

Seed Mussel Survey Report for South Wicklow – 11/05 to 26/05/2022

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 (Van Lancker et al., 2007; van Overmeeren et al., 2009).

Area surveyed: South of Wicklow Head from the south tip of the Horseshoe Reef to the north end of Brittas Bay extending east to the 20 meter contour line (see maps attached).

Survey summary:

An extensive area, covering historical bed locations, was searched using the side scan sonar. Observing typical seed mussel beds pattern (BIM, 2016) on the side scan sonar data was challenging in the area due to the specific nature of the seabed. However, some relevant features were found in multiple places validating mussel presence. The main seed mussel bed extends over **42 hectares** and is located 2 nautical miles east of the south end of the Horseshoe reef. Consistent quantities of mussel were found in 7 tows in the area, while a further 5 showed much lower amounts.

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

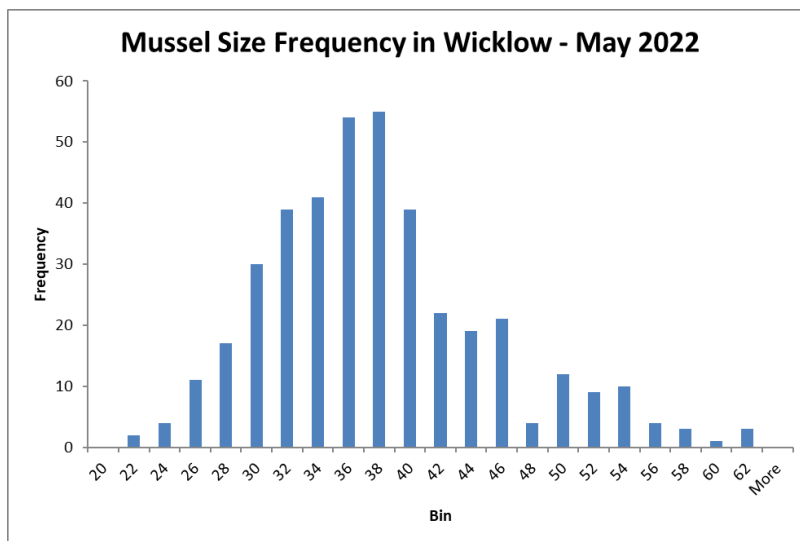
Latitude	Longitude
52° 56.540' N	5° 56.682' W
52° 56.526' N	5° 56.339' W
52° 56.412' N	5° 56.015' W
52° 55.962' N	5° 56.038' W
52° 56.433' N	5° 56.689' W

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).

Significant quantity of mussel was also found in two isolated location (Tw7 and Tw41 on the map). However, further investigation will be required as the search was impeded by whelk pots strings in those particular areas.

The average size of the mussel found in Wicklow in May was **37 mm** (minimum: 20.2 mm, maximum: 60.6 mm). The largest size frequency was comprised between 32 and 38 mm, accounting for 37.5% of the mussel measured (n=400).





This would indicate that the mussel biomass in Wicklow is mainly composed of overwintered seed from 2021 with some small amount of the 2020 stock (individuals comprised between 50 and 62 mm). At the time of the survey, no recent recruitment was visible (no mussels below 20 mm in length).

The mussels appear to be in good condition with no significant signs of predation. Visual inspection of the flesh indicated that this population was within spawning period with distinctive white and pink/brown flesh individuals (Chipperfield, 1953).

The average waste through 4 samples was 18% of the sample weight (minimum:3.5% maximum 38%), and it was mainly composed of stones, mix bryozoans and coarse sediment (see below).



Summary:

Wicklow is presenting a significant area of overwintered mussels spread over 42 hectares with potentially other patches. A full biomass and alien invasive species survey will be carried out in early July with detailed report to follow.

Aquaculture Technical Section
Seafood Technology Services Business Unit
BIM

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

Chipperfield, P. N. J. (1953). Observations on the breeding and settlement of *mytilus edulis* (L.) in British waters. *Journal of the Marine Biological Association of the United Kingdom*, 32(2), 449–476. <https://doi.org/10.1017/S002531540001465X>

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 Dalssen, 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>



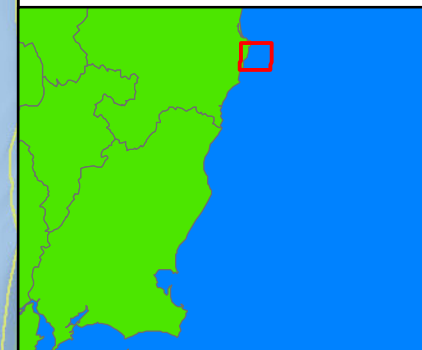
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Government of Ireland

Bord Iascaigh Mhara
Irish Sea Fisheries Board

Preliminary Seed Mussel Survey Map for South Wicklow Head - May 2022



Legend

Tows Wicklow category

- seed
- signs
- other species
- shells stones
- potential_seed_areas
- Side scan sonar tracks

INFOMAR_bathylines_5m

Contour

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



0 0.175 0.35 0.7 1.05 1.4 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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