

# NWIFCA Technical, Science and Byelaw Sub-Committee

10th May 2016: 10:00 a.m.

AGENDA  
ITEM NO.

6

## SCIENCE REPORT 23RD JANUARY – 21ST APRIL 2016

### General

This quarter has seen the departure of Sarah Temple from the Science Team and the recruitment of a new officer in Belinda Vause. Sarah's leaving was a great loss to the team after over two years of dedication, and we wish her well in her new employment with the MMO Marine Planning department on the south coast. Belinda has previously worked for Sussex Sea Fisheries Committee and recently returned from two years working for the British Antarctic Survey. She is a very welcome addition to a strengthened team. Once the induction of all science officers has been completed, we anticipate developing the NWIFCA science core substantially.

The advent of longer days has meant the team has been busy with cockle surveys across the District along with the following workstreams:

### **Review of Fishing Activities in European Marine Sites**

The departure of Sarah Temple left a hole in the capacity to carry out the Review work which has a deadline set by Defra of 2016. However through careful planning and the hard work of Jon Haines, the task now feels achievable as the bulk of it has been completed. Belinda is also being trained to assist with this work. Table 1 provides an indication of the assessments left for the team to carry out, whilst Table 2 provides a summary of the work to date, with 36 have been completed / are waiting for sign off. Some changes have been made to the way these totals have been worked out, explained in the text below.

Table 1: Review of Fishing Activities in European Marine Sites – remaining assessments.

<u>Started</u>	<u>Yet to be Started</u>
Static fixed nets and drift nets – Dee Estuary	Beam trawl (shrimp), light otter trawl, Multi-rig trawl – Dee Estuary
Drift nets – Mersey Estuary and North Wirral Foreshore	Light otter trawls - Mersey Estuary and North Wirral Foreshore
RA-SPA-002 Beam trawl (whitefish and shrimp), light otter trawls	Beam trawl whitefish – Morecambe Bay
Beam trawl shrimp - Morecambe Bay*	Light otter trawl – Morecambe Bay
Potting – Morecambe Bay*	Static nets and drift nets – Morecambe Bay
Shrimp push nets – Morecambe Bay*	Static nets – Solway Firth
Beam trawl shrimp – Solway Firth	Stakenets – Solway Firth
Stakenets – Morecambe Bay	

Table 2: Review of Fishing Activities in European Marine Sites – Assessment table – 21<sup>st</sup> April 2015

	Expected Total	Not yet started	Currently underway	Assessment complete and in final discussion with NE	Assessment complete and signed off by NE	On website and huddle
Non-occurring “Light” TLSE	11 + 4 working which will be combined <sup>1</sup>	0	0	0	11	(11) 13 <sup>th</sup> July 2015
Non-occurring commercial activity currently recreational only	8 <sup>2</sup>				8	(7) 21/04/16
TLSE	18	3	3	3	9	(6) 21/04/16
Joint assessments with MMO	1 <sup>3</sup> (inc. 4 gears)		1			
Appropriate Assessments	11 <sup>4</sup>	3	3	1	4	(4) 21/04/16
Totals	49	6	7	4	32	-

Changes in figures are due to the following:-

- 1 Non-occurring light TLSE’s added to 4 working documents which will be combined with original non-occurring for each site when review process has been completed. Reduced number of total assessments due to additional activities found to be non-occurring in the district.
- 2 Activities to have been thought to be commercial found to be recreational.
- 3 Cross border site Liverpool Bay EMS with MMO - joint assessments.
- 4 Increase in AA due to expected TLSE going through to AA (netting activities).

### **NORTH WEST COAST CONNECTIONS - NATIONAL GRID work on routing options for 400KV cables from Moorside nuclear power station**

National Grid have now published their choice of ‘route corridor’ (Fig. 1) for the high voltage cabling from the new nuclear power station at Moorside, near Sellafield. Full information can be found on their website:

<http://www.northwestcoastconnections.com/bgo/overviewwherewearenow.asp>

which states: ‘We have decided to go ahead with plans for a new connection that will take the following route corridor. This is made up of two parts:

- a route going north from Moorside to a point on the existing grid network at Harker substation, near Carlisle and;
- a route going south from Moorside across the Furness peninsula then under Morecambe Bay to connect in at a point on the existing grid network at Middleton substation near Heysham in Lancashire.

