

# NWIFCA Technical, Science and Byelaw Committee

11<sup>th</sup> August 2020: 10:00 a.m.

**AGENDA  
ITEM NO.  
10a**

## SURVEY AND INSPECTION REPORT COCKLES

**Purpose:** To provide results to members of the survey and inspections of the cockle stocks in the last quarter

**Recommendation:** That Members approve the following for the District's cockle fisheries September 1<sup>st</sup> 2020:

- a) open Pilling Sands, Leven Sands, Flookburgh, Newbiggin on 1<sup>st</sup> September;
- b) open Aldingham when classification established;
- c) decision on Leasowe to be taken by email as soon as possible;
- d) implement NWSFC Byelaw 13a and CSFC Byelaw 18 closures on all other cockle beds in the District.

Survey results for all surveyed cockle beds are given below. There is an estimated total biomass of 12580 tonnes of size and 3975 tonnes of undersize cockle in Morecambe Bay (Table 1) distributed across the beds as shown. Subject to completion of an HRA and agreement with Natural England there is sufficient size cockle biomass for the Authority to open some of the beds while leaving others as undisturbed for protected SPA bird feeding and mitigation. As can be seen from the accompanying Mussel Survey and Inspection Report there are also abundant stocks of mussel of varying size classes for intertidal and diving bivalve feeding birds.

The majority of the size cockle on the Newbiggin and Aldingham bed lies outside of the existing classified area, ie. the distribution has extended further north than in recent years. Officers notified the local Environmental Health Officers, the Food Standards Agency (FSA) and Cefas who regulate shellfish hygiene as soon as results were known and work is on-going to get this area sampled and classified. It is unlikely this will have been achieved by 1<sup>st</sup> September and therefore officers recommend that there is a delay in opening the Aldingham bed until the classification has been established. It will then be a simple process of lifting the NWSFC Byelaw 13a closure and informing Byelaw 3 permit holders and buyers.

## **SURVEY RESULTS**

### **For all cockle surveys**

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.

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).

Biomass, size cockle 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.

Table 1: summary of Morecambe Bay cockle stocks August 2020

Cockle Bed	Date of Survey	Area (ha)	Size Cockle (tonnes) <sup>1</sup>	Undersize Cockle (tonnes) <sup>2</sup>
Warton Sands Main Area	23 <sup>rd</sup> June 2020	271.2	175	~115
Warton Sands Dense Area		14.6	105	~790
Aldingham and Newbiggin	9 <sup>th</sup> July 2020	1351	~3200	~770
Pilling Sands	7 <sup>th</sup> July 2020	1576	~2400	~900
Middleton Sands	8 <sup>th</sup> July 2020	615	~300	~200
Flookburgh	22 <sup>nd</sup> July 2020	2398	~3300	~500
Leven Sands	23 <sup>rd</sup> July 2020	1859	~3100	~700
<b>Totals</b>		<b>8084.8</b>	<b>~12580</b>	<b>~3975</b>

**i. MORECAMBE BAY**

Warton Sands Cockle Survey 23-06-20

Tides: LW 07:56 1.5m (Liverpool tides)

Survey method - Jumbo and 0.5m<sup>2</sup> or 0.1m<sup>2</sup> quadrat and sieve depending on cockle densities.

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.

The means for the dense area have been calculated separately as this area differed greatly from the rest of the bed.

Main Area

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

Dense Area

Mean number of size cockle 100 per m<sup>2</sup> (min 20, max 130)  
 Mean number of undersize cockle 1203 per m<sup>2</sup> (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.

Biomass	Area (ha)	Size Cockle (tonnes) <sup>1</sup>	Undersize Cockle (tonnes) <sup>2</sup>
<b>Warton Sands Main Area</b>	<b>271.2</b>	<b>175</b>	<b>~115</b>
<b>Warton Sands Dense Area</b>	<b>14.6</b>	<b>105</b>	<b>~790</b>

