

INTRODUCTION

The upper St. Joseph River is located in the extreme southern central portion of Michigan's Lower Peninsula (Figure 1). The headwaters of the river flow in a northwesterly direction. Then, near Homer in Calhoun County, the river abruptly turns and flows in a general southwestern direction through part of Branch County and into St. Joseph County. Not far beyond the most downstream site surveyed in this study, the character of the river changes dramatically. The vast majority of the stream from that point to Lake Michigan is impounded by several large dams. The primary objective of this study was to sample fish populations in lotic riverine habitats in the upper St. Joseph River and Nottawa Creek (a main tributary).

Within the study area the river drains approximately 912 square miles. The basin is about 50 miles in length, from 3 to 40 miles wide, and includes portions of five Michigan counties. Major tributaries include Beebe Creek, Sand Creek, Soap Creek, Burnett Creek, Coldwater River, Swan Creek, Little Swan Creek, and Nottawa Creek.

There are three dams and impoundments in the study area. The largest impoundment, Union Lake, is 525 acres in size (Figure 1). Impoundments at Litchfield and Jonesville were much smaller, about 15 and 30 surface acres, respectively.

Little sportfishing takes place in the mainstream in the upper two-thirds of the study area. Occasionally, anglers in that area fish for northern pike, smallmouth bass, largemouth bass, suckers, and carp. Also, some fishermen collect bait minnows for use elsewhere. Near Union City the stream flow increases substantially due to the entry of several tributaries. In that area, sportfishing is more frequent and good catches of northern pike and smallmouth bass have been reported. Union Lake is an excellent fishery well known for black crappies, yellow perch, bluegills, largemouth bass, and channel catfish. Below Union Lake the river is fished heavily for channel catfish, smallmouth bass, northern pike, and walleyes. This area also has an excellent fishery for suckers and redhorses in the spring.

METHODS

Rotenone was used to capture fish during the survey. Techniques were similar to those described by Nelson and Smith (1980; 1981) with modifications described by Towns (1987).

Low current velocities allowed the use of small-mesh blocking seines (maximum diagonal opening of 3/16 to 1/4 inch) at every station. This precluded the need for downstream subsampler nets to estimate escapement. It was assumed that the small-mesh blocking seines captured all fish of about 2 inches and larger in total length. At each sampling station two blocking seines were used—one at approximately the midpoint and the other at the end of the