

Fisheries in EMS Habitats Regulations Assessment

NWIFCA-MB-EMS-COCKLE HANDGATHERING FISHERY 2024

2nd August 2024

Site: Morecambe Bay and Duddon Estuary

European Designated Sites: UK0013027 Morecambe Bay Special Area of Conservation (SAC)
UK9020326 Morecambe Bay and Duddon Estuary SPA
UK11045 Morecambe Bay Ramsar
UK11022 Duddon Estuary Ramsar

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 (*Glauco-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-Ulicetea*); 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 Communities:

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 and Duddon 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.

Wyre-Lune Marine Conservation Zone (MCZ)

The site is designated for smelt (*Osmerus eperlanus*) with a recover objective.

Updated conservation advice for Morecambe Bay and Duddon Estuary SPA.

Changes specific to this HRA;-

- Grey plover, dunlin, sanderling and turnstone have a restore target for population due to declines in population exceeding regional and national trends.

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

Hand-gathered – Cockle (*Cerastoderma edule*)

1. Introduction

1.1 Need for an HRA assessment

Every year NWIFCA officers undertake extensive surveys of the cockle beds across the NWIFCA District. The purpose of cockle surveying is to establish data regarding the abundance, density and location of cockle stocks to inform fisheries management. There are a number of cockle beds within Morecambe Bay that contain significant stock which could support a hand-gathered fishery.

The NWIFCA proposes to authorise a hand-gathered cockle fishery on Flookburgh, Leven and Pilling cockle bed within the protected site. The proposed opened fisheries will be by permits issued under NWIFCA Byelaw 3, Permit to Fish Cockles and Mussels flexible conditions.

This proposal is classed as a plan or project and the area lies within a European designated site (also commonly referred to as Natura 2000 sites), and therefore has the potential to affect the designated features. European sites are protected under the Conservation of Habitats and Species Regulations 2017. The proposal site is within the Morecambe Bay SAC, the Morecambe Bay and Duddon Estuary SPA, and the Wyre and Lune MCZ. The site is also designated for two Ramsar's and a Site of Special Scientific Interest (SSSI). Under Habitats Directive, all existing and potential commercial fishing activities must be managed in accordance with Article 6.

As a competent authority under the provisions of the Habitats Regulations, the NWIFCA should have regard for any potential impacts that a plan or project may have. Under the provisions of the Habitats Regulations and in accordance with Regulation 61, NWIFCA has undertaken an Appropriate Assessment of the proposal. Natural England is a statutory consultee on the Appropriate Assessment stage of the Habitats Regulations Assessment process, and their advice is incorporated into this document.

The purpose of this site-specific assessment document is to assess whether or not, in the view of NWIFCA the proposed fishing activity of hand-gathering cockle at the specified cockle beds in Morecambe Bay, is likely to have a significant effect on the designated features of the site. This assessment will determine whether the proposed activities will have an adverse effect on the integrity of this European Site.

1.2 Proposal

The NWIFCA proposes to authorise a hand-gathered cockle fishery on the Flookburgh, Leven and Pilling cockle bed from the 2nd of September on Flookburgh and Leven and from the 1st October on Pilling to the beginning of the closed season on the 1st of May 2023 under Byelaw 3 (2019). The fisheries are proposed to be open 5 days a week, 1 tide per day.

At the NWIFCA, Technical, Science and Byelaws Sub-Committee meeting held on the 13th August 2024, an amendment to the fishery opening of Flookburgh, Leven and Pilling cockle beds was resolved which differed from that provided in the HRA dated 2nd August 2024. For more details please see Annex 5 letter dated 13th August to Natural England on the changes to proposal and implications on the following assessment.

New HRA proposal: The NWIFCA proposes to authorise a hand-gathered cockle fishery on the Flookburgh, Leven and Pilling cockle bed from the 2nd of September on Flookburgh and Leven and from the 1st October on Pilling to the beginning of the closed season on the 1st of May 2023 under Byelaw 3 (2019). The fisheries are proposed to be open 10 days out of every 14 days, 1 tide per day.

2. Information about the EMS

Additional site information provided by Natural England in 2021 over concerns in decreasing WeBS data for Morecambe Bay.

WeBS data for Morecambe Bay (covering the winter of 19/20) showed a marked decrease in the populations of many species compared to the year before such that the Assemblage total for the site has fallen by c60,000 birds (29%) on the value for the previous winter (18/19). Based on current evidence it cannot be determined whether or not the decline is linked to fisheries within Morecambe Bay, although many of the species that have individually declined may potentially interact with shellfisheries. Some notable species of concern present in the fishery area include:

- Pink-footed goose (pilling Sands roost) – decline c10,000 individuals
- Knot (feed on juvenile cockle and *Macoma* on Pilling sands) – decline c9000 individuals
- Herring Gull (feed on bivalves) – decline c6000 individuals
- Bar-tailed Godwit (main feeding ground Pilling Sands) – decline c2000 individuals
- Grey Plover (main feeding ground Pilling Sands) – decline c500 individuals

Although Eider have declined they are largely a feature of other areas of the Bay than the Pilling area so are low risk in the context of this specific proposal. Of the key species of concern to this HRA only oystercatcher appears to have held its numbers, however, oystercatcher are very site loyal and will often stay put and risk being unable to secure adequate food resource with a consequent loss of fitness than move onto different sites if food resources are limited.

Having reviewed the 5 year WeBs data for Morecambe Bay ([BTO WeBS Reports](#)), NWIFCA have added Oystercatcher to the list of birds due to decline in numbers over the last 5 years.

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

The Morecambe Bay and Duddon Estuary European Site interest features of; 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.pdf \(nw-ifca.gov.uk\)](#), introduced in May 2014.

4. Information about the fishing activities within the site

4.1 Background

Hand-gathering of cockles has been a long-standing traditional fishery within the NWIFCA District. Methods have changed very little over the years, with fishers using a jumbo to fluidise the soft sediments in which the buried cockles are found. Once the sediment is fluid, the cockles rise to the sediment surface where they are then 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. Cockles are able to rebury themselves quickly, so any not removed will soon become invisible under the sand once again. There is little to no by-catch associated with this fishery as it is highly selective.

Fishermen access the beds by ATVs 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 by the tides.

The cockle fishery is highly variable in its production and consequently, its prosecution. Records show variability in stock levels and associated fishing activity as a long-standing feature of the fishery. There were extensively high stock levels between 2003–05 and 2007-08 that were 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. 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 being fished together with the rest of the district in September 2007. Since the 2006 there were no commercial fisheries in the Bay and all beds were closed, until April 2016 when a limited craam fishery was opened on the Leven Sands bed in the north of the Bay. Leven Sands and Pilling cockle beds opened in November 2016 and were fished until the closed season on 30th April 2017. NWIFCA stock data is comparable since 2017, Figure 4.1.1 show the trend in cockle since 2017 and highlights when cockle fisheries were open in Morecambe Bay.

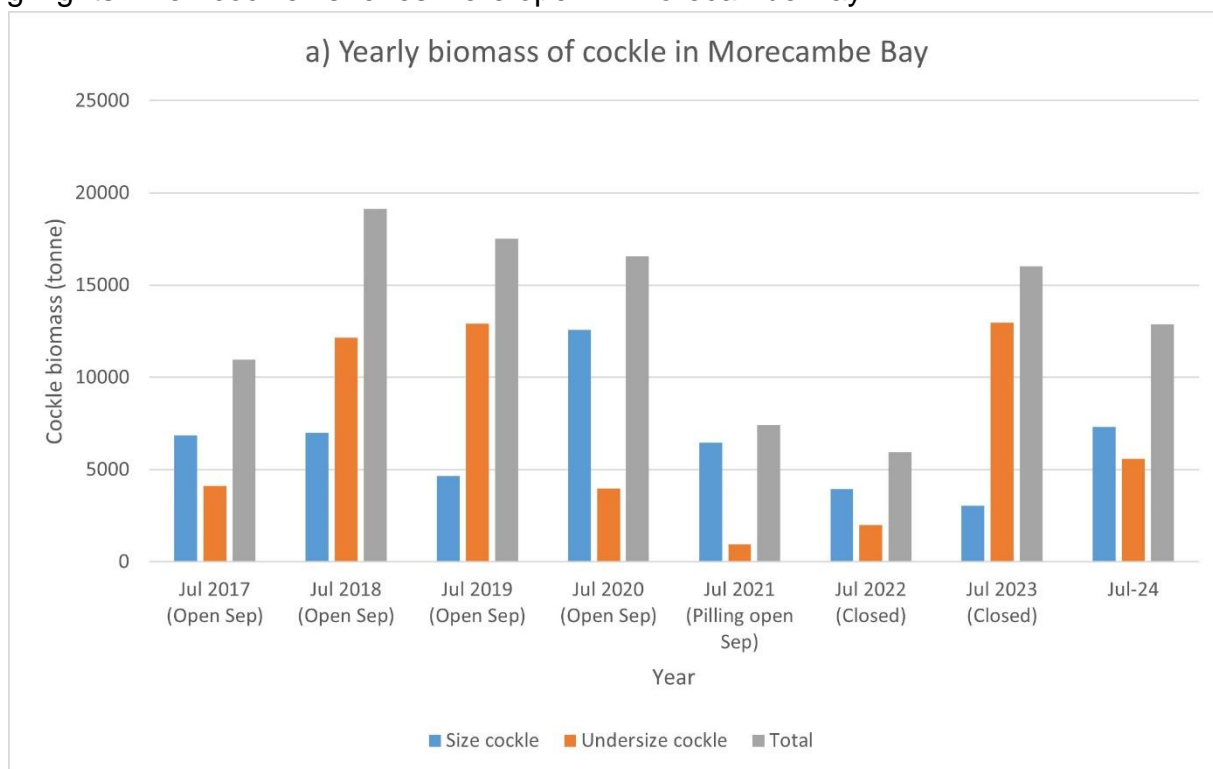


Figure 4.1.1. show the year biomass of size and undersize cockle for Morecambe Bay since 2017 and if cockle fisheries were opened.

4.2 Regulation of Hand-gathering

NWIFCA regulates cockle hand-gathering fisheries in its District under the NWIFCA Byelaw 3 Cockle and mussel hand-fishing permit (2019) (in force as of Sep 1st 2022).

NWIFCA Byelaw 3 (2019) builds on the original Byelaw 3 introduced in 2012 in that it introduces Flexible Permit Conditions, allowing the Authority to implement adaptive management of the fishery. The Byelaw retains much of the same powers as was detailed in the original Permit to Fish for Cockles and Mussels introduced in 2012. This Byelaw vastly improved management of the fisheries and encouraged a more professional and responsible group of fishers. Under the current regulations, there is a maximum of 150 permits, which could be issued for the 2023 – 2024 season under the new NWIFCA Byelaw 3. Without a permit within the NWIFCA district, it is still permissible for recreational fishers to fish 'non-commercial' cockle beds for 5kg per person per day outside of the closed season under Byelaw 3.

Every commercial cockle bed is surveyed annually and the results presented at the quarterly Technical, Science and Byelaw meetings. These meetings consist of Authority members made up of MMO representatives, recreational and commercial fishers, representatives from Natural England, Environment Agency and IFCA officers. Based on officer knowledge of the sites and historical survey data, IFCA officers will recommend whether a bed has viable commercial stock levels, and therefore, should be considered for opening to permit holders. Members discuss and subsequently vote on the opening of the fishery subject to HRA approval. As the activity is not considered necessary for the management of the site, and has the potential to affect the protected features, a HRA is conducted, and management implemented if/where required.

4.3 Multi Agency Liaison Group

Due to the location of the fishery, 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 Gangmaster and Labour Abuse Authority (GLAA) and the Environment Agency (EA). This joint working is facilitated at a strategic level through a multi-agency liaison group. The completion of a Multi-Agency Operational Plan will have a benefit to the management of the fishery.

4.4 Biosecurity

Morecambe Bay is currently shellfish disease free and the Authority considers it a priority to maintain this status. The non-native species Chinese Mitten Crab (*Eriocheir sinensis*), and American Lobster (*Homarus americanus*) 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 areas from which they come, are regularly and thoroughly checked for invasive non-native invasive species (INNS).

4.5 Current Status of Stock

Morecambe Bay cockle surveys were conducted for the second time this year, between July 2nd and July 11th.

Survey reports for all Morecambe Bay cockle beds were finalised on July 26th and are provided in Annex 1 of this report. Results have been standardised and the size of the pie charts corresponds to set values, making them comparable between beds and future surveys.

Officers collected and analysed 11,862 cockles from 500 sample points across 7,700 ha of Morecambe Bay. Figure 4.5.1 shows the location and extent of sample points for the respective beds.

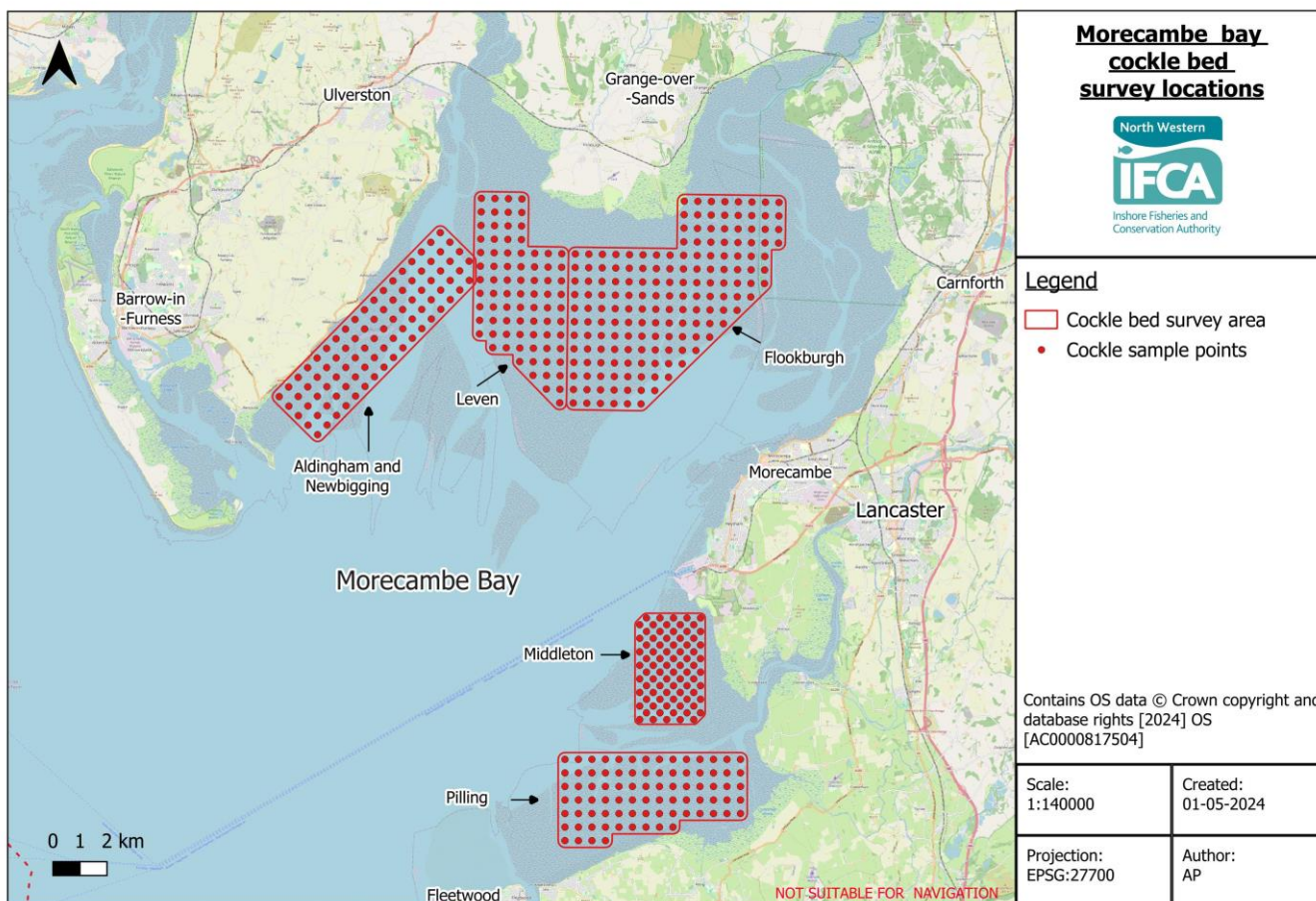


Figure 4.5.1 The location of sample points across Morecambe Bay cockle beds

A summary of the July survey results is provided in table 4.5.1.

Table 4.5.1. Biomass calculations of size, undersize and combined biomass of cockles on Morecambe Bay cockle beds July 2024.

Cockle bed	Date surveyed	Area of cockle present (ha)	Size cockle (tonnes)	Undersize cockle (tonnes)	Total cockle biomass (tonnes)
Aldingham and Newbiggin	July 11 th 2024	1050	846	874	1720
Leven	July 10 th 2024	1250	573	305	878
Flookburgh	July 9 th & 10 th 2024	2675	3629	2551	6180

Warton Sands	na	na	na	na	Na
Middleton	July 2 nd 2024	747	518	216	734
Pilling	July 3 rd 2024	1500	1742	1640	3382

Biomass of size and undersize cockle across Morecambe Bay

Table 4.5.2 provides yearly maximum cockle biomass figures from 2017 to 2024. All surveys presented here were undertaken between June/July each year and are therefore comparable.

In July this year, there is an estimated 7308 tonnes of size cockle and 5586 tonnes of undersize over 7247 hectares surveyed across Morecambe Bay.

Table 4.5.2. The yearly biomass of figures for size, undersize and total biomass of cockles on Morecambe Bay cockle beds from 2017 to 2024. *figures represent the max cockle biomass

Year	All surveyed Morecambe Bay cockle beds				Beds opened
	Area (ha)	Size cockle (tonne)	Undersize cockle (tonne)	Total cockle (tonne)	
2017	5177	6980	4230	11210	Flookburgh, Leven, Pilling
2018	6088	7000	12140	19140	Flookburgh, Leven, Pilling, Newbiggin
2019	6705	4635	12900	17535	Flookburgh, Leven, Pilling, Newbiggin
2020	8085	12580	3975	16555	Flookburgh, Leven, Pilling, Newbiggin
2021	7089	6450	955	7415	Pilling
2022	6582	3950	1990	5940	None
2023	7730	3035	12975	16010	None
2024	7247	7308	5586	12894	TBC

Figure 4.5.2 shows the data from table 4.5.2 in graphical form to demonstrate the trends in cockle biomass across Morecambe Bay since 2017 (a and b), and the composition of this year's size and undersize cockle (c).

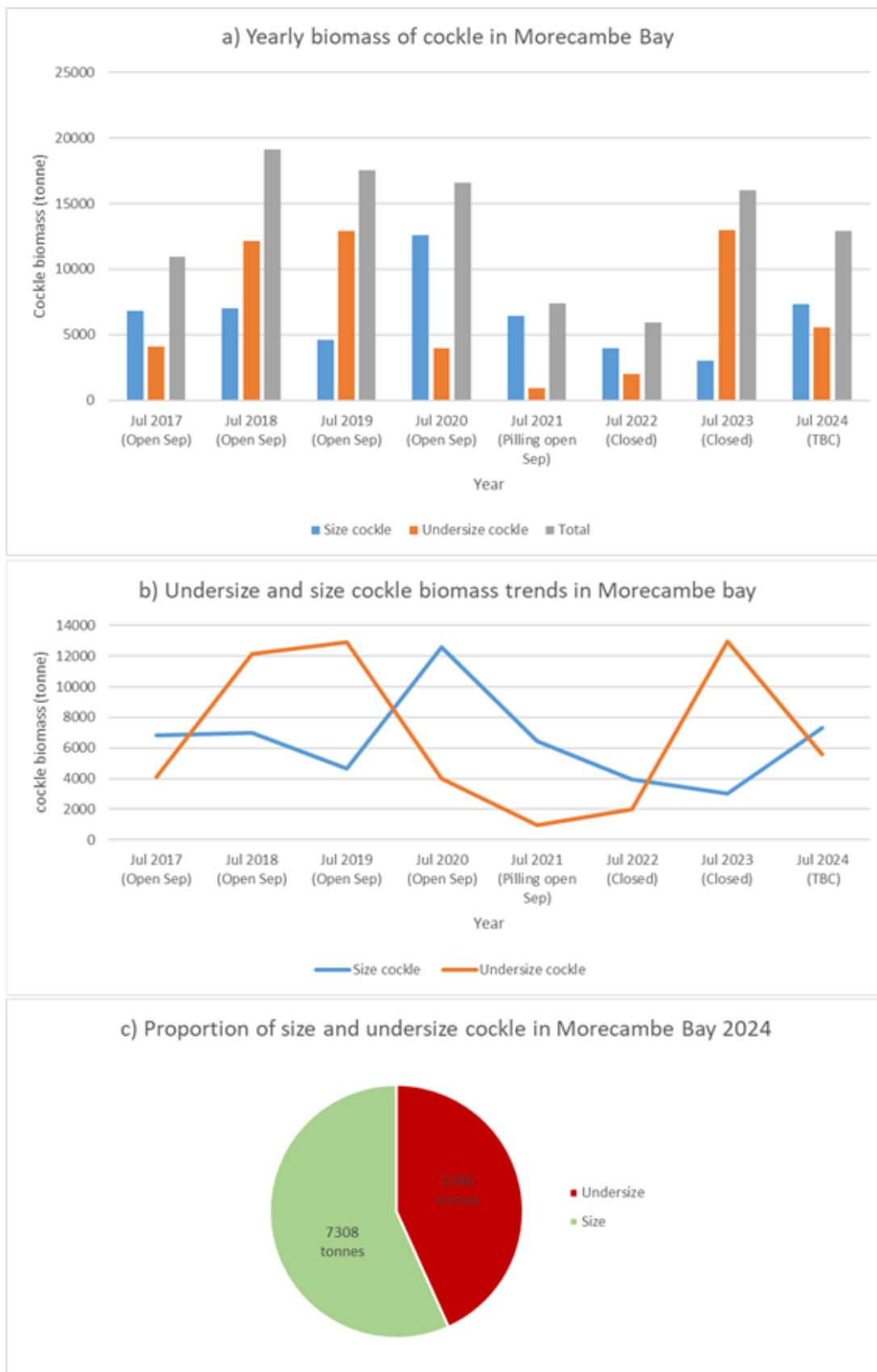


Figure 4.5.2. Summary of Morecambe Bay cockle survey results from July 2024. a) shows the yearly biomass of size, undersize and total cockle in Morecambe Bay from 2017 to 2024, b) the relational trend in size and undersize cockle from 2017 to 2024, and c) the composition of size and undersize cockle across Morecambe Bay in 2024

As of July 2024, the total biomass of cockle has decreased across Morecambe Bay from approximately 16,010 tonnes in July 2023, to 12894 tonnes (Figure 4.5.2 a). This decrease is likely due to the loss of some of the 2023 undersize cockle.

The total biomass of size cockle has increased from 3035 tonnes in July 2023, to 7308 tonnes in July 2024 (Figure 4.5.2.a). This is above the minimum threshold a fishery in Morecambe Bay has previously been recommended open.

Figure 4.5.2.b indicates the trend in the biomass of size (blue) and undersize (orange) cockle for Morecambe Bay as a whole since 2017. High levels of undersize cockle in 2018 and 2019 preceded an increase in the biomass of size cockle, one to two years later. In 2023, there was a significant increase in the biomass of undersize cockle, which would be expected to grow on in 2024 to support an increased biomass of size cockle. An increase in size biomass has occurred this year, likely the result of the previous year's undersize growing to size over the summer months.

There has also been a significant decrease in the proportion of undersize cockle across the Bay, possibly due to the 2023 size cohort growing on to size this summer, and also natural mortality. There has been very little spat settlements seen during surveys this season.

The proportion of size to undersize is greater this July (Figure 4.5.2 c) than in results presented at the May TSB meeting from April 2024 surveys. Considering this alongside the overall increase in size biomass demonstrates the growing on of undersize through to size during the summer months.

The density of size and undersize cockle across Morecambe Bay

Average density of size cockle across Morecambe Bay is 12 cockle per m². This is an increase from 5 per m² in July 2023.

Average density of undersize cockle across the Bay is 19 cockle per m². This is a decrease from 89 per m² in July 2023.

Less than 5mm cockle are not used in the undersize density or biomass figures due to the highly variable nature of survivability.

Biomass of size and undersize cockle for individual beds

Figure 4.5.3a shows the biomass of size cockle for each surveyed Morecambe Bay cockle bed from 2017 to July 2024, and which beds were opened for fishing that same year.

All beds have seen an increase in size cockle biomass since 2023. Flookburgh is highest at approximately 3629 tonnes of size. This is the second highest biomass of size cockle on Flookburgh since 2017.

The bed with the second highest biomass of size cockle is Pilling cockle bed at approximately 1742 tonnes.

