

Fisheries in EMS Habitats Regulations Assessment for **Amber** and **Green** risk categories

NWIFCA-MB-EMS-COCKLE PILLING

21st October 2016

Completed by: Mandy Knott

Site: Morecambe Bay and Duddon Estuary

European Designated Sites: UK0013027 Morecambe Bay Special Area of Conservation (SAC)
UK 9005031 Morecambe Bay Special Protection Area (SPA)
UK11045 Morecambe Bay Ramsar
UK9005031 Duddon Estuary Special Protection Area (SPA)
UK11022 Duddon Estuary Ramsar
Morecambe Bay and Duddon Estuary pSPA
European Marine Site: **Morecambe Bay and Duddon Estuary**

Qualifying Feature(s):

SAC and Ramsar

H1110. Sandbanks which are slightly covered by sea water all the time; Subtidal sandbanks
H1130. Estuaries
H1140. Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats
H1150. Coastal lagoons
H1160. Large shallow inlets and bays
H1170. Reefs
H1220. Perennial vegetation of stony banks; Coastal shingle vegetation outside the reach of waves (NON MARINE)
H1310. *Salicornia* and other annuals colonising mud and sand; Glasswort and other annuals colonising mud and sand; Pioneer saltmarsh
H1330. Atlantic salt meadows (*Glaucio-Puccinellietalia maritima*)
H2110. Embryonic shifting dunes (NON MARINE)
H2120. Shifting dunes along the shoreline with *Ammophila arenaria* ("white dunes"); Shifting dunes with marram (NON MARINE)
H2130. Fixed dunes with herbaceous vegetation ("grey dunes"); Dune grassland (NON MARINE)
H2150. Atlantic decalcified fixed dunes (*Calluno-Ulicetia*); Coastal dune heathland (NON MARINE)
H2170. Dunes with *Salix repens* ssp. *argentea* (*Salicion arenariae*); Dunes with creeping willow (NON MARINE)
H2190. Humid dune slacks (NON MARINE)
S1166. *Triturus cristatus*; Great crested newt (NON MARINE)
Natterjack Toad (NON MARINE)

SPA and Ramsar

A026 *Egretta garzetta*; Little egret (non-breeding)
A038 *Cygnus Cygnus*; Whooper swan (non-breeding)
A040 *Anser brachyrhynchus*; Pink-footed goose (non-breeding)
A048 *Tadorna tadorna*; Common shelduck (non-breeding)
A050 *Anas Penelope*; Wigeon - (non-breeding – Ramsar only)
A054 *Anas acuta*; Northern pintail (non-breeding)
A063 *Somateria mollissima*; Common eider (non-breeding – Ramsar only)
A067 *Bucephala clangula*; Goldeneye - (non-breeding – Ramsar only)
A069 *Mergus serrator*; Red-breasted merganser - (non-breeding – Ramsar only)
A130 *Haematopus ostralegus*; Eurasian oystercatcher (non-breeding)
A137 *Charadrius hiaticula*; Ringed plover (non-breeding)
A140 *Pluvialis apricaria*; European golden plover (non-breeding)
A141 *Pluvialis squatarola*; Grey plover (non-breeding)
A142 *Vanellus vanellus*; Lapwing - (non-breeding – Ramsar only)
A143 *Calidris canutus*; Red knot (non-breeding)
A144 *Calidris alba*; Sanderling (non-breeding)
A149 *Calidris alpina alpina*; Dunlin (non-breeding)
A151 *Calidris pugnax*; Ruff (non-breeding)
A156 *Limosa limosa*; Black-tailed godwit (non-breeding)
A157 *Limosa lapponica*; Bar-tailed godwit (non-breeding)
A160 *Numenius arquata*; Eurasian curlew (non-breeding)
A162 *Tringa totanus*; Common redshank (non-breeding)
A169 *Arenaria interpres*; Ruddy turnstone (non-breeding)
A176 *Larus melancephalus*; Mediterranean gull (non-breeding)
A183 *Larus fuscus*; Lesser black-backed gull (Breeding, non-breeding)
A184 *Larus argentatus*; Herring gull (Breeding)
A191 *Sterna sandvicensis*; Sandwich tern (Breeding)
A193 *Sterna hirundo*; Common tern (Breeding)
A195 *Sterna albifrons*; Little tern (Breeding)
Phalacrocorax carbo; Cormorant – (non-breeding – Ramsar only)
Podiceps cristatus; Great crested grebe - (non-breeding – Ramsar only)
Seabird assemblage
Waterbird assemblage

Site sub-feature(s)/Notable Communitites:

SAC and Ramsar

Sandbanks which are slightly covered by sea water all the time – Subtidal coarse sediment, subtidal mixed sediments, subtidal sand, subtidal mud.

Estuaries - Intertidal mud, intertidal sand and muddy sand, intertidal mixed sediments, intertidal coarse sediment, intertidal rock, intertidal stony reef, intertidal biogenic reef: mussel beds, subtidal coarse sediment, subtidal mixed sediments, subtidal sand, subtidal mud, *Salicornia* and other annuals colonising mud and sand, Atlantic salt meadows (*Glauco-Puccinellietalia maritima*).

Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats – Intertidal mud, intertidal sand and muddy sand, intertidal mixed sediments, intertidal seagrass beds, intertidal coarse sediment.

Coastal lagoons

Large shallow inlets and bays – Intertidal mud, intertidal sand and muddy sand, intertidal mixed sediments, intertidal seagrass beds, intertidal coarse sediment, intertidal rock, intertidal stony reef, intertidal biogenic reef: mussel beds, intertidal biogenic reef: *Sabellaria* spp., subtidal stony reef, circalittoral rock, subtidal coarse sediment, subtidal mixed sediments, subtidal sand, subtidal mud, *Salicornia* and other annuals colonising mud and sand, Atlantic salt meadows (*Glauco-Puccinellietalia maritima*).

Reefs – Circalittoral rock, intertidal biogenic reef: mussel beds, intertidal biogenic reef: *Sabellaria* spp., intertidal rock, intertidal stony reef, subtidal stony reef.

Perennial vegetation of stony banks: Coastal shingle vegetation outside the reach of waves

***Salicornia* and other annuals colonising mud and sand: Glasswort and other annuals colonising mud and sand; Pioneer saltmarsh**

Atlantic salt meadows (*Glauco-Puccinellietalia maritima*) (referred to as Saltmarsh)

Embryonic shifting dunes

Shifting dunes along the shoreline with *Ammophila arenaria* (“white dunes”); Shifting dunes with marram

Fixed dunes with herbaceous vegetation (“grey dunes”); Dune grassland

Atlantic decalcified fixed dunes (*Calluno-Ulicetea*); Coastal dune heathland

Dunes with *Salix repens* spp. *Argentea* (*Salicion arenariae*); dunes with creeping willow

Humid dune slacks

Great crested newt (*Triturus cristatus*)

Supporting habitat: Great crested newt (NON MARINE) – coastal sand dunes
Natterjack Toad (NON MARINE)- coastal sand dunes

SPA and Ramsar

Annual vegetation of drift lines, Atlantic salt meadows (*Glauco-puccinellietalia maritima*), coastal lagoons, freshwater and coastal grazing marsh, intertidal biogenic reef: mussel beds, intertidal coarse sediment, intertidal mud, intertidal rock, intertidal sand and muddy sand, intertidal seagrass beds, intertidal stony reef, *Salicornia* and other annuals colonising mud and sand, water column.

Generic sub-feature(s):

Intertidal mud and sand, Intertidal mud, Seagrass, Saltmarsh spp., Brittlestar beds, Subtidal muddy sand, Intertidal boulder and cobble reef, Subtidal boulder and cobble reef, *Sabellaria* spp. reef, Intertidal boulder and cobble reef, Surface feeding birds, Estuarine birds, Intertidal mud and sand, Intertidal boulder and cobble reef, Saltmarsh spp., Coastal lagoons.

High Level Conservation Objectives:

Morecambe Bay SAC

With regard to the SAC and the natural habitats and/or species for which the site has been designated (the ‘Qualifying Features’ listed above), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the Favourable Conservation Status of its Qualifying Features, by maintaining or restoring;

- ☐ The extent and distribution of qualifying natural habitats and habitats of qualifying species
- ☐ The structure and function (including typical species) of qualifying natural habitats
- ☐ The structure and function of the habitats of qualifying species
- ☐ The supporting processes on which qualifying natural habitats and the habitats of qualifying species rely
- ☐ The populations of qualifying species, and,
- ☐ The distribution of qualifying species within the site.

Morecambe Bay SPA

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified and the Ramsar Site and the wetland habitats and/or species for which the site has been listed (the ‘Qualifying Features’ listed above), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive and ensure that the site contributes to achieving the wise use of wetlands across the UK, by maintaining or restoring:

- ☐ The extent and distribution of the habitats of the qualifying features
- ☐ The structure and function of the habitats of the qualifying features
- ☐ The supporting processes on which the habitats of the qualifying features rely
- ☐ The population of each of the qualifying features, and,
- ☐ The distribution of the qualifying features within the site.

Duddon Estuary SPA

With regard to the SPA and the individual species and/or assemblage of species for which the site has been classified and the Ramsar Site and the wetland habitats and/or species for which the site has been listed (the 'Qualifying Features' listed above), and subject to natural change;

Ensure that the integrity of the site is maintained or restored as appropriate, and ensure that the site contributes to achieving the aims of the Wild Birds Directive and ensure that the site contributes to achieving the wise use of wetlands across the UK, by maintaining or restoring:

- ☐ The extent and distribution of the habitats of the qualifying features
- ☐ The structure and function of the habitats of the qualifying features
- ☐ The supporting processes on which the habitats of the qualifying features rely
- ☐ The population of each of the qualifying features, and,
- ☐ The distribution of the qualifying features within the site.

Fishing activities assessed:**Gear type(s):**

Hand-gathering – Cockle (*Cerastoderma edule*)

1. Introduction

1.1 Need for an HRA assessment

In 2012, the Department for Environment, Food and Rural Affairs (Defra) announced a revised approach to the management of commercial fisheries in European Marine Sites (EMS). The objective of this revised approach is to ensure that all existing and potential commercial fishing activities are managed in accordance with Article 6 of the Habitats Directive.

This approach is being implemented using an evidence based, risk-prioritised, and phased basis. Risk prioritisation is informed by using a matrix of the generic sensitivity of the sub-features of EMS to a suite of fishing activities as a decision making tool. These sub-feature-activity combinations have been categorised according to specific definitions, as red, amber, green or blue.

Activity/feature interactions identified within the matrix as red risk have the highest priority for implementation of management measures by the end of 2013 in order to avoid the deterioration of Annex I features in line with obligations under Article 6(2) of the Habitats Directive.

Activity/feature interactions identified within the matrix as amber risk require a site-level assessment to determine whether management of an activity is required to conserve site features. Activity/feature interactions identified within the matrix as green also require a site level assessment if there are “in combination effects” with other plans or projects.

Some European Sites within the NWIFCA District consist of features that are not fully marine (eg. sand dunes) and therefore fall outwith of the EMS Review process. They have not been included in the original risk matrix. Due to the nature of some of the fisheries in the District, particularly intertidal fisheries, the NWIFCA has adopted the approach of carrying out full HRA on all the features (including non-marine) within European Sites to ensure that any potential risk from fishing activity has been identified and assessed.

Site level assessments are being carried out in a manner that is consistent with the provisions of Article 6(3) of the Habitats Directive, that is to determine that fishing activities are not having an adverse effect on the integrity of the site, to inform a judgement on whether or not appropriate steps are required to avoid the deterioration of natural habitats and the habitats of species as well as disturbances of the species for which the areas have been designated, in so far as such disturbance could be significant in relation to the objectives of this directive.

If measures are required, the revised approach requires these to be implemented by 2016.

The purpose of this site specific assessment document is to assess whether or not in the view of NWIFCA the fishing activity of a hand-gathering of cockles at Leven Sands has a likely significant effect on the qualifying features of the Morecambe Bay and Duddon Estuary European Site and on the basis of this assessment whether or not it can be concluded that hand-gathering of cockles at Leven Sands will not have an adverse effect on the integrity of this European Site.

1.2 Documents reviewed to inform this assessment

- Natural England's risk assessment Matrix of fishing activities and European habitat features and protected species¹
- Reference list² (Annex 1)
- Natural England's consultation advice (Annex 2)
- Site map(s) – sub-feature/feature location and extent (Annex 3)
- Fishing activity data (map(s), etc) (Annex 4)

2. Information about the EMS

(See cover pages).

3. Interest feature(s) of the EMS categorised as 'Red' risk and overview of management measure(s) (if applicable)

The Morecambe Bay and Duddon European Site interest features, boulder and cobble reef, *Sabellaria alveolata* reef and Seagrass beds are protected from all bottom towed gears, in addition Seagrass beds are protected from bait collecting or working a fishery by hand or using a hand operated implement through a prohibition under [NWIFCA Byelaw 6](#), introduced in May 2014.

4. Information about the fishing activities within the site

In 2007, officers estimated that in a year when cockle recruitment is exceptional (an approximate 1 in 20 year event according to Sea Fisheries Committee records and local fishing knowledge) the maximum area available for fishing in Morecambe Bay could extend to up to 7,000ha for cockles and 1,000ha for mussels. The positions and extent of the beds mapped in 2016 are shown in Annex 4. It should be noted that while there are cockle and mussel resources elsewhere in the NWIFCA district, when stocks are dense Morecambe Bay is the largest and most commercially attractive shellfish gathering area by far.

Hand-gathering of cockles has been a long-standing traditional fishery within Morecambe Bay and the Duddon Estuary. Methods have changed very little over the years, with a jumbo (Annex 6) used to fluidise the soft sediments in which the buried cockles are found resulting in them rising to the sediment surface. They may then be raked into buckets or net bags, put through a hand-held riddle whereby the undersize cockle is returned to the bed, and the size cockle then placed into 20-25kg cockle sacks. Sometimes fishers use a craam (Annex 6) to pick out larger cockles scooping them straight into cockle sacks. Cockles are able to rebury themselves very quickly, so any not removed will soon become invisible under the sand once again.

Fishermen access the beds by ATVs and tractors due to the high risk of getting stuck in soft sediment. Depending on the area to be fished, the time when the bed is uncovered and safe to get on to and return from may be severely restricted. Tides in Morecambe Bay are notoriously dangerous for the inexperienced or risk-prone, with tidal ranges up to 10m. On

¹ See Fisheries in EMS matrix:

http://www.marinemanagement.org.uk/protecting/conservation/documents/ems_fisheries/populated_matrix3.xls

² Reference list will include literature cited in the assessment (peer, grey and site specific evidence e.g. research, data on natural disturbance/energy levels etc)

the larger spring tides it is common for the incoming tide to race in as fast as a galloping horse and can easily overcome someone on foot (pers. comm. Knott. M. 2016).

The cockle fishery is highly variable in its production and consequently, its prosecution. Past records show this variability in stock levels and associated fishing activity as a long standing feature of the fishery. It is illustrated particularly well by the most recent experience, whereby extensively high stock levels between 2003 – 05 and 2007 - 08 had been preceded by a long period of low fishable stocks in the mid-1990s with effort levels closely corresponding to those fluctuations. In early 2006 the Bay was closed for cockling to protect stocks after two seasons of poor or non-existent recruitment (Cook, 2007. pers.comm.). A widespread spatfall in 2006 with good survival over the winter and excellent on-growth during the spring and summer of 2007 meant the Bay reverted to fishing together with the rest of the district in September 2007.

Since that last spatfall there have been no commercial fisheries in the Bay and indeed all beds have been closed to even the taking of a small amount (5kg per person per day) for personal consumption, until April 2016 when a limited craam fishery was opened on the Leven Sands bed in the north of the Bay.

Regulation of Hand-gathering

Cockle hand-gathering in Morecambe Bay has been regulated by permits under various byelaws since 2003. The current byelaw – NWIFCA Byelaw 3 Permit to Fish for Cockles and Mussels (Annex 7) – was introduced in 2012 and succeeded in creating vastly improved management of what was sometimes described as an itinerant and unruly fishing community. Numbers of gatherers under these regulations have been greatly reduced. There are currently 93 permits issued for the whole NWIFCA District, with 76 active since renewal on 1st September (10th October 2016). With ten new entrants off the waiting list a maximum of 103 permit holders would prosecute the fishery.

The regulation has created a more professional and responsible group of fishers. NWIFCA Byelaw 3 also specifies methods of fishing and only the use of a craam, rake, spade or jumbo (tamp) are permitted for hand-gathering. It also specifies a closed season from 1st May to 31st August to protect spat, and a minimum landing size.

A suite of other byelaws including NWSFC Byelaws 12, 13a, and 16 (Annex 7) provide further management measures for cockle harvesting in the Bay, including a prohibition on dredging and provision to close beds when stocks are low or to protect juvenile stock.

Joint Liaison Group and Morecambe Bay Action Group

With limited staff resources available to NWIFCA, effective control of fishing effort is organised with the assistance of other organisations. Consequently, in administering the fishery, the Authority works closely with other organisations such as the police, local councils, the Maritime and Coastguard Agency (MCA), the Health & Safety Executive (HSE), the Department for Work and Pensions (DWP), Natural England (NE), the Gangmasters Licensing Authority (GLA) and the Environment Agency (EA). This joint working is facilitated at a strategic level through a Joint Liaison Group (JLG) and delivered by the Morecambe Bay Action Group (MBAG). This approach has worked well and has been of undoubted benefit to the management of the fishery.

Shellfish Hygiene

Classification of shellfish harvesting areas is required and implemented directly in England and Wales under European Regulation 954/2004 to ensure shellfish are fit for human consumption. CEFAS undertake a Sanitary Survey prior to hygiene sampling commencing in new areas or re-commencing where classification has lapsed. Samples are taken monthly by local authorities and tested against standards set in terms of concentrations of Coliform bacteria and Salmonella.

Shellfish production areas are then classified from A to C according to the level of treatment they require prior to their sale to the general public. The latest classifications for the beds in Morecambe Bay can be found on the Food Standards Agency website (www.food.gov.uk). Pilling Sands had been temporarily down-graded due to lack of commercial stock – sampling has been re-started and initial results are returning as B classification.

Biosecurity

Morecambe Bay is currently shellfish disease free and the Authority considers it a priority to maintain this status. The non-native species Japweed (*Sargassum muticum*) and Leathery Sea-squirt (*Styela clava*) have previously been recorded within the area. In order to implement effective measures to prevent the introduction and / or spread of diseases or non-natives the Authority has developed and published a Biosecurity Plan, detailing controls and conditions that will be applied to all commercial shellfish activities. The Biosecurity Plan seeks to ensure that consignments and/or the areas from which they come, are regularly and thoroughly checked for invasive non-native species (INNS). The NWIFCA science team will monitor this fishery for any INNS.

