

# 2021 Wash Intertidal mussel stock survey: stock levels and distribution

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*This document is a summary of the outputs from the annual mussel (*Mytilus edulis*) stock survey in The Wash focussing on stock levels and distribution. It is intended to inform the consultation with Wash Fishery Order 1992 Licence Holders about a proposed mussel relaying fishery.*

## Report

The 2021 annual Wash mussel surveys were conducted between September 21<sup>st</sup> and November 8<sup>th</sup>, during which 18 inter-tidal beds, plus the Welland Bank were surveyed.

A small bed on the Roger Sand, which when last surveyed in 2019 only supported 17 tonnes, remained unsurveyed. In addition, no attempt was made to survey the small Pandora bed this year because anecdotal evidence from local fishermen suggested the part of the sand where the bed was located, which had been eroding for several years, had washed totally away. This bed has now been removed from future survey programmes. However, a previously unsurveyed bed near Skate Run on the Breast Sand was included in the surveys for the first time this year and was found to support 651 tonnes of mussels.

Excluding the Welland Wall, which is managed separately to the inter-tidal beds, the total intertidal mussel stock biomass was found to be 13,357 tonnes. These figures are an improvement on last year, when stocks failed to achieve the 12,000 tonnes minimum threshold required to open a fishery. This increase in biomass is partially due to the inclusion of the previously unsurveyed bed at Skate Run, but also due to the growth of individual mussels exceeding the biomass of those lost through natural mortality. This was particularly noticeable on the Blackshore bed, where the growth of seed from 2019 and 2020 resulted in an almost five-fold increase in biomass.

Although not contributing towards the inter-tidal stock figures, the mussels situated on the Welland Bank had also increased from the previous survey. Elsewhere, however, declines were seen on several beds, particularly those in the vicinity of Mare Tail and the Gat where five of the seven beds were found to have declined. The losses on these beds also contributed to the overall biomass of adult sized mussels ( $\geq 45\text{mm}$  length) declining from 6,202 tonnes to 6,008 tonnes.

Figure 1 shows the locations of the inter-tidal beds, the stock details of which are displayed in table 1. Figure 2 shows the current stock levels compared to previous stock levels and the Conservation Objective targets.

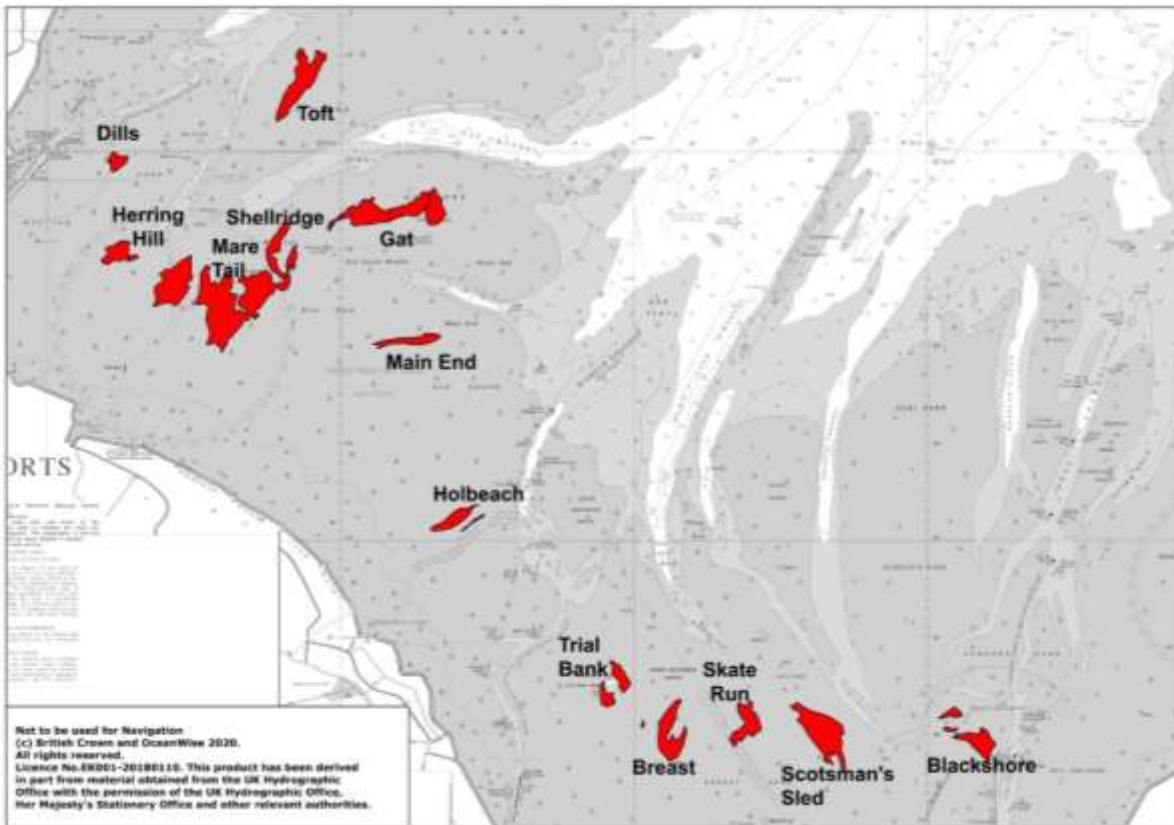
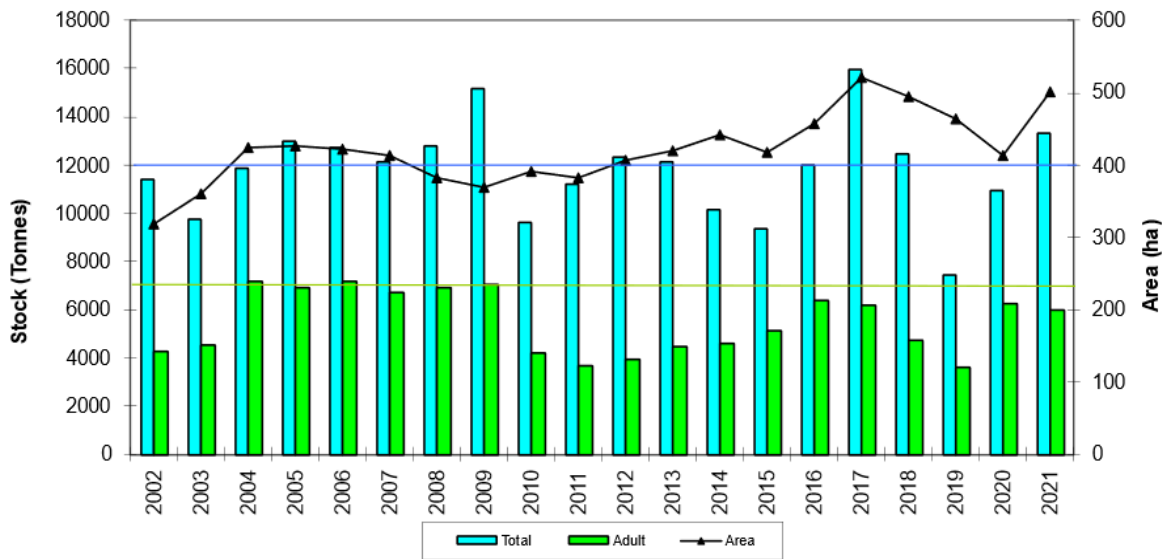


