

### NWIFCA Morecambe Bay Cockle Surveys Spring 2016

Unless otherwise stated, all surveys were accessed using ATVs, jumbos and 0.5 m<sup>2</sup> quadrats. All averages are means, with the zero counts included. All tide times are Liverpool Tides. At each site, a survey grid was generated based on historical cockle records. At times, stations outside of the grid were sampled to ascertain the extent of the cockle bed.

Reference to size >20mm is a short-hand term for minimum landing size as regulated under NWIFCA Byelaw 3 – ie. any cockle which will NOT pass through a gauge having a square opening of 20mm measured across each side of the square.

Each survey is summarised in table form, starting with in the South of Morecambe Bay and progressing North. Figure 1 provides an illustration of historical cockle bed positions in the Bay. Lune Island, Rampside / Roosebeck Sands and Snab Sands are currently not considered to be active cockle areas. 'Aldingham' is now split into Aldingham and Newbiggin beds.

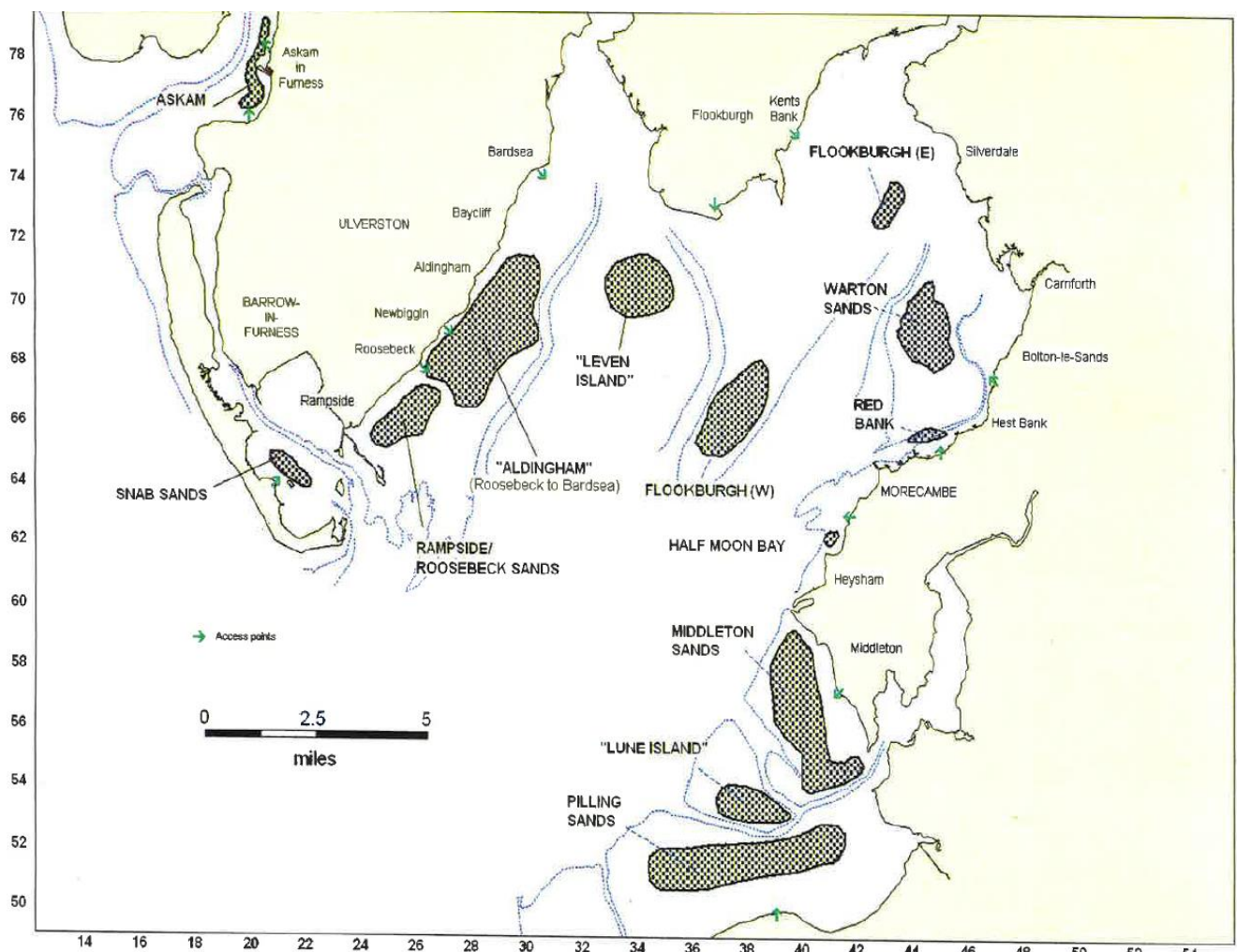


Figure 1: Historical cockle beds in Morecambe Bay

1- Pilling Sands Survey 08-04-16

Officers present	Low Water	Tidal Height	Number of Stations Surveyed	Distance Between Stations	Mean Density Size per m <sup>2</sup> (>20 mm)	Mean Density Undersize per m <sup>2</sup> (<20 mm)
6	07:12	0.4 m	54	500 m	3 (min 0, max 14)	121 (min 0, max 2000)
Comments	<ul style="list-style-type: none"> <li>- 8 extra sites added off the survey grid (Figure 2)</li> <li>- Considering only stations with &gt;100 undersize per m<sup>2</sup> the mean =504 (min. 104 max. 2000)</li> <li>- Foggy conditions meant Officers aborted survey after LW for H&amp;S reasons</li> <li>- Bed will be monitored to assess survival and growth</li> <li>- Repeat survey in summer in stock persists</li> <li>- Local Authority to be contacted re. hygiene classification</li> </ul>					

