

**NWIFCA Quarterly Meeting:  
11<sup>th</sup> March 2016: 11.00 a.m.**

**AGENDA  
ITEM NO.  
12**

**LEVEN COCKLE FISHERY REQUEST**

**Purpose:** To discuss the proposal to open a restricted hand-gathered cockle fishery at Leven Sands, Morecambe Bay

**Recommendation:** A limited, tightly regulated fishery as set out below is approved.

**Introduction**

1. In 2016 cockles are reported to be much more widespread than in recent years, and Leven Sands is not the only cockle resource available. IFCOs reported significant spatfall in Morecambe Bay and the Ribble Estuary in October 2015 and Officers have been planning work towards a potential fishery in September accordingly. Stocks may be following a pattern previously seen in 2001-02 when a large fishery developed almost unnoticed in Morecambe Bay.
2. Further survey is planned during the coming weeks to provide comprehensive data but the Authority may wish to be alert to the possibility of a fishery on a scale which could have a significant impact on the Authority and wider human community of Morecambe Bay.
3. Industry requested a small cockle fishery on Leven Sands in 2015 when sized cockles were observed in significant numbers for the first time in more than 5 years. Three surveys were carried out in 2015, but failed to locate the cockles due to the extreme winds. At the first opportunity in 2016 a survey of the bed was carried out which indicated that with tight regulation a fishery could be supported which would be Habitats Regulations compliant.
4. Following the survey, a report (Annex A) was emailed to TSB Committee giving the results and asking for views. The Committee requested discussion at the 11<sup>th</sup> March meeting. This report addresses issues raised.

**Area to be opened**

5. The fishery would be on the Leven Sands cockle bed (Fig. 1), an area of around 3.5km<sup>2</sup> shown by the yellow box.
6. The area is within the Morecambe Bay commercial area defined in Byelaw 3 (the red box) so the public fishery right of 5kg non-commercial allowance could be suspended for the period of the commercial fishery to assist effective enforcement.
7. Access is by an existing hard-core track across the saltmarsh area used regularly by shrimp fishermen. IFCO patrols could limit access to this track and fishing to the authorised area. Permit holders could be issued with maps showing the authorised box and co-ordinates. There is unlikely to be fishable cockle north of the commercial area within the access route zone (marked blue) due to its height on the shore.
8. As is typical, there is both size and undersize cockle in the area. Cockle distribution is considered to be mostly controlled by sediment character such as grain size and the elevation of the bed so stocks can be very locally variable.

## **Stock level, sustainability and the historic 20 per m<sup>2</sup> threshold**

9. This density should be used with caution. It does not have widespread scientific endorsement. In regulating cockle fisheries in Morecambe Bay in the past, the SFC sometimes used this level as a guide to allowing a fishery to take place. This figure was determined by a previous SFC scientist using extrapolated data from research into other broadcast spawning bivalve species. For these species it was concluded that there needs to be a minimum density of spawning adults to support successful fertilization when eggs and sperm are released. There is no directly comparable data for cockles although the 20/m<sup>2</sup> figure includes a safety margin to encourage reproductive success.
10. This density was also observed in the past to be about the minimum density for an economically viable fishery. However, with rising cockle value, this may not now be the case and some fishermen will exploit lower densities. It is important to realise that the 20/m<sup>2</sup> figure was not designed to be an indicator of a sustainable cockle fishery and should not be used as such. It may be too low and it is certainly lower than used in other UK cockle fisheries. However in this case there are other factors which may be relevant to authorising a fishery.
11. While the February survey results show a mean density of adult (sized) cockle of only 10 per m<sup>2</sup> the stock is old (3+ years) and likely to die in summer 2016. A 3 year life cycle for cockles is typical in Morecambe Bay. If stock is dying it does not contribute to a sustainable fishery so the removal of this cockle may be considered not to be a relevant factor.
12. Also, this stock may not be counted as a food resource for over-wintering birds as it is expected to be lost when birds return in the autumn. Therefore removal of these large cockles may be considered to have no impact on the bird food resource (for the case of eiders see below).
13. A similar policy was agreed at Foulnaze (Ribble) in 2013, when removal of remaining 2010 cockles was authorised.

