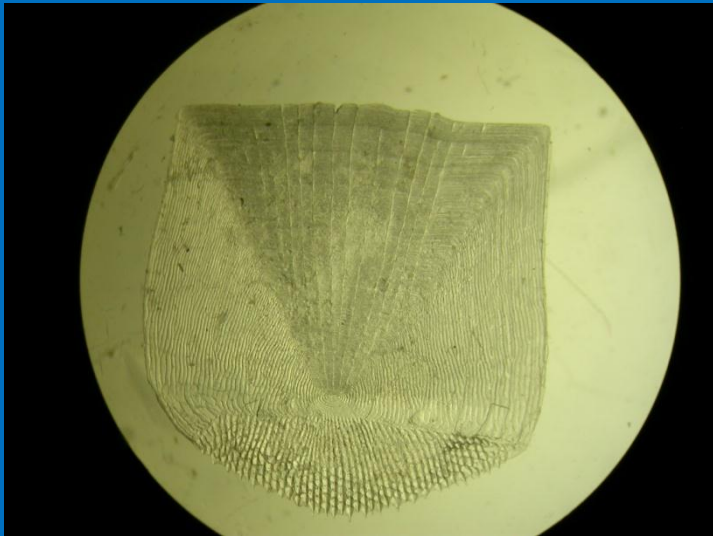
A total of 57 samplings with seine nets 4 mm mesh size were undertaken. A total of 966 individuals from 11 different species were also measured. 0-group bass were detected in small quantities only in South Wales and in Aberdovey estuary .

Sampling Site	n. of netting operations	n. of 0-group bass	Recruitment index (bass/100 m ²)
Conwy Estuary	3	0	0
Foryd Bay	4	0	0
Malltraeth Sands	2	0	0
Porthmadog	4	0	0
Fairbourne	4	0	0
Tywyn	3	0	0
Aberdovey Teifi	3	0	0
Aberdovey beach	9	1	0.079
Loughor	11	9	0.273
Swansea Bay-Blackpill	14	42	2.432



4. Forthcoming results

- The analysis of the bass scales for ageing the fish and preparing them for the stable isotopes analysis started this month



- 45 economic interviews have been carried out and the economic indicators will be presented by March-April.

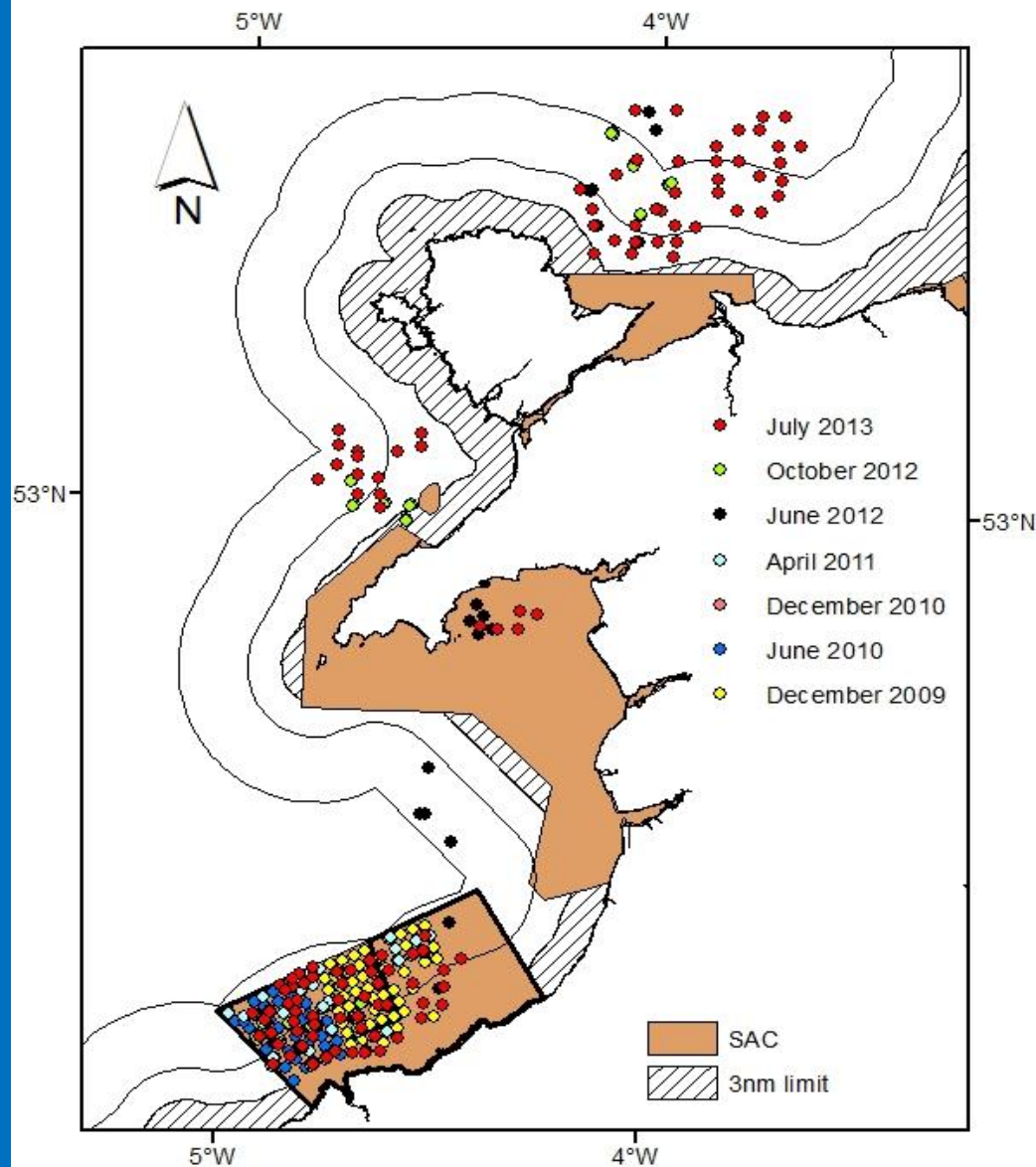


Scallops and habitats



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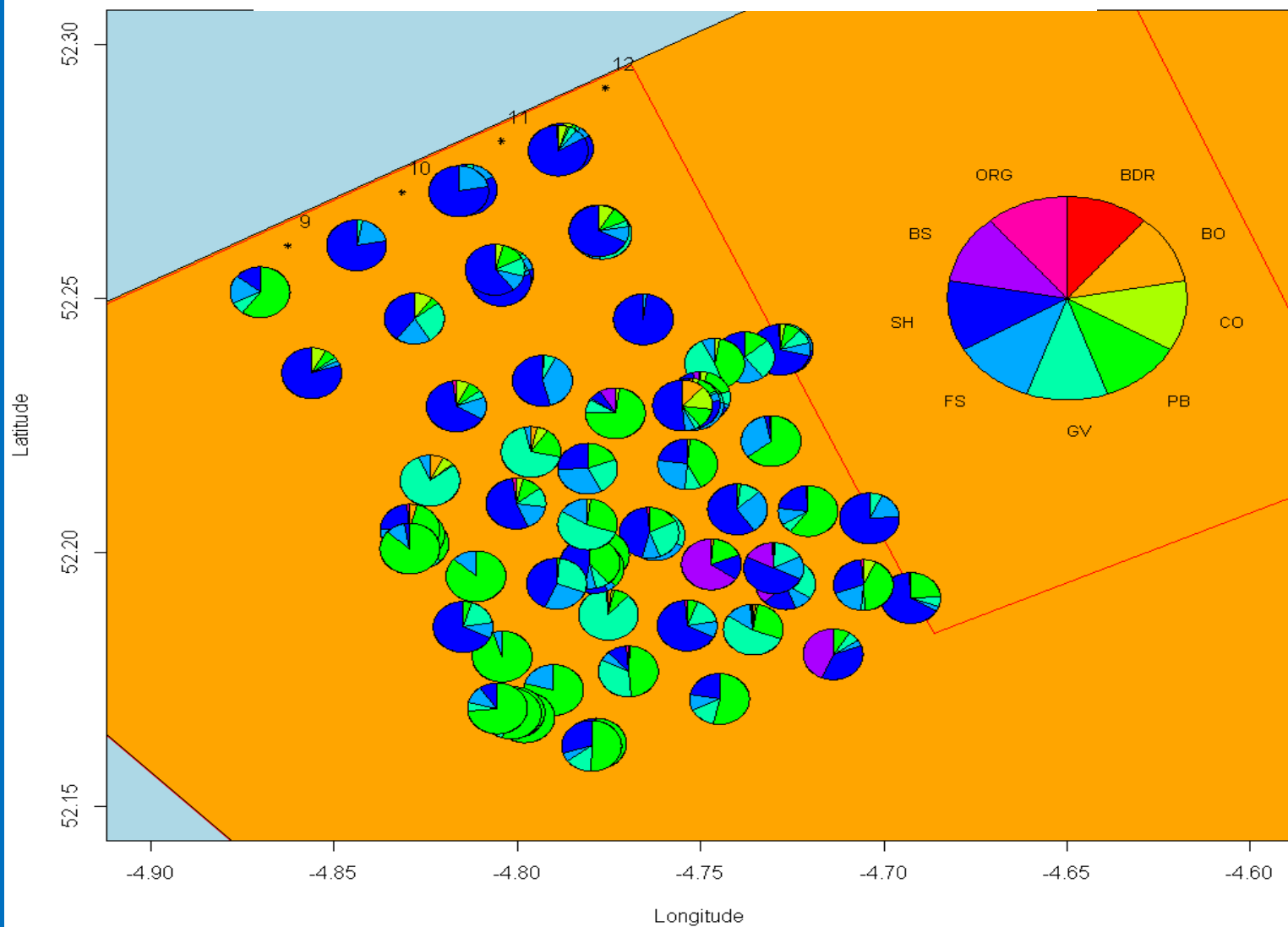