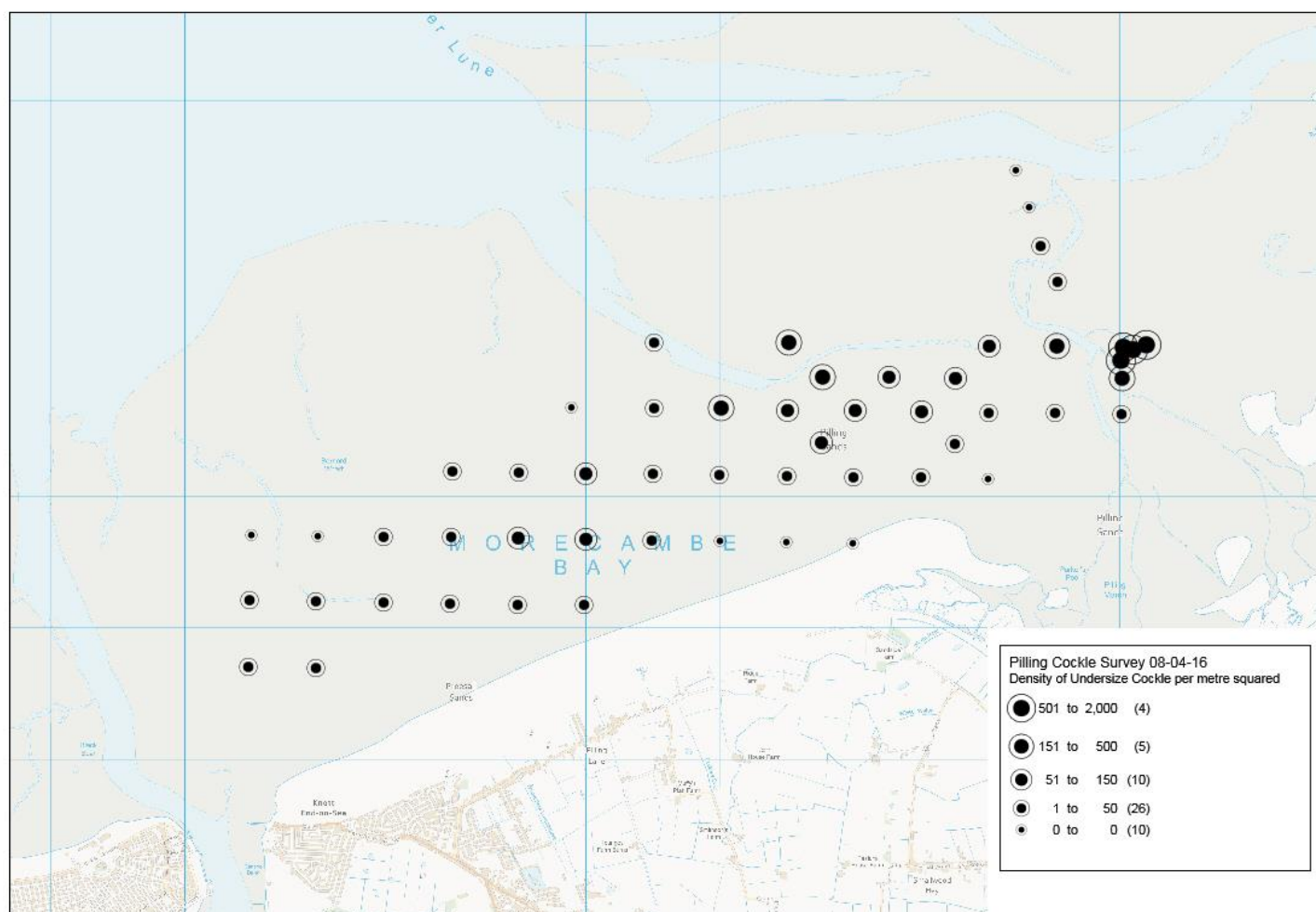


Figure 2. Pilling Cockle Survey, density of undersize cockle (<20 mm) per m<sup>2</sup>

## 2. Middleton Sands 10-04-16

Officers present	Low Water	Tidal Height	Number of Stations Surveyed	Distance Between Stations	Mean Density Size per m <sup>2</sup> (>20 mm)	Mean Density Undersize per m <sup>2</sup> (<20 mm)
4	08:45	0.4 m	53	250 m	<b>3</b> (min 0, max 12)	<b>121</b> (min 0, max 2230)
Comments	<ul style="list-style-type: none"> <li>- 7 extra sites added off the survey grid (Figure 3)</li> <li>- At one site a 0.1 m<sup>2</sup> quadrat was used as the density of spat was high</li> <li>- Excluding the one isolated station of dense undersize cockles (2230 per m<sup>2</sup>) mean = <b>42</b> (min 0, max 214)</li> <li>- 2015 age group dominated the undersize cockles</li> <li>- Bed not considered potential for fishery</li> </ul>					

