

By: KEIFCA Chief Fishery Officer

To: Kent & Essex Inshore Fisheries and Conservation Authority
– 26 January 2023

Subject: **Whelk Permit Byelaw Update**

Classification Unrestricted

Summary:

This paper will provide Members with an overview of whelk fisheries markets, analysis of KEIFCA whelk landings data over the year 2022 and an update of national whelk management.

Recommendations:

1. Members are asked to **AGREE** that the pot limit, the riddle size and the number & size of escape holes remain set at:

Pots – 300 for category 1 permits and 10 for category 2 permits
Riddle – 25mm spacing between bars
Escape holes – 10 @ 25mm per pot

Fisheries Management Plans - the national picture

At the November 2022 Authority Meeting, a presentation was given by Dr Jon Davies, Sustainability, Devolution & Legislation team at Defra, on the progress made to date with Fisheries Management Plans (FMPs). Dr Davies advised that the whelk FMP was one of 5 frontrunner projects being worked on by Seafish, in collaboration with the Whelk Management Group, for delivery at the end of 2023.

Kent & Essex IFCA contacted Seafish for an update on national whelk management such as progress with the FMP, and both of our neighbouring IFCAs for an update on whelk fisheries since the introduction of their own regulations.

Seafish – Whelk Management Group (WMG) update

WMG meetings provide an opportunity to provide updates and discuss workstreams and topics relevant to whelk fisheries management. Some of the key WMG workstreams throughout 2022 are listed below.

- Input to the development of the whelk FMP for English waters, including drafting objectives via the WMG FMP Working Group
- Helped to raise awareness about FMP engagement events of which were held in Weymouth, Ilfracombe, Shoreham, Fleetwood and Wells-next-the-Sea, as well as 3 online events.
- Non-quota stocks (NQS): including outcomes of UK-EU negotiations regarding 2022 tonnage limits, multi-year strategies for NQS, and the need for well-rounded management approaches to minimise negative impact on industry.
- Whelk management measures in Wales: the whelk fishing permit order enforced by the Welsh Government enforced in December 2021, and how this is used to manage Welsh whelk fisheries.
- Insights from members on what's being witnessed in industry, for example the recovery of the export market following Covid-19.
- A whelk effort management workshop was hosted by Seafish in London (17th March 2022) to discuss the issue of and risks from increased fishing effort in the UK whelk fishery and to explore options to better control fishing effort.
- The work of the Science Subgroup has continued, including development of a whelk research plan which will underpin the English whelk FMP.
- Announcement of a collaborative Fisheries Industry Science Partnership (FISP) research projects:
 - Anecdotal whelk data gathering project to gather information on fishers' experience of characteristics of different UK whelk populations (Heriot-Watt University)
 - FISP-funded projects regarding fisher input into bait alternatives and gear selectivity for whelk fisheries (Heriot-Watt University)
 - The WMG is used as a forum for researchers to update and engage industry on scientific research relating to whelks, for example in 2022 we had presentations from scientists researching whelk shell growth and repair (Bangor University) and investigating whelk population structure (University of Essex) using DNA analyses.

Comprehensive WMG meeting notes can be found on the Seafish website: [Whelk Management Group – Seafish](#)

Regional whelk management - Sussex IFCA

1. Landings, fishing effort and number of fishers

There are currently 82 active shellfish permits, of which 45 have an allocation of whelk tags. Total landings (tonnes) of whelk from the commercial fleet in Sussex is down from 2021.

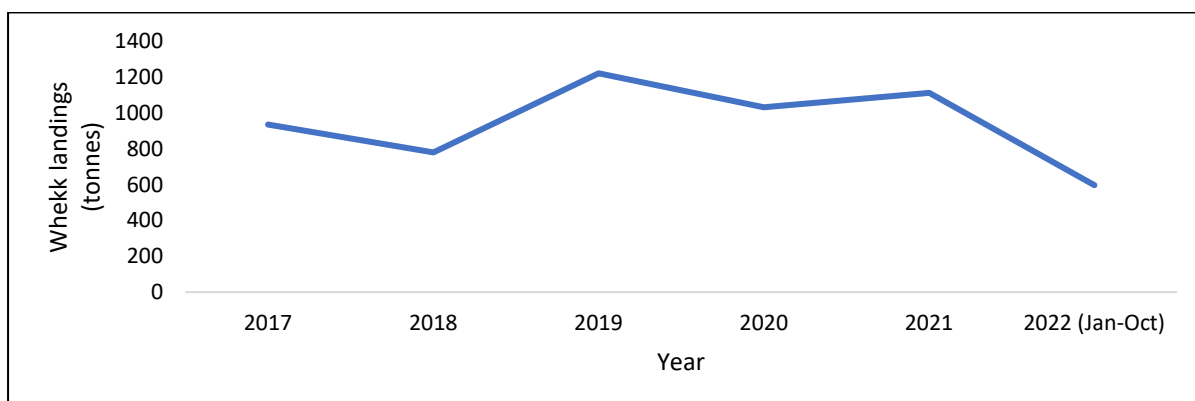


Figure 1. Chart outlining total annual whelk landings (weight in tonnes) in the Sussex district from 2017 - 2022.

The Landings Per Unit of Effort (LPUE) from Jan to October 2022 has also decreased from 1.80kg in 2021 to 1.64kg. Although the 2022 dataset is incomplete as we are awaiting the submission of landings data for November and December, it is not expected that this figure will rise much.

