

Annex C – Cockle Survey Report June-July 2021

a) Lytham Cockle Inspection 13/07/21

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.

Most of the area had no cockle present. Around the North Run area, high densities of 2021 cockle spat were observed. The density of spat ranged from 200-2000 per m² based on a quick visual estimation (Fig. 1). The highest number of cockles larger than the 0-5mm size class was 20 per m², of which all fell into the 5-15mm size class. The next largest density of cockle found in this area contained 8 per m², 2 of which were size.

There were no cockles recorded in the area of the historic Mousehole bed. The spat density reduced going from North Run to Mousehole. The sand in this area was much coarser than the other two beds. The ground was made up of mostly high rolling sand banks that were relatively dry with only small areas in between staying wet.

Most of the historic bed for Granny's Bay consisted of sand with large amounts of broken shell in. The highest density of cockle found in this area was 4 per m² (2 size). No spat was recorded in this area.

Due to the low density of cockle, officer observations have been recorded but have not been mapped.

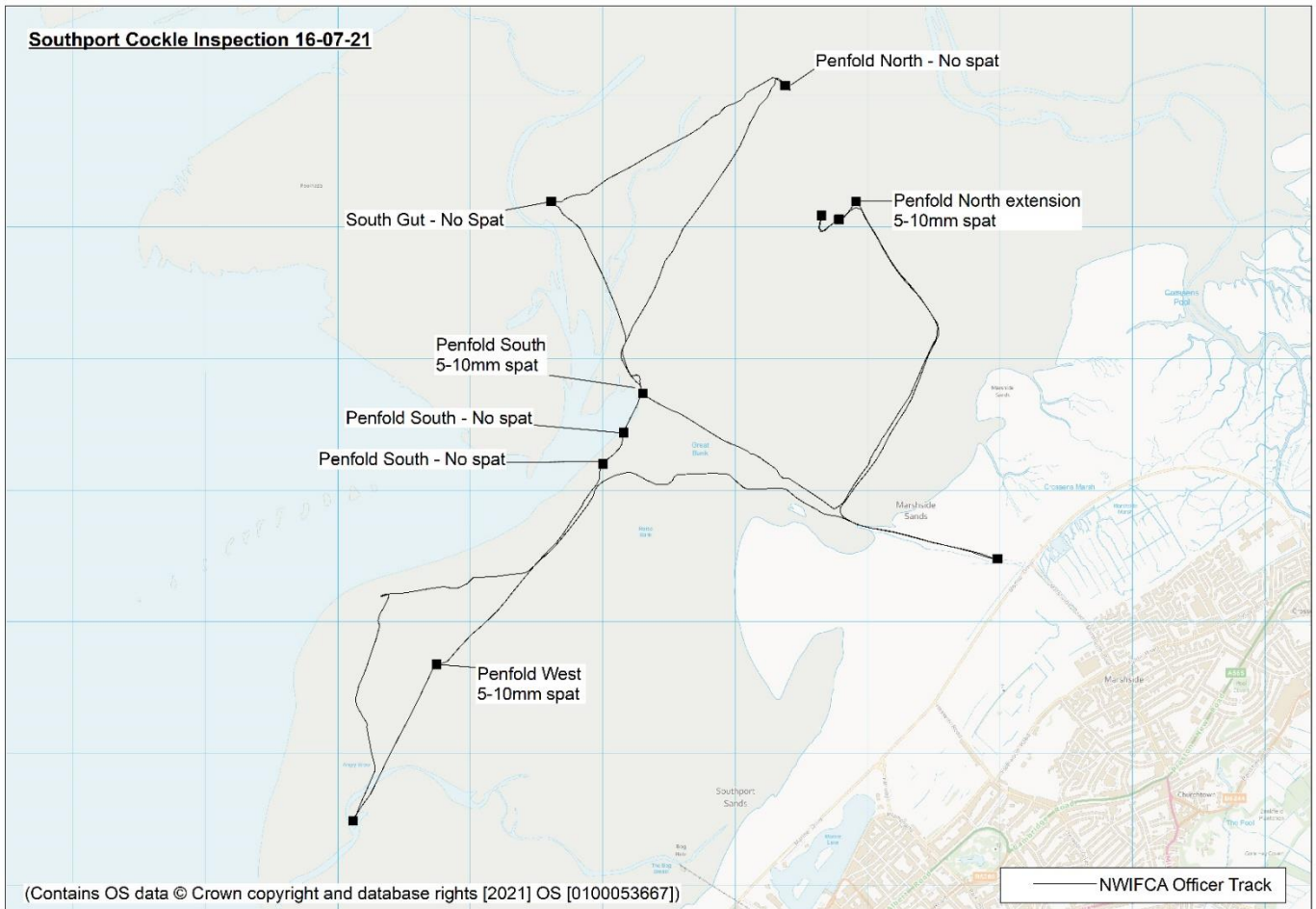


Fig 1. 2021 cockle spat settlement at Lytham during an inspection on 13-07-21

b) Southport - North, South and West Penfold and South Gut Cackle Inspection 16-07-21

Officers conducted an inspection of the Southport Cackle Beds.

No size cockle was present in the areas visited. There were signs of a 2021 spat settlement of 5-10mm at the Southern extent the North Penfold bed and in areas of South Penfold and West Penfold beds. The densest spat settlement was found at the Southern extent of North Penfold. Due to the difficulty of the ground conditions and the large area that needed to be covered by the inspection, densities were estimated by counting in small sample areas and extrapolating the data. Approximate densities varied between 300 and 750 cockles per m². Although in high densities in some areas, this was patchy and many areas had no sign of spat settlement. There was bird activity present, particularly Dunlin, Oystercatcher and Gulls, but on inspection the areas favoured by these birds did not indicate what they were feeding on.