Current Status of Stocks and Proposed Fishery

In summer 2015 fishers reported dense stocks of adult size (>20mm) cockle on the Leven Island bed (see Annex 4) in north Morecambe Bay which is accessed by a dedicated shrimp fishers hard-core track over saltmarsh at West Plain in Flookburgh. NWIFCA Officers observed the stock on the ground with industry and carried out three subsequent surveys. However, the results from these surveys failed to provide data that would allow a fishery to proceed, and Officers believe the lack of stock during surveying was a result of extreme winds and cockles being 'blown' to other unidentified areas. Efforts are being made to understand this effect from weather.

Subsequent survey in spring 2016 provided evidence of a stock of large cockles mixed in with juvenile stock, and following HRA a limited fishery was opened on the Leven bed, prosecuted by restricted length jumbo (tamp) and craam. These measures were imposed to protect the juvenile stock.

During autumn 2015, a late spatfall was reported all around the NWIFCA District and specifically in Morecambe Bay. All appropriate agencies were notified of the possibility of a fishery developing for September 2016, and surveys were carried out in spring and late summer to assess the current stock levels around the whole of the Bay to inform future HRAs and cockle management decisions. Full details of the stock assessments are given below, and show a significant stock of mixed sizes of cockle throughout the whole the Bay.

Survey results

NB. The maps are for illustration. Due to highly variable densities over all beds, please ensure when looking at the maps to register the density icons in the legends, as different sizes are used to represent different densities in each map.

Survey Method: Jumbo and 0.5m² quadrat/ 0.1m² quadrat and sieve
Forty-six stations were surveyed from a survey grid 500m apart.
Cockle density means were calculated including the zero counts.
Mean density size cockles = 21 per m² (min. 0 max. 126)
Mean density undersize cockles = 84 per m² (min. 0 max 1440)

The number of sites that contained densities of 40+ per m² was 8 with an average of 74 per m² and covering an area of 2 square kilometres. The majority of the size cockle was in the 30-35mm size range.

Twenty sites contained 2016 spat with densities ranging from 2 per m² to 28 per m². The map of undersize cockle shows the density of undersize cockle minus the 2016 spat to give an indication of the cockle that is closer to being size. The size class of undersize cockle varied between 12 – 22mm; the sites with large quantities of undersize cockle were in the 12-15mm size range and the sites with less undersize cockle were in the 18-22mm size range.

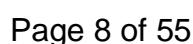


Fig. 1. Pilling Cockle Survey Results – Size Cockle Densities. 22nd September 2016

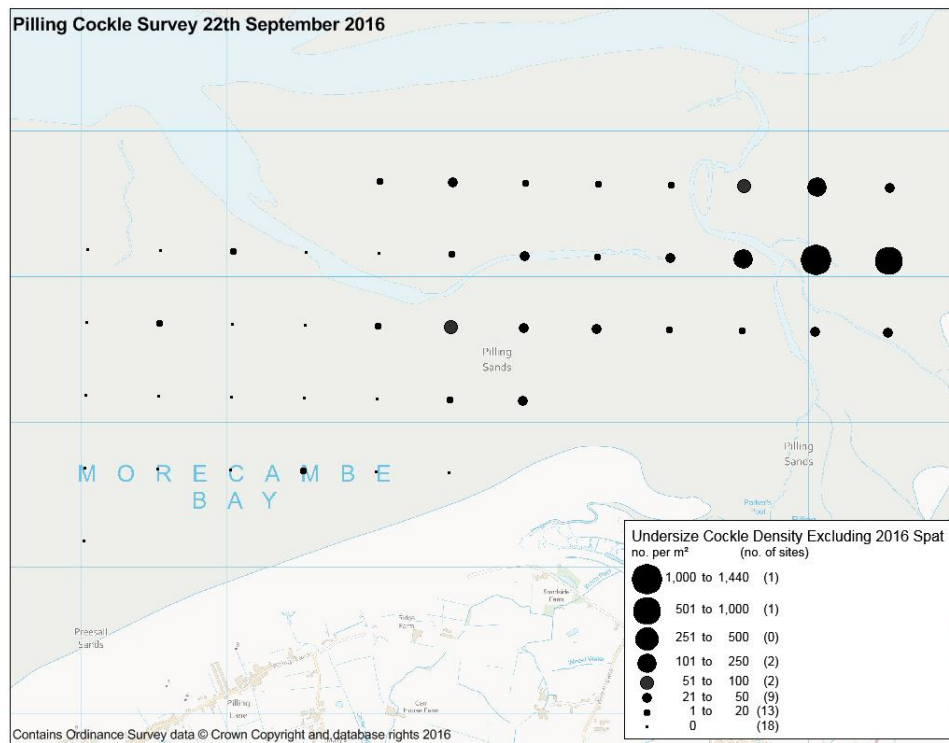


Fig. 2. Pilling Cockle Survey Results – Undersize Cockle Densities excluding 2016 spat. 22nd September 2016

Warton Sands Cockle Survey 06/09/2016

Survey method: jumbo and 0.5 m² quadrat, some 0.1 m quadrat and sieves were used.

Fifty-seven 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 size cockles = 2.7 per m² (min. 0 max. 30)

Mean density undersize cockles = 14.7 per m² (min. 0 max. 86)

Twenty-five 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.

Mapping basemap used shows saltmarsh on eastern edge of cockle bed – this is no longer present to this extent.

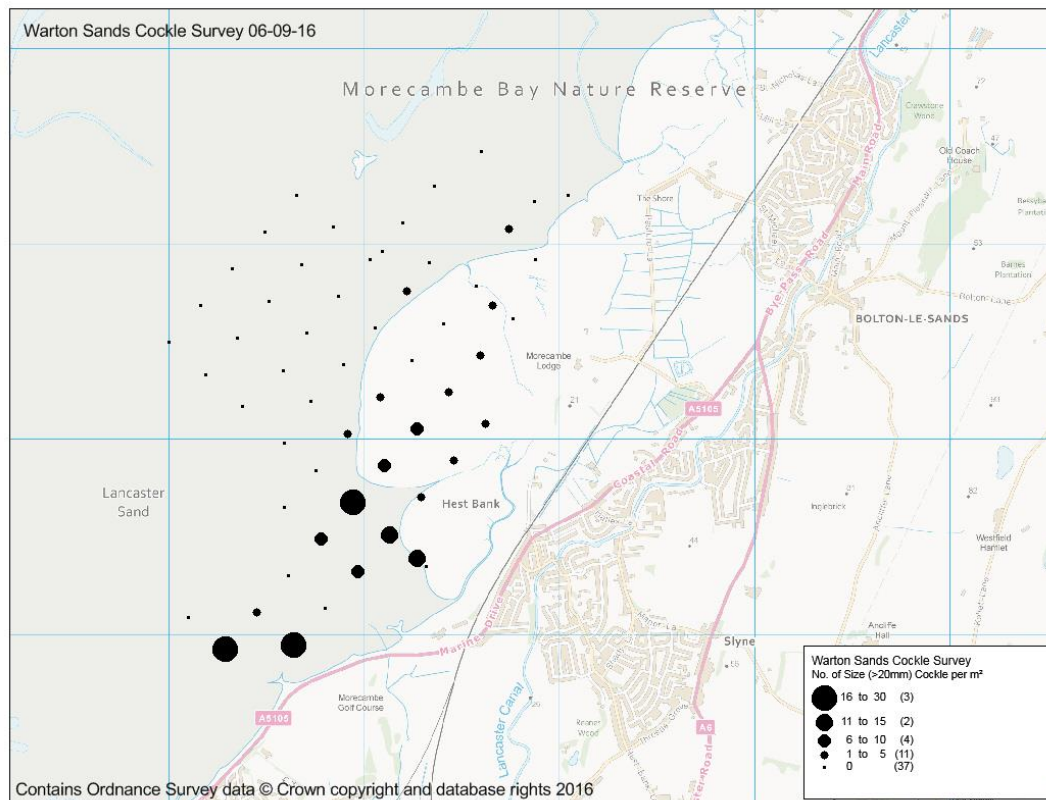


Fig. 3. Warton Sands Cockerle Survey Results – Size Cockerle Densities 6th September 2016

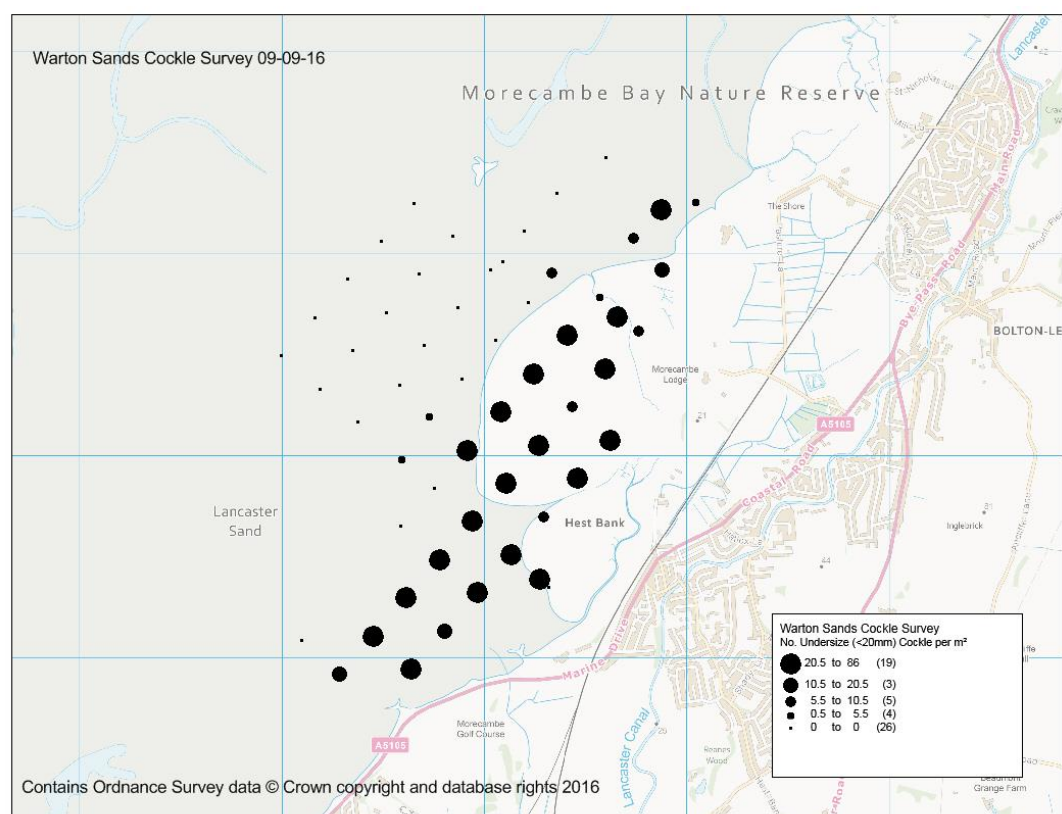


Fig. 4. Warton Sands Cockerle Survey Results – Undersize Cockerle Densities 6th September 2016

Flookburgh Cockle Survey 19/09/2016 and 20/09/2016

Survey Method: Jumbo and 0.5m² quadrat

One hundred and fifty-two stations were surveyed over two days. One hundred and forty-four stations were taken from a survey grid 500m apart and eight stations were added. The main purpose of the survey was to examine growth of the 2015 year class following high densities recorded during surveys on 05/07/2016 and 06/07/2016. The following data was recorded during these surveys:

number in each year class

number of size and undersize

number in each of the following size classes:

<10mm, 10-15mm, 15-20mm, 20-25mm, 25-30mm, >30mm

shell length (mm) of all the cockles from 14 sites (to obtain length frequency data of a sub-sample).

Cockle density means were calculated including the zero counts.

Mean density size cockles = 8 per m² (min. 0 max. 118)

Mean density undersize cockles = 42 per m² (min. 0 max. 380)

The additional data collected also allowed an up-to-date assessment of the relationship between shell length and 'passage' through the 20mm gauge, to confirm work carried out in the past by scientists from NW&NWSFC that the 20mm square gauge equates to a minimum legal shell length of 26mm. The variation is due to the thickness/'fatness' at the 'heel' of the shell.

- Cockles shell length 24mm - 91% undersize (will pass through gauge) and 9% oversize (will not pass through gauge)
- Cockles shell length 25mm - 48% undersize and 53% oversize
- Cockles shell length 26mm - 6% undersize and 94% oversize.

Sample size 579 cockles (491 undersize and 88 oversize)

On both days 1000+ oystercatchers were seen on the cockle bed, the highest number observed during surveys and inspections in recent years.

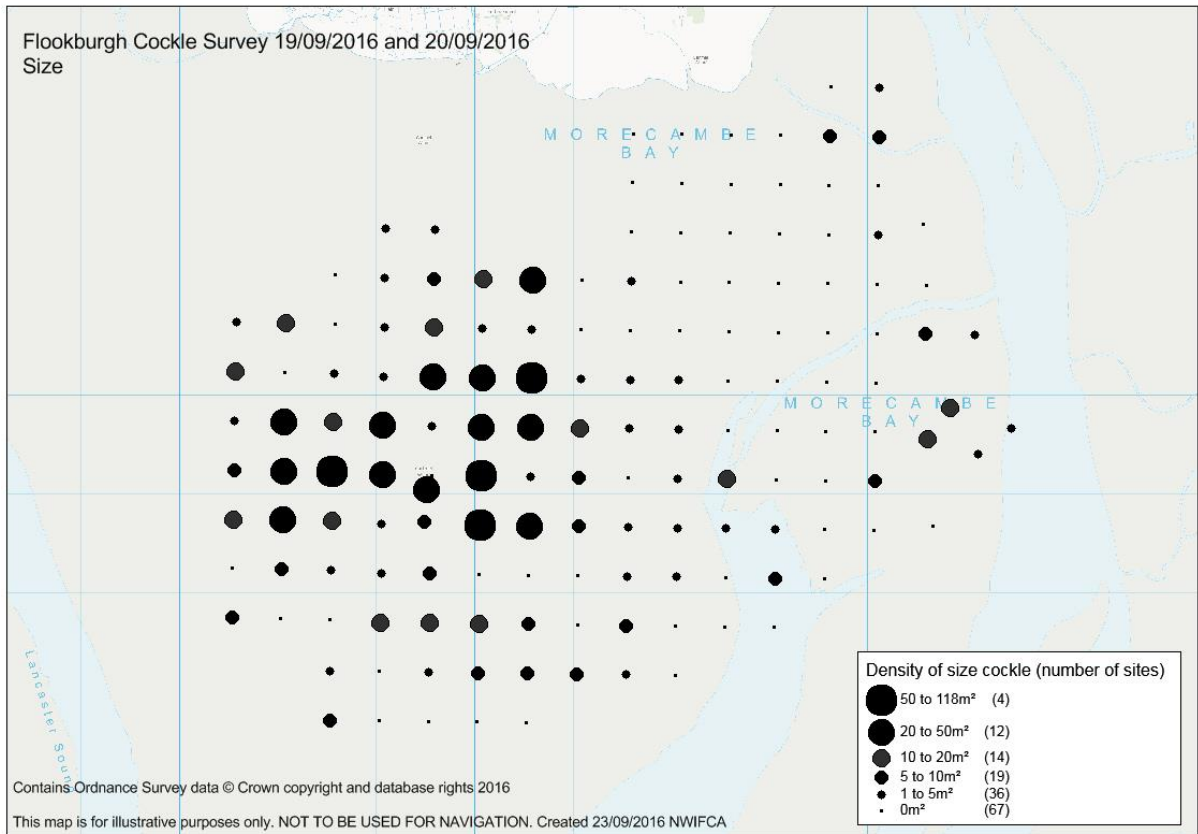


Fig. 5. Flookburgh Cackle Survey Results – Size Cockle Densities 19th and 20th September 2016

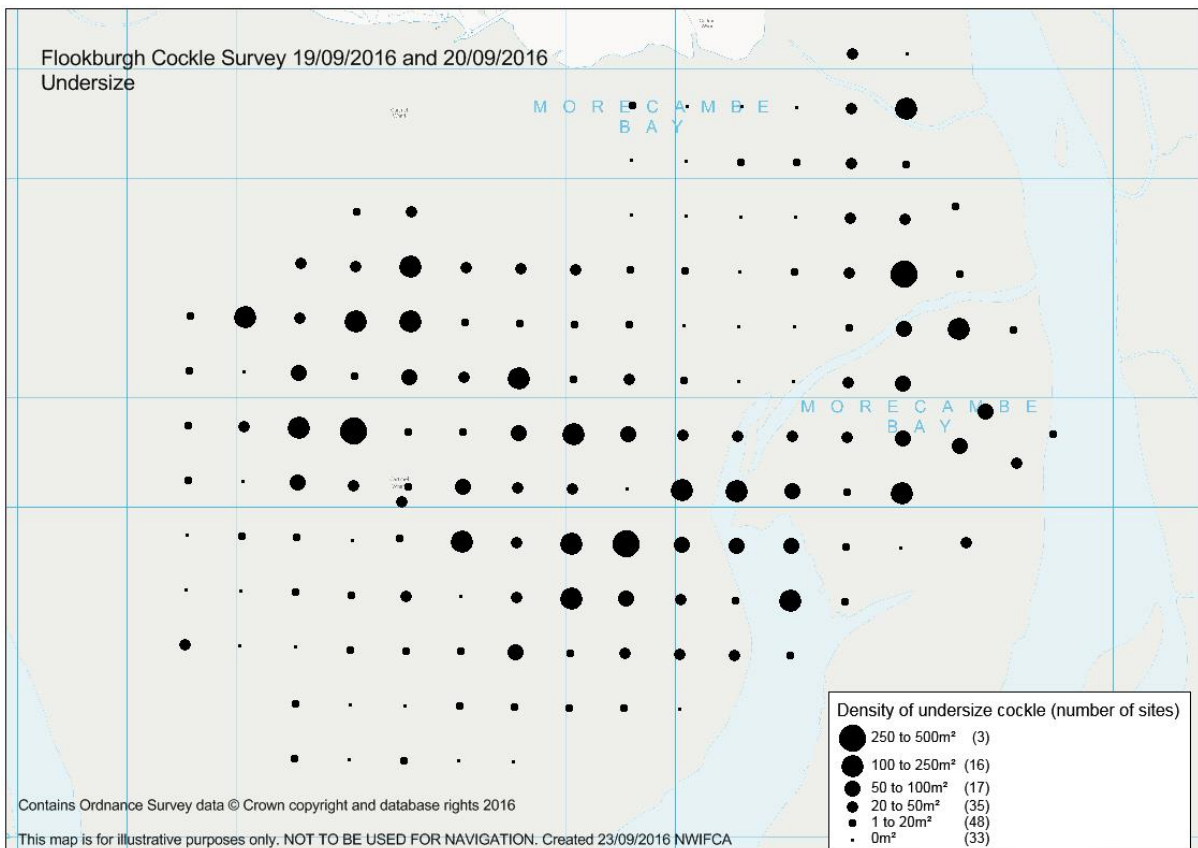


Fig. 6. Flookburgh Cackle Survey Results – Undersize Cockle Densities 19th and 20th September 2016

