Awel y Môr Offshore Wind Farm

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Fugro – WPM1 - Main Array – Benthic Ecology Monitoring Report

Offshore Site Investigation, Awel y Môr Offshore Wind Farm | UK, Irish Sea
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Awel y Môr Offshore Windfarm Ltd

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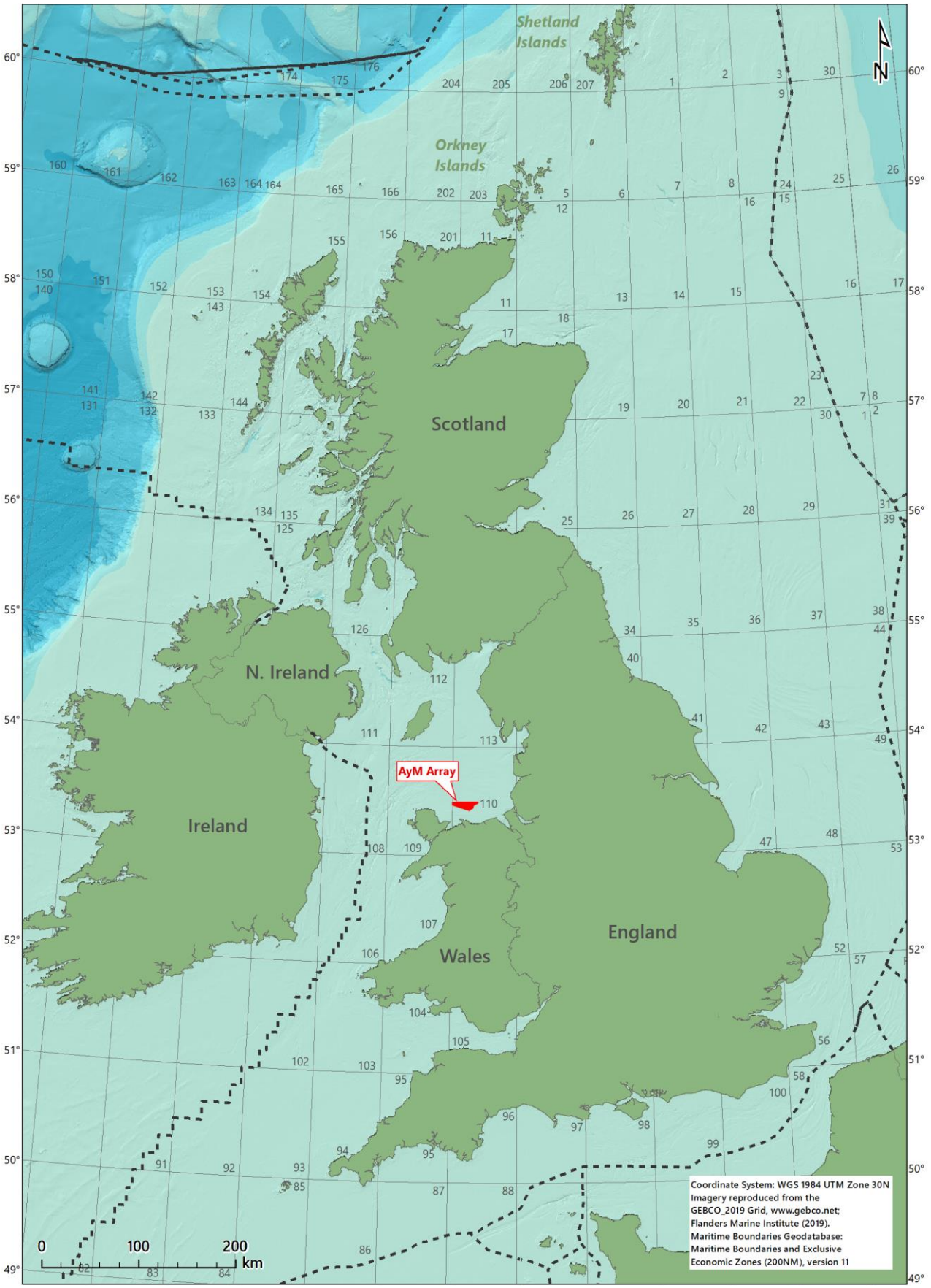
Frontispiece



Executive Summary

Introduction

On the instruction of Awel y Môr Offshore Windfarm Ltd, Fugro performed a geophysical and environmental site investigation at the proposed Awel y Môr Offshore Windfarm (OWF) site, located 10.6 km off the north coast of Wales. The proposed OWF development will consist of the main array and three export cable routes, East A and B and West C.

Environmental operations were conducted onboard the MV Mersey Guardian during the survey period 16 to 30 August 2020. This report details the results of the benthic characterisation survey of the main array survey area.

Survey Strategy

A total of 62 grab sampling stations were selected across the survey area. Forty-two of the stations were selected following consultation with Natural Resources Wales (NRW) to increase the sampling spatial coverage. At each proposed station, one macrofaunal sample with one particle size distribution (PSD) subsample were to be acquired. Of these 62 stations, 10 were selected for additional sampling for sediment chemistry. At 22 of the stations, drop-down video (DDV) data were to be acquired for spatial coverage or to investigate boundaries between two sediment types. A complete suite of grab samples were successfully acquired from all 62 stations and video and stills data were successfully acquired along all 22 DDV locations.

Sediment Characteristics

The sediments within the survey area comprised mainly sand, with varying proportions of gravel, and little to no fines. When the mean particle size was expressed using the Wentworth classification, sediments were described as medium sand to very coarse sand. Spatial patterns were evident in sediment composition and the clear linkage of these to the geophysical characteristics of the seafloor, suggest that particle size is likely to be influenced by the degree of sediment mobility.

Sediment Chemistry

The median total 2 to 6 ring polycyclic aromatic hydrocarbon (PAH) concentration was broadly comparable to the median concentration recorded during the Strategic Environmental Assessment (SEA6 area) Irish Sea surveys. All individual PAH concentrations were below their respective effects range low (ERL) values.

All metals concentrations were less than their respective Cefas guideline action levels (AL1 and AL2) and Oslo and Paris Commission (OSPAR) ERL values.

Macrofauna

The number of infaunal and solitary epifaunal taxa recorded from the grab samples was variable across the survey area. Three statistically significantly different communities, characterised by differing

infaunal taxa, were identified from multivariate statistical analysis. Variations in macrofaunal community were linked to variations in sediment composition, which could, in turn, be linked to variations in wave/tidal exposure.

Seabed Habitats and Biotopes

One habitat, one benthic biotope complex and two biotopes were defined within the survey area; 'Circalittoral coarse sediment' (A5.14), '*Branchiostoma lanceolatum* in circalittoral coarse sand with shell gravel' (A5.145), 'Sublittoral sand' (A5.2) and '*Nephtys cirrosa* and *Bathyporeia* spp. in infralittoral sand' (A5.233).

These habitats are encompassed within 'Subtidal sands and gravels', a priority habitat within UK waters.

No other Annex I habitats or Annex II species, OSPAR threatened and/or declining species and habitats or UK Biodiversity Action Plan priority habitats and species observed within the survey area.

Document Arrangement

Volume 1	WPM1 & WPM2 Array Area & ECR Acquisition/Operations Report - Mersey Guardian
Volume 2	Fugro – WPM1- Main Array - Environmental Features Report
Volume 3	Fugro – WPM2 - ECR West C – Environmental Features Report
Volume 4	Fugro – WPM2 - ECR East A&B - Environmental Features Report
Volume 5	**Fugro – WPM1 – Main Array – Benthic Ecology Monitoring Report**
Volume 6	Fugro – WPM2 - ECR West C - Benthic Ecology Monitoring Report
Volume 7	Fugro – WPM2 - ECR East A&B - Benthic Ecology Monitoring Report

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Abbreviations

AFDW	Ash free dry weight
AL1/AL2	Action Level 1 or 2
ANOSIM	Analysis of similarity
BGS	British Geological Survey
BSL	Below sea level
Cefas	Centre for Environment, Fisheries and Aquaculture Science
CEMP	Coordinated Environmental Monitoring Programme
CM	Central meridian
CS	Chemistry sample
DCM	Dichloromethane
DDV	Drop-down video
EC	European Commission
ED50	European Datum 1950
EMODnet	European Marine Observation Data Network
EEA	European Environment Agency
EOL	End of line
EPSG	European Petroleum Survey Group
ERL	Effects range low
EUNIS	European Nature Information System
FA	Faunal sample A
FOCI	Feature of Conservation Interest
GC	Gas chromatography
GC-MS	Gas chromatography – mass spectrometry
HC	Hydrocarbon sample
HM	Heavy metal sample
ICP-MS	Inductively coupled plasma-mass spectrometry
ICP-OES	Inductively coupled plasma-optical emission spectrometry
JNCC	Joint Nature Conservation Committee
LAT	Lowest Astronomical Tide
MBES	Multibeam echo sounder
MCZ	Marine Conservation Zone
MPA	Marine Protected Area
MRV	Minimum reporting value
MV	Motor vessel
NF	No fix
NMBAQC	National Marine Biological Association Quality Control
nMDS	Non-metric multi-dimensional scaling
NPD	Naphthalene, phenanthrene/anthracene and dibenzothiophene
NRW	Natural Resources Wales
NS	No sample
OSPAR	Oslo and Paris Commission
OWF	Offshore wind farm
P	Present
PAH	Polycyclic aromatic hydrocarbon
PC	Physico-chemical sample
PCA	Principle component analysis

PRIMER	Plymouth Routines in Multivariate Ecological Research
PSA	Particle size analysis
PSD	Particle size distribution
RSD	Relative standard deviation
SAC	Special Area of Conservation
SACFOR	Superabundant, abundant, common, frequent, occasional and rare (semi-quantitative abundance scale)
SD	Standard deviation
SEA	Strategic Environmental Assessment
SOL	Start of line
SPA	Special protected area
SSS	Side scan sonar
US EPA	United States Environmental Protection Agency
US EPA 16	United States Environmental Protection Agency's 16 priority PAH pollutants
UTC	Coordinated Universal Time
UTM	Universal Transverse Mercator
WGS84	World Geodetic System 1984
WoRMS	World Register of Marine Species
WP	Waypoint

1. Introduction

1.1 General Project Description

On the instruction of Awel y Môr Offshore Windfarm Ltd, Fugro performed a geophysical and environmental site investigation at the proposed Awel y Môr Offshore Wind Farm (OWF) site. The proposed OWF development will consist of the Main Array and three export cable route survey areas; East A & B and West C.

The Awel y Môr OWF is located in the Irish Sea, 10.6 km off the north coast of Wales, to the west of the existing Gwynt y Môr OWF, in water depths ranging between 20 m and 40 m Lowest Astronomical Tide (LAT) and covers an area of approximately 136 km^2.

Environmental operations were conducted onboard the MV Mersey Guardian during the survey period 16 to 30 August 2020. The environmental site survey included a habitat assessment and a benthic monitoring report. This volume, the benthic monitoring report, details the results of the benthic characterisation survey of the main array.

Appendix A outlines the guidelines for use of this report.

1.2 Scope of Work

1.2.1 Geophysical Survey

The aim of the geophysical survey was to provide ultra-high resolution seismic, multibeam echosounder (MBES), side scan sonar (SSS), sub-bottom profiler, and magnetometer geophysical data acquisition to characterise the main array and to identify any features of conservation interest.

1.2.2 Environmental Survey

The purpose of the environmental survey was to provide a robust baseline characterisation of the site and to supplement the existing benthic ecology data that exists across the area of interest. The survey was also required to establish whether any sensitive habitats are present in the area, specifically habitats listed under Annex I of the EC Habitats Directive such as *Sabellaria* reefs and stony reefs. In addition, grab samples were collected to establish physical and biological properties of the sediment at key locations for characterisation purposes.

The results pertaining to the identification of seabed habitats and biotopes of potential conservation interest can be found in the environmental features report (Volume 2).

1.3 Environmental Legislation

Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora, commonly known as the EC Habitats Directive, was adopted in 1992, with the main aim of promoting maintenance of biodiversity at a European level. Member states are required to take measures to ensure that protection is afforded to habitats and species of European

importance, and that these features are restored to a 'favourable conservation status'. These habitats and species are listed under Annexes I and II of the Directive and may be selected as features for which Natura 2000 protected areas, namely Special Areas of Conservation (SACs) and Special Protected Areas (SPAs), may be designated. These together contribute to a European ecological network of protected sites. The Annexes include species and habitats identified by the Oslo-Paris commission (OSPAR) and detailed on the OSPAR list of threatened and/or declining species and habitats (OSPAR, 2008). This environmental site investigation was undertaken, in part, to satisfy the Habitats Directive requirement of surveillance for Annex I habitats, based on which SACs may be designated. 'Areas of search' for Annex I habitats have been determined by the Joint Nature Conservation Committee (JNCC) and indicate regions where these habitats are most likely to be encountered; Annex I habitats of relevance for the offshore wind farm industry include subtidal reefs (biogenic, or geogenic) and sandbanks slightly covered by seawater all the time.

This benthic monitoring report assesses the occurrence of relevant OSPAR listed threatened and/or declining species and habitats and EC Habitats Directive Annex I habitats within the survey area.

1.4 Regional Habitats, Species and Protected Areas

The main array is located approximately 7 km north-east of the Menai Strait and Conwy Bay Special Area of Conservation (SAC). The SAC covers an area of 265 km^2, designated for the protection of the subtidal Annex I habitats 'Sandbanks which are slightly covered by sea water all the time' and 'Reefs' (JNCC, 2019a; JNCC 2019b). The main array is located approximately 21.5 km to the north-west of the Dee Estuary SAC, which is designated for the protection of the Annex I habitats 'Mudflats and sandflats not covered by seawater at low tide', '*Salicornia* and other annuals colonising mud and sand' and 'Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)' and 'Reefs'.

The main array is also located approximately 26 km south-west of the Fylde Marine Conservation Zone (MCZ) which covers an area of 260 km^2, designated for the protection of 'subtidal sediments'.

Based on the European Marine Observation and Data Network (EMODnet) seabed habitats map, the Awel y Môr main array survey area lies in an area likely to comprise a range of European Nature Information System (EUNIS) habitats (EMODnet, 2019), including:

- 'Deep circalittoral mixed sediments' (A5.45);
- 'Deep circalittoral coarse sediment' (A5.15);
- 'Deep circalittoral sand' (A5.27);
- 'Circalittoral fine sand' (A5.25);
- 'Circalittoral muddy sand' (A5.26).

Historic data from a benthic characterisation survey of the Gwynt y Môr OWF (Centre for Marine and Coastal Studies [CMACS], 2005) recorded three Joint Nature Conservation

Committee (JNCC) biotope complexes in the vicinity of the main array survey area. Table 1.1 presents these habitat biotopes along with the equivalent EUNIS classification.

Table 1.1: Gwynt y Môr OWF (CMACS, 2005) habitat classifications, Main Array

JNCC (2015) Classification	Equivalent EUNIS Classification (EEA,2019)
SS.SCS.CCS.MedLumVen (*Mediomastus fragilis*, *Lumbrineris* spp. and venerid bivalves in circalittoral coarse sand or gravel)	*Mediomastus fragilis*, *Lumbrineris* spp. and venerid bivalves in circalittoral coarse sand or gravel (A5.142)
SS.SCS.ICS.MoeVen (*Moerella* spp. with venerid bivalves in infralittoral gravelly sand)	*Moerella* spp. with venerid bivalves in infralittoral gravelly sand (A5.133)
SS.SSA.IfiSa.NcirBat (*Nepthtys cirrosa* and *Bathyporeia* spp. in infralittoral sand)	*Nephtys cirrosa* and *Bathyporeia* spp. in infralittoral sand (A5.233)

Table 1.2 lists the nearby protected areas relevant to the main array survey area, summarising the sensitive habitats and species for which they were designated to protect. Figure 1.1 spatially displays the protected areas of relevance to the benthic subtidal and intertidal ecology relevant to the main array survey area.

Table 1.2: Summary of nearby protected areas, Main Array

Protected Area	Status	Distance* [m]	Direction*	Protected Habitats/Species
Menai Strait and Conwy Bay	Special Area of Conservation	3	SW	EC Habitats Directive Annex I 'Sandbanks which are slightly covered by sea water all the time', 'Mudflats and sandflats not covered by seawater at low tide' and 'Reefs'
Dee Estuary	Special Area of Conservation	21.5	SE	EC Habitats Directive Annex I; 'Mudflats and sandflats not covered by seawater at low tide', '*Salicornia* and other annuals colonising mud and sand' and 'Atlantic salt meadows (*Glauco-Puccinellietalia maritimae*)' and 'Reefs'
Fylde	Marine Conservation Zone	37	NE	Subtidal sands and sediments

Notes
OSPAR = Oslo and Paris Commission
* = Distance and direction from the closest sampling station within the Main Array

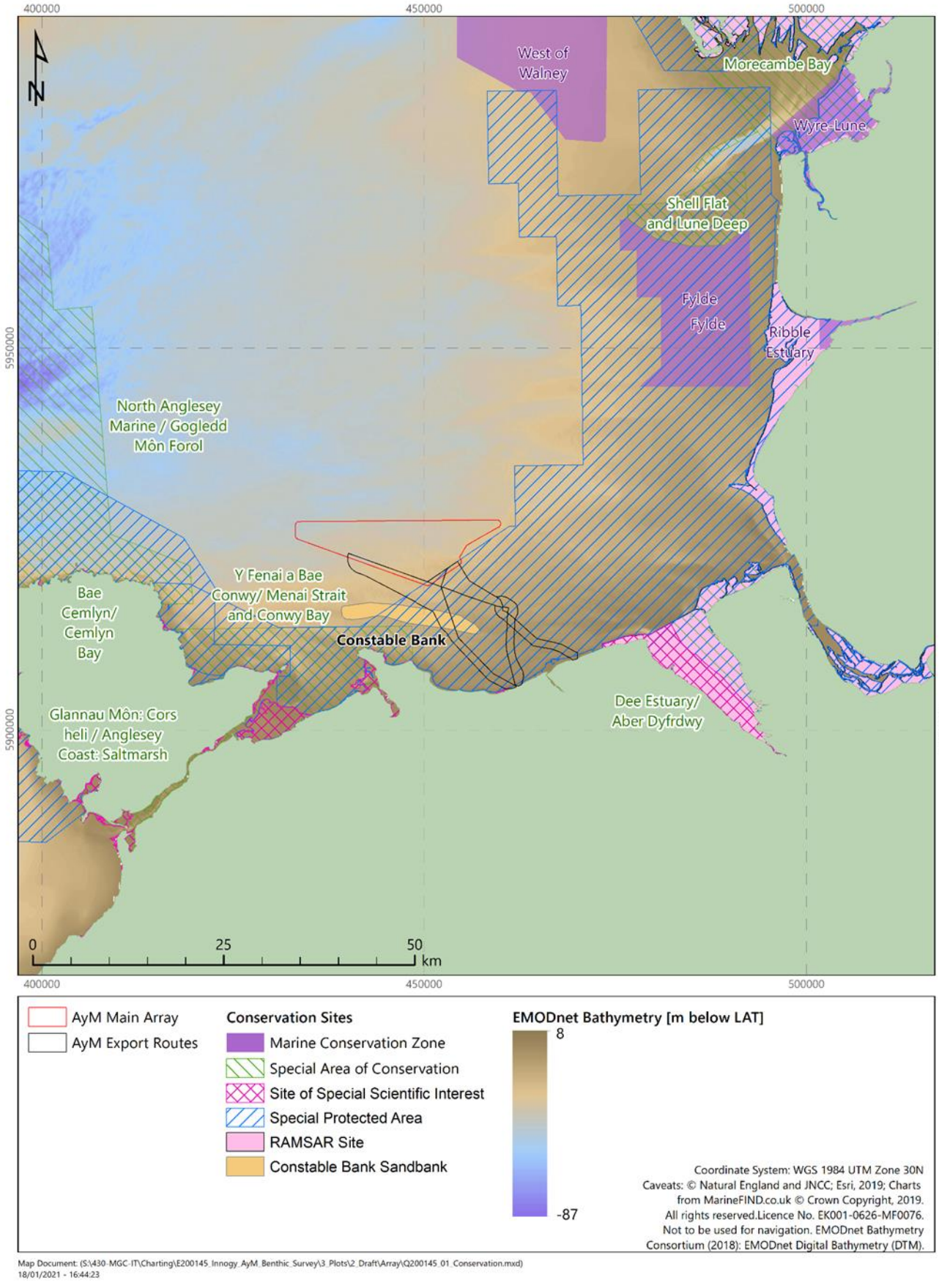


Figure 1.1: Protected areas relevant to the survey area, Main Array

1.5 Environmental Quality Standards for Sediment Chemical Concentrations

Selected data have been compared to the OSPAR effects range low (ERL) concentrations (OSPAR, 2014) where available. The ERL thresholds represent the low point (10th percentile) and are therefore indicative of concentrations below which adverse effects rarely occur (OSPAR, 2009; 2014).

The Centre for Environment, Fisheries and Aquaculture Science (Cefas) Guideline Action Levels for the disposal of dredged material are non-statutory guidelines for assessment of disposal of dredged materials to sea, against which reported contaminants concentrations were compared to. In general, concentrations below Cefas Action Level 1 (AL1) are of no concern, whilst concentrations above Action Level 2 (AL2) indicate that dredged material is unsuitable for disposal at sea. Values between AL1 and AL2 may require further investigatory work prior to a disposal decision (Cefas, 2003).

A Strategic Environmental Assessment (SEA) review of the contaminant status of the Irish Sea (SEA6 area) was published in 2005 (Cefas, 2005). Comparative data, specifically for polycyclic aromatic hydrocarbons (PAHs) from site 715 (Liverpool Bay) was utilised due to its spatial proximity to the current survey area. The PAH concentrations from the SEA6 survey are median concentrations of 10 PAHs in sediment samples collected between 1999 and 2002, and, although not directly comparable to total 2 to 6 ring PAH values derived for the current survey, allow the data to be placed into a regional context.

1.6 Coordinate Reference System

All coordinates detailed in this report are referenced to World Geodetic System 1984 (WGS84) Universal Transverse Mercator (UTM) projection Zone 30N central meridian 3º West (CM 3° W). Table 1.3 provided the detailed geodetic and projection parameters.

Table 1.3: Project geodetic and projection parameters, Main Array

Global Positioning System Geodetic Parameters	
Datum:	World Geodetic System 1984 (WGS84)
Spheroid:	World Geodetic System 1984
Semi major axis:	a = 6 378 137.000 m
Reciprocal flattening:	1/f = 298.257 223 563
Project Projection Parameters	
Grid Projection:	Universal Transverse Mercator (UTM)
UTM Zone:	30N (EPSG: 32630)
Central Meridian:	3° 00′ 00″ West
Latitude of Origin:	00° 00′ 00″ North
False Easting:	500 000 m
False Northing:	0 m
Scale factor on Central Meridian:	0.9996
Units:	Metre

2. Survey Strategy

Historic data from a benthic characterisation survey of the Gwynt y Môr OWF (CMACS, 2005) and side scan sonar (SSS) data acquired in 2020 were reviewed by Fugro in order to propose environmental survey locations within the proposed Awel y Môr OWF and export cable routes. Particular emphasis was placed on locating areas of potential conservation value (e.g. Annex I listed habitats), on boundaries between areas of differing sonic reflectivity and areas characteristic of the general background conditions of the site.

A total of 62 grab sampling stations were selected to ground-truth the different sediment types observed from the geophysical data, and to also provide spatial coverage across the survey area. Forty-two of the stations were selected following consultation with Natural Resources Wales. At each station, one macrofaunal sample was required, with one particle size distribution (PSD) subsampled from the same sample. A subset of 10 grab stations were selected for additional sampling for chemistry analysis, with second grab samples taken at these stations and subsampled for the required analysis.

At 22 of the stations, drop-down video data were to be acquired along a transect of approximately 50 m in length, centred on each station. At four stations, the orientation and distance of the transect were defined to investigate boundaries between two sediment types. Station MA_ST25 was orientated to target an area of differing reflectivity crossing station MA_ST26, station MA_ST27 was orientated to target an area of higher reflectivity crossing station MA_ST28, station MA_ST54 was orientated to target an area of higher reflectivity within an overall area of mobile sediments crossing station MA_ST53, and station MA_ST61 was orientated to target a relatively featureless area besides an area of mobile sediments crossing station MA_ST62.

Tables 2.1 and 2.2 provide the coordinates, data to be acquired and rationale for each proposed survey location. Figure 2.1 spatially displays the proposed survey locations overlaid on the SSS mosaic.

Table 2.1: Proposed sampling stations, Main Array

Geodetic Parameters: ED50, UTM Zone 31N, CM 3°E [m]				
Station	Easting	Northing	Rationale	Data and Sample Acquisition
MA_ST01	432 960.8	5 927 193.8	Station selected for spatial coverage*	FA, PSD
MA_ST02	432 777.0	5 926 144.4	Station selected for spatial coverage*	FA, PSD
MA_ST03	435 317.0	5 927 335.0	Station selected for spatial coverage*	FA, PSD
MA_ST04	434 714.0	5 926 692.0	Station in the western extent of the main array, in a relatively featureless area	Video and stills FA, PSD, CS,
MA_ST05	434 205.7	5 926 049.2	Station selected for spatial coverage*	FA, PSD
MA_ST06	432 899.8	5 925 014.1	Station selected for spatial coverage*	FA, PSD

Geodetic Parameters: ED50, UTM Zone 31N, CM 3°E [m]				
Station	Easting	Northing	Rationale	Data and Sample Acquisition
MA_ST07	436 777.5	5 926 461.9	Station selected for spatial coverage*	FA, PSD
MA_ST08	435 698.0	5 925 604.7	Station selected for spatial coverage*	FA, PSD
MA_ST09	434 372.4	5 924 396.8	Station selected for spatial coverage*	FA, PSD
MA_ST10	439 327.0	5 927 350.9	Station selected for spatial coverage*	FA, PSD
MA_ST11	438 522.0	5 926 615.0	Station in the western extent of the main array, in a relatively featureless area. Representative sediments, selected for spatial coverage	Video and stills FA, PSD
MA_ST12	437 529.0	5 925 669.0	Station in the western extent of the main array, in a localised area of variable reflectivity	Video and stills FA, PSD, CS
MA_ST13	437 110.2	5 924 842.5	Station selected for spatial coverage*	FA, PSD
MA_ST14	436 240.4	5 923 662.6	Station selected for spatial coverage*	FA, PSD
MA_ST15	441 200.3	5 927 398.5	Station selected for spatial coverage*	FA, PSD
MA_ST16	440 508.1	5 926 557.2	Station selected for spatial coverage*	FA, PSD
MA_ST17	439 285.8	5 925 699.9	Station selected for spatial coverage*	FA, PSD
MA_ST18	443 025.9	5 927 366.8	Station selected for spatial coverage*	FA, PSD
MA_ST19	442 461.0	5 926 594.0	Station in the western extent of the main array, in a relatively featureless area. Representative sediments, selected for spatial coverage	Video and stills FA, PSD
MA_ST20	440 800.8	5 925 686.4	Station selected for spatial coverage*	FA, PSD
MA_ST21	439 539.8	5 924 525.2	Station selected for spatial coverage*	FA, PSD
MA_ST22	438 596.0	5 923 566.3	Station selected for spatial coverage	Video and stills FA, PSD, CS
MA_ST23	441 118.0	5 925 220.2	Station selected for spatial coverage	Video and stills FA, PSD
MA_ST24	438 799.7	5 923 486.3	Station selected for spatial coverage	FA, PSD
MA_ST25	441 223.0	5 925 039.0	Station in the western extent of the main array. In an area of differing reflectivity. The orientation of the drop-down video was predetermined (MA_ST26)	Video and stills FA, PSD, CS
MA_ST27	439 295.0	5 923 381.0	Station in the western extent of the main array. In an area of higher reflectivity to the east of an area of mobile sediments. The orientation of the drop-down video was predetermined (MA_ST28)	Video and stills FA, PSD
MA_ST29	444 661.0	5 927 335.0	Station selected for spatial coverage*	FA, PSD
MA_ST30	442 549.7	5 925 731.7	Station selected for spatial coverage*	FA, PSD
MA_ST31	441 437.6	5 924 729.1	Station selected for spatial coverage*	FA, PSD
MA_ST32	438 674.6	5 922 704.8	Station selected for spatial coverage*	FA, PSD
MA_ST33	443 994.3	5 925 763.4	Station selected for spatial coverage*	FA, PSD
MA_ST34	442 470.3	5 924 795.0	Station selected for spatial coverage*	FA, PSD
MA_ST35	441 706.4	5 924 346.0	Station selected for spatial coverage*	FA, PSD

Geodetic Parameters: ED50, UTM Zone 31N, CM 3°E [m]				
Station	Easting	Northing	Rationale	Data and Sample Acquisition
MA_ST36	446 474.6	5 927 357.1	Station selected for spatial coverage*	FA, PSD
MA_ST37	445 413.5	5 926 398.4	Station selected for spatial coverage*	FA, PSD
MA_ST38	441 672.7	5 923 361.5	Station selected for spatial coverage*	FA, PSD
MA_ST39	444 076.2	5 924 638.8	Station selected for spatial coverage*	FA, PSD
MA_ST40	443 343.9	5 923 890.9	Station selected for spatial coverage*	FA, PSD
MA_ST41	441 095.5	5 921 805.2	Station selected for spatial coverage*	FA, PSD
MA_ST42	448 252.6	5 927 341.2	Station selected for spatial coverage*	FA, PSD
MA_ST43	447 038.0	5 926 464.0	Station in the middle of the main array, in a relatively featureless area. Representative sediments, selected for spatial coverage	Video and stills FA, PSD, CS,
MA_ST44	445 277.0	5 924 515.0	Station in the middle of the array, in a relatively featureless area between mobile sediments to the east and west	Video and stills FA, PSD
MA_ST45	443 807.8	5 922 836.9	Station selected for spatial coverage*	FA, PSD
MA_ST46	443 175.0	5 922 829.0	Station in the middle of the main array, in an area of mobile sediments. Representative sediments, selected for spatial coverage	Video and stills FA, PSD
MA_ST47	445 090.2	5 923 234.7	Station selected for spatial coverage*	FA, PSD, CS
MA_ST48	443 918.9	5 922 130.4	Station selected for spatial coverage*	FA, PSD
MA_ST49	442 894.7	5 921 292.0	Station selected for spatial coverage*	FA, PSD
MA_ST50	446 010.4	5 923 271.0	Station selected for spatial coverage*	FA, PSD
MA_ST51	445 486.5	5 922 318.5	Station selected for spatial coverage*	FA, PSD
MA_ST52	444 625.1	5 920 709.9	Station selected for spatial coverage*	FA, PSD
MA_ST54	447 949.0	5 923 456.0	Station in the eastern extent of the main array. In an area of higher reflectivity within an overall area of mobile sediments. The orientation of the drop-down video was predetermined (MA_ST53)	Video and stills FA, PSD
MA_ST55	447 905.0	5 923 406.9	Station selected for spatial coverage	Video and stills FA, PSD
MA_ST56	448 166.2	5 923 311.0	Station selected for spatial coverage	Video and stills FA, PSD
MA_ST57	445 929.0	5 921 227.0	Station in the eastern extent of the main array, in an area of mobile sediments. Representative sediments, selected for spatial coverage	Video and stills FA, PSD
MA_ST58	452 286.0	5 926 081.0	Station in the eastern extent of the main array, in a relatively featureless area. Representative sediments, selected for spatial coverage	Video and stills FA, PSD
MA_ST59	450 387.0	5 924 424.0	Station in the eastern extent of the main array, in an area of mobile sediments. Representative sediments, selected for spatial coverage	Video and stills FA, PSD, CS
MA_ST60	446 905.8	5 919 910.8	Station selected for spatial coverage*	FA, PSD

Geodetic Parameters: ED50, UTM Zone 31N, CM 3°E [m]				
Station	Easting	Northing	Rationale	Data and Sample Acquisition
MA_ST61	456 206.0	5 925 508.0	Station in the eastern extents of the main array, in a relatively featureless area besides an area of mobile sediments. The orientation of the drop-down video was predetermined (MA_ST62)	Video and stills FA, PSD, CS
MA_ST63	456 177.3	5 925 488.6	Station selected for spatial coverage*	Video and stills FA, PSD
MA_ST64	456 206.7	5 925 480.6	Station selected for spatial coverage*	Video and stills FA, PSD
MA_ST65	453 569.0	5 923 291.0	Station in the eastern extents of the main array, in an area of mobile sediments. Representative sediments, selected for spatial coverage	Video and stills FA, PSD, CS
MA_ST66	450 568.0	5 920 636.0	Station in the eastern extents of the main array, in an area of mobile sediments. Representative sediments, selected for spatial coverage	Video and stills FA, PSD, CS
Notes FA = Faunal sample PSD = Particle size distribution subsample CS = Chemistry sample * = Stations selected by Natural Resources Wales				

Table 2.2: Proposed transects, Main Array

Geodetic Parameters: ED50, UTM Zone 31N, CM 3°E [m]					
Station		Easting	Northing	Rationale	Data Acquisition
MA_ST26	SOL	441 208.0	5 925 055.0	Transect across a boundary of differing reflectivity	Video, stills
	EOL	441 235.0	5 925 021.0		
MA_ST28	SOL	439 234.0	5 923 384.0	Transect across a boundary of two sediment types (mobile sediments, and high reflectivity	Video, stills
	EOL	439 317.0	5 923 381.0		
MA_ST53	SOL	447 911.0	5 923 474.0	Transect across and area of high reflectivity and adjacent area of mobile sediments	Video, stills
	EOL	447 958.0	5 923 450.0		
MA_ST62	SOL	456 168.0	5 925 503.0	Transect across and area of high reflectivity and adjacent area of mobile sediments	Video, stills
	EOL	456 234.0	5 925 510.0		
Notes SOL = Start of line EOL = End of line					

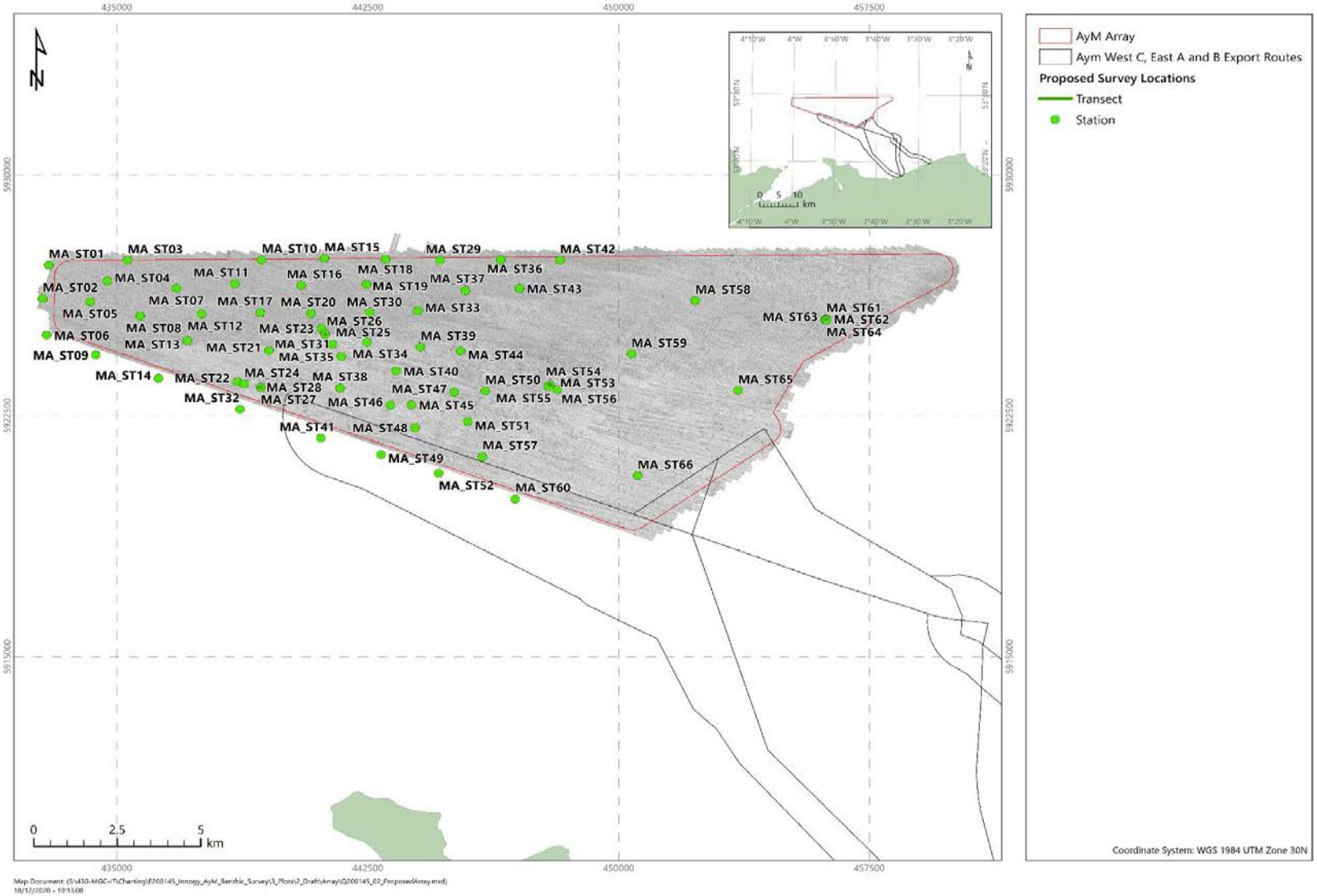


Figure 2.1: Proposed environmental survey locations, Main Array

3. Methods

3.1 Survey Methods

3.1.1 Seabed Photography

Seabed photography was acquired using a ROV Tech subsea camera system mounted within a purpose-built camera frame, which included a pressure housing filled with freshwater. The purpose of the freshwater housing was to provide a column of clear water between the seabed and the camera to facilitate the capture of good quality stills in highly turbid waters. The system consisted of one high resolution video camera, a still image camera, and two high intensity LED lighting strips at the side of the frame. Two lasers were set up 10 cm apart to provide a scale.

Seabed video was displayed on a computer monitor and recorded directly onto the computer hard drive. A video overlay was used to overlay a navigation string from an online positioning system using a vessel offset for position, including the time, date and location. The survey location and station number were also displayed (manually updated). The stills camera imagery was visible on a second window of the computer. Video was viewed in real time via an umbilical, assisting in the control of the camera in the water.

3.1.2 Sediment Sampling

Macrofaunal and PSD grab samples were collected using a 0.1 m^2 Hamon grab. Chemistry samples were acquired using a 0.1 m^2 Day grab. Manual position fixes were recorded when the grab reached the seabed using an offset from the vessel reference point.

Further details on survey methodology are available within Appendix B.

3.2 Analytical Methods

Brief analytical methodologies are described in the following subsections. Further descriptions of the analytical methodologies are detailed in Appendix B.

3.2.1 Sediment Characteristics

Sediment samples were analysed for their PSD using a combination of two techniques; sieve analysis for all material retained by a 1.0 mm sieve followed by laser diffraction analysis of the finer material. The PSD parameters include the descriptive statistics derived in Gradistat (Blott, 2010), based on the Folk & Ward (1957) method. The sediment descriptions are based on the Wentworth (1922) scale and the British Geological Survey (BGS) modified Folk classification (Long, 2006).

3.2.2 Sediment Hydrocarbons

The sediment samples were analysed for PAHs, specifically the United States Environmental Protection Agency's 16 priority PAH pollutants (US EPA 16 PAHs) and alkylated PAHs.

Samples were extracted by ultrasonication of wet sediments with mixed solvents. The sample extracts were then cleaned-up using absorption column chromatography. Aromatic hydrocarbons were analysed by gas chromatography-mass spectrometry (GC-MS).

The distributions and concentrations of 2 to 6 ring PAHs within the samples were determined by GC-MS. Standard solutions containing an appropriate range and concentration of aromatic hydrocarbons were run to calibrate the instrument and acquire response factors for quantification purposes. Individual aromatic compounds were quantified using a series of deuterated internal standards. The total 2 to 6 ring PAH values for each sediment sample was calculated by summing the concentrations of individual aromatic compounds.

3.2.3 Sediment Metals

The sediment samples were analysed using an aqua regia digest technique. This provides a strong partial digest, releasing into solution metals associated with the fines fraction within the sediments (but does not extract all trace elements associated with the coarse fraction). The concentrations of metals released by an aqua regia digest are typically considered indicative of those influencing biological interactions, as the released metals are not incorporated into the mineral matrix and are therefore potentially available for biological uptake.

The sediment samples underwent an aqua regia digest followed by multi-element analysis by inductively coupled plasma-mass spectrometry (ICP-MS) (arsenic, cadmium, chromium, copper, lead, mercury, nickel, tin and zinc) or by inductively coupled plasma-optical emission spectrometry (ICP-OES) (aluminium and barium).

3.2.4 Sediment Macrofauna

Macrofaunal samples were processed on a sieve mesh of 1 mm, with retained taxa identified and enumerated using a combination of stereo and compound microscopy.

Biomass (phylum level) was determined for infaunal invertebrates from grab samples; biomass was not determined for epifauna.

3.3 Data Analysis

Summary statistics (minimum, maximum, mean, standard deviation) for all reported datasets were derived in Excel.

3.3.1 Sediment Particle Size Distribution (PSD) Statistics

Table 3.1 summarises the sediment PSD statistics that were calculated using Gradistat V8 (Blott, 2010).

Table 3.1: Sediment particle size distribution statistics, Main Array

Statistic	Definition
Mean	A measure of central tendency: sum of values, divided by number of observations
Median	A measure of central tendency: central value
Mode	A measure of central tendency: most frequently observed value
Modality	A measure of the number of peaks in the frequency distribution
Sorting	A measure of the grain size range and magnitude of their spread around the mean
Skewness	A measure of the degree of symmetry

3.3.2 Sediment Macrofauna

3.3.2.1 Data Rationalisation

Prior to analysis, the macrofaunal dataset was rationalised. Damaged taxa were removed, and indeterminable taxa were merged to avoid spurious enhancement of the species list. Juvenile species were removed, as they represent an ephemeral stage and are, therefore, not considered part of the permanent benthic community. Meiofauna, fish, algae, eggs and foraminifera were also removed for this reason. Sessile colonial epifauna was recorded as present, and assessed separately from the enumerated fauna, which comprised infaunal and solitary epifaunal taxa.

3.3.2.2 Univariate Analysis

Table 3.2 summarises the univariate statistics derived from Plymouth Routines in Multivariate Ecological Research (PRIMER) version 7 (v7).

Table 3.2: Macrofaunal univariate statistics, Main Array

Statistic	Definition
Number of taxa (S)	Count of taxa
Abundance (N)	Count of individuals
Shannon-Wiener index of diversity ($H'log_2$)	A measure of the number of taxa in a sample and the distribution of abundance across these taxa; results were assessed in line with the threshold values in Dauvin et al. (2012): ■ High diversity ($H'log_2 > 4.00$); ■ Good diversity ($3.00 < H'log_2 < 4.00$); ■ Moderate diversity ($2.00 < H'log_2 < 3.00$); ■ Poor diversity ($1.00 < H'log_2 < 2.00$); ■ Bad diversity ($H'log_2 < 1.00$).
Pielou's index of evenness (J)	A measure of how evenly distributed the individuals are among the different species
Complement of the Simpsons index of dominance (1-λ)	A measure of evenness in which its highest value corresponds to assemblages with individuals evenly distributed across taxa, whilst its lowest value corresponds to those in which the total abundance is dominated by one or very few of the taxa present

3.3.2.3 Multivariate Analysis

Various multivariate statistical techniques were applied to the macrofauna and sediment characteristics data to investigate patterns of similarity in PRIMER v7. These included:

- Data transformation to reduce skewness of data, for optimal performance of multivariate analysis (square root for macrofaunal, fourth root for PSD);
- Hierarchical clustering analysis (subsequently referred to as 'Cluster' analysis) to group samples based on the nearest neighbour sorting of a matrix of sample similarities using Bray Curtis similarity (for biological datasets) or Euclidean distance measure (for environmental datasets);
- Non-metric multidimensional scaling (nMDS) ordination of Bray Curtis and Euclidean Distance similarity/distance matrices;
- SIMPROF algorithm was used to identify statistically significant clusters; in ecological terms the statistical relevance of similarity profile testing is assessed in line with the recommendation of Clarke et al. (2008), thus defining coarser grouping can be appropriate if the resulting groups are supersets of the similarity profile clusters;
- Similarity percentage analysis ('Simper' algorithm), to gauge the distinctiveness of each of the multivariate groups;
- ANOSIM algorithm was used to investigate significant differences between a priori defined groups;
- Principal component analysis (PCA), to identify spatial patterns and relationships between variables;
- BIOENV algorithm was used to indicate relationships between physical and biological variables.

3.3.2.4 Biomass Analysis

Biomass was assessed for infaunal invertebrates from grab samples; epifauna was not biomassed.

The macrofaunal blotted wet weight biomass dataset was converted to ash free dry weight (AFDW) by applying the appropriate standard corrections, as outlined in Eleftheriou and Basford (1989). Table 3.3 summarises the corrections applied.

Table 3.3: Macrofaunal standard biomass corrections by phyla, Main Array

Phyla	Standard Biomass Correction [%]
Annelida	15.5
Arthropoda	22.5
Mollusca	8.5
Echinodermata	8.0
Other Taxa	15.5
Notes Standard biomass corrections to convert blotted wet weight to ash free dry weight, from Eleftheriou & Basford (1989)	

3.3.3 Seabed Habitats and Biotopes

A habitat assessment was completed by Fugro detailing the analysis of completed transects (Volume 2). This will be summarised and refined with consideration of grab sample analysis.

3.3.3.1 Seabed Habitat Classification

To assess the habitats present within the survey area, detailed analysis of video and still photographic data was undertaken, noting the locations of any observed changes in sediment type and/or associated faunal community.

Taxa were recorded to the lowest possible taxonomic level. It should be noted that many species cannot be identified from photographic data alone and, as such, higher taxonomic levels were used.

Descriptions of the substrate composition, corresponding to sediment changes, were undertaken to support the EUNIS habitat identification (Long, 2006). These descriptions were largely based on a reclassification of the Folk (1954) sediment classes, with the Wentworth (1922) classification also considered as the latter differentiates between pebbles, cobbles and boulders. The Folk (1954) sediment classification was reclassified into four categories, namely 'coarse sediment', 'mixed sediment', 'mud and sandy mud' and 'sand and muddy sand' (Long, 2006). Further sub-categories, namely 'mud', sandy mud' and 'muddy sand' are utilised to further account for differences in sediment in the 'mud to sandy mud' fraction (Kaskela et al., 2019). These categories are defined by the proportions of mud (the 'fines' fraction), sand and gravel. For example, a description of 'muddy sand' defines sediments that have sand as the principle component (50 % to 90 %) with a secondary component of mud (10 % to 50 %) and < 5 % gravel (Kaskela et al., 2019). The European Marine Observation and Data Network (EMODnet) Geology Consortium further revised these categories to include an additional category 'Rock and Boulders' (Kaskela et al., 2019), which includes the Wentworth (1922) categories 'boulders' and 'cobbles'. The presence of shell fragments and evident anthropogenic features were also noted.

Table 3.4 presents a summary of the sediment particle sizes and corresponding classifications.

Table 3.4: Sediment particle size and classification terms, Main Array

<table>
<tr><th>Particle Size</th><th>Wentworth (1922)</th><th>Folk (1954)</th><th colspan="4">Folk, 5 classes (Kaskela et al., 2019)</th></tr>
<tr><td>> 256 mm</td><td>Boulder</td><td rowspan="6">Gravel</td><td colspan="4">Rock & Boulders</td></tr>
<tr><td>64 mm to 256 mm</td><td>Cobble</td></tr>
<tr><td>32 mm to < 64 mm</td><td rowspan="4">Pebbles</td><td rowspan="10">Coarse sediment:
(Gravel ≥ 80 %,
or
Gravel ≥ 5 %
and
Sand ≥ 90 %)</td><td rowspan="11">Mixed sediment:
(Mud ≥ 10 % - 95 %
Sand < 90 %
Gravel ≥ 5%)</td><td rowspan="11">Mud to sandy mud*:
(Mud 10 % -100 %
Sand < 90 %
Gravel < 5 %)</td><td rowspan="11">Sand:
(Mud < 10 %
Sand ≥ 90 %
Gravel < 5%)</td></tr>
<tr><td>16 mm to < 32 mm</td></tr>
<tr><td>8 mm to < 16 mm</td></tr>
<tr><td>4 mm to < 8 mm</td></tr>
<tr><td>2 mm to < 4 mm</td><td>Granules</td></tr>
<tr><td>1 mm to < 2 mm</td><td>Very coarse sand</td><td rowspan="5">Sand</td></tr>
<tr><td>0.5 mm to < 1 mm</td><td>Coarse sand</td></tr>
<tr><td>0.25 mm to < 0.5 mm</td><td>Medium sand</td></tr>
<tr><td>0.125 mm to < 0.25 mm</td><td>Fine sand</td></tr>
<tr><td>62.5 µm to 0.125 mm</td><td>Very fine sand</td></tr>
<tr><td>> 4 µm to 62.5 µm</td><td>Silt</td><td rowspan="2">Mud</td><td rowspan="2">-</td></tr>
<tr><td>> 1 µm to 4 µm</td><td>Clay</td></tr>
<tr><td colspan="7">Notes
* = Mud to sandy mud includes:
Mud (Mud ≥ 90 %, Sand <10 %, Gravel < 5%);
Sandy mud (Mud 50 % to 90 %, Sand 10 % to 50 %, Gravel < 5%);
Muddy sand (Mud 10 % to 50 %, Sand 50 % to 90 %, Gravel < 5%) (Kaskela et al., 2019)</td></tr>
</table>

Habitats within the survey area have been classified in accordance with the hierarchical EUNIS habitat classification (EEA, 2019), which has compiled habitat information from across Europe into a single database. Table 3.5 summarises the EUNIS hierarchy, with an example of the coding system. The equivalent classification from 'The Marine Habitat Classification for Britain and Ireland – Version 15.03' (JNCC, 2015) was also noted. The JNCC classification formed the basis of the marine section of the EUNIS habitat classification scheme (Davies & Moss, 2004), resulting in broad similarities, although there are some structural differences and habitat types. These classification systems are designed to incorporate small-scale temporal variations (e.g. seasonal) into the biotope/habitat categories. However, biological communities and marine environments can be highly dynamic and temporally variable, therefore the biotopes and habitats identified by the current assessment are representative of the survey area at the time of sampling only.

Table 3.5: EEA (2019) biotope classification hierarchy example, Main Array

Level	Example Classification Name	Example Classification Code
1. Environment	Marine habitats	A
2. Broad habitat types	Sublittoral sediments	A5
3. Main habitats	Sublittoral sand	A5.2
4. Biotope complexes	Circalittoral muddy sand	A5.26
5 & 6. Biotopes and sub-biotopes	*Amphiura brachiata* with *Astropecten irregularis* and other echinoderms in circalittoral muddy sand	A5.262

Classifications were assigned to each habitat type observed within the video and stills photography. Additional information from grab sampling, such as sediment particle size and macrofaunal communities, was used where applicable. Although, theoretically, a biotope can be assigned to any sized area of seabed, for the purposes of this assessment the commonly accepted minimum habitat size of 25 m^2 was adopted. For distinct areas of mixed habitats/biotopes (e.g. rock interspersed with coarse sediment) where the overall area was at least 25 m^2, biotope mosaics were considered (Parry, 2019).

4. Results

4.1 Field Operations

4.1.1 Bathymetry and Seabed Features

The following is summarised from the seafloor and shallow geophysical results report (Fugro, 2020). The water depths across the Main Array survey area ranged from 15.2 m LAT to 41.9 m LAT, generally increasing towards the north-west. The seafloor in the south-east was characterised by numerous sand waves and mega-ripples, whilst the west of the site was relatively flat and featureless. Lower SSS reflectivity areas in the east of the site were classified as sand with areas of sand waves, whilst the more homogeneous, medium reflectivity in the west were classified as gravelly sand.

During the survey operations it was observed that the sand waves were actively mobile and were migrating significantly in the time between adjacent survey lines.

4.1.2 Seabed Photography

Photographic stills and video were successfully acquired at all 22 proposed stations in the main array. Station MA_ST64 was repeated due to loss of the navigational overlay string. At stations MA_ST46, MA_ST57 and MA_ST65, the tide caused the vessel to change heading during data acquisition. Waypoints indicating the point of direction change have therefore been included (Table 4.1).

Table 4.1: Completed transects, Main Array

Geodetic Parameters: ED50, UTM Zone 31N, CM 3°E [m]						
Station		Easting	Northing	Depth [m BSL]	Length [m]	Data Acquisition
MA_ST04	SOL	434 692.7	5 926 680.4	44	39	2 min 7 sec 5 stills
	EOL	434 712.7	5 926 713.7	44		
MA_ST11	SOL	438 495.6	5 926 605.4	42	54	6 min 4 sec 5 stills
	EOL	438 540.9	5 926 634.2	42		
MA_ST12	SOL	437 501.2	5 925 669.5	38	63	6 min 49 sec 6 stills
	EOL	437 563.2	5 925 661.0	38		
MA_ST19	SOL	442 434.2	5 926 597.3	39	51	8 min 32 sec 5 stills
	EOL	442 485.6	5 926 598.1	39		
MA_ST22	SOL	438 618.0	5 923 551.4	36	51	6 min 8 sec 5 stills
	EOL	438 590.7	5 923 594.2	36		
MA_ST23	SOL	441 092.9	5 925 229.2	36	50	4 min 59 sec 6 stills
	EOL	441 141.0	5 925 215.1	36		

Geodetic Parameters: ED50, UTM Zone 31N, CM 3°E [m]						
Station		Easting	Northing	Depth [m BSL]	Length [m]	Data Acquisition
MA_ST26	SOL	441 196.7	5 925 054.8	37	61	5 min 0 sec 5 stills
	EOL	441 239.0	5 925 011.4	37		
MA_ST28	SOL	439 205.4	5 923 380.7	39	84	15 min 45 sec 12 stills
	EOL	439 289.4	5 923 381.1	39		
MA_ST43	SOL	447 059.3	5 926 476.0	35	44	5 min 43 sec 5 stills
	EOL	447 020.7	5 926 455.4	35		
MA_ST44	SOL	445 298.2	5 924 530.8	32	54	6 min 35 sec 6 stills
	EOL	445 252.4	5 924 502.9	32		
MA_ST46	SOL	443 152.3	5 922 810.2	30	84*	10 min 8 sec 5 stills
	WP	443 172.8	5 922 844.0	30		
	EOL	443 211.0	5 922 833.6	30		
MA_ST53	SOL	447 909.5	5 923 476.5	29	65	4 min 42 sec 8 stills
	EOL	447 966.8	5 923 446.4	29		
MA_ST55	SOL	447 878.7	5 923 416.6	28	53	4 min 35 sec 5 stills
	EOL	447 927.3	5 923 395.7	28		
MA_ST56	SOL	448 144.9	5 923 327.0	31	53	4 min 22 sec 5 stills
	EOL	448 186.1	5 923 293.0	31		
MA_ST57	SOL	445 939.0	5 921 251.2	28	70*	8 min 46 sec 6 stills
	WP	445 932.8	5 921 249.4	28		
	EOL	445 947.5	5 921 215.3	28		
MA_ST58	SOL	452 258.9	5 926 079.5	35	47	4 min 51 sec 5 stills
	EOL	452 300.6	5 926 101.8	35		
MA_ST59	SOL	450 361.3	5 924 431.9	35	46	5 min 39 sec 5 stills
	EOL	450 406.8	5 924 439.7	35		
MA_ST62	SOL	456 142.3	5 925 497.9	31	95	6 min 43 sec 7 stills
	EOL	456 235.3	5 925 518.8	31		
MA_ST63	SOL	456 148.4	5 925 482.0	31	45	3 min 6 sec 6 stills
	EOL	456 181.3	5 925 512.8	31		

Geodetic Parameters: ED50, UTM Zone 31N, CM 3°E [m]						
Station		Easting	Northing	Depth [m BSL]	Length [m]	Data Acquisition
MA_ST64	SOL	456 125.1	5 925 474.3	31	96	8 min 0 sec 6 stills
	EOL	456 218.7	5 925 495.6	31		
MA_ST64(2)	SOL	456 179.2	5 925 492.0	28	47	6 min 11 sec 6 stills
	EOL	456 214.7	5 925 461.6	28		
MA_ST65	SOL	453 543.5	5 923 290.3	31	94*	7 min 31 sec 5 stills
	WP	453 592.8	5 923 291.5	31		
	EOL	453 552.5	5 923 275.5	31		
MA_ST66	SOL	450 540.3	5 920 638.3	24	54	3 min 58 sec 5 stills
	EOL	450 594.3	5 920 635.3	24		

Notes
BSL = Below sea level
SOL = Start of line
EOL = End of line
WP = Waypoint
* = Direction of the transect changed during data acquisition, the total distance is therefore calculated as the distance travelled rather than the distance between the recorded SOL and EOL

4.1.3 Seabed Sampling

Grab samples were successfully acquired at all proposed stations in the main array survey area. A complete suite of grab samples (one macrofauna and one PSD subsample) was retained at all 62 station (Table 4.2). A complete suite of chemical samples was retained at all 10 stations.

Table 4.2: Completed sediment sampling stations, Main Array

Geodetic Parameters: ED50, UTM Zone 31N, CM 3°E [m]				
Station	Easting	Northing	Depth [m BSL]	Sample Acquisition
MA_ST01	432 971.4	5 927 193.6	39	FA, PSD
MA_ST02	432 775.0	5 926 151.4	39	FA, PSD
MA_ST03	435 309.0	5 927 335.5	40	FA, PSD
MA_ST04	434 709.3	5 926 693.1	44	FA, PSD, CS
MA_ST05	434 210.4	5 926 047.8	39	FA, PSD
MA_ST06	432 894.4	5 925 022.5	37	FA, PSD
MA_ST07	436 761.7	5 926 443.9	44	FA, PSD
MA_ST08	435 704.2	5 925 604.3	38	FA, PSD
MA_ST09	434 384.2	5 924 402.5	35	FA, PSD
MA_ST10	439 328.6	5 927 348.2	43	FA, PSD
MA_ST11	438 525.0	5 926 611.7	42	FA, PSD

Geodetic Parameters: ED50, UTM Zone 31N, CM 3°E [m]				
Station	Easting	Northing	Depth [m BSL]	Sample Acquisition
MA_ST12	437 531.5	5 925 677.0	38	FA, PSD, CS
MA_ST13	437 115.3	5 924 840.8	34	FA, PSD
MA_ST14	436 231.6	5 923 656.5	33	FA, PSD
MA_ST15	441 199.1	5 927 398.4	41	FA, PSD
MA_ST16	440 503.9	5 926 558.5	42	FA, PSD
MA_ST17	439 276.5	5 925 698.9	39	FA, PSD
MA_ST18	443 028.6	5 927 370.2	40	FA, PSD
MA_ST19	442 464.1	5 926 593.9	39	FA, PSD
MA_ST20	440 802.3	5 925 688.1	39	FA, PSD
MA_ST21	439 538.7	5 924 525.3	38	FA, PSD
MA_ST22	438 601.6	5 923 569.0	31	FA, PSD, CS
MA_ST23	441 122.5	5 925 222.9	36	FA, PSD
MA_ST24	438 792.6	5 923 498.0	32	FA, PSD
MA_ST25	441 235.7	5 925 039.3	38	FA, PSD, CS
MA_ST27	439 295.6	5 923 375.7	33	FA, PSD
MA_ST29	444 651.1	5 927 328.6	38	FA, PSD
MA_ST30	442 557.9	5 925 737.6	37	FA, PSD
MA_ST31	441 444.1	5 924 722.4	37	FA, PSD
MA_ST32	438 696.3	5 922 699.7	33	FA, PSD
MA_ST33	443 981.8	5 925 760.6	35	FA, PSD
MA_ST34	442 476.2	5 924 807.3	36	FA, PSD
MA_ST35	441 711.3	5 924 338.3	34	FA, PSD
MA_ST36	446 463.2	5 927 358.1	38	FA, PSD
MA_ST37	445 411.2	5 926 388.1	37	FA, PSD
MA_ST38	441 669.4	5 923 359.0	31	FA, PSD
MA_ST39	444 067.4	5 924 629.5	32	FA, PSD
MA_ST40	443 341.1	5 923 891.7	30	FA, PSD
MA_ST41	441 094.4	5 921 801.5	29	FA, PSD
MA_ST42	448 244.0	5 927 344.8	39	FA, PSD
MA_ST43	447 026.4	5 926 473.2	37	FA, PSD, CS
MA_ST44	445 272.5	5 924 509.3	32	FA, PSD
MA_ST45	443 817.3	5 922 832.6	29	FA, PSD
MA_ST46	443 177.1	5 922 838.5	30	FA, PSD
MA_ST47	445 086.7	5 923 234.0	31	FA, PSD, CS
MA_ST48	443 915.1	5 922 128.3	31	FA, PSD

Geodetic Parameters: ED50, UTM Zone 31N, CM 3°E [m]				
Station	Easting	Northing	Depth [m BSL]	Sample Acquisition
MA_ST49	442 896.1	5 921 283.6	27	FA, PSD
MA_ST50	446 014.0	5 923 286.1	36	FA, PSD
MA_ST51	445 493.3	5 922 320.7	34	FA, PSD
MA_ST52	444 634.0	5 920 717.6	27	FA, PSD
MA_ST54	447 950.6	5 923 468.1	36	FA, PSD
MA_ST55	447 900.6	5 923 413.6	36	FA, PSD
MA_ST56	448 180.1	5 923 328.4	37	FA, PSD
MA_ST57	445 936.3	5 921 240.4	32	FA, PSD
MA_ST58	452 287.9	5 926 084.4	38	FA, PSD
MA_ST59	450 384.0	5 924 428.5	38	FA, PSD, CS
MA_ST60	446 917.0	5 919 909.6	23	FA, PSD
MA_ST61	456 198.9	5 925 502.3	29	FA, PSD, CS
MA_ST63	456 180.4	5 925 497.1	27	FA, PSD
MA_ST64	456 201.1	5 925 486.9	27	FA, PSD
MA_ST65	453 581.5	5 923 297.0	29	FA, PSD, CS
MA_ST66	450 568.4	5 920 641.0	24	FA, PSD, CS

Notes
BSL = Below sea level
FA = Faunal sample
PSD = Particle size distribution subsample
CS = Chemistry sample

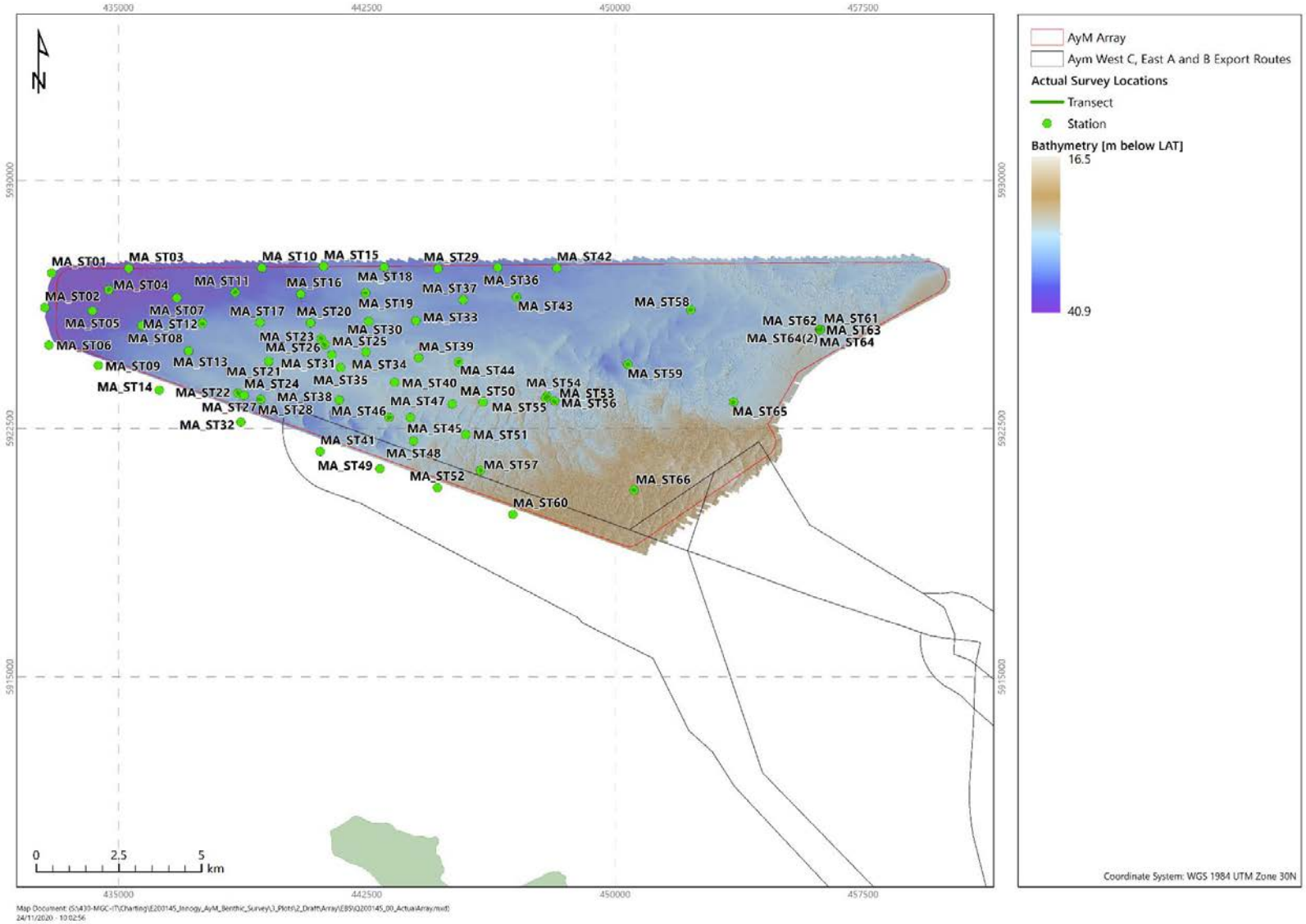


Figure 4.1: Completed survey locations overlaid on bathymetry, Main Array

4.2 Sediment Characterisation

4.2.1.1 Univariate Analysis

Table 4.3 presents a summary of sediment composition and Table 4.4 provides more detailed granulometric data. Figure 4.2 shows the spatial distribution of fractional composition across the survey area, while Figure 4.3 spatially displays the mean particle size of the stations sampled. Appendix B provides full details of the analytical techniques employed and Appendix D displays the histograms of particle size class summary for each station.

When fractional composition was considered, the sediment was fairly consistent across the main array survey area. All stations consisted of mainly sand with varying proportions of fines (mud; 0.00 % to 8.49 %) and gravel (0.00 % to37.94 %) (Table 4.3 and Figure 4.3). The proportion of sand content ranged from 55.55 % at station MA_ST61 to 99.89 % at station MA_ST66, with a mean value of 80.55 % and low variation (RSD 14 %). The fines content ranged from 0.00 % at 14 stations to 8.49 % at station MA_ST20, with a mean value of 3.61 % and high variation (standard deviation (SD) 2.80 %). The gravel content ranged from 0.11 % at station MA_ST66 to 37.94 % at station MA_ST61, with a mean value of 15.84 % and high variation (SD 9.19 %).

The Folk descriptions classify sediment by the relative proportion of sediment fractions (gravel, sand and fines). The Folk description (BGS modified) described the majority of sediment across the survey area as gravelly sand. Other Folk descriptions were also recorded: sand at ten stations, most of which were located in the eastern part of the survey, gravelly muddy sand at three stations located in the western part of the survey, muddy sandy gravel at station MA_ST61 and sandy gravel at station MA_ST02 (Table 4.3 and Figure 4.2).

Table 4.4 presents the physical composition of the sediments (Folk & Ward) at each station. The modality (or modal distribution) represents the number of peaks within the particle size frequency distribution. Distributions were varied across the survey area, with 23 stations displaying unimodal distributions, 22 displaying polymodal distributions and 17 displaying bimodal distributions.

Figure 4.3 presents the mean particle size (µm) spatially across the survey area. The mean particle size (µm) ranged from 481 µm at station MA_ST46 to 1315 µm at station MA_ST61, with a mean of 764 µm. The median particle size (µm) ranged from 473 at station MA_ST46 to 875 µm at station MA_ST63, with a mean of 632 µm.

The Wentworth description, assigned from mean particle size, categorised the main array survey area as very coarse to medium sand. Six stations were described as very coarse sand, two stations were described as medium sand and the remaining stations were all described as coarse sand.

The sorting coefficient of particle size indicates the degree of spread of individual size classes about the mean and provides the basis of a sorting index, in which low values indicate

sediments to be fairly homogeneous (well sorted) while high values suggest a relatively large scatter of particle sizes about the mean (poorly sorted). Across the survey area, 26 stations were described as poorly sorted, 18 stations were described as very poorly sorted, 8 were described as moderately sorted, 7 were described as moderately well sorted and 3 were described as well sorted.

Skewness indicates the tendency of particle size classes to be skewed about the mean, either towards finer sediment (negative skewed) or coarser sediment (positive skewedness). Across the survey area 27 stations were described as coarse skewed, 21 were described as symmetrical, 13 were described as very coarse skewed and 1 station (MA_ST59) was described as fine skewed.

Table 4.3: Summary of sediment characteristics, Main Array

Station	Fractional Composition			Fines		Folk Description (BGS modified)
	Gravel [%]	Sand [%]	Fines [%]	Silt [%]	Clay [%]	
MA_ST01	28.76	65.32	5.92	4.26	1.66	Gravelly sand
MA_ST02	30.07	66.86	3.07	2.45	0.62	Sandy gravel
MA_ST03	25.53	68.67	5.81	4.21	1.60	Gravelly sand
MA_ST04	23.87	69.85	6.28	4.75	1.54	Gravelly sand
MA_ST05	22.68	70.92	6.39	4.66	1.74	Gravelly sand
MA_ST06	17.46	80.49	2.04	1.65	0.39	Gravelly sand
MA_ST07	19.51	76.18	4.31	3.23	1.08	Gravelly sand
MA_ST08	24.74	70.63	4.63	3.48	1.15	Gravelly sand
MA_ST09	23.35	74.62	2.03	1.69	0.34	Gravelly sand
MA_ST10	24.66	70.67	4.67	3.54	1.13	Gravelly sand
MA_ST11	23.35	70.75	5.90	4.33	1.56	Gravelly sand
MA_ST12	22.68	69.08	8.24	6.03	2.21	Gravelly muddy sand
MA_ST13	16.30	78.47	5.23	3.83	1.40	Gravelly sand
MA_ST14	14.64	78.50	6.86	4.96	1.90	Gravelly sand
MA_ST15	28.79	65.15	6.06	4.57	1.49	Gravelly sand
MA_ST16	26.72	69.11	4.18	3.22	0.95	Gravelly sand
MA_ST17	19.90	73.04	7.05	4.96	2.09	Gravelly sand
MA_ST18	24.60	69.87	5.52	4.10	1.43	Gravelly sand
MA_ST19	23.87	69.99	6.14	4.53	1.62	Gravelly sand
MA_ST20	19.43	72.08	8.49	6.18	2.31	Gravelly muddy sand
MA_ST21	25.50	70.93	3.56	2.63	0.94	Gravelly sand
MA_ST22	9.84	85.62	4.54	3.38	1.16	Gravelly sand
MA_ST23	22.85	69.45	7.70	5.54	2.16	Gravelly sand
MA_ST24	3.35	93.42	3.23	2.55	0.68	Sand

Station	Fractional Composition			Fines		Folk Description (BGS modified)
	Gravel [%]	Sand [%]	Fines [%]	Silt [%]	Clay [%]	
MA_ST25	18.34	76.36	5.30	3.83	1.47	Gravelly sand
MA_ST27	12.98	82.56	4.46	3.18	1.28	Gravelly sand
MA_ST29	21.73	75.36	2.90	2.24	0.66	Gravelly sand
MA_ST30	29.34	63.08	7.58	5.28	2.30	Gravelly muddy sand
MA_ST31	19.29	73.95	6.76	4.97	1.79	Gravelly sand
MA_ST32	5.75	94.25	0.00	0.00	0.00	Gravelly sand
MA_ST33	19.78	75.91	4.31	3.15	1.16	Gravelly sand
MA_ST34	7.49	90.81	1.70	1.34	0.36	Gravelly sand
MA_ST35	6.99	93.01	0.00	0.00	0.00	Gravelly sand
MA_ST36	13.38	82.44	4.18	3.28	0.90	Gravelly sand
MA_ST37	26.58	67.13	6.29	4.56	1.73	Gravelly sand
MA_ST38	17.01	82.67	0.32	0.27	0.05	Gravelly sand
MA_ST39	13.96	86.04	0.00	0.00	0.00	Gravelly sand
MA_ST40	25.15	69.16	5.69	4.43	1.26	Gravelly sand
MA_ST41	9.75	84.92	5.34	4.08	1.26	Gravelly sand
MA_ST42	17.09	75.26	7.66	5.47	2.19	Gravelly sand
MA_ST43	22.35	70.42	7.22	5.22	2.00	Gravelly sand
MA_ST44	16.40	79.06	4.54	3.39	1.15	Gravelly sand
MA_ST45	16.16	82.80	1.04	0.81	0.23	Gravelly sand
MA_ST46	7.12	92.88	0.00	0.00	0.00	Gravelly sand
MA_ST47	8.82	90.62	0.56	0.53	0.03	Gravelly sand
MA_ST48	9.31	86.11	4.58	3.51	1.07	Gravelly sand
MA_ST49	11.74	87.18	1.08	0.93	0.15	Gravelly sand
MA_ST50	7.37	92.19	0.44	0.44	0.01	Gravelly sand
MA_ST51	8.79	90.90	0.31	0.27	0.04	Gravelly sand

Station	Fractional Composition			Fines		Folk Description (BGS modified)
	Gravel [%]	Sand [%]	Fines [%]	Silt [%]	Clay [%]	
MA_ST52	1.96	98.04	0.00	0.00	0.00	Sand
MA_ST54	12.49	86.11	1.39	1.12	0.27	Gravelly sand
MA_ST55	1.80	98.20	0.00	0.00	0.00	Sand
MA_ST56	3.60	96.40	0.00	0.00	0.00	Sand
MA_ST57	0.99	99.01	0.00	0.00	0.00	Sand
MA_ST58	10.81	83.51	5.68	4.33	1.35	Gravelly sand
MA_ST59	0.97	99.03	0.00	0.00	0.00	Sand
MA_ST60	1.10	98.90	0.00	0.00	0.00	Sand
MA_ST61	37.94	55.55	6.51	4.75	1.76	Muddy sandy gravel
MA_ST63	8.40	91.60	0.00	0.00	0.00	Gravelly sand
MA_ST64	4.74	95.26	0.00	0.00	0.00	Sand
MA_ST65	1.94	98.06	0.00	0.00	0.00	Sand
MA_ST66	0.11	99.89	0.00	0.00	0.00	Sand
Minimum	**0.11**	**55.55**	**0.00**	**0.00**	**0.00**	-
Maximum	**37.94**	**99.89**	**8.49**	**6.18**	**2.31**	
Median	**16.71**	**78.78**	**4.31**	**3.23**	**1.07**	
Mean	**15.84**	**80.55**	**3.61**	**2.68**	**0.93**	
Standard Deviation	**9.19**	**11.38**	**2.80**	**2.03**	**0.78**	

Notes
KP = Kilometre point
TOM = Total organic matter
TOC = Total organic carbon
Fines = silt and clay content
Silt = +4.0 to +8.0 ø units or 3.9 µm to 62.5 µm
Clay = +8.0 to +10.0 ø units or 0.98 µm to 3.9 µm
BGS = British Geological Survey

Table 4.4: Summary of particle size distribution, Main Array

Station	Modality	D10 [µm]	Median [µm]*	D90 [µm]	Mean Particle Size			Sorting Coefficient		Skewness	
					[µm]*	[phi]*	Wentworth (1922) Description	[µm]*	Description†	[µm]*	Description†
MA_ST01	Polymodal	268	732	5880	1010	-0.01	Very coarse sand	4.30	Very poorly sorted	0.13	Coarse skewed
MA_ST02	Polymodal	289	763	8050	1138	-0.19	Very coarse sand	3.50	Poorly sorted	0.39	Very coarse skewed
MA_ST03	Polymodal	258	640	5500	919	0.12	Coarse sand	4.19	Very poorly sorted	0.19	Coarse skewed
MA_ST04	Polymodal	252	673	33800	1030	-0.04	Very coarse sand	6.19	Very poorly sorted	0.28	Coarse skewed
MA_ST05	Polymodal	238	644	4680	839	0.25	Coarse sand	4.28	Very poorly sorted	0.09	Symmetrical
MA_ST06	Bimodal	290	662	3360	802	0.32	Coarse sand	2.55	Poorly sorted	0.32	Very coarse skewed
MA_ST07	Bimodal	268	646	3700	805	0.31	Coarse sand	2.80	Poorly sorted	0.30	Coarse skewed
MA_ST08	Bimodal	263	674	4910	907	0.14	Coarse sand	3.50	Poorly sorted	0.22	Coarse skewed
MA_ST09	Polymodal	279	688	4650	899	0.15	Coarse sand	2.91	Poorly sorted	0.34	Very coarse skewed
MA_ST10	Polymodal	266	645	5750	915	0.13	Coarse sand	3.38	Poorly sorted	0.36	Very coarse skewed
MA_ST11	Bimodal	239	624	4530	825	0.28	Coarse sand	3.96	Poorly sorted	0.13	Coarse skewed
MA_ST12	Polymodal	189	643	4360	804	0.31	Coarse sand	4.72	Very poorly sorted	-0.01	Symmetrical
MA_ST13	Bimodal	269	622	3650	757	0.40	Coarse sand	3.18	Poorly sorted	0.14	Coarse skewed
MA_ST14	Bimodal	196	603	2800	673	0.57	Coarse sand	3.84	Poorly sorted	-0.05	Symmetrical
MA_ST15	Polymodal	221	665	8210	1005	-0.01	Very coarse sand	4.99	Very poorly sorted	0.19	Coarse skewed
MA_ST16	Polymodal	258	682	5200	930	0.11	Coarse sand	3.31	Poorly sorted	0.34	Very coarse skewed
MA_ST17	Bimodal	219	605	3810	764	0.39	Coarse sand	4.25	Very poorly sorted	0.03	Symmetrical
MA_ST18	Polymodal	260	657	6310	941	0.09	Coarse sand	4.15	Very poorly sorted	0.21	Coarse skewed
MA_ST19	Polymodal	252	650	4950	869	0.20	Coarse sand	4.29	Very poorly sorted	0.12	Coarse skewed
MA_ST20	Bimodal	178	571	3750	716	0.48	Coarse sand	4.58	Very poorly sorted	0.00	Symmetrical
MA_ST21	Bimodal	288	669	6050	1009	-0.01	Very coarse sand	3.21	Poorly sorted	0.43	Very coarse skewed
MA_ST22	Unimodal	271	573	1970	583	0.78	Coarse sand	2.09	Poorly sorted	0.12	Coarse skewed
MA_ST23	Polymodal	211	624	4800	819	0.29	Coarse sand	4.77	Very poorly sorted	0.04	Symmetrical
MA_ST24	Unimodal	323	618	986	600	0.74	Coarse sand	1.63	Moderately sorted	-0.06	Symmetrical

Station	Modality	D10 [µm]	Median [µm]*	D90 [µm]	Mean Particle Size			Sorting Coefficient		Skewness	
					[µm]*	[phi]*	Wentworth (1922) Description	[µm]*	Description†	[µm]*	Description†
MA_ST25	Polymodal	254	606	3340	749	0.42	Coarse sand	3.35	Poorly sorted	0.12	Coarse skewed
MA_ST27	Bimodal	255	541	2380	650	0.62	Coarse sand	2.46	Poorly sorted	0.29	Coarse skewed
MA_ST29	Polymodal	300	691	3910	874	0.19	Coarse sand	2.64	Poorly sorted	0.34	Very coarse skewed
MA_ST30	Bimodal	206	718	5360	952	0.07	Coarse sand	5.24	Very poorly sorted	0.02	Symmetrical
MA_ST31	Bimodal	253	601	3410	765	0.39	Coarse sand	4.01	Very poorly sorted	0.04	Symmetrical
MA_ST32	Unimodal	401	705	1380	683	0.55	Coarse sand	1.60	Moderately well sorted	0.07	Symmetrical
MA_ST33	Polymodal	253	545	4120	743	0.43	Coarse sand	2.92	Poorly sorted	0.40	Very coarse skewed
MA_ST34	Unimodal	285	577	1600	579	0.79	Coarse sand	1.88	Moderately sorted	0.14	Coarse skewed
MA_ST35	Unimodal	367	657	1590	664	0.59	Coarse sand	1.75	Moderately sorted	0.15	Coarse skewed
MA_ST36	Bimodal	257	613	2520	685	0.54	Coarse sand	2.44	Poorly sorted	0.19	Coarse skewed
MA_ST37	Polymodal	223	637	5430	872	0.20	Coarse sand	4.61	Very poorly sorted	0.13	Coarse skewed
MA_ST38	Bimodal	294	554	3840	747	0.42	Coarse sand	2.55	Poorly sorted	0.50	Very coarse skewed
MA_ST39	Bimodal	375	725	2400	827	0.27	Coarse sand	2.06	Poorly sorted	0.28	Coarse skewed
MA_ST40	Polymodal	236	608	5830	866	0.21	Coarse sand	4.31	Very poorly sorted	0.21	Coarse skewed
MA_ST41	Unimodal	246	598	1960	603	0.73	Coarse sand	2.73	Poorly sorted	-0.06	Symmetrical
MA_ST42	Polymodal	197	639	3300	735	0.44	Coarse sand	4.22	Very poorly sorted	-0.05	Symmetrical
MA_ST43	Polymodal	207	670	5000	869	0.20	Coarse sand	4.77	Very poorly sorted	0.03	Symmetrical
MA_ST44	Polymodal	265	585	3290	724	0.47	Coarse sand	2.64	Poorly sorted	0.32	Very coarse skewed
MA_ST45	Bimodal	307	574	4300	752	0.41	Coarse sand	2.50	Poorly sorted	0.49	Very coarse skewed
MA_ST46	Unimodal	290	473	933	481	1.06	Medium sand	1.86	Moderately sorted	0.32	Very coarse skewed
MA_ST47	Unimodal	307	573	1770	600	0.74	Coarse sand	1.92	Moderately sorted	0.26	Coarse skewed
MA_ST48	Unimodal	267	519	1730	530	0.92	Coarse sand	2.09	Poorly sorted	0.18	Coarse skewed
MA_ST49	Unimodal	326	664	2410	721	0.47	Coarse sand	2.16	Poorly sorted	0.27	Coarse skewed
MA_ST50	Bimodal	303	569	1610	585	0.77	Coarse sand	1.82	Moderately sorted	0.20	Coarse skewed
MA_ST51	Unimodal	324	554	1210	568	0.82	Coarse sand	1.91	Moderately sorted	0.29	Coarse skewed