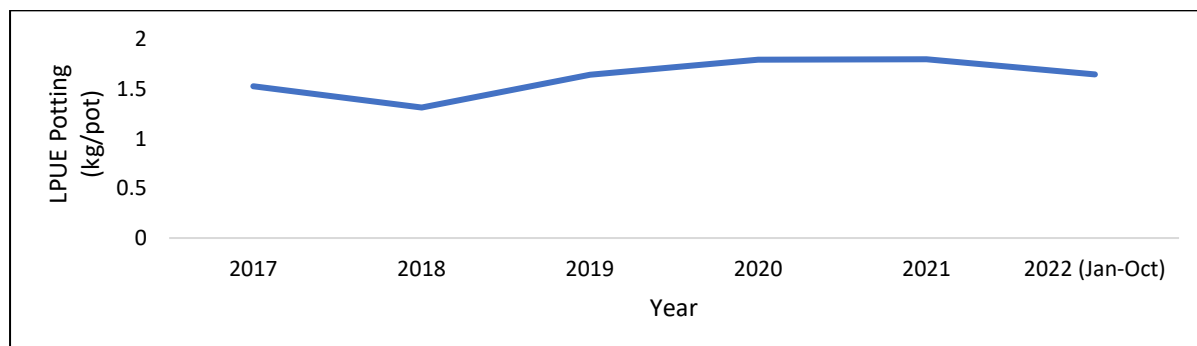


Figure 2. Chart showing LPUE (weight in kgs) in the Sussex district from 2017 - 2022.

2. Fishing behaviour

Many of the regular inshore whelk fleet who net during the summer months continued netting inshore well into the autumn/winter months, whereas others have decided to continue to pot outside the district. Anecdotally this is due to the whelk not being present on the inshore ground as a result of the slightly higher than usual water temperature late in 2022.

3. Compliance

There have been 6 warnings issued for incorrectly marked fishing gear. Compliance on submission of catch returns has improved with the introduction of an online reporting system for fishers to use. No inspected vessels or markets were found to be retaining any whelk below the Minimum Conservation Reference size of 45mm.

Regional whelk management - Eastern IFCA

4. Landings, fishing effort and number of fishers

During 2022 whelk fishing effort occurred predominantly in whelk areas 4 (The Wash) and 6 (North Norfolk Coast), which is typical for the EIFCA district. Fishing effort was highest in March, April and May which is unusual as fishers in the EIFCA district usually target cockles in the summer. However, in 2022 there was uncertainty as to whether a cockle fishery could be opened and fishers targeted whelk when they would have otherwise been participating in the cockle fishery.

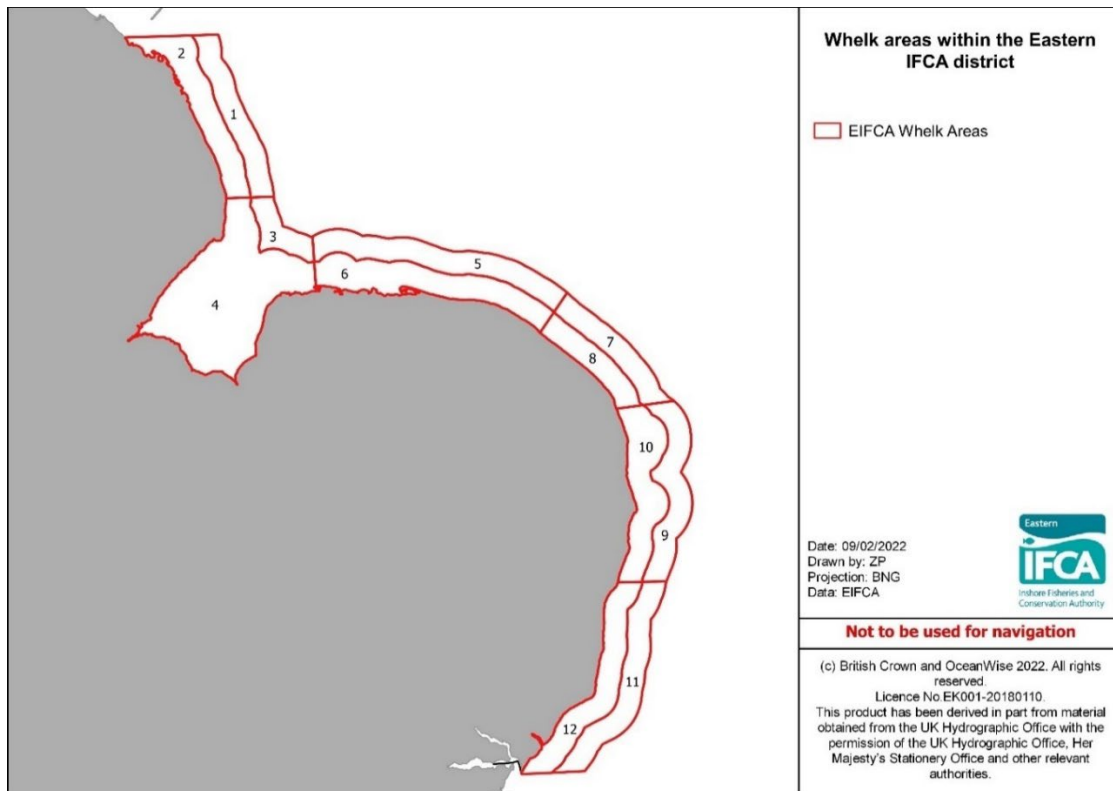


Figure 1. Map outlining the twelve discrete whelk “areas” in the Eastern IFCA district. Under the 2016 Whelk Permit Byelaw, fishers are required to report the area in which they fished.