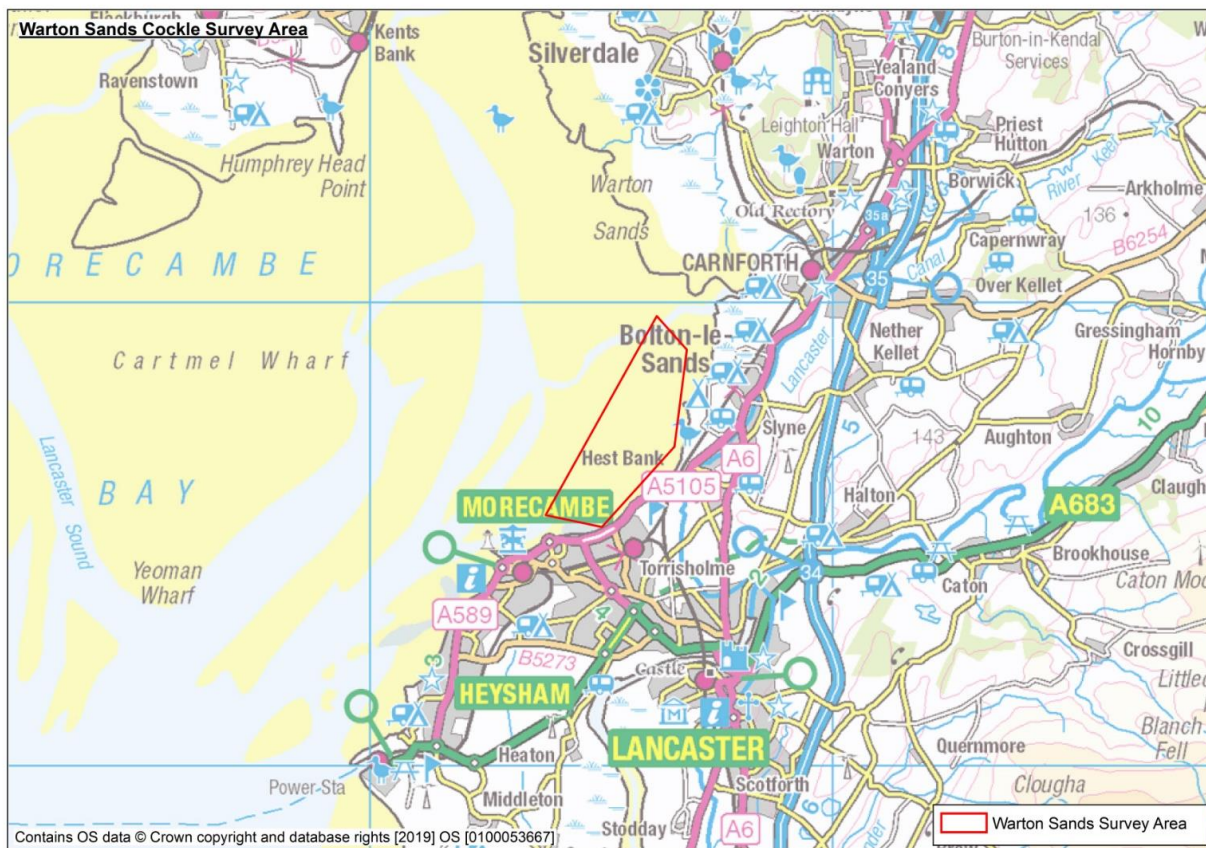


Fig. 1. Illustration of position of Warton Sands cockle bed

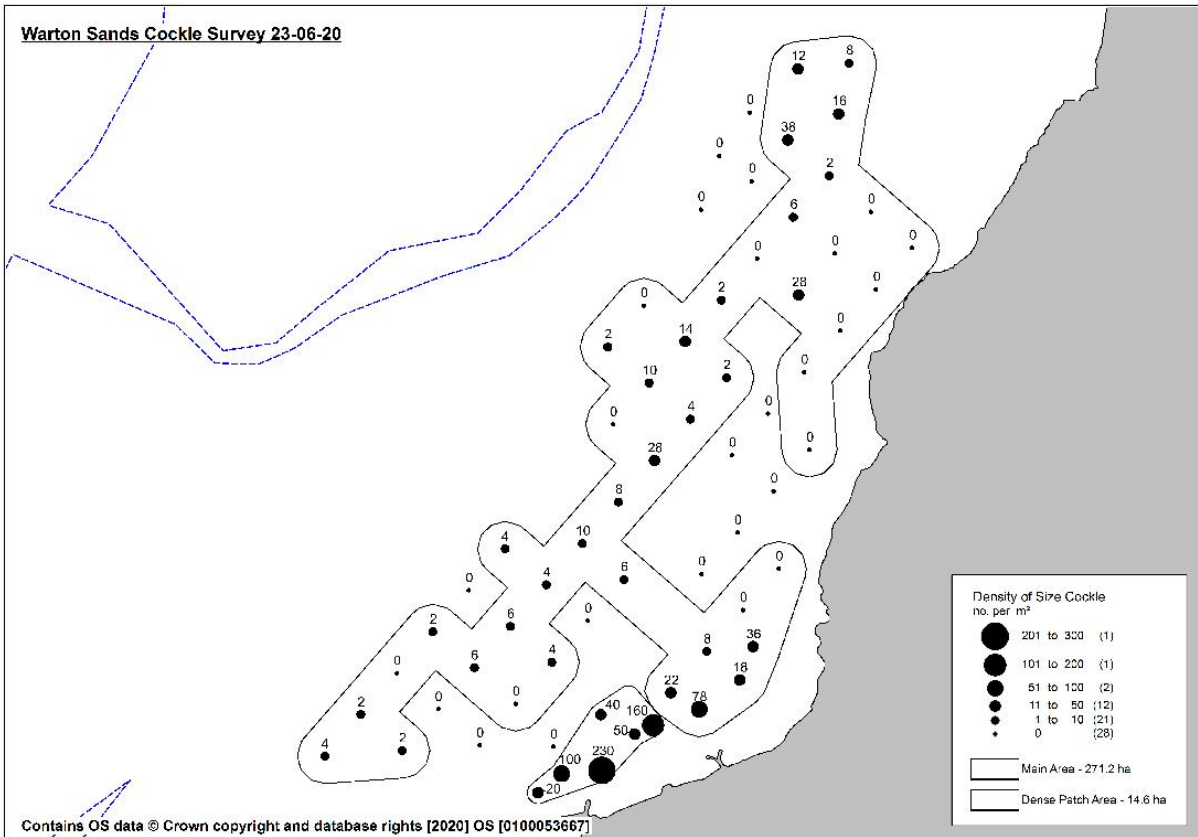


Fig. 2. Density of size cockle per m<sup>2</sup> Warton Sands June 2020

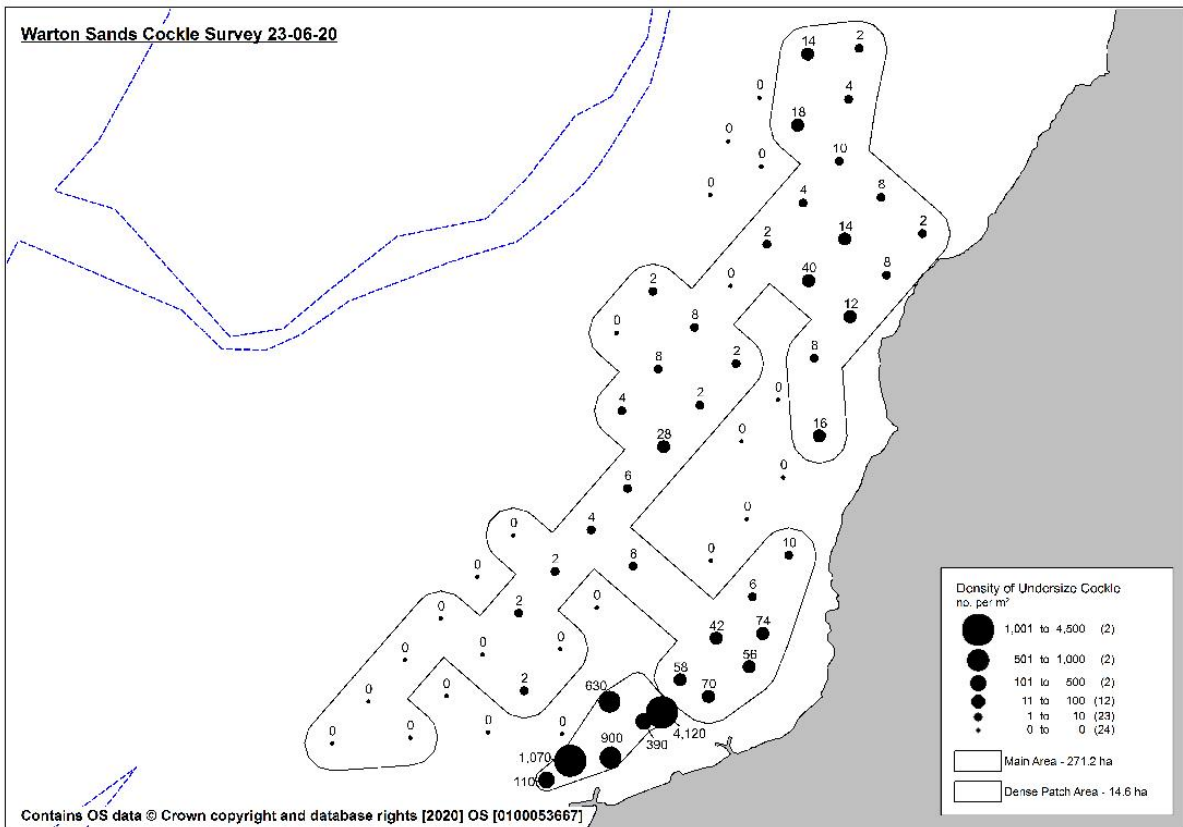


Fig. 3. Density of undersize cockle per m<sup>2</sup> Warton Sands June 2020

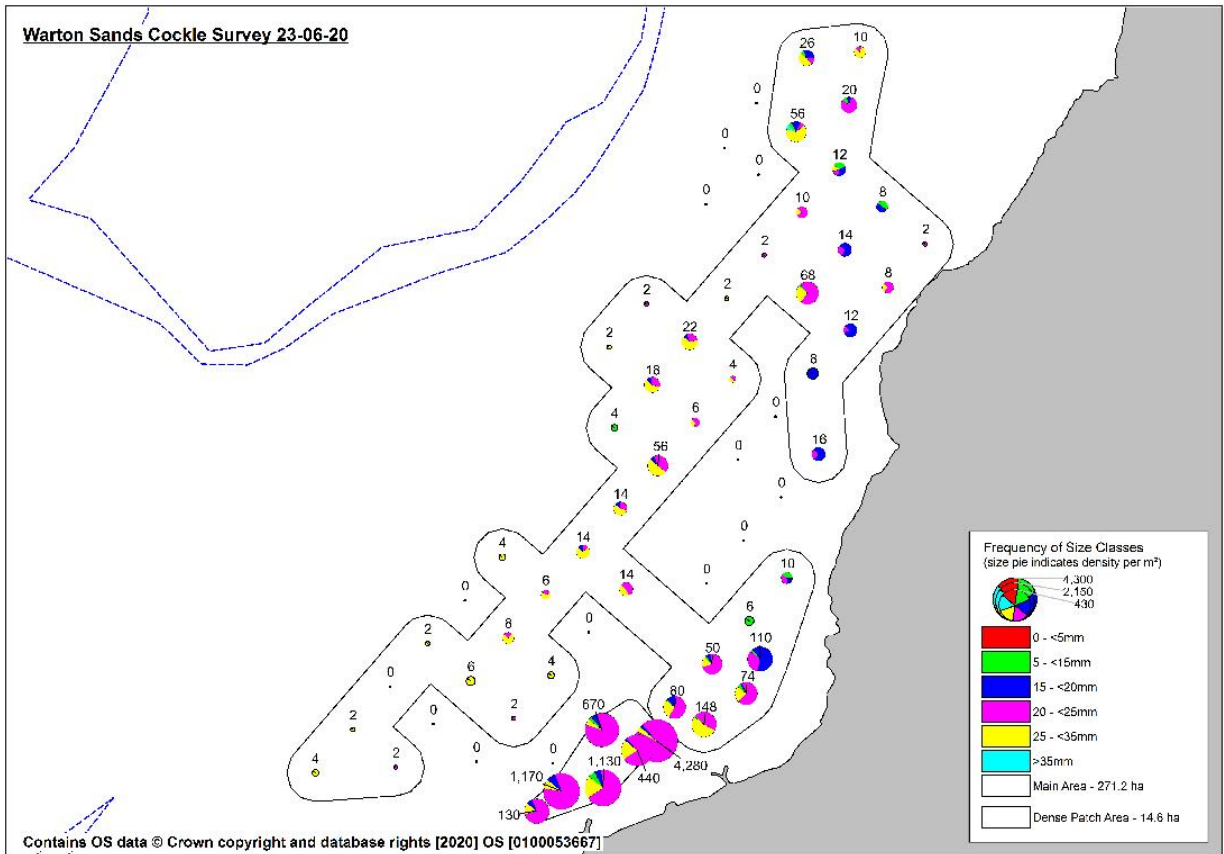


Fig. 4. Frequency of size classes of cockle per m<sup>2</sup> Warton Sands June 2020



Fig. 5. Soft channels and unstable sands in the northern areas of Warton Sands June 2020



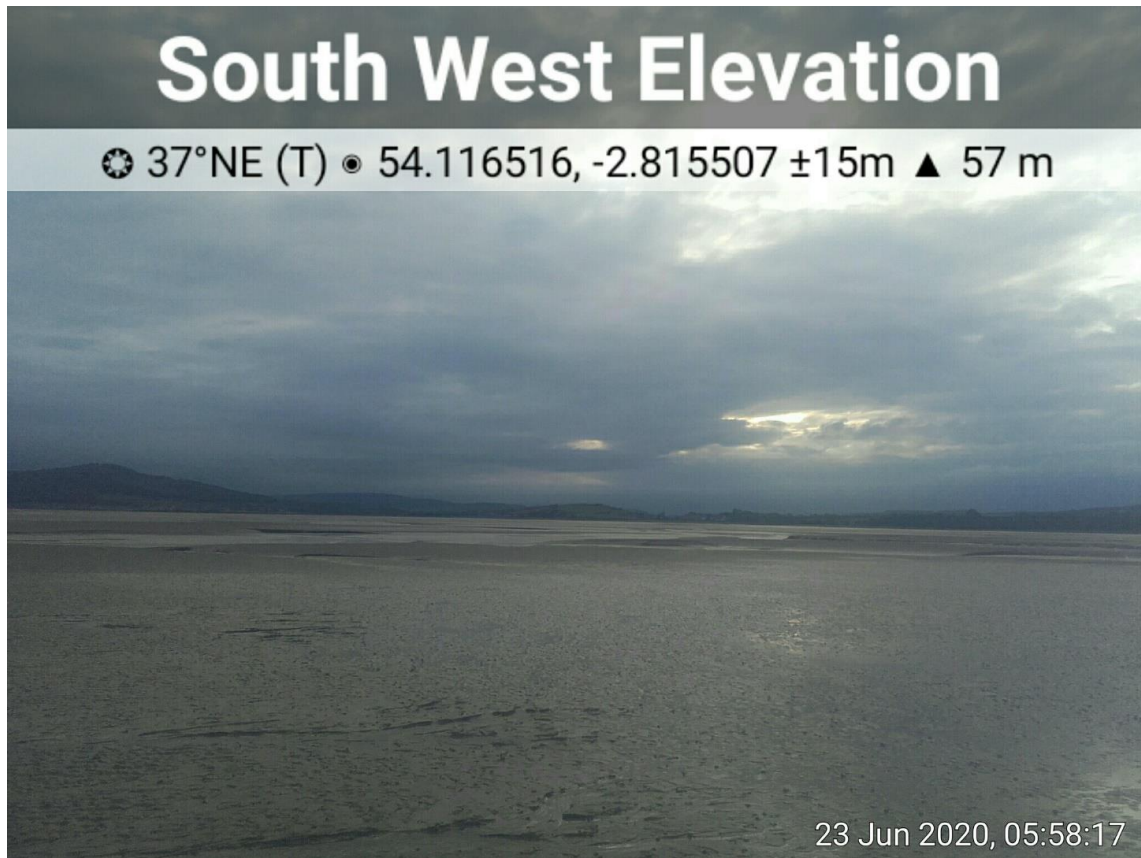


Fig. 6. Soft ground and unstable sands in the northern areas of Warton Sands June 2020

Pilling Sands Cockle Survey 07-07-20

Tides: LW 08:06 1.3m (Liverpool tides)

Survey method - Jumbo and 0.5m<sup>2</sup> quadrat

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 m <sup>2</sup>	(min 0, max 148)
Mean number of undersize cockle	16 per m <sup>2</sup>	(min 0, max 140)
Mean number of 0-5mm cockle	38 per m <sup>2</sup>	(min 0, max 2000)

<b>Biomass</b>	<b>Area (ha)</b>	<b>Size Cockle (tonnes)<sup>1</sup></b>	<b>Undersize Cockle (tonnes)<sup>2</sup></b>
<b>Pilling Sands</b>	<b>1576</b>	<b>~2400</b>	<b>~900</b>