c) Leasowe Cackle Survey 15-07-21

74 survey stations were sampled from a 250m grid with an additional 2 stations added for coverage. One of these additional stations was surveyed to include a small area identified by IFCOs in 2020 known to hold a high density of cockles near Leasowe lighthouse. Due to the location of the tide at low water several of the survey stations from the grid could not be sampled. The density of size cockle across the main bed area had decreased slightly since the bed was last surveyed in August 2020, and was situated in a similar area high up the beach in a band running along the bed on the upper shore.

A small patch (approximately 200m by 50m) in the area near the lighthouse held a high density of cockles, although only one site was visited during this survey.

Undersize cockle was distributed across the main bed area on the upper shore in higher densities than 2020, but still in relatively low densities. A number of survey sites in the upper shore area also showed evidence of a 2021 spat settlement.

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. Due to the distance from the main bed, the area by the lighthouse is presented separately.

Main bed area

Mean number of size cockle	9 per m ²	(min 0, max 34)
Mean number of undersize cockle	34 per m ²	(min 0, max 242)
Mean number of 0-5mm cockle	32 per m ²	(min 0, max 400)

Lighthouse area*

Mean number of size cockle	78 per m ²
Mean number of undersize cockle	54 per m ²
Mean number of 0-5mm cockle	40 per m ²

*1 survey station.

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), density of the 0-5mm size class, 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

Biomass was calculated for each of the areas as identified by the means calculations.

Biomass	Area (ha)	Size Cockle (tonnes)¹	Undersize Cockle (tonnes)²
Main Bed Area	204.9 ha	~350	~16
Lighthouse Area	1.19 ha	~17	~0.5
Totals	206.09 ha	~367	~16.5

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

²The 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.

