Crustacean Deaths Working Group

Report following the investigation into the mass crustacean die-off

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Foreword

The mass mortality event involving sea life along the Northeast coast of England in late 2021 was a significant and distressing incident that has had a profound impact on local communities, the fishing industry, and the marine ecosystem.
This report, compiled by the Crustacean Deaths Working Group, represents a comprehensive investigation into the causes, effects, and responses to this event.

The Working Group, comprising representatives from 5 Northeast councils, has worked diligently to gather evidence, analyse data, and consult with experts from government departments, academia and environmental charities to understand the multifaceted nature of the incident.
Our aim has been to provide clarity on the potential causes, assess the impact on the local environment and economy, and recommend actions to improve management of any future occurrences and support recovery efforts.

Throughout this investigation, we have encountered numerous challenges, including understanding the complexity of the marine environment and its governance arrangements, the limitations of existing data, and engaging productively with official stakeholders.
Despite these obstacles, the collaborative efforts of all involved have yielded valuable insights and highlighted the importance of continued vigilance and proactive measures.

This report outlines the findings of our investigation, including the role of potential contaminants, the possible impact of dredging activities, and the responses from government agencies and academic researchers.
It also includes recommendations for improving environmental monitoring, supporting the fishing industry, and enhancing collaboration among stakeholders.

Further to this, the Working Group took evidence relating to the impact of pollution of fresh waterways and marine life other than crustaceans, which it will forward to relevant bodies for further investigation.

We hope that this report serves as a catalyst for positive change, fostering greater awareness and action to protect our marine environment and support the communities that depend on it.
We extend our gratitude to all those who contributed to this review, including the fishing community, academic researchers, government agencies, and local councils.

Together, we can ensure that the lessons learned from this event lead to a more resilient and sustainable future for our coastal regions.

Cllr Philip Thomson,
Chair – Crustacean Deaths Working Group
Redcar & Cleveland Borough Council

Cllr Rachel Creevy
Vice-Chair – Crustacean Deaths Working Group
Hartlepool Borough Council

Acknowledgements

The Working Group would like to thank the following for their contribution to the review:

- Mr Stan Rennie, North East Fishing Collective
- Mr Paul Widdowfield, North East Fishing Collective
- Dr Gary Caldwell, Senior Lecturer in Applied Marine Biology, School of Natural & Environmental Sciences, Newcastle University
- Mr David McCandless, Chief Officer, NEIFCA
- Dr Ralf Bublitz, Environmental & Scientific Manager, NEIFCA
- Dr Simon Gibbon, Honorary Professor Department of Materials, University of Manchester
- Professor David Roberts, Department of Geography, University of Durham
- Mr Jerry Hopkinson, Executive Chairman, PD Ports
- Mr Paul Brooks, Harbour Master, PD Ports
- Mr D McCreadie, Former Lecturer in Marine Biology and Oceanography
- Professor Alistair Boxall, Department of Environment & Geography, University of York
- Professor Mike Elliot, Emeritus Professor of Estuarine & Coastal Sciences,
- University of Hull
- Ms Anna Turley MP for Redcar
- Mr Andy McDonald, MP for Middlesbrough & Thornaby East
- Mr Jonathan Brash, MP for Hartlepool
- Mr Chris McDonald, MP for Stockton North
- Ms Lola McEvoy, MP for Darlington
- Mr Luke Myer, MP for Middlesbrough South & East Cleveland
  (See **Appendices 1 & 2)**

Working Group Membership

Membership of the Crustacean Deaths Working Group (to May 2023) was as follows:

Councillor Philip Thomson, Chair	(Redcar & Cleveland Borough Council)
Councillor Rachel Creevy, Vice-Chair	(Hartlepool Borough Council)
Councillor Barlow	(Stockton Borough Council)
Councillor Branson	(Middlesbrough Borough Council)
Councillor Cawley	(Redcar & Cleveland Borough Council)
Councillor Cook	(Hartlepool Borough Council)
Councillor Cowie	(Hartlepool Borough Council)
Councillor Hellaoui	(Middlesbrough Borough Council)
Councillor Holyoake	(Redcar and Cleveland Borough Council)
Councillor Kay	(Redcar and Cleveland Borough Council)
Councillor Saunders	(Middlesbrough Borough Council)
Councillor Young	(Hartlepool Borough Council)

Membership of the Crustacean Deaths Working Group (From July 2023) was as follows:

Councillor Philip Thomson, Chair	(Redcar & Cleveland Borough Council)
Councillor Rachel Creevy, Vice-Chair	(Hartlepool Borough Council)
Councillor Bastiman	(North Yorkshire Council)
Councilor Branson	(Middlesbrough Borough Council)
Councillor Cawley	(Redcar & Cleveland Borough Council)
Councillor Chance	(North Yorkshire Council)
Councillor Earl	(Redcar & Cleveland Borough Council)
Councillor Eglington	(Stockton Borough Council)
Councillor Feeney	(Hartlepool Borough Council)
Councillor Gavigan	(Middlesbrough Borough Council)
Councillor Les	(North Yorkshire Council)
Councillor McCue	(Redcar & Cleveland Borough Council)

The following Link Officers were also involved in the review process:

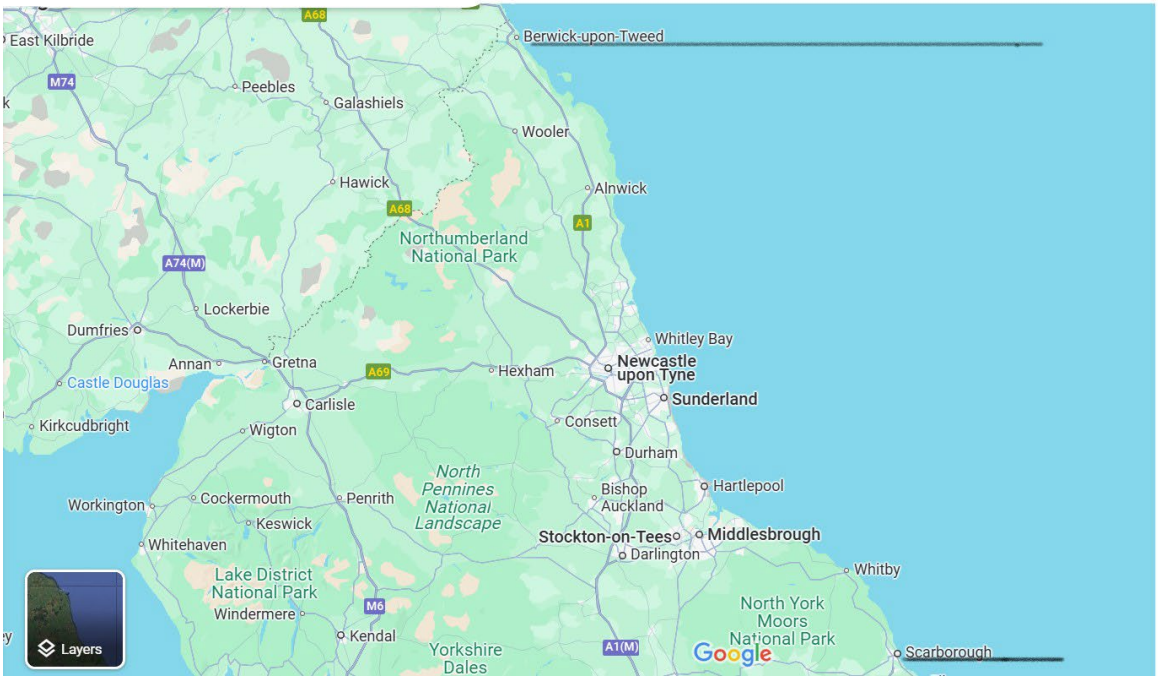
B Carr	(Middlesbrough Council)
H Clear Hill	(North Yorkshire Council)
S Connolly	(Redar & Cleveland Borough Council)
E Grunert	(Redcar & Cleveland Borough Council)
C Leng	(Redcar & Cleveland Borough Council)
R Saunders-Thompson	(Stockton Borough Council)
J Stevens	(Hartlepool Council)

Background

Introduction

1.1 In early October 2021, a large number of dead and dying crustaceans washed-up in various locations along the coastline of Northeast England, extending from Spittal Beach in the north to Scarbrough in the South (see **Figure 1**). Further die-off events and 'wash-ups' have been reported by fishers and members of the public into 2022 and 2023, and an updated log of the events is managed and held by the North Eastern Inshore Fisheries and Conservation Authority (NEIFCA)

Figure 1



1.2 Wash-ups, observed primarily in 2021, but also sporadically since the initial incident, have primarily involved crustaceans, which have been reported to have displayed unusual twitching and lethargic behaviours, although other species have been involved, including a large number of octopuses on one occasion[1].

National Response

1.3 A multi-agency investigation involving the Environment Agency (EA), the Centre for Environment, Fisheries and Aquaculture Science (Cefas), North Eastern Inshore Fisheries and Conservation Authority (NEIFCA), the Marine Management Organisation (MMO), the Food Standards Agency (FSA) and the UK Health Security Agency (UKHSA) was initiated following

[1] Independent Expert Assessment of Unusual Crustacean Mortality in the North-east of England in 2021 and 2022 (Defra Commissioned) – January 2023, p.6

the event, and an initial Stakeholder Briefing published on 26 November 2021[2].

1.4 The results of the investigation were published by Defra Group[3] in May 2022. A number of potential causes had been considered, including chemical contamination, licensed dredging activities and those relating to offshore wind farms and aquatic animal disease. It was concluded that the presence of harmful algal blooms (HAB) in the area at the time of the event was significant, but no single causative factor was identified.

1.5 In January 2022, a Marine Pollution Consultant was commissioned by the Whitby Commercial Fishing Association (WCFA) to review relevant environmental data made available by Defra agencies in response to a number of Freedom on Information requests. The data reviewed included chemical analyses of sea water, crab flesh and sediment.

1.6 The WCFA report, published on 31 January 2022, concluded that the HAB hypothesis was not supported by significant empirical evidence, and that high concentrations of the chemical pyridine found in the flesh of crustaceans from the die-off zone was the most likely cause of the mortality event.

1.7 Research undertaken by Newcastle University, commissioned by the North East Fishing Collective (NEFC), investigated the impact of the chemical pyridine on crustaceans. Preliminary findings indicated that the same behaviours were seen within the laboratory as had been reported by fishermen and members of the public who had come across dying crustaceans. Findings from the research were shared with the Environment, Farming and Rural Affairs (EFRA) Select Committee and were submitted for peer review and publication via academic channels.

1.8 As a result of significant campaigning, EFRA Select Committee held a hearing in October 2022, which was attended by expert witnesses. Amongst a number of conclusions, it was recommended that the Government Chief Scientific Advisor should appoint an expert independent scientific panel to review the evidence for the theories outlined above[4].

1.9 The resulting Crustacean Mortality Expert Panel (CMEP), which was established in December 2022 with experts from a number of academic and scientific organisations, was tasked with assessing the data to ascertain possible causes for the event. The following four causative factors were considered, along with the combination effects of multiple stressors:

a. Disease pathology

[2] Stakeholder Briefing, Crab and lobster deaths along the North East coast - 26 November 2021
[3] Joint agency investigation into Teesside and Yorkshire Coast Crab and Lobster mortalities (Defra) – May 2022
[4] EFRA – Sealife Mortality off the North East Coast (EFRA Select Committee) - Nov 2022

b. Harmful algal bloom
c. Chemical toxicity
d. Dredging

1.10 The panel was unable to identify a single, clear cause for the mortality event, although it was suggested that a novel pathogen was the most likely cause given the geographical spread and sustained time period, the unusual behaviours of affected crabs and the fact that mortality was apparent in only a few species[5].

1.11 The possibility that toxins, and specifically pyridine, were involved in the event was ruled out by CMEP owing to the lack of sufficient toxic material identified in the samples assessed, the wide geographical spread and long duration of the event. This pyridine hypothesis was further challenged in a Royal Society of Chemistry article entitled '*Why there is no evidence that Pyridine killed the English crabs*.'[6]

1.12 The EFRA Committee responded to the report with a request that Cefas undertake further studies in regard to the novel pathogen theory and asked that Government agencies continue to monitor the area and remain on stand-by to respond swiftly in the event of a recurrence of the die-offs. It was also suggested that steps to support the rebuilding of the local potting and fishing communities would help Defra to repair relations.[7]

1.13 On 7 February 2023, the Secretary of State responded to the EFRA Committee to advise that no further analysis would be undertaken by Government, and no further financial support for fishing communities was planned.[8]

1.14 On 3 November 2023, Cefas published a non-peer reviewed paper[9] detailing the development of a quantitative method for determination of pyridine in crustacean tissues, which was used to re-analyse stored samples taken at the time of the die-offs. The report concludes that it is 'unlikely that pyridine, as a single entity, was the cause of the crab and lobster mortalities during autumn 2021.'

1.15 On 5 August 2024, a report was published in Environmental Sciences: Advances, that challenged the hypothesis that pyridine was responsible for the mortality event. It further detailed how mistrust in government agency data, partisan politics and overconfidence in media research which had not been subject to peer review and appropriate scientific scrutiny, played a role[10].

[5] Ibid
[6] A. T. Ford, M.Fitzsimons and C. Halsall*, Environ. Sci.: Adv.*, 2024, DOI: 10.1039/D4VA00006D.
[7] EFRA Correspondence - Report of the independent Crustacean Mortality Expert Panel
[8] Defra Correspondence - Report of the independent Crustacean Mortality Expert Panel
[9] Cefas - Development, validation, and application of a fully quantitative method for the determination of pyridine in crustacean tissues (and application of the same method in sediments) 25.09.23
[10] Why there is no evidence that pyridine killed the English crabs - Environmental Science: Advances (RSC Publishing)

Local Response

1.16 Due to the significant economic and environmental impact of the event, several Northeast Councils, being dissatisfied with the response of Government and the fact that the investigation was concluded before a cause was definitively identified, agreed motions calling for further action. The motions are outlined below.

1.17 **Middlesbrough Borough Council – Council Motion, 6 July 2022**

Toxic chemicals in the River Tees

In recent weeks, there has been a growing concern over the effects of toxic chemicals in the Tees Estuary, which have had a significant impact on crab and lobster numbers.

There has been some dispute between DEFRA and independent experts in respect of this.

In view of the uncertainty over the cause and the potential impact on the marine environment, we ask the council to agree to:

1. Write a letter to the TVCA within 28 days to request that they seek to clarify the existing and conflicting scientific research through the commissioning of a new independent report.
2. Write to the other Councils of the TVCA within 28 days to urge them to work together on addressing these environmental issues through, for example, sending a joint letter to the TVCA expressing our concerns and asking for next steps.
3. To recommend that the Economic Development, Environment and Infrastructure Scrutiny Panel gives consideration to adding this environmental issue to the scrutiny topics in the work programme.

1.18 **Redcar and Cleveland Borough Council, Council Motion, 14 July 2022**

MOVED by Councillor Carl Quartermain and duly seconded by Councillor Philip Thomson:-

“Redcar & Cleveland Council believes that much more needs to be done to investigate the reasons for the mass death of sea creatures found on our coast in the latter part of 2021 and more recently.

Redcar & Cleveland Council also believes much more support should be given to our local fishing industry which has been adversely affected by the consequent radical reduction in fishing stock.

Since October last year dead crustaceans have been found on our beaches along with, the possibly associated, deaths of seal pups and porpoises.

The report of the Government Joint agency investigation into Teesside and Yorkshire Coast Crab and Lobster mortalities was published in May 2022 and concluded that as healthy crabs and lobsters were now being found the investigation was closed.

Redcar & Cleveland Council believes:

a) The decision to close the investigation was premature and demands that the Government re-open it as a matter of urgency to consider why the crustacean deaths continue.

b) A pertinent local investigation also be instituted as a matter of urgency, making every reasonable effort to understand and address this devastating incident.

c) That the Government proposal to support to the local fishing industry via the existing Seafood Fund is inadequate and calls on them to provide proper compensation for the lost income and livelihoods caused by this crisis."

d) to provide proper compensation for the lost income and livelihoods caused by this crisis.

e) That the possibility of creating a coastal hatchery to replenish crustacean stocks should be investigated."

1.19 **Hartlepool Borough Council – Council Motion, 14 July 2022**

Our fishing industry has been decimated since the Autumn of 2021 where thousands of deceased and dying crustaceans were washed up on the beaches in our region. Our fishermen and women have been unable to justify the costs of fuel to put to sea, and several of Hartlepool's fishing fleet have been advertised for sale.

It is unlikely that the area will recover from this environmental disaster in the short term.

We believe that the reports by Defra were flawed, given the independently commissioned report concluded so differently from the official reports.

The timing of this, with works beginning on piling around the Teesworks site, demolition works on site, and with dredging in and around the River Tees is really concerning and residents, fishermen and politicians and people from Whitby to Hartlepool, are worried and need reassurance as to what really happened, and action to resolve it.

Council therefore resolves to:

- Request the appropriate bodies (which should include EA, Cefas, NEIFCA, MMO, FSA and the UK Health Security Agency (UKHSA), Teesworks and the TVCA), attend an appropriate public meeting, with councillors and interested members of the public present, to explain the discrepancies, and explain what action or recommendations can, or have been taken to support the future of our fishing industry.

- Refer to Economic Growth and Regeneration Committee to explore how to regenerate this vital and traditional industry in our town.

- Write to the Minister of State for the Department for Environment Food and Rural Affairs, to seek an independent investigation into this environmental and economic disaster"

Signed: Councillors Harrison, Brash, Allen, Boddy, Clayton, Creevy, Feeney, Hall, Hargreaves, Howson, Morley and Prince.

1.20 **Stockton Borough Council – Executive Scrutiny Committee, 15 November 2022**

Scrutiny of Crustacean Deaths

Officers presented an update on the proposed joint working arrangement with Redcar & Cleveland Borough Council in relation to their motion concerning crustacean deaths off the Northeast Coast. Redcar & Cleveland's Adults, Wellbeing and Heath Scrutiny and Improvement Committee had proposed an informal joint arrangement, whereby political and officer representatives from each Council would meet to provide an opportunity to share collective insight and evidence and pool resources in terms of taking the issue forward. The progress of the joint arrangement could then be fed back into each Councils own formal governance arrangements. It was proposed that the Chair of the Place Select Committee would be the most appropriate Member to represent Stockton-on-Tees Borough Council in any joint arrangement.
Members voted in favour of the recommendation outlined in the report.
AGREED that –
1. The report be noted
2. That the Chair of the Place Select Committee (with substitute permitted) be appointed to the informal joint scrutiny arrangement looking into crustacean deaths off the Northeast Coast.

1.21 **North Yorkshire Council – Council Motion 17 May 2023**

This Council notes with concern:

1. The unexplained die-offs and wash-ups of crabs, lobsters, prawns, clams, scallops, mussels and some species of fish along the North Yorkshire and Cleveland coast since October 2021 and the long time that it could take to rebuild marine life and crustacean stocks.
2. The significant reduction in the catches of edible crabs and other crustaceans, as reported by the Northeast fishing communities and the impact that this has had on local people and businesses and on the wider local economy.
3. The circulation of unsubstantiated claims about dredging to the detriment of the local community.
4. The latest Independent Expert Assessment of Unusual Crustacean Mortality in the North-east of England in 2021 and 2022, which was compiled by a panel of independent experts convened by Defra's Chief Scientific Adviser and dated 17 January 2023, being inconclusive as to the cause of the die-offs.

Therefore, this Council calls on the Secretary of State for Environment, Food and Rural Affairs to:

1. Support the local economy and the local community at this difficult time, help in securing financial compensations for the fishing industry as a result of the loss in earnings incurred, and assist in arranging the necessary investment needed to rebuild marine life and crustacean stocks in the affected areas.
2. Create and fund a dedicated task force of local and national stakeholders and experts to continually monitor and investigate the situation and its impact on the local economy and the local community, and to recommend and oversee the implementation of remedial action. Such a task force would include representatives from North Yorkshire Council and other local and combined authorities.
3. Reconvene the panel of independent experts immediately after new evidence emerges.
4. Use existing national tourism bodies to promote the North Yorkshire and Cleveland coast.
5. Convene a Public Inquiry with powers to compel testimony and the release of all forms of evidence in order to address public concern about this issue.

Furthermore, North Yorkshire Council will:

1. Work with and support other local and combined authorities in dealing with this unprecedented incident.
2. Support North Yorkshire Council Leader's request to attend and engage with the Dead Crustaceans Collaborative Working Group that is managed by Redcar and Cleveland Borough Council.
3. Continue to use existing regional tourism bodies to promote the North Yorkshire and Cleveland coast

Proposer – Cllr George Jabbour

Seconder – Cllr Paul Haslam

1.22 On 22 July 2022, the Chair of the Adults & Communities Scrutiny & Improvement Committee at Redcar and Cleveland Borough Council invited Defra to attend a meeting to explain the situation. Defra declined to attend but provided a written response – see **Appendix 3**.

1.23 The Leader of the Redcar & Cleveland Borough Council wrote to the Secretary of State in September 2022 to express dissatisfaction with Government's response to the event, and a reply was received in October 2022 to advise that, although the initial investigation was closed, the scientific community was undertaking ongoing analysis of data. See **Appendix 4.**

1.24 In mid-October 2022, Redcar & Cleveland Borough Council was invited to submit evidence to the hearing of the EFRA Committee into the event. The Committee Chair (Scarborough and Whitby MP, Sir Robert Goodwill), advised that:

> "We need to establish what is causing these disturbing events. There have been conflicting theories about the reason for the deaths of the crabs and lobsters. The Government has attributed the cause to a marine 'algal bloom', while others have argued that the phenomenon is caused by pollution linked to dredging. The session will look at the different explanations for the cause of the deaths, what can be done to prevent a recurrence and its impact on local communities. They have implications for coastal communities in North Yorkshire and Teesside – not least, of course, those engaged in or dependent on the fishing industry. But there could also be wider environmental and economic implications with lessons to be learned."

1.25 Evidence submitted by the Redcar and Cleveland Borough Council to the EFRA Select Committee hearing is attached at **Appendix 5**.

1.26 On 24 January 2023, the Chair of Hartlepool Borough Council wrote to the Secretary of State and the Chair of the EFRA Committee supporting the outcomes of the Select Committee investigation and requesting that the recommendations are supported. A response was received from the Minister for Food, Farming and Fisheries on 16 March 2023 outlining the Government's position. See **Appendices 6 & 7.**

Methodology

1.27 Redcar & Cleveland Borough Council contacted all Tees Valley Local Authorities to establish their desire to work together and their willingness to participate in a joint scrutiny arrangement. As a result, the Crustacean Deaths Collaborative Working Group was formed in November 2022, with representation from Hartlepool, Middlesbrough, Redcar and Cleveland and Stockton Borough Councils. Representatives from North Yorkshire Council joined the Working Group in July 2023 in view of the impact the events have had along to the coast to Scarborough.

1.28 At an initial meeting in January 2023, Members undertook an initial scoping exercise to determine the following:

- The objectives of the review
- Key questions/evidence
- Identification of participants
- A timescale for the review
- Officer Support

1.29 A Terms of Reference for the review were agreed on the basis of this exercise and are attached at **Appendix 8.**

1.30 The following organisations / witnesses were invited to provide evidence to the Working Group over the course of the investigation:

- **Defra**
- **Environment Agency**
- **Marine Management Organisation** - provided a written response, see **Section 5**)
- **North-East Fishing Collective**
- **North Eastern Inshore Fisheries Conservation Association**
- **PD Ports**
- **Sir Robert Goodwill, Chair - EFRA Select Committee** (Declined to attend a meeting)
- **Dr Gary Caldwell, Newcastle University**
- **Dr Simon Gibbon, The University of Manchester**
- **Professor David Roberts, Durham University**
- **Tees Valley Mayor** (No response to invitation)
- **Health and Safety Director, Teesworks** (Declined to attend a meeting)
- **Sir Simon Clarke MP, Middlesbrough South and East Cleveland** (No response to invitation)
- **Jacob Young MP, Redcar** (Declined to attend a meeting)
- **Surfers Against Sewage** (attendance delayed beyond the timescale of the review)

Meeting Dates

1.31 Meetings of the Crustacean Deaths Working Group took place on the following dates:

6 January 2023 – to agree a Terms of Reference and take background information.
3 February 2023 – to consider the Joint agency investigation into Teesside and Yorkshire Coast Crab and Lobster mortalities and to take evidence from the North East Fishing Collective.
3 March 2023 – to take evidence from Dr Gary Caldwell.
31 March 2023 - to take evidence from NEIFCA representatives.
16 June 2023 – interim evidence review following local elections.

1 September 2023 – to take evidence from Dr Simon Gibbon and NEIFCA representatives.
13 October 2023 - to take evidence from PD Ports.
3 November 2023 – to take evidence from Dr G Caldwell and Professor D Roberts.
7 December 2023 - to take evidence from the North East Fishing Collective.
8 January 2024 – Visit to Whitby Lobster Hatchery
10 January 2024 – PD Ports River Tees Tour
12 January 2024 – to take evidence from Mr D McCreadie, Former Senior Lecturer in Marine Biology and Oceanography
January to June 2024 - Timescales for proceedings agreed to undertake a review after 6 months of the initial meeting date, in January 2024. This was extended to accommodate a break in the work due to local elections in May 2024, Tees Valley Mayoral elections and a General Election which took place in May and July 2024 respectively, with both events causing further delay to progress due to pre-election period restrictions on publicity. The Working Group initially agreed to publish findings and recommendations in March 2024, but agreed to continue the work for a further 6-month period to allow government agencies further opportunity to engage and in order that peer-review work on relevant reports is completed.
June to November 2024 -The Group agreed to complete its review in November 2024, following a number of meetings to receive evidence from community organisations and academic professionals.

Summary of main background documents

1.32 The following documents were made available to Members in order to inform the review:

- Joint Agency Investigation into Teesside and Yorkshire Coast Crab and Lobster Mortalities, Defra (05.22)
- Mass Mortality of marine species along N.E coast of England: Briefing Paper to Whitby Commercial Fishing Association (8 March 2022)
- EFRA Committee – Sealife Mortality off the North-East Coast (1.11.22)
- Defra Response to EFRA consideration of Sealife Mortality off the North-East Coast (15.11.22)
- Independent Expert Assessment of Unusual Crustacean Mortality in the North-East of England in 2021 and 2022 (17.01.23)
- North-eastern IFCA Tees and North Yorkshire Stock Monitoring Report (07.23)
- Dead crustaceans and marine life off the Northeast coast: cause, impact and support for our fisherfolk (produced by the office of Jill Mortimer, MP for Hartlepool).
- Development, validation and application of a fully quantitative method for the determination of pyridine in crustacean tissues (and application of the same methods in sediments), Cefas (25.09.23)
- Stakeholder Briefing: Crab and lobster deaths along the North East coast 26 November 2021

- Crab and lobster deaths along the North East coast – briefing document February 2022
- Crab and lobster deaths along the North East coast – briefing document March 2022
- Relevant Correspondence, including:
    - Sir Robert Goodwill Letter re EFRA findings (**Appendix 9**)
    - Secretary of State response to EFRA findings (**Appendix 10**)
    - Minister response regarding CMEP creation (**Appendix 11**)
    - Sir Robert Goodwill response regarding CMEP (**Appendix 12**)
    - Minister response regrading CMEP findings (**Appendix 13**)

North East Fishing Collective

Evidence heard at a meeting of the Working Group held on 3 February 2023.

The following information was relayed by Mr Stan Rennie and Mr Paul Widdowfield of the North East Fishing Collective, a co-operative of commercial fishing associations, angling societies and stakeholders from along the North-East coast.

2.1 Both representatives have had many years' experience of working in the commercial fishing industry, and long family histories of commercial fishing and employing local people to work in the industry.

2.2 During the final week of September 2021, the discovery of dead and 'twitching' crabs and lobsters was noted amongst the fishing community, alongside a massive reduction in catch, which continued into the first week of October. This was immediately followed by the wash-up of dead and dying, twitching crustaceans. Die-offs have been ongoing since this date.

2.3 The North East Fishing Collective was created in December 2021 in response to the sea life mortality event, with significant support received.

2.4 Both representatives advised that the event had impacted extremely negatively on the mental health and livelihoods of members of the fishing community, with it being described as 'a fight for survival for our ecosystem, community and tourism.'

2.5 In the opinion of the local fishing community, dredges are 'badly managed' with short falls in the process for awarding a dredging licence.

2.6 The fishing community had experienced a lack of response from the Environment Agency and £30,000 had been raised in order to commission an investigation into the event by an independent marine biologist. The report concluded that dredging had caused resuspension of polluted sediments into the marine environment, particularly pyridine, which was linked to the mass mortalities in the initial work undertaken by DEFRA and reported on by Tim Deere-Jones.

2.7 NEFC advised that, of recent sampling taken over a 3-mile radius, only 2 showed no evidence of pyridine. The Working Group was unable to validate this information.

2.8 Discussing the distances impacted by the event, Mr Rennie advised that die-offs had been experienced along the North-east coast from Seaham to Whitby and advised that he would not put anything caught in the die-off zone into the food chain.

2.9 Lobster catch was reported to be down by roughly 80%, even outside of the die-off zone, but the fishing community do not believe that the current marine environment is safe to re-stock.

2.10 The North-East Fishing Collective are keen to see comprehensive, deep sampling and testing of the Tees bed.

Evidence heard at a meeting of the Working Group held on 7 November 2023.

Stan Rennie and Paul Widdowfield provided an update on the work of the North East Fishing Collective (NEFC).

2.11 The River Tees was at the forefront of the Industrial Revolution, and is highly polluted with a vast chemical industry around its banks. It has left a legacy of pollution and byproducts from industry, including pyridine, coal tar products, weedkiller, herbicides and pesticides to name a few.

2.12 Discussions with previous employees suggest that most byproducts were disposed of in the river. Potentially 5,000 tonnes of untreated chemical waste a day were dumped in the river over 3 decades between the 1950's and 1970's [11], with many industries running a pipeline outlet to the river for disposal of byproducts. This is in addition to sewage release over the centuries.

2.13 Much of the toxic sediment that has built up is trapped in and under the sediments that make up the river bottom and banks. The NEFC believe that 'locked in' materials/pollutants were dredged from the riverbed and banks and released into the river, air, SSI wetlands and dumped at sea. This material should not have been dredged in such volume and disposed of at sea, as has been the case over the previous few years.

2.14 The NEFC have never suggested that the die off was caused by only one chemical, but by a toxic cocktail in the sediment. It is envisaged that the final core results will evidence this in upcoming research results. Scientific investigations have shown that pyridine alone, found in high levels of the tissue of dead shellfish by government agencies, is deadly in very minute amounts to shellfish (via the receptors in their legs). There are potentially many more deadly substances in the sediment.

2.15 Furthermore, the recently established testing procedure for pyridine shows that the amounts present in old tissue is still potentially high enough to cause the die offs.

[11] https://www.thenorthernecho.co.uk/news/7103228.poisonous-river-literally-rose-dead/

North East Inshore Fisheries Conservation Authority (NEIFCA) Stock /Landings Report, September 2022

2.16 The latest report was more welcomed by the NEFC, as it did not contain super crabber landings into Hartlepool, which were caught from outside the die-off zone and bolstered landings data, giving a false impression that overall, catches weren't as badly reduced as they were for the local fleet.

2.17 NEIFCA have admitted that there is insufficient data available to give a true picture of the stock available in or around the die-off zone, either before, or after the mass mortality event. Further to this there is no comparative information to give a geographical break in terms of the 3/6 mile demarcation areas.

2.18 As a Conservation Agency, NEIFCA should have led from the front to investigate cause of the die-offs, but were at the rear, led by inadequate government agency investigations. None of the agencies involved in the investigations appear to have either the will or funding to find the true cause of the die-off episodes, and fishers were told to find their own evidence. The Northeast Fishers, public and marine environment deserve better from the government.

2.19 NEIFCA have advised that plans were now in place for a fast response in the event of future wash-ups of dead sea life. The experience of NEFC and members of the public suggests that Cefas does not respond in a timely manner, as promised. There are instances where the public have cleared dead and dying sea life from the beaches, before Cefas have arrived. Members of the public have been asked for samples of the sea life by Cefas officers.

PD Ports Evidence

2.20 In their presentation to the Working Group, PD Ports advised that the legislative protocol on testing periods cannot be altered, and to do so would be frowned upon by the dredge licence provider and British Ports. It was, however, mentioned that the statutory 3-yearly sample test date was brought forward by a year to 2022, immediately following the Orca dredge. NEFC have asked that the following be noted:

- Was the 3-yearly sampling regime brought forward to 2022 in order to ensure that toxic material had not had time to make its way up the river following the Orca dredge?
- Was the 3-yearly sampling regime brought forward to a date prior to the Freeport dredge, in knowledge that the dredge might contaminate the area with toxic sediment?
- Was the Freeport dredge area known to be part of the recognised and mapped industrial 'fall-out' areas. Was it part of the dock reportedly containing toxic sediment and filled in?

- Why was there no mention of the Landslip into the Channel, as stated at the EFRA Committee?

- PD Ports advised that dredged material contains mostly sand washed in with the tides. Evidence collected by NEFC shows new surface contamination, including black stinking sediment.

2.21 NEFC expressed deep concerns that samples taken for testing prior to capital dredges are not taken by an independent company, and that sampling and testing generally is not being done according to protocol. Samples for the recent Freeport capital dredge, according to eyewitnesses, were taken by the company contracted to perform the construction work and only taken at distances of 100m. The samples taken were 'surface scrapings' and not taken to the depth of the intended dredge.

