

Thunder Bay River Assessment

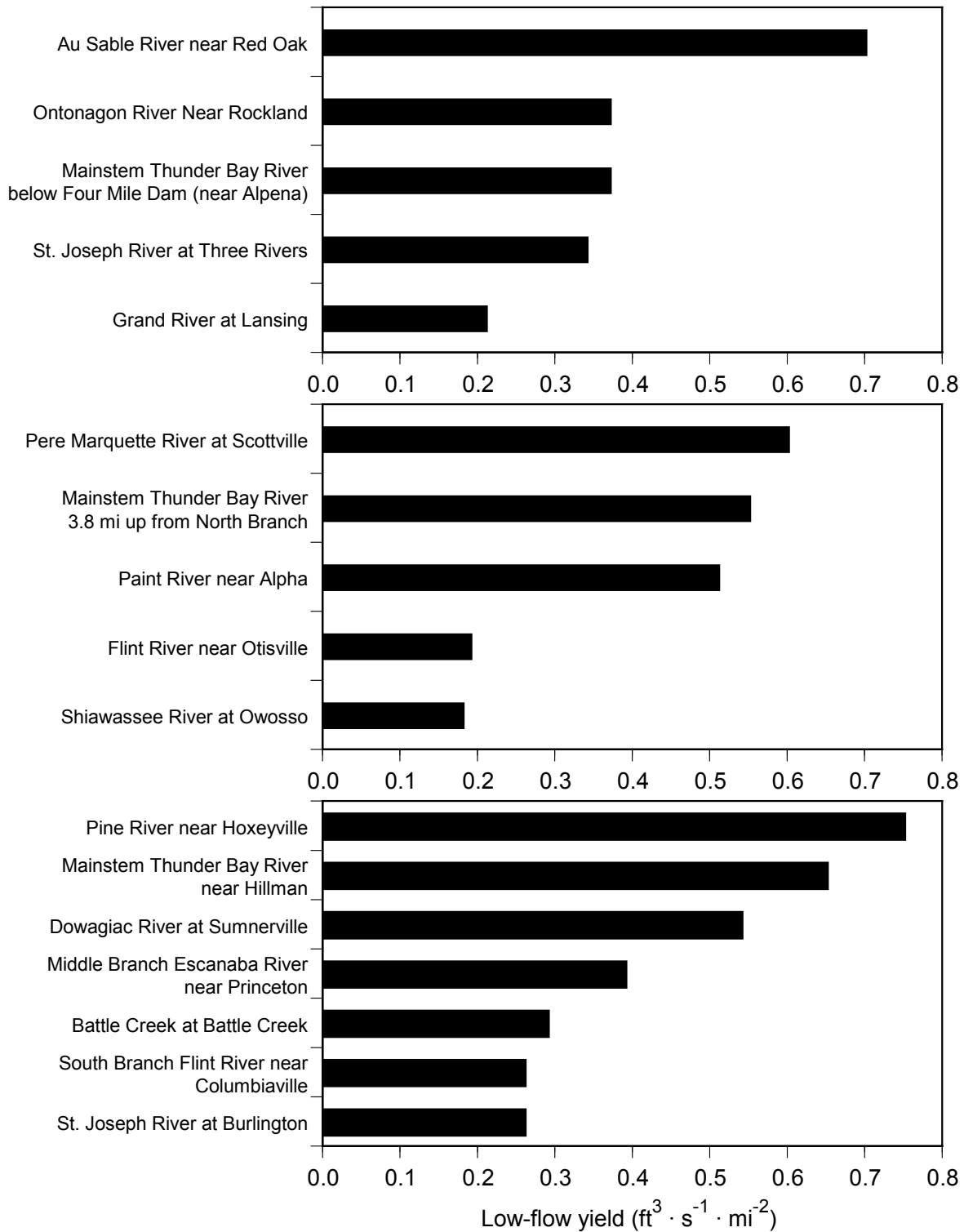


Figure 7.—Low-flow yield (90% exceedence flow divided by catchment area) expressed as $\text{ft}^3 \cdot \text{s}^{-1} \cdot \text{mi}^{-2}$ for three mainstem Thunder Bay River catchments with USGS streamflow data. Each panel depicts comparisons of low-flow yield at a Thunder Bay River gauge to that of other Michigan Streams with similar-sized catchments. Note that some flow regulation occurs upstream of gauges on the Ontonagon, St. Joseph, Grand, Paint, Flint, and Middle Branch Escanaba rivers.

