

Appendix 1

Whelk Minimum Size Emergency Byelaw 2020 Compliance Progress Report

Background

During the latter part of 2019 KEIFCA engaged with industry to discuss current management and review future management options for the whelk fishery. Industry raised concerns over the fairness and consistency of the riddling process required by the current permit byelaw, which required all whelks that could pass through a 25mm riddle be returned to the sea. Previously, compliance inspections were conducted by riddling the catch on landing, measuring the weight of whelks that passed through (i.e. were rejected) to determine if the catch had been effectively riddled.

The feeling from the industry was that whilst a riddle will grade whelks of different sizes, there is still some variance even when the same riddle set up is used. In practice this means that the same batch of whelks could be passed over the same riddle but show slightly different results in the proportion of whelks that were retained or rejected. This is due to the irregular shape of a whelk, meaning the probability it will pass through the riddle depends on the angle of exposure to the riddle bars. Such inconsistency highlighted the issue of using riddle width as a proxy of whelk minimum size to manage the fishery. KEIFCA's research showed that a mechanical rotary riddle could grade whelks more reliably than a flat riddle worked by hand, however results were still not completely consistent.

In an effort to make the grading process more consistent, KEIFCA created an emergency byelaw in January 2020 which translated the current riddle size (which grades whelks on shell width of 25mm) into a minimum shell height size (53mm). This was based on research data which showed on average whelks with shell height of 53mm had a minimum shell width of 25mm, which from a stock management perspective is the size at which 50% of whelks are likely to have bred. Unlike shell width, shell height is not variable and therefore provides a measurement that can be repeatably checked by fishermen and inspecting officers alike.

A percentage tolerance for whelks below the new minimum size of 53mm shell height was included in the emergency byelaw to account for issues of accuracy with the riddling process, and the bulk-quantities in which whelks are landed. For ease of assessment it was agreed that a percentage by weight rather than number would be used. After consulting with industry, a 5% tolerance for whelks below 53mm length was deemed reasonable, although landing any whelks below the statutory EU size of 45mm minimum length would still remain illegal.

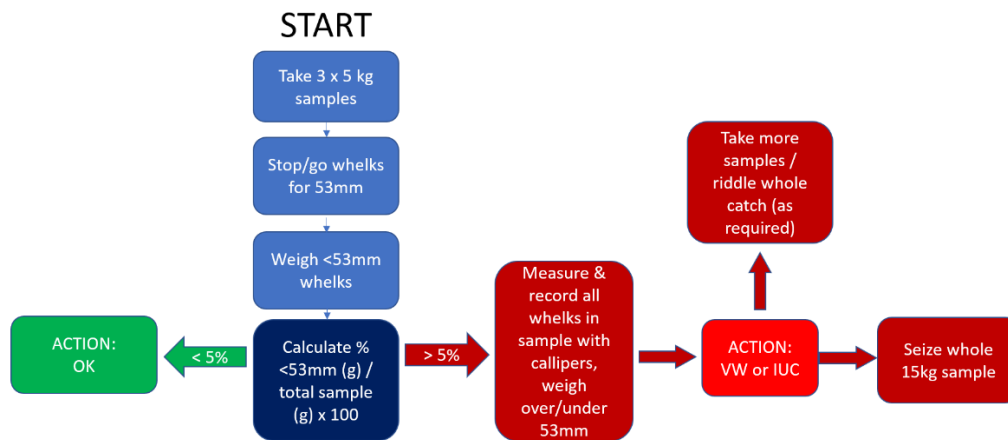
The emergency byelaw also outlined a clear inspection process for checking whelk catches on landing. This was designed to be consistent and fair, with a standardised number and weight of samples taken from different parts of the catch. It specified that a minimum of three samples of 5kg was an appropriate level for a reasonable assessment, but if required it would be at the officer's discretion to take more samples.