Station	Modality	D10 [µm]	Median [µm]*	D90 [µm]	Mean Particle Size			Sorting Coefficient		Skewness	
					[µm]*	[phi]*	Wentworth (1922) Description	[µm]*	Description†	[µm]*	Description†
MA_ST52	Unimodal	298	481	807	484	1.05	Medium sand	1.45	Moderately well sorted	0.05	Symmetrical
MA_ST54	Unimodal	315	599	3300	618	0.69	Coarse sand	2.18	Poorly sorted	0.30	Very coarse skewed
MA_ST55	Unimodal	404	658	964	647	0.63	Coarse sand	1.41	Moderately well sorted	-0.05	Symmetrical
MA_ST56	Unimodal	458	719	982	703	0.51	Coarse sand	1.40	Well sorted	-0.04	Symmetrical
MA_ST57	Unimodal	362	560	884	559	0.84	Coarse sand	1.42	Moderately well sorted	-0.03	Symmetrical
MA_ST58	Unimodal	260	606	2120	662	0.60	Coarse sand	2.94	Poorly sorted	-0.05	Symmetrical
MA_ST59	Unimodal	488	720	958	703	0.51	Coarse sand	1.31	Well sorted	-0.20	Fine skewed
MA_ST60	Unimodal	321	512	830	512	0.97	Coarse sand	1.43	Moderately well sorted	0.00	Symmetrical
MA_ST61	Polymodal	287	838	8690	1315	-0.40	Very coarse sand	5.47	Very poorly sorted	0.13	Coarse skewed
MA_ST63	Unimodal	528	875	1900	929	0.11	Coarse sand	1.66	Moderately sorted	0.21	Coarse skewed
MA_ST64	Unimodal	434	770	1540	786	0.35	Coarse sand	1.61	Moderately well sorted	0.10	Coarse skewed
MA_ST65	Unimodal	343	533	859	532	0.91	Coarse sand	1.43	Moderately well sorted	-0.01	Symmetrical
MA_ST66	Unimodal	360	530	804	522	0.94	Coarse sand	1.37	Well sorted	-0.04	Symmetrical
Minimum	-	**178**	**473**	**804**	**481**	**-0.40**	-	**1.31**	-	**-0.20**	-
Maximum		**528**	**875**	**33800**	**1315**	**1.06**		**6.19**		**0.50**	
Median		**269**	**630**	**3350**	**750**	**0.41**		**2.77**		**0.14**	
Mean		**289**	**632**	**3880**	**764**	**0.42**		**3.00**		**0.16**	
SD		**70.6**	**77**	**4340**	**168**	**0.316**		**1.26**		**0.157**	

Notes
SD = Standard deviation
* = Folk & Ward method (Gradistat statistics)
† = Sorting and skewness based on geometric Folk & Ward (1957) graphical measures (Gradistat statistics)

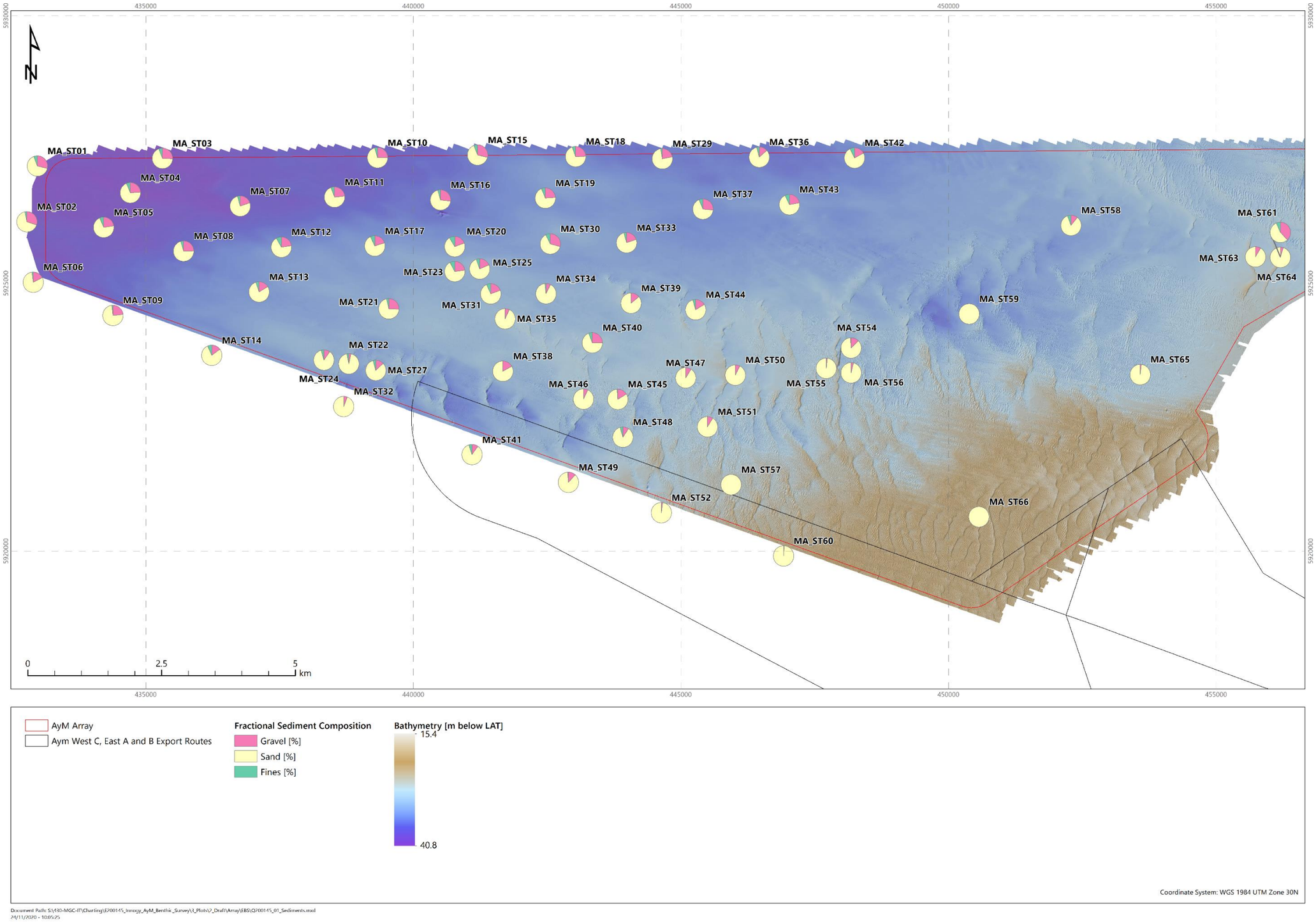


Figure 4.2: Sediment fractional composition overlaid on bathymetry, Main Array

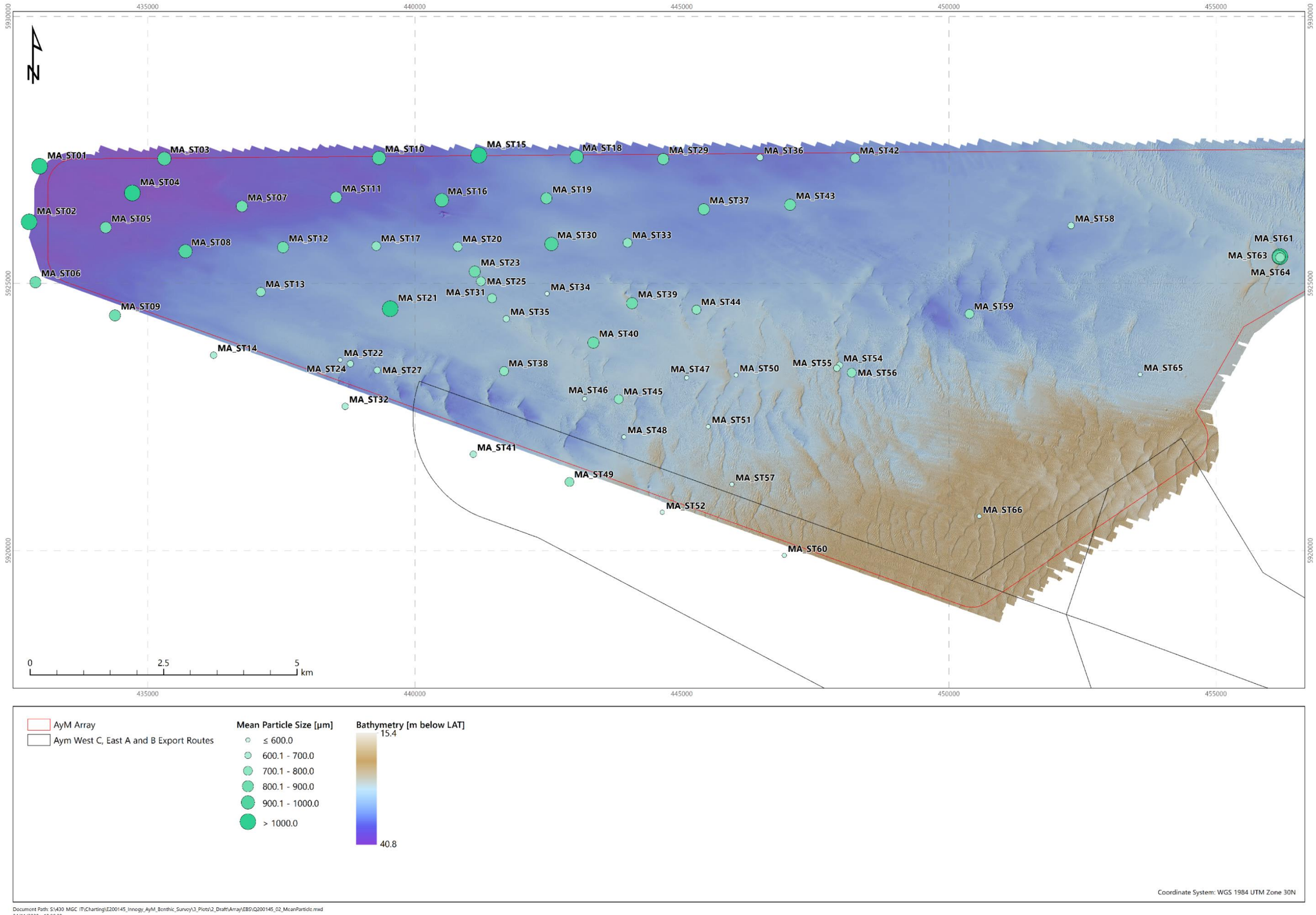


Figure 4.3: Sediment mean particle size (µm) overlaid on bathymetry, Main Array

4.2.1.2 Investigation of Granular Similarities

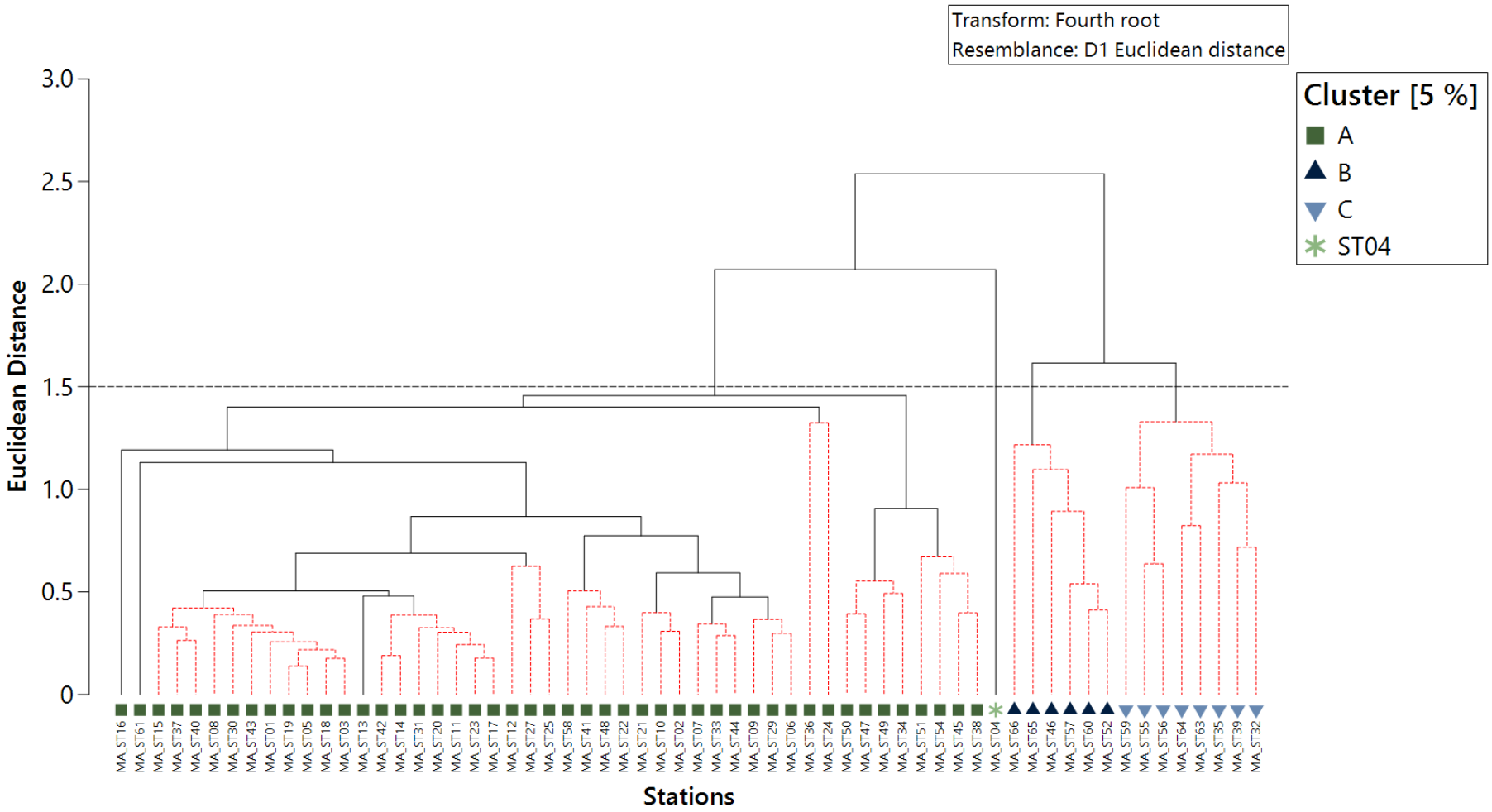
4.2.1.2.1 Cluster Analysis

In PRIMER, the 'Cluster' algorithm was used to group stations according to their similarity. Figure 4.4 presents the dendrogram for fourth root transformed sample data. The 'SIMPROF' algorithm was used to identify statistically significant (P = 0.05) differences between stations, with significant splits depicted as black lines and non-significant splits as red lines. Statistically significant splits may not be ecologically significant (Clarke et al., 2008), with ecological significance considered in subsequent sections of this report.

There was a high degree of similarity across the survey area with all stations recording a Euclidean distance of 2.54 or below. The 'SIMPROF' analysis (P ≤ 0.05) identified five clusters and one ungrouped station from the raw data. Following examination of the fractional sediment dataset this appeared to have over differentiated the dataset; as such a slice was positioned at a Euclidean distance of 1.5 to group three statistically significant clusters and one ungrouped station:

- Cluster A comprised 47 stations grouped together with an average squared distance of 1.46;
- Cluster B comprised six stations grouped together with an average squared distance of 1.22;
- Cluster C comprised eight stations grouped together with an average squared distance of 1.33;
- Ungrouped station MA_ST04 was most similar to cluster A with an average squared distance of 2.07.

Table 4.5 summarises the mean physical characteristics of the sediment groups identified in multivariate analysis. Figure 4.5 spatially presents the sediment groups identified in multivariate analysis overlaid on a SSS mosaic. Sand is the most common fraction between all groups. Cluster A contains the highest percentage of gravel and the lowest percentage of sand out of the three clusters. Both clusters B and C lack fines content; their dissimilarity to each another is likely a result of a slightly higher gravel content in cluster C. Station MA_ST04 was ungrouped as although the fractional composition is similar to those stations in cluster A, the higher mean particle size suggests the sediment at this station is coarser than those in cluster A.



Notes

Slice at 1.5 resemblance based on Euclidean distance

Figure 4.4: Dendrogram of hierarchical clustering of sediment characteristics data, Main Array

Table 4.5: Summary of particle size for multivariate analysis clusters, Main Array

Sediment Group	Stations	Depth* [m]	Mean Particle Size* [µm]	Fractional Composition [%]			Folk Description (BGS modified)†
				Gravel*	Sand*	Fines*	
A [■]	ST16, ST61, ST15, ST37, ST40, ST08, ST30, ST43, ST01, ST19, ST05, ST18, ST03, ST13, ST42, ST14, ST31, ST20, ST11, ST23, ST17, ST12, ST27, ST25, ST58, ST41, ST48, ST22, ST21, ST10, ST02, ST07, ST33, ST44, ST09, ST29, ST06, ST36, ST24, ST50, ST47, ST49, ST34, ST51, ST54, ST45, ST38	36.1 ± 4.07	793 ± 160	19.12 ± 7.38	76.25 ± 8.70	4.63 ± 2.28	Gravelly sand, sand, gravelly muddy sand, muddy sandy gravel and sandy gravel
B [▲]	ST66, ST65, ST46, ST57, ST60, ST52	27.5 ± 3.51	515 ± 29.8	2.20 ± 2.51	97.80 ± 2.51	0.00 ± 0.00	Gravelly sand and sand
C [▼]	ST59, ST55, ST56, ST64, ST63, ST35, ST39, ST32	33.0 ± 4.21	743 ± 97.2	5.78 ±4.14	94.22 ± 4.14	0.00 ± 0.00	Gravelly sand and sand
ST04 [✱]	ST04	44	1030	23.87	69.85	6.28	Gravelly sand

Notes
* = Mean ± standard deviation within each sediment group
† = Range of Folk descriptions (BGS modified) within each group

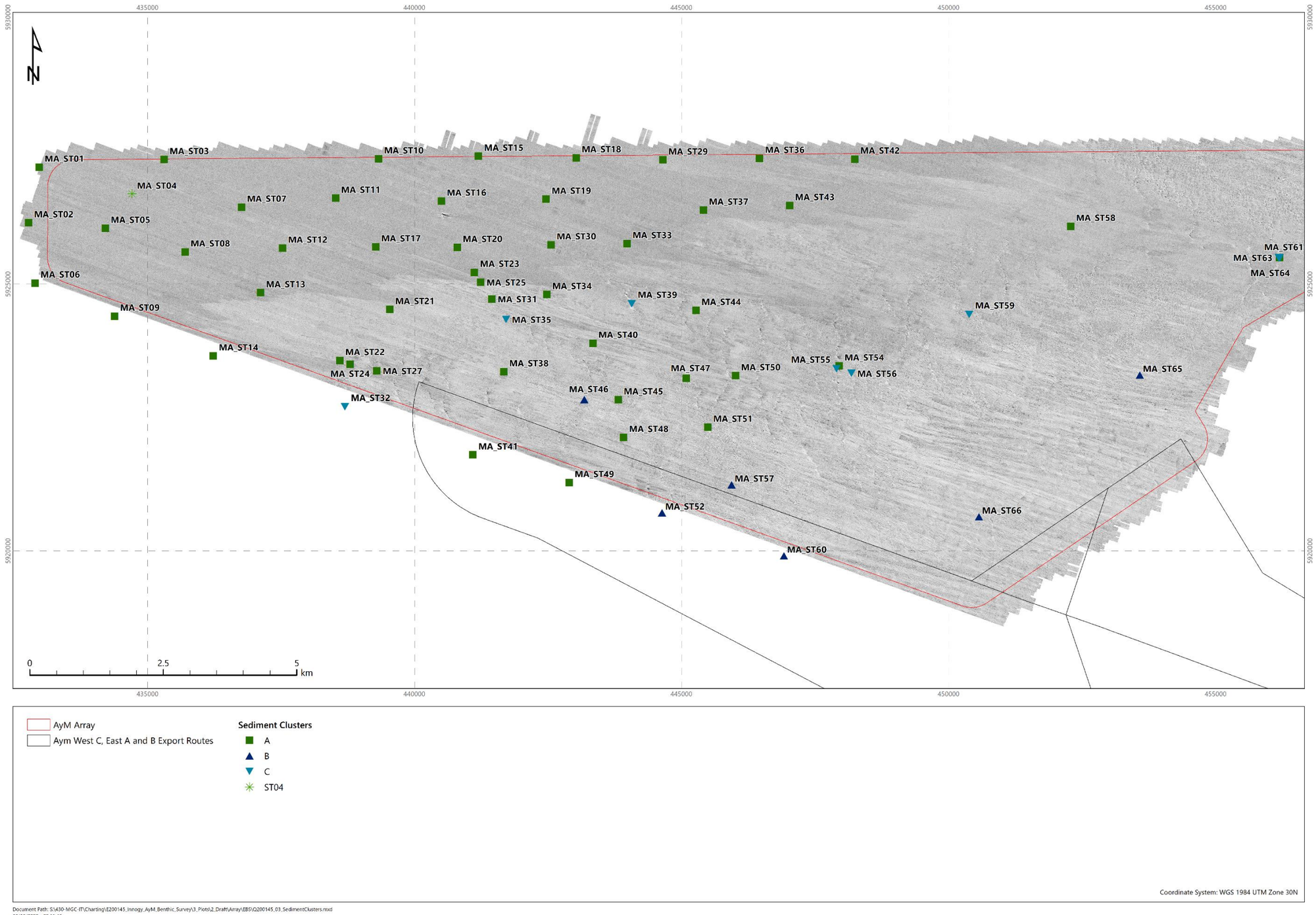


Figure 4.5: Sediment groups identified in multivariate analysis overlaid on a side scan sonar mosaic, Main Array

4.2.1.2.2 Non-metric Multidimensional Scaling (nMDS)

Figure 4.6 displays the results of the non-metric multidimensional scaling (nMDS), which is an ordination technique that arranges stations on a two-dimensional plot, so that their relative distances from each other reflect similarities in sediment characteristics. The stress coefficient of 0.06 provides a good representation of the data (Clarke & Warwick, 2001).

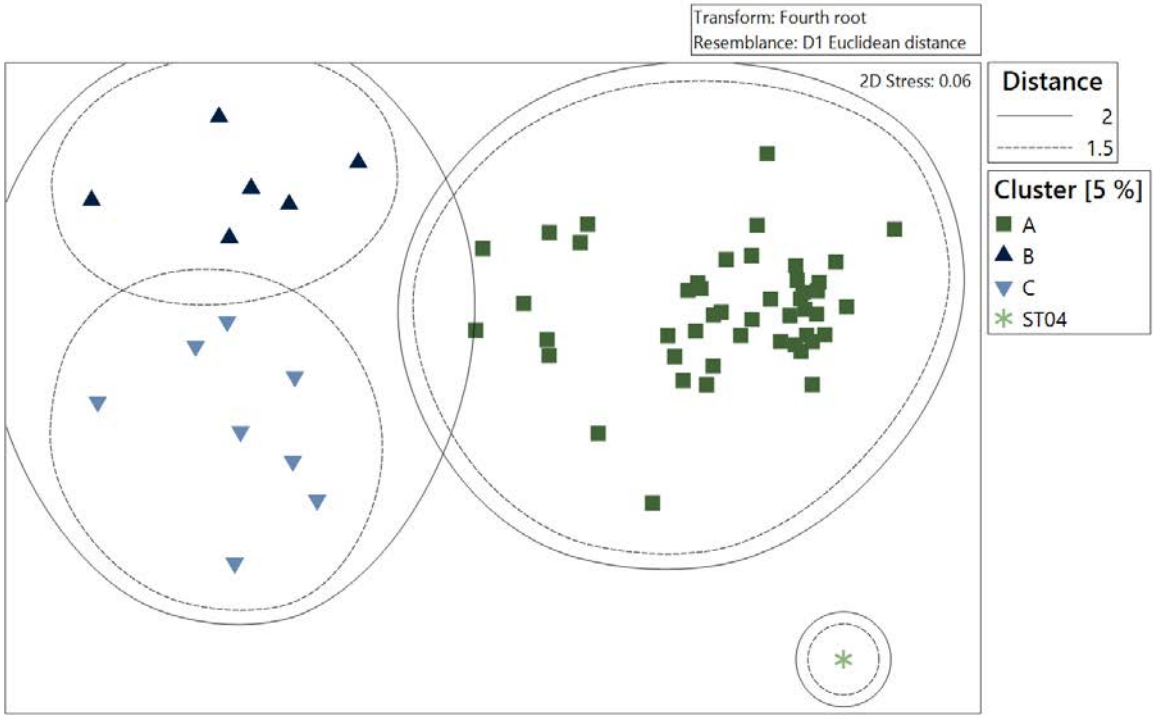


Figure 4.6: Non-metric multidimensional scaling ordination of particle sizes (µm)/fractional composition (%), Main Array

4.2.1.2.3 Principal Components Analysis

Figure 4.7 presents principal components analysis (PCA) ordination plot of the percentage of the sediment that comprised each sediment fraction; this analysis was used to identify the sediment fractions driving the variability of the sediment composition across the survey area. The first two principal components accounted for 63.6 % (PC1) and 27.7 % (PC2) of the variation present in the multivariate dataset, cumulatively accounting for 91.3 % of the variation and thereby indicating a good two-dimensional fit to the multivariate data. PC1 has strong positive loadings for granule and fine pebble (eigenvectors of 0.217 and 0.205, respectively), and a strong negative loading for coarse sand (eigenvector of -0.930). PC2 has a strong positive loading for medium sand (eigenvector of 0.901), and strong negative loadings for very coarse sand and granule (eigenvectors of –0.333 and –0.212, respectively). The PCA supports the preceding cluster and nMDS analyses by demonstrating clear separation of the multivariate clusters identified. The eigenvectors superimposed on the plot show that cluster B was differentiated from cluster A due to its higher proportion of medium sand and lower proportion of coarser material (very coarse sand, fine pebble and granule).

Cluster C was differentiated from cluster A due to its higher proportion of coarse sand material.

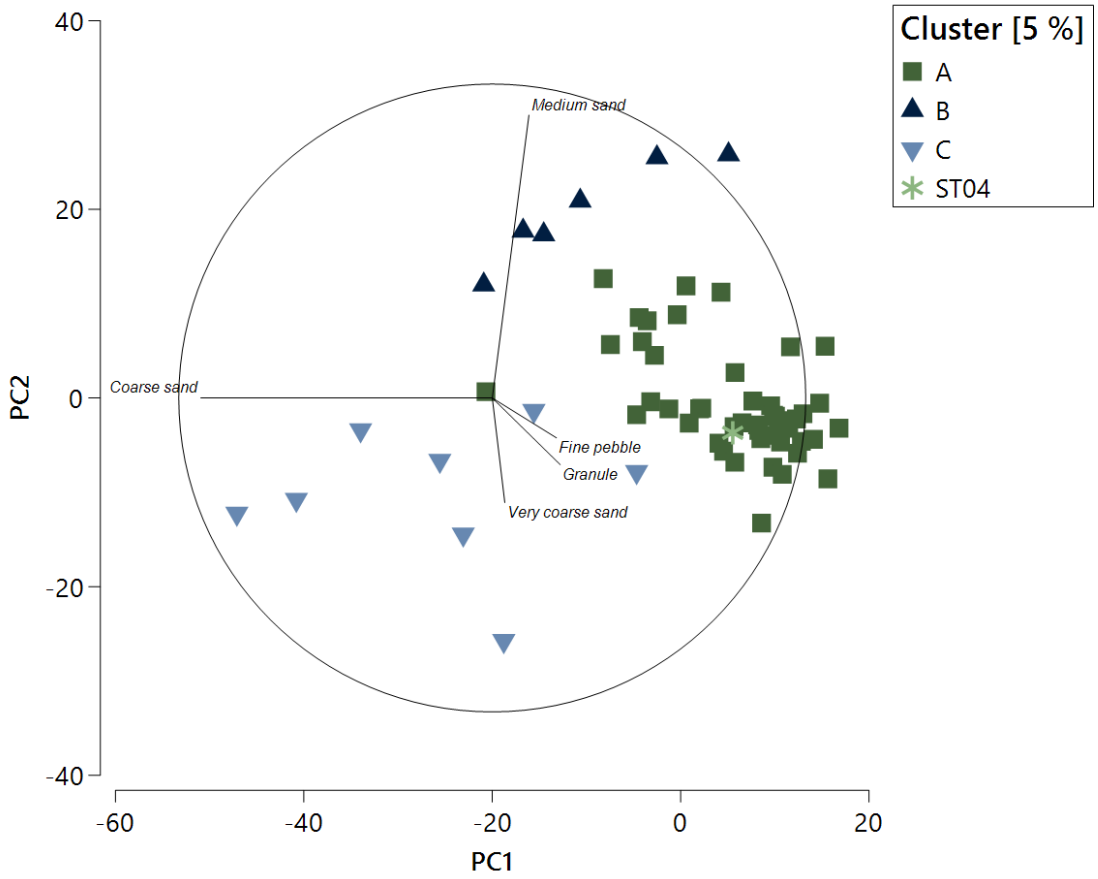


Figure 4.7: PCA ordination of particle sizes (µm)/fractional composition (%), Main Array

4.3 Sediment Chemistry

4.3.1 Sediment Hydrocarbons

4.3.1.1 Sediment Aromatic Hydrocarbon Content

The distribution and concentration of aromatic compounds in seabed sediments were analysed by GC-MS. The aromatic compounds quantified were the naphthalenes (2 ring aromatics), 3 to 6 ring PAHs and the dibenzothiophenes (sulphur containing heteroaromatics). Table 4.6 summarises the total concentrations of aromatic hydrocarbons, including the US EPA 16 PAH and NPD.

Appendix E.1. presents the US EPA 16 PAH concentrations across the Main Array survey area with the individual aromatic hydrocarbons and their alkyl homologue concentrations presented in Appendix E.2., including threshold values where available.

Total 2 to 6 ring PAHs, total US EPA 16 PAHs and total naphthalenes, phenanthrenes and dibenzothiophenes (NPDs) are calculated as the sum of individual PAHs, some of which were less than the minimum reporting value (MRV). Consequently, the total concentration is

assigned as a less than value. However, the concentrations of the individual PAHs that were less than the MRV are unlikely to significantly influence the total concentrations. Therefore, for the purposes of this report, total 2 to 6 ring PAH concentrations, total US EPA 16 PAH concentrations and total NPDs are treated as absolute values to provide comparison between stations and with regional datasets.

Total 2 to 6 ring PAH concentrations ranged from < 0.004 µg/g at station MA_ST65 to 1.42 µg/g at station MA_ST12, with a mean concentration of 0.176 µg/g. Total 2 to 6 ring PAH concentrations were higher than the median concentration reported from the SEA6 Irish Sea surveys (0.0237 µg/g; Cefas, 2005) at six stations (stations MA_ST04, MA_ST12, MA_ST22, MA_ST25, MA_ST43 and MA_ST61).

Total US EPA 16 PAH concentrations ranged from < 1.9 ng/g at station MA_ST65 to 820 ng/g at station MA_ST12 with a mean of 92.9 ng/g. All US EPA 16 PAHs were below their respective ERL values (OSPAR, 2014) across the Main Array survey area (Appendix E.1).

The proportion of petrogenically derived NPD to total 2 to 6 ring PAH material ranged from 17 % at station MA_ST12 to < 50 % at station MA_ST59, with a mean of 35 %.

Table 4.6: Summary of sediment aromatic hydrocarbon analysis, Main Array

Station	Total 2 to 6 Ring PAH*	Total US EPA 16 PAH†	NPD	
			Total*	[%]
MA_ST04	0.0452	< 14.5	0.0155	34
MA_ST12	1.42	820	0.247	17
MA_ST22	0.0445	< 11.7	0.0207	47
MA_ST25	0.0351	< 12.5	0.0120	34
MA_ST43	0.0747	23.6	0.0295	39
MA_ST47	< 0.0154	< 4.9	< 0.0051	< 33
MA_ST59	< 0.0159	< 3.2	< 0.0078	< 50
MA_ST61	0.0965	33.7	0.0294	30
MA_ST65	< 0.0043	< 1.9	< 0.0013	< 30
MA_ST66	< 0.0104	< 3.2	< 0.0032	< 31
Minimum	**< 0.0043**	**< 1.9**	**< 0.0013**	**17**
Maximum	**1.42**	**820**	**0.247**	**< 50**
Median	**0.0398**	**12.1**	**0.0138**	**34**
Mean	**0.176**	**92.9**	**0.0372**	**35**
Standard deviation	**0.438**	**256**	**0.0744**	**9.3**
RSD [%]	**249**	**275**	**200**	**27**
SEA6 (Irish Sea) (Cefas, 2005)‡				
Mean	**0.0237**	-	-	-

Notes
For the summary statistics, less than values have been considered as absolute values
Total 2 to 6 ring PAH = Total 2 to 6 ring polycyclic aromatic hydrocarbons (PAH), including alkyl homologues
Total US EPA 16 PAH = Total United States Environmental Protection Agency's 16 (US EPA PAH) polycyclic aromatic hydrocarbons
Total NPD = Total naphthalene, phenanthrene/anthracene and dibenzothiophene
NPD [%] = Percentage of total 2 to 6 ring PAH concentration comprised of NPD
RSD = Relative standard deviation
SD = Standard deviation
* = Concentrations expressed as µg/g of dry sediment
† = Concentrations expressed as ng/g of dry sediment
‡ = Value taken from site 715 (Liverpool Bay) from the Strategic Environmental Assessment 6 (SEA6) review of the Irish Sea (Cefas, 2005)

4.3.2 Sediment Metals

Table 4.7 summarises the concentrations of the extractable metals in the sediment samples from an aqua regia digest.

All metals concentrations were less than their respective Cefas guideline action levels (AL1 and AL2) and OSPAR ERL values.

The overall trend in individual metals concentrations is presented in Figure 4.8, and is assessed by comparing the maximum normalised elemental concentrations. Normalising the elemental data for the sediment samples to the highest concentration for each element, the highest concentrations of most metals was seen at station MA_ST04.

Table 4.7: Summary of sediment metals analysis, Main Array

Station	Al	As	Ba	Cd	Cr	Cu	Hg	Ni	Pb	Sn	Zn
MA_ST04	5260	8.92	23.1	< 0.0800	14.5	4.58	< 0.0400	7.70	13.8	1.35	27.8
MA_ST12	4700	12.3	17.7	< 0.0800	10.1	3.14	< 0.0400	7.57	15.5	2.46	24.7
MA_ST22	2420	11.4	8.43	< 0.0800	6.37	4.16	< 0.0400	4.32	7.93	0.343	15.3
MA_ST25	2800	9.78	8.34	< 0.0800	7.39	2.53	< 0.0400	4.95	9.77	0.295	16.6
MA_ST43	4700	12.6	22.2	< 0.0800	12.6	2.84	< 0.0400	8.02	13.3	0.536	24.8
MA_ST47	2480	16.5	8.01	< 0.0800	7.33	1.86	< 0.0400	5.97	7.97	0.305	18.9
MA_ST59	2500	13.3	7.99	< 0.0800	6.94	1.66	< 0.0400	5.39	5.42	0.253	18.8
MA_ST61	4800	10.4	16.8	< 0.0800	11.5	3.07	< 0.0400	7.17	11.6	5.11	26.1
MA_ST65	1700	7.68	10.2	< 0.0800	5.02	1.12	< 0.0400	3.56	4.62	0.214	13.6
MA_ST66	2120	14.3	6.08	< 0.0800	5.75	1.48	< 0.0400	4.29	4.85	0.430	14.0
Minimum	**1700**	**7.68**	**6.08**	**< 0.0800**	**5.02**	**1.12**	**< 0.0400**	**3.56**	**4.62**	**0.214**	**13.6**
Maximum	**5260**	**16.5**	**23.1**	**< 0.0800**	**14.5**	**4.58**	**< 0.0400**	**8.02**	**15.5**	**5.11**	**27.8**
Median	**2650**	**11.8**	**9.32**	**-**	**7.36**	**2.68**	**-**	**5.68**	**8.87**	**0.386**	**18.8**
Mean	**3350**	**11.7**	**12.9**	**-**	**8.75**	**2.64**	**-**	**5.89**	**9.48**	**1.13**	**20.1**
Standard deviation	**1340**	**2.64**	**6.42**	**-**	**3.21**	**1.14**	**-**	**1.63**	**3.95**	**1.57**	**5.34**
RSD	**40**	**23**	**50**	**-**	**37**	**43**	**-**	**28**	**42**	**139**	**27**
Cefas Guideline Action Levels											
AL1	**-**	**20**	**-**	**0.4**	**40**	**40**	**0.3**	**20**	**50**	**-**	**130**
AL2	**-**	**100**	**-**	**5**	**400**	**400**	**3**	**200**	**500**	**-**	**800**
CEMP Assessment Criteria (OSPAR, 2014)											
ERL	**-**	**-**	**-**	**1.20**	**81.0**	**34.0**	**0.150**	**-**	**47.0**	**-**	**150**

Notes

Concentrations expressed in µg/g dry sediment

Al = Aluminium As = Arsenic Ba = Barium Cd = Cadmium Cr = Chromium Cu = Copper

Hg = Mercury Ni = Nickel Pb = Lead Sn = Tin Zn = Zinc

RSD = Relative standard deviation

Cefas = Centre for Environment, Fisheries and Aquaculture Science

AL1 = Action level 1

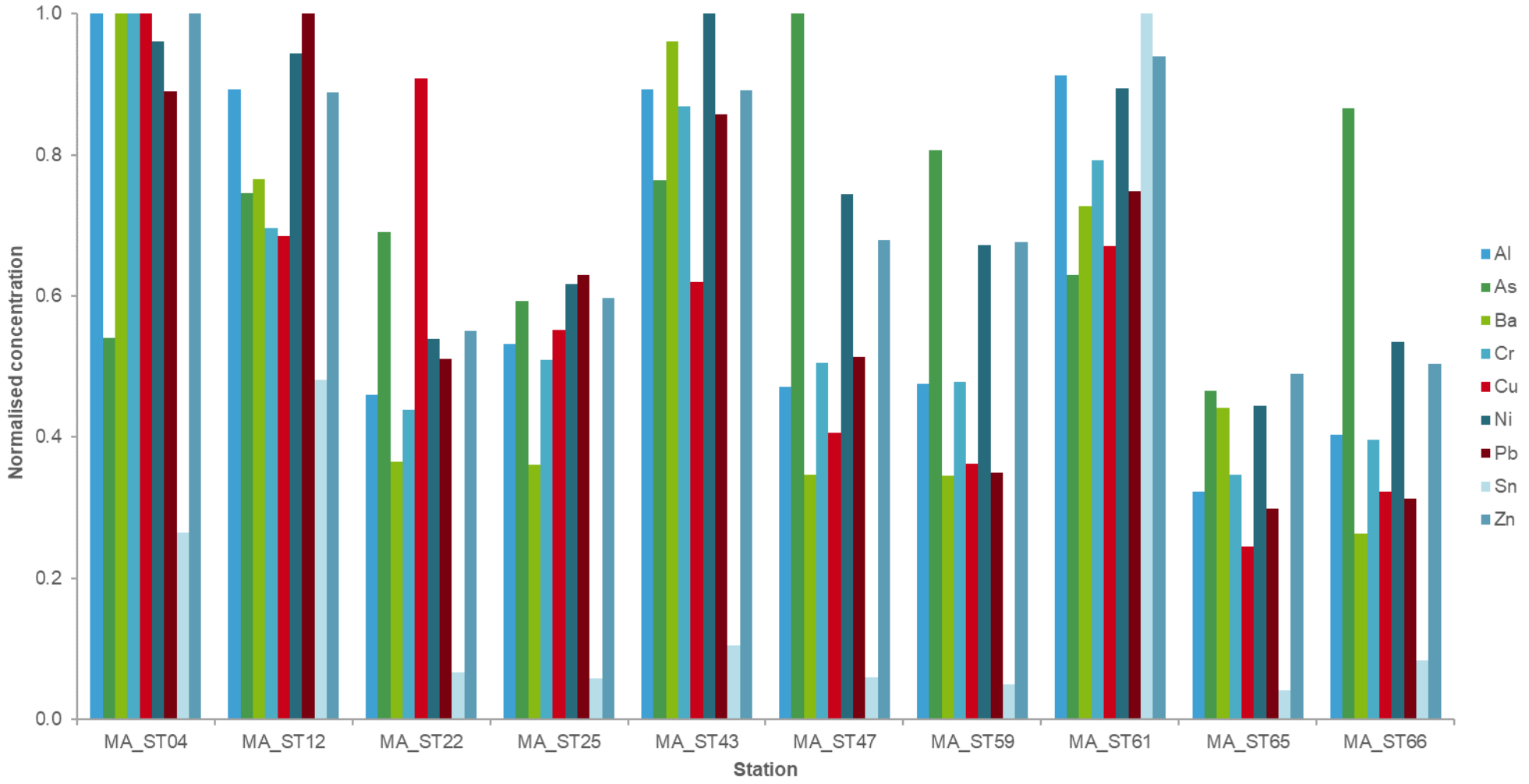
AL2 = Action level 2

CEMP = Coordinated Environmental Monitoring Programme

OSPAR = Oslo and Paris Commission

ERL = Effects range low

Key:	Below ERL	Above ERL



Notes

Al = Aluminium | As = Arsenic | Ba = Barium | Cr = Chromium | Cu = Copper | Ni = Nickel
Pb = Lead | Sn = Tin | Zn = Zinc

Figure 4.8: Relative (maximum normalised) elemental concentrations in sediments, Main Array

4.4 Sediment Macrofauna

4.4.1 Infaunal and Solitary Epifauna

4.4.1.1 Phyletic Composition

A full list of taxa identified and enumerated (individuals per 0.1 m^2) from the survey area are presented in Appendix G.

A total of 336 taxa and 6946 individuals were identified within grab samples from the survey area. Of these taxa, 87 were recorded as juveniles, pelagic, colonial or solitary epifauna. To represent the permanent macrofaunal community and to avoid spurious enhancement of the species list, the dataset was rationalised and these taxa were removed prior to statistical analysis. Records of several indeterminable specimens were also merged with those of identifiable taxa (see Appendix G).

Table 4.8 summarises the abundance of taxonomic groups identified within the rationalised dataset across the survey area and Figures 4.9 and 4.1 display the data graphically.

The rationalised data comprised 247 benthic taxa, of which 124 (50.2 %) were annelids, 63 (25.5 %) were arthropods, 33 (13.4 %) were molluscs, 13 (5.3 %) were echinoderms and 14 (5.7 %) were members of other phyla (specifically cephalochordates, cnidarians, nemerteans, platyhelminths, phoronids, sipunculids and tunicates). A total of 6482 individuals was identified in the rationalised data, of which 3102 (47.9 %) were annelids, 2254 (34.8 %) were arthropods, 182 (2.8 %) were molluscs, 133 (2.1 %) were echinoderms and 811 (12.5 %) were other phyla (Table 4.8).

Table 4.8: Taxonomic groups, Main Array

Taxonomic Group	Number of Taxa	Composition of Taxa [%]*	Abundance	Composition of Individuals [%]*
Annelida	124	50.2	3102	47.9
Arthropoda	63	25.5	2254	34.8
Mollusca	33	13.4	182	2.8
Echinodermata	13	5.3	133	2.1
Other phyla	14	5.7	811	12.5
Total	**247**	**100**	**6482**	**100**

Notes
Macrofaunal samples were processed through a 1 mm sieve
Other phyla include: Cephalochordata, Cnidaria, Nemertea, Platyhelminthes, Phoronida, Sipuncula and Tunicata
* = Percentages expressed to 1 decimal place and, due to numerical rounding, values presented may not equate to 100 %

Figures 4.9 and 4.1 illustrate the phyletic composition of taxa and individuals for each station (per 0.1 m^2), respectively, facilitating spatial comparison and highlighting the broad similarities between stations across the survey area. Annelids contributed the highest (or joint highest) number of taxa at all stations; at stations MA_ST51 and MA_ST66 annelids and

arthropods contributed the joint highest number of taxa. Annelids also contributed the highest (or joint highest) number of individuals at the majority of stations, although arthropods were the most abundant phylum at 19 of the 62 stations sampled. The most notable variations were in the proportional contributions of echinoderms and molluscs to both taxa and abundance of individuals, with their absence at 17 and 9 stations, respectively. Furthermore, arthropods, molluscs and echinoderms were absent from station MA_ST59, and molluscs, echinoderms and other phylum were absent from station MA_ST66.

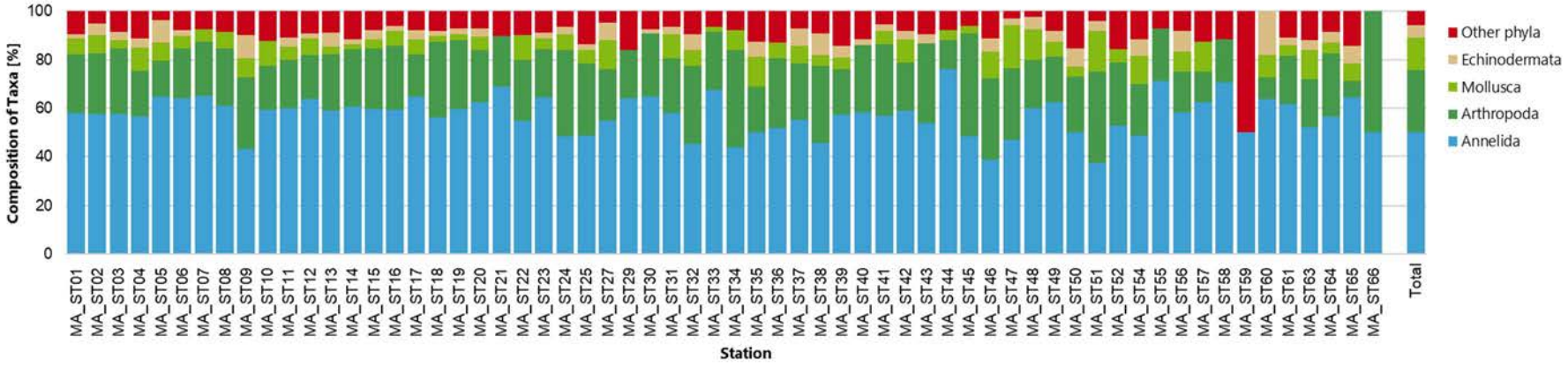


Figure 4.9: Phyletic composition of macrofaunal taxa, Main Array

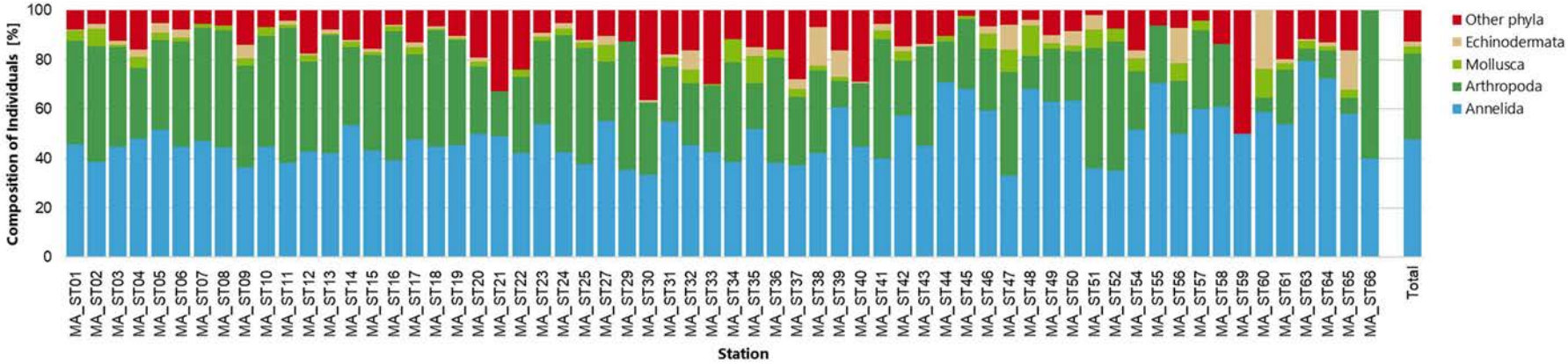


Figure 4.10: Phyletic composition of macrofaunal individuals, Main Array

4.4.1.2 Community Statistics

Table 4.9 presents the number of taxa and individuals identified within the rationalised dataset from each station along with several commonly used diversity and evenness statistics. Figures 4.11 and 4.12 spatially presents the number of taxa and individuals across the survey area.

The number of taxa per station (0.1 m^2) ranged from 2 at station MA_ST59 to 65 at station MA_ST61 with a mean of 37.

The number of individuals per station (0.1 m^2) ranged from 2 at station MA_ST59 to 244 at station MA_ST11 with a mean of 105. A broad spatial trend in taxa and individuals was observed, where typically higher numbers were recorded in the west of the survey area (Figures 4.11 and 4.12).

When the Shannon-Wiener index was considered in the context of the diversity thresholds suggested by Dauvin et al. (2012; Table 3.2), diversity could be inferred to range from poor to high, with the majority of stations (40 of 62 the stations sampled) featuring high diversity (> 4.00). The minimum Shannon-Wiener of 1.00 (low diversity) was reported from station MA_ST59 and the maximum of 5.49 from station MA_ST61.

The Pielou's evenness index (J) is a measure of the distribution of individuals between taxa. It ranged from 0.716 at station MA_ST63 to 1.000 at station MA_ST59, with a mean of 0.866. All stations exhibited moderate to high evenness (> 0.700). The complement of the Simpsons index of dominance (1 − λ) largely mirrored the Pielou's evenness index.

Table 4.9: Macrofaunal community statistics (0.1 m^2), Main Array

Station	Numbers		Shannon-Wiener ($H'Log_2$)	Evenness	
	Taxa	Individuals		Pielou (J)	Simpson (1 − λ)
MA_ST01	62	173	5.37	0.902	0.960
MA_ST02	40	111	4.36	0.818	0.901
MA_ST03	59	195	4.95	0.842	0.941
MA_ST04	53	133	5.08	0.888	0.954
MA_ST05	54	134	5.04	0.876	0.942
MA_ST06	39	118	4.43	0.837	0.910
MA_ST07	40	145	4.30	0.809	0.893
MA_ST08	46	166	4.47	0.810	0.920
MA_ST09	51	129	4.79	0.844	0.928
MA_ST10	49	168	4.45	0.793	0.903
MA_ST11	55	244	4.50	0.779	0.913
MA_ST12	44	126	4.58	0.839	0.926
MA_ST13	34	130	3.84	0.755	0.851

Station	Numbers		Shannon-Wiener ($H'Log_2$)	Evenness	
	Taxa	Individuals		Pielou (J)	Simpson (1 – λ)
MA_ST14	51	161	4.73	0.834	0.926
MA_ST15	52	137	4.94	0.867	0.947
MA_ST16	49	158	4.55	0.810	0.911
MA_ST17	51	163	4.87	0.858	0.941
MA_ST18	48	174	4.52	0.810	0.913
MA_ST19	42	117	4.90	0.908	0.954
MA_ST20	56	146	5.27	0.908	0.963
MA_ST21	29	55	4.34	0.893	0.922
MA_ST22	40	126	4.51	0.847	0.931
MA_ST23	45	124	4.82	0.878	0.942
MA_ST24	31	80	4.49	0.905	0.933
MA_ST25	37	85	4.42	0.849	0.908
MA_ST27	42	87	5.01	0.929	0.960
MA_ST29	25	79	3.44	0.740	0.802
MA_ST30	54	207	4.21	0.732	0.860
MA_ST31	31	84	4.19	0.847	0.911
MA_ST32	31	75	4.44	0.897	0.937
MA_ST33	46	158	4.37	0.791	0.902
MA_ST34	25	52	4.32	0.931	0.939
MA_ST35	16	27	3.78	0.945	0.914
MA_ST36	31	63	4.53	0.915	0.936
MA_ST37	56	126	4.96	0.854	0.930
MA_ST38	22	45	4.17	0.935	0.933
MA_ST39	21	56	4.02	0.915	0.926
MA_ST40	43	125	4.65	0.857	0.934
MA_ST41	37	113	4.28	0.822	0.896
MA_ST42	61	157	5.39	0.908	0.965
MA_ST43	52	164	4.84	0.848	0.930
MA_ST44	25	48	4.31	0.928	0.937
MA_ST45	33	88	4.49	0.890	0.938
MA_ST46	18	32	3.88	0.931	0.916
MA_ST47	34	88	4.62	0.908	0.943
MA_ST48	40	163	3.82	0.717	0.825
MA_ST49	48	130	4.93	0.883	0.940
MA_ST50	26	49	4.44	0.945	0.945

Station	Numbers		Shannon-Wiener ($H'Log_2$)	Evenness	
	Taxa	Individuals		Pielou (J)	Simpson (1 – λ)
MA_ST51	24	53	4.10	0.895	0.917
MA_ST52	19	40	3.83	0.903	0.906
MA_ST54	43	93	4.87	0.897	0.950
MA_ST55	14	17	3.69	0.969	0.913
MA_ST56	12	14	3.52	0.982	0.908
MA_ST57	8	25	2.38	0.794	0.749
MA_ST58	34	95	4.43	0.870	0.927
MA_ST59	2	2	1.00	1.000	0.500
MA_ST60	11	17	3.29	0.952	0.886
MA_ST61	65	187	5.49	0.912	0.971
MA_ST63	25	122	3.32	0.716	0.830
MA_ST64	23	62	3.63	0.803	0.857
MA_ST65	14	31	3.58	0.940	0.905
MA_ST66	4	10	1.69	0.843	0.640
Minimum	**2**	**2**	**1.00**	**0.716**	**0.500**
Maximum	**65**	**244**	**5.49**	**1.000**	**0.971**
Median	**40**	**115**	**4.44**	**0.873**	**0.926**
Mean	**37**	**105**	**4.30**	**0.866**	**0.905**
Standard Deviation	**15.6**	**56.2**	**0.790**	**0.0644**	**0.0744**

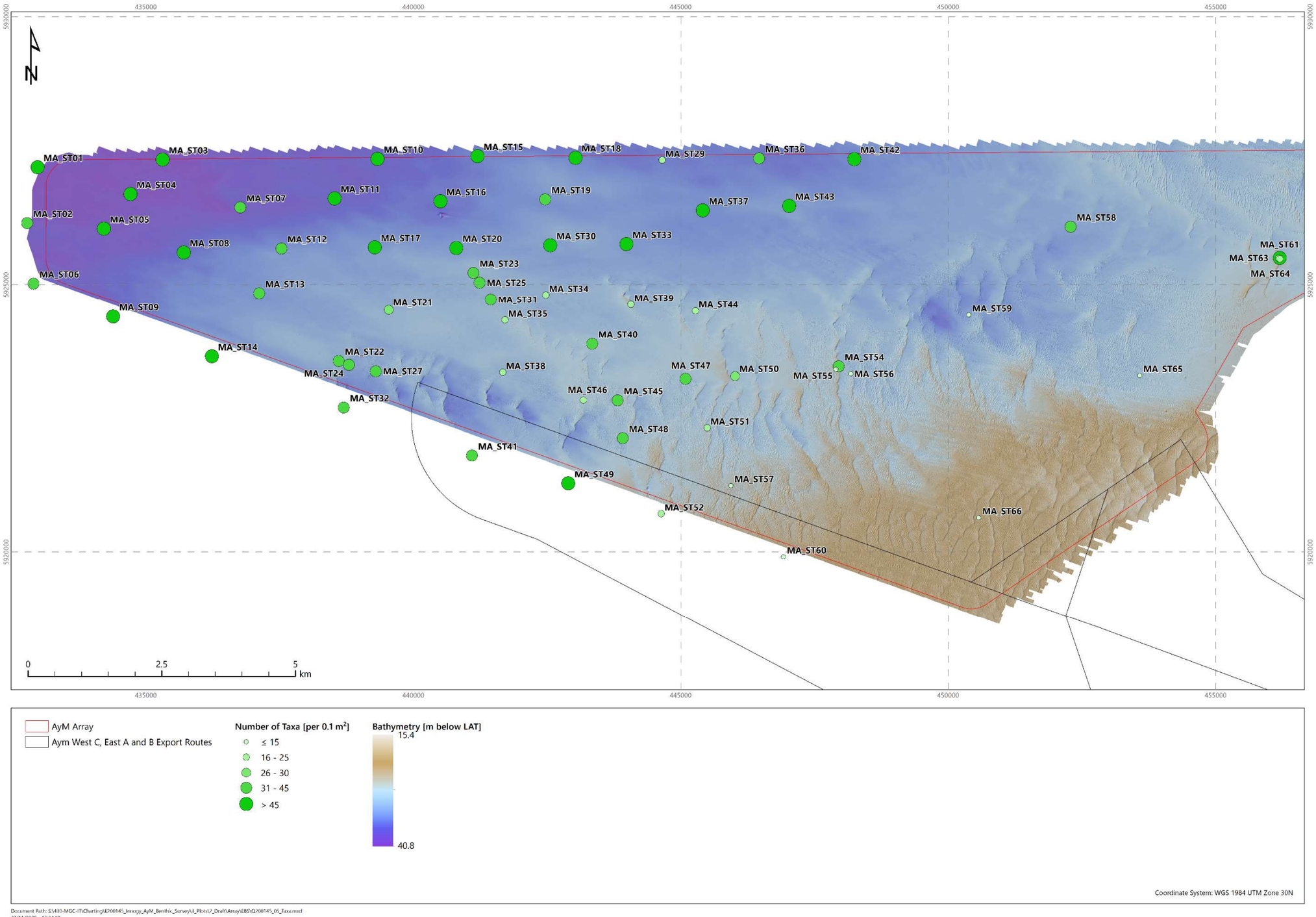


Figure 4.11: Number of macrofaunal taxa per station/sample (0.1 m²) overlaid on bathymetry, Main Array

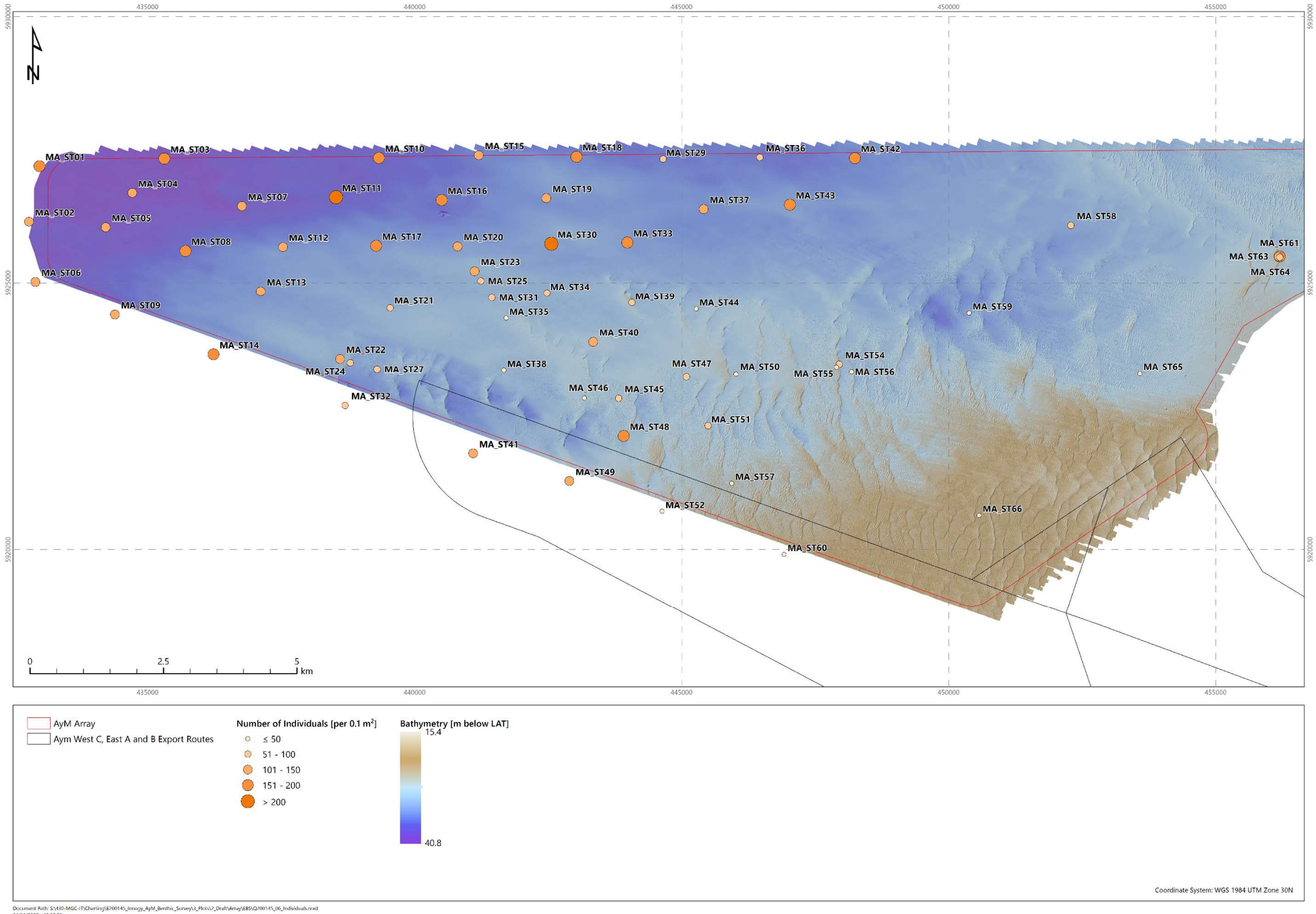


Figure 4.12: Number of macrofaunal individuals per station/sample (0.1 m²) overlaid on bathymetry, Main Array

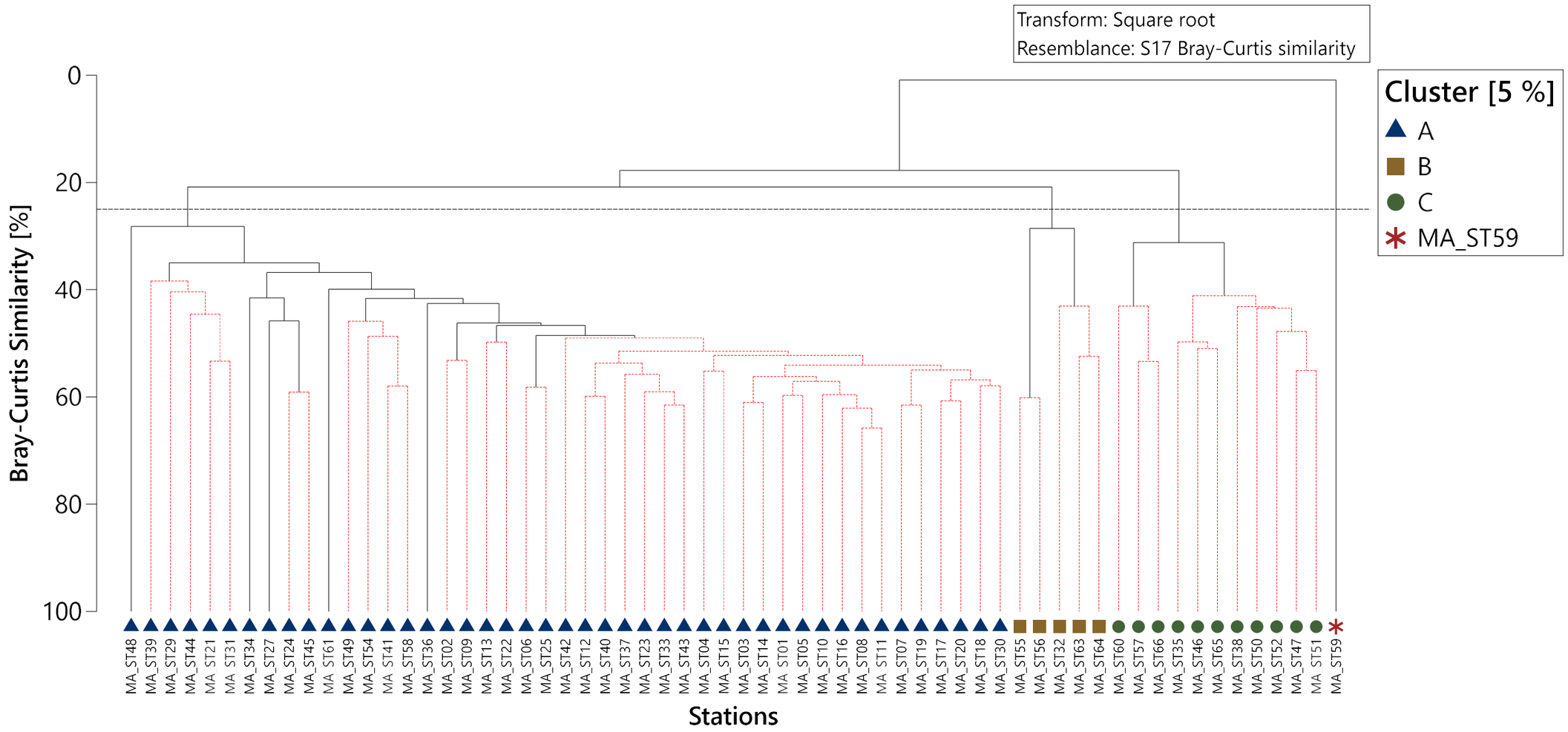
4.4.1.3 Investigation of Faunal Similarities

4.4.1.3.1 Cluster Analysis

In PRIMER, the 'Cluster' algorithm was used to group stations according to their faunal similarity. Figure 4.13 presents the hierarchical agglomerative cluster dendrogram for square root transformed station data. The 'SIMPROF' algorithm was used to identify statistically significant (P = 0.05) differences between stations, with significant splits depicted as black lines and non-significant splits as red lines. Statistically significant splits may not be ecologically significant (Clarke et al., 2008), with ecological significance considered in subsequent sections of this report.

There was a low to moderate degree of similarity across the Main Array survey area. The 'SIMPROF' analysis (P ≤ 0.05) identified 11 clusters and six ungrouped stations. Following analysis of the abundance dataset STIMPROF was deemed to have over differentiated the dataset; as such, a slice was positioned at 25 % Bray-Curtis similarity to define three statistically significant clusters and one ungrouped station:

- Cluster A comprised 45 stations which grouped together with a mean similarity of 42.9 %;
- Cluster B comprised 5 stations which grouped together with a mean similarity of 37.0 %;
- Cluster C comprised 11 stations which grouped together with a mean similarity of 38.4 %;
- Ungrouped station MA_ST59 was statistically significantly different from clusters A, B and C, with an average dissimilarity of 99.0 %, 100.0 % and 98.8 %, respectively.



Note
Slice at 25 % resemblance

Figure 4.13: Dendrogram of hierarchical clustering of macrofaunal station (0.1 m²) abundance data, Main Array

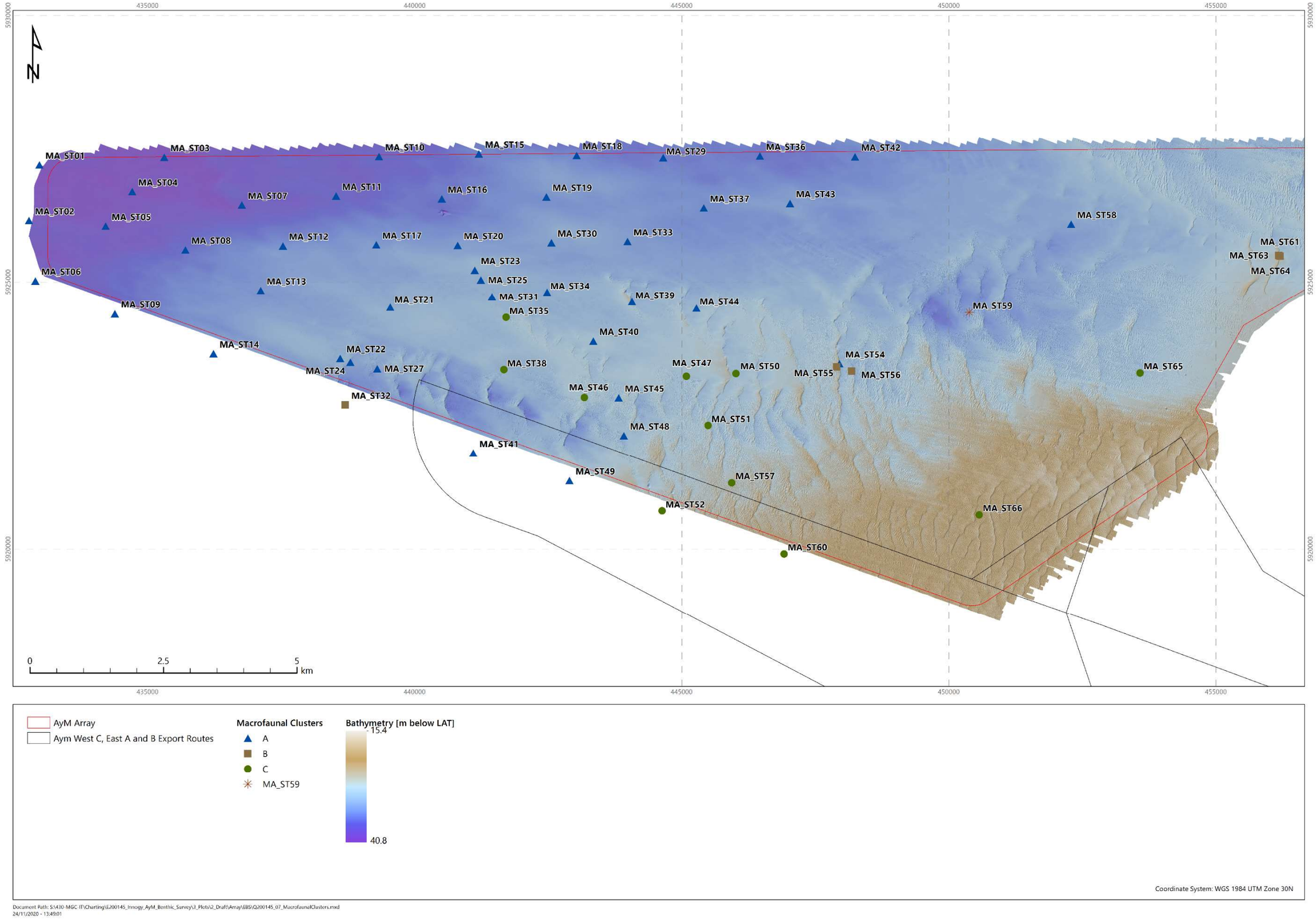


Figure 4.14: Macrofaunal clusters per station (0.1 m^2) overlaid on bathymetry Main Array

4.4.1.3.2 Similarity Percentage Analysis

Table 4.10 summarises the top 10 most abundant taxa within each cluster and at the ungrouped station. The average dissimilarity between the clusters ranged from 79.2 % (clusters A and B) to 100.0 % (cluster B and station MA_ST59).

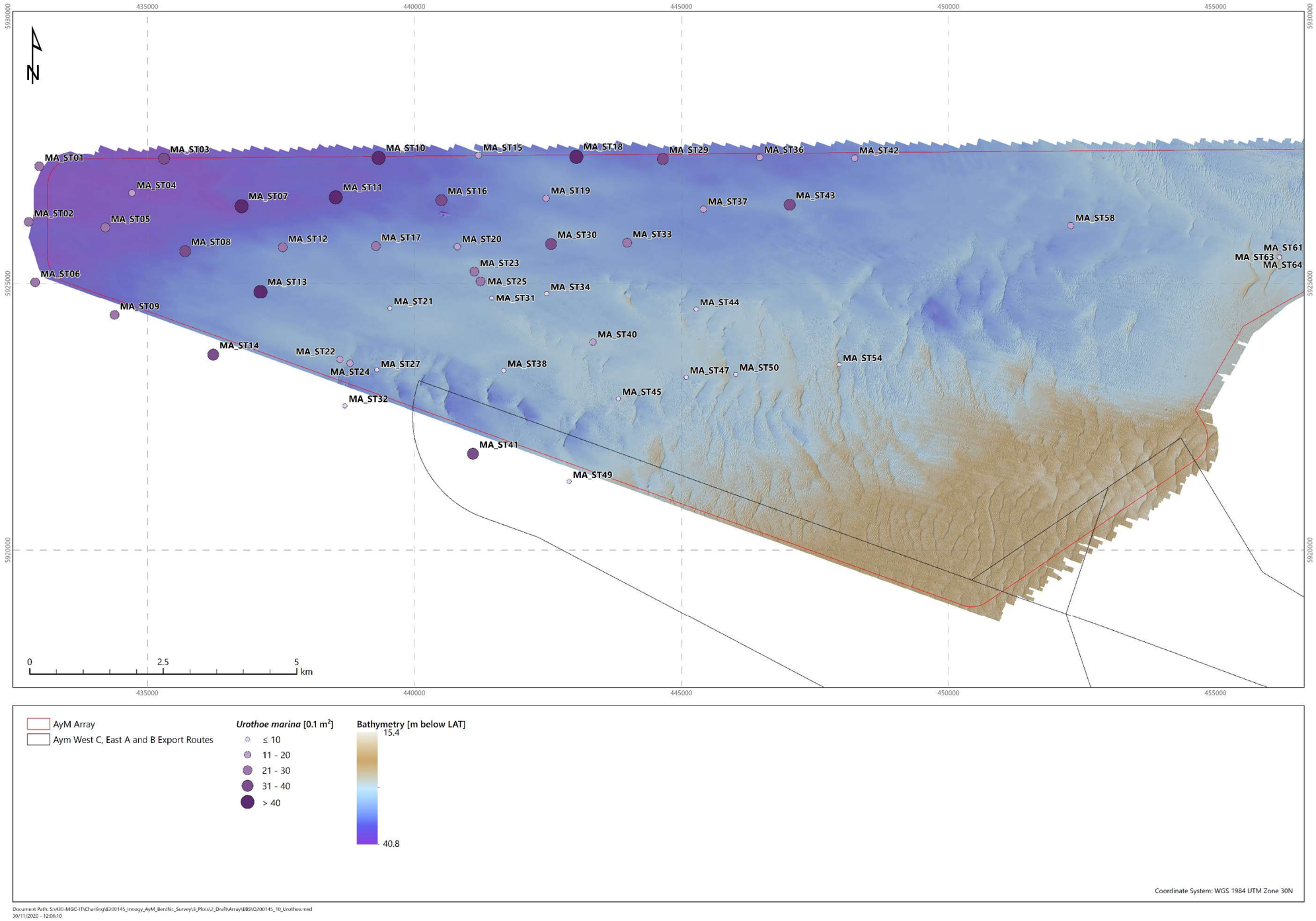
The top ten most abundant taxa for the clusters and ungrouped stations cumulatively comprised between 53.5 % (Cluster A) and 100.0 % (ungrouped station MA_ST59) of the taxa present within them (Table 4.10). The most abundant characterising taxa within cluster A comprised the amphipod *Urothoe marina,* the horseshoe worm *Phoronis* sp. and the polychaete *Aonides paucibranchiata*. Cluster B was characterised by an abundance of polychaetes *Pisione remota* and *Polygordius*, followed by nemerteans. Cluster C was dominated by the amphipod crustacean *Bathyporeia elegans*, accompanied by the polychaetes *Spiophanes bombyx* and S*pio goniocephala.* The paucity of fauna at ungrouped station MA_ST59 (as previously demonstrated in the analysis of community statistics; Table 4.9) lead to 100.0 % of the macrofaunal community being represented by two individuals of two different taxa, the polychaete *Syllis parapari* and the sipunculid *Phascolion strombus*. As a result, ungrouped station MA_ST59 had high dissimilarity to the other clusters.

Figures 4.15 to 4.17 highlight the differences in abundance and distribution of key taxa across the survey area. *U. marina* were reported in greater abundances to the west of the survey area in deeper waters, whilst *B. elegans* showed the opposite trend with a greater abundance in the east/south of the survey area. *P. remota* showed no clear spatial distribution. The relationship between macrofauna communities and physical and chemical determinants will be discussed further in Sections 4.4.1.4 and 5.

Table 4.10: Top ten most abundant macrofaunal taxa within cluster, Main Array

Group A (▲)	Ind [0.1 m²]	Cum [%]	Group B (■)	Ind [0.1 m²]	Cum [%]
Urothoe marina	22	26.2	*Pisione remota*	11	23.5
Phoronis	8	31.3	*Polygordius*	11	33.5
Aonides paucibranchiata	7	39.8	NEMERTEA	4	47.2
Poecilochaetus serpens	5	43.8	*Spio symphyta*	3	56.6
NEMERTEA	5	51.5	*Eurydice pulchra*	2	64.7
Spiophanes bombyx	5	57.8	*Aonides paucibranchiata*	2	73.5
Ampelisca provincialis	5	60.9	*Echinocyamus pusillus*	2	76.0
Ampharete lindstroemi	4	64.8	*Bathyporeia elegans*	1	82.0
Ampelisca diadema	3	67.2	*Goniadella gracilis*	1	83.9
Ampelisca typica	2	69.3	*Aricidea cerrutii*	1	89.3
Notomastus	2	71.2			
Group C (●)	**Ind [0.1 m²]**	**Cum [%]**	**Station MA_ST59 (✱)**	**Ind [0.1 m²]**	**Cum [%]**
Bathyporeia elegans	4	19.4	*Syllis parapari*	1	50
Spiophanes bombyx	3	32.1	*Phascolion strombus*	1	100.0
Spio goniocephala	3	45.8			
Echinocyamus pusillus	3	53.4			
Bathyporeia gracilis	3	57.5			
Nephtys cirrosa	2	71.8			
NEMERTEA	2	77.4			
Poecilochaetus serpens	1	80.5			
Polycirrus	1	82.7			
Glycera oxycephala	1	85.2			
Spisula elliptica	1	87.7			

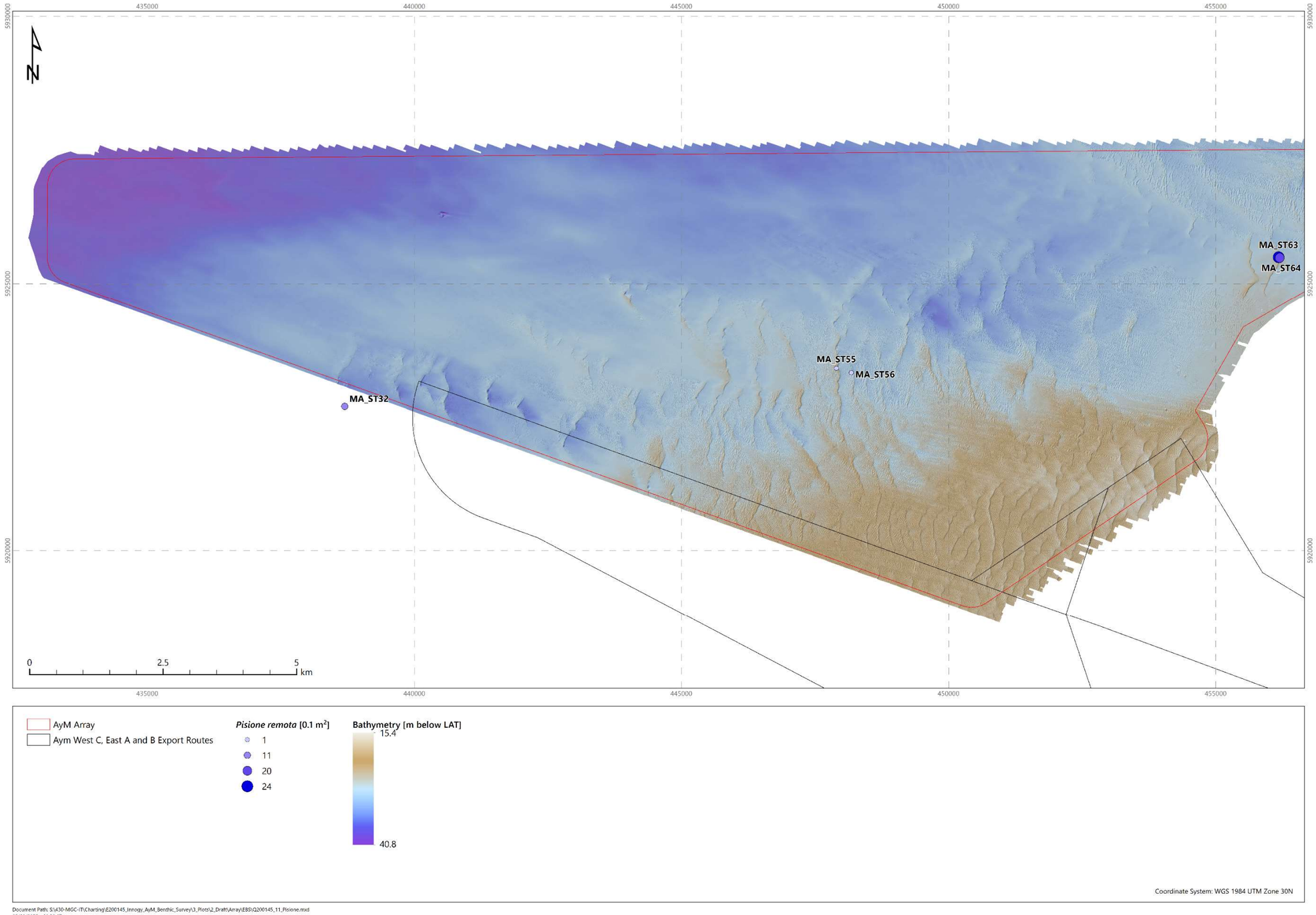
Notes
Ind = Number of individuals of each taxon within the station (0.1 m²)
Cum = Cumulative percentage of the individuals of each taxon relative to the total number of individuals recorded within the station (0.1 m²)



Notes

Abundance of *Urothoe marina* expressed per station (0.1 m²)

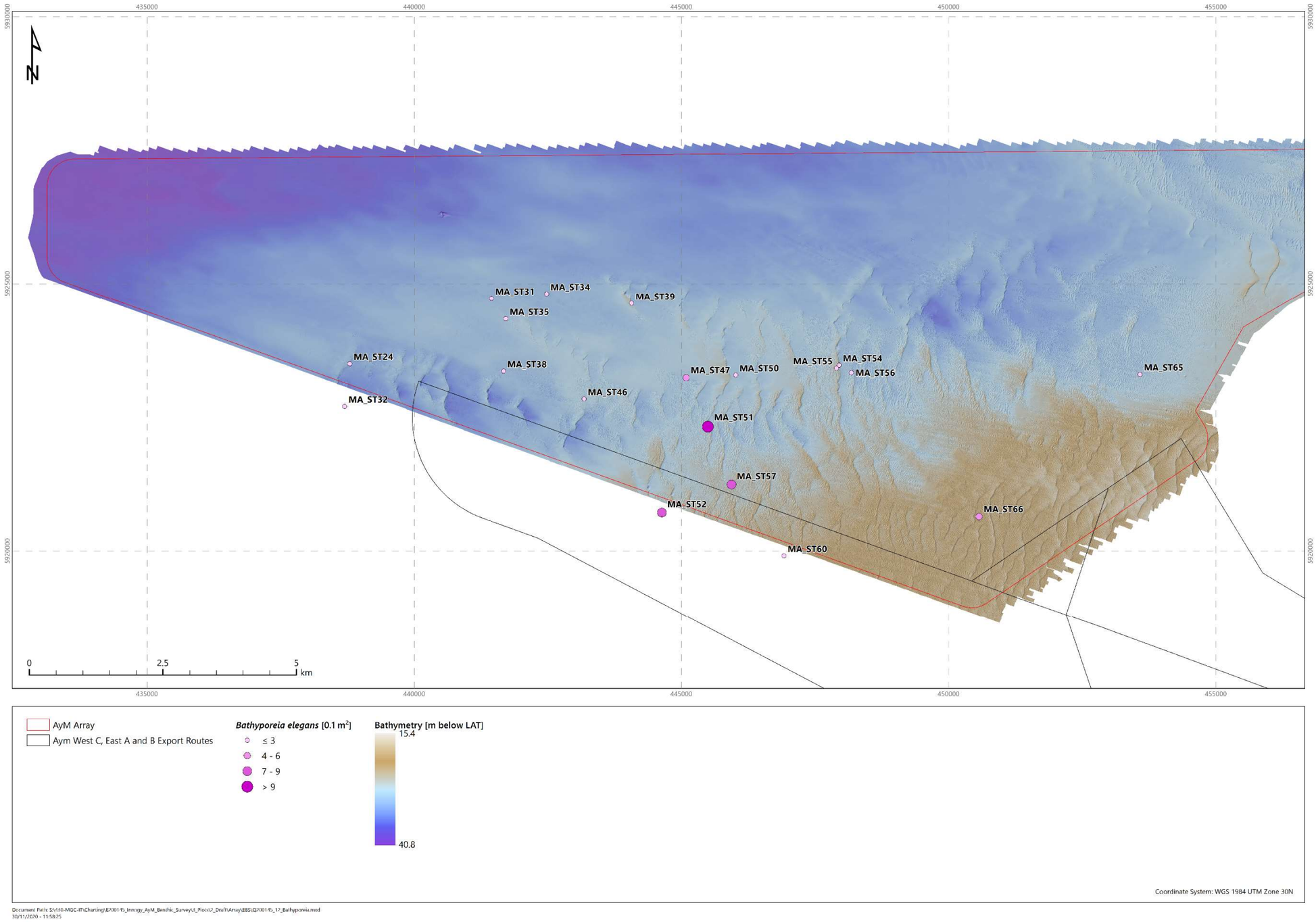
Figure 4.15: *Urothoe marina* abundance overlaid on macrofaunal community groupings and a bathymetric mosaic, Main Array



Notes

Abundance of *Pisione remota* expressed per station (0.1 m^2)

Figure 4.16: *Pisione remota* abundance overlaid on macrofaunal community groupings and a bathymetric mosaic, Main Array



Notes
Abundance of *Bathyporeia elegans* expressed per station (0.1 m²)

Figure 4.17: *Bathyporeia elegans* abundance overlaid on macrofaunal community groupings and a bathymetric mosaic, Main Array

4.4.1.4 Biomass

Table 4.12 summarises the total macrofaunal biomass and phyletic composition of the biomass by station across the survey area. Biomass is expressed as AFDW in g/0.1 m^2 grab sample. Figure 4.18 presents the phyletic composition of the biomass graphically, whilst Figure 4.19 spatially presents the total macrofaunal biomass across the survey area.