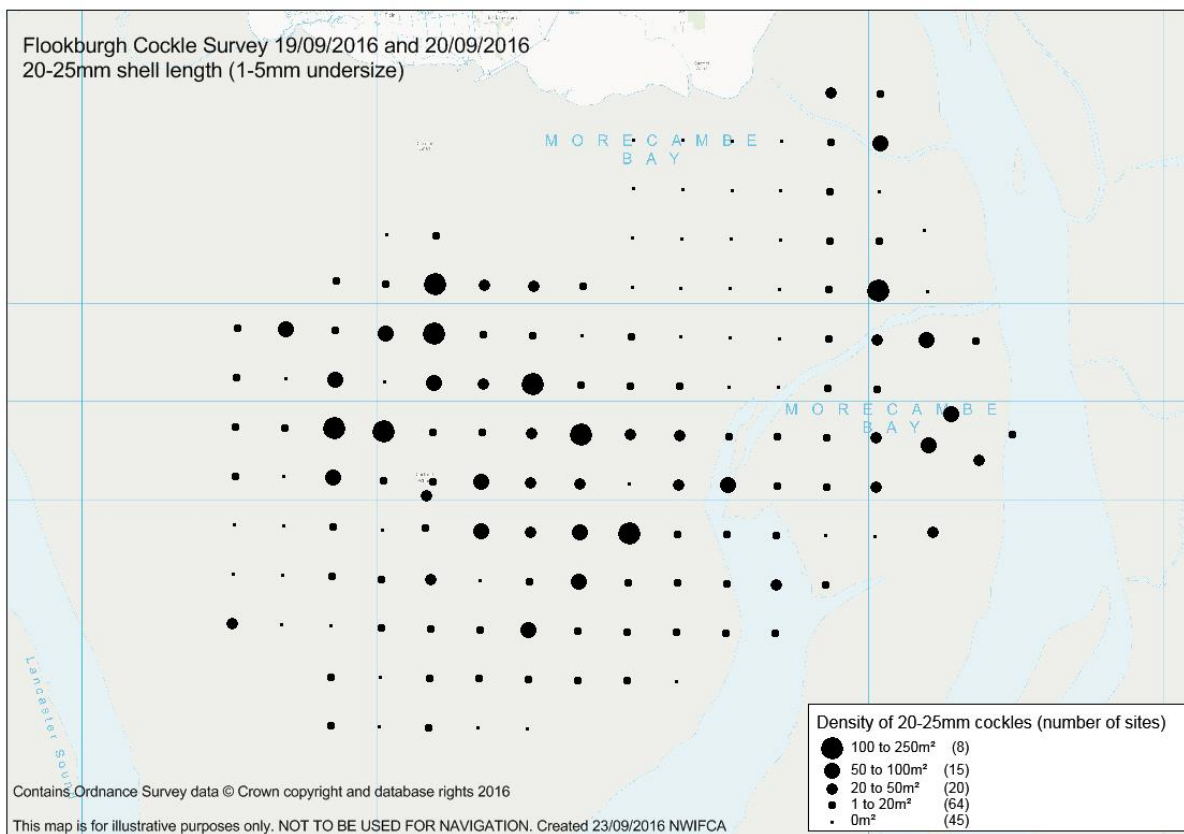


Fig. 7. Flookburgh Cockle Survey Results –20-25mm (ie. just undersize) Cockle Densities
19th and 20th September 2016

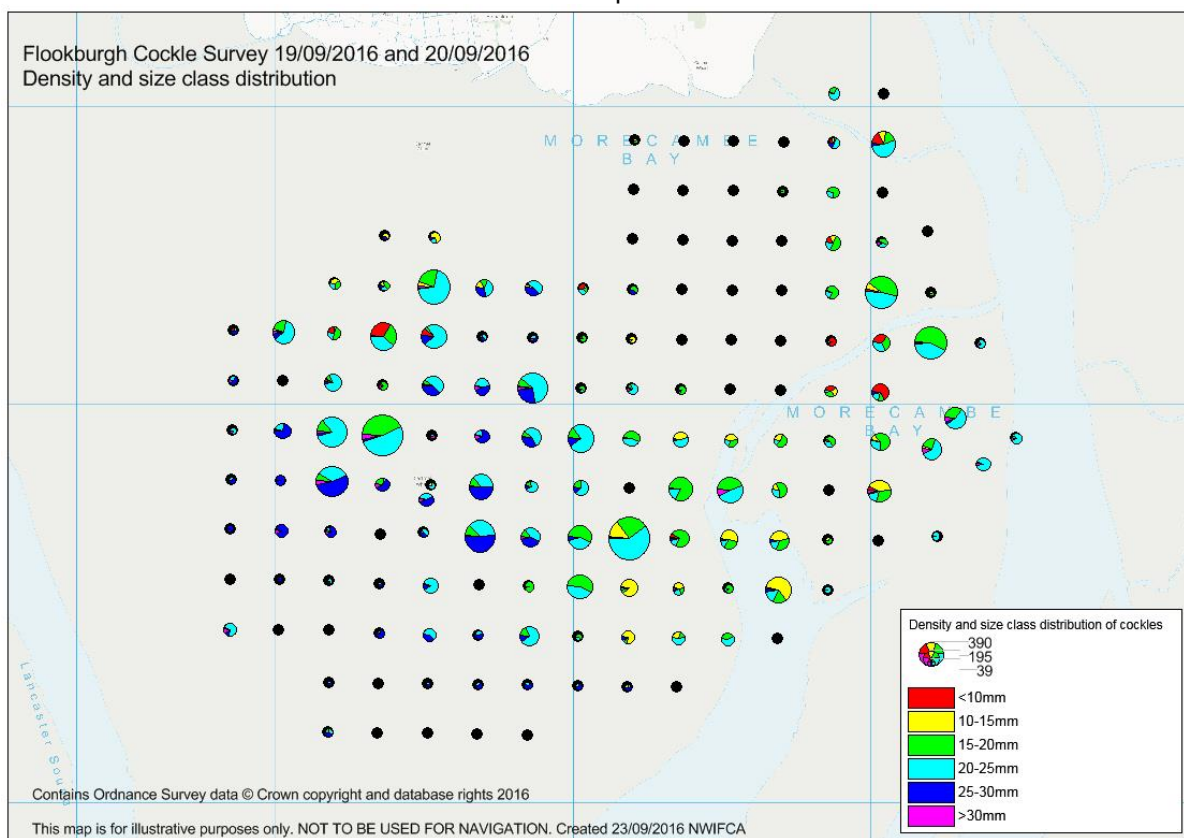


Fig. 8. Flookburgh Cockle Survey Results – Density and Size Class Distribution 19th and 20th September 2016

Leven Sands Cockle Survey 18/08/16

Seventy-seven stations were surveyed, 72 in the 250 m survey grid and 5 extra north of the grid. Cockle density per m² was calculated including zero counts.

Mean density size cockle = 19 per m²

Mean density undersize cockle = 36 per m²

There were a handful of very large cockles > 40mm- likely to be the large ones predicted to die off back in April. A small proportion of spat was found at 18 sample points. The majority of the cockles were around 18-22mm.

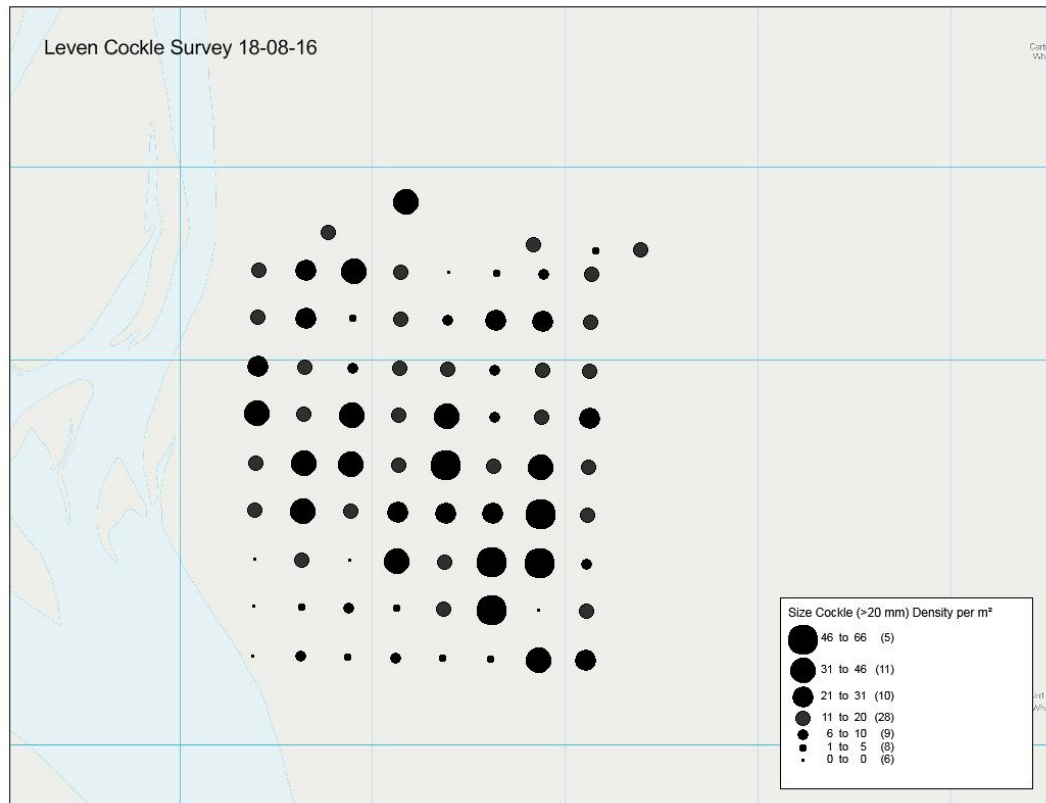


Fig. 9. Leven Sands Cockle Survey Results – Size Cockle Densities 18th August 2016

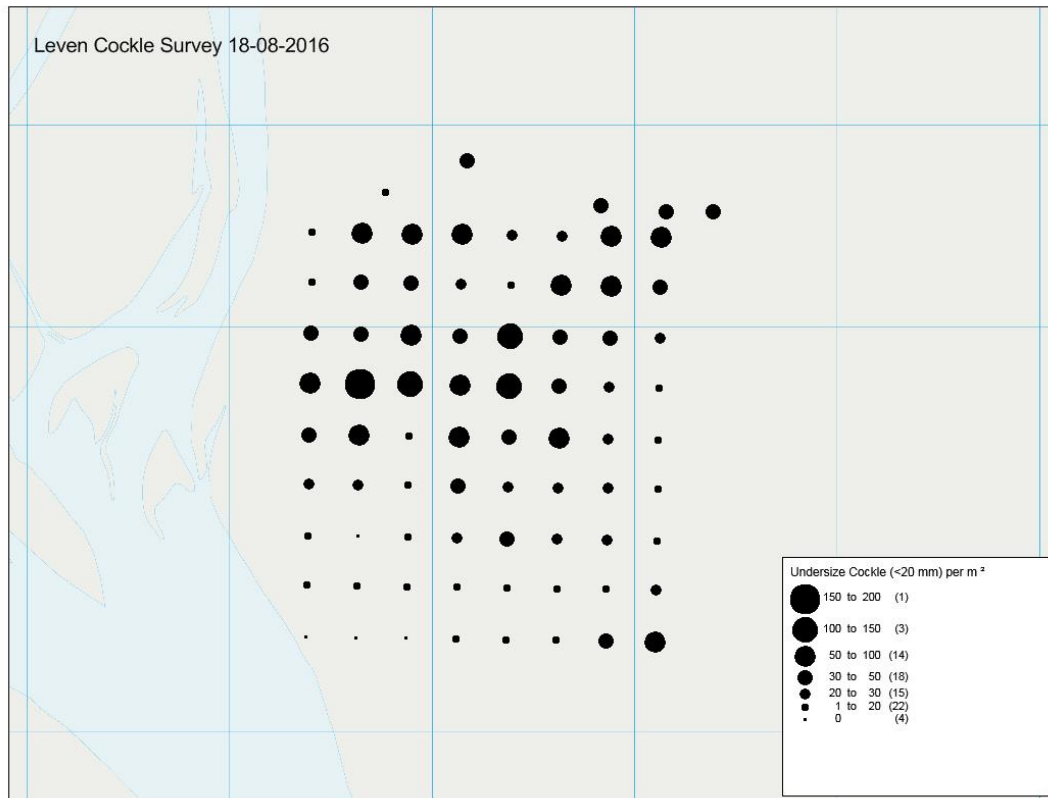


Fig. 10. Leven Sands Cocker Survey Results – Undersize Cocker Densities 18th August 2016

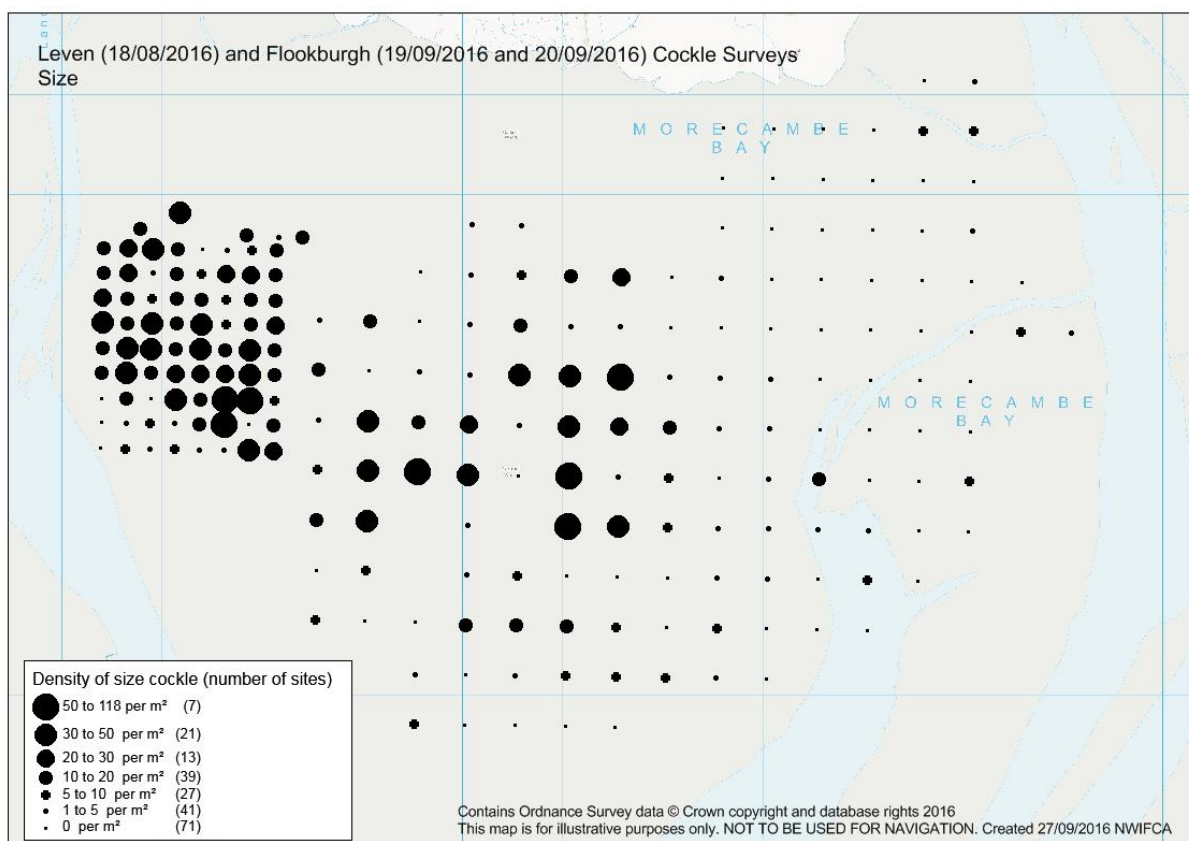


Fig. 11. Illustration of size cockle densities of Flookburgh and Leven Sands – neighbouring beds

Aldingham Cackle Survey 03-09-16

Survey Method: Jumbo and 0.5m² Quadrat

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. The previous problem of not being able to get to a further 15 points was rectified by going further up the first channel until the water was shallow enough to cross.

The ground was soft going on the inner survey area near to this first channel so care was needed, but firm over the majority of it.

Cockle density means were calculated including the zero counts (only 3 sites with zero counts of undersize).

Mean density size cockles = 4 per m² (min. 0 max. 40)

Mean density undersize cockles = 7 per m² (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 as there is no commercial stock.

Newbiggin Cackle Survey 03-08- 2016

Survey Method: 0.5m² quadrat and jumbo. 70 stations were surveyed, survey stations 250m apart.

Cockle density means were calculated including the zero counts.

Mean density size cockles = 6.6 per m² (min. 0 max. 28)

Mean density undersize cockles = 60.8 per m² (min. 0 max. 238)

The size of the undersize cockle varied between 8-20mm. The sites north of the line indicated on the map in Figure 14 had 80 – 90% of cockles that were just passing through a cockle gauge and were thus 18-20mm shell length. Sites to the south of the line indicated on the map had a variety of sizes of cockle (8-20mm) with areas of small cockle (8-10mm) found higher up on the shore. Many of the size cockles were very large (Year Class - 2013+. Length - 35-50mm).