Middleton Sands Cockle Survey 10-04-2016

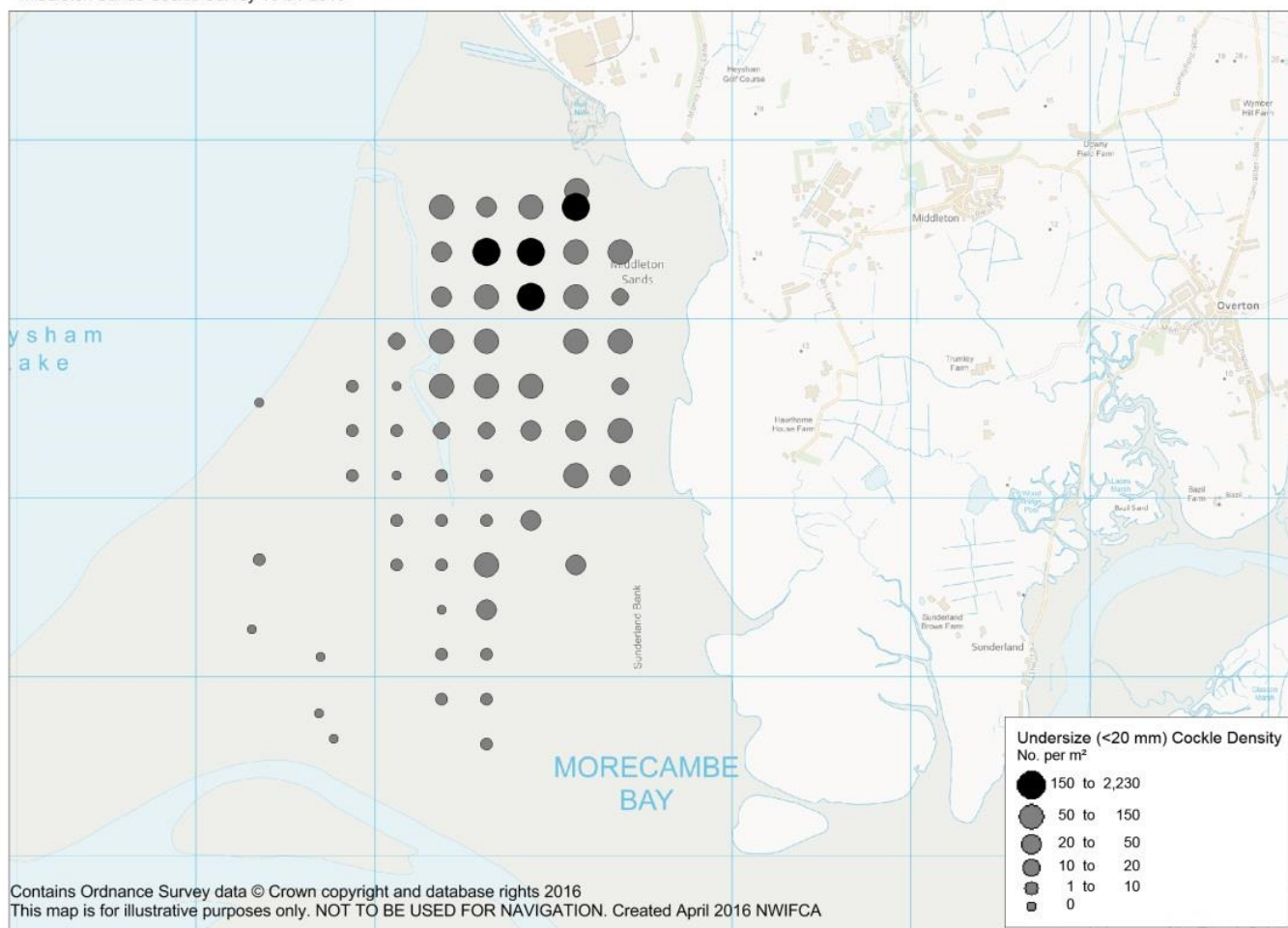


Figure 3: Middleton Sands Cockle survey: density of undersize cockle (<20 mm) per m<sup>2</sup>.

### 3 Flookburgh Preliminary Inspection 07-04-16

Officers present	Low Water	Tidal Height	Number of Stations Surveyed	Distance Between Stations	Mean Density Size per m <sup>2</sup> (>20 mm)	Mean Density Undersize per m <sup>2</sup> (<20 mm)
4	18:53	0.3 m	98	Variable	n/a	n/a
Comments	<ul style="list-style-type: none"> <li>- This was a preliminary inspection to locate areas of dense spat (Figure 4)</li> <li>- Areas with &gt;500 cockle per m<sup>2</sup> contained spat in the 10 mm size class</li> <li>- Areas with between 200 and 500 cockle per m<sup>2</sup> contained slightly larger spat in the 12 mm size class</li> <li>- This area will be surveyed again in the summer once the spat has had a chance to grow on</li> </ul>					