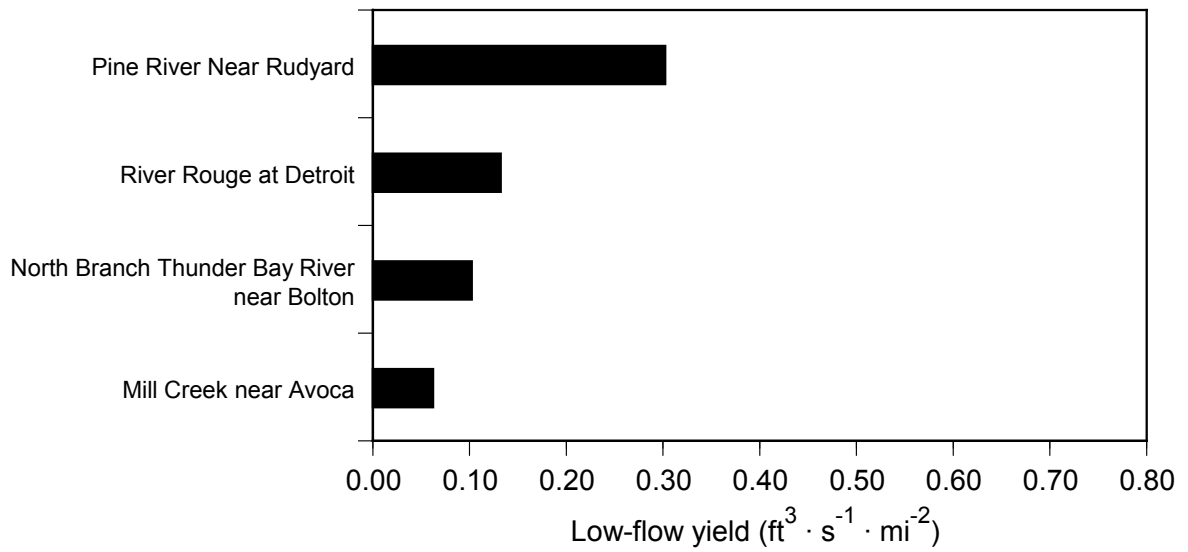


Figure 8.—Low-flow yield (90% exceedence flow divided by catchment area) expressed as $\text{ft}^3 \cdot \text{s}^{-1} \cdot \text{mi}^{-2}$ for the North Branch Thunder Bay River near Bolton, compared to low-flow yields for other Michigan Streams with similar-sized catchments (United States Geological Survey).

