

Introduction

There is a long history of management of hand-gathered cockle fisheries in Morecambe Bay and specifically on Flookburgh / Leven Sands, Newbiggin and Pilling cockle beds. The NWIFCA has carried out Habitats Regulations Assessments for these fisheries each time they have been opened since 2016. The most recent HRAs are available on the NWIFCA website: <https://www.nw-ifca.gov.uk/marine-protected-areas/hra/> These contain lengthy detail about the nature of the fisheries, the variability of the stock, the conservation features for which the site is designated, their conservation status, the potential risks fishing activity could pose to the features, along with detail on potential impacts, vulnerability, and features' exposure to pressures. Finally the HRAs contain detail of the management (byelaws, and specific measures for each year depending on circumstances of the management and the stock) to ensure no risk to the integrity of the European Site.

Considering the history of these fisheries there seems little point in producing a lengthy document which repeats the information contained in previous versions. The NWIFCA has taken the approach to summarise the factors that have changed since the opening of the fishery in September 2019, and carry out an Appropriate Assessment on these. This is provided in concise format below.

Please refer to the HRA for these cockle fisheries carried out for 2017 for the most up-to-date detailed information on all factors that are not covered in this document: **NWIFCA-MB-EMS-2017**. The HRA carried out for the October 2018 fishery **Leven and Flookburgh 2018**, the January 2019 fishery **Morecambe Bay Cockle Fisheries January 2019** and the **Morecambe Bay Cockle Fisheries September 2019** is also available. All of the HRAs can be found at: <https://www.nw-ifca.gov.uk/marine-protected-areas/hra/>

1. Change to Site Information

Addition of Wyre – Lune Marine Conservation Zone (MCZ). The site is designated for smelt (*Osmerus eperlanus*). The Pilling cockle bed is within the MCZ but due to the nature of the activity (intertidal hand-gathered cockle fisheries) it is extremely unlikely that there will be any impact on smelt from the fishery.

Updated conservation advice for Morecambe Bay and Duddon Estuary SPA. Changes specific to the HRA;-

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

2. Information about the fishing activity within the site

Regulation of Hand-gathering – change in number of permit holders

There are currently a maximum of 141 NWIFCA Byelaw 3 permits which could be issued for the 2020 – 2021 season.

NWIFCA are currently in the process of replacing the current byelaw with a new byelaw NWIFCA Byelaw 3 (2020) which if it comes into force during the 2020 – 2021 fishery will replace the current management. There are no changes in the byelaw that need to be considered in the HRA as the byelaw will build on and improve the current ability to manage the fishery.

3. Current Status of main Cockle Stocks within Morecambe Bay

Annex C – Contains updated stock status information because between the submission of the HRA to Natural England and the opening of the fishery adverse weather conditions caused some cockle mortality on Aldingham cockle bed and the cockle stock around Morecambe Bay were checked to assess the mortality and Alingham and to ensure that the mortality was not across all of the cockle beds.

For all surveys:

Means were calculated from all stations with zero counts on the edges 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.

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

For biomass calculations - size cockle is defined as cockle which will not pass through a square gauge 20 x 20mm in size. The 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.

Aldingham and Newbiggin Cockle Survey 09-07-20

63 stations were sampled from a 500m grid. 16 additional stations were added to ensure full coverage as areas of the Aldingham survey grid were inaccessible due to a large channel. There was a wide range of cockle sizes across the bed from less than 5mm to greater than 35mm cockle. The area of cockle was close to the shore line with very little cockle present beyond 1.5 and 2km from the sea wall.

Mean number of size cockle	19 per m ²	(min 0, max 84)
Mean number of undersize cockle	19 per m ²	(min 0, max 194)
Mean number of 0-5mm cockle	131 per m ²	(min 0, max 2000)

	Area (ha)	Size Cockle (tonnes)	Undersize Cockle (tonnes)
Aldingham and Newbiggin	1351	~3200	~770

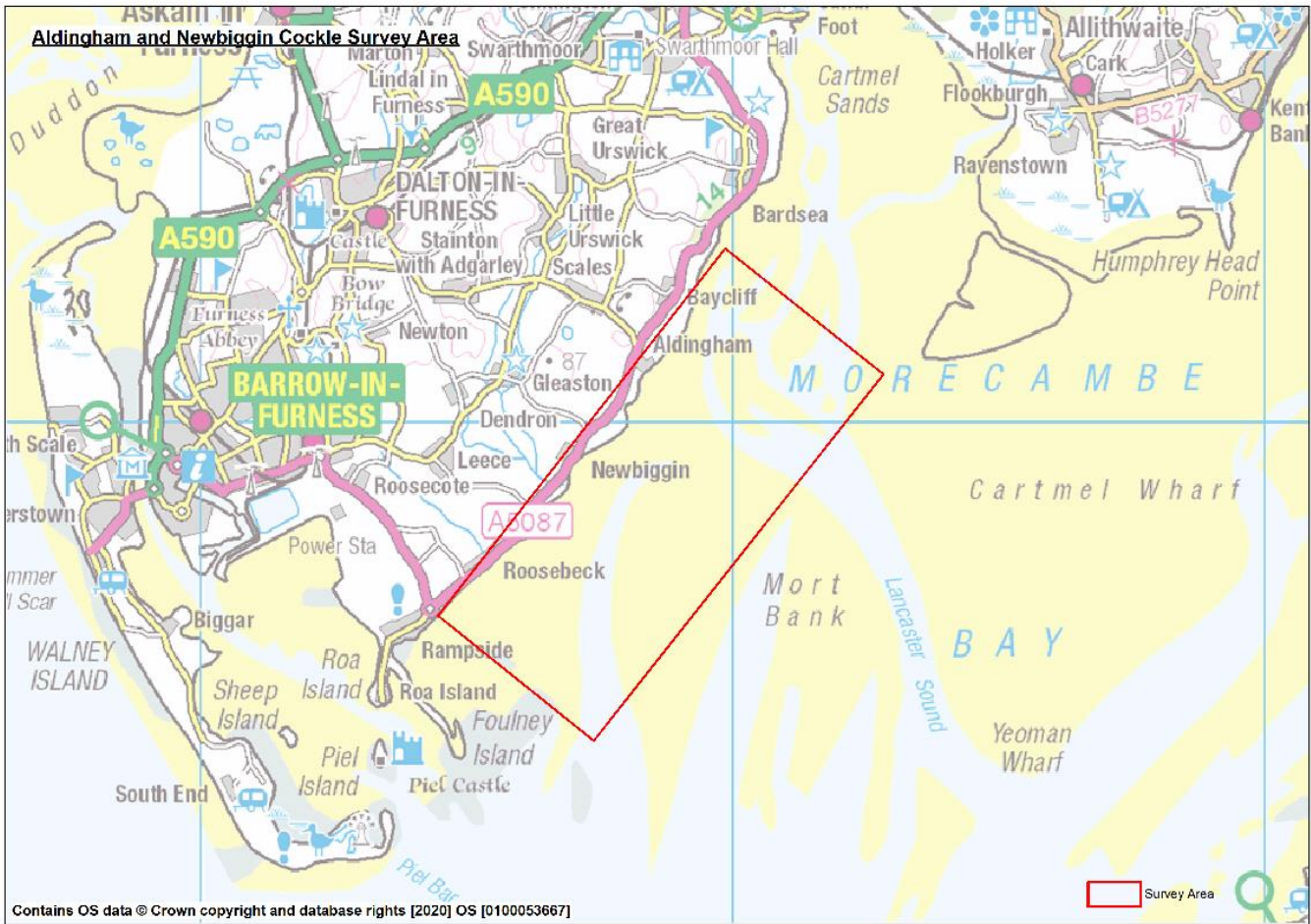
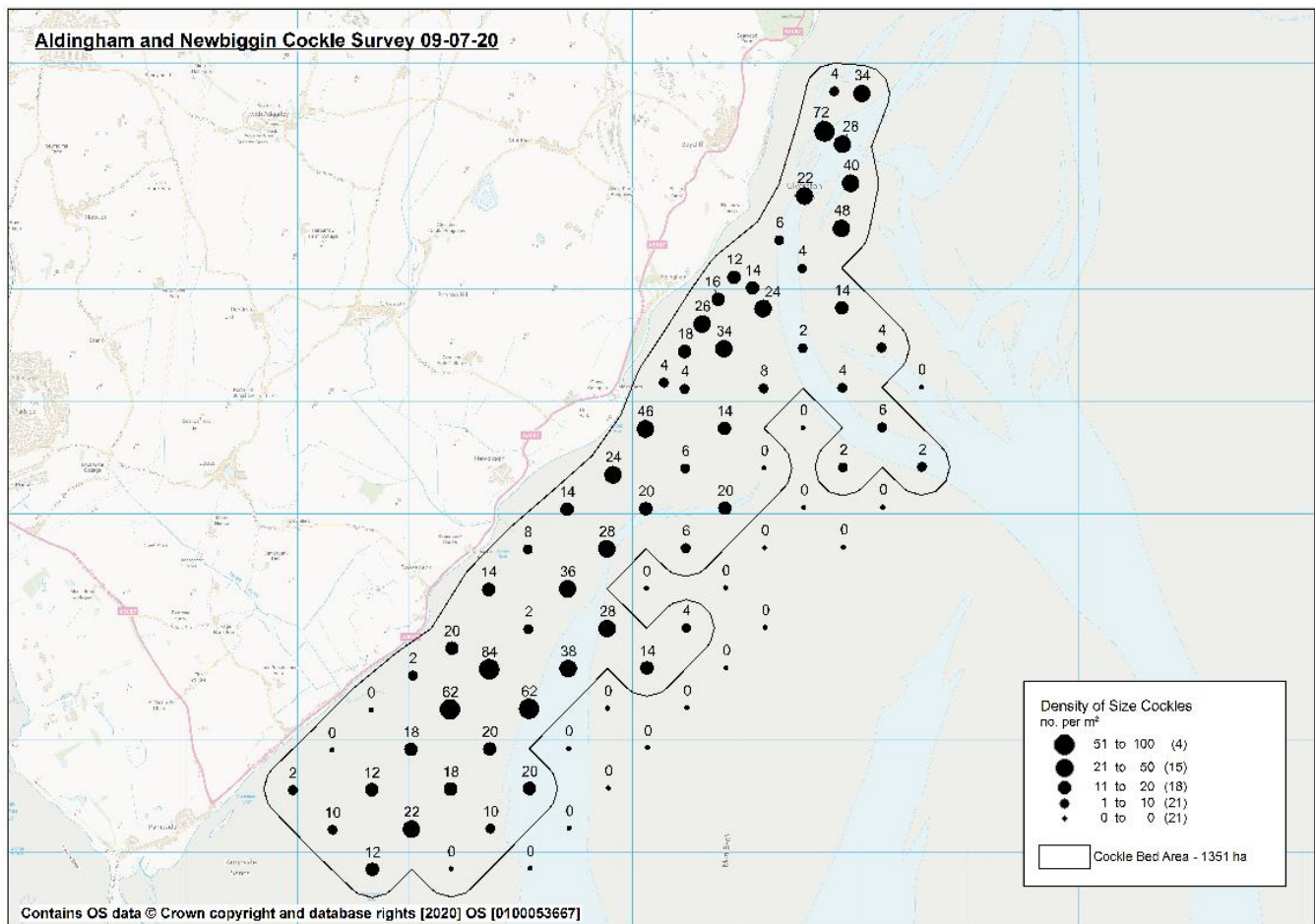
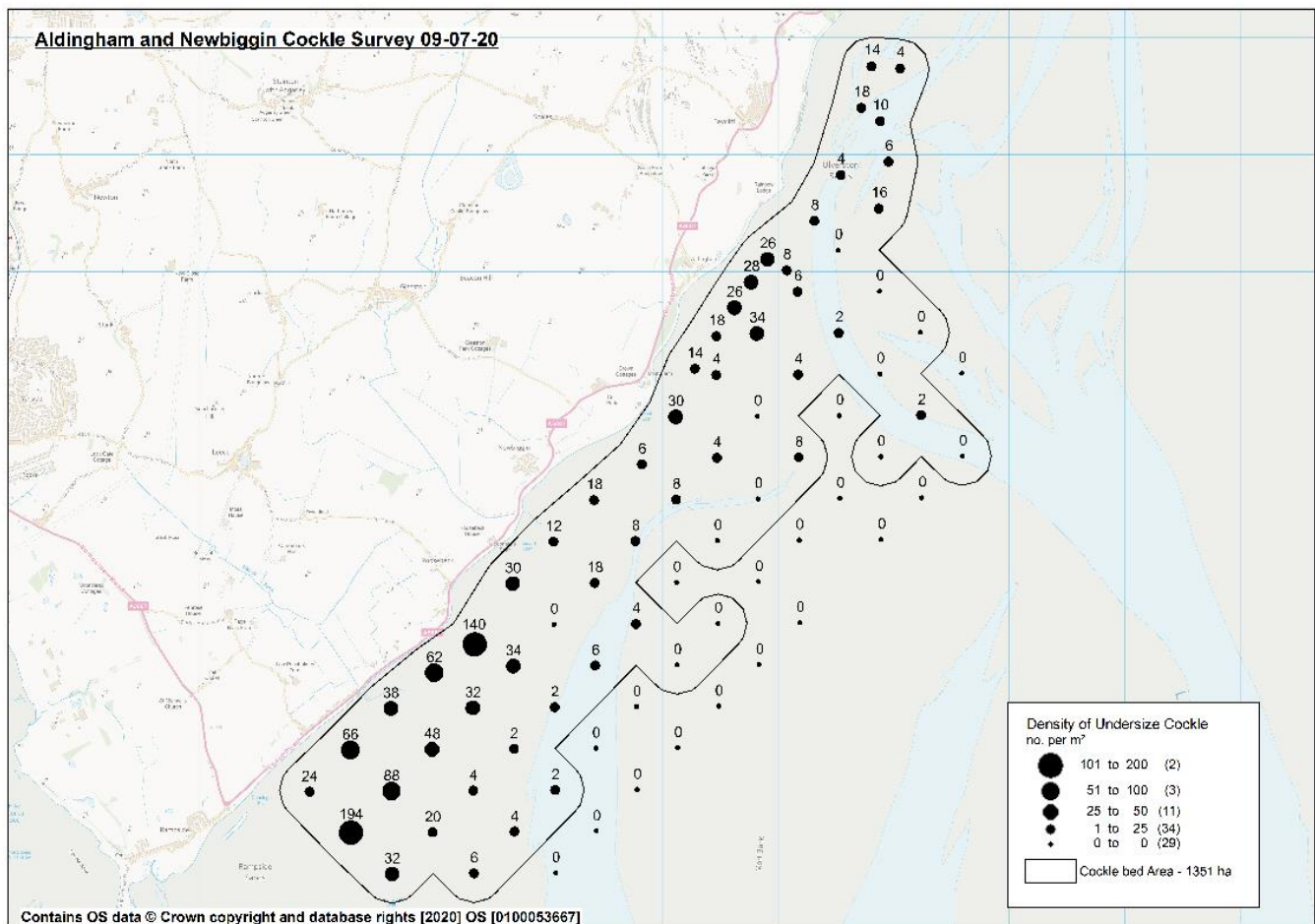


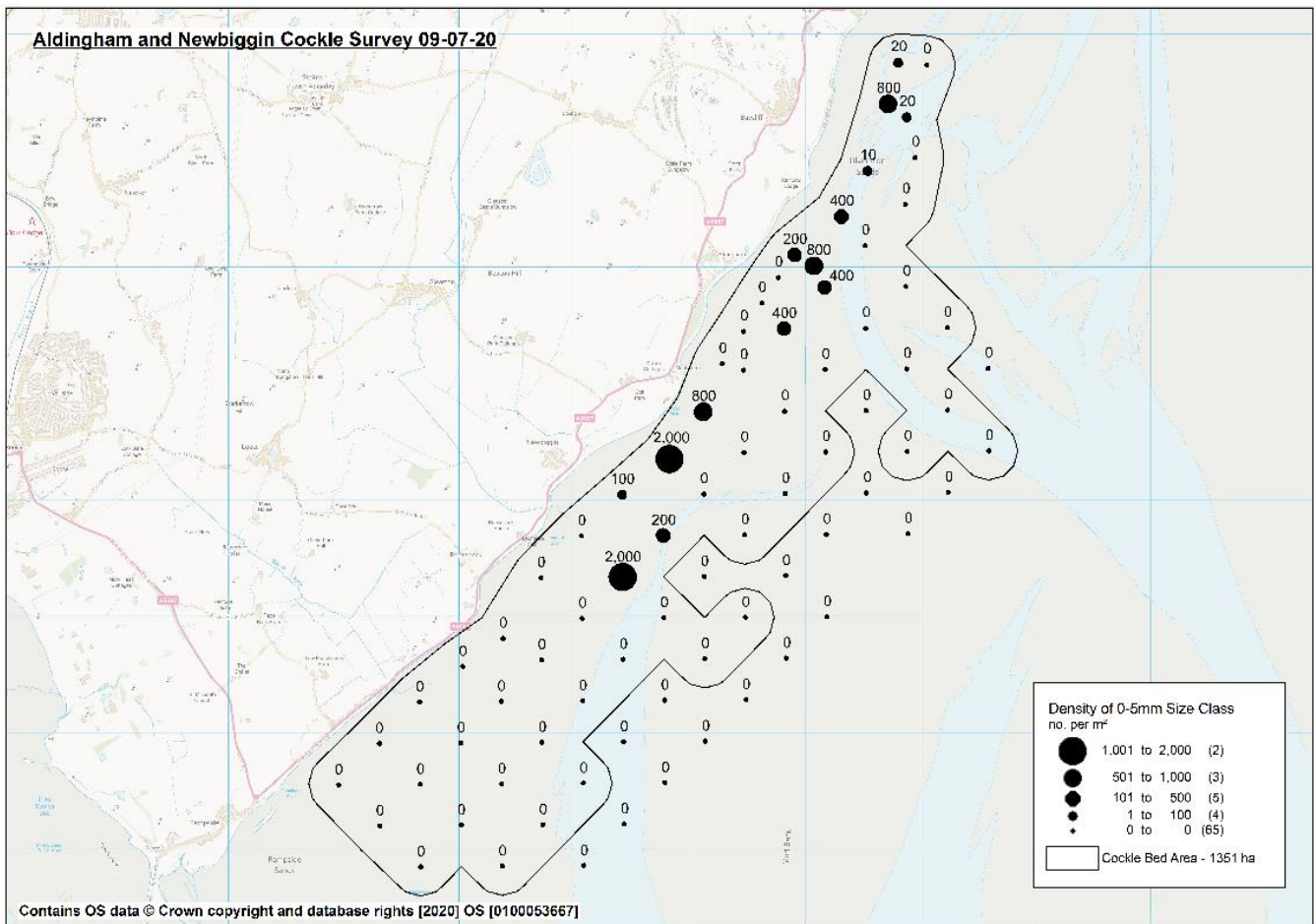
Illustration of position of Aldingham and Newbiggin Survey Area



