1974

Water Resources Data for Michigan

Part 2. Water Quality Records

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

Prepared in cooperation with the State of Michigan and with other agencies

CALENDAR FOR WATER YEAR 1974

1973

OCTOBER

S	M	T	W	T	F	S
	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
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1974

JANUARY

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FEBRUARY

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MARCH

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APRIL

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MAY

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JUNE

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JULY

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AUGUST

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SEPTEMBER

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22	23	24	25	26	27	28
29	30					

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Michigan State Department of Natural Resources
Natural Resources Branch, Geological Survey Division
Environmental Protection Branch, Hydrological Survey Division
Michigan Department of Agriculture
Kalamazoo County Board of Supervisors
Van Buren County Board of Supervisors
Washtenaw County Board of Supervisors

Water-resources records, 1974, for Michigan are in the following reports of the U. S. Geological Survey:

1. Water-Resources Data for Michigan
   Part 1. Surface-Water Records

2. Water-Resources Data for Michigan
   Part 2. Water-Quality Records

3. Ground-Water Data for Michigan
   (open-file report)

Copies of this report may be obtained from
District Chief, Water Resources Division
U. S. Geological Survey
2400 Science Parkway
Okemos, Michigan 48864

1975

CONTENTS

ILLUSTRATIONS

TABLES

WATER-QUALITY STATIONS, IN DOWNSTREAM ORDER, FOR WHICH RECORDS ARE PUBLISHED

(Letters after station name designate type of data: (c), chemical; (b), biological; (p), pesticides; (r), radiochemical; (t), water temperature; (s), sediment)

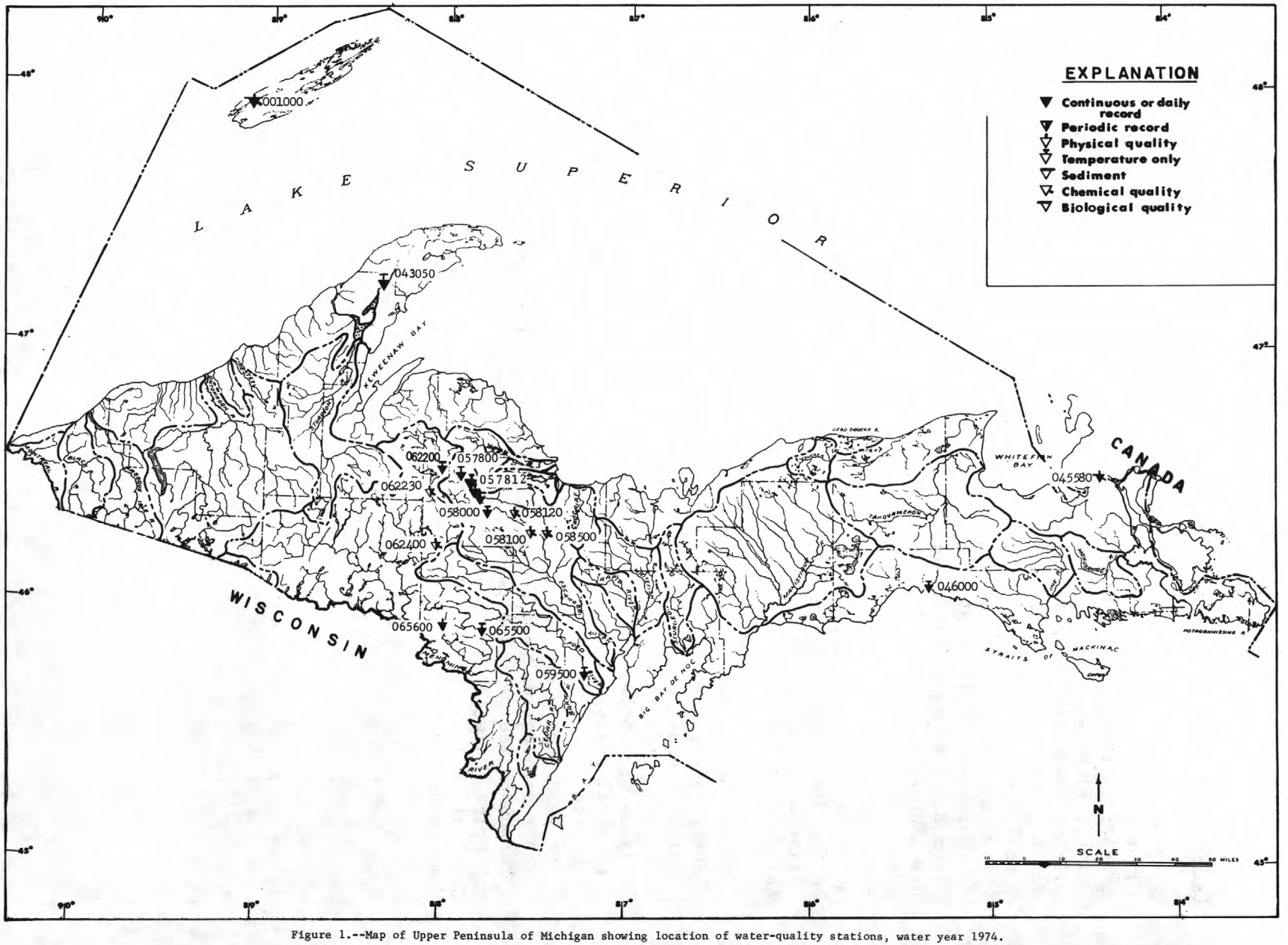

Figure 1.--Map of Upper Peninsula of Michigan showing location of water-quality stations, water year 1974.

Figure 2.--Map of Lower Peninsula of Michigan showing location of water-quality stations, water year 1974.

WATER RESOURCES DATA FOR MICHIGAN, 1974

Part 2. Water-Quality Records

INTRODUCTION

Water resources data for the 1974 water year for Michigan include records of data for the chemical and physical characteristics of surface and ground waters. Data on the quality of surface water (chemical, temperature, and sediment) were collected from designated sampling sites at predetermined intervals such as once-daily, weekly, monthly or less frequently, and at some sites data were recorded on punched paper tape at 60-minute intervals. Records are given for 280 sampling stations, of which 46 are continuous-record stations, 195 are partial-record stations, and 39 are miscellaneous sites. Records of chemical analyses also are given for 30 ground-water sites. Location of surface-water quality stations are shown in Figures 1 and 2. The records were collected by the Water Resources Division of the U.S. Geological Survey under the direction of T. R. Cummings, district chief. These data represent that portion of the National Water Data System collected by the U.S. Geological Survey and cooperating State and Federal agencies in Michigan.

The Geological Survey has published records of chemical quality, water temperatures, and sediment since 1941 in an annual series of water-supply papers entitled, "Quality of Surface Waters of the United States." Beginning with the 1964 water year, water-quality records have been released by the Geological Survey in annual reports on a State-boundary basis. These reports are for limited distribution and are designed primarily for rapid release of data shortly after the end of the water year. These records will be published later in Geological Survey water-supply papers.

COOPERATION

This report was prepared by the U. S. Geological Survey under cooperative agreement with the following organizations:

State Department of Natural Resources, A. G. Gazlay, director, through Natural Resources Branch, Geological Survey Division, A. E. Slaughter chief, and Environmental Protection Branch, Hydrological Survey Division, D. W. Granger, chief.

State Department of Agriculture, B. D. Ball, director, through Soil and Water Conservation Division, D. J. Schaner, chief.

The following agencies aided in collecting records:

Cleveland-Cliffs Iron Company; Hanna Minning Company; and the Boards of Supervisors of Kalamazoo, Van Buren and Washtenaw Counties.

DEFINITION OF TERMS

Terms related to water-quality and hydrologic data, as used in this report are defined as follows (see also table for converting English units to International System (SI) units on page 19).

Acre-foot (AC-FT, ac-ft) is the quantity of water required to cover 1 acre to a depth of 1 foot and is equivalent to 43,560 cubic feet or about 326,000 gallons or 1,233 cubic metres.

Algae are mostly aquatic, single-celled, colonial, or multi-celled plants, containing chlorophyll and lacking roots, stems, and leaves.

Aquifer is a geologic formation, group of formations, or part of a formation that contains sufficient saturated permeable materials to yield significant quantities of water to wells and springs.

Bacteria are microscopic unicellular organisms, typically spherical, rodlike, or spiral and threadlike in shape, often clumped into colonies. Some bacteria cause disease, others perform an essential role in nature in the recycling of materials; for example, by decomposing organic matter into a form available for reuse by plants.

Total coliform bacteria are a particular group of bacteria that are used as indicators of possible sewage pollution. They are characterized as aerobic or facultatively anaerobic, gram-negative, nonspore-forming, rod-shaped bacteria which ferment lactose with gas formation within 48 hours at 35°C. In the laboratory these bacteria are defined as all the organisms which produce colonies with a golden-green metallic sheen within 24 hours when incubated at 35°C± 1.0°C on M-Endo medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 ml of sample.

Fecal coliform bacteria are bacteria that are present in the intestines or feces of warm-blooded animals. They are often used as indicators of the sanitary quality of the water. In the laboratory they are defined as all organisms which produce blue colonies within 24 hours when incubated at 44.5°C± 0.2°C on M-FC medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 ml of sample.

Fecal streptococcal bacteria are bacteria also found in the intestines of warm-blooded animals. Their presence in water is considered to verify fecal pollution. They are characterized as gram-positive, cocci bacteria which are capable of growth in brain-heart infusion broth. In the laboratory they are defined as all the organisms which produce red or pink colonies within 48 hours at 35°C± 1.0°C on M-enterococcus medium (nutrient medium for bacterial growth). Their concentrations are expressed as number of colonies per 100 ml of sample.

Bed material is the shifting portion of fragmented alluvial material of which the streambed is composed.

Biochemical oxygen demand (BOD) is a measure of the quantity of dissolved oxygen, in milligrams per litre, used for the decomposition of organic matter by microorganisms, such as bacteria.

Biomass is the amount of living matter present at any given time, expressed as the weight per unit area, or volume, of habitat.

Ash weight is the weight or amount of residue present after the residue from the dry-weight determination has been ashed in a muffle furnace at a temperature of 500°C for 1 hour. The ash-weight values of zooplankton and phytoplankton are expressed in g/m^3 (grams per cubic metre), and periphyton and benthic organisms in g/m^2 (grams per square metre).

Dry weight refers to the weight of residue present after drying in an oven at 60°C for zooplankton and 105°C for periphyton until the weight remains unchanged. This weight represents the total organic matter, ash and sediment, in the sample. Dry-weight values are expressed in the same units as ash weight.

Organic weight or volatile weight of the living substance is the difference between the dry weight and the ash weight, and represents the actual weight of the living matter. The organic weight is expressed in the same units as for ash and dry weights.

Wet weight is the weight of living matter plus contained water.

Cfs-day is the volume of water represented by a flow of 1 cubic foot per second for 24 hours. It is equivalent to 86,400 cubic feet, approximately 1.9835 acre-feet, or about 646,000 gallons or 2,445 cubic metres. It represents a runoff of approximately 0.0372 inches from 1 square mile or 0.3468 millimetre from 1 square kilometre.

Chlorophyll refers to the green pigments of plants. Chlorophyll A and B are the two most common green pigments in plants.

Chemical oxygen demand (COD) indicates the quantity of oxidizable compounds in water and varies with water composition, temperature, period of contact, and other factors.

Cubic foot per second (CFS, cfs) is the rate of discharge representing a volume of 1 cubic foot passing a given point during 1 second and is equivalent to 7.48 gallons per second or 448.8 gallons per minute or 0.2832 cubic metres per second.

Discharge is the volume of water (or more broadly, total fluids), that passes a given point within a given period of time.

Mean discharge is the arithmetic mean of individual daily mean discharge during a specific period.

Instantaneous discharge is the discharge at a given time.

Drainage area of a stream at a specified location is that area, measured in horizontal plane, enclosed by a topographic divide from which direct surface runoff from precipitation normally drains by gravity into the river above the specified point.

Drainage basin is a part of the surface of the earth that is occupied by a drainage system, which consists of a surface stream or body of impounded surface water together with all tributary surface streams and bodies of impounded surface water.

Gaging station is a particular site on a stream, canal, lake, or reservoir where systematic observations of gage height or discharge are obtained. When used in connection with a discharge record, the term is applied only to those gaging stations where a continuous record of discharge is computed.

Hardness of water is a physical-chemical characteristic that is commonly recognized by the increased quantity of soap required to produce lather. It is attributable to the presence of alkaline earths (principally calcium and magnesium) and is expressed as equivalent calcium carbonate ($CaCO_3$).

Methylene blue active substance (MBAS) is a measure of apparent detergents. This determination depends on the formation of a blue color when methylene blue dye reacts with synthetic detergent compounds.

Micrograms per litre (UG/L, ug/l) is a unit expressing the concentration of chemical constituents in solution as weight (micrograms) of solute per unit volume (litre) of water. One thousand micrograms per litre is equivalent to one milligram per litre.

Milligrams per litre (MG/l, mg/l) is a unit for expressing the concentration of chemical constituents in solution. Milligrams per litre represents the weight of solute per unit volume of water. Milligrams or micrograms per litre may be converted to milliequivalents (one thousandth of a gram-equivalent weight of a constituent) per litre by multiplying by the factors in table 1, page 5. Concentration of suspended sediment also is expressed in mg/l, and is based on the weight of sediment per litre of water-sediment mixture. Sediment concentrations may be converted to parts per million by using the factors in table 2, p. 5.

Organism is any living entity, such as an insect, phytoplankter, or zooplankter.

Cells/volume refers to the number of cells of any organism which is counted by using a microscope and grid or counting cell. Many planktonic organisms are multi-celled and are counted according to the number of contained cells per sample volume, usually millilitres (ml) or litres (l).

Organism count/acre refers to the number of organisms collected and enumerated in a sample and adjusted to the number per area habitat, usually square metres (m^2), acres, or hectares. Periphyton, benthic organisms, and macrophytes are expressed in these terms.

Table 1.--Factors for conversion of chemical constituents in milligrams or micrograms per litre to milliequivalents per litre

Ion	Multiply by	Ion	Multiply by
Aluminum (Al^{+3})*...	0.11119	Hydroxide (OH^{-1})..	0.05880
Ammonia as NH_4^{+1} ...	.05544	Iodide (I^{-1}).....	.00788
Arsenic (AS^{+3}).....	.04004	Iron (Fe^{+3})*.....	.05372
Barium (Ba^{+2}).....	.01456	Lead (Pb^{+2})*.....	.00965
Bicarbonate (HCO_3^{-1})	.01639	Lithium (Li^{+1})*...	.14411
Bromide (Br^{-1}).....	.01251	Magnesium (Mg^{+2})..	.08226
Cadmium (Cd^{+2}).....	.01779	Manganese (Mn^{+2})*.	.03640
Calcium (Ca^{+2}).....	.04990	Nickel (Ni^{+2})*....	.03406
Carbonate (CO_3^{-2})..	.03333	Nitrate (NO_3^{-1})...	.01613
Chloride (Cl^{-1})....	.02821	Nitrite (NO_2^{-1})...	.02174
Chromium (Cr^{+6})*...	.11539	Phosphate (PO_4^{-3}).	.03159
Cobalt (Co^{+2})*.....	.03394	Potassium (K^{+1})...	.02557
Copper (Cu^{+2})*.....	.03148	Sodium (Na^{+1}).....	.04350
Cyanide (CN^{-1}).....	.03844	Strontium (Sr^{+2})*.	.02283
Fluoride (F^{-1}).....	.05264	Sulfate (SO_4^{-2})...	.02082
Hydrogen (H^{+1}).....	.99209	Zinc (Zn^{+2})*.....	.03060

*Constituent reported in micrograms per liter; multiply by factor and divide results by 1,000.

Table 2.--Factors for conversion of sediment concentration in milligrams per litre to parts per million*

(All values calculated to three significant figures)

Range of concentration in 1000 mg/l	Divide by	Range of concentration in 1000 mg/l	Divide by	Range of concentration in 1000 mg/l	Divide by	Range of concentration in 1000 mg/l	Divide by
0 - 8	1.00	201-217	1.13	411-424	1.26	619-634	1.39
8.05- 24	1.01	218-232	1.14	427-440	1.27	636-650	1.40
24.2 - 40	1.02	234-248	1.15	443-457	1.28	652-666	1.41
40.5 - 56	1.03	250-264	1.16	460-473	1.29	668-682	1.42
56.5 - 72	1.04	266-280	1.17	476-489	1.30	684-698	1.43
72.5 - 88	1.05	282-297	1.18	492-506	1.31	700-715	1.44
88.5 -104	1.06	299-313	1.19	508-522	1.32	717-730	1.45
105 -120	1.07	315-329	1.20	524-538	1.33	732-747	1.46
121 -136	1.08	331-345	1.21	540-554	1.34	749-762	1.47
137 -152	1.09	347-361	1.22	556-570	1.35	765-780	1.48
153 -169	1.10	363-378	1.23	572-585	1.36	782-796	1.49
170 -185	1.11	380-393	1.24	587-602	1.37	798-810	1.50
186 -200	1.12	395-409	1.25	604-617	1.38		

*Based on water density of 1.000 g/ml and a specific gravity of sediment of 2.65.

Organism count/volume refers to the number of organisms collected and enumerated in a sample and adjusted to the number per sample volume, usually millilitres (ml) or litres (l). Numbers of planktonic organisms can be expressed in these terms.

Total organism count is the total number of organisms collected and enumerated in any particular sample.

Partial-record station is a particular site where limited streamflow or water-quality data are collected systematically over a period of years for use in hydrologic analyses.

Particle size is the diameter, in millimetres (mm), of suspended sediment or bed material determined either by sieve or sedimentation methods. Sedimentation methods (pipet, bottom-withdrawal tube, visual-accumulation tube) determine fall diameter of particles in either distilled water (chemically dispersed) or in native water (the river water at the time and point of sampling).

Particle-size classification, used in this report agrees with recommendations made by the American Geophysical Union Subcommittee on Sediment Terminology. The classification is as follows:

Classification	Size (mm)	Method of analysis
Clay.....	0.00024 - 0.004	Sedimentation.
Silt.....	.004 - .062	Sedimentation.
Sand.....	.062 - 2.0	Sedimentation or sieve.
Gravel.....	2.0 - 64.0	Sieve.

The particle-size distributions given in this report are not necessarily representative of all particles in transport in the stream. Most of the organic material is removed and the sample is subjected to mechanical and chemical dispersion before analysis in distilled water. Chemical dispersion is not used for native-water analysis (Guy, 1969).

Percent composition is a unit for expressing the ratio of a particular part of a sample or population to the total sample or population, in terms of types, numbers, weight, or volume.

Periphyton is the assemblage of microorganisms attached to and growing upon solid surfaces. While primarily consisting of algae, they also include bacteria, fungi, protozoa, rotifers, and other small organisms. Periphyton is a useful indicator of water quality.

Plankton is the community of suspended, floating, or weakly swimming organisms that live in the open water of lakes and rivers.

Phytoplankton is the plant part of the plankton. They are usually microscopic and their movement is subject to the water currents. Phytoplankton growth is dependent upon solar radiation and nutrient substances. Because they are able to incorporate as well as release

materials to the surrounding water, the phytoplankton have a profound effect upon the quality of the water. They are the primary food producers in the aquatic environment, and are commonly known as algae.

Blue-green algae are a group of phytoplankton organisms having a blue pigment, in addition to the green pigment called chlorophyll. Blue-green algae often cause nuisance conditions in water.

Diatoms are the unicellular or colonial algae having a siliceous shell. Their concentrations are expressed as number of cells per 100 ml of sample.

Green algae have chlorophyll pigments similar in color to those of higher green plants. Some forms produce algal mats or floating "moss" in lakes. Their concentrations are expressed as number of cells per 100 ml of sample.

Zooplankton is the animal part of the plankton. Zooplankton are capable of extensive movement within the water column, and are often large enough to be seen with the unaided eye. Zooplankton are secondary consumers feeding upon bacteria, phytoplankton, and detritus. Because they are the grazers in the aquatic environment, the zooplankton are a vital part of the aquatic food web. The zooplankton community is dominated by small crustaceans and rotifers.

Sediment is solid material that originates mostly from disintegrated rocks and is transformed by, suspended in, or deposited from water; it includes chemical and biochemical precipitates and decomposed organic material such as humus. The quantity, characteristics, and cause of the occurrence of sediment in streams are influenced by environmental factors. Some major factors are degree of slope, length of slope, soil characteristics, land usage, and quantity and intensity of precipitation.

Suspended sediment is the sediment that at any given time is maintained in suspension by the upward components of turbulent currents or that exists in suspension as a colloid.

Suspended-sediment discharge is the rate at which dry weight of sediment passes a section of a stream or is the quantity of sediment as measured by dry weight, or by volume, that is discharged in a given time.

Total sediment discharge or total sediment load is the sum of the suspended-sediment discharge and the bedload discharge. It is the total quantity of sediment, as measured by dry weight or volume, that is discharged during a given time.

Suspended-sediment concentration is the velocity-weighted concentration of suspended sediment in the sample zone (from the water surface

to a point approximately 0.3 ft above the bed) expressed as milligrams of dry sediment per litre of water-sediment mixture (mg/l).

Mean concentration is the time-weighted concentration of suspended sediment passing a stream section during a 24-hour day.

Sodium-absorption-ratio (SAR) is the expression of relative activity of sodium ions in exchange reactions with soil and is an index of sodium or alkali hazard to the soil. Waters range in respect to sodium hazard from those which can be used for irrigation on almost all soils to those which are generally unsatisfactory for irrigation.

Solute is any substance derived from the atmosphere, vegetation, soil, or rocks that is dissolved in water.

Specific conductance is a measure of the ability of a water to conduct an electrical current and is expressed in micromhos per centimetre at 25°C. Because the specific conductance is related to the number and specific chemical types of ions in solution, it can be used for approximating the content of dissolved-solids in the water. Commonly, the amount of dissolved solids (in milligrams per litre) is about 65 percent of the specific conductance (in micromhos per cm at 25°C). The relation is not constant from stream to stream or from well to well, and it may even vary in the same source with changes in the composition of the water.

Streamflow is the discharge that occurs in a natural channel. Although the term "discharge" can be applied to the flow in a canal, the word "streamflow" uniquely describes the discharge in a surface stream course. The term "streamflow" is more general than "runoff". Streamflow may be applied to discharge whether or not it is affected by diversion or regulation.

Substrate is the physical surface upon which an organism lives.

Natural substrate refers to any naturally occurring emersed or submersed solid surface, such as a rock or tree, upon which an organism lives.

Artificial substrate is a device which is purposely placed in a stream or lake for colonization of organisms. The use of artificial substrates simplifies the community structure by standardizing the substrate from which each sample is taken. Example of artificial substrates for the collection of benthic organisms are basket samplers (made of wire cages filled with streamside rocks), multi-plate samplers (made of hardboard), and polyethelene strips for periphyton collection.

Taxonomy is the division of biology concerned with the classification and naming of organisms. The classification of organisms is based upon a hierarchial scheme beginning with Kingdom and ending with Species at the base. The higher the classification level, the fewer features the organisms have in

common. For example, the taxonomy of a particular mayfly, Hexagenia limbata, is the following:

Kingdom.....Animal
Phylum.....Arthropoda
Class.....Insecta
Order.....Ephemeroptera
Family.....Ephemeridae
Genus.....Hexagenia
Species.....Hexagenia limbata

Thermograph is a thermometer that continuously and automatically records, on a chart, the water temperature of a stream. "Temperature recorder" is the term used to indicate the presence of the thermograph or a digital mechanism that automatically records water temperature on paper tape.

Time-weighted average is computed by multiplying the number of days in the sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the total number of days. A time-weighted average represents the composition of water that would be contained in a vessel or reservoir that had received equal quantities of water from the stream each day for the water year.

Tons per acre-foot indicates the dry weight of dissolved solids in 1 acre-foot of water. It is computed by multiplying the concentration in milligrams per liter by .00136.

Tons per day is the quantity of a substance in solution or suspension that passes a stream section during a 24-hour day. It is computed by multiplying the concentration in milligrams per litre times the discharge in cubic feet per second times 0.0027.

Weighted average is used in this report to indicate discharge-weighted average. It is computed by multiplying the discharge for a sampling period by the concentrations of individual constituents for the corresponding period and dividing the sum of the products by the sum of the discharge. A discharge weighted average approximates the composition of water that would be found in a reservoir containing all the water passing a given location during the water year after thorough mixing in the reservoir. See also table for converting English units to International System (SI) units on page 19.

SPECIAL NETWORKS AND PROGRAMS

Some of the stations for which data are published in this report are included in special networks and programs. These stations are identified by their title, set in parentheses, under the station name.

Hydrologic bench-mark station is one that provides hydrologic data for a basin in which the hydrologic regimen will likely be governed solely by natural conditions. Data collected at a bench-mark station may be used to separate effects of natural from man-made changes in other basins which have been developed and in which the physiography, climate, and geology are similar to those in the undeveloped bench-mark basin.

National stream-quality accounting network is an accounting network designed by the U.S. Geological Survey to meet many of the information demands of agencies or groups involved in national or regional water-quality planning and management. Both accounting and broad-scale monitoring objectives have been incorporated in the network design. Areal configuration of the network is based on river-basin accounting units designed by the Office of Water Data Coordination in consultation with the Water Resources Council. Primary objectives of the network are (1) to depict areal variability of water-quality conditions nationwide on a year-to-year basis and (2) to detect and assess long-term changes in stream quality.

Pesticide program is a network of regularly sampled water-quality stations where additional monthly samples are collected to determine the concentration and distribution of pesticides in streams whose waters are used for irrigation or in streams in areas where potential contamination could result from the application of the commonly used insecticides and herbicides.

Pesticides are chemical compounds used to control the growth of undesirable plants and animals. Major categories of pesticides includes insecticides, miticides, fungicides, herbicides, and rodenticides. Since the first application of DDT as an insecticide in the early 1930's there have been almost 60,000 pesticide formulations registered, each containing at least one of the approximately 800 different basic pesticide compounds. The United States annually produces about 1 billion pounds of these compounds. Although efforts are being made to substitute many of the chlorinated hydrocarbon pesticides with more specific, fast-acting, and easily degradable compounds, chlorinated hydrocarbon pesticides are still commonly used in many areas of the country.

Radiochemical program is a network of regularly sampled water-quality stations where additional samples are collected monthly or twice a year (at high and low flow) to be analyzed for radioisotopes. The streams that are sampled represent major drainage basins in the conterminous United States.

Radioisotopes are isotopic forms of an element that exhibit radioactivity. Isotopes are varieties of a chemical element that differ in atomic weight, but are very nearly alike in chemical properties. The difference arises because the atoms of the isotopic forms of an element differ in the number of neutrons in the nucleus. For example: Ordinary chlorine is a mixture of isotopes having atomic weights 35 and 37, with the natural mixture having atomic weight about 35.453. Many of the elements similarly exist as mixtures of isotopes, and a great many new isotopes have been produced in the operation of nuclear devices such as the cyclotron (Rose, 1966). There are 275 isotopes of the 81 stable elements in addition to over 800 radioactive isotopes.

Radioisotopes that are determined in this program are natural uranium in ug/l (micrograms per litre), radium as radium -226 in PC/L (pCi/1, picocuries per litre), gross beta radiation as equivalent strontium/yttrium-90 or cesium-137 in PC/L, and gross alpha radiation as micrograms of uranium equivalents per litre (ug/l). Gross alpha and beta radioactivity associated with the fine-grained (silt and clay sized) sediments in the samples are also determined.

A picocurie (PC, pCi) is one trillionth (1×10^{-12}) of the amount of radioactivity represented by a curie (Ci). A curie is the amount of radioactivity that yield 3.7×10^{10} radioactive disintegrations per second. A picocurie yields 2.22 dpm (disintegrations per minute).

DOWNSTREAM ORDER AND STATION NUMBER

Stations are listed in downstream direction along the main stream, and stations on tributaries are listed between stations on the main stream in the order in which those tributaries enter the main stream. Stations on tributaries entering above all mainstream stations are listed before the first mainstream station. Stations on tributaries to tributaries are listed in a similar manner. In the list of water-quality stations in the front of this report the rank of tributaries is indicated by indention, each indention representing one rank.

As an added means of identifcation, each water-quality station, gaging station, and partial-record station has been assigned a station number. These are in the same downstream order used in this report. In assigning station numbers, no distinction is made between partial-record and continuous-record stations; therefore, the station number for a partial-record station indicates downstream order position in a list made up of both types of stations. Water-quality stations located at or near gaging stations or partial-record stations have the same number as the gaging or partial-record station. Gaps are left in the numbers to allow for new stations that may be established; hence, the numbers are not consecutive. The complete 8-digit number for each station, such as 04058500, which appears just to the left of the station name includes the 2-digit part number "04" plus the 6-digit downstream order number 058500. The part number refers to an area whose boundaries coincide with certain natural drainage lines. Records in this report are in Part 4 (St. Lawrence River basin). All records for a basin encompassing more than one state could be arranged in downstream order by assembling pages from the various state reports by station number to include all records in the basin.

NUMBERING SYSTEM AND SITE LOCATION FOR LAKES

Lakes with outlets

Lakes with outlets are assigned downstream order numbers in the same manner as other surface-water sites. An individual sampling point on the surface of a lake is located by an azimuth, in degrees clockwise from true north, and the distance, in feet, on a line bearing from the principal outlet of the lake to the sampling point.

Lakes without outlets

Lakes with no outlets are identified by 15-digit numbers. The number gives the latitude and longitude of the southernmost point on the perimeter of a lake. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote the degrees, minutes, and seconds of longitude, and the last 2 digits are sequence number, An individual sampling point on the surface of a lake is located by an azimuth, in degrees clockwise

from the true north, and the distance, in feet, on a line bearing from the point specified by the latitude and longitude to the sampling site.

NUMBERING SYSTEM AND LOCATION FOR WELLS

Latitude - longitude well numbers

The numbering system used nationally by the U.S. Geological Survey for numbering wells is based on the grid system of latitude and longitude. The system provides both the geographic location of the well and a unique number for each site. The number consists of 15 digits. The first 6 digits denote the degrees, minutes, and seconds of latitude, the next 7 digits denote the degrees, minutes, and seconds of longitude, and the last 2 digits are a sequential number for wells within a 1-second grid. See Figure 3 below.

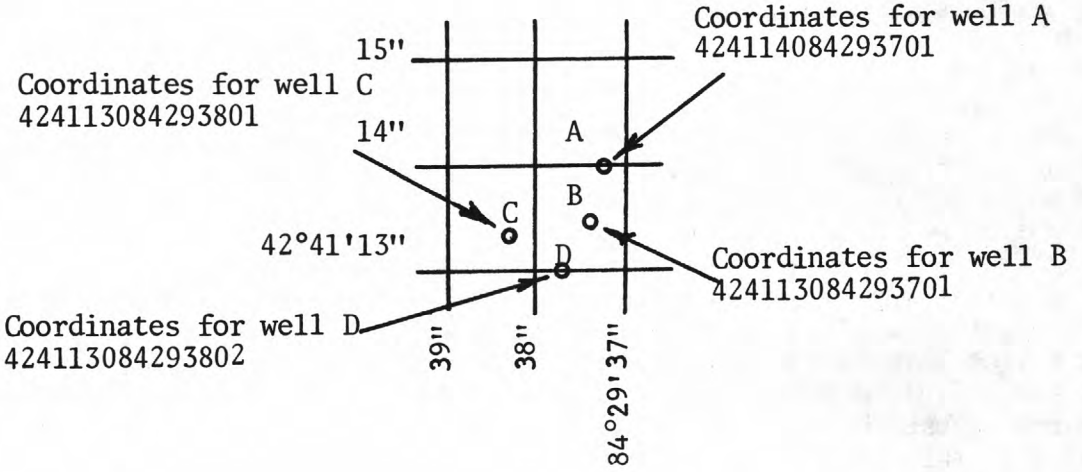

Figure 3.--Well numbering system (latitude and longitude)

Local well numbers

Local well numbers in Michigan locate wells within a rectangular subdivision of land referenced to the Michigan meridian and base line. The land in Michigan is divided into square townships 6 miles (9.6 km) on a side. Each township is further subdivided into 36 sections approximately 1 mile (1.6 km) square, each containing 640 acres (259 ha, hectares).

The local well number uses 14 digits that uniquely identify a well and denote its geographic location. The first two numbers and letter identify the tiers of township north or south of the Michigan base line. The second pair of numbers and letter identify the ranges east or west of the Michgian meridian. The third pair of numbers identify the section within the specified township. Sections are divided into quadrants labeled counter-clockwise from the upper right as A, B, C, and D. Each quadrant is then similarly subdivided 3 times, thus each section of land is subdivided into tracts

330 ft (100 m) square containing 2.5 acres (1.0 ha). Lettered quadrants are read from left to right, with the largest subdivision on left. When there is more than one well within a 2.5 acre (1.0 ha) tract, the wells are numbered sequentially with two digits. For example, a well located within the circled area of section 16, Town 8 North, Range 3 West, (Figure 4) would have the location number 08N03W16CCCB01. A second well within the same 2.5 acre (1.0 ha) subdivision would be numbered 08N03W16CCCB02.

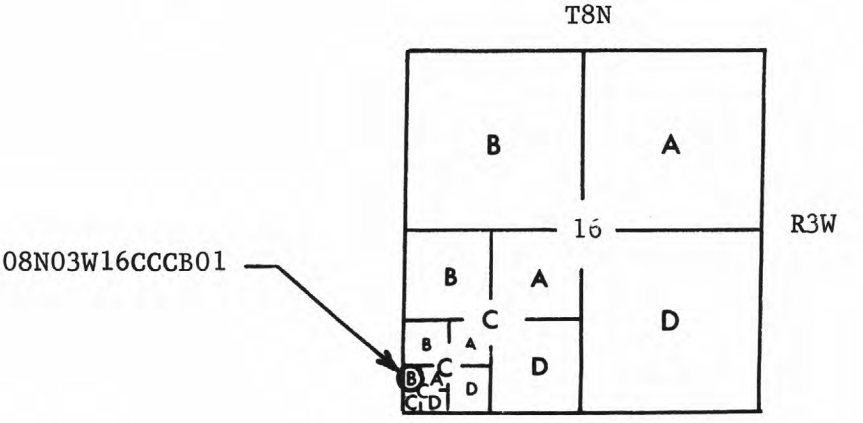

Figure 4.--Michigan local well numbering system

EXPLANATION OF WATER-QUALITY DATA

Collection and examination of data

Water samples for analyses usually are collected at or near gaging stations. The discharge records at these stations are used in conjunction with the computations of the chemical constituents and sediment loads. Discharge records for streams in Michigan have been released in the report, "Water Resources Data for Michigan, 1974, Part 1, Surface-Water Records."

The data in this report includes a description of the sampling station and tabulations of the samples analyzed. The description of the sampling station gives the location, drainage area, periods of record for the various water-quality data, extremes of the pertinent data, and general remarks, in a format similar to that used for streamflow gaging stations. For ground-water sampling stations, no descriptive statements are given. However, the geographic location is specified by the local well number, and the depth of well data of sampling and other pertinent data are given in the table containing the chemical analyses of ground water.

Water-quality information is presented for chemical, biological, and microbiological quality, water temperature, and fluvial sediment. Chemical quality includes concentrations of individual dissolved constituents and certain properties or characteristics such as hardness, sodium-absorption ratio, specific conductance, and pH. The biological information includes qualitative and quantitative analyses of plankton and particulate inorganic and amorphous matter present. Microbiological information includes quantitative identification of certain bacteriological indicator organisms. Water-temperature data represent once-daily observations except for stations where a continuous or digital temperature recorder furnished information from which daily minimums and maximums are obtained. Fluvial-sediment information is given for suspended-sediment discharges and concentrations and for particle-size distribution of suspended sediment and bed material.

Prior to the 1968 water year, data for chemical constituents and concentrations of suspended sediment were reported in parts per million (ppm) and water temperatures were reported in degrees Fahrenheit (°F). In October 1967, the U.S. Geological Survey began reporting data for chemical constituents and concentrations of suspended sediment in milligrams per litre (mg/l) and water temperatures in degrees Celsius (°C). In waters with a density of 1.000 g/ml (grams per millilitre), parts per million and milligrams per litre can be considered equal. In waters with a density greater than 1.000 g/ml, values in parts per million should be multiplied by the density to convert to milligrams per litre. Temperature reported in degrees Celsius may be converted to degrees Fahrenheit by using the table below.

Table 3.--Degrees Celsius (°C) to degrees Fahrenheit (°F)
(Temperature reported to nearest 0.5°C)

°C	°F	°C	°F	°C	°F	°C	°F	°C	°F
0.0	32	10.0	50	20.0	68	30.0	86	40.0	104
.5	33	10.5	51	20.5	69	30.5	87	40.5	105
1.0	34	11.0	52	21.0	70	31.0	88	41.0	106
1.5	35	11.5	53	21.5	71	31.5	89	41.5	107
2.0	36	12.0	54	22.0	72	32.0	90	42.0	108
3.0	37	13.0	55	23.0	73	33.0	91	43.0	109
3.5	38	13.5	56	23.5	74	33.5	92	43.5	110
4.0	39	14.0	57	24.0	75	34.0	93	44.0	111
4.5	40	14.5	58	24.5	76	34.5	94	44.5	112
5.0	41	15.0	59	25.0	77	35.0	95	45.0	113
5.5	42	15.5	60	25.5	78	35.5	96	45.5	114
6.0	43	16.0	61	26.0	79	36.0	97	46.0	115
6.5	44	16.5	62	26.5	80	36.5	98	46.5	116
7.0	45	17.0	63	27.0	81	37.0	99	47.0	117
8.0	46	18.0	64	28.0	82	38.0	100	48.0	118
8.5	47	18.5	65	28.5	83	38.5	101	48.5	119
9.0	48	19.0	66	29.0	84	39.0	102	49.0	120
9.5	49	19.5	67	29.5	85	39.5	103	49.5	121

(°C = 5/9 (°F - 32) or °F = 9/5 (°C) + 32)

In October 1968, the Geological Survey began reporting many of the chemical constituents as well as the minor elements in micrograms per litre instead of milligrams per litre. (See "Definitions of Terms," p.5 and table for converting English units to SI units, p. 19).

Solutes

Most methods for collecting and analyzing water samples to determine the kinds and concentrations of solutes are described by Brown, Skougstad, and Fishman. The method for determining elemental constituents by emission spectrographic techniques is described by Barnett and Mallory. Analysis of pesticides, herbicides, and organic substances in water are described by Goerlitz and Lamar; Lamar, Goerlitz, and Law; and Goerlitz and Brown. The collection and analysis of aquatic biological and microbiological samples are described by Slack and others.

One sample can adequately define the water quality at a given time if the mixture of solutes throughout the stream cross section is homogeneous. However, the concentration of solutes at different locations in the cross section may vary widely with different rates of water discharge, depending on the source of material and the turbulence and mixing of the stream. Some streams must be sampled through several vertical sections to obtain a representative sample needed for an accurate mean concentration and for use in calculating loads.

Chemical-quality data published in this report are considered to be the most representative values available for the stations listed. The values reported represent water-quality conditions at the time of sampling as much as possible, consistent with available sampling techniques and methods of analysis. In the rare case where an apparent inconsistency exists between the reported pH value and the relative abundance of carbon dioxide species (carbonate and bicarbonate), the inconsistency is the result of a slight uptake of carbon dioxide from the air by the sample between measurement of pH in the field and determination of carbonate and bicarbonate in the laboratory.

For chemical-quality stations equipped with digital monitors, the records consist of daily maximum, minimum, and mean values for each constituent measured and are based upon hourly punches beginning at 0100 hours and ending at 2400 hours for the day of record. More detailed records (hourly values) may be obtained from the U.S. Geological Survey district office at the address given on the back of the title page of this report.

Ground-water normally does not change significantly during short periods of time; infrequent sampling and analysis of ground water adequately defines ground-water quality at a given site.

Temperature

Water temperatures are measured at most of the water-quality stations. In addition, water temperatures are taken at times of discharge measurements for surface-water stations. For daily stations, the water temperatures are

taken at about the same time each day when the sample is collected. Large streams have a small diurnal temperature change; shallow streams may have a daily range of several degrees and may follow closely the change in air temperature. Some streams may be affected by waste-heat discharge.

At stations where continuous temperature recorders are present, the records consits of maximum and minimum temperatures for each day and the monthly averages.

Sediment

Suspended-sediment concentrations are determined from samples collected by using depth-integrating samplers. Samples usually are obtained at several verticals in the cross-section, or a single sample may be obtained at a fixed point and a coefficient applied to determine the mean concentration in the cross section.

Suspended-sediment samples were collected periodically at many verticals in the stream cross section. Although data collected periodically may represent conditions only at the time of observation, such data are useful in establishing seasonal relations between quality and streamflow in predicting long-term sediment-discharge characteristics of the stream.

In addition to the records of the quantities of suspended sediment, records of the periodic measurements of the particle-size distribution of the suspended sediment and bed material are included.

WATER-SUPPLY PAPERS

The annual, series of water-supply papers that give information on quality of surface waters in Michigan are shown in the following table.

Table 4.-Water-supply paper numbers, water years, 1941-74.

Water Year	WSP No.	Water Year	WSP No.	Water Year	WSP No.
1941	942	1952	1251	1963	1948
1942	950	1953	1920	1964	1955
1943	970	1954	1350	1965	1962
1944	1022	1955	1400	1966	1992
1945	1030	1956	1451	1967	2012
1946	1050	1957	1520	1968	2094
1947	1102	1958	1571	1969	2144
1948	1132	1959	1642	1970	2154
1949	1162	1960	1742		
1950	1186	1961	1882		
1951	1197	1962	1942		

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American Public Health Association, and others 1971, Standard methods for the examination of water and wastewater, 13th ed.: Am. Public Health Assoc., New York, 874 p.

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Barker, F. B., and others, 1965, Determination of uranium in natural water: U.S. Geol. Survey Water-Supply Paper 1696-C, 25 p.

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Barnett, P. R., and Mallory, Jr., E. C., 1971, Determination of minor elements in water by emission spectroscopy: U.S. Geol. Survey Techniques of Water Resources Inv., book 5, chap. A2, 31 p.

Brown, Eugene, Skougstad, M. W., and Fishman, M. J., 1970, methods for collection and analyses of water samples for dissolved minerals and gases: U.S. Geol. Survey Techniques of Water-Resources Inv., book 5, chap. A1, 160 p.

Colby, B. R., 1963, Fluvial sediments--a summary of source, transportation, deposition, and measurement of sediment discharge: U.S. Geol. Survey Bull. 1181-A, 47 p.

Colby, B. R., and Hembree, C. H., 1955, Computations of total sediment discharge, Niobrara River near Cody, Nebraska; U. S. Geol. Survey Water-Supply Paper 1357, 187 p.

Colby, B. R., and Hubbell, D. W., 1961, Simplified methods for computing total sediment discharge with the modified Einstein procedure: U.S. Geol. Survey Water-Supply Paper 1593, 17 p.

Goerlitz, D. F., and Brown, Eugene, 1972, Methods for analysis of organic substances in water: U. S. Geol. Survey Techniques of Water-Recources Inv. book 5, chap A3, 40 p.

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Guy, H. R., 1969, Laboratory theory and methods for sediment analysis: U.S. Geol. Survey Techniques of Water-Resources Inv., book 5, chap. C1, 58 p.

_____ 1970, Fluvial sediment concepts: U.S. Geol Survey Techniques of water-Resources Inv., book 3, chap. C1, 55 p.

Guy, H. P., and Norman, V. W., 1970, Field methods for measurement of fluvial sediment: U.S. Geol. Survey Techniques of Water-Resources Inv., book 3, chap. C2, 59 p.

Hem, J. D., 1970, Study and interpretation of the chemical characteristics of natural water, 2nd ed.: U.S. Geol. Survey Water-Supply Paper 1473, 363 p.

Heath, R. C., 1964. "Lazy" thermometers and their use in measuring groundwater temperatures: U.S. Geol. Survey Prof. Paper 475-D, Art. 171, p. D216-D218.

Lamar, W. L., Goerlitz, D. F., and Law, L. M., 1965, Identification and measurement of chlorinated organic pesticides in water by electron-capture gas chromatography: U.S. Geol Survey Water-Supply Paper 1817-B, 12 p.

Langbein, W. B., and Iseri, K. T., 1960 General introduction and hydrologic definitions: U.S. Geol. Survey Water-Supply Paper 1514-A, 29 p.

Lohman, S. W., and others, 1972, Definitions of selected ground-water terms--revisions and conceptual refinements: U.S. Geol. Survey Water-Supply Paper 1988, p. 2.

Porterfield, George, 1972, Computations of fluvial-sediment discharge: U.S. Geol. Survey Techniques of Water Resources Inv., book 3, chap. C3, 66 p.

Ritter, J. R., and Helley, E. J., 1969, Optical method for determining particle sizes of coarse sediment: U.S. Geol. Survey Techniques of Water-Resources Inv., book 5, chap. C3, 33 p. (open file).

Rose, Arthur and Elizabeth, 1966, The condensed chemical dictionary: Reinhold Pub. Corp., New York, 7th ed., p. 257.

Slack, K. V., and others, 1973, Methods for collection and analysis of aquatic, biological and microbiological samples: U.S. Geol Survey Techniques of Water Resources Inv., book 5, chap. A-4, 165 p.

U.S. Inter-Agency Committee on Water Resources, Subcommitte on Sedimentation, A study of methods used in measurement and analysis of sediment loads in streams. Published by the St. Anthony Falls Hydraulic Laboratory, Minneapolis, Minn.

_____ 1941, Methods of analyzing sediment samples: Rept. 4.

_____ 1953, Accuracy of sediment size analyses made by the bottom-withdrawal-tube method: Rept. 10.

_____ 1957, The development and calibration of visual accumulation tube. Rept. 11.

_____ 1957, Some fundamanetals of particle size analysis: Rept. 12.

_____ 1959, Federal Inter-agency sedimentation instruments and reports: Rept. AA.

_____ 1961, The single stage sampler for suspended sediment: Rept. 13.

_____ 1963, Determinations of fluvial sediment discharge: Rept. 14.

Table 5.--Factors for converting English units to International System (SI) units

The following factors may be used to convert the English units published herein to the International System of units (SI). Subsequent reports will contain both the English and SI unit equivalents in the station manuscript description until such time that all data will be published in SI units.

Multiply English units	By	To obtain SI units
	Length	
inches (in)	25.4	millimetres (mm)
	.0254	metres (m)
feet (ft)	.3048	metres (m)
yards (yd)	.9144	metres (m)
rods	5.0292	metres (m)
miles (mi)	1.609	kilometres (km)
	Area	
acres	4047	square metres (m^2)
	.4047	*hectares (ha)
	.4047	square hectometres (hm^2)
	.004047	square kilometres (km^2)
square miles (mi^2)	2.590	square kilometres (km^2)
	Volume	
gallons (gal)	3.785	**litres (l)
	3.785	cubic decimetres (dm^3)
	3.785×10^{-3}	cubic metres (m^3)
million gallons (10^6 gal)	3785	cubic metres (m^3)
	3.785×10^{-3}	cubic hectometres (hm^3)
cubic feet (ft^3)	28.32	cubic decimetres (dm^3)
	.02832	cubic metres (m^3)
cfs-days [(ft^3/s) · d]	2447	cubic metres (m^3)
	2.447×10^{-3}	cubic hectometres (hm^3)
acre-feet (acre-ft)	1233	cubic metres (m^3)
	1.233×10^{-3}	cubic hectometres (hm^3)
	1.233×10^{-6}	cubic kilometres (km^3)
	Flow	
cubic feet per second (ft^3/s)	28.32	litres per second (l/s)
	28.32	cubic decimetres per second (dm^3/s)
	.02832	cubic metres per second (m^3/s)
gallons per minute (gpm)	.06309	litres per second (l/s)
	.06309	cubic decimetres per second (dm^3/s)
	6.309×10^{-5}	cubic metres per second (m^3/s)
million gallons per day (mgd)	43.81	cubic decimetres per second (dm^3/s)
	.04381	cubic metres per second (m^3/s)
	Mass	
tons (short)	.9072	tonnes (t)

*The unit hectare is approved for use with the International System (SI) for a limited time. See NBS Special Bulletin 330, p.15, 1972 edition.

**The unit litre is accepted for use with the International System (SI). See NBS Special Bulletin 330, p. 13, 1972 edition.

04001000 WASHINGTON CREEK AT WINDIGO, MICH.
(Hydrologic bench-mark, pesticide and radiochemical station)

LOCATION.--Lat 47°55'23", long 89°08'42", in NW¼ sec.28, T.64 N., R.38 W., Keweenaw County, Isle Royale National Park, temperature recorder at gaging station on left bank 0.8 mi (1.3 km) northeast of Windigo, and 35 mi (56 km) southwest of Rock Harbor.
DRAINAGE AREA.--13.2 mi^2 (34.2 km^2).
PERIOD OF RECORD.--Chemical analyses: October 1964 to September 1974.
Water temperatures: October 1964 to September 1974.
Sediment records: August 1966 to September 1974 (periodic).
EXTREMES.--1973-74:
Water temperatures: Maximum, 20.5°C July 8-10, 18, 19; minimum, freezing point on many days during November to April.
Period of record:
Water temperatures (1964-74): Maximum, 22.0°C July 26, 30, 31, 1970; minimum, freezing point on many days during winter period.
REMARKS.--Intermittent ice cover during the winter period. No temperature record Nov. 5-8, recorder malfunctioned. Recorder stopped September 24-30, range in temperature 5.0°C to 8.5°C.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	DISSOLVED SILICA (SIO2) (MG/L)	TOTAL IRON (FE) (UG/L)	IRON (FE) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
OCT., 1973										
07...	1240	3.5	14	--	570	--	200	19	7.8	3.3
FEB., 1974										
19...	1500	26	16	--	--	--	--	22	6.5	2.4
MAY										
06...	1730	53	8.4	610	--	40	--	--	--	--
JULY										
10...	1500	5.7	10	--	--	--	--	19	5.0	3.0
AUG.										
28...	1400	3.0	--	--	--	--	--	--	--	--
29...	0845	3.0	12	--	--	--	--	23	6.2	3.5

DATE	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)
OCT., 1973										
07...	.7	85	0	70	.4	3.0	.9	.07	--	.01
FEB., 1974										
19...	.7	96	0	79	5.2	4.2	.1	--	.18	.01
MAY										
06...	--	30	0	25	6.3	1.0	.2	--	.04	.01
JULY										
10...	.5	74	0	61	5.4	2.4	.2	--	.07	.01
AUG.										
28...	--	--	--	--	--	--	--	--	--	--
29...	.7	99	0	81	4.9	5.6	.3	--	.06	.01

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)
OCT., 1973									
07...	139	1.31	80	10	8	.2	144	7.3	9.0
FEB., 1974									
19...	126	8.85	82	3	6	.1	165	7.4	.0
MAY									
06...	48	--	--	--	--	--	80	7.7	4.0
JULY									
10...	116	1.79	68	7	9	.2	125	6.7	18.5
AUG.									
28...	--	--	--	--	--	--	165	6.9	13.5
29...	136	1.10	83	2	8	.2	165	6.9	13.0

04001000 WASHINGTON CREEK AT WINDIGO, MICH.--Continued

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974--Continued

DATE	COLOR (PLATINUM-COBALT UNITS)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)	TURBIDITY (SEVERITY)
OCT., 1973									
07...	50	--	--	--	--	--	13.5	--	0
FEB., 1974									
19...	--	10.9	76	1000	844	--	-3.0	4	0
MAY									
06...	--	12.3	98	825	<1	85	4.0	--	1
JULY									
10...	--	7.7	83	8580	20	81	19.0	--	0
AUG.									
28...	--	9.6	94	--	--	--	18.5	--	0
29...	--	--	--	94	89	140	12.0	--	0

DATE	TOTAL ARSENIC (AS) (UG/L)	TOTAL BARIUM (BA) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL LEAD (PB) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)
MAY , 1974										
06...	1	0	1	0	11	22	.1	4	0	200

DATE	TIME	TEMPERATURE (DEG C) (00010)	INSTANTANEOUS DISCHARGE (CFS) (00061)	SUSPENDED SEDIMENT (MG/L) (80154)	SUSPENDED SEDIMENT DISCHARGE (T/DAY) (80155)
MAY , 1974					
06...	1730	4.0	53	12	1.7
JULY					
10...	1500	18.5	5.7	2	.03
23...	1115	16.0	1.6	0	.00
AUG.					
19...	1145	14.5	1.5	1	.00
29...	0845	13.0	3.0	1	.01
SEP.					
07...	1715	13.0	1.3	50	.18
23...	1715	5.0	5.6	7	.11

04001000 WASHINGTON CREEK AT WINDIGO, MICH.--Continued

TEMPERATURE (DEG. C) OF WATER , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	9.5	9.0	6.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	10.5	9.5	6.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	10.5	10.0	5.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	10.5	10.5	5.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	10.5	9.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	9.5	9.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	10.5	9.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	11.5	10.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	12.0	11.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	13.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	13.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	12.5	11.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	11.5	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	10.5	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	10.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	9.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	8.0	7.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	7.5	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	7.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
20	7.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.0
21	7.0	7.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
22	8.5	7.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
23	8.5	8.5	0.5	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.5
24	9.5	8.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.5
25	10.0	9.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.5
26	10.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.0
27	9.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	8.0	6.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	6.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	---	---	0.0	0.0
30	5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	---	---	0.0	0.0
31	6.0	5.5	---	---	0.0	0.0	0.0	0.0	---	---	0.0	0.0
MONTH	13.0	5.5	6.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0	0.5	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.0	0.0	2.5	2.5	15.0	11.0	16.0	14.0	16.5	15.0	12.5	11.0
2	0.0	0.0	3.5	2.5	15.0	11.0	18.0	15.0	16.0	15.0	12.0	11.0
3	0.0	0.0	4.0	3.5	15.0	12.0	17.5	15.5	15.0	14.5	12.0	10.5
4	0.0	0.0	4.0	3.5	16.5	13.5	15.5	14.5	16.5	13.5	12.0	10.5
5	0.0	0.0	4.0	4.0	19.0	15.0	16.0	14.0	17.0	14.0	12.5	10.5
6	0.0	0.0	4.0	3.5	18.5	16.5	18.0	15.0	14.0	14.5	12.5	11.5
7	0.0	0.0	4.5	3.5	16.5	13.5	19.0	17.0	18.5	15.0	13.0	12.5
8	0.0	0.0	5.0	4.0	16.0	13.0	20.5	17.5	19.0	16.0	15.0	13.0
9	0.0	0.0	6.0	4.5	15.5	13.5	20.5	19.0	19.5	16.0	13.5	12.5
10	0.0	0.0	6.5	6.0	13.5	11.5	20.5	18.5	19.0	17.0	12.0	10.5
11	0.0	0.0	7.0	5.5	11.5	11.0	19.5	16.0	18.5	17.5	13.0	11.0
12	0.0	0.0	5.5	4.5	12.0	11.0	18.5	16.5	18.5	17.0	13.0	12.0
13	0.0	0.0	6.0	4.5	13.5	11.0	19.0	17.0	18.0	15.0	12.0	11.5
14	0.0	0.0	6.0	4.5	13.5	11.5	20.0	18.0	17.0	14.5	11.0	10.5
15	0.0	0.0	5.5	4.5	13.5	12.0	19.5	17.5	16.0	15.5	11.0	10.5
16	0.0	0.0	5.5	5.5	13.0	11.5	18.5	16.0	17.5	16.0	11.0	10.5
17	0.0	0.0	7.5	5.5	12.0	11.0	19.0	17.0	17.5	15.0	11.0	10.5
18	0.0	0.0	9.5	7.5	13.0	11.5	20.5	17.5	17.5	15.0	11.0	10.0
19	0.0	0.0	10.5	8.0	14.0	12.0	20.5	18.5	17.5	14.5	10.5	10.0
20	0.0	0.0	10.5	9.0	14.0	13.0	19.0	16.0	17.5	16.5	10.5	9.0
21	0.0	0.0	14.5	10.0	15.5	13.0	18.0	15.5	17.5	17.0	9.0	8.0
22	0.0	0.0	14.5	11.5	15.5	13.0	18.5	16.5	17.0	16.0	8.0	6.5
23	0.0	0.0	13.5	11.5	15.5	13.0	19.0	16.0	16.5	15.5	6.5	5.5
24	0.0	0.0	12.0	10.5	15.5	12.5	18.0	16.0	16.0	15.0	---	---
25	0.5	0.0	12.0	9.0	16.0	13.0	19.0	17.0	15.5	14.5	---	---
26	1.5	0.5	13.5	9.5	16.0	13.5	19.5	16.5	15.5	15.5	---	---
27	1.5	1.0	14.0	10.5	17.0	13.5	19.0	16.0	15.5	14.5	---	---
28	1.5	1.0	13.0	11.5	18.0	15.5	18.0	16.0	15.0	13.0	---	---
29	2.5	1.5	12.5	10.5	18.0	16.0	17.0	16.0	14.5	13.5	---	---
30	2.5	2.5	13.0	10.0	17.0	14.5	17.0	16.0	14.0	12.5	---	---
31	---	---	15.0	11.0	---	---	17.5	15.5	12.5	12.5	---	---
MONTH	2.5	0.0	15.0	2.5	19.0	11.0	20.5	14.0	19.5	12.5	---	---
YEAR	20.5	0.0										

04043050 TRAP ROCK RIVER NEAR LAKE LINDEN, MICH.

LOCATION.--Lat 47°13'43", long 88°23'07", in SE¼ SE¼ sec.20, T.56 N., R.32 W., Houghton County, temperature recorder at gaging station on right bank 20 ft (6.1 m) upstream from county highway bridge, 0.1 mi (0.2 km) west of Trap Rock School, 2.0 mi (3.2 km) northeast of Lake Linden, and 3.0 mi (4.8 km) upstream from mouth.
DRAINAGE AREA,--28.0 mi^2 (72.5 km^2).
PERIOD OF RECORD.--Water temperatures: October 1971 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 22.0°C July 13, 14, 18; minimum, freezing point on many days during December to April.
Period of record:
Water temperatures (1971-74): Maximum 22.0°C July 31, 1972, July 6, 8, 1973, July 8, 1974; minimum, freezing point on many days during winter period.
REMARKS.--Complete ice cover during winter period. No maximum temperature record May 2, 3, 17, 19, pen marking intermittently.

TEMPERATURE (DEG. C) OF WATER , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.0	8.5	7.0	6.5	2.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0
2	12.0	9.5	6.5	5.5	2.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
3	12.5	10.5	5.5	4.5	3.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0
4	12.5	10.5	4.5	3.5	3.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0
5	11.5	8.5	3.5	2.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	10.0	8.0	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
7	12.0	8.5	3.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
8	13.5	11.0	3.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
9	12.0	11.0	2.0	1.5	0.5	0.0	0.0	0.0	0.0	0.0	1.5	0.0
10	14.5	12.0	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0
11	13.5	13.0	2.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	1.5	0.0
12	13.5	11.5	4.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	0.0
13	11.5	10.0	4.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
14	11.0	9.0	4.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
15	10.5	8.5	3.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	0.5
16	8.5	7.0	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	2.5	1.5
17	7.0	6.5	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	0.5
18	8.0	6.0	3.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5
19	8.5	6.5	3.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
20	9.5	7.5	4.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
21	9.5	6.5	5.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
22	10.5	7.0	5.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
23	10.0	9.0	4.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
24	11.5	9.5	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
25	11.0	9.5	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.5
26	10.0	9.0	3.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
27	9.0	8.0	4.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	7.5	6.0	3.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
29	6.5	4.5	2.5	2.0	0.0	0.0	0.0	0.0	---	---	0.5	0.0
30	6.5	5.0	2.0	2.0	0.0	0.0	0.0	0.0	---	---	1.5	0.5
31	7.0	6.5	---	---	0.0	0.0	0.0	0.0	---	---	4.5	1.0
MONTH	14.5	4.5	7.0	1.5	3.0	0.0	0.0	0.0	0.0	0.0	4.5	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	3.0	0.0	7.0	5.0	16.5	11.0	18.0	14.5	17.0	14.0	14.0	11.5
2	4.0	0.0	---	4.5	17.0	11.0	18.5	15.0	16.0	14.0	14.0	11.0
3	3.0	1.0	---	6.0	17.0	11.5	17.5	15.0	14.0	13.0	13.5	9.5
4	1.0	0.0	8.0	4.5	18.0	14.0	16.0	14.5	16.5	12.5	15.0	10.5
5	5.0	0.0	7.5	4.5	20.0	13.5	17.0	13.5	18.5	13.5	15.5	11.0
6	4.5	0.5	6.0	3.5	18.0	15.0	19.5	15.0	19.5	14.0	14.5	11.5
7	4.5	1.0	7.5	3.0	15.5	13.5	18.5	15.5	20.0	15.0	13.5	12.0
8	3.5	0.5	8.0	4.5	18.0	12.0	21.5	15.5	20.5	15.5	15.0	12.0
9	6.5	1.0	10.0	6.0	16.0	12.5	21.0	17.5	20.5	15.5	13.0	12.0
10	6.0	1.5	11.0	7.0	12.5	10.0	21.0	16.5	19.5	16.0	12.5	10.5
11	4.0	2.0	9.5	6.5	12.0	9.0	19.5	14.0	19.0	16.5	14.0	11.5
12	2.0	0.5	6.5	5.5	12.5	10.0	19.5	13.5	18.5	15.5	13.0	12.0
13	1.0	0.0	9.0	4.5	15.0	10.0	22.0	15.5	19.5	14.0	13.5	11.0
14	0.5	0.0	8.0	5.5	13.5	11.0	22.0	17.5	18.0	14.0	12.0	11.0
15	2.5	0.0	9.0	5.0	12.0	11.0	19.5	16.0	17.5	14.5	12.5	11.5
16	2.0	0.0	8.5	6.5	11.0	9.5	19.0	14.0	18.0	15.5	12.5	10.5
17	1.5	0.0	---	7.0	11.0	9.0	18.5	15.5	18.0	15.0	13.0	11.5
18	1.5	0.0	11.0	7.5	14.5	10.5	22.0	16.5	16.5	15.0	13.0	11.5
19	2.5	0.0	---	7.5	18.0	12.0	20.5	16.5	17.5	14.5	13.0	11.5
20	3.0	0.0	13.5	8.5	16.5	14.0	19.5	14.0	18.0	15.5	11.5	10.5
21	2.0	0.5	17.0	11.0	18.5	12.5	17.5	14.0	17.5	16.5	10.5	9.5
22	1.0	0.5	17.0	13.5	16.5	12.5	17.5	14.5	17.0	16.0	9.5	9.0
23	3.5	0.0	15.5	12.0	17.5	12.0	18.5	14.0	16.5	15.0	9.5	8.0
24	5.0	0.5	13.5	10.0	18.0	11.5	17.5	15.0	15.0	14.0	10.5	8.5
25	6.5	2.5	14.0	9.5	18.5	12.0	20.0	15.5	15.0	14.0	11.5	10.0
26	7.0	2.0	15.0	9.0	19.0	12.5	21.0	16.0	17.0	15.0	12.0	9.5
27	5.5	3.5	15.0	9.5	19.5	13.0	19.5	15.0	16.5	14.0	12.5	10.0
28	6.5	4.0	12.5	11.5	20.0	14.5	19.5	14.5	16.0	13.5	11.5	10.0
29	8.0	4.5	11.0	10.0	18.5	15.0	17.5	15.0	15.5	14.0	11.0	9.5
30	8.0	4.5	13.5	9.0	17.5	13.5	17.0	14.0	14.0	12.5	10.0	9.0
31	---	---	15.5	10.5	---	---	18.5	14.0	14.0	12.0	---	---
MONTH	8.0	0.0	17.0	3.0	20.0	9.0	22.0	13.5	20.5	12.0	15.5	8.0
YEAR	22.0	0.0										

04045580 ST. MARYS RIVER ABOVE SAULT STE. MARIE, MICH.
(National stream-quality accounting and radiochemical station)

LOCATION.--Lat 46°29'29", long 84°25'17", in NW¼ sec.10, T.47 N., R.1 W., Chippewa County, at Sault Ste. Marie municipal raw-water intake at Big Point, 1 mi (1.6 km) west of Sault Ste. Marie.
DRAINAGE AREA.--80,900 mi² (210,000 km²), approximately.
PERIOD OF RECORD.--Chemical analyses: October 1969 to July 1973, January to September 1974.
Water temperatures: January to September 1974.
EXTREMES.--March to September 1974:
Specific conductance: Maximum daily, 96 micromhos Apr. 15; minimum daily, 78 micromhos Apr. 21.
Water temperature: Maximum daily, 19.0°C Aug. 10; minimum daily, freezing point Mar. 14-15.
REMARKS.--Primary sampling point is at raw-water tap in Sault Ste. Marie municipal treatment plant at Big Point. Intake is 1,500 feet out at a depth of 30 feet, 10 feet above the bottom of the channel. Discharge estimates obtained from U.S. Army Corps of Engineers, Sault Ste. Marie.

