

**NWIFCA Quarterly Meeting:  
16<sup>th</sup> September 2016: 11.00 a.m.**

**AGENDA  
ITEM NO.  
12**

**SCIENCE AND SURVEY UPDATE:  
15<sup>th</sup> MAY – 31<sup>st</sup> AUGUST 2016**

**Purpose:** To provide an update on science and related work

**Recommendation:** The report be received.

**Introduction**

This report is for information. No decisions from members are needed at this time.

**General**

The Science team have been utilising as many tides as possible this quarter for continuing cockle and mussel stock assessments. They were fully involved in the opening of the Leven Sands cockle fishery, and continue to have heavy input into the Byelaw Review work, facilitating BMWG and discussion between sectors, work with Natural England and the RSPB over the use of the 'bird model' for assessing fisheries impacts on bird feeding requirements, carrying out HRAs for seed mussel fisheries and development of the new NWIFCA website. They are undergoing on-going and continual training and familiarisation with the District.

An update of key areas of work is provided below.

**Marine Protected Areas in the NWIFCA District**

**a) Marine Conservation Zones**

**West of Walney MCZ**

Please see separate report.

**b) Review of Fishing Activities in European Marine Sites**

The table below provides an update of the progress on the review of Fishing Activities on EMS and the number of assessments carried out and left to be completed by the end of December 2016. Cockle and mussel fisheries are being assessed as they occur. For example, the Leven Sands cockle fishery, the seed mussel hand-gathering at Heysham Flat and the seed mussel dredge fisheries in Morecambe Bay and Fleetwood have all undergone separate HRAs prior to authorising.

**Table 1: Review of Fishing Activities in European Marine Sites – Assessment table – 31<sup>st</sup> August 2016**

Changes in figures are due to the following:-

- <sup>1</sup> 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.
- <sup>2</sup> Activities to have been thought to be commercial found to be recreational.
- <sup>3</sup> Cross border site Liverpool Bay EMS with MMO - joint assessments.
- <sup>4</sup> Change in number of AA due to expected TLSE going through to AA (netting activities) and activities being grouped into one assessment.

	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>	0	0	0	8	(7) 21/04/16
TLSE	14	0	2	1	11	(6) 21/04/16
Joint assessments with MMO	1 <sup>3</sup> (inc. 4 gears)	0	1	0	0	
Appropriate Assessments	12 <sup>4</sup>	2	6	0	4	(4) 21/04/16
<b>Totals</b>	49	6	7	4	32	

### Bivalve Mollusc Working Group

A meeting of BMWG was held on 8th August where further discussion occurred on management of mussel fisheries, including Heysham Flat seed mussel hand-gathering and protection of the *Sabellaria alveolata* reef, and a request from the dredge industry to open other areas in north Morecambe Bay and Fleetwood. It was agreed that cockle fisheries, in particular Flookburgh and Marshside, should not be opened yet as the vast majority of stock is undersize. Science team will re-survey in September and provide results to BMWG (next meeting on 10<sup>th</sup> October) and TSB with the view to a late October / November opening if stock allow, bird food requirements are met and the fishery can be Habitats Regulations compliant.

Points raised that required further action or decision were taken to TSB on 9<sup>th</sup> August and will be reported in that meeting's minutes. A separate note of the meeting is available for Members on request.

BMWG is proving to be a successful forum for open and frank discussion about fisheries that have multi-stakeholder interest, with agreement between sectors being reached on some difficult areas. It is hoped that opportunities for improving understanding of the various interests in the fisheries will continue.

As in previous years the Senior Scientist provided a training day on the work of the NWIFCA, cockle and mussel fisheries, and *Sabellaria alveolata* reefs, to the new cohort of Wildlife Trust Trainees in the spring. They have since carried out surveys on the mussels at Heysham Flat, the honeycomb worms in the Cumbria Coast MCZ at Drigg and a cockle survey at Lytham North Run, all instructed by Science Officers.

