Annex 1 – August 5th 2025 TSB Agenda Item 5

Mussel Surveys and inspections – Morecambe Bay

Heysham Flat Mussel Inspection 30-05-2025

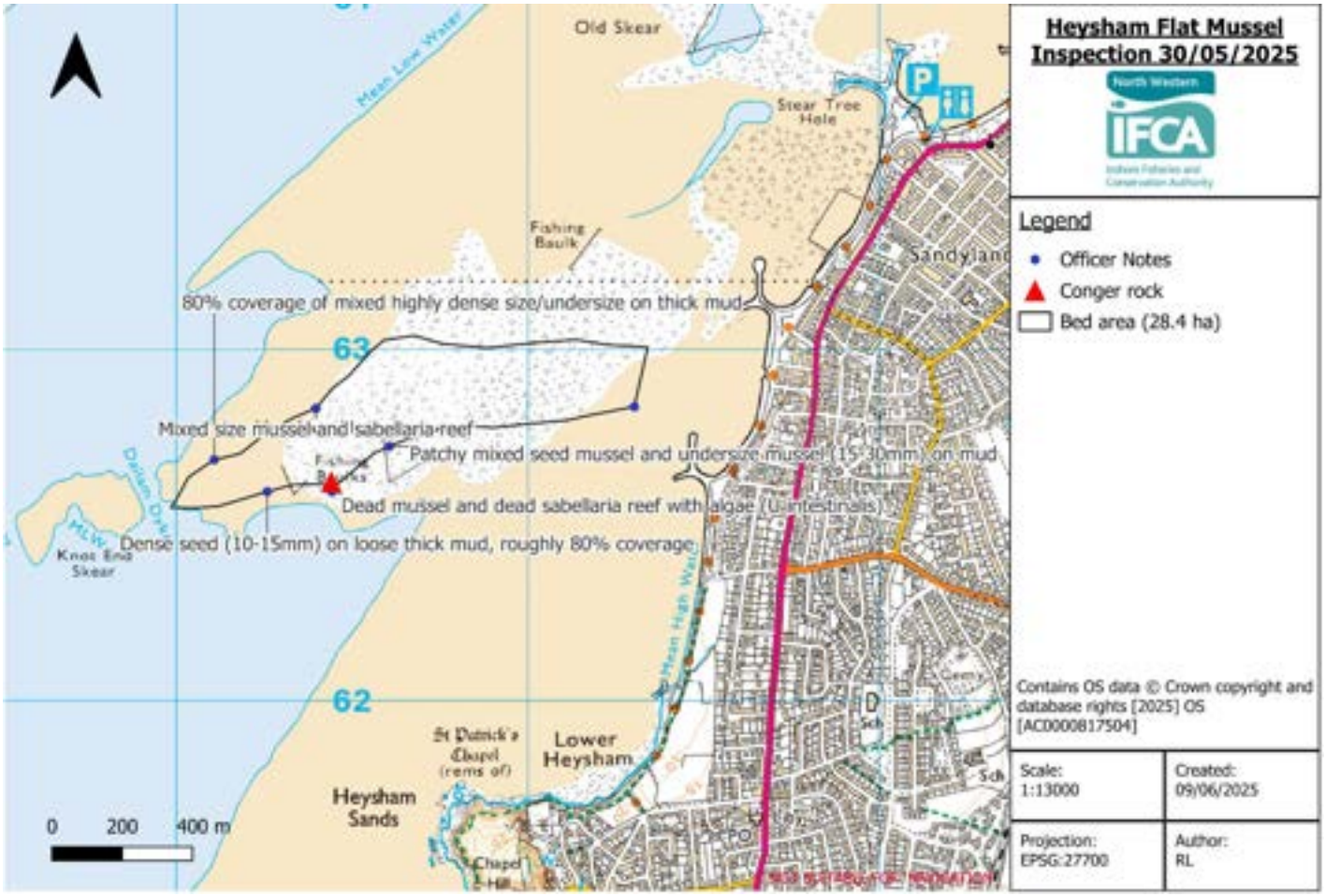
Officers present: GG, LL, RL

Tides: LW 08:50 1.3m (Liverpool tides)

Officers inspected the mussel on Heysham Flat to assess for any settlement and growth since the previous inspection (03/03/2025). Access to the outer skears was not possible across Dallam Dyke due to the height of the tide. Officer tracks and notes are mapped in figure 1. Cobble and shell were present at the edge of the bed with seed mussel (5mm-10mm (Figure 3) appearing at the north east corner of the bed area.

Live *Sabellaria avleolata* reef was present along the North and South of the skear (Figure 7). The edge of the South reef was not mapped by officers. Smaller patches of live and dead *Sabellaria alveolata* were found throughout the area, some of which was covered by mussel. A covering of the hair algae species *Ulva intestinalis* and *Cladophora spp* (Figure 4) could been seen across the Southern area of the bed.

A large, high-density settlement of seed mussel was observed west of Conger Rock, extending towards Dallam Dyke (Figure 5). This settlement was not present during the previous inspection. The seed mussel was loosely attached to soft mud, with some areas showing clumping (Figure 6). Additionally, a denser



patch of mixed-size and undersized mussel was recorded along the northern edge of the Skear, adjacent to the *Sabellaria alveolata* reef.

Oystercatchers, gulls, knots and eiders were all present in the area.

Figure 2 Mixed seed mussel and undersize mussel (15-30mm) on mud

Figure 2 Dead shell and exposed cobble 30/05/2025

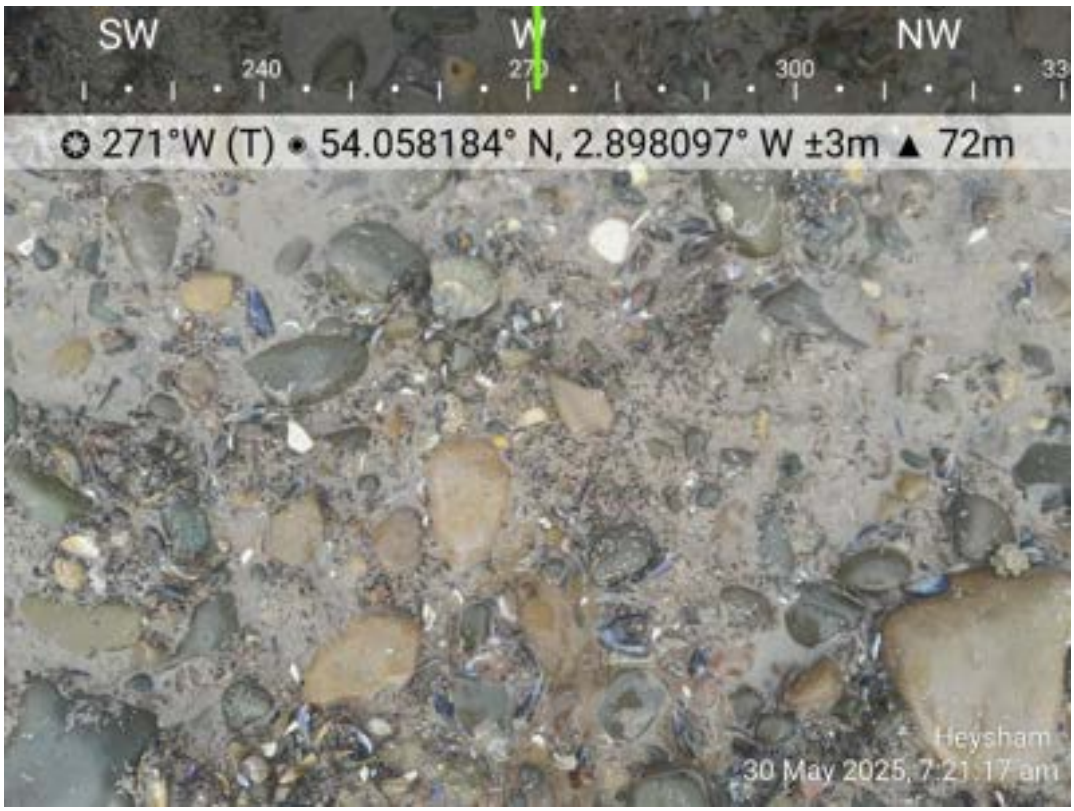


Figure 3 Patchy low-density size/undersize mussel on exposed cobble/sand 30/05/2025

