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Title	MEDIN data guideline for sampling sediment and rock characteristics
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Summary	This guideline defines the format of data and information produced from the determination of sediment and characteristics collected for example by a grab or core. If used correctly the data will be readily used and reused. An Excel template is provided if required.
Keywords	Sediment, Rock, Characteristics, Grain, Particle, Size, Grab, Core

Change history		
Version	Date	Change
1.0	23/03/09	First draft of document
1.1	16/04/12	Some amendments following comments from BGS including expanding scope to rock

1.1. Scope and data format for submission to DAC

This guideline covers the collection of sediment and rock samples using for example a grab or core for characteristics such as grain (particle) size analysis. It covers both the raw data from such sampling, methodologies used (eg. sampling devices used) and derived summary information.

This guideline does not specify methodological standards however where applicable those recommended by the UK National Marine Biological Analytical Quality Control Scheme should be followed. Details can be seen at http://www.nmbaqcs.org/media/10839/nmbaqc%20best%20practice%20guidance_particle%20size%20analysis.pdf

This guideline may be used for recording of ground truth data for example when using in combination with multibeam echo sounders. It covers the determination of sediment and rock characteristics by a number of techniques including expert opinion, sieves, and laser diffraction.

To submit this data to a Data Archive Centre, the data must be saved and transferred in the .csv file format.

1.2. Background to Data Guidelines

The Marine Environmental Data and Information Network (MEDIN) is working towards creating a framework of consistent standards covering the major types of data collection undertaken in the marine environment around the UK. The principle benefits of this suite of standards are:

- Allows contracting organisation to easily specify a format that data should be returned in that can be readily used and includes all relevant attributes
- Provides a consistent format for contractors to work to (rather than a different format for each contract)
- Data can be readily exported to Data Archiving Centres and other users
- Instills good practice amongst users

Each standard defines the data and information that must be stored with a particular data type to ensure it can be readily used and reused. As this type of information is specific for different data types, guidelines are developed for each type. This document describes one such format. Other standards can be accessed through

www.oceannet.org.

1.3 Using this data guideline

This guideline is split into sections that refer to information that can be collated at different levels as shown below:

Project - a collection of surveys that have been completed for a common purpose

Survey - a uniquely identifiable programme of data collection such as a research cruise, moored instrument deployment or survey event

Fixed Station – a target location used as the basis for replicate sample events and for repeat monitoring surveys

Sample Event – a sample specific event of data collection

Sampling Methodology (Data Production Tools) – Details of any method or instruments used to collect the data

Sample Data – the data

Where geophysical data is documented the terminology for the MEDIN guidelines sections differs slightly: Sample Event is termed '**Line Event**', Sampling Methodology is termed '**Acquisition Methodology**' and Sample Data is termed '**Processed Data**'. Processed data will most commonly be documented in the Processed Data section as the data volumes concerned with geophysical data normally require that raw data be provided in industry logged formats designed to store large volumes of data efficiently.

The Project and Survey Data tables are common to all Data Guidelines and so only need to be completed once for a survey even if a number of different techniques and data guidelines are used. The Sample/Line Event is specific to a technique of data collection (e.g. trawl, grab etc); the Sample/Processed Data and Sampling/Acquisition Methodology tables are specific to each Data Guideline. The fixed station table should

only be used if a fixed point, transect or area is used as the basis for replicate sample events and for repeat monitoring surveys. See the document 'DG_structure' in the zip file to identify how some of these tables only need to be completed once for a single survey.

The tables below outline the data fields, a description and where available a term list and/or format given at the end of each field which should be used to store the data. Each field is either mandatory, conditional or optional as indicated by M, C, or O respectively. Conditional means that the field must be completed if a value is known. In the absence of an existing spreadsheet or database to hold the below information, it is recommended that the template available to download from the [MEDIN website](#) is used. Instructions are provided in the template.

In the event that historical data which does not have all the necessary mandatory fields is being configured into this guideline, then it is permissible to use the following entry terms:

Term	Description
unknown	The correct value is not known to and not computable by the creator of this information. However a correct value probably exists.
inapplicable	There is no appropriate value. To be used in cases where metadata elements cannot be set null due to schema constraints.

