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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CARLIT-package *Ecological Quality Ratios Calculation and Plot*

Description

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

Details

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The function carlit() caclulates 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

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References

Ballesteros E., Torras X., Pinedo S., Garcia M., Mangialajo L., de Torres M. (2007) A new methodology based on littoral community cartography dominated by macroalgae for the implementation of the European Water Framework Directive. Marine Pollution Bulletin 55: 171-180.

Examples

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

`barplotEQR` *Plot Results of the carlit() Function.*

Description

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

Usage

```
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

```
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

```
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, macoralgal 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).

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

Ballesteros E., Torras X., Pinedo S., Garcia M., Mangialajo L., de Torres M. (2007) A new methodology based on littoral community cartography dominated by macroalgae for the implementation of the European Water Framework Directive. Marine Pollution Bulletin 55: 171-180.

Examples

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

Community_data *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

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

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

Description

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

Usage

```
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

Ballesteros E., Torras X., Pinedo S., Garcia M., Mangialajo L., de Torres M. (2007) A new methodology based on littoral community cartography dominated by macroalgae for the implementation of the European Water Framework Directive. Marine Pollution Bulletin 55: 171-180.

Examples

```
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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