# Nemo Link Interconnector Year 3 Post-Construction Intertidal Technical Report

Proposal produced for Collaborative Environmental Advisers

by Eco Marine Consultants Limited

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# Eco Marine Consultants Document & Quality Control

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## Non-technical Summary

Eco Marine Consultants Limited (Eco Marine) was commissioned by Collaborative Environmental Advisers (CEA Ltd) on behalf of Nemo Link Ltd to conduct a post-construction intertidal monitoring survey along a cable route installed during 2016 and 2017 at Pegwell Bay, Kent.

Pegwell Bay is of importance as a feeding area for wading birds and for the fauna and flora of the surrounding saltmarshes and coastal fringe habitats, including wave-cut platforms and associated communities. The site is subject to several conservation designations, including a Special Protection Area (SPA), a Special Area of Conservation (SAC), a Ramsar Site, a Site of Special Scientific Interest (SSSI) and a National Nature Reserve (NNR). The cable route itself occupies a narrow corridor running from low to high shore and covers a relatively small area.

Following a year-one post-construction survey in 2018 as required by Marine Licence L/2013/00072/4, a year-three post-construction survey was undertaken in 2020 to provide a robust characterisation of the cable route to allow a full comparison with the baseline. This allowed an assessment of the extent to which the impacts of construction have recovered in the post-construction phase, in fulfilment of the criteria stipulated in the MMO Marine Licence for the project. Data collected in the current study were compared to those collected in 2016 as part of the pre-construction works as well as those collected in 2018 to assess any changes in intertidal ecology along the cable route at Pegwell Bay and to validate predictions made in the Environmental Statement (ES).

The survey was undertaken by Eco Marine on the 6th - 7th August 2020 and involved Phase I mapping and Phase II sampling of the intertidal habitats found along the cable route in line with the agreed methodology. The key findings of this report are as follows:

- In keeping with the findings in 2016 and 2018, particle size analysis of sediment samples collected from three transects at Pegwell Bay revealed that much of the study area was dominated by sand, though several stations along the upper shore also contained mud and very small fractions of gravel.
- A small increase in the proportion of mud and a decrease in the proportion of sand and gravel has occurred since the baseline survey in 2016. The cause of this is uncertain and small changes in sediment may be attributable to several factors including naturally exerted environmental and physical pressures as well as short-term disturbance from the cable burial in 2017.
- The sediment composition along the cable route in 2020 was aligned with that of the surrounding area, indicating good alignment of physical conditions in surface sediments following the cable burial in 2017.
- Faunal abundance and diversity in samples collected across all transects in 2020 were highly similar to that of 2016 suggesting that the intertidal environment and communities have fully recovered from any disturbance that may have been related to the burial of the cable in 2017.
- Intertidal faunal communities have recolonized the sediments along the cable route at Pegwell Bay and in 2020 were aligned with those of the control transects 20m to the north and south demonstrating a notable recolonisation of fauna along the cable corridor.
- As per the predictions in the Environmental Statement (PMSS, 2013), after an anticipated initial decrease in abundance and diversity in 2018, intertidal communities have demonstrated

tolerance to physical disturbance resulting from the burial of the cable in 2017. Natural tolerance coupled with fast natural recruitment has resulted in a rapid recovery of fauna in 2020.

- Taxa belonging to the group Crustacea were the single largest contributor to abundance in 2020, while Annelida contributed the most to diversity.
- The three most abundant species recorded across the Pegwell Bay transects were the amphipod crustacean *Bathyporeia sarsi*, the small gastropod *Peringia ulvae* and the amphipod crustacean *Corophium volutator*. Faunal communities identified in 2020 were similar to those observed in 2016 and 2018.
- Casts formed by the lugworm *Arenicola marina* remained a dominant feature along the foreshore in 2020. As was observed in 2016 and 2018, *A. marina* casts were most numerous along the upper and mid shore suggesting that the burial of the cable has not damaged local populations.
- A total of four biotope complexes and saltmarsh habitat were recorded at Pegwell Bay in 2020 compared to five biotopes (and saltmarsh), and three biotopes (and saltmarsh) recorded in 2016 and 2018 respectively. The biotope with the largest coverage within the study area in 2020 was A2.245 '*Lanice conchilega* in littoral sand'.
- The minor changes observed between the pre- and post-construction surveys at Pegwell Bay included a small increase in abundance and diversity and a slight shift in dominant fauna, though broadly, communities were highly similar. The habitats and communities present remain diverse and representative of biotope complexes typical for environments such as those present at Pegwell Bay.

# Contents

# 1. Introduction

Eco Marine Consultants Limited (Eco Marine) was commissioned by Collaborative Environmental Advisers (CEA) on behalf of Nemo Link Ltd to conduct a three-year post-construction intertidal survey along a cable route established at Pegwell Bay, Kent. This follows on from a one-year post-construction survey also carried out by Eco Marine at Pegwell Bay in 2018 (Eco Marine, 2018).

The Nemo Link Interconnector is a subsea cable connecting the UK to Belgium. The cable route runs from Pegwell Bay in Kent to Zeebrugge in Belgium. The UK section of the cable was installed in 2017.

The survey and this accompanying technical report have been undertaken to satisfy the terms of the Marine Licence L/2013/00072/4 issued for the works by the MMO. These conditions state that the licence holder must undertake an intertidal invertebrates survey during years one and three as part of the post-construction monitoring programme; the results of which should be submitted to the MMO for approval both one and three years following the completion of construction activity. The current work is therefore required to assess benthic re-colonisation and community structure in the project area three years after the end of installation of the cable in 2017.

The Environmental Statement for the Nemo Link project predicted that disturbance of the seabed caused by excavation of the cable trench would lead to the direct displacement and mortality of intertidal species within the cable route corridor (PMSS, 2013). However, it also asserted that intertidal fauna would be more tolerant of and well adapted to physical disturbance, and that this coupled with fast natural recruitment would mean a rapid recovery following the initial disturbance (though no exact timeframe was given). Data gathered during both post-construction surveys (2018 and 2020) have been compared to the predictions made in the Environmental Statement to determine any changes that have occurred at Pegwell Bay.

Multivariate analyses of faunal and sediment data collected from ‘impact’ and ‘control’ stations have been undertaken to determine the similarities in intertidal communities and habitats over time. This has allowed for the determination of the extent of recolonisation of fauna along the cable route following the burial of the Nemo Link cable in 2017.

## 1.1. Site Overview

Pegwell Bay is the site of the cable landfall for the Nemo Link interconnector project, as consented in 2013. Landfall and installation works were completed during 2016 and 2017. Pegwell Bay is a shallow enclosed inlet of sand and muddy sand found at the eastern edge of the English Channel coastline that straddles the estuary of the River Stour to the north of Sandwich Bay.

The ecological character of the site includes intertidal sand and mud flats that are exposed over a wide expanse during low tide. Pegwell Bay is bounded by low chalk cliffs that form the southern and eastern side of Ramsgate and Cliffs End and extends westwards into low-lying marshland that borders the lower estuary of the River Stour inland towards the port of Sandwich. Almost the entirety of the foreshore is bordered by vegetated saltmarsh interspersed with small ponds and runnels.

The wider Pegwell Bay site is subject to a number of conservation designations, and is assigned as a Special Protection Area (SPA) due to the presence of Golden plover (*Pluvialis apricaria*), Little tern

(*Serna albifrons*) and turnstone (*Arenaria interpres*) ; Special Area of Conservation (SAC), Ramsar Site, Site of Special Scientific Interest (SSSI) and National Nature Reserve (NNR) due to important sand dune systems and sandy coastal grassland as well as the presence of mudflats, saltmarsh and chalk cliffs.

## 1.2. Project Aim and Objectives

The overall aim of the post-construction survey of the Nemo Link cable route is to assess whether the intertidal invertebrate communities in the study area have returned to their pre-construction state following installation of the cable.

The project objectives are therefore as follows:

- To undertake the intertidal survey of the study area in line with the agreed methodology
- To provide reports and maps of the faunal communities, sediments and biotopes present at the study site
- To determine any key changes in faunal communities and sediments present at Pegwell Bay following the cable burial in 2017 as part of the Year 3 post-construction monitoring.

To achieve these aims and objectives, Eco Marine conducted an intertidal survey in the vicinity of the cable landfall route in August 2020 and consequently conducted a full analysis of the samples collected. The results from the survey are presented and discussed in this report.

# 2. Methods

In line with Cefas requirements, the 2020 survey scope required a repeat of the 2018 monitoring survey which was based upon the 2016 baseline methodology. This covered 27 stations originally targeted in 2016 with the addition of 27 Phase II stations added in 2018 spaced between the original ones. As a result, 54 stations were sampled in both 2018 and 2020 compared to 27 in 2016. Principally the survey included two distinct elements:

- A Phase I walkover survey to the specification of the 2016 baseline and the 'Post-Construction Intertidal Invertebrates Survey Methodology' as approved by the MMO
- A Phase II sampling survey along the cable route to follow the 2018 monitoring methodology, including revised placement of sampling stations to sit between the 2016 baseline locations to ensure good foreshore coverage.

All intertidal survey work was carried out in accordance with the technical methods outlined in the CSM Guidance, Marine Monitoring Handbook (JNCC, 2004) and the CCW Handbook for Marine Intertidal Phase I Survey and Mapping (Wyn *et al*., 2006). Additionally, all field work, lab and data analysis techniques employed across all survey years (2016, 2018 and 2020) remained the same to maximise consistency in the final dataset.

A full survey plan was prepared by Eco Marine prior to mobilisation (Eco Marine, 2020). All methods for the work were agreed between CEA and Eco Marine in July 2020.

## 2.1. Phase I Methodology

Phase I mapping comprised of a walkover survey, characterising the biotopes present at the site and establishing conspicuous boundaries across the foreshore. As part of this, the range and distribution of broadscale habitats, species of conservation interest and the characteristic and notable biotopes were determined across the site where possible.

Phase I biotope mapping of the intertidal habitats across Pegwell Bay was carried out alongside the Phase II sampling in August 2020. Prior to the start of the survey, wherever possible, detailed aerial photography that covered the site was obtained. The imagery was used in conjunction with OS maps to produce basic wire maps, which were annotated in the field by the survey team.

A map of the sampling array for Pegwell Bay is shown in Figure 1. The entire intertidal area of interest (nominally 50m landward of the spring high water mark to the spring low water mark, and 20m either side of the line of the cable route, giving a 40m corridor) was mapped using a handheld GPS unit, with notes made relating to the characteristic and notable biotopes for the area.

Annotations on the wire maps during the survey included:

- The extent of intertidal features
- The extent of saltmarsh features
- The distribution and extent of characteristic biotopes
- The sediment characteristics

Biotopes assigned during the Phase I survey used the EUNIS classification system to the highest possible level (minimum level 3). Where conspicuous boundaries between biotopes existed between sample points, these locations were fixed on the GPS unit and marked on the wire/aerial imagery maps.

## 2.2. Phase II Methodology

Phase II sampling involved the acquisition of core samples from pre-designated stations across the intertidal area as per the agreed survey plan. Stations surveyed include those targeted in the 2016 pre-construction survey, in addition to a series of new stations added and agreed in 2018 to fill the gaps between the previous locations and more accurately map the biotopes present across the site as requested by Cefas.

A total of 54 Phase II stations were sampled as part of the 2020 survey, positioned along three transects running perpendicular to the shoreline (Figure 1). The central transect ran along the cable route while the other two ran 20m to the north and south of the cable route. At all Phase II stations, a single infaunal and sediment particle size analysis (PSA) sample were collected using a handheld core (0.01m² core, 15cm deep).

Additionally, a 1m x 1m quadrat was also deployed at each station to allow counts of any conspicuous species (e.g. *Arenicola marina* casts, *Lanice conchilega* tubes, the presence of cockles, etc.) to be made. Quadrats were GPS referenced and photographs were taken of each deployment.

Infaunal samples were stored in labelled and sealed plastic buckets and preserved using a solution of 4% formalin and freshwater. A single PSA sample was collected from all Phase II stations by transferring approximately 0.5L of sediment (taken from immediately next to where the cores were taken) to an externally and internally labelled PSA bag secured with a cable tie. Hence, a total of 54 samples were also collected for sediment PSA.

At each sampling point the following details were recorded:

- Sample code, date & time (GMT)
- Latitude & longitude
- Texture and presence of surface features (accretions, algae, fauna)
- The anoxic layer depth if apparent
- Digital image of sediment in sediment surface (image ID code = transect and station code and date), include 'survey ruler' in image.

Coordinates of each Phase II sampling station are provided in Appendix 1. It should be noted that the transect numbers given to the original stations in 2016 and to the additional stations in 2018 and 2020 were different, i.e. the central transect was referred to as T1 in 2016 but as T2 in 2018 under the revised survey design, thus continuity in station naming is not consistent throughout. Therefore, for the purposes of this report the central transect is referred to as the 'cable route transect' while the control transects to the north and south of the cable route are referred to as the 'northern control' and 'southern control' transects.

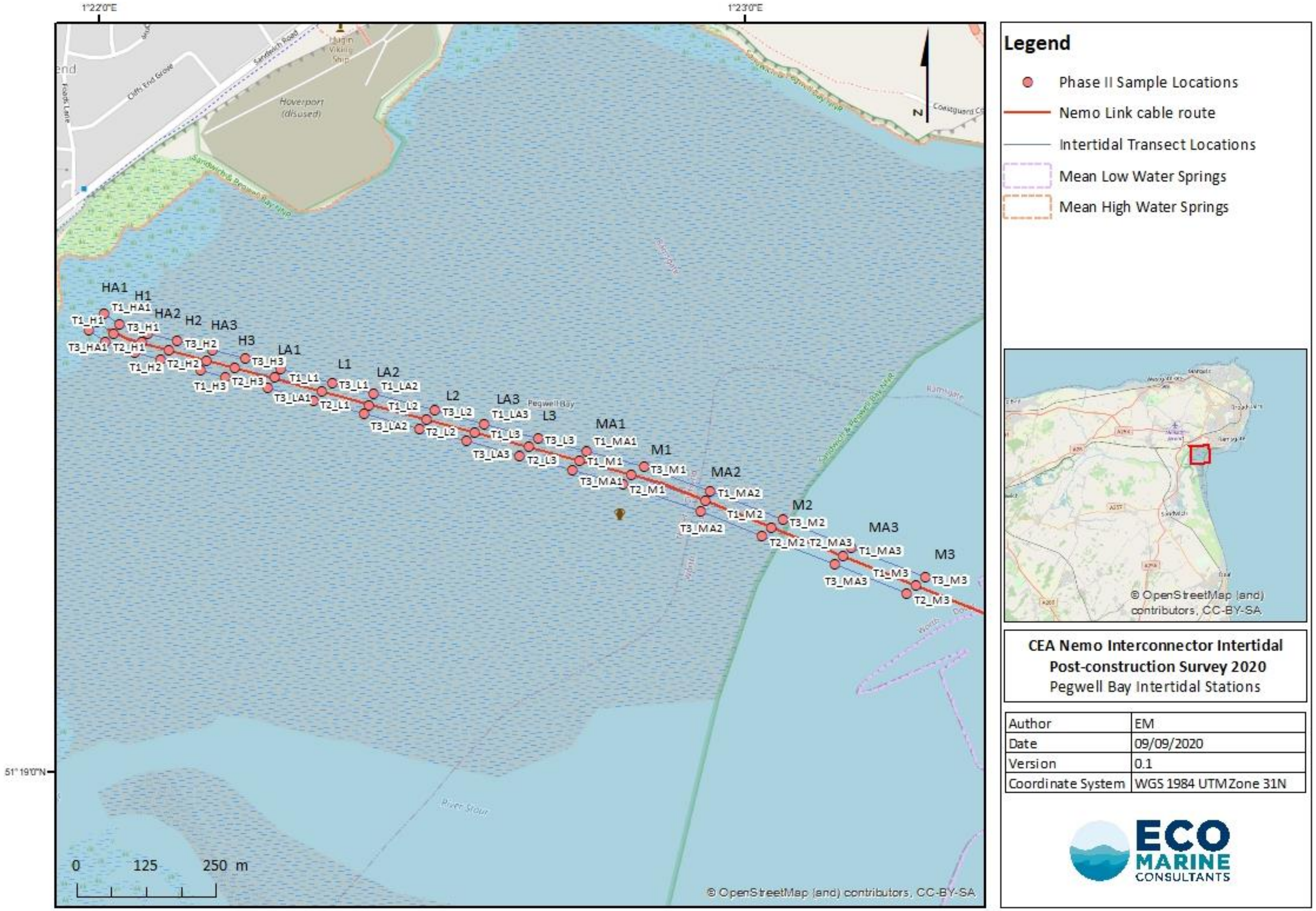



**Figure 1.** Location of the 54 Phase II stations and transects accessed at the Pegwell Bay landfall site during the Nemo Link 2020 intertidal survey. MLWS layer courtesy of OS OpenData – VectorMapDistrict 2020.

## 2.3. Infaunal Sample Analysis

On arrival at the Eco Marine analytical laboratory the samples were checked against the field notes in accordance with standard operating procedures and signed against the list of samples collected. The diluted formalin was poured off the samples through a 0.5mm mesh sieve and collected for licensed disposal. Each sample was then gently eluted with fresh water through a 0.5mm mesh sieve to extract the low-density components (Crustacea and Polychaeta) and combined with the floating material initially separated from the formalin in the sample. The larger macrofauna were removed from the eluted material and preserved for analysis. This stage in the initial sorting process was carried out in the open air to reduce the effects of residual formalin used to fix the sample in the field.

The sediments were next sorted under a stereomicroscope with the aim of extracting the remaining fauna. The entire sample of separated fauna was then preserved in industrial methylated spirit (IMS) for subsequent analysis. Each of the extracted specimens was then sorted into major faunal groups before being analysed to species level, where practicable, by experienced taxonomists who completed a sample log sheet on completion of the analysis of each individual sample. Species identification was recorded in a standard format using species codes from Howson & Picton (1997). Taxonomic identification was checked throughout the process by senior analysts.

## 2.4. Biomass Determination

Please note that biomass determination of fauna was not undertaken in 2016 or 2018 and as such, biomass comparisons are not made between years in this report.

The blotted wet weight of major groups recorded from the faunal samples was measured. These data were then used to estimate total biomass as Ash-Free Dry Weight (AFDW) in milligrams using conventional conversion factors for each of the faunal groups. The wet weight conversion factors are as follows in accordance with Eleftheriou & Basford (1989):

- Annelida = x 0.155
- Crustacea = x 0.225
- Mollusca = x 0.085
- Echinodermata = x 0.08
- Miscellaneous groups including the major groups shown below = x 0.155
  - Turbellaria
  - Nemertea
  - Nematoda

Please note that biomass was not measured for encrusting fauna found on substrate as separating encrusting and colonial specimens from their anchor point or substrate is highly damaging to the specimen and makes identification difficult. Additionally, many bryozoan forms are encrusting and as such, cannot be weighed accurately or with ease.

## 2.5. Particle Size Analysis

The sediment samples were subjected to particle size analysis (PSA) carried out by Kenneth Pye Associates Limited. PSA samples were obtained from all 54 sample stations; details of the results are presented in Appendices 2 and 3.

The sediments were sieved at ½ phi[1] intervals over a particle size range of 64mm-0.063mm on the Wentworth Scale. The PSA values are summarised in Appendix 3 into higher groupings of % silt (<0.063mm), % sand (0.063-2mm) and % gravel (>2mm), for ease of broad-scale substrate assessment. These data were used for the description and classification of sediments.

## 2.6. Statistical Analyses

Statistical Analysis was conducted using the PRIMER V6 software package (with reference to Anderson *et al*. (2008), Clarke & Gorley (2006) and Clarke and Warwick (2001)) and Microsoft Office. The routines employed are outlined below:

***Hierarchical Cluster Analysis***

Cluster analysis aims to find "natural groupings" such that samples within a group are more similar to each other than samples in different groups. The results of hierarchical clustering are represented by a tree diagram or dendrogram, with the *x*-axis representing the full set of samples and the *y*-axis representing the similarity level at which the groups are considered to have fused.

***Multidimensional Scaling (MDS) Ordination***

This technique allows the construction of a configuration of the samples in multidimensional space to position the samples as accurately as possible to reflect their similarity, allowing a visual representation of sampling points between years and dredge periods. For example, if sample 1 has a greater similarity to sample 2 than it does to sample 3 then sample 1 will be positioned more closely to sample 2 than it is to sample 3. This "map" of the relative similarities between samples is then plotted in two dimensions.

***Analysis of Similarity (ANOSIM)***

This analysis method was used to test the null hypothesis ($H_o$) that there are no differences in community (or sediment) composition between the sample categories (i.e. year or transect) at Pegwell Bay. The test returns an R statistic and a significance level (displayed as %, equivalent to a p-value in other tests - significance is taken at the p = <0.05 level, or 5%). The value of the R statistic demonstrates the overlap between datasets as follows:

- R Statistic approaching zero: very slight differences & therefore a high degree of overlap between the groups
- R Statistic of 0.2 - 0.3: some difference but still with some degree of overlap between the groups
- R Statistic approaching 1 (>0.5): large differences & therefore only slight overlap between the groups

[1] Phi = $-\log_2 D/D_0$ (D is the diameter of the particle, $D_0$ is a reference diameter, equal to 1mm).

However, it is important to remember the importance of the statistical significance of the R Statistic. This value assists in the determination of whether the R statistical returned by the test is a 'real' result, which was unlikely to be achieved by chance, or whether the R value is in fact coincidental biproduct of the sample data.

***The SIMPER routine***

The SIMPER routine allows comparisons between groups of samples to be made. Following the comparison of similarities between groups, the taxa (or particle size fractions) responsible for the dissimilarities between sites are sub-listed in decreasing order of importance to facilitate the discrimination of the groups. This routine also provides information on the species responsible for within-site similarities and their contribution to the internal similarity of the group.

# 3. Phase I Results

## 3.1. Pegwell Bay Site Description

Pegwell Bay is dominated by a large expanse of intertidal sand and muddy sand bounded by low chalk cliffs that form the southern side of Ramsgate to the north of the foreshore (Plate 1). Saltmarsh hems the western fringes at the high shore and low-lying marshland borders the lower estuary of the River Stour inland towards the port of Sandwich. A disused hoverport overlays the upper shore to the northeast where the saltmarsh is interrupted for approximately 500m.

Borders between muddy sands and sand were often inconspicuous, though muddy substrates which was present along the high shore in patches gave way to fine sand further down the shore. Large patches of muddy sand bordered the saltmarsh and were often overlain by large pools of water that remained following tidal retreat, some of these also appeared to be fed by drainage runnels from the saltmarsh. *Littorina littorea* were frequently observed in pools along the high shore. Muddy patches became less frequent with distance down the shore though much of the foreshore remained overlain by seawater once the sea retreated.

The saltmarsh at the upper shore was interspersed with small ponds of approximately 15-30cm in depth, with some patches of bare muddy sand evident along the cable corridor. Pioneer vegetation most likely to be *Spartina anglica* was identified progressing along the saltmarsh margin toward to foreshore. *Spartina* sp. and *Sarcocornia* sp. were highly abundant in the area surrounding the Phase II stations targeted in the saltmarsh area. The character of the saltmarsh within the cable route corridor was consistent with the findings of the post-construction saltmarsh monitoring programme at Pegwell Bay (Kenneth Pye Associates Ltd, 2020a; Kenneth Pye Associates Ltd, 2020b).

As in both previous surveys, there was evidence for the presence of the lugworm *Arenicola marina* (in the form of casts) as well as burrowing cockles (*Cerastoderma edule*) across the foreshore. The incidence of the sand-mason worm *Lanice conchilega* was also indicated by presence the sandy tubes along the mid and lower shore.

A thin algal film was present in patches across the upper and mid sections of the transects. Coverage by the algal film ranged from <5-20% within some quadrats. There did not appear to be any additional anoxia within the surface sediments within the intertidal zone because of the algal film presence and no additional adverse effects were evident. The green filamentous alga Ulva intestinalis was observed along the lower shore where the sediments remained overlain by seawater at low tide. Occasional red algae were also observed along the mid and low shore.

Many gulls and wading birds were observed feeding at Pegwell Bay in the early morning and at dusk. Birds were particularly abundant along the foreshore at low water when they could take advantage of the exposed tidal flats that provided ideal foraging grounds.

There was some evidence of anthropogenic disturbance at Pegwell Bay in the form of litter presence – largely plastic. Most of the plastic pollution was observed in the saltmarsh where it was tangled amongst vegetation. Several people were also seen accessing the beach on foot despite the protected status of the beach, often with dogs, though visitor numbers were relatively low.

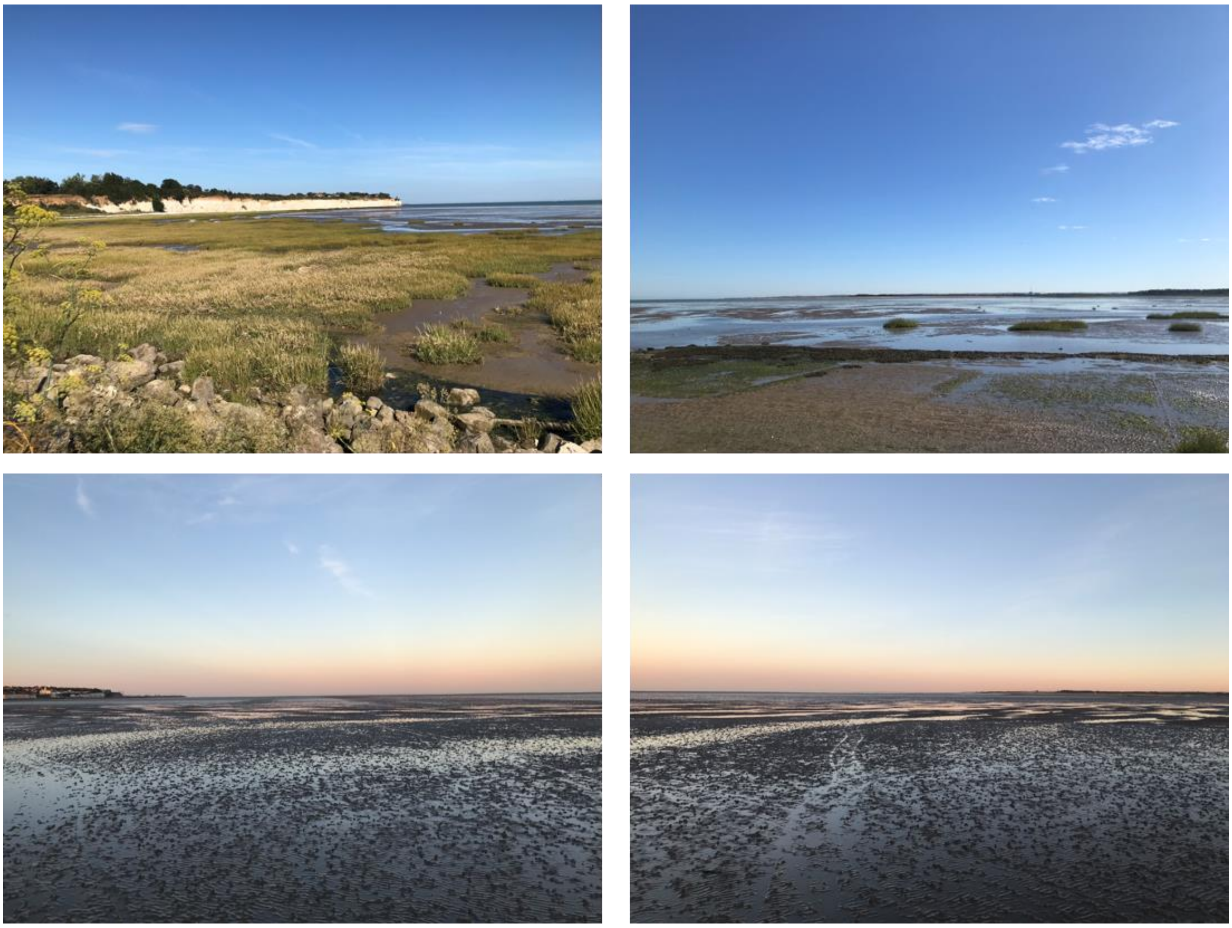


**Plate 1.** (top right to bottom left) Pegwell Bay beach bordered by chalk cliffs at the northern edge toward Ramsgate; border between the disused hovercraft port and the foreshore; foreshore aspect looking north east; foreshore aspect looking south east.

