

SCIENCE REPORT

GENERAL

This last quarter has been extremely busy due to Bob Houghton leaving in mid-March. This has had a substantial impact upon Science Officer workload and has made planning and reacting to new pieces of work difficult. Strict prioritisation of Officer workload and our degree of involvement with projects has been scaled back. We welcomed the new Science and Communications Officer Alasdair Lindop in April who will be responsible for the Sea Angling 2012 Project.

Survey work has begun on cockle beds and monitoring for spat, both mussel and cockle, is being recorded. A large amount of this quarter's work has been centred on looking at accessing Foulaze cockle beds to assess stocks and assisting the CEO with management decisions.

SURVEY AND INSPECTION WORK

Mussels

West Kirby (Dee Estuary)

Mussel beds at West Kirkby and others within the Dee Estuary are due to be inspected on the 24th May 2012. A verbal report will be given on the results.

Heysham Flat Skear:

A walk on inspection on 23rd April revealed a heavy spatfall in patches this year. Officers understand there has already been some interest from the industry in terms of the prospect of a hand-gathered seed mussel fishery from this ephemeral bed later in the season. Officers will monitor the stock regularly and report back to the Authority. Should a fishable stock persist throughout the summer and interest be maintained work will commence to authorise hand-gathering.

Foulney:

An inspection during a sample run on 12th March found no mussel settlement at that point. Officers are due to return on the next suitable tide to monitor the bed again. One area towards the southern extremity of the bed contained a large amount of healthy clean undersize mussel (~1.5cm length). It was discerned that this was mussel that had been relayed by Deepdock as part of the agreement with local fishers during last year's mussel relaying trial in the Barrow I area of the Walney Channel. The seed mussel is growing on and will hopefully provide a profitable stock for local hand-gatherers. Officers will return to survey this area more intensively and to inspect the mussel for pearl – which is the main problem with commercial size mussel in this area.

South America and Falklands:

Although Officers have not been able to access this bed personally, written and photographic reports have been received from operators inspecting it for this year's mussel settlement and

again a substantial settlement has occurred. Work is underway to authorise a seed mussel dredge fishery on this ephemeral bed when the mussel is in a harvestable state.

COCKLES

Foulnaze:

From the survey results an estimated - 2500-3000 tonnes of total cockle is currently available (Wet Weight) from a total bed area of 3.2 km². This includes an area of approx. 0.2 km² previously un-fished and un-surveyed. The main bed is separated from this smaller area by several deep channels; it is highly tidal and can only be accessed fully on very low tides. The cockles present on this area were found to be all of size and significantly larger than those on the main bed. See Tables Below.

		Percentage %	Length (mm)	Weight (g)	Density m ²
Main Bed	Oversize	82	27.49	7.96	90
	Undersize	18	24.18	5.38	25
New Bed	Over Size	98	31.08	11.2	67
	Undersize	2	24.74	5.90	3

Table 1. Results from all samples from Foulnaze May Survey 2012

	Total km ²	Area	No Present		Cockles 1-20 per m ²		21-100 per m ²		100+ per m ²	
			n	%	n	%	n	%	n	%
Main Bed	3.0		10	20%	6	12%	1	24%	23	45%
New Bed	0.2		0	0	2	66%	0	0	1	34%

Table 2. Percentage of Samples within Defined Density Ranges from Foulnaze May Survey 2012

Due to the size of the smaller bed we were able to walk around a large proportion of it to provide a bed area. The large bed area is an estimation taken from previous knowledge, sample results and visual surveys to define presence or absence of cockles.

Examination of the cockles showed that the majority still have a large amount of gametes present and it may be assumed that the main spawning event has not taken place. The bed would not be opened till the main spawning activity has occurred. Settlement of cockles varies with geographic location, year, season, reproductive condition of the adults and climatic variation. Main settlement may occur approximately 3 months after spawning.