Thunder Bay River Assessment

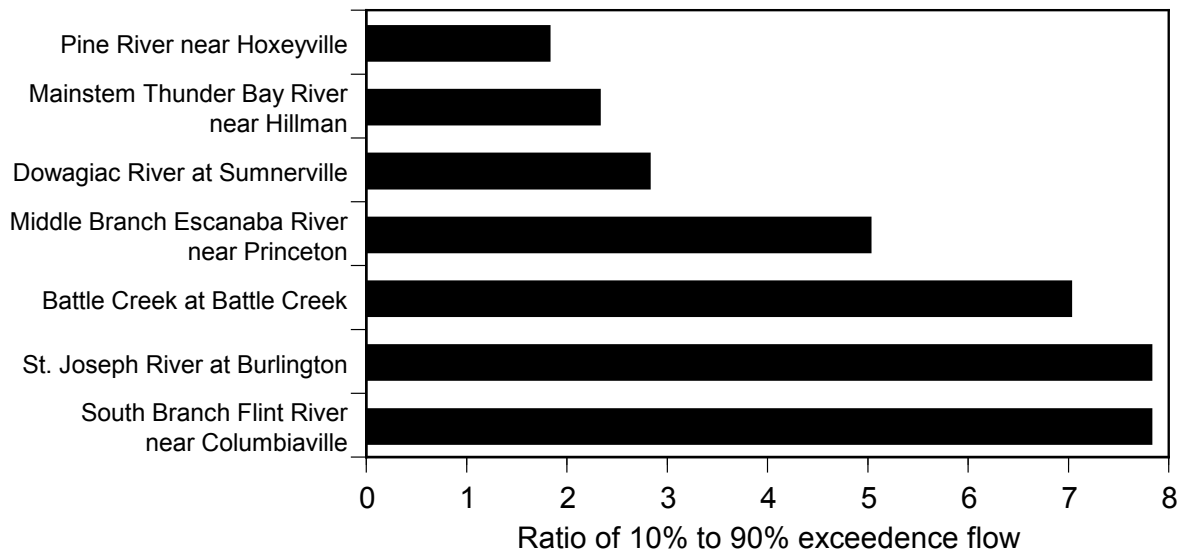


Figure 9.—Flow stability (expressed as the ratio of 10% and 90% exceedence flows) of Michigan streams having catchments comparable in size to the mainstem Thunder Bay River near Hillman, MI (25 feet up from M-32 Bridge). Note that some flow regulation occurs upstream of the gauge on the Middle Branch Escanaba River. Data from United States Geological Survey.

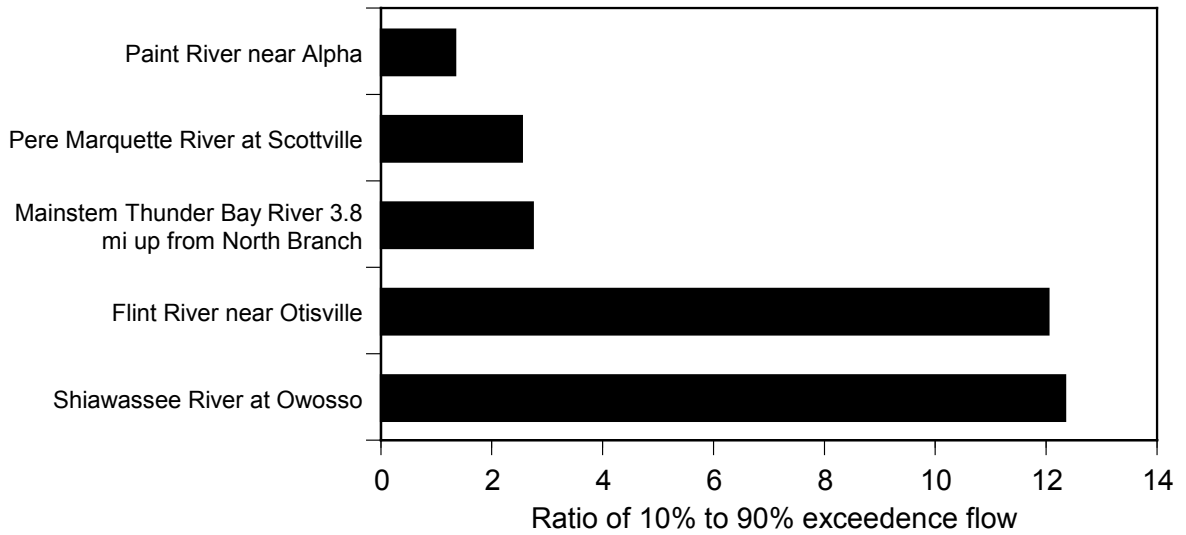


Figure 10.—Flow stability (expressed as the ratio of 10% and 90% exceedance flows) of Michigan streams having catchments comparable in size to the mainstem Thunder Bay River near Bolton, MI (3.8 miles upstream from confluence with the North Branch Thunder Bay River) (United States Geological Survey). Note that some flow regulation occurs upstream of the gauges on the Paint and Flint rivers.

