

## Comparison of Access and Roving Catch Rate Estimates Under Varying Within-trip Catch-rates and Different Roving Minimum Trip Lengths

**Roger N. Lockwood**

*School of Natural Resources and Environment  
The University of Michigan  
212 Museums Annex Building  
Ann Arbor, MI 48109-1084*

*Abstract*—Reliable roving interview catch rates require relative consistency of catch rate throughout individual angler trips and appropriate minimum fishing time prior to interview. One-half hour fishing time prior to interview has been the accepted minimum. Roving interview catch rates were evaluated for consistency of catch rates within angler trips and comparisons of roving interview catch rates to access interview catch rates were made. Simulation of a roving survey, using an access interview data set, gave a mere 2.1% underestimation of catch per hour when catch rate was constant within individual anglers' trips. When catch per hour increased within trips, catch per hour was underestimated by 40.1%. For two angler surveys, differences between access (ratio-of-means estimator) and roving (mean-of-ratios estimator) estimates were reduced when minimum-fishing time for roving interviews was increased from 0.5 h to 1.0 h. For 1.0-h minimum fishing time for roving interviews, total catch per hour for across data set comparisons of an Au Sable River angler survey was 0.1119 for access interviews and 0.1281 for roving interviews, and these were significantly different ( $P=0.009$ ). Eight percent of 350-paired comparisons were significantly different ( $P\leq 0.05$ ). Roving interview catch rates were greater than access interview catch rates for 4.6% of comparisons and less than access interview catch rates for 3.4%. For Lake Gogebic angler survey with 1.0-h minimum fishing time for roving interviews, across data set catch rates were 0.0675 for access interviews and 0.0699 for roving interviews, and were not significantly different. For 99-paired comparisons, 13.1% of catch rates were significantly different ( $P\leq 0.05$ ). Roving interview catch rates were greater than access interview catch rates for 3.0% of comparisons and less than access interview catch rates for 10.1%. Comparison of minimum fishing time of 0.5 h and 1.5 h show greater differences. Similar to edge effect for area estimates, greater differences in catch rates when minimum fishing time was 0.5 h was attributed to start-up time effect. Conversely, when minimum fishing time was increased to 1.5 h, truncation of roving data set removed records with fishing times longer than some access interview trips. Within trip differences in catch rates were evaluated by comparing direct contact interviews for approximate first half of trip catch rate and post card survey for approximate latter-half of trip catch rate. Catch rates of six species were compared and only catch rates of yellow perch (*Perca flavescens*) were significantly different ( $P=0.010$ ). Significantly greater catch rate during the latter portion of anglers' trips may be due to poor response rate from post cards (44.2%). Overall similarities between access and roving catch rates indicated reliability of roving interviews. Results indicated minimum-fishing time for Michigan roving interviews should be increased from 0.5 h to 1.0 h.