

NWIFCA Technical, Science and Byelaw Committee

29th September 2020

Interim Report

SOUTH AMERICA SEED MUSSEL

ONE MONTH REVIEW POST AUTHORISATION TO HAND-GATHER AND DREDGE

Purpose: To provide information to Members on the condition of the South America mussel bed one month post authorisation to fish

Recommendation: i. **Monitoring of the mussel stock to continue**
ii. **No further action required in terms of fishery authorisations**

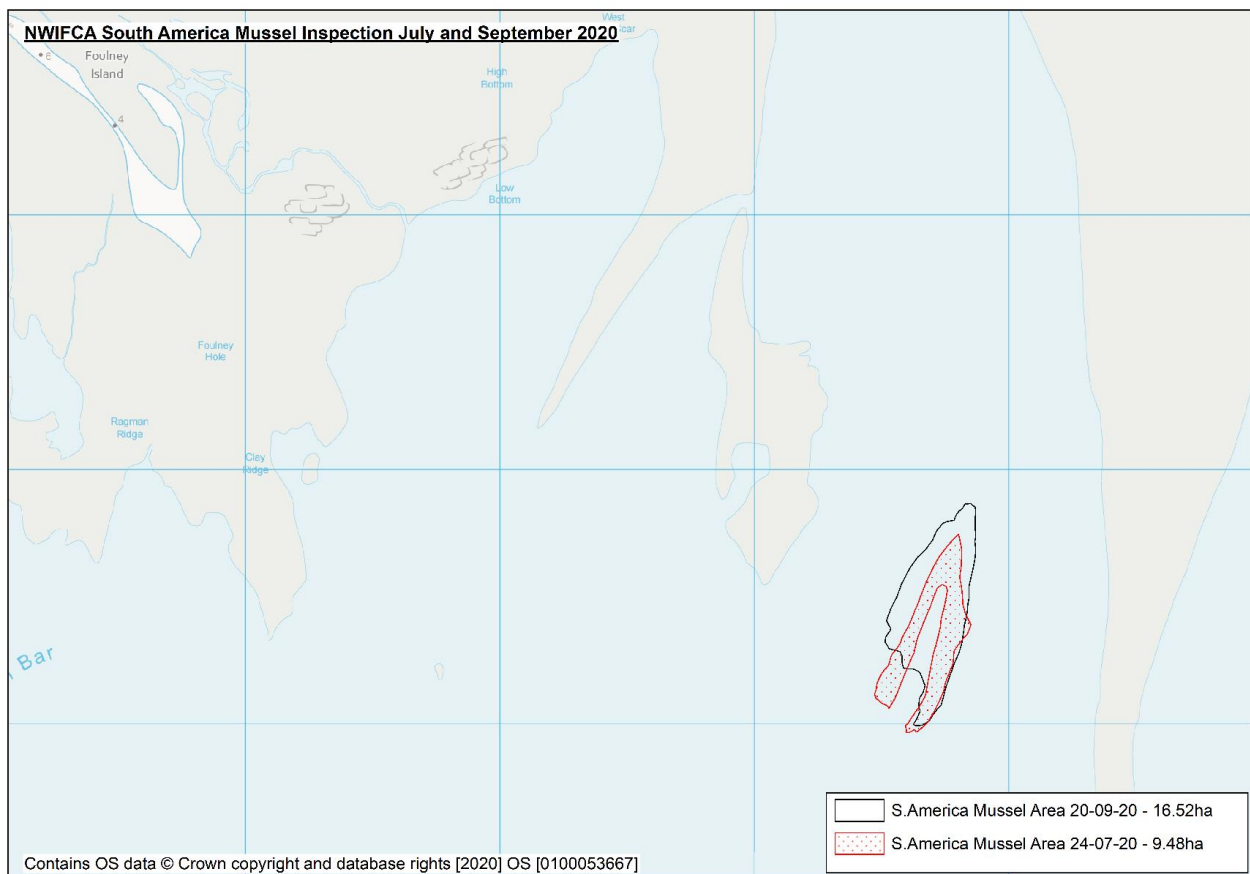
Background:

1. TSB approved the division of the South America mussel bed to authorise seed mussel dredge permits to be issued (under NWIFCA Restrictions on the Use of a Dredge Byelaw) for the eastern half of the bed, and hand-gathering authorisations (under NWIFCA Byelaw 3) for the western half of the bed. Fishing to take place for a month, to be reviewed.
2. Hand-gathering authorisation was issued from 20th August expiring on 18th September. No hand-gathering has taken place, which concurs with the views expressed by Byelaw 3 permit holders who made representation to NWIFCA on this stock that they did not consider it to be ephemeral.
3. Dredge permits were issued to two vessels with fishing to start on 24th August expiring on 18th September. 5 tonnes were fished over a 3 hour period by one vessel, which is extremely low compared to previous years fishing. No return fishing trips have been made as the sector considered the resource to have gone or not to be in a fishable state.

Current Position:

4. An inspection was made of the stock by Trevor Jones on 18th September 2020 who accessed Trailer Bank and South America by hovercraft on a very good spring tide of 0.5m. As NWIFCA officers were unable to access these areas with Mr Jones, it was possible to view the state of these beds live by Mr Jones using the 'Zoom' video software to communicate live with the office.
5. Deputy Senior Scientist Jon Haines joined the Zoom in the NWIFCA Carnforth office. Mr Jones supplied tracks of his trip and georeferenced photos. He was only able to reach Trailer Bank and South America due to being delayed in arriving on site.
6. Zoom was intermittent so this method only partially worked as the signal dropped in and out, and the audio and video froze at different times. Therefore it was not possible to direct Mr Jones to cover all the areas as wanted but it was the best available option and does provide some indication of what has been and what is happening.
7. The positions of the photographs provided by Mr Jones have been checked against timings on his GPS tracks. The photos and tracking were limited to one area on Trailer Bank but the view given shows a visual across the bed.

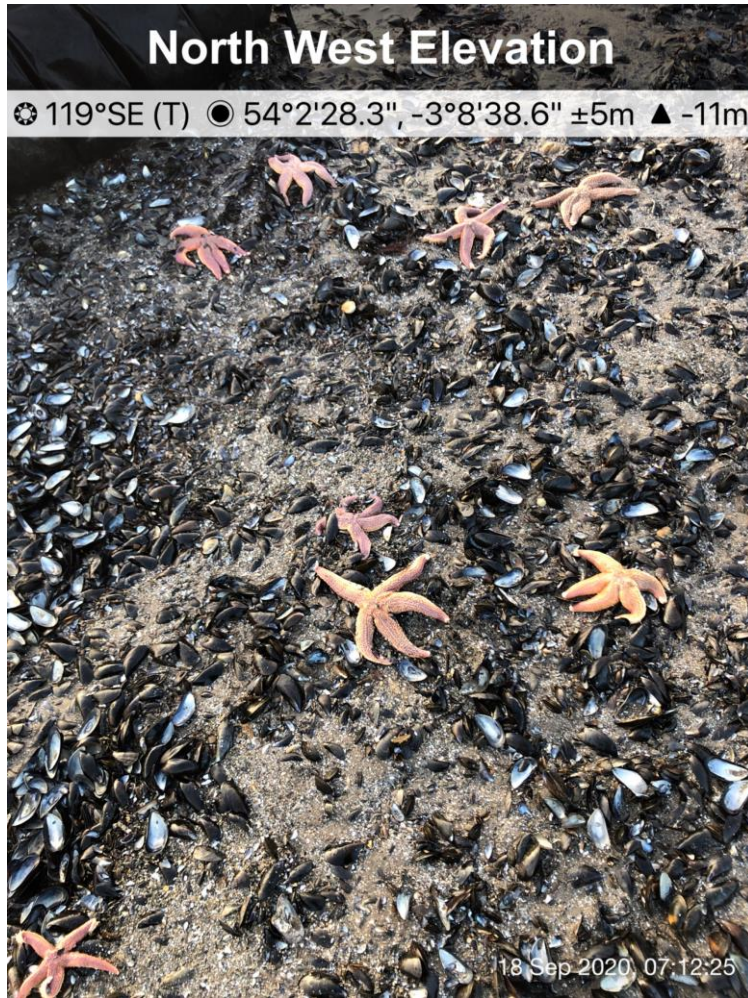
8. South America Quad Inspection 20th September 2020 - NWIFCA Senior Scientist and IFCO Dixon easily accessed the South America area by quad bike on a 0.4m tide. The sandbanks leading to it had smoothed and flattened making travel over it very simple, compared to July when it had been cratered and pitted. The bed area was tracked on foot around the edge to compare with the July inspection. However this was a bigger tide and it must be borne in mind that this better ebb gave way to more of the bed than would have remained covered in water around the edges on the 1.1m tide from July.
9. It should also be understood that mapping round these kind of mussel beds will only ever give a rough approximation. The area is so mixed, with patches of live mussel clearly visible, patches 'hard-in' which can sometimes be difficult to see, scoured out areas, areas of bare cobble. It is impossible to demarcate these patches precisely. However given that the same approximations are used each time a rough comparison can be made. In July the mapped area (on 1.1m tide) was 9.48 ha; the September inspection revealed 16.52 ha.