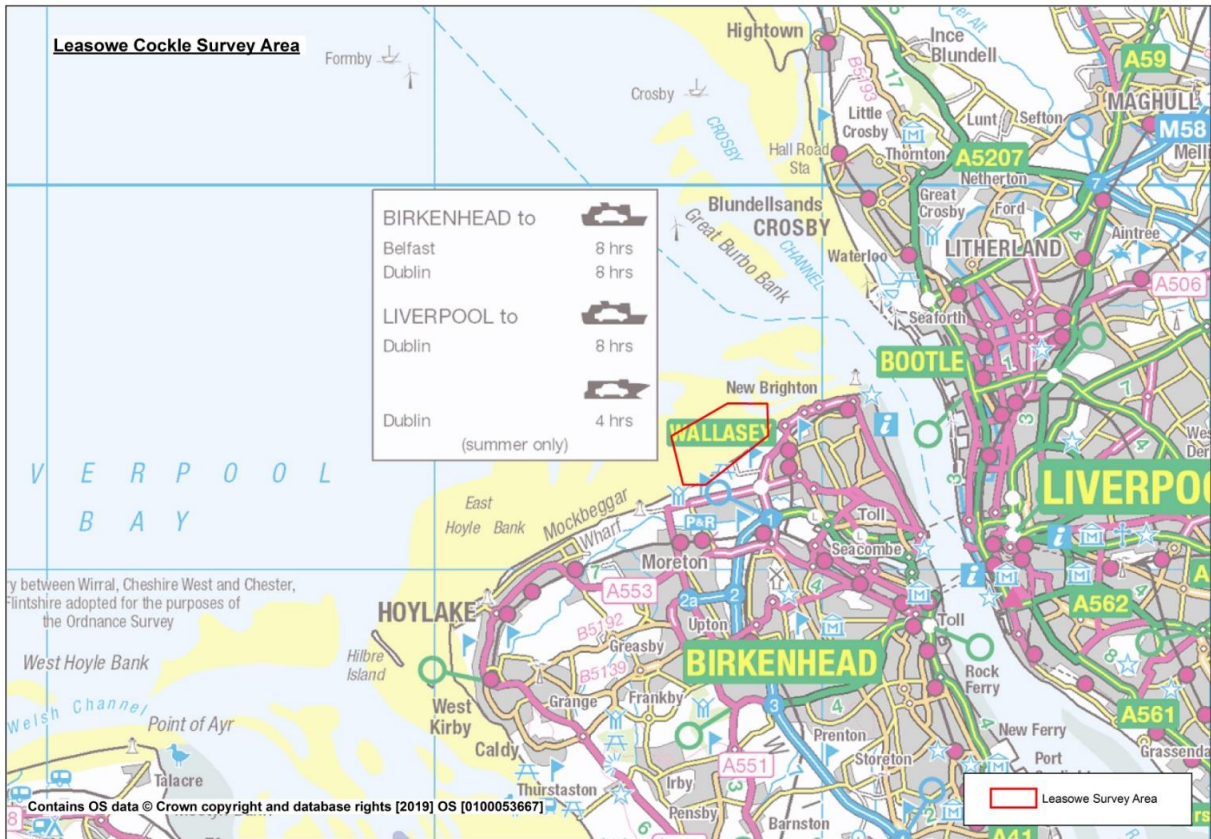
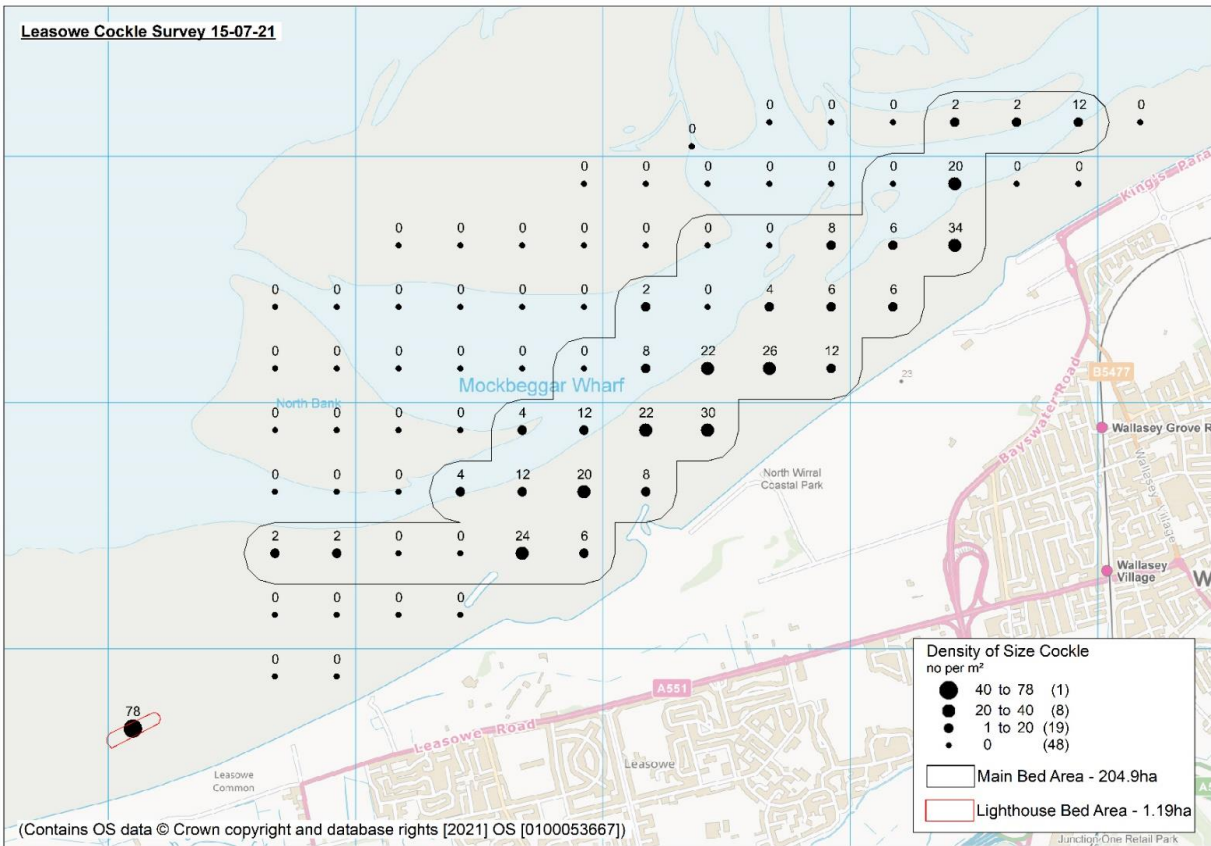