All other beds have increased in size biomass but remain relatively low in comparison to previous years. All beds have decreased in undersize biomass. Therefore, Pilling and Flookburgh will be considered for opening this year.

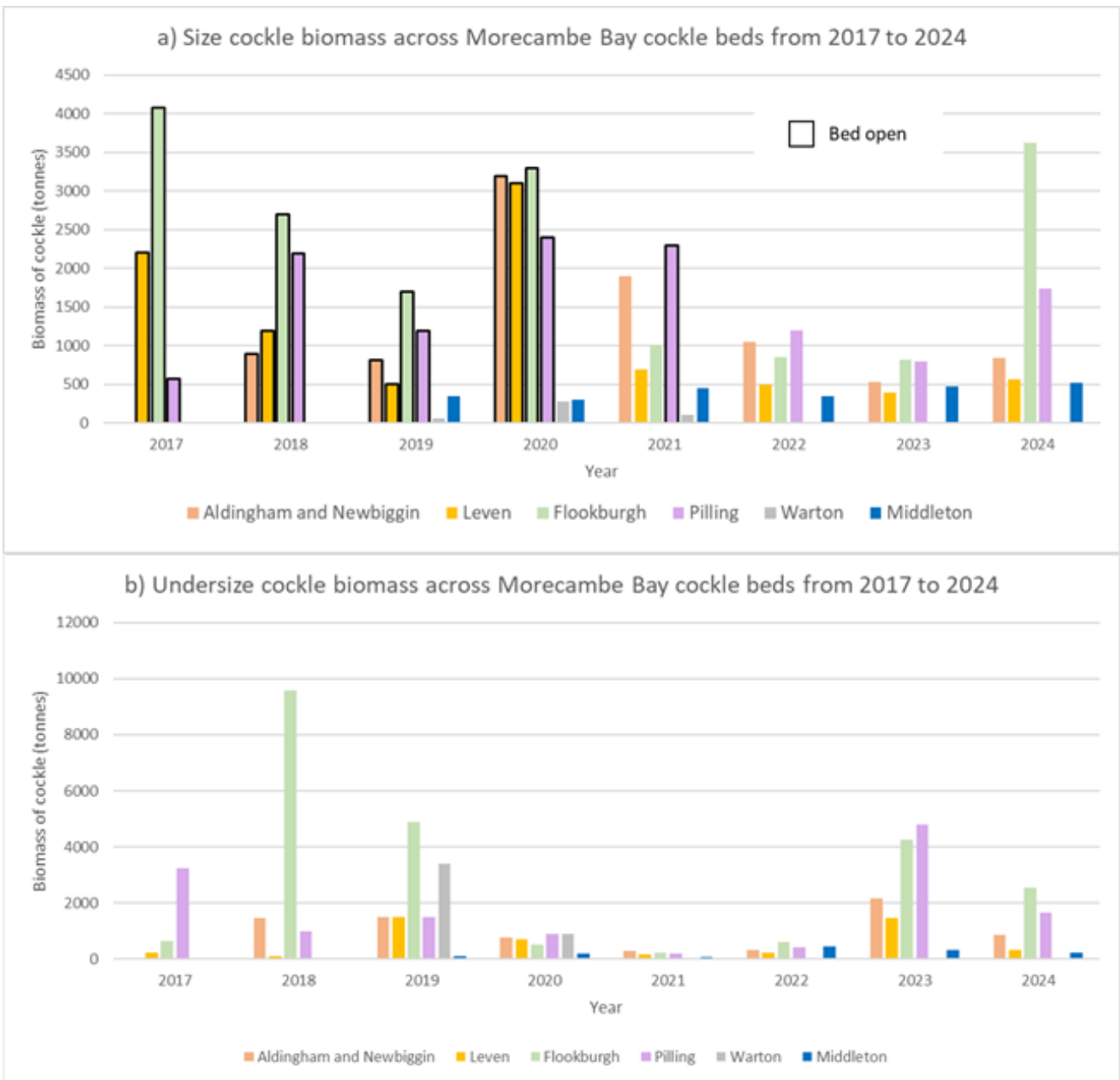


Figure 4.5.3 Biomass of size cockles on the individual Morecambe Bay cockle beds from 2017 to 2024, 2.a) the biomass of size cockle from 2017 to 2024 for all surveyed beds with the corresponding open beds, and 2.b) the biomass of undersize cockle on all surveyed beds from 2017 to 2024.

Biomass of cockle size classes on each bed

Figure 4.5.4 shows the biomass of cockles in each size class (0-5 mm, 15-20mm, 20-25mm 25-35mm and 35+mm) for the main Morecambe Bay cockle beds in July 2023, and July 2024 respectively. The two years have been provided for comparative purposes.

For Pilling, and Flookburgh beds, cockles in the 15-20mm size classes made up a large proportion of their total biomass in July 2023 (Figure 4.5.4 a). These cockles have subsequently survived the winter and grown on to contribute to the increase in the 25+mm category seen in 2024 (Figure 2.1.4.b). Typically, size cockle falls within the 24 mm+ category, (though there is variability among beds), therefore this increase in the 25-35mm category correlates with the increase in size biomass seen across the Bay.

The biomass of all size categories remains low across Aldingham & Newbiggin, Leven and Middleton.

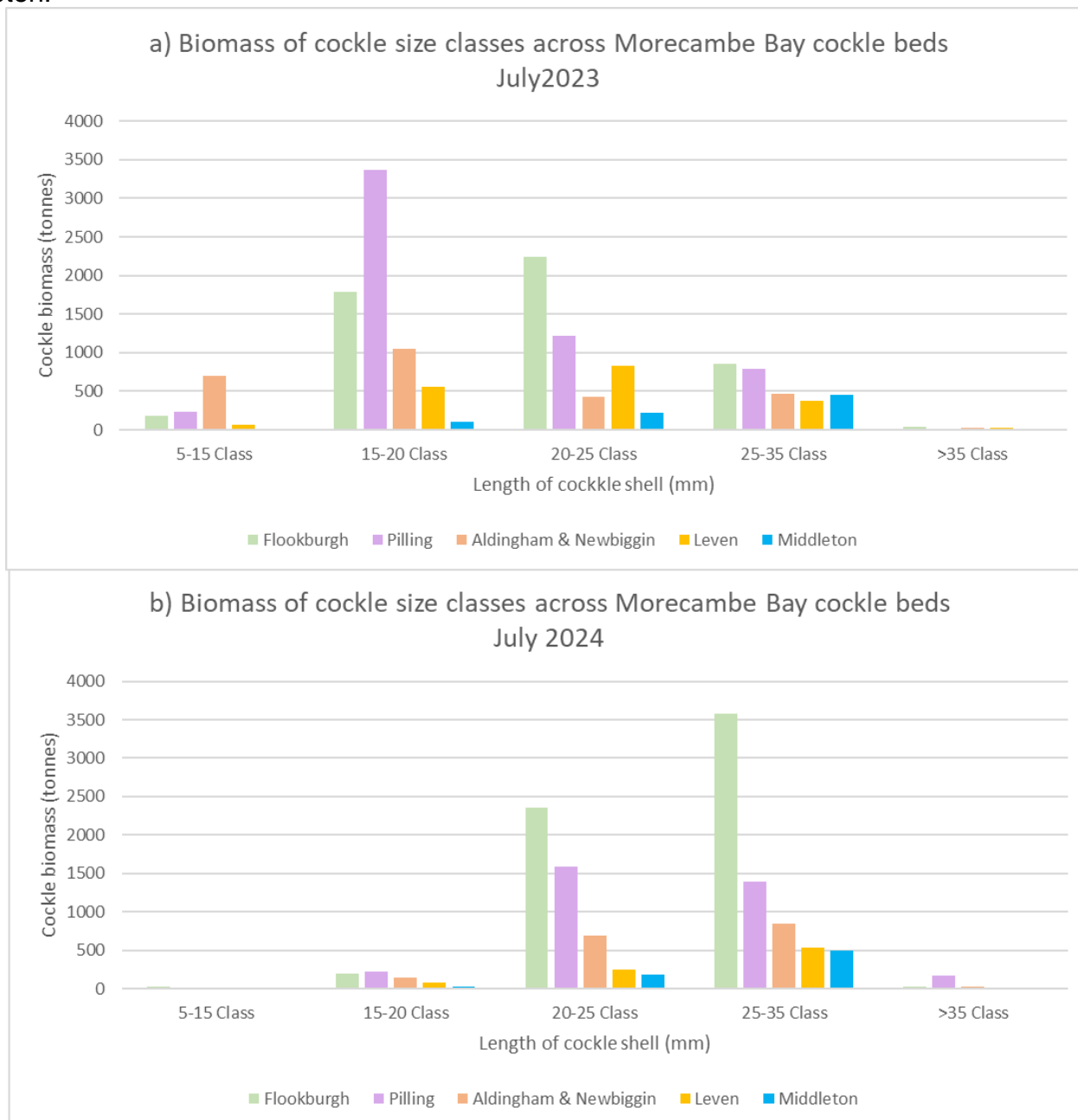


Figure 4.5.4. The biomass of different size classes of cockle for each of the Morecambe Bay cockle beds. 3.a demonstrates this for 2023, and figure 3.b for 2024 for comparison.

Composition of size classes on individual beds

The composition of size classes across a bed is important to consider as it has implications for fisheries management, and fishing highly mixed stock may have an impact on juvenile cockles survivability.

Figures provided in Annex 1– show a highly mixed composition of cockles across the beds, with size and undersize spread throughout..

Density of size and undersize cockle per m²

The average density of size cockle across all the beds has increased this year, though is still comparatively low on Leven, and Middleton. Flookburgh and Pilling have increased considerably in

the density of size cockle (see Table 4.5.3). The density of cockle on Aldingham and Newbiggin has increased, however, the size of the bed has reduced considerably due to the movement of the Leven channel, which may have influenced this result.

Table 4.5.3. The mean number of size cockle per m² for each bed from 2018 to 2024. The cells highlighted green indicate years the beds were recommended open, and red cells indicate those recommended closed.

	2018	2019	2020	2021	2022	2023	2024
Aldingham and Newbiggin	7	7	12	4	4	4	9
Flookburgh	10	7	19	10	8	4	16
Leven	11	4	18	5	5	3	5
Pilling	21	8	17	17	7	6	14
Middleton	473	7	5	7	5	8	8

Summary:

The results of the 2024 Morecambe Bay cockle survey show:

1. Flookburgh and Pilling cockle beds have increased in size biomass since July 2023 and their numbers are comparatively high in comparison to previous years. All other beds have increased in size biomass but still remain low. (see figure 4.5.3).
2. The total biomass of cockle across the Bay has decreased since 2023, but size cockle biomass has increased.
3. The 15-20mm cockle size class identified in 2023 has grown on during May to July to contribute to a more significant size cockle class (see figure 4.5.4).
4. There is still a highly mixed composition of size and undersize cockle across all beds with few discrete patches of predominantly size cockle (see size frequency graphs in Annex 1).
5. The average density of size cockle has increased across the Bay and for the majority of beds (see table 4.5.3), but particularly for Flookburgh and Pilling.

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 EMS¹.

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 that do not interact with the fishing activity have been **screened out**. Features and sub-features identified to interact with the fishing activity have been included table 1 below. The Wyre-Lune MCZ feature smelt (*Osmerus eperlanus*) has been screened out due fishing activity being outside the MCZ and fishing activity not considered a concern for the recovery of this feature.

Pressures: All pressures from the Advice on Operations table provided in the Morecambe and Duddon Estuary Conservation Advice package (<https://designatedsites.naturalengland.org.uk/SiteList.aspx?siteName=morecambe&countyCode=&responsiblePerson=&DesignationType=All>) have been screened out, other than the pressures in the following table, due to the nature of the fishing activity.

Table 2. Designated features, their sensitivity to fishing activity and the potential for likely significant effect.

Qualifying Feature	Sub-feature	Potential pressure(s)	Sensitivity	Potential for Likely Significant Effect?	Justification and evidence
H1130. Estuaries H1140. Mudflats and sandflats not covered by seawater at low tide; Intertidal mudflats and sandflats H1160. Large shallow inlets and bays SPA Supporting Habitats	Intertidal mud	Abrasion/disturbance of the substrate on the surface of the seabed	Sensitive	NO	Activity does not occur within the vicinity of intertidal mud.
		Habitat structure changes – removal of substratum (extraction)	Sensitive	NO	
		Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	Sensitive	NO	
		Removal of non- target species	Sensitive	NO	
		Removal of target species	Sensitive	NO	

¹ Managing Natura 2000 sites: http://ec.europa.eu/environment/nature/natura2000/management/guidance_en.htm

	Intertidal sand and muddy sand	Abrasion/disturbance of the substrate on the surface of the seabed	Sensitive	NO	Access to fishery will be over feature, and hand gathering with a rake will interact with the feature, but both are unlikely to have any impact in such a highly dynamic site.
		Habitat structure changes – removal of substratum (extraction)	Sensitive	NO	Access to fishery will be over feature, and hand gathering with a rake will interact with the feature, but both are unlikely to have any impact in such a highly dynamic site,
		Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	Sensitive	NO	Access to fishery will be over feature, and hand gathering with a rake will interact with the feature, but both are unlikely to have any impact in such a highly dynamic site,
		Litter	Sensitive	YES	Feature and pressure taken through to AA.
		Removal of non-target species	Sensitive	YES	Highly selective fishery - no by-catch of non-target species. However, there is possibility of damaging juvenile cockles (considered a non-target)
		Removal of target species	Sensitive	YES	Feature and pressure taken through to AA.
H1310 <i>Salicornia</i> and other annuals colonising mud and sand; Glasswort and other annuals colonising mud and sand; Pioneer saltmarsh H1330. Atlantic salt meadows (<i>Glaucopuccinellietalia maritimae</i>) (referred to as Saltmarsh) SPA Supporting Habitats		Abrasion/disturbance of the substrate on the surface of the seabed	Sensitive	YES	Feature and pressure taken through to AA.
		Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	Sensitive	YES	Feature and pressure taken through to AA.
		Litter	Sensitive	YES	Feature and pressure taken through to AA.
A026 <i>Egretta garzetta</i> ; Little egret A038 <i>Cygnus Cygnus</i> ; Whooper swan A040 <i>Anser brachyrhynchus</i> ; Pink-footed goose A048 <i>Tadorna tadorna</i> ; Common shelduck A050 <i>Anas Penelope</i> ; Wigeon A054 <i>Anas acuta</i> ; Northern pintail A063 <i>Somateria mollissima</i> ; Common eider (Breeding) A067 <i>Bucephala clangula</i> ; Goldeneye A069 <i>Mergus serrator</i> ; Red-breasted merganser 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	Supporting Habitats assessed above	Removal of target species (cockles)	Some species sensitive, others screened out	YES	For all shore feeding SPA features that feed on infaunal molluscs, with focus on those which bivalves are the main food source: - Common eider - Eurasian oystercatcher - Red knot
		Removal of non-target species	Sensitive	YES	Highly selective fishery - no by-catch of non-target species. However, there is possibility of damaging juvenile cockles (considered a non-target)
		Visual disturbance	Sensitive	YES	All species taken through to AA

A142 <i>Vanellus vanellus</i> ; Lapwing					
A143 <i>Calidris canutus</i> ; Red knot					
A144 <i>Calidris alba</i> ; Sanderling					
A149 <i>Calidris alpina</i> ; Dunlin					
A151 <i>Calidris pugnax</i> ; Ruff					
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>Phalacrocorax carbo</i> ; Cormorant					
<i>Podiceps cristatus</i> ; Great crested grebe					
A183 <i>Larus fuscus</i> ; Lesser black-backed gull (Breeding)					
A184 <i>Larus argentatus</i> ; Herring gull (Breeding)					
A191 <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					

Is the potential scale or magnitude of any effect likely to be significant?²	Alone Yes	OR In-combination³ Yes
	Comments :	Comments : These activities also occur at the site: <ul style="list-style-type: none"> • Beam Trawl (Shrimp) • Pots and Creels • Drift and Fixed nets (including stake) • Hand working (size mussel) • Hand-working (cockles)
Have NE been consulted on this LSE test? If yes, what was NE's advice?	No - NWIFCA consider AA required	

² Yes or uncertain: completion of AA required. If no: LSE required only.

³ If conclusion of LSE alone an in-combination assessment is not required.

6. Appropriate Assessment

Potential risks to features

6.1 Potential risks to SAC and SPA supporting habitat features from a hand-gathered cockle fishery

Features at risk of interacting with fishing activity:

- Intertidal sand and muddy sand
- Saltmarsh

6.1.1 Pressures and Potential Impacts

The pressures that each Morecambe Bay SAC qualifying feature and sub-feature, and Morecambe Bay and Duddon Estuary SPA supporting habitats are susceptible to are detailed in Natural England's 'Advice on Operations'. The key impacts that the relevant supporting features are vulnerable to are detailed below.

i. Litter – Intertidal sand and muddy sand and saltmarsh

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. Items have included food and drink receptacles, cockle net bags and sacks. Potential 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 - Intertidal sand and muddy sand

Potential to affect the presence and spatial distribution of feature communities, the presence and abundance of typical species and the species composition of component communities.

iii. Removal of non-target species - Intertidal sand and muddy sand

Potential to affect the presence and spatial distribution of feature communities, the presence and abundance of typical species and the species composition of component communities.

iv. Abrasion, penetration and disturbance of the substrate - saltmarsh

There is a potential for vehicles to cause damage to the saltmarsh when accessing the fishery which has the potential to affect the extent, distribution and condition of the feature.

6.1.2 Exposure

i. Litter

Between 2016 – 2024 there have been a number of cockle fisheries that have occurred on Leven Island, Flookburgh, Pilling Sands, Leasowe cockle beds and South Penfold as well as ongoing size mussel fisheries around NWIFCA district. In this time there were reports of litter being an issue at these fisheries. These have subsequently been highlighted to Byelaw 3 hand-gathers and buyers. There is a Code of Conduct (Annex 2) which sets out good practices for

Intertidal shellfish fisheries, which includes not leaving litter. When NWIFCA officers are inspecting the fisheries, they will be able to monitor levels of littering.

The NWIFCA is confident that littering will be controlled, and monitoring will be in place to identify quickly if litter is a problem. Therefore, the NWIFCA can conclude that litter will have no risk of adverse effect on the integrity or conservation status of the designated features within the site.

ii. Removal of target species - Intertidal sand and muddy sand

Surveys have been carried out across Morecambe Bay and a summary of results have been provided in section 4.5 of this assessment.

Further to the above information there will also be limited stocks of size and undersize cockle on other beds around Morecambe Bay these include Warton Sands, Duddon Sands, Half Moon Bay, and Cockerham Sands.

The proposal is to open Flookburgh, Leven on 1st September and Pilling Sands on 1st October in Morecambe Bay to hand gathering for cockles, the delayed opening on Pilling is to give the cockle more time to grow to size as a large proportion of the stock is on the borderline to being size. All other beds would be closed under paragraph 15 of NWIFCA Byelaw 3. The target species is size cockle, which will be removed by the fishery.

The proposed fisheries would be managed under NWIFCA Byelaw 3 – Permit to Fish for Cockle and Mussels which includes management measures such as a minimum size, fishing methods and the requirement of a permit for commercial fishing. There is a maximum of 150 NWIFCA Byelaw 3 permits.

Aldingham and Newbiggin, and Middleton, will remain closed. Table 6.1.2.1 show the biomass of size and undersize cockle which will remain on the closed beds.

Table 6.1.2.1 – Biomass of cockle beds which will remain closed.

Cockle Bed	Bed Area (ha)	Estimated Biomass of Size Cockle (tonnes)	Estimated Biomass of Undersize Cockle (tonnes)
Aldingham and Newbiggin	306	846	874
Middleton	1319	518	216
TOTAL	4656	1364	1090

In addition to what will be left unfished on the closed beds there will be some biomass of undersize on the beds that will open: Flookburgh 2551 tonnes, Leven 305 tonnes, and Pilling 1640 tonnes. Although some of the undersize cockle will grow and reach size before or during the fishery some will remain on the bed.

The size cockle in densities which are likely to be targeted by byelaw 3 permit holders are only in discrete locations and fishing will only occur in areas where the size cockle is at the greatest densities. Although there is size cockle on a large proportion of the beds much of the beds will remain unfished because the cockle density is not high enough to make it commercially viable to fish it. The area likely to be targeted by permit holder on Pilling is 525 hectares of the 1500 hectares of cockle bed, and on Flookburgh and Leven, two areas total 925 hectares of the 3925 hectares of cockle bed. This equates to 27% of the open beds, and 14% of all the cockle beds surveyed in Morecambe Bay.

Although the proposal is to open a large proportion of the Morecambe Bay cockle beds, when considering the above it is not considered that any further management is needed.

Therefore the NWIFCA can conclude that removal of target species will have no risk of adverse effect on the integrity or conservation status of the designated features within the site.

iii. Removal of non-target species - Intertidal sand and muddy sand

The fishery is highly selective with minimal bycatch, however, there is the potential for damage to occur to juvenile species or other bivalves. NWIFCA tested a number of fishing methodologies to investigate the potential impact of jumbo-ing and raking on juvenile cockle. Unfortunately, due to the difficulty of designing a methodology that removes the numerous variables that affect the breakage rates of cockles, changing environmental factors and the natural variation of cockle densities, the investigations did not produce results from which the difference in sample size (number of individuals) could be assigned to damage or loss during the fishing activity. However, a number of observations can be drawn from the data collected. There were no significant numbers of damaged cockle observed in any of the samples and although the sample sizes (number of individual cockles) varied between treatments (control, jumbo-ing, jumbo-ing and raking) there was no significant mortality of juvenile stock from fishing.

The size cockle in densities which are likely to be targeted by byelaw 3 permit holders are only in discrete locations and fishing will only occur in areas where the size cockle is at the greatest densities. Although there is size cockle on a large proportion of the beds much of the beds will remain unfished because the cockle density is not high enough to make it commercially viable to fish it. The area likely to be targeted by permit holder on Pilling is 525 hectares of the 1500 hectares of cockle bed, and on Flookburgh and Leven, two areas total 925 hectares of the 3925 hectares of cockle bed. This equates to 27% of the open beds, and 14% of all the cockle beds surveyed in Morecambe Bay.

When considering the impacts of fishing to other bivalves and molluscs, NWIFCA carry out a number of surveys on the cockle beds and the following observations are concluded: *Hydrobia* spp. are a common species on the shore line but are often found in the upper reaches of the intertidal area, generally in muddy areas, and therefore away from the majority of the fishing activity; the bivalve *Limecola balthica* can be mixed in with cockles, but based on their morphology, the impacts of fishing would be very similar to that of juvenile cockle and would

therefore be minimally impacted from fishing activity. No other species have been observed in significant numbers.

NWIFCA Byelaw 3 close season is for the protection of adult cockles whilst spawning and for the protection of juvenile cockle when it has newly settled.

Therefore the NWIFCA can conclude that removal of non-target species will have no risk of adverse effect on the integrity or conservation status of the designated features within the site

iv. Abrasion, penetration and disturbance of the substrate - saltmarsh only

Flookburgh / Leven Sands

The main access to the fishery is via the hard core track off Moor Lane (West Plain). This access route is well established for tractor (shrimping) and quad bike access and has been used in the cockle fisheries for decades. There is very little risk if any of the saltmarsh being damaged. There is a small potential that other access points will be used. As such Moor Lane will be the only access point allowed through the flexible permit conditions of the fishery.

Pilling Sands

The main access to the fishery is via the concrete track access point at Fluke Hall Lane as used in previous fisheries. There are very few other access points to this bed and as this is the easiest route to the fishery, and parking / tonning up areas exist there, it is likely to be the only access point used. This route is well-established and there is very little risk if any of the saltmarsh being damaged. As there is small chance other access routes could be used, the Fluke Hall Lane access route will be the only access point allowed through the flexible permit conditions of the fishery.

The Code of Practice for Intertidal Hand gathering (Annex 2), highlights good practice in regard to avoiding damage to saltmarsh. It has also been stressed to industry the importance of avoiding damage to the saltmarsh and that the NWIFCA would consider closing the fishery if any damage occurs. The access will be monitored by NWIFCA officers.

Through implementation of management, sufficient monitoring, and the powers to close the fishery if damage occurs the NWIFCA is confident that there is no risk of adverse effect on the integrity or conservation status of the site.

6.2 SPA and Ramsar Features

- SPA and Ramsar birds

Due to the specific concerns raised in 2021 by Natural England due to the low WeBS count data for Morecambe Bay, and from review the 5 year WeBS count data, a more detailed assessment specific to the following species has been completed.

- Pink footed goose
- Knot
- Herring Gull

- Bar tailed godwit
- Grey plover
- Oystercatcher

In addition to the above, grey plover, dunlin, sanderling and turnstone have been highlighted as having a restore objective for the population targets.

6.2.1 Potential Impacts

- i) Removal of target species (cockles) for all shore feeding SPA features that feed on infaunal molluscs.

