2026 Wash intertidal cockle survey report

Introduction

The 2026 Wash intertidal cockle surveys were conducted between March 16th and April 30th, which is consistent with the timing of previous surveys. During the course of the surveys 1,045 stations were sampled from a total of 23 survey areas. These included Hunstanton for the first time, following stocks being found there by the industry in 2025. Unusually small spring tides meant the vessel could not reach some of the higher stations close to the saltmarshes, but where access was possible from shore, these were sampled on foot. Unfortunately, poor weather and a vessel breakdown towards the end of the survey period resulted in some of the stations we couldn't access from shore remaining unsurveyed. These included the Blackguard, Styleman's and the eastern part of the Breast sands.

Figure 1 shows the extent of the stations surveyed.

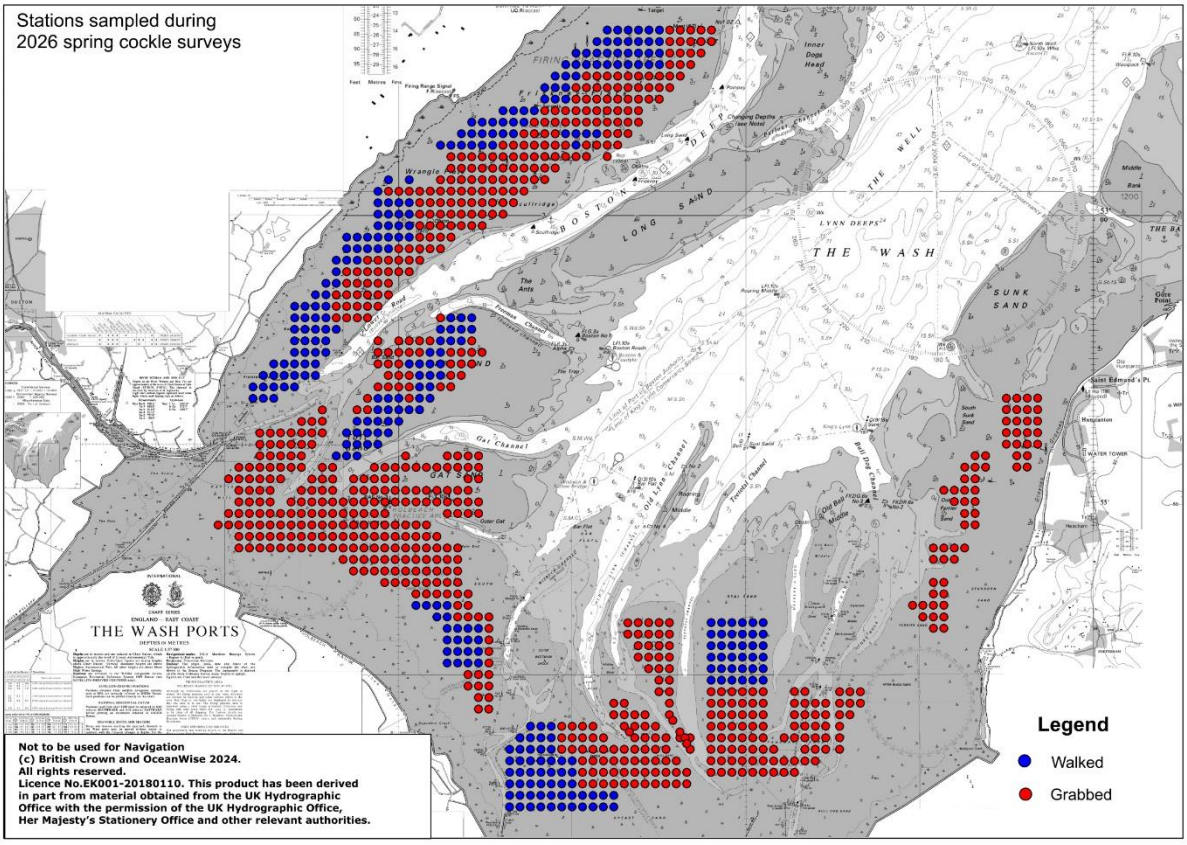


Figure 1 – Chart showing stations sampled during the 2026 Wash cockle surveys (red – grabbed, blue – walked)

Summary of 2026 cockle stocks

From the survey date, the following stock biomasses were calculated:

- Total Adult Stock (≥14mm width) 10,932 tonnes
- Total Juvenile Stock (<14mm width) 18,589 tonnes
- Total Stock (all sizes) 29,521 tonnes

Figure 2 compares the biomass of this year's cockle stock with those from previous years. This chart shows the total biomass has been increasing steadily since 2022 and is currently above average for the time series.

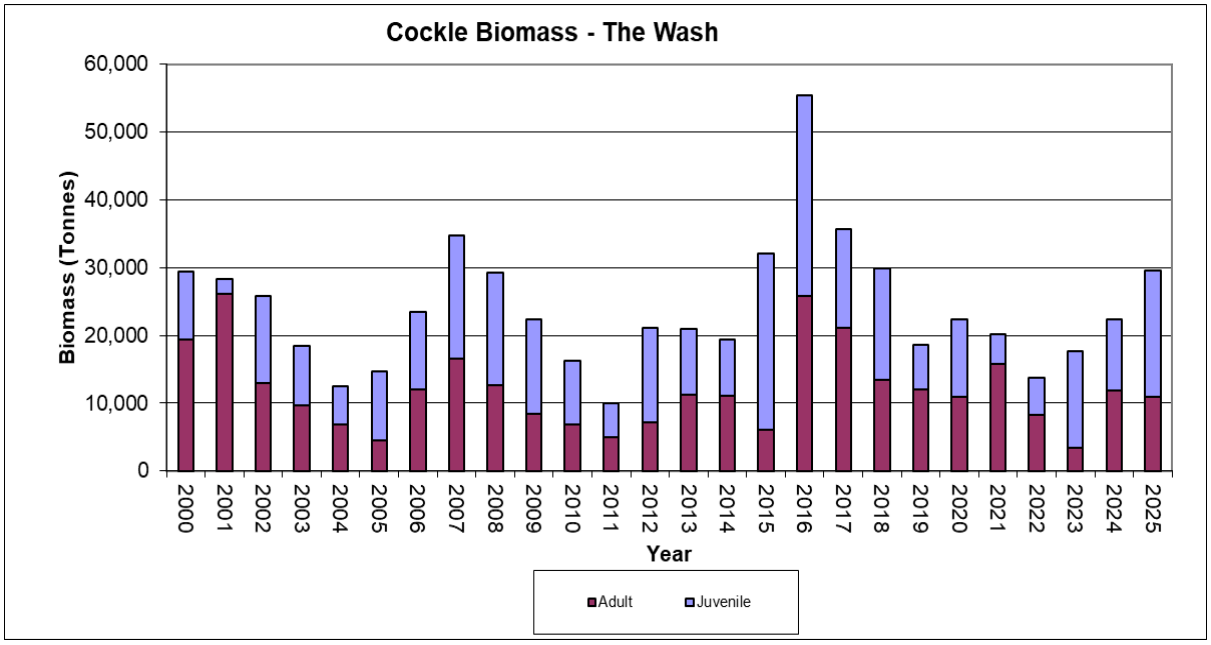


Figure 2 - Adult and juvenile cockle stock biomass between 2000 and 2026 on the regulated beds

While figure 2 shows there has been an increase in overall biomass since last year, mainly due to the increase in the juvenile stock, more detailed analysis of the population composition shows the changes are more complex than this. These changes are seen better in figure 3, which shows the population structures of the stocks in 2025 and 2026. When surveyed last year, the stocks were dominated by the Year-0 population of juveniles that had settled during the summer of 2024 and the larger Year-2 cockles from the 2022 cohort. The recent survey found that there had been a large decline in the numbers of the 2022 cohort, with their biomass declining from 9,169 tonnes to 728 tonnes. Further losses had also occurred among the Year-3, 2021 cohort, which had declined from 2,978 tonnes to 197 tonnes. While some of the cockles from these two cohorts were targeted by the fishery between surveys, the reduction in their combined biomass greatly exceeds the total weight of cockles that were harvested, indicating high natural mortality has also occurred. As cockles of their size range and age have previously been found to be particularly vulnerable to "atypical[1]" mortality, losses were anticipated to be high.

Offsetting these losses are the inclusion of 5,708 tonnes of new Year-0 cockles from the 2025 summer settlement and the growth of the 2024 cohort cockles, which despite being the main target of the 2025 fishery, have increased in biomass from 8,787 tonnes to 19,277 tonnes. The inclusion of Hunstanton into the survey programme has

[1] While still referred to as "atypical", research by Cefas has identified three diseases that have strong correlation with moribundity in Wash cockles. These include a protozoan parasite, *Marteilia cocosarum,* a bivalve iridovirus 1 (BilV1) and disseminated haemocytic neoplasia.

also added a further 3,534 tonnes to the overall biomass, although their inclusion has contributed to some stations on the Breast and Styleman's sands not getting surveyed, which are estimated to support approximately 500 tonnes.

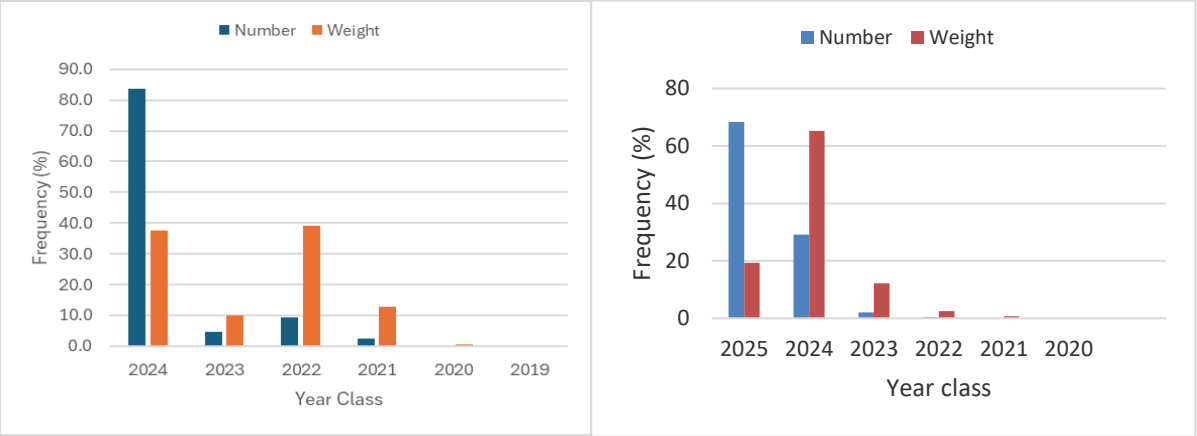


Figure 3 – Changes to the cockle population structure between 2025 (left) and 2026 (right). Graphs show the proportionate sizes of each year-class cohort in terms of numbers (blue) and weight (red/amber) of cockles sampled.