The route corridor that we have decided to progress will, in the main, follow the path of existing pylon lines owned and operated by Electricity North West (ENW). These existing 132kV lines are used to distribute electricity to homes and businesses in the region. However, they do not have enough capacity to accommodate the amount of electricity a power station the size of Moorside will generate.

As we go forward we need to decide which of the existing 132kV lines could be removed and replaced with our higher voltage equipment.

Having chosen a route corridor for our new connection linking Moorside to our existing electricity network, we will study it in more detail to pinpoint where in that corridor the connection will run. This is called finding the 'route alignment'. We will evaluate or 'appraise' our chosen route against a wide range of technical, environmental, socio-economic and cost factors. We call this 'options appraisal' and we have defined a list of criteria to use when we carry out this work'.

Officers are aware that there are a large number of stakeholders of the Lake District National Park who are vociferously opposed to certain sections of the chosen route, the positioning of 50m pylons and their effect on the visual amenity of the Park. A watching brief is being kept on how this develops as calls for a review of the off-shore route may influence future plans.

Officers were concerned that borehole survey work using jack-up barges for the proposed routing of the tunnel under Morecambe Bay had been scheduled in without consultation with fishers who would be affected and possibly prevented from accessing fishing grounds while work was carried out, despite continuous work over the past five years to ensure Grid engage with fishers throughout. Although National Grid had employed a Fisheries Liaison Officer this was a disappointing outcome and concerns were raised very openly with them.

The Science Team battle with this issue on a weekly basis with numerous developments along the north-west coast. Developers seem to interpret the term 'consultation with fishermen and fishery interests' as 'tell them what you are doing once it's been decided'.