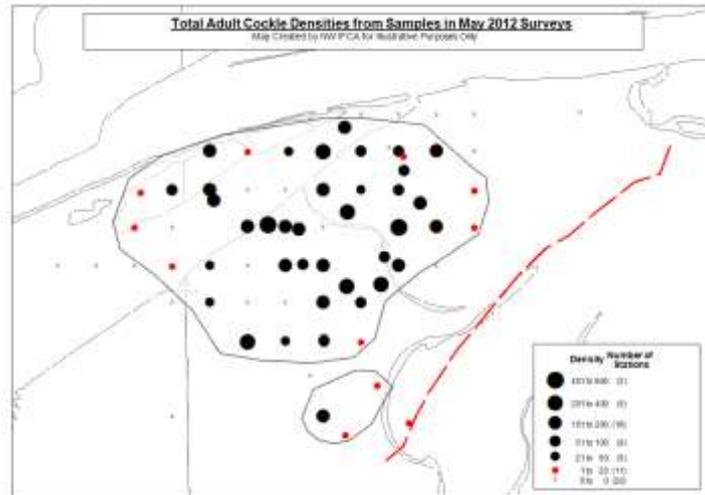


Figure 1. Illustrative map of total adult cockle density on Foulnaze – May 2012

Penfold and South Gut beds (Southport):

Cockle surveys were conducted over three days in February covering North Penfold, Penfold Channel and South Gut cockle beds (Southport beds). A total of 61 stations were surveyed and result of mean densities of size cockle per m² is shown in Table 1 and Figure 1 below. Overall mean densities were low and fall under the minimum threshold of 20 per m² of size cockle. There was one small area on the South Gut bed estimated at around 5 hectares where densities were greater, with a hotspot of 170 size cockle per m². This corresponded to the area with the highest densities in 2011, but is too small to support a commercial fishery.

Table 3: results of cockle surveys on Penfold and South Gut beds February 2012

Cockle Bed	No. of Stations Surveyed	Mean Density Size Cockle (per m ²)	Mean Density Undersize Cockle (per m ²)
South Gut	17	17	6
Penfold North	24	8	17
Penfold Channel	20	24	5

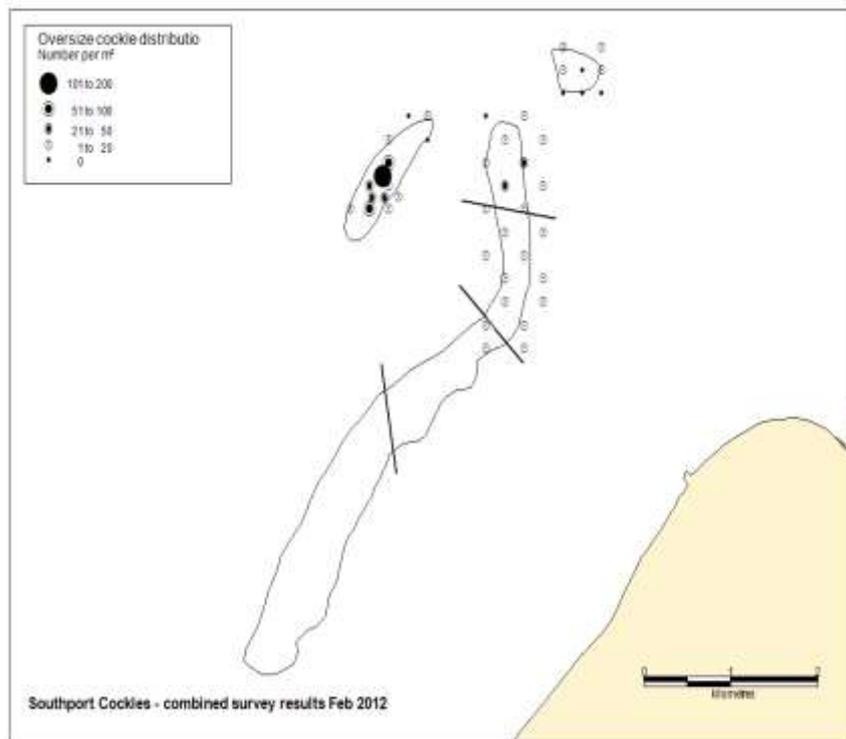


Fig.2 Illustrative map of distribution of size cockle densities at South Gut and Penfold cockle beds, February 2012.