The highest number of fishers targeting the whelk fishery at any one time in 2022 was 11, who fished in April and May. These fishers were predominantly located in Areas 2 (Lincolnshire coast), 4 (The Wash) and 6 (North Norfolk Coast). The high number of fishers in the spring was likely caused by the proposed closure (not opening) of the cockle fishery, which usually opens in June. Landed weight was highest in whelk areas 4 and 6, which is typical for the EIFCA district. Landed weight was also highest in March, April and May due to there not being a cockle fishery at that time (see figure 2).

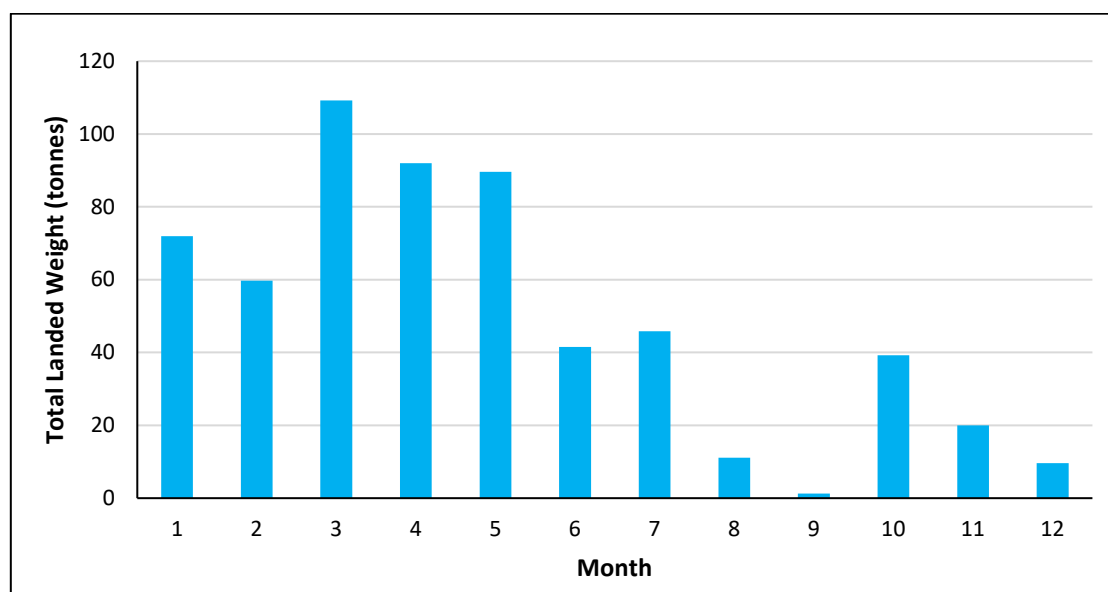


Figure 2. Chart outlining total monthly whelk landings (total landed weight in tonnes) within the EIFCA district throughout 2022.

5. Fishing behaviour

As already stated, a higher number of fishers targeted the whelk fishery in the spring due to the proposal by EIFCA to not open a cockle fishery. The cockle fishery was opened in July and effort in the whelk fishery dropped off.

6. Compliance

Issues faced in relation to compliance include:

- Misreporting i.e. fishing inside and outside the district but reporting only the number of pots set within the district and total catch landed both inside and outside. This artificially inflates catch per unit of effort (CPUE).
- Missing returns.

7. Mortality reports/how has our fishery looked in 2022:

We have had (thus far) two reports of unusual whelk mortality;

- One from a fisher ~30nm offshore
- One from a fisher inside the district, in the Suffolk area. This fisher reported that half his catch was moribund/deceased however they had been left out over the weekend.
- Samples were not sent off as we were unaware of the procedure, however we will be sending off samples from any reports we receive going forward.

KEIFCA annual review

The market for whelks

According to the main buyer for whelks caught in the KEIFCA district, 2022 has been a difficult year. Lynn Shellfish report that the Korean market is still stalled from Covid and a change in eating habits. Whelk prices reached an average of £1,150 per tonne in 2022, an increase on last year's average price of £1,000 per tonne. On a more positive note, they report having had more UK sales in 2022 than in many years.

Review of 2022 landings data

The long-term picture of MMO landings data (recorded landings in KEIFCA district ports, from vessels fishing inside and outside our district i.e. up to 12nm) shows continued and relatively consistent high levels of landings compared to landings prior to 2010 (Fig. 1).