# 4. Phase II Results

## 4.1. Composition of the Intertidal Sediments

To describe the substrate types recorded across the study area, sediment samples have been classified according to the Folk classification system (Folk, 1954). These Folk classifications are shown in Figure 2 (full breakdown shown in Appendix 3).

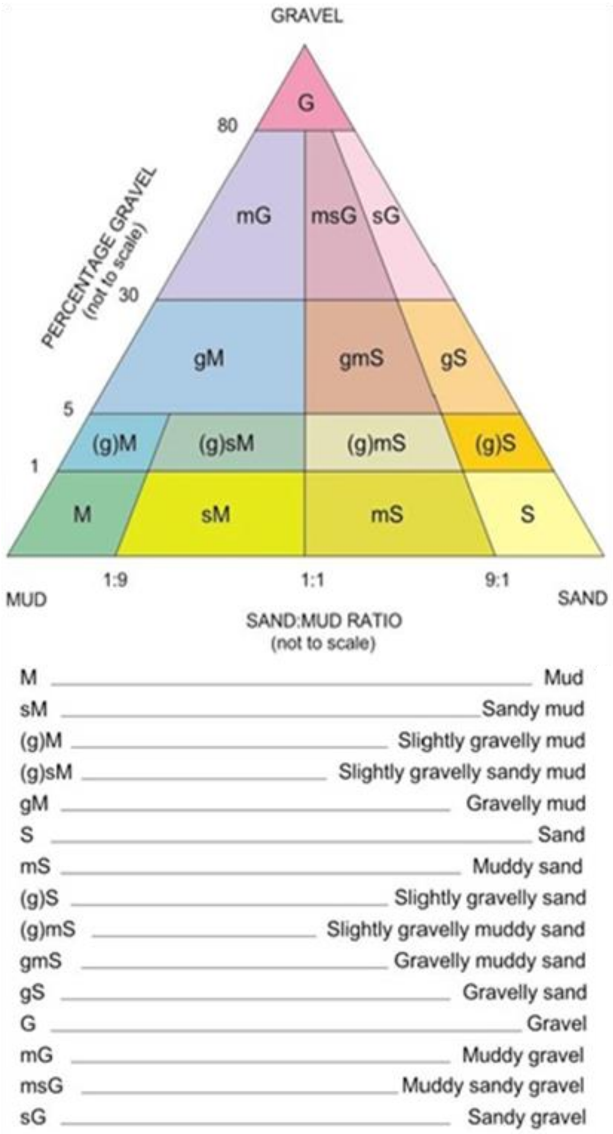



**Figure 2.** Folk triangle used to classify sediments collected at Pegwell Bay.

The pie diagrams of Figure 3 illustrate that in 2020 the sediment composition of Pegwell Bay was dominated by sand, though several stations also contained fractions of mud and to a much lesser degree, gravel. This was most apparent at the high shore stations where muddy substrates were identified within and along the margins of the saltmarsh. The fraction of mud in samples generally decreased with distance from the upper shore though a small amount of mud was a consistent feature in lower shore samples. A full breakdown of sediment fractions by sieve size can be found in Appendix 2.

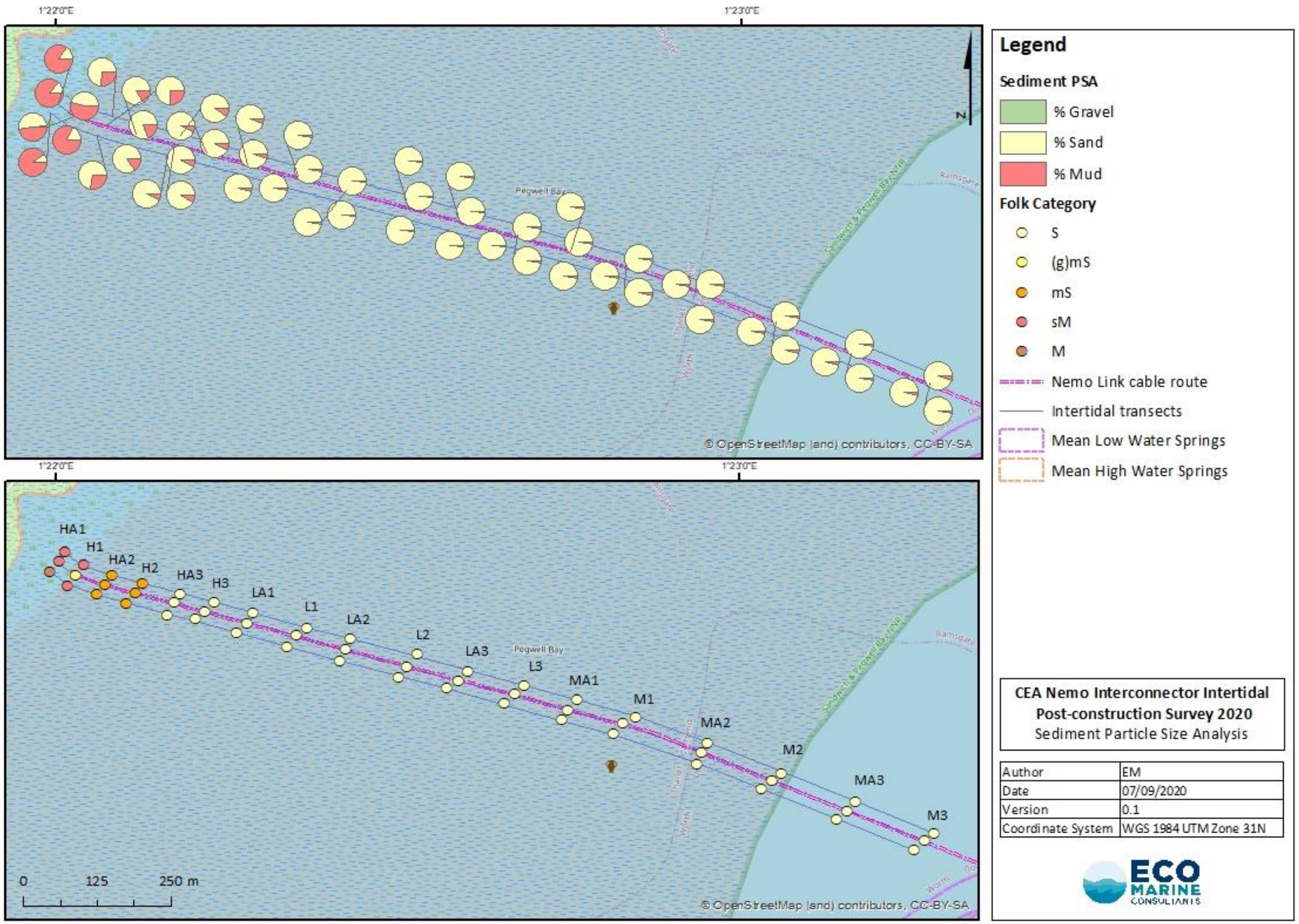



**Figure 2**. Top: The relative proportions of gravel, sand, and mud as a percentage contribution to sediment in PSA samples collected at Pegwell Bay in 2020. Bottom: Sediment samples classified using the Folk classification system. It should be noted that pie diagrams represent approximate locations of sampling stations only. MLWS layer courtesy of OS OpenData – VectorMapDistrict 2020.

#### 4.1.1. Temporal Sediment Comparisons

Five Folk categories were identified along the foreshore at Pegwell Bay in 2020: Sand (S), sandy Mud (sM), muddy Sand (mS), slightly gravelly muddy Sand ((g)mS) and Mud (M). A comparison of Folk categories between survey years is illustrated in Figure 3. Note that direct comparisons between survey years have only been possible at the 27 comparable stations originally included in the 2016 scope. A total of four Folk categories were identified during the pre-construction survey in 2016, while three were identified across the site in the year-one post-construction survey in 2018.

The dominant sediment types along the cable route in 2020 have remained comparable with those observed in previous years across the mid to lower foreshore, with a similar distribution of fractions (though minor differences were apparent). Folk categories at stations along the upper shore have demonstrated more variability between years which may reflect the alterations to saltmarsh topography along the cable route post-construction.

There was more diversity in sediment types in 2020 compared to 2016 and 2018 which was partly attributable to the first record of the Folk category 'Mud' at station T3 HA1, a terrestrial station located in the saltmarsh area. All other Folk categories had been identified in previous surveys at Pegwell Bay.

The predominant Folk category sampled across the transects at Pegwell Bay was Sand, which was recorded at 42 of the 54 stations in 2020 (Figure 5). Sand was also the dominant sediment type present in both 2016 and 2018, suggesting that the general nature of the sediments remains similar following the burial of the cable in 2017. A slight decrease in the already small fraction of gravel resulted in fewer Folk categories containing gravel components post-construction. This was most notable in the southern control transect at H3, L1 and L2 where sediments identified as gravelly Sand in 2016 transitioned to Sand in 2018 and 2020. An increase in mud between pre- and post-construction was most apparent at H2 where a shift from Sand to muddy Sand was observed across all transects.

Table 1 compares the percentage of gravel, sand, and mud at Pegwell Bay between 2018 and 2020, when 54 samples were collected. A comparison between 2016, 2018 and 2020 sediment data across 27 common stations is given in Table 2.

**Table 1**. Table containing the mean percentage fractions of gravel, sand, and mud present at 54 stations at Pegwell Bay post-cable installation (2018, 2020).

| Survey Year | % Gravel | % Sand | % Mud |
|---|---|---|---|
| 2018 | 0.1 | 86.1 | 13.8 |
| 2020 | 0.1 | 86.6 | 13.3 |

In 2020, the average percentage gravel, sand, and mud content gave values of 0.1%, 86.6% and 13.3% respectively which was almost identical to the sediment composition in 2018 (Table 1). Nonetheless, some differences between sediment composition in the upper shore in 2018 and 2020 were identified. As mentioned previously, two Folk categories were identified in 2020 that were not recorded in 2018, Mud and slightly gravely muddy Sand, both were recorded in the area overlying the saltmarsh. Additionally, sediments classified as muddy Sand were identified at all HA3 stations and one H3 station in 2018 while all of these stations were found to be Sand in 2020.

Fractions of gravel and sand decreased slightly overall at Pegwell Bay between 2016 and both post-construction years, while an increase in the proportion of mud in samples was recorded (Table 2). The average proportions of gravel, sand, and mud in 2018 and 2020 were almost identical, suggesting that there has been a shift in sediment composition since the baseline but sediment characteristics of the survey area have remained stable following the cable burial in 2017.

**Table 2**. Table containing the mean percentage fractions of gravel, sand, and mud present at 27 comparable stations at Pegwell Bay during pre- (2016) and post-cable installation (2018, 2020).

| Survey Year | % Gravel | % Sand | % Mud |
|---|---|---|---|
| 2016 | 0.7 | 95.1 | 4.3 |
| 2018 | 0.1 | 88.5 | 11.4 |
| 2020 | 0.2 | 88.5 | 11.3 |

Table 3 shows the proportion of change in sediment fractions along the impact and control transects between 2016 and 2018, and 2016 and 2020. Negative numbers indicate the percentage decrease in in a fraction while positive numbers represent an increase. There is little variation in changes in sediment composition between the control and impact transects and where they do exist, they are typically small. For example, the decrease observed in the mud fraction between 2016, and 2018 and 2020 was almost identical between transects in 2018 and very small between transects in 2020. This alignment of changes in sediment composition between control and impact transects is suggestive of a rapid recovery of the physical environment along the cable route.

**Table 3.** Table showing the percentage change in mean sediment fractions along each transect between 2016 and 2018, and 2018 and 2020.

| 2016 - 2018 | | | |
|---|---|---|---|
| **Transect** | **Gravel (%)** | **Sand (%)** | **Mud (%)** |
| North | 0.49 | 9.32 | -9.81 |
| Central | 0.46 | 8.75 | -9.20 |
| South | 0.64 | 8.94 | -9.58 |
| 2016 - 2020 | | | |
| **Transect** | **Gravel (%)** | **Sand (%)** | **Mud (%)** |
| North | 0.46 | 8.33 | -8.79 |
| Central | 0.33 | 7.66 | -7.99 |
| South | 0.73 | 9.67 | -10.40 |

It is understood that alterations to the topography of the saltmarsh as a result of the cable burial are complex and have resulted in some small changes to the sediment characteristics of the upper shore. Recovery time for saltmarsh is likely to be much longer than recovery time for the intertidal zone due to the nature of saltmarsh in general. As such, the variation in sediment types at stations overlying the saltmarsh and upper shore stations is to be expected and is not indicative of degradation of the intertidal environment.

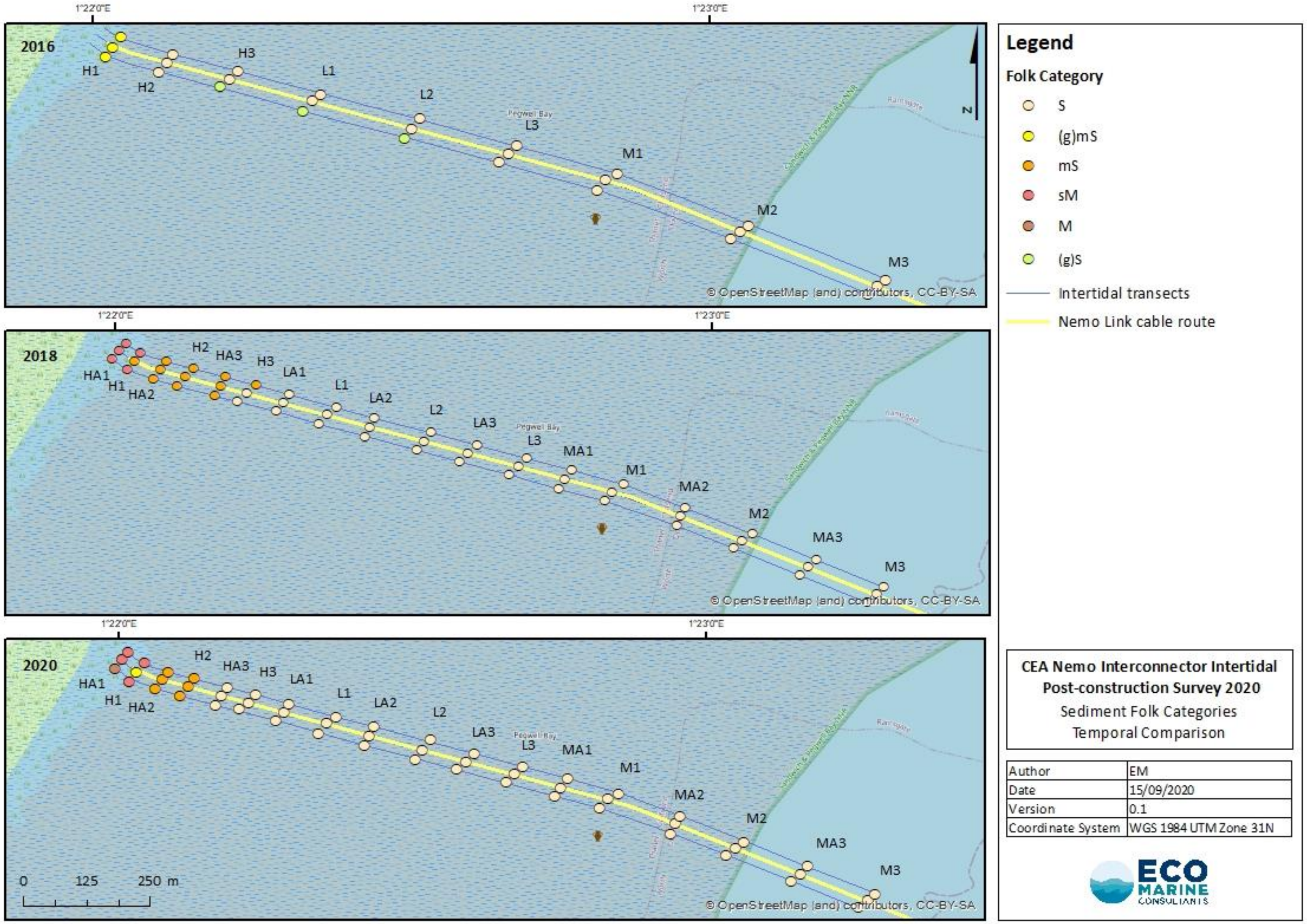



**Figure 3**. Sediment comparisons using the Folk classification system at Pegwell Bay in 2016, 2018, and 2020.

### 4.1.2. Spatial Sediment Comparisons

There was some minor variation in sediment type between the central 'impact' transect along the cable route and the northern and southern 'control' transects either side in 2020 (Figure 3). This was also generally the case in 2016 and 2018 with some minor differences between the southern and central transect in the mid-shore identified in 2016. This suggests that the substrate conditions between transects were somewhat variable pre-construction though overall, sediments were relatively aligned between transects and that the burial of the cable has resulted only in small changes in sediment conditions between the 'impact' and 'control' transects.

The highest degree of dissimilarity in sediment types between transects in 2018 and 2020 was generally observed at the highest shore stations. All six of the HA1 and H1 stations were located either within the saltmarsh or on the border between the saltmarsh and the soft sediment. As such, the substrate in the vicinity of these stations was patchier and more variable than along the foreshore. This is reflected in the variation of sediment types at the shoreward end of the transects. The sample collected HA1 along the southern transect was categorised as Mud while the cable route and northern control transect stations were sandy Mud. Additionally, the cable route station at H1 differed from the control transect stations due to its categorisation as Sand, while the others were found to be sandy Mud. It is understood that the variation in sediment types between transects in this area is a consequence of the patchy nature of the transitional zone between saltmarsh and foreshore.

### 4.1.3. Spatio-temporal Sediment Comparisons

Sediment fractions have been examined using a pairwise ANOSIM test to determine differences in sediment composition between transects and survey years (Table 4). The ANOSIM test revealed a high degree of similarity in sediment composition along the central cable-route transect between all survey years (though not statistically significant) and small but statistically significant differences along the southern control transect between 2016 and 2018, and 2016 and 2020 respectively. Sediments along the northern control transect also demonstrated a high degree of overlap in sediment composition between all years, though this was never statistically significant. The sediment fractions along all transects between 2018 and 2020 were highly similar though not at a statistically significant level.

There was a high degree of similarity in sediment composition along the central cable-route and control transects between all survey years. This signifies that impacts on sediment composition resulting from the burial of the cable in 2017 were minimal and that recovery has been rapid.

Some small changes in sediment composition along the northern and southern control transects between years were also revealed by the ANOSIM test. The largest change in sediments along the southern control transect occurred between 2016 and 2018 while the largest variation in sediments along the northern control transect was between 2016 and 2020. However, variations remained small, though were statistically significant between 2016 and 2018, and 2016 and 2020 respectively along the southern control transect. Changes in sediment composition along the control transects is most likely to signify a degree of natural variation with time.

**Table 4.** Outputs from pairwise ANOSIM tests conducted using PSA data from 2016, 2018 and 2020.

| Years | Transect | R statistic | Significance Level |
|---|---|---|---|
| 2016 & 2018 | Central | 0.145 | 6.3% |
| 2016 & 2020 | Central | 0.097 | 11.5% |
| 2018 & 2020 | Central | -0.086 | 95.6% |
| 2016 & 2018 | Southern | 0.21 | 2.0% |
| 2016 & 2020 | Southern | 0.182 | 2.4% |
| 2018 & 2020 | Southern | -0.071 | 90.8% |
| 2016 & 2018 | Northern | 0.106 | 9.5% |
| 2016 & 2020 | Northern | 0.126 | 8.9% |
| 2018 & 2020 | Northern | -0.082 | 94.2% |

The ANOSIM test identified minor differences in sediment composition between pre- and post-construction years across all transects while post-burial sediments were consistently similar across transects. Examination of the percentages of gravel, sand, and mud (Table 4) show that the differences in sediment composition between pre- and post-construction are most likely to originate from the higher proportion of mud and lower proportion of sand across transects between 2016 and 2018 and 2020 respectively. This was somewhat reinforced by a SIMPER analysis in Primer which determined that differences in the fine sand fraction (125-180 µm) were responsible for 28.4% and 24.7% dissimilarity in sediment composition between 2016 and 2018, and 2016 and 2020 respectively.

Overall, some small differences in sediment composition along all transects between survey years were apparent. Nonetheless, multivariate testing revealed that there was a high degree of similarity in sediments along the central cable-route and control transects between all survey years, suggesting that the burial of the cable route has had minimal impacts on substrate along the cable route over time. Furthermore, changes in sediment composition along the control transects (as well as the impact transect) suggest that small variations observed in sediment type are likely to be attributable to natural variation caused by physical factors which may include tidal and wave influence.

## 4.2. The Nature of Intertidal Fauna at Pegwell Bay

A total of 72 taxa and 10,430 individuals were identified in the 54 intertidal core samples collected during the 2020 Pegwell Bay survey. The total biomass of the fauna contained within the samples collected was 20,882 mg ash-free dry weight (AFDW). The full taxonomic list, including the numerical abundance of each taxon by station, is provided in Appendix 4 and a contact sheet of each sample station is presented in Appendix Plate 1.

The mean number of taxa (± standard deviation) recorded per sample was 12 (± 3) and the mean number of organisms per sample was 193 (±179). As has been observed in the previous intertidal surveys of Pegwell Bay, faunal communities across the foreshore were varied, with the abundance ranging between 11 and 877 individuals and four to 20 taxa per sample. A summary of the data by abundance and species diversity per sample is presented in Appendix 5.

Figure 4 illustrates the percentage contribution of the major faunal groups to total abundance and diversity recorded during the 2020 survey. Crustacea was the most abundant faunal group, accounting for 59% total abundance, this was followed by Mollusca which represented 27%, Annelida which represented 13% and Miscellaneous fauna which contributed just 1%. Though Crustacea was the most abundant group, Annelida was the most diverse group, representing 41% diversity while biomass was dominated by Mollusca which represented 94% of the total biomass across the survey area. The high contribution of Mollusca to the total biomass is a result of the large shell to flesh weight ratio associated with bivalves such as *Cerastoderma edule* which were frequently identified in samples.

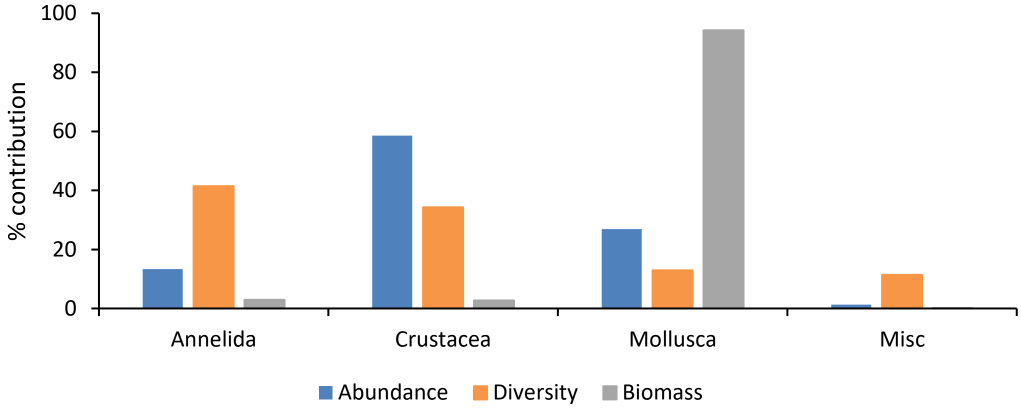
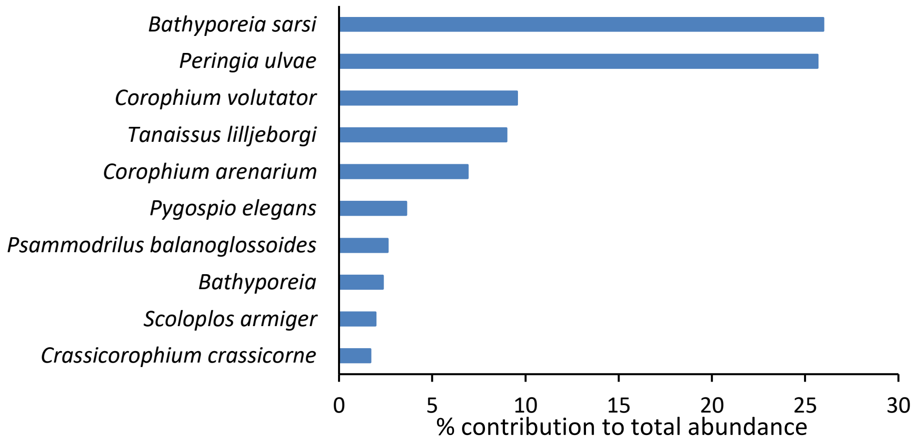



**Figure 4.** Percentage contribution of the major faunal groups to total abundance, species diversity and biomass in the 2020 samples from Pegwell Bay.

