The Marine Habitat Classification for Britain and Ireland. Version 04.05

Guidance Notes on the Comparative Tables

1. Contents

2. Introduction to the comparative tables

The comparative tables enable a rapid comparison of the species composition and the principal physical characteristics between user-defined sets of biotopes (and other classification units). They are equivalent to the biological and physical comparative tables that were included in the back of the biotope manuals in version 97.06 of the classification (Connor *et al*., 1997 a, b).

For version 04.05 of the classification, the comparative tables are provided in the form of two downloadable Excel™ documents. One contains physical data, and the other contains biological (species) data. The information in these tables is based solely on data from the core biotope records, i.e. those field records from the JNCC marine database on which the biotope descriptions are based. The introductory text on the classification website contains a section on data analysis, which describes how these core biotope records were determined.

The tables allow a great deal of flexibility in the way they are used. Their layout and formatting styles were chosen to make them easy and intuitive to use. Nevertheless, the large amount of data they contain, and the large range of filtering options, may lead to confusion. Therefore these guidance notes have been provided. They describe the layout and the filtering options of the tables, as well as details on the derivation of the data.

In order to use the comparative tables effectively, familiarity with the biotope codes and the hierarchical structure of the classification is required. It may help to print out the hierarchy structure diagrams for the five broad habitats, available to view or download from the classification website, and use them as a cross-reference.

Note that the comparative tables contain information for units at all levels in the classification hierarchy, i.e. from broad habitats through to sub-biotopes. For brevity, the term "biotope" is used to refer to all classification units throughout the guidance notes.

3. Biological comparative tables

3.1 Structure of the spreadsheet

The biological comparative tables contain seven worksheets. The two main ones are the "Comparative Table" worksheet, which contains a pivot table enabling a comparative overview over which species are frequently recorded in biotopes, and the "Extended Species Table", which contains additional information, such as the average abundance at which species are recorded within biotopes. The layout of these two worksheets is described in detail below.

The main pivot table (in the "Comparative Table" worksheet) has to process a large amount of species data. Depending on the filtering options chosen, and on the power of the computer being used, it may take a long time for some sets of biotopes to display. In order to enable users with slower processors to make full use of the tables, five additional worksheets were created, each containing information for a single broad habitat. These tables will display instantly. They have a similar layout to the "Comparative Table" worksheet, but without the filtering options. They do not contain any additional information over the main worksheets.

3.2 The Comparative Table worksheet

Each column in the main part of the pivot table represents a biotope, indicated by the biotope code in the column header. The rows contain information on species, with species names listed in taxonomic order down the left. The figures given in each cell represent the percentage of core biotope records within which a given species is recorded. To avoid the size of the table becoming unmanageable, species recorded in less than 20% of core records of a biotope are not shown. The biotopes which are displayed at any one time is user-defined, with a number of options available for filtering the data.

The last row and last column contain the sums of all the figures in the columns / rows, and should be ignored. They are part of the standard set-up of an Excel™ pivot table, but in this instance the figures they contain are meaningless.

The following filtering options are available:

Broad Habitat: (top left corner of worksheet): The drop-down arrow enables the selection of biotopes from within a single broad habitat.

EUNIS Level: (top left corner of worksheet): The drop-down arrow enables the selection of units from within a single hierarchical classification level (from broad habitat to sub-biotope). On the pivot table, the column headings containing biotope codes are coloured according to the standard classification colour scheme, which is used for the classification hierarchy throughout the website. The column headers are colour-coded irrespective of whether the "EUNIS Level" filter is in use or not.

Species Name: Clicking on the drop-down arrow opens up a ticklist, which enables the user to choose a single species or a defined subset of species for which information is to be displayed. The "(Show all)" option at the top of the list will re-display the entire list. Remember that whatever is clicked on or off in this filter, species are only ever shown if they occur in at least 20% of the core biotope records of at least one of the biotopes currently displayed on the table.

Biotope Code: As for the Species Name, clicking on the drop-down arrow opens up a ticklist, enabling the display of any combination of biotopes required.

There is an additional filtering button on the table, which is greyed out. This contains the hierarchical sort order of the biotopes, and has been included in the pivot table to ensure that the columns always appear in the correct classification sort order. The row containing the sort order has been hidden. There is also a hidden column, containing the taxonomic sort order for the species in the form of the alpha-numeric species codes taken from Howson & Picton (1997). Including this in the pivot table ensures that the species will always display in their correct taxonomic order.