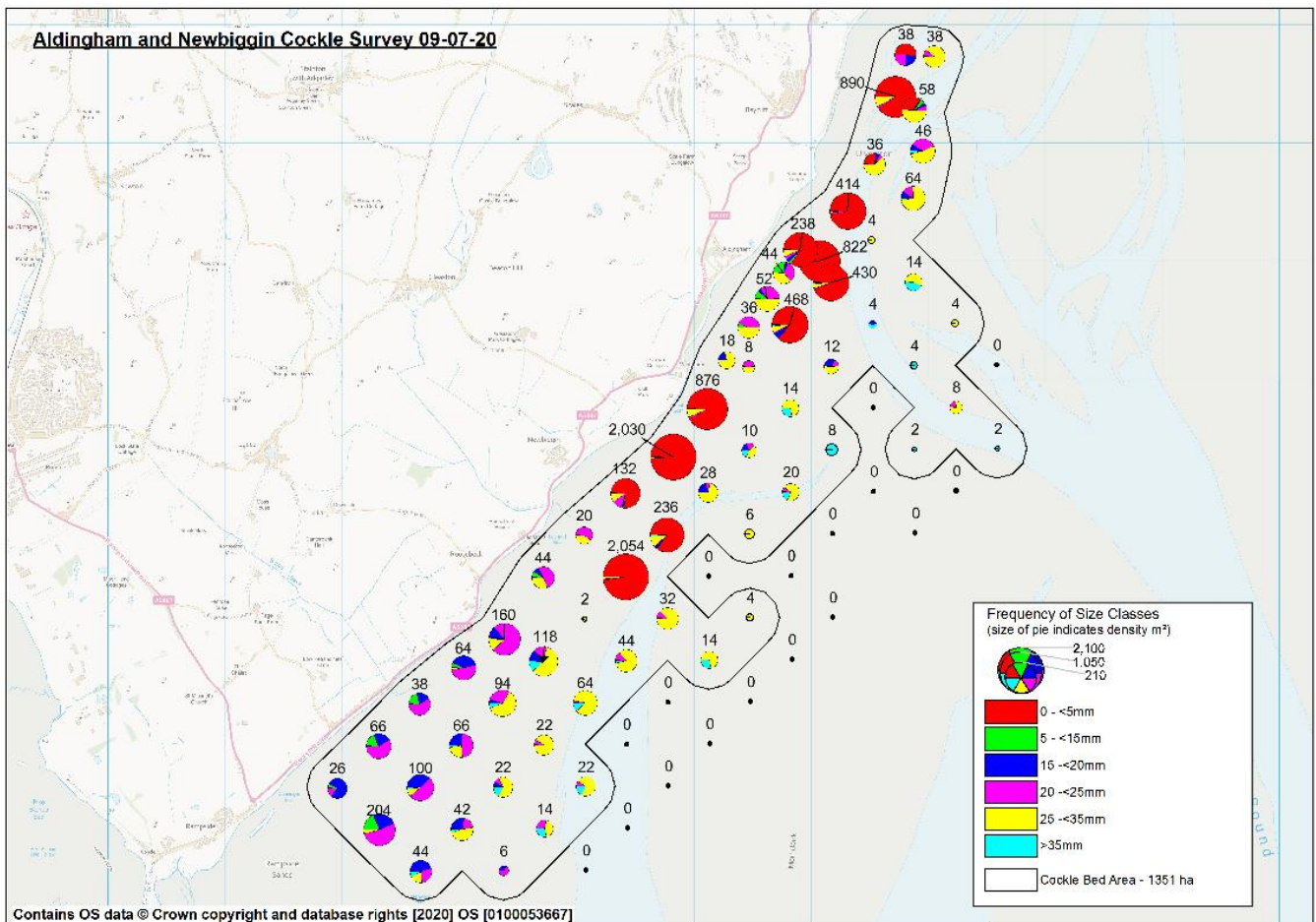
Density of size cockle per m² Aldingham and Newbiggin July 2020



Density of undersize cockle per m² Aldingham and Newbiggin July 2020



Density of 0-5mm cockle per m² Aldingham and Newbiggin July 2020



Leven Cockle Survey 23-07-20

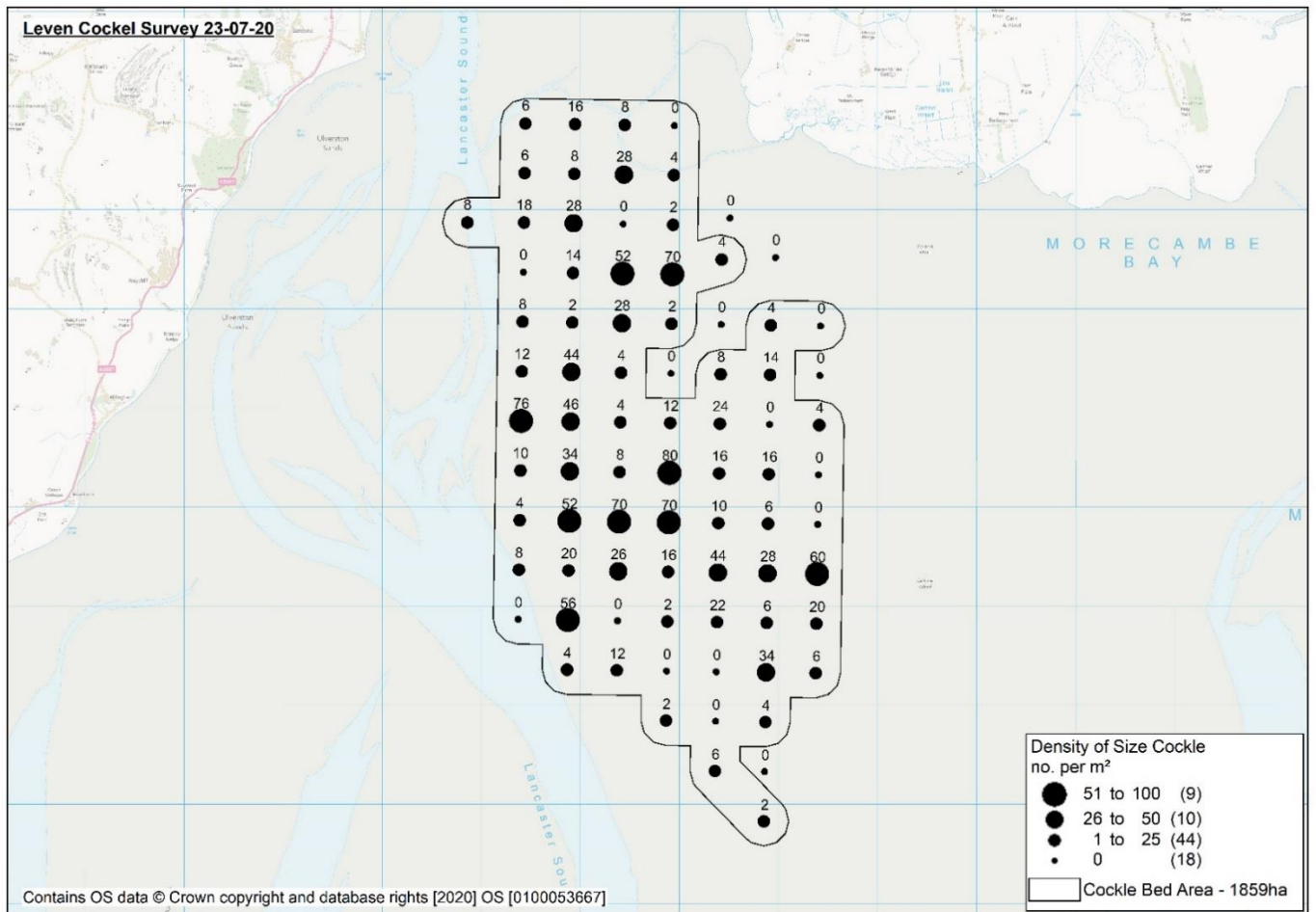
77 stations were sampled from a 500m grid. Four additional stations were added to ensure full coverage of the extent of the bed. There was a wide range of cockle sizes across the bed from less than 5mm to greater than 35mm cockle. Size cockle were present across the surveyed area, with some more dense areas indicated in central and northern areas of the bed. Undersize cockle was present in lower densities, but again consistently across the bed. A 2020 settlement of cockle spat was present across much of the bed, with the greatest densities observed to the north leading into the Leven.

Mean number of size cockle	18 per m ²	(min 0, max 80)
Mean number of undersize cockle	21 per m ²	(min 0, max 576)
Mean number of 0-5mm cockle	46 per m ²	(min 0, max 1600)

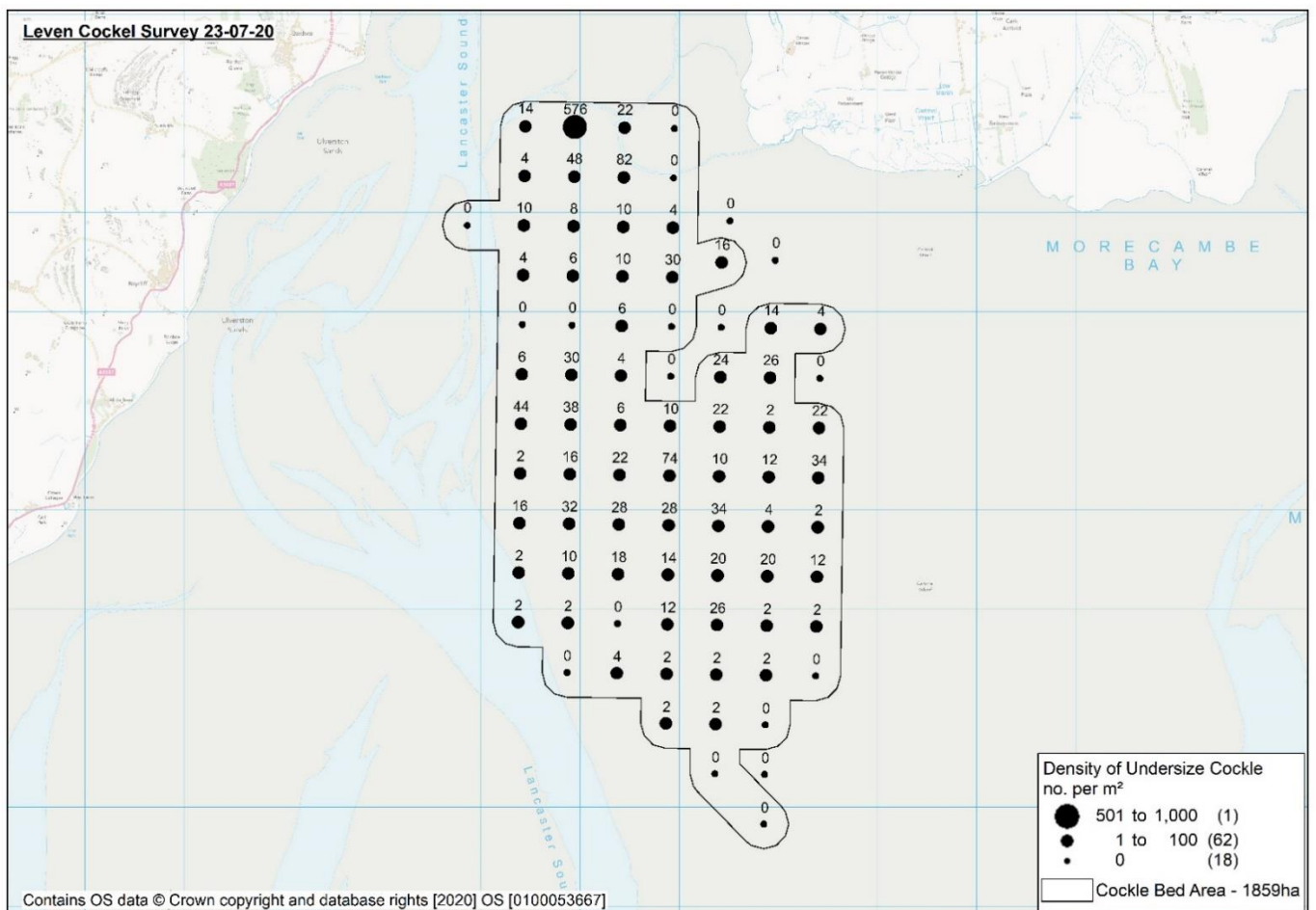
	Area (ha)	Size Cockle (tonnes)	Undersize Cockle (tonnes)
Leven	1859	~3100	~700



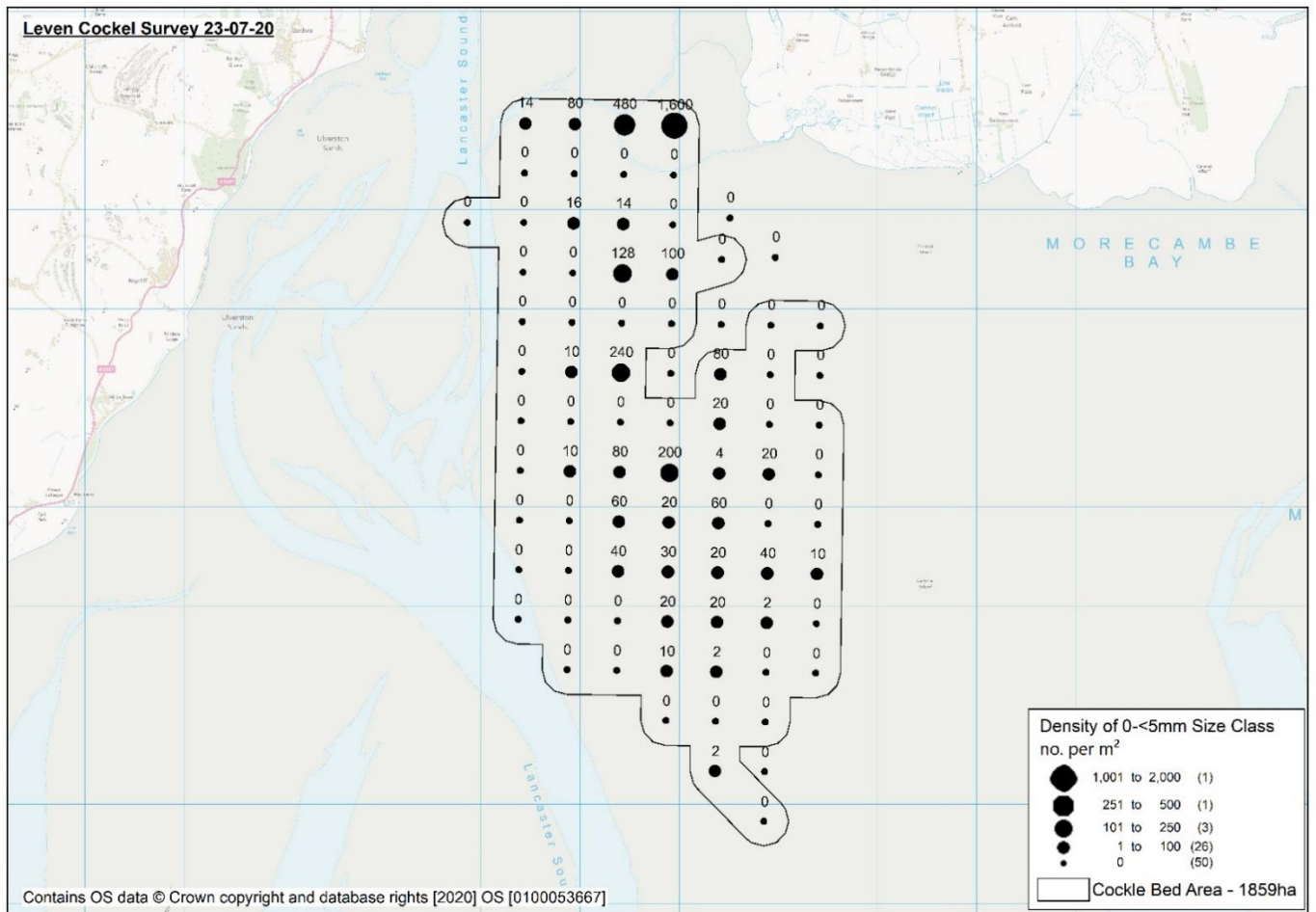
Illustration of position of Leven Survey Area



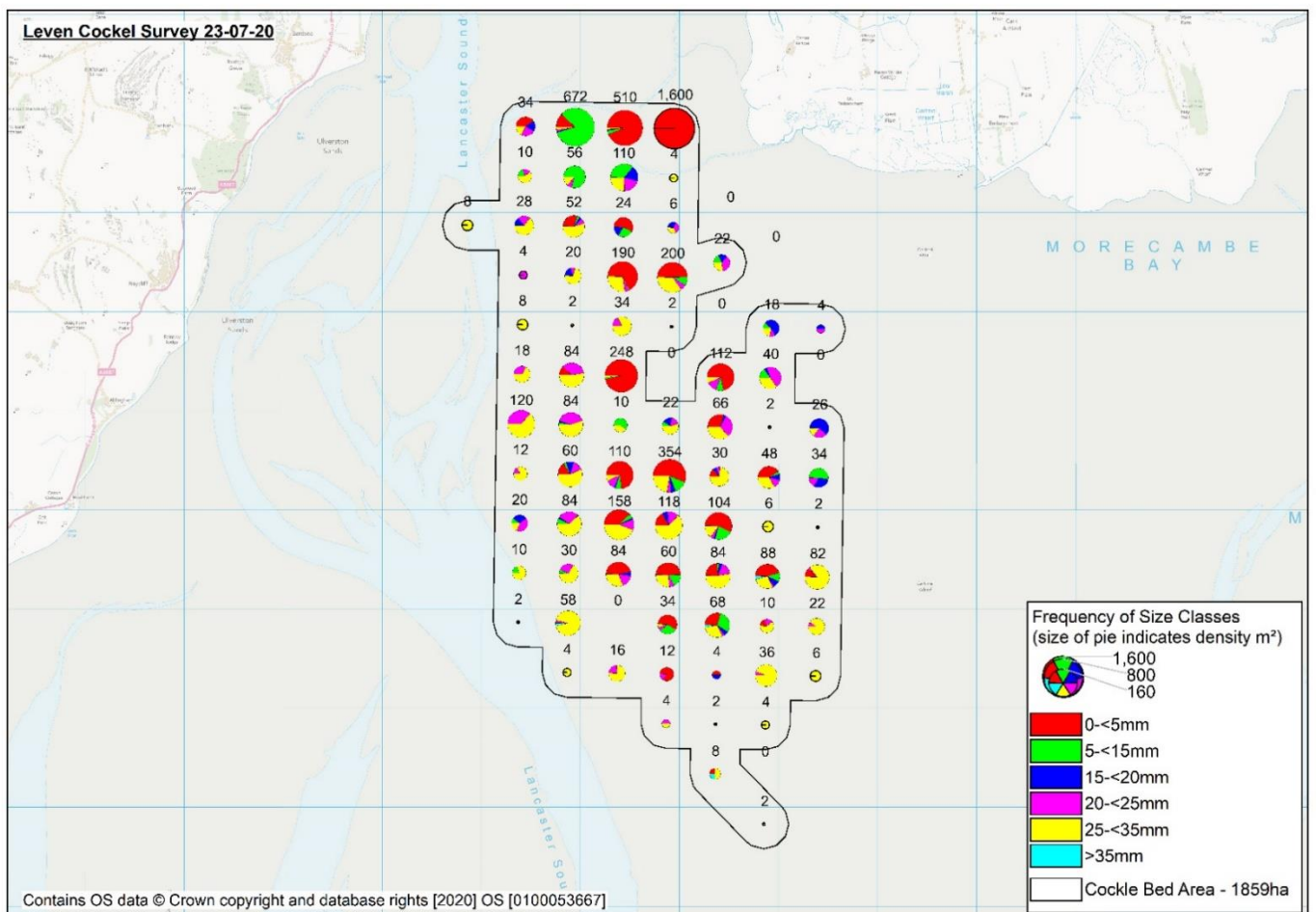
Density of size cockle per m² Leven July 2020



