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Title	**MEDIN data guideline for static net, pot and trap data**
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Summary	This guideline defines the format of data and information produced from the collection of marine data collected using static nets, pots or traps from field to archive. A template is provided if required.
Keywords	Static net, Pot, Trap, Benthos, Fisheries

Change history		
Version	**Date**	**Change**
1.0	2010-01-12	First draft of document
1.1	2010-01-12	Revised in light of Cefas comments, and new table structure to all guidelines and link to NMBAQC.
3.0	2010-06-03	Revised into new structure and published
3.1	2010-07-15	Minor edits following changes to common tables and specification of .csv format for transfer of data

1.1. Background

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:

- It allows contracting organisation to easily specify a format that data should be returned in that can be readily used and includes all relevant attributes
- It 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
- It 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 for the use of static nets pots and traps. Other standards can be accessed via the MEDIN website www.oceannet.org.

1.2. Scope

This guideline covers the recording of data collected using static nets pots or traps from field to archive. It covers both the raw data from such sampling, methodologies used (e.g. sampling devices used) and archive of derived media.

1.3. Using this data guideline

This guideline is split into sections which refer to information that can be collated at different levels. Information that is likely to be the same for all samples (e.g. ship used, datums used) is collated in the 'Survey Information' table. Information that is common to each station and sample is collected in the 'Station Information' and 'Sample Information' tables respectively and the net pot or trap data is collected in the 'Sample Data' table. The survey information stated in this guideline is common to all MEDIN guidelines and may be used in part to derive a MEDIN discovery metadata record. Where the survey is part of a ship cruise then the cruise report may hold the required information.

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 mandatory, optional or conditional as indicated by M, C or O respectively. 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 for completion are provided in the template. If the data is to be submitted to a Data Archiving Centre it should be submitted including in the format set out in this document and in the .csv file format.

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 Exploration of the Sea (ICES) and European Petroleum Survey Group (EPSG). If a term is not available in a recommended list then please contact MEDIN (at helpmeMEDIN@medin.org) 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/
Once on the site you can 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 the coordinate reference system used for a data set is recorded so accurate conversions can be carried out between reference systems. Currently the EPSG database of coordinate reference systems (http://www.epsg.org/Geodetic.html) is not intuitive and MEDIN are in communication with them to improve this service. 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 then 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 appropriate latitude and longitude then click search.

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. More details on the MEDIN discovery metadata standard can be found at www.oceannet.org

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.

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. Rapid Climate Change)
Project website	C	If a Project website exists give the address	e.g. (http://www.noc.soton.ac.uk/rapid/rapid.php)
Project start date	M	The date that the project started	Date; yyyy-mm-dd; (e.g. 2001-01-24)
Project end date	C	The date that the project is due to finish	Date; yyyy-mm-dd; (e.g. 2007-01-24)
Project code	M	Provide a code to uniquely identify the project and allow links to be made between the tables.	Free text; (e.g. RCC)

2.2. Survey Information (Data Activity).

The survey information is a uniquely identifiable programme of data collection such as a research cruise 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 many 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 mandatory, optional or conditional respectively.

Heading	M, C, O	Description	Recommended Term List or Format
Survey name	M	Title of the survey	Free text; (e.g. Menai Straight Benthic Survey 2004)
Survey description	M	Brief description of the purpose of the survey and other types of measurements that were made for the survey.	Free Text
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)	Free text; (e.g. JCR3022)
Responsible organisation	M	Organisation who has funded the work	Term List; European Directory of Marine Organisations (e.g. 28: Centre for Environment, Fisheries and Aquaculture Science, Lowestoft Laboratory)
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	M	The date and time that the survey ended.	Date or DateTime; yyyy-mm-dd or yyyy-mm-dd hh:mm:ss (e.g. 2009-02-16 16:33:00)
Spatial coordinate reference system	M	Describes the system of spatial referencing. I.e. the datum used to provide details of latitude and longitude.	Term List; http://www.epsg.org/Geodetic.html (e.g. WGS84 is EPSG::7030)
Position fix	M	Give the method and source of the position	Free Text; (e.g. Differential GPS taken from

