ENVIRONMENTAL STATEMENT: 6.3 APPENDIX 8-1: MARINE BASELINE SURVEYS

DECARBONISATION

Cory Decarbonisation Project

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Revision A

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations (2009) - Regulation 5(2)(a)

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1. MARINE BASELINE SURVEYS

1.1. METHODOLOGY

INTERTIDAL WALKOVER SURVEYS

1.1.1. Intertidal walkover surveys were undertaken on 4th November 2022 and 17th May 2023. The survey undertaken was a modified version of the standard intertidal survey methodology as outlined in the Joint Nature Conservation Committee (JNCC) Marine Monitoring Handbook[1]. The modification took account of no safe access on to the intertidal area during the walkovers and therefore all observations were made from the England Coast Path (FP1/NCN1) adjacent to the intertidal area. The surveys were conducted on an ebb tide, starting approximately two hours prior to low tide and finishing approximately one hour after low tide.

1.1.2. The surveys comprised a general walkover noting changes in ecological and physical characteristics. All conspicuous macrofauna species present were identified and recorded onsite. All species names were taken from the Marine Life Information Network[2]. Field notes were also taken on the physical characteristics, including sediment type, shore type and wave exposure, alongside photographs. Any other features within the intertidal zone were also noted including artificial structures and habitats/species of conservation importance.

FISH SURVEYS

1.1.3. A spring fish survey was undertaken on 18th May 2023 and an autumn fish survey was undertaken on 21st September 2023 at high tide. The locations selected for the survey are considered to provide a representative coverage of the Site. During each survey, two 2m scientific beam trawls were carried out within the Study Area. Each trawl extended over a minimum distance of 200m, with the start and end points recorded using a Global Navigation Satellite System (GNSS) logger. On retrieval of the sample, all fish were carefully handled, identified to species level (where practicable), counted and fork length measured to the nearest millimetre. Once processed, fish were returned safely to the River Thames. Locations of the beam trawl transects are shown in **Table 1** and **Figure 8-3: Intertidal and Subtidal Trawl Sample Locations within the Study Area (Volume 2)**.

Table 1: Location of Fish Beam Trawls

Station Number	Latitude (WGS84)	Longitude (WGS84)	Survey
Trawl 1 Start Point	51°30.4938	0°09.2300	Spring
Trawl 1 End Point	51°30.4302	0°09.4741	
Trawl 2 Start Point	51°30.3737	0°09.6806	

Station Number	Latitude (WGS84)	Longitude (WGS84)	Survey
Trawl 2 End Point	51°30.3564	0°09.7742	
Trawl 1 Start Point	51°30.4507	0°09.4287	Autumn
Trawl 1 End Point	51°30.4942	0°09.2577	
Trawl 2 Start Point	51°30 3284	0°09.8384	
Trawl 2 End Point	51°30.3760	0°09.6276	

SUBTIDAL AND INTERTIDAL BENTHIC GRAB SURVEY

1.1.4. Subtidal and intertidal benthic grab surveys were carried out in order to collect data on macrofaunal and physicochemical data in the surface sediment in order to ascertain any potential patterns in the benthic community data.

1.1.5. On the 17th May 2023, grab sampling was carried out at six points across the intertidal zone; and on the 18th May 2023, sampling was carried out at an additional six points across the subtidal area.

1.1.6. On 21st September 2023, an additional three sites were sampled within the subtidal area in order to capture slight changes to the location of the Proposed Scheme's dredge pocket and provide additional macrofaunal and physicochemical data and to support the sediment model. The locations selected are considered to provide representative spatial coverage of the subtidal area and Proposed Jetty location. All sampling was undertaken from appropriately equipped and Maritime and Coastguard Agency (MCA) coded survey vessels. Locations of the successful and unsuccessful sampling stations are detailed in **Table 2** and **Table 3** and **Figure 8-4: Successful and Unsuccessful Grab Sample Locations (Volume 2)**.

