Package 'RpackageSimFishery'

April 9, 2019

Version 1.0.0

Title Simulate a fishery (age, length and weight of individual fish).

Description Functions for reading end note data and parameter estimates from a fitted ECA model, and thereafter simulating a fishery: simulate age, length given age and weigth given length. End note data is a dataobject with one line per landing and the columns: Boat, S, G, R, Weight, L, Boat2, LwiB (Boat: orig. boat number, S: season, G: gear, R: region (ECA-region 1:9), Weight: total weight in landing (converted to gram), L: landing, Boat2: boat number within (S,G,R), LwiB: landing number within boat). Output is a simulated fishery (a list object, with elements Boat, S, G, R, Weight, L, Boat2, LwiB, ExpectedWeight, Nofish, ages, LGA (length given age), WGL (weight given length)).

License file LICENCE

Encoding UTF-8

LazyData true

ByteCompile true

RoxygenNote 6.1.0

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RemoteSha 1.0.0

R topics documented:

`ExtractParestECArunAgedist` *ExtractParestECArunAgedist*

Description

Extract parameters from a fitted ECA model (fit object); to be used for computing the age distribution

Usage

```
ExtractParestECArunAgedist(fit)
```

Arguments

`fit`	Output (list object) from a fitted ECA model with elements: "age" "lga" "hsz" "nonlin" "lga.cc" "nonlin.cc" "wgl" "wgl.cc" "split" "k"

Value

A list (parameters for computing the age distribution)

Author(s)

Ingunn Fride Tvete

`ExtractParestECArunLGA` *ExtractParestECArunLGA*

Description

ExtractParestECArunLGA: parameters for length given age

Usage

```
ExtractParestECArunLGA(fit)
```

Arguments

`fit`	Output (list object) from a fitted ECA model with elements: "age" "lga" "hsz" "nonlin" "lga.cc" "nonlin.cc" "wgl" "wgl.cc" "split" "k"

Value

A list (parameters for computing length given age)

Author(s)

Ingunn Fride Tvete

ExtractParestECArunWGL *ExtractParestECArunWGL*

Description

ExtractParestECArunWGL: parameters for weigth given length

Usage

```
ExtractParestECArunWGL(fit)
```

Arguments

fit	Output (list object) from a fitted ECA model with elements: "age" "lga" "hsz" "nonlin" "lga.cc" "nonlin.cc" "wgl" "wgl.cc" "split" "k"

Value

A list (parameters for computing weigth given length)

Author(s)

Ingunn Fride Tvete

FindExpectedWeight *FindExpectedWeight*

Description

Expected weigth in a given landing in end note data

Usage

```
FindExpectedWeight(data, fit, Par_ECA, pA)
```

Arguments

data	End note data object, with one line per landing and columns: "Boat" "S" "G" "R" "Weight" "L" "Boat2" "LwiB" (Boat = orig. boat numer, S = season, G = gear, R = region (ECA-region 1:9), Weight = total weight (converted to gram), L = landing, Boat2 = boat number within S,G,R, LwiB = landing number within boat
fit	Output (list object) from a fitted ECA model with elements: "age" "lga" "hsz" "nonlin" "lga.cc" "nonlin.cc" "wgl" "wgl.cc" "split" "k"
Par_ECA	Sampled parameters, the fitted ECA model (ceta_boat_matrix, ceta_unit_matrix, ceta_cell_matrix)
pA	Age distibution matrix

Value

A vector of expected weights (one for each landing, in gram)

Author(s)

Ingunn Fride Tvete

`FindpAmatrix` *FindpAmatrix*

Description

FindpAmatrix: find age probability distribution matrix

Usage

```
FindpAmatrix(data, fit, Par_ECA)
```

Arguments

`data`	End note data object, with one line per landing and columns: "Boat" "S" "G" "R" "Weight" "L" "Boat2" "LwiB" (Boat = orig. boat numer, S = season, G = gear, R = region (ECA-region 1:9), Weight = total weight (converted to gram), L = landing, Boat2 = boat number within S,G,R, LwiB = landing number within boat
`fit`	Output (list object) from a fitted ECA model with elements: "age" "lga" "hsz" "nonlin" "lga.cc" "nonlin.cc" "wgl" "wgl.cc" "split" "k"
`Par_ECA`	Sampled parameters, the fitted ECA model (ceta_boat_matrix, ceta_unit_matrix, ceta_cell_matrix)

Value

A matrix (number of rows are equal to the number of landings in the end note data), each row is the age distribution for the given landing

