

Preliminary Seed Mussel Survey Report for South Wicklow – 26 and 27/06/2024

Methodology: Acoustic data collection using 400 kHz side scan sonar, data processing on SonarWiz 6 and ground truthing of acoustic targets with a standard seed mussel fishing dredge meter dredge (BIM, 2016; Chopin, 2024; Van Lancker et al., 2007; van Overmeeren et al., 2009).

Area surveyed: In the area of the 2023 settlement, and along the shore from the Horseshoe Reef to Ardmore Point (see map).

Survey details:

- Survey on the 26/06: Sonar data was collected in an area covering the seed mussel bed found in September 2023 (26 hectares, 366 tonnes). 9 targets presenting potential seed mussel features were recorded. Full survey coverage was limited due to fixed fishing gear at the location. Restrictions imposed by presence of static gear limited investigation tows to 4 targets. TW8, located within the boundaries of the 2023 settlement, presented only mixed coarse sediment and few empty mussel shells, possibly indicating that the settlement did not survive the winter. Some traces of new seed were found in TW10, but only in very small quantities.

A second area was also investigated using the sonar; from the south end of the Horseshoe Reef going 2,500 m south. A further 12 acoustic targets were recorded. Traces of new seed (4 mm in length) was found in small quantities in TW1. Good quality 30 mm seed mussel were found in TW2 and TW3: a third of a dredge bag of clean seed for TW2 (112 m long), and half a bag for TW3 (172 m long). Seed mussels were also found in small quantities in TW4 and TW10. The other targets investigated did not return presence of seed.



- Survey on the 27/06: Further sonar survey was carried out along the shore from the back of the Horseshoe Reef to Ardmore Point. 9 more targets were recorded and investigated. More seed were found in TW18 (a third of a bag for 177 m), TW19 (same quantity but with mortality and few starfish for 155 m) and TW20 (3/4 of a bag presenting mortality, for 208 m). A small quantity of seed was also found in TW22, TW24 (also presenting few starfish) and TW25 (presenting significant mortality due to predation by starfish). Two more tows were carried out further north, outside the sonar survey area. TW16 (less than a quarter bag for 410 m long) and TW17 (similar quantity for 310 m long) presented similar seed. However, the survey could not establish a connection with the settlement found further south. The other targets did not indicate the presence of seed.

The seed mussel spread over an area representing **51 hectares** approximately and the results from this preliminary survey currently indicate variable degrees of biomass coverage on the seabed.

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

Latitude	Longitude
52° 56.837' N	6° 0.336' W
52° 56.847' N	6° 0.149' W
52° 56.439' N	6° 0.185' W
52° 55.982' N	5° 59.588' W
52° 55.721' N	5° 59.852' W
52° 55.765' N	6° 0.351' W

NOTE: The seed bed 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 (green box around the beds on the map).





Fig.1: Example of seed mussel found in Wicklow

Biometrics:

Samples were collected from TW2, TW16 and TW18. The seed appears to be in good condition with strong shell. The average size across the samples (N=300) is 31.88 mm (maxi: 43.43 mm, mini: 10.5 mm). The seed also appears to be relatively clean on the seabed; the amount of waste (not all mussel) observed through the samples were : 20% for TW2, 17% for TW16 and 9% for TW18. However, those values may not be exactly representative of the entire settlement, as the samples were hand collected in the dredge. The sizes distribution across the samples (see Fig.2) indicates that 60% of the population is between 30 and 36 mm (length).

