

Cumbria Peeler Crab Survey - 16/5/19

There have been numerous anecdotal reports and occasional IFCO sightings over the years over the collection of peeler crabs along the Cumbria coast. In some years large numbers of people have been reported to have visited this coastline from outside of the District to gather peeler crabs, and therefore an assessment of the activity levels is needed.

Due to lack of distinct seasonal weather and requirement to plan other survey work around tides and daylight surveying during main peeler season (temperature driven) and at a peak time when visitors would be likely to be present was problematic. It was decided to go ahead even though the chosen date was known to not be ideal in terms of gaining an accurate assessment of activity. It is planned to return again in 2020 on a more suitable date.

Officers visited six locations along the north Cumbria coastline, known as locations that peeler crab collectors may visit. At each location, if crab collecting activity could be seen from the shore, officers walked out to meet and have a brief discussion with collectors. Locations visited are shown in Figure 1, and a summary of information gathered from collectors is provided in Table 1. Although Dubmill Point is known as a collection location, at the time of this survey a closure of the coast road prevented access. Overall seven people were observed collecting crabs across three of the six locations visited, and of these one collector was unwilling to talk with officers. Collectors were observed looking for crabs by turning rocks, feeling under ledges and around large boulders. All rocks turned were observed to be replaced as found.



Figure 1. Map showing the locations visited (blue star) and the locations that crab collectors were observed (red star).

Maryport Golf Course

- 1 bait collector
- Working the ledges
- 30 unsorted crabs
- Suggests that he is the only one that works this spot
- Discussing activity from visitors. Around 20 lads stay for a few days, collect crabs at Beckfoot
- Suggests that the groynes at Skinburness are another location for crab collection.

Mawbray Bank NR

- 5 men in 2 cars
- Spoke to in 2 groups
- Group 1 = 2 men – 40 crabs
- Checking around large boulders
- From Blythe, they have been over 4 times in the last 4-6weeks, collect 200 crabs each on a good day
- Group 2 = 3 men – 50-80 crabs between them
- First time over this year from the Tyne

Table 1 - summary of activity by site

Location	No. of collectors	No. crabs	Comments
Maryport North Promenade	1	~40	Observed placing rocks back
Crosscanonby	1	~30 (unsorted)	Searching ledges
Allonby	0	-	No activity observed
Mawbray Bank	5	~100 - 150	2 groups. One from Blythe that have visited 4 times in the last 4-6weeks. The other from Tyne that was the first visit this year. Estimated to gather max. 200 per person on a good day
Beckfoot	0	-	No activity observed.
Skinburness	0	-	No activity observed.

Mussels:

Dee

Dee mussel inspection - 7th July

Two officers walked out to the Thurstaston area but no mussels were to be seen. There were a few mussels buried under the mud but only in patches. There was also a lot of cockle shell mixed in to the mud. Mapping the tracks in MapInfo software showed that the inspection stopped short of reaching the previous area of mussel but officers were confident that with height of the tide and what could be seen that mussel was not present or if buried then the general biomass was minimal.

Time permitted an attempt to also inspect West Kirby for mussel. This area was viewed from the slipway with binoculars and it was decided not to walk out as the ground looked similar to the ground at Thurstaston and there was no sign of the 'black' that mussel creates when in dense coverage. A number of recreational boats from West Kirby sailing club were moored on the area where the mussels would have been. In the past the Senior Scientist had personnel communication with the sailing club who reported they would not moor boats there when mussel is present because of all the mud.

The small group of mussel gatherers were also known to have left the area and were seeking stock elsewhere to fish.

Morecambe Bay

a) Heysham Flat:

Heysham Flat has been inspected on a number of occasions due to the need to monitor it closely to ensure change is observed as it occurs to inform management.

Inspection 19th June:

The Senior Scientist observed a large swathe of the skear carpeted in dense mussel which was starting to put down mud and clump. There was no live *Sabellaria alveolata* on the main skear other than small patches around the very edges which had mussel either on it in small amounts or very close to it. Time and tide did not allow an inspection of the honeycomb worms last seen to the south of the skear, but an inspection of the north of the skear showed the thriving colony of honeycomb worms was off the main area of mussel.

Inspection - 8th July

The mussel had grown on significantly in the past nineteen days and the mussel mud had increased and become relatively loose across much of the skear, and in some areas to the south had begun to scour out as shown in the photos below. IFCOs had been out and put in posts to mark the exclusion zone using 1.2m long x 32mm diameter galvanised scaffolding poles painted bright green. In the six days since these were put in (up to 15cm deep) the mud was almost burying some of them. Crossing Dallam Dyke to Knott End skear showed a similar ground cover with large proportions covered in a dense carpet of mussel. Observations made from a distance as the channels were too deep to cross, indicated this continuing on to the other further out skears. The *Sabellaria alveolata* to the north was still looking healthy and thriving. The fishery was ready for opening.



South East Elevation

☼ 308°NW (T) • 54.054948, -2.915125 ±15m ▲ 51 m



08 Jul 2019, 09:52:54

North East Elevation

☼ 252°SW (T) • 54.054746, -2.914415 ±15m ▲ 48 m



08 Jul 2019, 09:46:34

b) Foulney mussel inspection - 20th June

Foulney main skear was unchanged in bed area from the last survey, with no areas of scour observed. The mussel had grown to size across almost all of the skear and on the eastern side of the bed had clumped up. Members of industry present on site reported an increase in meat content to around 20%, compared to past average meat yields of 12%. Mussel at the southern extent of the skear was very large reaching ~60mm in length, although this was covered in green algae. Low numbers of starfish were observed along the south eastern edge of the skear.

No evidence of a 2019 spat settlement was observed anywhere on the main skear, which was consistent with reports from industry. Three samples were taken from the higher, middle and lower extents of the bed to examine for spat in the laboratory. These samples were passed through a 350µm sieve and the retained material examined under a dissection microscope. Very low levels (<10) juvenile mussels were observed in each sample examined.

Large numbers of birds were observed during the inspection, including several hundred eider, gulls, and a flock of ~50 Little Terns.

Officers visited the oyster frames on transit back to shore and there were two areas of patchy spat settlement on sand with some shell underneath, and on older frames that have not been cleaned. Conversation with men working the frames indicate that there had been no issues with mussel spat this year.

c) Fleetwood Mussel Inspection - 19th June

Black Scar

Black Scar had a 2019 mussel spat settlement which varied in density between 30-80% coverage, although along the top edge of the bed coverage decreased to 10%. The mussel spat was 5-10mm and had settled on the hard substrate. Significant numbers of gulls were observed feeding on the bed. The approximate area of the skear with mussel on it was 4.8 hectares.

Perch Scar

Perch Scar had a 2019 mussel spat settlement that varied in density from 50-80% towards the centre of the bed and was less dense at 10-20% around the edges of the bed. The size of the mussel was 5-10mm and had settled on the hard substrate. Significant numbers of gulls were observed feeding on the bed. The approximate area of the skear with mussel on was 10.9 hectares.

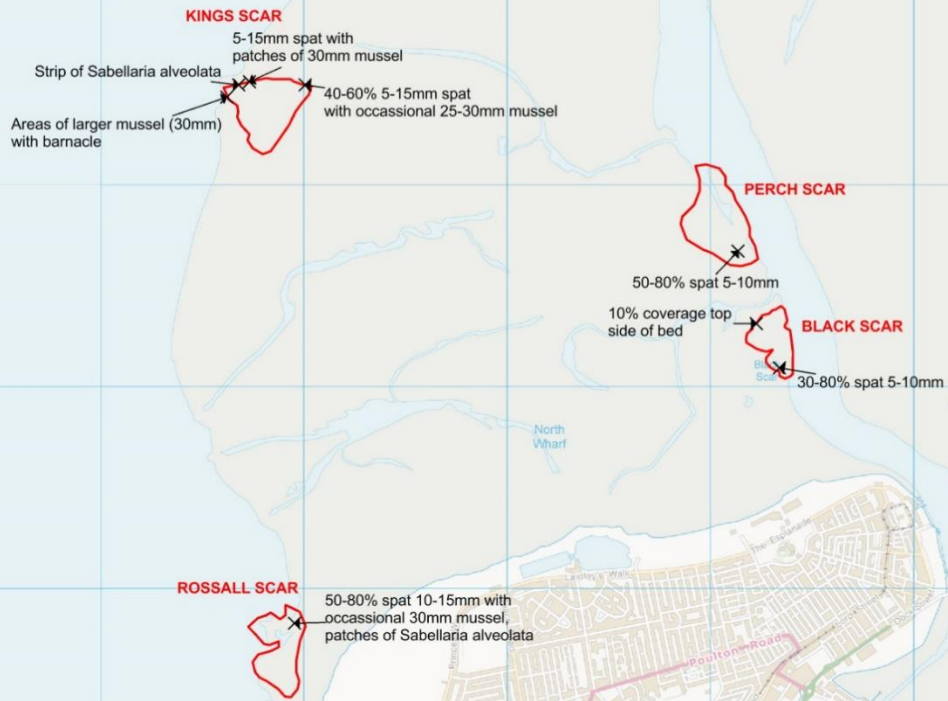
King Scar

The mussel on King Scar was patchier with areas of bare cobble. The 2019 spat settlement had grown larger in places ranging from 5-15mm and was mixed in with 20-30mm mussel. Areas of *Sabellaria alveolata* had mussel on them and there was an area of larger, barnacled mussel on the eastern side of the bed. Anemones were observed in pools and an eider duck on Stone Island on the transit to the scar. Significant numbers of gulls were observed feeding on the bed. The approximate area with mussel on was 9.2 hectares.

Rossall Scar

Rossall Scar had a settlement of 2019 mussel varying in densities from 50-80% coverage towards the middle of the bed and 10-20% around the edge. Patches of *Sabellaria alveolata* with mussel on were present across the bed. Significant numbers of gulls were observed feeding on the bed. The approximate area with mussel on was 7.4 hectares.

Fleetwood Mussel Inspection 19.6.19



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Cockles:

For all cockle surveys:

Means

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

Maps

Maps were created showing the overall survey area, density of size cockle, density of undersize cockle (excluding cockles in the 0-5mm size range) 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 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.

Morecambe Bay

a) Flookburgh cockle survey - 1st and 2nd July

Survey method - Jumbo and 0.5m² quadrat

95 stations were sampled over two days from a 500m grid. Four additional stations were added to ensure full coverage. The Kent Channel appeared to have shifted west and the sand running along its edge seemed high and very dry and not suitable for cockles. Following some initial attempts to sample this area, efforts were diverted to areas away from it, hence the 'cut-out' in the mapping.