Cockles form part of an important prey resource for eiders, oystercatchers and knot as well as forming part of a wide variety of prey items for many of the designated species including grey plover, dunlin, sanderling and turnstone. If bird populations are to be maintained in or restored to healthy condition, sufficient shellfish to meet their demands must remain for them.

The impact of removal of essential prey resource by fishing activity varies at different times of the year. For example, prey resource requirements are 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 in the spring prior to migrations 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, Poot et al. (2014) suggests a modal size class of 9mm for knot when targeting cockles with a range of 4-13 mm

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) Removal of non-target species - for all shore feeding SPA features that feed on infaunal molluscs.

Infaunal molluscs form part of an important prey resource and form part of a wide variety of prey items for many of the designated species. The impact of removing an essential prey resource by fishing activity varies at different times of the year. For example, prey resource requirements are 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 additional resources to put on weight and get into best condition in the spring prior to migrations 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.

- iii) Visual disturbance - All SPA species within vicinity of fishery, on the saltmarsh around the access routes and over the sandbanks.

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.

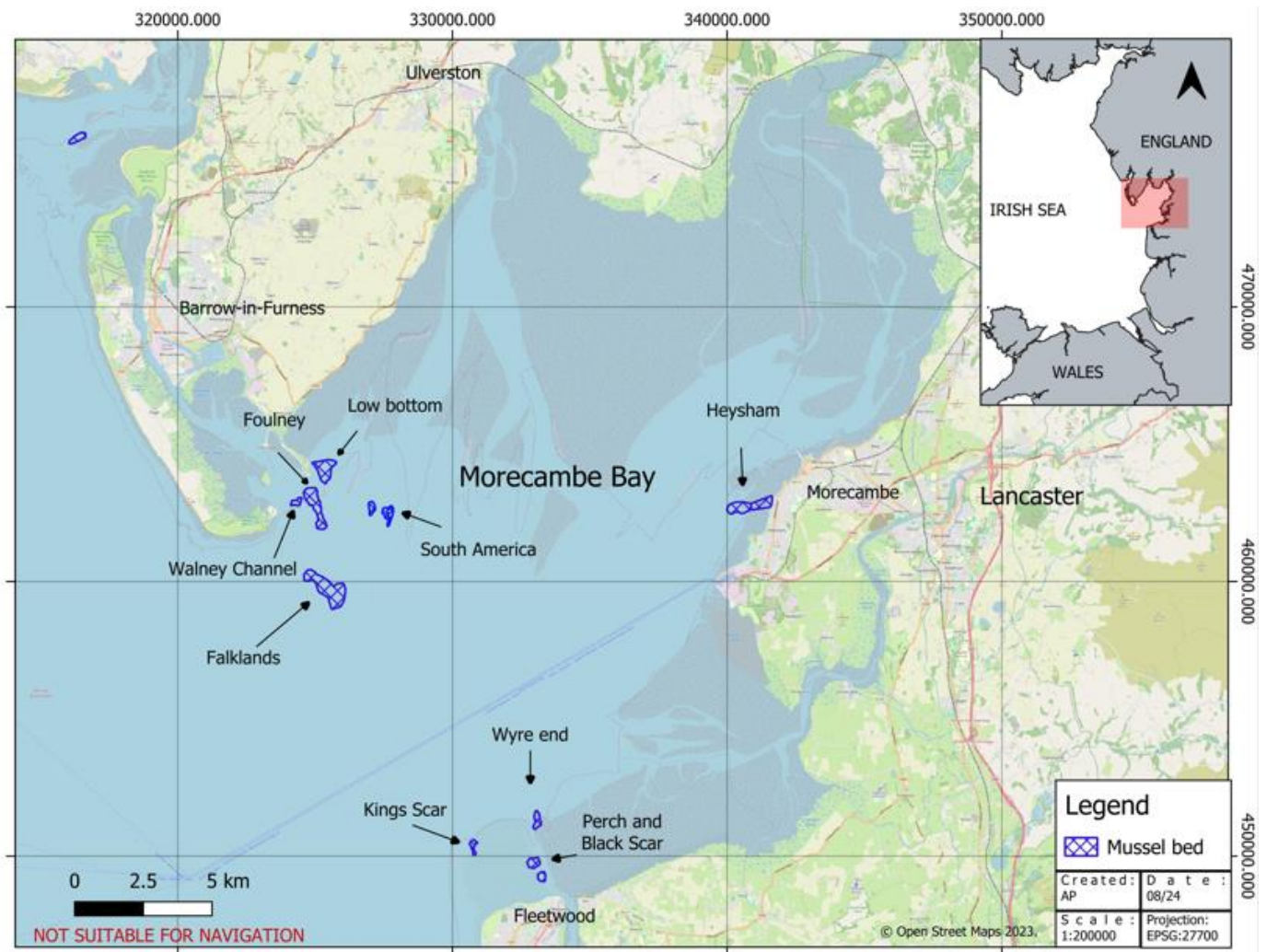
6.2.2 Exposure

- i) Removal of target species (cockles) for all shore feeding SPA features that feed on infaunal molluscs.

A summary table of the cockle stocks has been provided in section 4.5 and section 6.1.2 (ii) above gives detailed information about the amount of cockle that will be left on closed cockle beds and the areas of unfished and therefore undisturbed cockle beds which will be available for bird food requirements. Further to the above, the biomass figures from the surveys do not include estimates for under 5mm cockle due to the highly variable nature of cockle this size. Some of which will be within the 4-13mm size class suitable for knot to feed on, although only low densities of 2024 cockle spat was picked up in the survey, it may be that the surveys were slightly early to pick up the full extent of the settlement.

Enforcement of the minimum size of cockle within NWIFCA Byelaw 3 means undersize cockle will remain on the bed. Abundant cockle stocks are often absent from the Bay suggesting if they are present bivalve eating birds will utilise them but do not necessarily rely on them. Mussel beds in the site are more consistent with the majority of them currently holding an abundant stock of mussel and are likely to play a more constant role when it comes to bird food requirement. Below is a summary of the current condition of the mussel beds in Morecambe Bay.

A summary of the surveys and inspections carried is provided in Table 6.2.2.1, showing the biomass (where calculated), coverage, density and size range of mussel.



Location of the mussel beds in Morecambe Bay

Table 6.2.2.1 – Summary of Dutch Wand surveys, and NWIFCA inspections in Morecambe Bay mussel beds 2024

Month	Name	Survey Method	Area (ha)	Description
Feb 24	Duddon	Inspection	N/A	Area had received a 2023 settlement, but was 95% dead on inspection.
Apr 24	Foulney Skear	Dutch Wand	45	Undersize Mussel 870 tonnes Size Mussel 3326 tonnes Total 4196 tonnes
Apr 24	Walney Channel	Dutch Wand	8	Undersize Mussel 30 tonnes Size Mussel 695 tonnes Total 725 tonnes
Apr 24	Low Bottom	Dutch Wand	35	Undersize Mussel 1684 tonnes Size Mussel 774 tonnes Total 2458 tonnes
Jun 24	Wyre End	Inspection	14	Mainly seed from 2024 settlement ranging in density from 10-80% coverage, some area of 25-30mm mussel from 2023 settlement.
Jun 24	Rossall Skear	Inspection	n/a	Access limited by tide, mussel sparse and mixed sizes.
Jun 24	Neckings	Inspection	n/a	No Access
Jun 24	Kings Scar	Inspection	5	Mainly seed from 2024 settlement ranging in density, some area of 25-30mm mussel from 2023 settlement.

Jun 24	Perch Scar	Inspection	n/a	Mussel mud still present from 2023 settlement, small area of 2024 settlement South West of the bed
Jun 24	Black Scar	Inspection	2	Mainly seed from 2024 settlement, 70% coverage.
Jul 24	Heysham	Inspection	n/a	Most of the main skear is covered in mussel, mainly 2024 seed, 30-70% coverage, 20-25mm in length. Some areas of 2023 mussel reaching 45mm in length. Outer skears appear to have mussel on them.
Jul 24	South America	Inspection	24 (2 areas)	Mainly 40-60 mussel from 2023 settlement, some smaller 2024 mussel mixed in. Density ranged from 20-70% coverage.

Although no specific figures have been given for the bird food requirements for bivalve eating birds from the summary of the cockle and mussel beds provided, NWIFCA is confident that the bird food requirements are met for the site by the current cockle and mussel stock across the Bay.

NWIFCA is confident that the removal of target species from the intertidal sand and muddy sand supporting habitat will have no risk of adverse effect on the SPA features, which utilise cockle as a prey source and therefore have no risk of adverse effect on integrity or conservation status of the site.

ii) Removal of non-target species - for all shore feeding SPA features that feed on infaunal molluscs

The impact of the removal of non-target species has been assessed above in section 6.1.2 (iii) with no further management required due to the minimum impact of fishing activity on undersize cockle and other infaunal molluscs, which will be available as a prey source.

NWIFCA is confident that the removal of non-target species from the intertidal sand and muddy sand supporting habitats will be minimal (if any) and therefore will have no risk of adverse effect on the SPA features, which utilise cockle as a prey source. There is therefore no risk of adverse effect on integrity or conservation status of the site.

iii) Visual disturbance - All SPA species within vicinity of fishery, on the saltmarsh access route and over the sandbanks

The fishery at Flookburgh and Leven will be prosecuted from the 2nd September 2024 to the 30th April 2025. The Pilling Fishery will be prosecuted from the 1st October to the 30th April 2025. Morecambe Bay is a vital over-wintering area for waders including cockle predating species such as oystercatcher and knot. There is subsequently a risk of disturbance to these birds during fishing activity, which will be focussed around low water times.

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 two to three hours before high water. Disturbance to birds utilising the top of the beach and surrounding saltmarshes will be limited by only having one access route on to the beds. These access routes are habitually used by dog walkers, other members of the public who walk out over

the sands and by other fishing activities such as shrimping and intertidal netting. Birds are therefore likely to be habituated to a certain level of disturbance.

Disturbance will be minimised by vehicles only travelling to and from the fishery once each way per tide and via a low number of access points with the only access points being West Plain at Flookburgh and Leven, and Fluke Hall Lane at Pilling. The fishery will be limited to one tide per day, 5 days a week. The open tide will likely be the one with the most daylight, mean all beds will be shut for one tide per day and all tides over the weekend, reducing the disturbance further.

There are also large areas of the Bay that hold cockle and mussel of varying size ranges which will either not be open to fishing or will not be targeted by gatherers due to the lack of size cockle. These will provide alternative area for birds to remain undisturbed.

At Flookburgh / Leven Sands the bed area is very large and fishers are likely to be working in small groups in the middle to low reaches of the bed which will minimise disturbance which is only likely to cause temporary and insignificant displacement as there will be large areas not being fished. 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 that are less sensitive to disturbance, such as oystercatchers, that target the larger cockle have been seen to be feeding very close to hand-gatherers at Flookburgh and may benefit from loose cockle on the sand after jumbo-ing (pers. comm. Knott M. 2018).

Further information on the species highlighted within Natural England formal advice in 2021 and have been selected on the last 5 years WeBS by NWIFCA officers has been provided below. Information on bird roosting and feeding has been taken from Natural England conservation advice package for the site ([Marine site detail \(naturalengland.org.uk\)](https://naturalengland.org.uk)).

Bar-tailed godwit: The Lune Estuary is known to be a key for bar-tailed godwit on passage as well as the overwintering population with at times the majority of the individual present within Morecambe Bay being within the Lune estuary. Pilling Sands is located within the Lune Estuary and therefore there is the potential for disturbance. Main locations for roosting are noted as Conder Estuary Marsh, Glasson Marsh and Middleton, other important locations include West Plain, Potts Corner, Ocean Edge, Plover Scar and locations on Walney Island. Flookburgh and Leven access route is through West Plain and therefore there is potential for disturbance. The roost sites are away from the main access point onto Pilling sands and although West Plain is an important roost site, the fishery will take place three hours either side of low water which will further reduce disturbance. There is potential for the birds to be present on Pilling Sands, Flookburgh and Leven while feeding but there is no indication that the species would favour these beds over anywhere else in Morecambe. Bar-tailed godwit are known to feed on molluscs including *Macoma tellina*, cockle and *Hydrobia spp.* NWIFCA carry out a number of surveys on the cockle beds and the following observations are concluded: *Hydrobia spp.* are a common species on the shore line but are often found in the upper reaches of the intertidal area, generally in muddy areas, and therefore away from the majority of the fishing activity; other bivalve species can be mixed in with cockles, but do not favour the same sediment and can be found across the bed. The juvenile cockle can be present across the beds not just where the size cockle is present. Further to this the areas of highest density size cockles are only found in discrete locations and fishing will only occur in areas where the size cockle is at the greatest densities. Although there is size cockle on a large proportion of the beds much of the beds will remain unfished because the cockle density is not high enough to make it commercially viable to fish it. Disturbance will be

reduced further from previous fishery to, due to the restriction on tide to five tides a week out of the 14 available.

Grey Plover: Main roost site include Walney and Middleton, Fluke Hall provides a refuge roost on high spring tides when other sites are inundated. Fluke Hall is close to the main access point to the Pilling fishery but the fishery operates three hours either side of low water, therefore very unlikely to disturb a roost at high water that occurs on large spring tides. West Plain is not known to be a roost site for Grey Plover. There is potential for the birds to be present on Pilling Sands, Flookburgh and Leven while feeding but there is no indication that the species would favour Pilling Sands Flookburgh or Leven over anywhere else in Morecambe Bay. Pilling sands, Flookburgh and Leven are large areas with the fishing located in the in discrete locations. Although there is size cockle on a large proportion of the beds much of the beds will remain unfished because the cockle density is not high enough to make it commercially viable to fish it. The area is likely to be targeted by permit holder on Pilling is 525 hectares of the 1500 hectares of cockle bed, and on Flookburgh and Leven, two areas total 925 hectares of the 3925 hectares of cockle bed. This equates to 27% of the open beds, and 14% of all the cockle beds surveyed in Morecambe Bay. Disturbance will be reduced further from previous fishery to, due to the restriction on tide to five tides a week out of the 14 available.

Herring gull (Breeding): Herring gulls breed within Morecambe bay between May and July at colonies on Walney and Hodbarrow. Fishery is outwith of the breeding season and away for the breeding colonies.

Herring gull (as part of the waterbird assemblage): Herring gulls will be found within the site but there is no evidence they would favour Pilling, Flookburgh or Leven sands over any of the other cockle beds or intertidal sand flats. Herring gulls are more likely to favour mussel beds within the site.

Knot: The main roosting sites within Morecambe bay include Middleton, East Plain, and the Stone Jetty and Heysham heliport as well as other location in North Morecambe Bay. There are locally important sites including Lane Ends, South End on Walney, West Plain and Sunnyslopes Breakwater. There is not going with the Pilling fishery and the roost sites. Flookburgh and Leven access route is through West Plain and therefore there is potential for disturbance, the fishery will take place three hours either side of low water which will make disturbance to roost site unlikely. Knot are known to feed on sand banks, mussel beds on salt marsh. There is potential for the birds to be present on Pilling Sands, Leven and Flookburgh while feeding but there is no indication that the species would favour these areas over anywhere else in Morecambe Bay. Knot are known to feed on molluscs including cockle and mussel as well as *Hydrobia spp.* *Hydrobia spp.* are a common species on the shore line but are often found in the upper reaches of the intertidal area, generally in muddy areas, and therefore away from the majority of the fishing activity. The juvenile cockle can be present across the beds not just where the size cockle is present. Further to this the areas of highest density size cockles are only found in discrete locations and fishing will only occur in areas where the size cockle is at the greatest densities. Although there is size cockle on a large proportion of the beds much of the beds will remain unfished because the cockle density is not high enough to make it commercially viable to fish it. Disturbance will be reduced further from previous fishery to, due to the restriction on tide to five tides a week out of the 14 available. The area is likely to be targeted by permit holder on Pilling is 525 hectares of the 1500 hectares of cockle bed, and on Flookburgh and Leven, two areas total 925 hectares of the 3925 hectares of cockle bed. This equates to 27% of the open beds, and 14% of all the cockle beds surveyed in Morecambe Bay. Looking at BTO WeBS count data for Knott in Morecambe Bay,

numbers have increased from concerns since the significant decrease in 2019/20 and are now at similar numbers to 2018/19 count data.

Pink-footed goose: the Wyre Estuary is where the main concentration of the species is, particularly around Pilling. It is known that Pink-footed geese will roost on Pilling particularly on the fringes of the saltmarsh and the upper shore. There is potential for disturbance of roost in the hours of darkness though the winter while the fishery is open. The main access route for the fishery is at the Western edge of the Saltmarsh. The main extent of the saltmarsh and where officers have witnessed the roost of Pink-footed geese in the area East of the access point to the mouth of the river cocker. The main fishing area is located to the East but from mid-shore down to low water. Travel to and from the fishery is likely to be limited to one trip each way at the start and end of fishing which will further limit the chances of disturbance. Disturbance will be reduced further from previous fishery to, due to the restriction on tide to five tides a week out of the 14 available, the tides which are open will preference the ones in daylight. There is likely to be no interaction with the species when they are not roosting as they will be feeding in nearby fields.

Oystercatcher: Important roosting sites are located at East Plain and Hesk Bank, West Plain and South Walney. Flookburgh and Leven access route is through West Plain and therefore there is potential for disturbance, the fishery will take place three hours either side of low water which will make disturbance to roost site unlikely. There is potential for the birds to be present on Pilling Sands, Leven and Flookburgh while feeding. The area is likely to be targeted by permit holders on Pilling is 525 hectares of the 1500 hectares of cockle bed, and on Flookburgh and Leven, two areas total 925 hectares of the 3925 hectares of cockle bed. This equates to 27% of the open beds, and 14% of all the cockle beds surveyed in Morecambe Bay. Leaving large area of Morecambe Bay undisturbed. Disturbance will be reduced further from previous fishery to, due to the restriction on tide to five tides a week out of the 14 available. Oystercatchers feed on a mixture of shellfish species with mussel playing a more predominantly on feeding location.

There is therefore no reason to suggest that disturbance to birds would be damaging unless weather was exceptionally severe. In the even of severe weather, NWIFCA will follow the procedures set out in the NWIFCA Intertidal Fisheries Cold Weather Protocol (Annex 3) agreed with Natural England in April 2023 and will be reviewed upon requirement. Agreed weather stations for taking measurements are detailed in the shared internal cold weather protocol and will be reviewed at the time of use.

NWIFCA is confident that the risk of visual disturbance is low and that the fishery will have no risk of adverse effect on the SPA features, which utilise cockle as a prey source and therefore have no risk of adverse effect on integrity or conservation status of the site.

7. Summary of Enforcement and Monitoring of the Cockle Fisheries to ensure No Adverse Effect on the Integrity of the European Site:

- a) Rigorous enforcement of the conditions set out in the permit conditions;
- b) Monitored landings through:
 - i. Regular IFCO reporting of numbers fishing and estimates of quantities removed;
 - ii. Landings returns from Byelaw 3 permit holders (required under the byelaws);monitored landings and inspection reports will be used to determine when the TAC has been reached and the fishery is required to close.
- c) Monitoring and inspection to inspect catch and ensure that there are no litter issues;
- d) Prescribed access routes are used to prevent any encroachment on the saltmarsh
- e) Fishery will be opened for only one tide a day, five days a week
- f) NWIFCA enforcement officers will use intelligence and contacts with fellow enforcement agencies to pursue any suspicions of non-permitted or illegal gathering activity;
- g) A NWIFCA officer will be present on the beds and at the check point and can enforce a closure at any point.

NWIFCA in 2018 made the decision to close the Morecambe Bay fishery due to non-compliance with management. Indications are that industry are now much more aware of the firm stance of the Authority to any activity that could pose a risk of non-compliance with the HRA, and that they will act to do the same again should further risk be detected. The level of NWIFCA Enforcement devoted to these fisheries means non-compliance would be detected swiftly and reported back to the Authority immediately. This will deter non-compliance in the future.

Table 2: Summary of Impacts

Feature/Sub feature(s)	Conservation Objective	Potential pressure (such as abrasion, disturbance) exerted by gear type(s)	Potential ecological impacts of pressure exerted by the activity/activities on the feature <i>(reference to conservation objectives)</i>	Level of exposure of feature to pressure	Mitigation measures
<p>Intertidal sand and muddy sand (Estuaries, Mudflats and sandflats not covered by seawater at low tide, Large shallow inlets and bays, SPA supporting habitats)</p>	<p>Maintain or restore the extent, distribution structure or function of the feature.</p>	<p>Litter</p> <p>Removal of target species</p> <p>Removal of non-target species</p>	<p>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.</p> <p>Removal of target species could change the invertebrate community composition of the sandbanks.</p> <p>Removal of target species could change the invertebrate community composition of the sandbanks.</p>	<p>Littering levels will be monitored, and fishers encouraged to act responsibly through Code Of Conduct for Intertidal Shellfisheries. NWIFCA will liaise closely with local authority and NE, for early detection of any problems.</p> <p>A number of beds remain closed which have significant cockle stock on them. All the beds have undersize cockle which will remain on the bed. Cockle fishers will be spread across a number of beds and only in discrete small areas on the beds where significant size cockle is present.</p> <p>Observation from NWIFCA study on breakage rates, only a small area that is likely to be fished, size cockle areas being geographically different from the area of the highest density of undersize cockle and other common species in different areas to cockle or morphologically similar to undersize cockle.</p>	<p>None - current management measures sufficient with monitoring of the fishery</p> <p>None - current management measures sufficient with monitoring of the fishery</p> <p>None - current management measures sufficient with monitoring of the fishery</p> <p>With current management and monitoring, littering and removal of target species is unlikely to have an adverse effect on the integrity of the European Site.</p>
<p>Saltmarsh</p>	<p>Maintain or restore the extent, distribution structure or function of the feature.</p>	<p>Litter</p>	<p>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.</p>	<p>Littering levels will be monitored, and fishers encouraged to act responsibly through Code Of Conduct for Intertidal Shellfisheries. NWIFCA will liaise closely with local authority and NE, for early detection of any problems. The</p>	<p>None - current management measures sufficient with monitoring of the fishery</p>

		<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>Potential to effect the:-</p> <ul style="list-style-type: none"> - Extent and distribution - Presence and spatial distribution of saltmarsh communities - Presence and abundance of typical species - Species composition of component communities - Sediment composition and distribution 	<p>fishery will be closed if littering is a problem.</p> <p>Prescribed access routes through the flexible permitting conditions. Access and saltmarsh will be monitored and fishers encouraged to act responsibly through Code Of Conduct for Intertidal Shellfisheries. NWIFCA will liaise closely with local authority and NE, for early detection of any problems.</p>	<p>Prescribed access route through the flexible permitting conditions.</p> <p>With current management and monitoring, littering and removal of target species is unlikely to have an adverse effect on the integrity of the European Site.</p>
<ul style="list-style-type: none"> - <i>Somateria mollissima</i>; Common eider - <i>Haematopus ostralegus</i>; Eurasian oystercatcher - <i>Calidris canutus</i>; Red knot <p>shore feeding SPA features that feed on infaunal molluscs</p>	<p>Maintain or restore the population of each of the qualifying features, and, the distribution of the qualifying features within the site</p>	<p>Removal of target species (cockles)</p> <p>Removal of non-target species</p>	<p>Potential to effect the:-</p> <ul style="list-style-type: none"> - Food availability - Condition and survival of SPA species <p>Abundance of SPA species</p> <p>Potential to effect the:-</p> <ul style="list-style-type: none"> - Food availability - Condition and survival of SPA species <p>Abundance of SPA species</p>	<p>A number of beds remain closed which have significant cockle stock on them. All the beds have undersize cockle which will remain on the bed. Cockle fishers will be spread across a number of beds and only in discrete small areas on the beds where significant size cockle is present.</p> <p>Observation from NWIFCA study on breakage rates, only a small area that is likely to be fished, size cockle areas being geographically different from the area of the highest density of undersize cockle and other common species in different areas to cockle or morphologically similar to undersize cockle.</p>	<p>None - current management measures sufficient with monitoring of the fishery</p> <p>None - current management measures sufficient with monitoring of the fishery</p> <p>With additional management as described as well as current management, removal of target species is unlikely to have an adverse effect on the integrity of the European Site.</p>
<ul style="list-style-type: none"> - <i>Egretta garzetta</i>; Little egret - <i>Cygnus Cygnus</i>; Whooper swan 	<p>Maintain or restore the population of each of the qualifying features, and, the distribution of the qualifying features within the site</p>	<p>Visual disturbance</p>	<p>Potential to effect the:-</p> <ul style="list-style-type: none"> - Condition and survival of SPA species - Abundance of SPA species - Extent and distribution of supporting habitat available whilst a fishing activity is occurring 	<p>Disturbance to high tide roosting birds is very unlikely due to the timing of the fishery</p> <p>Disturbance will be minimised by vehicles only travelling to and from the</p>	<p>None - current management measures sufficient with monitoring of the fishery</p>

<p><i>Anser</i> <i>brachyrhynchus</i>; Pink-footed goose <i>Tadorna tadorna</i>; Common shelduck <i>Anas Penelope</i>; Wigeon <i>Anas acuta</i>; Northern pintail <i>Somateria</i> <i>mollissima</i>; Common eider <i>Bucephala clangula</i>; Goldeneye <i>Mergus serrator</i>; Red-breasted Merganser <i>Haematopus</i> <i>ostralegus</i>; Eurasian oystercatcher <i>Charadrius hiaticula</i>; Ringed plover <i>Pluvialis apricaria</i>; European golden plover <i>Pluvialis squatarola</i>; Grey plover <i>Vanellus vanellus</i>; Lapwing <i>Calidris canutus</i>; Red knot <i>Calidris alba</i>; Sanderling <i>Calidris alpina</i> <i>alpina</i>; Dunlin <i>Calidris pugnax</i>; Ruff <i>Limosa limosa</i>; Black-tailed godwit <i>Limosa lapponica</i>; Bar-tailed godwit <i>Numenius arquata</i>; Eurasian curlew <i>Tringa totanus</i>; Common redshank <i>Arenaria interpres</i>; Ruddy turnstone <i>Larus</i> <i>melancephalus</i>; Mediterranean gull <i>Phalacrocorax</i> <i>carbo</i>; Cormorant <i>Podiceps cristatus</i>; Great crested grebe</p>				<p>fishery once each way per tide and via a prescribed number of access points (Fluke Hall Lane at Pilling and Moor Lane at Leven and Flookburgh).</p> <p>Birds may benefit from loose cockle on the sand after jumbo-ing.</p> <p>Cold weather closure in place</p>	<p>With current management as described, visual disturbance is unlikely to have an adverse effect on the integrity of the European Site.</p>
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Seabird assemblage Waterbird assemblage <i>Larus fuscus</i> ; Lesser black-backed gull <i>Larus argentatus</i> ; Herring gull <i>Sterna sandvicensis</i> ; Sandwich tern <i>Sterna hirundo</i> ; Common tern <i>Sterna albifrons</i> ; Little tern					
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7. Conclusion

The authorisation, management and mitigation measures applied to this fishery, and the use of an effective enforcement team of NWIFCA Officers with multi-agency support, allows the NWIFCA to conclude that the cockle hand-gathered fishery on the Pilling, Leven and Flookburgh cockle bed in the Morecambe Bay will not have an adverse effect on the integrity of the European Site.