The total biomass of macrofauna ranged from < 0.001 g at station MA_ST59 to 2.666 g at station MA_ST42, with a median total biomass of 0.306 g and a mean of 0.451 g.

The biomass of annelids ranged from < 0.001 g at station MA_ST59 to 0.537 g at station MA_ST49. Annelids contributed the highest proportion of biomass at 23 of the 62 stations within the survey areas, accounting for over 90 % of the biomass at stations MA_ST57 and MA_ST59 (although total biomass at the latter was < 0.001 g).

Arthropods were absent from station MA_ST59, but where recorded, contributed a biomass of between < 0.001 g at station MA_ST59 to 1.054 g at station MA_ST43. Arthropods contributed the highest proportion of biomass at 6 of the 62 stations within the survey areas, accounting for a maximum proportion of 82.57 % of the biomass (station MA_ST43).

Molluscs were absent from six stations, but where recorded, contributed a biomass of between < 0.001 g at four stations to 1.334 g at station MA_ST56. Molluscs contributed the highest proportion of biomass at 9 of the 62 stations within the survey areas, accounting for over 90 % of the biomass at station MA_ST56.

Echinoderms were absent from twelve stations, but where recorded, contributed a biomass of between < 0.001 g at five stations to 0.923 g at station MA_ST42. Echinoderms contributed the highest proportion of biomass at 7 of the 62 stations within the survey areas, accounting for over 90 % of the biomass at stations MA_ST60 and MA_ST64.

'Other phyla' were absent from seventeen stations, but where recorded, contributed a biomass of between < 0.001 g at three stations to 0.351 g at station MA_ST04. 'Other phyla' contributed the highest proportion of biomass at 2 of the 62 stations within the survey areas, accounting for a maximum proportion of 45.26 % of the biomass (station MA_ST04).

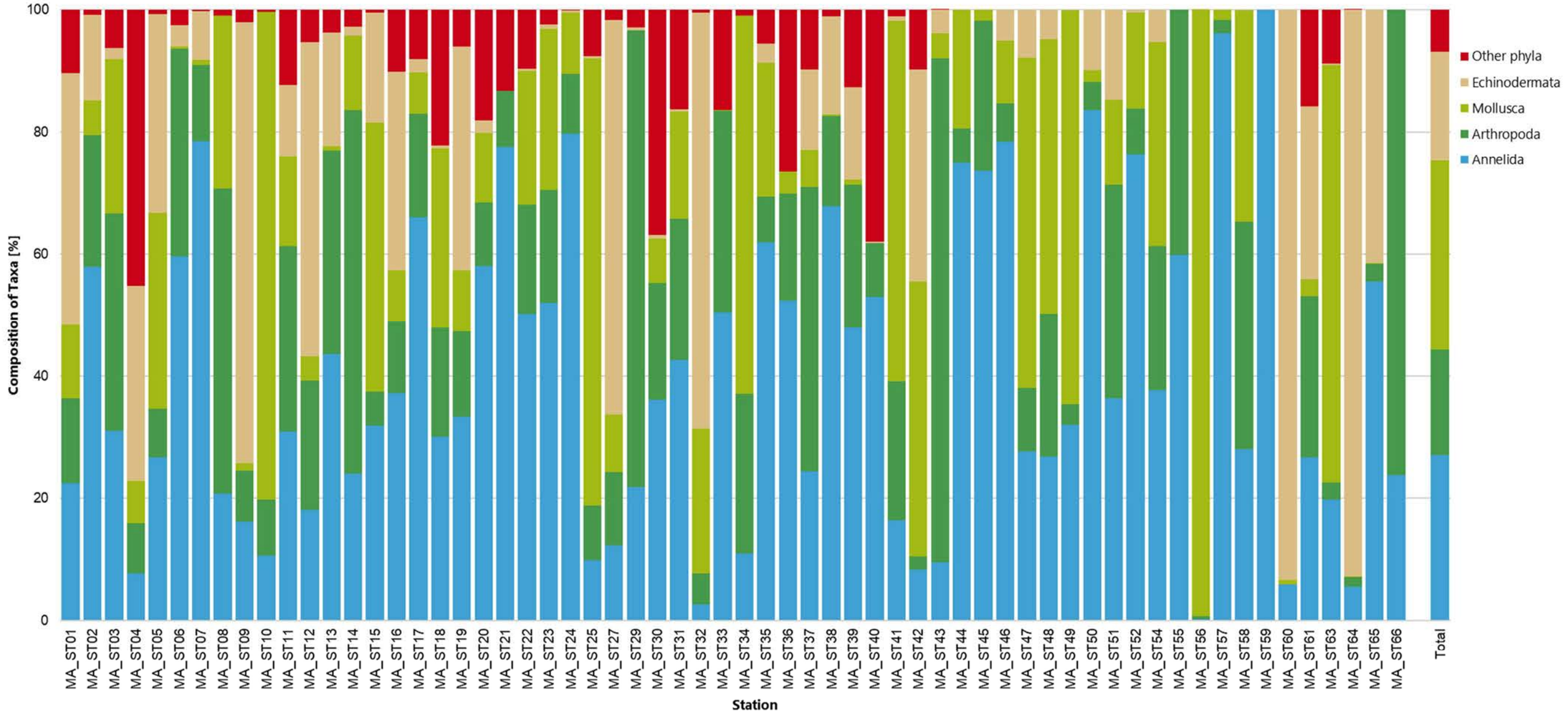
Neither total biomass, nor the biomass contributed by individual phyla, showed clear spatial distribution across the Main Array survey area (Figure 4.19).

Table 4.11: Phyletic composition of macrofaunal biomass, Main Array

Station	Biomass (Ash Free Dry Weight [g])					
	Annelida	Arthropoda	Mollusca	Echinodermata	Other Phyla	Total
MA_ST01	0.099	0.061	0.054	0.182	0.046	**0.442**
MA_ST02	0.100	0.037	0.010	0.024	0.002	**0.173**
MA_ST03	0.108	0.124	0.089	0.006	0.022	**0.349**
MA_ST04	0.060	0.063	0.055	0.247	0.351	**0.775**
MA_ST05	0.247	0.073	0.296	0.300	0.007	**0.922**
MA_ST06	0.110	0.063	0.001	0.006	0.005	**0.184**
MA_ST07	0.506	0.080	0.005	0.051	0.002	**0.644**
MA_ST08	0.040	0.097	0.055	-	0.002	**0.195**
MA_ST09	0.080	0.042	0.006	0.358	0.010	**0.497**
MA_ST10	0.150	0.132	1.138	-	0.005	**1.425**
MA_ST11	0.143	0.141	0.068	0.055	0.057	**0.464**
MA_ST12	0.095	0.112	0.021	0.270	0.028	**0.525**
MA_ST13	0.063	0.048	0.001	0.027	0.006	**0.145**
MA_ST14	0.103	0.254	0.052	0.006	0.012	**0.427**
MA_ST15	0.520	0.091	0.718	0.294	0.008	**1.632**
MA_ST16	0.192	0.060	0.044	0.168	0.053	**0.516**
MA_ST17	0.224	0.058	0.023	0.007	0.028	**0.339**
MA_ST18	0.145	0.086	0.142	0.002	0.107	**0.482**
MA_ST19	0.182	0.076	0.055	0.201	0.033	**0.547**
MA_ST20	0.215	0.038	0.042	0.007	0.067	**0.370**
MA_ST21	0.076	0.009	-	-	0.013	**0.098**
MA_ST22	0.073	0.026	0.032	0.001	0.014	**0.145**
MA_ST23	0.373	0.132	0.189	0.005	0.018	**0.716**
MA_ST24	0.209	0.026	0.026	0.001	< 0.001	**0.262**
MA_ST25	0.054	0.049	0.403	0.002	0.042	**0.550**
MA_ST27	0.065	0.064	0.049	0.342	0.009	**0.529**
MA_ST29	0.053	0.183	-	0.001	0.007	**0.244**
MA_ST30	0.097	0.051	0.019	0.002	0.099	**0.268**
MA_ST31	0.037	0.020	0.015	< 0.001	0.014	**0.087**
MA_ST32	0.010	0.020	0.091	0.261	0.002	**0.383**
MA_ST33	0.073	0.048	< 0.001	-	0.024	**0.145**
MA_ST34	0.009	0.022	0.053	-	0.001	**0.085**
MA_ST35	0.013	0.002	0.005	0.001	0.001	**0.021**
MA_ST36	0.054	0.018	0.004	-	0.028	**0.104**
MA_ST37	0.139	0.264	0.035	0.075	0.056	**0.568**

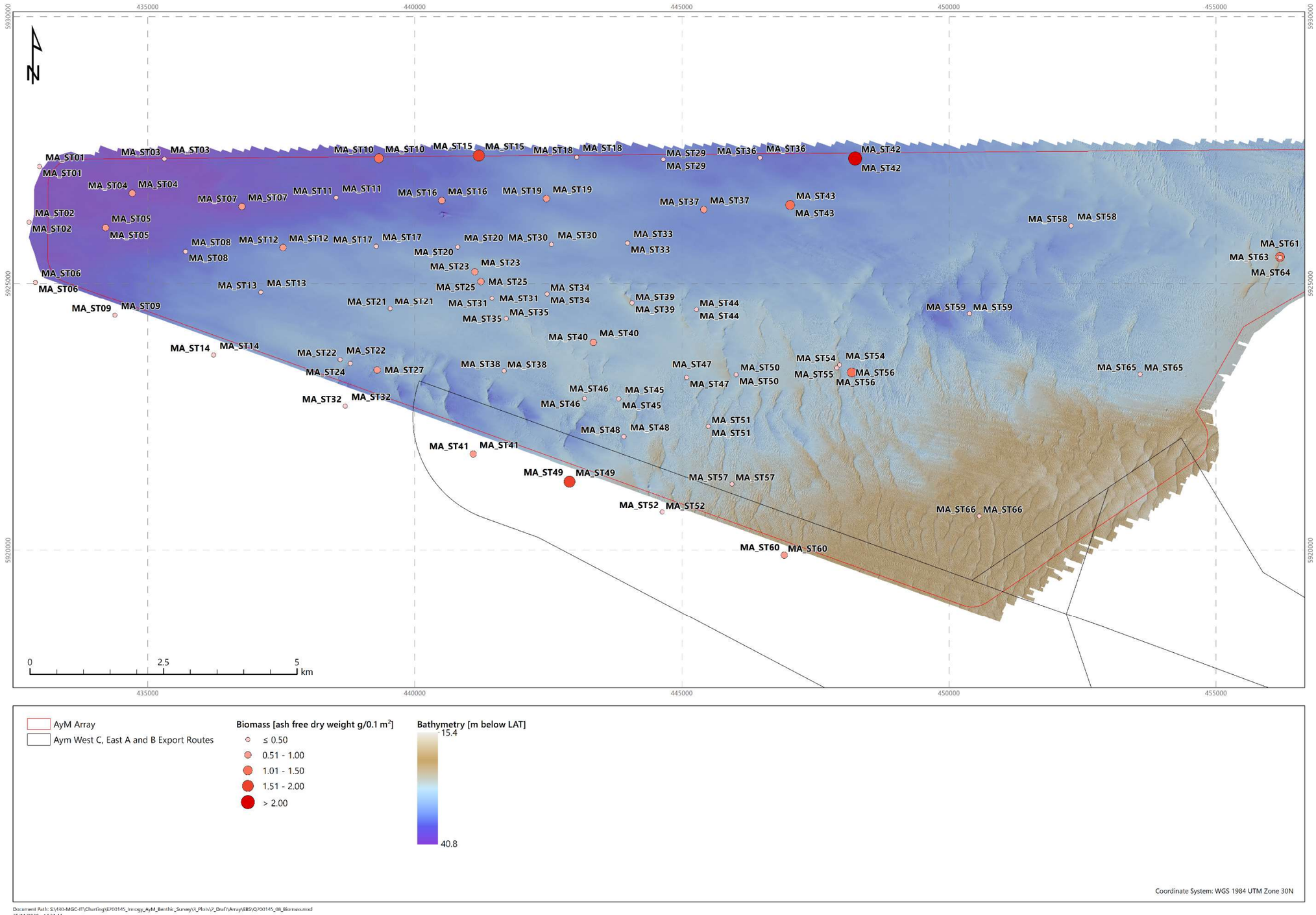
Station	Biomass (Ash Free Dry Weight [g])					
	Annelida	Arthropoda	Mollusca	Echinodermata	Other Phyla	Total
MA_ST38	0.021	0.005	< 0.001	0.005	< 0.001	**0.031**
MA_ST39	0.013	0.006	< 0.001	0.004	0.003	**0.026**
MA_ST40	0.419	0.070	-	0.002	0.301	**0.792**
MA_ST41	0.089	0.123	0.320	0.004	0.006	**0.542**
MA_ST42	0.219	0.059	1.203	0.923	0.263	**2.666**
MA_ST43	0.121	1.054	0.052	0.049	0.001	**1.276**
MA_ST44	0.064	0.005	0.017	-	-	**0.085**
MA_ST45	0.144	0.048	0.004	-	-	**0.195**
MA_ST46	0.028	0.002	0.004	0.002	-	**0.035**
MA_ST47	0.034	0.013	0.067	0.010	-	**0.123**
MA_ST48	0.059	0.051	0.098	0.011	-	**0.218**
MA_ST49	0.537	0.057	1.083	0.003	-	**1.681**
MA_ST50	0.080	0.004	0.002	0.009	-	**0.095**
MA_ST51	0.027	0.026	0.010	0.011	-	**0.075**
MA_ST52	0.066	0.006	0.013	< 0.001	-	**0.086**
MA_ST54	0.061	0.038	0.054	0.009	-	**0.162**
MA_ST55	0.163	0.110	-	-	-	**0.273**
MA_ST56	0.003	0.006	1.334	< 0.001	-	**1.343**
MA_ST57	0.073	0.002	0.001	-	-	**0.076**
MA_ST58	0.105	0.139	0.130	< 0.001	-	**0.374**
MA_ST59	< 0.001	-	-	-	-	**< 0.001**
MA_ST60	0.032	< 0.001	0.004	0.508	0.000	**0.544**
MA_ST61	0.391	0.387	0.041	0.414	0.233	**1.465**
MA_ST63	0.021	0.003	0.071	< 0.001	0.009	**0.104**
MA_ST64	0.020	0.006	0.001	0.347	< 0.001	**0.374**
MA_ST65	0.029	0.002	< 0.001	0.022	-	**0.053**
MA_ST66	0.004	0.012	-	-	-	**0.016**
Minimum	**< 0.001**	**-**	**-**	**-**	**-**	**< 0.001**
Maximum	**0.537**	**1.054**	**1.334**	**0.923**	**0.351**	**2.666**
Median	**0.078**	**0.049**	**0.029**	**0.006**	**0.005**	**0.306**
Mean	**0.122**	**0.079**	**0.134**	**0.084**	**0.032**	**0.451**
SD	**0.128**	**0.144**	**0.303**	**0.167**	**0.072**	**0.503**

Notes
Biomass expressed as ash free dry weight in g/0.1 m^2 grab sample
SD = Standard deviation
- = Absent from samples



Notes
Biomass expressed as ash free dry weight in g/0.1 m^2 grab sample

Figure 4.18: Phyletic composition of biomass, Main Array



Notes

Biomass expressed as ash free dry weight in g/0.1 m^2 grab sample

Figure 4.19: Total biomass overlaid on bathymetry, Main Array

Table 4.12 summarises the mean biomass of taxonomic groups identified within each macrofaunal group and ungrouped station. The highest average biomasses were in groups A and B (0.541 g and 0.496 g, respectively). Within the groups, the phyla contributing the highest biomass varied from annelids in station MA_ST59 (100 %), molluscs in group B (60.4 %), echinoderms in group C (49.1 %) and a fairly equally split between annelids and molluscs in group A (28.4 % and 27.5 %, respectively) in group A. The lowest biomass was in station MA_ST59 (< 0.001 g).

Table 4.12: Biomass within each grouping, Main Array

Phyla	Group A (▲)		Group B (■)	
	Biomass	Composition of Biomass [%]	Biomass	Composition of Biomass [%]
Annelida	0.154	28.4	0.044	8.8
Arthropoda	0.104	19.2	0.029	5.8
Echinodermata	0.090	16.7	0.122	24.6
Mollusca	0.149	27.5	0.299	60.4
Other phyla	0.044	8.1	0.002	0.5
Total	**0.541**	**100**	**0.496**	**100**

Phyla	Group C (●)		Station MA_ST59 (*)	
	Biomass	Composition of Biomass [%]	Biomass	Composition of Biomass [%]
Annelida	0.037	35.2	< 0.001	100.0
Arthropoda	0.007	6.4	0.000	0.0
Echinodermata	0.052	49.1	0.000	0.0
Mollusca	0.010	9.2	0.000	0.0
Other phyla	0.000	0.1	0.000	0.0
Total	**0.105**	**100**	**< 0.001**	**100**

Notes
Biomass expressed as ash free dry weight in g/0.1 m^2 grab sample

4.4.2 Colonial Epifauna

4.4.2.1 Phyletic Composition

Table 4.13 summarises the epifaunal taxonomic groups identified across the survey area. A total of 33 epifaunal taxa were recorded across the survey area; bryozoans and hydrozoans accounted for the majority of the taxa reported (48.5 % and 45.5 % respectively), followed by the Cnidaria and Porifera, which equally contributed the remainder of the epifauna (3.0 % per phylum).

Table 4.13: Taxonomic groups of colonial epifauna, Main Array

Taxonomic Group	Number of Taxa	Composition of Taxa [%]
Bryozoan	16	48.5
Cnidarian	1	3.0
Hydrozoan	15	45.5
Porifera	1	3.0
Total	**33**	**100**

Notes
Macrofaunal samples were processed through a 0.5 mm sieve

4.4.2.2 Community Statistics

Table 4.14 presents the number of taxa and individuals identified from each station and Figure 4.20 spatially presents this data across the survey area. Station MA_ST42 contained the highest number of colonial epifauna (12 taxa) and only two other stations had more than 10 taxa (MA_ST03 and MA_ST61 having 11 taxa and 10 taxa, respectively). No epifauna were recorded from 17 of the 62 stations sampled.

Table 4.14: Number of epifaunal taxa (0.1 m^2), Main Array

Station	Number of Taxa
MA_ST01	4
MA_ST02	6
MA_ST03	11
MA_ST04	7
MA_ST05	5
MA_ST06	5
MA_ST07	3
MA_ST08	5
MA_ST09	8
MA_ST10	8
MA_ST11	6
MA_ST12	1
MA_ST13	5
MA_ST14	4
MA_ST15	6
MA_ST16	4
MA_ST17	3
MA_ST18	3
MA_ST19	2

Station	Number of Taxa
MA_ST20	6
MA_ST21	-
MA_ST22	2
MA_ST23	5
MA_ST24	-
MA_ST25	3
MA_ST27	6
MA_ST29	3
MA_ST30	6
MA_ST31	-
MA_ST32	2
MA_ST33	5
MA_ST34	2
MA_ST35	-
MA_ST36	2
MA_ST37	-
MA_ST38	1
MA_ST39	-
MA_ST40	3
MA_ST41	-
MA_ST42	12
MA_ST43	8
MA_ST44	2
MA_ST45	5
MA_ST46	3
MA_ST47	-
MA_ST48	5
MA_ST49	5
MA_ST50	-
MA_ST51	2
MA_ST52	3
MA_ST54	2
MA_ST55	-
MA_ST56	-
MA_ST57	-
MA_ST58	1

Station	Number of Taxa
MA_ST59	-
MA_ST60	1
MA_ST61	10
MA_ST63	-
MA_ST64	-
MA_ST65	-
MA_ST66	-
Minimum	-
Maximum	12
Median	3
Mean	3
Standard Deviation	3
Notes - = Epifauna absent from sample	

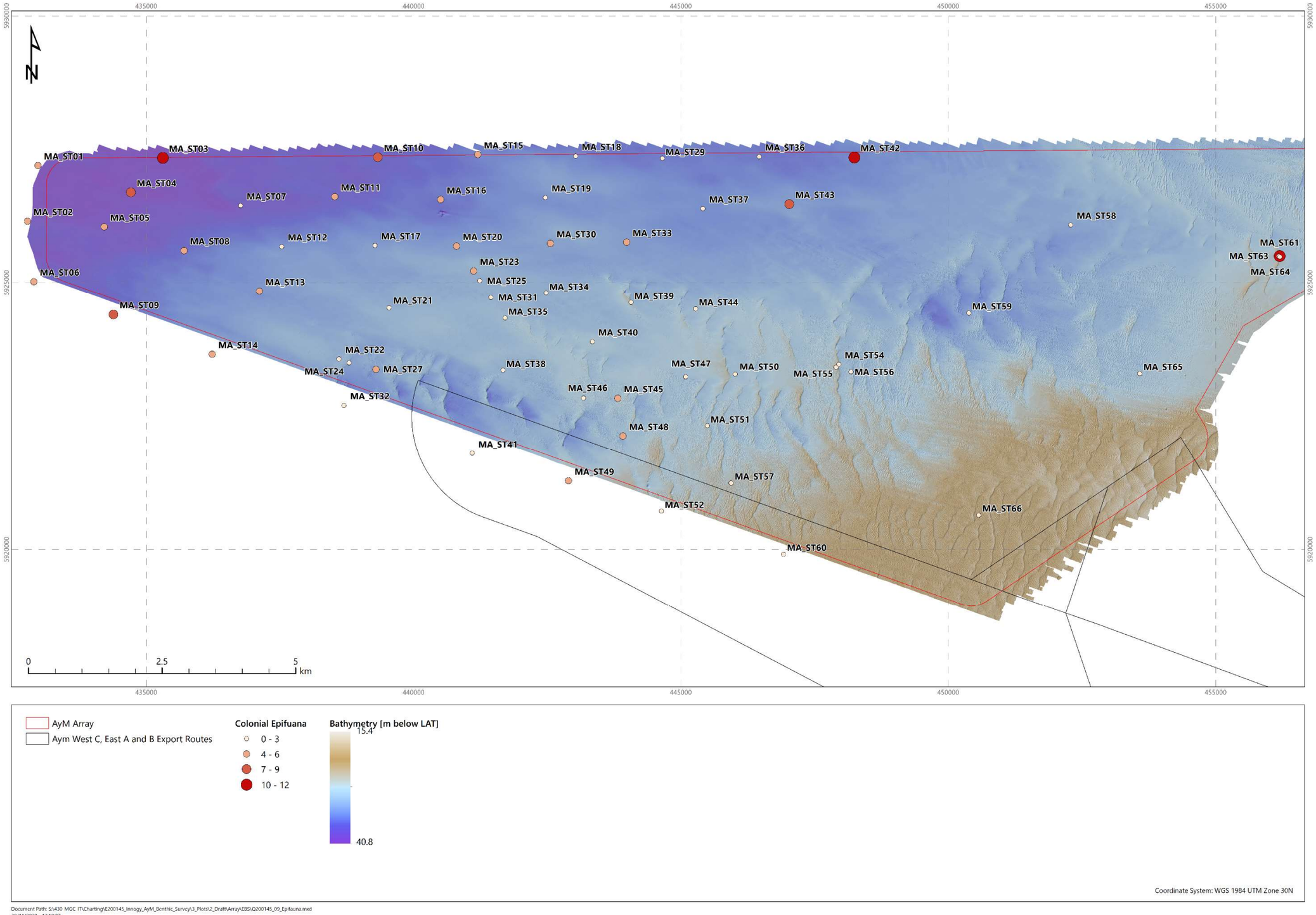


Figure 4.20: Number of epifaunal taxa per station (0.1 m^2) overlaid on bathymetry, Main Array

4.4.2.3 Characteristic Taxa

Table 4.15 summarises the characteristic epifaunal taxa identified in grab samples across the survey area deduced from the infaunal and solitary epifauna analysis. Only the 11 taxa that occurred in 12.9 % or more of samples are displayed. Appendix F represents the full epifaunal dataset. The hydrozoan family *Campanulariidae* was ranked the most dominant colonial epifauna species across the survey area with a frequency of 43.6 % followed by the hydrozoan *Hydrallmania falcata* and bryozoan *Schizomavella,* which each had frequencies of 40.3 %. The remaining dominant epifaunal taxa, occurring at between 12. 9 % and 21.0 % of the stations, comprised sponges (Porifera), four hydroid species, the cnidarian *Alcyonium digitatum*, and two bryozoans.

Table 4.15: Most frequently occurring colonial epifaunal taxa, Main Array

Taxon	Frequency Rank	Frequency [%]
Campanulariidae	1	43.5
Hydrallmania falcata	2	40.3
Schizomavella	2	40.3
Alcyonium digitatum	3	21.0
Sertularia cupressina	4	19.4
PORIFERA	5	14.5
Abietinaria	5	14.5
Escharella immersa	5	14.5
Tubularia	6	12.9
Phialella quadrata	6	12.9
Vesicularia spinosa	6	12.9
Notes Frequency rank is calculated based on frequency (i.e. percentage of stations from which each taxon was recorded)		

4.5 Seabed Habitats and Biotopes

4.5.1 Biotope Classifications

The physical and biological characteristics of the multivariate groups apparent within the macrofaunal community (see Section 4.4.1.3) were considered in conjunction with the photographic data for habitat classification. Soft sediment habitats are often defined on the sediment type and infaunal community composition. Therefore, soft sediments within the survey area have been predominantly classified using data from grab samples (specifically the PSD and macrofaunal data), with the photographic data analysis providing additional habitat information. Habitats comprising hard substrates, where grab sampling was not achieved, have been classified using photographic data only.

The seabed sediments observed across the survey area ranged from sandy gravel to gravelly sand. Within the western part of the survey area, where more homogenous, medium SSS

reflectivity was observed, the sediment consisted of gravelly sand and sandy gravel. This sediment type was classified as the EUNIS biotope complex 'Circalittoral coarse sediment (A5.14)', which was present at 50 stations; upon interpretation of physical and biological parameters from grab samples 5 of these stations were further classified as the biotope '*Branchiostoma lanceolatum* in circalittoral coarse sand with shell gravel (A5.145)'. Sand with varying proportions of shell fragments correlated to areas of low reflectivity on the SSS data, within the eastern part of the survey area. This sediment type has been classified as the EUNIS habitat 'Sublittoral sand' (A5.2) and was present at 12 stations. When grab sample data were considered it was possible was further refine the classification of 11 of these 12 stations to the biotope '*Nephtys cirrosa* and *Bathyporeia* spp. in infralittoral sand (A5.233)'.

Table 4.16 summarises the hierarchy of the assigned EEA (2019) classifications, and equivalent JNCC (2015) classifications. Figure 4.21 spatially presents the extrapolated distribution of the high level biotopes defined across the survey area. The survey area was heterogenous with two habitats, two biotope complexes and two biotopes assigned to the transects and stations surveyed. Biotopes assigned are relevant to the time of year, with this survey completed in late summer.

Table 4.17 summarises the physical and biological parameters characteristics of the biotopes assigned, along with example photographs. Appendix G provides further example photographs. Sections 4.5.1.1 to 4.5.1.4 provide detailed descriptions of each biotope.

Table 4.16: Habitat classifications, Main Array

EUNIS (EEA, 2019) Habitat Classification					Equivalent JNCC (2015) Classification
Environment Level 1	Broad Habitat Level 2	Habitat Level 3	Biotope Complex Level 4	Biotopes and sub-biotopes Level 5 & 6	
A Marine	A5 Sublittoral sediment	A5.1 Sublittoral coarse sediment	A5.14 Circalittoral coarse sediment	A5.145 *Branchiostoma lanceolatum* in circalittoral coarse sand with shell gravel	SS.SCS.CCS.Blan *Branchiostoma lanceolatum* in circalittoral coarse sand with shell gravel
		A5.2 Sublittoral sand	A5.23 Infralittoral fine sand	A5.233 *Nephtys cirrosa* and *Bathyporeia* spp. in infralittoral sand	SS.SSa.IFiSa.NcirBat *Nephtys cirrosa* and *Bathyporeia* spp. in infralittoral sand
Notes EUNIS = European Nature Information System EEA = European Environment Agency JNCC = Joint Nature Conservation Committee					

4.5.1.1 Circalittoral Coarse Sediment (A5.14)

The biotope complex 'Circalittoral coarse sediment' (A5.14) is defined as tide-swept circalittoral coarse sands, gravel and shingle generally in depths of over 15 m depth. This habitat may be found in tidal channels of marine inlets, along exposed coasts and offshore. This habitat, as with shallower coarse sediments, may be characterised by robust infaunal

polychaetes, mobile crustacea and bivalves. Certain species of sea cucumber (e.g. *Neopentadactyla*) may also be prevalent in these areas along with the lancelet *Branchiostoma lanceolatum* (EEA, 2019).

This biotope complex was assigned to 45 stations (Table 4.17). It was the dominant habitat type defined in the western part of the survey area, but there was also an isolated occurrence of the habitat at station MA_ST58, in the eastern part of the area (Figure 4.21). This sub-biotope was reported from depths ranging from 27 m BSL to 44 m BSL.

Sediment characteristics from grab samples described the seabed at these stations as gravelly muddy sand to sandy gravel, which corresponded with the video analysis descriptions (Table 4.17). The sediments of this biotope were grouped within cluster A of the multivariate analysis of PSD data (Figure 4.4 and Table 4.5).

This biotope complex also corresponded to cluster A of the multivariate analysis of infaunal data, which recorded species representative of 'Circalittoral coarse sediment'. The infauna identified from this biotope was typical of coarse sands and gravel, being dominated by *U. marina,* accompanied by *Phoronis* sp. and *A. paucibranchiata*. Cross-referencing of this community to the EUNIS habitat classification failed to identify an exact match of infaunal community at biotope or sub-biotope level.

The epibiota at these stations included hydrozoan/bryozoa, soft coral (*A. digitatum*), brittlestars (*O. fragilis*), starfish (*Asterias rubens*) and tube-building polychaetes (Serpulidae). Over a section of the transect undertaken at station MA_ST12 a bed of brittlestars (*Ophiothrix fragilis*) was observed. This isolated habitat patch could be considered an example of the biotope '*Ophiothrix fragilis* and/or *Ophiocomina nigra* brittlestar beds on sublittoral mixed sediment' (A5.445). As this was only an isolated occurrence however and was deemed to not extend over the greater than 25 m^2 threshold for biotope classification (Parry, 2019) it has not been separately defined in this report.

4.5.1.2 *Branchiostoma lanceolatum* in Circalittoral Coarse Sand with Shell Gravel (A5.145)

The EUNIS biotope '*Branchiostoma lanceolatum* in circalittoral coarse sand with shell gravel (A5.145)' is defined as gravel and coarse sand with shell gravel that may support a significant population of *Branchiostoma lanceolatum*. Other conspicuous infauna may include *Echinocyamus pusillus*, *Glycera lapidum*, *Polygordius* and *P. remota*. Sessile epifauna are typically a minor component of this community (EEA, 2019).

This biotope categorises the community associated with cluster B of the multivariate analysis of macrofaunal data, namely that found at stations MA_ST32, MA_ST55, MA_ST56, MA_ST63 and MA_ST64 (Figure 4.21). These stations were distributed across the survey area, occurring in the west (stations MA_ST32), near the middle (stations MA_ST55 and MA_ST56) and towards the eastern edge (stations MA_ST63 and MA_ST64) of the survey area. This biotope was identified in water depths of 27 m BSL to 36 m BSL.

Sediment characteristics from grab samples described the seabed at the stations as sand to gravelly sand (Table 4.3), with the seabed described from the video analysis as sand with varying proportions of gravel, shell and shell fragments (Table 4.17). The sediments of this biotope were grouped within clusters A and B of the multivariate analysis of PSD data (Figure 4.4 and Table 4.5).

Infaunal analysis showed that the cluster B stations were dominated by the polychaetes *P. remota* and *Polygordius,* having the same abundance (Table 4.10) followed by nemertea, which are characterising taxa of this biotope.

The epibiota at stations MA_ST55, MA_ST56, MA_ST63 and MA_ST64 were sparse, as expected for sandy sediments. The most regularly observed taxa included brittlestars (Ophiuroidea), hermit crabs (Paguridae) and starfish (Asteroidea).

4.5.1.3 Sublittoral Sand (A5.2)

The EUNIS habitat 'Sublittoral sand (A5.2)' is defined as clean medium to fine sands or non-cohesive slightly muddy sands on open coasts, offshore or in estuaries and marine inlets. Such habitats are often subject to a degree of wave action or tidal currents which restrict the silt and clay content to less than 15 %. This habitat is characterised by a range of taxa including polychaetes, bivalve molluscs and amphipod crustacea (EEA, 2019).

This biotope categorises the infaunal community at station MA_ST59 (Figure 4.21). This station was located in the east of the survey area in an area of mobile sediment and water depth of 38 m BSL. Sediment characteristics from the grab samples described the seabed at station MA_ST59 as sand (Table 4.3).

Infaunal analysis from station MA_ST59 recorded only two individuals and taxa (*S. parapari* and *P. strombus)*.

The epibiota at this station included brittlestars (Ophiuridae), soft coral (*A. digitatum*) and faunal turf (Hydrozoa/Bryozoa).

4.5.1.4 *Nephtys cirrosa* and *Bathyporeia* spp. in Infralittoral Sand (A5.233)

The EUNIS biotope '*Nephtys cirrosa* and *Bathyporeia* spp. in infralittoral sand (A5.233)' is defined as well-sorted medium and fine sands characterised by *Nephtys cirrosa* and *Bathyporeia* spp. which occur in the shallow sublittoral to at least 30 m depth. This biotope occurs in sediments subject to physical disturbance, as a result of wave action (and occasionally strong tidal streams). The magelonid polychaete may be frequent in this biotope in more sheltered, less tide swept areas. The faunal diversity of this biotope is considerably reduced compared to less disturbed biotopes (such as unit A5.242) and for the most part consists of the more actively swimming amphipods (EEA, 2019).

This biotope categorises the infaunal and epifaunal community recorded from stations within cluster C of the multivariate analysis of macrofaunal data (stations MA_ST35, MA_ST38, MA_ST46, MA_ST47, MA_ST50, MA_ST51, MA_ST52, MA_ST57, MA_ST60, MA_ST65 and

MA_ST66) (Figure 4.21). These stations and transects were located towards the south and east of the survey area in water depths of 23 m BSL to 36 m BSL.

This biotope was recorded in association with areas of mobile sediment, as evident from sand waves and meggaripples evident from MBES data, and low/medium SSS reflectivity. Sediment composition was variable with five stations described by the Folk description of sand and six stations described as gravelly sand (Table 4.3); from photographic data the seabed was described as sand with varying proportions of gravel, shells and shell fragments (Table 4.17).

Infaunal analysis showed that the cluster C stations were dominated by the amphipod *B. elegans*, with the polychaete *S. bombyx* the second most abundant taxon reported. Other prominent infauna in this cluster C were the annelid *S. goniocephala* and the echinoderm *E. pusillu*s (Table 4.10).

The epibiota at these stations was sparse, as expected from sandy sediments. The most regularly observed taxa included faunal turf (Hydrozoa, including *Nemertesia antennina,* and Bryozoa), hermit crabs (Paguridae), starfish (Asteroidea, including *A. rubens*) and sea urchins (Echinoidea).

Table 4.17: Summary of EUNIS habitat classifications, Main Array

Habitat Classification (EEA, 2019)	Distribution	Physical Characteristics	Biological Characteristics	Example Photograph
A5.14 Circalittoral coarse sediment	Cluster A (▲)*†: MA_ST01, MA_ST02, MA_ST03, MA_ST04, MA_ST05, MA_ST06, MA_ST07, MA_ST08, MA_ST09, MA_ST10, MA_ST11, MA_ST12, MA_ST13, MA_ST14, MA_ST15, MA_ST16, MA_ST17, MA_ST18, MA_ST19, MA_ST20, MA_ST21, MA_ST22, MA_ST23, MA_ST24, MA_ST25, MA_ST27, MA_ST29, MA_ST30, MA_ST31, MA_ST33, MA_ST34, MA_ST36, MA_ST37, MA_ST39, MA_ST40, MA_ST41, MA_ST42, MA_ST43, MA_ST44, MA_ST45 MA_ST48, MA_ST49 MA_ST54, MA_ST58 and MA_ST61	Mean gravel*: 19.88 %	Mean number of taxa*: 44 per 0.1 m^2	
		Mean sand*: 75.19 %	Mean number of individuals*: 21 per 0.1 m^2	
		Mean mud*: 4.94 %	Characteristic infaunal taxa*: *Urothoe marina, Phoronis* sp., *Aonides paucibranchiata* and *Poecilochaetus serpens*	
		'Gravelly sand with shells and shell fragments'†	Characteristic epifaunal taxa†: Hydrozoan/bryozoa, soft coral (*Alcyonium digitatum*), brittlestars (*Ophiothrix fragilis*), starfish (*Asterias rubens*) and tube-building polychaetes (Serpulidae)	
		Bathymetry: 27 m to 44 m BSL	Mean Biomass*: 0.541	

Habitat Classification (EEA, 2019)	Distribution	Physical Characteristics	Biological Characteristics	Example Photograph
A5.145 *Branchiostoma lanceolatum* in circalittoral coarse sand with shell gravel	Cluster B (■)*†: MA_ST32, MA_ST55, MA_ST56, MA_ST63 and MA_ST64	Mean gravel*: 4.86 %	Mean number of taxa*: 21 per 0.1 m^2	
		Mean sand*: 95.14 %	Mean number of individuals*: 1 per 0.1 m^2	
		Mean mud*: 0.00 %	Characteristic infaunal taxa*: *Pisione remota*, *Polygordius,* Nemertea and *Spio symphyta*	
		'Sand with varying proportions of gravel, shell and shell fragments'†	Characteristic epifaunal taxa†: brittlestars (Ophiuroidea), hermit crabs (Paguridae) and starfish (Asteroidea)	
		Bathymetry: 27 m to 36 m BSL	Mean Biomass*: 0.496	
A5.2 Sublittoral sand	Ungrouped station MA_ST59 (✱)*:	Mean gravel*: 0.97 %	Mean number of taxa*: 1 per 0.1 m^2	
		Mean sand*: 99.03 %	Mean number of individuals*: 1 per 0.1 m^2	
		Mean mud*: 0.00 %	Characteristic infaunal taxa*: *Syllis parapari* and *Phascolion strombus*	
		'Sand with varying proportions of shells and shell fragments'†	Characteristic epifaunal taxa†: Hydrozoan/bryozoa, soft coral (*Alcyonium digitatum*), brittlestars (Ophiuridae),	
		Bathymetry: 38 m BSL	Mean Biomass*: 0.0004	

<table>
<tr><th>Habitat Classification (EEA, 2019)</th><th>Distribution</th><th>Physical Characteristics</th><th>Biological Characteristics</th><th>Example Photograph</th></tr>
<tr><td rowspan="5">A5.233
Nephtys cirrosa and Bathyporeia spp. in infralittoral sand</td><td rowspan="5">Cluster C (●)*†:
MA_ST35, MA_ST38, MA_ST46, MA_ST47, MA_ST50, MA_ST51, MA_ST52, MA_ST57, MA_ST60, MA_ST65 and MA_ST66</td><td>Mean gravel*:
5.65 %</td><td>Mean number of taxa*:
18 per 0.1 m^2</td><td rowspan="5">  </td></tr>
<tr><td>Mean sand*:
94.20 %</td><td>Mean number of individuals*:
2 per 0.1 m^2</td></tr>
<tr><td>Mean mud*:
0.15 %</td><td>Characteristic infaunal taxa*:
Bathyporeia spp.,
Spiophanes bombyx,
Spio goniocephala and
Echinocyamus pusillus</td></tr>
<tr><td>‘Sand with varying proportions of gravel, shell and shell fragments’’†</td><td>Characteristic epifaunal taxa†:
Hermit crabs (Paguridae)</td></tr>
<tr><td>Bathymetry:
23 m to 36 m BSL</td><td>Mean Biomass*:
0.105</td></tr>
<tr><td colspan="5">Notes
Biomass expressed as ash free dry weight in g/0.1 m^2 grab sample
EEA = European Environment Agency
† = Data from grab analysis. Mean values generated for sample/station data within multivariate grouping of macrofaunal community
‡ = Data from photographic analysis</td></tr>
</table>

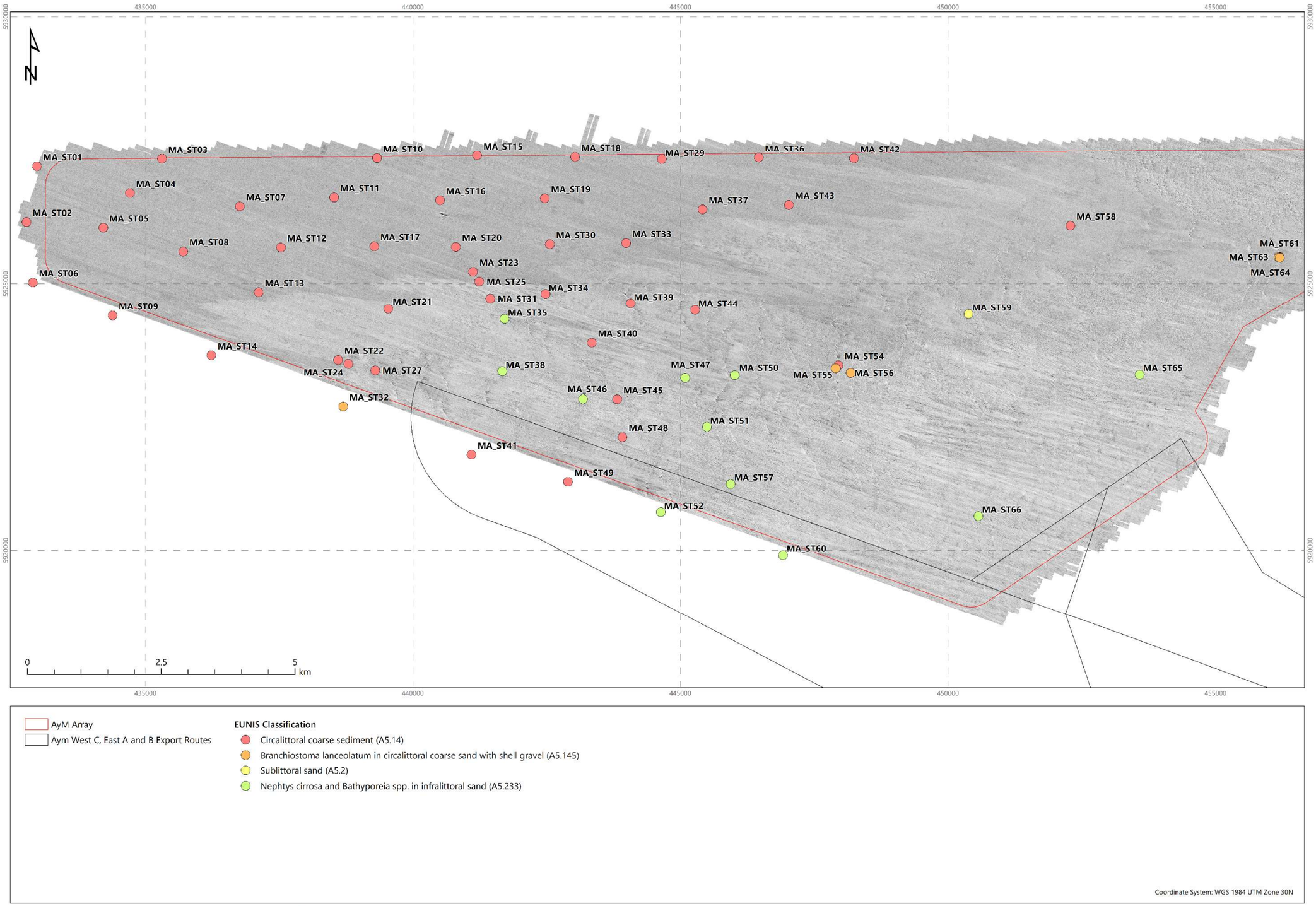


Figure 4.21: The spatial distribution of EUNIS (EEA, 2019) habitat classifications, Main Array

4.5.2 Potential Sensitive Habitats and Species

4.5.2.1.1 e.g. Subtidal Sands and Gravels

The seabed within the survey area was classified as the EUNIS habitats 'Circalittoral coarse sediment (A5.14), 'Sublittoral sand' (A5.2), '*Nephtys cirrosa* and *Bathyporeia* spp. in infralittoral sand' (A5.233) and '*Branchiostoma lanceolatum* in circalittoral coarse sand with shell gravel' (A5.145). These habitats are encompassed within 'Subtidal sands and gravels', a priority habitat within UK waters.

4.5.2.1.2 Other Potentially Sensitive Habitats and Species

No other Annex I habitats or Annex II species, OSPAR threatened and/or declining species and habitats or UK Biodiversity Action Plan priority habitats and species (OSPAR, 2008; BRIG, 2011, JNCC, 2018; JNCC, 2019a; 2019b) were observed within the survey area.

5. Discussion

5.1 Sediment Characterisation

The general physical and chemical characteristics of sediment particles have a significant effect on how other chemical components and biological species interact with seabed sediments. For example, the silt/clay fraction is known to adsorb petroleum hydrocarbons/heavy metals from seawater and through this pathway, these chemicals become incorporated into the sediment system (Meyers & Quinn, 1973). Granulometry data can therefore be critical when interpreting chemical and biological data obtained in this type of benthic study. In addition, since waste discharges (such as drill cuttings) often possess significantly different physical characteristics from the natural sediments present in the area, such data may also provide some information on the spread of discharged material.

With regard to macrofaunal communities, the species distributions and community structure can be greatly influenced by the nature of the sediment, which represents the effects of a complex set of hydrological factors, such as water movement, turbulence and suspended load, at one particular point in time. Some animals have a behavioural preference for sediment of a particular grain size (Meadows, 1964; Gray, 1981), while this factor and organic matter content are closely associated with other properties of the sediment such as density, porosity, permeability, oxygenation and bacterial count (Buchanan, 1984), all of which affect animal functions such as locomotion, attachment, tube construction and feeding. Specifically, the proportion of fine (silt/clay) material often influences the distribution of macrofaunal communities.

Sediment descriptions using the Folk description (1954) categorised the seabed of the main array as predominantly gravelly sand (47 stations) or sand (10 stations), with the remaining stations described as gravelly muddy sand (3 stations), muddy sandy gravel (station MA_ST61) or sandy gravel (station MA_ST02). When the graphical mean particle size of the samples was considered, this was classified as Wentworth (1922) sediment descriptions which ranged from ‘very coarse sand’ to ‘medium sand’. There was clear spatial pattern in sediment type across the survey area, which would be linked to variations in seabed acoustic character/morphology. Within the western part of the survey area, where more homogenous, medium SSS reflectivity was observed, sediments contained a moderate proportion of gravel and a small fines fraction. Sediments within this area were grouped within cluster A of the multivariate analysis of PSD data. Sand waves and mega ripples were evident from MBES data acquired in the eastern part of the survey area in association with generally low SSS reflectivity. Sediments in this area comprised clean sands (no fines) with a low gravel content (clusters B and C of the multivariate analysis of PSD data). Multivariate cluster analysis reinforced these results, with three significant clusters and one ungrouped station. PCA refined these results and demonstrated that the factors driving the differentiation of the clusters were the proportions of medium sand, coarse sand and coarse pebble sediment.

The spatial patterns evident in sediment composition and the clear linkage of these to the geophysical characteristics of the seafloor, suggest that particle size is likely to be influenced by the degree of sediment mobility. This is likely the result of a variable degree of exposure to tidal streams and wave action, which will be influenced by water depths across the area.

5.2 Sediment Chemistry

5.2.1 Sediment Hydrocarbons

5.2.1.1 Aromatic Hydrocarbons

PAHs are widely spread in the environment (Butler et al., 1984) with natural sources occurring primarily through synthesis by plants (Neff, 1979; Sims & Overcash, 1983), related to natural seeps of petroleum (NRC, 1983; Kennicutt et al., 1988) and to formation during natural forest and prairie fires (Youngblood & Blumer, 1975; Wakeham et al., 1979). By far the greatest proportion of PAHs released into the environment are formed during fossil fuel combustion and anthropogenic forest and agricultural fires (Edwards, 1983; Sims & Overcash, 1983; Haritash & Kaushik, 2009). PAHs primarily enter marine sediments from atmospheric and riverine inputs; accumulation on the surface tends to adsorb into suspended inorganic and organic particulate matter, ultimately settling on the seabed where they accumulate to relatively high concentrations (Latimer & Zheng, 2003; Culotta et al., 2006).

Monitoring of aromatic hydrocarbon type and content is important due to the particularly toxic nature (mutagenic/carcinogenic) of several PAHs, particularly the heavier weight PAHs. The US EPA has identified 16 priority PAHs to be monitored (Keith, 2015) and the Coordinated Environmental Monitoring Programme (CEMP) specifies 9 PAHs of specific concern (OSPAR, 2014), which primarily reflect inputs from anthropogenic combustion sources.

Total 2 to 6 ring PAH concentrations were higher than the median concentration recorded from the SEA6 (Cefas, 2005) Irish Sea surveys (0.0237 µg/g) at six stations (MA_ST04, MA_ST12, MA_ST22, MA_ST25, MA_ST43 and MA_ST61); however, the median value from the current survey was broadly comparable to the SEA6 median value.

The individual US EPA 16 PAH concentrations were all below the CEMP ERL values, and therefore are unlikely to have any adverse effects on the macrofaunal community (Appendix E.1).

The source of the PAHs may be determined by investigation of the relative proportions of individual PAH concentrations (Neff, 1979; Budzinski et al., 1997; Yunker et al., 2002) as well as examining the overall distributions of parent and alkylated PAHs present. Pyrogenically (or pyrolytic) derived PAHs signatures (i.e. forest fires, etc.) are dominated by higher molecular weight compounds (mainly 4 to 6 ring) and are predominantly unsubstituted. In contrast, PAH formed during the slow geological maturation of petroleum, are dominated by alkylated, low molecular weight (mainly 1 to 3 ring) compounds (Neff, 1979; Stogiannidis & Laane, 2015). The proportion of petrogenically derived NPD to total aromatic

material present in these sediments (mean 35 %; Table 4.6) indicated a predominantly pyrolytic source for the aromatic compounds in the sediments.

5.2.2 Sediment Metals

5.2.2.1 Heavy and Trace Metals

Metals and metalloids occur naturally in the marine environment and are widely distributed in both dissolved and sedimentary forms. Some are essential to marine life while others have no biological function and therefore are toxic to numerous organisms at certain levels (Paez-Osuna & Ruiz-Fernandez, 1995; Boening, 1999). Metals can enter the environment via natural methods such as riverine transport, coastal discharges, geological weathering and atmospheric fallout (Brady et al., 2015). Other routes into marine sediments are from anthropogenic activities such as direct discharges from industrial activities.

Trace metal contaminants in the marine environment tend to form associations with the non-residual phases of mineral matter, such as iron and manganese oxides and hydroxides, metal sulphides, clays, organics and carbonates (Warren & Zimmerman, 1993; Dang et al., 2015; Wang et al., 2015). Non-residual trace metals are associated with more reactive and available sediment components through processes such as adsorption onto mineral surfaces and organic complexation. Metals associated with these more reactive phases are prone to various environmental interactions and transformations (physical, chemical and biological) potentially increasing their mobility and biological availability (Tessier et al., 1979; Warren & Zimmerman, 1993; Du Laing et al., 2009). Residual trace metals are defined as those that are part of the crystal structure of the component minerals and are generally unavailable to organisms (de Orte et al., 2018). Therefore, in monitoring trace metal contamination of the marine environment, it is important to distinguish the more mobile non-residual trace metals from the residual metals held tightly in the sediment lattice (Chester & Voutsinou, 1981), which are of comparatively lesser environmental significance because of their low reactivity and availability.

In this study, an analytical procedure involving the digestion of sediment in aqua regia was employed to analyse the elemental content of the sediments. The aqua regia digest releases for analysis the 'non-residual' heavy metals, which are not incorporated in the mineral matrix and are therefore potentially available for biological uptake.

The bioavailable metals concentrations in sediments were all below their respective Cefas action levels and the CEMP ERLs indicating that these metals are unlikely to have an adverse effect on the macrofaunal communities present.

5.3 Macrofaunal Communities

Seabed sediments provide support, protection and the food source for many macrofaunal species. The sediment macrofauna, most of which are infaunal (living within the sediment), are therefore particularly vulnerable to external influences that alter the sediments' physical, chemical or biological nature. Such infaunal animals are largely sedentary and are thus

unable to avoid unfavourable conditions. Each species has its own response and degree of sensitivity to changes in the physical and/or chemical environment and consequently the species composition and their relative abundance in a particular location provides a reflection of the health and condition of the immediate environment, both current and historical. The recognition that aquatic contaminant inputs may alter sediment characteristics, together with the relative ease of obtaining quantitative samples from specific locations, has led to the widespread use of infaunal communities in monitoring the impact of disturbances to the marine environment over a long period of time.

The phyletic composition for both taxa and abundance was variable throughout the survey area. Annelids were the most diverse and numerous phyla at all stations except for ten stations, where the dominant taxa were a combination of arthropods, molluscs, echinoderms and other phyla. Whilst annelids were the dominant phylum across the survey area, the most abundant taxon overall within the survey area was the arthropod *U. marina*.

The variation in the number of taxa and individuals was reflected in the diversity indices (Shannon-Wiener) and evenness (expressed as both as Pielou's (J) and Simpson's Index (1-λ), both of which showed high levels of variation across the survey area. A broad spatial trend in the number of taxa and individuals was observed, where typically higher numbers were observed in the west of the survey area.

The multivariate analysis of infauna showed three statistically significant clusters and one ungrouped station. Each of the infaunal groups were dominated by different key taxa, as well as having differing numbers of taxa and individuals. A spatial pattern was evident from the distribution of the infaunal groups across the survey area. Cluster A was predominately found in the west of the survey area, whereas clusters B and C were typically reported in the southern and eastern parts of the area (Figure 4.14). This was similar to the spatial trend observed in the sediment type across the survey area (Figure 4.5). Infaunal clusters broadly corresponded to the clusters produced from the multivariate analysis of the PSD data and both analyses showed clear association with the variations in seabed acoustic character/morphology evident from the MBES and SSS data. This suggested the infaunal community was likely to have been influenced by sediment type and the degree of sediment mobility, which may, in turn, have been linked to water depth, as this will likely determine the degree of exposure of benthic habitats to wave action and/or tidal streams.

The BIOENV algorithm in the PRIMER BEST routine was an additional technique used to identify the environmental variables that correlated significantly with the patterns outlined in community structures. BIOENV was run for a single and a combination of two and three variables. The single variable that correlated most strongly with the patterns in the macrofaunal community was granule (2000 µm to 3000 µm) sediment ($P \leq 0.05$; rho = 0.685). Two variables combined correlating with patterns in the macrofaunal community were very coarse sand and silt ($P \leq 0.05$; rho = 0.797). When three variables were combined, granule, medium sand and silt ($P \leq 0.05$; rho = 0.836) correlated with patterns in the macrofaunal community. Therefore, these results suggested that the variations in the macrofaunal

communities were being driven by sediment granulometry, which, as previously mentioned, was probably largely determined by exposure to wave action and/or tidal currents. BIOENV correlations run between chemical results and the patterns in the macrofaunal community provided no statistically significant results ($P > 0.05$).

Stations within infaunal cluster A were described as poorly to very poorly sorted coarse sand and were dominated by fauna typical of this sediment type. Cross-referencing of this community to the EUNIS habitat classification failed to identify an exact match of infaunal community at biotope or sub-biotope level.

Infaunal cluster B was described as moderately well to well sorted coarse sand, containing fauna typical of circalittoral coarse sediment, characterised by the presence of the polychaetes *P. remota, Polygordius* and the echinoderm *E. pusillus*.

Stations within infaunal cluster C were dominated by faunal typical of well/moderately well sorted, medium to coarse sand sediments, with minimal mud content, which were present at these stations. These dominant taxa included the arthropods *B. elegans* and *B. gracilis* which are epistrate feeders (feed by scraping algae/bacteria off sand grains) and the polychaete *N. cirrosa* which is a psammophilous polychaete. These species show preference for wave exposed sand habitats and, by extension, any sediments subject to hydrodynamic disturbance (Tilin, 2016). The low mud content is typical of areas with moderate levels of exposure to tidal or wave action.

Ungrouped station MA_ST59 was described as well sorted coarse sand. The paucity of fauna at this station (only one polychaete *S. parapari* and one sipunculid *P. strombus* were recorded) lead to this station being statistically differentiated from all other stations sampled. It is possible that the paucity of fauna identified may have resulted from recent disturbance of the sediments at this station, possibly as the result of natural hydrodynamic processes.

Biomass of the infauna showed variation in the samples at stations taken from across the survey area, likely due to the variation identified at stations. The overall biomass was highest within infauna cluster A, with annelids providing the highest contribution due to the high abundance of polychaetes. Cluster B had the second highest biomass, with molluscs providing the highest contribution. This was due to the presence of the mollusc *Asbjornsenia pygmaea* in an otherwise sparse station (MA_ST56), which skewed the mean biomass towards molluscs even though they were not particularly abundant within cluster B.

Solitary epifauna were identified across four phyla; Bryozoa, Hydrozoa, Cnidaria and Porifera. Sediment cluster A had the highest diversity, containing taxa from all of the four phyla identified. The sediment associated with cluster A comprised sandy gravel to gravelly muddy sand with the highest gravel content (mean of 19.88 %) of all the sediment clusters identified. This gravel sized sediment, which includes shell and pebble material, will have provided suitable attachment substrata for the epifauna identified.

5.4 Seabed Habitats and Biotopes

When seabed photographic data, particle size data and macrofaunal data were considered, the EUNIS classifications; one habitat, two biotope complexes and two sub-biotopes were assigned to the station surveyed. The classifications were refined from the habitat classifications identified in the ECR Main array -Environmental Features Report (Volume 2 of this series).

The majority of the main array survey stations were classified as 'Circalittoral coarse sediment' (A5.14). The higher gravel content from the PSD results and the presence of species associated with coarse sediment (Nemertea*, S. bombyx* and *A. Lindstroemi*) are characteristic of this biotope complex. This community corresponded to cluster A of the multivariate analysis of macrofaunal data. Five stations, namely stations MA_ST32, MA_ST55, MA_ST56, MA_ST63 and MA_ST64 (cluster B of the multivariate analysis,) had a higher sand content, with different dominant taxa, than those stations assigned to the 'Circalittoral coarse sediment' (A5.14) biotope complex. These stations were further classified into the biotope '*Branchiostoma lanceolatum* in circalittoral coarse sand with shell gravel' (A5.145), due to characteristic taxa including the polychaetes *P. remota*, *Polygordius* and *H. elongata*, and the echinoderm *E. pusillus*.

Eleven stations were classified as the biotope complex 'Infralittoral fine sand' (A5.23) across the survey area, due to the high sand and low gravel/mud content and faunal assemblages being typical of clean sands with moderate exposure to wave or tidal action. Infaunal analysis showed similarities to the sub biotope complex '*Nephtys cirrosa* and *Bathyporeia* spp. in infralittoral sand' (A5.233), whereby the dominant taxa at these stations included the annelid *N. cirrosa* and amphipods *B. gracilis* and *B. elegans* (cluster C of the multivariate analysis of infaunal data).

Ungrouped station MA_ST59 was classified as the habitat 'Sublittoral sand' (A5.2) due to the sediment comprising of high sand content, minimal gravel and lacking fines content. The impoverished macrofaunal assemblage present at this station did not allow classification to biotope complex/biotope level.

As described for sediment characteristics and infaunal community structure, there was a clear spatial distribution in the habitat types present within the survey area and this could be linked to variations in SSS reflectivity and the seabed morphology evident from MBES data Figure 4.21.

The sediments observed throughout the survey area were identified as comprising the broadscale priority habitat 'subtidal sands and gravels'. However, this habitat is widely distributed and represented elsewhere in the UK Marine Protected Area (MPA) network (JNCC, 2019).

No other Annex I habitats or Annex II species, OSPAR threatened and/or declining species and habitats or UK Biodiversity Action Plan priority habitats and species observed within the survey area.

Table 5.1 provides a summary of the sensitive habitats that may occur in the survey area.

Table 5.1: Summary of sensitive habitats potentially present, Main Array

Listed Feature		Relationship	Related Feature	
Description	Designation/Status		Description	Designation/Status
Subtidal sands and gravels	Priority habitat; habitat FOCI	Contains	Offshore subtidal sands and gravels	PMF; MPA search feature

Notes
FOCI = Feature of Conservation Interest
PMF =Priority Marine Feature
MPA = Marine Protected Area

6. Conclusions

The aim of this report has been to evaluate the existing physical, chemical and biological components in the marine environment within the survey area. A review of the environmental data in context with other cited studies from the region and estimated sediment effects threshold values (Cefas, 2005; Cefas, 2014; OSPAR, 2014) was also undertaken. Based on the overall assessment of the survey area, the following key conclusions can be stated:

The sediments within the survey area comprised mainly of sand, with varying proportions of gravel, and little to no fines. Using the BGS modified Folk (1954) sediment description, most stations were classified as gravelly sand (47 stations) or sand (10 stations). Multivariate cluster analysis demonstrated this variability in sediment fractions by grouping the stations into three significant clusters and one ungrouped station. The clear spatial pattern in sediment type, and its association with the seabed's geophysical characteristics, suggested that sediment type was influenced by hydrodynamic regime (variations in sediment mobility) and water depth.

The median total 2 to 6 ring PAH concentration was broadly comparable to the median concentration reported from the SEA6 Irish Sea surveys. All individual PAH concentrations were below their respective ERL values.

All metals concentrations were less than their respective Cefas guideline action levels (AL1 and AL2) and OSPAR ERL values.

The number of infaunal and solitary epifaunal taxa recorded from the grab samples varied across the Main Array survey area. Following multivariate statistical analysis, three separate benthic communities were differentiated. One of these was dominated by the amphipod *U. marina* and horseshoe worm *Phoronis* and was associated with coarse sediment (predominantly gravelly sand) areas. One was characterised by polychaetes typical of clean coarse sediments (*P. remota* and *Polygordius*) and nemerteans. The third community present was characterised by taxa typical of mobile sand sediments (the amphipods *B. elegans* and *B. gracilis* and polychaetes *S. bombyx* and *S. goniocephala*).

Four habitat types were identified within the survey area; 'Circalittoral coarse sediment' (A5.14), '*Branchiostoma lanceolatum* in circalittoral coarse sand with shell gravel' (A5.145), '*Nephtys cirrosa* and *Bathyporeia* spp. in infralittoral sand' (A5.233) and 'Sublittoral sand' (A5.2). The most widespread habitat being 'Circalittoral coarse sediment' (A5.14).

The UK priority habitat 'subtidal sands and gravels' was likely to be present within survey area, however this habitat is widely distributed within UK waters and is included within UK MPA networks. No other Annex I habitats or Annex II species, OSPAR threatened and/or declining species and habitats or UK Biodiversity Action Plan priority habitats and species were observed within the survey area.

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Appendices

Appendix A

Guidelines on Use of Report

This report (the "Report") was prepared as part of the services (the "Services") provided by Fugro GB Marine Limited ("Fugro") for its client (the "Client") under terms of the relevant contract between the two parties (the "Contract"). The Services were performed by Fugro based on requirements of the Client set out in the Contract or otherwise made known by the Client to Fugro at the time.

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Appendix B

Methodologies

B.1 Survey Methods

B.1.1 Sediment Grab Sampling

Seabed samples were acquired using a 0.1 m^2 Hamon grab for macrofauna and particle size distribution (PSD) and a 0.1m^2 Day grab for chemistry sampling.

Operational procedures for grab sampling were as follows:

- The 0.1 m^2 Day grab or 0.1 m^2 Hamon grab was prepared for operations prior to arrival on station. Positioning was provided by a vessel offset from the vessel reference point. The Bridge communicated to the deck via a VHF radio when the vessel was steady and on location, and the grab was deployed from the starboard A-frame;
- When the deck crew operating the winch observed that the grab had reached the seabed (evidenced through a distinct slackening of the wire rope and snatch block), a positional fix was taken;
- On recovery to the deck, the sample was inspected and judged acceptable or otherwise (see below for rejection criteria);
- Once accepted, the grab sample was retained for faunal and PSD analysis (Hamon grab) and one grab sample was retained and subsampled for chemistry analysis (Day grab);
- Deck logs were completed for each sample acquired (including no samples) with date, time, sample number, fix number, sediment type, odour (i.e. H_2S) and bioturbation or debris noted.

Samples were considered unacceptable in the following instances:

- Evidence of sediment washout caused through improperly closed grab jaws or inspection hatch;
- Sediment sample taken on an angle, where the grab jaws have not been parallel to the seabed when the grab fired;
- Disruption of the sample through striking the side of the vessel;
- Sample represented less than approximately 7 cm bite depth for the 0.1 m^2 Day grab or less than 5 L for the Hamon grab;
- Sample was more than 30 m from the target location.

B.1.2 Chemical Sample Processing

- Hydrocarbon (HC) subsamples were collected using a metal scoop to a nominal depth of 2 cm. Subsamples collected were HCA1 and HCA2. The subsamples were preserved in glass jars at approximately −20 °C;
- Heavy metal (HM) subsamples were collected using a plastic scoop to a nominal depth of 2 cm. Subsamples collected were HMA1 and HMA2. The subsamples were preserved in polythene bags at approximately −20 °C.

B.1.3 Macrofauna and Particle Size Distribution (PSD) Sample Processing

Macrofauna and PSD subsamples were processed as follows:

- Samples were processed in their entirety, by opening the grab to drop the sample into a container. All supernatant water was processed along with the sediment;
- A PSD subsample was collected prior to sieving of the sample and placed in a polythene bag and stored at approximately −20 °C;
- The remaining sample was transferred to a 1 mm mesh sieve and transferred to the hand sieving table and sediment washed out;
- Once sieved samples were transferred to containers and fixed in 10 % buffered formal saline. The sample containers were then sealed, hazard labelled and stored securely on deck.

B.2 Laboratory Analysis for Sediment Samples

B.2.1 Particle Size Analysis

Dry Sieve Analysis

Particle size distribution (PSD) analysis was undertaken in accordance with FGBML in-house methods based on the National Marine Biological Association Quality Control scheme's (NMBAQC) best practice guidance document – Particle Size Analysis (PSA) for Supporting Biological Analysis, and BS1377: Parts 1: 2016 and 2: 1990.

Representative material > 1 mm was split from the bulk subsample and oven dried before sieving through a series of sieves with apertures corresponding to 0.5 phi intervals between 63 mm and 1 mm as described by the Wentworth scale (Wentworth, 1922). The weight of the sediment fraction retained on each mesh was subsequently measured and recorded.

Laser Diffraction

Particle size distribution (PSD) analysis was undertaken in accordance with FGBML in-house methods based on the NMBAQC scheme's best practice guidance document – Particle Size Analysis (PSA) for Supporting Biological Analysis, and BS ISO 13320: 2009.

Representative material < 1 mm was removed from the bulk subsample for laser analysis, a minimum of three triplicate analyses (mixed samples) or one triplicate analyses (sands) were analysed using the laser sizer at 0.5 phi intervals between < 1 mm to < 0.98 µm. Laser diffraction was carried out using a Malvern Mastersizer 2000 with a Hydro 2000G dispersion unit.

Sample Analysis Outputs and Deliverables

Sieve and laser data are merged and entered into GRADISTAT to derive statistics including mass and percentage retained within each size fraction, mean and median grain size, bulk sediment classes (percentage gravel, sand and silt/clay), skewness, sorting coefficients and Folk classification.

B.2.2 Hydrocarbon Analysis in Sediments

Hydrocarbon analysis of sediments was carried out by Fugro GB Marine Limited.

B.2.3 General Precautions

To effectively eliminate all possible sources of hydrocarbon contamination from the analysis the following precautionary measures were taken prior to sample work-up:

- All solvents were purchased as high purity grade. Each batch was checked for purity by concentrating approximately 400 mL down to a small volume (< 1 mL) and analysing by gas chromatography (GC);
- All water used was distilled through an all glass still and dichloromethane extracted to minimise contamination from plasticisers;

- All glassware was cleaned using an acid/base machine wash. The glassware was rinsed with acetone then finally with dichloromethane prior to use;
- Procedural blanks, replicate analyses and laboratory reference material were run with each batch.

Ultrasonication Extraction for Hydrocarbons in Sediment

Sediment samples were thawed, homogenised and accurately weighed into a 250 mL conical flask. A solution containing an appropriate amount of the following internal standards was added to each sample using a microsyringe.

Aromatic Standards
D_8 Naphthalene
D_{10} Acenaphthene
D_{10} Phenanthrene
D_{10} Pyrene
D_{12} Chrysene
D_{12} Perylene

Methanol (50 mL) and solvent were mixed with the sediment. Dichloromethane (DCM) (60 mL) was then added and the sample mixed again. The flasks were then capped with solvent cleaned aluminium foil and ultrasonicated for 30 minutes.

After being allowed to settle the solvent was decanted through a GF-C filter paper into a 1 litre separating funnel. The extract was then partitioned with 100 mL of DCM extracted distilled water and the DCM layer run-off into a clean 500 mL round-bottomed flask. The ultrasonic extraction was repeated a further two times using 50 mL DCM and 15 minutes of ultrasonication. Each time the filtered extract was partitioned with the remaining methanol/water in the separating funnel. The DCM extracts were bulked and reduced in volume to approximately 2 mL using a rotary evaporator, then further reduced to approximately 1 mL under a gentle stream of nitrogen prior to clean-up.

Correction factors for wet/dry sediments were obtained by drying a subsample of the homogenised sediment to constant weight at 105 °C.

Clean-up of Extracts by Column Chromatography

Removal of polar material, including lipids was carried out using a silica gel column. The silica gel used was 70 to 230 mesh which was heated at 400 °C for at least 4 hours to remove impurities and residual moisture and then stored at 200 °C prior to use. The sample extract was added to the silica gel column, containing 5 g of adsorbent and eluted with 35 mL of DCM/pentane (1:2). The eluant was reduced in volume using the evaporator to approximately 2 mL, with activated copper powder (for removal of free sulphur), before being further reduced under a gentle stream of nitrogen to an appropriate volume and analysed by and gas chromatography-mass spectrometry (GC-MS).

	Gas Chromatography-Mass Spectrometry [GC-MS]
Instrument	HP 7890 Series GC with autoinjector and 5977A MSD
Column	(5 %phenyl)-methylpolysiloxane bonded fused silica, 60 m, 0.32 µm film thickness 0.25 mm internal diameter
Carrier Gas	Hydrogen (constant flow 1.4 mL/min)
Injector	Splitless, 280 °C, split flow 40 mL/min, vent time 1.5 min (1 µL injection)
Oven Temperature Programme	60 °C – 1 min 60 °C to 180 °C at 11 °C/min 180 °C to 260 °C at 6 °C/min 260 °C to 320 °C at 6 °C/min 330 °C – 7 min
Source/Detector Temperature	230 °C
Electron Energy	70 eV
Selected Ion Monitoring (SIM)	9 groups - 6 ions per group
Dwell Time (per ion)	0.035 second

A full range of polycyclic aromatic hydrocarbon (PAH) and alkylated PAHs were quantified as specified by Department of Trade and Industry (DTI) regulations (DTI, 1993).

Calibration was undertaken using a range of PAH standard solutions, a number of alkylated PAH, dibenzothiophene and a range of suitable internal standards. Individual response factors were calculated for each of the compounds present in the calibration solution. Response factors for the non-calibrated alkylated PAHs were taken to be equivalent to closely related compounds. The MRV of individual and alkylated PAHs is 0.1 ng/g.

B.2.4 Metals Analysis

Sediment samples were dried at 40 °C and then sieved to the required size fraction (2000 µm). Samples were subjected to an aqua regia microwave digestion. This acid mixture allows a partial dissolution of metals, predominately releasing those associated with the sediment fines. The resulting digests were then analysed by inductively coupled plasma–mass spectrometry (ICP-MS) for arsenic, cadmium, chromium, copper, lead, mercury, nickel, tin and zinc; and inductively coupled plasma–optical emission spectrometry (ICP-OES) for aluminium and barium.

B.2.5 Macrofaunal Analysis

Benthic Infauna Analysis

Macrofauna analysis was carried out by FGBML benthic laboratories which are members of the NMBAQC scheme of external quality assurance.

On return to the laboratory, the samples were removed from formalin and washed through 0.1 mm mesh sieves. The material retained was then processed to remove fauna. The animals were separated by hand from the retained sediment by using a combination of stereo

microscopes for the fine sediments and in white trays for any coarser material. Processed sediment is stored in Phenoxetol (2 %) or returned to the original formalin.

Following extraction, the animals were identified and enumerated by specialist taxonomists. Identification was to species level where possible. Specimens which, due to their immaturity, damage incurred during processing or lack of suitable taxonomic literature, cannot be identified to species level are identified at higher taxonomic levels as appropriate. After identification, samples were stored in 70 % industrial denatured alcohol or a mixture of 70 % ethanol/1 % propylene glycol/29 % water. A minimum of 10 % of samples within the project were re-analysed (for extraction, species identification, enumeration and data entry) as per NMBAQC quality control guidelines (Worsfold, 2010). For biomass, identified macrofauna were blot dried and weighed at species/phyla level then returned to storage container.

Species abundances were entered on file in a spreadsheet package or the Unicorn database, both of which store and sort entries into taxonomic order and provide output files for numerical analysis. Nomenclature follows that given on the World Register of Marine Species (WoRMS Editorial Board, 2020). The taxonomic order is based on Species Directory codes (Howson & Picton, 1997) to give an idea of 'evolutionary rank'. Once all the entries had been checked, the resulting quantitative data were subjected to various statistical techniques to investigate community structure.

Prior to statistical analysis, the macrofaunal abundance data was manipulated to avoid spurious enhancement of community statistics. This involved the removal of all records of damaged, pelagic and juvenile taxa.

B.3 Statistical Analysis

B.3.1 Univariate and Multivariate Analysis of Macrofauna Data

Univariate analysis is used to extracts features of communities which are not the function of specific taxa, i.e. these methods are species independent. They are not sensitive to spatio-temporal variations in species composition, so that assemblages with no species in common can theoretically have equal diversities. Univariate analyses were calculated using the Plymouth Routines in Multivariate Ecological Research (PRIMER) version (v)7 Diverse procedure and included number of individuals (N) and taxa (S), diversity employing the Shannon-Wiener index ($HLog_2$) and evenness employing the Pielou's index (J).

Pielou's Equitability (J)

Pielou's index of evenness (also referred to as equitability) expresses how evenly distributed the individuals are among the different taxa. In general, the higher the evenness, the more balanced the sample is, as it indicates that the individuals are evenly distributed between the taxa recorded. It is expressed as:

$$J' = \frac{H'}{\text{Log } S}$$

Where:

H' = Shannon-Wiener Index;
S = total number of species.

Shannon-Wiener Diversity ($H'Log_2$)

The Shannon-Wiener index of diversity incorporates richness and evenness as it expresses the number of species within a sample and the distribution of abundance across these species. In mathematical information theory, which is the context in which the Shannon-Wiener formula was originally devised, the Shannon-Wiener index of diversity measures the information content of a code in which one can write infinite messages. Analogously, the use of the Shannon-Wiener index of diversity as a measure of the diversity of a community, assumes that indefinitely samples can be taken from the community without depleting it. It is expressed as:

$$H' = -\sum_i P_i \text{ Log}(P_i)$$

Where:

Pi = proportion of the ith species.

B.3.2 Multivariate Analysis

In the initial stage, multivariate analysis may involve transformation of data. For sediment analysis, transformation reduce the skewness allowing optimal performance of the

multivariate analysis. For macrofaunal analysis, transformation is applied where the fauna is numerically dominated by a few species which may mask the underlying community composition. Transformation reduces the influence of those more dominant species, with transformation ranging in severity from no transformation to the reduction of all data to presence absence only. If no transformation is applied to the data, greater emphasis is given to the most common species; a square root transformation allows the intermediate abundance species to play a role; a fourth root transformation results in a down-weighting of the dominant species, taking into much greater account the lowest abundant species, an allowing the underlying community composition to be assessed. An alternative transformation, with very similar effect to the fourth root, is the log transform log(1+y). The latter transformations are effectively equivalent in focusing attention on patterns within the whole community, mixing contribution from both common and rare species (Clarke & Warwick, 2001).

Similarity Matrices

This analysis divides sites into groupings based on a measure of similarity or distance, depending on the nature of the data. For biological data, similarity based on the Bray-Curtis matrix is recommended, and for environmental data the Euclidean distance is recommended (Clarke & Warwick, 2001). The similarity/distance compares all samples with all other samples, producing a matrix.

Hierarchical Agglomerative Clustering (CLUSTER) and Similarity Profile Testing (SIMPROF)

The hierarchical agglomerative clustering (CLUSTER) programme uses the similarity matrix to successively fuse samples into larger and larger groups according to their level of similarity. The results are displayed by means of a tree-like dendrogram with similarity (or distance) displayed on one axis and samples on the other. Similarity profile (SIMPROF) test was also performed in conjunction to cluster analysis. The test is a permutation of the null hypothesis that a set of specified samples, which are not a priori divided into groups, do not differ from each other in multivariate structure and looks for statistically significant evidence of "true" clusters in samples i.e. if the different sample groupings interpreted from the cluster analysis are significantly different. The results are displayed by colour convention on the dendrogram: samples connected by red lines constitute a significant group in statistical terms and cannot be separated. Conversely, samples connected by black lines, and therefore statistically different, may be interpreted as being ecologically not significantly different. The SIMPROF output was therefore always considered in terms of statistical and ecological significance, in line with Clarke et al. (2008) who indicate that, creating coarser groupings is entirely appropriate, provided that the resulting clusters are always supersets of the SIMPROF groups.

Non-metric Multidimensional Scaling (nMDS)

Non-metric multidimensional scaling (nMDS) uses the similarity matrix to ordinate samples in a two-dimensional plane. This attempts to construct a map of the samples in which the more similar/close two samples are, the nearer they are on the map. The extent to which these

relations can be adequately represented in a two-dimensional map is expressed as the stress coefficient statistic or stress value. Stress values above 0.3 indicate near arbitrary points and the ordination should be considered unreliable. Stress values between 0.2 and 0.3 are poor representations of the data. Stress < 0.2 can show meaningful ordinations, while stress < 0.1 shows a good ordination of the data, with no real prospect of misleading interpretation. The combination of clustering and ordination analysis is a very effective way of checking the adequacy and mutual consistency of both representations (Clarke & Warwick, 2001).

Similarity Percentages Analysis (SIMPER)

This analysis can be applied to the data to gauge the faunal distinctiveness of each multivariate cluster, as identified by the clustering analysis. Similarity percentages analysis (SIMPER) provides a ranked list of taxa which contributes most to the similarity within clusters and the dissimilarity between clusters.

Principal Component Analysis (PCA)

The principal component analysis (PCA) identifies multidimensional patterns in datasets; once these multidimensional patterns have been found the data are compressed by reducing the number of dimensions without loss of information. The results of a PCA are graphically represented by the principal component (PC) axes, which are linear combinations of the values for each variable and represent the perpendicular distance in a multidimensional space along which the variance is maximised. The degree to which a 2D PCA succeeds in representing the full multidimensional information is in the percentage of the total variation expressed by the first two PCs. In general, a picture which accounts for as much as 70 % to 75 % of the original variation is likely to describe the overall structure rather well (Clarke & Warwick, 2001).