Figure 5 depicts the ten taxa that made the greatest contribution to total abundance and the ten taxa which were the most frequently sampled during the 2020 survey.



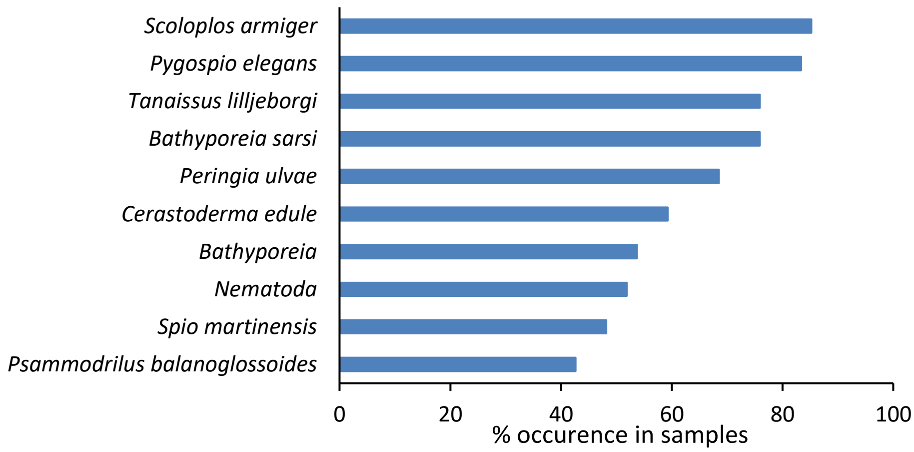




**Figure 5.** Histograms illustrating the ten most abundant taxa (top) and ten most frequently occurring taxa (bottom) sampled across Pegwell Bay in 2020.

The three most abundant species recorded across the Pegwell Bay transects were the amphipod *Bathyporeia sarsi,* the gastropod *Peringia ulvae,* and the amphipod *Corophium volutator*, which in combination contributed approximately 61% of the total abundance. In total, the ten most abundant taxa recorded within the samples made up 89% of the fauna recorded. Each of the most abundant taxa (*B. sarsi*, *P. ulvae* and *C. volutator*) are all acknowledged to be important sources of food for wading birds and surf zone fish such as juvenile plaice (Beyst *et al*., 2002; Speybroeck *et al*., 2008; Dekinga & Piersma, 1993; Hamilton *et al*., 2006) and as such, contribute ecological value to the site.

The 2020 findings are largely in keeping with the results of the pre-construction survey undertaken in 2016 and the year-one post-construction survey in 2018, though abundance values for individual taxa have varied slightly with time. The amphipod *B. sarsi* was the most abundant taxa in both 2016 and 2020, though was the fourth most abundant taxa in 2018. Furthermore, in support of the increasing alignment of faunal communities between 2016 and 2020, the annelid *Psammodrilus balanoglossoides* (which was not identified in any 2018 samples) was observed frequently in 2020. Though faunal communities in all survey years contain similar species, some fluxes are evident. For example, the contribution of *P. ulvae* to total abundance increased substantially between 2016 and 2018 and remained dominant in the faunal community in 2020.

The annelid *Scoloplos armiger* was the most frequently occurring taxa in samples recorded at Pegwell Bay in 2020 and was recorded in 85% of the samples. The annelid *Pygospio elegans* which was the most frequently observed taxa in both 2016 and 2018 was the second most observed taxa in 2020, closely followed by *T. lilljeborgi,* also repeatedly observed in data from previous survey years.

Crucially, the species present in the 2020 Phase II samples remain typical of the habitats present at Pegwell Bay and generally characteristic of sandy/muddy sand beach habitats in general.

No instances of invasive non-native species were recorded in 2020, and no species of conservation interest were identified.

#### 4.2.1. Multivariate Analysis of the 2020 Faunal Data

Multivariate analysis of the intertidal abundance data for Pegwell Bay has been undertaken to investigate patterns present within the faunal datasets.

The examination of faunal abundance data collected from the 27 common stations targeted during the 2016, 2018 and 2020 surveys has been completed to assess similarities between years. An ANOSIM test revealed that the faunal communities demonstrated a high degree of overlap between all three survey years at a statistically significant level (R=0.147, sig=0.1%). This is further illustrated in the MDS plot in Figure 6, where it is apparent that there is a high degree of overlap between the datapoints which represent faunal abundance at stations in each survey year.

The MDS plot shown in Figure 6 has a relatively low 2D stress (0.15), indicating a valuable representation of the data points in multidimensional space and a useful interpretation of the relationships that occur between the faunal communities across the three survey years.

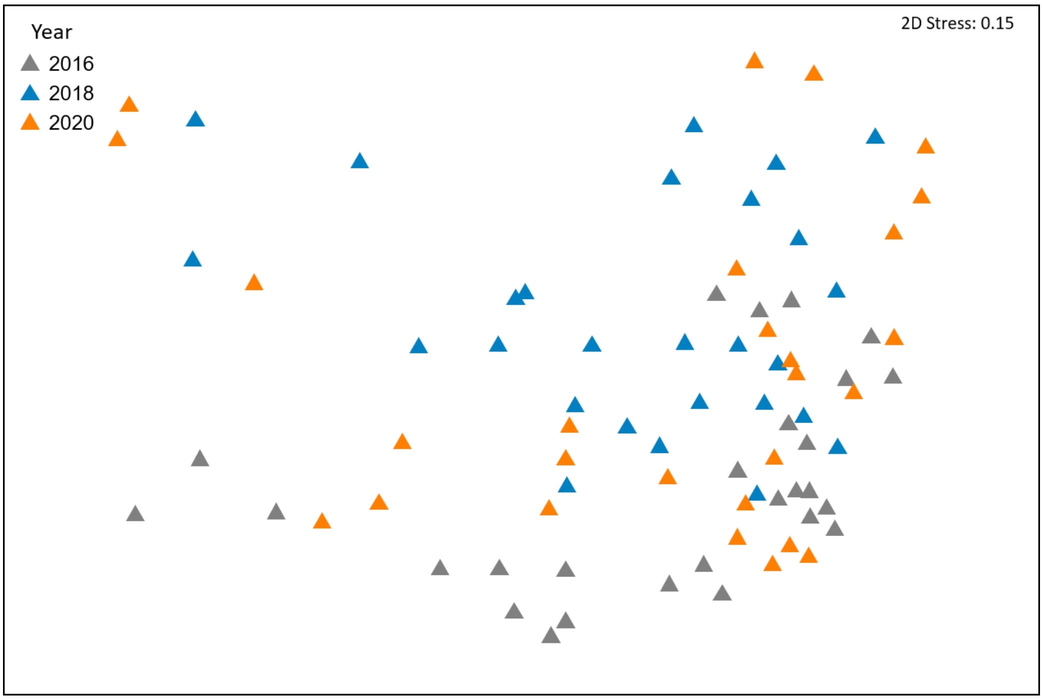



**Figure 6.** MDS plot displaying faunal abundance data Infaunal abundance data for 2016, 2018 and 2020 presented in 2D format (based on Bray-Curtis similarity, square-root transformed data).

The 2020 dataset was also interrogated to identify any prominent groupings within the faunal community at Pegwell Bay. A total of six distinct faunal groups and three outliers were identified within the faunal abundance dataset, as presented in Figure 7. The multivariate faunal groups were derived using the SIMPROF routine. The largest faunal group was Group F which represented faunal communities at 17 stations. The MDS plot shown in Figure 7 has a relatively low 2D stress (0.13), indicating a valuable representation of the data points in multidimensional space and a useful interpretation of the relationships that occur between the faunal communities sampled at the different stations.

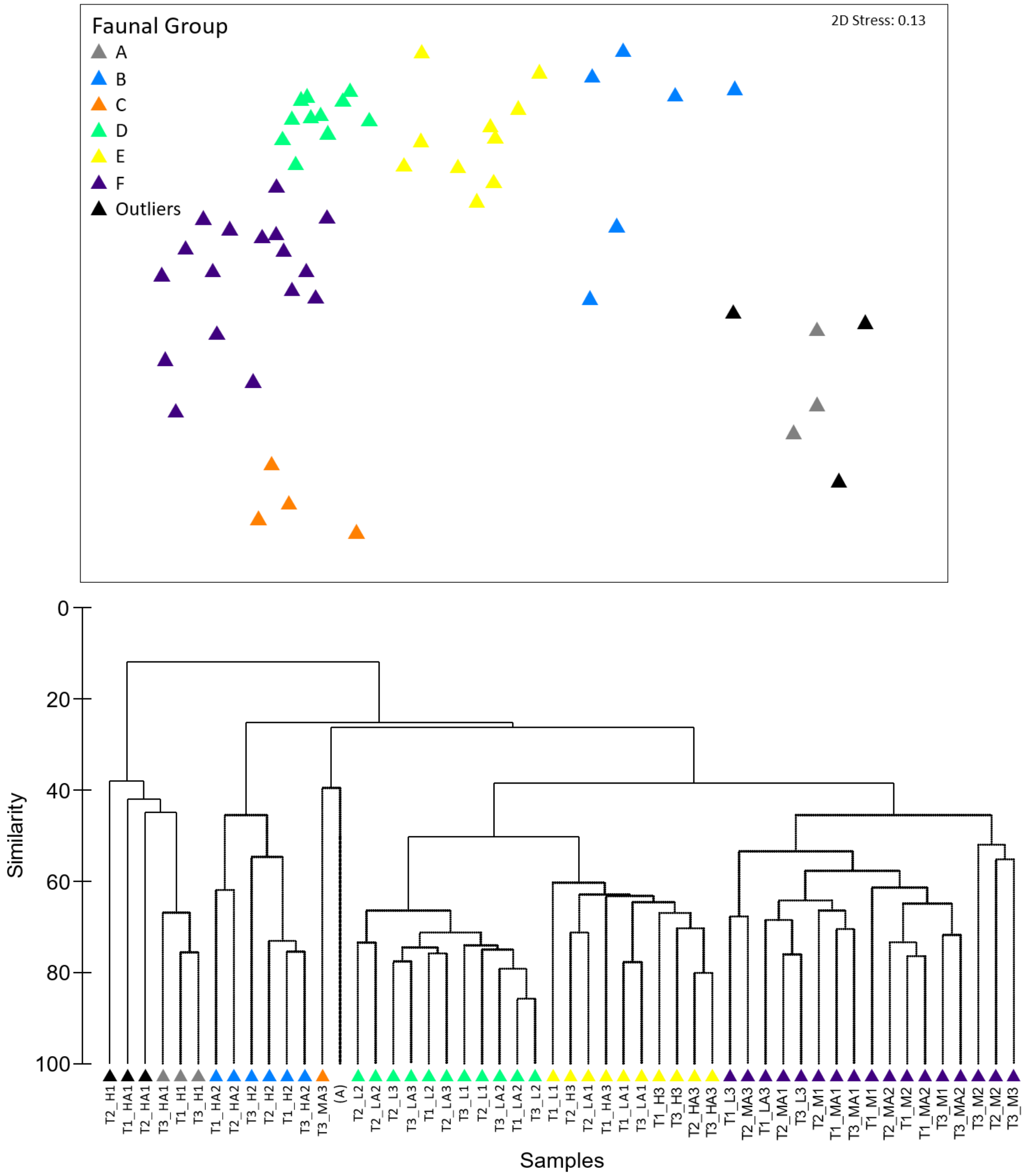



**Figure 7.** Top: MDS plot displaying faunal abundance data Infaunal for 2020 presented in 2D format. Bottom: Group average sorting dendrogram based on square root transformed (Bray-Curtis similarity) (symbol A= T2 M3, T1 M3 and T1 MA3 – maximum x-axis category cut-off was 52, therefore several Group C stations have been clustered and represented as 'A').

The abundance and diversity characteristics of each faunal group are described in Table 5, while the distribution is illustrated in Figure 8. SIMPER analysis was run on the six multivariate groups to identify the key taxa driving the similarity within the groups. Three stations (T2 H1, T1 HA1 and T2 HA1) were classified as outliers and did not group with any other samples. Each group identified by the SIMPROF routine is described in detail below.

Faunal groupings correlate well to shore height across all transects and natural zonation between high-mid- and low-shore communities is apparent. Figure 8 illustrates that the infaunal communities at Pegwell

Bay differed according to where samples were located with shore height within the intertidal zone/saltmarsh and that generally, this was a more influential factor on community composition than transect.

**Table 5.** Average abundance and species diversity of each of the multivariate faunal groups identified across Pegwell Bay in 2020.

| Faunal Group | Average Abundance (individuals per sample) | Average Species Diversity (taxa per sample) |
|---|---|---|
| Faunal Group A | 684 | 10 |
| Faunal Group B | 352 | 15 |
| Faunal Group C | 21 | 10 |
| Faunal Group D | 241 | 12 |
| Faunal Group E | 181 | 15 |
| Faunal Group F | 62 | 10 |
| Outliers | 227 | 9 |

**Faunal Group A** (Average group similarity: 69.74%) was assigned to three stations (T3 HA1, T1 H1 and T3 H1) based upon average faunal abundance. Group A stations were located on the upper shore and sampled from the Folk sediment groups Mud, slightly gravelly muddy Sand and sandy Mud. Group A was characterised by the Hydrobiidae gastropod *Peringia ulvae*, juveniles of the annelid Nereididae, and Nematoda. This group recorded the highest average species abundance and the joint second lowest diversity of the infaunal groups. The high abundance at these stations was contributed to most by individuals of *P. ulvae*, with a total of 1,959 being recorded across Group A stations. The characterising species of Group A possess a tolerance for brackish conditions as demonstrated by their presence at the upper shore stations where saltmarsh runoff and terrestrial input was present.

**Faunal Group B** (Average group similarity: 54.07%) was assigned to six stations (T1 HA2, T2 HA2, T3 HA2, T1 H2, T2 H2 and T3 H2) located on the upper shore, following southward from Group A and the outliers. Group B stations were sampled solely from the Folk sediment group muddy Sand and were characterised by the amphipod crustaceans *Corophium volutator* and *Corophium arenarium*, and the Hydrobiidae gastropod *P. ulvae*. The group recorded the second highest average abundance and the joint highest average diversity of the infaunal groups, with the highest diversity at a single station being recorded at T3 H2 (20 species).

**Faunal Group C** (Average group similarity: 45.81%) was assigned to four stations (T1 MA3, T3 MA3, T1 M3 and T2 M3) located at some of the most seaward stations of the transects. Group C samples were sampled solely from the Folk sediment group Sand and characterised by the common cockle *Cerastoderma edule,* Nematoda and the tanaid crustacean *Tanaissus lilljeborgi*. The group recorded the lowest average abundance, with the lowest abundance at a single station being recorded at T1 MA3 (11 individuals), and joint second lowest diversity of the infaunal groups.

**Faunal Group D** (Average group similarity: 71.05%) was assigned to 11 stations (T2 L1, T3 L1, T1 LA2, T2 LA2, T3 LA2, T1 L2, T2 L2, T3 L2, T2 LA3, T3 LA3 and T2 L3) located in a cluster along the midshore. Group D samples had the third highest average abundance and second highest average diversity and were sampled solely from the Folk sediment group Sand. The samples in this group were characterised by the presence of the amphipod crustacean *Bathyporeia sarsi* and individuals characterised under the genus *Bathyporeia*, as well as the tanaid crustacean *T. lilljeborgi*

**Faunal Group E** (Average group similarity: 64.18%) was assigned to ten stations (T1 HA3, T2 HA3, T3 HA3, T1 H3, T2 H3, T3 H3, T1 LA1, T2 LA1, T3 LA1 and T1 L1) located along the mid to upper shore. Group E stations were sampled solely from the Folk sediment group muddy Sand and were characterised by the amphipod crustacean *B. sarsi*, the annelid *Pygospio elegans* and the Hydrobiidae gastropod *P. ulvae*. The group recorded the third lowest average abundance but the joint highest average diversity of the infaunal groups.

**Faunal Group F** (Average group similarity: 54.97%) was assigned to 17 stations (T1 LA3, T1 L3, T3 L3, T1 MA1, T2 MA1, T3 MA1, T1 M1, T2 M1, T3 M1, T1 MA2, T2 MA2, T3 MA2, T1 M2, T2 M2, T3 M2, T2 MA3 and T3 M3) located on the mid to lower shore. Group F stations were sampled solely from the Folk sediment group muddy Sand and were characterised by the tanaid crustacean *T. lilljeborgi,* and the annelids *P. elegans* and *Scoloplos armiger*. The group recorded the second lowest average abundance and the joint second lowest diversity of the infaunal groups.

**Outlier Stations:** Three stations (T1 HA1, T2 HA1 and T2 H1) demonstrated a lower level of similarity in terms of faunal community when compared to other stations and thus could not be grouped. The outlier stations were all located at some of the most landward upper shore stations where saltmarsh was present, and the environment and substrate were variable. All of the outlier samples were categorised as sandy Mud. Abundance at the outlier stations was typically high while diversity was generally low, with the lowest average diversity of a single station being recorded at T1 HA1 (4 species). The characterising taxa at stations classified as outliers were the gastropod *P. ulvae*, the oligochaete Enchytraeidae and Insecta larvae.

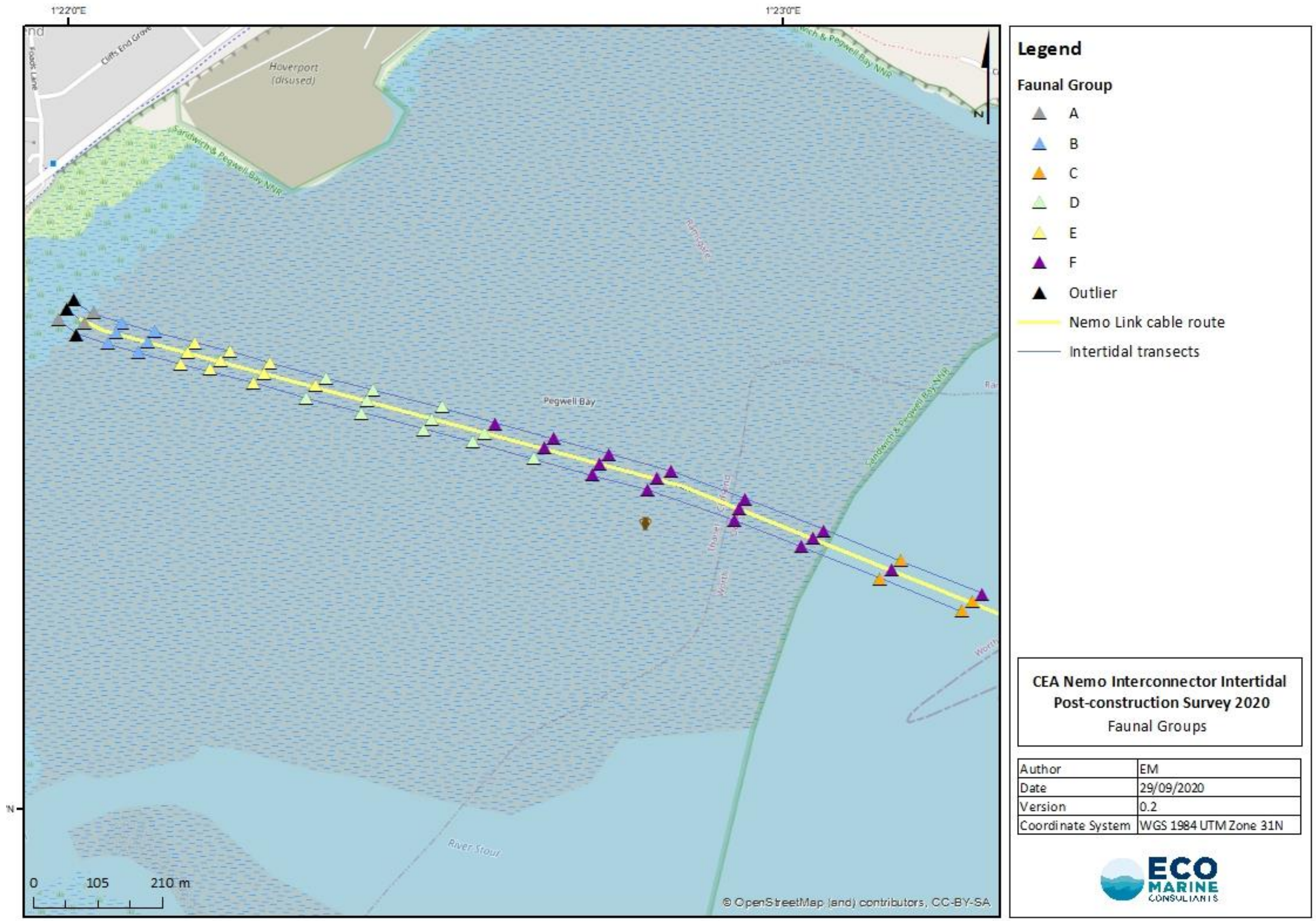



**Figure 8.** The distribution of the infaunal groups determined by multivariate analysis at Pegwell Bay in 2020.

### 4.2.2. Distribution of Fauna by Transect in 2020

There were some small but noticeable differences in faunal communities between transects at Pegwell Bay in 2020. The figures in Table 6 illustrate the average differences in abundance, taxa diversity and biomass recorded along the cable route transect and the northern and southern control transects 20m either side in 2020.

**Table 6.** Mean abundance (number of individuals), species diversity (number of taxa) and biomass (mg AFDW) per sample along each transect at Pegwell Bay in 2020.

| Transect | Mean Abundance | Mean Diversity | Mean Biomass |
|---|---|---|---|
| Northern Control Transect | 172 | 11 | 345 |
| Cable Route Transect | 199 | 12 | 352 |
| Southern Control Transect | 208 | 13 | 462 |

Mean faunal abundance, diversity and biomass were all lowest along the northern control transect and highest along the southern control transect, though the disparities between the any of the transects were not substantial. Abundance was also highest along the southern control transect in 2016 and 2018. Faunal abundance, diversity and biomass along the cable-route transect was between that of the two control transects. The elevated average abundance along the southern control transect was mostly attributable to large numbers of the Laver spire shell gastropod *Peringia ulvae* at T3 HA1 (within the saltmarsh) and high counts of the amphipods *Corophium arenarium* and *Corophium volutator* at T3 HA2 (along the upper shore).

The faunal abundance along the transects at Pegwell Bay is further illustrated in Figure 9. As previously observed in both 2016 and 2018, abundance decreased with distance down the shore along all transects. Though differences in abundance are apparent between transects, they are relatively minor, illustrating low ecological deviance between the control and impact transects. Any differences in faunal communities between the control transects are likely to be a result of the inherently patchy nature of the environment due to localised disturbances typical for all intertidal habitats.

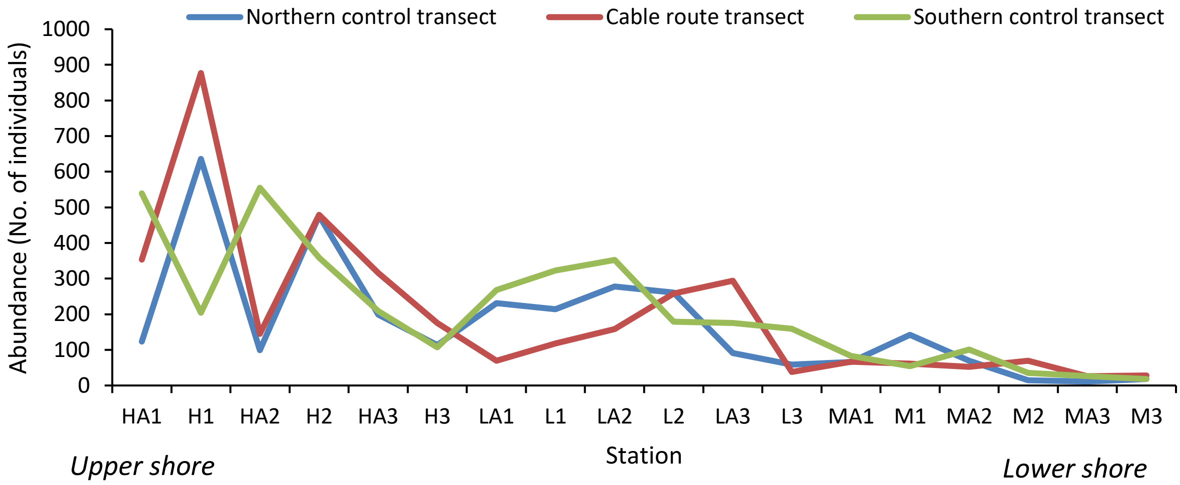



**Figure 9.** Faunal abundance recorded in Phase II samples collected along the cable route and two control transects at Pegwell Bay in 2020.

To highlight the similarity in faunal communities between the impact and control transects a 2D MDS plot has been produced (Figure 10). It is evident that the faunal communities exhibited a high degree of overlap and that no distinct clusters emerged when faunal community data was sorted according to transect in 2020.

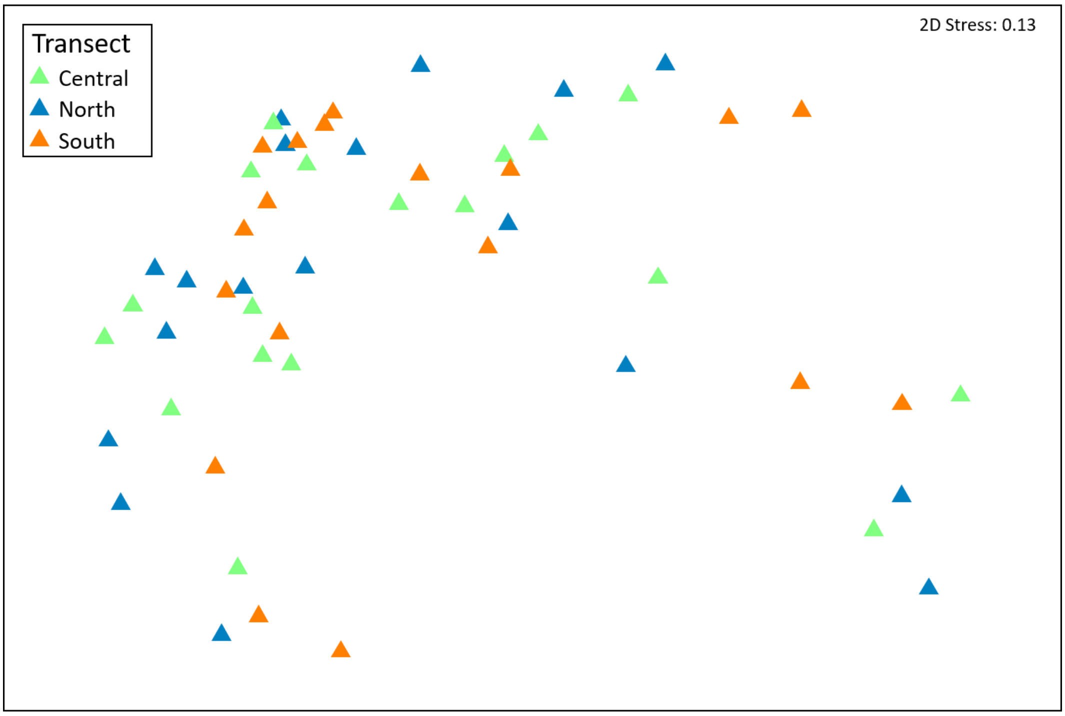



**Figure 10.** MDS plot displaying faunal abundance data in 2D format, using faunal data collected in 2020 from Pegwell Bay (based on Bray-Curtis similarity, square-root transformed data).