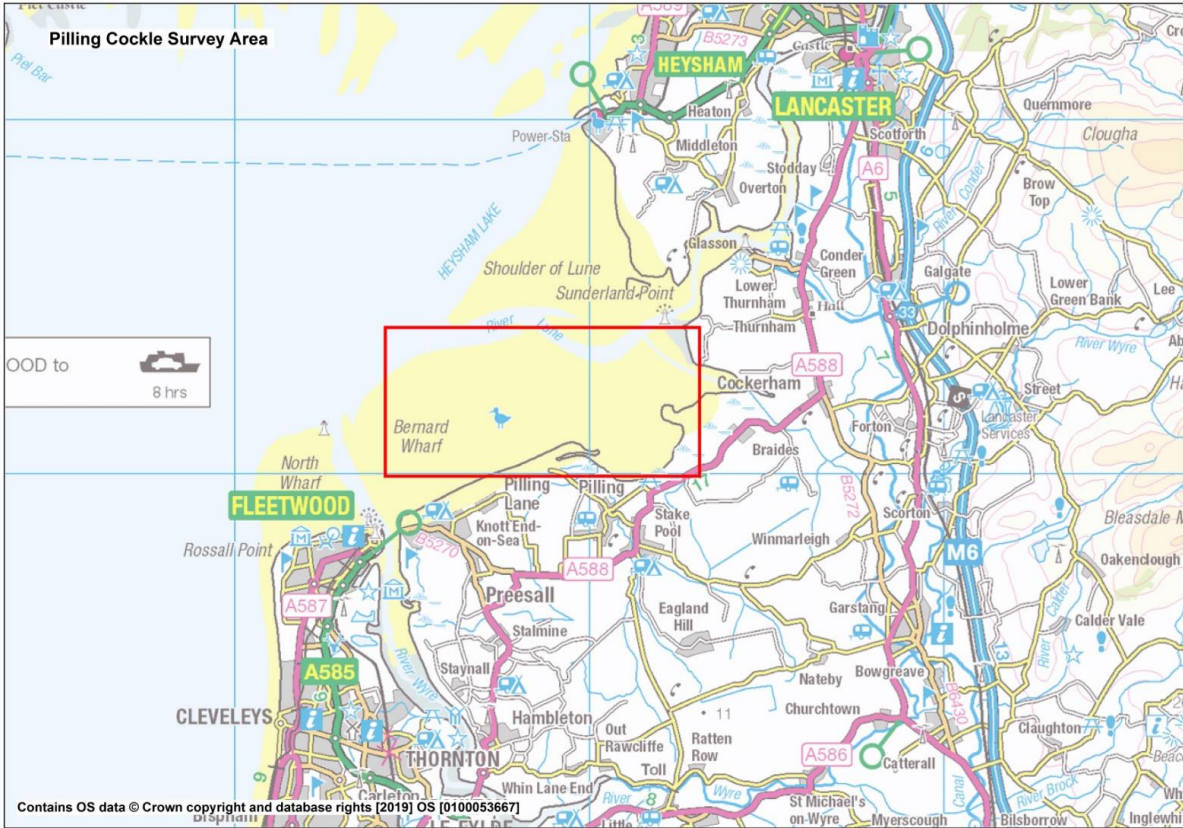


Fig. 7. Illustration of position of Pilling Sands Survey Area

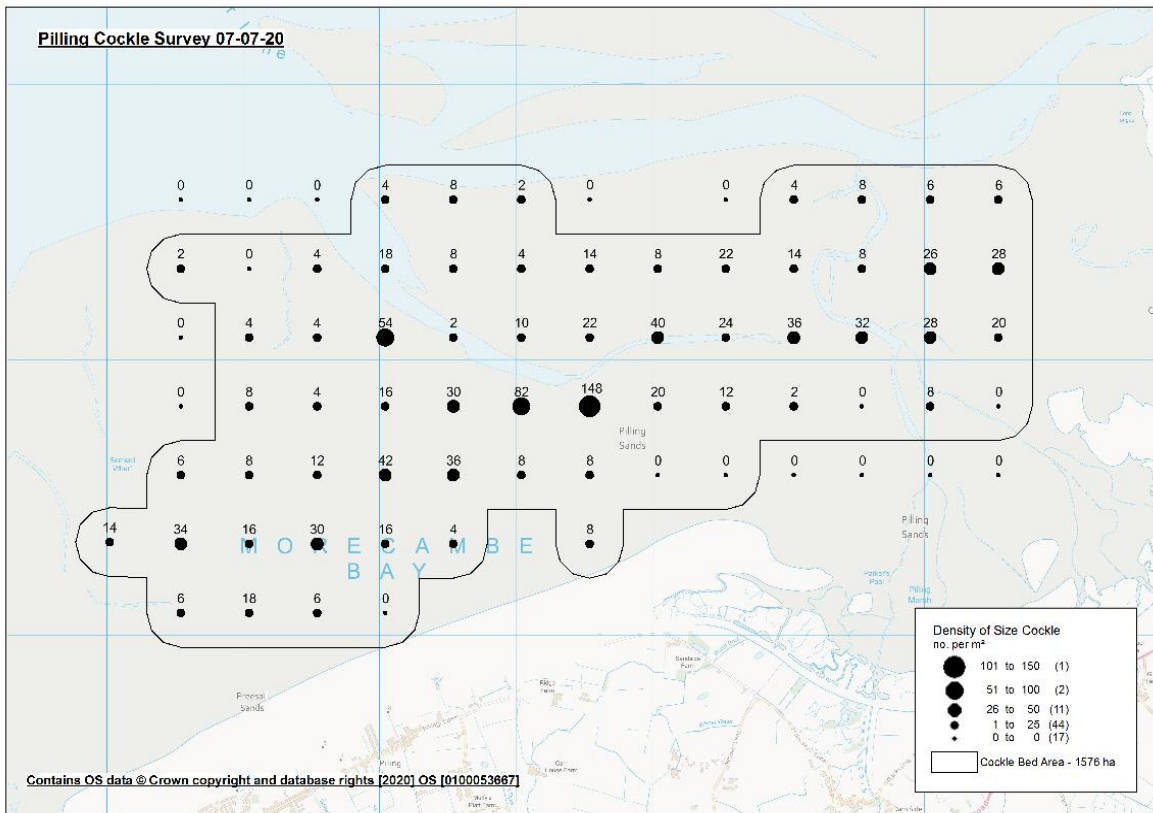


Fig. 8. Density of size cockle per m<sup>2</sup> at Pilling Sands July 2020

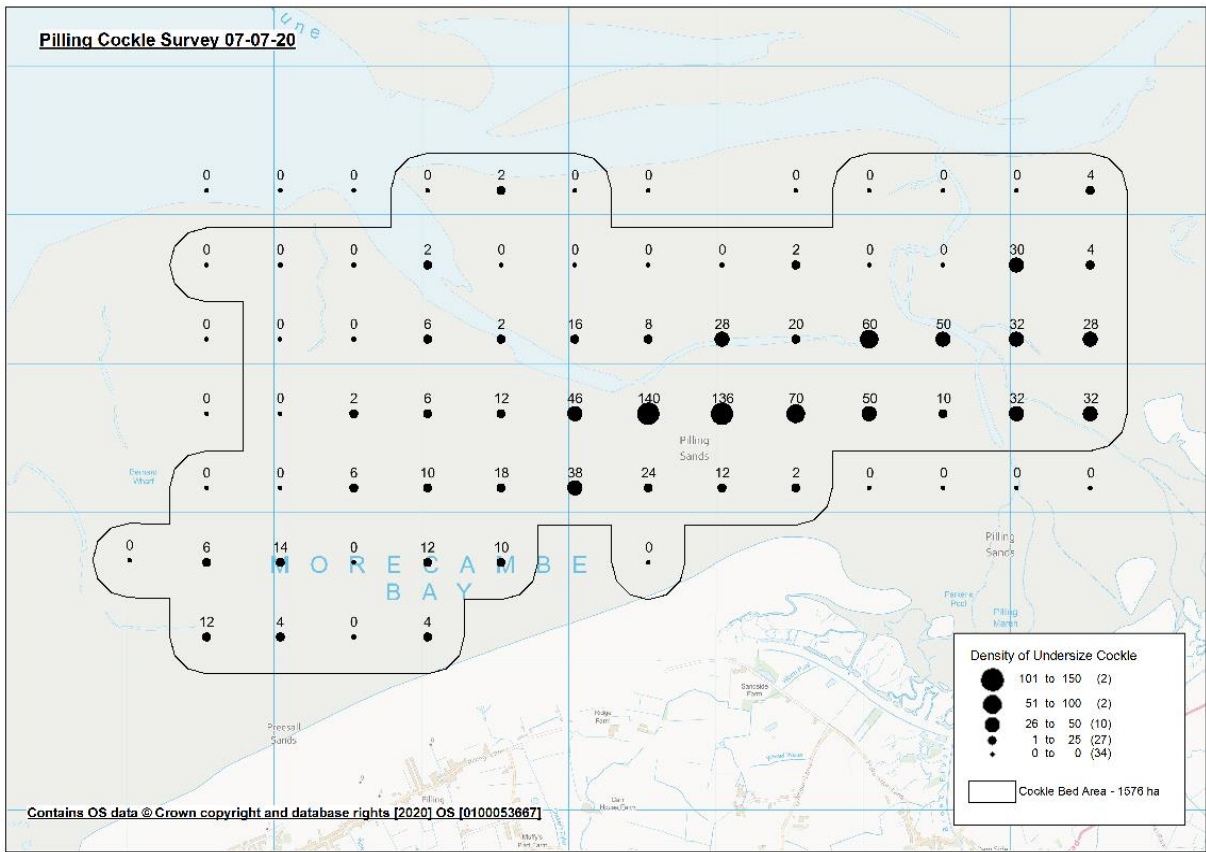


Fig. 9. Density of undersize cockle per m<sup>2</sup> at Pilling Sands July 2020

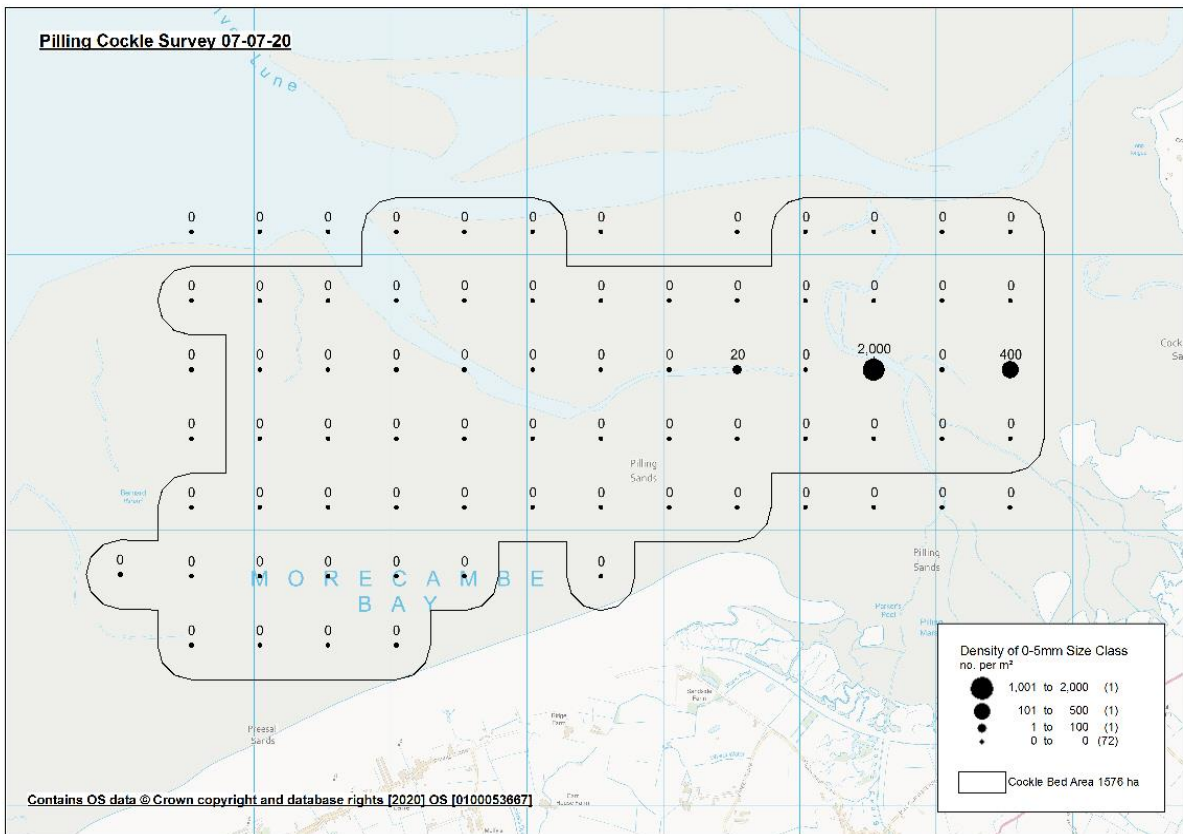


Fig. 10. Density of 0-5mm cockle per m<sup>2</sup> at Pilling Sands July 2020



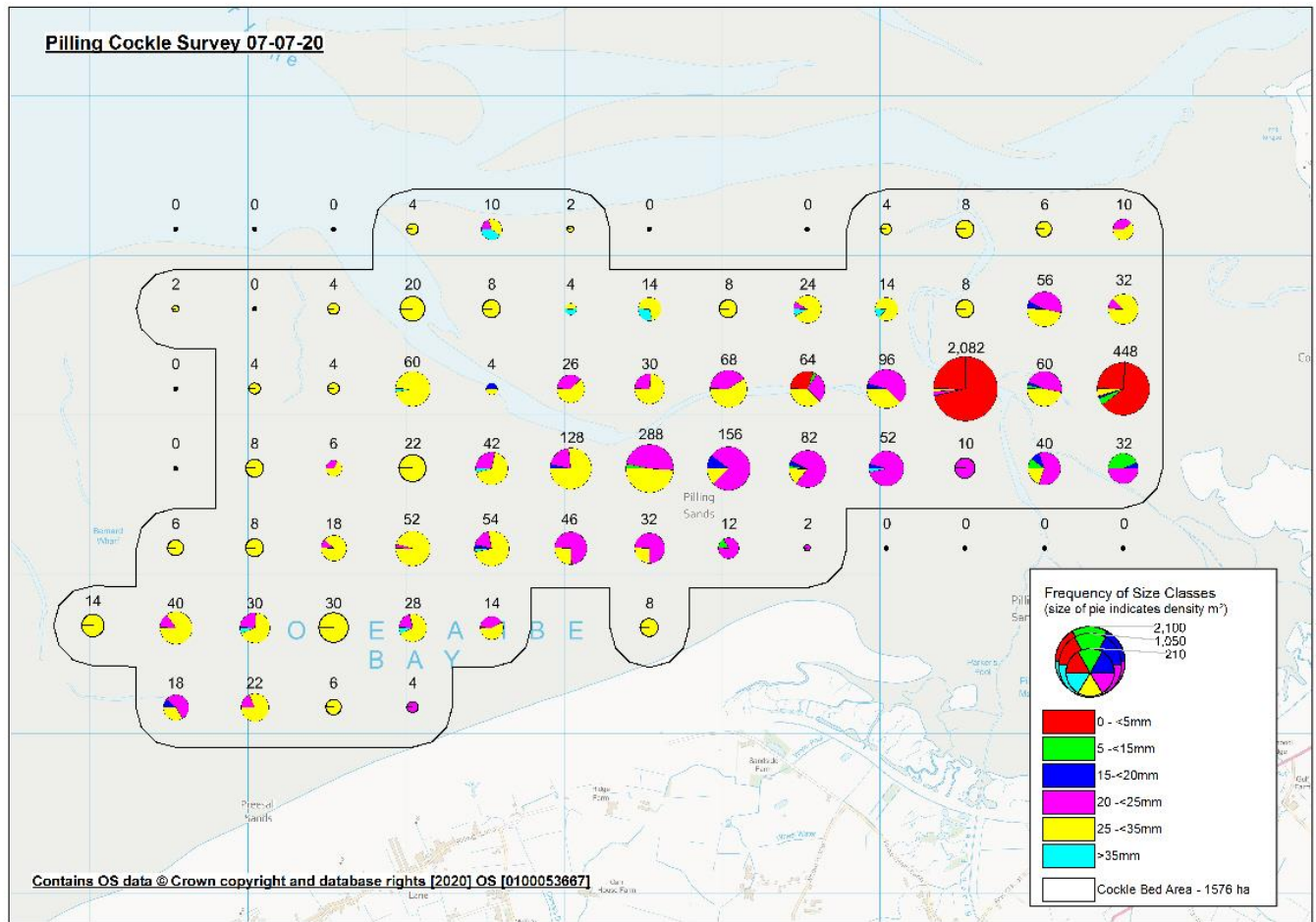


Fig. 11. Frequency of size classes of cockle per m<sup>2</sup> at Pilling Sands July 2020

### Middleton Sands Cockle Survey 08-07-20

Tides: LW 08:47 1.5m (Liverpool tides)

Survey method - Jumbo and 0.5m<sup>2</sup> quadrat

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.

Means: one survey station that contained two cockle was disregarded from the bed area due to the distance from the main bed area and small number of cockle.

