



Agenda item B4

From: Lead Scientific and Conservation Officer

To: Kent and Essex Inshore Fisheries and Conservation Authority – 30 November

Subject: Update on native oyster projects

Classification: **Unrestricted**

Summary:

This report provides a review of the status of the native oyster stock based on the 2019 survey report because the spring oyster stock assessment surveys could not be completed this year (2020) as a result of the COVID-19 situation. The management, stakeholder engagement and future research plans are briefly stated, and Members are asked to review and approve the recommendations for management.

Recommendation(s):

The Authority is asked to **APPROVE** the following management measures:

- (a) the Blackwater, Crouch, Roach and Colne Estuaries MCZ Native Oyster Fishery remains closed in 2020/2021 as there was no evidence of sustained levels recovery in native oyster populations in Blackwater, Crouch, Roach and Colne Estuaries (KEIFCA 2019 Oyster Survey Report);
- (b) Taking into account the requirement for sustained levels of recovery as per the management plan the Blackwater, Crouch, Roach and Colne Estuaries MCZ Native Oyster Fishery remain closed in 2021; and
- (c) KEIFCA will endeavor to obtain new survey data in 2020/2021 to inform the November 2021 KEIFCA meeting when consideration will be given to the future management and opening of the native oyster fishery within the BCRC MCZ site.

Background

The native oyster fishery in the Blackwater, Crouch, Roach and Colne Estuaries Marine Conservation Zone (BCRC MCZ) was closed on 31st May 2015. Subsequently

the Blackwater, Crouch, Roach and Colne Estuaries Marine Conservation Zone Native Oyster Fishery Flexible Permit Byelaw came into effect in 2019. The purpose of this flexible permit byelaw is to continue the protection afforded to the depleted native oyster stocks in the BCRC MCZ. The byelaw therefore provides the opportunity for native oysters to recover from fishing pressure while retaining the option to open the fishery if stocks are deemed to show a significant and sustained recovery in the future. For the BCRC MCZ oyster fishery to be opened, stock levels are required to show a sustained recovery trend and a biomass estimation exceeding 800 tonnes. The committee approved the decision to keep the native oyster fishery in the BCRC MCZ closed in 2019 based primarily on the evidence provided in the 2019 oyster report. The process around opening the fishery is shown in (Figure 1).