If you wish to filter on one of the above options only, it is advisable to double-check all the other filters to make sure that the "show all" option is selected, to avoid inadvertently filtering data you want to include in the table.

Note that Excel™ worksheets are limited to a maximum of 256 columns. The number of biotopes in the classification exceeds this number, so please be aware that if none of the data filters are in use, only part of the classification will be displayed on the table. It is possible, however, to display all units for each broad habitat individually on a single sheet.

3.3 The Extended Species Table worksheet

This worksheet provides additional species data for each biotope, including the total number of core biotope samples, characterising species, average infaunal counts for infaunal species, and SACFOR abundances for all species.

The biotopes are displayed in rows rather than columns, which means that the limit of 256 does not apply, and all data can be displayed at the same time. There is a single row for each species in each biotope – i.e. if there are 10 species within the core records for a biotope, there will be 10 rows with that biotope code (note that the 20% percentage cut-off still applies).

The information displayed in the columns is as follows, with the option to filter on any of them:

Biotope Code: Contains biotope codes, with the filtering option of displaying a single biotope at a time.

Biotope Sort Order: Allows biotopes to be displayed in the correct classification order.

EUNIS Level: Shows the EUNIS level for each classification unit. It is colour-coded in the standard colour scheme used throughout the classification website. Using the filter, it is possible to display units from a single level in the classification hierarchy.

Number of Core Biotope Records: This shows the number of core biotope records for each biotope. It is important to be aware of the number of records on which the information in the tables is based. There are some biotopes for which there are not a lot of records on the JNCC marine database, and which therefore have only a limited number of core records. When the information in the comparative tables is based on only a handful of core records, it needs to be treated with the appropriate level of caution.

Species Name: Lists the species which are recorded in 20% or more of the core biotope records. The filter allows information to be displayed for a single species at a time.

Taxonomic Sort Order: Contains the alpha-numeric taxon codes from Howson & Picton (1997), allowing the species to be displayed in correct taxonomic order.

Percentage Ocurrence: This column contains the same values as the "Comparative Table" worksheet, i.e. the percentage of core biotope samples within which each species is recorded.

Infaunal Density: Some biotopes have core records containing quantitative infaunal sample data. This column shows the average number per m^2 for species recorded in quantitative infaunal samples.

SACFOR: Shows the average frequency of each species on the MNCR SACFOR scale, based on SACFOR data in the core biotope records. Details on the SACFOR scale are included in the introductory text for the classification, available to view or download from the classification website.

Percentage Occurrence Score: This column is intended to provide a rapid visual assessment of the percentage occurrence of species within core biotope records. It is based on the information in the Percentage Occurrence column, with categories broken down as follows:

20-40%	●●
40-60%	●●●
60-80%	●●●●
80-100%	●●●●●

Broad Habitat: Contains the broad habitat code for each biotope, enabling the selection of data from within a single broad habitat through use of the filter.

If you wish to filter on one of the above options only, it is advisable to double-check all the other filters to make sure that the "show all" option is selected. This will avoid inadvertently filtering out data you want to include.

3.4 Biotopes which do not appear in the biological tables

Every species which appears in 20% or more of the core records of a biotope is displayed in the comparative tables, but any species which occurs in fewer than 20% of the core records is not shown. This cut-off percentage was used to keep the tables within manageable size limits.

There are a limited number of biotopes for which no species at all are recorded in 20% of the core biotope records. These biotopes were not picked up in the generation of the tables. This has happened where biotopes are extremely species-poor, or they have no core biotope records. The species-poor biotopes have core records containing physical information, which means that these biotopes are featured in the physical tables even though they do not appear in the biological tables. Biotopes with no core records, on the other hand, were included in the classification based on information from sources other than the JNCC marine database. For these biotopes, there is no information in the physical or biological comparative tables.