Methods

Following the introduction of the emergency byelaw, officers were tasked to conduct landing inspections of whelk fishing vessels. The overall aim was to use "real-world" feedback from the fishermen and officers to get a better feel for the metrics used in the inspections (number and

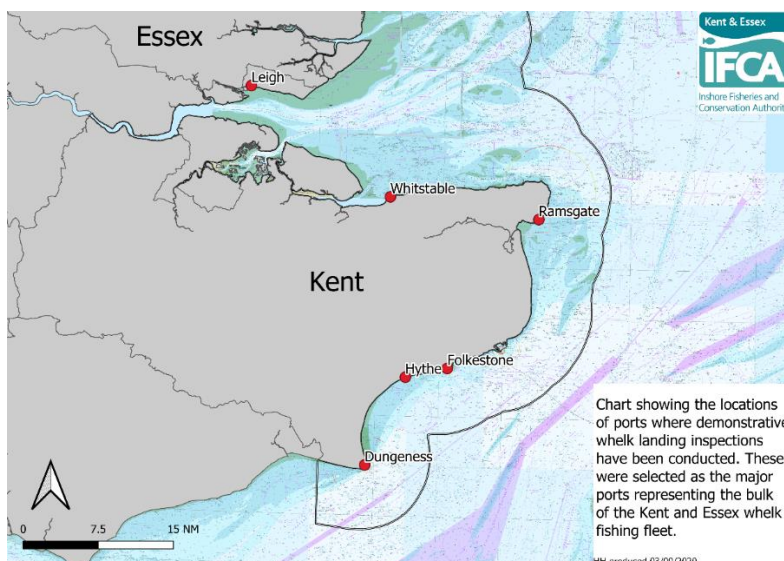
weight of samples, and the percentage tolerance under the minimum size). Furthermore, by conducting demonstrative inspections KEIFCA could fairly introduce industry to new procedures and gather data on compliance levels under current fishing practises.

Whelk inspection SOP



Officers organised inspections with whelk permit holders from Leigh on Sea, Whitstable, Ramsgate, Folkestone, Hythe and Dungeness between February and August 2020. The COVID-19 pandemic delayed the inspection programme between April and July; however, the officers were able to resume engaging once lockdown restrictions had eased. For each permit holder, officers explained the new procedure before demonstrating an inspection and giving immediate feedback. Officers made particular effort to engage with fishermen who had raised concerns about the previous riddle-based enforcement to show how the new method was clear and repeatable.

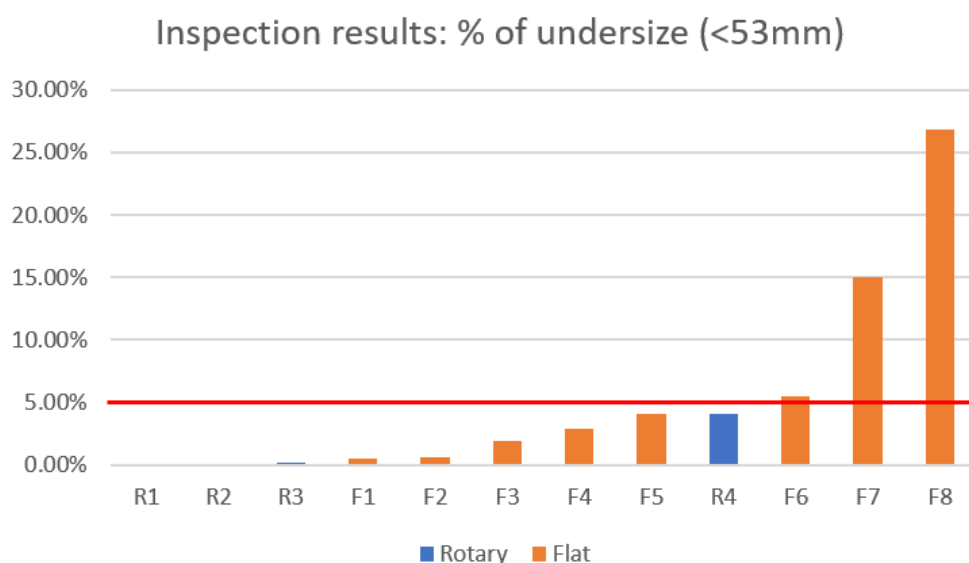
After the Authority meeting in September, members agreed that a technical panel should be formed to review and make recommendations on KEIFCA’s whelk legislation. The aim was to create a single byelaw by combining the current whelk permit byelaw with the emergency whelk minimum size byelaw. A second round of whelk landing inspections were carried out between September and November to collect data and further inform the technical panel meeting. This aimed to prioritise inspections of vessels that failed first time to see if skippers had modified fishing practises following advice from officers, in order to achieve compliance.