Density of undersize cockle per m² Leven July 2020



Density of 0-5mm cockle per m² Leven July 2020



Frequency of size classes of cockle per m² Leven July 2020

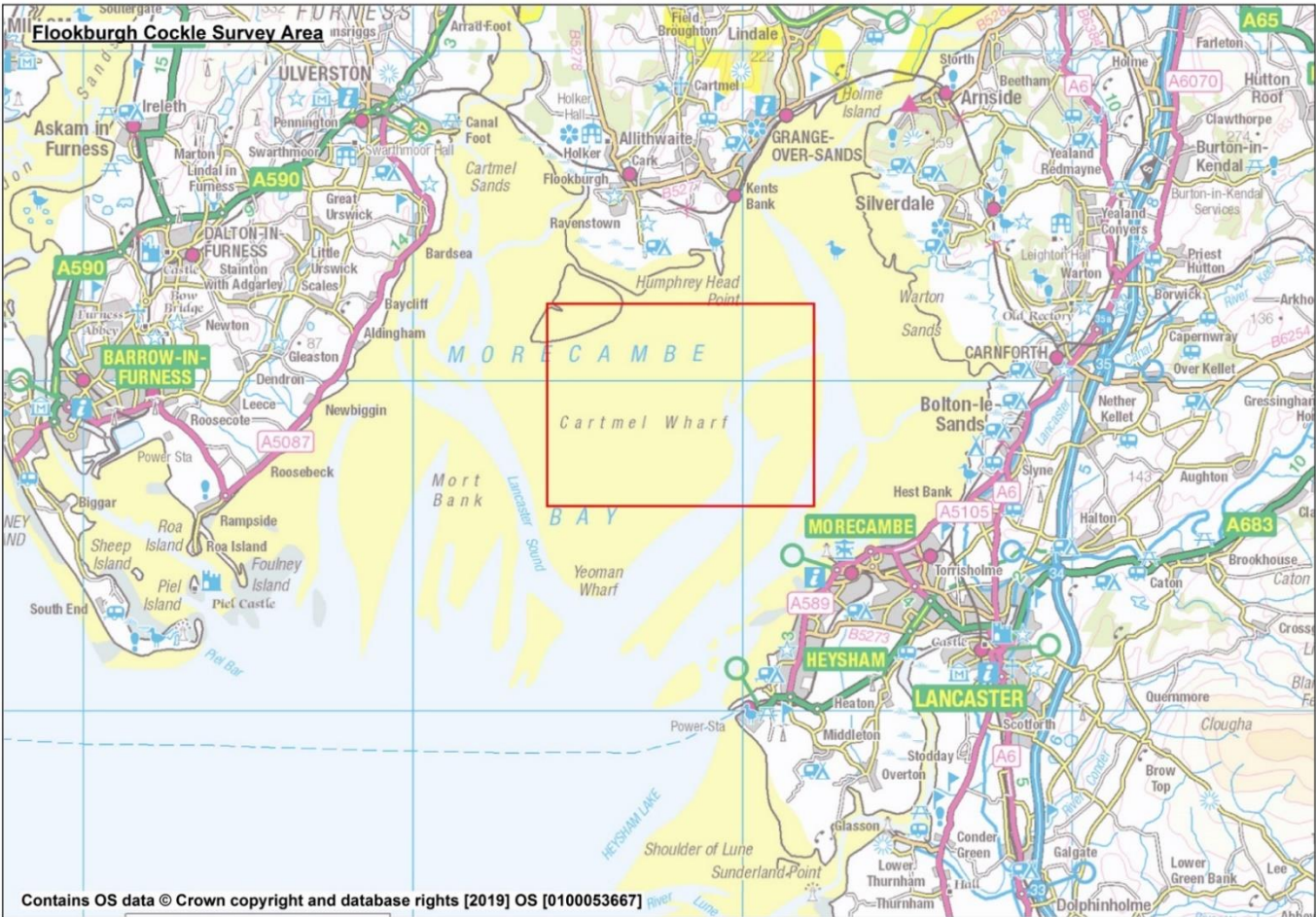
Flookburgh Cockle Survey 22-07-20

143 stations were sampled from a 500m grid. One additional station was added to ensure full coverage of the extent of the bed. There was a wide range of cockle sizes across the bed from < 5mm to > 35mm. The majority of this was either small, < 10mm or large, > 25mm. To the east of the bed there were high densities of cockle in the 5-15mm size class, the majority of which was 6mm and considered as part of 2020 settlement. The dense area of size cockle present in 2019 was not evident from the survey, although size cockle was present in consistent numbers across a large area with some more dense areas indicated.

Mean number of size cockle	12 per m ²	(min 0, max 76)
Mean number of undersize cockle	28 per m ²	(min 0, max 894)
Mean number of 0-5mm cockle	29 per m ²	(min 0, max 624)

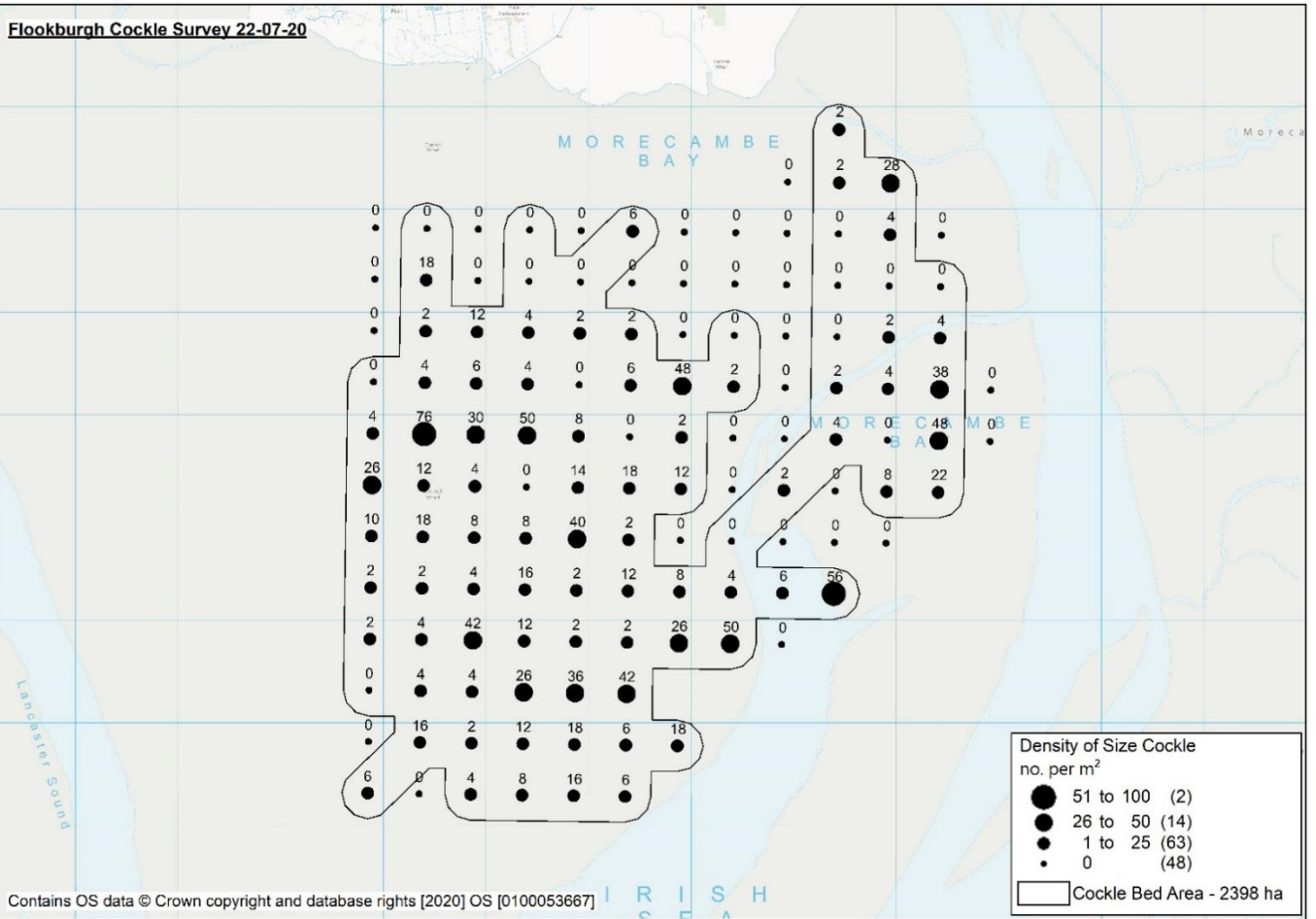
	Area (ha)	Size Cockle (tonnes)	Undersize Cockle (tonnes)
Flookburgh	2398	~3300	~500

The biomass of undersize cockle was adjusted to reflect the large densities of 6mm in the 5-15mm size class. This was achieved by using the minimum recorded weight for this size class in calculations, and more accurately represents observations of this size class by officers during the survey.



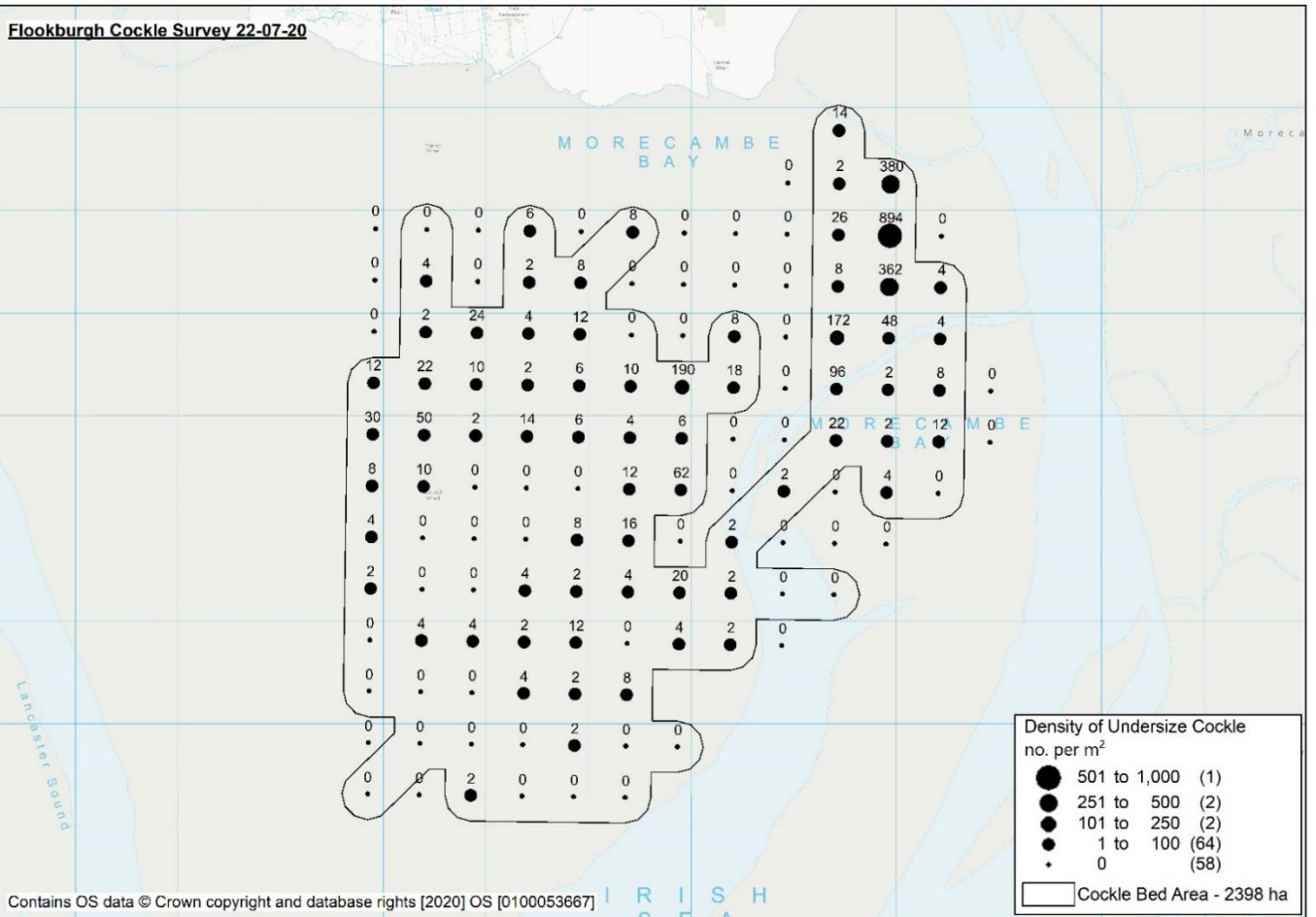
|| Illustration of position of Flookburgh Survey Area

Flookburgh Cockle Survey 22-07-20



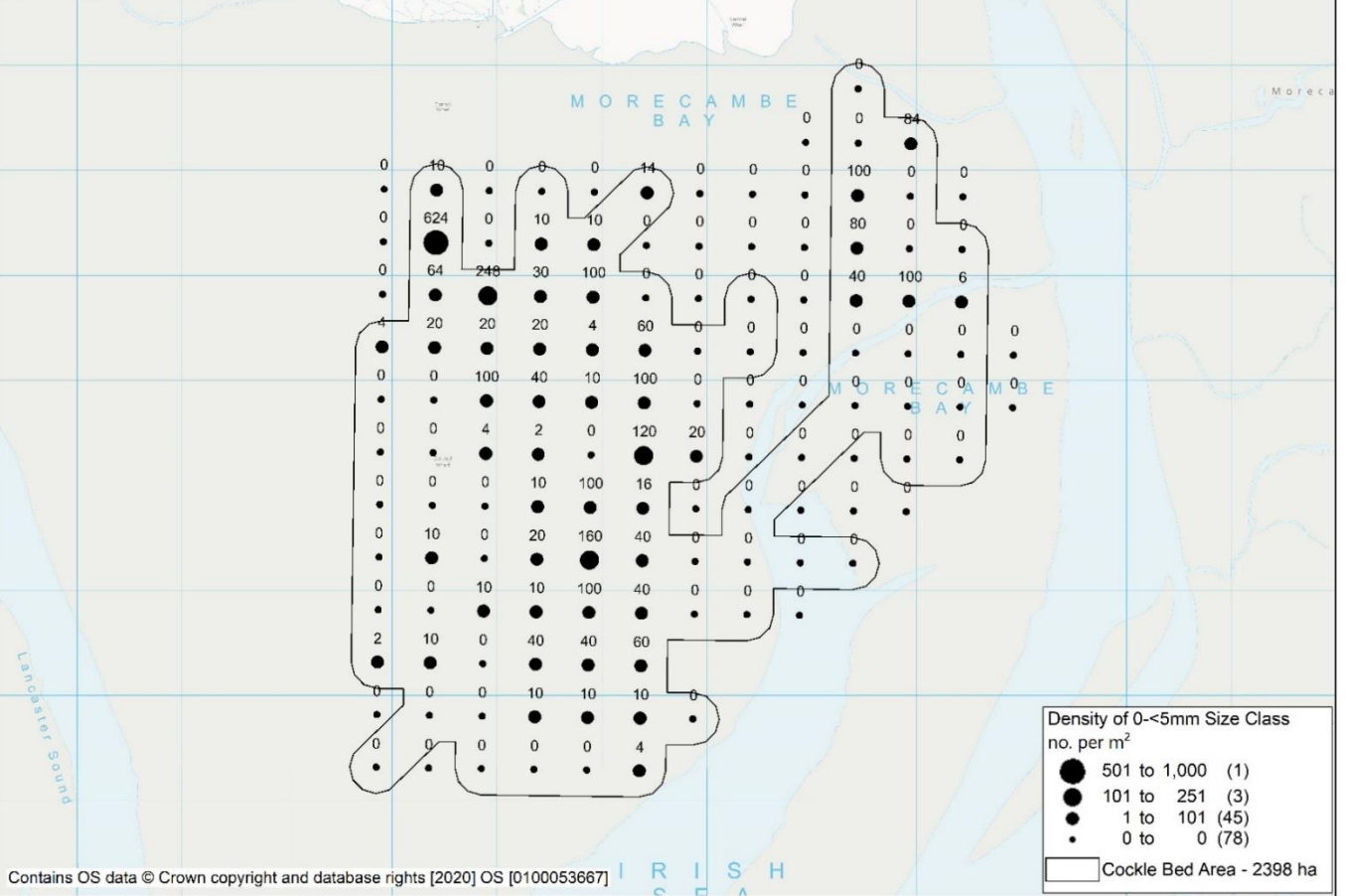
Density of size cockle per m² Flookburgh July 2020

Flookburgh Cockle Survey 22-07-20



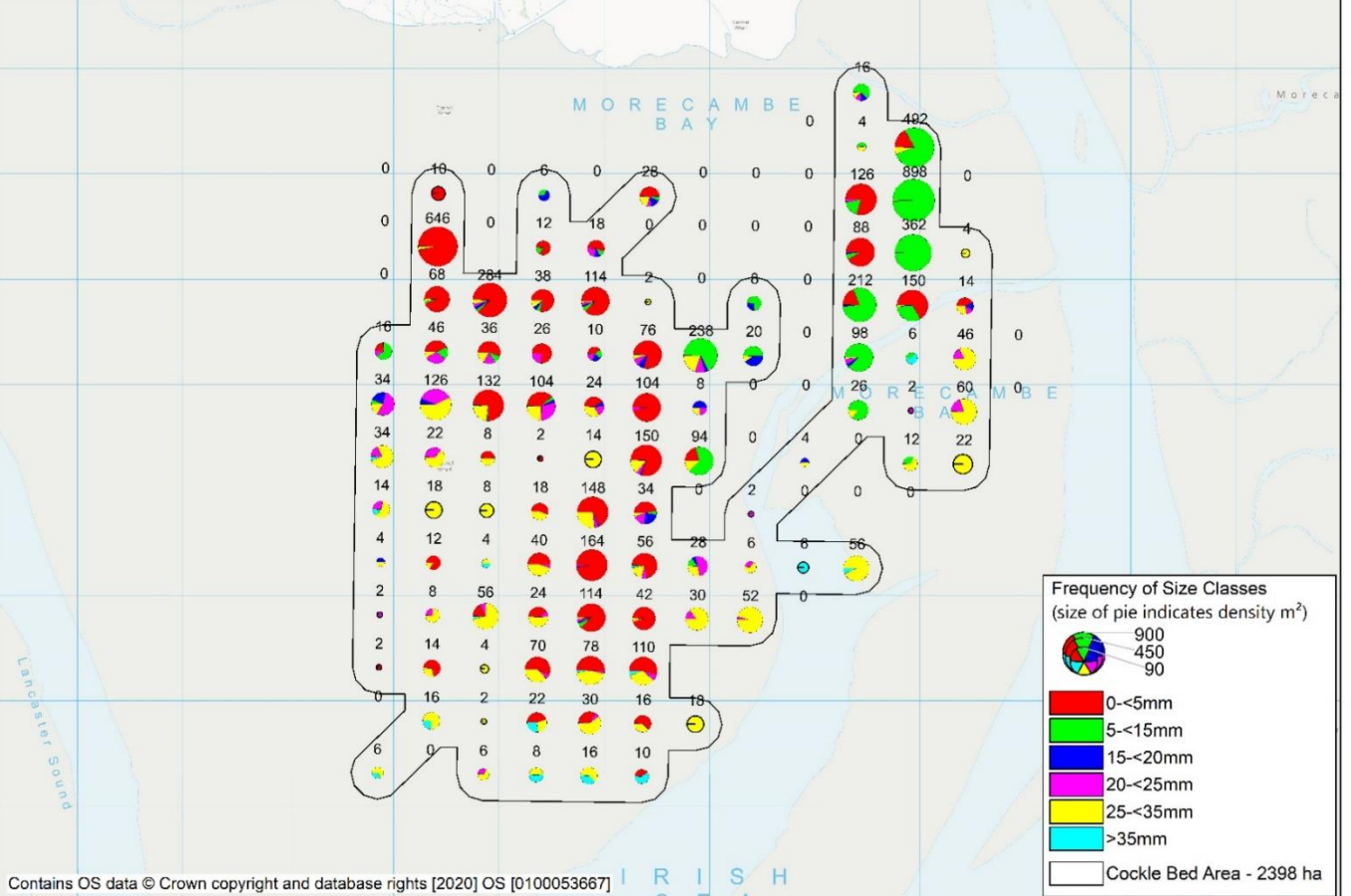
Density of undersize cockle per m² Flookburgh July 2020

Flookburgh Cockle Survey 22-07-20



Density of 0-5mm cockle per m² Flookburgh July 2020

Flookburgh Cockle Survey 22-07-20



Frequency of size classes of cockle per m² Flookburgh July 2020

Warton Sands Cockle Survey 23-06-20

40 survey stations were sampled from a 250m grid with an additional 11 stations added to areas which could now be accessed. Although some soft inaccessible areas were present, the state of the ground had improved significantly and channel position changed from previous surveys resulting in a much larger area being surveyed than in 2019. The muddy band surveyed in 2019 was present although reduced in area. Size cockle was in low density across the main surveyed bed area, and a proportion of the dense area had grown to size although the majority of cockle in the dense area was in the 20-25mm size class and undersize. Evidence of medium density 2020 spat settlement was present in a central area of the bed but was too small to be counted and assessed.