Appendix C

Logs

C.1 Survey Log

Geodetic Parameters: WGS84 UTM Zone 30N, CM 3°W [m]												
Date	Time [UTC]	Transect/ Station	Type	Sample Rep/ Still No.	Fix No.	Water Depth [m BSL]	Proposed Location		Actual Location		Offset [m]	Notes
							Easting	Northing	Easting	Northing		
16/08/2020	12:13	MA_ST64	Video	SOL	5	31	456 206.7	5 925 480.6	456 125.1	5 925 474.3	81.8	Station repeated as no video overlay
16/08/2020	12:13	MA_ST64	Still	MA_ST64_01	6	31	456 206.7	5 925 480.6	456 128.3	5 925 477.5	78.4	
16/08/2020	12:17	MA_ST64	Still	MA_ST64_02	7	31	456 206.7	5 925 480.6	456 182.1	5 925 474.7	25.3	
16/08/2020	12:18	MA_ST64	Still	MA_ST64_03	8	31	456 206.7	5 925 480.6	456 192.3	5 925 482.2	14.5	
16/08/2020	12:19	MA_ST64	Still	MA_ST64_04	9	31	456 206.7	5 925 480.6	456 202.0	5 925 484.8	6.3	
16/08/2020	12:20	MA_ST64	Still	MA_ST64_05	10	31	456 206.7	5 925 480.6	456 212.7	5 925 486.1	8.2	
16/08/2020	12:21	MA_ST64	Still	MA_ST64_06	11	31	456 206.7	5 925 480.6	456 218.7	5 925 495.6	19.2	
16/08/2020	12:21	MA_ST64	Video	EOL	11	31	456 206.7	5 925 480.6	456 218.7	5 925 495.6	19.2	
16/08/2020	12:35	MA_ST63	Video	SOL	12	31	456 177.3	5 925 488.6	456 148.4	5 925 482.0	29.7	
16/08/2020	12:35	MA_ST63	Still	MA_ST63_01	13	31	456 177.3	5 925 488.6	456 149.0	5 925 482.1	29.1	
16/08/2020	12:36	MA_ST63	Still	MA_ST63_02	14	31	456 177.3	5 925 488.6	456 157.3	5 925 492.8	20.5	
16/08/2020	12:36	MA_ST63	Still	MA_ST63_03	15	31	456 177.3	5 925 488.6	456 164.7	5 925 487.4	12.7	
16/08/2020	12:37	MA_ST63	Still	MA_ST63_04	16	31	456 177.3	5 925 488.6	456 171.6	5 925 493.9	7.8	
16/08/2020	12:38	MA_ST63	Still	MA_ST63_05	17	31	456 177.3	5 925 488.6	456 176.3	5 925 503.2	14.6	
16/08/2020	12:38	MA_ST63	Still	MA_ST63_06	18	31	456 177.3	5 925 488.6	456 181.5	5 925 510.8	22.6	
16/08/2020	12:39	MA_ST63	Video	EOL	19	31	456 177.3	5 925 488.6	456 181.3	5 925 512.8	24.5	
16/08/2020	12:48	MA_ST62	Video	SOL	20	31	456 168.0	5 925 503.0	456 142.3	5 925 497.9	26.3	
16/08/2020	12:49	MA_ST62	Still	MA_ST62_01	21	31	-	-	456 163.0	5 925 506.1	-	
16/08/2020	12:50	MA_ST62	Still	MA_ST62_02	22	31	-	-	456 177.0	5 925 502.5	-	

Geodetic Parameters: WGS84 UTM Zone 30N, CM 3°W [m]												
Date	Time [UTC]	Transect/ Station	Type	Sample Rep/ Still No.	Fix No.	Water Depth [m BSL]	Proposed Location		Actual Location		Offset [m]	Notes
							Easting	Northing	Easting	Northing		
16/08/2020	12:51	MA_ST62	Still	MA_ST62_03	23	31	-	-	456 193.9	5 925 506.8	-	
16/08/2020	12:51	MA_ST62	Still	MA_ST62_04	24	31	-	-	456 210.3	5 925 510.8	-	
16/08/2020	12:52	MA_ST62	Still	MA_ST62_05	25	31	-	-	456 216.6	5 925 512.6	-	
16/08/2020	12:53	MA_ST62	Still	MA_ST62_06	26	31	-	-	456 228.0	5 925 511.8	-	
16/08/2020	12:54	MA_ST62	Still	MA_ST62_07	27	31	-	-	456 233.9	5 925 511.7	-	
16/08/2020	12:54	MA_ST62	Video	EOL	28	31	456 234.0	5 925 510.0	456 235.2	5 925 518.8	8.9	
16/08/2020	13:21	MA_ST58	Video	SOL	29	35	452 286.0	5 926 081.0	452 258.9	5 926 079.5	27.1	
16/08/2020	13:21	MA_ST58	Still	MA_ST58_01	30	35	452 286.0	5 926 081.0	452 261.1	5 926 079.6	24.9	
16/08/2020	13:22	MA_ST58	Still	MA_ST58_02	31	35	452 286.0	5 926 081.0	452 272.7	5 926 084.8	13.8	
16/08/2020	13:23	MA_ST58	Still	MA_ST58_03	32	35	452 286.0	5 926 081.0	452 282.3	5 926 084.6	5.2	
16/08/2020	13:23	MA_ST58	Still	MA_ST58_04	33	35	452 286.0	5 926 081.0	452 291.9	5 926 091.9	12.3	
16/08/2020	13:24	MA_ST58	Still	MA_ST58_05	34	35	452 286.0	5 926 081.0	452 299.6	5 926 096.1	20.3	
16/08/2020	13:24	MA_ST58	Video	EOL	35	35	452 286.0	5 926 081.0	452 300.6	5 926 101.7	25.4	
16/08/2020	13:45	MA_ST59	Video	SOL	36	35	450 387.0	5 924 424.0	450 361.3	5 924 431.9	26.9	
16/08/2020	13:45	MA_ST59	Still	MA_ST59_01	37	35	450 387.0	5 924 424.0	450 363.1	5 924 429.1	24.5	
16/08/2020	13:46	MA_ST59	Still	MA_ST59_02	38	35	450 387.0	5 924 424.0	450 370.8	5 924 421.7	16.3	
16/08/2020	13:47	MA_ST59	Still	MA_ST59_03	39	35	450 387.0	5 924 424.0	450 385.5	5 924 431.9	8.0	
16/08/2020	13:48	MA_ST59	Still	MA_ST59_04	40	35	450 387.0	5 924 424.0	450 394.2	5 924 430.0	9.4	
16/08/2020	13:49	MA_ST59	Still	MA_ST59_05	41	35	450 387.0	5 924 424.0	450 404.0	5 924 435.4	20.4	
16/08/2020	13:49	MA_ST59	Video	EOL	42	35	450 387.0	5 924 424.0	450 406.8	5 924 439.7	25.2	
16/08/2020	14:14	MA_ST65	Video	SOL	43	31	453 569.0	5 923 291.0	453 543.5	5 923 290.3	25.5	

Geodetic Parameters: WGS84 UTM Zone 30N, CM 3°W [m]												
Date	Time [UTC]	Transect/ Station	Type	Sample Rep/ Still No.	Fix No.	Water Depth [m BSL]	Proposed Location		Actual Location		Offset [m]	Notes
							Easting	Northing	Easting	Northing		
16/08/2020	14:15	MA_ST65	Still	MA_ST65_01	44	31	453 569.0	5 923 291.0	453 547.2	5 923 290.7	21.8	
16/08/2020	14:15	MA_ST65	Still	MA_ST65_02	45	31	453 569.0	5 923 291.0	453 558.3	5 923 292.5	10.8	
16/08/2020	14:16	MA_ST65	Still	MA_ST65_03	46	31	453 569.0	5 923 291.0	453 583.1	5 923 287.5	14.5	
16/08/2020	14:17	MA_ST65	Still	MA_ST65_04	47	31	453 569.0	5 923 291.0	453 592.8	5 923 291.5	23.8	Vessel turned after this point
16/08/2020	14:19	MA_ST65	Still	MA_ST65_05	48	31	453 569.0	5 923 291.0	453 574.1	5 923 285.1	7.9	
16/08/2020	14:20	MA_ST65	Video	EOL	NF	31	453 569.0	5 923 291.0	453 552.5	5 923 275.5	22.6	
16/08/2020	14:42	MA_ST66	Video	SOL	49	24	450 568.0	5 920 636.0	450 540.3	5 920 638.3	27.8	
16/08/2020	14:42	MA_ST66	Still	MA_ST66_01	50	24	450 568.0	5 920 636.0	450 546.0	5 920 639.9	22.4	
16/08/2020	14:42	MA_ST66	Still	MA_ST66_02	51	24	450 568.0	5 920 636.0	450 555.8	5 920 634.6	12.3	
16/08/2020	14:43	MA_ST66	Still	MA_ST66_03	52	24	450 568.0	5 920 636.0	450 564.6	5 920 637.9	3.9	
16/08/2020	14:43	MA_ST66	Still	MA_ST66_04	53	24	450 568.0	5 920 636.0	450 576.1	5 920 637.3	8.2	
16/08/2020	14:44	MA_ST66	Still	MA_ST66_05	54	24	450 568.0	5 920 636.0	450 590.5	5 920 637.6	22.5	
16/08/2020	14:44	MA_ST66	Video	EOL	55	24	450 568.0	5 920 636.0	450 594.3	5 920 635.3	26.3	
16/08/2020	15:06	MA_ST56	Video	SOL	56	31	448 166.2	5 923 311.0	448 144.9	5 923 327.0	26.7	
16/08/2020	15:06	MA_ST56	Still	MA_ST56_01	57	31	448 166.2	5 923 311.0	448 147.9	5 923 324.9	23.0	
16/08/2020	15:06	MA_ST56	Still	MA_ST56_02	58	31	448 166.2	5 923 311.0	448 157.9	5 923 323.3	14.9	
16/08/2020	15:07	MA_ST56	Still	MA_ST56_03	59	31	448 166.2	5 923 311.0	448 169.3	5 923 305.7	6.1	
16/08/2020	15:08	MA_ST56	Still	MA_ST56_04	60	31	448 166.2	5 923 311.0	448 175.4	5 923 299.4	14.8	
16/08/2020	15:08	MA_ST56	Still	MA_ST56_05	61	31	448 166.2	5 923 311.0	448 184.5	5 923 294.0	24.9	
16/08/2020	15:08	MA_ST56	Video	EOL	62	31	448 166.2	5 923 311.0	448 186.1	5 923 293.0	26.8	
16/08/2020	15:18	MA_ST55	Video	SOL	63	28	447 905.0	5 923 406.9	447 878.7	5 923 416.6	28.0	

Geodetic Parameters: WGS84 UTM Zone 30N, CM 3°W [m]												
Date	Time [UTC]	Transect/ Station	Type	Sample Rep/ Still No.	Fix No.	Water Depth [m BSL]	Proposed Location		Actual Location		Offset [m]	Notes
							Easting	Northing	Easting	Northing		
16/08/2020	15:18	MA_ST55	Still	MA_ST55_01	64	28	447 905.0	5 923 406.9	447 888.8	5 923 419.2	20.4	
16/08/2020	15:19	MA_ST55	Still	MA_ST55_02	65	28	447 905.0	5 923 406.9	447 896.0	5 923 415.6	12.5	
16/08/2020	15:20	MA_ST55	Still	MA_ST55_03	66	28	447 905.0	5 923 406.9	447 905.7	5 923 409.1	2.3	
16/08/2020	15:20	MA_ST55	Still	MA_ST55_04	67	28	447 905.0	5 923 406.9	447 915.1	5 923 401.3	11.5	
16/08/2020	15:21	MA_ST55	Still	MA_ST55_05	68	28	447 905.0	5 923 406.9	447 925.4	5 923 396.8	22.8	
16/08/2020	15:21	MA_ST55	Video	EOL	69	28	447 905.0	5 923 406.9	447 927.3	5 923 395.7	25.0	
16/08/2020	15:29	MA_ST53	Video	SOL	70	29	447 911.0	5 923 474.0	447 909.5	5 923 476.5	2.9	
16/08/2020	15:29	MA_ST53	Still	MA_ST53_01	71	29	-	-	447 911.7	5 923 474.3	-	
16/08/2020	15:29	MA_ST53	Still	MA_ST53_02	72	29	-	-	447 915.6	5 923 463.7	-	
16/08/2020	15:30	MA_ST53	Still	MA_ST53_03	73	29	-	-	447 930.3	5 923 461.6	-	
16/08/2020	15:30	MA_ST53	Still	MA_ST53_04	74	29	-	-	447 937.2	5 923 454.7	-	
16/08/2020	15:31	MA_ST53	Still	MA_ST53_05	75	29	-	-	447 944.4	5 923 453.7	-	
16/08/2020	15:31	MA_ST53	Still	MA_ST53_06	76	29	-	-	447 951.7	5 923 451.6	-	
16/08/2020	15:32	MA_ST53	Still	MA_ST53_07	77	29	-	-	447 960.3	5 923 451.4	-	
16/08/2020	15:32	MA_ST53	Still	MA_ST53_08	78	29	-	-	447 964.0	5 923 447.2	-	
16/08/2020	15:32	MA_ST53	Video	EOL	79	29	447 958.0	5 923 450.0	447 966.8	5 923 446.4	9.5	
16/08/2020	15:50	MA_ST57	Video	SOL	80	28	445 929.0	5 921 227.0	445 939.0	5 921 251.2	26.2	
16/08/2020	15:51	MA_ST57	Still	MA_ST57_01	81	28	445 929.0	5 921 227.0	445 932.8	5 921 249.4	22.7	Vessel turned after this point
16/08/2020	15:55	MA_ST57	Still	MA_ST57_02	82	28	445 929.0	5 921 227.0	445 914.1	5 921 238.4	18.7	
16/08/2020	15:56	MA_ST57	Still	MA_ST57_03	83	28	445 929.0	5 921 227.0	445 923.5	5 921 236.3	10.8	
16/08/2020	15:56	MA_ST57	Still	MA_ST57_04	84	28	445 929.0	5 921 227.0	445 928.9	5 921 229.3	2.3	

Geodetic Parameters: WGS84 UTM Zone 30N, CM 3°W [m]												
Date	Time [UTC]	Transect/ Station	Type	Sample Rep/ Still No.	Fix No.	Water Depth [m BSL]	Proposed Location		Actual Location		Offset [m]	Notes
							Easting	Northing	Easting	Northing		
16/08/2020	15:57	MA_ST57	Still	MA_ST57_05	85	28	445 929.0	5 921 227.0	445 937.3	5 921 224.0	8.9	
16/08/2020	15:58	MA_ST57	Still	MA_ST57_06	86	28	445 929.0	5 921 227.0	445 945.6	5 921 216.8	19.5	
16/08/2020	15:58	MA_ST57	Video	EOL	87	28	445 929.0	5 921 227.0	445 947.5	5 921 215.3	21.9	
16/08/2020	16:17	MA_ST46	Video	SOL	88	30	443 175.0	5 922 829.0	443 152.3	5 922 810.2	29.5	
16/08/2020	16:17	MA_ST46	Still	MA_ST46_01	89	30	443 175.0	5 922 829.0	443 156.9	5 922 811.3	25.3	
16/08/2020	16:17	MA_ST46	Still	MA_ST46_02	90	30	443 175.0	5 922 829.0	443 167.3	5 922 817.4	13.9	
16/08/2020	16:18	MA_ST46	Still	MA_ST46_03	91	30	443 175.0	5 922 829.0	443 169.2	5 922 830.8	6.1	
16/08/2020	16:18	MA_ST46	Still	MA_ST46_04	92	30	443 175.0	5 922 829.0	443 172.8	5 922 844.0	15.2	Vessel turned after this point
16/08/2020	16:25	MA_ST46	Still	MA_ST46_05	93	30	443 175.0	5 922 829.0	443 205.0	5 922 832.7	30.3	
16/08/2020	16:25	MA_ST46	Video	EOL	94	30	443 175.0	5 922 829.0	443 211.0	5 922 833.6	36.3	
16/08/2020	16:45	MA_ST44	Video	SOL	95	32	445 277.0	5 924 515.0	445 298.2	5 924 530.8	26.4	
16/08/2020	16:45	MA_ST44	Still	MA_ST44_01	96	32	445 277.0	5 924 515.0	445 293.8	5 924 531.2	23.3	
16/08/2020	16:46	MA_ST44	Still	MA_ST44_02	97	32	445 277.0	5 924 515.0	445 286.3	5 924 526.3	14.6	
16/08/2020	16:46	MA_ST44	Still	MA_ST44_03	98	32	445 277.0	5 924 515.0	445 278.2	5 924 520.3	5.4	
16/08/2020	16:47	MA_ST44	Still	MA_ST44_04	99	32	445 277.0	5 924 515.0	445 271.0	5 924 514.7	6.0	
16/08/2020	16:48	MA_ST44	Still	MA_ST44_05	100	32	445 277.0	5 924 515.0	445 259.9	5 924 508.6	18.3	
16/08/2020	16:48	MA_ST44	Still	MA_ST44_06	101	32	445 277.0	5 924 515.0	445 253.9	5 924 503.9	25.6	
16/08/2020	16:48	MA_ST44	Video	EOL	102	32	445 277.0	5 924 515.0	445 252.4	5 924 502.9	27.4	
16/08/2020	17:06	MA_ST43	Video	SOL	103	35	447 038.0	5 926 464.0	447 059.3	5 926 476.0	24.4	
16/08/2020	17:06	MA_ST43	Still	MA_ST43_01	104	35	447 038.0	5 926 464.0	447 057.2	5 926 475.3	22.3	
16/08/2020	17:07	MA_ST43	Still	MA_ST43_02	105	35	447 038.0	5 926 464.0	447 049.1	5 926 470.9	13.1	

Geodetic Parameters: WGS84 UTM Zone 30N, CM 3°W [m]												
Date	Time [UTC]	Transect/ Station	Type	Sample Rep/ Still No.	Fix No.	Water Depth [m BSL]	Proposed Location		Actual Location		Offset [m]	Notes
							Easting	Northing	Easting	Northing		
16/08/2020	17:07	MA_ST43	Still	MA_ST43_03	106	35	447 038.0	5 926 464.0	447 041.6	5 926 467.4	5.0	
16/08/2020	17:08	MA_ST43	Still	MA_ST43_04	107	35	447 038.0	5 926 464.0	447 032.5	5 926 460.3	6.6	
16/08/2020	17:09	MA_ST43	Still	MA_ST43_05	108	35	447 038.0	5 926 464.0	447 021.4	5 926 457.0	18.1	
16/08/2020	17:09	MA_ST43	Video	EOL	109	35	447 038.0	5 926 464.0	447 020.7	5 926 455.4	19.3	
17/08/2020	09:25	MA_ST22	Video	SOL	110	36	438 596.0	5 923 566.3	438 618.0	5 923 551.4	26.6	
17/08/2020	09:25	MA_ST22	Still	MA_ST22_01	111	36	438 596.0	5 923 566.3	438 614.5	5 923 552.4	23.1	
17/08/2020	09:26	MA_ST22	Still	MA_ST22_02	112	36	438 596.0	5 923 566.3	438 596.8	5 923 558.3	8.0	
17/08/2020	09:26	MA_ST22	Still	MA_ST22_03	113	36	438 596.0	5 923 566.3	438 593.1	5 923 565.6	3.0	
17/08/2020	09:28	MA_ST22	Still	MA_ST22_04	114	36	438 596.0	5 923 566.3	438 582.3	5 923 575.6	16.5	
17/08/2020	09:28	MA_ST22	Still	MA_ST22_05	115	36	438 596.0	5 923 566.3	438 588.9	5 923 590.5	25.2	
17/08/2020	09:28	MA_ST22	Video	EOL	116	36	438 596.0	5 923 566.3	438 590.7	5 923 594.2	28.4	
17/08/2020	09:40	MA_ST28	Video	SOL	117	39	439 234.0	5 923 384.0	439 205.4	5 923 380.7	28.8	
17/08/2020	09:40	MA_ST28	Still	MA_ST28_01	118	39	-	-	439 208.9	5 923 382.4	-	
17/08/2020	09:41	MA_ST28	Still	MA_ST28_02	119	39	-	-	439 228.2	5 923 385.5	-	
17/08/2020	09:41	MA_ST28	Still	MA_ST28_03	120	39	-	-	439 236.0	5 923 383.1	-	
17/08/2020	09:42	MA_ST28	Still	MA_ST28_04	121	39	-	-	439 259.6	5 923 382.1	-	
17/08/2020	09:44	MA_ST28	Still	MA_ST28_05	122	39	-	-	439 292.1	5 923 382.8	-	
17/08/2020	09:44	MA_ST28	Still	MA_ST28_06	123	39	-	-	439 301.9	5 923 382.5	-	
17/08/2020	09:45	MA_ST28	Still	MA_ST28_07	124	39	-	-	439 313.2	5 923 385.5	-	
17/08/2020	09:45	MA_ST28	Still	MA_ST28_08	125	39	-	-	439 325.4	5 923 380.0	-	
17/08/2020	09:52	MA_ST28	Still	MA_ST28_09	126	39	-	-	439 255.4	5 923 379.1	-	

Geodetic Parameters: WGS84 UTM Zone 30N, CM 3°W [m]												
Date	Time [UTC]	Transect/ Station	Type	Sample Rep/ Still No.	Fix No.	Water Depth [m BSL]	Proposed Location		Actual Location		Offset [m]	Notes
							Easting	Northing	Easting	Northing		
17/08/2020	09:53	MA_ST28	Still	MA_ST28_10	127	39	-	-	439 264.4	5 923 379.3	-	
17/08/2020	09:54	MA_ST28	Still	MA_ST28_11	128	39	-	-	439 276.2	5 923 385.7	-	
17/08/2020	09:54	MA_ST28	Still	MA_ST28_12	129	39	-	-	439 286.1	5 923 385.0	-	
17/08/2020	09:55	MA_ST28	Video	EOL	130	39	439 317.0	5 923 381.0	439 289.4	5 923 381.1	27.6	
17/08/2020	10:12	MA_ST26	Video	SOL	131	37	441 208.0	5 925 055.0	441 196.7	5 925 054.8	11.3	
17/08/2020	10:12	MA_ST26	Still	MA_ST26_01	132	37	-	-	441 196.8	5 925 053.8	-	
17/08/2020	10:13	MA_ST26	Still	MA_ST26_02	133	37	-	-	441 204.1	5 925 045.4	-	
17/08/2020	10:14	MA_ST26	Still	MA_ST26_03	134	37	-	-	441 217.9	5 925 035.2	-	
17/08/2020	10:14	MA_ST26	Still	MA_ST26_04	135	37	-	-	441 223.0	5 925 022.6	-	
17/08/2020	10:15	MA_ST26	Still	MA_ST26_05	136	37	-	-	441 237.3	5 925 015.5	-	
17/08/2020	10:16	MA_ST26	Video	EOL	137	37	441 235.0	5 925 021.0	441 239.0	5 925 011.4	10.4	
17/08/2020	10:27	MA_ST23	Video	SOL	138	36	441 118.0	5 925 220.2	441 092.9	5 925 229.2	26.6	
17/08/2020	10:27	MA_ST23	Still	MA_ST23_01	139	36	441 118.0	5 925 220.2	441 095.6	5 925 227.7	23.6	
17/08/2020	10:28	MA_ST23	Still	MA_ST23_02	140	36	441 118.0	5 925 220.2	441 103.7	5 925 221.0	14.3	
17/08/2020	10:29	MA_ST23	Still	MA_ST23_03	141	36	441 118.0	5 925 220.2	441 115.4	5 925 223.2	4.0	
17/08/2020	10:30	MA_ST23	Still	MA_ST23_04	142	36	441 118.0	5 925 220.2	441 118.4	5 925 221.6	1.5	
17/08/2020	10:31	MA_ST23	Still	MA_ST23_05	143	36	441 118.0	5 925 220.2	441 130.5	5 925 220.0	12.5	
17/08/2020	10:31	MA_ST23	Still	MA_ST23_06	144	36	441 118.0	5 925 220.2	441 137.9	5 925 215.3	20.5	
17/08/2020	10:32	MA_ST23	Video	EOL	145	36	441 118.0	5 925 220.2	441 141.0	5 925 215.1	23.6	
17/08/2020	10:49	MA_ST19	Video	SOL	146	39	442 461.0	5 926 594.0	442 434.2	5 926 597.3	27.0	
17/08/2020	10:49	MA_ST19	Still	MA_ST19_01	147	39	442 461.0	5 926 594.0	442 440.4	5 926 594.4	20.6	

Geodetic Parameters: WGS84 UTM Zone 30N, CM 3°W [m]												
Date	Time [UTC]	Transect/ Station	Type	Sample Rep/ Still No.	Fix No.	Water Depth [m BSL]	Proposed Location		Actual Location		Offset [m]	Notes
							Easting	Northing	Easting	Northing		
17/08/2020	10:50	MA_ST19	Still	MA_ST19_02	148	39	442 461.0	5 926 594.0	442 450.5	5 926 588.2	12.0	
17/08/2020	10:52	MA_ST19	Still	MA_ST19_03	149	39	442 461.0	5 926 594.0	442 458.8	5 926 595.0	2.4	
17/08/2020	10:52	MA_ST19	Still	MA_ST19_04	150	39	442 461.0	5 926 594.0	442 469.2	5 926 596.7	8.6	
17/08/2020	10:53	MA_ST19	Still	MA_ST19_05	151	39	442 461.0	5 926 594.0	442 477.8	5 926 597.1	17.1	
17/08/2020	10:54	MA_ST19	Video	EOL	152	39	442 461.0	5 926 594.0	442 485.6	5 926 598.1	24.9	
17/08/2020	11:18	MA_ST11	Video	SOL	153	42	438 522.0	5 926 615.0	438 495.6	5 926 605.4	28.1	
17/08/2020	11:18	MA_ST11	Still	MA_ST11_01	154	42	438 522.0	5 926 615.0	438 501.6	5 926 606.1	22.2	
17/08/2020	11:19	MA_ST11	Still	MA_ST11_02	155	42	438 522.0	5 926 615.0	438 509.6	5 926 609.9	13.4	
17/08/2020	11:20	MA_ST11	Still	MA_ST11_03	156	42	438 522.0	5 926 615.0	438 511.8	5 926 619.0	11.0	
17/08/2020	11:21	MA_ST11	Still	MA_ST11_04	157	42	438 522.0	5 926 615.0	438 523.6	5 926 628.2	13.3	
17/08/2020	11:22	MA_ST11	Still	MA_ST11_05	158	42	438 522.0	5 926 615.0	438 536.2	5 926 632.5	22.6	
17/08/2020	11:22	MA_ST11	Video	EOL	159	42	438 522.0	5 926 615.0	438 540.9	5 926 634.2	26.9	
17/08/2020	11:39	MA_ST12	Video	SOL	160	38	437 529.0	5 925 669.0	437 501.2	5 925 669.5	27.8	
17/08/2020	11:40	MA_ST12	Still	MA_ST12_01	161	38	437 529.0	5 925 669.0	437 509.0	5 925 669.6	20.0	
17/08/2020	11:40	MA_ST12	Still	MA_ST12_02	162	38	437 529.0	5 925 669.0	437 521.0	5 925 669.6	8.0	
17/08/2020	11:41	MA_ST12	Still	MA_ST12_03	163	38	437 529.0	5 925 669.0	437 527.1	5 925 671.8	3.4	
17/08/2020	11:42	MA_ST12	Still	MA_ST12_04	164	38	437 529.0	5 925 669.0	437 536.4	5 925 667.9	7.5	
17/08/2020	11:43	MA_ST12	Still	MA_ST12_05	165	38	437 529.0	5 925 669.0	437 550.1	5 925 666.5	21.2	
17/08/2020	11:44	MA_ST12	Still	MA_ST12_06	166	38	437 529.0	5 925 669.0	437 560.8	5 925 666.3	31.9	
17/08/2020	11:44	MA_ST12	Video	EOL	167	38	437 529.0	5 925 669.0	437 563.2	5 925 661.0	35.1	
17/08/2020	12:51	MA_ST04	Video	SOL	173	44	434 714.0	5 926 692.0	434 692.7	5 926 680.4	24.2	

Geodetic Parameters: WGS84 UTM Zone 30N, CM 3°W [m]												
Date	Time [UTC]	Transect/ Station	Type	Sample Rep/ Still No.	Fix No.	Water Depth [m BSL]	Proposed Location		Actual Location		Offset [m]	Notes
							Easting	Northing	Easting	Northing		
17/08/2020	12:51	MA_ST04	Still	MA_ST04_01	174	44	434 714.0	5 926 692.0	434 701.5	5 926 689.3	12.8	
17/08/2020	12:52	MA_ST04	Still	MA_ST04_02	175	44	434 714.0	5 926 692.0	434 706.6	5 926 693.5	7.5	
17/08/2020	12:52	MA_ST04	Still	MA_ST04_03	176	44	434 714.0	5 926 692.0	434 708.1	5 926 703.6	13.1	
17/08/2020	12:52	MA_ST04	Still	MA_ST04_04	177	44	434 714.0	5 926 692.0	434 708.6	5 926 712.1	20.8	
17/08/2020	12:53	MA_ST04	Still	MA_ST04_05	178	44	434 714.0	5 926 692.0	434 710.7	5 926 714.5	22.7	
17/08/2020	12:53	MA_ST04	Video	EOL	179	44	434 714.0	5 926 692.0	434 712.7	5 926 713.7	21.8	
17/08/2020	14:19	MA_ST64 (2)	Video	SOL	181	28	456 206.7	5 925 480.6	456 179.2	5 925 492.0	29.8	
17/08/2020	14:20	MA_ST64 (2)	Still	MA_ST64(2)_01	182	28	456 206.7	5 925 480.6	456 188.4	5 925 494.2	22.8	
17/08/2020	14:20	MA_ST64 (2)	Still	MA_ST64(2)_02	183	28	456 206.7	5 925 480.6	456 192.3	5 925 487.4	15.9	
17/08/2020	14:21	MA_ST64 (2)	Still	MA_ST64(2)_03	184	28	456 206.7	5 925 480.6	456 202.3	5 925 483.1	5.1	
17/08/2020	14:21	MA_ST64 (2)	Still	MA_ST64(2)_04	185	28	456 206.7	5 925 480.6	456 204.3	5 925 477.7	3.8	
17/08/2020	14:22	MA_ST64 (2)	Still	MA_ST64(2)_05	186	28	456 206.7	5 925 480.6	456 209.3	5 925 472.1	8.9	
17/08/2020	14:23	MA_ST64 (2)	Still	MA_ST64(2)_06	187	28	456 206.7	5 925 480.6	456 214.4	5 925 464.2	18.1	
17/08/2020	14:23	MA_ST64 (2)	Video	EOL	188	28	456 206.7	5 925 480.6	456 214.7	5 925 461.6	20.7	
17/08/2020	15:05	MA_ST61	HG	NS	189	29	456 206.0	5 925 508.0	456 202.1	5 925 508.7	3.9	Not triggered
17/08/2020	15:07	MA_ST61	HG	FA/PSD	190	29	456 206.0	5 925 508.0	456 198.9	5 925 502.3	9.1	
17/08/2020	15:28	MA_ST64	HG	FA/PSD	191	27	456 206.7	5 925 480.6	456 201.1	5 925 486.9	8.4	
17/08/2020	15:33	MA_ST63	HG	NS	192	27	456 177.3	5 925 488.6	456 182.0	5 925 482.4	7.7	Not triggered
17/08/2020	15:34	MA_ST63	HG	NS	193	27	456 177.3	5 925 488.6	456 174.6	5 925 479.1	9.9	Not triggered
17/08/2020	15:38	MA_ST63	HG	FA/PSD	194	27	456 177.3	5 925 488.6	456 180.4	5 925 497.1	9.0	
17/08/2020	16:08	MA_ST65	HG	FA/PSD	195	29	453 569.0	5 923 291.0	453 581.5	5 923 297.0	13.9	

Geodetic Parameters: WGS84 UTM Zone 30N, CM 3°W [m]												
Date	Time [UTC]	Transect/ Station	Type	Sample Rep/ Still No.	Fix No.	Water Depth [m BSL]	Proposed Location		Actual Location		Offset [m]	Notes
							Easting	Northing	Easting	Northing		
17/08/2020	16:28	MA_ST66	HG	FA/PSD	196	24	450 568.0	5 920 636.0	450 568.4	5 920 641.0	5.0	
17/08/2020	16:47	MA_ST60	HG	FA/PSD	197	23	446 905.8	5 919 910.8	446 917.0	5 919 909.6	11.3	
17/08/2020	16:58	MA_ST52	HG	FA/PSD	198	27	444 625.1	5 920 709.9	444 634.0	5 920 717.6	11.8	
18/08/2020	09:48	MA_ST57	HG	FA/PSD	199	32	445 929.0	5 921 227.0	445 936.3	5 921 240.4	15.2	
18/08/2020	10:09	MA_ST51	HG	FA/PSD	200	34	445 486.5	5 922 318.5	445 493.3	5 922 320.7	7.1	
18/08/2020	10:19	MA_ST50	HG	FA/PSD	201	36	446 010.4	5 923 271.0	446 014.0	5 923 286.1	15.5	
18/08/2020	10:32	MA_ST55	HG	FA/PSD	202	36	447 905.0	5 923 406.9	447 900.6	5 923 413.6	8.1	
18/08/2020	10:41	MA_ST54	HG	FA/PSD	203	36	447 949.0	5 923 456.0	447 950.6	5 923 468.1	12.2	
18/08/2020	10:49	MA_ST56	HG	FA/PSD	204	37	448 166.2	5 923 311.0	448 180.1	5 923 328.4	22.2	
18/08/2020	11:06	MA_ST59	HG	FA/PSD	205	38	450 387.0	5 924 424.0	450 384.0	5 924 428.5	5.4	
18/08/2020	11:25	MA_ST58	HG	FA/PSD	206	38	452 286.0	5 926 081.0	452 287.9	5 926 084.4	3.9	
18/08/2020	12:29	MA_ST42	HG	FA/PSD	207	39	448 252.6	5 927 341.2	448 244.0	5 927 344.8	9.3	
18/08/2020	12:46	MA_ST43	HG	FA/PSD	208	37	447 038.0	5 926 464.0	447 026.4	5 926 473.2	14.8	
18/08/2020	12:59	MA_ST36	HG	FA/PSD	209	38	446 474.6	5 927 357.1	446 463.2	5 927 358.1	11.4	
18/08/2020	13:15	MA_ST37	HG	FA/PSD	210	37	445 413.5	5 926 398.4	445 411.2	5 926 388.1	10.6	
18/08/2020	13:28	MA_ST29	HG	FA/PSD	211	38	444 661.0	5 927 335.0	444 651.1	5 927 328.6	11.8	
18/08/2020	13:51	MA_ST33	HG	FA/PSD	212	35	443 994.3	5 925 763.4	443 981.8	5 925 760.6	12.8	
18/08/2020	14:08	MA_ST39	HG	NS	213	32	444 076.2	5 924 638.8	444 064.3	5 924 635.9	12.2	Not triggered
18/08/2020	14:11	MA_ST39	HG	FA/PSD	214	32	444 076.2	5 924 638.8	444 067.4	5 924 629.5	12.9	
18/08/2020	14:27	MA_ST44	HG	FA/PSD	215	32	445 277.0	5 924 515.0	445 272.5	5 924 509.3	7.3	
18/08/2020	14:42	MA_ST47	HG	FA/PSD	216	31	445 090.2	5 923 234.7	445 086.7	5 923 234.0	3.6	

Geodetic Parameters: WGS84 UTM Zone 30N, CM 3°W [m]												
Date	Time [UTC]	Transect/ Station	Type	Sample Rep/ Still No.	Fix No.	Water Depth [m BSL]	Proposed Location		Actual Location		Offset [m]	Notes
							Easting	Northing	Easting	Northing		
18/08/2020	14:57	MA_ST40	HG	FA/PSD	217	30	443 343.9	5 923 890.9	443 341.1	5 923 891.7	3.0	
18/08/2020	15:13	MA_ST46	HG	FA/PSD	218	30	443 175.0	5 922 829.0	443 177.1	5 922 838.5	9.7	
18/08/2020	15:23	MA_ST45	HG	FA/PSD	219	29	443 807.8	5 922 836.9	443 817.3	5 922 832.6	10.4	
18/08/2020	15:33	MA_ST48	HG	FA/PSD	220	31	443 918.9	5 922 130.4	443 915.1	5 922 128.3	4.4	
18/08/2020	15:51	MA_ST49	HG	FA/PSD	221	27	442 894.7	5 921 292.0	442 896.1	5 921 283.6	8.5	
18/08/2020	16:08	MA_ST41	HG	FA/PSD	222	29	441 095.5	5 921 805.2	441 094.4	5 921 801.5	3.9	
18/08/2020	16:21	MA_ST38	HG	FA/PSD	223	31	441 672.7	5 923 361.5	441 669.4	5 923 359.0	4.1	
18/08/2020	16:41	MA_ST27	HG	FA/PSD	224	33	439 295.0	5 923 381.0	439 295.6	5 923 375.7	5.4	
18/08/2020	16:50	MA_ST24	HG	FA/PSD	225	32	438 799.7	5 923 486.3	438 792.6	5 923 498.0	13.7	
18/08/2020	16:58	MA_ST22	HG	FA/PSD	226	31	438 596.0	5 923 566.3	438 601.6	5 923 569.0	6.2	
18/08/2020	17:09	MA_ST32	HG	FA/PSD	227	33	438 674.6	5 922 704.8	438 696.3	5 922 699.7	22.3	
18/08/2020	17:29	MA_ST14	HG	FA/PSD	228	33	436 240.4	5 923 662.6	436 231.6	5 923 656.5	10.8	
19/08/2020	08:46	MA_ST35	HG	FA/PSD	229	34	441 706.4	5 924 346.0	441 711.3	5 924 338.3	9.1	
19/08/2020	08:56	MA_ST34	HG	FA/PSD	230	36	442 470.3	5 924 795.0	442 476.2	5 924 807.3	13.6	
19/08/2020	09:06	MA_ST30	HG	FA/PSD	231	37	442 549.7	5 925 731.7	442 557.9	5 925 737.6	10.1	
19/08/2020	09:16	MA_ST19	HG	FA/PSD	232	39	442 461.0	5 926 594.0	442 464.1	5 926 593.9	3.2	
19/08/2020	09:26	MA_ST18	HG	FA/PSD	233	40	443 025.9	5 927 366.8	443 028.6	5 927 370.2	4.3	
19/08/2020	09:44	MA_ST15	HG	FA/PSD	234	41	441 200.3	5 927 398.5	441 199.1	5 927 398.4	1.2	
19/08/2020	10:15	MA_ST10	HG	FA/PSD	235	43	439 327.0	5 927 350.9	439 328.6	5 927 348.2	3.1	
19/08/2020	10:30	MA_ST16	HG	FA/PSD	236	42	440 508.1	5 926 557.2	440 503.9	5 926 558.5	4.4	
19/08/2020	10:41	MA_ST20	HG	FA/PSD	237	39	440 800.8	5 925 686.4	440 802.3	5 925 688.1	2.3	

Geodetic Parameters: WGS84 UTM Zone 30N, CM 3°W [m]												
Date	Time [UTC]	Transect/ Station	Type	Sample Rep/ Still No.	Fix No.	Water Depth [m BSL]	Proposed Location		Actual Location		Offset [m]	Notes
							Easting	Northing	Easting	Northing		
19/08/2020	10:51	MA_ST23	HG	FA/PSD	238	37	441 118.0	5 925 220.2	441 122.5	5 925 222.9	5.3	
19/08/2020	11:00	MA_ST25	HG	FA/PSD	239	38	441 223.0	5 925 039.0	441 235.7	5 925 039.3	12.7	
19/08/2020	11:10	MA_ST31	HG	FA/PSD	240	37	441 437.6	5 924 729.1	441 444.1	5 924 722.4	9.3	
19/08/2020	11:25	MA_ST21	HG	FA/PSD	241	38	439 539.8	5 924 525.2	439 538.7	5 924 525.3	1.1	
19/08/2020	11:43	MA_ST17	HG	FA/PSD	242	39	439 285.8	5 925 699.9	439 276.5	5 925 698.9	9.3	
19/08/2020	11:56	MA_ST11	HG	FA/PSD	243	43	438 522.0	5 926 615.0	438 525.0	5 926 611.7	4.4	
19/08/2020	12:10	MA_ST07	HG	FA/PSD	244	44	436 777.5	5 926 461.9	436 761.7	5 926 443.9	24.0	
19/08/2020	12:28	MA_ST12	HG	FA/PSD	245	39	437 529.0	5 925 669.0	437 531.5	5 925 677.0	8.3	
23/08/2020	11:33	MA_ST22	DG	NS	308	36	438 596.0	5 923 566.3	438 593.5	5 923 560.4	6.4	Grab empty
23/08/2020	11:38	MA_ST22	DG	NS	309	36	438 596.0	5 923 566.3	438 595.7	5 923 548.3	18.0	Grab empty
23/08/2020	11:44	MA_ST22	DG	NS	310	36	438 596.0	5 923 566.3	438 605.1	5 923 568.5	9.4	1 cm bite depth
23/08/2020	11:50	MA_ST22	DG	NS	311	36	438 596.0	5 923 566.3	438 611.8	5 923 572.0	16.9	1 cm bite depth
23/08/2020	11:56	MA_ST22	DG	CS	312	36	438 596.0	5 923 566.3	438 605.1	5 923 551.2	17.6	6 cm bite depth accepted due to sediment type
23/08/2020	12:25	MA_ST04	DG	NS	313	45	434 714.0	5 926 692.0	434 720.9	5 926 694.3	7.3	4 cm bite depth
23/08/2020	12:33	MA_ST04	DG	CS	314	45	434 714.0	5 926 692.0	434 719.9	5 926 677.4	15.7	6 cm bite depth accepted due to sediment type
23/08/2020	12:48	MA_ST12	DG	CS	315	39	437 529.0	5 925 669.0	437 520.5	5 925 669.3	8.5	
23/08/2020	13:03	MA_ST25	DG	CS	316	38	441 223.0	5 925 039.0	441 223.1	5 925 038.2	0.8	
23/08/2020	13:20	MA_ST47	DG	CS	317	36	445 090.2	5 923 234.7	445 082.4	5 923 224.0	13.3	
23/08/2020	13:41	MA_ST66	DG	CS	318	30	450 568.0	5 920 636.0	450 564.4	5 920 636.1	3.6	
23/08/2020	13:59	MA_ST59	DG	CS	319	39	450 387.0	5 924 424.0	450 392.2	5 924 435.9	12.9	

Geodetic Parameters: WGS84 UTM Zone 30N, CM 3°W [m]												
Date	Time [UTC]	Transect/ Station	Type	Sample Rep/ Still No.	Fix No.	Water Depth [m BSL]	Proposed Location		Actual Location		Offset [m]	Notes
							Easting	Northing	Easting	Northing		
23/08/2020	14:21	MA_ST43	DG	CS	320	39	447 038.0	5 926 464.0	447 044.7	5 926 466.5	7.2	
23/08/2020	14:57	MA_ST61	DG	CS	321	34	456 206.0	5 925 508.0	456 213.5	5 925 518.4	12.8	
23/08/2020	15:17	MA_ST65	DG	CS	322	35	453 569.0	5 923 291.0	453 573.0	5 923 303.1	12.8	
24/08/2020	08:49	MA_ST09	HG	FA/PSD	326	35	434 372.4	5 924 396.8	434 384.2	5 924 402.5	13.0	
24/08/2020	09:01	MA_ST06	HG	FA/PSD	327	37	432 899.8	5 925 014.1	432 894.4	5 925 022.5	9.9	
24/08/2020	09:12	MA_ST02	HG	FA/PSD	328	39	432 777.0	5 926 144.4	432 775.0	5 926 151.4	7.3	
24/08/2020	09:23	MA_ST01	HG	FA/PSD	329	39	432 960.8	5 927 193.8	432 971.4	5 927 193.6	10.6	
24/08/2020	09:39	MA_ST03	HG	FA/PSD	330	40	435 317.0	5 927 335.0	435 309.0	5 927 335.5	8.0	
24/08/2020	09:49	MA_ST04	HG	FA/PSD	331	40	434 714.0	5 926 692.0	434 709.3	5 926 693.1	4.8	
24/08/2020	09:59	MA_ST05	HG	FA/PSD	332	39	434 205.7	5 926 049.2	434 210.4	5 926 047.8	4.8	
24/08/2020	10:11	MA_ST08	HG	FA/PSD	333	38	435 698.0	5 925 604.7	435 704.2	5 925 604.3	6.2	
24/08/2020	10:24	MA_ST13	HG	FA/PSD	334	34	437 110.2	5 924 842.5	437 115.3	5 924 840.8	5.4	

Notes
UTC = Coordinated Universal Time
BSL = Below sea level
SOL = Start of line
EOL = End of line
FA = Fauna sample
PSD = Particle size distribution subsample
CS = Chemistry sample
NF = No fix

C.2 Grab Log

Date	Time [UTC]	Station	Sample	Fix No.	Sample Volume [L]	Sediment Description (including stratigraphy)		Comments (fauna, smell, bioturbation, debris)
						Sediment Type	Sediment Description	
17/08/2020	15:07	MA_ST61	FA/PSD	190	8	msG	Sandy gravel	-
17/08/2020	15:28	MA_ST64	FA/PSD	191	9	sG	Sandy gravel	-
17/08/2020	15:34	MA_ST63	FA/PSD	193	9	sG	Sandy gravel	-
17/08/2020	16:08	MA_ST65	FA/PSD	195	10	gS	Gravelly sand	-
17/08/2020	16:28	MA_ST66	FA/PSD	196	7	S	Sand	-
17/08/2020	16:47	MA_ST60	FA/PSD	197	7	S	Sand	-
17/08/2020	16:58	MA_ST52	FA/PSD	198	6	S	Sand	-
18/08/2020	09:48	MA_ST57	FA/PSD	199	7	gS	Gravelly sand	-
18/08/2020	10:09	MA_ST51	FA/PSD	200	5	gS	Coarse Sand	-
18/08/2020	10:19	MA_ST50	FA/PSD	201	6	gS	Coarse Sand	-
18/08/2020	10:32	MA_ST55	FA/PSD	202	9	gS	Coarse Sand	-
18/08/2020	10:41	MA_ST54	FA/PSD	203	6	gS	Coarse Sand	-
18/08/2020	10:49	MA_ST56	FA/PSD	204	6	gS	Coarse Sand	-
18/08/2020	11:06	MA_ST59	FA/PSD	205	7	gS	Coarse Sand	-
18/08/2020	11:25	MA_ST58	FA/PSD	206	7	msG	Sandy gravel	-
18/08/2020	12:29	MA_ST42	FA/PSD	207	7	msG	Sandy gravel	Soft coral (*Alcyonium digitatum*)
18/08/2020	12:46	MA_ST43	FA/PSD	208	8	msG	Sandy gravel	-
18/08/2020	12:59	MA_ST36	FA/PSD	209	6	sG	Sandy gravel	-
18/08/2020	13:15	MA_ST37	FA/PSD	210	8	msG	Sandy gravel	-
18/08/2020	13:28	MA_ST29	FA/PSD	211	7	sG	Sandy gravel	-

Date	Time [UTC]	Station	Sample	Fix No.	Sample Volume [L]	Sediment Description (including stratigraphy)		Comments (fauna, smell, bioturbation, debris)
						Sediment Type	Sediment Description	
18/08/2020	13:51	MA_ST33	FA/PSD	212	7	sG	Sandy gravel	-
18/08/2020	14:11	MA_ST39	FA/PSD	214	7	sG	Sandy gravel	-
18/08/2020	14:27	MA_ST44	FA/PSD	215	8	sG	Sandy gravel	-
18/08/2020	14:42	MA_ST47	FA/PSD	216	6	sG	Sandy gravel	-
18/08/2020	14:57	MA_ST40	FA/PSD	217	9	sG	Sandy gravel	-
18/08/2020	15:13	MA_ST46	FA/PSD	218	6	gS	Coarse sand	-
18/08/2020	15:23	MA_ST45	FA/PSD	219	7	gS	Coarse sand	-
18/08/2020	15:33	MA_ST48	FA/PSD	220	7	S	Fine sand	-
18/08/2020	15:51	MA_ST49	FA/PSD	221	7	gS	Coarse sand	-
18/08/2020	16:08	MA_ST41	FA/PSD	222	5	gS	Coarse sand	-
18/08/2020	16:21	MA_ST38	FA/PSD	223	6	gS	Coarse sand	-
18/08/2020	16:41	MA_ST27	FA/PSD	224	9	gS	Coarse sand	-
18/08/2020	16:50	MA_ST24	FA/PSD	225	8	gS	Coarse sand	-
18/08/2020	16:58	MA_ST22	FA/PSD	226	6	gS	Coarse sand	-
18/08/2020	17:09	MA_ST32	FA/PSD	227	7	gS	Coarse sand	-
18/08/2020	17:29	MA_ST14	FA/PSD	228	8	gS	Coarse sand	-
19/08/2020	08:46	MA_ST35	FA/PSD	229	7	sG	Coarse sediments	-
19/08/2020	08:56	MA_ST34	FA/PSD	230	7	sG	Coarse sediments	-
19/08/2020	09:06	MA_ST30	FA/PSD	231	9	msG	Sandy gravel	-
19/08/2020	09:16	MA_ST19	FA/PSD	232	6	msG	Sandy gravel	-
19/08/2020	09:26	MA_ST18	FA/PSD	233	8	msG	Sandy gravel	-
19/08/2020	09:44	MA_ST15	FA/PSD	234	6	msG	Sandy gravel	-

Date	Time [UTC]	Station	Sample	Fix No.	Sample Volume [L]	Sediment Description (including stratigraphy)		Comments (fauna, smell, bioturbation, debris)
						Sediment Type	Sediment Description	
19/08/2020	10:15	MA_ST10	FA/PSD	235	5	sG	Coarse sediments	-
19/08/2020	10:30	MA_ST16	FA/PSD	236	6	msG	Sandy gravel	-
19/08/2020	10:41	MA_ST20	FA/PSD	237	6	msG	Sandy gravel	-
19/08/2020	10:51	MA_ST23	FA/PSD	238	7	msG	Sandy gravel	-
19/08/2020	11:00	MA_ST25	FA/PSD	239	7	msG	Sandy gravel	-
19/08/2020	11:10	MA_ST31	FA/PSD	240	7	msG	Sandy gravel	-
19/08/2020	11:25	MA_ST21	FA/PSD	241	8	msG	Sandy gravel	-
19/08/2020	11:43	MA_ST17	FA/PSD	242	7	msG	Sandy gravel	-
19/08/2020	11:56	MA_ST11	FA/PSD	243	6	sG	Coarse sediments	-
19/08/2020	12:10	MA_ST07	FA/PSD	244	5	sG	Coarse sediments	-
19/08/2020	12:28	MA_ST12	FA/PSD	245	6	msG	Sandy gravel	-
23/08/2020	11:56	MA_ST22	CS	312	6*	gS	Coarse sand	-
23/08/2020	12:33	MA_ST04	CS	314	6*	gS	Gravelly sand	-
23/08/2020	12:48	MA_ST12	CS	315	7*	msG	Sandy gravel	-
23/08/2020	13:03	MA_ST25	CS	316	7*	msG	Sandy gravel	-
23/08/2020	13:20	MA_ST47	CS	317	10*	sG	Sandy gravel	-
23/08/2020	13:41	MA_ST66	CS	318	8*	S	Sand	-
23/08/2020	13:59	MA_ST59	CS	319	7*	gS	Coarse Sand	-
23/08/2020	14:21	MA_ST43	CS	320	7*	msG	Sandy gravel	-
23/08/2020	14:57	MA_ST61	CS	321	7*	msG	Sandy gravel	-
23/08/2020	15:17	MA_ST65	CS	322	11*	gS	Coarse Sand	-
24/08/2020	08:49	MA_ST09	FA/PSD	326	6	sG	Sandy gravel	-

Date	Time [UTC]	Station	Sample	Fix No.	Sample Volume [L]	Sediment Description (including stratigraphy)		Comments (fauna, smell, bioturbation, debris)
						Sediment Type	Sediment Description	
24/08/2020	09:01	MA_ST06	FA/PSD	327	7	sG	Sandy gravel	-
24/08/2020	09:12	MA_ST02	FA/PSD	328	5	sG	Sandy gravel	-
24/08/2020	09:23	MA_ST01	FA/PSD	329	5	gS	Coarse sand	-
24/08/2020	09:39	MA_ST03	FA/PSD	330	7	sG	Sandy gravel	-
24/08/2020	09:49	MA_ST04	FA/PSD	331	6	sG	Sandy gravel	-
24/08/2020	09:59	MA_ST05	FA/PSD	332	6	msG	Sandy gravel	-
24/08/2020	10:11	MA_ST08	FA/PSD	333	7	sG	Coarse sediments	-
24/08/2020	10:24	MA_ST13	FA/PSD	334	6	msG	Sandy gravel	-

Notes
* = Sample depth [cm]
UTC = Coordinated Universal Time
FA = Faunal sample
PSD = Particle size distribution subsample
CS = Chemistry sample
NS = No sample

C3 Video and Photographic Log

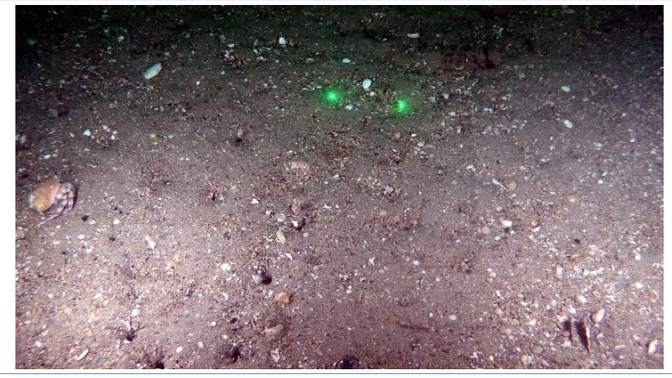
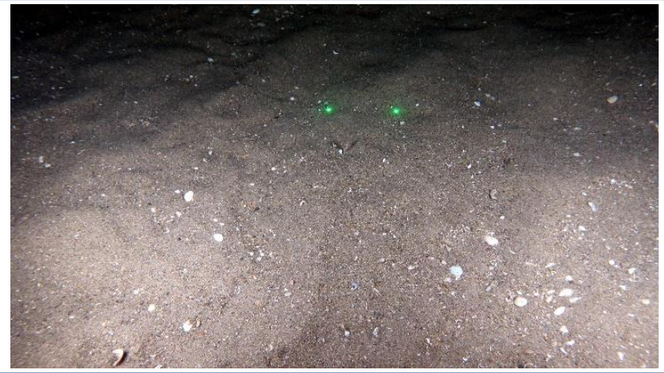
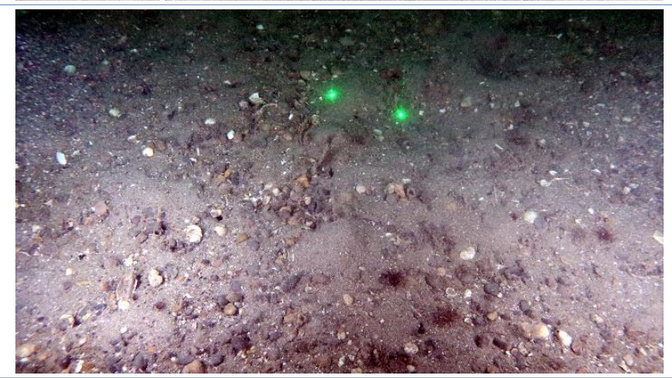
Geodetic Parameters: WGS84, UTM Zone 30N, CM 3°W [m]							
Station/ Transect		Easting	Northing	Sediment Description	Fauna/Bioturbation/Debris	Abundance [SACFOR]	Representative Image
MA_ST04	SOL	434 692.7	5 926 680.4	Sandy gravel with pebbles and shell fragments	Faunal turf (Hydrozoa/Bryozoa) Soft coral (*Alcyonium digitatum*) Hermit crab (Paguridae) Anemones (Ceriantharia) Sea urchin (*Psammechinus miliaris*) Polychaetes (Sabellidae) Faunal tubes	R R O O P P P	
	EOL	434 712.7	5 926 713.7				
MA_ST11	SOL	438 495.6	5 926 605.4	Sandy gravel with pebbles and shell fragments	Hermit crabs (*Pagurus bernhardus*) Hydroid (*Nemertesia antennina*) Faunal turf (Hydrozoa/Bryozoa) Anenome (Sagartiidae) Anemone (Actiniaria) Anemone (Ceriantharia) Brittlestars (Ophiuroidea) Brittlestars (*Ophiura albida*) Soft coral (*Alcyonium digitatum*) Sea urchin (*Psammechinus miliaris*)	F F R P P P P P R P	
	EOL	438 540.9	5 926 634.2				
MA_ST12	SOL	437 501.2	5 925 669.5	Sandy gravel with pebbles and shell fragments	Brittlestars (Ophiuroidea) Brittlestars (*Ophiura albida*) Brittlestars (*Ophiothrix fragilis*) Hermit crab (Paguridae) Hermit crab (*Pagurus prideaux*) Anemone (*Adamsia palliata*) Faunal turf (Hydrozoa/Bryozoa) Anemone (Ceriantharia) Polychaetes (Serpulidae) Soft coral (*Alcyonium digitatum*) Sea urchins (*Psammechinus miliaris*)	P P Locally A - S O O P R P P R P	
	EOL	437 563.2	5 925 661.0				

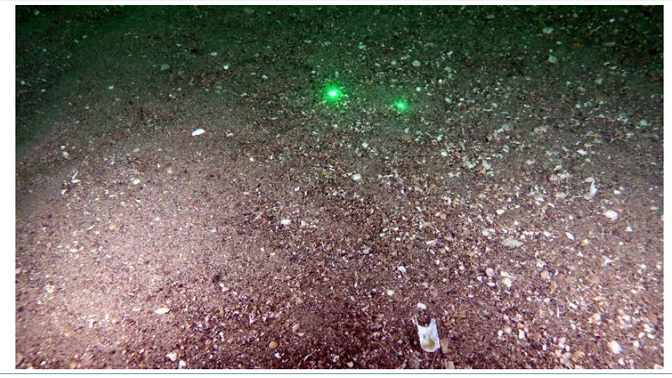
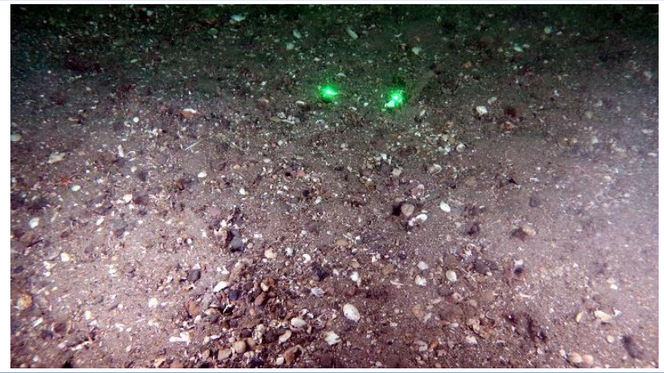
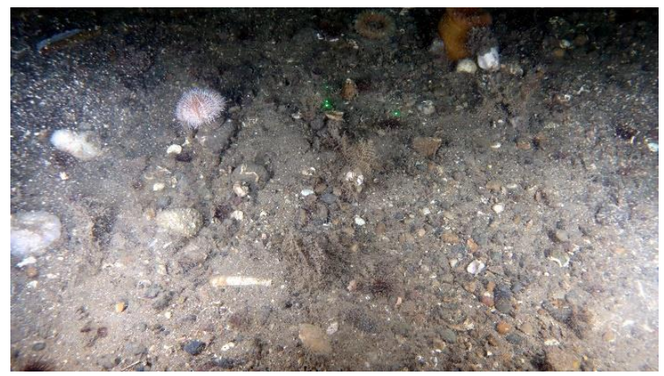
Geodetic Parameters: WGS84, UTM Zone 30N, CM 3°W [m]							
Station/ Transect		Easting	Northing	Sediment Description	Fauna/Bioturbation/Debris	Abundance [SACFOR]	Representative Image
MA_ST19	SOL	442 434.2	5 926 597.3	Sandy gravel with pebbles and shell fragments	Brittlestars (Ophiuroidea) Brittlestars (*Ophiura albida*) Hermit crab (Paguridae) Faunal turf (Hydrozoa/Bryozoa) Hydroids (*Nemertesia antennina*) Polychaetes (Serpulidae) Soft coral (*Alcyonium digitatum*) Faunal tubes Faunal burrows	P P O R F P R P P	
	EOL	442 485.6	5 926 598.1				
MA_ST22	SOL	438 618.0	5 923 551.4	Gravelly sand with a varying proportion of shells and shell fragments	Brittlestars (*Ophiura ophiura*) Brittlestars (*Ophiura albida*) Brittlestars (*Ophiothrix fragilis*) Hermit crabs (Paguridae) Hydroids (*Nemertesia antennina*) Hydroids (*Tubularia indivisa*) Anemone (Actiniaria) Anemone (*Utricina* sp.) Soft coral (*Alcyonium digitatum*) Starfish (Asteroidea) Faunal burrows	P P F O F R P O R O P	
	EOL	438 590.7	5 923 594.2				
MA_ST23	SOL	441 092.9	5 925 229.2	Sandy gravel with pebbles and shell fragments	Brittlestars (Ophiuroidea) Brittlestars (*Ophiura albida*) Brittlestars (*Ophiothrix fragilis*) Hydroids (*Nemertesia antennina*) Faunal turf (Hydrozoa/Bryozoa) Hermit crabs (*Pagurus bernhardus*) Anemone (Ceriantharia) Polychaetes (Serpulidae) Sea urchins (*Psammechinus miliaris*) Soft coral (*Alcyonium digitatum*) Faunal tubes	P P F F R O P P P R P	
	EOL	441 141.0	5 925 215.1				

Geodetic Parameters: WGS84, UTM Zone 30N, CM 3°W [m]							
Station/ Transect		Easting	Northing	Sediment Description	Fauna/Bioturbation/Debris	Abundance [SACFOR]	Representative Image
MA_ST26	SOL	441 196.7	5 925 054.8	Gravelly sand with varying proportions of shells and shell fragments	Hermit crab (Paguridae) Faunal turf (Hydrozoa/Bryozoa) Starfish (*Asterias rubens*) Possible king scallop (*Pecten maximus*) Brittlestars (Ophiuroidea) Brittlestars (*Ophiura albida*) Brittlestars (*Ophiothrix fragilis*) Soft coral (*Alcyonium digitatum*), Thornback ray (*Raja clavata*) Polychaetes (Serpulidae) Faunal burrows	O R O O P P F R F P P	
	EOL	441 239.0	5 925 011.4				
MA_ST28	SOL	439 205.4	5 923 380.7	Sandy gravel with pebbles and shell fragments	Brittlestars (Ophiuroidea) Brittlestars (*Ophiura ophiura*) Brittlestars (*Ophiura albida*) Anemone (Ceriantharia) Hydroids (*Nemertesia antennina*) Hermit crab (*Pagurus prideaux*) Anemone (*Adamsia palliata*) Sand mason (*Lanice conchilega*) Hydroids (*Tubularia indivisa*) Faunal turf (Hydrozoa/Bryozoa) Faunal burrows	P P P P F O P P R O P	
	EOL	439 289.4	5 923 381.1				
MA_ST43	SOL	447 059.3	5 926 476.0	Sandy gravel with pebbles and shell fragments	Sea urchin (*Psammechinus miliaris*) Brittlestars (*Ophiura albida*) Hermit crab (*Pagurus bernhardus*) Hydroid (*Hydractinia echinata*) Faunal turf (Hydrozoa/Bryozoa) Soft coral (*Alcyonium digitatum*) Polychaetes (Serpulidae)	P P O P R R P	
	EOL	447 020.7	5 926 455.4				

Geodetic Parameters: WGS84, UTM Zone 30N, CM 3°W							
Station/ Transect		Easting	Northing	Sediment Description	Fauna/Bioturbation/Debris	Abundance [SACFOR]	Representative Image
MA_ST44	SOL	445 298.2	5 924 530.8	Gravelly sand with varying proportions of shells and shell fragments	Sea urchin (*Psammechinus miliaris*) Soft coral (*Alcyonium digitatum*) Sea snail (Gastropoda) Faunal turf (Hydrozoa/Bryozoa) Hydroids (*Tubularia indivisa*) Faunal burrows	P R P R R P	
	EOL	445 252.4	5 924 502.9				
MA_ST46	SOL	443 152.3	5 922 810.2	Rippled sand with varying proportions of gravel, shell and shell fragments	Starfish (*Asterias rubens*) Sea urchin (*Psammechinus miliaris*) Faunal turf (Hydrozoa/Bryozoa) Flatfish (Pleuronectiformes)	O P R O	
	EOL	443 211.0	5 922 833.6				
MA_ST53	SOL	447 909.5	5 923 476.5	Sand with varying proportions of gravel, shell and shell fragments	Greater pipefish (*Syngnathus acus*) Dragonet (*Callionymus* sp.) Hermit crab (*Pagurus prideaux*) Anemone (*Adamsia palliata*) Anemone (Actiniaria) Anemone (Ceriantharia) Sea slug (Gastropoda) Starfish (*Asterias rubens*) Sea urchin (*Psammechinus miliaris*) Hydroids (*Nemertesia antennina*) Hydroid (*Tubularia indivisa*) Thornback ray (*Raja clavata*) Pogge (*Agonus cataphractus*)	O O O P O P O O P F - C R F O	
	EOL	447 966.8	5 923 446.4				

Geodetic Parameters: WGS84, UTM Zone 30N, CM 3°W							
Station/ Transect		Easting	Northing	Sediment Description	Fauna/Bioturbation/Debris	Abundance [SACFOR]	Representative Image
MA_ST55	SOL	447 878.7	5 923 416.6	Sand with varying proportions of gravel, shell and shell fragments	Hydroids (*Nemertesia antennina*) Faunal turf (Hydrozoa/Bryozoa) Hermit crab (Paguridae) Starfish (*Asterias rubens*) Sea urchin (Spatangoida) Polychaetes (Serpulidae)	F R O O P P	
	EOL	447 927.3	5 923 395.7				
MA_ST56	SOL	448 144.9	5 923 327.0	Sand with varying proportions of gravel, shell and shell fragments	Hermit crab (Paguridae) Brittlestar (Ophiuroidea) Sea urchin (*Psammechinus miliaris*) Anemone (Actiniaria) Colonial anemone (Zoocantharia))	O P P O P	
	EOL	448 186.1	5 923 293.0				
MA_ST57	SOL	445 939.0	5 921 251.2	Gravelly sand with varying proportions of pebbles, shells and shell fragments	Faunal turf (Hydrozoa/Bryozoa) Starfish (*Asterias rubens*) Sea squirt (Ascidiacea)	R O P	
	EOL	445 947.5	5 921 215.3				

Geodetic Parameters: WGS84, UTM Zone 30N, CM 3°W							
Station/ Transect		Easting	Northing	Sediment Description	Fauna/Bioturbation/Debris	Abundance [SACFOR]	Representative Image
MA_ST58	SOL	452 258.9	5 926 079.5	Gravelly sand with varying proportions of shells and shell fragments	Brittlestar (*Ophiura ophiura*) Anemone (Actiniaria) Sea urchin (*Psammechinus miliaris)* Starfish (*Asterias rubens*) Faunal turf (Hydrozoa/Bryozoa) Catshark (*Scyliorhinus* sp.) Hermit crab (*Pagurus prideaux*) Anemone (*Adamsia palliata*) Faunal burrows	P P P O R F O P P	
	EOL	452 300.6	5 926 101.7				
MA_ST59	SOL	450 361.3	5 924 431.9	Sand with varying proportions of gravel, shell and shell fragments	Brittlestar (*Ophiura ophiura*) Brittlestars (*Ophiura albida*) Soft coral (*Alcyonium digitatum*) Faunal turf (Hydrozoa/Bryozoa)	P P R R	
	EOL	450 406.8	5 924 439.7				
MA_ST62	SOL	456 142.3	5 925 497.9	Gravelly sand with varying proportions of pebbles, shells and shell fragments	Hermit crab (Paguridae) Starfish (*Asterias rubens*) Brittlestar (*Ophiura ophiura*) Brittlestar (*Ophiura albida*) Catshark (*Scyliorhinus canicula*) Anemone (Actiniaria) Hydroids (*Nemertesia antennina*), Polychaetes (Polychaeta) Crab (*Inachus* sp.) Anemone (Ceriantharia)	O O P P F O F P P P	
	EOL	456 235.2	5 925 518.8				

Geodetic Parameters: WGS84, UTM Zone 30N, CM 3°W							
Station/ Transect		Easting	Northing	Sediment Description	Fauna/Bioturbation/Debris	Abundance [SACFOR]	Representative Image
MA_ST63	SOL	456 148.4	5 925 482.0	Gravelly sand with varying proportions of pebbles, shells and shell fragments	Faunal turf (Hydrozoa/Bryozoa) Possible starfish (*Asteria rubens*) Sea urchin (*Psammechinus miliaris*) Hermit crab (Paguridae) Faunal tubes	R O P O P	
	EOL	456 181.3	5 925 512.8				
MA_ST64	SOL	456 125.1	5 925 474.3	Gravelly sand with varying proportions of pebbles, shells and shell fragments	Sea urchin (*Psammechinus miliaris*) Faunal turf (Hydrozoa/Bryozoa) Brittlestars (Ophiuroidea) Brittlestar (*Ophiura albida*) Anemone (Ceriantharia) Ray (Rajidae) Hermit crab (Paguridae) Starfish (*Asterias rubens*) Faunal burrows	P R P P P F O O P	
	EOL	456 218.7	5 925 495.6				
MA_ST64(2)	SOL	456 179.2	5 925 492.0	Gravelly sand with varying proportions of pebbles, shells and shell fragments	Brittlestar (*Ophiura ophiura*) Sea urchin (*Echinus esculentus*) Sea urchin (*Psammechinus miliaris*) Hermit crab (Paguridae) Anemone (Ceriantharia) Anemone (Actiniaria) Anemone (*Utricina* sp.) Fish (Pisces) Soft coral (*Alcyonium digitatum*), Faunal turf (Hydrozoa/Bryozoa) Starfish (*Asterias rubens*) Polychaetes (Serpulidae) Polychaetes (Sabellidae) Sea squirt (Ascidiacea) Faunal tubes	P F P O P P O P R O O P P P P	
	EOL	456 214.7	5 925 461.6				

Geodetic Parameters: WGS84, UTM Zone 30N, CM 3°W							
Station/ Transect		Easting	Northing	Sediment Description	Fauna/Bioturbation/Debris	Abundance [SACFOR]	Representative Image
MA_ST65	SOL	453 543.5	5 923 290.3	Sand with varying proportions of gravel, shell and shell fragments	Hermit crab (Paguridae) Hermit crab (*Pagurus bernhardus*) Catshark (*Scyliorhinus* sp.) Anemone (Ceriantharia) Anemone (Actiniaria) Anemone (*Metridium* sp.) Faunal turf (Hydrozoa/Bryozoa) Starfish (*Asterias rubens*)	O O F O O R R O	
	EOL	453 552.5	5 923 275.5				
MA_ST66	SOL	450 540.3	5 920 638.3	Sand with varying proportions of gravel, shell and shell fragments	Flatfish (Pleuronectiformes) Starfish (*Asterias rubens*) Anemone (Actiniaria) Faunal turf (Hydrozoa/Bryozoa) Crab (*Inachus* sp.)	P O P R P	
	EOL	450 594.3	5 920 635.3				

Notes
SACFOR = Semi-quantitative abundance scale from Superabundant, Abundant, Common, Frequent, Occasional to Rare
P = Present
SOL = Start of line
EOL = End of line
Laser distance (green) = 10 cm

Appendix D

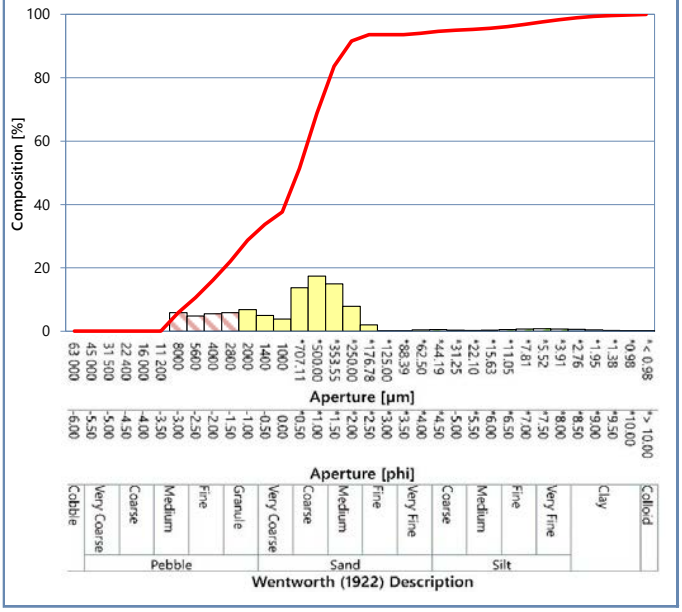
Sediment Particle Size and Grab Sample Photographs

STATION: MA_ST01

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	5.88	5.88
5600	-2.50	4.77	10.65
4000	-2.00	5.52	16.17
2800	-1.50	5.82	21.99
2000	-1.00	6.78	28.76
1400	-0.50	4.99	33.75
1000	0.00	3.86	37.61
*707.11	*0.50	13.75	51.35
*500.00	*1.00	17.39	68.75
*353.55	*1.50	14.92	83.67
*250.00	*2.00	7.89	91.56
*176.78	*2.50	2.02	93.58
*125.00	*3.00	0.04	93.63
*88.39	*3.50	0.01	93.63
*62.50	*4.00	0.45	94.08
*44.19	*4.50	0.56	94.64
*31.25	*5.00	0.37	95.02
*22.10	*5.50	0.27	95.28
*15.63	*6.00	0.35	95.63
*11.05	*6.50	0.53	96.16
*7.81	*7.00	0.68	96.84
*5.52	*7.50	0.76	97.60
*3.91	*8.00	0.74	98.34
*2.76	*8.50	0.61	98.96
*1.95	*9.00	0.44	99.39
*1.38	*9.50	0.28	99.67
*0.98	*10.00	0.18	99.85
*< 0.98	*> 10.00	0.15	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	2400	Granule
Mode 3 [µm]†	9600	Medium pebble
Median [µm]†	732	Coarse sand
Median [phi]†	0.45	
Mean [µm]†‡	1010	Very coarse sand
Mean [phi]†‡	-0.01	
Sorting [µm]‡	4.30	Very poorly sorted
Sorting [phi]‡	2.10	
Skewness [µm]‡	0.13	Coarse skewed
Skewness [phi]‡	-0.13	
Gravel [%]#	28.76	Gravelly sand
Sand [%]#	65.32	
Fines [%]#	5.92	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

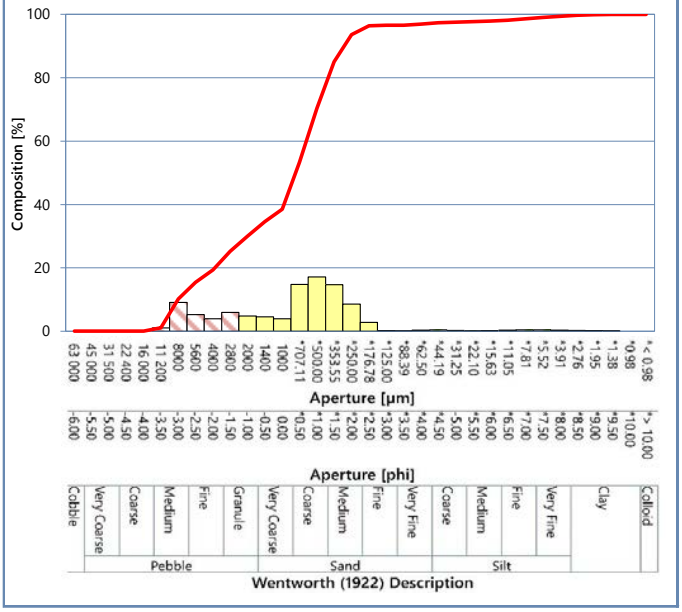
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST02

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	1.08	1.08
8000	-3.00	9.10	10.18
5600	-2.50	5.22	15.41
4000	-2.00	3.94	19.35
2800	-1.50	5.90	25.25
2000	-1.00	4.82	30.07
1400	-0.50	4.51	34.58
1000	0.00	3.92	38.50
*707.11	*0.50	14.77	53.27
*500.00	*1.00	17.10	70.37
*353.55	*1.50	14.65	85.02
*250.00	*2.00	8.54	93.56
*176.78	*2.50	2.82	96.39
*125.00	*3.00	0.21	96.60
*88.39	*3.50	0.00	96.60
*62.50	*4.00	0.33	96.93
*44.19	*4.50	0.41	97.34
*31.25	*5.00	0.24	97.58
*22.10	*5.50	0.12	97.70
*15.63	*6.00	0.19	97.89
*11.05	*6.50	0.30	98.19
*7.81	*7.00	0.39	98.58
*5.52	*7.50	0.42	99.00
*3.91	*8.00	0.38	99.38
*2.76	*8.50	0.30	99.68
*1.95	*9.00	0.21	99.89
*1.38	*9.50	0.11	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	9600	Medium pebble
Mode 3 [µm]†	3400	Granule
Median [µm]†	763	Coarse sand
Median [phi]†	0.39	
Mean [µm]†‡	1138	Very coarse sand
Mean [phi]†‡	-0.19	
Sorting [µm]‡	3.50	Poorly sorted
Sorting [phi]‡	1.81	
Skewness [µm]‡	0.39	Very coarse skewed
Skewness [phi]‡	-0.39	
Gravel [%]#	30.07	Sandy gravel
Sand [%]#	66.86	
Fines [%]#	3.07	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

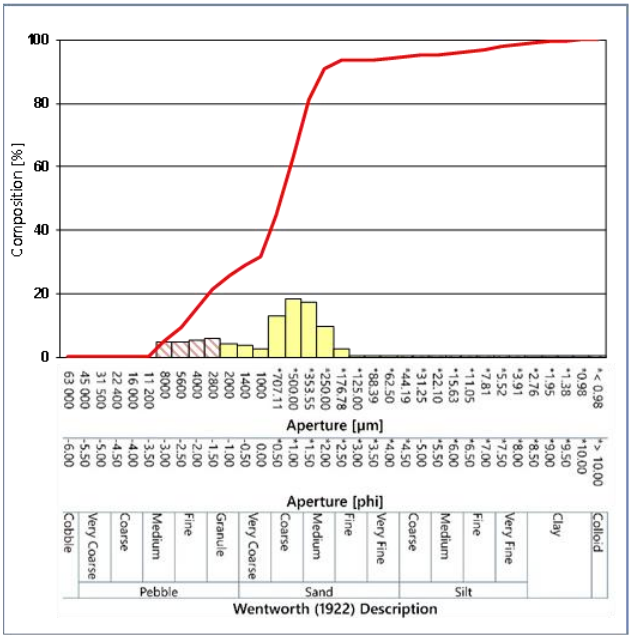
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST03

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	5.11	5.11
5600	-2.50	4.60	9.71
4000	-2.00	5.48	15.19
2800	-1.50	6.05	21.24
2000	-1.00	4.28	25.53
1400	-0.50	3.75	29.27
1000	0.00	2.68	31.95
*707.11	*0.50	12.72	44.68
*500.00	*1.00	18.64	63.32
*353.55	*1.50	17.61	80.93
*250.00	*2.00	10.00	90.92
*176.78	*2.50	2.75	93.67
*125.00	*3.00	0.09	93.76
*88.39	*3.50	0.00	93.77
*62.50	*4.00	0.42	94.19
*44.19	*4.50	0.62	94.82
*31.25	*5.00	0.41	95.22
*22.10	*5.50	0.25	95.47
*15.63	*6.00	0.32	95.79
*11.05	*6.50	0.50	96.29
*7.81	*7.00	0.66	96.95
*5.52	*7.50	0.74	97.69
*3.91	*8.00	0.71	98.40
*2.76	*8.50	0.59	98.99
*1.95	*9.00	0.42	99.42
*1.38	*9.50	0.27	99.69
*0.98	*10.00	0.18	99.87
*< 0.98	*> 10.00	0.13	100.00
Total		100.00	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]*	604	Coarse sand
Mode 2 [µm]*	3400	Granule
Mode 3 [µm]*	9600	Medium pebble
Median [µm]*	640	Coarse sand
Median [phi]*	0.64	
Mean [µm]*‡	919	Coarse sand
Mean [phi]*‡	0.12	
Sorting [µm]*	4.19	Very poorly sorted
Sorting [phi]*	2.07	
Skewness [µm]*	0.19	Coarse skewed
Skewness [phi]*	-0.19	
Gravel [%]#	25.53	Gravelly sand
Sand [%]#	68.67	
Fines [%]#	5.81	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

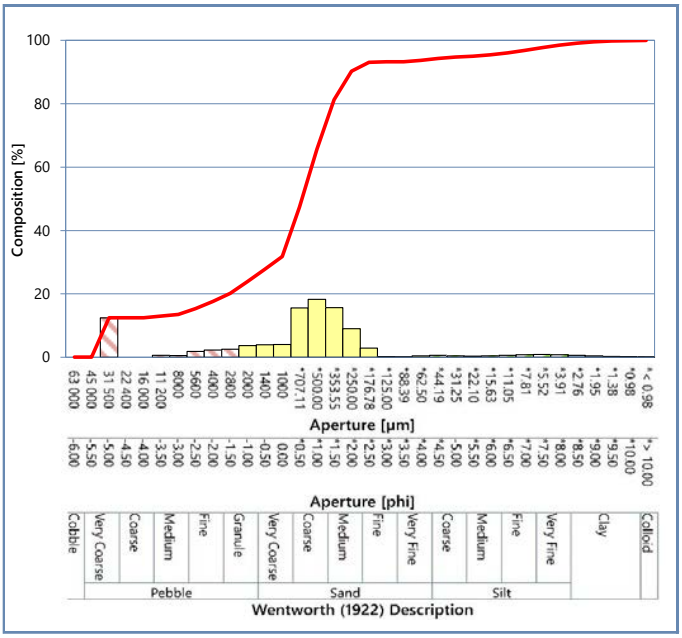
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST04

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	12.43	12.43
22 400	-4.50	0.00	12.43
16 000	-4.00	0.00	12.43
11 200	-3.50	0.57	13.00
8000	-3.00	0.54	13.54
5600	-2.50	1.84	15.38
4000	-2.00	2.28	17.65
2800	-1.50	2.52	20.18
2000	-1.00	3.69	23.87
1400	-0.50	3.90	27.77
1000	0.00	4.01	31.78
*707.11	*0.50	15.58	47.36
*500.00	*1.00	18.26	65.62
*353.55	*1.50	15.64	81.26
*250.00	*2.00	9.00	90.26
*176.78	*2.50	2.84	93.10
*125.00	*3.00	0.15	93.25
*88.39	*3.50	0.01	93.26
*62.50	*4.00	0.46	93.72
*44.19	*4.50	0.59	94.31
*31.25	*5.00	0.41	94.72
*22.10	*5.50	0.31	95.02
*15.63	*6.00	0.41	95.43
*11.05	*6.50	0.61	96.04
*7.81	*7.00	0.78	96.83
*5.52	*7.50	0.85	97.68
*3.91	*8.00	0.79	98.46
*2.76	*8.50	0.62	99.09
*1.95	*9.00	0.42	99.51
*1.38	*9.50	0.26	99.77
*0.98	*10.00	0.16	99.93
*< 0.98	*> 10.00	0.07	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	38250	Very coarse pebble
Mode 3 [µm]†	2400	Granule
Median [µm]†	673	Coarse sand
Median [phi]†	0.57	
Mean [µm]†‡	1030	Very coarse sand
Mean [phi]†‡	-0.04	
Sorting [µm]‡	6.19	Very poorly sorted
Sorting [phi]‡	2.63	
Skewness [µm]‡	0.28	Coarse skewed
Skewness [phi]‡	-0.28	
Gravel [%]#	23.87	Gravelly sand
Sand [%]#	69.85	
Fines [%]#	6.28	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

= Description based on BGS modified Folk classification (Long, 2006)