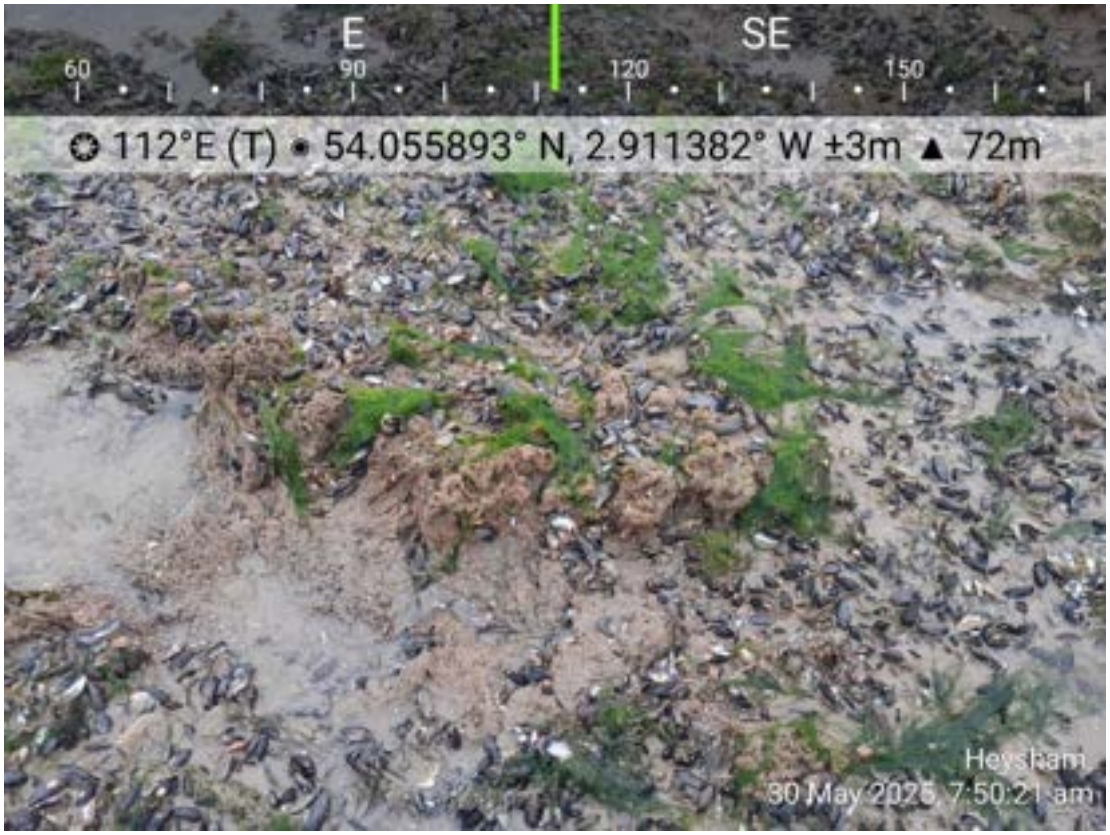


Figure 4 Dead mussel and dead Sabellaria reef with a coverage of hair algae

Figure 5 Dense seed mussel on loose thick mud (facing towards Dallam Dyke)