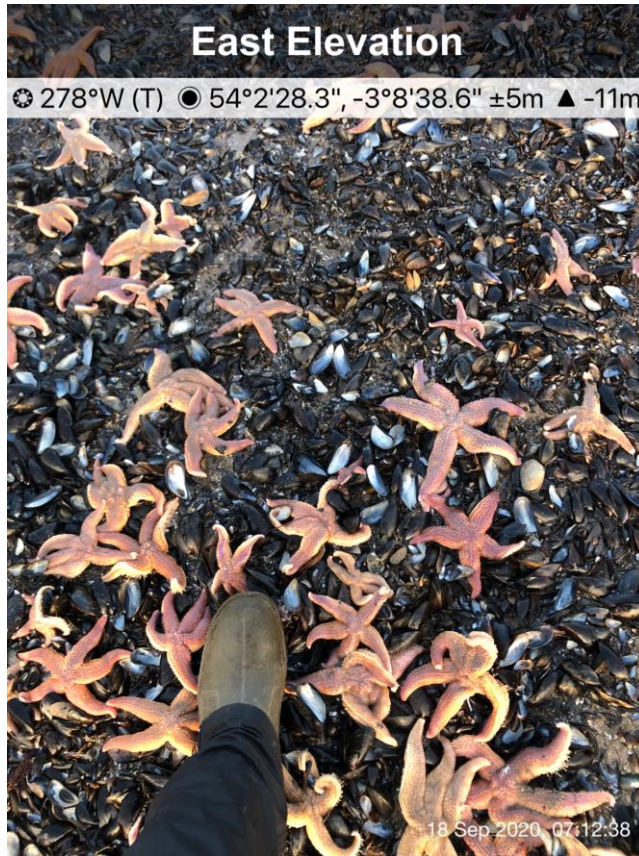
Indication of the size of areas holding mussel on South America in July and September from GPS tracking on foot by NWIFCA officers

Report of Stock - Mr Jones:

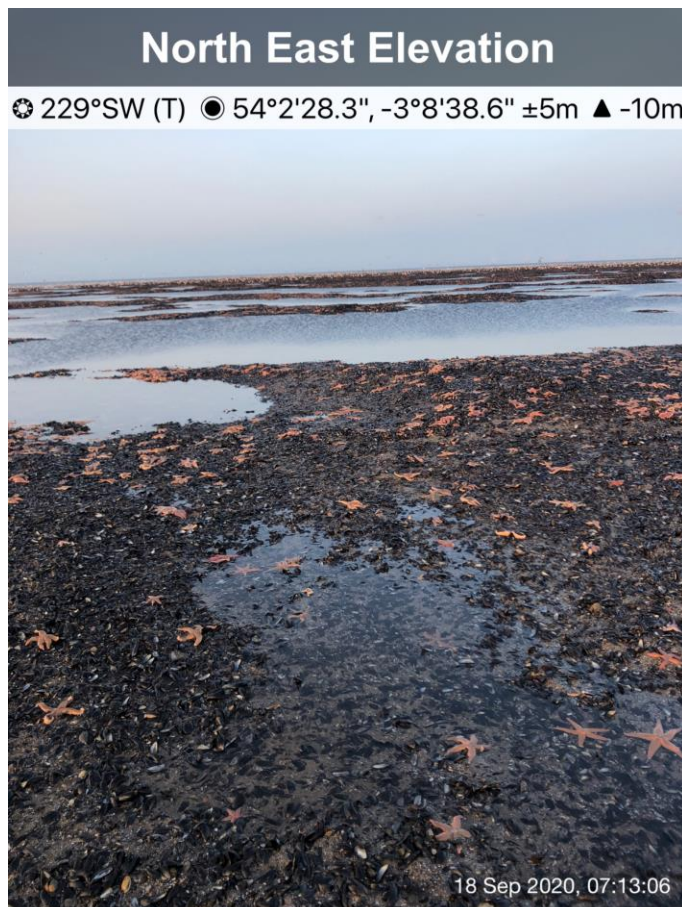
10. Trailer Bank appeared very heavily predated by starfish. Large mussel on the ground appeared to be mainly empty shell with occasional hunkered in live mussel. Large numbers of adult starfish were still evident across the bed.