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
JAN.											
29...	1630	E50000	2.5	14	2.7	1.6	.5	54	0	44	3.6
MAR.											
13...	1500	E76000	2.3	13	2.8	1.3	.7	52	0	43	3.0
APR.											
08...	1705	E75000	2.5	13	2.8	1.2	.5	54	0	44	3.8
MAY											
13...	1515	E75000	2.3	14	3.0	1.1	.5	49	0	40	6.2
JUNE											
06...	1700	E75000	2.5	14	2.9	.9	.5	52	0	43	3.9
JULY											
02...	1615	E73000	2.2	14	2.8	.9	.5	51	0	42	3.8
08...	0830	--	--	--	--	--	--	--	--	--	--
31...	1545	E73000	2.2	13	2.8	1.1	.6	55	0	45	4.2
SEP.											
16...	1530	E75000	2.0	12	2.3	1.2	.6	52	0	43	2.8

DATE	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
JAN.										
29...	46	2	7	.1	100	7.0	1.0	1	--	--
MAR.										
13...	44	1	6	.1	97	7.4	1.5	1	12.7	91
APR.										
08...	44	0	6	.1	97	6.9	1.5	1	--	--
MAY										
13...	47	7	5	.1	89	7.5	5.0	1	11.4	90
JUNE										
06...	47	4	4	.1	90	6.7	10.5	1	9.3	85
JULY										
02...	47	5	4	.1	91	7.1	14.0	1	10.4	100
08...	--	--	--	--	--	--	--	--	--	--
31...	44	0	5	.1	91	7.2	18.0	10	9.2	97
SEP.										
16...	39	0	6	.1	90	6.8	14.5	2	10.1	100

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)
JAN.										
29...	2.0	.1	.15	.25	.40	.01	61	54	.08	8240
MAR.										
13...	.8	.5	.26	.07	.33	.02	55	50	.07	11300
APR.										
08...	1.0	.2	.26	.11	.37	.01	50	52	.07	10100
MAY										
13...	1.0	.2	.27	.12	.39	.01	138	52	.19	27900
JUNE										
06...	1.2	.1	.25	.06	.31	.00	46	52	.06	9320
JULY										
02...	.5	.1	.25	.26	.51	.01	65	50	.09	12800
08...	--	--	--	--	--	--	--	--	--	--
31...	1.3	.0	.22	.17	.39	.00	76	52	.10	15000
SEP.										
16...	1.2	.1	.24	.12	.36	.04	66	48	.09	13400

04045580 ST. MARYS RIVER ABOVE SAULT STE MARIE, MICH.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1973 to SEPTEMBER 1974--Continued

DATE	IMMEDIATE COLIFORM (COL. PER 100 ML)	FECAL COLIFORM (COL. PER 100 ML)	STREPTOCOCCI (COLONIES PER 100 ML)	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)	TURBIDITY (SEVERITY)	TOTAL ORGANIC CARBON (C) (MG/L)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)		SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
JAN. 29...	<100	<10	75	-2.0	4	0	--	--	--		--
MAR. 13...	<1	<1	88	.0	4	1	--	--	--		--
APR. 08...	26	--	90	3.5	3	0	--	--	--		--
MAY 13...	P5	--	62	16.0	0	1	--	--	--		--
JUNE 06...	P5	B3	91	20.0	--	0	--	--	--		--
JULY 02...	--	--	--	22.0	--	0	1.5	3	E590		100
08...	B22	9	B1	--	--	--	--	--	--	--	--
31...	29	--	B140	18.0	--	0	--	2	E390		100
SEP. 16...	37	<1	<1	18.5	--	0	--	3	E610		100

DATE	TOTAL PHYTOPLANKTON COUNT (CELLS/ML)	DOMINANT GENERA	PERCENT OF TOTAL	MINOR GENERA	PERCENT OF TOTAL	MINOR GENERA	PERCENT OF TOTAL	MINOR GENERA	PERCENT OF TOTAL
JULY, 1974 02....	140	CYCLOTELLA	57	NAVICULA	7	ASTERIONELLA	7		
		TABELLARIA	21	SYNEDRA	7				
31....	1,100	LYNGBYA	43	NAVICULA	9	CYCLOTELLA	6	DIATOMA	1
		DINOBRYON	16	ASTERIONELLA	9	CRUCIGENIA	6		
				TABELLARIA	9	SYNEDRA	3		
SEP., 16....	650	GLOEOCYSTIS	33	CYCLOTELLA	11	CYMBELLA	3		
		ACHINANTHES	19	DINOBRYON	8	NAVICULA	3		
		ANACYSTIS	17	NITZSCHIA	3	ASTERIONELLA	3		

DATE	PERIPHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	PERIPHYTON BIOMASS ASH WEIGHT G/SQ M
JULY 02-31	22	6.9

DATE	TOTAL ARSENIC (AS) (UG/L)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DISSOLVED IRON (FE) (UG/L)
JULY 02...	1	0	2	0	0	0	1	4	80	20

DATE	DISSOLVED LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
JULY 02...	0	0	0	.9	.9	0	0	160	20

04045580 ST. MARYS RIVER ABOVE SAULT STE MARIE, MICH.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1973 to SEPTEMBER 1974--Continued

DATE	TOTAL FILT-RABLE RESIDUE (MG/L)	TOTAL NON-FILT-RABLE RESIDUE (MG/L)	DIS-SOLVED GROSS ALPHA AS U-NAT. (UG/L)	SUS-PENDED GROSS ALPHA AS U-NAT. (UG/L)	DIS-SOLVED GROSS BETA AS CS-137 (PC/L)	SUS-PENDED GROSS BETA AS CS-137 (PC/L)	DIS-SOLVED GROSS BETA AS SR90 /Y90 (PC/L)	SUS-PENDED GROSS BETA AS SR90 /Y90 (PC/L)	DIS-SOLVED RA-226 (RADON METHOD) (PC/L)	DIS-SOLVED URANIUM (U) (UG/L)
OCT.										
29...	54	1	1.1	<.4	2.1	<.4	1.7	<.4	.08	.07
DEC.										
04...	54	<1	<.7	<.4	2.3	<.4	1.8	<.4	.03	.05
JAN.										
29...	54	<1	<.7	<.4	2.2	<.4	1.7	<.4	.02	.06
MAR.										
13...	56	<1	<.7	<.4	2.3	<.4	1.8	<.4	.03	.07
APR.										
08...	52	<1	<.7	<.4	2.0	<.4	1.6	<.4	.03	.07
JUNE										
10...	50	2	.8	<.4	2.2	<.4	1.7	<.4	.04	.03
JULY										
02...	49	2	<.6	<.4	2.1	.4	1.7	.4	.04	.06
31...	54	2	<.4	<.4	2.1	.5	1.7	.5	.02	.09
SEP.										
16...	54	2	<.7	<.4	2.5	.5	2.0	.5	.03	.06

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C) , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974
INSTANTANEOUS OBSERVATIONS AT 11:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	90	92	88	91	91	90
2	---	---	---	---	---	---	95	91	94	89	90	91
3	---	---	---	---	---	---	92	92	95	89	90	90
4	---	---	---	---	---	---	89	92	85	87	90	90
5	---	---	---	---	---	---	92	92	90	89	91	89
6	---	---	---	---	---	---	90	90	90	90	90	91
7	---	---	---	---	---	---	89	94	89	90	89	89
8	---	---	---	---	---	---	89	91	88	89	89	90
9	---	---	---	---	---	---	91	94	88	88	91	90
10	---	---	---	---	---	---	95	90	85	90	89	89
11	---	---	---	---	---	---	92	92	82	89	90	90
12	---	---	---	---	---	---	94	90	88	89	91	90
13	---	---	---	---	---	---	90	82	87	89	88	90
14	---	---	---	---	---	91	89	85	80	90	90	90
15	---	---	---	---	---	90	96	89	84	92	90	90
16	---	---	---	---	---	92	93	90	86	91	90	90
17	---	---	---	---	---	90	95	89	89	93	90	90
18	---	---	---	---	---	89	94	89	85	92	90	90
19	---	---	---	---	---	86	95	88	89	91	89	90
20	---	---	---	---	---	90	84	87	89	90	90	90
21	---	---	---	---	---	89	78	92	86	90	91	90
22	---	---	---	---	---	89	94	89	95	91	90	90
23	---	---	---	---	---	88	94	90	90	89	90	90
24	---	---	---	---	---	89	85	88	89	90	90	90
25	---	---	---	---	---	90	93	89	89	90	90	90
26	---	---	---	---	---	91	88	86	90	90	90	90
27	---	---	---	---	---	90	90	90	90	90	91	90
28	---	---	---	---	---	92	90	95	90	90	94	90
29	---	---	---	---	---	90	90	91	86	90	91	90
30	---	---	---	---	---	90	90	93	88	90	92	90
31	---	---	---	---	---	90	---	90	---	91	90	---
MONTH	---	---	---	---	---	---	91	90	88	90	90	90
YEAR	MAX	96	MIN	78	MEAN	90						

04045580 ST. MARYS RIVER ABOVE SAULT STE MARIE, MICH.--Continued

TEMPERATURE (DEG. C) OF WATER , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974
INSTANTANEOUS OBSERVATIONS AT 11:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	---	1.0	3.5	8.0	13.0	18.0	17.0
2	---	---	---	---	---	---	1.5	3.5	8.0	14.0	18.0	17.0
3	---	---	---	---	---	---	1.5	3.5	7.5	14.5	18.0	17.0
4	---	---	---	---	---	---	1.5	3.5	8.0	14.5	18.0	16.5
5	---	---	---	---	---	---	1.5	4.0	9.0	14.0	17.5	16.0
6	---	---	---	---	---	---	1.5	4.0	9.5	14.5	17.5	16.0
7	---	---	---	---	---	---	1.5	4.0	9.0	15.0	17.5	17.0
8	---	---	---	---	---	---	1.5	4.5	9.0	15.5	18.0	17.5
9	---	---	---	---	---	---	1.5	4.0	9.0	16.0	18.0	17.5
10	---	---	---	---	---	---	1.5	4.0	8.5	16.0	19.0	17.0
11	---	---	---	---	---	---	1.5	5.0	8.0	16.0	18.0	17.5
12	---	---	---	---	---	---	1.5	5.0	8.5	16.0	16.5	17.0
13	---	---	---	---	---	---	2.0	5.0	9.0	16.5	16.0	17.0
14	---	---	---	---	---	0.0	2.0	5.0	9.5	17.5	16.5	17.0
15	---	---	---	---	---	0.0	1.5	5.5	9.0	16.5	17.0	16.0
16	---	---	---	---	---	1.5	1.5	4.5	9.0	17.0	17.5	15.5
17	---	---	---	---	---	1.5	1.5	5.5	9.0	17.5	17.0	15.5
18	---	---	---	---	---	1.0	1.5	5.5	9.0	18.0	17.5	15.5
19	---	---	---	---	---	1.5	1.5	6.0	9.5	18.0	17.0	15.5
20	---	---	---	---	---	1.0	1.5	6.0	10.5	18.5	17.5	15.0
21	---	---	---	---	---	1.5	2.0	6.0	10.0	18.5	18.5	15.0
22	---	---	---	---	---	1.5	2.0	6.0	10.0	18.0	18.5	14.0
23	---	---	---	---	---	1.0	2.0	7.0	10.5	18.0	18.5	13.5
24	---	---	---	---	---	1.0	2.0	6.5	12.0	18.0	18.0	13.5
25	---	---	---	---	---	1.0	2.0	7.0	12.5	18.0	18.5	13.5
26	---	---	---	---	---	1.0	2.0	7.0	12.0	18.0	18.5	13.5
27	---	---	---	---	---	1.0	2.5	7.0	14.0	18.0	18.0	14.0
28	---	---	---	---	---	1.5	3.0	7.5	14.0	18.0	18.0	14.0
29	---	---	---	---	---	1.0	3.0	7.0	14.0	18.0	18.0	14.5
30	---	---	---	---	---	1.0	3.5	7.5	13.5	18.0	17.5	13.0
31	---	---	---	---	---	1.0	---	7.5	---	18.0	17.5	---
MONTH	---	---	---	---	---	---	2.0	5.5	10.0	16.5	17.5	15.5

YEAR MAX 19.0 MIN 0.0 MEAN 10.5

04046000 BLACK RIVER NEAR GARNET, MICH.

LOCATION.--Lat 46°07'05", long 85°21'55", in SE¼ sec.13, T.43 N., R.9 W., Mackinac County, temperature recorder at gaging station on right bank 10 feet (3 m) upstream from highway bridge, 15 feet (4.6 m) downstream from Peters Creek entering from the right, 3.5 miles (5.6 km) upstream from Lake Michigan and 4 miles (6 km) southwest of Garnet.
DRAINAGE AREA.--28 mi^2 (73 km^2) approximately.
PERIOD OF RECORD.--Water temperatures: October 1951 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 16.0°C June 8, 9; minimum, freezing point on several days during March.
Period of record:
Water temperatures (1951-74): Maximum, 19.5.C July 21, 22, 1952; minimum, freezing point on many days during winter periods.
REMARKS.--Intermittent ice cover during the winter period.

TEMPERATURE (DEG. C) OF WATER . WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.0	7.5	6.0	6.0	3.5	3.0	1.0	1.0	1.5	1.5	2.0	2.0
2	8.0	8.0	6.0	6.0	3.0	3.0	1.0	1.0	1.5	1.5	2.0	1.5
3	8.5	8.0	6.0	5.5	3.0	3.0	1.0	1.0	1.5	1.5	1.5	1.5
4	8.5	8.0	5.5	4.5	3.0	3.0	1.0	0.5	1.5	1.5	1.5	1.0
5	8.0	7.5	4.5	4.5	3.0	3.0	0.5	0.5	2.0	1.5	1.0	1.0
6	7.5	7.0	4.5	3.5	3.0	2.5	0.5	0.5	2.0	2.0	1.0	1.0
7	8.0	7.0	3.5	3.5	2.5	2.0	0.5	0.5	2.0	2.0	1.0	1.0
8	8.0	7.5	4.0	3.5	2.0	2.0	0.5	0.5	2.0	1.5	1.0	0.5
9	8.0	7.5	4.0	3.5	2.0	2.0	0.5	0.5	1.5	1.5	0.5	0.5
10	8.5	8.0	3.5	3.5	2.0	2.0	0.5	0.5	1.5	1.5	0.5	0.5
11	9.5	8.0	3.5	3.0	2.0	1.5	0.5	0.5	1.5	1.5	0.5	0.0
12	10.5	9.5	3.0	3.0	1.5	1.5	0.5	0.5	1.5	1.5	0.0	0.0
13	10.0	8.5	3.0	3.0	1.5	1.5	0.5	0.5	1.5	1.5	0.0	0.0
14	8.5	7.5	3.5	3.0	1.5	1.5	0.5	0.5	1.5	1.5	0.0	0.0
15	7.5	7.5	3.5	3.5	1.5	1.5	0.5	0.5	1.5	1.5	0.0	0.0
16	7.5	6.5	3.5	3.5	1.5	1.5	0.5	0.5	1.5	1.5	0.0	0.0
17	7.0	6.0	3.5	3.5	1.5	1.5	0.5	0.5	1.5	1.5	0.5	0.0
18	6.0	6.0	3.5	3.5	1.5	1.5	0.5	0.5	2.0	1.5	0.5	0.5
19	6.0	5.5	3.5	3.5	1.5	1.5	0.5	0.5	2.0	2.0	0.5	0.5
20	6.0	5.5	3.5	3.5	1.5	1.5	0.5	0.5	2.0	2.0	0.5	0.5
21	6.0	5.5	4.0	3.5	1.5	1.5	0.5	0.5	2.0	2.0	0.5	0.5
22	6.5	5.5	4.0	4.0	1.5	1.0	0.5	0.5	2.0	2.0	0.5	0.5
23	7.0	6.5	4.0	3.5	1.0	1.0	0.5	0.5	2.0	2.0	0.5	0.5
24	7.5	7.0	4.0	3.5	1.0	1.0	0.5	0.5	2.0	2.0	0.5	0.5
25	8.0	7.5	3.5	3.0	1.0	1.0	1.0	0.5	2.0	2.0	0.5	0.5
26	8.0	7.0	3.0	3.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	0.5
27	7.0	6.5	3.5	3.0	1.0	1.0	1.0	1.0	2.0	2.0	1.0	1.0
28	6.5	6.0	3.5	3.5	1.0	1.0	1.0	1.0	2.0	2.0	1.0	1.0
29	6.0	6.0	3.5	3.5	1.0	1.0	1.0	1.0	---	---	1.0	1.0
30	6.0	6.0	3.5	3.5	1.0	1.0	1.0	1.0	---	---	1.0	1.0
31	6.0	6.0	---	---	1.0	1.0	1.5	1.0	---	---	1.0	1.0
MONTH	10.5	5.5	6.0	3.0	3.5	1.0	1.5	0.5	2.0	1.5	2.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	1.0	1.0	8.5	7.5	13.0	11.0	13.0	12.0	12.0	11.5	12.5	12.0
2	1.0	1.0	8.5	7.0	13.5	13.0	13.5	13.0	12.0	11.5	12.0	11.5
3	1.0	1.0	8.0	7.0	14.5	12.5	14.0	13.0	12.0	11.5	11.5	10.5
4	1.5	1.0	7.0	6.0	14.0	13.5	14.0	14.0	12.0	11.5	10.5	10.0
5	1.5	1.5	6.5	6.0	15.5	13.5	14.0	13.0	13.0	12.0	10.5	9.5
6	1.5	1.5	6.0	5.0	15.5	15.5	15.0	13.5	14.0	13.0	11.0	9.5
7	1.5	1.5	7.5	5.5	15.5	15.0	14.5	13.5	15.0	13.5	11.0	10.0
8	1.5	1.5	8.0	6.0	16.0	15.0	15.0	13.0	15.0	14.0	12.0	11.0
9	1.5	1.5	9.0	7.0	16.0	14.5	15.0	13.5	15.0	14.0	12.0	11.5
10	1.5	1.5	9.0	7.0	14.5	14.5	15.0	13.5	15.0	14.0	11.5	11.5
11	1.5	1.5	10.0	7.5	14.5	13.0	14.0	12.0	15.0	14.0	13.0	11.5
12	2.0	1.0	7.5	7.0	14.0	13.0	13.0	12.0	15.0	14.0	13.5	13.0
13	1.0	1.0	7.0	7.0	14.0	13.0	13.5	12.0	15.0	14.0	14.0	13.0
14	1.0	1.0	7.0	7.0	14.0	13.0	14.5	12.5	14.0	12.5	13.0	11.5
15	1.5	1.0	7.0	7.0	13.5	13.0	14.0	12.0	13.5	12.0	12.5	12.0
16	1.5	1.0	8.0	7.0	13.0	12.0	13.0	12.0	15.0	13.0	12.5	11.0
17	2.0	1.0	10.5	8.0	12.0	11.0	12.5	12.0	15.0	14.5	12.0	12.0
18	2.0	1.0	11.0	9.5	12.0	11.5	14.5	12.5	15.0	14.0	12.0	10.5
19	2.5	1.5	11.0	8.5	14.0	12.0	14.5	13.0	15.0	14.5	12.5	11.5
20	3.0	2.0	11.0	9.5	14.5	13.5	13.5	12.0	15.0	14.0	12.5	11.5
21	3.0	2.5	11.0	10.5	15.5	14.0	12.5	12.0	15.5	15.0	11.5	11.0
22	3.0	2.5	11.0	10.5	15.5	13.5	12.5	12.0	15.5	15.5	11.0	10.0
23	3.0	2.0	11.5	10.5	13.5	12.0	12.0	12.0	15.5	14.5	10.0	9.5
24	3.5	2.0	11.0	10.5	13.0	11.5	12.0	11.0	14.5	13.0	10.0	9.5
25	3.5	3.5	10.5	9.5	13.0	11.5	12.0	11.5	13.5	12.5	11.5	10.0
26	5.0	3.5	10.0	9.0	13.0	12.0	12.0	11.5	14.0	13.5	12.0	11.0
27	5.5	5.0	10.0	9.0	12.5	12.0	12.5	11.5	14.0	13.5	13.0	11.5
28	7.5	5.5	10.0	10.0	12.0	12.0	13.0	12.0	13.5	12.5	13.0	13.0
29	9.0	7.5	10.0	9.5	12.0	12.0	13.0	12.0	12.5	12.5	13.0	11.0
30	8.5	7.5	10.5	10.0	13.0	12.0	12.0	12.0	13.0	12.0	11.0	10.5
31	---	---	12.0	10.5	---	---	12.0	11.5	12.5	12.5	---	---
MONTH	9.0	1.0	12.0	5.0	16.0	11.0	15.0	11.0	15.5	11.5	14.0	9.5
YEAR	16.0	0.0										

04057800 MIDDLE BRANCH ESCANABA RIVER AT HUMBOLDT, MICH.

LOCATION.--Lat 46°29'57", long 87°53'11", in SW¼ sec.1, T.47 N., R.29 W., Marquette County, temperature recorder at gaging station on left bank, 15 ft (4.6 m) upstream from county highway bridge, 0.3 mi (0.5 km) north of Humboldt and 1.5 mi (2.4 km) downstream from Halfway Creek.
DRAINAGE AREA.--46.0 mi^2 (119.1 km^2).
PERIOD OF RECORD.--Water temperatures: November 1972 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 22.5°C July 8, 10, 13, 14; minimum, freezing point on many days during November to April.
Period of record:
Water temperatures (1972-74): Maximum, 23.0°C Aug. 29, 1973; minimum, freezing point on many days during winter periods.
REMARKS.--Complete ice cover during the winter period.

TEMPERATURE (DEG. C) OF WATER , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.5	9.0	5.5	4.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	13.0	10.5	5.0	4.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	13.5	10.5	4.0	3.0	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0
4	13.5	12.0	3.0	2.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
5	12.0	9.0	2.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	11.5	8.5	1.5	0.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	11.5	9.5	1.5	0.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	13.5	11.0	2.0	0.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	13.5	12.0	1.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	14.5	12.5	1.5	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	14.5	13.5	1.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	14.5	13.5	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	13.5	11.5	2.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	11.5	9.0	2.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
15	11.0	8.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	9.0	6.5	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	7.0	5.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.5
18	7.0	6.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	1.0	0.0
19	8.5	5.5	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	9.0	7.0	2.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
21	9.0	6.0	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
22	10.0	6.5	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
23	10.5	8.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	11.5	9.0	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	11.0	10.0	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	10.0	9.0	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	9.0	7.0	2.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	7.0	6.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	7.0	5.0	1.0	0.5	0.0	0.0	0.0	0.0	---	---	0.0	0.0
30	6.5	4.0	1.0	0.0	0.0	0.0	0.0	0.0	---	---	0.0	0.0
31	5.5	4.5	---	---	0.0	0.0	0.0	0.0	---	---	0.5	0.0
MONTH	14.5	4.0	5.5	0.0	1.5	0.0	0.0	0.0	0.0	0.0	1.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.0	0.0	10.0	7.0	17.0	12.0	18.0	14.0	18.0	14.5	13.5	10.5
2	0.5	0.0	12.0	6.5	16.5	13.0	19.0	16.0	17.5	15.5	13.5	10.5
3	0.5	0.0	11.5	9.0	17.0	12.5	19.0	16.0	16.5	15.0	12.0	9.0
4	0.0	0.0	10.0	6.5	17.5	14.5	19.0	16.5	15.0	14.0	14.0	9.0
5	1.0	0.0	9.0	6.5	20.0	15.0	18.5	14.5	16.0	14.0	15.0	10.0
6	1.5	0.0	6.5	4.5	18.5	15.5	20.5	16.5	18.5	15.5	14.0	11.5
7	2.5	0.0	8.5	3.5	17.0	14.5	21.0	18.0	20.0	17.5	13.5	11.0
8	1.5	0.0	9.5	5.5	18.5	14.5	22.5	17.5	20.5	17.0	15.5	11.0
9	4.5	0.0	9.0	6.5	18.0	15.0	21.5	19.0	21.0	17.0	14.0	11.0
10	5.0	0.5	10.0	7.0	15.0	13.0	22.5	18.0	20.5	18.0	11.0	9.5
11	2.0	1.0	9.5	8.0	15.0	11.0	20.5	17.0	20.0	18.5	14.0	11.0
12	1.0	1.0	8.0	7.5	15.0	12.0	20.5	16.0	20.0	17.5	14.0	12.5
13	1.0	0.5	9.0	6.5	17.5	12.0	22.5	17.5	20.0	16.0	12.5	11.5
14	1.0	0.5	8.5	7.5	16.0	13.0	22.5	19.0	19.5	15.5	11.5	10.5
15	2.0	0.5	9.0	7.0	15.0	12.5	21.5	17.5	20.0	16.0	13.0	11.0
16	2.0	0.5	11.5	7.5	12.5	10.5	20.5	16.0	19.5	17.5	13.0	9.5
17	3.0	1.0	13.5	9.5	10.5	10.0	20.0	18.0	19.5	17.0	12.0	11.5
18	3.0	1.0	12.0	9.5	12.5	10.5	22.0	17.5	18.5	17.0	13.0	9.0
19	3.5	1.0	14.0	8.0	15.0	12.0	21.0	18.5	19.5	15.5	12.5	11.5
20	5.0	1.5	16.0	10.5	17.0	14.0	20.5	15.5	20.5	17.0	10.5	9.0
21	6.5	4.0	18.5	13.0	18.5	14.5	18.5	15.5	20.0	18.5	9.0	8.0
22	6.5	3.5	18.5	15.5	18.0	15.0	19.5	16.0	21.0	18.5	7.5	6.5
23	4.0	2.0	17.5	14.0	16.0	13.0	20.0	16.0	19.5	17.5	9.0	4.5
24	6.0	2.5	14.5	12.0	17.5	12.5	19.5	16.0	17.5	15.5	10.5	7.0
25	8.5	5.0	14.5	10.5	18.5	13.0	19.5	17.0	19.0	15.5	10.5	8.5
26	9.5	5.5	15.0	10.5	19.5	13.5	20.5	17.0	20.0	17.0	12.0	8.5
27	9.5	7.5	15.0	11.0	20.0	14.0	20.5	16.0	18.5	15.5	13.0	9.0
28	12.0	8.5	14.0	12.5	20.5	15.5	20.0	16.5	17.0	13.5	12.5	9.0
29	12.5	9.5	14.0	12.5	19.0	16.5	19.5	17.0	17.5	14.5	9.5	8.0
30	11.0	8.5	14.0	11.5	17.5	14.5	17.5	15.5	15.5	12.0	8.5	7.5
31	---	---	16.5	12.0	---	---	18.0	14.5	15.0	12.5	---	---
MONTH	12.5	0.0	18.5	3.5	20.5	10.0	22.5	14.0	21.0	12.0	15.5	4.5
YEAR	22.5	0.0										

04057812 GREENWOOD AFTERBAY NEAR GREENWOOD, MICH.

LOCATION.--Lat 46°26'32", long 87°48'02", in NW¼ SW¼ sec.27, T.47 N., R.28 W., Marquette County, temperature recorder in control house on downstream side of Greenwood Dam on the Middle Branch Escanaba River, 3.5 miles (5.6 km) southwest of Greenwood.
DRAINAGE AREA.--67.4 mi² (174.6 km²).
PERIOD OF RECORD.--Water temperature: January 1973 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum 24.5°C July 14, 15; minimum,1.0°C Dec. 13-17.
Period of record:
Water temperatures (1973-74): Maximum, 24.5°C July 14, 15, 1974; minimum, freezing point on many days during Januaray to March 1973.
REMARKS.--No temperature record Nov. 8 to Dec. 12. Flow regulated by the multi-port outlets of Greenwood Reservoir. Altitudes of outlets are: (1) 1,478 ft (450.5 m), (2) 1,485 ft (452.6 m), (3) 1,495 ft (455.7 m), and (3) 1,505 ft (458.7 m) above mean sea level. Outlets open were: Oct. 1 to June 3, No. 1; June 3 to July 17, No. 3; July 17 to Sept. 20 Nov. 1 to 3; Sept. 20-30, No. 1.

TEMPERATURE (DEG. C) OF WATER , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.5	11.5	9.0	8.5	---	---	1.5	1.5	1.5	1.5	1.5	1.5
2	11.5	11.5	8.5	8.0	---	---	1.5	1.5	1.5	1.5	1.5	1.5
3	11.5	11.5	8.0	8.0	---	---	1.5	1.5	1.5	1.5	1.5	1.5
4	11.5	11.5	8.0	7.5	---	---	1.5	1.5	1.5	1.5	1.5	1.5
5	11.5	11.5	7.5	5.0	---	---	1.5	1.5	1.5	1.5	1.5	1.5
6	11.5	11.5	6.0	5.0	---	---	1.5	1.5	1.5	1.5	1.5	1.5
7	11.5	11.5	6.0	5.5	---	---	1.5	1.5	1.5	1.5	1.5	1.5
8	12.0	11.5	---	---	---	---	1.5	1.5	1.5	1.5	1.5	1.5
9	12.0	12.0	---	---	---	---	1.5	1.5	1.5	1.5	1.5	1.5
10	12.0	12.0	---	---	---	---	1.5	1.5	1.5	1.5	1.5	1.5
11	12.0	12.0	---	---	---	---	1.5	1.5	1.5	1.5	1.5	1.5
12	12.0	12.0	---	---	---	---	1.5	1.5	1.5	1.5	1.5	1.5
13	12.0	12.0	---	---	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
14	12.0	12.0	---	---	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
15	12.5	12.0	---	---	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
16	12.5	12.0	---	---	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
17	12.0	11.5	---	---	1.5	1.0	1.5	1.5	1.5	1.5	1.5	1.5
18	11.5	11.5	---	---	1.5	1.5	1.5	1.5	1.5	1.5	2.0	1.5
19	11.5	11.5	---	---	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0
20	11.5	11.0	---	---	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0
21	11.0	11.0	---	---	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0
22	11.0	11.0	---	---	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0
23	11.0	11.0	---	---	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0
24	11.0	11.0	---	---	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0
25	11.0	11.0	---	---	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0
26	11.0	11.0	---	---	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0
27	11.0	11.0	---	---	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0
28	11.0	10.5	---	---	1.5	1.5	1.5	1.5	1.5	1.5	2.0	2.0
29	10.0	9.5	---	---	1.5	1.5	1.5	1.5	---	---	2.0	2.0
30	9.5	9.0	---	---	1.5	1.5	1.5	1.5	---	---	2.0	2.0
31	9.0	9.0	---	---	1.5	1.5	1.5	1.5	---	---	2.0	2.0
MONTH	12.5	9.0	---	---	---	---	1.5	1.5	1.5	1.5	2.0	1.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	2.0	2.0	5.0	5.0	13.0	12.0	19.5	18.5	16.5	16.0	15.5	15.5
2	2.0	2.0	5.0	5.0	13.0	12.5	20.5	18.0	16.5	16.5	15.5	15.0
3	2.0	2.0	6.5	5.0	15.5	12.5	19.5	18.5	16.5	16.0	15.0	15.0
4	2.0	2.0	6.5	5.5	16.5	15.5	20.0	19.0	16.0	15.5	15.5	15.0
5	2.0	2.0	6.0	5.5	16.5	16.0	19.5	19.0	16.0	15.5	15.0	15.0
6	2.0	2.0	6.0	6.0	16.5	15.5	20.0	19.5	16.5	15.5	15.5	15.0
7	2.0	2.0	6.0	6.0	16.5	15.0	20.0	20.0	16.0	16.0	15.0	15.0
8	2.0	2.0	6.0	6.0	17.5	16.0	21.0	20.0	16.5	16.0	15.5	15.0
9	2.0	2.0	6.0	6.0	17.0	16.0	21.0	21.0	16.5	16.5	15.5	15.0
10	2.0	2.0	6.5	6.0	16.5	16.0	22.0	21.0	16.5	16.0	15.0	15.0
11	2.0	2.0	6.0	6.0	16.0	15.5	21.5	20.5	16.5	16.0	15.0	14.5
12	2.0	2.0	7.0	6.0	16.0	15.5	21.5	21.0	17.0	16.5	15.0	15.0
13	2.0	2.0	7.0	6.5	17.0	15.5	22.5	21.5	17.5	16.5	15.0	14.5
14	2.0	2.0	7.0	6.5	16.5	16.0	24.5	21.5	16.5	16.5	14.5	14.5
15	2.0	2.0	7.5	7.0	16.5	16.0	24.5	23.0	17.0	16.5	14.5	14.5
16	2.0	2.0	7.0	7.0	16.0	15.0	23.5	23.0	17.0	17.0	15.0	14.5
17	2.0	2.0	7.0	7.0	15.0	15.0	23.0	16.5	17.5	17.0	14.5	14.5
18	2.0	2.0	7.0	7.0	15.0	15.0	22.0	18.5	17.5	17.0	14.5	14.5
19	2.5	2.0	7.0	7.0	16.0	15.0	19.0	18.0	17.0	17.0	14.5	14.5
20	2.5	2.5	7.5	7.0	16.5	15.5	18.0	17.5	17.5	17.0	14.5	13.0
21	2.5	2.5	7.5	7.0	17.0	16.0	17.5	17.5	17.5	17.5	13.0	11.5
22	2.5	2.5	7.5	7.5	17.0	16.5	17.5	17.0	18.5	17.5	12.0	11.0
23	3.0	2.5	7.5	7.5	17.0	16.5	17.0	17.0	18.5	18.0	12.0	12.0
24	3.0	3.0	7.5	7.5	17.5	16.5	17.5	17.0	18.0	17.0	12.0	12.0
25	3.0	3.0	7.5	7.5	17.5	17.0	17.5	17.0	17.0	17.0	12.0	12.0
26	3.0	3.0	12.0	7.5	17.5	17.0	18.5	17.0	18.0	17.0	12.0	12.0
27	3.0	3.0	12.0	11.5	17.5	17.0	18.0	17.0	17.5	17.0	12.0	11.5
28	3.5	3.0	12.0	11.5	18.0	17.5	17.5	17.0	17.5	16.5	11.5	11.5
29	4.0	3.5	11.5	11.0	19.5	17.5	17.0	17.0	17.0	17.0	11.5	11.5
30	5.0	4.0	12.5	11.5	20.0	18.0	17.0	16.5	17.0	16.5	11.5	11.5
31	---	---	13.5	11.5	---	---	16.5	16.0	16.5	15.5	---	---
MONTH	5.0	2.0	13.5	5.0	20.0	12.0	24.5	16.0	14.5	15.5	15.5	11.0
YEAR	24.5	1.0										

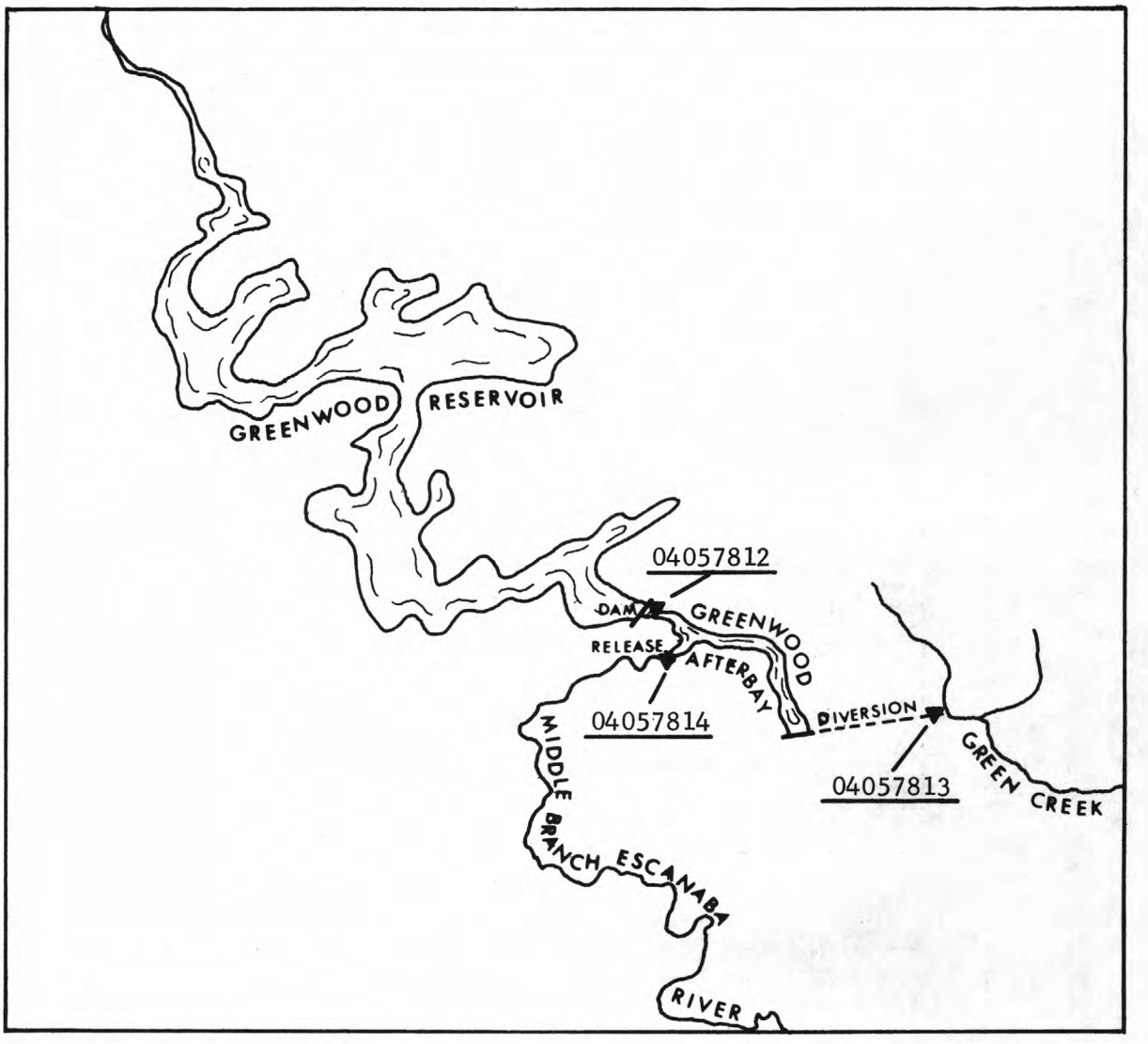

Figure 5.--Location of temperature recorders in the Greenwood Reservoir complex.

Greenwood Reservoir is formed by an earth/rockfill main dam (Greenwood Dam) and several earthfill dikes surrounding the storage area. Storage began Dec. 22, 1972, and the fixed-crest concrete spillway was completed in September 1973. The usable capacity of the reservoir is 23,300 acre-ft (28.7 hm^3) at a spillway elevation of 1515 ft (461.8 m). At pool elevation exceeding 1515 ft, (461.8 m), water flows over the spillway into the Middle Branch Escanaba River below Greenwood Release (04057814). At lower pool elevations, outflow from Greenwood Reservoir into Greenwood Afterbay is completely regulated by the multiport outlet of Greenwood Dam. Greenwood Afterbay has two outlets; one for diversion by pipe line into Green Creek and the second for releasing flows to Middle Branch Escanaba River. Water temperatures are measured directly below Greenwood Dam (Greenwood Afterbay, 04057812), at the gaging station at the downstream end of the diversion from the afterbay to Green Creek (Greenwood Diversion, 04057813), and at the gaging station below the release from the afterbay to Middle Branch Escanaba River (Greenwood Release, 04057814).

04057813 GREENWOOD DIVERSION NEAR GREENWOOD, MICH.

LOCATION.--Lat 46°26'04", long 87°46'10", in NW¼ NE¼ sec.35, T.47 N., R.28 W., Marquette County, temperature recorder at gaging station on left bank at downstream end of pipeline 200 ft (61 m) upstream from Green Creek, 0.7 mile (1.1 km) below Greenwood Afterbay, and 3.6 miles (5.8 km) south of Greenwood.
PERIOD OF RECORD.--Water temperatures: September 1973 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 22.5°C July 18, 19; minimum, 2.0°C Dec. 5-9.
Period of record:
Water temperatures (1973-74): Maximum, 22.5°C July 18, 19, 1974; minimum, 2.0°C Dec. 5-9.
REMARKS.--Flow regulated by inlet structure of pipeline from Greenwood Afterbay 0.7 mile (1.1 km) above station.

TEMPERATURE (DEG. C) OF WATER . WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	10.5	8.0	7.5	3.0	3.0	3.0	3.0	3.0	2.5	3.0	3.0
2	11.0	10.5	7.5	7.5	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
3	11.0	10.5	7.5	7.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
4	10.5	10.5	7.0	6.5	3.0	2.5	3.0	3.0	3.0	2.5	3.0	3.0
5	10.5	10.5	6.5	6.0	2.5	2.0	3.0	3.0	2.5	2.5	3.0	3.0
6	10.5	10.5	6.0	5.5	2.0	2.0	3.0	3.0	2.5	2.5	3.0	3.0
7	10.5	10.5	5.5	5.5	2.0	2.0	3.0	3.0	2.5	2.5	3.0	3.0
8	10.5	10.5	5.5	5.0	2.0	2.0	3.0	3.0	3.0	2.5	3.0	3.0
9	10.5	10.5	5.0	4.0	2.5	2.0	3.0	3.0	2.5	2.5	3.0	3.0
10	11.0	10.5	5.0	4.0	2.5	2.5	3.0	3.0	2.5	2.5	3.5	3.0
11	10.5	10.5	4.5	4.0	2.5	2.5	3.0	3.0	3.0	2.5	3.0	3.0
12	10.5	10.5	4.5	4.5	2.5	2.5	3.0	3.0	3.0	3.0	3.5	3.0
13	10.5	10.5	4.5	4.5	2.5	2.5	3.0	3.0	3.0	3.0	3.5	3.0
14	11.0	10.5	5.0	5.0	2.5	2.5	3.0	3.0	3.0	3.0	3.5	3.0
15	10.5	10.0	5.0	4.5	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0
16	10.0	9.5	4.5	4.0	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0
17	9.5	9.5	4.0	4.0	2.5	2.5	3.0	3.0	3.0	3.0	3.5	3.0
18	9.5	9.5	4.0	3.0	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0
19	10.0	9.5	4.5	4.0	2.5	2.5	3.0	3.0	3.0	3.0	3.5	3.0
20	10.0	9.5	4.5	4.5	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0
21	10.0	9.0	4.5	4.5	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0
22	10.0	9.0	5.0	4.5	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0
23	9.5	9.5	5.0	4.5	2.5	2.5	3.0	3.0	3.0	3.0	3.5	3.0
24	9.5	9.5	4.5	4.0	2.5	2.5	3.0	3.0	3.0	3.0	3.5	3.0
25	9.5	9.0	4.0	4.0	2.5	2.5	3.0	3.0	3.0	3.0	3.5	3.0
26	9.0	9.0	4.0	4.0	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0
27	9.0	9.0	4.0	4.0	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0
28	9.0	8.5	4.0	3.5	2.5	2.5	3.0	3.0	3.0	3.0	3.0	3.0
29	8.5	8.0	3.5	3.0	2.5	2.5	3.0	3.0	---	---	3.0	3.0
30	8.0	8.0	3.0	3.0	3.0	2.5	3.0	3.0	---	---	3.0	3.0
31	8.0	8.0	---	---	3.0	3.0	3.0	2.5	---	---	3.5	3.0
MONTH	11.0	8.0	8.0	3.0	3.0	2.0	3.0	2.5	3.0	2.5	3.5	3.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	3.0	3.0	5.5	4.5	9.5	8.5	11.5	11.0	18.0	17.5	17.0	16.0
2	3.0	3.0	5.5	4.5	10.0	8.5	11.5	11.0	17.5	17.5	16.0	16.0
3	3.0	3.0	5.5	5.0	9.0	8.5	13.0	11.0	17.5	17.5	16.0	15.5
4	3.0	3.0	6.5	5.0	9.0	8.5	11.0	11.0	17.5	17.0	15.5	15.0
5	3.5	3.0	5.5	4.5	8.5	8.0	11.5	11.0	17.0	16.5	15.0	15.0
6	3.0	3.0	6.0	4.5	8.5	8.5	12.0	11.0	17.0	16.5	15.5	15.0
7	3.0	3.0	7.0	4.5	8.5	8.5	11.5	11.0	17.0	17.0	15.5	15.5
8	3.0	3.0	7.0	5.0	9.0	8.5	12.0	11.5	17.5	17.0	15.5	15.5
9	3.5	3.0	6.5	5.0	8.5	8.5	11.5	11.5	17.5	17.5	15.5	15.5
10	3.5	3.5	7.0	5.0	9.0	8.5	11.0	10.5	17.5	17.5	15.5	14.5
11	3.5	3.5	6.0	6.0	9.5	9.0	12.0	11.0	17.5	17.5	14.5	14.5
12	3.5	3.5	6.0	6.0	9.5	9.0	13.5	12.0	18.0	17.5	15.0	14.5
13	3.5	3.5	7.5	6.0	10.0	9.0	15.5	13.5	18.5	18.0	15.0	15.0
14	3.5	3.5	5.5	5.5	9.5	9.0	14.0	15.5	18.5	18.5	15.0	14.0
15	4.0	3.5	7.0	6.5	9.0	9.0	20.0	18.0	18.5	18.5	14.5	13.5
16	4.0	3.5	8.5	7.0	9.0	9.0	21.0	20.0	19.0	18.5	14.0	13.5
17	4.0	3.5	9.5	7.0	9.5	9.0	22.0	21.0	19.5	19.0	14.0	13.5
18	4.0	3.5	7.5	7.0	10.0	9.0	22.5	22.0	19.5	19.0	14.0	13.5
19	4.0	3.5	10.0	7.5	10.5	9.0	22.5	21.5	19.0	18.5	13.5	13.5
20	3.5	3.5	10.0	7.5	10.5	9.5	22.0	21.0	18.5	18.5	13.5	13.5
21	3.5	3.5	10.0	8.0	11.0	9.5	21.0	19.5	19.0	18.5	13.5	13.0
22	3.5	3.5	8.0	7.5	10.0	9.5	19.5	19.0	19.0	19.0	13.0	12.5
23	4.0	3.5	8.0	7.5	11.0	9.5	19.0	18.5	19.5	19.0	12.5	11.5
24	4.0	3.5	8.0	8.0	11.5	10.0	19.0	18.5	19.5	18.5	11.5	11.5
25	4.0	3.0	8.5	7.5	12.0	10.0	19.5	19.0	18.5	18.5	11.5	11.5
26	4.5	4.0	9.0	8.5	12.0	10.0	19.5	19.0	18.5	18.5	11.5	11.5
27	4.5	4.0	9.5	8.0	12.0	10.5	19.5	19.0	19.0	18.5	11.5	11.5
28	4.5	4.0	8.0	8.0	11.5	10.5	19.5	19.0	19.0	18.0	11.5	11.5
29	4.5	4.5	9.0	8.0	11.5	11.0	19.5	19.0	19.0	17.5	11.5	11.5
30	5.5	4.5	8.5	8.0	11.0	10.5	19.5	18.5	17.5	17.5	11.5	11.5
31	---	---	9.0	8.0	---	---	18.5	17.5	17.5	17.0	---	---
MONTH	5.5	3.0	10.0	4.5	12.0	8.0	22.5	10.5	19.5	16.5	17.0	11.5
YEAR	22.5	2.0										

04057814 GREENWOOD RELEASE NEAR GREENWOOD, MICH.

LOCATION.--Lat 46°26'22", long 87°47'52", in NW¼ SW¼ sec.27, T.47 N., R.28 W., Marquette County, temperature recorder at gaging station on left bank at the outlet of Greenwood Afterbay, 3.8 miles (6.1 km) southwest of Greenwood.
DRAINAGE AREA.--67.4 mi² (174.6 km²) including that of Greenwood Diversion.
PERIOD OF RECORD.--Water temperatures: September 1973 to September 1974.
EXTREMES.--1973-74:
Water temperature: Maximum, 23.5°C July 14, 15; minimum, 1.0°C on many days during December and January.
Period of Record:
Water temperature (1973-74): Maximum, 23.5°C July 14, 15, 1974; minimum, 1.0°C on many days during winter period.
REMARKS.--Flow regulated by valve at outlet of Greenwood Afterbay. No temperature record Oct. 24 to Nov. 7.

TEMPERATURE (DEG. C) OF WATER , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	10.5	10.0	---	---	2.0	1.5	1.0	1.0	1.5	1.5	1.5	1.5
2	11.0	11.0	---	---	2.0	2.0	1.0	1.0	1.5	1.5	1.5	1.5
3	11.0	11.0	---	---	2.0	2.0	1.0	1.0	1.5	1.5	1.5	1.5
4	11.5	11.0	---	---	2.0	1.5	1.0	1.0	1.5	1.5	1.5	1.5
5	11.0	10.5	---	---	1.5	1.0	1.0	1.0	1.5	1.5	1.5	1.5
6	10.5	10.0	---	---	1.5	1.0	1.0	1.0	1.5	1.5	1.5	1.5
7	10.5	10.5	---	---	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5
8	10.5	10.5	5.5	4.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5
9	11.0	10.5	4.5	4.0	1.5	1.0	1.0	1.0	1.5	1.5	1.5	1.5
10	11.5	11.0	4.0	3.5	1.5	1.0	1.0	1.0	1.5	1.5	1.5	1.5
11	11.5	11.5	4.5	3.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5
12	11.5	11.5	4.5	4.5	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5
13	11.5	11.0	4.5	4.5	1.0	1.0	1.5	1.0	1.5	1.5	1.5	1.5
14	12.0	10.5	4.5	4.0	1.0	1.0	1.5	1.0	1.5	1.5	1.5	1.5
15	10.5	10.0	4.0	3.0	1.0	1.0	1.0	1.0	1.5	1.5	1.5	1.5
16	10.0	9.5	3.0	2.5	1.0	1.0	1.5	1.0	1.5	1.5	1.5	1.5
17	9.5	9.0	2.5	2.5	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
18	9.0	9.0	3.0	2.5	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
19	9.5	9.0	3.0	2.5	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
20	10.0	10.0	3.0	2.5	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
21	10.0	10.0	4.0	3.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
22	11.0	10.5	4.0	2.5	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
23	11.5	11.5	3.0	2.5	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
24	---	---	3.0	2.5	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
25	---	---	3.0	2.5	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
26	---	---	3.0	3.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
27	---	---	3.0	3.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
28	---	---	3.0	2.0	1.0	1.0	1.5	1.5	1.5	1.5	1.5	1.5
29	---	---	1.5	1.5	1.0	1.0	1.5	1.5	---	---	1.5	1.5
30	---	---	2.0	1.5	1.0	1.0	1.5	1.5	---	---	1.5	1.5
31	---	---	---	---	1.0	1.0	1.5	1.5	---	---	2.0	1.5
MONTH	---	---	---	---	2.0	1.0	1.5	1.0	1.5	1.5	2.0	1.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	2.0	1.5	7.0	6.0	15.5	13.0	20.5	19.0	18.0	16.0	16.0	14.5
2	1.5	1.5	8.5	6.0	14.5	13.5	20.5	19.5	17.0	16.5	15.5	14.5
3	1.5	1.5	9.0	7.5	15.0	13.5	20.5	20.5	17.0	16.0	15.5	14.0
4	1.5	1.5	9.0	6.5	17.5	15.5	20.5	19.5	17.0	16.5	16.0	14.0
5	1.5	1.5	8.0	6.5	17.0	16.5	20.5	19.0	18.5	16.5	15.5	14.5
6	1.5	1.5	7.0	5.5	17.0	17.0	21.5	20.0	19.0	16.0	15.0	14.0
7	2.0	1.5	8.0	6.0	17.0	16.5	21.5	21.5	18.0	17.0	15.0	14.5
8	2.0	1.5	8.0	7.0	18.0	15.5	23.0	21.5	19.0	17.5	16.0	14.0
9	2.0	1.5	8.0	7.0	18.0	16.5	22.0	21.5	19.0	17.5	15.0	14.0
10	2.0	1.5	8.0	7.0	16.5	15.0	22.0	22.0	18.5	17.5	14.0	13.5
11	2.0	2.0	8.0	7.0	16.5	14.5	22.0	21.5	18.0	17.0	14.5	13.5
12	2.0	1.5	7.0	7.0	16.0	15.0	22.0	21.0	18.0	16.5	14.5	14.0
13	2.0	1.5	8.5	6.5	17.5	15.0	22.5	21.5	19.0	16.5	14.0	13.5
14	2.0	2.0	8.0	7.5	17.5	16.0	23.5	22.5	18.0	16.5	14.0	13.5
15	2.5	1.5	8.0	7.0	16.5	15.5	23.5	23.0	17.5	17.0	14.0	13.5
16	3.0	2.0	9.0	7.5	15.0	14.0	23.0	23.0	19.0	17.5	14.5	13.5
17	3.5	2.5	11.0	8.5	14.0	14.0	23.0	23.0	19.0	17.0	14.5	13.5
18	3.5	2.5	10.0	8.5	15.5	14.0	23.0	21.0	18.5	17.0	14.5	13.0
19	3.5	2.5	10.5	8.0	17.5	14.5	21.5	19.5	18.0	17.0	14.0	14.0
20	3.5	3.5	11.0	9.0	17.0	15.5	21.0	18.0	18.0	17.5	14.0	12.5
21	4.0	3.5	14.5	10.0	19.0	16.0	18.5	17.5	18.0	17.5	12.5	11.0
22	4.5	2.5	14.0	11.5	18.5	16.5	18.0	17.0	19.5	17.5	11.0	10.0
23	4.0	3.0	12.0	10.0	18.0	15.5	18.5	17.0	19.0	17.5	11.0	10.0
24	4.5	3.0	10.0	9.0	19.5	16.5	18.5	17.5	18.0	17.0	12.0	11.0
25	6.0	4.0	11.0	8.5	19.0	17.0	18.0	17.0	17.0	17.0	12.0	11.0
26	6.5	4.5	11.5	8.5	20.0	17.5	19.0	17.5	19.0	17.0	13.0	11.5
27	6.5	5.5	12.5	10.5	20.5	18.0	19.0	17.5	18.5	16.0	13.5	11.5
28	9.0	6.0	13.0	12.5	20.0	18.5	19.0	17.0	17.5	16.0	13.0	11.0
29	8.5	6.5	13.5	12.5	20.0	19.0	18.5	17.0	17.0	16.0	11.0	10.0
30	8.0	6.0	13.5	12.0	20.0	19.0	17.5	16.5	17.0	15.5	10.5	10.0
31	---	---	15.0	13.0	---	---	17.5	16.0	17.0	15.0	---	---
MONTH	9.0	1.5	15.0	5.5	20.5	13.0	23.5	16.0	19.5	15.0	16.0	10.0
YEAR	23.5	1.0										

04057820 MIDDLE BRANCH ESCANABA RIVER NEAR GREENWOOD, MICH.

evised).--Lat 46°25'12", long 87°47'50", in NW¼ sec.3, T.46 N., R.28 W., Marquette County, temperature recorder at gaging on right bank, 10 ft (3 m) downstream from county highway bridge, 100 ft (30.5 m) downstream from Belle Creek and 5 miles southwest of Greenwood.
EA.--73.3 mi² (189.8 km²).
ECORD.--Water temperatures: August 1973 to September 1974.
1973-74:
emperatures: Maximum, 26.0°C July 8; minimum, freezing point on many days during December to March.
f record:
temperatures (1973-74): Maximum, 26.0°C July 8, 1974; minimum, freezing point on many days during winter period.
Flow regulated by Greenwood Release 2.1 mi (3.4 km) above station. No temperature record May 24 to June 4.

TEMPERATURE (DEG. C) OF WATER , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
12.5	10.0	6.5	5.0	1.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0
13.5	11.0	6.0	5.5	2.0	1.5	1.0	0.5	0.0	0.0	0.5	0.0
14.0	12.0	5.5	4.5	2.0	2.0	1.0	0.0	0.0	0.0	1.5	0.5
13.5	12.0	4.5	4.0	2.0	0.5	0.5	0.0	0.0	0.0	1.0	0.5
12.5	10.5	4.0	2.5	0.5	0.5	0.5	0.0	0.5	0.0	1.5	0.0
11.5	10.0	3.0	2.5	0.5	0.5	0.0	0.0	0.5	0.0	2.0	0.5
11.5	10.0	4.0	3.0	0.5	0.5	1.0	0.0	0.0	0.0	2.0	0.5
13.0	11.5	4.0	2.5	0.5	0.5	1.0	0.0	0.0	0.0	0.5	0.0
13.0	12.5	3.0	2.5	0.5	0.5	0.0	0.0	0.5	0.0	1.0	0.0
14.0	12.5	3.0	2.5	0.5	0.5	1.0	0.0	0.0	0.0	1.5	0.0
14.0	14.0	3.5	3.0	0.5	0.5	0.0	0.0	0.0	0.0	1.5	0.0
14.5	13.5	4.0	3.5	0.5	0.5	0.5	0.0	0.0	0.0	1.5	0.0
13.5	11.5	3.5	3.0	0.5	0.5	1.0	0.0	0.0	0.0	1.0	0.0
11.5	10.0	3.5	3.0	0.5	0.5	0.0	0.0	0.5	0.0	0.5	0.0
11.0	9.5	3.5	2.5	0.5	0.5	0.0	0.0	0.5	0.0	1.5	0.5
9.5	8.0	2.5	2.0	0.5	0.5	0.0	0.0	0.0	0.0	1.5	0.5
8.0	7.0	2.5	1.5	1.0	0.5	0.0	0.0	0.0	0.0	1.5	0.0
8.5	7.5	3.0	2.5	0.5	0.5	0.0	0.0	0.0	0.0	0.5	0.0
9.0	7.0	3.0	2.5	0.5	0.0	0.0	0.0	0.0	0.0	1.5	0.0
9.5	8.5	3.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
9.5	7.5	4.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.0	8.0	3.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.5	9.5	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.5	10.5	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0
11.5	11.0	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11.0	10.0	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10.0	8.5	3.0	2.5	0.0	0.0	0.5	0.0	0.0	0.0	0.0	0.0
8.5	8.0	3.0	1.5	0.0	0.0	0.5	0.5	0.0	0.0	1.5	0.0
8.0	7.0	1.5	1.5	0.0	0.0	0.5	0.5	---	---	1.5	0.5
7.5	6.5	1.5	1.5	0.0	0.0	0.5	0.5	---	---	0.5	0.5
7.0	6.5	---	---	0.5	0.0	0.5	0.0	---	---	2.0	0.5
14.5	6.5	6.5	1.5	2.0	0.0	1.0	0.0	0.5	0.0	2.0	0.0

APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
2.0	0.5	7.5	6.5	---	---	22.0	18.5	18.0	15.5	15.0	13.0
1.5	0.5	9.5	6.5	---	---	21.5	19.5	18.0	16.5	15.5	13.5
1.5	0.5	9.5	8.0	---	---	22.0	21.0	17.5	16.0	15.0	12.5
0.5	0.5	10.0	7.5	---	---	21.0	19.5	17.0	16.5	16.0	13.0
3.5	0.5	9.0	7.5	20.5	16.5	21.5	18.5	18.0	15.5	16.5	13.0
3.0	0.5	8.0	7.0	18.5	17.5	23.0	19.5	20.0	16.0	15.5	13.5
3.0	1.0	10.0	6.5	17.5	17.0	23.5	21.0	19.5	17.5	15.0	13.5
3.0	0.5	11.0	7.0	19.5	16.0	26.0	21.5	20.5	17.0	16.5	14.0
4.0	1.0	10.5	7.5	19.0	16.5	25.0	22.0	20.5	17.5	16.0	13.5
4.5	1.0	10.5	8.0	16.5	15.0	23.5	22.0	21.0	18.0	14.0	13.5
3.5	2.0	8.5	8.0	17.5	14.0	23.5	20.0	20.0	19.0	16.0	14.0
2.0	2.0	8.5	8.0	17.0	14.5	23.0	19.5	20.0	17.5	15.5	14.0
3.0	2.0	10.0	7.5	18.5	15.0	25.5	21.5	20.5	17.0	14.0	13.5
2.5	1.5	9.0	8.0	17.0	15.5	25.5	22.5	19.5	17.0	14.0	13.0
3.5	0.5	8.5	8.0	17.0	15.0	24.5	22.5	20.0	17.0	14.5	13.5
4.0	1.5	10.5	8.0	15.0	14.5	24.5	21.5	21.5	18.5	15.0	14.0
4.0	2.0	12.0	8.5	14.5	14.5	24.0	22.5	21.0	17.5	14.0	12.5
4.0	2.0	10.0	9.0	15.0	14.5	24.5	22.0	20.0	18.0	14.0	11.0
4.5	1.5	13.0	8.5	17.0	14.5	22.5	19.5	21.0	17.0	14.0	12.5
5.0	2.5	13.5	10.0	17.0	15.5	21.0	18.0	21.0	18.0	13.0	11.5
6.0	3.5	15.5	10.5	19.5	16.5	19.5	16.5	20.0	18.5	12.0	10.5
3.5	2.5	17.0	12.0	18.0	16.5	19.5	17.0	21.0	18.5	10.5	9.0
3.0	2.5	14.5	13.5	18.0	16.0	20.5	16.5	19.5	17.5	10.5	8.0
4.0	2.5	---	---	19.5	15.5	19.5	17.0	18.0	16.5	12.5	10.0
4.0	2.5	---	---	20.5	16.0	19.5	18.0	19.5	17.0	12.5	11.5
5.0	3.5	---	---	21.5	16.5	21.5	18.0	20.5	18.0	13.0	10.5
4.5	4.0	---	---	22.5	18.0	21.0	16.5	19.5	16.5	13.5	11.5
6.0	4.5	---	---	22.5	18.5	21.0	17.5	17.5	15.5	13.5	11.0
7.0	5.5	---	---	21.5	19.0	20.0	18.0	18.5	16.0	11.0	10.0
7.5	5.5	---	---	21.5	18.0	18.0	16.5	16.5	14.0	10.5	9.5
---	---	---	---	---	---	18.0	16.0	17.0	15.0	---	---
7.5	0.5	---	---	22.5	14.0	26.0	16.0	21.5	14.0	16.5	8.0
26.0	0.0										

04058000 MIDDLE BRANCH ESCANABA RIVER NEAR ISHPEMING, MICH.

LOCATION.--Lat 46°23'40", long 87°45'30", in NW¼ SE¼ sec.12, T.46 N., R.28 W., Marquette County, temperature recorder at gaging station on on bank 0.5 mi (0.8 km) downstream from County Highway 581, 6 mi (10 km) southwest of Ishpeming, and 10 mi (16 km) east of Republic.
DRAINAGE AREA.--128 mi² (332 km²).
PERIOD OF RECORD.--Water temperatures: August 1961 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 24.0°C July 8, 9, 13, 14; minimum, freezing point on many days during December to March.
Period of record:
Water temperatures (1961-74): Maximum, 25.5°C July 1, 2, 1963, July 21, 1964; minimum, freezing point on many days during winter periods.
REMARKS.--Complete ice cover during winter period.

TEMPERATURE (DEG. C) OF WATER , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.5	11.0	5.5	5.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
2	12.0	11.5	5.5	5.0	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0
3	12.5	12.0	5.0	4.0	2.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0
4	12.5	12.5	4.0	3.5	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
5	12.5	11.5	3.5	1.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
6	11.5	11.0	1.5	1.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
7	11.0	11.0	1.5	1.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
8	12.0	11.0	1.5	1.5	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
9	13.0	12.0	1.5	1.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
10	14.0	13.0	1.5	1.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
11	14.5	14.0	2.0	1.5	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
12	14.5	14.5	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
13	14.5	13.0	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
14	13.0	11.0	2.5	2.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	11.0	10.0	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	10.0	8.5	2.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	8.5	8.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	8.0	8.0	2.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	8.0	8.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	8.0	7.5	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	8.0	8.0	3.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	8.5	8.0	3.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	9.0	8.5	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	10.0	9.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	9.5	9.5	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	9.5	9.5	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	9.5	8.5	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	8.5	7.5	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	7.5	6.5	2.0	1.5	0.0	0.0	0.0	0.0	---	---	0.0	0.0
30	6.5	6.0	1.5	1.5	0.0	0.0	0.0	0.0	---	---	0.0	0.0
31	6.0	5.5	---	---	0.0	0.0	0.0	0.0	---	---	0.5	0.0
MONTH	14.5	5.5	5.5	1.0	2.0	0.0	0.0	0.0	0.0	0.0	0.5	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.5	0.5	7.5	6.5	16.5	14.5	20.5	18.0	18.0	16.0	16.0	14.5
2	1.0	0.5	10.0	7.0	17.0	15.5	20.5	19.5	17.5	17.0	15.5	14.0
3	1.0	0.5	9.5	8.5	17.5	15.0	21.0	20.5	17.0	16.0	15.0	13.0
4	0.5	0.5	9.5	7.0	18.0	16.0	21.0	19.5	16.5	15.5	15.0	12.5
5	1.0	0.5	10.0	8.0	19.5	17.5	20.5	18.0	17.5	15.0	15.5	13.5
6	1.5	1.0	8.0	7.0	19.5	18.0	22.0	19.5	18.5	16.0	15.5	14.0
7	2.0	1.0	9.0	6.5	18.0	18.0	22.5	20.5	19.0	17.5	15.0	14.0
8	1.5	0.5	9.5	7.0	19.0	17.0	24.0	21.0	19.0	17.0	15.5	14.5
9	3.0	1.0	9.5	7.5	18.5	16.5	24.0	22.5	19.5	17.0	15.5	14.0
10	3.0	1.5	10.0	8.0	16.5	16.0	23.0	22.0	19.5	18.0	14.0	13.5
11	3.0	2.0	10.0	8.5	16.5	14.5	22.0	19.5	19.0	19.0	15.0	13.0
12	2.0	1.5	8.5	8.5	16.5	15.0	21.5	18.5	19.0	18.0	15.0	14.0
13	1.5	1.0	9.0	8.0	17.0	15.0	24.0	20.5	19.0	17.0	14.5	13.5
14	1.0	1.0	9.5	9.0	17.0	15.0	24.0	22.0	18.5	17.0	13.5	12.5
15	1.0	0.5	9.5	9.0	16.0	15.0	23.0	21.0	19.0	17.0	14.0	13.0
16	1.0	1.0	11.5	9.0	15.0	14.0	22.0	19.0	20.0	18.5	13.5	12.5
17	1.0	0.5	12.5	10.0	14.0	13.5	22.0	21.0	19.5	17.5	13.5	13.0
18	1.0	0.5	12.5	10.5	15.0	13.5	23.0	20.5	19.0	17.0	13.5	11.5
19	1.5	0.5	13.0	10.0	16.5	14.5	23.0	20.0	19.0	16.5	13.5	13.0
20	3.0	1.0	14.0	11.0	17.0	16.0	21.0	17.5	19.5	18.0	13.0	11.5
21	5.0	3.0	16.0	13.0	18.5	16.5	20.5	17.5	19.5	19.0	11.5	10.5
22	5.0	3.0	17.0	14.5	18.5	17.0	19.5	17.5	20.5	19.0	10.5	9.5
23	3.0	2.0	17.5	15.5	17.0	16.0	19.5	17.0	20.0	18.0	9.5	8.0
24	4.0	2.0	15.5	14.0	18.0	15.0	19.5	17.5	18.0	16.5	10.5	9.5
25	5.5	3.0	14.5	13.0	18.5	15.5	19.0	18.5	18.0	16.5	11.5	10.5
26	6.0	4.0	15.5	12.5	19.5	16.0	21.0	18.5	19.5	18.0	11.5	10.5
27	6.0	5.0	15.0	13.0	21.0	17.5	20.0	17.0	19.0	17.0	12.5	11.0
28	7.5	5.5	15.0	14.0	21.0	18.5	20.5	17.5	18.0	15.5	12.5	11.0
29	8.0	6.5	15.0	14.5	21.0	18.5	20.0	18.0	18.0	16.5	11.0	10.0
30	8.0	7.0	14.5	13.5	19.5	17.5	18.5	17.0	17.5	15.0	10.0	10.0
31	---	---	16.5	14.5	---	---	17.5	16.0	16.0	15.5	---	---
MONTH	8.0	0.5	17.5	6.5	21.0	13.5	24.0	16.0	20.5	15.0	16.0	8.0
YEAR	24.0	0.0										

04059500 FORD RIVER NEAR HYDE, MICH.

LOCATION.--Lat 45°45'20", long 87°12'05", in SW¼ sec. 19, T.39 N., R.23 W., Delta County, temperature recorder at gaging station on right bank 40 ft (12 m) downstream from county highway bridge, 1.4 mi (2.3 km) downstream from Ten Mile Creek, and 1.5 mi (2.4 km) north of Hyde.
DRAINAGE AREA.--450 mi² (1166 km²).
PERIOD OF RECORD.--Water temperatures: July 1956 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 27.5°C July 8, 9; minimum, freezing point on many days during December to April.
Period of record:
Water temperatures (1956-74): Maximum, 30.5°C July 21, 1964; minimum, freezing point on many days during winter months.
REMARKS.--Complete ice cover during the winter period. No temperature record Nov. 7-14, 17, 18.

TEMPERATURE (DEG. C) OF WATER , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	12.5	11.0	6.5	5.5	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0
2	12.5	12.0	6.0	5.0	2.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
3	14.5	12.0	5.0	4.5	3.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0
4	14.5	12.5	4.5	3.0	3.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0
5	12.5	10.5	3.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	11.5	10.5	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	12.0	10.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	13.5	12.0	1.0	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	13.5	13.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	16.0	13.5	1.5	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	16.0	15.5	1.5	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	15.5	15.0	1.5	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	15.0	13.0	1.0	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	13.0	10.5	2.0	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	12.0	10.5	2.0	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	10.5	8.0	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	8.0	7.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	7.0	6.5	1.5	---	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	8.5	6.5	2.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	9.5	8.5	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	9.0	7.5	5.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	9.5	8.0	5.0	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	11.0	9.5	4.0	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	12.0	10.5	2.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	12.5	11.5	2.5	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	12.0	9.5	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	9.5	8.0	3.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	8.0	6.0	3.5	2.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	6.5	5.5	2.5	1.5	0.0	0.0	0.0	0.0	---	---	0.0	0.0
30	7.5	6.5	1.5	1.0	0.0	0.0	0.0	0.0	---	---	0.0	0.0
31	7.5	6.5	---	---	0.0	0.0	0.0	0.0	---	---	0.0	0.0
MONTH	16.0	5.5	6.5	---	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.0	0.0	12.0	9.5	17.0	14.0	24.0	20.5	21.5	19.5	17.0	15.0
2	0.0	0.0	13.0	9.0	17.5	15.5	24.0	22.0	21.5	20.5	16.5	15.0
3	0.0	0.0	13.0	11.0	18.0	15.0	23.0	22.0	21.5	19.5	15.5	13.5
4	0.0	0.0	12.0	9.5	19.5	16.5	23.0	21.5	21.0	18.0	16.0	13.5
5	0.0	0.0	12.0	8.5	21.5	17.5	23.0	19.0	20.0	16.5	17.0	14.5
6	0.0	0.0	9.0	6.5	21.5	18.5	25.5	22.0	22.0	17.5	17.5	15.0
7	0.0	0.0	10.5	6.5	18.5	17.5	26.0	23.0	22.5	19.0	16.5	15.0
8	0.0	0.0	10.5	7.5	21.0	17.0	27.5	24.0	22.5	20.0	17.5	16.0
9	0.0	0.0	11.5	8.5	21.0	17.0	27.5	26.5	23.5	20.5	18.0	14.0
10	0.0	0.0	13.0	8.5	17.0	16.0	26.5	22.0	23.5	21.5	14.0	13.0
11	0.0	0.0	12.0	9.5	16.0	13.5	23.0	20.0	23.5	21.5	16.0	13.0
12	0.0	0.0	9.5	8.5	16.5	14.0	22.5	20.0	21.5	19.5	16.0	15.0
13	0.5	0.0	10.5	7.5	19.0	15.0	26.0	21.0	21.5	19.5	15.0	14.0
14	0.5	0.5	10.5	9.0	18.5	15.5	27.0	24.0	21.5	19.0	14.5	12.5
15	1.5	0.5	11.0	10.0	18.0	15.0	26.0	23.0	21.5	18.5	14.5	13.0
16	3.5	0.5	13.0	10.0	15.0	13.0	24.0	21.0	21.5	20.5	14.5	12.0
17	4.5	1.0	15.0	11.0	13.0	12.5	24.0	21.5	21.5	19.5	14.5	13.5
18	5.0	2.5	15.0	12.0	15.5	12.5	25.0	21.0	21.5	20.0	13.5	10.5
19	5.5	3.0	15.0	11.0	18.5	14.0	25.0	23.0	21.5	19.0	14.0	13.0
20	5.5	4.0	17.0	12.5	19.0	16.5	24.5	21.5	22.5	20.5	13.5	11.5
21	8.0	5.5	17.5	14.5	21.5	18.0	23.5	21.0	23.0	21.5	12.0	10.5
22	8.0	6.5	21.5	17.0	21.0	18.0	22.5	21.0	23.0	21.0	10.0	8.5
23	6.5	5.0	21.5	17.5	18.5	15.5	24.5	21.5	21.5	19.0	10.0	7.5
24	7.0	4.5	18.0	15.5	19.5	15.5	24.5	22.5	19.0	17.5	11.5	9.5
25	8.0	6.0	17.0	14.5	20.5	16.5	24.0	22.5	20.5	17.0	12.5	11.0
26	9.5	6.5	17.0	13.5	21.5	17.5	25.0	22.0	21.5	19.5	13.5	11.5
27	9.5	8.0	18.0	14.5	22.5	19.5	25.0	22.0	21.5	19.0	14.5	12.5
28	12.5	9.0	18.0	16.0	23.5	20.5	23.5	22.0	20.0	17.5	14.5	12.5
29	13.0	11.0	17.0	16.0	24.0	20.0	24.0	22.0	19.5	17.5	12.5	11.0
30	12.5	10.5	17.0	15.0	23.0	20.0	22.0	20.5	18.5	16.0	11.5	10.5
31	---	---	17.0	14.0	---	---	21.0	19.5	18.5	16.0	---	---
MONTH	13.0	0.0	21.5	6.5	24.0	12.5	27.5	19.0	23.5	16.0	18.0	7.5
YEAR	27.5	0.0										

04062200 PESHEKEE RIVER NEAR CHAMPION, MICH.

LOCATION.--Lat 46°33'25", long 88°00'09", in NW¼ sec.13, T.48 N., R.30 W., Marquette County, temperature recorder at gaging station on left bank 10 ft (3 m) downstream from bridge on county highway, 0.6 mi (1.0 km) downstream from West Branch, and 3.5 mi (5.6 km) northwest of Champion.
DRAINAGE AREA.--133 mi^2 (344 km^2).
PERIOD OF RECORD.--Water temperatures: August 1961 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 27.0°C July 13, 14; minimum, freezing point on many days during November to April.
Period of record:
Water temperatures: (1961-74): Maximum, 28.5°C July 1, 1966; minimum, freezing point on many days during winter periods.
REMARKS.--Complete ice cover during winter period. Unpublished water temperatures for water year 1963 are available in the Escanaba sub-office.

