Monitoring and Control Plan for the Razor Clam Fishery

Officers' Recommendation:

That Members :

Approve the Monitoring and Control Plan for the agreed razor clam fishery to be opened subject to the following permit conditions:

1. **Design of dredge (interpretation);**
2. **Areas fished, as an Annex (within the area outlined in Figure 2 that are classified for harvesting,); and**
3. **Installation on board of a REM system that remains fully functional at all times**

1. Background and Proposed Method of Fishing

The razor clam fishery was discussed at the B&PSC meeting on 26th February 2026, where the fishing method, target species, harvesting areas, previous research and proposed monitoring and management of the fishery were discussed. The B&PSC agreed to go out to formal consultation on changes to the Category One Mobile Fishing Permit Byelaw Permit Conditions to include a definition of the razor clam dredge and the introduction of remote electronic monitoring (REM) on the harvesting vessel.

At the B&PSC meeting on 4th June 2026 the razor clam fishery was further discussed at length under Agenda Item 7. The output of those discussions was that a majority of the B&PSC Members agreed to open the razor clam fishery (8 for the proposal; 4 against the proposal and one abstention) subject to consideration and approval of a Monitoring and Control Plan (M&CP) by the Full Authority. This current paper describes what a M&CP is and provides detail of the proposed M&CP for the razor clam fishery.

2. What is a Monitoring and Control Plan?

The use of Monitoring and Control Plans (M&CP) was developed and implemented through discussions with Defra and Natural England to support Adaptive Risk Management in regard to fishing activities within Marine Protected Areas i.e. Marine Conservation Zone, Special Areas of Conservation and Special Protection Area.

M&CPs are implemented where there is a degree of uncertainty in the decision-making process for MPA assessment for some fisheries. They are used to determine a monitoring programme, agreed triggers and management options as a key part of the adaptive management process. To date they have only been used in relation to fishing activities in Marine Protected Areas. D&S IFCA currently has several M&CP in place for certain fishing

activities within MPAs in the District. In the past an adaptive risk management scenario (akin to a M&CP) was implemented for the Live Wrasse Pot Fishery which took place in the Plymouth Sound and Estuaries SAC which emerged in 2015. D&S IFCA identified evidence gaps and uncertainties in the impact of the fishery and developed a plan which included a fully documented fishery , adaptive management measures including Minimum and Maximum Conservation Reference Sizes, effort limitations (number of pots), closed areas and a seasonal closure. Data collection priorities were identified, on board surveys were undertaken and data were analysed between 2017 and 2021. The outputs from the analyses were used to inform changes to permit conditions between 2017 and 2020. The fishery ceased to exist in 2021.

Whilst it is typical for M&CPs to be developed for activities in MPAs, the B&PSC decided that a M&CP should be developed for the razor clam fishery which will not take place in an MPA. The razor clam fishery would be prohibited from MPAs in the D&S IFCA's District and be restricted to shellfish harvesting classified areas along the South Coast of Devon[1]. The activity would be confined further along the coastal zone within areas of sand, coarse sand and muddy sand habitats in which razor clams inhabit and which are currently open to other demersal fishing gear such as trawling and scallop dredging.

3. What are the key elements of an M&C Plan for MPAs?

The key phases of a M&C Plan must be defined before any assessment is concluded and these comprise the following:

Phase 1 - Definition and scope of the activity to be managed

The following details need to be understood:

- What the activity is and how it is carried out;
- The range of technical measures on offer to lessen impacts needs to be understood;
- Any obstacles to the adoption and deployment of technical measures such as resources, equipment, skills gaps etc.
- What is known about the scale, intensity and spatial extent of the activity and any seasonal patterns and considerations?

Any data gaps in the aforementioned factors need to be identified and quantified where possible. Much of this information will have been collated during the assessment process itself and can be brought into the M&C Plan.

Phase 2 - Description of how the activity and/or any impacts will be monitored

The parameters to be captured as part of any monitoring work will depend upon which factors are the source of uncertainty. These factors may be measured directly or indirectly using proxy indicators if necessary. The clear issue at this point is to ensure

[1] Agenda Item 8 Razor Clam Fishery February 2026

that the factors of interest can actually be meaningfully monitored and measured and that resources and processes are foreseeably in place to deliver the work.