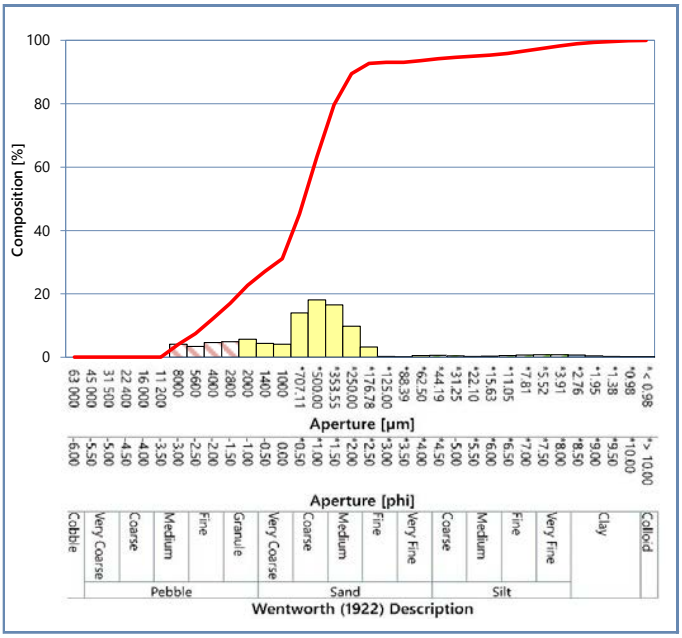
STATION: MA_ST05

No image available

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	4.08	4.08
5600	-2.50	3.42	7.50
4000	-2.00	4.66	12.16
2800	-1.50	4.86	17.02
2000	-1.00	5.66	22.68
1400	-0.50	4.36	27.04
1000	0.00	4.08	31.12
*707.11	*0.50	14.02	45.14
*500.00	*1.00	18.09	63.23
*353.55	*1.50	16.49	79.72
*250.00	*2.00	9.81	89.53
*176.78	*2.50	3.24	92.77
*125.00	*3.00	0.30	93.07
*88.39	*3.50	0.04	93.11
*62.50	*4.00	0.49	93.61
*44.19	*4.50	0.64	94.25
*31.25	*5.00	0.44	94.68
*22.10	*5.50	0.30	94.98
*15.63	*6.00	0.37	95.35
*11.05	*6.50	0.56	95.91
*7.81	*7.00	0.74	96.64
*5.52	*7.50	0.82	97.47
*3.91	*8.00	0.79	98.26
*2.76	*8.50	0.66	98.92
*1.95	*9.00	0.46	99.38
*1.38	*9.50	0.29	99.67
*0.98	*10.00	0.19	99.86
*< 0.98	*> 10.00	0.14	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	2400	Granule
Mode 3 [µm]†	4800	Fine pebble
Median [µm]†	644	Coarse sand
Median [phi]†	0.63	
Mean [µm]†‡	839	Coarse sand
Mean [phi]†‡	0.25	
Sorting [µm]‡	4.28	Very poorly sorted
Sorting [phi]‡	2.10	
Skewness [µm]‡	0.09	Symmetrical
Skewness [phi]‡	-0.09	
Gravel [%]#	22.68	Gravelly sand
Sand [%]#	70.92	
Fines [%]#	6.39	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

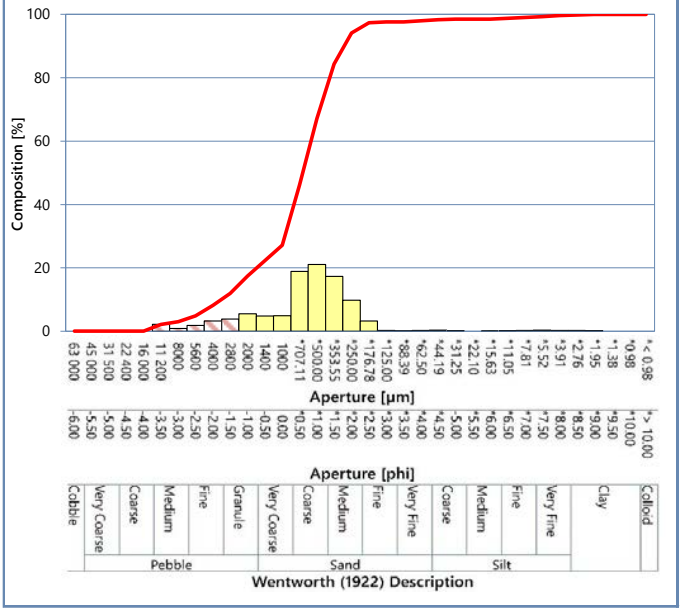
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST06

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	2.16	2.16
8000	-3.00	0.86	3.02
5600	-2.50	1.85	4.87
4000	-2.00	3.26	8.13
2800	-1.50	3.81	11.94
2000	-1.00	5.52	17.46
1400	-0.50	4.80	22.27
1000	0.00	4.87	27.13
*707.11	*0.50	18.88	46.02
*500.00	*1.00	21.05	67.07
*353.55	*1.50	17.31	84.38
*250.00	*2.00	9.79	94.16
*176.78	*2.50	3.22	97.39
*125.00	*3.00	0.27	97.66
*88.39	*3.50	0.00	97.66
*62.50	*4.00	0.30	97.96
*44.19	*4.50	0.36	98.31
*31.25	*5.00	0.15	98.46
*22.10	*5.50	0.00	98.46
*15.63	*6.00	0.06	98.52
*11.05	*6.50	0.21	98.74
*7.81	*7.00	0.28	99.02
*5.52	*7.50	0.30	99.33
*3.91	*8.00	0.28	99.61
*2.76	*8.50	0.23	99.84
*1.95	*9.00	0.16	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	2400	Granule
Mode 3 [µm]†	-	-
Median [µm]†	662	Coarse sand
Median [phi]†	0.59	
Mean [µm]†‡	802	Coarse sand
Mean [phi]†‡	0.32	
Sorting [µm]‡	2.55	Poorly sorted
Sorting [phi]‡	1.35	
Skewness [µm]‡	0.32	Very coarse skewed
Skewness [phi]‡	-0.32	
Gravel [%]#	17.46	Gravelly sand
Sand [%]#	80.49	
Fines [%]#	2.04	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

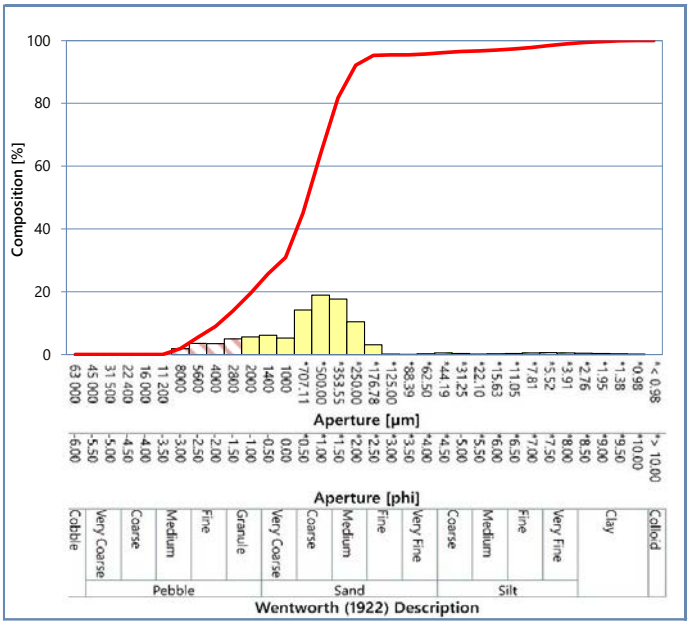
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST07

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	1.87	1.87
5600	-2.50	3.57	5.44
4000	-2.00	3.47	8.91
2800	-1.50	4.95	13.86
2000	-1.00	5.65	19.51
1400	-0.50	6.12	25.63
1000	0.00	5.28	30.92
*707.11	*0.50	14.15	45.07
*500.00	*1.00	18.95	64.02
*353.55	*1.50	17.71	81.74
*250.00	*2.00	10.41	92.14
*176.78	*2.50	3.13	95.27
*125.00	*3.00	0.17	95.44
*88.39	*3.50	0.00	95.44
*62.50	*4.00	0.25	95.69
*44.19	*4.50	0.50	96.19
*31.25	*5.00	0.33	96.52
*22.10	*5.50	0.18	96.70
*15.63	*6.00	0.22	96.93
*11.05	*6.50	0.37	97.30
*7.81	*7.00	0.51	97.81
*5.52	*7.50	0.57	98.38
*3.91	*8.00	0.54	98.92
*2.76	*8.50	0.45	99.37
*1.95	*9.00	0.32	99.69
*1.38	*9.50	0.20	99.89
*0.98	*10.00	0.11	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	1700	Very coarse sand
Mode 3 [µm]†	-	-
Median [µm]†	646	Coarse sand
Median [phi]†	0.63	
Mean [µm]†‡	805	Coarse sand
Mean [phi]†‡	0.31	
Sorting [µm]‡	2.80	Poorly sorted
Sorting [phi]‡	1.49	
Skewness [µm]‡	0.30	Coarse skewed
Skewness [phi]‡	-0.30	
Gravel [%]#	19.51	Gravelly sand
Sand [%]#	76.18	
Fines [%]#	4.31	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

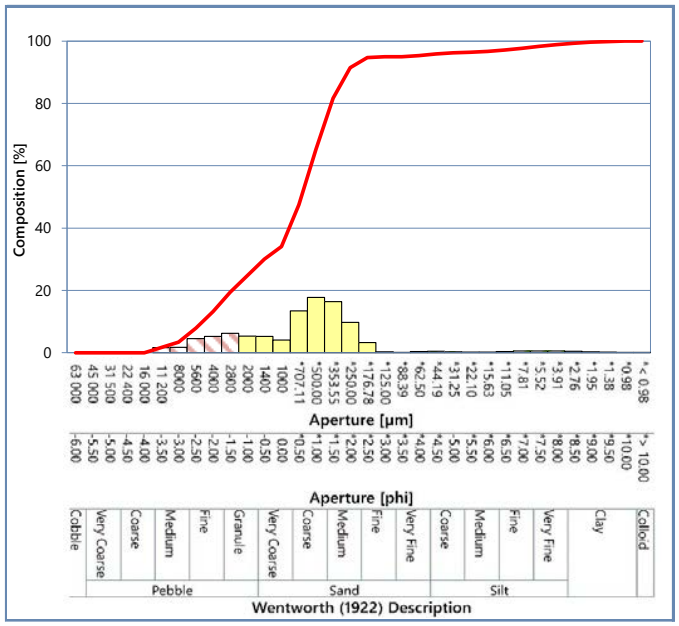
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST08

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	1.66	1.66
8000	-3.00	1.73	3.39
5600	-2.50	4.56	7.94
4000	-2.00	5.25	13.19
2800	-1.50	6.20	19.40
2000	-1.00	5.34	24.74
1400	-0.50	5.29	30.03
1000	0.00	4.05	34.08
*707.11	*0.50	13.44	47.52
*500.00	*1.00	17.76	65.28
*353.55	*1.50	16.36	81.64
*250.00	*2.00	9.79	91.43
*176.78	*2.50	3.26	94.69
*125.00	*3.00	0.30	94.98
*88.39	*3.50	0.01	94.99
*62.50	*4.00	0.38	95.37
*44.19	*4.50	0.53	95.90
*31.25	*5.00	0.34	96.24
*22.10	*5.50	0.20	96.45
*15.63	*6.00	0.26	96.71
*11.05	*6.50	0.41	97.12
*7.81	*7.00	0.55	97.67
*5.52	*7.50	0.61	98.27
*3.91	*8.00	0.58	98.85
*2.76	*8.50	0.47	99.32
*1.95	*9.00	0.33	99.65
*1.38	*9.50	0.21	99.86
*0.98	*10.00	0.13	99.99
*< 0.98	*> 10.00	0.01	100.00
Total		100.00	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	3400	Granule
Mode 3 [µm]†	-	-
Median [µm]†	674	Coarse sand
Median [phi]†	0.57	
Mean [µm]†‡	907	Coarse sand
Mean [phi]†‡	0.14	
Sorting [µm]‡	3.50	Poorly sorted
Sorting [phi]‡	1.81	
Skewness [µm]‡	0.22	Coarse skewed
Skewness [phi]‡	-0.22	
Gravel [%]#	24.74	Gravelly sand
Sand [%]#	70.63	
Fines [%]#	4.63	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

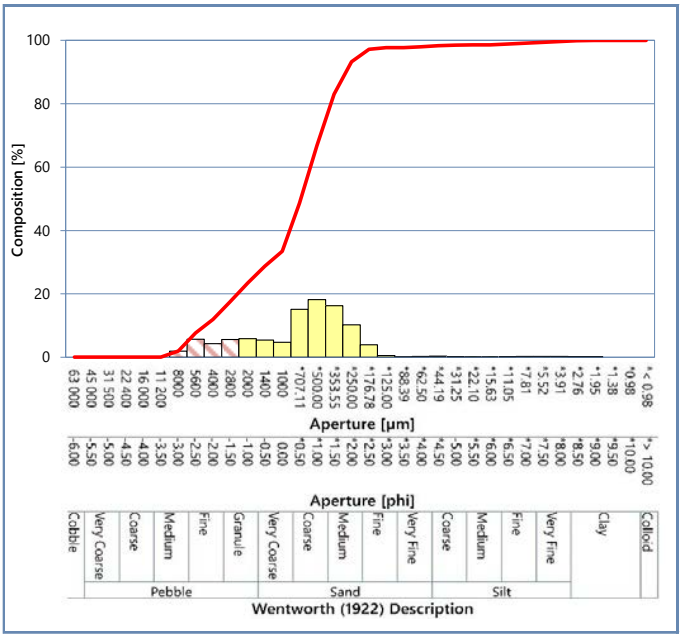
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST09

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	1.95	1.95
5600	-2.50	5.70	7.65
4000	-2.00	4.25	11.90
2800	-1.50	5.63	17.52
2000	-1.00	5.82	23.35
1400	-0.50	5.38	28.73
1000	0.00	4.74	33.47
*707.11	*0.50	15.11	48.58
*500.00	*1.00	18.14	66.72
*353.55	*1.50	16.29	83.02
*250.00	*2.00	10.21	93.22
*176.78	*2.50	3.94	97.17
*125.00	*3.00	0.56	97.72
*88.39	*3.50	0.00	97.73
*62.50	*4.00	0.24	97.97
*44.19	*4.50	0.36	98.33
*31.25	*5.00	0.21	98.53
*22.10	*5.50	0.02	98.55
*15.63	*6.00	0.06	98.61
*11.05	*6.50	0.21	98.82
*7.81	*7.00	0.28	99.10
*5.52	*7.50	0.29	99.40
*3.91	*8.00	0.26	99.66
*2.76	*8.50	0.20	99.86
*1.95	*9.00	0.14	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	2400	Granule
Mode 3 [µm]†	6800	Fine pebble
Median [µm]†	688	Coarse sand
Median [phi]†	0.54	
Mean [µm]†‡	899	Coarse sand
Mean [phi]†‡	0.15	
Sorting [µm]‡	2.91	Poorly sorted
Sorting [phi]‡	1.54	
Skewness [µm]‡	0.34	Very coarse skewed
Skewness [phi]‡	-0.34	
Gravel [%]#	23.35	Gravelly sand
Sand [%]#	74.62	
Fines [%]#	2.03	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

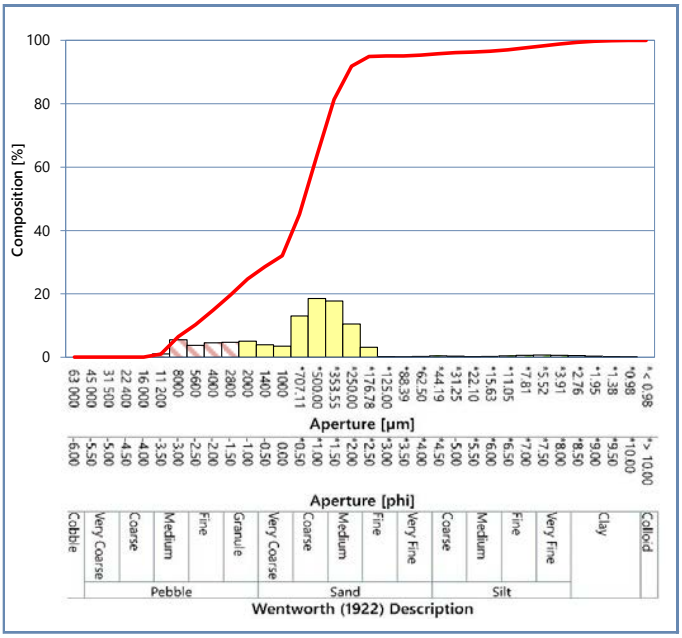
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST10

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	1.04	1.04
8000	-3.00	5.46	6.50
5600	-2.50	3.78	10.28
4000	-2.00	4.57	14.85
2800	-1.50	4.73	19.58
2000	-1.00	5.08	24.66
1400	-0.50	3.91	28.56
1000	0.00	3.51	32.08
*707.11	*0.50	13.04	45.12
*500.00	*1.00	18.51	63.62
*353.55	*1.50	17.71	81.33
*250.00	*2.00	10.49	91.83
*176.78	*2.50	3.12	94.95
*125.00	*3.00	0.15	95.10
*88.39	*3.50	0.00	95.10
*62.50	*4.00	0.23	95.33
*44.19	*4.50	0.47	95.79
*31.25	*5.00	0.32	96.12
*22.10	*5.50	0.19	96.31
*15.63	*6.00	0.26	96.57
*11.05	*6.50	0.44	97.00
*7.81	*7.00	0.60	97.60
*5.52	*7.50	0.66	98.26
*3.91	*8.00	0.61	98.87
*2.76	*8.50	0.49	99.35
*1.95	*9.00	0.33	99.68
*1.38	*9.50	0.21	99.90
*0.98	*10.00	0.10	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	9600	Medium pebble
Mode 3 [µm]†	2400	Granule
Median [µm]†	645	Coarse sand
Median [phi]†	0.63	
Mean [µm]†‡	915	Coarse sand
Mean [phi]†‡	0.13	
Sorting [µm]‡	3.38	Poorly sorted
Sorting [phi]‡	1.76	
Skewness [µm]‡	0.36	Very coarse skewed
Skewness [phi]‡	-0.36	
Gravel [%]#	24.66	Gravelly sand
Sand [%]#	70.67	
Fines [%]#	4.67	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

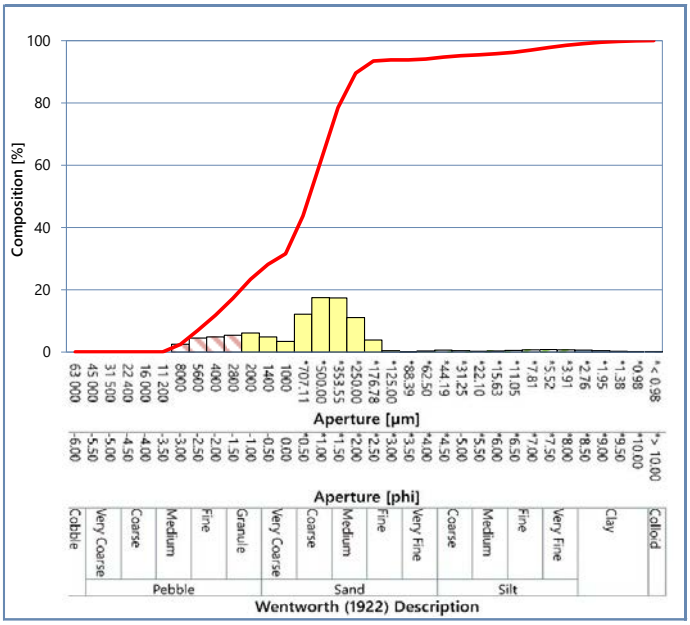
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST11

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	2.47	2.47
5600	-2.50	4.48	6.95
4000	-2.00	4.85	11.79
2800	-1.50	5.41	17.21
2000	-1.00	6.14	23.35
1400	-0.50	4.80	28.15
1000	0.00	3.41	31.56
*707.11	*0.50	12.12	43.68
*500.00	*1.00	17.48	61.15
*353.55	*1.50	17.33	78.49
*250.00	*2.00	11.03	89.52
*176.78	*2.50	3.88	93.40
*125.00	*3.00	0.39	93.79
*88.39	*3.50	0.00	93.79
*62.50	*4.00	0.31	94.10
*44.19	*4.50	0.58	94.68
*31.25	*5.00	0.44	95.12
*22.10	*5.50	0.29	95.41
*15.63	*6.00	0.34	95.75
*11.05	*6.50	0.52	96.26
*7.81	*7.00	0.69	96.95
*5.52	*7.50	0.76	97.71
*3.91	*8.00	0.72	98.44
*2.76	*8.50	0.59	99.03
*1.95	*9.00	0.42	99.44
*1.38	*9.50	0.27	99.71
*0.98	*10.00	0.17	99.88
*< 0.98	*> 10.00	0.12	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	2400	Granule
Mode 3 [µm]†	-	-
Median [µm]†	624	Coarse sand
Median [phi]†	0.68	
Mean [µm]†‡	825	Coarse sand
Mean [phi]†‡	0.28	
Sorting [µm]‡	3.96	Poorly sorted
Sorting [phi]‡	1.99	
Skewness [µm]‡	0.13	Coarse skewed
Skewness [phi]‡	-0.13	
Gravel [%]#	23.35	Gravelly sand
Sand [%]#	70.75	
Fines [%]#	5.90	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

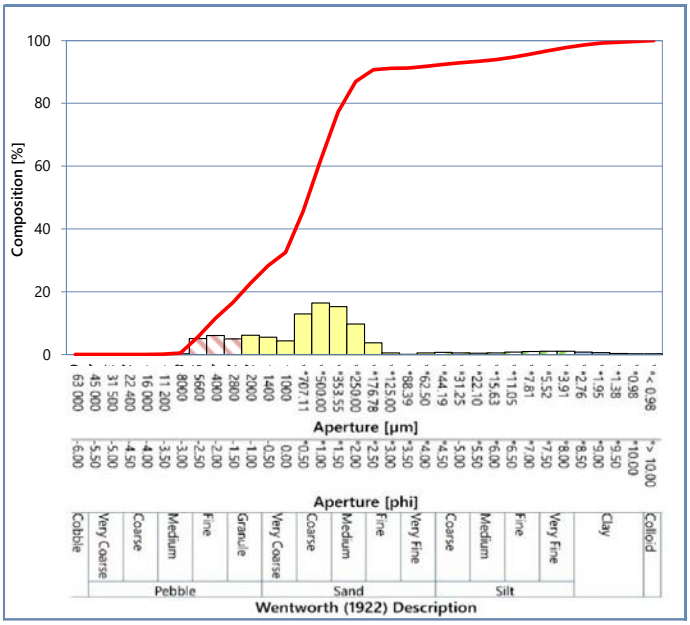
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST12

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.14	0.14
8000	-3.00	0.29	0.43
5600	-2.50	5.09	5.52
4000	-2.00	6.02	11.54
2800	-1.50	5.01	16.55
2000	-1.00	6.13	22.68
1400	-0.50	5.54	28.22
1000	0.00	4.32	32.54
*707.11	*0.50	12.96	45.50
*500.00	*1.00	16.45	61.95
*353.55	*1.50	15.29	77.24
*250.00	*2.00	9.75	86.99
*176.78	*2.50	3.72	90.71
*125.00	*3.00	0.48	91.19
*88.39	*3.50	0.07	91.25
*62.50	*4.00	0.51	91.76
*44.19	*4.50	0.68	92.44
*31.25	*5.00	0.53	92.98
*22.10	*5.50	0.43	93.40
*15.63	*6.00	0.54	93.94
*11.05	*6.50	0.78	94.72
*7.81	*7.00	0.99	95.70
*5.52	*7.50	1.08	96.78
*3.91	*8.00	1.01	97.79
*2.76	*8.50	0.81	98.60
*1.95	*9.00	0.56	99.16
*1.38	*9.50	0.35	99.51
*0.98	*10.00	0.23	99.74
*< 0.98	*> 10.00	0.26	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	2400	Granule
Mode 3 [µm]†	4800	Fine pebble
Median [µm]†	643	Coarse sand
Median [phi]†	0.64	
Mean [µm]†‡	804	Coarse sand
Mean [phi]†‡	0.31	
Sorting [µm]‡	4.72	Very poorly sorted
Sorting [phi]‡	2.24	
Skewness [µm]‡	-0.01	Symmetrical
Skewness [phi]‡	0.01	
Gravel [%]#	22.68	Gravelly muddy sand
Sand [%]#	69.08	
Fines [%]#	8.24	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

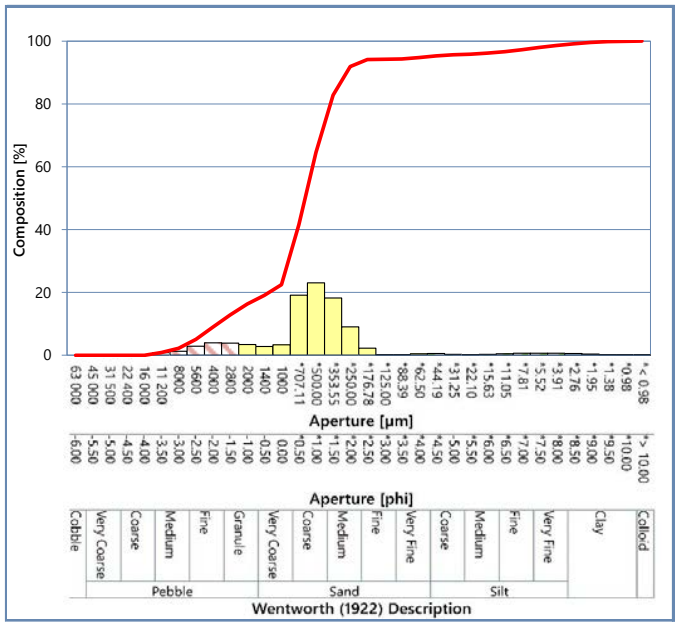
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST13

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.88	0.88
8000	-3.00	1.31	2.19
5600	-2.50	2.85	5.04
4000	-2.00	3.98	9.02
2800	-1.50	3.83	12.85
2000	-1.00	3.45	16.30
1400	-0.50	2.81	19.12
1000	0.00	3.33	22.45
*707.11	*0.50	19.09	41.53
*500.00	*1.00	23.02	64.55
*353.55	*1.50	18.28	82.83
*250.00	*2.00	9.05	91.88
*176.78	*2.50	2.25	94.14
*125.00	*3.00	0.06	94.20
*88.39	*3.50	0.07	94.27
*62.50	*4.00	0.50	94.77
*44.19	*4.50	0.53	95.30
*31.25	*5.00	0.31	95.62
*22.10	*5.50	0.21	95.83
*15.63	*6.00	0.31	96.14
*11.05	*6.50	0.48	96.62
*7.81	*7.00	0.62	97.24
*5.52	*7.50	0.69	97.93
*3.91	*8.00	0.67	98.60
*2.76	*8.50	0.55	99.15
*1.95	*9.00	0.39	99.55
*1.38	*9.50	0.25	99.80
*0.98	*10.00	0.17	99.97
*< 0.98	*> 10.00	0.03	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	4800	Fine pebble
Mode 3 [µm]†	-	-
Median [µm]†	622	Coarse sand
Median [phi]†	0.68	
Mean [µm]†‡	757	Coarse sand
Mean [phi]†‡	0.40	
Sorting [µm]‡	3.18	Poorly sorted
Sorting [phi]‡	1.67	
Skewness [µm]‡	0.14	Coarse skewed
Skewness [phi]‡	-0.14	
Gravel [%]#	16.30	Gravelly sand
Sand [%]#	78.47	
Fines [%]#	5.23	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

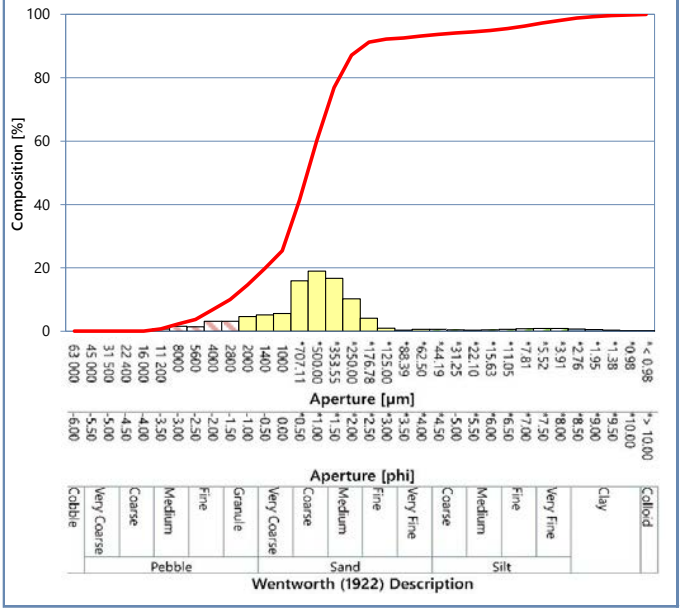
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST14

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.72	0.72
8000	-3.00	1.55	2.27
5600	-2.50	1.41	3.68
4000	-2.00	3.15	6.83
2800	-1.50	3.16	9.99
2000	-1.00	4.65	14.64
1400	-0.50	5.15	19.79
1000	0.00	5.59	25.39
*707.11	*0.50	15.89	41.28
*500.00	*1.00	18.98	60.25
*353.55	*1.50	16.67	76.93
*250.00	*2.00	10.24	87.16
*176.78	*2.50	4.07	91.23
*125.00	*3.00	0.95	92.18
*88.39	*3.50	0.37	92.56
*62.50	*4.00	0.58	93.14
*44.19	*4.50	0.60	93.73
*31.25	*5.00	0.42	94.15
*22.10	*5.50	0.34	94.49
*15.63	*6.00	0.43	94.93
*11.05	*6.50	0.62	95.55
*7.81	*7.00	0.80	96.35
*5.52	*7.50	0.89	97.24
*3.91	*8.00	0.86	98.10
*2.76	*8.50	0.71	98.81
*1.95	*9.00	0.51	99.32
*1.38	*9.50	0.32	99.64
*0.98	*10.00	0.21	99.85
*< 0.98	*> 10.00	0.15	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	4800	Fine pebble
Mode 3 [µm]†	-	-
Median [µm]†	603	Coarse sand
Median [phi]†	0.73	
Mean [µm]†‡	673	Coarse sand
Mean [phi]†‡	0.57	
Sorting [µm]‡	3.84	Poorly sorted
Sorting [phi]‡	1.94	
Skewness [µm]‡	-0.05	Symmetrical
Skewness [phi]‡	0.05	
Gravel [%]#	14.64	Gravelly sand
Sand [%]#	78.50	
Fines [%]#	6.86	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

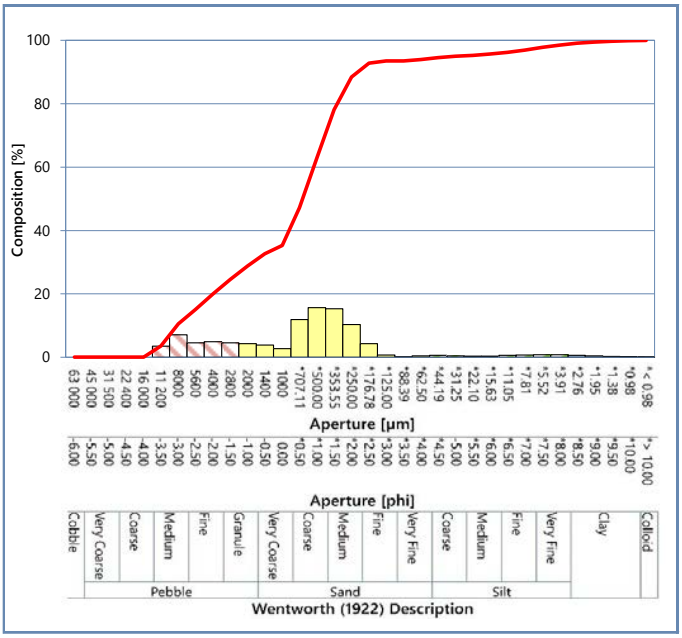
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST15

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	3.51	3.51
8000	-3.00	7.04	10.55
5600	-2.50	4.52	15.07
4000	-2.00	4.88	19.95
2800	-1.50	4.55	24.50
2000	-1.00	4.29	28.79
1400	-0.50	3.82	32.61
1000	0.00	2.69	35.30
*707.11	*0.50	11.91	47.21
*500.00	*1.00	15.67	62.88
*353.55	*1.50	15.27	78.15
*250.00	*2.00	10.34	88.49
*176.78	*2.50	4.32	92.81
*125.00	*3.00	0.74	93.55
*88.39	*3.50	0.01	93.55
*62.50	*4.00	0.39	93.94
*44.19	*4.50	0.59	94.53
*31.25	*5.00	0.44	94.98
*22.10	*5.50	0.31	95.29
*15.63	*6.00	0.38	95.66
*11.05	*6.50	0.56	96.23
*7.81	*7.00	0.74	96.96
*5.52	*7.50	0.80	97.76
*3.91	*8.00	0.74	98.51
*2.76	*8.50	0.59	99.10
*1.95	*9.00	0.40	99.50
*1.38	*9.50	0.25	99.75
*0.98	*10.00	0.16	99.91
*< 0.98	*> 10.00	0.09	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	9600	Medium pebble
Mode 3 [µm]†	4800	Fine pebble
Median [µm]†	665	Coarse sand
Median [phi]†	0.59	
Mean [µm]†‡	1005	Very coarse sand
Mean [phi]†‡	-0.01	
Sorting [µm]‡	4.99	Very poorly sorted
Sorting [phi]‡	2.32	
Skewness [µm]‡	0.19	Coarse skewed
Skewness [phi]‡	-0.19	
Gravel [%]#	28.79	Gravelly sand
Sand [%]#	65.15	
Fines [%]#	6.06	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

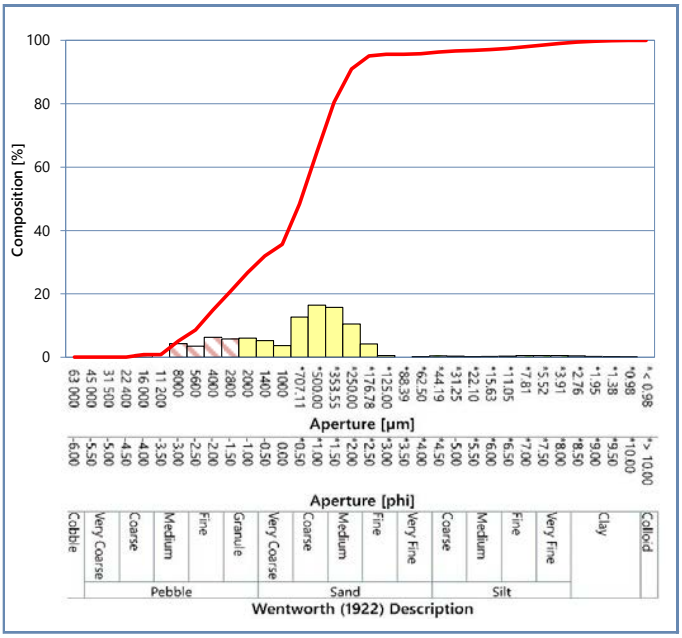
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST16

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.85	0.85
11 200	-3.50	0.00	0.85
8000	-3.00	4.25	5.10
5600	-2.50	3.50	8.60
4000	-2.00	6.31	14.92
2800	-1.50	5.77	20.69
2000	-1.00	6.03	26.72
1400	-0.50	5.25	31.97
1000	0.00	3.70	35.67
*707.11	*0.50	12.65	48.32
*500.00	*1.00	16.40	64.72
*353.55	*1.50	15.77	80.49
*250.00	*2.00	10.45	90.94
*176.78	*2.50	4.15	95.09
*125.00	*3.00	0.53	95.62
*88.39	*3.50	0.00	95.62
*62.50	*4.00	0.20	95.82
*44.19	*4.50	0.47	96.29
*31.25	*5.00	0.35	96.64
*22.10	*5.50	0.21	96.84
*15.63	*6.00	0.24	97.08
*11.05	*6.50	0.38	97.47
*7.81	*7.00	0.51	97.97
*5.52	*7.50	0.56	98.53
*3.91	*8.00	0.52	99.05
*2.76	*8.50	0.41	99.46
*1.95	*9.00	0.28	99.74
*1.38	*9.50	0.18	99.92
*0.98	*10.00	0.08	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	4800	Fine pebble
Mode 3 [µm]†	2400	Granule
Median [µm]†	682	Coarse sand
Median [phi]†	0.55	
Mean [µm]†‡	930	Coarse sand
Mean [phi]†‡	0.11	
Sorting [µm]‡	3.31	Poorly sorted
Sorting [phi]‡	1.73	
Skewness [µm]‡	0.34	Very coarse skewed
Skewness [phi]‡	-0.34	
Gravel [%]#	26.72	Gravelly sand
Sand [%]#	69.11	
Fines [%]#	4.18	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

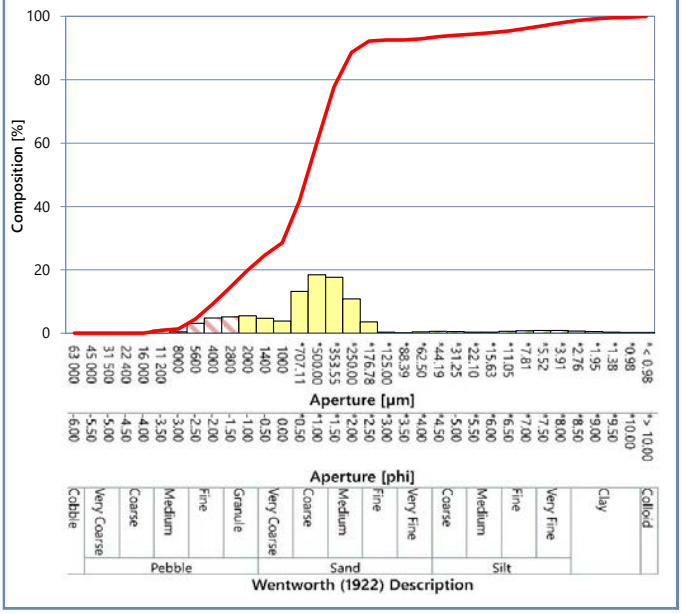
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST17

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.93	0.93
8000	-3.00	0.42	1.35
5600	-2.50	3.18	4.52
4000	-2.00	4.79	9.31
2800	-1.50	5.12	14.43
2000	-1.00	5.47	19.90
1400	-0.50	4.74	24.64
1000	0.00	3.87	28.51
*707.11	*0.50	13.23	41.74
*500.00	*1.00	18.42	60.16
*353.55	*1.50	17.66	77.82
*250.00	*2.00	10.81	88.63
*176.78	*2.50	3.59	92.21
*125.00	*3.00	0.32	92.53
*88.39	*3.50	0.00	92.54
*62.50	*4.00	0.41	92.95
*44.19	*4.50	0.65	93.60
*31.25	*5.00	0.48	94.08
*22.10	*5.50	0.33	94.41
*15.63	*6.00	0.39	94.80
*11.05	*6.50	0.58	95.38
*7.81	*7.00	0.78	96.16
*5.52	*7.50	0.89	97.04
*3.91	*8.00	0.87	97.91
*2.76	*8.50	0.74	98.65
*1.95	*9.00	0.54	99.18
*1.38	*9.50	0.35	99.53
*0.98	*10.00	0.23	99.76
*< 0.98	*> 10.00	0.24	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	2400	Granule
Mode 3 [µm]†	-	-
Median [µm]†	605	Coarse sand
Median [phi]†	0.72	
Mean [µm]†‡	764	Coarse sand
Mean [phi]†‡	0.39	
Sorting [µm]‡	4.25	Very poorly sorted
Sorting [phi]‡	2.09	
Skewness [µm]‡	0.03	Symmetrical
Skewness [phi]‡	-0.03	
Gravel [%]#	19.90	Gravelly sand
Sand [%]#	73.04	
Fines [%]#	7.05	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

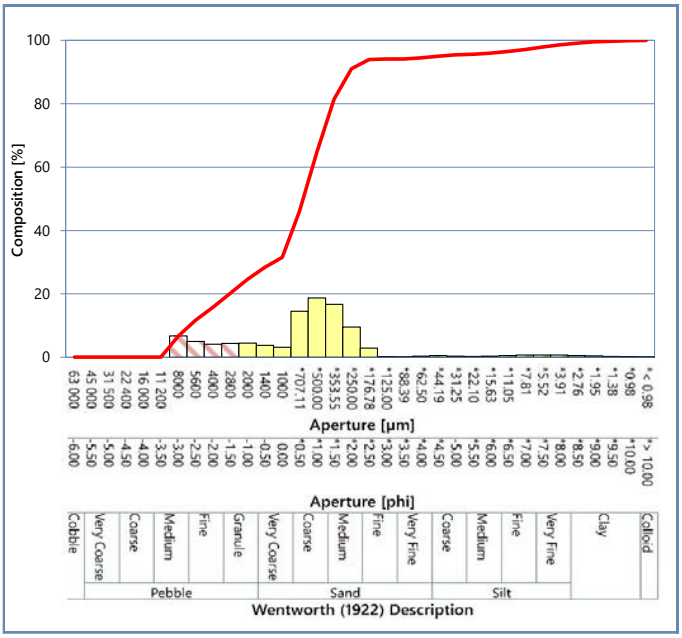
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST18

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	6.70	6.70
5600	-2.50	4.94	11.65
4000	-2.00	4.12	15.77
2800	-1.50	4.40	20.17
2000	-1.00	4.44	24.60
1400	-0.50	3.78	28.38
1000	0.00	3.17	31.56
*707.11	*0.50	14.48	46.04
*500.00	*1.00	18.71	64.75
*353.55	*1.50	16.73	81.48
*250.00	*2.00	9.56	91.04
*176.78	*2.50	2.88	93.92
*125.00	*3.00	0.18	94.11
*88.39	*3.50	0.00	94.11
*62.50	*4.00	0.37	94.48
*44.19	*4.50	0.55	95.03
*31.25	*5.00	0.38	95.41
*22.10	*5.50	0.25	95.66
*15.63	*6.00	0.32	95.98
*11.05	*6.50	0.50	96.48
*7.81	*7.00	0.66	97.14
*5.52	*7.50	0.73	97.88
*3.91	*8.00	0.69	98.57
*2.76	*8.50	0.56	99.13
*1.95	*9.00	0.39	99.52
*1.38	*9.50	0.25	99.77
*0.98	*10.00	0.16	99.93
*< 0.98	*> 10.00	0.07	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	9600	Medium pebble
Mode 3 [µm]†	2400	Granule
Median [µm]†	657	Coarse sand
Median [phi]†	0.61	
Mean [µm]†‡	941	Coarse sand
Mean [phi]†‡	0.09	
Sorting [µm]‡	4.15	Very poorly sorted
Sorting [phi]‡	2.05	
Skewness [µm]‡	0.21	Coarse skewed
Skewness [phi]‡	-0.21	
Gravel [%]#	24.60	Gravelly sand
Sand [%]#	69.87	
Fines [%]#	5.52	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

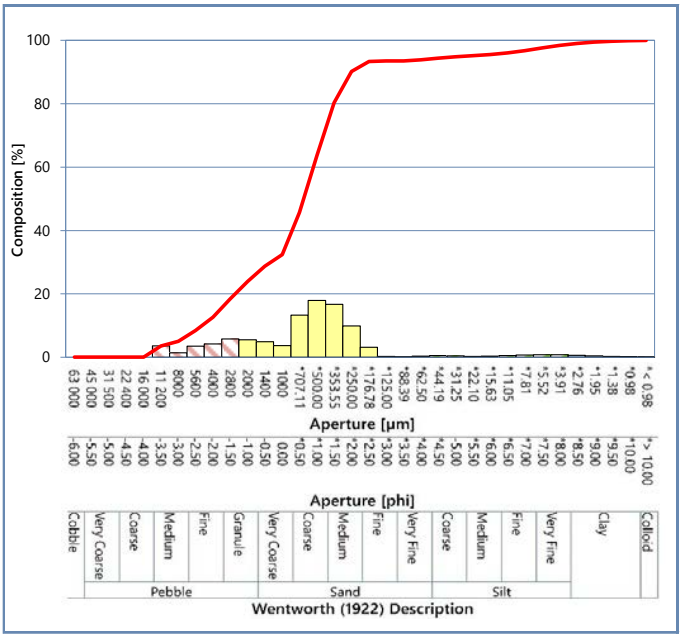
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST19

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	3.57	3.57
8000	-3.00	1.42	4.99
5600	-2.50	3.46	8.45
4000	-2.00	4.20	12.65
2800	-1.50	5.73	18.38
2000	-1.00	5.49	23.87
1400	-0.50	4.86	28.73
1000	0.00	3.65	32.38
*707.11	*0.50	13.30	45.69
*500.00	*1.00	17.92	63.60
*353.55	*1.50	16.67	80.27
*250.00	*2.00	9.90	90.18
*176.78	*2.50	3.13	93.31
*125.00	*3.00	0.23	93.54
*88.39	*3.50	0.00	93.54
*62.50	*4.00	0.31	93.86
*44.19	*4.50	0.56	94.42
*31.25	*5.00	0.42	94.84
*22.10	*5.50	0.30	95.14
*15.63	*6.00	0.37	95.50
*11.05	*6.50	0.56	96.06
*7.81	*7.00	0.74	96.79
*5.52	*7.50	0.82	97.61
*3.91	*8.00	0.77	98.38
*2.76	*8.50	0.62	99.01
*1.95	*9.00	0.43	99.44
*1.38	*9.50	0.27	99.71
*0.98	*10.00	0.17	99.88
*< 0.98	*> 10.00	0.12	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	2400	Granule
Mode 3 [µm]†	13600	Medium pebble
Median [µm]†	650	Coarse sand
Median [phi]†	0.62	
Mean [µm]†‡	869	Coarse sand
Mean [phi]†‡	0.20	
Sorting [µm]‡	4.29	Very poorly sorted
Sorting [phi]‡	2.10	
Skewness [µm]‡	0.12	Coarse skewed
Skewness [phi]‡	-0.12	
Gravel [%]#	23.87	Gravelly sand
Sand [%]#	69.99	
Fines [%]#	6.14	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

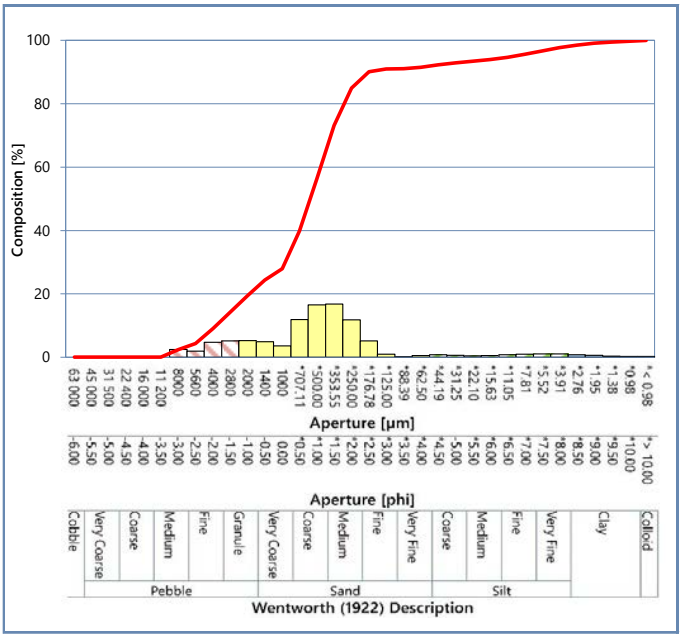
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST20

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	2.41	2.41
5600	-2.50	1.94	4.35
4000	-2.00	4.74	9.08
2800	-1.50	5.13	14.21
2000	-1.00	5.22	19.43
1400	-0.50	4.92	24.35
1000	0.00	3.56	27.91
*707.11	*0.50	11.92	39.83
*500.00	*1.00	16.51	56.34
*353.55	*1.50	16.80	73.14
*250.00	*2.00	11.81	84.95
*176.78	*2.50	5.13	90.08
*125.00	*3.00	0.94	91.02
*88.39	*3.50	0.01	91.03
*62.50	*4.00	0.49	91.51
*44.19	*4.50	0.78	92.29
*31.25	*5.00	0.64	92.93
*22.10	*5.50	0.47	93.40
*15.63	*6.00	0.53	93.94
*11.05	*6.50	0.74	94.68
*7.81	*7.00	0.95	95.63
*5.52	*7.50	1.05	96.69
*3.91	*8.00	1.00	97.69
*2.76	*8.50	0.82	98.51
*1.95	*9.00	0.59	99.10
*1.38	*9.50	0.38	99.48
*0.98	*10.00	0.25	99.72
*< 0.98	*> 10.00	0.28	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	427	Medium sand
Mode 2 [µm]†	2400	Granule
Mode 3 [µm]†	-	-
Median [µm]†	571	Coarse sand
Median [phi]†	0.81	
Mean [µm]†‡	716	Coarse sand
Mean [phi]†‡	0.48	
Sorting [µm]‡	4.58	Very poorly sorted
Sorting [phi]‡	2.20	
Skewness [µm]‡	0.00	Symmetrical
Skewness [phi]‡	0.00	
Gravel [%]#	19.43	Gravelly muddy sand
Sand [%]#	72.08	
Fines [%]#	8.49	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

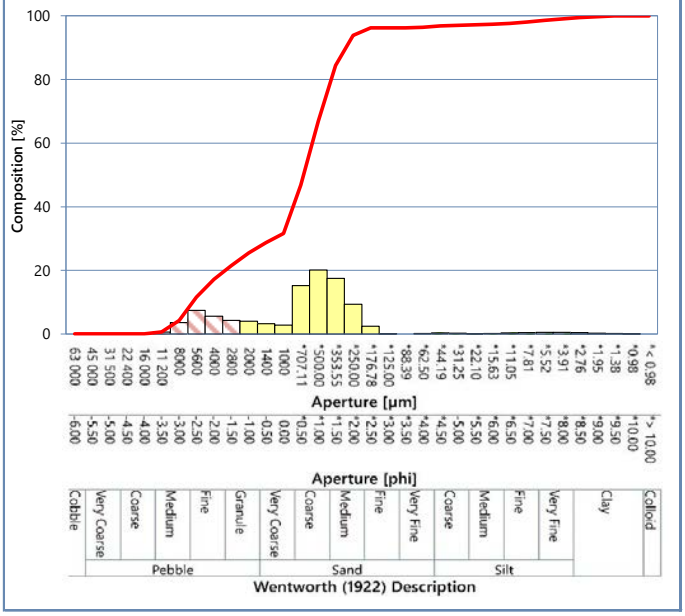
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST21

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.65	0.65
8000	-3.00	3.56	4.21
5600	-2.50	7.41	11.62
4000	-2.00	5.57	17.19
2800	-1.50	4.31	21.50
2000	-1.00	4.00	25.50
1400	-0.50	3.26	28.76
1000	0.00	2.82	31.58
*707.11	*0.50	15.24	46.82
*500.00	*1.00	20.12	66.94
*353.55	*1.50	17.50	84.44
*250.00	*2.00	9.38	93.83
*176.78	*2.50	2.40	96.23
*125.00	*3.00	0.04	96.27
*88.39	*3.50	0.00	96.27
*62.50	*4.00	0.17	96.44
*44.19	*4.50	0.37	96.81
*31.25	*5.00	0.24	97.05
*22.10	*5.50	0.12	97.17
*15.63	*6.00	0.17	97.34
*11.05	*6.50	0.31	97.65
*7.81	*7.00	0.44	98.08
*5.52	*7.50	0.50	98.58
*3.91	*8.00	0.48	99.06
*2.76	*8.50	0.40	99.46
*1.95	*9.00	0.29	99.76
*1.38	*9.50	0.19	99.95
*0.98	*10.00	0.05	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	6800	Fine pebble
Mode 3 [µm]†	-	-
Median [µm]†	669	Coarse sand
Median [phi]†	0.58	
Mean [µm]†‡	1009	Very coarse sand
Mean [phi]†‡	-0.01	
Sorting [µm]‡	3.21	Poorly sorted
Sorting [phi]‡	1.68	
Skewness [µm]‡	0.43	Very coarse skewed
Skewness [phi]‡	-0.43	
Gravel [%]#	25.50	Gravelly sand
Sand [%]#	70.93	
Fines [%]#	3.56	

Notes

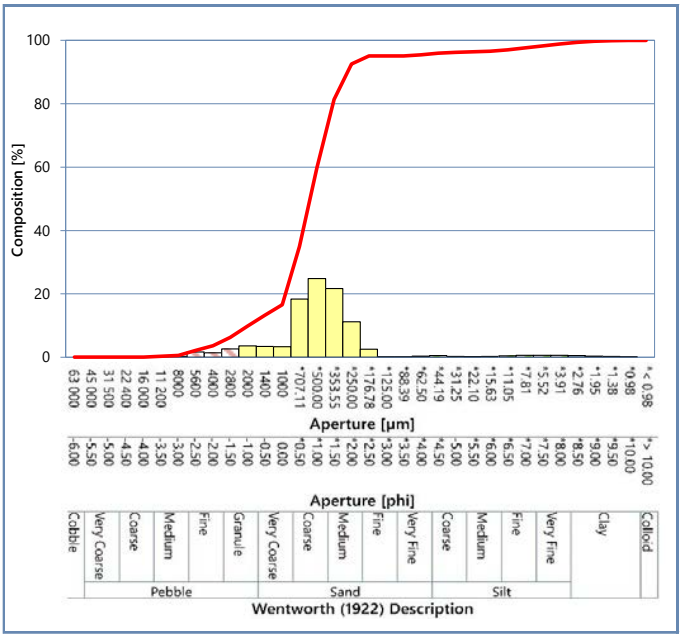
Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals
* = Determinand not included in UKAS Accreditation
† = Particle size expressed in accordance with Wentworth (1922) scale
‡ = Statistics calculated using Folk and Ward (1957) method
# = Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST22

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.33	0.33
8000	-3.00	0.23	0.56
5600	-2.50	1.62	2.18
4000	-2.00	1.43	3.61
2800	-1.50	2.63	6.24
2000	-1.00	3.60	9.84
1400	-0.50	3.39	13.23
1000	0.00	3.34	16.56
*707.11	*0.50	18.35	34.91
*500.00	*1.00	24.83	59.75
*353.55	*1.50	21.65	81.40
*250.00	*2.00	11.19	92.59
*176.78	*2.50	2.50	95.09
*125.00	*3.00	0.02	95.12
*88.39	*3.50	0.00	95.12
*62.50	*4.00	0.34	95.46
*44.19	*4.50	0.51	95.97
*31.25	*5.00	0.29	96.26
*22.10	*5.50	0.14	96.40
*15.63	*6.00	0.22	96.61
*11.05	*6.50	0.41	97.03
*7.81	*7.00	0.57	97.59
*5.52	*7.50	0.63	98.23
*3.91	*8.00	0.61	98.84
*2.76	*8.50	0.50	99.34
*1.95	*9.00	0.36	99.70
*1.38	*9.50	0.24	99.94
*0.98	*10.00	0.06	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	573	Coarse sand
Median [phi]†	0.80	
Mean [µm]†‡	583	Coarse sand
Mean [phi]†‡	0.78	
Sorting [µm]‡	2.09	Poorly sorted
Sorting [phi]‡	1.06	
Skewness [µm]‡	0.12	Coarse skewed
Skewness [phi]‡	-0.12	
Gravel [%]#	9.84	Gravelly sand
Sand [%]#	85.62	
Fines [%]#	4.54	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

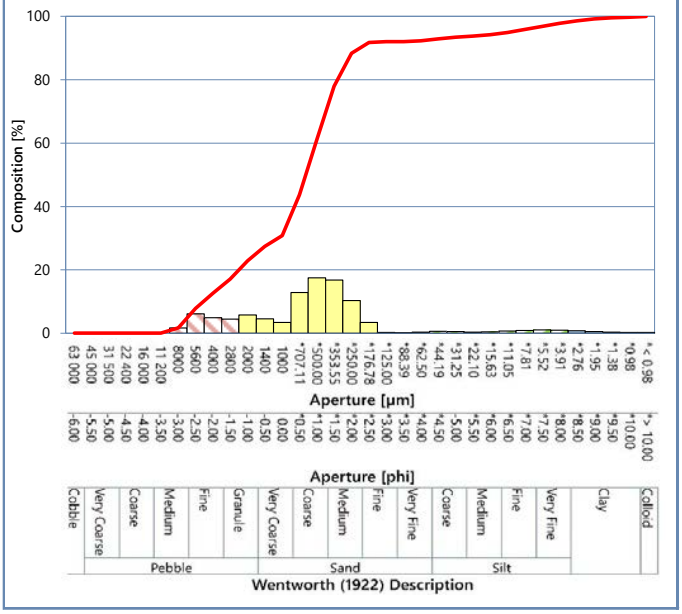
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST23

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	1.66	1.66
5600	-2.50	6.12	7.78
4000	-2.00	4.85	12.64
2800	-1.50	4.43	17.07
2000	-1.00	5.78	22.85
1400	-0.50	4.52	27.37
1000	0.00	3.45	30.81
*707.11	*0.50	12.87	43.68
*500.00	*1.00	17.51	61.19
*353.55	*1.50	16.78	77.97
*250.00	*2.00	10.36	88.32
*176.78	*2.50	3.41	91.73
*125.00	*3.00	0.26	91.99
*88.39	*3.50	0.00	91.99
*62.50	*4.00	0.31	92.30
*44.19	*4.50	0.63	92.93
*31.25	*5.00	0.51	93.44
*22.10	*5.50	0.37	93.81
*15.63	*6.00	0.44	94.26
*11.05	*6.50	0.68	94.93
*7.81	*7.00	0.91	95.84
*5.52	*7.50	1.02	96.86
*3.91	*8.00	0.98	97.84
*2.76	*8.50	0.80	98.63
*1.95	*9.00	0.55	99.19
*1.38	*9.50	0.35	99.53
*0.98	*10.00	0.22	99.76
*< 0.98	*> 10.00	0.24	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	2400	Granule
Mode 3 [µm]†	6800	Fine pebble
Median [µm]†	624	Coarse sand
Median [phi]†	0.68	
Mean [µm]†‡	819	Coarse sand
Mean [phi]†‡	0.29	
Sorting [µm]‡	4.77	Very poorly sorted
Sorting [phi]‡	2.25	
Skewness [µm]‡	0.04	Symmetrical
Skewness [phi]‡	-0.04	
Gravel [%]#	22.85	Gravelly sand
Sand [%]#	69.45	
Fines [%]#	7.70	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

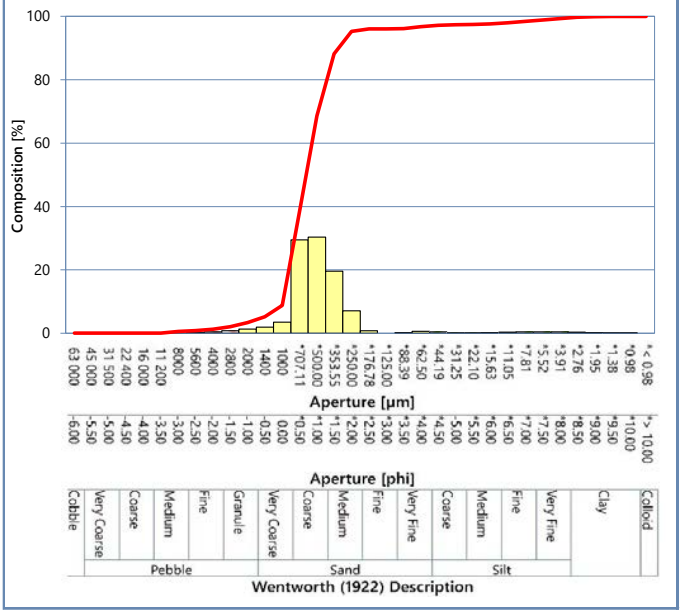
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST24

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.54	0.54
5600	-2.50	0.30	0.83
4000	-2.00	0.45	1.28
2800	-1.50	0.80	2.08
2000	-1.00	1.27	3.35
1400	-0.50	1.88	5.24
1000	0.00	3.52	8.76
*707.11	*0.50	29.49	38.25
*500.00	*1.00	30.33	68.57
*353.55	*1.50	19.62	88.19
*250.00	*2.00	7.05	95.24
*176.78	*2.50	0.77	96.01
*125.00	*3.00	0.00	96.01
*88.39	*3.50	0.16	96.17
*62.50	*4.00	0.60	96.77
*44.19	*4.50	0.46	97.23
*31.25	*5.00	0.12	97.35
*22.10	*5.50	0.08	97.43
*15.63	*6.00	0.18	97.61
*11.05	*6.50	0.35	97.97
*7.81	*7.00	0.44	98.40
*5.52	*7.50	0.47	98.87
*3.91	*8.00	0.45	99.32
*2.76	*8.50	0.37	99.69
*1.95	*9.00	0.21	99.90
*1.38	*9.50	0.08	99.98
*0.98	*10.00	0.02	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	618	Coarse sand
Median [phi]†	0.69	
Mean [µm]†‡	600	Coarse sand
Mean [phi]†‡	0.74	
Sorting [µm]‡	1.63	Moderately sorted
Sorting [phi]‡	0.70	
Skewness [µm]‡	-0.06	Symmetrical
Skewness [phi]‡	0.06	
Gravel [%]#	3.35	Sand
Sand [%]#	93.42	
Fines [%]#	3.23	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

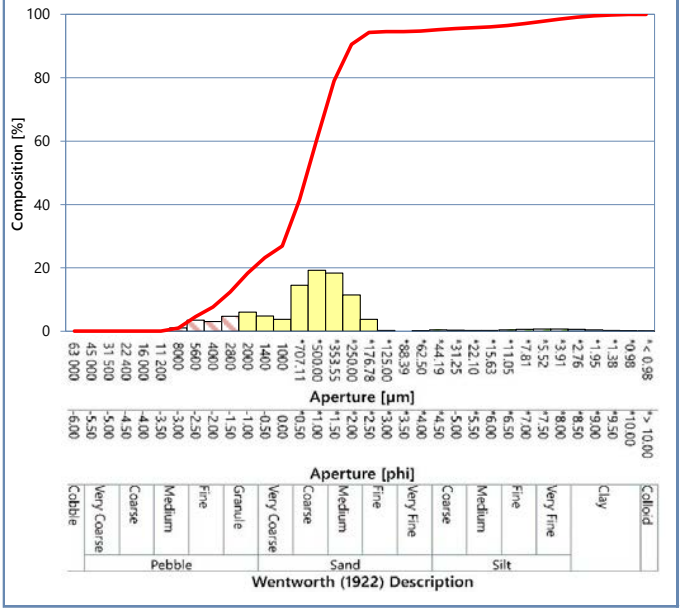
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST25

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	1.02	1.02
5600	-2.50	3.54	4.56
4000	-2.00	3.07	7.63
2800	-1.50	4.70	12.33
2000	-1.00	6.01	18.34
1400	-0.50	4.84	23.18
1000	0.00	3.75	26.93
*707.11	*0.50	14.51	41.44
*500.00	*1.00	19.23	60.67
*353.55	*1.50	18.37	79.04
*250.00	*2.00	11.46	90.50
*176.78	*2.50	3.80	94.30
*125.00	*3.00	0.26	94.56
*88.39	*3.50	0.00	94.56
*62.50	*4.00	0.15	94.70
*44.19	*4.50	0.47	95.17
*31.25	*5.00	0.38	95.56
*22.10	*5.50	0.23	95.79
*15.63	*6.00	0.27	96.06
*11.05	*6.50	0.44	96.50
*7.81	*7.00	0.62	97.12
*5.52	*7.50	0.71	97.84
*3.91	*8.00	0.69	98.53
*2.76	*8.50	0.58	99.11
*1.95	*9.00	0.41	99.52
*1.38	*9.50	0.27	99.79
*0.98	*10.00	0.18	99.97
*< 0.98	*> 10.00	0.03	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	2400	Granule
Mode 3 [µm]†	6800	Fine pebble
Median [µm]†	606	Coarse sand
Median [phi]†	0.72	
Mean [µm]†‡	749	Coarse sand
Mean [phi]†‡	0.42	
Sorting [µm]‡	3.35	Poorly sorted
Sorting [phi]‡	1.75	
Skewness [µm]‡	0.12	Coarse skewed
Skewness [phi]‡	-0.12	
Gravel [%]#	18.34	Gravelly sand
Sand [%]#	76.36	
Fines [%]#	5.30	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

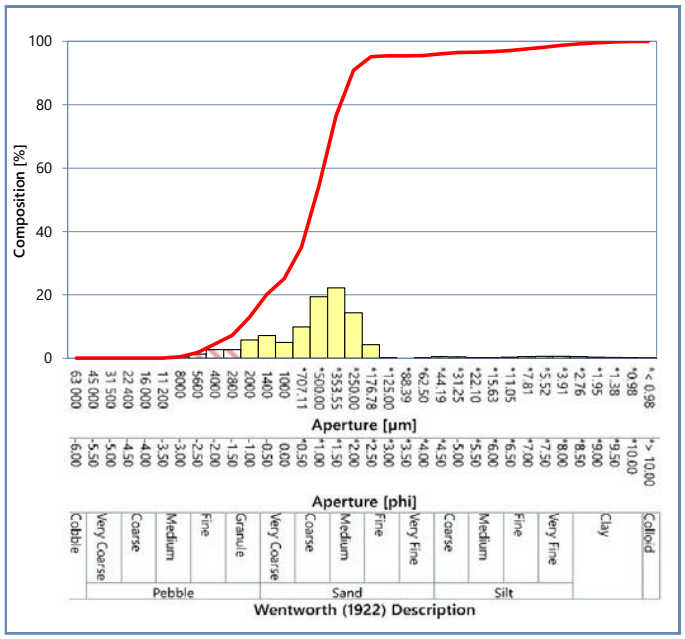
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST27

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.44	0.44
5600	-2.50	1.32	1.77
4000	-2.00	2.74	4.50
2800	-1.50	2.74	7.25
2000	-1.00	5.74	12.98
1400	-0.50	7.17	20.15
1000	0.00	4.95	25.11
*707.11	*0.50	9.89	35.00
*500.00	*1.00	19.37	54.37
*353.55	*1.50	22.22	76.59
*250.00	*2.00	14.30	90.89
*176.78	*2.50	4.30	95.20
*125.00	*3.00	0.21	95.40
*88.39	*3.50	0.00	95.40
*62.50	*4.00	0.14	95.54
*44.19	*4.50	0.52	96.06
*31.25	*5.00	0.39	96.45
*22.10	*5.50	0.17	96.62
*15.63	*6.00	0.16	96.78
*11.05	*6.50	0.32	97.10
*7.81	*7.00	0.49	97.58
*5.52	*7.50	0.57	98.15
*3.91	*8.00	0.57	98.72
*2.76	*8.50	0.49	99.21
*1.95	*9.00	0.37	99.58
*1.38	*9.50	0.25	99.82
*0.98	*10.00	0.16	99.98
*< 0.98	*> 10.00	0.02	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	427	Medium sand
Mode 2 [µm]†	1700	Very coarse sand
Mode 3 [µm]†	-	-
Median [µm]†	541	Coarse sand
Median [phi]†	0.89	
Mean [µm]†‡	650	Coarse sand
Mean [phi]†‡	0.62	
Sorting [µm]‡	2.46	Poorly sorted
Sorting [phi]‡	1.30	
Skewness [µm]‡	0.29	Coarse skewed
Skewness [phi]‡	-0.29	
Gravel [%]#	12.98	Gravelly sand
Sand [%]#	82.56	
Fines [%]#	4.46	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

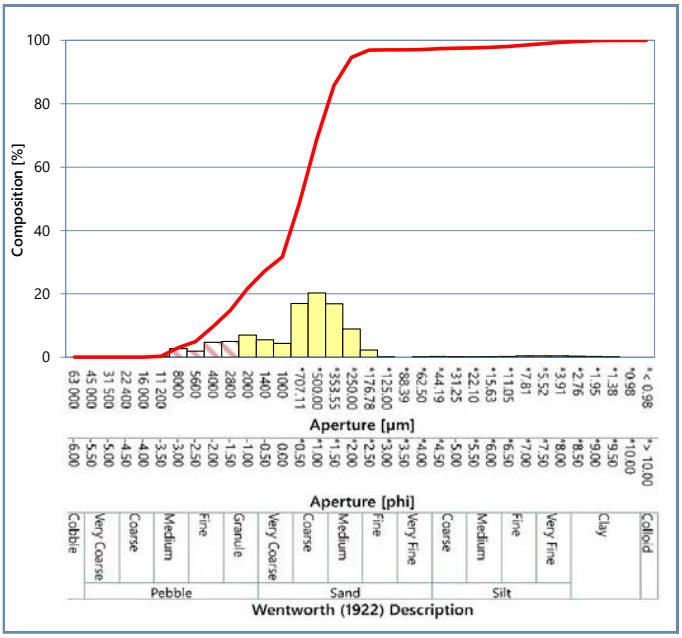
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST29

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.33	0.33
8000	-3.00	2.70	3.03
5600	-2.50	1.93	4.96
4000	-2.00	4.73	9.69
2800	-1.50	5.01	14.71
2000	-1.00	7.03	21.73
1400	-0.50	5.51	27.25
1000	0.00	4.40	31.65
*707.11	*0.50	16.98	48.63
*500.00	*1.00	20.33	68.95
*353.55	*1.50	16.84	85.79
*250.00	*2.00	8.88	94.67
*176.78	*2.50	2.27	96.94
*125.00	*3.00	0.04	96.98
*88.39	*3.50	0.00	96.98
*62.50	*4.00	0.12	97.10
*44.19	*4.50	0.27	97.36
*31.25	*5.00	0.17	97.53
*22.10	*5.50	0.09	97.62
*15.63	*6.00	0.16	97.78
*11.05	*6.50	0.30	98.08
*7.81	*7.00	0.41	98.49
*5.52	*7.50	0.44	98.93
*3.91	*8.00	0.41	99.34
*2.76	*8.50	0.33	99.66
*1.95	*9.00	0.23	99.89
*1.38	*9.50	0.11	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	2400	Granule
Mode 3 [µm]†	4800	Fine pebble
Median [µm]†	691	Coarse sand
Median [phi]†	0.53	
Mean [µm]†‡	874	Coarse sand
Mean [phi]†‡	0.19	
Sorting [µm]‡	2.64	Poorly sorted
Sorting [phi]‡	1.40	
Skewness [µm]‡	0.34	Very coarse skewed
Skewness [phi]‡	-0.34	
Gravel [%]#	21.73	Gravelly sand
Sand [%]#	75.36	
Fines [%]#	2.90	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

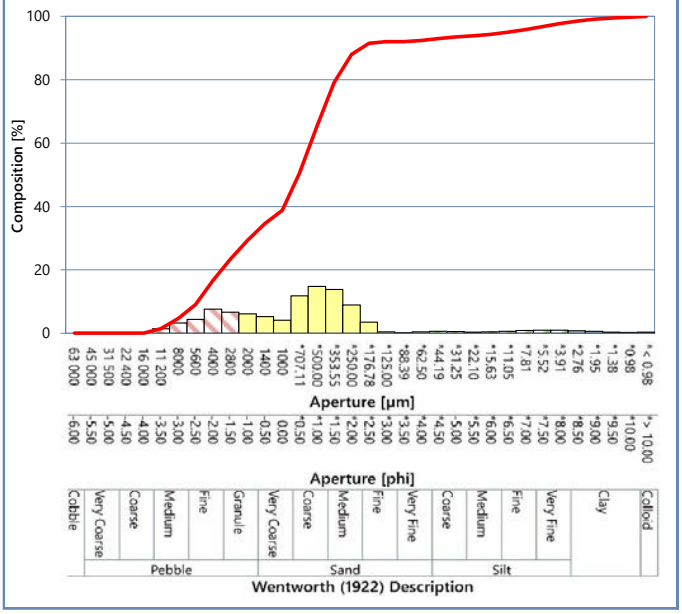
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST30

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	1.40	1.40
8000	-3.00	3.26	4.66
5600	-2.50	4.36	9.03
4000	-2.00	7.61	16.63
2800	-1.50	6.63	23.26
2000	-1.00	6.08	29.34
1400	-0.50	5.27	34.61
1000	0.00	4.13	38.75
*707.11	*0.50	11.76	50.51
*500.00	*1.00	14.78	65.29
*353.55	*1.50	13.79	79.08
*250.00	*2.00	8.95	88.03
*176.78	*2.50	3.52	91.55
*125.00	*3.00	0.46	92.01
*88.39	*3.50	0.01	92.02
*62.50	*4.00	0.41	92.42
*44.19	*4.50	0.61	93.03
*31.25	*5.00	0.49	93.52
*22.10	*5.50	0.38	93.90
*15.63	*6.00	0.44	94.34
*11.05	*6.50	0.64	94.98
*7.81	*7.00	0.83	95.81
*5.52	*7.50	0.95	96.76
*3.91	*8.00	0.94	97.70
*2.76	*8.50	0.79	98.50
*1.95	*9.00	0.58	99.07
*1.38	*9.50	0.37	99.44
*0.98	*10.00	0.25	99.69
*< 0.98	*> 10.00	0.31	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	4800	Fine pebble
Mode 3 [µm]†	-	-
Median [µm]†	718	Coarse sand
Median [phi]†	0.48	
Mean [µm]†‡	952	Coarse sand
Mean [phi]†‡	0.07	
Sorting [µm]‡	5.24	Very poorly sorted
Sorting [phi]‡	2.39	
Skewness [µm]‡	0.02	Symmetrical
Skewness [phi]‡	-0.02	
Gravel [%]#	29.34	Gravelly muddy sand
Sand [%]#	63.08	
Fines [%]#	7.58	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

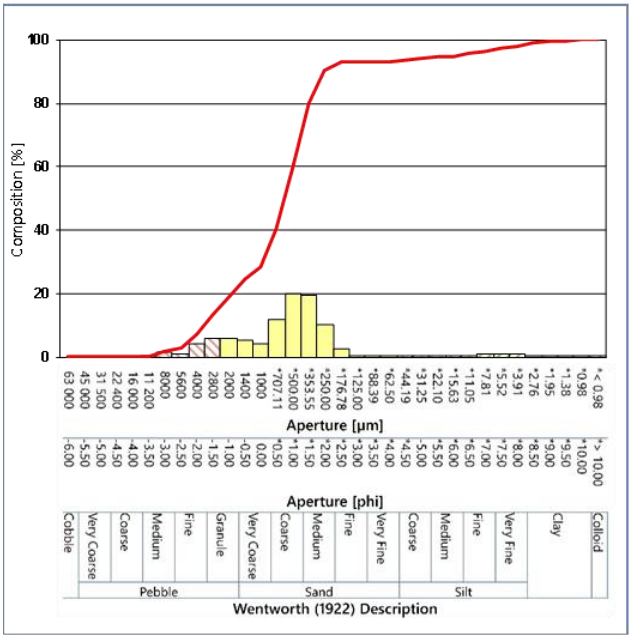
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST31

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.17	0.17
8000	-3.00	1.50	1.67
5600	-2.50	1.25	2.92
4000	-2.00	4.36	7.28
2800	-1.50	6.11	13.39
2000	-1.00	5.90	19.29
1400	-0.50	5.19	24.47
1000	0.00	4.15	28.63
*707.11	*0.50	12.05	40.67
*500.00	*1.00	19.84	60.51
*353.55	*1.50	19.38	79.89
*250.00	*2.00	10.51	90.39
*176.78	*2.50	2.43	92.82
*125.00	*3.00	0.04	92.86
*88.39	*3.50	0.00	92.86
*62.50	*4.00	0.37	93.24
*44.19	*4.50	0.63	93.86
*31.25	*5.00	0.42	94.28
*22.10	*5.50	0.26	94.54
*15.63	*6.00	0.37	94.92
*11.05	*6.50	0.63	95.55
*7.81	*7.00	0.85	96.40
*5.52	*7.50	0.94	97.34
*3.91	*8.00	0.87	98.21
*2.76	*8.50	0.69	98.90
*1.95	*9.00	0.47	99.37
*1.38	*9.50	0.29	99.65
*0.98	*10.00	0.19	99.84
*< 0.98	*> 10.00	0.16	100.00
Total		100.00	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]*	604	Coarse sand
Mode 2 [µm]*	2400	Granule
Mode 3 [µm]*	-	-
Median [µm]*	601	Coarse sand
Median [phi]*	0.74	
Mean [µm]*‡	765	Coarse sand
Mean [phi]*‡	0.39	
Sorting [µm]*	4.01	Very poorly sorted
Sorting [phi]*	2.00	
Skewness [µm]*	0.04	Symmetrical
Skewness [phi]*	-0.04	
Gravel [%]#	19.29	Gravelly sand
Sand [%]#	73.95	
Fines [%]#	6.76	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

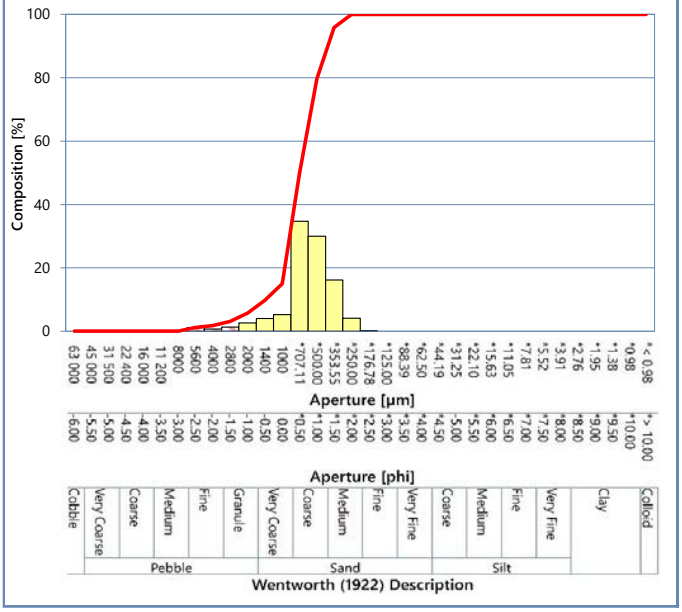
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST32

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.00	0.00
5600	-2.50	1.14	1.14
4000	-2.00	0.65	1.79
2800	-1.50	1.35	3.14
2000	-1.00	2.62	5.75
1400	-0.50	3.98	9.74
1000	0.00	5.28	15.02
*707.11	*0.50	34.67	49.69
*500.00	*1.00	29.99	79.68
*353.55	*1.50	16.20	95.88
*250.00	*2.00	4.07	99.95
*176.78	*2.50	0.05	100.00
*125.00	*3.00	0.00	100.00
*88.39	*3.50	0.00	100.00
*62.50	*4.00	0.00	100.00
*44.19	*4.50	0.00	100.00
*31.25	*5.00	0.00	100.00
*22.10	*5.50	0.00	100.00
*15.63	*6.00	0.00	100.00
*11.05	*6.50	0.00	100.00
*7.81	*7.00	0.00	100.00
*5.52	*7.50	0.00	100.00
*3.91	*8.00	0.00	100.00
*2.76	*8.50	0.00	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	854	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	705	Coarse sand
Median [phi]†	0.51	
Mean [µm]†‡	683	Coarse sand
Mean [phi]†‡	0.55	
Sorting [µm]‡	1.60	Moderately well sorted
Sorting [phi]‡	0.68	
Skewness [µm]‡	0.07	Symmetrical
Skewness [phi]‡	-0.07	
Gravel [%]#	5.75	Gravelly sand
Sand [%]#	94.25	
Fines [%]#	0.00	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

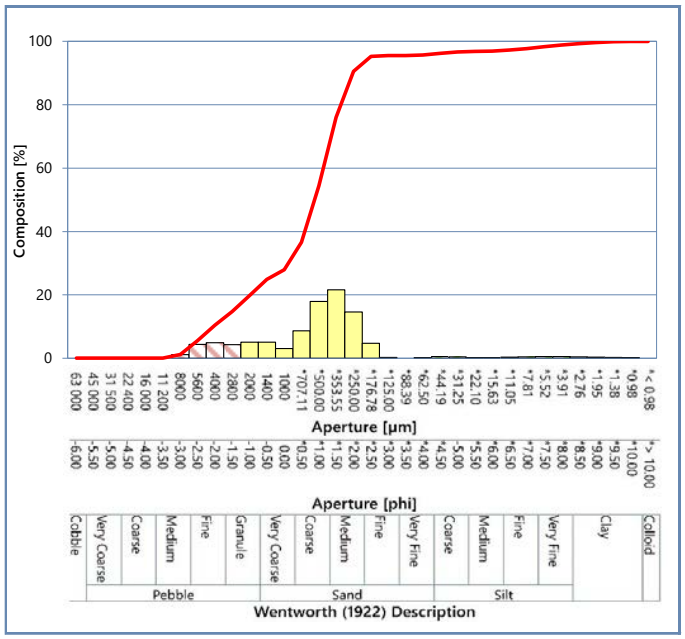
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST33

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	1.16	1.16
5600	-2.50	4.37	5.53
4000	-2.00	4.89	10.43
2800	-1.50	4.28	14.71
2000	-1.00	5.07	19.78
1400	-0.50	5.06	24.84
1000	0.00	3.06	27.90
*707.11	*0.50	8.66	36.56
*500.00	*1.00	17.89	54.45
*353.55	*1.50	21.56	76.01
*250.00	*2.00	14.57	90.58
*176.78	*2.50	4.68	95.26
*125.00	*3.00	0.29	95.55
*88.39	*3.50	0.00	95.55
*62.50	*4.00	0.14	95.69
*44.19	*4.50	0.54	96.22
*31.25	*5.00	0.41	96.64
*22.10	*5.50	0.17	96.81
*15.63	*6.00	0.15	96.96
*11.05	*6.50	0.30	97.26
*7.81	*7.00	0.47	97.74
*5.52	*7.50	0.56	98.29
*3.91	*8.00	0.55	98.84
*2.76	*8.50	0.46	99.30
*1.95	*9.00	0.34	99.65
*1.38	*9.50	0.23	99.87
*0.98	*10.00	0.13	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	427	Medium sand
Mode 2 [µm]†	2400	Granule
Mode 3 [µm]†	4800	Fine pebble
Median [µm]†	545	Coarse sand
Median [phi]†	0.88	
Mean [µm]†‡	743	Coarse sand
Mean [phi]†‡	0.43	
Sorting [µm]‡	2.92	Poorly sorted
Sorting [phi]‡	1.54	
Skewness [µm]‡	0.40	Very coarse skewed
Skewness [phi]‡	-0.40	
Gravel [%]#	19.78	Gravelly sand
Sand [%]#	75.91	
Fines [%]#	4.31	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