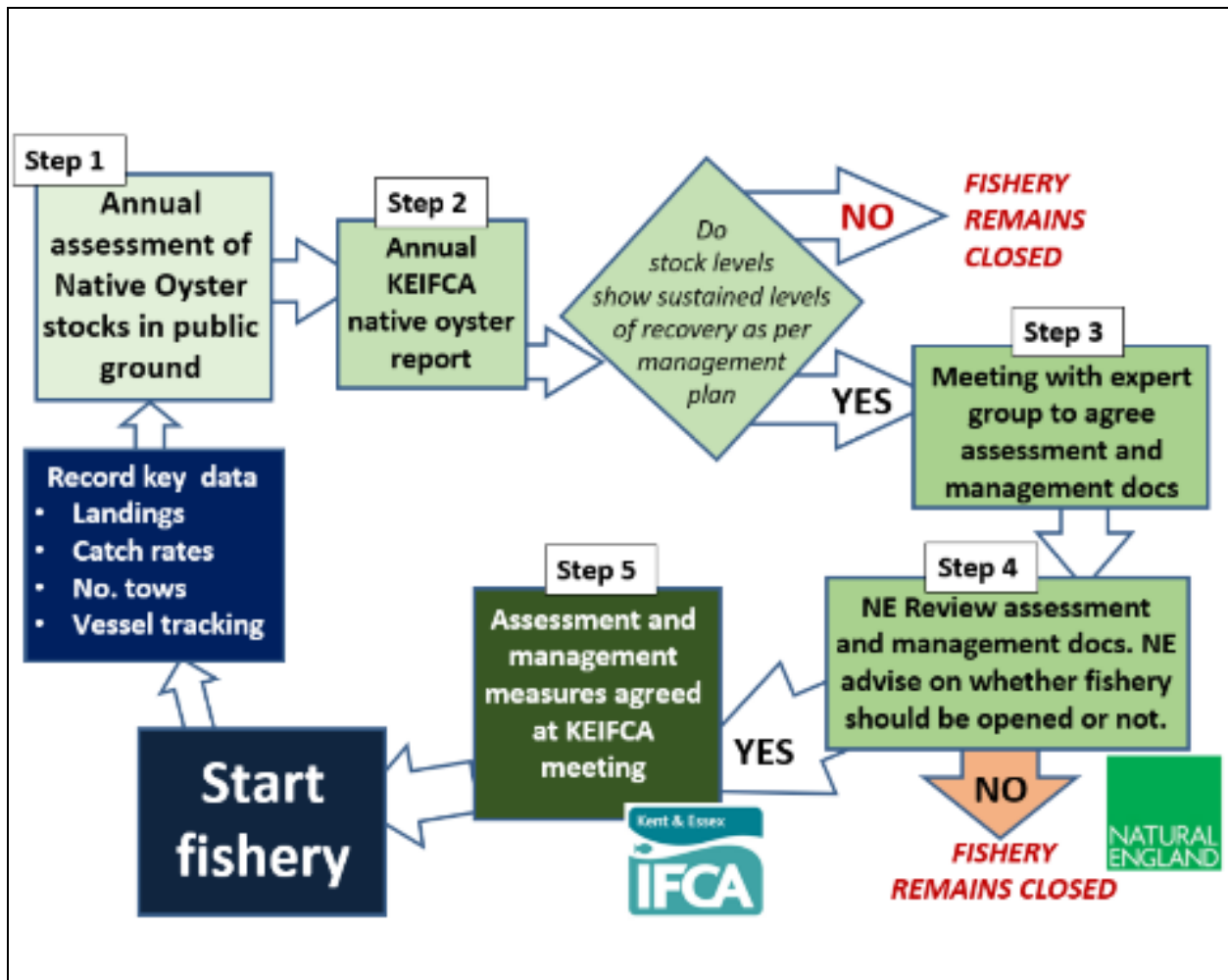


Figure 1. Decision tree describing the process used to open or close the fishery

In 2020, no new evidence is presented because the annual oyster surveys could not be completed due to the restrictions imposed by the COVID-19 pandemic. Although twelve sampling stations were surveyed just before the first lockdown measures

were imposed, these are too few data points to inform new meaningful conclusions at this time.

Consequently, the survey data from 2019 remains the best available evidence to underpin responsible decisions supporting a sustainable native oyster fishery for the BCRC MCZ. The intention will be to undertake a survey as normal for 2020/2021 which will help inform future management.

1. Recap of 2019 results

Analysis of the results of the 2019 survey show that there has been little overall change in the total number of oysters in the MCZ overall since 2015.