8. In-combination assessment

8.1 Other ongoing and Authorised Fisheries to be Included in the In-combination assessment:

Key information for the in-combination assessment has been collated below for the assessment; a full copy of the HRAs reference below can be located on NWIFCA website, link below.

<https://www.nw-ifca.gov.uk/marine-protected-areas/hra/>

NWIFCA-MB-EMS-002 – Otter Trawling

- There is no indication that this activity still occurs within the site.

NWIFCA-MB-EMS-003 – Shrimp Trawling

- Size vessels and nine intertidal tractor shrimpers. This number has decreased since the HRA was completed.

NWIFCA-MB-EMS-009 - Fishing with pots and creels

- Minimal activity within the site, HRA did not proceed past Test of Likely Significant Effect.

NWIFCA-MB-EMS-010 – Static and Drift Nets

- 30 vessels which mainly drift netted, 13 shore netter. Since the completion of the HRA, very little drift netting and there has been a significant reduction in the number of vessels, partly due to a reduction of vessel and the change in national bass regulations.

NWIFCA-MB-EMS-011 – Longlines

- Since completion of HRA there are a minimal number of set lines used and are all considered to be recreational.

NWIFCA-MB-EMS-013 – Shrimp Push Netting

- Minimal activity within the site, HRA did not proceed past Test of Likely Significant Effect. Nearly all activity likely to be recreational.

Size mussel fishery at Foulney

- Although there can be an increased activity when there are larger orders, fishery is typically prosecuted by 5-15 permit holders on larger spring tides.

8.1.2 In-Combination Assessment

It is unlikely there will be any in-combination effect with boat based fisheries, due to the scale of the fishery, target species and seasonality.

Pressures and features assessed within the in combination assessment:

Size mussel fishery – removal of target species (cockle) for all shore feeding SPA features that feed on infaunal molluscs

The size mussel fishery is open throughout the District all year round for Byelaw 3 permit holders. Each fishery is rigorously monitored and enforced by warranted IFCOs. In reality each fishery is only prosecuted by low numbers and modest amounts of mussel removed. For example in the months of January 1st to May 15th 2023 landings reports for the north Morecambe Bay mussel beds, which include Low Bottom, Foulney Ditch, Walney Channel, Foulney and Foulney Island, came to 224 tonnes. Biomass estimates have been provided in 6.2.2.1. The amount of stock which is removed is relatively small compared to the total biomass of the bed. As it is the same permit holders, mussel is likely to reduce due to cockle beds open, and if mussel does take place it is likely to reduce the effort on the cockle beds.

Intertidal fisheries:

Intertidal netting occurs mainly through the summer, limiting the cross over of activity types. year round and therefore has the potential to cross over with the cockle fishery, which will be open from mid-October until the 1st of May.

There is potential for in-combination effects with the intertidal shrimping using a tractor. Due to the following reasons the NWIFCA considers the in-combination effects of visual disturbance will have no risk of adverse effect on the integrity or conservation status of the site.

- The cockle fishery will only be open one tide a day five days a week on weekdays only. The shrimp fishery will not occur on all days and all tides whilst the cockle fishery is open.
- The majority of fishing will occur in daylight with the majority of the shrimp fishing occurring in the daylight.
- All fishing will only occur for two hours either side of low water.
- Access to and from the cockle and shrimp fishery will only be once per tide.

9. Summary of consultation with Natural England

Natural England were involved in discussions around the management of the fishery when discussed at TSB. Although the decision to open the fishery will be taken in the meeting on the 13th August 2024.

10. Integrity test

The NWIFCA concludes no adverse effect on the integrity of the European Site providing the management and mitigation measures provided in table 6 are implemented and upheld.

Annex 1 – Survey Report for Morecambe Bay 2024

Pilling Cockle Survey 03-07-2024

78 stations were sampled from a 500m grid. There was a wide range of cockle sizes across the bed from 5mm to > 35mm. Size cockle has increased in density with a max of 112 cockles per m², though it is still relatively low across the bed, with an average of 14 per m². There was little evidence of a 2024 cockle settlement with very little spat seen.

Means

Means were calculated from all stations with zero counts removed. Less than 5mm cockle was not used in the undersize figures due to the high variable survivability of cockle at this small size but has been included as a separate figure.

Mean number of size cockle	14 per m ²	(min 0, max 112)
Mean number of undersize cockle	26 per m ²	(min 0, max 254)
Mean number of 0-5mm cockle	0.4 per m ²	(min 0, max 10)

Mean weight of size cockle kg/m ²	0.116 kg/m ²	(min 0, max 0.804)
Mean weight of undersize cockle kg/m ²	0.109 kg/m ²	(min 0, max 1.093)

Maps

Maps were created showing the overall survey area, density of size cockle, density of undersize cockle (excluding cockles in the 0-5mm size range), the frequency of size classes (size of pie chart indicating the total density of cockles present), and the weight of undersize and size cockle.

Biomass

	Area of cockle present (ha)	Size Cockle (tonnes) ¹	Undersize Cockle (tonnes) ²
Pilling	1500	1742	1640

5-15 Class (tonnes)	15-20 Class (tonnes)	20-25 Class (tonnes)	25-35 Class (tonnes)	>35 Class (tonnes)
10	221	1586	1400	166

¹In regards to biomass size cockle defined as cockle which will not pass through a square gauge 20 x 20mm in size.

²The biomass of undersize cockle does not include any estimates of cockle less than 5mm due to the high variability of survival of this size class.

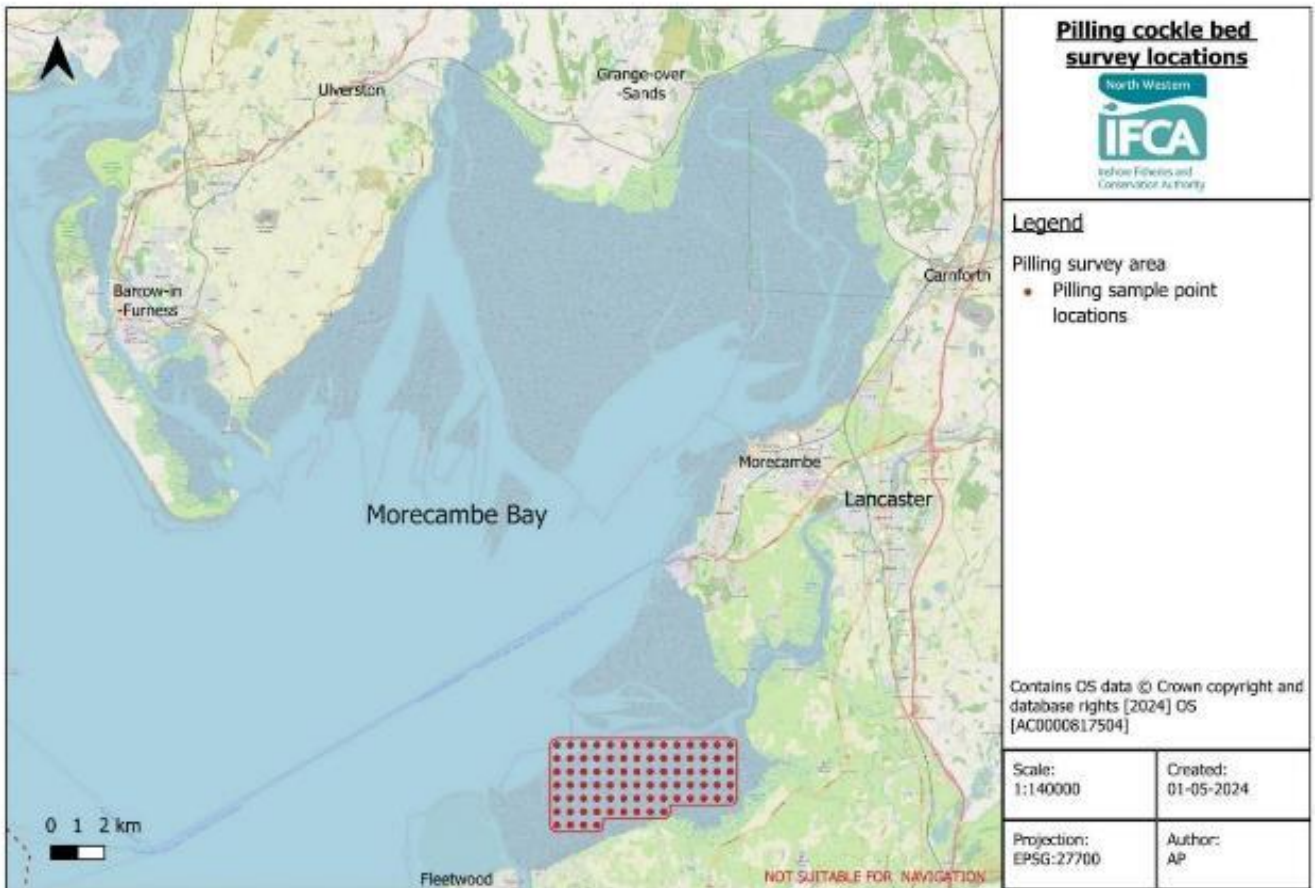


Figure 1. Illustration of position of Pilling Survey Area

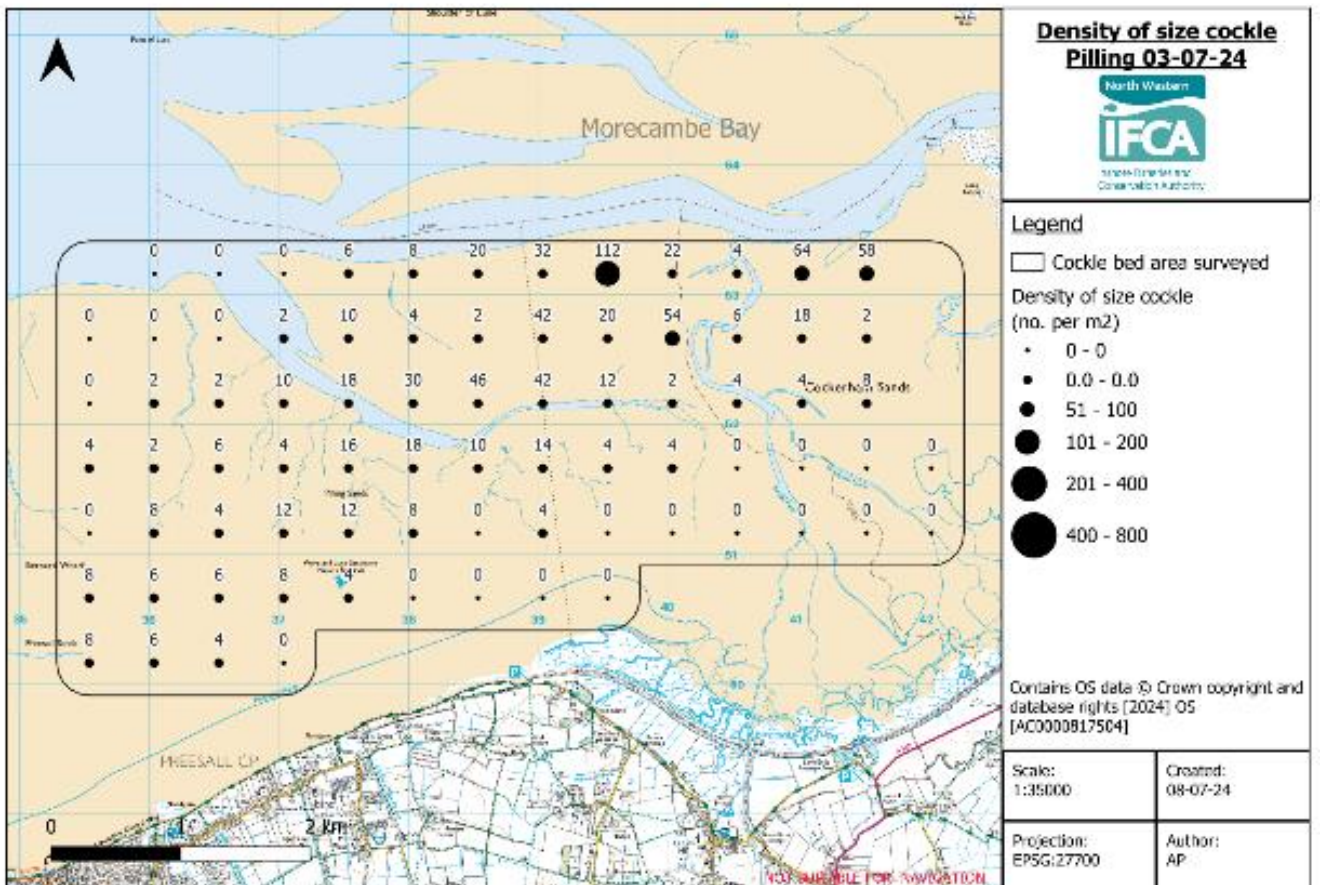


Figure 2. Density of size cockle per m² Pilling July 2024

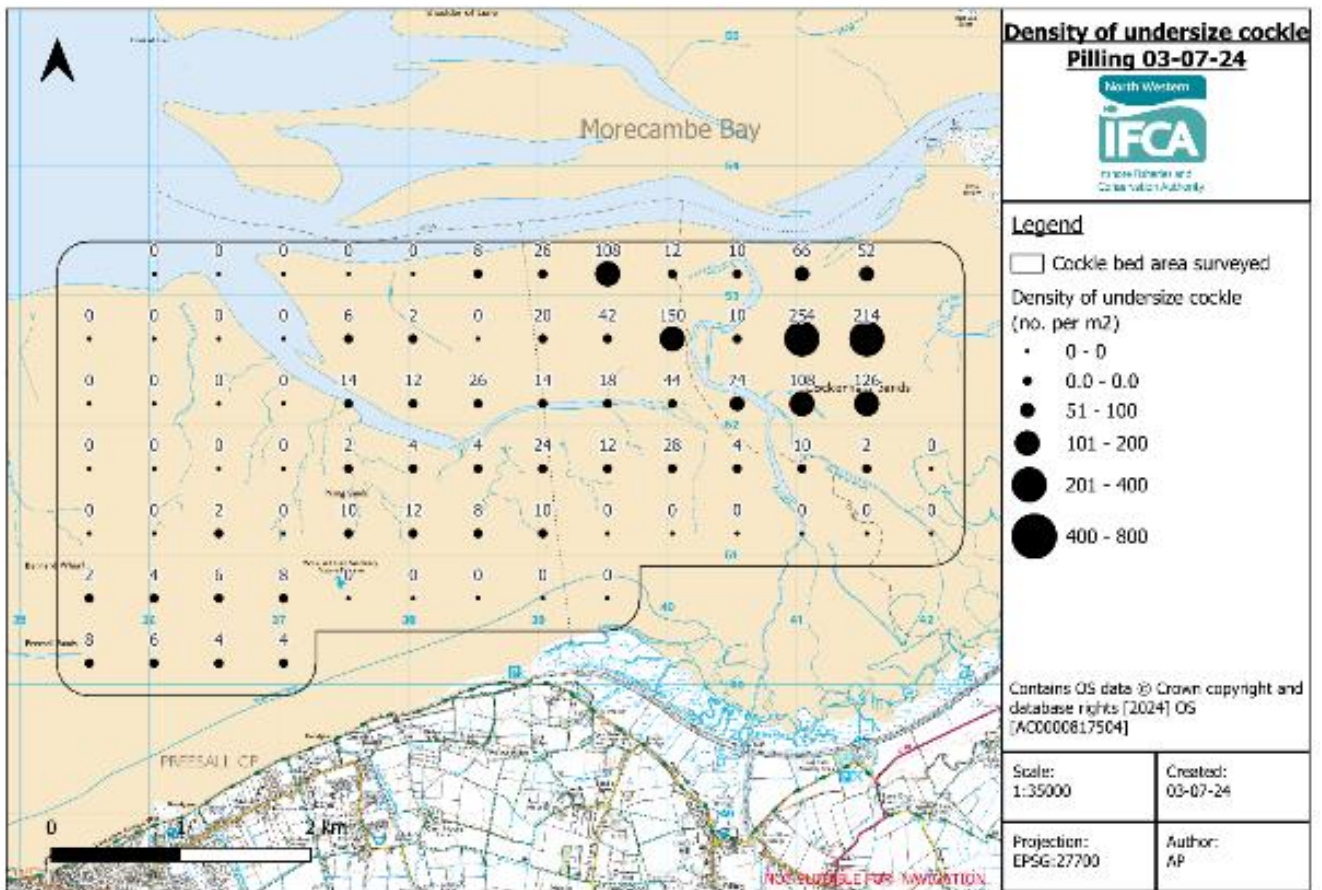


Figure 3. Density of undersize cockle per m² Pilling July 2024

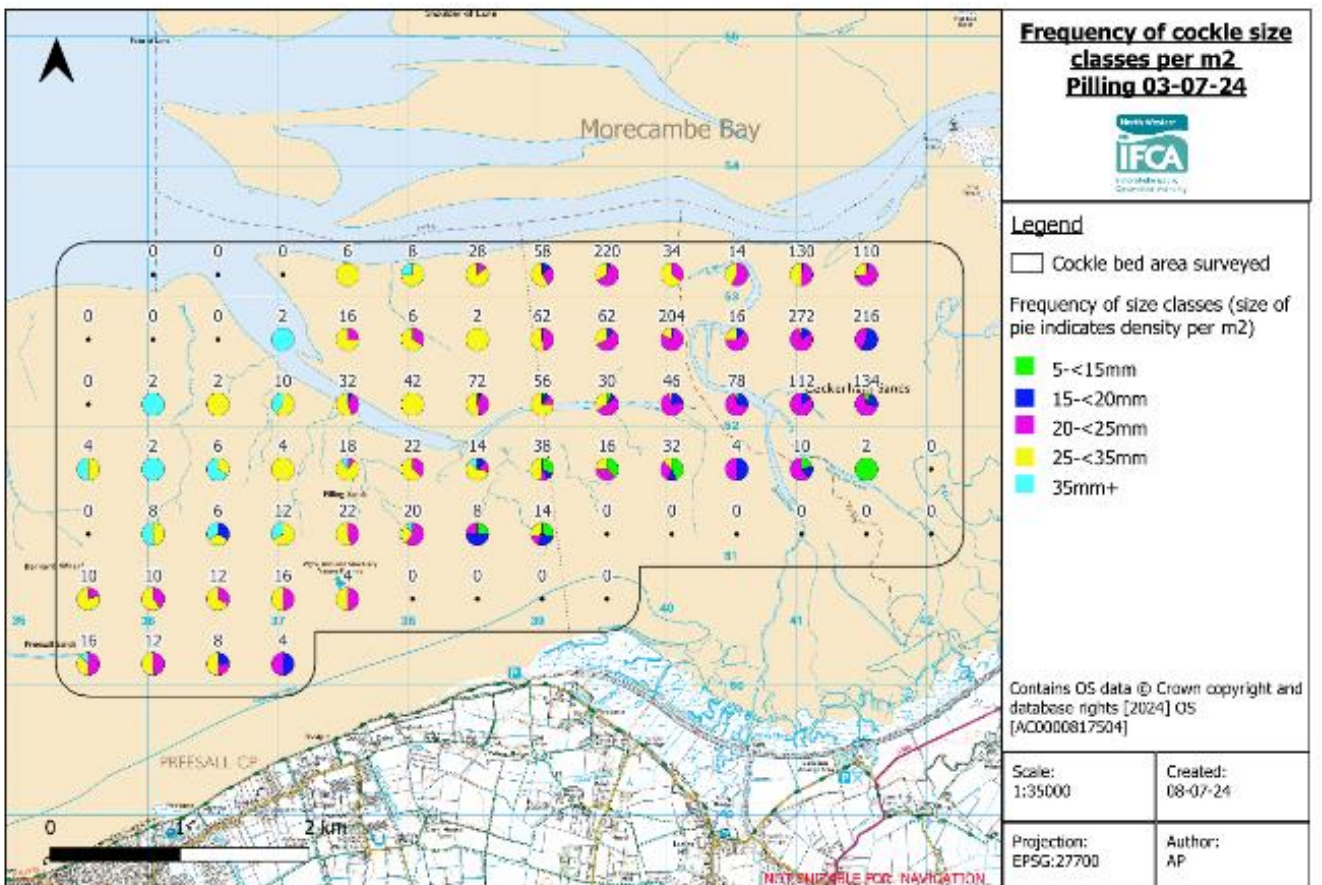


Figure 4. Frequency of size classes of cockle per m² Pilling July 2024

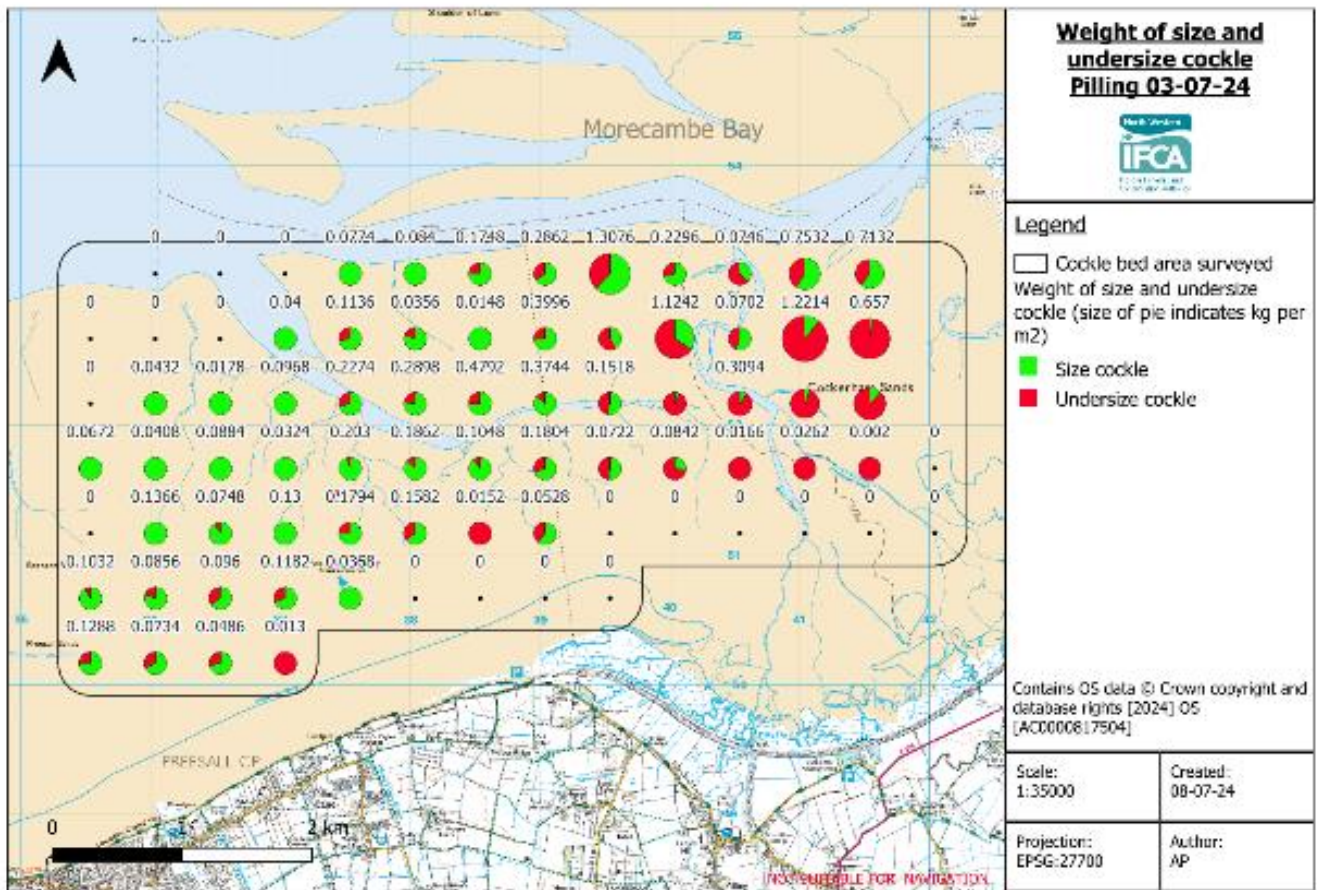


Figure 5. Weight of size and undersize cockle kg/m² at Pilling July 2024.