In some cases it may be necessary to extend this guideline for a specific purpose such as a specific exchange of data between applications or to fulfil the needs of a specific project. This is permissible however we advise that the broad structure and format is maintained and that where possible controlled vocabularies are used. As any extension to the structure and format may be useful for other organisations please inform MEDIN of further agreements.

1.4. Further information on the SeaDataNet, ICES and EPSG term lists

The available catalogues of term lists used for this MEDIN data guideline are provided primarily by SeaDataNet, the International Council for the Sea (ICES) and EPSG. If a term is not available in a recommended list then please contact MEDIN to arrange for the term to be added.

The SeaDataNet list may be viewed at http://seadatanet.maris2.nl/v_bodc_vocab/welcome.aspx . By clicking on the list any term may be searched for by using the drop-down menus or all terms viewed by clicking search. The terms may be viewed in groups of 15 or may be downloaded into an excel file.

The ICES term lists are available at <http://www.ices.dk/datacentre/reco/>. Select which list you require from the 'Reference Code List' drop-down box. The results are shown for the selected list and may be downloaded into MS Excel by selecting the inverted green arrow.

There are a number of ways of describing a spatial dataset. Common horizontal coordinate reference systems include WGS84 and British National Grid. Common vertical coordinate reference systems include Highest Astronomical Tide and Ordnance Datum Newlyn (ODN). It is important that which coordinate reference system used for a data set is recorded so conversions can be carried out between reference systems. The EPSG database of coordinate reference systems (<http://www.epsg.org/Geodetic.html>) provides a dictionary of reference systems. In brief, to find a code click on the OGP Online Registry and if you know the title (eg WGS84) then type this in the 'Name' field and click search. The name, code and further information is displayed. If you are looking for a specific type of reference system such as 'vertical' then click in the 'Type' box, hover over coordinate reference system and click on vertical and then click the search button and all recorded vertical reference systems are shown. If you want to search for a reference system in a particular part of the world (e.g. Northern Ireland Grid) then you may do so by submitting a term to the 'Area' box or fill out the lat and longs then click search. The website also provides a database of the reference systems and web services to access the information.

1.5. Relationship between MEDIN data guidelines and MEDIN discovery metadata

The MEDIN discovery metadata format is aimed at allowing the non-informed user to discover data sets and it is likely that one 'discovery' data set record will contain a large range of data types that are in turn covered by a range of data guidelines. To enable individuals to reuse data of a specific nature (e.g. benthic invertebrate data) then related information must be collected (e.g. data owner, reference systems used etc). Some of the information which is collected at the Survey Level in a data guideline is also required to create a discovery metadata record. Who creates the MEDIN discovery record for a dataset is case specific and dependant on the organisation, and the relationship it has with a Data Archive Centre. However it is intended that the information collected at the 'Survey Information' level is reused for creating a MEDIN discovery metadata record. Further details are available on the MEDIN website which demonstrate clearly which fields in the MEDIN Data Guidelines can be reused for which elements in the MEDIN Discovery Metadata Standard.

1.6. Updates and Feedback

If you have any comments or feedback on this guidelines please contact enquiries@oceannet.org. Standards develop over time and it is likely that this standard will change in the future. We advise that you return to the [oceannet website](#) to identify new versions and that you sign up to the MEDIN Standards e-mail listing (e-mail mecha@bodc.ac.uk) and [Marine Data News](#) to be kept informed of developments.

2.1. Project Information.

If your collection of data forms part of a wider project or time series then the below details must be recorded. If the work is a small survey then the details below may not be required. A project is a collection of surveys that have been completed for a common purpose. For example: an environmental impact assessment composed of a number of separate surveys; scientific research composed of a number of different research cruises; a legislative monitoring programme which is conducted each year over several years. A project is usually funded by the same organisation(s) for its lifetime.

M, C, O indicate which fields are mandatory, conditional or optional.

