

ABSTRACT

AN INITIAL EVALUATION OF THE HABITAT AND FISHERIES RESOURCES ASSOCIATED WITH A DAM REMOVAL IN A MICHIGAN COLDWATER STREAM

By

Kristi D. Klomp

Stronach Dam was built in 1912 as a hydroelectric dam on the Pine River, Manistee County, Michigan. A high sand bedload contributed to the filling of the 26-hectare reservoir and led to the decommissioning of the dam in 1953. In 1996, a staged drawdown (2 feet/year) of the dam was initiated, and is expected to be complete by 2003. A 1995 pre-removal habitat assessment of a 9.2 km stretch of stream adjoining Stronach Dam indicated that habitat quality is degraded below the dam and for 3.8 km upstream from the dam where gradient and streambed particle size are reduced. In 1996, 31 permanent transects were surveyed to establish initial streambed elevations. Slight changes in elevation were detected in 1997 after lowering the dam 2 ½ feet. Abundance of rainbow trout, brook trout, brown trout, and white suckers was quantified using a multi-pass depletion method of electrofishing. White suckers were found to outnumber trout 9 to 1 in the habitat downstream from the dam; trout and sucker densities were nearly equal in the upstream reach impacted by the dam; while trout were 11 times more abundant than suckers upstream from the dam's influence. Growth analysis of white suckers, rainbow trout, and brown trout did not exhibit differences related to location within the study reach. Habitat and fish populations will continue to be monitored annually to determine the long-term impacts of the dam removal.