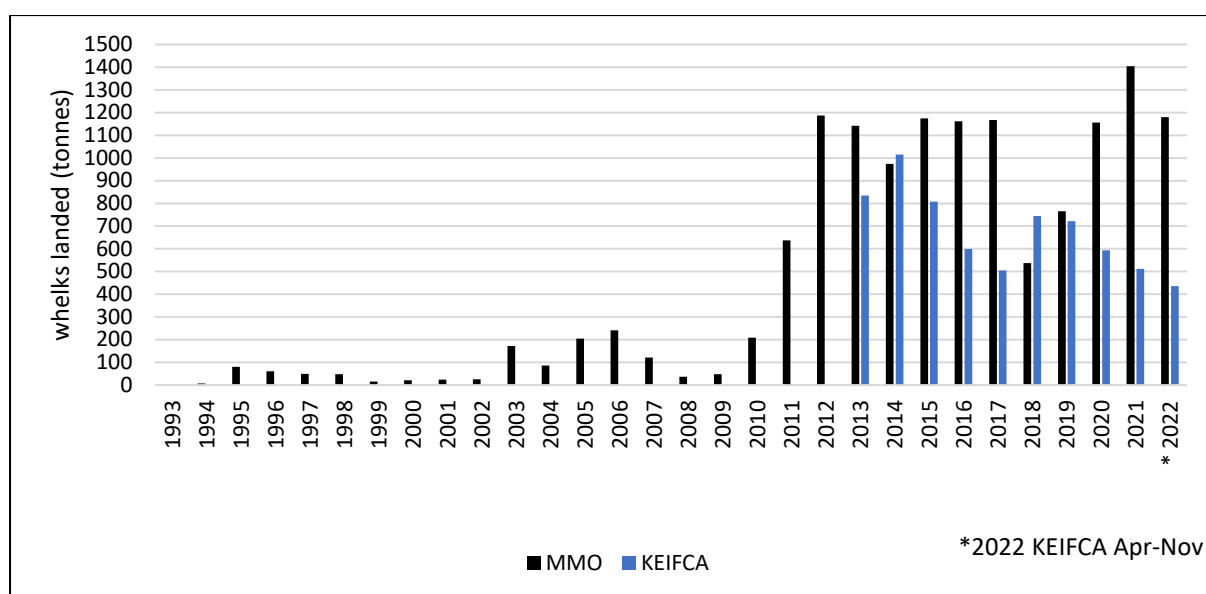


Figure 1. MMO whelk landings data overlapping KEIFCA district out to 12 NM offshore 1993-2022 alongside KEIFCA's landings data shown for 2013-2022 inside 6NM.

Within the district 2 more Category One (commercial) whelk permits have been issued so far this year compared to the same period in 2021 and landings figures are similar to those from the past 2 years. Fishers from Whitstable, one of the main fishing ports in the district, reported poor whelk fishing in the autumn following a very hot summer. This is covered in more detail later in this report under the section "Concerns over whelk mortality in 2022". As can be seen from figure 2 below, the total landings in the district from the period April to November remain steady this year compared to the same period in previous years.

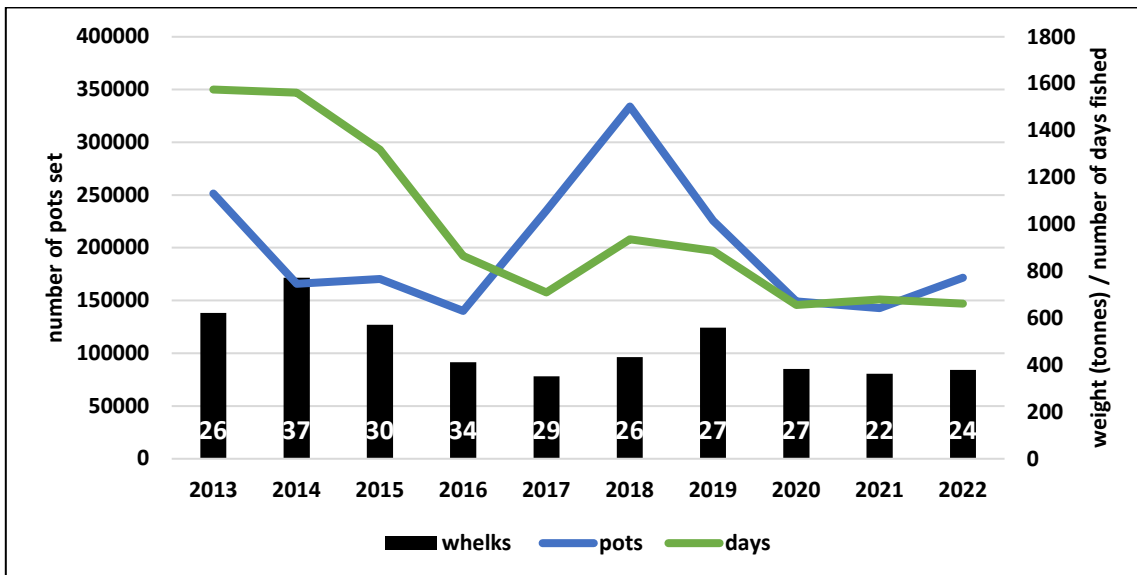


Figure 2. Total weight (tonnes) of whelks landed, the total number of pots set and the total number of days fished during the period April-November in each year from 2013-2022. The white number inside each black bar is the number of commercial (Category One) permits issued for that year

Figure 3 below shows the comparison of April-November 2022 monthly landings against the same period in 2021 and against the monthly mean average of April-November landings from 2013-2019. This year began well with significantly higher landings in May and June than in previous years. However, exceptionally low whelk landings were recorded across the district from end of July onwards and whelk fishing did not resume as usual in the autumn in most ports. At the time of writing this report, permit holders were reporting that whelk fishing was starting to improve again.