Results

First round of inspections

Initial inspections showed that the vast majority of the whelk fleet were compliant with the new emergency byelaw when operating under their usual fishing practises i.e. using a 25mm riddle as required in the permit byelaw. Twelve inspections were carried out between February and August 2020 from vessels across the district. Results showed that three quarters of vessels (nine out of twelve) passed with less than 5% of whelks below 53mm on first inspection, and moreover a third of all vessels (four) passed with less than 1% of whelks below 53mm. Of the three vessels that failed, one only failed by a narrow margin with less than 6% undersize. The remaining two boats that failed did so more decisively with significantly greater than 5% undersize.



Breaking down the data further to examine the effect of riddle type on inspection results, the data showed that all four vessels that used a rotary riddle passed their initial inspection, whereas only two thirds (five out of eight) vessels using a flat-type riddle passed with less than 5% undersize whelks.

Such a high pass rate on initial inspection therefore indicates that the use of a 25mm riddle is mostly effective at eliminating whelks below 53mm shell length from the catch. At this early stage of the emergency byelaw being introduced there was no indication that any fishermen were actively checking their catch for 53mm on board (i.e. measuring with a gauge) but relied primarily on the riddle as a sorting tool.

First round of inspections: discussion of potential reasons for failure

Vessel coded F8 in the figure that failed with the highest percentage (26.9%) was clearly non-compliant, as the catch had not been effectively riddled as required by the permit byelaw. F8 used a flat 25mm riddle with a calculated surface area of 3500 cm², which is significantly smaller than that of a rotary riddle which averages 10000 cm². The relatively small surface area of this riddle could have contributed to the higher proportion of undersize whelks, but conversely other fishermen with a similar flat riddle passed their inspection with well below 5%. This therefore indicates that it is the

method of riddling whelks which needs to be improved (i.e. riddling more thoroughly) in order to reduce undersize in the catch. In addition, officers noted at the time of inspection that the whelks were very muddy, (despite the skipper claiming to have run a deck wash over them) and also had some slipper limpets attached. This may have contributed to the higher proportion of undersize, as excess mud and limpets could prevent smaller whelks from falling through the riddle bars. It should be noted however, that other vessels with muddy and limpet covered whelks managed to pass inspection, highlighting again that the most likely reason for failure was the lack of a thorough riddling process. With the emergency byelaw being recently introduced at the time of inspection there was no indication that the skipper was checking his own catch for under 53mm whelks, another process that would certainly improve results.