Mean number of size cockle	7 per m ²	(min 0, max 156)
Mean number of undersize cockle	61 per m ²	(min 0, max 990)
Mean number of 0-5mm cockle	0 per m ²	(min 0, max 8)

Biomass	Area (ha)	Size Cockle (tonnes) ¹	Undersize Cockle (tonnes)
Flookburgh	2610	~1700	~4900

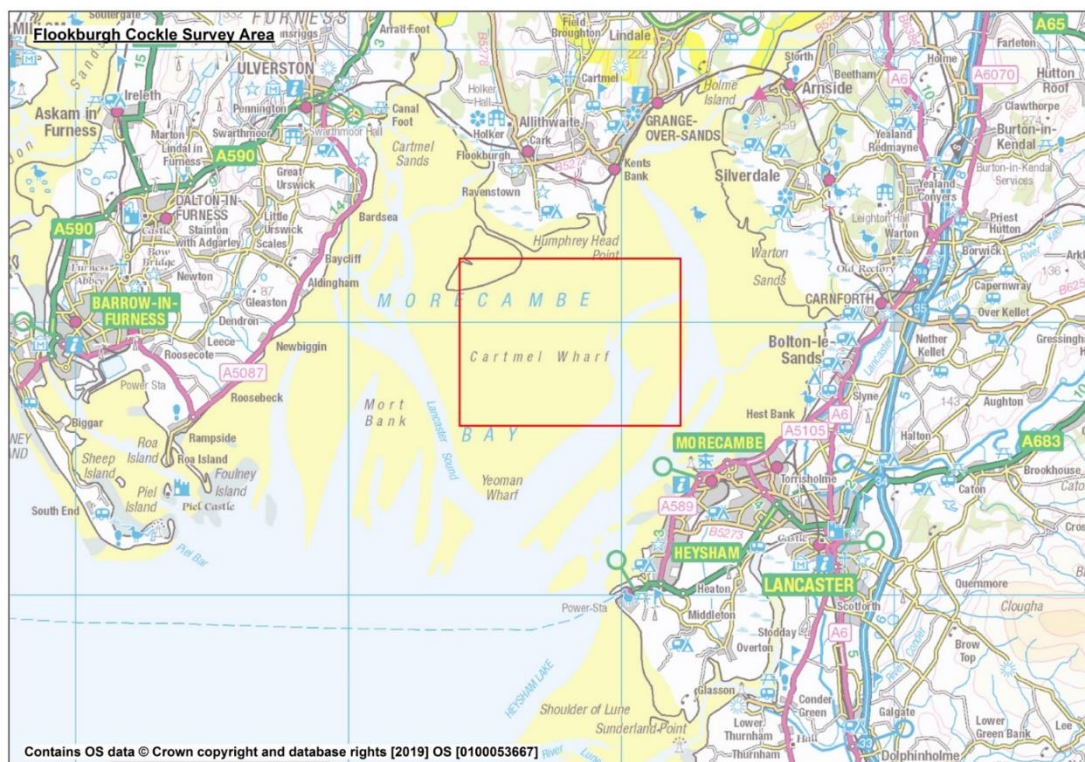
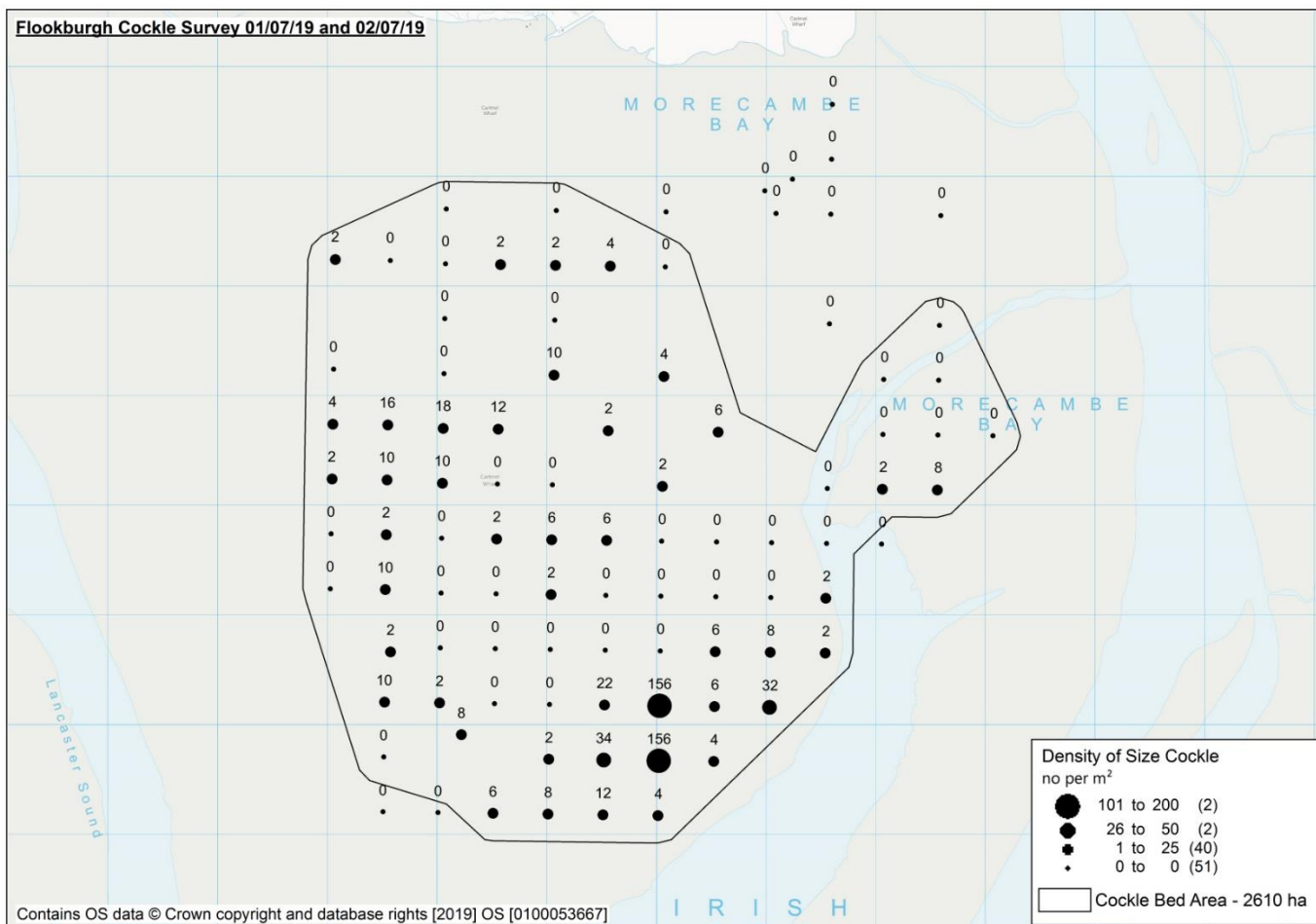
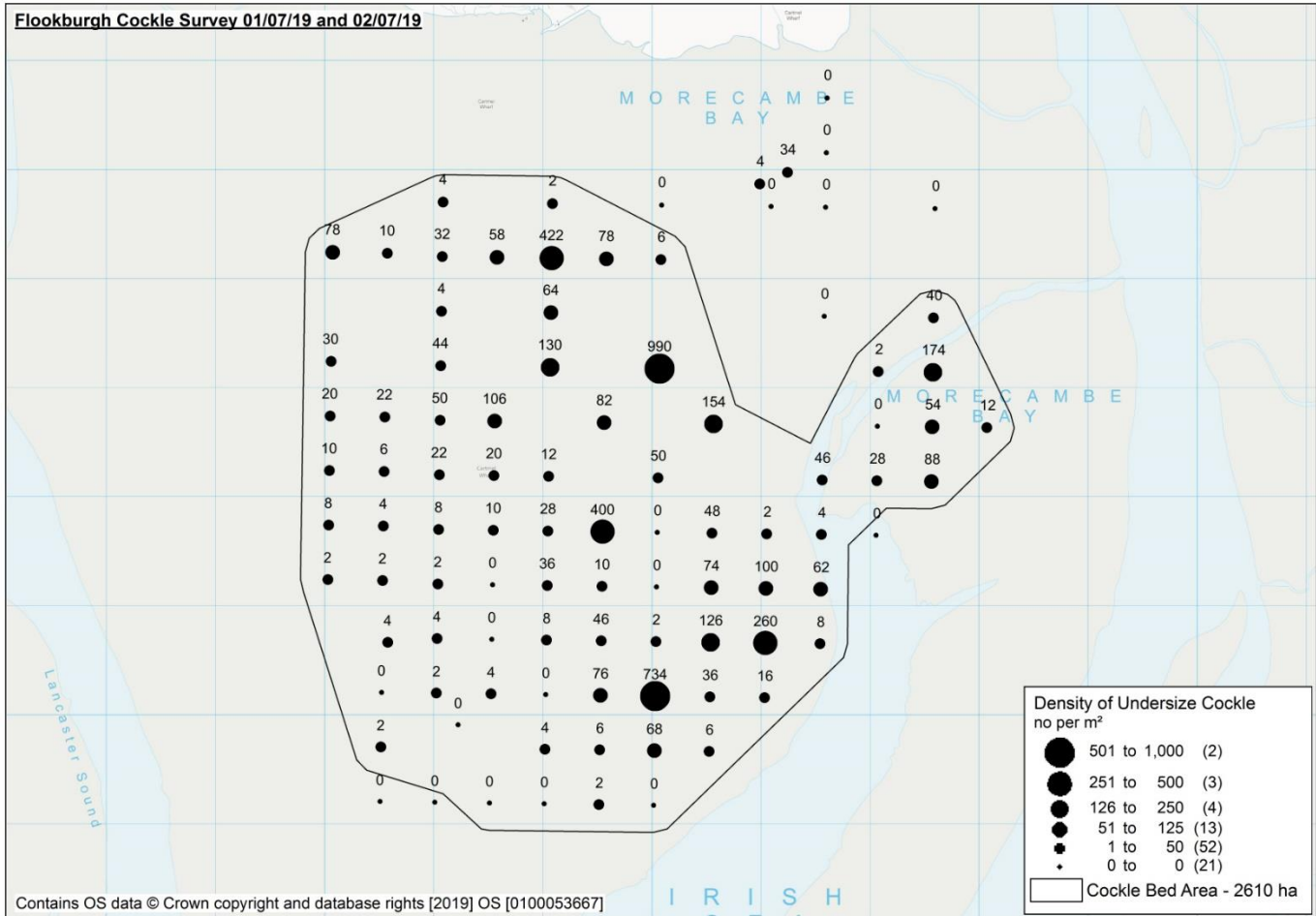