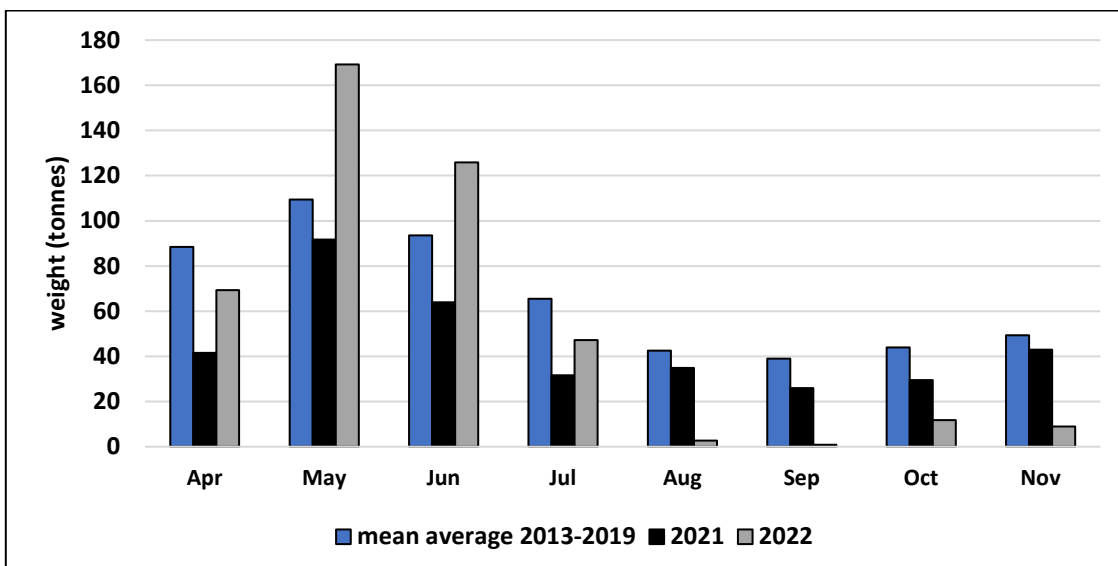


Figure 3. Long-term mean monthly total weights (tonnes) of whelks landed Apr–Nov 2013-2019 (blue) compared to the total monthly weights (tonnes) landed Apr–Nov 2021 (black) and 2022 (grey).

A key metric to consider in addition to the total weight of landings, is the catch per unit of effort (CPUE, sometimes reported as LPUE) i.e. how many whelks are caught per pot per fishing trip. Fig. 4 below shows that in 2022 CPUE for this fishery has been similar across all the fishing areas, except for area 3 which is now very rarely fished.

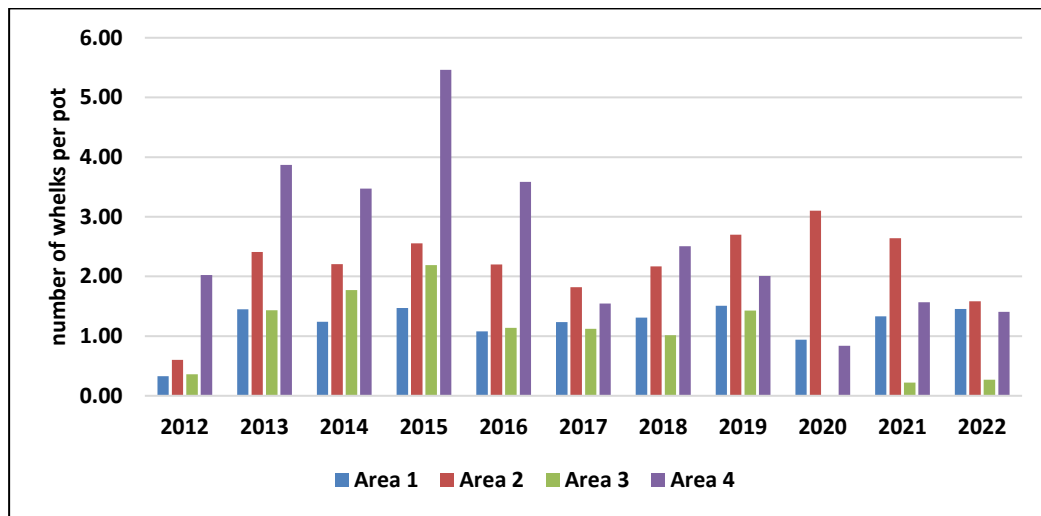


Figure 4. Mean annual CPUE levels for the 4 whelk fishing areas in the KEIFCA district 2013-2022

