Package 'EchoNet2Fish'

October 8, 2015

Title Estimate Fish Abundance from Acoustic Echoes and Net Catch

Version 0.0.0.9002

Description EchoNet2Fish estimates fish abundance from acoustic echoes and net catch.

Depends R (>= 3.2.2)

Imports rtf

Suggests magrittr, testthat

License GPL

LazyData TRUE

URL https://github.com/JVAdams/EchoNet2Fish

NeedsCompilation no

Author Jean V. Adams [aut, cre]

Maintainer Jean V. Adams <jvadams@usgs.gov>

R topics documented:

EchoEnv *EchoNet2Fish Package Local Environment*

Description

An environment local to the EchoNet2Fish package, used to hold objects outside of the individual package functions

Format

An environment.

Source

Post from Hadley Wickham to r-help on 2 Dec 2014 [link].

endrtf *Write and Close an RTF Document*

Description

Write and close an rtf (rich text format) document.

Usage

```
endrtf(rtf = doc, details = FALSE, ...)
```

Arguments

rtf	An rtf object, default doc.
details	Logical scalar indicating if session details should be added to the end of the document, default FALSE.
...	Additional parameters to addPageBreak.

References

This is a copy of the endrtf function from the [GLFC] package.

See Also

startrtf for an example, heading, para, tabl, figu, RTF, addPageBreak.

figu *Add a Figure to an RTF Document*

Description

Add a figure to an rtf (rich text format) document.

Usage

```
figu(..., FIG = fig, rtf = doc, figid = "Figure ",
  fign = EchoEnv$figcount, boldt = TRUE, capunder = TRUE, w = NULL,
  h = NULL, rf = 300, newpage = "none", omi = c(1, 1, 1, 1))
```

Arguments

...	One or more character scalars (separated by commas) of text to use for the figure caption.
FIG	A function to create a figure which will be added to the document, default fig.
rtf	An rtf object, default doc.
figid	Character scalar of caption identifier, default "Figure ".
fign	Numeric scalar of figure number to use in caption, default EchoEnv$figcount.
boldt	Logical scalar indicating if figure number should use bold font, default TRUE.
capunder	Logical scalar indicating if caption should appear under the figure (TRUE, the default) or on top of the figure (FALSE).
w	Numeric scalar width of figure in inches, default 6.5.
h	Numeric scalar height of figure in inches, default 8.
rf	Numeric scalar resolution of figure, default 300.
newpage	Character scalar indicating if the figure should start on a new page in the document "port" for a new portrait page, "land" for a new landscape page, and "none" for no new page (the default).
omi	Numeric vector, length 4, width of document page margins in inches (bottom, left, top, right), default c(1, 1, 1, 1).

Details

The figure and caption are written to the rtf file. The size of a new page is assumed to be 8.5 by 11 inches.

Value

A 1 is added to the numeric vector of length 1, EchoEnv$figcount, stored in the working directory to keep track of the number of figures written to the rtf document, and label the captions accordingly.

References

This is a copy of the figu function from the [GLFC] package.

See Also

startrtf for an example, heading, para, tabl, endrtf, RTF.

getpackages *Get Packages*

Description

Installs (if necessary) and attaches the specified packages.

Usage

```
getpackages(want)
```

Arguments

want	A character vector of package names.

References

This is a copy of the getpackages function from the [jvamisc] package.

heading *Add a Heading to an RTF Document*

Description

Add a text heading to an rtf (rich text format) document.

Usage

```
heading(words, htype = 1, rtf = doc)
```

Arguments

words	Character scalar text of heading to add to document.
htype	Integer scalar heading type, 1=bold and font size 12, 2=bold and font size 10, 3=italics and font size 10, default 1.
rtf	An rtf object, default doc.

Details

The specified heading is written to the rtf file.

References

This is a copy of the heading function from the [GLFC] package.

See Also

startrtf for an example, para, tabl, figu, endrtf, RTF.