Thunder Bay River Assessment

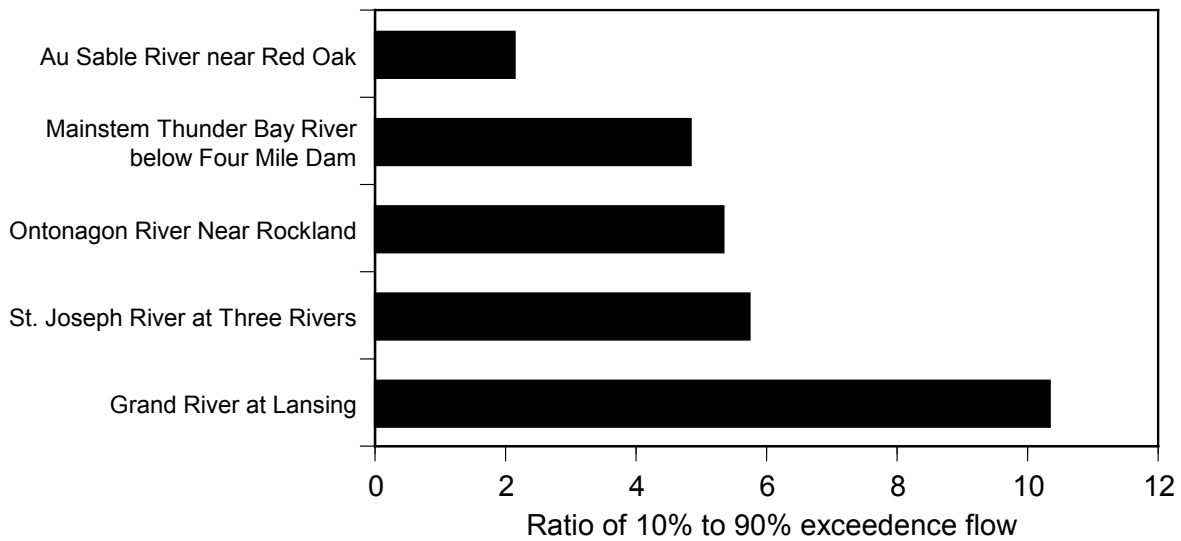


Figure 11.—Flow stability (expressed as the ratio of 10% and 90% exceedence flows) of Michigan streams having catchments comparable in size to the mainstem Thunder Bay River below Four Mile Dam, near Alpena (United States Geological Survey). Note that some flow regulation occurs upstream of the gauges on the Ontonagon, St. Joseph, and Grand rivers.

