# Seed Mussel Biomass Survey of the Long Bank East settlement – 30/07/2025 and 2/09/2025

**Methodology:** The acoustic data were collected using a 400 kHz side scan sonar, processed in SonarWiz 6 and ground truthed using a 1 metre seed mussel dredge, (BIM, 2016; Chopin, 2024). The biomass estimation survey was carried out using 0.1m$^2$ Day grab to collect samples at locations randomly generated within the predefined bed boundaries. The data collected were interpolated using the IDW (Inverse Distance Weighting) tool in ArcGIS Pro (Hervas *et al.*, 2008; Chopin, 2024). The spatial data (dredge and grabs) were recorded with ESRI Field Maps and the Arrow 100 GNSS receiver for submeter accuracy.

**Area surveyed**: The seed mussel bed located between the Long Bank and the Lucifer Bank outside Wexford Harbour.

**Survey details**:

Following the invasive species survey and a partial sampling of the bed in July, further samples were required to provide a more accurate biomass estimation. Details of the location of the bed were provided in a previous report already available on the BIM website https://bim.ie/publications/aquaculture/ .

**Biomass estimation:**

Of the 52 grabs collected , 17 did not indicate mussels (Fig. 1). The average weight of mussels per grab (over the 35 successful ones) was 331.43 grams (min: 40g, max: 1140g), while the waste (non-mussel material) averaged 62% of the overall weight of each grab (min:18%, max: 96%). It was mainly composed of small stones/gravel, shells ash/debris and barnacles.

Results from the grab sampling indicate that mussels are concentrated in centre and south of the bed (Fig. 2). Following the analysis of the generated data, it is estimated that this bed could yield **1,691.05 metric tonnes** (see table 1 ).

Có-mhaoinithe ag an Aontas Eorpach
Co-funded by the European Union
Rialtas na hÉireann
Government of Ireland
Bord Iascaigh Mhara
Irish Sea Fisheries Board