method and source		fix instrument.	the ships navigation equipment.
Horizontal positional accuracy	M	How accurate the spatial positions are likely to be	Number; units = meters (e.g. 15)
Depth coordinate reference system	C	Give the reference to which the depth has been calculated e.g. Highest astronomical tide. Mandatory if seabed depths are given for each sample.	Term List http://www.epsg.org/Geodetic.html (e.g. ODN is EPSG::5701)
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 SeadataNet Platform Classes (L061) (e.g. 31)
Ship name	O	The name of the ship from which the sampling device was deployed.	Term list SHIPC at http://www.ices.dk/datacentre/reco/ (e.g. 74LG Lough Foyle)
Cruise report reference	O	Cruise report reference if applicable.	Free text; in reference format. e.g. Litt, E.J. 2009. PHiXT 4. 30 July to 2 August 2009 *RV Prince Madog* POL Coastal Observatory Liverpool Bay Cruise Report. POL Coastal Observatory, Liverpool.
Project code	M	State the code of the project given in the project table to allow links to be made between the tables.	Free text; (e.g. RCC)

2.3. Fixed Station Information.

In many cases a fixed point, transect or area is returned to on a number of occasions to form a time series. The actual sample event may not be in exactly the same location each time however 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 profiles or for repeat monitoring surveys. Actual profile 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.

Heading	M, C, O	Description	Recommended Term List or Format
Local station identifier	M	A unique identifier for the station	Free text. e.g. Stanton Bank site 4 (point) e.g. Liverpool/Dublin transect (transect) e.g. Lagan Estuary (area)
Primary Latitude (decimal degrees)	M	The primary 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; minimum of two and a maximum of five decimal places. e.g. 54.5837
Primary Longitude (decimal degrees)	M	The primary 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. Units are positive east (West is negative, East is positive).	Decimal degrees; minimum of two and a maximum of five decimal places. e.g. -5.5837
Secondary Latitude (decimal degrees)	C	The secondary 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; minimum of two and a maximum of five decimal places. e.g. 55.7393

Secondary Longitude (decimal degrees)	C	The secondary 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; minimum of two and a maximum of five decimal places. e.g. -3.7394
Description of fixed station spatial form	M	Describe if the fixed station is a point, transect or an area.	Term list; SeadataNet Geospatial Feature Type (L021) (e.g. point)

2.4 Sample Event Information. These fields are specific to each sampling event (e.g. each gear deployment) and record information that is essential for future data reuse.

Heading	M, O, C	Description	Recommended Term List or Format
Sample Identifier	M	A unique reference identifying the sample.	Free text; (e.g. SB4_10_09_sample1 e.g. PS74926)
Replicate Identifier	C	The replicate number if more than one replicate was taken.	Free text or integer; (e.g. 1)
Time of deployment	M	The start time and date of sample collection.	DateTime; yyyy-mm-dd hh:mm:ss (e.g. 2009-01-24 13:33:00)
Tide and current conditions	M	The state of the tide and current during deployment.	Free text; (e.g. Deployed across current at low water in neap tide retrieved following low tide current speed range (0.3 -0.7 knots)
Fleet bearing	C	Record the fleet bearing here.	
Time of recovery	C	The end time and date of sample collection if applicable.	DateTime;yyyy-mm-dd hh:mm:ss (e.g. 2009-01-24 13:33:00)
Depth of sample	C	The depth or depth range at which the sample was taken.	Number; units = meters. (e.g. 24, 20-53)

2.5 Sample Analysis and Techniques (Data Production Tools).

Note that in some instances the information in this category is likely to be the same for all samples within a data set and may also be used to complete fields in the discovery metadata. If the data is different for each sample then this should be specified.