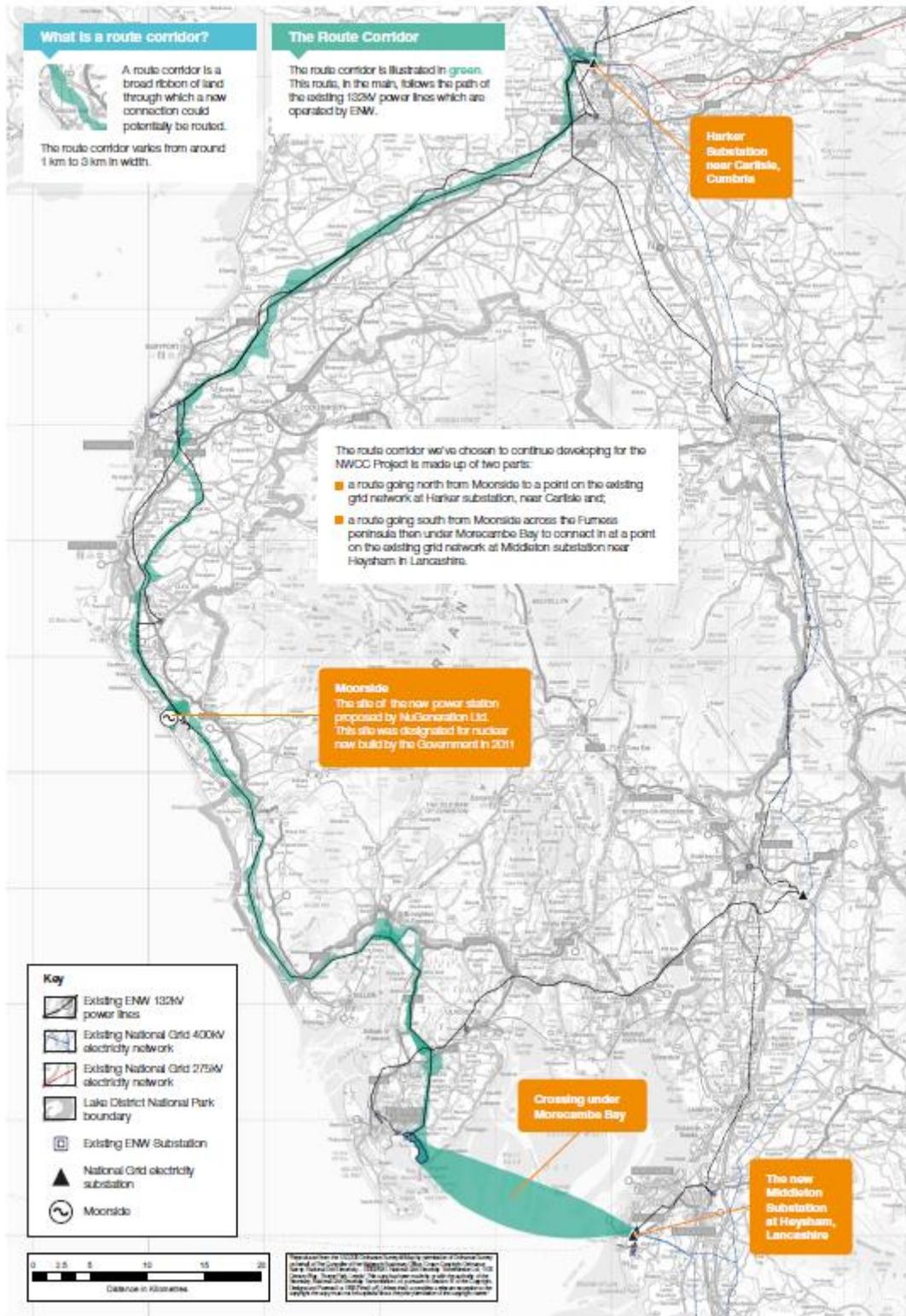


Fig. 1. National Grid's corridor route now published.

## Moorside Power Station

Officers remain engaged with technical meetings for the new nuclear build at Moorside – and in particular the MOLF – Marine Offloading Facility – by which materials for the build will be transported to the site, and how this will affect fishing stakeholders, fishing grounds and the marine and coastal environment.

## **West Cumbria Coal Mine**

Further borehole surveys are planned for 2016 and again science officers have responded to the MMO Marine Licence consultations requesting evidence on impacts from vibration from the drilling, as well as emphasising the need to discuss survey planning with fishing stakeholders prior to timetabling being finalised.

## **United Utilities Outfall – Anchorsholme, Fleetwood**

Officers met with United Utilities on site to discuss the construction of a new outfall at Anchorsholme near Fleetwood. The problem that needs rectifying is that the plume from the existing outfall at Chatsworth Road circulates south and hugs the beach and is causing issues with e.Coli levels and achieving standards under the EU Bathing Waters directive. If it is not changed the beach will have to be closed.

The project is creating a storage shaft and tank of 1200 m<sup>3</sup> which will hold excess storm water when the sewage system is overloaded. The outfall will only be used if the tank gets full and only storm water will be discharged to the sea. It will go through a pumping station and be filtered by 6mm screens. In relation to sea water salinity levels being affected freshwater levels will be higher in the sea anyway due to storms and flooding.

A Discharge Consent from EA is being sought. The pipeline measuring 2.5m diameter x 4.5km long will be buried about 4m down. The outfall lies 1.876nm directly offshore so according to IFCO Brown will be positioned on hard ground and not in the EMS or on soft sediment – he had been concerned about scour. UU is tunneling under the new sea defences and hoping to start construction of the outfall in 2017. Work can only be carried out in summer months due to bird disturbance in winter. In summer 2018 the existing outfall will be blocked off and the diffuser dismantled. The existing pipe and rock armouring will be left. Modelling for plume discharge has been carried out and it is predicted that with the new construction the plume (and e. Coli) will disperse away from Fleetwood's shellfish beds and sent more south westerly than at present.

Issues discussed with UU included:

- recreational and commercial fishing grounds – 150 recreational boats on competition days ~ 300 people. They must be communicated with - Officers furnished UU with contacts;
- there has previously been some towed gear fishing down the dip in this area;
- use of flexible concrete mattress rather than rock-armouring favoured – for towed gear;
- might not be able to dig trench in first place because of hard ground – took Dutch engineers on other outfall three attempts and they ruined their machinery;
- major cod nursery area nearby.

After full discussion Officers did not consider there to be any major fishery issues or issues with suspended sediment.