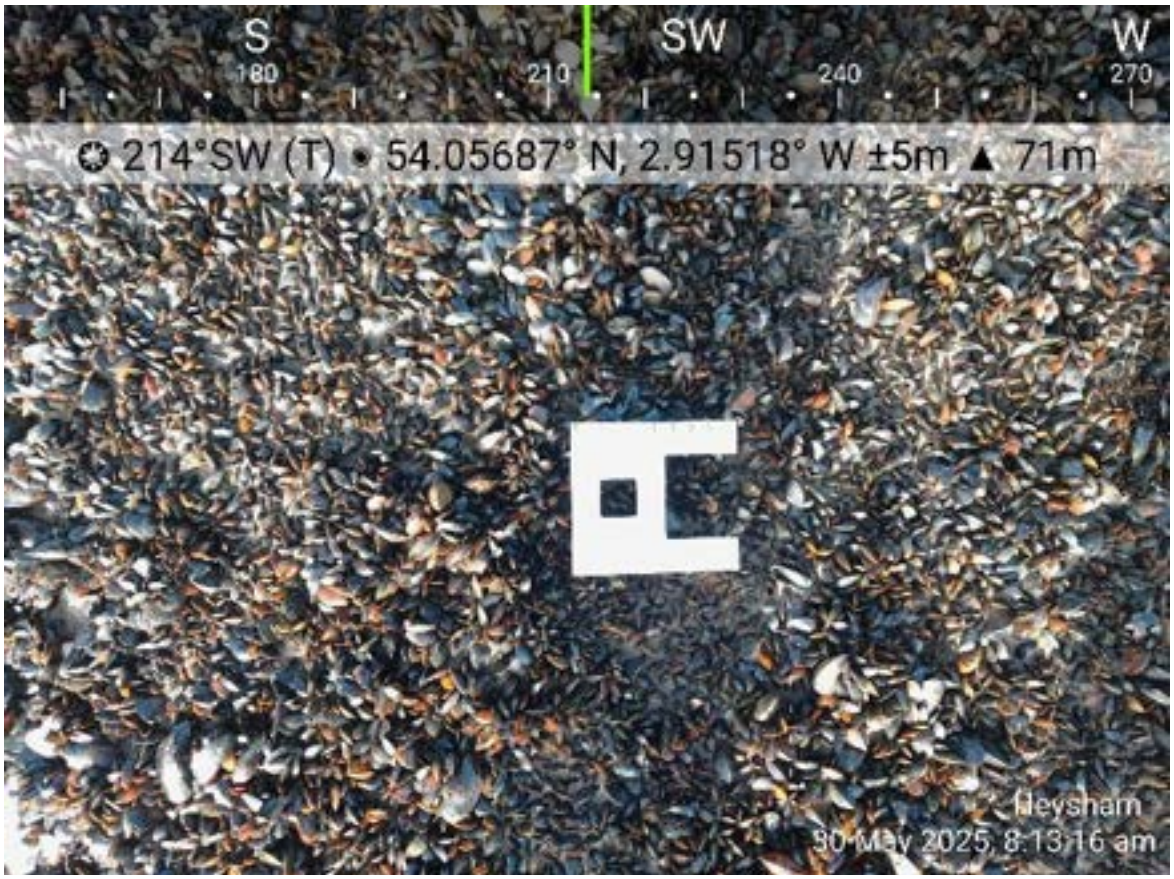


Figure 6 Mixed undersized mussel on soft mud 30/05/2025

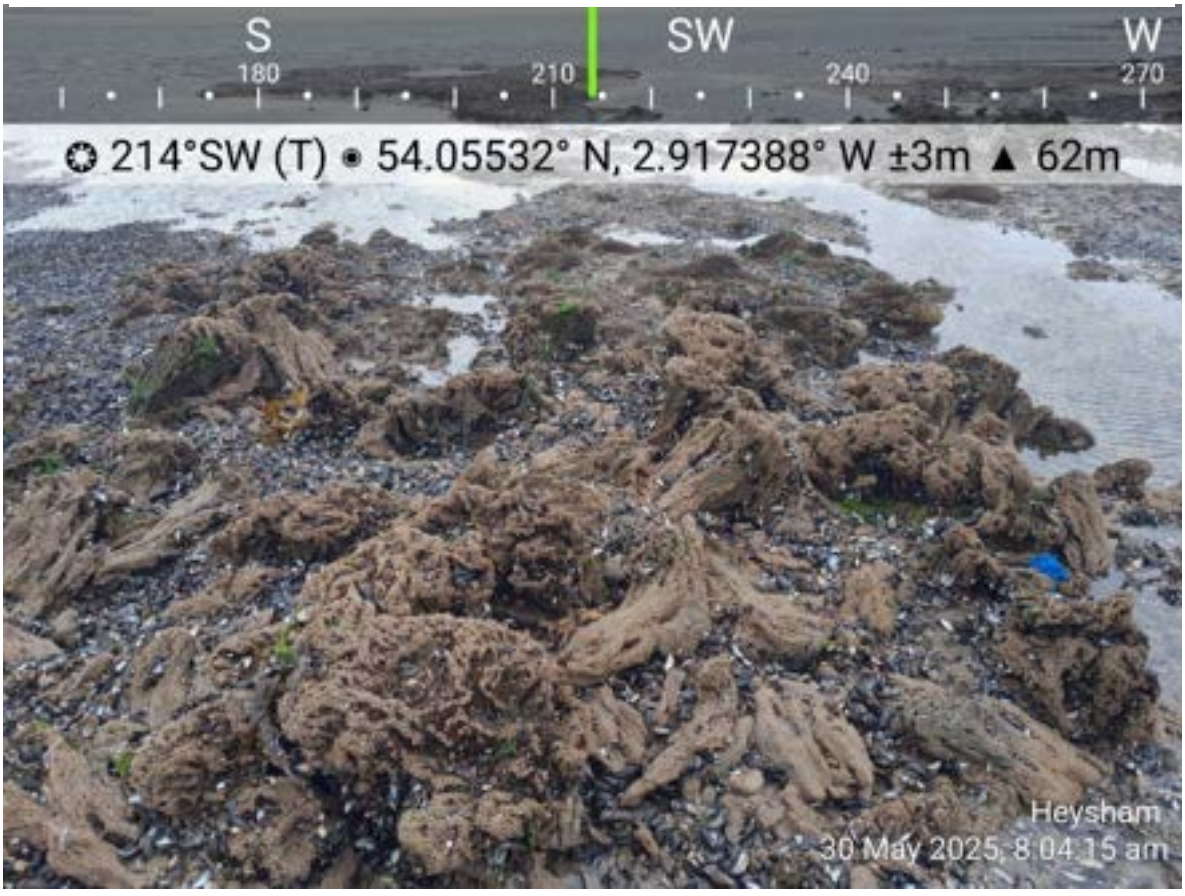


Figure 7 Sabellaria and mixed sized mussel and shell

Perch Scar and Black Scar Mussel Inspection 26-06-2024

Officers: JH, LL, GG

LW: 07:03 1.3m (Liverpool Tides)

Black Scar

There was a 90% coverage of seed mussel extending from the north and east edges of the bed towards the centre (figures 2 and 3). Across the middle of the bed mussel was on a thin layer of mussel mud with patches of cobble and dead shell present (figure 4). Along the channel edge there was exposed cobble (figure 5), mussel closest to the channel edge was on a 20cm thick layer of hard mussel mud. Along the west edge of the bed the mussel was less dense and cobble was present (figure 6). No size mussel was present.

Perch Scar

There was a 90% coverage of seed mussel from the centre of the bed towards the channel (figure 7). The west section of the bed had a coverage of approximately 60-70% trailing off to 30% at the back edge (figure 8). There is evidence of scour in the central part of the bed which extended from north to south (figure 9). It was not possible to walk the perimeter along the channel edge due to soft mussel mud that was approximately 30cm deep (figure 10). Perimeters from previous years were used to estimate the boundary. The north end of the bed extended into the channel; due to the depth of the water, officers could not access this so have estimated the area (figure 11). No size mussel was present.

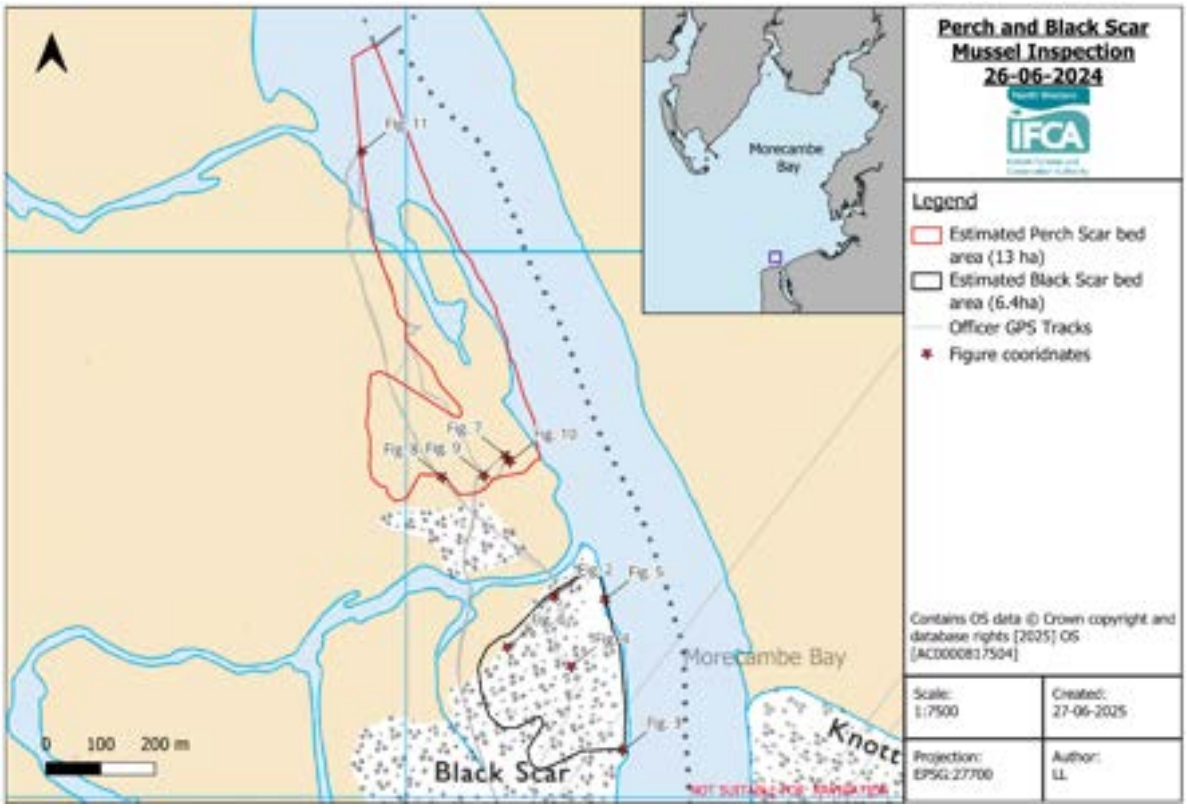


Figure 1: Map of Perch Scar and Black Scar with officer GPS tracks and figure locations June 2025