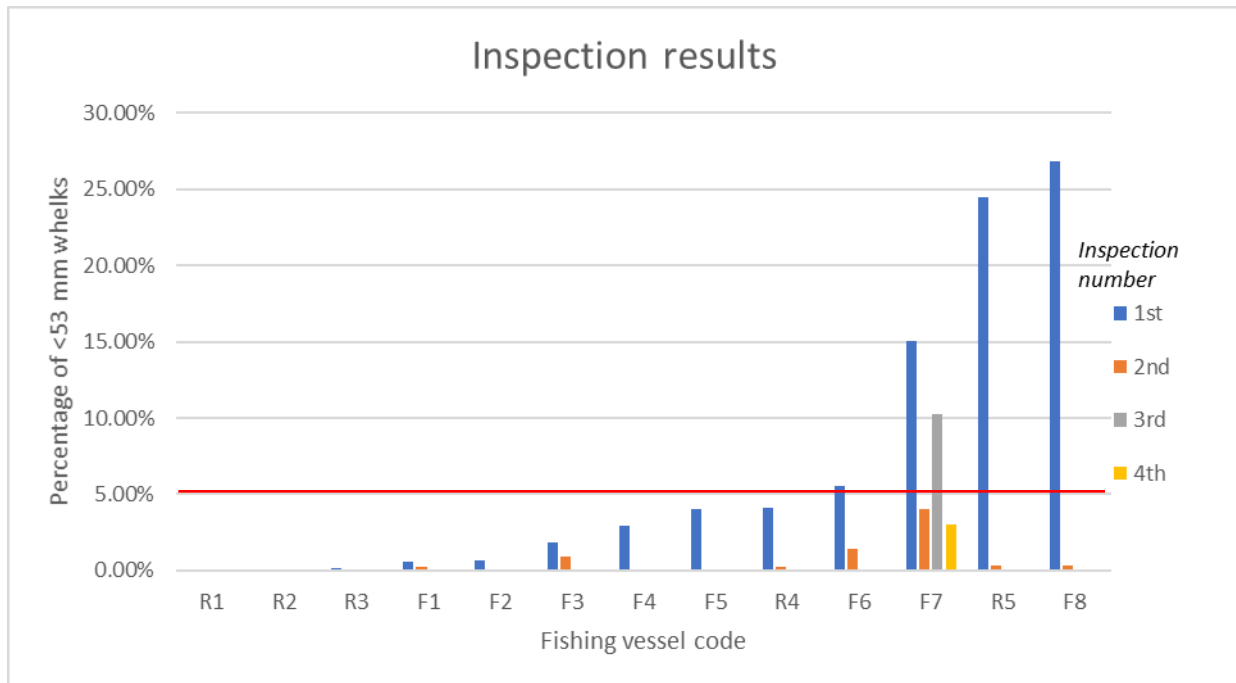
The vessel coded F7 in the figures recorded the next highest percentage (15%) of under 53mm whelks. F7 also used a flat 25mm riddle, but with an even smaller calculated surface area of 1500 cm². Industry observations show that a smaller riddle makes it more difficult to riddle as effectively, as riddle gaps can be blocked by other whelks if too many are sorted at one time. These whelks were also slightly muddy and had some slipper limpets attached (see discussion above). The skipper said that his whelks were only washed after they were riddled, and this could indicate that excess mud could have prevented undersize whelks from being rejected by the riddle. The skipper of F7 gave his own explanation for the high number of undersize, stating that he had been fishing an area of inshore ground where the whelks were all typically smaller. Again, best practise indicates that a larger (preferably rotary) riddle with a deck wash run over it would help reduce the proportion of undersize whelks. Using the current riddle, the skipper would need to ensure the catch was more thoroughly riddled to remove small whelks, especially if fishing on grounds where whelks are known to be smaller. As with the previously discussed vessel, there was no indication that the skipper was checking his own catch for 53mm whelks after riddling.

The third vessel which failed was F6, scoring 5.5% and therefore failing by a very narrow margin of 0.5%. The flat 25mm riddle had a similarly small surface area of 1700 cm², which again suggests that a riddle with larger surface area could have helped remove undersize. The method of sorting was different again from the other failed vessels, with whelks tipped directly into a fish basket from the pots to be washed before being riddled. Officers noted that the whelks were clean but were fouled by some slipper limpets and barnacles which could have affected retention in the riddle. Again, a larger (ideally rotary) riddle was advised to resolve the issue, and obligingly the skipper informed officers that he had ordered a rotary riddle for the boat.

Second round of inspections

Ten further inspections were carried out between August and November 2020 from whelk vessels in Kent. Not all vessels were inspected a second time, due to time constraints and the fact that some skippers were not fishing at within the time period.

Results showed that on the second inspection all vessels had passed with less than 5% under 53mm whelks. Crucially, this included four vessels that failed the inspection on the first round of inspections. A third and fourth inspection was also carried out on one vessel (coded F7 in the figures), resulting in one pass and one fail. The circumstantial details of these additional inspections are discussed below.



Second round of inspections: discussion

The two main objectives of the second-round of inspections were a) to verify results of the first inspections and b) to determine if vessels that were non-compliant on first inspection had taken steps to improve their whelk grading process after receiving advice from IFCOs.

Compliant vessels

Three vessels that passed first time were inspected again, and all of them passed with better results than the first time. This was mainly due to small adjustments in the riddling set up. For example, vessel R4 was initially using a rotary riddle with a considerably sloped gradient but adjusted this to make the riddle flatter so that the whelks had a longer amount of time in contact with the bars. This small change reflected in inspection results, from 4.1% on first inspection to just 0.2% on second inspection. This is a prime example of best practise and how some members of industry have strived to achieve the best possible results, not only for compliance purposes but also for the conservation of their fishery.

Non-compliant vessels

The four vessels that failed their first inspection were prioritised for the second round of inspections, the results of which are discussed below.