TEMPERATURE (DEG. C) OF WATER . WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	14.5	12.0	5.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
2	14.5	13.0	4.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
3	14.0	12.5	4.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
4	14.0	13.0	3.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	13.0	11.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	12.0	10.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	13.0	11.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
8	14.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
9	14.0	13.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
10	15.0	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
11	15.0	15.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	15.5	14.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
13	14.0	12.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
14	12.0	10.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
15	11.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
16	10.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
17	8.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
18	7.5	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
19	8.0	7.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
20	9.0	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
21	8.0	6.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	9.0	7.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	9.5	8.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	10.5	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	10.5	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	10.0	9.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	9.0	8.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	8.0	6.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	6.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	---	---	0.0	0.0
30	5.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0	---	---	0.0	0.0
31	5.0	4.5	---	---	0.0	0.0	0.0	0.0	---	---	0.0	0.0
MONTH	15.5	4.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.0	0.0	9.5	8.5	15.0	13.5	21.0	18.0	20.0	16.0	16.0	13.5
2	0.0	0.0	9.5	7.5	15.5	14.5	20.5	19.5	19.5	17.5	15.5	13.5
3	0.0	0.0	9.5	9.0	16.5	14.5	20.5	20.0	17.0	15.5	14.5	12.0
4	0.0	0.0	9.0	7.5	18.0	16.0	20.5	19.0	16.0	15.0	15.5	12.0
5	0.0	0.0	9.0	7.0	19.0	17.0	20.5	18.0	17.0	15.0	17.0	12.5
6	0.0	0.0	7.0	6.0	19.0	18.5	22.5	19.5	18.0	16.5	16.5	14.0
7	0.0	0.0	7.5	5.5	18.5	18.0	23.0	21.0	19.0	17.5	16.0	13.5
8	0.0	0.0	8.5	6.0	19.0	17.0	25.0	21.5	20.0	18.0	17.0	14.0
9	0.0	0.0	8.5	7.5	19.0	16.5	25.0	23.0	20.5	18.0	16.0	13.5
10	0.0	0.0	9.0	7.5	16.5	14.5	25.5	23.0	20.5	19.0	13.5	13.0
11	0.0	0.0	9.5	8.5	15.0	13.5	24.5	21.0	21.0	19.5	14.5	13.0
12	0.0	0.0	8.5	8.0	15.0	14.0	24.5	20.5	20.0	18.5	14.5	13.5
13	0.0	0.0	8.5	7.0	16.5	14.0	27.0	22.0	20.5	17.5	13.5	12.5
14	0.0	0.0	8.5	7.5	16.0	15.0	27.0	23.5	20.0	17.5	13.0	12.0
15	0.0	0.0	7.5	7.0	16.0	14.5	26.0	22.5	20.5	18.0	13.0	12.0
16	0.0	0.0	10.0	8.0	14.5	12.5	25.0	20.5	20.0	19.0	13.0	11.0
17	0.0	0.0	11.5	9.5	12.5	12.0	24.5	22.0	20.0	18.0	12.5	12.0
18	0.0	0.0	11.5	10.5	13.5	12.0	25.0	22.0	19.0	17.5	12.5	10.0
19	0.0	0.0	12.5	9.5	15.0	13.5	24.0	21.0	20.0	16.5	12.5	12.0
20	1.0	0.0	14.0	11.5	16.5	15.0	23.0	18.5	23.0	18.0	11.5	10.0
21	2.5	1.0	16.0	13.0	18.0	16.0	22.0	18.5	22.5	21.5	10.5	8.5
22	2.5	2.0	16.0	14.5	18.0	16.5	21.5	18.5	23.0	21.5	8.5	7.5
23	2.0	1.5	15.5	14.5	17.0	15.5	22.5	18.0	22.0	20.0	8.5	6.5
24	3.5	1.5	14.5	12.5	18.0	15.0	22.0	18.5	20.0	18.5	9.5	7.0
25	5.5	3.5	13.0	11.5	19.0	15.0	21.0	19.5	21.0	18.5	10.0	9.0
26	7.0	5.5	13.5	11.5	19.5	16.0	23.0	18.5	22.5	19.5	11.0	9.0
27	7.5	7.0	14.0	12.0	21.0	17.0	22.5	18.0	21.5	18.5	12.0	10.0
28	9.0	7.5	14.0	13.5	22.5	19.0	22.5	18.0	19.0	16.0	12.0	10.0
29	9.5	8.5	14.0	13.5	21.5	19.5	21.0	19.0	19.0	17.0	10.0	9.0
30	9.5	9.0	13.5	13.0	20.5	18.0	19.5	18.0	18.0	15.0	9.5	8.0
31	---	---	15.0	13.0	---	---	19.5	16.5	17.0	15.0	---	---
MONTH	9.5	0.0	16.0	5.5	22.5	12.0	27.0	16.5	23.0	15.0	17.0	6.5
YEAR	27.0	0.0										

04065500 STURGEON RIVER NEAR FOSTER CITY, MICH.

LOCATION.--Lat 45°54'30", long 87°45'15", in NW¼ sec.36, T.41 N., R.28 W., Dickinson County, temperature recorder at gaging station on left bank 30 ft (9.1 m) downstream from bridge on County Highway 569, 1.8 mi (2.9 km) downstream from confluence of East and West Branches, and 4.0 mi (6.4 km) south of Foster City.
DRAINAGE AREA.--237 mi^2 (614 km^2).
PERIOD OF RECORD.--Water temperatures: July 1956 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 27.0°C July 14; minimum, freezing point on many days during December to March.
Period of record:
Water temperatures (1956-74): Maximum, 30.0°C July 1, 1963; minimum, freezing point on many days during winter periods.
REMARKS.--Complete ice cover during winter period. Recorder stopped, December 7 to January 2, range in temperature 0.0°C to 0.5°C.

TEMPERATURE (DEG. C) OF WATER , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	13.5	11.5	6.0	6.0	0.5	0.5	---	---	0.0	0.0	0.0	0.0
2	13.0	12.0	6.0	5.0	1.0	0.5	---	---	0.0	0.0	0.0	0.0
3	14.0	11.5	5.0	4.5	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0
4	14.0	13.0	4.5	3.5	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
5	13.0	11.0	3.5	1.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	12.0	10.5	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
7	11.0	10.5	1.0	0.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0
8	13.0	11.0	1.0	0.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0
9	13.5	13.0	0.5	0.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0
10	15.0	13.5	1.0	0.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0
11	15.5	15.0	1.0	1.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
12	15.5	15.0	1.0	1.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
13	15.0	13.5	1.5	1.0	---	---	0.0	0.0	---	---	0.0	0.0
14	13.5	12.0	2.0	1.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
15	12.0	10.5	2.0	1.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0
16	10.5	8.5	1.5	1.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
17	8.5	7.0	1.0	0.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0
18	7.5	6.5	1.5	1.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
19	8.5	6.5	2.5	1.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0
20	9.5	8.0	2.0	2.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
21	9.5	7.5	3.5	2.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
22	10.0	8.0	3.5	3.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0
23	11.0	9.0	3.5	2.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0
24	12.0	10.0	2.5	2.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
25	11.5	11.0	2.0	1.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0
26	11.5	10.5	2.0	2.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
27	10.5	8.5	3.0	2.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
28	8.5	7.0	3.0	2.0	---	---	0.0	0.0	0.0	0.0	0.0	0.0
29	7.0	6.0	2.0	1.0	---	---	0.0	0.0	---	---	0.0	0.0
30	6.5	5.5	1.0	0.5	---	---	0.0	0.0	---	---	0.0	0.0
31	6.5	6.0	---	---	---	---	0.0	0.0	---	---	0.0	0.0
MONTH	15.5	5.5	6.0	0.5	---	---	0.0	0.0	0.0	0.0	0.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.0	0.0	13.0	11.0	16.5	14.0	22.0	18.5	21.0	18.5	17.0	14.5
2	0.0	0.0	13.0	10.5	17.0	15.0	22.0	20.5	21.0	19.5	16.5	15.0
3	0.0	0.0	13.0	12.0	17.0	15.0	22.5	20.5	20.5	18.5	15.5	13.0
4	0.0	0.0	13.0	10.5	18.5	16.5	22.5	21.0	18.5	17.5	16.0	12.5
5	0.0	0.0	12.5	11.0	20.5	18.0	22.0	18.5	18.5	16.5	16.5	13.0
6	0.0	0.0	10.5	8.5	20.5	19.0	23.5	20.5	20.0	17.5	16.5	14.0
7	0.0	0.0	10.0	7.0	19.0	18.5	24.5	21.5	20.5	18.5	16.0	14.0
8	0.0	0.0	11.0	8.0	20.5	17.5	26.5	22.5	20.5	19.0	16.5	14.5
9	0.0	0.0	11.0	9.5	20.5	17.0	26.5	24.5	21.5	19.0	16.5	13.5
10	0.0	0.0	11.5	9.5	17.0	15.5	26.0	23.5	21.5	19.5	14.0	13.0
11	0.0	0.0	11.0	10.0	16.0	14.0	24.5	21.0	22.0	21.0	14.5	13.0
12	0.0	0.0	10.0	8.5	16.0	14.0	23.5	20.5	22.0	20.0	14.5	14.5
13	0.5	0.0	9.5	7.5	18.0	15.0	26.0	21.0	22.5	19.5	14.5	13.5
14	0.5	0.0	10.5	8.5	17.5	16.0	27.0	24.0	22.0	19.0	14.0	12.5
15	1.5	0.0	10.5	10.0	17.0	15.0	26.0	23.0	20.5	18.0	14.5	13.0
16	3.0	1.0	12.0	10.0	15.0	13.0	24.5	21.0	21.5	19.5	14.5	12.0
17	4.5	3.0	14.0	11.5	13.0	12.0	24.0	21.5	21.5	19.0	14.0	13.0
18	5.5	4.5	14.0	12.5	13.5	12.0	25.0	21.0	21.0	19.5	14.0	11.5
19	6.0	3.5	15.0	11.5	16.0	13.0	25.0	22.5	22.5	19.0	13.5	13.0
20	6.0	4.5	16.5	13.5	17.5	15.5	24.5	21.0	22.5	20.0	13.5	11.5
21	8.0	6.0	19.0	16.0	19.5	17.0	23.0	20.5	22.0	21.0	12.0	10.0
22	8.0	7.5	21.0	18.5	19.0	17.5	22.5	19.5	23.0	21.0	10.0	8.5
23	7.5	6.0	20.5	17.5	18.0	16.0	23.0	20.5	22.5	20.5	9.5	7.5
24	7.5	5.5	17.5	15.5	19.0	15.0	23.0	20.5	20.5	18.5	11.0	9.0
25	9.0	7.0	17.0	14.0	20.0	15.5	22.0	21.0	21.0	18.5	12.5	10.0
26	11.0	8.0	17.5	14.0	21.5	16.5	23.0	20.5	21.5	19.5	13.5	11.0
27	11.0	10.0	17.5	14.0	22.5	18.0	23.5	20.5	21.0	19.0	14.5	11.5
28	14.0	11.0	16.5	15.5	23.0	19.5	23.5	20.5	20.0	17.5	14.0	12.5
29	14.0	12.5	17.5	15.5	22.5	20.0	23.0	20.5	19.5	18.0	12.5	11.0
30	13.5	11.5	17.0	15.0	21.5	18.5	22.0	19.5	18.5	16.0	11.5	10.0
31	---	---	16.5	14.0	---	---	20.5	18.5	17.5	16.0	---	---
MONTH	14.0	0.0	21.0	7.0	23.0	12.0	27.0	18.5	23.0	16.0	17.0	7.5
YEAR	27.0	0.0										

04065600 PINE CREEK NEAR IRON MOUNTAIN, MICH.

LOCATION.--Lat 45°55'51", long 87°58'18", in SE¼ SE¼ sec.19, T.41 N., R.29 W., Dickinson County, temperature recorder at gaging station on left bank, 20 ft (6.1 m) upstream from bridge on County Road 866, 1.2 mi (1.9 km) downstream from Steel Creek and 9.0 mi (14.5 km) northeast of Iron Mountain.
DRAINAGE AREA.--16.8 mi^2 (43.5 km^2).
PERIOD OF RECORD.--Water temperatures: November 1971 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 23.5°C July 8-10, 14, 15; minimum, freezing point on many days during December to April.
Period of record:
Water temperatures (1971-74): Maximum, 24.0°C July 8, 9, 1973; minimum, freezing point on many days during winter periods.
REMARKS.--Complete ice cover during winter period. Recorder stopped Oct. 1-19, no range in temperature recorded. Miscellaneous chemical analyses for this station are published on page 90.

TEMPERATURE (DEG. C) OF WATER , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	6.0	6.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
2	---	---	6.0	5.5	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
3	---	---	5.5	5.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0
4	---	---	5.0	4.0	1.5	1.0	0.0	0.0	0.0	0.0	0.0	0.0
5	---	---	4.0	3.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
6	---	---	3.0	2.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
7	---	---	2.5	2.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
8	---	---	2.5	2.5	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
9	---	---	2.5	2.0	1.0	1.0	0.0	0.0	0.0	0.0	0.0	0.0
10	---	---	2.0	2.0	1.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0
11	---	---	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
12	---	---	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
13	---	---	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
14	---	---	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
15	---	---	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
16	---	---	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
17	---	---	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
18	---	---	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
19	7.0	6.5	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
20	7.5	7.0	2.0	2.0	0.5	0.5	0.0	0.0	0.0	0.0	0.0	0.0
21	7.5	7.0	3.0	2.0	0.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0
22	8.0	7.0	3.0	3.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
23	9.0	8.0	3.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
24	10.5	9.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
25	10.5	10.5	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
26	10.5	10.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
27	10.0	9.0	2.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
28	9.0	7.0	2.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
29	7.0	6.5	2.0	1.5	0.0	0.0	0.0	0.0	---	---	0.0	0.0
30	6.5	6.0	1.5	1.5	0.0	0.0	0.0	0.0	---	---	0.0	0.0
31	6.0	6.0	---	---	0.0	0.0	0.0	0.0	---	---	0.0	0.0
MONTH	---	---	6.0	1.5	1.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	0.0	0.0	12.5	11.0	16.0	14.0	20.5	17.5	17.5	17.0	13.5	13.5
2	0.0	0.0	14.0	11.0	17.0	16.0	20.5	20.0	17.5	17.0	13.5	13.0
3	0.0	0.0	14.5	13.5	17.5	16.0	21.0	20.0	17.0	17.0	13.0	12.0
4	0.0	0.0	13.5	11.5	19.0	17.0	21.0	20.5	17.0	17.0	12.0	12.0
5	0.0	0.0	13.0	11.5	20.5	18.5	20.5	18.0	18.0	16.0	12.0	12.0
6	0.0	0.0	11.5	9.5	20.5	20.0	22.0	20.0	19.5	17.0	12.0	12.0
7	0.0	0.0	11.0	8.5	20.0	19.0	22.0	21.0	20.0	18.0	12.0	12.0
8	0.0	0.0	13.0	10.0	20.0	18.0	23.5	21.0	20.0	18.5	12.5	12.0
9	0.0	0.0	12.5	11.0	20.0	17.0	23.5	23.0	19.5	18.0	12.5	12.5
10	0.0	0.0	12.0	10.0	17.0	16.0	23.5	23.0	19.5	18.5	12.5	12.5
11	0.0	0.0	12.0	10.5	16.0	13.5	22.5	19.0	20.5	19.0	14.0	12.5
12	0.0	0.0	11.0	10.0	16.0	13.5	20.5	18.5	19.5	18.0	14.0	14.0
13	0.5	0.0	10.0	9.0	17.0	15.5	23.0	20.0	18.5	17.0	14.0	14.0
14	0.5	0.5	11.0	10.0	17.0	15.0	23.5	22.5	18.0	16.5	14.0	13.0
15	3.5	0.5	11.0	10.5	15.5	14.5	23.5	20.5	17.0	16.0	13.0	13.0
16	4.5	2.5	13.0	10.5	14.5	13.5	21.0	18.5	18.0	17.0	13.0	13.0
17	6.5	3.5	15.0	12.0	13.5	13.0	20.5	20.0	18.0	16.5	13.0	13.0
18	6.5	5.0	15.0	13.0	13.5	12.5	22.5	20.0	17.5	16.5	13.0	12.5
19	6.0	4.5	15.0	11.0	17.0	13.0	22.5	20.5	17.0	16.0	12.5	12.5
20	6.5	5.5	17.0	13.5	18.0	16.0	22.0	19.0	18.0	17.0	12.5	12.0
21	9.0	6.5	20.0	16.5	19.0	17.0	21.0	19.0	18.0	18.0	12.0	12.0
22	9.0	8.0	20.0	19.0	19.0	17.0	20.5	19.0	18.5	18.0	12.0	12.0
23	8.5	6.5	20.0	16.0	17.5	15.5	20.5	19.5	18.0	17.0	12.0	11.0
24	8.5	6.5	17.0	14.0	16.5	14.5	20.0	19.0	17.0	15.5	11.0	11.0
25	10.0	8.5	15.5	13.0	17.0	14.5	19.5	19.5	16.0	15.5	11.0	11.0
26	11.5	9.0	16.0	13.0	18.5	15.5	21.0	19.5	17.0	16.0	11.0	11.0
27	11.5	11.0	16.0	13.5	19.0	16.5	21.0	18.5	16.5	15.5	12.0	11.0
28	15.0	11.5	16.0	15.0	19.5	17.5	19.5	18.5	15.5	14.0	12.0	12.0
29	15.0	14.0	16.5	15.0	20.0	19.0	19.5	18.5	14.5	14.0	12.0	11.5
30	14.0	12.5	16.5	14.0	19.5	17.0	19.5	18.0	14.5	13.5	11.5	11.0
31	---	---	15.5	13.5	---	---	18.0	17.5	13.5	13.5	---	---
MONTH	15.0	0.0	20.0	8.5	20.5	12.5	23.5	17.5	20.5	13.5	14.0	11.0
YEAR	23.5	0.0										

04106000 KALAMAZOO RIVER AT COMSTOCK, MICH.

LOCATION.--Lat 42°17'05", long 85°30'50", in NE¼ sec.19, T.2 S., R.10 W., Kalamazoo County, temperature recorder at gaging station on left bank at downstream side of bridge on River Street in Comstock, 0.2 mi (0.3 km) downstream from Comstock Creek.
DRAINAGE AREA.--1,010 mi^2 (2,620 km^2), approximately.
PERIOD OF RECORD.--Chemical analyses: August 1964 to September 1971 (partial-record station); Octoer 1971 to December 1974 (discontinued).
Water temperatures: December 1968 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, not recorded; minimum, freezing point on Jan. 8-10, 13, 14.
Period of record:
Water temperatures (1968-74): Maximum, 32.0°C July 15,17, Aug. 29, 1969; minimum, freezing point on several days during winter periods.
REMARKS.--Flow regulated by powerplant above station. No temperature record May 16 to Sept. 30 due to instrument failure.

CHEMICAL ANALYSES, OCTOBER 1973 TO DECEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)
OCT., 1973								
25...	0955	744	580	7.5	17.5	--	--	17.5
NOV.								
16...	0955	1020	585	7.6	12.0	--	--	.0
27...	0935	1080	570	7.4	8.0	--	--	9.5
DEC.								
26...	1015	1280	605	6.8	1.5	--	--	2.5
JAN., 1974								
04...	0945	1420	570	7.2	2.5	--	--	-5.0
30...	0955	2990	420	7.2	1.5	--	--	1.5
FEB.								
20...	0935	1280	585	7.0	1.5	--	--	-2.0
MAR.								
11...	1000	3460	380	7.1	6.0	--	--	1.5
APR.								
08...	0940	2990	420	7.6	7.0	--	--	-1.5
26...	0940	1370	520	7.0	12.5	--	--	22.5
MAY								
13...	1030	1630	520	7.8	14.5	--	--	10.0
JUNE								
06...	1000	1280	530	7.6	24.5	--	--	23.0
28...	0955	1090	540	7.8	25.5	--	--	21.5
JULY								
18...	0945	656	510	8.0	28.5	--	--	27.5
AUG.								
28...	1000	624	600	8.0	26.0	7.8	96	18.5
SEP.								
20...	0940	720	530	8.3	23.5	--	--	21.5
OCT.								
25...	0930	720	605	8.1	13.0	--	--	12.0
DEC.								
03...	0945	712	550	--	6.5	--	--	.5
23...	1000	877	550	8.2	2.0	13.6	100	3.0

DATE	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)
OCT., 1973								
25...	--	--	--	--	--	--	--	292
MAR., 1974								
11...	6.6	130	25	50	14	6.5	3.1	178
JUNE								
28...	--	--	--	77	21	--	--	278
AUG.								
28...	--	--	--	68	22	--	--	290
DEC.								
23...	--	--	--	76	22	--	--	274

STREAMS TRIBUTARY TO LAKE MICHIGAN

04106000 KALAMAZOO RIVER AT COMSTOCK, MICH.--Continued

CHEMICAL ANALYSES, OCTOBER 1973 TO DECEMBER 1974--Continued

DATE	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	TOTAL NITRATE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)
OCT., 1973									
25...	0	239	42	24	--	.68	--	.08	--
MAR., 1974									
11...	0	146	33	13	.2	--	.80	--	.08
JUNE									
28...	0	228	34	24	--	--	.50	--	.01
AUG.									
28...	0	238	40	28	--	--	.07	--	.01
DEC.									
23...	0	225	46	32	--	--	.93	--	.04

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)
OCT., 1973								
25...	350	703	300	60	--	--	--	4
MAR., 1974								
11...	244	2280	180	37	7	.2	50	4
JUNE								
28...	356	1050	280	51	--	--	20	4
AUG.								
28...	408	687	260	22	--	--	10	7
DEC.								
23...	348	824	280	56	--	--	20	2

04106000 KALAMAZOO RIVER AT COMSTOCK, MICH.--Continued

TEMPERATURE (DEG. C) OF WATER . WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	20.0	18.5	14.0	13.5	7.0	6.5	1.5	1.5	1.5	1.5	2.0	1.5
2	20.0	20.0	13.5	13.0	6.5	6.0	2.5	1.5	1.5	1.5	2.0	2.0
3	20.0	19.5	13.0	12.0	7.0	6.0	3.5	1.5	1.5	1.5	3.0	2.0
4	19.5	18.5	12.0	11.0	8.5	7.0	2.5	1.5	2.0	1.5	4.5	3.0
5	19.5	18.0	11.5	11.0	8.5	7.5	2.0	1.5	2.5	1.5	4.5	4.5
6	19.0	18.0	11.0	8.5	7.5	6.5	1.5	1.5	2.5	1.5	5.0	4.5
7	18.0	17.5	9.0	7.5	7.5	7.5	1.5	1.5	3.0	1.5	5.5	5.0
8	19.0	17.0	8.5	7.0	7.5	6.0	1.5	0.0	3.0	1.5	5.5	5.5
9	18.5	18.0	8.5	8.5	6.0	5.5	1.0	0.0	1.5	1.0	6.0	5.5
10	19.5	17.0	8.5	6.0	7.0	5.5	0.5	0.0	1.0	1.0	6.0	6.0
11	20.0	19.5	6.5	6.5	7.0	6.5	1.0	0.5	1.0	1.0	6.0	5.5
12	19.5	18.0	9.0	6.5	6.0	3.5	1.0	1.0	1.0	1.0	5.5	5.0
13	18.0	17.0	10.0	8.0	5.5	3.5	1.0	0.0	1.0	1.0	5.5	5.0
14	17.0	16.0	10.0	9.5	3.5	3.0	1.0	0.0	3.0	1.0	5.5	5.5
15	17.0	15.5	11.5	10.0	3.0	2.5	3.0	1.0	3.0	1.5	5.5	5.5
16	16.0	15.0	12.0	10.5	2.0	0.0	3.0	1.0	2.5	1.5	5.5	5.5
17	15.5	13.5	11.5	10.5	0.5	0.0	3.0	1.5	1.5	1.5	6.0	5.5
18	14.5	13.0	10.5	10.0	1.0	0.0	3.5	1.5	2.0	1.5	6.0	6.0
19	13.5	13.5	11.5	10.0	0.5	0.0	3.0	0.5	2.0	1.5	6.0	6.0
20	13.5	13.0	11.5	9.5	1.0	0.0	1.0	1.0	2.0	1.5	6.0	6.0
21	13.0	12.5	11.5	10.0	0.0	0.0	2.0	1.0	2.0	2.0	6.5	6.0
22	14.5	13.0	11.0	9.5	0.5	0.0	2.0	1.5	2.0	2.0	7.0	6.5
23	15.5	14.5	10.0	9.5	2.0	0.0	1.5	1.0	2.0	1.5	6.5	6.5
24	17.0	15.5	10.0	9.0	1.5	0.0	1.0	1.0	1.5	1.5	6.5	5.5
25	18.0	16.0	9.0	8.5	3.0	1.5	1.0	1.0	2.0	1.5	6.0	5.0
26	17.5	16.0	8.5	8.0	1.5	1.5	1.0	1.0	2.0	1.5	7.0	6.0
27	15.5	15.0	8.0	8.0	2.5	1.5	1.0	1.0	1.5	1.5	7.0	6.0
28	14.5	14.0	8.0	8.0	2.5	1.5	1.5	1.5	1.5	1.5	7.0	6.5
29	16.0	14.0	8.0	7.0	2.0	1.5	2.0	1.0	---	---	7.0	6.5
30	15.5	14.5	7.0	7.0	2.0	1.5	1.5	1.5	---	---	7.5	7.0
31	15.0	14.0	---	---	1.5	1.0	1.5	1.5	---	---	7.0	7.0
MONTH	20.0	12.5	14.0	6.0	8.5	0.0	3.5	0.0	3.0	1.0	7.5	1.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	8.0	7.0	16.5	16.0	---	---	---	---	---	---	---	---
2	9.0	8.0	17.0	16.5	---	---	---	---	---	---	---	---
3	10.0	9.0	17.0	16.5	---	---	---	---	---	---	---	---
4	10.5	10.0	16.5	16.0	---	---	---	---	---	---	---	---
5	10.5	10.0	16.0	15.5	---	---	---	---	---	---	---	---
6	10.0	10.0	15.5	14.5	---	---	---	---	---	---	---	---
7	10.0	10.0	15.0	13.5	---	---	---	---	---	---	---	---
8	10.0	10.0	14.5	14.0	---	---	---	---	---	---	---	---
9	10.0	10.0	14.0	13.0	---	---	---	---	---	---	---	---
10	11.0	10.5	14.0	13.0	---	---	---	---	---	---	---	---
11	11.5	11.0	14.5	14.0	---	---	---	---	---	---	---	---
12	12.5	11.5	14.5	14.5	---	---	---	---	---	---	---	---
13	14.0	12.5	14.5	14.5	---	---	---	---	---	---	---	---
14	14.5	14.0	14.0	13.0	---	---	---	---	---	---	---	---
15	14.0	13.5	15.0	14.0	---	---	---	---	---	---	---	---
16	13.5	13.5	---	---	---	---	---	---	---	---	---	---
17	13.5	13.0	---	---	---	---	---	---	---	---	---	---
18	14.5	13.0	---	---	---	---	---	---	---	---	---	---
19	14.5	14.0	---	---	---	---	---	---	---	---	---	---
20	14.0	13.5	---	---	---	---	---	---	---	---	---	---
21	14.5	14.0	---	---	---	---	---	---	---	---	---	---
22	15.5	14.5	---	---	---	---	---	---	---	---	---	---
23	15.0	14.0	---	---	---	---	---	---	---	---	---	---
24	14.0	13.0	---	---	---	---	---	---	---	---	---	---
25	14.0	13.5	---	---	---	---	---	---	---	---	---	---
26	14.5	13.0	---	---	---	---	---	---	---	---	---	---
27	14.5	14.5	---	---	---	---	---	---	---	---	---	---
28	15.5	14.5	---	---	---	---	---	---	---	---	---	---
29	16.0	15.0	---	---	---	---	---	---	---	---	---	---
30	17.0	16.0	---	---	---	---	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	17.0	7.0	---	---	---	---	---	---	---	---	---	---
YEAR	20.0	0.0										

04106500 PORTAGE CREEK AT KALAMAZOO, MICH.

LOCATION.--Lat 42°16'27", long 85°34'35", in SW¼ SE¼ sec.22, T.2 S., R.11 W., Kalamazoo County, digital monitor at left bank 15 ft (4.6 m) downstream from bridge on Reed Ave. in Kalamazoo, 1.5 mi (2.4 km) upstream from Kalamazoo River.
DRAINAGE AREA.--49.8 mi^2 (125 km^2).
PERIOD OF RECORD.--Chemical analyses: April 1972 to December 1974 (discontinued).
Water temperatures: April 1972 to August 1974 (discontinued).
EXTREMES.--1973-74:
Specific conductance (October-December 1974): Maximum recorded, 780 micromhos Dec. 2, 1974; minimum recorded, 255 micromhos May 17.
Water temperatures: Maximum recorded, 27.5°C July 9; minimum, not recorded.
Period of record:
Specific conductance (1972-74): Maximum recorded, 812 micromhos Feb. 20, 1973, minimum recorded, 290 micromhos Sept. 11, 1974.
Water temperatures (1972-74): Maximum, 29.5°C July 21, 1972; minimum, 1.5°C Jan. 1, 2, 1973.
REMARKS.--Miscellaneous chemical analyses available 1968, 1971. Periods of missing record due to malfunctions of the instrument. Records for Nov. 17 to Dec. 26, 1973, are considered poor. Specific conductance records for Aug. 29-Oct. 18 are from an analog recorder.

CHEMICAL ANALYSES, OCTOBER 1973 TO DECEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)
OCT., 1973								
05...	0955	E39	560	7.7	16.5	--	--	13.5
25...	1030	E46	560	7.8	15.0	--	--	18.5
NOV.								
16...	1055	E66	460	7.8	9.5	--	--	1.0
27...	1010	E54	560	7.6	11.5	--	--	10.0
DEC.								
26...	1100	E66	670	7.4	4.5	--	--	2.5
JAN., 1974								
04...	1020	E54	580	7.3	5.0	--	--	-5.0
30...	1035	E66	560	7.8	6.5	--	--	4.0
FEB.								
20...	1015	E64	595	7.6	6.5	--	--	.5
MAR.								
11...	1130	E64	505	7.7	9.5	--	--	3.0
APR.								
08...	1010	E75	515	7.8	8.0	--	--	.0
26...	1030	--	570	7.8	13.5	--	--	20.0
MAY								
13...	1105	E84	525	7.7	13.5	--	--	9.5
JUNE								
06...	1050	E77	530	7.7	21.5	--	--	25.0
28...	1040	E56	580	7.7	22.0	--	--	26.5
JULY								
18...	1025	E39	510	7.6	23.5	--	--	28.0
AUG.								
28...	1030	E36	510	7.5	19.0	6.8	75	19.0
29...	1015	E36	510	--	19.0	--	--	19.0
SEP.								
20...	1030	E44	560	7.8	18.5	--	--	21.0
OCT.								
25...	1030	E44	--	8.1	12.0	--	--	12.0
DEC.								
03...	1020	E42	630	--	4.5	--	--	1.0
23...	1115	E41	615	8.2	4.5	12.4	98	4.5
31...	1000	E44	550	--	5.0	--	--	8.0

DATE	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
OCT., 1973												
25...	--	--	--	--	--	--	--	242	0	198	56	25
MAR., 1974												
11...	10	50	75	64	21	14	3.2	237	0	194	50	24
JUNE												
28...	--	--	--	69	23	--	--	248	0	203	49	32
AUG.												
28...	--	--	--	67	22	--	--	261	0	214	50	27
DEC.												
23...	--	--	--	70	21	--	--	252	0	207	48	49

DATE	DISSOLVED FLUORIDE (F) (MG/L)	TOTAL NITRATE (NO3) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA+MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)
OCT., 1973												
25...	--	.80	--	.02	--	326	270	71	--	--	--	5
MAR., 1974												
11...	.1	--	.88	--	.02	331	250	52	11	.4	30	5
JUNE												
28...	--	--	.47	--	.00	242	270	64	--	--	7	10
AUG.												
28...	--	--	.56	--	.01	418	260	46	--	--	20	20
DEC.												
23...	--	--	.79	--	.00	374	260	55	--	--	10	1

04106500 PORTAGE CREEK AT KALAMAZOO, MICH.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C) , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	520	493	538	512	560	540	565	554	480	467	541	509
2	527	471	542	510	540	530	571	558	489	474	534	512
3	537	516	542	531	540	530	590	575	606	466	542	522
4	563	540	542	531	560	460	593	576	576	457	534	386
5	564	558	546	533	500	460	603	577	529	486	445	403
6	566	558	560	546	560	490	587	574	536	482	488	453
7	564	529	564	554	550	540	594	420	499	482	516	490
8	542	528	560	552	540	530	588	425	529	496	540	476
9	577	546	567	558	540	520	596	572	601	526	483	329
10	575	566	573	561	570	530	598	579	621	552	488	466
11	578	567	573	559	590	550	619	403	---	---	500	489
12	574	565	573	558	570	550	583	389	---	---	---	---
13	563	388	567	558	760	550	466	399	---	---	---	---
14	513	436	570	559	630	590	489	469	---	---	---	---
15	536	514	565	420	590	540	532	487	---	---	---	---
16	553	534	538	421	550	530	522	486	---	---	---	---
17	553	544	550	520	550	380	518	489	---	---	---	---
18	566	552	540	530	540	550	532	472	---	---	---	---
19	560	551	540	540	540	520	521	493	---	---	---	---
20	569	548	570	540	530	510	496	472	600	547	---	---
21	562	540	560	540	520	510	512	487	563	487	---	---
22	555	534	560	540	530	520	512	504	507	334	---	---
23	556	550	570	560	540	520	536	493	472	368	---	---
24	559	553	560	490	530	500	556	526	492	473	---	---
25	578	557	540	520	770	530	562	532	515	398	---	---
26	574	564	560	540	710	610	558	504	538	511	---	---
27	573	550	570	560	520	447	525	502	542	531	---	---
28	565	420	560	440	549	509	530	519	544	533	---	---
29	559	550	520	440	577	545	580	520	---	---	---	---
30	559	550	550	520	572	553	576	523	---	---	---	---
31	572	542	---	---	563	550	518	467	---	---	---	---
MONTH	578	388	573	420	770	380	619	389	---	---	---	---

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	561	536	570	563	551	532	562	548	490	490
2	---	---	556	547	---	---	554	519	552	523	500	450
3	---	---	575	553	---	---	576	526	551	524	460	450
4	---	---	583	567	---	---	561	374	543	496	500	470
5	---	---	591	570	---	---	466	426	516	495	510	500
6	---	---	587	567	560	521	539	446	561	508	520	520
7	---	---	597	581	584	536	526	506	568	562	520	520
8	---	---	587	511	564	438	549	505	---	---	530	530
9	---	---	566	502	527	390	598	522	---	---	530	520
10	---	---	584	565	520	458	568	471	---	---	550	540
11	---	---	575	472	552	520	526	471	---	---	550	290
12	---	---	493	422	582	547	566	508	---	---	540	480
13	---	---	536	500	594	566	566	542	---	---	480	410
14	---	---	555	474	600	572	547	527	---	---	530	490
15	---	---	531	466	593	561	538	511	---	---	530	520
16	---	---	526	275	570	554	537	514	---	---	540	530
17	---	---	394	255	550	543	539	498	---	---	550	530
18	---	---	473	399	592	548	541	483	---	---	560	550
19	---	---	510	470	586	551	508	484	---	---	560	560
20	---	---	531	510	582	297	544	492	---	---	570	550
21	---	---	552	524	550	362	519	493	---	---	570	560
22	---	---	569	551	552	441	515	492	---	---	580	560
23	---	---	583	565	562	551	537	514	---	---	570	550
24	---	---	570	553	572	556	556	524	---	---	560	560
25	---	---	578	566	575	549	573	549	---	---	560	550
26	574	556	572	563	587	561	604	544	---	---	560	550
27	581	559	573	555	590	569	568	543	---	---	560	550
28	575	545	583	555	588	576	582	547	---	---	550	530
29	550	431	561	497	585	562	549	523	---	---	530	460
30	532	479	573	498	556	547	545	509	530	520	510	490
31	---	---	581	565	---	---	555	531	510	370	---	---
MONTH	---	---	597	255	600	297	604	374	---	---	580	290
YEAR	770	255										

04106500 PORTAGE CREEK AT KALAMAZOO, MICH.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C) , WATER YEAR OCTOBER 1974 TO SEPTEMBER 1975

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	550	510	584	558	576	525	---	---	---	---	---	---
2	550	540	562	543	780	585	---	---	---	---	---	---
3	550	540	552	470	694	589	---	---	---	---	---	---
4	550	540	469	454	594	557	---	---	---	---	---	---
5	550	550	467	449	563	551	---	---	---	---	---	---
6	560	550	515	455	556	548	---	---	---	---	---	---
7	550	550	533	518	636	548	---	---	---	---	---	---
8	560	550	537	525	558	535	---	---	---	---	---	---
9	550	550	536	524	548	531	---	---	---	---	---	---
10	560	550	529	522	569	556	---	---	---	---	---	---
11	570	550	525	500	607	560	---	---	---	---	---	---
12	640	550	520	498	599	574	---	---	---	---	---	---
13	640	520	519	507	588	555	---	---	---	---	---	---
14	550	510	562	508	569	549	---	---	---	---	---	---
15	540	510	630	538	562	510	---	---	---	---	---	---
16	560	540	609	571	519	501	---	---	---	---	---	---
17	560	550	570	544	680	520	---	---	---	---	---	---
18	550	550	545	523	679	636	---	---	---	---	---	---
19	---	---	544	525	671	614	---	---	---	---	---	---
20	---	---	551	542	698	627	---	---	---	---	---	---
21	---	---	547	539	654	624	---	---	---	---	---	---
22	---	---	546	539	691	651	---	---	---	---	---	---
23	---	---	547	522	713	629	---	---	---	---	---	---
24	---	---	522	518	740	674	---	---	---	---	---	---
25	554	551	530	516	741	681	---	---	---	---	---	---
26	558	549	535	521	673	582	---	---	---	---	---	---
27	545	532	541	536	586	581	---	---	---	---	---	---
28	536	524	549	538	578	567	---	---	---	---	---	---
29	542	464	542	527	566	554	---	---	---	---	---	---
30	508	492	532	528	575	566	---	---	---	---	---	---
31	574	502	---	---	568	564	---	---	---	---	---	---
MONTH	---	---	630	449	780	423	---	---	---	---	---	---

04106500 PORTAGE CREEK AT KALAMAZOO, MICH.--Continued

TEMPERATURE (DEG. C) OF WATER . WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	18.0	16.5	12.5	11.0	7.5	7.0	5.0	4.0	9.5	8.5	10.0	8.5
2	18.5	18.5	11.5	11.0	7.5	6.0	4.5	3.5	9.0	8.5	10.5	8.5
3	18.5	18.0	11.0	10.0	10.5	7.5	5.5	4.0	9.5	6.0	15.0	11.0
4	18.5	18.0	10.0	9.0	12.0	11.0	5.5	5.0	9.5	4.0	14.5	9.0
5	17.5	16.5	9.0	8.0	11.5	8.5	5.0	5.0	9.5	8.5	10.5	8.0
6	17.0	15.5	8.0	7.0	8.5	6.0	5.5	5.0	9.0	8.0	11.5	10.5
7	16.5	16.0	7.5	7.0	6.5	6.0	5.0	4.0	8.5	8.0	14.0	11.5
8	17.5	16.5	8.5	7.5	7.0	6.5	9.0	3.0	13.5	8.0	14.0	9.5
9	19.0	17.5	8.0	7.0	6.5	6.0	5.0	4.0	14.5	10.0	10.0	9.0
10	20.5	18.5	8.0	7.0	6.5	5.0	5.5	4.5	13.5	9.5	10.5	9.0
11	20.5	19.0	8.0	7.5	5.0	4.5	5.0	3.0	---	---	10.0	9.5
12	20.0	18.5	10.0	8.0	5.5	4.5	9.0	2.0	---	---	---	---
13	18.0	17.5	12.0	10.0	5.5	4.5	9.5	8.5	---	---	---	---
14	17.0	16.0	14.0	12.0	4.5	4.0	11.0	9.5	---	---	---	---
15	17.0	16.5	14.0	11.0	4.5	4.0	15.5	11.0	---	---	---	---
16	16.0	13.5	11.0	5.0	4.0	3.5	14.5	11.5	---	---	---	---
17	14.0	12.5	8.5	7.5	3.5	2.5	11.0	10.0	---	---	---	---
18	14.0	13.5	9.0	7.5	4.5	3.5	13.0	5.0	---	---	---	---
19	13.5	12.5	10.0	9.0	4.5	3.0	9.5	3.0	---	---	---	---
20	14.0	13.0	11.0	10.0	4.0	2.5	5.5	2.5	8.0	6.0	---	---
21	13.5	12.5	12.5	11.0	4.5	3.5	5.5	4.5	9.5	8.0	---	---
22	14.0	12.5	11.5	11.0	4.0	3.5	6.5	4.5	8.5	5.0	---	---
23	15.0	13.0	11.5	11.0	5.0	3.5	7.5	6.5	5.0	3.5	---	---
24	15.5	14.0	11.5	11.0	4.5	4.5	8.0	7.5	5.0	3.5	---	---
25	16.0	15.0					8.0	5.5	7.0	3.0	---	---
26	16.5	15.5	10.5	10.0	5.0	4.5	6.0	5.0	7.0	4.5	---	---
27	16.0	14.0	12.0	10.5	5.5	5.0	9.5	6.0	9.0	6.5	---	---
28	14.0	13.5	12.0	9.5	5.5	5.0	9.5	8.0	11.0	9.0	---	---
29	13.5	12.5	9.5	7.5	6.0	5.5	9.0	8.5	---	---	---	---
30	13.0	12.5	8.5	7.5	5.5	4.5	9.0	8.5	---	---	---	---
31	13.0	12.5	---	---	5.0	4.5	8.5	8.0	---	---	---	---
MONTH	20.5	12.5	14.0	5.0	12.0	2.5	15.5	2.0	---	---	---	---

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	18.5	16.0	21.5	19.0	24.5	23.0	23.5	21.5	---	---
2	---	---	18.0	16.5	---	---	25.0	23.0	22.5	20.5	---	---
3	---	---	18.0	17.0	---	---	27.0	24.5	24.0	22.0	---	---
4	---	---	18.0	16.0	---	---	26.5	25.0	22.5	19.5	---	---
5	---	---	17.0	15.0	---	---	24.5	22.5	21.0	18.5	---	---
6	---	---	15.0	13.0	22.5	21.5	25.0	23.5	23.5	20.5	---	---
7	---	---	15.5	12.0	22.5	22.0	25.0	23.0	22.5	22.0	---	---
8	---	---	15.5	11.0	23.5	21.5	26.5	24.5	---	---	---	---
9	---	---	11.5	10.5	24.5	22.5	27.5	25.5	---	---	---	---
10	---	---	16.5	11.5	24.5	20.0	27.0	24.5	---	---	---	---
11	---	---	16.0	15.5	20.0	18.0	24.5	22.5	---	---	---	---
12	---	---	16.0	13.5	20.0	17.5	25.0	23.0	---	---	---	---
13	---	---	13.5	12.5	20.0	19.0	26.0	24.0	---	---	---	---
14	---	---	16.5	12.5	22.0	19.5	27.0	25.5	---	---	---	---
15	---	---	18.0	16.0	22.0	20.5	27.0	25.5	---	---	---	---
16	---	---	18.0	14.5	20.5	17.5	25.5	24.0	---	---	---	---
17	---	---	17.5	15.5	17.5	16.5	25.0	23.5	---	---	---	---
18	---	---	17.5	16.5	19.5	17.0	24.5	23.5	---	---	---	---
19	---	---	19.5	16.5	21.5	19.5	26.0	24.0	---	---	---	---
20	---	---	21.0	18.5	24.0	20.5	26.0	24.5	---	---	---	---
21	---	---	22.0	20.0	24.5	22.0	24.5	22.5	---	---	---	---
22	---	---	22.5	21.5	24.5	21.0	23.5	21.5	---	---	---	---
23	---	---	21.5	20.0	20.5	18.5	21.0	20.0	---	---	---	---
24	---	---	21.0	19.0	19.5	18.0	23.0	20.0	---	---	---	---
25	---	---	19.0	17.5	20.5	19.0	23.0	22.0	---	---	---	---
26	18.0	14.0	19.5	18.0	22.5	19.5	24.5	22.0	---	---	---	---
27	19.5	18.0	19.0	18.0	23.5	21.0	25.0	23.5	---	---	---	---
28	19.0	18.5	19.0	18.0	24.0	22.0	25.0	23.5	---	---	---	---
29	19.5	18.5	20.0	18.0	24.0	22.0	25.0	24.0	---	---	---	---
30	19.5	18.0	20.5	20.0	24.5	23.0	24.0	22.5	---	---	---	---
31	---	---	20.5	19.0	---	---	24.0	22.0	---	---	---	---
MONTH	---	---	22.5	10.5	24.5	16.5	27.5	20.0	---	---	---	---
YEAR	27.5	2.0										

04106770 KALAMAZOO RIVER NEAR COOPER CENTER, MICH.

LOCATION.--Lat 42°22'38", long 85°34'45", in NE¼ sec.22, T.1 S., R.11 W., Kalamazoo County, analog recorders at downstream end of left abutment of "D" Ave. bridge 5 mi (8 km) north of Kalamazoo.
DRAINAGE AREA.--1,248 mi^2 (3,232 km^2).
PERIOD OF RECORD.--Chemical analyses: October 1968 to December 1974 (discontinued).
Water temperatures: August 1968 to December 1974 (discontinued).
EXTREMES.--1973-74:
Specific conductance: Maximum recorded, 740 micromhos Jan. 16; minimum recorded, 380 micromhos Mar. 13.
Water temperatures: Maximum, 31.5°C one or more days during July 3-18; minimum, not recorded.
Period of record:
Specific conductance (1968-74): Maximum recorded, 830 micromhos Jan. 28, 1971; minimum recorded, 380 micromhos Mar. 13, 1974.
Water temperatures (1968-74): Maximum, 33.0°C one or more days during July 14-22, 1972; minimum recorded, 1.0°C Jan. 28, 29, several days in Feb. 1969, one or more days during Jan. 15 to Feb. 16, 1973.
REMARKS.--Period of missing conductance records due to malfunctions of the instrument. No temperature records available Dec. 27, 1973 to Mar. 10, 1974. Periods of missing record due to clock stoppage and recorded ranges in temperature: June 20-27, 21.0 to 25.0°C; July 3-18, 24.0 to 31.5°C; July 19 to Aug. 28, 21.5 to 31.0°C; Aug. 29 to Sept. 19, 18.0 to 27.0°C; Sept. 24 to Oct. 25, 11.0 to 21.0°C; Oct. 25 to Dec. 12, 2.5 to 19.0°C; Dec. 3-31, 2.5 to 5.5°C.

CHEMICAL ANALYSES, OCTOBER 1973 TO DECEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	AIR TEMPERATURE (DEG C)
OCT., 1973							
05...	1145	E1300	580	7.6	19.0	--	18.0
25...	1240	E820	620	7.6	17.5	--	23.0
NOV.							
16...	1200	F1200	600	7.8	9.5	--	.5
27...	1125	E1300	600	7.7	9.0	--	12.0
DEC.							
26...	1330	E1400	655	7.8	2.0	--	2.5
JAN., 1974							
04...	1140	E1700	590	7.5	1.5	--	6.5
30...	1150	E3600	465	7.6	2.0	--	5.5
FEB.							
20...	1200	E1500	625	7.6	2.5	--	6.5
MAR.							
11...	1215	E4300	400	7.8	7.0	--	4.0
APR.							
08...	1200	E3600	460	7.6	7.5	--	1.0
26...	1155	E1600	580	7.8	12.0	--	19.0
MAY							
13...	1155	F1900	560	7.7	13.0	--	12.0
JUNE							
06...	1330	F1500	580	7.8	23.5	--	26.0
28...	1135	F1300	600	8.0	25.0	--	25.5
JULY							
18...	1130	E740	530	7.8	28.0	--	--
AUG.							
28...	1430	E700	620	7.8	25.0	3.5	--
SEP.							
19...	1125	E740	620	7.8	22.0	--	--
OCT.							
25...	1305	E860	680	--	14.0	--	--
DEC.							
03...	1200	E840	610	--	4.5	--	1.0
23...	1235	E1000	620	7.7	3.0	12.4	6.0
31...	1100	E860	610	--	2.5	--	2.5

DATE	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)
OCT., 1973												
25...	--	--	--	--	--	--	--	286	0	235	54	32
MAR., 1974												
11...	6.7	130	25	53	14	8.5	3.1	183	0	150	38	16
JUNE												
28...	--	--	--	78	22	--	--	274	0	225	48	33
AUG.												
28...	6.5	40	33	72	22	26	2.6	258	0	212	51	41
DEC.												
23...	--	--	--	81	23	--	--	274	0	225	53	39

DATE	DISSOLVED FLUORIDE (F) (MG/L)	TOTAL NITRATE (N) (MG/L)	DISSOLVED NITRITE PLUS NITRATE (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)
OCT., 1973												
25...	--	1.4	--	.16	--	390	300	65	--	--	--	4
MAR., 1974												
11...	.4	--	.78	--	.02	263	190	40	9	.3	50	5
JUNE												
28...	--	--	.50	--	.01	114	290	61	--	--	20	10
AUG.												
28...	.4	--	.28	--	.07	--	270	59	17	.7	--	--
DEC.												
23...	--	--	.88	--	.03	380	300	72	--	--	30	1

04106770 KALAMAZOO RIVER NEAR COOPER CENTER--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C), WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	540	510	660	640	580	560	540	500	480	480	480	460
2	550	540	660	650	590	570	570	500	500	480	490	480
3	560	550	650	650	590	570	590	570	500	490	500	490
4	570	560	650	620	590	570	590	580	540	500	480	470
5	600	580	620	610	590	580	590	590	550	540	470	460
6	600	590	630	620	590	570	600	590	580	550	460	440
7	600	570	630	630	590	580	630	600	600	580	440	420
8	610	600	630	630	600	590	640	630	600	600	420	400
9	630	610	630	630	600	590	660	640	600	590	400	390
10	640	630	630	630	600	570	660	650	590	590	390	390
11	660	640	620	620	---	---	670	640	590	590	400	390
12	670	660	620	600	---	---	670	640	670	590	400	390
13	700	680	630	620	---	---	650	640	670	610	390	380
14	700	640	630	630	---	---	690	650	620	610	400	390
15	660	630	640	570	---	---	690	670	620	620	430	400
16	640	620	620	590	---	---	740	660	620	610	450	430
17	630	620	620	580	---	---	700	680	610	610	460	450
18	650	640	580	560	---	---	690	670	620	610	470	460
19	650	650	580	570	---	---	690	680	630	620	480	470
20	650	650	580	580	---	---	680	590	640	630	490	470
21	650	650	580	570	---	---	590	580	640	620	520	490
22	660	640	580	580	---	---	580	520	620	550	540	520
23	670	660	580	580	---	---	520	500	610	540	530	520
24	690	680	580	560	---	---	500	460	540	510	520	520
25	680	670	580	580	---	---	460	420	510	510	540	530
26	680	660	590	580	650	620	420	420	510	500	540	540
27	680	670	600	590	650	620	420	420	500	470	540	540
28	680	670	600	560	620	610	450	420	470	460	470	540
29	670	670	590	560	610	590	460	450	---	---	560	550
30	670	670	580	540	590	560	480	460	---	---	550	520
31	670	660	---	---	560	540	480	480	---	---	530	520
MONTH	700	510	660	540	---	---	740	420	670	460	560	380

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER		DECEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	530	510	580	570	580	560	610	580	680	670	630	610	---	---
2	510	510	570	570	560	560	610	600	700	670	610	600	---	---
3	510	470	570	570	570	560	620	600	700	670	600	570	630	600
4	470	470	570	560	590	570	620	540	670	660	620	600	630	600
5	470	460	560	560	590	580	610	580	680	660	620	610	660	630
6	460	460	570	560	590	580	620	600	680	660	620	600	670	650
7	460	460	580	570	600	590	610	540	660	640	620	520	670	650
8	460	460	580	550	600	600	630	610	680	650	620	590	670	630
9	460	460	590	570	600	560	660	630	680	610	600	580	650	630
10	470	460	600	590	560	550	660	620	630	610	620	530	650	630
11	480	470	600	560	550	550	670	660	630	630	600	590	640	630
12	490	480	560	560	560	550	690	670	670	630	590	520	640	620
13	500	490	560	550	560	560	690	670	680	670	580	480	640	630
14	500	500	570	560	560	560	670	650	710	680	570	440	630	610
15	520	500	560	540	560	550	650	620	690	660	550	480	630	600
16	540	520	550	480	550	550	680	650	680	630	550	500	600	580
17	540	540	520	500	550	550	690	670	630	590	570	500	620	580
18	540	540	590	500	---	---	710	680	640	630	570	460	620	600
19	540	540	500	490	---	---	720	710	640	610	550	530	650	600
20	550	540	490	480	---	---	720	680	630	620	570	490	650	600
21	550	550	480	480	---	---	680	640	640	630	500	480	660	620
22	560	550	500	480	---	---	690	660	640	630	480	400	660	640
23	570	560	520	500	---	---	700	660	650	640	480	400	640	620
24	580	570	540	520	---	---	710	700	650	650	550	470	670	640
25	580	580	540	530	---	---	720	690	650	620	530	500	670	630
26	580	580	530	530	---	---	720	690	630	620	550	500	640	600
27	580	580	550	530	---	---	720	640	630	630	530	460	640	640
28	580	580	590	530	620	620	700	640	630	630	540	470	650	630
29	580	570	590	580	640	600	660	610	650	630	520	480	630	620
30	570	560	580	580	640	600	680	660	640	600	500	450	620	610
31	---	---	580	570	---	---	680	670	640	620	---	---	610	610
MONTH	580	460	600	480	---	---	720	540	710	580	630	400	670	580
YEAR	740	380												

04106770 KALAMAZOO RIVER NEAR COOPER CENTER--Continued

TEMPERATURE (DEG. C) OF WATER , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	20.5	18.0	14.0	14.0	7.0	6.5	---	---	---	---	---	---
2	21.0	20.5	14.0	13.0	6.5	6.0	---	---	---	---	---	---
3	21.0	20.5	13.0	12.0	7.0	6.0	---	---	---	---	---	---
4	21.0	20.0	12.0	11.5	9.0	7.0	---	---	---	---	---	---
5	20.0	19.0	11.5	11.0	9.0	8.0	---	---	---	---	---	---
6	20.0	18.5	11.0	8.5	8.5	6.5	---	---	---	---	---	---
7	18.5	18.0	8.5	7.5	7.0	7.0	---	---	---	---	---	---
8	19.5	18.5	7.5	7.5	7.0	5.5	---	---	---	---	---	---
9	21.0	19.5	7.5	6.5	5.5	4.5	---	---	---	---	---	---
10	22.0	21.0	7.0	6.5	5.0	4.0	---	---	---	---	---	---
11	23.0	22.0	6.5	5.5	5.0	4.5	---	---	---	---	7.0	6.5
12	23.0	22.0	8.0	5.5	4.5	3.0	---	---	---	---	6.5	6.0
13	22.0	19.5	10.0	8.0	4.0	3.0	---	---	---	---	6.0	5.0
14	19.5	18.0	10.0	9.5	4.0	3.0	---	---	---	---	5.0	5.0
15	18.5	18.0	10.0	10.0	3.0	3.0	---	---	---	---	5.0	5.0
16	18.5	16.5	10.0	9.5	3.0	2.5	---	---	---	---	5.0	5.0
17	17.0	16.0	10.0	8.5	4.0	2.0	---	---	---	---	5.5	5.0
18	16.0	15.0	8.5	8.0	4.5	3.5	---	---	---	---	6.0	5.5
19	15.0	14.5	9.0	8.0	4.5	2.5	---	---	---	---	6.5	6.0
20	15.0	14.5	10.5	9.0	3.0	2.5	---	---	---	---	6.5	6.0
21	14.5	13.0	10.5	9.5	3.0	2.0	---	---	---	---	7.0	6.0
22	15.0	13.0	10.0	9.5	3.0	2.0	---	---	---	---	7.0	5.5
23	16.0	15.0	9.5	9.0	2.5	2.0	---	---	---	---	6.0	5.0
24	17.0	15.5	9.5	9.0	2.5	2.0	---	---	---	---	5.0	3.5
25	17.5	17.0	9.5	9.5	2.0	2.0	---	---	---	---	3.5	2.0
26	17.5	17.0	9.5	9.0	2.0	---	---	---	---	---	4.5	3.0
27	17.0	15.0	9.5	9.0	---	---	---	---	---	---	4.5	3.5
28	15.0	14.0	9.5	9.0	---	---	---	---	---	---	4.5	4.0
29	15.0	13.0	9.0	8.0	---	---	---	---	---	---	4.5	4.0
30	15.0	15.0	8.0	7.0	---	---	---	---	---	---	4.5	4.0
31	15.0	14.0	---	---	---	---	---	---	---	---	4.5	4.0
MONTH	23.0	13.0	14.0	5.5	9.0	2.0	---	---	---	---	---	---

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.5	4.5	18.0	16.5	---	---	29.5	25.0	---	---	---	---
2	9.0	6.5	17.5	16.5	---	---	26.0	23.5	---	---	---	---
3	10.0	9.0	17.0	15.5	---	---	---	---	---	---	---	---
4	10.0	10.0	15.5	14.0	---	---	---	---	---	---	---	---
5	10.0	9.0	14.0	12.0	---	---	---	---	---	---	---	---
6	9.0	8.0	14.0	12.0	25.5	23.5	---	---	---	---	---	---
7	8.0	8.0	12.0	11.0	25.0	23.5	---	---	---	---	---	---
8	8.0	7.5	13.5	11.5	25.0	23.5	---	---	---	---	---	---
9	7.5	6.5	14.0	13.0	25.0	23.0	---	---	---	---	---	---
10	8.5	7.0	14.0	13.5	23.0	19.0	---	---	---	---	---	---
11	9.5	8.5	13.5	13.0	22.0	19.0	---	---	---	---	---	---
12	11.0	9.5	14.0	13.5	23.0	21.0	---	---	---	---	---	---
13	13.5	11.0	13.5	13.0	23.0	20.5	---	---	---	---	---	---
14	14.5	13.0	14.5	13.0	20.5	19.0	---	---	---	---	---	---
15	13.0	12.0	16.0	14.0	21.0	19.0	---	---	---	---	---	---
16	13.0	11.5	16.0	14.5	23.5	20.0	---	---	---	---	---	---
17	14.0	11.5	17.0	14.5	26.0	23.5	---	---	---	---	---	---
18	14.0	12.5	17.0	16.5	23.5	20.5	---	---	---	---	---	---
19	14.0	12.0	19.0	17.0	22.5	20.0	---	---	---	---	---	---
20	14.0	12.0	21.5	19.5	---	---	---	---	---	---	23.0	19.0
21	15.0	13.5	21.5	21.0	---	---	---	---	---	---	20.0	18.0
22	16.5	15.0	22.5	20.5	---	---	---	---	---	---	20.0	18.0
23	16.5	13.0	21.0	18.0	---	---	---	---	---	---	21.0	18.5
24	13.5	11.0	19.0	18.0	---	---	---	---	---	---	---	---
25	13.0	11.5	20.0	18.0	---	---	---	---	---	---	---	---
26	14.0	12.0	20.5	19.0	---	---	---	---	---	---	---	---
27	15.5	14.0	21.5	19.5	---	---	---	---	---	---	---	---
28	17.0	15.5	21.0	19.5	25.0	23.5	---	---	---	---	---	---
29	18.0	17.0	24.0	20.0	26.0	22.0	---	---	---	---	---	---
30	18.5	16.5	---	---	26.5	22.5	---	---	---	---	---	---
31	---	---	---	---	---	---	---	---	---	---	---	---
MONTH	18.5	4.5	24.0	11.0	---	---	---	---	---	---	---	---
YEAR	29.5	2.0										

04108690 KALAMAZOO RIVER AT SAUGATUCK, MICH.
(National stream-quality accounting and pesticide station)

LOCATION.--Lat 42°38'50", long 86°11'53", in NE¼ sec.16, T.3 N., R.16 W., Allegan County, at bridge on Old US-31 between Saugatuck and Douglas, 2.9 mi (4.7 km) upstream from mouth, 7.9 mi (12.7 km) downstream from Rabbit River, and 17.6 mi (28.3 km) downstream from gaging station on Fennville.
DRAINAGE AREA.--2,020 mi² (5,230 km²), approximately.
PERIOD OF RECORD.--Chemical analyses: January to September 1974.
Specific Conductance: February to September 1974.
EXTREMES.--February to September 1974:
Specific conductance: Maximum daily, 590 micromhos Aug. 21, 22, Sept. 11, 12, 15-17; minimum, 380 micromhos Feb. 2, Mar. 5, 12.
REMARKS.--Estimated discharge based on records for gaging station at Fennville.

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
OCT.											
18...	1230	E2000	--	--	--	--	--	250	0	205	E58
JAN.											
31...	1330	E4950	6.8	50	14	8.2	2.4	161	0	132	43
MAR.											
04...	1100	E3900	6.8	40	12	9.8	1.6	149	0	122	21
APR.											
02...	1200	E4200	3.5	53	17	13	2.0	205	0	168	41
MAY											
08...	1100	E2600	2.2	71	21	16	1.9	249	0	204	45
JUNE											
10...	1115	E2850	4.8	65	20	14	2.1	240	0	197	38
JULY											
09...	1305	1240	5.4	71	22	19	1.9	262	0	215	42
AUG.											
07...	1530	1050	1.8	61	18	23	1.9	232	0	190	48
SEP.											
11...	1215	1620	3.3	65	22	23	2.3	285	0	234	49

DATE	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
OCT.										
18...	270	65	--	--	580	7.3	13.0	38	--	--
JAN.										
31...	180	50	9	.3	400	7.6	2.0	30	11.6	85
MAR.										
04...	150	27	12	.4	396	8.2	4.5	8	10.5	83
APR.										
02...	200	34	12	.4	460	7.8	1.0	20	10.8	86
MAY										
08...	260	60	12	.4	540	7.1	7.0	6	8.8	73
JUNE										
10...	240	43	11	.4	500	7.3	22.5	4	8.5	100
JULY										
09...	270	53	13	.5	575	7.6	27.5	2	6.3	80
AUG.										
07...	230	36	18	.7	570	8.3	23.5	4	9.8	120
SEP.										
11...	250	44	16	.6	590	8.2	21.0	7	6.1	69

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)
OCT.										
18...	36	--	E1.1	--	--	--	--	--	--	--
JAN.										
31...	15	.2	1.2	.80	2.0	--	231	219	.31	--
MAR.										
04...	18	.1	.52	.31	.83	.01	200	183	.27	--
APR.										
02...	21	1.4	.90	.97	1.9	.02	270	253	.37	--
MAY										
08...	25	.3	.30	.82	1.1	.08	330	305	.45	--
JUNE										
10...	26	.3	.10	1.1	1.2	.10	323	289	.44	--
JULY										
09...	31	.3	.01	1.1	1.1	.03	350	322	.48	1170
AUG.										
07...	35	.3	.40	.97	1.4	.11	324	303	.44	910
SEP.										
11...	36	.2	.50	.96	1.5	.12	356	327	.48	1560

04108690 KALAMAZOO RIVER AT SAUGATUCK, MICH.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974--Continued

DATE	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)	STREP-TOCOCCI (COL-ONIES PER 100 ML)	AIR TEMPER-ATURE (DEG C)	FLOAT-ING OR SOLID ICE COVER (SEVER-ITY)	TUR-BID-ITY (SEVER-ITY)	TOTAL ORGANIC CARBON (C) (MG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT.										
18...	--	--	--	--	--	--	--	--	--	--
JAN.										
31...	--	110	B230	.0	1	3	7.5	66	--	67
MAR.										
04...	360	--	430	1.0	0	2	--	17	--	62
APR.										
02...	--	--	380	14.5	--	2	9.3	20	--	37
MAY										
08...	2100	5700	B3	5.5	--	3	--	12	--	63
JUNE										
10...	5500	86	130	18.5	--	3	--	--	--	--
JULY										
09...	93	62	B270	30.5	--	2	12	19	64	98
AUG.										
07...	>80000	>120	620	27.0	--	2	--	--	--	--
SEP.										
11...	>80000	>120	98	26.0	--	2	--	9	39	100

DATE	TOTAL PHYTO-PLANKTON COUNT (CELLS/ML)	DOMINANT GENERA	PER-CENT OF TOTAL	MINOR GENERA	PER-CENT OF TOTAL	MINOR GENERA	PER-CENT OF TOTAL	MINOR GENERA	PER-CENT OF TOTAL
JULY, 1974									
09....	54,000	CYCLOTELLA	69	SPHAEROCYSTIS	10	ANKISTRODESMUS	1	TETRAEDRON	0
				MELOSIRA	6	NAVICULA	1		
				SCENEDESMUS	5	CHLAMYDOMONAS	1		
				KIRCHNERIELLA	3	COCCONEIS	1		
				ANACYSTIS	2	SYNEDRA	1		
						OOCYSTIS	1		
AUG.,									
07....	25,000	MELOSIRA	30	SCENEDESMUS	13	ANACYSTIS INCERTA	3	NAVICULA	1
		COELASTRUM	19	CYCLOTELLA	7	AGMENELLUM	2	SYNEDRA	1
		PEDIASTRUM	16	MICRACTINIUM	5	KIRCHNERIELLA	2	TETRAEDRON	1
SEP.,									
11....	17,000	MELOSIRA	24	SCENEDESMUS	14	COELASTRUM	7	NITZSCHIA	1
		CYCLOTELLA	19	MICRACTINIUM	12	PEDIASTRUM	7	EPITHEMIA	1
				CRUCIGENIA	11	ANKISTRODESMUS	2	SYNEDRA	1
								MALLOMONAS	1
								ACTINASTRUM	1

DATE	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT G/SQ M	PERI-PHYTON BIOMASS ASH WEIGHT G/SQ M
JULY 09-AUG. 07	30	10

04108690 KALAMAZOO RIVER AT SAUGATUCK, MICH.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974--Continued

DATE	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
JAN.											
31...	3	0	0	0	1	1	1	1	12	3	240
APR.											
02...	12	12	2	0	--	2	6	5	8	6	1000
JULY											
09...	6	5	--	1	<10	0	--	5	--	4	440

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
JAN.											
31...	0	9	6	150	50	.0	.0	8	1	50	7
APR.											
02...	70	--	2	60	33	--	.1	--	0	60	0
JULY											
09...	10	--	13	130	33	--	.5	--	6	10	0

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C) , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974
INSTANTANEOUS OBSERVATIONS AT 11:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	385	430	480	525	520	535	560	570
2	---	---	---	---	380	440	460	535	520	540	560	540
3	---	---	---	---	415	415	425	535	530	555	555	560
4	---	---	---	---	430	415	435	535	530	560	570	560
5	---	---	---	---	440	380	455	520	540	570	555	580
6	---	---	---	---	450	420	460	535	510	570	560	580
7	---	---	---	---	455	420	450	535	500	570	565	580
8	---	---	---	---	465	400	435	530	520	570	570	580
9	---	---	---	---	480	400	445	530	530	570	575	580
10	---	---	---	---	485	410	450	530	500	565	580	580
11	---	---	---	---	495	400	435	530	505	565	555	590
12	---	---	---	---	505	380	440	530	500	560	555	590
13	---	---	---	---	510	395	450	530	515	560	570	580
14	---	---	---	---	520	400	460	540	520	560	575	580
15	---	---	---	---	525	410	455	530	525	560	575	590
16	---	---	---	---	530	420	465	520	525	565	575	590
17	---	---	---	---	535	420	460	480	535	565	575	590
18	---	---	---	---	535	425	465	490	525	565	580	540
19	---	---	---	---	535	430	475	480	525	565	580	560
20	---	---	---	---	530	440	480	460	510	565	580	570
21	---	---	---	---	525	450	495	460	525	565	590	555
22	---	---	---	---	500	470	505	460	525	560	590	545
23	---	---	---	---	470	470	510	470	515	560	585	545
24	---	---	---	---	495	475	515	480	525	560	585	545
25	---	---	---	---	480	490	520	480	530	565	570	570
26	---	---	---	---	430	480	530	470	530	565	570	560
27	---	---	---	---	435	500	525	480	535	565	560	565
28	---	---	---	---	440	510	530	490	530	565	560	560
29	---	---	---	---	---	500	520	490	535	575	570	530
30	---	---	---	---	---	490	520	480	535	560	570	520
31	---	---	---	---	---	480	---	500	---	---	580	---
MONTH	---	---	---	---	478	438	475	505	522	563	571	566
YEAR	MAX	590	MIN	380	MEAN	515						

04111000 GRAND RIVER NEAR EATON RAPIDS, MICH.

LOCATION.--Lat 42°32'05", long 84°37'25", in NE¼ sec.26, T.2 N., R.3 W., Eaton County, temperature recorder at gaging station on right bank 400 ft (122 m) upstream from bridge on Petrieville Highway, 2 mi (3.2 km) northeast of Eaton Rapids, 2.5 mi (4.0 km) downstream from Spring Brook, 25 mi (40 km) upstream from Red Cedar River, and at mile 178 (km 286).
DRAINAGE AREA.--661 mi^2 (1,712 km^2).
PERIOD OF RECORD.--Water temperature: October 1963 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 27.0°C July 14-15, 28-29; minimum, freezing point on many days during winter period.
Period of record:
Water temperatures (1963-74): Maximum, 35.0°C Aug. 2, 1964; minimum, freezing point on many days during winter periods.