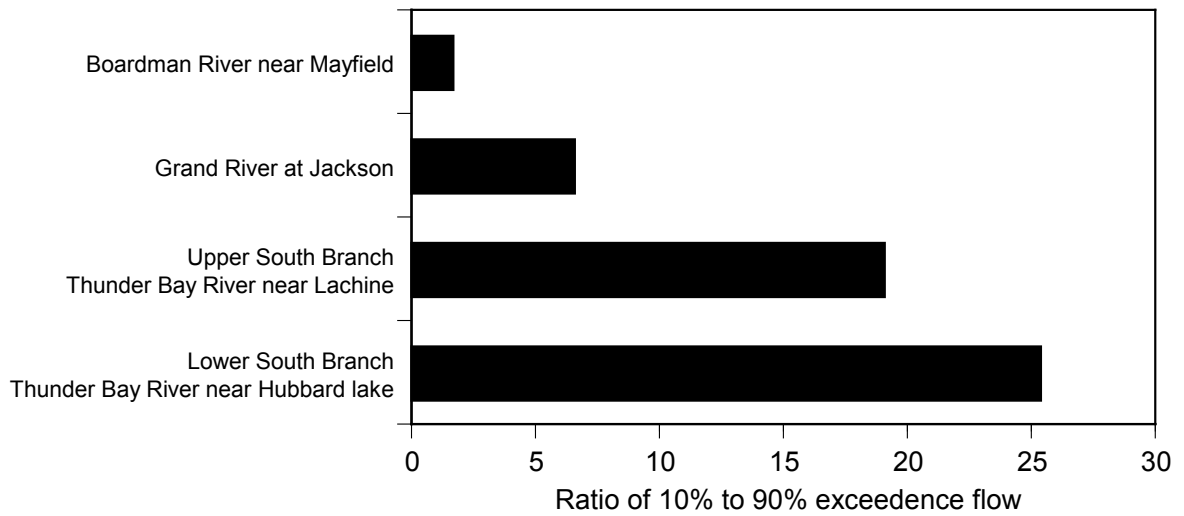


Figure 12.—Flow stability (expressed as the ratio of 10% and 90% exceedence flows) of Michigan streams having catchments comparable in size to the Upper and Lower South Branch of the Thunder Bay River (United States Geological Survey).

Thunder Bay River Assessment

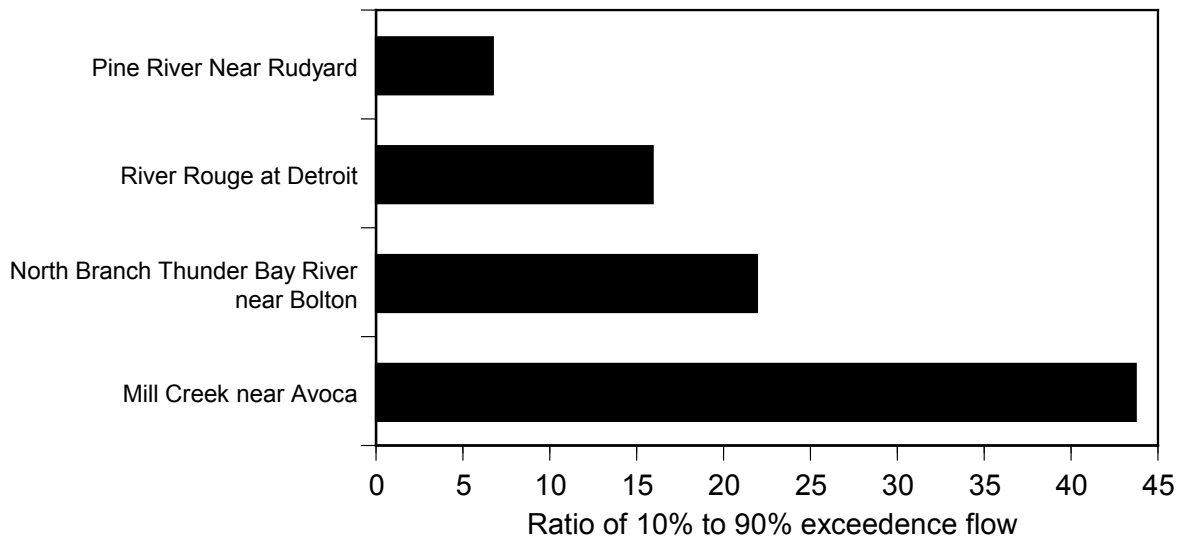


Figure 13.—Flow stability (expressed as the ratio of 10% and 90% exceedence flows) of Michigan streams having catchments comparable in size to the North Branch Thunder Bay River near Bolton, MI. (United States Geological Survey).