2.22 In the opinion of the North East Fishing Collective, the sampling regime is insufficient in terms or frequency and should be undertaken with every dredge rather than triennially.

Fishing Community - Catch Updates (written evidence provided by NEFC on 07.12.23)

After the Migratory summer fishery, we're back to the low local stocks. We still are seeing die off's- Paul and I recorded very small green crabs- summer stock, no doubt seeded from the Farnes, dying in Victoria Dock about 3 weeks ago, reported it to NEIFCA and EA, with footage- all on their backs- twitching, dying or dead.

Just like the footage we have at 1 year earlier of lobsters in the Dock dying the same way. We get sparks of life- they seem to wash up dead and dying before they grow very big.

There has been no evidence of v-notched lobsters and no berried hens, which suggests that the residential stock has gone.

S Rennie & P Widdowfield

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1. *There has been a poor start to the winter prawn fishery, catches through October were low, but there was some Squid and Fish to make up for some of it but the grounds were still saturated with juvenile Haddocks.*

Storm Babet and other recent bad weather seems to have put paid to the Haddocks and now the prawns are out with some good catches across the fleet just the usual battle against bad weather to get days in. One thing is still prevalent there is nothing inside of 6nm, this could be down to the amount of rain coming down the river as the sea looks brackish out to about 5nm and there's been plenty of trees and crap out there.

A fisher has had a couple of goes in the Mudhole for nothing which given how long it's been left alone/little fished is not a good sign. The sample of Prawns we are catching out over are very good in size with very little small amongst it although the other boats might be seeing different to me as I fish a 100mm net not a 70/80mm net.

It may be the case that the larger prawns we fish for in the inshore grounds have relocated out over like we saw after the first die off, either way you'll not see anyone fishing inside the Dumps/back of the Slag and the Mudhole is still just a waste of time. A lot more fuel, higher costs, risks fishing away from what was out traditional grounds

2. *In the Die Off zone, we're having to haul and fish a lot more gear than we have ever worked, with the catch return about 70% overall where they should be. Starting to see a few signs of very small brown crabs probably from outside the area, so hopefully in a couple of years, things might start to get back to somewhere that they should be, as long as there isn't any more poison let out of the river.*

3. *160 Pots/4 fleets/40 a fleet in Longscar for a 2 day soak, 5 lobsters. No crabs just starfish. Waste of time. Further Off, 1 or 2 crab a fleet and the same in lobsters again a waste of time. Having to work a lot of gear to get a lot less than the minimum wage.*

Hartlepool Fishers

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1. *I fished May to present with 120 pots. Brown crabs were non-existent inside 2 mile and just a few outside 2 mile. No velvets anywhere. Lobster catch was okay surprisingly.*
Close in, some pots were completely smothered in brittlestars (I have videos/pics to prove it), starfish completely covered the scar tops, replacing the kelp which is also non existent. Some signs of very small velvets and brown crab (20-30mm) Sep-Oct.
These findings can be taken as from R&TFA as a whole (15 vessels working this year).

2. *I fish from Redcar were life is returning?, there are large numbers of small Velvet crabs and a smaller amount of small edible crabs there are large amounts of shrimp on the pots. still not many sellable edible crabs but lots of juvenile Lobsters and a decent amount of sized lobsters. there is still a lot of starfish and sea urchins on the ground.*

Redcar Fishers

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1. *James Cole, chair Whitby commercial fishing assc , vice chair anglo-scottish fpo . This year has seen a drop in crab landings by 50 percent on last years figures that's at port level and fpo recorded level , lobster catches in the*

Whitby to Hartlepool area are down 25 percent on last year . Velvet populations inshore are very slow to recover after the mass die-off, brown crab on the inshore grounds from Whitby to Hartlepool have been poor with the only showing of crab 6miles out from Whitby, an abundance of starfish and small whelks on the grounds (which are scavengers),we have lost 6 members of our assc this year that have been forced to sell up a trend that our industry cannot afford . Yours sincerely James

2. *Regarding the current state of crab and lobster stocks after the dredging incidents and the long lasting die off zones.*
The last 3 months I have started to see a new growth of small velvet crab the size of a 10p piece at the most Southern end of the gear Robin Hoods Bay, but as you get further north than that there are less and less of them, lots of little whelks.
4 mile off that South end more bigger velvets. There is definitely a wave of poison that killed everything in its path. It will recover but how long it would take to get back to normal- God only knows.

Whitby Fishers

In Summary

2.23 Fishers believe that their vast knowledge and experience of the marine environment was ignored by government agencies, who lacked serious commitment to a proper investigation and have little knowledge of the local envrionment. The EFRA Committee findings and Government Panel Investigation reports were meaningless, with a lack of consultation with the fishing community and disregard for all available evidence.

2.24 The NEFC believe that they, along with the independently commissioned scientists, have been a target of unprofessional attacks and attempts to discredit them. Photographic evidence provided by the NEFC was also used errantly to prove the algal bloom theory.

2.25 A legal challenge to the government in relation to the algae theory was taken off course a matter of days before the deadline to reply to the NEFC Legal Team by the expert investigation panel, which agreed that a novel pathogen was potentially the cause.

2.26 NEFC believe that, if a novel pathogen had been considered a serious possibility, the government and agencies would have been forced to close the Northeast Sea Lanes, Ports and Shipping.

2.27 The industry maintains that compensation has never been an issue, merely a desire to see the health of the marine ecosystem return. Lots of boats have been lost to the local ports due to the die-offs, and owners, skippers and crew have lost investments, lifeplans, jobs, their futures and their way to provide for their families.

2.28 NEFC believes that the government should recognise the struggles of the fishing communities and look at compensation across the board, with

equal payments irrespective of turnover. Crew compensation and boat decommissioning should be offered to NEFC Members who have and are still being affected, which include the small number of NEFC members prawning close to the Die Off Zone, and the full potting fleet who have no choice but to fish in the die-off zone. This would allow fishers who are struggling, to get out without finding a buyer, or losing investments.

2.29 The NEFC Group, along with the fishing industry, public, coastal communities, beach users, tourists, environmental protection campaigners and Councillors will continue to campaign to force changes to dredging licencing, dumping of toxic material at sea, testing and testing frequencies, and environmental legislation and to hold government agencies to account in the future.

Additional Evidence - 4b Query

2.30 On 8 September 2024, Mr Rennie contacted the Working Group to advise that the following request for information had been received from the MMO:

Reported Change in Stock

We would like your knowledge and expertise to try to understand the reported change in nephrops stocks in 4b.

- *Are you noticing any change or decline in nephrops stocks in 4b?*
- *What factors do you think are contributing to the change in nephrops stocks in 4b?*
- *What can the MMO do to assist you (in regard to a change in nephrops stock)?*

If you can be as specific as possible and send through any photos or videos, this would be really useful!

(Sent to regional fisheries groups by MMO, via email, on 04.09.24)

2.31 Mr Rennie provided the following response in a personal capacity:

Just My view, if it counts for anything:-

The decline in nephrops populations and catches in the local Hartlepool traditional waters in 4b,

Is 100% locally, caused dredging toxic sediment removed from the Tees, from the September 25th, 2021 die off episode, onwards, starting die offs of shellfish within 2 hours of the ORCA dredge beginning.

Joining the other shellfish and lots of marine life forms ecocide, from this dumping at sea onwards.

The local grounds are decimated.

If you view the historical towing tracks of shields boats as well as Hartlepool trawlers, they used to come southwards, fishing from the Tyne, meeting Hartlepool boats fishing local grounds and northwards.

Since the die off date, they only appear to fish north, and the Hartlepool boats mainly have to go north out of the die off zone, or further offshore. The dumps and local grounds lost.

Since 25/9/21 Orca dredge being dumped at sea, on the 3 mile dumps, then *ignoring the concerns of the industry NEFC members of the Freeport dredge being dumped on the 6 mile dumps*

The Hartlepool shellfish fleet, over half gone to the wall and sold up, and the prawn fleet similar, with another 3 boats up for sale now.

Some Fishers increasing effort to try and survive, while watching colleagues lose their fight, and sell up.

The local grounds also now holding very little fish, no feed to hold any there.

The dumping of Toxic Tees sediment appeared to cause the change in the make up of the marine ecosystem, with scavengers taking over, and normal marine creature make up lost.

The affect on reproduction of the few local surviving shellfish, with melted eggs, unseen before the die off dredge sediment was dumped at sea 24/7, and lack of buried shellfish, with no recovery in numbers to this date.

Even the Hartlepool charter boats have had to sell up, with @only 3 remaining, the fishing the worst in living memory.

It doesn't take an expert to identify the relationship between the biggest uk explosions since ww2, taking part in the Tees, the Freeport piling, the dismantling of the steelworks, orca working 24/7 near Dabholme beck outfall and the steelworks settling ponds outlet, and toxic dredging sediment being dumped at sea, to the detriment of the marine environment and the cause of die off, lost grounds and stock and industry decimation.

Die off in over 40/50 miles of coastline and @12 miles offshore from the Teesmouth and the local toxic dumping grounds tidal spread.

The MMO can only help by committing to protecting the environment with better investigations, dredge licence legislation, thorough regular sediment testing and dumping at sea is supposed to be a LAST resort, when they grant licences, it's always the 1st resort.

MMO now have the audacity to ask for industry knowledge and expertise, why they think the stock has declined, yet ignored Industry pleas that dumping River Tees toxic dredge sediment at sea, was killing the marine environment, and decimating the industry, and the orca dredge in September 21 was the catalyst, following the huge explosions and work, leaching toxins into the river.

No real MMO commitment has been made, to prove the die off of stocks, and only changing theories have been put forward by the then government and its agencies, of the die off cause, and theories don't protect the marine stocks!

The MMO hiding behind the theories, and accepting inadequate dredge licence applications without questioning out of date stock assessments and lack of evidence etc that they contain, etc

On the die off episode, that has affected hundreds of square miles of ground, The MMO would not take industry concerns on dumping toxic Tees sediment at sea serious, would not believe the Northeast Fishing Collective industry members knowledge or expertise of working in the waters that are now decimated grounds, so I wonder, is this just another MMO tick exercise, where we will be ignored, before the MMO pass more toxic dredging sediment from the Tees licence applications for removal of toxic Tees sediment, and use the easy option of dumping it at sea, cheapness over environmental protection and Industry survival?

MMO can assist, in the NEFC scientific investigations, that are currently being carried out by commissioned and voluntary scientists and members, into the toxicity of the Tees sediment that is being dumped at sea, nonstop, and its affect on the marine environment and industry, work with them, rather than hide behind unproven ridiculous die off theories, help us to stop the easy option of dumping toxic sediment at sea, and find the way to clean up the marine environment to allow nethrop and all other stocks recovery!

Yours Concerned,

Stan

North East Inshore Fisheries and Conservation Authority (NEIFCA)

Evidence heard at a meeting of the Working Group held on 31 March 2023.

Mr David McCandless and Dr Ralf Bublitz of the North Eastern Inshore Fisheries and Conservation Authority (NEIFCA) attended a meeting of the Working Group to provide an oral presentation.

3.1 IFCAs were established in England in 2011 and have responsibility for sustainable management of inshore fisheries and the marine environment (0- 6 nautical miles). The NEIFCA, which runs from Northeast Lincolnshire to Tyneside, has taken a supportive role over the previous 2 years, often liaising between the statutory authorities (MMO, EA, Cefas) and the fishing communities.

3.2 Funding for the organisation is provided by Defra and the coastal authorities.

3.3 It is the responsibility of the ICFA to assess landing data, although this has been problematic, as there are data gaps and misreporting both locally and nationally. The lack of consistent data has made it hard to assess the full, long-term, impact of the die-offs. Further to this, the methodology for data collection changed during 2019 and was not restored until 2022, which hindered data analysis.

3.4 A detailed log of wash-up events has been maintained, and a well galvanised system has been created to continue this. NEIFCA have also coordinated and chaired research group meetings, met with stakeholders weekly and provided daily feedback to Defra. The event has been a catalyst for better communication between various stakeholders.

3.5 A recent sample collection (via Nephrops trawler) pointed to a low supply. Of samples collected, the flesh is being analysed and more data is required for a fuller picture.

3.6 The 2022 Stock Monitoring Report showed no changes in the population structure, and no twitching or lethargic behaviour in the catch. There were, however, no collections in the peak season as potting trips had to stop from July – December 2022, owing to vessel engine failure. Overall, the findings at the time showed that catch rates were down for Redcar, Hartlepool and Staithes.

3.7 The aims of the second report were to assess only vessels under 10m, to improve the quality of the data, although the following problems were encountered when attempting data analysis:

- Lack of spatial resolution means that it is hard to pinpoint exactly where fishing took place.
- Effort data was not considered reliable enough and was therefore not used.
- Data collected at Scarborough did not differentiate between crab and lobster weights.

3.8 Dr Bublitz advised that it is difficult to do an accurate assessment with the current data, and better spatial resolution and effort data is needed. Using MMO iFish2 data set, and looking at trends, there has been a steep decline in lobster and crab landings since 2021. At a local level the following was noted:

- Staithes – lobster numbers on a downward trend since 2018. Crab landing data was inflated by the inclusion of catch from Redcar.
- Whitby – lobster numbers were on the increase, but crab numbers were slightly down, although there were no significant changes.
- Scarborough – crab and lobster landings both down, although there had been problems with landing declarations.

3.9 In summary, the Group were advised that, overall, edible crab landings are down, and significantly so in Redcar. Numbers have declined generally around the UK, although the reasons for this are unclear. Lobster landings are also in decline.

3.10 NEIFCA representatives reiterated the challenges of accessing data and advised that national fishery statistics are generally poor. The following work will continue locally and nationally:

- A wash up log will continue, as recordings of this type have never been maintained. A national fisheries intelligence database is now used to maintain internal logs. Previously, wash ups (which had occurred with climatic events along the coast of East Yorkshire) had not been recorded. Detailed logs should allow the frequency to be monitored. Where an incident occurs, a scientific team will respond immediately to collect samples.
- Development of better relationships amongst stakeholders is a priority.
- The lack of monitoring of marine health around the UK needs addressing. Dr Bublitz informed the Group that shellfish has never been considered in terms of health, only ever in terms of numbers. This event has focussed minds of the fishing communities on the health and condition of different species.
- Habitat monitoring, potting and video surveys will begin, with the aim of identifying changes to the habitat.
- A local online catch system will go live, as the national system does not provide sufficiently robust data.

Evidence heard at a meeting of the Working Group held on 1 September 2023

Mr David McCandless and Dr Ralf Bublitz of the North Eastern Inshore Fisheries and Conservation Authority attended a meeting of the Working Group to provide a presentation relating to the updated Shellfish Landings Report. The aim of this second report[12] was to present an impartial assessment of landings data for the full year of 2022 and to describe any trends and changes in landings for each port in comparison to previous years.

3.11 Assessment of landing data had continued since publication of the initial report in September 2022, using the MMO iFish2 data set (a collation of landings data from vessels of various lengths).

3.12 Various approaches for analysing catch and effort data to better understand fishing activity and behaviour within inshore waters had been explored. However, due to data deficiencies, it was not possible to use a list of sentinel vessels for each port to narrow down the vessels fishing inshore only. Instead, the approach taken used <10m vessels as a proxy for vessels fishing inshore.

3.13 Across all assessed ports (Bridlington, Scarborough, Whitby, Staithes, Redcar and Hartlepool) there have been clear reductions in landings by <10m vessels for edible crabs in 2022 with declines considerably higher for ports North of Bridlington. Lobster landings have been at their highest for 2022 in Bridlington and Whitby for <10m vessels. For Scarborough lobster landings are broadly in line with 2021 landings. However, landings for lobsters by <10m vessels into Staithes, Redcar and Hartlepool in 2022 are considerably reduced compared to previous years. See **figures 2 and 3.**

Figure 2 – Landing trends (edible crabs)

Table 1: Differences in edible crab landings for under 10m vessel in 2022 for various ports within the NEIFCA district, all ports in the NIFCA and EIFCA district and total UK landings for under 10m vessels compared to 2021 and the average landings between 2016 and 2019. Data for NEIFCA ports derived from iFish2 and includes landings from all ICES rectangles. Data for NIFCA, EIFCA and UK nationally were sourced from the MMO's UK and foreign vessels landings by UK port dataset derived from the iFish database (MMO, 2023).

Port/Region	Landings average 2016 - 2019 (tonnes)	Landings 2021 (tonnes)	Landings 2022 (tonnes)	2022 compared to average 2016 - 2019	2022 compared to 2021
Hartlepool u10	14.64	14.47	8.03	-45.11%▼	-44.49%▼
Redcar u10	8.74	5.01	0.30	-96.62%▼	-94.10%▼
Staithes u10	14.11	14.23	11.74	-16.78%▼	-17.49%▼
Whitby u10	197.39	169.22	104.86	-46.88%▼	-38.03%▼
Scarborough u10	345.90	197.13	182.70	-47.18%▼	-7.32%▼
Bridlington all*	2342.41	2114.27	1946.43	-16.90%▼	-7.94%▼
Bridlington u10	197.02	210.39	179.44	-8.92%▼	-14.71%▼
NEIFCA District u10	1329.82	1079.25	651.26	-51.03%▼	-39.66%▼
NIFCA District u10	996.38	791.47	744.75	-25.25%▼	-5.90%▼
EIFCA District u10	751.90	687.02	384.10	-48.92%▼	-44.09%▼
UK u10	9769.90	6339.28	5297.66	-45.78%▼	-16.43%▼

* under and over 10m vessels

[12] North Eastern Inshore Fisheries and Conservation Authority, Tees and North Yorkshire Shellfish Landings Report, July 2023. Dr R Bublitz, Samira Anand MSc.

Figure 3 – Landing trends (lobsters)

[Table 2: Differences in lobster landings for under 10m vessel in 2022 for various ports within the NEIFCA district, all ports in the NIFCA and EIFCA district and total UK landings for under 10m vessels compared to 2021 and the average landings between 2016 and 2019. Data for NEIFCA ports derived from iFish2 and includes landings from all ICES rectangles. Data for NIFCA, EIFCA and UK nationally were sourced from the MMO's UK and foreign vessels landings by UK port dataset derived from the iFish database (MMO, 2023).

Port/Region	Landings average 2016 - 2019 (tonnes)	Landings 2021 (tonnes)	Landings 2022 (tonnes)	2022 compared to average 2016 - 2019	2022 compared to 2021
Hartlepool u10	17.71	16.48	12.77	-27.92% ▼	-22.55% ▼
Redcar u10	27.09	20.12	8.41	-68.95% ▼	-58.21% ▼
Staithes u10	12.79	8.57	4.65	-63.60% ▼	-45.68% ▼
Whitby u10	58.51	75.35	79.96	36.67% ▲	6.12% ▲
Scarborough u10	116.89	98.00	98.89	-15.40% ▼	0.90% ▲
Bridlington all*	368.51	441.54	479.53	44.78% ▲	3.80% ▲
Bridlington u10	94.06	131.19	136.18	30.13% ▲	8.60% ▲
NEIFCA District u10	486.37	523.73	514.66	5.82% ▲	-1.73% ▼
NIFCA District u10	362.54	298.92	304.56	-42.81% ▼	5.53% ▲
EIFCA District u10	74.98	56.39	51.72	-31.03% ▼	-8.28% ▼
UK u10	2167.94	2019.53	1966.76	-9.28% ▼	-2.61% ▼

* under and over 10m vessels

3.14 There is a low degree of confidence in the effort data provided by the MMO as verification of pots hauled is very limited with high levels of misreporting. Therefore, only numbers of recorded landing events and vessels actively landing for each port were used for comparison of trends in fishing activity to previous years. For Staithes, Redcar and Hartlepool recorded landing events in 2022 are down by up to 74%. The number of under 10m vessels landing shellfish in the regional ports has been reduced in 2022 compared to previous years except for Bridlington with more under 10m vessels fishing in 2022. See **figures 4 and 5.**

3.15 In June 2022 the NEIFCA has re-established their own in-house catch return system to collate landings and effort data at a higher spatial resolution and higher level of confidence. However, the uptake of the additional landings reporting within the industry has been slow and submissions of catch returns were low at the beginning.

Figure 4 – Differences in recorded landing events for under 10m vessels

Table 3: Differences in recorded landing events (Crab and lobster) for under 10m vessel in 2022 for regional ports within the NEIFCA district and UK , compared to 2021 and the average between 2016 and 2019. Data derived from iFish2 and includes landings from all ICES rectangles.

Port/Region	Average recorded landing events 2016-2019	Recorded landing events 2021	Recorded landing events 2022	2022 compared to average 2016 - 2019	2022 compared to 2021
Hartlepool	509.75	435	316	-38.01% ▼	-27.36% ▼
Redcar	741	498	188	-74.63% ▼	-62.25% ▼
Staithes	470.25	432	279	-40.67% ▼	-35.42% ▼
Whitby	2534.5	2417	2608	2.90% ▲	7.90% ▲
Scarborough	5202	4071	3292	-36.72% ▼	-19.14% ▼
Bridlington	1349.75	1338	1229	-8.95% ▼	-8.15% ▼
Uk under 10m	57661	50110	45092	-21.80% ▼	-10.01% ▼

Figure 5 - Differences in number of under 10m vessels reporting landings of shellfish

Table 4: Differences in number of under 10m vessels (crab and lobster) reporting landings of shellfish in 2022 to regional ports within the NEIFCA district and UK, compared to 2021 and the average between 2016 and 2019. Data derived from iFish2 and includes landings from all ICES rectangles.

Port/Region	Average number of vessels landing 2016 - 2019	Number of vessels landing in 2021	Number of vessels landing in 2022	2022 compared to average 2016 - 2019	2022 compared to 2021
Hartlepool	14.5	13	10	-31.03% ▼	-23.08% ▼
Redcar	25.5	33	21	-17.65% ▼	-36.36% ▼
Staithes	7.5	12	6	-20.00% ▼	-50.00% ▼
Whitby	26	27	25	-3.85% ▼	-7.41% ▼
Scarborough	34	27	25	-26.47% ▼	-7.41% ▼
Bridlington	24.25	24	26	7.22% ▲	8.33% ▲
UK under 10m	2007.25	1879	1795	-10.57% ▼	-4.47% ▼

3.16 At this stage it is not possible to evaluate the state of the stock due to the lack of reliable effort data. Assessing landings does not give any reliable information about stock status, however they can be used to identify general trends.

3.17 The comparison of national and regional trends in shellfish landings highlights the localised disproportionate decline of shellfish landings in the affected area. These instances where trends by port fall outside of trends at a national level suggests that the shellfish stocks within this geographical area are subjected to additional localised impacts.

3.18 The reduction in vessel landing events and number of vessels actively landing in this area in 2022 indicates a possible reduction in catch rates in affected areas (Hartlepool, Redcar and Staithes). Further assessments would be required to determine the level of impacts on the stocks (of the mortality event) in the affected area.

3.19 There are many other potential contributing factors (climate change, sea temperature, changes in weather patterns) which need to be considered and could have either contributed to the overall decline or weakened the crab and lobster population enough for such an event to cause a mortality at this scale.

3.20 Further factors that have the potential to impact or weaken crab stocks are diseases such as the Amoebic Crab Disease (ACD) recently discovered in the English Channel, or potentially new and undiscovered pathogens. However, to date the ACD has not been confirmed in any edible crab populations North of the English Channel or any other new pathogens.

3.21 The decline in inshore edible crab stocks especially North of Bridlington coincides with a significant increase of “vivier” vessels in Hartlepool over the past 4-5 years landing catches from further offshore grounds. Edible crabs migrate between inshore and offshore grounds and therefore an increased fishing pressure on offshore stocks by these “vivier” vessels has the potential to reduce inshore stocks. Any mass mortality event such as

the one in 2021 would have the potential to reduce the already affected local stocks even further.

Organisational Structures

3.22 To demonstrate the complexity of the governance 'landscape associated with fisheries management, information attached at **Appendix 14** was provided for consideration by the Working Group.

FINDINGS

- Data collection has been poor, and although this is recognised by NEIFCA, and changes have been made, it has the potential to cause significant additional work for the fishers who have been impacted by this.
- Data recording appears to be separate for DEFRA and IFCAs and should be brought together with appropriate data sharing agreements
- The governance landscape associated with fisheries management is excessively complex, which impacts on issues relating to transparency and accountability (see **Appendix 14**)

Mr Jerry Hopkinson, Executive Chairman and Mr Paul Brooks, Harbour Master, PD Ports

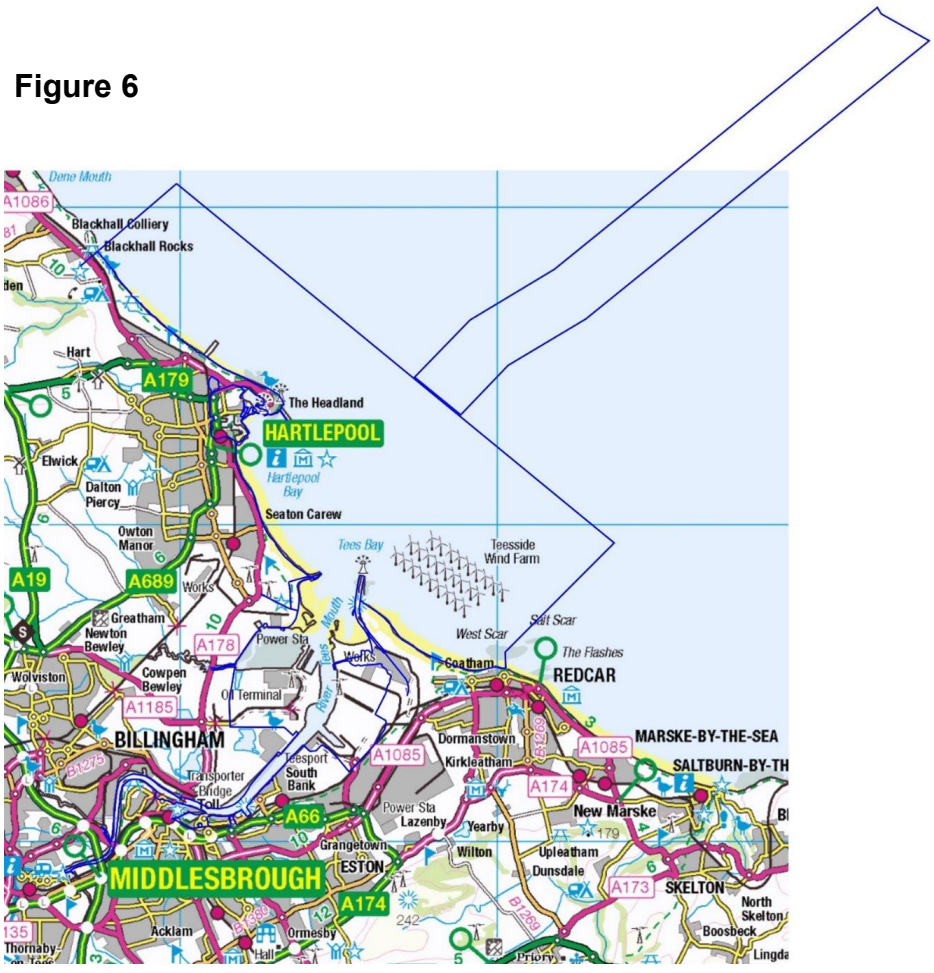
Evidence heard at a meeting of the Working Group on 13 October 2023

Mr Hopkinson and Mr Brooks provided an oral presentation on the dredging process and the role of PD Ports.

4.1 Statutory Harbour Authorities (SHAs) have oversight of marine operations in waters within their jurisdiction and have an obligation to conserve and facilitate the safe use of a harbour. Powers and duties are conferred or imposed on an SHA by statute. Under a combination of general public legislation and local acts of parliament, each port has its own set of legislation tailored to its specific needs.

4.2 With regards to the River Tees, the Tees and Hartlepool Port Authority Act 1966 (the "1966 Act") established the Tees and Hartlepool Port Authority ("THPA") as the SHA for the Ports of Tees and Hartlepool, and the subsequent privatisation of the undertaking of the THPA resulted in the powers and duties conferred or imposed by the 1966 Act being transferred to Tees and Hartlepool Port Authority Limited, which changed its name to PD Teesport Limited in 2003. The Statutory Harbour Authority Jurisdiction is outlined at **Figure 6**.

Figure 6



4.3 Around 1500 people are employed by the PD Ports, which contributes 15% of GVA in the Tees Valley and is the largest private sector employer. PD Ports are not the only port operator on the River Tees but is the only Statutory Harbour Authority.

4.4 Part III (Duties and Powers of Authority) of the Tees & Hartlepool Port Authority Act 1966 confers the duty of 'conservancy, maintenance and improvement of the harbour', on the SHA, which includes the power to dredge and to grant licences for dredging [13]. The Harbour Master retains separate legal duties in relation to matters of marine conservancy.

4.5 PD Teesport operate 2 survey vessels equipped with modern state of the art multibeam survey equipment. The channels and berths are regularly surveyed to ensure the safety of navigation and to monitor the requirement for maintenance dredging.

4.6 Dredging typically falls into two categories, as follows:

- **Capital Dredging –** dredging to a depth not previously dredged, or to a depth not dredged within the last 10 years. Capital dredging is generally undertaken to create or deepen navigational channels, berths or to remove material deemed unsuitable for the foundation of a construction project.
- **Maintenance Dredging** – is undertaken to keep channels, berths and other areas at their designated depths. It involves removing recently accumulated sediments such as mud, sand and gravel. To be classed as maintenance dredging the activity must take place where:
  - The level of the seabed to be achieved by the dredging proposed is not lower than it has been at any time during the past 10 years;

  and
  - There is evidence that dredging has previously been undertaken to that level (or lower) during that period.

4.7 The method of dredging has not changed in decades, and PD Ports can dredge with its own vessels or contract in as required. Most ports carry out dredging, and contract dredging campaigns are common.

4.8 A licence issued by the MMO is required to dispose of dredged material at sea, and a 10-year licence was issued to PD Ports in 2015. Only naturally accreting material is deposited at sea and sampling is undertaken to a plan approved by the MMO. PD Ports are guided by internationally agreed levels of contaminant before disposal and adhere to the Maintenance Dredge Disposal Licence, which includes the following conditions:

- The licence holder must report any oil, fuel or chemical spill within the marine environment to the MMO Marine Pollution Response Team

[13] Tees and Hartlepools Port Authority Act 1966, Part 3 Section 16 and 23 ukla_19660025_en.pdf (legislation.gov.uk)

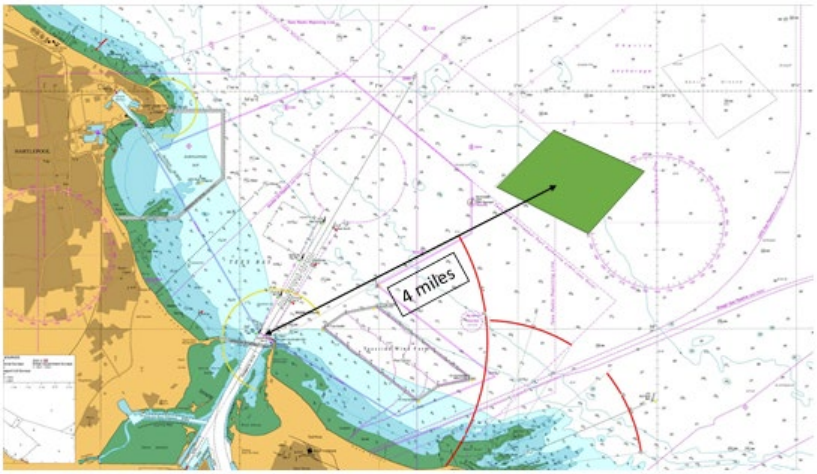
within 12 hours to ensure that any spills are appropriately recorded and managed to minimise impact to sensitive receptors and the marine environment.

- Any man-made material must be separated from the dredged material and disposed of to land to exclude the disposal at sea of man-made material such as shopping trolleys, masonry, paint cans etc.
- A regime of future sediment sampling is undertaken by PD Teesport, of at least three yearly intervals, which must be agreed in advance with the MMO. Samples must be collected, analysed and the report of their notification signed off prior to dredging in the fourth and subsequently the seventh and tenth year of this licence. This is to ensure that only suitable material is disposed of at sea.
- During the course of disposal, material must be distributed evenly over the disposal site Tees Bay 1, TY160 to ensure an even spread of material is achieved over the area of the disposal site in order to avoid shoaling and minimise risk to navigational safety.
- No more than 2,889,700 tonnes wet weight is disposed of at Tees Bay A (TY160) per annum to ensure that acceptable volumes of material can be accommodated within the capacity of the disposal site.
- The licence holder must inform the MMO of the location and quantities of material disposed of each month under this Licence by 31 January each year for the months August to January inclusive, and by 31 July each year for the months February to July inclusive to ensure that accurate data is collected for the reporting of disposal at sea to meet UK OSPAR requirements.