## **Estimate of biomass**

14. An estimate of adult biomass was made using conversion ratios developed by a previous SFC scientist. Using a bed area of 3.5km<sup>2</sup>, a mean density of size cockle of 10 per m<sup>2</sup>, a mean shell length of 28mm, a wet weight per cockle of 9g, gives 315 tonnes of size cockle.
15. No attempt has been made to estimate weight of undersize as shell lengths were extremely variable and time did not allow proper sampling

## **Food resource for eiders**

16. Eiders are bivalve eating diving ducks feeding on cockles and mussels. From the SPA citation (1991) Morecambe Bay supported 4,800 eiders when it was designated. BTO annual peak data (table 1) shows a 5 year peak mean of 5886, with some recent years over six thousand/
17. Therefore the numbers of eiders in Morecambe Bay is above acceptable conservation limits despite the low density of cockles since 2008-09. Therefore cockles should not be assumed to have comprised a major part of the eider diet in the last 7 years. Eiders cannot have been reliant or dependent on cockle for that period.
18. The size of cockles is also relevant. Although eiders will eat all sizes they generally favour smaller cockles. Heavy shells as now found at Levan are not first choice because they are less efficient to digest.

## **Disturbance to Birds**

19. On saltmarsh access route, concerns have been raised about the impact on saltmarsh birds (e.g. Redshank). By mid-March they will be establishing territories and actively displaying. Disturbance caused by access to the fishery across the saltmarsh may reduce breeding success of this nationally declining species.
20. Disturbance could be mitigated by limiting the access route to the track. This track is habitually used by shrimping tractors, and visitors to the caravan park at West Plain who walk to the sands along this track. Birds are likely to be habituated to a certain level of disturbance.
21. Parking and 'tonning up' on the saltmarsh will not be permitted. Disturbance will be minimised by vehicles only travelling to and from the fishery once each way per tide. Further protection could be offered by limiting the days that the fishery is open per week.
22. The above arrangements would also mitigate damage to saltmarsh / pioneer saltmarsh.
23. On the sands observations while surveying on 11<sup>th</sup> February recorded no wading birds or eiders during the 3.5 hours of work. The only birds observed were a group of around ten gulls that followed the survey team scavenging. This is in sharp contrast to large numbers of oystercatcher and some knot seen on the mussel beds at Foulney, Heysham Flat and Lytham during the latter part of 2015.
24. Numbers of fishermen is anticipated to be low and spread out across the bed. Tractors shrimping may also be present. Previous fisheries have shown that when birds are 'put up' they typically settle again rapidly and continue to feed. Birds may benefit from loose cockle on the sand after jumboing. There is therefore no reason to suggest that disturbance to birds would be damaging unless weather was exceptionally severe, but if evidence of high levels of disturbance was observed, the fishery could be closed

## **Numbers of fishermen and social impact of a fishery**

25. On the first few days of a fishery a high proportion of the 75 Byelaw 3 permit holders might be expected. Another 80 are eligible to apply for 2016-17 permits but have not done so. The Authority requires at least 2 weeks from application to permit issue. Once fishing begins it is believed that numbers of gatherers will quickly diminish when the extent of the stock is known.
26. This size of fishery is manageable with existing resources. A multi-agency committee will be reconvened as in previous years to manage the fishery and take in the interests of stakeholders. The Committee will include police, GLA, EHOs, and other regulators.

## **Protection of spat**

27. The management measures proposed, including use of a craam and prohibition of rakes and riddles, will reduce the number of fishermen and minimise the risk to the spat. Few fishers own or have used a craam which is a traditional Morecambe Bay tool designed to remove large cockle with minimal damage to juveniles or the wider environment. It is in no one's interests to damage undersize cockle. If there is evidence of damage to spat the fishery should be closed.
28. In general despite being 'jumboed' to the sand surface, cockle re-bury quickly. It is one of the difficulties in surveying as they can be out of sight again within seconds. This ability also provides confidence that the risk of damage is limited.
29. The Leven bed is not expected to be opened for cockle fishing in September. With a mean density of undersize of 79 per m<sup>2</sup> in February it is most likely that through natural mortality and predation this number will have reduced greatly by September and will not be

commercially viable or of a level that a sustainable fishery could be supported.

30. If the cram fishery was opened in April, fishing should be completed prior to any 2016 recruitment for 2016 which usually occurs in July; (but was late last year due to the cold spring).

### **Allowing the cockles to spawn**

31. From where cockle spawn to seed Morecambe Bay is unknown. There is usually a low density adult cockle present but the reason for occasional population explosions needs further research. Experience in other estuaries, such as the major recruitments at Leasowe (Wirral) in 2009 and Foulnaze (Ribble) in 2010, indicate that recruitment came from outside stock.
32. In a similar case when the Authority was considering allowing fishing of the remaining old 2010 cockle at Foulnaze, Byelaw 3 permit holders were asked for their opinion on whether to allow it to spawn or not. The responses were split 50/50 and the science team recommended that from an ecological and sustainability point of view they should not be fished until the summer to give them a chance to spawn. There was no subsequent known recruitment on the Ribble beds.
33. However, the size of the bed at Leven Sands is minimal in comparison with the rest of the Bay and the adult spawning stock. Leven Sands is not a primary part of the Morecambe Bay cockle fishery. Other beds such as Flookburgh, Warton Sands, Pilling and Middleton Sands are also likely to hold aggregations from 2015 settlement, and a cohort of older cockle.