1.1.7. The subtidal and intertidal grab surveys followed the established and recognised procedures outlined in the Recommended Operational Guidelines (ROG) for Grab Sampling and Sorting and Treatment of Samples[3] and the Marine Monitoring Handbook, Procedural Guideline No 3.9[4]. Grabs were only accepted for a macrofaunal sample if the grab was at least three quarters full. Anything below this was used for sediment chemistry and particle size analysis (PSA).

1.1.8. The subtidal and intertidal samples were collected using a 0.1m^2 day grab deployed from the stern of the survey vessel. The grab samples were sieved on deck using a 0.5mm stainless steel mesh sieve and then sent to a laboratory for macrofauna analysis (faunal composition, abundance and biomass). An additional sample was taken at each station for PSA and sediment contaminant analysis.

1.1.9. The benthic invertebrate samples were analysed by a National Marine Biological Analytical Quality Control (NMBAQC) accredited laboratory called Thomson Environmental Consultants. All the macroinfaunal specimens were identified to species level (where practicable) and enumerated.

1.1.10. The PSA and sediment chemistry samples were analysed by Soccatec which is an accredited physicochemical laboratory to MMO dredging standards.

Table 2: Location of Successful Intertidal and Subtidal Benthic Sampling Stations

Survey Date	Station Number	Latitude (WGS84)	Longitude (WGS84)
Intertidal Surveys			
17/05/2023	Intertidal 1	51°30′24″N	000°09′08″E
	Intertidal 2	51°30′23″N	000°09′15″E
	Intertidal 3	51°30′22″N	000°09′22″E
	Intertidal 4	51°30′21″N	000°09′30″E
	Intertidal 5	51°30′21″N	000°09′36″E
	Intertidal 6	51°30′18″N	000°09′49″E
Subtidal Surveys			
18/05/2023	Subtidal 7	51°30.4907	000°09.1677
	Subtidal 8	51°30.3741	000°09.5448
	Subtidal 9	51°30.4281	000°09.5176
	Subtidal 10	51°30.4087	000°09.6488
	Subtidal 11	51°30.3306	000°09.8323
	Subtidal 12	51°30.4017	000°09.5685
21/09/2023	Subtidal 13	51°30.4620	000°09.5260
	Subtidal 14	51°30.4334	000°09.6490
	Subtidal 15	51°30.4038	000°09.7414

Table 3: Location of Unsuccessful Subtidal Benthic Sampling Stations

Survey Date	Station Number	Latitude (WGS84)	Longitude (WGS84)	Reason for Rejection
18/05/2023	Subtidal 11	51°30.3688	000°09.8492	Grab Malfunction
	Subtidal 11	51°30.3583	000°09.8600	Grab Malfunction
	Subtidal 11	51°30.3672	000°09.8405	Grab Malfunction
21/09/2023	Subtidal 14	51°30.4427	000°09.6534	Rock in jaw
	Subtidal 14	51°30.4417	000°09.6529	Rock in jaw
	Subtidal 14	51°30.4396	000°09.6571	Rock in jaw
	Subtidal 13	51°30.4614	000°09.5263	Rock in jaw

Survey Date	Station Number	Latitude (WGS84)	Longitude (WGS84)	Reason for Rejection
	Subtidal 13	51°30.4608	000°09.5264	Rock in jaw
	Subtidal 13	51°30.4595	000°09.5341	Equipment misfire
	Subtidal 13	51°30.4631	000°09.5267	Rock in jaw
	Subtidal 14	51°30.4378	000°09.6502	Rock in jaw
	Subtidal 14	51°30.4336	000°09.6517	Rock in jaw
	Subtidal 15	51°30.4119	000°09.7391	Rock in jaw
	Subtidal 15	51°30.4115	000°09.7430	Rock in jaw
	Subtidal 14	51°30.4263	000°09.6544	Rock in jaw
	Subtidal 13	51°30.4551	000°09.5281	Low sample volume

WATER QUALITY SURVEYS

1.1.11. Site specific surveys for water quality involved sample collection from within the Study Area on the 21st September 2023, over a six hour period during an ebb tide to gather data relevant to calibrate a sediment transport model. This included using a YSI probe to collect information on dissolved oxygen, total dissolved solids, temperature, salinity, pH and conductivity. A niskin bottle was also used to collect samples which were analysed by ALS laboratories for total suspended solids.

