Devon and Severn IFCA

Response to MMO Consultation for MLA/2021/00189 following request for information

8th March 2022

Introduction and Scope of Response

Devon and Severn Inshore Fisheries and Conservation Authority (D&S IFCA) is the statutory manager of sea fisheries from baselines out to six nautical miles in English waters as shown in Figure 1. The ten regional IFCAs have a shared vision to:

"lead, champion and manage a sustainable marine environment and inshore fisheries, by successfully securing the right balance between social, environmental and economic benefits to ensure healthy seas, sustainable fisheries and a viable industry."

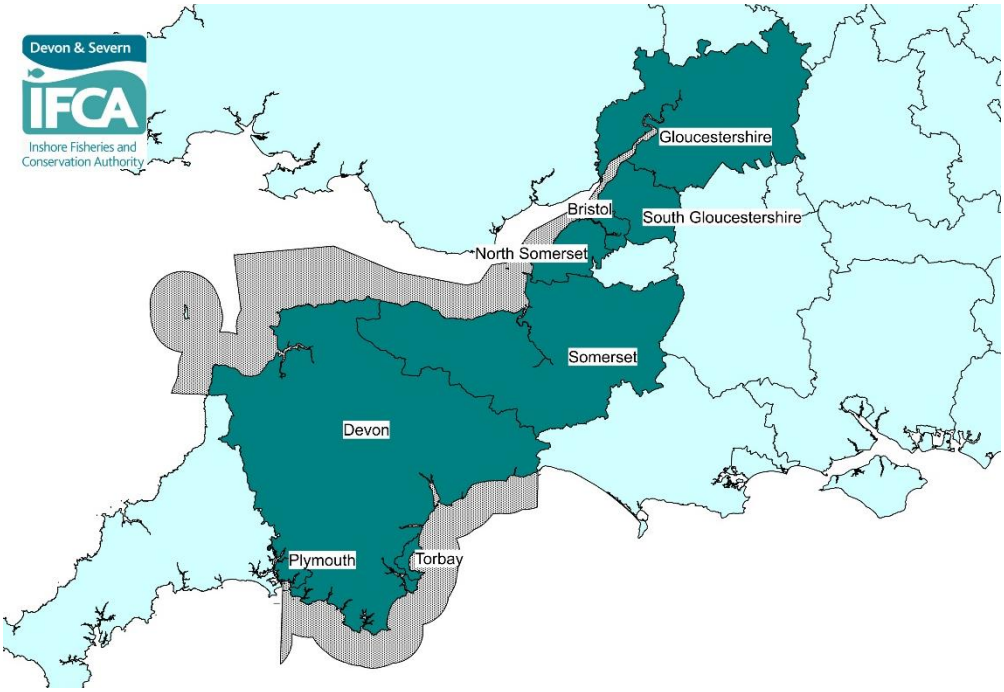

Figure 1. Map of Devon and Severn IFCA's District, showing in grey the sea area from baselines to 6nm (or the median line with Wales).

The powers and duties of all IFCAs are provided by the Marine and Coastal Access Act (MaCAA, 2009), in which the main legal duties are described in section 153: IFCAs must manage the exploitation of sea fisheries resources in their District, balancing the social and economic benefits of exploiting these resources with the need to protect the marine environment, or help it recover from exploitation. Under section 154 of MaCAA, IFCAs must seek to ensure the conservation objectives of any MCZs in the District are furthered. Additionally, under the Conservation of Habitats and Species Regulations 2017 (as amended), IFCAs are deemed to be relevant authorities for European Marine Sites (SACs and SPAs).

Following the initial consultation period and the Applicant's response to consultees, D&S IFCA's remaining concerns relate to (i) the timing of dredging activity and consideration of the impact on sediment movement of dredging at all states of the tide, rather than only on the ebb; (ii) a thorough assessment of the potential impacts on the fish assemblage that is a sub-feature of the Severn Estuary SAC's Estuaries feature; and (iii) dissolved oxygen monitoring.

Timing of dredging activity

The spreadsheet titled "*Combwich Wharf O&M Consultation Comments Applicant Response Tracker*" demonstrates that both D&S IFCA and ABPmer raised concerns regarding the timing of the proposed dredging activity in relation to the flood and ebb tide (comments 7 and 20). In summary, the Application relies on a previous assessment which is based on dredging over the ebb tide, when sediment would be expected to join the flow of the River Parrett into the Severn Estuary. By contrast, the current Application proposes dredging at other states of the tide, and the implications of this were not properly assessed. It remains D&S IFCA's position that the Applicant needs to further consider the impact of dredging at other states of the tide, especially at slack tide and flood tide.