Trailer Bank with empty shell and bare ground - photo Trevor Jones 18-09-20



Trailer Bank indication of density and size of starfish on mussel - photo Trevor Jones 18-09-20



Trailer Bank indication of coverage and density of adult starfish on mussel - photo Trevor Jones 18-09-20

11. Mr Jones said he could see Small Island, though not a lot of it was showing and it was covered in birds so what looked black (mussel) also had orange (starfish) on. He thought the condition of mussel there would be the same as Trailer Bank but there is no evidence to either support or refute this.
12. The (distorted) photos Mr Jones provided of seed mussel were traced through timing on the photos and tracking from his GPS - these were taken on the south eastern edge of South America - the 'dredge side' - and not Trailer Bank.

Report of Stock - NWIFCA Officers:

13. An estimate of mussel percent cover was made between the two officers, who both walked the full extent of the bed. It was agreed that around 50% of the ground had mussel cover of varying condition as described:
 - i. some of the mussel was going back in to the substrate - mussel is known to do this as a protection response from wind and scour effects;
 - ii. the eastern side (dredge permitted side) and parts of western (hand-gathered authorisation) side had a mix of sizes, 35-40 mm, with some approaching size;
 - iii. only very rare adult starfish were observed on the south eastern tip of the bed;
 - iv. there was a bank all along the western edge with very loose mussel around 25-30mm which was not embysed and looked highly likely to wash out;
 - v. the area down the middle that had been bare cobble had some mussel cover;
 - vi. there appeared to have been a reduction in the layer of mud, and mussel was now low lying on sandy mud in many parts;
 - vii. there were many areas of bare cobble.
14. There were clear signs of recent scouring on the western side with one long straight line of bare mud and other swathes completely bare of mussel on the 'hand-gathering side.' The line was so straight that one could have assumed it was the result of dredging. However the Senior Scientist had witnessed dredging tracks on Perch Scar in July, and the two looked very different. By comparing photographs of both areas it was obviously not indicative of dredging, as dredging takes a proportion of mussel and leaves some in its tracks. These heavily washed out areas were adjacent to the ridge of loose mussel (~30mm) that also looked ready to be washed out.
15. This band was also seen by Mr Jones who provided video of how loose it was which has been embedded in this report, but can also be shared with Members and industry if requested if the icon below does not work.
16. Some *Sabellaria alveolata* was seen: the larger mounds which had had a mussel cover were worn / recovering. Along the far western edge of the bed and off the skear small new mounds were beginning to colonise.
17. An estimated 500-600 eiders (diving ducks) were observed off the eastern edge loafing on the water, presumably waiting for the tide to flood and cover the mussel so they could then feed off the submerged stock.
18. A large number of photographs have been provided below to illustrate the mixed nature and extent of the area. All of South America 20-09-20 taken by Mandy Knott using 'Solocator' app on NWIFCA issue smartphone.