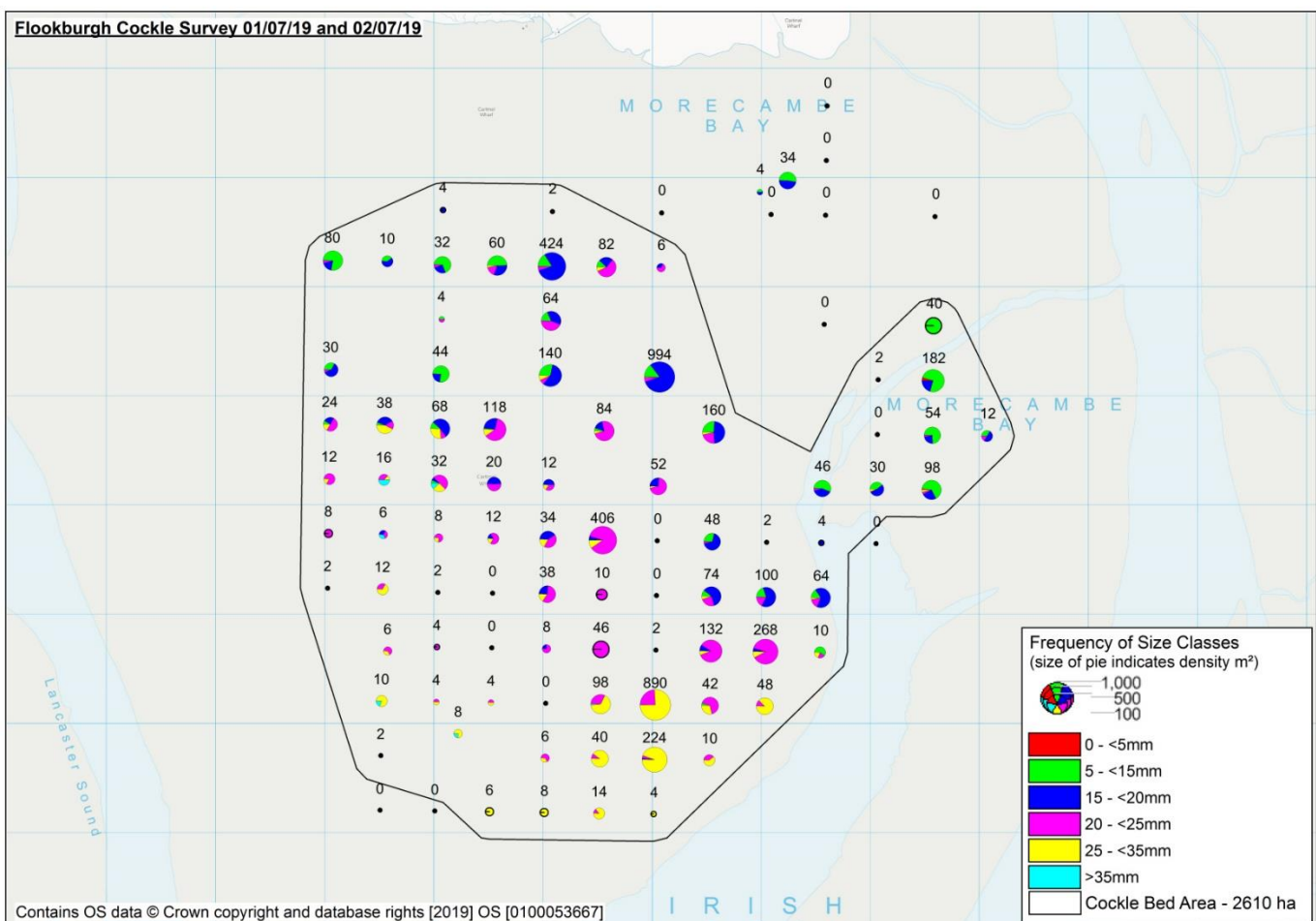
Illustration of position of Flookburgh Survey Area



Density of size cockle per m² Flookburgh July 2019



Density of undersize cockle per m² Flookburgh July 2019



Frequency of size classes of cockle per m² Flookburgh July 2019

b) Leven Sands cockle survey - 3rd July

Survey method - Jumbo and 0.5m² quadrat

75 stations were sampled from a 250m grid. 15 additional stations were added in an effort to find the edges of the bed off the main grid. Undersize cockle continued to be found as officers sampled random waypoints on the way north back to shore. This was abandoned two hours after low water at 2100hrs due to tide and daylight constraints. Small cockle appeared to continue far north and to be running up the Leven Estuary east side, which concurs with industry reports.

Mean number of size cockle	4 per m ²	(min 0, max 24)
Mean number of undersize cockle	50 per m ²	(min 0, max 172)
Mean number of 0-5mm cockle	0 per m ²	(min 0, max 0)

Biomass	Area (ha)	Size Cockle (tonnes) ¹	Undersize Cockle (tonnes)
Leven Sands	1067	~500	~1500

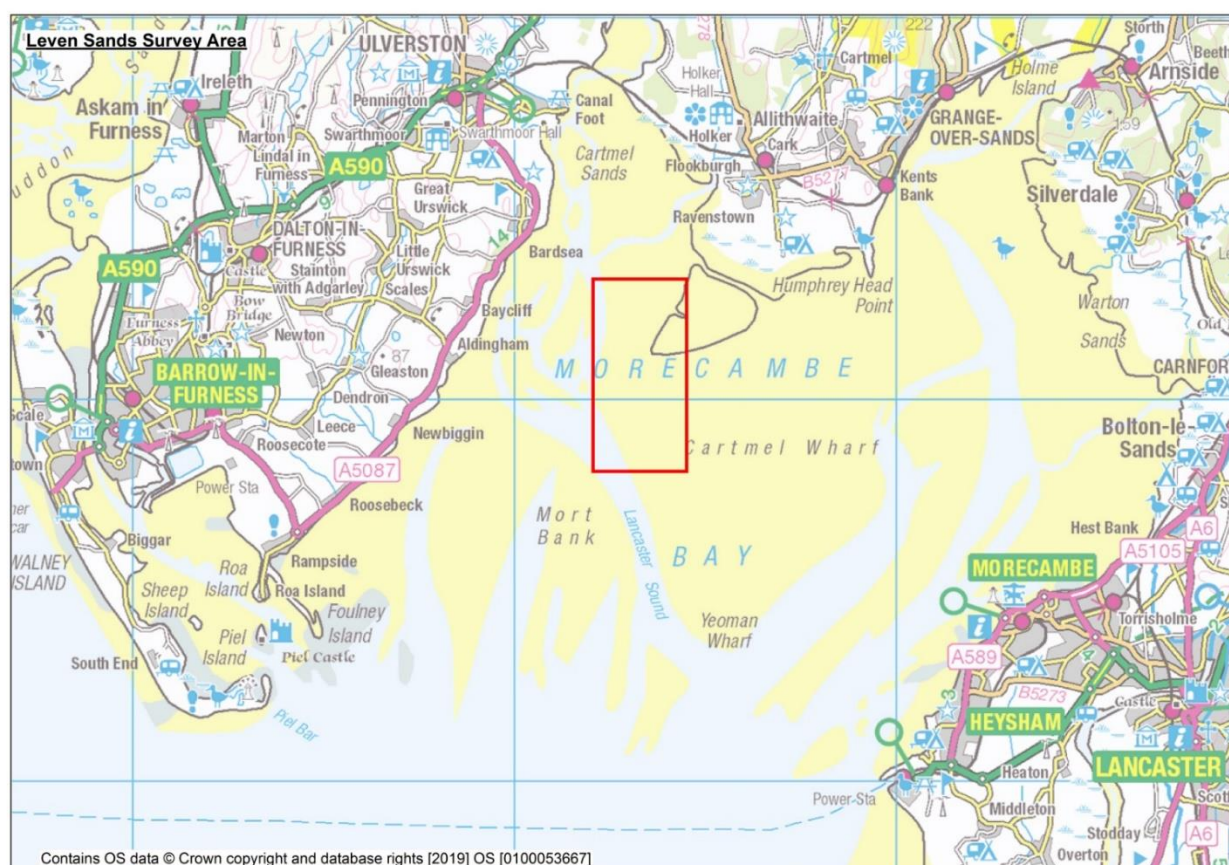
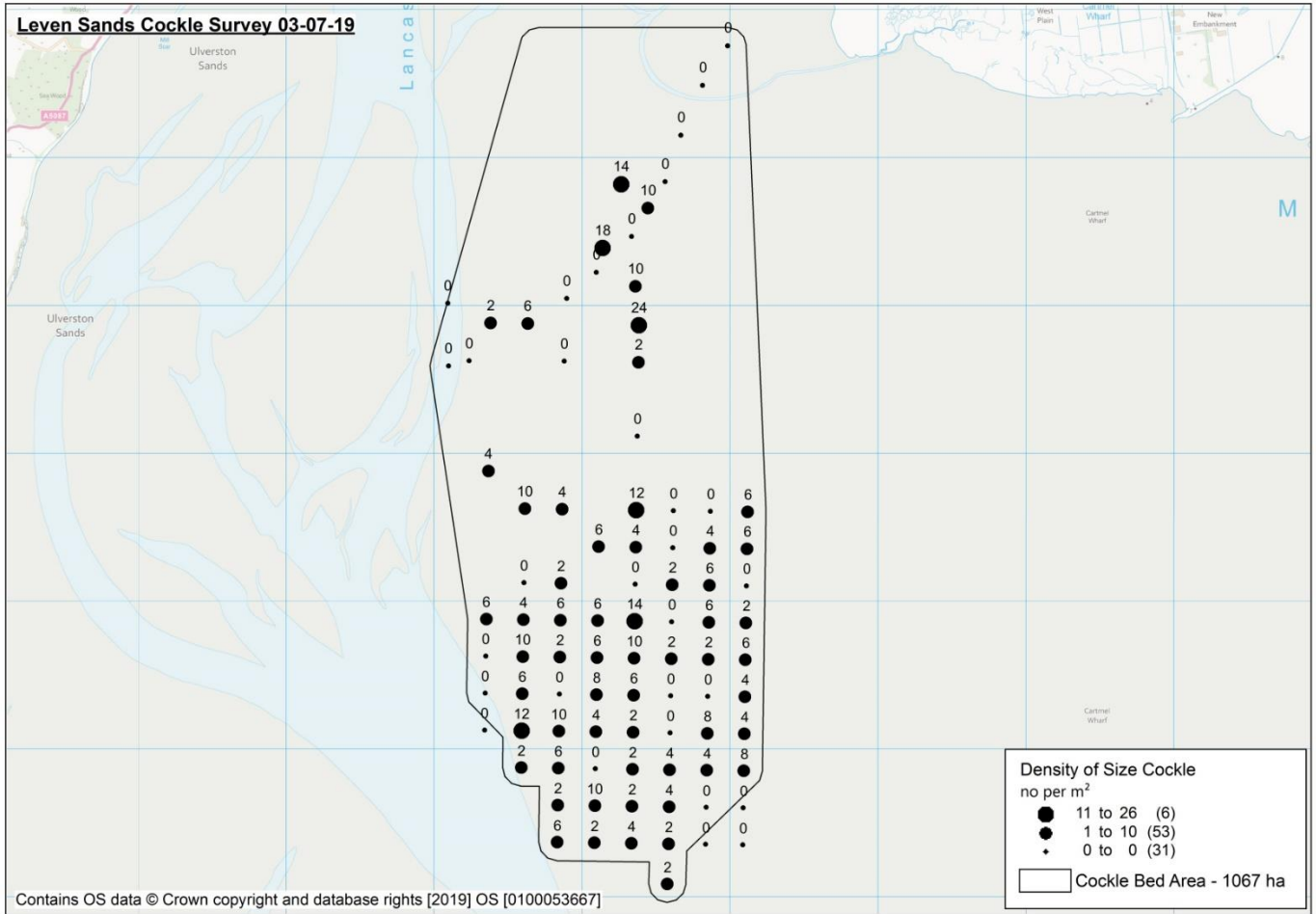
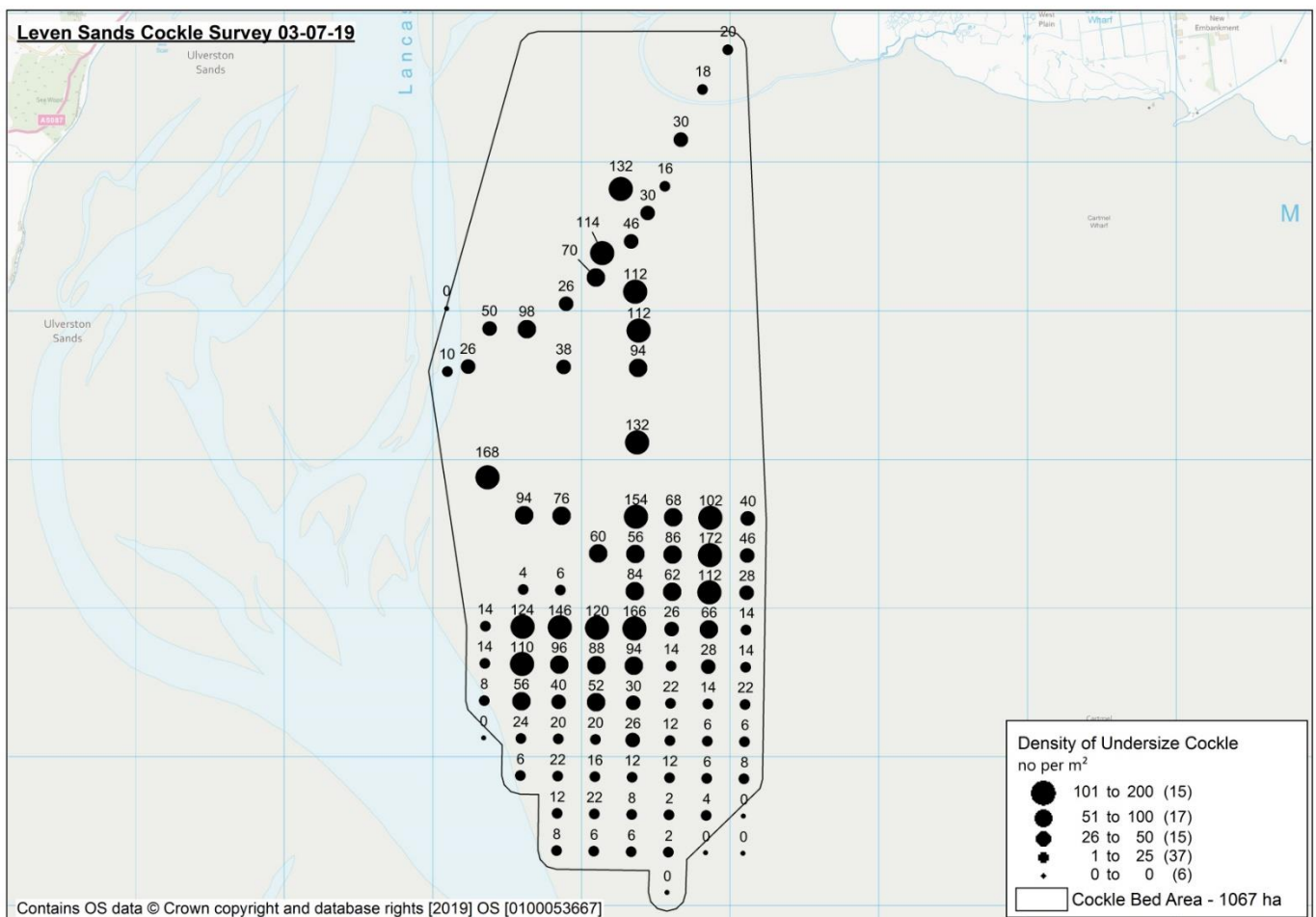