Lytham – North Run, Granny’s Bay and Mousehole:

2011 had seen extremely densely packed stations of undersize cockles on the North Run bed, hence the authorisation to conduct a cockle transplant trial using this area as a ‘donor’ patch. A survey conducted on 28th February found very little cockle remaining and surprisingly little cockle shell suggesting that dead or live cockle had been washed out. It is not known what the losses to predation will have been. The Granny’s Bay area was used as the relay area for the cockle transplant trial. Details of densities provided under the cockle transplantation trial report. It is not anticipated that there will be a commercial fishery on these beds in 2012.

An initial inspection of the Mousehole bed during the North Run survey prompted a full survey at the beginning of April. However, results were extremely disappointing. 19 stations were surveyed but very few cockles were found. Mean density of size cockle was 2 per m² (range 0 – 18 per m²).

Leasowe and Dovepoint:

Leasowe cockle bed was surveyed during March 2012 by officers. 64 Stations were sampled in total. 44 stations fell within the 2011 bed area. Density within the bed area varied as shown in the table below. The cockles are of a large size as there are still a number of 2009 year class present. At the time of surveying there were no signs of spat and have no reports of spat seen at this site from officers.

	Total Area	Number Stations	Density of Oversize	% of Over Size
All Stations	4.4 km ²	64 (250m)	6	94%
2011 Bed Area	3.4km ²	44 (250m)	7	92%
Dovepoint	0.4km ²	22 (100m)	23	85%

Table 4. Leasowe and Dovepoint total adult cockle density and percentage of oversize.

The area known as Dovepoint was also surveyed (See above table for results) which is south of Leasowe cockle bed. Cockles are present in this area, mainly in channels. But there are of ground was found to be very muddy and the anoxic layer was in places only a few cm's down. The size of these cockles are smaller than those at Leasowe and in places were all undersize at sample stations. Again no signs of this year spat at the time of surveying.

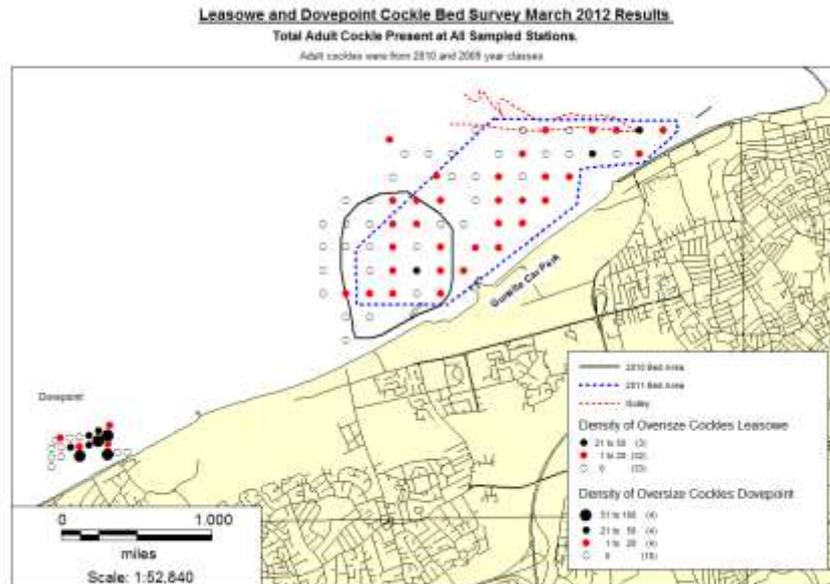


Figure 3. Illustrative map of North Wirral Cockle Beds oversized cockle density – March 2012.

Morecambe Bay:

There are no reports of any settlement as yet and Officers have decided to delay full surveys on Morecambe Bay cockle beds until late July / August. Inspections are made during every sample run, and it is looking highly unlikely that there will be sufficient stock of size cockle to open a fishery in September. Officers will report to the Authority should this situation change following surveys.

PROJECT WORK

Recreation Sea Angling (RSA 2012)

The Sea Angling 2012 has run relatively smoothly since the start of the second quarter. Although the number of anglers encountered has been relatively small, the response from individuals has been entirely positive, with everyone agreeing to take part. In terms of angler encounters, the shore surveys have so far been more successful than the private boat surveys; however we are confident that this is largely due to it still being early in the season.