A summary of the Cockle and Mussel Surveys and Inspections carried out during this quarter is given in the table below:

Shellfish Bed	Species	Survey / Inspection
Foulney Ditch	Mussels	Inspection
Warton Sands	Cockles	Quadrat Survey
Falklands / South America	Mussels	ATV Inspection
Foulney Island	Mussels	Quadrat Survey
Heysham Flat	Mussels	Quadrat Survey
Foulney – stunted mussel	Mussels	Quadrat Survey
Fleetwood all beds	Mussels	Inspection
Duddon Estuary	Mussels	Survey but no stock found
Wyre End (Knott End)	Mussels	Inspection
Flookburgh	Cockles	Quadrat Survey – two days
Falklands / South America / Heysham bottom skears / Perch Scar / Black Scar	Mussels	Heliflight inspection
Marshside (Southport)	Cockles	Quadrat Survey
Heysham Flat	Mussels	Inspection
Heysham Flat	<i>Sabellaria alveolata</i>	Quadrat Survey
Lytham North Run	Cockles	Quadrat Survey – undersize stock present – to be monitored and re-surveyed in 2017
Solway - Ellisons	Mussels	Full inspection
Newbiggin	Cockles	Quadrat Survey

## Mussel Fisheries

### Heysham Flat seed mussel

The seed mussel hand-gathered fishery was authorised to open on 25th July. Following work with Natural England and Cumbria Wildlife Trust colleagues and IFCA members, and further discussion at BMWG it was agreed that although the honeycomb worm reef is in a poor condition due to extreme smothering by recruited mussel and subsequent mussel mud, that the underlying 3D reef structures need to be protected from trampling and compression damage from quad bikes. Therefore an exclusion zone was incorporated into the authorisation for the main reef area and a small area of live *Sabellaria alveolata* to the north of the main reef.

### North Morecambe Bay seed mussel dredge fishery

Much of the South America skewer remains sanded over this year. Due to large numbers of starfish over a relatively small area of mussel recruitment on the Falklands skewer and stretching northwards towards Foulney there was a restricted zone of seed mussel which was being rapidly predated on by the starfish. Due to its proximity to the intertidal bed at Foulney fished by Byelaw 3 permit holders, discussions took place between the relevant representatives from the dredge and the hand-gathering sectors from BMWG over an acceptable area for authorising a dredge fishery. Three authorisations were initially issued with the fishery opening on 8th July.

Industry returned with a further request for an area north and west of the original authorised area (Area A) extending towards the Walney Channel. Officers worked with Natural England and TSB to ensure confidence that there would be no impact from fishing on this previously un-surveyed area believed to hold areas of cobble and boulder communities which are conservation features of the Morecambe Bay and Duddon Estuary SAC. An additional requirement for use of acoustic ground discrimination equipment (AGDE) to be on-board dredging and for Natural England observers to be welcomed on-board during fishing was included in the authorisation, and the additional area (Area B) was opened with three vessels gaining access to this fishery starting 14th August. Overall 2700.9 tonnes were landed over nine days of fishing.

As discussed at BMWG and TSB, one company requested a scientific dispensation to investigate the area immediately to the east of Foulney, and used a small scientific dredge to ground-truth the data produced from the AGDE. They requested an authorisation to dredge but the matter was referred back to the next BMWG meeting with decision to be taken subsequently by TSB.

#### Perch and Black Scars - Fleetwood

Two authorisations were issued for dredging of ephemeral seed mussel following HRA, with the fishery opening on 27th August. To date one vessel has prosecuted the fishery over one tide and 60 tonnes have been harvested.

#### **Cockle Fisheries**

As stated above the science team is in the process of re-surveying cockle beds in Morecambe Bay and at Penfold North (Southport). Results from surveys earlier in the year showed some dense areas of 2015 cockle of which the majority of the stock had not yet reached size.

Results of re-surveys so far conducted are shown below. Stock on Aldingham and Warton Sands is not of a commercial density. 2016 stock on Lytham (North Run) will be monitored throughout the autumn / winter and surveyed again in spring 2017 if it is shown to have persisted.

Flookburgh and Penfold North cockle beds are scheduled in for survey in the next fortnight.

#### Lytham North Run Cockle Survey 23-08-16

A cockle survey was carried out at Lytham North Run on 23rd August, with 81 stations sampled.