NOTES AND LIMITATIONS

1.1.12. Intertidal grab samples were taken using a boat due to health and safety concerns regarding walking on soft intertidal mudflat. The use of a hovercraft to sample intertidally was explored. However, due to the distance of the launch site to the Proposed Scheme and the large number of vessel traffic along the River Thames, it was considered unsafe.

1.1.13. It should be noted that the fish survey data only provides a snapshot of the species composition, however, this is complemented with historic desk study data and therefore is considered to sufficient to inform the impact assessment.

1.1.14. It should be noted that gear type affects the species caught and therefore survey data may not accurately represent the abundance of all species or life stages. For example, 2m beam trawls are suited to catching small and juvenile demersal fishes but do not adequately target larger fish or mid water and pelagic species, which are then underrepresented. Despite this, the baseline survey data alongside the desk study data collated is considered a sufficient representation of the communities present within the Thames Middle. Furthermore, the fish trawl methodology was confirmed with the Environment Agency prior to the start of surveys.

1.2. MARINE BASELINE SURVEY RESULTS

PHYSICAL CHARACTERISTICS

Water Quality

1.2.1. The water quality samples from the niskin bottle returned values for suspended solids ranging from 29.3mg/l to 236mg/l. In addition to the water quality samples, hourly water quality readings using a probe, including temperature, salinity and total dissolved solids were recorded. The water temperature ranged from 19.5°C to 19.8°C. Salinity ranged from 5.62ppt to 13.92ppt which largely reflected changes in the tide. Total Dissolved Solids (TDS) ranged from 6,396mg/l to 14,950mg/l and increased with tidal strength (water flow rate due to tidal pressures).

Sediment Quality

1.2.2. Site specific grab sampling surveys of river bed surface sediment were undertaken to encompass areas that could be potentially impacted by the construction works, including capital dredging and piling. These surveys were carried out to support the benthic macrofaunal surveys in potentially explaining the patterns in the biological data recorded in the surface layers. PSA describes the percentages for all different sediment size fractions that are present in the samples recorded across the Site. Gravel consisted of size fractions 2mm to 45mm. Sand consisted of size fractions 63µm to 2mm. Silt consisted of size fractions 3.9µm to 63µm. Clay consisted of size fractions 0.04µm to 3.9µm.

1.2.3. The percentages of different sediment types for each station are presented in **Table 4** and **Table 5**. PSA results indicated that the sediment type across the intertidal sample stations mainly consisted of sand with an average composition of 56.30%, followed by silt with an average of 37.52% and clay (6.17%). No gravel was recorded within the intertidal sample stations.

1.2.4. PSA results indicated that the sediment type across the subtidal sample locations, which were successfully sampled by grab, mainly consisted of sand which had an average composition of 47.45%, followed by silt (35.86%), clay (11.61%) and gravel (5.08%). It should be noted that the sample from Subtidal Point 15 which is located within the dredge pocket consisted of primarily gravel (44.92%) whereas the rest of the subtidal sample stations had less than one percent of gravel. Within the proposed dredge pocket (Subtidal Point 10) the substrate also comprised of sand (66.97%), silt (26.53%) and clay (6.12%), at the edge of the dredge pocket (site 9) the sediment was predominantly sand (94.33%) with some silt (4.13%), the sediment within the floating support platform (Subtidal Point 12) comprised sand (70.99%), silt (22.66%) and clay (6.25%). The substrate became coarser towards the main channel, with some of the samples bringing up large stones and pieces of debris including brick. These samples were rejected but shows the potential change in substrate within a limited area of the dredge pocket.

