Package 'mRc'

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Type Package

Title Multi-Visit Closed Population Mark-Recapture Estimates

Version 0.1.0

Description Compute bootstrap confidence intervals for the adjusted Schnabel and Schumacher-Eschmeyer multi-visit mark-recapture estimators based on Dettloff (2023) <doi:10.1016/j.fishres.2023.106756>.

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Encoding UTF-8

RoxygenNote 7.2.3

Imports stats

URL https://github.com/k-dettloff/mRc

BugReports https://github.com/k-dettloff/mRc/issues

NeedsCompilation no

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R topics documented:

`closedCI` *Multi-visit closed population mark-recapture estimates*

Description

Calculate adjusted Schnabel and Schumacher-Eschmeyer estimates with confidence intervals.

Usage

```
closedCI(
  marked,
  caught,
  recaptured,
  newmarks = NULL,
  alpha = 0.05,
  ndraws = 1e+05
)
```

Arguments

`marked`	number of animals marked on first visit (M2)
`caught`	vector of catch on subsequent visits (nk)
`recaptured`	vector of recaptures on subsequent visits (mk)
`newmarks`	vector of newly marked animals on subsequent visits (default: nk-mk)
`alpha`	type I error rate for confidence intervals (default: 0.05)
`ndraws`	number of bootstrap draws (default: 10,000)

Details

Bias adjusted estimators are based on Dettloff (2023). Bootstrap confidence intervals are computed using a beta-binomial distribution with n = nk, alpha = mk, beta = nk-mk.

Value

Matrix containing population size estimates with confidence intervals for each method

References

Dettloff, K. (2023). Assessment of bias and precision among simple closed population mark-recapture estimators. Fisheries Research 265, 106756. doi: <https://doi.org/10.1016/j.fishres.2023.106756>

Examples

```
M2 = 2
n = c(232, 524, 152, 98, 353)
m = c(0, 5, 8, 6, 13)
set.seed(123)
closedCI(M2, n, m, ndraws = 1000)
```

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