BIM Ireland's Seafood Development Agency

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Preliminary Seed Mussel Survey Report for the Wexford/Rosslare Area – 7/07/2020 to 16/07/2020

Equipment: 400 kHz side-scan sonar, 1 m dredge, Go Pro camera for video transects

Area surveyed: (see Seed Mussel Survey Extent Map) Previouly productive seed mussel beds in the Wexford/Rosslare area: Rosslare South Shear, from the North Long cardinal buoy to the West Long starboard buoy on the west side of the Long Bank, on the 2019 seed mussel settlement between the Lucifer Bank and the Long Bank and the Wexford Harbour Bar.

Survey summary:

As is standard practice historical beds were checked first. Side-scan sonar data was collected in the areas mentioned above, and typical seed mussel patterns were observed at various locations in the South Shear and on the West side of the Long Bank. No indicatations of seed were observed at the Bar Buoy or at the 2019 bed between the Long Bank and the Lucifer Bank.

1- Rosslare (see Rosslare Preliminary Survey Map) :

A mix of half-grown mussel and some newly settled seed was found in the South Shear over an area representing of approximately 52 hectares.

Table 1: Area coordinates (in Degrees, decimal minutes WGS84):

Latitude	Longitude
52° 15.828' N	6° 18.802' W
52° 15.723' N	6° 18.282' W
52° 15.117' N	6° 17.525' W
52° 15.049' N	6° 17.657' W
52° 15.400' N	6° 18.578' W
52° 15.603' N	6° 19.046' W
52° 15.699' N	6° 18.796' W

NOTE: The seed bed displayed on the attached map has been established following verification by ground-truthing of the 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).

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Department of Agriculture, Food and the Marine

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8 tows were carried out in the area: all returning mussels. With an average towing distance of 60 m, all dredges were between 2/3 and 3/4 full. A significant amount of large starfish was observed in TR2 with evidence of predation on the mussels. At the time of the survey, the rest of the area appeared clear of starfish. Three video transects of 50 m each were carried out in the area. The seed coverage has been estimated to be between 50 and 60 % across the three transects. The newly settled seed appeared in TR5, TR6 and TR7 at the north side of the bed.

The average size from the sample taken in TR1 was **38 mm** (min: 13.5 mm, max: 46 mm), representing **228 pieces per kg**. The sample from TR5 was comprised of both half-grown and new seed. The average size for the **half-grown** was **41 mm** (min: 32.2 mm, max: 51.7) representing **184 pieces per kg**, for the **new seed**, the average size was **16.5 mm** (min: 5.9 mm, max:24 mm) representing **2600 pieces per kg**.

Over the 294 mussels measured from Rosslare, 41% were between 38 and 42 mm and 26% between 16 and 20mm. The amount of waste is relatively low (<20%) and is mainly composed of spider crabs, shells and stones. The ground appeared levelled on the north side and rough with some large stones at the south end (both from side scan data and video).