Heading	M, C, O	Description	Recommended Term List or Format
Project name	M	The nationally/internationally accepted version of the project name.	Free text; e.g. North Hoyle Windfarm EIA Rapid Climate Change; Dogger Bank pSAC Monitoring Programme; EA Bathing Water Monitoring Programme 1989-2010
Project website	C	If a project website exists give the address. This should be the web address of the environmental surveys and not in the case of impact assessments the engineering development.	e.g. http://www.noc.soton.ac.uk/rapid/rapid.php
Project start date	M	The date that the project started which is from when the funding was in place to start. Use the 1 st of the month if the exact date is not known.	Date; yyyy-mm-dd; e.g. 2001-01-24; 1973-01-01
Project end date	C	The date that the project finished or is due to finish. Use the 1 st of the month if the exact date is not known.	Date; yyyy-mm-dd; e.g. 2007-01-24; 1976-01-01
Project code	M	Provide a code to uniquely identify the project and allow links to be made between the tables. To ensure uniqueness, it is recommended that the website of	Free text; e.g. http://www.dassh.ac.uk/ME102 ; http://www.bodc.ac.uk/RCC ;

		organisation responsible for the work is used followed by a unique code designated by the responsible organisation which should reflect the code used by the funding organisation where possible.	http://www.environment-agency.gov.uk/78949
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2.2. Survey Information (Data Activity).

The survey information is a uniquely identifiable programme of data collection such as a research cruise, moored instrument deployment or survey event. This information is likely to be the same for all sample events (e.g. stations) and subsamples in a given data set such as a cruise. Note that in the event that these are not common to all sample events then they should be specified for each one. These fields are common throughout all other MEDIN data guidelines and only need to be given once and referenced if your data set is composed of many data types and therefore conforms to a number of MEDIN Data Guidelines. Where data collection is undertaken on research vessels the data below can often be sourced in the Cruise Summary Report.

M, C, O indicate which fields are M - mandatory (must be filled in), C - conditional (must be filled in if exists in data resource), or O - optional respectively.

Heading	M, C, O	Description	Recommended Term List or Format
Survey name	M	Title of the survey	Free text; e.g. 2004 CCW Menai Strait benthic monitoring survey
Survey category	M	Category of survey for use in subsequent searching for certain types of seabed and other surveys.	Recommended Term List; OGP SSDM WORK_CATEGORY Domain; e.g. Geophysical and Hi-Res Seismic (Analogue and Digital Survey) Or Free text; e.g. Oceanographic; benthic biology; fish stock
Survey abstract	M	Brief description of the purpose of the survey and other types of measurements that were made for the survey.	Free Text e.g. Survey was the first in a series of 3 in 2010 whose specific aim beyond that stated in the project was to identify sites suitable for further monitoring. As such it geophysical techniques were using in combination with

			grabs and cores to assess seabed type.
Survey code	M	A unique code for the survey to allow links to be built between this and sample event data, (the cruise identifier code could be used). To ensure uniqueness, it is recommended that the website of organisation responsible for the work is used followed by a unique code designated by the responsible organisation.	Free text; e.g. http://www.noc.ac.uk/JCR3022 ; http://www.bennett.ac.uk/RIBJULY_03_01)
Originator	M	The organisation who has created the data set. If the organisation is not in EDMO please contact enquiries@oceannet.org to add it. If a person who is not associated with any organisation generated the data then please provide the name in the sample event table.	Term List; European Directory of Marine Organisations e.g. 28: Centre for Environment, Fisheries and Aquaculture Science, Lowestoft Laboratory 2588: ABP Marine Environmental Services Ltd
Owner	M	Organisation that owns the data set. If the organisation is not in EDMO please contact enquiries@oceannet.org to add it.	Term List; European Directory of Marine Organisations e.g. 78: Department of Environment Fisheries and Rural Affairs 53: BP Exploration and Production
Survey start date	M	The date and time that the survey started.	Date or DateTime; yyyy-mm-dd or yyyy-mm-dd hh:mm:ss e.g. 2009-01-24 12:33:00
Survey end date	C	The date and time that the survey ended. May be left null if the survey is ongoing.	Date or DateTime; yyyy-mm-dd or yyyy-mm-dd hh:mm:ss e.g. 2009-02-16 16:33:00
Time Zone*	M	Give the time zone in which the date and time of the data acquisition is made	Free Text; e.g. UTC