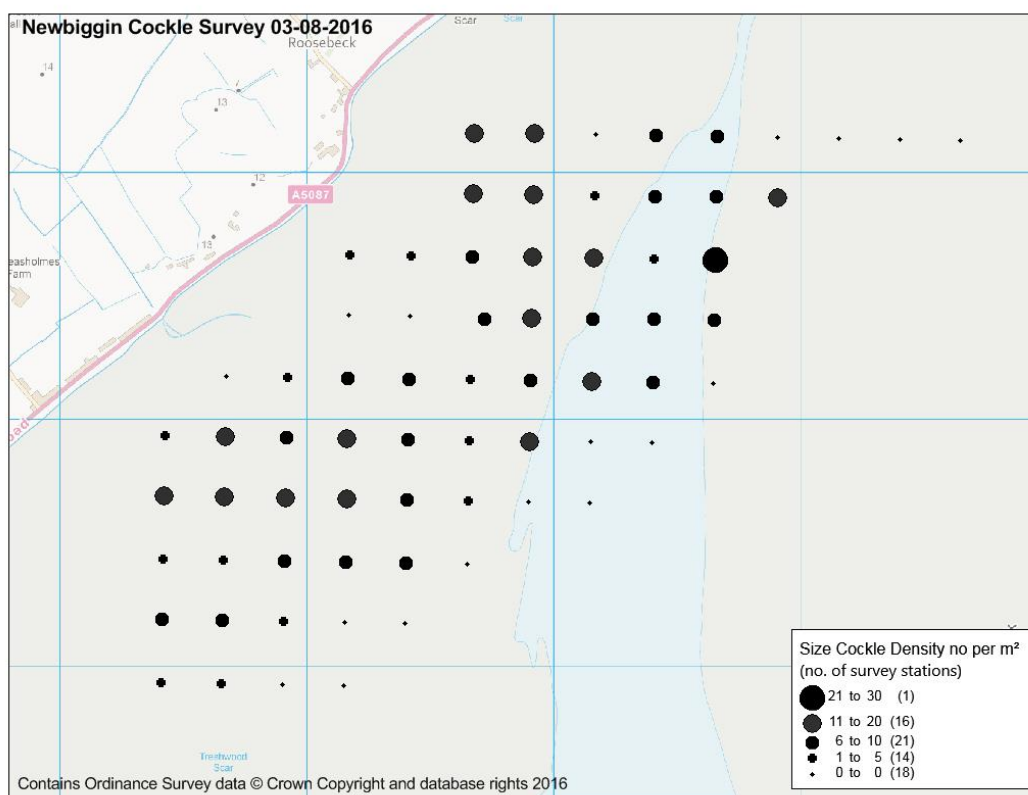


Fig. 12. Newbiggin Cackle Survey Results – Size Cockle Densities 3rd August 2016

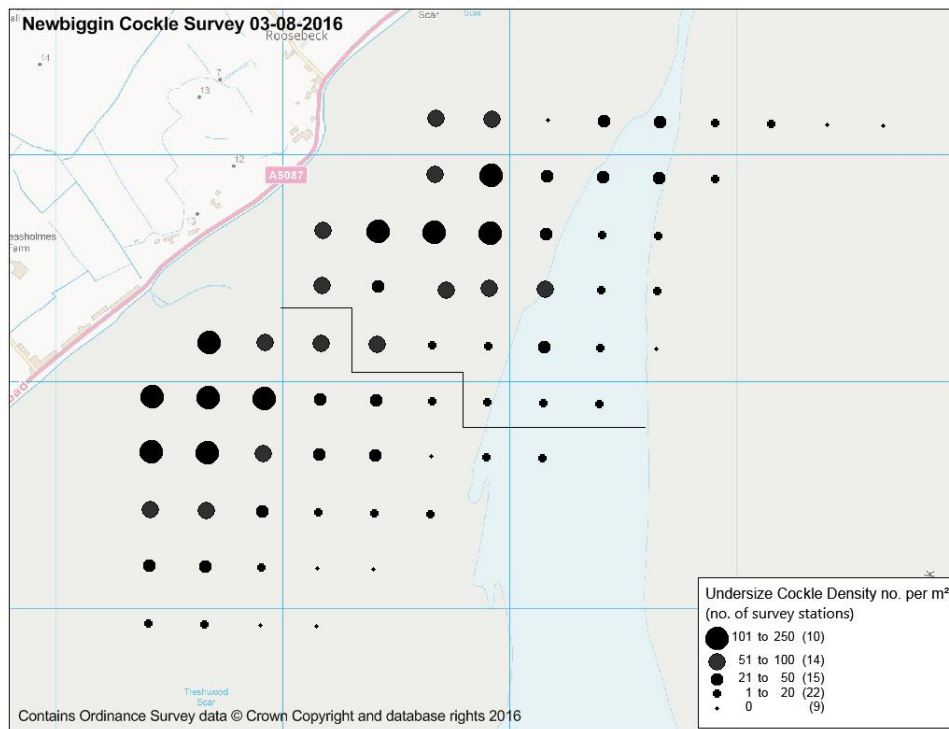


Fig. 13. Newbiggin Cockle Survey Results – Undersize Cockle Densities 3rd August 2016

The Proposal

The proposal is to open a hand-gathered fishery at Pilling Sands under derogation from the closure under NWSFC Byelaw 13a, using jumbos, rakes and riddles.

Access from Fluke Hall Lane over slipway through embankment - SD 38917 50025 (Fig. 14).



Fig. 14. Map Indicating Access Point to Pilling Sands Cockle Fishery.

5. Test for Likely Significant Effect (LSE)

The Habitats Regulations Assessment (HRA) is a step-wise process and is first subject to a coarse test of whether a plan or project will cause a likely significant effect on an EMS³.

Is the activity/activities directly connected with or necessary to the management of the site for nature conservation? NO

5.1 Table 1: Assessment of LSE

Features: All qualifying features and sub-features have been screened out other than those in the table below, due to there being no interaction between the fishing activity and the qualifying features and sub-features.

Pressures: All pressures from the Advice on Operations table provided in the Morecambe and Duddon Estuary Conservation Advice package have been screened out, other than the pressures in the following table, due to the nature of the fishing activity.

³ Managing Natura 2000 sites: http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm

Qualifying Feature	Sub-feature	Potential pressure(s)	Sensitivity	Potential for Likely Significant Effect?	Justification and evidence
<p>H1130. Estuaries</p> <p>H1140. Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats</p> <p>H1160. Large shallow inlets and bays</p>	Intertidal mud	<p>Abrasion/disturbance of the substrate on the surface of the seabed</p> <p>Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion</p>	<p>Sensitive</p> <p>Sensitive</p>	<p>No</p> <p>No</p>	<p>Activity does not occur within the vicinity of intertidal mud</p>
	Intertidal sand and muddy sand	<p>Abrasion/disturbance of the substrate on the surface of the seabed</p>	Sensitive	No	<p>Hand-gathering with jumbo and rake unlikely to have any impact in such a highly dynamic site.</p>
	intertidal mixed sediments, intertidal coarse sediment	<p>Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion</p>	Sensitive	No	<p>Hand-gathering with jumbo and rake unlikely to have any impact in such a highly dynamic site.</p>
		<p>Genetic modification & translocation of indigenous species</p>	Insufficient Evidence to assess	No	
		Litter	Sensitive	Yes	
		Physical change (to another seabed type)	Sensitive	No	<p>Cockles will be removed straight into bags and away to market. Low level of diversity on sands and highly selective fishery will preclude translocation of other species.</p>
		Removal of non-target species	Sensitive	No	<p>Hand-gathering with jumbo and rake unlikely to have any impact in such a highly dynamic site.</p>
		Removal of target species	Sensitive	Yes	<p>Highly selective fishery - no by-catch of non-target discards.</p>
<p>H1310 <i>Salicornia</i> and other annuals colonising mud and sand; Glasswort and other annuals colonising mud and sand; Pioneer saltmarsh</p> <p>H1330. Atlantic salt meadows (<i>Glaucopuccinellietalia maritima</i>) (referred to as Saltmarsh)</p> <p>SPA Supporting Habitats including Freshwater and coastal grazing marsh</p>		<p>Abrasion/disturbance of the substrate on the surface of the seabed</p>	Sensitive	No	<p>Activity does not occur on the features. Access to the fishery will be via the concrete track access point at Fluke Hall Lane only. Within the authorisation to remove size cockle it states; no person shall fish, transit, ton up or park any vehicle on the saltmarsh and a map defining the area of saltmarsh to ensure no damage to saltmarsh.</p>
		<p>Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion</p>	Sensitive	No	
		<p>Genetic modification & translocation of indigenous species</p>	Sensitive	No	<p>Highly selective fishery will preclude translocation of other species.</p>
		Litter	Sensitive	Yes	
		Physical change (to another seabed type)	Sensitive	No	<p>Hand-gathering with jumbo and rake unlikely to have any impact in such a highly dynamic site.</p>

SPA Features including Ramsar –	Supporting Habitats assessed above				
A048 <i>Tadorna tadorna</i> ; Common shelduck	Removal of target species (cockles)	Removal of non-target species	Some species sensitive, others screened out	Yes	Species sensitive to removal of cockles: Common eider Eurasian oystercatcher Red knot Lesser black-backed gull Herring gull
A050 <i>Anas Penelope</i> ; Wigeon					
A054 <i>Anas acuta</i> ; Northern pintail					
A063 <i>Somateria mollissima</i> ; Common eider (Breeding)					
A040 <i>Anser brachyrhynchus</i> ; Pink-footed goose (non-breeding)					
A130 <i>Haematopus ostralegus</i> ; Eurasian oystercatcher					
A137 <i>Charadrius hiaticula</i> ; Ringed plover					
A140 <i>Pluvialis apricaria</i> ; European golden plover					
A141 <i>Pluvialis squatarola</i> ; Grey plover					
A142 <i>Vanellus vanellus</i> ; Lapwing					
A143 <i>Calidris canutus</i> ; Red knot					
A144 <i>Calidris alba</i> ; Sanderling					
A149 <i>Calidris alpina alpina</i> ; Dunlin					
A156 <i>Limosa limosa</i> ; Black-tailed godwit					
A157 <i>Limosa lapponica</i> ; Bar-tailed godwit					
A160 <i>Numenius arquata</i> ; Eurasian curlew					
A162 <i>Tringa totanus</i> ; Common redshank					
A169 <i>Arenaria interpres</i> ; Ruddy turnstone					
A176 <i>Larus melancephalus</i> ; Mediterranean gull					
<i>Sterna sandvicensis</i> ; Sandwich tern (Breeding)					
A193 <i>Sterna hirundo</i> ; Common tern (Breeding)					
A195 <i>Sterna albifrons</i> ; Little tern (Breeding)					
Seabird assemblage					
Waterbird assemblage					
A183 <i>Larus fuscus</i> ; Lesser black-backed gull (Breeding)			Sensitive	No	Highly selective fishery. No by-catch or discards of non-target species.
A184 <i>Larus argentatus</i> ; Herring gull (Breeding)					

<p>Is the potential scale or magnitude of any effect likely to be significant?⁴</p>	<p>Alone</p> <p>Yes</p> <p>Comments :</p>	<p>OR In-combination⁵</p> <p>Yes</p> <p>Comments :</p> <p>These activities also occur at the site:</p> <ul style="list-style-type: none"> • Beam trawl (whitefish) • Beam Trawl (Shrimp) • Pots and Creels • Light otter trawl • Fixed nets (gill, trammel, entangling) • Longlines • Shrimp push-net • Fyke and stakenet • Hand working (mussels) • Hand working (cockles – Leven Sands) <p>In combination effects for activities other than mussel fishing will be assessed when all initial TLSEs for a site are completed.</p> <p>In combination effect with mussel and simultaneous cockle fishery assessed below.</p>
<p>Have NE been consulted on this LSE test? If yes, what was NE's advice?</p>	<p>Yes – see below</p>	

⁴ Yes or uncertain: completion of AA required. If no: LSE required only.

⁵ If conclusion of LSE alone an in-combination assessment is not required.

6. Appropriate Assessment

Potential risks to features

6.1 SAC Features / sub-features / SPA supporting habitats

- Intertidal sand and muddy sand
- Intertidal mixed sediments, intertidal coarse sediment
- Saltmarsh

6.1.1 Potential Impacts

- i) Litter
- ii) Removal of target species
- iii) Disturbance

6.1.2 Exposure

i) Past fisheries have had a poor reputation for large amounts of litter being deposited on the parking and access areas, and being left on the cockle beds themselves. Items have included food and drink receptacles, cockle net bags and sacks. Impacts could include entanglement of fish and birds in the bags and sacks, and swallowing / entanglement of birds and mammals (both marine and terrestrial) of other litter.

ii) Removal of target species could change the invertebrate community composition of the sandbanks.

6.2 SPA and Ramsar Features

- SPA and Ramsar birds

6.2.1 Potential Impacts

- i) Removal of target species (cockles) for Common eider, Eurasian oystercatcher, Red knot, Lesser black-backed gull and Herring gull;
- ii) Visual disturbance to all species within vicinity of fishery, on the saltmarsh access route and over the sandbanks.

6.2.2 Exposure

i) Cockles form part of an important prey resource for eiders, oystercatchers and knot. Gulls are opportunistic scavengers and will utilise any cockle resource brought to the surface and left on the sand. If bird populations are to be maintained in healthy condition, sufficient shellfish to meet their demands must remain for them.

If fisheries remove essential prey and there is a lack of food, the impacts on these species will vary at different times of year. For example, prey resource requirements will be far greater during autumn and at the beginning of winter than at other times of the year, as enough resource needs to be present for all the birds to feed through the cold months, when energy requirements are higher. Over-wintering waders require to put on weight and get into best condition prior to migrations north for the summer, or they will not survive long flight distances and suffer high mortalities. Equally the breeding eider population of Morecambe Bay needs to get into prime condition prior to mating in order to reproduce successfully. This applies to both sexes but in particular to females who once on the nest do not feed again until ducklings have fledged, a period of up to three weeks. There have been concerns raised over the Bay's eider population, its sex ratio skew (3:1 males to females) and the lack of success in breeding.

Oystercatchers mainly eat larger-sized cockles, which are the target of the cockle fisheries. Although the birds can eat alternative prey species such as earthworms when shellfish are scarce, these prey often do not enable birds to survive as well, and in such good body condition, as when shellfish are abundant (Atkinson et al 2003; Goss-Custard et al 2004).

Knot eat smaller bivalves with lower and upper size limits of around 5 and 12.5mm shell length respectively (Bell et al 2001).

Eiders generally feed on a mixed range of sizes of bivalves, although it is understood they will consume high quantities of small mussels when they are available.

ii) Visual disturbance could impact on condition of any of the listed bird species, by causing unnecessary energy expenditure if flushed and taking to flight. For birds feeding on the affected areas it could also reduce feeding times, and increase competition if birds are forced to concentrate into reduced feeding areas. By mid-March some species, such as Redshank, will be establishing breeding territories on the saltmarsh and actively displaying. Disturbance caused by access to the fishery across the saltmarsh may reduce breeding success of this nationally declining species.

6.3 Management and Mitigation to Ensure No Adverse Effect on the Integrity of the European Site:

Due to the potential impacts outlined above, management and mitigation measures are necessary in order to ensure damaging effects are prevented.

6.3.1 NWIFCA management and mitigation in order to open the fishery

Area to be opened

1. The fishery will be on Pilling Sands, a total area of around 30.2 km² shown in the illustration below (Fig. 15).
2. Access to and access from the fishery will be via the concrete track access point at Fluke Hall Lane only (SD 389 500) as defined in the authorisation. IFCO patrols will limit access to this track. No other cockle beds are accessible from this access route due to the positions of deep channels around it – the Lune and Wyre rivers and non-drying areas of Morecambe Bay. The authorisation states no person shall fish, transit, ton up or park any vehicle on the saltmarsh and a map defining the area of saltmarsh to ensure no damage to saltmarsh.
3. As is typical on a cockle bed, there are both size and undersize cockle in the area. Cockle distribution is considered to be mostly controlled by sediment character such as grain size and the elevation of the bed so stocks can be very locally variable. Survey results showed the densest areas of undersize cockle were to the eastern end of the bed, which gatherers will most likely avoid.
4. IFCO enforcement will concentrate on ensuring only permitted gatherers remove commercial quantities, and rigorous enforcement of the MLS.

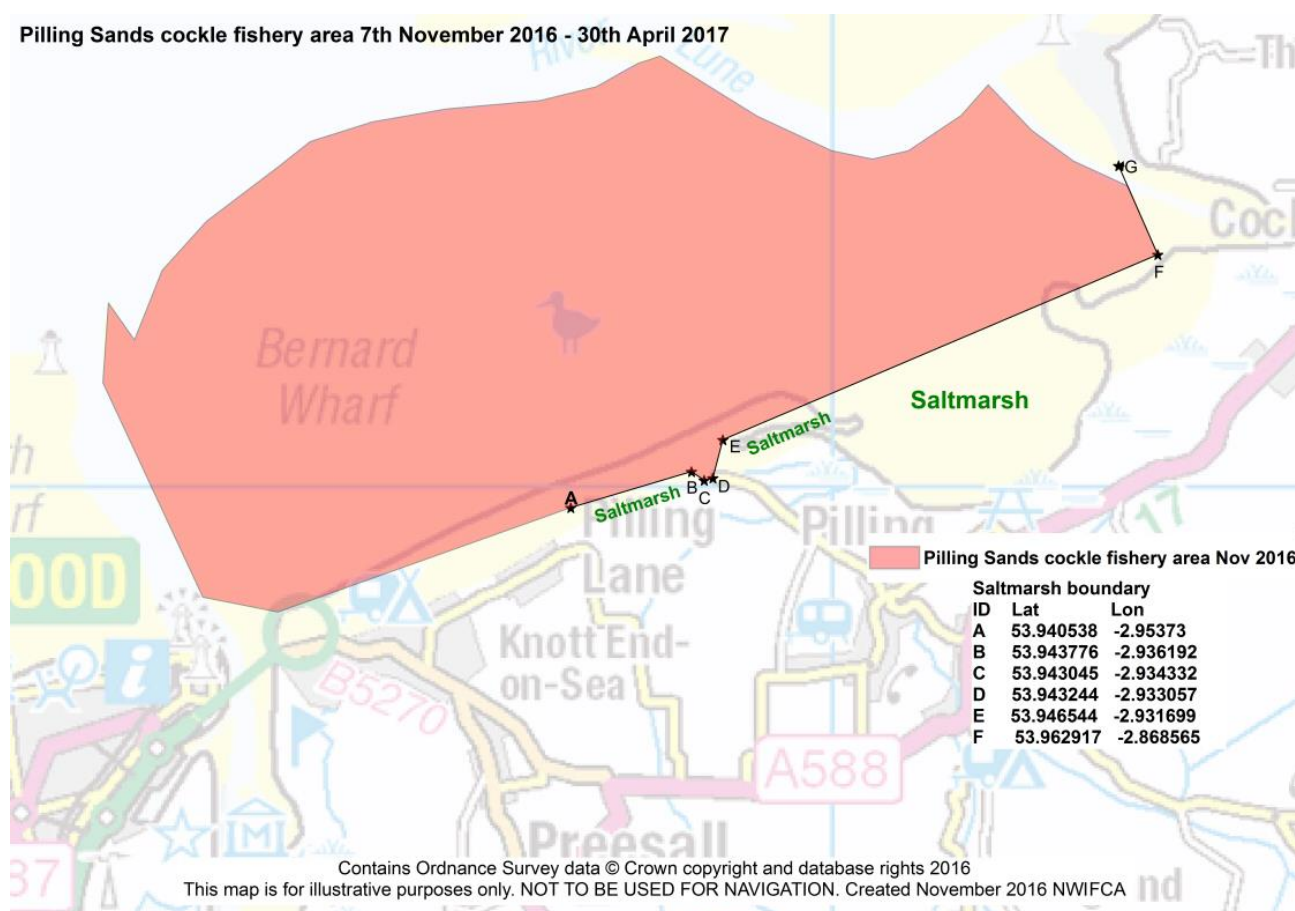


Fig. 15. Illustration of the extent of the sands at Pilling.

