Preliminary Seed Mussel Survey Report for Rosslare – 18 and 19/05/2021

Equipment: 400 kHz side scan sonar, 1 meter dredge

Area surveyed: The South Shear, east of Rosslare Europort

Survey summary:

The post fishery report issued in January 2021 (BIM - Aquaculture), following the survey carried out in October 2020, highlighted limited remaining biomass on the seabed in Rosslare South Shear. This biomass could potentially play a role in providing a larvae source for the 2021 settlement. However, it was also highlighted that survivability of this biomass could also be an issue. According to a study carried out in 2005 on intertidal seed mussel beds, unfished seed mussel beds have shown important biomass depletion over winter due to predation (Steenbergen, Baars, Stralen, & Craeymeersch, 2005).

The side scan sonar was deployed on the 2020 seed mussel bed area in the South Shear. The data showed a number of interesting features noticeably distinctive seed mussel bed pattern (Commito & Rusignuolo, 2000; van Overmeeren et al., 2009). A total of 16 marks were taken and investigated using the dredge. Four tows showed various amount of half grown mussels, mainly concentrating in the south side of the possible bed. Three tows (TR1, TR2 and TR3) showed small amount of recently settled spat (< 10 mm in length). However, TR2 contained 110 starfish *Asteria rubens* and TR10 showed very high mortality due to predation. This possible bed is comprised within the following coordinates:

Area coordinates (in Degrees, decimal minutes WGS84)

Latitude	Longitude
52° 15.149' N	6° 18.041' W
52° 15.185' N	6° 18.407' W
52° 15.417' N	6° 19.010' W
52° 15.578' N	6° 19.207' W
52° 15.842' N	6° 19.228' W
52° 15.955' N	6° 18.826' W
52° 15.225' N	6° 17.913' W

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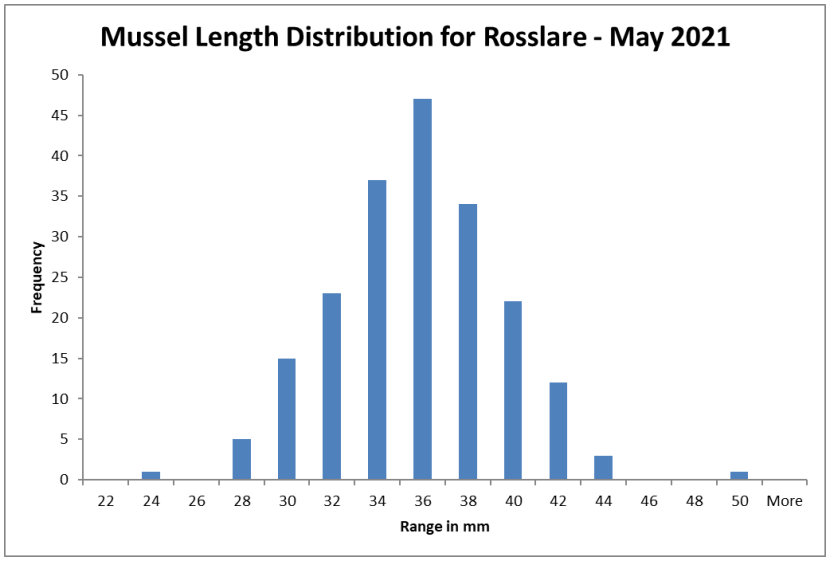
NOTE: The seed bed displayed on the attached map has been established following verification by ground- truthing of the side-scan sonar data. These coordinates represent the corners of a simplified polygon of the area of the settlement identified (green box on the map).

A total of 200 individuals were measured, and the average size was **34.82 mm** (min:23.33 mm; max: 49.38 mm), representing in average **281 pieces per kg**. The tows containing seed were mostly clean, showing no starfish and no apparent mortality.



The **average waste** throughout the sample was slightly below **20%**, and mainly comprised of small gravel, shells, and byssus threads. The mussel appeared to be in good condition and strongly attached. Visual observation of the flesh confirmed gonads ripeness (Chipperfield, 1953). No biomass has been estimated yet.

In addition to this survey, a vertical plankton haul was carried out outside Wexford Bar. The water temperature recorded in the water column (from 0 to 14 meters) was comprised between 11.6 and 11.8 degrees Celsius. The sample showed a significant amount of D Larvae, potentially of mussels.

Details of TR5 content

Recommendations:

Since 2019, Rosslare showed some overwintering mussel biomass even following fishing. However, the current population could be under threat from predation. Biomass estimation survey needs to be carried out on this settlement as well as monitoring for increased predation prior to further advice.