## **C-Bass Project Steering Group Meeting London – Bass Tagging and Small Fish Surveys Possibilities**

Following a presentation by Ewan Hunter from Cefas at the TAG conference on the Defra funded C Bass Project the Senior Scientist requested an invitation to the Project Steering Group meeting with Defra and partners. C Bass have been tagging sea bass with electronic data storage tags (DSTs) along the south coast to gain understanding about their behaviour and migration patterns. Recent research by Bangor Uni has provided evidence that Welsh bass form two distinct stocks. The Science Team are keen to engage with partners to bring population studies to the north-east Irish Sea stocks.

Discussion is on-going with Dr Hunter on possibilities of developing tagging studies in the NWIFCA District, and contacts were also established with Steve Colclough from the Institute of Fisheries Management after discussing small fish (ie. juvenile) fish studies within the NWIFCA estuaries. This would tie in neatly by providing data for Defra's Review of Bass Nursery areas nationally. Ms Knott has also met with representatives from Wyre Estuary Group who have a project proposal for smelt surveys in the River Wyre / Wyre Estuary. Ms Vause was instrumental in drawing up Standard Operating Procedures for Small Fish Surveys during her time at Sussex SFC, and it is hoped that by working with key partners studies into how some of the District's estuaries are utilised by juvenile fish can be undertaken to assist in informing management of sustainable stocks.

Details of the Defra funded C Bass project can be found at:

<https://marinescience.blog.gov.uk/2014/06/16/conservation-seabass/>

## **Marine Planning – MMO Launch of the North West Inshore & Offshore Marine Plan Areas**

Ms Vause attended a meeting in Blackpool where presentations were given by Sam Wright from the Marine Management Organisation outlining the purpose and the process for Marine Plans in the UK. Marine Planning aims to i) Achieve integration between different objectives ii) Recognise that the demand for use of our seas and the resulting pressures on them will continue to increase iii) Manage competing demands on the marine area, taking an ecosystem-based approach iv) Enable the co-existence of compatible activities wherever possible and v) Integrate with terrestrial planning (ref: UK Marine Policy Statement).

The European Maritime Spatial Planning Directive commits all EU states to have Marine Plans in place by 2021. In addition, the UK is committed to having Marine Plans through UK legislation (Marine and Coastal Access Act and the Marine Policy Statement). The UK coastline has been split into 11 areas; in the North West we have the North West Inshore Area (0 to 12nm) and the North West Offshore Area (12nm out to the border with Isle of Man territorial waters). There are 11 stages to producing a Marine Plan. Stage 1 is the Statement of Public Participation to agree how and when interested people will be involved. Consultation on this draft document is live now and stakeholders are being asked to provide feedback on this by 13th May:

<https://www.connect.marinemanagement.org.uk/consultations/draft-spps>

Then follow steps 1-5. When the Statement of Public Participation is agreed and signed off by the Secretary of State evidence gathering will begin, most likely to be late summer 2016. It is proposed that the first draft NW Marine Plans will be completed by the end of 2016. There will be 3 iterations and then it will go out for Public Consultation (stage 6).

In addition, the Marine Information System (MIS) was introduced which includes an interactive map. By choosing a sector or topic of interest such as energy, dredging or biodiversity you can find policies and considerations relevant to a specified area. Data can be submitted, and errors seen in data commented on, through this portal. It is still under development for the North West.

<http://mis.marinemanagement.org.uk/>

### **Relevant Contacts**

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Chris Sweeting, Marine Planner with responsibility for fisheries. MMO, Newcastle office

## **Wader Bird Training**

Three Officers from the science team attended a days' training, along with Natural England and MMO Officers, on wading birds – identification, seasonal movements and migrations, behaviour and feeding, and understanding of their importance under nature conservation designations,

## **Bivalve Mollusc Working Group**

The spring planned meeting of BMWG was postponed due to the opening of the Leven cockle fishery and has been re-scheduled for Friday 13<sup>th</sup> May. Work has been on-going on producing a first draft of the Morecambe Bay Cockle Management Plan for comment and discussion, and researching cockle life history and ecology.