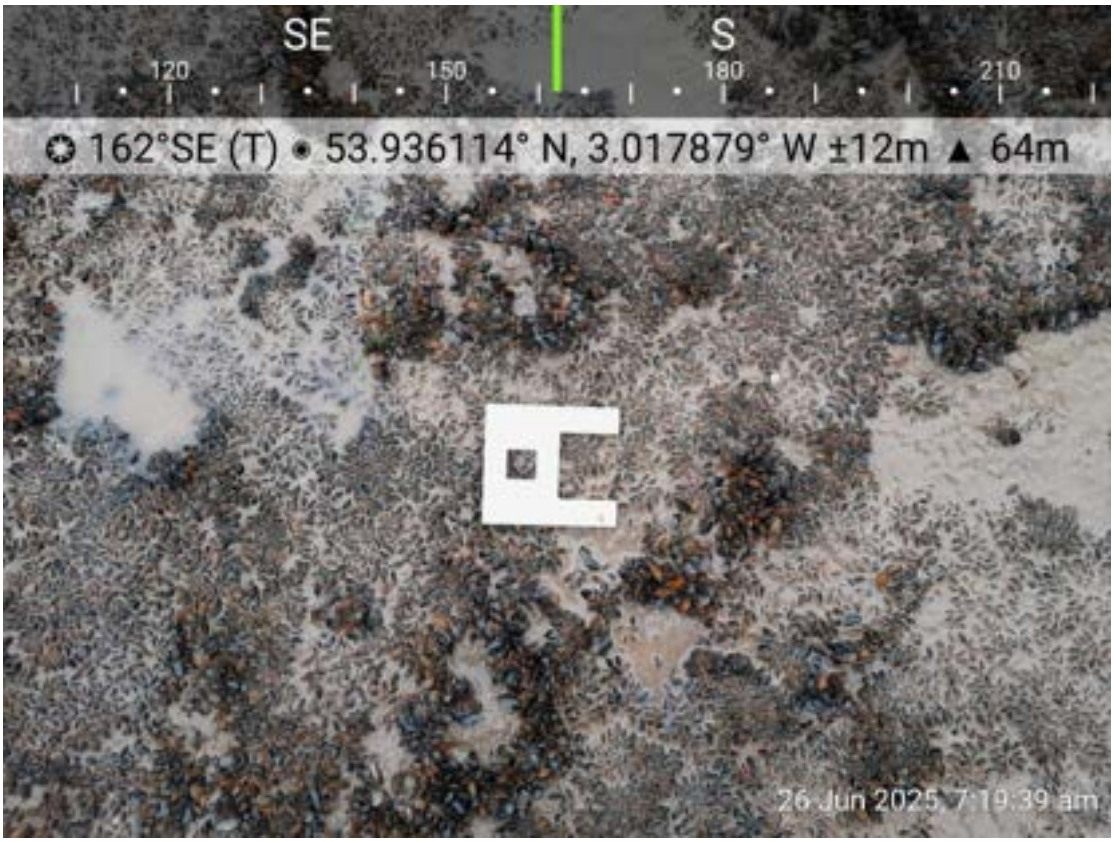


Figure 2: Seed mussel Black Scar June 2025

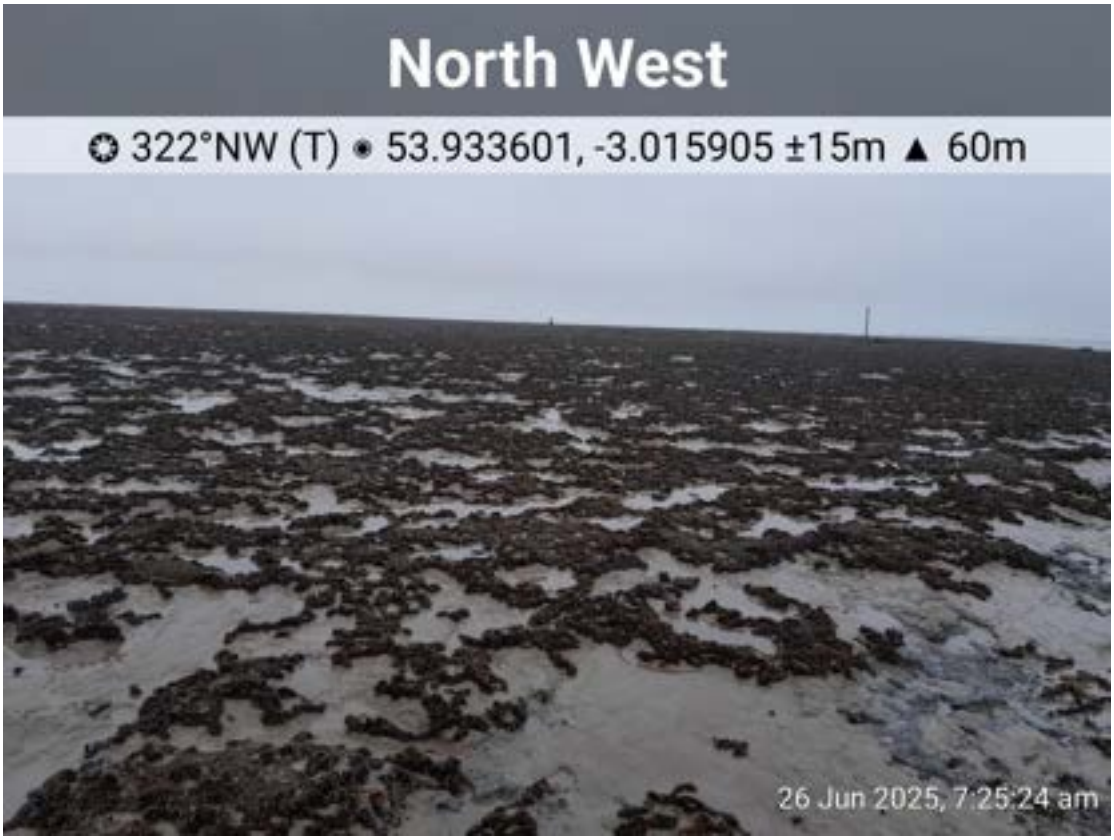


Figure 3: High coverage of seed mussel, Black Scar June 2025

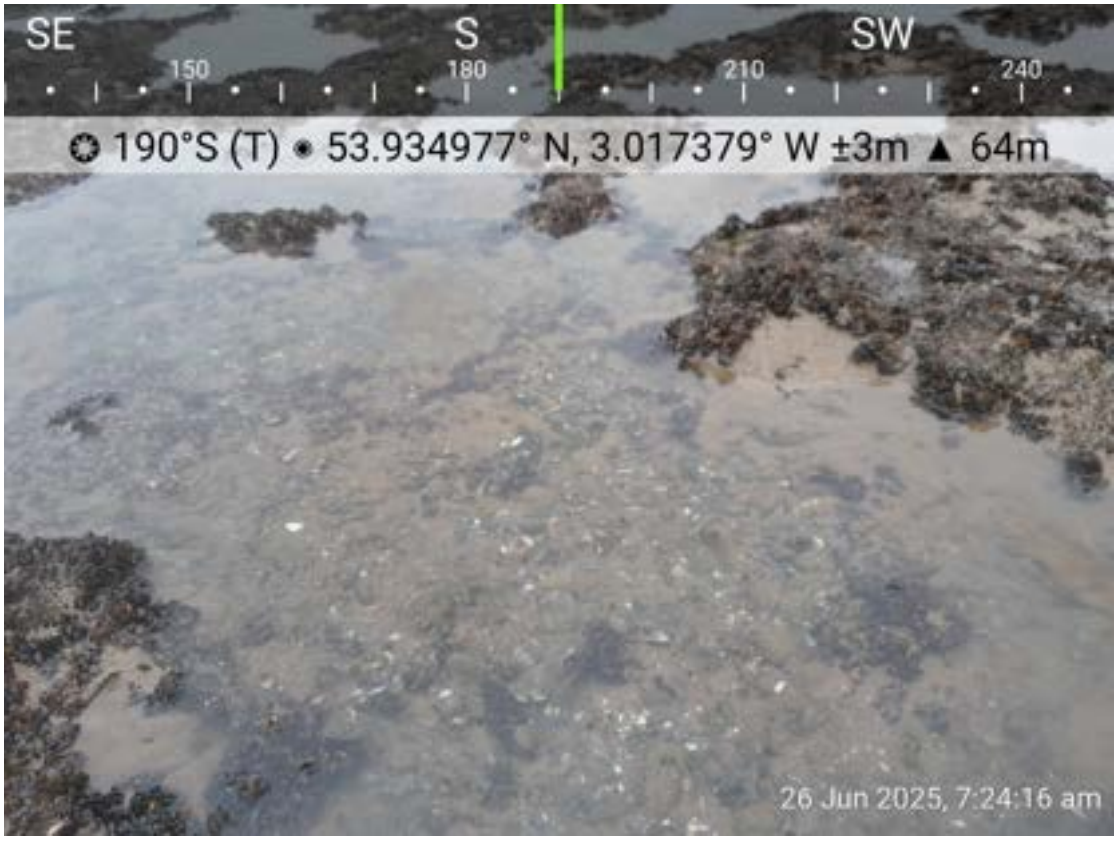


Figure 4: Patches of cobble and dead shell, Black Scar June 2025

Figure 5: Bare cobble near the channel edge, Black Scar June 2025

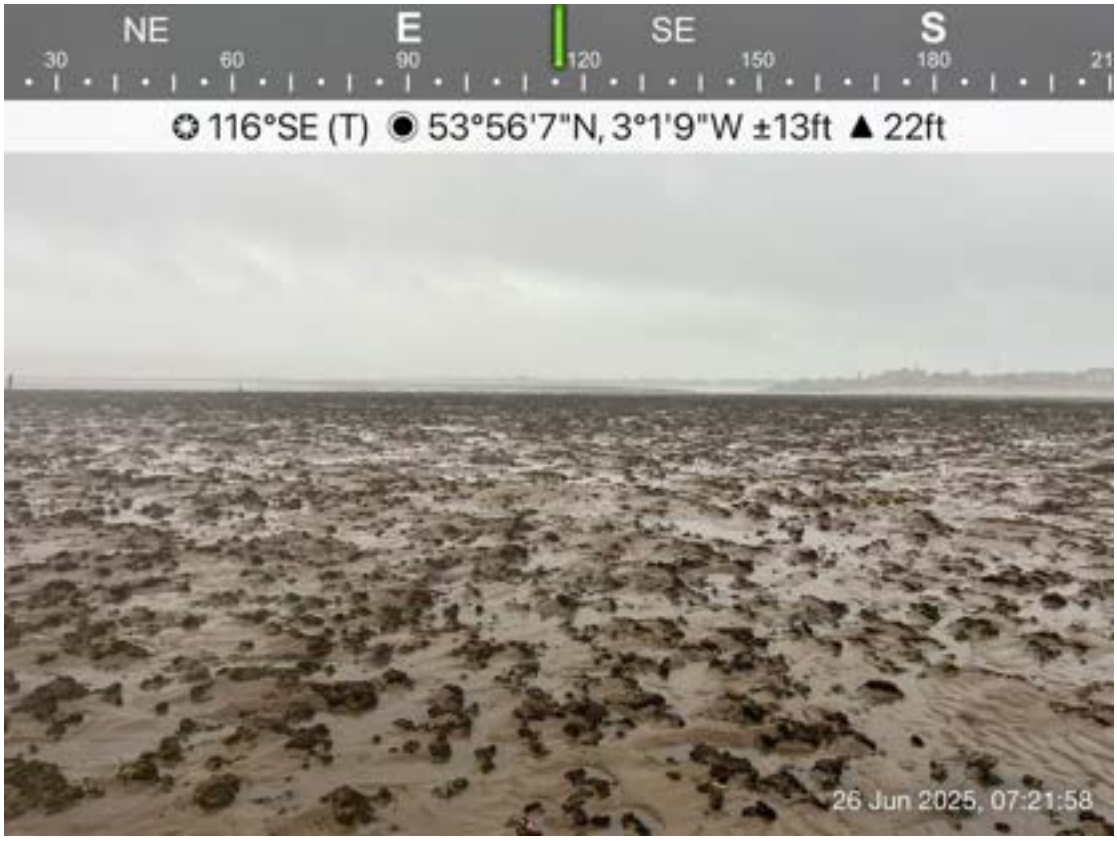