1.2.5. The sediment located across the survey area (including within the proposed dredge pocket) was also analysed for the standard MMO dredge suite of potential contaminants including: trace metals, organotins, polychlorinated biphenyls (PCB), brominated flame retardants, total hydrocarbons (THC), polycyclic aromatic hydrocarbons (PAHs) and organochlorine pesticides (OCP). These samples were analysed against CEFAS action levels (AL) which are currently used by the MMO to determine if dredged material is suitable for disposal at sea. Any samples returning values below AL1, do not require any further assessment. Contaminants between AL1 and AL2 require additional analysis and contaminants above AL2 are not suitable for disposal at sea[a].

1.2.6. The full results of the contaminant analysis are presented in **Annex C** of **Appendix 11-1: Water Framework Directive Assessment (Volume 3)**. In summary, results show that the surface sediments are generally contaminated within the limited area sampled within the dredge pocket and outside of the dredged area. Sediment concentrations of metals and PAH were above AL1 in a number of locations across the Survey Area. Additionally, the concentration of dichlorodiphenyltrichloroethane (DDT) encountered at Subtidal Point 12 (located at the site of the float support platform), was 0.0018 mg/kg which exceeded AL1 (0.001mg/kg). In addition, the concentration of mercury at Subtidal Point 13 (outside of the dredge area) was 4.71mg/kg, which is above AL2 (3.00mg/kg).

MARINE HABITATS

1.2.7. The two walkover survey visits in November 2022 and May 2023 recorded intertidal mudflats adjacent to and underneath the Belvedere Power Station Jetty (disused) and saltmarsh located adjacent to the Site Boundary. A band of fucoid seaweeds (wracks) were observed growing on the base of the river wall (flood defence) with a narrow band of salt tolerant vegetation growing above the band of fucoids.

1.2.8. The section of the Thames Middle Water Body within the Study Area is constrained on both banks by artificial flood defences. The flood defences within the Survey Area are comprised of a 45-degree angle smooth concrete wall with a vertical concrete capping piece. The intertidal mudflat extends approximately 70m from the base of the wall towards the mean low water point. An area of intertidal boulders dominated by wrack Fucus sp and sea-lettuce Ulva sp was also present within the mudflat area on the right-hand (southern) bank. On the upper shore, salt tolerant plants were observed, including primarily reeds Phragmites spp. Tidal terracing was also present in areas along the upper shore.

[a] The dredged arisings will be managed in accordance with relevant legislation and will be disposed of offsite (via road or to an offshore location) as it is unlikely that the dredged arising will be suitable for reuse on the Proposed Scheme. If contaminated, the removal of the dredge arising will be undertaken by an appropriately licenced waste remover.

1.2.9. From observations made during the walkover surveys, the habitat appeared to be homogenous. Consequently, sampling from a survey vessel would not have compromised the effectiveness of the surveys.

INTERTIDAL BENTHIC COMMUNITIES

1.2.10. The macrofaunal benthic survey of 17th May 2023 yielded a total count of 14 taxa across five phyla (**Table 4**)**.** The intertidal benthic community was impoverished and dominated by species that are highly tolerant of disturbance such as changes in suspended solids, smothering and siltation rate; as well as, disturbance of the substratum and contamination, along with a quick recovery time[1]. This is likely due to the high suspended sediments present within the area and fluctuating salinities. All stations were dominated by the oligochaete worm *Baltidrilus costatus* and the ragworm *Hediste diversicolor*. Intertidal Point 6 was also dominated by European mud scud *Corophium volutator*. All the species recorded from the samples in this area are common in the Thames Estuary and no protected species were recorded.

1.2.11. The collection of sediment at the same macrofaunal sites on 17th May 2023 was analysed for PSA as this often influences the macrofaunal community composition. The percentages of different sediment types for each station are presented in **Table 4**.

1.2.12. PSA results indicated that the sediment type across the intertidal sample stations mainly consisted of sand with an average composition of 56.30%, followed by silt with an average of 37.52% and clay (6.17%). No gravel was recorded within the intertidal sample stations.