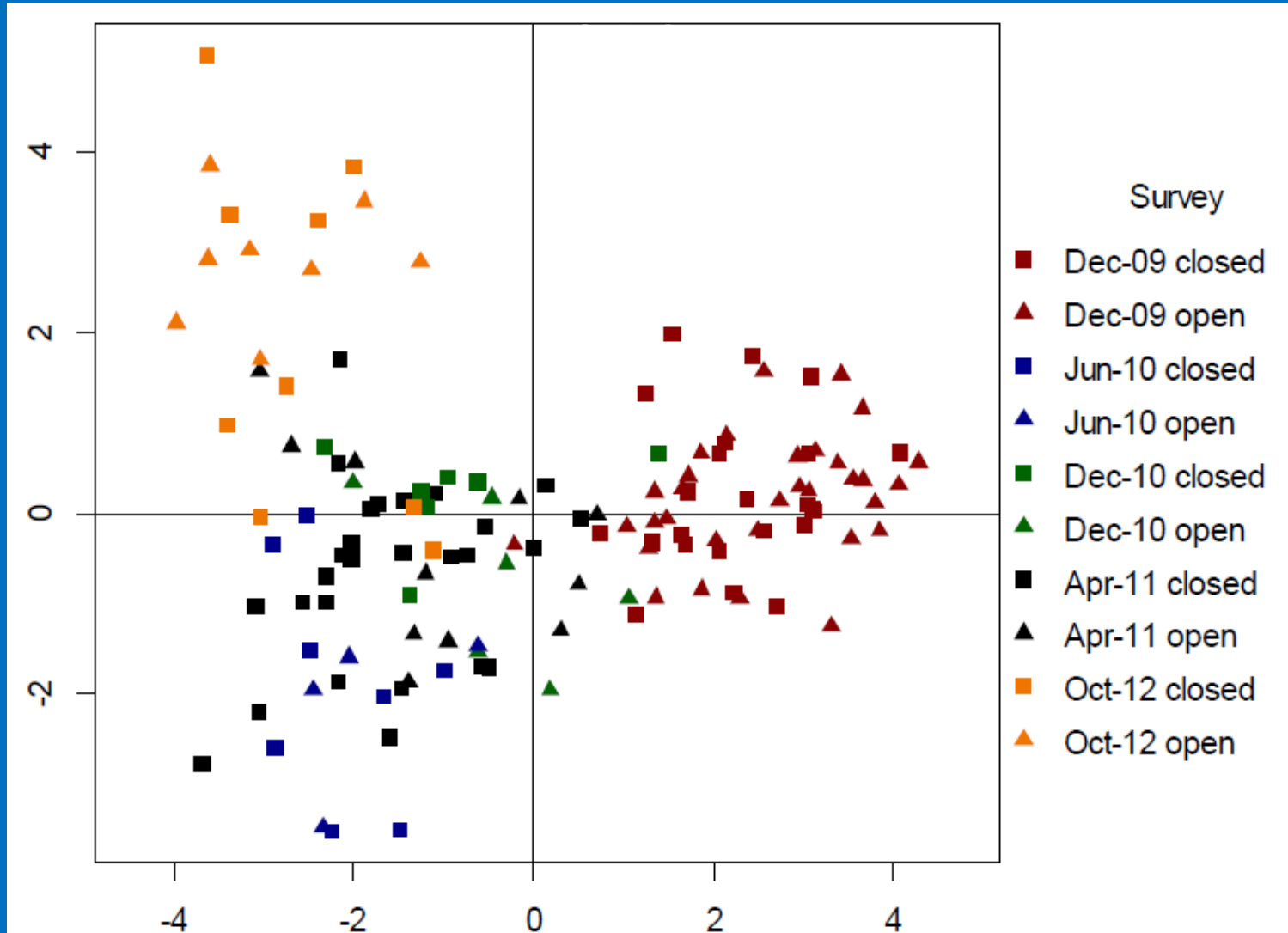
All video surveys
conducted with the
RV Price Madog
since 2009



Seabed substratum type



Species composition changes in Cardigan Bay



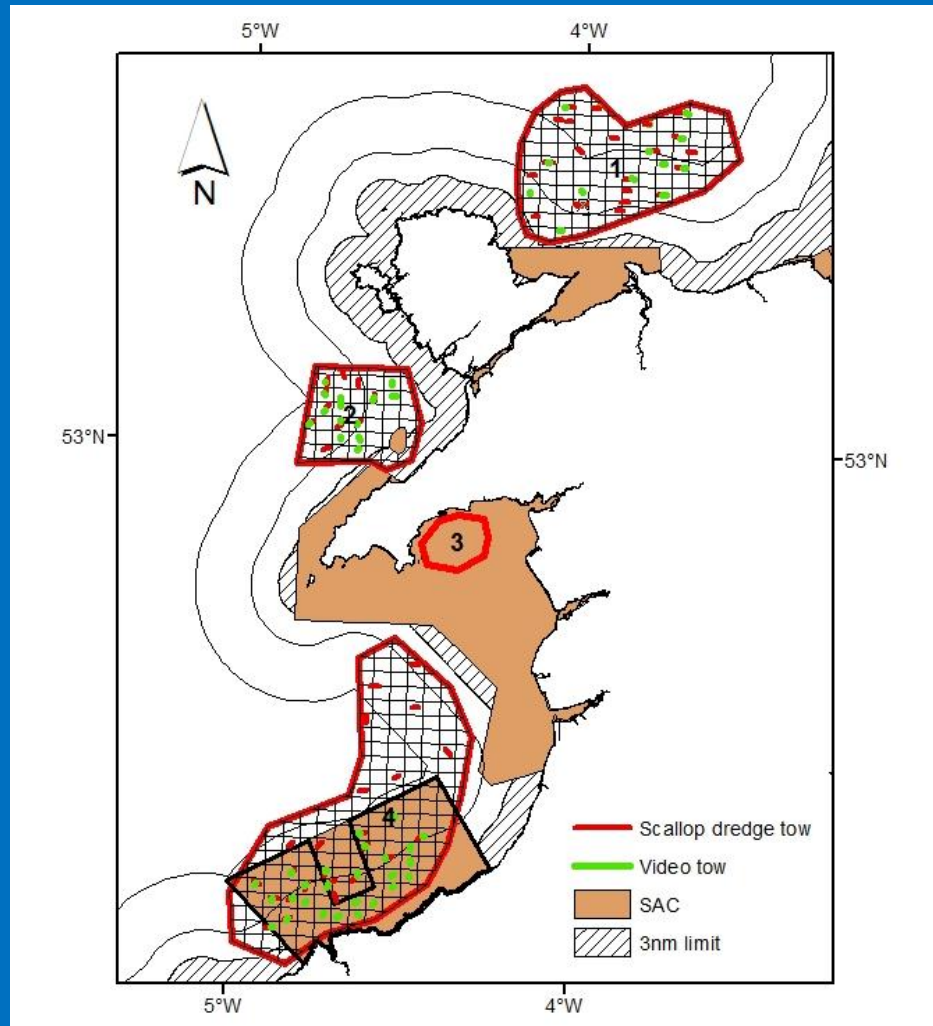
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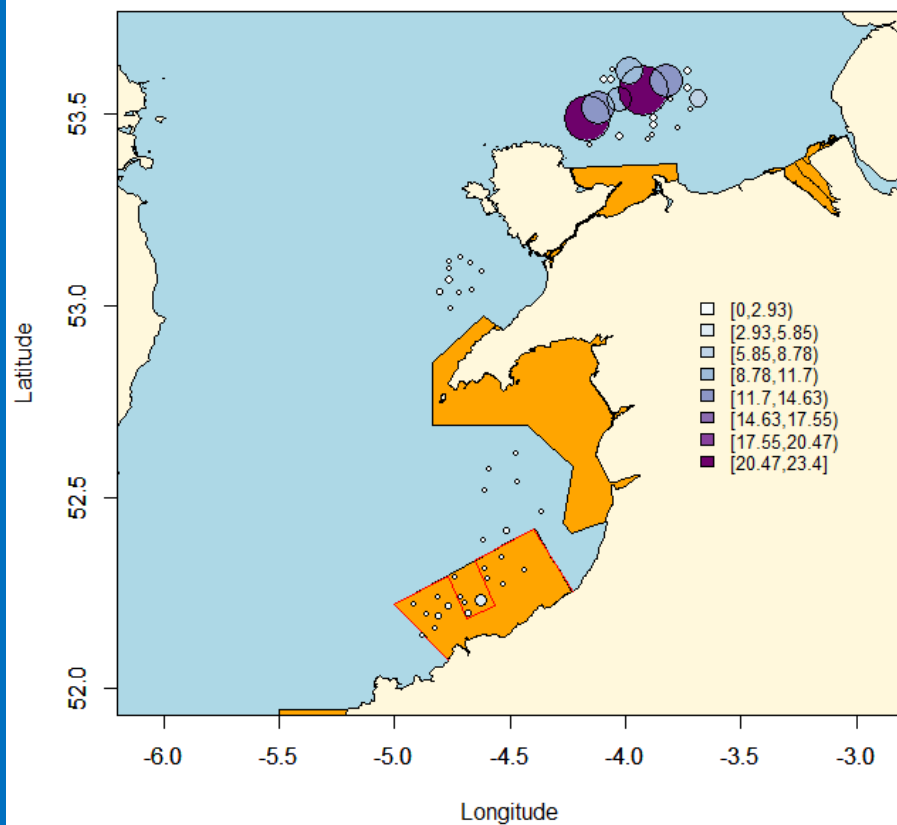
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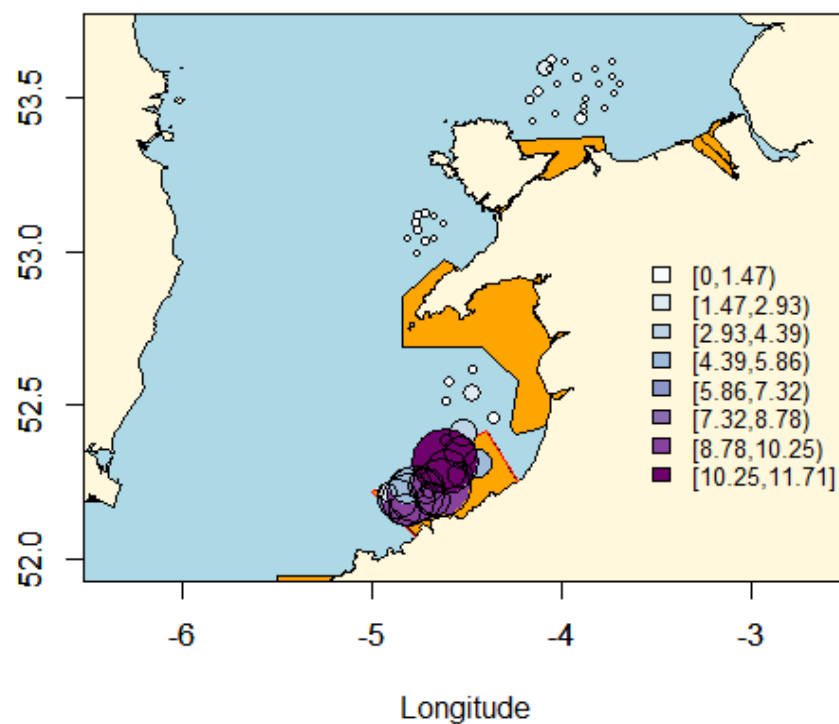
Scallop stock status