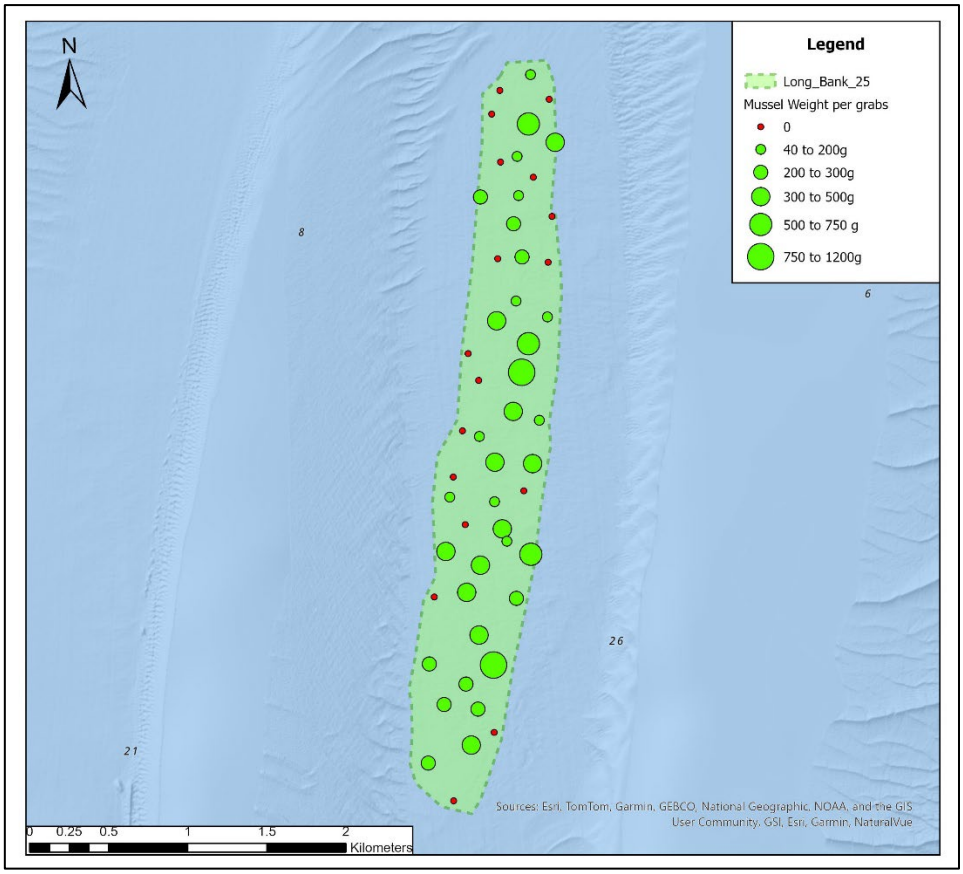



Fig. 1: Grabs distribution and weight classification

*Table 1: Tonnage estimation*

| Density Classes | Areas in hectares | N samples | Mean Wt per 0.1 $m^{-2}$ in Kg | Tonnes/Area |
|---|---|---|---|---|
| 0g to 160g | 18.68 | 17 | 0.00 | 0.00 |
| 160g to 200g | 38.30 | 3 | 0.06 | 229.80 |
| 200g to 300g | 58.48 | 7 | 0.15 | 852.11 |
| 300g to 400g | 66.08 | 7 | 0.27 | 1755.80 |
| 400g to 500g | 52.64 | 9 | 0.35 | 1836.54 |
| 500g to 600g | 15.83 | 4 | 0.45 | 704.33 |
| 600g to 700g | 8.76 | 3 | 0.55 | 484.67 |
| 700g to 800g | 7.42 | 1 | 0.82 | 608.71 |
| 800g to 900g | 1.74 | 1 | 1.14 | 198.29 |
| ***Total area*** | ***267.93*** | | ***Total tonnage*** | ***6670.24*** |

Có-mhaoinithe ag an Aontas Eorpach
Co-funded by the European Union
Rialtas na hÉireann
Government of Ireland
Bord Iascaigh Mhara
Irish Sea Fisheries Board

