Package 'mRc'

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Type Package

Title Multi-Visit Closed Population Mark-Recapture Estimates

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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 7.3.3

Imports stats

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

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

NeedsCompilation no

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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, and 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: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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