Cockle distribution

Table 1 and charts 4-10, below, provide details about the stocks found on each bed during the 2026 surveys and their distribution on the sands.

Figures 4 and 5, show the distribution of cockles ≥14mm width (adult) cockles and <14mm width (juvenile) cockles in terms of their numbers. While there are almost 11,000 tonnes of ≥14mm width (adult) cockles, in most areas they are distributed sparsely over widespread areas. The only place their density exceeds 500/m^2 is at Hunstanton. There, the cockles were markedly larger than elsewhere surveyed and present in high densities. However, that particular bed is relatively low and some parts only dry on the largest spring tides, limiting access to the fishery. It is likely, therefore, that the fishery will continue to target the high-density patches of juvenile cockles, as they have done in recent years.

Figures 6-10 show the distribution of the individual year-class cohorts in terms of their numbers. The distribution of Year-0 cockles seen in figure 6 shows there was a successful settlement of spat in 2025, though not as large as that from the previous year (5708 tonnes compared to 8,787 tonnes). While benefiting several sands, the settlement was particularly high at Wrangle and Friskney, where widespread areas exceed 1,000/m^2.

Although not as numerous as the Year-0 cohort, in terms of cockle weight, this year the stocks are dominated by the 2024 cohort of Year-1 cockles (19,277 tonnes) shown in figure 7. At the time of the survey, these were mostly between 9-13mm width, so fall into the juvenile population. Nevertheless, this cohort is anticipated to support a high proportion of the 2026 fishery. From past trends, it is anticipated these cockles will grow approximately 2mm by the start of the cockle fishery.

Figures 8-10 show there are only low distributions of older cockles. Of particular note is the decline of the 2022 year-class cohort, which has fallen from 9,169 tonnes last year to 728 tonnes this year. High losses among this cohort had been anticipated last year, however, as they were of a size previously seen to be highly susceptible to “atypical” mortality.

While figures 6-10 are useful for showing the distributions of individual cohorts, it can be difficult to interpret from them where the best fishing opportunities are. While generally more numerous than older cohorts, younger cockles also tend to be smaller. Further, it can be difficult visually interpreting from individual charts what the total stock is like if an area supports mixed populations of two or more cohorts. For fisheries that target a wide range of cockle sizes, including smaller individuals, charts showing cockle densities based on biomass are, therefore, better indicators of where the best fishing opportunities are situated. Figure 11 shows the cockle distribution in terms of biomass of total stock. In this chart Year-0 cockles have been excluded from the biomass as they should not be targeted. Those sites coloured yellow and red in figure 11 are areas most likely to support good fishing opportunities. The best of these appear to be on the Roger, Hunstanton, Gat and Hook Hill sands, with several smaller patches scattered over other beds.

Table 1 - Summary of cockle stocks on the Wash intertidal beds – April 2026

	Adult (≥14mm)				Juvenile (<14mm)					
SAND	Area (ha)	Mean Density (no/m2)	Mean Weight (t/ha)	Biomass (t)	Area (ha)	Mean Density (no/m2)	Mean Weight (t/ha)	Biomass (t)	Total Biomass (t)	% Adult
Black Buoy	75	28.33	1.06	80	199	321.25	3.50	696	776	10
Breast	323	31.48	1.21	391	528	222.44	1.46	774	1165	34
Butterwick	187	18.00	0.78	145	348	218.93	2.51	874	1020	14
Butterwick EXT	162	30.77	1.25	202	274	240.91	2.62	716	919	22
Daseleys	460	20.54	0.88	404	784	114.76	0.97	756	1161	35
Friskney	697	28.75	1.91	1328	896	742.36	2.06	1842	3169	42
Friskney EXT	174	14.29	0.64	112	498	68.25	0.34	168	279	40
Gat	299	71.25	2.60	775	299	252.08	4.78	1428	2203	35
Herring Hill	87	14.29	0.52	45	348	131.07	1.13	395	441	10
Holbeach	299	39.58	1.20	357	709	1069.65	2.71	1919	2276	16
Hook Hill	25	15.00	0.55	14	62	126.00	1.53	95	109	13
Hunstanton	224	236.67	14.77	3307	224	51.11	1.01	227	3534	94
IWMK	187	27.33	1.35	252	336	496.30	3.21	1079	1331	19
Maretail	137	35.45	1.26	173	386	350.32	3.90	1502	1675	10
Outer Ferrier	74	118.57	4.38	326	29	66.67	1.52	43	369	88
Pandora	134	25.45	0.90	121	149	210.83	1.27	189	310	39
Peter Black	75	35.00	1.38	103	87	84.29	0.46	40	143	72
Roger	464	54.25	2.13	987	550	552.17	5.85	3216	4203	23
South Ferrier	100	27.50	1.26	125	37	93.33	0.49	18	144	87
Thief	142	85.88	3.39	480	148	234.12	2.44	362	843	57
Whiting Shoal	124	42.00	1.52	189	149	210.83	1.63	243	433	44
Wrangle	704	36.84	1.42	1002	891	499.44	2.19	1951	2953	34
Wrangle EXT	25	10.00	0.49	12	149	92.50	0.36	54	67	18
Total	**5,176**			**10,932**	**8,080**			**18,589**	**29,521**	**37**

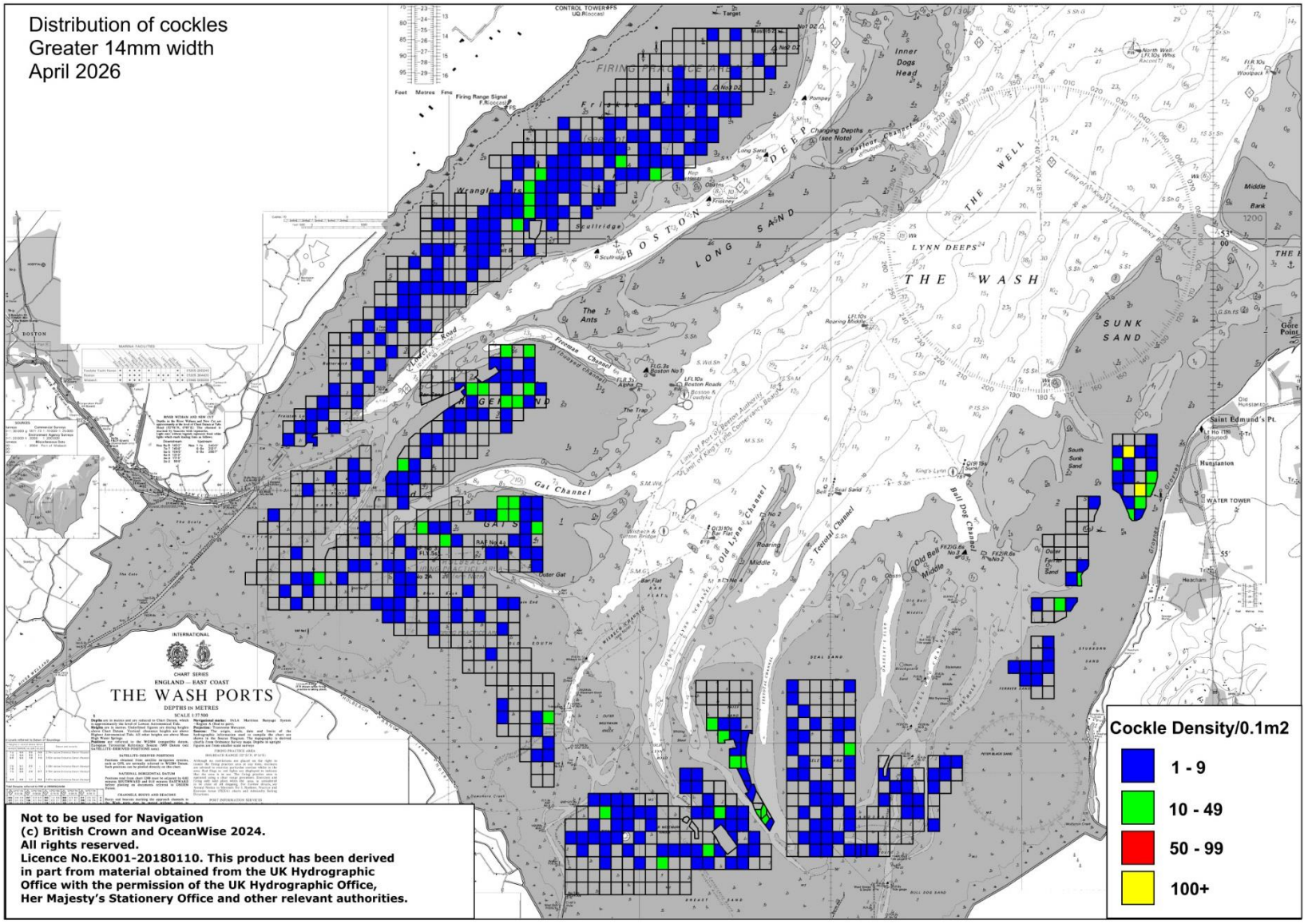


Figure 4 – Chart showing the distribution of adult cockles (≥14mm width) at the time of the 2026 spring surveys