**Density Queens/100m2
Queen dredges**



**Density Kings/100m2
Queen dredges**

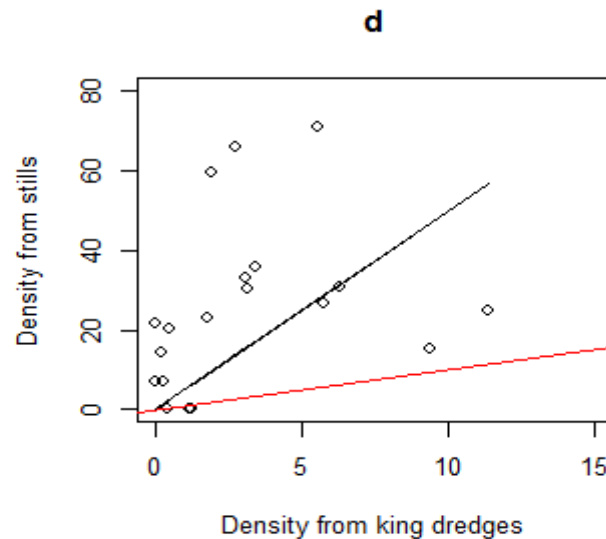
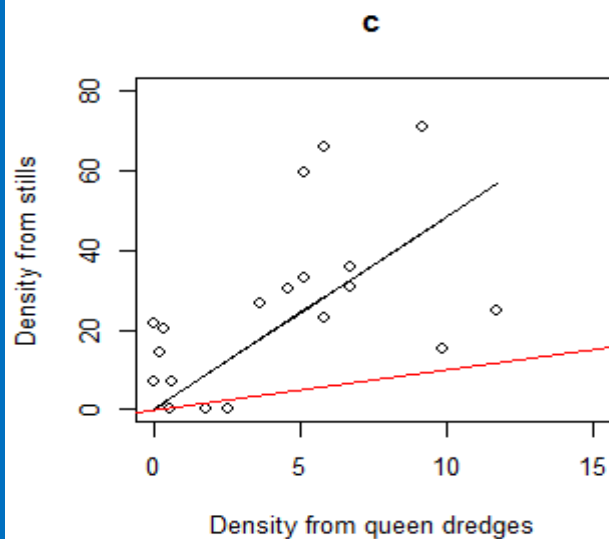
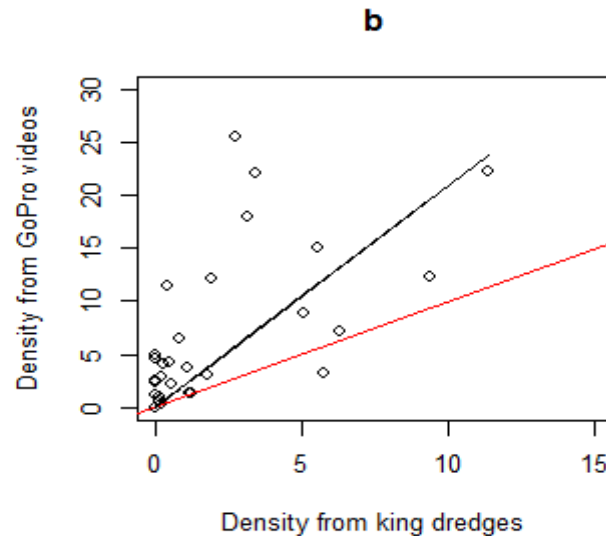
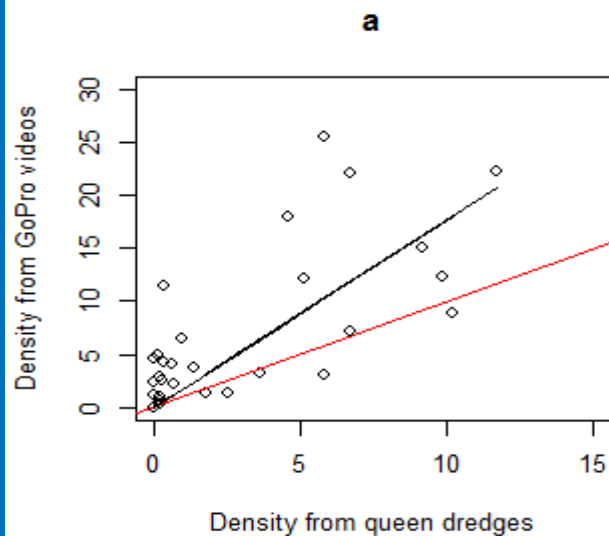