TEMPERATURE (DEG. C) OF WATER , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	17.0	17.0	9.0	8.5	4.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0
2	17.0	17.0	8.5	8.0	3.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0
3	17.0	17.0	8.5	8.0	2.5	2.5	0.0	0.0	0.0	0.0	0.5	0.0
4	17.0	17.0	8.0	7.5	3.5	2.5	0.0	0.0	0.0	0.0	1.0	0.5
5	16.5	16.0	7.5	6.0	3.5	3.0	0.0	0.0	0.0	0.0	3.0	1.0
6	16.5	15.5	5.0	4.5	3.5	3.0	0.0	0.0	0.0	0.0	4.5	3.0
7	16.0	16.0	4.5	4.5	3.0	2.0	0.0	0.0	0.0	0.0	6.5	4.5
8	16.0	16.0	4.5	4.5	2.0	1.5	0.0	0.0	0.0	0.0	6.5	6.0
9	16.5	16.0	4.5	4.5	1.5	1.0	0.0	0.0	0.0	0.0	6.5	5.5
10	16.5	16.0	4.5	4.5	1.0	1.0	0.0	0.0	0.0	0.0	5.5	5.0
11	17.0	16.5	5.0	4.5	1.0	1.0	0.0	0.0	0.0	0.0	5.5	5.0
12	17.0	17.0	4.5	4.5	1.0	1.0	0.0	0.0	0.0	0.0	5.0	4.5
13	17.0	16.5	4.5	4.5	1.0	1.0	0.0	0.0	0.0	0.0	4.5	4.0
14	16.5	15.5	4.5	4.5	1.0	1.0	0.0	0.0	0.0	0.0	4.0	3.5
15	15.5	15.0	5.0	4.5	1.0	1.0	0.0	0.0	0.0	0.0	3.5	3.5
16	15.0	14.0	5.0	5.0	1.0	1.0	0.0	0.0	0.0	0.0	3.5	3.5
17	14.0	13.0	5.0	5.0	1.0	1.0	0.0	0.0	0.0	0.0	4.0	3.5
18	13.0	12.0	5.0	5.0	1.0	1.0	0.0	0.0	0.0	0.0	4.0	4.0
19	12.0	11.0	5.5	5.0	1.0	0.0	0.0	0.0	0.0	0.0	4.5	4.0
20	11.0	10.5	5.0	5.0	1.0	0.0	0.0	0.0	0.0	0.0	4.5	4.0
21	10.5	9.5	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	5.0	4.5
22	9.5	9.5	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	4.0
23	9.5	9.5	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	4.5	4.0
24	9.5	9.5	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	2.5
25	10.0	9.5	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	2.5	2.0
26	9.5	9.5	5.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0
27	9.5	9.5	5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0
28	9.5	9.5	5.5	5.5	0.0	0.0	0.0	0.0	0.0	0.0	2.0	2.0
29	9.5	9.5	5.5	5.0	0.0	0.0	0.0	0.0	---	---	2.0	2.0
30	9.5	9.5	5.0	4.0	0.0	0.0	0.0	0.0	---	---	2.0	2.0
31	9.5	9.5	---	---	0.0	0.0	0.0	0.0	---	---	3.0	2.5
MONTH	17.0	9.5	9.0	4.0	4.0	0.0	0.0	0.0	0.0	0.0	6.5	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	4.5	3.0	17.0	16.5	19.5	19.5	25.5	21.5	25.5	23.0	23.0	20.0
2	8.0	4.5	17.0	16.0	19.5	19.5	25.5	22.5	25.0	23.0	22.0	19.0
3	8.5	8.0	17.5	16.5	20.0	19.5	26.5	22.5	25.0	24.0	19.0	18.0
4	8.5	8.5	16.5	15.5	22.5	20.0	26.5	24.5	25.0	22.0	19.0	17.0
5	8.5	8.5	16.0	15.0	23.5	22.0	26.0	23.0	24.5	21.5	18.5	17.0
6	8.5	7.5	15.0	12.5	24.5	23.0	26.5	23.5	25.0	22.5	18.5	16.5
7	8.0	8.0	12.5	11.5	24.5	23.5	26.0	23.5	25.0	22.0	19.0	17.0
8	8.0	7.0	12.5	11.5	25.5	24.0	26.0	24.5	25.0	24.0	20.5	18.0
9	7.0	6.0	11.5	11.0	26.0	24.5	26.0	25.0	25.0	24.5	21.0	18.5
10	8.0	6.5	11.0	10.0	26.0	23.0	26.0	26.0	25.0	24.5	20.5	19.0
11	8.5	8.0	10.5	10.5	23.0	21.5	26.0	24.0	24.5	24.0	22.0	20.0
12	9.0	8.5	11.5	10.5	21.5	20.5	26.0	23.5	24.5	24.5	22.5	21.0
13	11.5	9.0	11.5	11.5	21.5	20.5	26.0	24.5	24.5	23.5	22.5	20.5
14	12.5	11.5	12.0	12.0	22.5	20.5	27.0	26.0	24.5	24.0	20.5	18.5
15	12.5	11.5	14.0	12.5	22.5	21.0	27.0	25.5	24.5	24.0	19.0	17.5
16	11.5	10.5	14.0	14.0	22.0	20.5	26.5	24.5	24.5	24.0	19.0	16.5
17	11.5	10.5	14.0	14.0	20.5	19.5	26.5	24.5	24.0	23.0	19.0	17.5
18	12.0	12.0	14.5	14.0	19.5	19.0	26.0	25.0	24.0	23.0	19.0	17.0
19	12.0	11.5	17.0	15.0	19.5	19.5	26.0	24.5	24.0	23.5	19.5	16.5
20	13.0	12.0	18.0	17.0	24.0	19.5	25.5	24.0	24.0	23.5	19.5	17.5
21	14.5	13.0	19.0	18.0	24.0	20.5	25.5	23.5	24.0	23.5	17.5	16.5
22	14.5	13.0	19.5	19.0	24.0	22.0	25.5	23.5	24.0	23.5	17.5	16.0
23	13.0	11.5	20.5	19.5	22.5	20.5	23.5	23.0	24.0	24.0	16.0	15.0
24	11.5	11.5	20.5	20.0	21.0	20.0	25.0	20.5	24.0	23.5	15.5	14.0
25	12.0	11.5	20.5	19.5	21.5	20.0	25.0	23.0	23.5	22.0	14.5	14.5
26	12.0	11.5	19.5	18.5	23.0	20.0	25.0	22.5	23.5	23.0	15.0	14.0
27	14.5	12.0	18.5	18.0	22.0	19.5	25.0	23.0	23.5	23.5	15.0	15.0
28	15.0	13.5	18.0	17.0	23.0	20.0	27.0	23.0	23.5	21.5	15.5	15.0
29	16.5	15.0	18.0	17.5	24.0	21.0	27.0	24.5	23.0	20.0	15.5	15.5
30	17.0	16.5	19.5	18.0	25.0	21.5	25.5	24.5	23.0	21.0	15.5	14.5
31	---	---	19.5	19.5	---	---	25.5	23.0	23.0	21.5	---	---
MONTH	17.0	3.0	20.5	10.0	26.0	19.0	27.0	20.5	25.5	20.0	23.0	14.0
YEAR	27.0	0.0										

04121500 MUSKEGON RIVER AT EVART, MICH.

LOCATION.--Lat 43°53'57", long 85°15'19", in NW¼NE¼ sec.3, T.17 N., R.8 W., Osceola County, temperature recorder at gaging station on right bank, 500 ft (152 m) downstream from bridge on U.S. Highway 10 at Evart, 0.4 mi (0.6 km) upstream from Twin Creek, and at mile 123.9 (199.4 km).
DRAINAGE AREA.-1,450 mi^2 (3,760 km^2) approximately.
PERIOD OF RECORD.--Water temperatures: November 1956 to September 1974.
EXTREMES. 1973-74:
Water temperatures: Maximum, 24.5°C July 9, 10, 14; minimum, freezing point on many days during January to March.
Period of record:
Water temperatures (1956-74): Maximum, 28.0°C July 1, 1963; minimum, freezing point on many days during winter periods.
REMARKS.--Intermittent ice cover during the winter period. Recorder stopped Aug. 25-28, range in temperature 16.5°C to 20.0°C.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	14.5	12.0	8.5	8.0	4.0	3.5	0.5	0.0	1.0	0.5	0.0	0.0
2	14.5	14.0	8.0	7.0	3.5	3.0	0.0	0.0	0.5	0.0	0.0	0.0
3	15.5	14.5	7.0	6.5	3.5	3.0	0.0	0.0	0.5	0.0	0.0	0.0
4	15.0	14.0	6.5	5.5	4.0	3.5	0.0	0.0	0.5	0.0	0.0	0.0
5	14.5	11.5	5.5	4.5	4.0	4.0	0.0	0.0	0.5	0.0	0.0	0.0
6	14.0	11.5	5.0	4.0	4.0	3.5	0.0	0.0	0.0	0.0	0.0	0.0
7	13.0	12.0	4.0	3.5	3.5	3.0	0.0	0.0	0.0	0.0	0.0	0.0
8	14.0	13.0	3.5	3.5	3.0	3.0	0.0	0.0	0.0	0.0	0.5	0.0
9	15.5	14.0	3.5	3.0	3.0	2.0	0.0	0.0	0.0	0.0	0.5	0.0
10	16.5	15.0	3.5	3.0	2.0	2.0	0.0	0.0	0.0	0.0	0.5	0.0
11	17.0	15.5	3.5	3.5	2.0	1.5	0.0	0.0	0.0	0.0	0.5	0.5
12	17.0	15.5	4.5	3.5	1.5	1.5	0.0	0.0	0.0	0.0	0.5	0.5
13	16.0	15.0	5.5	4.5	1.5	1.0	0.0	0.0	0.0	0.0	0.5	0.5
14	15.0	13.5	6.0	5.5	1.0	1.0	0.0	0.0	0.0	0.0	0.5	0.5
15	14.5	13.0	6.0	5.5	1.0	1.0	0.5	0.0	0.0	0.0	0.5	0.5
16	13.0	10.0	5.5	4.5	1.0	1.0	0.5	0.5	0.0	0.0	1.5	0.5
17	10.0	9.5	4.5	4.0	1.5	1.0	0.5	0.0	0.0	0.0	1.5	1.0
18	10.0	9.0	4.0	4.0	1.5	1.5	0.5	0.5	0.0	0.0	1.5	1.5
19	9.0	8.5	4.5	4.0	1.5	1.5	0.5	0.5	0.5	0.0	1.5	1.0
20	9.5	8.5	5.0	4.5	1.5	1.0	0.5	0.0	0.5	0.0	1.5	1.0
21	9.5	8.0	6.0	5.0	1.0	1.0	0.5	0.0	0.5	0.0	1.5	1.0
22	9.5	8.5	6.5	6.0	1.0	1.0	0.5	0.0	0.5	0.0	1.5	0.5
23	10.0	8.5	6.5	6.0	1.0	1.0	0.5	0.5	0.5	0.0	0.5	0.0
24	10.5	9.0	6.0	5.5	1.0	1.0	0.5	0.5	0.0	0.0	0.0	0.0
25	11.0	10.0	5.5	5.5	1.0	1.0	1.0	0.5	0.0	0.0	0.0	0.0
26	11.5	11.0	5.5	5.5	1.0	1.0	1.0	1.0	0.0	0.0	0.5	0.0
27	11.0	9.5	5.5	5.5	1.0	1.0	1.0	1.0	0.0	0.0	0.5	0.0
28	9.5	8.5	5.5	5.0	1.0	1.0	1.0	1.0	0.0	0.0	0.5	0.0
29	8.5	8.0	5.0	4.5	1.0	1.0	1.0	1.0	---	---	0.5	0.0
30	8.0	8.0	4.5	4.0	1.0	1.0	1.0	1.0	---	---	0.5	0.5
31	8.5	8.0	---	---	1.0	0.5	1.0	1.0	---	---	2.0	0.5
MONTH	17.0	8.0	8.5	3.0	4.0	0.5	1.0	0.0	1.0	0.0	2.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	3.0	2.0	15.0	14.0	18.0	15.5	22.0	20.0	20.0	18.5	18.0	15.5
2	4.0	2.0	15.0	14.0	18.0	16.0	21.5	20.0	19.5	18.0	16.5	14.5
3	4.0	3.5	14.5	13.5	18.5	16.5	23.5	20.5	19.5	18.5	14.5	13.0
4	4.0	3.5	13.5	11.5	19.5	16.5	23.5	21.5	19.5	18.0	14.0	11.5
5	4.0	3.0	13.0	11.0	20.0	18.5	21.5	20.0	19.5	16.5	14.0	11.5
6	3.5	3.0	11.0	9.5	20.0	19.5	22.0	20.0	20.0	18.0	14.5	11.5
7	3.5	3.5	10.0	9.0	20.0	19.5	23.0	21.0	21.5	19.0	14.5	13.0
8	4.0	3.5	10.0	9.5	21.0	20.0	23.5	21.5	21.0	19.5	16.5	13.5
9	4.0	3.5	9.5	9.0	21.0	20.0	24.5	22.0	20.5	18.5	18.0	15.5
10	5.0	4.0	11.5	9.5	20.5	19.0	24.5	23.5	20.5	19.0	18.5	16.0
11	5.0	5.0	11.5	11.0	19.0	17.0	23.5	21.5	20.5	19.5	19.5	18.0
12	6.0	5.0	11.0	10.5	18.0	16.5	22.0	21.0	20.5	19.0	20.0	19.0
13	7.0	6.0	11.0	10.0	19.0	17.0	23.5	21.5	21.5	19.5	19.0	16.5
14	8.0	7.0	10.0	9.5	19.0	18.0	24.5	23.0	21.0	18.5	16.5	15.0
15	8.5	7.0	10.5	10.0	19.0	18.0	24.0	21.5	20.5	18.5	16.5	14.5
16	8.5	8.0	10.5	10.5	19.0	16.5	23.0	20.5	20.5	18.5	16.0	14.0
17	9.0	8.0	13.0	10.0	16.5	15.5	22.0	20.5	20.0	18.0	15.5	13.5
18	9.0	9.0	13.5	12.0	15.5	15.0	23.0	20.0	20.5	18.0	15.5	13.0
19	9.0	8.5	15.0	13.5	18.0	15.5	23.5	21.5	20.5	18.5	15.5	13.0
20	9.0	8.5	15.5	14.5	19.5	17.0	23.0	21.0	21.5	19.0	15.5	14.0
21	10.0	9.0	16.5	15.5	21.0	19.5	23.0	20.0	21.5	19.5	15.0	13.0
22	11.0	10.0	18.0	16.5	21.0	20.0	21.5	20.0	21.5	20.0	13.5	11.0
23	11.0	9.5	18.0	17.0	20.5	19.0	20.0	18.5	21.5	20.5	11.5	10.0
24	9.5	8.5	18.0	16.0	19.0	18.0	21.5	19.0	21.0	18.5	11.0	10.5
25	9.0	8.5	16.0	14.5	19.0	17.0	21.5	19.5	---	---	12.0	10.0
26	9.5	8.0	14.5	13.5	19.5	17.0	21.5	19.0	---	---	13.5	10.5
27	11.5	9.5	14.5	13.5	20.5	18.0	22.0	20.0	---	---	14.5	12.0
28	13.0	11.5	14.0	13.5	21.0	19.0	22.0	20.0	---	---	14.5	14.0
29	14.5	13.0	15.0	13.5	21.0	19.0	23.0	20.0	18.0	16.5	14.5	13.0
30	15.0	14.5	16.5	15.0	21.5	19.5	21.0	19.0	18.5	16.5	13.0	11.0
31	---	---	16.5	16.0	---	---	20.0	18.5	18.5	16.5	---	---
MONTH	15.0	2.0	18.0	9.0	21.5	15.0	24.5	18.5	21.5	16.5	20.0	10.0
YEAR	24.5	0.0										

04121900 LITTLE MUSKEGON RIVER NEAR MORLEY, MICH.

LOCATION.--Lat 43°30'09", long 85°20'33", in SW¼SW¼ sec.24, T.13 N., R.9 W., Mecosta County, temperature recorder at gaging station on right bank at upstream side of highway bridge on 130 Avenue, 0.5 mi (0.8 km) downstream from Rustford Dam, and 5.2 mi (8.4 km) east of Morley.
DRAINAGE AREA.--138 mi² (357 km²).
PERIOD OF RECORD.--Water temperature: November 1966 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 26.0°C July 9; minimum, freezing point on many days during December to February.
Period of record:
Water temperatures (1966-74): Maximum, 28.0°C Aug. 23, 1968, June 28, 1971; minimum, freezing point on many days during winter periods.
REMARKS.--Intermittent ice cover during the winter period. Some regulation from dams above station.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	16.0	12.0	9.5	8.5	4.5	3.5	0.0	0.0	0.0	0.0	3.0	2.0
2	16.5	14.5	8.5	7.5	3.5	2.5	0.0	0.0	0.0	0.0	3.0	2.5
3	16.5	15.0	8.0	6.5	5.5	3.5	0.0	0.0	0.0	0.0	3.5	1.5
4	15.5	13.5	7.0	6.0	5.5	5.5	0.0	0.0	0.0	0.0	1.5	0.5
5	15.0	11.5	6.5	4.5	5.5	4.0	0.0	0.0	0.0	0.0	2.5	0.5
6	12.5	10.0	4.5	3.0	4.0	3.0	0.0	0.0	0.0	0.0	3.5	1.0
7	14.0	12.0	3.5	2.5	3.0	2.5	0.0	0.0	0.0	0.0	5.0	2.5
8	14.5	12.5	5.0	3.5	3.0	2.5	0.0	0.0	0.0	0.0	4.0	2.0
9	16.5	13.5	4.0	3.0	3.0	2.5	0.0	0.0	0.0	0.0	2.0	1.5
10	18.0	14.5	4.0	3.0	3.0	2.5	0.0	0.0	0.0	0.0	4.0	1.0
11	18.0	15.0	4.0	3.5	2.5	2.0	0.0	0.0	0.0	0.0	3.0	1.5
12	16.0	14.5	6.5	4.0	2.0	1.5	0.0	0.0	0.0	0.0	4.5	2.0
13	15.5	14.0	8.0	6.5	2.0	1.0	0.0	0.0	0.0	0.0	4.0	1.5
14	14.5	12.5	8.5	7.0	1.0	0.5	0.0	0.0	0.0	0.0	4.0	1.5
15	14.0	12.5	8.5	6.0	0.5	0.5	0.0	0.0	0.0	0.0	4.0	3.5
16	12.5	10.5	6.0	4.5	0.5	0.5	0.0	0.0	0.0	0.0	4.5	3.0
17	11.0	9.0	4.5	4.0	0.5	0.5	0.0	0.0	0.0	0.0	5.5	2.5
18	11.0	9.0	5.5	4.5	0.5	0.5	0.0	0.0	1.0	0.0	4.0	3.0
19	10.0	8.0	6.5	5.5	0.5	0.5	1.0	0.0	2.0	1.0	5.0	2.5
20	11.5	9.0	7.0	5.5	0.5	0.0	1.0	1.0	2.0	0.0	4.5	2.0
21	11.0	8.0	8.0	6.5	0.0	0.0	1.0	0.5	3.0	1.5	5.5	2.5
22	11.5	8.0	7.5	6.5	0.0	0.0	0.5	0.0	2.0	0.0	4.0	2.0
23	11.5	8.5	7.0	6.0	0.0	0.0	1.0	0.0	0.0	0.0	3.0	1.0
24	12.5	9.0	6.0	5.0	0.0	0.0	1.5	0.0	0.0	0.0	2.5	1.0
25	13.0	10.5	5.5	5.5	0.0	0.0	2.0	1.0	0.5	0.0	1.0	1.0
26	13.5	11.5	5.5	5.0	1.0	0.0	1.5	0.5	0.5	0.5	4.5	1.0
27	11.5	9.5	6.5	5.5	1.0	1.0	1.0	0.0	2.0	0.5	3.5	2.0
28	10.0	9.0	6.5	5.5	1.5	1.0	0.0	0.0	4.0	1.5	3.5	1.5
29	9.0	8.5	5.5	4.0	1.5	0.5	0.0	0.0	---	---	3.0	1.0
30	9.5	8.5	4.5	3.5	0.5	0.0	2.0	0.0	---	---	3.0	1.5
31	9.5	9.0	---	---	0.0	0.0	1.5	0.0	---	---	4.0	2.0
MONTH	18.0	8.0	9.5	2.5	5.5	0.0	2.0	0.0	4.0	0.0	5.5	0.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	4.5	2.5	16.0	12.5	19.0	14.0	22.0	17.0	20.0	16.5	17.5	14.5
2	6.5	2.5	16.5	12.0	19.0	15.0	20.5	17.5	19.5	16.5	16.0	13.0
3	7.0	4.5	15.0	12.5	17.5	14.5	24.5	19.0	21.0	17.0	15.0	11.5
4	7.0	5.0	14.5	10.5	20.5	15.5	23.0	20.0	18.5	16.5	15.0	11.0
5	5.0	3.5	13.0	10.5	20.5	17.5	22.0	17.5	21.0	15.5	15.5	11.5
6	6.0	2.5	10.5	8.5	19.5	18.0	23.0	18.0	21.5	16.0	16.5	12.0
7	6.5	5.0	12.0	7.5	20.0	18.0	24.0	18.0	22.0	17.5	16.0	13.0
8	5.5	3.0	11.5	8.5	21.5	18.5	25.0	20.0	21.0	18.0	18.5	13.5
9	7.0	3.0	10.5	8.0	21.5	19.5	26.0	21.0	21.5	17.0	19.5	15.0
10	8.5	4.5	13.5	8.5	20.5	16.5	24.5	20.5	20.5	17.5	18.5	15.5
11	8.5	8.0	12.5	11.0	16.5	14.5	23.0	18.0	21.5	18.5	21.0	17.5
12	10.5	7.5	11.5	10.0	17.5	13.0	23.0	17.0	21.0	17.0	19.5	17.5
13	11.5	9.0	10.5	9.0	18.5	14.5	25.0	19.0	22.5	18.0	17.5	15.0
14	11.5	9.5	11.0	8.5	18.5	15.5	25.5	21.0	22.0	16.5	16.5	13.5
15	10.0	7.5	12.0	10.5	19.0	16.5	23.0	20.0	21.5	16.5	17.5	13.5
16	11.0	7.0	11.5	10.0	17.5	14.0	23.0	17.5	19.0	17.0	16.5	12.0
17	12.0	8.5	14.0	10.0	14.0	13.0	20.5	18.0	21.5	16.5	15.0	12.5
18	11.5	8.5	14.0	13.0	16.0	13.0	24.0	18.5	21.5	16.5	16.0	12.0
19	10.5	6.5	16.5	12.5	19.0	15.0	24.5	20.0	22.0	17.5	17.0	11.5
20	11.5	7.5	17.5	13.5	21.5	16.0	23.5	18.5	22.5	18.0	16.0	13.5
21	12.5	10.5	18.5	15.5	22.0	18.5	22.0	16.5	22.5	18.5	14.5	12.5
22	14.0	11.5	19.5	17.5	20.0	17.5	20.0	16.5	23.0	19.0	12.5	10.0
23	12.0	8.0	19.5	16.5	18.0	15.5	20.5	15.5	23.0	19.5	11.5	8.5
24	11.5	6.5	18.0	15.5	17.5	14.0	22.0	16.5	20.0	16.5	11.0	9.5
25	10.5	8.0	15.5	14.0	17.5	13.5	19.5	18.0	21.0	15.5	13.5	10.0
26	13.5	7.5	15.0	12.5	19.5	14.5	22.5	17.0	22.5	16.5	14.5	10.0
27	15.0	11.0	14.5	12.5	21.0	15.5	23.5	18.5	20.5	18.0	15.5	12.0
28	14.5	13.0	13.5	12.5	21.5	16.5	23.0	17.5	19.0	16.0	15.0	14.0
29	16.0	13.5	16.5	13.5	21.0	16.0	22.5	18.5	19.0	15.0	14.5	12.0
30	16.0	15.0	16.5	14.5	21.0	17.0	21.0	17.5	20.0	15.5	12.0	10.0
31	---	---	18.0	15.5	---	---	22.0	17.0	19.5	16.0	---	---
MONTH	16.0	2.5	19.5	7.5	22.0	13.0	26.0	15.5	23.0	15.0	21.0	8.5
YEAR	26.0	0.0										

04122030 MUSKEGON RIVER NEAR BRIDGETON, MICH.
(National stream-quality accounting station)

LOCATION.--Lat 43°19'05", long 86°02'11", in SW¼ NW¼ sec.30, T.11 N., R.14 W., Newago County, at bridge on Maple Island Rd., 5 mi (8 km) southwest of Bridgeton, 13 mi (21 km) upstream from Muskegon Lake, and 20 mi (32 km) downstream from gaging station at Newago.
DRAINAGE AREA.--2,420 mi^2 (6,270 km^2), approximately.
PERIOD OF RECORD.--Chemical analyses: July to September 1974.
REMARKS.--Estimated discharges are based on records at gaging station at Newago.

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)
OCT. 08...	1545	--	--	--	--	--	--	186	0	153
JULY 10...	1540	2020	4.5	39	12	7.0	1.2	152	0	125
AUG. 08...	1200	1370	3.9	44	11	9.7	1.0	171	0	140
SEP. 12...	0945	1240	5.5	46	14	11	1.0	175	0	144

DATE	DISSOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)
OCT. 08...	--	184	31	--	--	395	8.1	14.0	2	--
JULY 10...	1110	150	22	9	.3	285	7.9	22.5	2	8.2
AUG. 08...	947	160	15	12	.3	360	8.1	22.5	3	8.7
SEP. 12...	790	170	29	12	.4	375	8.2	21.5	2	7.7

DATE	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)
OCT. 08...	E17	23	--	--	--	--	--	--	--	--
JULY 10...	14	13	.1	.13	.44	.57	.01	204	166	.28
AUG. 08...	17	17	.2	.10	.61	.71	.02	256	188	.35
SEP. 12...	21	18	.2	.06	.39	.45	.04	236	203	.32

04122030 MUSKEGON RIVER NEAR BRIDGETON, MICH.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974--Continued

DATE	PER-CENT SATUR-ATION	IMMF-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)	STREP-TOCOCCI (COL-ONIES PER 100 ML)	AIR TEMPER-ATURE (DEG C)	TUR-BID-ITY (SEVER-ITY)	TOTAL ORGANIC CARBON (C) (MG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
OCT.										
08...	--	--	--	--	--	--	--	--	--	--
JULY										
10...	95	560	35	49	25.5	3	11	18	98	54
AUG.										
08...	100	>320	>240	59	28.0	1	--	--	--	--
SEP.										
12...	88	>800	>240	71	21.0	1	--	14	47	100

DATE	TOTAL PHYTO-PLANKTON COUNT (CELLS/ML)	DOMINANT GENERA	PER-CENT OF TOTAL	MINOR GENERA	PER-CENT OF TOTAL	MINOR GENERA	PER-CENT OF TOTAL	MINOR GENERA	PER-CENT OF TOTAL
JULY, 1974									
10....	2,300	MELOSIRA	63	ANACYSTIS	6	GOMPHONEMA	2	RHOIOCOSPHENIA	1
				NAVICULA	5	CYCLOTELLA	2	SYNEDRA	1
				COCCONEIS	5	DINOBRYON	2		
				ACHNANTHES	5	SCHROEDERIA	2		
						CYMBELLA	2		
						DIATOMA	2		
						ANKISTRODESMUS	2		
AUG.,									
08....	8,000	FRAGILARIA	65	MELOSIRA	14	COCCONEIS	1	SYNEDRA	0
				ANACYSTIS INCERTA	10	ASTERIONELLA	1	DINOBRYON	0
				ACHNANTHES	3				
				ANABAENA	2				
				NAVICULA	2				
SEP.,									
12....	21,000	GOMPHOSPHAERIA	75	DIATOMA	10	CYMBELLA	1	GYROSIGMA	0
				NAVICULA	3	CERATIUM	1	COCCONEIS	0
				FRAGILARIA	3	SYNEDRA	1	TREUBARIA	0
				MELOSIRA	2	ASTERIONELLA	1		
				CYCLOTELLA	1	STEPHANODISCUS			

DATE	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)
JULY									
10...	--	1	1	<10	0	7	3	190	10

DATE	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
JULY									
10...	15	25	17	--	.6	4	4	30	0

04122080 MUSKEGON RIVER NEAR MUSKEGON, MICH.
(National stream-quality accounting station)

LOCATION.--Lat 43°16'00", long 86°12'25", in NW¼ secs. 10 and 15, T.10 N., R.16 W., Muskegon County, at bridges of U.S. Highway 31, 1 mi. (1.6 km) north of Muskegon, about 2 mi (3.2 km) above Muskegon Lake, 8.0 mi (12.8 km) upstream from mouth, and 31 mi (50 km) downstream from gaging station at Newago.
DRAINAGE AREA.--2,570 mi^2 (6,660 km^2), approximately.
PERIOD OF RECORD.--Chemical analyses: January to July 1974 (discontinued).
REMARKS.--Samples are composits of individual samples taken from North and South Channels of Muskegon River. Activities moved July 1974 11 mi (18 km) upstream to Muskegon River near Bridgeton (p. 57). Estimated discharge based on records at gaging station at Newago.

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)
JAN. 31...	1900	E3980	7.3	--	--	9.2	1.3	162	0	133
MAR. 04...	1520	E3490	6.4	51	15	9.7	2.1	176	0	144
APR. 02...	1600	E3640	5.4	35	11	8.5	1.7	136	0	112
MAY 08...	1530	E2740	4.0	40	12	7.7	1.6	138	0	113
JUNE 11...	0755	E4020	5.6	44	12	7.7	1.6	153	0	126
JULY 10...	0955	E2770	6.0	44	13	8.9	1.2	166	0	136

DATE	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	TURBIDITY (JTU)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION
JAN. 31...	--	--	0	--	355	7.8	.5	6	10.6	75
MAR. 04...	190	45	10	.3	330	7.1	2.5	8	11.8	90
APR. 02...	130	21	12	.3	300	7.9	5.5	10	12.6	99
MAY 08...	150	36	10	.3	300	8.4	7.5	4	9.2	79
JUNE 11...	160	34	9	.3	320	8.0	16.0	8	7.4	79
JULY 10...	160	27	11	.3	335	7.4	24.0	1	4.6	56

DATE	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (SUM OF CONSTITUENTS) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)
JAN. 31...	21	18	.1	.38	.13	.51	.00	198	--	.27
MAR. 04...	39	16	.2	1.1	.45	1.6	.04	245	226	.33
APR. 02...	19	15	1.4	.37	.52	.89	.01	184	164	.25
MAY 08...	17	14	.2	.11	.47	.58	.01	170	164	.23
JUNE 11...	15	17	.3	.21	.55	.76	.06	204	179	.28
JULY 10...	16	16	.2	.17	.70	.87	.03	231	187	.31

04122080 MUSKEGON RIVER NEAR MUSKEGON, MICH.--Continued

WATER-QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974--Continued

DATE	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)	STREP-TOCOCCI (COL-ONIES PER 100 ML)	AIR TEMPER-ATURE (DEG C)	FLOAT-ING OR SOLID ICE COVER (SEVER-ITY)	TUR-BID-ITY (SEVER-ITY)	TOTAL ORGANIC CARBON (C) (MG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
JAN. 31...	--	29	110	-7.0	1	2	5.0	76	23
MAR. 04...	1200	--	620	2.5	0	3	--	97	62
APR. 02...	--	--	810	16.0	--	3	8.0	30	39
MAY 08...	270	3200	86	5.0	--	2	--	12	15
JUNE 11...	7500	100	190	14.0	--	4	--	48	33
JULY 10...	>8000	82	430	24.0	--	2	8.9	21	65

DATE	TOTAL PHYTO-PLANKTON COUNT (CELLS/ML)	DOMINANT GENERA	PER-CENT OF TOTAL	MINOR GENERA	PER-CENT OF TOTAL	MINOR GENERA	PER-CENT OF TOTAL	MINOR GENERA	PER-CENT OF TOTAL
JULY, 1974	9,100	ANACYSTIS INCERTA	47	NAVICULA	6	CYCLOTELIA	2	SURIRELLA	0
		MELOSIRA	33	PANDORINA	5	ANACYSTIS	1	COCCONEIS	0
						OOCYSTIS	1	SYNEDRA	0
								DIATOMA	0
								DINOBRYON	0
								ANKISTRODESMUS	0

DATE	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
JAN. 31...	6	0	1	1	0	0	0	1	7	3	690
APR. 02...	6	0	2	1	0	0	<7	<7	6	1	500
JULY 10...	3	3	--	1	10	0	--	4	--	3	410

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
JAN. 31...	--	--	4	50	25	.0	.0	8	0	40	10
APR. 02...	70	--	<3	30	17	<.2	<.2	--	0	200	10
JULY 10...	50	--	12	100	33	--	.5	7	7	7	0

04122500 PERE MARQUETTE RIVER AT SCOTTVILLE, MICH.

LOCATION.--Lat 43°56'42", long 86°16'43", in NW¼NW¼ sec.19, T.18 N., R.16 W., Mason County, temperature recorder at gaging station on right bank 20 ft (6.1 m) upstream from highway bridge at south edge of Scottville, 1.4 mi (2.3 km) upstream from India Creek, 5.6 mi (9.0 km) downstream from Big South Branch.
DRAINAGE AREA.--709 mi² (1,836 km²).
PERIOD OF RECORD.--Water temperatures: May 1968 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 22.0°C July 9, 10, 14, 15; minimum, freezing point on many days during December to March.
Period of record:
Water temperatures (1968-74): Maximum, 24.5°C June 29, 30, 1971; minimum, freezing point on many days during winter periods.
REMARKS.--Intermittent ice cover during winter periods. A summary of periodic specific conductance data for this station is on page 135.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	14.5	14.0	8.0	7.5	5.0	4.5	0.0	0.0	0.0	0.0	0.5	0.0
2	14.0	14.0	7.5	7.0	4.5	3.5	0.0	0.0	0.0	0.0	1.5	0.5
3	15.0	14.0	7.0	6.0	5.0	4.0	0.0	0.0	0.0	0.0	2.0	1.5
4	15.0	14.0	6.0	5.5	5.0	5.0	0.0	0.0	0.0	0.0	2.0	1.0
5	14.0	12.5	5.5	3.5	5.0	5.0	0.0	0.0	0.0	0.0	1.5	1.0
6	12.5	11.5	3.5	3.5	5.0	4.5	0.0	0.0	0.0	0.0	1.5	1.0
7	12.5	12.0	3.5	3.0	4.5	4.0	0.0	0.0	0.0	0.0	2.5	1.5
8	12.5	12.5	3.5	3.5	4.0	3.5	0.0	0.0	0.0	0.0	2.5	2.5
9	14.5	12.5	3.5	3.0	3.5	3.0	0.0	0.0	0.0	0.0	2.5	2.5
10	15.5	14.5	3.5	3.0	3.0	2.5	0.0	0.0	0.0	0.0	3.0	2.0
11	16.0	15.5	3.5	3.5	2.5	2.5	0.0	0.0	0.0	0.0	3.0	2.5
12	16.0	16.0	5.5	3.5	2.5	2.0	0.0	0.0	0.0	0.0	3.5	2.5
13	16.0	16.0	7.0	5.5	2.0	1.5	0.0	0.0	0.0	0.0	3.5	2.0
14	16.0	14.0	7.5	7.0	1.5	1.0	0.0	0.0	0.0	0.0	2.5	1.5
15	14.0	13.5	7.5	7.0	1.0	1.0	0.0	0.0	0.0	0.0	3.0	2.5
16	13.5	11.0	7.0	6.0	1.0	1.0	0.0	0.0	0.0	0.0	4.0	3.0
17	11.0	10.5	6.0	5.5	1.0	1.0	0.0	0.0	0.0	0.0	4.0	3.0
18	10.5	10.5	5.5	5.5	1.0	1.0	0.0	0.0	0.0	0.0	4.0	3.0
19	10.5	9.5	6.5	5.5	1.0	1.0	0.0	0.0	0.0	0.0	3.0	2.5
20	10.0	9.5	6.5	6.0	1.0	1.0	0.0	0.0	0.0	0.0	3.0	1.5
21	10.0	9.0	7.0	6.5	1.0	1.0	0.0	0.0	0.0	0.0	3.0	2.0
22	9.5	9.0	7.0	7.0	1.0	0.5	0.0	0.0	0.0	0.0	3.0	1.5
23	9.0	8.5	7.0	7.0	0.5	0.5	0.5	0.0	0.0	0.0	1.5	0.5
24	9.5	9.0	7.0	6.5	0.5	0.5	0.0	0.0	0.0	0.0	1.0	0.5
25	10.0	9.5	6.5	6.5	0.5	0.0	0.5	0.0	0.0	0.0	0.5	0.0
26	10.0	10.0	6.5	6.5	0.0	0.0	1.0	0.5	0.0	0.0	1.0	0.0
27	10.0	9.0	6.5	6.0	0.0	0.0	1.0	1.0	0.0	0.0	1.5	1.0
28	9.0	8.5	6.0	6.0	0.0	0.0	1.0	0.0	0.0	0.0	1.5	1.0
29	8.5	8.0	6.0	5.0	0.0	0.0	0.0	0.0	---	---	2.0	1.0
30	8.0	8.0	5.0	5.0	0.0	0.0	0.0	0.0	---	---	2.0	1.5
31	8.0	8.0	---	---	0.0	0.0	0.0	0.0	---	---	3.0	1.5
MONTH	16.0	8.0	8.0	3.0	5.0	0.0	1.0	0.0	0.0	0.0	4.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	3.5	3.0	14.0	12.0	17.0	15.0	19.5	18.0	18.0	17.5	16.5	15.5
2	5.5	3.5	14.0	12.0	18.5	16.0	19.5	18.0	18.0	17.0	16.0	15.0
3	6.0	5.0	14.0	12.5	18.5	16.0	20.5	18.5	18.5	17.5	15.0	14.0
4	6.0	5.0	13.0	11.0	19.0	15.5	20.5	20.0	18.5	17.5	14.0	12.5
5	5.0	4.0	13.0	11.0	19.0	17.0	20.0	18.5	17.5	16.0	13.5	12.5
6	5.0	4.0	11.5	9.5	18.0	17.5	19.0	18.5	18.0	16.5	14.0	13.0
7	5.5	5.0	11.5	9.0	18.5	18.0	19.5	19.0	18.5	17.5	14.0	13.5
8	5.5	4.0	11.5	9.5	19.0	18.0	20.5	19.5	18.5	17.5	15.5	13.5
9	6.0	4.5	10.0	8.5	19.0	19.0	22.0	20.5	18.0	17.0	16.5	15.5
10	7.0	5.0	11.5	9.0	19.0	18.0	22.0	21.5	18.5	17.5	17.0	16.5
11	7.0	7.0	11.5	10.5	18.0	16.5	21.5	19.5	18.5	18.5	19.0	17.0
12	8.5	7.0	10.5	10.0	16.5	16.0	20.5	18.5	18.5	17.5	19.0	18.5
13	9.5	8.5	10.0	9.0	16.5	16.0	21.5	19.5	19.0	17.5	18.5	16.5
14	9.5	9.0	9.5	8.5	17.0	16.5	22.0	21.0	19.0	17.5	16.5	14.5
15	9.0	7.5	10.5	9.5	17.5	17.0	22.0	20.5	18.5	17.5	15.0	14.5
16	9.0	8.0	10.5	10.5	17.5	15.5	21.0	19.0	18.5	18.0	15.0	13.5
17	9.0	8.5	12.5	10.5	15.5	15.0	20.0	20.0	18.5	17.0	14.0	13.5
18	9.0	9.0	12.5	12.5	15.0	14.5	21.0	19.5	18.5	17.0	13.5	12.5
19	9.5	8.0	14.0	12.5	16.5	14.5	21.5	20.0	19.0	17.5	13.5	12.5
20	10.5	8.5	15.5	14.0	18.0	16.5	21.5	20.0	19.5	18.0	13.5	13.0
21	11.0	10.5	16.5	15.5	19.5	18.0	21.0	19.0	20.0	19.0	13.0	12.0
22	11.0	10.5	17.5	16.5	19.5	19.0	20.0	17.5	20.0	19.0	12.0	10.5
23	10.5	8.5	18.0	17.0	19.0	17.0	18.5	17.0	19.0	18.5	10.5	9.0
24	9.5	7.0	18.0	16.0	17.0	16.0	19.0	17.5	19.0	17.5	10.0	9.5
25	9.5	8.0	16.0	14.5	17.0	15.5	19.0	18.5	18.0	16.0	11.0	10.0
26	11.0	7.5	15.5	14.0	17.0	15.0	19.5	18.0	18.5	17.0	11.5	10.0
27	12.0	10.5	15.0	13.0	17.5	16.0	20.0	19.0	18.5	18.0	12.5	11.5
28	13.0	12.0	14.0	13.5	18.5	16.5	20.0	19.0	18.5	17.0	12.5	12.5
29	14.0	13.0	15.0	13.5	18.5	17.0	20.0	19.0	17.5	16.0	12.5	11.5
30	14.0	13.5	15.5	14.0	19.0	17.5	19.0	18.5	17.0	16.0	11.5	9.5
31	---	---	16.0	15.0	---	---	18.5	17.0	17.0	16.5	---	---
MONTH	14.0	3.0	18.0	8.5	19.5	14.5	22.0	17.0	20.0	16.0	19.0	9.0
YEAR	22.0	0.0										

04123500 MANISTEE RIVER NEAR GRAYLING, MICH.

LOCATION.--Lat 44°41'35", long 84°50'50", in SW¼NW¼ sec.31, T.27 N., R.4 W., Crawford County, temperature recorder at gaging station on right bank 25 ft (7.6 m) upstream from bridge on State Highway 72, 3.3 mi (5.3 km) downstream from Goose Creek, and 6.8 mi (10.9 km) northwest of Grayling.
DRAINAGE AREA.--159 mi^2 (412 km^2).
PERIOD OF RECORD.--Water temperature: May 1957 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 21.5°C July 9, 10; minimum, 0.5°C Dec. 31 to Jan. 16.
Period of record:
Water temperatures (1957-74): Maximum, 24.0°C July 1, 1963, July 22, 23, 1972; minimum, freezing point on many days during winter periods.
REMARKS.--Intermittent ice cover during winter period.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.5	9.5	8.5	7.5	3.5	3.5	0.5	0.5	2.5	1.5	4.5	4.0
2	11.5	11.5	7.5	6.5	3.5	3.5	0.5	0.5	1.5	1.5	4.0	3.5
3	11.5	11.5	6.5	6.0	5.5	3.5	0.5	0.5	1.5	1.5	6.5	4.0
4	11.5	11.0	6.0	5.5	5.5	5.5	0.5	0.5	1.5	1.5	6.5	4.5
5	11.0	9.0	5.5	4.5	5.5	5.0	0.5	0.5	1.5	1.5	6.0	4.5
6	11.0	8.5	4.5	3.5	5.0	4.0	0.5	0.5	2.0	1.5	6.5	4.5
7	10.5	10.0	4.0	3.5	4.0	3.5	0.5	0.5	2.0	2.0	6.5	5.5
8	12.0	10.5	4.0	4.0	3.5	3.5	1.0	0.5	2.0	2.0	6.0	3.5
9	13.0	11.5	4.0	3.5	3.5	3.0	1.0	0.5	2.0	1.5	3.5	3.5
10	13.5	12.0	3.5	3.5	3.0	3.0	1.0	0.5	1.5	1.5	5.0	3.0
11	14.0	13.0	4.0	3.5	3.0	2.5	0.5	0.5	1.5	1.5	5.0	3.5
12	14.0	12.5	6.0	4.0	2.5	2.5	0.5	0.5	1.5	1.5	5.0	3.5
13	13.0	12.0	6.5	6.0	2.5	1.5	0.5	0.5	1.5	1.5	4.5	2.0
14	12.0	9.5	7.0	6.5	1.5	1.5	0.5	0.5	1.5	1.5	4.0	2.0
15	10.5	9.0	7.0	5.0	1.5	1.5	0.5	0.5	2.0	1.5	5.0	4.0
16	9.5	8.0	5.0	4.0	1.5	1.5	1.0	0.5	1.5	1.5	5.0	4.5
17	8.0	7.5	4.0	3.5	1.5	1.5	1.0	1.0	2.5	1.5	5.0	2.5
18	8.0	8.0	4.5	4.0	1.5	1.5	1.0	1.0	2.5	2.0	4.5	3.0
19	8.0	7.0	5.0	4.5	1.5	1.5	2.0	1.0	3.5	2.5	4.0	3.0
20	8.5	7.0	5.5	5.0	1.5	1.0	2.0	2.0	3.5	2.5	4.0	1.5
21	8.5	7.0	6.0	5.5	1.0	1.0	2.5	2.0	4.0	3.5	4.5	3.5
22	9.0	7.5	6.0	6.0	1.0	1.0	2.5	2.5	4.0	2.0	4.5	2.5
23	10.0	8.0	6.0	6.0	1.0	1.0	2.5	2.5	2.0	2.0	3.0	1.5
24	10.0	9.0	6.0	5.0	1.0	1.0	2.5	2.0	2.0	2.0	3.0	1.5
25	11.0	10.0	5.0	5.0	1.0	1.0	2.0	1.5	2.0	2.0	1.5	1.5
26	11.0	10.0	5.0	5.0	3.0	1.0	3.0	2.0	2.0	1.5	2.5	1.5
27	10.0	8.5	5.5	5.0	3.0	3.0	3.0	3.0	1.5	1.5	4.0	2.5
28	8.5	7.5	5.5	5.0	3.0	2.5	3.0	3.0	4.5	1.5	4.0	3.0
29	7.5	7.0	5.0	4.0	2.5	2.0	3.0	3.0	---	---	4.0	3.0
30	8.5	7.0	4.0	3.5	2.0	1.5	4.0	3.0	---	---	4.0	4.0
31	8.5	8.5	---	---	1.5	0.5	4.0	2.5	---	---	4.0	3.5
MONTH	14.0	7.0	8.5	3.5	5.5	0.5	4.0	0.5	4.5	1.5	6.5	1.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	5.0	4.0	11.5	8.5	16.0	11.0	18.5	14.0	16.5	13.0	15.5	13.0
2	7.0	5.0	12.0	8.5	16.0	12.0	18.5	14.5	18.0	14.0	14.5	12.0
3	7.0	6.5	12.0	9.0	16.0	11.5	17.5	15.0	18.0	15.5	13.0	10.5
4	7.0	5.5	10.5	6.5	18.0	13.5	17.5	15.5	16.5	13.0	13.0	10.5
5	5.5	4.0	10.5	7.5	17.5	14.5	18.0	13.0	17.0	12.0	12.5	10.5
6	7.0	4.0	8.0	6.5	17.0	14.5	19.0	14.0	18.0	13.5	13.5	10.5
7	7.0	5.0	10.5	6.0	18.0	15.0	20.0	15.0	18.0	14.5	13.5	11.5
8	6.5	3.5	10.5	7.5	19.0	16.0	20.5	15.5	17.0	13.5	15.5	12.0
9	7.0	4.0	11.0	7.0	19.0	14.5	21.5	16.5	17.5	13.5	15.5	14.0
10	8.0	5.0	12.0	8.0	15.0	14.0	21.5	17.5	17.5	14.5	16.0	13.5
11	8.0	6.5	12.0	9.0	14.0	11.5	19.0	14.0	17.0	15.5	18.5	15.5
12	7.5	6.5	9.0	7.5	15.0	11.5	19.0	14.0	17.5	14.0	18.5	15.5
13	7.5	6.5	8.5	7.5	16.5	12.5	21.0	15.5	18.5	15.0	15.5	13.0
14	6.5	6.0	10.0	8.0	16.0	13.0	21.0	17.5	17.5	13.0	13.5	11.5
15	7.0	4.5	10.0	9.5	15.5	13.0	21.0	15.5	17.0	13.0	13.5	12.5
16	8.5	5.0	9.5	7.5	13.0	12.0	18.0	13.5	17.0	14.0	13.0	10.5
17	10.0	6.5	14.0	8.0	12.0	11.0	18.0	14.5	17.0	13.5	13.0	11.0
18	10.0	7.5	13.5	10.5	13.0	11.0	20.0	13.5	17.5	13.5	12.0	9.5
19	9.0	5.5	14.5	10.0	17.0	12.5	19.5	16.0	17.5	14.5	12.0	11.0
20	10.0	6.0	15.0	10.5	19.0	13.5	19.0	14.0	19.5	15.0	12.0	10.5
21	10.0	9.0	15.0	12.0	18.5	15.0	18.0	13.0	19.5	16.5	12.0	10.0
22	10.5	9.5	15.5	13.0	18.0	13.5	17.0	14.0	19.5	17.0	10.5	9.0
23	9.5	6.5	15.5	13.0	15.0	12.5	16.0	12.0	19.0	16.5	10.5	8.5
24	9.5	4.5	14.0	10.5	15.0	11.5	18.0	14.0	17.5	14.5	10.5	9.5
25	9.5	6.5	12.0	9.5	15.5	11.5	18.0	14.5	16.5	12.5	11.0	10.0
26	11.5	7.0	13.0	9.0	15.5	12.5	17.5	13.5	17.0	14.5	13.0	10.0
27	11.5	9.0	14.5	10.5	18.0	12.5	19.0	15.0	16.5	15.0	14.0	11.5
28	13.0	10.0	14.5	11.0	18.5	13.5	18.5	14.5	16.5	13.5	14.0	12.5
29	13.0	11.5	15.5	10.5	18.0	13.5	18.0	14.5	15.0	12.5	12.5	10.0
30	12.0	10.0	15.5	12.5	19.0	14.5	16.0	13.5	15.0	12.5	10.0	9.5
31	---	---	15.5	12.5	---	---	16.5	13.5	15.5	13.5	---	---
MONTH	13.0	3.5	15.5	6.0	19.0	11.0	21.5	12.0	19.5	12.0	18.5	8.5
YEAR	21.5	0.5										

04126200 LITTLE MANISTEE RIVER NEAR FREESOIL, MICH.

LOCATION.--Lat 44°11'00", long 86°10'00", in NE¼NE¼ sec.31, T.21 N., R.15 W., Manistee County, temperature recorder at gaging station on right bank, 25 ft (7.6 m) upstream from Sixmile Bridge, 5.8 mi (9.3 km) north of Freesoil, 7.4 mi (11.9 km) upstream from mouth, and 9.0 mi (14.5 km) southeast of Manistee.
DRAINAGE AREA.--200 mi^2 (518 km^2).
PERIOD OF RECORD.--Water temperatures: October 1956 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 21.0°C July 9, 14; minimum, 0.5°C Jan. 5, 7-9, 11-15, Mar. 26.
Period of record:
Water temperatures (1956-74): Maximum, 22.5°C June 28, 29, 1971, July 22, 1972; minimum, freezing point on many days during winter periods.
REMARKS.--Recorder stopped Nov. 13 to Jan. 4; range in temperature 1.0°C to 8.0°C. Intermittent ice cover during January and February.
A summary of periodic specific conductance data for this station is on page 136.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	13.5	12.0	9.0	8.5	---	---	---	---	2.0	1.0	4.5	4.0
2	13.5	13.5	8.5	8.0	---	---	---	---	1.5	1.0	5.0	4.0
3	14.5	13.5	8.0	7.5	---	---	---	---	1.0	1.0	7.5	5.0
4	13.5	11.5	7.5	7.0	---	---	---	---	2.0	1.0	6.0	4.5
5	12.0	10.0	7.0	5.5	---	---	1.0	0.5	2.0	1.5	5.0	3.5
6	11.0	10.0	5.5	4.0	---	---	1.0	1.0	1.5	1.5	5.5	3.0
7	12.0	11.0	4.5	3.5	---	---	1.0	0.5	2.0	1.5	6.0	4.5
8	12.5	12.0	5.0	4.5	---	---	1.0	0.5	2.0	1.5	5.0	4.0
9	14.0	12.0	4.5	4.0	---	---	1.0	0.5	2.0	1.5	4.0	3.5
10	15.0	13.5	4.5	4.0	---	---	1.0	1.0	1.5	1.5	4.5	3.0
11	16.0	14.5	5.5	4.5	---	---	1.0	0.5	1.5	1.5	4.0	3.0
12	15.5	14.5	7.0	5.5	---	---	0.5	0.5	2.5	1.5	5.5	3.5
13	14.5	13.0	---	---	---	---	1.0	0.5	1.5	1.0	4.5	3.0
14	13.0	11.5	---	---	---	---	1.0	0.5	1.5	1.0	3.5	2.5
15	12.5	11.5	---	---	---	---	1.5	0.5	2.0	1.0	5.0	3.5
16	11.5	9.5	---	---	---	---	2.0	1.5	1.5	1.0	6.0	4.5
17	10.0	9.0	---	---	---	---	1.5	1.5	1.5	1.0	5.5	4.0
18	10.0	9.0	---	---	---	---	2.5	1.5	2.0	1.0	5.0	3.5
19	9.5	8.5	---	---	---	---	3.5	2.5	4.0	1.5	4.5	3.0
20	10.5	9.0	---	---	---	---	3.5	3.5	4.0	2.5	3.5	2.0
21	10.0	8.0	---	---	---	---	4.0	3.5	4.5	4.0	5.0	3.0
22	10.0	8.5	---	---	---	---	4.0	3.5	4.0	1.5	3.5	2.5
23	10.5	8.5	---	---	---	---	3.5	3.0	1.5	1.5	3.0	1.5
24	11.5	9.5	---	---	---	---	3.0	2.5	2.0	1.0	1.5	1.0
25	12.0	11.0	---	---	---	---	3.5	2.5	2.0	1.0	1.0	1.0
26	12.0	10.0	---	---	---	---	3.5	2.5	2.0	1.0	2.5	0.5
27	10.0	9.5	---	---	---	---	3.5	3.0	2.5	1.5	3.5	2.5
28	9.5	9.0	---	---	---	---	3.0	2.5	4.5	2.0	4.0	2.5
29	9.0	8.5	---	---	---	---	2.5	2.0	---	---	4.5	2.5
30	9.5	9.0	---	---	---	---	4.0	2.5	---	---	4.5	3.0
31	9.5	9.0	---	---	---	---	4.0	2.0	---	---	5.0	3.0
MONTH	16.0	8.0	---	---	---	---	4.0	0.5	4.5	1.0	7.5	0.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	6.0	4.5	13.5	11.0	17.0	13.0	18.5	15.5	17.0	15.5	15.0	13.5
2	7.5	5.0	13.0	10.5	17.0	14.0	17.5	16.0	17.5	15.0	14.0	12.5
3	7.0	6.0	12.0	10.5	15.0	13.5	20.0	17.0	18.0	16.0	13.5	12.0
4	7.0	5.0	12.5	9.5	17.5	13.5	19.0	17.0	16.5	15.0	13.0	11.0
5	6.0	4.5	10.5	9.0	17.0	15.5	18.5	15.5	17.0	13.5	13.0	10.5
6	6.0	4.0	11.0	8.0	16.5	15.5	19.0	16.0	17.5	15.0	13.0	11.5
7	6.0	5.0	11.0	7.0	17.0	16.0	19.5	16.5	17.5	15.5	13.5	12.0
8	7.0	4.0	10.0	9.0	18.5	16.0	20.0	17.0	16.5	15.5	15.5	12.5
9	7.5	4.5	11.5	8.0	18.0	17.0	21.0	18.0	17.0	14.5	16.0	14.0
10	8.5	5.0	12.5	8.5	17.5	15.5	20.0	17.5	17.5	15.5	16.0	14.5
11	8.0	7.5	11.5	10.5	15.5	14.0	19.0	16.0	17.5	16.5	18.0	15.5
12	9.0	7.5	10.5	9.5	16.0	13.5	19.0	15.5	17.0	15.5	17.0	15.5
13	9.0	8.5	9.5	9.0	16.5	14.5	20.5	17.0	18.5	16.0	15.5	13.5
14	9.0	8.0	10.5	9.0	17.0	15.0	21.0	18.5	18.0	15.0	14.0	12.0
15	9.5	7.0	11.5	10.0	17.0	15.0	19.5	17.0	18.0	15.0	14.5	13.0
16	9.5	6.5	11.0	10.0	16.0	13.0	18.5	16.0	17.0	16.0	13.5	11.5
17	10.5	7.0	14.0	10.5	13.0	12.5	17.5	16.0	18.0	15.5	12.5	11.5
18	10.0	8.5	13.5	12.5	14.5	12.5	19.5	16.5	18.0	15.5	12.5	10.5
19	10.0	7.0	16.0	12.5	17.0	13.5	20.0	17.5	18.0	16.0	12.5	11.0
20	11.0	7.5	17.0	13.5	18.0	15.0	19.5	16.5	19.0	16.0	12.5	11.0
21	11.5	10.5	17.5	15.0	19.0	16.0	18.5	16.0	19.0	17.0	11.5	10.5
22	11.5	9.5	17.5	16.0	17.0	15.5	17.0	15.0	18.0	17.0	10.5	9.5
23	9.5	7.5	17.5	15.0	15.5	14.0	17.0	14.0	17.5	16.0	10.5	8.5
24	10.0	6.0	15.5	13.5	16.0	13.0	18.0	15.0	17.0	15.0	11.5	10.0
25	9.5	7.5	15.5	12.0	16.0	13.0	17.0	16.0	16.5	13.5	12.0	11.0
26	12.0	7.5	15.0	11.5	17.0	14.0	18.5	15.5	17.5	15.0	13.0	11.0
27	12.5	10.5	15.0	11.5	17.5	14.0	19.0	16.0	17.5	16.0	13.5	12.0
28	13.5	12.0	14.0	13.0	18.0	15.0	18.5	16.0	16.0	14.5	13.5	13.0
29	14.0	12.5	15.5	12.0	17.5	15.0	18.0	16.0	16.0	14.0	13.5	11.5
30	14.5	12.5	16.0	13.5	18.5	15.5	16.5	15.0	16.0	13.5	11.5	10.5
31	---	---	16.0	14.5	---	---	17.0	14.5	16.0	14.5	---	---
MONTH	14.5	4.0	17.5	7.0	19.0	12.5	21.0	14.0	19.0	13.5	18.0	8.5
YEAR	21.0	0.5										

STREAMS TRIBUTARY TO LAKE MICHIGAN

04127000 BOARDMAN RIVER NEAR MAYFIELD, MICH.

LOCATION.--Lat 44°38'18", long 85°31'10", in SE¼NE¼ sec.21, T.26 N., R.10 W., Grand Traverse County, temperature recorder at gaging station on right bank 25 ft (7.6 m) downstream from Brown's Bridge, 300 ft (91 m) downstream from East Creek, 0.9 mi (1.4 km) downstream from Browns Bridge Dam, 1.0 mi (1.6 km) northeast of Mayfield, and 9.6 mi (15.4 km) southeast of Traverse City.
DRAINAGE AREA.--223 mi^2 (578 km^2).
PERIOD OF RECORD.--Water temperatures: June 1961 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 21.0°C July 10, 11, 15; minimum, 2.0°C Dec. 14-21, Jan. 15-18, Feb. 7-20, Feb. 27 to Mar. 2.
Period of record:
Water temperatures (1961-74): Maximum, 23.0°C July 2, 1963; minimum, freezing point Jan. 10-15, 1968, Jan. 26-28, 1970.
REMARKS.--Flow regulated by powerplant 0.9 mi (1.4 km) above station. Intermittent ice cover during winter period. Recorder stopped Feb. 24-26, range in temperature 2.0°C to 2.5°C. A summary of periodic specific conductance data for this station is on page 136.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	14.5	14.0	9.5	9.5	5.5	5.0	3.0	3.0	3.5	3.5	2.0	2.0
2	14.5	14.0	9.5	9.5	5.0	5.0	3.0	3.0	3.5	3.5	2.5	2.0
3	14.0	13.5	9.5	8.5	5.0	5.0	3.0	3.0	3.5	3.5	3.0	2.5
4	13.5	13.5	8.5	8.0	5.0	5.0	3.0	3.0	3.5	3.5	3.0	3.0
5	13.5	12.5	8.0	7.5	5.0	5.0	3.0	2.5	3.5	3.0	3.5	3.0
6	13.0	12.5	7.5	6.5	5.0	5.0	2.5	2.5	3.0	2.5	4.0	3.5
7	13.0	13.0	6.5	6.0	5.0	5.0	2.5	2.5	2.5	2.0	4.5	4.0
8	13.0	13.0	6.0	5.0	5.0	5.0	2.5	2.5	2.0	2.0	4.5	4.5
9	13.0	12.5	5.0	4.5	5.0	4.5	2.5	2.5	2.0	2.0	4.5	4.5
10	13.5	12.5	4.5	4.0	4.5	4.0	2.5	2.5	2.0	2.0	4.5	4.5
11	13.5	13.0	4.0	4.0	4.0	3.5	2.5	2.5	2.0	2.0	4.5	4.5
12	14.0	12.5	4.0	4.0	3.5	3.5	2.5	2.5	2.0	2.0	4.5	4.5
13	14.0	13.0	4.0	4.0	3.5	2.5	2.5	2.5	2.0	2.0	4.5	4.5
14	13.5	13.5	4.5	4.0	2.5	2.0	2.5	2.5	2.0	2.0	4.5	4.5
15	13.5	13.5	4.5	4.5	2.0	2.0	2.5	2.0	2.0	2.0	4.5	4.5
16	13.5	12.5	4.5	4.5	2.0	2.0	2.0	2.0	2.0	2.0	4.5	4.5
17	12.5	11.5	4.5	4.5	2.0	2.0	2.0	2.0	2.0	2.0	4.5	4.5
18	11.5	11.5	4.5	4.5	2.0	2.0	2.5	2.0	2.0	2.0	4.5	4.5
19	11.5	10.5	4.5	4.5	2.0	2.0	2.5	2.5	2.0	2.0	4.5	4.5
20	10.5	10.5	5.0	4.5	2.0	2.0	2.5	2.5	2.5	2.0	4.5	4.5
21	10.5	10.0	5.0	5.0	2.5	2.0	2.5	2.5	2.5	2.5	4.5	4.5
22	10.0	10.0	5.5	5.0	2.5	2.5	3.0	2.5	2.5	2.5	4.5	4.5
23	10.0	10.0	5.5	5.5	2.5	2.5	3.5	3.0	2.5	2.5	4.5	4.5
24	10.0	10.0	5.5	5.5	2.5	2.5	3.5	3.5	---	---	4.5	3.5
25	10.0	10.0	5.5	5.5	2.5	2.5	3.5	3.5	---	---	3.5	3.5
26	10.5	10.0	5.5	5.5	2.5	2.5	3.5	3.5	---	---	3.5	3.0
27	10.5	10.5	5.5	5.5	2.5	2.5	3.5	3.5	2.0	2.0	3.0	3.0
28	10.5	10.5	5.5	5.5	3.0	2.5	3.5	3.5	2.0	2.0	3.0	3.0
29	10.5	10.0	5.5	5.5	3.0	3.0	3.5	3.5	---	---	3.0	3.0
30	10.0	10.0	5.5	5.5	3.0	3.0	3.5	3.5	---	---	3.0	3.0
31	10.0	9.5	---	---	3.0	3.0	3.5	3.5	---	---	3.5	3.0
MONTH	14.5	9.5	9.5	4.0	5.5	2.0	3.5	2.0	3.5	2.0	4.5	2.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	3.5	3.5	14.0	12.5	16.0	14.0	17.0	16.0	17.5	17.0	16.5	15.5
2	4.0	3.5	13.5	12.5	15.0	14.0	17.5	16.5	17.5	17.0	16.5	15.5
3	4.0	4.0	12.5	12.5	14.5	13.5	18.0	17.5	18.0	17.0	15.5	13.0
4	4.0	4.0	12.5	12.0	15.5	13.5	18.0	17.5	18.0	17.0	14.5	14.0
5	4.5	4.0	12.5	11.5	16.0	15.5	17.5	17.0	17.0	16.5	14.0	13.5
6	5.0	4.5	11.5	10.5	16.5	16.0	17.5	17.5	17.5	17.0	14.0	13.5
7	5.0	5.0	11.0	10.0	17.0	15.5	18.5	17.5	18.0	17.5	14.0	13.0
8	5.0	5.0	11.0	10.0	17.5	16.0	19.0	17.5	18.0	17.0	13.0	12.5
9	5.0	5.0	10.5	10.0	17.5	16.0	20.0	18.5	18.0	17.0	14.5	13.0
10	5.0	5.0	11.0	10.0	16.0	15.5	21.0	19.5	18.0	17.5	14.5	13.5
11	5.0	5.0	11.0	10.0	15.5	15.5	21.0	19.5	18.5	16.5	15.0	13.5
12	5.5	5.0	10.0	10.0	15.5	15.0	19.5	18.0	17.5	17.0	16.0	15.0
13	5.5	5.0	10.0	10.0	15.5	15.0	18.5	18.0	19.5	17.5	16.0	15.0
14	6.5	5.5	10.0	10.0	16.0	15.0	19.5	18.5	19.0	18.0	15.0	13.5
15	6.5	6.5	10.0	9.5	16.0	15.0	21.0	19.5	18.5	18.0	14.0	13.0
16	6.5	6.5	10.0	9.5	15.0	14.5	20.0	19.5	18.5	18.0	14.0	13.0
17	6.5	6.5	12.0	10.0	14.5	13.0	19.5	17.0	18.0	17.0	13.0	13.0
18	7.5	6.5	12.0	11.0	13.0	12.5	18.0	17.0	18.0	17.5	13.0	12.5
19	9.0	7.5	13.0	11.0	14.0	13.0	20.0	18.0	18.5	18.0	12.5	12.5
20	8.5	8.0	13.0	12.5	14.5	14.0	20.0	18.0	18.5	17.5	12.5	11.5
21	8.5	8.0	14.0	12.5	17.0	14.5	19.0	17.5	18.5	17.5	11.5	11.5
22	9.5	8.5	14.5	13.0	18.0	16.5	17.5	17.5	18.5	17.5	11.5	11.5
23	9.5	9.5	14.5	13.0	17.5	16.0	17.5	17.0	18.5	18.0	11.5	10.5
24	10.0	9.5	15.0	14.5	16.5	15.5	17.5	17.0	18.5	18.0	10.5	10.0
25	10.0	9.5	14.5	14.0	17.0	15.5	17.5	16.0	18.0	17.0	10.5	10.0
26	10.5	9.5	15.0	13.5	17.0	15.5	17.0	16.0	17.5	16.5	10.5	10.5
27	10.5	9.5	14.0	14.0	16.5	16.0	18.0	17.0	17.5	17.5	11.0	10.5
28	11.0	9.5	14.0	12.0	16.0	16.0	18.0	17.5	17.5	17.0	11.0	11.0
29	13.5	11.0	14.0	13.0	16.0	14.5	18.5	18.0	17.0	15.5	11.5	11.0
30	14.0	13.0	15.0	14.0	16.5	15.0	18.0	17.0	15.5	15.5	11.5	11.0
31	---	---	15.0	13.5	---	---	17.5	17.0	15.5	15.5	---	---
MONTH	14.0	3.5	15.0	9.5	18.0	12.5	21.0	16.0	19.5	15.5	16.5	10.0
YEAR	21.0	2.0										

04127800 JORDAN RIVER NEAR EAST JORDAN, MICH.

LOCATION.--Lat 45°06'09", long 85°05'53", in NW¼NW¼ sec.7, T.31 N., R.6 W., Antrim County, temperature recorder at gaging station on right bank 600 ft (183 m) downstream from Webster Bridge, 4.2 mi (6.8 km) south of East Jordan, and 4.5 mi (7.2 km) upstream from mouth.
DRAINAGE AREA.--67.7 mi^2 (175 km^2).
PERIOD OF RECORD.--Water temperature: October 1966 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 19.5°C July 15; minimum, 0.5°C Dec. 20-25, Dec. 30 to Jan. 6.
Period of record:
Water temperatures (1966-74): Maximum, 19.5°C June 28, 29, 1971, July 22-24, 1972, July 15, 1974; minimum, freezing point on many days during winter periods.
REMARKS.--Recorder stopped Jan. 7-17, range in temperature, 1.5°C to 2.5°C. Intermittent ice cover during winter period. A summary of periodic specific conductance data for this station is on page 136.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	10.0	9.5	8.5	8.5	5.0	5.0	0.5	0.5	2.0	1.5	4.0	4.0
2	10.5	10.0	8.5	8.0	5.0	4.5	0.5	0.5	1.5	1.5	4.0	4.0
3	10.5	10.5	8.0	7.5	6.0	4.5	0.5	0.5	1.5	1.5	4.0	4.0
4	10.5	10.5	7.5	6.5	6.0	6.0	0.5	0.5	1.5	1.5	4.0	4.0
5	10.5	9.5	7.0	6.0	6.0	6.0	0.5	0.5	1.5	1.5	4.0	4.0
6	9.5	9.0	6.0	5.0	6.0	4.5	0.5	0.5	1.5	1.5	4.5	4.0
7	10.5	9.0	5.0	5.0	4.5	4.0	---	---	1.5	1.5	4.5	4.0
8	11.0	10.5	5.0	5.0	4.0	4.0	---	---	1.5	1.5	4.0	3.5
9	12.0	11.0	5.0	4.5	4.0	4.0	---	---	1.5	1.5	3.5	3.0
10	13.0	12.0	4.5	4.5	4.0	3.5	---	---	1.5	1.5	3.5	3.0
11	13.0	13.0	4.5	4.5	3.5	3.5	---	---	1.5	1.5	3.5	3.0
12	13.0	13.0	6.0	4.5	3.5	3.5	---	---	1.5	1.5	3.5	3.5
13	13.0	12.5	6.5	6.0	3.5	2.0	---	---	2.0	1.5	3.5	2.0
14	12.5	11.0	7.0	6.5	2.0	1.0	---	---	2.0	1.5	2.5	1.5
15	11.0	10.0	7.0	6.0	1.0	1.0	---	---	1.5	1.5	3.5	2.5
16	10.0	9.0	6.0	5.0	1.0	1.0	---	---	1.5	1.5	4.0	3.5
17	9.0	8.5	5.0	5.0	1.0	1.0	---	---	2.0	1.5	4.0	3.0
18	8.5	8.5	5.0	5.0	1.0	1.0	2.5	2.0	2.0	2.0	3.0	2.5
19	8.5	8.0	5.5	5.0	1.0	1.0	2.5	2.0	3.5	2.0	2.5	2.5
20	8.0	8.0	5.5	5.5	1.0	0.5	2.5	2.5	3.5	2.5	2.5	1.5
21	8.0	7.5	7.0	5.5	0.5	0.5	2.5	2.5	3.5	2.5	3.0	1.5
22	7.5	7.5	7.0	7.0	0.5	0.5	3.0	2.5	3.5	2.0	3.0	1.5
23	9.0	7.5	7.0	6.5	0.5	0.5	3.0	3.0	2.0	1.5	1.5	1.5
24	9.5	9.0	6.5	6.0	0.5	0.5	3.0	3.0	1.5	1.5	1.5	1.0
25	10.0	9.5	6.0	6.0	1.5	0.5	3.0	2.5	1.5	1.5	1.0	1.0
26	10.0	10.0	6.0	6.0	2.0	1.5	3.0	2.5	1.5	1.5	1.0	1.0
27	10.0	8.5	6.0	6.0	2.0	2.0	3.0	3.0	2.5	1.5	2.0	1.0
28	8.5	8.5	6.0	6.0	2.0	2.0	3.0	3.0	4.0	2.5	2.5	1.5
29	8.5	8.0	6.0	5.0	2.0	1.0	3.0	3.0	---	---	2.5	2.5
30	8.0	8.0	5.0	5.0	1.0	0.5	3.5	3.0	---	---	2.5	2.5
31	8.5	8.0	---	---	0.5	0.5	3.5	2.0	---	---	3.0	2.5
MONTH	13.0	7.5	8.5	4.5	6.0	0.5	---	---	4.0	1.5	4.5	1.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	3.0	3.0	11.5	9.0	13.0	10.5	15.5	13.5	15.5	14.0	13.5	12.5
2	3.5	3.0	11.0	9.0	13.0	11.5	15.0	14.5	16.0	15.0	13.0	11.5
3	3.5	3.5	11.0	9.0	13.0	10.5	14.0	14.0	16.0	15.5	11.5	11.0
4	3.5	3.0	9.0	7.0	14.0	12.5	14.5	14.5	16.0	14.5	11.0	10.5
5	3.0	2.5	9.0	7.5	14.0	13.0	14.5	13.0	15.5	14.0	11.0	10.5
6	4.0	2.5	8.5	7.0	14.5	14.0	15.0	13.5	16.0	14.5	11.5	10.5
7	4.0	3.5	8.5	6.0	15.5	14.5	15.0	14.0	16.0	15.0	11.5	11.0
8	4.0	2.0	9.0	7.0	15.5	15.0	16.0	14.0	16.0	15.0	13.5	11.5
9	4.5	3.0	9.5	7.0	15.0	14.0	17.0	15.0	16.0	14.5	13.5	13.5
10	5.5	3.5	10.0	8.0	14.0	14.0	17.0	16.0	16.0	15.0	13.5	12.5
11	5.5	5.5	10.0	9.0	14.5	12.5	16.5	13.5	16.0	16.0	16.0	13.5
12	5.5	5.0	9.0	8.5	14.5	12.5	16.5	14.0	16.5	15.5	16.0	15.0
13	5.5	5.0	8.5	8.0	14.0	12.5	18.0	15.5	17.0	16.0	15.0	13.0
14	5.5	4.5	10.0	8.0	14.0	12.5	18.5	17.5	17.0	14.5	13.0	12.0
15	5.5	4.0	10.0	9.0	13.5	12.5	19.5	16.0	16.0	14.5	12.0	12.0
16	7.0	4.5	9.0	8.0	12.5	11.5	16.5	14.5	16.0	15.5	12.0	10.5
17	8.0	6.0	12.0	8.0	11.5	10.5	16.0	15.5	16.0	15.0	11.0	11.0
18	8.0	7.5	12.0	10.0	11.0	10.5	17.5	15.0	16.0	15.0	11.0	10.0
19	8.0	5.5	12.5	9.5	14.5	11.0	17.5	16.5	16.5	15.0	10.0	10.0
20	8.5	6.0	13.5	10.5	15.0	13.5	17.5	15.0	16.5	15.5	10.5	10.0
21	9.5	8.5	14.0	12.5	15.5	14.0	16.0	13.5	17.0	16.0	10.5	10.0
22	9.5	9.0	14.5	14.0	15.5	13.5	15.5	15.0	17.0	16.5	10.0	9.5
23	9.0	7.5	14.5	13.0	13.5	13.0	15.0	13.5	16.5	16.0	9.5	9.0
24	8.0	6.0	14.0	11.5	13.0	11.0	15.5	14.5	16.0	14.5	9.0	9.0
25	8.0	7.0	11.5	9.5	13.5	11.0	15.5	15.0	14.5	13.0	10.0	9.0
26	10.0	7.0	11.5	9.5	14.5	12.0	16.5	14.5	14.5	14.5	10.5	10.0
27	10.5	9.5	12.5	10.0	14.5	12.5	18.0	15.5	15.0	14.5	12.0	10.5
28	12.5	10.5	12.5	10.5	14.5	13.0	18.0	16.0	15.0	13.5	12.0	12.0
29	12.5	12.5	12.5	10.5	14.5	13.0	17.0	15.5	14.0	13.0	12.0	11.0
30	12.5	10.5	12.5	11.0	15.0	13.5	15.5	15.0	13.5	12.5	11.0	11.0
31	---	---	12.5	11.5	---	---	15.0	14.5	13.5	13.5	---	---
MONTH	12.5	2.0	14.5	6.0	15.5	10.5	19.5	13.0	17.0	12.5	16.0	9.0
YEAR	19.5	0.5										

