Package 'GLFC'

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Title Estimation of Great Lakes Sea Lamprey Abundance

Version 0.0.0.9000

Description What the package does (one paragraph)

Depends R (>= 3.1.0)

Imports plyr

License GPL

LazyData true

URL `https://github.com/JVAdams/GLFC`

Author Jean V. Adams [aut, cre]

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

R topics documented:

`estAIndex` *Estimate Index of Sea Lamprey Adults*

Description

Estimate the Adult Index of sea lampreys in a single Great Lake.

Usage

```
estAIndex(indexStreams, streamPECurr, streamPEPrev = NULL, minNMR = 2,
  show = FALSE)
```

Arguments

indexStreams	A numeric vector of IDs identifying streams to be included in the index, e.g., 1.064 = lake code + (stream code)/1000.
streamPECurr	A data frame of stream mark-recapture estimates from the current year, with variables: year, lake, lscode, Emr, CVmr.
streamPEPrev	A data frame of stream mark-recapture and Adult Index estimates from previous years, with variables: year, lake, lscode, Emr, CVmr, indexContrib, default NULL.
minNMR	A numeric scalar, the minimum number of mark-recapture estimates needed in a year to generate an index, default 2.
show	A logical Scalar indicating if a brief summary of the results should by printed, default FALSE.

Details

The annual Adult Index is simply the sum of the columns in m for each row. The jackknifed range is produced by recalculating the index, leaving out one stream at a time, then scaling up the result to the same scale as the Adult Index based on all streams.

Value

A list with two components: streamPE, a data frame of stream mark-recapture and Adult Index estimates from previous and current years combined, with the same variables as streamPEPrev; and lakeIndex, a numeric matrix with three columns, the Adult Index, and the lower and upper jackknifed range.

Examples

```
streampe <- matrix(1:12, nrow=3, dimnames=list(1996:1998, letters[1:4]))
jackIndex(streampe)
```

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jackIndex *Index of Sea Lamprey Adults with Jackknifed Range*

Description

Estimated Adult Index of sea lamprey with the observed range in the index when one stream at a time is excluded from the estimation.

Usage

```
jackIndex(m)
```

Arguments

m	A numeric matrix of stream run size estimates with observation years as rows and individual streams as columns.

Details

The annual Adult Index is simply the sum of the columns in `m` for each row. The jackknifed range is produced by recalculating the index, leaving out one stream at a time, then scaling up the result to the same scale as the Adult Index based on all streams.

Value

A numeric matrix with three columns, the Adult Index, and the lower and upper jackknifed range.

Examples

```
streampe <- matrix(1:12, nrow=3, dimnames=list(1996:1998, letters[1:4]))
jackIndex(streampe)
```

`predAntilog` *Unbiased Prediction of Log Transformed Response on Original Scale*

Description

Provide unbiased estimates on the original scale from an analysis of variance model with a log transformed response.

Usage

```
predAntilog(aovfit, xdata, logbase = exp(1), k = 0)
```

Arguments

`aovfit`	An object of class c("aov", "lm").
`xdata`	A data frame with predictor variables corresponding to those in `model` for which predictions should be made.
`logbase`	A numeric scalar, the base of the log transformation used in the transformed response of `model`, default exp(1).
`k`	A numeric scaler, the constant added to the response prior to transformation, default 0.

Value

A numeric vector of predicted values on the original scale of the response.

Examples

```
fit <- aov(log(yield) ~ block + N * P + K, npk)
predAntilog(fit, npk)
```