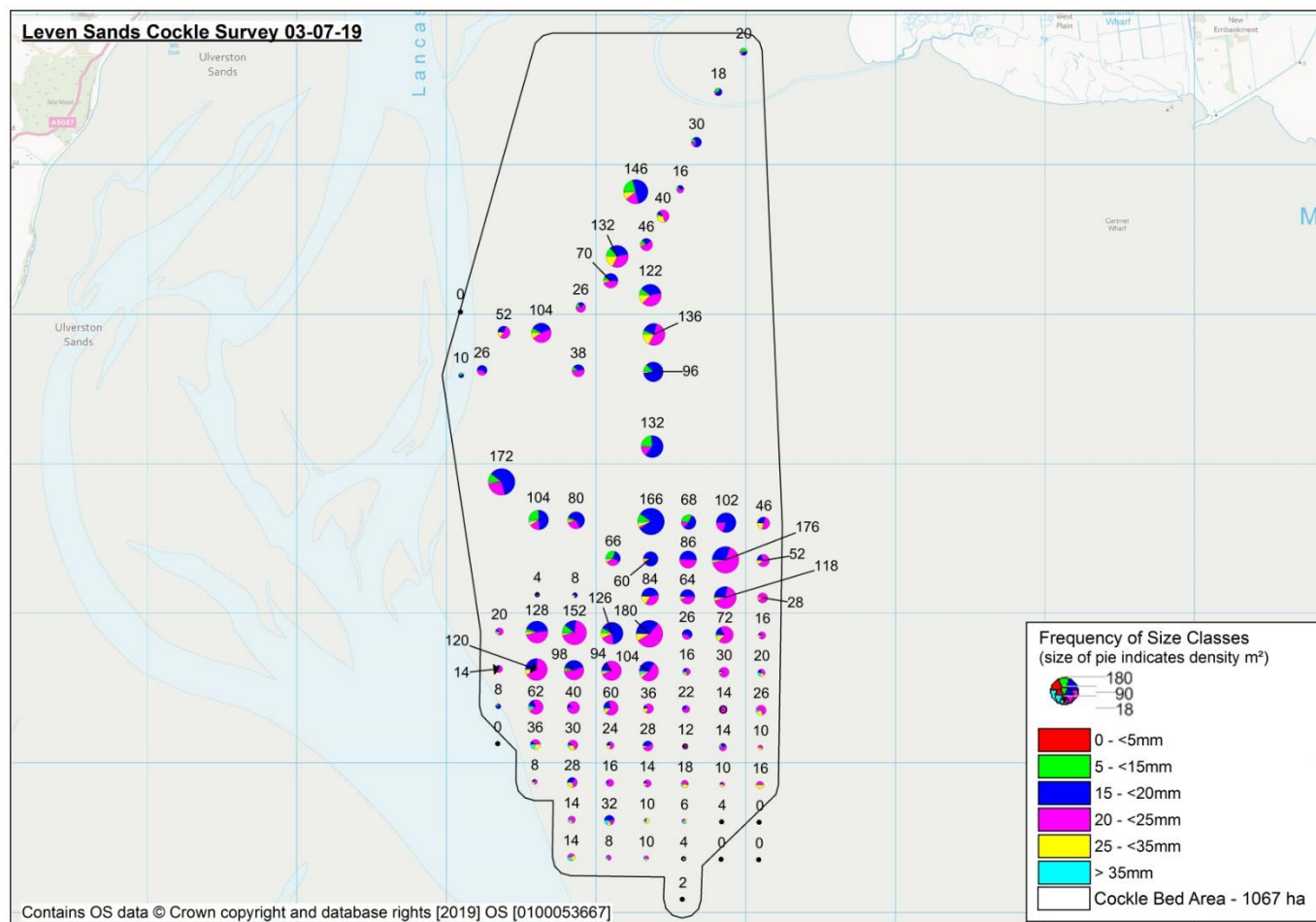
Illustration of position of Leven Sands Survey Area



Density of size cockle per m² Leven Sands July 2019



Density of undersize cockle per m² Leven Sands July 2019



Frequency of size classes of cockle per m² Leven Sands July 2019

c) Newbiggin and Aldingham cockle survey - 15th July

Survey method - Jumbo and 0.5m² quadrat

62 stations were sampled from a 500m grid. 6 additional stations were added to ensure full coverage. There was a wide range of cockle sizes across the bed from less than 5mm mainly found in mud on the upper shore, 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	7 per m²	(min 0, max 32)
Mean number of undersize cockle	46 per m²	(min 0, max 404)
Mean number of 0-5mm cockle	117 per m²	(min 0, max 1500)

Biomass	Area (ha)	Size Cockle (tonnes) ¹	Undersize Cockle (tonnes)
Aldingham and Newbiggin	1092	~800	~1500

