



## Seed Mussel Survey report for Castlemaine Harbour/ Cromane – 21/07/14 to 24/07/14

**Vessel:** MV T'Burke, Skipper John Murphy, Survey Officer Nicolas Chopin.

**Equipment:** 400 kHz side scan sonar, 1 meter dredge, 0.1 m2 Day Grab and underwater camera.

**Area surveyed:** Channel between Rosbehy Point and Inch Point from the Bar to Jack's Pub.

### Survey summary:

Following reports from the local industry of signs of seed in Cromane, a survey was carried out in the usual area to assess potential settlement.

The side scan sonar was deployed in the channel between Rosbehy Point and Inch, from the inner limit of the sand bar (west) to the shore in the front of Jack's Pub (see Map 1). Significant seed mussel patterns were observed in various locations in the channel.

All the marks taken with the side scan sonar survey were investigated by sample collection. Seed was located in a large area over 3 km in length.

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

Latitude	Longitude
52° 5.707' N	9° 58.439' W
52° 5.588' N	9° 56.951' W
52° 5.986' N	9° 55.689' W
52° 5.889' N	9° 55.473' W
52° 5.397' N	9° 56.448' W
52° 5.494' N	9° 58.113' W
52° 5.545' N	9° 59.179' W
52° 5.647' N	9° 59.383' W

NOTE: The areas displayed on the attached map have been established following the side scan sonar data verified by ground truthing. These coordinates represent a simplified polygon of the area of the settlements identified.

Two patches and two larger areas were defined following data collection and analysis of seed size.

Area 1 and 2 (see map 2) are mainly populated by larger individual seed mussels (20 mm in average) with very little waste (24%). Area 1 is approximately 1 hectare in size and Area 2 is approximately 7

hectares. There is little evidence of predation on those patches at this time, with only small numbers of green crab found.

Area 3 is approximately 27 hectares in size and the seed is 10 to 15 mm in size. Starfish (majority 10 cm diameter), are already predated this settlement but are currently concentrated on the edges (TD24 on Map 2). Lower densities of starfish are also spread across the settlement as but at a lower density (from video footage).

Area 4 is the largest settlement for 2014 and a thick carpet of seed (10 mm) is spread over 40 hectares. Again starfish were observed across the bed with a high concentration on the east side (TD11 on Map 2) where they currently reach nearly 40% of the dredge.

The grab was deployed on the 3 main settlements to estimate the current tonnage. From the data collected, there is currently around 3000 to 3500 tons of small seed (across the areas 2, 3 and 4). From extensive video footage, it was observed that the seed is forming a thick cover on the seabed (2 to 4 cm in some areas) and the only other visible species are various crabs and starfish.

#### **Seabed Type:**

The seabed varies between the different settlements:

- Shells and coarse sand for Areas 1 and 2
- Small stones and gravel for Area 3 and the western border of Area 4
- Small stones and mud for the rest of Area 4

The depth of the various settlements is from 8 to 13 m.

#### **Recommendations:**

Currently the estimated tonnage is 3000 to 3500 tons. Starfish and crabs are already predated the stock; therefore local operators should monitor predator movement and contact BIM for assessment if mortality increases rapidly in the coming weeks. It could be expected that the current settlement may increase in weight and size prior to the opening, thus increasing the available tonnage.