04128000 STURGEON RIVER NEAR WOLVERINE, MICH.

LOCATION.--Lat 45°17'56", long 84°36'40", in SE¼NE¼ sec.36, T.34 N., R.3 W., Cheboygan County, temperature recorder at gaging station on left bank 1.8 mi (2.9 km) north of Wolverine, 2.8 mi (4.5 km) downstream from West Branch, and 9 mi (14.5 km) upstream from mouth.
DRAINAGE AREA.--170 mi^2 (440 km^2), approximately.
PERIOD OF RECORD.--Water temperatures: October 1958 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 22.5°C July 14; minimum, 0.5°C Feb. 26-28.
Period of record:
Water temperatures (1958-74): Maximum, 24.0°C June 30, 1964; minimum, freezing point on many days during winter periods.
REMARKS.--Intermittent ice cover during winter period. Intermittent regulation at low flows from ponds, 2.4 mi (3.9 km) upstream. Recorder stopped Nov. 25-27, range in temperature, 5.0°C to 5.5°C. A summary of periodic specific conductance data for this station is on page 137.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	10.5	10.0	8.5	8.0	5.0	4.5	1.0	1.0	2.0	1.5	2.5	1.5
2	11.0	10.5	8.0	7.5	4.5	4.5	1.0	1.0	1.5	1.5	3.0	2.5
3	11.5	11.0	7.5	7.0	5.5	4.5	1.0	1.0	1.5	1.5	4.0	3.0
4	11.5	11.0	7.0	6.5	5.5	5.5	1.0	1.0	1.5	1.5	3.5	2.5
5	11.0	9.5	6.5	6.0	5.5	5.5	1.0	1.0	1.5	1.5	3.5	2.5
6	10.5	9.5	6.0	5.5	5.5	4.5	1.0	1.0	1.5	1.5	4.0	3.5
7	11.0	9.5	5.5	5.0	4.5	4.5	1.0	1.0	1.5	1.5	3.5	3.5
8	12.0	10.5	5.0	5.0	4.5	4.0	1.0	1.0	1.5	1.5	3.5	2.5
9	12.5	11.5	5.0	4.5	4.0	4.0	1.0	1.0	1.5	1.5	2.5	2.5
10	14.0	12.5	4.5	4.5	4.0	4.0	1.0	1.0	1.5	1.5	3.5	2.5
11	14.0	13.5	4.5	4.5	4.0	3.5	1.0	1.0	1.5	1.5	3.5	2.5
12	14.0	13.0	5.0	4.5	3.5	3.5	1.0	1.0	1.5	1.0	3.0	2.0
13	14.0	12.5	5.5	5.0	3.5	3.5	1.0	1.0	1.0	1.0	2.5	1.5
14	12.5	11.0	6.0	5.5	3.5	3.0	1.0	1.0	1.0	1.0	2.0	1.5
15	11.5	10.5	6.0	5.0	3.0	2.5	1.0	1.0	1.0	1.0	3.5	2.0
16	10.5	10.0	5.0	4.5	2.5	2.5	1.0	1.0	1.0	1.0	3.5	3.0
17	10.0	9.5	5.0	4.5	2.5	2.0	1.0	1.0	1.0	1.0	3.5	2.0
18	9.5	9.5	5.0	5.0	2.0	2.0	1.0	1.0	1.0	1.0	2.5	1.5
19	9.5	9.5	5.0	5.0	2.0	2.0	1.0	1.0	1.0	1.0	3.0	2.0
20	9.5	9.0	5.5	5.0	2.0	1.5	1.5	1.0	1.0	1.0	2.5	1.5
21	9.0	8.5	6.0	5.5	1.5	1.5	2.0	1.5	1.5	1.0	3.5	2.0
22	8.5	8.0	6.0	6.0	1.5	1.0	2.5	2.0	1.5	1.5	3.0	1.5
23	10.0	8.0	6.0	6.0	1.0	1.0	2.5	2.5	1.5	1.5	2.0	1.5
24	10.0	9.0	6.0	5.5	1.0	1.0	2.5	2.5	1.5	1.5	2.0	1.5
25	11.0	10.0	---	---	1.0	1.0	2.5	2.0	1.5	1.0	2.0	2.0
26	11.0	10.5	---	---	1.0	1.0	3.0	2.0	1.0	0.5	2.0	2.0
27	10.5	9.0	---	---	2.0	1.0	3.0	2.5	0.5	0.5	2.5	2.0
28	9.0	8.5	5.5	5.5	2.5	2.0	2.5	2.5	1.5	0.5	3.0	2.5
29	8.5	8.0	5.5	5.0	2.5	2.0	2.5	2.5	---	---	3.0	2.5
30	8.0	8.0	5.0	5.0	2.0	1.0	3.5	2.5	---	---	3.0	3.0
31	8.5	8.0	---	---	1.0	1.0	3.5	2.0	---	---	5.0	3.0
MONTH	14.0	8.0	8.5	4.5	5.5	1.0	3.5	1.0	2.0	0.5	5.0	1.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	5.0	4.0	12.0	9.0	16.0	12.0	19.5	16.0	17.5	15.0	14.0	12.5
2	5.0	4.0	12.5	8.5	15.5	13.0	19.0	17.0	18.5	15.5	13.0	12.0
3	5.0	5.0	12.5	9.5	16.0	11.5	18.5	17.5	18.5	16.5	12.0	11.0
4	5.0	4.0	10.0	8.5	17.0	14.0	18.5	18.5	17.5	15.5	11.5	10.5
5	4.5	3.5	10.0	8.5	17.5	14.5	19.0	17.0	18.0	14.0	11.5	10.5
6	5.0	3.5	8.5	8.0	17.5	15.5	20.0	17.0	18.0	14.5	11.5	10.5
7	5.0	4.0	10.0	8.0	18.0	16.0	20.0	17.5	18.0	15.5	11.5	10.0
8	5.0	4.0	9.5	8.0	17.5	16.5	21.0	17.0	18.0	15.5	13.5	10.5
9	6.0	4.0	10.5	8.0	17.5	15.0	21.5	18.5	18.0	16.0	13.5	12.5
10	7.0	4.5	11.5	8.0	15.5	15.0	21.5	19.0	18.0	15.5	13.5	12.0
11	7.0	5.5	11.0	9.0	16.0	13.5	21.5	17.0	18.0	16.0	16.5	13.0
12	5.5	5.5	10.0	8.5	15.5	13.5	20.0	16.5	18.5	15.5	16.5	14.5
13	5.5	4.5	9.5	8.5	17.0	13.5	21.5	17.0	18.5	16.5	14.5	12.0
14	4.5	4.0	12.0	9.0	17.0	14.0	22.5	19.0	18.0	15.0	12.0	11.0
15	6.0	3.5	11.5	10.0	16.5	14.5	22.0	18.0	17.0	13.5	12.0	11.5
16	7.0	5.0	10.0	8.5	15.0	13.5	19.0	16.0	16.5	15.0	12.0	10.5
17	8.5	6.5	13.0	8.5	13.5	12.5	19.0	16.5	17.5	14.5	11.5	10.5
18	8.5	7.5	12.5	10.0	13.5	12.5	20.5	16.0	17.5	14.5	11.0	10.5
19	8.5	5.5	14.0	10.0	16.0	12.5	20.5	17.5	17.5	15.0	11.0	10.0
20	9.5	6.5	15.5	11.0	18.0	14.0	20.0	16.5	18.0	15.0	11.0	10.0
21	11.0	9.0	15.5	12.0	18.5	15.0	18.5	16.0	18.5	16.0	11.0	10.0
22	11.0	10.0	17.0	14.0	18.5	15.0	18.5	16.0	18.5	16.5	10.0	9.0
23	10.0	8.5	16.5	14.0	16.0	14.0	17.5	14.5	17.5	15.5	9.0	8.5
24	9.0	6.0	15.5	12.5	16.0	13.5	18.5	15.5	16.0	14.5	9.0	8.5
25	8.5	7.0	12.5	11.0	17.0	13.5	18.5	16.5	16.0	13.0	10.5	9.0
26	11.0	7.0	13.5	11.0	18.0	14.0	19.0	16.0	16.0	14.5	11.5	9.5
27	11.0	9.0	14.5	11.0	18.5	14.5	20.0	16.5	17.0	15.5	12.5	10.0
28	12.5	10.5	14.0	11.5	18.5	15.0	19.5	16.5	16.0	13.5	12.5	11.5
29	13.5	12.0	15.0	11.5	18.0	15.0	19.5	16.5	15.0	13.5	12.5	11.0
30	14.0	11.0	15.0	12.0	19.0	16.0	17.5	15.5	15.0	13.0	11.0	10.0
31	---	---	15.0	12.5	---	---	16.5	15.5	14.5	13.0	---	---
MONTH	14.0	3.5	17.0	8.0	19.0	11.5	22.5	14.5	18.5	13.0	16.5	8.5
YEAR	22.5	0.5										

04135500 AU SABLE RIVER AT GRAYLING, MICH.

LOCATION.--Lat 44°39'35", long 84°42'45", in SE¼SE¼ sec.7, T.26 N., R.3 W., Crawford County, temperature recorder at gaging station on right bank 65 ft (20 m) upstream from bridge on Interstate Highway 75 (Business Loop) at Grayling 0.7 mi (1.1 km) upstream from East Branch, and 114 mi (183 km) upstream from mouth.
DRAINAGE AREA.--110 mi^2 (285 km^2).
PERIOD OF RECORD.--Water temperatures: March 1953 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 22.5°C July 8-10, 14-15; minimum, freezing point Jan. 9-18.
Period of record:
Water temperatures (1953-74): Maximum, 28.0°C July 1, 2, 1963; minimum, freezing point on many days during winter periods.
REMARKS.--No appreciable ice effect. No temperature record Apr. 16 to June 6, recorder malfunction. A summary of periodic specific conductance data for this station is on page 137.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	13.0	10.5	8.0	7.5	3.5	3.5	0.5	0.5	0.5	0.5	0.5	0.5
2	13.5	13.0	7.5	7.0	3.5	2.5	0.5	0.5	0.5	0.5	0.5	0.5
3	13.0	13.0	7.0	5.5	4.5	2.5	0.5	0.5	0.5	0.5	1.0	0.5
4	13.0	12.5	5.5	5.0	4.5	4.5	0.5	0.5	0.5	0.5	1.0	1.0
5	12.5	10.5	5.0	3.5	4.5	4.5	0.5	0.5	0.5	0.5	2.0	1.0
6	12.0	10.5	3.5	2.0	4.5	4.0	0.5	0.5	0.5	0.5	4.0	2.0
7	11.5	10.5	2.0	2.0	4.0	3.0	0.5	0.5	0.5	0.5	4.0	3.5
8	12.5	11.5	2.0	2.0	3.0	2.5	0.5	0.5	0.5	0.5	4.0	2.5
9	14.5	12.5	2.0	2.0	2.5	2.5	0.5	0.0	0.5	0.5	2.5	2.0
10	16.0	14.5	2.0	2.0	2.5	2.5	0.0	0.0	0.5	0.5	3.0	1.0
11	16.5	15.5	2.0	2.0	2.5	2.0	0.0	0.0	0.5	0.5	3.5	2.0
12	16.5	15.0	3.5	2.0	2.0	2.0	0.0	0.0	0.5	0.5	3.0	1.5
13	15.5	15.0	4.5	3.0	2.0	2.0	0.0	0.0	0.5	0.5	2.5	1.0
14	15.0	11.0	5.5	4.5	2.0	2.0	0.0	0.0	0.5	0.5	2.5	1.0
15	12.0	11.0	5.5	4.0	2.0	1.5	0.0	0.0	0.5	0.5	2.0	2.0
16	11.0	9.0	4.0	2.5	1.5	1.5	0.0	0.0	0.5	0.5	3.0	2.0
17	9.0	8.0	2.5	2.5	1.5	1.5	0.0	0.0	0.5	0.5	3.0	1.0
18	8.0	8.0	2.5	2.5	1.5	1.5	0.5	0.0	0.5	0.5	2.0	1.5
19	8.0	7.0	3.0	2.5	1.5	1.5	0.5	0.5	0.5	0.5	1.5	1.0
20	8.0	7.0	3.5	3.0	1.5	1.0	0.5	0.5	0.5	0.5	2.0	0.5
21	9.0	8.0	5.0	3.5	1.0	1.0	0.5	0.5	0.5	0.5	2.0	1.0
22	9.5	7.5	5.5	5.0	1.0	1.0	0.5	0.5	0.5	0.5	2.0	0.5
23	10.5	8.5	5.5	5.5	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5
24	11.0	9.5	5.5	4.5	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5
25	12.0	10.0	4.5	4.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5
26	12.0	11.0	4.5	4.0	1.0	1.0	0.5	0.5	0.5	0.5	0.5	0.5
27	11.0	9.5	5.5	4.5	1.0	0.5	0.5	0.5	0.5	0.5	0.5	0.5
28	9.5	7.5	5.5	5.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5
29	7.5	7.0	5.5	4.0	0.5	0.5	0.5	0.5	---	---	0.5	0.5
30	8.0	7.0	4.0	3.5	0.5	0.5	0.5	0.5	---	---	0.5	0.5
31	8.0	8.0	---	---	0.5	---	0.5	0.5	---	---	1.0	0.5
MONTH	16.5	7.0	8.0	2.0	4.5	0.5	0.5	0.0	0.5	0.5	4.0	0.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	2.0	1.0	---	---	---	---	20.0	18.0	19.5	17.5	17.0	15.5
2	4.5	2.0	---	---	---	---	20.0	18.5	21.0	18.5	16.5	14.5
3	5.0	4.0	---	---	---	---	20.5	18.5	21.0	19.5	15.0	13.0
4	5.0	4.5	---	---	---	---	20.5	19.0	20.0	18.0	14.5	13.0
5	4.5	3.0	---	---	---	---	19.5	16.5	19.0	16.5	15.5	13.0
6	5.5	2.5	---	---	---	---	20.5	18.0	19.5	17.5	16.0	13.5
7	5.5	4.5	---	---	20.5	18.5	21.5	19.5	21.0	19.0	16.0	14.0
8	5.5	2.5	---	---	21.5	19.5	22.5	20.5	21.0	18.0	18.0	14.5
9	5.5	3.0	---	---	21.5	19.0	22.5	21.5	20.0	18.0	18.0	16.5
10	5.5	3.0	---	---	20.0	17.5	22.5	20.5	20.0	18.5	19.0	16.5
11	5.5	3.5	---	---	17.5	14.5	21.0	18.5	19.5	18.5	20.5	18.5
12	4.5	3.5	---	---	17.5	14.0	20.5	18.0	20.0	18.0	20.5	19.5
13	4.5	4.5	---	---	18.0	15.0	22.0	18.5	20.0	19.0	19.5	17.0
14	4.5	4.5	---	---	18.0	16.5	22.5	20.5	20.0	17.5	17.0	14.5
15	4.5	3.0	---	---	18.0	16.5	22.5	20.0	20.0	17.0	15.0	14.0
16	---	---	---	---	18.0	15.0	20.5	18.0	20.0	18.0	15.5	13.0
17	---	---	---	---	15.0	13.5	20.5	18.5	19.5	17.5	15.5	13.5
18	---	---	---	---	15.0	13.0	21.0	17.5	20.0	18.0	13.5	11.5
19	---	---	---	---	18.0	14.5	21.0	20.0	21.0	18.5	13.5	12.0
20	---	---	---	---	21.0	17.0	21.0	19.0	22.0	20.0	13.5	12.0
21	---	---	---	---	21.5	19.0	21.0	17.5	22.0	20.5	13.0	11.5
22	---	---	---	---	21.5	18.5	20.0	18.0	22.0	20.5	11.5	9.0
23	---	---	---	---	19.5	16.5	18.0	16.0	21.5	20.5	10.0	8.5
24	---	---	---	---	18.0	15.0	20.5	17.0	20.5	18.0	10.0	9.5
25	---	---	---	---	18.0	15.0	20.0	18.0	19.5	16.5	10.5	9.5
26	---	---	---	---	17.5	15.0	19.5	17.0	19.5	17.0	13.5	10.0
27	---	---	---	---	19.0	16.5	20.5	18.0	19.0	18.0	15.0	12.5
28	---	---	---	---	19.5	17.0	20.5	18.5	19.0	16.5	15.0	14.0
29	---	---	---	---	19.5	17.5	20.5	18.5	19.0	16.5	14.5	11.5
30	---	---	---	---	19.5	17.5	20.0	18.0	18.0	16.0	11.5	10.0
31	---	---	---	---	---	---	19.0	17.0	18.0	16.0	---	---
MONTH	---	---	---	---	21.5	13.0	22.5	16.0	22.0	16.0	20.5	8.5
YEAR	22.5	0.0										

04135700 SOUTH BRANCH AU SABLE RIVER NEAR LUZERNE, MICH.

LOCATION.--Lat 44°36'53", long 84°27'20", in SE¼SE¼ sec.29, T.26 N., R.1 W., Crawford County, temperature recorder at gaging station on right bank 10 ft (3 m) upstream from Smith Bridge, 400 ft (122 m) downstream from highway bridge on State Highway 72, 4.6 mi (7.4 km) upstream from mouth, 9.1 mi (14.6 km) west of Luzerne.
DRAINAGE AREA.--401 mi^2 (1,039 km^2).
PERIOD OF RECORD.--Water temperature: November 1966 to September 1974.
EXTREMES.--1973-74:
Water temperature: Maximum, 21.5°C July 9, 10; minimum, freezing point on several days during February.
Period of record:
Water temperatures (1966-74): Maximum, 24.0°C July 16, 1968; minimum, freezing point on many days during winter periods.
REMARKS.--Intermittent ice cover during the winter period. Recorder stopped Nov. 11-26, May 7 to June 7; range in temperature, 3.0°C to 6.0°C, 6.5°C to 20.0°C, respectively.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.0	8.5	8.0	7.5	4.0	4.0	1.0	1.0	1.0	1.0	3.0	2.0
2	11.0	11.0	7.5	6.5	4.0	3.5	1.5	1.0	1.0	1.0	2.5	2.0
3	12.0	11.0	6.5	6.0	4.5	3.5	1.5	1.0	1.0	1.0	3.5	2.5
4	11.5	10.5	6.0	5.5	4.5	4.5	1.0	1.0	1.0	1.0	3.5	2.0
5	11.0	9.0	5.5	4.0	5.0	4.5	1.0	0.5	1.0	1.0	2.5	1.5
6	10.5	8.5	4.0	3.5	5.0	4.0	0.5	0.5	1.0	0.5	2.5	1.5
7	10.5	9.5	3.5	3.0	4.0	3.5	0.5	0.5	0.5	0.0	2.0	1.0
8	11.5	10.5	3.5	3.5	3.5	3.0	1.0	0.5	0.5	0.0	1.5	1.0
9	12.5	10.5	3.5	3.0	3.0	3.0	1.0	0.5	0.5	0.0	1.0	1.0
10	13.5	11.5	3.0	3.0	3.0	2.5	0.5	0.5	0.5	0.0	1.5	0.5
11	14.0	12.5	---	---	2.5	2.0	0.5	0.5	0.5	0.5	1.5	0.5
12	14.0	12.5	---	---	2.0	2.0	0.5	0.5	0.5	0.0	1.5	1.0
13	13.5	12.5	---	---	2.0	1.5	1.0	0.5	1.0	0.5	1.5	0.5
14	12.5	10.5	---	---	1.5	1.0	1.0	1.0	1.0	0.0	2.0	0.5
15	11.5	10.0	---	---	1.5	1.5	1.0	1.0	0.5	0.0	2.0	1.5
16	10.5	9.0	---	---	1.5	1.5	2.0	1.0	0.5	0.0	2.5	2.0
17	9.0	8.5	---	---	1.5	1.5	2.0	1.5	1.5	0.5	2.5	1.5
18	8.5	8.0	---	---	1.5	1.5	1.5	1.0	1.5	0.5	2.0	1.5
19	8.0	7.0	---	---	1.5	1.5	2.5	1.5	2.0	1.5	2.5	1.5
20	8.0	7.5	---	---	1.5	1.5	2.0	2.0	2.0	0.5	2.0	1.0
21	7.5	6.0	---	---	1.5	1.5	2.0	2.0	2.0	1.5	3.0	1.5
22	8.0	6.5	---	---	1.5	1.5	2.0	2.0	2.0	0.0	2.5	1.5
23	8.5	6.5	---	---	1.5	1.5	2.0	2.0	0.5	0.0	2.0	1.0
24	9.0	7.5	---	---	1.5	1.5	2.0	1.5	0.5	0.0	1.5	0.5
25	10.0	8.5	---	---	2.5	1.5	1.5	1.0	0.5	0.0	0.5	0.5
26	10.0	9.5	---	---	2.5	2.5	2.0	1.0	0.5	0.0	2.0	0.5
27	9.5	8.5	5.0	5.0	2.5	2.5	2.0	1.5	2.0	0.5	2.5	1.5
28	8.5	7.5	5.5	5.0	2.5	2.5	1.5	1.5	3.0	2.0	2.5	1.5
29	7.5	7.0	5.0	4.5	2.5	2.0	1.5	1.5	---	---	2.0	1.5
30	8.0	7.0	4.5	4.0	2.0	1.5	2.5	1.5	---	---	2.5	2.0
31	8.0	8.0	---	---	1.5	1.0	2.5	1.0	---	---	3.5	2.5
MONTH	14.0	6.0	---	---	5.0	1.0	2.5	0.5	3.0	0.0	3.5	0.5

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	3.5	3.0	12.0	10.0	---	---	18.5	15.0	16.5	13.5	15.0	12.5
2	5.0	3.5	11.5	9.5	---	---	18.5	15.5	17.0	14.0	14.0	12.0
3	5.0	4.0	11.5	9.5	---	---	18.0	16.0	17.0	15.0	13.5	10.5
4	4.5	3.0	11.0	8.5	---	---	18.0	17.0	16.5	14.5	12.5	10.0
5	3.0	2.0	10.0	8.0	---	---	18.5	16.0	17.0	13.5	12.5	10.0
6	3.0	2.0	8.0	7.0	---	---	19.5	16.0	17.5	14.0	12.5	10.5
7	3.0	3.0	---	---	---	---	20.0	16.5	19.0	15.5	13.0	11.0
8	3.5	2.5	---	---	20.0	17.0	21.0	17.5	18.5	15.5	15.0	11.0
9	4.0	2.5	---	---	19.5	17.0	21.5	18.0	18.5	15.0	14.5	13.0
10	4.5	3.5	---	---	17.5	16.5	21.5	19.5	18.5	15.5	15.5	13.5
11	4.5	4.5	---	---	16.5	14.5	19.5	16.5	18.5	16.0	17.5	15.0
12	4.5	4.5	---	---	15.5	14.0	19.0	16.0	18.5	15.0	17.0	15.0
13	5.0	4.5	---	---	16.0	14.0	20.0	16.5	19.0	15.5	15.0	13.5
14	5.0	4.5	---	---	17.5	14.5	21.0	18.5	18.0	14.5	14.0	12.5
15	5.0	4.5	---	---	17.0	15.0	20.5	17.5	18.5	14.0	14.0	12.5
16	6.0	4.5	---	---	16.0	14.0	18.5	15.5	18.0	15.5	13.5	10.5
17	7.5	5.5	---	---	14.0	12.5	18.5	15.5	18.5	15.0	13.0	11.0
18	7.5	7.0	---	---	13.5	12.5	19.0	15.0	18.5	14.5	12.5	10.5
19	7.0	5.5	---	---	16.0	12.5	19.0	16.0	18.5	15.0	12.0	10.5
20	8.0	6.0	---	---	18.5	14.5	19.0	14.5	20.0	16.0	12.0	11.0
21	10.0	8.0	---	---	19.5	16.0	18.5	14.0	19.5	16.0	12.0	10.5
22	11.0	10.0	---	---	18.5	15.5	18.0	15.0	19.5	16.5	11.0	9.0
23	10.5	8.5	---	---	16.5	14.0	17.0	14.0	19.0	17.0	10.0	8.5
24	8.5	6.5	---	---	15.5	13.5	18.0	14.5	18.0	15.0	10.0	9.0
25	8.5	7.5	---	---	15.5	12.5	17.5	15.0	17.0	13.0	11.0	9.5
26	10.0	7.0	---	---	16.0	13.0	17.5	14.5	16.5	14.5	12.5	10.0
27	10.5	9.0	---	---	17.0	13.0	19.5	15.5	17.0	15.5	13.0	10.5
28	13.5	10.5	---	---	17.0	13.5	19.0	15.0	16.0	13.5	13.0	11.5
29	14.0	13.0	---	---	17.0	14.0	19.0	15.0	15.5	13.0	12.0	10.5
30	13.5	12.0	---	---	19.0	15.0	17.0	14.5	16.0	13.0	10.5	9.5
31	---	---	---	---	---	---	16.5	13.5	16.0	13.5	---	---
MONTH	14.0	2.0	---	---	---	---	21.5	13.5	20.0	13.0	17.5	8.5
YEAR	21.5	0.0										

04140500 RIFLE RIVER AT SELKIRK, MICH.

LOCATION.--Lat 44°18'48", long 84°04'10", in SE¼NE¼ sec.9, T.22 N., R.3 E., Ogemaw County, temperature recorder at gaging station on left bank at upstream side of bridge on State Road at Selkirk, 1.0 mi (1.6 km) downstream from Klacking Creek.
DRAINAGE AREA.--117 mi^2 (303 km^2).
PERIOD OF RECORD.--Water temperatures: October 1950 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 21.5°C Aug. 21, 22; minimum, freezing point on many days during December, January and March.
Period of record:
Water temperatures (1950-74): Maximum, 26.0°C Aug. 1, 1955; minimum, freezing point on many days during winter periods.
REMARKS.--Intermittent ice cover during the winter period. Recorder stopped June 1-18; range in temperature 12.5°C to 15.5°C. A summary of periodic specific conductance data for this station is on page 138.

TEMPERATURE (DEG. C) OF WATER, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	11.5	10.0	9.5	8.5	4.0	4.0	0.0	0.0	1.0	1.0	0.5	0.5
2	12.5	11.5	8.5	7.5	4.0	3.5	0.5	0.0	1.0	1.0	1.0	0.5
3	13.5	12.5	7.5	7.0	4.5	3.5	0.5	0.0	1.0	1.0	1.0	1.0
4	13.5	12.5	7.0	6.0	4.5	4.5	0.0	0.0	1.0	1.0	1.0	0.5
5	12.5	11.0	6.0	4.5	5.0	4.5	0.0	0.0	1.0	1.0	1.0	0.5
6	11.5	9.5	4.5	4.0	5.0	4.0	0.0	0.0	1.0	1.0	0.5	0.0
7	11.0	10.5	4.0	3.5	4.0	3.5	0.0	0.0	1.0	1.0	0.5	0.0
8	12.5	11.0	3.5	3.5	3.5	3.5	0.0	0.0	1.0	1.0	0.5	0.5
9	13.5	12.0	3.5	3.0	3.5	3.5	0.0	0.0	1.0	1.0	0.5	0.5
10	14.0	13.0	3.0	3.0	3.5	3.5	0.0	0.0	1.0	1.0	1.5	0.5
11	14.5	13.0	3.0	3.0	3.5	2.5	0.0	0.0	1.0	1.0	1.5	1.0
12	14.5	13.0	4.5	3.0	2.5	2.0	0.0	0.0	1.0	0.5	2.0	1.0
13	14.0	13.5	6.0	4.5	2.0	1.5	0.0	0.0	0.5	0.5	1.5	0.0
14	13.5	11.5	6.5	6.0	1.5	1.0	0.0	0.0	0.5	0.5	1.0	0.0
15	12.5	11.0	6.5	5.0	1.0	0.0	0.0	0.0	1.0	0.5	1.0	1.0
16	11.0	9.5	5.0	3.5	0.0	0.0	0.0	0.0	0.5	0.5	1.5	1.0
17	9.5	8.5	3.5	3.5	0.0	0.0	0.0	0.0	0.5	0.5	2.0	1.0
18	9.5	8.5	3.5	3.5	0.0	0.0	0.0	0.0	0.5	0.5	2.0	1.0
19	9.0	7.5	4.5	3.5	0.0	0.0	0.0	0.0	0.5	0.5	2.5	1.5
20	8.0	7.5	4.5	4.5	0.0	0.0	0.0	0.0	0.5	0.5	2.5	1.0
21	8.5	7.5	6.0	4.5	0.0	0.0	0.0	0.0	0.5	0.5	2.0	1.5
22	9.0	7.5	6.0	6.0	0.0	0.0	0.0	0.0	0.5	0.5	2.0	1.0
23	9.5	7.5	6.0	6.0	0.0	0.0	0.0	0.0	0.5	0.5	1.5	1.0
24	10.0	8.5	6.0	5.5	0.0	0.0	0.0	0.0	1.0	0.5	1.0	1.0
25	10.5	9.5	5.5	5.5	0.0	0.0	0.0	0.0	1.0	0.5	1.5	0.5
26	11.0	10.5	5.5	5.5	0.0	0.0	0.5	0.0	1.0	0.5	0.5	0.5
27	11.0	9.5	5.5	5.0	0.0	0.0	1.0	0.5	0.5	0.5	1.0	0.5
28	9.5	8.5	5.5	5.5	0.0	0.0	0.5	0.5	0.5	0.5	1.5	1.0
29	8.5	8.5	5.5	4.0	0.5	0.0	0.5	0.5	---	---	1.5	1.5
30	9.5	8.5	4.0	4.0	0.5	0.0	1.0	0.5	---	---	1.5	1.5
31	9.5	9.5	---	---	0.0	0.0	1.0	1.0	---	---	1.5	1.5
MONTH	14.5	7.5	9.5	3.0	5.0	0.0	1.0	0.0	1.0	0.5	2.5	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	1.5	1.5	10.5	9.5	---	---	15.0	15.0	16.0	16.0	17.0	15.5
2	2.0	1.5	10.5	9.0	---	---	15.0	15.0	16.0	16.0	16.0	14.5
3	2.0	2.0	10.0	9.5	---	---	15.0	15.0	16.0	16.0	14.5	12.5
4	2.0	1.5	9.5	8.5	---	---	15.0	15.0	16.0	16.0	13.0	12.0
5	2.0	1.0	9.0	8.5	---	---	15.0	15.0	16.0	15.5	13.5	12.0
6	3.0	1.5	8.5	7.5	---	---	15.5	15.0	16.0	15.5	13.5	12.5
7	3.0	3.0	8.0	6.5	---	---	16.0	15.5	16.5	16.0	14.0	13.5
8	3.0	1.5	8.0	8.0	---	---	16.5	16.0	17.0	16.5	15.5	13.5
9	3.5	2.0	8.0	7.5	---	---	17.0	16.5	17.0	16.5	15.5	14.5
10	4.5	2.5	8.5	8.0	---	---	17.0	17.0	17.0	17.0	16.0	15.0
11	4.5	4.0	8.5	8.5	---	---	17.0	16.5	17.5	17.0	17.0	16.0
12	6.5	4.0	8.5	8.0	---	---	16.5	16.0	17.5	17.5	17.0	17.0
13	5.5	4.0	8.5	8.0	---	---	16.5	16.0	18.0	17.5	17.0	16.0
14	5.0	4.5	8.5	8.5	---	---	16.5	16.0	18.0	18.0	16.0	14.5
15	5.0	3.5	10.5	8.5	---	---	16.5	16.5	18.0	17.5	15.0	14.5
16	6.0	3.5	10.5	9.0	---	---	16.5	16.0	18.0	17.5	15.0	13.0
17	8.5	5.0	13.5	9.0	---	---	16.0	15.5	18.0	17.5	13.5	13.0
18	8.5	7.0	13.5	12.0	---	---	15.5	15.0	18.0	17.5	13.0	12.0
19	8.0	5.0	14.5	11.5	13.0	12.5	16.0	15.5	20.0	18.0	12.5	12.0
20	9.0	5.5	15.0	12.0	14.0	13.0	16.0	16.0	21.0	19.0	13.0	12.5
21	10.0	8.5	16.0	13.0	15.0	14.0	16.0	15.5	21.5	20.0	13.0	12.0
22	12.5	10.0	16.5	16.0	15.0	15.0	15.5	15.5	21.5	19.5	12.0	10.5
23	12.5	8.0	17.0	15.0	15.0	14.5	15.0	14.5	21.0	20.0	11.0	10.0
24	9.5	6.0	16.5	13.5	14.5	14.0	15.0	14.5	20.5	18.5	10.5	10.0
25	9.0	7.5	13.5	11.5	14.0	13.5	15.0	15.0	19.0	17.0	11.5	9.5
26	9.5	6.5	12.0	10.5	14.0	14.0	15.5	15.0	19.0	17.5	11.5	10.5
27	10.0	8.5	12.0	11.0	14.0	13.5	16.0	15.5	19.0	18.5	12.0	11.5
28	11.5	10.0	12.0	11.5	14.5	14.0	16.5	16.0	18.5	16.5	12.5	12.0
29	11.5	11.0	13.0	11.0	14.5	14.5	16.5	16.5	17.0	15.5	12.5	12.0
30	11.5	10.5	14.0	12.5	15.0	14.5	16.5	16.0	17.0	16.0	12.0	11.5
31	---	---	14.0	13.5	---	---	16.5	15.5	17.5	16.5	---	---
MONTH	12.5	1.0	17.0	6.5	---	---	17.0	14.5	21.5	15.5	17.0	9.5
YEAR	21.5	0.0										

04144000 SHIAWASSEE RIVER AT BYRON, MICH.

LOCATION.--Lat 42°49'25", long 83°56'45", in NE¼ NE¼ sec.23, T.5 N., R.4 E., Shiawassee County, temperature recorder at gaging station on upstream side of bridge at Byron, 0.3 mi (0.5 km) downstream from milldam just upstream from South Branch Shiawassee River.
DRAINAGE AREA.--368 mi² (953 km²).
PERIOD OF RECORD.--March 1962 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 29.0°C July 9, 10; minimum, freezing point on many days during winter period.
Period of record:
Water temperatures (1962-74): Maximum, 29.0°C June 28, 1971, July 9, 10, 1974; minimum, freezing point on many days during winter periods.
REMARKS.--No temperature records available Nov. 6-11. Period of missing record due to clock stoppage and recorded ranges in temperature: Jan. 24 to Feb. 15, 0.0 to 1.0°C.

TEMPERATURE (DEG. C) OF WATER , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	14.5	12.0	11.0	10.0	3.5	3.0	0.0	0.0	---	---	0.0	0.0
2	14.5	13.5	10.0	10.0	3.0	2.0	0.0	0.0	---	---	0.0	0.0
3	15.0	15.0	10.0	9.0	4.5	2.0	0.0	0.0	---	---	2.0	0.5
4	15.0	14.5	9.0	8.0	5.5	4.5	0.0	0.0	---	---	2.0	2.0
5	15.0	13.5	8.0	6.0	5.5	5.0	0.0	0.0	---	---	3.0	2.0
6	14.0	12.0	---	---	5.0	3.5	0.0	0.0	---	---	3.5	3.0
7	14.0	13.0	---	---	3.5	3.0	0.0	0.0	---	---	4.0	3.5
8	15.0	13.5	---	---	3.0	1.5	0.0	0.0	---	---	4.0	3.5
9	16.0	14.5	---	---	1.5	1.5	0.0	0.0	---	---	3.5	3.0
10	17.0	15.5	---	---	1.5	1.0	0.0	0.0	---	---	3.0	2.0
11	17.0	16.0	---	---	1.0	1.0	0.0	0.0	---	---	3.0	3.0
12	18.0	16.5	4.0	3.5	1.0	0.5	0.0	0.0	---	---	3.0	2.0
13	17.0	16.5	6.0	4.0	0.5	0.0	0.0	0.0	---	---	3.0	2.0
14	16.5	14.5	7.0	6.0	0.0	0.0	0.0	0.0	---	---	2.0	1.5
15	15.0	14.5	7.0	6.5	0.0	0.0	0.0	0.0	---	---	3.0	3.0
16	14.5	12.0	6.5	5.0	0.0	0.0	0.0	0.0	0.0	0.0	3.0	3.0
17	12.0	11.0	5.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	3.5	3.0
18	11.5	11.0	4.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	4.0
19	11.0	10.0	4.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	4.0
20	11.0	10.5	5.0	4.5	0.0	0.0	0.0	0.0	0.0	0.0	4.0	3.0
21	11.0	10.0	6.0	5.0	0.0	0.0	0.0	0.0	0.0	0.0	4.0	4.0
22	11.5	10.0	6.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	4.0	3.0
23	12.0	11.0	6.0	6.0	0.0	0.0	0.0	0.0	0.0	0.0	3.5	3.0
24	13.0	11.0	6.5	5.5	0.0	0.0	---	---	0.0	0.0	3.0	0.5
25	13.5	12.0	6.5	6.0	0.0	0.0	---	---	0.0	0.0	1.0	0.0
26	14.0	13.5	6.0	5.5	0.0	0.0	---	---	0.0	0.0	1.0	0.5
27	14.0	13.0	6.0	5.5	0.0	0.0	---	---	0.0	0.0	1.0	1.0
28	13.0	11.5	6.0	5.5	0.0	0.0	---	---	0.0	0.0	1.0	0.5
29	11.5	11.0	5.5	4.0	0.0	0.0	---	---	---	---	1.0	0.5
30	11.0	11.0	4.0	3.5	0.0	0.0	---	---	---	---	1.5	1.0
31	11.0	11.0	---	---	0.0	0.0	---	---	---	---	2.5	1.5
MONTH	18.0	10.0	11.0	3.5	5.5	0.0	---	---	---	---	4.0	0.0

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	3.0	2.5	17.0	15.0	19.5	17.5	25.5	22.5	22.5	20.0	20.0	18.0
2	6.0	3.0	16.5	14.0	19.5	18.0	25.0	23.5	22.0	20.5	19.0	15.5
3	7.5	6.0	15.5	14.5	20.5	18.5	27.5	24.0	22.5	20.5	15.5	14.0
4	9.0	7.5	14.5	12.5	22.5	19.5	27.5	26.5	22.5	20.0	16.0	13.5
5	8.5	6.5	14.0	11.5	23.5	21.0	26.5	24.0	22.0	19.0	16.5	14.0
6	6.5	5.0	11.5	9.5	23.5	22.5	26.5	24.0	23.0	19.5	17.5	15.0
7	6.5	5.5	11.5	8.5	24.0	22.5	27.0	24.0	23.0	20.0	17.5	16.0
8	5.5	4.5	11.5	9.5	24.0	22.5	28.0	25.5	23.0	21.0	19.0	17.0
9	5.0	3.5	9.5	8.5	25.0	23.5	29.0	26.5	23.0	21.5	20.5	18.5
10	7.0	4.5	11.5	8.0	25.0	22.5	29.0	26.5	23.0	21.0	21.0	19.5
11	7.0	7.0	11.0	10.5	22.5	20.0	26.5	23.5	23.0	21.5	22.0	20.5
12	8.5	7.0	13.0	11.0	21.0	19.0	26.0	22.5	24.5	21.5	22.0	21.5
13	12.0	8.5	13.0	11.5	20.5	19.0	25.0	23.5	24.5	22.5	22.0	20.5
14	13.0	12.0	12.5	11.0	21.5	19.5	27.5	24.0	24.0	21.5	20.5	18.0
15	12.0	9.0	14.5	12.5	21.5	21.0	27.0	24.0	23.5	21.0	18.0	16.0
16	10.0	7.5	15.0	13.0	21.5	19.5	25.5	22.5	23.5	22.0	17.5	15.5
17	11.0	8.0	14.5	13.0	19.5	18.5	25.0	22.0	23.5	21.5	17.5	17.0
18	11.0	9.5	15.0	14.0	19.0	17.5	25.0	22.0	23.0	20.5	18.0	16.0
19	10.0	7.5	17.0	14.5	20.0	19.0	26.0	23.0	23.0	21.0	19.0	16.0
20	11.5	8.5	18.0	16.0	23.5	20.0	25.5	22.5	24.5	21.0	19.0	17.0
21	13.0	11.0	20.0	17.5	24.5	23.0	24.5	21.0	25.5	22.5	17.0	16.0
22	14.0	12.5	20.0	19.5	24.5	23.5	24.0	20.5	25.0	22.5	16.5	14.0
23	13.5	10.0	20.5	19.5	23.0	19.5	20.5	19.5	24.5	23.0	14.0	12.5
24	10.5	8.0	20.5	18.0	19.5	18.5	23.0	19.5	23.0	21.0	13.5	12.5
25	10.5	9.0	18.5	17.0	19.5	18.0	22.5	20.5	23.0	19.5	14.0	12.5
26	12.5	9.0	17.0	15.5	21.5	19.0	24.0	21.0	23.5	20.0	15.5	12.5
27	15.0	12.0	17.0	15.5	23.0	19.5	25.5	22.0	23.5	21.0	17.0	14.5
28	16.5	15.0	16.0	15.0	24.0	20.5	25.5	21.5	21.0	19.0	18.0	17.0
29	18.0	16.5	16.0	15.0	24.5	21.5	25.5	22.5	21.0	18.0	18.0	15.5
30	18.0	17.0	18.5	16.0	25.0	22.5	24.0	21.5	21.0	19.0	15.5	13.0
31	---	---	18.5	18.0	---	---	22.5	20.5	21.0	19.5	---	---
MONTH	18.0	2.5	20.5	8.0	25.0	17.5	29.0	19.5	25.5	18.0	22.0	12.5
YEAR	29.0	0.0										

04160900 CLINTON RIVER NEAR DRAYTON PLAINS, MICH.

LOCATION.--Lat 42°39'37", long 83°23'25", in NE¼ sec.21, T.3 N., R.9 E., Oakland County, temperature recorder at gaging station on left bank 14 ft (4 m) downstream from bridge on State Highway 59, 1 mi (1.6 km) downstream from State fish hatchery, and 2.0 mi (3.2 km) south of Drayton Plains.
DRAINAGE AREA.--79.2 mi^2 (205 km^2).
PERIOD OF RECORD.--Water temperatures: October 1961 to April 1967, August 1968 to September 1974.
EXTREMES.--1973-74:
Water temperatures: Maximum, 26.5°C July 9; minimum, not recorded.
Period of record:
Water temperatures (1961-74): Maximum, 30.5°C July 1, 1963, July 24, 1964; minimum, freezing point on many days during winter periods in 1962 and 1963.
REMARKS.--No temperature record Nov. 26 to April 15, probe buried by sediment. Records considered poor for April 15 to June 24.

TEMPERATURE (DEG. C) OF WATER . WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

	OCTOBER		NOVEMBER		DECEMBER		JANUARY		FEBRUARY		MARCH	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	14.0	13.5	9.5	9.0	---	---	---	---	---	---	---	---
2	15.0	14.0	9.0	9.0	---	---	---	---	---	---	---	---
3	15.0	14.5	9.0	8.5	---	---	---	---	---	---	---	---
4	14.5	14.5	---	---	---	---	---	---	---	---	---	---
5	14.5	13.5	---	---	---	---	---	---	---	---	---	---
6	14.0	13.5	---	---	---	---	---	---	---	---	---	---
7	14.5	13.5	---	---	---	---	---	---	---	---	---	---
8	14.5	14.5	---	---	---	---	---	---	---	---	---	---
9	15.0	14.5	---	---	---	---	---	---	---	---	---	---
10	15.5	15.0	---	---	---	---	---	---	---	---	---	---
11	15.5	15.5	---	---	---	---	---	---	---	---	---	---
12	15.5	15.5	---	---	---	---	---	---	---	---	---	---
13	15.5	15.5	---	---	---	---	---	---	---	---	---	---
14	15.5	14.5	---	---	---	---	---	---	---	---	---	---
15	14.5	14.5	---	---	---	---	---	---	---	---	---	---
16	14.5	13.5	---	---	---	---	---	---	---	---	---	---
17	13.5	13.0	---	---	---	---	---	---	---	---	---	---
18	13.0	13.0	---	---	---	---	---	---	---	---	---	---
19	13.0	12.0	---	---	---	---	---	---	---	---	---	---
20	12.0	12.0	---	---	---	---	---	---	---	---	---	---
21	12.0	11.5	---	---	---	---	---	---	---	---	---	---
22	11.5	11.0	---	---	---	---	---	---	---	---	---	---
23	11.5	11.0	---	---	---	---	---	---	---	---	---	---
24	11.0	11.0	---	---	---	---	---	---	---	---	---	---
25	11.5	11.0	---	---	---	---	---	---	---	---	---	---
26	11.5	11.0	---	---	---	---	---	---	---	---	---	---
27	11.5	11.0	---	---	---	---	---	---	---	---	---	---
28	11.0	10.5	---	---	---	---	---	---	---	---	---	---
29	10.5	10.0	---	---	---	---	---	---	---	---	---	---
30	10.0	9.5	---	---	---	---	---	---	---	---	---	---
31	9.5	9.5	---	---	---	---	---	---	---	---	---	---
MONTH	15.5	9.5	---	---	---	---	---	---	---	---	---	---

	APRIL		MAY		JUNE		JULY		AUGUST		SEPTEMBER	
DAY	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
1	---	---	16.5	16.0	18.0	18.0	21.0	20.5	24.0	23.0	21.0	20.0
2	---	---	16.5	16.5	18.0	18.0	21.5	21.0	25.5	23.0	20.0	17.0
3	---	---	16.5	16.5	18.5	18.0	23.5	21.5	24.0	23.5	17.0	16.0
4	---	---	16.5	16.5	19.0	18.5	23.5	23.0	24.0	23.0	16.0	15.5
5	---	---	16.5	16.5	19.5	19.0	23.0	21.5	23.5	22.0	17.0	15.5
6	---	---	16.5	16.0	19.5	19.5	23.0	21.5	23.5	23.0	16.5	16.0
7	---	---	16.0	16.0	19.5	19.0	23.5	21.5	24.0	23.5	16.5	16.0
8	---	---	16.0	16.0	20.0	19.5	25.5	23.0	24.5	24.0	17.0	16.5
9	---	---	16.0	16.0	20.0	20.0	26.5	25.0	24.5	24.0	18.0	17.0
10	---	---	16.0	15.5	20.0	20.0	26.0	25.5	24.5	24.5	18.5	18.0
11	---	---	16.0	15.5	20.0	19.5	25.5	23.5	24.5	24.5	19.0	18.5
12	---	---	16.0	16.0	19.5	19.5	25.5	23.5	24.5	24.0	19.0	19.0
13	---	---	16.0	15.5	19.5	19.5	24.5	24.0	26.0	24.0	19.0	19.0
14	---	---	15.5	15.5	19.5	19.0	25.0	24.5	25.5	23.0	19.0	18.0
15	---	---	15.5	15.5	19.0	19.0	25.0	24.5	24.5	23.0	18.0	17.0
16	15.0	14.5	15.5	15.5	19.0	19.0	24.5	24.0	24.0	23.0	18.0	16.5
17	15.5	15.0	16.0	15.5	19.0	18.5	24.5	24.0	23.5	22.0	18.0	17.0
18	15.5	15.5	16.0	16.0	18.5	18.5	25.0	24.5	23.5	21.5	18.0	17.0
19	15.5	15.5	16.5	16.0	18.5	18.5	25.0	25.0	23.5	22.0	18.5	17.0
20	15.5	15.5	16.5	16.5	18.5	18.0	25.5	23.5	24.0	22.0	18.5	18.0
21	15.5	15.5	18.0	16.5	19.0	18.5	25.0	23.0	23.5	22.0	18.0	17.0
22	15.5	15.5	19.0	19.0	19.0	19.0	25.0	23.5	23.5	22.0	17.0	16.5
23	15.5	15.5	19.0	19.0	19.0	19.0	23.5	22.0	23.5	22.0	16.5	15.5
24	15.5	15.5	19.0	18.5	19.0	18.5	23.5	22.0	22.0	21.5	16.0	15.5
25	15.5	15.5	18.0	18.0	19.0	19.0	23.5	23.0	22.0	21.0	15.5	15.5
26	15.5	15.5	18.0	18.0	20.0	19.0	24.0	23.0	23.5	20.5	16.5	15.5
27	16.0	15.5	18.0	18.0	20.0	20.0	25.0	23.5	23.0	21.5	16.5	16.0
28	15.5	15.5	18.0	18.0	20.0	20.0	25.5	23.5	21.5	20.0	17.0	16.5
29	16.0	15.5	18.0	18.0	20.5	20.0	25.0	24.0	22.0	20.5	17.0	16.5
30	16.0	16.0	18.5	18.0	21.0	21.0	25.0	24.0	22.0	20.5	16.5	15.5
31	---	---	18.5	18.5	---	---	24.5	23.5	22.0	21.0	---	---
MONTH	---	---	19.0	15.5	21.0	18.0	26.5	20.5	26.0	20.0	21.0	15.5
YEAR	26.5	8.5										

04165700 DETROIT RIVER AT DETROIT, MICH.
(National stream-quality accounting station)

LOCATION.--Lat 42°20'50", long 82°57'31", in T.2 S., R.13 E., Wayne County, at Detroit municipal raw-water intake at Water Works Park at Detroit.
DRAINAGE AREA.--228,800 mi^2 (592,600 km^2), approximately.
PERIOD OF RECORD.--Chemical analyses: October 1969 to July 1973, February to September 1974.
Water temperatures: October 1973 to September 1974.
EXTREMES.--1973-74:
Specific conductance: Maximum daily, 250 micromhos July 29-30; minimum daily, 200 micromhos Aug. 24, Sept. 23.
Water Temperatures: Maximum daily, 23.5°C Aug. 22-25; minimum daily, 0.5°C on many days Dec. 18 to Mar. 30.
REMARKS.--Primary sampling point is raw-water tap at Detroit municipal treatment plant at Water Works Park in Detroit. Plant intake is in lagoon at north end of Belle Isle in the Detroit River. Discharges obtained from U.S. Army Corps of Engineers.

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	DIS-CHARGE (CFS)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED CAL-CIUM (CA) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)
FEB.											
14...	1100	222000	1.6	29	8.0	4.8	.9	101	0	83	18
MAR.											
06...	1030	244000	1.2	26	7.4	4.7	1.0	96	0	79	17
APR.											
03...	1025	219000	1.3	26	7.2	4.5	.8	96	0	79	16
MAY											
07...	1020	237000	1.0	25	7.6	9.8	1.0	100	0	82	17
JUNE											
12...	0800	241000	1.0	32	7.5	4.1	1.1	102	0	84	17
JULY											
11...	1000	245000	.8	29	7.4	4.2	1.0	98	0	80	16
AUG.											
09...	1015	244000	1.1	32	6.1	4.3	.9	99	0	81	17
SEP.											
13...	1020	244000	.8	27	7.5	4.3	.9	98	0	80	16

DATE	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	PERCENT SODIUM	SODIUM AD-SORP-TION RATIO	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	TUR-BID-ITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATUR-ATION
FEB.										
14...	120	33	9	.2	230	6.9	4.5	1	--	--
MAR.										
06...	95	17	10	.2	210	7.6	4.5	8	13.0	100
APR.										
03...	95	16	9	.2	230	7.1	7.0	10	13.5	110
MAY										
07...	94	12	18	.4	230	7.0	10.5	3	12.1	110
JUNE										
12...	110	27	7	.2	230	8.1	16.5	6	10.0	110
JULY										
11...	100	23	8	.2	230	7.7	20.5	5	8.0	89
AUG.										
09...	110	24	8	.2	220	7.9	22.0	4	8.8	100
SEP.										
13...	98	18	9	.2	215	8.0	17.0	4	8.5	89

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (SUM OF CONSTI-TUENTS) (MG/L)	DIS-SOLVED SOLIDS (TONS PER AC-FT)	DIS-SOLVED SOLIDS (TONS PER DAY)
FEB.										
14...	11	.2	.10	.14	.24	.01	133	127	.18	79700
MAR.										
06...	7.2	.1	--	--	--	--	140	112	.19	92200
APR.										
03...	7.0	1.4	.29	.19	.48	.01	113	112	.15	66800
MAY										
07...	8.0	.1	.26	.11	.37	.00	128	119	.17	81900
JUNE										
12...	9.2	.2	.36	.17	.53	.01	136	122	.19	88500
JULY										
11...	7.8	.1	.23	.21	.44	.01	146	115	.20	96600
AUG.										
09...	8.0	.1	.26	.25	.51	.01	142	118	.19	93500
SEP.										
13...	6.0	.1	.20	.18	.38	.03	118	111	.16	77700

DATE	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)	STREP-TOCOCCI (COL-ONIES PER 100 ML)	AIR TEMPER-ATURE (DEG C)	FLOAT-ING OR SOLID ICE COVER (SEVER-ITY)	TUR-BID-ITY (SEVER-ITY)	TOTAL ORGANIC CARBON (C) (MG/L)	SUS-PENDED SEDI-MENT (MG/L)	SUS-PENDED SEDI-MENT DIS-CHARGE (T/DAY)	SUS. SED. SIEVE DIAM. % FINER THAN .062 MM
FEB.										
14...	R12	R6	<1	2.0	4	--	11	3	1800	--
MAR.										
06...	36	<1	R3	11.5	--	--	--	1	659	28
APR.										
03...	--	--	<1	14.0	--	--	3.5	10	5910	69
MAY										
07...	R2	230	<1	6.0	--	--	--	R	5120	--
JUNE										
12...	R16	80	R1	14.0	--	--	--	R	5210	9
JULY										
11...	100	R4	R8	20.0	--	1	3.9	15	9920	3
AUG.										
09...	>200	27	13	21.5	--	1	--	--	--	--
SEP.										
13...	R194	R5	R1	21.0	--	1	--	3	1980	100

DATE	TOTAL PHYTO-PLANKTON COUNT (CELLS/ML)	DOMINANT GENERA	PER-CENT OF TOTAL	MINOR GENERA	PER-CENT OF TOTAL	MINOR GENERA	PER-CENT OF TOTAL	MINOR GENERA	PER-CENT OF TOTAL
JULY, 1974									
11....	1,600	FRAGILARIA	27	CYCLOTELLA	11	NAVICULA	7	SYNEDRA	2
				DINOBRYON	10	KIRCHNERIELLA	6	TABELLARIA	2
				LYNGBYA	9	PEDIASTRUM	6	SCENDESMUS	1
				MELOSIRA	9	ANACYSTIS	4	TETRAEDRON	1
						ASTERIONELLA	3		
						ANKISTRODESMUS	3		
AUG.,									
09....	1,200	CYCLOTELLA	35	NAVICULA	11	ASTERIONELLA	4	MELOSIRA	3
		ANABAENA	28	ANACYSTIS	6	GOMPHONEMA	3	SCENEDESMUS	3
				CRUCIGENIA	6	SYNEDRA	3		
SEP.,									
13....	1,200	CYCLOTELLA	81	NAVICULA	6	GOMPHONEMA	3	FRAGILARIA	3
				MELOSIRA	6				

DATE	PERI-PHYTON BIOMASS TOTAL DRY WEIGHT (G/SQ M)	PERI-PHYTON BIOMASS ASH WEIGHT (G/SQ M)	PERI-PHYTON CHLORO-PHYLL A (MG/SQ M)	PERI-PHYTON CHLORO-PHYLL B (MG/SQ M)	BIOMASS/ PIGMENT RATIO
JULY 11-AUG. 09....	133	38	2.7	1.0	35

DATE	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
FEB.											
14...	1	0	1	0	--	0	1	0	9	6	50
APR.											
03...	19	9	2	0	10	0	10	10	R	3	290
JULY											
11...	1	1	--	1	<10	0	--	7	--	4	340

DATE	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
FEB.											
14...	20	2	2	25	0	--	.0	2	2	5	5
APR.											
03...	40	5	5	10	0	.0	.0	--	3	340	20
JULY											
11...	0	--	13	13	0	--	.2	3	2	110	0

04165700 DETROIT RIVER AT DETROIT, MICH.--Continued

SPECIFIC CONDUCTANCE (MICROMHOS/CM AT 25 DEG. C) , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974
INSTANTANEOUS OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	---	---	---	---	---	205	216	208	---	---	218	218
2	---	---	---	---	---	208	216	208	222	217	221	215
3	---	---	---	---	---	208	207	---	224	223	222	215
4	---	---	---	---	---	208	---	211	218	---	220	210
5	---	---	---	---	---	208	213	212	---	224	223	216
6	---	---	---	---	---	208	204	---	---	224	223	211
7	---	---	---	---	---	205	202	216	227	224	218	216
8	---	---	---	---	---	201	---	---	218	223	218	218
9	---	---	---	---	---	205	---	---	218	225	---	214
10	---	---	---	---	---	205	---	---	216	225	207	215
11	---	---	---	---	---	---	---	224	213	---	208	---
12	---	---	---	---	---	207	217	210	218	228	---	215
13	---	---	---	---	---	---	217	---	---	225	---	---
14	---	---	---	---	---	---	215	---	---	228	218	---
15	---	---	---	---	---	208	209	206	207	226	---	---
16	---	---	---	---	---	206	212	---	206	221	---	206
17	---	---	---	---	---	205	222	---	205	230	---	216
18	---	---	---	---	214	216	---	---	220	---	---	211
19	---	---	---	---	218	216	---	---	213	---	220	215
20	---	---	---	---	217	213	205	218	218	---	208	---
21	---	---	---	---	---	---	213	226	210	226	204	---
22	---	---	---	---	---	218	210	235	226	228	217	---
23	---	---	---	---	209	212	208	229	226	---	205	200
24	---	---	---	---	204	210	205	217	226	---	200	224
25	---	---	---	---	204	210	205	---	226	---	202	220
26	---	---	---	---	218	212	212	---	226	---	222	---
27	---	---	---	---	211	207	208	---	---	---	228	217
28	---	---	---	---	202	212	208	---	---	---	228	216
29	---	---	---	---	---	235	208	217	223	---	212	216
30	---	---	---	---	---	216	208	219	218	250	---	215
31	---	---	---	---	---	216	---	222	---	250	208	---
MONTH	---	---	---	---	---	210	---	---	---	---	---	---
YEAR	MAX	250	MIN	200	MEAN	215						

TEMPERATURE (DEG. C) OF WATER , WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974
INSTANTANEOUS OBSERVATIONS AT 8:00 AM

DAY	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
1	18.0	11.5	6.0	0.5	0.5	0.5	1.0	9.0	14.0	18.0	21.0	21.0
2	18.0	11.0	6.0	0.5	0.5	0.5	1.5	9.0	14.0	18.0	21.0	20.0
3	17.0	11.0	5.5	0.5	0.5	0.5	2.0	9.5	14.5	18.0	21.5	19.0
4	17.0	10.5	5.5	0.5	0.5	0.5	3.5	9.5	15.0	19.0	21.5	18.5
5	18.0	10.0	6.0	0.5	0.5	0.5	4.0	10.0	15.5	19.5	21.0	18.5
6	17.0	9.0	6.0	0.5	0.5	1.0	4.0	8.5	16.0	20.0	21.0	18.5
7	17.0	8.0	5.5	0.5	0.5	1.0	4.0	8.0	16.5	20.5	21.5	18.0
8	18.0	8.0	5.5	0.5	0.5	1.0	4.0	8.0	17.0	21.5	21.5	18.5
9	17.0	6.5	5.0	0.5	0.5	1.0	4.0	8.0	17.0	23.0	22.0	19.0
10	17.0	6.0	4.5	0.5	0.5	1.5	4.0	8.0	18.0	22.0	22.0	19.5
11	18.0	6.0	4.5	0.5	0.5	1.5	4.0	8.5	16.5	21.0	22.0	19.5
12	18.0	6.0	4.5	0.5	0.5	3.0	4.0	8.5	16.0	20.5	22.0	20.0
13	18.0	5.5	4.0	0.5	0.5	3.0	4.0	8.5	16.0	20.5	23.0	20.5
14	17.0	5.5	4.0	0.5	0.5	2.0	5.0	8.5	16.0	21.0	22.0	20.0
15	16.5	7.0	3.0	0.5	0.5	2.0	5.5	9.0	15.0	21.0	22.0	19.5
16	16.0	7.0	2.0	0.5	0.5	2.0	5.0	10.0	15.0	21.0	22.0	19.0
17	15.0	6.5	1.5	0.5	0.5	2.0	6.0	9.5	15.0	21.0	22.0	18.5
18	14.0	7.0	0.5	0.5	0.5	2.0	6.5	10.5	14.5	21.0	22.0	18.5
19	13.5	6.5	0.5	0.5	0.5	2.0	6.5	11.5	14.5	21.5	22.0	18.5
20	13.0	7.0	0.5	0.5	0.5	2.0	6.0	11.5	14.5	21.5	23.0	18.5
21	12.0	6.5	0.5	0.5	0.5	2.0	6.5	13.0	16.0	21.0	23.0	18.0
22	13.0	7.0	0.5	0.5	0.5	2.0	7.0	13.5	16.0	21.5	23.5	18.0
23	13.0	7.0	0.5	0.5	0.5	2.0	6.0	13.5	16.5	21.0	23.5	16.5
24	13.0	8.0	0.5	0.5	0.5	1.5	6.0	13.5	16.0	20.5	23.5	16.0
25	13.0	8.0	0.5	0.5	0.5	1.0	6.0	12.0	16.0	21.0	23.5	15.5
26	13.5	8.0	0.5	0.5	0.5	0.5	7.0	12.0	16.5	21.0	23.0	15.0
27	14.0	8.0	0.5	0.5	0.5	0.5	8.0	13.5	16.5	21.0	22.0	15.0
28	14.0	8.0	0.5	0.5	0.5	0.5	8.5	14.0	18.0	21.5	21.0	15.5
29	13.5	7.0	0.5	0.5	---	0.5	8.5	13.5	18.5	22.0	21.0	16.0
30	13.0	6.5	0.5	0.5	---	0.5	9.0	13.0	18.5	22.0	21.0	15.5
31	12.0	---	0.5	0.5	---	1.0	---	13.5	---	21.5	21.5	---
MONTH	15.5	7.5	3.0	0.5	0.5	1.5	5.0	10.5	16.0	21.0	22.0	18.0
YEAR	MAX	23.5	MIN	0.5	MEAN	10.0						

04173000 HURON RIVER NEAR DEXTER, MICH.

LOCATION.--Lat 42°23'10", long 083°54'40", in S½ sec.13, T.1 S., R.4 E., Washtenaw County, at former gaging station on right bank 20 ft (6.1 m) downstream from highway bridge on North Territorial Rd., 0.5 mi (.8 km) east of Hudson Mills, 2 mi (3 km) downstream from Portage Lake Outlet, 4 mi (6 km) north of Dexter; and 69.2 mi (111 km) upstream from mouth.
DRAINAGE AREA.--572 mi^2 (1,365 km^2), revised.
PERIOD OF RECORD.--Chemical analyses: August 1971 to September 1974.
REMARKS.--Bimonthly analyses for nutrients, coliforms, and BOD furnished by Washtenaw County Health Department. Discharge estimates based on stage-discharge ratings for discontinued gaging station.