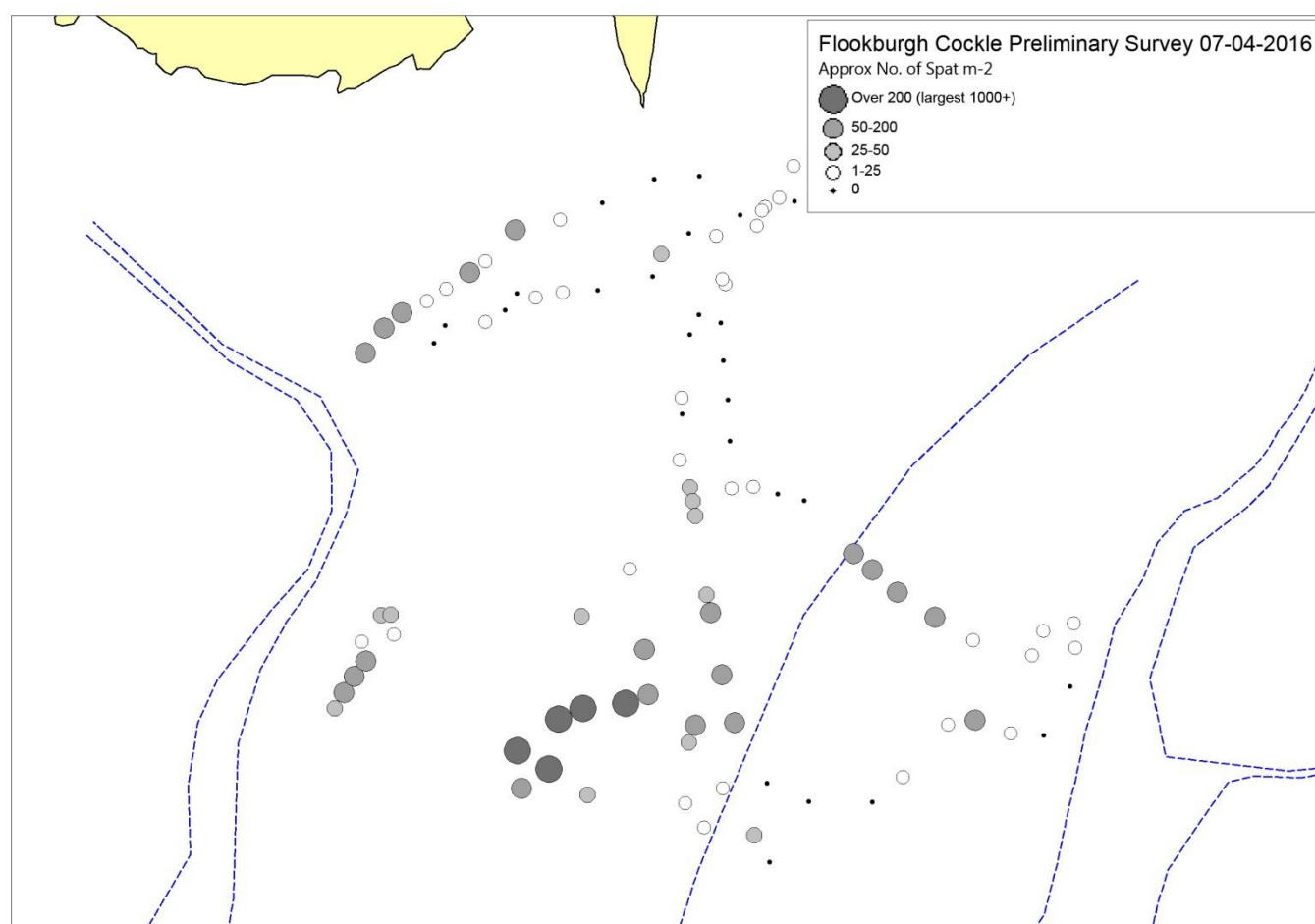


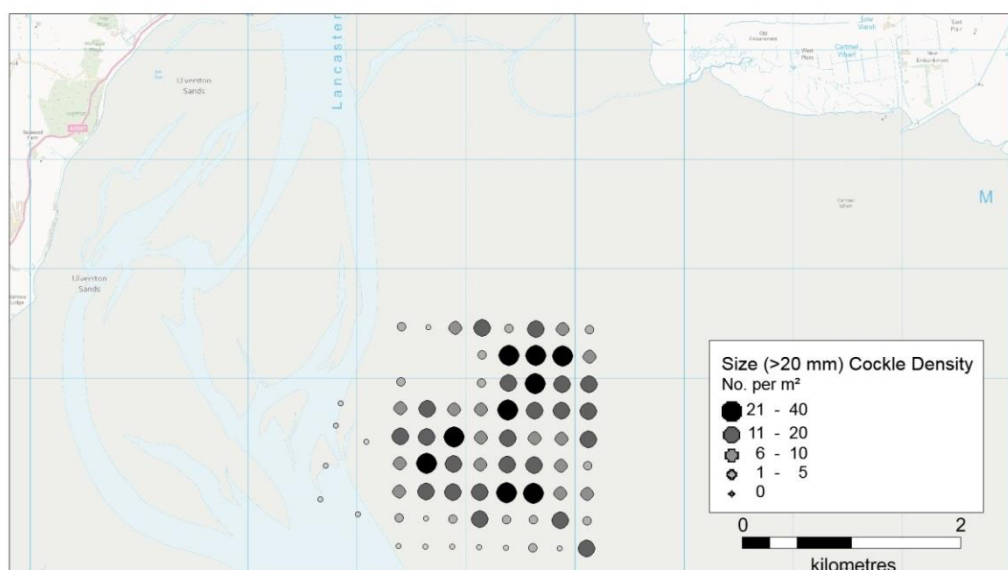
Figure 4. Flookburgh Preliminary cockle survey: approximate density of cockle per m<sup>2</sup>.