Nicolas Chopin  
BIM Inshore Survey Officer  
Aquaculture Technical Section

#### ***Note for the map:***

TD stands for Tow Dingle

CD stands for Camera Dingle

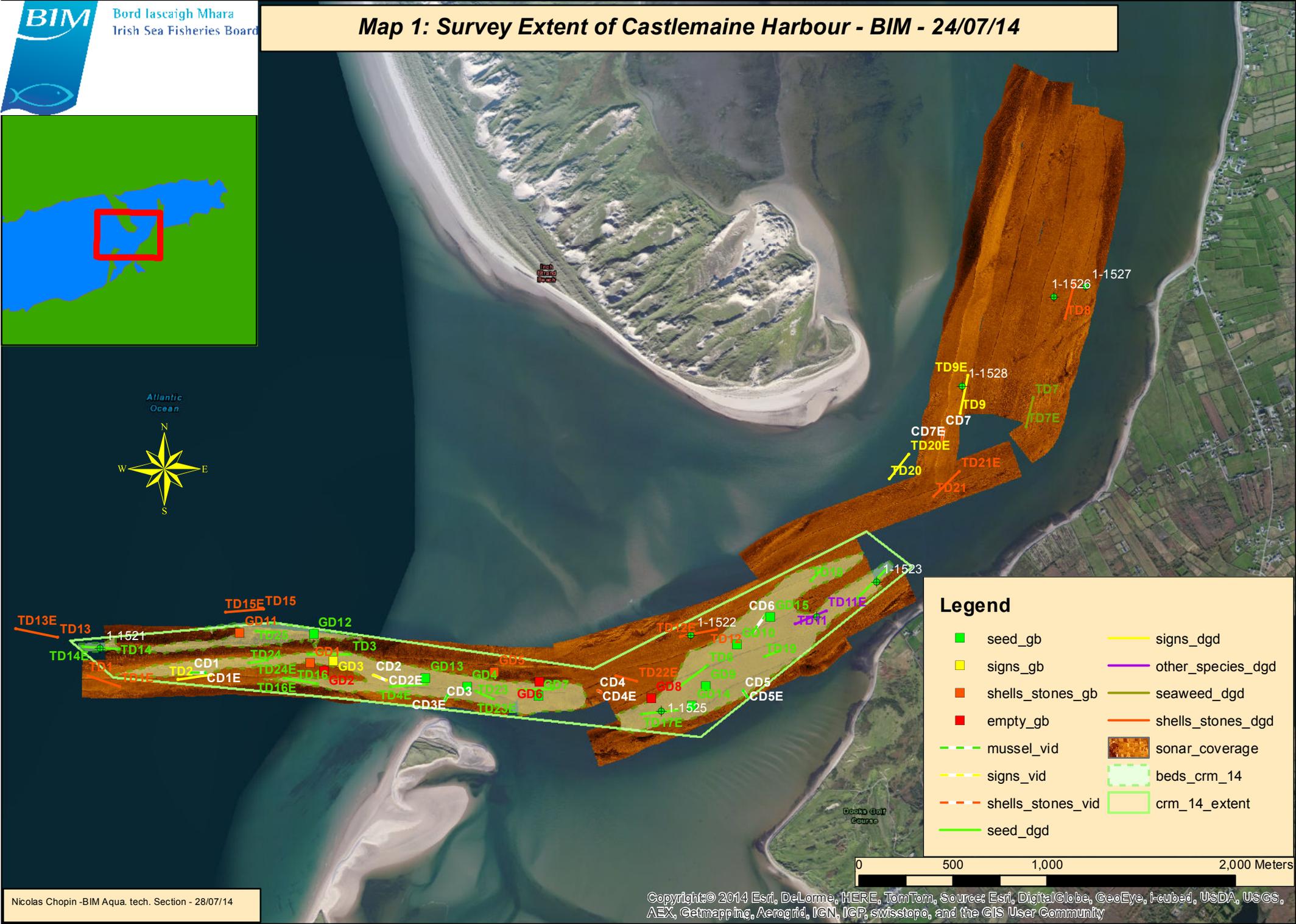
GD stands for Grab Dingle

In the legend dgd stands for dredge

In the legend vid stands for video tows

In the legend gb stands for grab

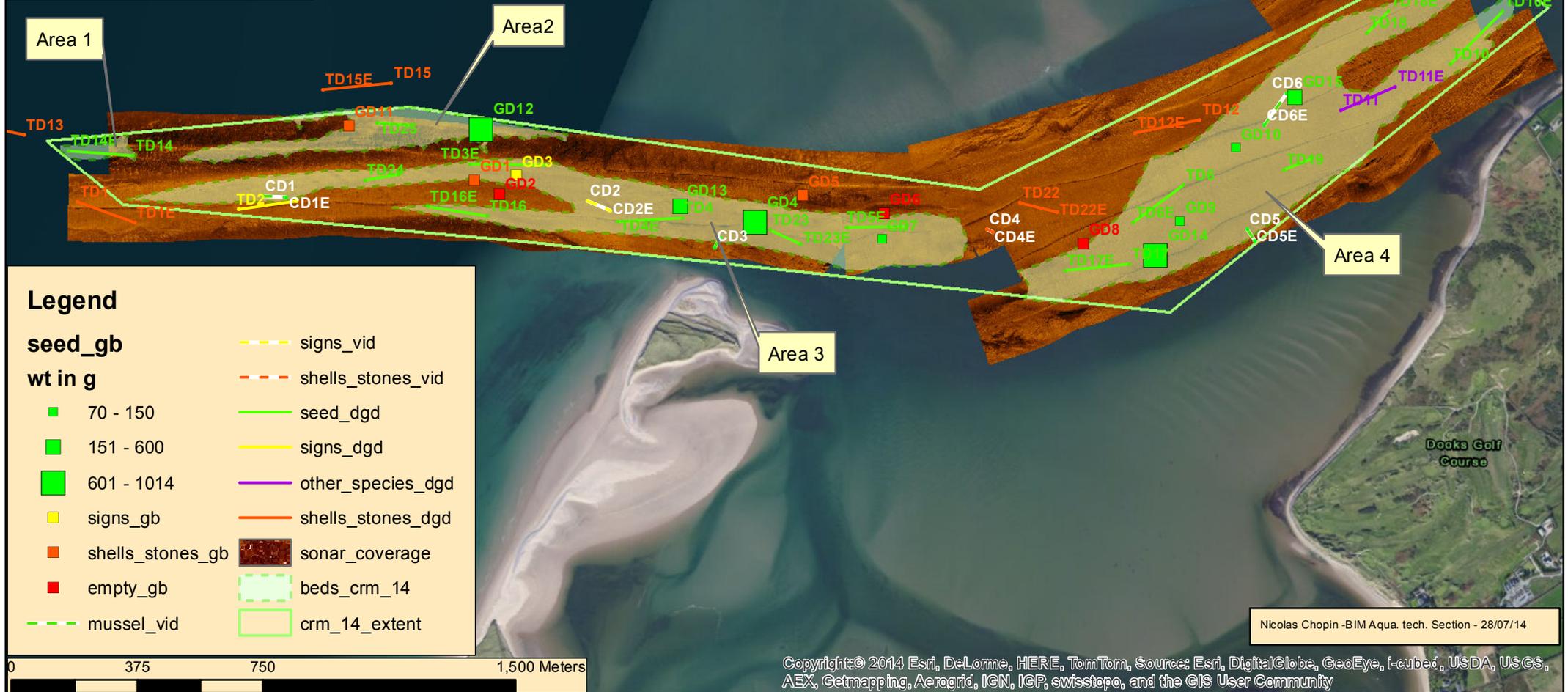
**Map 1: Survey Extent of Castlemaine Harbour - BIM - 24/07/14**



**Legend**

<span style="color: green;">■</span> seed_gb	<span style="color: yellow;">—</span> signs_dgd
<span style="color: yellow;">■</span> signs_gb	<span style="color: purple;">—</span> other_species_dgd
<span style="color: orange;">■</span> shells_stones_gb	<span style="color: olive;">—</span> seaweed_dgd
<span style="color: red;">■</span> empty_gb	<span style="color: orange;">—</span> shells_stones_dgd
<span style="color: green;">- - -</span> mussel_vid	sonar_coverage
<span style="color: yellow;">- - -</span> signs_vid	<span style="border: 1px dashed green; display: inline-block; width: 20px; height: 10px;"></span> beds_crm_14
<span style="color: orange;">- - -</span> shells_stones_vid	<span style="border: 1px solid green; display: inline-block; width: 20px; height: 10px;"></span> crm_14_extent
<span style="color: green;">—</span> seed_dgd	





**Legend**

**seed\_gb wt in g**

- |  |  |
|--|--|
| <span style="color: green;">■</span> 70 - 150          | <span style="color: green;">---</span> signs_vid               |
| <span style="color: green;">■</span> 151 - 600         | <span style="color: red;">---</span> shells_stones_vid         |
| <span style="color: green;">■</span> 601 - 1014        | <span style="color: green;">---</span> seed_dgd                |
| <span style="color: yellow;">■</span> signs_gb         | <span style="color: yellow;">---</span> signs_dgd              |
| <span style="color: orange;">■</span> shells_stones_gb | <span style="color: purple;">---</span> other_species_dgd      |
| <span style="color: red;">■</span> empty_gb            | <span style="color: orange;">---</span> shells_stones_dgd      |
| <span style="color: green;">---</span> mussel_vid      | <span style="background-color: brown;">■</span> sonar_coverage |
|  | <span style="border: 1px dashed green;">□</span> beds_crm_14   |
|  | <span style="border: 1px solid green;">□</span> crm_14_extent  |

Nicolas Chopin - BIM Aqua. tech. Section - 28/07/14