Figure 1 – Chart showing the locations of the mussel beds surveyed in 2021

Table 1 – Details of the stocks found on the inter-tidal beds - October 2021

BED	AREA (ha)	COVERAGE (%)	DENSITY (t/ha)	TOTAL STOCK (tonnes)	STOCK >45MM (tonnes)
Mare Tail North	41.6	39	1.18	1897	1217
Mare Tail Relay	0.5	62	0.89	29	13
Mare Tail South	78.8	26	0.86	1748	761
Mare Tail West	42.1	11	0.68	312	225
Shellridge	23.4	46	0.59	624	213
Dills	8.1	24	0.83	160	41
Toft	42.6	34	0.82	1197	667
Roger			Unsurveyed		
Gat, West	30.2	39	0.81	954	596
Gat, Mid	19.0	47	0.93	830	505
Gat, East	17.3	38	0.84	554	340
Main End	14.4	16	0.64	146	102
Holbeach	14.6	46	0.94	625	224
Holbeach B	1.1	55	0.67	41	2
Herring Hill	16.2	40	1.01	652	46
Trial bank	17.2	39	0.96	644	218
Breast, West	0.5	27	1.20	14	6
Breast, East	31.5	11	0.66	228	54
Scotsman's Sled, East	54.1	13	1.31	933	407
Blackshore	5.9	32	0.52	97	9
Blackshore Ext	20.4	39	1.28	1021	153
Skate Run	22.4	37	0.78	651	209
<b>TOTAL</b>	<b>501.7</b>			<b>13357</b>	<b>6008</b>
Welland Bank	2.4	59	2.45	348	243



**Figure 2 – Graph showing the adult and total stock levels of mussels found on the inter-tidal beds between 2002-2021. The green and blue horizontal lines show the respective Conservation Objective target thresholds of 7,000 tonnes for adult stocks and 12,000 tonnes total stock.**

Figure 2 shows that the total mussel stock has not only achieved the Conservation Objective target but is also at one of the higher stock levels seen on the beds over the past 22 years. Further, this year is only the second time during that period that the 500 hectares Conservation Objective target for total bed extent has been achieved. Although at a glance these figures would suggest the mussel beds have recovered following recent declines, that is far from the case. Examination of the beds shows the majority are still in very poor condition, with sparse coverage, lots of dead shell and poor-quality mussels. Although mortality levels have been lower this year, the cause of the die-offs that have been occurring since 2010 has not yet been identified and is likely to continue. Primarily affecting 2-3 year-old mussels, these die-offs have impaired recruitment of juvenile stocks into the adult population, which as a consequence has failed to achieve its Conservation Objective target since the mortalities were first observed in 2010.