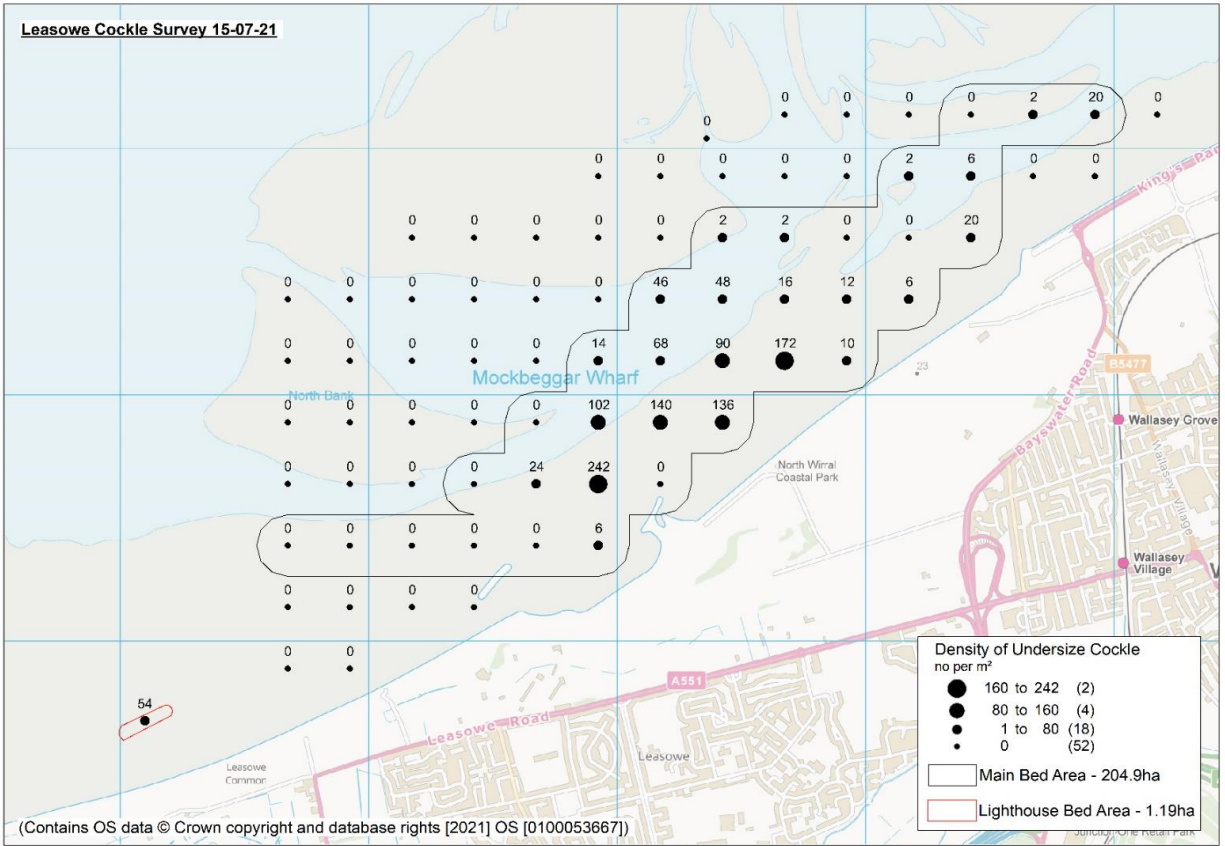


