

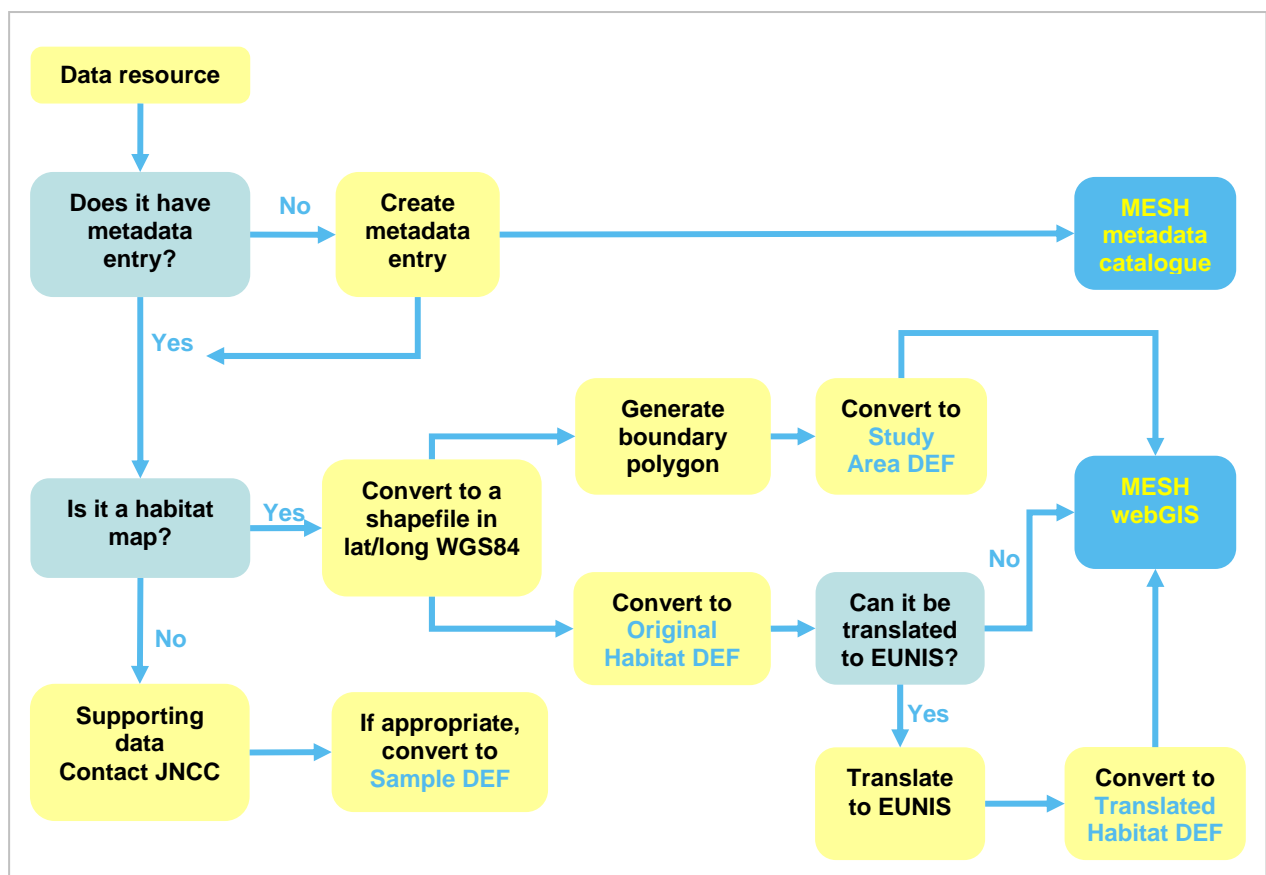
Title:	The MESH Data Exchange Format (DEF)
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Workgroup:	n/a
MESH action:	1
Version:	9
Date published:	08/07/2005
File name:	6.3 – MESH Data Exchange Format.pdf
Language:	English
Number of pages:	18
Summary:	The MESH Data Exchange Format (DEF) describes the format required for data files that are supplied to the MESH partnership. The MESH partnership has not defined data exchange formats for raster data files. Specifically it relates to fields in the attribute tables of data files, either GIS vector files for DEFs relating to polygon data (Study area DEF, Original habitat DEF and Translated habitat DEF), or text files for point data (the Sample DEF).
Reference:	JNCC 2005 The MESH Data Exchange Format (DEF)
Keywords:	Data Format, DEF, GIS
Bookmarks:	Study Area DEF Original Habitat DEF Translated Habitat DEF Sample DEF
Related information:	MESH online metadata catalogue: www.searchmesh.net/metadata