4.9 Cefas routinely monitor the condition and impact of spoil grounds, potentially on a yearly basis.

4.10 PD Teesport has carried out maintenance dredging of the River Tees over many decades, using similar methods, to conserve and facilitate the safe use of the harbour. Maintenance dredging is in strict accordance with the Marine Management Organisation Marine Licence, as verified by the compliance audit in October 2021 and May 2022. Sampling was carried out in accordance with the terms of the licence on 13 October 2021. The maintenance dredge disposal site is shown at **Figure 7.**

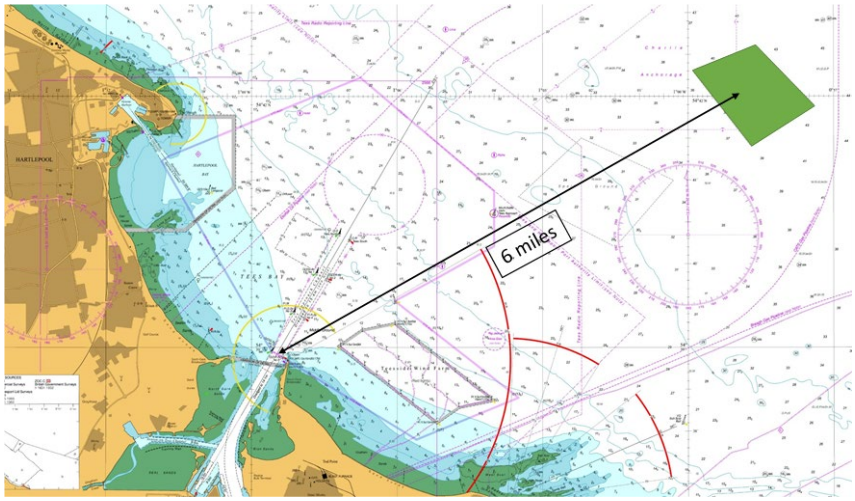
Figure 7
Maintenance Dredge Disposal Site



4.11 Capital dredging in the form of berth deepening was undertaken at the port of Middlesbrough facility (then known as North Sea Supply Base) during late 2013/ early 2014. Deepening of the berth at No1 Quay at Tees Dock was undertaken between 2014 and 2017 (inclusive). Deepening of Able Seaton Port's berths, holding basin and approach channel was undertaken between 2017 and 2020 (inclusive).

4.12 No capital dredging took place on the River Tees between December 2020 and September 2022. Capital dredging for the South Bank project was conducted from September 2022 to April 2023. The capital dredge disposal site is shown at **Figure 8**.

Figure 8
Capital Dredging Disposal Site



UKD ORCA

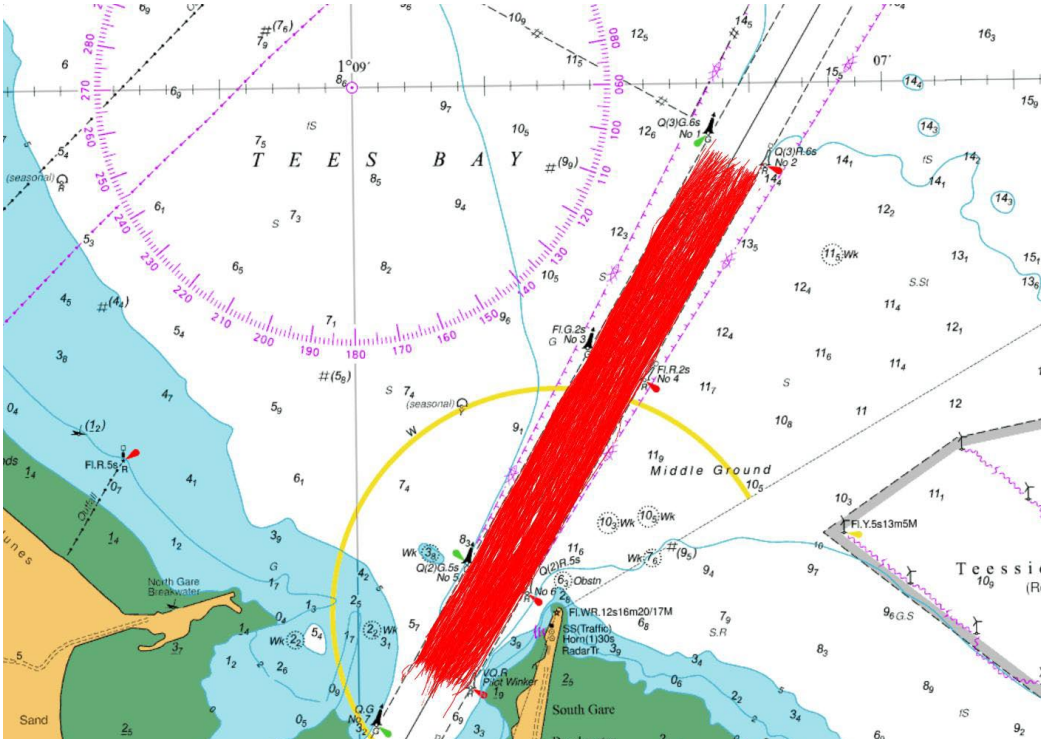
4.13 A backlog of material accumulated in the Tees entrance as a result of the 2018 'Beast from the East' storms and resulting loss of dredging capability. The UKD Orca was contracted to carry out maintenance dredging from 25 September 2021 to 4 October 2021 to clear the backlog. The target dredge depth was 14.6 metres, and the consented dredge depth was 15.4 metres. UKD Orca dredged 148,930 wet tonnes, which represent 5% of the consented annual disposal total of 2,889,700 tonnes.

4.14 The length and beam of the UKD Orca is comparable to the vessels normally used. Whilst the hopper capacity is greater, the Orca is unable to carry more weight of material. Methodology used was the same as PD Ports' existing dredgers. **See figures 9 and 10**.

Figure 9
Comparative Vessel Data

Vessel	Length	Beam	Gross tonnage	Hopper Capacity
UKD Orca	78.0m	15.85	3087	2373m^3
Heortnesse	78.36m	16.18	2162	1500m^3
Cleveland County	70.54m	11.99m	1265	1458m^3

Figure 10
UKD Orca Dredging Route



River Tees Tour

The Working group was invited to attend a tour of the River Tees by PD Ports on 10 January 2024. This was facilitated in order to further familiarise Members with the sites referred to as part of the investigation, and to provide context for the evidence given by witnesses.

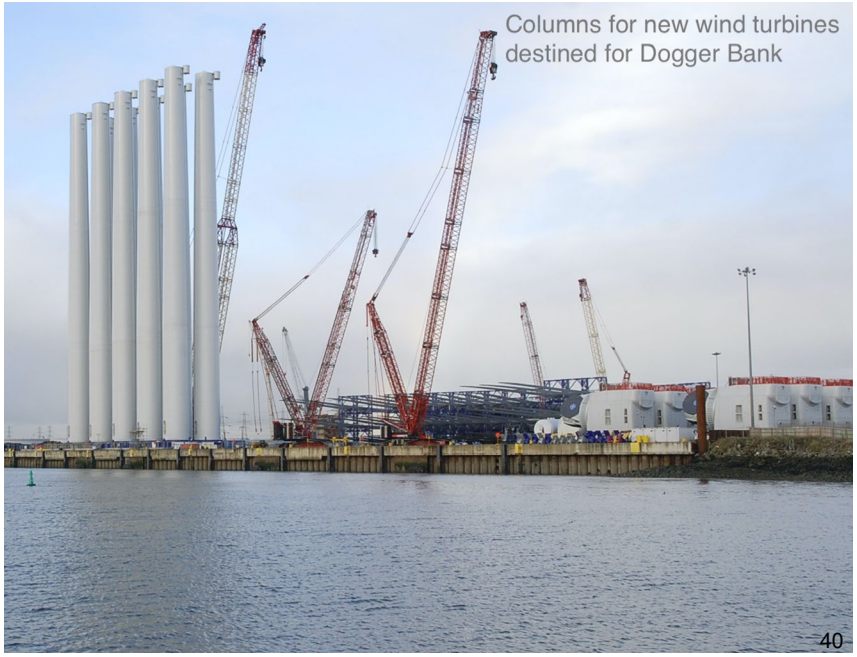
4.15 At 9.30 am, the Working Group met the Chairman, Harbourmaster, Deputy Harbourmaster and Operations Manager of PD Ports.

4.16 The Group members were taken by coach from the Middlesbrough head office to the port where they embarked on the harbourmaster's vessel for a journey down river, almost to the estuary mouth. Photographic documentation shows the main buildings, including the recently developed wind turbine construction and biomass energy plants. Discussions with officials were largely confined to the sites on view and the operation of the port in respect of shipping and cargoes, as outlined below:

- The quay is forecast to handle 3.2 million tonnes of goods which is up from 0 in 2014.
- Rail transportation handles 1300-1500 tonnes per day.
- 5000-6000 box containers were handled every week pre-pandemic, but this has dropped to 3000. War in Ukraine is an issue although there is no obvious change due to EU exit.
- Corn, soya, and other types of animal feed are among the key goods stored.
- Tesco's largest UK distribution centre is on site. The main building is fully automated.
- Asda also has a facility. Cummins store engine parts before onward distribution.
- Significant capital investment has been made. This includes a fully electric 130 tonne pedestal crane and rolling out installation across the site of solar panels.
- Future plans include further quay development although this will not be for another 3 or 4 years.
- Green Lithium is about to begin production on site, building the UK's first lithium refinery.
- Workforce retention has been a problem
- The average age of employees is reducing.


Former site of Dorman Long tower


Hartlepool nuclear
power station


Columns for new wind turbines
destined for Dogger Bank


Swalinge, dredger from the Wash

A post-tour discussion covered the following issues:

Maritime Environment

4.17 The formal relationship with authorities is managed within the Conservancy Department of PD Ports liaising with the Harbour Master's office on permissions and consents. They survey river depth and impediments, maintain infrastructure (Gares and navigational aids), and carry out dredging.

4.18 There is a good but not cosy relationship between PD Ports and government agencies. There is logical scrutiny and challenge with the business being held to account and tasked accordingly.

4.19 Interest in the ecological environment is contained within statutory obligations such as The Environment Act and dredging regulations. Environment Social Governance compliance is key to the moral compass of the business and to attract investment. There is no value to be gained at the expense of the environment.

Sampling

4.20 More intrusive sampling was discussed with MMO within a few weeks of the die off, but MMO had no reason to believe pollutants from dredged spoil caused the die off. There have not been any formal conversations between PD Ports and the MMO about the die off since.

4.21 Sampling was not brought forward. It was noted that sampling has to be carried out at specific times during a license period. It is for Cefas and MMO to consider the studies that have been undertaken and then guide the testing and set the criteria.

4.22 Borehole and core samples were tested by DEFRA agencies prior to the South Bank dredge, and they were used to determine actions. A proportion of dredged material was directed to be disposed of on land not at sea.

4.23 The footage of an open bucket being used is slightly misleading as it was not used on the relevant area but to loosen piles elsewhere. Likewise, drone footage was for an area that had been tested as suitable for disposal at sea and the discolouration was from sediment pulled from bedrock.

4.24 Teeswork and Tees Valley Combined Authority (TVCA) are responsible for ensuring their contractors work in accordance with the licence they have been granted. MMO ran audits and although there isn't constant oversight some additional testing was undertaken from the periphery of Teesworks.

4.25 PD Ports believe that there is a lack of academic rigour behind the conclusions reached by Caldwell et al. They acknowledged that there is a theory that toxic industrial waste lies beneath the maintenance level, but they do not necessarily subscribe to this theory.

Beast from the East

4.26 Regarding the events of 24 February to 1 Mar 2018, coastal damage was caused by the blizzards, gales and sleet resulting from the Beast from the East cold front meeting the warm front Storm Emma. PD Ports attributed the extensive 10-day Orca dredging of September / October 2021, to repair of the aforementioned damage.

4.27 PD Ports had planned to use existing dredgers to clear the backlog although in-house dredgers were unavailable owing to maintenance and break-down. Orca was commissioned in 2021 to seek dredging solutions with the forthcoming winter and associated storms in mind.

4.28 The Orca is the same size as the two in-house dredgers and was underloaded during the 10 days of dredging. The Orca has about 40% more gross tonnage than the Heortnesse, and around 150% more than the Cleveland County. It also has about 50% more hopper capacity than each of the other two. PD Ports confirmed that, whilst the hopper capacity is greater, the Orca is unable to carry more weight of material.

4.29 The Orca's work started on 25th September, lasted 10 days, and involved the removal of dredged material in 52 trips out to a sea location 7 km from the coast. The mortality event occurred on the day following the termination of the Orca's work. A Port official advised that PD Ports initially considered that the Orca was the cause, but later concluded that the event was inexplicable, and that the die-off was a coincidence.

Tower Demolition and Landslip

4.30 There is a considerable separation of distance between the demolition site and the area dredged by Orca. The landslip referred to at the select committee hearing was not related to the demolition as the slip was situated at Seaton Snook, well away from the demolition site.

FINDINGS

- The Port Authority has concluded that the mortality event was a coincidence and has minimised the role of the Orca's dredging task. PD Ports officials advise that the Orca dredger is the same size as the port's two home dredgers, and that it was 'under-loaded, although evidence received by the Working Group suggest that its capacity and tonnage are both about 50% larger.
- PD Ports officials advised that they didn't "subscribe to the theory that there was toxic material below the maintenance dredging level", despite previous comments advising that "capital dredging carried a risk of environmental damage".
- Evidence provided by PD Ports demonstrated that the Orca dredging took place at the maintenance level, but previous testimony suggested that the Orca was "capital" dredging "15m down into 150 years of industrial waste".
- During evidence taken on 12 January 2024, there was some confusion relating to the annual permitted tonnage figure for dredging. This misconception had been aired at previous meetings during discussion about the percentage of annual dredging performed by the Orca during its 10 days of work in September/October 2021. This is an important annual figure which should be clear, unambiguous and widely known.
- During evidence taken on 12 January 2024, it was stated that there was "no evidence of sampling before, during or after the Orca's capital dredging" although previous PD Ports testimony was that the Orca's dredging was at the maintenance level.
- The reason for the Orca's major dredging task is disputed. PD Ports state that it was in response to serious damage to the estuary coastline caused by major storms, particularly the Beast from the East, even though this was three years earlier. In response to an informal question during the port visit of 10 January 2024, PD Ports officials advised that the delay was owing to the unavailability of the two home dredgers. Anecdotal evidence suggests that the reason was otherwise - the Orca's commission began on 25 September 2021, 6 days after the demolition of the Dorman Long tower on the banks of the Tees involving the "biggest explosion in Europe since the Second World War" which caused a major underwater landslip.
- It is not reasonable to challenge the academic rigour of Caldwell et al, who have followed a scientific process having done research, created a hypothesis, written a paper and even made that paper publicly available. This is the definition of academic rigour.
- The Orca dredge image reported within the presentation (see **Figure 10**) from PD Ports, shows the Orca was only visiting the #2 channel marker, not the actual disposal site (see **Figure 7**). There is other evidence available online which shows the actual tracking of the Orca to the disposal site at Tees Bay.

Marine Management Organisation

5.1 On 31 January 2023, the Marine Management Organisation (MMO) was invited to a meeting of the Working Group to discuss the mortality event with Members. The following response was received on 24 February 2023:

"My (*sic*) thanks for the letter of invite to the proposed Tees Valley Authorities Crustacean Deaths Collaborative Working Group.

Having considered the group aims and terms of reference we do not consider it appropriate at this stage for the MMO, considering its regulatory and licensing remit with regard to development activity within the Tees, to form part of the group's membership. However, we would be happy to respond to any requests for information and/or questions coming from the group and would request such matters are forwarded to info@marinemanagement.org.uk."

5.2 The Working Group subsequently submitted a list of written questions to the Marine Management Organisation (MMO) on 27 July 2023. Responses to questions 1 – 10 were provided on 30 August 2023. Responses to questions 11 – 19 were provided on 19 October 2023 following a request for the information under Environmental Information Regulations.

1. **Given the MMO's remit is to protect and enhance the marine environment, and support and enable sustainable marine activities and development, what actions have been taken in respect of the crustacean die-off on the NE Coast in October 2021 and in subsequent incidents since then?**

   In May 2022, Defra (Department for Environment, Food and Rural Affairs) published a report that concluded 'dredging has been ruled out as a likely cause [of the mass mortality event]' (see https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1082129/Joint_agency_investigation_into_Teesside_and_Yorkshire_Coast_Crab_and_Lobster_mortalities.pdf).

   Moreover, a subsequent independent review commissioned by Defra has concluded that capital dredging is exceptionally unlikely (less than 1% probability), and maintenance dredging is very unlikely (less than 10% probability), to have caused the unusual crustacean mortality seen in the Northeast (see https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1131769/Independent_Expert_Assessment_of_Unusual_Crustacean_Mortality_in_the_north-east_of_England_in_2021_and_2022.pdf).

   Any reported issues since the original incident have been investigated by MMO (check with PMO for info) and other agencies.

2. **What report(s) relating to this were prepared by the MMO and can we have copies, please?**

   Both reports are available online and detailed above

3. **What conclusions were reached by the MMO on the algal bloom theory?**

This conclusion was reached by the initial Defra findings and MMO supported the outcomes of that report.

4. **The reason given for the exclusion of dredging as a cause is that sediment is examined for contaminants prior to a licence being granted for the dredging to be taken out to sea and deposited. This is vital, of course, but the letter says that testing is done at least once every three years. Is this sufficient testing?**

   When assessing the suitability of dredged material for sea disposal, the Marine Management Organisation meets its international obligations including but not limited to the OSPAR – Oslo/Paris Convention (for the Protection of the Marine Environment of the North-East Atlantic). Sediment sampling in England follows OSPAR guidance and uses a risk-based approach. In industrialised locations including the Tees, sediment is tested on a more frequent basis (at least every three years) than sediment from locations that have received lower contaminants inputs.

   Sediment sampling must be in accordance with MMO sampling plan, and it is standard that a contractor or applicant undertake the sampling; an accredited lab must undertake the analysis to inform licence applications.

5. **With respect to the Tees area, what are the chemicals tested for in material designated for dredging?**

   The UK is signed up to the London Protocol and OSPAR Convention for the Protection of the Marine Environment of the North-East Atlantic, both of which address preventing marine pollution from disposal at sea.

   MMO licences disposing of dredged materials at sea and uses guidelines produced by OSPAR to regulate this activity. A marine licence to dispose of dredged materials to sea requires the sediments to be characterised to allow the potential adverse environmental effects of disposing of the material to be considered.

   The OSPAR guidelines recommend a tiered approach to assess the sediments, if sufficient information is not already available from existing sources. The assessments required will depend upon the specific details of the proposed activities, although characterisation of a standard set of physical and chemical determinands within the sediments is often necessary.

   Further details can be found at https://www.gov.uk/guidance/marine-licensing-sediment-analysis-and-sample-plans

6. **Who completes testing and evaluation of the results and where are the results published?**

   Testing of samples are undertaken by validated laboratories, details of these are detailed in the link above. Evaluation of the sampling is undertaken by the MMO with advice from our scientific advisors Cefas

7. **Is there a record of what has been dredged and geotagged that would allow a quick and easy check to see if anything had been disturbed?**

   Dredge quantities are recorded by the undertakers. Geotagging is not a requirement of licences.

8. **Can a protocol of issuing licences be explained and the process for monitoring compliance?**

Details available of the website

9. **Were dredging activities curtailed or reassessed by the MMO following the October 2021 crisis?**

   There was no evidence support curtailing licenced activities in and around the Tees . To date, there has been no causal link established between the dredging in the Tees and the mass crustacean mortality event and subsequent investigations including by independent scientists have also concluded that it is unlikely that a release of any toxic chemical due to dredging could have caused the deaths

10. **What restrictions apply to activity in or near SSSI, Ramsar and SPA sites?**

    No defined restrictions apply near Marine Protected Areas (MPA), if there is potential for activities to have an effect on an MPA a Habitat Regulation Assessment is undertaken and an Appropriate Assessment is produced to identify and mitigate any aspects that may effect the integrity of the site.

11. **What framework needs to be in place for more comprehensive analysis of what is in the water?**

    The MMO ensures its licensing activity is compliant with international conventions and directives. The Water Framework Directive is transposed into national law by the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 that require the MMO to undertake an assessment of applications for the purpose of managing and protecting water resources. The MMO also consults the Environment Agency (EA) in the EAs role as competent authority for water quality. Relevant restrictions may be attached in the form of conditions to marine licences granted by the MMO following consultation with bodies including the EA.

12. **Can you advise which other relevant agencies or organisations does the MMO work with in attempting to deliver its objects?**

    The MMO has wider powers to consult and commonly consults with its primary advisers including the Centre for Environment, Fisheries and Aquaculture Science (Cefas), Joint Nature Conservation Committee (JNCC), Environment Agency (EA) (on WFD issues), Natural England (NE), Maritime and Coastguard Agency (MCA), Ministry of Defence (MoD), Historic England (HE).

13. **How is this managed?**

    The MMO has an on-line IT system – Marine Consents and Management System that is used to manage consultations.

14. **Are there reports of collaborative meetings held and where are these meetings recorded for public examination?**

    Relevant records are uploaded to the MMO Public Register.

15. **Given the determination of the MMO to lead change and new methods of operation with other organisations, what proposals are there to work more closely with local authorities which border the coastline, and which have high levels of industrial activity and fishing communities within their areas of responsibility?**

    The MMO is a signatory to the Coastal Concordat. The Concordat seeks to streamline consenting at the coast. Some Local Planning Authorities (LPAs) are also concordat

signatories and both Defra and MMO has encouraged LPAs to sign up to the Coastal Concordat.

16. **What proposals are their being discussed to work more closely with local authorities in the Tees Valley and North Yorkshire area?**

    Please see 15 above.

17. **What work is the MMO engaged in, either independently or in conjunction with other agencies, to ensure the sustainability of the shellfish industry on the Northeast coast and where is the evidence of this work?**

    The MMO was established to champion sustainable development in our marine area. A range of support (grants) has been provided to the English seafood sector through the Fisheries and Seafood Scheme (FaSS) and the £100 million UK Seafood Fund. Local fishers have been advised how to apply to MMO for relevant grants.

18. **In its declared role to develop a sustainable marine development strategy for inshore waters what discussions are being held with the EA, Defra, Cefas and other organisations to determine improved standards of testing and monitoring of water content and quality?**

    The EA has responsibility for routine testing and monitoring of water quality. See 11 above.

19. **What actions has the MMO, either independently or in conjunction with other agencies, taken to identify need and to support any merited compensation?**

    Compensation is a matter for Defra not MMO. Also see 17 above as certain grants are administered by MMO.

Able UK MMO Application Summer 2024

6.1 Plans by Able UK to undertake a capital dredge of the River Tees came to light in August 2024 when news that they were talking to Stockton-on-Tees Borough Council about seeking planning consent for works was reported in the Gazette.[14]

6.2 It subsequently became apparent that they had submitted an application to the Marine Management Organisation (MMO), under reference: MLA/2024/00166[15]

6.3 The application was for a licence to undertake capital and maintenance dredging along the North side of the River Tees, with dredged material disposed of at Tees Bay A and Tees Bay C dump sites.

The proposal is as follows (sourced from application documentation).

Project background

Able UK Limited are seeking to expand the current capacity of their operations at Middlesbrough Port, in order to futureproof the site for future commercial needs, such as the increased approach depths required by vessels. Further detail can be found within the attached Marine Planning Statement (D/I/D/149058/501). This marine licence application will include capital dredging works to achieve the previously licensed dredge depth across the expanded berth, -7.0mCD, and a deeper approach channel being dredged to a depth of -6.5mCD, as shown on Drawing No. AMP006-00015 E. This is the capacity required to allow for the berthing, loading and unloading of vessels which seek to continue to use Middlesbrough Port, but which require maintained and expanded channels. The capital dredge to extend the berth and deepen the channel will require 44,400m3 of material to be removed, with subsequent maintenance of circa 1,000m3 per annum. The maintenance dredge of the existing berth will involve an initial dredge of 24,600m3, followed by subsequent maintenance of circa 2,000m3 per annum. The length of licence proposed is 10 years, with routine sampling to be undertaken every 3 years.

Programme of works

Works to undertake dredging at Middlesbrough Port will take place on an as-needed basis, dictated by tenants. There is no set proposed works timing, however it is considered that if undertaken together, the initial capital and maintenance dredge of the existing berth and proposed extensions will take place over a period of approximately 20 days. For the initial dredge this is considered likely to be 20 consecutive days, but subsequent maintenance is likely to be upto 20 days per annum, as required to maintain the licenced depth. Start and end dates are therefore proposed to be the dates of the licence i.e. 30/06/2024-30/06/2034. Disposal operations will be undertaken intermittently between dredging operations as the TSHDs are filled, and as such, all disposal activities will take place over a similar time period per dredge campaign

[14] Teesside Live (2024). *Able UK seeks opinion from council for new quay proposal as 'a facility for a range of projects'*. [online] Gazette Live. Available at: https://www.gazettelive.co.uk/news/teesside-news/able-uk-seeks-opinion-council-29724208 [Accessed 18 Sep. 2024].

[15] https://marinelicensing.marinemanagement.org.uk/mmofox5/fox/live/MMO_PUBLIC_REGISTER/
(Click on view Public Register and then input the Licence reference number MLA/2024/00166 in the search box and click on "Marine Licence applications and requests")

6.4 Objections to the application were provided by the North East Fishing Collective (NEFC) and by NEIFCA, as follows:

NORTH EAST FISHING COLLECTIVE

20.8.24

Dear Sir/Madam,

This letter is being submitted on behalf of the North East Fishing Collective (NEFC) and its members in response to the capital dredging application (MLA/2024/00166). The NEFC and its members formally object to this application based on significant concerns regarding the potential environmental and fishing industry impacts it may cause.

As you will be aware, there have been significant and ongoing sea-life mortality events along the Northeast coastline (as recent as May 2024) as a result of the previous three major dredging works. The NEFC, the industry and members of the public have witnessed catastrophic scenes of dead and dying marine life which has coincided with the dredging and disturbance of extremely high levels of harmful pollutants into the marine environment. These events have caused devastation to the fishing industry, resulting in the striking decline of fishing vessels along the Northeast coastline, including over half of the Hartlepool fishing fleet alone since the initial capital dredging in September 2021. Despite pleas from the NEFC to engage fully and purposefully with government agencies on dredging and desperately needed legislation changes to prevent dumping at sea, no committed or meaningful discussions or actions have taken place. Those who have barely managed to stay in the industry continue to receive zero support or have yet to see any efforts to restore the marine environment to acceptable levels.

Despite several investigations into the causes of these sea-life mortalities, you may be aware that the exact cause was not established, with an outcome of 'as likely as not,' that a new pathogen new to UK waters caused the unusual mortalities, which is why the NEFC has been undertaking its own investigations into the cause as the panel also concluded that there were 'no significant pathogens identified in the north-east.'

The NEFC have continuously highlighted the need for more robust and transparent testing regimes by government agencies. It is historically documented that the River Tees is highly polluted due to its industrial heritage, and government testing itself (most recently in 2022) shows that a high range of specific pollutants, including arsenic and polybrominated diphenyl ethers (PBDEs) are at consistently high levels. The proposed dredging activities raise serious concerns about the disturbance and release of these harmful chemicals into an already decimated and extremely fragile marine environment that has yet to begin to regenerate to any sustainable level since the first (and ongoing) wash-ups began. The application does not adequately address the serious and highly-likely risks associated with disturbing these sediments and, disturbingly, appears to minimise the severity of the environmental marine impact.

The application states, 'There is no set proposed works timing, however it is considered that if undertaken together, the initial capital and maintenance dredge of the existing berth and proposed extensions will take place over a period of approximately 20 days. For the initial dredge this is

considered likely to be 20 consecutive days, but subsequent maintenance is likely to be up to 20 days per annum, as required to maintain the licenced depth.'

The initial wash-ups occurred after the UKD Orca made approximately 52 trips to the drop zone (Tees Inner or Tees A area) 7km off the coast, disposing of approximately 123,396m³ of material (66% of an annual quota of maintenance dredging) in the space of a 10-day period. The results of this initial event have been nothing short of catastrophic, which have not only brought serious hardships onto those in the industry, but which have negatively impacted and changed the marine environment beyond belief. The application itself ensures that this toxic sediment will be continually disturbed annually, which only solidifies to the NEFC that the devastation and impact will continue to burden and already overwhelmed marine ecosystem for at least another decade, potentially ensuring that it does not recover and remains overburdened with contaminants. The application is not supported by scientific modelling to support the claim that dredging works can be completed within '20 consecutive days,' which is completely unacceptable when it is evident that similar events have resulted in mass mortalities along the Northeast coastline alongside sediment blooms from disturbed toxic materials.

The application suggests that sediment sampling every 3 years is sufficient – a deeply flawed and inadequate assertion. Given the known contamination levels, it is clear that sampling at 3-yearly intervals is insufficient to ensure environmental safety and compliance with the OSPAR Convention's Precautionary Principle: preventative measures should be taken where there is reasonable cause for concern that human activities may harm the marine environment, particularly when dealing with hazardous substances. The application therefore fails to address this critical guideline by proposing that sampling be conducted every 3 years. Furthermore, by suggesting that contaminated sediments be disposed of at sea rather than being safely decontaminated on land, it is a blatant disregard for the precautionary principle that such sediments should, and can, be safely decontaminated on land. As you should be aware, license applications also state that dumping at sea should be a last resort, and then only if environmentally safe to do so.

We would like to draw your attention to the Tees disposal sites of other dredged materials over decades: the disposal sites do not get any shallower as the heavily and dangerously contaminated sediment is spread by the tides to the North and South over hundreds of square miles. All dumping at these disposal sites is infact dumping over hundreds of square miles of the North Sea – something which the application (and all others which use these methods) fail to acknowledge and address.

The NEFC strongly believes that there have been no lessons taken from previous events along the Northeast coastline by government agencies to ensure that these events do not continue to cement the destruction of our coastline and marine environment. This is reiterated by the disregard for such events in the current planning application, which ignores the severe ecological consequences which have resulted from similar works in close proximity. The cumulative impact of such events, and any current and future applications must be considered as an area of immediate priority, as required by the Environmental Impact Assessment (EIA) regulations.

The NEFC and its members strongly oppose this dredging proposal. We urge the authorities to reject this application until a thorough, adequate science-based assessment is conducted. Such assessment should, without question, fully comply with all marine environmental protection policies. We urge

NEIFCA response:

"Given the sensitivity of dredging in the River Tees since the Crustacean die offs in 2021 and lack of clearer understanding of potential impacts, we feel a precautionary approach would be more appropriate. In our opinion, capital dredge material, especially in areas where levels of trace metals and DDT are between Cefas' Action Level 1 and 2, should not be disposed at sea. Recent reviews of Cefas' Action Levels concluded that currently there are no processes in place to ensure consistency and transparency for samples between Action Level 1 and 2. Action Level 2 has been found to be the least effective approach in Europe to filter out potentially toxic samples. We also disagree with the frequency of sampling and feel that every 3 years is not enough. Sampling should be undertaken annually or at least bi-annually. At this stage we cannot consent to this proposal."

The Cefas Action Levels referred to in NEIFCA's response are described as[16]

Sediment analysis

The MMO must ensure that sediment sample analysis data submitted to support a marine licence application is consistent and comparable between separate applications, as well as Cefas action levels. Cefas action levels are currently used by the MMO to decide how suitable it is to dispose of dredged sediments at sea.

[16] GOV.UK. (n.d.). *Marine Licensing: sediment analysis and sample plans*. [online] Available at: https://www.gov.uk/guidance/marine-licensing-sediment-analysis-and-sample-plans.

6.5 The document also includes a table showing the thresholds for Action Level 1 and 2:

Contaminant or compound	**Action Level 1 (mg/kg dry weight (ppm))**	**Action Level 2 (mg/kg dry weight (ppm))**
Arsenic	20	100
Mercury	0.3	3
Cadmium	0.4	5
Chromium	40	400
Copper	40	400
Nickel	20	200
Lead	50	500
Zinc	130	800
Organotins (TBT, DBT, MBT)	0.1	1
PCBs – sum of ICES 7	0.01	None
PCBs – sum of 25 congeners	0.02	0.2
PAHs	0.1	None
DDT	*0.001	
Dieldrin	*0.005	

In comparison to the data provided with the MMO application from Able UK you can see the concerns raised by NEIFCA re heavy metals in particular:[17]

Determinand analysis outputs:

Laboratory sample number	Dredge Area	Sample ID(s)	Total solids (%)	Metals as mg/kg dry weight							
				Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Copper (Cu)	Mercury (Hg)	Nickel (Ni)	Lead (Pb)	Zinc (Zn)
MAR02072.001		MSA 0.00	43.8	18.3	0.77	71.8	63.4	0.71	30.6	167	253
MAR02072.002		MSB 0.00	62.3	20.7	1.02	87.7	86.1	0.92	32.5	208	307
MAR02072.003		MSC 0.00	48.1	16.8	0.77	63.9	63.8	0.64	30.8	150	229
MAR02072.004		CSA 0.00	41.9	7.2	0.31	38.8	19	0.08	34.9	28.8	96.8
MAR02072.005		CSA 1.00	43.7	22.8	1.65	136	137	1.7	34.6	285	486
MAR02072.006		CSA 2.00	68.4	6.6	0.29	14.8	6.3	0.05	16.3	12.2	50.3
MAR02072.007		CSB 0.00	68.1	5.9	0.28	14.6	5.8	0.05	15.5	12.3	51.8
MAR02072.008		CSB 1.00	42.6	21.3	1.4	112	136	1.21	37.3	277	424
MAR02072.009		CSB 2.00	41.3	7.8	0.34	40.8	36.3	0.14	35.5	54.3	118
MAR02072.010		CSC 0.00	76.6	26.5	2.17	189	174	2.2	36.9	343	626
MAR02072.011		CSC 1.00	69.4	9.1	0.46	49.1	27.3	0.24	33.8	49	128
MAR02072.012		CSD 0.00	70.3	11	0.46	40.9	33.3	0.14	40	37.8	124
MAR02072.013		CSD 1.00	52.9	25.8	1.54	118	141	1.44	36.3	341	516

6.6 A 2016 MMO review of the Cefas Action levels indicates that samples that fall between Action Level 1 (the safest agreed level for disposal at sea) and Action level 2 (considered unacceptable for uncontrolled disposal at sea without special handing and containment) need further consideration[18]

> … it was concluded that the existing guidance and action levels are not fit for purpose within the context of this report, i.e. in terms of the ability to avoid disposal of toxic sediments at sea and refusal of non-toxic sediment disposal. However, it is acknowledged that the overall fitness for purpose of tools such as action levels are also importantly defined by legislative requirements and policy objectives which may include consideration of costs and proportionate regulation as well as environmental risk. A further, more detailed, review of action levels

[17] MLA_2024_00166-MMO_Results_Template - MAR02072_1-6 (available via the marine licensing link in above reference no.14)
[18] MMO (2015). High Level Review of Current UK Action Level Guidance. A report produced for the Marine Management Organisation, pp 73. MMO Project No: 1053. ISBN: 978-1-909452-35-0. Available from: https://assets.publishing.service.gov.uk/media/5a818afae5274a2e87dbe2f7/High_level_review_of_current_UK_action_level_guidance_report__1053_.pdf

and guidance is required to establish whether they are fit for purpose given current policy objectives and legislative requirements.