Mean number of size cockle	5 per m <sup>2</sup>	(min 0, max 22)
Mean number of undersize cockle	7 per m <sup>2</sup>	(min 0, max 58)
Mean number of 0-5mm cockle	2 per m <sup>2</sup>	(min 0, max 100)

Biomass	Area (ha)	Size Cockle (tonnes) <sup>1</sup>	Undersize Cockle (tonnes)
Middleton Sands	615	~300	~200

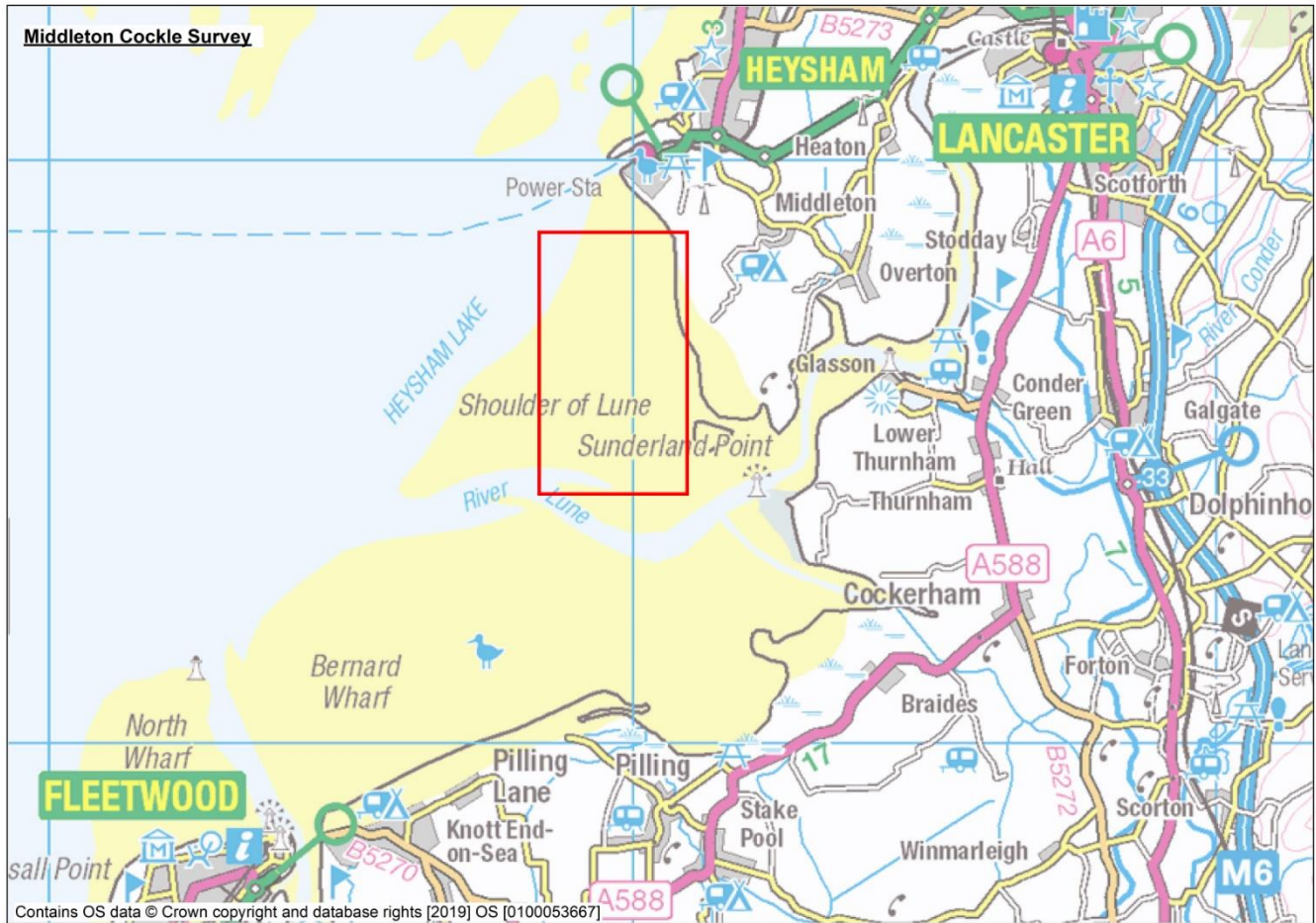


Fig. 12. Illustration of position of Middleton Sands cockle bed

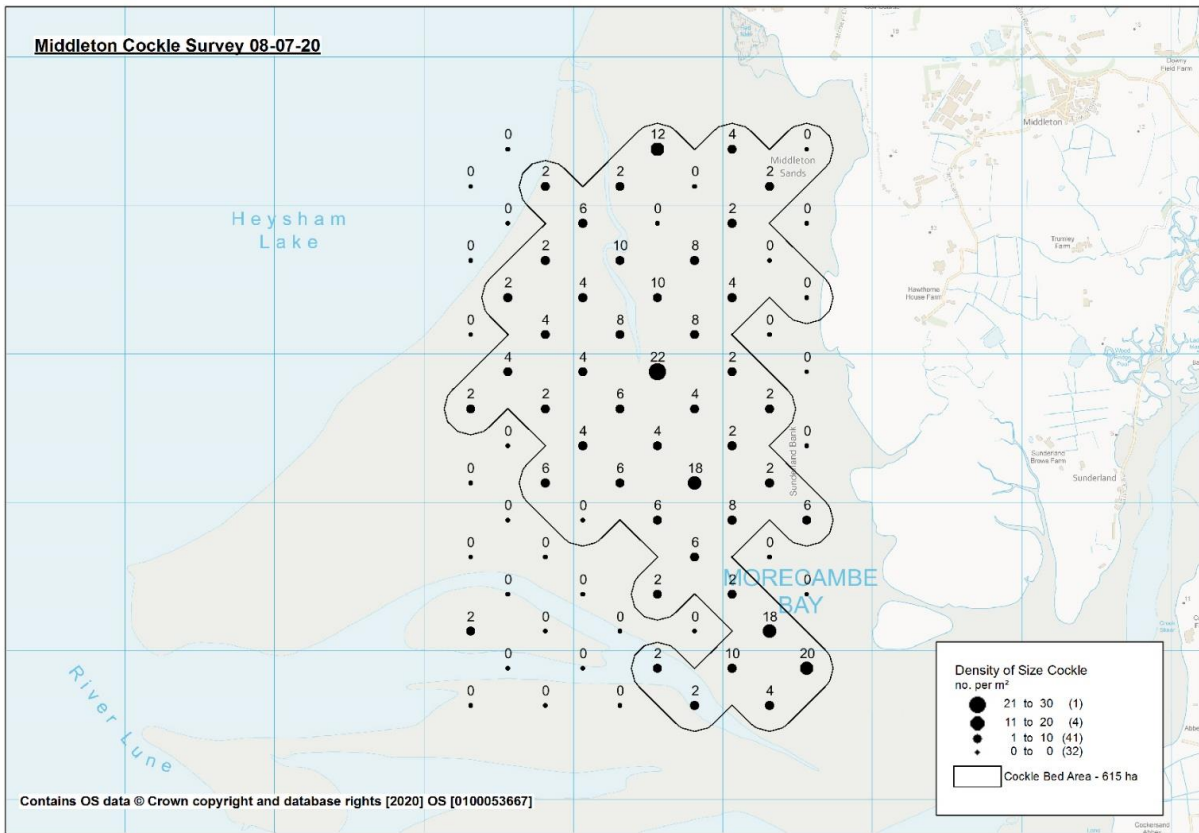


Fig. 13. Density of size cockle per m<sup>2</sup> Middleton Sands July 2020

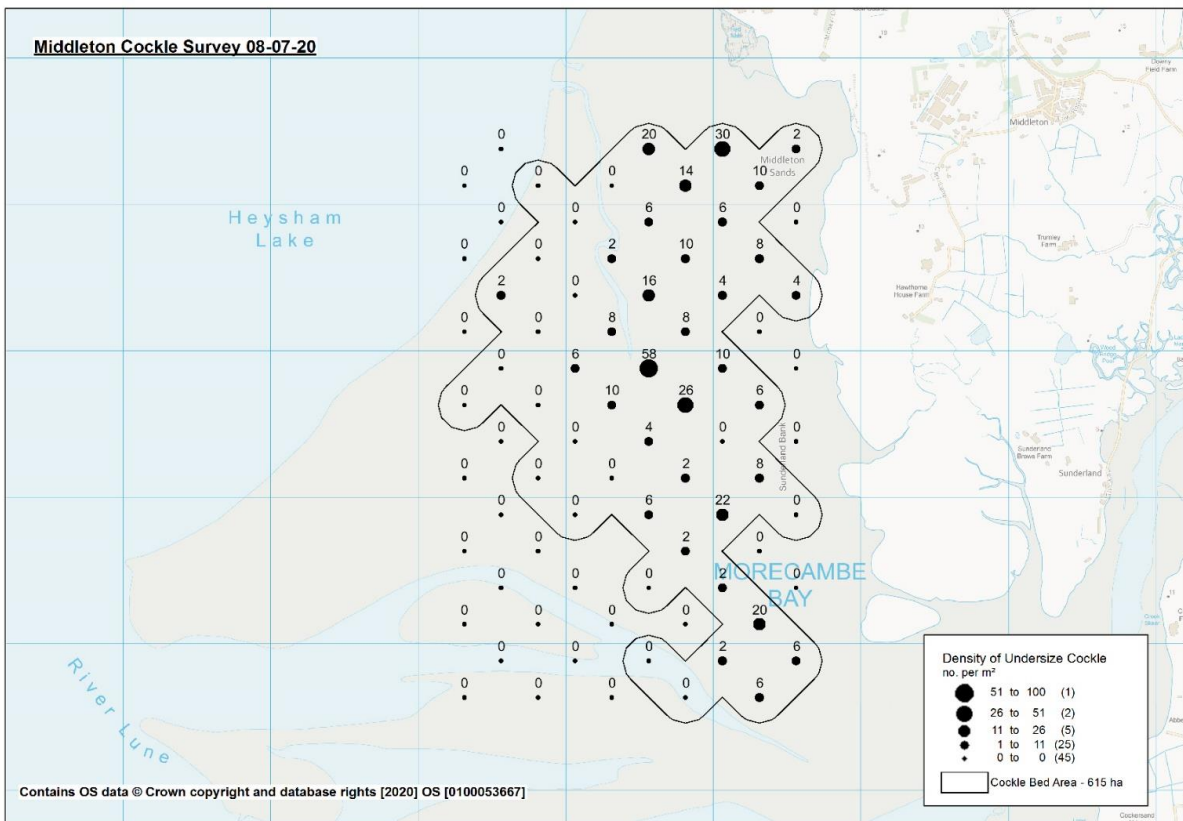


Fig. 14. Density of undersize cockle per m<sup>2</sup> Middleton Sands July 2020



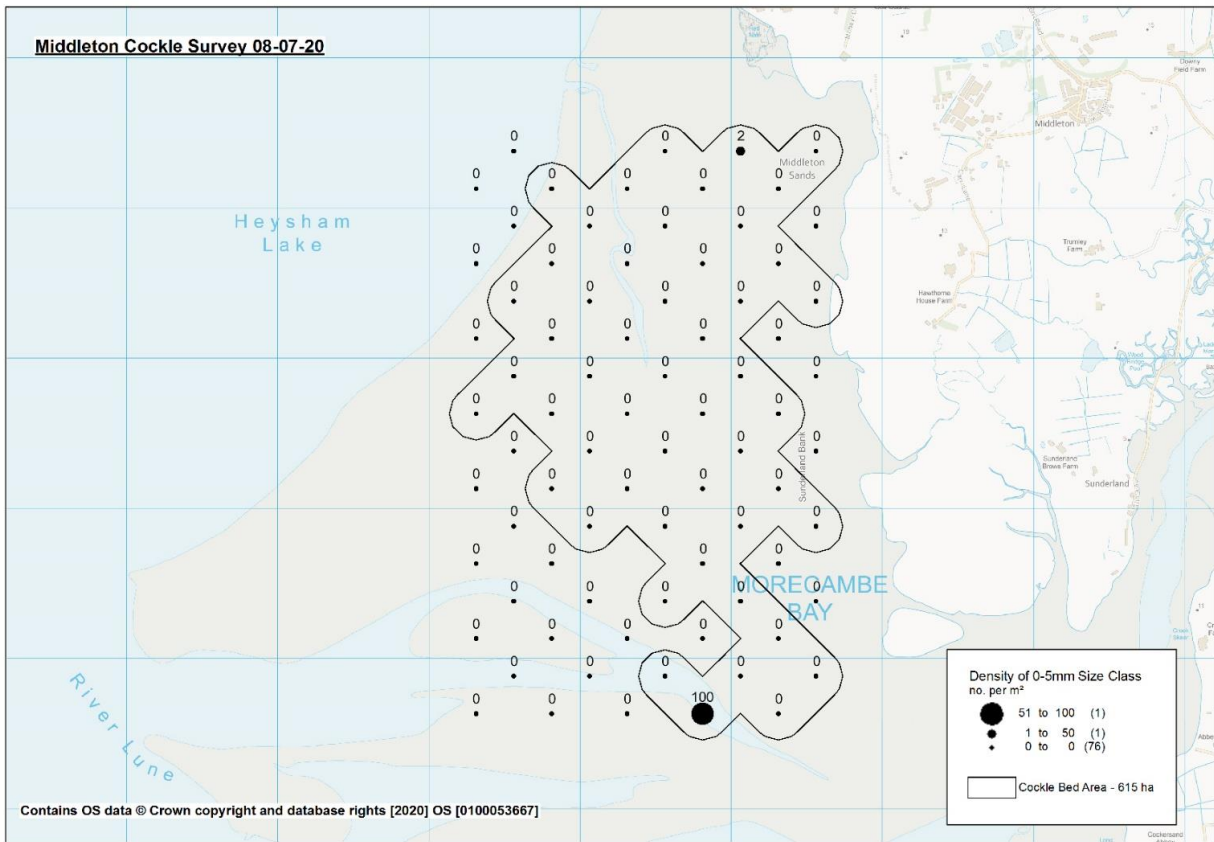


Fig. 15. Density of 0-5mm cockle per m<sup>2</sup> on Middleton Sands July 2020

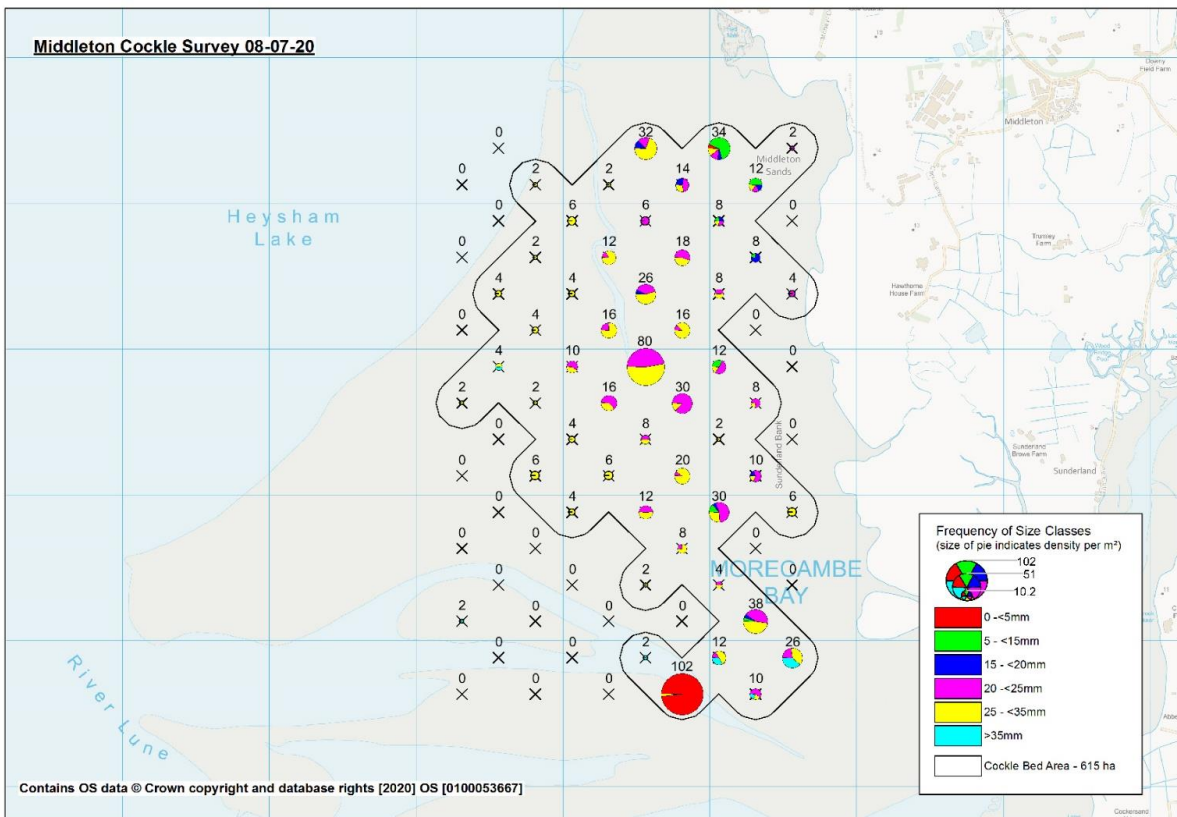