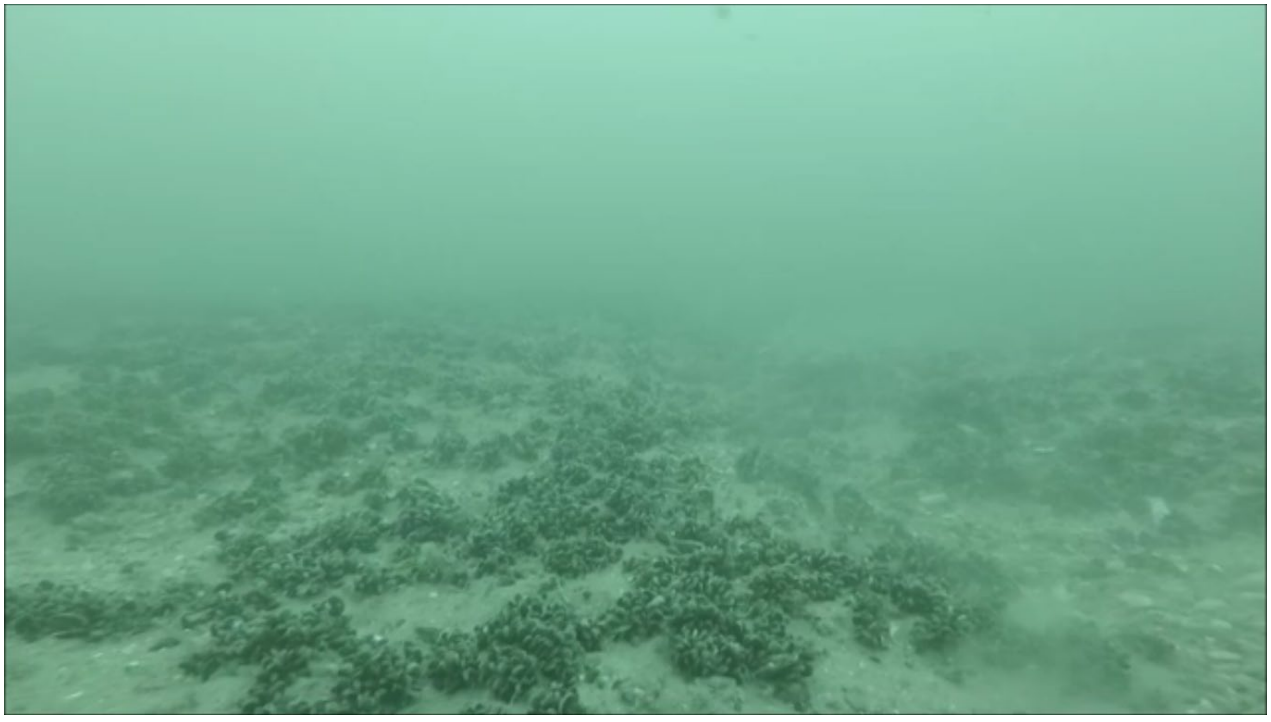

Fig.1: Seed mussel coverage on the Rosslare bed

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2- Long Bank west (see West long Bank Preliminary Survey Map)

A small area of half-grown mussel was found on the west side of the Long Bank, covering approximately 14 hectares.

Table 2: Area coordinates (in Degrees, decimal minutes WGS84):

Latitude	Longitude
52° 19.284' N	6° 17.775' W
52° 19.279' N	6° 17.653' W
52° 19.057' N	6° 17.539' W
52° 18.718' N	6° 17.838' W
52° 18.873' N	6° 17.881' W

NOTE: The seed bed displayed on the attached map has been established following verification by ground-truthing of the 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).

Preliminary tows were carried out in the area following sonar data returning typical seed mussel patterns; significant mortality from predation and a large amount of starfish were observed in each tow. 16 more tows were done to assess the impact on the bed: the average tow length was 56 m, and the average weight 22kg per dredge (min: 5 kg, max: 53 kg). For each tow, mussels (empty and live) were separated and weighed from the other content (mainly starfish, oyster shells and spider crabs). The average waste per tow represented over 50% of the weight of each dredge. Between 90 and 100% mortality due to predation was observed in 9 tows. Only 3 tows showed a low amount of mortality (between 5 and 10%). 2 tows only contained bycatch materials, and three subsamples were taken across the remaining tows. Mortality in those subsamples was 29%, 38% and 39%. The average size of the sampled mussels was 50.3 mm (min: 41 mm, max: 59 mm) representing 100 pieces per kg, with 48% of the sampled individuals being between 50 and 52 mm. From the video transect and side-scan sonar data, it is estimated that the mussel coverage pre-predation would have been between 60 and 70%.

This bed is considered to be a total loss, and it is unlikely that any substantial quantity of mussel will survive until the opening of the fishery. However, the level of maturation observed on this bed shows that these mussels had spawned earlier in the year.

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Fig.2: starfish coverage on the Long Bank bed

3- Long Bank West - new settlement (see West long Bank Preliminary Survey Map)

Southwest of the half-grown bed, scattered amount of new seed mussel was found in an area of approximately 30 hectares. No defined features were observed on the side-scan sonar data.

