**Key to MMO Habitat creation Maps**

**Native Oyster (amber diamond)**

Sites in England (and Wales) where native oyster may either be currently present, or used to be historically. Point databased on a spreadsheet provided by AER (Aquatic Environmental Research), which was in turn derived by downloading relevant records from OBIS (a global open-access database on marine biodiversity). Irrelevant/duplicate columns were deleted from the spreadsheet, and records classed according to age. The rationale of presenting the data is that the shown points would likely still/again be able to support new, or more extensive, biogenic reefs. This is particularly the case as larval recruitment is thought to be a key condition for the successful restoration or creation of a site. Limitations include those commonly related to the use of open source data (including possible errors, including in the use of species names, geo-referencing, data handling, and mapping), as well as the fact that the presence of a record does not necessarily indicate the presence of a biogenic reef, but may merely show records of individuals. It does also not indicate that all environmental conditions are still suitable for biogenic reef creation (further investigation recommended once preferred sites have been identified). The data may also become outdated, and regular updates should be considered. When investigating Native Oyster presence in a given area, records from further databases should ideally also be consulted, notably that of the National Biodiversity Network.

**Mud Stretches (brown line)**

Broad intertidal / muddy shoreline stretches in England which are thought to be eroding and could thus benefit particularly from beneficial use are identified. Line data was identified by undertaking a review of SSSI (Sites of Special Scientific Interest) site condition reports, and mapping these in a line format. Limitations of this data layer include the fact that it only highlights SSSI-designated shorelines (although around 90 to 95% of England’s soft shorelines are SSSI designated); and that it relies on likely subjective site condition assessments by Natural England officers, which may be fairly dated, or soon be updated. Despite these limitations, from known historic trends, and feedback from stakeholders, it appears that the data layer successfully identifies the key eroding soft/intertidal shorelines in England.

**Seagrass Restoration (green diamond)**

Potential seagrass restoration / creation sites in England. Point data based on a spreadsheet provided by AER (Aquatic Environmental Research), showing English sites where seagrasses are either no longer present, or highly degraded, and where restoration may be beneficial. Spreadsheet was created by AER by reviewing relevant reviews and historic data. The data layer contains information on which species of seagrass could be the focus of the restoration effort, and whether there is thought to be the potential for seagrass restoration through the replacement of moorings. Species of seagrass to target for restoration (Z. marina, Z. noltii, or both). With regard to limitations, it should be noted that this data layer identifies broad areas, and does not pinpoint exact sites where restoration / creation might be feasible. Furthermore, inclusion of a site in the data layer does not imply that all environmental conditions required for seagrass (re)establishment will have been met at a given location (most notably water quality). A level of subjectivity is also noted in relation to expert judgement.

**Creation Sites within the Floodplain (blue diagonals)**

Currently defended floodplain areas in England which could be suitable for managed realignment and / or Regulated Tidal Exchange (RTE) (to create mudflats and saltmarshes) are identified. Polygon data developed in 2018, by excluding /deleting unsuitable areas from the base layer (the Environment Agency's floodplain layer). Unsuitable areas included urban areas, major infrastructure, and existing managed realignment sites. With regard to limitations, this data layer should only be viewed as a high level indication where managed realignment or RTE may be feasible. Sites are not ranked according to their suitability, nor does the layer indicate whether or not land is actually available for intertidal habitat creation (e.g. landowners may well not be interested to sell). Whilst a validation exercise showed that using the Floodplain 3 data layer would generally lead to the identification of sites which could support mostly intertidal habitat if they were breached, the likely actual habitats achieved would depend on the regional and site conditions. Further investigations should be undertaken once a site has been judged as being of potential interest. Further limitations of the data layer include that the larger sites identified are unlikely to be suitable for intertidal habitat creation across their entirety, for example due to potential difficulties relating to getting water to all areas of the site, or because very large sites may have undue impacts on the adjacent estuary. Thus, in reality, large sites will likely need to be sub-divided, and those areas closer to the shoreline preferentially targeted. RTE tidal amplitude is also generally lower than for fully breached sites, and with any site identified for RTE, it is thus unlikely that the full extent of a given site included in the data layer would be inundated.

**Materials suitable for mudflat or saltmarsh restoration (brown polygon)**

Open marine disposal sites in England and Wales, which could yield muddy materials suitable for mudflat or saltmarsh restoration by applying the beneficial use / alternative reuse of dredged materials technique. Polygon data derived in 2018 based on a review of relevant Cefas database (which contained records up to 2012), whereby sites which regularly receive maintenance dredge materials were identified. The data layer also contains information on likely source of the sediment, and predominant sediment type, where this could be determined (through a literature review). Key limitations of the data layer are that it only provides a high level indication of where, and how much, sediments may be available. Furthermore, the review is based on a database which contained records up to 2012, so trends may have changed since then; and for some sites, primary depositors could not be identified. However, despite these limitations, the data layer presents data which is not available elsewhere, and indicates trends which are likely to continue into the future, as maintenance dredge requirements do not tend to fluctuate substantially.