		(preferably Coordinated Universal Time (UTC))	
Spatial coordinate reference system*	M	Describes the system of spatial referencing. I.e. the datum used to provide details of latitude and longitude. (See section 1.4 on accessing term lists).	Term List; http://www.epsg.org/Geodetic.html e.g. WGS84 code: EPSG::7030; British National Grid (projected) code: EPSG::27700; ETRS89 / UTM zone 28N code: EPSG::25828; ETRS89 / UTM zone 29N code: EPSG::25829; ED50 code: EPSG::4230; UTM31N code: EPSG::23031
Coordinate Transformation*	C	Detail any coordinate transformation applied to the data.	Controlled vocabulary; use <u>EPSG Coordinate Reference System Geodetic Parameter Register</u> http://www.epsg.org/ or other defined coordinate reference system register; e.g. ED50 to WGS84 seven parameter transformation 18 = EPSG::1311 Or Free text; Where new transformation is defined
Position fix method and source*	M	Give the method and source of the position fix instrument.	Free Text; e.g. Differential GPS taken from the ships navigation equipment. 4 point satellite fix achieved
Horizontal positional accuracy*	M	How accurate the spatial positions are likely to be.	Number; units = meters e.g. 15
Depth coordinate reference	C	Give the reference to which the depth has been calculated e.g. Ordnance Datum	Term List http://www.epsg.org/Geodetic.html e.g.

system*		Newlyn; Highest Astronomical Tide. Mandatory if seabed depths are given for each sample. See section 1.4 on accessing term lists.	Ordnance Datum Newlyn code: EPSG::5701 Malin Head height code: EPSG::5731
Vertical positional accuracy*	C	How accurate the vertical resolution is. Must be provided if seabed depths are given.	Number; units = meters e.g. 0.5
Platform type*	O	The platform type (e.g. Research Vessel) from which the sampling device was deployed.	Term list; <u>SeadataNet Platform Classes (L061)</u> e.g. 31: Research Vessel; 13: beach/intertidal zone structure; 48: mooring; 71: human
Ship name*	M	The name of the ship from which the sampling device was deployed. If your ship is not on the list please contact accessions@ices.dk	Term list; SeaDataNet C174 at SeadataNet Cruise Summary Support Ship Metadata e.g. 74E9: Cefas Endeavour 74E0: Ocean Endeavour AA36: Unspecified Fishing Vessel AA33: Unspecified Self-Propelled Small Boat Use semi-colon delimited list where more than one vessel is used e.g. for 3D seismic configurations.
Report reference*	O	Cruise reports, boat log, survey results, processing and/or technical report references if applicable.	Free text; in reference format; use semi colon delimited list where more than one volume is provided. e.g. Litt, E.J. 2009. PHiXT 4. 30 July to 2 August 2009 <i>RV Prince Madog</i> POL Coastal Observatory Liverpool Bay Survey Results Report. POL Coastal Observatory, Liverpool.
Project code	C	If the survey forms part of a wider project	Free text;

		then state the code of the project given in the project table to allow links to be made between the tables.	e.g. RCC
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*Fields marked are unlikely to be required for the collection of leisure and recreation data

2.3. Fixed (Target) Station Information.

You should only use this table if you are returning to the same fixed point/transect/area on several occasions to form a time series – i.e. there is a target location for your sample event. When returning to a target station, the actual sample event may not be in exactly the same location each time due to ship movements or sampling strategy, however it is useful to record both the position which is intended to be sampled (fixed) and the actual sampling position (sample). Therefore, the information below must be included if a fixed point, transect or area is used as the basis for replicate sample events and for repeat monitoring surveys. Actual coordinates should be placed in the sample event table. A fixed station may be a point, transect, or an area. If the fixed station is a transect or an area then the secondary latitude and longitude fields must be completed. As an alternative, the fixed station extent can be provided in a GIS or CAD format as detailed in the MEDIN data guideline for survey extents, and this replaces the fields below marked '*’.

M, C, O indicate which fields are M - mandatory (must be filled in), C - conditional (must be filled in if exists in data resource), or O - optional respectively.