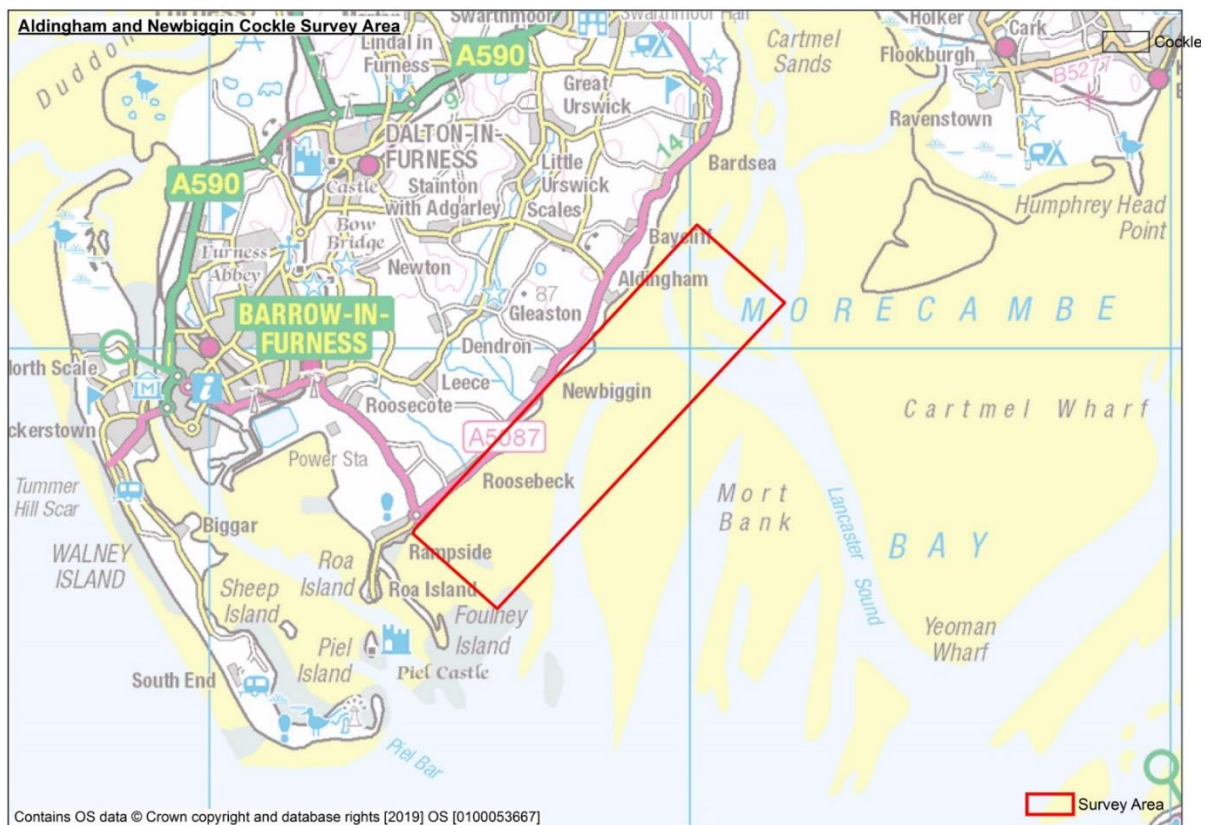
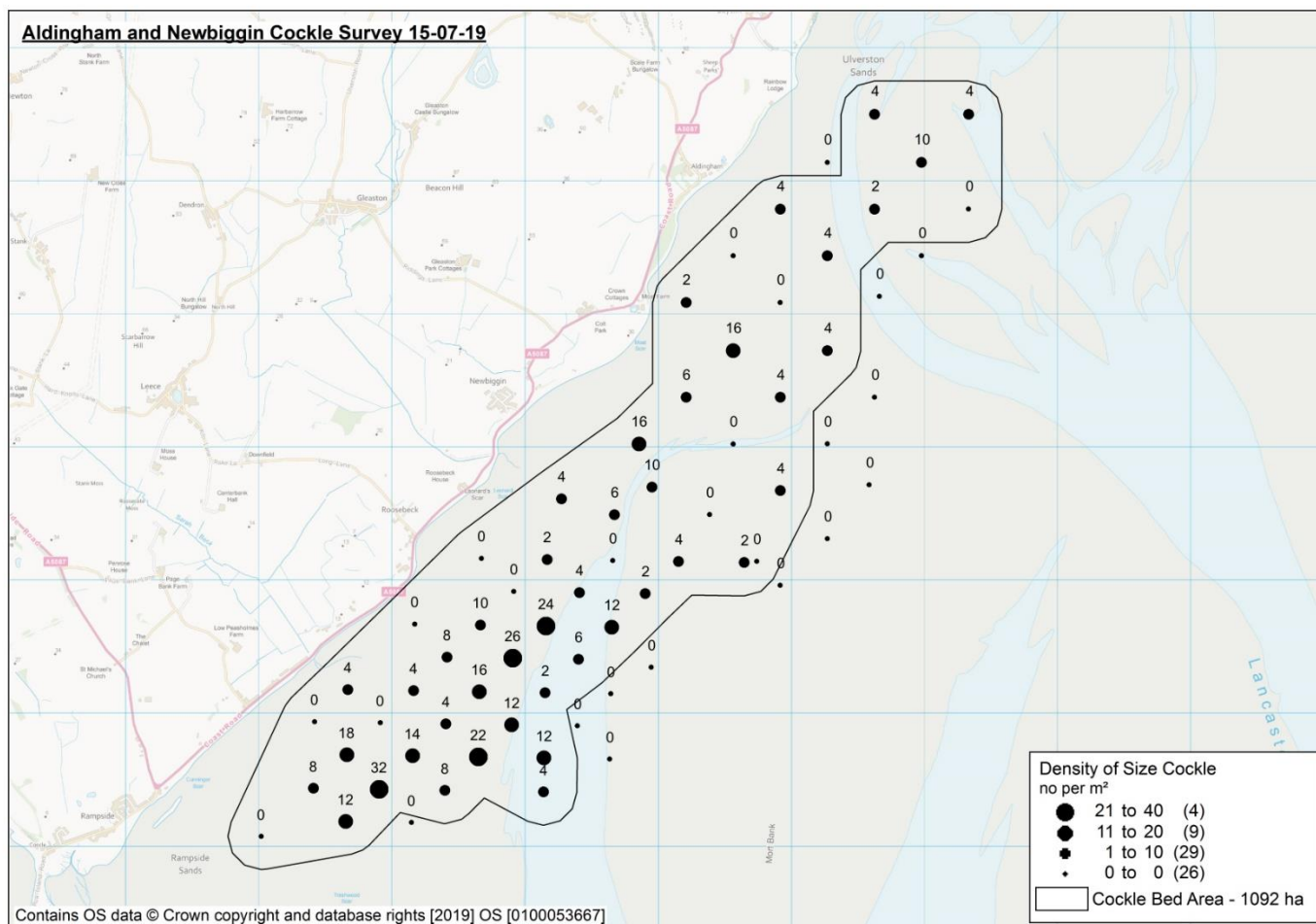
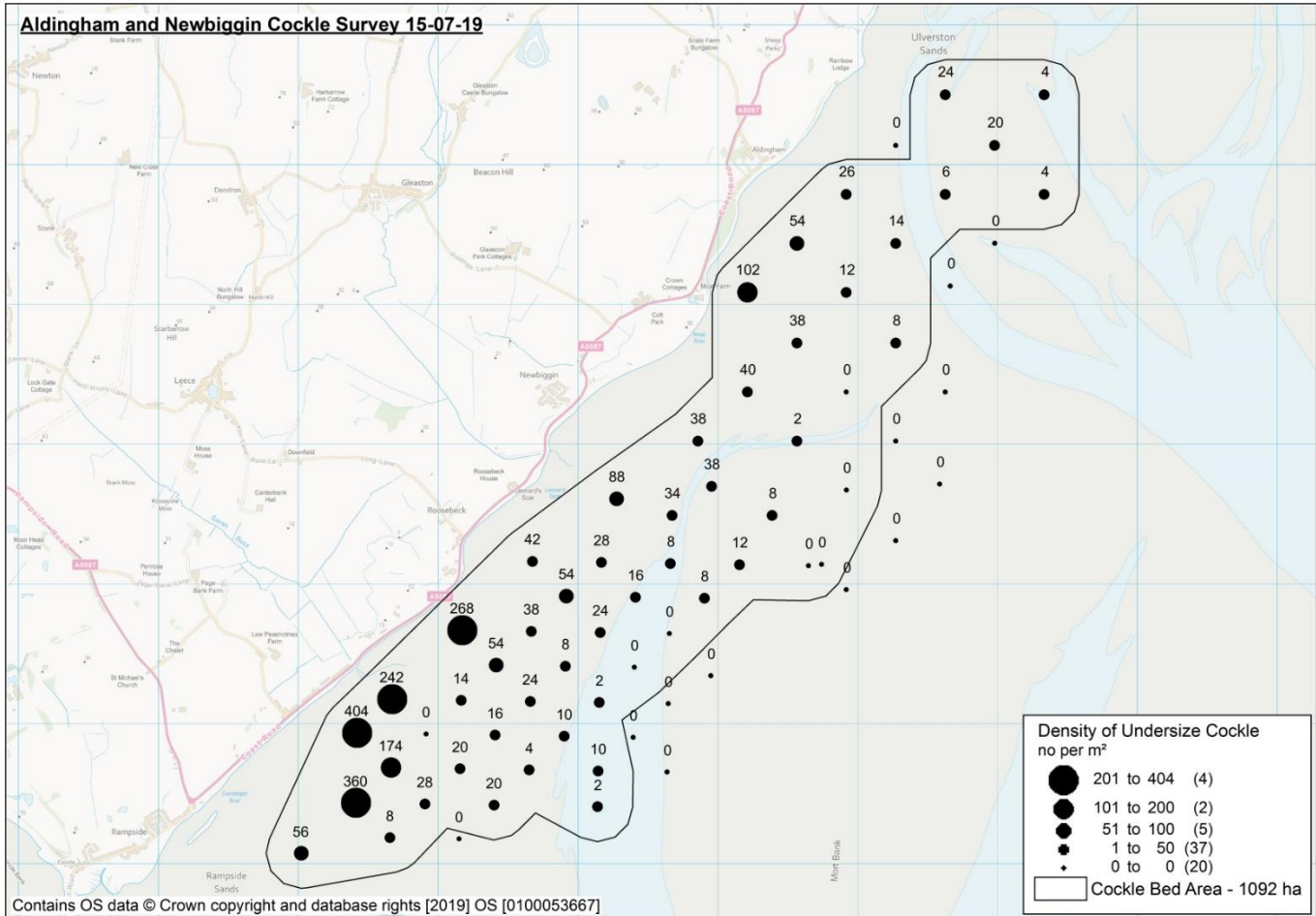


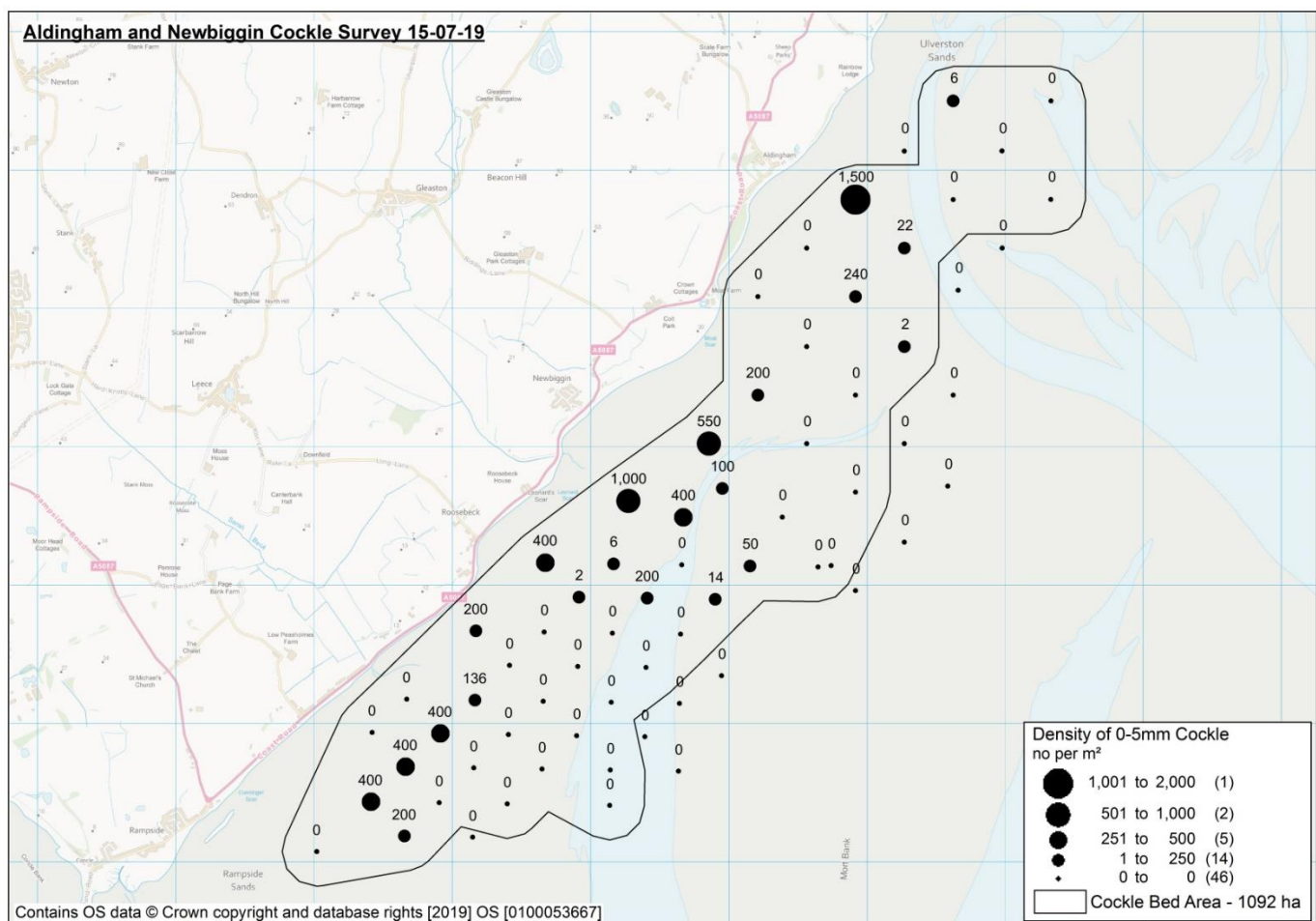
Illustration of position of Aldingham and Newbiggin Survey Area