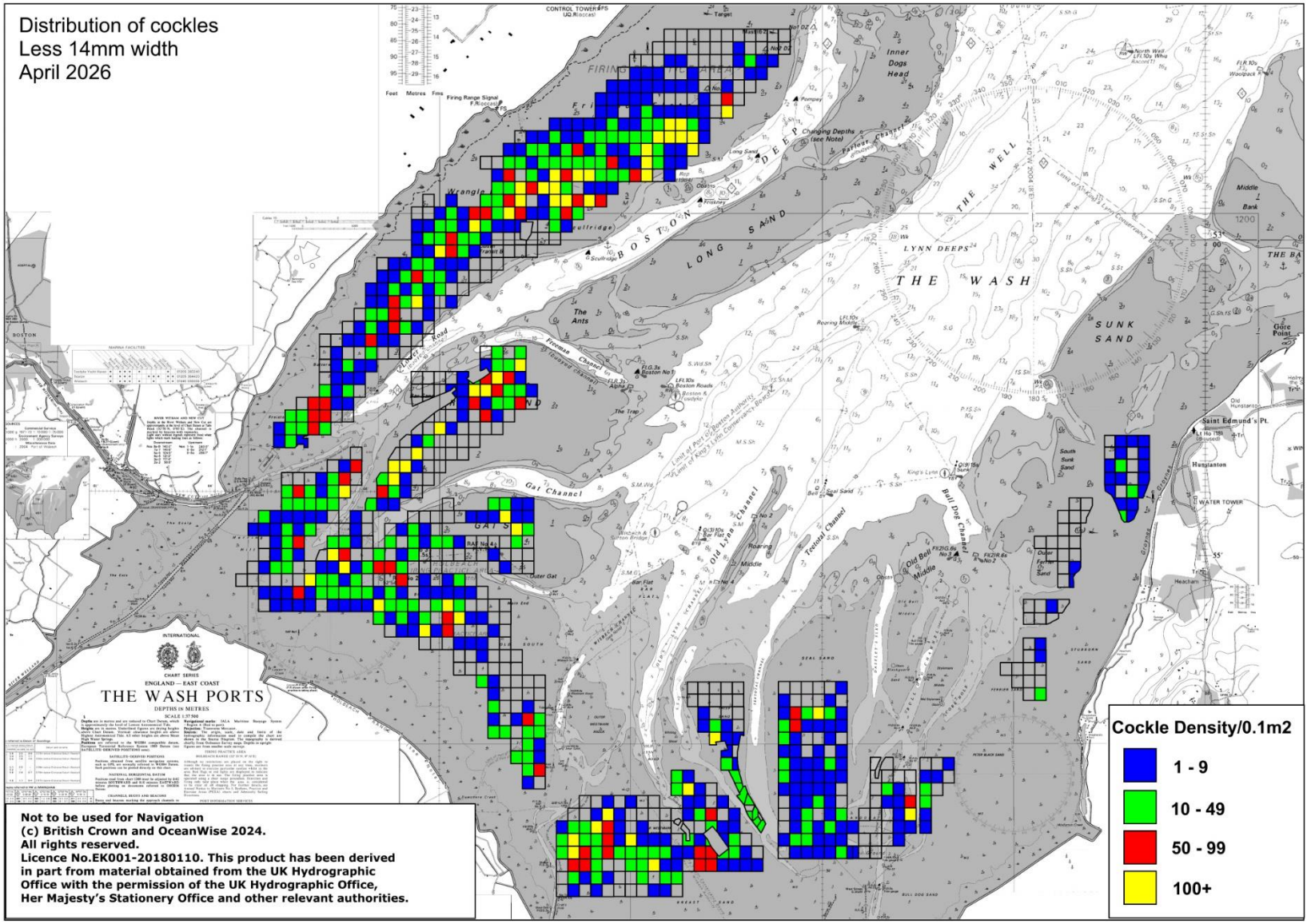


Figure 5 – Chart showing the distribution of juvenile cockles (<14mm width) at the time of the 2026 spring surveys

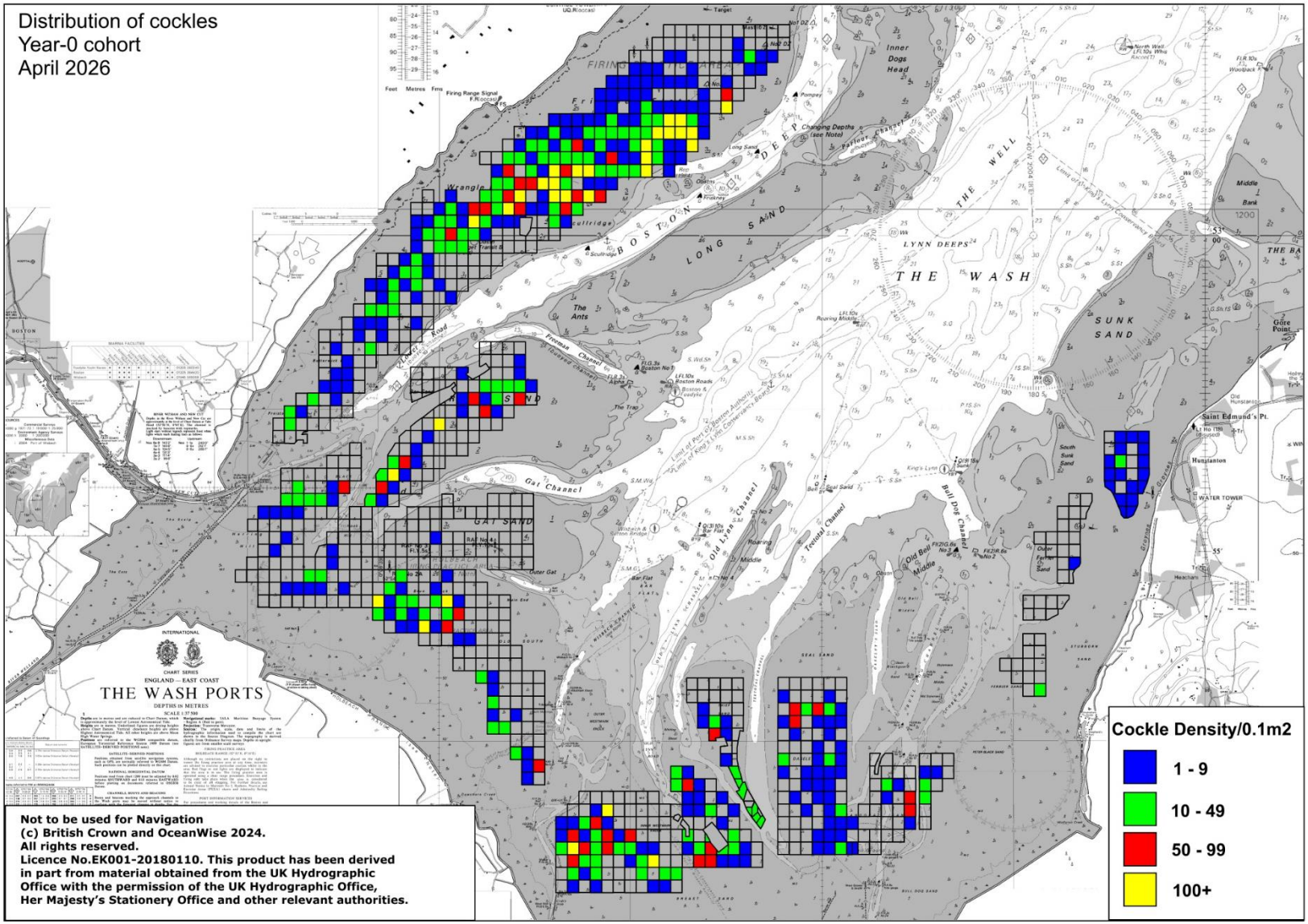


Figure 6 – Chart showing the distribution of Year-0 (2025 year-class) cockles at the time of the 2026 spring surveys

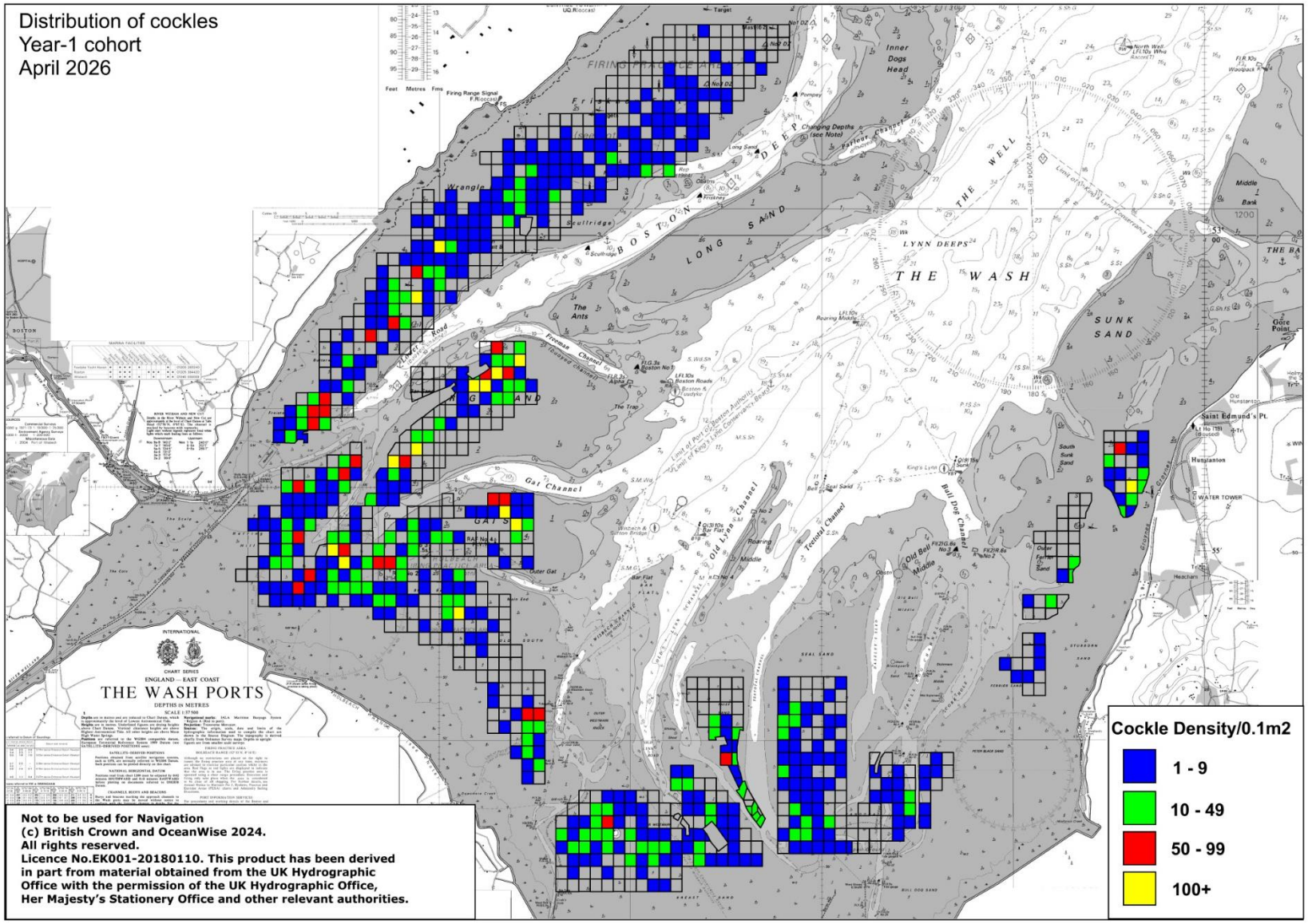


Figure 7 – Chart showing the distribution of Year-1 (2024 year-class) cockles at the time of the 2026 spring surveys

