

**NWIFCA Technical, Science and Byelaw  
Sub-Committee**

**17 May 2013: 10:00am**

**AGENDA  
ITEM NO.**

**7**

**TOWARDS INTEGRATED TEMPLATES FOR HABITATS REGULATIONS ASSESSMENTS  
(HRAS) FOR COCKLE AND MUSSEL FISHERIES IN THE NWIFCA DISTRICT:**

1. Nearly all shellfish fisheries within the District are subject to HRAs which must be agreed with Natural England. This paper sets out agreed common ground necessary to undertake HRAs and identifies questions which remain to be answered.
2. NWIFCA fisheries management decisions aim to comply with the Sustainability Principles adopted by NWIFCA in September 2011 (Annex A).
3. The aim of this paper is to move towards a template HRA for all the main cockle and mussel fisheries in the NWIFCA District so that NWIFCA can make rapid decisions on fishery management without waiting for formal advice from NE on every occasion and NE can be confident that NWIFCA will make management decisions based on agreed criteria for sustainability.

**Cockle Fisheries:**

4. Management measures are:
  - I. a minimum landing size (MLS) of 20mm,
  - II. a threshold density of 20m<sup>-2</sup> below which closure is considered,
  - III. a closed season from May to August inclusive.
5. The 20m<sup>-2</sup> threshold was put in place by Bill Cook in 2005 (see below<sup>2</sup>). It is derived from a research paper on cockle fertilisation<sup>1</sup>. 20m<sup>-2</sup> is also an estimated historical figure from fishing in Morecambe Bay below which fishing was uneconomical.
6. Cockle beds must be mapped and surveyed each year to assess changes in area and density. Cockles stocks are highly variable in this District.
7. The most up to date bird data is essential on breeding, overwintering, arrivals and departures, roosting, nesting and feeding sites. Discussions between NWIFCA and Natural England show questions are still unanswered over assessing the requirements of SPA birds within the cockle and mussel fishery areas. We do not have a protocol for balancing bird requirements with socio-economics and fisheries other than the precautionary principle which often does not provide a quantitative solution.
8. Oystercatchers' main food preference is for >15mm cockles from which they gain the greatest energy gain, but they can and do switch to smaller cockle, mussel and other invertebrate food when larger cockles are not available, e.g. due to lack of stock or tidal exposure. Dependency of oystercatchers on larger cockles is uncertain because when cockles are absent from the District Oystercatchers do not die out.
9. The CEH behaviour-based model of the interactions of birds with estuarine habitat has not been shown to be effective or comprehensive in all years at any site. It does not always result in improved or steady cockle stocks. The NWIFCA has discussed application of the model in Morecambe Bay but the area was found to be too complex and the assumptions were unquantifiable and it was not pursued.

10. The 'rule of thirds' (fishing, bird food and broodstock) may be useful when setting a TAC. This requires a robust stock assessment of whole estuary systems not just commercially viable cockle beds within systems.

#### **Mussel Fisheries:**

11. Management measures in recent years for ephemeral seed mussel fisheries at South America and Heysham Flat in Morecambe Bay have proved effective. These measures will be incorporated into future HRA following stock assessments. A TAC is not required on the fishing of ephemeral seed mussel.
12. Mussel biomass estimates are only an indication of stock present because mussels are extremely patchy making area and density difficult to measure.
13. Harvesting of mussel creates a thinning effect which through increased space and decreased competition can allow remaining mussel to put on rapid growth that often increases overall biomass quickly.
14. Harvesting also creates space which allows new mussel settlement and recovery of stock.
15. The main risk to eider breeding identified in an 'eider risk review (2011)' was predation from land mammals and gulls, and not mussel fisheries. The most successful breeding site was Chapel Island so management measures are being brought in to minimise disturbance from 'Cross Bay Walks' during nesting and fledging times.

#### **All shellfish fisheries:**

16. NWIFCA could consider extended severe weather closures of fisheries consistent with voluntary/statutory wildfowling bans.
17. HRAs should consider other cockle or mussel eating birds: scoter for adult cockle, eider for mussels, knot for smaller cockles.
18. Core populations of birds show site fidelity for each estuary. NWIFCA needs to know the size of these populations for all estuaries within the District. Populations are often swelled by returning migratory birds and birds from other estuaries when prey availability is high.
19. The NWIFCA does not aim to increase oystercatcher numbers where populations have remained stable for the last 30 years as is the case in the Ribble. NWIFCA aims to maintain oystercatchers at favourable condition across a network of sites in its District.
20. HRA may be demanded at short notice to meet urgent and changing fishing priorities. Requests for data from NE may be made at short notice and HRA may be sent to Natural England before data or advice is available. Officers will in such cases use previous HRA assessments, best available data and expert judgement to complete HRA and set TAC.

**Stephen Atkins and Mandy Knott**  
**13<sup>th</sup> May 2013**

## **ANNEX A:**

### **PRINCIPLE 1**

**A fishery must be conducted in a manner that does not lead to over-fishing or depletion of the exploited populations and, for those populations that are depleted, the fishery must be conducted in a manner that demonstrably leads to their recovery**

Intent:

The intent of this principle is to ensure that the productive capacities of resources are maintained at high levels and are not sacrificed in favour of short term interests. Thus, exploited populations would be maintained at high levels of abundance designed to retain their productivity, provide margins of safety for error and uncertainty, and restore and retain their capacities for yields over the long term.

### **PRINCIPLE 2**

**Fishing operations should allow for the maintenance of the structure, productivity, function and diversity of the ecosystem (including habitat and associated dependent and ecologically related species) on which the fishery depends**

Criteria:

3. Where exploited populations are depleted, the fishery will be executed such that recovery and rebuilding is allowed to occur to a specified level within specified time frames, consistent with the precautionary approach and considering the ability of the population to produce long-term potential yields.

<sup>1</sup>Andre, C & Lindegarth, 1995. Fertilization efficiency and Gamete Viability of a Sessile, Free-Spawning Bivalve, *Cerastoderma edule*, *Ophelia* 43(3):2 156-227

<sup>2</sup> Verbatim Explanation for Cockle Threshold by Bill Cook:

“As I recall, this is the only fertilisation ref specific to cockles. There are loads of others on broadcast spawners, esp urchins. It didn't actually give cockle densities and the resultant impact on fertilisation. As I recall, I tried to 'deconstruct' the results as presented to deduce what the effect of different densities might be. It wasn't easy, and I think I came up with a figure of 10/m<sup>2</sup> as one where fertilisation efficiency might rapidly decline (without huge confidence, for a number of reasons). This figure I then doubled, to give some sort of safety margin - hence 20/m<sup>2</sup>. I was never happy with this, but it seemed the most informed possible "guesstimate".

**Mandy Knott**  
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**2<sup>nd</sup> May 2013**