5. Stock level, estimate of biomass and sustainability

The very nature of cockle beds, on shifting sands and potentially dynamic and changing extent and sometimes patchy distribution, makes assessing stock problematic. However an estimate of adult biomass on this and all the surveyed areas of the Bay was made using conversion ratios developed by a previous SFC scientist, and is shown in Table 1.

Bed areas (km²) shown in the table are taken from mapping software estimates of areas holding size cockle from survey results. The extent of each bed could be much larger, and therefore the figures for biomass are likely to be gross under-estimates and so follow the precautionary principle.

The actual extent of sands at Pilling covers an estimated total area of 21km² as shown in Figure 15. Using a bed area of size cockle of 2km², a mean density of size cockle of 21 per m², a mean shell length of 33mm (estimated using professional judgement), a wet weight per cockle of 14g, gives 588 tonnes of size cockle.

It is difficult to assess biomass of undersize cockle due to the highly variable size classes found at any one time. Further predictions have been carried out on potential biomass of cockle just reaching size (~ 26mm shell length and of 7g wet weight per cockle) resulting from the on-growing undersize cockle currently present to inform this HRA. Natural mortality from bird and fish predation, wash out, weather effects etc. are impossible to predict; therefore a range of predictions (losses of 10 - 70%) have been calculated and shown in Table 2.

Table 1. Estimates of size cockle biomass on surveyed beds in Morecambe Bay August / September 2016

Bed	OS area	Mean density OS	Mean length OS	Biomass OS Tonnes
Pilling	2	21	33	588
Warton Sands	0.06	2.7	27	1
Flookburgh	8.7	8	27	557
Leven Sands	3.3	19	30	690
Aldingham	0.4	4	27	13
Newbiggin	1.6	6.6	33	137
Total				1944

Table 2. Estimates of predicted size cockle biomass from on-growing undersize cockle currently present on surveyed beds in Morecambe Bay following natural mortality.

Bed	US Area	Mean density US	Mean length US	Predictions of biomass on u/s cockle reaching mls - eg. 26mm and 7g weight						
U/S %age remaining				90	80	70	60	50	40	30
Pilling	0.5	84	15	265	235	207	175	147	119	88
Warton Sands	0.94	14.7	13	86	79	66	59	46	39	26
Flookburgh	11.7	42	21	3112	2703	2375	2048	1720	1392	1065
Leven Sands	1.9	36	20	426	386	333	293	239	186	146
Aldingham	0.85	7	13	36	30	30	24	18	18	12
Newbiggin	1.6	60.8	15	616	549	470	403	336	269	202
Total				4541	3982	3481	3002	2506	2023	1539

Food resource for eiders

6. Eiders are bivalve eating diving ducks feeding on cockles and mussels. From the SPA citation

(1991) Morecambe Bay supported 4,800 eiders when it was designated. BTO annual peak data (Table 3) shows a 5 year peak mean of 5886, with some recent years recording over six thousand.

7. Therefore the number of eiders in Morecambe Bay is above acceptable conservation limits despite the low density of cockles since 2008-9. Therefore cockles should not be assumed to have comprised a major part of the eider diet in the last 7 years. Eiders cannot have been reliant or dependent on cockle for that period.
8. Despite the above as tables 1 and 2 show there is a plentiful resource of cockle for eiders to utilise around the Bay which will not be fished. There are also abundant sources of mussels on the Bay's skears for eider feeding.

Table 3. BTO eider annual peak data for eiders in Morecambe Bay

Years	Annual Peak
2006/07	3374
2007/08	2138
2008/09	5534
2009/10	4248
2010/11	6151
2011/12	7121
2012/13	5608
2013/14	6303

9. **Disturbance to Birds**

The fishery will be prosecuted throughout winter months (proposed 7th November to 30th April). Morecambe Bay is a vital over wintering area for waders including cockle predating species such as oystercatcher and knot. Whilst surveying Officers have noted numbers of oystercatchers out on all the cockle beds, a sight that has been absent during years of low cockle stocks (Knott. M. pers. comm). There is subsequently a risk of disturbance to these birds during fishing activity which will be focussed around low water times. Pilling Sands is generally accessible on most tides.

Disturbance to high tide roosting birds is very unlikely due to the timing of the fishery – ie. fishers will access the beach around three hours after high water and will have left the area around three hours before high water. Disturbance to birds utilising the top of the beach and surrounding saltmarshes will be mitigated by limiting the access route to one point. This track is habitually used by dog walkers and other members of the public who walk out over the sands. Birds are likely to be habituated to a certain level of disturbance.

10. Disturbance will be minimised by vehicles only travelling to and from the fishery once each way per tide and via one access point. Within the authorisation it states that no person shall place cockles that have just been fished into a container unless they have been passed through a rigid riddle designed to retain cockles which will not pass through a gauge having a square opening of 20mm measures across each side (NWIFCA Byelaw 3. para. 8) and that undersize cockle must be returned immediately to the bed and spread evenly around the area from which it was removed to avoid damage to juvenile stock. This ensures that riddling will take place in situ and further minimise any disturbance at the top of the beach.
11. Numbers of fishermen is anticipated to be low and spread out across the bed. Previous fisheries have shown that birds follow the tide out and when 'put up' they typically settle again rapidly and continue to feed (pers. observation. Knott. M. NWIFCA during Leasowe cockle fishery. 2010). Birds may benefit from loose cockle on the sand after jumbo-ing. There is therefore no reason to suggest

that disturbance to birds would be damaging unless weather was exceptionally severe, when following Cold Weather Protocols for Wildfowling the fishery would be closed (see BASC Code of Practice - <https://basc.org.uk/cop/wildfowling/>). If there is evidence of high levels of disturbance and a risk of adverse effect identified to the European Site then the fishery will be closed.

12. There are also a large proportion of the Bay that holds cockle of varying size ranges which will not be open to fishing and therefore plentiful alternative feeding areas for cockle eating birds.

13. **Numbers of fishermen and social impact of a fishery**

On the first few days of the fishery a high proportion of the potential 103 Byelaw 3 permit holders might be expected. Once fishing begins it is believed that numbers of gatherers may diminish when the extent of the stock is known.

14. This size of fishery is manageable with existing resources. A multi-agency committee has been convened as in previous years to manage the fishery and take in the interests of stakeholders. The Committee includes police, GLA, EHOs, and other regulators.

15. **Protection of spat**

As stated previously the main dense area of spat on Pilling Sands lies to the east of the size cockle and is therefore somewhat protected by the fact fishers will likely not fish there. The MLS will be strictly enforced by the NWIFCA, and fishers will use rigid riddles to sort undersize cockle on the beach and return it immediately to the sands. It is in no one's interests to damage undersize cockle. If there is evidence of damage to spat the fishery will be closed.

16. In general despite being 'jumboed' to the sand surface, cockle re-bury quickly. It is one of the difficulties in surveying as they can be out of sight again within seconds. This ability also provides confidence that the risk of damage is limited.

6.4 Specific Management Measures within the Authorisation to Fish

In order to ensure no adverse effect on the integrity of the European Site, its conservation features and supporting habitats, management and mitigation measures have been incorporated into the proposal for the fishery. As the fishery will be opened under derogation from NWIFCA Byelaw 3 and NWSFC Byelaw 13a conditions can be attached to the authorisation to fish. These have been approved by the NWIFCA Members and are as follows:

1. Conditions of Authorisation to Remove Size Cockle

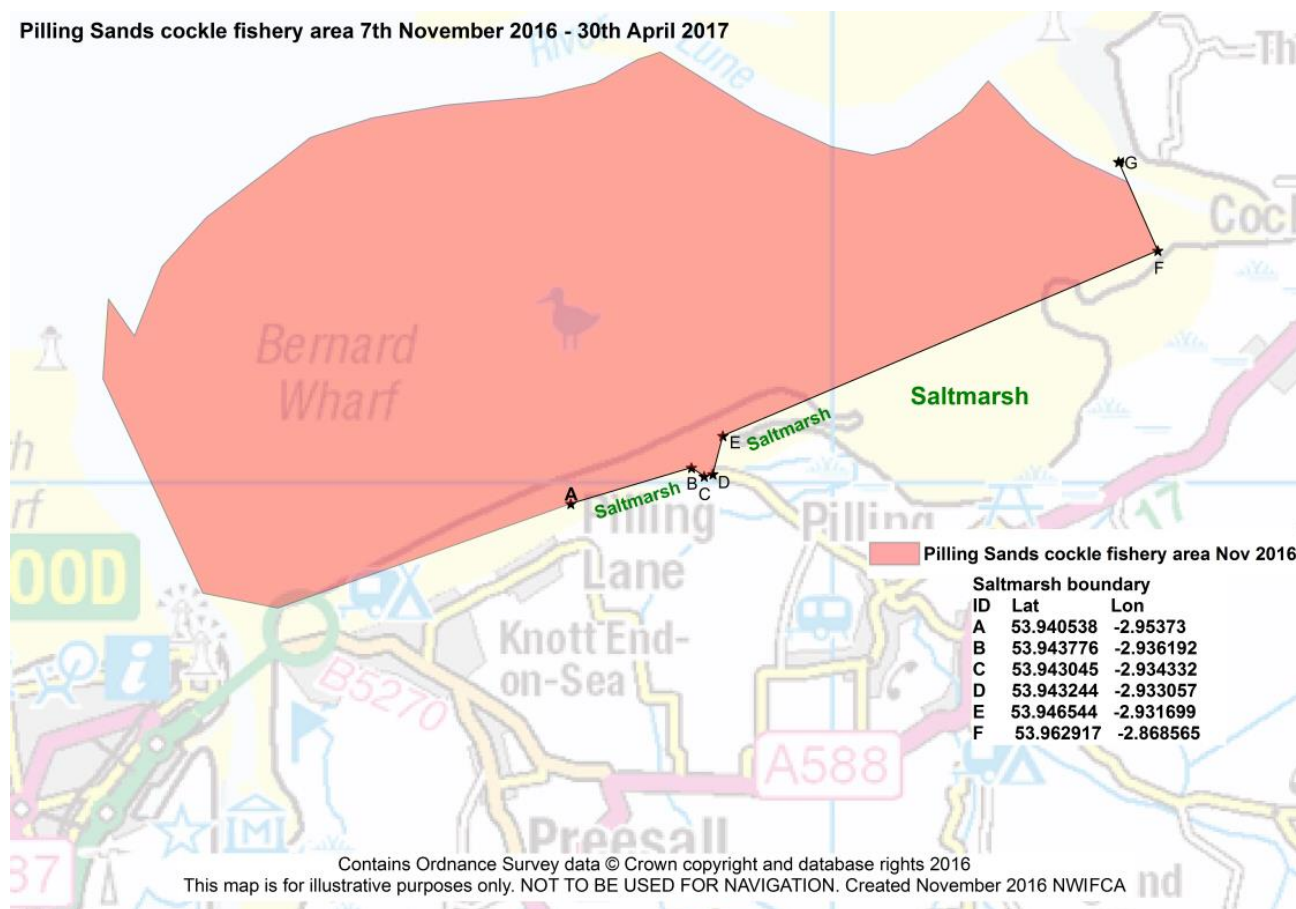
- a) Removal of size cockles is permitted only during the period 7th November 2016 to 30th April 2017 inclusive;
- b) That size cockle is only gathered from the Pilling Sands Bed as defined in paragraph 2;
- c) No person shall fish, transit, ton up or park any vehicle on the saltmarsh as defined in paragraph 2;
- d) Access to and access from the fishery will be via the concrete track access point at Fluke Hall Lane only (SD 389 500) as defined in paragraph 3;
- e) Access to and from the fishery is permitted for ATV and tractors only;
- f) Care must be taken while driving to ensure the safety of livestock, pedestrians or other people using the road, track or beach;
- g) No person shall place cockles that have just been fished into a container unless they have been passed through a rigid riddle designed to retain cockles which will not pass through a gauge having a square opening of 20mm measures across each side (NWIFCA Byelaw 3. para. 8);
- h) Undersize cockle must be returned immediately to the bed and spread evenly around the area from which it was removed to avoid damage to juvenile stock;
- i) Permit holders must ensure that litter and fuel spills are avoided in order to prevent damage to wildlife and the natural environment of Morecambe Bay. Any significant breach of this condition could result in action being taken (see o) and the fishery closed;
- j) The authorisation is only valid for Byelaw 3 permit holders;
- k) All Byelaw 3 permit holders must be in possession of a valid permit, which must be carried at all times whilst accessing the fishery. Permits must be shown to warranted NWIFCA Inshore Fisheries and Conservation Officers (IFCO) on request, or any other person acting under the supervision or direction of an IFCO (MACAA.s.260(2));
- l) Byelaw 3 permit holders must not obstruct an IFCO pursuant to MACCA s292(4) carrying out a relevant function pursuant to MACCA s287;
- m) All Byelaw 3 permit holders must submit returns to NWIFCA on a monthly basis and no later than the 5th day of the following month;
- n) This authorisation does not exonerate the holder from other sea fisheries legislation, nor does it prejudice any other consents the holder may need to obtain, nor does it override or provide permission to go over private land;
- o) The fishery may be closed with immediate effect by the NWIFCA, or appropriate management action taken if in the opinion of NWIFCA Officers or Scientists, there is a failure to comply with these conditions or there is damage to the beds or the saltmarsh through access or over-fishing, or there are high levels of disturbance to the birds and a risk of adverse effect identified to the European Site;

- p) Any damage to conservation features could lead to prosecution by Natural England;
- q) The NWIFCA will close the fishery during periods of prolonged cold weather following Cold Weather Protocols for Wildfowling the fishery would be closed (see BASC Code of Practice - <https://basc.org.uk/cop/wildfowling/>).

2. Definition of Authorised Fishing Area of the Pilling Sands Cockle Bed and Prohibited Saltmarsh Area

An illustration of the area authorised for fishing is given below. No person shall fish, transit, ton up or park any vehicle on the saltmarsh which is defined as landward of the line drawn A-G.

Pilling Sands cockle fishery area 7th November 2016 - 30th April 2017



3. Definition of Access Point at Fluke Hall

Access to the fishery at Fluke Hall Lane – Grid reference SD 38917 50025.



Other Measures in Place

Discussions have also been on-going with other agencies about the provision of litter disposal facilities, and NWIFCA officers and others will be on hand to monitor levels of littering and fuel spills.

It is anticipated that on the first day that the fishery is open the majority of permit holders will attend, and NWIFCA will work closely with other enforcement agencies to ensure full compliance with the conditions. After the first day, once industry realise the fishery is limited, some sectors may chose not to incur the costs of travelling and overnight accommodation for low levels of fishing, and again it is anticipated that effort will reduce.

NWIFCA enforcement officers will use intelligence and contacts with fellow enforcement agencies to pursue any suspicions of non-permitted or illegal cockling activity.

The authorisation may be revoked by the NWIFCA at any time and any breach of the terms or conditions of this authorisation shall make it null and void.

Table 2: Summary of Impacts

Feature/Sub feature(s)	Conservation Objective	Potential pressure⁶ (such as abrasion, disturbance) exerted by gear type(s)⁷	Potential ecological impacts of pressure exerted by the activity/activities on the feature⁸ (reference to conservation objectives)	Level of exposure⁹ of feature to pressure	Mitigation measures¹⁰
Intertidal sand and muddy sand, intertidal mixed sediments, intertidal coarse sediment (Estuaries, Mudflats and sandflats not covered by seawater at low tide, Large shallow inlets and bays, SPA supporting habitats)	Maintain or restore the extent, distribution structure or function of the feature.	Litter Removal of target species	Littering impacts could include entanglement of fish and birds in the bags and sacks, and swallowing / entanglement of birds and mammals (both marine and terrestrial) of other litter. Removal of target species could change the invertebrate community composition of the sandbanks.	Littering levels will be monitored, and fishers encouraged to act responsibly. The fishery will be closed if littering is a problem. Target species is size cockle which will be removed by the fishery. Plentiful stocks around the Bay on other beds. Measures imposed to protect and return juvenile stock to bed. It is therefore unlikely to have a significant effect on the extent, distribution, structure or function of the features in the SAC.	As detailed in 6.3 and 6.4 above.
Saltmarsh	Maintain or restore the extent, distribution structure or function of the feature.	Litter	Littering impacts could include entanglement of fish and birds in the bags and sacks, and swallowing / entanglement of birds and mammals (both marine and terrestrial) of other litter.	Management measures required to ensure no risk to the feature.	As detailed in 6.3 and 6.4 above.
Common eider, Eurasian	Maintain or restore the population of each of the qualifying features, and,	Removal of target species (cockles)	Removal of food source / prey items has the potential to affect condition, productivity and survival of species.	The level of exposure depends on time of year of fishery, availability of alternative food resources, stock	As detailed in 6.3 and 6.4 above.

⁶ Guidance and advice from NE.

⁷ Group gear types where applicable and assess individually if more in depth assessment required.

⁸ Document the sensitivity of the feature to that pressure (where available), including a site specific consideration of factors that will influence sensitivity.

⁹ Evidence based e.g. activity evidenced and footprint quantified if possible, including current management measures that reduce/remove the feature's exposure to the activity.