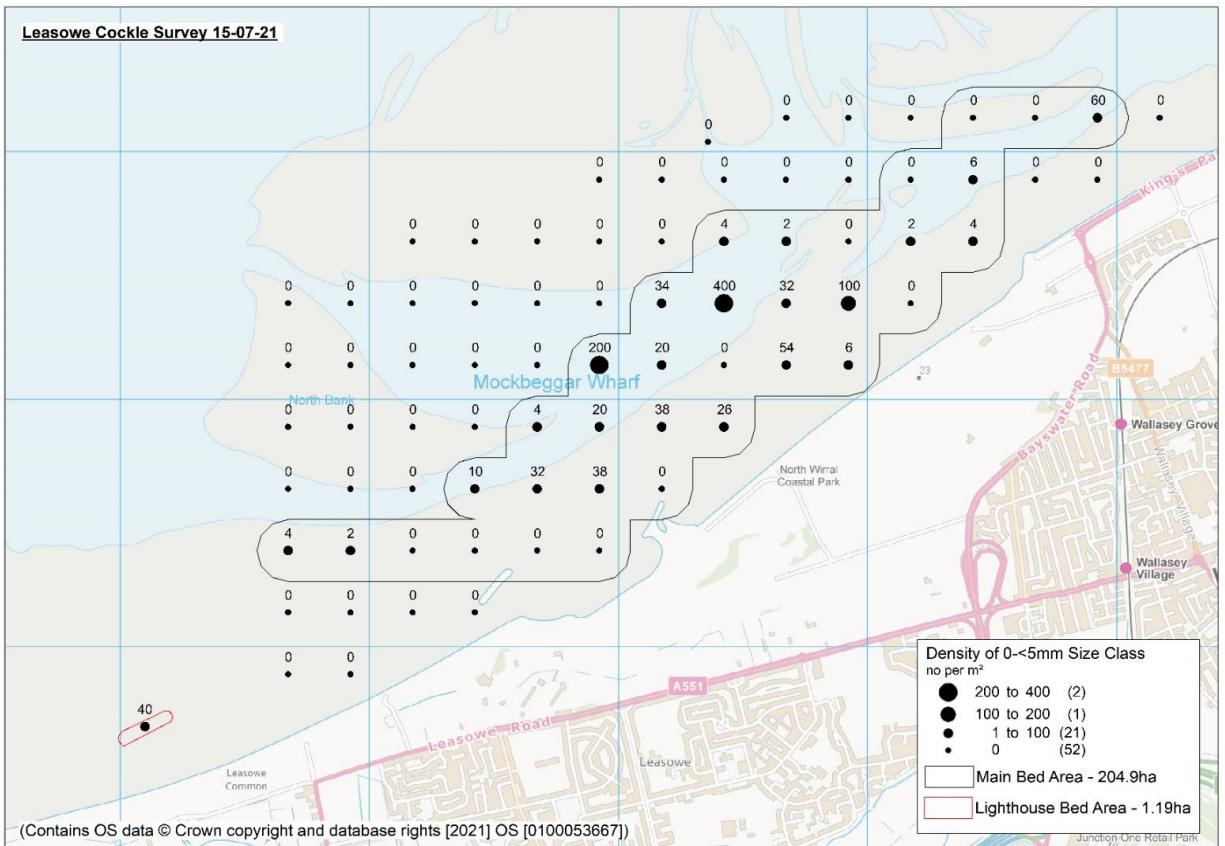
Illustration of position of Leasowe cockle bed



