Estimating abundance from mark-recovery data
Theory and example

Data

M = 100 = number of fish marked

S = 500 = number of fish sampled

R = 5 = number of marks recovered

Unknown

N = ? = number in the population

$p = \frac{M}{N}$ = proportion marked

Theory

$R \sim \text{Binomial}(p, S)$

$$\frac{M}{N} \cong \frac{R}{S} \Rightarrow \hat{N} = \frac{M}{R} S = 10{,}000$$