Abundance was generally lowest along the northern control transect and highest along the southern transect for all major groups, except for mollusca for which highest abundance was recorded along the central cable route transect (Figure 11). Diversity between transects was somewhat more variable between major groups; diversity for annelida and mollusca was highest along the central cable route transect though crustacea and miscellaneous fauna contributed most diversity along the southern transect. Biomass contributed by all taxa was relatively low except for mollusca. Mollusca biomass was high along all transects but was especially elevated along the southern transect – this was attributable in part to the high abundance of *P. ulvae* but mostly to the presence of several large *C. edule* recorded at mid shore stations.

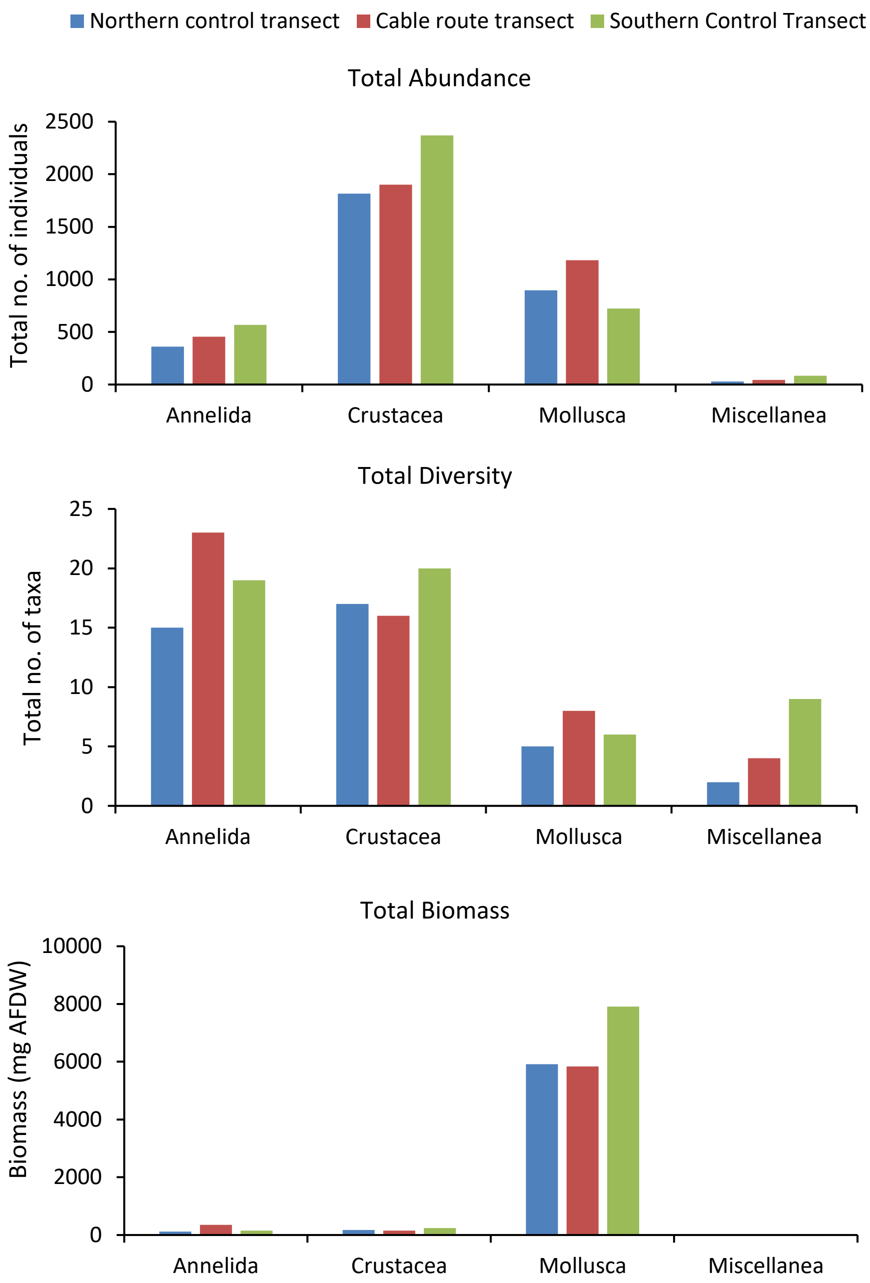



**Figure 11.** Total faunal abundance, species diversity and biomass (mg AFDW) of specimens recorded in samples collected from the northern and southern control transects versus the central cable route transect at Pegwell Bay in 2020.

### 4.2.3. Temporal Comparisons of Fauna

A comparison of the mean and total abundance and diversity per sample between the pre- and post-construction surveys is presented in Table 6. It should be noted that a total of 54 samples were collected during the 2018 and 2020 surveys compared to 27 in 2016. As such, 'reduced' abundance and diversity for 2018 and 2020 which includes data from just the 27 stations surveyed in 2016 have also been presented to allow a direct comparison between the pre-construction and post-construction years.

**Table 7.** A comparison of mean and total abundance and species diversity per sample at Pegwell Bay between the pre- and post-construction surveys in 2016, 2018 and 2020. 'Reduced' station data for the 27 comparable stations surveyed in 2016 are given in brackets for 2018 and 2020.

| Survey Year | Mean abundance per sample | Total abundance | Mean species diversity per sample | Total species diversity |
|---|---|---|---|---|
| 2016 | 202 | 5, 448 | 12 | 44 |
| 2018 | 137 (128) | 7,395 (3,452) | 13 (13) | 62 (54) |
| 2020 | 193 (203) | 10,408 (5,475) | 12 (12) | 70 (58) |

When considering data for comparable stations, the figures in Table 7 show that in 2020 there has been a recovery following a reduction in faunal abundance at Pegwell Bay between 2016 and 2018. The 2020 data was highly comparable to that of 2016 with just one more individual recorded per sample on average. Total abundance was marginally higher in 2020 than in 2016 and considerably elevated above that of 2018. Differences and similarities in abundance and diversity along control and impact transects is discussed further in Section 4.3 (Figures 13, 14 and 15).

Mean diversity remained consistent throughout survey years, though total diversity has increased year on year, suggesting a slightly increased complexity of the faunal communities in the surface sediments across the foreshore. The overall increase in abundance and diversity suggests that any negative impacts to intertidal faunal communities that may have arisen from activity relating to the burial of the cable in 2017 have diminished with time as predicted. Additionally, the increase in diversity may be indicative of the development of a more complex community structure along the cable route. However, it is important to note that intertidal community dynamics are complex and may be variable dependent on numerous environmental factors, such as localised disturbances from tidal events, storm waves and alterations in freshwater input.

### 4.2.4. Intertidal Fauna in Quadrats

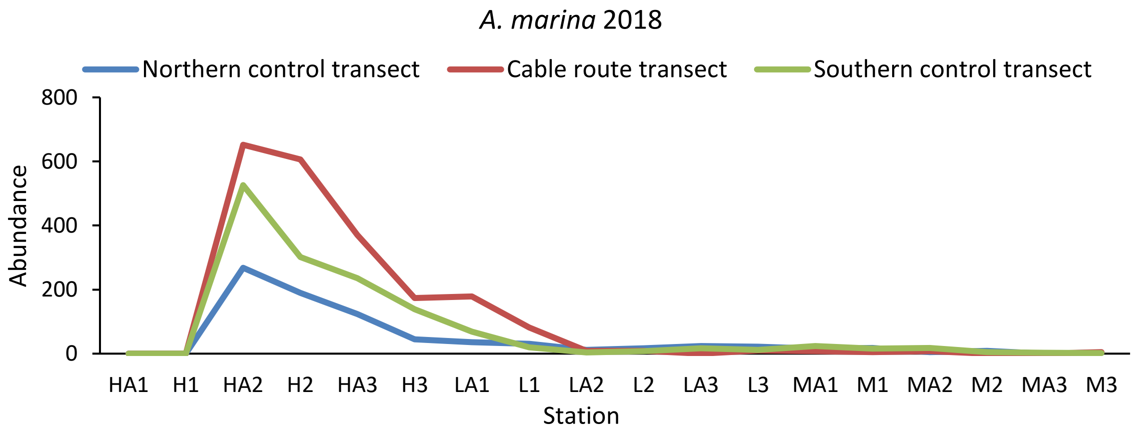
In 2020, as in previous survey years, the highest density of *A. marina* casts was recorded along the upper shore though overall the cast abundance in quadrats was reduced when compared to 2018 (Figure 12). A peak of 284 *A. marina* casts was recorded in a single quadrat at station T2 HA2 in 2018 while the highest count of *A. marina* casts in 2020 was 109 at the same station. It is understood that the peak *A. marina* count within quadrats in 2016 was 43 casts (Gardline, 2016) which indicates a general increase in abundance following the cable burial in 2017. Unfortunately, raw data for the quadrat counts in 2016 could not be accessed, though findings are illustrated in detail in the baseline technical report produced for DeepOcean (Gardline, 2016). Abundance of *A. marina* casts was highest along the cable route transect in 2020 with 1,299 casts recorded here compared to 601 along the northern control transect and 805 along the southern control transect.

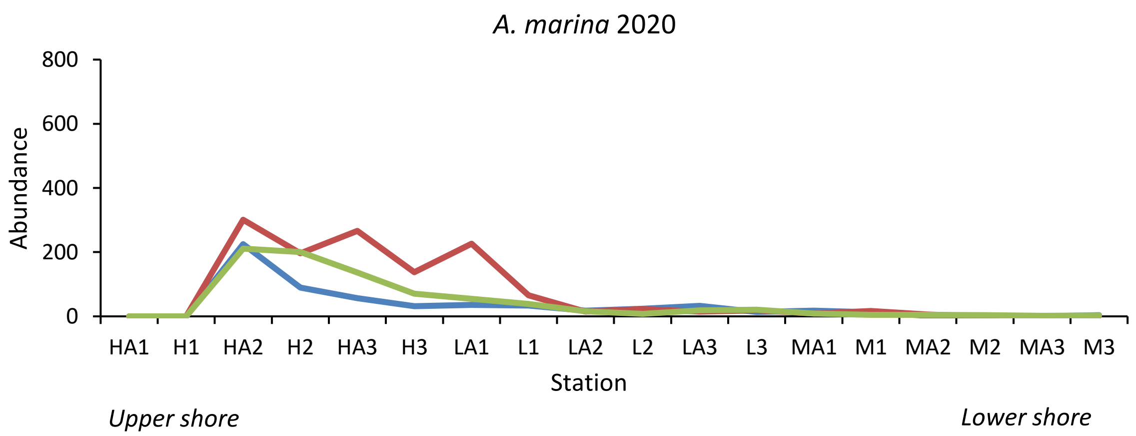
The distribution of *L. conchilega* tubes along the foreshore in 2020 was similar to that observed in previous surveys and were most abundant towards the lower shore where a peak was 273 tubes/$m^2$ was recorded at station T1 MA3. Though abundant in 2020, a reduction in tube counts was apparent when compared to 2018 when the maximum number of tubes counted was 1,763 tubes/$m^2$. However, the maximum *L. conchilega* count exceeded that of 180 tubes/$m^2$ observed in 2016 (Gardline, 2016), illustrating a general increase in tubes with time following a large uptick in abundance following the cable burial. *Lanice conchilega* tube abundance was similar along all transects as illustrated in Figure

12. Images of each of the quadrats examined during the 2020 survey are presented in Appendix Plate 2.

Though there has been a reduction in abundance of both *A. marina* casts and *L. conchilega* tubes between 2018 and 2020, these two polychaete species remained abundant at Pegwell Bay and were important features of the intertidal habitats present. Furthermore, peak counts in both post-construction surveys exceeded those undertaken in 2016. Examination of quadrat data between transects demonstrates similarities in surface characteristics between the impact and control areas. Furthermore, the populations of both of these annelids were abundant in 2018 which suggests that the burial of the cable route had minimal effects on the abundance of these species.

It should be noted that whilst *A. marina* casts and *L. conchilega* tubes were frequently observed along all transects from high to low shore during the survey, just one individual specimen of *L. conchilega* was recorded within the infaunal samples. No *A. marina* were identified in the core samples, however this is very likely due to the depth at which this species tends to reside in comparison to the penetration depth of the corer used for sampling in the approved methodology. In 2020, *A. marina* casts were most abundant along the cable route transect, particularly at the upper shore stations. Initial observations by the Environment Agency (CEA, Pers. Comms., 2018) suggested that the *A. marina* populations along the cable route had been subject to a high degree of disturbance during the burial of the cable. However, the *A. marina* counts during both the 2020 and 2018 surveys suggest that the local populations have made a good recovery following the initial habitat disturbance from construction activity.



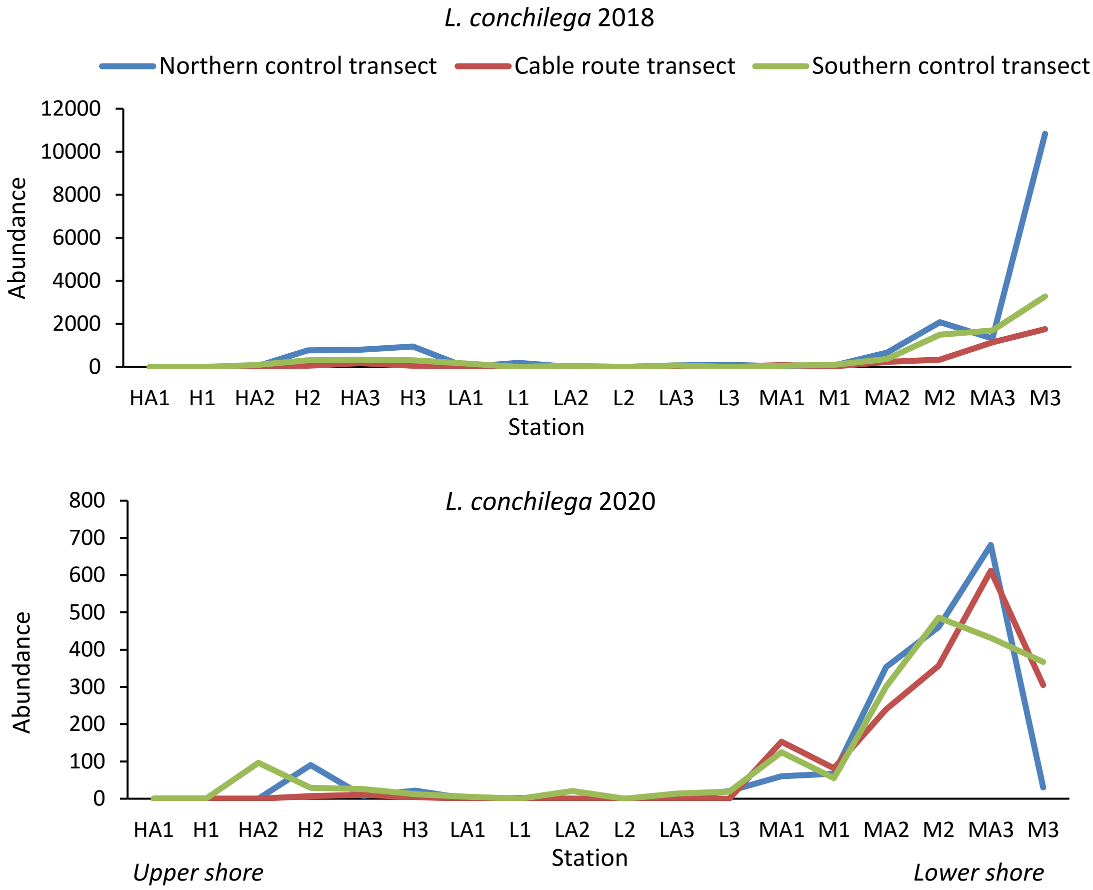



**Figure 12.** The abundance of *A. marina* casts (top) and *L. conchilega* tubes (bottom) in quadrats at Pegwell Bay in 2018 and 2020. Note that the scale of the y-axis differs between years for *L. conchilega* due to changes in the number of specimens recorded.

## 4.3. The Spatial Distribution of Infaunal Communities

Figures 13 and 14 illustrate the distribution of fauna in terms of abundance and species diversity within the samples collected at Pegwell Bay in 2016, 2018 and 2020.

Faunal abundance was variable across the transects and there was no apparent impoverishment of fauna along the central cable route transect when compared to those running 20m either side in 2020 (Figure 13). As was the case in 2018, abundance typically declined with distance from the high shore with the number of individuals per core lowest at the stations located at stations M3 and MA3, reflecting natural zonation of communities along the shoreline.

The highest faunal abundance was at T1 H1 located along the southern control transect on the upper shore amongst the saltmarsh. A total of 877 individuals were present at T1 H1, of which 850 were *P. ulvae*. Faunal abundance was typically highest at stations with a higher percentage mud content and least exposed to the influence of the tide. Though faunal abundance was relatively high at the stations overlying saltmarsh, it was apparent that the physical environment was still transitionary along the cable route at the boundary of the saltmarsh. Faunal populations here cannot be considered to be indicative of the function of the overall ecosystem, though their presence is a positive indicator.

The lowest abundance (11 individuals present) was at Station T1 MA3 located along the northern control transect at the lower shore. Unfortunately, StationT3 MA3 was not targeted in the pre-construction survey and as such, comparisons between abundance data for the years is not possible at this site. However, faunal communities were also impoverished along the lower shore in 2018. Fauna was more evenly distributed along the shoreline in 2016 compared to in 2018 and 2020.

The two post-construction surveys have revealed that much more of the faunal community at Pegwell Bay is concentrated along the mid and upper shore than was the case in 2016. However, this may in part be an effect of from the increase in sampling effort or due to numerous other natural or anthropogenically influenced processes.

As observed in 2016 and 2018, the distribution of faunal diversity at Pegwell Bay in 2020 was variable with little distinction between high or low numbers of taxa across transects (Figure 14). However, diversity mirrored the trend observed with faunal abundance and generally increased with shore height. A maximum of 20 taxa was recorded at Station T3 H2 located along the northern control transect on the upper shore while the lowest diversity of just four taxa was recorded at station T1 HA1, one of the uppermost stations. Though diversity was low at this station located within saltmarsh, abundance was relatively high due to the presence of 118 *P. ulvae*.

Spatial patterns in faunal abundance and species diversity observed in 2020 were in keeping with those recorded in 2016, with a varied infaunal abundance observed across the shore heights and the highest abundance at the upper shore. However, the distribution of fauna has become increasingly concentrated with time in the mid and upper shore regions.

Faunal biomass was not measured in 2016 or 2018 but was determined for specimens extracted from core samples in 2020 (Figure 15). In contrast to faunal abundance which decreased with distance from the high-water line, biomass increased with distance down the shore. A maximum biomass of 2,603 mg AFDW was recorded at T2 M3 along the southern control transect where abundance and diversity were low, but several large *C. edule* were recorded. A minimum biomass of 9 mg AFDW was recorded at T1 M1 along the central cable route transect where most of the abundance was made up of small annelids and the tanaid *T. lilljeborgi*. The increased biomass along the length of the transects from the upper shore reflected the higher abundance of large bivalves, primarily the cockle *C. edule* toward the lower shore.

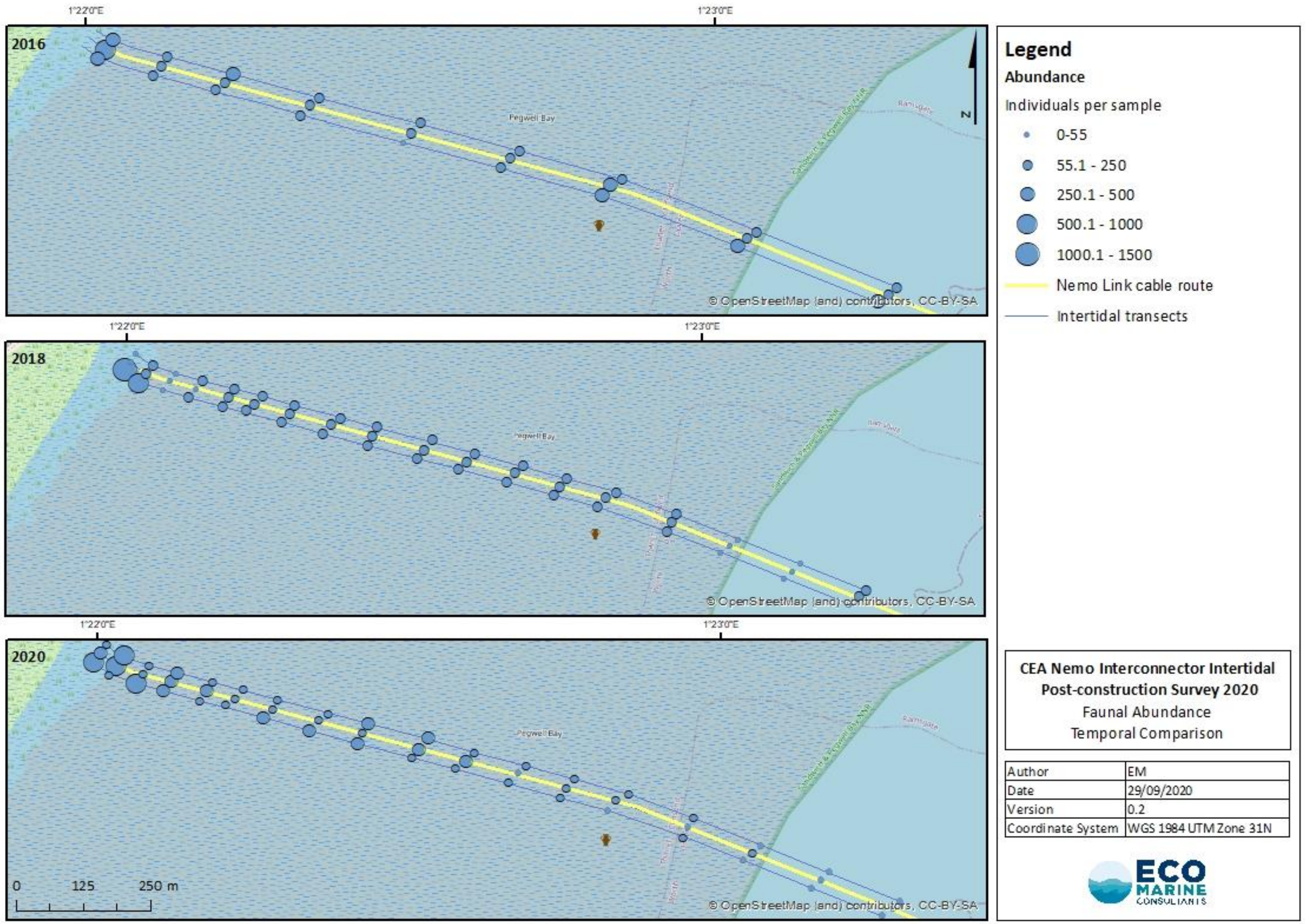



**Figure 13.** A comparison of total faunal abundance between the pre-construction survey in 2016 and the post-construction surveys at Pegwell Bay in 2018 and 2020.

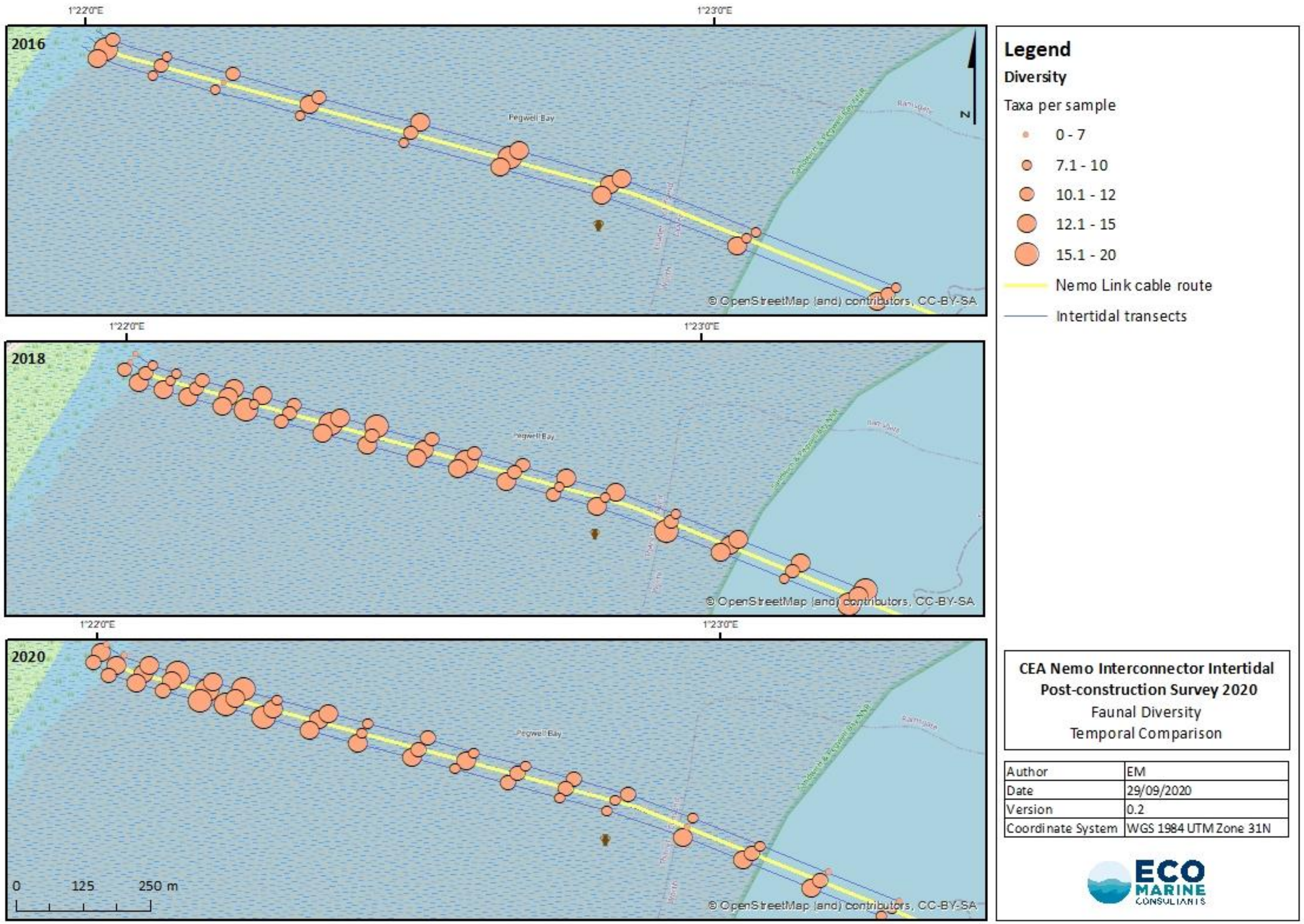



**Figure 14.** A comparison of total faunal abundance between the pre-construction survey in 2016 and the post-construction surveys at Pegwell Bay in 2018 and 2020.