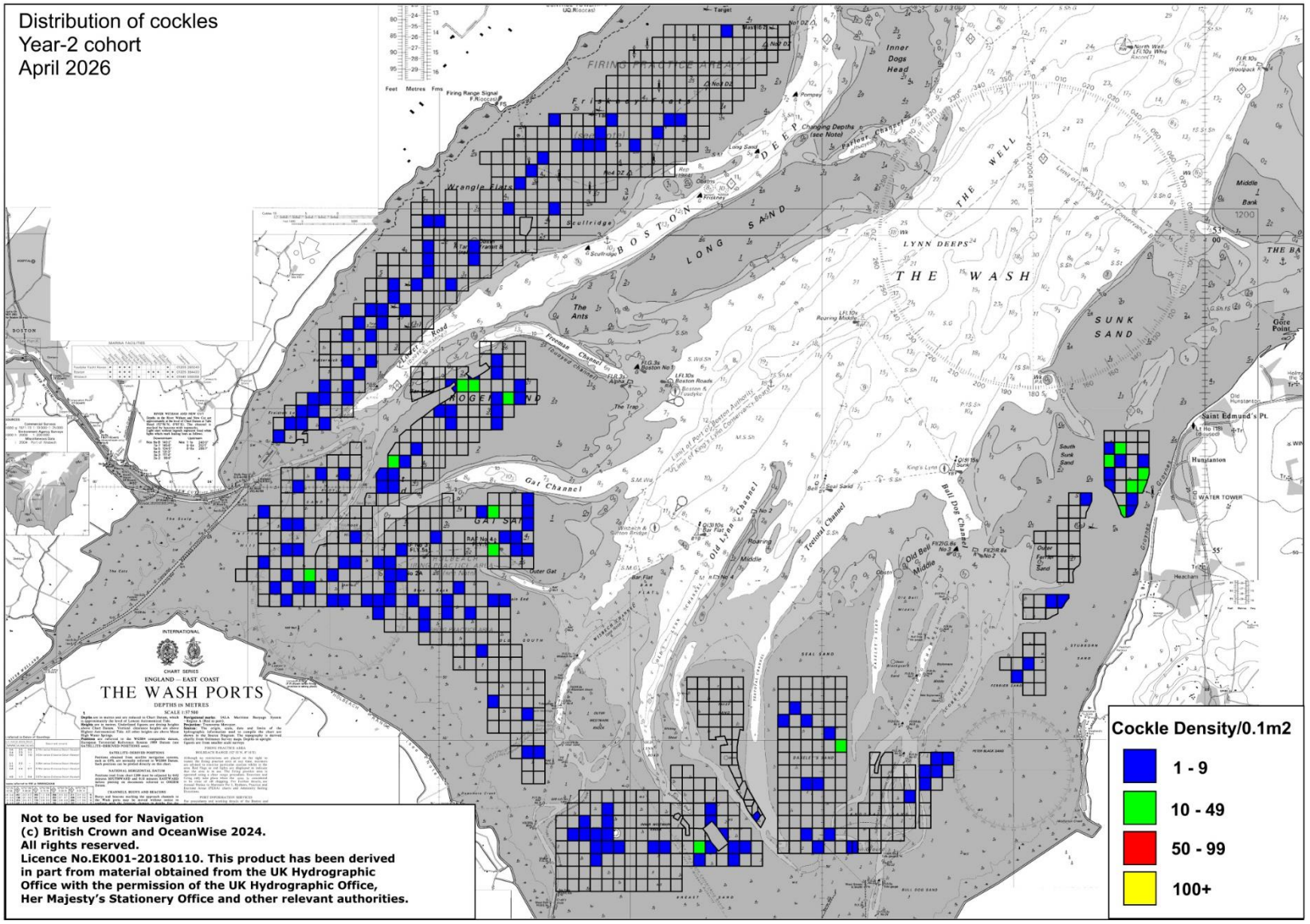


Figure 8 – Chart showing the distribution of Year-2 (2023 year-class) cockles at the time of the 2026 spring surveys

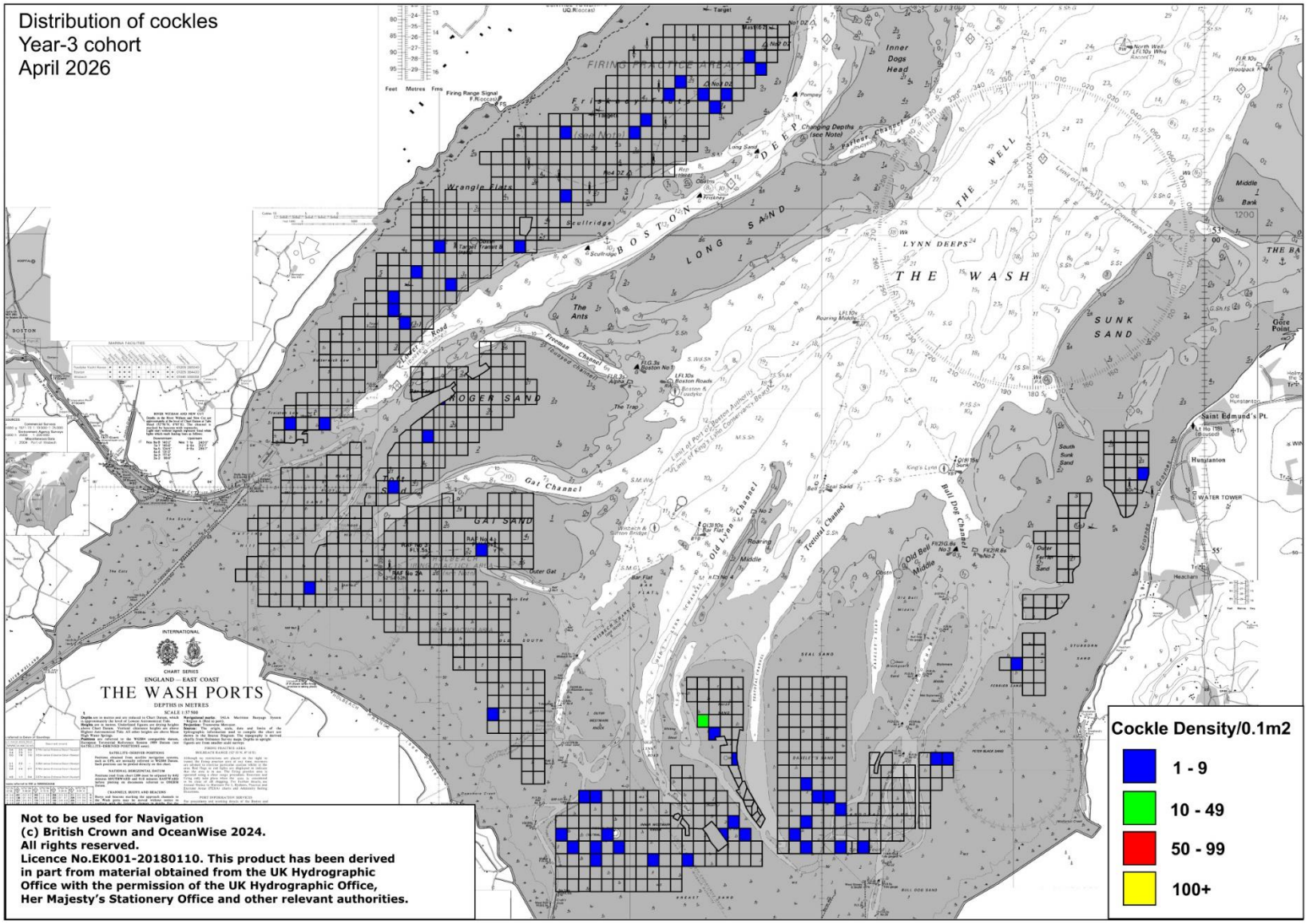


Figure 9 – Chart showing the distribution of Year-3 (2022 year-class) cockles at the time of the 2026 spring surveys