Main Area

Mean number of size cockle	9 per m ²	(min 0, max 78)
Mean number of undersize cockle	12 per m ²	(min 0, max 74)

Dense Area

Mean number of size cockle	100 per m ²	(min 20, max 130)
Mean number of undersize cockle	1203 per m ²	(min 110, max 4120)

The estimated biomass for the dense area has been calculated separately as this area was greatly different from the rest of the bed.

Warton Sands	Area (ha)	Size Cockle (tonnes)	Undersize Cockle (tonnes)
Main Area	271.2	175	~115
Warton Sands Dense Area	14.6	105	~790

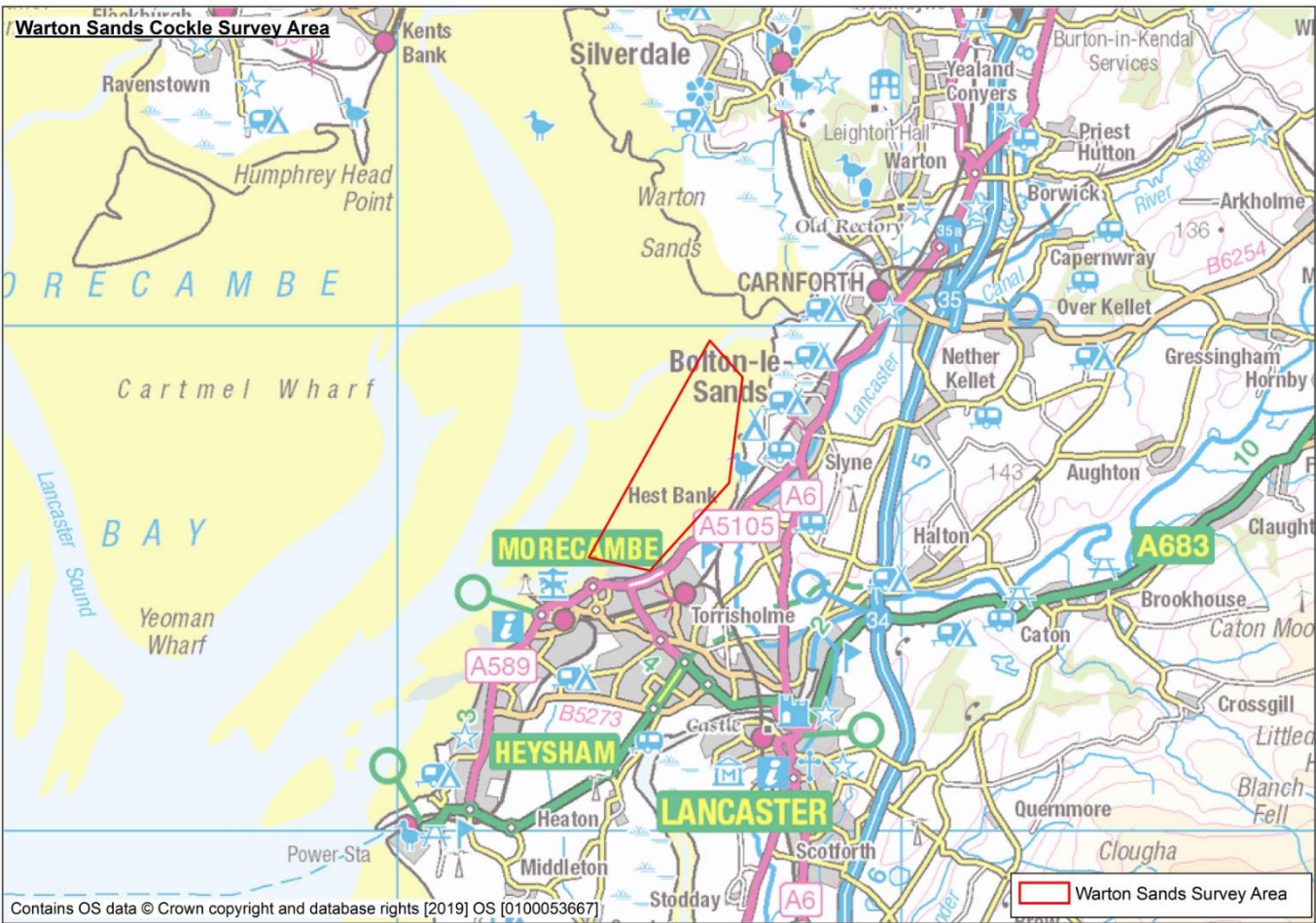
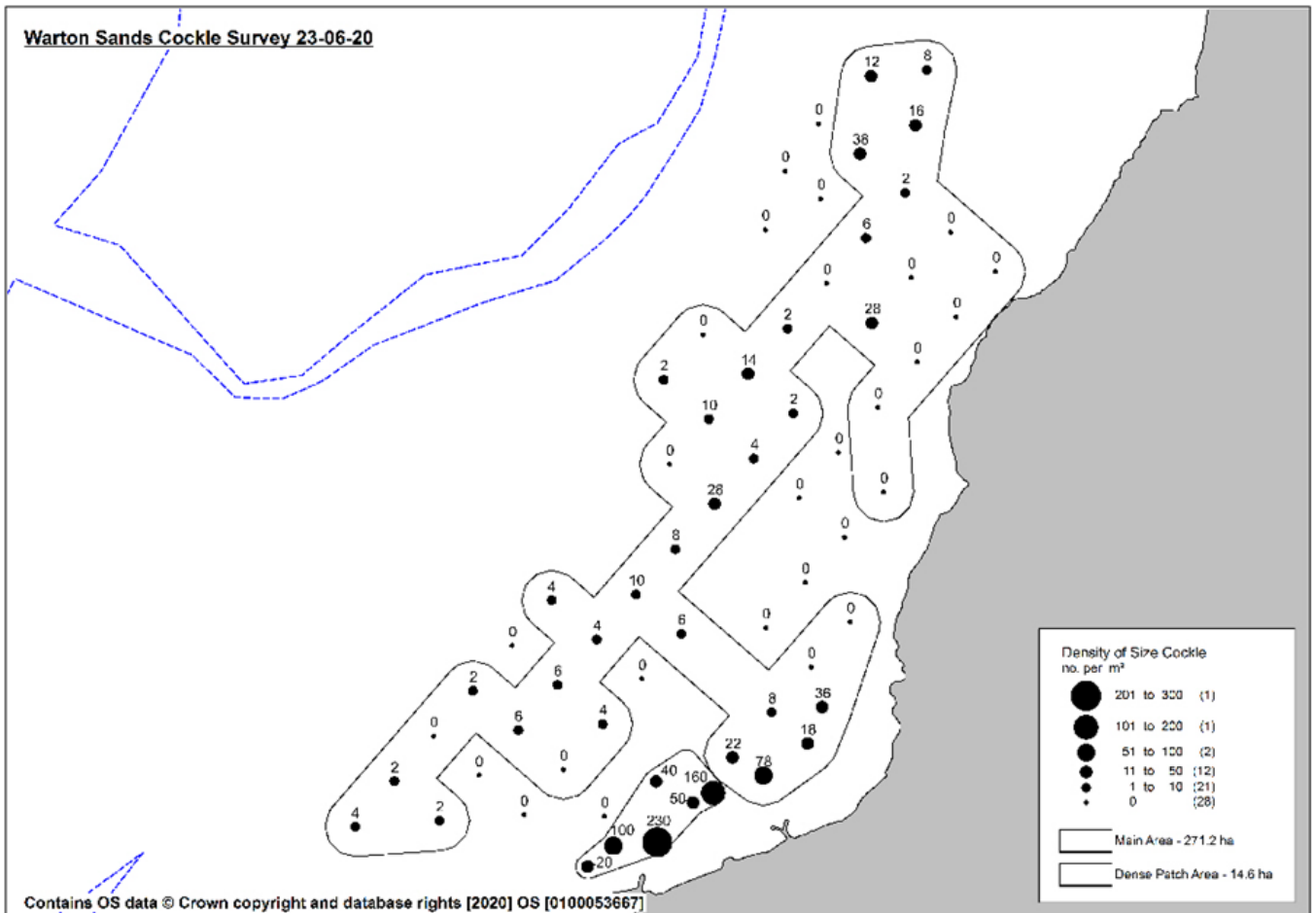
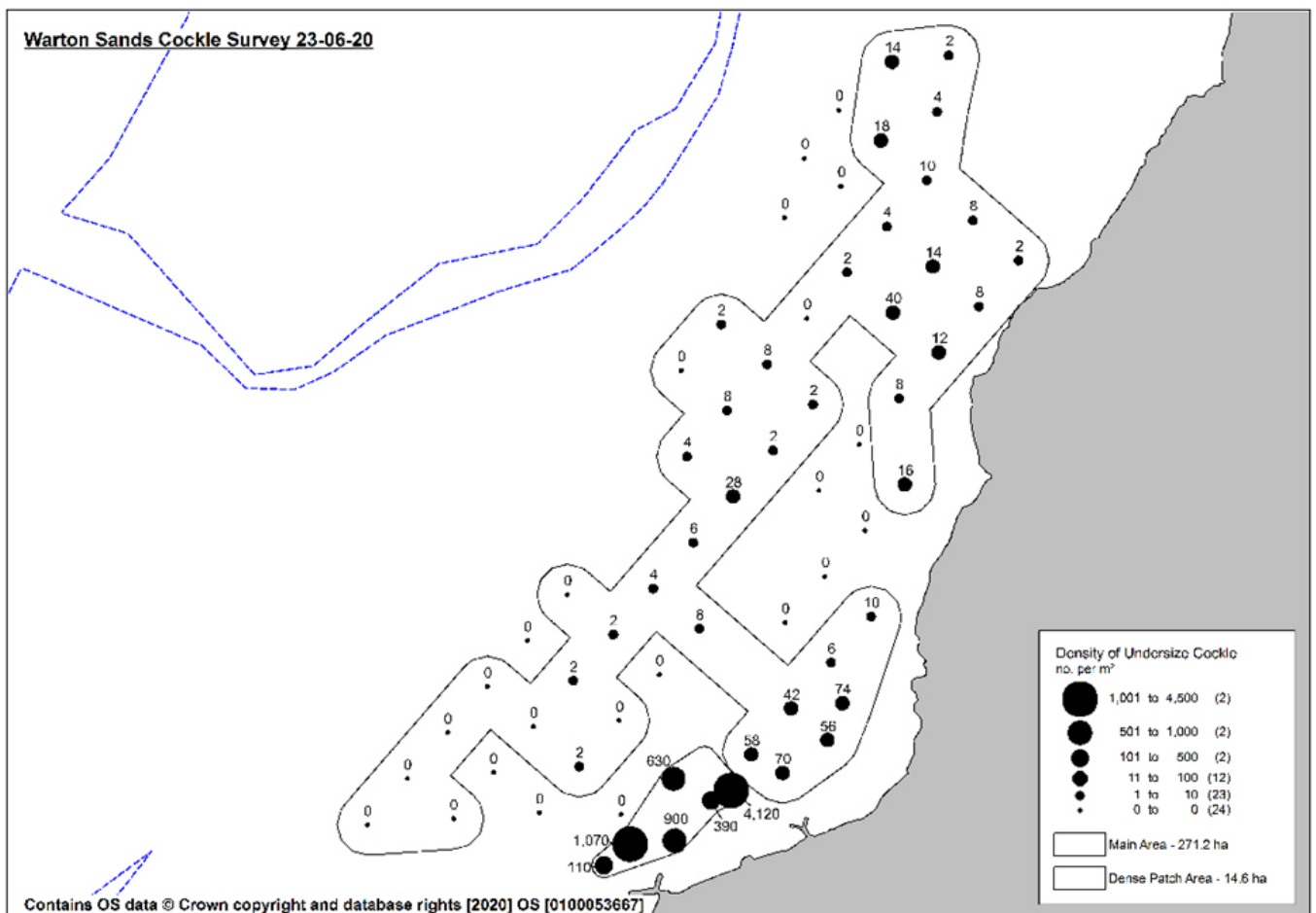


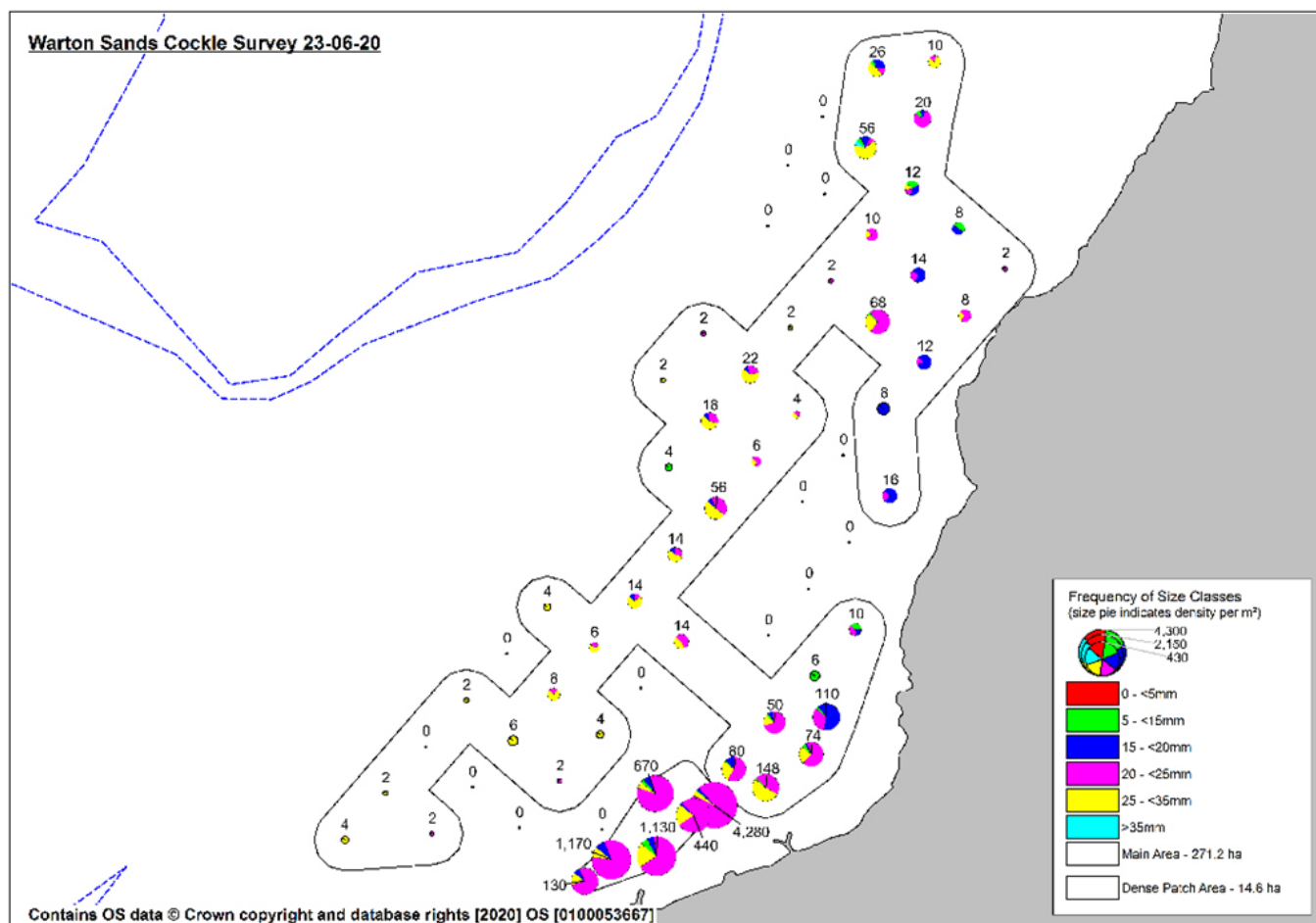
Illustration of position of Warton Sands cockle bed



Density of size cockle per m² Warton Sands June 2020



Density of undersize cockle per m² Warton Sands June 2020



Frequency of size classes of cockle per m² Warton Sands June 2020

Middleton Cockle Survey 08-07-20

78 stations were sampled from a 350m grid. The density of size cockle across the bed was relatively low. Undersize cockle was present in the central area and the eastern side of the bed, although not in significant quantities. One station contained significant amounts of 2020 spat settlement but spat was only observed at one other station on the bed in low numbers.

