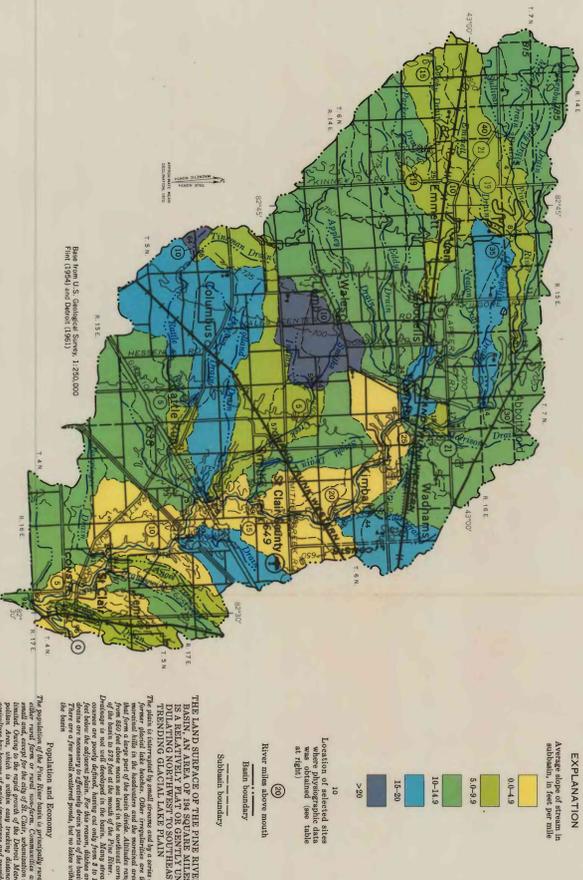


PHYSICAL SETTING



EXPLANATION
Average slope of stream in
feet per mile

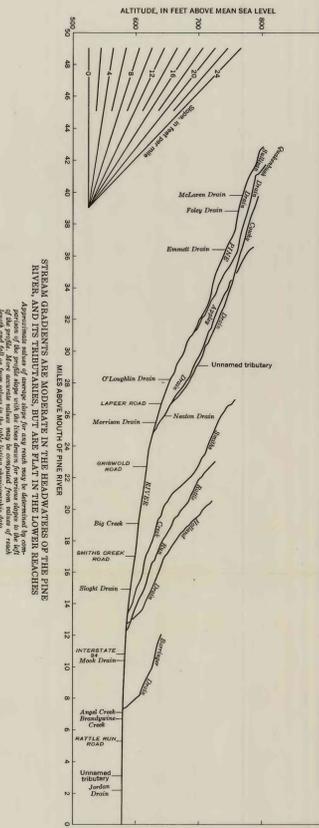
Locations of selected sites
are indicated on this
map by circled numbers
1-10.

Basin boundary
Subarea boundary

**THE LAND SURFACE OF THE PINE RIVER
BASIN RELATIVELY FLAT ON GENERALY
LEVEL TO RAINY SEASONS. THE
PINE RIVER BASIN IS A
RAIN-DRIVEN GLACIAL LAKE BASIN.**

The population and economy
of the Pine River Basin are
centered in the town of
Columbus, Michigan. The
basin is a typical example
of a rain-driven glacial
lake basin. The land surface
is relatively flat on generaly
level to rainy seasons. The
Pine River Basin is a
rain-driven glacial lake basin.

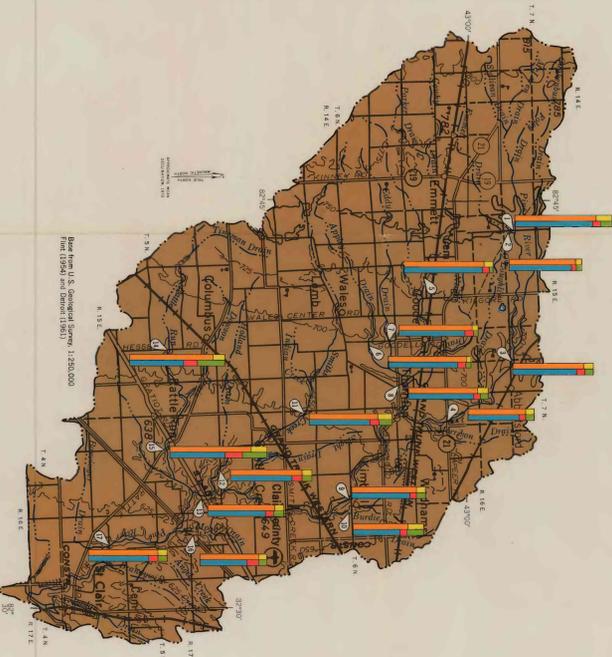
The land surface of the Pine River Basin is relatively flat on generaly level to rainy seasons. The Pine River Basin is a rain-driven glacial lake basin. The land surface is relatively flat on generaly level to rainy seasons. The Pine River Basin is a rain-driven glacial lake basin.



**STREAM PROFILES IN
THE PINE RIVER BASIN
AND ITS TRIBUTARIES. THE
PINE RIVER BASIN IS A
RAIN-DRIVEN GLACIAL LAKE
BASIN.**

Approximate elevations of stream profiles are shown by dashed lines. The profiles are based on data from the U.S. Geological Survey. The profiles are based on data from the U.S. Geological Survey.

