Preliminary Seed Mussel Survey Report for South Wicklow Head – 8/05 to 23/05/2025

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 (Van Lancker *et al.*, 2007; van Overmeeren *et al.*, 2009; BIM, 2016; Chopin, 2024).

Area surveyed: In the area of the 2024 settlement, and along the shore from the Horseshoe Reef to Ardmore Point (see map).

Survey details:

An initial acoustic survey was conducted in May 2025 on the mussel settlement identified in August 2024, located south of Wicklow Head (52 hectares, 609 tonnes, average seed length: 32 mm). A few potential sonar targets were investigated in the area. The remaining mussels appeared to be significantly more scattered than in the previous year.

Nine tows were carried out within the boundaries of the 2024 bed. Tows TW2 and TW13 showed a significant presence of mussels, representing approximately ¾ and ½ of the survey dredge, respectively. Small clumps of mussels were observed in TW4, TW10, and TW14. The other tows yielded only minor mussel clumps and a high abundance of starfish (*Asterias rubens*), with notable mussel mortality due to predation in TW9. Starfish were also observed in most other tows, often in association with visible mussel mortality.

More overwintered mussels were found further north (TW3 and TW7), with fewer starfish and lower mortality levels compared to the southern area.

A visual inspection of mussel flesh on 08/05/2025 indicated that the mussels were ready to spawn. A follow-up inspection on 22/05/2025 (TW38 on the map) suggested some partial spawning, based on flesh condition (see Fig. 1).

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Fig.1: Wicklow mussel condition: 8/05/2025 on the left, 22/05/2025 on the right

The survey was extended eastwards to areas where seed had been observed in 2024 (TW16 and TW17). No mussels were found in that zone. However, overwintered mussels were detected further north (TW42 and TW50), along with scattered signs of new seed (4–6 mm in length) in the general area (TW40, TW41, and TW49). Evidence of starfish predation on overwintered mussels was also noted (Fig. 2).

Fig.2: Content of TW2 and TW42

Further sonar coverage was conducted at previously known mussel bed locations in South Wicklow (see map), but no additional overwintered mussels or new seed were found.

Biometrics:

The remaining mussels had an average size of 40.11 mm (min: 27.76 mm; max: 51.87 mm), with most individuals measuring between 38 and 44 mm. Significant growth has occurred since August 2024 (see Fig. 3). The mussels were located in water depths of less than 15 meters. Sea temperatures during the survey ranged from 13.04°C to 14°C, based on measurements taken on 13/05 and 21/05 between the surface and 10 meters depth.

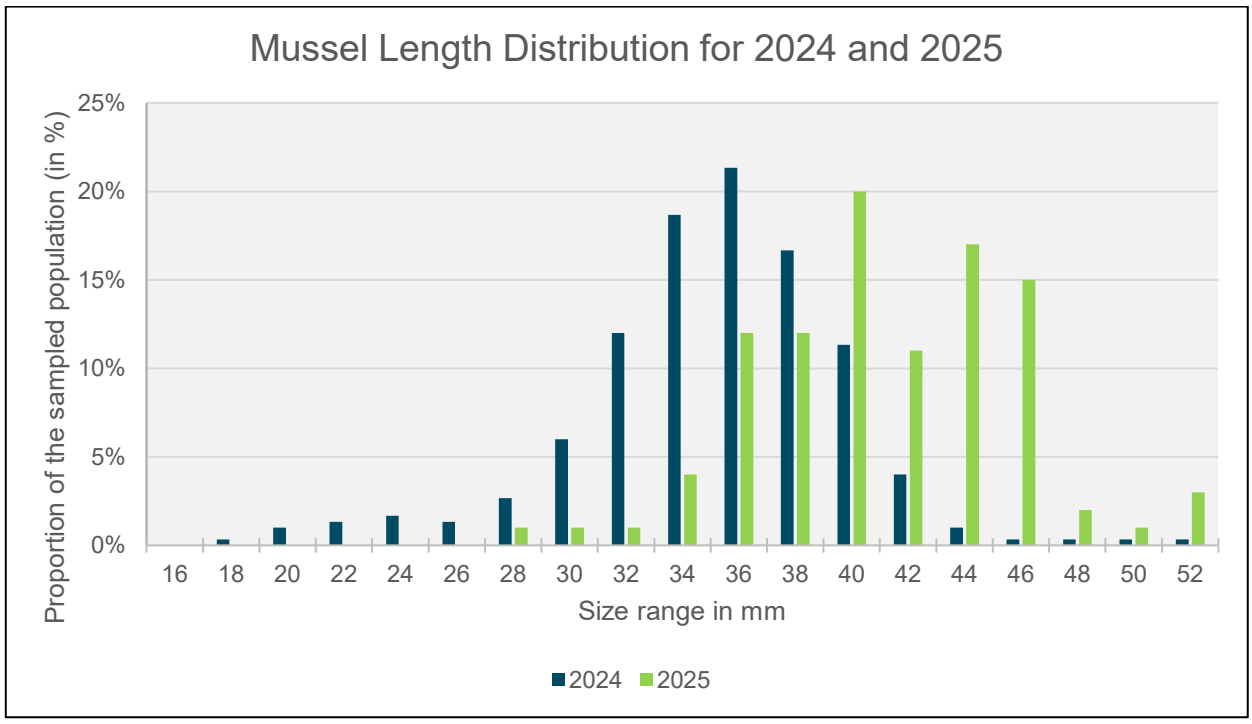

Fig.3: Wicklow bed mussel length distribution for 2024 and 2025

Summary:

Only a small portion of the mussels from the 2024 bed remains. Heavy predation by starfish at the site may explain the loss of biomass. However, spawning activity is ongoing, and some early signs of new settlement have been detected**.**

BIM Aquaculture Technical Section

28/05/2025

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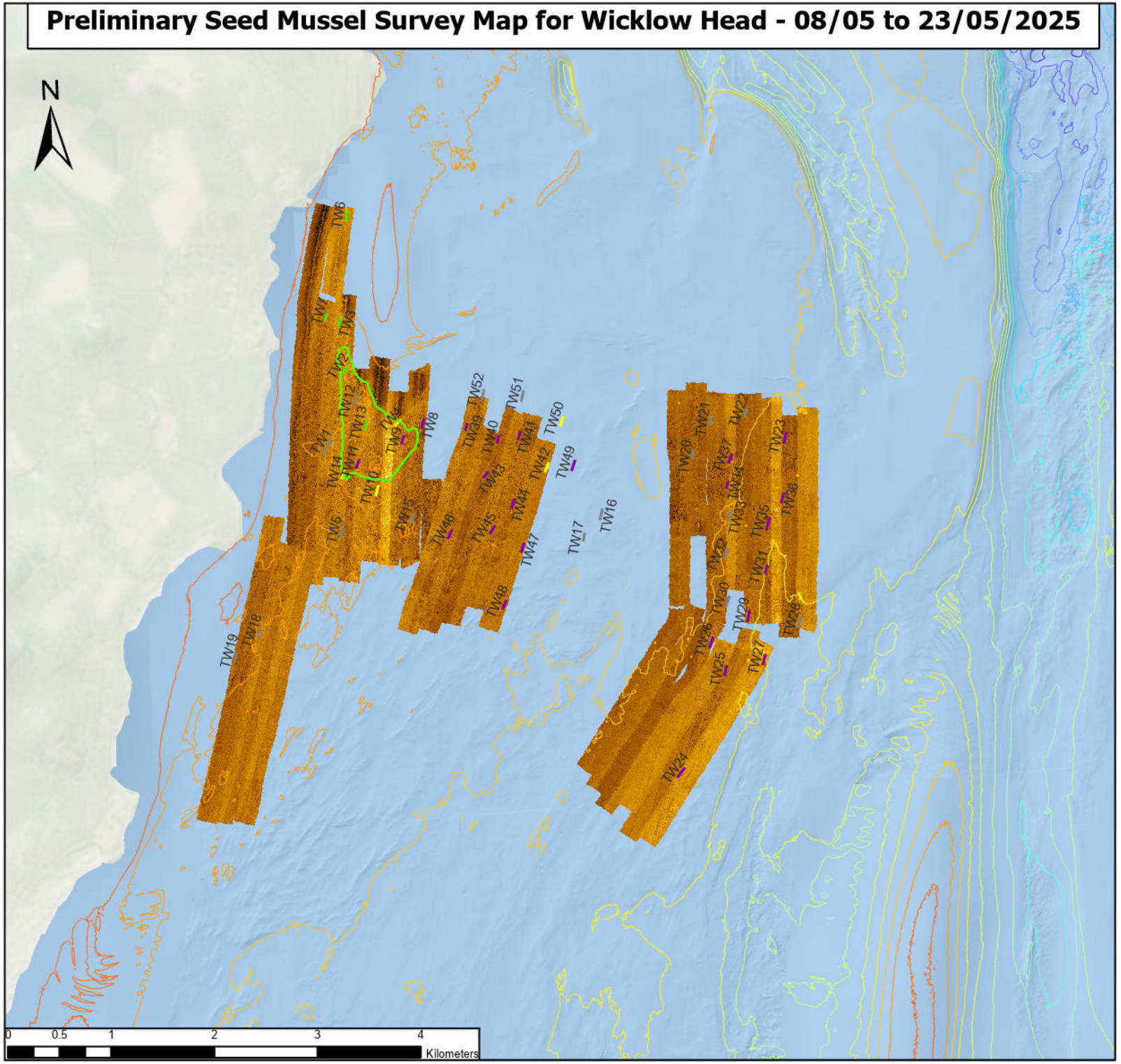
Preliminary Seed Mussel Survey Map for Wicklow Head - 08/05 to 23/05/2025



Legend

Previous beds

2024

Tows

seed

other species

shells stones

signs

Side scan sonar coverage

Bathymetric contours in m

0.0

-65

Do not use for navigation
Map prepared by: Nicolas Chopin, BIM
27/05/2025
Credit bathymetry: INFOMAR 2022