Mean number of size cockle	5 per m²	(min 0, max 22)
Mean number of undersize cockle	7 per m²	(min 0, max 58)
Mean number of 0-5mm cockle	2 per m²	(min 0, max 100)

	Area (ha)	Size Cockle (tonnes)	Undersize Cockle (tonnes)
Middleton Sands	615	~300	~200

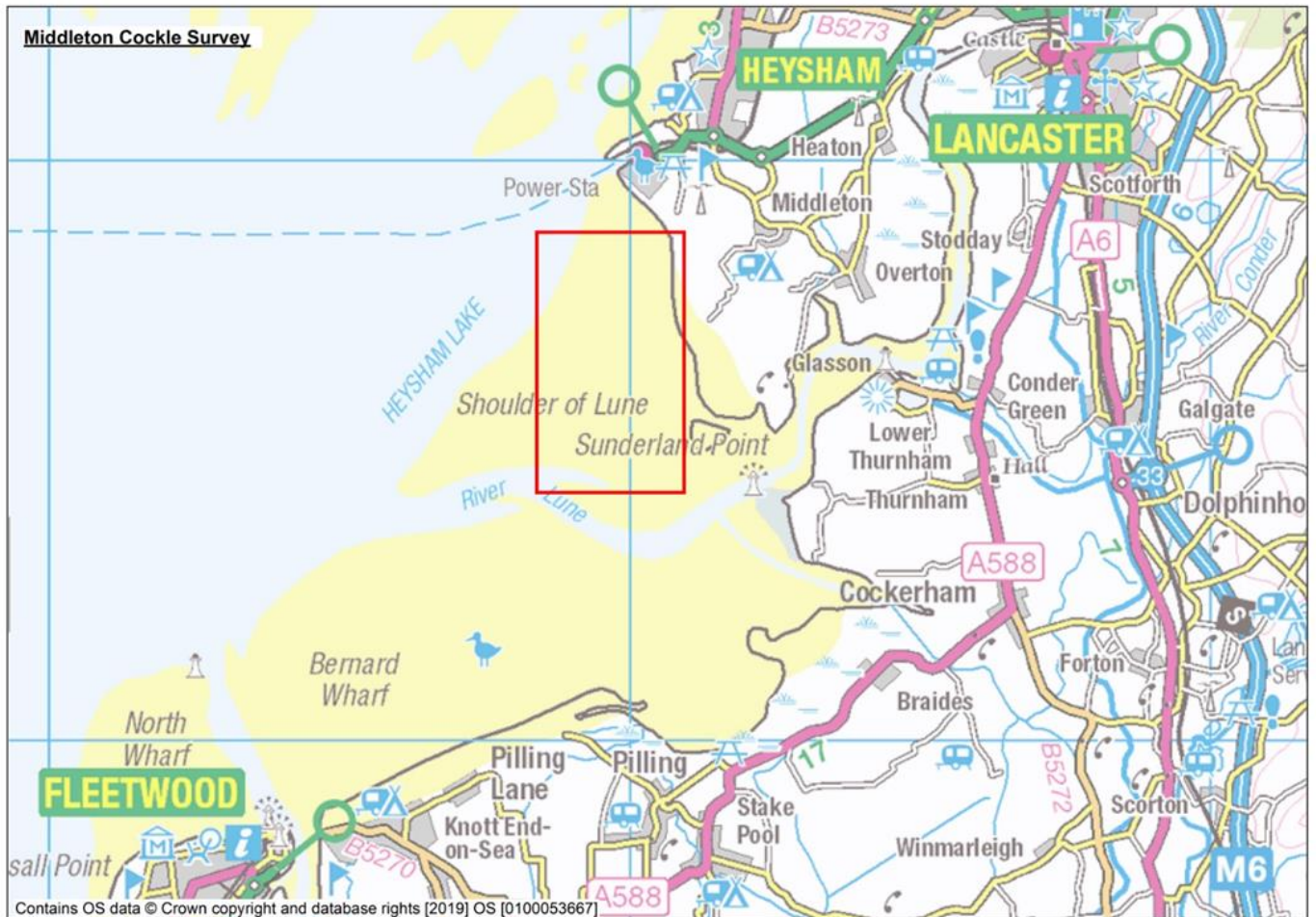
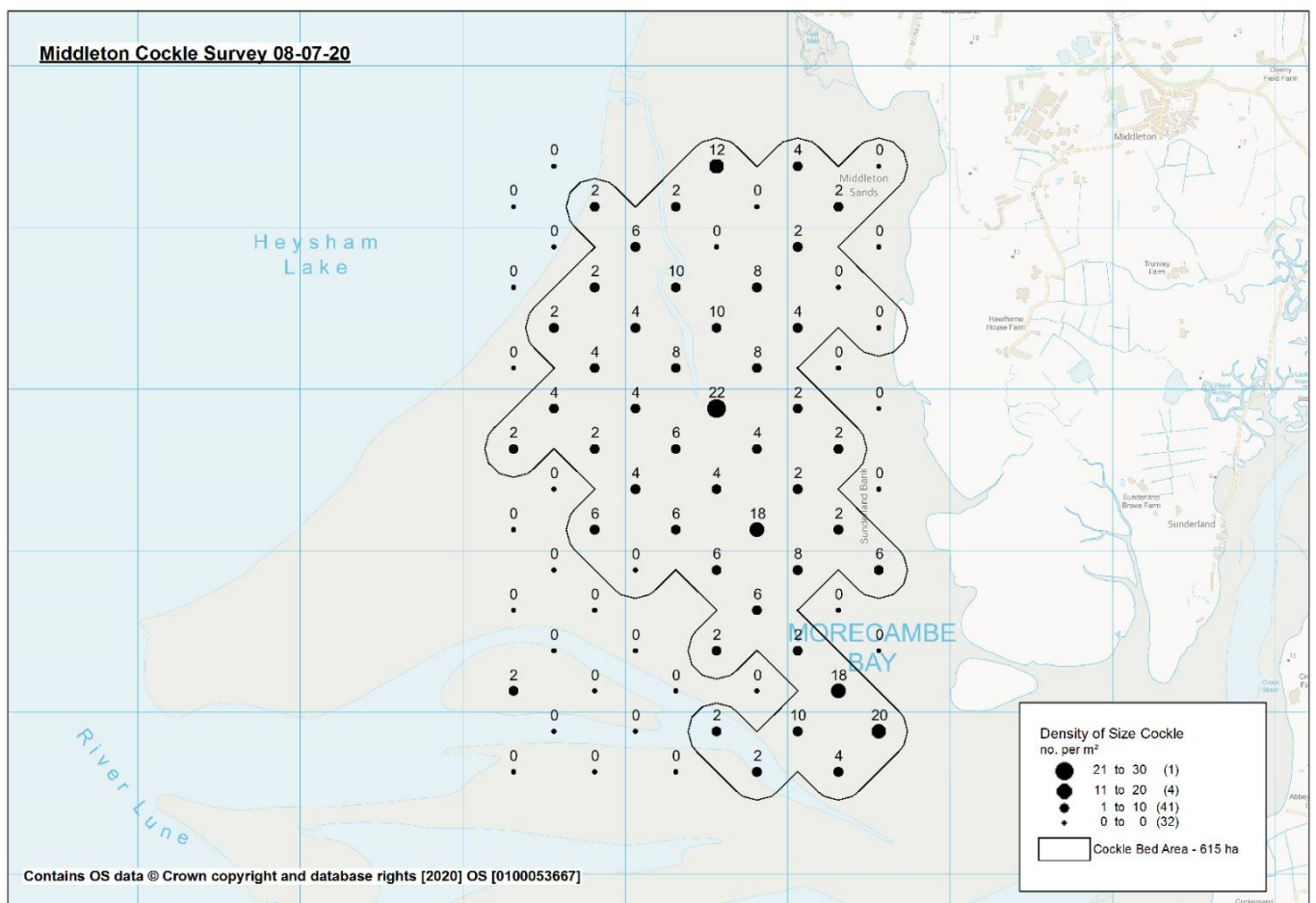
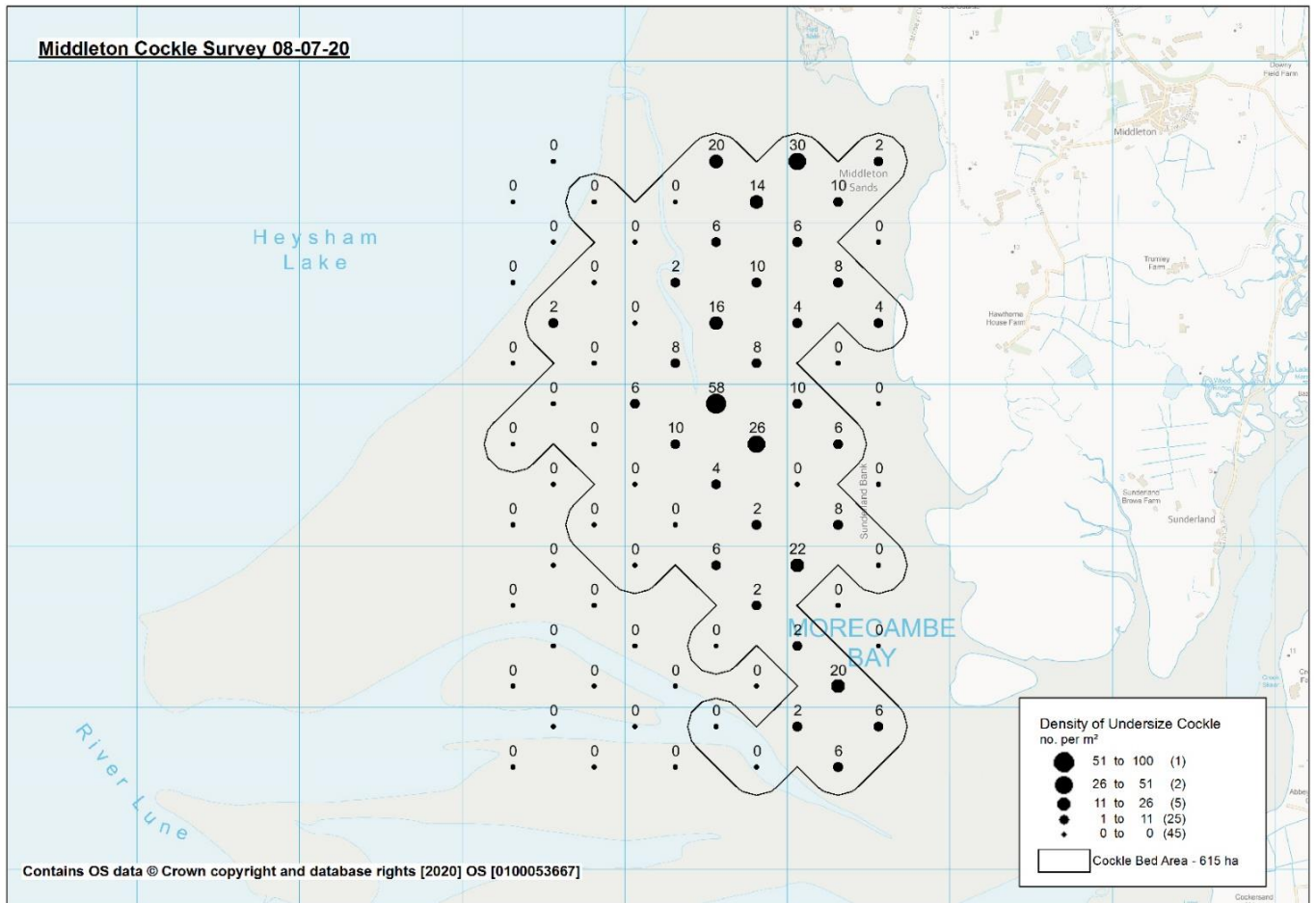


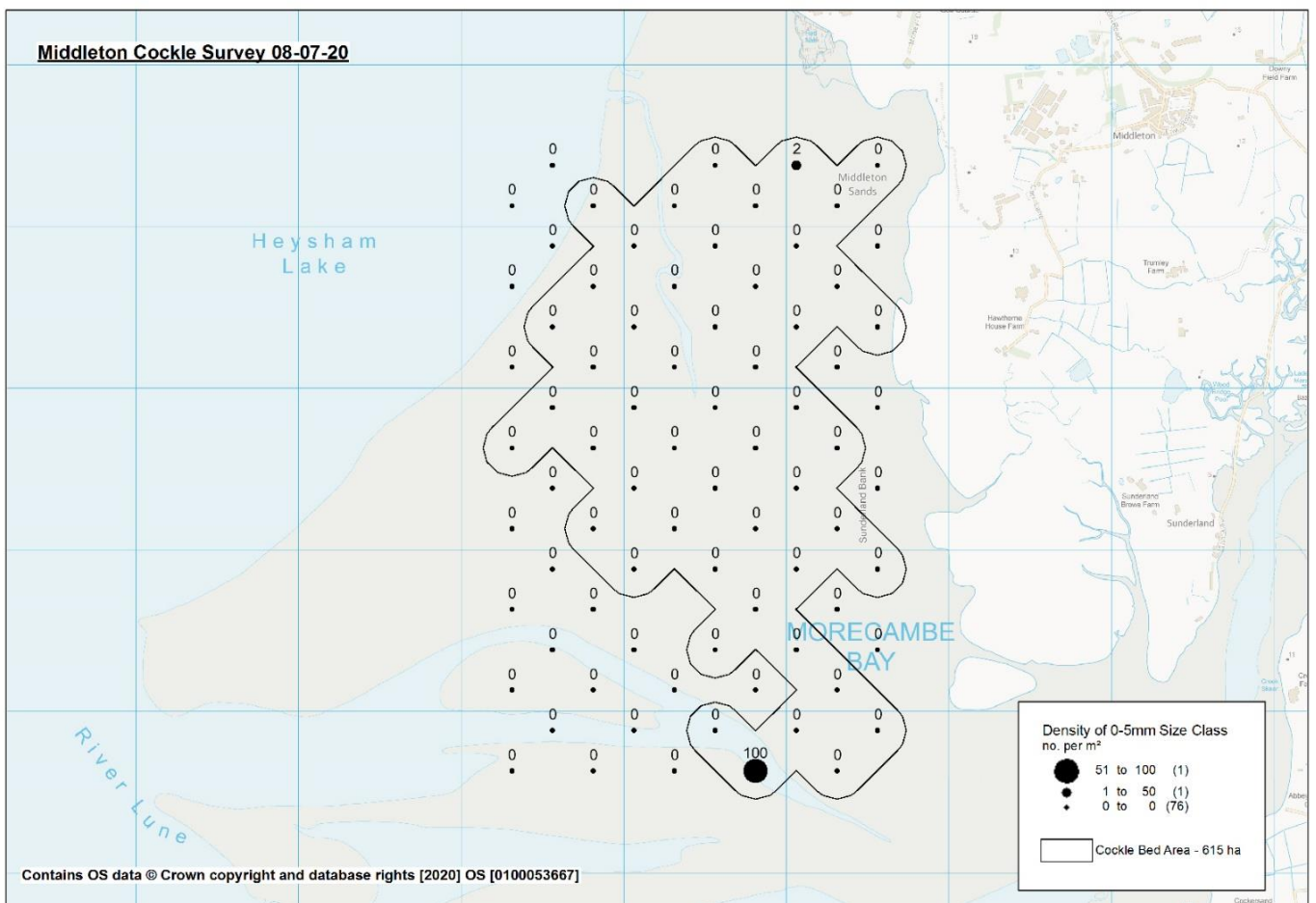
Illustration of position of Middleton Sands cockle bed



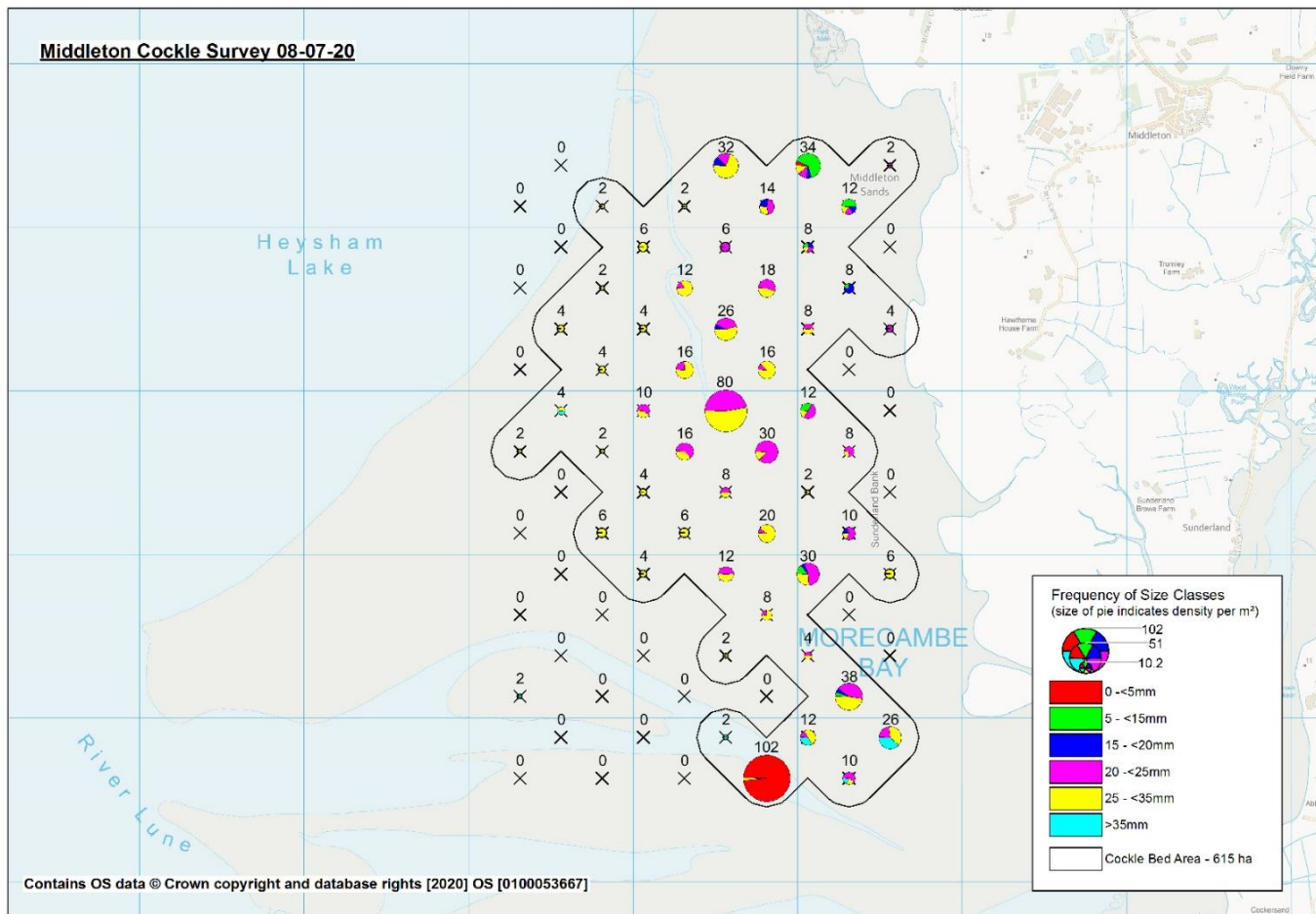
Density of size cockle per m² Middleton Sands July 2020



Density of undersize cockle per m² Middleton Sands July 2020



Density of 0-5mm cockle per m² on Middleton Sands July 2020



Frequency of size classes of cockle per m² Middleton Sands July 2020

Pilling Sands Cockle Survey 07-07-20

74 stations were sampled from a 500m grid. One additional station was added to ensure full coverage. There was a relatively low density of size cockle across much of the bed with some areas of higher density size cockle in the central, south west and eastern areas. Undersize cockle was present in greater density in central and eastern areas. A dense 2020 spat settlement was present in a discrete area on the eastern side of the bed.