The MESH Data Exchange Format (DEF)

The MESH Data Exchange Format (DEF) describes the format required for data files that are supplied to the MESH partnership. The MESH partnership has not defined data exchange formats for raster data files. Specifically it relates to fields in the attribute tables of data files, either GIS vector files for DEFs relating to polygon data (Study area DEF, Original habitat DEF and Translated habitat DEF), or text files for point data (the Sample DEF). As part of the data collation work in the MESH project, data files are collated by the lead MESH partner in each country. These are converted to the appropriate DEF before being supplied to the lead partner, JNCC. The Data Exchange Format has four variants, each reflecting a different data theme.

- [Study area DEF](#)
- [Original habitat DEF](#)
- [Translated habitat DEF](#)
- [Sample DEF](#)

The flow chart below shows how to decide which MESH DEF to use for a data resource.



MESH Study Area Data Exchange Format

The MESH webGIS includes a study area theme containing the outlines of studies listed in the metadata catalogue. The MESH Study Area DEF defines the fields that should be present in the attribute table of this type of shapefile when providing a study area shapefile to the MESH Partnership. A single study area shapefile can contain the outlines of more than one seabed mapping study. A study can also have an outline which is a multipart polygon, for example if the study mapped several areas in close proximity to each other.

Data files must be provided as ESRI Shapefiles using geographic coordinates (lat/long) and the WGS84 datum. Use the sequence of attributes as specified below.

MESH Study Area DEF		
Field name	Data type (length)	Description
<i>FID</i>	Number	Feature ID. Internally generated identification number for each polygon (not visible if .dbf file is opened using MS Excel).
<i>Shape</i>	Text (8)	Internally generated text, indicating whether the feature is a polygon, point or line (not visible if .dbf file is opened using MS Excel). This will be 'POLYGON' in the Study Area DEF.
<i>POLYGON</i>	Long integer (Precision 8)	Identification number for each polygon which must be manually created as ascending integers 1,2,3... etc. Do not use the value 0, as this can cause errors on the MESH webGIS. This label for each polygon is necessary to identify the original polygon because the <i>FID</i> field may change during the processing of datasets.
<i>GUI</i>	Text (8)	Globally unique identifier (GUI) of the study area dataset – i.e. the GUI for the study area shapefile. Consists of 2 letter country code (which corresponds to ISO3166-1) plus 6 digits. This field will be identical in all records of the shapefile, and is used during the processing of datasets. If you are not a MESH Partner please leave blank.
<i>ORIG_GUI</i>	Text (8)	The Globally Unique Identifier (GUI) of the study which the outline delimits, in the form of a 2 letter country code (which corresponds to ISO3166-1) plus 6 digits. Each ORIG_GUI must correspond to a record in the metadata catalogue . A metadata template can be downloaded from the MESH website, www.searchmesh.net .

Example Study Area Data Exchange Format

The example shapefile attribute table below contains information relating to the outlines of 11 UK study areas. Individual outline polygons delimiting a study in the metadata catalogue are dissolved into a single multipart polygon, and these polygons are merged to create a study area shapefile. MESH partners will have a metadata entry for their study area shapefile, and in this case the GUI of the study area shapefile can be added to the attribute table of the study area shapefile (GB000520 in this example).. For non-MESH partners, where the shapefile is an intermediate to be submitted to a MESH partner, there is no need to populate the GUI field.

