



**MARINE AND COASTAL ACCESS ACT (2009). FORMAL REQUEST FOR APPLICATION
ADVICE BY FALMOUTH DOCKS ENGINEERING COMPANY FOR THE ENVIRONMENTAL
STATEMENT REVIEW ASSOCIATED WITH THE DEVELOPMENT OF FALMOUTH DOCKS,
CORNWALL.**

Reference Number: MLA/2025/00157

From: Joe Perry

Cefas, Lowestoft Laboratory

Date: 24th November 2025

To: Yvonne Golightly - MMO (by MCMS)

1. With reference to the above application for relating to the Environmental Statement (ES) for works relating to Falmouth Docks by Engineering Company (FDEC) and your request for comments dated 11th November 2025 please find my comments below.
2. This minute is provided in response to your advisory request in relation to the above proposal in my capacity as scientific and technical advisor for sediment quality in relation to, and regulatory requirements for dredge and disposal operations. The response pertains to those areas of the application request that are of relevance to this field. This minute does not provide specialist advice regarding benthic ecology, marine processes, fish and fisheries, shellfisheries, or underwater noise as, whilst these are within Cefas' remit, they are outside my area of specialism.
3. In providing this advice I have spent 5 hours of the allocated 7.5 hours by the MMO. I have booked my time to MLA/2025/00157.
4. I have provided my comments based on the below category system:
 - Category 1: **Major Comment (Action)**- It is my advice that the application should not be granted a licence until this is resolved. There is high uncertainty or a large risk to the environment. MMO are strongly advised to request this further information then re-consult Cefas.
 - Category 2: **Minor Comment (Action)**- There is data/ information/ evidence missing that could affect the assessment. Provision of the data/information would allow for due diligence to ensure there is sufficient confidence in the applicant's and my own assessment but would not necessarily preclude the granting of a licence. MMO advised to request further information from applicant and then to re-consult Cefas, however MMO may be able to grant licence if this information is not submitted, provided MMO have clear rationale for their decision.
 - Category 3: **Minor Comment (No Action)**- These highlight those things that should be included as best practice but would not affect my overall conclusions. Should be taken forward by the developer for any future applications/ post consent requirements, or presentation issues. MMO case team could pass this on to applicant however this information is not required for consultation with Cefas.
 - Category 4: **Observation**- Statements regarding what is stated in the application, or areas of good practice are highlighted. No action for MMO case team but this could be passed on to applicant if MMO wish, to pass on areas of good practice.

World Class Science for the Marine and Freshwater Environment

Pakefield Road, Lowestoft, Suffolk, NR33 0HT | www.cefas.co.uk | +44 (0) 1502 562244



Document (s) reviewed (Accessed via MCSM August 2025).

5. Document entitled “Natural England questions for Cefas” (see Annex 1)

Description of the proposed works

6. Falmouth Docks Engineering Company (FDEC (hereafter ‘the Applicant’)) are progressing a project to redevelop existing infrastructure and install new infrastructure at Falmouth Docks. To facilitate these works, capital dredging is required to remove ~640,000m³ from around the main jetty and other parts of the docks, with limited post-development maintenance dredging also expected to be required of 8,000m³ every 5 years.
7. Dredge pockets are proposed along the berths at Western Wharf, north and south of Queen’s Wharf, and in the western basin adjacent to the proposed FLOW¹ Deck to achieve the required bed depths and under keel clearances of -10.5 m Chart Datum (CD). The remaining elements of King’s Wharf and Empire Wharf would be removed and surface-skimming of the eastern side of the causeway would be undertaken to -5.5 m CD (see Figure 1 and Table 5.4 in Annex 1 for a breakdown of dredge volumes per area). Seabed and rock material have been identified in the dredge pockets through ground investigation surveys which will be removed by backhoe dredger(s); excavators, grabs and spud leg barges will also be used for revetment, reclamation and backfilling works. Disposal of acceptable material is proposed to Falmouth Bay (B) disposal site (PL075 (see Figure 2)).
8. Advice was provided on the Environmental Statement (Kirsty Clarke, 18th August 2025). Following the MMO’s broader consultation on the ES, Natural England (NE) have posed various questions to Cefas concerning the potential for the works to have an adverse effect on the maerl beds from the predicted mobilisation of tributyltin which may exceed the water quality standard. This advice responds to these questions.