Vessel F8 had the highest proportion of undersize whelks for any vessel in the fleet on first inspection (26.9%), but on second inspection in October the skipper managed to achieve just 0.3% undersize. This was due to modifications of the riddle (raising the height so that whelks did not clog up the bars and prevent effective riddling) and fishing on grounds which typically yield larger whelks.

Vessel R5 failed first inspection in September with 24.5% undersize. Shortly afterwards the skipper tried moving to alternative fishing grounds where there were larger whelks and fewer barnacles and managed to score just 0.28%. KEIFCA are continuing to work with individual to test the use of larger riddle gaps (over 26 mm) for grading whelks on grounds where the shells are heavily fouled with

barnacles. The positive attitude of the skipper to work with KEIFCA to comply with the byelaw was gratefully received.

Vessel F6 only just failed on first inspection with 5.5%, and by second inspection the skipper was riddling more thoroughly with the same riddle set up to achieve a result of 1.4%.

Vessel F7 had failed on first inspection (15%) but passed on second inspection (4%) after slightly increasing the surface area of the flat riddle used on board. A third and fourth inspection were also carried out on F7, as the skipper had concerns that the byelaw may affect which grounds he could fish. The skipper reported that whelks are typically smaller in some areas he fishes, and if too many undersize have to be discarded such areas would be uneconomical to fish. Unfortunately, the third inspection was made up of mostly smaller whelks caught in the abovementioned area and resulted in a fail (10%). The catch also contained whelks below the statutory minimum size of 45mm for which there is no tolerance. The reason for this failure cited by the skipper was adverse weather conditions while fishing on a patch of small whelks.

The skipper had continued to use the same flat riddle with a small surface area which officers had previously advised him to a) significantly modify to improve grading efficiently, or b) invest in a new rotary riddle. The skipper was sceptical about investing in a rotary riddle due to the expense and space requirements on deck. After his second failed inspection, officers decided to lend him the KEIFCA rotary riddle to trial on his boat. The fourth inspection of F7 was conducted after the skipper has been using the KEIFCA rotary riddle and resulted in a pass of 3%. The skipper said that he liked the rotary riddle, but it made a lot of noise and he would ideally prefer a smaller drum to take up less space on deck.

Conclusions

With 75% of vessels passing on the first inspection, we have shown that the theoretical translation of 25mm riddle width into 53mm shell height is effective in real-world application to the fishing industry. This means that in practise the emergency byelaw does not require industry to drastically change their fishing methods, as long as catches are riddled effectively. Furthermore, we have seen multiple examples of best practise being adopted throughout the fleet, with effective riddling processes in place and increasing numbers of permit holders investing in rotary riddles.

With all permit holders passing during the second inspection programme we verified that the 5% tolerance is achievable for all fishermen. The dramatic improvements in the percentage of undersize from fishermen who were non-compliant on first inspection shows that by making simple adjustments to riddling process or fishing methods all permit holders can comply. Some individuals have been more resistant to changes more than others, however KEIFCA have made every effort to support and educate these fishermen, providing advice and lending equipment to encourage best practise.

Anecdotally, all fishermen have agreed that the inspection process is fairer and more efficient than the previous legislation.

Research thus far indicates the best methods for reducing the proportion of under 53mm whelks in the catch are: a) using a large or rotary riddle as opposed to a small or flat riddle, b) developing a thorough sorting process on board for riddling whelks, and c) skippers checking the catch themselves for under 53mm whelks while on board. If these practises are adopted by the whole fleet it should be straightforward for all permit holders to comply new byelaw.

Next steps

A useful next step will be to encourage all whelk fishermen to use 53mm stop-go gauges to check their own catch on board. Members of the industry have said that they would find it useful if KEIFCA provided a stainless steel “stop-go” gauge of 53mm (used by officers for inspections) with the issue of each whelk permit, so that they can quickly check a small subsample of their catch before landing to see if they are within the 5% tolerance. This way fishermen can be certain that they are compliant every time.

With the majority of the whelk fleet being based in Kent, as a next step we will actively involve officers from Essex in Kent-based whelk inspections to develop experience and consistency across the organisation. With more inspections taking place, officers will gain experience and confidence in conducting landing inspections, while fishermen will become accustomed being inspected under the new procedures and the expectations that go with it.