FID	Shape	POLYGON	GUI	ORIG_GUI
0	Polygon	1	GB000520	GB000007
1	Polygon	2	GB000520	GB000035
2	Polygon	3	GB000520	GB000074
3	Polygon	4	GB000520	GB000121
4	Polygon	5	GB000520	GB000123
5	Polygon	6	GB000520	GB000145
6	Polygon	7	GB000520	GB000146
7	Polygon	8	GB000520	GB000147
8	Polygon	9	GB000520	GB000153
9	Polygon	10	GB000520	GB000177
10	Polygon	11	GB000520	GB000189

MESH Original Habitat Data Exchange Format

The MESH webGIS shows habitat maps in their original classification scheme where it is not appropriate to translate them to the EUNIS classifications scheme. The MESH Original Habitat DEF defines the fields that must be present in the attribute table of an original habitat map before translation if it is provided to the MESH Partnership. Original habitat maps may include shapefiles containing physical descriptions of the seabed (i.e. sediment maps without any biological information). Other datasets without biological information should be supplied in the Physical DEF.

Data files must be provided as ESRI Shapefiles using geographic coordinates (lat/long) and the WGS84 datum. Use the sequence of attributes as specified below.

MESH Original Habitat DEF		
Field name	Data type (length)	Description
<i>FID</i>	Number	Feature ID. Internally generated identification number for each polygon (not visible if .dbf file is opened using MS Excel).
<i>Shape</i>	Text (8)	Internally generated text, indicating whether the feature is a polygon, point or line (not visible if .dbf file is opened using MS Excel). This will be 'POLYGON' in the Original Habitat DEF.
<i>POLYGON</i>	Long integer (Precision 8)	Identification number for each polygon which must be manually created as ascending integers 1,2,3... etc. Do not use the value 0, as this can cause errors on the MESH webGIS. This label for each polygon is necessary to identify the original polygon because the <i>FID</i> field may change during the processing of datasets.
<i>GUI</i>	Text (8)	Globally unique identifier (GUI) of the habitat map. Consists of 2 letter country code (which corresponds to ISO3166-1) plus 6 digits. For example, a dataset from the United Kingdom would be written GB000005. Each GUI must correspond to a record in the metadata catalogue . A metadata template can be downloaded from the MESH website, www.searchmesh.net .
<i>ORIG_HAB</i>	Text (255)	The information identifying the habitat type present in a polygon, either a code or text (the description of the habitat).

Example Original Habitat Data Exchange Format

The attribute table below shows some example data in its original format, **before conversion** to the MESH Original Habitat DEF.

FID	Shape	BIOTOPE	SUBSTRATUM	COMPLEX	LIFE_FORM
0	Polygon	Ldig.Ldig	Bedrock	Kelp & red seaweeds	Kelp
1	Polygon	Fser.Fser	Bedrock	Barnacle or fucoids	Fucoids
2	Polygon	BarSh	Cobbles	Shingle (pebble) & gravel	Shingle
3	Polygon	Asc.Asc	Bedrock	Dense fucoids	Fucoids
4	Polygon	Asc.Asc	Bedrock	Dense fucoids	Fucoids
5	Polygon	Pel/Fspi	Bedrock	Dense fucoids	Fucoids
6	Polygon	Asc.Asc	Bedrock	Dense fucoids	Fucoids
7	Polygon	BarSh	Cobbles	Shingle (pebble) & gravel	Shingle
8	Polygon	YG/Ver	Bedrock	Lichens or algal crusts	Lichens and algae
9	Polygon	Him	Bedrock	Robust fucoids or red seaweeds	Algal turf
10	Polygon	BPat.Fvesl	Bedrock	Mytilus (mussels) and barnacles	Barnacle & fucoid mosaics

The attribute table below shows the same data **after conversion** to the MESH Original Habitat DEF. Note that the ORIG_HAB field is equivalent to the BIOTOPE field in the original format because this field provides the most detailed habitat information in the original attribute table.