Figure 6: Low coverage of seed mussel with cobble on the west edge of Black Scar, June 2025

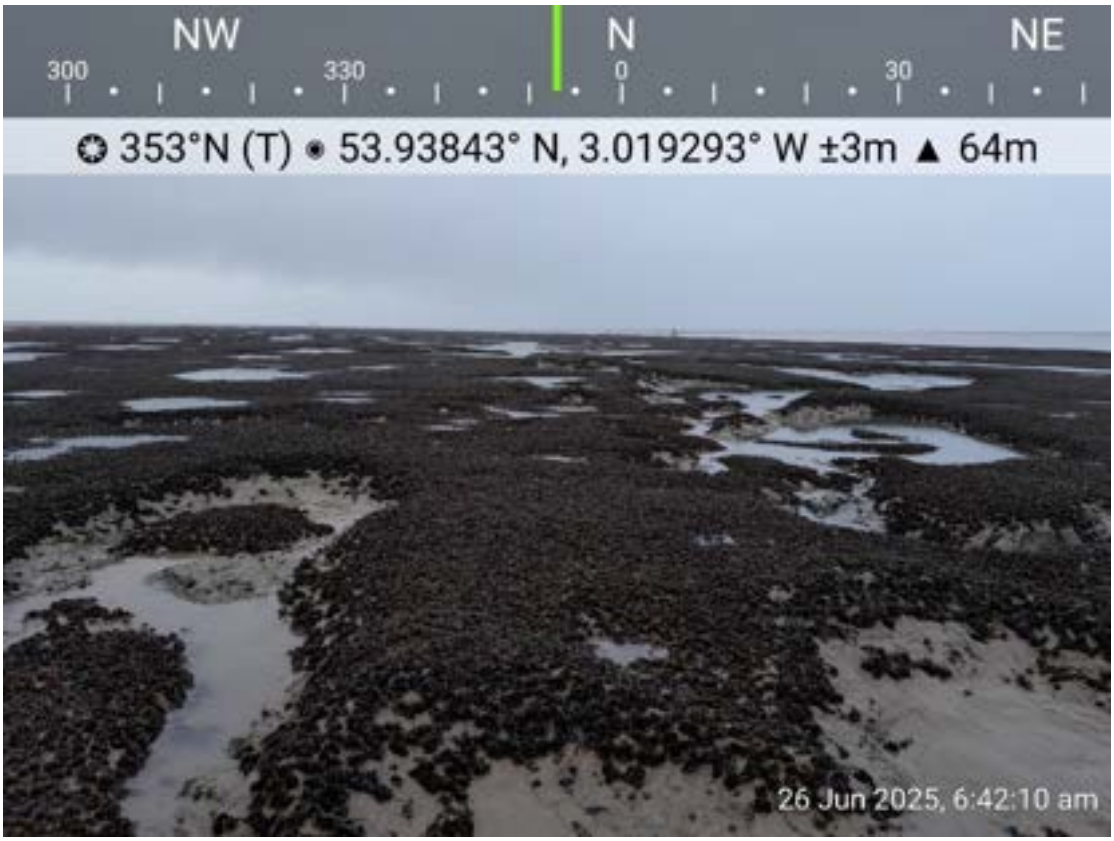


Figure 7: High coverage of seed mussel, Perch Scar June 2025.

Figure 8: Low seed mussel coverage on the back edge of Perch Scar, June 2025.

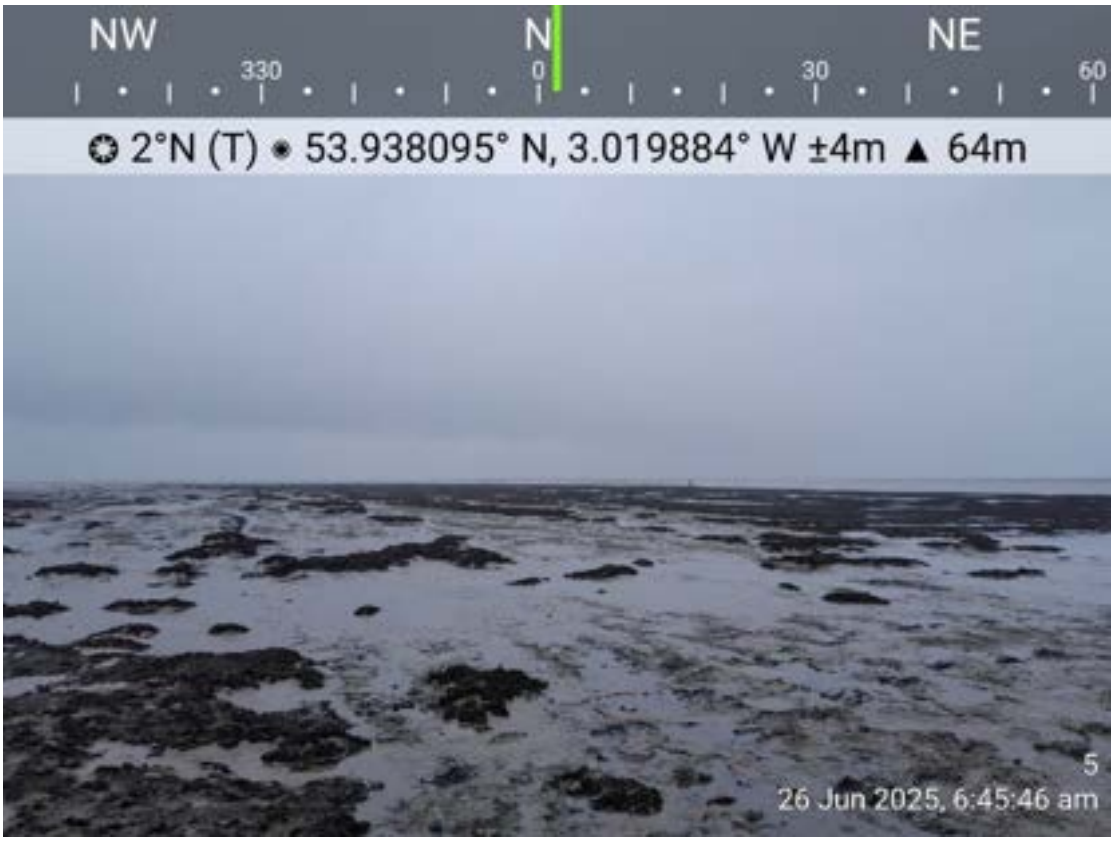


Figure 9: Evidence of scour in the centre of Perch Scar, June 2025.