FINDINGS

27 January 2025 – the MMO application has not been resolved and is on hold.

Comments by other stakeholders are publicly accessible and alongside the objection of NEIFCA, of particular note are the comments from the MMO local office which emphasise the concern of local fishers and states “That this well-documented die-off and the media stories surrounding it are not considered or even mentioned in the application, considering the time and work that went into the case over months by the North Shields office, is somewhat jarring.”

The Comments from NEIFCA are not recorded on the MMO public register.

Disappointment that

The Cefas response, although overall does agree that the levels of a variety of contaminants can be disposed of at sea, does include the following admonishment in Additional Information:

> Section 6.14 of the Marine Planning Statement (document referenced in paragraph 9) states “*As such, it is considered that given the very small scale of dredging proposed within this application in comparison to the volume of dredging presently undertaken on the Tees, largely by PD Teesport themselves, there will be no meaningful change to the water quality either at source or at the disposal site as a result of this dredging.*”. I disagree with the claim that “*there will be no meaningful change*” at both the source and disposal site. With respect to the source site, the current proposed dredge area has not been dredged at minimum since 2016 (8 years) and therefore dredging of the sediment will likely disturb and distribute sediment contaminants into the water column. This disturbance will also be more prevalent through the use of a Trailing Suction Hopper Dredger (TSHD) over a method such as Grab dredging with an enclosed clamshell grab (please see my answer to Question 12). Whilst on this occasion I agree that disposal of the material at sea would not be unacceptable. The level of assessment presented by the applicant is insufficient to conclude with certainty that there will be no such meaningful change in water quality. *There remain key evidence gaps as to the ongoing effects of dredging material with levels of organic contaminants seen in the Tees on marine life. (our italics)*

Dr Gary Caldwell, Newcastle University

Evidence heard at a meeting of the Working Group held on 3 March 2023

The following evidence was relayed orally by Dr G Caldwell, Senior Lecturer in Applied Marine Biology at Newcastle University.

7.1 Dr Gary Caldwell attended the meeting to speak as an expert in marine biology, with specialisms relating to marine ecotoxicology in northern climates. Dr Caldwell had been commissioned by the Northeast Fishing Collective to undertake independent research relating to the possible effect of pyridine on crustacea, owing to the fact that pyridine had been identified as present in the flesh of deceased crabs and lobster recovered from the initial wash-up.

7.2 At the outset of the project, there was no data in existence relating to the toxicity of pyridine in large crustaceans. A team at Newcastle University undertook 'vanilla' experiments that involved exposing crustaceans sourced from outside of the impacted zone to a chain of pyridine concentrations. The results involved a violent and convulsive response in the crustaceans, which was described as 'shocking'

7.3 Following the initial extreme response, which lasted roughly 2 – 5 minutes, crustaceans settled onto their backs with legs facing upwards and movement slowing down over a 30 – 40-minute period. Death was marked by the falling forward of mouth parts.

7.4 At a pyridine concentration of 15mg and above, all exposed crabs were dead within 6 hours, and at lower concentrations, a change in behaviour was noted, with crabs observed to be more placid and pliable. This fundamental loss of aggression, it was posited, might lead to a loss of ability to defend against predators.

7.5 Results of experiments conducted in the lab correlated to observations by the fishing community. Initial spasming would have taken place in the water and crustaceans on the periphery would have displayed a change of behaviour likely to result in inability to defend or feed themselves. Experiments are ongoing to explore this hypothesis further.

7.6 A working hypothesis has been developed which shows that pyridine, even in vanishingly low concentrations, alters the brain chemistry of crustaceans inducing a form of Alzheimer's disease. Certain crustaceans are probably vulnerable to pyridine toxicity owing to the position of nervous receptors and their hypersensitivity to purines, which are molecularly similar to pyridine.

7.7 Further to die-off of crabs and lobsters, evidence collected at survey sites suggested that barnacle numbers had also been severely reduced in recent years. Pyridine exposure during migration from Scotland was suggested as an explanation for this.

7.8 The long-term impact of the die-off, which involved the removal of an entire section of the food chain, was already being felt and would continue to impact the local and national ecosystem into the future. The current seascape was described as a ‘desert environment’ from Hartlepool to Scarborough.

7.9 Defra has refused to sample sediment for traces of pyridine, citing lack of suitable equipment as the reason. Government agencies have also refused to award the relevant permits in order that the team could undertake sediment sampling on behalf of the investigation. There has been no communication with the team from Newcastle University from any of the Defra agencies.

7.10 Dr Caldwell, referring to differing theories relating to potential causative factors, discussed the timeline of die-offs, which immediately followed an intensive round of dredging that was reportedly clearing a large slippage of sediment. Deeper dredging, he suggested, had potentially dislodged stable sediment.

7.11 Three major sources of pyridine had been identified in the area close to the impacted zone, and whistleblowing reports had identified major flaws in management of industrial waste, which had resulted in large amounts of pyridine entering the river. The production of a map of pyridine on the Tees was a suggested strategy for managing future dredging work.

7.12 Capital dredges could possibly be linked to loss of prawn stocks and a massive loss of seaweed populations had been noted, although with no data to verify this, satellite data was being used to discover the extent of the loss of kelp beds. This loss of seaweed beds might impact on carbon capture, diversity of habitats and coastal erosion, so the issue is much further reaching than just the death of crustaceans.

7.13 In terms of a life cycle, pyridine is a water-soluble compound that is lost to the environment quickly. It is attacked by oxygen and has a half-life of 8 days in water. A proportion sticks to sediment grains, and without exposure to oxygen may remain present in an environment with a PH below 7 for many years. In terms of dispersion, it is estimated that the models used by team at Newcastle University were conservative, and it is likely that sediment moved further south than Whitby.

7.14 Further to this, the independent report recently produced by CMEP, which claimed that pyridine levels found in the impacted area were too low to cause mortality in crustaceans had, in the opinion of Dr Caldwell, made an error in interpreting data. A response was being drafted to draw attention to this.

7.15 Dr Caldwell further advised that, in his opinion, England are behind the curve when dealing with environmental pollution in terms of what is tested for and associated risk assessments. Pyridine, for example, is not in the current list of chemical determinands produced by the Government.

7.16 There had been a slow degradation of the crustacean population in Portsmouth and loss of populations had occurred in Kent in line with incidents of dredging. It was hoped that the experience of Teesside would encourage other ports to consider their industrial fingerprint and risk assess appropriately as a result.

7.17 Dr Caldwell welcomed the development of the Teesworks site, but questioned the pace of work, and ability to apply environmental regulations in light of the current timeline.

7.18 In terms of future work of the team at Newcastle University, Dr Caldwell advised that there would be a further 6 months of wrapping up current investigations followed by monitoring of recovery, which may take many years.

Evidence heard at a meeting of the Working Group on 3 November 2023

Dr Caldwell provided a presentation outlining an elemental analysis of River Tees sediment core, with a focus on metals. Dr Caldwell advised that the data presented was interim, although the broader messages would be unlikely to change.

7.19 Levels of 19 elements were determined, including metals which bio-accumulate and are known to cause environmental toxicity. The following metals were included in the study: aluminium, arsenic, barium, calcium, cadmium, chromium, copper, iron, lead, magnesium, manganese, nickel, phosphorus, potassium, silicon, sodium, strontium, tin & zinc.

7.20 Cores were sliced and elemental levels determined at various sediment depths – 0-2 cm, 8-10 cm, 18-20 cm, 28-30 cm and 38-40 cm. There were fewer deeper samples due to limitations in core penetration.

7.21 The core samples allowed the mapping of the prevalence of elements across the Tees estuary, with common trends in distribution identified. There were changes in concentration by location, with consistent hotspots identified from the areas of the channel affected by the Athena cutter suction dredger.

7.22 Levels of all analysed elements were elevated, with some (aluminium and iron) remarkably high. Elemental levels changed with sediment depth, typically increasing with depth, and for some, e.g., aluminium, there was a reduction in levels in the deeper sediments likely unaffected by the Athena.

7.23 Hydrocarbon contamination had not been discussed, but a full composition would be available at a future date.

7.24 A project using AI to predict the outcome of exposure to cocktails of chemicals is in early stages, and the focus of ongoing work.

7.25 Statutory requirements for testing are inadequate in relation to the River Tees, which should be looked at with more nuance and tested more regularly. Further to this, the re-development work has brought forward a new threat, and any event that returns older sediments to the channel remains a risk, particularly to the fragile areas of recovery.

7.26 The Northeast lacks data and a systematic way of monitoring the health of its coastline, and the current response-driven method is not effective.

FINDINGS

- Observational work in in laboratory conditions shows that exposing crustaceans to different concentrations of pyridine, elicits behaviours and effects on the crustaceans similar to that observed by fishers and members of the public during the mass crustacean die off.

- Pyridine is a water-soluble compound that sticks to sediment grains and may remain present in an environment with a pH below 7 for many years.

- It is clear from Dr Caldwell's research that the impact on Crustaceans of pyridine causes similar symptoms as those observed by fishers and members of the public.

- Dr Caldwell's evidence also called into question the whether the required level of testing for potential contaminants was sufficient within the UK, and within the Tees, a river that is known to have been heavily polluted in the past, in particular.

Dr S Gibbon, Citizen Environmental Group / The University of Manchester

Evidence heard at a meeting of the Working Group on 1 September 2023 and provided in writing.

River Tees – Maintenance Dredging

8.1 The River Tees is a major port for the UK and so by Act of Parliament the Statutory Harbour Authority (SHA) has a legal obligation to keep the river channels clear to allow navigation. The SHA is now PD Ports, the company that owns and operates Teesport. The Act gives the SHA permission to carry out maintenance dredging but does not give the SHA permission to dispose of the dredged material at sea. PD Ports has to apply for marine licences from the Marine Management Organisation to dispose of the dredged material at sea.

8.2 Maintenance dredging covers dredging which must not result in an increase in the depth of the river when compared to its lowest depth at any time in the last 10 years. This means that the material which is removed by maintenance dredging is either material that has washed into the River Tees from the sea or suspended material carried down the river from upstream which has deposited on the riverbed. Any dredging which increases the depth of the river is classified as capital dredging and once again is permitted only by marine licences issued by the Marine Management Organisation.

8.3 PD Ports only carries out maintenance dredging using either its own dredgers (Heortnese / Cleveland River retired 2021 / Emerald Duchess due 2024) or occasionally using contracted vessels (i.e. UKD Orca). The dredgers used are trailing hopper suction dredgers, as such they do not cut into the riverbed and will only remove relatively loose material. PD Ports also use an adapted tug (Tees Guardian) fitted with an underwater bulldozer blade to level out the riverbed after dredging.

8.4 PD Ports is required to apply for licences which define what can be disposed of at sea and any requirements for mid-term sampling of materials. PD Ports obtained a three year dredging licence (MLA/2012/00141) in 2012, which was extended to the end of 2015 due to delays in processing of the information for the subsequent licence. The subsequent and latest marine licence (MLA/2015/00088/6) for disposal at sea was issued in 2015 for 10 years, and defines what can be disposed of at sea and requirements for mid-term sampling of materials.

8.5 The dredging industry portrays maintenance dredging as a clean operation, taking material washed into the river from the sea back out to sea. Capital dredging, on the other hand, involves dredging of historic and potentially contaminated sediments to be dumped at sea. In reality maintenance dredging is only clean if the material it removes has not been contaminated, so any ongoing pollution or one-off incidents will result in contaminated material being disposed of at sea.

8.6 The River Tees has historically been a highly polluted river owing to a 140 year history of heavy industry along its banks, which used the river as a disposal route for unwanted materials (waste/toxic chemicals). It is accepted that the sediments laid down in previous decades were widely contaminated with toxic chemicals and as such capital dredging which digs into these sediments requires extensive sampling to be undertaken to determine whether the material is suitable for disposal at sea.

8.7 Maintenance dredging as described above, in an unpolluted river, could be a chemically clean operation. In order to obtain a licence for disposal at sea samples have to be taken to in order to determine whether the material is compliant with the Convention for the Protection of the Marine Environment of the Northeast Atlantic (OSPAR Convention).

8.8 The OSPAR Convention defines the process that countries have to undertake to ensure that only compliant materials are disposed of at sea. In the UK Cefas have determined a set of Action Levels[19] for the ranges of chemicals which are specified in the convention, and which are used to assess whether material should be disposed of at sea. Most chemicals have 2 action levels, with materials above Level 2 being prohibited from disposal at sea. Below Action Level 2, but above Action Level 1, disposal at sea should only be undertaken if considered safe.

8.9 The River Tees could be expected to be highly contaminated with a range of hydrocarbons due to the long use of the riverbanks for the production of coke and its byproduct coal tar, chemical works and oil processing. Some of the most toxic hydrocarbons are polycyclic aromatic hydrocarbons (PAHs) which are specifically regulated under OSPAR. However, there is only an Action Level 1 for PAHs (0.1mg/kg), and no Action Level 2.

8.10 OSPAR regulations do not specify the amount of sediment that can be disposed of at sea, with levels at the discretion of individual countries' regulators. In the UK the regulator is the Marine Management Organisation MMO), who issue the licence for disposal, and use the Government Cefas laboratory to obtain the necessary scientific guidance.

8.11 Cefas note that levels of PAHs are above those normally acceptable but make no mention of the amount of material being disposed of. However, written evidence shows that 250,000 wet tonnes was agreed as an annual safe disposal amount, and this was produced prior to application for variation 6 of MLA/2015/00088, which corrected the annual disposal from 250,000 wet tonnes to 2,500,000 wet tonnes, a factor of 10 increase.

8.12 Whilst having no effect on physical operations (this was always the amount to be disposed of), it meant that a new MMO officer stated the incorrect total annual dredge as 10% of the real figure when justifying allowing disposal at sea and fishers to assume that the Orca had dumped over 50% of the annual dredge volume when in fact it was only over 5%.

[19] Cefas - Action Levels - North East File Collection (northeastfc.uk)

8.13 The PD Ports licence remained incorrect until 2022 as PD Ports had completed the application form incorrectly, stating that over the whole 10-year period of the licence, they would dump only the annual amount, not the correct annual amount x 10. This coloured others understanding of the Orca dredge.

8.14 The exact concentrations in the sediment or the total amounts being disposed of at sea are only part of the picture. Damage is done to humans, animals, plants and any other living things, by the amount of material they are exposed to at any one time or cumulatively over a period of time, depending on the specific way in which a chemical is toxic. The exposure amount will be increased by higher levels of chemicals in the sediment, by larger amounts of sediment being disposed of at sea but also by the rate of disposal of the sediment.

8.15 The faster the rate of disposal the higher the concentration of chemical will be and so the more poisonous the sediment will be to the aquatic environment. Faster rate of disposal will also mean the concentration of a chemical will remain above the concentration at which it is toxic for longer. Very high concentrations may also slow down the rate of breakdown of the chemical, as the concentration of oxygen for oxidation is reduced by previous breakdowns and any microbial breakdown is swamped or even poisoned due to the high concentration.

UKD Orca

8.16 The UKD Orca was contracted to dredge the channel in Tees Bay from 25th September 2021 to 4th October 2021, which corresponded exactly with the first die off of marine life. This led to the assumption that the UKD Orca must have been responsible for the marine die off.

8.17 This assumption was reinforced by errors made by PD Ports in the original Application Form for MLA/2015/00088 where the total dredge for the River Tees was stated as only 1,507,770 wet tonnes for sand and 930,065 wet tonnes of slit to be removed over the ten year period between 1st January 2016 to 31st December 2025. These were in fact the amounts that PD Ports expected to dredge every year. Similar errors were made for the Hartlepool dredge amount, i.e. 322,800 wet tonnes of sand and 128,480 wet tonnes of silt over ten years and not each year. These errors had not been corrected, so that when it was known that the UKD Orca had disposed of almost 150,000 wet tonnes at sea, this appeared to be 60% of the annual allowance of the incorrectly stated 245,000 wet tonnes, as per MLA/2015/00088 before variation 6 (June 2022).

8.18 The Application Form for variation 6[20] merely states "The licence currently has an admin error on the quantities, so they do not align with the correct volume on the licence conditions." The previous licence MLA/2012/00141 did give annual breakdown of amounts to be dredged, so to someone in the know this is just an administrative error in MLA/2015/00088, but this was not the case for consultees

[20] MLA_2015_00088_6-VARIATION-6-FORM.pdf (northeastfc.uk)

who explicitly stated their opinions were based on the incorrect annual amounts i.e. Cefas recommendations based on 2020[21] sampling and 2021 sampling[22].

8.19 It is now known that the UKD Orca removed 148,930 wet tonnes, 5% of the annual total amount allowed to be disposed of at the inshore Tees Bay A, 2,889,700 wet tonnes, which is normally 80% from the Tees channel and 20% from the Hartlepool channel. The UKD Orca was dredging 24 hours a day for 10 days, whereas, according to the maintenance dredging method statement[23], PD Teesport's own dredgers normally only dredge 8-10 hours a day for 6 day week. So, in 10 days (2.8% of a year) UKD Orca had removed more material that the normal operation would in 18 days.

8.20 Key Points:

- PD Teesports disposal at sea licence(MLA/2015/00088) issued in 2015, was incorrectly issued for one tenth of material actually dumped at sea and only corrected with variation 6 in 2022.
- Opinions of the safety of disposal at sea states the incorrect quantities of material.
- The dredged material disposed of at sea is many 100s of times above notification level for polycyclic aromatic hydrocarbons
- UKD Orca disposed of 5% of annual dredge in 10 days rather than 18 days, almost double rate of disposal at sea.
- UKD Orca dredge occurred at the same time as the marine die-off occurred in late September and early October 2021.
- Why was sampling carried out one year early immediately after UKD Orca dredge, i.e. many samples were below level where river is usually dredged.
- Sampling in October 2021 showed PAHs had in general increased compared to November 2020 (of 176 measurements 152 increased by up to 22times), but no similar increase seen in metal concentration (of 64 measurements only 34 had increased by at most 4 times and some had decreased to 10%).
- This suggests that an event with a large release of hydrocarbons happened prior to 13th October 2021.

Creation of South Bank Quay

8.21 Teesworks is reclaimed land and a historical site of steelworks and coke ovens, metal recovery and landfill, much of it Made Ground around 3-5 m deep, now below the recently installed / being installed capping layers. Large amounts of various contaminants, many of which are highly toxic to marine life (as noted in site COMAH status which remained until end of 2023), were present in

[21] 20210329 MLA2015000885 L2015004275 Tees and Hart Maintenance Disposal - Variation Advice Minute FINAL.pdf (northeastfc.uk)
[22] 20211217 MLA2015000885 L2015004276 Tees and Hartlepool Maintenance Disposal Mid-licence Advice Minute FINAL.pdf (northeastfc.uk)
[23] PD Teesport - Maintenance Dredging Method Statement(2).pdf (northeastfc.uk)

complex remaining structures above ground, and still remain below ground and should be considered as part of remedial work. Contaminants present include heavy metals, PAH, phenols, chromium, TPH/EPH, PCBs, VOCs, dioxins, furans, pyridine and novel contaminants from industrial legacy.

8.22 If developed properly the site could not only provide long term employment once the most appropriate industries are attracted, but also with imagination as promised in the original 2017 South Tees Regeneration Masterplan[24] provide fantastic opportunities for heritage and nature. In fact in predevelopment consultations, the local population stress the importance of nature and heritage not just jobs (2019 South Tees Regeneration Masterplan[25]). Other UK brownfield regeneration schemes (The Avenue Coke Works, Chesterfield[26]) have achieved all three and international examples such as Bilbao have regenerated whole regions (Transformation Bilbao[27]). In Bilbao's case, the regeneration enable progress from a cyclical economy to one that has been stable for three decades so far (The Bilbao Effect[28]).

8.23 Teesworks approach does not compare well to best in class nationally and certainly not internationally. For example, the approach to dredging for the Teesworks South Bank Quay development is a very visible demonstration of the lack of ambition being shown by Teesworks, through what appears to be substandard operations, where speed and low cost seem to trump any heritage/environmental considerations. South Bank Quay will create much needed jobs in a sector that really supports the UK's need to move to Net Zero, but the jobs could have been equally created with a protective/precautionary approach to the environment and respect for local heritage. Instead, a short-sighted approach where short terms profits both financial and political appear to have been prioritised over real sustainable long term benefits.

8.24 In order to create the new South Bank Quay, Teesworks and its sister organisations (STDC/STDL) carried out capital dredging, which involved the removal of up to 16m depth of material from the original riverbank and river bed.

8.25 The construction of the South Bank Quay is covered by a number of planning applications and 2 marine license applications. One of the marine licence applications, South Bank Quay Phase 1 MLA/2020/00506 plus variations 1 and 2, includes thousands of pages related to the South Bank site including much information related to its industrial history. The site has been used for over 100 years for a wide variety of industrial uses, the major ones being related to iron/steel making, in fact the area was classified at the most dangerous hazard level (COMAH) due to the by-products of coke making that remained on the site at the time of the application. The major by-product (coal tar) is a dangerous mixture of chemicals distilled from coal whilst being transformed into coke. The

[24] 171019South-Tees-Master-Plan-19-Nov-17.pdf (northeastfc.uk)
[25] 1911South-Tees-Master-Plan-Nov-19.2.pdf (northeastfc.uk)
[26] The Avenue Landscaping and Remediation Project – one of the UK's most significant brownfield projects - GOV.UK (www.gov.uk)
[27] bilbaoturismo.net/BilbaoTurismo/en/history/transformation-bilbao-
[28] The Bilbao effect: how Frank Gehry's Guggenheim started a global craze | Frank Gehry | The Guardian

COMAH status was due to the 1000's of tonnes of mainly coal tar related material still on the site. What is unknown is how many thousands of tonnes of material have leaked into the site over the 100 plus years of coke oven operation.

8.26 The licence application also contains the chemical analysis for the suite of chemicals that is specified by OSPAR (Oslo and Paris Convention) as having to be tested if material is to be disposed of at sea. Samples that had been taken of the riverbed and the river bank all had high level of polycyclic aromatic hydrocarbons (PAHs), which was not surprising bearing in mind the site history of coke production. There is no explicit requirement in OSPAR regulations for a developer to test for other coal tar / coke related chemicals and they were not looked for.

8.27 Chemical analysis showed that about a third of the riverbed designated for dredging for the berth at the South Bank Quay was so contaminated that it was classified as an exclusion zone. The material that was dredged from this exclusion zone was therefore excluded from being disposed of at sea and instead had to be brought to land for appropriate disposal or cleaning. The top 8m was excavated to land, as this 'human made' waste (as defined by the London Convention) could also not be disposed of at sea.

8.28 The MMO had to make a subjective judgement on whether the cumulative effects of dredging would cause sufficient damage to warrant blocking of disposal at sea. The MMO takes advice from Cefas, who stated that while levels of contamination were high enough that disposal at sea should not be allowed, due to previous activities in the vicinity of the Tees, disposal at sea should not be precluded (18th June 2021 - Cefas Follow up Advice MLA/2020/00506&00507[29]). So, in the case of the sea around the River Tees due to its history of pollution, adding more contamination is acceptable. In other words, in other marine areas without an industrial past, it could be assumed that the disposal would not have been acceptable, and the environment would be protected.

8.29 We know, from both from the record of historical industrial activity and waste disposal into the Tees and from the limited sampling carried out before the dredging occurred, that the material disposed of at sea will have been contaminated to some extent. The disposal at sea is allowed because it does not breach current internationally agreed limits and because there is an assumption that development takes precedence over potential environmental damage.

8.30 Further to this, although a marine licence specifies the way in which the dredging must be carried out and how the dredged material is to be disposed of at sea, it is up to the contractor to comply with the specifications. Disposal sites are only checked by the MMO for contamination level once every three years.

8.31 The MMO originally asked the developers to monitor the amount of sediment being released locally into the river at the dredge sites to ensure it did not disrupt the marine ecosystem. This would have involved extra expense and potential

[29] 20210615 MLA202000506 MLA202000507 Tees South Bank Phases 1 and 2 - EIA _ SEAL Advice Followup+SJB.docx (northeastfc.uk)

disruption to the Teesworks dredging operations, so the developer proposed an alternative - that dredging would not take place during July and August as this is when the salmon mainly migrate along the River Tees Estuary. All flora as well as fauna in marine ecosystem can be damaged by exposure to the dredged sediment but only salmon is fully protected in law.

South Bank Capital Dredging - 11th October 2022

8.32 As outlined in section 6.25, Chemical analysis showed that about a third of the riverbed designated for dredging for the berth at the South Bank Quay was so contaminated that it was classified as an exclusion zone. Developers were therefore required to use a closed bucket dredge, on the basis that "An enclosed grab results in virtually no release of sediment as the material is dredged[30]"

8.33 A Marine Licence Application return document MLA/2020/00506 Condition 5.2.11 - P03[31] evidenced that this was not the case, and that so much contamination was spread from the excluded dredge site that there was a requirement to carry out localised remedial dredging to remove the contaminated sediment around the excluded area. Planning documents show that locally released sediment will have been deposited over most of the River Tees estuary. However, Teesworks only remediated close to the exclusion zone meaning that excluded contaminated sediment will also have been dumped at sea either through the cutter suction dredger Athena's capital dredging of the rest of the berthing pocket adjacent to the exclusion zone or by PD Ports maintenance dredging of the main channel adjacent to the exclusion zone.

8.34 Further dredging activity undertaken between 5 February and 14 April 2023 contributed to the disturbance and spread of contaminated sediment along the bed of the river. The following conclusions may be drawn from video evidence captured between 30 March and 14 April 2023:

- The resuspension of riverbed sediment is clear, with material of all sizes changing the rivers colour around the Athena and presumably mainly fine sediment being allowed over the weir on the barge as the suction dredged sediment settles in the barge effectively dewatering the sediment in the barge. The more water that is allowed to leave the dredged material in the barge, the larger the loads of dredged material that can be removed per trip to the disposal site, but the greater the amount of dredged material which is released back into the river.
- The video starts with images of the large bunded mound which is believed to be the material dredged from the exclusion zone. This material is so contaminated that it cannot be disposed at sea, it has been piled near to the river to dewater with the required bund to capture any water, potentially to be treated before disposal (as specified in the marine licence).

[30] MLA_2020_00506-PC1084-RHD-ZZ-XX-RP-Z-1115_South Bank Quay supplementary report-16.pdf (northeastfc.uk)
[31] MLA_2020_00506-PC1084-RHD-SB-EN-ME-EV-1145-Condition 5.2.11 Note P03.pdf (northeastfc.uk)

- The two excavator dredgers are working towards the western end of the quay, with the Athena operating towards the eastern end of the quay.
- The material dredged by the Athena is allowed to be dumped at sea, so you can see the hopper barge connected by the floating pipe. The water around the hopper barge shows the material which is being released from the barge as the dredged material is allowed to drain into the Tees. The more water that can be removed from the material piped from the Athena, the fewer times the hopper barge has to be taken out to the disposal sites.
- Finally, the Athena cutter suction dredger can be seen in operation and unlike the animation the amount of sediment which is not caught by the suction can be seen by the change in water colour around the cutter head, travelling to the stern of the boat.

Redevelopment and Remediation Work

8.35 The approach to remediation of the South Bank Site, as outlined in the STDC Enabling Earthworks and Remediation Strategy Report [32] was described as being potentially inappropriate for DNAPLs (Dense non-aqueous phase liquids), which require specialist equipment for removal or remediation. Further to this, consideration has not been given to risks to local receptors, such as SSSI, RAMSAR site and River Tees as they are removed from the Conceptual Site Model (CSM). There was also no reference to potential risks from the creation of additional pathways to sensitive receptors as a result of piling, explosives or dredging activity, or of the possibility of tidal flats groundwater acting as source and pathway, owing to hydraulic continuity with river and sea. A revised CSM showing risks to river and marine receptors is shown at **figure 11**.

8.36 In terms of risk assessment, the following was identified:

- There are multiple known and unknown pathways to contaminate river and sea and there was a failure in assessing significant risks to the water environment, which is highly dynamic.
- There appears to have been no consideration for DNAPLS, and the granting of a planning application without remediation of DNAPLS in affected areas is not in line with EU guidance. Correspondence from the Environment Agency, dated August 2019, advises that 'decontamination operations should be completed prior to any demolition or longer-term restoration of the site.
- The CSM contained no reference to the impact of development on offsite receptors, such as SSSI, Ramsar and the River Tees.
- No consideration was given to the creation of additional pathways caused by explosions, or migration of contaminants through Tidal Flat Deposits.

8.37 In terms of regulatory issues, the following was identified:

[32] South Bank Priority Area, Enabling Earthworks and Remediation Strategy, STDC, ARCADIS, May 2021 R-2021-0465-FFM-10035117-AUK-XX-XX-RP-ZZ-0271-02-South Bank Priority Strategy.pdf (northeastfc.uk)

- The precautionary principle was not applied given the recent die-offs. The assumption should be that any work on the site is likely to cause environmental damage or at least reduce the resilience of the local environment to damage.
- The incident relating to Borehole 34 was not properly addressed.
- There was no independent testing of dredged material or the dredged site, as would be expected with a landfill scenario.
- The Independent Panel review of the October 2021 die-off was used as a rationale to approve future dredging – see **Variation MLV2**

FINDINGS

- Concerns are raised here as to the administration of the MMO applications with such a fundamental error of the amount of material to be dredged and disposed of at sea being wrong. This was only corrected on 17 June 2022.

- This means that the original license was issued erroneously given that the figures given were 1/10th of the actual required.

- Who polices / audits how much material is dredged and disposed of at sea? If there was any policing, it should have been picked up that this was significantly over the amount stated on the license for the years from 2015-2022

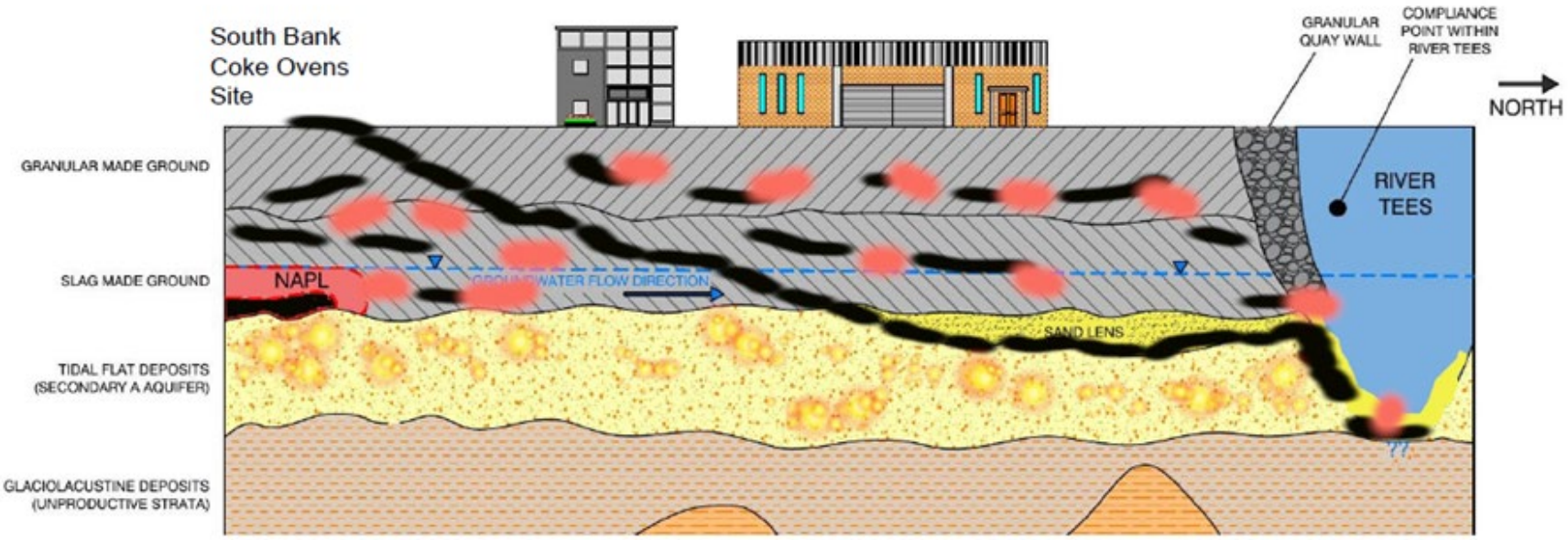
- Sampling carried out after the Orca dredge which was a year earlier than expected given the standard testing regime. Why was this decision made when PD Ports told us that they would not test over and above what was the minimum necessary

- Sampling around 13 October 2021 shows a large increase in the levels of PAH in comparison with levels of heavy metals in comparison with November 2020. This could indicate that an event occurred shortly beforehand which released a high number of Hydrocarbons

- Concern as to the impact of a number of demolitions on reclaimed and contaminated land, including the Dorman Long tower, potentially releasing contaminants into the river, and in particular PAH.

