

## Abstract

Work on smallmouth bass biology over the years has focussed on lake and impoundment populations. Most stream habitat studies have used mark-recapture or visual observation to monitor fish. This study used radiotelemetry to monitor seasonal and daily movement and to determine habitat selection of smallmouth bass.

Radio transmitters were implanted in 18 smallmouth bass 253 to 466 mm in total length, from the Huron River, Michigan between November 1987 and July 1989. Fish were located twice a week during spring/summer and once a week during fall/winter. Position determination was used to monitor habitat use, total range, home site use, and active displacement. Habitat selection was determined by comparing transect measurements in areas used compared to those available but not used.

Movement of smallmouth bass was variable, but all fish had a small total range and limited activity levels. Larger fish had significantly greater total ranges than smaller fish ( $r=0.66$ ). The smallest total range was 20 m and the largest was 370 m. There was no significant difference between spring/summer and fall/winter ranges. Mean active displacement varied between 10 m and 136 m, with no significant difference between spring/summer and fall/winter displacements. As with range, there was a positive linear relationship between total fish length and mean active displacement ( $r=0.67$ ) i.e. larger fish tended to be more active.

Change in home site was not a common occurrence. Typically, each fish utilized one home site during the tracking period.

Smallmouth bass were found exclusively in medium gradient stretches. These areas were characterized by moderate width and depth, pools below obstructions, silt absent in the stream channel unless behind obstructions, and the wake (disturbed area) downstream of obstructions less than 1 m long, but without bubbling.

In every instance, when fish were stationary, they were in association with cover. There was a significant selection for logs, log complexes, and other (root wads, man-made objects, etc.). These habitat types typically contained low velocity, silt and sand substrates, and were close to shore.