Fig. 16. Frequency of size classes of cockle per m<sup>2</sup> Middleton Sands July 2020



Newbiggin and Aldingham Cockle Survey 09-07-20

Tides: LW 09:25 1.7m (Liverpool Tides)

Survey method - Jumbo and 0.5m<sup>2</sup> quadrat

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

Biomass	Area (ha)	Size Cockle (tonnes) <sup>1</sup>	Undersize Cockle (tonnes) <sup>2</sup>
<b>Aldingham and Newbiggin</b>	<b>1351</b>	<b>~3200</b>	<b>~770</b>

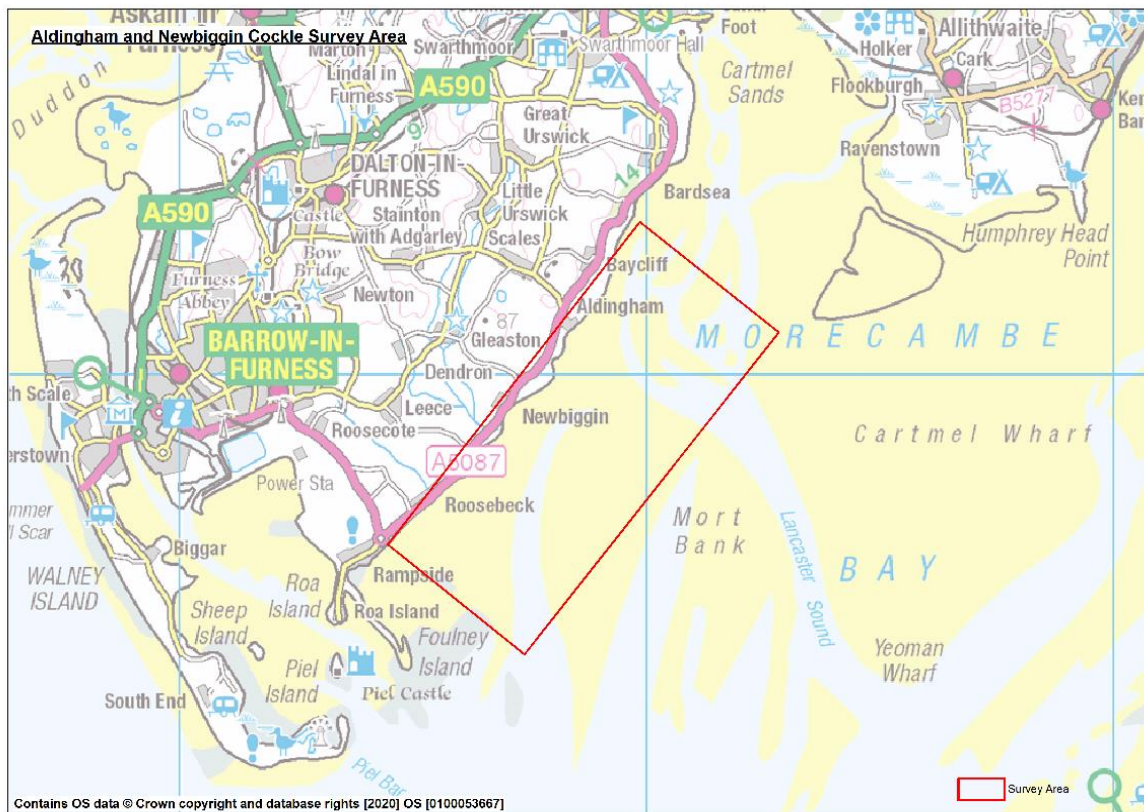


Fig. 17. Illustration of position of Aldingham and Newbiggin Survey Area

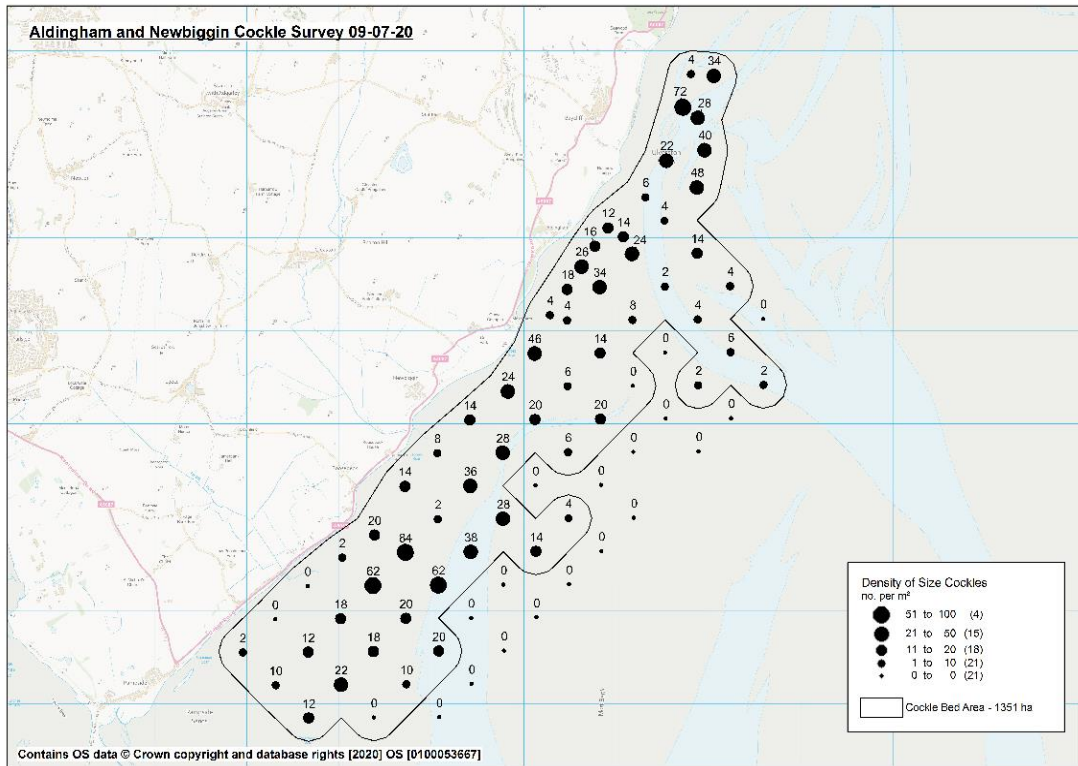


Fig. 18. Density of size cockle per m<sup>2</sup> Aldingham and Newbiggin July 2020

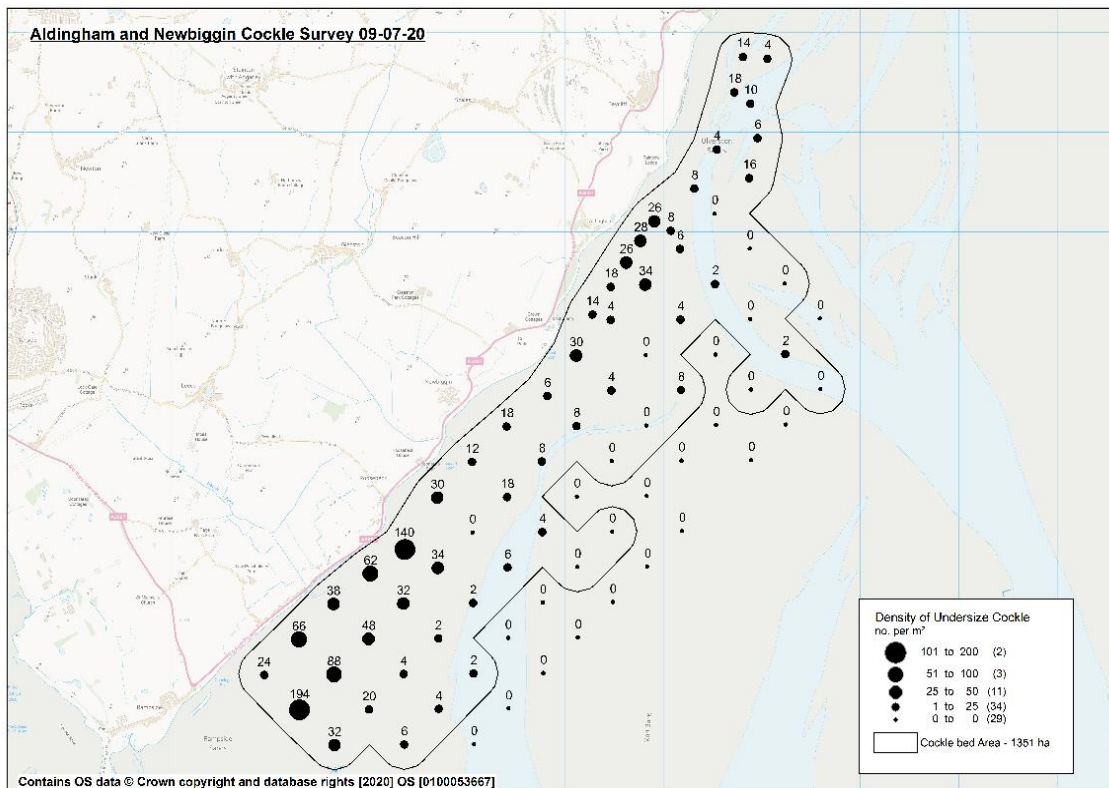


Fig. 19. Density of undersize cockle per m<sup>2</sup> Aldingham and Newbiggin July 2020