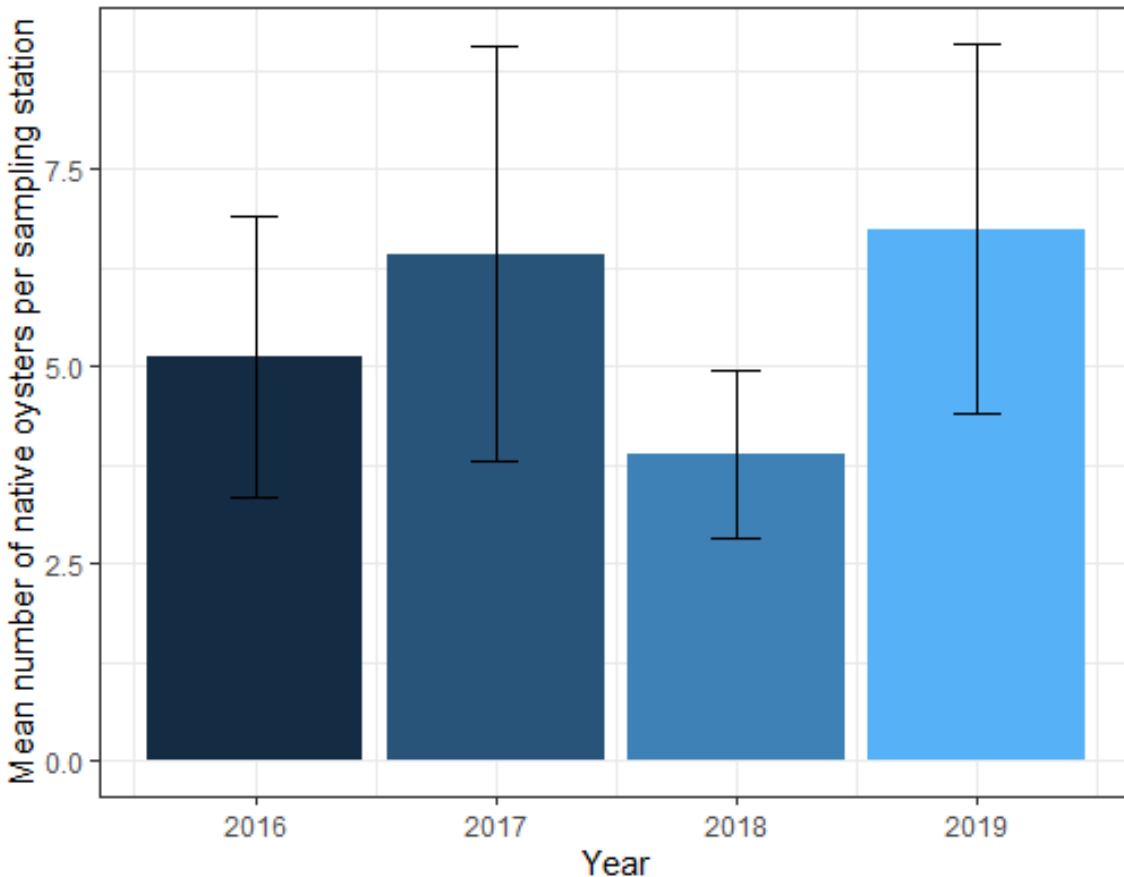


Figure 2. Mean number of native oysters (\pm standard errors) per sample between 2016 and 2019.

A total of 596 native oysters were found from 99 dredge tows during the 2019 survey. Size classes of oysters found in the MCZ showed a lack of smaller individuals, with only 22 out of 596 oysters measuring below 39 mm shell length suggesting that recruitment success was low. The size class distribution of the oysters found during the spring 2019 survey is shown in Figure 3.

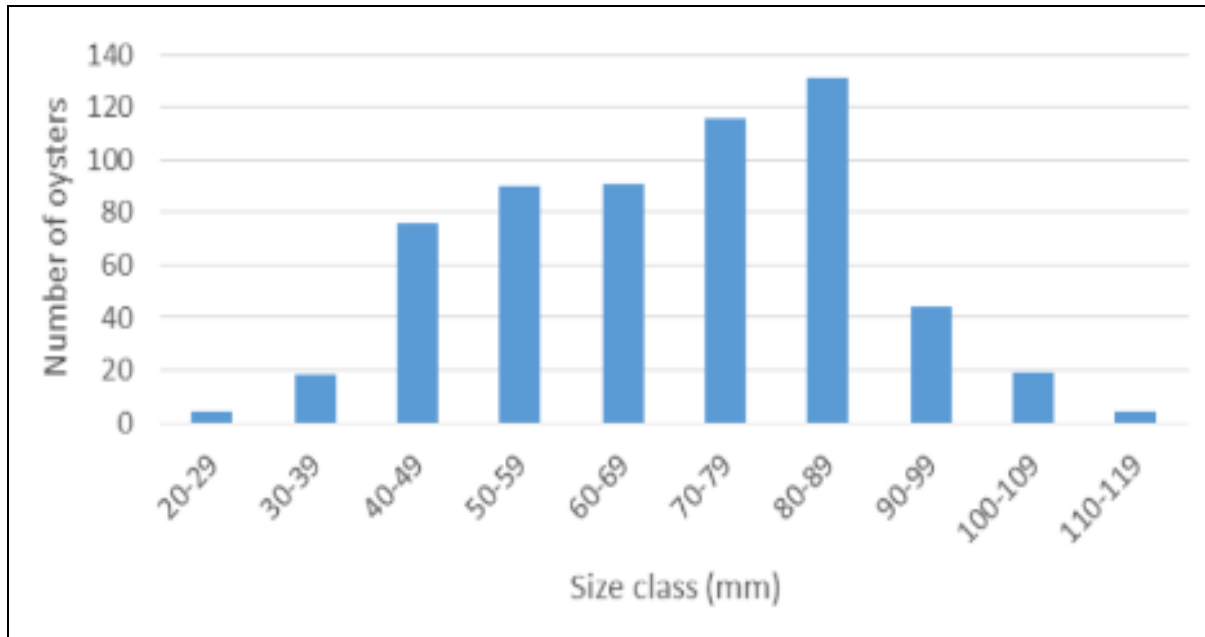


Fig. 3. Size distribution of oysters in caught from research surveys in BCRC MCZ between 2016 and 2019.

1.1 Further research: Alice Lown's PhD

Dr Lown published two papers from her PhD work in collaboration with Kent & Essex IFCA. In the first she developed an Integrated Population Model (IPM) which predicts the recovery of the native oyster stock in the BCRC MCZ using parameters such as recruitment, survival, growth, fecundity among others. The current predictions estimate a population doubling time over a minimum of 16 years, at which point a sustainable fishery could operate at 5% off take from the local population on an annual basis. This model supports KEIFCA's findings that overall, there is no evidence of a significant and sustained increase in the overall population of native oysters and further recovery is needed before opening a native oyster fishery.