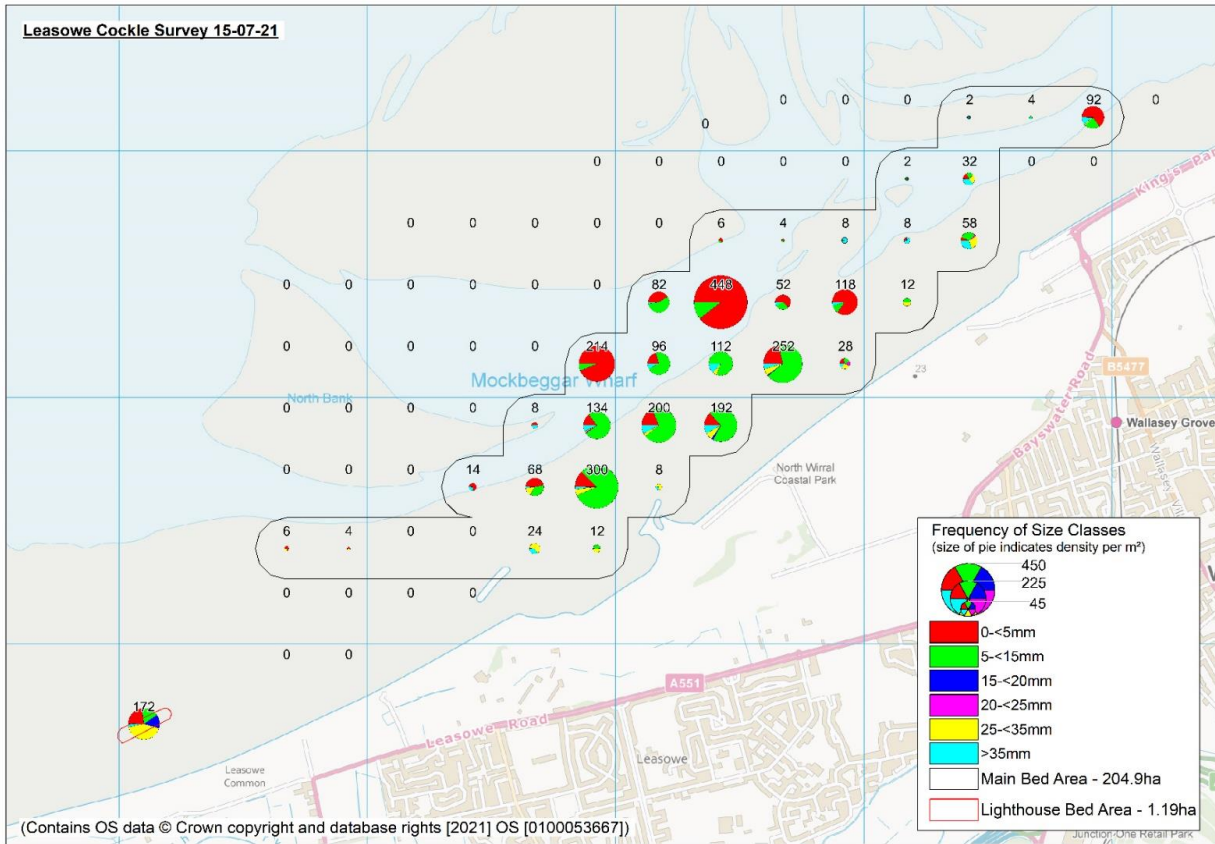
Density of size cockle per m² Leasowe July 2021



Density of undersize cockle per m² Leasowe July 2021



Density of 0-5mm cockle per m² Leasowe July 2021



Frequency of size classes of cockle per m² Leasowe July 2021