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Stills cover
~ 13m²

while

GoPro cover
~ 280m²



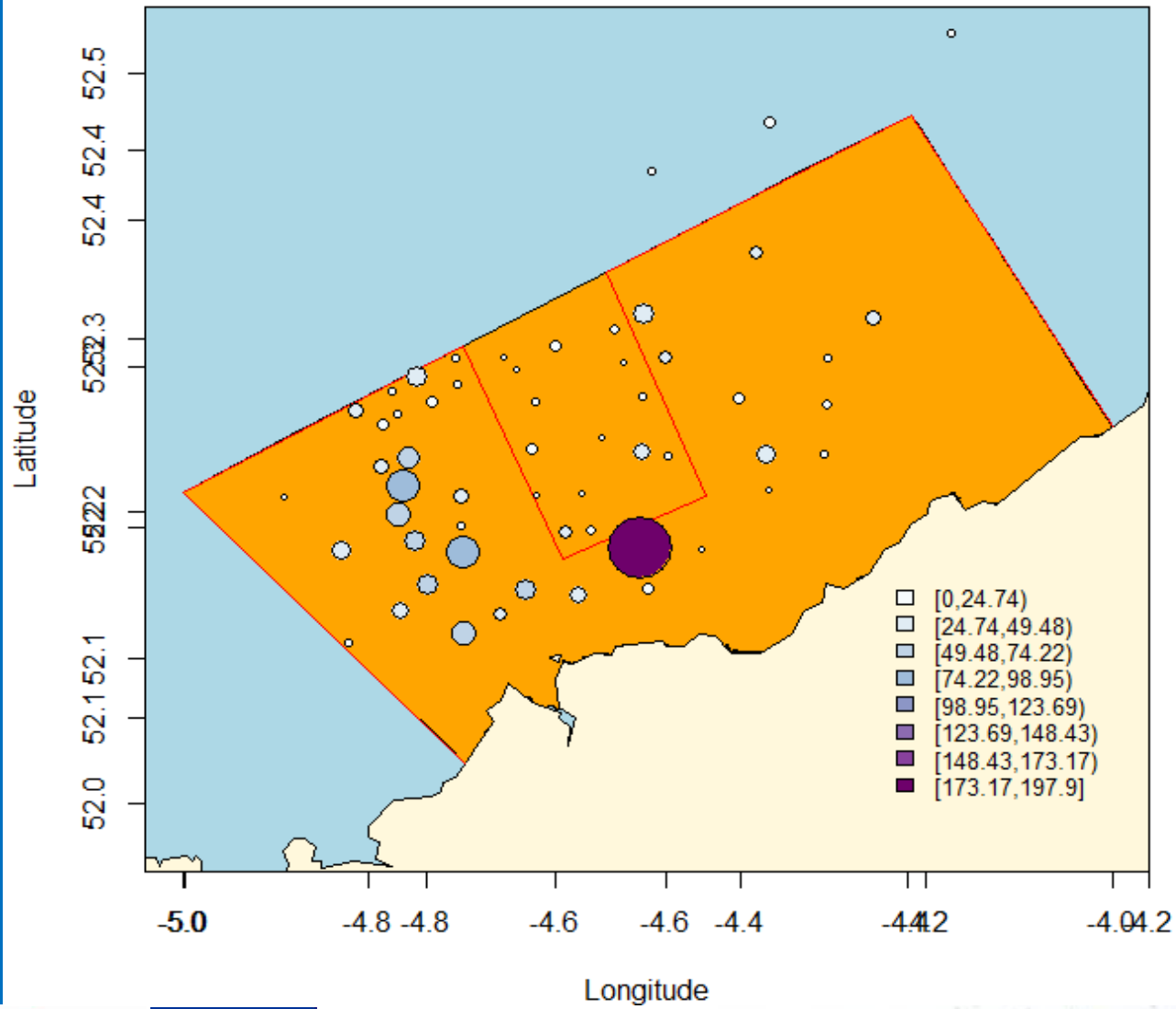
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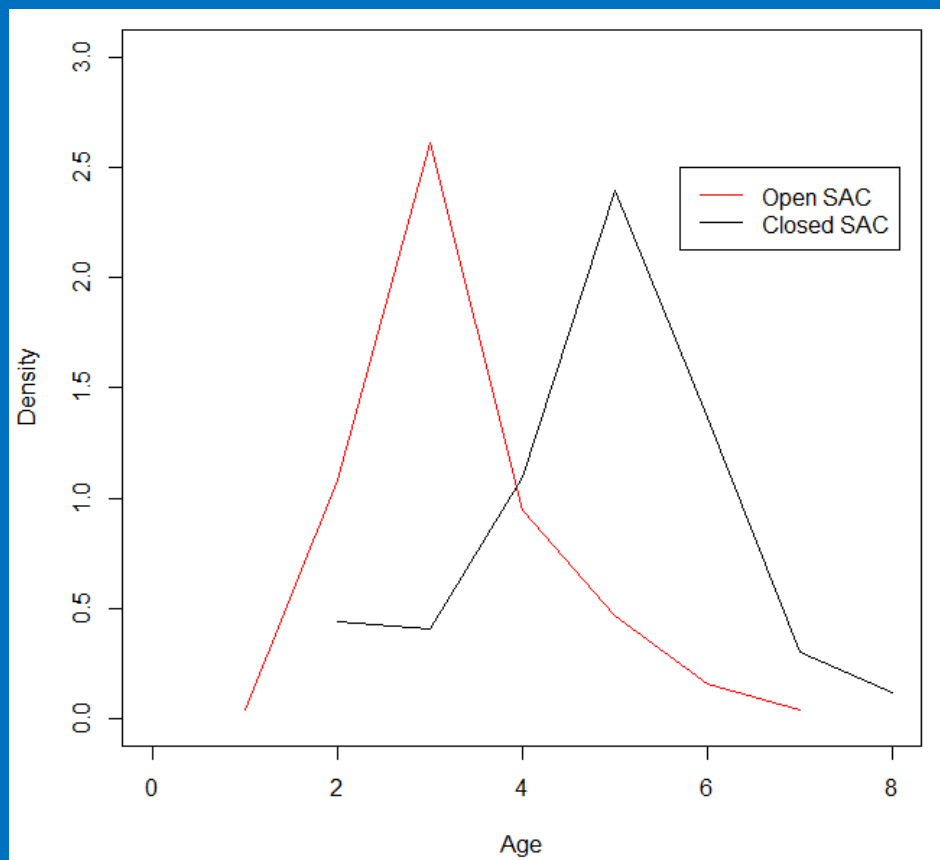
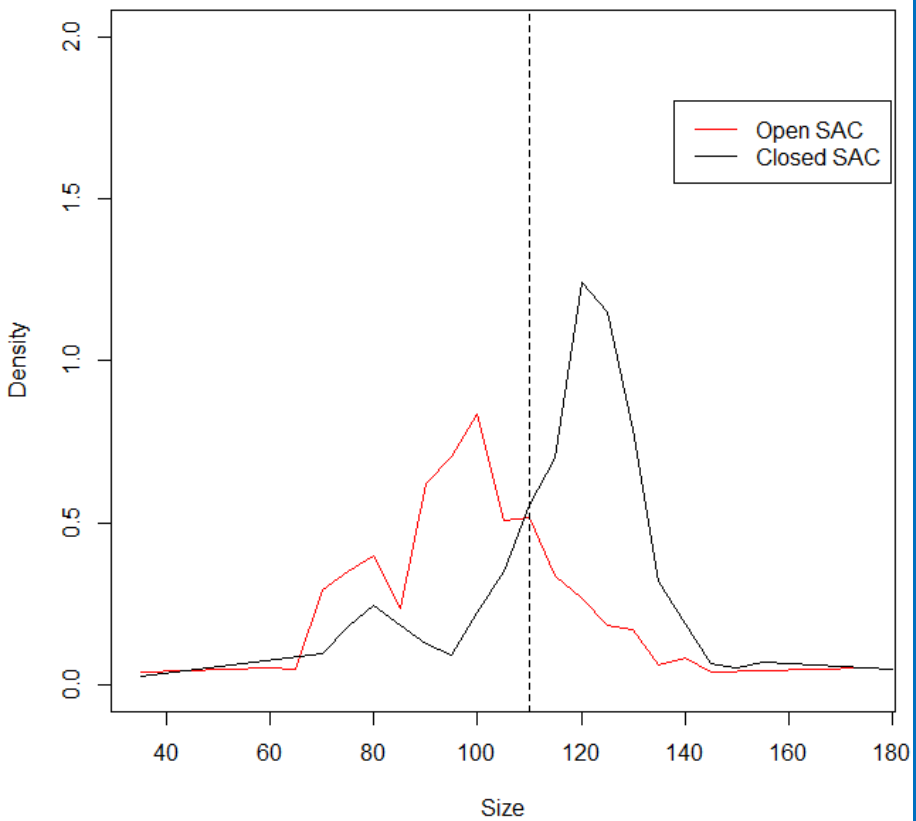
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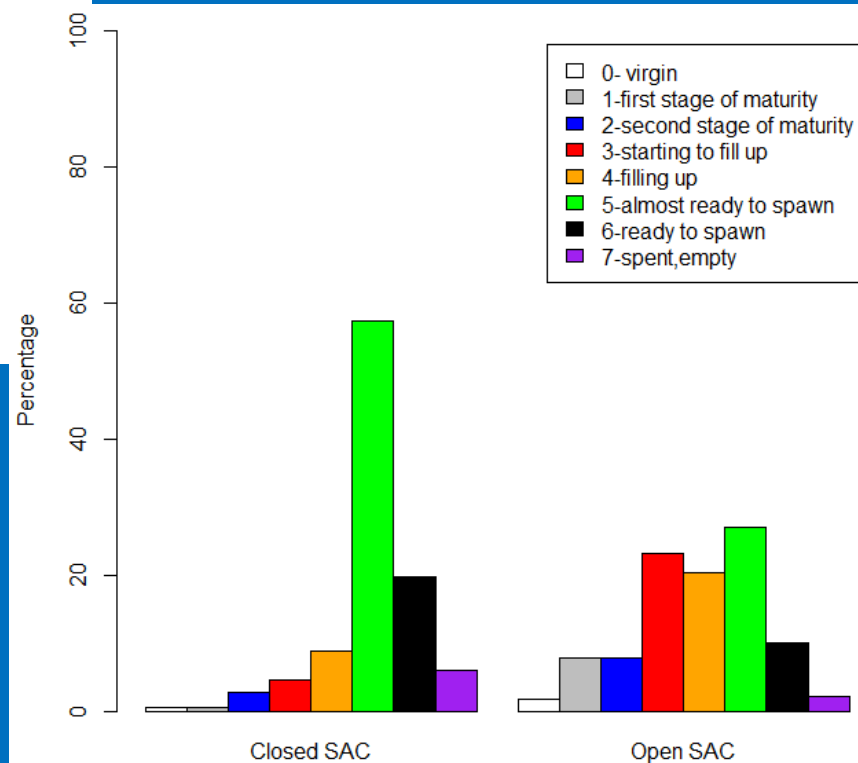
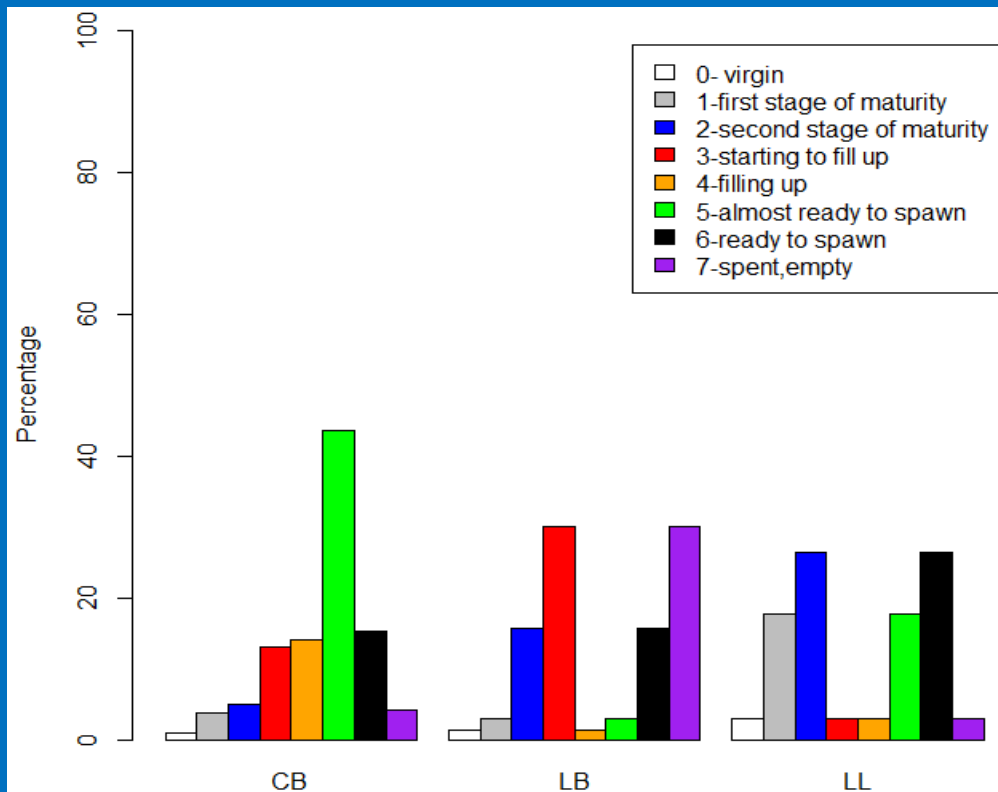