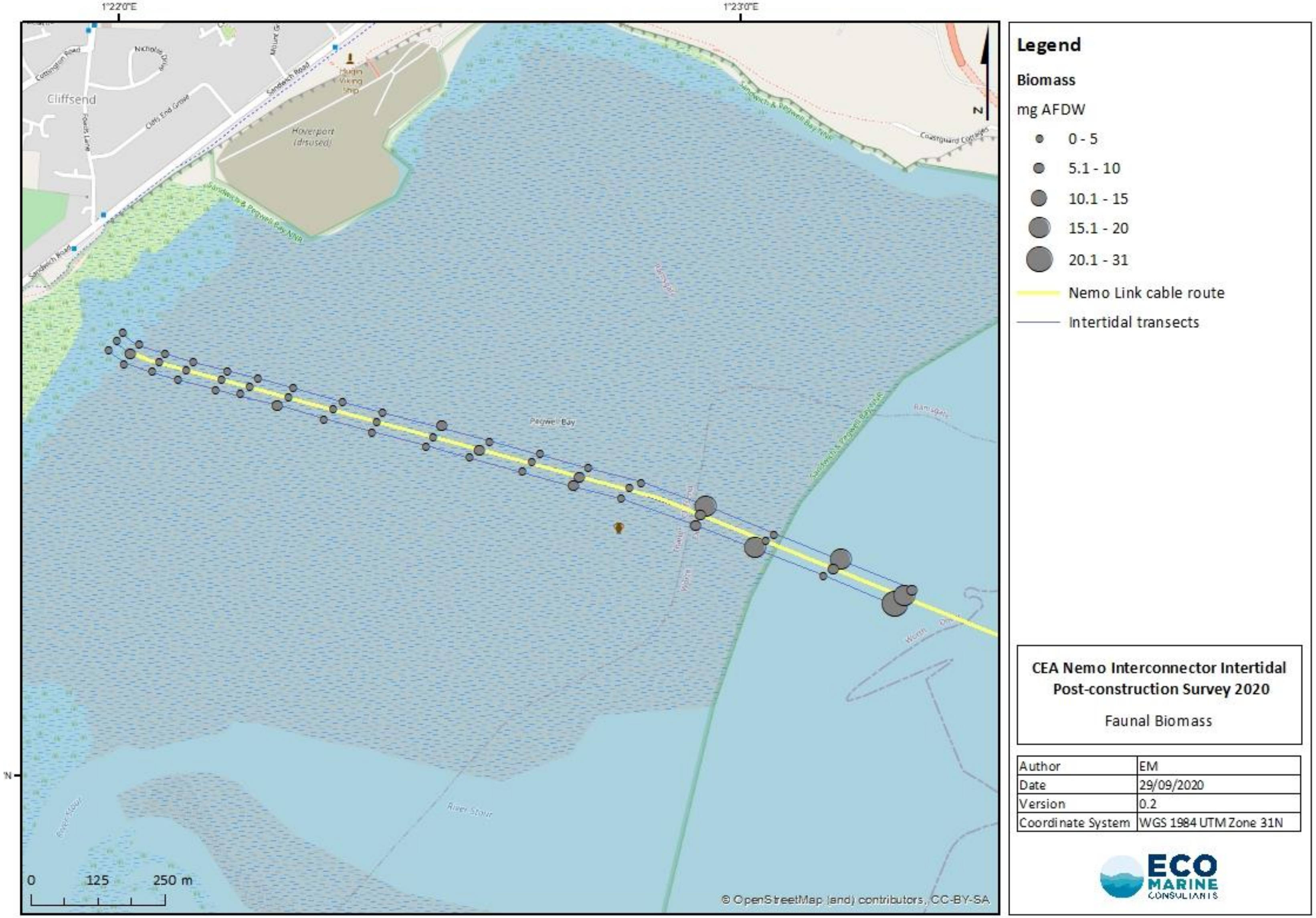



**Figure 15.** Total biomass (mg AFDW) of intertidal benthic fauna at Pegwell Bay in 2020.

### 4.3.1. Spatio-temporal Faunal Abundance

Abundance data have been examined using a pairwise ANOSIM test to determine differences in faunal communities between transects across survey years (Table 8). The ANOSIM test revealed similarity in faunal communities along the central cable-route transect between all survey years using only stations common to the 2016, 2018 and 2020 surveys. The global R sample statistic across all transects and years was R = 0.044, significance = 4.2%, suggesting a high level of similarity in faunal community composition at a significant level.

Faunal communities along the central transect were found to be most similar between 2016 and 2020 though not at a statistically significant level (R = 0.091, significance = 7%). This validates the findings of the univariate analyses of data from the 27 stations sampled in all years (Section 4.2; Table 7) which showed abundance and diversity in 2020 to be well aligned in the pre-construction data. Faunal communities were also found to be statistically similar (with small differences) between 2016 and 2018, and 2018 and 2020 respectively.

The ANOSIM test also revealed that faunal communities along the northern and southern control transects were similar between survey years, though these results were only statistically significant along the southern control transect when comparing datasets between 2016 and 2018. Faunal communities along the northern control transect demonstrated a very high degree of overlap between all years, though this was never statistically significant. The faunal communities along all transects between 2018 and 2020 were highly similar though this was only significant along the central transect.

Overall, changes in fauna were somewhat larger along the central transect than control transects between 2016 and 2018, which indicates that a change in community may have occurred as a result of the cable route burial. However, faunal communities between 2016 and 2020 along the cable route transect were highly similar, and the R statistic was comparable with those observed along the control transects. This suggests that any changes in faunal communities between the baseline survey and the three-year post-construction survey were in-line with natural variation.

**Table 8.** Outputs from pairwise ANOSIM tests conducted using faunal abundance data from 2016, 2018 and 2020 in Primer 6.

| Years | Transect | R statistic | Significance Level |
|---|---|---|---|
| 2016 & 2018 | Central | 0.209 | 1.3% |
| 2016 & 2020 | Central | 0.091 | 7% |
| 2018 & 2020 | Central | 0.126 | 4.2% |
| 2016 & 2018 | Southern | 0.163 | 2.9% |
| 2016 & 2020 | Southern | 0.05 | 18.3% |
| 2018 & 2020 | Southern | 0.018 | 33.3% |
| 2016 & 2018 | Northern | 0.054 | 16.8% |
| 2016 & 2020 | Northern | 0.074 | 13.3% |
| 2018 & 2020 | Northern | 0.034 | 25.2% |

## 4.4. Intertidal Biotopes

On completion of the intertidal survey, the gathered information was transferred to an internal database, whilst photographs and GPS data were processed for assessment. Maps of the extent and distribution of the broad-scale habitats of interest across Pegwell Bay have been produced by analysing field notes and GPS data alongside the faunal and PSA data collected during the 2020 survey.

A total of four intertidal biotope complexes as well as saltmarsh habitat were identified across the Pegwell Bay foreshore from the 2020 survey data. The distribution of these biotopes is illustrated in Figure 16 while the biotopes identified in 2016 and 2018 are shown in Figures 17 and 18. The polygons have been digitised to allow the visualisation of biotope distribution and are representative of EUNIS levels 4 & 5. Zonation of biotopes across the foreshore is apparent with infaunal communities transitioning between the high and low shore as environmental conditions change.

Table 9 shows the total area for each of the assigned biotopes at Pegwell Bay in 2016, 2018 and 2020 within the boundary of the transects. There appears to have been a small degree of change in coverage between survey years though the habitats present possess numerous similarities.

**Table 9.** Total area (hectares – Ha) of biotope coverage along transects surveyed at Pegwell Bay in 2016, 2018 and 2020.

| EUNIS Biotope Complex | Habitat Description | Area of Coverage 2016 (Ha) | Area of Coverage 2018 (Ha) | Area of Coverage 2020 (Ha) |
|---|---|---|---|---|
| A2.23 (level 4) | Polychaete/amphipod-dominated fine sand shores | 0.29 | 3.32 | 1.76 |
| A2.24 (level 4) | Polychaete/bivalve-dominated muddy sand shores | 2.45 | 0.83 | 1.32 |
| A2.241 (level 5) | *Macoma balthica* and *Arenicola marina* in muddy sand shores | 0.78 | - | - |
| A2.242 (level 5) | *Cerastoderma edule* and polychaetes in littoral muddy sand | - | - | 1.12 |
| A2.244 (level 5) | *Bathyporeia pilosa* and *Corophium arenarium* in littoral muddy sand | 0.72 | - | - |
| A2.245 (level 5) | *Lanice conchilega* in littoral sand | 2.15 | 2.38 | 2.30 |
| Saltmarsh | Saltmarsh | 0.88 | 0.78 | 0.76 |

The biotope '*Cerastoderma edule* and polychaetes in littoral muddy sand' (A2.242) which was assigned to a mid-shore section in 2020 was not identified in previous surveys. However, similar biotopes that are also sub-categories of the level 4 biotope 'Polychaete/bivalve dominated muddy sand shores' were recorded in both 2016 and 2018. All other biotopes identified in 2020 have been observed in previous survey years. Two biotopes recorded in 2016 were not recorded in 2018 or 2020 while all biotopes observed in 2018 were observed in 2020.

The biotopes '*Macoma balthica* and *Arenicola marina* in muddy sand shores' (A2.241) and '*Bathyporeia pilosa* and *Corophium arenarium* in littoral muddy sand' (A2.244) were assigned to the upper mid-shore section of the study area in 2016 but were not identified in either 2018 or 2020. They were not ascribed to any of the habitats in 2020 as the species present did not correlate with the pre-requisite descriptions for the biotopes – primarily due to a lack of amphipods in the characterising species lists for both biotopes. Furthermore, though *A. marina* casts were abundant in the quadrat counts in upper and mid shore stations in 2018 and 2020, the biotope '*Macoma balthica* and *Arenicola marina* in littoral muddy sand' was not allocated to any of the stations due to the low abundance of *Macoma (Limecola) balthica* within the Phase II samples, despite the presence of *A. marina*.

Though *B. Pilosa* and *C. arenarium* were both relatively abundant along parts of the foreshore in 2020, the biotope '*Bathyporeia pilosa* and *Corophium arenarium* in littoral muddy sand' was not designated to any of the stations due to the absence of polychaetes included in the biotope description. Additionally, *B. sarsi* was much more prevalent than *B. Pilosa* at Pegwell Bay in 2020, an observation also made in 2018. As many of the species and the conditions outlined in the biotope descriptions for '*Macoma balthica* and *Arenicola marina* in littoral muddy sand' and '*Bathyporeia pilosa* and *Corophium arenarium* in littoral muddy sand' remained present in 2018 and 2020 (though in differing proportions), it should not be concluded that there has been a loss in ecological value due to a change in habitat classification, rather, a shift in dominant fauna.

Descriptions of the biotopes recorded during the 2020 Nemo Link survey are shown below.

**Polychaete/amphipod-dominated fine sand shores - A2.23 (level 4)**
This biotope was recorded along the mid shore section of Pegwell Bay in two segments. It was characterised by high abundance of the amphipod *Bathyporeia sarsi* (and *Bathyporeia* sp.), the tanaid *T. lilljeborgi*, the polychaetes *P. balanoglossoides, S. armiger* and *P. elegans* and the gastropod *P. ulvae* as well as clean, fine sand. Several of the taxa that were present within the samples collected from this biotope area were absent in the description, yet it remained the most accurate portrayal of the habitat type and many of the characterising species matched. This biotope covered the second largest area of all habitats in 2020 and has undergone a loss of coverage since 2018, though an overall increase in area since 2016.

This habitat was split by a wide section of the biotope *'Cerastoderma edule* and polychaetes in littoral muddy sand' (A2.242) along the mid-shore. The environmental conditions for A2.23 and A2.242 were similar and the two share several taxa listed as characteristic species list for the biotopes, but the increase in the occurrence of *C. edule* and *B. sarsi* indicated a change in habitat.

**Polychaete/bivalve-dominated muddy sand shores - A2.24 (level 4)**
This biotope was observed along the upper shoreline overlying sand and muddy Sand. The faunal community was characterised by the gastropod *P. ulvae*, the bivalve *Limecola balthica* (formerly *M. balthica*) the amphipods *C. volutator, C. arenarium*, and *Bathyporeia* sp., the polychaeta *P. elegans* and the tanaid *T. lilljeborgi*. This biotope covered the third largest portion of the survey area in 2020 which represented a loss of 1.13 Ha since 2016, though a gain of 0.49 Ha since 2018. This biotope did not stretch across all three transects at its lower extent at LA1 and transitioned in to A2.23 along the northern transect, illustrating the variable nature of the habitats within small areas in the intertidal zone.

***Cerastoderma edule* and polychaetes in littoral muddy sand - A2.242 (level 5)**
This biotope represented the smallest area of habitat along the mid-shore in 2020. It was characterised by the cockle *C. edule*, the amphipod *B. sarsi*, the tanaid *T. lilljeborgi* and the polychaetes *S. armiger*, *P. elegans* and *P. balanoglossoides*. The sediment type was sand which was water-saturated most of the time. The faunal community of this biotope was similar to that categorised as 'Polychaete/amphipod-dominated fine sand shores' though this biotope did not accurately represent the contributions of *C. edule* or *B. sarsi* to the faunal population in the mid-shore.

***Lanice conchilega* in littoral sand - A2.245 (level 5)**

The biotope '*Lanice conchilega* in littoral sand' covered the largest area of all the biotopes recorded in 2020, demonstrating the dominance of fine sand habitats at Pegwell Bay. It extended from the mid-low shore to the low waterline and was characterised by sandy sediments overlain by water. Numerous *L. conchilega* tubes were present at the surface of the sediment alongside numerous other polychaetes including *P. elegans, S. armiger, S. martinensis* and *S. bombyx*. Other fauna recorded within this biotope include the tanaid *T. lilljeborgi*, the amphipod *Urothoe poseidonis* and the cockle *C. edule*. The area recorded for the coverage of this biotope was highly similar to that of previous years.

**Saltmarsh**

Saltmarsh habitat was recorded the landward edge of the foreshore. This habitat was characterised by a terrestrial environment and mud, though the fringes were influenced by sand and large patches of shell fragments. Saltmarsh plants including *Spartina* sp. and *Salicornia* sp. were abundant and small pools of standing water, often characteristic for saltmarsh habitat were frequently observed. The fauna identified in samples collected from the saltmarsh were characterised by the gastropod *P. ulvae*, the polychaete *Manayunkia,* the amphipod *B. sarsi*, and Insecta larvae. The fauna found to be abundant within the saltmarsh were those with high osmotic tolerance to variable salinity.

Slight changes in distribution of sediment type across the foreshore and minor changes in faunal communities have resulted in a slight shift in habitat boundaries between 2016, 2018, and 2020. It is important to note that intertidal environments, particularly beaches dominated by sand and fine sediments are highly dynamic and are likely to be subject to a degree of natural variation over time. This is inclusive of both faunal population dynamics and sediment characteristics which are influenced by numerous natural pressures including weather events such as storms and tidal cycles. Therefore, the changes that have occurred at Pegwell Bay between 2016, 2018 and 2020 may well be related to natural variation from wave and tidal events and as such cannot be attributed to any single point of impact. Furthermore, the intertidal zonation of habitats typical of muddy sandflat environments was observed in both post-construction surveys which demonstrates the speed with which the habitats along the cable route have recovered.

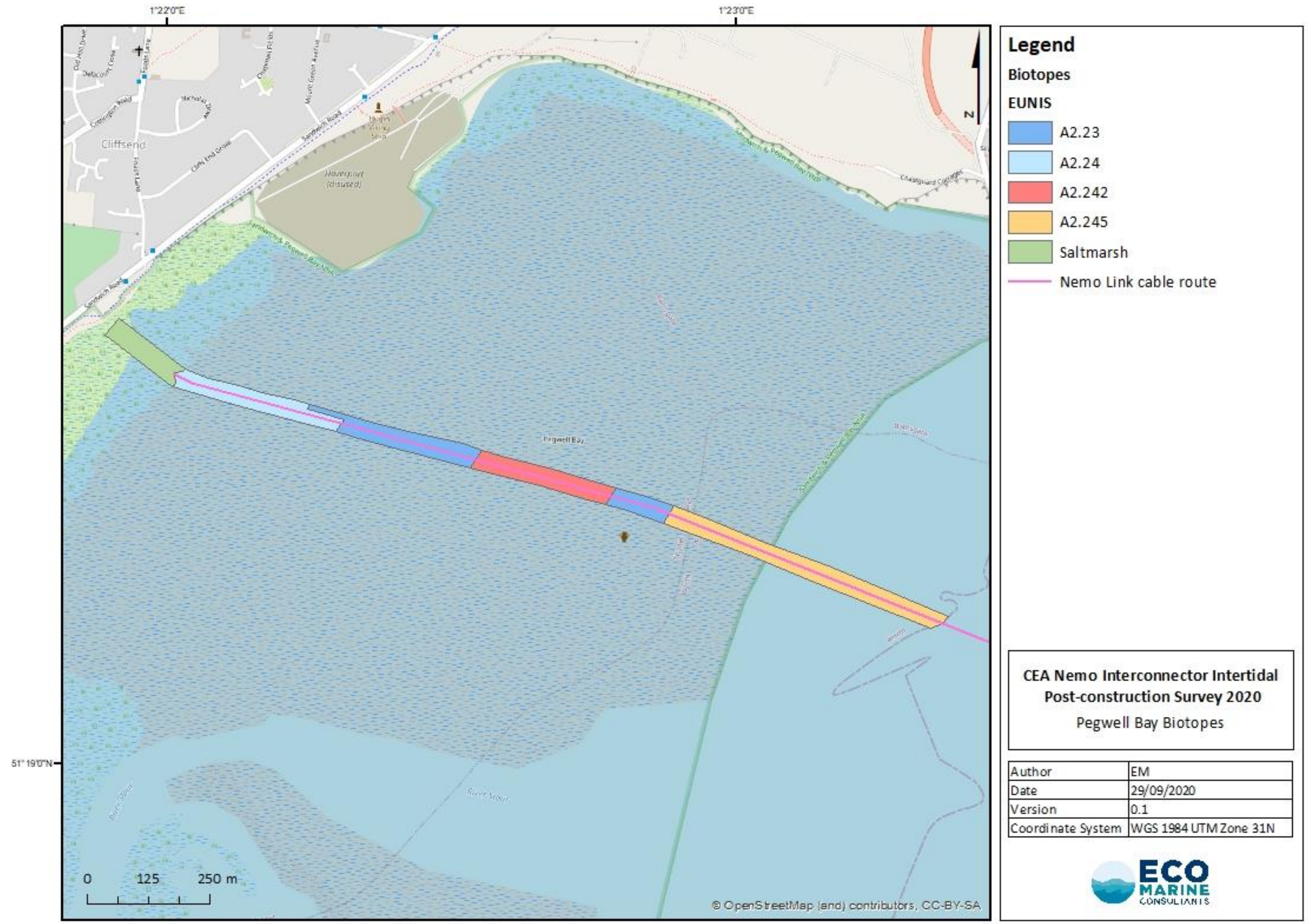



**Figure 16.** The distribution of biotopes assigned at Pegwell Bay along the cable route study area in 2020.

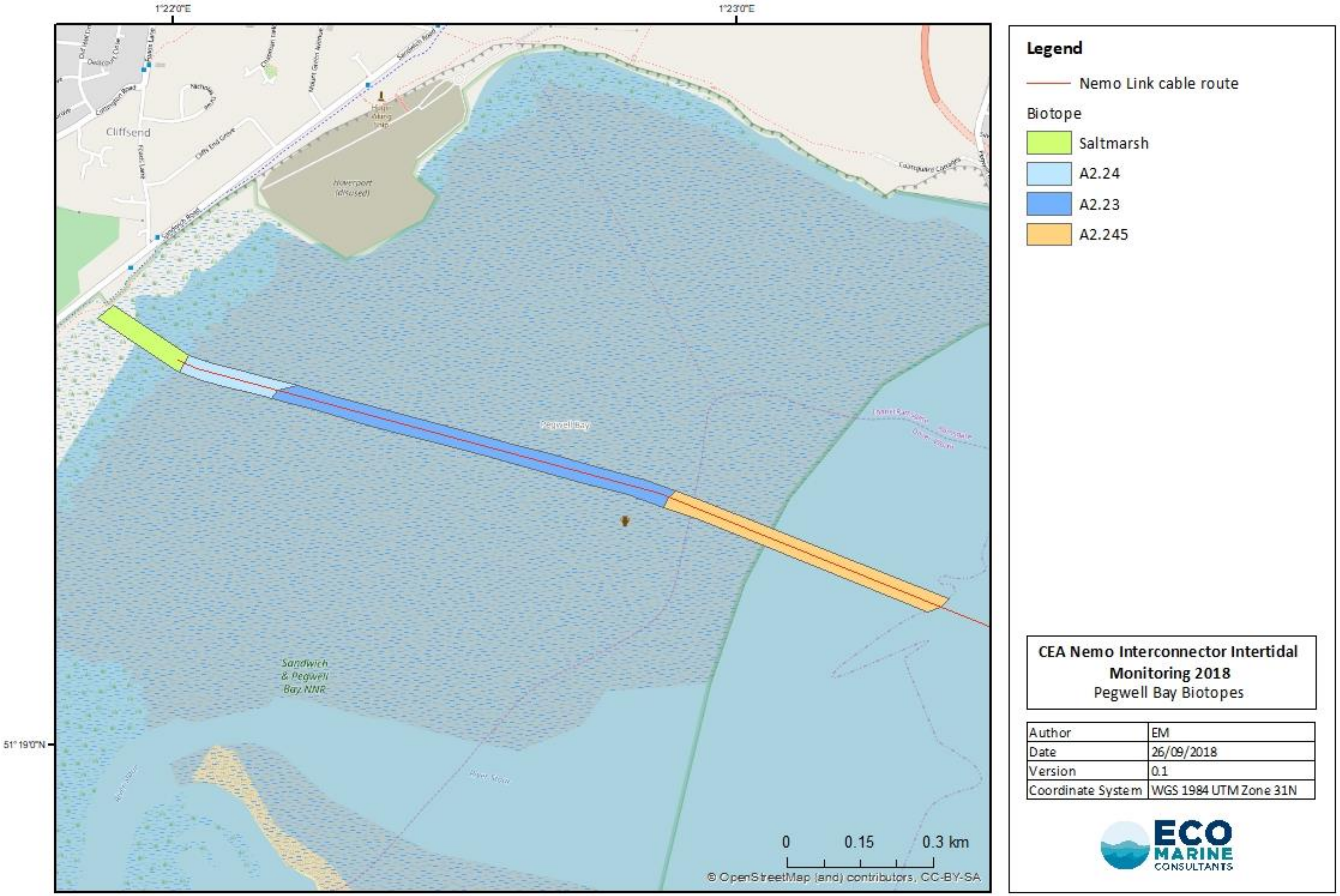



**Figure 17.** The distribution of biotopes assigned at Pegwell Bay along the cable route study area in 2018 (Eco Marine, 2018).

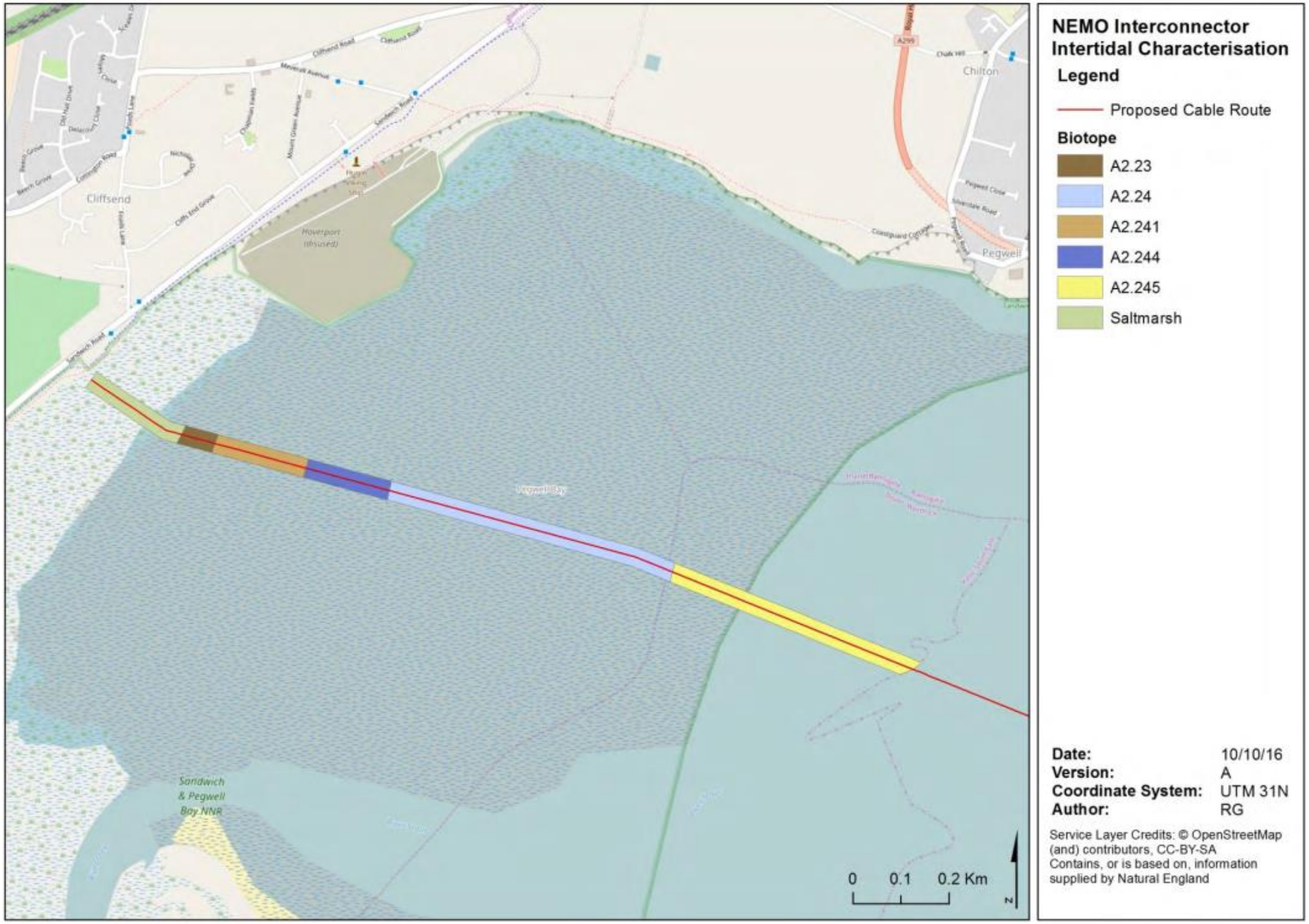



**Figure 18.** The distribution of biotopes assigned at Pegwell Bay along the cable route study area in 2016 (Gardline, 2016).