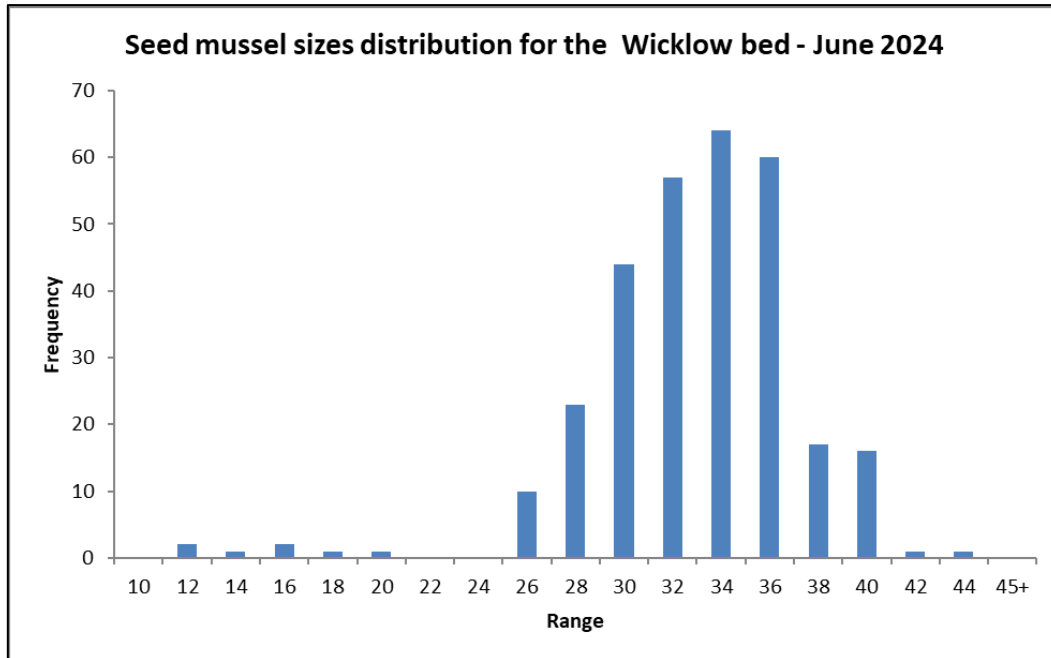


Fig.2: Seed mussel sizes (length) distribution for the Wicklow settlement in June 2024

Summary:

Following the acoustic survey carried out south of Wicklow Head, a seed mussel settlement covering approximately **51 hectares** was found. The coverage on the seabed appears to be variable. The average size across the samples was **31.88 mm**, with **60% of the mussel measured comprised between 30 and 36 mm**. There are some signs of starfish predation, mainly on the south side of the settlement. A very small amount of small seed (<20 mm) was found through the samples. **A further biomass estimation survey will be carried on the bed at the start of August.**