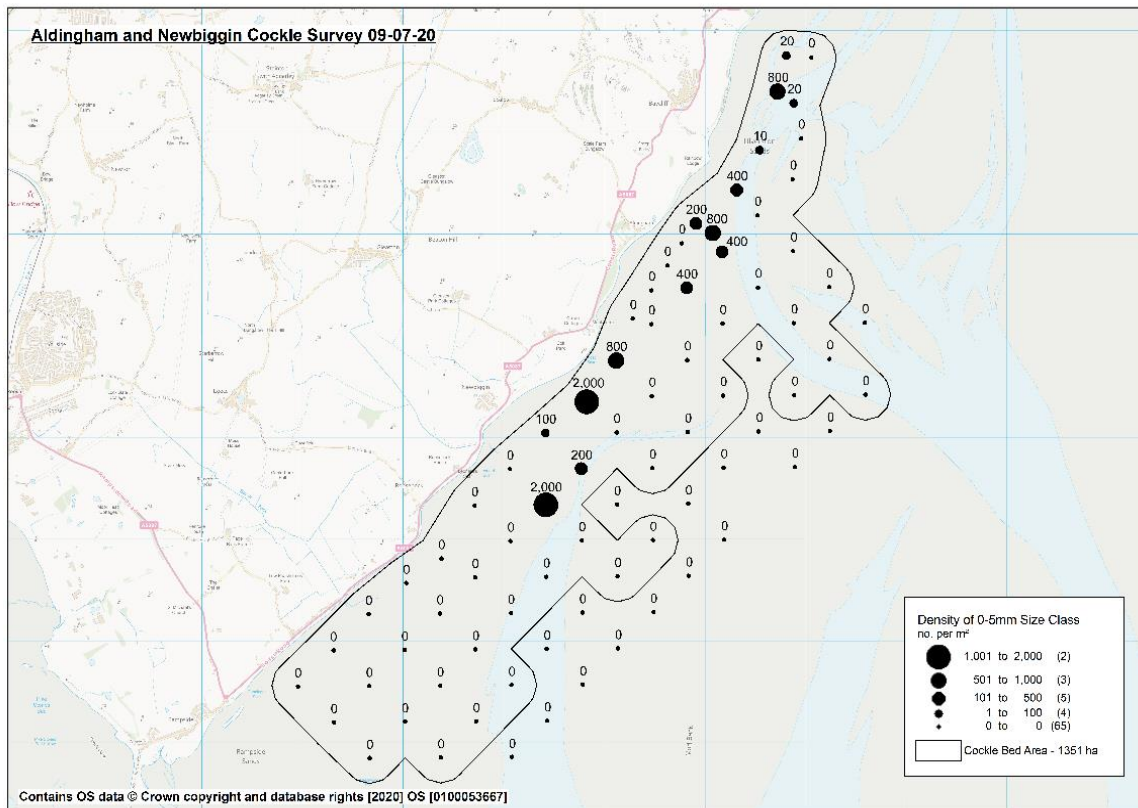


Fig. 20. Density of 0-5mm cockle per m<sup>2</sup> Aldingham and Newbiggin July 2020

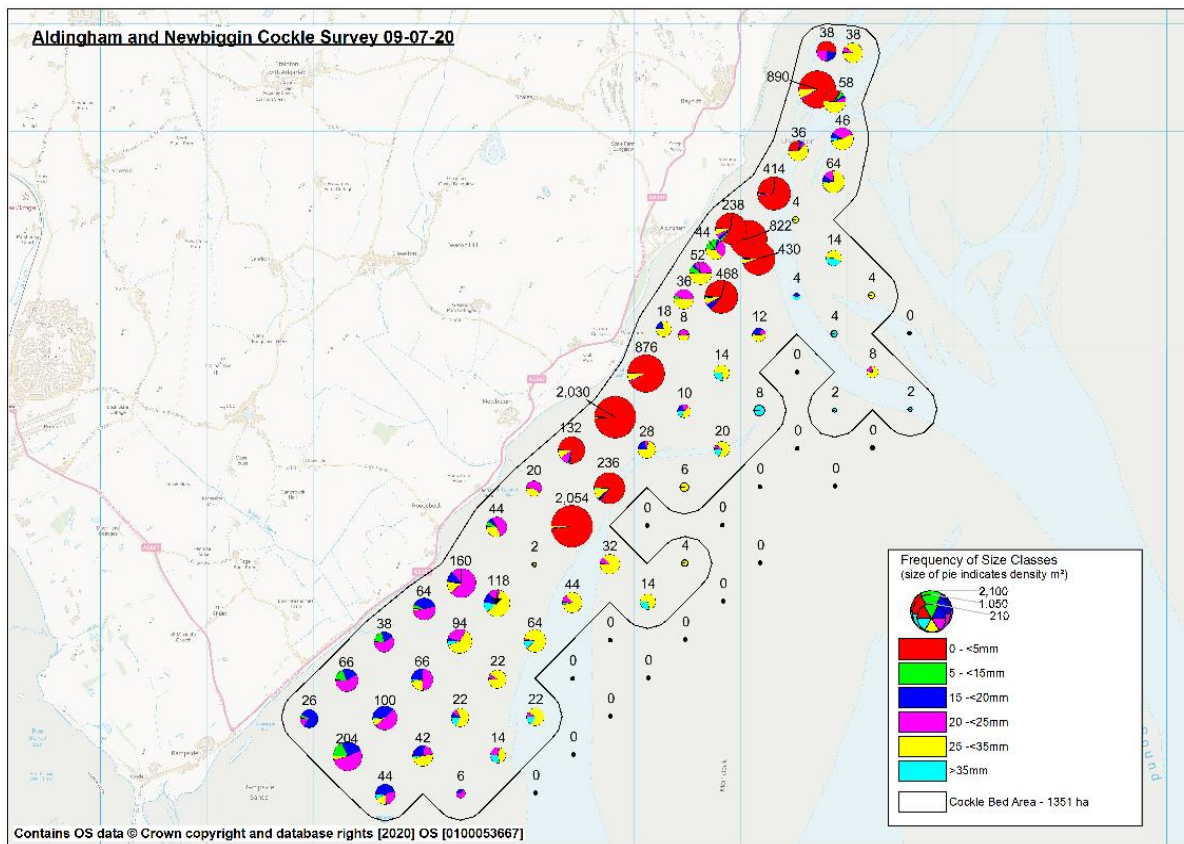


Fig. 21. Frequency of size classes of cockle per m<sup>2</sup> Aldingham and Newbiggin July 2020

Flookburgh Cockle Survey 22-07-20

Tides: LW 07:47 1.3m (Liverpool Tides)

Survey method - Jumbo and 0.5m<sup>2</sup> quadrat

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.

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.

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

Biomass	Area (ha)	Size Cockle (tonnes) <sup>1</sup>	Undersize Cockle (tonnes) <sup>2</sup>
<b>Flookburgh</b>	<b>2398</b>	<b>~3300</b>	<b>~500</b>