Phase 3 - Define effective triggers for responding to monitoring outcomes

Monitoring alone does not constitute mitigation. It is the actions we take in response to monitoring results that complete the mitigation process. These specified actions need to be initiated by clear triggers to ensure their timely The suite of required triggers should be agreed in advance and may be adapted to be more conservative or relaxed in the face of future cycles of monitoring and hopefully as uncertainty decreases through time. Depending upon the factors being considered and the associated risks, triggers may require immediate modification of management measures or may initiate a more targeted and intense period of monitoring of one or more factors but again to a clearly identified trigger point.

Phase 4 - So, what does this mean for management?

Management will need to be amended in the light of (either favourable or unfavourable) monitoring results. The degree of management response should be proportionate to the identified increase or reduction in risk levels. The monitoring programme and agreed triggers may also need to be reappraised in response to changes in management. Once these are agreed, the next cycle of the feedback process commences using the revised M&C Plan. The duration of each cycle of the feedback process should be dictated by a reasonable assessment of the time over which effects arising from a given activity might reasonably be measured and the degree of risk collectively posed by the uncertainty

4. D&S IFCA Monitoring and Control Plan Process for MPAs

Devon and Severn IFCA is committed to an ecosystem approach, which is a holistic management strategy that balances human activities with environmental conservation, as well as the use of the precautionary principle approach to achieve adaptive management, which is a key tool for effectively implementation of these approaches. D&S IFCA's adopted adaptive precautionary approach is:

"Precaution is not an all-or-nothing commodity: different approaches can be precautionary to different degrees. ... In principle, a 'precautionary approach' to a fishery is any approach which reduces the likelihood of stock collapse or significant impact on natural heritage or the supporting environment. Selecting the appropriate mechanism and choosing the 'degree' of precaution to be used, is a matter for judgement by decision-makers. Precautionary approaches can reflect the full panoply of mechanisms (e.g. regulations, incentives, spatial planning of fishing activity, etc), up to and including prohibition ('strict precaution'). Often, however, precaution can be exercised through the proper application of a feedback loop between activity and impact which modifies the intensity of a process over time ('adaptive precaution'). Adaptive precaution is the preferred option where:

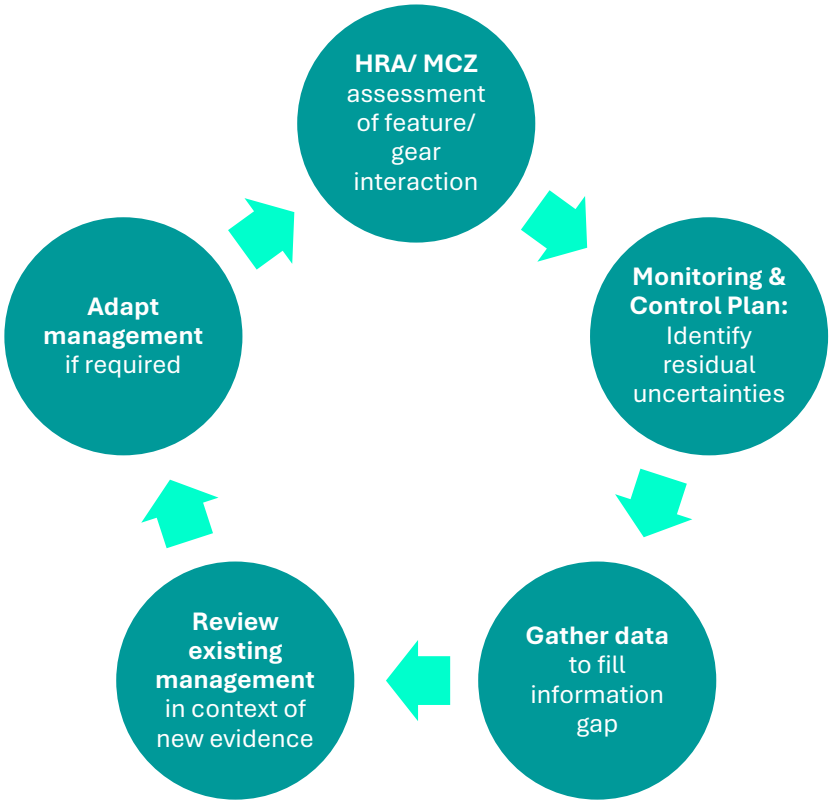
- • *the activity is one which can be undertaken at different levels of intensity;*

- • *it is technically feasible to establish a feedback monitoring regime; and*
- • *institutional frameworks are sufficiently robust to guarantee that monitoring and feedback controls future mortality.*"

Adaptive management acknowledges the high levels of uncertainty in natural systems and the difficulties of making decisions based on this uncertainty. It relies on the application of the ecosystem and adaptive precautionary approach. It provides a framework for a flexible and pragmatic approach to marine management, allowing sustainable development whilst adapting management and policies to respond to new information.