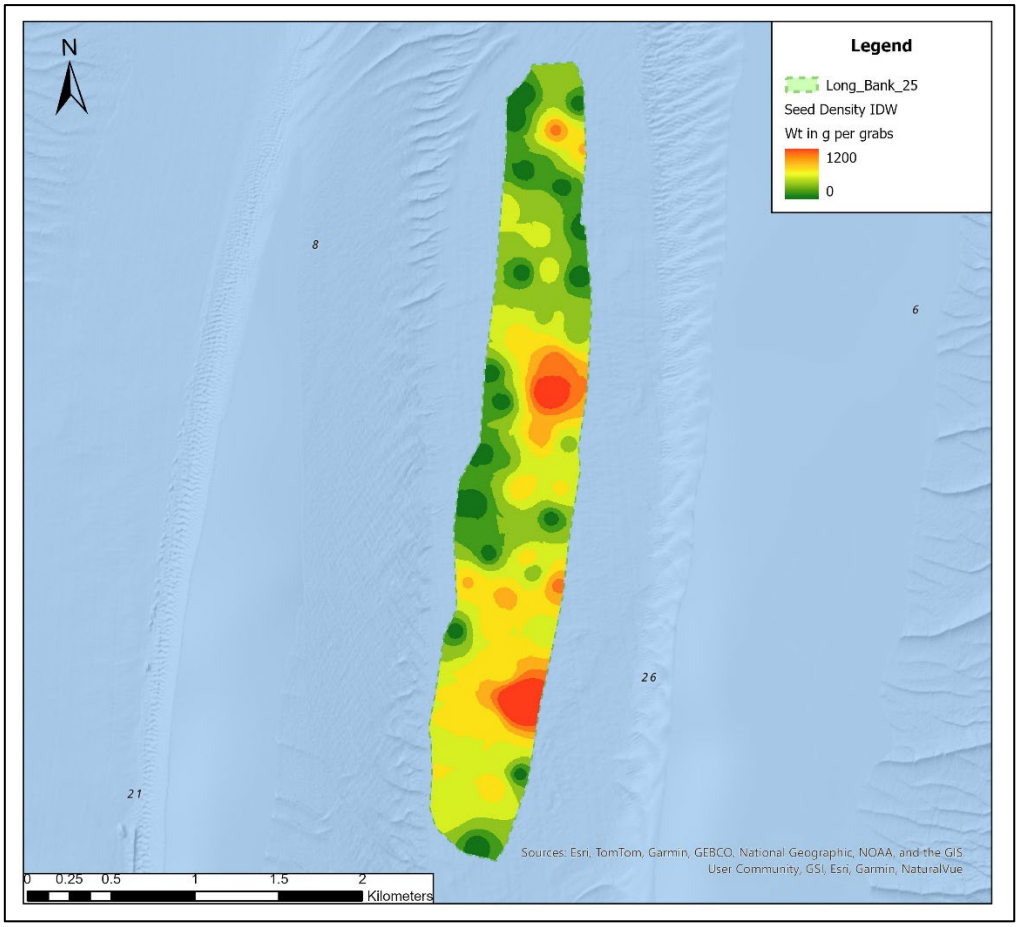
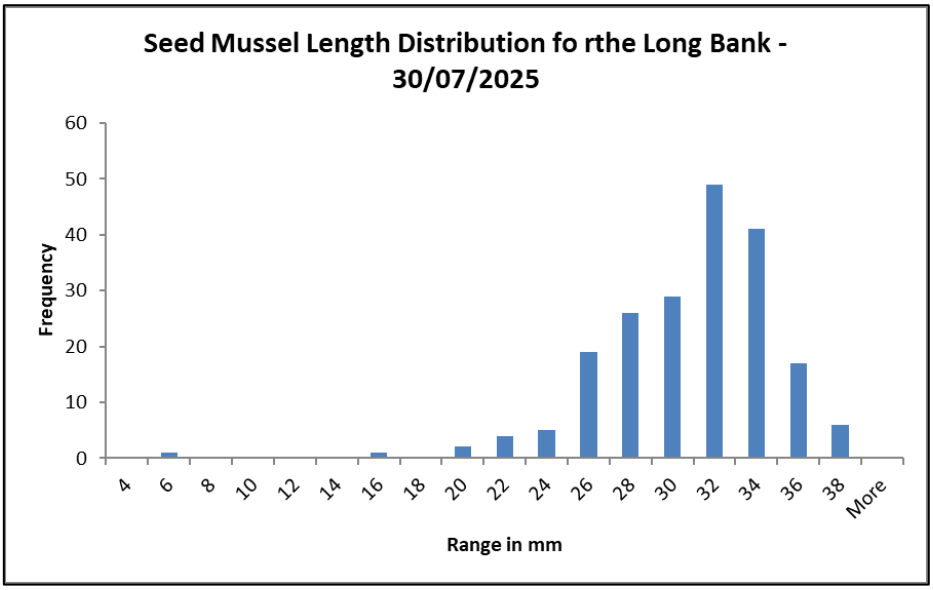



Fig. 2: Mussel Density Map based on IDW interpolation

**Biometrics:**

Subsamples were collected from grab content to assess length distribution. 200 individuals across three subsamples were measured. 1 subsample was composed of pooled mussels from the majority of samples collected while 2 distinctives samples were set aside due to the quantity of seed found in each one. GR41 located along the mid-east boarder of the bed presented 540 g of seed (net) with an average length of 31.94 mm (min:14.96, max: 40.87 mm) and 313 pieces/kg. GR 44 (high density spot on the south of the bed, see map above) presented 1,140 g of seed (net) with an average length of 32.96 mm (min:11.42mm, max: 39.13

mm) and 313 pieces/kg. The pool samples presented an average length of **32.62 mm (min: 11.42, max: 42.38 mm)** and between **260 and 330 pieces/kg**.