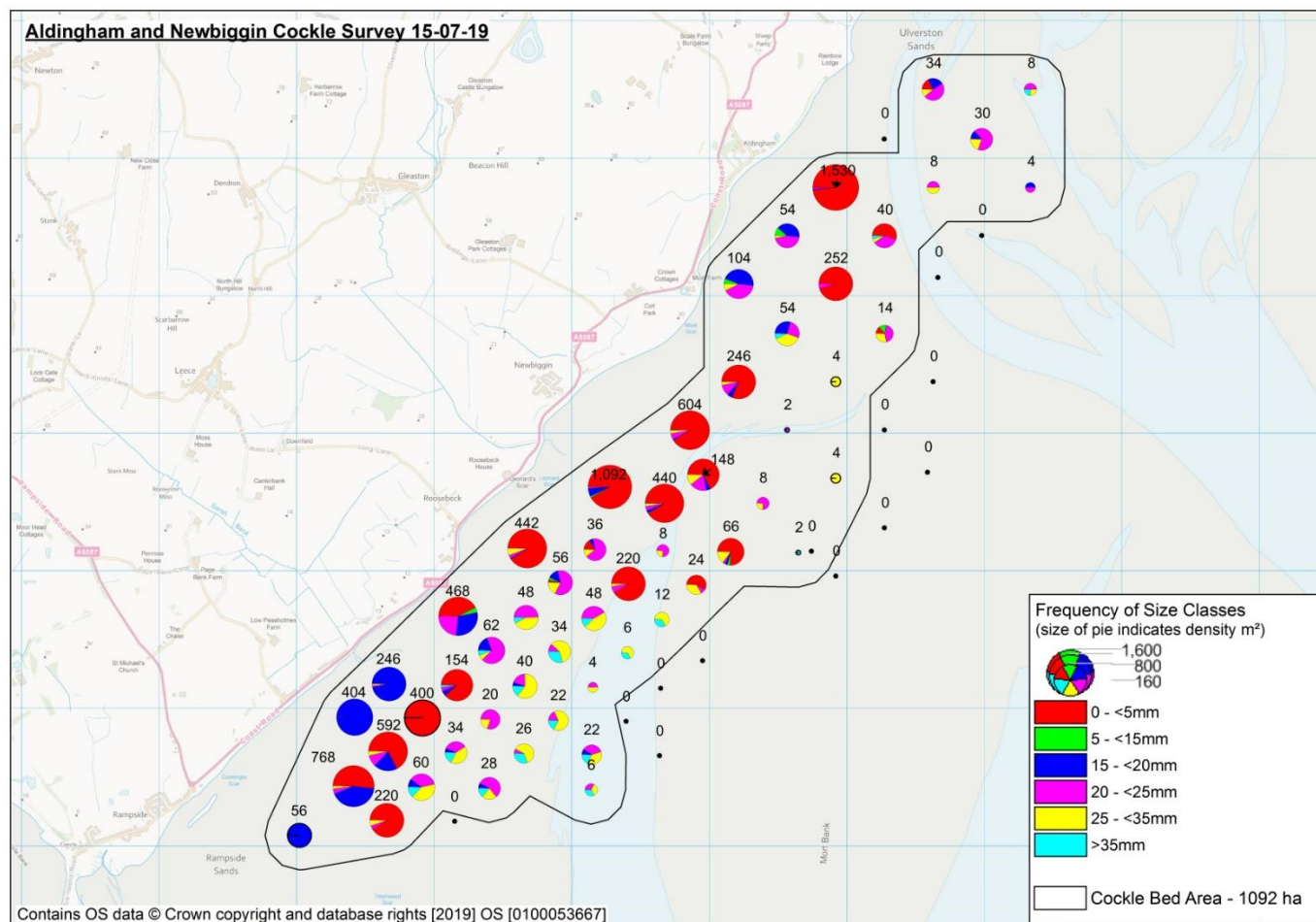
Density of size cockle per m² Aldingham and Newbiggin July 2019



Density of undersize cockle per m² Aldingham and Newbiggin July 2019



Density of 0-5mm cockle per m² Aldingham and Newbiggin July 2019



Frequency of size classes of cockle per m² Aldingham and Newbiggin July 2019

d) Pilling cockle survey - 16th July

Survey method - Jumbo and 0.5m² quadrat

57 stations were sampled from a 500m grid. Five additional stations were added to ensure full coverage. There was a relatively low density of size cockle across the bed with a small area of higher density size cockle to the west in a similar area that was fished in the 2018-2019 cockle season. Most survey stations had undersize cockle present which ranged from 15 – 25mm in shell length. Some areas of the bed had received a 2019 spat settlement but this was not consistent across the bed.

Mean number of size cockle	8 per m ²	(min 0, max 104)
Mean number of undersize cockle	43 per m ²	(min 0, max 308)
Mean number of 0-5mm cockle	33 per m ²	(min 0, max 480)

Biomass	Area (ha)	Size Cockle (tonnes) ¹	Undersize Cockle (tonnes)
Pilling Sands	1323	~1000-1200	~1300-1500

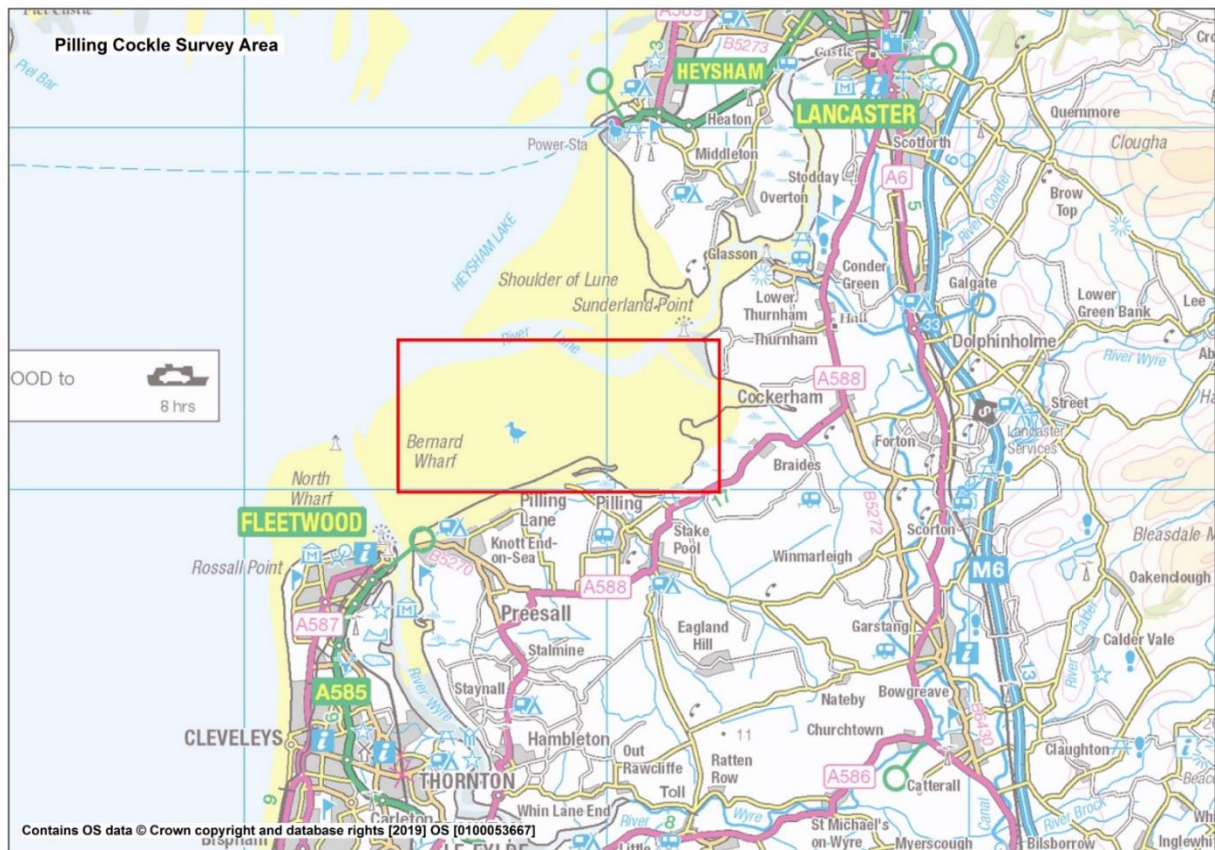
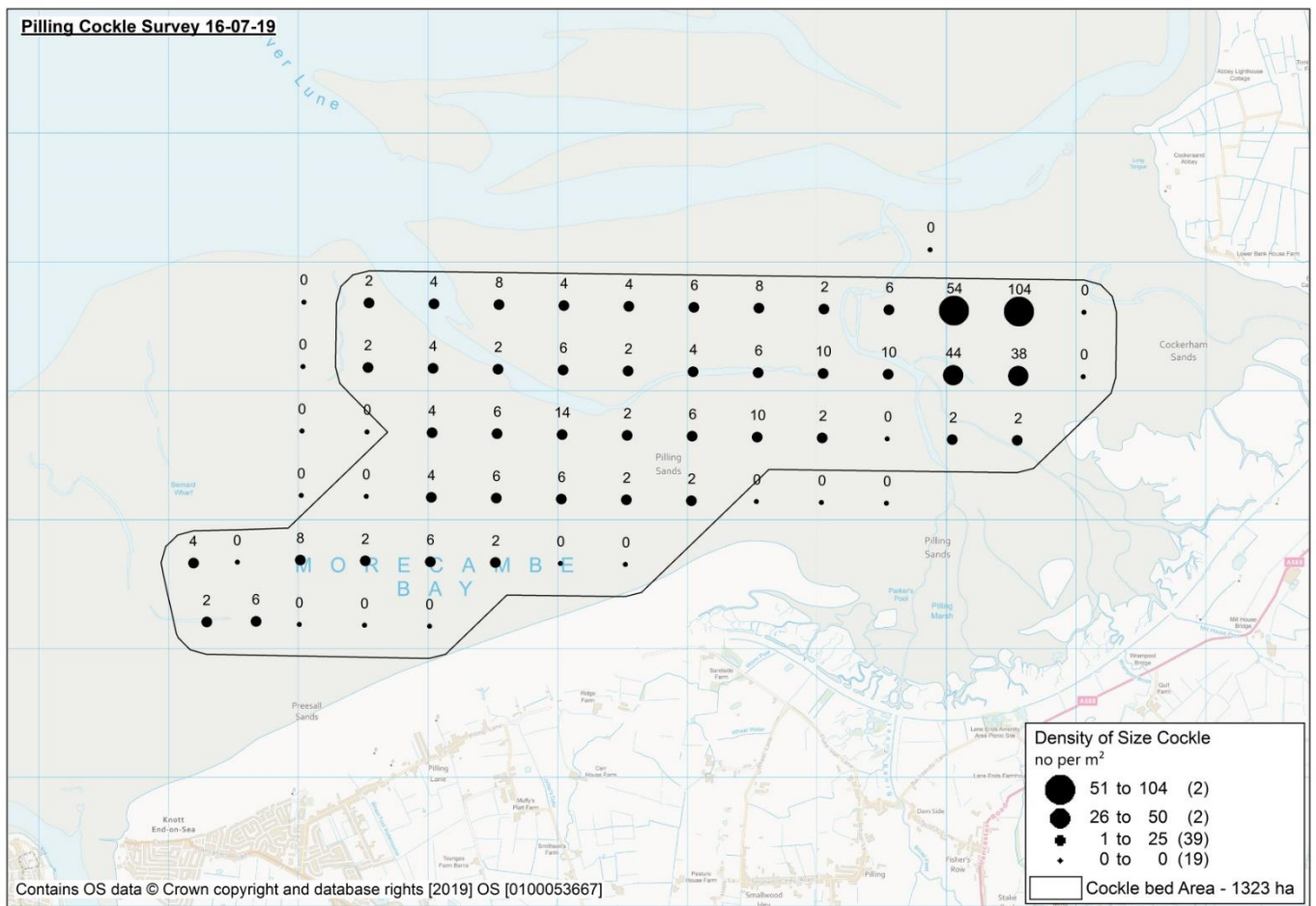
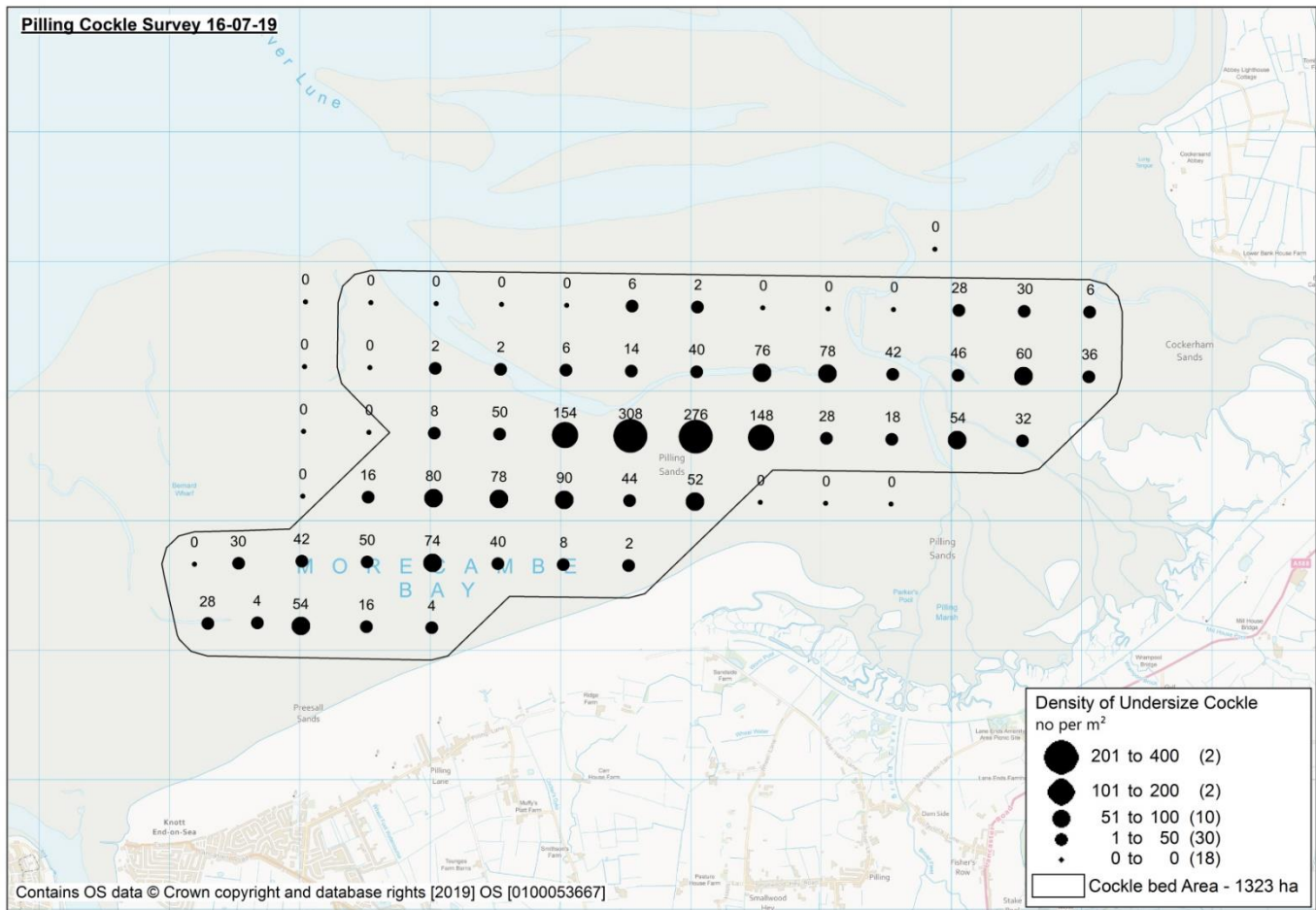