Monitoring and Control Plans (M&CPs) have, to date, been developed by D&S IFCA for certain gear-feature interactions in Marine Protected Areas (MPA) where Habitat Regulations Assessments (HRAs) or Marine Conservation Zone (MCZ) assessments find large uncertainties in the scientific and/or fishing effort evidence. M&CPs provide information on what monitoring will be undertaken, how this new information will be used, the timeframes for data collection and review of any current assessments. Crucially M&CPs will identify suitable management mechanisms, should they be required following the outcomes of the data collection.

The adoption of a permitting byelaw system by D&S IFCA allows for true adaptive management which can respond effectively when risks are identified. The Monitoring and Control Plan Cycle can be seen below:



5. Monitoring and Control Plan (M&CP) for the Razor Clam Fishery

Contents

D&S IFCA Officers, through their experience of developing and implementing M&CPs in MPAs, look to identify the gaps or uncertainties in evidence, the monitoring requirements and the triggers for adaptive management review. The M&CP will be used to assess the sustainability of the fishery, the impacts on the wider environment and support the use of adaptive management and the adaptive precautionary approach.

Following the process highlighted above, the phases of the M&CP for the air lift razor clam fishery will be:

5.1 Phase 1 Definition and Scope of the Activity to be Managed

5.1.1 Definition of the Fishery

The razor clam (*Ensis siliqua*)is a bivalve shellfish. The removal of razor clams from the sea will require classification under EU Regulation 627/2019. Classifying shellfish harvesting areas requires a formal application to the Food Standards Agency (FSA), liaison with the Fish Health Inspectorate (FHI)' a mandatory sanitary survey to identify pollution sources, and 10+ samples taken weekly for a provisional classification (or 3 years' data for seasonal). The process often takes around 16 weeks or more depending on data availability. Harvesters must register with the local council Environmental Health Office. The area classified is then monitored on a monthly basis to ensure the shellfish meet the classification given which in turn ensures that shellfish are safe to eat. There are stricter classifications allowing for direct consumption and others requiring purification, re-laying, or cooking so the shellfish are safe for human consumption.

The razor clam fishery will involve the use of two vessels. The forward vessel tows the second vessel and puts pressure on the fishing gear via a warp and is essentially a very slow simple dredging operation. The second vessel, being towed by the first vessel, uses no powered propulsion during fishing. Both vessels used in the operation have Certificates of Registry and Fishing Licences. The method to be used in the South Devon Fishery uses a 1m wide water-powered razor dredge where the pressurised water jets clear the sand to a depth of 35-40 cm before the air lift system raises the clams to the surface onto the boat within 10 seconds of capture. A maximum of two 1m dredges may be deployed but initially the operation would be one 1m dredge only. The air lift method dictates that the pipe must remain as vertical as possible and that necessitates a second vessel being used to pull the dredge forward as the sand is cleared by the jets. Any forcing of the dredge through the sand results in broken shellfish so inshore small boats with low horse power will be used. Speed over the ground is between 1 and 2 metres/minute or 0.06 knots. The fishing operation requires calm weather to operate successfully so it will be limited by environmental conditions.

The weight on the seabed is approximately 500kg mainly to provide a stable platform for the air pipe. Forward motion is facilitated by rubber wheels and sand skis to diminish point loading. The dredge moves slowly into the space that the jets create, it does not get dragged through the ground.

Two licensed boats and four crew are required on board the vessels to prosecute the fishery.

Comparison with other Dredge Fisheries:

Traditional Razor Dredge: The dredge used in the current razor clam fishery is not the batch dredge that has been used in other razor clam fisheries in Northern Ireland, Scotland and Denmark as described in a North Western IFCA discussion paper.[2] Those fisheries used a system where the water jet fluidises the sediment and then the contents are collected in a steel cage at the rear of the dredges. The contents and the cage are lifted from the seabed and brought onto the vessel and then emptied on deck. In some instances, once the cage is full the contents of the cage are pumped up to the surface for sorting. These systems cause damage to the catch due to the contents collecting in the steel cage prior to it being brought to the surface.

