**Package ‘CARLIT’**

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**Type** Package  
**Title** Ecological Quality Ratios Calculation and Plot  
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**Description** Functions to calculate and plot ecological quality ratios (EQR) as specified by Ballesteros et al. 2007.  
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**Description**

Functions to calculate and plot ecological quality ratios (EQR) as specified by Ballesteros et al. 2007.

**Details**
The function `carlit()` calculates EQR values for each site of a dataset. If saved in an object, results can then be plotted with the function `barplotEQR(object name)`.

### Author(s)

Danilo Pecorino, Gina de la Fuente Mancebo, Xavier Torras  
Maintainer: Danilo Pecorino <danilo.pecorino@gmail.com>

### References


### Examples

```r
data(Community_data)  
data(Sensitivity_list)  
data(EQR_reference)  
Results <- carlit(Community_data, Sensitivity_list, EQR_reference)  
Results  
barplotEQR(Results)
```

---

### Description

Uses the base function `barplot()` to plot EQR levels for each site and assigns colors according to the ecological quality of each.

### Usage

```r
barplotEQR(EQR.df)
```

### Arguments

- **EQR.df**  
  An object of the class `data.frame` obtained from the function `carlit()`.  

**Value**

A barplot.

**Author(s)**

Danilo Pecorino, Gina de la Fuente Mancebo, Xavier Torras

**Examples**

```r
data(Community.data)  
data(Sensitivity_list)  
data(EQR_reference)  
Results <- carlit(Community.data, Sensitivity_list, EQR_reference)  
Results  
barplotEQR(Results)
```

---

**carlit**

**Ecological Quality Ratios**

**Description**

Uses the method defined by Ballesteros et al. 2007 to calculate Ecological Quality Ratios for sites along a coast and Environmental Quality assessments for each stretch of coastline characterized by a unique combination of coastal morphology, naturality/artificiality and macroalgal community for each site considered.

**Usage**

```r
carlit(X, List, EQR_r)
```

**Arguments**

- **X**
  
  A data frame with 5 columns: site (names of the survey sites), coastal morphology (acronyms or words describing the morphology of that stretch of coastline), naturality (a text column that assumes either ‘Natural’ or ‘Artificial’, or ‘nr’ in case this distinction is not necessary or relevant in that specific case), length of stretch of coastline, macroalgal community.

- **List**

  A data frame with two columns: macroalgal community (same values as the ‘macroalgal community’ column in X), sensitivity level of each macroalgal community.

- **EQR_r**

  A data frame with four columns: an ID column with progressive numbers, coastal morphology (same values as the ‘coastal morphology’ column of X), naturality (same values as the ‘naturality’ column of X), EQR reference values for each combination of coastal morphology and naturality (numeric).
Community_data

Value
An object of the class data.frame with 5 columns: site, GRS (geomorphologically relevant situation), EQ.ssi (environmental quality for each GRS), total length for each GRS within each site, EQR for each site.

Author(s)
Danilo Pecorino, Gina de la Fuente Mancebo, Xavier Torras

References

Examples
data(Community_data)
data(Sensitivity_list)
data(EQR_reference)
Results <- carlit(Community_data, Sensitivity_list, EQR_reference)
Results
barplotEQR(Results)

Example Data Set for the Function carlit().

Description
An object of the class data.frame which contains 5 columns: site (names of the survey sites), coastal morphology (acronyms or words describing the morphology of that stretch of coastline), naturality (a text column that assumes either 'Natural' or 'Artificial', or 'nr' in case this distinction is not necessary or relevant in that specific case), length of stretch of coastline, macoralgal community.

Usage
data(Community_data)

Format
A data frame with 70 observations on the following 5 variables.

Site a factor with levels Site1 Site2 Site3
Morphology a factor with levels DB HC LC
Artificial_Natural a factor with levels A N
Length a numeric vector
Community a factor with levels Corallina Cystoseira_mediterranea_1 Cystoseira_mediterranea_2 Cystoseira_mediterranea_3 Cystoseira_mediterranea_4 Encrusting_corallinales Green_algae Mytilus Trottoir
Examples

```r
data(Community_data)
str(Community_data)
```

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**EQR_reference**  
*Example Data Set for the Function carlit().*

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**Description**

An object of the class `data.frame` with EQR reference values as defined in Ballesteros et al 2007.

**Usage**

```r
data(EQR_reference)
```

**Format**

A data frame with 6 observations on the following 4 variables.

- **GRS**  a factor with levels 1 2 3 4 5 6
- **Morphology**  a factor with levels DB HC LC
- **NatArt**  a factor with levels A N
- **EQR**  a numeric vector

**References**


**Examples**

```r
data(EQR_reference)
str(EQR_reference)
```
Sensitivity_list

Example Data Set for the Function carlit().

Description

A reference list for sensitivity levels of macroalgal communities.

Usage

data(Sensitivity_list)

Format

A data frame with 19 observations on the following 2 variables.

Community a factor with levels Blue_greens Corallina Cymodocea_nodosa Cystoseira_balearica Cystoseira_compressa Cystoseira_crinita Cystoseira_mediterranea_1 Cystoseira_mediterranea_2 Cystoseira_mediterranea_3 Cystoseira_mediterranea_4 Cystoseira_mediterranea_5 Cystoseira_sheltered Encrusting_corallines Green_algae Haliptilon Mytilus Posidonia_reef Trottoir Zostera_noltii

SL a numeric vector

Examples

data(Sensitivity_list)
str(Sensitivity_list)
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