FID	Shape	POLYGON	GUI	ORIG_HAB
0	Polygon	1	GB000253	Ldig.Ldig
1	Polygon	2	GB000253	Fser.Fser
2	Polygon	3	GB000253	BarSh
3	Polygon	4	GB000253	Asc.Asc
4	Polygon	5	GB000253	Asc.Asc
5	Polygon	6	GB000253	Pel/Fspi
6	Polygon	7	GB000253	Asc.Asc
7	Polygon	8	GB000253	BarSh
8	Polygon	9	GB000253	YG/Ver
9	Polygon	10	GB000253	Him
10	Polygon	11	GB000253	BPat.Fvesl

MESH Translated Habitat Data Exchange Format

The MESH webGIS shows seabed habitat maps which have been converted (translated) to the EUNIS classification scheme¹ from various original habitat classification schemes. The MESH Translated Habitat DEF defines the fields that must be present in the attribute table of a translated habitat map if it is provided to the MESH Partnership. Future plans of MESH involve translation of habitat maps to other habitat types, such as OSPAR priority habitat types and EU Habitats Directive Annex I habitat types. Currently the MESH Translated Habitat DEF has only been used for EUNIS habitat maps, but the fields have been defined so that it can be extended to habitat maps translated to other classification schemes.

The first five fields in the attribute table have the same definitions and content as those in the Original Habitat DEF. Subsequent fields must be added during translation of the habitat map from its original habitat to the target (EUNIS/OSPAR/Annex I) habitat type, to record an audit trail. All MESH partners will use the same version of EUNIS/OSPAR/Annex I types throughout the project.

Data files must be provided as ESRI Shapefiles using geographic coordinates (lat/long) and the WGS84 datum. Use the sequence of attributes as specified below.

MESH Translated Habitat DEF		
Field name	Data type (length)	Description
<i>FID</i>	Number	Feature ID. Internally generated identification number for each polygon (not visible if .dbf file is opened using MS Excel).
<i>Shape</i>	Text (8)	Internally generated text, indicating whether the feature is a polygon, point or line (not visible if .dbf file is opened using MS Excel). This will be 'POLYGON' in the Translated Habitat DEF.
<i>POLYGON</i>	Long integer (Precision 8)	Identification number for each polygon which must be manually created as ascending integers 1,2,3... etc. Do not use the value 0, as this can cause errors on the MESH webGIS. This label for each polygon is necessary to identify the original polygon because the <i>FID</i> field may change during the processing of datasets.
<i>GUI</i>	Text (8)	Globally unique identifier (GUI) of the habitat map. Consists of 2 letter country code (which corresponds to ISO3166-1) plus 6 digits. For example, a dataset from the United Kingdom would be written GB000005. Each GUI must correspond to a record in the metadata catalogue . A metadata template can be

¹ <http://eunis.eea.eu.int/habitats.jsp>: The EUNIS Habitat classification is a comprehensive pan-European system to facilitate the harmonised description and collection of data across Europe through the use of criteria for habitat identification; it covers all types of habitats from natural to artificial, from terrestrial to freshwater and marine.

		downloaded from the MESH website, www.searchmesh.net .
<i>ORIG_HAB</i>	Text (255)	The information identifying the habitat type present in a polygon, either a code or text (the description of the habitat).
<i>HAB_TYPE</i>	Text (20)	This is the code assigned to the polygon after translation. It will either be a EUNIS habitat type, OSPAR priority habitat type or an Annex I habitat type.
<i>VERSION</i>	Text (50)	The target classification scheme/habitat list and publication year of the classification scheme/habitat list. For example, if the 2004 version of the EUNIS habitat classification was used, this should be entered as 'EUNIS_version_2004'.
<i>DET_MTHD</i>	Text (255)	Describe the method by which the target habitat type was determined. For example: manual determination using expert judgement; automatic determination using translation tables; or determination using additional data.
<i>DET_NAME</i>	Text (255)	The name of the person who determined the target habitat type assigned to the polygon during translation. This should be in the format <i>First name Surname</i> (e.g. Neil Golding).
<i>DET_DATE</i>	Date dd/mm/yyyy	The date that the target habitat type of the polygon was determined.
<i>TRAN_COM</i>	Text (255)	Record any comments on the translation from original habitat type to the target habitat type. For example, include brief information from survey reports which justifies the translation decision (especially pertinent if the relationship between the data in the <i>ORIG_HAB</i> field and in the <i>HAB_TYPE</i> field is not clear). Also include reasons for assignment of a particular target habitat type, such as the volume and type of additional data used.
<i>T_RELATE</i>	Text (1) Set list	The translation relationship code details the known relationship between the original habitat type and the target habitat type (see translation relationship symbols below).
<i>VAL_COMM</i>	Text (255)	Record any polygon specific comments resulting from the validation of the translated map using an independent dataset; for example you may judge that there are spatial errors within the map (sublittoral