Figure 10: Deep mussel mud at Perch Scar, June 2025

Figure 11: Mussel extending out northwards in the channel at Perch Scar, June 2025

Perch Scar and Black Scar Mussel Inspection 16-07-2025

Officers: GG AP

LW: 10:15 1.7m (Liverpool Tides)

Black Scar

There was a 80-90% coverage of seed mussel extending from the channel edge inwards towards the centre of the bed (Fig 1, 4, 5 and 6). Mussel was on a thick layer of mud (>30cm), with few patches of dead shell or cobble (Fig 1, 4, 8, 9 and 12). Mussel was uniform in size, and between 15-20 mm in size (Fig 5 and 11). Mussel was beginning to form clumps (Fig 4 and 5) . On the channel side of the bed, there was a strip of bare cobble and dead mussel shell with very few size mussel (>45mm) present running the extent of the bed (Fig. 2 and 3). To the west, the mussel was slightly less dense (60-70%) and on top of mud (15-20 cm deep) (Fig 7, 8 and 9). Small patches of cobble were present, and algae had begun to form in some areas (Fig 9). There were no size mussel present across the extent of the bed.

Perch Scar

There was a 60-70% coverage of seed mussel from the centre of the bed towards the channel (Fig 13 and 14), with mud hilllocks forming beneath the mussel greater than 30 cm deep (Fig 17). Evidence of scour was showing across much of the bed, with a large proportion in the central section having been removed (Fig 15). Westward, the coverage of mussel declined, as the sediment become predominantly sandy (Fig 16) . Officers were unable to walk the perimeter of the bed on the western side due to tide constraints and difficult terrain, however, the conditions appeared to be similar (60% coverage, with evidence of mud and scour) towards the furthest part of the bed from the shore. Perimeters from previous years were used to estimate the boundary. The north end of the bed extended into the channel; due to the depth of the water, officers could not access this so have estimated the area (figure 11). No size mussel was present, and very little cobble was exposed.

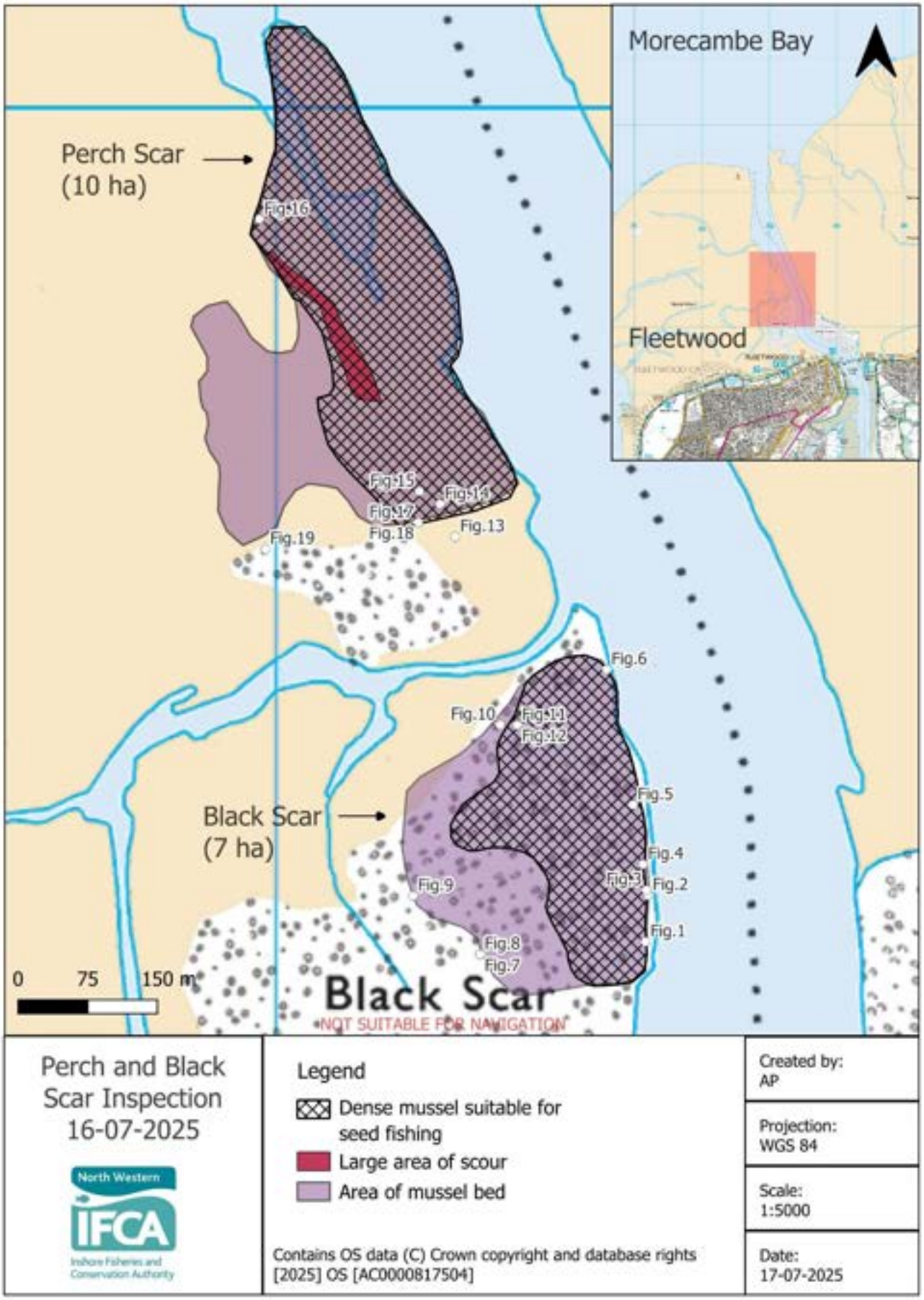


Figure 1: Map of Perch Scar and Black Scar and figure locations July 2025

Figure 1. Dense seed on mud on Black Scar mussel bed south.