Heading	M, C, O	Description	Recommended Term List or Format
Fixed station identifier	M	A unique identifier for the station.	Free text. e.g. Stanton_Bank_station_4 (point) EastChan_Innerdover_se04 Liverpool_Dublin_ferry_route1 (transect) Lagan_Estuary (area)
Primary latitude (decimal degrees)*	M	The primary WGS84 latitude of the fixed station given in decimal degrees. For a point this field is set to the point latitude; for a transect it is set to the latitude of the start of the transect; for an area it is set to the southern edge of the box. Units are positive North.	Decimal degrees; at least six decimal places. e.g. 54.583736
Primary longitude (decimal degrees)*	M	The primary WGS84 longitude of the sample given in decimal degrees. For a point this field is set to the point longitude; for a transect it is set to the longitude of the start of the transect; for an area it is set to the western edge of the box.	Decimal degrees; at least six decimal places. e.g. -5.583736

Heading	M, C, O	Description	Recommended Term List or Format
		Units are positive east (West is negative, East is positive).	
Secondary latitude (decimal degrees)*	C	The secondary WGS84 latitude of the fixed station given in decimal degrees. For a point this field is not required; for a transect it is set to the latitude of the end of the transect; for an area it is set to the northern edge of the box. Units are positive North.	Decimal degrees; at least six decimal places. e.g. 55.739336
Secondary longitude (decimal degrees)*	C	The secondary WGS84 longitude of the sample given in decimal degrees. For a point this field is not required; for a transect it is set to the longitude of the end of the transect; for an area it is set to the eastern edge of the box. Units are positive east (West is negative, East is positive).	Decimal degrees; at least six decimal places. e.g. -3.739436
Original co ordinates and coordinate transformation technique*	C	If coordinates were transformed from a different reference system into WGS84 decimal degrees then the original coordinate and original coordinate reference system should be given, the method used to transform stated and any differences in the relative (significant figures) of the original transformation explained.	Free text; e.g. SX498476, Coordinates were transformed from British National Grid using in house software 'BODC_transform'. The number of significant figures was reduced to 4 decimal degrees in line with the accuracy of the coordinate and transformation technique.
Position fix method and source	M	Give the method and source of the position fix instrument.	Free Text; e.g. Differential GPS taken from the ships navigation equipment. 4 point satellite fix achieved)
Description of fixed station	M	Describe if the fixed station is a point, transect (curve) or an area (surface).	Term list; <u>SeadataNet Geospatial Feature Type (L021)</u> :

Heading	M, C, O	Description	Recommended Term List or Format
spatial form*			004: Point 003: Curve 005: Surface

2.4. Sample Collection Information (Sample event table). This table holds information on the location depth and time of each sample collection for sediment or rock characteristics.

Heading	M, C, O	Description	Recommended Term List or Format
Survey code	M	The survey code must be stated to allow links to be built between this table and the survey table (the cruise identifier code could be used).	Free text; e.g. http://www.noc.ac.uk/JCR3022 ; http://www.bennett.ac.uk/RIBJULY_03_01)
Sample Event identifier	M	A unique identifier for the sample under consideration. Replicate identifiers should be suffixed to the end of a sample identifier using an underscore such as _1 or _a	Free text; e.g. E5, PHJ7936 GB004_1 GB004_3
Fixed station identifier	C	If you are returning to the same fixed point/transect/area on several occasions to form a time series – ie. there is a target location for your sample event, then put the identifier specified in the fixed station table in here.	Free text; e.g. Stanton Bank site 4 PS74926
Method identifier	M	Provide the identifier for the methods used as stated in the Sampling Method (Data Production Tool) table. If multiple methods were used separate codes using a comma.	Free text; e.g. TIMES4376 02465, 02896
Latitude of sample (decimal degrees)	M	The latitude of the sample given in decimal degrees. Units are positive north.	Decimal degrees; minimum of two and a maximum of five decimal places. e.g. 54.5837
Longitude of sample (decimal degrees)	M	The longitude of the sample given in decimal degrees. Units are positive east.	Decimal degrees; minimum of two and a maximum of five decimal places. e.g. -3.476
Datum of	M	Datum of decimal coordinates	Controlled vocabulary; use EPSG