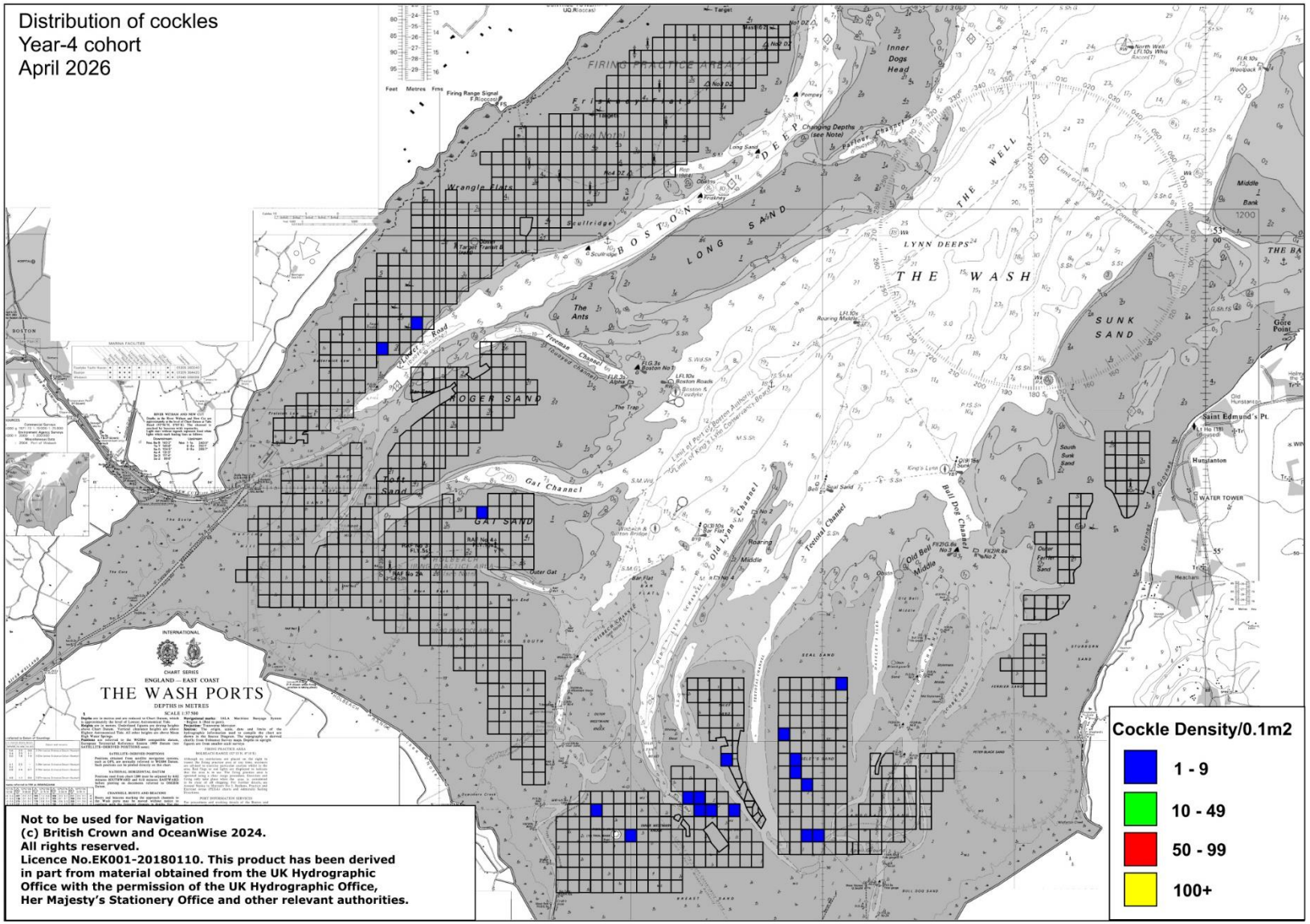


Figure 10 – Chart showing the distribution of Year-4 (2021 year-class) cockles at the time of the 2026 spring surveys

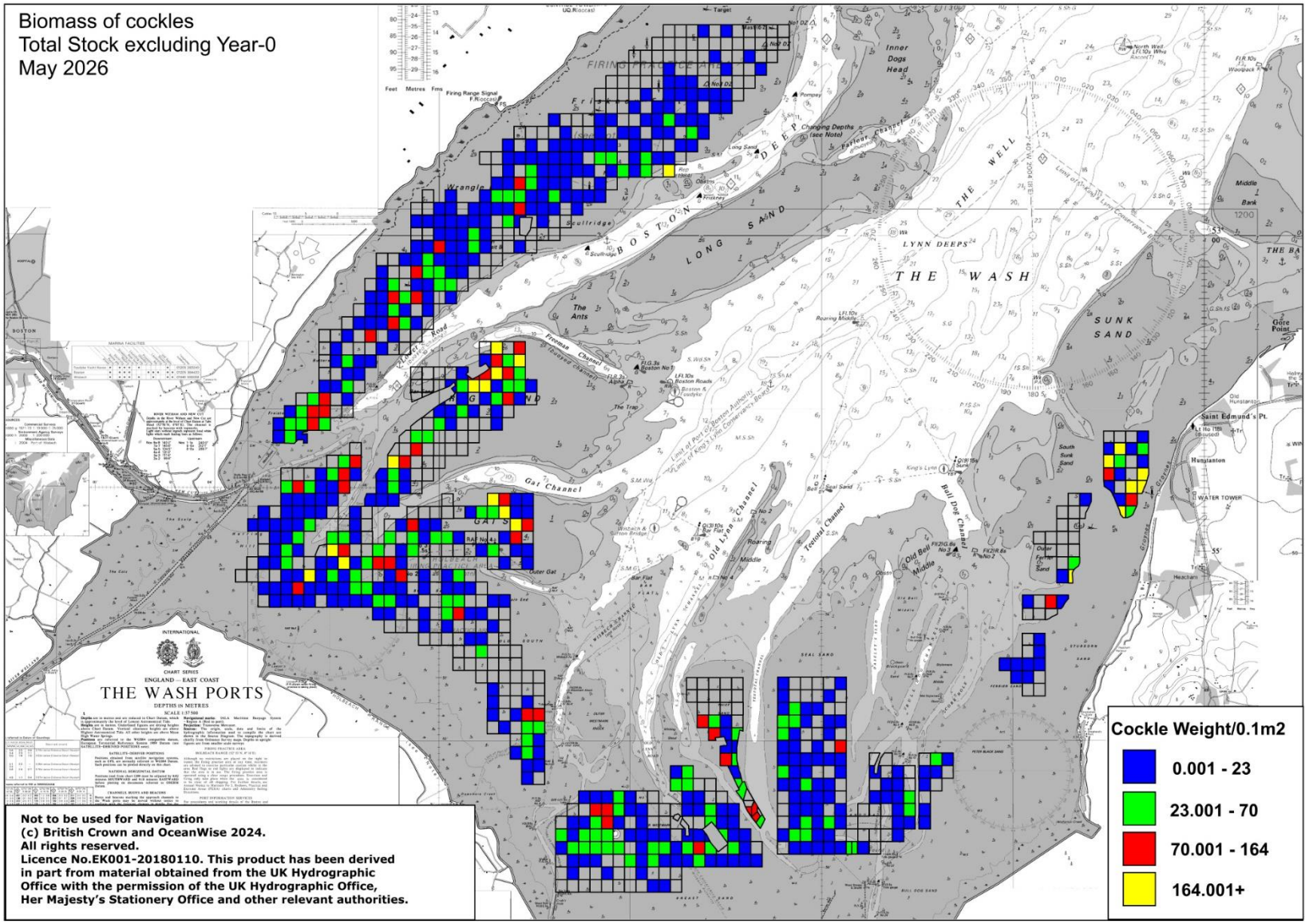


Figure 11 – Total biomass (g/0.1m^2) of cockles at each station (excluding Year-0s) at the time of the 2026 spring survey

Estimation of stocks in unsurveyed areas

Due to a combination of poor weather, small spring tides, vessel breakdowns and the inclusion of Hunstanton into the survey programme, it was not possible to complete sampling of all of the stations usually surveyed. This included the failure to survey the Blackguard and Styleman's sands, plus 25 stations on the eastern side of the Breast sand. The dynamic nature of cockle stocks, which are subject to growth and high mortality, makes it difficult to estimate stocks without conducting a survey. Where some sampling has been conducted in the vicinity, however, observed trends can be utilised to help estimate stocks on unsurveyed parts of beds. No samples were collected from the Blackshore or Styleman's beds that could support this approach, so no estimations have been made of their stocks. On the Breast sand, however, 70 stations had been surveyed that could be used to estimate trends for the remaining 25 stations. This was done by looking at what changes had occurred to the biomass of individual cohorts from the 2025 survey (table 2) and applying those changes to the remaining 25 stations (table 3).

Table 2 – Changes to cohort biomass between 2025 and 2026 at 70 stations sampled on the Breast sand.

	Year-class cohort					
Year	**2025**	**2024**	**2023**	**2022**	**2021**	**Total**
2025	0	390	250	1163	638	2440
2026	233	761	168	81	6	1249

It can be seen from table 2 that the 2024 year-class cohort has almost doubled in biomass between the two surveys, but the 2023 cohort has declined by about a third and the 2022 and 2021 cohorts by 93% and 99% respectively. The 2025 cohort had not settled at the time of the 2025 survey, so are absent from that dataset and cannot be used to estimate trends.

Table 3 – Estimated changes to cohort biomass between 2025 and 2026 at 25 stations unsampled on the Breast sand

	Year-class cohort					
Year	**2025**	**2024**	**2023**	**2022**	**2021**	**Total**
2025	0	166	52	951	378	1583
2026	?	325	35	66	4	430

In table 3, the 2025 stocks at the 25 stations that were not surveyed in 2026 were subjected to the same trends seen on the 70 stations that were surveyed. Using this approach, **it is estimated a further 430 tonnes of cockles are situated in these**

sites, although it is difficult to determine what proportion would fall into the adult and juvenile populations**.** Taking these additional cockles into account would result in an **estimated total stock of 29,951 tonnes.**

It should be noted that no estimation has been made for the 2025 cohort as there is no baseline data from 2025 that can support the calculations.

Proposed Management Measures for 2026 fishery

Total Allowable Catch

Since its introduction in 1998, the Total Allowable Catch (TAC) has been instrumental in maintaining the sustainability of the fishery. For most of that period, the TAC has been calculated as a third of the adult cockle stock (cockles ≥14mm width). In recent years, however, the impacts of atypical mortality killing disproportionate numbers of adult cockles resulting in the fishery shifting towards targeting smaller cockles, has caused disparity between the size of the annual TAC and the abundance of available cockle stocks of the target size. After careful consideration, therefore, in 2023 the calculation for the TAC was changed from a third of the adult cockle stock to a sixth of the total stock. Based on this latter calculation, the **TAC for the 2026 fishery should be 4,992 tonnes**.