		habitat types appearing in the littoral zone and <i>vice versa</i>). Where possible, all translated maps should be validated with independent additional dataset(s). It is not possible to know whether inconsistencies are due to errors in the validation data, the original map, or the translation process. However, any suspected errors or disagreements between different datasets should be highlighted.
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The table below shows the set list of translation relationship symbols available for use in the T_RELATE field of the Translated Habitat DEF.

Habitat in original classification	Relationship symbol in T_RELATE field	Habitat in target classification	Translation relationship
X	=	Y	Habitat X is same as Habitat Y.
X	~	Y	Habitat X is nearly the same as Habitat Y.
X	>	Y	Habitat Y is contained within Habitat X: i.e. X has a broader definition than Y.
X	<	Y	Habitat X is contained within Habitat Y: i.e. X has a narrower definition than Y.
X	#	Y	The definition of Habitat X partially overlaps with that of Habitat Y.

Example Translated Habitat Data Exchange Format

The table below is an example attribute table after conversion to the MESH Translated Habitat Data Exchange Format.

FID	Shape	POLYGON	GUI	ORIG_HAB	HAB_TYPE	VERSION	DET_MTHD	DET_NAME	DET_DATE	TRAN_COM	T_RELATE	VAL_COMM
0	Polygon	1	GB000326	PelVS	A1.321	EUNIS_version_2004	Automatic determination using translation tables	Neil Golding	21/06/05	Pel = <i>Pelvetia</i>	=	
1	Polygon	2	GB000326	Pel	A1.311	EUNIS_version_2004	Determination using expert judgement and additional data	Neil Golding	21/06/05	Pel = <i>Pelvetia</i>	<	WFD data suggest this feature is in a variable salinity area
2	Polygon	3	GB000326	Asc	A1.314	EUNIS_version_2004	Automatic determination using translation tables	Neil Golding	21/06/05		=	Bathymetry suggests that polygon lies mainly in the circalittoral

Example of recording OSPAR Priority habitats in the MESH Translated Habitat DEF

The attribute table below shows some example data in its original format, before it has been translated to EUNIS or OSPAR habitats.

FID	Shape	BIOTOPE	SUBSTRATUM	LIFE_FORM
0	Polygon	SpnMeg	Mud	Seapens
1	Polygon	Ost	Coarse sediment	Oyster bed
2	Polygon	Mrl	Coarse sediment	Maerl bed
3	Polygon	LSgr	Sand	Seagrass beds

The attribute table below shows the same data in the Translated Habitat DEF after translation to OSPAR priority habitat types. Note that the ORIG_HAB field contains a EUNIS code, because all habitat polygons must be translated from the original habitat scheme to EUNIS so that the EUNIS codes can be matched accurately with the OSPAR priority habitats.

FID	Shape	POLYGON	GUI	ORIG_HAB	HAB_TYPE	VERSION	DET_MTHD	DET_NAME	DET_DATE	TRAN_COM	T_RELATE	VAL_COMM
0	Polygon	1	GB000315	A5.361	Sea-pen & burrowing megafauna communities	OSPAR_HAB_2004	Automatic determination	Neil Golding	21/06/05	Presence of soft mud and seapens.	=	
1	Polygon	2	GB000315	A5.435	Ostrea edulis beds	OSPAR_HAB_2004	Automatic determination	Neil Golding	21/06/05	Presence of Ostrea edulis at densities of 10 per m ²	<	
2	Polygon	3	GB000315	A5.51	Maerl beds	OSPAR_HAB_2004	Automatic determination	Neil Golding	21/06/05	Diver observation of maerl bed	=	
3	Polygon	4	GB000315	A5.533	Zostera beds	OSPAR_HAB_2004	Automatic determination	Neil Golding	21/06/05	Presence of dense <i>Zostera marina</i>	=	

Example of recording Annex I habitat types in the Translated MESH DEF

The attribute table below shows some example data in its original format, before it has been translated to EUNIS or Annex I habitats.