A workshop was held at the beginning of April for all IFCA's involved in the Sea Angling project, which was extremely useful for ironing out small questions and issues that had arisen. It was also encouraging to discover that many of the initial teething problems we had experienced were common amongst the other IFCA's and were not a result of poor implementation at our end.

Surveys have been planned for weekdays and weekends for the rest of quarter 2, until the end of June, and will be mapped out for quarter 3 (July – September), in due course.

Morecambe Bay Fishery Order

Following submission to Defra of our application for a Hybrid Fishery Order for Morecambe Bay molluscan bivalves in September 2011, an array of comments and suggestions were received from Defra consultees - Defra legal, the MMO, Natural England and Cefas. All were highly supportive of the Order and there were no major issues or sticking points. Some amendments were made to the Management Plan in light of these comments, and the application returned to Defra in February. The latest from Defra is that they are in the process of drafting instructions to their legal team, who will then draft the Order for advertising. We should shortly be informed of how long drafting the Order will take.

Sustainable Clam Fishery

The development of a sustainable clam fishery and trials to gather further information is on-going. One operator is still highly interested and is currently working with Mersey Port Health Authority to get the site classified as a shellfish bed. This will take at least 10 weeks once the appropriate authorisations and licenses are issued. Ourselves and Natural England have been working with the operators and propose that a methodology is developed which will allow data to be collected to fill in areas where evidence or knowledge is poor. The fishery will be assessed against the sustainability principles which have been adopted by the NW IFCA and this assessment will help guide the trials.

The science officer is currently preparing literature reviews, to help identify and to highlight the main areas where further evidence is required before the fishery can be assessed. The reviews aim to cover the following:-

- What is currently known about the site present within the area –
 - Target and non-target species
 - Environmental/Physical Conditions
 - Habitat
 - Current activity
- Effects of dredging/harvesting activity
 - to benthic features
 - target and non-target species
 - Impacts upon fish/birds utilising the site
- What alternative methods are there for harvesting – are there ones more appropriate or sustainable
- Life History and Biological information on target species
- Impacts on other marine features of activity
 - Areas where activity may occur in EMS's
 - Which EMS areas could be impacted upon
 - What features are of interest
 - What are the impacts on these features – direct or indirect
- Market demands and commercial interest
 - Where could the activity take place within our district

Once the literature review has been completed it will be circulated for feedback. We propose to set up a meeting with relevant organisations, industry and hopefully experts who have developed fishery trials previously to create a workable and scientifically robust and useful trial.

Consultations:

Marine Strategy Framework Directive (MSFD):

The MSFD requires Member States to take measures to achieve or maintain Good Environmental Status (GES) for their seas by 2020. GES involves protecting the marine environment, preventing its deterioration and restoring it where practical, while using marine resources sustainably. The Directive is very wide-ranging and sets out eleven descriptors of GES relating to biological diversity, non-indigenous species introductions, commercially exploited fish and shellfish populations, food webs, human-induced eutrophication, sea floor integrity, hydrographical conditions, concentrations of contaminants, contaminants in fish and other seafood, litter and noise. These can be found at:

<http://archive.defra.gov.uk/environment/marine/documents/legislation/msfd-descriptors.pdf>

The UK Government and Devolved Administrations launched a public consultation on 27 March 2012 on the following aspects for the implementation of the MSFD:

- A draft initial assessment of the state of the UK's seas
- Proposals for characteristics of Good Environmental Status for the UK's seas
- Proposals for more detailed targets and indicators of Good Environmental Status, through which we will measure progress towards achieving Good Environmental Status.

Later consultations will cover proposals for the UK monitoring programmes for GES and the UK programmes of measures for achieving GES.

The consultation documents and information on how to respond can be found at: www.defra.gov.uk/consult/2012/03/27/marine-strategy-framework-1203/

The deadline for written responses is 18th June. It is a lengthy document and it has been suggested by Naomi Matthiessen from Defra's MSFD Team that the most relevant descriptors to concentrate on from the IFCA's point of view are: 1 = biological diversity is maintained; 3 = commercial fish and shellfish populations are within safe biological limits; 4 = marine food webs and their ability to support long-term balance and reproductive capacity.