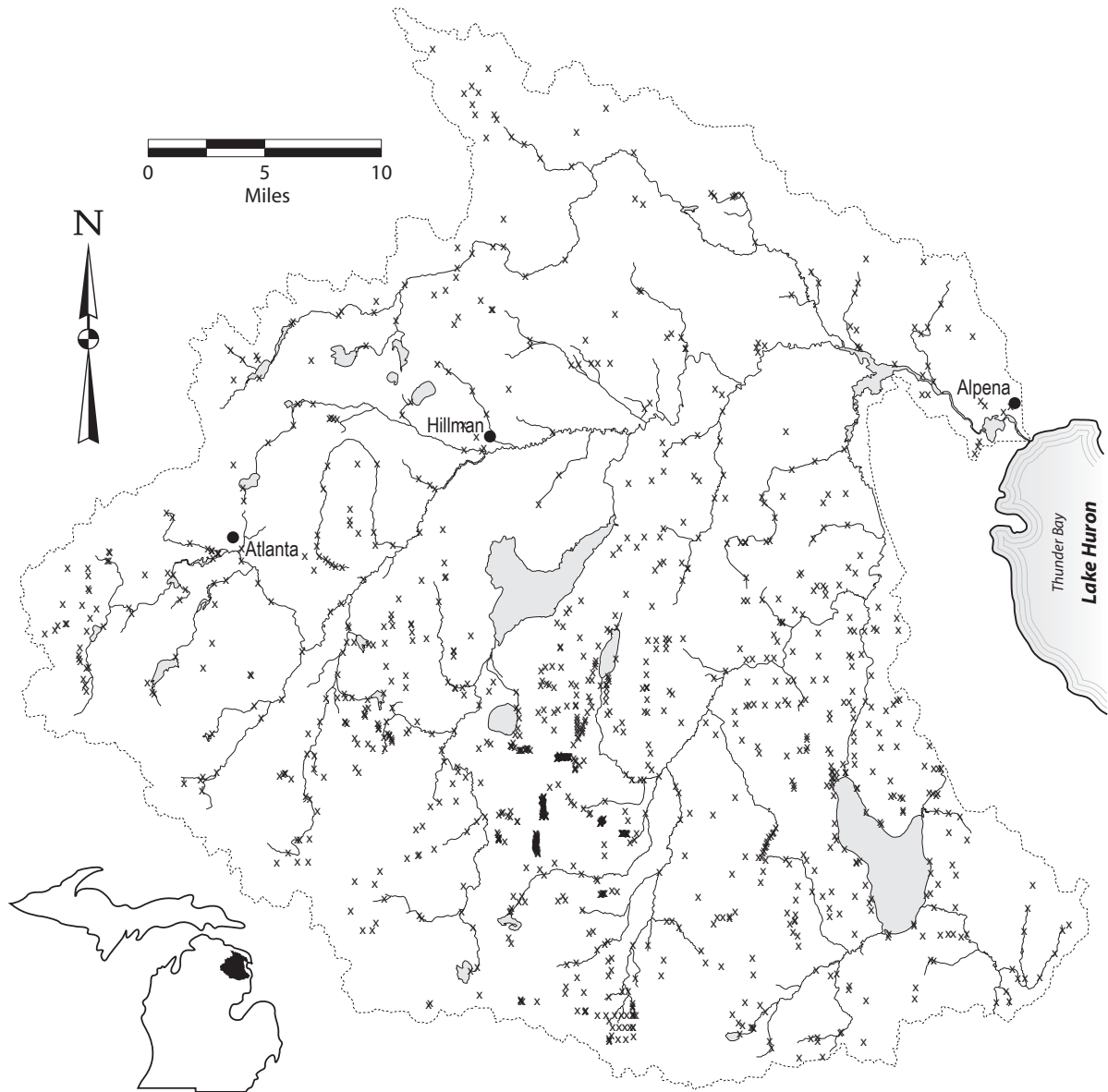


Figure 14.—Road-stream crossings in the Thunder Bay River watershed. Data are from a MIRIS-based 24,000 scale map clipped to the Thunder Bay River watershed (Michigan Geographic Data Library 2002).