FID	Shape	BIOTOPE	SUBSTRATUM	LIFE_FORM
0	Polygon	Pid	Bedrock	Faunal turf
1	Polygon	LCR	Bedrock	Algal crusts
2	Polygon	Cv	Bedrock & boulders	Faunal turf
3	Polygon	IFiSa	Sand	Conspicuous fauna

The attribute table below shows the same data in the Translated Habitat DEF after translation to Annex I habitats. Note that the ORIG_HAB field contains a EUNIS code, because all habitat polygons must be translated from the original habitat scheme to EUNIS so that the EUNIS codes can be matched accurately with the Annex I habitats.

FID	Shape	POLYGON	GUI	ORIG_HAB	HAB_TYPE	VERSION	DET_MTHD	DET_NAME	DET_DATE	TRAN_COM	T_RELATE	VAL_COMM
0	Polygon	1	GB000318	A4.23	Reefs	ANNEX_I_1999	Automatic determination	Neil Golding	21/06/05		=	
1	Polygon	2	GB000318	A4.3	Reefs	ANNEX_I_1999	Automatic determination	Neil Golding	21/06/05		<	
2	Polygon	3	GB000318	A4.71	Submerged or partially submerged sea caves	ANNEX_I_1999	Automatic determination	Neil Golding	21/06/05		=	
3	Polygon	4	GB000318	A5.23	Sandbanks which are slightly covered by sea water all the time	ANNEX_I_1999	Automatic determination	Neil Golding	21/06/05		=	

MESH Sample Data Exchange Format

This document is derived from the National Biodiversity Network (NBN) Exchange Format, the principal way of supplying datasets for automated upload to the NBN Gateway. The format has been adapted for exchanging data within the MESH project, known as the MESH Sample DEF.

The MESH Sample DEF differs from the other DEFs because it is text-based and has been designed to be straightforward to produce from a variety of applications. The Study Area DEF, Original Habitat DEF and Translated Habitat DEF all define the attributes of ESRI shapefiles, whereas the Sample DEF does not specify an ESRI shapefile format. This decision was made because point sample data are more widespread among potential data providers than polygon map data, but not all these providers have access to GIS packages. For these reasons MESH decided to specify a Sample DEF which will be open to a wider audience who may not have access to GIS packages.

In its simplest form, the Sample DEF encapsulates the basic components of a species or biotope occurrence record (*what* was recorded, *where* it was recorded, *when* it was recorded, and *who* recorded it). However, it is extensible and can include any additional data associated with each record.

The data file comprises one record per row with values separated by tabs (ASCII character 9). The first row of the data section must contain field names, selected from the list of reserved names below, plus any additional fields you want to include. There is no need to include optional fields that do not contain any data in your dataset, and unlike the other MESH DEFs the fields can be in any sequence. Each record within the exchange format file must occupy one line only. Tab and end-of-line characters must not appear anywhere else in the file.

Below is a full list of the reserved field names with brief descriptions. The maximum length of a value in each of the fields is given in brackets where applicable. Some of these fields must be supplied with every dataset (mandatory), others are optional. In some cases, whether the field is mandatory or not will depend on the type of data supplied and on the information provided in other fields; such fields are marked as conditional. The requirements are explained in the detailed notes that follow the summary tables.

Key fields

Field name	Format (length)	Description
RecordKey	Text (8)	Unique key for each occurrence record
SampleKey	Text (8)	Sample key (unique within a survey event or survey). Examples of samples are a section of a video tow or a grab sample.
SurveyEventKey	Text (8)	Survey event key (unique within a survey). A video tow or a group of grab samples are examples of survey events.
SurveyKey	Text (8)	Unique survey key

Date fields

StartDate	DD/MM/YYYY or	Start date of occurrence record
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	YYYY-MM-DD	
EndDate	DD/MM/YYYY or YYYY-MM-DD	End date of occurrence record
DateType	Text (2)	Vague date type