Conclusion:

South America

19. From the evidence of wash out having occurred and mussel looking about to go, the fact that the previously bare central section (middle of the 'horseshoe' shape) now held mussel in places, the growth of the mussel in places (some now approaching MLS), the nature of the ground having lost its thick mud and now with more bare cobble areas and mussel sitting on a thin layer of muddy sand, it can be assumed that a proportion of the mussel and mud had washed out, and that the remaining mussel had spread out across the available cobble substrate.
20. There is a possibility that the majority of mussel may still wash out or be consumed by starfish if they move across from Trailer Bank. Some of the mussel may persist and grow to size. It is too early yet to draw any firm conclusions on whether the Senior Scientist's assessment of the ephemerality of the stock was correct. Monitoring should continue to build a clearer picture and TSB will be kept informed.
21. As there was no interest in hand-gathering of seed mussel from the outset and the condition of the mussel is now not suited for dredging (consistent thick layer of mud has gone) there is no need to consider any further authorisations for removal of seed mussel here. Should the mussel reach size NWIFCA Byelaw 3 permit holders can gather it legally under their permits.



Heavily washed out line along western area - South America 20-09-20. Photo - Mandy Knott



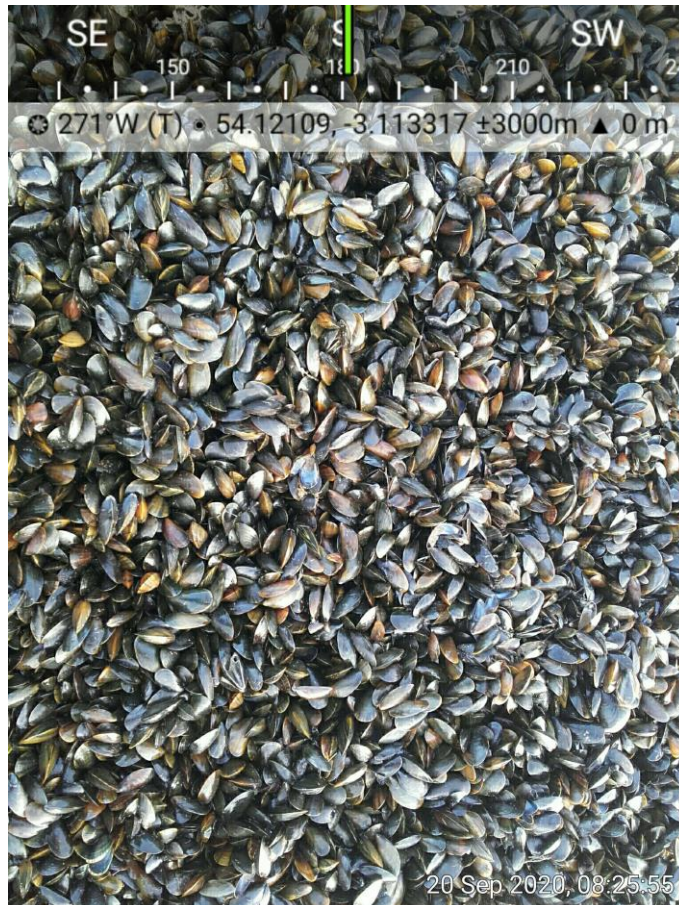
Heavily washed out line along western area - South America 20-09-20. Photo - Mandy Knott