Figure 11

Revised Conceptual Model showing risks to river/marine receptors *(EA DNAPL + Arcadis South Bank)*



South Bank, Teesworks, Redcar - Detailed Quantitative Risk Assessment - South Tees Development Corporation - Document Ref: 10035117-AUK-XX-XX-RP-ZZ-0331-02-SB_DQRA - Revision: 02 - SEPTEMBER 2021 - Arcadis
https://www.northeastfc.uk/Teesworks/Planning/R-2022-0096-CD/R-2022-0096-CD-10035117-AUK-XX-XX-RP-ZZ-0331-02-SB_DQRA.pdf
Environment Agency 2003 – R&D Pulbication 133 – An illustrated handbook of DNAPL transport and fate in the subsurface

Professor D Roberts, Department of Geography, University of Durham

Evidence heard at a meeting of the Working Group on 3 November 2023

Professor Roberts provided an oral presentation on his work relating to sediment core samples taken from the Tees riverbed in April 2023 between the South Bank site and the mouth of the Tees. Professor Roberts advised that he was working as part of the community effort as a sedimentologist with expertise in how sediment is deposited in coastal environments. Professor Robert's interest in the area had developed over decades, particularly in relation to coastal evolution and waste produced as a result of coal mining activity. He has extensive experience of collecting sediment cores from offshore, coastal and estuarine areas.

9.1 Following several mortality events, scientists have been examining dredging activity to assess how dredged sediment may have found its way to the sea / estuary floor, and to assess what the sediment may contain with respect to pollutants. Cores have been retrieved as part of a collaborative process between the scientific and fishing communities and are currently in the process of being analysed for content. Within 6 – 12 months comprehensive results relating to the characteristics of the sediment should be available.

9.2 Some basic considerations in relation to the work were described as follows:

- In an estuary sediment is moved through fluvial and tidal action.
- Sediment is deposited as bedload by currents and via suspension settling.
- Suspension settling is very important where there is fine sediment in the wate column.
- Dredging activity leads to the formation of sediment plumes which release both coarse and fine sediments (plumites) via rainout onto the seafloor.
- Plumites accumulate layer by layer providing a record of the sediment that has been released.

Law of Superposition

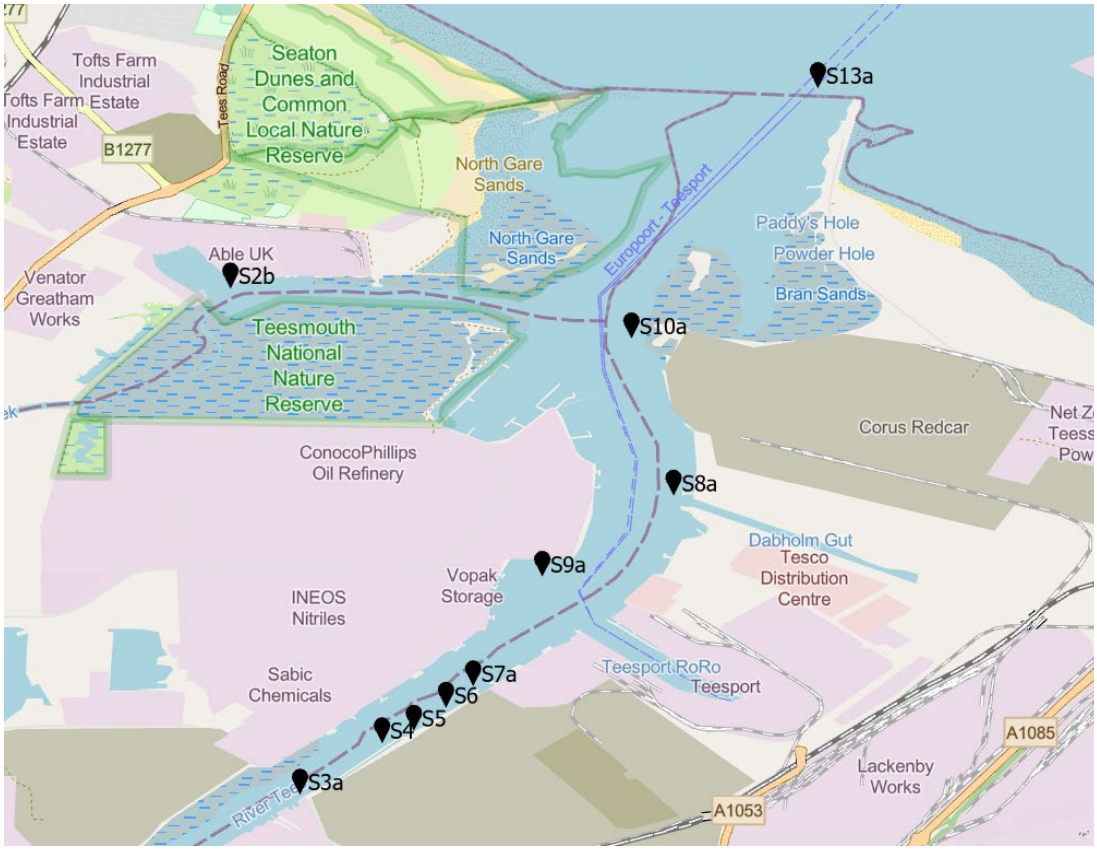
- Younger sediments lie above older sediments.
- So, the most recent sediment layers sit on the top of the sediment pile.
- Sediments tell us about depositional processes and pollutant signals.
- Timescale:
    - The Tees cores undoubtedly capture sediment accumulating on the riverbed in the days, weeks, months prior to April 11 2023. The 'dredge' signal has distinctive: colour, grain size, physical properties, structure and lacks fauna. The cores also contain older 'pre-dredge' sediments which have distinctive: colour, grain size, physical properties, structure and faunal communities.

9.3 The location of Tees core samples is found at **figure 12.** Sediment cores taken as part of this investigation were retrieved in situ, on a single day on 11th April 2023.

Cores taken were not a standard length due to variable sediment density and water content. Data was derived from the following processes:

- MSCL scans to ascertain the physical properties of the core (e.g., grain size).
- CT scans, which allowed researchers to look inside the core to define sediment structure (e.g., normal grading associated with rainout).
- XRF scans which provided elemental analysis.

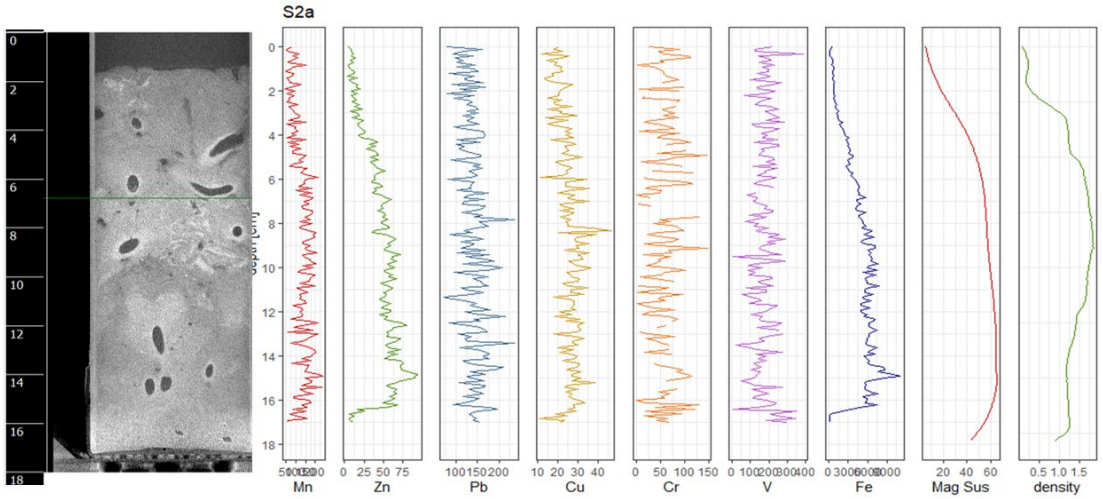
Figure 12 – Tees Cores Locations



9.4 Findings from core sample analysis are as follows:

S2a (pre-dredge sediment)

- Dark brown; muddy sand; massive; macrofauna (worms, molluscs, gastropods); bioturbated.
- High density.
- High magnetic susceptibility.
- Elemental signal: Zn/Fe/Al ↑; Pb/Cu/Cr/V↕



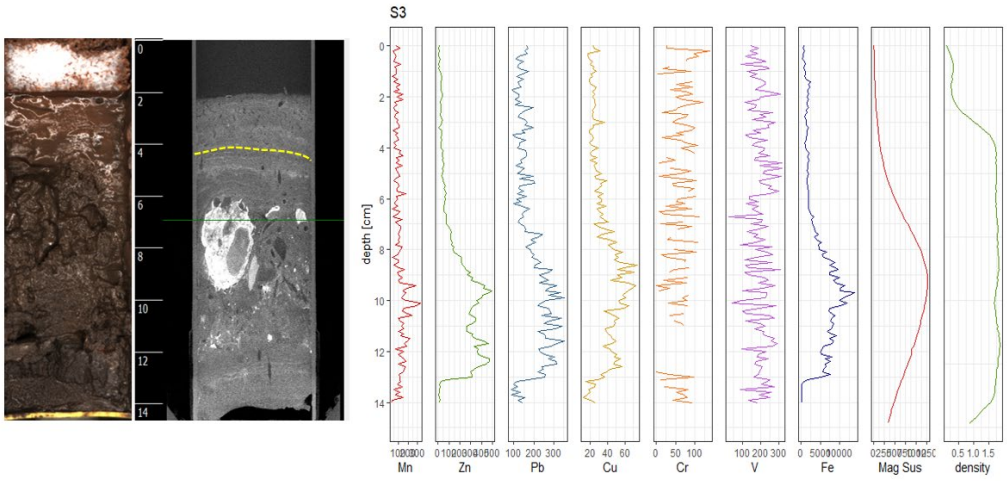
S3 (pre-dredge overlain by thin dredge)

Pre-dredge

- Dark brown, muddy sand, macrofauna (worms, molluscs, gastropods)

Dredge

- A thin cap of red, muddy sand on top, lacking fauna, not bioturbated, laminated.
- Drop in Mag Sus and density.
- Drop in elemental signal (Zn, Cu, Pb, Fe)



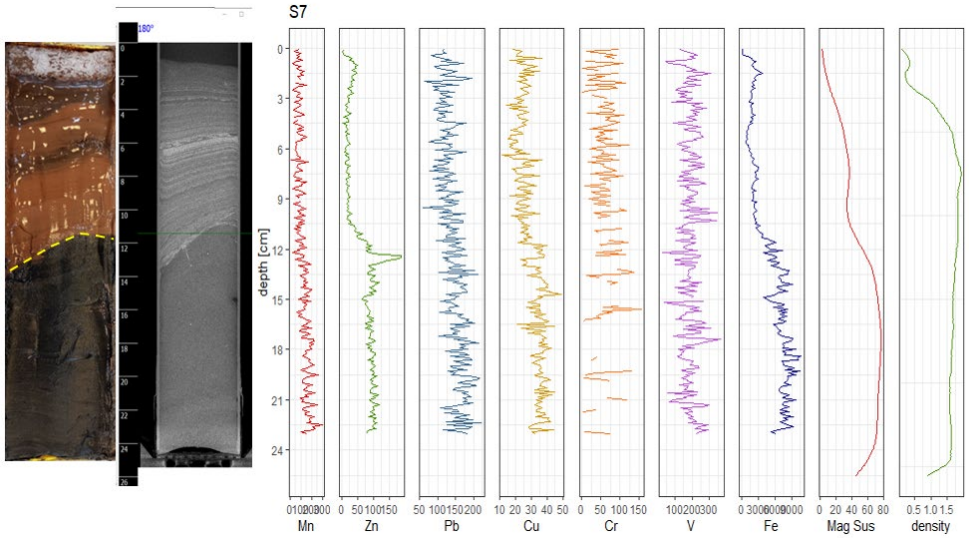
S7 (pre-dredge overlain by thin dredge)

Pre-dredge

- Dark brown, muddy sand, no macrofauna

Dredge

- 10cm cap of red, mud, lacking fauna; laminated
- Drop in Mag Sus and density.
- Drop in elemental signa (Zn, Cu, Pb, Fe, Al)



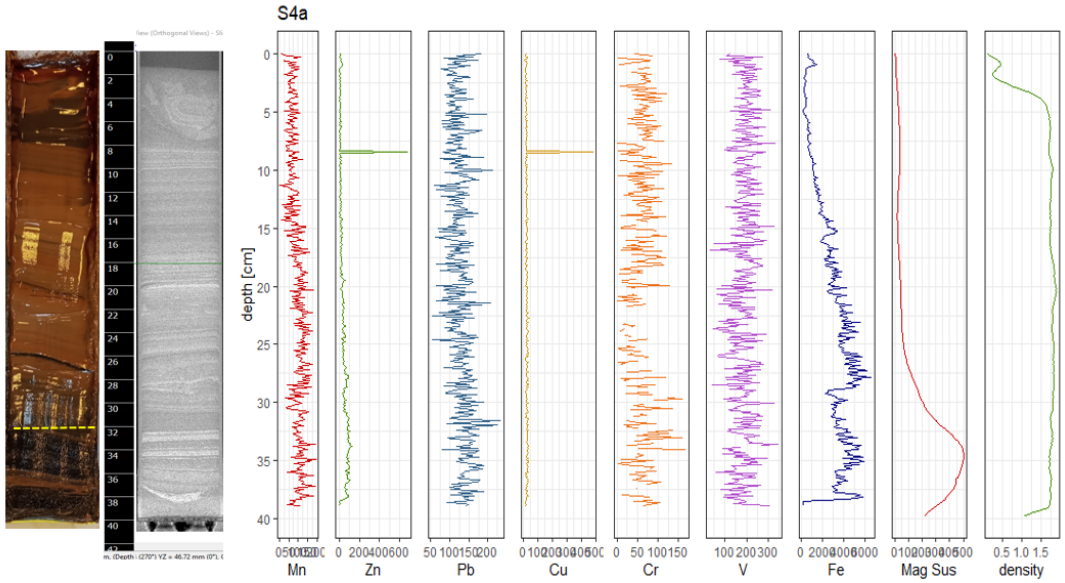
S4 (pre dredge overlain by thin dredge)

Pre-dredge

- Dark brown, muddy sand, no macro fauna

Dredge

- 32cm cap of red, mud, lacking fauna; laminated
- Drop in Mag Sus and density
- Drop in elemental signal (Fe), spikes in Cu/Zn



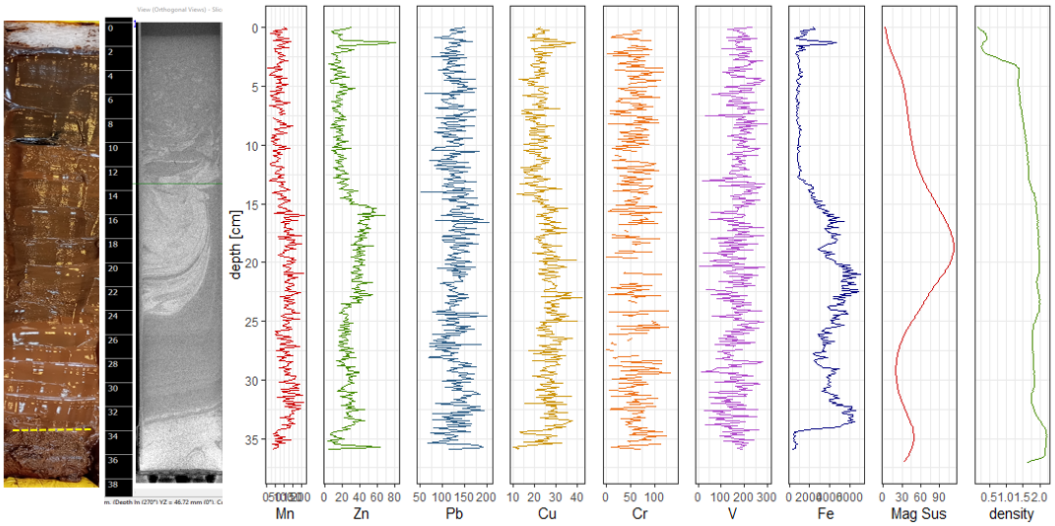
S5a (pre dredge overlain by thin dredge)

<u>Pre-dredge</u>

- Dark brown, muddy sand, no macrofauna

<u>Dredge</u>

- 34cm cap of red, mud, lacking fauna; laminated, deformed
- Drop in Mag Sus and density
- Change in elemental signal.



9.5 Key sedimentary properties:

- Pre-dredge signal shows dark brown, muddy sands with extensive evidence of macro fauna (worms, gastropods, molluscs) and related bioturbation. Sediment is high in density and magnetic susceptibility and distinctive elemental signal.

- The dredge signal is composed of fine-grained (silt/clay) sediment, which is laminated, red-brown in colour and devoid of life, low in density and magnetic susceptibility, and a different elemental signal to the pre-dredge material. The red colour of the dredge signal suggests a distinctive local source.

9.6 Professor Roberts advised that, in his opinion, core samples 3 – 7 contained material dredged and released as a result of adaptation and alteration of the South Bank site, possibly resulting from work undertaken by the Athena dredger. The plumes associated with the Athena have a distinctive red colour similar to the sediments cored on the riverbed. Although it is difficult to date plumes, the law of superposition dictates that the uppermost deposits are most recent and likely deposited in the days/months prior to 11th April 2023. There has been no comprehensive survey of the riverbed, but common sense would dictate that the red dredged sediment released via plume activity is now likely to be ubiquitous along the riverbed and across many parts of the estuary.

9.7 'Pre-dredged' older sediment (e.g., core samples S2b) showed evidence of marine life. In contrast, the red 'dredge' sediments are devoid of life, most probably due to

high levels of toxicity, sedimentation or turbidity making the riverbed inhospitable to life.

Centre for Environment, Fisheries & Aquaculture Science (Cefas) "Development, validation, and application of a fully quantitative method for the determination of pyridine in crustacean tissues (and application of the same method in sediments)."

The report, and associated feedback, was discussed at a meeting of the Working Group on 7 December 2023.

10.1 The report referred to above outlines the following points (taken from the Executive Summary):

- Pyridine was implicated as a cause in the mass mortalities events (MMEs) that occurred during the autumn 2021 in the NE coast of England involving mainly crabs and lobsters. This was inferred from high pyridine levels reported in some crabs from the affected area, following analysis by the Environment Agency (EA).
- The analytical screening method used by the EA (although accredited for water samples), was neither quantitative nor validated for biota (or for sediment) samples but was used within this incident to identify lines for potential follow up.
- Due to continuing external concerns over pyridine, Defra commissioned (this work) at Cefas to develop and validate a robust quantitative method for pyridine in these environmental matrices.
- This method was used to re-analyse stored samples collected during the MMEs.
- Cefas analysts developed and validated a method, using a head space injection gas chromatography coupled to a mass spectrometer, HS-GC-MS technique. The limit of detection (LOD) and the limit of quantification (LOQ) of the method was 0.006mg/kg and 0.02mg/kg wet weight (ww) for the shellfish matrix and 0.002mg/kg and 0.008mg/kg ww for the sediment matrix, respectively.
- The analytical method developed in this study, demonstrated fit-for-purpose performance criteria for biota matrices, including a recovery range of 89-101% and an associated within batch coefficient of variation (relative standard deviation) of 2-3% across three concentration levels (5, 25 and 500mg/kg).
- Reanalysis of crustacean samples that had originally returned high indicative pyridine levels with the EA method (3-429mg/kg) demonstrated very low concentrations of the chemical (<0.22-0.077mg/kg, over 3 orders of magnitude lower). Analysis of additional crab samples, unrelated to the events, also demonstrated the presence of pyridine at very low levels (<0.02-0.139mg/kg).
- A single mussel sample returned a value of 2.36mg/kg.
- Pyridine levels in sediments collected in November 2021 all returned values between the LOD and LOQ. Three sediment samples collected in January 2022 returned values above the LOQ (0.014, 0.008, 0.009mg/kg ww), although below 2x LOQ.
- Both sediment and biota samples returned levels of pyridine within an expected range based on the low environmental persistence, and high biodegradation rate of the chemical.

- It is therefore considered very unlikely that pyridine, as a single chemical entity, was the cause of the crab and lobster mortalities during autumn 2021.

10.2 Dr Gary Caldwell provided the following response to the report:

"Context: The Cefas report details a validated method to precisely measure the quantity of pyridine (a highly volatile organic solvent) in crustacean tissues and marine sediments. The research was commissioned in response to concerns about the quantities of pyridine measured by the Environment Agency (EA) as part of their pollution incident response following the autumn 2021 mass crustacean die-offs. The method used by the EA was validated for water but not for tissue samples. The publication of a validated method is to be welcomed, and I expect a second validated method developed by the University of York will be published in the coming months. Having validated methods is important in ensuring confidence in the pyridine values reported. Cefas applied their validated method to samples of frozen carcasses collected at the time of the original die-offs. While I have no issue with the method itself, care must be taken with respect to the absolute quantities of pyridine measured in the tissues as they had been stored frozen at -20oC rather than -80oC (which is the accepted temperature for the long-term storage of unstable samples). Pyridine, being volatile, will continue to have been lost to atmosphere at -20oC, albeit slowly. Further, at -20oC microbes present in/on the carcasses could still have been metabolically active and may have further degraded the present pyridine.
The storage issue aside, there are important nuances that an informed reader would have picked up from the report, but which have been overlooked by public figures and by the media. Firstly, drawing conclusions based on tissue pyridine content is of limited value, and I would argue that it is potentially flawed for, as the report states:
"…the water-soluble nature of pyridine suggests very low bioaccumulation potential."
Bioaccumulation is the process whereby the quantity of a chemical is increased within the tissues of an organism, often to dangerous levels. Whether a chemical bioaccumulates or not is primarily dictated by the properties of the chemical, and pyridine is widely accepted not to bioaccumulate. However, this is a moot point as pyridine does not need to enter the body of a crab/lobster to exact its toxicity. The receptors that are sensitive to pyridine are found on the outside of the crab/lobster (on the exoskeleton). The implication of this is clear, for pyridine to be toxic it needs only to be present in the water and/or sediment - there is no need to bioaccumulate. Therefore, one would not necessarily expect high levels of pyridine to be found in the tissues.
With respect to the surface sediment testing, these samples were collected several weeks after the main die-off event and were also stored sub-optimally at -20oC. Pyridine has a half-life of approximately 8 days (a logarithmic decay). Due to the timing of the sampling, the bulk of pyridine will have been lost and/or degraded. Even so, it's important to state that some of the pyridine levels that Cefas detected in sediment (particularly around Hartlepool) do fall within the toxic range against crabs. If one was to back calculate the quantities measured in the sediment according to the 8-day half-life, this

would lead to the inevitable conclusion that the pyridine levels in the sediment at the time of the die-offs would have been even more deeply into the toxic range.

The final point that I want to highlight is directly related to one of the key conclusions of the report, and indeed was the message briefed by No. 10 to local MPs and the media.

"It is therefore considered very unlikely that pyridine, as a single chemical entity, was the cause of the crab and lobster mortalities during autumn 2021."

To the casual observer this may seem like a definitive dismissal of a pollution link, but for those of us that have been immersed in these events and have had to deal (both in private and in public) with the unequivocal and at times unnecessarily forceful denials of the DEFRA agencies of any pollution involvement, the report's conclusion is a notable change in position. Considering the "…*as a single chemical entity*…", a multichemical pollution event is the most likely source of the die-offs. Pyridine is but one component of coal tar, and another coal tar component that we are very worried about is naphthalene. The report's authors will have been all too aware that I will have read the report - to those of us versed in the science, that conclusion speaks volumes. This is the first admission that pyridine could, as part of a multichemical mix, have been responsible for the die-offs.

10.2 Dr Simon Gibbon advised that Cefas should have tested old samples again with both tests, or ideally, tested new samples with both tests. Otherwise, differences caused by the age of the samples can't be ruled out.

10.3 NEFC queried the validity of the findings in the absence of a peer review process.

FINDINGS

- The development of a validated method for determination and quantification of pyridine in tissue samples is welcome but the report published by Cefas had not been peer reviewed prior to publication.
- Peer review is very important in ensuring the quality and validity of research findings prior to publication of any findings.
- Storage of the tissues used in the Cefas study at -20oC was not optimal. Storage at -80oC is recommended for unstable products such as pyridine.
- It is considered unlikely that pyridine "as a single chemical entity" was the cause of the mass die off.

Whitby Lobster Hatchery

Evidence gathered by Members of the Group at a visit held on 8 January 2024

11.1 Whitby Lobster Hatchery is a charitable organisation that was created in 2021. Set up with grants from the MMO and local businesses, the organisation has recently opened a visitor centre with the ambition of becoming a self-sustaining educational, conservation and research centre.

11.2 The fishing industry along the Yorkshire coast is the largest in England with Whitby ranking at the 3rd largest port for lobster landings. Along all of the ports on the Yorkshire coast, lobster fishing has replaced the white fish industry as the main target species and lobster now make up the majority of income for Yorkshire fishing communities. Yorkshire lobsters are some of the best in the world, highly desired by seafood markets across Europe. It is therefore vital that these species are healthy, abundant and sustainable.

11.3 The aim of the Hatchery is to protect Whitby's fishing heritage by conserving the local lobster populations. This will be achieved with the release of 100,000 juvenile lobsters into the sea.

11.4 Lobsters produce up to 20,000 eggs per cycle, which are released into the water as larvae. Statistically, only 1% of these larvae survive. Wild caught egg-bearing lobsters are brought into the hatchery, where the eggs are developed safely and the juveniles protected over the most vulnerable period of their life cycle before being released back into the wild. The intervention is predicted to increase larval survival rate to 30-50%.

11.5 It is envisaged that the released juvenile lobsters will fortify the existing lobster population year on year. Juvenile lobsters take 5-7 years to grow to market size and during this time they will reach sexual maturity and begin to release eggs of their own. The Yorkshire Lobster Hatchery maintain that this conservation method, alongside effective management, will protect lobster fishing in the area by strengthening local lobster stocks and securing jobs for the fishing fleet.

11.6 The hatchery was assembled before the mortalities began, although the target for release numbers hasn't altered, being already ambitious. The Manager, however, advised that the organisation were spurred on by the die-off event and the realisation of the fragility of the marine environment. Since the mortalities, support from the fishing community for the programme has increased from 80% to 100%.

11.7 As lobsters regularly moult by creating a new shell and eating the old one, a DNA database of released lobsters has been created to identify and track individual lobsters and assess the success of the release programme. The industry remains unclear on the patterns of movement of lobsters, and there is uncertainty about where juvenile lobsters - less than an inch long – live and feed in their natural marine environment.

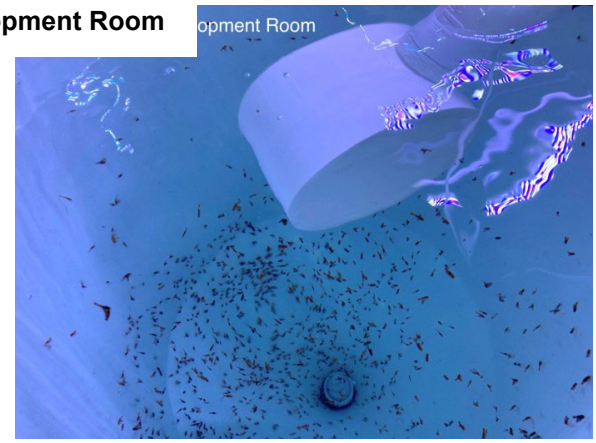
Hatchery Process

11.8 Egg-bearing lobsters, or berried hens, are placed in tanks after being brought in by fishing vessels with dispensation to take them from the sea. After the eggs hatch, the hens are released back to the sea, and the eggs are piped to the Development Room.

11.9 The eggs develop to larvae, then juveniles, where they take the familiar lobster shape and continue growing. Artemia (brine shrimp) are bred in a separate room and used to feed the larvae and juveniles until they are about 3 months old, when they are released into the wild by divers, who try to find an environment on the sea bed which looks safe for them.

Tanks holding berried hens

Larvae in the Development Room



Juvenile Lobster. The second image is a close up of the tray shown in the first image

FINDINGS

- It is apparent that the work of Lobster Hatcheries is valuable in our area and should be invaluable to the recovery from this significant event.

- It could be possible for the work to be expanded to include crabs but obviously would require additional funding to enable this.

Mr David McCreadie
Former Senior Lecturer, Marine Biology and Oceanography

Evidence heard at a meeting of the Working Group held on 12 January 2024

The following evidence was relayed orally by Mr McCreadie in his capacity as a former academic and fisheries trader.

12.1 Mr McCreadie's shellfish business failed due to River Mersey sludge dumping in 1997, which led to a loss of marine life and livelihoods in the Menai Strait. A sample from the dump site was considered by the Ministry of Agriculture, Fisheries and Food (MAFF) to be a matter of national security.

12.2 Mr McCreadie experienced Persian Gulf pollution owing to dumped barrels of toxic waste that had corroded, which led to the death of plant and animal marine life.

12.3 Mr McCreadie witnessed the Orca dredging and assigns the wash up of dead crustaceans to this event. The wash-ups continued through January and February of 2022, paused and then recurred in April 2022 along with dead seaweed and marine scavengers such as starfish and whelks. There was a suggestion that whatever was dredged has travelled to the Netherlands and that seals have died further down the English coast owing to the anticlockwise gyre exhibited in the North Sea.

12.4 Agent Orange as well as other materials were illegally disposed of in the Tees during the last century. Given the industrial heritage and the lack of regular testing, the release of juvenile lobsters from the Whitby Hatchery and the proposed Northumbria Water sponsored oyster beds are not viable.

12.5 Mr McCreadie maintained that the dredging campaign undertaken by UKD Orca was deeper than it should have been, there should be a sonar record of the dredge. (information requested by email from UK Dredging on 15.01.24)

12.6 Mr McCreadie believes that there should be sediment testing before, during and after dredging campaigns, to be carried out by scientists independent of Defra.

FINDINGS

- Evidence from Mr McCreadie as a first-hand witness to the crustaceans die off as well as having had first-hand experience as a fisheries trader.

Holding Statement and Public Inquiry

14.1 The Working Group met in February 2024 to agree a set of final recommendations based on the evidence received to date. The Group concluded that it was not possible to produce a conclusive piece of work as given its inability to engage with the main government agencies involved in marine management.

14.2 The Working Group therefore produced a Holding Statement outlining the interim findings and recommendations. The Holding Statement (see below) was forwarded to the following organisations, with a request for a response:

- The Secretary of State for DEFRA / Working Group Chair's response (**Appendix 15**)
- Environment Agency (**Appendix 16**)
- Cefas (**Appendix 17**)
- MMO (**Appendix 18**)
- NEIFCA
- PD Ports (**Appendix 19**)

Crustacean Deaths Collaborative Working Group

Holding Statement

In October 2021, a sea life mortality event occurred along the Northeast coast of England that involved the wash-up of thousands of dead and dying crustaceans. Members of the public, the fishing community and environmental charities continue to report occurrences of mortality events to date, mostly involving crustacea, although wash-up of other species has been reported.

Councillors representing the Tees Valley authorities affected by the incident were concerned that initial Government investigations were closed prematurely and agreed to form a Collaborative Working Group to consider evidence from various sources, including written reports and presentations from expert witnesses and stakeholders. Representatives from North Yorkshire Council joined the Group in July 2023 in view of the impact of the event on communities further south of the Tees Valley.

The Terms of Reference for the work of the Group outlined the need to better understand the reasons for the event; the impact it had on local communities; the response of key partners and recommendations for future actions.

The Working Group initially agreed to publish findings and recommendations in March 2024, but agreed to continue the work for a further 6-month period to allow government agencies further opportunity to engage and in order that peer-review work on relevant reports is completed.

Recommendations detailed in the Holding Statement

On the basis of information considered by the Working group so far, the following findings and recommendations have been agreed:

- **A formal request for the Secretary of State to establish a public inquiry into the events will be made.**

- **In relation to testing regimes, there is a need to review current arrangements for monitoring of the maritime and waterways environment. In particular:**
  - **There is a need to review the frequency of testing, alongside the regime for management of sampling and reporting.**
  - **There is a need to test for a more comprehensive suite of chemicals and combinations of any variety of chemicals.**

Review of testing regimes should apply to the whole of the maritime and waterways environment.