Scallop Dredge: The fishery has been compared to the scallop dredge fishery but is quite different. The scallop dredge fishery in South Devon has been in operation for over 40 years and takes place in areas that are not MPAs and in the area where the razor clam fishery will operate. Currently 52 out of 98 D&S IFCA mobile fishing permit holders have indicated they use scallop dredges. Each vessel will have 12 scallop dredges each 0.85m metres wide – therefore each vessel having a footprint without the associated fishing gear of 10.2m. The total weight of 12 empty scallop dredges is approximately 2 tonnes. Scallop dredges are operated in a wide range of different habitats, unlike the razor clam fishery that is confined to shallow mobile sandy areas. Each scallop dredge is fitted with 8 or 9 spring-loaded teeth that measure 10-12cm in length.

5.1.2 Range of Technical Measures:

The initial operation will be one 1m air lift dredge with the possible future increase to a twin dredge system. The maximum number of dredges will be two.

The current national Minimum Conservation Reference Size (MCRS) for razor clams (*Ensis spp*) is 100mm. The operator has informed D&S IFCA that shellfish selection is based on length. The market targeted by the operator for the razor clams has a minimum landing size of 180mm, 80mm longer than the official MCRS of 100mm.

The razor clams and bycatch will be delivered onto a sorting table once on board. The retained razor clams will be placed in salt water tanks to recover. Bycatch and undersized clams are released immediately close of the original position of capture due to the ease of sorting and slow speed of the dredge over the ground.

A REM system including IVMS, gear sensors and cameras will be fitted to the towed catching vessel in order to observe the sorting table and water discharge, which will be

[2] https://www.nw-ifca.gov.uk/app/uploads/Razor-Clams-in-the-North-Western-IFCA-District-FINAL-2018.pdf

used to understand the location, spatial extent of the fishery, the catch, bycatch and sediment type.

There is the potential to introduce a closed season. Razor clams, like other bivalves, spawn in spring, losing their condition and shelf- life for up to two months. Fishing is likely to stop at the first sign of gametes and resumes after spawning and condition recovery.

5.1.3 Scale, Intensity and Extent of the Fishery:

Currently only one operator will be prosecuting the fishery. It is unlikely that any other operator will join due to complexity of the gear set up and operation using two vessels.

The location of the fishery will be limited by the areas classified by the FSA and FHI for harvesting of razor clams. The areas are yet to be determine but they will be smaller than the coastal strip area indicated in previous papers.

The habitat on which the fishery will take place will be sand , coarse sand, and muddy sandy. The focus of the razor dredge fishery will be on mobile sandy areas, and it is the Officers' opinion that this reduces the impact on the marine environment significantly as these shallow sandy areas are dynamic and hostile habitats that are subject to significant natural change The likely habitat for the fishery will be in areas where there is high energy as this is the environment razor clams are typically found. Their densities fluctuate due to the weather conditions and populations have adapted to this. Adult razor clams typically live in deeper water than juveniles. As the razor clams grow they gradually migrate down the shore into the subtidal zone or deeper water within their habitat range. The fishing operation will target beds that contain the adult population.

As the fishery has not yet commenced catch rates are unknown. The fisher has indicated that catch rates are initially expected to be 3-400kg/day.

Density and distribution of populations are unknown at this stage and catch data are crucial to understanding both. Similarly, only experience of actual fishing can provide these data.

5.1.4 Residual Uncertainties Identified in Phase 1:

5.1.4.1 Uncertainties regarding the location and seasonality of the fishing activity:-

a) Until the areas to be fished are classified for the harvesting of razor clams it is unknown exactly where the fishery may take place.
b) The depth of the fishery is also unknown but will be in the near coastal zone.
c) The seasonality of the fishery is unknown together with the limitations of weather and tide.

5.1.4.2 Uncertainties regarding fishing effort:

a) Currently there is only one business wanting to access the razor clam fishery with the airlift dredge system. However, it is unclear if there will be more wishing to join the fishery.
b) Number of dredges used- The fisher has indicated that one dredge will be used initially. It is uncertain if and when an additional dredge will be deployed.
c) As the fishery has not yet commenced there is uncertainty on the seasonality of the fishery, the number of days the fishery will take place and the number of hauls per day.
d) No current information on landings per unit effort (LPUE) and catch per Unit effort (CPUE).

5.1.4.3 Uncertainties regarding the habitat on which the activity is taking place:

a) Until the areas are classified and the fishery commences it is difficult to confirm the habitat on which the fishing activity may take place. However, due to the habitat preferences of razor clams, it will be limited to sand, coarse sand or muddy sand.
b) Uncertainties of the razor clam stock levels.
c) Uncertainties on Bycatch - Although trials have taken place over the habitats that are representative of where the fishery will take place, there is uncertainty on the level and range of species caught as bycatch.
d) Uncertainties on Habitat Impact - .Uncertainty exists as to the long-term habitat and ecosystem impacts of the razor clam fishery.