decimal coordinates			Coordinate Reference System Geodetic Parameter Register http://www.epsg.org/ or other defined coordinate reference system register; e.g. OSGB36 = 27700
Latitude of sample given in original recorded format	C	The latitude of the sample given in whichever format was used to record at the time of sampling if not recording decimal degrees.	Free text; e.g. 50°47'24" SX324512
Longitude of sample given in original recorded format	C	The longitude of the sample given in whichever format was used to record at the time of sampling if not recording decimal degrees.	Free text; e.g. -4°21'53"
Datum of original coordinates	C	Datum of original coordinate if different from the one used to supply coordinates and the transformation used to create decimal degrees if transformation undertaken.	Controlled vocabulary; use EPSG Coordinate Reference System Geodetic Parameter Register http://www.epsg.org/ or other defined coordinate reference system register; e.g. OSGB36 = 27700 Used Petroleum transformation to convert to WGS84.
Date	M	The date of sample collection.	Date; yyyy-mm-dd e.g. 2009-01-24
Time	M	The time of sample collection.	Time; hh:mm:ss e.g. 13:33:00
Depth of seabed	O	The depth of the seabed	Integer number; units = meters. e.g. 24
Depth datum	C	If depth supplied please indicate depth datum used.	Free Text;

			e.g. All depths are to chart datum.
Pooled samples	C	If more than one grab/core has been pooled to create a sample then indicate the number of grabs/cores used. Mandatory if samples are pooled	Integer; e.g. 3
Upper depth of sediment sample	O	The upper depth of the sediment which has been sampled. In all cases this will be 0, unless sections have been taken from a sediment core.	Integer; units = cm. e.g. 0
Lower depth of sediment sample	O	The depth to which the device sampled if available.	Integer number; units = cm. e.g. 10
Sampling personnel	O	Names or the personnel who were involved in collecting and field processing the samples	Free text; full personnel names separated by semi-colon if a team collated the data; e.g. Joe Bloggs; Brian Begger collected and field processed samples
Sample notes	O	Any further notes on the sample collection that may be of relevance field observations of sediment or habitat can be added here.	Free text; e.g. Due to rough weather the grab was not stable when it reached the sea floor and the sample was visibly disturbed upon recovery; anoxic layer evident a 4cm depth. Coarse sediment with shell and stone. Infralittoral mudflat.
Photographs and videos	C	Describe if images were taken at any stage of the collection or processing, the purpose they were collected for, where they are held, what their IDs are and what format.	Free text; e.g. Images taken of grab before sieving to give indication of sediment type. Images submitted to MEDIN using data guideline on digital images. Images reference numbers are:

			Fladden_02mar08_01 to Fladden_02mar08_68
Sample Type	C	If compliance with the Oil and Gas Producers Seabed Survey Data Model (SSDM) is required then the term list from GEO_SAMPLE_METHOD should be used.	Controlled Vocabulary: SSDM Subtype. Soil Sample, Pilot Hole, Insitu Borehole, Combi Borehole.

2.5. Sampling Method (Data Production Tools). In many cases the information in this table is consistent for a whole survey in which case it should only have to be completed once. Where necessary the information in this table should be completed for each parameter under consideration. Information in this table may also be used to complete fields in the discovery metadata. The field 'Method Identifier' provides the link between this table and the sample event table.

Particular attention should be applied to providing further information where 2 analysis methods have been used on the same sample and are subsequently merged (e.g. Laser diffraction, >1mm; sieves, > 1mm).

