

NWIFCA Technical, Science and Byelaw Sub-Committee

17 May 2013: 10:00am

**AGENDA
ITEM NO.**

8

IS THE USE OF LIMESTONE FOR ROCK ARMOURING AND SEA DEFENCES DETRIMENTAL TO MUSSEL BEDS?

Purpose

To discuss the issue of whether the use of limestone for rock armouring and sea defences is detrimental to mussel beds

Recommendation

The TSB to make a decision on future NWIFCA policy towards the issue.

Details

1. Since at least 2010 some fishery officers have asserted that the use of limestone in the marine environment around our District has been detrimental to our mussel beds. There has been concern raised about the Cleveleys breakwater installed in 2010 which consists mainly of limestone.
2. Most recently the Wyre Borough Council proposals for their Rossall Sea Defence Strategy have included the wide use of limestone for sea wall, rock revetments and groynes which will be positioned in close proximity and in some places extend on to the Rossall Scar mussel bed. We have raised concerns with Wyre BC engineers who have conducted their own search for scientific evidence.
3. I have spent many hours trying to find background research and evidence to support the anecdotal reports but have been unsuccessful. In fact any research that I can find points towards the suggestion that the use of limestone in a bid to counteract the effects of ocean acidification should be developed on large scales.
4. I have papers that provide evidence that limestone is colonised at perhaps a slower rate than other rock eg. granite, but that in time it does follow a natural rocky shore-like succession. I have contacted the MMO Marine Licensing team, Cefas, Natural England and spoken to Richard Thompson, Professor of Marine Biology at Plymouth University's School of Marine Science and Engineering, whose work with Exeter University and the EA has focussed on 'Coastal Defences and Biodiversity: examining the interplay between engineering design and ecological response'. None of them have raised any concerns other than a very immediate and localised rise in pH levels after first installation. The dynamic coastline and amount of flushing is likely to minimise any such effects very quickly.
5. None of the papers I have read, correspondence I have had or discussions I have had have provided any evidence to support the assertion. The science team all agree that the use of limestone has been widespread in the UK for a number of years and that if there had been a detrimental impact on commercially valuable mussel stocks someone would have researched it and we would have been able to find that research.
6. There is some evidence to show that as far as colonisation of newly positioned rock is concerned rock type is less important than position re. tidal level and age of structure.

Carbonate rocks may weather/be bioeroded more rapidly than igneous rocks and develop micro-habitats that favour ecological colonisation. There may be other issues around introducing materials that are not typical of the area.

7. Science Officers recommend that as there is no scientific evidence to support this assertion and therefore nothing to base such assertions on that the NWIFCA does not oppose the use of limestone in coastal developments in the future. The MMO will consult with us for the Marine Licence in the near future and we would recommend a consistent NWIFCA approach.

Mandy Knott
Senior Scientist
8th May 2013