## 4.5. Notes on Biotope Designations

Biotopes are acknowledged to be a useful tool for the assessment and description of coastal habitats though some constraints when making designations are apparent.

For the biotope 'Polychaete/amphipod-dominated fine sand shores' for example, several of the abundant taxa recorded, including *B. sarsi, T. lilljeborgi* and *P. balanoglossoides,* were not mentioned in the characterising species biotope descriptions. Although, in the case of some fauna such as *B. sarsi*, other species from the same genus were listed. This was also the case with the biotope 'Polychaete/bivalve-dominated fine sand shores'

Additionally, some of the biotope titles did not accurately reflect the nature of the sediments, though the descriptions of the physical conditions were accurate. For example, 'Polychaete/bivalve-dominated muddy sand shores' is a sub-biotope of Littoral Sand but does not specify as such in the title. This resulted in sandy habitats being classified as biotopes with names suggestive of muddy sand rather than sand which was present.

It should be noted that several faunal species including *T. lilljeborgi*, *U. poseidonis, A. marina* and Nematoda*,* were not mentioned in the characterising species biotope descriptions though they were clearly important components of the community structure.

Though the biotopes used to describe the intertidal communities are a helpful descriptive tool, the exact character was not fully captured by some of the biotopes in terms of the faunal communities present.

## 4.6. Environmental Statement Predictions

All anticipated environmental impacts were identified in a Scoping Report and along with anticipated impacts were outlined in the Environmental Statement (PMSS, 2013). Predictions relating the intertidal invertebrates within the Environmental Statement were brief as most impacts to the biological environment related to benthic and epibenthic habitats and fauna, ornithology, and marine mammals. The cable installation (excavation of the cable trench) was the primary activity identified to have a potential impact in intertidal communities at Pegwell Bay.

The Environmental Statement recognised that intertidal annelid species and the cockle *C. edule* are important prey for several wader species and that the loss of these may have caused localised changes in bird distribution. However, it was acknowledged that the cable route disturbance would be highly localised and temporary, and that the trench for the cable would only be 1-2m wide and 2-3m deep. Furthermore, visual observations suggested where the Thanet Offshore Windfarm cable was installed at Pegwell Bay, the loss of prey only resulted in low level change, was highly localised and occurred for a short period of time. Overall, it was expected that the magnitude of change as a result of the cable burial in 2017 would be low.

It was also predicted that based upon previous surveys of the site, the species at Pegwell Bay would be typical for muddy sandflat environments and that such intertidal fauna would be adapted to mobile nearshore sediments and this, are capable of tolerating physical disturbance and high levels of suspended solids. The report detailed how the annelid *L. conchilega* is capable of both active suspension and passive surface deposit feeding and as such, is more common in the lower shore.

The Environmental Statement suggested that given their tolerance for disturbance, the subsequent recovery of intertidal species within the installation corridor was expected to be rapid following the cessation of works as lost fauna would be replaced by natural recruitment within a few weeks or months.

The predictions outlined in the Environmental Statement have been found to be accurate. Cable route excavation was localised and only impacted a small area of intertidal foreshore. Data collected during year-one and year-three post-construction surveys showed that the loss of intertidal fauna was temporary and by 2018, faunal communities had recolonised along the cable route, though abundance and diversity were reduced. By 2020, the abundance and diversity of intertidal populations matched that of the baseline survey in 2016 with certain species demonstrating higher abundance. Communities present along control and impact transects at Pegwell Bay in 2020 remain typical for a muddy sandflat environment and zonation of characterising species such as *A. marina* and *L. conchilega* is apparent. Overall, the intertidal habitats and fauna along the cable route at Pegwell Bay are well aligned to those identified in 2016 and those recorded along control transects in 2020, all of which is indicative of the recovery of intertidal species and habitats within the area of excavation.

# 5. Conclusions

The overarching aim of this project was to determine any changes in the intertidal faunal communities and habitats present at Pegwell Bay since the burial of a cable across the foreshore at in 2017.

The following conclusions can be drawn from the post-construction investigation outlined in this report:

**Sediment Characteristics**

- In keeping with the findings in 2016, particle size analysis of sediment samples collected from Pegwell Bay revealed that much of the study area was dominated by sand, though several stations also contained mud and small fractions of gravel.
- A small increase in the proportion of mud and a decrease in the proportion of sand and gravel has occurred following the baseline survey in 2016 with the most change observed along the upper shore and saltmarsh. This does not appear to have had any effect on recolonisation of sediments by faunal communities.
- There was little variation in sediment classifications between the control and impact transects in post-construction years. Folk classifications most varied between transects at stations HA1 and H1 which overlay saltmarsh where substrate conditions were patchy.
- Small changes in sediment composition were noted along the control transects between survey years. These changes were in-line with those observed along the control transect between the baseline survey and 2020, suggesting that natural sediment processes may have been responsible for variation in substrates.

**Intertidal Fauna**

- Following the completion of the three-year post-construction survey at Pegwell Bay, it was evident that faunal recolonisation along the cable route has occurred. Faunal abundance and diversity were marginally elevated in 2020 compared to 2016 suggesting that recovery taken place.
- Faunal communities in 2020 were similar to those previously recorded in 2016 and 2018. The three most abundant fauna in 2020 were *Bathyporeia sarsi, Peringia ulvae* and *Corophium volutator,* all of which were highly abundant in datasets from the previous years.
- Total faunal abundance and diversity along the cable route in 2018 were lower than along the control transects. In 2020 however, both abundance and diversity along the cable route were between that of the southern and northern control transects, indicating recovery along the cable route.
- As was also the case in 2016, taxa belonging to the major group Crustacea were the single largest contributor to abundance in 2020. Annelida was found to be the highest contributor to diversity in 2020 while Crustacea contributed most taxa to this metric in 2016.
- As was observed in 2016, zonation in the distribution of *Lanice conchilega* tubes and *Arenicola marina* casts was recorded within the quadrat samples of Pegwell Bay in 2020. *A. marina* were largely concentrated across the mid and high shore while *L. conchilega* were most present across the low shore. Abundance of casts/tubes for each species was higher post-construction than pre-construction following a large uptick in population in 2018.

- Abundance of *A. marina* and *L. conchilega* was lower in 2020 than in 2018 though due to the high abundance of both species observed during the year-one survey, it is concluded that this is not likely to be attributable to the cable burial.
- Six distinct faunal groups were identified in 2020 with three outlier stations. The largest group in 2020 was assigned to 17 stations; stations in this group were sampled from the Folk sediment group muddy Sand and were characterised by *T. lilljeborgi, P. elegans* and the annelid *Scoloplos armiger* amongst others. Five faunal groups were identified in 2016 while four were identified in 2018. The distribution of the groups was similar in all survey years, with zonation of communities according to shore height being a consistent feature.
- Comparable to 2016 and 2018, no species of conservation interest or instances of Invasive Non-Native Species were recorded in samples collected at Pegwell Bay in 2020.
- A total of four biotope complexes and saltmarsh habitat were recorded at Pegwell Bay in 2020 compared to five in 2016 and three in 2018. The biotope with the largest coverage within the study area in 2020 was A2.245 '*Lanice conchilega* in littoral sand' which was also recorded along the lower shore in both 2016 and 2018.
- Saltmarsh habitat was recorded the landward edge of the foreshore in 2016, 2018 and 2020. This habitat was characterised by a terrestrial environment and mud, though the fringes were influenced by sand and large patches of shell fragments. Saltmarsh plants including *Spartina* sp. and *Salicornia* sp. were abundant, and pools of standing water typical of saltmarsh environments were frequent.

**Environmental Statement Predictions**

- As per the predictions in the Environmental Statement (PMSS, 2013), following an initial decrease in abundance and diversity in 2018, intertidal communities have been resilient to the physical disturbance resulting from the burial of the cable in 2017. Natural tolerance coupled with fast natural recruitment has resulted in a rapid recovery of faunal communities in 2020.
- Data collected during the year-one and year-three post-construction surveys showed that the loss of intertidal fauna was localised and temporary, and by 2020 faunal communities and habitats present along the cable route reflect those seen during the baseline survey.

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# 7. Appendices

**Appendix 1** – Summary of field notes and positions for the Pegwell Bay Phase II stations in 2020.

**Appendix 2** – Table summarising the sediment particle size analysis (PSA) undertaken for samples collected at Pegwell Bay in 2020.

**Appendix 3** – Table summarising the percentage of major sediment fractions of PSA samples collected during the 2020 intertidal survey of Pegwell Bay.

**Appendix 4** – Table summarising the abundance of macrofauna identified in Phase II samples collected during the 2020 intertidal survey of Pegwell Bay.

**Appendix 5** – Table summarising the abundance and species diversity of each Phase II sample collected during the 2020 intertidal survey of Pegwell Bay.

**Appendix 6** – Summary of Phase I quadrats sampled during the 2020 intertidal survey of Pegwell Bay.

**Appendix Plate 1 –** Pegwell Bay Phase II sampling station photographs 2020.

**Appendix Plate 2 –** Pegwell Bay Phase I Quadrats photographs 2020.

**Appendix 1.** Summarising the field notes & positions for the Phase II stations sampled during the Pegwell Bay intertidal survey in 2020. Navigational positions are recorded in WGS1984 UTM31N. Please note that the transect numbers given to the original transect stations in 2016 and to the stations in 2018 & 2020 were different. I.e. the central transect was referred to as T1 in 2016 but as T2 in 2018 and 2020 under the revised survey design.

| Sample | Date | Time | Position fix | Easting | Northing | Anoxic Layer Depth (cm) | Sediment Description | Comments |
|---|---|---|---|---|---|---|---|---|
| T1 HA1 | 06/08/2020 | 17:06:00 | T1_HA1_EM | 386213.58 | 5687137.48 | - | M | BR traced edge of saltmarsh - Fix 100-101. Mud with saltmarsh plants - terrestrial rather than intertidal. Numerous empty *C. edule* shells. Saltmarsh habitat. *Peringia ulvae* and *Littorina* present. |
| T2 HA1 | 06/08/2020 | 17:58:00 | T2_HA1_EM | 386203.27 | 5687122.02 | 3 | M | Mud with saltmarsh plants - terrestrial rather than intertidal. Numerous empty *C. edule* shells. Saltmarsh habitat. *P. ulvae* present. Layer of mud overlying earth deeper than at T1_HA1. |
| T3 HA1 | 06/08/2020 | 18:04:00 | T3_HA1_EM | 386188.24 | 5687104.44 | - | M | Sample taken from pond in saltmarsh. C. edule shells present, *P. ulvae* abundant. |
| T1 H1 | 06/08/2020 | 18:26:00 | T1_H1_EM | 386231.10 | 5687097.70 | - | sM/M | Station at edge of saltmarsh habitat - small stream of run off water flowing over station from saltmarsh in to intertidal region. Colonizing *Spartina* sp. present. *P. ulvae, Flustra* and *L. littorina* present. Some red weed present in streams of water. Oyster catchers feeding on flats nearby. |
| T2 H1 | 06/08/2020 | 18:36:00 | T2_H1_EM | 386217.30 | 5687079.10 | 3 | M | Layer of mud overlying earth.Station at edge of saltmarsh habitat - run off water flowing over station from saltmarsh in to intertidal region. Colonizing Spartina sp. present. *P. ulvae* and L. littorina present. Green and red weed present in streams of water. Empty *C. edule* shells. |
| T3 H1 | 06/08/2020 | 17:17:00 | T3_H1_EM | 386245.72 | 5687115.85 | 2 | sM/M | Station at edge of saltmarsh habitat - small stream of run off water flowing over station from saltmarsh in to intertidal region. Colonizing *Spartina* sp. present. *P. ulvae* and *L. littorina* present. |
| T1 HA2 | 06/08/2020 | 00:00:00 | T1_HA2_EM | 386293.20 | 5687097.97 | - | sM | *A. marina* casts and *Littorina* present. Mud and sand ripples. C. edule submerged in sand. Oxic sand. |
| T2 HA2 | 06/08/2020 | 18:55:00 | T2_HA2_EM | 386282.14 | 5687082.66 | - | sM | A. marina casts and P. ulvae present. Mud and sand ripples. Station waterlogged ~2cm water. |
| T3 HA2 | 06/08/2020 | 18:46:00 | T3_HA2_EM | 386268.57 | 5687065.05 | 3 | sM | *A. marina* casts present. *P. ulvae* and *Littorina* present. Green algae rare. Water overlying site in pools. Patches of soft mud frequent. |
| T1 H2 | 06/08/2020 | 19:17:00 | T1_H2_EM | 386333.81 | 5687067.94 | 6 | mS | Small sandy balls formed by crustacea on the surface of the sediment. *A. marina* casts and *C. edule* present. Small pools of overlying water common. No algae. |
| T2 H2 | 06/08/2020 | 19:26:00 | T2_H2_EM | 386318.08 | 5687050.15 | 10 | mS | *A. marina* casts and *C. edule* present. Site waterlogged ~2cm. |
| T3 H2 | 06/08/2020 | 19:10:00 | T3_H2_EM | 386345.96 | 5687084.25 | 3 | mS | Small sandy balls formed by crustacea on the surface of the sediment. *A. marina* casts and *C. edule* present. Small pools of overlying water common. No algae. |

| Sample | Date | Time | Position fix | Easting | Northing | Anoxic Layer Depth (cm) | Sediment Description | Comments |
|---|---|---|---|---|---|---|---|---|
| T1 HA3 | 06/08/2020 | 19:45:00 | T1_HA3_EM | 386410.32 | 5687066.24 | 5 | mS | *A. marina, C. edul* e and amphipods present. Occasional filamentour green weed. Station waterlogged ~2cm. |
| T2 HA3 | 06/08/2020 | 19:42:00 | T2_HA3_EM | 386399.11 | 5687051.24 | 5 | mS | *A. marina, C. edul* e and amphipods present. Occasional filamentour green weed. Station waterlogged ~2cm. |
| T3 HA3 | 06/08/2020 | 19:32:00 | T3_HA3 | 386387.92 | 5687030.80 | 4 | mS | *A. marina, C. edul* e and amphipods present. Occasional filamentour green weed. Station waterlogged ~2cm. |
| T1 H3 | 06/08/2020 | 06:22:00 | T1_H3 | 386452.25 | 5687036.60 | - | mS | *A. marina* casts, sand ripples, occasional *C. edule* shells, overlying water |
| T2 H3 | 06/08/2020 | 06:34:00 | T2_H3 | 386435.09 | 5687023.63 | - | mS | *A. marina* casts, sand ripples, occasional *C. edule* shells, overlying water |
| T3 H3 | 06/08/2020 | 06:10:00 | T3_H3 | 386467.53 | 5687052.73 | 2 | mS | *A. marina* casts, sand ripples, occasional *C. edule* shells |
| T1 LA1 | 06/08/2020 | 06:54:00 | T1_LA1_EM | 386532.99 | 5687034.25 | 2 | mS | *A. marina* casts, sand ripples, occasional *C. edule* shells, green weed |
| T2 LA1 | 06/08/2020 | 06:48:00 | T2_LA1_EM | 386523.67 | 5687016.33 | 2 | mS | *A. marina* casts, sand ripples, occasional *C. edule* shells, green weed (photo) |
| T3 LA1 | 06/08/2020 | 06:41:00 | T3_LA1_EM | 386505.90 | 5687000.81 | 2 | mS | *A. marina* casts, sand ripples, occasional *C. edule* shells |
| T1 L1 | 07/08/2020 | 06:40:00 | T1_L1_EM | 386607.92 | 5686996.21 | 8 | S | *A. marina* casts present, some small *L. conchilega* tubes. Sand ripples. Station waterlogged 1-2cm water. Green filamentous algae occasional. |
| T2 L1 | 07/08/2020 | 06:33:00 | T2_L1_EM | 386591.45 | 5686976.44 | 8 | S | *A. marina* casts present, some small *L. conchilega* tubes. Sand ripples. Station waterlogged 1-2cm water. Green filamentous algae occasional. |
| T3 L1 | 07/08/2020 | 06:47:00 | T3_L1_EM | 386625.33 | 5687007.95 | 8 | S | *A. marina* casts present, some small *L. conchilega* tubes. Sand ripples. Station waterlogged 1-2cm water. Green filamentous algae occasional. Submerged *C. edule* . |
| T1 LA2 | 07/08/2020 | 06:25:00 | T1_LA2 | 386700.06 | 5686989.38 | 6 | S | *A. marina* casts common, submerged *C. edule* . Green filamentous weed and occasional red weed present. Station waterlogged 1-2cm water. Sand ripples. |
| T2 LA2 | 07/08/2020 | 06:19:00 | T2_LA2_EM | 386690.75 | 5686971.79 | 6 | S | *A. marina* casts common, submerged *C. edule* . Green filamentous weed and occasional red weed present. Station waterlogged 1-2cm water. Sand ripples. |
| T3 LA2 | 07/08/2020 | 06:12:00 | T3_LA2_EM | 386681.66 | 5686951.41 | 3 | S | *A. marina* casts common, submerged *C. edule* . Green filamentous weed present. Station waterlogged 1-2cm water. Sand ripples. |
| T1 L2 | 06/08/2020 | 11:23:00 | T1_L2_EM | 386795.92 | 5686942.31 | 3 | S | *A. marina* casts and *C. edule* present. Green algae present. |
| T2 L2 | 06/08/2020 | 11:28:00 | T2_L2_EM | 386782.08 | 5686925.04 | 2 | S | *A. marina* casts, *C. edule* , *Flustra* present. Green algae present, unattached red weed present. |
| T3 L2 | 06/08/2020 | 11:16:00 | T3_L2_EM | 386812.98 | 5686963.52 | 3 | S | *A. marina* casts and *C. edule* present. Green algae present. |
| T1 LA3 | 06/08/2020 | 11:09:00 | T1_LA3_EM | 386899.76 | 5686934.68 | 3 | S | *A. marina* casts and small *L. conchilega* tubes present, submerged *C. edule. Ulva lactuca* present. |
| T2 LA3 | 06/08/2020 | 11:02:00 | T2_LA3_EM | 386882.89 | 5686919.03 | 2 | S | *A. marina* casts and small *L. conchilega* tubes present, submerged *C. edule. Ulva lactuca* present. |
| T3 LA3 | 06/08/2020 | 10:54:00 | T3_LA3_EM | 386864.04 | 5686905.32 | 2 | S | *A. marina* casts and small *L. conchilega* tubes present, submerged *C. edule. Ulva lactuca* present. |

| Sample | Date | Time | Position fix | Easting | Northing | Anoxic Layer Depth (cm) | Sediment Description | Comments |
|---|---|---|---|---|---|---|---|---|
| T1 L3 | 06/08/2020 | 10:40:00 | T1_L3_EM | 386979.98 | 5686896.41 | 2 | S | *A. marina* casts present, some green weed. Sand ripples, station waterlogged (~3cm) |
| T2 L3 | 06/08/2020 | 10:45:00 | T2_L3 | 386962.25 | 5686879.33 | 2 | S | *A. marina* casts and small *L. conchilega* tubes present, submerged *C. edule*, some green weed. Sand ripples, station waterlogged (~3cm). |
| T3 L3 | 06/08/2020 | 10:31:00 | T3_L3_EM | 386995.71 | 5686910.97 | 2 | S | *A. marina* casts present, some green weed. Sand ripples, station waterlogged (~3cm) |
| T1 MA1 | 06/08/2020 | 10:01:00 | T1_MA1_EM | 387084.59 | 5686885.42 | 2 | S | *L. conchilega* tubes and *A. marina* casts occasional, occasional *C. edule*. *L. conchilega* tubes smaller than lower down the shoreline. Station waterlogged, sand ripples present. Green algae present. Small *C. maenas* present. |
| T2 MA1 | 06/08/2020 | 09:53:00 | T2_MA1_EM | 387069.43 | 5686868.40 | 2 | S | L. conchilega tubes and A. marina casts occasional, occasional C. edule. L. conchilega tubes smaller than lower down the shoreline. Station waterlogged, sand ripples present. Green algae present. Small *C. maenas* present. |
| T3 MA1 | 06/08/2020 | 09:46:00 | T3_MA1_EM | 387058.54 | 5686851.84 | 1 | S | *L. conchilega* tubes and *A. marina* casts occasional, occasional *C. edule. L. conchilega* tubes smaller than lower down the shoreline. Station waterlogged, sand ripples present. Green algae present. |
| T1 M1 | 06/08/2020 | 09:03:00 | T1_M1_EM | 387163.20 | 5686846.75 | 3 | S | Occasional A. marina casts, *C. edule* submerged. Green weed common. Station waterlogged (~3cm) |
| T2 M1 | 06/08/2020 | 09:09:00 | T2_M1_EM | 387147.72 | 5686827.51 | 3 | S | Occasional A. marina casts, *C. edule* submerged. Green weed common. Station waterlogged (~3cm) |
| T3 M1 | 06/08/2020 | 08:55:00 | T3_M1_EM | 387185.46 | 5686857.05 | 3 | S | Occasional A. marina casts, *C. edule* submerged. Green weed common. Station waterlogged (~3cm) |
| T1 MA2 | 06/08/2020 | 07:26:00 | T1_MA2_EM | 387306.13 | 5686812.78 | - | S | *L. conchilega* and *A. marina* casts present, *Ulva intestinalis* present. |
| T2 MA2 | 06/08/2020 | 07:20:00 | T2_MA2_EM | 387296.78 | 5686796.63 | 2 | S | *L. conchilega* and *A. marina* casts present, *Ulva intestinalis* present. |
| T3 MA2 | 06/08/2020 | 07:11:00 | T3_MA2_EM | 387288.32 | 5686776.79 | - | S | Numerous *L. conchilega* tubes, occasional *A. marina* casts, some green filamentous weed, rare red weed |
| T1 M2 | 06/08/2020 | 07:40:00 | T1_M2_EM | 387417.38 | 5686749.03 | - | S | *L. conchilega* tubes abundant, *U. intestinalis* present, rare red weed. |
| T2 M2 | 06/08/2020 | 07:46:00 | T2_M2_EM | 387398.80 | 5686734.86 | - | S | *L. conchilega* tubes abundant, *U. intestinalis* present, rare red weed, *C. edule* present. |
| T3 M2 | 06/08/2020 | 07:35:00 | T3_M2_EM | 387433.38 | 5686760.36 | - | S | *L. conchilega* tubes abundant, *U. intestinalis* present, rare red weed. |
| T1 MA3 | 06/08/2020 | 07:10:00 | T1_MA3_EM | 387559.35 | 5686712.75 | 2 | S | Abundant *L. conchilega* tubes, rare hydroids, *C. edule* present. Some green and red weed present, substrate waterlogged. |
| T2 MA3 | 06/08/2020 | 08:02:00 | T2_MA3_EM | 387544.43 | 5686696.61 | 2 | S | Abundant *L. conchilega* tubes, rare hydroids, *C. edule* present. Some green and red weed present, substrate waterlogged. |
| T3 MA3 | 06/08/2020 | 07:54:00 | T3_MA3_EM | 387526.06 | 5686682.55 | - | S | Abundant *L. conchilega* tubes, rare hydroids, *C. edule* present. Some green and red weed present, substrate waterlogged. |
| T1 M3 | 06/08/2020 | 08:24:00 | T1_M3_EM | 387677.43 | 5686645.63 | 2 | S | Occasional *L. conchilega* and *A. marina*, some green weed present. Submerged *C. edule*, some pools of water nearby. |

| Sample | Date | Time | Position fix | Easting | Northing | Anoxic Layer Depth (cm) | Sediment Description | Comments |
|---|---|---|---|---|---|---|---|---|
| T2 M3 | 06/08/2020 | 08:31:00 | T2_M3_EM | 387659.19 | 5686630.79 | - | S | Abundantl *L. conchilega* , some green and red weed present. Submerged *C. edule* , some pools of water nearby. |
| T3 M3 | 06/08/2020 | 08:17:00 | T3_M3_EM | 387692.61 | 5686657.42 | 1 | S | Rare *L. conchilega* tubes and occasional *A. marina* casts, rare green and red weed. Lots of seabirds nearby including oyster catchers and gulls. Station located on a mini sandbank surrounded by waterlogged sediment. |

**Appendix 2.** Table summarising the findings of the particle size analysis (PSA) for samples collected at each Phase II station during the intertidal survey of Pegwell Bay in 2020.

