

NWIFCA Technical Science and Byelaw Meeting

7th of November 2023: 10:00 a.m.

Agenda Item

10

DEFINITION OF EPHEMERALITY FOR SEED MUSSEL

Purpose: To provide information on the NWIFCA's current definition of ephemerality regarding seed mussel.

Recommendation:

- 1) Receive the report
- 2) To approve the definition of seed mussel ephemerality.
- 3) To approve the process by which officers assess seed mussel ephemerality.

1. Background

A feature of Morecambe Bay is the occurrence of large and extensive mussel spat settlements which typically occur on South America, Fleetwood, Heysham and occasionally the Falklands beds.

These settlements are usually very dense with little or no embayment to the underlying substrate and quickly build up large amounts of sediment and pseudo-faeces (mussel mud).

Within a short space of time (~4 to 6 months) these populations become unstable and vulnerable to erosion through weather and/or tide, or predation from vast numbers of starfish. This mussel typically washes away before the winter, and is referred to as 'ephemeral'. In comparison, stable mussel beds in the bay such as Foulney, remain consistent, not undergoing as frequent scouring events, and spat settlements typically remain to grow on and contribute to the natural turn-over of the bed.

The Authority takes the line that although spat are undersized, in areas where they are ephemeral, they should be fished before they wash out of the fishery and a valuable commercial resource is lost.

Officers undertake frequent inspections of these beds each year to determine their suitability for opening a fishery to hand raking and/or dredging. Though this has been a long-standing procedure, it is important that a definition of ephemerality and the means by which it is assessed is agreed by the Authority, in order to safeguard officers and assist in management decision.

2. Definition of seed mussel ephemerality

NWIFCA set up a stakeholder forum called the Bivalve Mollusc Working Group (BMWG) in 2015. The group was made up of NWIFCA officers, stakeholder representatives (including hand gathered and dredge fishers) and Natural England.

In 2017 BMWG agreed a definition of ephemerality in relation to the mussel resources to assist NWIFCA in making decisions on when mussel could be harvested as seed. This definition is:

'Certain conditions need to occur for the NWIFCA to authorise fishing of seed mussel, namely that the stock has been assessed as in imminent likelihood of being lost to the fishery through natural causes, and subsequently that a high proportion of it will not grow through to reach size; and that conditions pertain to fishing being possible without risk of damage to the cobble and boulder substrate conservation features. These include:

settlement in high abundance and density, and;

- fast growing and high deposits of pseudofaeces (mussel mud), and;
- the mussel mud becoming very soft and loose and at risk of being washed out, taking the mussel with it;
- or dense settlement being heavily predated on by thousands of starfish.

The fishery is highly variable depending on the vagaries of the stock, and the changes in the dynamic environment of the north west coast and have to be assessed on a year by year basis.'

3. Process for determining ephemerality:

Every year science officers access the main ephemeral beds to see if they are suitable for seed fishing. During inspections, officers look for and record the following criteria to see whether stocks are 'imminently likely' to wash away:

Inspection criteria	Reason
The presence, thickness and extent of mussel mud	<p>The build-up of mussel mud can mean mussel is vulnerable to being washed away or 'scoured' as they do not typically have secure attachment to the mud.</p> <p>The presence of mud means fishers are less likely to contact the substrate when fishing for seed mussel and therefore not interact with the protected cobble and boulder feature beneath.</p>
Evidence of scouring and looseness of mussel	Areas where there is evidence mussel has already washed away (scoured), or where it has become loose and gathered in heaps is indicative of imminent wash off.
The extent of exposed cobble substrate	If large amounts of cobble is exposed or covered only by thin mud, it could mean fishing activity will interact with the protected feature.
High densities of seed mussel from that year	High densities of a single current year class, means the previous year has washed out enabling the new spat settlement, and the possibility it will undergo wash out again (dependent on the presence of the other factors)
Low levels of size mussel or mix of sizes – indicative of surviving the winter to grow on	If there are low densities, and mussel is patchy, or dispersed among size or a mix of

	sizes that have survived the winter and grown on, it is not considered ephemeral.
Presence of Sabellaria	Sabellaria is a protected feature and fishing activity must not interact with this.
Presence of large volumes of star fish.	Star fish can quickly remove large quantities of mussel if present.

Though some of these criteria do not directly relate to the ephemerality of the resource, they also help determine whether the fishery would be HRA compliant.

Officers go regularly to these areas for inspection (once a month on low spring tides) due to the highly variable nature of the environment and unpredictability of stock and ensure that authorisation / permitting of seed mussel removal only occurs when the mussel is in a vulnerable condition.

These detailed reports are subsequently made available to stakeholders via the website and presented to Members of the TSB committee for approval.

NWIFCA officers recommend:

- **Approval of the BMWG definition of ephemerality, and**
- **Approval of the process and considerations defined above as to how officers assess a bed as ephemeral and report back to the Authority.**