Responses to Questions posed by the MMO Case Officer. All responses are observations unless otherwise stated. Note that I have not responded to question 2 – 6 as these relate to a review of the HRA Addendum, and it is not appropriate under my advisory remit to determine whether, for example, the mitigation measures are “sufficient” when the scope of the document relates to NE’s remit. As such, I will respond to the questions posed by the NE in an advisory capacity to guide their own conclusions.

MMO Question 1. Are you able to answer the queries raised by Natural England?

9. Annex 1 contains the document provided by NE in full, which poses two specific questions, which I will respond to:

NE Question 1: Are Cefas comfortable that, given the information provided, it is possible to exclude the potential for significant adverse effect on the live maerl habitat?

10. To the best of our knowledge, there is little to no evidence to characterise the effects of tributyltin (TBT) on live maerl habitat, presumed to comprise *Phymatolithon calcareum*. This is not to say that there is evidence of no impact, conversely, TBT can be highly toxic to various types of marine life, including algae and other flora. Toxicity can be both acute (e.g. mortality over a short period of exposure) or chronic (e.g. developmental deficiencies over a longer period of exposure). The level at which concentrations of TBT may induce these toxic effects varies considerably depending on the receptor species being studied. To be able to conclude that there will be no adverse effect from TBT exposure on the live maerl habitat, we need to

¹ Floating offshore wind

World Class Science for the Marine and Freshwater Environment

Pakefield Road, Lowestoft, Suffolk, NR33 0HT | www.cefas.co.uk | +44 (0) 1502 562244



understand (a) the level at which toxic effects could be observed (e.g. the exposure threshold) and (b) whether the proposed works will lead to these levels being present in the water. Data availability make it very difficult to answer either of these questions with good certainty.

11. The contaminant modelling undertaken by HR Wallingford predicts that some concentrations of TBT in the aqueous phase may exceed the Environmental Quality Standard for TBT (this is the basis for NE's concerns), noting also that concentrations will exceed the Maximum Allowable Concentration (0.0015 µg/l). The Environmental Quality Standard was developed under the EU Water Framework Directive to establish broadscale standards of contaminant levels to mitigate environmental impacts. The corresponding Substance Data Sheet details the effect data used to calculate the EQS for TBT, and includes only one species of marine algae (*Dunaliella tertiolecta*). On this basis, the EQS may not be a useful tool to reflect the potential toxicity to marine flora, though it should be noted that this is not what the EQS is designed to achieve.
12. There are other factors that can affect the availability of TBT to induce toxic effects. Salinity, pH and the presence of organic matter can all reduce or increase the bioavailability of TBT (Burton *et al.* 2004; Hoch and Schwesig, 2004). Organic matter in particular can be used to normalise organic contaminant results to reflect the concentration of organic contaminants that is available for uptake: higher organic matter concentrations will result in a lower normalised result.. Whether organic matter can be used to normalise TBT levels is poorly understood, and whilst there *could* be reason to speculate that TBT levels could be normalised to organic carbon to result in lower concentrations than those reported, any confidence in the resulting assumption would be low.

NE Question 2: Based on the information provided by the applicant, via the MMO, are Cefas content that evidence around levels of contaminants (for example TBT) potentially over areas of live maerl do not contradict a conclusion of no adverse effect on site integrity? (Bearing in mind that live maerl habitat is a highly sensitive benthic sub-feature of the SAC).