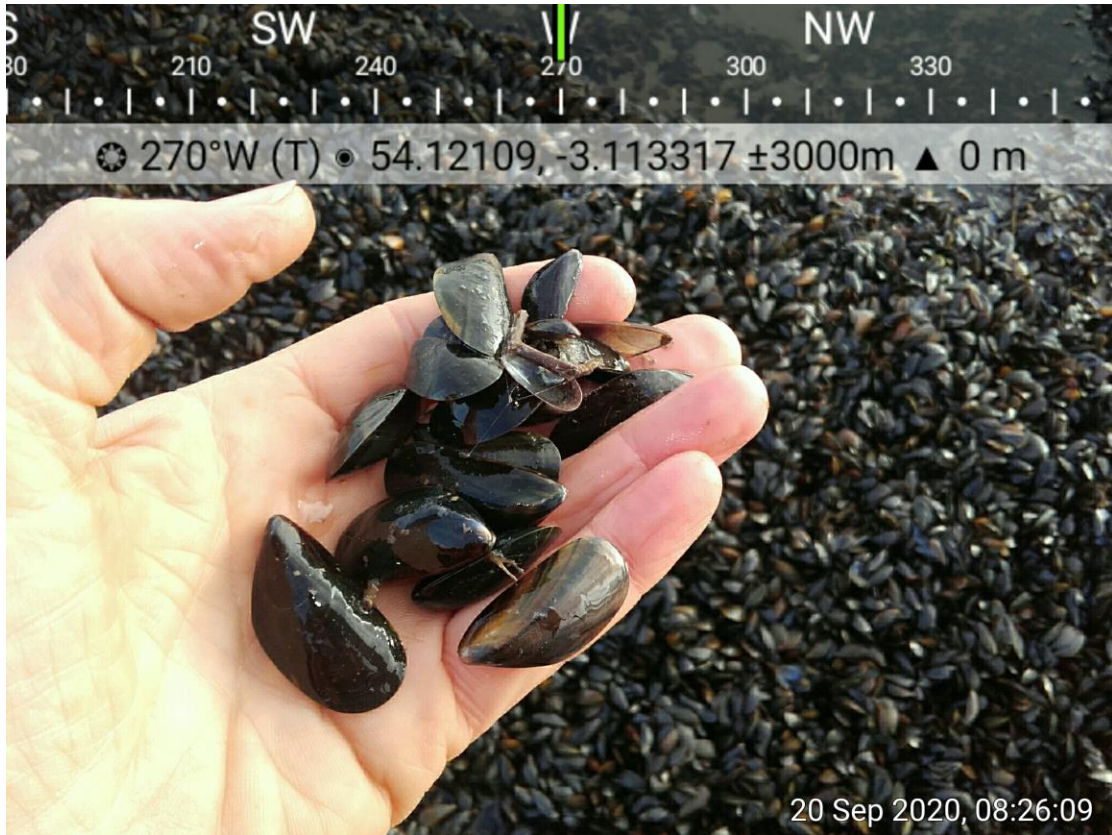
Heavily washed out line along western area - South America 20-09-20. Photo - Mandy Knott



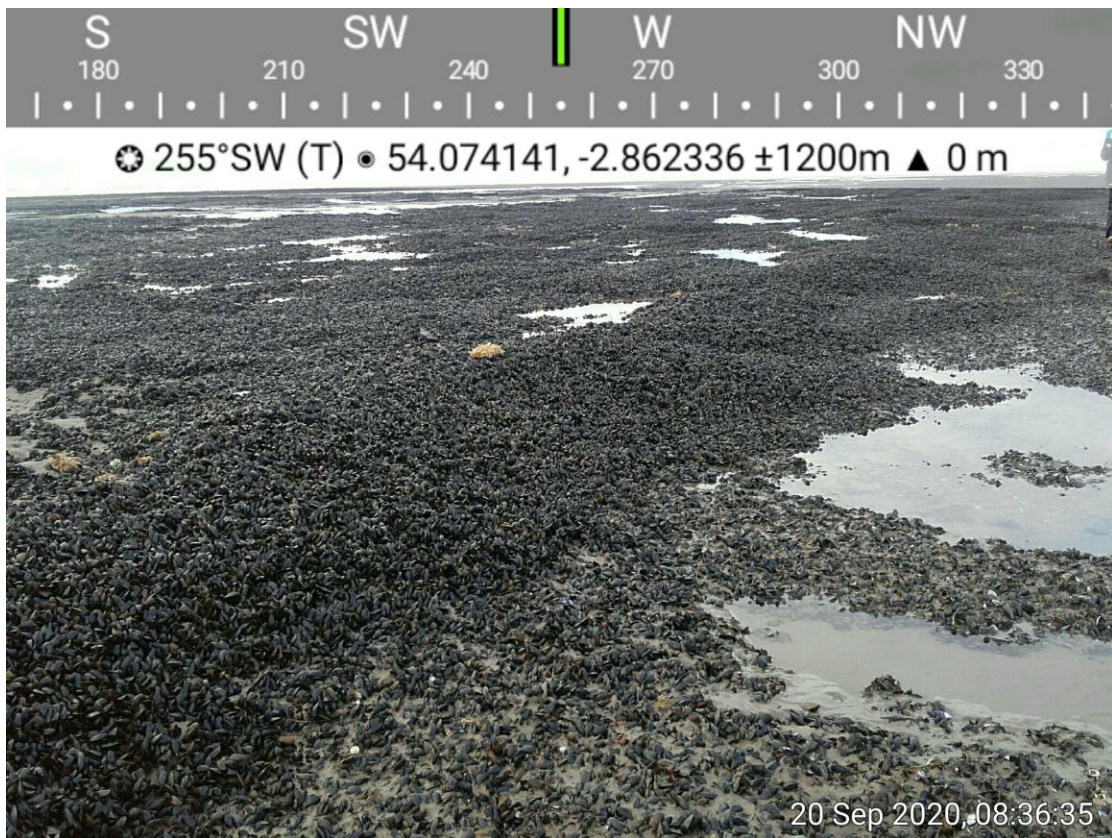
Perch Scar 25th July 2020 - evidence of dredge track provided for comparison