## **IFCA Sonar Camera Demonstration**

Ms Knott and IFCO Sparks attended a one day demonstration by Eastern IFCA of the shared IFCA sonar camera, purchased with Defra funding to the tune of £100,000. This is very useful gear for turbid waters, where traditional underwater video and camera imaging is rarely successful. Officers will investigate the potential for deploying the sonar camera from 'Solway Protector'. It is envisaged to have particular uses in surveying for sub-tidal mussel beds in the Solway Firth, along with providing evidence of the presence (uncovering) / absence (sand-covering) and cobble and boulder reef areas in the Solway, an issue that arose during the development of NWIFCA Byelaw 6 – Protection of EMS Features (from bottom towed gear). The Solway cobble and boulder areas were excluded from Byelaw 6 as when surveyed due to the constantly changing and highly tidal and dynamic environment, they were covered in a sand veneer. The use of the sonar camera will assist in understanding and assessing any potential impacts of shrimp beam trawling in the Solway.

## **Cockle and Mussel Fisheries in the NWIFCA District - Surveys**

Indications in autumn of 2015 was that a late but substantial cockle settlement had occurred across the District and Officers had been planning on surveying all beds at the earliest opportunity. Results are given below. It is fair to say that this survey work, though always enjoyable, consumes large resources in both Officer time (Science and Enforcement) and costs.

### **Cockle Beds**

#### **Wirral cockle beds:**

- a) Leasowe - no survey has been planned due to IFCO reports of little or no recruitment in 2015. The bed will be monitored for 2016 settlement.

#### **Ribble Cockle Beds:**

- a) Marshside – Southport. This is a large constantly changing area to cover and four officers set out to survey the South Gut and North Penfold beds. No cockle was found at South Gut. As time was restricted (tide and daylight) it was agreed to carry out an inspection of the North Penfold bed to ascertain presence / absence of cockle and target a return survey if necessary. Officers walked round a muddy area holding very dense 2015 spat although it is acknowledged they could not cover the full extent of the settled area and the following figures are an under representation of what was there.

An area of around 1 km<sup>2</sup> was found holding 2015 cockles with very rough density of 3384 per m<sup>2</sup>. This provides an overall total of 595,584,000 cockles.

This area will be monitored for survival and growth, and a survey targeted in the summer. The Local Authority has been notified of the possible necessity to re-start cockle hygiene sampling, although the cockle is too small yet, of around 8mm shell length.

This area does often get a good dense settlement – but it generally washes out. Industry had already informed officers there was an area of dense settlement, but had not provided a positional reference. On mapping the co-ordinates taken on the survey as was expected this is the area that was chosen as the donor area for the transplant trial that did not go ahead due to a problem over MMO funding in 2012.

- b) Lytham North Run – was surveyed by four officers. Results showed no significant recruitment. The bed will be monitored by IFCOs for any 2016 settlement.

Morecambe Bay cockle beds - a summary of survey results for Morecambe Bay cockle beds is given at Annex A.

- a) In brief, Warton Sands is yet to be surveyed. An area at Aldingham was not accessible due to a channel and therefore requires further investigation. Newbiggin and Middleton Sands have no potential fishery for 2016: they will be monitored for 2016 settlement.
- b) Pilling Sands has an area of dense 2015 cockle which could provide a fishable stock. It will be re-surveyed in the summer. The Local Authority has been notified of the possible necessity to re-start cockle hygiene sampling, although the cockle is too small yet.
- c) Flookburgh covers a large area (estimated ~ 20km<sup>2</sup>) making it problematic to accurately target a survey without preliminary inspection. A rapid visual assessment was carried out to locate areas of dense cockle. In total 98 positions were inspected by jumboing and quickly estimating and recording what came up. Most areas contained spat with a few areas being dense. The greatest densities were  $\geq 500$  per m<sup>2</sup> in the 10mm size class; and 200 to 500 per m<sup>2</sup> of 12mm spat. The coverage of large cockle 2013+ was sparse. Due to the limited number of size cockle it was decided to carry out a full survey in July/August to check on the growth and survival rates through the summer, and to inform whether a commercial fishery would be viable. The bed is already being sampled for Hygiene Classification purposes and the Local Authority have been notified.

#### Solway Firth cockle beds

- a) Beckfoot – was surveyed by four officers. A grid of 74 survey points 200m apart was generated from previous surveys of the site. 55 stations were surveyed; the stations which were not surveyed were on small patches of skear, seaward points that were in the main channel and stations which were too high up the beach. IFCO Thinnesen had mentioned there has been a lot of sand movement depositing sand at the top of the beach.