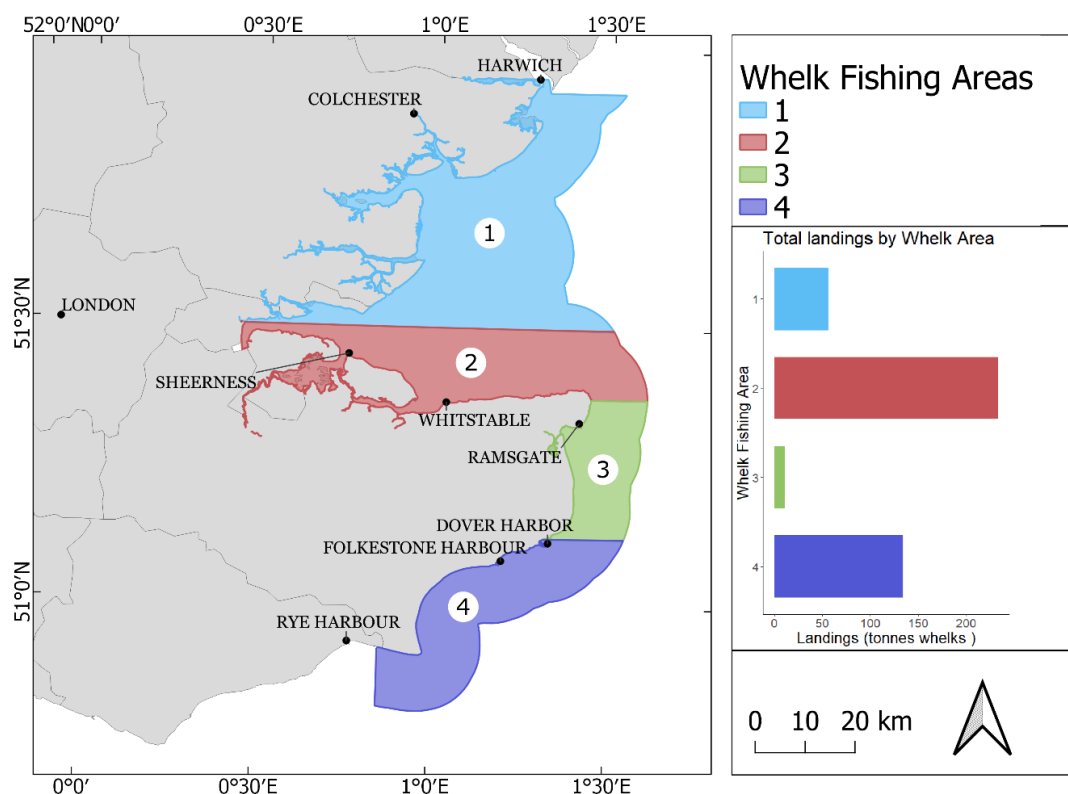


Figure 5. The four whelk areas in the KEIFCA district, showing the total annual landings by area on the right-middle panel.

Spatial variation of landings is shown as the proportional contribution of each of the 4 whelk areas to the total whelk landings per year from 2013-2022 (Figure 6, April – Nov data only). Over the past 10 years, whelk landings have consistently

been highest in areas 2 and 4; these areas account for between 51-67% and 18-39% respectively of the district’s total annual catch.

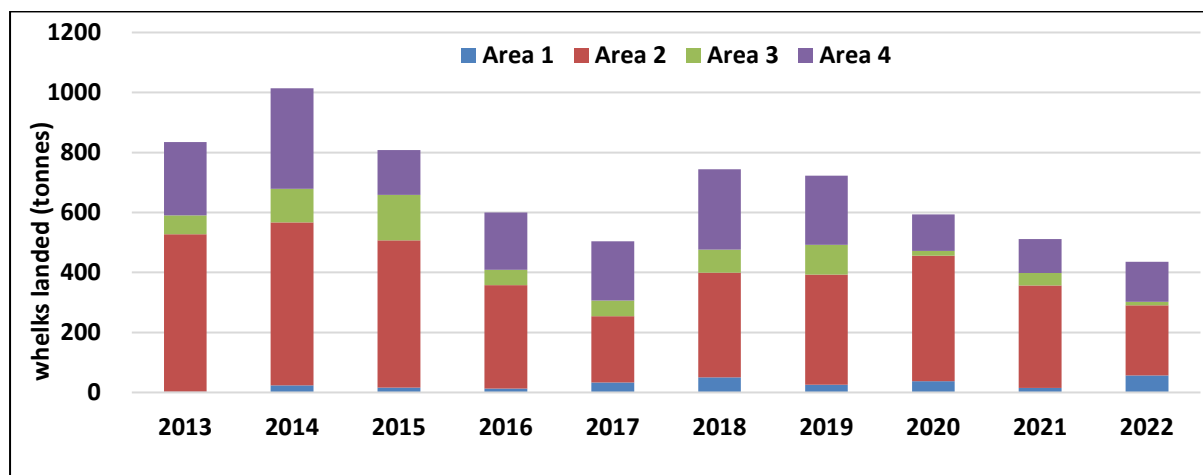


Figure 6. Proportion of total weight (tonnes) of whelks landed each year 2013 – 2022 in each of the 4 whelk fishing areas in the KEIFCA district (NB 2022 landings are from period April – November only)

In addition to the seasonal and spatial variation of whelks landed and the CPUE in this fishery, is the varying level of fishing activity from one part of the district to another. Area 1 (Essex coast) accounts for 13% of whelk landings so far in 2022 with six commercial permits in place. In area 4 (south Kent coast) the same number of permits are in place, but landings account for 31% of the total for the district. In area 2 (north Kent coast) nine commercial whelk permits account for 54% of the district’s landings. The table below shows the number of permits issued, the total weight of whelks landed, the number of pots set and number of days fished in each of the four fishing areas:

2022	Area 1	Area 2	Area 3	Area 4
permits issued	6	9	2	7
tonnes landed	56	234	11	134
pots set	23560	75406	5379	67288
days fished	87	231	46	298

Concerns over whelk mortality in 2022

Unusual levels of whelk morbidity and mortality were reported by fishers from October – early December 2022 within the district, especially from the main fishing grounds near Whitstable. This claim was supported by the low levels of reported landings during the autumn months in 2022. The below average landing rates were confirmed for months between August and November 2022 based on “sentinel fishers” data (full time fishers with outstanding reporting track record) for each of the main landing ports in the district (Figure 7). Whitstable was one of the worst affected areas, with sentinel fishers ceasing to fish for whelks in autumn. Reports included concern over dead whelks in pots which were hauled and returned to sea with only a few whelks inside (owing to low catches) and then left for 2 days before being hauled again. Fishers said that the rapid mortality is unusual because whelks are thought to survive well in pots (1 – 2 weeks according to whelk fishermen).