Loose unembysed vulnerable mussel along western edge. South America 20-09-20. Photo - Mandy Knott



Loose unembysed vulnerable mussel along western edge. South America 20-09-20. Photo - Mandy Knott



Bank of loose unembysed mussel, western edge. South America 20-09-20. Photo- Mandy Knott



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Short video clip provided by Trevor Jones. Loose mussel South America 18-09-20
(if link does not work video can be emailed to Members on request)



Roped up mussel nearly reaching MLS on north-western part of bed. South America 20-09-20.
Photo- Mandy Knott



Area of larger mussel on eastern area looking towards Blackpool. South America 20-09-20. Photo- Mandy Knott



Mixed ground showing low-lying mussel and bare areas. South America 20-09-20. Photo- Mandy Knott



Hard-in mussel in sand. South America 20-09-20. Photo- Mandy Knott



Illustration of the mixed ground with very low lying mussel. South America 20-09-20. Photo- Mandy Knott



Illustration of area of abundant mussel on sand. South America 20-09-20. Photo- Mandy Knott



Indication of the size of the abundant mussel - size 7 boot given for scale. South America 20-09-20. Photo- Mandy Knott



Illustration of the size of the abundant mussel - hand given for scale. South America 20-09-20. Photo- Mandy Knott



Illustration of the extent of mussel remaining and bare patches. South America 20-09-20. Photo- Mandy Knott