¹⁰ Detail how this reduces/removes the potential pressure/impact(s) on the feature e.g. spatial/temporal/effort restrictions that would be introduced.

oystercatcher, Red knot, Lesser black-backed gull, Herring gull	the distribution of the qualifying features within the site			status and level of effort. Observations provide evidence that oystercatcher, knot and eider are utilising the mussel resources of Heysham Flat, Foulney and the mussel beds at Fleetwood and Knott End. Oystercatchers have also been observed feeding on other cockle beds in the Bay, which provide large areas of undisturbed cockle ground that hold a further resource of both size and undersize cockles. Appropriate mitigation has been imposed to increase confidence that the extent, distribution, structure or function of the features will not be impacted.	
A026 <i>Egretta garzetta</i> ; Little egret (non-breeding) A038 <i>Cygnus Cygnus</i> ; Whooper swan (non-breeding) A040 <i>Anser brachyrhynchus</i> ; Pink-footed goose (non-breeding) A048 <i>Tadorna tadorna</i> ; Common shelduck (non-breeding) A050 <i>Anas Penelope</i> ; Wigeon - (non-breeding – Ramsar only) A054 <i>Anas acuta</i> ; Northern pintail (non-breeding) A063 <i>Somateria mollissima</i> ; Common eider (non-breeding – Ramsar only) A067 <i>Bucephala clangula</i> ; Goldeneye - (non-breeding – Ramsar only) A069 <i>Mergus serrator</i> ; Red-breasted merganser - (non-	Maintain or restore the population of each of the qualifying features, and, the distribution of the qualifying features within the site	Visual disturbance	Potential for tractors and quads and fishermen to disturb bird species that spend a proportion of their time feeding in the intertidal areas of Pilling. The disturbance has the potential to force the species of birds to exert extra energy, and or displace them from the preferred feeding ground, breeding or roost site. Visual disturbance has the potential to affect condition, productivity and survival of species.	Appropriate mitigation has been imposed to increase confidence that the extent, distribution, structure or function of the features will not be impacted.	As detailed in 6.3 and 6.4 above.

breeding – Ramsar only) A130 <i>Haematopus ostralegus</i> ; Eurasian oystercatcher (non-breeding) A137 <i>Charadrius hiaticula</i> ; Ringed plover (non-breeding) A140 <i>Pluvialis apricaria</i> ; European golden plover (non-breeding) A141 <i>Pluvialis squatarola</i> ; Grey plover (non-breeding) A142 <i>Vanellus vanellus</i> ; Lapwing - (non-breeding – Ramsar only) A143 <i>Calidris canutus</i> ; Red knot (non-breeding) A144 <i>Calidris alba</i> ; Sanderling (non-breeding) A149 <i>Calidris alpina alpina</i> ; Dunlin (non-breeding) A151 <i>Calidris pugnax</i> ; Ruff (non-breeding) A156 <i>Limosa limosa</i> ; Black-tailed godwit (non-breeding) A157 <i>Limosa lapponica</i> ; Bar-tailed godwit (non-breeding) A160 <i>Numenius arquata</i> ; Eurasian curlew (non-breeding) A162 <i>Tringa totanus</i> ; Common redshank (non-breeding) A169 <i>Arenaria interpres</i> ; Ruddy turnstone (non-breeding) A176 <i>Larus melancephalus</i> ; Mediterranean gull (non-breeding) A183 <i>Larus fuscus</i> ;					
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<p>Lesser black-backed gull (Breeding, non-breeding)</p> <p>A184 <i>Larus argentatus</i>; Herring gull (Breeding)</p> <p>A191 <i>Sterna sandvicensis</i>; Sandwich tern (Breeding)</p> <p>A193 <i>Sterna hirundo</i>; Common tern (Breeding)</p> <p>A195 <i>Sterna albifrons</i>; Little tern (Breeding)</p> <p><i>Phalacrocorax carbo</i>; Cormorant – (non-breeding – Ramsar only)</p> <p><i>Podiceps cristatus</i>; Great crested grebe - (non-breeding – Ramsar only)</p> <p>Seabird assemblage</p> <p>Waterbird assemblage</p>					
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7. Conclusion¹¹

The management and mitigation measures incorporated into this fishery, and the use of an effective enforcement team of NWIFCA Officers with multi-agency support, allows the NWIFCA to conclude that the hand-gathered cockle fishery at Pilling Sands in winter 2016 will not have an adverse effect on the integrity of the European Site.

8. In-combination assessment¹⁴

8.1 In combination effects of mussel fishing in the site:

8.1.1 Background

It is important to note that mussel beds in Morecambe Bay are almost exclusively found on hard substrate – post glacial moraine skears – and consequently respond quite differently to fishing pressures than in other fisheries such as the Wash in the UK and the Waddensee in the Netherlands where mussel beds are underlain by soft substrates. There are two distinct mussel resources in Morecambe Bay which can be highly variable in abundance and distribution. These are size mussel (>45mm), and undersize (seed and part-grown) mussel.

A feature of Morecambe Bay is the irregular but frequent occurrence of large and extensive mussel spat settlements. These settlements are usually very dense with little or no embayment to the underlying substrate and quickly build up large amounts of sediment and pseudo-faeces (mussel mud). Within a very short space of time these populations become unstable and vulnerable to erosion through weather and/or tide. They are referred to as “ephemeral” beds (Dare, 1971 & 1976) and the Authority takes the line that although they are undersized they should be fished as early as possible as they would otherwise be washed out of the fishery and a valuable commercial resource lost. The mussel is fished, either by hand-raking or by specialised mussel dredgers, neither of which impact the cobble and boulder skears due to the deep soft mud layer on which the mussel sits. The harvested mussel is re-deposited in another area to grow on until of a commercially viable size. The number of mussel cultivation sites has grown in areas such as the Wash and the Menai Strait. Consultation via the Bivalve Mollusc Working Group, a multi-sectoral group facilitated by NWIFCA, is carried out with the industry and conservation interests prior to authorisations to fish being issued.

Size mussel beds also develop in areas such as Heysham Flat (lowest skears), the bottom end of Foulney and in the Duddon Estuary (Hardacre). However, fishing effort for this is low with only hand-gathering permitted and generally prosecuted by a maximum of 40 Byelaw 3 permit holders.

A map showing the distribution of these skears around the bay is shown below.

¹¹ If conclusion of adverse effect alone an in-combination assessment is not required.



It is not possible to predict the distribution of these resources as the habitats and conditions that they require are constantly changing. For example, Heysham Flat main skewer has been harvested since 2005 as a hand-gathered seed mussel fishery. However in the past two years skewers in the lowest stretches of the area have uncovered from sand and mussel that settled on there has persisted through winter when mussel higher up has remained ephemeral and scoured out. Likewise the beds known as South America and Falklands that have historically been fished by dredge due to their position out in the Bay and separated from intertidal access by deep channels, have in the past two years sanded over, the channels filled in and / or shifted and when mussel has been found there it has been heavily predated on by starfish.

An additional factor affecting fishing effort is the fact that many of the mussel beds suffer from parasites affecting the marketability of the stock. Mussel in the Walney Channel is known to pearl once it reaches around 40mm (Wilcox. 2013) and a recent inspection of the size mussel in the Duddon Estuary revealed that around 1 in 3 of the 65 – 70mm mussel was infested with pea crab (Knott. 2016. pers. observation).

The Foulney bed also holds a resource on its upper reaches that is of no value to the fishery – mussel there becomes stunted at around 40-45mm, becomes covered in barnacles and changes shape to more of a ball-shape than ovoid.

All of these ‘afflicted’ mussel remains as a food resource for birds and is also believed to provide a broodstock for mussel spawning.

8.1.2 Current Levels of Stock and Fishing Activity

During the colder months of each year a very low level of hand-gathering for size mussel occurs on the bottom skewers at Heysham Flat, Low Bottom in north Morecambe Bay and Foulney. Maximum numbers on any tide is ten Byelaw 3 permit holders. A dense settlement of mussel across all the beds in the Bay (excluding Rossall, Neckings, Kings and Wyre End scars) was experienced from April 2016 onwards.

A seed mussel hand-gathered fishery was authorised on Heysham Flat starting 25th July with very low levels of harvesting (max 14 gatherers) removing 143 tonnes. Activity here has ceased at the present time although the fishery is open until 16th December. A large resource of a mix of sizes of mussel remains on the skewers.

A seed mussel dredge fishery was authorised in north Morecambe Bay around Foulney island on 8th July as it was being rapidly predated on by starfish. Four vessels were issued with authorisations and 2701 tonnes removed.

A further authorisation was issued on 3rd September to two vessels for Black and Perch Scars at Fleetwood, small areas alongside the Wyre Estuary from which mussel scours out due to cold waters of the river. Only one vessel has been fished to date with around 100 tonnes harvested.

The authorisations for removal by dredge of seed mussel lapses on 31st October – ie. prior to the Pilling cockle fishery opening.

At the present time a high proportion of undersize mussel remains on Perch and Black Scars, Heysham Flat, Low Bottom and a mix of sizes on Foulney. These latter three areas are known to be utilised by oystercatchers and knot during their winter migrations.

8.1.3 In Combination Assessment

Due to the low levels of mussel harvesting effort impacts on habitats and disturbance levels to birds are considered to have No Likely Significant Effect on the conservation features. Removal of the mussel resource is minimal with large reserves remaining as bird prey resource at a time of year when over-wintering birds have departed / are departing to summer breeding grounds, and again the fishery is considered to have No Likely Significant Effect on any conservation features.

Considering both fisheries in the Bay in combination the NWIFCA can conclude no adverse effect on the integrity of the European Site providing the management and mitigation measures of the Pilling cockle fishery are implemented and enforced.

8.2 In combination effects of cockle fishing in the site:

There is a proposal to simultaneously open a cockle bed at Leven Sands in north Morecambe Bay. This will also be tightly regulated (a separate HRA is being carried out for this fishery). The effect of this will be to divide the number of permit holders prosecuting each fishery and reduce fishing activity at each site. There still remains large tracts of the Bay containing cockles that will not be fished, and juvenile cockles will not be removed from the open fisheries.

It is therefore concluded that in combination effects are minimal and that there will be no adverse effect on the integrity of the European Site providing the management and mitigation measures of the Pilling cockle fishery are implemented and enforced.

8.3 In combination effects of other fisheries will be assessed in a separate document when all initial TLSEs for a site are completed.

9. Summary of consultation with Natural England

Informal consultation was carried out with Natural England on 10th October at the multi-sectoral Bivalve Mollusc Working Group prior to taking the proposal to the NWIFCA Members. Written advice is attached (Annex 2).

10. Integrity test

The NWIFCA concludes no adverse effect on the integrity of the European Site providing the management and mitigation measures of the Pilling cockle fishery are implemented and upheld.

Annex 1: Reference list

Atkinson, PW *et al.* 2003. Changes in commercially fished shellfish stocks and shorebird populations in the Wash, England. *Biol Con*, **114**, 127-141

Cook, Bill. (2007). NW&NWSFC Senior Scientist. Personal Communication.

Dare, P. (1976). Settlement, growth and production of the mussel (*Mytilus edulis* L.) in Morecambe Bay. Fishery Investigations. Ministry of Agriculture, Food and Fisheries. London. 28. 1–25 (Ser. 2).

Dare, P.J. (1971). Preliminary studies on the utilisation of the resources of spat mussels, (*Mytilus edulis* L.) occurring in Morecambe Bay, England. International Council on the Exploration of the Sea Committee Meeting, K11. 1–6 (Shellfish and Benthos Comm.).

Goss-Custard JD *et al.* 2004. When enough is not enough: shorebirds and shellfishing. *Proc R Soc Lond B* **271**, 233-237

Bell, MC *et al.* 2001. Fisheries and bird predation as components of cockle (*Cerastoderma edule*) mortality in the Burry Inlet, South Wales. In: The Life History, Dynamics and Exploitation of Living Marine Resources: Advances in Knowledge and Methodology CM 2001/J:02 ICES.

UK0013027. Morecambe Bay SAC Advice on Operations – Natural England – July 2015.

UK9005081. Morecambe Bay SPA Advice on Operations – Natural England – July 2015.

UK9005081. Morecambe Bay SPA Generic SAT Birds – Natural England – July 2015.

UK9005081. Morecambe Bay SPA Seasonality Table – Natural England - 29-02-16.

Wilcox, R. (2013). Review of the incidence of pearling in the mussel, *Mytilus edulis*: With reference to the mussel beds of the Walney Channel, Barrow-in-Furness, Cumbria, England. Cumbria Wildlife Trust and NWIFCA.

Annex 2: Natural England's consultation advice

Date: 01 November 2016
Our ref: 199459
Your ref:



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LA5 9BY

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BY EMAIL ONLY

Dear Belinda

HRA for proposed opening of the Pilling Sands (Morecambe Bay) cockle fishery

Thank you for your consultation on the above which was received by Natural England on 21 October 2016.

Natural England is a non-departmental public body. Our statutory purpose is to ensure that the natural environment is conserved, enhanced, and managed for the benefit of present and future generations, thereby contributing to sustainable development.

THE CONSERVATION OF HABITATS AND SPECIES REGULATIONS 2010 (AS AMENDED)

The application site is within a European designated site (also commonly referred to as Natura 2000 sites), and therefore has the potential to affect its interest features. European sites are afforded protection under the Conservation of Habitats and Species Regulations 2010, as amended (the 'Habitats Regulations'). The application site is within the Morecambe Bay Special Protection Area (SPA), Morecambe Bay and Duddon Estuary potential SPA (pSPA) and the Morecambe Bay Special Area of Conservation (SAC) which are European sites. The site is also listed as Morecambe Bay Ramsar site¹ and also notified at a national level as Lune Estuary Site of Special Scientific Interest (SSSI). Please see the subsequent sections of this letter for our advice relating to SSSI features.

In considering the European site interest, Natural England advises that you, as a competent authority under the provisions of the Habitats Regulations, should have regard for any potential impacts that a plan or project may have². The [Conservation objectives](#) for each European site explain how the site should be restored and/or maintained and may be helpful in assessing what, if any, potential impacts a plan or project may have.

¹ Listed or proposed Wetlands of International Importance under the Ramsar Convention (Ramsar) sites are protected as a matter of Government policy. Paragraph 118 of the National Planning Policy Framework applies the same protection measures as those in place for European sites.

² Requirements are set out within Regulations 61 and 62 of the Habitats Regulations, where a series of steps and tests are followed for plans or projects that could potentially affect a European site. The steps and tests set out within Regulations 61 and 62 are commonly referred to as the 'Habitats Regulations Assessment' process. The Government has produced core guidance for competent authorities and developers to assist with the Habitats Regulations Assessment process. This can be found on the Defra website. <http://www.defra.gov.uk/habitats-review/implementation/process-guidance/guidance/sites/>

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No objection

Natural England notes that your authority, as competent authority under the provisions of the Habitats Regulations, has undertaken an Appropriate Assessment of the proposal, in accordance with Regulation 61 of the Regulations. Natural England is a statutory consultee on the Appropriate Assessment stage of the Habitats Regulations Assessment process.

Your appropriate assessment concludes that your authority is able to ascertain that the proposal will not result in adverse effects on the integrity of any of the sites in question. Natural England notes that following our informal advice, some additional details which offer protection to the saltmarsh habitats have now been added to the authorisation. Having considered this, and the other measures proposed in the assessment, Natural England advises that we concur with the assessment conclusions, providing that all mitigation measures are appropriately secured in any permission given.

Natural England does have further comments to make regarding some of the details within the assessment and the process undertaken, however these do not affect the outcome of the assessment and will be provided as a supplementary document at a later date.

WILDLIFE AND COUNTRYSIDE ACT 1981 (AS AMENDED)**No objection – no conditions requested**

This application is within Lune Estuary Site of Special Scientific Interest (SSSI). Natural England is satisfied that the proposed development being carried out in strict accordance with the details of the application, as submitted, will not damage or destroy the interest features for which the site has been notified. We therefore advise your authority that this SSSI does not represent a constraint in determining this application. Should the details of this application change, Natural England draws your attention to Section 28(1) of the *Wildlife and Countryside Act 1981* (as amended), requiring your authority to re-consult Natural England.

Yours sincerely



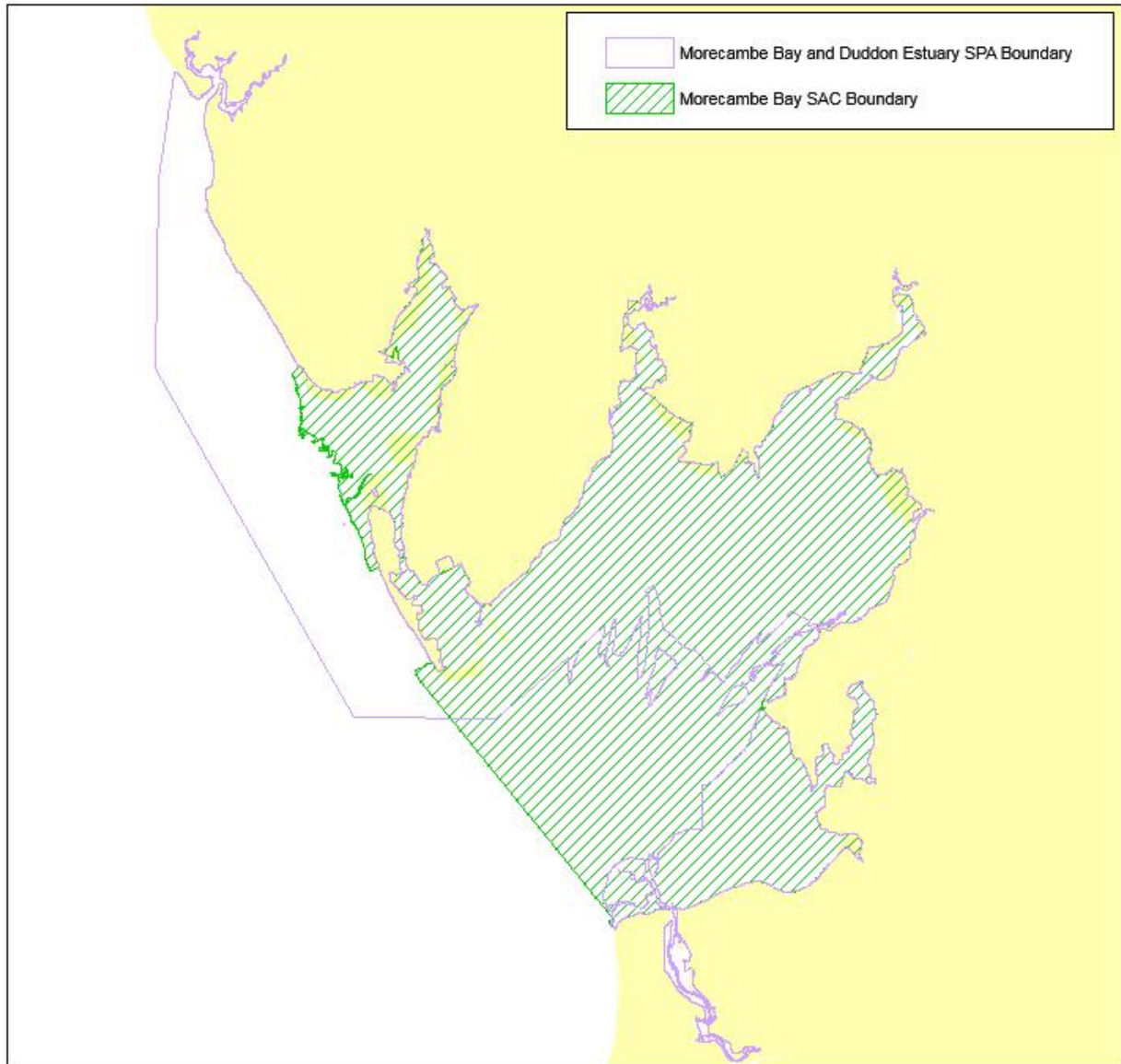
Emily Hardman
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Tel: 0208 0268 356