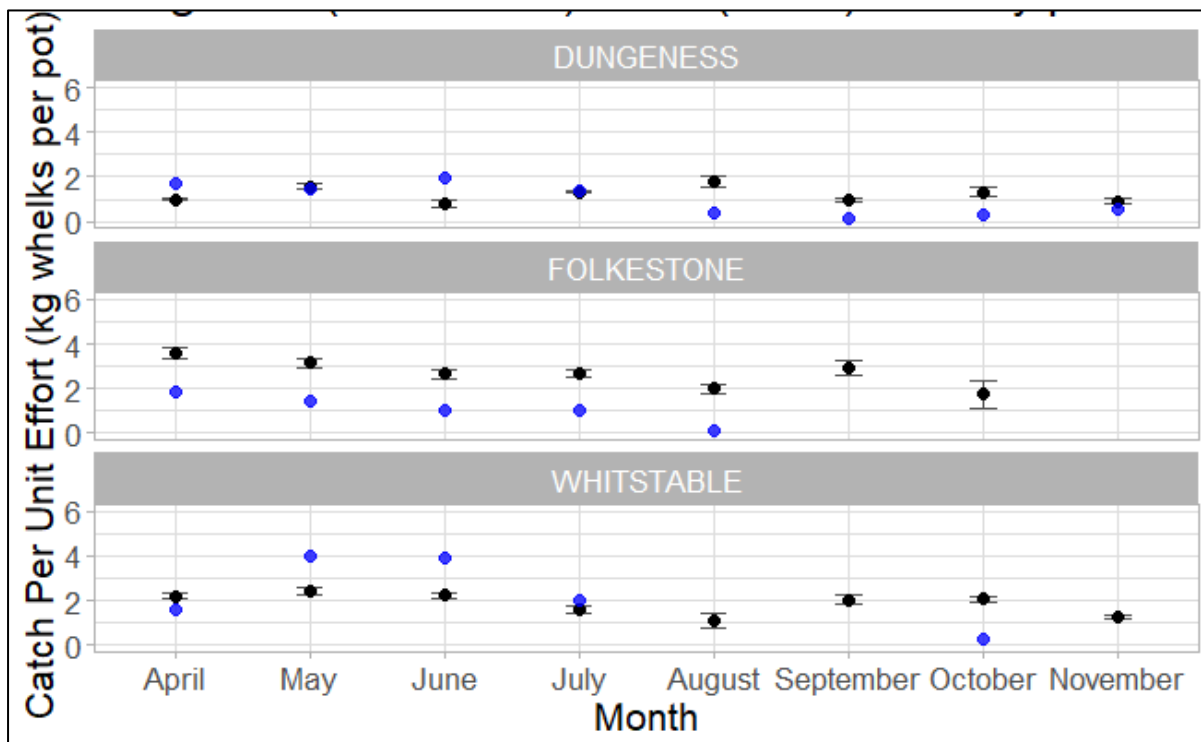


Figure 7. Monthly catch per unit effort for sentinel fishers in 2022 (blue) compared to previous years (2014 - 2021, ignoring 2020).

KEIFCA examined whelks collected by fishery officers, and confirmed the poor condition of the animals, which had a slimy appearance, were discoloured and some with decayed digestive glands and gonads at the top end of the whorl). KEIFCA fishery officers met up with fishers on multiple occasions to discuss their concerns and hear their views on severity, locations, and potential causes. KEIFCA liaised with local fishermen and sent a sample of 30 whelks collected from the Whitstable area to be sent to CEFAS for histology and toxicology analysis. The Cefas report showed that no regulated biotoxins, namely, 1) lipophilic, 2) amnesic shellfish poisoning, or 3) paralytic shellfish poisoning toxins, were found in the samples sent for analysis. More recent reports from industry made it clear that the body condition of whelks appears to be improving, and there was consensus to follow up further biotoxin and histology analysis when the problem occurs again.

In response to fishers' concerns over the effects of the warm summer experienced in 2022, KEIFCA assessed sea surface temperature (sst from satellite observations: <https://eutro-cube.cefas.co.uk/>) data near Whitstable in Thames estuary. KEIFCA confirmed that the summer of 2022 was 2 - 4° C warmer than the long-term mean (2007 - 2020) and frequently reaching the top end of the species temperature range (22° C), suggesting that high water temperatures could be related to low catches and poor body condition (Figure 7). Furthermore, it is plausible that continued heat stress may have caused whelks to migrate towards cooler deeper offshore waters, which was matched by Ramsgate's whelk fishers' behaviour, who fished further offshore than normal. Whelks which remained in the shallow, especially intertidal area, would have been exposed to temperatures which frequently surpassed the top end of the species range and is likely to have resulted in increased levels of stress experienced by these whelks. In turn, increased stress could have resulted in the observed morbidity and potentially explain the unusual mortality of whelks in fishers' pots.

While the summer of 2022 was warmer than the long-term mean, so were the most recent preceding summers (2018 – 2021), but they did not have the same level of mortality and low catches reported. One difference between 2022 and these recent warmer than average years is that the sst records show that water temperature never dropped below 18° C between 21st June to 21st September in 2022. It could therefore be the duration over which the warm water temperatures were sustained which may have had a greater effect than other warm years when high water temperatures cooled down over a shorter period. Clearly the effects of elevated water temperature remain inconclusive and requires further investigation, not least because there are other plausible explanations to consider, such as dissolved oxygen levels, toxins, and disease among others. In 2023 KEIFCA will increase its data collection efforts and work more closely with fishers and environmental bodies (such as the EA) to better understand the potential causes of low catches of whelks in the Thames Estuary.