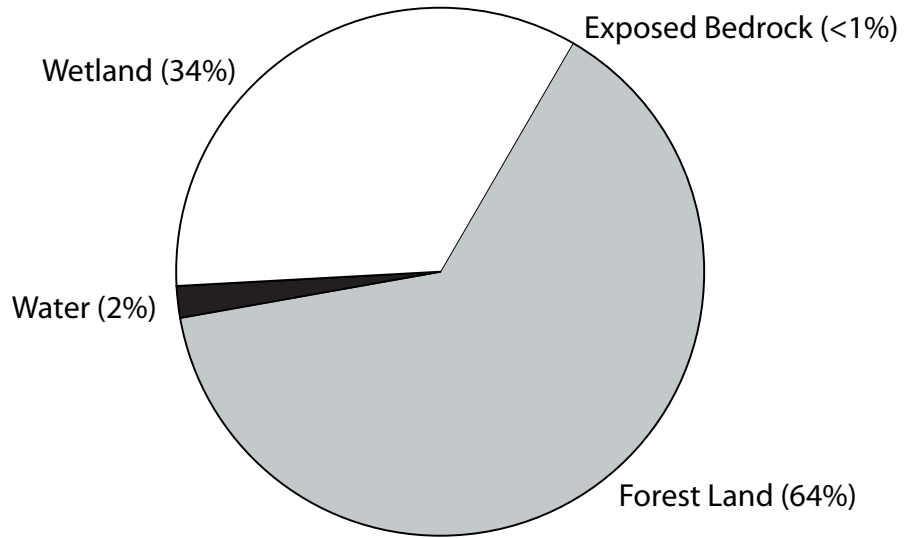


Figure 15a.—Percent land use and land cover in the Thunder Bay River watershed in 1800 (Austin et al. 2000).

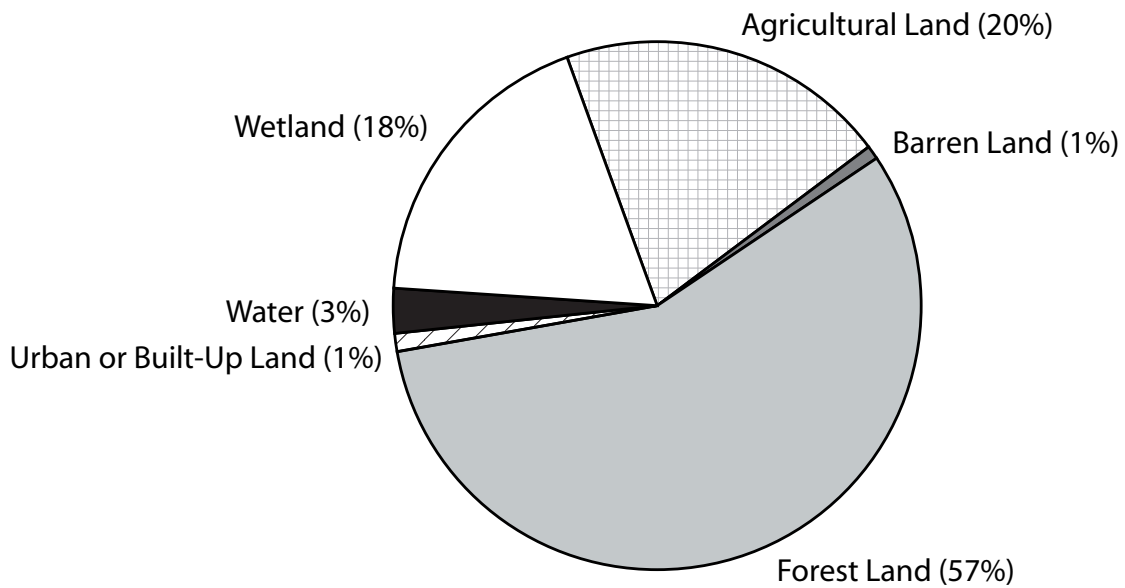


Figure 15b.—Percent land use and land cover in the Thunder Bay River watershed in 1983 (United States Geological Survey National Mapping Program 1994).