Mean number of size cockle	17 per m²	(min 0, max 148)
Mean number of undersize cockle	16 per m²	(min 0, max 140)
Mean number of 0-5mm cockle	38 per m²	(min 0, max 2000)

	Area (ha)	Size Cockle (tonnes)	Undersize Cockle (tonnes)
Pilling Sands	1576	~2400	~900

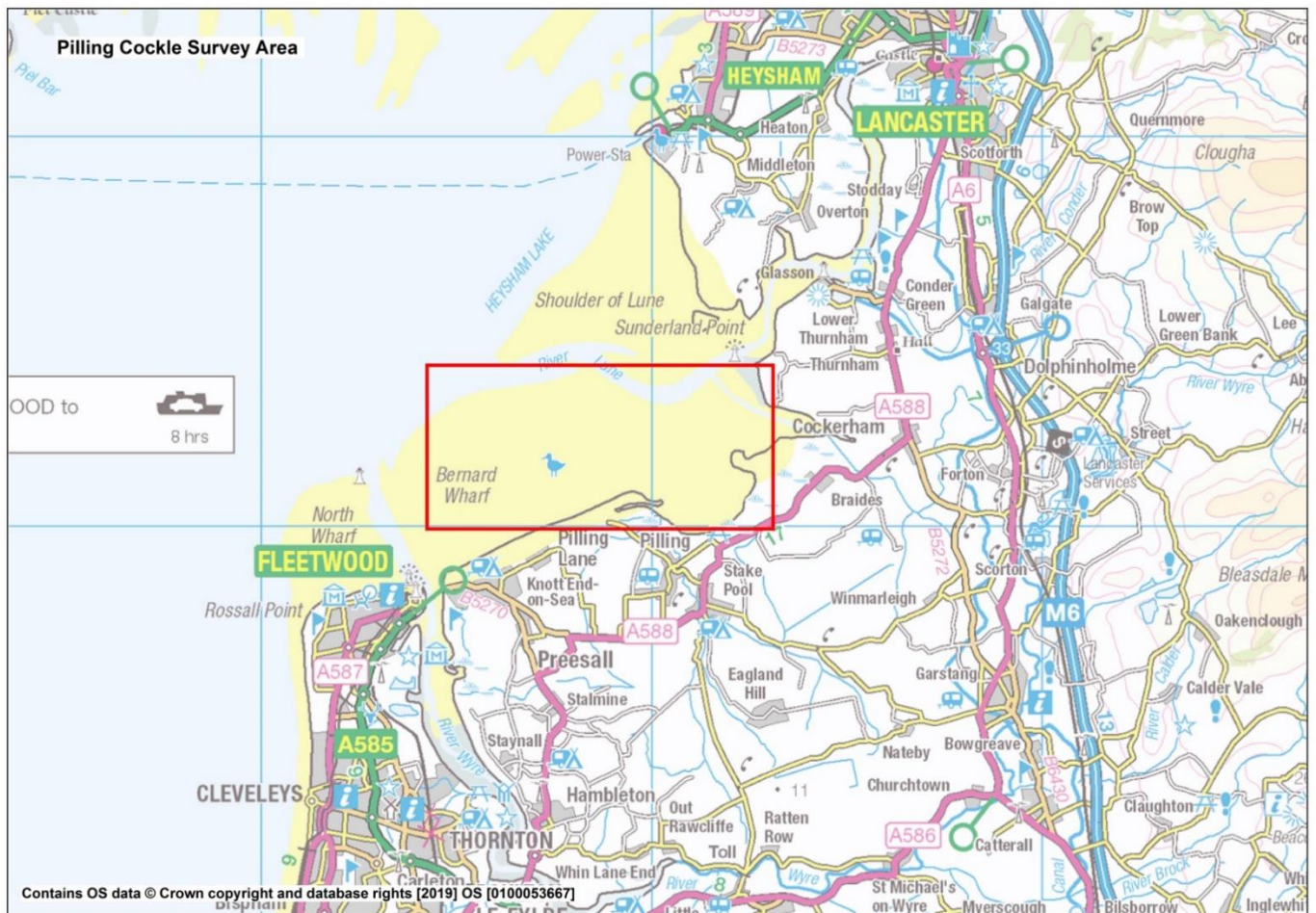
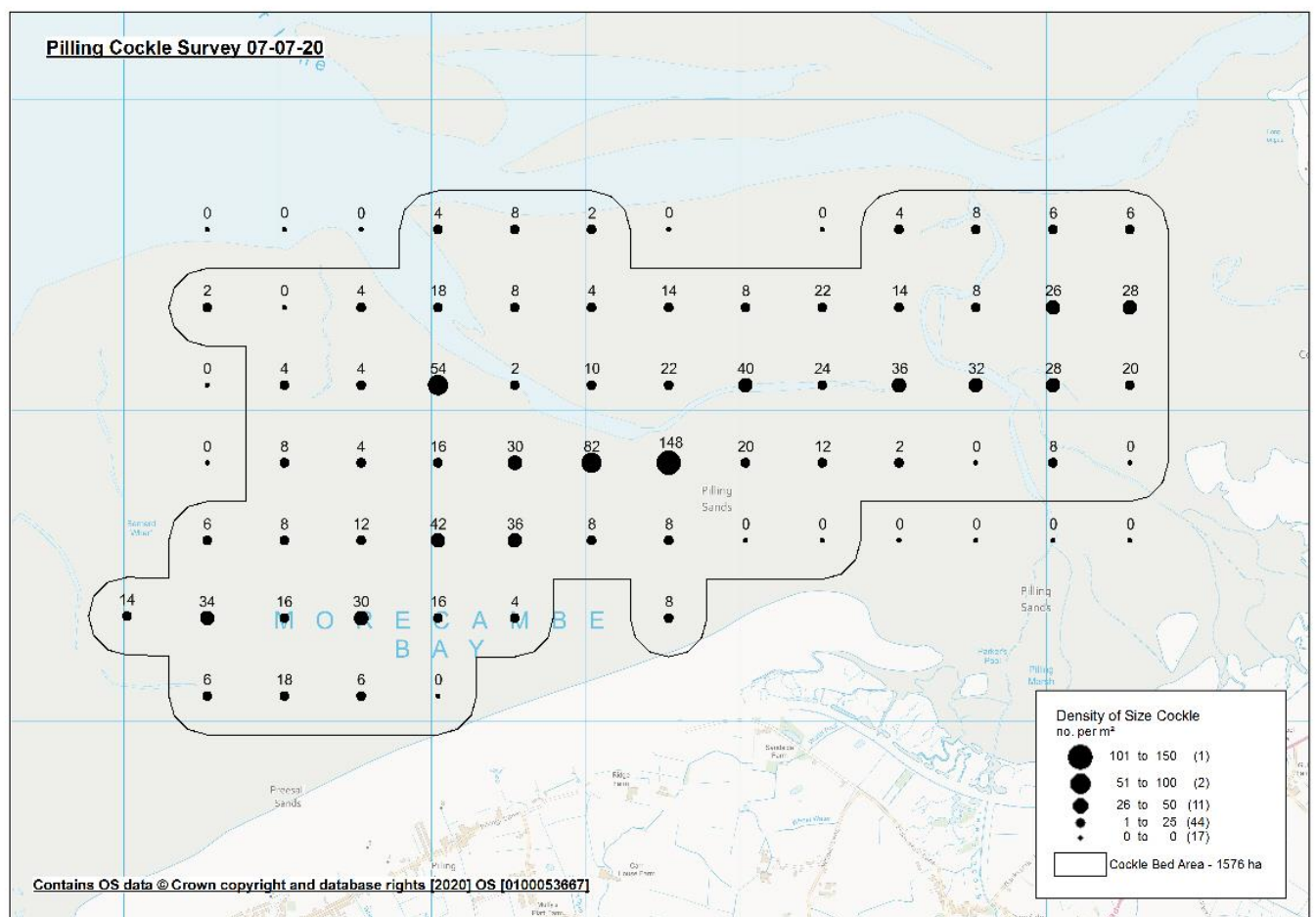
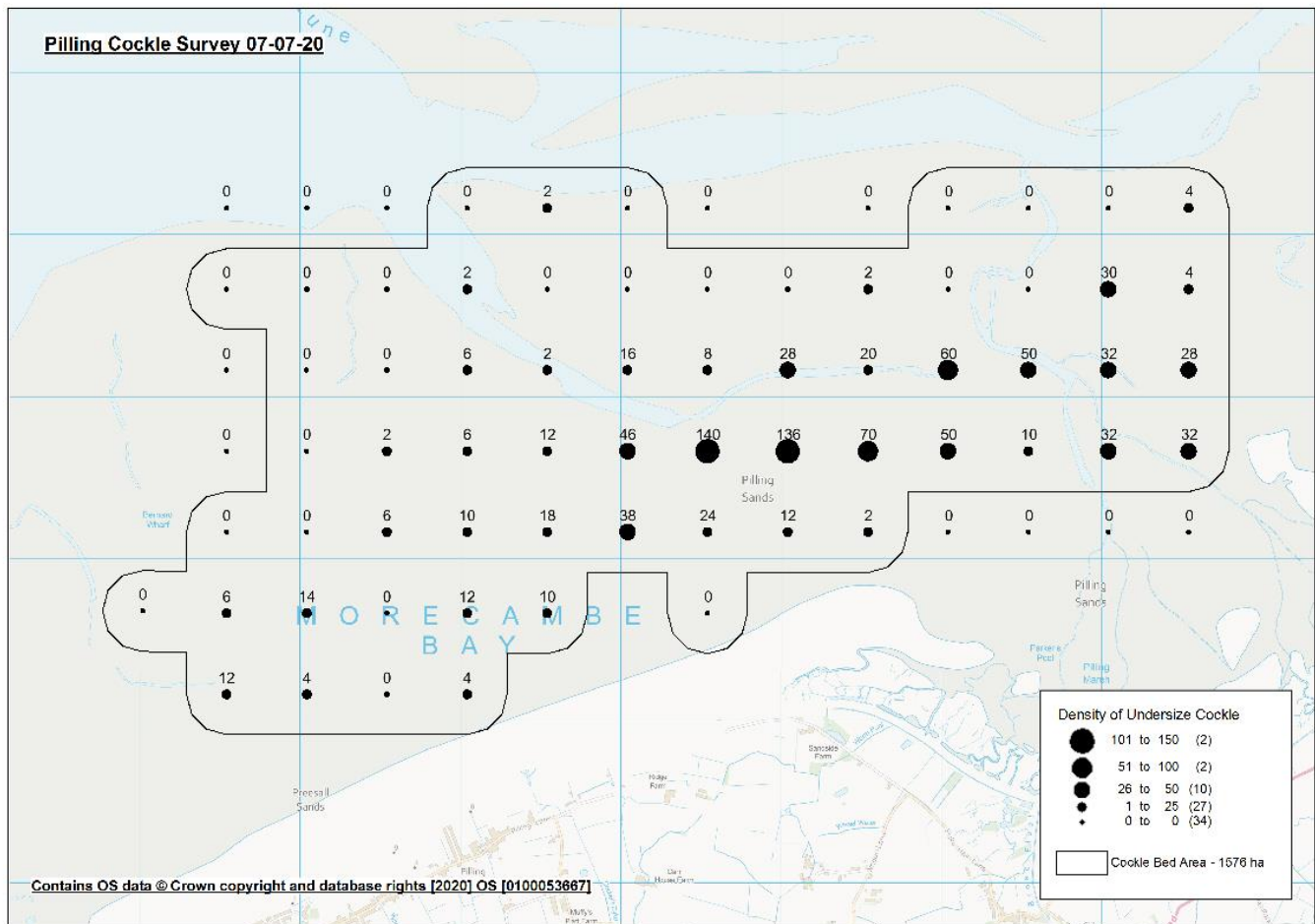


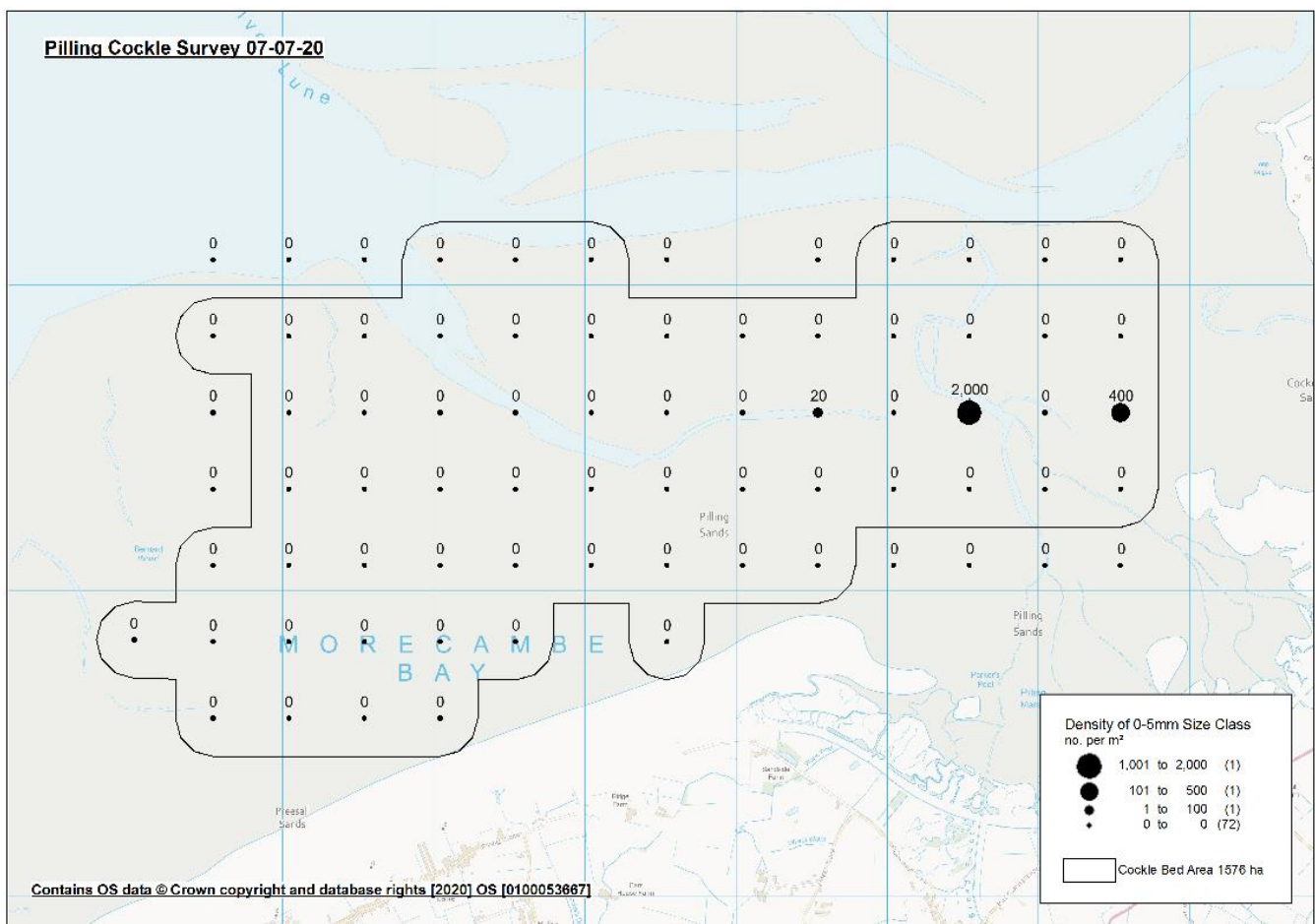
Illustration of position of Pilling Sands Survey Area



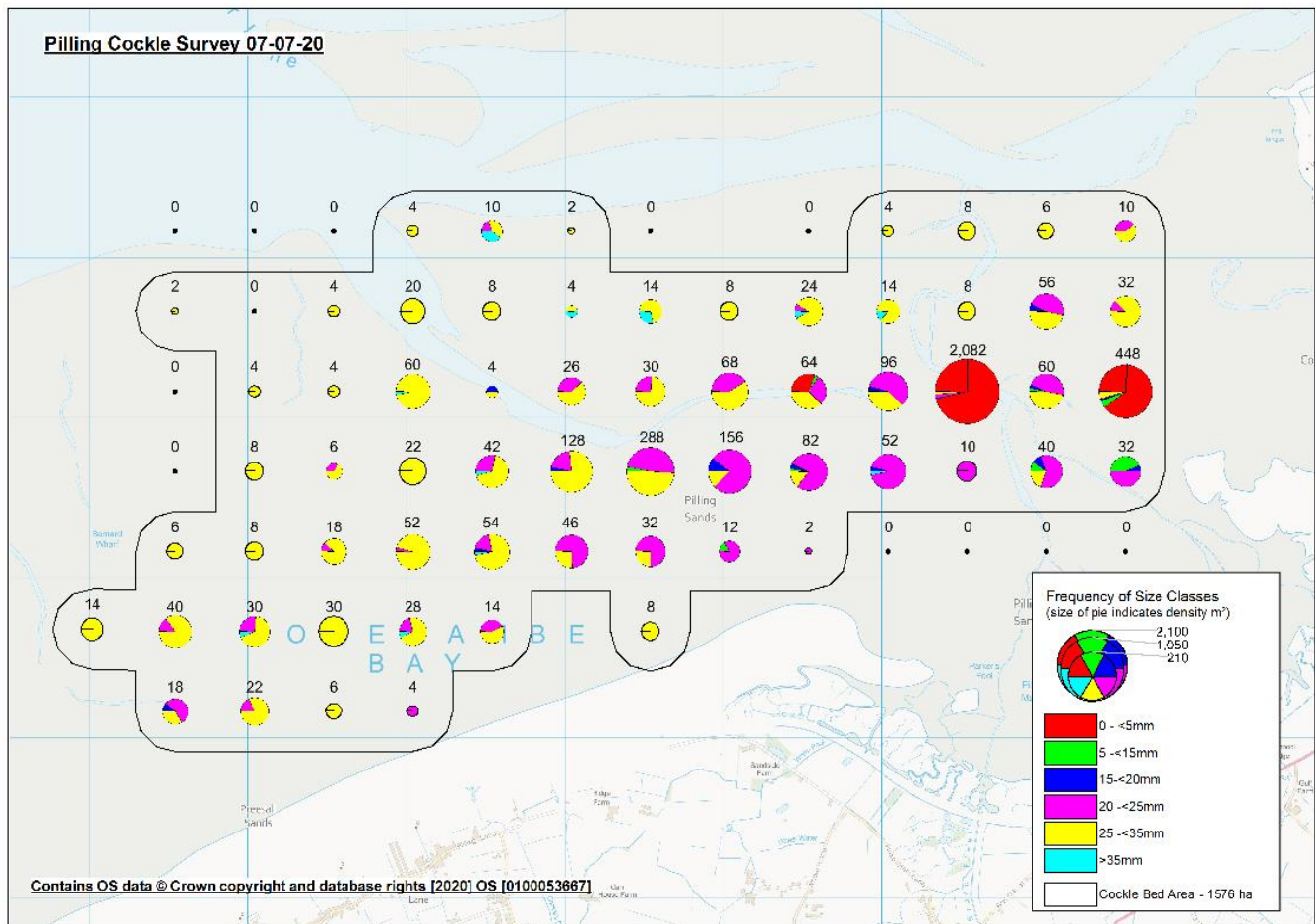
Density of size cockle per m² at Pilling Sands July 2020



Density of undersize cockle per m² at Pilling Sands July 2020



Density of 0-5mm cockle per m² at Pilling Sands July 2020



Frequency of size classes of cockle per m^2 at Pilling Sands July 2020

Tables 1 & 2 show survey results for Morecambe Bay Cockle Stocks 2020, with a detailed break down of the stocks.