Heading	M, C, O	Description	Recommended Term List or Format
Survey Name	M	Title of the survey or cruise identifier.	Free text; (e.g. Menai Straight Benthic Survey 2004, JR211)
Storage medium	O	The storage medium used.	Free text; (e.g. 50% Formalin)
Methodology	M	Any written methodology used should be referenced and linked. If the methodology is not referenced then provide a description here. Include the net, trap or pot type and model. Net, pot or trap width and length or area (in SI units) and mesh size. For pots and traps record the construction of the pot or trap including, opening size and type, the presence or absence of escape gaps and their size, bait uses, soak times method of deployment. For nets include position in water column e.g bottom, midwater or surface, hanging ratio, fishing height, whether fixed or drift, soak time. If recording individual specimen information ensure the type of measurement being taken is recorded here e.g. total length, fork length, carapace length. Indicate whether replicate samples were bulked or sub samples were taken.	Free text.
Analytical Laboratory or Organisation	M	The laboratory/organisation that analysed the samples.	Term list; RLABO at http://www.ices.dk/datacentre/reco/ (e.g. UNIC Unicomarine Ltd, Letchworth Laboratory)
Analytical personnel	O	Names of the personnel who were involved in analysing the samples.	Free text, personnel initials given and separated by semi-colon if more than

			one personnel used; (e.g. J. Bloggs analysed all samples).
Sampling analysis notes	O	Any further notes on sample analysis that may be of relevance.	Free text; (e.g. 10% of samples were checked by B. Begger for QC purposes)
Quality Control Scheme	M	Description of any quality control scheme that the laboratory participated in during the analysis.	Free text; (e.g. National Marine Biological Analytical Quality Control Scheme)

2.6 Specimen Data. When providing the species data it must be clearly linked to the station and sample information for a given sample, date/time and replicate. The preferred format for holding the raw species data is each record being presented as a separate row. Where individual specimen information (e.g. length, weight, gender) is being collected it may be necessary to record individual specimens per row and not by taxa. However it is recognized that often results are produced in a matrix format and this may be used for specific applications. If more than one measurement is being taken the length column may be repeated (Length units must be indicated if different between columns.).

Heading	M, O, C	Description	Recommended Term List or Format
Sample Identifier	M	A unique identifier for the sample under consideration	Free text; (e.g. SB4_10_09_sample1 e.g. PS74926)
Event number	C	Link to survey software event record if used e.g. hypack event or to an event e.g. the presence of a species/biotope	Free text; (e.g. 42)
Taxon	M	Give species name where possible or higher taxonomic group if not	Term list; http://www.marinespecies.org/ (e.g. *Mytilus edulis*)
Sex	O	Gender of species	Free text; (e.g. M e.g. F)
Measurement taken	C	Type of measurement taken.	Free text; (e.g. whole body length, carapace width)
Measurement	C	The measurement length, width, circumference etc. in SI.	Decimal; (e.g. 0.62)
Length Units	C	Length units used. Should be SI preferably meters but millimetres may be appropriate for smaller specimens.	Free text; (e.g. Meters, Millimeters)
Stage development of taxon	O	Development stage of the taxa	Term list; STAGE at http://www.ices.dk/datacentre/reco/ (e.g. JU Juvenile)
Photographs	C	Note if reference images were taken of	Text; (e.g. Images taken of *Mytilus edulis* were

		specimens at any stage of the processing, the purpose they were collected for, where they are held, what their IDs are and what format the images are in.	taken to confirm if it was a new subspecies. Images submitted to MEDIN using data guideline on digital images. Images reference numbers are: Mytilus_02mar08_01 to Mytilus_02mar08_68)
Specimens	C	If specimens of the taxa are held then indicate here	Free text; (e.g. Examples of all the species within the family Mollusca recorded are stored)
Reference image identifiers	O	If images of the site or specimens were taken please indicate file names and archive location.	Free text; (e.g. 134 e.g. P45821 e.g. a345_img1.tif, Held by DASSH)
Species notes	O	Any further notes that may be of relevance	Free text; (e.g. The template provided in the MEDIN data guideline was used)
Transcription Checks	O	If the data has been transcribed from analogue to digital and a proportion of records have been checked for transcription errors then indicate here	Free text; Name of person checking data and date in yyyy-mm-dd format. (e.g. Jo Bloggs 2010-03-12)
Transcription notes	O	Any transcription notes.	Free text; (e.g. Recorded as *Balistes carolinensis,* valid species name *Balistes capriscus*).