Leven Cockle Survey 10-07-2024

70 stations were sampled from a 500m grid. There was a wide range of cockle sizes across the bed from < 5mm to > 35mm. Size cockle is relatively low in density across the bed. There does not appear to have been a significant 2024 cockle settlement.

Means

Means were calculated from all stations with zero counts removed. Less than 5mm cockle was not used in the undersize figures due to the high variable survivability of cockle at this small size but has been included as a separate figure.

Mean number of size cockle	5 per m ²	(min 0, max 34)
Mean number of undersize cockle	9 per m ²	(min 0, max 52)
Mean number of 0-5mm cockle	0 per m ²	(min 0, max 0)
Mean weight of size cockle kg/m ²	0.046 kg/m ²	(min 0, max 0.204)
Mean weight of undersize cockle kg/m ²	0.024 kg/m ²	(min 0, max 0.118)

Maps

Maps were created showing the overall survey area, density of size cockle, density of undersize cockle (excluding cockles in the 0-5mm size range) the density of the 0-5mm size class, the frequency of size classes, the size of the pie chart indicates the total density of cockles present, and the weight of undersize and size cockle.

Biomass

	Area of cockle present (ha)	Size Cockle (tonnes) ¹	Undersize Cockle (tonnes) ²
Leven	1250	573	305

5-15 Class (tonnes)	15-20 Class (tonnes)	20-25 Class (tonnes)	25-35 Class (tonnes)	>35 Class (tonnes)
14	83	249	533	0

¹In regards to biomass size cockle defined as cockle which will not pass through a square gauge 20 x 20mm in size.

²The biomass of undersize cockle does not include any estimates of cockle less than 5mm due to the high variability of survival of this size class.

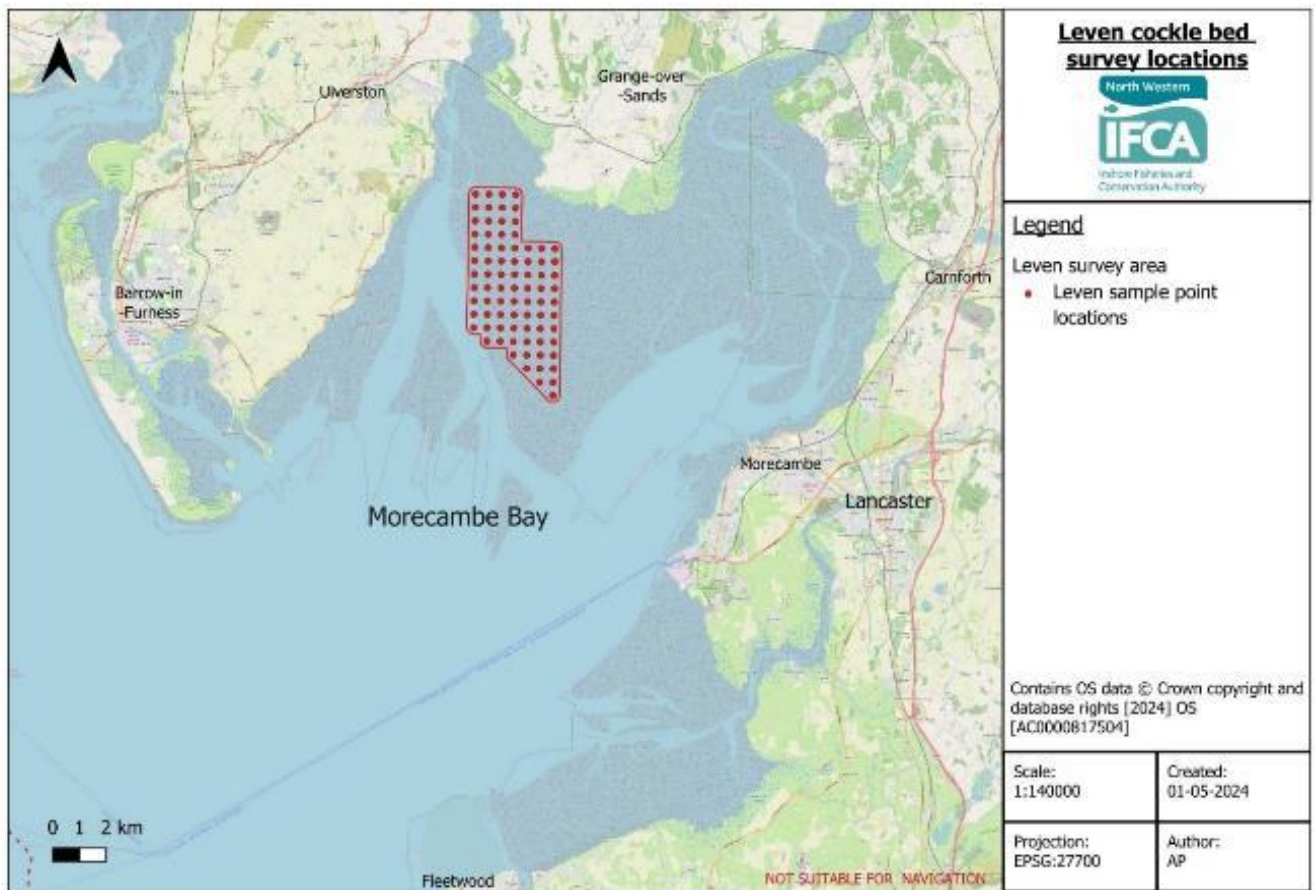


Figure 1. Illustration of position of Leven Survey Area

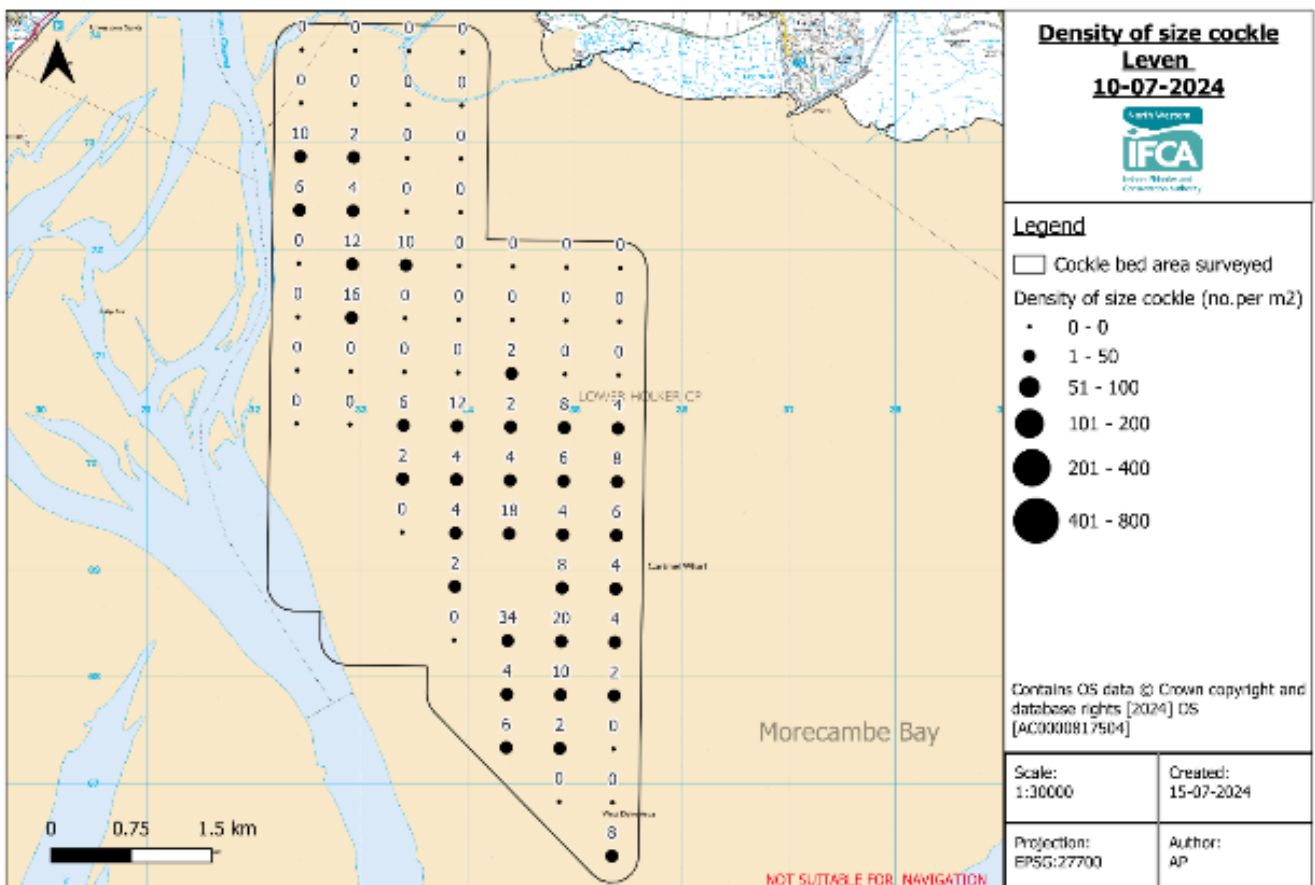


Figure 2. Density of size cockle per m² Leven July 2024

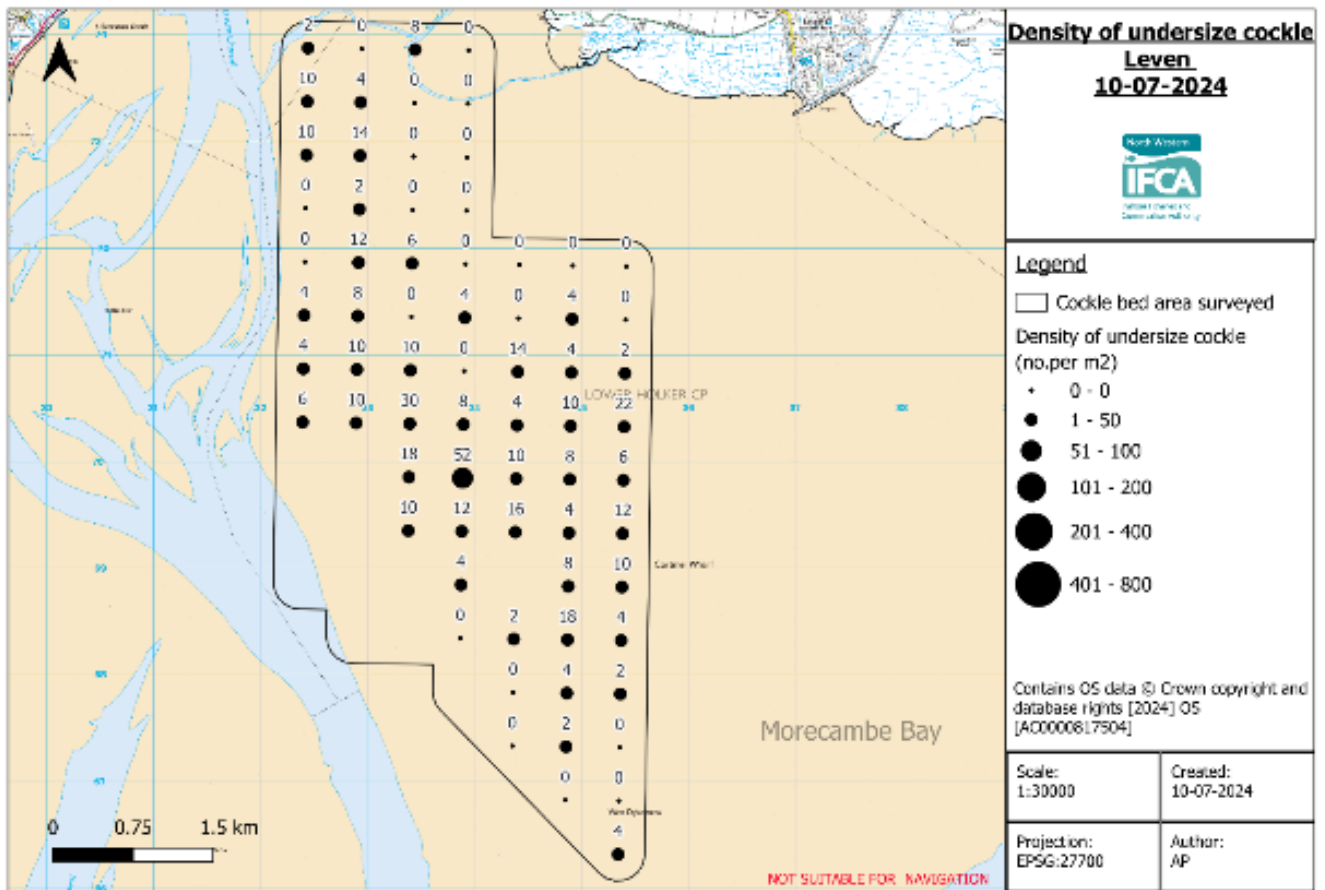


Figure 3. Density of undersize cockle per m² Leven July 2024

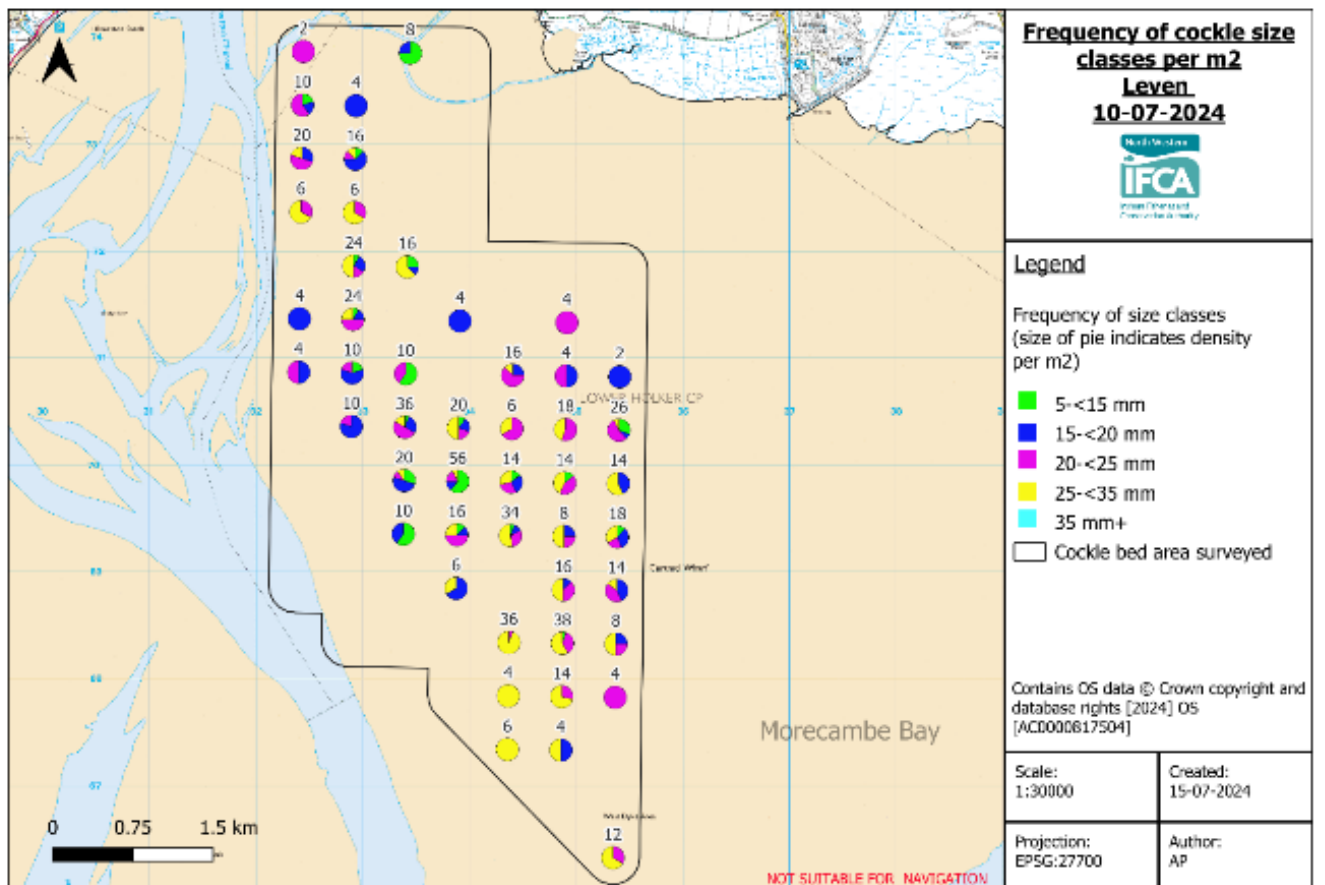


Figure 4. Frequency of size classes of cockle per m² Leven July 2024

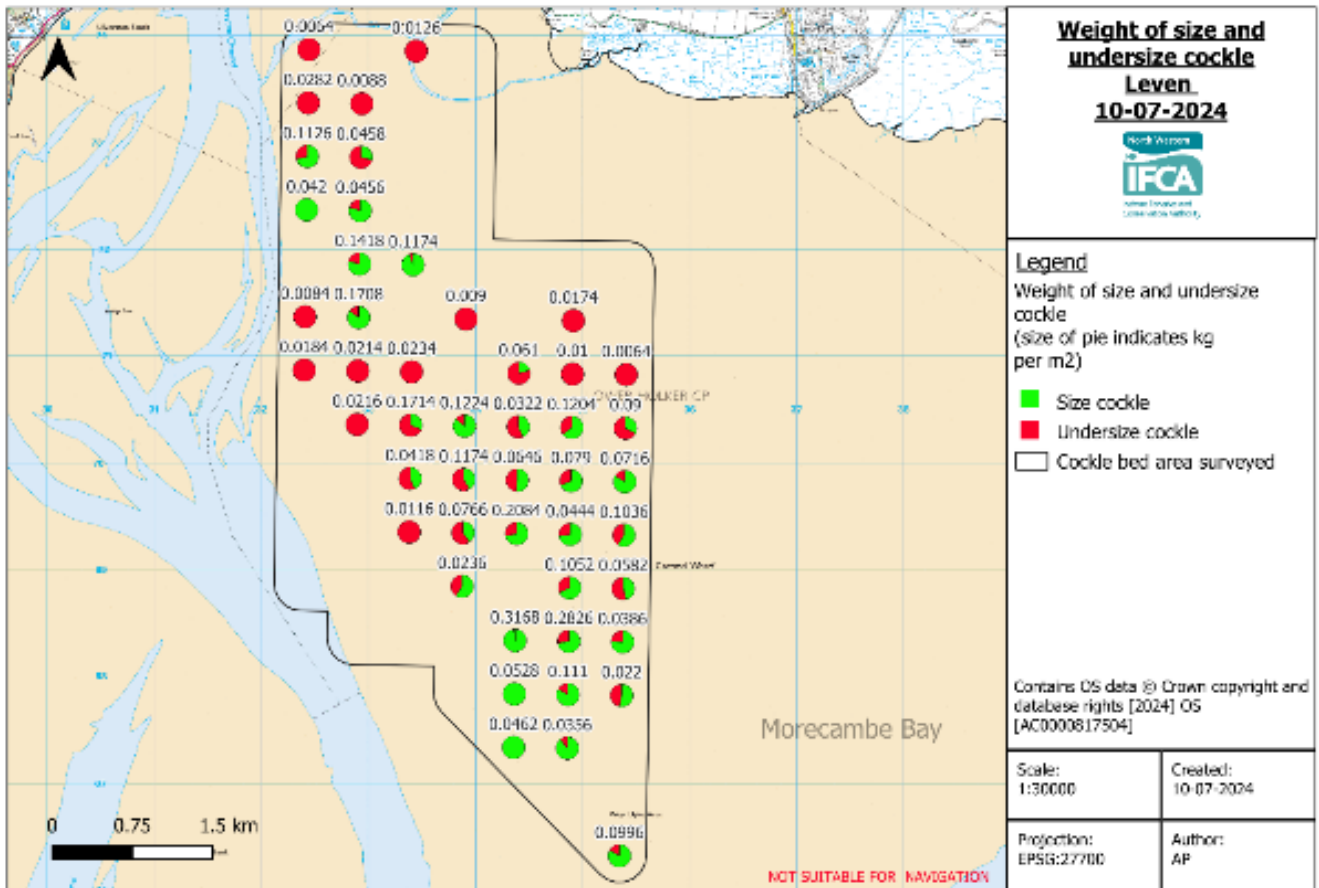


Figure 5. Weight of size and undersize cockle kg/m² at Leven July 2024

Flookburgh Cockle Survey 9th and 10th July 2024

141 stations were sampled from a 500m grid, including the additional points added North East of the survey area last year to ensure full coverage of the bed. The cockle is mixed across the bed with many locations contain more than 50% undersize cockle. The area is broadly split by a channel running from Grange-over-sands and out from Humprey head. Size cockle has increased in density with the greatest density at 206. There is a large amount of cockle which is approaching size. There are several sites with a 2024 cockle settlement higher up the bed.

Means

Means were calculated from all stations with zero counts on the edge of the bed removed. Less than 5mm cockle was not used in the undersize figures due to the high variable survivability of cockle at this small size but has been included as a separate figure.

Mean number of size cockle	16 per m ²	(min 0, max 206)
Mean number of undersize cockle	24 per m ²	(min 0, max 268)
Mean number of 0-5mm cockle	19 per m ²	(min 0, max 400)
Mean weight of size cockle kg/m ²	0.136 kg/m ²	(min 0, max 1.600)
Mean number of undersize cockle kg/m ²	0.095 kg/m ²	(min 0, max 1.198)

Maps

Maps were created showing the overall survey area, density of size cockle, density of undersize cockle (excluding cockles in the 0-5mm size range) the density of the 0-5mm size class, the frequency of size classes, the size of the pie chart indicates the total density of cockles present, and the weight of undersize and size cockle.

Biomass

	Area (ha)	Size Cockle (tonnes) ¹	Undersize Cockle (tonnes) ²
Flookburgh	2675	3629	2551

5-15 Class (tonnes)	15-20 Class (tonnes)	20-25 Class (tonnes)	25-35 Class (tonnes)	>35 Class (tonnes)
30	193	2360	3574	23

¹In regards to biomass size cockle defined as cockle which will not pass through a square gauge 20 x 20mm in size.

²The biomass of undersize cockle does not include any estimates of cockle less than 5mm due to the high variability of survival of this size class.