Density Kings/100m2



Cardigan Bay





Communications

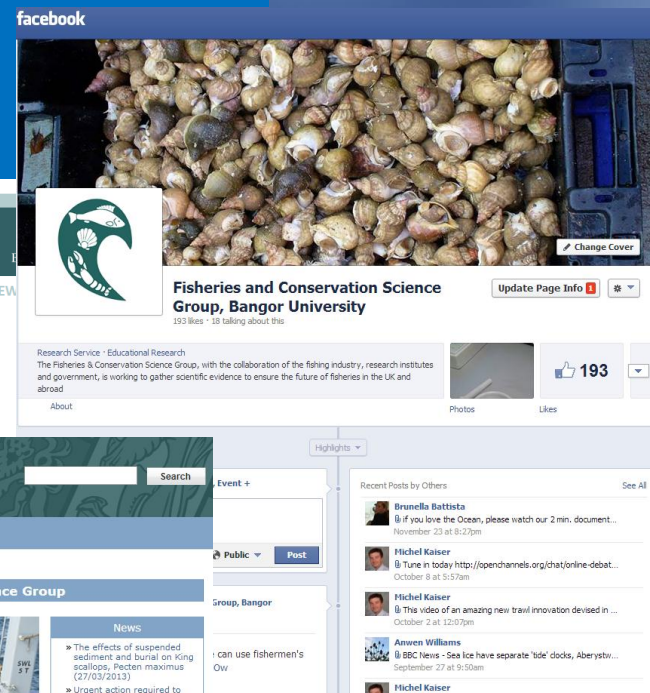
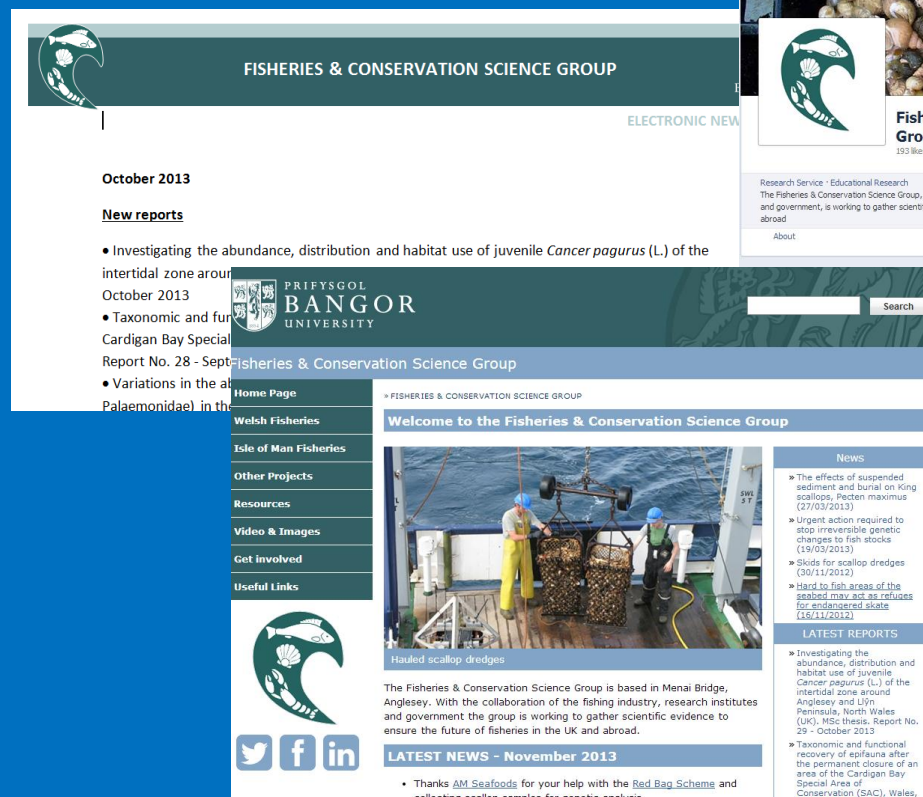
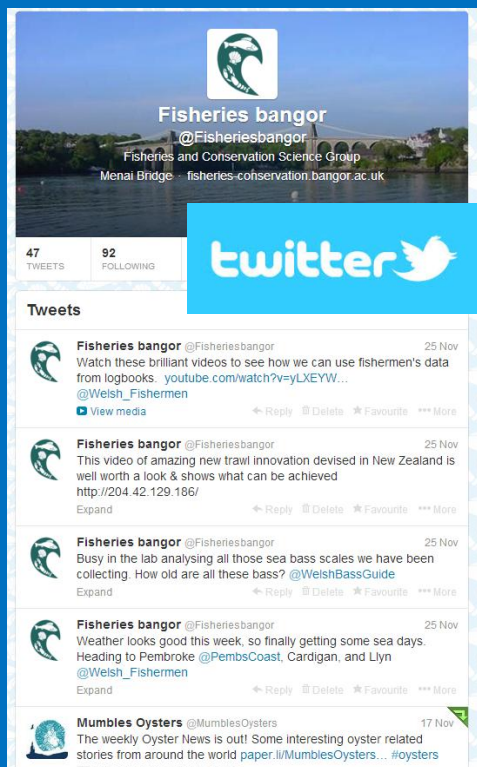


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1. Website: <http://fisheries-conservation.bangor.ac.uk/>
2. Facebook: <https://www.facebook.com/fisheriesconservation>
3. Twitter: <https://twitter.com/Fisheriesbangor>
4. Monthly e-newsletter x6
5. Printed newsletter x2