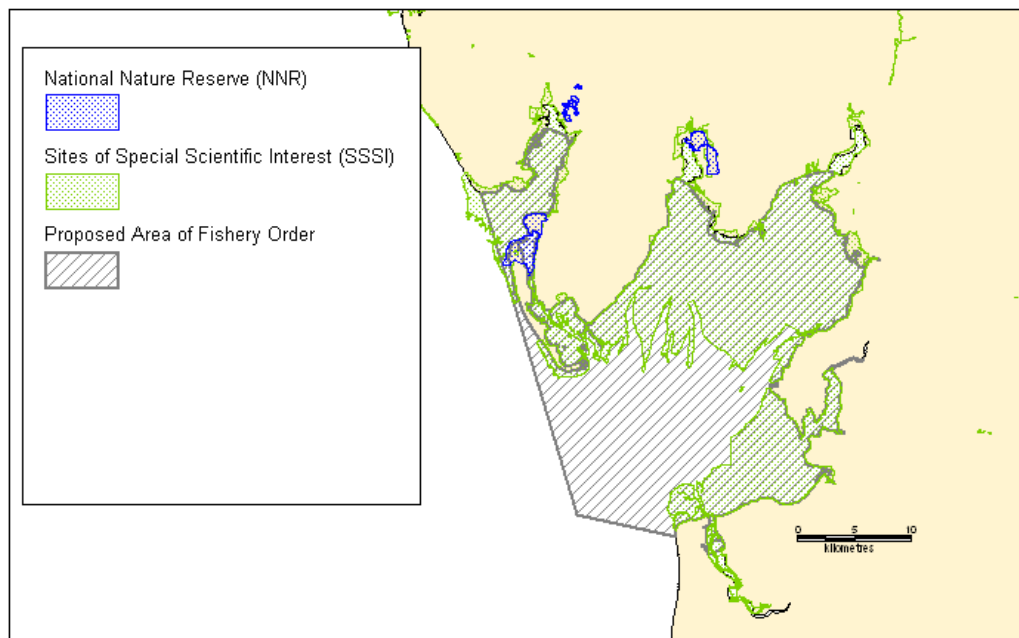


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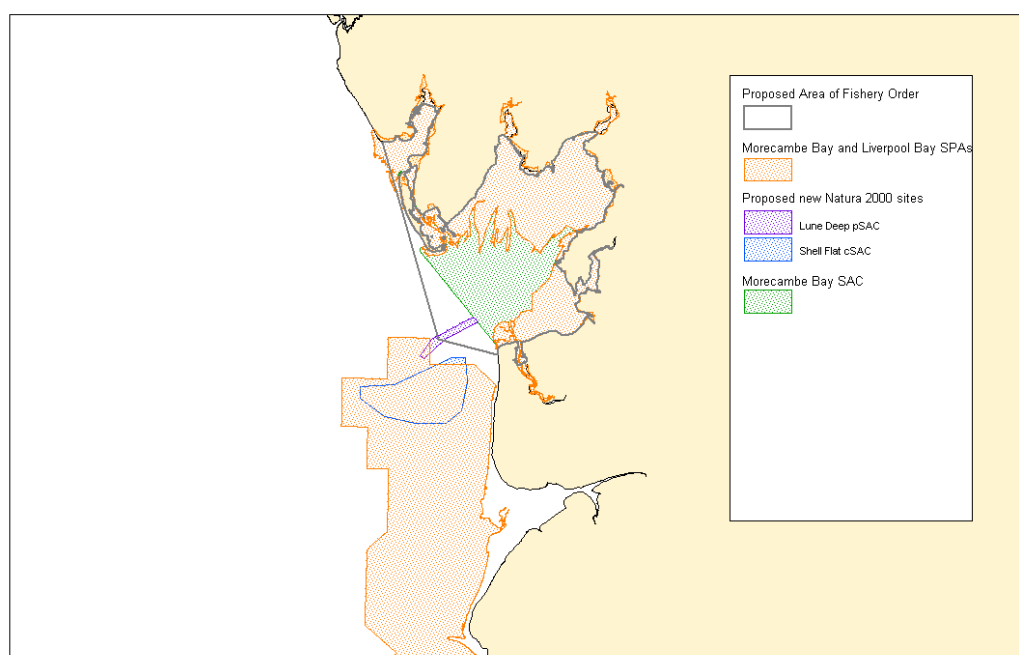
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Annex 3: Site Map



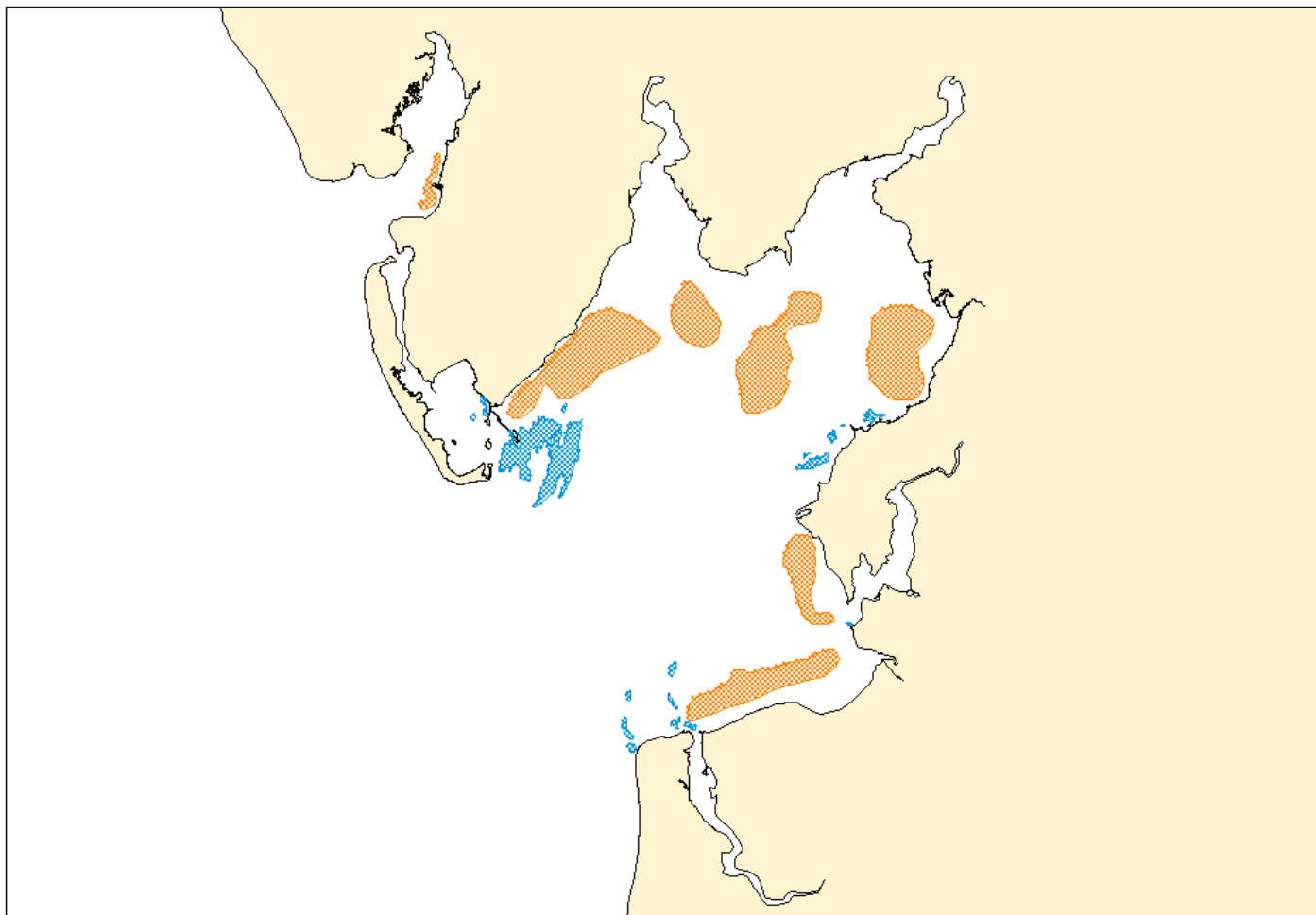


National Nature Reserves and SSSI sites within Morecambe Bay and bordering on the proposed Fishery Order area.

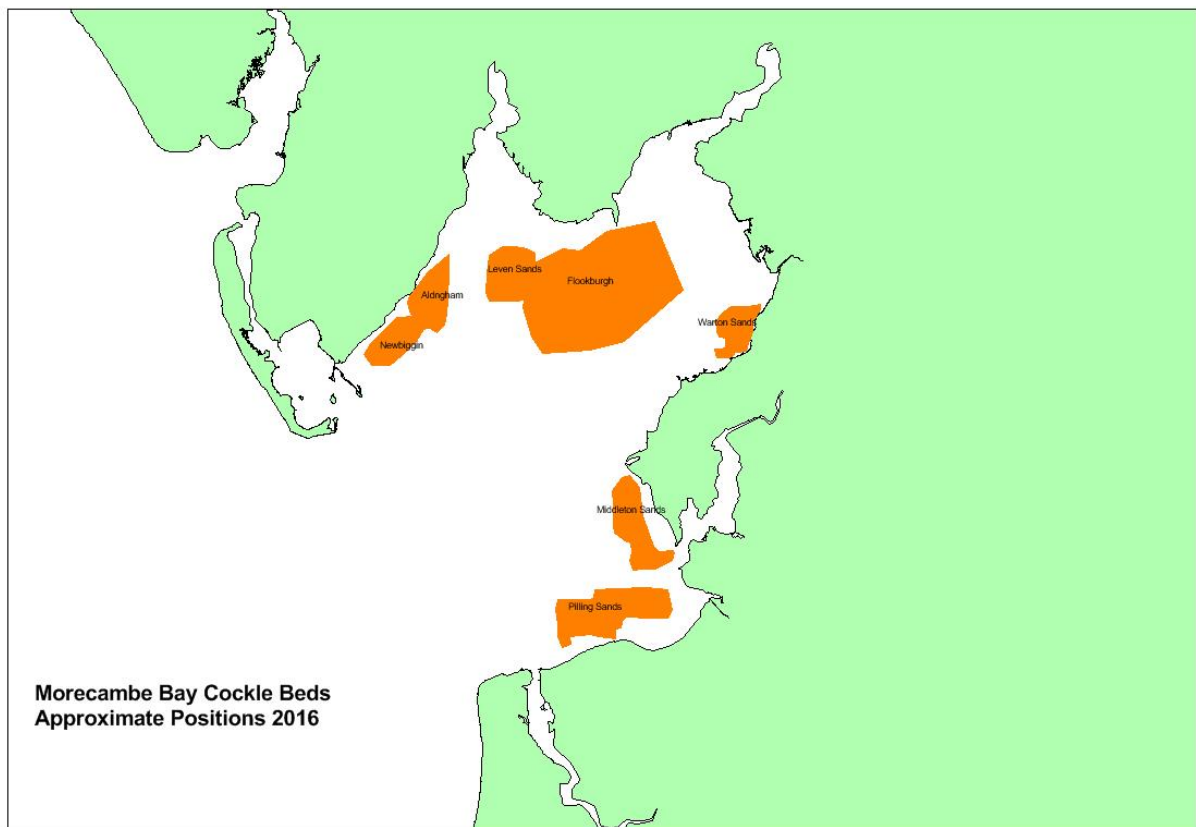


Other Marine Protected Areas adjoining the Morecambe Bay and Duddon Estuary ES.

Annex 4: Fishing activity maps

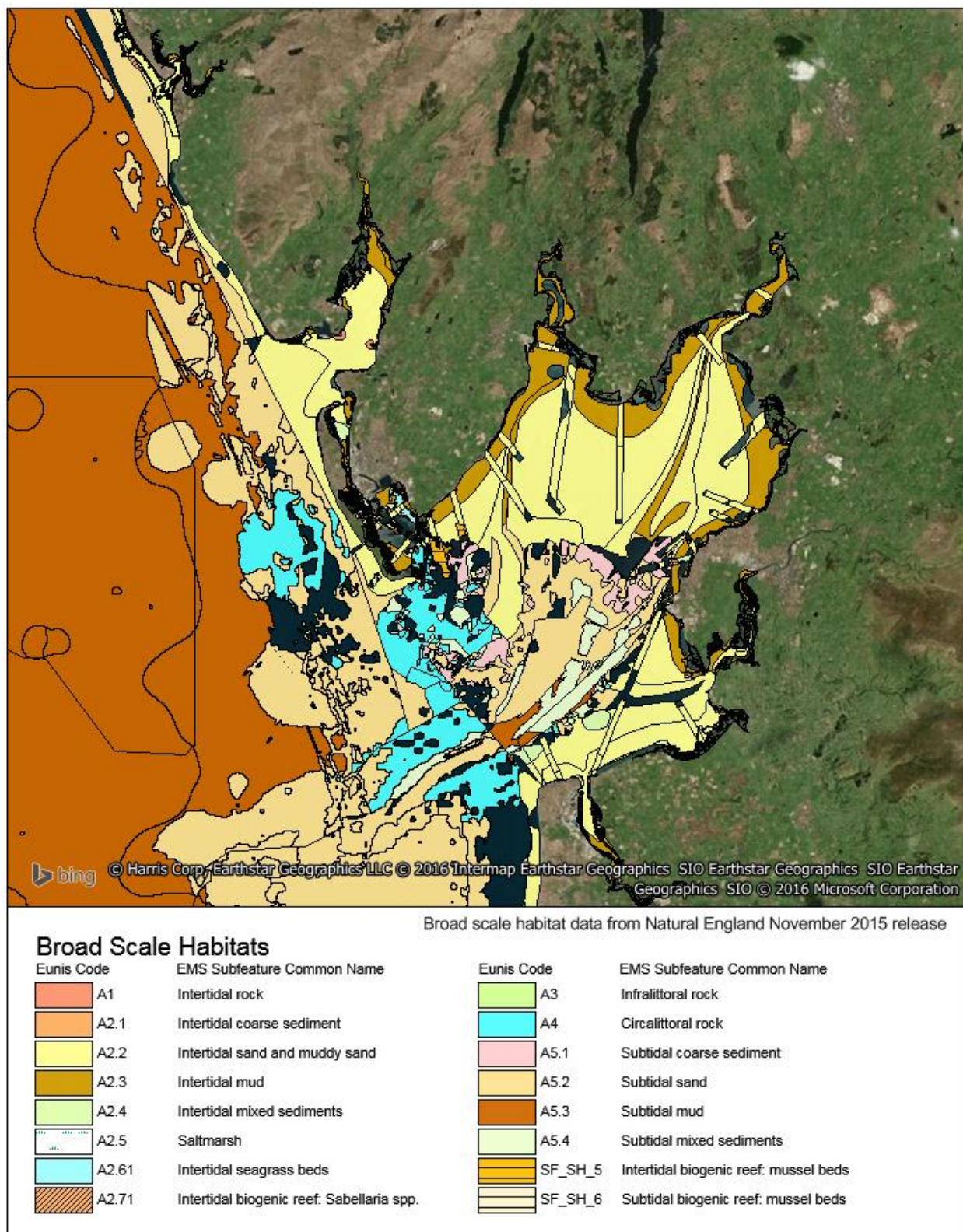


The distribution of cockle and mussel beds (orange and blue respectively) within Morecambe Bay and the Duddon Estuary in 2007.



Distribution of cockle beds around Morecambe Bay by name. From NWIFCA cockle survey mapping 2016.

Annex 5: Broad Scale Habitat Map



Annex 6: Fishing activity methods



Illustration of the use of a jumbo, rake and riddle in hand-gathering of cockles



Illustration of the use of a craam and basket in a traditional Morecambe Bay cockle fishery.

Annex 7: Byelaws regulating cockle fishing in Morecambe Bay

NWIFCA BYELAW 3 - PERMIT TO FISH FOR COCKLES (*Cerastoderma edule*) AND MUSSELS (*Mytilus edulis*)

Interpretation

1. In this byelaw:
 - a. “cockles” means the species *Cerastoderma edule*;
 - b. “mussels” means the species *Mytilus edulis*;
 - c. “fishery” means an area of sea, seabed, exposed estuary, seashore, or other marine environment in any part of the District;
 - d. “the NWIFCA” means the North Western Inshore Fisheries and Conservation Authority and is defined in articles 2 and 4 of the North Western Inshore Fisheries and Conservation Order 2010 (S.I. 2010 No. 2200);
 - e. “the District” means North Western Inshore Fisheries and Conservation District and is defined in articles 3 and 4 of the North Western Inshore Fisheries and Conservation Order 2010 (S.I. 2010 No. 2200);
 - f. “full gathering permit” means a permit which authorises a person to gather cockles and mussels and carry out all related activities, such as moving them and transporting them;
 - g. “support worker permit” means a permit which authorises a person to carry out activities related to the gathering of cockles and mussels, such as moving them and transporting them to support a person with a full gathering permit but only after the cockles and mussels have been placed in a receptacle, and in the case of cockles after having been passed through a riddle, by person with the full gathering permit;
 - h. “gathering” includes all activities related to the gathering of cockles and mussels such as moving and transporting them;
 - i. “Commercial Shellfish Fisheries Area” means an area designated by the NWIFCA pursuant to paragraph 13;
 - j. “Morecambe Bay Commercial Fisheries Area” means the area enclosed by straight lines joining the following co-ordinates in order:
 - I. 54° 08.490’N 03° 02.011’W
 - II. 54° 07.686’N 02° 53.497’W
 - III. 54° 03.204’N 02° 56.331’W
 - IV. 54° 04.062’N 03° 03.776’W
 - V. 54° 08.490’N 03° 02.011’W
 - k. “Ribble Estuary Commercial Fisheries Area” means the area enclosed by straight lines joining the following co-ordinates in order:
 - I. 53° 43.008’N 03° 05.177’W
 - II. 53° 43.572’N 02° 59.986’W

III. 53° 40.902'N 03° 00.341'W

IV. 53° 40.860'N 03° 05.122'W

V. 53° 43.008'N 03° 05.177'W

- I. "Gangmaster Licensing Authority licence" means a licence issued under the Gangmasters Licencing) Act 2004;
- m. "Foreshore Gatherers Safety Training Certificate" means a document issued by a Seafish Industry Group Training Association or a trainer approved by the NWIFCA, certifying that the person named on the certificate has completed a safety training course for intertidal shellfishing.

Permit

2. Subject to paragraphs 10, 11, 25 and 26 of this byelaw no person shall gather cockles or mussels within or from a fishery unless he has in his possession a full gathering permit.
3. Subject to paragraphs 10, 11, 25 and 26 of this byelaw, no person shall, in the area of the District below mean high water springs, move or transport cockles or mussels within or from a fishery unless he has either a full gathering permit or a support worker permit.
4. No person shall have in their possession any article for use in the course of or in connection with gathering cockles or mussels within or from a fishery in breach of this byelaw.
5. No person shall have in their possession any cockle or mussel gathered within or from a fishery in breach of this byelaw.

Minimum Sizes

6. No person shall gather within or from a fishery any cockle which will pass through a gauge having a square opening of 20mm measured across each side of the square or any mussel less than 45mm in length.

Fishing Methods

7. No person shall gather cockles or mussels except:
- a) by hand or using hand-held rakes;
 - b) in the case of cockles by using craams, rakes, spades, tamps or jumbos; or
 - c) by using buckets, sacks, net bags, ton bags and other such containers ordinarily used for the storage of cockles and mussels.
8. No person shall place cockles that have just been fished into a container unless they have been passed through a rigid riddle designed to retain cockles which will not pass through a gauge having a square opening of 20mm measured across each side.