Author(s)

Ingunn Fride Tvete

LengthGivenAge *LengthGivenAge*

Description

Sample the length of fish for a given age

Usage

```
LengthGivenAge(data, beta_const, beta_season, beta_gear, beta_1, epsilon_region,
  epsilon_boat, epsilon_cell, epsilon_landing, tau_epsilon_fish)
```

Arguments

data	End note data object, with one line per landing and columns: "Boat" "S" "G" "R" "Weight" "L" "Boat2" "LwiB" (Boat = orig. boat numer, S = season, G = gear, R = region (ECA-region 1:9), Weight = total weight (converted to gram), L = landing, Boat2 = boat number within S,G,R, LwiB = landing number within boat
beta_const	ECA-parameter
beta_season	ECA-parameter
beta_gear	ECA-parameter
beta_1	ECA-parameter
epsilon_region	ECA-parameter
epsilon_boat	ECA-parameter
epsilon_cell	ECA-parameter
epsilon_landing	ECA-parameter
tau_epsilon_fish	ECA-parameter

Value

A vector of fish lengths (cm)

Author(s)

Ingunn Fride Tvete

SampleParFromFittedDistECA *SampleParFromFittedDistECA*

Description

Sample random parameters from fitted ECA-model

Usage

```
SampleParFromFittedDistECA(data, fit, n_neighbours, cmat)
```

Arguments

data	End note data object, with one line per landing and columns: "Boat" "S" "G" "R" "Weight" "L" "Boat2" "LwiB" (Boat = orig. boat numer, S = season, G = gear, R = region (ECA-region 1:9), Weight = total weight (converted to gram), L = landing, Boat2 = boat number within S,G,R, LwiB = landing number within boat
fit	Output (list object) from a fitted ECA model with elements: "age" "lga" "hsz" "nonlin" "lga.cc" "nonlin.cc" "wgl" "wgl.cc" "split" "k"
n_neighbours	Number of neighbours
cmat	Spatial matrix

Value

A list of sampled parameters (form the fitted ECA model)

Author(s)

Ingunn Fride Tvete

SimulateFishery *SimulateFishery*

Description

Simulating fishery

Usage

```
SimulateFishery(endnotedata, A, ages, fit)
```

Arguments

endnotedata	End note data object, with one line per landing and columns: "Boat" "S" "G" "R" "Weight" "L" "Boat2" "LwiB" (Boat = orig. boat numer, S = season, G = gear, R = region (ECA-region 1:9), Weight = total weight (converted to gram), L = landing, Boat2 = boat number within S,G,R, LwiB = landing number within boat
A	The Number of age groups
ages	The Ages (range, e.g. 1:19)
fit	Output (list object) from a fitted ECA model with elements: "age" "lga" "hsz" "nonlin" "lga.cc" "nonlin.cc" "wgl" "wgl.cc" "split" "k"

Value

A list (fishery data object, with elements "Boat" "S" "G" "R" "Weight" "L" "Boat2" "LwiB" "ExpectedWeight" "Nofish" "ages" "LGA" "WGL"), LGA = length given age and WGL = weight given length

Author(s)

Ingunn Fride Tvete

Spatial *Spatial*

Description

Spatial pattern (ECA regions 1:9)

Usage

```
Spatial()
```

Value

A list (input information for spatial relationship)

Author(s)

Ingunn Fride Tvete

WeightGivenLength *WeightGivenLength*

Description

Sample the weight of fish for a givenlength

Usage

```
WeightGivenLength(data, length_g_age, delta_const, delta_season, delta_gear,
  delta_1, nu_region, nu_boat, nu_cell, nu_landing, tau_nu_fish)
```

Arguments

data	End note data object, with one line per landing and columns: "Boat" "S" "G" "R" "Weight" "L" "Boat2" "LwiB" (Boat = orig. boat numer, S = season, G 0 gear, R = region (ECA-region 1:9), Weight = total weight (converted to gram), L = landing, Boat2 = boat number within S,G,R, LwiB = landing number within boat
length_g_age	Length of each fish (given the age)
delta_const	ECA parameter
delta_season	ECA parameter
delta_gear	ECA parameter
delta_1	ECA parameter
nu_region	ECA parameter
nu_boat	ECA parameter
nu_cell	ECA parameter
nu_landing	ECA parameter
tau_nu_fish	ECA parameter

Value

A vector of fish weights (in gram)

Author(s)

Ingunn Fride Tvete

Index