Heading	M, C, O	Description	Recommended Term List or Format
Method Identifier	M	A unique code for the methods to allow links to be built between this and sample event data.	Free text; e.g. TIMES4376
Sampling device	M	The type of sampling device used.	Term Code list SMTYP at http://www.ices.dk/datacentre/reco/ e.g. Day Grab code = DA If compliance with the Oil and Gas Producers Seabed Survey Data Model (SSDM) is required then the term list from GEO_SAMPLE_METHOD should be used.
Sampling device surface area	M	The surface area of the sampling device.	Integer number; units = cm ² e.g. 100
Sampling SOPs/ Protocols used	M	Any written methodology used should be referenced and linked. If the methodology is not referenced then provide a full description here.	Free text; e.g. Methodology follows the Green Book http://www.cefas.co.uk/publications/scientific-series/green-book.aspx
Number of replicates per sample	C	If replicates were taken please indicate number per sample.	Numeric; e.g. 5
Sample	M	The method used for the fixation of samples	Free text;

storage		prior to analysis.	e.g. All samples were frozen upright within 2 hours of collection and not stored for longer than 18 months before analysis.
Analytical laboratory or organisation	M	The laboratory/organization(s) that analysed the samples if different from the collector identified in 2.2 Originator. Contact MEDIN to add an organization to this list.	Reference Code list; RLABO at http://www.ices.dk/datacentre/reco/ e.g. Unicomarine Ltd, Letchworth Laboratory code - UNIC
Analytical personnel	O	Names of the personnel who were involved in analysing the samples and their role in the analysis.	Free text; personnel name(s) separated by semi-colon if more than one personnel involved; indicate organisation name in brackets if more than one organisation involved. e.g. Joe Bloggs collected all samples. John Doe; Henry Rice (MEConsulting) prepared and analysed samples; Jamie Creed (MarineConsult) Checking
Sample preparation	C	Give details of any sample preparation such as removal of fauna and flora, drying sediment, use of dispersant, removal of organic and shell material.	Free text; e.g. All samples were visually inspected upon defrosting and conspicuous fauna flora and shell material was removed. Sediments were wet sieved at 1mm and the material < 1mm allowed to settle, freeze dried, weighed and analysed using laser diffraction. Material > 1mm was dried, weighed and then sieved at 0.5 phi intervals.
Sample analysis	O	Details of the sample analysis to be provided here.	Free text; For sediments <1mm, 3 subsamples were taken from each sample and in turn each subsample was analysed 3 times using a

			Malvern Laser Sizer model CHGSJ. Settings were as follows: X: 983 Y: 987 Z: 8976 Sediments > 1mm were sieved at 0.5 phi intervals.
Sampling QC notes	O	Any further notes on sample analysis that may be of relevance.	Free text; e.g. Sieves are calibrated every year. Laser diffraction is calibrated with standard solutions.
Quality control scheme	M	Description of any quality control scheme that samples were audited under during the analysis.	Free text; e.g. Samples audited using National Marine Biological Analytical Quality Control Scheme. http://www.nmbaqcs.org/
Summary statistics determination	C	If summary statistics (mean, mode, kurtosis etc) have been determined from the raw data then the method and software used to generate the statistics should be stated here. Include links and references where possible.	Free text; e.g. Summary statistics were generated according to the methods of Folk and Ward (1957) using the software Gradistat (<i>Blott, S. J. and Pye, K. (2001). Gradistat: A grain size distribution and statistics package for the analysis of unconsolidated sediments. Earth Surface Processes and Landforms, 26, 1237-1248.</i>). Summary statistics were not calculated for any polymodal sediments. Sieved material >1mm and material <1mm analysed by laser diffraction was combined to produce summary statistics using Gravistat.

2.6. Sample Data. When providing the sample data it must be clearly linked to the sample event information for a given sample, date/time and replicate. Sediment grain size classes and summary statistics may be determined by a number of different techniques and it is essential that these techniques are recorded in full in the Sample Methods table. A visual assessment of the sediment must be completed in the field and a description of the sediment (e.g. muddy sand) and information on any fauna and debris (e.g. shell material) present also given. If further analysis is completed by sieves or laser diffraction, then any pretreatment, methodology and settings should be clearly stated in the Sample Method table. Data should be reported on 1 or 0.5 phi intervals and presented in a matrix format with the visual assessment text and sample event identifier clearly labelled.

If summary statistics are generated then they should be provided in a matrix format with the sample event identifier clearly stated. Most importantly, the method and software used to generate the summary statistics must be provided in the Sample Method table.

Any photographs and videos used to record the sediment type should be linked to the sample data using a unique ID.