| Sample | Sieve Aperture (µm) | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | >63000 | 45000 to 63000 | 31500 to 45000 | 22400 to 31500 | 16000 to 22400 | 11200 to 16000 | 8000 to 11200 | 5600 to 8000 | 4000 to 5600 | 2800 to 4000 | 2000 to 2800 | 1400 to 2000 | 1000 to 1400 | 710 to 1000 | 500 to 710 | 355 to 500 | 250 to 355 | 180 to 250 | 125 to 180 | 90 to 125 | 63 to 90 | <63 |
| T2 HA1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.04 | 0.20 | 0.16 | 0.20 | 0.20 | 0.31 | 0.47 | 0.51 | 0.31 | 0.31 | 0.63 | 12.97 | 83.62 |
| T2 HA2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.04 | 0.04 | 0.04 | 0.49 | 3.94 | 1.16 | 2.64 | 66.77 | 24.82 |
| T2 HA3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.40 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.51 | 11.38 | 7.23 | 12.71 | 59.61 | 8.11 |
| T2 MA1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.13 | 2.20 | 27.95 | 50.68 | 16.07 | 2.84 |
| T2 MA2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.00 | 0.00 | 0.05 | 0.05 | 0.10 | 1.97 | 30.72 | 48.35 | 16.03 | 2.68 |
| T2 MA3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.04 | 0.04 | 0.04 | 0.08 | 0.11 | 0.53 | 4.71 | 48.08 | 33.22 | 10.07 | 3.04 |
| T2 LA1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.35 | 6.12 | 16.28 | 28.17 | 43.75 | 5.30 |
| T2 LA2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.30 | 5.13 | 64.01 | 20.37 | 8.69 | 1.46 |
| T2 LA3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.09 | 0.26 | 2.64 | 40.08 | 45.53 | 9.25 | 2.11 |
| T3 HA1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.20 | 0.13 | 0.07 | 0.07 | 0.07 | 0.13 | 0.20 | 0.27 | 0.47 | 8.24 | 90.03 |
| T3 HA2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.03 | 0.08 | 0.86 | 6.19 | 1.34 | 3.18 | 61.24 | 27.04 |
| T3 HA3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.20 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 | 0.07 | 0.73 | 15.61 | 9.96 | 10.96 | 54.39 | 7.96 |
| T3 MA1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.04 | 0.08 | 0.21 | 2.63 | 28.09 | 49.97 | 15.68 | 3.24 |
| T3 MA2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 | 0.09 | 0.09 | 0.09 | 0.24 | 2.32 | 32.22 | 45.89 | 15.80 | 3.12 |
| T3 MA3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.10 | 0.05 | 0.10 | 0.31 | 3.01 | 40.39 | 38.01 | 14.21 | 3.81 |
| T3 LA1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.04 | 0.09 | 0.44 | 7.88 | 19.22 | 27.32 | 40.81 | 4.16 |
| T3 LA2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.18 | 5.07 | 68.91 | 18.10 | 6.68 | 1.02 |
| T3 LA3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.30 | 2.90 | 41.93 | 44.32 | 8.92 | 1.58 |
| T1 HA1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.49 | 0.26 | 0.17 | 0.29 | 0.40 | 0.43 | 0.40 | 0.31 | 0.46 | 0.80 | 10.28 | 85.71 |
| T1 HA2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.04 | 0.39 | 4.15 | 1.07 | 1.97 | 66.34 | 26.00 |
| T1 HA3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.51 | 11.13 | 6.73 | 9.02 | 63.22 | 9.33 |
| T1 MA1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.04 | 0.00 | 0.00 | 0.00 | 0.04 | 0.11 | 0.32 | 2.92 | 32.17 | 47.27 | 14.09 | 2.97 |
| T1 MA2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.12 | 1.68 | 29.65 | 49.03 | 16.69 | 2.77 |
| T1 MA3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.11 | 0.51 | 4.40 | 46.87 | 34.91 | 10.04 | 3.10 |
| T1 LA1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.32 | 4.95 | 10.69 | 32.85 | 45.83 | 5.25 |
| T1 LA2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.09 | 0.38 | 5.88 | 62.40 | 19.60 | 10.11 | 1.53 |
| T1 LA3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.00 | 0.00 | 0.04 | 0.30 | 3.18 | 41.30 | 45.40 | 8.32 | 1.41 |
| T1 H1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 1.01 | 0.00 | 0.27 | 0.30 | 0.25 | 0.15 | 0.20 | 0.24 | 0.27 | 0.46 | 0.74 | 2.62 | 16.47 | 3.45 | 1.37 | 24.58 | 47.61 |
| T1 H2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.44 | 4.58 | 1.69 | 6.21 | 70.09 | 16.94 |
| T1 H3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.38 | 7.89 | 10.12 | 21.96 | 53.39 | 6.15 |
| T1 M1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.05 | 0.00 | 0.05 | 0.10 | 0.31 | 2.84 | 31.99 | 46.57 | 15.09 | 2.94 |
| T1 M2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.08 | 0.04 | 0.04 | 0.04 | 0.08 | 0.12 | 0.32 | 2.75 | 35.68 | 43.26 | 13.77 | 3.81 |
| T1 M3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.07 | 0.17 | 2.47 | 40.12 | 42.83 | 11.39 | 2.92 |
| T1 L1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.07 | 0.41 | 7.01 | 35.45 | 24.86 | 29.03 | 3.13 |
| T1 L2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.83 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.07 | 0.28 | 3.67 | 61.86 | 26.67 | 5.33 | 1.25 |
| T1 L3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.03 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.03 | 0.07 | 0.23 | 2.41 | 30.24 | 50.94 | 13.54 | 2.46 |
| T2 H1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.13 | 0.00 | 0.06 | 0.13 | 0.06 | 0.06 | 0.13 | 0.38 | 1.91 | 0.83 | 0.83 | 14.89 | 80.59 |
| T2 H2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.09 | 0.77 | 10.92 | 2.99 | 5.67 | 63.75 | 15.78 |
| T2 H3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.06 | 0.31 | 8.10 | 10.64 | 18.18 | 54.92 | 7.73 |
| T2 M1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.29 | 0.04 | 0.00 | 0.00 | 0.04 | 0.04 | 0.04 | 0.07 | 0.33 | 2.64 | 30.53 | 47.37 | 15.50 | 3.11 |
| T2 M2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.00 | 0.05 | 0.05 | 0.05 | 0.05 | 0.10 | 0.20 | 2.36 | 35.18 | 43.30 | 14.94 | 3.67 |
| T2 M3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.11 | 0.04 | 0.07 | 0.00 | 0.00 | 0.04 | 0.04 | 0.04 | 0.11 | 1.51 | 32.26 | 49.07 | 13.12 | 3.62 |
| T2 L1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.46 | 6.15 | 38.36 | 25.67 | 26.80 | 2.52 |
| T2 L2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.26 | 3.20 | 62.31 | 27.38 | 5.63 | 1.16 |
| T2 L3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.04 | 0.07 | 0.21 | 2.71 | 31.86 | 50.02 | 13.03 | 2.06 |
| T3 H1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.56 | 0.02 | 0.11 | 0.07 | 0.04 | 0.09 | 0.04 | 0.11 | 0.69 | 6.09 | 1.81 | 1.43 | 34.93 | 54.01 |
| T3 H2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.10 | 0.55 | 6.96 | 1.89 | 4.82 | 66.42 | 19.22 |
| T3 H3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.11 | 0.43 | 9.42 | 10.17 | 14.86 | 56.79 | 8.17 |
| T3 M1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.22 | 2.76 | 35.66 | 45.84 | 13.44 | 2.03 |
| T3 M2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.06 | 0.06 | 0.06 | 0.11 | 0.28 | 2.56 | 33.14 | 46.27 | 14.55 | 2.92 |
| T3 M3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.14 | 0.09 | 0.05 | 0.09 | 0.47 | 2.67 | 31.82 | 47.02 | 13.05 | 4.60 |
| T3 L1 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.39 | 6.77 | 33.17 | 25.42 | 31.40 | 2.80 |
| T3 L2 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.07 | 0.00 | 0.03 | 0.00 | 0.00 | 0.00 | 0.03 | 0.35 | 3.72 | 66.95 | 22.86 | 4.66 | 1.32 |
| T3 L3 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.05 | 0.05 | 0.32 | 2.63 | 30.33 | 50.63 | 13.53 | 2.46 |

**Appendix 3.** Table summarising the percentage fractions of gravel (≥2mm), sand (<2mm-0.063mm) and silt (<0.063mm) at each of the Phase II stations, along with assigned Folk category during the 2020 intertidal survey of Pegwell Bay.

| Sample | % Gravel | % Sand | % Mud | Folk |
|---|---|---|---|---|
| T2 HA1 | 0.31 | 16.07 | 83.62 | sM |
| T2 HA2 | 0.00 | 75.18 | 24.82 | mS |
| T2 HA3 | 0.40 | 91.49 | 8.11 | S |
| T2 MA1 | 0.09 | 97.07 | 2.84 | S |
| T2 MA2 | 0.05 | 97.27 | 2.68 | S |
| T2 MA3 | 0.04 | 96.92 | 3.04 | S |
| T2 LA1 | 0.00 | 94.70 | 5.30 | S |
| T2 LA2 | 0.00 | 98.54 | 1.46 | S |
| T2 LA3 | 0.00 | 97.89 | 2.11 | S |
| T3 HA1 | 0.13 | 9.84 | 90.03 | M |
| T3 HA2 | 0.00 | 72.96 | 27.04 | mS |
| T3 HA3 | 0.20 | 91.84 | 7.96 | S |
| T3 MA1 | 0.00 | 96.76 | 3.24 | S |
| T3 MA2 | 0.00 | 96.88 | 3.12 | S |
| T3 MA3 | 0.00 | 96.19 | 3.81 | S |
| T3 LA1 | 0.00 | 95.84 | 4.16 | S |
| T3 LA2 | 0.00 | 98.98 | 1.02 | S |
| T3 LA3 | 0.00 | 98.42 | 1.58 | S |
| T1 HA1 | 0.49 | 13.80 | 85.71 | sM |
| T1 HA2 | 0.00 | 74.00 | 26.00 | mS |
| T1 HA3 | 0.00 | 90.67 | 9.33 | S |
| T1 MA1 | 0.11 | 96.92 | 2.97 | S |
| T1 MA2 | 0.00 | 97.23 | 2.77 | S |
| T1 MA3 | 0.00 | 96.90 | 3.10 | S |
| T1 LA1 | 0.00 | 94.75 | 5.25 | S |
| T1 LA2 | 0.00 | 98.47 | 1.53 | S |
| T1 LA3 | 0.00 | 98.59 | 1.41 | S |
| T1 H1 | 1.99 | 50.40 | 47.61 | (g)mS |
| T1 H2 | 0.00 | 83.06 | 16.94 | mS |
| T1 H3 | 0.00 | 93.85 | 6.15 | S |
| T1 M1 | 0.00 | 97.06 | 2.94 | S |
| T1 M2 | 0.08 | 96.11 | 3.81 | S |
| T1 M3 | 0.00 | 97.08 | 2.92 | S |
| T1 L1 | 0.00 | 96.87 | 3.13 | S |
| T1 L2 | 0.83 | 97.92 | 1.25 | S |
| T1 L3 | 0.08 | 97.46 | 2.46 | S |
| T2 H1 | 0.13 | 19.29 | 80.59 | sM |
| T2 H2 | 0.00 | 84.22 | 15.78 | mS |
| T2 H3 | 0.00 | 92.27 | 7.73 | S |
| T2 M1 | 0.33 | 96.56 | 3.11 | S |
| T2 M2 | 0.05 | 96.28 | 3.67 | S |
| T2 M3 | 0.22 | 96.16 | 3.62 | S |
| T2 L1 | 0.00 | 97.48 | 2.52 | S |
| T2 L2 | 0.00 | 98.84 | 1.16 | S |
| T2 L3 | 0.00 | 97.94 | 2.06 | S |

| Sample | % Gravel | % Sand | % Mud | Folk |
|---|---|---|---|---|
| T3 H1 | 0.69 | 45.30 | 54.01 | sM |
| T3 H2 | 0.00 | 80.78 | 19.22 | mS |
| T3 H3 | 0.00 | 91.83 | 8.17 | S |
| T3 M1 | 0.00 | 97.97 | 2.03 | S |
| T3 M2 | 0.00 | 97.08 | 2.92 | S |
| T3 M3 | 0.00 | 95.40 | 4.60 | S |
| T3 L1 | 0.00 | 97.20 | 2.80 | S |
| T3 L2 | 0.07 | 98.61 | 1.32 | S |
| T3 L3 | 0.0 | 97.54 | 2.46 | S |

**Appendix 4.** Table containing the faunal abundance within thePhase II samples collected using a 0.01m$^2$ handheld corer during the 2020 Pegwell Bay survey.

| Taxon Name | T1 H1 | T1 H2 | T1 H3 | T1 HA1 | T1 HA2 | T1 HA3 | T1 L1 | T1 L2 | T1 L3 | T1 LA1 | T1 LA2 | T1 LA3 | T1 M1 | T1 M2 | T1 M3 | T1 MA1 | T1 MA2 | T1 MA3 | T2 H1 | T2 H2 | T2 H3 | T2 HA1 | T2 HA2 | T2 HA3 | T2 L1 | T2 L2 | T2 L3 | T2 LA1 | T2 LA2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Animalia (eggs) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| ACTINIARIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Abietinaria abietina* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nemertea | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nematoda | 2 | 6 | 6 | 0 | 13 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 4 | 1 | 0 | 1 | 5 | 3 | 8 | 0 | 1 | 6 | 0 | 0 | 0 | 4 | 0 |
| *Phyllodoce maculata* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Eteone longa* (aggregate) | 0 | 1 | 0 | 0 | 0 | 1 | 3 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 0 | 1 | 3 | 3 | 0 | 0 | 2 | 1 |
| *Eulalia* (Eumida) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nereididae (juvenile) | 8 | 4 | 5 | 0 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 32 | 0 | 6 | 0 | 0 | 0 | 0 | 0 |
| *Hediste diversicolor* | 4 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 19 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Nephtys* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Nephtys cirrosa* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 |
| *Nephtys hombergii* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Paraonidae | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Scoloplos armiger* | 0 | 4 | 5 | 0 | 1 | 1 | 11 | 6 | 6 | 7 | 9 | 3 | 3 | 6 | 3 | 8 | 3 | 1 | 0 | 0 | 8 | 0 | 0 | 4 | 13 | 4 | 2 | 9 | 12 |
| Spionidae | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| *Pygospio elegans* | 0 | 2 | 10 | 0 | 2 | 18 | 7 | 9 | 6 | 8 | 4 | 8 | 12 | 2 | 0 | 13 | 3 | 0 | 21 | 5 | 24 | 4 | 12 | 17 | 4 | 3 | 14 | 8 | 0 |
| *Spio* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Spio armata* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Spio martinensis* | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 1 | 1 | 2 | 2 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 2 | 0 |
| *Spio symphyta* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Spiophanes bombyx* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 2 | 0 | 0 | 1 | 0 | 2 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 |
| *Streblospio* | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| *Magelona* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Magelona filiformis* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Tharyx* Type A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Psammodrilus balanoglossoides* | 1 | 0 | 2 | 0 | 1 | 0 | 0 | 1 | 0 | 1 | 45 | 4 | 0 | 0 | 1 | 2 | 1 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 18 | 0 | 2 |
| *Capitella* | 0 | 3 | 0 | 0 | 2 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 1 | 0 | 2 | 2 | 0 | 0 | 0 | 0 | 0 |
| *Lanice conchilega* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Manayunkia* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 50 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| *Monopylephorus irroratus* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Enchytraeidae | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 73 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Taxon Name | T1 H1 | T1 H2 | T1 H3 | T1 HA1 | T1 HA2 | T1 HA3 | T1 L1 | T1 L2 | T1 L3 | T1 LA1 | T1 LA2 | T1 LA3 | T1 M1 | T1 M2 | T1 M3 | T1 MA1 | T1 MA2 | T1 MA3 | T2 H1 | T2 H2 | T2 H3 | T2 HA1 | T2 HA2 | T2 HA3 | T2 L1 | T2 L2 | T2 L3 | T2 LA1 | T2 LA2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Baltidrilus costatus* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 34 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Tubificoides pseudogaster* (aggregate) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Achelia echinata* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Copepoda | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Ostracoda | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| *Urothoe poseidonis* | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 0 | 1 | 0 | 0 | 11 | 8 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 22 | 0 | 0 | 2 | 0 |
| *Bathyporeia* | 0 | 0 | 3 | 0 | 0 | 1 | 2 | 37 | 0 | 15 | 6 | 2 | 0 | 0 | 0 | 5 | 0 | 0 | 1 | 0 | 5 | 0 | 1 | 3 | 29 | 46 | 2 | 4 | 16 |
| *Bathyporeia pilosa* | 0 | 1 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Bathyporeia sarsi* | 0 | 2 | 106 | 0 | 0 | 56 | 62 | 168 | 8 | 166 | 188 | 0 | 4 | 3 | 0 | 20 | 2 | 1 | 0 | 13 | 17 | 0 | 0 | 189 | 189 | 105 | 72 | 16 | 102 |
| Gammaridae (juvenile) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Gammarus locusta* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Corophiidae | 0 | 36 | 1 | 0 | 1 | 5 | 0 | 1 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 2 | 0 | 4 | 0 | 0 | 0 | 0 | 1 | 0 |
| *Corophium arenarium* | 0 | 241 | 0 | 0 | 6 | 70 | 1 | 0 | 0 | 23 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 116 | 8 | 0 | 34 | 22 | 4 | 0 | 0 | 12 | 0 |
| *Corophium volutator* | 0 | 159 | 12 | 0 | 2 | 24 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 164 | 14 | 1 | 17 | 38 | 1 | 1 | 0 | 5 | 0 |
| *Crassicorophium crassicorne* | 0 | 0 | 10 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Notoropis guttatus* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Nototropis swammerdamei* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Cyathura carinata* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| Cirolanidae | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Lekanesphaera rugicauda* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Tanaissus lilljeborgi* | 0 | 15 | 0 | 0 | 6 | 0 | 11 | 28 | 6 | 0 | 21 | 56 | 35 | 40 | 4 | 8 | 50 | 1 | 0 | 0 | 2 | 0 | 2 | 0 | 32 | 11 | 40 | 0 | 20 |
| *Cumopsis goodsir* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 0 | 1 | 6 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 0 | 0 |
| Decapoda (juvenile) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Decapoda (megalopa) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Crangonidae | 0 | 0 | 0 | 0 | 0 | p | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Crangon crangon* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Carcinus maenas* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| Insecta (larvae) | 1 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 8 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Peringia ulvae* | 850 | 4 | 13 | 118 | 60 | 12 | 3 | 4 | 1 | 6 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 74 | 31 | 10 | 177 | 64 | 17 | 6 | 1 | 1 | 3 | 3 |
| *Mytilus edulis* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cardiidae (juvenile) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 |
| *Cerastoderma edule* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 7 | 0 | 1 | 3 | 3 | 3 | 5 | 0 | 0 | 2 | 0 | 1 | 0 | 1 | 2 | 4 | 0 | 1 |
| *Kurtiella bidentata* | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Fabulina fabula* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Limecola balthica* | 2 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 1 | 0 | 0 | 0 | 1 | 0 |

| Taxon Name | T1 H1 | T1 H2 | T1 H3 | T1 HA1 | T1 HA2 | T1 HA3 | T1 L1 | T1 L2 | T1 L3 | T1 LA1 | T1 LA2 | T1 LA3 | T1 M1 | T1 M2 | T1 M3 | T1 MA1 | T1 MA2 | T1 MA3 | T2 H1 | T2 H2 | T2 H3 | T2 HA1 | T2 HA2 | T2 HA3 | T2 L1 | T2 L2 | T2 L3 | T2 LA1 | T2 LA2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Scrobicularia plana* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Abra tenuis* | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Flustra foliacea* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Sertularia* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Collembola* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 16 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Taxon Name | T2 LA3 | T2 M1 | T2 M2 | T2 M3 | T2 MA1 | T2 MA2 | T2 MA3 | T3 H1 | T3 H2 | T3 H3 | T3 HA1 | T3 HA2 | T3 HA3 | T3 L1 | T3 L2 | T3 L3 | T3 LA1 | T3 LA2 | T3 LA3 | T3 M1 | T3 M2 | T3 M3 | T3 MA1 | T3 MA2 | T3 MA3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Animalia (eggs) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | p | 0 | 0 | 0 | 0 | p |
| ACTINIARIA | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Abietinaria abietina* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | p |
| Nemertea | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nematoda | 1 | 0 | 0 | 3 | 1 | 0 | 0 | 2 | 2 | 1 | 11 | 6 | 4 | 0 | 0 | 0 | 5 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 |
| *Phyllodoce maculata* | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Eteone longa* (aggregate) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 2 | 1 | 1 | 0 | 0 | 5 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Eulalia* (Eumida) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Nereididae (juvenile) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 9 | 6 | 4 | 10 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Hediste diversicolor* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Nephtys* | 0 | p | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | p | 0 | 0 | 0 | 0 | p |
| *Nephtys cirrosa* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Nephtys hombergii* | 0 | 0 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| Paraonidae | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Scoloplos armiger* | 2 | 8 | 1 | 1 | 1 | 5 | 3 | 0 | 1 | 11 | 0 | 1 | 3 | 5 | 1 | 2 | 7 | 3 | 1 | 3 | 5 | 1 | 3 | 4 | 3 |
| Spionidae | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Pygospio elegans* | 9 | 9 | 1 | 1 | 10 | 0 | 5 | 0 | 30 | 11 | 0 | 7 | 9 | 4 | 2 | 6 | 12 | 6 | 6 | 13 | 1 | 3 | 5 | 10 | 0 |
| *Spio* | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Spio armata* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Spio martinensis* | 1 | 6 | 2 | 0 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 4 | 1 | 0 | 2 | 0 | 1 | 2 | 1 | 3 | 2 | 2 | 4 |
| *Spio symphyta* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Spiophanes bombyx* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 1 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 |
| *Streblospio* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Magelona* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Magelona filiformis* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Tharyx* Type A | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Psammodrilus balanoglossoides* | 8 | 2 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 23 | 23 | 1 | 2 | 104 | 8 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Capitella* | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 12 | 4 | 3 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| *Lanice conchilega* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| *Manayunkia* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 18 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Monopylephorus irroratus* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 7 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Enchytraeidae | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 12 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Taxon Name | T2 LA3 | T2 M1 | T2 M2 | T2 M3 | T2 MA1 | T2 MA2 | T2 MA3 | T3 H1 | T3 H2 | T3 H3 | T3 HA1 | T3 HA2 | T3 HA3 | T3 L1 | T3 L2 | T3 L3 | T3 LA1 | T3 LA2 | T3 LA3 | T3 M1 | T3 M2 | T3 M3 | T3 MA1 | T3 MA2 | T3 MA3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Baltidrilus costatus* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Tubificoides pseudogaster* (aggregate) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| *Achelia echinata* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| Copepoda | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| Ostracoda | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 |
| *Urothoe poseidonis* | 7 | 0 | 0 | 0 | 0 | 2 | 5 | 0 | 0 | 0 | 0 | 0 | 1 | 10 | 0 | 0 | 1 | 6 | 0 | 3 | 1 | 0 | 0 | 2 | 0 |
| *Bathyporeia* | 13 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 2 | 1 | 0 | 6 | 1 | 10 | 1 | 10 | 1 | 16 | 0 | 0 | 0 | 4 | 0 | 0 |
| *Bathyporeia pilosa* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 5 | 0 | 0 | 4 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 |
| *Bathyporeia sarsi* | 173 | 9 | 1 | 0 | 8 | 3 | 2 | 1 | 11 | 44 | 1 | 0 | 116 | 128 | 194 | 8 | 173 | 194 | 104 | 5 | 0 | 0 | 41 | 4 | 0 |
| Gammaridae (juvenile) | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 |
| *Gammarus locusta* | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Corophiidae | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 10 | 0 | 1 | 45 | 0 | 0 | 0 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Corophium arenarium* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 3 | 0 | 147 | 11 | 0 | 0 | 0 | 21 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Corophium volutator* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 233 | 5 | 1 | 276 | 24 | 5 | 0 | 0 | 5 | 3 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |
| *Crassicorophium crassicorne* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 165 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Notoropis guttatus* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Nototropis swammerdamei* | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| *Cyathura carinata* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 0 | 0 | 1 | 0 | 0 | 0 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cirolanidae | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Lekanesphaera rugicauda* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Tanaissus lilljeborgi* | 74 | 16 | 16 | 3 | 37 | 38 | 4 | 0 | 1 | 1 | 0 | 0 | 2 | 22 | 21 | 35 | 8 | 23 | 34 | 109 | 3 | 6 | 23 | 71 | 1 |
| *Cumopsis goodsir* | 2 | 1 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 2 | 0 | 2 | 0 | 2 | 2 | 0 | 0 |
| Decapoda (juvenile) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Decapoda (megalopa) | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Crangonidae | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Crangon crangon* | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 |
| *Carcinus maenas* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Insecta (larvae) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Peringia ulvae* | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 630 | 4 | 13 | 479 | 43 | 19 | 5 | 4 | 1 | 5 | 7 | 3 | 0 | 0 | 0 | 0 | 1 | 0 |
| *Mytilus edulis* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Cardiidae (juvenile) | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 |
| *Cerastoderma edule* | 2 | 1 | 3 | 7 | 3 | 2 | 2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 2 | 2 | 1 | 0 | 1 | 1 | 2 | 2 | 1 | 2 |
| *Kurtiella bidentata* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Fabulina fabula* | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Limecola balthica* | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 1 | 0 | 3 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

| Taxon Name | T2 LA3 | T2 M1 | T2 M2 | T2 M3 | T2 MA1 | T2 MA2 | T2 MA3 | T3 H1 | T3 H2 | T3 H3 | T3 HA1 | T3 HA2 | T3 HA3 | T3 L1 | T3 L2 | T3 L3 | T3 LA1 | T3 LA2 | T3 LA3 | T3 M1 | T3 M2 | T3 M3 | T3 MA1 | T3 MA2 | T3 MA3 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| *Scrobicularia plana* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Abra tenuis* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Flustra foliacea* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | p | 0 |
| *Sertularia* | 0 | 0 | 0 | p | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| *Collembola* | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 0 |

**Appendix 5.** Table containing the faunal abundance and diversity within the Phase II samples collected using a 0.01m$^2$ handheld corer during the 2020 intertidal Pegwell Bay survey.