5.2 Phase 2 - Description of how the activity and/or any impacts will be monitored - Identify Monitoring Requirements

5.2.1 Fishing Activity Location Monitoring:

a) D&S IFCA Officers will monitor the shellfish harvesting classification process with the FSA and FHI and accurately map the classified harvesting areas once in place.
b) Officers will monitor the IVMS tracks to map the exact location of the operation and will verify that the activity takes place within the classified harvesting area. This will be undertaken on a weekly basis.
c) Geofences will be set up within the REM system so that alerts can be sent to Officers and the operator if the operation is outside of the classified harvesting areas.
d) Using the REM system, officers will be notified when the vessel leaves port.
e) Officers will calculate the footprint of the fishing activity through analysis of IVMS data and REM.
f) Officers will also monitor the depth of activity and relate this to the species caught and their size distribution.

g) Officers will assess the habitat type through mapping the activity against available habitat maps.

5.2.2 Fishing Effort Monitoring

a) D&S IFCA Officers will monitor permit numbers and ensure permit applicants inform D&S IFCA of their intention to use a razor clam dredge on permit applications.
b) Officers will monitor the number of dredges in operation.
c) Officers will monitor the onboard REM system, and gear sensors will indicate when the air lift system is deployed and hauled back to deck.
d) Officers will record the number of days fishing takes place, the number of hauls per day and the length of towing operations.
e) Officers will monitor the catch per unit effort (e.g. hauls/day, tows/day and days fishing) through monitoring the camera footage and having observers on board.
f) The operator will provide landings data to Officers so that landings per unit effort (e.g. per tow) can be calculated.

5.2.3 Species and Habitat Monitoring

a) D&S IFCA Officers will analyse REM outputs, camera footage and through on-board surveys to identify habitat type when sediment is brought on deck.
b) Officers will undertake data gathering during on board surveys and REM outputs to record catches of all species, size of retained species, and number and size of juveniles to be returned. Frequency of on board surveys will be determined by Officers.
c) Officers will assess the level of discards and damage rates to all species through on board surveys and analysis of REM outputs.
d) Officers will use the IVMS data on the location of the fishery and the habitat information from the camera footage and observer's data to compare the fishing location with available habitat maps.
e) Officers will assess changes in densities of key species both retained and returned to identify possible ecosystem impacts.
f) Officers will work with the fisher to identity the spawning period, from meat yield, weight, and gonadal analysis, to potentially inform a closed season.
g) Officers may utilise the D&S IFCA remote operated vehicle (ROV) to monitor the physical recovery of the seabed post fishing and the persistence of fishing tacks may be explored.

5.3 Phase 3 - Define effective triggers for responding to monitoring outcomes and management review:

5.3.1 Species Caught – A declining trend in catches of the target species and/or bycatch is identified in areas that have been fished.

5.3.2 Damage Rates - An increasing trend in damage rates of target species and/or bycatch is identified.

5.3.3 Changes in Size Frequency Distribution of the Target Species - Data will be analysed to identify a shift in normal size distribution towards MCRS. A length based approach can be used to determine size selectivity and population shifts.

5.3.4 Fishing Effort - Analysis of monthly CPUE and LPUE identifies declining trends in each area fished. Fisheries stock assessment and depletion models can be used to identify declines in distribution and density.

5.3.5 Number of Vessels– If a further permit application to use the razor clam dredge is received.

5.3.6 Habitat –

- If the fishing activity, through the monitoring and habitat analysis, is observed to be taking place across substrates other than sand.
- If physical recovery is not seen with three months of the fishing activity taking place.

5.4 Phase 4 - So, what does this mean for management?

a) The fishery will be reviewed every three months, or sooner, if any of the above triggers are activated.
b) Trigger points can be reviewed and reset as the fishery develops and in light of the research outputs.
c) Reports will be presented on a regular basis to the B&PSC for discussion of any potential changes in management that are identified through the monitoring of the fishery.
d) Adaptive risk management can be achieved through regularly review and changes to Permit Conditions as necessary to achieve a sustainable razor clam fishery.

LOCAL GOVERNMENT (ACCESS TO INFORMATION) ACT 1985

Background Papers

B&PSC meeting papers and minutes (Section B Website Resource Library)