- **To better manage potential future mortality events, there should be a robust published procedure, which clearly shows lines of responsibility and processes for storing and testing of samples.**
- **In view of the fact that is has been difficult for the Group to identify interested parties within the maritime environment, a register of pertinent organisations and their contact details should be created. It was also noted that there is a need for stakeholders to establish closer working relationships with each other.**
- **There is a need to improve the data regarding the health of the maritime and waterways ecosystem, stock levels and catch effort.**
- **Financial support for ventures that might aid the recovery of marine ecosystems is requested.**
- **The Working Group call for more appropriate and relevant compensation for the fishing communities impacted by the die-offs. Members believe that the schemes currently on offer – namely, the UK Seafood Scheme and the Fisheries and Seafood Scheme, are not fit for purpose.**

14.3 The Holding Statement contained a call for a Public Inquiry in addition to a number of recommendations based on evidence received over the course of the review, as outlined in the body of this report.

14.4 Stakeholder responses to the Holding Statement are attached at **Appendices 15 – 19**. The MMO and Cefas was not able to respond on the basis that they had provided joint feedback with DEFRA.

Final Conclusions

In reference to the aims of the review, the Working Group has made the following recommendations for future actions:

The reasons for the event

Having sought to engage with relevant authorities, agencies and directly interested groups and individuals it has become evident that a wide variety of views and opinions are held in respect of the Crustacean Die Off.
These are based on observations within the existing frameworks of data recording and a wide variety of research that has been conducted, some of which is ongoing.
The original algal bloom has been discounted, and the novel pathogen remains on the table as the only outcome of learned deliberation.
Although unable to add to a definitive conclusion, the Working Group has established that there are a significant variety of factors working independently but also collectively which do influence water quality, be it sea or river.
Although human activity appears to be regulated and the natural environment researched and understood there remains much to better manage and research.
Even with the existence of a plethora of related organisations and the interest shown by the general public, the scientific and fishing communities there have been no definitive conclusions reached.

Recommendations / Actions

1	Further research does require to be undertaken in the fields of marine and river ecology and of its management. Defra and Cefas have initiated further research and it is imperative that relevant work be expedited to establish a greater understanding of the coastal environment, the pressures that bear upon it and the management structures that are best fitted to monitor and manage. Reports should be peer reviewed and placed in the public domain in a timely manner. All research that is being undertaken by Government agencies, scientific institutions, companies and sponsored individuals should be acknowledged and accessible for reference. The complexity of relationships needs to be simplified so that any future events of a similar nature can be more readily addressed.

The impact it has had on local communities

Clearly the impact on fishing communities has been catastrophic in certain areas.
Most areas along the coast in both directions from the Tees Mouth have experienced a fall off in catch.
The marine environment has been adversely affected in certain areas.
The number of vessels involved in inshore fishing has significantly diminished.
Livelihoods of many have been permanently altered.
Stocks of lobster have fallen but have shown some signs of recovery
Stocks of crab have fallen but have shown little recovery.
In addition to impact on fishing communities the adverse environmental aspects have been felt across all communities from Seaham to Filey.
The health of coastal waters and river waterways is of fundamental importance to every community.
When the health of these waters is damaged and when no logical reasons are forthcoming the concerns of communities are to be recognised.

Recommendations / Actions

2.	The Working Group commends the efforts of the lobster hatchery approach to improve stocks. The work being conducted at hatcheries in Whitby and Bridlington is to be commended and encouraged. Further hatcheries require to be evaluated to ensure that the restocking of lobsters is maintained to support a sustainable future for the inshore fishing industry. Similar efforts to restore the population of crabs should also be explored.
3.	Evidence received from academics, NEIFCA and the fishing community suggests that there are broad ecological implications from the incident. The Working Group to write formally to government agencies requesting that that the general ocean environment in the region be monitored to assess recovery. It is also recommended that scientific sampling work that is being undertaken in inland waterways in Yorkshire be extended to the RiverTees water way catchment area.

The response of key partners

The first challenge that the Working Group encountered was to identify who were the relevant organisations.
The vast number of relevant and interconnected organisations were not immediately identifiable, and it only became apparent in the course of exploration how complex the maritime administration system is.

Not all organisations were responsive to enquiry.
As a Local Authority conducting an enquiry into matters of local and national significance it was both a surprise and a disappointment that the status of this and fellow Working Group authorities did not receive an entirely proactive response that might be expected of all public bodies.

Recommendations / Actions

4.	The Working Group to request monitoring of progress made towards the Defra commissioned investigations. In particular, the key line of enquiry relating to preparedness for future incidents.
5.	Given that the MMO advises 'relevant restrictions may be attached in the form of conditions to marine licenses granted by the MMO following consultation with bodies including the EA.', it is requested that the MMO be required to review current standards to ensure robustness, especially in areas affected by legacy contaminants. Levels of testing related to dredging licensing were advised as being in line with international standards and agreements. The frequency of testing and the periods during which they might be conducted did not appear to be stringent enough in environments where historic contamination had been identified. The deposition sites for dredged materials vary for maintenance and capital dredging. Both permitted distances should be reevaluated where historic levels of pollution have been highlighted and where current bed core sampling suggests potential pollutants, either in singular form or potential interactive form. Strong consideration should be given to ensuring land deposition be prioritised for capital dredging.
6.	The current governance arrangements are incredibly complex. The Working Group recommends that efforts are made to improve collaboration, and a process instigated to ensure that local authorities can productively engage with appropriate stakeholders. The current areas of responsibility for the maritime coastal area surrounding the British mainland do need to be reviewed. The number of organisations would appear to be too great. The interaction between such organisations does not appear to be effective. The perceived lack of synergy experienced during the Group's explorations was not conducive to confidence building or ease of communication and understanding. A restructuring of the overall maritime management to reduce organisation numbers, better clarify remits, welcome public scrutiny and operate in a robust and timely manner is a requirement in need of prompt action.

7.	The Working Group noted that there were occasionally errors in process administration and some confusion in relation to dredging activity. The Group recommends that attention be given to ensuring robust administrative processes are in place and ready independent audit

Recommendations for future actions

Chemical analysis provided by academic colleagues and documentary evidence relating to land remediation shows that there is significant pollution on the land sites around the River Tees.
In light of this information, the Working Group notes that:

Recommendations / Actions

8.	Sampling is only required on a 4-yearly basis, and consideration should be given to increasing the rate in the Tees, especially in view of the industrial legacy of the area. Risk assessments did not take into account the local sites of special scientific interest, which should not be omitted in future assessments. Waterways are dynamic environments that require further understanding, and there is a need to continue to explore water quality. Further engagement needs to be made with all companies responsible for water management.
9.	The Working Group will not be continuing under its existing remit. Although no firm findings have been revealed to confirm the reasons for the Crustacean Die Off the deliberations of the Working Group have identified a real requirement for local authorities to be better advised of maritime matters where land boundaries border coastal or river environments. Elected members would benefit from greater awareness of maritime legislation, organisational structure, and effective lines of communication and respective authorities should facilitate. There is a perceived need to continue to engage with government agencies. This could be achieved through existing frameworks, but these do need to be robust. The reinstatement of the Annual Coastal Forum should be considered, with a appropriate remit. A review of how local authorities are involved with and relate to

	relevant maritime organisations, either through Elected Member or Officer representation. Communications with members of the public require improvement. All government agencies and all relevant local authorities should be conscious of that responsibility and seek to be better informed and communicative on matters maritime and environmental.

HOUSE OF COMMONS
LONDON SW1A 0AA

Anna Turley MP
The Palace Hub
The Esplanade
Redcar
TS10 3AE

Email: anna.turley.mp@parliament.uk
01642 929159

Daniel Zeichner MP
Minister of State for Environment, Food and Rural Affairs

Sent via email

Dear Daniel,

Congratulations on your appointment as Minister of State.

I am writing to you regarding an issue that I know you are familiar with, and which has been on-going here on the North Yorkshire and Teesside coast for some years now - namely the mass die-off of crustaceans on our coastline which began in October 2021. I am attaching a copy of the letter which all the Labour Tees Valley MPs sent in July to the Secretary of State.

After much time had passed an investigation into the devastation was undertaken by DEFRA. However, confidence in that inquiry remains very low in this region due to the political backdrop of resistance from the Conservative Tees Valley Mayor and local MPs and the context of industrial work being undertaken at the Teesworks site at the time, led by the Conservative Tees Valley Mayor.

I am writing to ask that you and your officials please meet with representatives from the fishing community, scientists and the non-political local authority Task Force working together on this issue here on Teesside to hear the implications of the disaster and to discuss ways forward.

We would like to request that the Department:

- re-examine this issue and reopen scientific investigation working with scientists and academics in the region
- explore financial assistance for the fishermen whose livelihoods continue to be decimated by this incident
- look at a proactive programme of ecological restoration in the affected region

Thank you in advance for your assistance.

Best wishes

Anna Turley

Anna Turley
Member of Parliament for Redcar and Cleveland
Lord Commissioner of the Treasury (Government Whip)

HOUSE OF COMMONS
LONDON SW1A 0AA

Steve Reed
Secretary of State for Environment, Food and Rural Affairs
Department for Environment, Food and Rural Affairs
1st Floor, Seacole Block
2 Marsham Street
London SW1P 4DF

Sent by email only

24 July 2024

RE: Tees Bay and North-East crustacean die-off

Dear Steve and Emma,

Following my brief chat with you both other day, I confirm that the issue of crustacean deaths in the Tees Bay and beyond, devastating marine life – principally, shrimps, crabs and lobsters- continues to be a be a major issue for us in the Tees Valley.

Whilst this is of enormous significance for us all in the Tees Valley, the principal constituencies impacted by this are Anna Turley's in Redcar and Jonathan Brash's in Hartlepool given the damage caused to their fishing communities. Those industries have been decimated.

It's a complex story and the issue of the dredging of the Tees is engaged both in terms of the maintenance dredging carried out by PD Ports the Ports and Harbour Authority and the operator of Teesport, and then in terms of the remediation and reclamation works carried out under the auspices of the South Tees Development Corporation Chaired by Lord Houchen the Tees Valley Mayor, to create the South Bank Quay.

Theories have been offered to explain the massive and sudden die offs but there is as yet no definitive answer. Initial theories settled on Algal Bloom in the North Sea which was dismissed. Many fishers and marine biologists settled on the chemical Pyridine being released into the Tees or being disturbed by dredging but the review carried out investigation carried out by your Department under the previous government settled on the most likely cause being an unknown pathogen. The likelihood of it being the cause was rated as being in order of 30%.

The major asks pivot around:

a) scientific investigations as to the cause be reinstated given that there is no active investigation ongoing,
b) there be a review of the assistance that might be given to the fishing communities and
c) consideration be given to a programme for active restoration of the marine ecology given that this disaster has laid waste to vast areas of the north sea and coast, from Seaham in the north to Whitby in the south.

We would be most grateful if you could meet with us at the earliest opportunity so that we can further appraise you and explore what actions could be taken.

We look forward to hearing from you.

Regards,

Andy

Andy McDonald MP
Middlesbrough & Thornaby East

Writing on behalf of Tees Valley Labour MPs

Jonathan Brash MP
Hartlepool

Chris McDonald MP
Stockton North

Lola McEvoy MP
Darlington

Luke Myer MP
Middlesbrough South & East Cleveland

Anna Turley MP
Redcar

cc. Emma Hardy MP, Parliamentary Under-Secretary, Department for Environment, Food and Rural Affairs

Department
for Environment
Food & Rural Affairs

T: 03459 335577

helpline@defra.gov.uk
www.gov.uk/defra

(By email)

Redcar and Cleveland Scrutiny Committee Board

Date: 18 July 2022

Dear Councillor Shelagh Holyoake

Crab Mortality incident in the North-East

Thank you for inviting Defra to appear before your Committee to give evidence on the 2021 mass wash up of dead crabs on the North-East coast. While a Defra representative won't be able to attend the Committee, I wanted to respond directly to your questions on the investigation.

Has the investigation concluded?

I can confirm that the investigation into the cause of the incident concluded in March 2022. The Environment Agency (EA) led the initial emergency response to the wash up with the support of partner agencies. Defra assumed responsibility for coordinating the ongoing investigation in December 2021 and multi-agency response involving the EA, Centre for Environment, Fisheries & Aquaculture Science (Cefas), Marine Management Organisation (MMO), the North-East Inshore Fisheries and Conservation Authority (NEIFCA), the Food Standards Agency (FSA) and the UK Health Security Agency (UKHSA).

The EA, MMO, NEIFCA and Cefas investigated a range of potential causes including licensed dredging activity, chemical pollution, the presence of algal blooms and aquatic animal disease. No single, consistent causative factor was identified. However, a harmful algal bloom present in the area coincident with the event was identified as of significance.

A multi-agency report on the investigation was published in May. [https://www.gov.uk/government/publications/joint-agency-investigation-into-teesside-and-yorkshire-coast-crab-and-lobster-mortalities

Is any ongoing monitoring happening and if so what?

Defra and partner agencies have established a recovery team to monitor recovery of the affected area and assess new reports of dead crustaceans.

A key focus is on understanding the impact the event has had on shellfish stocks in the region. We are also undertaking further testing that will help us to better interpret the scientific findings of the incident in 2021, increase the suite of analytical tools that we have to respond should any such incidents occur in the future.

Government technical leads met industry commissioned researchers to share knowledge gained from the work completed so far and to discuss planned university and Defra commissioned research. We will continue to share our findings when available and to work collaboratively with other experts. I have included further details below on the research and monitoring being carried out.

Cefas testing

Given previous indicative detection of pyridine in some of the impacted crabs and also in non-impacted crabs, Cefas are developing and validating a chemical detection test to measure the amounts of pyridine in crab tissues. Once completed, this test will be used to assess the levels of pyridine in environmental crab tissues associated with the impacted and non-impacted areas, which were collected and stored during the event last year. This validated test will also enable us to precisely measure any pyridine in crabs post-mortem, to test the theory that pyridine can be a natural by-product associated with the decomposition process in crabs.

The detection of algal toxins (Diarrhetic Shellfish Toxins (DST)) in many of the impacted crabs was also considered a significant finding. Cefas is setting up an exposure study with live crabs. The animals will be exposed to Diarrhetic Shellfish Poison (DSP)-positive food and DST-producing algae. These exposure studies will be carried out to high standards of animal care and welfare in accordance with Cefas' Animal Welfare policy.

Once the studies are completed the information collected will be used to better understand the potentially harmful effects of toxins and/or harmful algae on crab health.

EA Sampling activities

The EA continues to monitor water in the Tees on a monthly basis as part of its national programmes. This includes chlorophyll and phytoplankton sampling as well as chemical sampling. Blue mussel samples for chemical analysis have also been collected as part of the annual mussel programme. As sample results become available, they will be published in the Water Quality Archive on data.gov.uk.

IFCA Monitoring

The North-Eastern IFCA continues to monitor the health of shellfish stocks throughout the affected area, following trends in catch and effort reporting, actively working survey pots, conducting observer trips onboard fishing vessels and on the quayside and supporting any additional biological sampling and testing work undertaken by other lead organisations. This monitoring programme is supported by active intelligence gathering and reporting from the ground, informed by daily engagement with fishermen, merchants and the general public, to identify any continuing and emerging issues. A working group has also been established with the fishing industry to facilitate communication and information sharing between regulators and key representatives. This group meets every four to eight weeks alongside operational meetings with key MMO leads and the wider response group.

Why was dredging ruled out as the cause?

As the report into the investigation makes clear, dredging has been ruled out as a likely cause of the wash up incident. Before a marine licence can be granted to allow dredged sediment to be disposed, samples of dredge material must be tested, and they must meet the highest international standards protecting marine life before they are permitted to be disposed of at sea. If samples analysed for contaminants do not meet the standards, the disposal at sea of that material will not be licensed.

Nothing in the testing of sediment prior to disposal or results from the wider EA environmental sampling, suggested that a chemical contaminant was the cause. The MMO manage an annual disposal site survey programme that provides field evaluation and ensures disposal operations conform with licence conditions at dredged material disposal sites around the coast of England. Fieldwork and testing of sediment at the Inner Tees disposal site took place in April 2021 and there was no evidence of significantly elevated contaminants in sediment at locations around and within the disposal site.

Sediment that is proposed to be dredged in the Tees Estuary is tested and sampled across the footprint of the area to be dredged at least every three years prior to disposal. Cefas completed an indicative 2D tracking model of the potential sediment plume from the Tees disposal site. The model indicates that the plume from material deposited at the Tees disposal site is relatively confined along the tidal excursion at the disposal site and does not have the same geographic extent consistent with the known mortalities.

The MMO uses the best available evidence to inform its decision making. There is no evidence to suggest that the disposal of dredged sediment was responsible for the crab and lobster mortality. Testing has been conducted in accordance with international (OSPAR – Oslo/Paris convention (for the Protection of the Marine Environment of the North-East Atlantic)) obligations.

Full details of marine licences and their conditions are available on the MMO public register. Check the public register of marine licence applications and decisions - GOV.UK (www.gov.uk)
We recognise the impact this wash-up incident has had on the local community and remain committed to providing updates on both the research and monitoring currently underway.

Yours sincerely

Anne Freeman

Deputy Director
Domestic Fisheries and Reform
Department for Environment, Food and Rural Affairs
Mobile: 07788 916798

Councillor Mary Lanigan
Leader of the Council

Redcar & Cleveland Borough Council
Redcar & Cleveland House
Kirkleatham Street
Redcar
TS10 1RT

To: Ranil Jayawardena, Secretary of State for Environment, Food and Rural Affairs

Our Ref:

12th September 2022

Dear Sir,

Mass Crustacean Mortality Event

I am writing to express this Council's deep dissatisfaction regarding the conclusion of the investigation into the dead crustaceans that washed up onto our beaches last year.

In early October 2021, significant numbers of dead crabs and lobsters started being washed up on the beaches of Teesside, the mass mortality event continued until December 2021 with dead crustaceans found from County Durham down to North Yorkshire. The deaths had a significant impact on our local population, especially our coastal communities, many of which rely heavily on tourism and the fishing industry. The support so far from Defra to mitigate the impact on the livelihoods of those affected has been wholly inadequate.

The Environment Agency led on the emergency response, with Defra taking responsibility for leading the investigation into the cause of the event, which ended in March 2022. The investigation was unable to determine the cause of the event and concluded that no single, consistent, causative factor could be identified. The report hypothesised that a potentially harmful algal bloom present in the area leading up to the start of the mass mortality event may have been of significance. It is very concerning and unacceptable that, despite the significance of the event on the marine life in the area and the impact on our coastal communities, the investigation was concluded before any cause was identified.

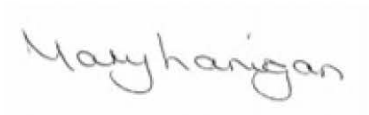
The Borough Council at its meeting on the 14 July 2022, passed a motion agreeing the following:

1. The decision to close the investigation was premature and demands that the Government re-open it as a matter of urgency to consider why the crustacean deaths.

2. That the Government proposal to give support to the local fishing industry via the existing Seafood Fund is inadequate and calls on them to provide proper compensation for the lost income and livelihoods caused by this crisis.

I would be grateful if you would consider these two requests and provide a response as soon as possible.

Yours faithfully,



Appendix 5

Steve Newton
Governance Director & Monitoring Officer
Redcar & Cleveland Borough Council
Redcar & Cleveland House
Kirkleatham Street
Redcar, TS10 1RT
Tel: 01642 444648
www.redcar-cleveland.gov.uk

The Environment Food and Rural Affairs (EFRA) Committee

Our Ref: Legal/SN

14 October 2022

By email to: efracom@parliament.uk

Dear Sir or Madam,

The Environment Food and Rural Affairs (EFRA) Committee - Hearing into the Deaths of Large Numbers of Crustaceans off the Yorkshire Coast Since October 2021.

I write on behalf of Redcar and Cleveland Borough Council ('the Council') and would ask that the following information is taken into consideration as part of the above hearing.

The matters forming the subject of this hearing have been the cause of very significant concern to both residents and Elected Members of the Council since the initial deaths took place. This concern ultimately led to a motion being considered and approved at a meeting of the Full Council as follows:

> *RESOLVED that on the successful motion of Councillor C Quartermain and duly seconded by Councillor Thomson that:*
>
> *"Redcar and Cleveland Council believes that much more needs to be done to investigate the reasons for the mass death of sea creatures found on our coast in the latter part of 2021 and more recently.*
>
> *Redcar and Cleveland Council also believes much more support should be given to our local fishing industry which has been adversely affected by the consequent radical reduction in fishing stock.*
>
> *Since October last year dead crustaceans have been found on our beaches along with, the possibly associated, deaths of seal pups and porpoises. The report of the Government Joint agency investigation into Teesside and Yorkshire Coast Crab and Lobster mortalities was published in May 2022 and concluded that as healthy crabs and lobsters were now being found the investigation was closed.*
>
> *Redcar and Cleveland Council believes:*
>
> 1. *The decision to close the investigation was premature and demands that the Government re-open it as a matter of urgency to consider why the crustacean deaths*

2. *The Tees Valley local authorities should work together in expressing concern to central government and commission a new independent report in the light of the inconclusive evidence. In addition, the ongoing situation should be monitored by a special Scrutiny Committee from each local authority.*

3. *That the Government proposal to give support to the local fishing industry via the existing Seafood Fund is inadequate and calls on them to provide proper compensation for the lost income and livelihoods caused by this crisis.*

4. *That the possibility of creating a coastal hatchery to replenish crustacean stocks should be investigated.*

In line with this motion, the Council has written to the Government making the requests identified under paragraphs 1 and 3 above but, regrettably, has yet to receive any sort of acknowledgment or reply. A copy of the Council's letter is attached for your attention.

It is understood by the Council that the hearing on 25th October 2022 will consider both the cause and impact of the deaths and that information from interested parties is welcomed on both aspects of these matters. Although the Council clearly cannot comment specifically on the cause of the deaths and has not had the opportunity to collate detailed information on their impact, it would make the following general comments, based on information received via residents and other sources in the course of its normal business.

1. The current conclusion that the deaths are the result of an algal bloom is somewhat less than definitive and has not been accepted by some of the scientific community and those involved in the fishing industry - the latter querying how something which is a relatively localised phenomena occurring at near surface level can impact on crustaceans which inhabit the sea at a much greater depth.

2. It seems unclear whether all potential sources of pollution and/or other causes of death have been conclusively explored. For example, earlier this year, the Council received information from an anonymous source who indicated that, some years ago, they had been employed by a chemical company to deal, in secret, with toxic chemicals at a specified location in the River Tees. The source was concerned that these chemicals could be a potential cause of crustacean deaths if disturbed and this information was forwarded to DEFRA. The Council clearly cannot say whether the source is credible or the information of any potential relevance but is not aware that any consideration or investigation of this issue has taken place.

3. The impact of the deaths has been significant, both in terms of local residents, visitors to the Council's beaches and, of course, the local fishing industry. In terms of the latter, the Council understands that catches of crabs have been decimated and that catches of lobsters have been halved along a large stretch of the coast.

4. Fishing boats now have to travel much further afield resulting in additional time and cost. It is known that some within the industry have given up, whilst others struggle

on, in what are already difficult times. It seems that efforts are underway to ensure that the lobster population is restocked but there is no such effort in terms of crabs.

5. The deaths have had a notable impact on those visiting the beaches in the Borough. Residents and visitors have been clearly distressed by huge numbers of dead crustaceans quite literally piled on the sand. There is a sense of frustration and upset about the apparent lack of ability for any relevant body to authoritatively explain the reason for this situation.

6. It is not known how these issues might have impacted negatively on tourism – something upon which the Council significantly relies - given the ongoing press coverage, negative connotations about potential pollution and perpetuation of false perceptions about the industrial nature of the area.

In summary, the Council feels that the impact of these deaths has been substantially underestimated and considers it unacceptable that investigations were closed when the conclusions reached seem, at best, to amount to what is essentially a working hypothesis.

As indicated in its motion, the Council strongly believes that the investigations should be re-opened and continue until a definitive (or at least more definitive) outcome has been reached and that, in the meantime, those working in the fishing industry who have been adversely affected by these issues should be appropriately supported by the Government.

Thank you for your consideration of this information.

Yours faithfully

Steve Newton
Governance Director and Monitoring Officer

Appendix 6

Councillor Brian Cowie
CEREMONIAL MAYOR
Hartlepool Borough Council
Civic Centre
Hartlepool
TS24 8AY

Tel: 01429 523702/3704
www.hartlepool.gov.uk

Our Ref: BC/KM
Your Ref:

Contact Officer/Email: Memsec@hartlepool.gov.uk

HARTLEPOOL
BOROUGH COUNCIL

24 January 2023

The Rt Hon Dr Therese Coffey
Secretary of State for Environment, Food and Rural Affairs
House of Commons
LONDON
SW1A 0AA

Dear Secretary of State

Sea Life Mortality off the North East Coast

Following the investigation into the mass deaths of crustaceans off the North East Coast, and the impact this has had to local fishermen in Hartlepool, Hartlepool Borough Council would like to thank you for finding the time in consider the outcome of the Environment, Food and Rural Affairs Committee investigation into the cause of this tragic event in Tees Valley.

I am sure you agree with the recommendations of the Committee that there is clearly a need for further data and research on the causes of the mass die-off and that an expert independent scientific panel be appointed to review the evidence for both theories identified, i.e. *consequences of the breakdown of an algal bloom of the impact of chemical from maintenance dredging of shipping channels.*

It was also recommended the Marine Management Organisation urgently review the dredging activity in the Tees and routinely check for pyridine as part of the testing and approval process for any new capital dredging works, whilst complying with the current licence for routine dredging.

Hartlepool Borough Council not only support the recommendations of the EFRA Committee, we wish to request that as Secretary of State, you accept all the recommendations including the need for Government to reconsider its position on providing financial support to affected communities.

Yours faithfully

B Cowie

Councillor Brian Cowie
CHAIR OF COUNCIL

Councillor Brian Cowie
CEREMONIAL MAYOR
Hartlepool Borough Council
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Our Ref: BC/KM
Your Ref:

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HARTLEPOOL
BOROUGH COUNCIL

24 January 2023

Rt Hon Sir Robert Goodwill MP
Chair, Environment, Food and Rural Affairs Committee
House of Commons
LONDON
SW1A 0AA

Dear Sir Robert Goodwill

Sea Life Mortality off the North East Coast

Following the investigation into the mass deaths of crustaceans off the North East Coast, and the impact this has had to local fishermen in Hartlepool, Hartlepool Borough Council would like to thank you for finding the time to investigate the cause of this tragic event in Tees Valley and wider North East Coast.

Hartlepool Borough Council not only support the recommendations of the EFRA Committee, we have also written to the DEFRA Secretary of State requesting she accept all the recommendations including the need for Government to reconsider its position on providing financial support to affected communities.

Yours faithfully

B Cowie

Councillor Brian Cowie
CHAIR OF COUNCIL

Department
for Environment
Food & Rural Affairs

The Rt Hon Mark Spencer MP
Minister for Food, Farming and Fisheries

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Councillor Brian Cowie
Chair of Council
Hartlepool Borough Council
memsec@hartlepool.gov.uk

Your ref: BC/KM
Our ref: PO2023/01910/SC

16 March 2023

Dear Councillor Cowie,

Thank you for your letter of 24 January to the Secretary of State about the crustacean fatalities along the North-East coast. I am replying as the Minister responsible for this policy area.

Following a request from the Environment, Farming and Rural Affairs Select Committee, Defra's Chief Scientific Adviser, liaising with the Government Chief Scientific Adviser, established an independent scientific panel to assess the causes of the unusual crustacean mortality in the North East of England in 2021 and 2022. The Crustacean Mortality Expert Panel (CMEP) was convened in December 2022 and was asked to conduct and complete its work in a timely fashion; they published their findings on GOV.UK on 20 January 2023.

The Independent Expert Assessment of Unusual Crustacean Mortality in the North-East of England in 2021 and 2022 report summarises thorough and insightful analysis of diverse relevant data by a wide range of experts from academia and industry representing 11 leading marine institutions. A wide range of possible causes for the unusual crustacean mortality were considered including a potential disease or parasite, a harmful algal bloom, chemical toxicity including pyridine, and dredging which could have released a toxic chemical.

The CMEP concluded that pyridine or another toxic pollutant was very unlikely to have been the cause, as was any link to routine maintenance dredging. There was no capital dredging (involving movement of previously undisturbed material such as is required for construction projects that require deeper dredging) immediately prior to the first reports of the incident in autumn 2021 and capital dredging did not occur at South Bank Quay until September 2022, it was therefore considered exceptionally unlikely to be the cause of unusual crustacean mortality by the expert panel. Furthermore, although maintenance dredging (the routine clearance of recently moved sediment from existing channels) had occurred at the time of the crustacean mortality, the expert panel considered this was very unlikely to have caused the deaths as any associated release of pyridine would have been more than 1,000 times too small to reach toxic levels and could not explain the geographical spread nor the duration of the unusual crustacean mortality.

The Marine Management Organisation (MMO) regulates the disposal of dredge materials to sea in England and follow international standards for assessment of contaminants in dredged material. Guidance from the Convention for the Protection of the Marine Environment of the North-East Atlantic (the OSPAR Convention) and London Convention/London Protocol is used to inform decision making. In order to allow disposal activities, the suitability of dredged material for disposal at sea must be assessed in line with international guidelines and requires consideration of the physical and chemical characterisation of the dredged material to ensure protection of marine life and uses of the sea.

Any marine licence application for disposal of dredged sediment to sea requires sampling and sediment analysis. This is carried out before the application is submitted as part of a pre-application process, and sediment analysis data must be included as part of the formal marine licence application. The MMO consults the Centre for Environment, Fisheries and Aquaculture Science (Cefas) on the suitability of material for disposal to sea as part of any application. A series of 'Action Levels' are used as guidelines to assess suitability for disposal to sea. Action Levels indicate when material would have restrictions placed on it to ensure suitable disposal, or for it not to be dredged at all. The consideration of whether the material is acceptable for disposal at sea is done through an evidence-based approach. The MMO must ensure that it is compliant with both domestic and international obligations and does not allow the disposal of toxic dredged material to sea.

Pyridine is not routinely measured in sediment and is not listed as a Chemical for Priority Action (contaminant of concern) by OSPAR (the international group that guides practise in this area). There is evidence that pyridine is readily mobilised from sediment, is highly water soluble and is not considered to readily bioaccumulate in marine life. Cefas scientists advise the MMO on which chemicals should be tested in dredged sediment, using a risk-based approach, and do not require the testing of pyridine.

The Government currently provides a range of support to the English seafood sector through the Fisheries and Seafood Scheme (FaSS) and the £100 million UK Seafood Fund (UKSF). The FaSS provides grants of up to £100,000 to help businesses diversify through setting up new processes and practices, purchasing new gear and equipment to target different species and training to build capability. Since opening in April 2021, the FaSS has provided £2.2 million to seafood businesses in the North-East and is open for applications now.

Given the circumstances of the incident, the findings of the independent expert panel, and guidance on managing public money, the Government will not be providing any compensation or specific support in addition to what is already provided through the FaSS and UKSF.

Please do not hesitate to get in touch if you need further information.

Yours sincerely,

Rt Hon Mark Spencer MP

Appendix 7

Dead Crustaceans Collaborative Working Group – ~~Te~~rms of Reference

1. Purpose

1.1 The purpose of the Working Group is for the partner Councils to work collaboratively with regards to their response to the mass mortality crustacean event that occurred in late 2021.

2. Aims of the Working Group

2.1 The key aims of the working group are as follows:

- To consider evidence from various sources, including written reports and presentations from expert witnesses and stakeholders, to better understand:
  - The reasons for the event
  - The impact it has had on local communities
  - The response of key partners
  - Recommendations for future actions

- To consider and make recommendations to partner authorities and government agencies, including future meetings of the Environment, Food and Rural Affairs (EFRA) Committee or any other investigation into the issue.

2.2 The key activities and deliverables are likely to include, but are not limited to:

- Joint lobbying of government on the issue
- Sharing of expertise and knowledge
- Gathering and compiling evidence from stakeholders, eg, the fishing industry
- Submitting evidence to future meetings of the Environment, Food and Rural Affairs (EFRA) or any other investigation into the issue.
- Jointly commissioning any agreed further research or evidence gathering, subject to agreement of constituent councils.

3. Working Group Administration Arrangements

3.1 The Chair and Vice Chair shall be agreed at the first meeting of the working group.

3.2 Lead Officer support will be provided by the Adult and Communities Directorate of Redcar and Cleveland Borough Council.

3.3 The organisation and facilitation of the working group meetings will be carried out by the Democratic Services Section of Redcar and Cleveland Borough Council. This will include providing secretariat support to the working group in terms of

meeting organisation, minute taking, and recording and monitoring issues through the working group issues logs.

3.4 Meetings to be held virtually and in person, at the discretion of the Chair and Vice-Chair and dependant on the focus and function of the meeting. The dates and times of meetings to be determined by the working group

3.5 Meetings to be held in public, with the group reserving the right to meet in private where a witness or the work demands.

3.6 The working group can invite partners from external organisations to share information and / or jointly commission further research

3.7 Minutes and associated reports to be produced by Redcar and Cleveland Borough Council but reported back to individual authorities in a manner appropriate to their respective governance structures.