In a second study her work showed that an increase in the density of native oysters is associated with higher diversity in other benthic infauna, except where slipper limpet biomass exceeds 1.5 kg/m², where the diversity is suppressed or even negatively associated with the amount of shell content in the substrate.

1.2 2019-Conclusion

There was no evidence of a significant and sustained recovery of native oysters in the BCRC MCZ, and therefore the conclusion is that the fishery is to remain closed to allow time for a recovery of the depleted native oyster populations in the BCRC MCZ. Consequently, no Habitat Regulations Assessment or MCZ equivalent were carried out and under the byelaw it was therefore determined that the fishery was to remain closed.

2. Stakeholder Engagement

There was limited engagement as a result of COVID-19, however, it remains important to KEIFCA to engage with the oyster fishing community and opportunities to reinvigorate the relationships will be a focus in 2021. KEIFCA engagement with stakeholders included:

2.1 ENORI

KEIFCA has played a significant role in establishing and facilitating ENORI's work to better understand the recovery of native oysters in the BCRC MCZ. Unfortunately, since May 2020, the two scheduled ENORI meetings have been cancelled as a result of COVID-19. KEIFCA will renew the discussion in 2021, and actively seek to engage with members to ensure continued interest despite difficult times.

Despite the lack of meetings, KEIFCA contributed case study information and a map to the recent landmark publication, "European native oyster habitat restoration handbook – UK & Ireland, November 2020" (https://nativeoysternet.org/wp-content/uploads/sites/27/2020/11/ZSL00150%20Oyster%20Handbook_WEB.pdf?_ga=2.214523925.304599810.1605562599-1410452609.1604307048) led by Zoological Society of London and Environment Agency. The case study focusses on ENORI as a case study for oyster restoration in an MPA working alongside a fishery.

2.2 Oyster fishermen

KEIFCA and oystermen have had discussions following up on the actions from a workshop held in July 2019. During this meeting it was agreed to try to involve local oystermen in the surveying process through training and joint working to identify areas where native oysters may be located.

2.3 Bradwell B

KEIFCA is participating as a stakeholder in the Bradwell B consultation process feeding information into the design and survey process in efforts to minimize conflict between fishers and Bradwell B development Co.

2.4 Essex University

KEIFCA worked closely with Dr Thomas Cameron's research group at Essex University to study the native oyster populations in the BCRC. Highlights of the recent research outputs include Dr Alice Lown's PhD, and two peer reviewed scientific articles (referred to earlier) which are due to be published.

2.5 Natural England

KEIFCA has had several meetings with Natural England to provide support for the development of a definition of an "oyster bed". Natural England have commissioned Dr Alice Lown and Thomas Cameron to update the definition of the oyster bed.

3. Planned work for 2020/2021

Two planned pieces of research planned for 2021 includes 1) the annual survey, 2) a collaborative Industry/ KEIFCA project. However, it should be noted that all survey plans are subject to change brought about by the limitations that health and

safety restrictions may impose on our ability to work at sea during the COVID-19 pandemic.

3.1 Annual survey

The annual native oyster surveys are planned for March 2021 when KEIFCA plans to carry out the annual survey over a larger area of the BCRC MCZ. During this survey all the sites surveyed in 2014 will be revisited, following a decision from a workshop held in July 2019. The last native oyster survey that covered the entire extent of the BCRC MCZ was carried out in 2014 while subsequent surveys (2015 - 2019) only included sites where oysters were found in 2014. Annual surveys will be based on Spring survey data, as was decided in 2019. This decision can be reviewed when the oyster stock approaches a level where it is considered to be recovered.

3.2 Collaborative survey with oystermen

The aim of these collaborative surveys is to supplement the data obtained from existing annual surveys, from which it is clear that oysters have a patchy distribution which may therefore require higher levels of sampling to detect accurate measures. Furthermore, it shows a willingness from KEIFCA and the industry to collaborate to better understand the spatial and abundance patterns of the species.

Originally it was envisioned that local oystermen would use their own vessels to be tasked with surveying sites according to a KEIFCA survey protocol with the hope of identifying additional sites to add to the full KEIFCA spring survey. However, owing to financial constraints and the health and safety limitations imposed during COVID-19-times, it was necessary to refine such a joint survey to make it feasible. Initially KEIFCA had asked that one representative from the oystermen join KEIFCA surveys on the Authority's vessel to carry out surveys during November of 2020. However, these plans were thwarted again as a result of raised national lockdown measures introduced in November 2020 so these survey plans have now been postponed to 2021.

2020 Fishery Management Recommendations

The Authority is asked to **APPROVE** the following management measures:

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