Table 3: Area coordinates (in Degrees, decimal minutes WGS84):

Latitude	Longitude
52° 18.981' N	6° 18.175' W
52° 18.963' N	6° 17.943' W
52° 18.360' N	6° 18.265' W
52° 18.380' N	6° 18.552' W

Small quantities of small seed mussel observed in 6 tows (between ¼ and ½ survey dredge bag). The seed has settled on old oyster shells and stones covered with barnacles. It is still very small, reaching and average length of 15.3 mm (min: 3.7 mm, max: 24.5 mm), 2800 pieces per kg at the time of the survey. The size class indicates a possibility of multiple settlements: 47% of the sampled population was between 18 and 22 mm, and 22% was

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between 10 and 12 mm. The proximity of the starfish from the half-grown bed could pose a threat to this new settlement. The area will need to be monitored for predation.

4- Bar Buoy and 2019 seed bed location

Side-scan sonar data was collected at both locations and several tows were carried out. No significant amount of seed mussel was found at either location, although few traces of very small seed was found at the Bar Buoy.

Recommendation:

Two potential seed mussel beds have been identified. However it is still too early to assess the possible tonnage that both locations could yield. Biomass estimation and Invasive Alien Species surveys will be carried out at a later stage, closer to the proposed opening date for the fishery. Predator monitoring should be conducted on the two areas to avoid further loss of resource. The deployment of the grab on the 14 hectares bed would have been ineffective due to the density of starfish. Therefore, there are no precise figures on the amount lost to predation.

Nicolas Chopin

Inshore Survey Officer

BIM Aquaculture Technical Section – STS BU

Note for the map:

TR stands for Tow Rosslare

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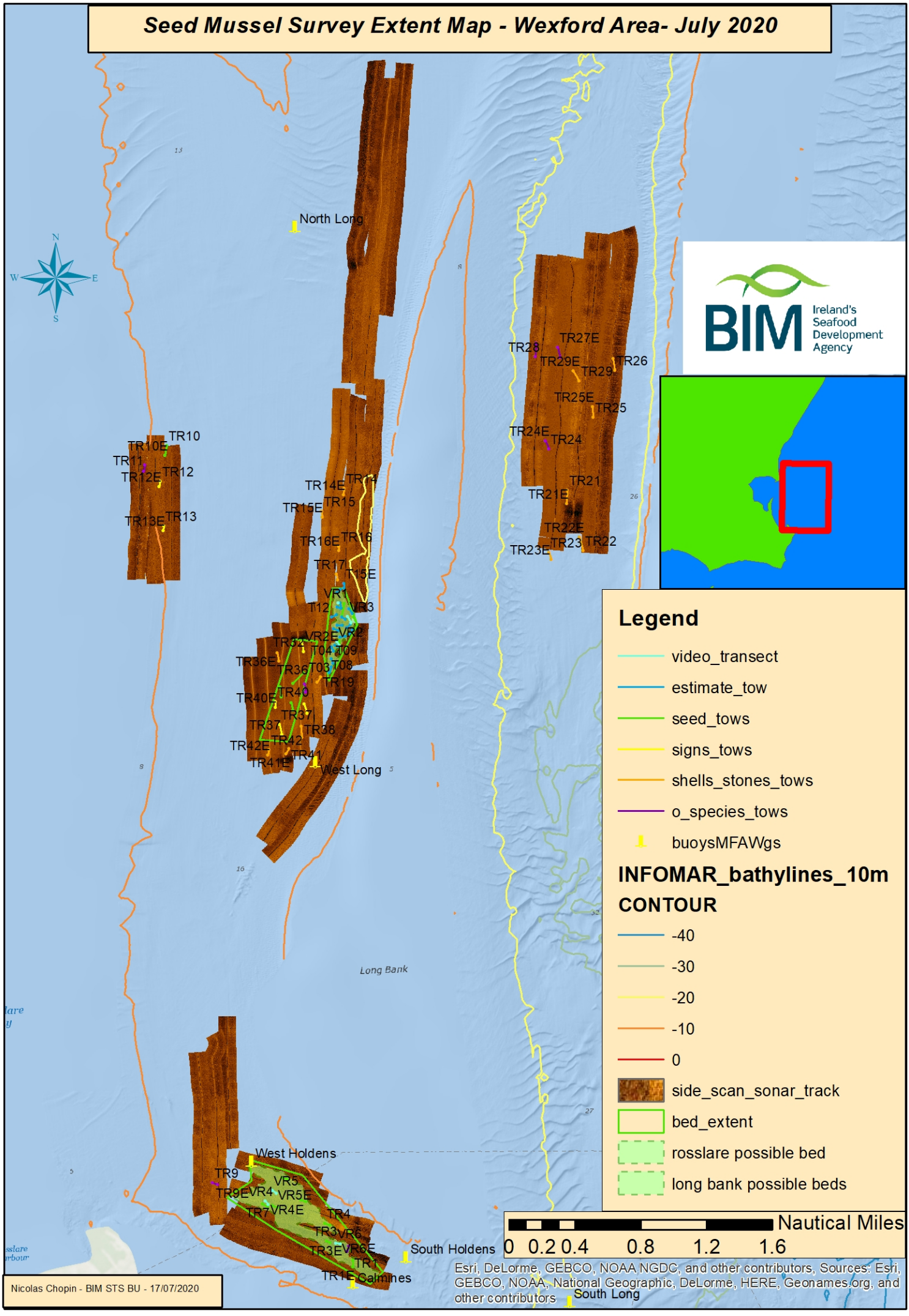
Seed Mussel Survey Extent Map - Wexford Area- July 2020