The Applicant has commented on this in the new document "*OPERATIONAL AND MAINTENANCE ACTIVITIES AT COMBWICH WHARF – ENVIRONMENTAL APPRAISAL TO SUPPORT MARINE LICENCE APPLICATION – ADDENDUM*" (document reference: 100971685; hereafter 'Appraisal Addendum"). In the Appraisal Addendum (page 12), the Applicant states that "*Using the conservative estimate of 4,054 tonnes, clearance under Marine Licence L/2013/00178 of 922 tonnes of material from the Combwich Wharf berth bed equates to a maximum increase of 23% in suspended solids on days when sediment clearance occurs. This percentage would be reduced on days with higher river flows*". However, it is not clear why this should represent a maximum increase in suspended solids. The Applicant has arrived at the "*conservative estimate of 4,054 tonnes*" by the following: "*Concentrations of suspended sediment within the River Parrett near Combwich Wharf were also investigated in 2010, as well as discharge rates for the river. Multiplying the mean suspended sediment concentration of 1,173mg.l^{-1} by a lower-estimate flow of 40 cubic metres per second (cumecs) gives a conservative estimate of daily sediment transport through the River Parrett of 4,054 tonnes. It should be noted that on days when river flow is higher, including following periods of high rainfall, river flows can increase to values approaching 200 cumecs*". However, the Applicant has provided no evidence to support the assertion that 40 cumecs is a low flow rate for the River Parrett in the vicinity of the works, and the report that the Applicant cites is not publicly available. By comparison, the River Severn at Haw Bridge (which in the last five years has achieved a peak flow rate of over 700 cumecs, and regularly exceeds 300 cumecs) regularly recorded low flow rates around 20-30 cumecs. The flow in the River Parrett can therefore be expected to be correspondingly lower, as can a lower estimate of flow rates. These data for the Severn are available from the Centre for Ecology and Hydrology at https://eip.ceh.ac.uk/hydrology/water-resources/

During periods of lower river flows (hence lower natural suspended sediment levels) the proportional increase in suspended sediment resulting from the works would be much higher, with large amounts of artificially suspended sediments being injected to a smaller volume of water. At any rate, an increase of almost a quarter (23% by the Applicant's calculation above) in the suspended sediment concentration seems to be quite high.

The Applicant also refers to evidence provided in support of the Bridgwater Tidal Barrier scheme and states that "*Given the above, and as clearance operations at Combwich Wharf to date have occurred on the ebb tide, when there are lower flows and suspended sediment loads with no resultant significant environmental effects, it is considered that clearance operations on the flood tide will also be not significant, due to the occurrence of higher flows and higher suspended sediment loads within the River Parrett during this tidal state."* However, it is clear in the Environmental Statement for the Bridgwater Tidal Barrier Scheme

that "*Sediment is deposited in an estuary during periods of slack tide and is mobilised during periods of high flow. The flood tide is relatively rapid in the River Parrett estuary and tends to mobilise sediment and carry it up estuary. Conversely the ebb tide is slower and so less deposited silt is mobilised and carried down estuary. Because of the tidal asymmetry there tends to be a landward movement of tidally driven sediment. This process is referred to as 'tidal pumping'".* The Environmental Statement for the Bridgwater Tidal Barrier Scheme is also clear that "*The Parrett is a strongly flood dominant system and in conjunction with a high [suspended sediment] load, causes a net import of material into the upper estuary. The strong flood velocities of the incoming flood tide mobilise [suspended sediments], transferring them into and up the estuary, whilst the lower velocities on the ebb tide (combined with fluvial flow) only carry more limited amounts seawards, leading to a net deposition of sediment along the banks of the River Parrett (and adjoining water bodies, such as the River Tone)*." Therefore, although high fluvial flows in the winter carry sediment down estuary (and it is this balance between tidal pumping and fluvial movement of sediment which drives the sediment regime) artificial injection of dredged sediment into the estuary on flood tides will increase the tidal pumping and overall landward movement of tidally drive sediment, in addition to increasing the net deposition of sediment along the banks of the River Parrett. Given the above, D&S IFCA remains concerned about the impact of sedimentation both on benthic habitats and in the water column (as outlined in the previous response).

Severn Estuary SAC fish assemblage and the Applicant's HRA

There is a lack of consideration of effects of sedimentation on the fish assemblage that is a sub-feature of the SAC's designated Estuary feature. The Applicants response to this comment appears to focus primarily on the migratory fish species and does not fully consider the ~ 110 species that make up the estuarine fish assemblage. Given the concerns raised above, regarding high levels of sedimentation, impacts on these fish should be considered more thoroughly.

As stated previously, the fish assemblage includes over 110 species of fish, including many commercially and recreationally important species that are known to be present in the vicinity, and that use the tidal waters of the River Parrett. The Parrett is tidally influenced up to 34 km inland from the mouth at Steart Point to Oath Lock, and the average limit of saline intrusion is around 24km landward of Steart Point. The water is still highly saline around Combwich Wharf and for some distance upstream. These relatively high salinities are within the tolerances of, for example, juvenile bass (*Dicentrarchus labrax*). The Parrett estuary is a proposed Bass Nursery area, and juvenile sea bass are known to move upstream into river systems. This highlights the potential for this (and other) euryhaline species from the Severn Estuary EMS assemblage to be affected by sedimentation resulting from the proposed works. Furthermore, fish movements in estuaries can vary on a tidal basis, and the Applicant does not assess possible dependence of fish on periods of lower suspended sediment concentrations that could be affected by the dredging activity.

Dissolved oxygen monitoring requirements

D&S agrees with ABPmer that dissolved oxygen (DO) monitoring should be continued for another year covering the new full dredge period on the flood and ebb with a review of results to determine whether it is necessary to continue in future years. The Applicant has suggested that ebb monitoring is not necessary; however, it would likely be valuable to

further consider interannual variation in DO and to provide ebb DO values as context for flood DO monitoring.