Mean density of size cockle = 2 per m<sup>2</sup> (min. 0 max. 30)

Mean density of undersize cockles = 846 per m<sup>2</sup> (min. 0 max 7210)

This cockle bed is dominated by the 2016 year class with a mean of 842 per m<sup>2</sup>, and cockles approximately 5mm (shell width). The other year classes (2015, 2014 and 2013+) all had densities of <4 per m<sup>2</sup>.

#### Aldingham Cockle Survey 03/09/2016

A grid of 40 survey points 500m apart was generated from previous surveys of the site. Thirty-five of these points were surveyed. Five survey points were not reached due to a deep channel. Cockle density means were calculated including the zero counts (only 3 sites with zero counts of undersize).

Mean density of size cockles = 4 per m<sup>2</sup> (min. 0 max. 40)

Mean density of undersize cockles = 7 per m<sup>2</sup> (min. 0 max 68)

Much of the undersize from the spring has gone. Cefas have been notified of the results and it is anticipated that hygiene sampling will cease on this bed for the time being, and the bed be temporarily de-classified.

## Warton Sands Cockle Survey 06/09/2016

57 stations were surveyed, on a 250 m survey grid. Some of the stations were added in amongst the prescribed survey points as it was unsafe to access all the survey points - the sand is very soft. Mean cockle density was calculated including zero counts.  
Mean density of size cockles = 2.7 per m<sup>2</sup> (min. 0 max. 30)  
Mean density of undersize cockles = 14.7 per m<sup>2</sup> (min. 0 max. 86)  
25 of the 57 stations sampled had no cockle. The dense patches of undersize cockle found in the May survey (08/05/16) have not persisted.

## **Meeting with Lancaster University – Sediment Dynamics in Relation to Cockle Movement in Morecambe Bay**

The uncertainty of the influence of winds and tidal currents on cockle movements prompted Science Officers Abi Carroll and Mandy Knott to arrange a meeting with academic staff from Lancaster University to discuss if there is potential to set up collaborative projects to assist the NWIFCA's understanding of sediment dynamics in Morecambe Bay. Various methods were discussed, including the use of Lidar and Radar technology, thermal imagery, fluorescent tracers and radio tags. The science team will be kept up to date on progress regarding student MSc of PhD projects. The University currently has an MSc student project on the mussels at Heysham, looking at micro-topography, density, deposits and feedback loops. The NWIFCA will have access to the finished thesis.

## **Small Fish Surveys – working with Environment Agency**

Science Officers have been in communication with Environment Agency colleagues who are engaged in surveying the small fish communities for the purposes of the Water Framework Directive (WFD). We are seeking to gain a better understanding of the small fish within our district, in particular juvenile populations of commercial species i.e. flatfish and bass, but also of the small fish communities as a whole as indicators of ecosystem health. We would like to review existing small fish population datasets (this will primarily be that collected under the WFD), and identify and fill any gaps in knowledge through additional surveys. The objectives of the NWIFCA monitoring small fish communities are:

- To discover if unknown significant nursery areas of commercial fish species exist within the district
- To gain an understanding of the health of the small fish communities as a whole in the district (through gathering a time series of data on biodiversity and relative abundance)
- To gather evidence to guide management actions that may be required to improve the health of these communities
- To monitor these communities over time and in relation to any specific or on-going events
- To follow the WFD protocols so any data collected is comparable to the local and national WFD data (and in turn we could supply our data to EA for entry into the WFD database)
- To collaborate with the EA, to learn through joint working and ensure best use of time and resources for both parties.

## **Lobster Populations and Genetics Research**

Manchester University PhD student Graeme Fox is carrying out research using genetics to assess the current condition of the lobster fisheries around the UK and Ireland, and then looking at the potential effects of the restocking projects underway at the various hatcheries. He is collecting wild samples, ideally twenty-five samples from each location. Each sample consists of removing a fingernail sized piece of the pleopod and examining them for genetic markers to determine if lobsters around the UK and Ireland are one large stock or if there are distinct locational variations and therefore regional stocks. NWIFCA are assisting with putting Graeme in contact with potential sources (ie fishermen) for collection of samples. Currently 35 samples have been collected from the NWIFCA district. IFCOs in Cumbria have been handed specimens of the invasive and highly aggressive non-native species American lobster (*Hommarus americanus*) brought up in pots.