BIM Aquaculture Technical Section

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References

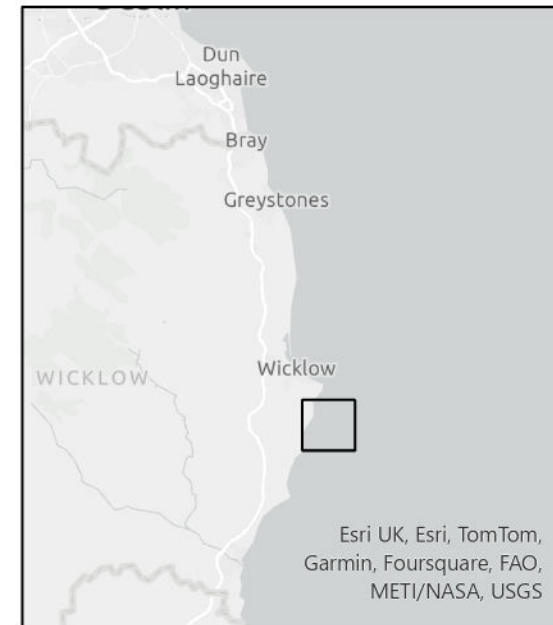
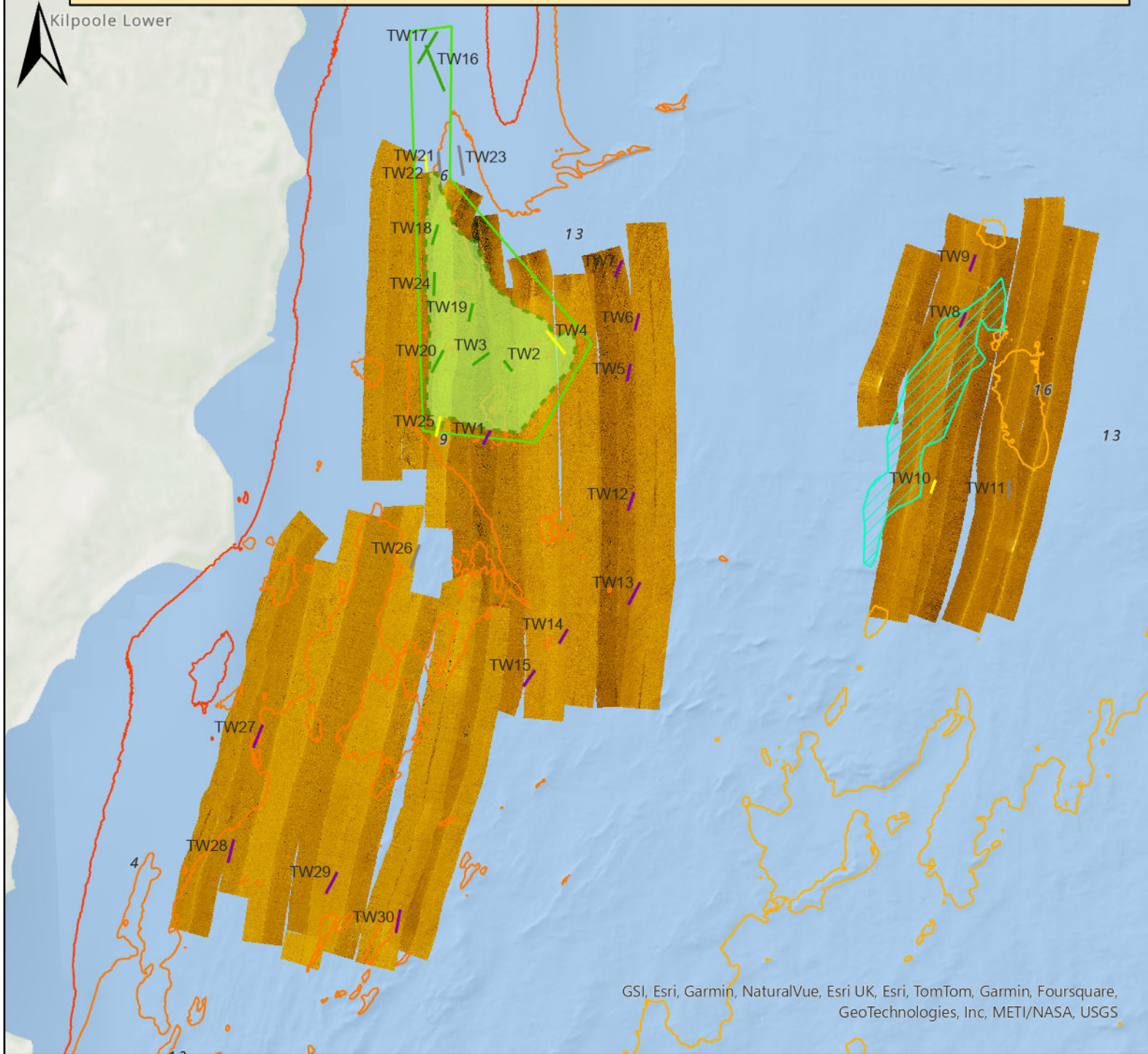
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Preliminary Seed Survey Map for South Wicklow - June 2024



Kilpoole Lower



Esri UK, Esri, TomTom, Garmin, Foursquare, FAO, METI/NASA, USGS

Legend

Tows	Bathymetry in m
— seed	— 0
— other species	— -5
— shells stones	— -10
— signs	— -15
■ seed_beds_24	— -20
□ beds_extent_24	— -25
▨ seed_beds23	— -30
■ sonar tracks	— -35
	— -40
	— -45
	— -50
	— -55
	— -60
	— -70
	— -75

Do not use for navigation
 Map prepared by : Nicolas Chopin, BIM,
 1/07/2024
 Credits bathymetry data: INFOMAR 2023

GSI, Esri, Garmin, NaturalVue, Esri UK, Esri, TomTom, Garmin, Foursquare, GeoTechnologies, Inc, METI/NASA, USGS