facebook

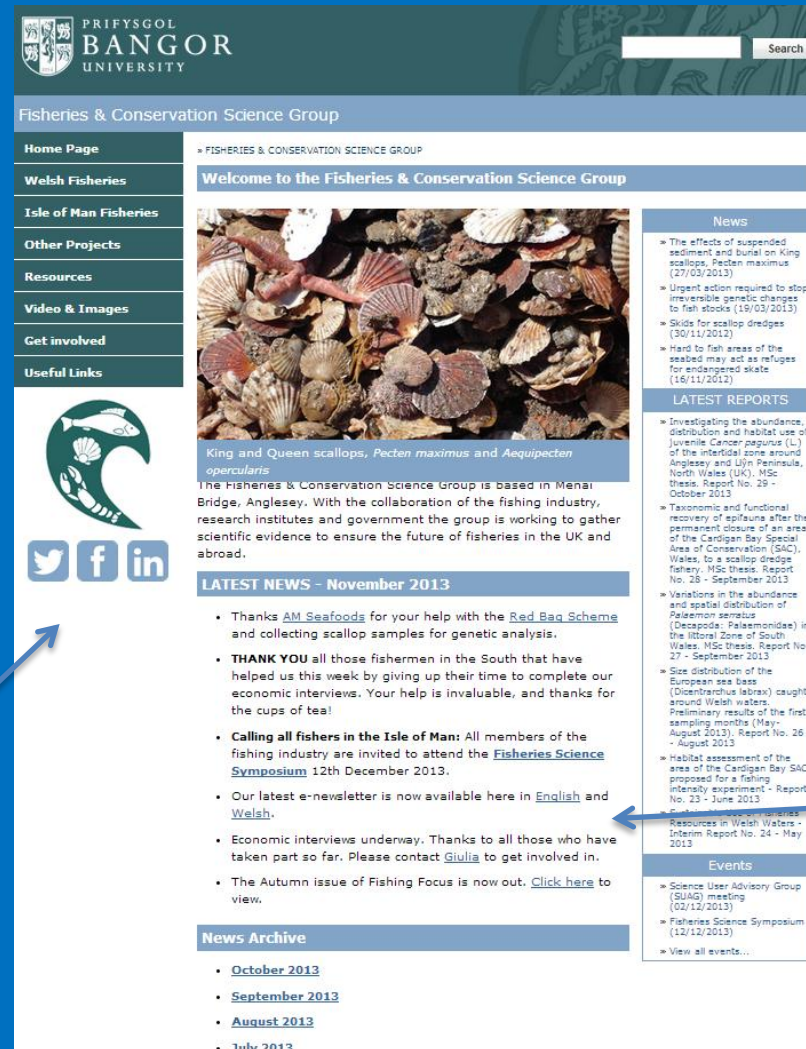


WEBSITE

Home page:

MENU

- Links to all the species pages
- IOM research
- Videos + images
- Registration
- Interesting/useful links
- Twitter
- Facebook
- Linked In



- General news
- Our latest reports
- Events/meetings

- Latest monthly news
- News archive

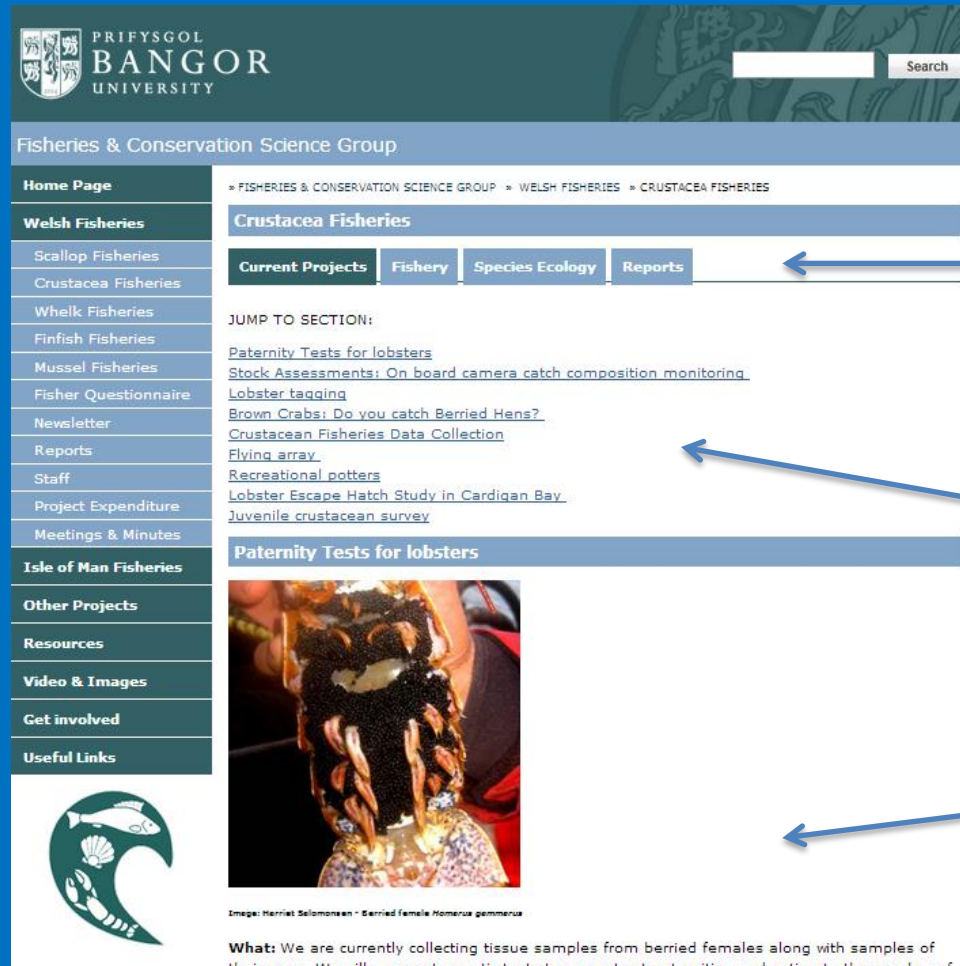


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Species pages:

- Links back to other species pages and the main menu



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Fisheries & Conservation Science Group

Home Page

Welsh Fisheries

Scallop Fisheries

Crustacea Fisheries

Whelk Fisheries

Finfish Fisheries

Mussel Fisheries

Fisher Questionnaire

Newsletter

Reports

Staff

Project Expenditure

Meetings & Minutes

Isle of Man Fisheries

Other Projects

Resources

Video & Images

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Useful Links

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Crustacea Fisheries

Current Projects Fishery Species Ecology Reports

JUMP TO SECTION:

[Paternity Tests for lobsters](#)

[Stock Assessments: On board camera catch composition monitoring](#)

[Lobster tagging](#)

[Brown Crabs: Do you catch Berried Hens?](#)

[Crustacean Fisheries Data Collection](#)

[Flying array](#)

[Recreational potters](#)

[Lobster Escape Hatch Study in Cardigan Bay](#)

[Juvenile crustacean survey](#)

Paternity Tests for lobsters

Image: Mariët Selomonsen - Berried female *Homarus gammarus*

What: We are currently collecting tissue samples from berried females along with samples of their eggs. We will carry out genetic tests to reconstruct paternities and estimate the number of

- Current projects
- About the fishery
- Species ecology
- Reports on species

- List of sections to jump to

- Current project info



REGISTRATION

- Your contact details
- What and where you fish
- Receive monthly e-newsletter and chance to participate

Fisheries & Conservation Science Group

[Home Page](#)[» FISHERIES & CONSERVATION SCIENCE GROUP](#)[» GET INVOLVED](#)

Get Involved

If you would like to get involved with the project or wish to receive a newsletter and email alerts please fill in the registration form below with your details.

Name	<input type="text"/>
Address	<input type="text"/>
Email address	<input type="text"/>
Phone number	<input type="text"/>
What do you fish?	<input type="checkbox"/> Scallops <input type="checkbox"/> Crustacea <input type="checkbox"/> Whelks <input type="checkbox"/> Mussels <input type="checkbox"/> Finfish
Where do you fish?	<input type="text"/>
<input type="button" value="Submit"/>	

Contact Us


If you have a general enquiry please get in touch:

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Bangor University,
Menai Bridge,
Anglesey,
LL59 5AB, UK

Telephone: +44 (0)1248 383177

Email: fisheries@bangor.ac.uk

How to find us:



The Fisheries and Conservation Science Group is based in the School of Ocean Sciences, located in Menai Bridge on Anglesey. This is just across the Menai Straits from Bangor. Our office is located on the water front, off St George's Road, in the Pier Pavilion building (Adailad Laing). This overlooks the Pier where the RV Prince Madog is moored.

For more detailed travel directions please visit "[Location, Directions and Maps](#)"

- Our location and contact details
- Individual contacts available on STAFF PAGES



Dispensations



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DISPENSATIONS

- Change in process for issuing dispensations
- Collaborative process between WG and NRW
- Increase in minimum processing time from 4 to 12 weeks
- More stringent process
- Process should improve with time (1 year?)



DISPENSATIONS

- Summer sampling of scallops
 - Submitted: April 2013
 - Required: June 2013
 - Status: Awaiting decision
 - Consequence: No data on scallops during closed season



DISPENSATIONS

- Otter trawling for skates and rays:
 - Submitted: 22nd June 2013
 - Required: 22nd July 2013
 - Decision: Refused
 - Consequence: No data on these populations



DISPENSATIONS

- Experimental fishery:
 - Submitted: 24th June 2013
 - Required: Mid-August 2013
 - Status: No decision reached.
 - Consequence: Postponed.