Graeme will also look whether he can include samples from these to ascertain whether any of them are actually hybrids as suspected by fishermen and IFCOs (native European lobsters (*Hommarus gammarus*) crossed with *americanus*).

## **TAG**

In June Ms Vause attended the IFCA Technical Advisory Group meeting where members of IFCA science teams and representatives from relevant Statutory Authorities gather to share knowledge on current IFCA science issues. Topics covered included: IFCA's progress with Habitat Regulations Assessments, Marine Stewardship Council's 'Project Inshore', inshore Vessel Monitoring Systems (iVMS), Defra's Evidence Action Plans, NE's visualisation project, NE's monitoring programme 2016-17 and research conducted on impacts of potting on the seabed. The annual vote was held to nominate a new TAG Chair and Secretary. There were no candidates for Chair and Ron Jessop (EIFCA) reluctantly accepted the position of Secretary. There was overwhelming agreement that the group provided an excellent forum for knowledge sharing but the voluntary commitment to co-ordinate the group was an increasing issue. It was agreed that the Chief Officer Group would be approached for approval to submit an EMFF Pilot Bid to fund a TAG Chair person.

## **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. Science Officer Jon Haines has taken over as lead for this project and attended a meeting in June with a range of fellow regulators on Marine Ecology and Ornithology.

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

Science Officers have attended a further workshop run by the MMO on the North West Marine Plan, and have asked to meet with Sam Wright from the MMO along with IFCOs to ensure that up-to date NWIFCA data is incorporated into the planning process. However there is a certain amount of frustration being experienced over how the MMO Planning Team are engaging with the IFCA. Data requests have been too generic to be able to provide a meaningful response. Further requests from Science Officers to clarify how IFCA data can be input into the Marine Planning process have not been adequately dealt with. There are concerns how fisheries data or data gaps are being incorporated into the future planning process in the inshore eastern Irish Sea area.

## **DEFRA 25 year Environment Plan**

Science Officer Abi Carroll attended a local workshop run by Defra along with around 90 people from the North West. The aim of the workshop was to hear the views on how the environment could be improved over the next 25 years. The plan focuses on the concept of 'Natural Capital' and its importance. In the wake of the vote for the UK to leave the EU there are many uncertainties surrounding the approach towards, and the development of, the 25 Year Plan. NWIFCA will be updated on progress by September 2016.

## **Cumbria Coast MCZ *Sabellaria alveolata* survey**

Officers paid a familiarisation visit to the Cumbria Coast MCZ designated during Tranche One, and drew 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 replaced the surveying of the reef at Heysham Flat for which five years of data have been collated and reported on. The WLT trainees carried out the survey under instruction from Science Officers and are in the process of processing and analysing the data. A short summary report will be produced.

## **Authorisations and MMO Marine Licence consultations this quarter**

### **Marine Licence Consultations:**

Barrow OWF Operational and Maintenance  
Burbo Bank OWF Operational and Maintenance  
Rossall Coastal Defence Scheme  
West of Duddon Sands OWF Operational and Maintenance  
Ormonde OWF Operational and Maintenance  
Greenodd Wastewater Pumping Station  
Penketh Brook Outfall Refurbishment (River Mersey)  
Ilse of Man to UK Interconnector Cable – Maintenance and Repair  
Network Rail-Parton to Harrington Sea Wall Repairs  
Network Rail- Sellafield Station pitching repairs  
Replacement of Part of Riverside Wall at Port of Workington  
Temporary Sculptural Installation at Blackpool Beach

### **Authorisations:**

CEFAS Endeavour groundfish survey -Byelaw 1 dispensation  
Lobster Hatchery – Lake District Coast Aquarium – Byelaw 8 dispensation  
CEFAS Clean Seas Environmental Monitoring Programme- Byelaw 1 dispensation  
Mersey Guardian WFD sampling- Byelaw 1 dispensation

**Senior Scientist**  
**8th September 2016**