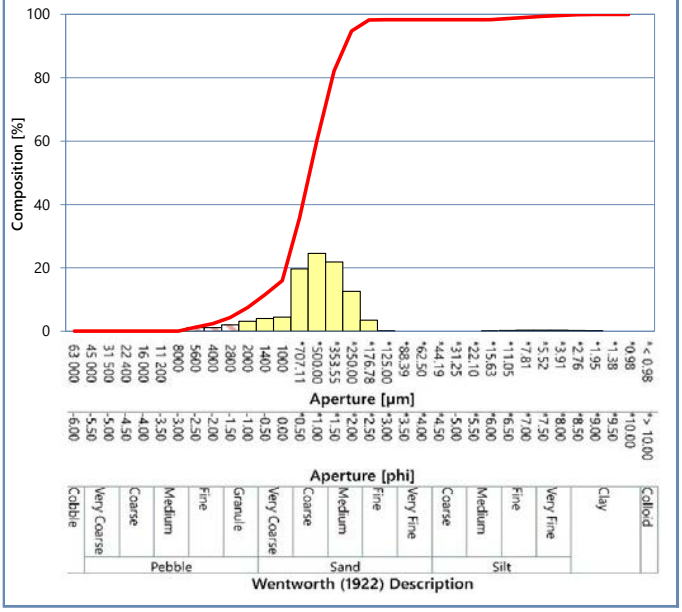
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST34

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.08	0.08
5600	-2.50	1.15	1.23
4000	-2.00	1.14	2.37
2800	-1.50	1.98	4.34
2000	-1.00	3.15	7.49
1400	-0.50	4.02	11.51
1000	0.00	4.49	16.00
*707.11	*0.50	19.63	35.63
*500.00	*1.00	24.59	60.21
*353.55	*1.50	21.90	82.11
*250.00	*2.00	12.61	94.72
*176.78	*2.50	3.53	98.25
*125.00	*3.00	0.06	98.30
*88.39	*3.50	0.00	98.30
*62.50	*4.00	0.00	98.30
*44.19	*4.50	0.00	98.30
*31.25	*5.00	0.00	98.30
*22.10	*5.50	0.00	98.30
*15.63	*6.00	0.06	98.37
*11.05	*6.50	0.27	98.63
*7.81	*7.00	0.35	98.99
*5.52	*7.50	0.35	99.34
*3.91	*8.00	0.30	99.64
*2.76	*8.50	0.23	99.87
*1.95	*9.00	0.13	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	577	Coarse sand
Median [phi]†	0.79	
Mean [µm]†‡	579	Coarse sand
Mean [phi]†‡	0.79	
Sorting [µm]‡	1.88	Moderately sorted
Sorting [phi]‡	0.91	
Skewness [µm]‡	0.14	Coarse skewed
Skewness [phi]‡	-0.14	
Gravel [%]#	7.49	Gravelly sand
Sand [%]#	90.81	
Fines [%]#	1.70	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

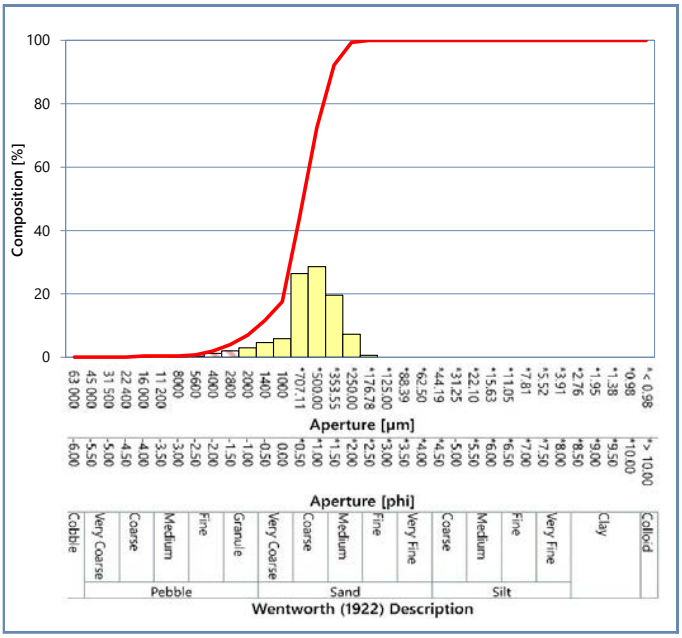
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST35

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.38	0.38
11 200	-3.50	0.00	0.38
8000	-3.00	0.05	0.43
5600	-2.50	0.33	0.76
4000	-2.00	1.21	1.97
2800	-1.50	2.01	3.98
2000	-1.00	3.01	6.99
1400	-0.50	4.63	11.62
1000	0.00	5.87	17.49
*707.11	*0.50	26.44	43.93
*500.00	*1.00	28.63	72.56
*353.55	*1.50	19.61	92.16
*250.00	*2.00	7.21	99.37
*176.78	*2.50	0.63	100.00
*125.00	*3.00	0.00	100.00
*88.39	*3.50	0.00	100.00
*62.50	*4.00	0.00	100.00
*44.19	*4.50	0.00	100.00
*31.25	*5.00	0.00	100.00
*22.10	*5.50	0.00	100.00
*15.63	*6.00	0.00	100.00
*11.05	*6.50	0.00	100.00
*7.81	*7.00	0.00	100.00
*5.52	*7.50	0.00	100.00
*3.91	*8.00	0.00	100.00
*2.76	*8.50	0.00	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	657	Coarse sand
Median [phi]†	0.61	
Mean [µm]†‡	664	Coarse sand
Mean [phi]†‡	0.59	
Sorting [µm]‡	1.75	Moderately sorted
Sorting [phi]‡	0.81	
Skewness [µm]‡	0.15	Coarse skewed
Skewness [phi]‡	-0.15	
Gravel [%]#	6.99	Gravelly sand
Sand [%]#	93.01	
Fines [%]#	0.00	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

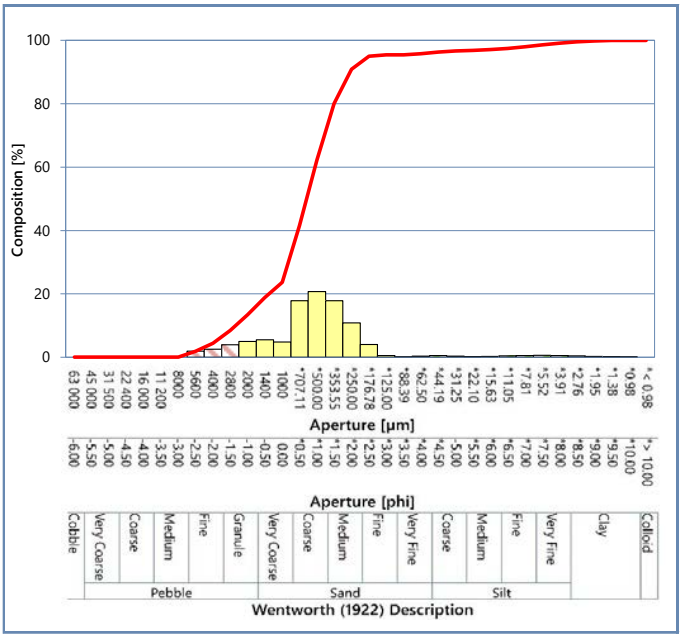
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST36

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.00	0.00
5600	-2.50	1.92	1.92
4000	-2.00	2.53	4.45
2800	-1.50	3.97	8.42
2000	-1.00	4.96	13.38
1400	-0.50	5.48	18.86
1000	0.00	4.82	23.68
*707.11	*0.50	17.79	41.48
*500.00	*1.00	20.69	62.17
*353.55	*1.50	17.87	80.04
*250.00	*2.00	10.87	90.91
*176.78	*2.50	4.06	94.96
*125.00	*3.00	0.51	95.47
*88.39	*3.50	0.00	95.47
*62.50	*4.00	0.35	95.82
*44.19	*4.50	0.49	96.31
*31.25	*5.00	0.32	96.63
*22.10	*5.50	0.19	96.83
*15.63	*6.00	0.25	97.08
*11.05	*6.50	0.40	97.48
*7.81	*7.00	0.53	98.01
*5.52	*7.50	0.57	98.58
*3.91	*8.00	0.53	99.10
*2.76	*8.50	0.41	99.52
*1.95	*9.00	0.28	99.80
*1.38	*9.50	0.17	99.97
*0.98	*10.00	0.03	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	1700	Very coarse sand
Mode 3 [µm]†	-	-
Median [µm]†	613	Coarse sand
Median [phi]†	0.71	
Mean [µm]†‡	685	Coarse sand
Mean [phi]†‡	0.54	
Sorting [µm]‡	2.44	Poorly sorted
Sorting [phi]‡	1.29	
Skewness [µm]‡	0.19	Coarse skewed
Skewness [phi]‡	-0.19	
Gravel [%]#	13.38	Gravelly sand
Sand [%]#	82.44	
Fines [%]#	4.18	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

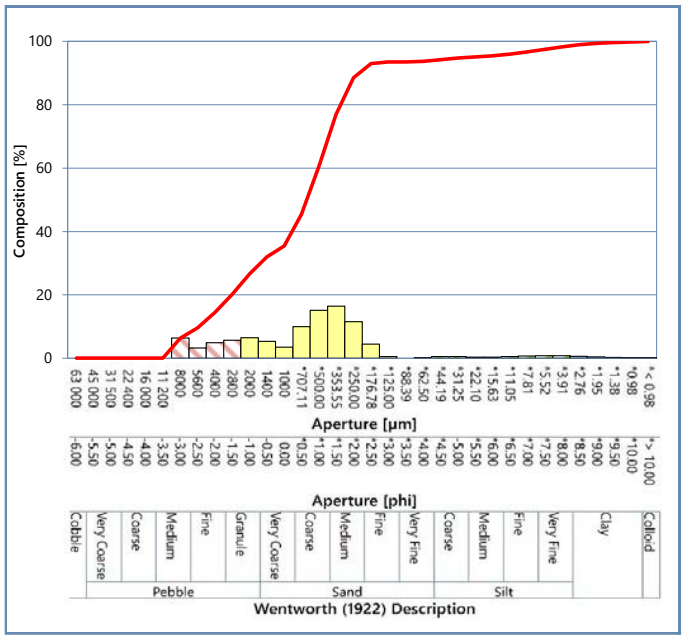
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST37

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	6.35	6.35
5600	-2.50	3.20	9.55
4000	-2.00	4.89	14.44
2800	-1.50	5.71	20.15
2000	-1.00	6.43	26.58
1400	-0.50	5.37	31.95
1000	0.00	3.54	35.48
*707.11	*0.50	9.95	45.44
*500.00	*1.00	15.14	60.58
*353.55	*1.50	16.42	77.01
*250.00	*2.00	11.53	88.53
*176.78	*2.50	4.50	93.03
*125.00	*3.00	0.53	93.56
*88.39	*3.50	0.00	93.56
*62.50	*4.00	0.15	93.71
*44.19	*4.50	0.54	94.25
*31.25	*5.00	0.49	94.74
*22.10	*5.50	0.32	95.06
*15.63	*6.00	0.35	95.41
*11.05	*6.50	0.53	95.94
*7.81	*7.00	0.72	96.66
*5.52	*7.50	0.82	97.48
*3.91	*8.00	0.79	98.27
*2.76	*8.50	0.64	98.91
*1.95	*9.00	0.45	99.36
*1.38	*9.50	0.29	99.65
*0.98	*10.00	0.18	99.83
*< 0.98	*> 10.00	0.17	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	427	Medium sand
Mode 2 [µm]†	2400	Granule
Mode 3 [µm]†	9600	Medium pebble
Median [µm]†	637	Coarse sand
Median [phi]†	0.65	
Mean [µm]†‡	872	Coarse sand
Mean [phi]†‡	0.20	
Sorting [µm]‡	4.61	Very poorly sorted
Sorting [phi]‡	2.20	
Skewness [µm]‡	0.13	Coarse skewed
Skewness [phi]‡	-0.13	
Gravel [%]#	26.58	Gravelly sand
Sand [%]#	67.13	
Fines [%]#	6.29	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

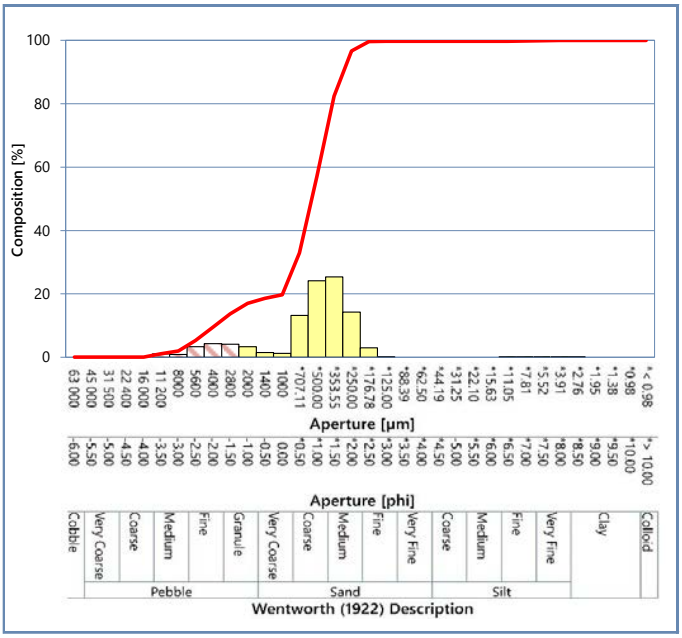
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST38

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	1.09	1.09
8000	-3.00	0.89	1.98
5600	-2.50	3.29	5.27
4000	-2.00	4.26	9.52
2800	-1.50	4.15	13.67
2000	-1.00	3.34	17.01
1400	-0.50	1.52	18.54
1000	0.00	1.20	19.74
*707.11	*0.50	13.22	32.95
*500.00	*1.00	24.13	57.09
*353.55	*1.50	25.35	82.43
*250.00	*2.00	14.24	96.68
*176.78	*2.50	3.00	99.67
*125.00	*3.00	0.01	99.68
*88.39	*3.50	0.00	99.68
*62.50	*4.00	0.00	99.68
*44.19	*4.50	0.00	99.68
*31.25	*5.00	0.00	99.68
*22.10	*5.50	0.00	99.68
*15.63	*6.00	0.00	99.68
*11.05	*6.50	0.05	99.73
*7.81	*7.00	0.08	99.81
*5.52	*7.50	0.08	99.88
*3.91	*8.00	0.07	99.95
*2.76	*8.50	0.05	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	427	Medium sand
Mode 2 [µm]†	4800	Fine pebble
Mode 3 [µm]†	-	-
Median [µm]†	554	Coarse sand
Median [phi]†	0.85	
Mean [µm]†‡	747	Coarse sand
Mean [phi]†‡	0.42	
Sorting [µm]‡	2.55	Poorly sorted
Sorting [phi]‡	1.35	
Skewness [µm]‡	0.50	Very coarse skewed
Skewness [phi]‡	-0.50	
Gravel [%]#	17.01	Gravelly sand
Sand [%]#	82.67	
Fines [%]#	0.32	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

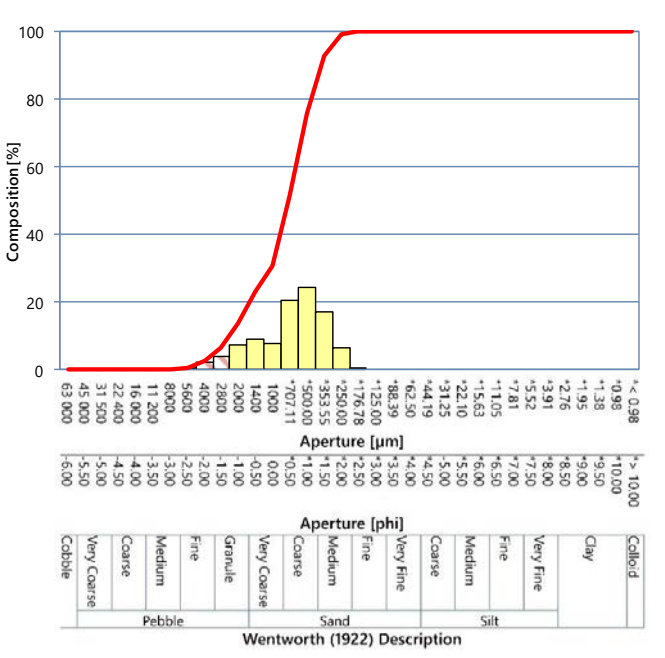
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST39

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.00	0.00
5600	-2.50	0.49	0.49
4000	-2.00	2.36	2.85
2800	-1.50	3.84	6.69
2000	-1.00	7.27	13.96
1400	-0.50	9.14	23.10
1000	0.00	7.73	30.83
*707.11	*0.50	20.67	51.49
*500.00	*1.00	24.24	75.74
*353.55	*1.50	17.13	92.86
*250.00	*2.00	6.48	99.35
*176.78	*2.50	0.65	100.00
*125.00	*3.00	0.00	100.00
*88.39	*3.50	0.00	100.00
*62.50	*4.00	0.00	100.00
*44.19	*4.50	0.00	100.00
*31.25	*5.00	0.00	100.00
*22.10	*5.50	0.00	100.00
*15.63	*6.00	0.00	100.00
*11.05	*6.50	0.00	100.00
*7.81	*7.00	0.00	100.00
*5.52	*7.50	0.00	100.00
*3.91	*8.00	0.00	100.00
*2.76	*8.50	0.00	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	1700	Very coarse sand
Mode 3 [µm]†	-	-
Median [µm]†	725	Coarse sand
Median [phi]†	0.46	
Mean [µm]‡	827	Coarse sand
Mean [phi]‡	0.27	
Sorting [µm]‡	2.06	Poorly sorted
Sorting [phi]‡	1.04	
Skewness [µm]‡	0.28	Coarse skewed
Skewness [phi]‡	-0.28	
Gravel [%]#	13.96	Gravelly sand
Sand [%]#	86.04	
Fines [%]#	0.00	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

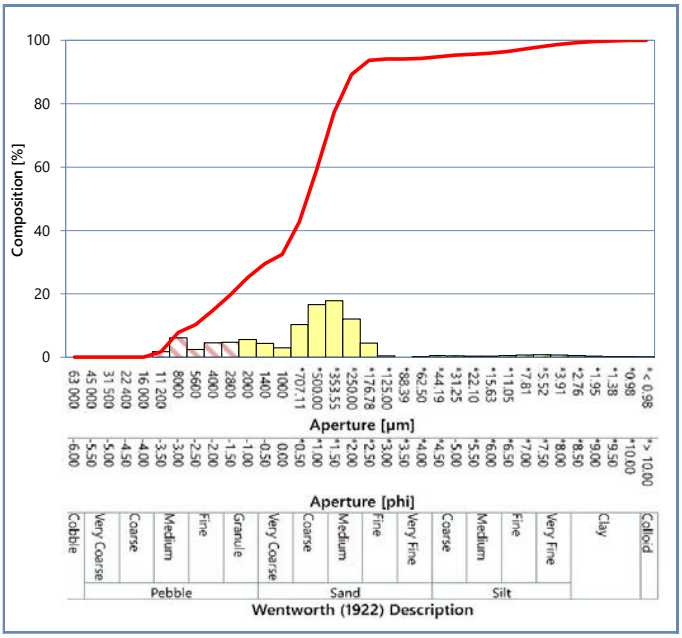
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST40

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	1.71	1.71
8000	-3.00	6.15	7.87
5600	-2.50	2.41	10.27
4000	-2.00	4.56	14.83
2800	-1.50	4.76	19.59
2000	-1.00	5.56	25.15
1400	-0.50	4.35	29.50
1000	0.00	2.98	32.48
*707.11	*0.50	10.31	42.79
*500.00	*1.00	16.61	59.40
*353.55	*1.50	17.81	77.21
*250.00	*2.00	12.05	89.26
*176.78	*2.50	4.45	93.71
*125.00	*3.00	0.45	94.16
*88.39	*3.50	0.00	94.16
*62.50	*4.00	0.15	94.31
*44.19	*4.50	0.54	94.85
*31.25	*5.00	0.47	95.31
*22.10	*5.50	0.31	95.62
*15.63	*6.00	0.35	95.97
*11.05	*6.50	0.55	96.52
*7.81	*7.00	0.73	97.25
*5.52	*7.50	0.79	98.04
*3.91	*8.00	0.70	98.74
*2.76	*8.50	0.53	99.28
*1.95	*9.00	0.35	99.62
*1.38	*9.50	0.20	99.83
*0.98	*10.00	0.13	99.96
*< 0.98	*> 10.00	0.04	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	427	Medium sand
Mode 2 [µm]†	9600	Medium pebble
Mode 3 [µm]†	2400	Granule
Median [µm]†	608	Coarse sand
Median [phi]†	0.72	
Mean [µm]†‡	866	Coarse sand
Mean [phi]†‡	0.21	
Sorting [µm]‡	4.31	Very poorly sorted
Sorting [phi]‡	2.11	
Skewness [µm]‡	0.21	Coarse skewed
Skewness [phi]‡	-0.21	
Gravel [%]#	25.15	Gravelly sand
Sand [%]#	69.16	
Fines [%]#	5.69	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

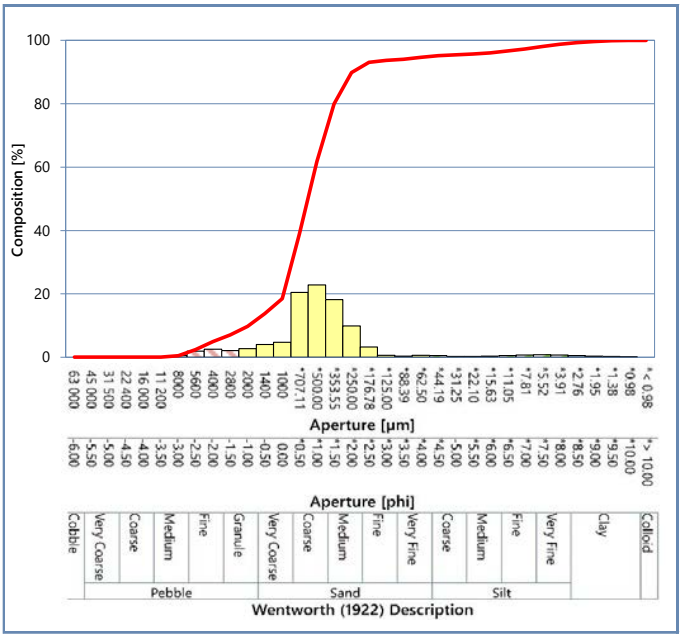
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST41

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.52	0.52
5600	-2.50	1.88	2.40
4000	-2.00	2.56	4.96
2800	-1.50	2.06	7.02
2000	-1.00	2.72	9.75
1400	-0.50	4.04	13.78
1000	0.00	4.71	18.49
*707.11	*0.50	20.44	38.93
*500.00	*1.00	22.85	61.78
*353.55	*1.50	18.21	79.99
*250.00	*2.00	9.85	89.85
*176.78	*2.50	3.27	93.11
*125.00	*3.00	0.59	93.71
*88.39	*3.50	0.37	94.08
*62.50	*4.00	0.59	94.66
*44.19	*4.50	0.49	95.16
*31.25	*5.00	0.29	95.45
*22.10	*5.50	0.25	95.69
*15.63	*6.00	0.37	96.07
*11.05	*6.50	0.55	96.62
*7.81	*7.00	0.69	97.31
*5.52	*7.50	0.74	98.06
*3.91	*8.00	0.69	98.74
*2.76	*8.50	0.54	99.29
*1.95	*9.00	0.37	99.66
*1.38	*9.50	0.23	99.89
*0.98	*10.00	0.11	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	598	Coarse sand
Median [phi]†	0.74	
Mean [µm]†‡	603	Coarse sand
Mean [phi]†‡	0.73	
Sorting [µm]‡	2.73	Poorly sorted
Sorting [phi]‡	1.45	
Skewness [µm]‡	-0.06	Symmetrical
Skewness [phi]‡	0.06	
Gravel [%]#	9.75	Gravelly sand
Sand [%]#	84.92	
Fines [%]#	5.34	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

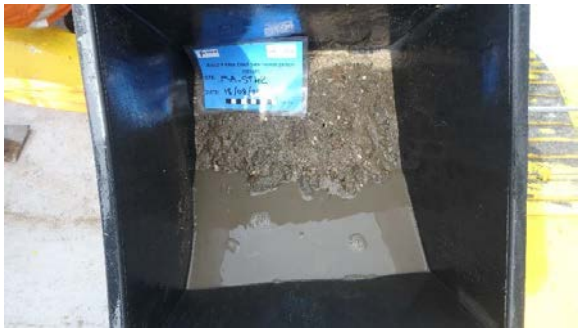
* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

= Description based on BGS modified Folk classification (Long, 2006)

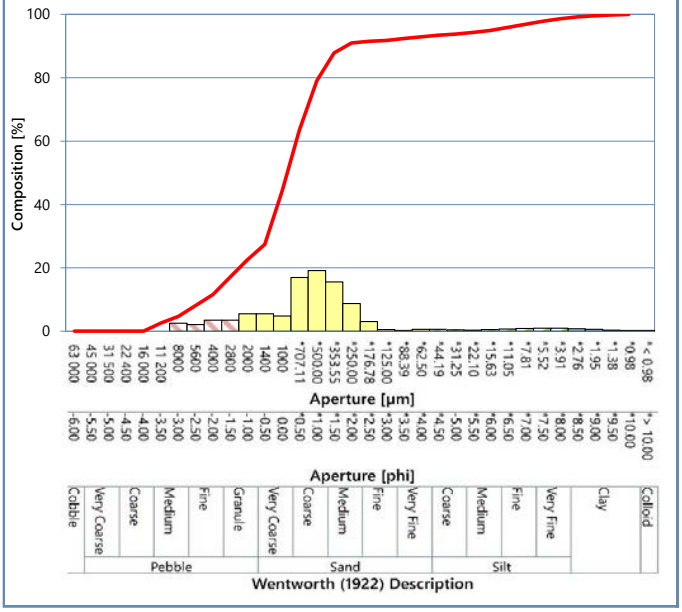
STATION: MA_ST42



FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	2.55	2.55
5600	-2.50	2.08	4.63
4000	-2.00	3.49	8.12
2800	-1.50	3.48	11.61
2000	-1.00	5.48	17.09
1400	-0.50	5.54	22.62
1000	0.00	4.77	27.39
*707.11	*0.50	16.99	44.38
*500.00	*1.00	19.17	63.55
*353.55	*1.50	15.55	79.10
*250.00	*2.00	8.77	87.87
*176.78	*2.50	3.09	90.96
*125.00	*3.00	0.54	91.50
*88.39	*3.50	0.27	91.77
*62.50	*4.00	0.57	92.34
*44.19	*4.50	0.60	92.95
*31.25	*5.00	0.44	93.39
*22.10	*5.50	0.38	93.77
*15.63	*6.00	0.49	94.26
*11.05	*6.50	0.70	94.96
*7.81	*7.00	0.89	95.85
*5.52	*7.50	1.00	96.85
*3.91	*8.00	0.97	97.81
*2.76	*8.50	0.80	98.61
*1.95	*9.00	0.57	99.18
*1.38	*9.50	0.36	99.54
*0.98	*10.00	0.23	99.77
*< 0.98	*> 10.00	0.23	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	2400	Granule
Mode 3 [µm]†	4800	Fine pebble
Median [µm]†	639	Coarse sand
Median [phi]†	0.65	
Mean [µm]†‡	735	Coarse sand
Mean [phi]†‡	0.44	
Sorting [µm]‡	4.22	Very poorly sorted
Sorting [phi]‡	2.08	
Skewness [µm]‡	-0.05	Symmetrical
Skewness [phi]‡	0.05	
Gravel [%]#	17.09	Gravelly sand
Sand [%]#	75.26	
Fines [%]#	7.66	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

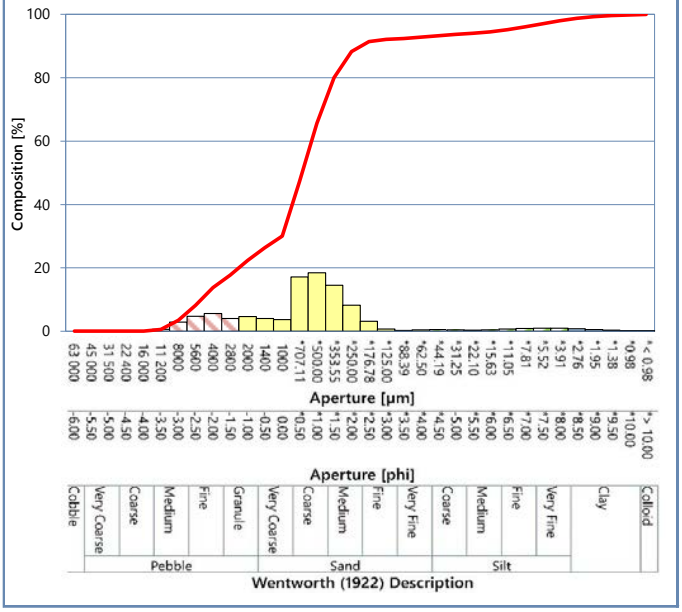
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST43

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.58	0.58
8000	-3.00	2.87	3.45
5600	-2.50	4.69	8.15
4000	-2.00	5.59	13.74
2800	-1.50	3.98	17.72
2000	-1.00	4.64	22.35
1400	-0.50	4.01	26.36
1000	0.00	3.63	29.99
*707.11	*0.50	17.14	47.14
*500.00	*1.00	18.45	65.59
*353.55	*1.50	14.49	80.08
*250.00	*2.00	8.21	88.28
*176.78	*2.50	3.12	91.40
*125.00	*3.00	0.69	92.09
*88.39	*3.50	0.25	92.34
*62.50	*4.00	0.44	92.78
*44.19	*4.50	0.49	93.27
*31.25	*5.00	0.40	93.67
*22.10	*5.50	0.37	94.04
*15.63	*6.00	0.47	94.51
*11.05	*6.50	0.67	95.18
*7.81	*7.00	0.88	96.06
*5.52	*7.50	0.99	97.05
*3.91	*8.00	0.95	98.00
*2.76	*8.50	0.77	98.77
*1.95	*9.00	0.53	99.30
*1.38	*9.50	0.33	99.63
*0.98	*10.00	0.21	99.83
*< 0.98	*> 10.00	0.17	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	4800	Fine pebble
Mode 3 [µm]†	2400	Granule
Median [µm]†	670	Coarse sand
Median [phi]†	0.58	
Mean [µm]†‡	869	Coarse sand
Mean [phi]†‡	0.20	
Sorting [µm]‡	4.77	Very poorly sorted
Sorting [phi]‡	2.25	
Skewness [µm]‡	0.03	Symmetrical
Skewness [phi]‡	-0.03	
Gravel [%]#	22.35	Gravelly sand
Sand [%]#	70.42	
Fines [%]#	7.22	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

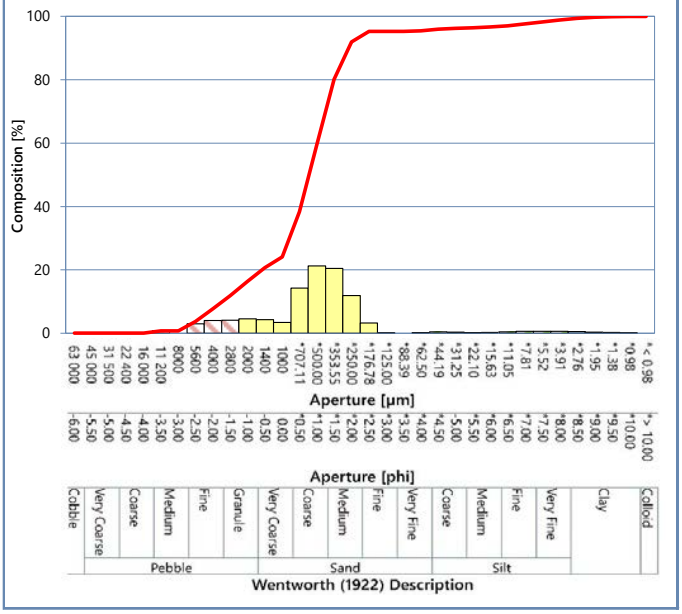
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST44

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.74	0.74
8000	-3.00	0.00	0.74
5600	-2.50	2.96	3.70
4000	-2.00	4.06	7.76
2800	-1.50	4.12	11.87
2000	-1.00	4.53	16.40
1400	-0.50	4.31	20.71
1000	0.00	3.41	24.12
*707.11	*0.50	14.22	38.34
*500.00	*1.00	21.28	59.62
*353.55	*1.50	20.48	80.10
*250.00	*2.00	11.87	91.97
*176.78	*2.50	3.27	95.24
*125.00	*3.00	0.07	95.30
*88.39	*3.50	0.00	95.30
*62.50	*4.00	0.16	95.46
*44.19	*4.50	0.46	95.92
*31.25	*5.00	0.33	96.25
*22.10	*5.50	0.17	96.42
*15.63	*6.00	0.22	96.64
*11.05	*6.50	0.40	97.04
*7.81	*7.00	0.57	97.61
*5.52	*7.50	0.64	98.24
*3.91	*8.00	0.60	98.85
*2.76	*8.50	0.49	99.34
*1.95	*9.00	0.34	99.68
*1.38	*9.50	0.22	99.90
*0.98	*10.00	0.10	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	2400	Granule
Mode 3 [µm]†	4800	Fine pebble
Median [µm]†	585	Coarse sand
Median [phi]†	0.77	
Mean [µm]†‡	724	Coarse sand
Mean [phi]†‡	0.47	
Sorting [µm]‡	2.64	Poorly sorted
Sorting [phi]‡	1.40	
Skewness [µm]‡	0.32	Very coarse skewed
Skewness [phi]‡	-0.32	
Gravel [%]#	16.40	Gravelly sand
Sand [%]#	79.06	
Fines [%]#	4.54	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

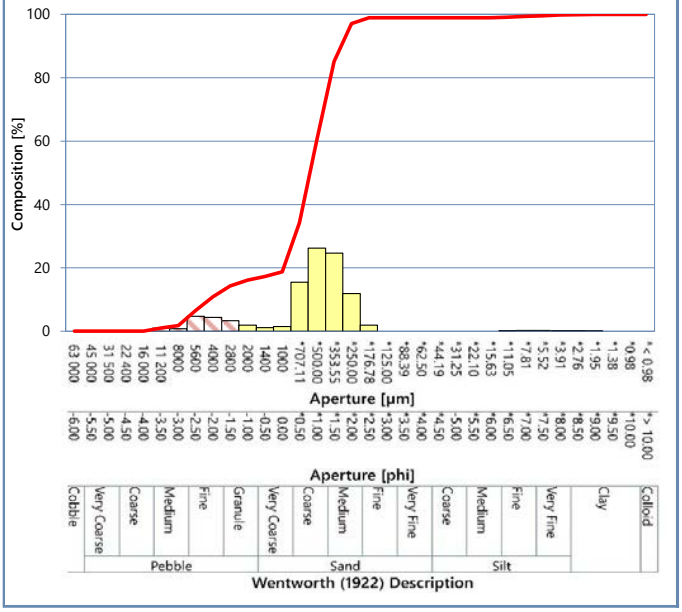
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST45

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	1.00	1.00
8000	-3.00	0.83	1.82
5600	-2.50	4.73	6.55
4000	-2.00	4.37	10.92
2800	-1.50	3.33	14.26
2000	-1.00	1.90	16.16
1400	-0.50	1.11	17.27
1000	0.00	1.48	18.75
*707.11	*0.50	15.47	34.22
*500.00	*1.00	26.26	60.47
*353.55	*1.50	24.69	85.16
*250.00	*2.00	11.91	97.07
*176.78	*2.50	1.89	98.96
*125.00	*3.00	0.00	98.96
*88.39	*3.50	0.00	98.96
*62.50	*4.00	0.00	98.96
*44.19	*4.50	0.00	98.96
*31.25	*5.00	0.00	98.96
*22.10	*5.50	0.00	98.96
*15.63	*6.00	0.00	98.96
*11.05	*6.50	0.16	99.12
*7.81	*7.00	0.23	99.35
*5.52	*7.50	0.23	99.57
*3.91	*8.00	0.20	99.77
*2.76	*8.50	0.16	99.93
*1.95	*9.00	0.07	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	6800	Fine pebble
Mode 3 [µm]†	-	-
Median [µm]†	574	Coarse sand
Median [phi]†	0.80	
Mean [µm]†‡	752	Coarse sand
Mean [phi]†‡	0.41	
Sorting [µm]‡	2.50	Poorly sorted
Sorting [phi]‡	1.32	
Skewness [µm]‡	0.49	Very coarse skewed
Skewness [phi]‡	-0.49	
Gravel [%]#	16.16	Gravelly sand
Sand [%]#	82.80	
Fines [%]#	1.04	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

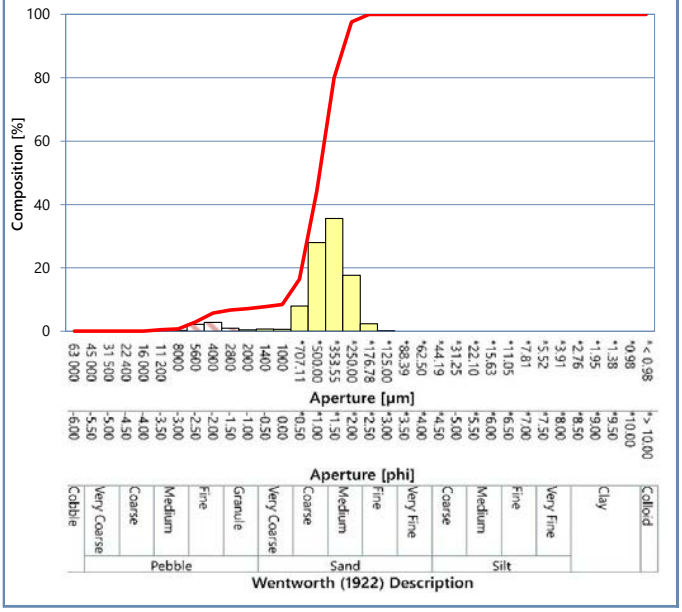
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST46

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.48	0.48
8000	-3.00	0.23	0.71
5600	-2.50	2.20	2.91
4000	-2.00	2.83	5.74
2800	-1.50	0.95	6.68
2000	-1.00	0.44	7.12
1400	-0.50	0.65	7.78
1000	0.00	0.63	8.41
*707.11	*0.50	7.97	16.38
*500.00	*1.00	27.97	44.36
*353.55	*1.50	35.60	79.96
*250.00	*2.00	17.70	97.65
*176.78	*2.50	2.34	99.99
*125.00	*3.00	0.01	100.00
*88.39	*3.50	0.00	100.00
*62.50	*4.00	0.00	100.00
*44.19	*4.50	0.00	100.00
*31.25	*5.00	0.00	100.00
*22.10	*5.50	0.00	100.00
*15.63	*6.00	0.00	100.00
*11.05	*6.50	0.00	100.00
*7.81	*7.00	0.00	100.00
*5.52	*7.50	0.00	100.00
*3.91	*8.00	0.00	100.00
*2.76	*8.50	0.00	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	427	Medium sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	473	Medium sand
Median [phi]†	1.08	
Mean [µm]†‡	481	Medium sand
Mean [phi]†‡	1.06	
Sorting [µm]‡	1.86	Moderately sorted
Sorting [phi]‡	0.90	
Skewness [µm]‡	0.32	Very coarse skewed
Skewness [phi]‡	-0.32	
Gravel [%]#	7.12	Gravelly sand
Sand [%]#	92.88	
Fines [%]#	0.00	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

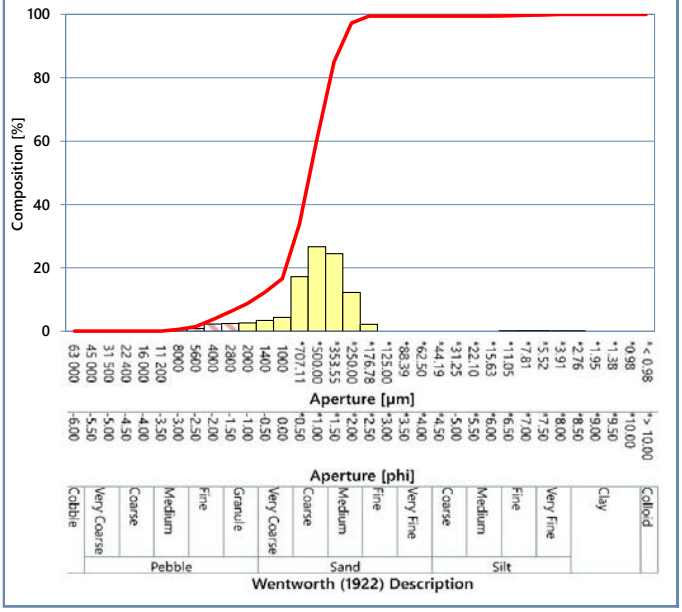
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST47

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.56	0.56
5600	-2.50	0.90	1.46
4000	-2.00	2.29	3.75
2800	-1.50	2.43	6.18
2000	-1.00	2.64	8.82
1400	-0.50	3.42	12.24
1000	0.00	4.37	16.61
*707.11	*0.50	17.21	33.82
*500.00	*1.00	26.70	60.52
*353.55	*1.50	24.50	85.02
*250.00	*2.00	12.27	97.28
*176.78	*2.50	2.15	99.44
*125.00	*3.00	0.00	99.44
*88.39	*3.50	0.00	99.44
*62.50	*4.00	0.00	99.44
*44.19	*4.50	0.00	99.44
*31.25	*5.00	0.00	99.44
*22.10	*5.50	0.00	99.44
*15.63	*6.00	0.00	99.44
*11.05	*6.50	0.12	99.56
*7.81	*7.00	0.15	99.71
*5.52	*7.50	0.14	99.85
*3.91	*8.00	0.12	99.97
*2.76	*8.50	0.03	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	573	Coarse sand
Median [phi]†	0.80	
Mean [µm]†‡	600	Coarse sand
Mean [phi]†‡	0.74	
Sorting [µm]‡	1.92	Moderately sorted
Sorting [phi]‡	0.94	
Skewness [µm]‡	0.26	Coarse skewed
Skewness [phi]‡	-0.26	
Gravel [%]#	8.82	Gravelly sand
Sand [%]#	90.62	
Fines [%]#	0.56	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

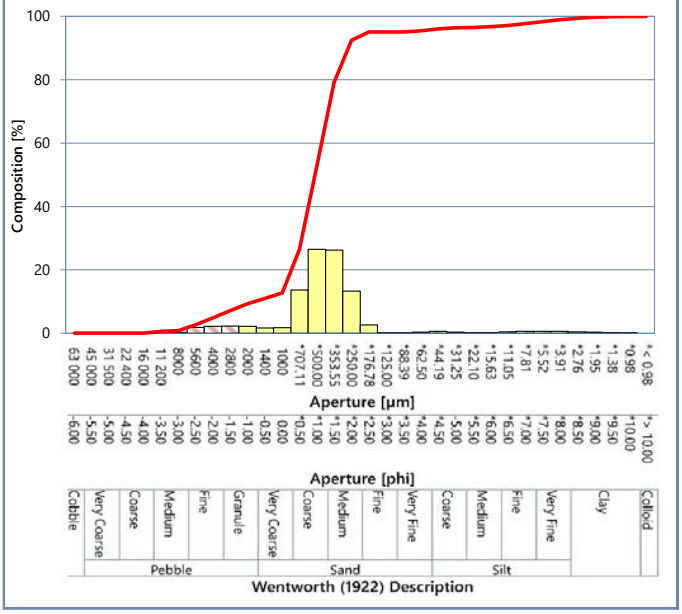
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST48

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.53	0.53
8000	-3.00	0.29	0.82
5600	-2.50	1.81	2.64
4000	-2.00	2.22	4.86
2800	-1.50	2.29	7.15
2000	-1.00	2.16	9.31
1400	-0.50	1.69	11.00
1000	0.00	1.76	12.76
*707.11	*0.50	13.68	26.44
*500.00	*1.00	26.45	52.89
*353.55	*1.50	26.27	79.16
*250.00	*2.00	13.30	92.46
*176.78	*2.50	2.60	95.06
*125.00	*3.00	0.02	95.08
*88.39	*3.50	0.00	95.08
*62.50	*4.00	0.34	95.42
*44.19	*4.50	0.61	96.03
*31.25	*5.00	0.35	96.38
*22.10	*5.50	0.14	96.52
*15.63	*6.00	0.21	96.73
*11.05	*6.50	0.42	97.14
*7.81	*7.00	0.58	97.72
*5.52	*7.50	0.63	98.35
*3.91	*8.00	0.58	98.93
*2.76	*8.50	0.47	99.39
*1.95	*9.00	0.33	99.73
*1.38	*9.50	0.21	99.94
*0.98	*10.00	0.06	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	519	Coarse sand
Median [phi]†	0.95	
Mean [µm]†‡	530	Coarse sand
Mean [phi]†‡	0.92	
Sorting [µm]‡	2.09	Poorly sorted
Sorting [phi]‡	1.07	
Skewness [µm]‡	0.18	Coarse skewed
Skewness [phi]‡	-0.18	
Gravel [%]#	9.31	Gravelly sand
Sand [%]#	86.11	
Fines [%]#	4.58	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

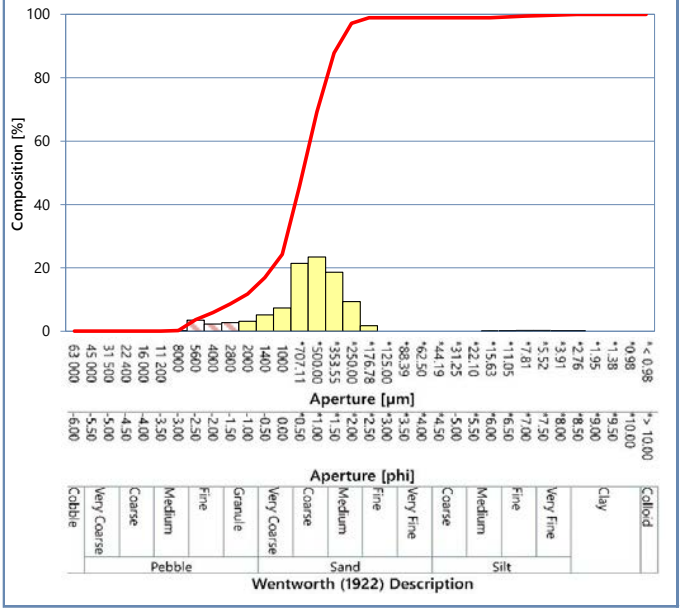
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST49

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.18	0.18
5600	-2.50	3.47	3.64
4000	-2.00	2.25	5.89
2800	-1.50	2.74	8.63
2000	-1.00	3.12	11.74
1400	-0.50	5.16	16.90
1000	0.00	7.36	24.26
*707.11	*0.50	21.45	45.71
*500.00	*1.00	23.46	69.17
*353.55	*1.50	18.64	87.81
*250.00	*2.00	9.36	97.17
*176.78	*2.50	1.75	98.92
*125.00	*3.00	0.00	98.92
*88.39	*3.50	0.00	98.92
*62.50	*4.00	0.00	98.92
*44.19	*4.50	0.00	98.92
*31.25	*5.00	0.00	98.92
*22.10	*5.50	0.00	98.92
*15.63	*6.00	0.04	98.96
*11.05	*6.50	0.21	99.17
*7.81	*7.00	0.25	99.42
*5.52	*7.50	0.23	99.65
*3.91	*8.00	0.20	99.85
*2.76	*8.50	0.15	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	664	Coarse sand
Median [phi]†	0.59	
Mean [µm]†‡	721	Coarse sand
Mean [phi]†‡	0.47	
Sorting [µm]‡	2.16	Poorly sorted
Sorting [phi]‡	1.11	
Skewness [µm]‡	0.27	Coarse skewed
Skewness [phi]‡	-0.27	
Gravel [%]#	11.74	Gravelly sand
Sand [%]#	87.18	
Fines [%]#	1.08	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

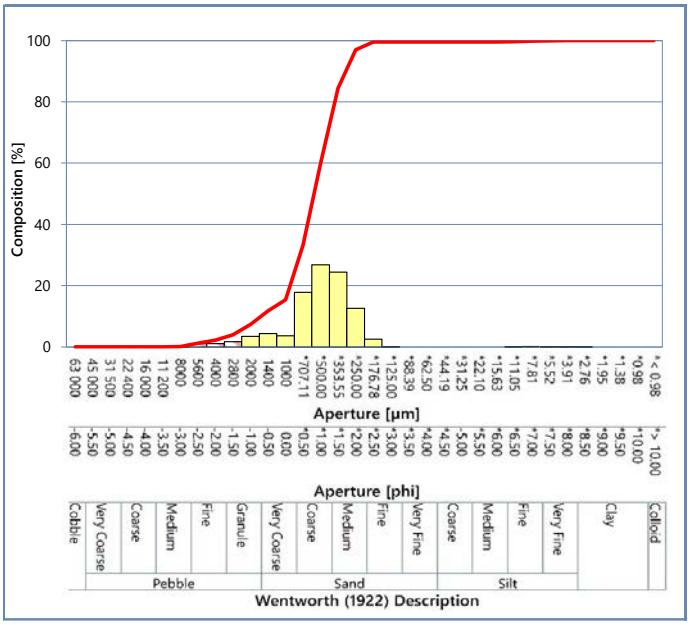
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST50

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.08	0.08
5600	-2.50	1.10	1.18
4000	-2.00	1.06	2.24
2800	-1.50	1.69	3.92
2000	-1.00	3.45	7.37
1400	-0.50	4.34	11.71
1000	0.00	3.66	15.37
*707.11	*0.50	17.81	33.18
*500.00	*1.00	26.81	59.99
*353.55	*1.50	24.45	84.44
*250.00	*2.00	12.59	97.03
*176.78	*2.50	2.52	99.55
*125.00	*3.00	0.00	99.56
*88.39	*3.50	0.00	99.56
*62.50	*4.00	0.00	99.56
*44.19	*4.50	0.00	99.56
*31.25	*5.00	0.00	99.56
*22.10	*5.50	0.00	99.56
*15.63	*6.00	0.00	99.56
*11.05	*6.50	0.10	99.66
*7.81	*7.00	0.13	99.79
*5.52	*7.50	0.12	99.90
*3.91	*8.00	0.09	99.99
*2.76	*8.50	0.01	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	1700	Very coarse sand
Mode 3 [µm]†	-	-
Median [µm]†	569	Coarse sand
Median [phi]†	0.81	
Mean [µm]†‡	585	Coarse sand
Mean [phi]†‡	0.77	
Sorting [µm]‡	1.82	Moderately sorted
Sorting [phi]‡	0.86	
Skewness [µm]‡	0.20	Coarse skewed
Skewness [phi]‡	-0.20	
Gravel [%]#	7.37	Gravelly sand
Sand [%]#	92.19	
Fines [%]#	0.44	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

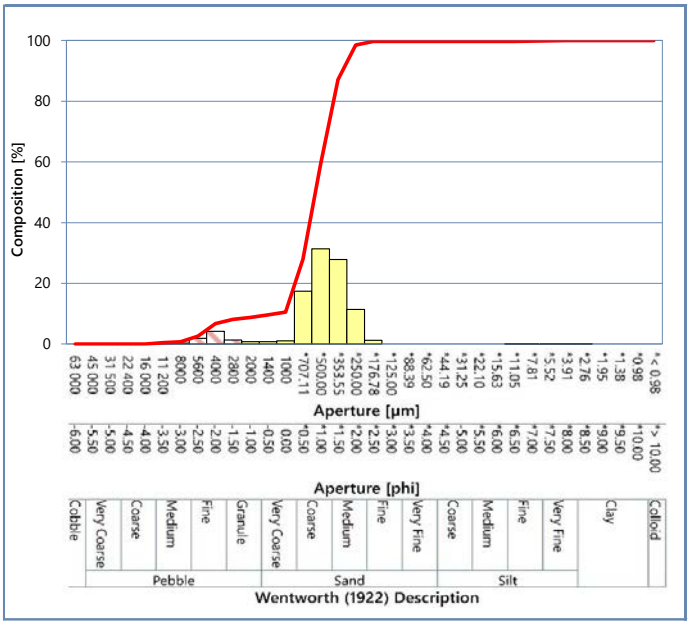
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST51

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
> 63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.43	0.43
8000	-3.00	0.25	0.68
5600	-2.50	1.83	2.51
4000	-2.00	4.22	6.73
2800	-1.50	1.33	8.06
2000	-1.00	0.72	8.79
1400	-0.50	0.78	9.56
1000	0.00	0.99	10.55
*707.11	*0.50	17.40	27.95
*500.00	*1.00	31.38	59.33
*353.55	*1.50	27.80	87.13
*250.00	*2.00	11.38	98.51
*176.78	*2.50	1.18	99.69
*125.00	*3.00	0.00	99.69
*88.39	*3.50	0.00	99.69
*62.50	*4.00	0.00	99.69
*44.19	*4.50	0.00	99.69
*31.25	*5.00	0.00	99.69
*22.10	*5.50	0.00	99.69
*15.63	*6.00	0.00	99.69
*11.05	*6.50	0.06	99.74
*7.81	*7.00	0.08	99.82
*5.52	*7.50	0.07	99.89
*3.91	*8.00	0.06	99.96
*2.76	*8.50	0.04	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	554	Coarse sand
Median [phi]†	0.85	
Mean [µm]†‡	568	Coarse sand
Mean [phi]†‡	0.82	
Sorting [µm]‡	1.91	Moderately sorted
Sorting [phi]‡	0.93	
Skewness [µm]‡	0.29	Coarse skewed
Skewness [phi]‡	-0.29	
Gravel [%]#	8.79	Gravelly sand
Sand [%]#	90.90	
Fines [%]#	0.31	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

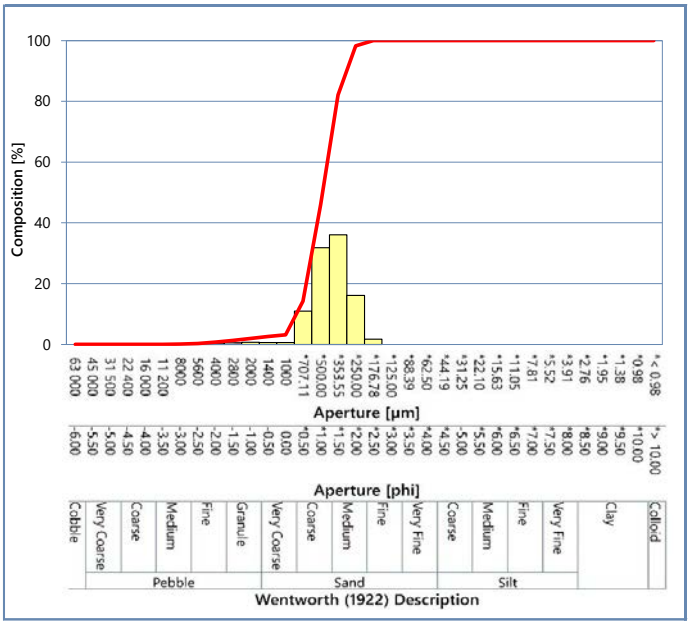
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST52

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.13	0.13
5600	-2.50	0.18	0.31
4000	-2.00	0.45	0.76
2800	-1.50	0.51	1.27
2000	-1.00	0.68	1.96
1400	-0.50	0.66	2.62
1000	0.00	0.58	3.20
*707.11	*0.50	11.00	14.20
*500.00	*1.00	31.84	46.04
*353.55	*1.50	36.05	82.09
*250.00	*2.00	16.14	98.23
*176.78	*2.50	1.77	100.00
*125.00	*3.00	0.00	100.00
*88.39	*3.50	0.00	100.00
*62.50	*4.00	0.00	100.00
*44.19	*4.50	0.00	100.00
*31.25	*5.00	0.00	100.00
*22.10	*5.50	0.00	100.00
*15.63	*6.00	0.00	100.00
*11.05	*6.50	0.00	100.00
*7.81	*7.00	0.00	100.00
*5.52	*7.50	0.00	100.00
*3.91	*8.00	0.00	100.00
*2.76	*8.50	0.00	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	427	Medium sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	481	Medium sand
Median [phi]†	1.05	
Mean [µm]†‡	484	Medium sand
Mean [phi]†‡	1.05	
Sorting [µm]‡	1.45	Moderately well sorted
Sorting [phi]‡	0.53	
Skewness [µm]‡	0.05	Symmetrical
Skewness [phi]‡	-0.05	
Gravel [%]#	1.96	Sand
Sand [%]#	98.04	
Fines [%]#	0.00	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

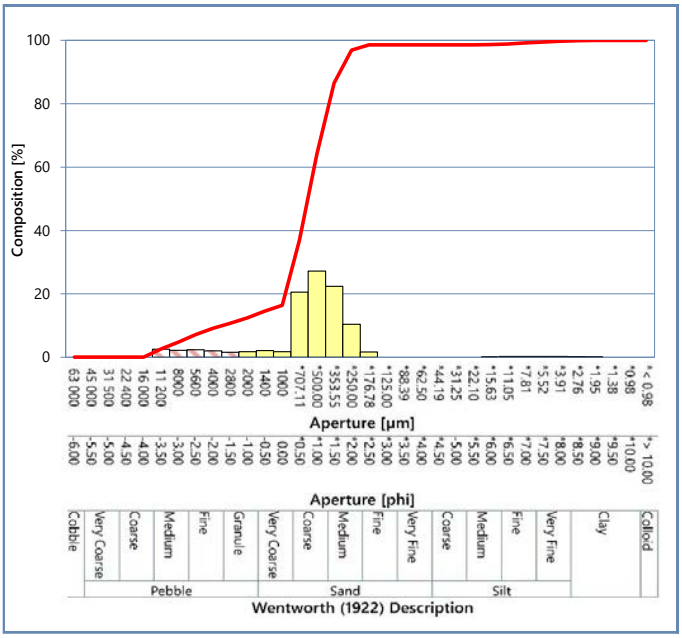
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST54

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	2.57	2.57
8000	-3.00	2.19	4.76
5600	-2.50	2.37	7.13
4000	-2.00	2.03	9.15
2800	-1.50	1.56	10.71
2000	-1.00	1.78	12.49
1400	-0.50	2.11	14.60
1000	0.00	1.78	16.38
*707.11	*0.50	20.57	36.95
*500.00	*1.00	27.21	64.16
*353.55	*1.50	22.36	86.51
*250.00	*2.00	10.44	96.95
*176.78	*2.50	1.66	98.61
*125.00	*3.00	0.00	98.61
*88.39	*3.50	0.00	98.61
*62.50	*4.00	0.00	98.61
*44.19	*4.50	0.00	98.61
*31.25	*5.00	0.00	98.61
*22.10	*5.50	0.00	98.61
*15.63	*6.00	0.05	98.66
*11.05	*6.50	0.23	98.89
*7.81	*7.00	0.30	99.19
*5.52	*7.50	0.29	99.48
*3.91	*8.00	0.25	99.73
*2.76	*8.50	0.19	99.92
*1.95	*9.00	0.08	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	599	Coarse sand
Median [phi]†	0.74	
Mean [µm]†‡	618	Coarse sand
Mean [phi]†‡	0.69	
Sorting [µm]‡	2.18	Poorly sorted
Sorting [phi]‡	1.12	
Skewness [µm]‡	0.30	Very coarse skewed
Skewness [phi]‡	-0.30	
Gravel [%]#	12.49	Gravelly sand
Sand [%]#	86.11	
Fines [%]#	1.39	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

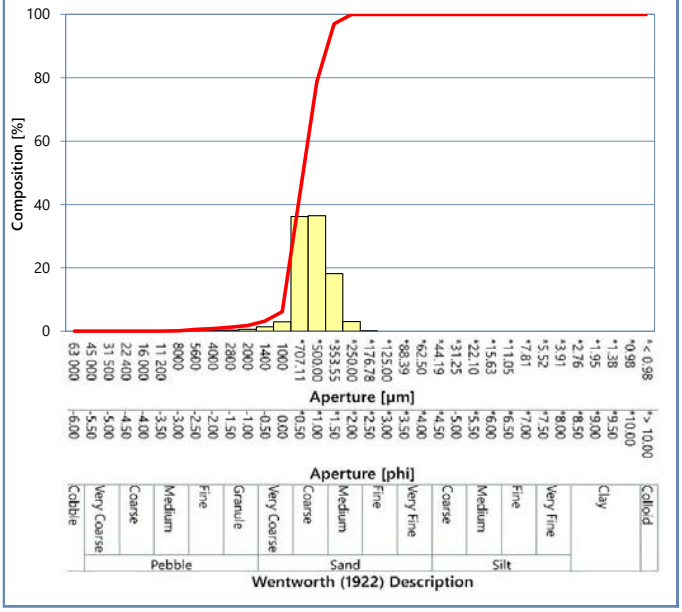
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST55

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.16	0.16
5600	-2.50	0.41	0.58
4000	-2.00	0.27	0.84
2800	-1.50	0.38	1.23
2000	-1.00	0.57	1.80
1400	-0.50	1.39	3.19
1000	0.00	2.93	6.12
*707.11	*0.50	36.23	42.35
*500.00	*1.00	36.45	78.80
*353.55	*1.50	18.17	96.97
*250.00	*2.00	3.02	99.99
*176.78	*2.50	0.01	100.00
*125.00	*3.00	0.00	100.00
*88.39	*3.50	0.00	100.00
*62.50	*4.00	0.00	100.00
*44.19	*4.50	0.00	100.00
*31.25	*5.00	0.00	100.00
*22.10	*5.50	0.00	100.00
*15.63	*6.00	0.00	100.00
*11.05	*6.50	0.00	100.00
*7.81	*7.00	0.00	100.00
*5.52	*7.50	0.00	100.00
*3.91	*8.00	0.00	100.00
*2.76	*8.50	0.00	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	658	Coarse sand
Median [phi]†	0.60	
Mean [µm]†‡	647	Coarse sand
Mean [phi]†‡	0.63	
Sorting [µm]‡	1.41	Moderately well sorted
Sorting [phi]‡	0.50	
Skewness [µm]‡	-0.05	Symmetrical
Skewness [phi]‡	0.05	
Gravel [%]#	1.80	Sand
Sand [%]#	98.20	
Fines [%]#	0.00	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

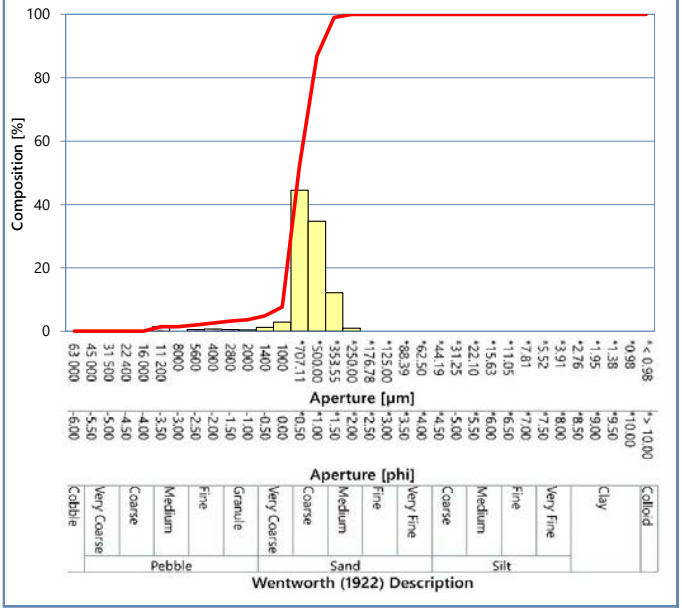
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST56

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	1.41	1.41
8000	-3.00	0.00	1.41
5600	-2.50	0.53	1.94
4000	-2.00	0.68	2.62
2800	-1.50	0.56	3.17
2000	-1.00	0.43	3.60
1400	-0.50	1.21	4.81
1000	0.00	2.84	7.65
*707.11	*0.50	44.50	52.16
*500.00	*1.00	34.74	86.90
*353.55	*1.50	12.13	99.03
*250.00	*2.00	0.97	100.00
*176.78	*2.50	0.00	100.00
*125.00	*3.00	0.00	100.00
*88.39	*3.50	0.00	100.00
*62.50	*4.00	0.00	100.00
*44.19	*4.50	0.00	100.00
*31.25	*5.00	0.00	100.00
*22.10	*5.50	0.00	100.00
*15.63	*6.00	0.00	100.00
*11.05	*6.50	0.00	100.00
*7.81	*7.00	0.00	100.00
*5.52	*7.50	0.00	100.00
*3.91	*8.00	0.00	100.00
*2.76	*8.50	0.00	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	854	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	719	Coarse sand
Median [phi]†	0.48	
Mean [µm]†‡	703	Coarse sand
Mean [phi]†‡	0.51	
Sorting [µm]‡	1.40	Well sorted
Sorting [phi]‡	0.49	
Skewness [µm]‡	-0.04	Symmetrical
Skewness [phi]‡	0.04	
Gravel [%]#	3.60	Sand
Sand [%]#	96.40	
Fines [%]#	0.00	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

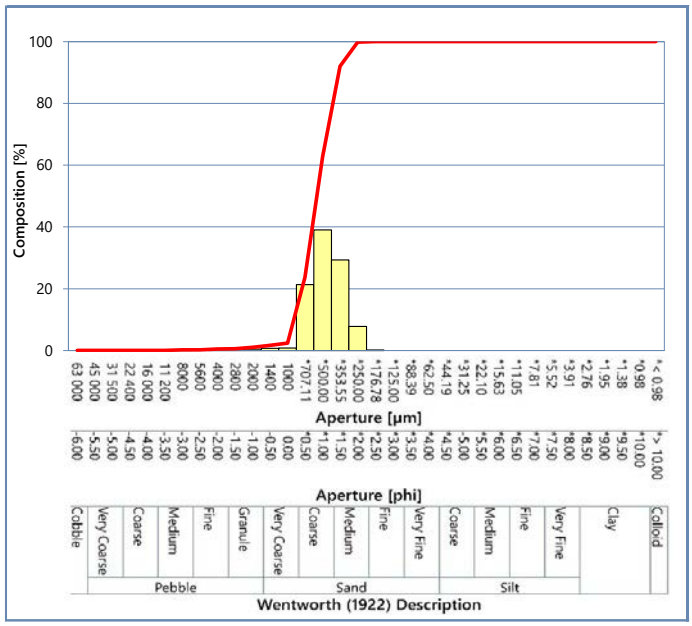
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST57

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.25	0.25
5600	-2.50	0.00	0.25
4000	-2.00	0.23	0.48
2800	-1.50	0.11	0.59
2000	-1.00	0.40	0.99
1400	-0.50	0.67	1.66
1000	0.00	0.75	2.41
*707.11	*0.50	21.31	23.72
*500.00	*1.00	39.02	62.74
*353.55	*1.50	29.31	92.05
*250.00	*2.00	7.75	99.80
*176.78	*2.50	0.20	100.00
*125.00	*3.00	0.00	100.00
*88.39	*3.50	0.00	100.00
*62.50	*4.00	0.00	100.00
*44.19	*4.50	0.00	100.00
*31.25	*5.00	0.00	100.00
*22.10	*5.50	0.00	100.00
*15.63	*6.00	0.00	100.00
*11.05	*6.50	0.00	100.00
*7.81	*7.00	0.00	100.00
*5.52	*7.50	0.00	100.00
*3.91	*8.00	0.00	100.00
*2.76	*8.50	0.00	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	560	Coarse sand
Median [phi]†	0.84	
Mean [µm]†‡	559	Coarse sand
Mean [phi]†‡	0.84	
Sorting [µm]‡	1.42	Moderately well sorted
Sorting [phi]‡	0.51	
Skewness [µm]‡	-0.03	Symmetrical
Skewness [phi]‡	0.03	
Gravel [%]#	0.99	Sand
Sand [%]#	99.01	
Fines [%]#	0.00	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

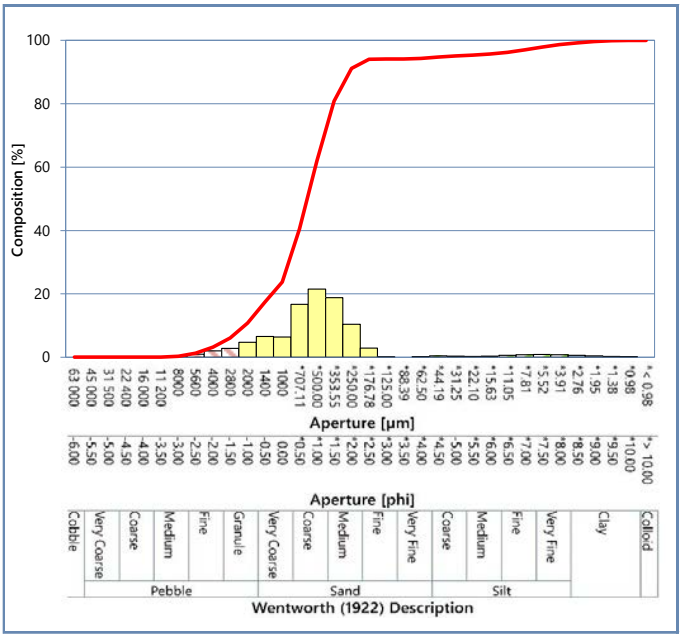
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST58

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.33	0.33
5600	-2.50	0.92	1.26
4000	-2.00	1.97	3.23
2800	-1.50	2.84	6.07
2000	-1.00	4.74	10.81
1400	-0.50	6.52	17.32
1000	0.00	6.40	23.72
*707.11	*0.50	16.71	40.43
*500.00	*1.00	21.55	61.98
*353.55	*1.50	18.83	80.81
*250.00	*2.00	10.38	91.19
*176.78	*2.50	2.87	94.07
*125.00	*3.00	0.09	94.15
*88.39	*3.50	0.00	94.15
*62.50	*4.00	0.17	94.32
*44.19	*4.50	0.43	94.75
*31.25	*5.00	0.33	95.08
*22.10	*5.50	0.24	95.32
*15.63	*6.00	0.35	95.67
*11.05	*6.50	0.58	96.25
*7.81	*7.00	0.78	97.03
*5.52	*7.50	0.85	97.88
*3.91	*8.00	0.77	98.65
*2.76	*8.50	0.59	99.24
*1.95	*9.00	0.39	99.63
*1.38	*9.50	0.24	99.87
*0.98	*10.00	0.13	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	606	Coarse sand
Median [phi]†	0.72	
Mean [µm]†‡	662	Coarse sand
Mean [phi]†‡	0.60	
Sorting [µm]‡	2.94	Poorly sorted
Sorting [phi]‡	1.56	
Skewness [µm]‡	-0.05	Symmetrical
Skewness [phi]‡	0.05	
Gravel [%]#	10.81	Gravelly sand
Sand [%]#	83.51	
Fines [%]#	5.68	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

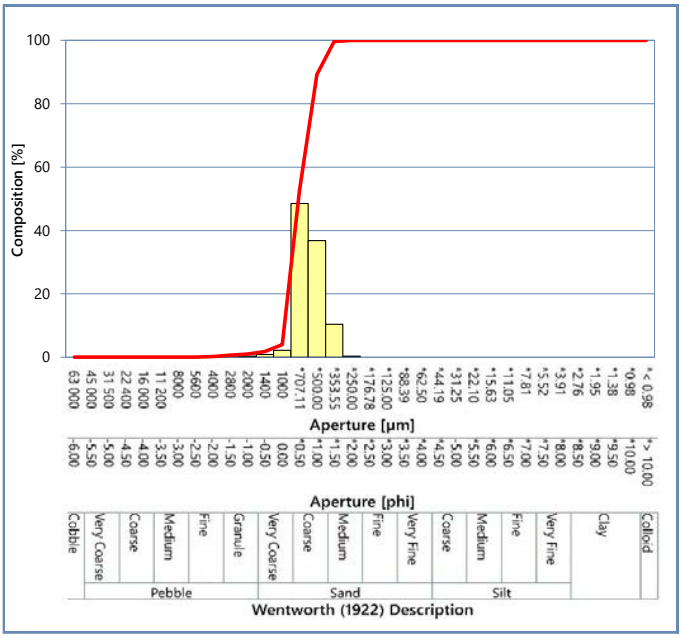
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST59

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.00	0.00
5600	-2.50	0.07	0.07
4000	-2.00	0.13	0.20
2800	-1.50	0.44	0.63
2000	-1.00	0.34	0.97
1400	-0.50	0.85	1.82
1000	0.00	2.16	3.98
*707.11	*0.50	48.49	52.47
*500.00	*1.00	36.78	89.26
*353.55	*1.50	10.37	99.63
*250.00	*2.00	0.37	100.00
*176.78	*2.50	0.00	100.00
*125.00	*3.00	0.00	100.00
*88.39	*3.50	0.00	100.00
*62.50	*4.00	0.00	100.00
*44.19	*4.50	0.00	100.00
*31.25	*5.00	0.00	100.00
*22.10	*5.50	0.00	100.00
*15.63	*6.00	0.00	100.00
*11.05	*6.50	0.00	100.00
*7.81	*7.00	0.00	100.00
*5.52	*7.50	0.00	100.00
*3.91	*8.00	0.00	100.00
*2.76	*8.50	0.00	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	854	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	720	Coarse sand
Median [phi]†	0.47	
Mean [µm]†‡	703	Coarse sand
Mean [phi]†‡	0.51	
Sorting [µm]‡	1.31	Well sorted
Sorting [phi]‡	0.39	
Skewness [µm]‡	-0.20	Fine skewed
Skewness [phi]‡	0.20	
Gravel [%]#	0.97	Sand
Sand [%]#	99.03	
Fines [%]#	0.00	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

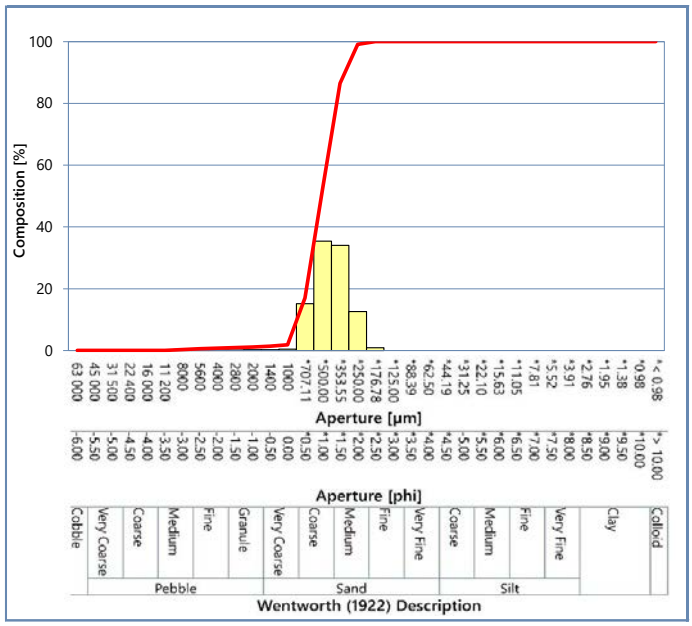
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST60

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.31	0.31
5600	-2.50	0.24	0.56
4000	-2.00	0.18	0.74
2800	-1.50	0.15	0.89
2000	-1.00	0.21	1.10
1400	-0.50	0.29	1.39
1000	0.00	0.43	1.82
*707.11	*0.50	15.16	16.98
*500.00	*1.00	35.42	52.41
*353.55	*1.50	34.05	86.46
*250.00	*2.00	12.62	99.08
*176.78	*2.50	0.92	100.00
*125.00	*3.00	0.00	100.00
*88.39	*3.50	0.00	100.00
*62.50	*4.00	0.00	100.00
*44.19	*4.50	0.00	100.00
*31.25	*5.00	0.00	100.00
*22.10	*5.50	0.00	100.00
*15.63	*6.00	0.00	100.00
*11.05	*6.50	0.00	100.00
*7.81	*7.00	0.00	100.00
*5.52	*7.50	0.00	100.00
*3.91	*8.00	0.00	100.00
*2.76	*8.50	0.00	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	512	Coarse sand
Median [phi]†	0.97	
Mean [µm]†‡	512	Coarse sand
Mean [phi]†‡	0.97	
Sorting [µm]‡	1.43	Moderately well sorted
Sorting [phi]‡	0.51	
Skewness [µm]‡	0.00	Symmetrical
Skewness [phi]‡	0.00	
Gravel [%]#	1.10	Sand
Sand [%]#	98.90	
Fines [%]#	0.00	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

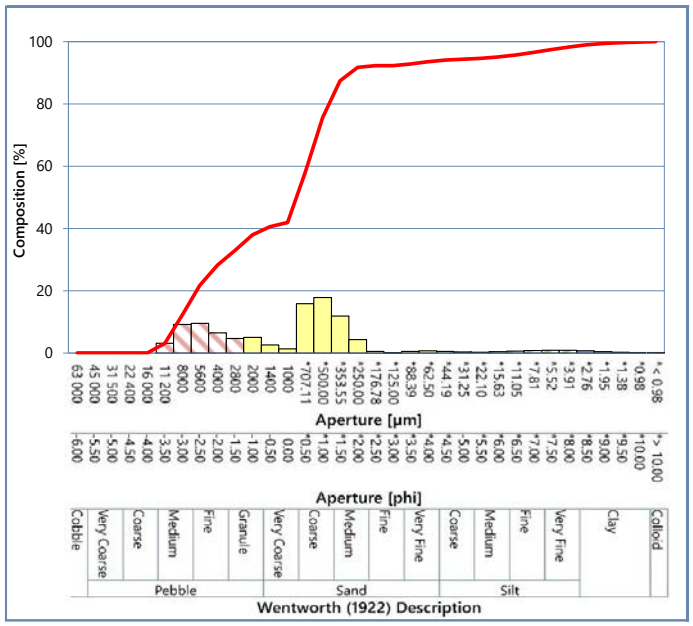
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST61

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	3.10	3.10
8000	-3.00	9.15	12.25
5600	-2.50	9.51	21.76
4000	-2.00	6.47	28.23
2800	-1.50	4.69	32.92
2000	-1.00	5.02	37.94
1400	-0.50	2.63	40.57
1000	0.00	1.36	41.93
*707.11	*0.50	15.86	57.79
*500.00	*1.00	17.77	75.56
*353.55	*1.50	11.84	87.40
*250.00	*2.00	4.29	91.69
*176.78	*2.50	0.55	92.24
*125.00	*3.00	0.03	92.27
*88.39	*3.50	0.49	92.76
*62.50	*4.00	0.73	93.49
*44.19	*4.50	0.53	94.02
*31.25	*5.00	0.31	94.33
*22.10	*5.50	0.29	94.62
*15.63	*6.00	0.44	95.06
*11.05	*6.50	0.64	95.70
*7.81	*7.00	0.81	96.51
*5.52	*7.50	0.89	97.40
*3.91	*8.00	0.84	98.24
*2.76	*8.50	0.67	98.91
*1.95	*9.00	0.46	99.37
*1.38	*9.50	0.27	99.64
*0.98	*10.00	0.17	99.82
*< 0.98	*> 10.00	0.18	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	9600	Medium pebble
Mode 3 [µm]†	2400	Granule
Median [µm]†	838	Coarse sand
Median [phi]†	0.25	
Mean [µm]†‡	1315	Very coarse sand
Mean [phi]†‡	-0.40	
Sorting [µm]‡	5.47	Very poorly sorted
Sorting [phi]‡	2.45	
Skewness [µm]‡	0.13	Coarse skewed
Skewness [phi]‡	-0.13	
Gravel [%]#	37.94	Muddy, sandy gravel
Sand [%]#	55.55	
Fines [%]#	6.51	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

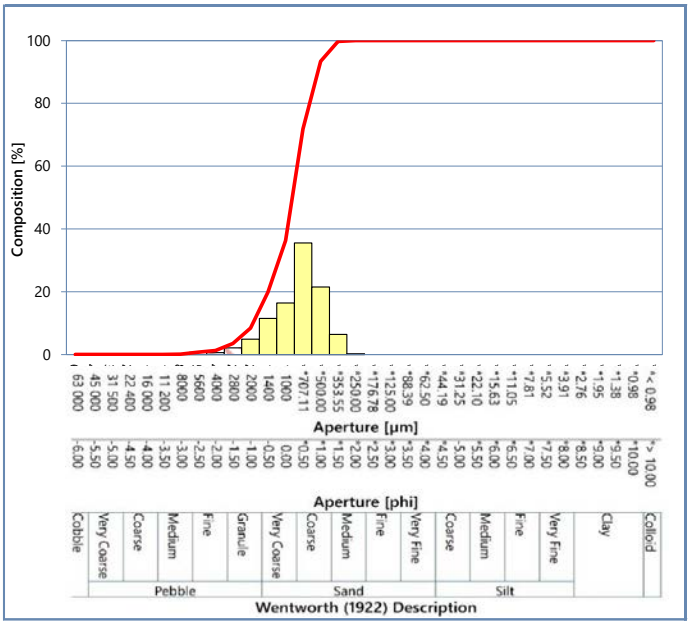
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST63

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.08	0.08
5600	-2.50	0.65	0.72
4000	-2.00	0.58	1.31
2800	-1.50	2.16	3.47
2000	-1.00	4.93	8.40
1400	-0.50	11.46	19.86
1000	0.00	16.45	36.31
*707.11	*0.50	35.53	71.84
*500.00	*1.00	21.53	93.37
*353.55	*1.50	6.41	99.78
*250.00	*2.00	0.22	100.00
*176.78	*2.50	0.00	100.00
*125.00	*3.00	0.00	100.00
*88.39	*3.50	0.00	100.00
*62.50	*4.00	0.00	100.00
*44.19	*4.50	0.00	100.00
*31.25	*5.00	0.00	100.00
*22.10	*5.50	0.00	100.00
*15.63	*6.00	0.00	100.00
*11.05	*6.50	0.00	100.00
*7.81	*7.00	0.00	100.00
*5.52	*7.50	0.00	100.00
*3.91	*8.00	0.00	100.00
*2.76	*8.50	0.00	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	854	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	875	Coarse sand
Median [phi]†	0.19	
Mean [µm]†‡	929	Coarse sand
Mean [phi]†‡	0.11	
Sorting [µm]‡	1.66	Moderately sorted
Sorting [phi]‡	0.73	
Skewness [µm]‡	0.21	Coarse skewed
Skewness [phi]‡	-0.21	
Gravel [%]#	8.40	Gravelly sand
Sand [%]#	91.60	
Fines [%]#	0.00	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

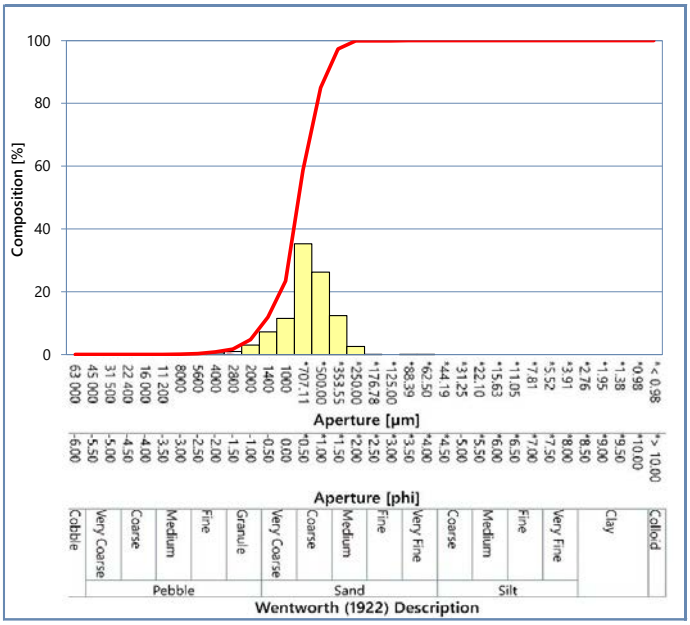
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST64