| Sample | Abundance | Diversity |
|---|---|---|
| T1 H1 | 877 | 14 |
| T1 H2 | 479 | 14 |
| T1 H3 | 175 | 13 |
| T1 HA1 | 123 | 4 |
| T1 HA2 | 99 | 13 |
| T1 HA3 | 199 | 13 |
| T1 L1 | 118 | 15 |
| T1 L2 | 258 | 12 |
| T1 L3 | 38 | 11 |
| T1 LA1 | 231 | 10 |
| T1 LA2 | 278 | 10 |
| T1 LA3 | 91 | 10 |
| T1 M1 | 61 | 10 |
| T1 M2 | 69 | 11 |
| T1 M3 | 28 | 10 |
| T1 MA1 | 66 | 12 |
| T1 MA2 | 69 | 8 |
| T1 MA3 | 11 | 7 |
| T2 H1 | 204 | 11 |
| T2 H2 | 359 | 12 |
| T2 H3 | 107 | 16 |
| T2 HA1 | 353 | 13 |
| T2 HA2 | 145 | 15 |
| T2 HA3 | 316 | 19 |
| T2 L1 | 323 | 13 |
| T2 L2 | 179 | 13 |
| T2 L3 | 159 | 12 |
| T2 LA1 | 69 | 13 |
| T2 LA2 | 158 | 9 |
| T2 LA3 | 294 | 13 |
| T2 M1 | 54 | 10 |
| T2 M2 | 35 | 14 |
| T2 M3 | 18 | 8 |
| T2 MA1 | 67 | 11 |
| T2 MA2 | 52 | 7 |
| T2 MA3 | 26 | 11 |
| T3 H1 | 636 | 5 |
| T3 H2 | 476 | 20 |
| T3 H3 | 113 | 19 |
| T3 HA1 | 539 | 12 |
| T3 HA2 | 555 | 14 |
| T3 HA3 | 209 | 16 |

| Sample | Abundance | Diversity |
|---|---|---|
| T3 L1 | 214 | 14 |
| T3 L2 | 261 | 12 |
| T3 L3 | 59 | 10 |
| T3 LA1 | 268 | 19 |
| T3 LA2 | 352 | 13 |
| T3 LA3 | 175 | 10 |
| T3 M1 | 142 | 11 |
| T3 M2 | 15 | 9 |
| T3 M3 | 18 | 7 |
| T3 MA1 | 83 | 9 |
| T3 MA2 | 101 | 14 |
| T3 MA3 | 26 | 15 |

**Appendix 6.** Table of counts of *A. marina* and *L. conchilega* within the 1m$^2$ quadrats samples at each of the Phase II stations during the intertidal survey of Pegwell Bay in 2020.

| Sample | *Arenicola marina* casts | *Lanice conchilega* tubes |
|---|---|---|
| T1 HA1 Q1 | 0 | 0 |
| T1 HA1 Q2 | 0 | 0 |
| T1 HA1 Q3 | 0 | 0 |
| T2 HA1 Q1 | 0 | 0 |
| T2 HA1 Q2 | 0 | 0 |
| T2 HA1 Q3 | 0 | 0 |
| T3 HA1 Q1 | 0 | 0 |
| T3 HA1 Q2 | 0 | 0 |
| T3 HA1 Q3 | 0 | 0 |
| T1 H1 Q1 | 0 | 0 |
| T1 H1 Q2 | 0 | 0 |
| T1 H1 Q3 | 0 | 0 |
| T2 H1 Q1 | 0 | 0 |
| T2 H1 Q2 | 0 | 0 |
| T2 H1 Q3 | 0 | 0 |
| T3 H1 Q1 | 0 | 0 |
| T3 H1 Q2 | 0 | 0 |
| T3 H1 Q3 | 0 | 0 |
| T1 HA2 Q1 | 84 | 0 |
| T1 HA2 Q2 | 75 | 0 |
| T1 HA2 Q3 | 66 | 0 |
| T2 HA2 Q1 | 91 | 0 |
| T2 HA2 Q2 | 109 | 0 |
| T2 HA2 Q3 | 101 | 0 |
| T3 HA2 Q1 | 28 | 96 |
| T3 HA2 Q2 | 82 | 0 |
| T3 HA2 Q3 | 101 | 0 |
| T1 H2 Q1 | 65 | 5 |
| T1 H2 Q2 | 47 | 2 |
| T1 H2 Q3 | 84 | 0 |
| T2 H2 Q1 | 66 | 11 |
| T2 H2 Q2 | 64 | 14 |
| T2 H2 Q3 | 70 | 4 |
| T3 H2 Q1 | 41 | 4 |
| T3 H2 Q2 | 24 | 0 |
| T3 H2 Q3 | 25 | 0 |
| T1 HA3 Q1 | 17 | 1 |
| T1 HA3 Q2 | 14 | 3 |
| T1 HA3 Q3 | 26 | 4 |
| T2 HA3 Q1 | 82 | 2 |
| T2 HA3 Q2 | 78 | 2 |
| T2 HA3 Q3 | 106 | 6 |
| T3 HA3 Q1 | 43 | 2 |
| T3 HA3 Q2 | 48 | 9 |
| T3 HA3 Q3 | 46 | 15 |
| T1 H3 Q1 | 33 | 0 |
| T1 H3 Q2 | 50 | 2 |
| T1 H3 Q3 | 55 | 2 |
| T2 H3 Q1 | 26 | 1 |
| T2 H3 Q2 | 24 | 8 |
| T2 H3 Q3 | 21 | 3 |
| T3 H3 Q1 | 7 | 18 |

| **Sample** | ***Arenicola marina* casts** | ***Lanice conchilega* tubes** |
|---|---|---|
| T3 H3 Q2 | 16 | 2 |
| T3 H3 Q3 | 9 | 2 |
| T1 LA1 Q1 | 11 | 0 |
| T1 LA1 Q2 | 9 | 0 |
| T1 LA1 Q3 | 16 | 0 |
| T2 LA1 Q1 | 96 | 0 |
| T2 LA1 Q2 | 64 | 0 |
| T2 LA1 Q3 | 66 | 0 |
| T3 LA1 Q1 | 20 | 0 |
| T3 LA1 Q2 | 22 | 2 |
| T3 LA1 Q3 | 13 | 3 |
| T1 L1 Q1 | 27 | 0 |
| T1 L1 Q2 | 21 | 0 |
| T1 L1 Q3 | 18 | 0 |
| T2 L1 Q1 | 8 | 0 |
| T2 L1 Q2 | 13 | 0 |
| T2 L1 Q3 | 18 | 0 |
| T3 L1 Q1 | 4 | 0 |
| T3 L1 Q2 | 16 | 2 |
| T3 L1 Q3 | 14 | 0 |
| T1 LA2 Q1 | 8 | 0 |
| T1 LA2 Q2 | 5 | 0 |
| T1 LA2 Q3 | 5 | 0 |
| T2 LA2 Q1 | 5 | 0 |
| T2 LA2 Q2 | 3 | 0 |
| T2 LA2 Q3 | 7 | 0 |
| T3 LA2 Q1 | 4 | 6 |
| T3 LA2 Q2 | 9 | 9 |
| T3 LA2 Q3 | 3 | 6 |
| T1 L2 Q1 | 14 | 0 |
| T1 L2 Q2 | 1 | 0 |
| T1 L2 Q3 | 8 | 0 |
| T2 L2 Q1 | 2 | 0 |
| T2 L2 Q2 | 0 | 0 |
| T2 L2 Q3 | 6 | 0 |
| T3 L2 Q1 | 6 | 0 |
| T3 L2 Q2 | 8 | 0 |
| T3 L2 Q3 | 10 | 0 |
| T1 LA3 Q1 | 9 | 0 |
| T1 LA3 Q2 | 16 | 1 |
| T1 LA3 Q3 | 8 | 0 |
| T2 LA3 Q1 | 8 | 0 |
| T2 LA3 Q2 | 4 | 0 |
| T2 LA3 Q3 | 3 | 0 |
| T3 LA3 Q1 | 1 | 9 |
| T3 LA3 Q2 | 8 | 2 |
| T3 LA3 Q3 | 10 | 3 |
| T1 L3 Q1 | 2 | 0 |
| T1 L3 Q2 | 6 | 0 |
| T1 L3 Q3 | 11 | 0 |
| T2 L3 Q1 | 6 | 0 |
| T2 L3 Q2 | 9 | 7 |
| T2 L3 Q3 | 6 | 12 |
| T3 L3 Q1 | 5 | 6 |
| T3 L3 Q2 | 5 | 7 |
| T3 L3 Q3 | 4 | 8 |
| T1 MA1 Q1 | 9 | 21 |

| Sample | *Arenicola marina* casts | *Lanice conchilega* tubes |
|---|---|---|
| T1 MA1 Q2 | 5 | 17 |
| T1 MA1 Q3 | 4 | 22 |
| T2 MA1 Q1 | 5 | 9 |
| T2 MA1 Q2 | 3 | 51 |
| T2 MA1 Q3 | 1 | 93 |
| T3 MA1 Q1 | 7 | 62 |
| T3 MA1 Q2 | 1 | 45 |
| T3 MA1 Q3 | 1 | 18 |
| T1 M1 Q1 | 3 | 32 |
| T1 M1 Q2 | 7 | 21 |
| T1 M1 Q3 | 7 | 29 |
| T2 M1 Q1 | 1 | 16 |
| T2 M1 Q2 | 1 | 12 |
| T2 M1 Q3 | 3 | 27 |
| T3 M1 Q1 | 1 | 25 |
| T3 M1 Q2 | 5 | 23 |
| T3 M1 Q3 | 7 | 19 |
| T1 MA2 Q1 | 0 | 140 |
| T1 MA2 Q2 | 0 | 98 |
| T1 MA2 Q3 | 2 | 115 |
| T2 MA2 Q1 | 1 | 103 |
| T2 MA2 Q2 | 3 | 52 |
| T2 MA2 Q3 | 2 | 85 |
| T3 MA2 Q1 | 2 | 92 |
| T3 MA2 Q2 | 2 | 107 |
| T3 MA2 Q3 | 1 | 102 |
| T1 M2 Q1 | 0 | 132 |
| T1 M2 Q2 | 0 | 118 |
| T1 M2 Q3 | 0 | 107 |
| T2 M2 Q1 | 3 | 196 |
| T2 M2 Q2 | 1 | 151 |
| T2 M2 Q3 | 0 | 139 |
| T3 M2 Q1 | 0 | 156 |
| T3 M2 Q2 | 0 | 166 |
| T3 M2 Q3 | 1 | 139 |
| T1 MA3 Q1 | 0 | 266 |
| T1 MA3 Q2 | 0 | 273 |
| T1 MA3 Q3 | 0 | 142 |
| T2 MA3 Q1 | 0 | 232 |
| T2 MA3 Q2 | 0 | 157 |
| T2 MA3 Q3 | 0 | 223 |
| T3 MA3 Q1 | 0 | 171 |
| T3 MA3 Q2 | 1 | 116 |
| T3 MA3 Q3 | 1 | 145 |
| T1 M3 Q1 | 0 | 61 |
| T1 M3 Q2 | 1 | 111 |
| T1 M3 Q3 | 1 | 133 |
| T2 M3 Q1 | 0 | 51 |
| T2 M3 Q2 | 1 | 108 |
| T2 M3 Q3 | 2 | 208 |
| T3 M3 Q1 | 4 | 11 |
| T3 M3 Q2 | 0 | 9 |
| T3 M3 Q3 | 0 | 10 |

**Appendix Plate 1** – Photographs of the Phase II sampling stations taken during the Pegwell Bay intertidal survey in 2020

CEAPEG0820 T1_HA1

CEAPEG0820 T2_HA1

CEAPEG0820 T3_HA1

CEAPEG0820 T1_H1

CEAPEG0820 T2_H1

CEAPEG0820 T3_H1

CEAPEG0820 T1_HA2

CEAPEG0820 T2_HA2

CEAPEG0820 T3_HA2

CEAPEG0820 T1_H2

CEAPEG0820 T2_H2

CEAPEG0820 T3_H2

CEAPEG0820 T1_HA3

CEAPEG0820 T2_HA3

CEAPEG0820 T3_HA3

CEAPEG0820 T1_H3

CEAPEG0820 T2_H3

CEAPEG0820 T3_H3

CEAPEG0820 T1_LA1

CEAPEG0820 T2_LA1

CEAPEG0820 T3_LA1

CEAPEG0820 T1_L1

CEAPEG0820 T2_L1

CEAPEG0820 T3_L1

CEAPEG0820 T1_LA2

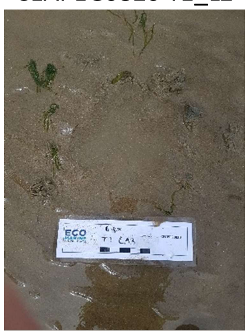
CEAPEG0820 T2_ LA2

CEAPEG0820 T3_ LA2

CEAPEG0820 T1_L2

CEAPEG0820 T2_ L2

CEAPEG0820 T3_ L2



CEAPEG0820 T1_LA3

CEAPEG0820 T2_ LA3

CEAPEG0820 T3_ LA3

CEAPEG0820 T1_L3

CEAPEG0820 T2_ L3

CEAPEG0820 T3_ L3


CEAPEG0820 T1_MA1


CEAPEG0820 T2_ MA1


CEAPEG0820 T3_ MA1


CEAPEG0820 T1_M1


CEAPEG0820 T2_ M1


CEAPEG0820 T3_ M1


CEAPEG0820 T1_MA2


CEAPEG0820 T2_ MA2


CEAPEG0820 T3_ MA2


CEAPEG0820 T1_M2


CEAPEG0820 T2_ M2


CEAPEG0820 T3_ M2


CEAPEG0820 T1_MA3


CEAPEG0820 T2_ MA3


CEAPEG0820 T3_ MA3


CEAPEG0820 T1_M3


CEAPEG0820 T2_ M3


CEAPEG0820 T3_ M3

**Appendix Plate 2** – Photographs of the quadrats sampled during the Pegwell Bay intertidal survey in 2020


CEAPEG0820 T1_HA1 Q1


CEAPEG0820 T1_HA1 Q2


CEAPEG0820 T1_HA1 Q3


CEAPEG0820 T2_HA1 Q1


CEAPEG0820 T2_HA1 Q2


CEAPEG0820 T2_HA1 Q3


CEAPEG0820 T3_HA1 Q1


CEAPEG0820 T3_HA1 Q2


CEAPEG0820 T3_HA1 Q3


CEAPEG0820 T1_H1 Q1


CEAPEG0820 T1_H1 Q2


CEAPEG0820 T1_H1 Q3


CEAPEG0820 T2_H1 Q1

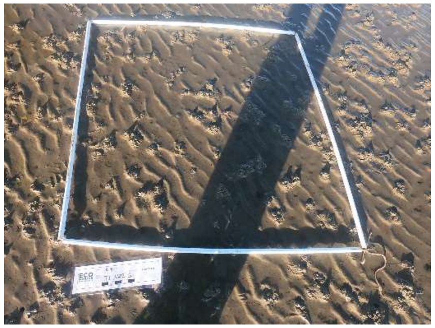

CEAPEG0820 T2_H1 Q2

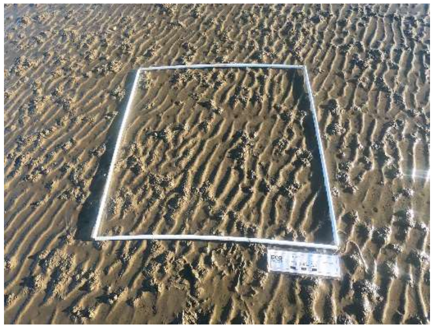

CEAPEG0820 T2_H1 Q3


CEAPEG0820 T3_H1 Q1


CEAPEG0820 T3_H1 Q2


CEAPEG0820 T3_H1 Q3


CEAPEG0820 T1_HA2 Q1


CEAPEG0820 T1_HA2 Q2


CEAPEG0820 T1_HA2 Q3


CEAPEG0820 T2_HA2 Q1


CEAPEG0820 T2_HA2 Q2

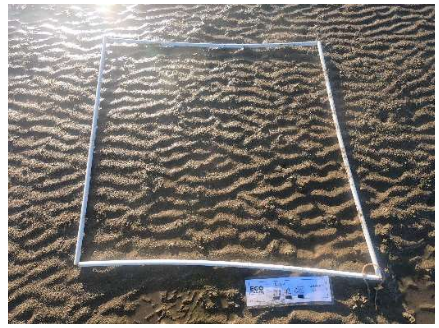

CEAPEG0820 T2_HA2 Q3


CEAPEG0820 T3_HA2 Q1


CEAPEG0820 T3_HA2 Q2


CEAPEG0820 T3_HA2 Q3


CEAPEG0820 T1_H2 Q1


CEAPEG0820 T1_H2 Q2


CEAPEG0820 T1_H2 Q3


CEAPEG0820 T2_H2 Q1

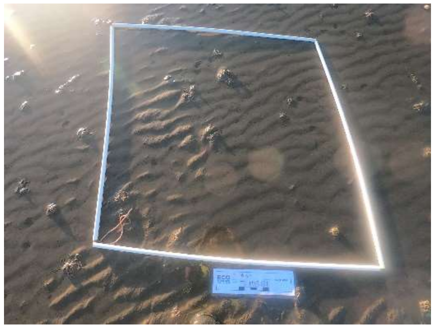

CEAPEG0820 T2_H2 Q2


CEAPEG0820 T2_H2 Q3


CEAPEG0820 T3_H2 Q1


CEAPEG0820 T3_H2 Q2


CEAPEG0820 T3_H2 Q3



CEAPEG0820 T1_HA3 Q1

CEAPEG0820 T1_ HA3 Q2

CEAPEG0820 T1_ HA3 Q3

CEAPEG0820 T2_ HA3 Q1

CEAPEG0820 T2_ HA3 Q2

CEAPEG0820 T3_ HA3 Q3

CEAPEG0820 T3_ HA3 Q1

CEAPEG0820 T3_ HA3 Q2

CEAPEG0820 T3_ HA3 Q3


CEAPEG0820 T1_H3 Q1


CEAPEG0820 T1_ H3 Q2


CEAPEG0820 T1_ H3 Q3


CEAPEG0820 T2_H3 Q1


CEAPEG0820 T2_ H3 Q2


CEAPEG0820 T2_ H3 Q3


CEAPEG0820 T3_H3 Q1


CEAPEG0820 T3_ H3 Q2


CEAPEG0820 T3_ H3 Q3


CEAPEG0820 T1_LA1 Q1


CEAPEG0820 T1_ LA1 Q2


CEAPEG0820 T1_ LA1 Q3


CEAPEG0820 T2_ LA1 Q1

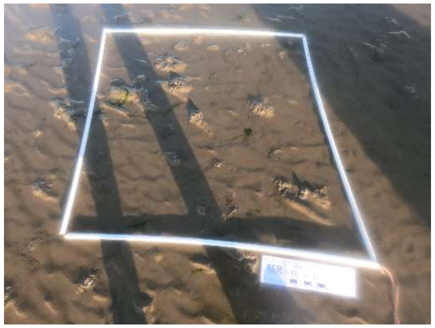

CEAPEG0820 T2_ LA1 Q2


CEAPEG0820 T2_ LA1 Q3


CEAPEG0820 T3_ LA1 Q1

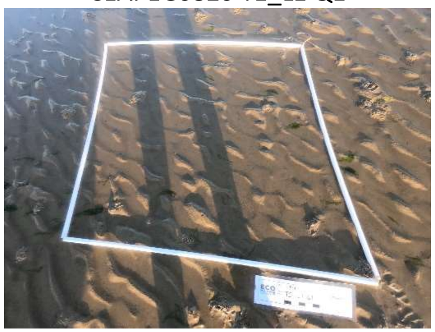

CEAPEG0820 T3_ LA1 Q2


CEAPEG0820 T3_ LA1 Q3


CEAPEG0820 T1_L1 Q1


CEAPEG0820 T1_ L1 Q2


CEAPEG0820 T1_ L1 Q3


CEAPEG0820 T2_ L1 Q1


CEAPEG0820 T2_ L1 Q2


CEAPEG0820 T2_ L1 Q3


CEAPEG0820 T3_ L1 Q1


CEAPEG0820 T3_ L1 Q2


CEAPEG0820 T3_ L1 Q3

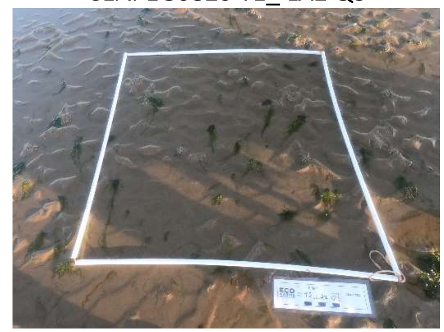

CEAPEG0820 T1_LA2 Q1


CEAPEG0820 T1_ LA2 Q2


CEAPEG0820 T1_ LA2 Q3


CEAPEG0820 T2_ LA2 Q1


CEAPEG0820 T2_ LA2 Q2


CEAPEG0820 T2_ LA2 Q3


CEAPEG0820 T3_ LA2 Q1


CEAPEG0820 T3_ LA2 Q2


CEAPEG0820 T3_ LA2 Q3

CEAPEG0820 T1_L2 Q1

CEAPEG0820 T1_ L2 Q2

CEAPEG0820 T1_ L2 Q3

CEAPEG0820 T2_ L2 Q1

CEAPEG0820 T2_ L2 Q2

CEAPEG0820 T2_ L2 Q3

CEAPEG0820 T3_ L2 Q1

CEAPEG0820 T3_ L2 Q2

CEAPEG0820 T3_ L2 Q3

CEAPEG0820 T1_LA3 Q1

CEAPEG0820 T1_ LA3 Q2

CEAPEG0820 T1_ LA3 Q3

CEAPEG0820 T2_ LA3 Q1

CEAPEG0820 T2_ LA3 Q2

CEAPEG0820 T2_ LA3 Q3

CEAPEG0820 T3_ LA3 Q1

CEAPEG0820 T3_ LA3 Q2

CEAPEG0820 T3_ LA3 Q3


CEAPEG0820 T1_L3 Q1


CEAPEG0820 T1_ L3 Q2


CEAPEG0820 T1_ L3 Q3


CEAPEG0820 T2_ L3 Q1


CEAPEG0820 T2_ L3 Q2

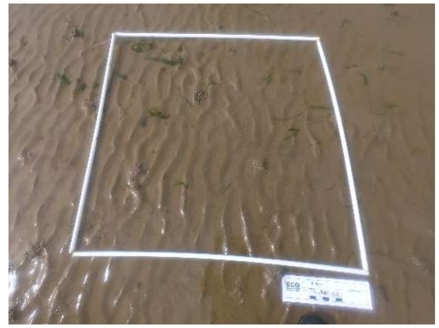

CEAPEG0820 T2_ L3 Q3


CEAPEG0820 T3_ L3 Q1


CEAPEG0820 T3_ L3 Q2


CEAPEG0820 T3_ L3 Q3


CEAPEG0820 T1_MA1 Q1


CEAPEG0820 T1_ MA1 Q2


CEAPEG0820 T1_ MA1 Q3


CEAPEG0820 T2_ MA1 Q1


CEAPEG0820 T2_ MA1 Q2


CEAPEG0820 T2_ MA1 Q3


CEAPEG0820 T3_ MA1 Q1


CEAPEG0820 T3_ MA1 Q2


CEAPEG0820 T3_ MA1 Q3


CEAPEG0820 T1_M1 Q1


CEAPEG0820 T1_ M1 Q2


CEAPEG0820 T1_ M1 Q3


CEAPEG0820 T2_ M1 Q1


CEAPEG0820 T2_ M1 Q2


CEAPEG0820 T2_ M1 Q3

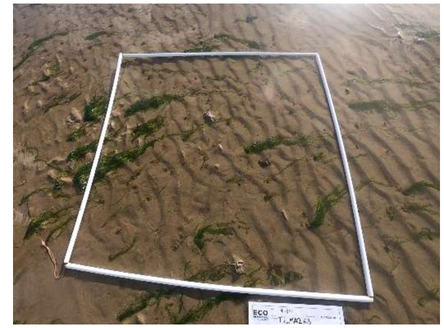

CEAPEG0820 T3_ M1 Q1


CEAPEG0820 T3_ M1 Q2


CEAPEG0820 T3_ M1 Q3

CEAPEG0820 T1_MA2 Q1

CEAPEG0820 T1_ MA2 Q2



CEAPEG0820 T1_ MA2 Q3

CEAPEG0820 T2_ MA2 Q1

CEAPEG0820 T2_ MA2 Q2

CEAPEG0820 T2_ MA2 Q3

CEAPEG0820 T3_ MA2 Q1

CEAPEG0820 T3_ MA2 Q2

CEAPEG0820 T3_ MA2 Q3


CEAPEG0820 T1_M2 Q1


CEAPEG0820 T1_ M2 Q2


CEAPEG0820 T1_ M2 Q3


CEAPEG0820 T2_ M2 Q1


CEAPEG0820 T2_ M2 Q2


CEAPEG0820 T2_ M2 Q3


CEAPEG0820 T3_ M2 Q1

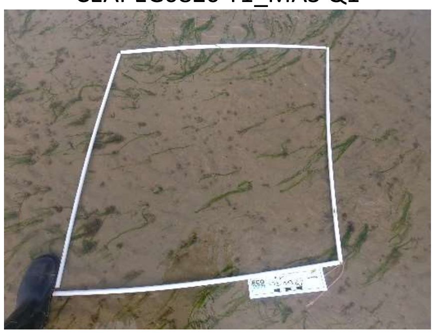

CEAPEG0820 T3_ M2 Q2


CEAPEG0820 T3_ M2 Q3


CEAPEG0820 T1_MA3 Q1


CEAPEG0820 T1_ MA3 Q2

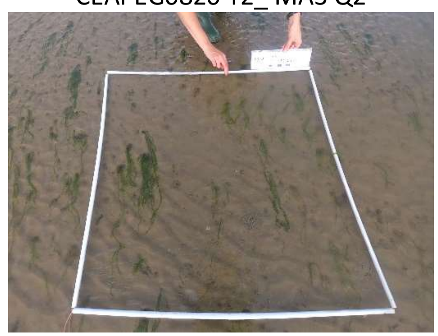

CEAPEG0820 T1_ MA3 Q3


CEAPEG0820 T2_ MA3 Q1


CEAPEG0820 T2_ MA3 Q2


CEAPEG0820 T2_ MA3 Q3


CEAPEG0820 T3_ MA3 Q1


CEAPEG0820 T3_ MA3 Q2


CEAPEG0820 T3_ MA3 Q3

CEAPEG0820 T1_M3 Q1

CEAPEG0820 T1_ M3 Q2

CEAPEG0820 T1_ M3 Q3

CEAPEG0820 T2_ M3 Q1

CEAPEG0820 T2_ M3 Q2

CEAPEG0820 T2_ M3 Q3

CEAPEG0820 T3_ M3 Q1

CEAPEG0820 T3_ M3 Q2

CEAPEG0820 T3_ M3 Q3