Figure 2. Exposed cobble and dead shell on the channel edge of Black Scar

Figure 3.Exposed cobble and dead shell on the channel edge of Black Scar

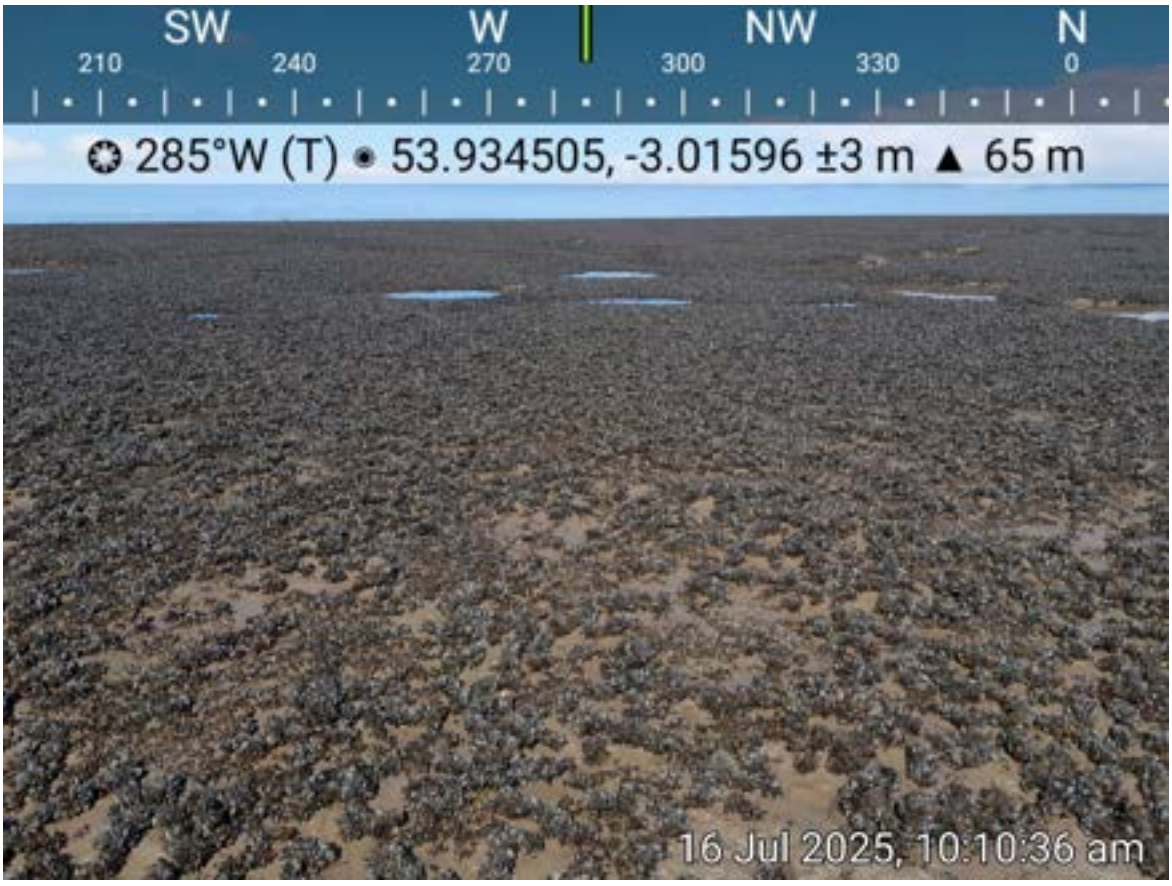


Figure 4. Thick, uniform seed 80-90% coverage on Black Scar.

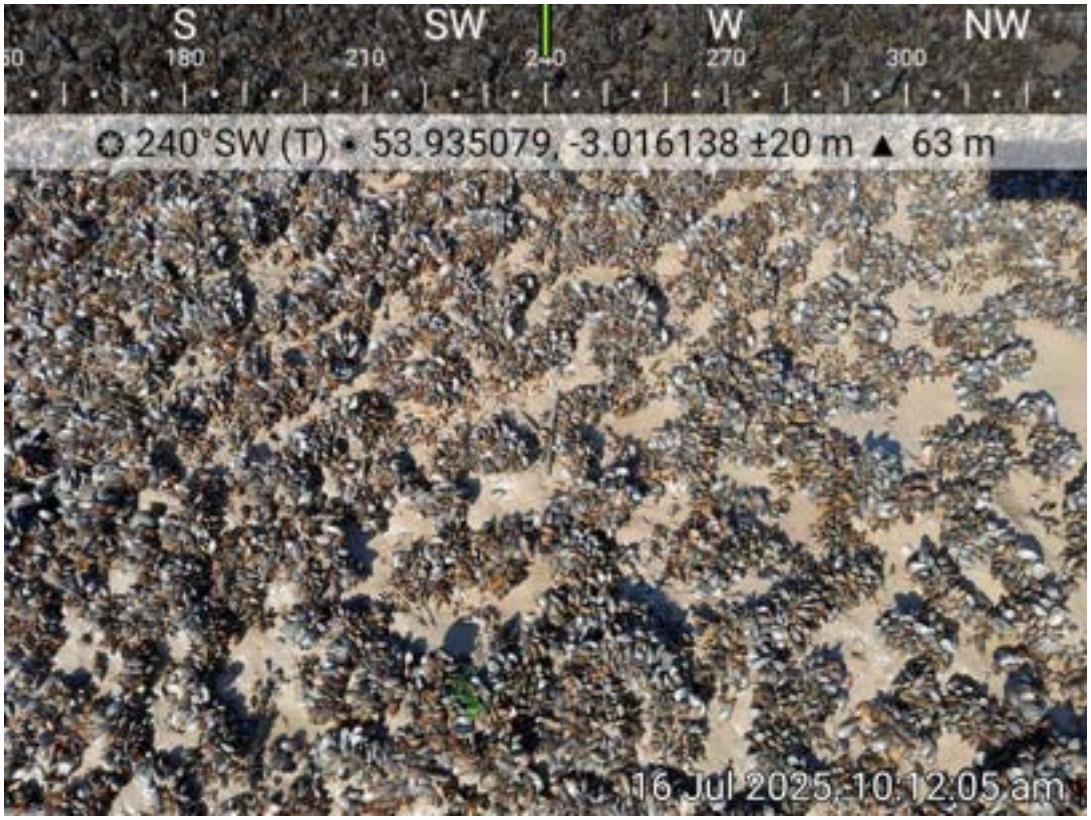


Figure 5. Thick, uniform seed mussel forming clumps over mud on Black Scar.

Figure 6. Mussel putting down thick mud on Black Scar.

Figure 7. The western edge of Black Scar showed thinner coverage.

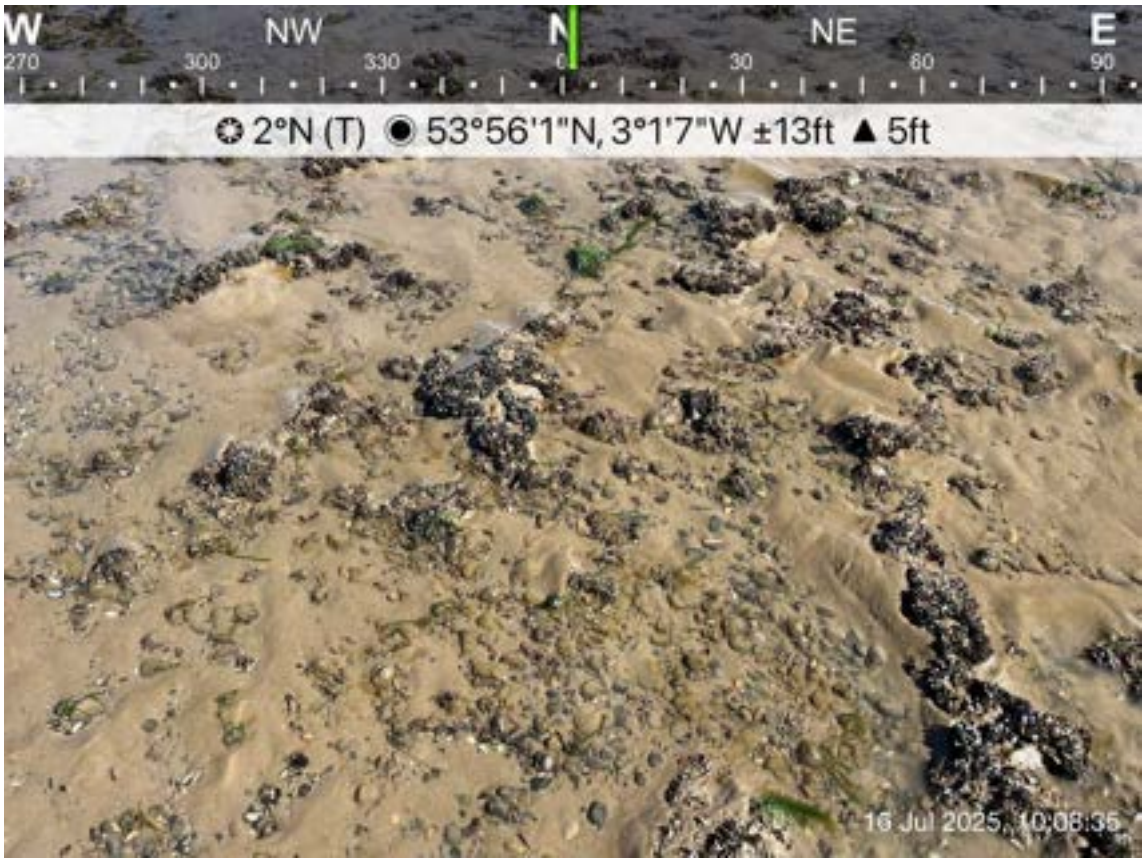


Figure 8. Exposed cobble and thin sand veneer on the western edge of Black Scar.