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.11	0.11
5600	-2.50	0.14	0.26
4000	-2.00	0.53	0.79
2800	-1.50	0.95	1.74
2000	-1.00	3.00	4.74
1400	-0.50	7.19	11.93
1000	0.00	11.53	23.46
*707.11	*0.50	35.23	58.70
*500.00	*1.00	26.26	84.96
*353.55	*1.50	12.39	97.34
*250.00	*2.00	2.56	99.90
*176.78	*2.50	0.02	99.93
*125.00	*3.00	0.00	99.93
*88.39	*3.50	0.04	99.97
*62.50	*4.00	0.03	100.00
*44.19	*4.50	0.00	100.00
*31.25	*5.00	0.00	100.00
*22.10	*5.50	0.00	100.00
*15.63	*6.00	0.00	100.00
*11.05	*6.50	0.00	100.00
*7.81	*7.00	0.00	100.00
*5.52	*7.50	0.00	100.00
*3.91	*8.00	0.00	100.00
*2.76	*8.50	0.00	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	854	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	770	Coarse sand
Median [phi]†	0.38	
Mean [µm]†‡	786	Coarse sand
Mean [phi]†‡	0.35	
Sorting [µm]‡	1.61	Moderately well sorted
Sorting [phi]‡	0.69	
Skewness [µm]‡	0.10	Coarse skewed
Skewness [phi]‡	-0.10	
Gravel [%]#	4.74	Sand
Sand [%]#	95.26	
Fines [%]#	0.00	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

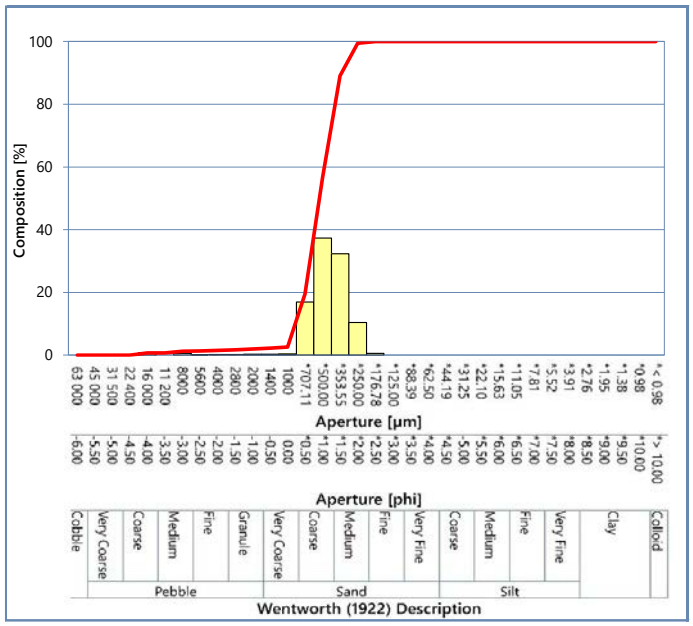
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST65

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.72	0.72
11 200	-3.50	0.00	0.72
8000	-3.00	0.54	1.26
5600	-2.50	0.02	1.28
4000	-2.00	0.18	1.46
2800	-1.50	0.18	1.64
2000	-1.00	0.30	1.94
1400	-0.50	0.28	2.22
1000	0.00	0.36	2.58
*707.11	*0.50	16.88	19.46
*500.00	*1.00	37.32	56.78
*353.55	*1.50	32.32	89.10
*250.00	*2.00	10.39	99.48
*176.78	*2.50	0.52	100.00
*125.00	*3.00	0.00	100.00
*88.39	*3.50	0.00	100.00
*62.50	*4.00	0.00	100.00
*44.19	*4.50	0.00	100.00
*31.25	*5.00	0.00	100.00
*22.10	*5.50	0.00	100.00
*15.63	*6.00	0.00	100.00
*11.05	*6.50	0.00	100.00
*7.81	*7.00	0.00	100.00
*5.52	*7.50	0.00	100.00
*3.91	*8.00	0.00	100.00
*2.76	*8.50	0.00	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	533	Coarse sand
Median [phi]†	0.91	
Mean [µm]†‡	532	Coarse sand
Mean [phi]†‡	0.91	
Sorting [µm]‡	1.43	Moderately well sorted
Sorting [phi]‡	0.52	
Skewness [µm]‡	-0.01	Symmetrical
Skewness [phi]‡	0.01	
Gravel [%]#	1.94	Sand
Sand [%]#	98.06	
Fines [%]#	0.00	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

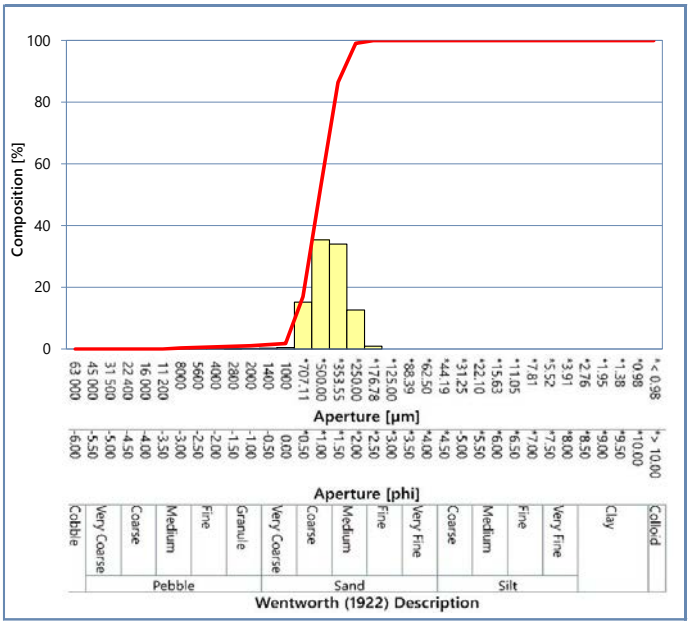
= Description based on BGS modified Folk classification (Long, 2006)

STATION: MA_ST66

FRACTIONAL DATA

Aperture [µm]	Aperture [phi]	Fractional [%]	Cumulative [%]
63 000	-6.00	0.00	0.00
45 000	-5.50	0.00	0.00
31 500	-5.00	0.00	0.00
22 400	-4.50	0.00	0.00
16 000	-4.00	0.00	0.00
11 200	-3.50	0.00	0.00
8000	-3.00	0.00	0.00
5600	-2.50	0.00	0.00
4000	-2.00	0.01	0.01
2800	-1.50	0.05	0.06
2000	-1.00	0.05	0.11
1400	-0.50	0.15	0.26
1000	0.00	0.32	0.58
*707.11	*0.50	14.92	15.50
*500.00	*1.00	41.44	56.94
*353.55	*1.50	34.79	91.73
*250.00	*2.00	8.10	99.83
*176.78	*2.50	0.17	100.00
*125.00	*3.00	0.00	100.00
*88.39	*3.50	0.00	100.00
*62.50	*4.00	0.00	100.00
*44.19	*4.50	0.00	100.00
*31.25	*5.00	0.00	100.00
*22.10	*5.50	0.00	100.00
*15.63	*6.00	0.00	100.00
*11.05	*6.50	0.00	100.00
*7.81	*7.00	0.00	100.00
*5.52	*7.50	0.00	100.00
*3.91	*8.00	0.00	100.00
*2.76	*8.50	0.00	100.00
*1.95	*9.00	0.00	100.00
*1.38	*9.50	0.00	100.00
*0.98	*10.00	0.00	100.00
*< 0.98	*> 10.00	0.00	100.00
Total		**100.00**	-

PARTICLE SIZE DISTRIBUTION



SUMMARY STATISTICS

Mode 1 [µm]†	604	Coarse sand
Mode 2 [µm]†	-	-
Mode 3 [µm]†	-	-
Median [µm]†	530	Coarse sand
Median [phi]†	0.92	
Mean [µm]†‡	522	Coarse sand
Mean [phi]†‡	0.94	
Sorting [µm]‡	1.37	Well sorted
Sorting [phi]‡	0.46	
Skewness [µm]‡	-0.04	Symmetrical
Skewness [phi]‡	0.04	
Gravel [%]#	0.11	Sand
Sand [%]#	99.89	
Fines [%]#	0.00	

Notes

Particle Size Distribution by Dry Sieving (63 000 µm - 1000 µm) and Laser Diffraction* (< 1000 µm - < 0.98 µm) at 0.5 phi Intervals

* = Determinand not included in UKAS Accreditation

† = Particle size expressed in accordance with Wentworth (1922) scale

‡ = Statistics calculated using Folk and Ward (1957) method

= Description based on BGS modified Folk classification (Long, 2006)

Appendix E

Sediment Hydrocarbon Analysis

E.1 United States Environmental Protection Agency (US EPA) 16 Polycyclic Aromatic Hydrocarbon (PAH) Concentrations

PAH [ng/g of Dry Sediment]	MA_ST04	MA_ST12	MA_ST22	MA_ST25	MA_ST43	MA_ST47	MA_ST59	MA_ST61	MA_ST65	MA_ST66	CEMP Assessment Criteria (OSPAR, 2014) ERL
Naphthalene	0.8	6.6	0.7	0.6	1.8	0.2	0.1	1.4	< 0.1	0.1	**160**
Acenaphthylene	< 0.1	0.2	< 0.1	< 0.1	0.1	< 0.1	< 0.1	0.1	< 0.1	< 0.1	-
Acenaphthene	0.1	12.9	0.1	0.1	0.1	< 0.1	< 0.1	0.2	< 0.1	< 0.1	-
Fluorene	0.4	7.9	0.2	0.3	0.5	0.1	0.1	0.7	< 0.1	< 0.1	-
Phenanthrene	1.6	76.0	1.9	1.7	2.7	0.4	0.6	3.2	0.1	0.2	**240**
Anthracene	0.2	24.0	0.1	0.1	0.3	0.1	< 0.1	0.4	< 0.1	< 0.1	**85**
Fluoranthene	1.4	137	1.2	1.3	2.2	0.5	0.3	3.3	0.2	0.3	**600**
Pyrene	1.1	120	1.2	1.0	1.8	0.5	0.3	2.9	0.1	0.4	**665**
Benzo(a)anthracene	0.7	61.4	0.7	0.6	1.2	0.3	0.1	1.9	0.1	0.2	**261**
Chrysene	1.0	53.9	0.9	0.9	1.6	0.4	0.2	2.2	0.1	0.2	**384**
Benzo(b)fluoranthene	2.3	84.3	1.6	2.1	3.5	0.8	0.5	5.3	0.3	0.6	-
Benzo(k)fluoranthene	0.7	33.1	0.4	0.6	1.1	0.2	0.1	1.7	0.1	0.1	-
Benzo(a)pyrene	0.8	77.5	0.6	0.6	1.4	0.2	0.1	2.3	0.1	0.1	**430**
Indeno(1,2,3-cd)pyrene	1.6	59.7	0.9	1.2	2.5	0.4	0.2	3.7	0.1	0.2	**240**
Benzo(ghi)perylene	1.4	54.5	0.9	1.1	2.3	0.5	0.2	3.6	0.1	0.3	**85**
Dibenzo(a,h)anthracene	0.3	11.1	0.2	0.2	0.5	0.1	< 0.1	0.8	< 0.1	0.1	-
Total US EPA 16	**< 14.5**	**820**	**< 11.7**	**< 12.5**	**23.6**	**< 4.9**	**< 3.2**	**33.7**	**< 1.9**	**< 3.2**	-

Notes
PAH = Polycyclic aromatic hydrocarbon
OSPAR = Oslo and Paris Commission
CEMP = Coordinated Environmental Monitoring Programme
ERL = Effects range low
US EPA 16 = United States Environmental Protection Agency's 16 priority polycyclic aromatic hydrocarbons

Key:	Below ERL	Above ERL

E.2 Total 2 to 6 Ring PAH Concentrations

PAH	Station									
	MA_ST04	MA_ST12	MA_ST22	MA_ST25	MA_ST43	MA_ST47	MA_ST59	MA_ST61	MA_ST65	MA_ST66
Naphthalene (128)	0.8	6.6	0.7	0.6	1.8	0.2	0.1	1.4	< 0.1	0.1
C_1 128	1.3	8.7	1.3	1.1	3.5	0.2	0.2	2.5	0.1	0.1
C_2 128	1.9	13.1	2.4	1.6	4.5	0.4	0.7	3.7	0.1	0.2
C_3 128	2.0	15.1	3.3	1.6	4.4	0.7	1.7	4.2	0.1	0.4
C_4 128	1.1	8.7	2.5	0.7	2.2	0.6	0.9	2.2	0.1	0.4
TOTAL 128	**7.1**	**52.2**	**10.2**	**5.6**	**16.4**	**2.1**	**3.6**	**14.0**	**< 0.5**	**1.2**
Phenanthrene/anthracene (178)	1.8	100	2.0	1.8	3.0	0.5	0.6	3.6	0.1	0.2
C_1 178	1.9	29.0	2.4	1.5	3.1	0.6	1.1	3.5	0.1	0.4
C_2 178	2.3	30.7	2.9	1.5	3.5	0.8	1.3	4.0	0.1	0.5
C_3 178	1.7	23.7	2.4	1.0	2.5	0.7	0.8	3.0	0.1	0.5
TOTAL 178	**7.7**	**183**	**9.7**	**5.8**	**12.1**	**2.6**	**3.8**	**14.1**	**0.4**	**1.6**
Dibenzothiophene (184)	0.1	3.4	0.1	0.1	0.2	< 0.1	< 0.1	0.2	< 0.1	< 0.1
C_1 184	0.2	2.6	0.2	0.2	0.3	0.1	0.1	0.4	< 0.1	< 0.1
C_2 184	0.2	3.2	0.3	0.2	0.3	0.1	0.1	0.4	< 0.1	0.1
C_3 184	0.2	2.1	0.2	0.1	0.2	0.1	< 0.1	0.3	< 0.1	0.1
TOTAL 184	**0.7**	**11.3**	**0.8**	**0.6**	**1.0**	**< 0.4**	**< 0.4**	**1.3**	**< 0.4**	**< 0.4**
Fluoranthene/pyrene (202)	2.5	257	2.4	2.3	4.0	1.0	0.6	6.2	0.3	0.7
C_1 202	1.6	58.7	1.8	1.2	2.4	0.6	0.7	3.6	0.1	0.5
C_2 202	1.5	31.3	1.6	1.0	2.2	0.5	0.7	3.2	0.1	0.4
C_3 202	1.4	27.1	1.4	0.8	2.1	0.5	0.6	2.8	0.1	0.4
TOTAL 202	**7.0**	**374**	**7.2**	**5.3**	**10.7**	**2.6**	**2.6**	**15.8**	**0.6**	**2.0**
Benzanthracenes/ benzphenanthrenes (228)	2.7	150	2.5	2.4	4.2	1.1	0.8	6.3	0.3	0.7
C_1 228	1.6	37.4	1.5	1.1	2.4	0.5	0.5	3.4	0.1	0.4
C_2 228	1.9	33.9	1.8	1.2	2.7	0.6	0.7	3.8	0.2	0.5
TOTAL 228	**6.2**	**222**	**5.8**	**4.7**	**9.3**	**2.2**	**2.0**	**13.5**	**0.6**	**1.6**
m/z 252*	6.1	287	4.3	5.5	9.6	2.4	1.4	14.7	0.7	1.6
C_1 252	2.3	54.8	1.7	1.8	3.4	0.8	0.7	5.0	0.3	0.6
C_2 252	1.7	31.4	1.2	1.1	2.4	0.5	0.5	3.2	0.2	0.3
TOTAL 252	**10.1**	**373**	**7.2**	**8.4**	**15.4**	**3.7**	**2.6**	**22.9**	**1.2**	**2.5**
m/z 276†	4.5	157	2.5	3.4	6.9	1.2	0.5	10.4	0.4	0.7
C_1 276	1.0	26.9	0.6	0.6	1.5	0.3	0.2	2.6	0.1	0.2
C_2 276	0.9	18.9	0.5	0.7	1.4	0.3	0.2	1.9	0.1	0.2
TOTAL 276	**6.4**	**203**	**3.6**	**4.7**	**9.8**	**1.8**	**0.9**	**14.9**	**0.6**	**1.1**
NPD‡	**15.5**	**247**	**20.7**	**12.0**	**29.5**	**< 5.1**	**< 7.8**	**29.4**	**< 1.3**	**< 3.2**
NPD [%]	**34**	**17.0**	**47**	**34**	**39**	**< 33**	**< 50**	**30**	**< 30**	**< 31**
Total 2 to 6 ring PAH	**45.2**	**1420**	**44.5**	**35.1**	**74.7**	**< 15.4**	**< 15.9**	**96.5**	**< 4.3**	**< 10.4**

Notes
* = m/z 252 - benzfluoranthenes/benzpyrenes/perylene
† = m/z 276 - anthanthrene/indenopyrenes/benzperylenes
‡ = NPD - naphthalenes, phenanthrenes and dibenzothiophenes (totals)
Concentrations expressed as ng/g dry sediment

Appendix F

Macrofaunal Analysis

F.1 Macrofaunal Abundance

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
CNIDARIA																	
Cerianthus lloydii		D632	283798	Gosse, 1859	1	1		1							1		
Actiniaria		D662	1360				1	1									2
PLATYHELMINTHES																	
PLATYHELMINTHES		F2	793	Minot, 1876	1												
NEMERTEA																	
NEMERTEA		G1	152391		3	5	5	9	5	2	3	6	12	6	5	6	6
SIPUNCULA																	
Golfingia elongata		N14	175026	(Keferstein, 1862)	2				2			1		1	1	2	
Golfingia vulgaris		N17	136050	(de Blainville, 1827)												1	
Nephasoma minutum		N25	136060	(Keferstein, 1862)	2		3	6		5	4		2				
Phascolion strombus		N34	175043	(Montagu, 1804)				1			1		1	1	1		
POLYCHAETA																	
Pisione remota		P15	130707	Southern, 1914													
Aphrodita aculeata		P19	129840	Malmgren, 1867											1		
Enipo elisabethae		P43	130737	McIntosh, 1900													
Gattyana cirrhosa		P49	130749	(Pallas, 1766)													
Harmothoe		P50	129491	Kinberg, 1855	3		4		1		2			1	1	1	
Malmgrenia darbouxi			863197	(Pettibone, 1993)													
Malmgrenia andreapolis		P51	147008	(McIntoch, 1874)													
Lepidonotus squamatus		P82	130801	(Linnaeus, 1758)													
Pholoe inornata		P92	130601	Johnston, 1839	2	1						1				1	
Pholoe baltica		P95	130599	Örsted, 1843					2				1				
Sthenelais limicola		P109	131077	(Ehlers, 1864)													

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					MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
Eteone longa	aggregate	P117	130616	(Fabricius, 1780)			1	1	1								1
Hesionura elongata		P122	130649	(Southern, 1914)													
Mysta picta		P127	147026	(Quatrefages, 1866)													
Phyllodoce groenlandica		P141	334506	(Örsted, 1842)						1	1				1	1	1
Phyllodoce longipes		P143	130763	Kinberg, 1866		1							1				
Phyllodoce rosea		P146	334514	(Mcintosh, 1877)			3		1	1	1	1		2			
Eulalia bilineata		P152	130624	(Johnston, 1840)	1												
Eulalia mustela		P155	130631	Pleijel, 1987		1				1							
Eumida sanguinea		P167	130644	(Örsted, 1843)			1				1						
Glycera alba		P256	130116	(O.F. Muller, 1788)													
Glycera fallax		P259	336908	Quatrefages, 1850													
Glycera lapidum		P260	130123	Quatrefages, 1866	3	1		1	4	2	1	1	2	3			
Glycera oxycephala		P262	130126	Ehlers, 1887													
Glycinde nordmanni		P268	130136	(Malmgren, 1865)		1								1			
Goniadella gracilis		P276	130145	(Verrill, 1873)	1				2			1	1	1			
Psamathe fusca		P305	152249	(Keferstein, 1862)													
Oxydromus pallidus		P317	340203	(Claparede, 1864)													
Podarkeopsis capensis		P319	130195	Day, 1963								1					
Syllis garciai		P351	131431	(Campoy, 1982)	2	4		2		5	2		1			1	
Syllis parapari			196002	San Martin & Lopez, 2000			1								1		
Syllis pontxioi			196003	San Martín & López, 2000													
Syllis armillaris		P365	131415	(O.F. Muller, 1776)	2	4		1	2	1		1	2				
Syllis variegata		P371	131458	(Grube, 1860)						2							
Eusyllis blomstrandi		P380	131290	Malmgren, 1867			2				1						1
Odontosyllis fulgurans		P387	131327	(Audouin & Milne Edwards, 1833)			1							1			2

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					MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
Streptodonta pterochaeta		P391	238207	Southern, 1914													
Streptosyllis campoyi			238248	Brito, Nunez & San Martin, 2000													
Parexogone hebes		P421	757970	(Webster & Benedict, 1884)											1		
Exogone verugera		P423	131307	(Claparede, 1868)													
Sphaerosyllis		P424	129677	Claparède, 1863								1					
Myrianida		P434	129659	Milne Edwards, 1845													
Eunereis longissima		P475	130375	Johnston, 1840													
Nereis zonata		P478	130407	Malmgren, 1867			1										
Nephtys assimilis		P495	130353	Örsted, 1843													1
Nephtys caeca		P496	130355	(Fabricius, 1780)	2				2	2	2			1			
Nephtys cirrosa		P498	130357	Ehlers, 1868					1								
Nephtys longosetosa		P503	130364	Örsted, 1843													
Nothria conchylega		P545	130467	(Sars, 1835)	1	1	1										
Paucibranchia bellii		P564	130072	(Audouin & Milne-Edwards, 1833)													
Lysidice unicornis		P568	742232	(Grube, 1840)	2	2	2	1	1	1	3	3	1	1	3		
Lumbrineris cf. *cingulata*			130240	(Ehlers, 1868)	1			1						4			
Lumbrineris futilis		P582	851788	(Audouin & Milne Edwards, 1834)													
Drilonereis filum		P591	129856	(Claparède, 1868)											1		
Protodorvillea kefersteini		P638	130041	(McIntosh, 1869)													
Schistomeringos rudolphi		P643	154127	Delle Chiaje, 1828		1		1	2	1					1	1	
Orbinia sertulata		P665	334310	(Savigny, 1820)													
Scoloplos armiger		P672	334722	(Muller, 1776)												1	
Aricidea catherinae		P684	333034	(Laubier, 1967)		1		1	1							1	

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					MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
Aricidea cerrutii		P685	525497	Laubier, 1966	2	1	1	1	2	3		4	2	4	1		
Cirrophorus branchiatus		P689	130576	Ehlers, 1908	1		1	3				4	1		3	1	
Paradoneis ilvana		P698		Castelli, 1985													
Paradoneis lyra		P699	130585	(Southern, 1914)	2	2		3			6	4	2	1		3	3
Poecilochaetus serpens		P718	130711	Allen, 1904	2		3	1	1	3	3	5	1	11	11	12	2
Aonides paucibranchiata		P723	131107	Southern, 1914	7	7	18	9	9	10	10	10	12	6	9	5	14
Atherospio guillei			478336	(Laubier & Ramos,1974)													
Laonice bahusiensis		P733	131127	Soderstrom, 1920	2		3	3	1		1	1		1	1	1	
Dipolydora caulleryi/sp. A		P751	131116	Mesnil, 1897	4	1			2								1
Dipolydora flava		P754	131118	Claparede, 1870													
Dipolydora sp. B		P762	131124	Verrill, 1881				1			2						
Pseudopolydora pulchra		P774	131169	(Carazzi, 1895)													
Scolelepis korsuni			131174	Sikorski, 1994					1								
Spio goniocephala			131184	Thulin, 1957													
Spio symphyta			596189	Meisner, Bick & Bastrop, 2011	1		2					1		1	4		
Spiophanes bombyx		P794	131187	(Claparede, 1870)	4	3	4	8	3	7	4	14	3	8	8	3	12
Spiophanes kroyeri		P796	131188	Grube, 1860				1						1			1
Magelona johnstoni			130269	Fiege, Lichen &Mackie, 2000													
Chaetopterus variopedatus		P814	129914	(Renier, 1804)													
Phyllochaetopterus anglicus		P815		Potts, 1914	2		2	1	3	3		1		3	4		
Aphelochaeta sp. A		P823	129240	Blake, 1991				2		1					1		
Caulleriella alata		P829	129943	(Southern, 1914)	1		1								6	3	2
Chaetozone zetlandica		P831	129948	(McIntosh, 1911)	1				1					1	3		
Chaetozone christiei			152217	Chambers, 2000													

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					MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
Cirratulus cirratus		P836	129959	(O.F.Muller,1776)			1										
Tharyx		P847	129249	Webster & Benedict, 1887													
Flabelligera affinis		P881	130103	M.Sars, 1829				1									
Mediomastus fragilis		P919	129892	Rasmussen, 1973									1				1
Notomastus		P920	129220	Sars, 1850	1		3	2	3	1	4	2		5	3	2	2
Praxillura longissima		P944	130327	Arwidsson, 1906													
Leiochone			146991	Grube, 1868	4	1	3		2	1	2	2	2	2	2	1	
Euclymene lombricoides		P963	209899	(Quatrefages, 1866)											1		
Euclymene oerstedii		P964	130294	(Claparède, 1863)			1										
Praxillella affinis		P971	130322	(M Sars, 1872)	2		6	3	1		3	4	1		6	2	
Ophelia borealis		P999	130491	Quatrefages, 1866													
Ophelia celtica		P1000	130492	Amoureux & Dauvin, 1981					2								
Ophelina acuminata		P1014	130500	Örsted, 1843									1		1	1	
Asclerocheilus intermedius		P1022	130974	(Saint-Joseph, 1894)	1		2	2	3		2	2					
Scalibregma celticum		P1026	130979	Mackie, 1991													
Scalibregma inflatum		P1027	130980	Rathke, 1843	1						1				2	1	
Polygordius		P1062	129472	Schneider, 1868													
Galathowenia oculata		P1093	146950	Zaks, 1922													
Owenia		P1097	129427	Delle Chiaje, 1844			1	1	2	1			1	1		1	
Lagis koreni		P1107	152367	Malmgren, 1866	3		2		1	1		1	2	1		1	
Sabellaria spinulosa		P1117	130867	Leuckart, 1849				1									
Ampharete lindstroemi	aggregate	P1139	129778	M. Sars, 1864	4	1	3	1	1		6	2	6	4	4	2	2
Anobothrus gracilis		P1147	129789	(Malmgren, 1866)													
Terebellides stroemii		P1175	131573	Sars, 1835										1			
Lanice conchilega		P1195	131495	(Pallas, 1766)					1					2		1	1

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					MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
Phisidia aurea		P1215	131513	Southward, 1956	1		4	1	1	1	1	1		2	1	1	
Pista mediterranea			131519	de Gaillande, 1970													
Pista bansei			152254	Saphronova, 1988						1		1		1	2	1	1
Polycirrus		P1235	129710	Grube, 1850	4	2	4		4	1	2	3	1	4	3	1	2
Lysilla loveni		P1233	131500	(Malmgren, 1866)													
Lysilla nivea		P1234	131501	Langerhans, 1884	2		1	2	2		1				1		1
Streblosoma intestinale		P1252	131540	M. Sars in G.O. Sars, 1872	1												
Thelepus cincinnatus		P1254	131543	(Fabricius, 1780)			1										
Dialychone dunerificta			558752	(Tovar-Hernández, Licciano, Giangrande, 2007)		2	1	3			1	1	2		3	1	
Parasabella cambrensis		P1273	530920	Knight-Jones & Walker, 1985													
Euchone pararosea			390407	Giangrande & Licciano, 2006													
Pseudopotamilla reniformis		P1316	130963	(Bruguiere, 1789)		1			1								
Sabella pavonina		P1320	130967	Savigny, 1822						1					1		
Hydroides norvegica		P1334	131009	Gunnerus, 1768	3	1	2			1							
Spirobranchus triqueter		P1341	555935	(Linnaeus, 1758)	3	3		5	2		5	1			2	3	4
OLIGOCHAETA																	
Grania		P1524	137349	Southern, 1913													
CHELICERATA																	
Nymphon brevirostre		Q5	150520	Hodge, 1863													
Anoplodactylus petiolatus		Q44	134723	(Kroyer, 1884)										1			
CRUSTACEA																	
Scalpellum scalpellum		R22	106204	(Linnaeus, 1767)													
Verruca stroemia		R41	106257	O.F.Muller, 1776	1			1									

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					MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
Nebalia reboredae			459311	Moreira & Urgorri, 2009													
Nebalia borealis		S7	156257	Dahl, 1985								1					
Sarsinebalia urgorrii			388224	Moreira, Gestoso & Troncoso, 2003													
Heteromysis formosa		S93	120037	(G. O. Sars, 1877)													
Kroyera carinata		S125	547074	Spence Bate, 1857			1										
Perioculodes longimanus		S131	102915	(Bate & Westwood, 1868)													
Pontocrates arenarius		S135	102918	(Bate, 1858)													
Synchelidium maculatum		S138	102928	Stebbing, 1906							1						
Apolochus neapolitanus		S159	236495	(Della Valle, 1893)													
Leucothoe incisa		S177	102460	Robertson, 1892						2							
Leucothoe procera		S179	102466	Bate, 1857													
Stenothoe marina		S213	103166	(Bate, 1856)													
Urothoe elegans		S248	103228	(Bate, 1856)			1										
Urothoe marina		S249	103233	(Bate, 1857)	25	30	33	17	26	30	42	33	27	44	44	25	45
Acidostoma neglectum			102495	(Spence Bate & Westwood, 1861)													
Hippomedon denticulatus		S296	102570	(Bate,1857)									1				
Tryphosa nana		S321	102691	(Kroyer, 1846)											1		
Tmetonyx similis		S337	102742	(G O Sars, 1891)													
Nototropis falcatus		S410	102139	Metzger, 1871													
Nototropis vedlomensis		S413	102132	(Bate & Westwood, 1862)	1	1	2	1	1			1	1	1	1		
Ampelisca diadema		S429	101896	(Costa, 1853)	5	10	12	1	3	1		3	4	5	12	2	3
Ampelisca provincialis		S434	101915	Bellan-Santini & Kaim-Malka, 1977	7	2	15	10	9	4	11	13	4	19	21	5	
Ampelisca spinipes		S438	101928	Boeck, 1861	1		2	2	4	1	1	3		1	3	5	

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					MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
Ampelisca tenuicornis		S440	101930	Lilljeborg, 1855													
Ampelisca typica		S442	101933	(Bate, 1856)	3	4	2	1	2	3	1	1	3	1	2	6	1
Bathyporeia elegans		S452	103058	Watkin, 1938													
Bathyporeia gracilis		S453	103059	G O Sars, 1891													
Bathyporeia guilliamsoniana		S454	103060	(Bate, 1857)													
Haustorius arenarius		S462	102317	Slabber, 1769													
Abludomelita obtusata		S498	102788	(Montagu, 1813)													
Cheirocratus		**S503**	**101669**	**Norman, 1867**	**1**						**1**		**1**				
Othomaera othonis		S519	534781	(Milne-Edwards, 1830)	1			2									
Maerella tenuimana		S521	102831	(Bate, 1862)	3	1	1				1	1					
Megamphopus cornutus		S539	148545	Norman, 1869	1	1	2	2					1				
Gammaropsis maculata		S541	102364	(Johnston, 1828)			1						1	1			
Photis longicaudata		S552	102383	(Bate & Westwood, 1862)	12							21	3		46		1
Aoridae		**S577**	**101368**	**Stebbing, 1899**			**1**							**3**			
Leptocheirus hirsutimanus		S588	102036	(Bate, 1862)		1				5			2			1	3
Crassicorophium crassicorne		S611	397383	Bruzelius, 1859	3	1	1					1	1		1	1	
Unciola planipes		S622	102061	Norman, 1867													
Phtisica marina		S657	101864	Slabber, 1769									2				
Gnathia		**S793**	**118437**	**Leach, 1814**	**6**		**1**				**5**		**1**		**1**		**3**
Conilera cylindracea		S849	118842	(Montagu, 1804)													
Eurydice pulchra		S854	118852	Leach,1815	3	1	3	1	3	4	4	1			2		5
Astacilla longicornis		S955	119024	(Sowerby, 1806)													
Tanaopsis graciloides		S1142	136458	(Lilljeborg, 1864)													
Bodotria scorpioides		S1197	110445	(Montagu, 1804)													
Diastylis bradyi		S1248	110472	Norman, 1879													

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					MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
Processa modica		S1366	108343	Williamson & Rochanaburanon, 1979													
Callianassa subterranea		S1415	107729	(Montagu, 1808)													
Upogebia deltaura		S1419	107739	(Leach, 1815)										1		1	
Pisidia longicornis		S1482	107188	(Linnaeus,1757)													
Ebalia tumefacta		S1509	107302	(Montagu, 1808)			1										
Hyas coarctatus		S1519	107323	Leach, 1815													1
Inachus dorsettensis		S1526	107327	(Pennant, 1777)													
Macropodia rostrata		S1532	107345	(Linnaeus, 1761)													
Thia scutellata		S1559	107281	(Fabricius, 1793)									1				
Liocarcinus pusillus		S1584	107393	(Leach, 1816)													
Pinnotheres pisum		S1638	107473	(Linnaeus, 1767)					1								
MOLLUSCA																	
Leptochiton asellus		W53	140199	(Gmelin, 1791)	4	6		2			1	1		1			
Acanthochitona crinita		W86	138675	(Pennant, 1777)													
Gibbula magus	?	W159	141790	(Linnaeus, 1758)			1										
Euspira nitida		W491	151894	(Donovan, 1804)	1											1	
Melanella alba		W634	139832	(da Costa, 1778)									1				
Colus gracilis		W715	138899	(da Costa, 1778)													
Philine		W1036	138339	Ascanius, 1772													
Tritonia plebeia		W1254	141738	Johnston, 1828													
Onchidoridae		W1319	175	Gray, 1827													
Knoutsodonta depressa		W1323	845528	(Alder & Hancock, 1842)													
Nucula hanleyi		W1568	140588	Winckworth, 1931					1	1		1		1	1		
Modiolus adriaticus		W1700	506025	(Lamarck, 1819)													
Aequipecten opercularis		W1773	140687	(Linnaeus, 1758)													

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					MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
Heteranomia squamula		W1809	138749	(Linnaeus, 1758)				1									
Pododesmus squama		W1812	138752	(Linnaeus, 1761)					1								
Hemilepton nitidum		W1882	246148	(W. Turton, 1822)													
Kurtiella bidentata		W1906	345281	(Montagu, 1803)													
Spisula elliptica		W1975	140300	(Brown, 1827)	1			1	1	1			1	1	1		
Ensis leei		W1997	876640	M. Huber, 2015					1				1				
Phaxas pellucidus		W2006	140737	(Pennant, 1777)													
Moerella donacina		W2021	147021	Linnaeus, 1758													
Asbjornsenia pygmaea		W2023	879714	(Lovén, 1846)													
Gari fervensis		W2051	140870	(Gmelin, 1791)													
Solecurtus scopula		W2054	141543	(Turton, 1822)													
Abra alba		W2059	141433	(W Wood, 1802)							1						
Abra prismatica		W2062	141436	(Montagu, 1808)		1								2			1
Clausinella fasciata		W2100	141909	(da Costa, 1778)									1				
Timoclea ovata		W2104	141929	(Pennant, 1777)	1	1		1				1		1		1	
Venerupis corrugata		W2124	181364	(Gmelin, 1791)			1								1	1	
Dosinia exoleta		W2130	141911	(Linnaeus, 1758)													
Hiatella arctica		W2166	140103	(Linnaeus, 1758)													
Thracia villosiuscula		W2233	141651	(Macgillivray, 1827)				1									
Cochlodesma praetenue		W2239	181373	(Pulteney, 1799)													
PHORONIDA																	
Phoronis		ZA3	128545	Wright, 1856			14	3		2		1		1	1	13	2
ECHINODERMATA																	
Ophiothrix fragilis		ZB124	125131	(Abildgaard, 1789)												1	
Amphipholis squamata		ZB161	125064	(Chiaje, 1828)		1		1	1				1				

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
Ophiura albida		ZB168	124913	Forbes, 1839			1						1				1
Psammechinus miliaris		ZB193	124319	(Gmelin, 1778)	1		2	3	1				1				
Echinocyamus pusillus		ZB212	124273	(O.F. Muller,1776)					1	4			3		3		1
Echinocardium cordatum		ZB223	124392	(Pennant, 1777)													
Mesothuria intestinalis		ZB233	124568	(Ascanius, 1805) Östergren, 1896													
Pseudothyone raphanus		ZB257	124661	(Duben & Koren, 1845)		1			1								
Thyone fusus		ZB262	124670	O.F.Muller, 1776									1				
Thyone roscovita		ZB264	124676	Hérouard, 1889													
Panningia hyndmani		ZB272	848014	(Thompson, 1840)					1						1		
Leptosynapta inhaerens		ZB296	124465	(O.F.Muller, 1776)													
Oestergrenia digitata		ZB300	152547	(Montagu, 1804)													
TUNICATA																	
Ascidiella aspersa		ZD84	103718	O F Müller, 1776													
Ascidia conchilega	?	ZD88	103702	O F Muller, 1776													
Polycarpa fibrosa		ZD112	103902	(Stimpson, 1852)									2				
Dendrodoa grossularia		ZD120	103882	(van Beneden 1846)	4		1					2	1	1	1		
CEPHALOCHORDATA																	
Branchiostoma lanceolatum			104906	(Pallas, 1774)													
Number of taxa					**62**	**40**	**59**	**53**	**54**	**39**	**40**	**46**	**51**	**49**	**55**	**44**	**34**
Abundance					**173**	**111**	**195**	**133**	**134**	**118**	**145**	**166**	**129**	**168**	**244**	**126**	**130**
The following taxa were merged for analysis																	
Aoridae		**S577**	**101368**	**Stebbing, 1899**			**1**							**3**			
Aoridae	female	S577	101368	Stebbing, 1899			1							2			
Autonoe longipes		S583	102021	(Lilljeborg, 1852)										1			
Gnathia		**S793**	**118437**	**Leach, 1814**	**6**		**1**				**5**		**1**		**1**		**3**

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
Gnathia	female	S793	118437	Leach, 1814	2						2						1
Gnathia oxyuraea		S796	118995	(Lilljeborg, 1855)	4		1				3		1		1		2
Cheirocratus		**S503**	**101669**	**Norman, 1867**	**1**						**1**		**1**				
Cheirocratus	female	S503	101669	Norman, 1867	1						1		1				
Cheirocratus pseudosundevallii	?			Gouillieux, 2019													
Number of taxa					**2**	**0**	**2**	**0**	**0**	**0**	**2**	**0**	**2**	**1**	**1**	**0**	**1**
Abundance					**7**	**0**	**2**	**0**	**0**	**0**	**6**	**0**	**2**	**3**	**1**	**0**	**3**
The following taxa were excluded from analysis																	
Colonial																	
PORIFERA		C1	558	Grant, 1836			P	P							P		
Leuckartiara octona		D240	117791	(Fleming, 1823)													
Tubularia		D163	117258	Linnaeus, 1758													
Eudendrium		D218	117093	Ehrenberg, 1834													
Bougainvilliidae		D246	1594	Lütken, 1850													
Phialella quadrata		D343	117804	(Forbes, 1848)										P			
Calycella syringa		D348	117402	(Linnaeus, 1767)													
Lafoea dumosa		D386	117702	(Fleming, 1828)													
Halecium		D390	117103	Oken, 1815											P		
Abietinaria		D408	117225	Kirchenpauer, 1884			P			P	P			P			P
Diphasia		D413	117228	L Agassiz, 1862			P						P				
Hydrallmania falcata		D424	117890	(Linnaeus, 1758)	P	P	P	P	P			P	P	P	P		P
Sertularella gayi		D429	117902	(Lamouroux, 1821)													
Sertularia cupressina		D435	117913	(Linnaeus, 1758)		P			P					P	P		
Nemertesia		D462	117195	Lamouroux, 1812									P				
Campanulariidae		D491	1606	Peron & Lesueur, 1810		P	P	P		P		P	P	P			P

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
Alcyonium digitatum		D597	125333	Linnaeus, 1758	P	P	P	P	P		P		P	P			
Crisia		Y13	111032	Lamouroux, 1812			P										
Tubulipora		Y27	111054	Lamarck, 1816	P					P							
Disporella hispida		Y66	111730	(Fleming, 1828)													
Alcyonidium parasiticum		Y81	111604	(Fleming, 1828)				P					P				
Vesicularia spinosa		Y131	111669	(Linnaeus, 1758)					P			P	P				P
Amathia lendigera		Y135	111659	(Linnaeus, 1758)						P							
Amathia		Y137	111023	Farre, 1837													
Aetea		Y153	110819	Lamouroux, 1812			P										
Conopeum reticulum		Y172	111351	(Linnaeus, 1767)													
Electra pilosa		Y178	111355	(Linnaeus,1767)			P							P			
Callopora		Y201	110851	J E Gray, 1848													
Beania mirabilis		Y261	111072	Johnston, 1840			P										
Chorizopora brongniartii		Y344	111304	(Audouin, 1826)								P					
Escharella immersa		Y364	111484	(Fleming, 1828)				P							P		
Porella concinna		Y385	111125	(Busk, 1854)		P											
Schizomavella		Y467	110829	Canu & Bassler, 1917	P	P	P	P	P	P	P	P	P	P	P	P	P
Damaged																	
Eumida	damaged	P163	129446	Malmgren, 1865													1
Aricidea	damaged	P675	129430	Webster, 1879													
Paradoneis	damaged	P695	129433	Hartman, 1965													
Spionidae	damaged	P720	913	Grube,1850					1								
Dipolydora	damaged	P748	129611	Verrill, 1881	3				1								
Terebellidae	damaged	P1179	982	Johnston, 1846	2		1			1		3					1
Sabellidae	damaged	P1257	985	Latreille, 1825				1									

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
Serpulidae	damaged	P1324	988	Rafinesque, 1815		1											
Nebalia	damaged	S5	147031	Leach, 1814													
AMPHIPODA	damaged	S97	1135					1									
Urothoe	damaged	S246	101789	Dana, 1852		1			1	3	1	3	1			1	
Liocarcinus	damaged	S1577	106925	Stimpson,1870													
GASTROPODA	damaged	W88	101														
BIVALVIA	damaged	W1560	151265	Goldfuss, 1820													
SOLENOIDEA	damaged	W1991	14635	Lamarck, 1809										1			
Ophiuridae	damaged	ZB165	123200	Muller & Troschel, 1840													
Fish																	
Gobiesocidae		ZG1180	125477	Bleeker, 1859													
Juvenile																	
ANIMALIA	eggs		2		1					1			1				
SIPUNCULA	juvenile	N1	1268		1	1		1	2		2						
Golfingia	juvenile	N12	136021	Lankester, 1885													
Glycera	juvenile	P255	129296	Lamarck, 1818													
Goniadidae	juvenile	P266	953	Kinberg, 1866													
Nereididae	juvenile	P458	22496	Blainville, 1818													
Nephtys	juvenile	P494	129370	Cuvier, 1817													
Scolelepis	juvenile	P778	129623	Blainville, 1828													
CRUSTACEA	larva	R1	1066		1										1		
BALANOMORPHA	juvenile	R42	1082	Burmeister, 1834	1												
Ampelisca	juvenile	S423	101445	Kroyer, 1842		1						3		1	2		
Gnathia	juvenile	S793	118437	Leach, 1814	2	1							1				1
GEBIIDEA	juvenile	S1403	477323	de Saint Laurent, 1979	1	2	5	1	4	2		3	4	2	6	2	

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
Paguridae	juvenile	S1445	106738	Latreille, 1802			1							3			
DECAPODA	larva	S1276	1130	Latreille, 1830													
Ebalia	juvenile	S1504	106889	Leach,1817	2												
Majidae	juvenile	S1512	106760	Samouelle, 1819													
Inachinae	juvenile	S1520	148436	MacLeay, 1838													
Macropodia	juvenile	S1529	205077	Leach, 1814													
Buccinidae	eggs	W702	149	Rafinesque, 1815													
Tritonia	juvenile	W1246	138580	Cuvier, 1798	2	1	1	1	1			1		1			
Nucula	juvenile	W1565	138262	Lamarck, 1799													
Mytilidae	juvenile	W1691	211	Rafinesque, 1815					1					1			
Modiolus	juvenile	W1702	140467	(Linnaeus, 1758)													
Pectinidae	juvenile	W1768	213	Rafinesque, 1815													
Anomiidae	juvenile	W1805	214	Rafinesque, 1815	1							1					
Abra	juvenile	W2058	138474	Lamarck, 1818													
Dosinia	juvenile	W2126	138636	Scopoli, 1777													
Ophiuridae	juvenile	ZB165	123200	Muller & Troschel, 1840													
ECHINOIDEA	juvenile	ZB181	123082	Leske, 1778	1								1				
Echinocardium	juvenile	ZB222	123426	Gray, 1825													
HOLOTHUROIDEA	juvenile	ZB229	123083				2	2									
Thyone	juvenile	ZB261	146116	Oken, 1815													
Leptosynapta	juvenile	ZB291	123449	Verrill, 1867	1			1	1		1					1	
ASCIDIACEA	juvenile	ZD2	1839	Nielsen, 1995													
Meiofaunal																	
NEMATODA		HD1	799									1					2
Parasitic																	

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
COPEPODA	parasitic	R142	1080										1				
Number of taxa					**17**	**13**	**16**	**14**	**13**	**9**	**6**	**12**	**14**	**14**	**9**	**4**	**9**
Abundance					**19**	**8**	**10**	**8**	**12**	**7**	**4**	**15**	**9**	**9**	**9**	**4**	**5**

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
CNIDARIA																	
Cerianthus lloydii		D632	283798	Gosse, 1859			2		2								
Actiniaria		D662	1360			1							1	1		1	
PLATYHELMINTHES																	
PLATYHELMINTHES		F2	793	Minot, 1876													
NEMERTEA																	
NEMERTEA		G1	152391		7	6	6	6	3	5	10	5	11	5	3	2	3
SIPUNCULA																	
Golfingia elongata		N14	175026	(Keferstein, 1862)	1				1	5	2						
Golfingia vulgaris		N17	136050	(de Blainville, 1827)													
Nephasoma minutum		N25	136060	(Keferstein, 1862)	2			1			4	1	1			2	
Phascolion strombus		N34	175043	(Montagu, 1804)				1						2		1	
POLYCHAETA																	
Pisione remota		P15	130707	Southern, 1914													
Aphrodita aculeata		P19	129840	Malmgren, 1867								1					
Enipo elisabethae		P43	130737	McIntosh, 1900													
Gattyana cirrhosa		P49	130749	(Pallas, 1766)				1									
Harmothoe		P50	129491	Kinberg, 1855		2			1	1	1		1				
Malmgrenia darbouxi			863197	(Pettibone, 1993)	1												1
Malmgrenia andreapolis		P51	147008	(McIntoch, 1874)				1									
Lepidonotus squamatus		P82	130801	(Linnaeus, 1758)													
Pholoe inornata		P92	130601	Johnston, 1839					1								
Pholoe baltica		P95	130599	Örsted, 1843	1	1	2	1	1		1						1
Sthenelais limicola		P109	131077	(Ehlers, 1864)								1					
Eteone longa	aggregate	P117	130616	(Fabricius, 1780)	1	1						1					1

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
Hesionura elongata		P122	130649	(Southern, 1914)													
Mysta picta		P127	147026	(Quatrefages, 1866)													
Phyllodoce groenlandica		P141	334506	(Örsted, 1842)			1	1	1	1						1	
Phyllodoce longipes		P143	130763	Kinberg, 1866										1			
Phyllodoce rosea		P146	334514	(Mcintosh, 1877)		1	1			2							
Eulalia bilineata		P152	130624	(Johnston, 1840)													
Eulalia mustela		P155	130631	Pleijel, 1987													
Eumida sanguinea		P167	130644	(Örsted, 1843)													
Glycera alba		P256	130116	(O.F. Muller, 1788)													
Glycera fallax		P259	336908	Quatrefages, 1850	1	1								1			
Glycera lapidum		P260	130123	Quatrefages, 1866				1		1	3			3		1	
Glycera oxycephala		P262	130126	Ehlers, 1887													1
Glycinde nordmanni		P268	130136	(Malmgren, 1865)												1	
Goniadella gracilis		P276	130145	(Verrill, 1873)	3					2		1	1				
Psamathe fusca		P305	152249	(Keferstein, 1862)													
Oxydromus pallidus		P317	340203	(Claparede, 1864)													
Podarkeopsis capensis		P319	130195	Day, 1963													
Syllis garciai		P351	131431	(Campoy, 1982)	1	1			1		1		3				1
Syllis parapari			196002	San Martin & Lopez, 2000				2			1						
Syllis pontxioi			196003	San Martín & López, 2000													
Syllis armillaris		P365	131415	(O.F. Muller, 1776)	1	1											1
Syllis variegata		P371	131458	(Grube, 1860)												1	
Eusyllis blomstrandi		P380	131290	Malmgren, 1867	1		1										

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
Odontosyllis fulgurans		P387	131327	(Audouin & Milne Edwards, 1833)	1	1					1						
Streptodonta pterochaeta		P391	238207	Southern, 1914													
Streptosyllis campoyi			238248	Brito, Nunez & San Martin, 2000													
Parexogone hebes		P421	757970	(Webster & Benedict, 1884)									1				
Exogone verugera		P423	131307	(Claparede, 1868)													
Sphaerosyllis		P424	129677	Claparède, 1863													
Myrianida		P434	129659	Milne Edwards, 1845								2					
Eunereis longissima		P475	130375	Johnston, 1840				1									
Nereis zonata		P478	130407	Malmgren, 1867													1
Nephtys assimilis		P495	130353	Örsted, 1843										1	1		
Nephtys caeca		P496	130355	(Fabricius, 1780)						2							
Nephtys cirrosa		P498	130357	Ehlers, 1868								1	1				
Nephtys longosetosa		P503	130364	Örsted, 1843													
Nothria conchylega		P545	130467	(Sars, 1835)				1						1			
Paucibranchia bellii		P564	130072	(Audouin & Milne-Edwards, 1833)								1					
Lysidice unicornis		P568	742232	(Grube, 1840)	2		1		3	3	3	1		2		2	
Lumbrineris cf. *cingulata*			130240	(Ehlers, 1868)		1			1		1			3			
Lumbrineris futilis		P582	851788	(Audouin & Milne Edwards, 1834)													
Drilonereis filum		P591	129856	(Claparède, 1868)													
Protodorvillea kefersteini		P638	130041	(McIntosh, 1869)													
Schistomeringos rudolphi		P643	154127	Delle Chiaje, 1828	1	1	1	1									
Orbinia sertulata		P665	334310	(Savigny, 1820)		1											

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
Scoloplos armiger		P672	334722	(Muller, 1776)					1					1	4		2
Aricidea catherinae		P684	333034	(Laubier, 1967)						1							
Aricidea cerrutii		P685	525497	Laubier, 1966	3		1				2	2	1	1	1	1	
Cirrophorus branchiatus		P689	130576	Ehlers, 1908		1	1					1					
Paradoneis ilvana		P698		Castelli, 1985								1					
Paradoneis lyra		P699	130585	(Southern, 1914)	3	1	4	6	1	2	7	1	2	1	1	1	1
Poecilochaetus serpens		P718	130711	Allen, 1904	3	3	5	2	14	2	3	1	1	7	2	8	7
Aonides paucibranchiata		P723	131107	Southern, 1914	21	4	9	7	7	6	7	4	13	8	3	1	1
Atherospio guillei			478336	(Laubier & Ramos,1974)													
Laonice bahusiensis		P733	131127	Soderstrom, 1920	4						2		1				
Dipolydora caulleryi/sp. A		P751	131116	Mesnil, 1897													
Dipolydora flava		P754	131118	Claparede, 1870		1					1						
Dipolydora sp. B		P762	131124	Verrill, 1881			1		1				1				1
Pseudopolydora pulchra		P774	131169	(Carazzi, 1895)							1		1				
Scolelepis korsuni			131174	Sikorski, 1994			1										
Spio goniocephala			131184	Thulin, 1957							2			2			
Spio symphyta			596189	Meisner, Bick & Bastrop, 2011	1	3	3	1		1		2	1	1	1	1	4
Spiophanes bombyx		P794	131187	(Claparede, 1870)	10	6	8	9	12	4	4		9	7	4	4	5
Spiophanes kroyeri		P796	131188	Grube, 1860										1			
Magelona johnstoni			130269	Fiege, Lichen &Mackie, 2000													
Chaetopterus variopedatus		P814	129914	(Renier, 1804)							1						
Phyllochaetopterus anglicus		P815		Potts, 1914		4					1	1					
Aphelochaeta sp. A		P823	129240	Blake, 1991													
Caulleriella alata		P829	129943	(Southern, 1914)	3	1	2		1	1	3	1	2	3	3		3

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
Chaetozone zetlandica		P831	129948	(McIntosh, 1911)			1	2			2		1		1		
Chaetozone christiei			152217	Chambers, 2000													
Cirratulus cirratus		P836	129959	(O.F.Muller,1776)				1									
Tharyx		P847	129249	Webster & Benedict, 1887													
Flabelligera affinis		P881	130103	M.Sars, 1829					1								1
Mediomastus fragilis		P919	129892	Rasmussen, 1973													
Notomastus		P920	129220	Sars, 1850	2			3	3	3	2	1	3	4		1	
Praxillura longissima		P944	130327	Arwidsson, 1906													
Leiochone			146991	Grube, 1868	3		1	1	1	2	2	2		2			
Euclymene lombricoides		P963	209899	(Quatrefages, 1866)		1	1	1	1		1						
Euclymene oerstedii		P964	130294	(Claparède, 1863)													
Praxillella affinis		P971	130322	(M Sars, 1872)	1	3	1	2	1	5			2	1		1	
Ophelia borealis		P999	130491	Quatrefages, 1866													1
Ophelia celtica		P1000	130492	Amoureux & Dauvin, 1981													
Ophelina acuminata		P1014	130500	Örsted, 1843		3	1	1	3			1					
Asclerocheilus intermedius		P1022	130974	(Saint-Joseph, 1894)	1	1	3	3	1	1				1		1	
Scalibregma celticum		P1026	130979	Mackie, 1991													
Scalibregma inflatum		P1027	130980	Rathke, 1843		2	2	1	2	1	2				1		2
Polygordius		P1062	129472	Schneider, 1868													
Galathowenia oculata		P1093	146950	Zaks, 1922				1			1			2			
Owenia		P1097	129427	Delle Chiaje, 1844		1	1				1		1	1	1	2	2
Lagis koreni		P1107	152367	Malmgren, 1866	2		1						3		3	2	2
Sabellaria spinulosa		P1117	130867	Leuckart, 1849													
Ampharete lindstroemi	aggregate	P1139	129778	M. Sars, 1864	3	5	4	5	1	3	4		2	3	5	2	6

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
Anobothrus gracilis		P1147	129789	(Malmgren, 1866)							1						
Terebellides stroemii		P1175	131573	Sars, 1835		1		1									
Lanice conchilega		P1195	131495	(Pallas, 1766)	1			1	2		1			1			2
Phisidia aurea		P1215	131513	Southward, 1956	3		1			1				1			
Pista mediterranea			131519	de Gaillande, 1970				2									
Pista bansei			152254	Saphronova, 1988	1									1			
Polycirrus		P1235	129710	Grube, 1850	3		2	2	3	4	2		2		3		1
Lysilla loveni		P1233	131500	(Malmgren, 1866)													
Lysilla nivea		P1234	131501	Langerhans, 1884	2	2		2			2			5		1	
Streblosoma intestinale		P1252	131540	M. Sars in G.O. Sars, 1872													
Thelepus cincinnatus		P1254	131543	(Fabricius, 1780)													
Dialychone dunerificta			558752	(Tovar-Hernández, Licciano, Giangrande, 2007)	2			1	4		1						
Parasabella cambrensis		P1273	530920	Knight-Jones & Walker, 1985						1							
Euchone pararosea			390407	Giangrande & Licciano, 2006							1						
Pseudopotamilla reniformis		P1316	130963	(Bruguiere, 1789)													
Sabella pavonina		P1320	130967	Savigny, 1822													
Hydroides norvegica		P1334	131009	Gunnerus, 1768		2		5		1							
Spirobranchus triqueter		P1341	555935	(Linnaeus, 1758)		2	1	8	9	2	4			1			
OLIGOCHAETA																	
Grania		P1524	137349	Southern, 1913													
CHELICERATA																	
Nymphon brevirostre		Q5	150520	Hodge, 1863	1												
Anoplodactylus petiolatus		Q44	134723	(Kroyer, 1884)													

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					MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
CRUSTACEA																	
Scalpellum scalpellum		R22	106204	(Linnaeus, 1767)													1
Verruca stroemia		R41	106257	O.F.Muller, 1776													
Nebalia reboredae			459311	Moreira & Urgorri, 2009			1		1								
Nebalia borealis		S7	156257	Dahl, 1985													
Sarsinebalia urgorrii			388224	Moreira, Gestoso & Troncoso, 2003													
Heteromysis formosa		S93	120037	(G. O. Sars, 1877)													
Kroyera carinata		S125	547074	Spence Bate, 1857					1								
Perioculodes longimanus		S131	102915	(Bate & Westwood, 1868)													
Pontocrates arenarius		S135	102918	(Bate, 1858)													
Synchelidium maculatum		S138	102928	Stebbing, 1906							1						
Apolochus neapolitanus		S159	236495	(Della Valle, 1893)													
Leucothoe incisa		S177	102460	Robertson, 1892						1		1	2			1	
Leucothoe procera		S179	102466	Bate, 1857				1									
Stenothoe marina		S213	103166	(Bate, 1856)											1		
Urothoe elegans		S248	103228	(Bate, 1856)		1	1		1							2	2
Urothoe marina		S249	103233	(Bate, 1857)	33	17	40	29	42	15	13	3	17	22	16	22	6
Acidostoma neglectum			102495	(Spence Bate & Westwood, 1861)			2										
Hippomedon denticulatus		S296	102570	(Bate,1857)					1								
Tryphosa nana		S321	102691	(Kroyer, 1846)													
Tmetonyx similis		S337	102742	(G O Sars, 1891)													
Nototropis falcatus		S410	102139	Metzger, 1871													
Nototropis vedlomensis		S413	102132	(Bate & Westwood, 1862)	1	1	1	4	3		5				3		
Ampelisca diadema		S429	101896	(Costa, 1853)	2	7	4	6	4	7	7		2			3	1

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					MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
Ampelisca provincialis		S434	101915	Bellan-Santini & Kaim-Malka, 1977	1	16	11	9	14	9	2			6		1	2
Ampelisca spinipes		S438	101928	Boeck, 1861	3	1		1	1		1			6	2	2	5
Ampelisca tenuicornis		S440	101930	Lilljeborg, 1855													
Ampelisca typica		S442	101933	(Bate, 1856)	2	3	8	3	4	4	2		2	1	4	4	2
Bathyporeia elegans		S452	103058	Watkin, 1938											1		
Bathyporeia gracilis		S453	103059	G O Sars, 1891								2	6		3		
Bathyporeia guilliamsoniana		S454	103060	(Bate, 1857)													
Haustorius arenarius		S462	102317	Slabber, 1769													
Abludomelita obtusata		S498	102788	(Montagu, 1813)						1			1				
Cheirocratus		**S503**	**101669**	**Norman, 1867**									**2**				
Othomaera othonis		S519	534781	(Milne-Edwards, 1830)													
Maerella tenuimana		S521	102831	(Bate, 1862)	1		1		1		1			1	2		
Megamphopus cornutus		S539	148545	Norman, 1869		1	2				1				2		
Gammaropsis maculata		S541	102364	(Johnston, 1828)													
Photis longicaudata		S552	102383	(Bate & Westwood, 1862)			10				4						
Aoridae		**S577**	**101368**	**Stebbing, 1899**	**1**	**1**			**3**			**1**	**2**	**1**	**2**		
Leptocheirus hirsutimanus		S588	102036	(Bate, 1862)	4	1				2		1	1			1	
Crassicorophium crassicorne		S611	397383	Bruzelius, 1859						1							
Unciola planipes		S622	102061	Norman, 1867	1										2		
Phtisica marina		S657	101864	Slabber, 1769					1	1							
Gnathia		**S793**	**118437**	**Leach, 1814**				**1**		**2**				**1**			
Conilera cylindracea		S849	118842	(Montagu, 1804)	1		1		2					1			
Eurydice pulchra		S854	118852	Leach,1815		2		2	3	6	2	2	4	3		2	
Astacilla longicornis		S955	119024	(Sowerby, 1806)													1
Tanaopsis graciloides		S1142	136458	(Lilljeborg, 1864)		1											

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					MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
Bodotria scorpioides		S1197	110445	(Montagu, 1804)							1						
Diastylis bradyi		S1248	110472	Norman, 1879													
Processa modica		S1366	108343	Williamson & Rochanaburanon, 1979												1	
Callianassa subterranea		S1415	107729	(Montagu, 1808)													
Upogebia deltaura		S1419	107739	(Leach, 1815)	1		1									1	1
Pisidia longicornis		S1482	107188	(Linnaeus,1757)													
Ebalia tumefacta		S1509	107302	(Montagu, 1808)													
Hyas coarctatus		S1519	107323	Leach, 1815													
Inachus dorsettensis		S1526	107327	(Pennant, 1777)													
Macropodia rostrata		S1532	107345	(Linnaeus, 1761)													
Thia scutellata		S1559	107281	(Fabricius, 1793)						1							
Liocarcinus pusillus		S1584	107393	(Leach, 1816)		1											
Pinnotheres pisum		S1638	107473	(Linnaeus, 1767)													
MOLLUSCA																	
Leptochiton asellus		W53	140199	(Gmelin, 1791)		1	1										
Acanthochitona crinita		W86	138675	(Pennant, 1777)													
Gibbula magus	?	W159	141790	(Linnaeus, 1758)													
Euspira nitida		W491	151894	(Donovan, 1804)													
Melanella alba		W634	139832	(da Costa, 1778)													
Colus gracilis		W715	138899	(da Costa, 1778)													
Philine		W1036	138339	Ascanius, 1772													1
Tritonia plebeia		W1254	141738	Johnston, 1828													
Onchidoridae		W1319	175	Gray, 1827													
Knoutsodonta depressa		W1323	845528	(Alder & Hancock, 1842)				1									
Nucula hanleyi		W1568	140588	Winckworth, 1931			1				1						1

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
Modiolus adriaticus		W1700	506025	(Lamarck, 1819)													
Aequipecten opercularis		W1773	140687	(Linnaeus, 1758)													
Heteranomia squamula		W1809	138749	(Linnaeus, 1758)													
Pododesmus squama		W1812	138752	(Linnaeus, 1761)													
Hemilepton nitidum		W1882	246148	(W. Turton, 1822)									1				
Kurtiella bidentata		W1906	345281	(Montagu, 1803)													
Spisula elliptica		W1975	140300	(Brown, 1827)	4				1					1	1	1	
Ensis leei		W1997	876640	M. Huber, 2015		1											1
Phaxas pellucidus		W2006	140737	(Pennant, 1777)													
Moerella donacina		W2021	147021	Linnaeus, 1758			1										
Asbjornsenia pygmaea		W2023	879714	(Lovén, 1846)													
Gari fervensis		W2051	140870	(Gmelin, 1791)													1
Solecurtus scopula		W2054	141543	(Turton, 1822)													
Abra alba		W2059	141433	(W Wood, 1802)									1				2
Abra prismatica		W2062	141436	(Montagu, 1808)				1							1	1	
Clausinella fasciata		W2100	141909	(da Costa, 1778)							1						
Timoclea ovata		W2104	141929	(Pennant, 1777)				3		1	1						
Venerupis corrugata		W2124	181364	(Gmelin, 1791)													
Dosinia exoleta		W2130	141911	(Linnaeus, 1758)									1				
Hiatella arctica		W2166	140103	(Linnaeus, 1758)													
Thracia villosiuscula		W2233	141651	(Macgillivray, 1827)													
Cochlodesma praetenue		W2239	181373	(Pulteney, 1799)									1	1			
PHORONIDA																	
Phoronis		ZA3	128545	Wright, 1856	7	13		13	5	2	12	12	17	3		4	6
ECHINODERMATA																	

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
Ophiothrix fragilis		ZB124	125131	(Abildgaard, 1789)													
Amphipholis squamata		ZB161	125064	(Chiaje, 1828)				1		1							
Ophiura albida		ZB168	124913	Forbes, 1839													
Psammechinus miliaris		ZB193	124319	(Gmelin, 1778)		1			2								1
Echinocyamus pusillus		ZB212	124273	(O.F. Muller,1776)	1			2			1			2	2	1	
Echinocardium cordatum		ZB223	124392	(Pennant, 1777)													
Mesothuria intestinalis		ZB233	124568	(Ascanius, 1805) Östergren, 1896													
Pseudothyone raphanus		ZB257	124661	(Duben & Koren, 1845)													
Thyone fusus		ZB262	124670	O.F.Muller, 1776													
Thyone roscovita		ZB264	124676	Hérouard, 1889													
Panningia hyndmani		ZB272	848014	(Thompson, 1840)		1	1				1						
Leptosynapta inhaerens		ZB296	124465	(O.F.Muller, 1776)													1
Oestergrenia digitata		ZB300	152547	(Montagu, 1804)													1
TUNICATA																	
Ascidiella aspersa		ZD84	103718	O F Müller, 1776													
Ascidia conchilega	?	ZD88	103702	O F Muller, 1776													
Polycarpa fibrosa		ZD112	103902	(Stimpson, 1852)													
Dendrodoa grossularia		ZD120	103882	(van Beneden 1846)	1	1	1								1		
CEPHALOCHORDATA																	
Branchiostoma lanceolatum			104906	(Pallas, 1774)													
Number of taxa					**51**	**52**	**49**	**51**	**48**	**42**	**56**	**29**	**40**	**45**	**31**	**37**	**42**
Abundance					**161**	**137**	**158**	**163**	**174**	**117**	**146**	**55**	**126**	**124**	**80**	**85**	**87**
The following taxa were merged for analysis																	
Aoridae		**S577**	**101368**	**Stebbing, 1899**	**1**	**1**			**3**			**1**	**2**	**1**	**2**		
Aoridae	female	S577	101368	Stebbing, 1899	1	1			3			1	2	1	2		

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
Autonoe longipes		S583	102021	(Lilljeborg, 1852)													
Gnathia		**S793**	**118437**	**Leach, 1814**				**1**		**2**				**1**			
Gnathia	female	S793	118437	Leach, 1814						1							
Gnathia oxyuraea		S796	118995	(Lilljeborg, 1855)				1		1				1			
Cheirocratus		**S503**	**101669**	**Norman, 1867**									**2**				
Cheirocratus	female	S503	101669	Norman, 1867									1				
Cheirocratus pseudosundevallii	?			Gouillieux, 2019									1				
Number of taxa					**1**	**1**	**0**	**1**	**1**	**1**	**0**	**1**	**2**	**2**	**1**	**0**	**0**
Abundance					**1**	**1**	**0**	**1**	**3**	**2**	**0**	**1**	**4**	**2**	**2**	**0**	**0**
The following taxa were excluded from analysis																	
Colonial																	
PORIFERA		C1	558	Grant, 1836	P		P										
Leuckartiara octona		D240	117791	(Fleming, 1823)												P	
Tubularia		D163	117258	Linnaeus, 1758													P
Eudendrium		D218	117093	Ehrenberg, 1834										P			
Bougainvilliidae		D246	1594	Lütken, 1850													
Phialella quadrata		D343	117804	(Forbes, 1848)									P			P	P
Calycella syringa		D348	117402	(Linnaeus, 1767)													
Lafoea dumosa		D386	117702	(Fleming, 1828)													
Halecium		D390	117103	Oken, 1815													
Abietinaria		D408	117225	Kirchenpauer, 1884	P												P
Diphasia		D413	117228	L Agassiz, 1862													
Hydrallmania falcata		D424	117890	(Linnaeus, 1758)		P	P		P		P		P				
Sertularella gayi		D429	117902	(Lamouroux, 1821)	P												
Sertularia cupressina		D435	117913	(Linnaeus, 1758)		P	P		P					P			

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
Nemertesia		D462	117195	Lamouroux, 1812													
Campanulariidae		D491	1606	Peron & Lesueur, 1810		P			P		P						P
Alcyonium digitatum		D597	125333	Linnaeus, 1758		P		P						P			
Crisia		Y13	111032	Lamouroux, 1812													
Tubulipora		Y27	111054	Lamarck, 1816													
Disporella hispida		Y66	111730	(Fleming, 1828)													
Alcyonidium parasiticum		Y81	111604	(Fleming, 1828)		P					P						
Vesicularia spinosa		Y131	111669	(Linnaeus, 1758)										P			
Amathia lendigera		Y135	111659	(Linnaeus, 1758)													
Amathia		Y137	111023	Farre, 1837													
Aetea		Y153	110819	Lamouroux, 1812													
Conopeum reticulum		Y172	111351	(Linnaeus, 1767)							P						
Electra pilosa		Y178	111355	(Linnaeus,1767)						P							P
Callopora		Y201	110851	J E Gray, 1848													
Beania mirabilis		Y261	111072	Johnston, 1840													
Chorizopora brongniartii		Y344	111304	(Audouin, 1826)													
Escharella immersa		Y364	111484	(Fleming, 1828)				P			P					P	
Porella concinna		Y385	111125	(Busk, 1854)													
Schizomavella		Y467	110829	Canu & Bassler, 1917	P	P	P	P		P	P			P			P
Damaged																	
Eumida	damaged	P163	129446	Malmgren, 1865										1			
Aricidea	damaged	P675	129430	Webster, 1879					1								
Paradoneis	damaged	P695	129433	Hartman, 1965													
Spionidae	damaged	P720	913	Grube,1850													
Dipolydora	damaged	P748	129611	Verrill, 1881					2								

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
Terebellidae	damaged	P1179	982	Johnston, 1846	3				1					2			
Sabellidae	damaged	P1257	985	Latreille, 1825													
Serpulidae	damaged	P1324	988	Rafinesque, 1815													
Nebalia	damaged	S5	147031	Leach, 1814										1			
AMPHIPODA	damaged	S97	1135														
Urothoe	damaged	S246	101789	Dana, 1852													
Liocarcinus	damaged	S1577	106925	Stimpson,1870													
GASTROPODA	damaged	W88	101														
BIVALVIA	damaged	W1560	151265	Goldfuss, 1820													
SOLENOIDEA	damaged	W1991	14635	Lamarck, 1809													
Ophiuridae	damaged	ZB165	123200	Muller & Troschel, 1840									1				
Fish																	
Gobiesocidae		ZG1180	125477	Bleeker, 1859													
Juvenile																	
ANIMALIA	eggs		2								3						
SIPUNCULA	juvenile	N1	1268											1			
Golfingia	juvenile	N12	136021	Lankester, 1885													
Glycera	juvenile	P255	129296	Lamarck, 1818													
Goniadidae	juvenile	P266	953	Kinberg, 1866													
Nereididae	juvenile	P458	22496	Blainville, 1818													
Nephtys	juvenile	P494	129370	Cuvier, 1817	1								3		1	1	
Scolelepis	juvenile	P778	129623	Blainville, 1828													
CRUSTACEA	larva	R1	1066										1				
BALANOMORPHA	juvenile	R42	1082	Burmeister, 1834													
Ampelisca	juvenile	S423	101445	Kroyer, 1842							2						

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
Gnathia	juvenile	S793	118437	Leach, 1814			1			1				3			
GEBIIDEA	juvenile	S1403	477323	de Saint Laurent, 1979	3		1	1	2	1	5		1	2	3	1	
Paguridae	juvenile	S1445	106738	Latreille, 1802				1	1	1			1	1			
DECAPODA	larva	S1276	1130	Latreille, 1830													
Ebalia	juvenile	S1504	106889	Leach,1817													
Majidae	juvenile	S1512	106760	Samouelle, 1819	1			1									
Inachinae	juvenile	S1520	148436	MacLeay, 1838													
Macropodia	juvenile	S1529	205077	Leach, 1814													
Buccinidae	eggs	W702	149	Rafinesque, 1815													1
Tritonia	juvenile	W1246	138580	Cuvier, 1798										1			1
Nucula	juvenile	W1565	138262	Lamarck, 1799		1											
Mytilidae	juvenile	W1691	211	Rafinesque, 1815				1									
Modiolus	juvenile	W1702	140467	(Linnaeus, 1758)													
Pectinidae	juvenile	W1768	213	Rafinesque, 1815					1								
Anomiidae	juvenile	W1805	214	Rafinesque, 1815													
Abra	juvenile	W2058	138474	Lamarck, 1818					1								1
Dosinia	juvenile	W2126	138636	Scopoli, 1777													
Ophiuridae	juvenile	ZB165	123200	Muller & Troschel, 1840													
ECHINOIDEA	juvenile	ZB181	123082	Leske, 1778	1			1		1	1						
Echinocardium	juvenile	ZB222	123426	Gray, 1825													
HOLOTHUROIDEA	juvenile	ZB229	123083			1											
Thyone	juvenile	ZB261	146116	Oken, 1815													
Leptosynapta	juvenile	ZB291	123449	Verrill, 1867	1			1	1								
ASCIDIACEA	juvenile	ZD2	1839	Nielsen, 1995													
Meiofaunal																	

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
NEMATODA		HD1	799		2												
Parasitic																	
COPEPODA	parasitic	R142	1080														
Number of taxa					**11**	**8**	**6**	**9**	**11**	**6**	**10**	**0**	**7**	**13**	**2**	**5**	**9**
Abundance					**12**	**2**	**2**	**6**	**10**	**4**	**11**	**0**	**7**	**12**	**4**	**2**	**3**

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST29 FA	MA_ST30 FA	MA_ST31 FA	MA_ST32 FA	MA_ST33 FA	MA_ST34 FA	MA_ST35 FA	MA_ST36 FA	MA_ST37 FA	MA_ST38 FA	MA_ST39 FA	MA_ST40 FA	MA_ST41 FA
CNIDARIA																	
Cerianthus lloydii		D632	283798	Gosse, 1859		1			1				1			2	
Actiniaria		D662	1360							2	1		1	1			
PLATYHELMINTHES																	
PLATYHELMINTHES		F2	793	Minot, 1876													
NEMERTEA																	
NEMERTEA		G1	152391		3	4	4	8	7	4	3	5	5	2	6	8	5
SIPUNCULA																	
Golfingia elongata		N14	175026	(Keferstein, 1862)	1	2						1				4	1
Golfingia vulgaris		N17	136050	(de Blainville, 1827)												1	
Nephasoma minutum		N25	136060	(Keferstein, 1862)	2												
Phascolion strombus		N34	175043	(Montagu, 1804)								2			1		
POLYCHAETA																	
Pisione remota		P15	130707	Southern, 1914				11									
Aphrodita aculeata		P19	129840	Malmgren, 1867	1												
Enipo elisabethae		P43	130737	McIntosh, 1900													
Gattyana cirrhosa		P49	130749	(Pallas, 1766)				1								1	
Harmothoe		P50	129491	Kinberg, 1855		1											1
Malmgrenia darbouxi			863197	(Pettibone, 1993)	1												
Malmgrenia andreapolis		P51	147008	(McIntoch, 1874)													
Lepidonotus squamatus		P82	130801	(Linnaeus, 1758)													
Pholoe inornata		P92	130601	Johnston, 1839		1			1								
Pholoe baltica		P95	130599	Örsted, 1843		1											1
Sthenelais limicola		P109	131077	(Ehlers, 1864)													
Eteone longa	aggregate	P117	130616	(Fabricius, 1780)													

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					MA_ST29 FA	MA_ST30 FA	MA_ST31 FA	MA_ST32 FA	MA_ST33 FA	MA_ST34 FA	MA_ST35 FA	MA_ST36 FA	MA_ST37 FA	MA_ST38 FA	MA_ST39 FA	MA_ST40 FA	MA_ST41 FA
Hesionura elongata		P122	130649	(Southern, 1914)													
Mysta picta		P127	147026	(Quatrefages, 1866)													
Phyllodoce groenlandica		P141	334506	(Örsted, 1842)					2	1			1		1	1	
Phyllodoce longipes		P143	130763	Kinberg, 1866				1									
Phyllodoce rosea		P146	334514	(Mcintosh, 1877)					2							1	
Eulalia bilineata		P152	130624	(Johnston, 1840)													
Eulalia mustela		P155	130631	Pleijel, 1987				1							1		
Eumida sanguinea		P167	130644	(Örsted, 1843)		3											
Glycera alba		P256	130116	(O.F. Muller, 1788)													
Glycera fallax		P259	336908	Quatrefages, 1850	1											1	
Glycera lapidum		P260	130123	Quatrefages, 1866	1	1	3							1	1		2
Glycera oxycephala		P262	130126	Ehlers, 1887			1		1		1		1				
Glycinde nordmanni		P268	130136	(Malmgren, 1865)									1				
Goniadella gracilis		P276	130145	(Verrill, 1873)		1	3	2	1			1	1		5		1
Psamathe fusca		P305	152249	(Keferstein, 1862)													
Oxydromus pallidus		P317	340203	(Claparede, 1864)													
Podarkeopsis capensis		P319	130195	Day, 1963						1			1				
Syllis garciai		P351	131431	(Campoy, 1982)	2		1	1			1				5	1	
Syllis parapari			196002	San Martin & Lopez, 2000													
Syllis pontxioi			196003	San Martín & López, 2000				2									
Syllis armillaris		P365	131415	(O.F. Muller, 1776)							1	1	1				
Syllis variegata		P371	131458	(Grube, 1860)													
Eusyllis blomstrandi		P380	131290	Malmgren, 1867													

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST29 FA	MA_ST30 FA	MA_ST31 FA	MA_ST32 FA	MA_ST33 FA	MA_ST34 FA	MA_ST35 FA	MA_ST36 FA	MA_ST37 FA	MA_ST38 FA	MA_ST39 FA	MA_ST40 FA	MA_ST41 FA
Odontosyllis fulgurans		P387	131327	(Audouin & Milne Edwards, 1833)													
Streptodonta pterochaeta		P391	238207	Southern, 1914				1									
Streptosyllis campoyi			238248	Brito, Nunez & San Martin, 2000	1												
Parexogone hebes		P421	757970	(Webster & Benedict, 1884)						1			1				
Exogone verugera		P423	131307	(Claparede, 1868)													
Sphaerosyllis		P424	129677	Claparède, 1863													
Myrianida		P434	129659	Milne Edwards, 1845													
Eunereis longissima		P475	130375	Johnston, 1840					1								
Nereis zonata		P478	130407	Malmgren, 1867		1											1
Nephtys assimilis		P495	130353	Örsted, 1843													
Nephtys caeca		P496	130355	(Fabricius, 1780)		1			1			1				1	
Nephtys cirrosa		P498	130357	Ehlers, 1868			1				2			2		1	
Nephtys longosetosa		P503	130364	Örsted, 1843													
Nothria conchylega		P545	130467	(Sars, 1835)													1
Paucibranchia bellii		P564	130072	(Audouin & Milne-Edwards, 1833)													
Lysidice unicornis		P568	742232	(Grube, 1840)	2	3	1		3			1	2			1	
Lumbrineris cf. *cingulata*			130240	(Ehlers, 1868)					3								
Lumbrineris futilis		P582	851788	(Audouin & Milne Edwards, 1834)													
Drilonereis filum		P591	129856	(Claparède, 1868)		1							1				
Protodorvillea kefersteini		P638	130041	(McIntosh, 1869)													
Schistomeringos rudolphi		P643	154127	Delle Chiaje, 1828									1				
Orbinia sertulata		P665	334310	(Savigny, 1820)										1			

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST29 FA	MA_ST30 FA	MA_ST31 FA	MA_ST32 FA	MA_ST33 FA	MA_ST34 FA	MA_ST35 FA	MA_ST36 FA	MA_ST37 FA	MA_ST38 FA	MA_ST39 FA	MA_ST40 FA	MA_ST41 FA
Scoloplos armiger		P672	334722	(Muller, 1776)										2		2	
Aricidea catherinae		P684	333034	(Laubier, 1967)													
Aricidea cerrutii		P685	525497	Laubier, 1966			4		2	5		2	4	2			
Cirrophorus branchiatus		P689	130576	Ehlers, 1908													
Paradoneis ilvana		P698		Castelli, 1985													
Paradoneis lyra		P699	130585	(Southern, 1914)			1		2				1			1	
Poecilochaetus serpens		P718	130711	Allen, 1904	2	6			2	1			3	1	1	15	3
Aonides paucibranchiata		P723	131107	Southern, 1914	7	6	18	3	2	3	2	3	1		7		5
Atherospio guillei			478336	(Laubier & Ramos,1974)	1	1											
Laonice bahusiensis		P733	131127	Soderstrom, 1920	1	2											
Dipolydora caulleryi/sp. A		P751	131116	Mesnil, 1897					1								
Dipolydora flava		P754	131118	Claparede, 1870													
Dipolydora sp. B		P762	131124	Verrill, 1881		1											1
Pseudopolydora pulchra		P774	131169	(Carazzi, 1895)		2							1				
Scolelepis korsuni			131174	Sikorski, 1994													
Spio goniocephala			131184	Thulin, 1957		1					1			3			
Spio symphyta			596189	Meisner, Bick & Bastrop, 2011		1	1	2	1				1	1	4	1	
Spiophanes bombyx		P794	131187	(Claparede, 1870)	1	3	1	1	5	3	5	2	4		3	2	5
Spiophanes kroyeri		P796	131188	Grube, 1860													
Magelona johnstoni			130269	Fiege, Lichen &Mackie, 2000													
Chaetopterus variopedatus		P814	129914	(Renier, 1804)												1	
Phyllochaetopterus anglicus		P815		Potts, 1914		1						1					
Aphelochaeta sp. A		P823	129240	Blake, 1991													
Caulleriella alata		P829	129943	(Southern, 1914)						1			1			2	4

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST29 FA	MA_ST30 FA	MA_ST31 FA	MA_ST32 FA	MA_ST33 FA	MA_ST34 FA	MA_ST35 FA	MA_ST36 FA	MA_ST37 FA	MA_ST38 FA	MA_ST39 FA	MA_ST40 FA	MA_ST41 FA
Chaetozone zetlandica		P831	129948	(McIntosh, 1911)	1							1	1	1			1
Chaetozone christiei			152217	Chambers, 2000													
Cirratulus cirratus		P836	129959	(O.F.Muller,1776)		1											
Tharyx		P847	129249	Webster & Benedict, 1887													
Flabelligera affinis		P881	130103	M.Sars, 1829													
Mediomastus fragilis		P919	129892	Rasmussen, 1973				1	1								
Notomastus		P920	129220	Sars, 1850		3	1		1			2	2			6	2
Praxillura longissima		P944	130327	Arwidsson, 1906													
Leiochone			146991	Grube, 1868	1	2	1		1			2	1			1	
Euclymene lombricoides		P963	209899	(Quatrefages, 1866)		1											
Euclymene oerstedii		P964	130294	(Claparède, 1863)													
Praxillella affinis		P971	130322	(M Sars, 1872)		1		1	3				1				
Ophelia borealis		P999	130491	Quatrefages, 1866													
Ophelia celtica		P1000	130492	Amoureux & Dauvin, 1981													
Ophelina acuminata		P1014	130500	Örsted, 1843		3			1				1				
Asclerocheilus intermedius		P1022	130974	(Saint-Joseph, 1894)					1				2			1	3
Scalibregma celticum		P1026	130979	Mackie, 1991													
Scalibregma inflatum		P1027	130980	Rathke, 1843		5			3				1			3	1
Polygordius		P1062	129472	Schneider, 1868				6			1						
Galathowenia oculata		P1093	146950	Zaks, 1922		1							3				
Owenia		P1097	129427	Delle Chiaje, 1844		1	3		1	2			1		3	1	3
Lagis koreni		P1107	152367	Malmgren, 1866		1			2							4	1
Sabellaria spinulosa		P1117	130867	Leuckart, 1849													
Ampharete lindstroemi	aggregate	P1139	129778	M. Sars, 1864		7			15	1		2	2			3	6