Lakenames *Great Lakes Names*

Description

A vector with the names of the five Great Lakes.

Format

A character vector, length 5.

para *Add a Paragraph to an RTF Document*

Description

Add a paragraph to an rtf (rich text format) document.

Usage

```
para(..., rtf = doc, bold = FALSE, italic = FALSE)
```

Arguments

`...`	One or more character scalars (separated by commas) of text to add to document as a single paragraph.
`rtf`	An rtf object, default `doc`.
`bold`	Logical scalar indicating if paragraph should use bold font, default FALSE.
`italic`	Logical scalar indicating if paragraph should use italic font, default FALSE.

Details

The specified heading is written to the rtf file.

References

This is a copy of the `para` function from the [GLFC] package.

See Also

`startrtf` for an example, `heading`, `tabl`, `figu`, `endrtf`, `RTF`.

recode *Recode Values*

Description

Assign new values to a vector.

Usage

```
recode(x, old, new, must.match = FALSE)
```

Arguments

x	A vector whose values will be recoded, can be character, numeric, or factor.
old	A vector of the unique values currently in the vector.
new	A vector of values which should replace the current ones.
must.match	A logical scalar indicating whether only those elements of the original vector with values in old should be returned (TRUE), or all values should be returned (FALSE, default) though some may be unchanged.

Value

A vector the same length as x (unless must.match=TRUE), with old values replaced by new values.

References

This is a copy of the recode function from the [jvamisc] package.

Examples

```
recode(c(1,1,1,2,3,4,1,10,3), 1:3, 1001:1003)
recode(c(1,1,1,2,3,4,1,10,3), 1:3, 1001:1003, must.match=TRUE)
```

sliceCat *Categorize Observations as Slices for Matching Acoustic Densities and Trawl Catches*

Description

Categorize observations as spatial slices for matching fish densities estimated from acoustic transects and speciec compositions estimated from midwater trawl catches.

Usage

```
sliceCat(sliceDef, fdp = NULL, bdp = NULL, lat = NULL, reg = NULL)
```

Arguments

sliceDef	A list of at least two named sub-lists defining the slices into which observations will be classified. Each sub-list contains one or more named numeric vectors of length two, identifying the parameter (the name of the vector) and the range of values that contribute to the slice definition. Each interval is closed on the left and open on the right (see Details). The name of each sub-list is the name of the slice to be assigned. See Examples.
fdp	A numeric vector of fishing depths (the distance from the surface of the water to the depth of a fish in the water) corresponding to the observations which are to be categorized into slices. Only necessary if required by sliceDef, default NULL. default
bdp	A numeric vector of bottom depths (the distance from the surface of the water to the substrate) corresponding to the observations which are to be categorized into slices. Only necessary if required by sliceDef, default NULL.
lat	A numeric vector of latitudes corresponding to the observations which are to be categorized into slices. Only necessary if required by sliceDef, default NULL.
reg	A character vector of regions corresponding to the observations which are to be categorized into slices. Only necessary if required by sliceDef, default NULL.

Details

Each interval of sliceDef is closed on the left and open on the right. In other words, if you assign an interval of fdp=c(10, 20), observations >= 10 and < 20 will be considered for inclusion in that slice.

All observation variables (fdp, bdp, lat, lat), if not NULL, must be the same length.

Value

A character vector the same length as the observations variables (fdp, bdp, lat, reg), identifying the slice to which each observation belongs.

Examples

```
myslicedef <- list(
  epiNear = list( fdp=c(0,   4), bdp=c(0,   6) ),
  epiOff =  list( fdp=c(0,   4), bdp=c(6, Inf) ),
  hypo =    list( fdp=c(4, Inf) )
)
fishingD <- 1:7
bottomD <- c(2, 10, 4, 12, 6, 14, 8)
slice <- sliceCat(myslicedef, fdp=fishingD, bdp=bottomD)
data.frame(fishingD, bottomD, slice)
```

---

startrtf *Create an RTF Document*

Description

Create an rtf (rich text format) document.