13. The applicant's response that tidal mitigation will reduce the potential concentrations of TBT in the aqueous phase is reasonable in that it will reduce the extent of sediments dispersing into the water column, which is the primary input pathway for TBT concentrations in the aqueous phase. Whether this corresponds to a conclusion of no adverse effect on site integrity is, again, difficult to determine with any significant certainty due to the factors outlined in my response to NE Question 1. It can be said that the tidal mitigation may reduce the potential for TBT water concentrations as a result of the dredging to exceed the associated EQS and MAC, but these figures represent a broad range of marine life which may more or less sensitive to TBT toxicity.
14. The incorporation of the tidal mitigation, alongside the existing project design to exclude highly contaminated sediments from disposal at sea, and the requirement to use an enclosed bucket dredger to minimise loss of fine material during dredging, leads me to cautiously consider that the TBT impact pathway may not occur to the extent that it contradicts conservation objectives, however this conclusion is speculative and is based entirely on the likelihood that TBT levels will be relatively low, rather than any ecotoxicological data, which are very scant. It should be recognised here that the potential for toxic impacts on other marine flora can be observed at very low levels of TBT (Beaumont and Newman, 1986; Beaumont *et al.* 1987; Bryan and Gibbs, 2020). This does not necessarily mean that maerl bed species (such as *P. calcareum*) will also be sensitive to TBT at similarly low levels, rather that without sufficient evidence, the risk cannot be ruled out with high confidence.

World Class Science for the Marine and Freshwater Environment

Pakefield Road, Lowestoft, Suffolk, NR33 0HT | www.cefas.co.uk | +44 (0) 1502 562244



MMO Question 7. Do you have any other comments on the proposed works which have not been covered by the questions posed above?

15. No.

Joe Perry (Cefas)
Senior Advisor

Quality Check	Date
Sylvia Blake	26/11/2025

References

Beaumont, A., Mills, D. and Newman, P., 1987, September. Some effects of tributyl tin (TBT) on marine algae. In *OCEANS'87* (pp. 1488-1493). IEEE.

Beaumont, A.R. and Newman, P.B., 1986. Low levels of tributyl tin reduce growth of marine micro-algae. *Marine pollution bulletin*, 17(10), pp.457-461.

Bryan, G.W. and Gibbs, P.E., 2020. Impact of low concentrations of tributyltin (TBT) on marine organisms: a review. *Metal Ecotoxicology Concepts and Applications*, pp.323-361.

Burton, E.D., Phillips, I.R. and Hawker, D.W., 2004. Sorption and desorption behavior of tributyltin with natural sediments. *Environmental science & technology*, 38(24), pp.6694-6700.

Hoch, M. and Schwesig, D., 2004. Parameters controlling the partitioning of tributyltin (TBT) in aquatic systems. *Applied geochemistry*, 19(3), pp.323-334.

Annex 1 Natural England questions to Cefas document in full

Natural England (NE) defers to CEFAS as the technical experts for matters around sediment contamination and hence disposal suitability. NE advises that the MMO ensure that the potential impacts of contaminated sediment deposition from the capital dredge campaign on sensitive benthic habitats are comprehensively assessed and clearly presented in the HRA. NE highlights modelling presented in Technical Appendix 6.3 which indicates that tributyltin (TBT) concentrations may exceed Environmental Quality Standards (EQS) under certain scenarios including at areas adjacent to live maerl habitats such as those east of the Eastern Breakwater. Ecological context should be provided for all impacted areas to understand the potential long-term consequences for habitat quality and function.

In the SAC HRA Addendum subsequently provided by the applicant they said:

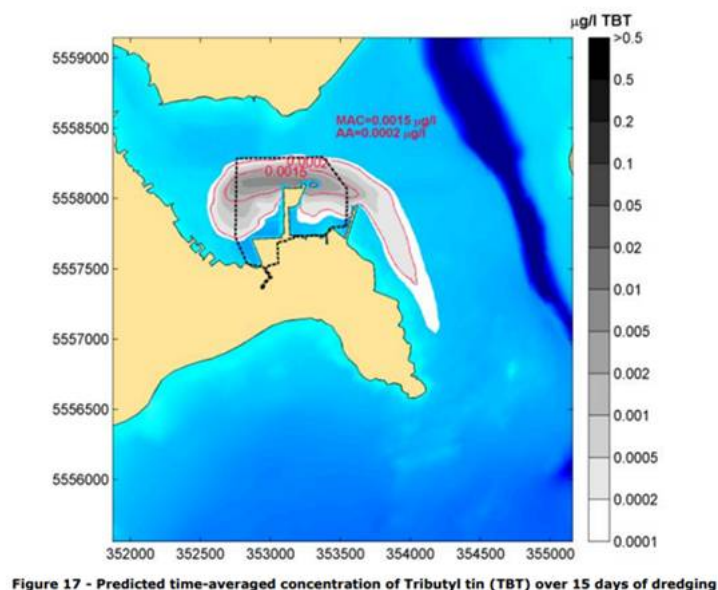
World Class Science for the Marine and Freshwater Environment