Biological fields

TaxonName	Text (16) Set list (dictionary)	Each biological occurrence record should be a taxon occurrence OR a biotope occurrence but not both; for biological data a value must be present in this column OR in BiotopeKey.
Abundance	Text (1)	The abundance of individuals seen as measured on the SACFOR scale.
Count	Number	Number of individuals of the taxon seen per m ² .
Presence	Text (1)	Presence or absence of the taxon at this location (P or A).
Percentage	Number	The percentage cover of a taxon.
Score	Number	An abundance score of 0-5 to indicate the biomass or quantity of flora and fauna present.
Habitat	Text (255)	Code or text description of the habitat recorded at this location. Each occurrence record should be a taxon occurrence OR a biotope occurrence but not both; a value must be present in this column or in TaxonName. Where [ImageFileName] is populated, [Habitat] is a mandatory field.
Version	Text (16) Set list (dictionary)	The name and publication date of the classification system used in [Habitat].
ImageFileName	Text (255)	A biotope occurrence record can be associated with a seabed photograph taken <i>at the same location</i> by including an image file name in this field.

Physical fields

Depth	Text (50)	The depth in metres below chart datum at which the occurrence record was recorded.
SeabedDescription	Text (255)	Description of the seabed found at the location of the occurrence record.

Location fields

StartEast	Number	Position of the start sample of the sample location in an east/west direction as a longitude.
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StartNorth	Number	Position of the start sample location in a north/south direction as a latitude.
EndEast	Number	Position of the end sample location in an east/west direction as a longitude.
EndNorth	Number	Position of the end sample location in a north/south direction as a latitude.
Datum	Text (8)	The datum for long/lat coordinates (e.g. "WGS84" or "OSGB36")
Precision	Number	Spatial precision of longitude and latitude (metres)

Key fields

RecordKey

Mandatory This is the primary key associated with an occurrence record. Each RecordKey should be unique.

SampleKey

Conditional A key to group occurrence records into discrete samples within a survey. Records belonging to the same sample will also share the same location, for example they are collected from the same *section* of video tow or the same grab sample.

SurveyEventKey

Conditional A key to sort occurrence records into discrete survey events. A video tow is an example of a survey event and for occurrence records derived from video tows, this field is mandatory. For other types of occurrence records it is optional.

SurveyKey

Mandatory This key can be used to divide the dataset into separate surveys, which represent logical subsets of the data within the exchange file. You can use survey keys to divide up the dataset in any way you wish (e.g. representing real separate surveys, or records from different sources, field trips, museum collections, recorders etc.) 'Survey level' metadata corresponding to the SurveyKeys in the exchange file should be supplied as records in the MESH metadata catalogue. A metadata template can be downloaded from the MESH website, www.searchmesh.net.

Date fields

Dates should be supplied in the 'vague date' format, described briefly below.

Vague dates are created by specifying the start and end dates of a date range together with a one or two character code (DateType), which identifies the type of vague date. In most cases the DateType can be inferred from the values of the start and end dates but explicitly stating the code avoids any ambiguity, which might lead to subtly different interpretations. The table below gives the DateTypes allowed in the exchange format.

StartDate	EndDate	DateType	Description
16/06/2000	16/06/2000	D	Date specified to the nearest day.
16/06/2000	18/06/2000	DD	Date specified to a number of days.
01/06/2000	30/06/2000	O	Date specified to the nearest month (first day)

			of the month to the last day of the month)
01/06/2000	31/07/2000	OO	Date specified to a range of months (first day of the start month to the last day of the end month)
01/01/2000	31/12/2000	Y	Date specified to the nearest year (first day of the year to the last day of the year)
01/01/2000	31/12/2001	YY	Date specified to a range of years.
	31/12/2000	-Y	Only the end date to the nearest year known.
	31/12/2000	ND or U	'No date' or 'unknown'. If the date is not known this can be used with EndDate set to the date the dataset was compiled.

All date values must be supplied in the format DD/MM/YYYY (typically used in the UK) or as YYYY-MM-DD (an ISO date). **Dates with 2-digit years will be interpreted literally.** For example, the date 21/09/97 will be interpreted as the 21st September AD97! Ensure you supply the full year.