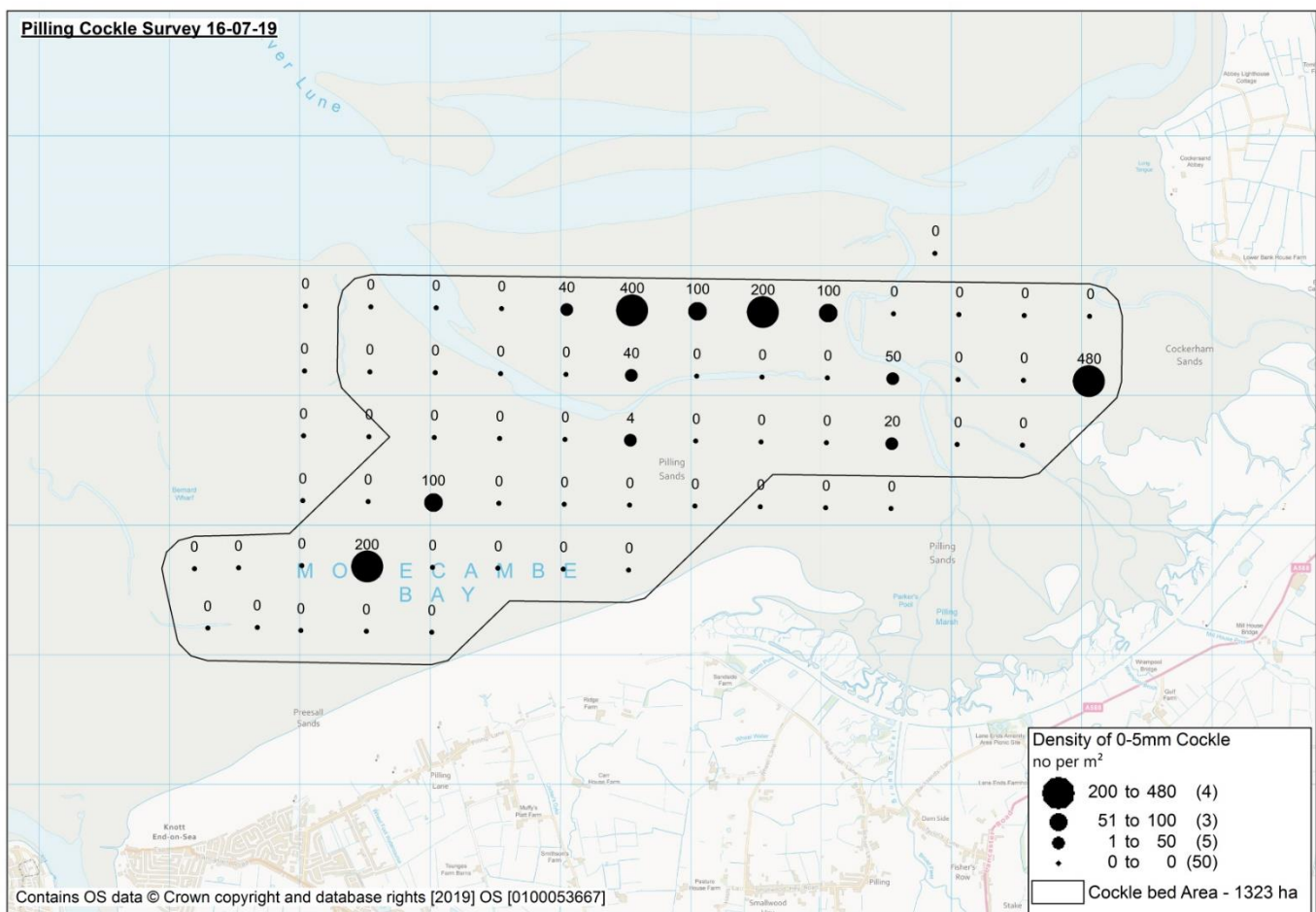
Illustration of position of Pilling Sands Survey Area



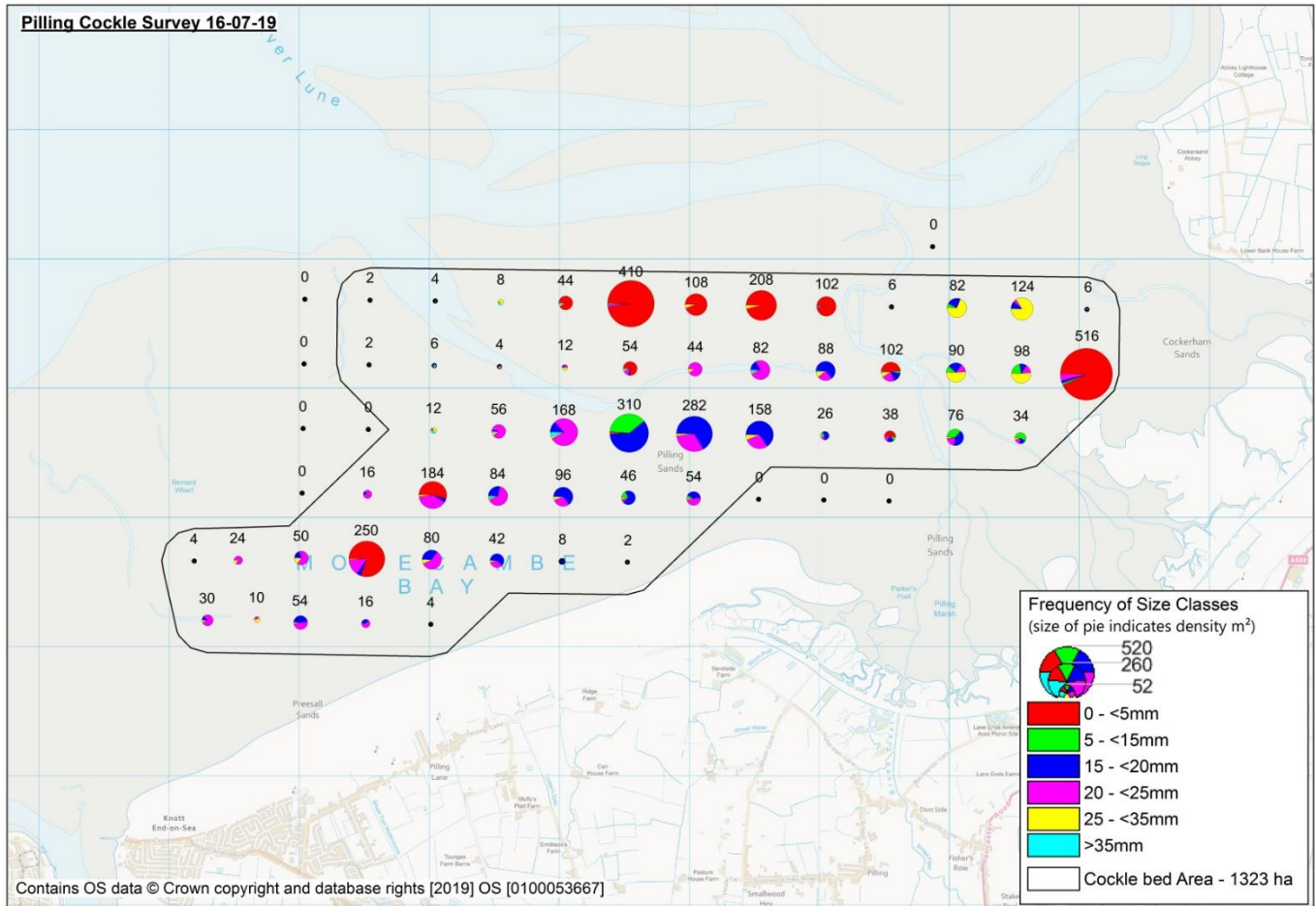
Density of size cockle per m² at Pilling Sands July 2019