Pakefield Road, Lowestoft, Suffolk, NR33 0HT | www.cefas.co.uk | +44 (0) 1502 562244



When reviewing specific contaminants that would be released as part of the proposed dredge activity, TBT is the only contaminant released into the aqueous phase that was modelled to be present in concentrations above EQS standards (Figure 17). Note, the modelling undertaken was for the unmitigated scenario only, with dredging during any tidal condition.

However, as stated in the HRA Report, the inclusion of the tidal mitigation for dredge activities is predicted to halve the concentration of TBT in aqueous phase. The concentration of the predicted 'finger' of aqueous contamination extending southeast of the site boundary would be halved and if remapped would be significantly reduced in extent. Thus, the proposed mitigation also constrains the ZOI in relation to contamination of TBT in the water column to be largely contained within the red line boundary. Cefas have reviewed the ES and the Technical Appendices and were satisfied with the approach taken and conclusions of no significant impacts to benthic features.



The mapped/modelled location of areas that could potentially include highly sensitive live maerl is shown in the map below – the green dotted area. There is no overlay map provided of the extent of TBT concentration vs maerl areas (either for unmitigated scenario, or with the tidal window mitigation in place). It is clear from the figure above, that the 'finger' of aqueous contamination for the unmitigated scenario would extend through this area of live maerl over dead maerl. It is hard to estimate what it would look like if the extent of the area affected were to be halved, but seems likely that there would still be some contamination extending into that polygon defined as 'live maerl over dead maerl'.

Are Cefas comfortable that, given the information provided, it is possible to exclude the potential for significant adverse effect on the live maerl habitat?

World Class Science for the Marine and Freshwater Environment

Pakefield Road, Lowestoft, Suffolk, NR33 0HT | www.cefas.co.uk | +44 (0) 1502 562244



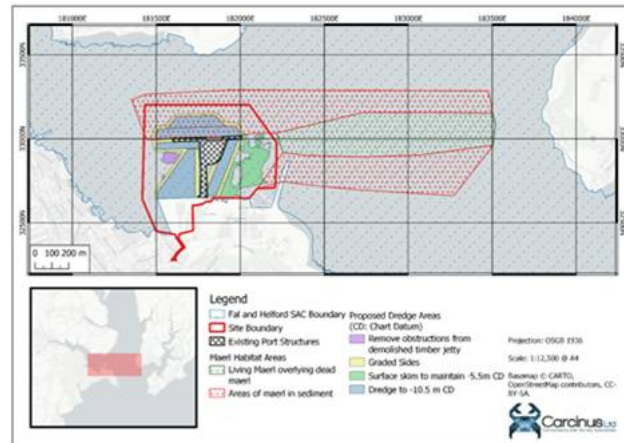


Figure 7 – Proposed Dredge Areas in Relation to Areas of Maerl Habitat, Categorised as Living Maerl overlying Dead Maerl or Areas of Maerl in Sediment

NE would like Cefas to look at the statement in the applicant’s HRA and HRA addendum for the SAC that the level of aqueous contaminants (potentially over live maerl habitat) is not a problem. **Based on the information provided by the applicant, via the MMO, are Cefas content that evidence around levels of contaminants (for example TBT) potentially over areas of live maerl do not contradict a conclusion of no adverse effect on site integrity? (Bearing in mind that live maerl habitat is a highly sensitive benthic sub-feature of the SAC).**

The applicant states that if the concentration of TBT were to be re-mapped, taking the tidal mitigation for dredge activities into account, then the area would be “significantly reduced in extent” although no details are given as to whether this extent would still fall over potential areas of live maerl habitat.

World Class Science for the Marine and Freshwater Environment

Pakefield Road, Lowestoft, Suffolk, NR33 0HT | www.cefas.co.uk | +44 (0) 1502 562244