Table 4: Intertidal Benthic Survey Results

Station	Sediment (%)	No. of taxa (per m^2)	No. of individuals (per m^2)	Key Characterising Taxa (Number per m^2 shown in brackets)
Intertidal 1	Gravel (0) Sand (56.18) Silt (38.56) Clay (5.26)	8	417	*Baltidrilus costatus* (327) Copepoda (1) *Corophium volutator* (9) *Hediste diversicolor* (64) *Manayunkia aestuarina* (1) *Peringia ulvae* (1) *Streblospio* (10) *Tubificoides pseudogaster* (4)
Intertidal 2	Gravel (0) Sand (59.88) Silt (35.01) Clay (5.11)	8	1,128	*Baltidrilus costatus* (552) Copepoda (1) *Corophium volutator* (69) *Hediste diversicolor* (299)

Station	Sediment (%)	No. of taxa (per m^2)	No. of individuals (per m^2)	Key Characterising Taxa (Number per m^2 shown in brackets)
				Manayunkia aestuarina (50) *Streblospio* (149) Truncatelloidea (1) *Tubificoides pseudogaster agg*. (7)
Intertidal 3	Gravel (0) Sand (56.51) Silt (37.42) Clay (6.07)	6	1,951	*Baltidrilus costatus* (1316) *Corophium volutator* (87) *Hediste diversicolor* (502) *Manayunkia aestuarina* (10) *Streblospio* (19) *Tubificoides heterochaetus* (17)
Intertidal 4	Gravel (0) Sand (56.14) Silt(37.87) Clay (5.99)	11	955	Amphipoda (1) *Baltidrilus costatus* (203) Copepoda (1) Corophiidae (13) *Corophium volutator* (112) *Cyathura carinata* (4) *Hediste diversicolor* (490) *Manayunkia aestuarina* (91) Nereididae (10) *Streblospio* (25) *Tubificoides heterochaetus* (5)
Intertidal 5	Gravel (0) Sand (60.23) Silt (34.42) Clay (5.35)	8	1,039	*Baltidrilus costatus* (515) *Corophium volutator* (111) *Cyathura carinata* (2) *Hediste diversicolor* (332) *Manayunkia aestuarina* (19) Nereididae (8) *Streblospio* (51) *Tubificoides heterochaetus* (1)
Intertidal 6	Gravel (0) Sand (48.88) Silt (41.86) Clay (9.27)	9	925	*Baltidrilus costatus* (93) *Corophium* (14) *Corophium volutator* (472) *Cyathura carinata* (1) Enchytraeidae (4) *Hediste diversicolor* (326)

Station	Sediment (%)	No. of taxa (per m^2)	No. of individuals (per m^2)	Key Characterising Taxa (Number per m^2 shown in brackets)
				Manayunkia aestuarina (5) *Scrobicularia plana* (1) *Streblospio* (9)

SUBTIDAL BENTHIC COMMUNITIES

1.2.13. The subtidal surveys for macrofauna yielded a total count of 26 taxa (see **Table 5**), comprising 3,560 individuals of primarily *Tubificoides pseduogaster* agg, *Streblospio spp* and *Cyathura carinata*. The macroinvertebrate community across the Survey Area generally exhibited low species richness. The majority of species recorded are common and widespread within the Thames. One rare/scarce species was recorded at Subtidal Point 13 (**Figure 8-3: Intertidal and Subtidal Trawl Sample Locations within the Study Area (Volume 3)**); the amphipod crustacean *Apocorophium lacustre*. However, this species is not protected. The non-native bristleworm *Marenzellariea* sp. was recorded at three sample stations (Subtidal Points 10, 12 and 15) and the non-native amphipod *Incisocalliope aestuarius* was recorded at two sample sites (Subtidal Points 14 and 15).

1.2.14. Brown shrimp *Crangon crangon*, mysid shrimp *Mysis spp* and *Gammarus spp* were observed within the beam trawl transect surveys carried out on 18th May and 21st September 2023.

1.2.15. The subtidal samples primarily consisted of an impoverished community of species that are highly tolerant of disturbance such as changes in changes in suspended solids, smothering and siltation rates, physical disturbance and contamination.