4. Timescales

4.1 A review of the progress of the investigation to be undertaken 6 months after the date of the initial meeting.

5. Membership

5.1 Each Council can nominate up to four Members to attend the working group plus one officer. Other officers or external parties can be invited to join, with the approval of the working group.

6. Conflict of Interest

6.1 Any member of the working group shall declare any conflict of interest which might arise at the start of the meeting and shall then withdraw and take no part in the relevant discussion and/or any decision relating to it.

Environment, Food and Rural Affairs Committee
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From the Chair of the Committee

Thérèse Coffey
Secretary of State for Environment, Food and Rural Affairs
Department for Environment, Food and Rural Affairs
2 Marsham Street
London SW1P 4DF

Sealife Mortality off the North East Coast

1 November 2022

Dear Secretary of State

On Tuesday 25 October, the Environment, Food and Rural Affairs Committee heard a powerful testimony about the mass deaths of crustaceans off the North East Coast, including its potential causes, and the profound and long lasting impact that it is having on fishing communities.

Two scientific theories regarding the possible cause were presented to the Committee: the consequences of the breakdown of an algal bloom or the impact of chemicals (pyridine toxicity) from maintenance dredging of shipping channels.

Following this session, the Committee would like to draw your attention to its interim conclusions on this topic.

- There is clearly a need for further data and research on the causes of the mass die-off. This must include urgent investigation of the potential sources of pyridine that Dr Gary Caldwell of Newcastle University identified in his oral evidence including more extensive sampling of the sediments in the bed of the Tees Estuary to create a map of potential sources of pyridine in proximity to maintenance dredging and the wider area.
- This research must be done in an open and collaborative way between Government Agencies and the wider scientific communities, including the independent verification of testing. We hope this would also include Dr Caldwell sharing his research data with all interested parties. A collaborative approach is essential to start the process of

rebuilding trust between Government Agencies and the local fishing communities which has been badly damaged.

- We also recommend that the Government Chief Scientific Adviser should urgently appoint an expert independent scientific panel ("the expert panel") to review the evidence for both theories. The expert panel should conduct its work as quickly as possible and report back its findings as soon as possible.
- The Marine Management Organisation (MMO) must urgently review the dredging activity in the Tees. Maintenance dredging, we were told, removes material recently deposited in the shipping channels. This will include sand that has washed in from the North Sea but it also includes silt washed down the river. Dr Caldwell suggested that this could have been contaminated with historic material that may have entered the channel. Further detailed surveys may quantify the extent to which this has happened and the future potential risks.
- There are already controls on both capital and maintenance dredging. We note that only routine maintenance dredging took place ahead of the crustacean mortality event in Autumn 2021, although some maintenance dredging took place at a quicker pace than usual. We recommend that the MMO explore, in line with the precautionary principle, what steps could be taken to reduce the risk associated with capital and maintenance dredging such as improved techniques to prevent dredged sediment escaping into the wider environment during excavation. This should include consideration of whether there should be changes to the depth and intensity of dredging, whether changes should be made to dredging techniques, and where and how dredged material is disposed of.
- The MMO must also ensure that all the current conditions on its licence are met and should include pyridine in the testing as part of any future licence approval process. We also believe that all dredged material should be tested for pyridine and any that is found to have dangerous levels of pyridine should not be disposed of at sea. This, and dredging techniques, should be reviewed in light of the expert panel's findings
- A complete moratorium on maintenance dredging would eventually close the port and its associated industries, causing further economic damage. We believe that maintenance dredging should be kept to the minimum level needed to keep the port operational until the expert panel's investigation is completed. We believe this, together with the consideration of the factors we mentioned earlier, are sensible,

proportionate steps that could be taken to help manage the risk while further investigations are undertaken.

- Until the cause of the mass die-off is known, we also believe that the MMO should routinely check for pyridine as part of the testing and approval process for any new capital dredging works. Any current capital dredging work and new licences issued after the conclusion of the expert panel's investigation must take account of the outcome of that investigation.
- The Government should reconsider its position on providing financial support to affected communities. The UK Seafood Fund is not an appropriate vehicle for responding to this incident. A dedicated, separate fund should be set up to support affected fishers and potters and the regeneration of crab and lobster stocks.

We would appreciate an urgent response to this letter in advance of your appearance before the Committee in November.

Yours sincerely

Rt Hon Sir Robert Goodwill MP
Chair, Environment, Food and Rural Affairs Committee

Department
for Environment
Food & Rural Affairs

The Rt. Hon. Mark Spencer, M.P.
Minister of State

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Sir Robert Goodwill
Chair
Environment, Food and Rural
Affairs Committee
House of Commons
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15 November 2022

Dear Sir Robert,

Response to EFRA consideration of Sealife Mortality off the North East Coast
Thank you for the interim conclusions from the Environment, Food and Rural Affair Committee's hearing on October 25th, and for your letter to the Secretary of State. I am responding on her behalf to the points raised in your letter and to indicate the actions that Defra will be taking in response.

As you know, there was a multi-Defra agency response to the incident that started in October 2021 and concluded in February 2022. The associated report of the investigation was then published Joint agency investigation into Teesside and Yorkshire Coast Crab and Lobster mortalities - GOV.UK (www.gov.uk)

In your letter, you requested that the Government Chief Scientific Adviser should appoint an expert independent scientific panel ("the expert panel") to review the evidence for the two theories put forward as a cause of this mass-mortality.

The Secretary of State has asked Defra's Chief Scientific Adviser, who has not previously been involved in consideration of this issue, to liaise with the Government Chief Scientific Adviser to establish an independent group of external experts to assess the evidence and consider all explanations for sealife mortality, including the possible role of pyridine. She has asked that this work is completed in a timely fashion, and the findings of the panel will be published.

Your letter raised a number of other points to which I'd like to respond now to aid the committee's understanding and ahead of the exert panel's findings including:

i. The need for more research on pyridine levels in the Tees Estuary;
ii. That research and data should be open;
iii. That MMO should review dredging practises in the area; and
iv. That the Government should consider compensation to local communities.

i. Further research into Pyridine levels:
You recommend further data and research on the causes of the mass die-off including urgent investigation of the potential sources of pyridine that Dr Gary Caldwell of Newcastle

University identified in his oral evidence. You say this should include more extensive sampling of the sediments in the bed of the Tees Estuary to create a map of potential sources of pyridine in proximity to maintenance dredging and the wider area.

Defra group organisations have been actively undertaking research since the incident and the investigation. Investment has been made to develop a programme of research to consider how to measure the amount of pyridine in tissue, the effects of algal blooms, and test laboratory findings in field conditions. As part of the Defra group investigation, the EA had carried out a review of the possible sources of pyridine Dr Caldwell identified in his evidence to the Committee. They concluded that they were not credible sources directly causing the impacts being seen.

Your proposal to map sources of pyridine would provide more granular information about the spatial extent of potential pyridine within Tees estuary sediments. There is a body of scientific literature that details known contaminants of concern such as polychlorinated biphenyls and polybrominated diphenyl ethers, in sediments, water and biota in and around the Tees. Comparatively, pyridine is not a known contaminant of concern for sediments and biota due to its known chemical and ecotoxicological properties. As such, the evidence base for sediments is weaker than for other contaminants. Pyridine is, however, a known contaminant of concern for water, due to its known chemical properties and is monitored accordingly. EA detected no evidence of pyridine from water samples during the monitoring following the incident (October to December 2021). Pyridine is rarely detected in water including in the Tees and before that, the highest level of pyridine detected over the past decade was 2.4 µg/l (surface sample collected at Redcar Jetty) in October 2012.

We will seek advice from the external expert panel to assess whether additional measurements of pyridine in the sediments and waters of the Tees region would be beneficial, recognizing that a comprehensive survey across the full region would involve significant costs which would require adequate justification and clarity about the usefulness of resulting data.

It should be noted that during panel 1 of your evidence hearing, one of the committee members questioned the representative from PD Ports as to the impact of dredging to “14.6 m” when pyridine was found by NEFC Group researchers in the top 0.2 m of sediment. There may be a misunderstanding about this detail. Reference to dredging to “14.6m” referred to the water depth and not the sediment depth. Maintenance dredging seeks to maintain a safely navigable water depth through the removal of accreted sediments up to the Chart Datum depth of 15.4m.

ii. <u>All research and data should be open</u>

Defra research and data is routinely published. All data relating to processing applications for disposal and/or dredging licences are published on the MMO Public Register and can be specifically identified for an expert panel. Defra group are currently working to publish all raw data and ancillary reports onto government websites. This takes time to ensure the government information and accessibility is legally compliant, however it should be available online in the next few weeks. We expect that all parties involved in this issue will also ensure results and data are made available for peer-review and publication.

iii. <u>Review of dredging practices</u>

On the basis of previous evidence, we have not previously concluded that more evidence is needed. The views of the Expert Panel will steer consideration of further action.

Capital and maintenance dredging are common activities around the coast of England and have taken place on the Tees for many decades. The decisions on dredging methodologies and disposal of dredge material are fundamental to the continued operation of ports and associated industries. Requirements of dredging techniques may be entirely dependent on

local conditions, and an assessment is made pre-determination as a part of the licensing process as to the type of dredging allowed to take place and any mitigation required is included as licence conditions.

The MMO have conducted marine licence inspections on the dredging works in question and following this they remain satisfied that the works are being conducted in line with the relevant marine licence(s). Inspections on the licenced activities will continue on a periodic basis throughout the length of the licence.

iv. Compensation to local communities

Last, you suggest that the Government should reconsider its position on providing financial support to affected communities with a dedicated, fund to support affected fishers and potters and the regeneration of crab and lobster stocks. Defra analysts are continuing to assess the economic impacts of this incident including a comparison with landing data from previous years and with other parts of the country for the affected species.

The Secretary of State and I will be happy to speak with the Committee to discuss this matter further.

Yours sincerely,

The Rt. Hon. Mark Spencer MP

Department
for Environment
Food & Rural Affairs

The Rt Hon Thérèse Coffey MP
Secretary of State Environment, Food & Rural Affairs

2 Marsham Street
London
SW1P 4DF

Sir Robert Goodwill MP
Chair, Environment,
Food and Rural Affairs
Committee
By email only

11th January 2023

Dear Sir Robert,

Sea life mortality off the northeast coast

Thank you for your letter dated the 13th December 2022.

I can confirm that the independent Crustacean Mortality Expert Panel has already been stood up by my Chief Scientific Advisor, who consulted the Government's Chief Scientific Advisor, to assess the evidence from all parties involved with a view to determine the most likely cause of the crustacean mortality event in the Northeast of England. Terms of reference were agreed at the first panel meeting held in December.

Membership is comprised from from 11 different organisations, including many leading UK marine science universities. To ensure independence, institutes and individuals with past involvement in assessment of the crustacean mortality have not been included, nor is any member from a Defra agency. The identities of the panel members have not been made public yet to enable them to assess the scientific evidence without pressure or influence from interested parties. Names and affiliations of members will be released when the report of the panel is published.

Regarding ways of working, the panel will focus on the scientific evidence, including scientific data from key stakeholders, and rely on the diverse expertise of its members to consider all possible causes of crustacean deaths.

I expect to receive the report this month.

Yours sincerely,

Enclosed

Annex A: Aims of the Expert Committee

Annex A:

Aims of the expert committee:

- To scientifically review all the available evidence of the unusual crustacean mortality event.
- To identify the most likely causes and implications for recurrence.
- The scientific review will include, but will not be limited to, consideration of the theories put forward as a cause of this mass-mortality:
    - the consequences of the breakdown of an algal bloom
    - the impact of chemicals (including pyridine toxicity)
    - the impact of maintenance dredging of shipping channels

The panel will focus on scientific issues and will not consider government processes during the investigation of the mortality event(s), food safety, nor the economic implications of the deaths.

Environment, Food and Rural Affairs Committee
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From the Chair of the Committee

Rt Hon Dr Thérèse Coffey MP
Secretary of State for Environment, Food and Rural Affairs
By email

31 January 2023

Dear Secretary of State

Report of the independent Crustacean Mortality Expert Panel

Thank you for your letter of 20 January concerning the publication of the independent Crustacean Mortality Expert Panel's report.

You will recall that in our letter to you of 1 November 2022, the Committee called for an independent review to be conducted following its hearing on the matter on 25 October. We are therefore grateful to you for establishing the independent Panel, and we wish to note our thanks to the Panel for their expeditious and considered work on this matter.

As your letter highlighted, the independent Panel considered that a novel pathogen was the most likely reason for the crustacean mortality event that occurred from October 2021.

The Committee notes that the Minister for Food, Farming and Fisheries, Rt Hon Mark Spencer MP, told the House on 26 January:

> "I am considering carefully if further analysis by the Centre for Environment, Fisheries and Aquaculture Science (CEFAS) can ascertain conclusively the cause of this unusual mortality".

The Committee believes that further work should be undertaken to identify this novel pathogen, given the importance of determining its origin, its vectors of transmission, its transmissibility, its virulence and other factors related to it.

Indeed, as the independent Panel highlighted, a conclusive result from the broad diagnostic screening of samples would significantly affect the

level of confidence in the novel pathogen theory. We also noted the reported comments on this matter of the Minister for Biosecurity, Marine and Rural Affairs, Rt Hon Lord Benyon, that "undoubtedly we're going to need some additional research" which he made on 25 January at the Coastal Futures Conference.

Furthermore, the Committee notes that the independent Panel identified several viral and parasitic diseases that CEFAS may not have screened for during its investigation (see below). The independent Panel concluded:

> "It would therefore be useful for archived samples to be retrospectively screened for a broader range of potential pathogens".

We agree.

The Committee is of the opinion that CEFAS must undertake further analysis in regard to the novel pathogen theory given the importance of seeking as definitive an explanation as possible for this mass die-off event, and we recommend that you instruct CEFAS to conduct this study as a matter of urgency.

Key evidence in such a study will include histological analysis (i.e. via analysis of the structure of cells and tissue in affected crabs). CEFAS acknowledged that such analysis works best with fresh samples but, in this case, the independent Panel said that many samples were degraded so making some pathogens potentially been harder to discover.

The Committee would like to know how many crustaceans affected by the die off have been retained in cold storage for future sampling, when they were collected, and whether they are in a suitable condition for effective sampling.

The Committee also notes the independent Panel found that CEFAS's method for screening crabs for known listed diseases was limited to only one disease (White Spot Syndrome Virus). This was because this is the only listed native crustacean disease that they are "statutorily obliged to screen".

The independent Panel said that it would be useful to "collect appropriate samples in the future to be able to screen for all potential pathogens".

We agree.

The independent panel identified several evidence gaps. It noted that there was no "dissolved oxygen data" to establish if anoxia – which is a state of total oxygen deprivation within tissues or organs – due to an algal bloom was possible.

While the independent Panel's report considered the likelihood of pyridine (or another toxic pollutant) as having caused the mass die-off event to be "very unlikely", particularly via dredging, it did not completely discount a pollutant as the reason.

The report stated that if a source of a sufficient level were found, a natural or man-made stressor of the neural system, such as a toxin, would be a "likely" cause that explains the pathology seen in affected crustaceans. More responsive and/or more regular sampling and testing could help discount or confirm such factors.

As the Chair of the North Eastern Inshore Fisheries and Conservation Authority, Dr Stephen Axford, told us in his written evidence, it does not appear that appropriate sampling of the prevailing conditions took place with sufficient urgency.

We recommend that all relevant Government agencies, including CEFAS and the Environment Agency, should carefully monitor the area and stand ready to respond quickly to a similar event in the future. They must be prepared to take rapid samples of the water, sediment and animals affected to understand prevailing conditions and determine the causes of another mass die-off. Sampling and testing practices – both routine and for emergencies - should take into account the findings of the independent Panel's report: for instance, measuring dissolved oxygen levels in affected areas when appropriate and collecting tissue samples quickly enough to be able to screen for all potential pathogens. Measures should include thorough sampling and testing for chemical pollutants such as pyridine.

In our letter of 1 November, the Committee said that a dedicated, separate fund should be set up to support affected fishers and potters and the regeneration of crab and lobster stocks. It is also increasingly apparent that relations between the community, and Defra and the Government agencies involved have become strained.

In his reply of 15 November, the Minister for Food, Farming and Fisheries noted that Defra was continuing to assess the economic impacts of this incident.

We encourage Defra to swiftly complete its analysis of the economic impact of the incident and, pending its outcome, to provide initial financial support to those affected and for the regeneration of crab and lobster stocks. Steps to support the rebuilding of the local potting and fishing community would also help Defra to repair relations.

We would be grateful if you could reply within two weeks.

Yours sincerely

Rt Hon Sir Robert Goodwill MP
Chair, Environment, Food and Rural Affairs Committee

Department
for Environment
Food & Rural Affairs

The Rt Hon Thérèse Coffey MP
Secretary of State Environment, Food & Rural Affairs

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Sir Robert Goodwill MP
Chair, Environment,
Food and Rural Affairs
Committee
By email only

7 February 2023

Dear Sir Robert,

Report of the independent Crustacean Mortality Expert Panel

Thank you for your letter dated the 31st January 2023.

The independent crustacean mortality expert panel (CMEP) published its findings on the 20th January 2023. The report states that a novel pathogen is about as likely as not to have caused the crustacean mortality event that occurred from October 2021.

Given the extent of the analytical work already undertaken, and further advice, I have decided that it is highly unlikely that we will find the cause and so no further analysis will be undertaken by the government.

The Environment Agency is the first responder. As for future events, there are sampling and testing protocols – both routine and for emergencies - in place where activities and events require, such as incident investigation, marine licensing etc. I have asked that Cefas be engaged promptly if a similar event occurs.

With respect to the economic impact, the landings data assessment as detailed in the NEIFCA stock monitoring report (September 2022) indicated, at a regional scale, landings in late 2021 were broadly in line with historic data and a significant reduction in landings in October and November 2021 were not observed. This does not preclude the possibility that some highly localised fishing grounds suffered significant mortalities. The stock monitoring report also found, as the 2022 season progressed, lobster landings at a regional level were in line with seasonal expectations.

There is no question of the government providing any compensation or specific support, however the UK Government currently provides a range of support to the English seafood sector through the Fisheries and Seafood Scheme (FaSS) and the £100 million UK

Seafood Fund. Since opening in April 2021, FaSS has provided £2.2 million to seafood businesses in the North East and is open for applications now.

Yours sincerely,

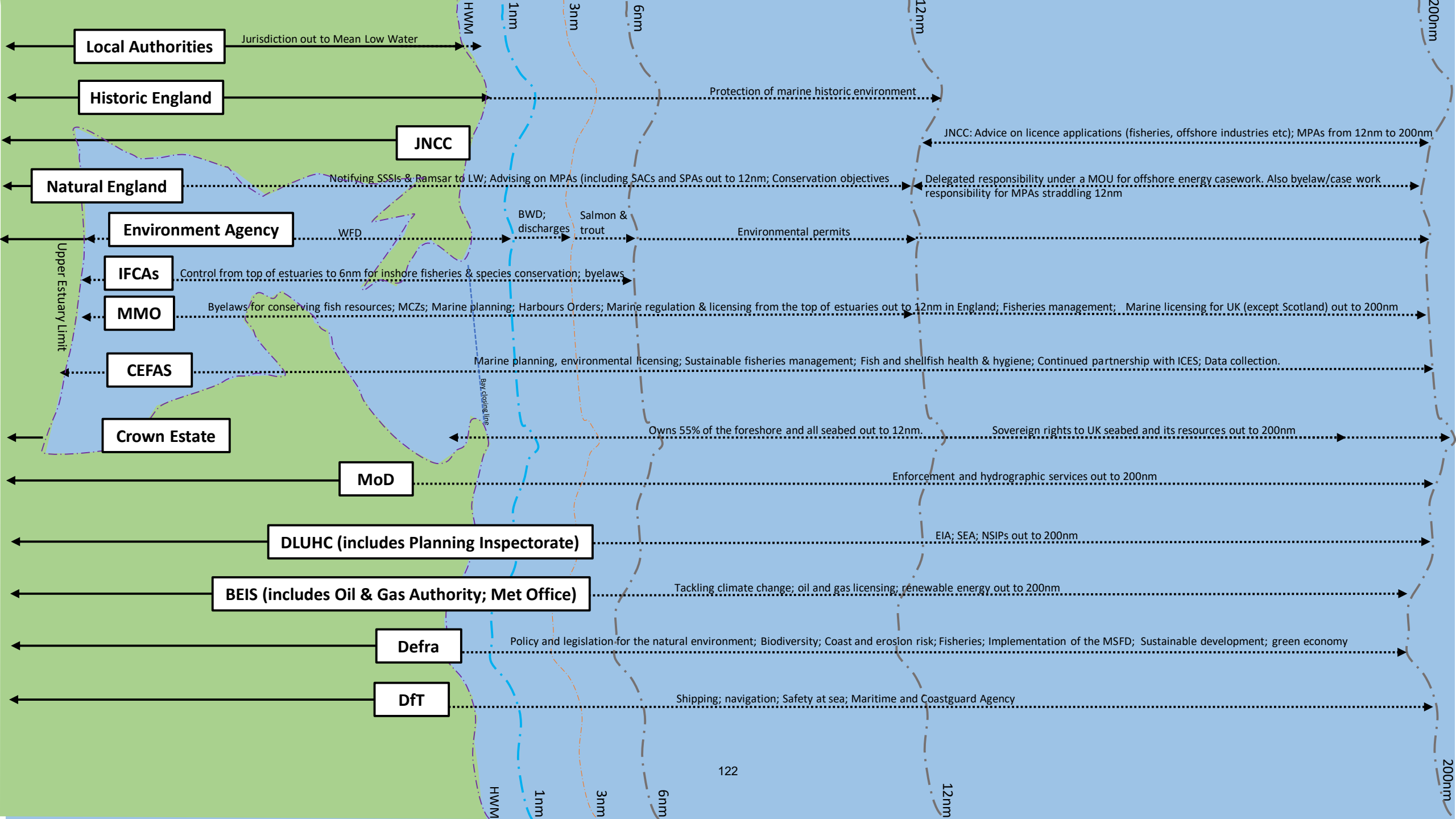
Selected Marine Governance Figures from:

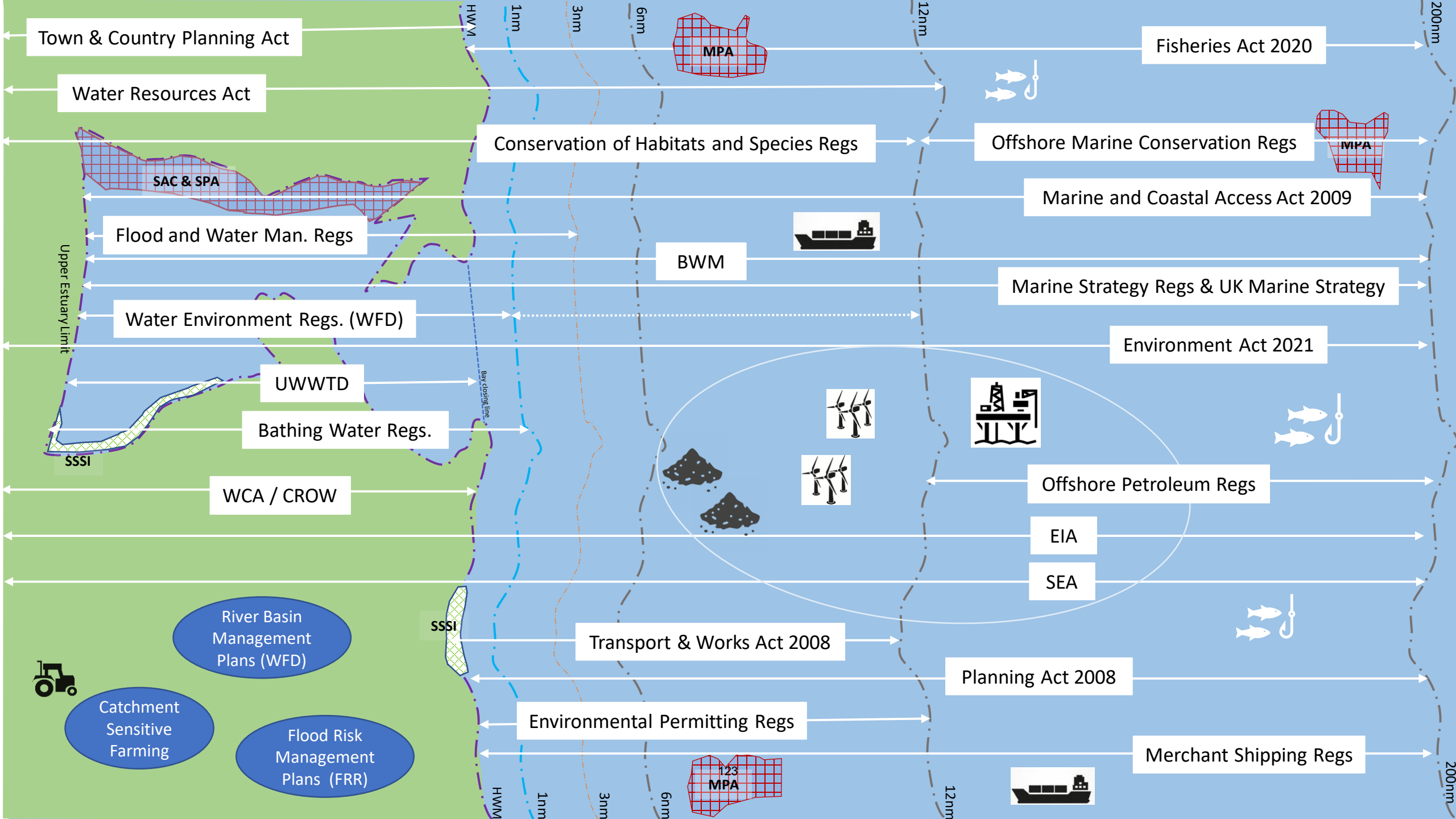
Natural England – Discussion Document – The Operationalisation, Governance and Achievement of Good Environmental Status for UK Marine Areas

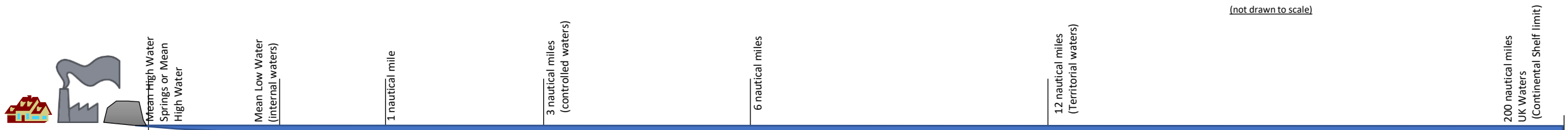
Michael Elliott, Suzanne Boyes and Roland Cormier

International Estuarine & Coastal Specialists Ltd. (IECS Ltd.), Leven HU17 5LQ, UK.

Preferred Citation: Elliott, M., Boyes, S.J. and Cormier, R. (2022). The operationalisation, governance and achievement of Good Environmental Status for UK marine areas. Unpublished Discussion Paper for Natural England, International Estuarine & Coastal Specialists (IECS) Ltd, Leven, HU17 5LQ, UK; pp112, https://www.iecs.ltd.


HWM
1nm
3nm
6nm
12nm
200nm
Local Authorities
Jurisdiction out to Mean Low Water
Historic England
Protection of marine historic environment
JNCC
JNCC: Advice on licence applications (fisheries, offshore industries etc); MPAs from 12nm to 200nm
Natural England
Notifying SSSIs & Ramsar to LW; Advising on MPAs (including SACs and SPAs out to 12nm; Conservation objectives
Delegated responsibility under a MOU for offshore energy casework. Also byelaw/case work responsibility for MPAs straddling 12nm
Environment Agency
WFD
BWD; discharges
Salmon & trout
Environmental permits
Upper Estuary Limit
IFCAs
Control from top of estuaries to 6nm for inshore fisheries & species conservation; byelaws
MMO
Byelaws for conserving fish resources; MCZs; Marine planning; Harbours Orders; Marine regulation & licensing from the top of estuaries out to 12nm in England; Fisheries management; Marine licensing for UK (except Scotland) out to 200nm
CEFAS
Marine planning, environmental licensing; Sustainable fisheries management; Fish and shellfish health & hygiene; Continued partnership with ICES; Data collection.
Bay closing line
Crown Estate
Owns 55% of the foreshore and all seabed out to 12nm.
Sovereign rights to UK seabed and its resources out to 200nm
MoD
Enforcement and hydrographic services out to 200nm
DLUHC (includes Planning Inspectorate)
EIA; SEA; NSIPs out to 200nm
BEIS (includes Oil & Gas Authority; Met Office)
Tackling climate change; oil and gas licensing; renewable energy out to 200nm
Defra
Policy and legislation for the natural environment; Biodiversity; Coast and erosion risk; Fisheries; Implementation of the MSFD; Sustainable development; green economy
DfT
Shipping; navigation; Safety at sea; Maritime and Coastguard Agency
122
HWM
1nm
3nm
6nm
12nm
200nm


Town & Country Planning Act
Water Resources Act
Conservation of Habitats and Species Regs
Offshore Marine Conservation Regs
Fisheries Act 2020
Marine and Coastal Access Act 2009
Flood and Water Man. Regs
BWM
Marine Strategy Regs & UK Marine Strategy
Water Environment Regs. (WFD)
Environment Act 2021
UWWTD
Bathing Water Regs.
Offshore Petroleum Regs
WCA / CROW
EIA
SEA
Transport & Works Act 2008
Planning Act 2008
Environmental Permitting Regs
Merchant Shipping Regs
SAC & SPA
SSSI
SSSI
MPA
MPA
MPA
HWM
1nm
3nm
6nm
12nm
200nm
Upper Estuary Limit
Bay closing line
River Basin Management Plans (WFD)
Catchment Sensitive Farming
Flood Risk Management Plans (FRR)



Regulatory Authorities (England)

Local Authority - Planning, Coast protection work

Historic England - Protected wrecks; protection of marine historic environment out to 12nm

Natural England - Notifying SSSIs & Ramsar to LW; Advising on MPAs (including SACs & SPAs) out to 12nm and their conservation objectives

Natural England have delegated responsibility for offshore renewable casework and byelaw making powers and casework responsibility for MPAs straddling 12nm

JNCC – Advice on licence applications (fisheries, offshore industries etc); MPAs (MCZs & EMS) from 12nm to 200nm; Monitoring and mapping;

EA - Flood risk; WFD to 1nm; Bathing waters; Pollution control; Licensing & water discharges to 3nm; Salmon & trout fisheries to 6nm; Environmental permits to 12nm

Inshore Fisheries and Conservation Authority (IFCAs) – Control from top of estuaries to 6nm for inshore fisheries and species conservation; byelaws making powers out to 6nm

MMO – Fisheries to 200nm; Byelaws for conserving fish resources; MCZs; Marine planning; Marine regulation & licensing from the top of estuaries out to 12nm in England & offshore for UK (except Scotland) to 200nm

Crown Estate - owns 55% of the foreshore and all seabed out to 12nm. Sovereign rights of the UK seabed and its resources of the Continental Shelf related to offshore energy development, licences for extraction of marine resources and marine planning.

Ministry of Defence (MoD) - Enforcement and hydrographic services

Department for Levelling Up, Housing & Communities (DLUHC) (includes the Planning Inspectorate) - EIA; SEA; nationally significant infrastructure projects (NSIPs) e.g. large wind farms >100MW etc

Department for Business, Energy and Industrial Strategy (BEIS) (includes Oil & Gas Authority; Met Office) – Tackles climate change; Oil & gas licensing; renewable energy

Department for Environment, Food and Rural Affairs (Defra) - Policy and legislation for the natural environment; Biodiversity; Coast and erosion risk; Fisheries; Implementation of the MSFD; Sustainable development and the green economy

Department for Transport (DfT) (includes Maritime and Coastguard Agency) - Shipping; navigation; Safety at sea; Ballast water management

Legislation related to the above organisations (English Law)

Town and Country Planning Act 1990
Localism Act 2011

National Heritage Act 2002; Merchant Shipping Regs (various); Protection of Wrecks Act 1973; Protection of Military Remains Act 1986.

Wildlife and Countryside Act 1981 (as amended); Marine and Coastal Access Act 2009; Environment Act 2021.