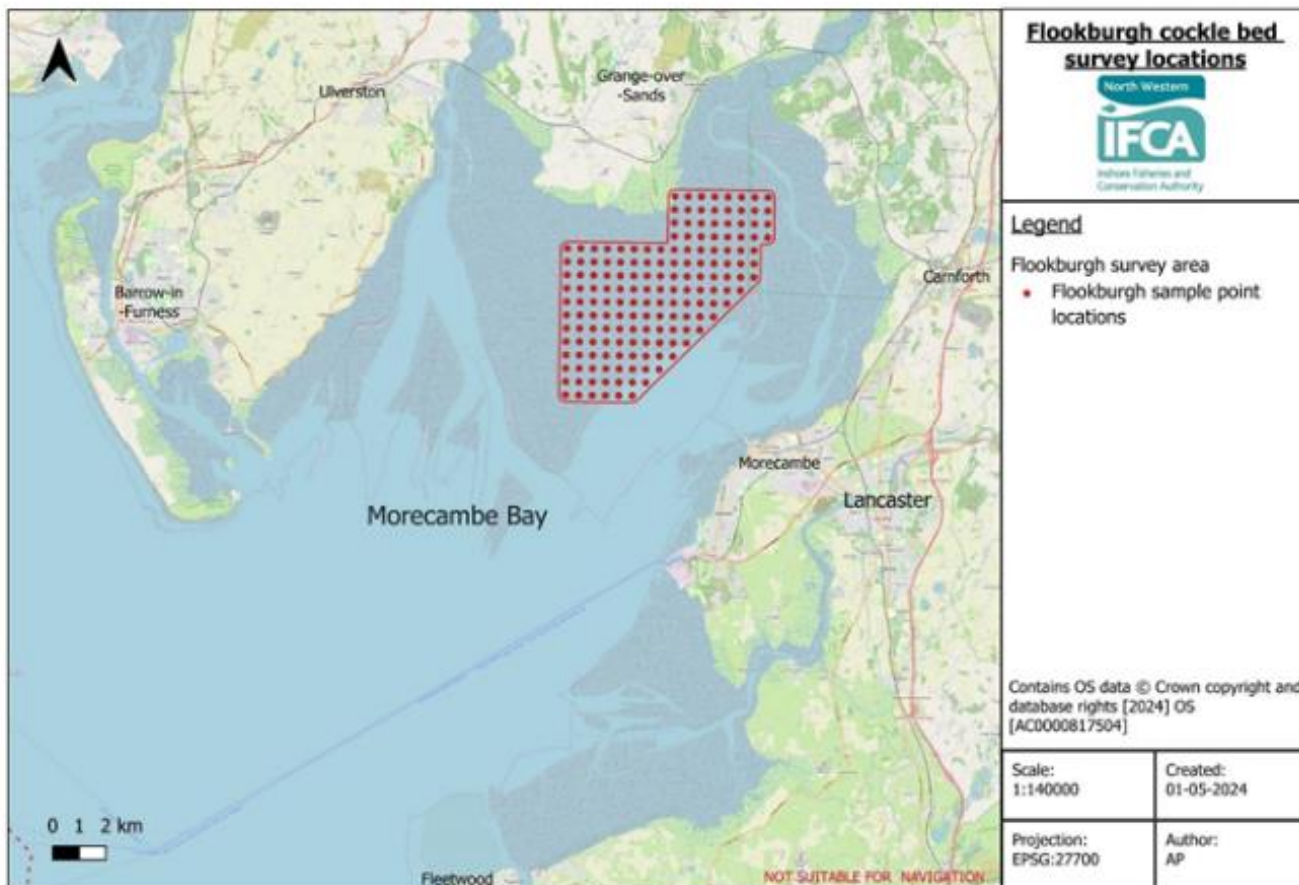


Figure 1. Illustration of position of Flookburgh survey area

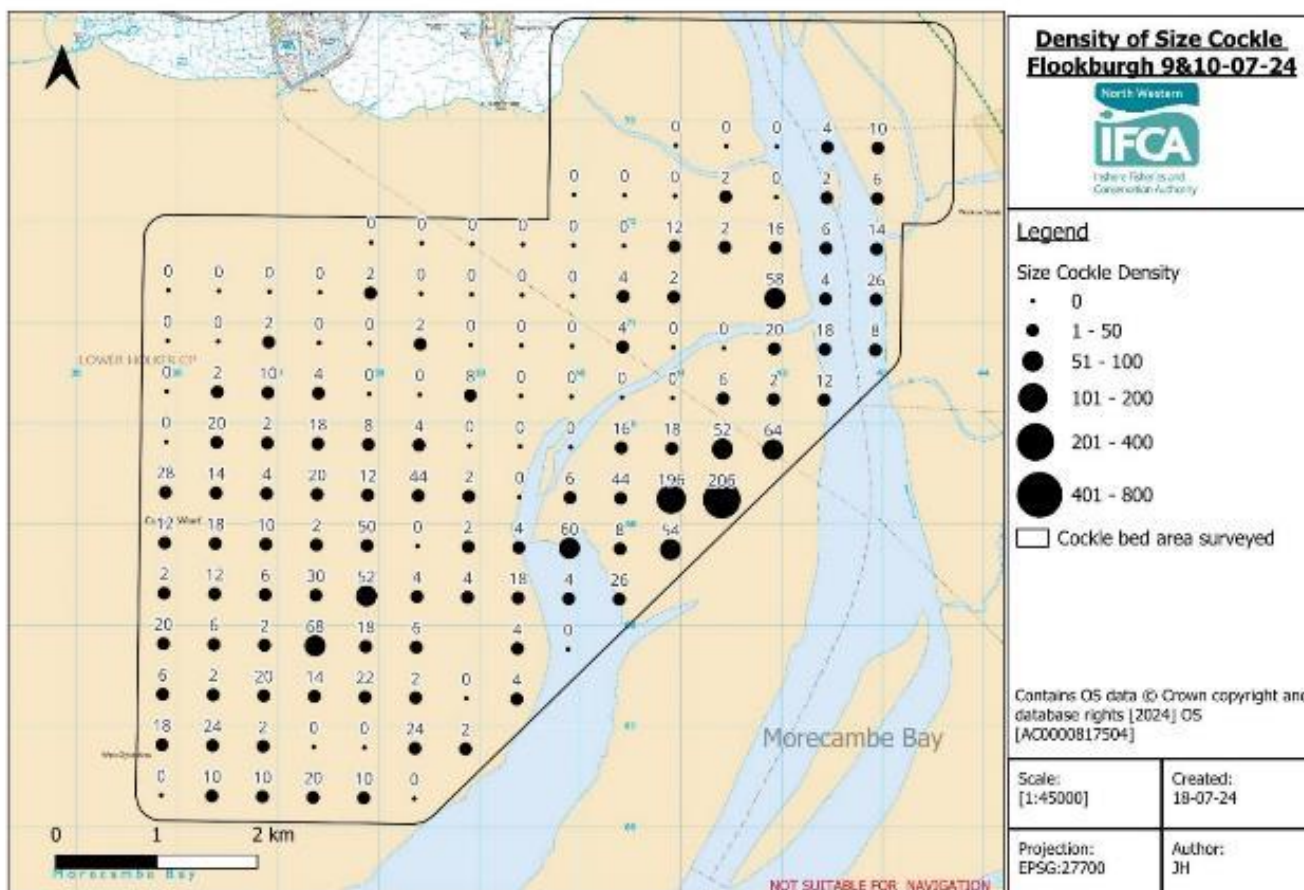


Figure 2. Density of size cockle per m² Flookburgh July 2024.

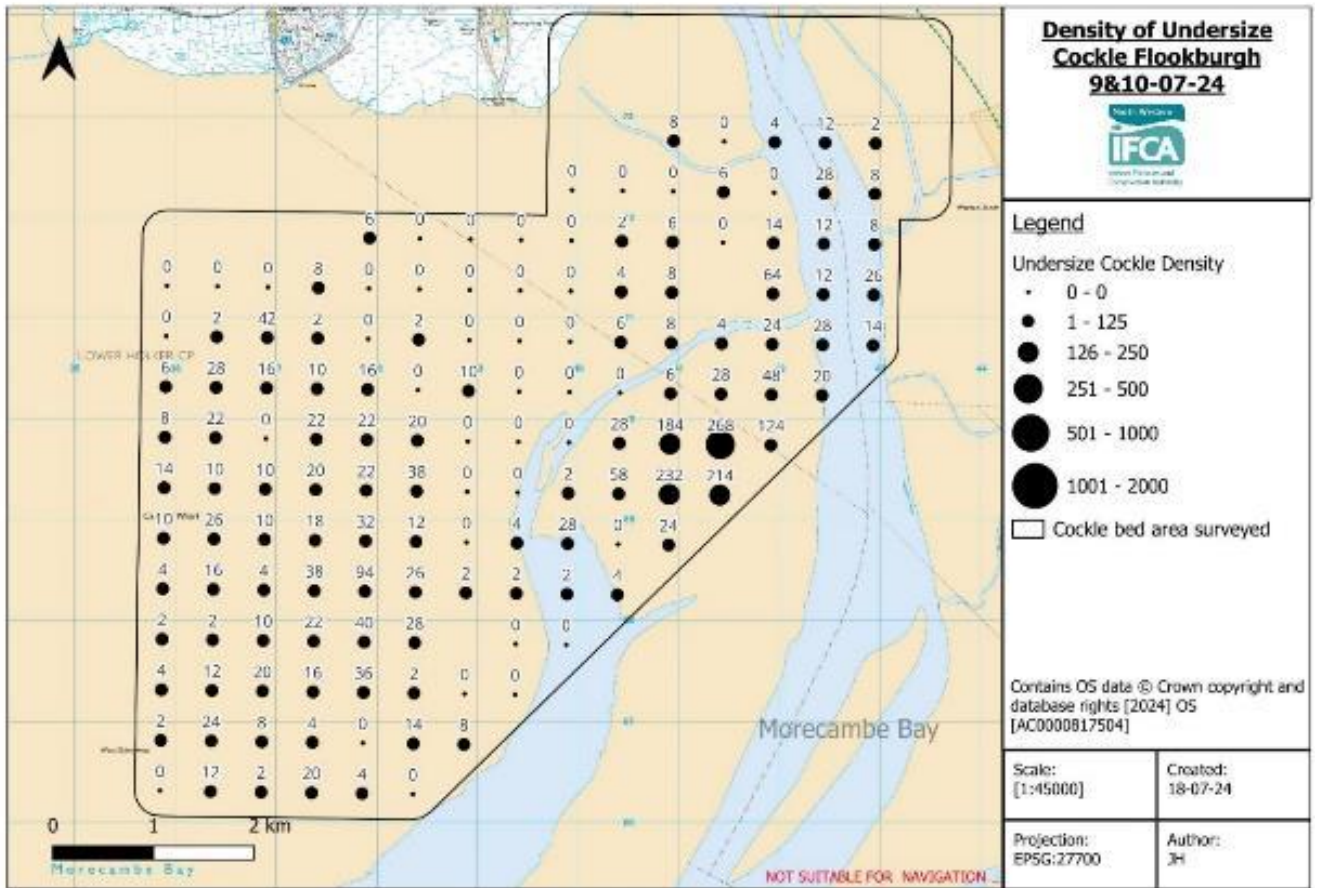


Figure 3. Density of undersize cockle per m² Flookburgh July 2024.

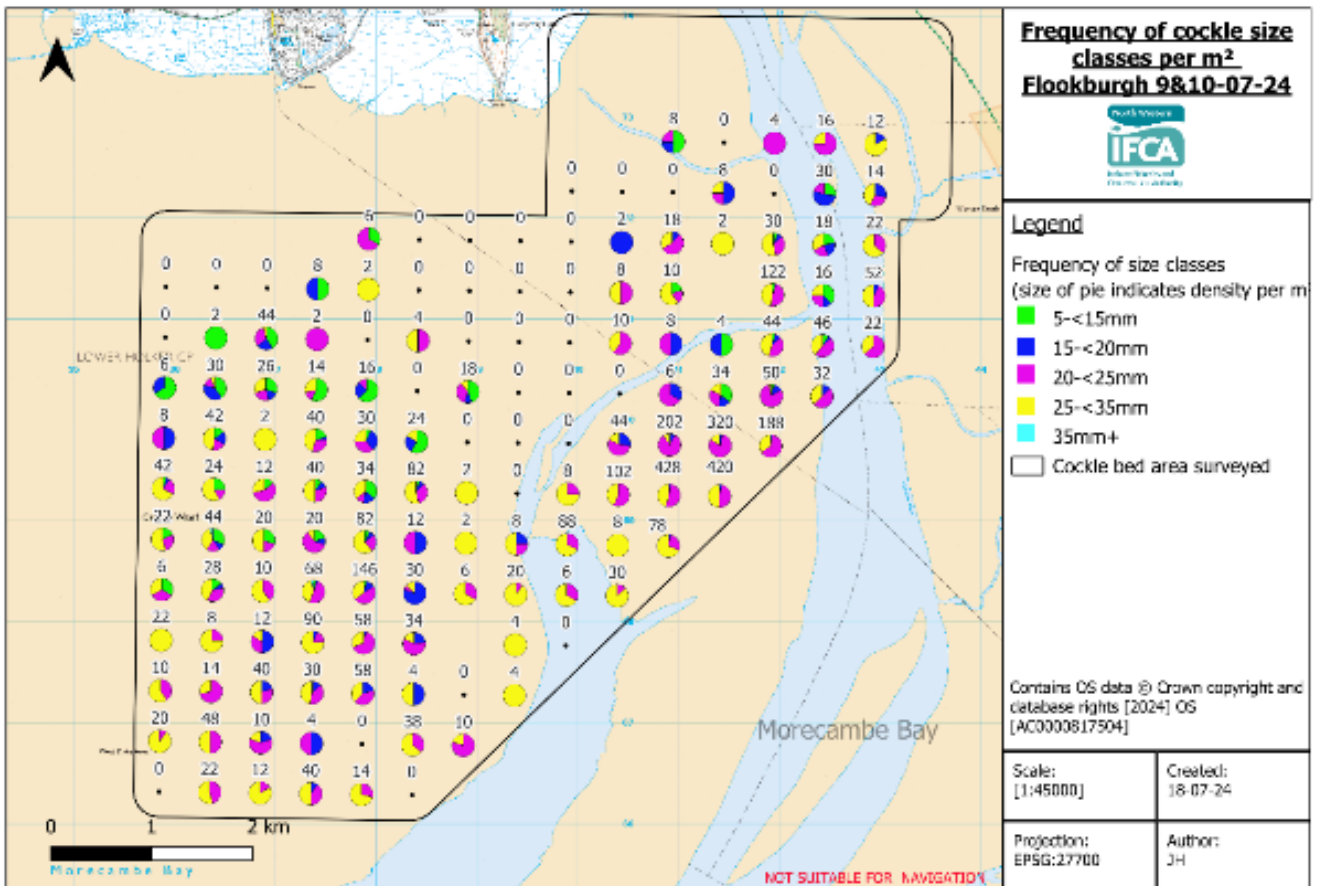


Figure 4 Frequency of size classes of cockle per m² Flookburgh July 2024.

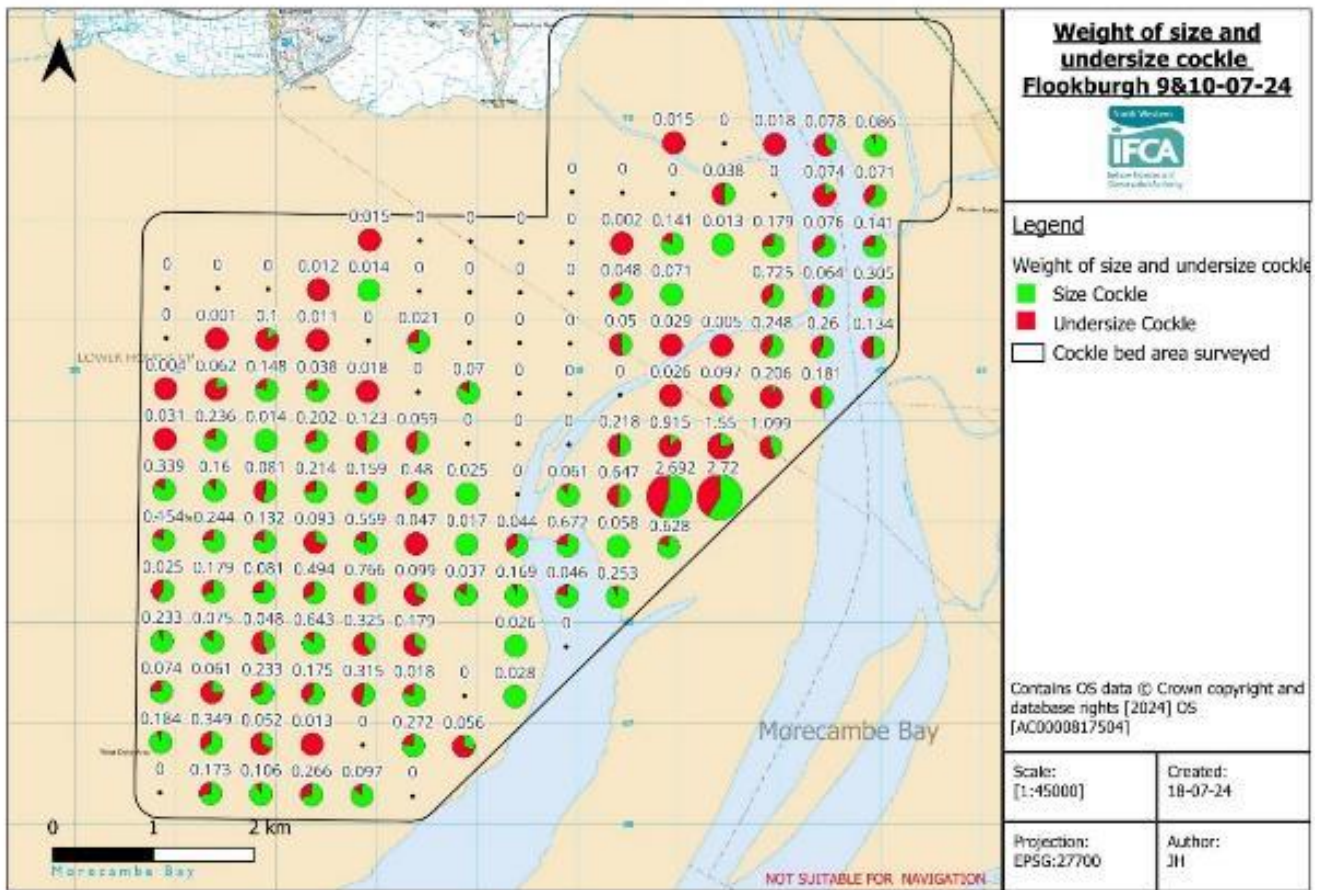


Figure 5 Weight of size and undersize cockle kg/m² at Flookburgh July 2024.

Aldingham and Newbiggin Cockle Survey 11-07-2024

50 stations were sampled from a 500m grid. Most of the Aldingham survey location could not be accessed due to the Leven channel being closer to the shoreline. There was a wide range of cockle sizes across the bed from <5mm to >35mm. The majority of the cockle is between 20-35mm in length. The biomass of size cockle has increased by 500 tonnes since the previous survey in May 2024, however the mean density is still low across the bed, with an average of 9 size cockle per m². There were a few sites with a 2024 cockle settlement.

Means

Means were calculated from all stations with zero counts removed. Less than 5mm cockle was not used in the undersize figures due to the high variable survivability of cockle at this small size but has been included as a separate figure.

Mean number of size cockle	9 per m ²	(min 0, max 60)
Mean number of undersize cockle	24 per m ²	(min 0, max 180)
Mean number of 0-5mm cockle	10 per m ²	(min 0, max 50)
Mean weight of size cockle kg/m ²	0.081 kg/m ²	(min 0, max 0.401)
Mean weight of undersize cockle kg/m ²	0.083 kg/m ²	(min 0, max 0.748)

Maps

Maps were created showing the overall survey area, density of size cockle, density of undersize cockle, the frequency of size classes, the size of the pie chart indicates the total density of cockles present, and the weight of undersize and size cockle.

Biomass

	Area (ha)	Size Cockle (tonnes) ¹	Undersize Cockle (tonnes) ²
Aldingham and Newbiggin	1050	846	874

5-15 Class (tonnes)	15-20 Class (tonnes)	20-25 Class (tonnes)	25-35 Class (tonnes)	>35 Class (tonnes)
7	144	693	842	34

¹In regards to biomass size cockle defined as cockle which will not pass through a square gauge 20 x 20mm in size.

²The biomass of undersize cockle does not include any estimates of cockle less than 5mm due to the high variability of survival of this size class.

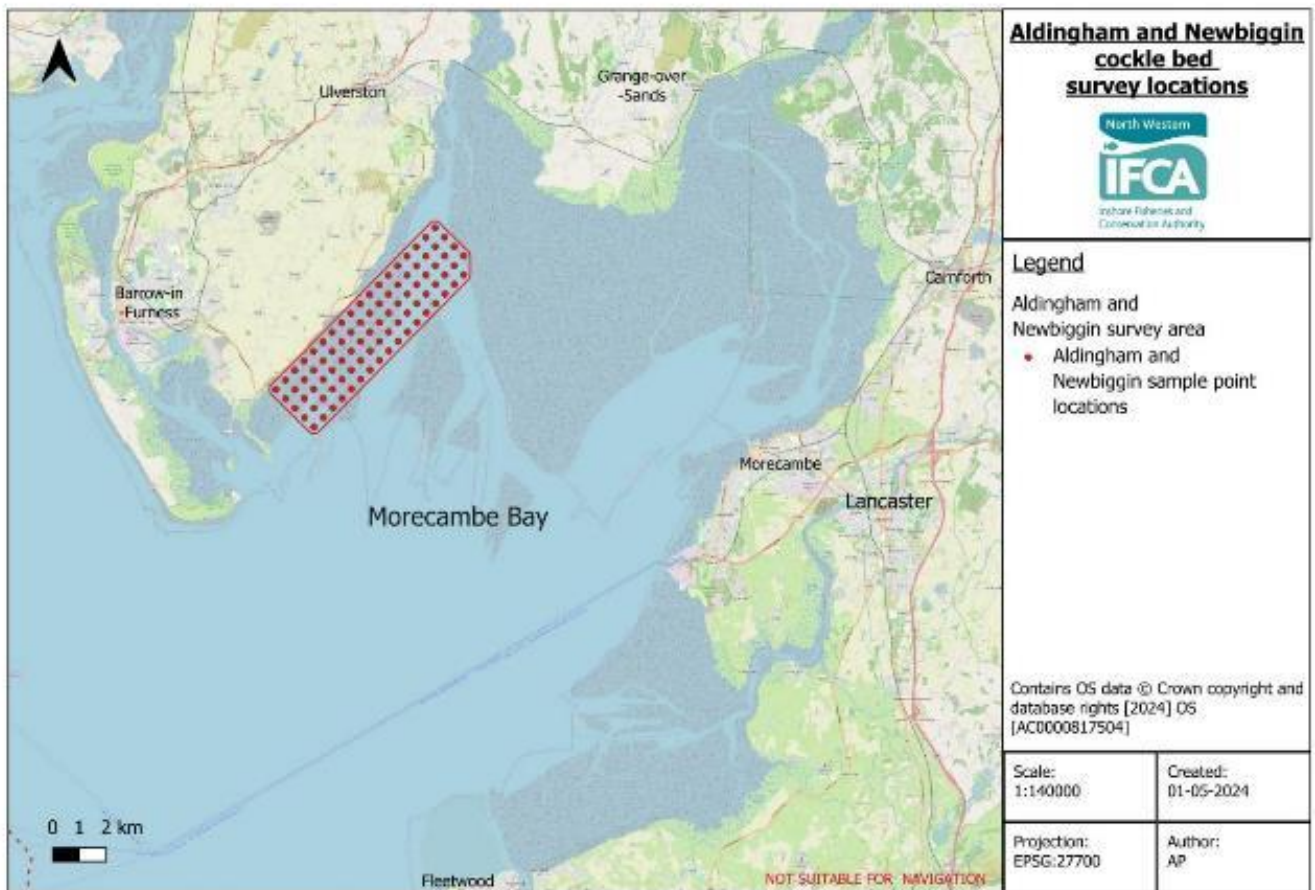


Figure 1: Illustration of position of Aldingham and Newbiggin Survey Area.