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Legend

- video_transect
- estimate_tow
- seed_tows
- signs_tows
- shells_stones_tows
- o_species_tows
- buoysMFAWgs

INFOMAR_bathylines_10m

CONTOUR

- -40
- -30
- -20
- -10
- 0
- side_scan_sonar_track
- bed_extent
- rosslare possible bed
- long bank possible beds

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Rosslare Preliminary Survey Map- July 2020

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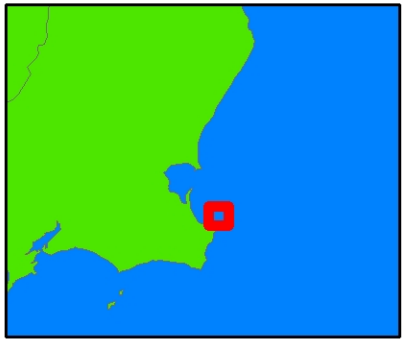

Legend

- video_transect
- seed_tows
- shells_stones_tows
- o_species_tows
- buoysMFAWgs

INFOMAR_bathylines_10m

CONTOUR

- -40
- -30
- -20
- -10
- 0
- side_scan_sonar_track
- bed_extent
- rosslare possible bed

Nautical Miles

0 0.05 0.1 0.2 0.3 0.4

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West Holdens
TR8
TR8E
TR9
TR9E
VR5
VR5E
TR5
TR5E
VR4
TR7
VR4E
TR6
TR7E
TR4
TR4E
TR3
VR6
TR3E
VR6E
TR2E
TR1
TR1E
South Holdens
Calmines

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West Long Bank Preliminary Survey Map- July 2020

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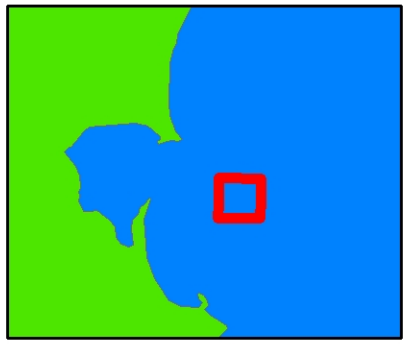

Legend

- video_transect
- estimate_tow
- seed_tows
- signs_tows
- shells_stones_tows
- o_species_tows
- buoysMFAWgs

INFOMAR_bathylines_10m

CONTOUR

- -40
- -30
- -20
- -10
- 0
- side_scan_sonar_track
- bed_extent
- long bank possible beds

Nautical Miles

0 0.045 0.09 0.18 0.27 0.36

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TR17
TR17E
T15E
T15
T16
VR1
T06
T06E
T14E
T12
T07
VR3
T07E
VR3E
T05E
T11
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T11E
T02E
T10
VR2
T10E
T04
VR2E
T09E
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TR38E
TR37
TR38
TR42
TR41
TR42E
TR41E

West Long

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