Density of undersize cockle per m² at Pilling Sands July 2019



Density of 0-5mm cockle per m² at Pilling Sands July 2019



Frequency of size classes of cockle per m² at Pilling Sands July 2019

e) Warton Sands cockle inspection - 19th July

An inspection of the bed was carried out to find out if the area of cockle surveyed on the 6th was still present and in a similar density and whether the cockles had grown. Due to thick mud the bed was walked and areas where cockle were previously dense were inspected. There appears to be no change in the area or density of cockle. There has been some growth with more 20-22mm cockles mixed in with the 15-20mm cockle, particularly in the south of the bed. There were approximately 200 oystercatchers feeding on the cockle with evidence of broken shell. The oystercatchers were not feeding in the densest areas but appeared to be choosing the area with harder ground and a more sandy sediment. The bed will be monitored monthly to assess density and growth.

Waypoints and notes on the size of cockle have been recorded and saved but have not been mapped. Geo-referenced photos illustrating the ground and the size of cockle are shown below.

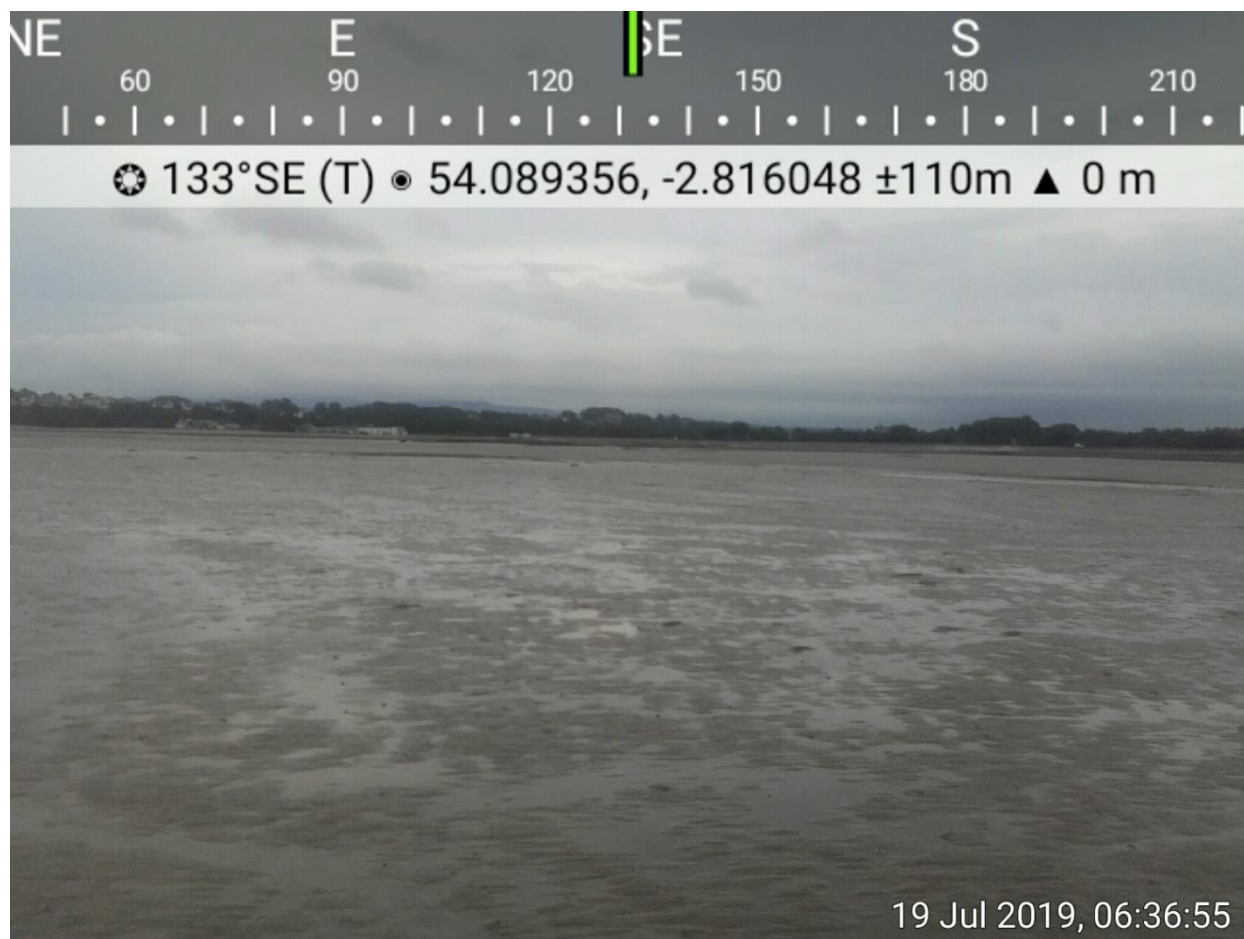


Image of the extent of the muddy area where the cockles are concentrated - Warton Sands July 2019



Image of the extent of the muddy area where the cockles are concentrated - Warton Sands July 2019

North West Elevation

☉ 153°SE (T) • 54.0868, -2.838556 ±15m ▲ 52 m



Image of 15-22mm cockles - Warton Sands July 2019

West Elevation

☉ 101°E (T) • 54.088497, -2.840167 ±10m ▲ 52 m

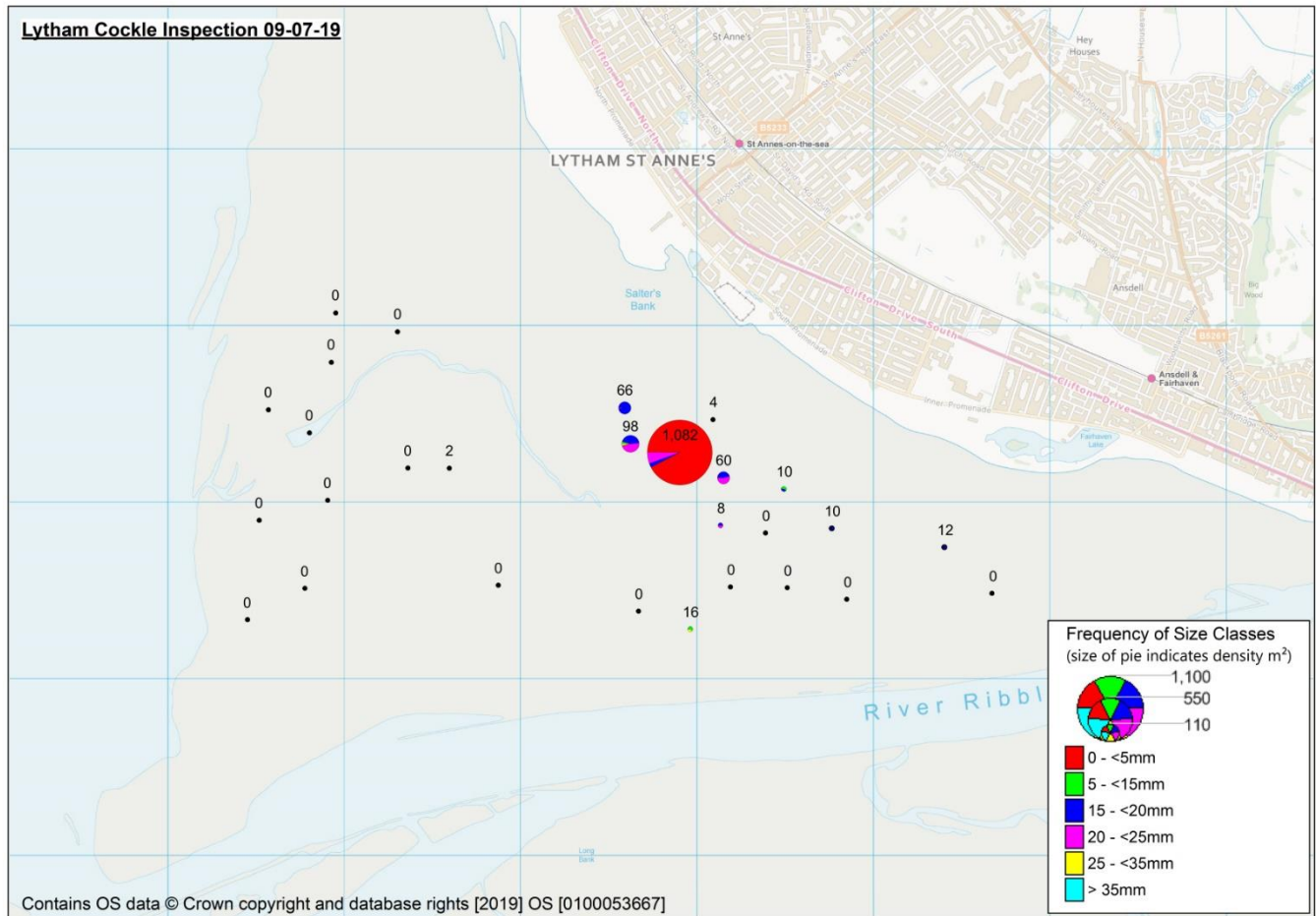


Image of cockle shell predated on by oysercatcher - Warton Sands July 2019

Ribble Estuary

Lytham cockle inspection - 9th July

Areas where historically there have been cockle beds were inspected using a jumbo and rake to see if there was sufficient cockle present to require a full survey. North Run, Mousehole and Granny's Bay were inspected as well as the surrounding areas. Most of the area had no cockle present. There was a small area on North Run in a muddy gutter that was running parallel to the shore approximately 600m long and 50 - 100m wide. The majority of the cockle was undersize and the density ranged from 10 per m² to 94 per m² with one site that had received a 2019 settlement that had an estimated 1000 per m² of less than 5mm cockle.



Frequency of size classes of cockle per m² Lytham July 2019