Redeposit

9. Any person who removes or possesses shellfish the removal or possession of which is prohibited by or in pursuance of these byelaws or any Act of Parliament shall immediately redeposit the same without injury as nearly as possible in the fishery from which they were taken or under the written authority of the NWIFCA on another suitable fishery and shall spread them thinly and evenly through the fishery.

Written permission

10. This byelaw shall not apply to any person performing an act which would otherwise constitute an offence against this byelaw if that act was carried out in accordance with a written permission issued by the NWIFCA permitting that act for scientific, management, stocking or breeding purposes.

Exception for Personal Consumption to the Requirement for a permit

11. No person shall require a permit under this byelaw to gather less than a total of 5kg of cockles and 5kg of mussels during a calendar day intended for their own personal consumption within or from a fishery which is neither closed pursuant to paragraph 12 of this byelaw or byelaw 13A of the North Western and North Wales Sea Fisheries Committee (cockles and mussels – management of the fishery) or byelaw 18 of the Cumbria Sea Fisheries Committee (shellfishery – temporary closure) nor designated a Commercial Shellfish Fishery Area pursuant to paragraph 13 of this byelaw nor part of the District managed under the Dee Estuary Cocker Fishery Order (2008).

Fisheries Closure

12. No person shall gather any cockle within or from a fishery on or between the 1st day of May and the 31st day of August in the same year or have in their possession any cockle or mussel from a fishery area that has been closed pursuant to byelaw 13A of the North Western and North Wales Sea Fisheries Committee (cockles and mussels – management of the fishery) or byelaw 18 of the Cumbria Sea Fisheries Committee (shellfishery – temporary closure) or from within that part of the District managed under the Dee Estuary Cocker Fishery Order (2008) without a licence to fish issued within the terms of that Order.

Commercial cockle or mussel fisheries

13. The NWIFCA designates the Morecambe Bay Commercial Fisheries Area and the Ribble Estuary Commercial Fisheries Area as Commercial Shellfish Fisheries Areas.

Application for Permits

14. The period of validity of permits shall be from 1st September in any given year to 31st of August the following year unless otherwise stated. Permits shall be annually renewable subject to paragraph 15 of this byelaw. A fee of £500 will be charged each year by the NWIFCA for all Byelaw 3 permits.
15. Holders of a permit to gather cockles or mussels under this byelaw in any given year shall be entitled to renew the permit for the next year up to one year after the permit term has expired.
16. Applications for the renewal of permits pursuant to this byelaw shall be made using the printed forms available from the NWIFCA offices or the NWIFCA website. Renewal forms will be made available 2 calendar months before the date each permit term begins. On renewal, applicants must satisfy the NWIFCA that at some time in the previous 3 years they have derived a substantial part of their income from fishing activities by providing evidence which may include a personal statement detailing fishing activities in the last 3 years and evidence that tax has been paid on fishing income in the last 3 years.
17. Applications for new permits pursuant to this byelaw shall be made using the printed forms available from the NWIFCA offices or the NWIFCA website. Applications for new permits to be issued pursuant to paragraphs 22 and 27 of this byelaw shall be made by first registering an interest with the NWIFCA in writing. If the number of applicants registering an interest exceeds the number of available permits a waiting list will be compiled on a 'first come, first served' basis and an applicant will be invited to complete an application for a new permit in the first year a new permit becomes available. Applications shall meet all the requirements of paragraph 22 in the case of full gathering permits and paragraph 27 in the case of support worker permits.

18. A permit issued pursuant to this byelaw is not transferable.
19. Failure to produce, on the reasonable demand of a properly warranted Officer or a Constable, a valid permit when carrying out any activity for which a permit is required constitutes a breach of this byelaw.
20. Failure to notify the NWIFCA of any change of name or address during the period of the validity of a permit constitutes a breach of this byelaw.

Filing returns

21. The holder of a permit to gather cockles or mussels under this byelaw shall be required to file with the NWIFCA, no later than the 5th day of the month following, such information in regard to catches and fishing effort for the previous month, under the terms of such permit, as the NWIFCA may require. Nil returns may be required at the discretion of the NWIFCA. Permit holders not filing returns may have their permits suspended by the NWIFCA until returns have been filed.

New Permits

22. New full gathering permits shall be issued each year to a maximum of the first 10 applicants on the waiting list who have not held a permit pursuant to this byelaw in the previous year on production of:
 1. evidence of the applicant's identity, containing photograph and signature, such as a valid passport; or a driving licence with photo;
 2. evidence of the applicant's address, such as a utility bill issued in the preceding 4 months of application or a current tenancy agreement;
 3. evidence of the applicant's National Insurance Number;
 4. 2 recent passport style photographs of the applicant signed on the back by the applicant;
 5. the applicant's valid Foreshore Gatherers Safety Training certificate or proof of the successful completion of an equivalent safety training course. Equivalence is determined at the discretion of the NWIFCA; and
 6. payment of the fee set in paragraph 14.

Transitional Arrangements

23. Holders of a permit for 2011/2012 issued under byelaw 5 of the NWIFCA (permit to fish for cockles (*Cerastoderma edule*) and mussels (*Mytilus edulis*)) shall be entitled to renewal of that permit under this byelaw 3 for the year 2012/2013.
24. Permits to fish for cockles and mussels for the year 2012/2013 shall be issued to 40 new applicants under the rules set out in Byelaw 5 of the NWIFCA (permit to fish for cockles (*Cerastoderma edule*) and mussels (*Mytilus edulis*)). No permits to fish for cockles and mussels shall be issued to new applicants under this byelaw 3 for the year 2012/2013.
25. Persons who provide evidence to the satisfaction of the NWIFCA that they have in the past held a permit issued under Cumbria Sea Fisheries Committee byelaw 21 (cockles – permit scheme) or 23 (mussels – permit scheme) and have in the past been engaged in commercial cockle or mussel fishing activities in a specified region or regions within the district formerly administered by the Cumbria Sea Fisheries Committee shall be eligible to apply to the NWIFCA for written authority to continue to fish in any fisheries within that region or regions. The obligations in this byelaw apply to a person fishing under a written authority but no fee is payable for the issue of that authority.
26. Persons who provide evidence to the satisfaction of the NWIFCA that they have in the past been engaged in commercial cockle or mussel fishing activities in a specified region or regions within the Dee Estuary shall be eligible to apply to the NWIFCA for written authority to continue to fish in any

fisheries within that region or regions. The obligations in this byelaw apply to a person fishing under a written authority but no fee is payable for the issue of that authority.

Support worker permit

27. Commercial organisations trading in cockles and mussels may apply to the NWIFCA for permits for specified members of staff who they wish to perform ancillary trading activities within a cockle or mussel fishery which would constitute taking, removing or transporting cockles or mussels within or from a fishery including driving transport vehicles, transporting shellfish, weighing shellfish. The NWIFCA may issue up to a maximum of 6 support worker permits to each commercial organisation upon receipt of complete applications on production of:
- The names, contact details, national insurance numbers and proof of right to work of the members of staff. Proof of identity of those members of staff containing photograph and signature, such as a valid passport; or a driving licence with photo and proof of address of those members of staff, such as a recent utility bill;
 - Proof from the annual account or annual report of the organisation's trade in cockles or mussels;
 - Evidence that the organisation holds a Gangmaster Licensing Authority licence for shellfish operations if required;
 - Statement of the duties members of staff will perform in the shellfish fishery;
 - Two recent passport style photographs of the members of staff signed and dated on the back by the members of staff;
 - Valid Foreshore Gatherers Safety Training certificates for each of the members of staff or proof of the successful completion of an equivalent safety training course. Equivalence is decided at the discretion of the NWIFCA; and
 - Payment of the fee set in paragraph 14.

Use of boats

28. No holder of a permit pursuant to this byelaw shall use a boat to access shellfish beds in order to gather, remove or transport cockles or mussels without having their permit endorsed as a boat user by the NWIFCA. The NWIFCA will endorse permits as boat users on production of evidence that the holder has completed training of an equivalent standard to the courses provided by Seafish in: Sea Survival, First Aid, Fire Fighting and Health and Safety Awareness. Equivalence is decided at the discretion of NWIFCA.
29. No person shall be granted an endorsement as a boat user unless they have in their possession a serviceable life jacket and the boat they will use is equipped with a serviceable means of communication such as a VHF radio or mobile telephone, a serviceable means of navigation such as global positioning equipment and serviceable safety provision including marine distress flares and an adequate anchor with a means of effective deployment.

Revocation of Legacy Byelaws

30. Byelaw 5 (permit to fish for cockles (*Cerastoderma edule*) and mussels (*Mytilus edulis*)) made by the NWIFCA is revoked.
31. The following byelaws made by the North Western and North Wales Sea Fisheries Committee are revoked in so far as they apply within the District:
- (a) byelaw 5 (permit to fish for cockles (*Cerastoderma edule*) and mussels (*Mytilus edulis*));
 - (b) byelaw 13 (cockles – minimum size);
 - (c) byelaw 14 (cockle fishery – seasonal closure);
 - (d) byelaw 15 (mussels – minimum size);
 - (e) byelaw 17 (redeposit of shellfish);

32. The following byelaws made by the Cumbria Sea Fisheries Committee are revoked in so far as they apply within the District:
- (a) byelaw 5 (minimum removal size for mussels);
 - (b) byelaw 6 (minimum removal size for cockles);
 - (c) byelaw 12 (re-depositing of shellfish);
 - (d) byelaw 16 (cockles - seasonal closure).
 - (e) byelaw 21 (cockles - permit scheme)
 - (f) byelaw 22 (cockles - catch restrictions)
 - (g) byelaw 23 (mussels - permit scheme)
 - (h) byelaw 24 (mussels – catch restrictions)

Explanatory Note: *(This note does not form part of the byelaw)*

1. *The purpose of this byelaw is to control the exploitation of shellfish fisheries of cockles and mussels to ensure catches remain at a sustainable level and are obtained by sustainable fishing methods. As cockle and mussel fishing can be highly lucrative depending on price variations the NWIFCA has concluded a permit scheme is necessary to limit the number of fishermen and consequently the number of cockles gathered, along with the methods they use.*
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2. *The byelaw prohibits the gathering of cockles or mussels for sale without a full gathering permit and prohibits the moving and transporting of cockles or mussels for sale below mean high water springs without a support worker permit (paragraphs 2 and 3). The full gathering permit also permits the holder to move and transport cockles or mussels below mean high water springs (definition of 'full gathering permit' in paragraph 1).*
3. *The byelaw prohibits the possession of articles to gather cockles or mussels in breach of the byelaw and specifies the fishing methods that may be used (paragraphs 4, 7 and 8).*
4. *The byelaw prohibits the possession of cockles or mussels gathered in breach of the byelaw (paragraph 5) and provides for their redeposit (paragraph 9).*
5. *The byelaw sets minimum sizes for cockles and mussels (paragraph 6).*
6. *The byelaw provides an exemption for a person who carries out an act which would otherwise constitute an offence if it is in accordance with a written permission issued by the NIFCA permitting that act for scientific, stocking or breeding purposes (paragraph 10).*
7. *The byelaw provides that a person does not need a permit to gather less than 5kg of cockles or mussels for personal consumption from areas that are not closed or in Commercial Shellfish Fisheries Areas (paragraph 11).*
8. *The byelaw provides for the annual closure of cockle fisheries throughout the District for a specified period (paragraph 12).*
9. *The byelaw provides for the designation of certain cockle beds as Commercial Shellfish Fisheries Areas as shown in the indicative maps (paragraph 13).*

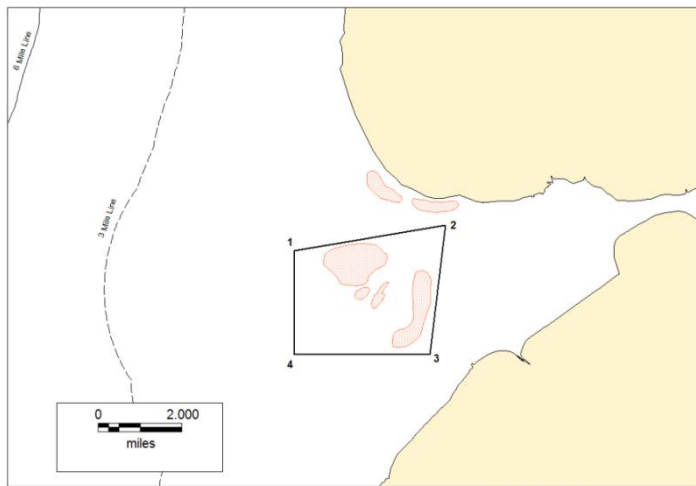


Fig 1. Ribble Commercial Fisheries Area with known historical cockle beds

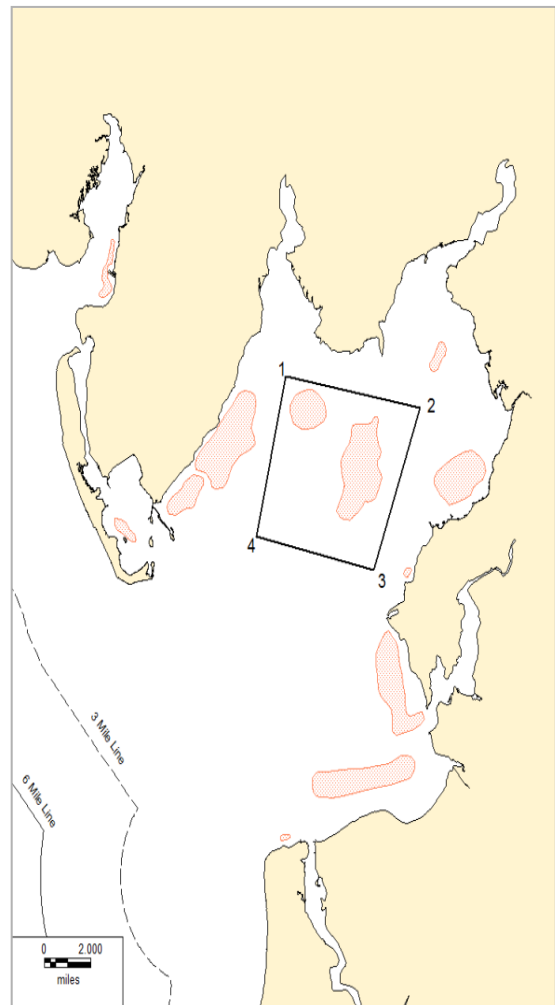


Fig 2. Morecambe Bay Commercial Fisheries Area with known historical cockle beds

10. The byelaw provides an application procedure for permits (paragraphs 14 to 20).
11. The byelaw provides for permit holders to file returns (paragraph 21).
12. The byelaw provides for the renewal of permits and the issue of new permits (paragraph 22).
13. The byelaw provides transitional arrangements for those with a right to gather shellfish under existing byelaws (paragraphs 23 to 26).
14. The byelaw provides for the issue of support worker permits (paragraph 27).
15. The byelaw provides that a full gathering permit must be endorsed if the holder uses a boat to access shellfish beds (paragraphs 28 and 29).
16. The byelaw provides for the revocation of specified byelaws that previously applied in the District (paragraphs 30, 31, and 32).

The North Western Inshore Fisheries and Conservation Authority and the North Western Inshore Fisheries and Conservation District are defined in articles 2, 3 and 4 of the North Western Inshore Fisheries and Conservation Order 2012 (S.I. 2010 No. 2200).

NWSFC BYELAW 12 - RESTRICTIONS ON FISHING FOR BIVALVE MOLLUSCAN SHELLFISH

This byelaw applies to that part of the District within a line drawn on the seaward side of the baselines 6 nautical miles from the baselines from which the breadth of the territorial sea adjacent to the United Kingdom is measured. For the purposes of this paragraph "the baselines" means the baselines as they existed at 25th January 1983 in accordance with the Territorial Waters Order in Council 1964 (1965 III p.6452A) as amended by the Territorial Waters (Amendment) Order in Council 1979 (1979 II p.2866).

1. No person shall fish for bivalve molluscan shellfish, except
 - a) by hand; or
 - b) in the case of cockles with a craam, rake, spade or jumbo; or
 - c) in the case of mussels with a rake or in that part of the District which is inshore of a line drawn North true from Penmaen-Bach Point (Latitude 53⁰ 17.3' North, Longitude 03⁰ 52.8' West) to the high water mark at Gt. Ormes Head with a rake, provided that the rake is no more than 1 metre in width and that it is only used from a boat when the mussel bed has at least 1 metre of water over it; or (*applies only to Wales*)
 - d) when using a dredge or other appliance where:
 - (i) such dredge or appliance is of a pattern approved in writing by the Committee, the Committee having been advised by scientists who in the opinion of the Committee appear to be suitably qualified to comment on the conservation and environmental implications;
 - (ii) such use is in accordance with a written authorisation issued by the Committee and with any conditions subject to which that authorisation was issued, including prohibitions on use at particular times, or in particular areas and definitions of the fishing instrument. The Committee may also require as a condition that returns be made on the species and quantities of bivalve molluscan shellfish taken.
2. no person shall take or use on any mussel bed, any sledge or other contrivance which in the opinion of the Committee is likely to crush or loosen the mussels or loosen the foundations of the bed, without a written authorisation issued by the Committee.
3. no person shall dig in any mussel bed for any purpose without a written authorisation issued by the Committee.

NWSFC BYELAW 13A - COCKLES AND MUSSELS -MANAGEMENT OF THE FISHERY

1. The Committee, may close any cockle (*Cerastoderma edule*) or mussel (*Mytilus edulis*) bed or part of a bed for the purposes of fishery management or for controlling the rate of exploitation with regard to cockles and mussels.
2. Such closure shall be for a specified period and be undertaken only after the Joint Committee has consulted such persons or bodies appearing to them to represent local cockle or mussel fishermen, and provided the Committee has been advised by fishery scientists who appear to them to be suitably qualified, as to the need for such action.

3. No person shall, without the consent of the Committee, under the written authority in that behalf signed by the Clerk, remove, take or disturb any cockle or mussel from a bed or part of a bed of cockles or mussels which has been closed pursuant to this byelaw.

Byelaw confirmed 29.03.96

NWSFC BYELAW 16 – SHELL FISHERY -TEMPORARY CLOSURE

Where, in the opinion of the Committee, in any fishery, any bed or part of a bed of shellfish is so severely depleted as to require temporary closure in order to ensure recovery, or any bed or part of a bed contains mainly immature shellfish which in the interests of the protection and development of the fishery ought not to be disturbed for the time being, or any bed of transplanted shellfish ought not to be fished until it has become established, and where the bed, or part thereof, has been clearly defined in notices displayed in the vicinity prohibiting the removal or disturbance of the shellfish, no person shall, while the bed or part thereof is so defined, take away or otherwise disturb any shellfish therein.

Provided that no bed or part of a bed may remain closed under this byelaw at any one time for a longer period than one year, without review by the Committee.

Byelaw confirmed 14.09.73