StartDate and EndDate

Mandatory The start or end date of the record. For example, if the start date is 16th June, 2000 this field is 16/06/2000. One or two digits can be supplied for day and month but take care to specify the year properly (see above). For UK dates the backslash character ('\') must be used as the separator. Use a hyphen ('-') for ISO dates.

DateType

Mandatory The vague date type of the dates used in the record. For example, if the start date of the record is 16th June, 2000 and the end date of the record is 18th June, 2000, then the DateType = DD, since it represents a number of days.

Biological fields

Biological data in the MESH Sample DEF may be either species (taxon) occurrence records, or biotope (habitat) occurrence records. There are numerous ways to record species data, and five options are available within this data exchange format: Abundance, Count, Presence, Percentage, and Score. Each occurrence record should be a taxon occurrence (and entry in TaxonVersionKey) OR a biotope occurrence (an entry in BiotopeKey) but NOT both. Populating one of these recording method columns for species occurrence records is *mandatory*.

TaxonName

Mandatory for a species record This is the name of the taxon recorded at this location. An entry must be present either in this field or in the Habitat field.

Abundance

Optional for a species occurrence record, but one recording method for each species record is mandatory This is the abundance of a taxon as measured by the SACFOR scale of **S**uperabundant, **A**bundant, **C**ommon, **F**requent, **O**ccasional, **R**are. Data should be entered as a single letter from this scale. See also the field survey guidance at www.jncc.gov.uk/page-2683 and www.jncc.gov.uk/page-2684 for more information.

Count

Optional for a species occurrence record, but one recording method for each species record is mandatory This is the count of the taxon as measured by individuals per m².

Presence

Optional for a species occurrence record, but one recording method for each species record is mandatory This is the presence or absence of a taxon, recording using "P" or "N" (not present).

Percentage

Optional for a species occurrence record, but one recording method for each species record is mandatory This is the percentage cover of a taxon, recorded as a number between 0 and 100.

Score

Optional for a species occurrence record, but one recording method for each species record is mandatory This is the abundance of the taxon as measured by a numeric score of 0 to 5. It indicates the biomass or quantity of flora and fauna present:

5 = Very high

4 = High

3 = Moderate

2 = Low

1 = Very low

0 = Not present

See also the field survey guidance at www.jncc.gov.uk/page-2683 for more information.

Habitat

Mandatory for a biotope occurrence record Code or text description of the habitat recorded at this location. Each occurrence record should be a taxon occurrence OR a biotope occurrence but not both; a value must be present in this column or in TaxonName. If the [ImageFileName] field is completed, the [Habitat] field is mandatory.

Version

Mandatory for a biotope occurrence record The name and publication date of the classification system used in [Habitat].

ImageFileName

Optional for a biotope occurrence record The file name of a seabed image taken at the same location as a biotope occurrence record: the [Habitat] field is mandatory if [ImageFileName] is populated. If there is more than one image *per sample* then each image must be taken at a distinct location and therefore have different positional information. Include the file extension in this field (e.g. .jpg). The image files must be supplied with the data in the Sample DEF format.

Physical fields

Data which does not contain biological information may still be of use to the MESH project. The physical data fields will describe the seabed and record the depth for the description.

Depth

Mandatory The depth at which the occurrence record was recorded. This may be given either in metres or as a depth range if the exact depth is not known.

SeabedDescription

Mandatory Description of the seabed found at the location of the occurrence record. This is a free text field to describe the seabed encountered at the location of this record, for example the substrate type and texture.

Location fields

Each row of the dataset must contain location information as a valid georeference.

StartEast and StartNorth

Mandatory This should be provided as longitude and latitude according to WGS84. Positive longitude values indicate a position east of the Greenwich median, negative values positions to the west. Positive values of latitude indicate a position north of the equator.

EndEast and EndNorth

Conditional These fields should be provided for occurrence records relating to a section of video tow. In other cases the fields can be left blank. This should be provided as longitude and latitude according to WGS84. Positive longitude values indicate a position east of the Greenwich median, negative values positions to the west. Positive values of latitude indicate a position north of the equator.

Datum

Mandatory The datum of the long/lat coordinates, i.e. "WGS84" or "OSGB36".

Precision

Mandatory The spatial precision of the georeference in metres. We appreciate this might have to be estimated in some cases.