Usage

```
startrtf(file = NULL, dir = getwd(), width = 8.5, height = 11,
  omi = c(1, 1, 1, 1), quiet = FALSE)
```

Arguments

file	Character scalar name of document, default "RGeneratedDocument" with Sys.Date() suffix.
dir	Character scalar name of directory where document should be stored, default getwd().
width	Numeric scalar width of document page in inches, default 8.5.
height	Numeric scalar height of document page in inches, default 11.
omi	Numeric vector, length 4, width of document page margins in inches (bottom, left, top, right), default c(1, 1, 1, 1).
quiet	Logical scalar indicating if name of new rtf document should be printed to command line, default FALSE.

Details

The rtf file may be written to until the endrtf() function is run. If you assign your rtf file to an object called doc, you can use the default settings in other **GLFC** rtf functions.

Value

An rtf file is created in the specified directory. An object of class rtf is created. This object is referred to in other functions to write to the file. In addition, two numeric vectors of length 1, tabcount and figcount, are written to the working directory to keep track of the number of tables and figures written to the rtf document, and label the captions accordingly.

References

This is a copy of the startrtf function from the [GLFC] package.

See Also

heading, para, tabl, figu, endrtf, RTF.

Examples

```
## Not run:
# open a Word-friendly rtf file
today <- Sys.Date()
doc <- startrtf(file=paste("Example", today))
# add headings
heading("Title")
heading(paste("Author", today, sep=" - "), 2)
# add a paragraph
para("This is how write a paragraph.")
# reference a table
para("This is how you reference a table (Table ", EchoEnv$tabcount, ").")
# add the table
tab <- matrix(sample(20), ncol=5,
 dimnames=list(paste("Row", 1:4), paste("Column", 1:5)))
```

```
tabl("A silly table.")
# reference a figure
para("And this is how you reference a figure (Figure ",
 EchoEnv$figcount, ").")
# add the figure
fig <- function() {
  par(mar=c(4, 4, 1, 1))
  plot(1:10, 1:10, xlab="X", ylab="Y")
}
figu("A silly plot.", h=4, w=4)
# save the rtf file
endrtf()

## End(Not run)
```

---

tabl *Add a Table to an RTF Document*

Description

Add a table to an rtf (rich text format) document.

Usage

```
tabl(..., TAB = tab, rtf = doc, fontt = 8, row.names = TRUE,
  tabc = EchoEnv$tabcount, boldt = TRUE, newpage = "none", omi = c(1, 1,
  1, 1))
```

Arguments

...	One or more character scalars (separated by commas) of text to use for the table caption.
TAB	A matrix, data frame, or table to be added to the document as a table, default tab.
rtf	An rtf object, default doc.
fontt	Numeric scalar font size for table caption, default 8.
row.names	Logical scalar whether to include the row.names of TAB in the table, default TRUE.
tabc	Numeric scalar table number to use in caption, default EchoEnv$tabcount.
boldt	Logical scalar indicating if table number should use bold font, default TRUE.
newpage	Character scalar indicating if the table should start on a new page in the document "port" for a new portrait page, "land" for a new landscape page, and "none" for no new page (the default).
omi	Numeric vector, length 4, width of document page margins in inches (bottom, left, top, right), default c(1, 1, 1, 1).

Details

The table and caption are written to the rtf file. The size of a new page is assumed to be 8.5 by 11 inches.

Value

A 1 is added to the numeric vector of length 1, `EchoEnv$tabcount`, stored in the working directory to keep track of the number of tables written to the rtf document, and label the captions accordingly.

References

This is a copy of the `tabl` function from the [GLFC] package.

See Also

`startrtf` for an example, `heading`, `para`, `figu`, `endrtf`, `RTF`.

Index