BIM Aquaculture Technical Section
Seafood Technology Services Unit

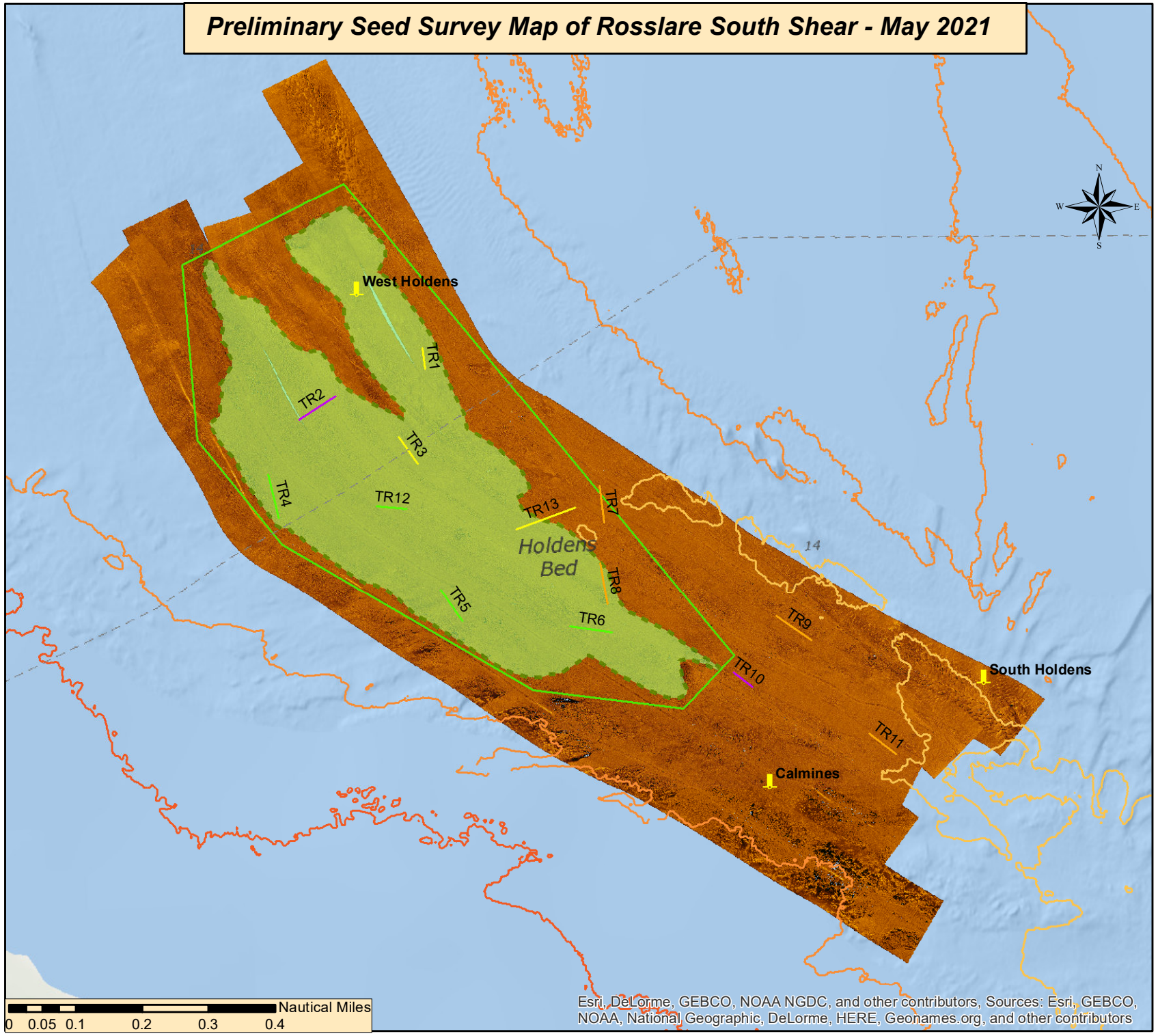
Chipperfield, P. N. J. (1953). Observations on the breeding and settlement of mytilus edulis (L.) in British waters. *Journal of the Marine Biological Association of the United Kingdom*, *32*(2), 449–476. https://doi.org/10.1017/S002531540001465X

Commito, J. A., & Rusignuolo, B. R. (2000). Structural complexity in mussel beds: The fractal geometry of surface topography. *Journal of Experimental Marine Biology and Ecology*, *255*(2), 133–152. https://doi.org/10.1016/S0022-0981(00)00285-9

Steenbergen, J., Baars, J. M. D. D., Stralen, M. R. Van, & Craeymeersch, J. A. (2005). Winter survival of mussel beds in the intertidal part of the Dutch Wadden Sea. *Monitoring and Assessment in the Wadden Sea. Proceedings from the 11. Scientific Wad- Den Sea Symposium*, *NERI Techn*(January), 107–112.

van Overmeeren, R., Craeymeersch, J., van Dalfsen, 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

Preliminary Seed Survey Map of Rosslare South Shear - May 2021



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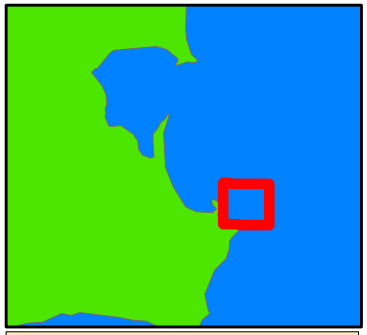

Legend

buoysMFAWgs

Category

- other_species
- seed
- shells_stones
- signs
- side_scan_sonar_track

INFOMAR_bathylines_5m

- -40
- -35
- -30
- -25
- -20
- -15
- -10
- -5
- 0
- Ross_extent
- Rosslare_21

Nicolas Chopin - BIM STS - 20/05/2021
Not to be used for Navigation