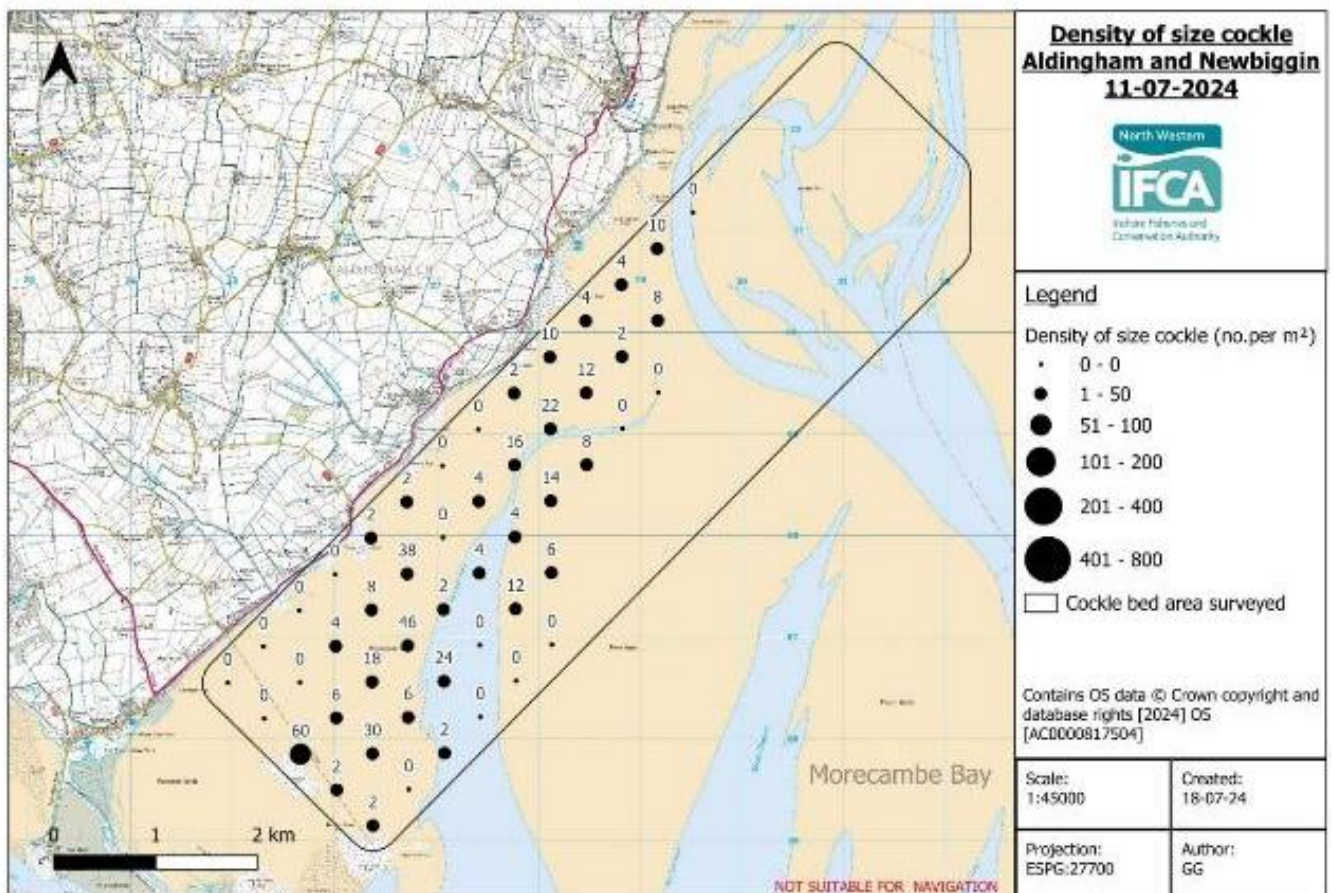


Figure 2: Density of size cockle per m² at Aldingham and Newbiggin July 2024.

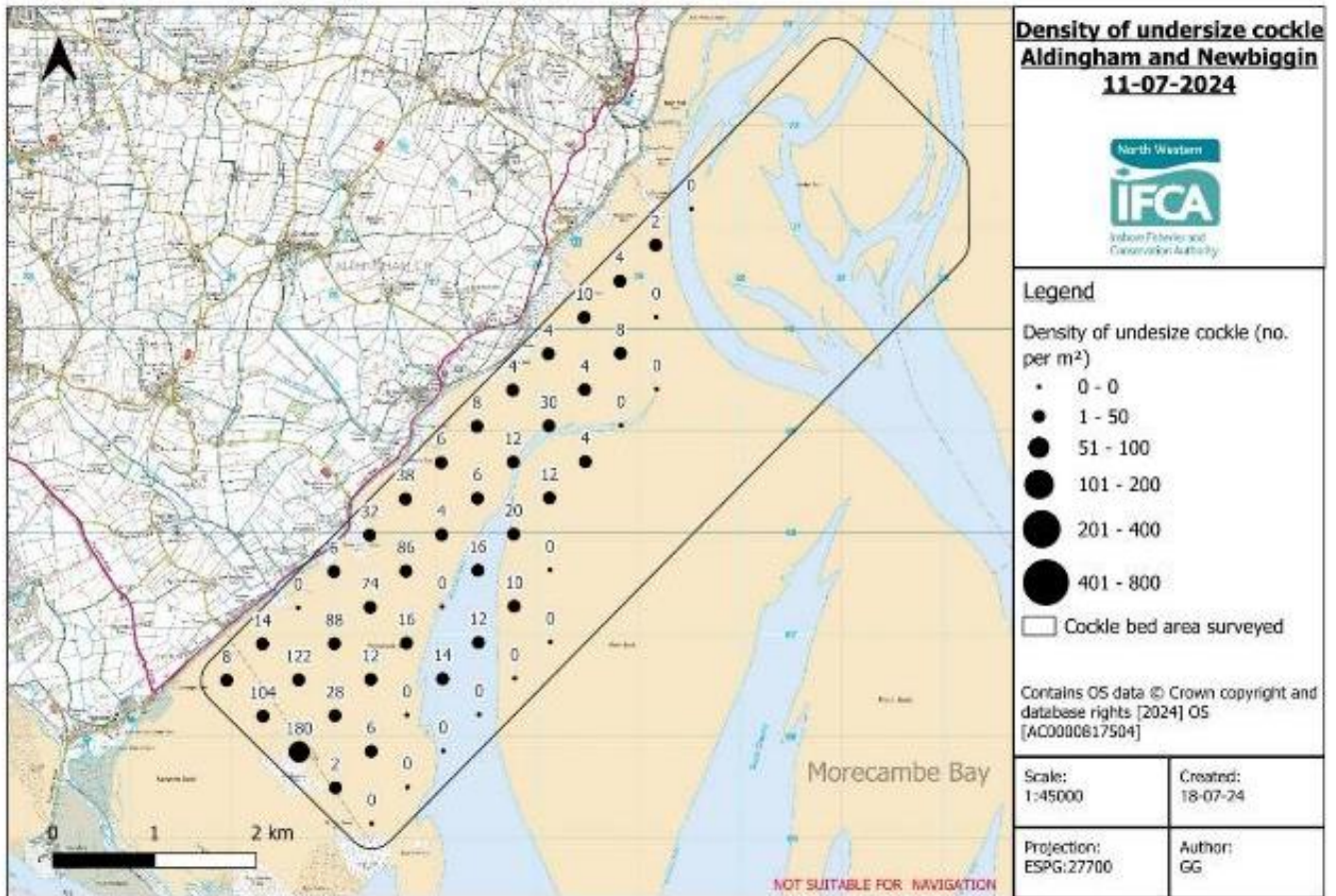


Figure 3: Density of undersize cockle per m² at Aldingham and Newbiggin July 2024.

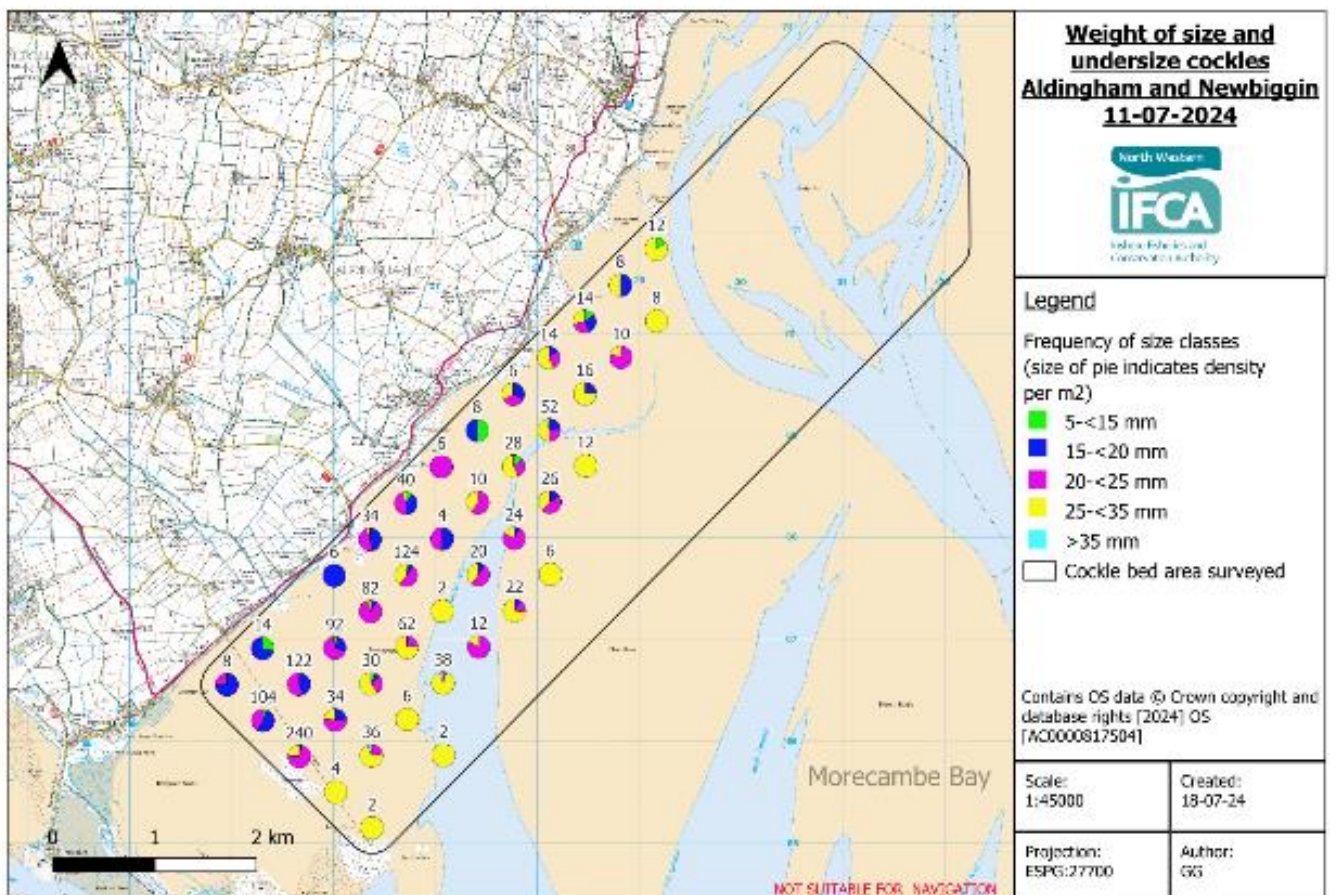


Figure 4: Frequency of size classes of cockle per m² at Aldingham and Newbiggin July 2024.

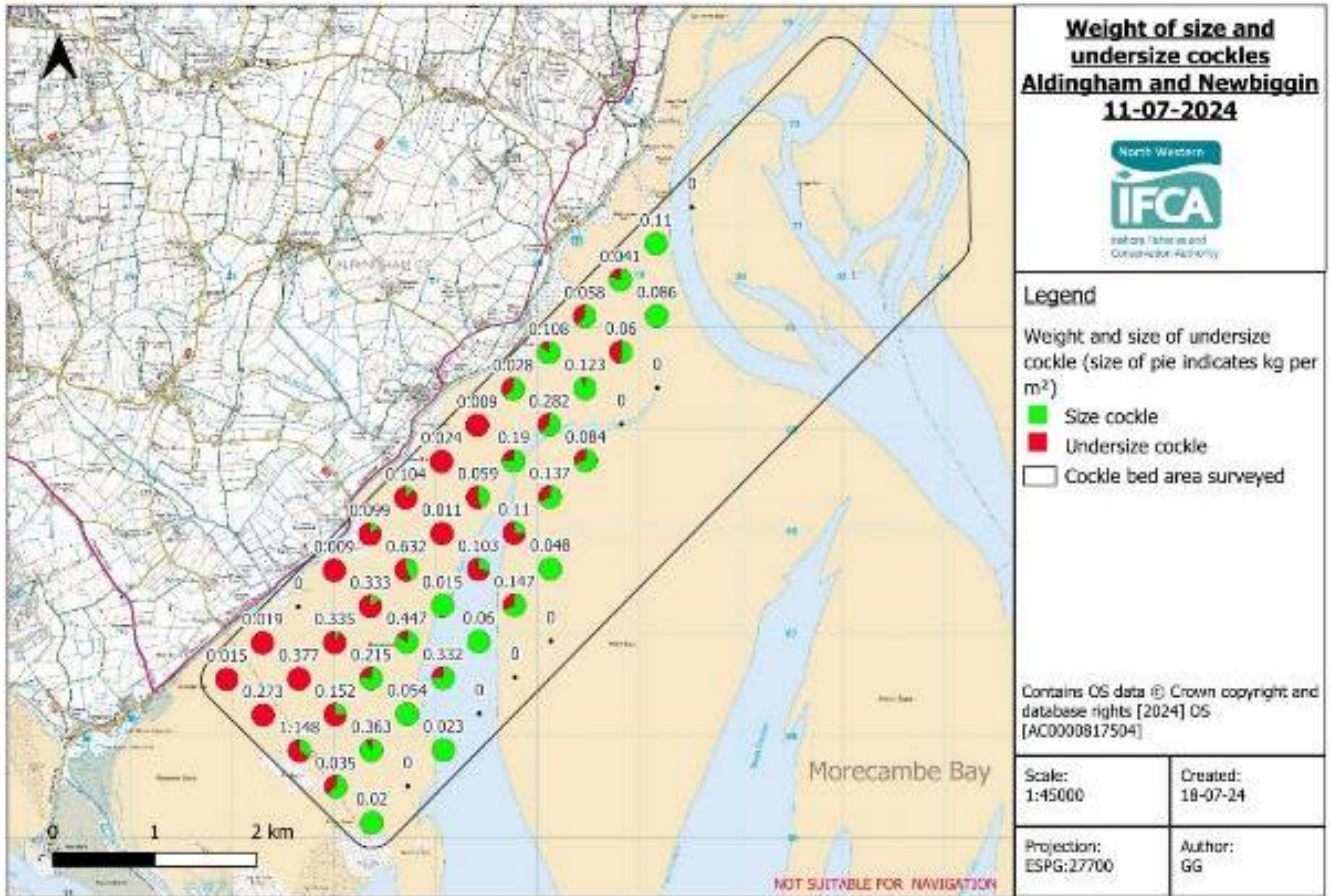


Figure 5: Weight of size and undersize cockle kg/m² at Aldingham and Newbiggin July 2024.

Middleton Cockle Survey 2nd July 2024

75 stations were sampled from a 350m grid. There was a wide range of cockle sizes across the bed from 5mm to >35mm. The biomass of size cockle has increased to 518 tonnes however the mean density is still low across the bed with an average of 8 size cockle per m². There was little evidence of a 2024 settlement with very little spat seen.

Means

Means were calculated from all stations with zero counts removed. Less than 5mm cockle was not used in the undersize figures due to the high variable survivability of cockle at this small size.

Mean number of size cockle	8 per m ²	(min 0, max 36)
Mean number of undersize cockle	9 per m ²	(min 0, max 42)
Mean number of 0-5mm cockle	0 per m ²	(min 0, max 4)

Mean weight of size cockle kg/m ²	0.069 kg/m ²	(min 0, max 0.333)
Mean weight of undersize cockle kg/m ²	0.029 kg/m ²	(min 0, max 0.192)

Maps

Maps were created showing the overall survey area, density of size cockle, density of undersize cockle, the frequency of size classes, the size of the pie chart indicates the total density of cockles present, and the weight of undersize and size cockle.

Biomass

	Area (ha)	Size Cockle (tonnes) ¹	Undersize Cockle (tonnes) ²
Middleton Sands	747	518	216

5-15 Class (tonnes)	15-20 Class (tonnes)	20-25 Class (tonnes)	25-35 Class (tonnes)	>35 Class (tonnes)
2	33	187	491	21

¹In regards to biomass size cockle defined as cockle which will not pass through a square gauge 20 x 20mm in size.

²The biomass of undersize cockle does not include any estimates of cockle less than 5mm due to the high variability of survival of this size class.