There are other additional minimum stock thresholds that need to be achieved to ensure the SSSI Conservation Objective targets are met. These include:

- Maintaining a total cockle stock biomass above 11,000 tonnes
- Maintaining a minimum spawning stock biomass (cockles ≥14mm width) above 3,000 tonnes
- Maintaining sufficient cockle and mussel stocks to feed 24,000 oystercatchers (as determined by the Bird Food Model)

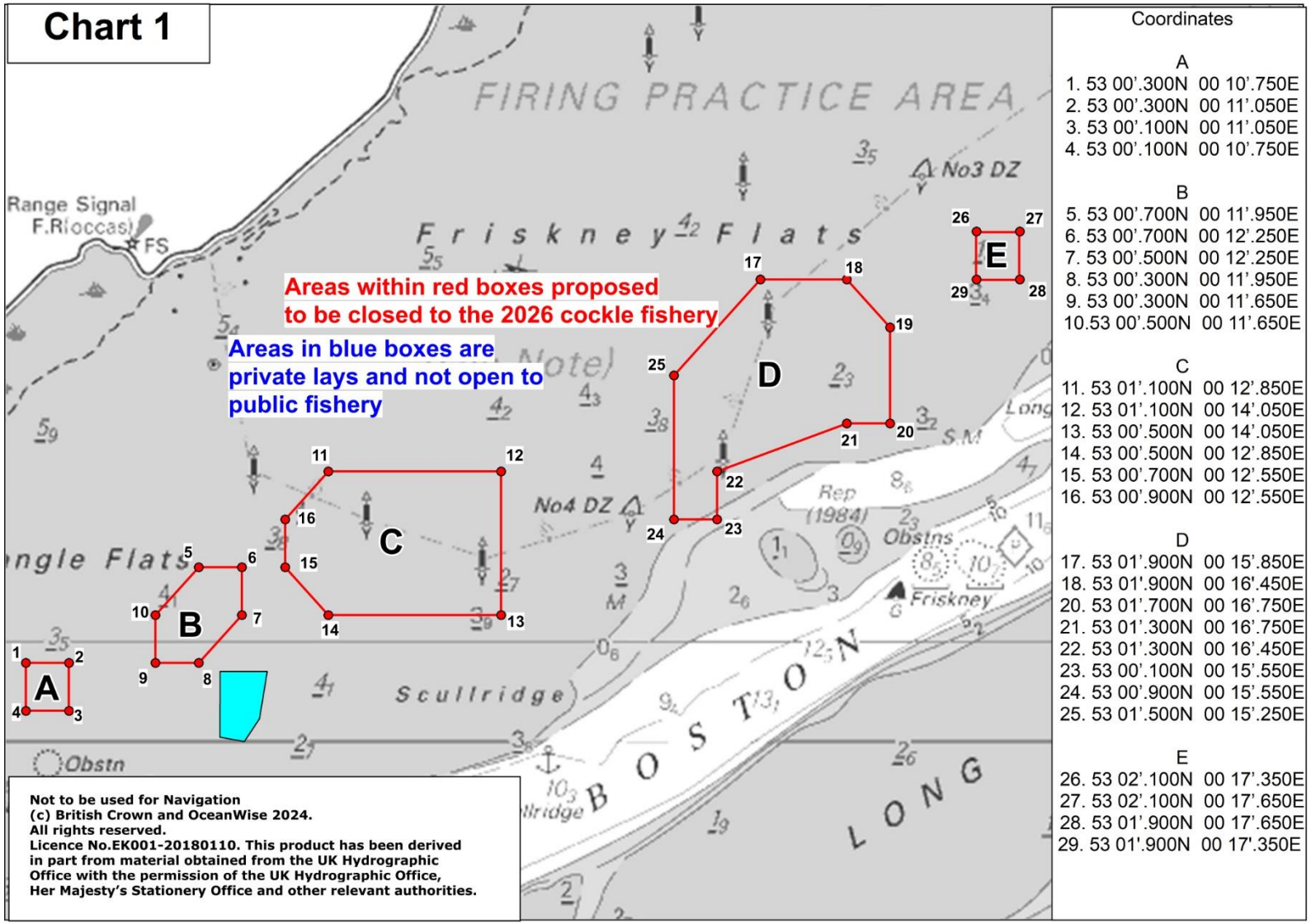
The total cockle stock at the time of the survey was estimated to be 29,951 tonnes and the adult stock to be at least 10,932 tonnes (not including the 25 unsurveyed stations on the Breast sand). The removal of 4,992 tonnes would not reduce either of these below their minimum thresholds.

The food requirement for 24,000 oystercatchers is 960 tonnes Ash Free Dry Mass (AFDM), which both the intertidal cockle and mussel stocks contribute towards. Even if both of the 2026 cockle and mussel fisheries fully exhaust their respective TACs, the remaining stocks will still equate to 1,864 tonnes AFDM. This is well within the requirement and sufficient to support a further 22,600 oystercatchers.

As all three of these SSSI Conservation Objective targets have been met, the TAC for the cockle fishery does not need to be reduced. **The TAC should, therefore, be 4,992 tonnes.**

Protection of Year-0 juvenile cockles

There was a relatively good spatfall in 2025, which while benefiting several sands were particularly prevalent at Wrangle and Friskney. Where these Year-0 juveniles exceed densities of 1,000/m^2, spatial closures have been proposed to protect them from the fishery. Time constraints within the survey period do not allow the exact extent of the cockle patches to be precisely mapped, so these proposed closures have followed the same approach used in previous years, whereby 12.44 hectare boxes representative of the sample station have been drawn around sample sites supporting Year-0 cockle densities exceeding 1,000/m^2. It should be noted that due to the 400 yard resolution of the sampling grid, this is the minimum granularity that can be used for the proposed closures. These will seldom match the actual extent of the juvenile distribution, which on occasions might only occupy part of the closed box, or may on other occasions extend out of the box. Figures 12-14 show the locations of these proposed closed areas.



Coordinates

A
1. 53 00'.300N 00 10'.750E
2. 53 00'.300N 00 11'.050E
3. 53 00'.100N 00 11'.050E
4. 53 00'.100N 00 10'.750E

B
5. 53 00'.700N 00 11'.950E
6. 53 00'.700N 00 12'.250E
7. 53 00'.500N 00 12'.250E
8. 53 00'.300N 00 11'.950E
9. 53 00'.300N 00 11'.650E
10. 53 00'.500N 00 11'.650E

C
11. 53 01'.100N 00 12'.850E
12. 53 01'.100N 00 14'.050E
13. 53 00'.500N 00 14'.050E
14. 53 00'.500N 00 12'.850E
15. 53 00'.700N 00 12'.550E
16. 53 00'.900N 00 12'.550E

D
17. 53 01'.900N 00 15'.850E
18. 53 01'.900N 00 16'.450E
20. 53 01'.700N 00 16'.750E
21. 53 01'.300N 00 16'.750E
22. 53 01'.300N 00 16'.450E
23. 53 00'.100N 00 15'.550E
24. 53 00'.900N 00 15'.550E
25. 53 01'.500N 00 15'.250E

E
26. 53 02'.100N 00 17'.350E
27. 53 02'.100N 00 17'.650E
28. 53 01'.900N 00 17'.650E
29. 53 01'.900N 00 17'.350E

Figure 12 – Positions of proposed closures on Wrangle and Friskney to protect Year-0 juvenile cockles during 2026 cockle fishery

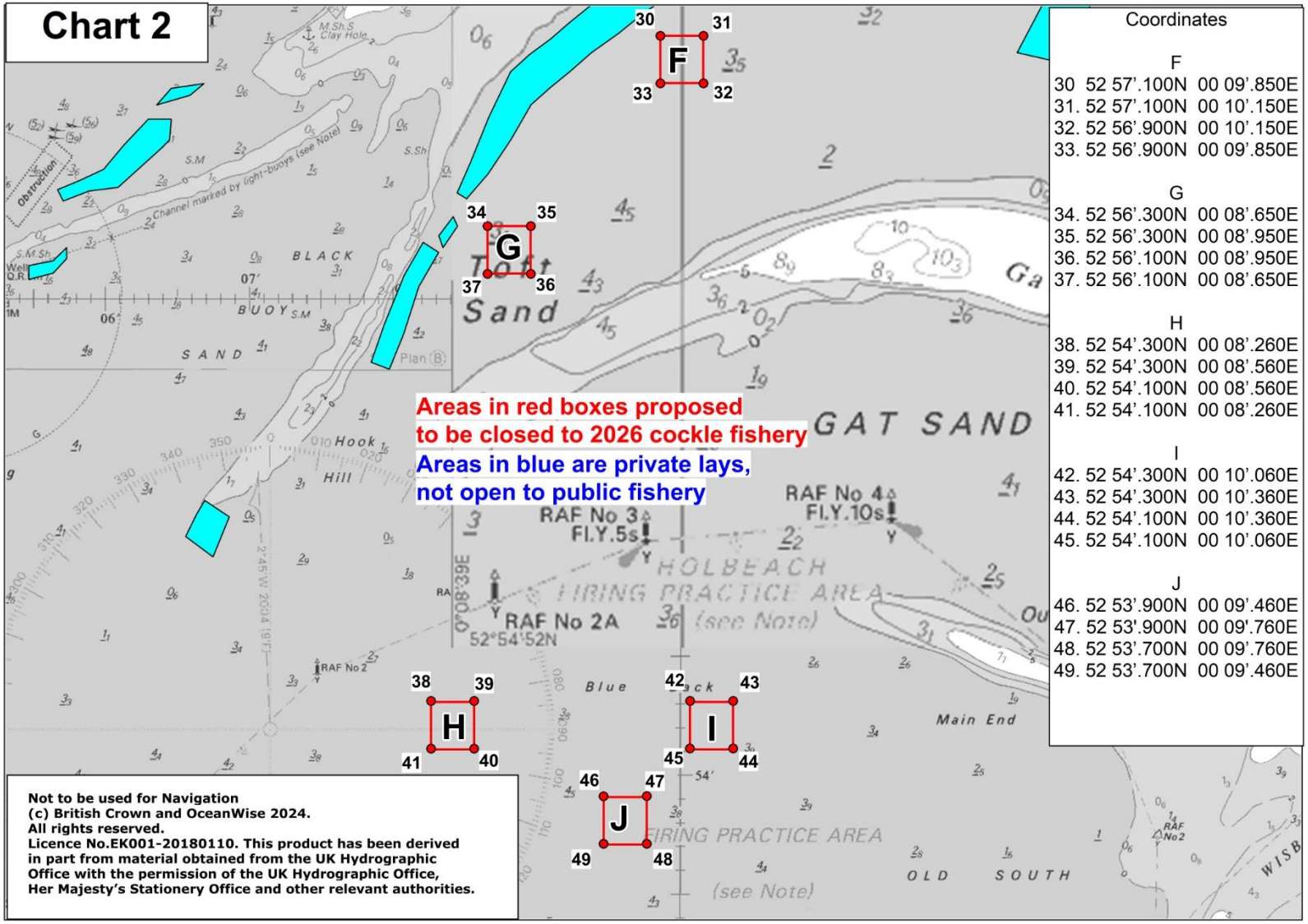


Figure 13 – Positions of proposed closures on Tofts, Mare Tail and Holbeach to protect Year-0 juvenile cockles during 2026 cockle fishery