CHEMICAL ANALYSES, WATER-YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT.												
31...	1240	E210	--	--	--	560	7.5	12.0	8.8	84	11.0	0
JAN.												
09...	1215	E470	--	--	--	585	7.9	.0	14.0	99	-5.0	1
MAR.												
25...	1305	E890	204	0	167	510	8.1	.0	13.0	92	-3.5	0
MAY												
30...	0925	E620	--	--	--	500	7.9	18.5	9.2	100	20.5	--
JULY												
01...	1440	E340	--	--	--	520	8.3	25.0	9.8	120	30.5	--
SEP.												
03...	1530	E160	247	0	203	510	8.3	21.5	10.0	120	18.5	--

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	COMPLETE COLIFORM (MPN)	FECAL COLIFORM (EC BROTH) (MPN)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
OCT.									
31...	.01	.01	.39	.03	.02	1.9	2400	430	.0
JAN.									
09...	.08	.01	.03	.02	.01	3.6	21000	<30	.0
MAR.									
25...	.03	.01	.36	.00	.00	2.8	2100	<30	.0
MAY									
30...	.02	.01	.02	.05	.05	2.1	2100	<30	.0
JULY									
01...	.01	.02	.02	.05	.05	1.6	2100	<30	.0
SEP.									
03...	.01	.01	.07	.01	.00	3.9	46000	90	.0

DATE	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)
MAR., 1974										
25...	5.1	30	0	60	16	13	2.0	47	21	.2
SEP.										
03...	5.2	10	0	63	21	16	1.8	46	30	.2

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)
MAR., 1974										
25...	321	220	48	30	2	--	--	--	--	--
SEP.										
03...	312	240	37	10	2	3	0	9	0	.1

04173254 MILL CREEK NEAR LIMA CENTER

LOCATION.--Lat 42°16'54", long 83°55'22" (revised), in NE¼ sec.26, T.2 S., R.4 E., Washtenaw County, at bridge on Jerusalem Rd., 0.3 mi (0.5 km) upstream from North Fork Mill Creek, 2.0 mi (3.2 km) southeast of Lima Center, 2.1 mi (3.4 km) upstream from gaging station near Dexter, and 6.2 mi (10 km) upstream from Huron River.
DRAINAGE AREA.--59.8 mi^2 (155 km^2).
PERIOD OF RECORD.--Chemical analyses: August 1971 to September 1974.
REMARKS.--Bimonthly analyses for nutrients, coliforms, and BOD furnished by Washtenaw County Health Department. Discharge estimates based on records at streamflow partial-record station near Lima Center and gaging station near Dexter.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT. 31...	1425	E32	--	--	--	740	7.9	10.0	10.1	92	11.0	--
JAN. 09...	1430	E38	--	--	--	810	7.5	.0	13.4	94	.5	2
MAR. 25...	1605	E62	298	0	244	700	7.8	.0	12.8	91	1.0	0
MAY 30...	1100	E55	--	--	--	700	7.5	17.0	8.7	95	19.5	--
JULY 02...	0830	E18	--	--	--	680	7.4	20.0	7.4	83	23.5	--
SEP. 04...	1055	E15	340	0	279	630	8.1	13.0	9.8	94	14.5	--

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	COMPLETE COLIFORM (MPN)	FECAL COLIFORM (EC BROTH) (MPN)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
OCT. 31...	.03	.01	.17	.03	.01	3.5	46000	930	.0
JAN. 09...	.13	.01	.03	.03	.01	.6	110000	400	.0
MAR. 25...	.02	.01	.36	.03	.02	4.2	11000	<30	.0
MAY 30...	.06	.01	.03	.06	.05	2.2	>240000	930	.0
JULY 02...	.03	.02	.03	.05	.05	1.1	24000	930	.0
SEP. 04...	.02	.01	.06	.03	.02	4.3	46000	4600	.0

DATE	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)
MAR., 1974 25...	7.3	50	120	94	22	12	2.4	75	23	.2	481	330
SEP. 04...	12	10	35	90	25	11	2.2	60	23	.3	468	330

DATE	NONCARBONATE HARDNESS (MG/L)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED NICKEL (NI) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
MAR., 1974 25...	81	40	30	--	--	--	--	--	--	--	--
SEP. 04...	51	10	5	3	1	3	4	.0	4	0	4

04173310 NORTH FORK MILL CREEK NEAR CHELSEA, MICH.

LOCATION.--Lat 42°19'34", long 84°00'57" (revised) in SE¼ sec.1, T.2 S., R.3 E., Washtenaw County, at bridge on McKinley Rd., 0.4 mi (0.6 km) upstream from Letts Creek, 0.5 mi (0.8 km) north of Chelsea, and 6.6 mi (11 km) upstream from Mill Creek.
DRAINAGE AREA.--14.6 mi^2 (37.8 km^2).
PERIOD OF RECORD.--Chemical analyses: August 1971 to September 1974.
REMARKS.--Bimonthly analyses for nutrients, coliforms, and BOD furnished by Washtenaw County Health Department.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT. 31...	1335	--	--	--	530	7.8	10.0	9.1	83	10.0	0
JAN. 09...	1315	--	--	--	525	7.8	.0	13.2	93	-5.0	1
MAR. 25...	1435	235	0	193	460	7.9	.0	13.0	93	-1.5	0
MAY 30...	1015	--	--	--	425	7.9	17.5	8.4	90	18.5	--
JULY 01...	1535	--	--	--	430	8.2	23.5	8.5	100	29.5	--
SEP. 04...	0940	324	0	266	600	8.1	10.0	8.8	81	12.5	--

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	COMPLETE COLIFORM (MPN)	FECAL COLIFORM (EC BROTH) (MPN)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
OCT. 31...	.02	.01	.15	.03	.01	1.9	46000	930	.0
JAN. 09...	.06	.01	.04	.02	.02	.2	24000	9300	.0
MAR. 25...	.01	.01	.35	.00	.00	5.8	110000	<30	.0
MAY 30...	.02	.01	.03	.02	.02	2.1	4600	750	.0
JULY 01...	.04	.02	.05	.01	.01	.9	24000	930	.0
SEP. 04...	.04	.01	.06	.02	.01	3.0	46000	430	.0

DATE	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)
MAR., 1974 25...	6.2	70	50	61	16	8.0	1.5	21	16	.2
SEP. 04...	12	40	20	79	22	10	1.8	46	24	.2

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)
MAR., 1974 25...	309	220	25	20	4	--	--	--	--	--
SEP. 04...	420	290	24	20	3	1	1	3	0	.0

04173350 NORTH FORK MILL CREEK NEAR LIMA CENTER, MICH.

LOCATION.--Lat 42°17'46", long 83°57'33" (revised), in SW¼ sec.23, T.2 S., R.4 E., Washtenaw County, at bridge on Dancer Rd., 1.2 mi (1.9 km) southeast of Lima Center, 5.1 mi (8.2 km) downstream from Letts Creek, and 1.1 mi (1.8 km) upstream from Mill Creek.
DRAINAGE AREA.--59.0 mi² (153 km²).
PERIOD OF RECORD.--Chemical analyses: August 1971 to September 1974.
REMARKS.--Bimonthly analyses for nutrients, coliforms, and BOD furnished by Washtenaw County Health Department. Discharge estimates based on correlation with records at gaging station at Mill Creek near Dexter.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT. 31...	1445	E35	--	--	--	725	7.7	9.5	8.3	74	9.5	--
JAN. 09...	1500	E40	--	--	--	735	7.6	.0	12.6	89	2.0	1
MAR. 26...	1450	E80	292	0	240	660	7.9	3.5	11.4	89	4.0	0
MAY 30...	1130	E60	--	--	--	630	7.8	17.5	7.4	80	19.5	--
JULY 02...	0855	E15	--	--	--	800	8.0	19.0	5.5	61	23.5	--
SEP. 04...	1135	E10	340	0	279	680	7.9	14.0	9.4	92	16.5	--

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	COMPLETE COLIFORM (MPN)	FECAL COLIFORM (EC BROTH) (MPN)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
OCT. 31...	.01	.01	.30	.10	.06	1.9	2400	430	.0
JAN. 09...	.05	.01	.04	.06	.02	3.3	110000	1400	.0
MAR. 26...	.01	.01	.30	.01	.01	5.4	11000	430	.0
MAY 30...	.08	.01	.02	.07	.06	3.5	46000	930	.0
JULY 02...	.09	.02	.04	.11	.10	1.0	46000	430	.0
SEP. 04...	.12	.22	.08	.06	.05	5.6	110000	21000	.0

DATE	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)
MAR., 1974 26...	6.7	60	100	88	25	18	2.1	59	35	.2
SEP. 04...	12	40	100	100	26	32	3.6	72	68	.3

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)
MAR., 1974 26...	455	320	83	40	9	--	--	--	--	--
SEP. 04...	576	360	81	10	6	2	2	3	1	.2

4174050 "JRON RIVER AT DELHI MILLS, MICH.

LOCATION.--Lat 42°20'01", long 83°48'34" (revised), in SE¼ sec. 2, T.2 S., R.5 E., Washtenaw County, at bridge on Delhi Rd., 5.0 mi (8.0 km) northwest of Ann Arbor, 5.2 mi (8.4 km) downstream from Mill Creek, 5.1 mi (8.2 km) upstream from Barton Dam, and 60.0 mi (96.5 km) upstream from mouth.
DRAINAGE AREA.--699 mi^2 (1,810 km^2).
PERIOD OF RECORD.--Chemical analyses: August 1971 to September 1974.
REMARKS.--Bimonthly analyses for nutrients, coliforms, and BOD furnished by Washtenaw County Health Department.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
NOV.											
01...	1215	--	--	--	620	8.0	10.0	9.6	87	10.0	--
JAN.											
09...	1030	--	--	--	640	7.6	.0	13.2	93	-6.5	1
MAR.											
25...	1055	216	0	177	500	7.0	.0	13.4	94	-8.0	1
MAY											
29...	1555	--	--	--	550	8.0	18.5	8.0	87	24.0	--
JULY											
01...	1355	--	--	--	580	8.0	23.0	9.2	110	28.5	--
05...	0920	--	--	--	570	7.6	22.0	6.9	80	17.0	--
SEP.											
03...	1445	263	0	216	510	8.1	19.0	10.4	110	21.0	--

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	COMPLETE COLIFORM (MPN)	FECAL COLIFORM (EC BROTH) (MPN)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
NOV.									
01...	.02	.01	.27	.05	.03	3.0	46000	430	.0
JAN.									
09...	.03	.02	.04	.03	.02	6.9	150000	400	.0
MAR.									
25...	.04	.01	.25	.01	.01	4.4	11000	<30	.0
MAY									
29...	.00	.02	.02	.06	.04	2.1	110000	2400	.0
JULY									
01...	.02	.04	.05	.04	.04	.8	46000	90	.0
SEP.									
03...	.03	.02	.09	.06	.05	5.4	>240000	930	.0

DATE	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)
MAR., 1974												
25...	5.4	30	50	64	17	13	1.9	49	22	.2	318	230
SEP.												
03...	6.2	40	10	68	22	17	2.0	49	32	.2	420	260

DATE	NONCARBONATE HARDNESS (MG/L)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED NICKEL (NI) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
MAR., 1974											
25...	53	30	3	--	--	--	--	--	--	--	--
SEP.											
03...	44	20	4	3	1	11	1	.1	1	0	6

04174800 HURON RIVER AT YPSILANTI, MICH.

LOCATION.--Lat 42°14'57", long 83°36'45", in SW¼ sec.4, T.3 S., R.7 E., Washtenaw County, at gaging station on left bank 30 ft (9.1 m) downstream from bridge on Forest Ave. in Ypsilanti, 5.4 mi (8.7 km) upstream from Ford Dam, and 42.8 mi (138 km) upstream from mouth.
DRAINAGE AREA.--807 mi^2 (2090 km^2).
PERIOD OF RECORD.--Chemical analyses: August 1971 to September 1974.
REMARKS.--Bimonthly analyses for nutrients, coliforms, and BOD furnished by Washtenaw County Health Department. Discharge estimates based on a preliminary stage-discharge rating. Samples prior to May 29, 1974, collected at Michigan Ave. bridge 0.6 mi (.9 km) downstream.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
NOV. 01...	0800	--	--	--	--	620	7.5	10.0	9.1	83	7.5	--
JAN. 11...	0830	--	--	--	--	740	7.3	.0	14.2	99	-5.5	0
MAR. 26...	1135	--	223	0	183	560	8.2	2.5	13.6	100	7.0	0
MAY 29...	1020	--	--	--	--	600	7.3	15.5	9.5	96	18.5	--
JULY 01...	1100	E380	--	--	--	600	7.9	23.0	9.1	110	27.5	--
SEP. 03...	1145	E160	246	0	202	570	7.9	20.0	8.9	99	17.5	--

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	COMPLETE COLIFORM (MPN)	FECAL COLIFORM (EC BROTH) (MPN)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
NOV. 01...	.00	.00	.62	.06	.05	4.1	24000	930	.0
JAN. 11...	.02	.01	.05	.07	.04	3.5	46000	9300	.0
MAR. 26...	.00	.02	.31	.02	.01	5.4	460000	1500	.0
MAY 29...	.05	.04	.01	.06	.05	.6	4600	930	.0
JULY 01...	.05	.14	.04	.06	.05	3.4	46000	40	.0
SEP. 03...	.08	.06	.08	.11	.11	5.9	46000	90	.0

DATE	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)
MAR., 1974 26...	5.5	40	25	67	17	17	2.2	52	29	.3	346
SEP. 03...	6.2	20	10	71	23	26	2.9	60	50	.4	466

DATE	DISSOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)
MAR., 1974 26...	--	240	54	30	3	--	--	--	--	--
SEP. 03...	201	270	88	30	10	1	3	13	2	.0

04174900 FORD LAKE NEAR RAWSONVILLE, MICH.

LOCATION.--Lat 42°12'22", long 83°33'28" (revised), in SW¼ sec.24, T.3 S., R.7 E., Washtenaw County, at upstream side of Ford Dam at Rawsonville Rd., 1 mi (1.6 km) west of Rawsonville, 3.0 mi (4.8 km) upstream from Belleville Dam, 3.5 mi (5.6 km) southeast of Ypsilanti, 4.2 mi (6.8 km) downstream from gaging station at Ypsilanti, and 37.4 mi (60.1 km) above mouth.
DRAINAGE AREA.--814 mi^2 (2,110 km^2).
PERIOD OF RECORD.--Chemical analyses: August 1971 to September 1974.
REMARKS.--Bimonthly analyses for nutrients, coliforms, and BOD furnished by Washtenaw County Health Department.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
NOV. 01...	0845	--	--	--	620	7.9	12.0	6.5	61	7.0	--
JAN. 11...	0915	--	--	--	650	7.9	.0	15.2	110	-6.0	4
MAR. 26...	1245	219	0	180	550	8.2	3.0	12.2	92	6.0	0
MAY 29...	1315	--	--	--	560	8.2	20.0	10.3	110	26.5	--
JULY 01...	1225	--	--	--	550	8.2	24.5	15.2	190	26.5	--
SEP. 03...	1300	217	0	178	550	7.8	22.5	3.5	41	18.5	--

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	COMPLETE COLIFORM (MPN)	FECAL COLIFORM (EC BROTH) (MPN)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
NOV. 01...	.00	.01	.90	.12	.10	1.7	7500	700	.0
JAN. 11...	.03	.00	.05	.07	.05	3.0	46000	<30	.0
MAR. 26...	.04	.02	.30	.03	.02	4.6	4600	150	.0
MAY 29...	.03	.02	.02	.03	.02	.7	430	<30	.0
JULY 01...	.03	.03	.09	.08	.08	8.8	1500	<30	.0
SEP. 03...	.01	.02	.09	.19	.17	2.9	110000	<30	.0

DATE	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)
MAR., 1974 26...	5.7	40	25	66	21	18	2.2	52	31	.2	380	250
SEP. 03...	2.9	20	0	59	22	28	3.2	60	50	.4	418	240

DATE	NONCARBONATE HARDNESS (MG/L)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED NICKEL (NI) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
MAR., 1974 26...	72	30	7	--	--	--	--	--	--	--	--
SEP. 03...	62	9	5	2	1	13	2	.1	4	0	6

04175597 RIVER RAISIN NEAR SHARRONVILLE, MICH.

LOCATION.--Lat 42°10'04", long 084°07'21", in SW¼ sec.31, T.3 S., R.3 E., Washtenaw County, at Sharron Valley Rd., 2.0 mi (3.2 km) southwest of Sharonville, 4 mi (6.4 km) upstream from gaging station near Manchester, 4 mi (6.4 km) northwest of Manchester, and 113 m (182 km) upstream from mouth.
DRAINAGE AREA.--121 mi^2 (313 km^2).
PERIOD OF RECORD.--Chemical analyses: August 1971 to September 1974.
REMARKS.--Bimonthly analyses for nutrients, coliforms, and BOD furnished by Washtenaw County Health Department. Discharge estimates based on records at gaging station near Manchester.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT. 31...	1540	E47	--	--	--	530	7.9	10.0	9.0	83	10.0	0
JAN. 10...	1030	F100	--	--	--	560	7.3	.0	11.8	84	-6.0	4
MAR. 27...	0900	F200	241	0	198	480	8.0	2.5	12.2	93	-1.0	0
MAY 30...	1230	F180	--	--	--	480	8.0	19.5	7.6	86	23.0	--
JULY 02...	1030	F73	--	--	--	520	7.4	21.5	7.2	85	22.5	--
SEP. 04...	1335	E17	288	0	236	480	8.3	15.5	10.9	110	20.5	--

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	COMPLETE COLIFORM (MPN)	FECAL COLIFORM (EC BROTH) (MPN)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
OCT. 31...	.00	.01	.19	.03	.02	1.2	15000	930	.0
JAN. 10...	.03	.02	.04	.02	.02	2.3	110000	400	.0
MAR. 27...	.02	.01	.46	.00	.00	3.8	4600	2100	.0
MAY 30...	.02	.01	.03	.02	.01	1.9	11000	230	.0
JULY 02...	.07	.06	.01	.05	.04	.8	>240000	430	.0
SEP. 04...	.09	.01	.06	.04	.02	6.4	15000	930	.0

DATE	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)
MAR., 1974 27...	4.5	20	17	67	19	8.0	1.7	39	14	.2
SEP. 04...	9.7	20	10	71	21	7.5	1.8	33	15	.2

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)
MAR., 1974 27...	278	250	48	10	1	--	--	--	--	--
SEP. 04...	330	260	24	10	4	2	1	9	1	.1

04175610 RIVER RAISIN AT MANCHESTER, MICH.

LOCATION.--Lat 42°08'52", long 84°00'56" (revised), in SE¼ sec.1, T.4 S., R.3 E., Washtenaw County, at Austin Rd. 1 mi (1.6 km) east of Manchester, 0.6 mi (1 km) downstream from Ford Dam, 5.3 mi (8.5 km) downstream from gaging station near Manchester, and 104 mi (168 km) upstream from mouth.
DRAINAGE AREA.--148 mi^2 (383 km^2).
PERIOD OF RECORD.--Chemical analyses; August 1971 to September 1974.
REMARKS.--Bimonthly analyses for nutrients, coliforms, and BOD furnished by Washtenaw County Health Department.

CHEMICAL ANALYSES. WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974.

DATE	TIME	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT.											
31...	1610	--	--	--	560	7.8	9.5	8.4	75	9.0	--
JAN.											
10...	1130	--	--	--	585	7.6	.0	12.6	89	-5.0	1
MAR.											
27...	1000	243	0	199	495	8.1	3.0	12.8	97	-.5	0
MAY											
30...	1300	--	--	--	470	8.1	20.5	8.8	100	22.5	--
JULY											
02...	1105	--	--	--	500	8.3	22.5	7.6	90	23.5	--
SEP.											
04...	1430	271	0	222	490	8.1	19.0	7.6	84	20.5	--

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	COMPLETE COLIFORM (MPN)	FECAL COLIFORM (EC BROTH) (MPN)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
OCT.									
31...	.01	.01	.33	.08	.06	2.7	1100000	11000	.0
JAN.									
10...	.04	.02	.05	.03	.02	3.1	110000	110000	.0
MAR.									
27...	.02	.01	.25	.02	.01	4.1	4600	930	.0
MAY									
30...	.03	.02	.01	.02	.02	.2	11000	2400	.0
JULY									
02...	.02	.07	.05	.06	.05	.4	110000	2400	.0
SEP.									
04...	.05	.02	.07	.13	.04	4.5	110000	4600	.0

DATE	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)
MAR., 1974										
27...	4.3	40	50	67	19	8.5	1.7	39	14	.2
SEP.										
04...	8.6	10	20	66	22	9.9	1.9	36	19	.3

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)
MAR., 1974										
27...	294	250	46	10	2	--	--	--	--	--
SEP.										
04...	352	260	38	20	7	2	1	0	1	.3

04176365 SALINE RIVER ABOVE SALINE, MICH.

LOCATION.--Lat 42°10'16", long 083°49'32", in SW¼ sec.34, T.3 S., R.5 E., Washtenaw County, at Dell Rd., 2.5 mi (4.0 km) east of Saline, 6.9 mi (11 km) upstream from gaging station near Saline, 33 mi (53 km) upstream from River Raisin.
DRAINAGE AREA.--46 mi^2 (119 km^2), approximately.
PERIOD OF RECORD.--Chemical analyses: August 1971 to September 1974.
REMARKS.--Bimonthly analyses for nutrients, coliforms, and BOD furnished by Washtenaw County Health Department. Discharge estimates based on records at gaging station near Saline.

CHEMICAL ANALYSES, WATER-YEAR OCTOBER 1973 TO SEPTEMBER 1974.

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
NOV.												
01...	1115	E13	--	--	--	870	7.8	8.0	9.6	82	9.0	--
JAN.												
10...	1500	E25	--	--	--	835	7.8	.0	10.8	76	1.5	1
MAR.												
26...	0850	E37	281	0	230	725	8.1	.0	12.0	84	1.0	0
MAY												
29...	1455	E25	--	--	--	700	7.9	17.5	9.0	98	23.5	--
JULY												
02...	1155	E13	--	--	--	790	6.8	18.0	8.0	87	21.5	--
SEP.												
05...	0930	E7.0	359	0	294	700	8.1	12.0	8.6	91	18.5	--

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	COMPLETE COLIFORM (MPN)	FECAL COLIFORM (EC BROTH) (MPN)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
NOV.									
01...	.01	.02	.24	.03	.03	4.0	240000	240000	.0
JAN.									
10...	.04	.01	.05	.06	.02	2.5	110000	9300	.0
MAR.									
26...	.01	.01	.23	.02	.02	5.4	110000	750	.0
MAY									
29...	.01	.03	.04	.08	.08	2.7	110000	110000	.0
JULY									
02...	.04	.02	.04	.04	.03	.1	46000	46000	.0
SEP.									
05...	.02	.01	.06	.02	.02	4.9	46000	40	.0

DATE	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)
MAR., 1974										
26...	6.8	50	100	95	26	8.8	2.8	120	18	.3
SEP.										
05...	11	30	50	110	29	9.7	2.8	110	20	.4

DATE	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)
MAR., 1974										
26...	510	340	110	40	10	--	--	--	--	--
SEP.										
05...	570	390	96	20	20	1	1	3	2	.1

04176418 SALINE RIVER ABOVE MILAN, MICH.

LOCATION.--Lat 42°05'02", long 83°41'45", in SE¼ sec.34, T.4 S., R.6 E., Washtenaw County, at Platt Rd., at Milan, 0.7 mi (1.1 km) upstream from dam at Milan, 9.9 mi (16 km) downstream from gaging station near Saline, and 16.2 mi (26.1 km) upstream from River Raisin.
DRAINAGE AREA.--112 mi^2 (290 km^2), approximately.
PERIOD OF RECORD.--Chemical analyses: August 1971 to September 1974.
REMARKS.--Bimonthly analyses for nutrients, coliforms and BOD furnished by Washtenaw County Health Department. Discharge estimates based on records at gaging station near Saline.

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974.

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
NOV.												
01...	0945	E38	--	--	--	830	7.7	9.0	6.7	59	10.5	--
JAN.												
10...	1355	E71	--	--	--	960	7.8	.0	12.6	88	1.5	1
MAR.												
26...	1010	E99	294	0	241	800	8.0	.0	12.8	89	4.5	0
MAY												
29...	1410	E69	--	--	--	770	8.0	17.5	7.1	77	24.0	--
JULY												
02...	1245	E38	--	--	--	800	6.5	21.5	5.4	63	22.5	--
SEP.												
05...	1110	E20	297	0	244	530	7.9	15.0	7.2	72	18.5	--

DATE	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	BIOCHEMICAL OXYGEN DEMAND 5 DAY (MG/L)	COMPLETE COLIFORM (MPN)	FECAL COLIFORM (EC BROTH) (MPN)	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
NOV.									
01...	.00	.04	.25	.10	.08	2.3	9300	930	.0
JAN.									
10...	.04	.02	.07	.18	.01	4.0	110000	110000	.0
MAR.									
26...	.14	.01	.35	.05	.03	4.2	46000	230	.0
MAY									
29...	.15	.09	.01	.08	.08	.1	46000	1500	.0
JULY									
02...	.15	.02	.02	.11	.11	2.7	240000	430	.0
SEP.									
05...	.19	.05	.06	.14	.13	3.2	110000	70	.0

DATE	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	HARDNESS (CA,MG) (MG/L)
MAR., 1974												
26...	7.5	20	100	100	26	17	2.9	120	30	.3	550	360
SEP.												
05...	9.8	20	35	95	27	40	3.7	110	68	.4	612	350

DATE	NONCARBONATE HARDNESS (MG/L)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	DISSOLVED NICKEL (NI) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
MAR., 1974											
26...	120	30	6	--	--	--	--	--	--	--	--
SEP.											
05...	110	20	20	2	0	3	1	.2	2	0	2

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

STREAMS TRIBUTARY TO LAKE MICHIGAN

04058100 MIDDLE BRANCH ESCANABA RIVER NEAR PRINCETON, MICH.

(LAT 46°19'02" LONG 87°30'07")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	HARDNESS (CA,MG) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT.											
09...	0935	337	<.02	48	75	6.9	12.0	70	5	15.5	--
NOV.											
06...	0915	340	.07	36	74	6.5	1.0	50	4	-4.5	--
DEC.											
11...	1300	253	.11	42	90	7.1	.5	25	3	-6.0	0
FEB.											
06...	0940	330	.16	60	90	7.1	.0	35	4	-20.0	2
MAR.											
12...	1110	130	.20	46	70	6.9	1.0	50	4	-4.0	0
26...	0930	E110	.16	48	75	7.2	.5	40	4	-9.5	2
MAY											
06...	1115	410	.11	40	70	6.8	7.5	15	2	2.0	--
JUNE											
03...	1230	290	<.02	52	70	7.0	16.0	35	2	19.5	--
25...	1140	305	<.02	30	70	6.5	16.5	30	5	21.5	--
JULY											
16...	1120	179	<.02	42	80	6.9	22.0	30	7	20.0	--
SEP.											
10...	1445	120	.07	36	90	7.4	12.0	50	5	14.0	--

DATE	TOTAL IRON (FE) (UG/L)	DISSOLVED IRON (FE) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)
SEP.						
10...	1600	1300	130	400	12	1.4

04058120 GREEN CREEK NEAR PALMER, MICH.

(LAT 46°22'22" LONG 87°36'21")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	HARDNESS (CA,MG) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT.											
09...	1015	.75	<.02	80	130	7.1	12.0	10	2	15.5	--
NOV.											
06...	0950	.50	.04	66	130	7.0	.0	10	2	-3.0	2
DEC.											
11...	1405	.52	.09	70	125	7.1	.0	10	3	-6.0	4
FEB.											
06...	1020	1.9	<.02	110	225	7.2	.0	35	5	-10.0	4
MAR.											
12...	1245	2.7	.07	88	180	7.2	.5	5	5	1.0	4
26...	1030	E2.0	<.02	96	200	7.3	.0	20	4	-6.0	4
MAY											
06...	1140	E2.5	<.02	84	160	7.0	6.5	35	3	2.0	--
JUNE											
03...	1345	3.3	<.02	100	230	7.1	17.0	15	5	19.0	--
25...	1205	E2.5	<.02	88	185	7.3	15.5	25	4	22.0	--
JULY											
16...	1230	.75	<.02	80	150	7.3	17.5	25	3	22.0	--
SEP.											
11...	1000	24	.04	70	250	6.1	14.0	50	4	20.0	--

DATE	TOTAL IRON (FE) (UG/L)	DISSOLVED IRON (FE) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)
SEP.						
11...	730	460	78	66	22	3.6

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04058250 WARNER CREEK TRIBUTARY NEAR PALMER, MICH.

(LAT 46°25'20" LONG 87°36'09")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	HARDNESS (CA,MG) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT.											
09...	1100	4.0	.32	130	240	6.9	12.5	50	17	15.5	0
NOV.											
06...	1100	E2.0	.18	110	225	6.9	.5	55	27	-2.5	1
DEC.											
11...	1145	E2.0	.34	110	210	7.0	.0	10	7	-6.0	4
FEB.											
06...	1245	E2.0	.36	130	230	7.2	.0	5	4	-10.0	4
MAR.											
12...	1410	E2.0	.63	110	215	7.3	.0	0	7	1.0	4
26...	1130	E1.5	1.7	130	235	7.4	.0	10	6	-6.0	4
MAY											
06...	1210	3.5	.90	96	190	7.0	4.5	15	3	1.5	--
JUNE											
03...	1430	4.8	.52	110	230	7.1	16.5	15	2	18.5	--
25...	1230	E4.0	.59	110	160	7.3	13.5	10	6	21.0	--
JULY											
16...	1315	E3.5	1.2	140	270	7.5	18.5	10	3	23.0	--
SEP.											
11...	1415	5.0	.59	77	270	6.5	15.5	20	5	22.0	0

DATE	TOTAL IRON (FE) (UG/L)	DISSOLVED IRON (FE) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)
SEP.						
11...	690	180	100	80	30	.5

04058500 EAST BRANCH ESCANABA RIVER AT GWINN, MICH.

(LAT 46°17'10" LONG 87°26'00")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	HARDNESS (CA,MG) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT.											
09...	0900	58	.04	74	130	7.2	11.5	40	3	15.5	0
NOV.											
06...	0830	60	.11	62	130	7.0	.5	35	3	-6.0	1
DEC.											
11...	1201	63	.20	78	145	7.0	.0	35	3	-6.0	3
FEB.											
06...	0900	E35	.25	81	155	7.1	.0	35	4	-20.0	4
MAR.											
12...	1000	E50	.41	66	130	7.2	.0	5	4	-4.0	4
26...	0850	E38	.32	86	160	7.5	.0	20	3	-9.0	4
MAY											
06...	1050	170	.14	74	130	7.0	6.0	25	2	2.0	--
JUNE											
03...	1035	111	.07	72	130	6.9	13.5	30	2	19.0	--
25...	1120	97	.14	74	150	7.1	13.5	30	3	21.0	--
JULY											
16...	0945	53	.23	88	170	7.3	17.0	30	3	16.0	--
SEP.											
10...	1330	104	.13	90	135	7.6	10.5	60	5	14.0	--

DATE	TOTAL IRON (FE) (UG/L)	DISSOLVED IRON (FE) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)
SEP.						
10...	990	590	40	18	18	11

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04062230 MICHIGAMME RIVER NEAR MICHIGAMME, MICH.

(LAT 46°28'00" LONG 88°04'28")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	HARDNESS (CA,MG) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT.											
09...	1020	110	.07	22	40	6.9	14.0	45	2	15.5	0
NOV.											
06...	1410	103	.09	36	45	6.6	3.0	30	2	-3.0	0
DEC.											
12...	1020	159	.11	30	45	6.4	.5	20	2	-6.5	0
JAN.											
08...	1335	E100	.14	30	45	6.6	.0	40	1	-18.0	4
FEB.											
12...	1030	83	.11	22	48	6.7	.5	20	2	-8.0	0
MAR.											
27...	1430	80	.09	28	48	6.8	1.5	35	1	3.0	1
MAY											
07...	1040	720	.18	40	<50	6.7	5.0	25	2	.5	--
JUNE											
04...	1230	426	.11	30	<50	7.0	13.5	30	2	20.0	--
25...	1605	365	.11	30	<50	6.7	18.0	30	4	2.2	--
JULY											
17...	1430	153	<.02	30	<50	6.6	23.0	30	5	20.0	--
SEP.											
12...	1030	82	.19	32	50	6.5	15.0	50	2	12.0	0

DATE	TOTAL IRON (FE) (UG/L)	DISSOLVED IRON (FE) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)
SEP.						
12...	250	150	20	0	4.2	5.2

04062400 MICHIGAMME RIVER NEAR WITCH LAKE, MICH.

(LAT 46°14'48" LONG 88°00'45")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	HARDNESS (CA,MG) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT.											
09...	0915	175	.05	60	100	7.0	13.0	40	2	15.5	0
NOV.											
06...	1030	190	.11	54	100	7.2	.5	20	3	-4.0	0
DEC.											
12...	1150	236	.16	50	80	6.8	.0	30	2	-5.0	2
JAN.											
08...	1430	E150	<.02	54	100	7.2	.0	35	2	-16.0	4
FEB.											
12...	0930	E120	.02	60	110	7.4	.0	15	3	-8.0	4
MAR.											
27...	1310	140	.23	60	100	7.0	.0	30	3	.0	3
MAY											
07...	0900	1060	.16	52	60	6.7	5.5	30	2	.0	--
JUNE											
04...	1400	556	.14	38	70	6.8	16.5	30	2	26.5	--
25...	1645	516	.11	34	70	6.8	18.5	30	4	21.5	--
JULY											
17...	1230	196	.32	40	80	7.0	21.0	30	5	19.0	--
SEP.											
12...	0830	197	.25	41	115	6.4	14.0	50	4	14.5	--

DATE	TOTAL IRON (FE) (UG/L)	DISSOLVED IRON (FE) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)
SEP.						
12...	520	320	60	36	13	2.1

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04065550 PINE CREEK NEAR RANDVILLE, MICH.

(LAT 45°58'02" LONG 88°00'28")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT.									
18...	1325	.92	320	7.5	7.0	9.2	79	6.5	0
FEB.									
08...	1400	.62	310	7.4	.5	8.8	62	-9.0	0
MAY									
09...	1355	1.1	230	7.6	11.5	10.2	97	15.0	--
SEP.									
04...	1430	.32	325	6.9	18.0	9.7	105	16.0	--

04065560 - GROVELAND MINE OUTLET NEAR RANDVILLE, MICH.

(LAT 45°58'27" LONG 88°00'01")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT.									
18...	1200	5.6	1040	7.4	11.5	8.0	76	5.0	0
FEB.									
08...	1100	4.6	1200	7.1	.0	8.0	56	-18.0	2
MAY									
09...	1200	5.9	900	7.8	13.5	10.0	95	15.0	--
SEP.									
04...	1235	2.9	--	6.9	--	--	--	--	--

04065570 - PINE CREEK NEAR MERRIMAN, MICH.

(LAT 45°56'42" LONG 87°59'13")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT.									
18...	1430	8.5	800	7.6	6.5	11.0	93	8.5	0
FEB.									
07...	1445	7.6	950	7.0	.0	10.8	77	-10.0	4
MAY									
09...	1510	9.5	640	7.6	11.5	9.8	97	16.0	--
SEP.									
05...	1315	2.9	850	7.3	13.0	10.4	102	16.0	--

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04065580 MOUNTY'S CREEK NEAR MERRIMAN, MICH.

(LAT 45°56'41" LONG 87°59'23")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT.									
18...	1315	.32	160	7.5	7.0	10.6	91	8.5	0
FEB.									
07...	1340	.43	210	7.3	.0	11.0	78	-10.0	4
MAY									
09...	1345	.82	125	7.2	13.5	9.6	95	15.5	--
SEP.									
05...	1205	.07	220	7.2	12.0	11.0	105	16.0	--

04065590 - STEEL CREEK NEAR MERRIMAN, MICH.

(LAT 45°56'31" LONG 87°59'33")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT.									
18...	1145	1.8	270	7.4	7.5	10.0	87	8.5	0
FEB.									
07...	1150	1.1	250	7.0	.0	8.8	62	-10.0	4
MAY									
09...	1210	2.5	215	7.4	9.0	9.6	95	15.0	--
SEP.									
05...	1105	.81	340	7.1	11.5	9.1	86	16.0	--

04065600 - PINE CREEK NEAR IRON MOUNTAIN, MICH.

(LAT 45°55'51" LONG 87°58'18")

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	AIR TEMPERATURE (DEG C)	FLOATING OR SOLID ICE COVER (SEVERITY)
OCT.									
18...	1410	12	710	7.6	6.5	10.8	92	6.5	0
FEB.									
08...	1600	9.3	825	7.0	.0	11.6	82	-5.0	4
MAY									
09...	1500	16	580	7.9	11.5	11.0	104	15.0	--
SEP.									
04...	1535	4.5	750	7.2	12.0	10.4	100	16.0	--

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096207 BAW BEESE LAKE OUTLET AT LAKEVIEW RD. NEAR HILLSDALE, MICH.

(LAT 41°54'18" LONG 84°37'01")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)
OCT. 26...	--	E.50	.07	--	--	--	--	--	--	--
JUNE 04...	1105	12	.01	.01	.04	.44	.48	.50	.00	.00
AUG. 08...	1000	E14	.02	.00	.05	.89	.94	.96	.04	.02
SEP. 11...	1255	E14	.00	.00	.01	.73	.74	.74	.03	.00
25...	1135	E14	.01	.00	.00	.54	.54	.55	.01	.00

DATE	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
OCT. 26...	--	--	--	14.0	--	--	1	--	--
JUNE 04...	.02	.00	355	22.5	--	--	1	.03	25.0
AUG. 08...	.03	.00	325	23.0	--	--	18	--	24.5
SEP. 11...	.02	.01	360	22.0	4.7	55	0	--	26.5
25...	.01	.00	--	15.0	--	--	0	--	19.0

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	ALDRIN (UG/L)	ALDRIN IN BOTTOM DEPOSITS (UG/KG)	CHLORDANE (UG/L)	CHLORDANE IN BOTTOM DEPOSITS (UG/KG)	DDD (UG/L)	DDD IN BOTTOM DEPOSITS (UG/KG)	DDE (UG/L)	DDE IN BOTTOM DEPOSITS (UG/KG)	DDT (UG/L)	DDT IN BOTTOM DEPOSITS (UG/KG)
SEP. 25...	1135	6.9	.00	.0	.0	0	.00	6.7	.00	2.1	.00	.0

DATE	DIAZINON (UG/L)	DIAZINON IN BOTTOM DEPOSITS (UG/KG)	DIELDRIN (UG/L)	DIELDRIN IN BOTTOM DEPOSITS (UG/KG)	ENDRIN (UG/L)	ENDRIN IN BOTTOM DEPOSITS (UG/KG)	ETHION (UG/L)	ETHION IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR EPOXIDE (UG/L)	HEPTACHLOR EPOXIDE IN BOTTOM DEPOSITS (UG/KG)
SEP. 25...	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096207 BAW BEESE LAKE OUTLET AT LAKEVIEW RD. NEAR HILLSDALE, MICH.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	LINDANE (UG/L)	LINDANE IN BOTTOM DEPOSITS (UG/KG)	MALATHION (UG/L)	MALATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL PARATHION (UG/L)	METHYL PARATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL TRITHION (UG/L)	METHYL TRITHION IN BOTTOM DEPOSITS (UG/KG)	PARATHION (UG/L)	PARATHION IN BOTTOM DEPOSITS (UG/KG)	PCB (UG/L)
SEP. 25...	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0	.0

DATE	PCB IN BOTTOM DEPOSITS (UG/KG)	TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM DEPOSITS (UG/KG)	TRITHION (UG/L)	TRITHION IN BOTTOM DEPOSITS (UG/KG)	2,4-D (UG/L)	2,4-D IN BOTTOM DEPOSITS (UG/KG)	2,4,5-T (UG/L)	2,4,5-T IN BOTTOM DEPOSITS (UG/KG)	SILVEX (UG/L)	SILVEX IN BOTTOM DEPOSITS (UG/KG)
SEP. 25...	4	0	0	.00	.0	.00	0	.00	0	.10	0

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
SEP. 25...	1135	1	1	<10	0	7	10

DATE	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)
SEP. 25...	2	0	.1	36	0	1

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096214 KING LAKE OUTLET AT STEAMBURG RD. NEAR HILLSDALE, MICH.

(LAT 41°54'26" LONG 84°37'28")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)
OCT.										
26...	--	E1.0	1.7	--	--	--	--	--	--	--
JULY										
19...	1300	.79	1.7	.04	.00	.98	.98	2.7	.06	.02
SEP.										
03...	1100	.67	--	--	--	--	--	--	--	--
11...	1220	E.40	2.7	.02	.00	.76	.76	3.5	.29	.15
23...	1100	--	1.8	.01	.05	.94	.99	2.8	.34	.20
25...	1330	E.10	2.4	.00	.00	.78	.78	3.2	.10	.06

DATE	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
OCT.									
26...	--	--	--	10.5	--	--	11	--	--
JULY									
19...	.05	.00	515	22.0	--	--	30	.06	28.0
SEP.									
03...	--	--	--	--	--	--	34	.06	--
11...	.31	.00	590	18.5	7.8	85	12	--	26.5
23...	.34	.00	575	13.0	9.0	88	34	--	15.5
25...	.10	.00	--	12.5	--	--	14	--	--

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	ALDRIN (UG/L)	ALDRIN IN BOTTOM DEPOSITS (UG/KG)	CHLORDANE (UG/L)	CHLORDANE IN BOTTOM DEPOSITS (UG/KG)	DDD (UG/L)	DDD IN BOTTOM DEPOSITS (UG/KG)	DDE (UG/L)	DDE IN BOTTOM DEPOSITS (UG/KG)	DDT (UG/L)	DDT IN BOTTOM DEPOSITS (UG/KG)
SEP.												
25...	1330	6.3	.00	.0	.0	0	.00	.5	.00	.6	.00	.3

DATE	DIAZINON (UG/L)	DIAZINON IN BOTTOM DEPOSITS (UG/KG)	DIELDRIN (UG/L)	DIELDRIN IN BOTTOM DEPOSITS (UG/KG)	ENDRIN (UG/L)	ENDRIN IN BOTTOM DEPOSITS (UG/KG)	ETHION (UG/L)	ETHION IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR EPOXIDE (UG/L)	HEPTACHLOR EPOXIDE IN BOTTOM DEPOSITS (UG/KG)
SEP.												
25...	.00	.0	.00	.2	.00	.0	.00	.0	.00	.0	.00	.0

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096214 KING LAKE OUTLET AT STEAMBURG RD. NEAR HILLSDALE, MICH.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	LINDANE (UG/L)	LINDANE IN BOTTOM DEPOSITS (UG/KG)	MALATHION (UG/L)	MALATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL PARATHION (UG/L)	METHYL PARATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL TRITHION (UG/L)	METHYL TRITHION IN BOTTOM DEPOSITS (UG/KG)	PARATHION (UG/L)	PARATHION IN BOTTOM DEPOSITS (UG/KG)	PCB (UG/L)
SEP. 25...	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0	.0

DATE	PCB IN BOTTOM DEPOSITS (UG/KG)	TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM DEPOSITS (UG/KG)	TRITHION (UG/L)	TRITHION IN BOTTOM DEPOSITS (UG/KG)	2,4-D (UG/L)	2,4-D IN BOTTOM DEPOSITS (UG/KG)	2,4,5-T (UG/L)	2,4,5-T IN BOTTOM DEPOSITS (UG/KG)	SILVEX (UG/L)	SILVEX IN BOTTOM DEPOSITS (UG/KG)
SEP. 25...	6	0	0	.00	.0	.00	0	.00	0	.00	0

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
SEP. 25...	1330	1	1	<10	0	15	560

DATE	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)
SEP. 25...	3	73	.1	10	0	0

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096225 ST. JOSEPH RIVER AT FAYETTE ST. AT HILLSDALE, MICH.

(LAT 41°55'45" LONG 84°38'22")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	DISSOLVED ORGANIC NITROGEN (N) (MG/L)
OCT.										
26...	--	E5.0	.50	--	--	--	--	--	--	--
JUNE										
04...	1445	18	.24	.22	.01	.01	.05	.04	.53	.41
JULY										
19...	1215	3.9	.22	--	.02	--	.00	--	.61	--
AUG.										
08...	0850	2.7	.48	--	.02	--	.05	--	.60	--
16...	1345	2.1	--	--	--	--	--	--	--	--
SEP.										
03...	0910	3.2	.34	--	.01	--	.06	--	.39	--
11...	1100	2.1	.45	--	.02	--	.04	--	.23	--
12...	1155	E11	--	--	--	--	--	--	--	--
25...	1400	E2.0	.33	--	.01	--	.00	--	.44	--

DATE	TOTAL KJELDAHL NITROGEN (N) (MG/L)	DISSOLVED KJEL. NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	DIS. HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)
OCT.										
26...	--	--	--	--	--	--	--	--	--	--
JUNE										
04...	.58	.45	.83	.03	.01	.03	.03	.02	.00	.00
JULY										
19...	.61	--	.85	.03	--	.01	--	.02	--	.00
AUG.										
08...	.65	--	1.2	.03	--	.02	--	.02	--	.00
16...	--	--	--	--	--	--	--	--	--	--
SEP.										
03...	.45	--	.80	.06	--	.03	--	.05	--	.00
11...	.27	--	.74	.05	--	.04	--	.04	--	.00
12...	--	--	--	--	--	--	--	--	--	--
25...	.44	--	.78	.06	--	.01	--	.06	--	.00

DATE	DISSOLVED ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
OCT.									
26...	--	--	--	15.0	--	--	7	--	--
JUNE									
04...	.00	480	8.0	24.0	--	--	8	.39	27.0
JULY									
19...	--	600	--	23.0	--	--	12	.13	25.5
AUG.									
08...	--	610	--	18.0	--	--	12	.09	21.5
16...	--	--	--	21.0	--	--	30	.17	26.5
SEP.									
03...	--	615	--	14.0	6.1	61	10	.09	10.0
11...	--	780	--	18.5	7.3	80	4	.02	24.0
12...	--	--	--	--	--	--	6	--	--
25...	--	--	--	15.0	--	--	6	--	--

DATE	TIME	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
JUNE											
04...	1445	2.3	20	50	60	19	13	2.0	227	186	27

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	DISSOLVED SOLIDS (TONS PER DAY)	HARDNESS (CA+MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)
JUNE											
04...	25	.2	294	.40	14.3	230	42	11	.4	7	4

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096225 ST. JOSEPH RIVER AT FAYETTE ST. AT HILLSDALE, MICH.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	DIS-SOLVED ORGANIC CARBON (C) (MG/L)	ALDRIN (UG/L)	ALDRIN IN BOTTOM DE-POSITS (UG/KG)	CHLOR-DANE (UG/L)	CHLOR-DANE IN BOTTOM DE-POSITS (UG/KG)	DDD (UG/L)	DDD IN BOTTOM DE-POSITS (UG/KG)	DDE (UG/L)	DDE IN BOTTOM DE-POSITS (UG/KG)	DDT (UG/L)
JUNE 04...	1445	--	10	.00	--	.0	--	.00	--	.00	--	.00
SEP. 25...	1400	4.3	--	.00	.0	.0	26	.00	7.1	.00	1.5	.00

DATE	DDT IN BOTTOM DE-POSITS (UG/KG)	DI-AZINON (UG/L)	DI-AZINON IN BOTTOM DE-POSITS (UG/KG)	DI-ELDRIN (UG/L)	DI-ELDRIN IN BOTTOM DE-POSITS (UG/KG)	ENDRIN (UG/L)	ENDRIN IN BOTTOM DE-POSITS (UG/KG)	ETHION (UG/L)	ETHION IN BOTTOM DE-POSITS (UG/KG)	HEPTA-CHLOR (UG/L)	HEPTA-CHLOR IN BOTTOM DE-POSITS (UG/KG)	HEPTA-CHLOR EPOXIDE (UG/L)
JUNE 04...	--	.00	--	.00	--	.00	--	.00	--	.00	--	.00
SEP. 25...	2.8	.00	.0	.00	.9	.00	.0	.00	.0	.00	.0	.00

DATE	HEPTA-CHLOR EPOXIDE IN BOT-TOM DE-POSITS (UG/KG)	LINDANE (UG/L)	LINDANE IN BOTTOM DE-POSITS (UG/KG)	MALA-THION (UG/L)	MALA-THION IN BOTTOM DE-POSITS (UG/KG)	METHYL PARA-THION (UG/L)	METHYL PARA-THION IN BOT-TOM DE-POSITS (UG/KG)	METHYL TRI-THION (UG/L)	METHYL TRI-THION IN BOT-TOM DE-POSITS (UG/KG)	PARA-THION (UG/L)	PARA-THION IN BOTTOM DE-POSITS (UG/KG)	PCB (UG/L)
JUNE 04...	--	.00	--	.00	--	.00	--	.00	--	.00	--	.0
SEP. 25...	.0	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0	.0

DATE	PCB IN BOTTOM DE-POSITS (UG/KG)	TOX-APHENE (UG/L)	TOX-APHENE IN BOTTOM DE-POSITS (UG/KG)	TRI-THION (UG/L)	TRI-THION IN BOTTOM DE-POSITS (UG/KG)	2,4-D (UG/L)	2,4-D IN BOTTOM DE-POSITS (UG/KG)	2,4,5-T (UG/L)	2,4,5-T IN BOTTOM DE-POSITS (UG/KG)	SILVEX (UG/L)	SILVEX IN BOTTOM DE-POSITS (UG/KG)
JUNE 04...	--	0	--	.00	--	.00	--	.00	--	.06	--
SEP. 25...	17	0	0	.00	.0	.00	0	.00	0	.03	0

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)
JUNE 04...	1445	0	0	3	3	0	0	0	0	2	--	20
SEP. 25...	1400	1	--	1	--	10	--	--	6	--	290	--

DATE	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)
JUNE 04...	1	0	50	--	.0	.0	--	8	5	4	0	0
SEP. 25...	3	--	--	52	.0	--	36	--	0	--	3	--

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096250 BEEBE CREEK AT STATE RD. NEAR NORTH ADAMS, MICH.

(LAT 41°56'27" LONG 84°33'02")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)
JUNE										
04...	1235	8.5	.67	.03	.02	1.2	1.2	1.9	.02	.01
JULY										
19...	1050	2.4	.37	.02	.00	.91	.91	1.3	.04	.00
AUG.										
07...	1230	2.2	.34	.01	.00	.92	.92	1.3	.05	.03
16...	1220	2.2	--	--	--	--	--	--	--	--
30...	1245	2.0	.18	.00	.03	.74	.77	.95	.05	.01
SEP.										
10...	1245	2.0	.15	.01	.00	.44	.44	.60	.03	.02
25...	1450	1.9	.24	.00	.00	.37	.37	.61	.06	.00

DATE	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
JUNE									
04...	.02	.00	520	19.0	--	--	11	.25	25.0
JULY									
19...	.03	.01	540	22.5	--	--	16	.10	29.5
AUG.									
07...	.02	.00	490	18.0	--	--	33	.20	28.0
16...	--	--	--	20.5	--	--	29	.17	30.5
30...	.03	.01	560	19.0	--	160	21	.11	25.0
SEP.									
10...	.03	.00	600	17.0	9.8	100	24	.13	24.0
25...	.02	.04	--	15.5	--	--	16	.08	19.5

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	ALDRIN (UG/L)	ALDRIN IN BOTTOM DEPOSITS (UG/KG)	CHLORDANE (UG/L)	CHLORDANE IN BOTTOM DEPOSITS (UG/KG)	DDD (UG/L)	DDD IN BOTTOM DEPOSITS (UG/KG)	DDE (UG/L)	DDE IN BOTTOM DEPOSITS (UG/KG)	DDT (UG/L)	DDT IN BOTTOM DEPOSITS (UG/KG)
SEP.												
25...	1450	6.1	.00	.0	.0	0	.00	.0	.00	.0	.00	.0

DATE	DIAZINON (UG/L)	DIAZINON IN BOTTOM DEPOSITS (UG/KG)	DIELDRIN (UG/L)	DIELDRIN IN BOTTOM DEPOSITS (UG/KG)	ENDRIN (UG/L)	ENDRIN IN BOTTOM DEPOSITS (UG/KG)	ETHION (UG/L)	ETHION IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR EPOXIDE (UG/L)	HEPTACHLOR EPOXIDE IN BOTTOM DEPOSITS (UG/KG)
SEP.												
25...	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096250 BEEBE CREEK AT STATE RD. NEAR NORTH ADAMS, MICH.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	LINDANE (UG/L)	LINDANE IN BOTTOM DEPOSITS (UG/KG)	MALATHION (UG/L)	MALATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL PARATHION (UG/L)	METHYL PARATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL TRITHION (UG/L)	METHYL TRITHION IN BOTTOM DEPOSITS (UG/KG)	PARATHION (UG/L)	PARATHION IN BOTTOM DEPOSITS (UG/KG)	PCB (UG/L)
SEP. 25...	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0	.0

DATE	PCB IN BOTTOM DEPOSITS (UG/KG)	TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM DEPOSITS (UG/KG)	TRITHION (UG/L)	TRITHION IN BOTTOM DEPOSITS (UG/KG)	2,4-D (UG/L)	2,4-D IN BOTTOM DEPOSITS (UG/KG)	2,4,5-T (UG/L)	2,4,5-T IN BOTTOM DEPOSITS (UG/KG)	SILVEX (UG/L)	SILVEX IN BOTTOM DEPOSITS (UG/KG)
SEP. 25...	0	0	0	.00	.0	.00	0	.00	0	.00	0

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
SEP. 25...	1450	2	1	20	3	6	720

DATE	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)
SEP. 25...	3	70	.5	33	0	3

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096255 BEEBE CREEK AT LAKE PLEASANT RD. NEAR NORTH ADAMS, MICH.

(LAT 41°57'04" LONG 84°34'26")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)
OCT.										
26...	--	E3.0	.02	--	--	--	--	--	--	--
JUNE										
04...	1400	E.40	.13	.01	.66	1.0	1.7	1.8	.20	.10
05...	1015	E.40	--	--	--	--	--	--	--	--
05...	1200	.40	--	--	--	--	--	--	--	--
JULY										
19...	0915	4.0	.01	.00	.00	1.2	1.2	1.2	.05	.01
AUG.										
07...	1125	1.1	.05	.01	.07	1.5	1.6	1.7	.06	.01
30...	1120	2.1	.01	.01	.14	1.7	1.8	1.8	.09	.02
SEP.										
10...	1350	2.5	.03	.02	.38	1.4	1.8	1.9	.06	.03
25...	1540	E1.0	.01	.00	.00	1.2	1.2	1.2	.05	.01

DATE	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
OCT.									
26...	--	--	--	14.0	--	--	8	--	--
JUNE									
04...	.18	.00	460	24.0	--	--	--	--	--
05...	--	--	--	--	--	--	--	--	--
05...	--	--	--	21.0	--	--	11	.01	24.5
JULY									
19...	.04	.00	500	25.5	--	--	9	.10	24.0
AUG.									
07...	.04	.01	465	23.0	--	--	19	.06	30.0
30...	.07	.00	445	23.0	7.9	94	6	.03	25.5
SEP.									
10...	.06	.00	465	20.0	7.8	88	2	.01	24.0
25...	.05	.00	--	16.0	--	--	1	--	20.5

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	ALDRIN (UG/L)	ALDRIN IN BOTTOM DEPOSITS (UG/KG)	CHLORDANE (UG/L)	CHLORDANE IN BOTTOM DEPOSITS (UG/KG)	DDD (UG/L)	DDD IN BOTTOM DEPOSITS (UG/KG)	DDE (UG/L)	DDE IN BOTTOM DEPOSITS (UG/KG)	DDT (UG/L)	DDT IN BOTTOM DEPOSITS (UG/KG)
JUNE												
05...	1015	--	--	--	--	--	--	--	--	--	--	--
SEP.												
25...	1540	12	.00	.0	.0	0	.00	.4	.00	1.0	.00	.0

DATE	DIAZINON (UG/L)	DIAZINON IN BOTTOM DEPOSITS (UG/KG)	DIELDRIN (UG/L)	DIELDRIN IN BOTTOM DEPOSITS (UG/KG)	ENDRIN (UG/L)	ENDRIN IN BOTTOM DEPOSITS (UG/KG)	ETHION (UG/L)	ETHION IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR EPOXIDE (UG/L)	HEPTACHLOR EPOXIDE IN BOTTOM DEPOSITS (UG/KG)
JUNE												
05...	--	--	--	--	--	--	--	--	--	--	--	--
SEP.												
25...	.00	.0	.00	.2	.00	.0	.00	.0	.00	.0	.00	.0

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096255 BEEBE CREEK AT LAKE PLEASANT RD. NEAR NORTH ADAMS, MICH.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	LINDANE (UG/L)	LINDANE IN BOTTOM DEPOSITS (UG/KG)	MALATHION (UG/L)	MALATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL PARATHION (UG/L)	METHYL PARATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL TRITHION (UG/L)	METHYL TRITHION IN BOTTOM DEPOSITS (UG/KG)	PARATHION (UG/L)	PARATHION IN BOTTOM DEPOSITS (UG/KG)	PCB (UG/L)
JUNE 05...	--	--	--	--	--	--	--	--	--	--	--
SEP. 25...	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0	.0

DATE	PCB IN BOTTOM DEPOSITS (UG/KG)	TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM DEPOSITS (UG/KG)	TRITHION (UG/L)	TRITHION IN BOTTOM DEPOSITS (UG/KG)	2,4-D (UG/L)	2,4-D IN BOTTOM DEPOSITS (UG/KG)	2,4,5-T (UG/L)	2,4,5-T IN BOTTOM DEPOSITS (UG/KG)	SILVEX (UG/L)	SILVEX IN BOTTOM DEPOSITS (UG/KG)
JUNE 05...	--	--	--	--	--	.00	--	.00	--	120	--
SEP. 25...	0	0	0	.00	.0	.00	0	.00	0	1.9	0

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
SEP. 25...	1540	4	0	20	0	5	560

DATE	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)
SEP. 25...	2	110	.2	31	0	4

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096267 BEEBE CREEK TRIBUTARY AT BALL RD. NEAR HILLSDALE, MICH.

(LAT 41°57'49" LONG 84°35'48")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)
JUNE										
04...	1535	E2.5	.23	.03	.06	.77	.83	1.1	.04	.01
05...	0935	5.1	--	--	--	--	--	--	--	--
JULY										
19...	0815	2.0	.42	.02	.00	.70	.70	1.1	.05	.01
AUG.										
07...	1020	2.0	.44	.01	.02	.44	.46	.91	.04	.01
30...	1005	2.2	.46	.01	.03	.37	.40	.87	.04	.01
SEP.										
10...	1100	2.1	.46	.01	.00	.28	.28	.75	.04	.02
26...	0845	E1.5	.44	.00	.00	.54	.54	.98	.03	.02

DATE	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
JUNE									
04...	.05	.00	570	21.0	--	--	--	--	--
05...	--	--	--	16.0	--	--	32	.44	20.0
JULY									
19...	.04	.00	540	18.0	--	--	47	.25	21.5
AUG.									
07...	.01	.02	465	14.0	--	--	52	.28	22.0
30...	.04	.00	600	14.0	8.8	88	30	.18	19.0
SEP.									
10...	.04	.00	610	14.5	9.0	91	50	.28	21.5
26...	.04	.00	--	8.0	--	--	32	--	11.5

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	ALDRIN (UG/L)	ALDRIN IN BOTTOM DEPOSITS (UG/KG)	CHLORDANE (UG/L)	CHLORDANE IN BOTTOM DEPOSITS (UG/KG)	DDD (UG/L)	DDD IN BOTTOM DEPOSITS (UG/KG)	DDE (UG/L)	DDE IN BOTTOM DEPOSITS (UG/KG)	DDT (UG/L)	DDT IN BOTTOM DEPOSITS (UG/KG)
SEP.												
26...	0845	13	.00	.0	.0	0	.00	.8	.00	.0	.00	.6

DATE	DIAZINON (UG/L)	DIAZINON IN BOTTOM DEPOSITS (UG/KG)	DIELDRIN (UG/L)	DIELDRIN IN BOTTOM DEPOSITS (UG/KG)	ENDRIN (UG/L)	ENDRIN IN BOTTOM DEPOSITS (UG/KG)	ETHION (UG/L)	ETHION IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR EPOXIDE (UG/L)	HEPTACHLOR EPOXIDE IN BOTTOM DEPOSITS (UG/KG)
SEP.												
26...	.00	.0	.00	.2	.00	.0	.00	.0	.00	.0	.00	.0

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096267 BEEBE CREEK TRIBUTARY AT BALL RD. NEAR HILLSDALE, MICH.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	LINDANE (UG/L)	LINDANE IN BOTTOM DEPOSITS (UG/KG)	MALATHION (UG/L)	MALATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL PARATHION (UG/L)	METHYL PARATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL TRITHION (UG/L)	METHYL TPITHION IN BOTTOM DEPOSITS (UG/KG)	PARATHION (UG/L)	PARATHION IN BOTTOM DEPOSITS (UG/KG)	PCB (UG/L)
SEP. 26...	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0	.0

DATE	PCB IN BOTTOM DEPOSITS (UG/KG)	TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM DEPOSITS (UG/KG)	TRITHION (UG/L)	TRITHION IN BOTTOM DEPOSITS (UG/KG)	2,4-D (UG/L)	2,4-D IN BOTTOM DEPOSITS (UG/KG)	2,4,5-T (UG/L)	2,4,5-T IN BOTTOM DEPOSITS (UG/KG)	SILVEX (UG/L)	SILVEX IN BOTTOM DEPOSITS (UG/KG)
SEP. 26...	0	0	0	.00	.0	.00	0	.00	0	.00	0

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
SEP. 26...	0845	1	1	<10	0	6	850

DATE	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)
SEP. 26...	2	100	.1	41	0	3

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096272 BEEBE CREEK AT MOORE ROAD NEAR HILLSDALE, MICH.

(LAT 41°57'15" LONG 84°38'20")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	DISSOLVED ORGANIC NITROGEN (N) (MG/L)
OCT.										
26...	--	E9.0	.59	--	--	--	--	--	--	--
JUNE										
05...	0830	13	.66	.62	.01	.02	.05	.05	.37	.48
JULY										
18...	1525	8.4	.55	--	.01	--	.00	--	.99	--
AUG.										
07...	0855	6.2	.65	--	.01	--	.01	--	.70	--
16...	1045	6.2	--	--	--	--	--	--	--	--
29...	1500	6.2	.60	--	.01	--	.04	--	.59	--
SEP.										
10...	0915	5.8	.65	--	.01	--	.00	--	.54	--
12...	1225	23	--	--	--	--	--	--	--	--
26...	0945	6.6	.45	--	.00	--	.00	--	.58	--

DATE	TOTAL KJELDAHL NITROGEN (N) (MG/L)	DISSOLVED KJEL. NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHOPUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	DIS. HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)
OCT.										
26...	--	--	--	--	--	--	--	--	--	--
JUNE										
05...	.42	.53	1.1	.01	.01	.01	.01	.01	.00	.00
JULY										
18...	.99	--	1.6	.04	--	.01	--	.02	--	.01
AUG.										
07...	.71	--	1.4	.04	--	.01	--	.01	--	.02
16...	--	--	--	--	--	--	--	--	--	--
29...	.63	--	1.2	.03	--	.01	--	.03	--	.00
SEP.										
10...	.54	--	1.2	.04	--	.01	--	.04	--	.00
12...	--	--	--	--	--	--	--	--	--	--
26...	.58	--	1.0	.82	--	.02	--	.02	--	.78

DATE	DISSOLVED ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
OCT.									
26...	--	--	--	13.5	--	--	3	--	--
JUNE									
05...	.00	549	7.9	19.0	--	--	15	.53	20.0
JULY									
18...	--	540	--	23.5	--	--	8	.18	--
AUG.									
07...	--	470	--	18.0	--	--	19	.32	22.5
16...	--	--	--	21.0	--	--	11	.18	28.5
29...	--	560	--	22.0	--	--	9	.15	24.0
SEP.									
10...	--	550	--	17.0	8.0	85	8	.13	21.0
12...	--	--	--	20.5	--	--	12	.75	--
26...	--	--	--	11.5	--	--	7	.12	14.5

DATE	HEPTACHLOR EPOXIDE IN BOTTOM DEPOSITS (UG/KG)	LINDANE (UG/L)	LINDANE IN BOTTOM DEPOSITS (UG/KG)	MALATHION (UG/L)	MALATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL PARATHION (UG/L)	METHYL PARATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL TRITHION (UG/L)	METHYL TRITHION IN BOTTOM DEPOSITS (UG/KG)	PARATHION (UG/L)	PARATHION IN BOTTOM DEPOSITS (UG/KG)	PCB (UG/L)
JUNE												
05...	--	--	--	--	--	--	--	--	--	--	--	--
SEP.												
26...	.0	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0	.0

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096272 BEEBE CREEK AT MOORE ROAD NEAR HILLSDALE, MICH.--Continued

DATE	PCB IN BOTTOM DEPOSITS (UG/KG)	TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM DEPOSITS (UG/KG)	TRITHION (UG/L)	TRITHION IN BOTTOM DEPOSITS (UG/KG)	2,4-D (UG/L)	2,4-D IN BOTTOM DEPOSITS (UG/KG)	2,4,5-T (UG/L)	2,4,5-T IN BOTTOM DEPOSITS (UG/KG)	SILVEX (UG/L)	SILVEX IN BOTTOM DEPOSITS (UG/KG)
JUNE 05...	--	--	--	--	--	.00	--	.00	--	.09	--
SEP. 26...	0	0	0	.00	.0	.00	0	.00	0	.40	0

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	DISSOLVED ORGANIC CARBON (C) (MG/L)	ALDRIN (UG/L)	ALDRIN IN BOTTOM DEPOSITS (UG/KG)	CHLORDANE (UG/L)	CHLORDANE IN BOTTOM DEPOSITS (UG/KG)	DDD (UG/L)	DDD IN BOTTOM DEPOSITS (UG/KG)	DDE (UG/L)	DDE IN BOTTOM DEPOSITS (UG/KG)	DDT (UG/L)
JUNE 05...	0830	--	7.9	--	--	--	--	--	--	--	--	--
SEP. 26...	0945	6.0	--	.00	.0	.0	0	.00	.0	.00	.0	.00

DATE	DDT IN BOTTOM DEPOSITS (UG/KG)	DIAZINON (UG/L)	DIAZINON IN BOTTOM DEPOSITS (UG/KG)	DIELDRIN (UG/L)	DIELDRIN IN BOTTOM DEPOSITS (UG/KG)	ENDRIN (UG/L)	ENDRIN IN BOTTOM DEPOSITS (UG/KG)	ETHION (UG/L)	ETHION IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR EPOXIDE (UG/L)
JUNE 05...	--	--	--	--	--	--	--	--	--	--	--	--
SEP. 26...	.0	.00	.0	.00	.1	.00	.0	.00	.0	.00	.0	.00

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DISSOLVED ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
JUNE 05...	0830	6	4	1	2	0	0	--	4	1	0	--
SEP. 26...	0945	1	--	1	--	30	--	0	--	13	--	230

DATE	TOTAL LEAD (PB) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DISSOLVED NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	DISSOLVED SILVER (AG) (UG/L)
JUNE 05...	2	0	--	.0	.0	7	10	9	6	1	0
SEP. 26...	5	--	41	.1	--	36	--	0	--	1	--

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096273 ST. JOSEPH RIVER AT MOORE RD. NEAR HILLSDALE, MICH.

(LAT 41°57'23" LONG 84°39'31")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)
OCT. 25...	--	E8.0	1.3	--	--	--	--	--	--	--
JUNE 05...	1030	--	.32	.09	.26	.52	.78	1.2	.22	.22
JULY 18...	1355	20	.94	.06	.00	2.3	2.3	3.3	.39	.34
AUG. 29...	1250	14	.41	.07	1.5	.50	2.0	2.5	.95	.87
SEP. 11...	0900	13	.18	.07	2.3	.80	3.1	3.4	1.1	1.2
26...	1040	E10	.65	.01	2.0	.80	2.8	3.5	.79	.02

DATE	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
OCT. 25...	--	--	--	15.0	--	--	5	--	--
JUNE 05...	.21	.00	575	19.0	--	--	--	--	24.5
JULY 18...	.39	.00	610	23.0	--	--	4	.22	28.0
AUG. 29...	.95	.00	740	18.5	3.3	36	3	.11	25.5
SEP. 11...	1.2	.00	780	20.0	.6	7	0	--	21.0
26...	.82	.00	--	11.0	--	--	4	--	--

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	ALDRIN (UG/L)	ALDRIN IN BOTTOM DEPOSITS (UG/KG)	CHLORDANE (UG/L)	CHLORDANE IN BOTTOM DEPOSITS (UG/KG)	DDD (UG/L)	DDD IN BOTTOM DEPOSITS (UG/KG)	DDE (UG/L)	DDE IN BOTTOM DEPOSITS (UG/KG)	DDT (UG/L)	DDT IN BOTTOM DEPOSITS (UG/KG)
SEP. 26...	1040	4.3	.00	.0	.0	16	.00	1.8	.00	.0	.00	.0

DATE	DIAZINON (UG/L)	DIAZINON IN BOTTOM DEPOSITS (UG/KG)	DIELDRIN (UG/L)	DIELDRIN IN BOTTOM DEPOSITS (UG/KG)	ENDRIN (UG/L)	ENDRIN IN BOTTOM DEPOSITS (UG/KG)	ETHION (UG/L)	ETHION IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR EPOXIDE (UG/L)	HEPTACHLOR EPOXIDE IN BOTTOM DEPOSITS (UG/KG)
SEP. 26...	.00	.0	.00	2.0	.00	.0	.00	.0	.00	.0	.00	.0

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096273 ST. JOSEPH RIVER AT MOORE RD. NEAR HILLSDALE, MICH.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	LINDANE (UG/L)	LINDANE IN BOTTOM DEPOSITS (UG/KG)	MALATHION (UG/L)	MALATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL PARATHION (UG/L)	METHYL PARATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL TRITHION (UG/L)	METHYL TPITHION IN BOTTOM DEPOSITS (UG/KG)	PARATHION (UG/L)	PARATHION IN BOTTOM DEPOSITS (UG/KG)	PCB (UG/L)
SEP. 26...	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0	.0

DATE	PCB IN BOTTOM DEPOSITS (UG/KG)	TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM DEPOSITS (UG/KG)	TRITHION (UG/L)	TRITHION IN BOTTOM DEPOSITS (UG/KG)	2,4-D (UG/L)	2,4-D IN BOTTOM DEPOSITS (UG/KG)	2,4,5-T (UG/L)	2,4,5-T IN BOTTOM DEPOSITS (UG/KG)	SILVEX (UG/L)	SILVEX IN BOTTOM DEPOSITS (UG/KG)
SEP. 26...	19	0	0	.00	.0	.00	0	.00	0	1.6	0

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
SEP. 26...	1040	1	1	20	0	8	280

DATE	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)
SEP. 26...	2	110	.1	33	0	4

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096276 ST. JOSEPH RIVER AT US-12 AT JONESVILLE, MICH.

(LAT 41°58'58" LONG 84°39'52")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)
OCT.										
25...	--	E15	1.2	--	--	--	--	--	--	--
JUNE										
04...	1030	60	--	--	--	--	--	--	--	--
05...	1115	E52	.35	.02	.06	.85	.91	1.3	.15	.12
JULY										
18...	1120	26	.18	.04	.00	1.3	1.3	1.5	.35	.17
AUG.										
06...	1400	20	.73	.10	.19	.91	1.1	1.9	.52	.41
16...	0935	18	--	--	--	--	--	--	--	--
29...	0900	17	.63	.07	.59	.71	1.3	2.0	.76	.63
SEP.										
09...	1115	17	.76	.13	.65	.85	1.5	2.4	.45	.41
12...	0900	68	--	--	--	--	--	--	--	--
26...	1125	17	1.1	.15	.35	1.7	2.0	3.2	.26	.21

DATE	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
OCT.									
25...	--	--	--	14.0	--	--	6	--	--
JUNE									
04...	--	--	--	21.0	--	--	4	.65	--
05...	.12	.00	518	20.0	--	--	--	--	25.0
JULY									
18...	.34	.00	630	23.5	--	--	12	.84	29.5
AUG.									
06...	.41	.00	620	22.0	--	--	7	.38	30.5
16...	--	--	--	20.5	--	--	13	.63	24.0
29...	.75	.00	700	18.5	3.5	38	2	.09	17.0
SEP.									
09...	.49	.00	710	17.5	3.6	39	5	.23	21.0
12...	--	--	--	21.0	--	--	28	5.1	--
26...	.43	.00	--	14.0	--	--	6	.28	19.0

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	ALDRIN (UG/L)	ALDRIN IN BOTTOM DEPOSITS (UG/KG)	CHLORDANE (UG/L)	CHLORDANE IN BOTTOM DEPOSITS (UG/KG)	DDD (UG/L)	DDD IN BOTTOM DEPOSITS (UG/KG)	DDE (UG/L)	DDE IN BOTTOM DEPOSITS (UG/KG)	DDT (UG/L)	DDT IN BOTTOM DEPOSITS (UG/KG)
SEP.												
26...	1125	9.6	.00	.0	.0	0	.00	1.6	.00	.0	.00	.7

DATE	DIAZINON (UG/L)	DIAZINON IN BOTTOM DEPOSITS (UG/KG)	DIELDRIN (UG/L)	DIELDRIN IN BOTTOM DEPOSITS (UG/KG)	ENDRIN (UG/L)	ENDRIN IN BOTTOM DEPOSITS (UG/KG)	ETHION (UG/L)	ETHION IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR EPOXIDE (UG/L)	HEPTACHLOR EPOXIDE IN BOTTOM DEPOSITS (UG/KG)
SEP.												
26...	.02	.0	.00	.2	.00	.0	.00	.0	.00	.0	.00	.0

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096276 ST. JOSEPH RIVER AT US-12 AT JONESVILLE, MICH.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	LINDANE (UG/L)	LINDANE IN BOTTOM DEPOSITS (UG/KG)	MALATHION (UG/L)	MALATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL PARATHION (UG/L)	METHYL PARATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL TRITHION (UG/L)	METHYL TRITHION IN BOTTOM DEPOSITS (UG/KG)	PARATHION (UG/L)	PARATHION IN BOTTOM DEPOSITS (UG/KG)	PCB (UG/L)
SEP. 26...	.00	.0	.06	.0	.00	.0	.00	.0	.00	.0	.0

DATE	PCB IN BOTTOM DEPOSITS (UG/KG)	TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM DEPOSITS (UG/KG)	TRITHION (UG/L)	TRITHION IN BOTTOM DEPOSITS (UG/KG)	2,4-D (UG/L)	2,4-D IN BOTTOM DEPOSITS (UG/KG)	2,4,5-T (UG/L)	2,4,5-T IN BOTTOM DEPOSITS (UG/KG)	SILVEX (UG/L)	SILVEX IN BOTTOM DEPOSITS (UG/KG)
SEP. 26...	8	0	0	.00	.0	.00	0	.00	0	.60	0

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
SEP. 26...	1125	3	1	40	0	7	490

DATE	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)
SEP. 26...	3	140	.1	35	0	4

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096288 ST. JOSEPH RIVER AT LITCHFIELD RD. AT LITCHFIELD, MICH.

