

Bias in estimating bycatch-to-shrimp ratios



Two methods for estimating bycatch-to-shrimp ratios were tested using Monte Carlo simulations. The Ratio Averager first calculates the ratio of bycatch to shrimp for each element of the sample and then averages all the entire sample. This method overestimated the ratio with a maximum bias as high as 4.5 times. In contrast, the Ratio Estimator or Ratio Estimation as termed in some literature first averages the sample catch rate of bycatch and shrimp and then calculates the ratio of the two averages. The Ratio Estimator performed quite well under all scenarios evaluated in this study, with a bias range from -1.7% to 2.8% . The reliability of the Ratio Estimator was also higher than the Ratio Averager, particularly when both bycatch and shrimp had high variability. Two sets of fishery survey data were used to demonstrate the difference in ratio estimates between the two methods.

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