Figure 9. Exposed cobble and algal growth on the western edge of Black Scar

Figure 10. Edge of mussel bed on the northern edge of Black Scar facing south.

Figure 11. Seed mussel on mud on Black Scar.

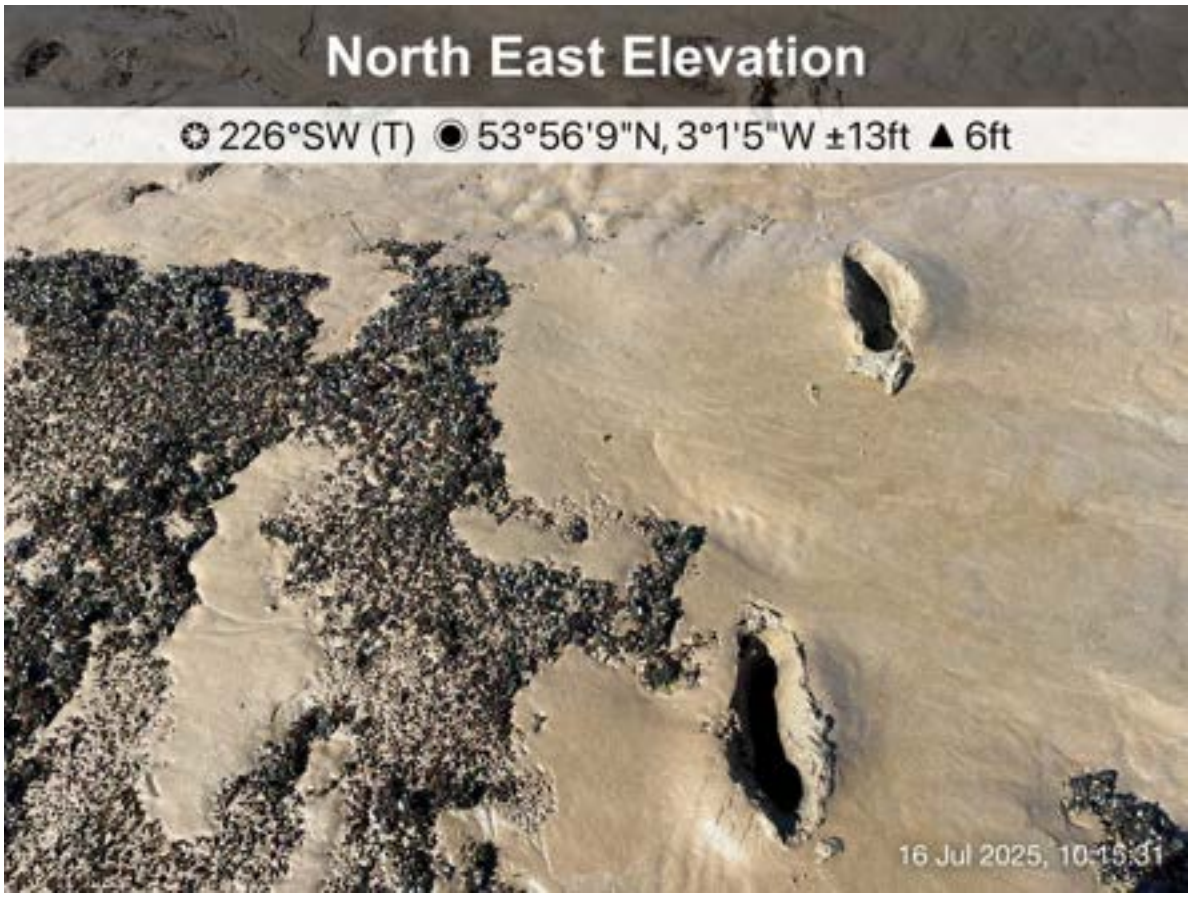


Figure 12. Thick mud present on the northern edge of Black Scar.

Figure 13. Thick mud and uniform seed with 70% coverage on Perch Scar.

Figure 14. Dense seed on mud on Perch Scar.

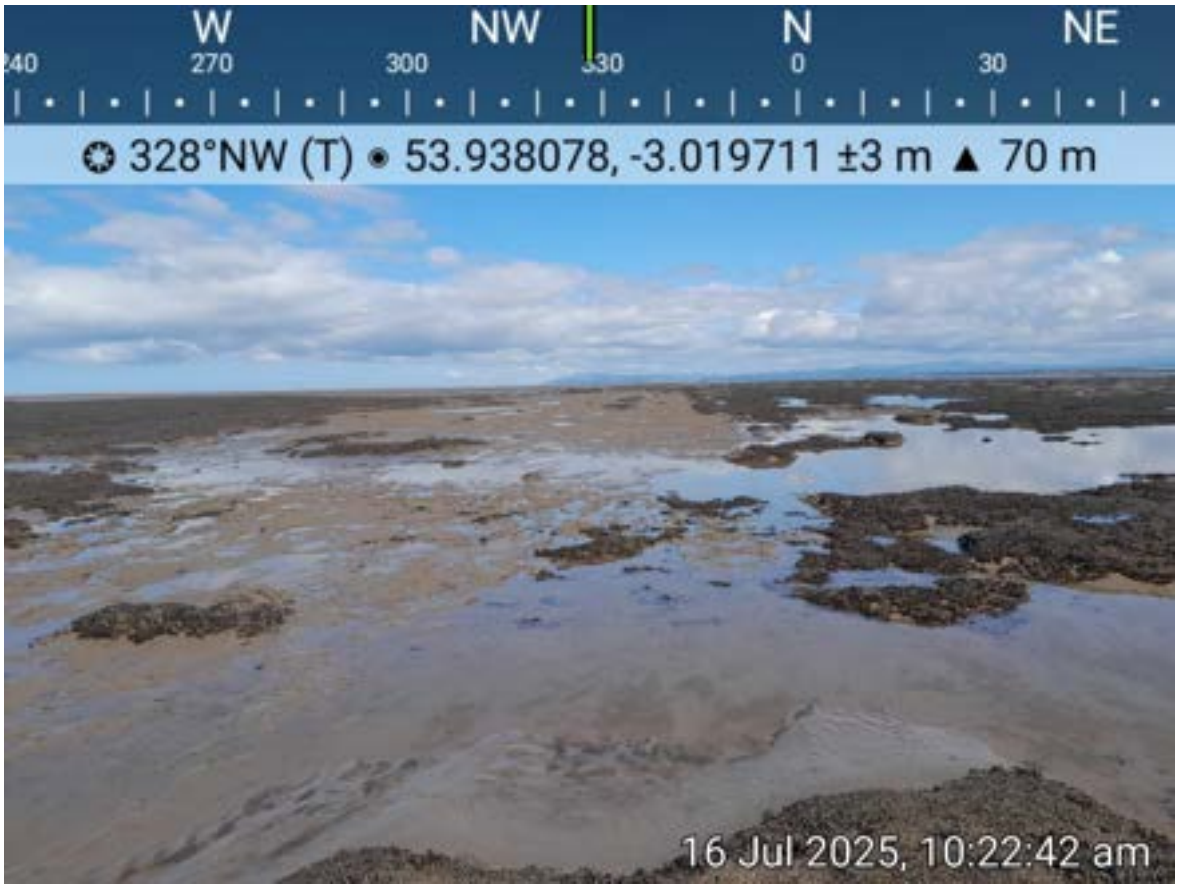


Figure 15. Evidence of scour in a large area of Perch Scar.

Figure 16. West edge of the bed running onto sand Perch Scar.

Figure 17. Southern edge of Perch scar facing North, showing dense mussel on mud.

Figure 18. The edge of Perch Scar at the Northern end.

Figure 19. Mussel on mud on Perch Scar.