

Seed Mussel Survey Report for the Rusk Channel – 08/06 to 16/06/2022

Methodology: Acoustic data collection using 400 kHz side scan sonar, data processing on SonarWiz 7 and ground truthing of acoustic targets with a 1 meter dredge (BIM, 2016; Van Lancker et al., 2007; van Overmeeren et al., 2009).

Area surveyed: From the Blackwater North buoy and No.6 Rusk Buoy to No.1 and No.2 Rusk buoys.

Survey summary:

Three survey boxes were designated with the Rusk Channel including the area that was lost to predation in 2021. Faint seed mussel acoustic features were observed, mainly on the centre east of the channel. This was confirmed with the ground truthing using the dredge. 45 short tows were carried out (100 m length) with two potential seed mussel areas identified from south to north, Area 1 is **10 hectares** and Area 2 further north was **20 hectares**.

Table 1: Areas coordinates (in Degrees, Decimal minutes and WGS84 projection)

Area 1 (10 ha)

Latitude	Longitude
52° 29.861' N	6° 10.882' W
52° 29.848' N	6° 10.734' W
52° 29.493' N	6° 10.884' W
52° 29.500' N	6° 11.001' W

Area 2 (20 ha)

Latitude	Longitude
52° 31.061' N	6° 10.336' W
52° 31.047' N	6° 10.222' W
52° 30.375' N	6° 10.595' W
52° 30.472' N	6° 10.672' W
52° 31.068' N	6° 10.385' W

NOTE: The seed beds displayed on the attached map has been established following verification by ground- truthing of the side-scan sonar data. These coordinates represent the corners of a simplified polygon of the area of the possible settlement identified (yellow boxes on the map).



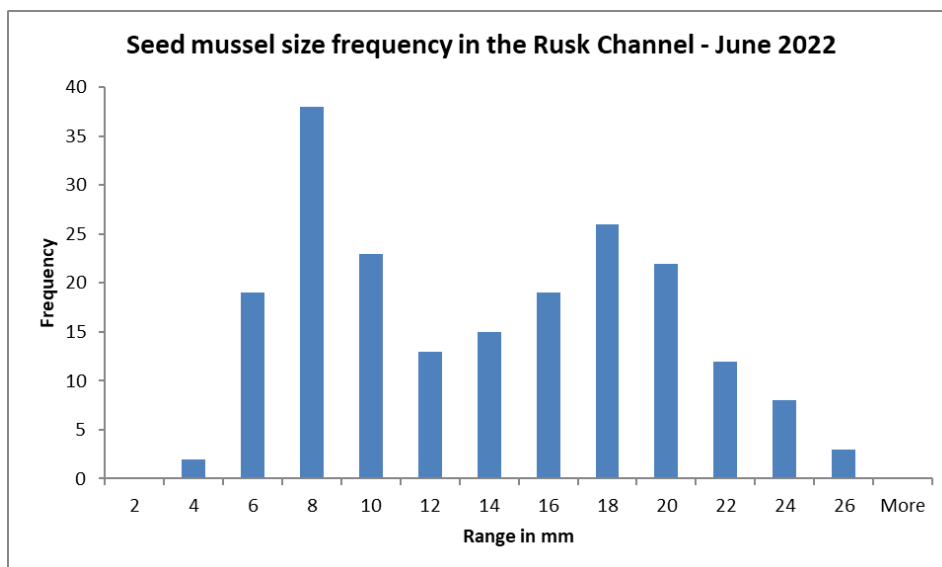
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Seven tows presented various quantities of both recently settled seed mussel and a slightly older cohort. Those two distinctive settlement are clearly visible on the size frequency graph below.



The average size of the seed mussel found in the Rusk Channel was **12.8 mm** (minimum: 2.94 mm, maximum: 25.3 mm). The two most represented cohorts are 6 to 10 mm and 16 to 20 mm, accounting for 30.5% and 24% of the mussel measured (n=200).

No overwintered seed mussel was found within the survey area. The current population in the Rusk appears to be similar to the one further north in the Glassgorman area. There was no visible predation on the seed collected, however a large quantity of spider crabs *Maja brachydactyla* were observed through the various samples.

The seed mussel found during this survey appear to be strongly attached to various part of the seabed with a high proportion of bryozoan (*Flustra*).

Because of the current size of the seed, no detailed biomass or waste was recorded at the time of the survey.



Fig.1: Details of the seed mussel from the Rusk Channel

Summary:

As per the Glassgorman settlement, the size of the seed mussel in the Rusk Channel did not allow a thorough biomass and predation impact assessment at the time of survey. However with an average growth rate of seed mussel of 7 mm/ month⁻¹ (Pérez-Camacho et al., 1995; Rodhouse et al., 1984), it is expected that the seed will have a suitable size by the start of July to carry out a full biomass and alien invasive species survey.

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- BIM. (2016). *Side Scan Sonar Features Catalogue*. Retrieved from https://www.researchgate.net/publication/358640202_Side_Scan_Sonar_Features_Catalogue_related_to_Aquaculture_and_Inshore_Fishing_Activities#fullTextFileContent
- Pérez-Camacho, A., Labarta, U., & Beiras, R. (1995). Growth of mussels (*Mytilus edulis galloprovincialis*) on cultivation rafts: influence of seed source,. *Aquaculture*, 138(1–4), 349–362. Retrieved from <http://www.sciencedirect.com/science/article/pii/0044848695011390>
- Rodhouse, P. G., Roden, C. M., Burnell, G. M., Hensey, M. P., McMahon, T., Ottway, B., & Ryan, T. H. (1984). Food Resource, Gametogenesis And Growth Of *Mytilus Edulis* On The Shore And In Suspended Culture: Killary Harbour, Ireland. *Journal of the Marine Biological Association of the United Kingdom*, 64(3), 513–529. <https://doi.org/10.1017/S0025315400030204>
- Van Lancker, V., Du Four, I., Papili, S., Verfaillie, E., Schelfout, K., Rabout, M., & Degraer, S. (2007). Habitat signature catalogue, Belgian Part of the North Sea.
- van Overmeeren, R., Craeymeersch, J., van Dalen, J., Fey, F., van Heteren, S., & Meesters, E. (2009). Acoustic habitat and shellfish mapping and monitoring in shallow coastal water - Sidescan sonar experiences in The Netherlands. *Estuarine, Coastal and Shelf Science*, 85(3), 437–448. <https://doi.org/10.1016/j.ecss.2009.07.016>



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Seed Mussel Survey Map for the Rusk Channel - June 2022



Legend

Tow_Rusk_spring category

- seed
- signs
- o_spec
- shells_st
- Side scan sonar tracks
- potential_seed_areas

INFOMAR_bathylines_5m

Contour

- 0
- -5
- -10
- -20
- -30
- -40

0 0.1 0.2 0.4 0.6 0.8 Nautical Miles

Esri, DeLorme, GEBCO, NOAA NGDC, and other contributors, Sources: Esri, GEBCO, NOAA, National Geographic, DeLorme, HERE, Geonames.org, and other contributors

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