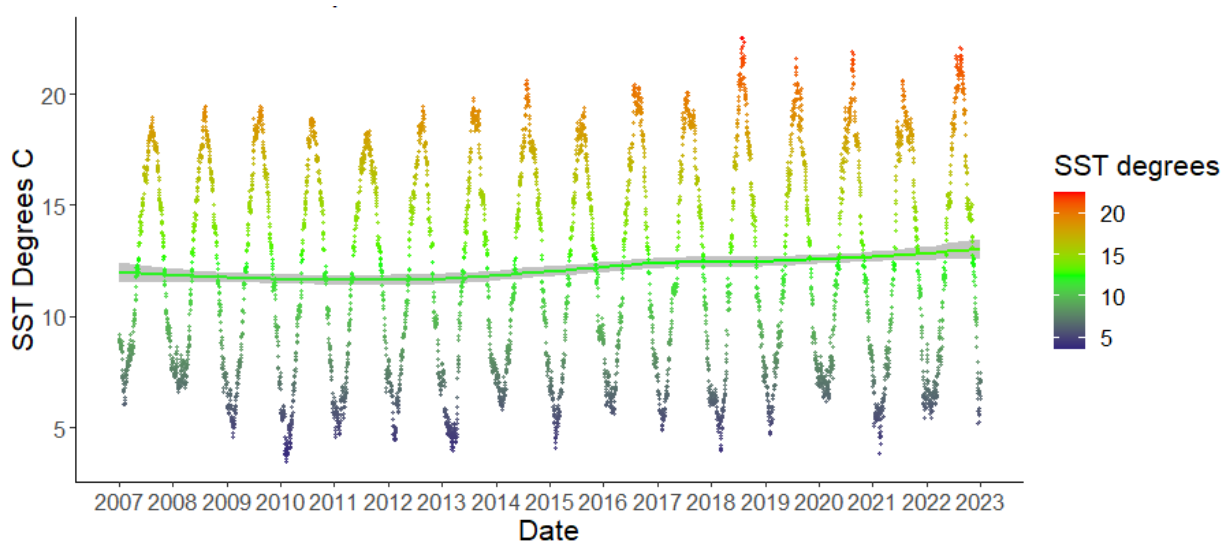


Figure 8. Sea surface temperature (sst) records from "Pathfinder" satellite observations over the Thames key whelking grounds of Whitstable from 2007- 2023 (source: <https://eutro-cube.cefas.co.uk/>).

Update on whelk enforcement activity

Consistent enforcement of the whelk byelaw is a seasonal priority on the KEIFCA Compliance Risk Register, with most effort in autumn to spring each year. Patrol teams monitor activity and gather intelligence, concentrating on any report or instance of non-compliance with the permit byelaw. The current intelligence picture informs bi-weekly Tactical Coordination Group (TCG) meetings where whelk enforcement taskings are assigned.

In 2022 officers were tasked with boarding and gear hauling inspections at sea, and landing inspections on shore. When conducting gear inspections, firstly officers locate marker buoys which indicate the location of a string of whelk pots on the sea surface. Next, they use hydraulic haulers fitted on our large patrol vessels (FPV Nerissa and FPV Tamesis) to lift the gear aboard. With the pots aboard, officers check each one to ensure they are fitted with current permit tags and have the required configuration and number of escape holes. Permit tags are a vital means of monitoring the number of pots being used, as only 300 are issued to each permit holder to restrict fishing effort.

Meanwhile escape gaps are a key technical conservation measure which reduce the number of undersized (juvenile) whelks from being caught. If the whelk gear is compliant with permit conditions, it passes the inspection and is placed back where it was found. However, if illegal pots are found on hauling, they may be seized by the patrol vessel crew for investigation.

Following best available intelligence to target non-compliance, KEIFCA enforcement teams conducted 9 gear inspections throughout the 2022 season and detected 3 minor and 3 major whelk permit byelaw offence. Minor offences including unmarked surface gear were dealt with at the time by issuing a notice of offence reminding the owner to fix the issue. Major gear offences comprised significant breaches of permit conditions where the gear was seized for investigation. This included whole fleets of whelk pots being set without a permit, without permit tags, or without legal size escape holes. In these cases, if the owner is identified then appropriate enforcement action will be taken following the full investigation, often resulting in an out of court financial penalty being imposed. In one case this year however the owner of the illegal gear was not identified, and therefore if no one comes forward to claim the pots they will be disposed of after 3 months. Despite no enforcement action being taken directly on the owner in unidentified gear cases, seizure and disposal of expensive fishing gear also works as an effective deterrent.

In addition to gear inspections, 8 boarding inspections were conducted by RIB teams at sea resulting in 2 offences being detected. Furthermore 12 landing inspections were conducted by shore teams to check for minimum size compliance, which resulted in the detection of 3 offences for minor byelaw infringements, all of which were dealt with by means of verbal warnings.

In the coming year we will look to increase whelk landing inspections in key ports and gear hauling inspections at sea to address intelligence reports relating to additional pots being used in excess of the 300-pot limit.

KEIFCA Management recommendations

A substantial body of work was completed during 2020 in which whelk management measures were reviewed and implemented. In August 2020 the Secretary of State signed the new Whelk Fishery Flexible Permit Byelaw 2020. The byelaw requires that "... *the Authority will review flexible permit conditions not less than once every three years from the date they come into force*". Therefore, the first statutory review date is August 2024. However, it important that the fishery is kept under close watch to ensure that the management measures can react and respond to any changes in stock levels. After considering the most recent landings and catch data, the current assessment of market demand, and the benefit to the industry of continuity, it is recommended that the current measures are maintained for the 2023/24 permit.

Current technical management measures:

- Pots – 300 for category 1 permits and 10 for category 2 permits
- Riddle – 25mm spacing between bars
- Escape holes – 10 @ 25mm per pot

Recommendations:

1. Members are asked to **AGREE** that the pot limit, the riddle size and the number & size of escape holes remain set at:

Pots – 300 for category 1 permits and 10 for category 2 permits

Riddle – 25mm spacing between bars

Escape holes – 10 @ 25mm per pot