DISPENSATIONS

- Experimental fishery:
 - Submitted: 15th October 2013
 - Required: 31st January 2014
 - Status: Awaiting decision
 - Consequence: Experimental fishery is expected to go ahead in April



DISPENSATIONS

- Retention of whelks from scientific pots:
 - Submitted: October 2013
 - Required: ASAP
 - Status: Awaiting decision
 - Consequence: Incomplete time-series. No data from winter, breeding season – vital for size at maturity studies

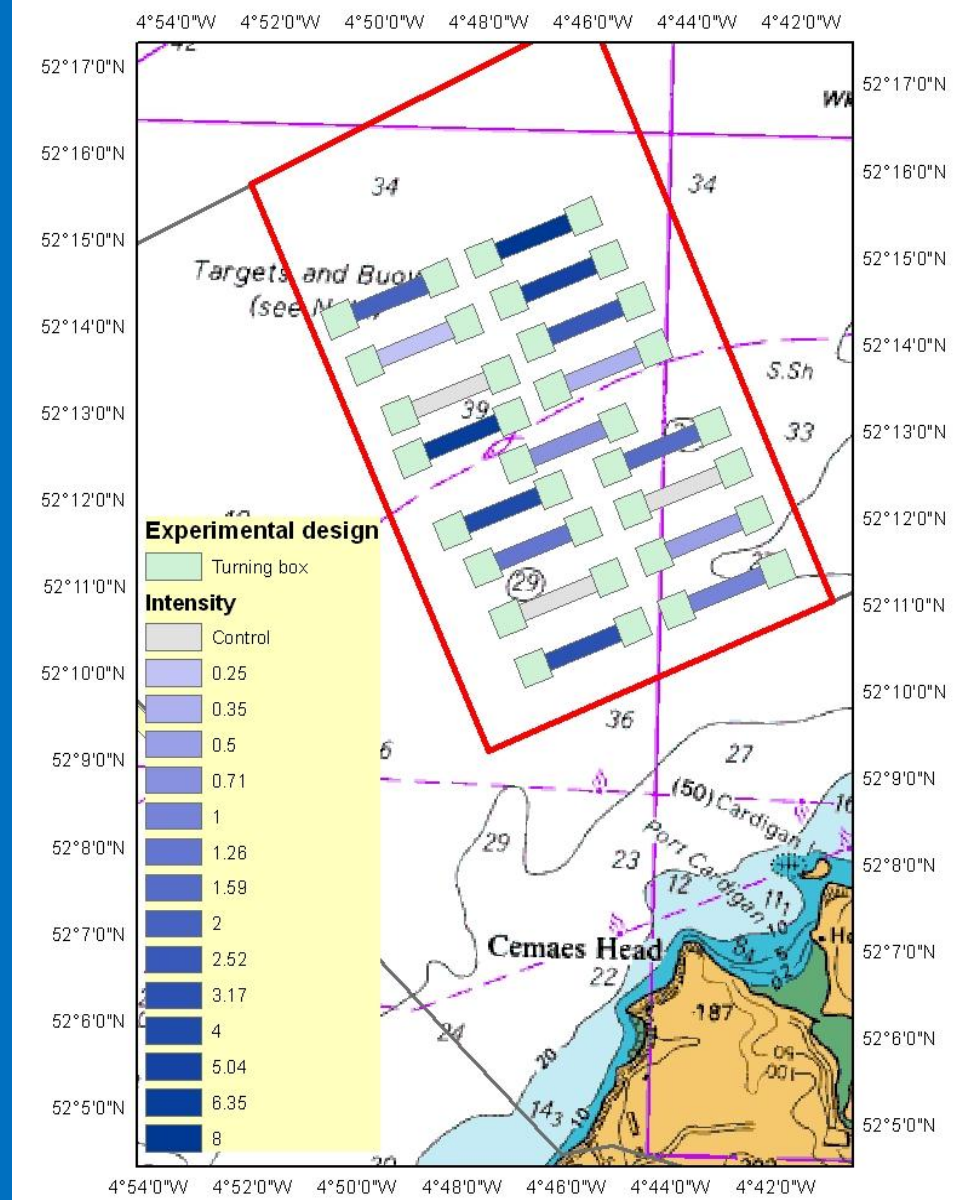


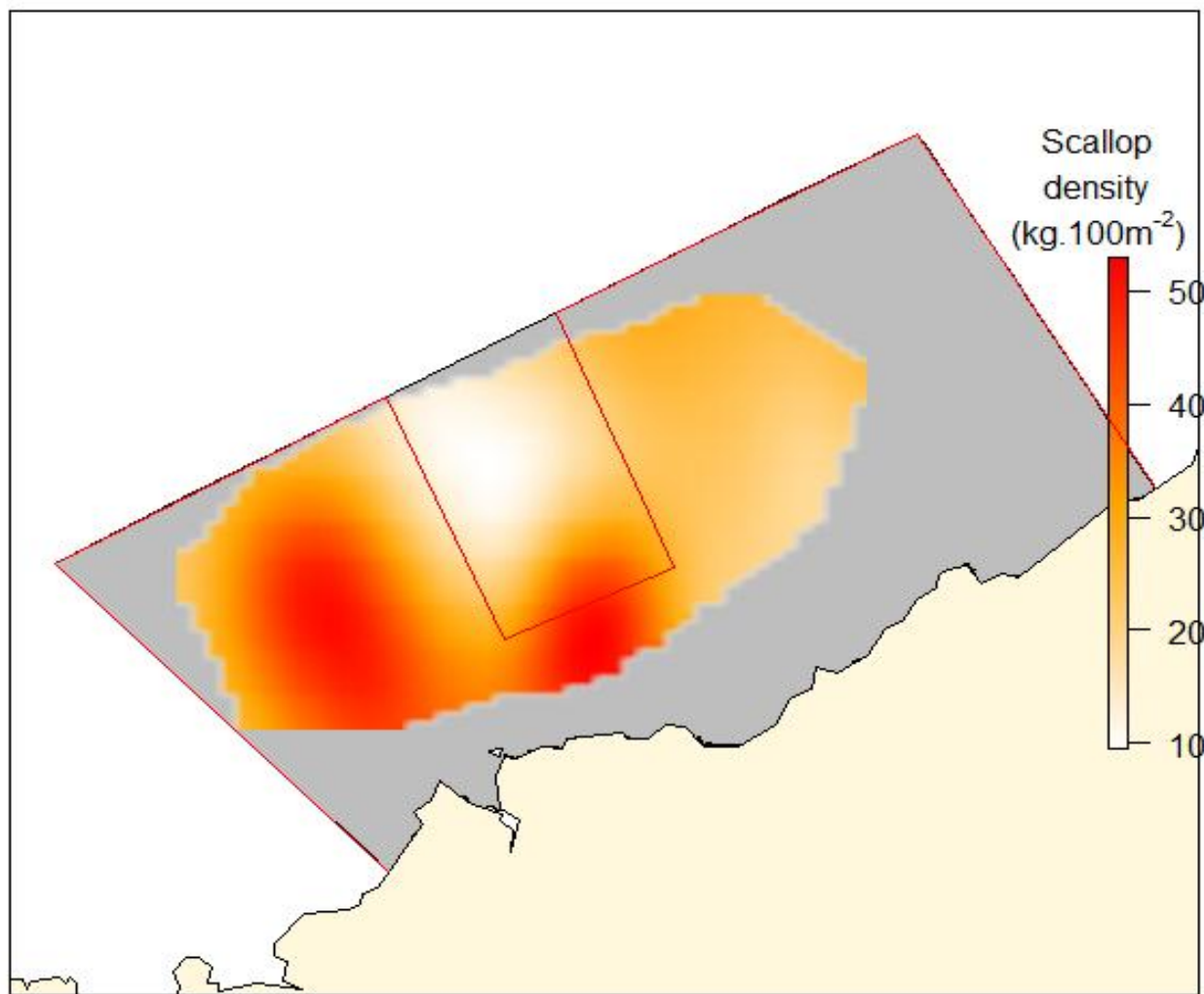
Experimental fishery



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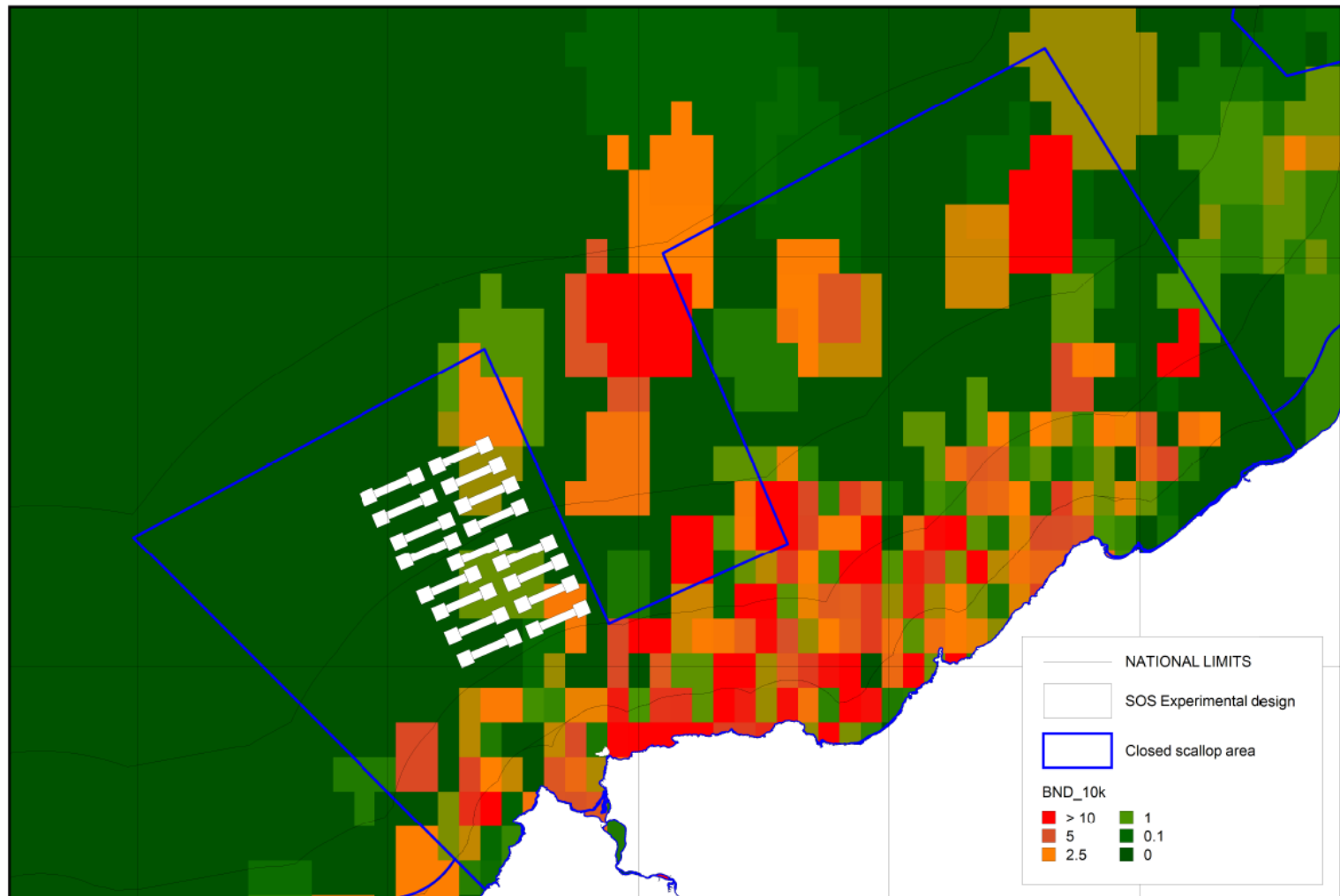