Means including stations where no cockles were present:

Mean size cockles = 2 per m<sup>2</sup> (min. 0 max. 16)

Mean undersize cockles = 6 per m<sup>2</sup> (min. 0 max 36)

Means excluding stations where no cockles were presence:

Mean size cockles = 3 per m<sup>2</sup>

Mean undersize cockles = 11 per m<sup>2</sup>

Overall there were very low densities of both spat and size cockle, the majority of the cockles were found midway up the beach in a small area 800m by 400m. It was found that cockles did not always come to the surface by jumboing and were often found when digging down into a couple of centimetres under the surface of the sediment.

## **Mussel Beds**

The focus this quarter has been on cockle surveys. Mussel surveys are scheduled in for the next quarter, and below are summaries of mussel bed inspections carried out this year.

### **Ribble Estuary**

Officers inspected the mussel bed at Seafield Road, Lythm on 25<sup>th</sup> February on 1.4m tide. The mussel appeared to have scoured out – both on the upper reaches of the bed (where the very small mussel had been) and below the demarcation line. There was a narrow band of mussel visible above the water and just around the demarcation posts. There may be more mussel further down into the channel but this could not be seen on this tide. The top of the training wall was stripped bare. Again there may have been mussel in the water around it but this was too deep to assess. The predictions about the erosion and loss of the mussel on which the authorisations to harvest undersize mussel were based appear to be justified.

### **Heysham Flat**

Heysham Flat skear was inspected on 11<sup>th</sup> March on a 0.4m tide. The main skear was devoid of any mussel other than fresh spat (pinprick size). Officers crossed Dallam Dyke to inspect how far on to the bottom skears could be accessed by foot and for how long. All bottom skears had size mussel on, of around 60mm.

### **North Morecambe Bay**

Although time was limited a rapid inspection was carried out of the Foulney and Low Bottom mussel beds on 9<sup>th</sup> March. On the way on to the skear the quad bikes flushed around 100 eider ducks from the upper skear. There appeared at a glance to be more females than males. Heading down Foulney skear, mussel was still abundant although most had not yet reached size being around 35-40mm. Nearer the bottom of the skear there were patches of size mussel, indicating that further down and what was still covered with water at the time of the inspection the mussel would have reached size, as in previous recent years. A small group of Byelaw 3 permit holders are known to have recently fished it for size mussel. There was evidence of pinprick spat scattered around. It was not everywhere but it was clear an early settlement had occurred.

There were still many oystercatchers on the mussel along with gulls and a few small groups of knot as had been observed in the autumn. There was no sign of starfish at this height on the bed.

IFCO Dixon reported a large volume of spat on the oyster frames. This was mainly larger than pinprick and thus indicates an earlier settlement than on Foulney.

### **Duddon Estuary**

The Duddon mussel bed did not fully uncover during daylight on 9<sup>th</sup> March low water but very large mussel ~ 60mm was found in the water. There was not a particularly high level of mussel mud and some evidence of sanding over on this mussel, which was neither hard in nor sitting loosely. There was some pinprick spat also. There was a flock of oystercatchers and a few knot waiting for the tide to recede. It had been thought that this remaining mussel might present a lucrative fishery for a few fishers if the price for mussel was high. However when samples were removed and inspected, around one in three were found to be infested with pea crab (Figs. 2 and 3).



Fig. 2. Duddon mussel infested with pea crab – 9<sup>th</sup> March 2016.



Fig. 3. Pea crabs found in Duddon mussel 9<sup>th</sup> March 2016.

## **Other surveys**

### **Cumbria Coast MCZ *Sabellaria alveolata* familiarisation**

Officers paid a familiarisation visit to the Cumbria Coast MCZ designated during Tranche One, and have drawn up a survey methodology to be used with Cumbria Wildlife Trust Trainees to begin a time series of distribution and condition monitoring of the *Sabellaria alveolata* (honeycomb worm) reef there. This will replace the surveying of the reef at Heysham Flat for which five years of data have been collated and reported on.

**Science Officers  
26<sup>th</sup> April 2016**