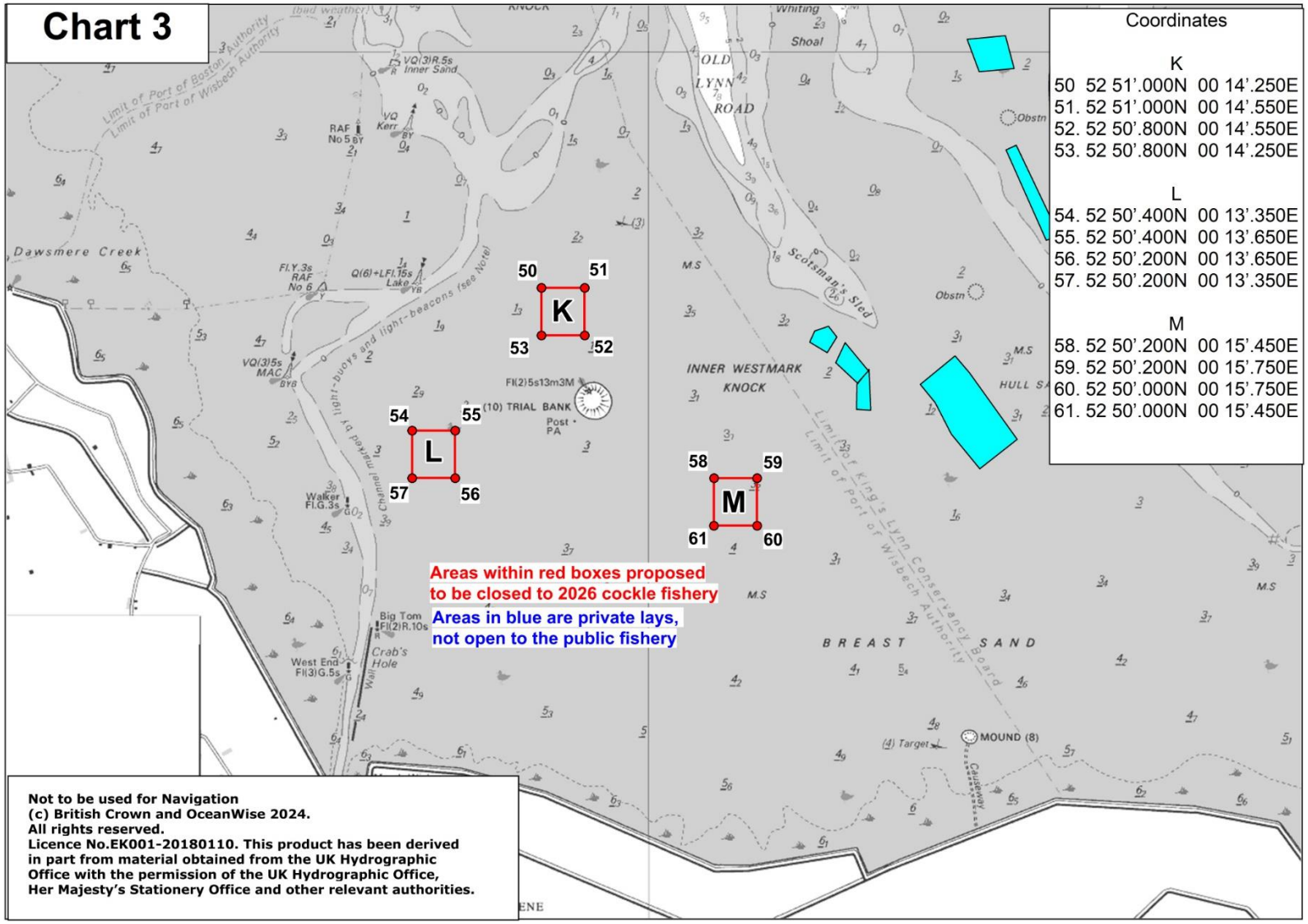


Figure 14 – Positions of proposed closures on IWMK and Breast to protect Year-0 juvenile cockles during 2026 cockle fishery

While the majority of the proposed closed areas have followed the described procedure of enclosing a 12.44 hectare box around sample stations supporting densities of Year-0 cockles ≥1,000/m^2, three of the proposed closures at Wrangle and Friskney are proposed to be more precautionary. These are shown in figure 15, overlaid with the Year-0 distribution grid. It can be seen from this chart that in this area the yellow grid cells denoting where densities of Year-0 cockles exceed 1,000/m^2 form clusters of more than one cell. As the Year-0 cockles may extend beyond these cells, the closures are proposed to incorporate the whole cluster.

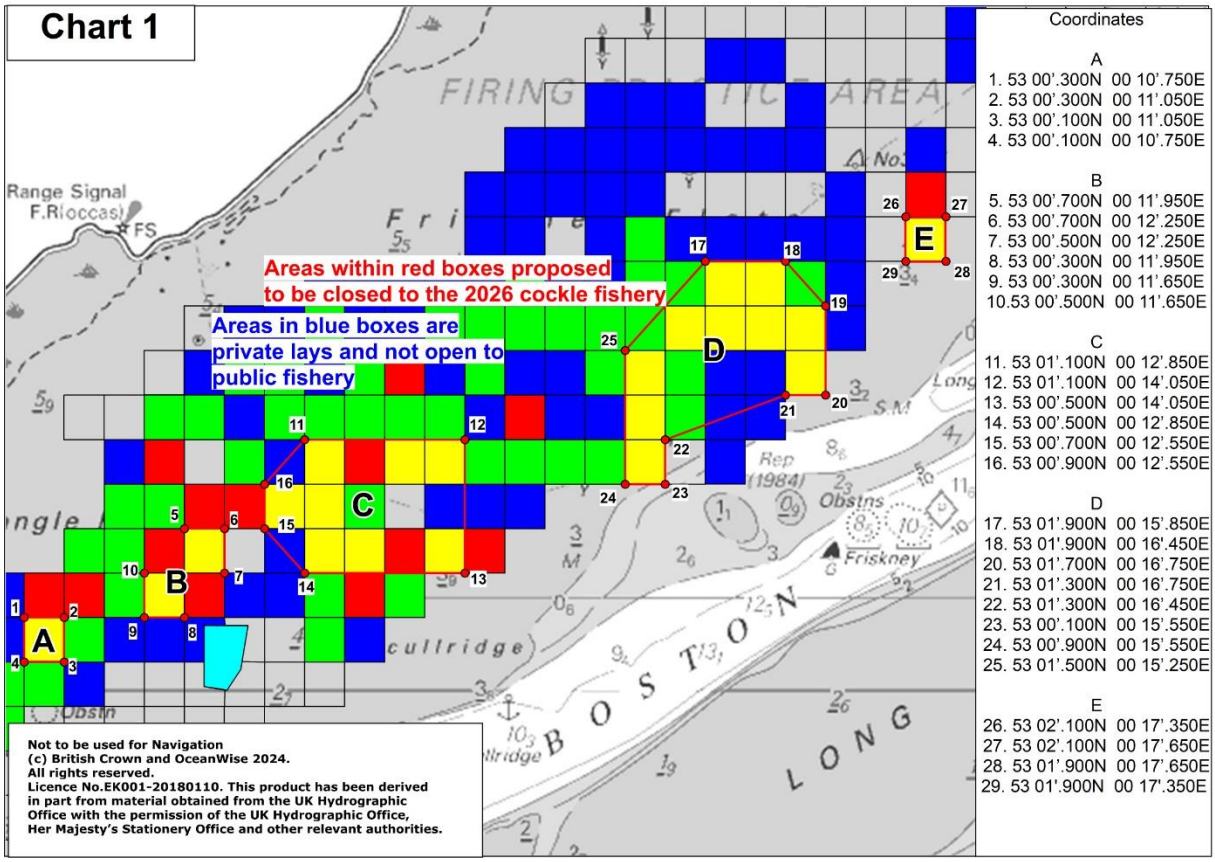


Figure 15 – Chart showing the proposed closures on Wrangle and Friskney, overlaid with the Year-0 distribution grid.

Whenever closures are implemented to protect juvenile stocks, there is always the danger that they will overlap with stocks of fishable cockles. In figures 16-18, the proposed closures have been overlaid with the cockle distribution grid showing the biomass of cockle stocks (minus Year-0's). This grid highlights where the best fishing opportunities are located, whereby areas coloured red and yellow denote the highest biomass. In these charts, it can be seen that in the majority of the closures, the biomass of Year-1 and older cockles is relatively low and unlikely to be fished. The exceptions to this are at Site B at Wrangle and Site K at IWMK, both of which overlap with red areas of biomass. Further to this, Site G on the Tofts is directly adjacent to a yellow biomass cell. It is proposed that foot surveys are conducted in these three areas to more accurately align the borders of the closures with the actual extent of cockles.