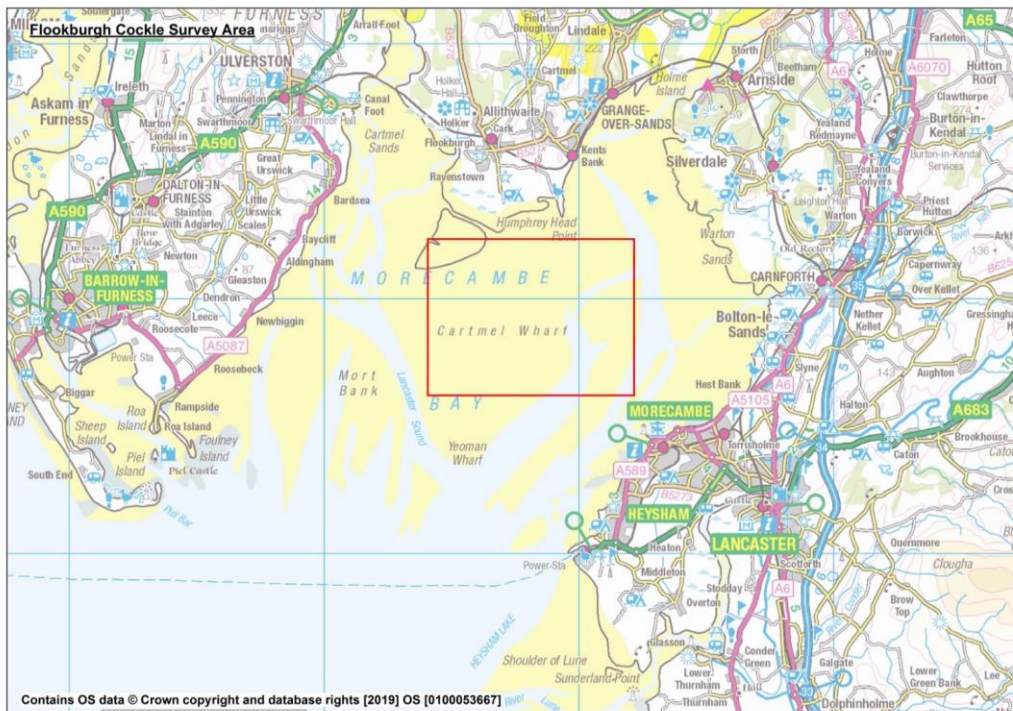


Fig. 22. Illustration of the position of Flookburgh cockle bed



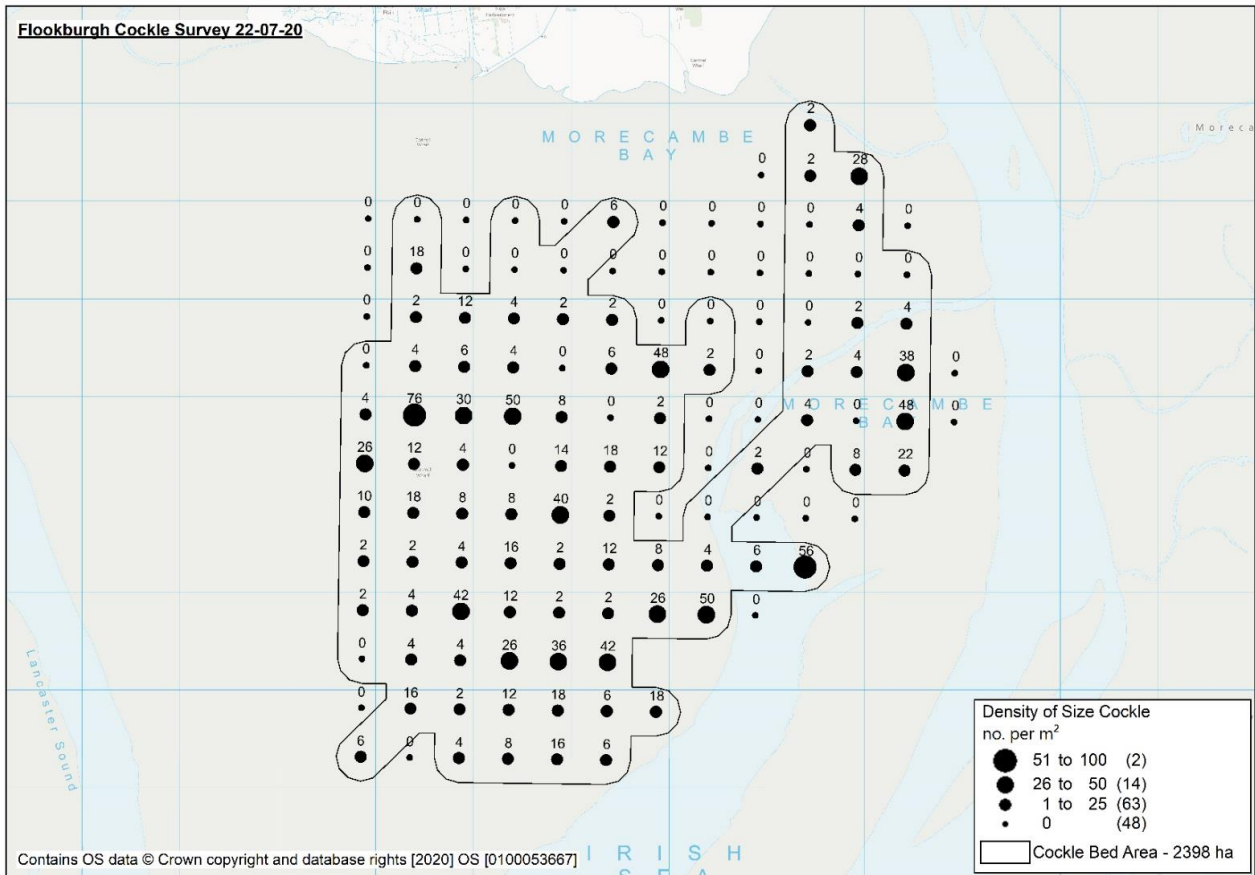


Fig. 23. Density of size cockle per m<sup>2</sup> Flookburgh July 2020

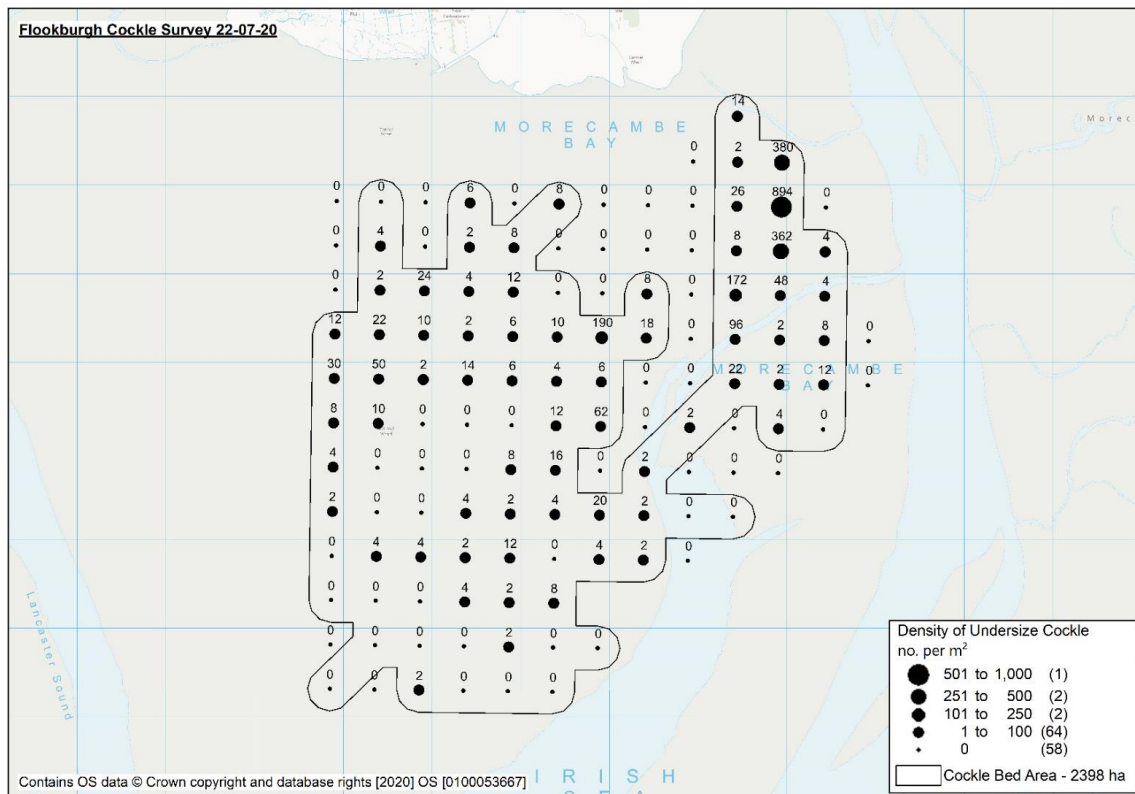


Fig. 24. Density of undersize cockle per m<sup>2</sup> Flookburgh July 2020

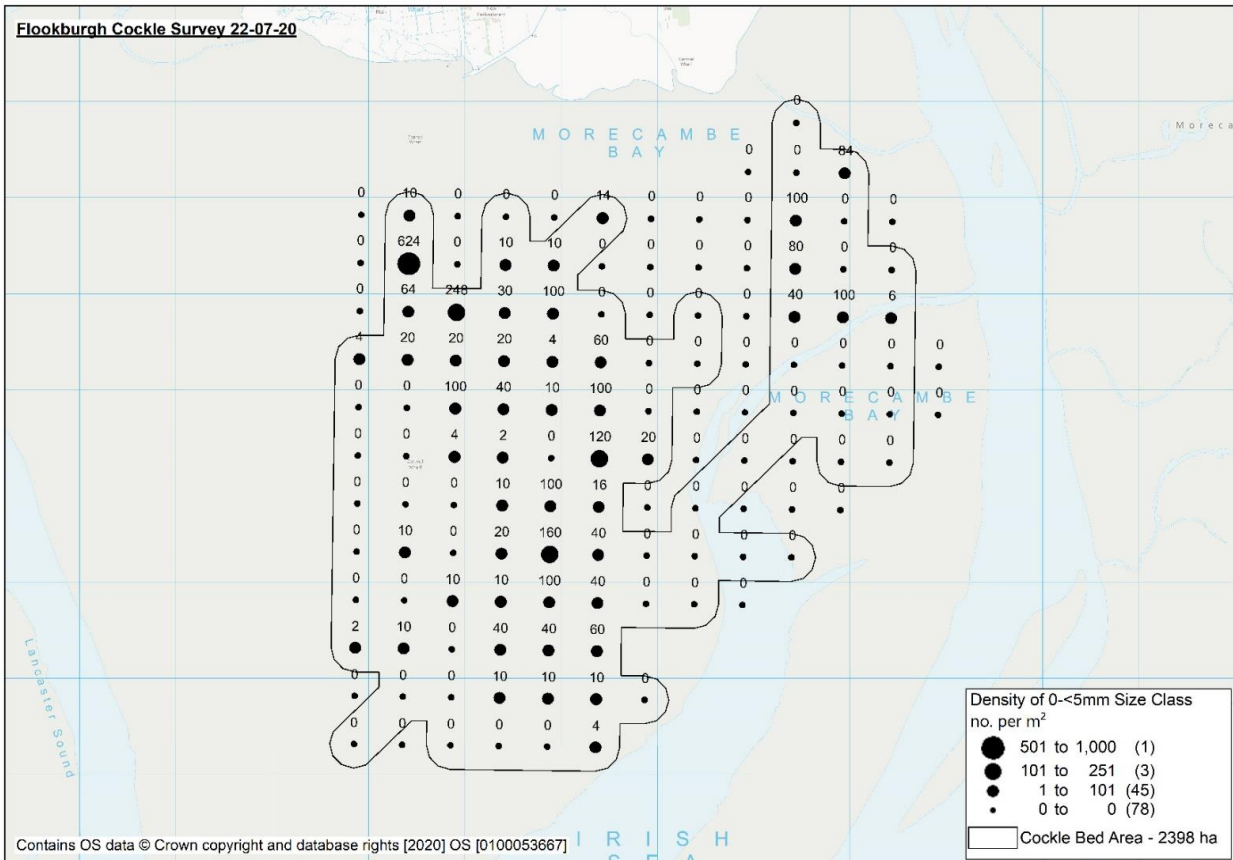


Fig. 25. Density of 0-5mm cockle per m<sup>2</sup> Flookburgh July 2020

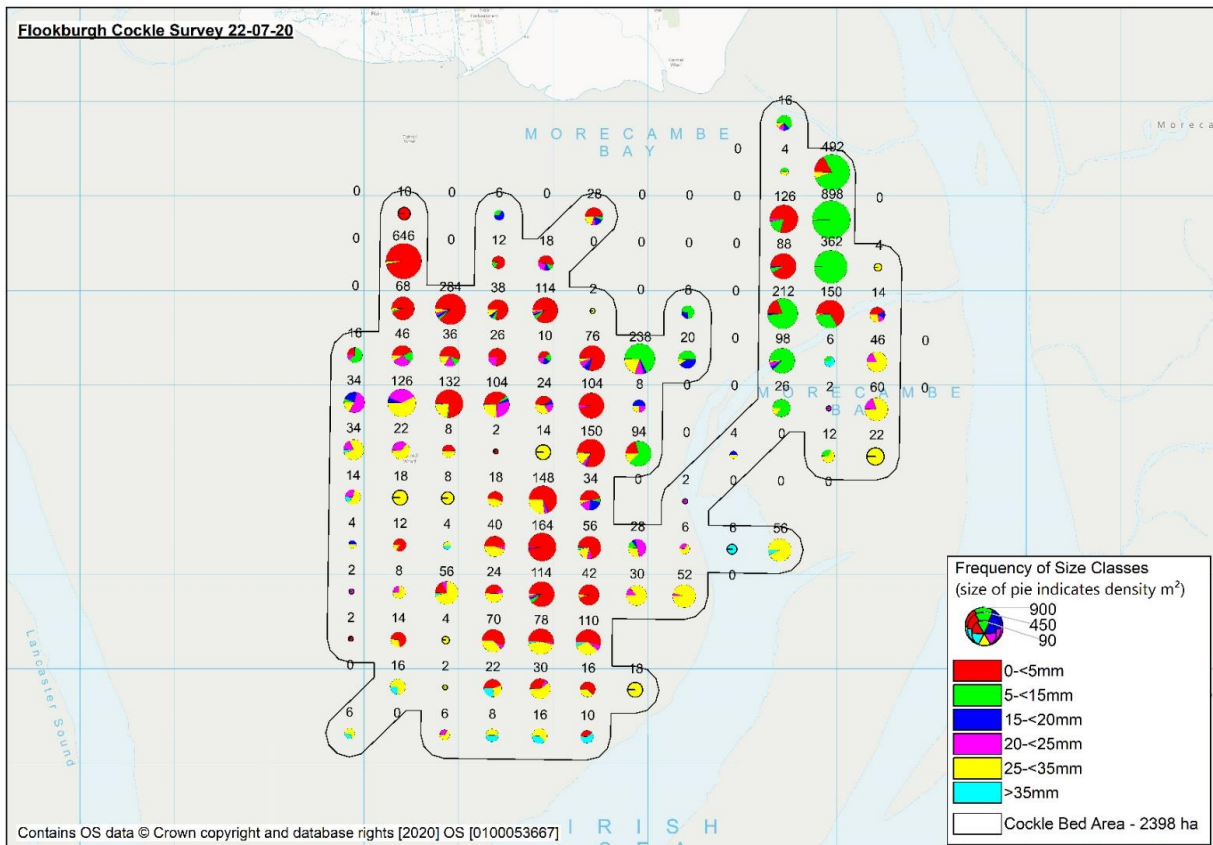


Fig. 26. Frequency of size classes of cockle per m<sup>2</sup> Flookburgh July 2020

Leven Sands Cockle Survey 24-07-20

Tides: LW 08:31 1.1m (Liverpool Tides)

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 <sup>2</sup>	(min 0, max 80)
Mean number of undersize cockle	21 per m <sup>2</sup>	(min 0, max 576)
Mean number of 0-5mm cockle	46 per m <sup>2</sup>	(min 0, max 1600)

Biomass	Area (ha)	Size Cockle (tonnes) <sup>1</sup>	Undersize Cockle (tonnes) <sup>2</sup>
Leven	1859	~3100	~700