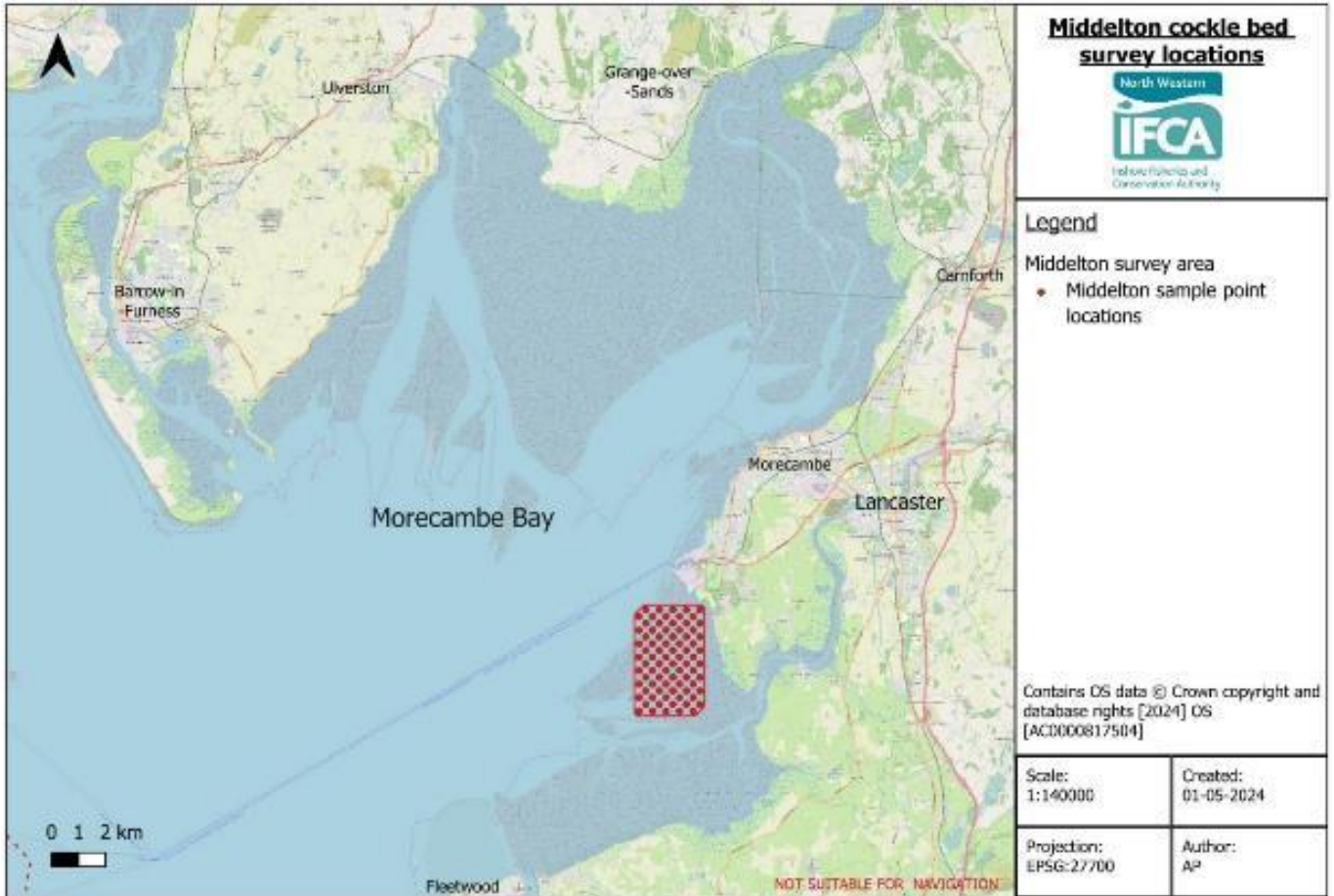


Figure 1: Illustration of position of Middelton Survey Area

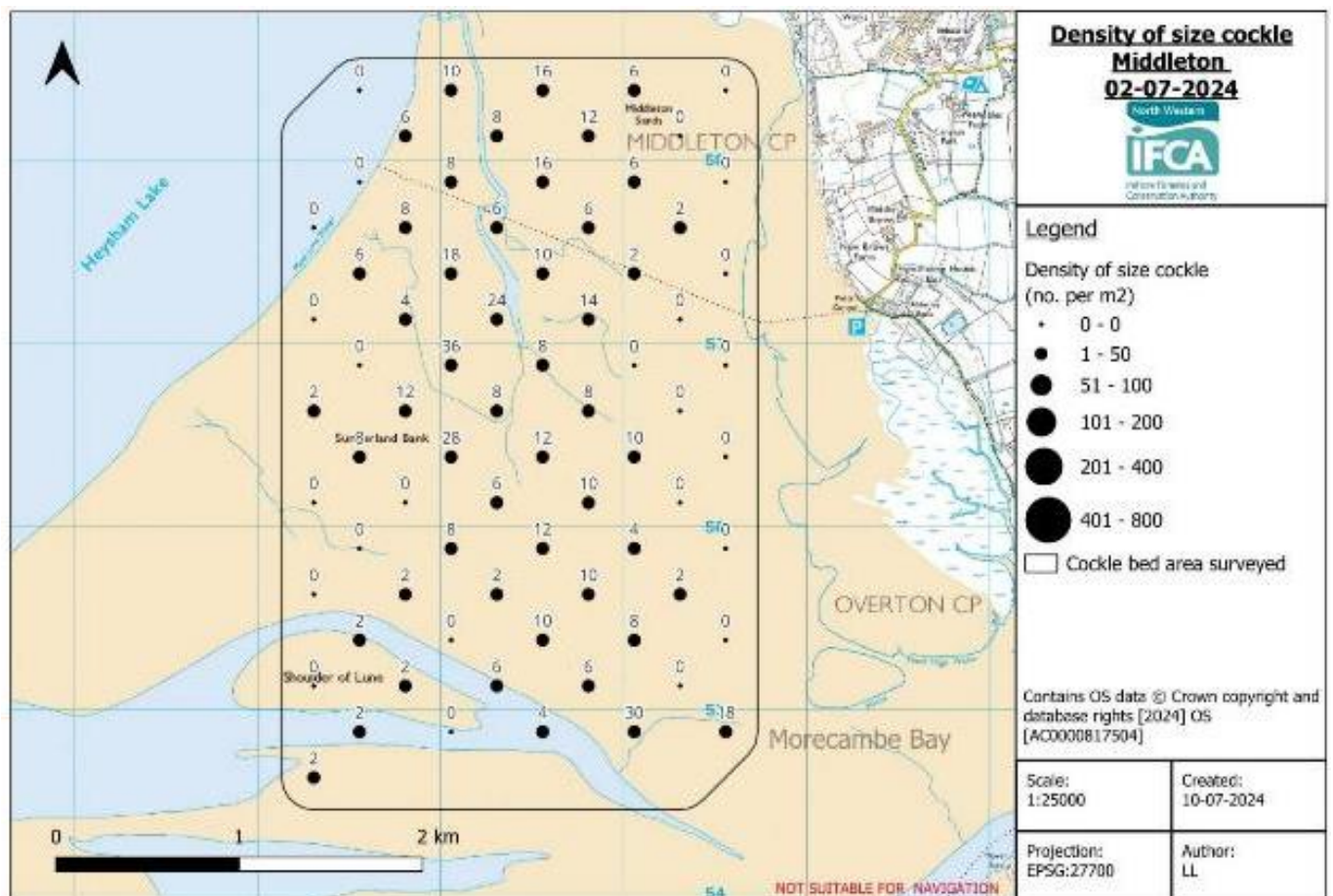


Figure 2: Density of size cockle per m² at Middelton July 2024

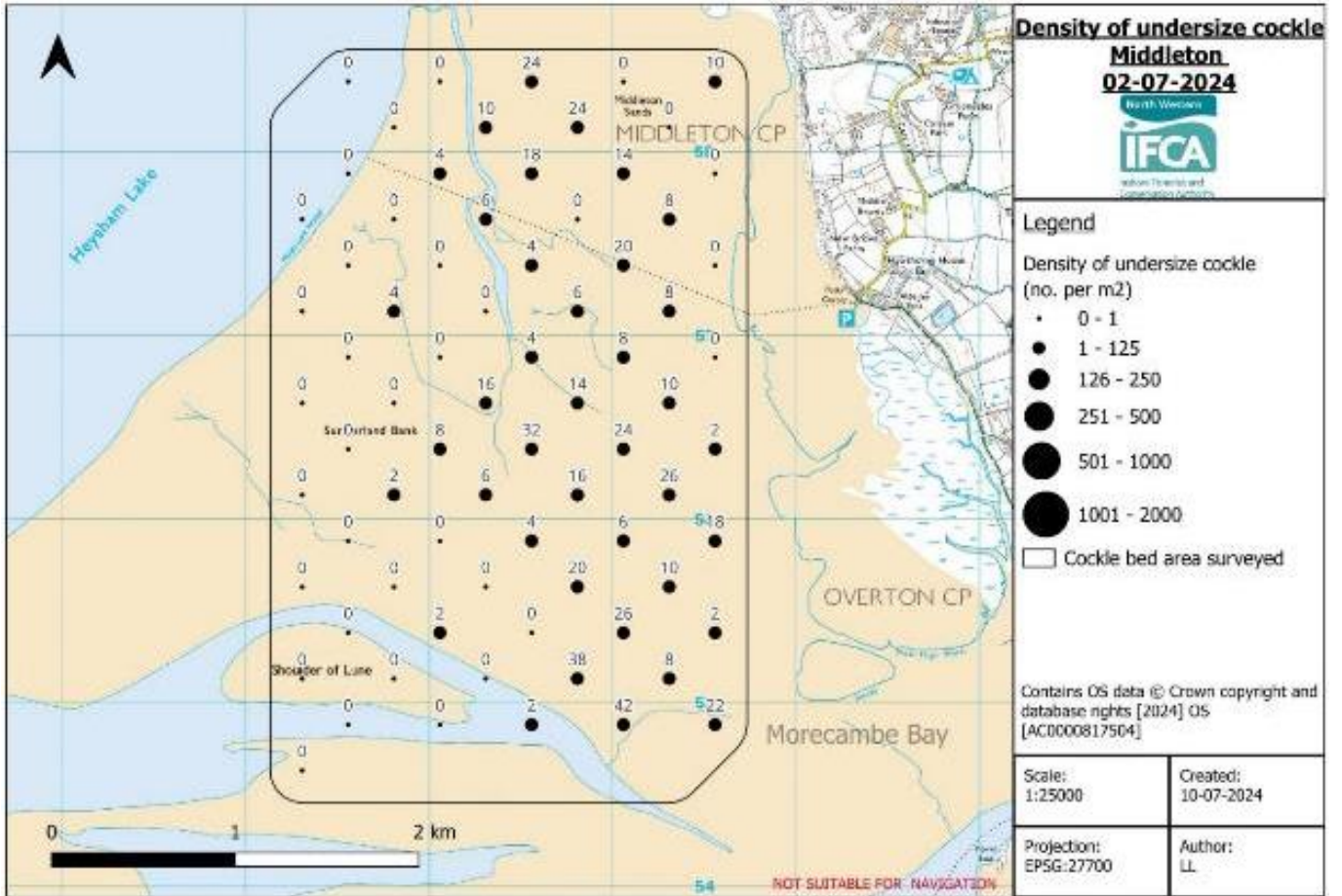


Figure 3: Density of undersize cockle per m² at Middleton July 2024

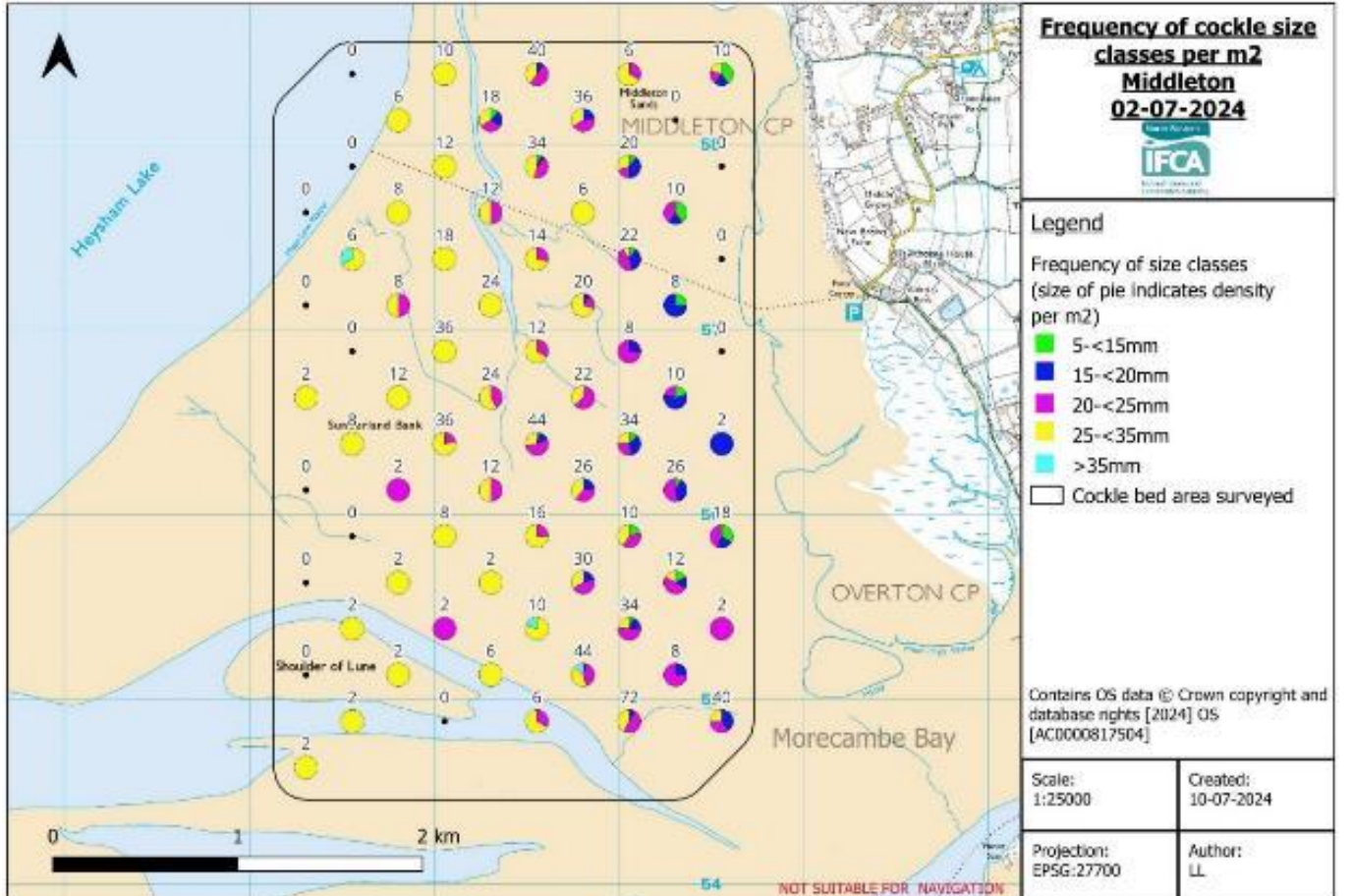


Figure 4: Frequency of size classes of cockle per m² at Middleton July 2024

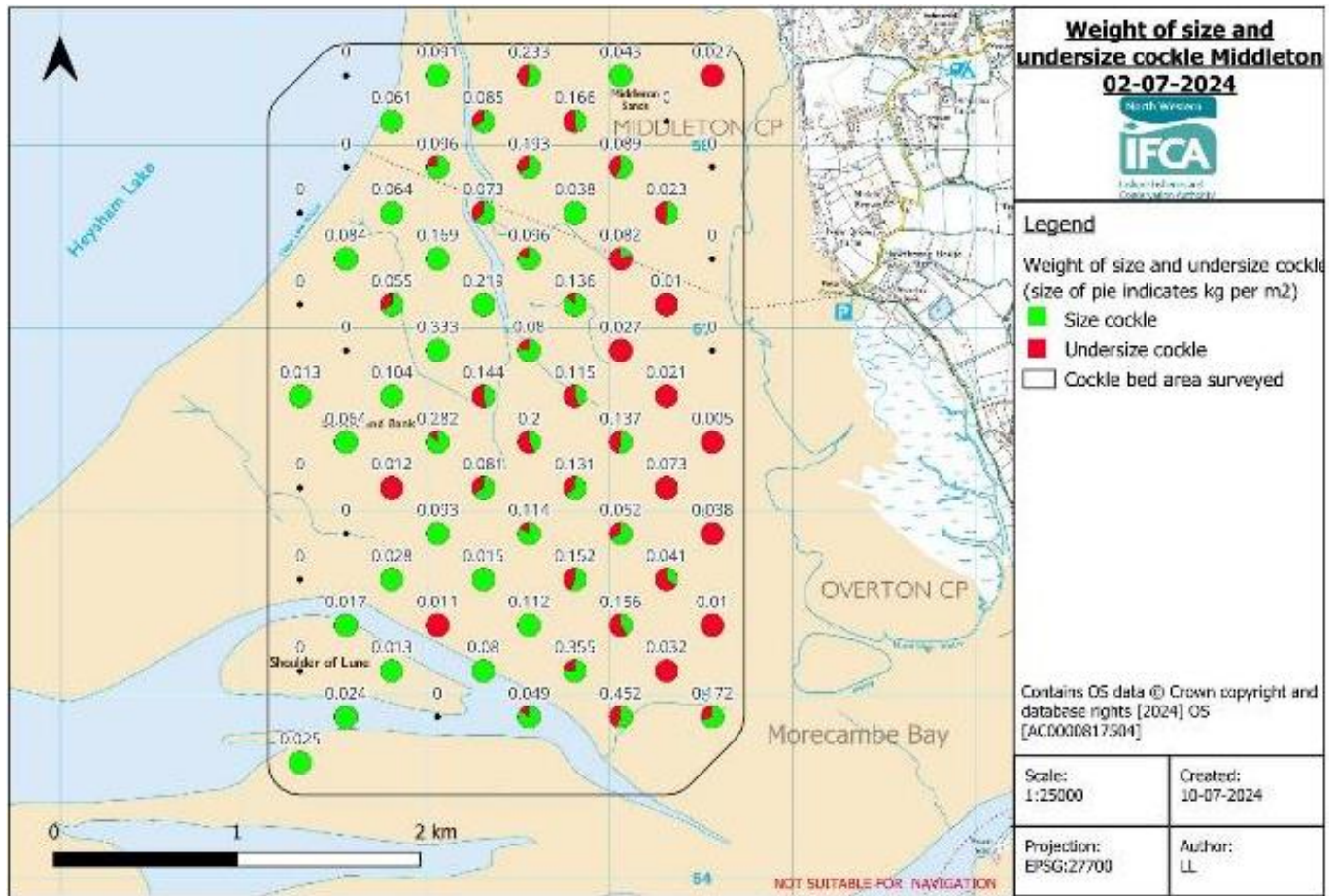


Figure 5: Weight of size and undersize cockle kg/m² at Middleton July 2024



North Western Inshore Fisheries and Conservation Authority

Code of Conduct for Intertidal Shellfisheries

Fishing for cockles and mussels on the shore is a long-established activity. In recent years the level of activity has increased, and there has been increasing public concern about it.

By observing this simple code of conduct you can help to reduce complaints and protect your own long-term interests.

1. Treat the foreshore with respect

Much of the foreshore is privately owned. Many landowners tolerate access to and from shellfisheries. This does not include the storage of fishing equipment or catches on private land. To protect your own interests:

- Don't damage gates, fences or signposts;
- Don't block access routes; and
- Get the landowner's agreement before storing any fishing equipment, vehicles or catches on private land.

2. Use vehicles on the shore carefully

Many landowners and coastal residents are concerned about the use of tractors, ATVs / Quad Bikes, and other vehicles on the shore. Try to minimise complaints by:

- Ensuring all vehicles are in good repair and have exhaust silencers;
- Keep noise to a minimum - especially early in the morning and at weekends;
- Avoid churning up mud at the top of the shore;
- Don't abandon vehicles on the shore.

3. Leave the shore as you find it

Frequent complaints are made about litter being left by fishermen. This includes food wrappers, cups, sacks used to transport shellfish, and shellfish dropped or discarded on the shore.

- Clear up any litter left at the end of the day;
- Don't leave unwanted shellfish or sacks lying around; and
- If storing gear or shellfish on the shore, make sure it doesn't impede access.

4. Have regard for wildlife

Much of the seashore is protected by wildlife designations. It is a criminal offence to harm protected wildlife. To avoid possible prosecution:

- Don't disturb bird nests or eggs;
- Avoid nature reserves;
- Don't take vehicles across areas of saltmarsh or seagrass; and
- Contact the NWIFCA office for advice if in any doubt.

5. Fish sustainably

IFCA byelaws protect the long-term future of shellfish stocks, and must be complied with at all times. Complying with byelaws protects your own future livelihood. You can help further by:

- Scattering riddled shellfish evenly back on the bed they were removed from - don't leave them in a heap;
- Avoid haming or gathering juvenile shellfish - they are the future of the fishery; and
- Ensure that vehicles used on the shore don't harm the shellfish beds.

6. Observe other guidance & advice

Other authorities may provide guidance relating to your activities. You should ensure that you are aware of:

- Guidance issued by local authorities and landowners concerning access and other issues;
- Guidance issued by the Health & Safety Executive and the Coastguard.

For further information, contact the NWIFCA at our Carnforth offices or visit www.nw-ifca.gov.uk

NORTH WESTERN IFCA INTERTIDAL FISHERIES COLD WEATHER PROTOCOL

April 2023

1. Purpose of this protocol

During periods of severe cold weather (as defined in section 2), the NWIFCA must assess whether fishing activities taking place within a Special Protection Area (SPA) pose a risk to the designated bird species. This requirement arises from the legal obligation upon the NWIFCA to carry out a Habitats Regulation Assessment (HRA) for activities it regulates and to implement any mitigation measures identified as necessary. The purpose of this protocol is to set out the criteria that must be met, the risks that must be considered, and the steps that NWIFCA will follow when such an event occurs. This protocol has been reviewed and agreed with Natural England.

1.1 Background

Intertidal fisheries in the NWIFCA District that operate within a European Marine Site (EMS) must undergo a HRA in accordance with Article 6 of the Habitats Directive. The purpose of this assessment is to ensure the proposed fishing activities do not hinder the conservation objectives of the protected features. The sensitivity of designated features to fishing activity is detailed in Natural England's Conservation Advice Packages: <https://designatedsites.naturalengland.org.uk/>.

Certain bird species are vulnerable to pressures from disturbance and removal of food resources from fishing activities. A HRA of a fishery may determine that during periods of severe cold, when birds require additional energy to maintain condition, there is the risk that fishery related pressures could result in an adverse effect on bird populations. The NWIFCA must therefore have a protocol to ensure these impacts are mitigated for and that there is no adverse effect on the integrity of the site.

1.2 Legal framework

The following legislation underpins NWIFCA's duty to protect designated features within the Northwest District under both UK (relevant to Marine Conservation Zones) and retained EU (relevant to European Marine Sites) law.

The Conservation of Habitats and Species Regulations (2017)

24 Control of potentially damaging operations – Assessment of implications for European sites

(1) Where it appears to the appropriate nature conservation body that a notice of a proposal under section 28E(1)(a) of the WCA 1981 relates to an operation which is or forms part of a plan or project which—

(a) is likely to have a significant effect on a European site (either alone or in combination with other plans or projects), and

(b) is not directly connected with or necessary to the management of that site,

it must make an appropriate assessment of the implications for that site in view of that site's conservation objectives.

(2) In the light of the conclusions of the assessment, it may give consent for the operation only after having ascertained that the plan or project will not adversely affect the integrity of the site.

Further information regarding the UK Government's guidance to carrying out a HRA can be found here:

<https://www.gov.uk/guidance/habitats-regulations-assessments-protecting-a-european-site>

2. Protocol

A suspension of fishing within an SPA should be triggered during severe cold conditions, defined as:

*A period during which temperatures are **at or below 0 degrees Celsius for 60 hours total out of 120 consecutive hours (5 days).***

Temperatures will be monitored from agreed weather stations for each shellfishery within a SPA. Temperatures will be monitored in real-time.

Once the 60 hour trigger is reached, fishing will be suspended for five consecutive days (inclusive of weekends). Temperatures will continue to be monitored while fishing is suspended. The suspension will be lifted once a period of sustained warming (over 60 hours total within a 120 hour period, from the start of the suspension) is reached.

Predictive or forecasted temperatures will not be used to initiate a closure, however, they can be used to notify industry of the potential for a closure (see section 3.2 and 3.3).

2.1 Temperature stations

The weather stations from which to monitor temperature readings for the respective fisheries have been agreed with Natural England as of April 2023. Stations will be reviewed yearly. Stations will be reviewed for any fishery at the time when this protocol is applied, agreed with Natural England and detailed in the HRA.

2.2 Additional considerations

In addition to the temperature, NWIFCA will review other factors which may influence the level of impact on birds during severe cold. These will include (but will not be limited to):

- The intensity of fishing (frequency, number of operators, timings etc.)
- The potential for displacement of fishers into other fisheries

3. Communication procedure

3.1 Communication with Natural England

NWIFCA will notify Natural England when there is a risk of severe temperatures and provide regular updates during cold weather.

NWIFCA will consult with Natural England regarding the relative conditions of the relevant SPA and the potential for a suspension.

3.2 Communication with Industry members

If a forecast has indicated severe cold weather, NWIFCA will notify industry members via the website and by text message of the potential for a cold weather suspension as soon as possible.

NWIFCA will notify industry members via text and website updates as soon as temperature monitoring has begun.

If it looks likely that the minimum requirements of 60 hours will be reached, NWIFCA will notify fishers via text and website updates of this possibility.

Once 60 hours of severe cold is reached NWIFCA will notify fishers that the fishery will be closed within 24 hours.

3.3 Communication with Authority members

If a forecast has indicated severe cold weather, NWIFCA will notify members of the Technical Science and Byelaw Subcommittee (TSB) via email of the potential for a cold weather suspension as soon as possible.

NWIFCA will notify TSB members via email as soon as temperature monitoring has begun and notify members of suspension of the fishing, should the cold weather conditions (specified in 2. Protocol) be met.

Date of next review	Completed by	NE Sign off
October 2023		

Annex 4 – Natural England's Formal Advice (12th August 2024)

Date: 12 August 2024
Our ref: 484101
Your ref: Morecambe Bay Cockle Fishery 2024



Hornbeam House
Crewe Business
Park Electra Way
Crewe
Cheshire CW1
6GJ

T 0300 060 3900

BY EMAIL ONLY

Dear Jonathan,

Fisheries in EMS Habitats Regulations Assessment: NWIFCA-MB-EMS-COCKLE HANDGATHERING FISHERY 2024

Thank you for your consultation dated 02 August 2024 regarding a Habitats Regulations Assessment on the Morecambe Bay cockle fishery 2024. The following constitutes Natural England's formal statutory response.

The Conservation of Habitats and Species Regulations 2017 (as amended) and The Conservation of Offshore Marine Habitats and Species Regulations 2017 (as amended)

We can confirm that the proposed works are located within Morecambe Bay Special Area of Conservation (SAC), Morecambe Bay & Duddon Estuary Special Protection Area (SPA) and Morecambe Bay Ramsar.

Assessment of likely significant effect

Natural England's advice is that this proposed development may contain (or require) measures intended to avoid or reduce the likely harmful effects on a European Site, which cannot be taken into account when determining whether or not a plan or project is likely to have a significant effect on a site and requires an appropriate assessment (noting the recent People Over Wind Ruling by the Court of Justice of the European Union).

For this reason, we advise that on the basis of the information supplied that the application may have a likely significant effect on these sites. The application requires an appropriate assessment in accordance with the Conservation of Habitats & Species Regulations 2017 (as amended).

Appropriate assessment

Natural England notes that your authority, as competent authority, has undertaken an appropriate assessment of the proposal in accordance with regulation 63 of the Conservation of Species and Habitats Regulations 2017 (as amended). 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. Having considered the assessment, and the measures proposed to mitigate for all identified adverse effects that could potentially occur as a result of the proposal, Natural England advises that we concur with the assessment conclusions, providing that all mitigation measures are appropriately secured in any

permission given.

Marine and Coastal Access Act 2009

The proposed works, as set out in the information provided, are sited within a Marine Conservation Zone (MCZ). Wyre-Lune MCZ has been designated due to the presence of:

- Smelt (*Osmerus eperlanus*)

Having reviewed the evidence relating to the site we believe that the works will not hinder the conservation objectives of this site.

Wildlife and Countryside Act 1981 (as amended)

We can confirm that the proposed works are located within Lune Estuary SSSI and Morecambe Bay SSSI. Natural England advises that the proposal, if undertaken in strict accordance with the details submitted, is not likely to damage the interest features for which the site has been notified.

For any queries relating to the content of this letter please contact me using the details provided below.

Yours sincerely,

Storm Isles
Cheshire to Lancashire Area Team
E-mail: storm.isles@naturalengland.org.uk

NORTH WESTERN INSHORE FISHERIES AND CONSERVATION AUTHORITY



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CARNFORTH
LANCASHIRE
LA5 9BY
Tel: (01524) 727970
Fax: (01524) 730638
Email: science@nw-ifca.gov.uk
Website: www.nw-ifca.gov.uk

BY EMAIL ONLY

Morecambe Bay Cockle Fishery 2024

13th August 2024

Dear Storm and Laurence,

Thank you for providing Natural England's formal statutory response to the NWIFCA-MB-EMS Cockle Hangathering Fishery 2024.

At the NWIFCA, Technical, Science and Byelaws Sub-Committee meeting held on the 13th August 2024, an amendment to the fishery opening of Flookburgh, Leven and Pilling cockle beds was resolved which differed from that provided in the HRA dated 2nd August 2024. Below sets out the original proposal, the new proposal, reason for change, and the additional HRA considerations.

Original HRA proposal: The NWIFCA proposes to authorise a hand-gathered cockle fishery on the Flookburgh, Leven and Pilling cockle bed from the 2nd of September on Flookburgh and Leven and from the 1st October on Pilling to the beginning of the closed season on the 1st of May 2023 under Byelaw 3 (2019). The fisheries are proposed to be open 5 days a week, 1 tide per day.

New HRA proposal: The NWIFCA proposes to authorise a hand-gathered cockle fishery on the Flookburgh, Leven and Pilling cockle bed from the 2nd of September on Flookburgh and Leven and from the 1st October on Pilling to the beginning of the closed season on the 1st of May 2023 under Byelaw 3 (2019). The fisheries are proposed to be open 10 days out of every 14 days, 1 tide per day.

Reason for change in proposal

- At the TSB meeting, members of the fishing industry proposed the change to the opening date for the practicability of the fishery, so the fishery would be closed on days and tides where day light hours are limited over low water.

- The proposal was discussed in the meeting by members with the input from Natural England, and subject to a review of the proposal and HRA, that the fishery impacts would likely be similar to that already assessed.

Additional HRA considerations

NWIFCA has reviewed the HRA assessment and because there is no increased effort, the same number of tides will be closed over a 14-day period, a similar number of tides will be open over the duration of the fishery, and selecting the tides with the greatest number of hours of darkness may benefit the birds in reducing disturbance. NWIFCA concludes that the assessment, justification and mitigation provided in the HRA is still appropriate and valid for the new proposal and therefore under the new proposal can conclude no adverse effect on the integrity of the European Site providing the management and mitigation measures provided in table 6 of the HRA are implemented and upheld.

Timing of the fishery and receiving Natural England's formal advice

NWIFCA recognises that the timing of the new proposal falls out with of the timescale set out by Natural England for receiving formal advice. Should formal advice not be received prior to the 2nd September 2024, or that the formal advise does not agree with the conclusion drawn by NWIFCA above, the fishery will open as set out in the original proposal until a time that permits the fishery to change to the new proposal.

Thank you for your time on this subject matter and please let me know if you require any further clarification.

Yours Sincerely,

Jon Haines

NWIFCA Senior Science Officer

Annex 6 – Natural England Advice on NWIFCA Proposal Change (15th August 2024)

Date: 15 August 2024
Our ref: 484101
Your ref: Morecambe Bay Cockle Fishery 2024



Customer Services
Hornbeam House
Crewe Business Park
Electra Way
Crewe
Cheshire
CW1 6GJ

T 0300 060 3900

BY EMAIL ONLY

Dear Jonathan,

Consultation: Morecambe Bay Cockle Fishery 2024
Location: Morecambe Bay

Thank you for your consultation on the above dated 13 August 2024 which was received by Natural England on 13 August 2024 regarding the amended HRA for the Morecambe Bay Cockle Fishery 2024.

It is noted the amendments to the HRA on which we provided our formal advice (ref: 484101) is as follows:

“The NWIFCA proposes to authorise a hand-gathered cockle fishery on the Flookburgh, Leven and Pilling cockle bed from the 2nd of September on Flookburgh and Leven and from the 1st October on Pilling to the beginning of the closed season on the 1st of May 2023 under Byelaw 3 (2019). The fisheries are proposed to be open 10 days out of every 14 days, 1 tide per day.”

Natural England is in agreement with the conclusion that this amendment will not result in an adverse effect on integrity of the following sites:

- Morecambe Bay Special Area of Conservation (SAC)
- Morecambe Bay & Duddon Estuary Special Protection Area (SPA)
- Morecambe Bay Ramsar

For any queries regarding this letter, for new consultations, or to provide further information on this please send your correspondences to consultations@naturalengland.org.uk.

Yours sincerely

Storm Isles
Cheshire to Lancashire Area Team
E-mail: storm.isles@naturalengland.org.uk