# Flookburgh Cockle Survey 23-04-25

Officers present:ID, CT, AP, JH, GG, RLTides:LW 14:45 2.7m (Liverpool Tides)

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

139 stations were sampled from a 500m grid including the extension from the 2023 survey. 10 stations could not be surveyed due to the channel that cuts through the bed and branches into two. There has been an overall reduction in the density and biomass of cockle across the bed from the 2024 survey. The cockle is mixed across the bed and ranged in size from 5mm to 35mm. Due to the early nature of the survey it was not possible if a 2025 cockle settlement had occurred.

## Means

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

Mean number of size cockle	9 per m²	(min 0, max 76)
Mean number of undersize cockle	8 per m <sup>2</sup>	(min 0, max 46)
Mean number of 0-5mm cockle	>1 per m <sup>2</sup>	(min 0, max 20)
Mean weight of size cockle kg/m <sup>2</sup>	0.078 kg/m²	(min 0, max 0.642)
Mean number of undersize cockle kg/m <sup>2</sup>	0.018 kg/m²	(min 0, max 0.154)

## Maps

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

#### Biomass

	Area (ha)	Size Cockle (tonnes) <sup>1</sup>	Undersize Cockle (tonnes) <sup>2</sup>
Flookburgh	2325	1815	410

5-15 Class	15-20 Class	20-25 Class	25-35 Class	>35 Class
(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)
53	72	375	1716	9

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







Figure 2. Density of size cockle per m<sup>2</sup> Flookburgh Apr 2025.



Figure 3. Density of undersize cockle per m<sup>2</sup> Flookburgh Apr 2025.



Figure 4 Frequency of size classes of cockle per m<sup>2</sup> Flookburgh Apr 2025.



Figure 5 Weight of size and undersize cockle kg/m<sup>2</sup> at Flookburgh Apr 2025.

# Pilling Cockle Survey 16-04-2025

Officers present:JH, GG, LL, RLTides:LW 07:15 1.8m (Liverpool Tides)

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

78 stations were sampled from a 500m grid. There was a wide range of cockle sizes across the bed from <5mm to >35mm. Size cockle has increased in density with a max of 232 cockles per m<sup>2</sup>, though it is still relatively low across the bed, with an average of 22 per m<sup>2</sup>. Due to the early nature of the survey it was not possible if a 2025 cockle settlement had occurred.

## Means

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

Mean number of size cockle	20 per m <sup>2</sup>	(min 0, max 232)
Mean number of undersize cockle	15 per m <sup>2</sup>	(min 0, max 108)
Mean number of 0-5mm cockle	>1 per m <sup>2</sup>	(min 0, max 20)
Mean weight of size cockle kg/m <sup>2</sup>	0.175 kg/m <sup>2</sup>	(min 0, max 1.984)
Mean weight of undersize cockle kg/m <sup>2</sup>	0.072 kg/m²	(min 0, max 0.584)

## Maps

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

## Biomass

	Area of cockle present (ha)	Size Cockle (tonnes) <sup>1</sup>	Undersize Cockle (tonnes) <sup>2</sup>
Pilling	1400	2447	1003

5-15 Class	15-20 Class	20-25 Class	25-35 Class	>35 Class
(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)
7	33	880	2500	29

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



Figure 1. Illustration of position of Pilling Survey Area.



Figure 2. Density of size cockle per m<sup>2</sup> at Pilling April 2025.



Figure 3. Density of undersize cockle per m<sup>2</sup> at Pilling April 2025.



Figure 4. Frequency of size classes of cockle per m<sup>2</sup> at Pilling April 2025.



Figure 5. Weight of size and undersize cockle kg/m<sup>2</sup> at Pilling April 2025.

# Aldingham and Newbiggin Cockle Survey 22-04-2025

Officers present:ID, AP, RL, LLTides:LW 13:26 3.2m (Liverpool Tides)

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

39 stations were sampled from a 500m grid, with five additional samples being taken from outside of the survey grid in the north-eastern part of the bed. Many of the sample points to the east on Aldingham were not accessible due to the large river channel moving closer to shore.

There was a wide range of cockle sizes across the bed from < 5mm to > 35mm. Size cockle was relatively low in density across the bed. Due to the early nature of the survey it was not possible if a 2025 cockle settlement had occurred.