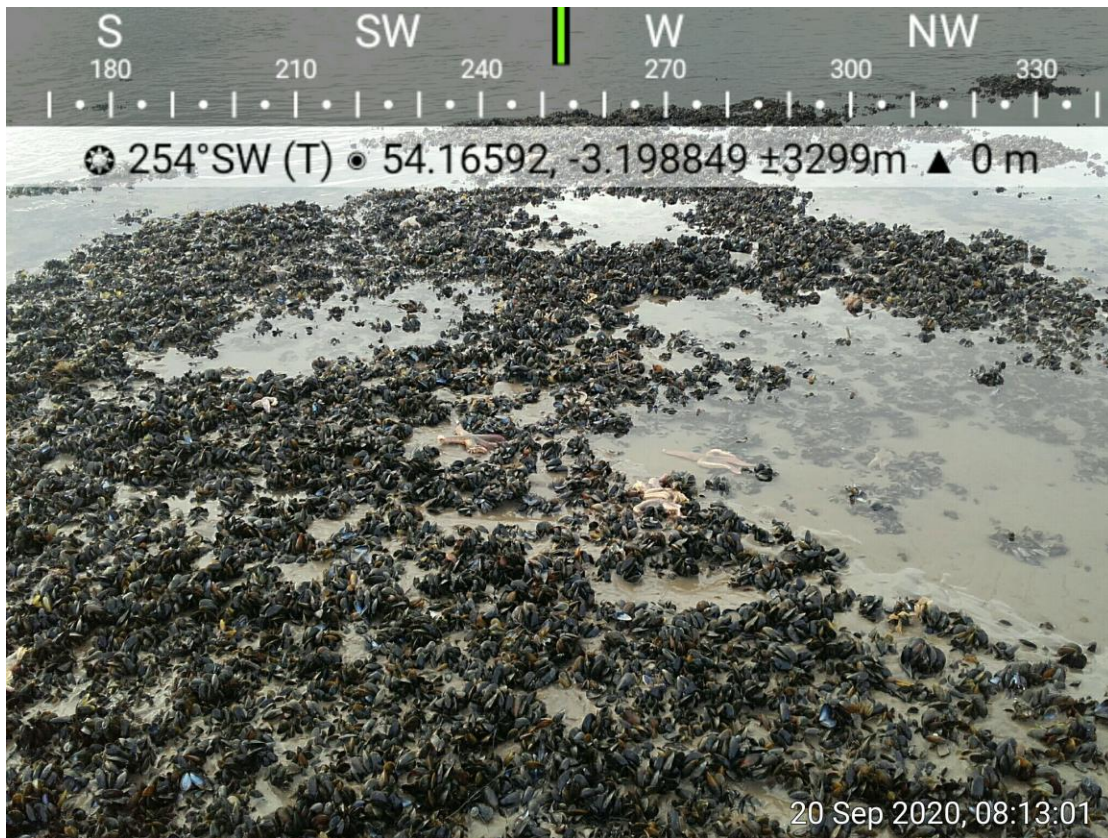
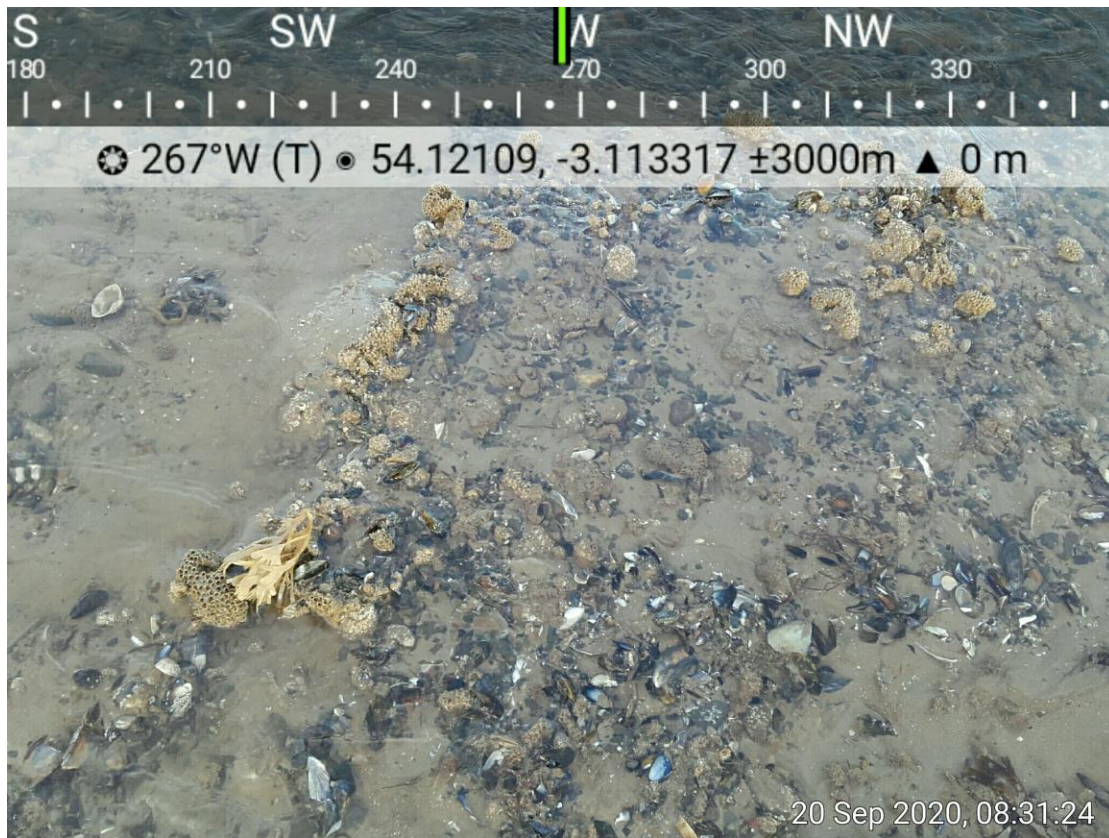


Illustration of mussel with rare adult starfish north-eastern area. South America 20-09-20. Photo- Mandy Knott



Indication of extent of the area with IFCO for scale. South America 20-09-20. Photo- Mandy Knott



Area of newly colonising *Sabellaria alveolata* - off the main skear western edge. South America 20-09-20.
Photo- Mandy Knott

Mandy Knott
Senior Scientist
29th September 2020