If any Members would like to contribute points or comments to our response please forward these to the CEO and Science Team as soon as possible.

National Grid - North West Coast Connections Preliminary Strategic Options:

As Members will be aware Science Officers have been attending meetings with National Grid over their initial proposals for connecting new energy generation projects in the North West for well over 18 months. They have now launched a consultation (www.northwestcoastconnections.com) where they are seeking views on the six broad strategic options they have identified as presenting viable solutions to deliver connections from points on the existing grid network for the new energy projects. These include a new nuclear power station – Moorside - near Sellafield, West Cumbria, plus a number of offshore wind farms in the Irish Sea.

The options they have identified propose connections which variously terminate at a number of locations in Cumbria and Lancashire or Northumberland and all have a marine element to them.

This initial stage of consultation is primarily aimed at getting feedback from stakeholders and statutory bodies. However, in response to comments they have received from consultees, the information on the website is also being made publicly available, giving individuals and interested parties the opportunity to provide their own feedback and comments. Therefore, while Science

Officers will provide feedback on behalf of the NWIFCA, National Grid would also welcome receiving individual comments.

Information will be available on the project website for comment for ten weeks. All responses must be received no later than Thursday 19 July 2012.

Burbo Bank Wind Farm Extension.

NW IFCA received a consultation request from DONG Energy on its Project Proposal, as part of the formal consultation required under Section 42 of the planning Act 2008. This consultation is due to close on the 1st June. 2012.

Preliminary Environmental Information documents are available on their website <http://www.dongenergy.com/burbobankextension/News/news/Pages/FormalConsultationPeriod.aspx>. This document outlines the full project which has been under development and stakeholder engagement consultation for the last year. All 3 proposed scenarios are addressed within the document as well as the two onshore cable routes.

The area which has been leased is known to be an important feeding area for flat fish and nursery ground as well as overwintering common scoter and red throated diver. Issues surrounding cable laying and electromagnetic fields and appropriate burial and monitoring will be raised too.

Meetings

TAG – Technical Advisory Group

A science officer attended the Technical Advisory Group meeting in London 13TH April. A wide range of topics were discussed including the following.

The officer from DEFRA gave a presentation regarding strategic research plans and how they reflect within an IFCA's research plans and the incorporation and planning for national policy changes such as MCZ's, Common Fisheries Policy and MSFD.

Naomi Matthiessen gave a presentation on MSFD regarding the development teams progress so far and the release of the consultation on the descriptors which are being developed assessment of Good Environmental Status.

Work will continue on the small fish working group that has been on going and the TAG hope's to incorporate all IFCA's in taking part with the data collecting. Work will continue with CEFAS to develop a standard operating procedure.

The TAG wishes to develop an annual conference bring research and scientific staff from all IFCA's and other TAG members to share knowledge and to help develop projects on a national level.

FLOWW – Fisheries Liaison of Offshore Wind and Wet Renewables

The science officer attended the FLOWW meeting in London in March. The use of developer updates was trialled for the first time using a spreadsheet matrix, allowing information on the current status of marine renewable sites to be shared. Feedback from fisheries representatives on issues surrounding the developments is also contained within it, so that issues can be highlighted and discussed at the meeting.

The development of the revised and update Guidelines for Best Practise is still being drafted, but there is hopes for them to be released in the autumn and should contain more information for wet

renewable developers on liaison with the fishing industry as well as the further information for wind farm developers. A full draft is hoped to be seen at the next meeting in June.

Discussion was had about the development of an open day or event which would allow renewable developers to gain a better understanding of the fishing industry and the types of vessels and gears used. It was thought that it should be tied in to a Renewables conference or event such as All Energy 2012 – which was dedicated to renewables and had all the major developers present. It was proposed that this could be conducted regionally so that areas, in particular with major wind farm sites could get a better understanding of the local fishing issues.

Full minutes of this and previous meetings can be found at the following <http://www.thecrownstate.co.uk/energy/offshore-wind-energy/working-with-us/floww/>

OTHER

Scientific Officers again assisted with the collection of hygiene samples within the District, and submitted a short report on the impacts of the United Utilities sewage outfall failure at Middleton to Lancaster City Council Environmental Health Officers.

Science Officers
24th May 2012