#### 4. Leven 11-02-16

Officers present	Low Water	Tidal Height	Number of Stations Surveyed	Distance Between Stations	Mean Density Size per m <sup>2</sup> (>20 mm)	Mean Density Undersize per m <sup>2</sup> (<20 mm)
6	07:32	0.8 m	74	250 m	<b>10</b> (min 0, max 38)	<b>79</b> (min 0, max 458)
Comments	<ul style="list-style-type: none"> <li>- Refer to previous reports and Figure 5</li> <li>- Fishery opened under authorisation to hand gathering until end of April</li> <li>- HRA completed</li> <li>- Bed has a Class B Hygiene Classification</li> </ul>					

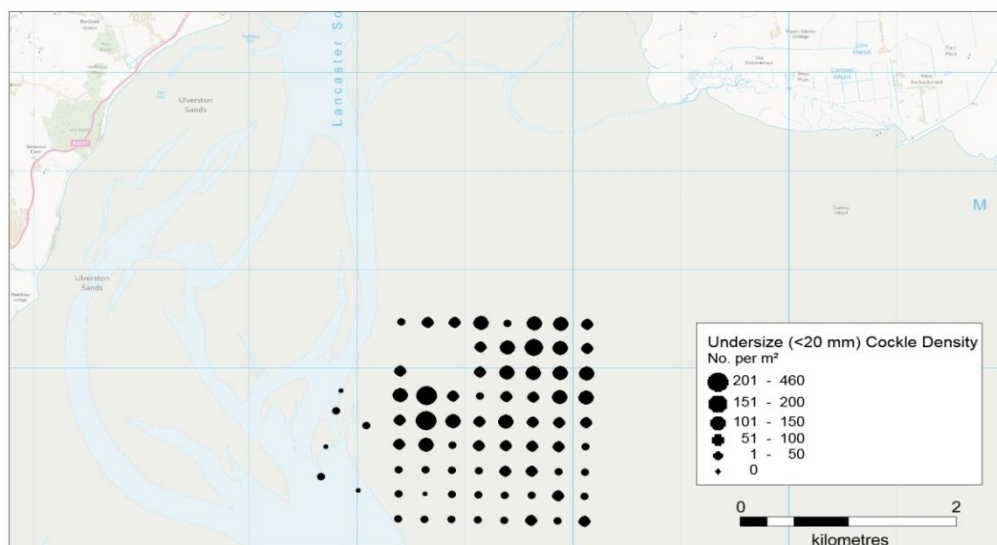
Leven Cockle Survey 11-02-16



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Leven Cocker Survey 11-02-16



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Figure 5: Leven cockles (a) density of size cockle per m<sup>2</sup>; (b) density of underside cockle per m<sup>2</sup>

## 5. Aldingham 07-03-16

Officers present	Low Water	Tidal Height	Number of Stations Surveyed	Distance Between Stations	Mean Density Size per m <sup>2</sup> (>20 mm)	Mean Density Undersize per m <sup>2</sup> (<20 mm)
2	16:40	1.4	20	500 m	8 (min 0, max 8)	67 (min 0, max 328)
Comments	<ul style="list-style-type: none"> <li>- Difficulty in accessing all potential survey points on the grid due to a large channel not uncovering on a 1.4 m tide (Figure 6: Aldingham Cockle survey: density of undersize cockle (&lt;20 mm) per m<sup>2</sup>.)</li> <li>- Lots of new small channels of freshwater drainage meant sands were unsafe</li> <li>- A flock of between 100 and 200 Oystercatchers observed on the sand. On closer inspection there were recently opened Tellina spp. Bivalves in the same area</li> <li>- Bed surveyed not considered potential for fishery</li> <li>- Attempt to access area over channel to survey to be carried out</li> </ul>					