1.2.16. Sediment at the same locations underwent PSA. The sediment type across the subtidal sample stations also mainly consisted of sand which had an average composition of 47.45%, followed by silt (35.86%), clay (11.61%) and gravel (5.08%). It should be noted that the sample from Subtidal Point 15 consisted of primarily gravel (44.92%) whereas the rest of the subtidal sample stations had less than one percent of gravel. The macrofaunal communities recorded within these areas are often present within habitats comprising these sediment types.

1.2.17. Within the proposed dredge pocket (Subtidal Point 10), the substrate comprised sand (66.97%), silt (26.53%) and clay (6.12%). At the edge of the dredge pocket (Subtidal Point 9), the sediment was predominantly sand (94.33%) with some silt (4.13%). The sediment within the floating support platform (Subtidal Point 12) comprised sand (70.99%), silt (22.66%) and clay (6.25%). The substrate became coarser towards the main channel, with some of the samples bringing up large stones and pieces of debris including brick.

Table 5: Subtidal Benthic Ecology and Sediment Survey Results

Station	Sediment Type (%)	No. of taxa (per m^2)	No. of individuals (per m^2)	Total Biomass (g, per m^2)	Key Characterising Species (Number per m^2 shown in Brackets, 'P' Indicates Presence of taxa)
Subtidal 7	Gravel (0) Sand (37.23) Silt (48.88) Clay (13.89)	2	90	1.001	*Cyathura carinata* (20) *Peringia ulvae* (70)
Subtidal 8	Gravel (0) Sand (16.44) Silt (61.29) Clay (22.26)	3	40	0.2690	*Tubificoides pseudogaster agg.* (20) Corophiidae (10) *Cyathura carinata* (10)
Subtidal 9 (edge of dredge pocket)	Gravel (0.03) Sand (94.33) Silt (4.13) Clay (1.52)	3	40	0.0080	*Steblospio* (20) *Gammarus* (20) Araceae (P)
Subtidal 10 (within dredge pocket and location of Proposed Jetty)	Gravel (0.37) Sand (66.97) Silt (26.53) Clay (6.12)	8	680	0.2760	Enchytraeidae (30) *Tubificoides pseudogaster agg.* (130) *Maranzelleria* (10) *Steblospio* (490) *Gammarus* (10) *Peringia ulvae* (10) *Einhornia crustulenta* (P)

Station	Sediment Type (%)	No. of taxa (per m^2)	No. of individuals (per m^2)	Total Biomass (g, per m^2)	Key Characterising Species (Number per m^2 shown in Brackets, 'P' Indicates Presence of taxa)
					*A*raceae (P)
Subtidal 11	Gravel (0.3) Sand (88.68) Silt (8.99) Clay (2.01)	7	340	0.4160	Enchytraeidae (10) *Baltidrilus costatus* (10) *Tubificoides pseudogaster agg.* (140) *Hediste diversicolor* (10) *Steblospio* (120) *Gammarus* (40) Corophiidae (10)
Subtidal 12	Gravel (0.10) Sand (70.99) Silt (22.66) Clay (6.25)	10	1,040	1.5720	Enchytraeidae (10) *Tubificoides pseudogaster agg.* (350) *Hediste diversicolor* (20) *Polydorini* (10) *Marenzelleria* (30) *Steblospio* (590) *Cyathura carinata* (10) Gastropoda (10) *Peringia ulvae* (10) Araceae (P)
Subtidal 13	Gravel (0) Sand (22.41)	9	800	0.955	*Hediste diversicolor (10)* Polydorini *(50)*