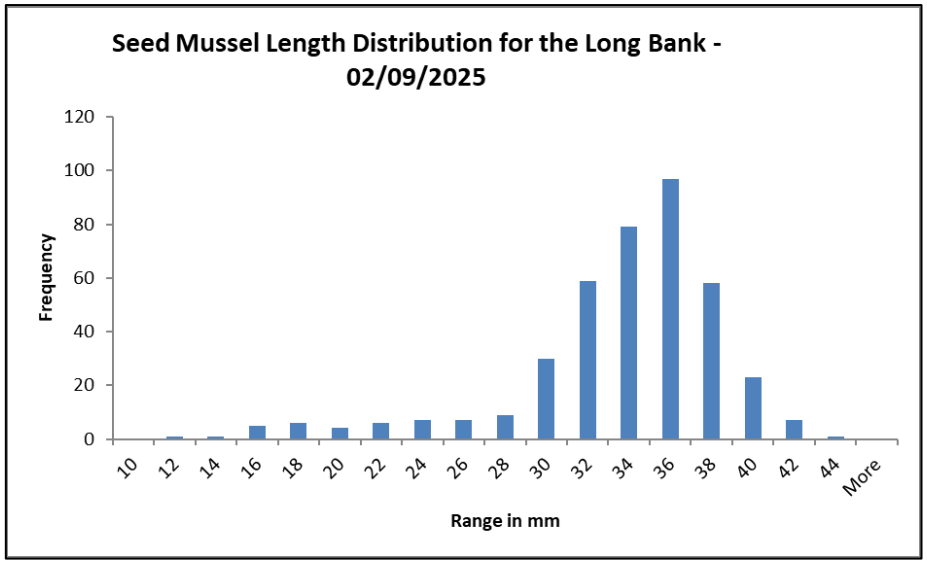




Fig. 4: Mussel size distribution for 30th July and 2nd September for the Long Bank bed

Có-mhaoinithe ag an Aontas Eorpach
Co-funded by the European Union
Rialtas na hÉireann
Government of Ireland
Bord Iascaigh Mhara
Irish Sea Fisheries Board

**Summary:**

The survey of the seed mussel bed between the Long Bank and the Lucifer Bank indicates that approximately **6,670 tonnes** of seed are spread over **267 hectares**. The average length of the seed at the time of the survey was **32.62 mm**. No mortality or signs of predation were observed, and the mussels were in good condition. The seed mussel observed on the bed appeared to have grown significantly between the 11th and 30th July (0.42 mm/days) with growth slowing between the 30th of July and the 2nd of September (0.08 mm/day).

**Aquaculture Technical Section**

**Seafood Technology Services Business Unit**

**BIM**

Reference:

BIM. 2016. Side Scan Sonar Features Catalogue.

Chopin, N. 2024. Temporal and Spatial Settlement of Subtidal Seed Mussels on the Southeast coast of Ireland. Bangor University. 127 pp. https://research.bangor.ac.uk/portal/en/theses/temporal-and-spatial-settlement-of-subtidal-seed-mussels-on-the-southeast-coast-of-ireland(63c5e187-82ac-4a73-a9fc-efbe7d34328c).html.

Hervas, A., Tully, O., Hickey, J., Keeffe, E. O., and Kelly, E. 2008. Assessment, Monitoring and Management of the Dundalk Bay and Waterford Estuary Cockle (*Cerastoderma edule*) Fisheries in 2007. 38 pp.

Pérez-Camacho, A., Labarta, U., and Beiras, R. 1995. Growth of mussels (Mytilus edulis galloprovincialis) on cultivation rafts: influence of seed source, Aquaculture, 138: 349–362. http://www.sciencedirect.com/science/article/pii/0044848695011390.

Có-mhaoinithe ag an Aontas Eorpach
Co-funded by the European Union

Rialtas na hÉireann
Government of Ireland

Bord Iascaigh Mhara
Irish Sea Fisheries Board