SURFACE WATER



EXPLANATION

**CONCENTRATIONS IN
MILLIEQUIVALENTS PER LITER**

Calcium
Magnesium
Sodium
Potassium
Chloride
Sulfate
Total dissolved solids

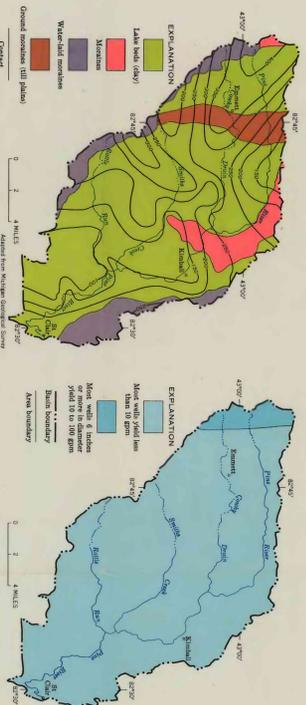
**QUALITY WATER IN THE BASIN OF A
TYPICAL
QUALITY GENERALLY SUITABLE FOR MOST USES**

The water quality in the Pine River Basin is generally good. The water is suitable for most uses. The water quality is generally good. The water is suitable for most uses.

BASIN-LEVEL INVESTIGATIONS PROVIDE A BASIS FOR DETERMINING THE OCCURRENCE,
DISTRIBUTION, AND QUANTITY OF SURFACE WATER IN THE BASIN.

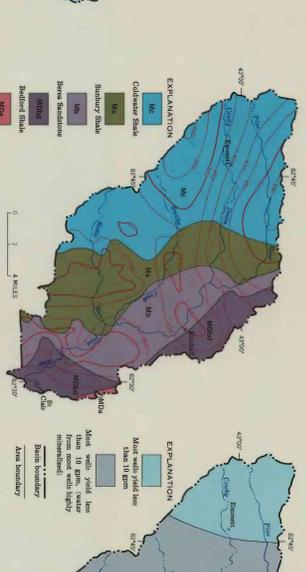
Stream	Index map	Location	Date	Discharge		Quality of water		Chemical constituents	
				(cfs)	(mgd)	(mg/l)	(ppm)	(mg/l)	(ppm)
Pine River	1	SW 75N 12E 6.59	5-13	1,235	6.31	620	8.1	15	23
McLean Drain	2	SW 75N 12E 7.58	5-13	1,235	6.31	620	8.1	15	23
Foley Drain	3	SW 75N 12E 7.58	5-13	1,235	6.31	620	8.1	15	23
Emerald Drain	4	SW 75N 12E 7.58	5-13	1,235	6.31	620	8.1	15	23
Unnamed tributary	5	SW 75N 12E 7.58	5-13	1,235	6.31	620	8.1	15	23
O'Leahin Drain	6	SW 75N 12E 7.58	5-13	1,235	6.31	620	8.1	15	23
Lapeer Road	7	SW 75N 12E 7.58	5-13	1,235	6.31	620	8.1	15	23
Marston Drain	8	SW 75N 12E 7.58	5-13	1,235	6.31	620	8.1	15	23
Niles Drain	9	SW 75N 12E 7.58	5-13	1,235	6.31	620	8.1	15	23
Grandwood Road	10	SW 75N 12E 7.58	5-13	1,235	6.31	620	8.1	15	23
Big Creek	11	SW 75N 12E 7.58	5-13	1,235	6.31	620	8.1	15	23
Smiths Creek	12	SW 75N 12E 7.58	5-13	1,235	6.31	620	8.1	15	23
Right Drain	13	SW 75N 12E 7.58	5-13	1,235	6.31	620	8.1	15	23
Interstate Road	14	SW 75N 12E 7.58	5-13	1,235	6.31	620	8.1	15	23
Apple Creek	15	SW 75N 12E 7.58	5-13	1,235	6.31	620	8.1	15	23
Unnamed tributary	16	SW 75N 12E 7.58	5-13	1,235	6.31	620	8.1	15	23
Apple Creek	17	SW 75N 12E 7.58	5-13	1,235	6.31	620	8.1	15	23

GEOLOGY AND GROUND WATER



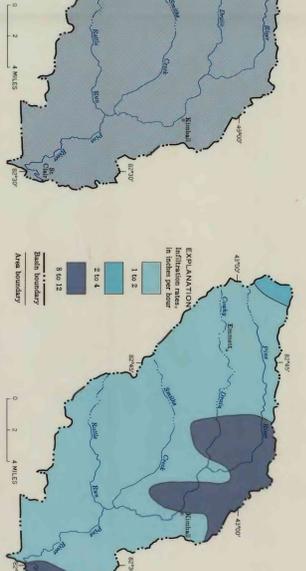
GLACIAL GEOLOGY

Water can be obtained along a narrow strip
in the Pine River Basin. The water is
obtained from the glacial drift.



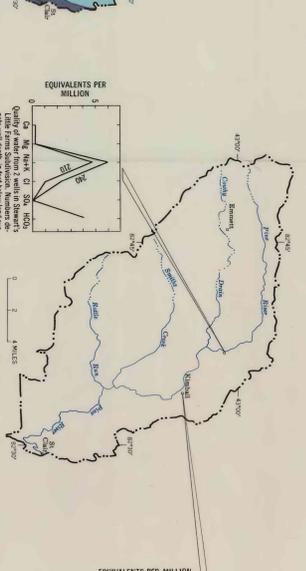
BEDROCK GEOLOGY

The bedrock geology of the Pine River Basin
is primarily composed of glacial drift.



**MINIMUM INFILTRATION RATES PROVIDE A BASIS FOR
DISTRIBUTION AND QUANTITY OF SURFACE WATER IN THE BASIN.**

The minimum infiltration rates in the Pine River Basin
are generally low.



EQUIVALENTS PER MILLION

The equivalents per million in the Pine River Basin
are generally low.

WATER RESOURCES OF THE PINE RIVER BASIN, SOUTHEASTERN MICHIGAN

By
R. L. Kuntzha
1989