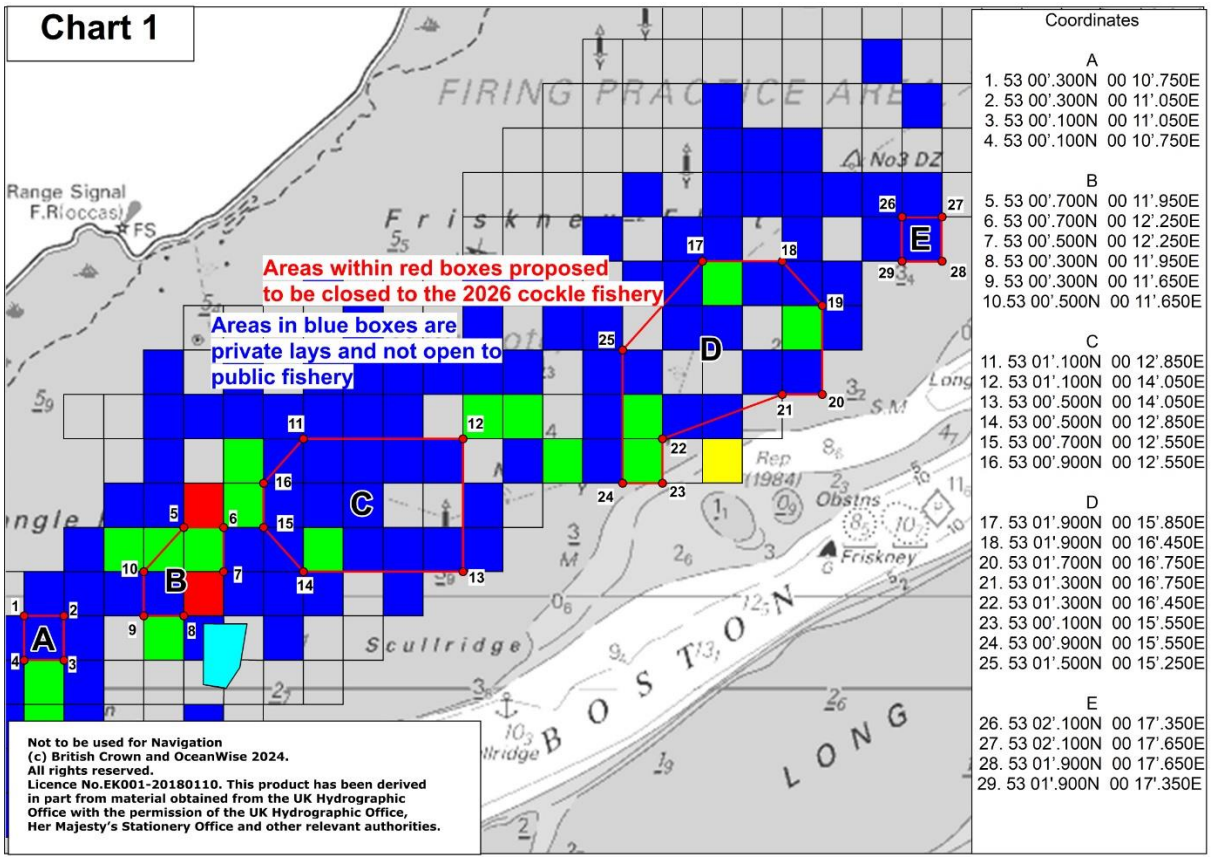


Figure 16 – Chart showing the proposed closures on Wrangle and Friskney, overlaid with the Total Biomass (minus Year-0) distribution grid.

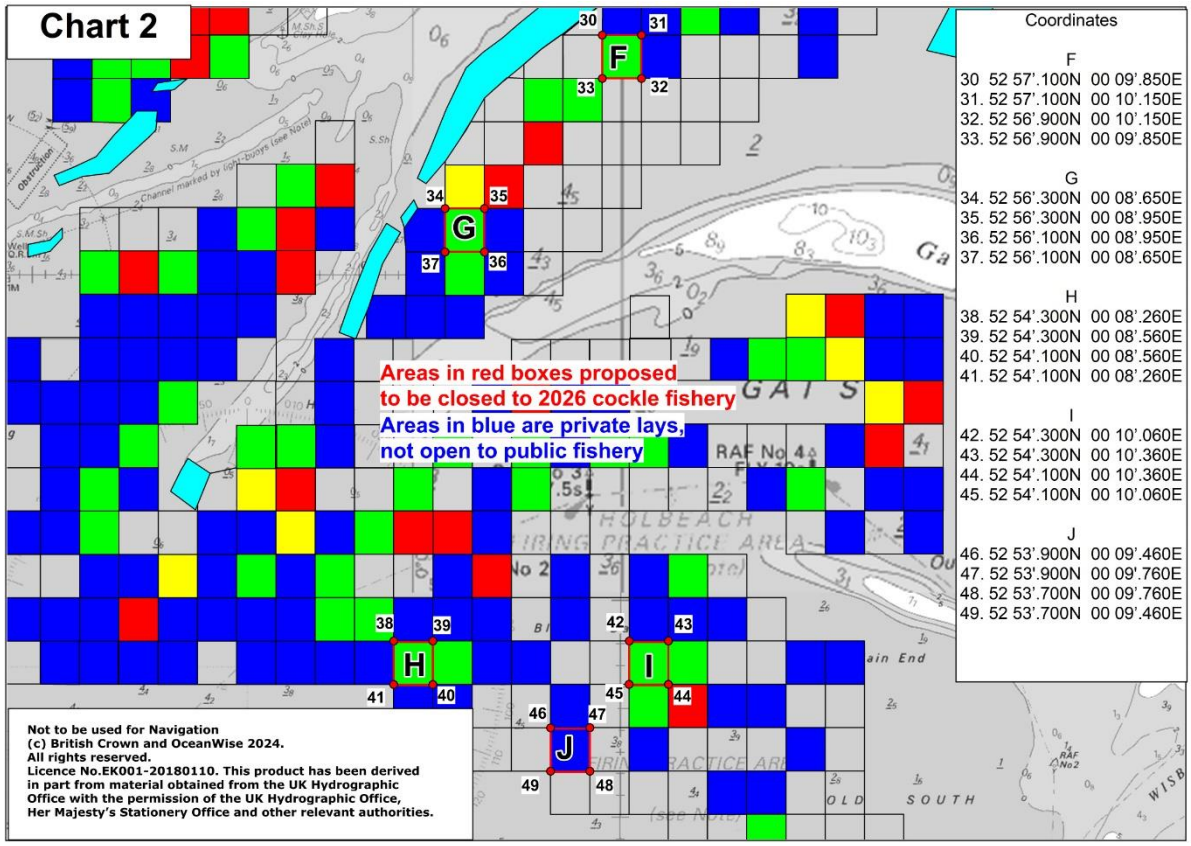


Figure 17 – Chart showing the proposed closures on Tofts, Mare Tail and Holbeach, overlaid with the Total Biomass (minus Year-0) distribution grid.

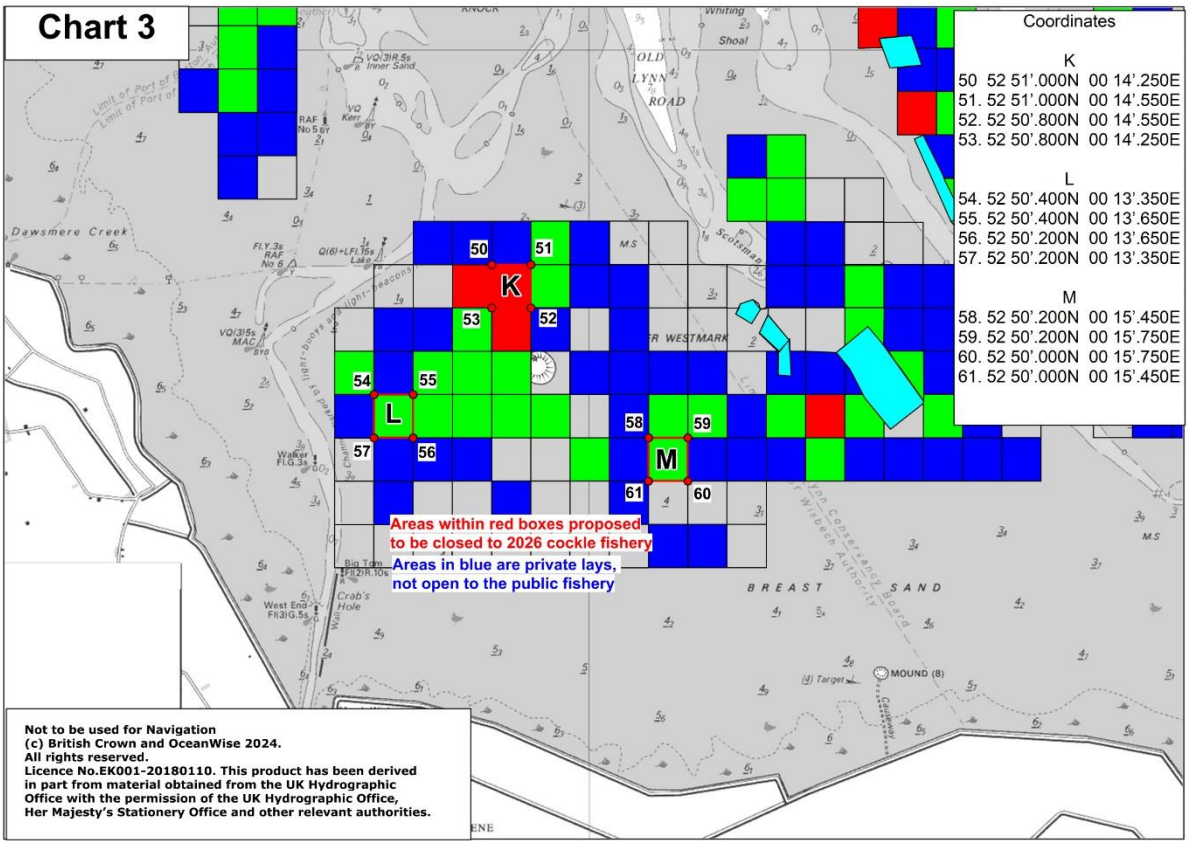


Figure 18 – Chart showing the proposed closures on IWMK and Breast, overlaid with the Total Biomass (minus Year-0) distribution grid.

Table 4 shows the biomass of cockles from each age cohort within the proposed closed areas. This shows that these closures would protect an estimated 3,133 tonnes of Year-0 cockles, representing 54.9% of the overall biomass of that cohort. In doing so, the fishery would lose access to 5.3% of the biomass of cockles ≥14mm width and 4.2% of the total biomass of cockles older than Year-0. These closures, therefore, offer a good protective value to the stocks, while causing minimal restriction on access to larger cockles.

Table 4 – Biomass of cockles within the proposed closed areas

Bed	Yr-0	Yr-1	Yr-2	Yr-3	Yr-4	Yr-5	Grt 14mm	Total-Yr0
Breast	56	34	0	31	0	0	56	65
Friskney	1390	261	39	0	0	0	285	300
Holbeach	917	69	30	0	0	0	42	99
IWMK	102	142	8	9	0	0	17	159
Roger	158	157	6	0	0	0	51	163
Wrangle	510	202	9	16	0	0	133	226
Total	3133	865	92	55	0	0	584	1012
Percentage	54.9	4.5	2.6	7.6	0.0	0.0	5.3	4.2

The high densities of juvenile cockles within some of the closed areas suggest that ridging out could occur during the summer as they grow and compete for space. These

areas should be monitored during the summer months for signs of widescale ridging out, with the option of opening them if ridging does appear imminent.