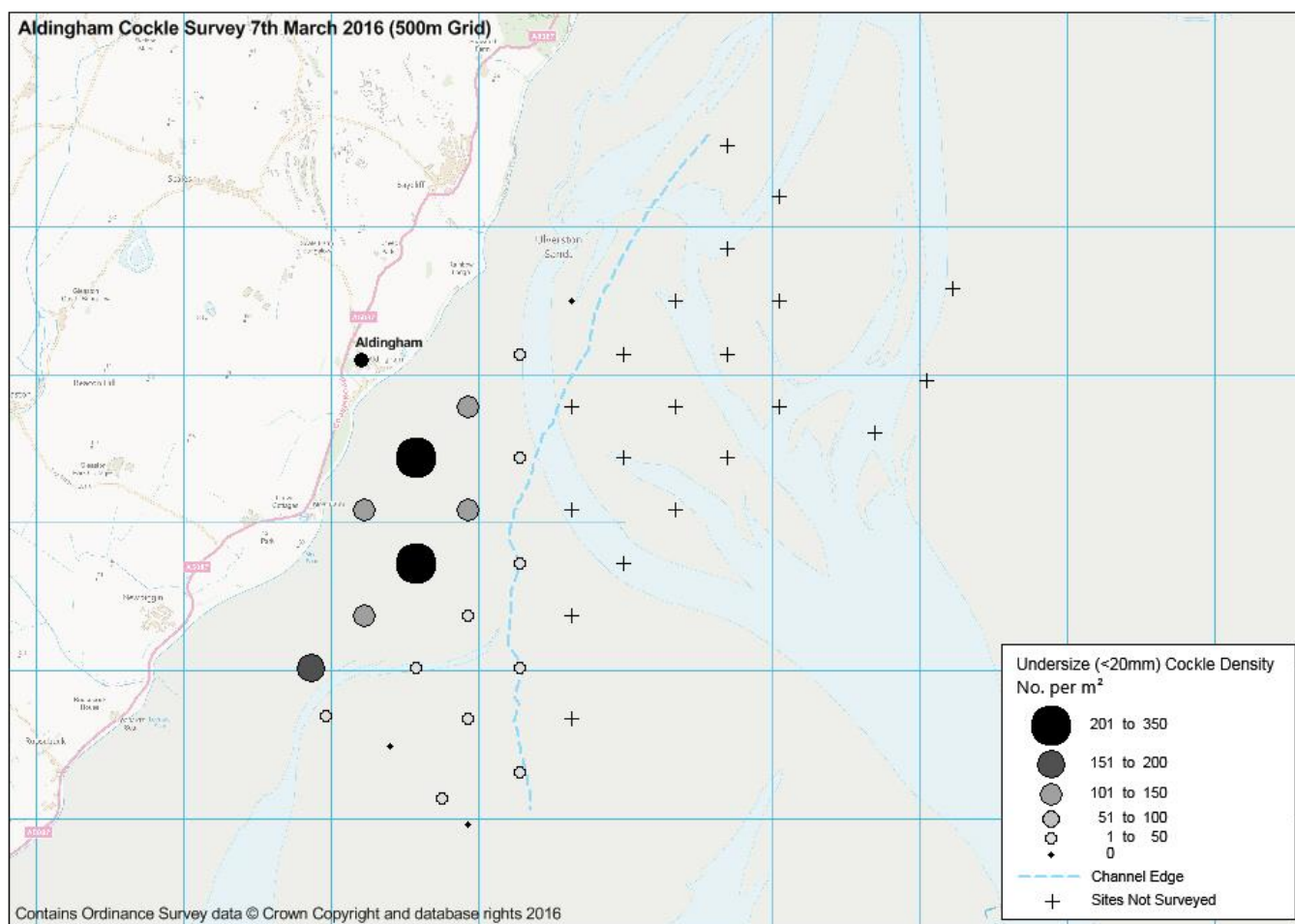


Figure 6: Aldingham Cockle survey: density of undersize cockle (<20 mm) per m<sup>2</sup>.