If it is true that there are 40 scallops/100m² in the closed area, the king dredges would catch about 12 scallops per 100m²

At the minute, they fish on grounds where there are about 1-1.5 scallops per m²



Long Term mean sighting rates (vessel count per 10km) of Bottlenose Dolphin



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Scale 1:366461

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Cyfoeth Naturiol Cymru
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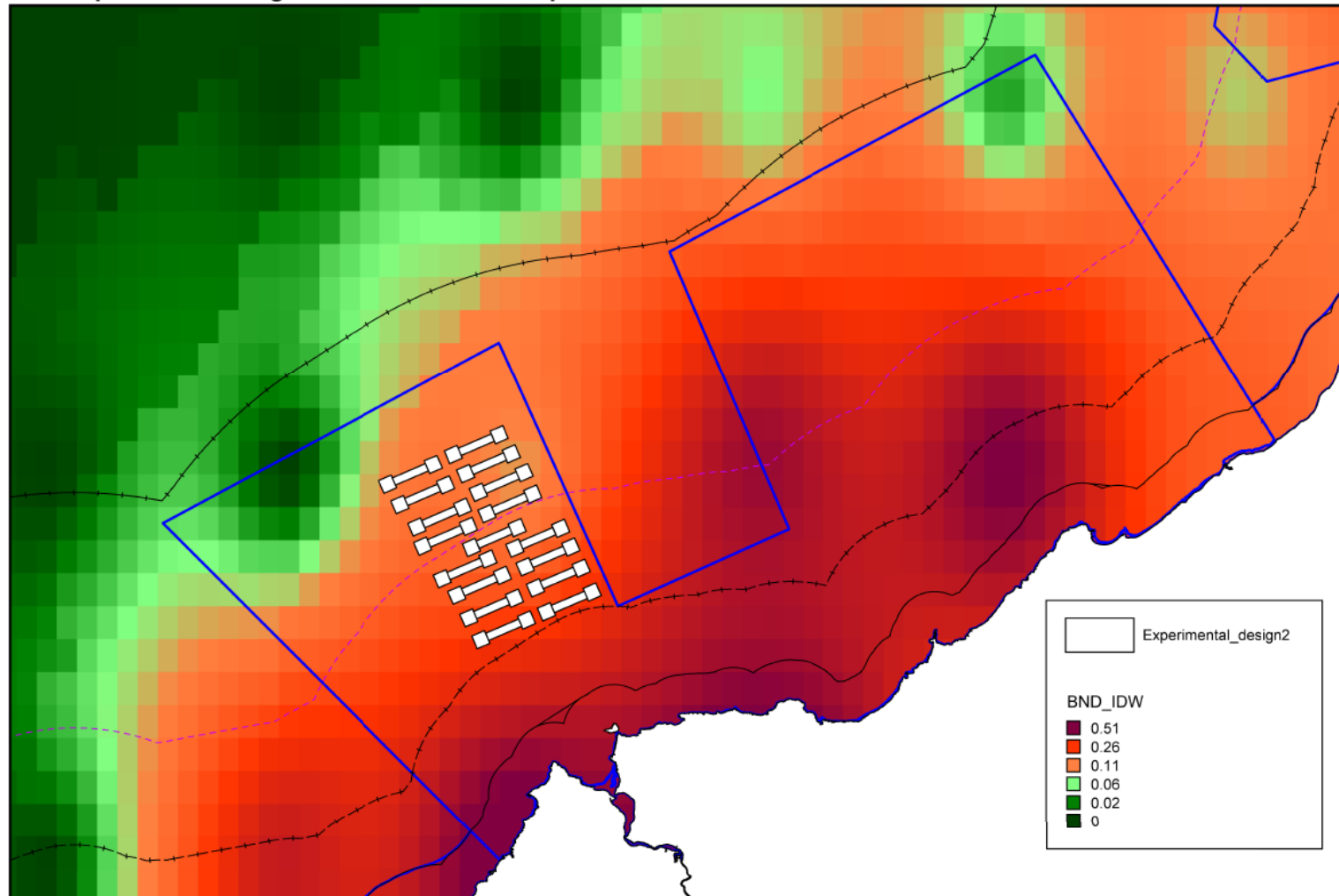
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SOS Experimental design & IDW Bottlenose Dolphin Distributions



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Fisheries science conference



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FISHERIES SCIENCE CONFERENCE

- Bring together fisheries research from across Wales
- Include industry, research institutions, government, industry, NGOs
- Would a fisheries science conference be useful?
- When and where should this take place?



Additional results



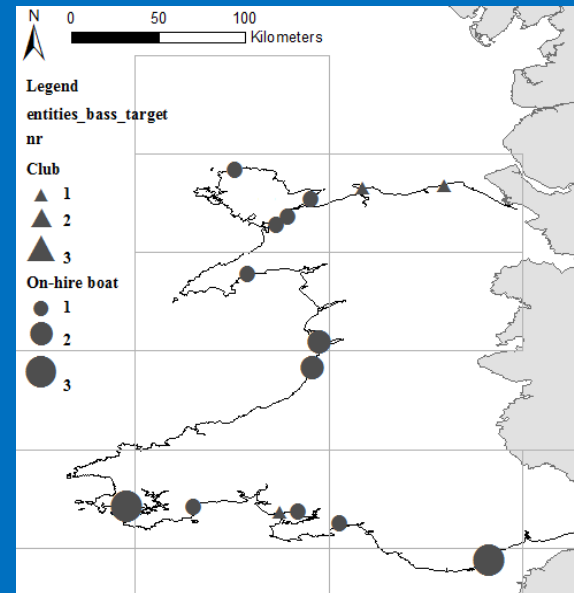
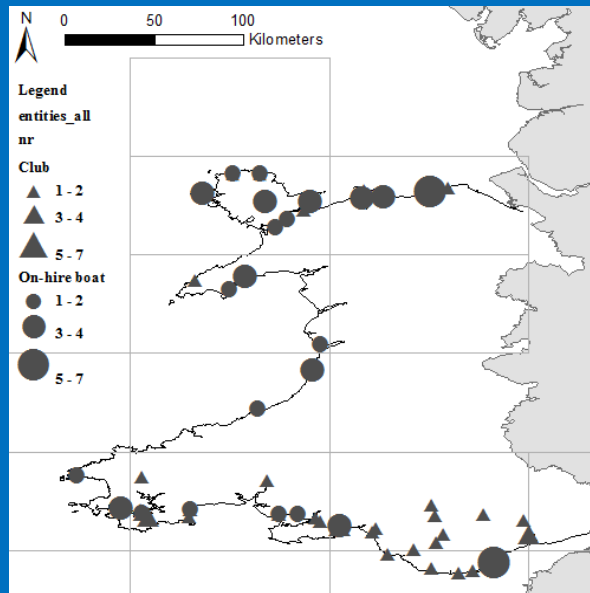
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3. Effort distribution of Recreational Sea Anglers (RSA)

Masters thesis of Graham Monkman

Catch data collected from charter boats and sea angling clubs between 2006 and 2013 were used to determine effort patterns, calculated as number of gears per hour



Overall 53% of charters targeting bass operate within South Wales (SW) and 38 of the 47 clubs identified (81%) were also located there



3. Effort distribution of Recreational Sea Anglers (RSA)

Master thesis of Graham Monkman

Charters were data sparse, though figures suggest a higher level of summer activity, with 73% of all gear hours per season occurring between May and October in SW. Shore anglers and private boat owners again showed the greatest effort during summer in SW at 26% (NW = 20% and MW = 24%).