Conservation of Habitats and Species Regs 2010 (subsequently amended) - SACs & SPAs

Offshore Marine Conservation (Natural Habs &c.) Regs 2010; Environment Act 2021

Water Environment (WFD) (Eng & Wales) Regs 2017

Bathing Water Regs 2008

Urban Waste Water Treatment (Eng & Wales) Regs 1994 (coastal waters)

Land Drainage Act 1991; Water Res. Act 1991; Flood & Water Management Act 2010

The Environmental Permitting (Eng & Wales) Regs 2010 - out to 12nm

Marine & Coastal Access Act 2009; Sea Fish (Conservation) Act; Sea Fisheries (Shellfish) Act 1967

Marine and Coastal Access Act 2009 - MCZs, Marine licensing, byelaws, offshore fisheries (replaces existing controls under Part II of the Coast Protection Act 1949 and Part II of the Food and Environment Protection Act 1985)

Fisheries Act 2020 – sustainable management of fisheries; protection of species; Fisheries Management Plans for individual species and environmental purposes; Equal access. Sea Fisheries Act 1968 & Sea Fisheries Reg Act 1966

Merchant Shipping Act 1995

Planning Act 2008 - transport, water, waste & waste water projects out to 12nm; energy (within Renewable Energy Zone) out to 200nm (except Scotland); EIA Regulations 2020 - NSIPs

Electricity Act 1989; Energy Act 2008 & 2010; Climate Change Act 2008 - renewable energy; EIA Regulations 2020

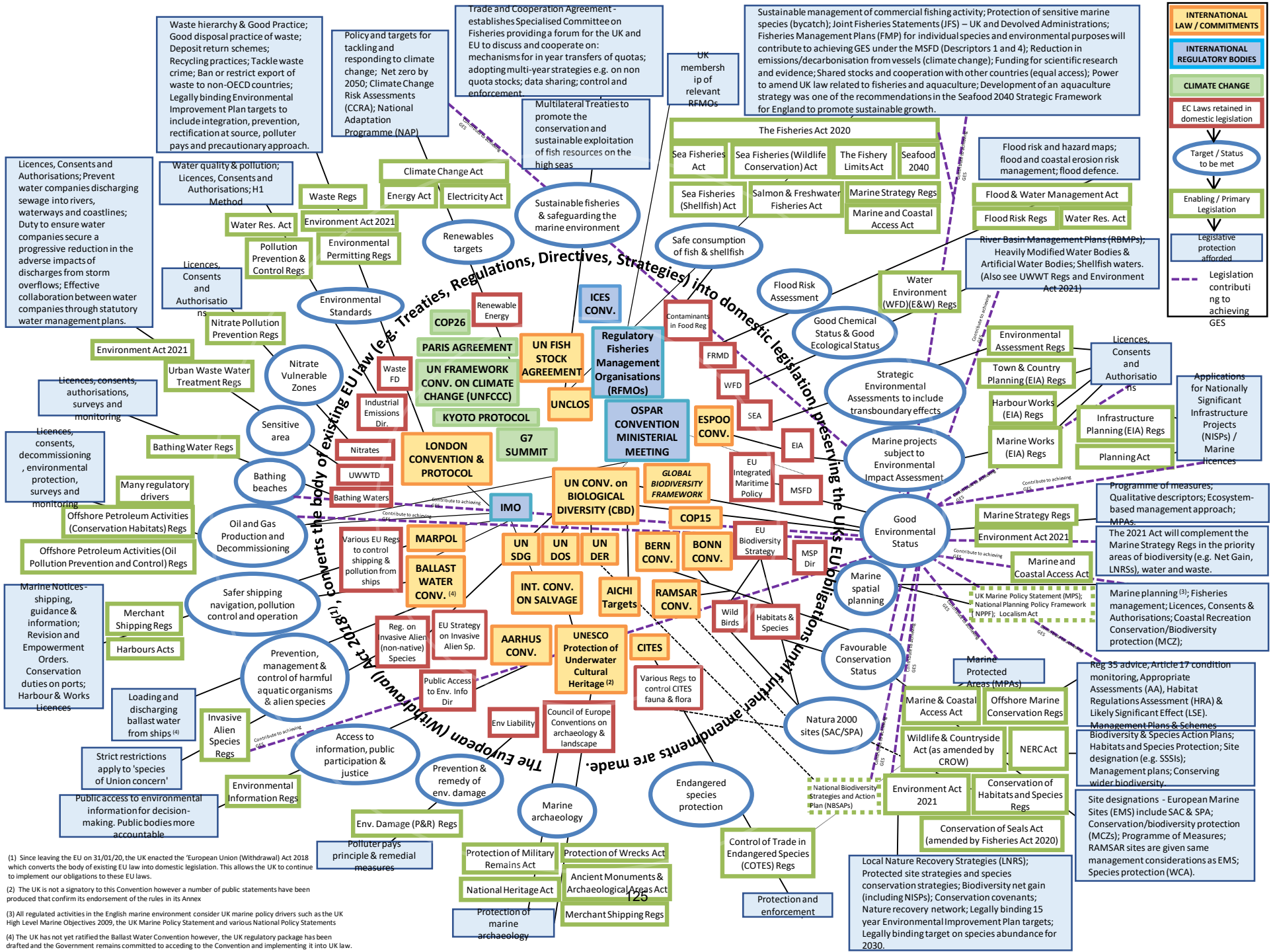
Planning Act 2008 – pipelines; Petroleum Act 1998 - oil and gas licensing

Offshore Petroleum Activities (Conservation of Habitats) Regs 2001

Offshore Petroleum Production & Pipelines (Ass. of Env. Effects) Regs 1999

Environment Act 2021 – Biodiversity, waste, water and air quality; Fisheries Act 2020; The Marine Strategy Regulations 2010 - Defra to ensure UK meets Good Environmental Status (GES)

Transport and Works Act 1992 - large scale projects & navigation



(1) Since leaving the EU on 31/01/20, the UK enacted the 'European Union (Withdrawal) Act 2018 which converts the body of existing EU law into domestic legislation. This allows the UK to continue to implement our obligations to these EU laws.

(2) The UK is not a signatory to this Convention however a number of public statements have been produced that confirm its endorsement of the rules in its Annex

(3) All regulated activities in the English marine environment consider UK marine policy drivers such as the UK High Level Marine Objectives 2009, the UK Marine Policy Statement and various National Policy Statements

(4) The UK has not yet ratified the Ballast Water Convention however, the UK regulatory package has been drafted and the Government remains committed to acceding to the Convention and implementing it into UK law.

INTERNATIONAL OBLIGATIONS

INTERNATIONAL MARITIME ORGANISATION (IMO)

UK Shipping

UK GOVERNMENT

Northern Ireland Executive

Scottish Government

Welsh Government

Office for Environmental Protection (OEP) - Replaces the functions of the European Commission and the European Environment Agency. Covers England and reserved matters across the UK with powers and duties set by the Environment Act 2021. Ensures environmental protection and the improvement of the natural environment by holding government and other public authorities to account (e.g. government departments & ministers, regulators, local authorities, some private bodies). Includes: 1. Scrutinising Environmental Improvement Plans and targets; 2. Scrutinising environmental law; 3. Advising government on environmental law; 4. Enforcing against failures to comply with environmental law.

Home Office

Cabinet Office

Parliament

- House of Lords
- House of Commons

HM Treasury (Economic policy & sustainable growth

National Infrastructure Commission (Advises government and the devolved administrations on major long term infrastructure challenges in the energy, transport, water and wastewater (drainage and sewerage), waste and flood risk management sectors)

The Crown Estate (Owns 55% of the foreshore (between mean high and mean low water) and approximately half of the beds of estuarial areas and tidal rivers in the UK; manages the seabed out to the 12 mile territorial limit; offshore energy development / leasing; licences for the extraction of marine sand and gravel resources; marine planning)

Department for Transport (DfT) (supporting the maritime sector by producing the overall strategy & planning policy for ports in England & Wales)

Maritime & Coastguard Agency (MCA) (Enforces international shipping and pollution control conventions (MARPOL, SOLAS); ship surveys & inspections; receiver of wreck; shipping registry including fishing vessel registry; Emergency response & counter pollution; Ballast water management)

Secretary of State's Representative for Maritime Salvage & Intervention (SOSREP) (Salvage operations in UK waters involving vessels or fixed platforms, for significant risk of pollution)

Trinity House (Lighthouses in England, Wales, Channel Islands & Gibraltar)

Northern Lighthouse Board (Scotland & Isle of Man)

Marine Accident Investigation Branch (Regulates and influences the oil, gas & carbon storage industry; Promotes net zero; Investigates marine accidents involving UK vessels)

Department for Levelling Up, Housing & Communities (DLUHC) (Investing in jobs, overseeing local government, planning and building safety)

Planning Inspectorate (Independent body examining applications for nationally significant infrastructure projects (NSIPs) e.g. new harbours, offshore wind farms, which require a 'development consent' under procedures governed by the Planning Act 2008; planning appeals; marine licensing applications)

Local Authorities

Inshore Fisheries and Conservation Authorities (IFCAs) (Create fisheries and conservation by-laws out to 6nm; Research; Consulting on marine development work, MSP and MCZs; Enforcement; Liaising with fishermen & anglers.) *The EA, MMO & NE (Defra NDPBs) have statutory seats on the IFCAs.*

Ministry of Defence (MOD) (Protection of people, values, territories and interests at home and overseas)

UK Hydrographic Office (Provide hydrographic services for UK waters as required under SOLAS)

Oil & Pipelines Agency (Manage, operate and maintain 6 Naval Oil Fuel Depots and a Petroleum Storage Depot on behalf of the MoD)

Department for Business, Energy & Industrial Strategy (BEIS) (Tackle climate change; energy & clean growth; science, research & innovation)

UK Met Office (Provides weather and climate-related services. Supported by the Flood Forecasting Centre (see DEFRA))

Committee on Climate Change (Advises on emissions targets and progress on reducing greenhouse gas emissions)

Nuclear Decommissioning Authority

UK Research & Innovation (include research councils e.g. NERC)

Oil & Gas Authority (Regulate and influence the oil, gas and carbon storage industries; EIA for licencing; Pipelines; Promotion of net zero)

Department for Digital, Culture, Media & Sport (DCMS) (Protecting cultural heritage)

Historic England (Advisors to MMO and Defra on marine planning; protected wrecks; protection of marine historic environment; mapping historic seascapes; although not ratified, Historic England follows the Rules annexed to the UNESCO Convention on the Protection of the Underwater Heritage to ensure best practice in marine underwater archaeology projects in UK)

DEFRA (see separate organogram)

Marine Science Coordination Committee (MSCC) A cross-government committee which aims to coordinate scientific knowledge, resources and communications to support marine policy decisions. It provides opportunities for the alignment and development of UK marine science to inform policy decisions and forward implementation of the UK Marine Science Strategy. Four partnership initiatives include Marine Climate Change Impacts Partnership (MCCIP); Marine Environmental Data and Information Network (MEDIN); UK Integrated Marine Observing Network (UK-IMON); Underwater Sound Forum (USF). MSCC is supported and used by:

- Agri-Food and Biosciences Institute (AFBI)
- Department for Business, Energy and Industrial Strategy (BEIS)
- Centre for Environment, Fisheries and Aquaculture Science (Cefas)
- Department of Agriculture, Environment and Rural Affairs (DAERA-NI)
- Department for Environment, Food and Rural Affairs (Defra)
- Department for Transport (DfT)
- Environment Agency (EA)
- Foreign, Commonwealth & Development Office (FCDO)
- Joint Nature Conservation Committee (JNCC)
- Marine Management Organisation (MMO)
- Marine Scotland
- Met Office
- Ministry of Defence (MOD)
- Natural Resources Wales
- National Oceanography Centre (NOC)
- Plymouth Marine Laboratory (PML)
- Marine Alliance for Science and Technology for Scotland (MASTS)
- Marine Biological Association (MBA)
- Scottish Environment Protection Agency (SEPA)
- Seafish
- United Kingdom Hydrographic Office (UKHO)
- United Kingdom Research and Innovation (UKRI)
- Welsh Government

- Devolved Administrations
- Ministerial Departments
- Executive Agencies
- Executive Non-Departmental Public Bodies
- Cross-government Committee
- 'Other' Public Bodies
- Public corporations
- Independent Commercial Business
- Committees or joint committees of local government

INTERNATIONAL OBLIGATIONS

UK GOVERNMENT

- Northern Ireland Executive
- Scottish Government
- Welsh Government

Office for Environmental Protection (OEP) - Replaces the functions of the European Commission and the European Environment Agency. Covers England and reserved matters across the UK with powers and duties set by the Environment Act 2021. Ensures environmental protection and the improvement of the natural environment by holding government and other public authorities to account (e.g. government departments & ministers, regulators, local authorities, some private bodies). Includes:
1. Scrutinising Environmental Improvement Plans and targets; 2. Scrutinising environmental law; 3. Advising government on environmental law; 4. Enforcing against failures to comply with environmental law.

Department for Environment, Food and Rural Affairs (DEFRA)

Delivers policy and legislation for the natural environment, biodiversity, plants and animals; sustainable development and the green economy; food, farming and fisheries; animal health and welfare; environmental protection and pollution control. Coordination of the OSPAR Convention (Convention on the Protection of the Marine Environment of the North-East Atlantic) and new powers for the Secretary of State under the new Environment Act 2021.

Animal and Plant Health Agency

Safeguard animal and plant health for the benefit of people, the environment and the economy.

Responsibilities:

Managing plant health;
Managing disease;
Endangered species (CITES);
Scientific research.

Centre for Environment, Fisheries and Aquaculture (CEFAS)

Collects, manages and interprets data on the aquatic environment, biodiversity and fisheries.

Responsibilities:

Climate change impacts & adaptation; Marine planning, environmental licensing;
Sustainable fisheries management;
Fish and shellfish health & hygiene;
Continued partnership with ICES;
Data collection.

Fish Health Inspectorate

Health of fish & shellfish: safe trade; fish farms; diseases; non-native species.

Joint Nature Conservation Committee (JNCC)

Responsibility for nature conservation in the offshore marine environment (from territorial waters (12nm) extending to the UK Continental Shelf (UKCS).

Responsibilities: Informs policy development at national level;
Provides support for implementation of European & international laws;
Identifying, monitoring & advising on UK's offshore marine nature conservation;
Establishing Marine Protected Areas (MPAs);
Advice to offshore industries;
Supports nature conservation in the UK's 14 Overseas Territories and three Crown Dependencies;
Survey & monitoring.

Marine Management Organisation (MMO)

Protecting and enhancing the marine environment and support UK economic growth by enabling sustainable marine activities and development.

Responsibilities:

Marine planning (planning and licensing functions for English waters and developing marine plans covering the English marine area);
Fisheries (regulate fishing outside territorial waters and outside MPAs, dispensations, monitoring & enforcement, quotas, statistics & vessels licenses);
Protecting the environment (marine pollution, nature conservation (MCZs) & wildlife licences);
Marine regulation & licensing (consenting process, harbour orders (HO), Sec 36 of Electricity Act (>1MW to 100MW) (also with responsibilities for Sec 36 and certain HOs in Welsh inshore waters));
Safety Zone function for non-NSIPs;
Co-chair the Offshore Renewable Energy Licensing Group (ORELG).

Natural England (NE)

Advisor for the natural environment in England. Helps to protect and restore the natural world.

Responsibilities:

Advising government (strategic) & industry (regulatory) on marine conservation and seascape issues in England's territorial waters (out to 12nm) based on the principles of GES & FCS;
Wider sea advice; Advice on marine sea fisheries, marine renewable energy, regulation & licensing and spatial planning;
Reducing biodiversity decline & licensing protected species across England;
Designating national parks and AONBs; Management of NNRs and notifying SSSIs; Responsibility for MCZs, EMSs, SSSIs, Ramsar sites & the network of MPAs

Environment Agency (EA)

To protect and improve the environment and supporting sustainable development.

Responsibilities:

Climate change;
Waste and recycling;
Flood risk (rivers and sea) supported by Regional Flood and Coastal Committees;
Bathing water quality; Coastal erosion risk;
Water, air and land emissions (Environmental Permitting Regs);
Water quality (inc. coasts and estuaries);
Estuary and harbour navigations;
Fishing licenses;
Wildlife & conservation;
Regulation, advice & guidance for business & industry;
Policy implementation.

Flood Forecasting Centre

A public body to support the EA (and Met Office) providing forecasts for all natural forms of flooding (the sea, rivers, surface water and groundwater).

Sea Fish Industry Authority (SFIA)

Supports the seafood industry to work for a sustainable, profitable future.

Responsibilities:

Information (support for industry's business decisions); Safety at sea; Protecting the environment at sea & on land;
Regulation (understanding, interpreting & responding to legislation for industry);
Supporting quality & efficiency standards).

Sponsored by the Scottish government, Welsh Assembly and the Northern Ireland Department of Agriculture and Rural Development, as well as Defra

Science Advisory Council (SAC)

Provides expert independent advice on science policy and strategy to DEFRA and helps to guide Defra's scientific priorities and planning (both in the short and long term)

Advisory Committee on Releases to the Environment (ACRE)

Advice to UK Governments on the release & marketing of genetically modified organisms

Flood & Coastal Erosion Risk Management R&D

Collaborative academic led research providing flood risk professionals with information to manage flood risk. Part of EA, DEFRA, Welsh Government and NRW

- Devolved Administrations
- Ministerial Departments
- Executive Agencies
- Executive Non-Departmental Public Bodies
- 'Other' Public Bodies
- Advisory Non-Departmental Public Bodies

Department
for Environment
Food & Rural Affairs

Daniel Zeichner MP
Minister of State
Seacole Building
2 Marsham Street
London
SW1P 4DF

T: +44 (0) 3459 335577
E: correspondence.section@defra.gov.uk
W: gov.uk/defra

Cllr Philip Thomson
Chair of the Crustacean Deaths Working Group
Redcar & Cleveland Borough Council
Ridley Street, Redcar
Yorkshire, TS10 1TD

Our ref: PO2024/14852/LY

3 October 2024

Dear Cllr Thomson,

Thank you for your letter of 1 August to the Secretary of State regarding the sealife mortality events of 2021 in North-East England and the attached holding statement, which was also received by Cefas. I am replying on behalf of Cefas and the Secretary of State as the Minister responsible for this policy area.

I recognise the complexities and impacts of the mortalities that took place. Having consulted the Department's Chief Scientific Advisor, I agree with his advice that it has been too long since the incident took place in 2021 to seek more information on what caused that mortality and is it unlikely that a public enquiry would provide substantial new insights into the incident.

Defra and its arm's length bodies continued to investigate following the incident. As you will be aware, an independent panel of experts (Crustacean Mortality Expert Panel - CMEP) reviewed all available evidence but could not identify a single clear cause.[1] Additionally, Cefas scientists developed a new, validated method to test for the presence of the chemical pyridine in animal tissue and sediments, which I know several stakeholders remained concerned about. Their report was published, after which crab tissue samples collected during the 2021 incident were re-analysed.[2] Their findings matched the expert panel's conclusion that pyridine was very unlikely to be the cause of the mass mortality.

Since the 2021 incident, we have been working with the North Eastern Inshore Fisheries and Conservation Authority, Cefas and fishers to better understand the frequency and significance of wash ups in the area. This includes sample collection and analysis at Cefas where this is feasible. To date, where material has been available and suitable for testing, no analyses have revealed a presumptive cause. It is noted that observations of marine mortalities on the shoreline are not uncommon, particularly following storm events. However, we remain committed to improving both our knowledge of coastal health and our responsiveness to unexpected marine mortalities.

A recently initiated, Defra-led project is considering a data and analytical framework which is an early step to design and test a potential coastal monitoring framework to improve how government responds to marine events. Its focus is on marine situations of unknown cause(s) which negatively impact marine life around coastal regions of England.

[1] CMEP Report
[2] Pyridine Test Report

This work includes the development of a multi-agency framework to support a common understanding of processes and responsibilities and to ensure a collaborative and effective response should a similar incident occur in the future.

I understand the pressure the incident put on communities and that is why fishers in the North East were encouraged to access funding provided through suitable grant schemes. While these schemes were not envisaged as direct compensation schemes as they were open and existing schemes, they were seen as the quickest way to get support to those affected. I understand these schemes saw more than £2.6 million invested into the seafood sector in the North-East since April 2021, which helped to support the sustainability and long-term future of the sector, provide assistance for projects that boost the sale of seafood, support more environmentally sustainable practices, and bring economic growth to coastal communities.

To improve the health of the stocks and the needs of the crab and lobster industry we published the crab and lobster Fisheries Management Plan (FMP) in December 2023 following a 12-week public consultation.[3] The crab and lobster FMP sets out a framework for identifying and filling evidence gaps, and providing evidence based-management measures to improve crab and lobster stocks.

Defra continues to invest in the monitoring of fish and crustacean stocks as well as the wider ecosystem of the North Sea, including through crab and lobster stock assessments which are produced by Cefas every two to three years to assess the status of the stock. The latest stock assessments are from 2023.[4]

Your concerns have been noted, and I trust that you see from the range of activities set out that we remain vigilant and are working to improve our responses to incidents in the future.

Yours sincerely,

DANIEL ZEICHNER MP

[3] Crab and Lobster Fisheries Management Plan (2023)
[4] Crab and Lobster stock assessments 2023 - GOV.UK (www.gov.uk)

Redcar & Cleveland Borough Council
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Democratic Services
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Ridley Street
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www.redcar-cleveland.gov.uk

Mr Zeichner MP
Minister of State
Seacole Building
2 Marsham Street
London
SW1P 4DF

Contact: Councillor Thomson
Ref: Crustacean Deaths Working Group
Email: philip.thomson@redcar-cleveland.gov.uk

15 November 2024

Dear Mr Zeichner,

Thank you very much for writing as per your letter of the 3 October which has just come into my possession yesterday.

I am pleased to learn that the impact of the crustacean die-off in the North East, which was devastating to local communities and that the inability to clearly identify the causation was and remains a cause for concern, is recognised by yourself and your Department.

Despite the early attempts to identify causation, the inability of a combined resource of intellect and administration has so far been impotent in attaining resolution.

The workings of the apolitical local authority group have been thwarted at practically every turn in attempts to consult with and engage in considered discussion of the incident, its implications and the ramifications that result.

The request for a public enquiry has been tabled in an attempt to bring this matter into a more public domain and to focus minds on a variety of factors including identification of causation but also to examine the apparent moribund structure that is tasked with the governance of the maritime and coastal environment.

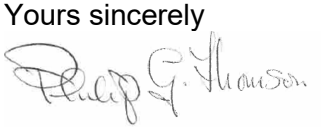
The rejection of such a public enquiry is regretted and the passage of time argument, whilst understood, is a further reflection of the apparent inertia that seems to be symptomatic of the behemoth structure tasked with management of our maritime estate.

The work that you advise of that is being undertaken is welcomed.

There remains much to be done in terms of cooperative working, sharing of intelligence and aspiring to a more efficient regime focussed on more detailed analysis of environment and mechanisms which will adequately identify all the relevant factors which affect it, how these can be identified, monitored, analysed and a system of evaluation and determination that is open and transparent and be able to be held to account.

Representatives of the working group will be in Whitehall in the near future, and it is hoped that earnest dialogue can be engaged in, to progress this aspiration.

Yours sincerely



Councillor Philip Thomson

creating a better place
for people and wildlife

Environment Agency

Caroline Leng
Directorate of Corporate Resources
Democratic Services
Redcar & Cleveland Borough Council
Civic Centre
Ridley Street
Yorkshire
TS10 1TD

By email: contactus@redcar-cleveland.gov.uk

Our Ref: 23005
Date: 24 September 2024

Dear Ms Leng,

Crustacean deaths

Thank you for your letter of 5 August 2024 on behalf of the Crustacean Deaths Working Group in Tees Valley and North Yorkshire. I was interested to read about the working group's research, findings and recommendations.

The Environment Agency was part of the Defra led multi-agency response and investigation into the mass crustacean deaths in 2021, and I am aware of the devastation caused by the event, which affected people working and living along the North East coast. An independent Crustacean Mortality Expert Panel (CMEP) was convened in December 2022 to provide an independent scientific assessment of all the possible causes of the mass mortality incident using all relevant available evidence[1]. Despite significant efforts, the panel could not identify a clear and convincing single cause for the incident.

I have read each of the recommendations in your letter. Defra is best placed to respond to these specific recommendations. However, I have provided some information below, which may be of interest to the Crustacean Deaths Working Group. This includes information about work to improve the response to future marine incidents.

Validated method to test for pyridine

In response to the 2021 incident, The Centre for Environment, Fisheries and Aquaculture (Cefas) scientists developed a new, validated method to test for the presence of the chemical pyridine in animal tissue and sediments. Their report is published[2] and the method was used to re-analyse crab tissue samples collected during the 2021 incident. Their results aligned with the findings from the expert panel, and they concluded that it is very unlikely that pyridine was the cause of the mass mortality event.

Coastal health project

[1] CMEP Report
[2] Newly validated test to detect pyridine in animal tissues and sediments - GOV.UK (www.gov.uk)

A science led project, ‘coastal health’, is considering a data and analytical framework for the long-term resilience, sustainability, and growth of coastal regions around England. This project is an early step to designing a monitoring framework to improve how government responds to marine events. Its focus is on marine situations of unknown cause(s) which negatively affect marine life. This work includes the development of a multi-agency framework to ensure a collaborative response should an incident similar to the 2021 event occur in the future.

Protocol following the 2021 mass mortality event

Following the 2021 mass crustacean mortality event, a protocol on how to respond to new reports of wash ups was agreed between relevant organisations. This protocol was enacted to ensure that new intelligence would be consistently and reliably shared between organisations to facilitate the response to new incidents and investigations.

Current situation around Teesside and North Yorkshire coast

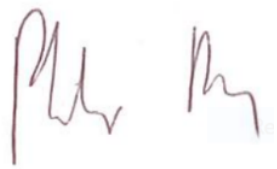
The Environment Agency continues to work with Defra and its partners to respond to any new reports of dead marine life washing up on North East beaches.

Between June 2021 and August 2024, the Environment Agency received 135 reports about dead animals and fish along the North East coast. The last of these reports was on 7 June 2024 when a caller reported dead crabs and thousands of small dead fish on the Teesmouth and Cleveland coast. Due to the reported numbers, a marine officer was deployed to investigate. The marine officer reported that the ‘crab body parts’ were empty shells, consistent with moults (this is a natural process where the crabs shell must be shed or moulted as they grow).

The Environment Agency continues to report to Defra routinely to inform them of any new reports that it has received.

I hope this information is useful for the Crustacean Deaths Working Group. If the Environment Agency can be of any further assistance or if you would like to discuss this matter further, Sarah Jennings, Area Environment Manager, is happy to talk with you. You can contact Sarah on Sarah.Jennings@environment-agency.gov.uk.

Yours sincerely,



Philip Duffy
Chief Executive
Environment Agency

Appendix 14

Redcar & Cleveland Borough Council
Directorate of Corporate Resources
Democratic Services
Civic Centre
Ridley Street
Redar
Yorkshire
TS10 1TD

Ref: L11 -EL
Date: 26/09/24

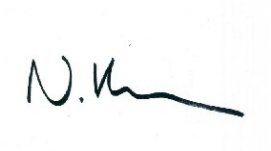
Subject: Acknowledgment of receipt

Dear Mrs Leng,

Thank you for your letters of 1st August and 9th September regarding the Crustacean Deaths Working Group. I can confirm that these letters were received, and the contents reviewed.

I can advise Cefas have contributed to a coordinated Defra response to the Holding Statement, which you will receive shortly. Thank you for your attention to this matter. If you have any queries, please do not hesitate to contact me.

Yours sincerely,



Neil Hornby
Chief Executive

From:
Sent:
To:
Subject:

Dear Ms Leng,

Thank you for your letters dated 9 and 23 September 2024 addressed to our Chair, Hilary Florek. The latter was received in our office 26 September and unfortunately, we were unable to respond in time for your meeting.

Marine Management Organisation (MMO) are unable to comment on the recommendations that you have made in relation to requests to the Secretary of State, nor are we able to comment on behalf of them.

The Department for Environment, Food and Rural Affairs (Defra) co-ordinated a response to the original incident as multiple ALBs/agencies were involved. MMO's role relates to marine licensable activities and notably dredging/disposal. A further independent panel was formed to review the incident. In January 2023, the independent Crustacean Mortality Expert Panel (CMEP) of experts from academia and industry concluded that:

'*it is about as likely as not that a pathogen new to UK waters – a potential disease or parasite – caused the unusual crab mortality*'
and that '*it is very unlikely that pyridine or another toxic pollutant caused the crab deaths. The panel considered industries on Teesside and concluded they could not be sources of any significant volume of pyridine during the period of the crab deaths.*'

All applications for the dredge and/or disposal of material in English waters undertake rigorous sampling under our obligations to the Ospar convention. As a responsible regulator MMO meet all of our international obligations for disposing of dredged material to sea and monitor disposal sites to ensure levels of contaminants aren't exceeded.

I am sorry that MMO are unable to provide comment on the areas of concern that you have raised as these are policy decisions made by Defra.

Yours sincerely,

Fern Skeldon
Marine Licensing Senior Case Manager | Project Speed | Marine Management Organisation
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Our MMO Values: Together we are **Accountable, Innovative**, **Engaging** and **Inclusive**
Website Blog Twitter Facebook LinkedIn YouTube
I'm a PCS Union member. Join here to help improve and defend our pay, conditions and benefits: https://www.pcs.org.uk/get-involved/why-join-pcs
I am taking a blended approach to working. I will be working from Lancaster House 2 days a week and work the remainder of the week from home

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4th October 2024

Caroline Leng
Democratic Services & Scrutiny Officer
Redcar & Cleveland Borough Council
Directorate of Corporate Resources
Democratic Services
Civic Centre
Ridley Street
Redcar
TS10 1TD

Dear Caroline

Crustacean Deaths Working Group – Holding Statement

This is to confirm that we are in receipt of your Holding Statement regarding the research, findings and recommendations from the Crustacean Deaths Working Group dated 01 August 2024.

Yours sincerely

Frans Caljé
Chief Executive Officer

Recommendations / Actions

	Action	Referred To
1	Further research does require to be undertaken in the fields of marine and river ecology and of its management. Defra and Cefas have initiated further research and it is imperative that relevant work be expedited to establish a greater understanding of the coastal environment, the pressures that bear upon it and the management structures that are best fitted to monitor and manage. Reports should be peer reviewed and placed in the public domain in a timely manner. All research that is being undertaken by Government agencies, scientific institutions, companies and sponsored individuals should be acknowledged and accessible for reference. The complexity of relationships needs to be simplified so that any future events of a similar nature can be more readily addressed.	Defra Group
2.	The Working Group commends the efforts of the lobster hatchery approach to improve stocks. The work being conducted at hatcheries in Whitby and Bridlington is to be commended and encouraged. Further hatcheries require to be evaluated to ensure that the restocking of lobsters is maintained to support a sustainable future for the inshore fishing industry.	Whitby Lobster Hatchery Defra Group

	Similar efforts to restore the population of crabs should also be explored.	
3.	Evidence received from academics, NEIFCA and the fishing community suggests that there are broad ecological implications from the incident. The Working Group to write formally to government agencies requesting that that the general ocean environment in the region be monitored to assess recovery. It is also recommended that scientific sampling work that is being undertaken in inland waterways in Yorkshire be extended to the RiverTees water way catchment area.	Defra Group NEIFCA MMO
4.	The Working Group to request monitoring of progress made towards the Defra commissioned investigations. In particular, the key line of enquiry relating to preparedness for future incidents.	Defra Group / Crustacean Deaths Working Group
5.	Given that the MMO advises 'relevant restrictions may be attached in the form of conditions to marine licenses granted by the MMO following consultation with bodies including the EA.', it is requested that the MMO be required to review current standards to ensure robustness, especially in areas affected by legacy contaminants. Levels of testing related to dredging licensing were advised as being in line with international standards and agreements. The frequency of testing and the periods during which they might be conducted did not appear to be stringent enough in environments where historic contamination had been identified.	MMO

	The deposition sites for dredged materials vary for maintenance and capital dredging. Both permitted distances should be reevaluated where historic levels of pollution have been highlighted and where current bed core sampling suggests potential pollutants, either in singular form or potential interactive form. Strong consideration should be given to ensuring land deposition be prioritised for capital dredging.	
6.	The current governance arrangements are incredibly complex. The Working Group recommends that efforts are made to improve collaboration, and a process instigated to ensure that local authorities can productively engage with appropriate stakeholders. The current areas of responsibility for the maritime coastal area surrounding the British mainland do need to be reviewed. The number of organisations would appear to be too great. The interaction between such organisations does not appear to be effective. The perceived lack of synergy experienced during the Group's explorations was not conducive to confidence building or ease of communication and understanding. A restructuring of the overall maritime management to reduce organisation numbers, better clarify remits, welcome public scrutiny and operate in a robust and timely manner is a requirement in need of prompt action.	All relevant stakeholders

7.	The Working Group noted that there were occasionally errors in process administration and some confusion in relation to dredging activity. The Group recommends that attention be given to ensuring robust administrative processes are in place and ready independent audit	All relevant stakeholders
8.	Sampling is only required on a 4-yearly basis, and consideration should be given to increasing the rate in the Tees, especially in view of the industrial legacy of the area. Risk assessments did not take into account the local sites of special scientific interest, which should not be omitted in future assessments. Waterways are dynamic environments that require further understanding, and there is a need to continue to explore water quality. Further engagement needs to be made with all companies responsible for water management.	MMO Statutory Harbour Authority
9.	The Working Group will not be continuing under its existing remit. Although no firm findings have been revealed to confirm the reasons for the Crustacean Die Off the deliberations of the Working Group have identified a real requirement for local authorities to be better advised of maritime matters where land boundaries border coastal or river environments.	Defra Group Coastal local authorities Local Coastal SIG

	Elected members would benefit from greater awareness of maritime legislation, organisational structure, and effective lines of communication and respective authorities should facilitate. There is a perceived need to continue to engage with government agencies. This could be achieved through existing frameworks, but these do need to be robust. The reinstatement of the Annual Coastal Forum should be considered, with a appropriate remit. A review of how local authorities are involved with and relate to relevant maritime organisations, either through Elected Member or Officer representation. Communications with members of the public require improvement. All government agencies and all relevant local authorities should be conscious of that responsibility and seek to be better informed and communicative om matters maritime and environmental.	