Cockle Bed	Name of Parts of Cockle Bed if Split	No. of stations sampled	Bed Area (ha)	No. of stations within the bed area	No. of stations with undersize cockle (% of stations within the bed area)	No. of stations with size cockle (% of stations within the bed area)	No. of stations with $\geq 20\text{m}^2$ size cockle (% of stations within the bed area)	Approximate area of stations with $\geq 20\text{m}^2$ size cockle in hectares (% of bed area)	Estimated Biomass of Size Cockle (tonnes)	Estimated Biomass of Undersize Cockle (tonnes)
Aldingham & Newbiggin	Total	77	1351	60	48 (80%)	56 (93%)	23 (38%)	499 (37%)	3200	770
Leven	Total	81	1859	76	64 (84%)	64 (84%)	23 (30%)	575 (31%)	3100	700
Flookburgh	Total	144	2398	113	86 (76%)	96 (85%)	17 (15%)	425 (18%)	3300	500
Warton	Main Area	45	271	32	35 (78%)	31 (69%)	6 (19%)	37 (14%)	175	115
	Dense Area	6	15	6	6 (100%)	6 (100%)	6 (100%)	15 (100%)	105	790
Middleton	Total	78	615	44	27 (61%)	26 (59%)	2 (5%)	24 (4%)	300	200
Pilling	Total	75	1576	64	41 (64%)	58 (91%)	19 (30%)	475 (30%)	2400	900
TOTAL			8085						12580	3975

Cockle Bed	Size Range (mm)	Min Density 0 - 5mm cockle per m²	Max Density 0 - 5mm cockle per m²	Mean Density 0 - 5mm cockle per m²	Min Density Undersize per m²	Max Density Undersize per m²	Mean Density Undersize per m²	Min Density Size per m²	Max Density Size per m²	Mean Density Size per m²
Aldingham & Newbiggin	0 to 35+	0	2000	131	0	194	19	0	84	19
Leven	5 to 35+	0	1600	46	0	576	21	0	80	18
Flookburgh	0 to 35+	0	624	29	0	894	28	0	76	12
Warton (Main Area)	5 to 35	0	0	0	0	74	12	0	78	9
Warton (Dense Area)	5 to 35	0	0	0	110	4120	1203	20	130	12
Middleton	0 to 35+	0	100	2	0	58	7	0	22	5
Pilling	0 to 35+	0	2000	38	0	140	16	0	148	17

4. Proposal

The proposal is to open Newbiggin, Flookburgh, Leven Sands and Pilling Sands cockle beds, Morecambe Bay, to removal of size cockles to hand-gathering; to open 1st September 2020 until the start of the 2021 closed season on 1st May 2021 unless closed by NWIFCA prior to this date for management reasons. The proposal is to also open Aldingham but currently this cockle bed falls outside of any of the hygiene classified areas for cockle and therefore is not classified. NWIFCA will wait until the area has been classified before opening Aldingham. Sampling has begun on 5th August 2020 and it is predicted that the classification will be in place by early to mid October. A map illustrating the Newbiggin cockle fishery area has been provided in Annex A.

Middleton Sands will remain closed under NWSFC Byelaw 13a due to lack of a commercial stock. Warton Sands will remain closed due to the lack of size stock and the majority of the cockle being undersize. Should the undersize cockle there grow on and a commercial fishery be possible, a further HRA would need to be carried out to ensure all cockle fisheries in the Bay remain compliant with the Habitats and Birds Regulations.

5. Test for Likely Significant Effect (LSE)

The following additions have been added to TLSE table and taken through to appropriate assessment as well as the features and pressure listed within the **NWIFCA-MB-EMS-2017 HRA**.

- Removal of non-target species have been taken through to appropriate assessment due to potential for the fishing activity to damage non-target species.

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 sand and muddy sand intertidal mixed sediments, intertidal coarse sediment	Removal of non-target species	Sensitive	Yes	Feature and pressure taken through to AA due to potential damage of fishing activity on none target species. Undersize bivalves, other bivalve species and molluscs.
All SPA features		Removal of non-target species	Sensitive	Yes	Feature and pressure taken through to AA for all shore feeding SPA features that feed on infaunal molluscs

6. Appropriate Assessment

Potential risks to features

6.1 Potential risks to SAC and SPA supporting habitat features

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

6.1.1 Pressures and Potential Impacts

i. Litter

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, mixed and coarse sediments only

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, mixed and coarse sediments only

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 through damage from fishing activity.

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

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

Since 2016 there have been a number of cockle fisheries in Morecambe Bay (Newbiggin, Flookburgh, Leven Sands and Pilling Sands) and in most years there has been a fishery on Heysham Flat for seed mussel as well as on-going size mussel fisheries around Morecambe Bay. There have only been a few reports of litter being an issue at any of these fisheries, which are regularly inspected by fishery officers. Where issues have been raised officers work with gatherers, buyers and the local authority to resolve the issues. A Code of Practice for Intertidal Hand-gathering includes responsibility for littering. NWIFCA takes a swift response to any alerts to littering issues.

The NWIFCA is confident that littering will be minimal and 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, mixed and coarse sediments only

Surveys have been carried out across Morecambe Bay and a summary of results have been provided above in Section 3. Further to the above information there will also be limited stocks of size and undersize cockle on other beds around Morecambe Bay these include Cockerham Sands and Duddon Sands.

The proposal is to open Aldingham, Newbiggin, Flookburgh, Leven Sands and Pilling Sands cockle beds in Morecambe Bay to hand gathering. All other beds would be closed under NWSFC Bylaw 13a, Cockle and Mussels – Management of the Fishery, leaving areas unfished.

From the surveys the following statements describe the cockle stocks in Morecambe Bay as a whole:

- Generally mean densities of size cockle are low over most areas of each bed with some areas of denser size cockle, although this year the size cockle is more evenly distributed across the bed area with a greater proportion of the bed having > 20 per m² size cockle.
- There is a relatively consistent distribution of undersize cockle ranging in size classes.
- The stock is of mixed size classes across the bed with some discrete areas with a predominant size class.

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 are currently a maximum of 141 permits which could be issued for 2020 / 2021 for the whole NWIFCA District. It is predicted from the stock information, communication with permit holders,

information about other open cockle fisheries in other parts of the UK and from officers' experience of Morecambe Bay cockle fisheries since 2016, that there are only likely to be 40-80 active permit holders fishing at any one time across all of the open beds combined. The opening of five beds across the site ensures that effort is spread out and not concentrated on one bed.

Warton Sands and Middleton Sands with a stock of mixed sizes will be closed. Below is a table showing the biomass of cockle on each of the main closed areas:

Cockle Bed	Bed Area (ha)	Estimated Biomass of Size Cockle (tonnes)	Estimated Biomass of Undersize Cockle (tonnes)
Warton	286	280	905
Middleton	615	300	200
TOTAL	901	580	1105

In addition to what will be left unfished on the closed beds there will be significant biomass of undersize on the beds that will open: Aldingham and Newbiggin 770 tonnes, Leven 700 tonnes, Flookburgh 500 tonnes and Pilling 900 tonnes. Although some of the undersize cockle will grow and reach size before or during the fishery the majority of the undersize will remain on the bed.

The size cockle on the proposed open beds 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 of cockle with more than 20 per m² size cockle is 1924 hectares of a total of 7184 hectares of cockle bed, which equates to 26.8 % of the total open cockle bed area. From the 2019/2020 fishery nearly all of the fishing occurred in a small area on Flookburgh, once this area had been fished and the density reduced the majority of cockle fishing stopped and although there was size cockle above 20 per m² on Flookburgh and many of the other open cockle beds in Morecambe Bay, these were not fished. Therefore a much smaller area than this will be fished as it will only be the areas where there is a greater density of cockle that will be fished.

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, mixed and coarse sediments only

In the 2018/2019 Morecambe Bay cockle fishery, NWIFCA implemented management by authorising the removal of size cockle by Craam from three of the four open cockle beds to protect juvenile stock as concerns were raised on the impact of raking on juvenile cockle.

During the fishery NWIFCA tested a number of 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 was 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 on the proposed open beds 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 of cockle with more than 20 per m² size cockle is 1924 hectares of a total of 7184 hectares of cockle bed, which equates to 26.8 % of the total open cockle bed area. From the 2019/2020 fishery nearly all of the fishing occurred in a small area on Flookburgh; once this area had been fished and the density reduced the majority of cockle fishing stop and although there was size cockle above 20 per m² on Flookburgh and many of the other open cockle beds in Morecambe Bay, these were not fished. Therefore a much smaller area than this will be fished as it will only be the areas where there is a greater density of cockle that will be fished.

The maps above in section 3 show the distribution of each of the size classes of cockle at the survey stations. Many of the areas which contain undersize cockle do not contain significant densities of size cockle and therefore will remain unfished.

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.

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

Aldingham and Newbiggin

There is no interaction between, parking, access or fishing with any saltmarsh feature, due to distance of the feature from fishery.

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 and has been used since 2016 as the main access point to the cockle fishery. There is very little risk if any of the saltmarsh being damaged. It is unlikely that any other route will be used. Topping up and parking will occur in the airfield away from the saltmarsh and beach.

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 / topping 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.

The Code of Practice for Intertidal Hand gathering 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

In addition to the 2017 HRA (NWIFCA-MB-EMS-2017) 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 access route 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.

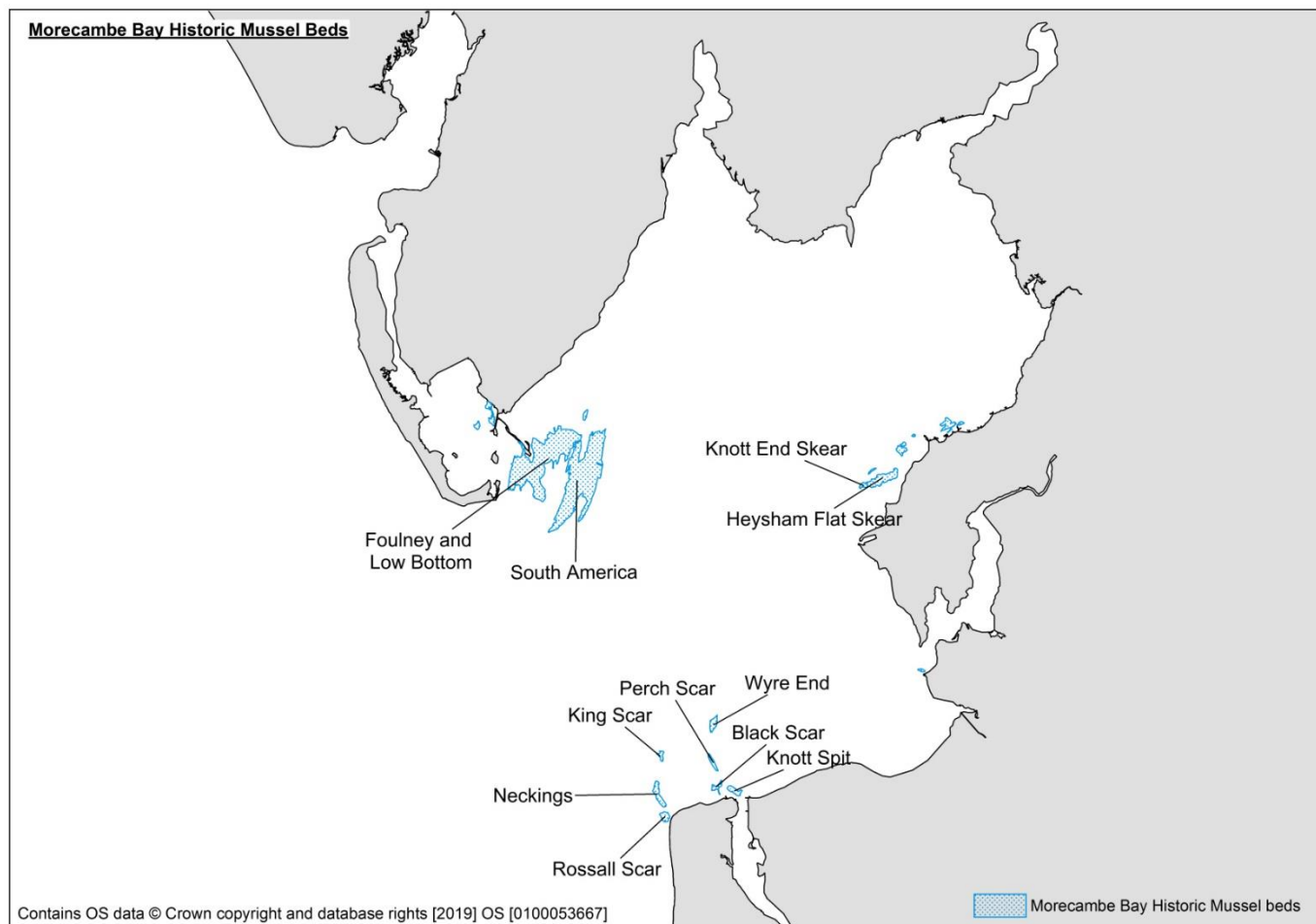
6.2.2 Exposure

- 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 3 and section 6.1.2 (ii) above gives detailed information about the significant 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. 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 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.

The majority of the mussel beds in Morecambe Bay currently hold an abundant stock of mussels. As in 2019 this year there has seen a significant increase in the amount of size mussel within Morecambe Bay, some of which has reached greater than 60mm in shell length. The beds at Low Bottom and Foulney have had a mass settlement, while Foulney and the 'islands' in the north of the Bay held size mussel from over-wintering stock - including Trailer Bank off the bottom end of Foulney, and beds in the Falklands area. Wyre End skear holds new recruits and a minor stock of 2019 mussel. Kings Scar and Rossall Scar beds also have significant 2020 recruitment.

A summary of the surveys and inspections carried out along with industry reports is provided in Table 3, showing the coverage and density of mussel.



Location of the historic mussel beds in Morecambe Bay

Table 3 – Summary of Dutch Wand surveys, industry reports and NWIFCA inspections in Morecambe Bay and Fleetwood

Date	Location	Skear	Survey Method	Tide Height (m)	Description
14.01.20	Foulney	Foulney	Industry report	1.4	ID had spoken to B3 mussel gatherers. There is some tiny spat settlement on the skear in 'the bay' area. Not known about rest of skear.
27.01.20	Heysham	Heysham Flat	Inspection	1.8	Transects walked across the skear after reported fuel spill. Tide did not ebb past Conger Rock, some areas of 2019 persists mixed in with dead shell. There is a large area of low lying <i>Sabellaria aveolata</i> inshore of Conger Rock from edge of skear to middle of skear.
12.03.20	Heysham	Heysham Flat	Inspection	0.4	Skear down to bare cobble with only the occasional 2019 mussel. Some signs of 2020 spat in low densities. <i>Sabellaria alveolata</i> on north and south of the skear.
13.03.20	North Morecambe Bay	Falklands	Inspection	0.7	Area not accessed, but ground visible and gull activity present. Areas that looked black appeared uncovered in channel between Falklands, Walney and Foulney
13.03.20	North Morecambe Bay	South America	Inspection	0.7	New area has been exposed, 2020 mussel settlement, presents of <i>S. alveolata</i>
14.03.20	Foulney	Foulney	Rapid Visual Assessment (% cover)	1.1	Much of skear covered in mussel. Bottom has been fished but still large mussel around. Good pin prick spat settlement
14.03.20	Foulney	Foulney Island	Rapid Visual Assessment (% cover)	1.1	Whole of island covered in large mussel. Clean and loose. Good meat content/ Spat settled.
8.4.20	North Morecambe Bay	South America	Industry report	0.2	Sporadic seed settlement and an abundance of starfish. Limited area covered.
		Falklands	Industry report	0.2	To the south and west of the Falklands area, two areas of mussel named Trailer Bank and Small Island were visible. Both size mussel and spat settlements present on both, and an abundance of starfish. Mussel were hard in to the substrate and although beginning to build mud in some areas.
6.5.20	Foulney	Foulney	Dutch Wand	0.7	Foulney and Foulney Island surveyed together as the area between has filled with mussel, resulting in an increased area from 2019. Spat has settled across most of the skear in high densities. Sizes of mussel (excluding spat) were between 15-67mm, with although predominantly between 50-60mm in size, and as such over 3/4 of the mussel meets the 45mm MLS, areas that were predominantly undersize were on the higher areas of Foulney Skear. Starfish were observed along the bottom of Foulney Island. Estimates: area = 53.7ha, 6771 tonnes
7.5.20	Foulney	Walney Channel	Dutch Wand	0.5	Walney channel area reduced from 2019. Spat has settled in high densities across the eastern side of the area, no spat observed along the channel edge areas. Mussel (excluding spat) was between 40-68mm, as such the majority of mussel is of size. No starfish were observed. Estimates: area = 18.41ha, 1623 tonnes
7.5.20	North Morecambe Bay	Falklands	Industry report	0.5	Trailer Bank and Small Island areas surveyed. Mussel and spat have grown on and are putting down mussel mud. Starfish are still abundant in large numbers. Cobble areas were observed but were isolated between the larger areas of mussel. Trailer Bank was estimated at 26.53ha and small island at 16.89ha.
8.5.20	North Morecambe Bay	Low Bottom	Inspection	0.5	Dense spat settlement across large area, sizes ranges 4-10mm. The upper reaches of the bed held older barnacled mussel.

9.5.20	Heysham	Heysham Flat	Inspection	0.7	Patchy settlement on the main skear, larger mussel present towards Dallam Dyke, some areas of bare cobble present. Knott End skear held denser mussel settlement and a significant amount of size mussel. <i>Sabellaria alveolata</i> colonies present away from main skear.
4.6.20	Duddon Estuary	Hardacre	Inspection	1.1	No mussel present, substrate mainly sandy with dead mussel shell, area of bare cobble visible at low water.
4.6.20	Fleetwood	Black Scar	Inspection	1.1	Dense spat settlement 8-10mm in size, approximately 90% coverage on hard substrate. Small areas of 2019 mussel mixed in with spat.
4.6.20	Fleetwood	Perch Scar	Inspection	1.1	Dense spat settlement 8-10mm in size, approximately 60-70% coverage on hard substrate. Small areas of 2019 mussel mixed in with spat.
4.6.20	Fleetwood	Kings Scar	Inspection	1.1	Patchy spat settlement that had grown on to 5-15mm in size mixed in with 20-40mm mussel. Areas of bare cobble and <i>Sabellaria alveolata</i> , although the latter was covered in spat.
4.6.20	Fleetwood	Rossall skear	Inspection	1.1	50% coverage of spat settlement with 20-30mm 2019 mussel.
7.6.20	North Morecambe Bay	South America	Inspection	1	Seed mussel settlement surveyed previously has grown on to 10mm. Mussel is on muddy sandy substrate with no bare areas. Cobble area present to the north where there is no mussel. Some patches of <i>Sabellaria alveolata</i> that are covered in mussel.
8.6.20	Knott End	Wyre End	Inspection	1.1	Seed mussel settlement present across much of the main skear and a smaller channel edge area. Northern third of the main skear received no settlement. Larger mussel present across both areas with sizes ranging from 20-45mm, mussel and spat coverage ranged from 50-80%. Bare cobble area present on raised area of main skear, remnant <i>Sabellaria alveolata</i> deteriorated and covered in spat.
9.6.20	Heysham	Heysham Flat	Inspection	1.4	Further settlement of spat since last survey in May although still bands of bare cobble present. Some areas with 2019 mussel mixed with spat. <i>Sabellaria alveolata</i> on the main skear has been settled on by spat.
03.07.20	Heysham	Heysham Flat	Inspection	1.7	Much of upper skear with dense mussel covering of increasing sizes as you go down skear. Gales and tide didn't ebb off much beyond Conger Rock. <i>Sabellaria alveolata</i> on upper skear looking healthy and relatively free of mussel cover.

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, mixed and coarse sediments supporting habitats 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, mixed and coarse sediments 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 will be prosecuted throughout the autumn, winter and possibly early spring months (1st September 2020 to 30th April 2021). 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 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 main access points being Fluke Hall Lane at Pilling, Moor Lane at Flookburgh / Leven Sands and from one of the access slips from the sea wall at Aldingham and Newbiggin. 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 parts of the open beds which contain very little size but high densities of undersize and therefore will not be targeted by gatherers. These will provide plentiful alternative area for birds to remain undisturbed.