Biotopes with no core records (appear neither in the biological nor physical comparative tables):

LR.FLR.Rkp.H	SS.SMu.ISaMu.AmpPlon
LR.FLR.CvOv.ChrHap	SS.SMu.OMu.AfalPova
LS.LBR.LMus.Myt.Sa	SS.SMu.OMu.ForThy
LS.LBR.LMus.Myt.Mu	SS.SMu.OMu.CapThy
SS.SCS.OCS	SS.SMu.OMu.CapThy.Odub
SS.SCS.OCS.GlapThyAmy	SS.SMu.OMu.LevHet
SS.SCS.OCS.HeloPkef	SS.SMu.OMu.PjefThyAfil
SS.SSa.CFiSa.EpusOborApri	SS.SMu.OMu.MyrPo
SS.SSa.CFiSa.ApriBatPo	SS.SBR.Crl
SS.SSa.OSa.MalEdef	SS.SBR.Crl.Lop
SS.SSa.OSa.OfusAfil	

Species-poor biotopes (appear in the physical, but not in the biological comparative tables):
LR.FLR.CvOv.BarCv
LS.LCS
LS.LCS.Sh
LS.LCS.Sh.BarSh

4. Physical comparative tables

4.1 The "All Biotopes" worksheet

The "All Biotopes" worksheet shows a summary of the physical data contained in the core records for each biotope. Biotopes are shown in rows, with the first four columns containing "header" information. The first column shows biotope codes, followed in subsequent columns by the EUNIS level (coloured using the standard classification colour scheme), the biotope sort order (allowing the rows to be displayed in the correct classification order), and the number of core records for each biotope.

The remaining columns, where cells have a white background, show summary physical information as indicated by the column headers in the top two rows. Physical factors are split into a number of categories. For example, "salinity" is split into "full", "variable" and "low". The categories are equivalent to the categories used in MNCR field recording, details of which are included in the introductory text which can be read on or downloaded from the classification website.

It is possible to filter the data on any of the columns, i.e. biotope code, EUNIS level, number of core samples, and physical categories (e.g. it is possible to select all samples that fall within a particular salinity category).

The figures in the table show the following:

Salinity *Wave Exposure* *Tidal Streams* *Height / Depth Band* *Biological Subzone* *(% Frequency)*	Each of these factors is split into a number of categories. For each biotope, the figures show the percentage of core biotope records falling into a given category for a given factor. Note that these categories are not recorded as percentage fractions, i.e. a single field record will not be recorded as 50% full salinity and 50% variable salinity. It either falls within the full and/or variable salinity category, or it doesn't. It is possible for a single sample to fall into more than one category for some of the factors. Conversely, some of the samples have no data recorded for some of the factors. This means that the figures will not always add up to 100%.
Mean Height / Depth Range	These two columns show the mean upper and lower height limit of biotopes (in metres above / below chart datum).
Substratum *Inclination* *Particle Size Analysis* *(Mean Percentages)*	Again, these physical factors are split into a number of categories. Unlike the factors above, however, the field records contain percentage figures for these factors. A single field record where a particle size analysis was carried out, for example, may contain 20% gravel, 50% sand and 30% mud. The figures in this table show the mean percentage value for each category.

4.2 Littoral sediment, Littoral Rock, Infralittoral Rock and Circalittoral rock worksheets

These worksheets display the same data as the "All Biotopes" sheet, but with the samples in columns and the physical data in rows. Because there are more than 256 biotopes, the information will not fit on a single worksheet, and has therefore been split into the five broad habitats.

The reason for displaying the data this way around is to allow easy cross-referencing between biological and physical sets of comparative tables. By hiding unwanted columns in these worksheets, it is possible to display any combination of physical biotope profiles adjacent to each other (provided they are from within the same broad habitat).

4.3 Biotopes which do not appear in the physical comparative tables

There are a limited number of biotopes that have no core biotope records. These are listed in section 3.4. They were included in the classification based on information from sources other than the JNCC marine database. For these biotopes, there is no information in the physical (or biological) comparative tables. In the physical tables, the codes have been included, highlighted in red.

References

Connor, D.W., Brazier, D.P., Hill, T.O., & Northen, K.O. 1997a. *Marine Nature Conservation Review: marine biotope classification for Britain and Ireland. Volume 1. Littoral biotopes. Version 97.06.* JNCC Report, No. 229.

Connor, D.W., Dalkin, M.J., Hill, T.O., Holt, R.H.F., & Sanderson, W.G. 1997b. *Marine Nature Conservation Review: marine biotope classification for Britain and Ireland. Volume 2. Sublittoral biotopes.* Version 97.06. JNCC Report, No. 230.

Howson, C.M. and Picton, B. E. (1997). *The Species Directory of the Marine Fauna and Flora of the British Isles and Surrounding Seas.* Ulster Museum and The Marine Conservation Society, Belfast and Ross-on-Wye.