(LAT 42°02'37" LONG 84°45'52")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)
OCT.										
25...	--	--	1.5	--	--	--	--	--	--	--
JUNE										
04...	1255	78	--	--	--	--	--	--	--	--
05...	1435	51	1.3	.05	.03	1.3	1.3	2.6	.20	.11
JULY										
18...	0840	33	.79	.01	.00	1.1	1.1	1.9	.13	.07
AUG.										
05...	1325	28	1.4	.06	.00	.97	.97	2.5	.23	.20
15...	1415	23	--	--	--	--	--	--	--	--
28...	0900	21	1.6	.02	.05	.55	.60	2.2	.43	.35
SEP.										
06...	1430	22	1.7	.08	.00	.61	.61	2.4	.28	.26
26...	1445	20	1.9	.06	.00	1.2	1.2	3.2	.02	.00

DATE	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
OCT.									
25...	--	--	--	13.0	--	--	3	--	--
JUNE									
04...	--	--	--	21.0	--	--	30	6.3	25.0
05...	.18	.00	533	22.0	--	--	--	--	29.0
JULY									
18...	.12	.00	600	22.0	--	--	10	.89	22.5
AUG.									
05...	.16	.00	575	19.5	--	--	3	.23	25.5
15...	--	--	--	22.5	--	--	8	.50	27.0
28...	.41	.00	670	19.0	8.1	89	13	.74	17.0
SEP.									
06...	.29	.00	660	17.0	9.4	100	2	.12	23.0
26...	.00	.02	--	14.5	--	--	0	--	--

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	ALDRIN (UG/L)	ALDRIN IN BOTTOM DEPOSITS (UG/KG)	CHLORDANE (UG/L)	CHLORDANE IN BOTTOM DEPOSITS (UG/KG)	DDD (UG/L)	DDD IN BOTTOM DEPOSITS (UG/KG)	DDE (UG/L)	DDE IN BOTTOM DEPOSITS (UG/KG)	DDT (UG/L)	DDT IN BOTTOM DEPOSITS (UG/KG)
SEP.												
26...	1445	4.7	.00	.0	.0	0	.00	13	.00	.0	.00	6.3

DATE	DIAZINON (UG/L)	DIAZINON IN BOTTOM DEPOSITS (UG/KG)	DIELDRIN (UG/L)	DIELDRIN IN BOTTOM DEPOSITS (UG/KG)	ENDRIN (UG/L)	ENDRIN IN BOTTOM DEPOSITS (UG/KG)	ETHION (UG/L)	ETHION IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR EPOXIDE (UG/L)	HEPTACHLOR EPOXIDE IN BOTTOM DEPOSITS (UG/KG)
SEP.												
26...	.01	.0	.00	3.0	.00	.0	.00	.0	.00	.0	.00	.0

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096288 ST. JOSEPH RIVER AT LITCHFIELD RD. AT LITCHFIELD, MICH.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	LINDANE (UG/L)	LINDANE IN BOTTOM DEPOSITS (UG/KG)	MALATHION (UG/L)	MALATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL PARATHION (UG/L)	METHYL PARATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL TRITHION (UG/L)	METHYL TRITHION IN BOTTOM DEPOSITS (UG/KG)	PARATHION (UG/L)	PARATHION IN BOTTOM DEPOSITS (UG/KG)	PCB (UG/L)
SEP. 26...	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0	.0

DATE	PCB IN BOTTOM DEPOSITS (UG/KG)	TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM DEPOSITS (UG/KG)	TRITHION (UG/L)	TRITHION IN BOTTOM DEPOSITS (UG/KG)	2,4-D (UG/L)	2,4-D IN BOTTOM DEPOSITS (UG/KG)	2,4,5-T (UG/L)	2,4,5-T IN BOTTOM DEPOSITS (UG/KG)	SILVEX (UG/L)	SILVEX IN BOTTOM DEPOSITS (UG/KG)
SEP. 26...	60	0	0	.00	.0	.00	0	.00	0	.60	0

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
SEP. 26...	1445	1	0	20	0	7	160

DATE	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)
SEP. 26...	5	20	.2	35	0	3

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096300 SAND CREEK AT SAND LAKE RD. NEAR JONESVILLE, MICH.

(LAT 41°55'21" LONG 84°41'55")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)
OCT.										
25...	--	--	16	--	--	--	--	--	--	--
JUNE										
04...	1530	14	--	--	--	--	--	--	--	--
05...	0905	14	.29	.01	.06	.40	.46	.76	.00	.01
JULY										
18...	1300	5.5	.27	.01	.04	.45	.49	.77	.01	.00
AUG.										
06...	1240	4.3	.29	.01	.01	.54	.55	.85	.00	.01
29...	1030	3.2	.27	.00	.02	.41	.43	.70	.01	.00
SEP.										
09...	1330	3.0	.22	.01	.01	.39	.40	.63	.01	.01
26...	1315	E2.0	.19	.01	.00	.35	.35	.55	.01	.00

DATE	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
OCT.									
25...	--	--	--	16.0	--	--	3	--	--
JUNE									
04...	--	--	--	25.0	--	--	12	.45	26.5
05...	.00	.00	420	22.5	--	--	--	--	--
JULY									
18...	.01	.00	410	28.0	--	--	9	.13	32.0
AUG.									
06...	.00	.00	400	26.0	--	--	7	.08	30.5
29...	.00	.01	405	22.0	9.5	110	16	.14	21.5
SEP.									
09...	.00	.00	395	22.0	8.4	99	0	--	26.0
26...	.00	.01	--	19.0	--	--	6	--	21.5

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	ALDRIN (UG/L)	CHLORDANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DIAZINON (UG/L)	DIELDRIN (UG/L)	ENDRIN (UG/L)	ETHION (UG/L)	HEPTACHLOR (UG/L)
SEP.												
26...	1315	7.1	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00

DATE	HEPTACHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	MALATHION (UG/L)	METHYL PARATHION (UG/L)	METHYL TRITHION (UG/L)	PARATHION (UG/L)	PCB (UG/L)	TOXAPHENE (UG/L)	TRITHION (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
SEP.												
26...	.00	.00	.00	.00	.00	.00	.0	0	.00	.00	.00	.03

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
SEP.							
26...	1315	1	1	20	0	5	50

DATE	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)
SEP.						
26...	3	0	.1	35	0	1

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096312 SAND CREEK AT HERRING RD. AT LITCHFIELD, MICH.

(LAT 42°01'45" LONG 84°46'47")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)
JUNE										
04...	1510	29	--	--	--	--	--	--	--	--
05...	1105	--	1.2	.01	.02	.46	.48	1.7	.01	.01
JULY										
18...	0935	15	1.3	.02	.00	.66	.66	2.0	.03	.00
AUG.										
05...	1515	11	1.3	.01	.01	.66	.67	2.0	.01	.00
15...	1325	11	--	--	--	--	--	--	--	--
28...	1300	8.9	1.2	.02	.04	.47	.51	1.7	.01	.00
SEP.										
09...	0905	8.9	1.2	.02	.02	.40	.42	1.6	.02	.01
12...	1000	15	--	--	--	--	--	--	--	--
26...	1410	8.6	1.1	.01	.00	.43	.43	1.5	.01	.00

DATE	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
JUNE									
04...	--	--	--	20.0	--	--	18	1.4	26.0
05...	.01	.00	465	18.5	--	--	--	--	--
JULY									
18...	.01	.02	520	19.0	--	--	41	1.7	27.0
AUG.									
05...	.00	.01	450	19.0	--	--	19	.56	25.0
15...	--	--	--	18.0	--	--	21	.62	28.0
28...	.01	.00	525	17.0	9.2	98	14	.34	24.0
SEP.									
09...	.01	.00	520	15.0	6.6	67	42	1.0	18.0
12...	--	--	--	--	--	--	48	1.9	--
26...	.00	.01	--	19.0	--	--	14	.32	24.5

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	ALDRIN (UG/L)	CHLORDANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DIAZINON (UG/L)	DIELDRIN (UG/L)	ENDRIN (UG/L)	ETHION (UG/L)	HEPTACHLOR (UG/L)
SEP.												
26...	1410	5.7	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00

DATE	HEPTACHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	MALATHION (UG/L)	METHYL PARATHION (UG/L)	METHYL TRITHION (UG/L)	PARATHION (UG/L)	PCB (UG/L)	TOXAPHENE (UG/L)	TRITHION (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
SEP.												
26...	.00	.00	.00	.00	.00	.00	.0	0	.00	.00	.00	.02

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
SEP.							
26...	1410	1	1	30	0	6	400

DATE	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)
SEP.						
26...	3	45	.2	39	0	3

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096314 SAND CREEK AT STORMS RD. NEAR LITCHFIELD, MICH.

(LAT 42°03'04" LONG 84°48'22")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)
JUNE									
05...	1200	--	1.3	--	.02	--	.02	--	.49
05...	1500	--	1.4	1.3	.02	.01	.00	.01	.25
JULY									
17...	1550	17	1.3	--	.01	--	.00	--	.51
SEP.									
26...	1520	--	1.2	--	.01	--	.00	--	.29

DATE	DISSOLVED ORGANIC NITROGEN (N) (MG/L)	TOTAL KJEL-DAHL NITROGEN (N) (MG/L)	DISSOLVED KJEL. NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)
JUNE									
05...	--	.51	--	1.8	.01	--	.01	--	.01
05...	.31	.25	.32	1.7	.02	.00	.01	.00	.01
JULY									
17...	--	.51	--	1.8	.02	--	.00	--	.01
SEP.									
26...	--	.29	--	1.5	.03	--	.01	--	.01

DATE	DIS. HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)	DISSOLVED ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
JUNE									
05...	--	.00	--	475	--	19.0	--	--	--
05...	.00	.00	.00	490	8.0	18.5	--	--	27.0
JULY									
17...	--	.01	--	525	--	20.0	20	.92	30.0
SEP.									
26...	--	.01	--	--	--	14.0	5	--	--

DATE	TIME	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
JUNE											
05...	1500	6.9	50	67	75	21	4.4	1.1	257	211	43

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)
JUNE										
05...	13	.2	297	.40	270	63	3	.1	20	6

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	DISSOLVED ORGANIC CARBON (C) (MG/L)	ALDRIN (UG/L)	ALDRIN IN BOTTOM DEPOSITS (UG/KG)	CHLORDANE (UG/L)	CHLORDANE IN BOTTOM DEPOSITS (UG/KG)	DDD (UG/L)	DDD IN BOTTOM DEPOSITS (UG/KG)	DDE (UG/L)	DDE IN BOTTOM DEPOSITS (UG/KG)	DDT (UG/L)
JUNE												
05...	1500	--	8.9	.00	--	.0	--	.00	--	.00	--	.00
SEP.												
26...	1520	4.4	--	.00	.0	.0	0	.00	1.5	.00	.4	.00

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096314 SAND CREEK AT STORMS RD. NEAR LITCHFIELD, MICH.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	DDT IN BOTTOM DEPOSITS (UG/KG)	DIAZINON (UG/L)	DIAZINON IN BOTTOM DEPOSITS (UG/KG)	DIELDRIN (UG/L)	DIELDRIN IN BOTTOM DEPOSITS (UG/KG)	ENDRIN (UG/L)	ENDRIN IN BOTTOM DEPOSITS (UG/KG)	ETHION (UG/L)	ETHION IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR EPOXIDE (UG/L)
JUNE 05...	--	.00	--	.00	--	.00	--	.00	--	.00	--	.00
SEP. 26...	.0	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0	.00

DATE	HEPTACHLOR EPOXIDE IN BOTTOM DEPOSITS (UG/KG)	LINDANE (UG/L)	LINDANE IN BOTTOM DEPOSITS (UG/KG)	MALATHION (UG/L)	MALATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL PARATHION (UG/L)	METHYL PARATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL TRITHION (UG/L)	METHYL TRITHION IN BOTTOM DEPOSITS (UG/KG)	PARATHION (UG/L)	PARATHION IN BOTTOM DEPOSITS (UG/KG)	PCB (UG/L)
JUNE 05...	--	.00	--	.00	--	.00	--	.00	--	.00	--	.0
SEP. 26...	.0	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0	.0

DATE	PCB IN BOTTOM DEPOSITS (UG/KG)	TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM DEPOSITS (UG/KG)	TRITHION (UG/L)	TRITHION IN BOTTOM DEPOSITS (UG/KG)	2,4-D (UG/L)	2,4-D IN BOTTOM DEPOSITS (UG/KG)	2,4,5-T (UG/L)	2,4,5-T IN BOTTOM DEPOSITS (UG/KG)	SILVEX (UG/L)	SILVEX IN BOTTOM DEPOSITS (UG/KG)
JUNE 05...	--	0	--	.00	--	.00	--	.00	--	.00	--
SEP. 26...	0	0	0	.00	.0	.00	0	.00	0	.01	0

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DISSOLVED ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)
JUNE 05...	1500	5	5	3	0	1	1	2
SEP. 26...	1520	0	--	1	--	20	--	3

DATE	DISSOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DISSOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	TOTAL MANGANESE (MN) (UG/L)
JUNE 05...	3	--	5	--	50	2	1	67	--
SEP. 26...	--	5	--	360	--	2	--	--	60

DATE	TOTAL MERCURY (HG) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DISSOLVED NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	DISSOLVED SILVER (AG) (UG/L)
JUNE 05...	.0	.0	15	1	11	8	1	1
SEP. 26...	.1	--	41	--	0	--	3	--

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096320 SOAP CREEK AT MCLAIN RD. NEAR LITCHFIELD, MICH.

(LAT 42°00'32" LONG 84°47'15")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)
OCT.									
25...	--	E.50	.95	--	--	--	--	--	--
JUNE									
05...	0850	3.4	--	--	--	--	--	--	--
05...	1000	E2.5	1.4	.02	.01	.34	.35	1.8	.00
JULY									
18...	1025	1.2	.90	.05	.00	.42	.42	1.4	.01
AUG.									
06...	1050	.26	.91	.02	.04	.53	.57	1.5	.01

DATE	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
OCT.								
25...	--	--	--	--	18.0	96	--	--
JUNE								
05...	--	--	--	--	12.5	12	.11	20.0
05...	.01	.01	.00	570	13.5	--	--	--
JULY								
18...	.00	.01	.00	570	19.5	--	--	29.5
AUG.								
06...	.01	.00	.00	420	16.0	28	.02	26.0

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096325 SOAP CREEK AT LITCHFIELD RD. NEAR LITCHFIELD, MICH.

(LAT 42°02'38" LONG 84°50'10")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)
OCT.										
25...	--	E2.0	.36	--	--	--	--	--	--	--
JUNE										
05...	0935	14	--	--	--	--	--	--	--	--
05...	1130	12	.59	.01	.01	.30	.31	.91	.00	.01
JULY										
17...	1420	7.2	.24	.01	.00	.24	.24	.49	.01	.00
AUG.										
05...	1130	5.5	.17	.01	.00	.49	.49	.67	.01	.00
15...	1135	5.1	--	--	--	--	--	--	--	--
28...	1030	4.1	.18	.01	.03	.27	.30	.49	.01	.00
SEP.										
06...	1320	4.2	.16	.01	.00	.20	.20	.37	.01	.01
27...	0930	4.0	.16	.00	.00	.27	.27	.43	.01	.00

DATE	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
OCT.									
25...	--	--	--	11.0	--	--	10	--	--
JUNE									
05...	--	--	--	13.0	--	--	18	.68	23.5
05...	.00	.00	620	17.0	--	--	--	--	--
JULY									
17...	.01	.00	660	18.0	--	--	20	.39	30.0
AUG.									
05...	.00	.01	530	16.0	--	--	16	.24	21.5
15...	--	--	--	15.0	--	--	16	.22	26.5
28...	.01	.00	680	14.0	8.2	82	14	.15	20.5
SEP.									
06...	.01	.00	675	14.5	7.0	71	42	.48	26.0
27...	.01	.00	--	12.0	--	--	17	.18	15.0

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	ALDRIN IN BOTTOM DEPOSITS (UG/KG)	CHLORDANE IN BOTTOM DEPOSITS (UG/KG)	DDD IN BOTTOM DEPOSITS (UG/KG)	DDE IN BOTTOM DEPOSITS (UG/KG)	DDT IN BOTTOM DEPOSITS (UG/KG)	DIAZINON IN BOTTOM DEPOSITS (UG/KG)	DIELDRIN IN BOTTOM DEPOSITS (UG/KG)
SEP.									
27...	0930	5.3	.0	0	1.0	.3	.0	.0	.0

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096325 SOAP CREEK AT LITCHFIELD RD. NEAR LITCHFIELD, MICH.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	ENDRIN IN BOTTOM DEPOSITS (UG/KG)	ETHION IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR EPOXIDE IN BOTTOM DEPOSITS (UG/KG)	LINDANE IN BOTTOM DEPOSITS (UG/KG)	MALATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL PARATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL TRITHION IN BOTTOM DEPOSITS (UG/KG)	PARATHION IN BOTTOM DEPOSITS (UG/KG)
SEP. 27...	.0	.0	.0	.0	.0	.0	.0	.0	.0

DATE	PCB IN BOTTOM DEPOSITS (UG/KG)	TOXAPHENE IN BOTTOM DEPOSITS (UG/KG)	TRITHION IN BOTTOM DEPOSITS (UG/KG)	2,4-D (UG/L)	2,4-D IN BOTTOM DEPOSITS (UG/KG)	2,4,5-T (UG/L)	2,4,5-T IN BOTTOM DEPOSITS (UG/KG)	SILVEX (UG/L)	SILVEX IN BOTTOM DEPOSITS (UG/KG)
SEP. 27...	0	0	.0	.00	0	.00	0	.00	0

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)
SEP. 27...	0930	1	0	10	4	6	600

DATE	TOTAL LEAD (PB) (UG/L)	TOTAL MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)
SEP. 27...	2	190	.0	11	0	0

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096326 SOAP CREEK AT ELY RD. NEAR LITCHFIELD, MICH.

(LAT 42°04'07" LONG 84°50'04")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	DISSOLVED ORGANIC NITROGEN (N) (MG/L)
JUNE										
05...	1010	16	--	--	--	--	--	--	--	--
05...	1620	14	.52	.51	.01	.02	.05	.01	.57	.30
JULY										
17...	1325	9.1	.02	--	.00	--	.00	--	.37	--
AUG.										
06...	0920	6.4	.01	--	.01	--	.01	--	.56	--
15...	1035	6.4	--	--	--	--	--	--	--	--
27...	1355	5.0	.01	--	.01	--	.04	--	.37	--
SEP.										
06...	1200	4.1	.01	--	.00	--	.00	--	.45	--
27...	1100	E2.0	.01	--	.00	--	.00	--	.60	--
30...	1215	3.7	.00	--	.00	--	.00	--	.55	--

DATE	TOTAL KJELDAHL NITROGEN (N) (MG/L)	DISSOLVED KJEL. NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	DIS. HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)
JUNE										
05...	--	--	--	--	--	--	--	--	--	--
05...	.62	.31	1.2	.00	.00	.01	.00	.01	.00	.00
JULY										
17...	.37	--	.39	.02	--	.00	--	.01	--	.01
AUG.										
06...	.57	--	.59	.01	--	.00	--	.00	--	.01
15...	--	--	--	--	--	--	--	--	--	--
27...	.41	--	.43	.01	--	.01	--	.01	--	.00
SEP.										
06...	.45	--	.46	.02	--	.01	--	.01	--	.00
27...	.60	--	.61	.04	--	.00	--	.02	--	.02
30...	.55	--	.55	.03	--	.01	--	.02	--	.00

DATE	DISSOLVED ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
JUNE									
05...	--	--	--	19.5	--	--	36	1.6	22.0
05...	.00	580	8.1	22.0	--	--	--	--	27.0
JULY									
17...	--	560	--	23.0	--	--	14	.34	28.5
AUG.									
06...	--	470	--	18.5	--	--	10	.17	25.5
15...	--	--	--	20.0	--	--	11	.19	24.0
27...	--	560	--	23.5	6.2	75	7	.09	25.5
SEP.									
06...	--	580	--	16.0	5.4	56	13	.14	21.5
27...	--	--	--	15.5	--	--	14	--	19.5
30...	--	580	6.9	13.0	7.0	69	10	.10	10.5

DATE	TIME	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
JUNE											
05...	1620	5.8	0	83	91	23	4.7	1.3	289	237	7.1

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)
JUNE										
05...	11	.2	363	.49	320	85	3	.1	20	7

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096326 SOAP CREEK AT ELY RD. NEAR LITCHFIELD, MICH.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	DIS-SOLVED ORGANIC CARBON (C) (MG/L)	ALDRIN (UG/L)	CHLORDANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)
JUNE 05...	1620	--	4.3	.00	.0	.00	.00	.00
SEP. 27...	1100	5.3	--	.00	.0	.00	.00	.00

DATE	DIAZINON (UG/L)	DIELDRIN (UG/L)	ENDRIN (UG/L)	ETHION (UG/L)	HEPTACHLOR (UG/L)	HEPTACHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	MALATHION (UG/L)	METHYL PARATHION (UG/L)
JUNE 05...	.00	.00	.00	.00	.00	.00	.00	.00	.00
SEP. 27...	.00	.00	.00	.00	.00	.00	.00	.00	.00

DATE	METHYL TRITHION (UG/L)	PARATHION (UG/L)	PCB (UG/L)	TOXAPHENE (UG/L)	TRITHION (UG/L)	2,4-D (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
JUNE 05...	.00	.00	.0	0	.00	.00	.00	1.0
SEP. 27...	.00	.00	.0	0	.00	.00	.00	.00

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DISSOLVED ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	DISSOLVED IRON (FE) (UG/L)
JUNE 05...	1620	14	0	3	0	0	0	3	3	--	5	0
SEP. 27...	1100	2	--	--	--	--	--	--	--	--	--	--

DATE	TOTAL LEAD (PB) (UG/L)	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DISSOLVED NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	DISSOLVED SILVER (AG) (UG/L)
JUNE 05...	4	4	83	--	.7	15	0	5	5	1	1
SEP. 27...	--	--	--	.1	--	--	--	0	--	--	--

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD STATIONS

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096340 ST. JOSEPH RIVER AT CLAREDON, MICH.

(LAT 42°07'51" LONG 84°51'56")

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TOTAL NITRATE (N) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	DISSOLVED ORGANIC NITROGEN (N) (MG/L)
OCT.										
25...	0800	E30	.95	--	--	--	--	--	--	--
JUNE										
04...	0945	171	--	--	--	--	--	--	--	--
05...	1745	--	.84	.84	.03	.02	.03	.01	.72	.55
JULY										
17...	1105	64	.22	--	.00	--	.00	--	.88	--
AUG.										
05...	0920	55	.89	--	.01	--	.02	--	.67	--
15...	0935	45	--	--	--	--	--	--	--	--
27...	1115	40	.92	--	.01	--	.08	--	.44	--
SEP.										
06...	1030	40	1.2	--	.01	--	.00	--	.43	--
27...	1220	37	1.3	--	.01	--	.00	--	.43	--
30...	1015	41	1.2	--	.00	--	.00	--	.47	--

DATE	TOTAL KJELDAHL NITROGEN (N) (MG/L)	DISSOLVED KJEL. NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	DISSOLVED PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)	DISSOLVED ORTHO. PHOSPHORUS (P) (MG/L)	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	DIS. HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)
OCT.										
25...	--	--	--	--	--	--	--	--	--	--
JUNE										
04...	--	--	--	--	--	--	--	--	--	--
05...	.75	.56	1.6	.09	.04	.06	.04	.10	.04	.00
JULY										
17...	.88	--	1.1	.08	--	.00	--	.06	--	.02
AUG.										
05...	.69	--	1.6	.09	--	.06	--	.04	--	.00
15...	--	--	--	--	--	--	--	--	--	--
27...	.52	--	1.5	.14	--	.11	--	.15	--	.00
SEP.										
06...	.43	--	1.6	.14	--	.11	--	.14	--	.00
27...	.43	--	1.7	.10	--	.07	--	.09	--	.00
30...	.47	--	1.7	.11	--	.08	--	.10	--	.00

DATE	DISSOLVED ORGANIC PHOSPHORUS (P) (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)	AIR TEMPERATURE (DEG C)
OCT.									
25...	--	--	--	11.0	--	--	6	--	--
JUNE									
04...	--	--	--	19.0	--	--	13	6.0	21.0
05...	.00	530	7.8	22.0	--	--	--	--	25.0
JULY									
17...	--	520	--	21.5	--	--	20	3.5	26.0
AUG.									
05...	--	480	--	17.0	--	--	7	1.0	18.0
15...	--	--	--	20.0	--	--	11	1.3	21.5
27...	--	600	--	22.0	7.1	84	8	.86	23.5
SEP.									
06...	--	600	--	14.0	6.6	66	9	.97	19.0
27...	--	--	--	15.0	--	--	0	.00	19.5
30...	--	610	7.0	12.5	9.0	87	2	.22	11.0

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096340 ST. JOSEPH RIVER AT CLAREDON, MICH.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	TOTAL ORGANIC CARBON (C) (MG/L)	DISSOLVED ORGANIC CARBON (C) (MG/L)	ALDRIN (UG/L)	ALDRIN IN BOTTOM DEPOSITS (UG/KG)	CHLORDANE (UG/L)	CHLORDANE IN BOTTOM DEPOSITS (UG/KG)	DDD (UG/L)	DDD IN BOTTOM DEPOSITS (UG/KG)	DDE (UG/L)	DDE IN BOTTOM DEPOSITS (UG/KG)	DDT (UG/L)
JUNE 05...	1745	--	5.6	.00	--	.0	--	.00	--	.00	--	.00
SEP. 27...	1220	4.4	--	.00	.0	.0	0	.00	1.3	.00	.7	.00

DATE	DDT IN BOTTOM DEPOSITS (UG/KG)	DIAZINON (UG/L)	DIAZINON IN BOTTOM DEPOSITS (UG/KG)	DIELDRIN (UG/L)	DIELDRIN IN BOTTOM DEPOSITS (UG/KG)	ENDRIN (UG/L)	ENDRIN IN BOTTOM DEPOSITS (UG/KG)	ETHION (UG/L)	ETHION IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR (UG/L)	HEPTACHLOR IN BOTTOM DEPOSITS (UG/KG)	HEPTACHLOR EPOXIDE (UG/L)
JUNE 05...	--	.00	--	.00	--	.00	--	.00	--	.00	--	.00
SEP. 27...	.0	<.01	.0	.00	.3	.00	.0	.00	.0	.00	.0	.00

DATE	HEPTACHLOR EPOXIDE IN BOTTOM DEPOSITS (UG/KG)	LINDANE (UG/L)	LINDANE IN BOTTOM DEPOSITS (UG/KG)	MALATHION (UG/L)	MALATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL PARATHION (UG/L)	METHYL PARATHION IN BOTTOM DEPOSITS (UG/KG)	METHYL TRITHION (UG/L)	METHYL TRITHION IN BOTTOM DEPOSITS (UG/KG)	PARATHION (UG/L)	PARATHION IN BOTTOM DEPOSITS (UG/KG)	PCB (UG/L)
JUNE 05...	--	.00	--	.03	--	.00	--	.00	--	.00	--	.0
SEP. 27...	.0	.00	.0	.00	.0	.00	.0	.00	.0	.00	.0	.0

DATE	PCB IN BOTTOM DEPOSITS (UG/KG)	TOXAPHENE (UG/L)	TOXAPHENE IN BOTTOM DEPOSITS (UG/KG)	TRITHION (UG/L)	TRITHION IN BOTTOM DEPOSITS (UG/KG)	2,4-D (UG/L)	2,4-D IN BOTTOM DEPOSITS (UG/KG)	2,4,5-T (UG/L)	2,4,5-T IN BOTTOM DEPOSITS (UG/KG)	SILVEX (UG/L)	SILVEX IN BOTTOM DEPOSITS (UG/KG)
JUNE 05...	--	0	--	.00	--	.00	--	.00	--	.01	--
SEP. 27...	21	0	0	.00	.0	.65	0	.00	0	.00	0

DATE	TIME	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
JUNE 05...	1745	6.0	0	67	78	21	9.3	1.4	280	230	36

DATE	DISSOLVED CHLORIDE (CL) (MG/L)	DISSOLVED FLUORIDE (F) (MG/L)	DISSOLVED SOLIDS (RESIDUE AT 180 C) (MG/L)	DISSOLVED SOLIDS (TONS PER AC-FT)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	PERCENT SODIUM	SODIUM ADSORPTION RATIO	COLOR (PLATINUM-COBALT UNITS)	TURBIDITY (JTU)
JUNE 05...	20	.3	325	.44	280	52	7	.2	30	3

STREAMS TRIBUTARY TO LAKE MICHIGAN--Continued

04096340 ST. JOSEPH RIVER AT CLAREDON, MICH.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	TOTAL ARSENIC (AS) (UG/L)	DIS-SOLVED ARSENIC (AS) (UG/L)	TOTAL CAD-MIUM (CD) (UG/L)	DIS-SOLVED CAD-MIUM (CD) (UG/L)	TOTAL CHRO-MIUM (CR) (UG/L)	DIS-SOLVED CHRO-MIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)
JUNE 05...	1745	9	0	0	0	0	0	4
SEP. 27...	1220	2	--	0	--	10	--	0

DATE	DIS-SOLVED CORALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	TOTAL IRON (FE) (UG/L)	DIS-SOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	TOTAL MAN-GANESE (MN) (UG/L)
JUNE 05...	4	--	6	--	0	1	3	67	--
SEP. 27...	--	6	--	250	--	2	--	--	22

DATE	TOTAL MERCURY (HG) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	TOTAL SELE-NIUM (SE) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)
JUNE 05...	.0	.0	2	1	7	6	1	1
SEP. 27...	.1	--	7	--	0	--	0	--

04106400 WEST FORK PORTAGE CREEK AT KALAMAZOO, MICH.

(LAT 42°14'40" LONG 85°36'50")

DATE	TIME	INSTAN-TANEOUS DIS-CHARGE (CFS)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	AIR TEMPER-ATURE (DEG C)
OCT., 1973 25...	1340	9.8	400	7.8	16.0	19.5
NOV. 27...	1225	12	445	7.9	9.0	-11.5
JAN., 1974 04...	1245	11	520	7.5	.5	-1.0
FEB. 20...	1345	14	480	7.6	5.0	8.0
APR. 08...	1255	16	430	8.0	7.0	3.0
MAY 13...	1240	14	425	8.3	12.0	10.0
JUNE 28...	1255	13	380	--	23.5	27.5
AUG. 29...	1135	11	400	7.8	18.0	26.5

DATE	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	DIS-SOLVED SOLIDS (TONS PER DAY)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	TUR-BID-ITY (JTU)
OCT. 25...	226	0	185	19	12	.03	.02	218	5.77	210	25	2

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY PARTIAL-RECORD SITES

SUSPENDED-SEDIMENT DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

STREAMS TRIBUTARY TO DETROIT RIVER

04166730 MIDDLE RIVER ROUGE ABOVE PHOENIX LAKE NEAR PLYMOUTH, MICH. (LAT 42°24'02" LONG 83°26'08")

DATE	TIME	TEMPERATURE (DEG C)	INSTANTANEOUS DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
NOV., 1973					
07...	0945	3.5	17	18	.84
FEB., 1974					
05...	1200	.0	42	16	1.8
13...	1045	1.0	46	12	1.5
20...	1315	2.0	55	27	4.0
27...	0930	1.0	80	11	2.4
MAR.					
05...	1055	4.0	660	447	797
06...	1015	.5	405	64	70
13...	1050	2.0	235	10	6.3
21...	1040	3.0	86	8	1.9
27...	1030	5.0	64	12	2.1
APR.					
03...	1100	8.0	193	43	22
04...	0920	10.0	405	171	187
04...	1215	11.0	370	143	143
04...	1525	11.0	343	114	106
04...	1720	11.0	330	88	78
10...	1015	7.0	94	8	2.0
17...	1200	11.0	71	56	11
24...	1100	11.0	68	52	9.5
MAY					
02...	1530	15.0	56	29	4.4
15...	1105	14.5	162	72	31

DATE	TIME	CROSS SECTION LOCATION (FT)	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .002 MM	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM
MAR., 1974										
05...	1055	--	100	98	97	95	93	85	69	--
05...	1100	45.0	--	--	--	--	--	--	--	100
05...	1105	19.0	--	--	--	--	--	--	--	--
APR.										
04...	0920	--	100	94	93	90	87	82	69	--
MAY										
02...	1530	--	100	99	99	96	94	86	83	--
02...	1540	E45.0	--	--	--	--	--	--	--	--
02...	1545	E15.0	--	--	--	--	--	--	--	100
02...	1550	E30.0	--	--	--	--	--	--	--	100

DATE	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .062 MM
MAR., 1974									
05...	--	--	--	--	--	--	--	--	--
05...	71	48	23	11	8	6	3	1	0
05...	--	100	97	90	76	57	15	1	1
APR.									
04...	--	--	--	--	--	--	--	--	--
MAY									
02...	--	--	--	--	--	--	--	--	--
02...	100	99	98	96	94	91	63	12	2
02...	95	68	36	19	14	12	5	0	--
02...	82	70	56	48	44	40	28	14	8

SUSPENDED-SEDIMENT DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974--Continued

STREAMS TRIBUTARY TO DETROIT RIVER--Continued

04166735 MIDDLE RIVER ROUGE BELOW PHOENIX LAKE NEAR PLYMOUTH, MICH. (LAT 42°24'02" LONG 83°26'08")

DATE	TIME	TEMPERATURE (DEG C)	INSTANTANEOUS DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
NOV., 1973					
07...	1200	3.5	E17	21	E.96
FEB., 1974					
05...	1300	.0	40	8	.87
13...	1115	1.0	41	7	.77
20...	1340	2.0	81	38	8.3
27...	1030	.5	78	10	2.1
MAR.					
05...	1100	4.0	670	386	698
06...	1030	5.0	384	106	110
13...	1110	2.0	154	12	5.0
21...	1145	3.0	98	11	2.9
27...	1045	5.0	74	12	2.4
APR.					
03...	1115	8.0	201	52	28
04...	1030	10.0	335	141	89
04...	1235	10.0	370	136	134
04...	1600	11.0	355	120	115
10...	1030	7.0	111	13	3.9
17...	1215	11.0	76	38	7.8
24...	1015	11.0	74	63	13
MAY					
02...	1450	15.0	52	30	4.2
15...	1135	14.5	158	30	13

DATE	TIME	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .002 MM
MAR., 1974							
05...	1100	100	98	97	95	83	66
APR.							
04...	1030	100	99	98	96	90	78
MAY							
02...	1450	100	99	97	96	90	76

04166740 MIDDLE RIVER ROUGE ABOVE WILCOX LAKE AT PLYMOUTH, MICH. (LAT 42°23'06" LONG 83°27'54")

DATE	TIME	TEMPERATURE (DEG C)	INSTANTANEOUS DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
NOV., 1973					
07...	1330	3.5	E18	29	E1.4
JAN., 1974					
29...	1700	.5	161	24	10
FEB.					
05...	1330	.0	52	12	1.7
13...	1130	1.0	52	5	.70
20...	1425	2.0	57	32	4.9
27...	1100	1.0	80	12	2.6
MAR.					
05...	1300	4.0	679	378	693
06...	1050	5.0	450	106	129
13...	1120	2.0	162	14	6.1
21...	1355	5.0	95	12	3.1
27...	1100	5.0	74	10	2.0
APR.					
03...	1130	8.0	215	54	31
04...	1110	10.5	400	149	160
04...	1250	10.5	380	137	140
04...	1645	11.0	350	111	105
10...	1045	7.0	115	12	3.7
17...	1300	11.0	80	46	9.9
24...	1030	11.0	74	39	7.9
MAY					
02...	1420	15.5	47	33	4.2
15...	1140	14.5	175	36	17

SUSPENDED-SEDIMENT DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974--Continued

STREAMS TRIBUTARY TO DETROIT RIVER--Continued

04166740 MIDDLE RIVER ROUGE ABOVE WILCOX LAKE AT PLYMOUTH, MICH.--Continued

DATE	TIME	CROSS SECTION LOCATION (FT)	SUS. SED. FALL DIAM. % FINER THAN .500 MM	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM
JAN., 1974										
29...	1700	--	--	--	100	98	97	97	96	88
MAR.										
05...	1300	--	--	--	100	99	98	97	95	90
05...	1310	37.0	--	--	--	--	--	--	--	--
05...	1315	20.0	--	--	--	--	--	--	--	--
APR.										
04...	1110	--	--	--	100	97	96	94	91	87
MAY										
02...	1420	--	100	98	96	96	93	87	82	75
02...	1430	37.0	--	--	--	--	--	--	--	--
02...	1440	20.0	--	--	--	--	--	--	--	--

DATE	SUS. SED. FALL DIAM. % FINER THAN .002 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .062 MM
JAN., 1974										
29...	80	--	--	--	--	--	--	--	--	--
MAR.										
05...	80	--	--	--	--	--	--	--	--	--
05...	--	100	99	98	94	86	65	6	1	0
05...	--	100	98	81	52	23	5	1	1	1
APR.										
04...	69	--	--	--	--	--	--	--	--	--
MAY										
02...	64	--	--	--	--	--	--	--	--	--
02...	--	100	94	84	75	61	39	3	0	--
02...	--	100	98	79	39	13	6	3	2	1

04166745 MIDDLE RIVER ROUGE BELOW WILCOX LAKE AT PLYMOUTH, MICH. (LAT 42°23'03" LONG 83°27'23")

DATE	TIME	TEMPERATURE (DEG C)	INSTANTANEOUS DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
NOV., 1973					
07...	1430	3.5	E18	17	E.83
JAN., 1974					
29...	1600	.0	164	33	15
FEB.					
05...	1430	.0	F52	12	E1.7
13...	1300	1.0	49	4	.53
20...	1430	2.0	61	23	3.8
27...	1150	1.0	84	10	2.3
MAR.					
05...	1435	4.5	611	344	567
06...	1100	5.0	380	92	94
13...	1300	2.0	155	18	7.5
21...	1450	3.0	94	10	2.5
27...	1115	5.0	61	6	1.0
APR.					
03...	1300	8.0	200	54	29
04...	1100	11.0	360	151	147
04...	1252	11.5	350	138	130
04...	1630	11.0	310	126	105
10...	1100	7.0	104	10	2.8
17...	1315	11.0	71	47	9.0
24...	1045	11.0	60	43	7.0
MAY					
02...	1300	15.5	46	22	2.8
15...	1205	14.5	171	36	17

SUSPENDED-SEDIMENT DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974--Continued

STREAMS TRIBUTARY TO DETROIT RIVER--Continued

04166745 MIDDLE RIVER ROUGE BELOW WILCOX LAKE AT PLYMOUTH, MICH.--Continued

DATE	TIME	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .002 MM
JAN., 1974								
29...	1600	100	99	98	97	96	93	82
MAR.								
05...	1435	--	--	100	98	97	92	78
APR.								
04...	1100	--	100	98	95	90	83	68
MAY								
02...	1300	100	99	98	97	95	89	74

04166750 MIDDLE RIVER ROUGE AT HAGGERTY RD. AT PLYMOUTH, MICH. (LAT 42°22'19" LONG 83°26'44")

DATE	TIME	TEMPERATURE (DEG C)	INSTANTANEOUS DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
FEB., 1974					
05...	1530	.0	E49	18	E2.4
13...	1335	1.0	E46	6	E.74
20...	1500	2.0	E60	24	E3.9
27...	1315	1.5	E88	10	E2.4
MAR.					
05...	1530	5.0	E630	392	E667
06...	1110	5.0	E351	106	E100
13...	1315	2.0	E138	17	E6.3
21...	1605	3.0	E92	7	E1.7
27...	1300	5.0	E70	9	E1.7
APR.					
03...	1330	8.0	E210	68	E38
04...	0950	10.5	E360	193	E188
04...	1230	11.5	E345	174	E162
04...	1605	11.5	E340	139	E128
10...	1300	7.0	E105	13	E3.7
17...	1330	11.0	E71	22	E4.2
24...	1100	11.0	E68	40	E7.3
MAY					
02...	1215	15.5	E52	17	E2.4
15...	1300	14.5	E136	44	E16

DATE	TIME	CROSS SECTION LOCATION (FT)	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .002 MM	BED MAT. SIEVE DIAM. % FINER THAN 64.0 MM
MAR., 1974											
05...	1530	--	100	99	97	95	91	87	77	61	--
APR.											
04...	0950	--	--	100	94	90	86	82	74	61	--
04...	1605	--	--	100	94	92	89	85	79	68	--
MAY											
02...	1215	--	--	100	90	90	88	81	81	71	--
02...	1220	10.0	--	--	--	--	--	--	--	--	--
02...	1230	20.0	--	--	--	--	--	--	--	--	100

DATE	BED MAT. SIEVE DIAM. % FINER THAN 32.0 MM	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .062 MM
MAR., 1974										
05...	--	--	--	--	--	--	--	--	--	--
APR.										
04...	--	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--	--
MAY										
02...	--	--	--	--	--	--	--	--	--	--
02...	100	77	64	52	46	42	38	18	5	2
02...	91	86	58	38	26	18	11	2	--	--

SUSPENDED-SEDIMENT DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

STREAMS TRIBUTARY TO DETROIT RIVER--Continued

04166752 MIDDLE RIVER ROUGE ABOVE NEWBURGH LAKE NEAR PLYMOUTH, MICH. (LAT 42°22'13" LONG 83°25'58")

DATE	TIME	TEMPERATURE (DEG C)	INSTANTANEOUS DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
NOV., 1973					
07...	1500	3.5	E20	39	E2.1
JAN., 1974					
28...	1500	.5	280	92	70
FEB.					
05...	1600	.0	49	12	1.6
13...	1415	1.0	46	9	1.1
20...	1515	2.0	60	34	5.5
27...	1340	1.5	88	10	2.4
MAR.					
05...	1630	5.0	630	474	806
06...	1130	5.0	351	122	116
13...	1330	2.0	138	17	6.0
21...	1650	3.0	92	8	2.0
27...	1330	5.0	70	14	2.6
APR.					
03...	1345	8.0	210	72	41
04...	0920	10.5	360	287	279
04...	1200	11.5	345	247	230
04...	1545	11.5	340	218	200
10...	1330	7.0	105	14	4.0
17...	1345	11.0	71	13	2.5
24...	1115	11.0	68	50	9.2
MAY					
02...	1140	15.0	52	12	1.7
15...	1310	14.5	136	46	17

DATE	TIME	CROSS SECTION LOCATION (FT)	SUS. SED. FALL DIAM. % FINER THAN .250 MM	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM	SUS. SED. FALL DIAM. % FINER THAN .002 MM
JAN., 1974										
28...	1500	--	100	98	96	94	91	88	84	75
MAR.										
05...	1630	--	100	91	84	81	77	74	68	55
05...	1640	40.0	--	--	--	--	--	--	--	--
05...	1650	20.0	--	--	--	--	--	--	--	--
APR.										
04...	0920	--	100	81	71	67	63	59	54	46
04...	1200	--	100	87	80	78	76	72	70	66
MAY										
02...	1140	--	--	100	93	91	90	88	87	87
02...	1210	40.0	--	--	--	--	--	--	--	--
02...	1215	20.0	--	--	--	--	--	--	--	--
02...	1220	30.0	--	--	--	--	--	--	--	--
02...	1225	15.0	--	--	--	--	--	--	--	--

DATE	BED MAT. SIEVE DIAM. % FINER THAN 16.0 MM	BED MAT. SIEVE DIAM. % FINER THAN 8.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 4.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .062 MM
JAN., 1974									
28...	--	--	--	--	--	--	--	--	--
MAR.									
05...	--	--	--	--	--	--	--	--	--
05...	--	100	97	94	90	84	42	23	18
05...	100	99	98	90	79	62	31	26	21
APR.									
04...	--	--	--	--	--	--	--	--	--
04...	--	--	--	--	--	--	--	--	--
MAY									
02...	--	--	--	--	--	--	--	--	--
02...	--	--	--	--	100	98	35	9	1
02...	--	--	--	100	99	98	63	7	1
02...	100	99	96	86	73	59	41	19	13
02...	--	100	94	84	70	58	48	40	30

SUSPENDED-SEDIMENT DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

STREAMS TRIBUTARY TO DETROIT RIVER--Continued

04166760 MIDDLE RIVER ROUGE BELOW NEWBURGH LAKE NEAR PLYMOUTH, MICH. (LAT 42°22'00" LONG 83°24'47")

DATE	TIME	TEMPERATURE (DEG C)	INSTANTANEOUS DISCHARGE (CFS)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
NOV., 1973					
07...	1600	3.5	21	14	.78
JAN., 1974					
28...	1400	.5	341	118	109
FEB.					
05...	1630	.0	63	10	1.7
13...	1430	1.0	61	4	.66
20...	1535	2.0	73	18	3.5
27...	1430	1.0	102	40	11
MAR.					
05...	1710	4.0	668	133	240
06...	1300	5.0	450	192	233
13...	1400	2.0	166	24	11
21...	1725	3.0	110	16	4.8
27...	1400	5.0	76	9	1.8
APR.					
03...	1400	9.0	240	22	14
04...	0830	10.5	400	42	45
04...	1130	10.5	390	61	64
04...	1505	11.0	402	73	79
10...	1345	7.0	116	14	4.4
17...	1400	11.0	86	22	5.1
24...	1130	11.0	81	28	6.1
MAY					
02...	1010	16.0	52	14	2.0
15...	1330	14.5	155	28	12

DATE	TIME	CROSS SECTION LOCATION (FT)	SUS. SED. FALL DIAM. % FINER THAN .125 MM	SUS. SED. FALL DIAM. % FINER THAN .062 MM	SUS. SED. FALL DIAM. % FINER THAN .031 MM	SUS. SED. FALL DIAM. % FINER THAN .016 MM	SUS. SED. FALL DIAM. % FINER THAN .008 MM	SUS. SED. FALL DIAM. % FINER THAN .004 MM
JAN., 1974								
28...	1400	--	100	99	99	99	99	96
MAR.								
05...	1710	--	100	99	98	98	97	91
APR.								
04...	1130	--	--	100	99	99	98	96
MAY								
02...	1010	--	100	99	99	96	89	80
02...	1030	30.0	--	--	--	--	--	--
02...	1035	30.0	--	--	--	--	--	--

DATE	SUS. SED. FALL DIAM. % FINER THAN .002 MM	BED MAT. SIEVE DIAM. % FINER THAN 2.00 MM	BED MAT. SIEVE DIAM. % FINER THAN 1.00 MM	BED MAT. SIEVE DIAM. % FINER THAN .500 MM	BED MAT. SIEVE DIAM. % FINER THAN .250 MM	BED MAT. SIEVE DIAM. % FINER THAN .125 MM	BED MAT. SIEVE DIAM. % FINER THAN .062 MM
JAN., 1974							
28...	82	--	--	--	--	--	--
MAR.							
05...	74	--	--	--	--	--	--
APR.							
04...	91	--	--	--	--	--	--
MAY							
02...	73	--	--	--	--	--	--
02...	--	100	99	97	88	68	51
02...	--	100	98	97	84	86	71

PERIODIC MEASUREMENTS OF WATER TEMPERATURES AND SPECIFIC CONDUCTANCE

Measurements of water temperatures are made at stream gaging stations in Michigan during periodic inspections of the gaging stations. The results of those water temperature measurements are tabulated below, along with discharges, air temperatures,and, at selected sites, the specific conductance. Measurements are not included for those sites where continuous or daily records of temperature are available.

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
STREAMS TRIBUTARY TO LAKE SUPERIOR					
04031000 BLACK RIVER NEAR BESSEMER, MICH. (LAT 46°30'41" LONG 90°04'28")					
WATER YEAR 1974					
OCT. 01, 1973	1420	127	10.5	18.0	--
DEC. 05	1215	--	.0	-2.0	--
JAN. 24, 1974	1440	40	.0	-4.5	--
MAR. 07	1330	141	.0	-4.0	--
APR. 17	1355	1,000	3.0	17.5	--
MAY 16	1045	596	4.5	10.0	--
JUNE 10	2055	3,290	13.5	12.5	--
AUG. 07	0900	146	19.0	18.0	--
SEP. 11	1440	100	14.0	19.0	--
04031500 PRESQUE ISLE RIVER AT MARENISCO, MICH. (LAT 46°22'20" LONG 89°41'32")					
WATER YEAR 1974					
OCT. 01, 1973	1330	157	9.5	14.0	--
NOV. 05	1620	166	1.0	-1.0	--
DEC. 05	1045	--	.0	-3.0	--
JAN. 24, 1974	1215	99	.0	-5.5	--
MAR. 07	1030	136	.0	-6.0	--
MAY 16	1210	425	5.0	11.0	--
JUNE 11	1100	685	12.0	17.0	--
AUG. 07	1200	184	21.0	23.0	--
SEP. 11	1125	341	19.0	21.5	--
04033000 MIDDLE BRANCH ONTONAGON RIVER NEAR PAULDING, MICH. (LAT 46°21'25" LONG 89°04'38")					
WATER YEAR 1974					
OCT. 03, 1973	1115	133	11.0	14.0	--
NOV. 06	1620	161	0.5	-4.0	--
DEC. 03	1200	153	0.5	-4.0	--
JAN. 22, 1974	1430	121	.0	-1.5	--
MAR. 06	1445	153	.0	11.5	--
APR. 18	1110	349	4.0	-1.0	--
MAY 17	0940	253	--	13.0	--
AUG. 07	1530	162	23.0	26.5	--
SEP. 10	1300	180	9.5	15.5	--
04035000 EAST BRANCH ONTONAGON RIVER NEAR MASS, MICH. (LAT 46°41'24" LONG 89°04'24")					
WATER YEAR 1974					
NOV. 07, 1973	1230	106	.0	-3.0	--
JAN. 23, 1974	1135	152	.0	-6.5	--
FEB. 20	1500	136	.0	3.5	--
APR. 03	1600	158	.0	--	--
MAY 23	1530	370	14.0	15.5	--
JUNE 26	0845	147	16.0	15.0	--
AUG. 14	1415	132	18.0	20.0	--
SEP. 18	0900	144	12.0	2.5	--
04035500 MIDDLE BRANCH ONTONOGAN RIVER NEAR ROCKLAND, MICH. (LAT 46°41'57" LONG 89°09'36")					
WATER YEAR 1974					
OCT. 02, 1973	1500	260	12.5	20.0	--
DEC. 04	1355	318	1.0	.0	--
JAN. 23, 1974	1350	274	.0	-3.5	--
FEB. 20	1230	257	.0	1.0	--
APR. 03	1340	281	.0	--	--
APR. 15	1715	1,630	1.0	9.0	--
MAY 23	1315	665	13.0	15.0	--
JUNE 10	1715	6,570	12.5	9.5	--
AUG. 14	1125	230	20.0	--	--
SEP. 18	1430	244	12.0	19.0	--
04036000 WEST BRANCH ONTONOGON RIVER NEAR BERGLAND, MICH. (LAT 46°35'15" LONG 89°32'30")					
WATER YEAR 1974					
NOV. 06, 1973	1220	119	1.0	-3.5	--
DEC. 05	1010	--	--	--	--
JAN. 24, 1974	1030	255	.0	-11.0	--
MAY 15	1300	254	4.0	5.5	--
AUG. 06	1505	7.8	26.0	26.5	--

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
STREAMS TRIBUTARY TO LAKE SUPERIOR--Continued					
04037500 CISCO BRANCH ONTONAGON RIVER AT CISCO LAKE OUTLET, MICH. (LAT 46°15'12" LONG 89°27'05")					
WATER YEAR 1974					
NOV. 05, 1973	1440	128	4.5	-2.0	--
DEC. 06	1015	71	1.0	-7.5	--
JAN. 25, 1974	1130	62	0.5	-3.0	--
MAR. 08	1010	61	0.5	-2.0	--
MAY 16	1530	1.6	4.5	11.5	--
JUNE 12	1435	175	18.0	20.5	--
AUG. 08	1030	17	22.0	18.0	--
SEP. 12	1045	56	14.0	12.0	--
04040000 ONTONAGON RIVER NEAR ROCKLAND, MICH. (LAT 46°43'15" LONG 89°12'25")					
WATER YEAR 1974					
NOV. 07, 1973	1445	558	1.0	-4.5	--
DEC. 04	1650	670	.0	-2.0	--
MAY 23, 1974	1050	1,510	12.0	11.0	--
JUNE 25	1400	1,040	16.0	24.0	--
AUG. 14	1300	1,100	20.0	20.0	--
SEP. 18	--	868	13.0	11.5	--
04040500 STURGEON RIVER NEAR SIDNAW, MICH. (LAT 46°35'03" LONG 88°34'33")					
WATER YEAR 1974					
OCT. 24, 1973	1430	46	11.5	--	--
NOV. 26,	1235	147	1.5	6.0	--
DEC. 26	1230	63	.0	-1.5	--
JAN. 09, 1974	1330	46	.0	2.0	--
JAN. 24	1100	58	.0	-6.0	--
FEB. 22	1015	53	.0	-5.0	--
MAR. 25	1130	43	.0	16.5	--
APR. 05	1020	48	.0	--	--
APR. 18	1600	932	0.5	2.5	--
APR. 25	1340	1,220	5.5	13.0	--
MAY 24	1030	592	11.5	8.0	--
JUNE 25	1100	145	--	18.5	--
JULY 24	1015	22	21.5	23.0	--
AUG. 27	1140	40	18.0	18.0	--
SEP. 19	1110	102	12.0	10.0	--
04041500 STURGEON RIVER NEAR ALSTON, MICH. (LAT 46°43'35" LONG 88°39'43")					
WATER YEAR 1974					
OCT. 24, 1973	1705	161	12.5	18.0	--
JAN. 09, 1974	1535	14	0.5	5.0	--
APR. 18	1300	1,960	1.0	4.0	--
MAY 21	1350	650	14.0	27.0	--
JUNE 27	0945	664	16.0	19.5	--
SEP. 19	0830	15	14.0	8.0	--
04043000 STURGEON RIVER NEAR ARNHEIM, MICH. (LAT 46°55'42" LONG 88°33'23")					
WATER YEAR 1974					
OCT. 25, 1973	1400	289	12.0	13.0	--
NOV. 26	1550	700	4.5	6.0	--
JAN. 10, 1974	1330	365	.0	-6.0	--
FEB. 21	1350	386	0.5	-2.0	--
APR. 26	0800	4,760	--	-1.0	--
JUNE 26	1425	788	15.5	24.0	--
AUG. 15	1420	497	21.0	26.5	--
SEP. 17	1230	345	14.0	13.5	--
SEP. 30		DISCONTINUED			
04044400 CARP RIVER NEAR NEGAUNEE, MICH. (LAT 46°31'29" LONG 87°34'25")					
WATER YEAR 1974					
OCT. 09, 1973	1320	35	12.0	17.0	--
DEC. 12	1555	111	.0	-2.0	--
MAR. 12, 1974	1530	72	1.0	2.0	--
MAY 08	0900	77	5.5	-1.0	--
AUG. 20	1400	83	19.0	23.0	--

PERIODIC MEASUREMENTS OF WATER TEMPERATURES AND SPECIFIC CONDUCTANCE --Continued

STREAMS TRIBUTARY TO LAKE SUPERIOR --Continued

04045500 TAHQUAMENON RIVER NEAR TAHQUAMENON PARADISE, MICH.
(LAT 46°34'30" LONG 85°16'10")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)	
OCT. 24, 1973	1200	624	10.0	16.5	--	
OCT. 30	1100	525	9.0	13.0	--	
APR. 23, 1974	1330	4,780	1.0	3.5	--	
AUG. 13	1330	494	22.5	22.0	--	

STREAMS TRIBUTARY TO LAKE MICHIGAN

04056500 MANISTIQUE RIVER NEAR MANISTIQUE, MICH.
(LAT 46°01"50" LONG 86°09'40")

WATER YEAR 1974

OCT. 16, 1973	1050	995	9.5	4.5	--	
DEC. 07	1210	1,890	0.5	-1.5	--	
JAN. 18, 1974	1150	748	.0	-12.0	--	
MAR. 05	1215	872	.0	1.0	--	
MAR. 20	1030	1,300	.0	-7.0	--	
MAY 13	1225	1,970	9.0	10.0	--	
JUNE 18	1000	3,150	16.0	15.0	--	
AUG. 14	1300	963	19.5	20.0	--	
SEP. 17	1300	1,270	13.0	14.0	--	

04057510 STURGEON RIVER NEAR NAHMA JUNCTION, MICH.
(LAT 45°56'35" LONG 86°42'20")

WATER YEAR 1974

OCT. 16, 1973	1415	98	8.0	7.0	--	
DEC. 07	1500	168	.0	-1.0	--	
JAN. 18, 1974	1440	70	.0	-2.0	--	
FEB. 19	1445	73	.0	.0	--	
MAY 13	1530	330	8.0	10.5	--	
JUNE 19	0950	379	12.5	20.0	--	
AUG. 09	1200	80	18.0	21.5	--	
SEP. 17	1500	167	13.0	14.0	--	

04057800 MIDDLE BRANCH ESCANABA RIVER AT HUMBOLDT, MICH.
(LAT 46°29'57" LONG 87°53'11")

WATER YEAR 1974

OCT. 11, 1973	0815	39	13.5	18.0	--	
JAN. 29, 1974	0915	19	.0	-7.0	--	
APR. 25	1050	269	5.5	7.5	--	
JUNE 03	1500	54	16.0	22.0	--	
JULY 31	1400	14	16.0	17.5	--	
SEP. 24	1400	21	9.5	17.5	--	

04058100 MIDDLE BRANCH ESCANABA RIVER NEAR PRINCETON, MICH.
(LAT 46°19'02" LONG 86°30'07")

WATER YEAR 1974

OCT. 09, 1973	1100	322	11.0	16.5	--	
MAR. 12, 1974	1030	130	1.0	-4.0	--	
MAR. 26	0945	110	0.5	9.5	--	
APR. 17	--	--	1.0	5.0	--	
MAY 06	1120	410	7.5	2.0	--	
MAY 09	1240	355	8.0	6.0	--	
JUNE 03	1220	289	16.0	19.5	--	
JUNE 25	1140	305	16.5	21.5	--	
JULY 16	1120	189	22.0	20.0	--	
AUG. 22	1130	106	21.5	22.0	--	
SEP. 24	1000	94	8.5	11.0	--	

04058200 SCHWEITZER CREEK NEAR PALMER, MICH.
(LAT 46°24'40" LONG 87°37'27")

WATER YEAR 1974

OCT. 11, 1973	1210	43	15.0	16.0	--	
JUNE 05, 1974	1015	12	14.0	22.5	--	
AUG. 01	1115	4.5	12.5	21.0	--	

04058300 WARNER CREEK NEAR PALMER, MICH.
(LAT 46°24'09" LONG 87°32'39")

WATER YEAR 1974

OCT. 11, 1973	2110	16	13.0	19.0	--	
NOV. 12	1450	9.9	1.0	6.5	--	
DEC. 11	1510	9.8	.0	-6.0	--	
FEB. 06, 1974	1400	4.2	.0	-5.0	--	
MAR. 14	1105	10	.0	-2.0	--	
APR. 17	1130	145	.0	13.0	--	
APR. 24	1100	78	2.0	5.0	--	
MAY 01	1015	39	8.0	.0	--	
JUNE 03	1030	17	13.5	19.5	--	
JULY 16	1430	8.9	14.0	21.0	--	
AUG. 22	1030	6.9	18.5	21.0	--	
SEP. 26	1230	7.8	9.5	20.0	--	

STREAMS TRIBUTARY TO LAKE MICHIGAN --Continued

04058400 GOOSE LAKE OUTLET NEAR SANDS STATION, MICH.
(LAT 46°23'36" LONG 87°29'40")

WATER YEAR 1974

OCT. 10, 1973	1335	17	13.0	18.5	--	
NOV. 12	1325	15	3.0	5.0	--	
DEC. 11	1045	19	.0	-7.0	--	
MAR. 26, 1974	1130	14	0.5	-5.0	--	
MAY 01	1150	93	7.5	.0	--	
JUNE 03	1115	32	14.5	22.5	--	
JULY 16	1620	17	17.5	22.5	--	
AUG. 22	1155	15	16.5	22.0	--	
SEP. 26	1430	12	9.5	20.0	--	

04058500 EAST BRANCH ESCANABA RIVER AT GWINN, MICH.
(LAT 46°17'10" LONG 87°26'00")

WATER YEAR 1974

OCT. 09, 1973	1000	56	11.5	17.0	--	
DEC. 11	1155	63	.0	-6.0	--	
FEB. 06, 1974	0900	35	.0	-2.0	--	
FEB. 07	1430	34	.0	-3.0	--	
MAR. 12	1000	50	.0	--	--	
MAR. 26	0850	38	.0	-9.0	--	
APR. 17	0930	--	0.5	4.0	--	
MAY 06	1100	170	6.0	2.0	--	
MAY 09	1405	161	9.0	6.0	--	
JUNE 03	1030	111	13.5	19.0	--	
JUNE 25	1120	97	13.5	21.0	--	
JULY 16	0945	53	17.0	16.0	--	
AUG. 22	1400	49	19.0	21.5	--	
SEP. 26	1310	48	9.0	20.5	--	

04059400 TENMILE CREEK AT PERRONVILLE, MICH.
(LAT 45°48'38" LONG 87°22'00")

WATER YEAR 1974

OCT. 18, 1973	1335	5.6	5.5	8.0	--	
NOV. 20	1550	9.5	2.5	6.0	--	
JAN. 03, 1974	1320	3.5	.0	-19.0	--	
FEB. 14	1320	2.5	.0	-5.0	--	
MAR. 21	1305	10	.0	-5.0	--	
APR. 26	1030	130	6.0	6.5	--	
MAY 21	1410	45	18.5	22.0	--	
JULY 09	1205	18	24.0	23.5	--	
AUG. 15	1200	41	16.0	22.0	--	
SEP. 16	1320	66	10.5	19.0	--	

04060500 IRON RIVER AT CASPIAN, MICH.
(LAT 46°03'31" LONG 88°37'38")

WATER YEAR 1974

OCT. 30, 1973	1630	110	9.0	--	--	
NOV. 28	1535	104	3.0	-3.5	--	
DEC. 28	0950	83	0.5	-3.0	--	
MAR. 27, 1974	1550	72	2.0	2.0	--	
APR. 15	1355	174	3.5	4.0	--	
MAY 29	1540	113	15.0	17.5	--	
JUNE 26	1705	72	18.5	23.0	--	
JULY 30	1520	66	16.0	19.0	--	
AUG. 28	1510	65	--	--	--	

04061000 BRULE RIVER NEAR FLORENCE, WISC.
(LAT 45°57'31" LONG 88°15'57")

WATER YEAR 1974

OCT. 29, 1973	1215	516	8.0	6.0	--	
NOV. 29	1220	401	1.5	-2.0	--	
DEC. 27	1500	374	.0	1.5	--	
JAN. 30, 1974	1345	357	.0	1.5	--	
MAR. 27	1340	308	.0	-1.0	--	
APR. 29	1130	566	13.0	15.5	--	
JUNE 26	1210	289	17.5	23.0	--	
JULY 30	1100	266	21.0	20.5	--	

04061500 PAINT RIVER AT CRYSTAL FALLS, MICH.
(LAT 46°06'21" LONG 88°20'05")

WATER YEAR 1974

NOV. 28, 1973	1325	657	2.0	-2.0	--	
MAR. 07, 1974	1230	414	0.5	.0	--	
APR. 18	1535	2,260	3.5	4.5	--	
JULY 31	0910	261	20.0	17.0	--	

PERIODIC MEASUREMENTS OF WATER TEMPERATURES AND SPECIFIC CONDUCTANCE --Continued

STREAMS TRIBUTARY TO LAKE MICHIGAN --Continued

04062000 PAINT RIVER NEAR ALPHA, MICH.
(LAT 46°00'40" LONG 88°15'30")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
OCT. 30, 1973	0930	93	7.5	1.0	--
NOV. 29	1025	91	1.0	-3.5	--
DEC. 27	1720	84	0.5	.0	--
JAN. 30, 1974	1530	92	0.5	--	--
MAR. 07	1100	80	0.5	-2.0	--
MAR. 28	1030	91	.0	-6.0	--
APR. 29	1330	92	14.5	15.5	--
MAY 29	1410	94	20.0	23.5	--
JUNE 26	1445	86	23.5	27.5	--
JULY 30	1300	95	21.5	20.0	--

04062230 MICHIGAMME RIVER NEAR MICHIGAMME, MICH.
(LAT 46°28'00" LONG 88°04'28")

WATER YEAR 1974

OCT. 10, 1973	1300	95	11.0	17.0	--
NOV. 06	1410	90	3.0	-3.0	--
DEC. 12	1020	159	0.5	-6.5	--
FEB. 12, 1974	1015	83	0.5	-8.0	--
MAR. 27	1300	75	1.0	3.0	--
MAY 02	0930	1,190	6.0	13.0	--
MAY 07	1010	720	5.0	0.5	--
JUNE 04	1230	426	13.5	19.0	--
JUNE 25	1600	365	18.0	22.0	--
JULY 17	1410	153	23.0	20.0	--
AUG. 20	1645	180	21.5	23.0	--
SEP. 24	1120	92	11.0	19.5	--

04062300 MICHIGAMME RIVER AT REPUBLIC, MICH.
(LAT 46°23'03" LONG 87°58'48")

WATER YEAR 1974

OCT. 10, 1973	1030	102	12.0	17.0	--
NOV. 06	1210	121	1.0	-4.0	--
DEC. 13	1020	175	.0	-9.0	--
FEB. 07, 1974	1020	75	0.5	-15.0	--
MAR. 13	1405	81	1.0	-4.0	--
MAY 02	1130	1,250	8.0	20.0	--
JUNE 04	1520	467	17.0	22.0	--
JULY 17	1305	154	23.0	20.0	--
AUG. 20	1405	185	22.0	26.0	--
SEP. 25	1500	97	12.0	10.5	--

04062400 MICHIGAMME RIVER NEAR WITCH LAKE, MICH.
(LAT 46°14'48" LONG 88°00'45")

WATER YEAR 1974

OCT. 10, 1973	0920	194	11.5	16.5	--
DEC. 12	1150	236	.0	-5.0	--
FEB. 07, 1974	1125	113	.0	1.5	--
MAR. 13	1110	145	.0	--	--
MAY 02	1340	1,470	9.0	20.0	--
MAY 07	0855	1,060	5.5	.0	--
JUNE 04	1245	556	16.5	26.5	--
JUNE 25	1640	516	18.5	21.5	--
JULY 17	1205	195	21.0	19.0	--
AUG. 20	1110	271	20.0	22.0	--

04062500 MICHIGAMME RIVER NEAR CRYSTAL FALLS, MICH.
(LAT 46°06'50" LONG 88°12'57")

WATER YEAR 1974

OCT. 30, 1973	1200	151	8.0	9.5	--
JAN. 31, 1974	1420	1,120	.0	8.0	--
APR. 26	1445	126	10.0	18.0	--
JUNE 27	1105	620	16.0	22.0	--

04065300 WEST BRANCH STURGEON RIVER NEAR RANDVILLE, MICH.
(LAT 46°00'45" LONG 87°58'41")

WATER YEAR 1974

OCT. 18, 1973	1010	27	5.0	7.0	--
NOV. 20	1335	27	2.0	5.0	--
JAN. 08, 1974	1115	12	.0	-23.0	--
FEB. 06	1000	16	.0	-18.0	--
MAR. 13	1300	25	.0	-5.5	--
APR. 11	1400	85	0.5	4.0	--
APR. 19	1330	189	3.5	7.0	--
JUNE 19	1300	96	13.0	25.5	--
JULY 19	1050	22	20.0	25.0	--
AUG. 23	1105	8.3	18.0	17.0	--
SEP. 12	1100	38	14.0	16.0	--

STREAMS TRIBUTARY TO LAKE MICHIGAN --Continued

04065393 E. BR. STURGEON RIVER BELOW SKUNK CREEK NEAR FELCH, MICH.
(LAT 46°01'34" LONG 87°49'56")

WATER YEAR 1974

OCT. 17, 1973	1200	35	6.5	8.5	--
NOV. 20	1600	33	2.0	5.0	--
JAN. 08, 1974	1230	18	.0	-2.0	--
FEB. 06	1130	20	.0	-16.0	--
MAR. 13	1050	35	.0	12.0	--
APR. 19	1145	299	3.0	7.0	--
APR. 22	1345	243	7.0	7.5	--
MAY 03	1145	83	10.5	5.0	--
JUNE 19	1430	125	15.0	26.0	--
JUNE 27	1330	18	22.0	28.5	--
JULY 19	1205	26	21.0	25.0	--
AUG. 23	1230	23	18.5	20.0	--
SEP. 12	1230	54	14.5	15.0	--

04096400 ST. JOSEPH RIVER NEAR BURLINGTON, MICH.
(LAT 42°06'10" LONG 85°02'25")

WATER YEAR 1974

OCT. 18, 1973	1355	81	12.0	13.0	--
NOV. 19	1225	78	7.0	10.0	--
DEC. 20	1410	104	.0	-6.5	--
JAN. 25, 1974	1500	446	1.0	8.0	--
FEB. 25	1305	370	--	--	--
APR. 11	1440	488	9.0	9.5	--
APR. 30	1505	268	17.0	18.5	--
JUNE 10	1605	199	21.0	22.5	--
JULY 11	1335	104	24.0	34.0	--
AUG. 27	1230	49	21.0	25.0	--
SEP. 19	1225	52	17.5	27.5	--