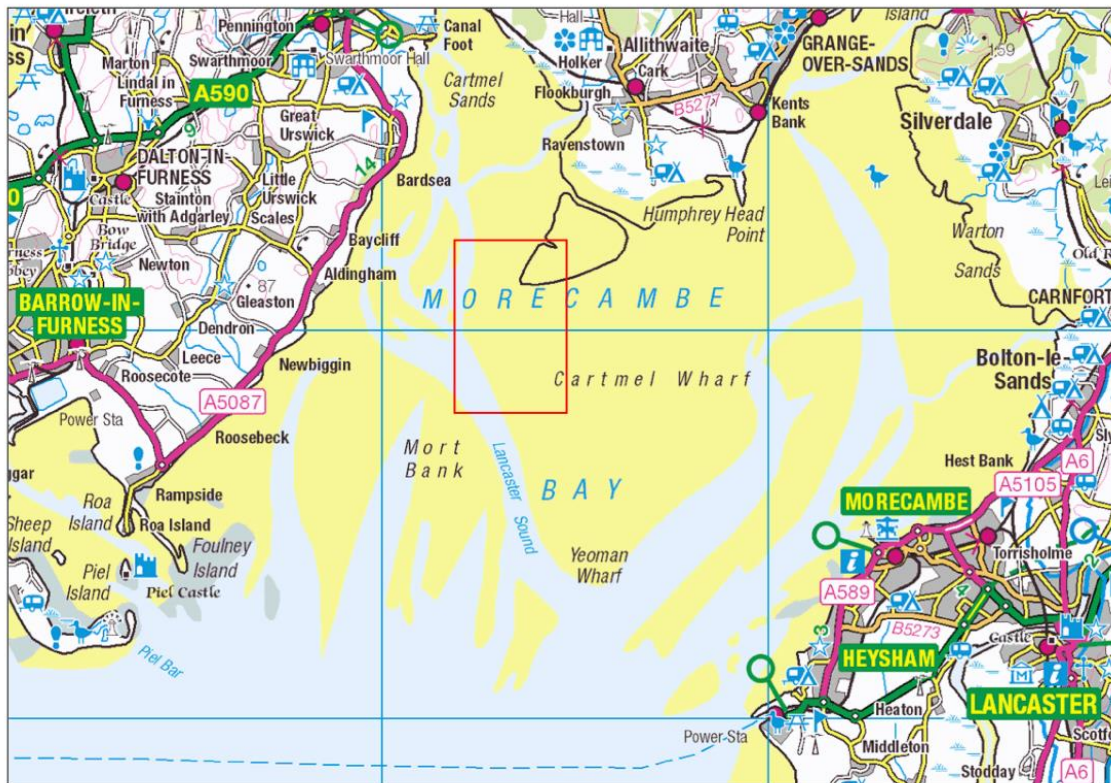


Fig. 27. Illustration of position of Leven Survey Area



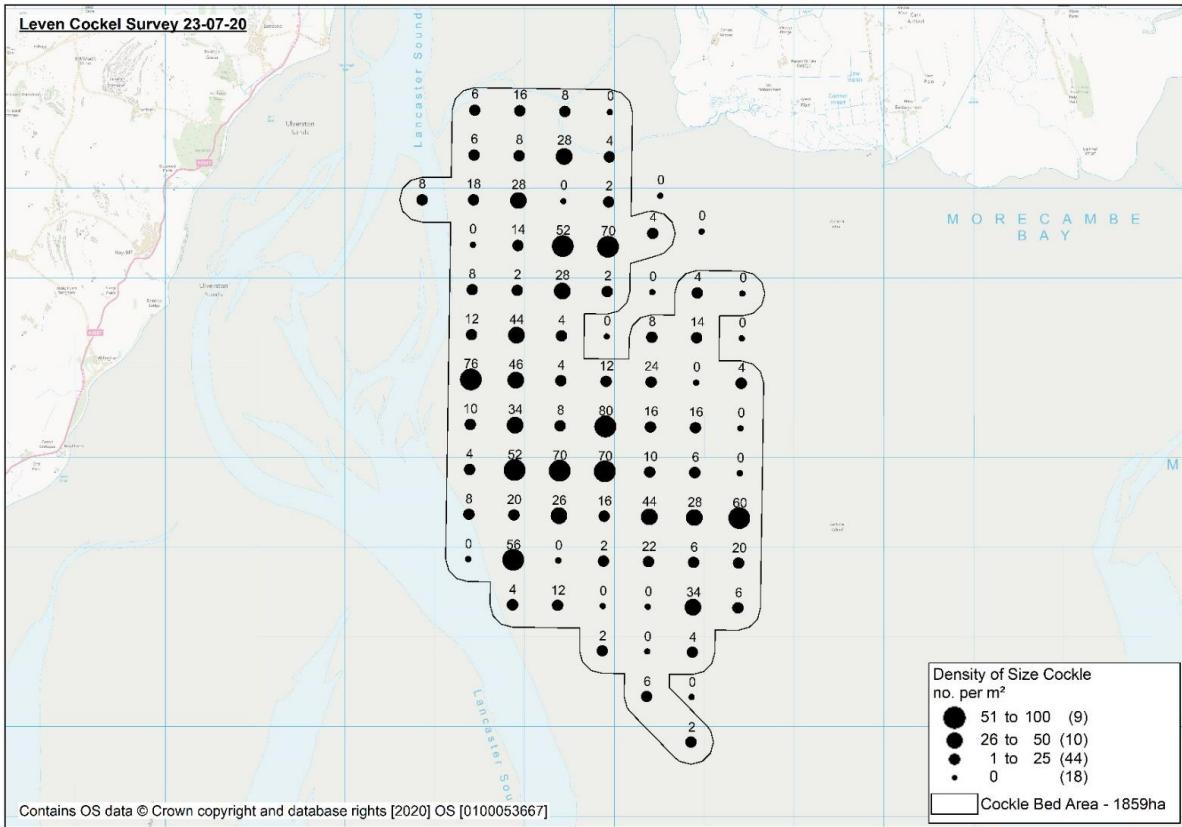


Fig. 28. Density of size cockle per m<sup>2</sup> Leven July 2020

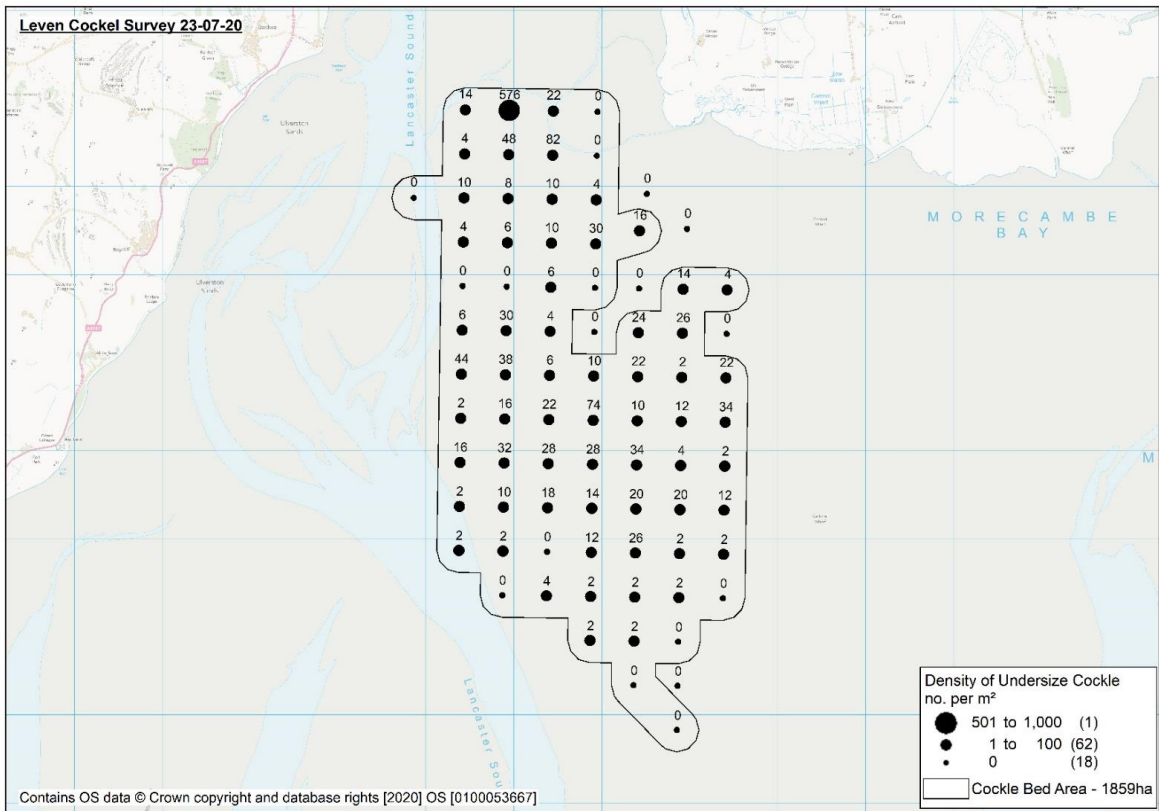


Fig. 29. Density of undersize cockle per m<sup>2</sup> Leven July 2020



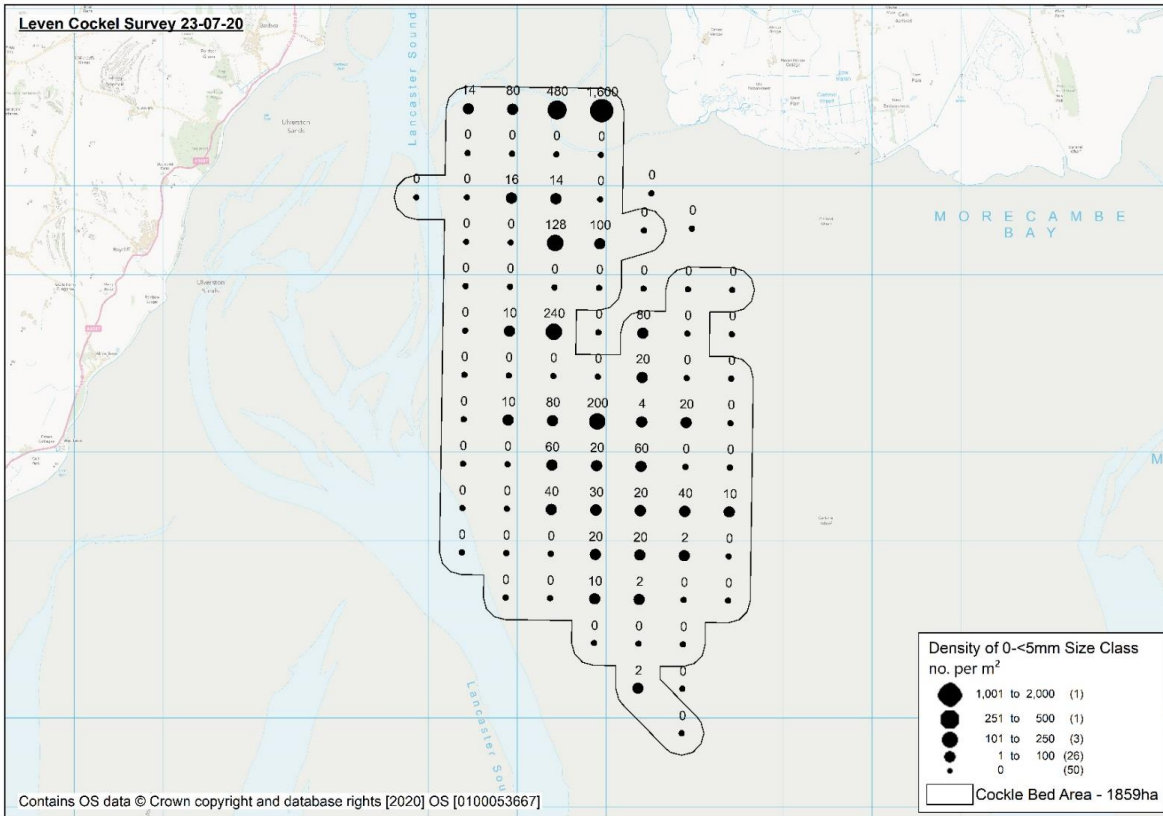


Fig. 30. Density of 0-5mm cockle per m<sup>2</sup> Leven July 2020

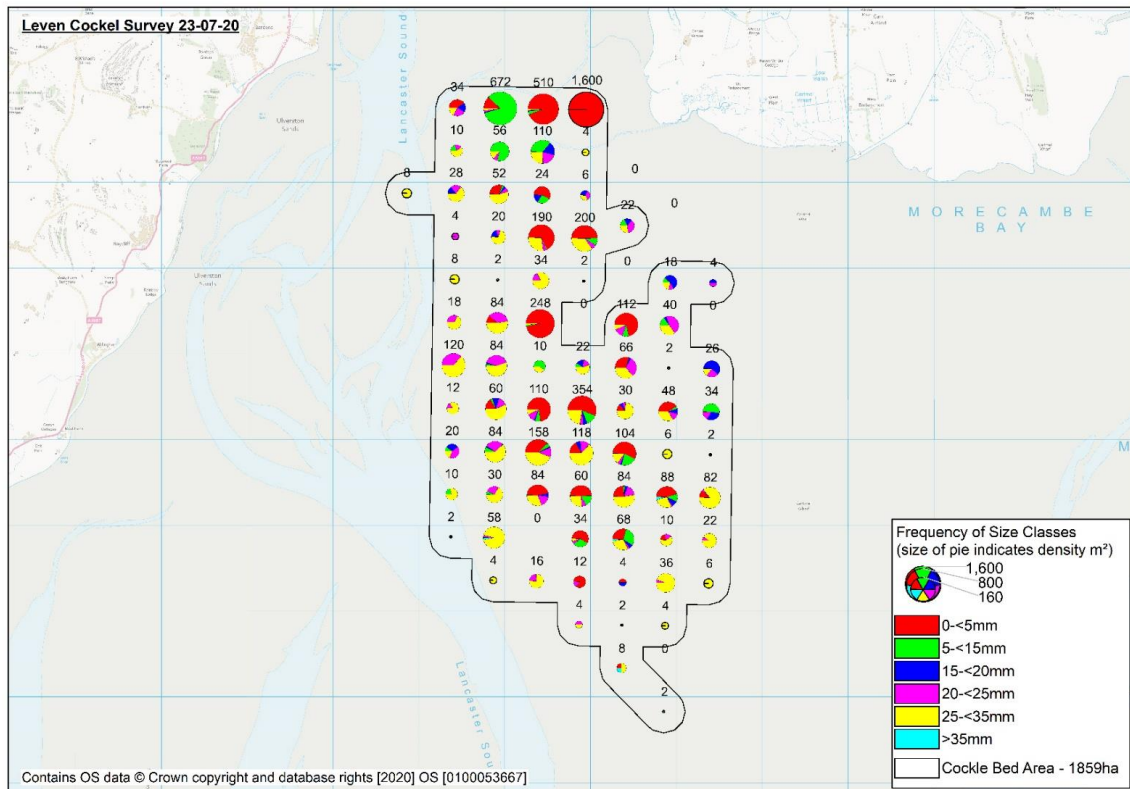


Fig. 31. Frequency of size classes of cockle per m<sup>2</sup> Leven July 2020

## **ii. REST OF DISTRICT**

### **Leasowe Cockle Inspection 25-06-20**

LW 0922 1.6m Liverpool Tides

A band of cockles persisted that ran close in from where the slip at the West Cheshire Sailing Club to and between the groynes, with density of 50-150 per m<sup>2</sup>. Most of the cockle was size and in the 30-40mm size range. Very little spat was observed. Some of the larger cockles had barnacles on them as seen in the Dee but this was a low percentage.

A further band of cockle was found as reported by IFCOs, 50m by 700m area and 100-200m from the seawall near the lighthouse. Density was 50-200 per m<sup>2</sup> but slightly smaller 25-35mm. It lay in a gutter and this was the only place where a reasonable amount of spat was observed.

A full survey is scheduled for late July.

### **Leasowe Cockle Survey scheduled for 06-08-20**

A verbal report will be given at the meeting with preliminary survey results and a full report sent to TSB by email post 11<sup>th</sup> August meeting.

### **Lytham Cockle Inspection 29-06-20**

Tides: LW 12:57 2.1m (Liverpool tides)

Areas where historically there have been cockle beds were inspected using a jumbo and rake to see if there was significant cockle present to require a full survey. North Run, Mousehole and Granny's Bay were inspected as well as the surrounding areas. Poor weather prevented the full ebb of tide but much of the area was inspected. Most of the area had no cockle present, the most found was 16 per m<sup>2</sup> (6 of which were size) in one area around North Run area but only occasional cockle across the rest of the historic beds. There was evidence of a 2020 spat settlement around the muddy gutter on North Run but not in any significant density. Poor conditions prevented photos of the area being taken, and officer observations have been recorded but have not been mapped.

**Mandy Knott  
Senior Scientist**

**30th July 2020**