Station	Sediment Type (%)	No. of taxa (per m^2)	No. of individuals (per m^2)	Total Biomass (g, per m^2)	Key Characterising Species (Number per m^2 shown in Brackets, 'P' Indicates Presence of taxa)
	Silt (57.11) Clay (20.48)				*Polydora cornuta (20)* *Streblospio (340)* *Apocorophium lacustre (140)* *Corophium (60)* *Corophium volutator (30)* *Cyathura carinata (150)* *Einhornia crustulenta (P)*
Subtidal 14	Gravel (0) Sand (16.66) Silt (58.97) Clay (24.37)	7	200	0.064	*Anthoathecata (P)* Campanulariidae *(P)* *Balanus crenatus (70)* *Incisocalliope aestuarius (90)* Corophiidae *(20)* *Cyathura carinata (P)* *Idotea (20)*
Subtidal 15	Gravel (44.92) Sand (13.30) Silt (34.16) Clay(7.62)	11	330	0.128	*Anthoathecata (P)* Campanulariidae *(P)* *Marenzelleria (10)* *Polydora (10)* *Steblospio (200)* Thoracica *(20)*

Station	Sediment Type (%)	No. of taxa (per m^2)	No. of individuals (per m^2)	Total Biomass (g, per m^2)	Key Characterising Species (Number per m^2 shown in Brackets, 'P' Indicates Presence of taxa)
					Incisocalliope aestuarius (30) *Idotea (50)* *Neomysis integer (10)* *Einhornia crustulenta (P)* Aracea *(P)*

MARINE PLANTS AND MACROALGAE

1.2.18. The survey undertaken on the 17th May 2023 recorded the marine vascular plants and algae within the intertidal regions of the Study Area. The top section of the wall is within the splash zone and has some growth of salt tolerant terrestrial plant species. The mid-section of the wall was colonised by filamentous green algae, with a band of seaweed, comprising fucoid species, present along the base of the wall. A small area of fringing saltmarsh comprising mainly of common reed *Phragmities australis* is located to the west of the Study Area in a small embayment, adjacent the Site Boundary.

FISH

1.2.19. Two subtidal beam trawls were undertaken on 18th May 2023 (spring surveys) and an additional two trawls on 21st September 2023 (autumn surveys) in order to determine the fish community present within the Study Area. Results from these surveys are presented in **Table 6**.

Table 6: Results from the Spring and Autumn Beam Trawls in 2023 Showing the Number of Individuals of each Species Recorded

Common Name	Latin Name	Trawl No.1	Trawl No.2	Trawl No.1	Trawl No.2
		Spring		Autumn	
European smelt	*Osmerus eperlanus*	1	-	1	-
Sea bass	*Dicentrarchus labrax*	3	2	-	-
Dover sole	*Solea solea*	29	-	1	-
Transparent goby	*Aphia minuta*	1	-	-	-
Flounder	*Platichthys flesus*	2	1	-	18
European eel (decaying)	*Anguilla anguilla*	-	1	-	-
Pouting	*Trisopterus luscus*	-	-	1	-
Sand goby	*Pomatoschistus minutus*	-	-	25	42
Sprat	*Sprattus sprattus*	-	-	1	-
Common goby	*Pomatoschistus microps*	-	-	-	9

1.2.20. Five species were recorded in the first trawl during spring; European smelt (*Osmerus eperlanus*), sea bass (*Dicentrarchus labrax*), Dover sole (*Solea solea*), flounder (*Platichthys flesus*) and transparent goby *Aphia minuta*. The second trawl in spring recorded three species; sea bass, flounder and a moribund European eel *Anguilla anguilla* in a state of decay. European eel and European smelt are protected species.

1.2.21. Five species were recorded in trawl one during the autumn survey; European smelt, Dover sole, pouting (*Trisopterus luscus*), sand goby (*Pomatoschistus minutus*) and sprat *Sprattus sprattus*. Three species were recorded in trawl two during the autumn survey; flounder, sand goby and common goby (*Pomatoschistus microps*).

1.2.22. It should be noted that during the autumn surveys, juveniles of mostspecies were recorded. Sand goby ranged in length from 34 to 64mm and flounder ranged from 55 to 88mm demonstrating the variation in ages classes present. It should also be noted that a juvenile European smelt measuring 78mm was also present in the Spring trawl. The presence of juveniles indicates that the estuary supports the life stage of these species.

1.2.23. These species are typically estuarine and have been commonly recorded within the Thames.

1.3. REFERENCES

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