## 6. Newbiggin 08-03-16

Officers present	Low Water	Tidal Height	Number of Stations Surveyed	Distance Between Stations	Mean Density Size per m <sup>2</sup> (>20 mm)	Mean Density Undersize per m <sup>2</sup> (<20 mm)
2	17:30	0.8	31	500 m	<b>7.6</b> (min 0, max 28)	<b>91</b> (min 0, max 294)
Comments	<ul style="list-style-type: none"> <li>- The majority of the small cockle was closer to the shore, with less nearer the channel (Figure 7)</li> <li>- There was an area of large, open, dead cockle shell near a large channel</li> <li>- Oystercatchers (approx. 40) were observed feeding in the same area, although it was not clear exactly what they were feeding on</li> <li>- Bed not considered potential for fishery</li> </ul>					

Newbiggin Cockle Survey 08/03/2016  
250 m survey grid

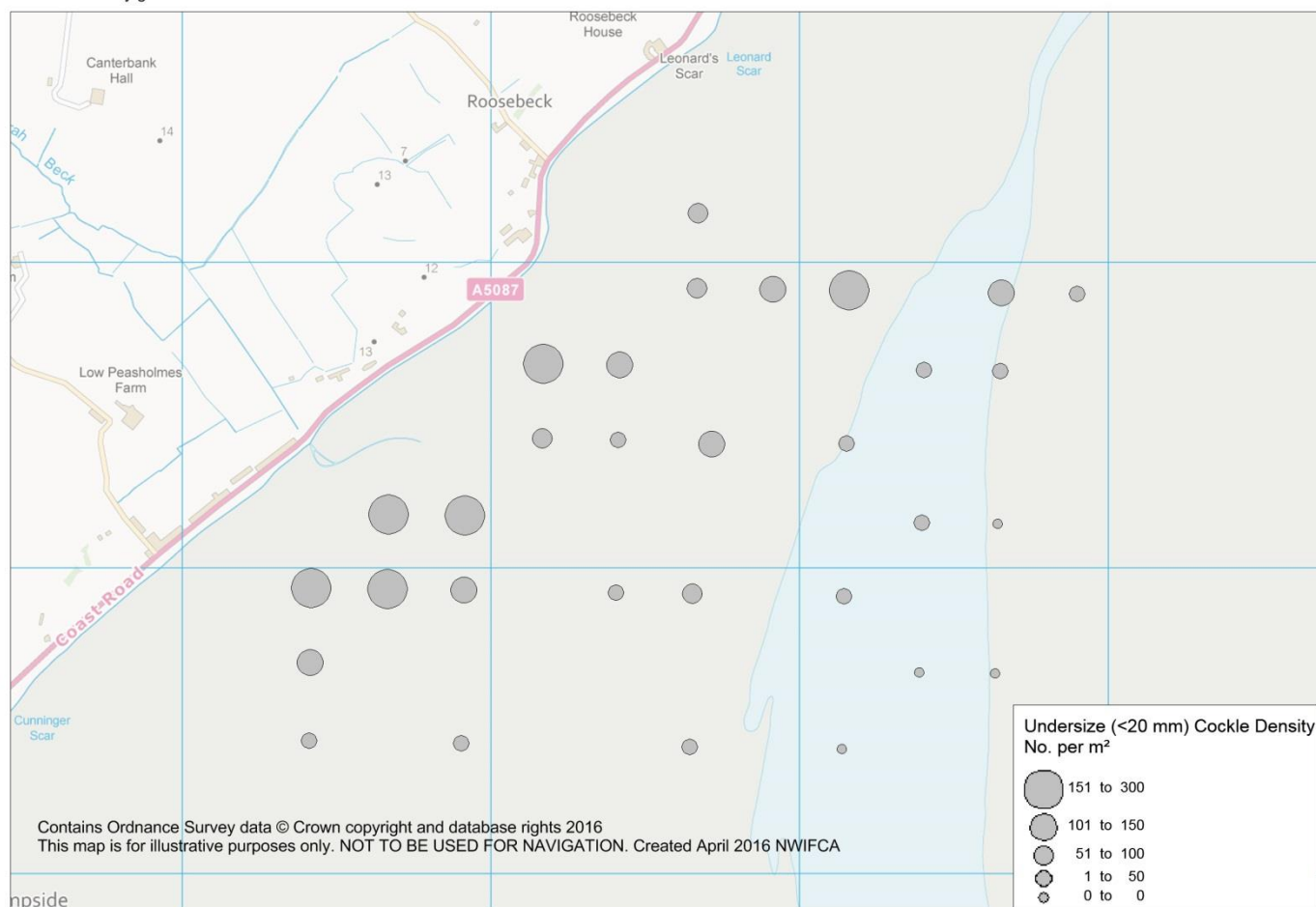


Figure 7: Newbiggin Cockle survey: density of undersize cockle (<20 mm) per m<sup>2</sup>.