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST29 FA	MA_ST30 FA	MA_ST31 FA	MA_ST32 FA	MA_ST33 FA	MA_ST34 FA	MA_ST35 FA	MA_ST36 FA	MA_ST37 FA	MA_ST38 FA	MA_ST39 FA	MA_ST40 FA	MA_ST41 FA
Anobothrus gracilis		P1147	129789	(Malmgren, 1866)													
Terebellides stroemii		P1175	131573	Sars, 1835													
Lanice conchilega		P1195	131495	(Pallas, 1766)			1		1							2	
Phisidia aurea		P1215	131513	Southward, 1956		1											
Pista mediterranea			131519	de Gaillande, 1970								1					1
Pista bansei			152254	Saphronova, 1988	1	1	1		2						2	2	
Polycirrus		P1235	129710	Grube, 1850		2	2		1	1		1	1	5	1		
Lysilla loveni		P1233	131500	(Malmgren, 1866)													
Lysilla nivea		P1234	131501	Langerhans, 1884	4		2		3			2	3			1	1
Streblosoma intestinale		P1252	131540	M. Sars in G.O. Sars, 1872													
Thelepus cincinnatus		P1254	131543	(Fabricius, 1780)								1					
Dialychone dunerificta			558752	(Tovar-Hernández, Licciano, Giangrande, 2007)		1											
Parasabella cambrensis		P1273	530920	Knight-Jones & Walker, 1985													1
Euchone pararosea			390407	Giangrande & Licciano, 2006													
Pseudopotamilla reniformis		P1316	130963	(Bruguiere, 1789)													
Sabella pavonina		P1320	130967	Savigny, 1822													
Hydroides norvegica		P1334	131009	Gunnerus, 1768													
Spirobranchus triqueter		P1341	555935	(Linnaeus, 1758)					1				1				
OLIGOCHAETA																	
Grania		P1524	137349	Southern, 1913				1									
CHELICERATA																	
Nymphon brevirostre		Q5	150520	Hodge, 1863													
Anoplodactylus petiolatus		Q44	134723	(Kroyer, 1884)													

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					MA_ST29 FA	MA_ST30 FA	MA_ST31 FA	MA_ST32 FA	MA_ST33 FA	MA_ST34 FA	MA_ST35 FA	MA_ST36 FA	MA_ST37 FA	MA_ST38 FA	MA_ST39 FA	MA_ST40 FA	MA_ST41 FA
CRUSTACEA																	
Scalpellum scalpellum		R22	106204	(Linnaeus, 1767)													
Verruca stroemia		R41	106257	O.F.Muller, 1776													
Nebalia reboredae			459311	Moreira & Urgorri, 2009					1								
Nebalia borealis		S7	156257	Dahl, 1985													
Sarsinebalia urgorrii			388224	Moreira, Gestoso & Troncoso, 2003													
Heteromysis formosa		S93	120037	(G. O. Sars, 1877)													
Kroyera carinata		S125	547074	Spence Bate, 1857													
Perioculodes longimanus		S131	102915	(Bate & Westwood, 1868)													
Pontocrates arenarius		S135	102918	(Bate, 1858)				1		2							1
Synchelidium maculatum		S138	102928	Stebbing, 1906													
Apolochus neapolitanus		S159	236495	(Della Valle, 1893)													
Leucothoe incisa		S177	102460	Robertson, 1892		1	1					2					
Leucothoe procera		S179	102466	Bate, 1857												1	
Stenothoe marina		S213	103166	(Bate, 1856)													
Urothoe elegans		S248	103228	(Bate, 1856)						1			2			1	
Urothoe marina		S249	103233	(Bate, 1857)	33	32	9	5	21	7		12	11	4		11	32
Acidostoma neglectum			102495	(Spence Bate & Westwood, 1861)													
Hippomedon denticulatus		S296	102570	(Bate,1857)													
Tryphosa nana		S321	102691	(Kroyer, 1846)									1				
Tmetonyx similis		S337	102742	(G O Sars, 1891)													
Nototropis falcatus		S410	102139	Metzger, 1871						2	2				1		
Nototropis vedlomensis		S413	102132	(Bate & Westwood, 1862)		4											
Ampelisca diadema		S429	101896	(Costa, 1853)		3			4			3	2		1	2	

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					MA_ST29 FA	MA_ST30 FA	MA_ST31 FA	MA_ST32 FA	MA_ST33 FA	MA_ST34 FA	MA_ST35 FA	MA_ST36 FA	MA_ST37 FA	MA_ST38 FA	MA_ST39 FA	MA_ST40 FA	MA_ST41 FA
Ampelisca provincialis		S434	101915	Bellan-Santini & Kaim-Malka, 1977	1	5			8			2	4			4	
Ampelisca spinipes		S438	101928	Boeck, 1861		1				1			3			1	9
Ampelisca tenuicornis		S440	101930	Lilljeborg, 1855													
Ampelisca typica		S442	101933	(Bate, 1856)	1	2		1	2							2	2
Bathyporeia elegans		S452	103058	Watkin, 1938			1	1		1	2			2	1		
Bathyporeia gracilis		S453	103059	G O Sars, 1891		1	2			2				5			
Bathyporeia guilliamsoniana		S454	103060	(Bate, 1857)	1									1			
Haustorius arenarius		S462	102317	Slabber, 1769													
Abludomelita obtusata		S498	102788	(Montagu, 1813)												1	
Cheirocratus		**S503**	**101669**	**Norman, 1867**									**1**	**1**			
Othomaera othonis		S519	534781	(Milne-Edwards, 1830)													
Maerella tenuimana		S521	102831	(Bate, 1862)		1		1	1			1					
Megamphopus cornutus		S539	148545	Norman, 1869													
Gammaropsis maculata		S541	102364	(Johnston, 1828)				2									
Photis longicaudata		S552	102383	(Bate & Westwood, 1862)		3						2				3	
Aoridae		**S577**	**101368**	**Stebbing, 1899**		**1**			**1**	**1**				**1**		**1**	
Leptocheirus hirsutimanus		S588	102036	(Bate, 1862)		1	3					3				2	4
Crassicorophium crassicorne		S611	397383	Bruzelius, 1859								1					1
Unciola planipes		S622	102061	Norman, 1867						3	1						1
Phtisica marina		S657	101864	Slabber, 1769													
Gnathia		**S793**	**118437**	**Leach, 1814**		**4**		**1**					**4**				
Conilera cylindracea		S849	118842	(Montagu, 1804)					1				1				1
Eurydice pulchra		S854	118852	Leach,1815	5	2	1	5	2				3	1	3		2
Astacilla longicornis		S955	119024	(Sowerby, 1806)													
Tanaopsis graciloides		S1142	136458	(Lilljeborg, 1864)													

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Bodotria scorpioides		S1197	110445	(Montagu, 1804)													
Diastylis bradyi		S1248	110472	Norman, 1879													
Processa modica		S1366	108343	Williamson & Rochanaburanon, 1979									1				
Callianassa subterranea		S1415	107729	(Montagu, 1808)									1				
Upogebia deltaura		S1419	107739	(Leach, 1815)			2						1			3	1
Pisidia longicornis		S1482	107188	(Linnaeus,1757)				1	1			1					1
Ebalia tumefacta		S1509	107302	(Montagu, 1808)													
Hyas coarctatus		S1519	107323	Leach, 1815													
Inachus dorsettensis		S1526	107327	(Pennant, 1777)													
Macropodia rostrata		S1532	107345	(Linnaeus, 1761)													
Thia scutellata		S1559	107281	(Fabricius, 1793)													
Liocarcinus pusillus		S1584	107393	(Leach, 1816)					1	1							
Pinnotheres pisum		S1638	107473	(Linnaeus, 1767)				1									
MOLLUSCA																	
Leptochiton asellus		W53	140199	(Gmelin, 1791)													
Acanthochitona crinita		W86	138675	(Pennant, 1777)					1								
Gibbula magus	?	W159	141790	(Linnaeus, 1758)													
Euspira nitida		W491	151894	(Donovan, 1804)													
Melanella alba		W634	139832	(da Costa, 1778)													
Colus gracilis		W715	138899	(da Costa, 1778)													
Philine		W1036	138339	Ascanius, 1772						1			1	1	1		
Tritonia plebeia		W1254	141738	Johnston, 1828													
Onchidoridae		W1319	175	Gray, 1827													
Knoutsodonta depressa		W1323	845528	(Alder & Hancock, 1842)													
Nucula hanleyi		W1568	140588	Winckworth, 1931													3

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					MA_ST29 FA	MA_ST30 FA	MA_ST31 FA	MA_ST32 FA	MA_ST33 FA	MA_ST34 FA	MA_ST35 FA	MA_ST36 FA	MA_ST37 FA	MA_ST38 FA	MA_ST39 FA	MA_ST40 FA	MA_ST41 FA
Modiolus adriaticus		W1700	506025	(Lamarck, 1819)													
Aequipecten opercularis		W1773	140687	(Linnaeus, 1758)									1				
Heteranomia squamula		W1809	138749	(Linnaeus, 1758)													
Pododesmus squama		W1812	138752	(Linnaeus, 1761)													
Hemilepton nitidum		W1882	246148	(W. Turton, 1822)													
Kurtiella bidentata		W1906	345281	(Montagu, 1803)													
Spisula elliptica		W1975	140300	(Brown, 1827)			1	2		4	2	1	1				
Ensis leei		W1997	876640	M. Huber, 2015								1					
Phaxas pellucidus		W2006	140737	(Pennant, 1777)													
Moerella donacina		W2021	147021	Linnaeus, 1758			1										
Asbjornsenia pygmaea		W2023	879714	(Lovén, 1846)				2			1						
Gari fervensis		W2051	140870	(Gmelin, 1791)													
Solecurtus scopula		W2054	141543	(Turton, 1822)													
Abra alba		W2059	141433	(W Wood, 1802)													
Abra prismatica		W2062	141436	(Montagu, 1808)													
Clausinella fasciata		W2100	141909	(da Costa, 1778)													
Timoclea ovata		W2104	141929	(Pennant, 1777)									1				
Venerupis corrugata		W2124	181364	(Gmelin, 1791)													
Dosinia exoleta		W2130	141911	(Linnaeus, 1758)													
Hiatella arctica		W2166	140103	(Linnaeus, 1758)													
Thracia villosiuscula		W2233	141651	(Macgillivray, 1827)			1										1
Cochlodesma praetenue		W2239	181373	(Pulteney, 1799)													
PHORONIDA																	
Phoronis		ZA3	128545	Wright, 1856	4	68	11	3	39			2	28		2	21	
ECHINODERMATA																	

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST29 FA	MA_ST30 FA	MA_ST31 FA	MA_ST32 FA	MA_ST33 FA	MA_ST34 FA	MA_ST35 FA	MA_ST36 FA	MA_ST37 FA	MA_ST38 FA	MA_ST39 FA	MA_ST40 FA	MA_ST41 FA
Ophiothrix fragilis		ZB124	125131	(Abildgaard, 1789)													
Amphipholis squamata		ZB161	125064	(Chiaje, 1828)													
Ophiura albida		ZB168	124913	Forbes, 1839									1	2			
Psammechinus miliaris		ZB193	124319	(Gmelin, 1778)									2				
Echinocyamus pusillus		ZB212	124273	(O.F. Muller,1776)		2	1	5			1		1	5	6	1	3
Echinocardium cordatum		ZB223	124392	(Pennant, 1777)													
Mesothuria intestinalis		ZB233	124568	(Ascanius, 1805) Östergren, 1896				1									
Pseudothyone raphanus		ZB257	124661	(Duben & Koren, 1845)									1				
Thyone fusus		ZB262	124670	O.F.Muller, 1776													
Thyone roscovita		ZB264	124676	Hérouard, 1889													
Panningia hyndmani		ZB272	848014	(Thompson, 1840)													
Leptosynapta inhaerens		ZB296	124465	(O.F.Muller, 1776)													
Oestergrenia digitata		ZB300	152547	(Montagu, 1804)													
TUNICATA																	
Ascidiella aspersa		ZD84	103718	O F Müller, 1776													
Ascidia conchilega	?	ZD88	103702	O F Muller, 1776													
Polycarpa fibrosa		ZD112	103902	(Stimpson, 1852)													
Dendrodoa grossularia		ZD120	103882	(van Beneden 1846)													
CEPHALOCHORDATA																	
Branchiostoma lanceolatum			104906	(Pallas, 1774)													
Number of taxa					**25**	**54**	**31**	**31**	**46**	**25**	**16**	**31**	**56**	**22**	**21**	**43**	**37**
Abundance					**79**	**207**	**84**	**75**	**158**	**52**	**27**	**63**	**126**	**45**	**56**	**125**	**113**
The following taxa were merged for analysis																	
Aoridae		**S577**	**101368**	**Stebbing, 1899**		**1**			**1**	**1**				**1**		**1**	
Aoridae	female	S577	101368	Stebbing, 1899		1			1	1						1	

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST29 FA	MA_ST30 FA	MA_ST31 FA	MA_ST32 FA	MA_ST33 FA	MA_ST34 FA	MA_ST35 FA	MA_ST36 FA	MA_ST37 FA	MA_ST38 FA	MA_ST39 FA	MA_ST40 FA	MA_ST41 FA
Autonoe longipes		S583	102021	(Lilljeborg, 1852)										1			
Gnathia		**S793**	**118437**	**Leach, 1814**		**4**		**1**					**4**				
Gnathia	female	S793	118437	Leach, 1814		1											
Gnathia oxyuraea		S796	118995	(Lilljeborg, 1855)		3		1					4				
Cheirocratus		**S503**	**101669**	**Norman, 1867**									**1**	**1**			
Cheirocratus	female	S503	101669	Norman, 1867									1	1			
Cheirocratus pseudosundevallii	?			Gouillieux, 2019													
Number of taxa					**0**	**2**	**0**	**1**	**1**	**1**	**0**	**0**	**2**	**2**	**0**	**1**	**0**
Abundance					**0**	**5**	**0**	**1**	**1**	**1**	**0**	**0**	**5**	**2**	**0**	**1**	**0**
The following taxa were excluded from analysis																	
Colonial																	
PORIFERA		C1	558	Grant, 1836													
Leuckartiara octona		D240	117791	(Fleming, 1823)					P								
Tubularia		D163	117258	Linnaeus, 1758						P							
Eudendrium		D218	117093	Ehrenberg, 1834													
Bougainvilliidae		D246	1594	Lütken, 1850		P											
Phialella quadrata		D343	117804	(Forbes, 1848)						P							
Calycella syringa		D348	117402	(Linnaeus, 1767)												P	
Lafoea dumosa		D386	117702	(Fleming, 1828)													
Halecium		D390	117103	Oken, 1815												P	
Abietinaria		D408	117225	Kirchenpauer, 1884					P								
Diphasia		D413	117228	L Agassiz, 1862													
Hydrallmania falcata		D424	117890	(Linnaeus, 1758)	P	P		P	P			P				P	
Sertularella gayi		D429	117902	(Lamouroux, 1821)													
Sertularia cupressina		D435	117913	(Linnaeus, 1758)		P											

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST29 FA	MA_ST30 FA	MA_ST31 FA	MA_ST32 FA	MA_ST33 FA	MA_ST34 FA	MA_ST35 FA	MA_ST36 FA	MA_ST37 FA	MA_ST38 FA	MA_ST39 FA	MA_ST40 FA	MA_ST41 FA
Nemertesia		D462	117195	Lamouroux, 1812													
Campanulariidae		D491	1606	Peron & Lesueur, 1810	P	P		P	P			P		P			
Alcyonium digitatum		D597	125333	Linnaeus, 1758													
Crisia		Y13	111032	Lamouroux, 1812													
Tubulipora		Y27	111054	Lamarck, 1816													
Disporella hispida		Y66	111730	(Fleming, 1828)													
Alcyonidium parasiticum		Y81	111604	(Fleming, 1828)													
Vesicularia spinosa		Y131	111669	(Linnaeus, 1758)	P				P								
Amathia lendigera		Y135	111659	(Linnaeus, 1758)													
Amathia		Y137	111023	Farre, 1837													
Aetea		Y153	110819	Lamouroux, 1812													
Conopeum reticulum		Y172	111351	(Linnaeus, 1767)													
Electra pilosa		Y178	111355	(Linnaeus,1767)													
Callopora		Y201	110851	J E Gray, 1848													
Beania mirabilis		Y261	111072	Johnston, 1840													
Chorizopora brongniartii		Y344	111304	(Audouin, 1826)													
Escharella immersa		Y364	111484	(Fleming, 1828)		P											
Porella concinna		Y385	111125	(Busk, 1854)													
Schizomavella		Y467	110829	Canu & Bassler, 1917		P											
Damaged																	
Eumida	damaged	P163	129446	Malmgren, 1865													
Aricidea	damaged	P675	129430	Webster, 1879													
Paradoneis	damaged	P695	129433	Hartman, 1965							2						
Spionidae	damaged	P720	913	Grube,1850													
Dipolydora	damaged	P748	129611	Verrill, 1881													

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST29 FA	MA_ST30 FA	MA_ST31 FA	MA_ST32 FA	MA_ST33 FA	MA_ST34 FA	MA_ST35 FA	MA_ST36 FA	MA_ST37 FA	MA_ST38 FA	MA_ST39 FA	MA_ST40 FA	MA_ST41 FA
Terebellidae	damaged	P1179	982	Johnston, 1846			1						3			1	
Sabellidae	damaged	P1257	985	Latreille, 1825													
Serpulidae	damaged	P1324	988	Rafinesque, 1815													
Nebalia	damaged	S5	147031	Leach, 1814													
AMPHIPODA	damaged	S97	1135														
Urothoe	damaged	S246	101789	Dana, 1852	1		1		1	1						2	
Liocarcinus	damaged	S1577	106925	Stimpson,1870												1	
GASTROPODA	damaged	W88	101														
BIVALVIA	damaged	W1560	151265	Goldfuss, 1820								1					
SOLENOIDEA	damaged	W1991	14635	Lamarck, 1809		1											
Ophiuridae	damaged	ZB165	123200	Muller & Troschel, 1840													
Fish																	
Gobiesocidae		ZG1180	125477	Bleeker, 1859		1											
Juvenile																	
ANIMALIA	eggs		2														
SIPUNCULA	juvenile	N1	1268		1												
Golfingia	juvenile	N12	136021	Lankester, 1885													1
Glycera	juvenile	P255	129296	Lamarck, 1818													
Goniadidae	juvenile	P266	953	Kinberg, 1866													
Nereididae	juvenile	P458	22496	Blainville, 1818													
Nephtys	juvenile	P494	129370	Cuvier, 1817						1			1	1			
Scolelepis	juvenile	P778	129623	Blainville, 1828													
CRUSTACEA	larva	R1	1066												1		
BALANOMORPHA	juvenile	R42	1082	Burmeister, 1834													1
Ampelisca	juvenile	S423	101445	Kroyer, 1842		1											

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST29 FA	MA_ST30 FA	MA_ST31 FA	MA_ST32 FA	MA_ST33 FA	MA_ST34 FA	MA_ST35 FA	MA_ST36 FA	MA_ST37 FA	MA_ST38 FA	MA_ST39 FA	MA_ST40 FA	MA_ST41 FA
Gnathia	juvenile	S793	118437	Leach, 1814													
GEBIIDEA	juvenile	S1403	477323	de Saint Laurent, 1979	1	3	2		4				3			1	
Paguridae	juvenile	S1445	106738	Latreille, 1802		1											
DECAPODA	larva	S1276	1130	Latreille, 1830													
Ebalia	juvenile	S1504	106889	Leach,1817													
Majidae	juvenile	S1512	106760	Samouelle, 1819													
Inachinae	juvenile	S1520	148436	MacLeay, 1838													
Macropodia	juvenile	S1529	205077	Leach, 1814													
Buccinidae	eggs	W702	149	Rafinesque, 1815									1				
Tritonia	juvenile	W1246	138580	Cuvier, 1798													
Nucula	juvenile	W1565	138262	Lamarck, 1799													
Mytilidae	juvenile	W1691	211	Rafinesque, 1815													
Modiolus	juvenile	W1702	140467	(Linnaeus, 1758)				1									
Pectinidae	juvenile	W1768	213	Rafinesque, 1815													
Anomiidae	juvenile	W1805	214	Rafinesque, 1815													
Abra	juvenile	W2058	138474	Lamarck, 1818									1		1		
Dosinia	juvenile	W2126	138636	Scopoli, 1777										1			1
Ophiuridae	juvenile	ZB165	123200	Muller & Troschel, 1840													
ECHINOIDEA	juvenile	ZB181	123082	Leske, 1778													
Echinocardium	juvenile	ZB222	123426	Gray, 1825													
HOLOTHUROIDEA	juvenile	ZB229	123083														
Thyone	juvenile	ZB261	146116	Oken, 1815				1									
Leptosynapta	juvenile	ZB291	123449	Verrill, 1867	1												
ASCIDIACEA	juvenile	ZD2	1839	Nielsen, 1995						1							
Meiofaunal																	

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST29 FA	MA_ST30 FA	MA_ST31 FA	MA_ST32 FA	MA_ST33 FA	MA_ST34 FA	MA_ST35 FA	MA_ST36 FA	MA_ST37 FA	MA_ST38 FA	MA_ST39 FA	MA_ST40 FA	MA_ST41 FA
NEMATODA		HD1	799			1							3			2	
Parasitic																	
COPEPODA	parasitic	R142	1080														
Number of taxa					7	12	3	4	7	5	1	3	6	3	2	8	3
Abundance					4	8	4	2	5	3	2	1	12	2	2	7	3

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
CNIDARIA																	
Cerianthus lloydii		D632	283798	Gosse, 1859		1											
Actiniaria		D662	1360					1				2			1		
PLATYHELMINTHES																	
PLATYHELMINTHES		F2	793	Minot, 1876													
NEMERTEA																	
NEMERTEA		G1	152391		7	8	1	1	1	5	6	6	1	1	1	2	1
SIPUNCULA																	
Golfingia elongata		N14	175026	(Keferstein, 1862)	4	2						3				1	
Golfingia vulgaris		N17	136050	(de Blainville, 1827)	1												
Nephasoma minutum		N25	136060	(Keferstein, 1862)													
Phascolion strombus		N34	175043	(Montagu, 1804)									1		1		
POLYCHAETA																	
Pisione remota		P15	130707	Southern, 1914													1
Aphrodita aculeata		P19	129840	Malmgren, 1867							1						
Enipo elisabethae		P43	130737	McIntosh, 1900													
Gattyana cirrhosa		P49	130749	(Pallas, 1766)	1						1					1	
Harmothoe		P50	129491	Kinberg, 1855	3					1							
Malmgrenia darbouxi			863197	(Pettibone, 1993)							1						
Malmgrenia andreapolis		P51	147008	(McIntoch, 1874)													
Lepidonotus squamatus		P82	130801	(Linnaeus, 1758)	1												
Pholoe inornata		P92	130601	Johnston, 1839	2												
Pholoe baltica		P95	130599	Örsted, 1843	2						2	1					
Sthenelais limicola		P109	131077	(Ehlers, 1864)									1		1	1	
Eteone longa	aggregate	P117	130616	(Fabricius, 1780)							1		1			1	

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
Hesionura elongata		P122	130649	(Southern, 1914)													
Mysta picta		P127	147026	(Quatrefages, 1866)													
Phyllodoce groenlandica		P141	334506	(Örsted, 1842)	1						3						
Phyllodoce longipes		P143	130763	Kinberg, 1866		1											
Phyllodoce rosea		P146	334514	(Mcintosh, 1877)													
Eulalia bilineata		P152	130624	(Johnston, 1840)													
Eulalia mustela		P155	130631	Pleijel, 1987								2					
Eumida sanguinea		P167	130644	(Örsted, 1843)	1						2	1					
Glycera alba		P256	130116	(O.F. Muller, 1788)							1						
Glycera fallax		P259	336908	Quatrefages, 1850			2										
Glycera lapidum		P260	130123	Quatrefages, 1866			1					4					
Glycera oxycephala		P262	130126	Ehlers, 1887					3	1	1			1	2		
Glycinde nordmanni		P268	130136	(Malmgren, 1865)							1						
Goniadella gracilis		P276	130145	(Verrill, 1873)		2											1
Psamathe fusca		P305	152249	(Keferstein, 1862)												1	
Oxydromus pallidus		P317	340203	(Claparede, 1864)													
Podarkeopsis capensis		P319	130195	Day, 1963													
Syllis garciai		P351	131431	(Campoy, 1982)		1						3				2	
Syllis parapari			196002	San Martin & Lopez, 2000													
Syllis pontxioi			196003	San Martín & López, 2000													
Syllis armillaris		P365	131415	(O.F. Muller, 1776)	5							1					
Syllis variegata		P371	131458	(Grube, 1860)	4												
Eusyllis blomstrandi		P380	131290	Malmgren, 1867													

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
Odontosyllis fulgurans		P387	131327	(Audouin & Milne Edwards, 1833)													
Streptodonta pterochaeta		P391	238207	Southern, 1914													
Streptosyllis campoyi			238248	Brito, Nunez & San Martin, 2000													
Parexogone hebes		P421	757970	(Webster & Benedict, 1884)								1			1		
Exogone verugera		P423	131307	(Claparede, 1868)			1										
Sphaerosyllis		P424	129677	Claparède, 1863													
Myrianida		P434	129659	Milne Edwards, 1845													
Eunereis longissima		P475	130375	Johnston, 1840				1									
Nereis zonata		P478	130407	Malmgren, 1867	4							1					
Nephtys assimilis		P495	130353	Örsted, 1843				1								1	
Nephtys caeca		P496	130355	(Fabricius, 1780)	1			2				3					
Nephtys cirrosa		P498	130357	Ehlers, 1868			4	1	3	2			3	5	2	1	1
Nephtys longosetosa		P503	130364	Örsted, 1843													
Nothria conchylega		P545	130467	(Sars, 1835)		1											
Paucibranchia bellii		P564	130072	(Audouin & Milne-Edwards, 1833)							1						
Lysidice unicornis		P568	742232	(Grube, 1840)	2	1						1					
Lumbrineris cf. *cingulata*			130240	(Ehlers, 1868)		3		1		1	1	3	1	1		1	1
Lumbrineris futilis		P582	851788	(Audouin & Milne Edwards, 1834)													1
Drilonereis filum		P591	129856	(Claparède, 1868)													
Protodorvillea kefersteini		P638	130041	(McIntosh, 1869)													
Schistomeringos rudolphi		P643	154127	Delle Chiaje, 1828			1										
Orbinia sertulata		P665	334310	(Savigny, 1820)													

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
Scoloplos armiger		P672	334722	(Muller, 1776)				7		2	4		1	2	1	1	
Aricidea catherinae		P684	333034	(Laubier, 1967)													
Aricidea cerrutii		P685	525497	Laubier, 1966		3	1	1					2				1
Cirrophorus branchiatus		P689	130576	Ehlers, 1908													
Paradoneis ilvana		P698		Castelli, 1985													1
Paradoneis lyra		P699	130585	(Southern, 1914)	2	5		3									
Poecilochaetus serpens		P718	130711	Allen, 1904	6	8	2	3	2	2	64	1	5	1	2	4	
Aonides paucibranchiata		P723	131107	Southern, 1914	6	7	7			3	1	3	3			5	1
Atherospio guillei			478336	(Laubier & Ramos,1974)													
Laonice bahusiensis		P733	131127	Soderstrom, 1920													
Dipolydora caulleryi/sp. A		P751	131116	Mesnil, 1897	1												
Dipolydora flava		P754	131118	Claparede, 1870	3												
Dipolydora sp. B		P762	131124	Verrill, 1881													
Pseudopolydora pulchra		P774	131169	(Carazzi, 1895)	1	1			1								
Scolelepis korsuni			131174	Sikorski, 1994													
Spio goniocephala			131184	Thulin, 1957					3	1			2				
Spio symphyta			596189	Meisner, Bick & Bastrop, 2011		1	1	1			10	3					1
Spiophanes bombyx		P794	131187	(Claparede, 1870)	7	7	2	14	6	1	1	2	6	4	2	2	
Spiophanes kroyeri		P796	131188	Grube, 1860													
Magelona johnstoni			130269	Fiege, Lichen &Mackie, 2000							1						
Chaetopterus variopedatus		P814	129914	(Renier, 1804)													
Phyllochaetopterus anglicus		P815		Potts, 1914													
Aphelochaeta sp. A		P823	129240	Blake, 1991								2					
Caulleriella alata		P829	129943	(Southern, 1914)	2	3	1					1				2	

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
Chaetozone zetlandica		P831	129948	(McIntosh, 1911)	2						1	1	2				
Chaetozone christiei			152217	Chambers, 2000													
Cirratulus cirratus		P836	129959	(O.F.Muller,1776)								1				3	
Tharyx		P847	129249	Webster & Benedict, 1887													
Flabelligera affinis		P881	130103	M.Sars, 1829													
Mediomastus fragilis		P919	129892	Rasmussen, 1973								2					
Notomastus		P920	129220	Sars, 1850	2	3					1	3				2	3
Praxillura longissima		P944	130327	Arwidsson, 1906			1										
Leiochone			146991	Grube, 1868	2		1						1				
Euclymene lombricoides		P963	209899	(Quatrefages, 1866)	1												
Euclymene oerstedii		P964	130294	(Claparède, 1863)													
Praxillella affinis		P971	130322	(M Sars, 1872)	5	3	1										
Ophelia borealis		P999	130491	Quatrefages, 1866						2							
Ophelia celtica		P1000	130492	Amoureux & Dauvin, 1981													
Ophelina acuminata		P1014	130500	Örsted, 1843		2	1					1					
Asclerocheilus intermedius		P1022	130974	(Saint-Joseph, 1894)	1	1										1	
Scalibregma celticum		P1026	130979	Mackie, 1991													
Scalibregma inflatum		P1027	130980	Rathke, 1843	2	3		3			5			2	1	1	
Polygordius		P1062	129472	Schneider, 1868													
Galathowenia oculata		P1093	146950	Zaks, 1922													
Owenia		P1097	129427	Delle Chiaje, 1844		1	3	3		3		3					
Lagis koreni		P1107	152367	Malmgren, 1866	1		2	5		2	2	5	3	2	1	10	
Sabellaria spinulosa		P1117	130867	Leuckart, 1849													
Ampharete lindstroemi	aggregate	P1139	129778	M. Sars, 1864	6	7	1	7			4	26				6	

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
Anobothrus gracilis		P1147	129789	(Malmgren, 1866)													
Terebellides stroemii		P1175	131573	Sars, 1835		1						1					
Lanice conchilega		P1195	131495	(Pallas, 1766)		2					1	1					
Phisidia aurea		P1215	131513	Southward, 1956		1											
Pista mediterranea			131519	de Gaillande, 1970													
Pista bansei			152254	Saphronova, 1988	2	1	1			1		1				1	
Polycirrus		P1235	129710	Grube, 1850	1			7	1	5		2		1	1		
Lysilla loveni		P1233	131500	(Malmgren, 1866)													
Lysilla nivea		P1234	131501	Langerhans, 1884	1	2				1		2				1	
Streblosoma intestinale		P1252	131540	M. Sars in G.O. Sars, 1872													
Thelepus cincinnatus		P1254	131543	(Fabricius, 1780)	1												
Dialychone dunerificta			558752	(Tovar-Hernández, Licciano, Giangrande, 2007)	1	1											
Parasabella cambrensis		P1273	530920	Knight-Jones & Walker, 1985													
Euchone pararosea			390407	Giangrande & Licciano, 2006	1												
Pseudopotamilla reniformis		P1316	130963	(Bruguiere, 1789)													
Sabella pavonina		P1320	130967	Savigny, 1822													
Hydroides norvegica		P1334	131009	Gunnerus, 1768						1							
Spirobranchus triqueter		P1341	555935	(Linnaeus, 1758)	6	2											
OLIGOCHAETA																	
Grania		P1524	137349	Southern, 1913													
CHELICERATA																	
Nymphon brevirostre		Q5	150520	Hodge, 1863													
Anoplodactylus petiolatus		Q44	134723	(Kroyer, 1884)													

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					MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
CRUSTACEA																	
Scalpellum scalpellum		R22	106204	(Linnaeus, 1767)													
Verruca stroemia		R41	106257	O.F.Muller, 1776													
Nebalia reboredae			459311	Moreira & Urgorri, 2009													
Nebalia borealis		S7	156257	Dahl, 1985													
Sarsinebalia urgorrii			388224	Moreira, Gestoso & Troncoso, 2003		1								1			
Heteromysis formosa		S93	120037	(G. O. Sars, 1877)													
Kroyera carinata		S125	547074	Spence Bate, 1857													
Perioculodes longimanus		S131	102915	(Bate & Westwood, 1868)						2							
Pontocrates arenarius		S135	102918	(Bate, 1858)		1											
Synchelidium maculatum		S138	102928	Stebbing, 1906													
Apolochus neapolitanus		S159	236495	(Della Valle, 1893)													
Leucothoe incisa		S177	102460	Robertson, 1892													
Leucothoe procera		S179	102466	Bate, 1857													
Stenothoe marina		S213	103166	(Bate, 1856)													
Urothoe elegans		S248	103228	(Bate, 1856)		1		3			7	2	2				
Urothoe marina		S249	103233	(Bate, 1857)	17	36	4	5		5		8	2			10	
Acidostoma neglectum			102495	(Spence Bate & Westwood, 1861)		1											
Hippomedon denticulatus		S296	102570	(Bate,1857)				1						1		1	
Tryphosa nana		S321	102691	(Kroyer, 1846)													
Tmetonyx similis		S337	102742	(G O Sars, 1891)		1											
Nototropis falcatus		S410	102139	Metzger, 1871						2			1		1		
Nototropis vedlomensis		S413	102132	(Bate & Westwood, 1862)	1	1								1		1	

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					MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
Ampelisca diadema		S429	101896	(Costa, 1853)	1	6		1			3	4	1				
Ampelisca provincialis		S434	101915	Bellan-Santini & Kaim-Malka, 1977	2	2		1									
Ampelisca spinipes		S438	101928	Boeck, 1861		2		2			4	5				2	
Ampelisca tenuicornis		S440	101930	Lilljeborg, 1855							1						
Ampelisca typica		S442	101933	(Bate, 1856)	1	2		4	1		3					1	
Bathyporeia elegans		S452	103058	Watkin, 1938					1	4			2	11	8	1	2
Bathyporeia gracilis		S453	103059	G O Sars, 1891			3	1	2	13			2	5	2		
Bathyporeia guilliamsoniana		S454	103060	(Bate, 1857)						3				2	4		
Haustorius arenarius		S462	102317	Slabber, 1769													
Abludomelita obtusata		S498	102788	(Montagu, 1813)			1		2						6		
Cheirocratus		**S503**	**101669**	**Norman, 1867**							**1**						
Othomaera othonis		S519	534781	(Milne-Edwards, 1830)													
Maerella tenuimana		S521	102831	(Bate, 1862)	1	2											
Megamphopus cornutus		S539	148545	Norman, 1869		1		1									
Gammaropsis maculata		S541	102364	(Johnston, 1828)	2												
Photis longicaudata		S552	102383	(Bate & Westwood, 1862)	1	2											
Aoridae		**S577**	**101368**	**Stebbing, 1899**	**1**	**1**		**2**	**1**	**1**	**2**			**1**			
Leptocheirus hirsutimanus		S588	102036	(Bate, 1862)				1				4				3	
Crassicorophium crassicorne		S611	397383	Bruzelius, 1859								1					
Unciola planipes		S622	102061	Norman, 1867				1	1	2		2		2			
Phtisica marina		S657	101864	Slabber, 1769				1									
Gnathia		**S793**	**118437**	**Leach, 1814**								**1**					
Conilera cylindracea		S849	118842	(Montagu, 1804)													
Eurydice pulchra		**S854**	**118852**	**Leach,1815**	**3**	**3**				**4**						**2**	**1**

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
Astacilla longicornis		S955	119024	(Sowerby, 1806)													
Tanaopsis graciloides		S1142	136458	(Lilljeborg, 1864)													
Bodotria scorpioides		S1197	110445	(Montagu, 1804)								1					
Diastylis bradyi		S1248	110472	Norman, 1879						1				2			
Processa modica		S1366	108343	Williamson & Rochanaburanon, 1979													
Callianassa subterranea		S1415	107729	(Montagu, 1808)													
Upogebia deltaura		S1419	107739	(Leach, 1815)		3											
Pisidia longicornis		S1482	107188	(Linnaeus,1757)	4			1									
Ebalia tumefacta		S1509	107302	(Montagu, 1808)													
Hyas coarctatus		S1519	107323	Leach, 1815													
Inachus dorsettensis		S1526	107327	(Pennant, 1777)							1						
Macropodia rostrata		S1532	107345	(Linnaeus, 1761)	1												
Thia scutellata		S1559	107281	(Fabricius, 1793)												1	1
Liocarcinus pusillus		S1584	107393	(Leach, 1816)													
Pinnotheres pisum		S1638	107473	(Linnaeus, 1767)													
MOLLUSCA																	
Leptochiton asellus		W53	140199	(Gmelin, 1791)							1	1					
Acanthochitona crinita		W86	138675	(Pennant, 1777)													
Gibbula magus	?	W159	141790	(Linnaeus, 1758)													
Euspira nitida		W491	151894	(Donovan, 1804)								1					
Melanella alba		W634	139832	(da Costa, 1778)	1												
Colus gracilis		W715	138899	(da Costa, 1778)	1												
Philine		W1036	138339	Ascanius, 1772						1							
Tritonia plebeia		W1254	141738	Johnston, 1828	1												
Onchidorididae		W1319	175	Gray, 1827								1					

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
Knoutsodonta depressa		W1323	845528	(Alder & Hancock, 1842)													
Nucula hanleyi		W1568	140588	Winckworth, 1931										1		1	
Modiolus adriaticus		W1700	506025	(Lamarck, 1819)													
Aequipecten opercularis		W1773	140687	(Linnaeus, 1758)													
Heteranomia squamula		W1809	138749	(Linnaeus, 1758)	1					1							
Pododesmus squama		W1812	138752	(Linnaeus, 1761)													
Hemilepton nitidum		W1882	246148	(W. Turton, 1822)													
Kurtiella bidentata		W1906	345281	(Montagu, 1803)	1						15					1	
Spisula elliptica		W1975	140300	(Brown, 1827)						2					2	1	
Ensis leei		W1997	876640	M. Huber, 2015						1				1			
Phaxas pellucidus		W2006	140737	(Pennant, 1777)				1			2						
Moerella donacina		W2021	147021	Linnaeus, 1758							1						
Asbjornsenia pygmaea		W2023	879714	(Lovén, 1846)					1	2			1	1			
Gari fervensis		W2051	140870	(Gmelin, 1791)			1				1					1	
Solecurtus scopula		W2054	141543	(Turton, 1822)												1	
Abra alba		W2059	141433	(W Wood, 1802)										1			
Abra prismatica		W2062	141436	(Montagu, 1808)					1	1							
Clausinella fasciata		W2100	141909	(da Costa, 1778)													
Timoclea ovata		W2104	141929	(Pennant, 1777)													
Venerupis corrugata		W2124	181364	(Gmelin, 1791)													
Dosinia exoleta		W2130	141911	(Linnaeus, 1758)													
Hiatella arctica		W2166	140103	(Linnaeus, 1758)	1												
Thracia villosiuscula		W2233	141651	(Macgillivray, 1827)													
Cochlodesma praetenue		W2239	181373	(Pulteney, 1799)													
PHORONIDA																	

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
Phoronis		ZA3	128545	Wright, 1856	10	10	4		1			2	1			2	
ECHINODERMATA																	
Ophiothrix fragilis		ZB124	125131	(Abildgaard, 1789)	2												
Amphipholis squamata		ZB161	125064	(Chiaje, 1828)								1				1	
Ophiura albida		ZB168	124913	Forbes, 1839		1					1					1	
Psammechinus miliaris		ZB193	124319	(Gmelin, 1778)													
Echinocyamus pusillus		ZB212	124273	(O.F. Muller,1776)					1	9	3	3	2	3		1	
Echinocardium cordatum		ZB223	124392	(Pennant, 1777)									1				
Mesothuria intestinalis		ZB233	124568	(Ascanius, 1805) Östergren, 1896													
Pseudothyone raphanus		ZB257	124661	(Duben & Koren, 1845)		1											
Thyone fusus		ZB262	124670	O.F.Muller, 1776													
Thyone roscovita		ZB264	124676	Hérouard, 1889	1												
Panningia hyndmani		ZB272	848014	(Thompson, 1840)													
Leptosynapta inhaerens		ZB296	124465	(O.F.Muller, 1776)													
Oestergrenia digitata		ZB300	152547	(Montagu, 1804)													
TUNICATA																	
Ascidiella aspersa		ZD84	103718	O F Müller, 1776												1	
Ascidia conchilega	?	ZD88	103702	O F Muller, 1776												9	
Polycarpa fibrosa		ZD112	103902	(Stimpson, 1852)	1	1							1				
Dendrodoa grossularia		ZD120	103882	(van Beneden 1846)													
CEPHALOCHORDATA																	
Branchiostoma lanceolatum			104906	(Pallas, 1774)													
Number of taxa					**61**	**52**	**25**	**33**	**18**	**34**	**40**	**48**	**26**	**24**	**19**	**43**	**14**
Abundance					**157**	**164**	**48**	**88**	**32**	**88**	**163**	**130**	**49**	**53**	**40**	**93**	**17**
The following taxa were merged for analysis																	

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
Aoridae		**S577**	**101368**	**Stebbing, 1899**	**1**	**1**		**2**	**1**	**1**	**2**			**1**			
Aoridae	female	S577	101368	Stebbing, 1899	1			2	1		1						
Autonoe longipes		S583	102021	(Lilljeborg, 1852)		1				1	1			1			
Gnathia		**S793**	**118437**	**Leach, 1814**								**1**					
Gnathia	female	S793	118437	Leach, 1814													
Gnathia oxyuraea		S796	118995	(Lilljeborg, 1855)								1					
Cheirocratus		**S503**	**101669**	**Norman, 1867**							**1**						
Cheirocratus	female	S503	101669	Norman, 1867							1						
Cheirocratus pseudosundevallii	?			Gouillieux, 2019													
Number of taxa					**1**	**1**	**0**	**1**	**1**	**1**	**2**	**1**	**0**	**1**	**0**	**0**	**0**
Abundance					**1**	**1**	**0**	**2**	**1**	**1**	**3**	**1**	**0**	**1**	**0**	**0**	**0**
The following taxa were excluded from analysis																	
Colonial																	
PORIFERA		C1	558	Grant, 1836	P	P					P						
Leuckartiara octona		D240	117791	(Fleming, 1823)	P						P						
Tubularia		D163	117258	Linnaeus, 1758				P			P	P		P			
Eudendrium		D218	117093	Ehrenberg, 1834													
Bougainvilliidae		D246	1594	Lütken, 1850			P	P							P	P	
Phialella quadrata		D343	117804	(Forbes, 1848)					P			P			P		
Calycella syringa		D348	117402	(Linnaeus, 1767)	P						P						
Lafoea dumosa		D386	117702	(Fleming, 1828)	P												
Halecium		D390	117103	Oken, 1815													
Abietinaria		D408	117225	Kirchenpauer, 1884		P											
Diphasia		D413	117228	L Agassiz, 1862													
Hydrallmania falcata		D424	117890	(Linnaeus, 1758)	P	P						P					

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
Sertularella gayi		D429	117902	(Lamouroux, 1821)	P	P										P	
Sertularia cupressina		D435	117913	(Linnaeus, 1758)	P	P											
Nemertesia		D462	117195	Lamouroux, 1812													
Campanulariidae		D491	1606	Peron & Lesueur, 1810	P	P	P	P	P		P			P	P		
Alcyonium digitatum		D597	125333	Linnaeus, 1758	P												
Crisia		Y13	111032	Lamouroux, 1812													
Tubulipora		Y27	111054	Lamarck, 1816													
Disporella hispida		Y66	111730	(Fleming, 1828)	P												
Alcyonidium parasiticum		Y81	111604	(Fleming, 1828)													
Vesicularia spinosa		Y131	111669	(Linnaeus, 1758)				P									
Amathia lendigera		Y135	111659	(Linnaeus, 1758)													
Amathia		Y137	111023	Farre, 1837													
Aetea		Y153	110819	Lamouroux, 1812													
Conopeum reticulum		Y172	111351	(Linnaeus, 1767)				P	P								
Electra pilosa		Y178	111355	(Linnaeus,1767)													
Callopora		Y201	110851	J E Gray, 1848		P											
Beania mirabilis		Y261	111072	Johnston, 1840													
Chorizopora brongniartii		Y344	111304	(Audouin, 1826)													
Escharella immersa		Y364	111484	(Fleming, 1828)	P	P						P					
Porella concinna		Y385	111125	(Busk, 1854)													
Schizomavella		Y467	110829	Canu & Bassler, 1917	P							P					
Damaged																	
Eumida	damaged	P163	129446	Malmgren, 1865		1											
Aricidea	damaged	P675	129430	Webster, 1879													
Paradoneis	damaged	P695	129433	Hartman, 1965													

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
Spionidae	damaged	P720	913	Grube,1850													
Dipolydora	damaged	P748	129611	Verrill, 1881	1												
Terebellidae	damaged	P1179	982	Johnston, 1846		1		1						1		1	
Sabellidae	damaged	P1257	985	Latreille, 1825								1					
Serpulidae	damaged	P1324	988	Rafinesque, 1815	2												
Nebalia	damaged	S5	147031	Leach, 1814													
AMPHIPODA	damaged	S97	1135				1								1		
Urothoe	damaged	S246	101789	Dana, 1852													
Liocarcinus	damaged	S1577	106925	Stimpson,1870													
GASTROPODA	damaged	W88	101														
BIVALVIA	damaged	W1560	151265	Goldfuss, 1820													
SOLENOIDEA	damaged	W1991	14635	Lamarck, 1809		1						1					
Ophiuridae	damaged	ZB165	123200	Muller & Troschel, 1840													
Fish																	
Gobiesocidae		ZG1180	125477	Bleeker, 1859													
Juvenile																	
ANIMALIA	eggs		2														
SIPUNCULA	juvenile	N1	1268		1						2	1					
Golfingia	juvenile	N12	136021	Lankester, 1885													
Glycera	juvenile	P255	129296	Lamarck, 1818					1								
Goniadidae	juvenile	P266	953	Kinberg, 1866								2					
Nereididae	juvenile	P458	22496	Blainville, 1818								1					
Nephtys	juvenile	P494	129370	Cuvier, 1817				1				2		1			
Scolelepis	juvenile	P778	129623	Blainville, 1828													
CRUSTACEA	larva	R1	1066							1			1	1	1	1	

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
BALANOMORPHA	juvenile	R42	1082	Burmeister, 1834					1	1							
Ampelisca	juvenile	S423	101445	Kroyer, 1842													
Gnathia	juvenile	S793	118437	Leach, 1814													
GEBIIDEA	juvenile	S1403	477323	de Saint Laurent, 1979	1	1										1	
Paguridae	juvenile	S1445	106738	Latreille, 1802	1						1						
DECAPODA	larva	S1276	1130	Latreille, 1830													
Ebalia	juvenile	S1504	106889	Leach,1817													
Majidae	juvenile	S1512	106760	Samouelle, 1819	1			1									
Inachinae	juvenile	S1520	148436	MacLeay, 1838											1		
Macropodia	juvenile	S1529	205077	Leach, 1814				1								1	
Buccinidae	eggs	W702	149	Rafinesque, 1815													
Tritonia	juvenile	W1246	138580	Cuvier, 1798	2												
Nucula	juvenile	W1565	138262	Lamarck, 1799													
Mytilidae	juvenile	W1691	211	Rafinesque, 1815													
Modiolus	juvenile	W1702	140467	(Linnaeus, 1758)													
Pectinidae	juvenile	W1768	213	Rafinesque, 1815													
Anomiidae	juvenile	W1805	214	Rafinesque, 1815													
Abra	juvenile	W2058	138474	Lamarck, 1818				1									
Dosinia	juvenile	W2126	138636	Scopoli, 1777				2		1		1		1			
Ophiuridae	juvenile	ZB165	123200	Muller & Troschel, 1840								1					
ECHINOIDEA	juvenile	ZB181	123082	Leske, 1778								2				1	
Echinocardium	juvenile	ZB222	123426	Gray, 1825					1				1		1		
HOLOTHUROIDEA	juvenile	ZB229	123083														
Thyone	juvenile	ZB261	146116	Oken, 1815						1		2			1	2	
Leptosynapta	juvenile	ZB291	123449	Verrill, 1867													

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample												
					MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
ASCIDIACEA	juvenile	ZD2	1839	Nielsen, 1995									1				
Meiofaunal																	
NEMATODA		HD1	799			1							1				
Parasitic																	
COPEPODA	parasitic	R142	1080														
Number of taxa					**19**	**13**	**3**	**11**	**6**	**4**	**7**	**15**	**4**	**6**	**8**	**8**	**0**
Abundance					**9**	**5**	**1**	**7**	**3**	**4**	**3**	**14**	**4**	**4**	**5**	**7**	**0**

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample									
					MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
CNIDARIA														
Cerianthus lloydii		D632	283798	Gosse, 1859						8		1		
Actiniaria		D662	1360										3	
PLATYHELMINTHES														
PLATYHELMINTHES		F2	793	Minot, 1876										
NEMERTEA														
NEMERTEA		G1	152391		1	1	3			7	5	7	2	
SIPUNCULA														
Golfingia elongata		N14	175026	(Keferstein, 1862)			1			6				
Golfingia vulgaris		N17	136050	(de Blainville, 1827)						2				
Nephasoma minutum		N25	136060	(Keferstein, 1862)										
Phascolion strombus		N34	175043	(Montagu, 1804)				1		1				
POLYCHAETA														
Pisione remota		P15	130707	Southern, 1914	1						24	20		
Aphrodita aculeata		P19	129840	Malmgren, 1867									1	
Enipo elisabethae		P43	130737	McIntosh, 1900						1				
Gattyana cirrhosa		P49	130749	(Pallas, 1766)						1				
Harmothoe		P50	129491	Kinberg, 1855			1			1				
Malmgrenia darbouxi			863197	(Pettibone, 1993)						6				
Malmgrenia andreapolis		P51	147008	(McIntoch, 1874)										
Lepidonotus squamatus		P82	130801	(Linnaeus, 1758)										
Pholoe inornata		P92	130601	Johnston, 1839										
Pholoe baltica		P95	130599	Örsted, 1843						2				
Sthenelais limicola		P109	131077	(Ehlers, 1864)										
Eteone longa	aggregate	P117	130616	(Fabricius, 1780)						1				

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample									
					MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
Hesionura elongata		P122	130649	(Southern, 1914)							12	1		
Mysta picta		P127	147026	(Quatrefages, 1866)					1					
Phyllodoce groenlandica		P141	334506	(Örsted, 1842)			1			1				
Phyllodoce longipes		P143	130763	Kinberg, 1866										
Phyllodoce rosea		P146	334514	(Mcintosh, 1877)										
Eulalia bilineata		P152	130624	(Johnston, 1840)										
Eulalia mustela		P155	130631	Pleijel, 1987			1							
Eumida sanguinea		P167	130644	(Örsted, 1843)										
Glycera alba		P256	130116	(O.F. Muller, 1788)										
Glycera fallax		P259	336908	Quatrefages, 1850										
Glycera lapidum		P260	130123	Quatrefages, 1866						1				
Glycera oxycephala		P262	130126	Ehlers, 1887									3	
Glycinde nordmanni		P268	130136	(Malmgren, 1865)										
Goniadella gracilis		P276	130145	(Verrill, 1873)			4				2			
Psamathe fusca		P305	152249	(Keferstein, 1862)										
Oxydromus pallidus		P317	340203	(Claparede, 1864)			1							
Podarkeopsis capensis		P319	130195	Day, 1963						1		1		
Syllis garciai		P351	131431	(Campoy, 1982)			1							
Syllis parapari			196002	San Martin & Lopez, 2000				1						
Syllis pontxioi			196003	San Martín & López, 2000										
Syllis armillaris		P365	131415	(O.F. Muller, 1776)										
Syllis variegata		P371	131458	(Grube, 1860)										
Eusyllis blomstrandi		P380	131290	Malmgren, 1867										

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample									
					MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
Odontosyllis fulgurans		P387	131327	(Audouin & Milne Edwards, 1833)										
Streptodonta pterochaeta		P391	238207	Southern, 1914										
Streptosyllis campoyi			238248	Brito, Nunez & San Martin, 2000										
Parexogone hebes		P421	757970	(Webster & Benedict, 1884)						1				
Exogone verugera		P423	131307	(Claparede, 1868)										
Sphaerosyllis		P424	129677	Claparède, 1863										
Myrianida		P434	129659	Milne Edwards, 1845										
Eunereis longissima		P475	130375	Johnston, 1840						3				
Nereis zonata		P478	130407	Malmgren, 1867										
Nephtys assimilis		P495	130353	Örsted, 1843										
Nephtys caeca		P496	130355	(Fabricius, 1780)										
Nephtys cirrosa		P498	130357	Ehlers, 1868	1	2			1				3	1
Nephtys longosetosa		P503	130364	Örsted, 1843					1					
Nothria conchylega		P545	130467	(Sars, 1835)										
Paucibranchia bellii		P564	130072	(Audouin & Milne-Edwards, 1833)			1							
Lysidice unicornis		P568	742232	(Grube, 1840)								1		
Lumbrineris cf. *cingulata*			130240	(Ehlers, 1868)						1				
Lumbrineris futilis		P582	851788	(Audouin & Milne Edwards, 1834)										
Drilonereis filum		P591	129856	(Claparède, 1868)										
Protodorvillea kefersteini		P638	130041	(McIntosh, 1869)							1	3		
Schistomeringos rudolphi		P643	154127	Delle Chiaje, 1828						2				
Orbinia sertulata		P665	334310	(Savigny, 1820)										

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample									
					MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
Scoloplos armiger		P672	334722	(Muller, 1776)		1				11	1			
Aricidea catherinae		P684	333034	(Laubier, 1967)										
Aricidea cerrutii		P685	525497	Laubier, 1966	1						1	1		
Cirrophorus branchiatus		P689	130576	Ehlers, 1908										
Paradoneis ilvana		P698		Castelli, 1985										
Paradoneis lyra		P699	130585	(Southern, 1914)						1				
Poecilochaetus serpens		P718	130711	Allen, 1904			3			2		1	1	
Aonides paucibranchiata		P723	131107	Southern, 1914	1		11			1	1	3		
Atherospio guillei			478336	(Laubier & Ramos,1974)			2							
Laonice bahusiensis		P733	131127	Soderstrom, 1920										
Dipolydora caulleryi/sp. A		P751	131116	Mesnil, 1897										
Dipolydora flava		P754	131118	Claparede, 1870										
Dipolydora sp. B		P762	131124	Verrill, 1881										
Pseudopolydora pulchra		P774	131169	(Carazzi, 1895)						3				
Scolelepis korsuni			131174	Sikorski, 1994										
Spio goniocephala			131184	Thulin, 1957		9			3				4	3
Spio symphyta			596189	Meisner, Bick & Bastrop, 2011	1		1			2	9	3		
Spiophanes bombyx		P794	131187	(Claparede, 1870)	1	2	2		2	5			3	
Spiophanes kroyeri		P796	131188	Grube, 1860						1				
Magelona johnstoni			130269	Fiege, Lichen &Mackie, 2000										
Chaetopterus variopedatus		P814	129914	(Renier, 1804)										
Phyllochaetopterus anglicus		P815		Potts, 1914										
Aphelochaeta sp. A		P823	129240	Blake, 1991										
Caulleriella alata		P829	129943	(Southern, 1914)			3			6	1	2		

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample									
					MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
Chaetozone zetlandica		P831	129948	(McIntosh, 1911)			2							
Chaetozone christiei			152217	Chambers, 2000									1	
Cirratulus cirratus		P836	129959	(O.F.Muller,1776)						1				
Tharyx		P847	129249	Webster & Benedict, 1887			1							
Flabelligera affinis		P881	130103	M.Sars, 1829										
Mediomastus fragilis		P919	129892	Rasmussen, 1973						3		1		
Notomastus		P920	129220	Sars, 1850			2			4				
Praxillura longissima		P944	130327	Arwidsson, 1906										
Leiochone			146991	Grube, 1868					1	1				
Euclymene lombricoides		P963	209899	(Quatrefages, 1866)										
Euclymene oerstedii		P964	130294	(Claparède, 1863)										
Praxillella affinis		P971	130322	(M Sars, 1872)						3				
Ophelia borealis		P999	130491	Quatrefages, 1866		1							1	
Ophelia celtica		P1000	130492	Amoureux & Dauvin, 1981										
Ophelina acuminata		P1014	130500	Örsted, 1843										
Asclerocheilus intermedius		P1022	130974	(Saint-Joseph, 1894)			1			2				
Scalibregma celticum		P1026	130979	Mackie, 1991						1				
Scalibregma inflatum		P1027	130980	Rathke, 1843						10				
Polygordius		P1062	129472	Schneider, 1868	1						40	7		
Galathowenia oculata		P1093	146950	Zaks, 1922										
Owenia		P1097	129427	Delle Chiaje, 1844			6			2		1		
Lagis koreni		P1107	152367	Malmgren, 1866			2			7			1	
Sabellaria spinulosa		P1117	130867	Leuckart, 1849										
Ampharete lindstroemi	aggregate	P1139	129778	M. Sars, 1864			2			5	2			

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample									
					MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
Anobothrus gracilis		P1147	129789	(Malmgren, 1866)										
Terebellides stroemii		P1175	131573	Sars, 1835										
Lanice conchilega		P1195	131495	(Pallas, 1766)			1							
Phisidia aurea		P1215	131513	Southward, 1956										
Pista mediterranea			131519	de Gaillande, 1970			2			2	2			
Pista bansei			152254	Saphronova, 1988			3			1	1			
Polycirrus		P1235	129710	Grube, 1850					1					
Lysilla loveni		P1233	131500	(Malmgren, 1866)						1				
Lysilla nivea		P1234	131501	Langerhans, 1884			4			1				
Streblosoma intestinale		P1252	131540	M. Sars in G.O. Sars, 1872										
Thelepus cincinnatus		P1254	131543	(Fabricius, 1780)										
Dialychone dunerificta			558752	(Tovar-Hernández, Licciano, Giangrande, 2007)										
Parasabella cambrensis		P1273	530920	Knight-Jones & Walker, 1985						1				
Euchone pararosea			390407	Giangrande & Licciano, 2006										
Pseudopotamilla reniformis		P1316	130963	(Bruguiere, 1789)										
Sabella pavonina		P1320	130967	Savigny, 1822										
Hydroides norvegica		P1334	131009	Gunnerus, 1768						1				
Spirobranchus triqueter		P1341	555935	(Linnaeus, 1758)						1				
OLIGOCHAETA														
Grania		P1524	137349	Southern, 1913							8			
CHELICERATA														
Nymphon brevirostre		Q5	150520	Hodge, 1863										
Anoplodactylus petiolatus		Q44	134723	(Kroyer, 1884)										

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample									
					MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
CRUSTACEA														
Scalpellum scalpellum		R22	106204	(Linnaeus, 1767)										
Verruca stroemia		R41	106257	O.F.Muller, 1776										
Nebalia reboredae			459311	Moreira & Urgorri, 2009										
Nebalia borealis		S7	156257	Dahl, 1985										
Sarsinebalia urgorrii			388224	Moreira, Gestoso & Troncoso, 2003										
Heteromysis formosa		S93	120037	(G. O. Sars, 1877)						3				
Kroyera carinata		S125	547074	Spence Bate, 1857										
Perioculodes longimanus		S131	102915	(Bate & Westwood, 1868)										
Pontocrates arenarius		S135	102918	(Bate, 1858)										
Synchelidium maculatum		S138	102928	Stebbing, 1906						1				
Apolochus neapolitanus		S159	236495	(Della Valle, 1893)						1				
Leucothoe incisa		S177	102460	Robertson, 1892								1		
Leucothoe procera		S179	102466	Bate, 1857						1				
Stenothoe marina		S213	103166	(Bate, 1856)										
Urothoe elegans		S248	103228	(Bate, 1856)						2				
Urothoe marina		S249	103233	(Bate, 1857)			18			8	1	2		
Acidostoma neglectum			102495	(Spence Bate & Westwood, 1861)										
Hippomedon denticulatus		S296	102570	(Bate,1857)										
Tryphosa nana		S321	102691	(Kroyer, 1846)										
Tmetonyx similis		S337	102742	(G O Sars, 1891)										
Nototropis falcatus		S410	102139	Metzger, 1871								1		
Nototropis vedlomensis		S413	102132	(Bate & Westwood, 1862)										

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample									
					MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
Ampelisca diadema		S429	101896	(Costa, 1853)						1				
Ampelisca provincialis		S434	101915	Bellan-Santini & Kaim-Malka, 1977										
Ampelisca spinipes		S438	101928	Boeck, 1861			1			6				
Ampelisca tenuicornis		S440	101930	Lilljeborg, 1855										
Ampelisca typica		S442	101933	(Bate, 1856)			1			3	1	1		
Bathyporeia elegans		S452	103058	Watkin, 1938	2	8			1				2	5
Bathyporeia gracilis		S453	103059	G O Sars, 1891										
Bathyporeia guilliamsoniana		S454	103060	(Bate, 1857)										
Haustorius arenarius		S462	102317	Slabber, 1769										1
Abludomelita obtusata		S498	102788	(Montagu, 1813)										
Cheirocratus		**S503**	**101669**	**Norman, 1867**										
Othomaera othonis		S519	534781	(Milne-Edwards, 1830)										
Maerella tenuimana		S521	102831	(Bate, 1862)										
Megamphopus cornutus		S539	148545	Norman, 1869							1			
Gammaropsis maculata		S541	102364	(Johnston, 1828)										
Photis longicaudata		S552	102383	(Bate & Westwood, 1862)						8				
Aoridae		**S577**	**101368**	**Stebbing, 1899**										
Leptocheirus hirsutimanus		S588	102036	(Bate, 1862)										
Crassicorophium crassicorne		S611	397383	Bruzelius, 1859										
Unciola planipes		S622	102061	Norman, 1867			1			1	1	1		
Phtisica marina		S657	101864	Slabber, 1769						1				
Gnathia		**S793**	**118437**	**Leach, 1814**										
Conilera cylindracea		S849	118842	(Montagu, 1804)										
Eurydice pulchra		S854	118852	Leach,1815	1		2				2	1		

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample									
					MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
Astacilla longicornis		S955	119024	(Sowerby, 1806)										
Tanaopsis graciloides		S1142	136458	(Lilljeborg, 1864)										
Bodotria scorpioides		S1197	110445	(Montagu, 1804)										
Diastylis bradyi		S1248	110472	Norman, 1879										
Processa modica		S1366	108343	Williamson & Rochanaburanon, 1979										
Callianassa subterranea		S1415	107729	(Montagu, 1808)										
Upogebia deltaura		S1419	107739	(Leach, 1815)			1			5				
Pisidia longicornis		S1482	107188	(Linnaeus,1757)										
Ebalia tumefacta		S1509	107302	(Montagu, 1808)										
Hyas coarctatus		S1519	107323	Leach, 1815										
Inachus dorsettensis		S1526	107327	(Pennant, 1777)										
Macropodia rostrata		S1532	107345	(Linnaeus, 1761)										
Thia scutellata		S1559	107281	(Fabricius, 1793)										
Liocarcinus pusillus		S1584	107393	(Leach, 1816)										
Pinnotheres pisum		S1638	107473	(Linnaeus, 1767)										
MOLLUSCA														
Leptochiton asellus		W53	140199	(Gmelin, 1791)										
Acanthochitona crinita		W86	138675	(Pennant, 1777)										
Gibbula magus	?	W159	141790	(Linnaeus, 1758)										
Euspira nitida		W491	151894	(Donovan, 1804)										
Melanella alba		W634	139832	(da Costa, 1778)										
Colus gracilis		W715	138899	(da Costa, 1778)										
Philine		W1036	138339	Ascanius, 1772										
Tritonia plebeia		W1254	141738	Johnston, 1828										
Onchidorididae		W1319	175	Gray, 1827										

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample									
					MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
Knoutsodonta depressa		W1323	845528	(Alder & Hancock, 1842)										
Nucula hanleyi		W1568	140588	Winckworth, 1931						1	1			
Modiolus adriaticus		W1700	506025	(Lamarck, 1819)						1				
Aequipecten opercularis		W1773	140687	(Linnaeus, 1758)										
Heteranomia squamula		W1809	138749	(Linnaeus, 1758)						3				
Pododesmus squama		W1812	138752	(Linnaeus, 1761)										
Hemilepton nitidum		W1882	246148	(W. Turton, 1822)										
Kurtiella bidentata		W1906	345281	(Montagu, 1803)										
Spisula elliptica		W1975	140300	(Brown, 1827)		1			2		2			
Ensis leei		W1997	876640	M. Huber, 2015										
Phaxas pellucidus		W2006	140737	(Pennant, 1777)									1	
Moerella donacina		W2021	147021	Linnaeus, 1758										
Asbjornsenia pygmaea		W2023	879714	(Lovén, 1846)	1						1			
Gari fervensis		W2051	140870	(Gmelin, 1791)										
Solecurtus scopula		W2054	141543	(Turton, 1822)										
Abra alba		W2059	141433	(W Wood, 1802)										
Abra prismatica		W2062	141436	(Montagu, 1808)										
Clausinella fasciata		W2100	141909	(da Costa, 1778)										
Timoclea ovata		W2104	141929	(Pennant, 1777)										
Venerupis corrugata		W2124	181364	(Gmelin, 1791)										
Dosinia exoleta		W2130	141911	(Linnaeus, 1758)										
Hiatella arctica		W2166	140103	(Linnaeus, 1758)										
Thracia villosiuscula		W2233	141651	(Macgillivray, 1827)								1		
Cochlodesma praetenue		W2239	181373	(Pulteney, 1799)										
PHORONIDA														

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample									
					MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
Phoronis		ZA3	128545	Wright, 1856			8			12				
ECHINODERMATA														
Ophiothrix fragilis		ZB124	125131	(Abildgaard, 1789)										
Amphipholis squamata		ZB161	125064	(Chiaje, 1828)										
Ophiura albida		ZB168	124913	Forbes, 1839						1				
Psammechinus miliaris		ZB193	124319	(Gmelin, 1778)										
Echinocyamus pusillus		ZB212	124273	(O.F. Muller,1776)	2				3		1		5	
Echinocardium cordatum		ZB223	124392	(Pennant, 1777)					1					
Mesothuria intestinalis		ZB233	124568	(Ascanius, 1805) Östergren, 1896										
Pseudothyone raphanus		ZB257	124661	(Duben & Koren, 1845)										
Thyone fusus		ZB262	124670	O.F.Muller, 1776										
Thyone roscovita		ZB264	124676	Hérouard, 1889								1		
Panningia hyndmani		ZB272	848014	(Thompson, 1840)						2				
Leptosynapta inhaerens		ZB296	124465	(O.F.Muller, 1776)										
Oestergrenia digitata		ZB300	152547	(Montagu, 1804)										
TUNICATA														
Ascidiella aspersa		ZD84	103718	O F Müller, 1776			1							
Ascidia conchilega	?	ZD88	103702	O F Muller, 1776										
Polycarpa fibrosa		ZD112	103902	(Stimpson, 1852)										
Dendrodoa grossularia		ZD120	103882	(van Beneden 1846)						1				
CEPHALOCHORDATA														
Branchiostoma lanceolatum			104906	(Pallas, 1774)							1			
Number of taxa					**12**	**8**	**34**	**2**	**11**	**65**	**25**	**23**	**14**	**4**
Abundance					**14**	**25**	**95**	**2**	**17**	**187**	**122**	**62**	**31**	**10**
The following taxa were merged for analysis														

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample									
					MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
Aoridae		**S577**	**101368**	**Stebbing, 1899**										
Aoridae	female	S577	101368	Stebbing, 1899										
Autonoe longipes		S583	102021	(Lilljeborg, 1852)										
Gnathia		**S793**	**118437**	**Leach, 1814**										
Gnathia	female	S793	118437	Leach, 1814										
Gnathia oxyuraea		S796	118995	(Lilljeborg, 1855)										
Cheirocratus		**S503**	**101669**	**Norman, 1867**										
Cheirocratus	female	S503	101669	Norman, 1867										
Cheirocratus pseudosundevallii	?			Gouillieux, 2019										
Number of taxa					**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Abundance					**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
The following taxa were excluded from analysis														
Colonial														
PORIFERA		C1	558	Grant, 1836						P				
Leuckartiara octona		D240	117791	(Fleming, 1823)										
Tubularia		D163	117258	Linnaeus, 1758			P		P					
Eudendrium		D218	117093	Ehrenberg, 1834										
Bougainvilliidae		D246	1594	Lütken, 1850						P				
Phialella quadrata		D343	117804	(Forbes, 1848)										
Calycella syringa		D348	117402	(Linnaeus, 1767)										
Lafoea dumosa		D386	117702	(Fleming, 1828)										
Halecium		D390	117103	Oken, 1815						P				
Abietinaria		D408	117225	Kirchenpauer, 1884										
Diphasia		D413	117228	L Agassiz, 1862										
Hydrallmania falcata		D424	117890	(Linnaeus, 1758)						P				

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample									
					MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
Sertularella gayi		D429	117902	(Lamouroux, 1821)										
Sertularia cupressina		D435	117913	(Linnaeus, 1758)						P				
Nemertesia		D462	117195	Lamouroux, 1812						P				
Campanulariidae		D491	1606	Peron & Lesueur, 1810						P				
Alcyonium digitatum		D597	125333	Linnaeus, 1758						P				
Crisia		Y13	111032	Lamouroux, 1812										
Tubulipora		Y27	111054	Lamarck, 1816										
Disporella hispida		Y66	111730	(Fleming, 1828)										
Alcyonidium parasiticum		Y81	111604	(Fleming, 1828)										
Vesicularia spinosa		Y131	111669	(Linnaeus, 1758)										
Amathia lendigera		Y135	111659	(Linnaeus, 1758)										
Amathia		Y137	111023	Farre, 1837						P				
Aetea		Y153	110819	Lamouroux, 1812										
Conopeum reticulum		Y172	111351	(Linnaeus, 1767)										
Electra pilosa		Y178	111355	(Linnaeus,1767)										
Callopora		Y201	110851	J E Gray, 1848										
Beania mirabilis		Y261	111072	Johnston, 1840										
Chorizopora brongniartii		Y344	111304	(Audouin, 1826)										
Escharella immersa		Y364	111484	(Fleming, 1828)										
Porella concinna		Y385	111125	(Busk, 1854)										
Schizomavella		Y467	110829	Canu & Bassler, 1917						P				
Damaged														
Eumida	damaged	P163	129446	Malmgren, 1865										
Aricidea	damaged	P675	129430	Webster, 1879										
Paradoneis	damaged	P695	129433	Hartman, 1965										

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample									
					MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
Spionidae	damaged	P720	913	Grube,1850			1							
Dipolydora	damaged	P748	129611	Verrill, 1881										
Terebellidae	damaged	P1179	982	Johnston, 1846						3		2		
Sabellidae	damaged	P1257	985	Latreille, 1825										
Serpulidae	damaged	P1324	988	Rafinesque, 1815										
Nebalia	damaged	S5	147031	Leach, 1814										
AMPHIPODA	damaged	S97	1135											
Urothoe	damaged	S246	101789	Dana, 1852			1							
Liocarcinus	damaged	S1577	106925	Stimpson,1870										
GASTROPODA	damaged	W88	101							1				
BIVALVIA	damaged	W1560	151265	Goldfuss, 1820	1									
SOLENOIDEA	damaged	W1991	14635	Lamarck, 1809			1							
Ophiuridae	damaged	ZB165	123200	Muller & Troschel, 1840									1	
Fish														
Gobiesocidae		ZG1180	125477	Bleeker, 1859										
Juvenile														
ANIMALIA	eggs		2							1				
SIPUNCULA	juvenile	N1	1268											
Golfingia	juvenile	N12	136021	Lankester, 1885										
Glycera	juvenile	P255	129296	Lamarck, 1818										
Goniadidae	juvenile	P266	953	Kinberg, 1866										
Nereididae	juvenile	P458	22496	Blainville, 1818										
Nephtys	juvenile	P494	129370	Cuvier, 1817	1									
Scolelepis	juvenile	P778	129623	Blainville, 1828									1	
CRUSTACEA	larva	R1	1066										1	

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample									
					MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
BALANOMORPHA	juvenile	R42	1082	Burmeister, 1834						1				
Ampelisca	juvenile	S423	101445	Kroyer, 1842										
Gnathia	juvenile	S793	118437	Leach, 1814										
GEBIIDEA	juvenile	S1403	477323	de Saint Laurent, 1979						5		1		
Paguridae	juvenile	S1445	106738	Latreille, 1802			1						1	
DECAPODA	larva	S1276	1130	Latreille, 1830		1								
Ebalia	juvenile	S1504	106889	Leach,1817										
Majidae	juvenile	S1512	106760	Samouelle, 1819						1				
Inachinae	juvenile	S1520	148436	MacLeay, 1838										
Macropodia	juvenile	S1529	205077	Leach, 1814										
Buccinidae	eggs	W702	149	Rafinesque, 1815										
Tritonia	juvenile	W1246	138580	Cuvier, 1798										
Nucula	juvenile	W1565	138262	Lamarck, 1799										
Mytilidae	juvenile	W1691	211	Rafinesque, 1815										
Modiolus	juvenile	W1702	140467	(Linnaeus, 1758)										
Pectinidae	juvenile	W1768	213	Rafinesque, 1815										
Anomiidae	juvenile	W1805	214	Rafinesque, 1815										
Abra	juvenile	W2058	138474	Lamarck, 1818										
Dosinia	juvenile	W2126	138636	Scopoli, 1777										
Ophiuridae	juvenile	ZB165	123200	Muller & Troschel, 1840			1							
ECHINOIDEA	juvenile	ZB181	123082	Leske, 1778										
Echinocardium	juvenile	ZB222	123426	Gray, 1825										
HOLOTHUROIDEA	juvenile	ZB229	123083										2	
Thyone	juvenile	ZB261	146116	Oken, 1815						2				
Leptosynapta	juvenile	ZB291	123449	Verrill, 1867										

Taxon	Qualifiers	SDC	APHIA ID	Authority	Sample									
					MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
ASCIDIACEA	juvenile	ZD2	1839	Nielsen, 1995										
Meiofaunal														
NEMATODA		HD1	799							1	38	13		
Parasitic														
COPEPODA	parasitic	R142	1080											
Number of taxa					**2**	**1**	**6**	**0**	**1**	**18**	**1**	**3**	**5**	**0**
Abundance					**2**	**1**	**5**	**0**	**0**	**15**	**38**	**16**	**6**	**0**

F.2 Macrofaunal Biomass

Taxon	SDC	Sample												
		MA_ST01 FA	MA_ST02 FA	MA_ST03 FA	MA_ST04 FA	MA_ST05 FA	MA_ST06 FA	MA_ST07 FA	MA_ST08 FA	MA_ST09 FA	MA_ST10 FA	MA_ST11 FA	MA_ST12 FA	MA_ST13 FA
CNIDARIA	D1	0.2478	0.0016		0.0046							0.3354		
POLYCHAETA	P2	0.6402	0.6448	0.6992	0.3854	1.5914	0.7088	3.2613	0.2604	0.5155	0.9680	0.9235	0.6097	0.4086
OLIGOCHAETA	P1402													
CRUSTACEA	R1	0.2725	0.1652	0.5513	0.2803	0.3244	0.2780	0.3567	0.4322	0.1856	0.5851	0.6256	0.4970	0.2155
MOLLUSCA	W1	0.6305	0.1162	1.0426	0.6421	3.4819	0.0103	0.0598	0.6467	0.0745	13.3921	0.8033	0.2447	0.0129
ECHINODERMATA	ZB2	2.2758	0.3007	0.0797	3.0857	3.7452	0.0789	0.6434		4.4809		0.6815	3.3705	0.3372
OSTEICHTHYES	ZG1													
OTHERS		0.0491	0.0086	0.1409	2.2580	0.0465	0.0308	0.0114	0.0133	0.0668	0.0335	0.0324	0.1831	0.0357
Total		**4.1159**	**1.2371**	**2.5137**	**6.6561**	**9.1894**	**1.1068**	**4.3326**	**1.3526**	**5.3233**	**14.9787**	**3.4017**	**4.9050**	**1.0099**

Notes
'Blotted wet weight (g) prior to ash free dry weight conversion'

Taxon	SDC	Sample												
		MA_ST14 FA	MA_ST15 FA	MA_ST16 FA	MA_ST17 FA	MA_ST18 FA	MA_ST19 FA	MA_ST20 FA	MA_ST21 FA	MA_ST22 FA	MA_ST23 FA	MA_ST24 FA	MA_ST25 FA	MA_ST27 FA
CNIDARIA	D1			0.3258		0.4274								
POLYCHAETA	P2	0.6638	3.3554	1.2394	1.4438	0.9370	1.1774	1.3863	0.4904	0.4707	2.4050	1.3463	0.3504	0.3419
OLIGOCHAETA	P1402													
CRUSTACEA	R1	1.1294	0.4047	0.2658	0.2571	0.3826	0.3380	0.1702	0.0397	0.1149	0.5848	0.1134	0.2178	0.8124
MOLLUSCA	W1	0.6098	8.4486	0.5140	0.2678	1.6695	0.6418	0.4991		0.3759	2.2248	0.3059	4.7396	
ECHINODERMATA	ZB2	0.0786	3.6750	2.0960	0.0903	0.0276	2.5080	0.0909		0.0066	0.0575	0.0128	0.0260	0.0165
OSTEICHTHYES	ZG1													
OTHERS		0.0766	0.0535	0.0130	0.1780	0.2629	0.2140	0.4339	0.0839	0.0904	0.1162	0.0029	0.2701	0.0580
Total		**2.5582**	**15.9372**	**4.4540**	**2.2370**	**3.7070**	**4.8792**	**2.5804**	**0.6140**	**1.0585**	**5.3883**	**1.7813**	**5.6039**	**5.6157**

Notes
'Blotted wet weight (g) prior to ash free dry weight conversion'

Taxon	SDC	Sample												
		MA_ST29 FA	MA_ST30 FA	MA_ST31 FA	MA_ST32 FA	MA_ST33 FA	MA_ST34 FA	MA_ST35 FA	MA_ST36 FA	MA_ST37 FA	MA_ST38 FA	MA_ST39 FA	MA_ST40 FA	MA_ST41 FA
CNIDARIA	D1		0.3895			0.0018				0.2152			1.1121	
POLYCHAETA	P2	0.3419	0.6255	0.2385	0.0635	0.4708	0.0598	0.0857	0.3511	0.8971	0.1367	0.0817	2.7048	0.5733
OLIGOCHAETA	P1402				0.0001									
CRUSTACEA	R1	0.8124	0.2273	0.0891	0.0872	0.2121	0.0990	0.0071	0.0808	1.1724	0.0206	0.0276	0.3104	0.5463
MOLLUSCA	W1		0.2293	0.1786	1.0678	0.0016	0.6212	0.0556	0.0442	0.4143	0.0011	0.0024		3.7644
ECHINODERMATA	ZB2	0.0165	0.0212	0.0051	3.2669			0.0084		0.9321	0.0625	0.0505	0.0247	0.0560
OSTEICHTHYES	ZG1		0.0068											
OTHERS		0.0454	0.2414	0.0909	0.0122	0.1512	0.0054	0.0077	0.1776	0.1438	0.0023	0.0216	0.8282	0.0378
Total		**1.2162**	**1.7410**	**0.6022**	**4.4977**	**0.8375**	**0.7854**	**0.1645**	**0.6537**	**3.7749**	**0.2232**	**0.1838**	**4.9802**	**4.9778**

Notes
'Blotted wet weight (g) prior to ash free dry weight conversion'

Taxon	SDC	Sample												
		MA_ST42 FA	MA_ST43 FA	MA_ST44 FA	MA_ST45 FA	MA_ST46 FA	MA_ST47 FA	MA_ST48 FA	MA_ST49 FA	MA_ST50 FA	MA_ST51 FA	MA_ST52 FA	MA_ST54 FA	MA_ST55 FA
CNIDARIA	D1		0.0075											
POLYCHAETA	P2	1.4155	0.7779	0.4111	0.9272	0.1778	0.2198	0.3781	3.4641	0.5144	0.1764	0.4236	0.3948	1.0536
OLIGOCHAETA	P1402													
CRUSTACEA	R1	0.2602	4.6834	0.0215	0.2133	0.0098	0.0572	0.2265	0.2540	0.0192	0.1169	0.0284	0.1705	0.4874
MOLLUSCA	W1	14.1518	0.6066	0.1946	0.0439	0.0423	0.7853	1.1496	12.7466	0.0217	0.1235	0.1585	0.6376	
ECHINODERMATA	ZB2	11.5337	0.6140			0.0224	0.1214	0.1342	0.0400	0.1185	0.1392	0.0057	0.1090	
OSTEICHTHYES	ZG1													
OTHERS		1.6945												
Total		**29.0557**	**6.6894**	**0.6272**	**1.1844**	**0.2523**	**1.1837**	**1.8884**	**16.5047**	**0.6738**	**0.5560**	**0.6162**	**1.3119**	**1.5410**

Notes
'Blotted wet weight (g) prior to ash free dry weight conversion'

Taxon	SDC	Sample									
		MA_ST56 FA	MA_ST57 FA	MA_ST58 FA	MA_ST59 FA	MA_ST60 FA	MA_ST61 FA	MA_ST63 FA	MA_ST64 FA	MA_ST65 FA	MA_ST66 FA
CNIDARIA	D1						1.5008		0.0021		
POLYCHAETA	P2	0.0210	0.4687	0.6771	0.0025	0.2069	2.5194	0.1324	0.1322	0.1896	0.0250
OLIGOCHAETA	P1402							0.0007			
CRUSTACEA	R1	0.0262	0.0072	0.6172		0.0006	1.7219	0.0131	0.0255	0.0070	0.0552
MOLLUSCA	W1	15.6904	0.0156	1.5242		0.0450	0.4853	0.8387	0.0089	0.0009	
ECHINODERMATA	ZB2	0.0034		0.0051		6.3493	5.1696	0.0046	4.3345	0.2745	
OSTEICHTHYES	ZG1										
OTHERS								0.0592			
Total		**15.7410**	**0.4915**	**2.8236**	**0.0025**	**6.6018**	**11.3970**	**1.0487**	**4.5032**	**0.4720**	**0.0802**

Notes
'Blotted wet weight (g) prior to ash free dry weight conversion'

Fferm Wynt Alltraeth

AWEL Y MÔR

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