## Means

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

Mean number of size cockle	10 per m²	(min 0, max 72)
Mean number of undersize cockle	14 per m²	(min 0, max 76)
Mean number of 0-5mm cockle	3 per m²	(min 0, max 100)
Mean weight of size cockle kg/m <sup>2</sup>	0.096 kg/m²	(min 0, max 0.600)
Mean weight of undersize cockle kg/m <sup>2</sup>	0.041 kg/m²	(min 0, max 0.268)

## Maps

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

## Biomass

Main bed area	Area (ha)	Size Cockle (tonnes) <sup>1</sup>	Undersize Cockle (tonnes) <sup>2</sup>
Aldingham and Newbiggin	900	865	371

5-15 Class	15-20 Class	20-25 Class	25-35 Class	>35 Class
(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)
27	58	291	850	11

Additional sample points	Area (ha)	Size Cockle (tonnes) <sup>1</sup>	Undersize Cockle (tonnes) <sup>2</sup>
Aldingham and Newbiggin	125	11	6

5-15 Class	15-20 Class	20-25 Class	25-35 Class	>35 Class
(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)
3	3	3	7.5	0

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



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



Figure 2: Density of size cockle per m<sup>2</sup> at Aldingham and Newbiggin April 2025



Figure 3: Density of undersize cockle per m<sup>2</sup> at Aldingham and Newbiggin April 2025



Figure 4: Frequency of size classes of cockle per m<sup>2</sup> at Aldingham and Newbiggin April 2025



Figure 5: Weight of size and undersize cockles kg/m<sup>2</sup> at Aldingham and Newbiggin April 2025

## Leven Cockle Survey 24-04-2025

Officers present:GG, JH, ID, CTTides:LW 15:51 2.1m (Liverpool Tides)

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

67 stations were sampled from a 500m grid. There was an area to the Southwest of the survey grid that could not be survey due to a deep channel. There was a range of cockle sizes across the bed from < 5mm to 25 - 35mm. Size cockle is relatively low in density across the bed. Due to the early nature of the survey it was not possible if a 2025 cockle settlement had occurred.

#### Means

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

Mean number of size cockle	3 per m <sup>2</sup>	(min 0, max 30)
Mean number of undersize cockle	8 per m <sup>2</sup>	(min 0, max 40)
Mean number of 0-5mm cockle	2 per m <sup>2</sup>	(min 0, max 30)
Mean weight of size cockle kg/m <sup>2</sup>	0.035 kg/m <sup>2</sup>	(min 0, max 0.365)
iviean weight of undersize cockie kg/m <sup>2</sup>	0.011 kg/m <sup>2</sup>	(min 0, max 0.068)

#### Maps

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

#### **Biomass**

	Area of cockle present (ha)	Size Cockle (tonnes) <sup>1</sup>	Undersize Cockle (tonnes) <sup>2</sup>
Leven	1175	411	126

5-15 Class	15-20 Class	20-25 Class	25-35 Class	>35 Class
(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)
30	36	72	398	0

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



Figure 1. Illustration of position of Leven Survey Area



Figure 2. Density of size cockle per m<sup>2</sup> Leven April 2025



Figure 4. Frequency of size classes of cockle per m<sup>2</sup> Leven April 2025



Figure 5. Weight of size and undersize cockle kg/m<sup>2</sup> at Leven April 2025

# Middleton Cockle Survey 9th April 2025

Officers present:	AP, GG, AG, RL		
Tides:	09-04-25	LW 16:58	2.7m (Liverpool tides)

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

53 stations were sampled from a 350m grid. There was a wide range of cockle sizes across the bed from 5mm to >35mm. Size cockle is relatively low in density but present across most of the bed. The population was dominated by the 25–35 mm size class, which accounted for approximately 75% of the total biomass. Smaller contributions came from the 20–25 mm class (18%) and the >35 mm class (2%), while cockle (below 20 mm) made up around 5% of the total biomass. Due to the early nature of the survey it was not possible if a 2025 cockle settlement had occurred.

#### Means

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

Mean number of size cockle	8 per m <sup>2</sup>	(min 0, max 84)
Mean number of undersize cockle	5 per m²	(min 0, max 26)
Mean number of 0-5mm cockle	0 per m²	(min 0, max 0)
Mean weight of size cockle kg/m²	0.071 kg/m²	(min 0, max 0.863)
Mean number of undersize cockle kg/m <sup>2</sup>	0.016 kg/m <sup>2</sup>	(min 0, max 0.135)

#### Maps

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

#### Biomass

	Area (ha)	Size Cockle (tonnes) <sup>1</sup>	Undersize Cockle (tonnes) <sup>2</sup>
Middleton Sands	643	463	105

5-15 Class	15-20 Class	20-25 Class	25-35 Class	>35 Class
(tonnes)	(tonnes)	(tonnes)	(tonnes)	(tonnes)
7	19	104	425	13

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



Figure 1. Illustration of position of Middleton Survey Area.



Figure 2. Density of size cockle per m<sup>2</sup> Middleton April 2025.



Figure 3. Density of undersize cockle per m<sup>2</sup> Middleton April 2025





Figure 5. Weight of size and undersize cockle kg/m<sup>2</sup> at Middleton April 2025.