### **Can the fishery be delayed**

34. There is no recent data on densities and age classes until surveys have been carried out. The fishery could be delayed until data is available but would then run into the closed season starting 1<sup>st</sup> May. Cockle fisheries are inactive over warmer summer months because they cannot be transported live to market.

### **Wait until Byelaw 3 has been reviewed and amended**

35. Byelaw 3 has been shown to be an effective regulatory tool in both the Foulnaze and Southport cockle fisheries. The amendments will be an improvement but Officers do not believe there would be any benefit from waiting for the revised byelaw in order to open this small fishery for the following reasons.
  - The proposed changes to Byelaw 3 will not affect how many people prosecute the fishery;
  - The benefit of the Regulatory Notices in the amended Byelaw 3 will not be needed as the fishery will be opened under derogation from the Byelaw 13a closure and therefore full conditions can be set on how the fishery operates;
  - This fishery lies fully within the existing commercial area defined in Byelaw 3.

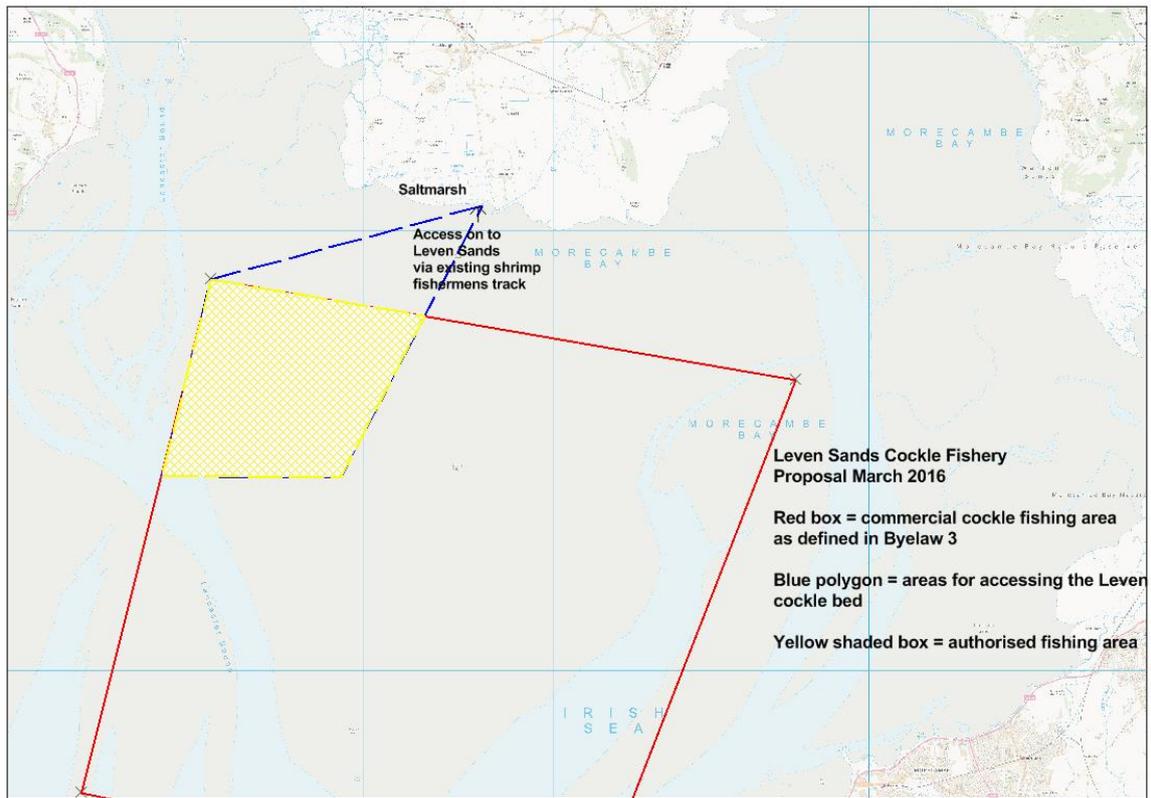


Fig. 1. The proposed fishery with one access point, authorised fishing area (yellow box), commercially designated area under Byelaw 3 (red box) and access route (blue area).

Table 1. BTO eider annual peak data for eiders in Morecambe Bay

Years	Annual Peak
2006/07	3374
2007/08	2138
2008/09	5534
2009/10	4248
2010/11	6151
2011/12	7121
2012/13	5608
2013/14	6303

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3<sup>rd</sup> March 2016