The number of fishermen is anticipated to be low across the beds. 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).

There is therefore no reason to suggest that disturbance to birds would be damaging unless weather was exceptionally severe. NWIFCA will carry out an assessment of risk in conjunction with Natural England during periods of cold weather and may close the fishery if cold weather is predicted to be below zero for more than 12 hours a day for 5 consecutive and advice is that fishing poses a risk to SPA features. If there is evidence of high levels of disturbance and a risk of adverse effect identified to the European Site then the NWIFCA Authority will

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:

In order for the NWIFCA to be fully confident of no risk of adverse effect on the integrity or conservation status of the site, a precautionary approach is being taken, and the following management measures implemented:

- a) A multi-agency enforcement approach to ensure only legitimate permit holders commercially fish the bed (NB there is a 5kg per person daily personal consumption allowance for non-commercial gathering on Newbiggin, Pilling Sands and parts of Aldingham, and this will also be checked and enforced);
- b) Flookburgh and Leven Sands cockle fisheries are closed to non-commercial gathering under NWIFCA Byelaw 3;
- c) Rigorous enforcement of the MLS;
- d) Closure of all other cockle beds under a NWSFC Byelaw 13a closure;
- e) Monitored landings through:
 - i. Regular IFCO reporting of numbers fishing and estimates of quantities removed;
 - ii. Monthly landings returns from Byelaw 3 permit holders (required under byelaw);
- f) Monitoring and inspection to ensure no damage to the saltmarsh and that there are no litter issues;
- g) NWIFCA enforcement officers will use intelligence and contacts with fellow enforcement agencies to pursue any suspicions of non-permitted or illegal cockling activity;
- h) Use of the NWIFCA Compliance and Enforcement Strategy which defines how the NWIFCA will enforce local, national and international law. (<https://www.nw-ifca.gov.uk/compliance-enforcement-strategy/>)

NWIFCA in 2018 made the decision to close the previous 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 (reference to conservation objectives)	Level of exposure of feature to pressure	Mitigation measures
Intertidal sand and muddy sand, intertidal mixed sediments, intertidal coarse sediment (Estuaries, Mudflats and sandflats not covered by seawater at low tide, Large shallow inlets and bays, SPA supporting habitats)	Maintain or restore the extent, distribution structure or function of the feature.	Litter	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.	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.	None - current management measures sufficient with monitoring of the fishery
		Removal of target species	Removal of target species could change the invertebrate community composition of the sandbanks.	Number of beds remain closed which have significant cockle stock on them. All the beds have a significant amount of 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.	None - current management measures sufficient with monitoring of the fishery
		Removal of non-target species	Removal of target species could change the invertebrate community composition of the sandbanks.	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.	None - current management measures sufficient with monitoring of the fishery 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.
Saltmarsh	Maintain or restore the extent, distribution structure or function of the feature.	Litter	Littering impacts could include entanglement of fish and birds in the bags and sacks, and swallowing / entanglement of birds and mammals (both marine and terrestrial) of other litter.	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 fishery will be closed if littering is a problem.	None - current management measures sufficient with monitoring of the fishery
		Abrasion/disturbance of the substrate on the surface of the seabed	Potential to effect the:- - Extent and distribution	Established access points to the bed from previous cockle fisheries. Access and saltmarsh will be monitored and	None - None - current management measures

		Penetration and/or disturbance of the substrate below the surface of the seabed, including abrasion	<ul style="list-style-type: none"> - Presence and spatial distribution of saltmarsh communities - Presence and abundance of typical species - Species composition of component communities - Sediment composition and distribution 	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>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>
<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>	Maintain or restore the population of each of the qualifying features, and, the distribution of the qualifying features within the site	<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>Number of beds remain closed which have significant cockle stock on them. All the beds have a significant amount of 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 current management as described, 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 - <i>Anser brachyrhynchus</i>; Pink-footed goose - <i>Tadorna tadorna</i>; Common shelduck - <i>Anas Penelope</i>; Wigeon - <i>Anas acuta</i>; Northern pintail - <i>Somateria mollissima</i>; Common eider - <i>Bucephala clangula</i>; Goldeneye 	Maintain or restore the population of each of the qualifying features, and, the distribution of the qualifying features within the site	Visual disturbance	<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 fishery once each way per tide and via a low number of access points with the main access points being 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>None - current management measures sufficient with monitoring of the fishery</p> <p>With current management as described, visual</p>

Mergus serrator; 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 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					disturbance is unlikely to have an adverse effect on the integrity of the European Site.
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7. Conclusion

The proposal is to open Newbiggin, Flookburgh, Leven Sands and Pilling Sands cockle beds, Morecambe Bay, to removal of size cockles to hand-gathering; to open 1st September 2020 until the start of the 2021 closed season on 1st May 2021 unless closed by NWIFCA prior to this date for management reasons. The proposal is to also open Aldingham but currently Aldingham cockle bed falls outside of any of the hygiene classified areas for cockle and therefore is not classified. NWIFCA will wait until the area has been classified before opening Aldingham. It is predicted that the classification will be in place by early to mid October. A map illustrating the Newbiggin cockle fishery area has been provided in Annex A.

The current management measures incorporated into this fishery, and the use of an effective enforcement team of NWIFCA Officers with multi-agency support, allows the NWIFCA to conclude that the hand-gathered cockle fishery at Aldingham, Newbiggin, Flookburgh, Leven Sands and Pilling Sands will have no risk of adverse effect to the integrity of the European Site.

8. In-combination assessment

a) Other ongoing and authorised fisheries:

Heysham Flat Hand Gathered Seed Fishery – there is some uncertainty if Heysham will be fished, it is currently open but there has been no fishing, this is likely to be due to other open cockle fisheries elsewhere in the UK and the relatively low value of seed mussel.

Perch and Black Scar Dredge Seed Fishery –fishing is on-going with two vessels issued with permits. One has stated they will not return having fished 100 tonnes. This stock is known to be removed by natural occurrences every year usually by early winter. It is unlikely that any fishing will occur after the 1st September.

South America Dredge and Hand Gathered Seed Mussel Fishery – this fishery on an ephemeral stock is yet to open and will undergo an HRA whereby an in-combination assessment taking into account the cockle fisheries in the Bay will be made.

Size mussel fisheries – there is a low level of activity on the size mussel fishery on Foulney. Typically, effort on these fisheries is around ten gatherers per tide fished. If effort increases on the mussel fishery then it will decrease in the cockle fishery.

Tractor shrimp fishery – there is currently some shrimp fishing occurring; once the cockle fishery opens the majority of effort is likely to be concentrated on the cockle fishery with some fishing for shrimps and cockle fishing on the same tide.

b) Assessment

Due to the low levels of mussel hand-gathering the impacts on habitats and disturbance levels to birds are considered to have No Likely Significant Effect on the conservation features. The majority of the mussel removal is from ephemeral mussel beds which typically get washed away in the autumn and winter storms. Removal of the size mussel resource is minimal with large reserves remaining as bird prey resource at a time of year when over-wintering birds are returning. ***For these reasons NWIFCA is confident that the cockle fishery will have No Likely Significant Effect on any conservation features.***

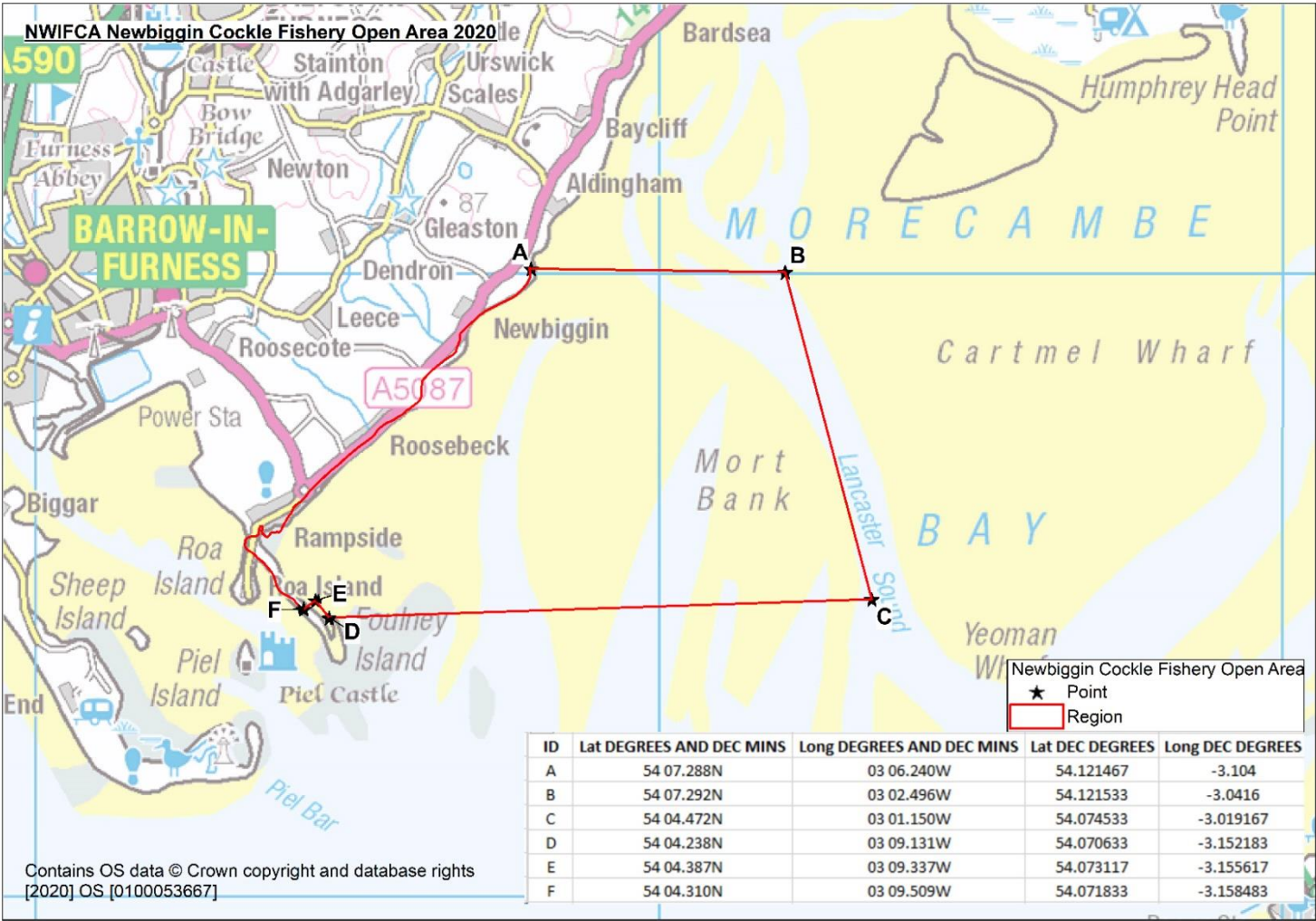
The shrimp fishery in Morecambe Bay has undergone a separate HRA which assessed travel to and from the fishery. This HRA concluded No Risk of Adverse Effect on the Integrity of the European Site. After December the main activity within the shrimp fishery has finished and there is likely to be little shrimp fishing while the cockle fishery is open. ***Combined with the current reduced effort in the shrimp fishery NWIFCA can conclude No Likely Significant Effect from the cockle fishery on any conservation features.***

Considering in combination effects of the mussel, shrimp and cockle fisheries in the Bay, the ***NWIFCA can conclude No Risk of Adverse Effect on the Integrity of the European Site.***

9. Integrity test

The NWIFCA concludes No Risk of Adverse Effect on the Integrity of the European Site of the cockle fishery in Morecambe Bay 2020-21.

Annex A – Newbiggin Cockle Fishery Area (excluding Aldingham until classified)



Annex B: Natural England's Consultation Advice

Date: 28 August 2020
Our ref: 326460
Your ref: NWIFCA Morecambe Bay Cockle Fisheries 2020



North Western Inshore Fisheries and Conservation Authority (NWIFCA)
Preston Street
Carnforth
Lancashire
LA5 9BY

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

BY EMAIL ONLY

T 0300 060 3900

Dear Jon Haines

NWIFCA Morecambe Bay Cockle Fisheries 2020 Morecambe Bay

Thank you for your consultation dated 05 August 2020 and the updated HRA received on 05 August 2020, and amended on 27 August 2020. The following constitutes Natural England's formal statutory response.

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

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

The application site is within a European designated site (also commonly referred to as Natura 2000 sites), and therefore has the potential to affect its interest features. European sites are afforded protection under the Conservation of Habitats and Species Regulations 2010, as amended (the 'Habitats Regulations'). The application site is within the Morecambe Bay Special Protection Area (SPA), Morecambe Bay and Duddon Estuary SPA (SPA) and the Morecambe Bay Special Area of Conservation (SAC) which are European sites. The site is also listed as Morecambe Bay Ramsar site² and also notified at a national level as Morecambe Bay Site of Special Scientific Interest (SSSI). Please see the subsequent sections of this letter for our advice relating to SSSI features.

In considering the European site interest, Natural England advises that you, as a competent authority under the provisions of the Habitats Regulations, should have regard for any potential impacts that a plan or project may have².

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

²Requirements are set out within Regulations 61 and 62 of the Habitats Regulations, where a series of steps and tests are followed for plans or projects that could potentially affect a European site. The steps and tests set out within Regulations 61 and 62 are commonly referred to as the 'Habitats Regulations Assessment' process.

No objection

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

Your appropriate assessment concludes that your authority is able to ascertain that the proposal will not result in adverse effects on the integrity of any of the sites in question. 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.

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

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

Yours sincerely,



Rosie Homer
Cheshire to Lancashire Area Team
E-mail: Rosie.Homer@naturalengland.org.uk
Telephone: 07887290872

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

²Requirements are set out within Regulations 61 and 62 of the Habitats Regulations, where a series of steps and tests are followed for plans or projects that could potentially affect a European site. The steps and tests set out within Regulations 61 and 62 are commonly referred to as the 'Habitats Regulations Assessment' process.

Annex C: Morecambe Bay Cockle Fisheries Habitats Regulations Assessment 1st September 2020 - 30th April 2021 – Stock Status Update 26th August 2020

During the week beginning 10th August 2020 Morecambe Bay received high air temperatures and sunny weather, within this period there was one night of thunderstorms where a significant amount of rain fell in a short period of time. Over the week beginning 17th August, NWIFCA received a number of reports that there had been a mortality of cockle. The reports were mainly from the Aldingham cockle bed, with one report from the Leven cockle bed. This information was verified by NWIFCA officers who carry out sampling for the shellfish classification and microbiological monitoring.

With consultation with Natural England, NWIFCA took the decision to check the stock on all of the Morecambe Bay cockle beds to look at the extent of the mortality and ensure the information provided on cockle stock levels within the Morecambe Bay Cockle Fisheries Habitats Regulations Assessment was still valid.

The cockle beds named as Newbiggin, Aldingham, Leven, Flookburgh and Pilling were inspected. A number of survey locations were chosen across each of the beds, areas of the highest densities of cockle were selected ensuring that a range of sites with different exposures to the weather were covered. The average densities of cockle for the July surveys that informed the HRA and for the recent inspection for each size class are provided below.

Bed Name	No. of Sites	Month	Average number of cockles per m ² for each size category							
			0.1- <5mm	5- <15m m	15- <20m m	20- <25m m	25- <35m m	>35m m	S	US
Newbiggin	6	Jul	500	0	7	14	45	4	46	24
		Aug	0	236	39	6	48	1	49	374
Aldingham	6	Jul	235	2	2	9	31	1	32	14
		Aug	0	112	2	1	15	1	17	119
		Aug + Add	0	117	2	2	21	2	23	125
Pilling	12	Jul	168	1	2	29	46	1	43	34
		Aug	0	108	3	21	51	2	54	130
Leven	6	Jul	50	8	5	18	59	1	58	32
		Aug	0	63	2	9	57	2	59	74
Flookburgh	9	Jul	34	18	2	15	42	1	46	33
		Aug	0	82	12	5	57	2	60	98

Newbiggin

There was no indication from the data and observations on the bed that there had been any significant decrease in stock levels. The average number of size cockle for the sites sampled were similar and there was a range of cockle size classes across the bed. There was an increase in the number of undersize cockle which is due to the <5mm cockle increasing in size to 5-15mm. NWIFCA does not include <5mm cockle in the undersize figures due to the high variability of survival of this size class.

Aldingham

There was evidence that some of the cockles had suffered from mortality, in particular one area of dense size cockle close to the shoreline. This was where evidence of dead cockle was observed the week prior to the inspection. The recent windy weather had allow the dead cockle to be washed off of the bed. A number of sites had a reduction in size cockle density by 4-10 per m² leaving a density of size cockle of 10-18 per m², with one site having a reduction by 64 size cockle per m² leaving 4 size cockle per m². One site had the same number of size cockle as previously surveyed of 34 size cockle per m². Investigation of the observation of Oystercatchers on the bed lead to additional three sites being surveyed which had between 9-24 size cockles per m². It is difficult to put an estimated loss in biomass without resurveying the entire bed but the following calculations have been made from the data which has been collected.

A dense area of cockle which had received significant size cockle mortality

Estimated area	0.174 sq. km
Reduction in cockle density	64 per m ²
Reduction in biomass	128 tonnes

A larger surrounding area which had a slight reduction in size cockle

Estimated area	0.9 sq. km
Reduction in cockle density	7 per m ²
Reduction in biomass	153 tonnes

Total Reduction **282 tonnes**

There was an increase in the number of undersize cockle which is due to the <5mm cockle increasing in size to 5-15mm. The cockle in the 5-15mm category was at the 15mm end and had grown significantly since the previous survey

Pilling

There was no indication from the data and observations on the bed that there had been any significant decrease in stock levels. The average number of size cockle for the sites sampled were similar and there was a range of cockle size classes across the bed. There was an increase in the number of undersize cockle which is due to the <5mm cockle increasing in size to 5-15mm.

Leven

There was no indication from the data and observations on the bed that there had been any significant decrease in stock levels. The average number of size cockle for the sites sampled were similar and there was a range of cockle size classes across the bed but it was observed that there had been movement of cockle across the bed with some sample locations with significantly less cockle and others with significantly more. There was an increase although smaller than on the other Morecambe Bay cockle beds in the number of undersize cockle which is due to the <5mm cockle increasing in size to 5-15mm.

Flookburgh

There was no indication from the data and observations on the bed that there had been any significant decrease in stock levels. The average number of size cockle for the sites sampled had increased, this is likely to be due to growth of 20-25mm cockle which was previously undersize as a decrease in this size range was observed in the data. There was an increase although smaller than on the other Morecambe Bay cockle beds in the number of undersize cockle which is due to the <5mm cockle increasing in size to 5-15mm.

Assessment of Reduction in Biomass

Within NWIFCA Morecambe Bay Cockle Fisheries HRA the total estimated biomass on the above inspected cockle beds was 12,000 tonnes of size cockle and 2,870 tonnes of undersize. The loss of an estimated 282 tonnes of size cockle off one of the cockles equates to 2.35% of the stock on the beds inspected. This figure does not take into account an increase in biomass from the growth of the cockle between the previous surveys. Therefore NWIFCA can conclude that the conclusion previously drawn **'The current management measures incorporated into this fishery, and the use of an effective enforcement team of NWIFCA Officers with multi-agency support, allows the NWIFCA to conclude that the hand-gathered cockle fishery at Aldingham, Newbiggin, Flookburgh, Leven Sands and Pilling Sands will have no risk of adverse effect to the integrity of the European Site'** is still valid.