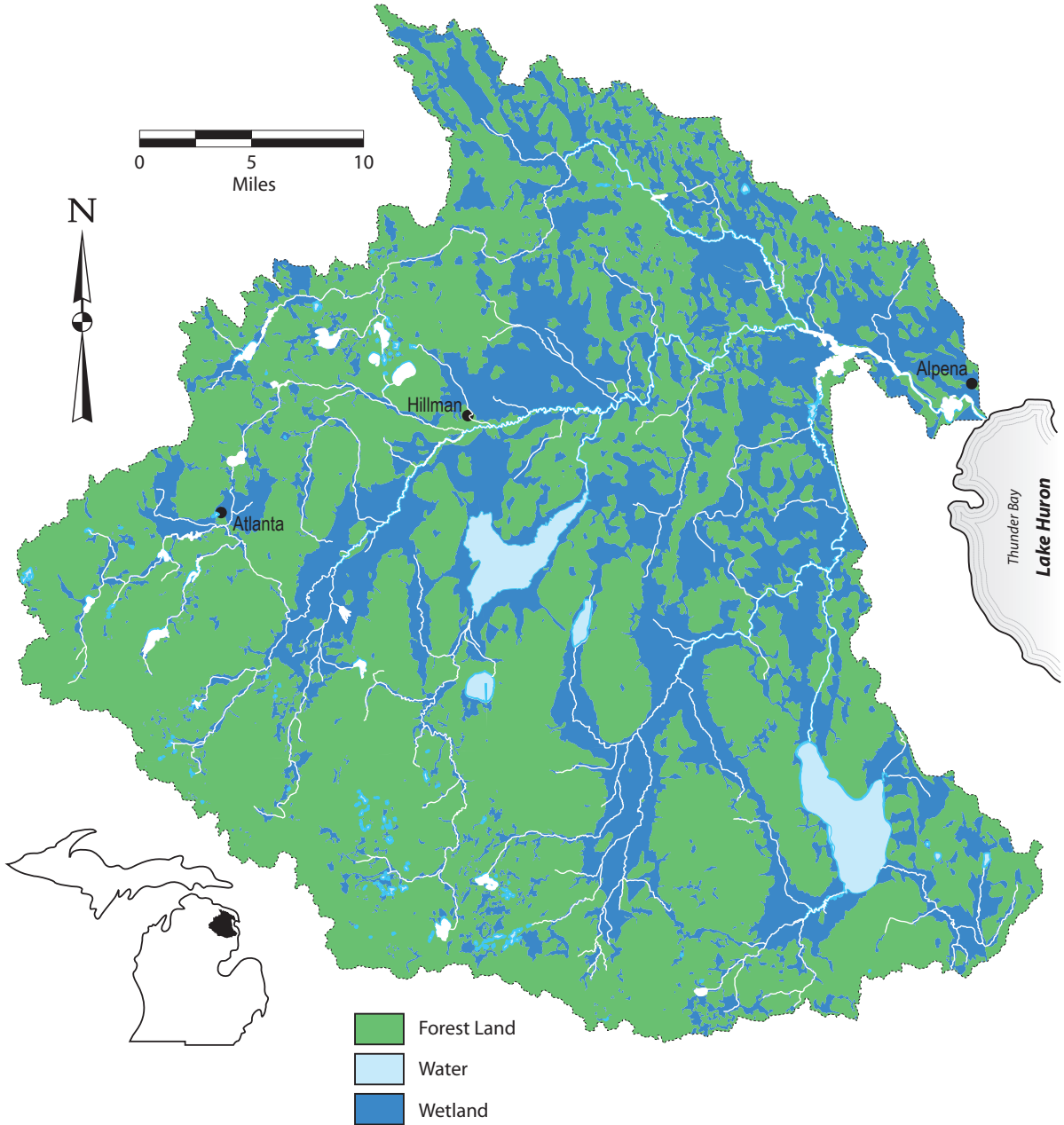


Figure 16.–Land use and land cover in the Thunder Bay River watershed in 1800 (Austin et al. 2002).