04096515 HOG CREEK NEAR ALLEN, MICH.
(LAT 41°56'55" LONG 84°49'40")

WATER YEAR 1974

OCT. 18, 1973	1100	7.8	10.5	7.0	--
NOV. 16	1325	9.5	6.0	2.0	--
DEC. 20	1140	11	--	--	--
JAN. 22, 1974	1535	142	.0	1.5	--
FEB. 25	1840	139	0.5	-4.0	--
APR. 02	1315	86	9.0	13.0	--
MAY 01	1015	58	13.0	14.0	--
JUNE 11	1500	34	18.5	21.5	--
JULY 12	1020	15	22.0	26.0	--
AUG. 27	1700	5.1	24.0	21.0	--
SEP. 24	1150	6.5	12.5	15.0	--

04096600 COLDWATER RIVER NEAR HODUNK, MICH.
(LAT 42°01'45" LONG 85°06'25")

WATER YEAR 1974

OCT. 18, 1973	1235	78	12.0	7.0	--
NOV. 19	1355	94	7.0	10.0	--
DEC. 20	1255	126	.0	-3.5	--
JAN. 25, 1974	1405	876	1.0	5.5	--
FEB. 25	1600	778	--	--	--
APR. 11	1120	721	8.5	9.0	--
APR. 30	1800	376	16.5	15.0	--
JUNE 11	1300	221	18.0	25.5	--
JULY 11	1520	86	24.0	30.0	--
AUG. 27	1445	50	22.5	22.5	--
SEP. 19	1340	50	20.0	27.0	--

04096900 NOTTAWA CREEK NEAR ATHENS, MICH.
(LAT 42°03'20" LONG 85°18'30")

WATER YEAR 1974

OCT. 18, 1973	1520	101	13.0	15.5	--
NOV. 19	1510	130	7.0	10.0	--
DEC. 19	1735	75	.0	-6.5	--
JAN. 25, 1974	1220	514	0.5	0.5	--
APR. 11	0945	354	10.0	9.0	--
APR. 30	1210	205	16.5	17.5	--
JUNE 11	1110	194	18.0	18.0	--
JULY 11	1155	111	24.0	27.0	--
JULY 28	1650	334	4.0	11.0	--
AUG. 27	1040	56	21.0	25.0	--
SEP. 19	1445	51	21.0	26.0	--

PERIODIC MEASUREMENTS OF WATER TEMPERATURES AND SPECIFIC CONDUCTANCE --Continued

STREAMS TRIBUTARY TO LAKE MICHIGAN --Continued

04097170 PORTAGE RIVER NEAR VICKSBURG, MICH.
(LAT 42°06'53" LONG 85°29'08")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
OCT. 19, 1973	1625	56	13.5	18.5	--
NOV. 20	0950	59	6.0	8.5	--
DEC. 19	1605	44	.0	-5.0	--
JAN. 24, 1974	1715	189	1.0	5.0	--
FEB. 28	1325	147	3.5	10.0	--
APR. 05	1340	175	6.5	1.5	--
MAY 13	1220	104	11.0	12.0	--
JUNE 24	1125	75	17.5	24.0	--
JULY 29	1120	31	22.0	21.0	--
SEP. 09	1130	21	20.0	26.0	--

04097500 ST. JOSEPH RIVER AT THREE RIVERS, MICH.
(LAT 41°56'25" LONG 85°38'00")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
OCT. 19, 1973	1440	808	12.0	10.0	--
NOV. 20	1305	669	8.5	11.5	--
JAN. 23, 1974	1335	3,260	1.0	1.0	--
FEB. 26	1050	3,100	0.5	.0	--
MAY 13	1550	2,220	11.5	15.0	--
JUNE 24	1420	1,680	18.0	25.0	--
JULY 29	1400	526	24.0	28.0	--
SEP. 09	1355	589	20.0	27.0	--

04097540 PRAIRIE RIVER NEAR NOTTAWA, MICH.
(LAT 41°53'18" LONG 85°24'34")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
OCT. 18, 1973	1715	42	12.5	15.5	--
NOV. 20	1105	45	10.0	7.5	--
DEC. 20	1005	60	.0	--	--
JAN. 22, 1974	1735	214	1.0	--	--
FEB. 26	1310	294	0.5	6.0	--
APR. 09	1620	220	10.0	15.0	--
MAY 14	0955	161	13.0	19.0	--
JUNE 24	1605	92	18.0	22.0	--
JULY 29	1605	38	26.0	25.0	--
SEP. 09	1605	30	22.0	27.0	--

04098500 FAWN RIVER NEAR WHITE PIGEON, MICH.
(LAT 41°46'56" LONG 85°35'00")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
OCT. 19, 1973	1010	145	10.5	1.5	--
NOV. 16	1100	109	8.5	1.5	--
DEC. 20	0840	101	.0	-6.5	--
JAN. 23, 1974	0945	322	0.5	0.5	--
FEB. 26	1625	343	0.5	6.0	--
APR. 10	0845	342	6.5	4.0	--
MAY 14	1200	272	13.0	13.0	--
JUNE 25	0925	199	18.0	18.0	--
JULY 30	0925	85	22.0	19.0	--
SEP. 10	0930	64	19.0	22.0	--

04099000 ST. JOSEPH RIVER AT MOTTVILLE, MICH.
(LAT 41°48'03" LONG 85°45'22")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
OCT. 19, 1973	1245	2,430	13.5	13.0	--
NOV. 16	0920	655	8.0	1.5	--
DEC. 19	1230	2,160	0.5	--	--
JAN. 23, 1974	1125	4,020	0.5	0.5	--
FEB. 26	1940	4,000	0.5	4.0	--
APR. 10	1115	4,520	9.0	11.0	--
MAY 14	1510	3,100	14.0	18.0	--
JUNE 25	1235	2,560	19.5	18.0	--
JULY 30	1205	2,060	25.0	23.0	--
SEP. 10	1310	2,240	22.0	22.5	--

04101500 ST. JOSEPH RIVER AT NILES, MICH.
(LAT 41°49'45" LONG 86°15'35")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
OCT. 17, 1973	1055	2,450	16.0	3.0	--
NOV. 15	1455	2,890	10.0	13.0	--
JAN. 24, 1974	1000	8,710	1.0	.0	--
MAY 15	1050	6,220	14.5	19.0	--
JUNE 25	1630	3,380	19.5	25.0	--
JULY 30	1625	1,640	25.0	28.5	--
SEP. 10	1645	1,460	24.0	30.0	--

STREAMS TRIBUTARY TO LAKE MICHIGAN --Continued

04101800 DOWAGIAC RIVER AT SUMNERVILLE, MICH.
(LAT 41°54'57" LONG 86°12'47")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
OCT. 17, 1973	1340	253	13.0	15.5	--
NOV. 15	1630	251	10.0	9.0	--
JAN. 23, 1974	1545	802	3.5	2.5	--
FEB. 27	1420	413	4.0	8.0	--
APR. 09	1250	482	7.5	6.8	--
MAY 15	1515	536	14.5	18.0	--
JUNE 26	1010	341	15.0	26.0	--
JULY 31	1050	178	20.0	24.0	--
SEP. 11	1020	153	18.0	22.0	--

04102500 PAW PAW RIVER AT RIVERSIDE, MICH.
(LAT 42°11'10" LONG 86°22'06")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
NOV. 15, 1973	1020	438	9.0	9.0	--
DEC. 18	1625	574	.0	-9.0	--
JAN. 24, 1974	1145	1,090	.0	3.0	--
FEB. 27	1905	972	0.5	9.0	--
APR. 08	1545	1,070	7.0	8.0	--
MAY 15	1735	659	15.0	15.0	--
JUNE 26	1330	488	20.5	22.5	--
JULY 31	1440	259	22.0	26.0	--
SEP. 11	1310	239	20.0	29.0	--

04102700 BLACK RIVER NEAR BANGOR, MICH.
(LAT 42°21'15" LONG 86°11'15")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
OCT. 16, 1973	1540	65	14.0	13.0	--
NOV. 14	1635	57	9.5	17.0	--
DEC. 18	1440	102	.0	-9.0	--
JAN. 24, 1974	1320	551	1.0	4.5	--
FEB. 28	1040	190	4.0	6.0	--
APR. 08	1310	289	6.0	7.0	--
MAY 15	1955	200	14.0	13.0	--
JUNE 26	1535	59	18.5	25.0	--
JULY 31	1630	32	21.5	26.5	--
SEP. 11	1530	29	20.0	32.0	--

04102850 SOUTH BRANCH KALAMAZOO RIVER AT ALBION, MICH.
(LAT 42°12'11" LONG 84°47'39")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
OCT. 13, 1973	1210	84	15.5	--	--
DEC. 01,	1415	151	5.0	--	--
JAN. 12, 1974	0925	82	.0	-12.0	--
FEB. 23	0840	300	.0	-10.0	--
MAR. 20	1550	248	6.5	8.5	--
APR. 27	1000	176	23.0	14.0	--
JUNE 01	1400	170	19.0	21.5	--
JUNE 29	1500	114	22.5	26.5	--
JULY 27	1200	72	21.5	28.0	--
SEP. 04	0900	74	12.0	7.0	--

04103500 KALAMAZOO RIVER AT MARSHALL, MICH.
(LAT 42°15'55" LONG 84°57'55")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
NOV. 23, 1973	0930	368	8.5	--	--
JAN. 03, 1974	1305	495	.0	-5.0	--
FEB. 07	1805	740	.0	-6.0	--
MAR. 20	1245	713	5.5	4.0	--
APR. 06	1355	916	6.5	8.5	--
APR. 29	1030	615	17.5	20.5	--
JUNE 14	1355	527	19.0	31.5	--
JULY 23	1215	292	21.0	18.0	--
AUG. 26	1030	277	20.5	24.0	--
SEP. 20	1340	436	19.0	20.0	--

04105000 BATTLE CREEK AT BATTLE CREEK, MICH.
(LAT 42°19'55" LONG 85°09'15")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
NOV. 23, 1973	1200	276	8.0	--	--
JAN. 03, 1974	0845	480	.0	-9.0	--
FEB. 02	0945	577	.0	-8.0	--
MAR. 07	0750	1,240	6.0	7.0	--
APR. 06	0805	1,100	5.5	.0	--
APR. 29	1450	280	17.5	20.5	--
JULY 23	1800	81	21.5	22.5	--
AUG. 26	1500	65	21.5	20.0	--
SEP. 20	0910	70	18.0	13.5	--

PERIODIC MEASUREMENTS OF WATER TEMPERATURES AND SPECIFIC CONDUCTANCE --Continued

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
STREAMS TRIBUTARY TO LAKE MICHIGAN --Continued					
04105500 KALAMAZOO RIVER NEAR BATTLE CREEK, MICH. (LAT 42°19'26" LONG 85°11'51")					
WATER YEAR 1974					
DEC. 01, 1973	1020	1,170	4.0	--	--
JAN. 03, 1974	1120	--	.0	-6.0	--
FEB. 02	1050	1,680	.0	-6.0	--
MAR. 09	1515	2,830	6.5	11.5	--
APR. 06	1030	2,490	5.5	3.0	--
JUNE 14	1125	931	19.0	27.0	--
JULY 17	1535	452	25.0	35.0	--
JULY 23	1520	456	21.5	21.0	--
AUG. 26	1255	463	21.0	20.0	--
SEP. 20	1105	439	18.0	13.5	--
04105700 AUGUSTA CREEK NEAR AUGUSTA, MICH. (LAT 42°21'12" LONG 85°21'14")					
WATER YEAR 1974					
OCT. 06, 1973	1455	43	13.0	--	--
DEC. 07	1700	56	4.0	--	--
JAN. 25, 1974	1055	84	1.0	2.5	--
APR. 01	1255	94	4.5	6.0	--
MAY 16	1700	115	12.5	20.5	--
JUNE 27	1735	49	21.5	26.0	--
AUG. 01	1720	31	18.5	22.5	--
SEP. 12	1540	54	20.0	26.0	--
04106000 KALAMAZOO RIVER AT COMSTOCK, MICH. (LAT 42°17'05" LONG 85°30'50")					
WATER YEAR 1974					
OCT. 06, 1973	1155	997	18.0	4.5	--
OCT. 20	1725	924	13.0	--	--
DEC. 10	1445	1,230	7.0	--	--
JAN. 25, 1974	0940	3,140	1.0	-1.0	--
MAR. 01	1405	2,250	2.0	12.0	--
APR. 04	1425	3,040	10.5	8.0	--
MAY 16	1340	2,050	15.0	16.0	--
JUNE 27	1430	1,180	24.0	25.0	--
AUG. 01	1505	632	25.0	22.5	--
SEP. 12	1400	675	27.0	24.5	--
04106300 PORTAGE CREEK NEAR KALAMAZOO, MICH. (LAT 42°14'46" LONG 85°34'33")					
WATER YEAR 1974					
DEC. 07, 1973	1055	35	7.0	--	--
JAN. 24, 1974	1815	61	11.0	4.5	--
FEB. 28	1955	57	12.0	2.0	--
APR. 05	0900	55	9.0	.0	--
JUNE 27	0845	43	17.5	20.0	--
AUG. 01	0900	33	17.0	19.0	--
SEP. 12	0925	42	20.0	21.5	--
04106400 WEST FORK PORTAGE CREEK AT KALAMAZOO, MICH. (LAT 42°14'40" LONG 85°36'50")					
WATER YEAR 1974					
OCT. 20, 1973	1200	11	12.5	--	--
DEC. 07	1215	12	3.5	--	--
JAN. 24, 1974	1515	17	2.5	6.0	--
APR. 05	1000	17	6.0	1.0	--
MAY 16	0940	19	14.0	11.5	--
JUNE 27	1010	13	20.5	20.0	--
AUG. 01	1000	8.4	22.0	21.5	--
SEP. 11	1750	10	25.5	27.0	--
04108500 KALAMAZOO RIVER NEAR FENNVILLE, MICH. (LAT 42°35'36" LONG 85°59'03")					
WATER YEAR 1974					
OCT. 16, 1973	1035	1,810	17.0	4.5	--
NOV. 14	1200	1,170	6.0	15.5	--
DEC. 18	1150	1,500	1.0	-12.0	--
JAN. 14, 1974	1730	2,080	1.0	-1.0	--
FEB. 19	1925	2,200	1.0	1.5	--
MAR. 26	1700	3,110	4.0	4.0	--
MAY 06	1740	2,270	15.5	13.0	--
JUNE 11	1230	2,410	22.0	20.0	--
JULY 15	1745	1,100	27.5	28.0	--
SEP. 24	1445	1,230	18.0	19.0	--

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
STREAMS TRIBUTARY TO LAKE MICHIGAN --Continued					
04108600 RABBIT RIVER NEAR HOPKINS, MICH. (LAT 42°38'32" LONG 85°43'19")					
WATER YEAR 1974					
OCT. 16, 1973	1300	63	12.5	15.5	--
NOV. 14	1410	36	9.0	18.5	--
DEC. 17	1545	56	.0	--	--
JAN. 14, 1974	1430	54	.0	-3.5	--
FEB. 19	1610	94	1.0	1.5	--
MAR. 26	1400	88	3.0	1.5	--
MAY 06	1440	62	11.5	10.0	--
JUNE 10	1610	77	20.5	19.0	--
JULY 15	1445	27	24.5	28.0	--
SEP. 24	1305	22	11.5	15.0	--
04108800 BLACK RIVER NEAR ZEELAND, MICH. (LAT 42°46'40" LONG 86°01'06")					
WATER YEAR 1974					
OCT. 15, 1973	1550	32	16.0	18.5	--
NOV. 14	0855	12	7.0	12.0	--
DEC. 18	0900	30	.0	.0	--
JAN. 15, 1974	1035	24	.0	-3.5	--
FEB. 20	1030	77	1.0	-1.0	--
MAR. 27	0945	80	2.0	-1.0	--
MAY 07	0845	23	8.5	4.0	--
JUNE 11	0930	19	15.0	14.0	--
JULY 16	0925	4.9	20.0	25.5	--
SEP. 25	1035	2.2	13.0	15.0	--
04109000 GRAND RIVER AT JACKSON, MICH. (LAT 42°17'05" LONG 84°24'30")					
WATER YEAR 1974					
OCT. 13, 1973	1005	64	19.0	--	--
DEC. 01	1705	186	9.0	--	--
JAN. 12, 1974	1140	95	5.0	-10.0	--
FEB. 23	1030	326	2.0	-7.0	--
MAR. 21	0805	419	5.5	.0	--
APR. 27	1145	192	14.5	20.5	--
JUNE 01	1200	237	18.0	15.5	--
JUNE 29	1225	84	20.0	22.0	--
JULY 27	0955	40	22.5	22.5	--
JULY 04	1125	54	17.5	13.0	--
04111500 DEER CREEK NEAR DANSVILLE, MICH. (LAT 42°36'30" LONG 84°19'15")					
WATER YEAR 1974					
OCT. 27, 1973	1730	1.2	10.5	--	--
DEC. 28	1225	72	2.0	1.5	--
MAR. 19, 1974	1800	22	6.0	1.0	--
APR. 02	2015	117	10.5	13.0	--
APR. 03	0910	80	6.5	14.0	--
APR. 03	1000	72	6.5	14.0	--
APR. 27	1410	7.8	14.0	26.5	--
JUNE 01	0740	7.2	12.5	15.0	--
JUNE 29	1010	1.8	17.5	21.0	--
SEP. 04	1535	0.88	20.0	21.0	--
04112000 SLOAN CREEK NEAR WILLIAMSTON, MICH. (LAT 42°40'33" LONG 84°21'50")					
WATER YEAR 1974					
NOV. 03, 1973	1600	1.2	8.0	--	--
DEC. 28	1340	40.0	2.5	1.0	--
FEB. 16, 1974	1715	4.0	.0	2.0	--
MAR. 19	1600	9.1	5.5	2.5	--
APR. 20	1140	4.5	8.0	14.5	--
MAY 25	1620	4.1	14.0	16.5	--
JUNE 22	1330	1.0	17.5	18.5	--
JULY 20	1615	0.24	24.0	20.0	--
SEP. 28	1500	0.10	18.5	21.0	--
04112500 RED CEDAR RIVER AT EAST LANSING, MICH. (LAT 42°43'40" LONG 84°28'40")					
WATER YEAR 1974					
OCT. 29, 1973	0900	67	11.0	10.0	--
FEB. 25, 1974	1615	1,090	0.5	-7.5	--
APR. 26	1105	273	10.0	15.0	--
JUNE 26	0950	78	18.0	19.0	--
AUG. 28	1315	43	21.5	22.5	--

PERIODIC MEASUREMENTS OF WATER TEMPERATURES AND SPECIFIC CONDUCTANCE --Continued

STREAMS TRIBUTARY TO LAKE MICHIGAN --Continued

04113000 GRAND RIVER AT LANSING, MICH.
(LAT 42°45'02" LONG 84°33'19")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERATURE (°C)	AIR TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (UMHOS at 25°C)
OCT. 27, 1973	1335	304	17.0	--	--
DEC. 26	1340	1,410	1.5	3.0	--
FEB. 09, 1974	1325	1,560	1.0	-3.5	--
MAR. 19	0825	2,990	4.0	.0	--
APR. 20	0755	1,900	10.5	2.5	--
MAY 25	1415	1,680	17.5	13.5	--
JUNE 22	1150	572	23.0	20.5	--
JULY 20	1325	115	28.0	22.0	--
AUG. 30	1105	206	25.0	20.0	--
SEP. 28	1135	265	20.5	21.0	--

04114000 GRAND RIVER AT PORTLAND, MICH.
(LAT 42°51'20" LONG 84°54'45")

WATER YEAR 1974

OCT. 01, 1973	1155	676	18.0	15.5	--
NOV. 17	1045	842	7.5	--	--
DEC. 26	0910	--	.0	4.0	--
JAN. 17, 1974	1730	1,050	.0	-6.5	--
FEB. 22	1700	3,190	2.5	.0	--
APR. 02	1445	5,360	5.0	9.0	--
JULY 19	1035	387	25.5	29.0	--
SEP. 27	1320	302	18.0	22.0	--

04114500 LOOKINGGLASS RIVER NEAR EAGLE, MICH.
(LAT 42°49'45" LONG 84°46'40")

WATER YEAR 1974

OCT. 01, 1973	1025	56	13.0	13.0	--
NOV. 03	1315	76	8.0	--	--
DEC. 26	1215	283	.5	2.5	--
JAN. 17, 1974	1405	189	.0	-3.5	--
FEB. 22	1440	955	1.0	-1.0	--
APR. 01	1240	546	4.0	4.5	--
MAY 09	1545	201	9.0	17.0	--
JUNE 19	1600	117	19.5	27.0	--
JULY 18	1340	56	25.0	31.0	--

04115000 MAPLE RIVER AT MAPLE RAPIDS, MICH.
(LAT 43°06'35" LONG 84°41'35")

WATER YEAR 1974

OCT. 27, 1973	1030	31	11.0	--	--
JAN. 02, 1974	1000	594	.0	-10.0	--
JAN. 17	1125	227	.0	-2.5	--
APR. 01	1030	717	4.0	1.0	--
MAY 09	1115	228	10.5	10.0	--
JUNE 14	1055	311	20.0	22.0	--
JULY 19	1130	82	24.5	29.0	--
SEP. 27	1030	25	16.0	17.5	--

04116000 GRAND RIVER AT IONIA, MICH.
(LAT 42°58'20" LONG 85°04'13")

WATER YEAR 1974

OCT. 01, 1973	1345	909	18.0	18.5	--
NOV. 17	1630	1,240	6.5	--	--
JAN. 02, 1974	1430	--	.0	-7.0	--
JAN. 16	1625	1,930	.0	4.5	--
FEB. 21	1530	3,160	1.5	1.5	--
APR. 02	1135	8,570	5.0	4.5	--
MAY 10	1335	1,550	12.0	18.0	--
JUNE 13	0930	1,710	18.0	17.0	--
JULY 17	1655	913	23.5	27.0	--
SEP. 27	0900	814	15.5	15.0	--

04116500 FLAT RIVER AT SMYRNA, MICH.
(LAT 43°03'10" LONG 85°15'50")

WATER YEAR 1974

OCT. 01, 1973	1145	280	15.0	13.0	--
NOV. 20	1300	472	7.0	--	--
JAN. 02, 1974	1645	--	.0	-9.0	--
JAN. 16	1255	--	.0	7.0	--
FEB. 21	1215	602	1.5	1.5	--
MAR. 28	1335	794	2.0	-1.0	--
MAY 08	1255	670	11.0	8.0	--
JUNE 13	1200	896	18.0	26.0	--
JULY 17	1400	267	23.0	29.0	--
SEP. 26	1200	232	14.0	21.5	--

STREAMS TRIBUTARY TO LAKE MICHIGAN --Continued

04117000 QUAKER BROOK NEAR NASHVILLE, MICH.
(LAT 42°33'57" LONG 85°05'37")

WATER YEAR 1974

OCT. 01, 1973	1730	10	17.0	15.5	--
NOV. 10	0915	5.4	2.5	--	--
DEC. 28	0820	25	0.5	-2.5	--
JAN. 14, 1974	1055	7.0	.0	-3.5	--
FEB. 19	1000	12	2.5	3.0	--
MAR. 25	1030	8.1	1.0	-12.0	--
MAR. 26	0955	10	2.5	-9.0	--
APR. 04	0900	50	9.5	9.0	--
MAY 06	0955	11	8.0	6.0	--
JUNE 10	1015	14	19.5	19.0	--
JULY 15	1045	3.9	19.0	25.5	--
SEP. 24	0940	30	11.0	13.5	--

04117500 THORNAPPLE RIVER NEAR HASTINGS, MICH.
(LAT 42°36'57" LONG 85°14'11")

WATER YEAR 1974

OCT. 01, 1973	1625	315	17.5	18.5	--
NOV. 10	1200	189	6.5	--	--
DEC. 27	1400	595	1.0	0.5	--
JAN. 14, 1974	1205	275	0.5	-6.5	--
FEB. 19	1250	375	1.5	3.0	--
MAR. 26	1205	506	4.0	-2.0	--
MAY 06	1200	319	13.5	8.0	--
JUNE 10	1335	381	21.0	20.5	--
JULY 15	1225	123	27.5	28.0	--
SEP. 26	1150	110	17.5	14.0	--

04118000 THORNAPPLE RIVER NEAR CALEDONIA, MICH.
(LAT 42°48'40" LONG 85°29'00")

WATER YEAR 1974

OCT. 01, 1973	1420	641	17.0	15.5	--
NOV. 10	1535	408	5.0	--	--
DEC. 27	1005	1,140	2.0	1.0	--
JAN. 15, 1974	1335	697	1.0	-1.0	--
FEB. 20	1400	919	2.0	3.5	--
MAR. 27	1230	1,090	4.5	3.5	--
MAY 07	1145	729	10.5	13.0	--
JUNE 11	1435	866	18.5	19.0	--
JULY 16	1205	364	23.0	22.5	--
SEP. 25	1155	314	13.5	17.5	--

04118500 ROGUE RIVER NEAR ROCKFORD, MICH.
(LAT 43°05'00" LONG 85°35'30")

WATER YEAR 1974

OCT. 15, 1973	1035	210	14.5	15.5	--
NOV. 13	1115	159	6.5	18.0	--
DEC. 17	1130	150	.0	--	--
JAN. 16, 1974	1140	202	0.5	5.5	--
FEB. 21	0940	306	1.5	.0	--
MAR. 28	1155	358	1.5	-1.0	--
MAY 08	1030	315	10.5	6.0	--
JUNE 12	1440	343	17.5	26.5	--
JULY 17	1200	133	20.0	26.0	--
SEP. 26	1000	134	--	17.0	--

04119000 GRAND RIVER AT GRAND RAPIDS, MICH.
(LAT 42°57'52" LONG 85°40'35")

WATER YEAR 1974

OCT. 15, 1973	1245	2,250	16.5	18.5	--
NOV. 13	1425	2,140	5.5	16.0	--
DEC. 17	1335	2,940	0.5	--	--
JAN. 15, 1974	1820	3,560	0.5	-1.0	--
FEB. 20	1520	--	1.0	4.5	--
MAR. 27	1725	7,140	3.0	0.5	--
MAY 07	1805	4,020	13.5	15.0	--
JUNE 12	0945	4,640	19.5	15.5	--
JULY 17	1020	1,620	25.0	21.0	--
SEP. 25	1530	1,720	15.0	17.5	--

PERIODIC MEASUREMENTS OF WATER TEMPERATURES AND SPECIFIC CONDUCTANCE --Continued

STREAMS TRIBUTARY TO LAKE MICHIGAN --Continued

04120295 BLACK CREEK NEAR MUSKEGON, MICH.
(LAT 42°12'16" LONG 86°04'53")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
MAR. 12, 1974	1355	83	5.0	-3.0	460
APR. 09	1335	84	5.5	-6.0	380
APR. 17	1440	111	10.0	8.0	--
JUNE 06	1045	71	16.5	21.0	--
JULY 16	0905	37	17.0	18.5	--
SEP. 09	0855	36	14.5	22.5	--

04121300 CLAM RIVER AT VOGEL CENTER, MICH.
(LAT 44°12'02" LONG 85°03'10")

WATER YEAR 1974

OCT. 09, 1973	1105	65	12.5	19.5	--
NOV. 26	1025	105	4.5	3.0	--
JAN. 15, 1974	1030	73	.0	-1.5	--
FEB. 11	1025	80	.0	-10.0	--
MAR. 11	1000	216	1.0	-2.0	--
APR. 08	1000	237	2.5	-5.0	--
MAY 16	1555	618	8.0	10.0	--
JUNE 17	1035	167	14.0	10.0	--
JULY 15	0955	88	20.0	20.0	--
AUG. 12	1210	77	18.5	23.0	--
SEP. 09	0950	70	14.5	20.0	--

04122000 MUSKEGON RIVER AT NEWAYGO, MICH.
(LAT 43°25'20" LONG 85°48'04")

WATER YEAR 1974

OCT. 01, 1973	1425	1,020	17.0	19.0	--
NOV. 12	1305	1,060	10.0	11.5	--
JAN. 02, 1974	1600	2,050	1.0	-8.5	--
FEB. 11	1635	2,150	1.0	-3.5	--
MAR. 11	1645	6,080	2.5	7.0	--
APR. 08	1625	5,160	4.5	4.0	--
JUNE 06	0805	2,340	18.0	17.0	--
JULY 15	1615	1,900	20.0	24.5	--
AUG. 12	1605	2,520	19.0	24.0	--
SEP. 09	1545	1,820	21.0	29.0	--

04122100 BEAR CREEK NEAR MUSKEGON, MICH.
(LAT 43°17'19" LONG 86°13'22")

WATER YEAR 1974

OCT. 02, 1973	1045	4.1	17.0	15.0	--
NOV. 13	1030	5.9	9.0	12.0	--
JAN. 03, 1974	1135	12	.0	-4.0	--
FEB. 12	1030	12	3.0	0.5	--
MAR. 12	1120	25	3.0	0.5	--
APR. 09	--	26	3.5	2.0	--
APR. 17	--	36	7.5	10.5	--
APR. 30	--	54	10.5	10.0	--
MAY 16	1520	65	11.0	11.0	--
MAY 17	1040	494	10.5	12.0	--
JUNE 06	1145	19	16.0	19.0	--
JULY 16	1020	4.5	16.5	20.5	--
AUG. 13	0920	6.9	17.5	20.0	--
SEP. 10	1030	4.3	15.0	23.0	--

STREAMS TRIBUTARY TO LAKE MICHIGAN --Continued

04122200 WHITE RIVER NEAR WHITEHALL, MICH.
(LAT 43°27'51" LONG 86°13'57")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
OCT. 02, 1973	0900	233	15.0	17.0	--
NOV. 13	1335	290	7.0	12.0	--
JAN. 03, 1974	1010	242	.0	-5.5	--
MAR. 12	1020	899	3.0	0.5	--
APR. 09	0950	930	4.0	.0	--
APR. 18	0945	1,300	10.0	8.0	--
MAY 23	1005	968	16.0	17.0	--
JUNE 06	1445	574	19.0	19.0	--
JULY 16	1310	463	18.0	21.0	--
SEP. 24	0920	310	10.0	12.0	--

04122500 PERE MARQUETTE RIVER AT SCOTTVILLE, MICH.
(LAT 43°56'42" LONG 86°16'43")

WATER YEAR 1974

OCT. 02, 1973	1320	392	14.0	17.0	--
NOV. 14	0930	493	7.0	10.5	--
MAR. 13, 1974	1150	1,350	2.0	-4.0	240
APR. 10	0920	1,290	5.0	1.0	225
APR. 18	0920	2,230	9.0	5.5	200
JUNE 07	1100	881	18.0	23.0	--
JULY 17	0940	657	19.0	19.0	350
AUG. 14	0810	604	17.5	12.0	340
SEP. 11	0930	577	17.0	21.0	360

04124000 MANISTEE RIVER NEAR SHERMAN, MICH.
(LAT 44°26'11" LONG 85°41'55")

WATER YEAR 1974

OCT. 10, 1973	1105	807	13.0	20.0	320
NOV. 29	1320	970	4.5	6.5	340
JAN. 15, 1974	1540	894	.0	-1.0	300
MAR. 25	1300	741	.0	-9.0	320
APR. 15	1145	2,440	5.5	4.0	240
JUNE 12	1415	1,790	15.5	18.0	245
JULY 17	1145	912	18.5	21.0	305
AUG. 19	1355	862	18.5	21.0	305
SEP. 19	1120	783	11.0	20.0	300

04125500 PINE RIVER NEAR HOXEYVILLE, MICH.
(LAT 44°12'11" LONG 85°47'58")

WATER YEAR 1974

OCT. 10, 1973	1335	237	13.0	24.5	305
NOV. 29	1055	254	5.0	6.0	320
JAN. 15, 1974	1335	243	1.5	-1.0	320
FEB. 27	1105	277	1.5	-1.5	310
MAR. 25	1100	229	.0	-14.5	300
APR. 16	0950	1,170	5.5	5.0	--
JUNE 12	1015	711	13.0	16.0	215
JULY 17	1040	237	14.0	19.0	315
AUG. 19	1145	293	15.0	19.5	290
SEP. 11	1035	238	14.0	24.5	325

PERIODIC MEASUREMENTS OF WATER TEMPERATURES AND SPECIFIC CONDUCTANCE --Continued

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
STREAMS TRIBUTARY TO LAKE MICHIGAN --Continued					
04126000 MANISTEE RIVER NEAR MANISTEE, MICH. (LAT 44°16'14" LONG 86°11'56")					
WATER YEAR 1974					
OCT. 03, 1973	1015	2,040	15.0	17.0	320
NOV. 14	1245	1,870	6.5	12.0	340
FEB. 13, 1974	1030	1,650	.0	-3.0	340
MAR. 14	0950	2,470	2.0	-7.0	300
APR. 11	0930	2,740	5.5	8.0	260
APR. 17	1515	4,920	9.0	15.0	270
JUNE 05	1205	1,800	17.0	27.0	280
JULY 18	0940	1,890	21.5	26.5	320
AUG. 14	1530	1,340	20.5	22.0	300
SEP. 12	0930	1,810	19.0	18.0	330
SEP. 23	1400	1,420	13.0	12.0	--
04126200 LITTLE MANISTEE RIVER NEAR FREESOIL, MICH. (LAT 44°11'00" LONG 86°10'00")					
WATER YEAR 1974					
OCT. 03, 1973	1150	145	13.5	17.0	300
NOV. 14	1430	145	8.0	12.0	310
JAN. 04, 1974	1120	128	1.0	-5.0	300
FEB. 13	1130	164	1.5	-3.0	290
MAR. 14	1105	196	2.5	-1.5	280
APR. 11	1045	210	7.5	10.0	240
APR. 17	1205	415	8.0	13.5	180
JUNE 05	1030	187	15.5	25.0	290
JULY 18	1120	174	17.0	26.0	300
AUG. 15	0935	159	15.0	17.0	300
SEP. 12	1110	148	16.0	18.5	300
04127000 BOARDMAN RIVER NEAR MAYFIELD, MICH. (LAT 44°38'18" LONG 85°31'10")					
WATER YEAR 1974					
OCT. 09, 1973	1305	154	13.0	24.0	300
NOV. 26	1300	180	5.5	3.5	300
JAN. 16, 1974	1205	123	2.0	2.0	300
FEB. 28	0930	143	2.0	3.5	300
MAR. 26	0935	192	3.0	-3.5	290
APR. 15	1450	487	6.5	8.0	260
JUNE 13	0810	360	15.0	12.0	255
JULY 18	0810	120	17.0	21.0	290
AUG. 19	1545	179	18.5	21.0	295
SEP. 23	1035	143	11.0	4.5	310
04127800 JORDAN RIVER NEAR EAST JORDAN, MICH. (LAT 45°06'09" LONG 85°05'53")					
WATER YEAR 1974					
OCT. 11, 1973	0930	173	13.0	18.5	320
NOV. 27	1035	173	6.0	6.5	360
JAN. 17, 1974	1300	166	0.5	-3.5	340
FEB. 28	0920	160	3.0	2.5	320
MAR. 27	0905	169	1.0	-4.5	340
APR. 16	1055	247	4.5	8.0	310
JUNE 13	1420	182	13.0	19.0	320
JULY 18	1310	164	15.0	27.0	345
AUG. 20	1450	157	15.5	26.0	345
SEP. 27	1150	164	10.5	23.0	360
STREAMS TRIBUTARY TO LAKE HURON					
04127918 PINE RIVER NEAR RUDYARD, MICH. (LAT 46°11'09" LONG 84°35'52")					
WATER YEAR 1974					
OCT. 23, 1973	1300	125	7.0	18.0	--
DEC. 03	1530	179	2.5	10.0	--
JAN. 16, 1974	1250	76	.0	-7.0	--
FEB. 28	1420	72	.0	6.5	--
APR. 22	1330	1,220	1.0	4.5	--
MAY 22	1455	146	15.0	21.0	--
JUNE 10	1300	2,730	12.0	21.0	--
JUNE 11	0925	1,780	12.5	12.5	--
JULY 24	1125	79	16.0	22.5	--
SEP. 04	1115	102	9.5	17.5	--

PERIODIC MEASUREMENTS OF WATER TEMPERATURES AND SPECIFIC CONDUCTANCE --Continued

STREAMS TRIBUTARY TO LAKE HURON--Continued

04128000 STURGEON RIVER NEAR WOLVERINE, MICH.
(LAT 45°17'56" LONG 84°36'40")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE-(CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS at 25°C)
OCT. 04, 1973	1155	211	11.0	15.5	--
NOV. 27	1100	229	5.5	6.0	--
JAN. 16, 1974	1210	212	1.0	0.5	--
FEB. 19	1130	214	1.0	1.0	--
MAR. 18	1100	228	1.5	.0	--
APR. 15	1340	744	4.0	7.5	250
JUNE 10	1105	543	15.0	17.0	340
JULY 22	1235	181	16.0	18.0	375
AUG. 01	1310	215	15.0	23.0	--
AUG. 19	1155	183	15.0	22.0	360
SEP. 10	1155	211	12.0	16.0	380

04128500 INDIAN RIVER AT INDIAN RIVER, MICH.
(LAT 45°24'38" LONG 84°37'12")

WATER YEAR 1974

OCT. 04, 1973	0930	423	16.0	14.0	--
NOV. 27	0920	666	4.0	4.0	--
FEB. 19, 1974	1255	654	0.5	1.5	--
MAR. 18	1345	726	2.0	0.5	--
MAY 01	1000	876	8.0	6.0	--
JUNE 10	1300	675	17.5	20.5	--
JULY 22	1300	708	20.0	18.5	--
AUG. 19	1400	559	22.0	23.5	--
SEP. 16	1400	498	14.0	15.0	--

04129000 PIGEON RIVER NEAR VANDERBILT, MICH.
(LAT 45°10'15" LONG 84°26'18")

WATER YEAR 1974

OCT. 04, 1973	1405	85	12.5	14.5	--
NOV. 27	1400	74	5.5	6.0	--
JAN. 16, 1974	1030	75	0.5	.0	--
FEB. 19	1020	74	1.0	-0.5	--
MAR. 18	1010	69	1.5	-2.0	--
APR. 15	1005	422	1.0	2.0	--
JUNE 10	1000	116	17.0	16.5	--
JULY 22	0935	60	17.0	16.5	--
AUG. 19	1020	62	17.5	20.0	--
SEP. 16	1025	85	11.0	12.5	--

04129500 PIGEON RIVER AT AFTON, MICH.
(LAT 45°22'26" LONG 84°30'54")

WATER YEAR 1974

OCT. 09, 1973	1050	107	13.0	18.0	--
NOV. 19	1100	155	4.0	4.5	--
JAN. 07, 1974	1220	110	.0	-11.5	--
FEB. 19	1530	119	.0	1.0	--
MAR. 18	1505	145	.0	.0	--
APR. 15	1600	750	4.0	7.0	--
JUNE 10	1415	263	17.0	20.5	--
JULY 11	1425	118	21.0	24.0	--
AUG. 01	1140	114	17.0	23.0	--
AUG. 19	1505	114	20.0	25.0	--
SEP. 16	1205	107	11.5	16.0	--

04130000 CHEBOYGAN RIVER NEAR CHEBOYGAN, MICH.
(LAT 45°34'38" LONG 84°29'15")

WATER YEAR 1974

OCT. 10, 1973	0930	755	16.0	16.5	--
NOV. 20	0930	1,100	3.5	6.0	--
JAN. 08, 1974	0920	964	0.5	-25.5	--
FEB. 20	0835	975	0.5	-10.5	--
MAR. 19	0930	1,210	1.5	-4.0	--
MAY 02	0935	1,210	6.5	9.5	--
JUNE 11	0955	1,370	15.5	11.0	--
JULY 23	0905	1,150	21.5	19.5	--
AUG. 20	0845	717	22.0	18.5	--

04130500 BLACK RIVER NEAR TOWER, MICH.
(LAT 45°23'33" LONG 84°20'00")

WATER YEAR 1974

OCT. 09, 1973	1205	235	13.0	19.5	--
NOV. 19	1340	230	3.5	4.5	--
JAN. 08, 1974	1535	223	.0	-10.0	--
FEB. 20	1355	114	1.0	1.5	--
MAR. 19	1400	510	0.5	-2.5	--
APR. 16	1035	1,380	3.5	4.5	--
JUNE 11	1550	165	18.5	18.0	--
JULY 23	1455	144	20.5	26.0	--
AUG. 20	1325	232	22.5	25.0	--
SEP. 16	1535	253	15.5	17.5	--

STREAMS TRIBUTARY TO LAKE HURON --Continued

04131500 RAINY RIVER NEAR OCQUEOC, MICH.
(LAT 45°24'30" LONG 84°10'45")

WATER YEAR 1974

OCT. 09, 1973	1330	9.0	15.0	22.5	400
NOV. 19	1520	44	3.5	5.0	330
JAN. 07, 1974	1410	25	.0	-10.0	200
MAR. 19	1510	89	0.5	-3.0	280
APR. 16	0800	503	3.0	-1.5	200
JUNE 10	1635	76	17.5	18.0	320
JULY 23	1345	20	16.5	24.5	330
AUG. 20	1430	3.9	24.0	28.5	420
SEP. 17	1200	3.8	12.0	14.0	430

04132000 BLACK RIVER NEAR CHEBOYGAN, MICH.
(LAT 45°29'59" LONG 84°19'36")

WATER YEAR 1974

OCT. 10, 1973	1230	331	16.5	18.5	--
NOV. 20	1210	735	4.0	5.5	--
JAN. 08, 1974	1400	444	.0	-14.0	--
FEB. 20	1225	445	.0	-1.0	--
MAR. 19	1155	792	0.5	-3.0	--
MAY 01	1630	1,240	9.5	10.0	--
JULY 23	1145	385	22.0	21.0	--
OCT. 17	1115	404	9.5	7.0	--

DISCONTINUED

04133500 THUNDER BAY RIVER NEAR BOLTON, MICH.
(LAT 45°07'40" LONG 83°38'30")

WATER YEAR 1974

OCT. 11, 1973	1040	392	15.0	18.5	--
NOV. 21	0900	630	4.0	5.0	--
JAN. 09, 1974	1030	475	.0	-10.0	--
FEB. 21	1240	605	.0	-1.5	--
MAR. 20	1200	612	0.5	-2.0	--
APR. 17	0755	1,770	6.0	.0	--
JUNE 12	1140	516	17.0	18.0	--
JULY 24	1115	427	20.5	25.5	--
AUG. 21	1045	387	22.5	24.0	--

04134000 NORTH BRANCH THUNDER BAY RIVER NEAR BOLTON, MICH.
(LAT 45°08'55" LONG 83°36'35")

WATER YEAR 1974

OCT. 11, 1973	0910	65	14.5	17.5	--
NOV. 21	1010	146	4.0	5.5	--
JAN. 09, 1974	0935	64	.0	-12.5	--
FEB. 21	0905	56	.0	-1.5	--
MAR. 20	0900	171	.0	-9.0	--
APR. 17	1100	1,010	6.0	10.5	--
JUNE 12	1015	142	17.0	15.5	--
JULY 24	0945	35	19.5	20.0	--
AUG. 21	0910	15	21.0	22.0	--
SEP. 17	1420	16	13.5	10.5	--

04135500 AU SABLE RIVER AT GRAYLING, MICH.
(LAT 44°39'35" LONG 84°42'45")

WATER YEAR 1974

OCT. 01, 1973	1015	61	10.5	9.0	--
NOV. 26	0945	72	4.0	3.0	--
JAN. 15, 1974	1030	66	0.5	-1.5	--
FEB. 27	1035	70	0.5	-1.0	--
MAR. 25	1030	68	0.5	-12.0	330
APR. 15	0920	212	4.0	.0	185
JUNE 06	1240	76	18.5	19.5	300
JULY 16	0800	63	18.0	15.0	300
AUG. 20	0805	58	20.0	18.0	310
SEP. 18	1300	58	11.5	13.0	320

04135600 EAST BRANCH AU SABLE RIVER AT GRAYLING, MICH.
(LAT 44°40'08" LONG 84°42'20")

WATER YEAR 1974

OCT. 01, 1973	1425	37	11.0	18.5	--
NOV. 26	1115	43	5.0	3.5	--
JAN. 15, 1974	1450	37	1.5	-4.5	--
FEB. 27	1405	41	2.5	5.0	--
APR. 01	1450	47	4.5	3.5	--
APR. 15	1145	141	3.0	4.0	--
JUNE 06	1450	45	15.5	24.0	--
JULY 16	1115	44	14.0	20.0	--
AUG. 19	1550	34	18.0	25.0	--
SEP. 18	1440	36	12.0	14.5	--

PERIODIC MEASUREMENTS OF WATER TEMPERATURES AND SPECIFIC CONDUCTANCE --Continued

STREAMS TRIBUTARY TO LAKE HURON --Continued

04136500 AU SABLE RIVER AT MIO, MICH.
(LAT 44°39'36" LONG 84°07'52")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS AT 25°C)
JAN. 08, 1974	1040	860	.0	-22.0	--
MAR. 20	1340	1,120	1.5	-3.0	--
APR. 17	1610	2,360	7.5	10.0	--
JULY 22	0955	937	19.5	15.5	--
AUG. 20	1025	839	19.5	24.0	--
SEP. 20	0905	1,010	13.0	7.5	--
SEP. 23	1020	26	11.5	10.0	--

04138500 AU GRES RIVER NEAR NATIONAL CITY, MICH.
(LAT 44°10'26" LONG 83°44'36")

WATER YEAR 1974

OCT. 09, 1973	1400	32	16.5	19.0	--
NOV. 19	1245	63	4.5	6.0	--
JAN. 10, 1974	1200	55	.0	-4.0	--
FEB. 21	0910	80	.0	.0	--
MAR. 18	1120	177	3.0	-3.5	--
MAR. 15	1415	887	7.0	2.0	--
APR. 17	0845	364	7.5	1.0	--
MAY 02	1200	145	12.0	17.0	--
JUNE 17	1155	152	14.5	10.0	--
JULY 11	1130	62	20.5	23.0	--
AUG. 19	1305	23	21.5	30.0	--
SEP. 10	1155	20	18.5	21.0	--

04140500 RIFLE RIVER AT SELKIRK, MICH.
(LAT 44°18'48" LONG 84°04'10")

WATER YEAR 1974

OCT. 09, 1973	1120	104	12.0	14.5	390
NOV. 20	1325	134	4.5	6.5	380
JAN. 10, 1974	1445	96	.0	-2.0	420
FEB. 21	1235	106	0.5	1.5	--
MAR. 18	0900	166	1.0	-6.0	370
APR. 17	1130	427	5.0	5.5	310
JUNE 18	1405	179	12.5	17.5	540
JULY 23	0915	96	15.0	18.5	405
AUG. 19	1435	83	18.0	29.0	400
SEP. 12	0800	84	17.0	18.5	380

04141000 SOUTH BRANCH SHEPARDS CREEK NEAR SELKIRK, MICH.
(LAT 44°18'28" LONG 84°05'13")

WATER YEAR 1974

OCT. 09, 1973	1215	.12	13.5	17.5	520
NOV. 20	1300	.17	5.0	7.0	610
JAN. 08, 1974	1310	.15	.0	-14.0	600
MAR. 20	1000	.46	0.5	-10.5	500
APR. 15	1030	4.3	3.0	.0	320
JUNE 18	1250	.42	12.5	15.5	410
JULY 23	1105	.09	16.0	20.5	540
SEP. 12	0730	--	17.0	18.0	540

04142000 RIFLE RIVER NEAR STERLING, MICH.
(LAT 44°04'21" LONG 84°01'12")

WATER YEAR 1974

OCT. 09, 1973	1440	186	15.0	18.0	--
NOV. 19	1430	248	4.5	7.5	--
MAR. 18, 1974	1415	463	1.5	.0	--
APR. 15	1720	2,280	6.5	3.0	--
MAY 02	1435	392	12.5	17.5	--
JULY 23	1435	208	19.5	23.0	--
AUG. 19	1050	156	18.5	20.5	--
SEP. 10	0950	156	16.5	18.0	--

04143500 NORTH BRANCH KAWKAWLIN RIVER NEAR KAWKAWLIN, MICH.
(LAT 43°40'05" LONG 83°58'13")

WATER YEAR 1974

NOV. 01, 1973	0835	.44	7.0	5.0	--
NOV. 07	1520	.16	1.5	1.0	--
NOV. 20	0815	5.4	5.0	4.5	--
JAN. 08, 1974	1550	13	.0	-10.0	--
FEB. 12	1540	35	.0	.0	--
MAR. 12	1435	460	1.0	-1.5	--
MAR. 19	1230	175	3.0	3.0	--
APR. 16	1545	351	10.5	4.5	--
MAY 03	0845	147	14.5	15.0	--
MAY 20	1510	753	16.5	19.0	--
JUNE 05	1515	30	23.5	29.5	--
JULY 10	1525	23	25.0	26.5	--
AUG. 06	1205	5.4	20.5	27.0	--
AUG. 27	1125	3.8	19.5	18.0	--
SEP. 10	1425	.58	22.5	25.0	--
SEP. 25	1055	.16	12.5	12.0	--

STREAMS TRIBUTARY TO LAKE HURON --Continued

04143900 SHIAWASSEE RIVER AT LINDEN, MICH.
(LAT 42°48'56" LONG 83°48'08")

WATER YEAR 1974

DATE	TIME	DIS CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS AT 25°C)
OCT. 15, 1973	0955	34	15.0	13.0	--
NOV. 12	1355	58	7.5	7.0	--
DEC. 26	1050	67	2.0	6.0	--
FEB. 16, 1974	1223	95	.0	-1.0	--
MAR. 19	1318	175	4.0	2.5	--
APR. 13	1535	206	11.5	20.5	--
MAY 11	0958	75	12.5	14.5	--
JUNE 17	1208	60	18.0	13.5	--
JULY 13	1210	28	24.5	26.5	--
AUG. 17	1002	4.7	21.5	18.5	--
SEP. 17	1153	27	19.5	23.5	--

04144000 SHIAWASSEE RIVER AT BYRON, MICH.
(LAT 42°49'25" LONG 83°56'45")

WATER YEAR 1974

OCT. 15, 1973	0840	100	14.5	10.0	--
NOV. 12	1155	124	3.5	10.0	--
DEC. 26	0925	278	.0	1.5	--
FEB. 16, 1974	1413	282	.0	-1.0	--
MAR. 18	1450	667	3.5	6.0	--
APR. 13	1648	1,030	11.5	20.5	--
MAY 11	1148	298	10.5	11.0	--
JUNE 17	1302	193	16.0	12.0	--
JULY 13	1430	123	24.0	26.0	--
AUG. 17	1132	91	21.5	19.5	--
SEP. 17	1337	82	17.5	19.0	--

04145000 SHIAWASSEE RIVER NEAR FERGUS, MICH.
(LAT 43°15'17" LONG 84°06'20")

WATER YEAR 1974

OCT. 18, 1973	1125	131	11.0	9.5	--
NOV. 13	1300	153	5.5	11.5	--
DEC. 17	1230	--	.0	4.0	--
JAN. 24, 1974	1545	--	.0	1.0	--
APR. 03	1605	2,020	8.5	15.5	--
JULY 01	1530	230	27.0	29.0	--
SEP. 09	1320	157	21.0	29.0	--

04146000 FARMERS CREEK NEAR LAPEER, MICH.
(LAT 43°02'41" LONG 83°20'14")

WATER YEAR 1974

OCT. 16, 1973	0935	8.3	11.0	2.0	--
NOV. 13	1310	--	8.0	13.0	--
DEC. 18	1205	--	.0	-6.5	--
JAN. 22, 1974	1205	81	.0	1.5	--
FEB. 25	1430	--	.0	-8.0	--
APR. 08	1455	236	6.5	-1.0	--
MAY 15	1230	76	15.5	15.5	--
JUNE 24	1325	31	18.0	20.0	--
JULY 29	1210	8.2	23.5	27.0	--
SEP. 11	1435	7.3	21.5	28.0	--

04147500 FLINT RIVER NEAR OTISVILLE, MICH.
(LAT 43°06'40" LONG 83°31'10")

WATER YEAR 1974

OCT. 17, 1973	1030	67	14.0	6.5	--
NOV. 19	1140	244	5.5	7.0	--
DEC. 28	1210	612	1.0	2.0	--
JAN. 23, 1974	1350	922	1.0	1.5	--
APR. 09	1845	1,900	7.5	4.5	--
MAY 16	1635	688	12.5	13.5	--
JUNE 26	1515	222	21.5	25.0	--
JULY 31	1155	79	23.5	23.0	--
SEP. 10	1925	134	23.0	24.5	--

04147990 BUTTERNUT CREEK NEAR GENESEE, MICH.
(LAT 43°08'09" LONG 83°35'57")

WATER YEAR 1974

OCT. 17, 1973	1125	4.5	9.0	6.5	--
NOV. 14	0940	4.6	8.0	7.0	--
DEC. 28	1335	74	1.5	2.5	--
JAN. 23, 1974	1520	183	.0	.0	--
MAR. 04	1350	171	3.0	1.0	--
APR. 09	2015	55	7.5	4.5	--
JUNE 26	1705	8.1	19.5	23.0	--
JULY 31	1310	4.4	18.0	24.0	--
SEP. 10	1755	3.6	19.5	26.0	--

PERIODIC MEASUREMENTS OF WATER TEMPERATURES AND SPECIFIC CONDUCTANCE --Continued

STREAMS TRIBUTARY TO LAKE HURON --Continued

04148140 KEARSLEY CREEK NEAR DAVISON, MICH.
(LAT 43°02'01" LONG 83°34'53")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS AT 25°C)
OCT. 17, 1973	0900	19	10.0	6.0	--
NOV. 13	1235	19	7.0	10.0	--
DEC. 28	1040	238	.0	1.5	--
JAN. 22, 1974	1035	342	.0	.0	--
MAR. 01	1220	275	1.0	-1.0	--
APR. 08	1130	371	7.0	-0.5	--
JUNE 24	1145	36	16.5	21.0	--
JULY 29	1035	12	22.5	23.5	--
SEP. 11	1315	11	20.5	28.5	--

04148160 GILKEY CREEK NEAR FLINT, MICH.
(LAT 43°01'27" LONG 83°37'32")

WATER YEAR 1974

NOV. 12, 1973	1220	--	3.5	11.5	--
NOV. 19	1335	.13	6.5	7.0	--
DEC. 27	1310	71	1.0	0.5	--
MAR. 01, 1974	0940	24	1.5	0.5	--
MAY 15,	0950	38	13.0	14.0	--
JUNE 26	1155	.20	19.0	23.0	--
SEP. 11	1145	E.47	19.5	26.5	--

04148200 SWARTZ CREEK NEAR HOLLY, MICH.
(LAT 42°49'39" LONG 83°37'42")

WATER YEAR 1974

OCT. 15, 1973	1155	2.4	15.0	14.5	--
NOV. 12	1615	4.0	8.0	7.0	--
DEC. 26	1315	16	2.0	3.0	--
JAN. 25, 1974	1300	40	1.5	4.5	--
APR. 05	1515	64	6.5	-1.0	--
JUNE 25	1915	6.0	21.0	22.0	--
JULY 30	1845	1.2	22.0	22.5	--
SEP. 10	1350	2.1	21.5	28.0	--

04148300 SWARTZ CREEK AT FLINT, MICH.
(LAT 42°59'16" LONG 83°43'57")

WATER YEAR 1974

OCT. 15, 1973	1455	5.7	16.0	15.5	--
NOV. 12	1610	9.5	6.0	12.0	--
DEC. 27	1530	667	1.0	0.5	--
JAN. 24, 1974	1800	479	1.5	1.5	--
APR. 10	1300	268	7.0	10.0	--
JUNE 27	1400	27	23.0	26.0	--
JULY 31	1815	2.4	24.5	29.0	--
SEP. 10	1155	2.7	20.5	28.0	--

04148440 THREAD CREEK NEAR FLINT, MICH.
(LAT 42°58'30" LONG 83°38'09"

WATER YEAR 1974

OCT. 15, 1973	1400	4.3	15.0	15.5	--
NOV. 12	1440	6.3	4.0	12.0	--
DEC. 28	0900	172	.0	-3.5	--
JAN. 25, 1974	1100	--	.0	4.5	--
APR. 05	1400	337	7.5	-1.0	--
JUNE 25	1740	14	19.5	24.5	--
JULY 30	1730	1.8	22.5	26.5	--
SEP. 10	1540	1.8	21.0	28.0	--

04148500 FLINT RIVER NEAR FLINT, MICH.
(LAT 43°02'20" LONG 83°46'10")

WATER YEAR 1974

OCT. 17, 1973	1400	178	15.0	9.5	--
NOV. 14	1255	241	9.0	13.0	--
DEC. 27	1745	2,210	2.0	0.5	--
JAN. 23, 1974	1830	3,200	1.5	.0	--
APR. 22	1200	1,110	13.0	--	--
JUNE 27	1620	403	22.5	26.0	--
JULY 31	1645	188	25.0	24.5	--
SEP. 10	1050	228	21.5	23.5	--

04148720 BRENT RUN NEAR MONTROSE, MICH.
(LAT 43°10'12" LONG 83°50'03")

WATER YEAR 1974

OCT. 17, 1973	1240	4.2	10.0	8.5	--
NOV. 14	1115	4.7	7.0	10.5	--
DEC. 17	1625	5.3	.0	-8.5	--
JAN. 24, 1974	1100	94	0.5	1.0	--
MAR. 04,	1730	82	5.5	1.0	--
MAY 14	1415	14	13.0	23.0	--
JUNE 27	1845	5.0	21.5	26.0	--
JULY 31	1455	3.4	22.5	24.5	--
SEP. 09	1820	4.3	20.5	26.5	--

STREAMS TRIBUTARY TO LAKE HURON --Continued

04149000 FLINT RIVER NEAR FOSTERS, MICH.
(LAT 43°18'30" LONG 83°57'13")

WATER YEAR 1974

OCT. 18, 1973	0905	176	11.0	7.0	--
NOV. 13	1545	285	7.5	14.0	--
DEC. 17	1350	--	.0	-8.0	--
JAN. 24, 1974	1400	4,400	1.0	1.0	--
MAR. 05	1620	6,430	4.0	7.0	--
APR. 03	1200	2,810	7.5	9.0	--
MAY 13	1145	918	--	11.0	--
JULY 01	1200	598	23.0	21.5	--
SEP. 09	1130	219	21.0	24.0	--

04150000 SOUTH BRANCH CASS RIVER NEAR CASS CITY, MICH.
(LAT 43°34'01" LONG 83°06'43")

WATER YEAR 1974

OCT. 02, 1973	1345	8.2	17.5	18.0	--
NOV. 07	1025	12	2.5	1.0	--
MAR. 11, 1974	1525	465	3.0	3.0	--
APR. 09	1100	349	3.0	2.0	--
JUNE 05	1025	38	21.5	25.0	--
JULY 17	0920	12	20.5	19.0	--
AUG. 14	0830	8.4	19.0	16.5	--
SEP. 11	0830	5.3	19.5	19.5	--
SEP. 24	1430	4.6	12.5	11.5	--

04150500 CASS RIVER AT CASS CITY, MICH.
(LAT 43°35'03" LONG 83°10'34")

WATER YEAR 1974

OCT. 02, 1973	1245	9.5	17.0	19.5	--
NOV. 07	0905	21	1.5	-1.0	--
MAR. 11, 1974	1415	1,020	2.0	2.5	--
APR. 09	0800	712	2.0	-2.0	--
JUNE 05	0900	66	20.0	21.0	--
JULY 17	1010	16	20.5	21.5	--
AUG. 14	0955	11	20.5	17.5	--
SEP. 11	1210	5.1	22.0	24.0	--

04150800 CASS RIVER AT WAHJAMEGA, MICH.
(LAT 43°27'02" LONG 83°26'29")

WATER YEAR 1974

OCT. 02, 1973	1540	41	19.0	21.5	--
NOV. 06	1545	72	6.5	4.0	--
DEC. 17	1440	114	1.0	-4.0	--
JAN. 03, 1974	1310	264	0.5	-6.5	--
FEB. 11	1535	267	1.0	-6.0	--
MAR. 06	0900	7,740	2.0	4.5	--
MAR. 12	0835	1,550	1.5	-3.0	--
APR. 09	1515	1,330	4.0	3.0	--
JUNE 04	1525	163	21.5	27.5	--
JULY 16	0845	63	22.0	16.5	--
AUG. 13	1515	38	26.0	24.0	--
SEP. 10	1325	27	21.0	25.5	--

04151500 CASS RIVER AT FRANKENMUTH, MICH.
(LAT 43°19'40" LONG 83°44'53")

WATER YEAR 1974

OCT. 03, 1973	0830	56	16.0	17.5	--
NOV. 06	1420	110	6.5	4.0	--
MAR. 06, 1974	1520	8,620	4.0	15.5	--
MAR. 12	0940	2,080	2.0	-0.5	--
APR. 08	1455	2,290	5.0	1.0	--
JUNE 04	1305	249	20.5	26.0	--
JULY 16	1400	102	26.5	23.0	--
AUG. 13	1240	64	26.0	24.0	--
SEP. 10	1110	42	20.5	23.0	--

04152500 TOBACCO RIVER AT BEAVERTON, MICH.
(LAT 43°52'43" LONG 84°28'18")

WATER YEAR 1974

OCT. 11, 1973	0845	208	15.5	15.0	--
NOV. 20	1050	327	5.0	7.0	--
JAN. 09, 1974	1435	218	1.0	-5.0	--
MAR. 14	1245	688	2.0	.0	--
APR. 16	1215	1,930	7.5	3.0	--
MAY 30	1140	555	15.0	11.5	--
JUNE 06	1010	262	20.5	19.5	--
JULY 24	1330	247	22.0	28.0	--
AUG. 14	1405	220	23.5	24.5	--
SEP. 11	1520	205	20.5	28.5	--

PERIODIC MEASUREMENTS OF WATER TEMPERATURES AND SPECIFIC CONDUCTANCE --Continued

STREAMS TRIBUTARY TO LAKE HURON --Continued

04154000 CHIPPEWA RIVER NEAR MOUNT PLEASANT, MICH.
(LAT 43°37'32" LONG 84°42'28")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS AT 25°C)
OCT. 12, 1973	0820	165	16.5	14.5	--
NOV. 06	1000	331	5.0	0.5	--
DEC. 20	1315	295	0.5	-5.0	--
JAN. 02, 1974	1100	169	0.5	--	--
MAR. 14	0950	854	1.0	-2.0	--
APR. 08	0940	1,120	3.0	-2.0	--
MAY 20	1500	2,130	16.5	17.0	--
JUNE 03	1100	466	16.5	18.5	--
JULY 15	1025	204	23.5	26.5	--
AUG. 12	1045	198	21.0	21.5	--
SEP. 09	1050	199	18.5	21.5	--

04155000 PINE RIVER AT ALMA, MICH.
(LAT 43°22'46" LONG 84°39'20")

WATER YEAR 1974

OCT. 04, 1973	1225	115	16.0	17.0	--
NOV. 06	1125	201	3.5	1.0	--
JAN. 02, 1974	1225	194	0.5	-11.0	--
MAR. 13	1355	715	2.0	-1.0	--
MAR. 19	1545	527	4.0	1.5	--
APR. 08	1255	814	4.0	-0.5	--
JUNE 03	1335	276	18.5	21.0	--
JULY 15	1120	173	24.5	24.0	--
AUG. 12	1240	135	23.5	24.5	--
SEP. 09	1250	108	18.5	25.0	--

04155500 PINE RIVER NEAR MIDLAND, MICH.
(LAT 43°33'52" LONG 84°22'09")

WATER YEAR 1974

OCT. 10, 1973	1340	80	17.5	20.0	--
NOV. 08	1130	271	4.5	2.0	--
MAR. 13, 1974	1155	1,030	1.0	-3.0	--
MAR. 19	1400	709	4.5	-5.0	--
APR. 10	1050	781	4.5	6.0	--
JUNE 03	1505	335	21.0	22.0	--
JULY 15	1350	130	27.5	29.0	--
AUG. 12	1505	185	24.0	26.0	--
SEP. 09	1450	155	21.5	25.5	--

04156000 TITTABAWASSEE RIVER AT MIDLAND, MICH.
(LAT 43°35'43" LONG 84°14'08")

WATER YEAR 1974

OCT. 04, 1973	0945	388	16.0	16.5	--
NOV. 08	0935	671	5.5	2.0	--
DEC. 18	1130	640	3.5	-4.0	--
JAN. 04, 1974	1125	831	3.5	-10.5	--
MAR. 13	0855	5,910	1.5	-5.5	--
MAY 20	1100	9,250	15.0	-14.5	--
JUNE 04	0945	1,120	18.5	20.0	--
JULY 16	0940	669	24.0	17.5	--
AUG. 13	0935	426	24.5	22.0	--
SEP. 24	1115	363	15.5	13.0	--

04158500 PIGEON RIVER NEAR OWENDALE, MICH.
(LAT 43°45'49" LONG 83°14'46")

WATER YEAR 1974

OCT. 02, 1973	1115	3.0	16.5	21.5	--
NOV. 07	1205	4.1	2.0	3.0	--
JAN. 03, 1974	1055	20	0.5	-9.5	--
FEB. 12	1110	17	.0	.0	--
MAR. 05	1430	1,290	1.5	4.5	--
MAR. 06	1120	369	3.0	11.0	--
MAR. 11	1240	140	3.5	1.0	--
MAR. 19	0920	62	1.5	-2.0	--
APR. 09	1245	91	4.5	3.0	--
JUNE 05	1240	14	21.5	28.0	--
JUNE 18	1135	21	14.0	15.0	--
JUNE 18	1210	20	14.0	15.0	--
JULY 10	1155	7.8	25.0	27.0	--
JULY 17	0950	4.8	19.5	16.5	--
AUG. 06	0910	6.0	20.5	20.0	--
AUG. 27	0910	5.1	21.5	18.5	--
SEP. 10	1525	2.5	20.0	25.0	--
SEP. 25	0840	2.8	11.0	11.0	--

STREAMS TRIBUTARY TO ST. CLAIR RIVER

04159500 BLACK RIVER NEAR FARGO, MICH.
(LAT 43°05'32" LONG 84°42'28")

WATER YEAR 1974

OCT. 16, 1973	1340	27	12.0	10.0	--
NOV. 14	0835	33	7.5	13.0	--
DEC. 19	1103	78	.0	-4.0	--
JAN. 23, 1974	1030	2,630	.0	2.5	--
FEB. 26	1200	977	.0	-6.5	--
APR. 09	1400	1,100	4.5	1.5	--
JUNE 25	1135	57	19.5	21.0	--
JULY 30	1150	28	24.5	24.5	--
SEP. 12	1810	19	--	28.0	--

04159900 MILL CREEK NEAR AVOCA, MICH.
(LAT 43°03'16" LONG 82°44'05")

WATER YEAR 1974

OCT. 16, 1973	1240	7.8	11.0	9.5	--
NOV. 14	0940	14	8.0	15.5	--
DEC. 19	1255	34	.0	-6.5	--
JAN. 22, 1974	1700	--	.0	-3.5	--
FEB. 26	1200	494	.0	-4.0	--
APR. 09	1600	533	6.0	4.4	--
JUNE 25	1315	25	21.5	23.0	--
JULY 29	1655	7.7	27.5	30.5	--
AUG. 12	1540	6.2	23.0	27.0	--

04160570 NORTH BRANCH BELLE RIVER AT IMLAY CITY, MICH.
(LAT 43°01'49" LONG 83°04'02")

WATER YEAR 1974

OCT. 16, 1973	1040	3.3	10.0	6.0	--
NOV. 13	1605	4.4	8.5	7.0	--
DEC. 18	1345	4.9	.0	-9.5	--
JAN. 22, 1974	1430	58	.0	3.0	--
FEB. 25	1800	35	1.0	-4.0	--
APR. 08	1700	43	7.5	-1.0	--
MAY 15	1610	37	18.5	16.5	--
JUNE 24	1640	5.8	18.5	21.5	--
JULY 29	1430	2.6	24.0	29.5	--

04160600 BELLE RIVER AT MEMPHIS, MICH.
(LAT 42°54'03" LONG 82°46'09")

WATER YEAR 1974

OCT. 16, 1973	1130	16	12.0	9.0	--
NOV. 14	1100	17	8.0	18.5	--
DEC. 18	1645	49	.0	-8.5	--
JAN. 22, 1974	1600	933	.0	2.0	--
APR. 17	1110	133	9.5	17.0	--
MAY 22	1935	196	20.5	21.0	--
JUNE 25	1305	26	19.5	20.0	--
AUG. 12	1530	9.8	22.5	25.0	--

STREAMS TRIBUTARY TO LAKE ST. CLAIR

04160800 SASHABAW CREEK NEAR DRAYTON PLAINS, MICH.
(LAT 42°43'12" LONG 83°21'13")

WATER YEAR 1974

OCT. 24, 1973	1100	2.5	10.5	18.5	--
NOV. 28	1545	30	6.5	2.5	--
JAN. 10, 1974	1345	13	0.5	-6.5	--
FEB. 04	1300	28	0.5	-9.0	--
MAR. 05	1035	121	1.5	4.0	--
APR. 15	1435	48	7.5	5.5	--
MAY 24	1450	40	18.0	18.5	--
JUNE 24	1515	12	19.5	19.0	--
JULY 29	1030	6.1	22.5	22.5	--
SEP. 09	1340	2.4	20.5	28.5	--

PERIODIC MEASUREMENTS OF WATER TEMPERATURES AND SPECIFIC CONDUCTANCE --Continued

STREAMS TRIBUTARY TO LAKE ST. CLAIR --Continued

04161000 CLINTON RIVER AT AUBURN HEIGHTS, MICH.
(LAT 42°38'00" LONG 83°13'28")

WATER YEAR 1974

DATE	TIME	DISCHARGE (CFS)	WATER TEMPERATURE (°C)	AIR TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (UMHOS AT 25°C)
OCT. 24, 1973	1335	47	18.5	24.0	--
NOV. 26	1315	119	9.0	7.0	--
JAN. 07, 1974	1335	153	2.5	-10.0	--
FEB. 07	1735	210	3.0	-9.5	--
MAR. 13	1235	323	4.5	-1.5	--
APR. 15	1915	288	9.0	8.5	--
MAY 21	1345	281	19.5	25.5	--
JUNE 28	1240	123	22.0	23.0	--
AUG. 01	1230	51	23.0	30.0	--
SEP. 13	1445	71	22.5	19.5	--

04161100 GALLOWAY CREEK NEAR AUBURN HEIGHTS, MICH.
(LAT 42°40'02" LONG 83°12'02")

WATER YEAR 1974

DATE	TIME	DISCHARGE (CFS)	WATER TEMPERATURE (°C)	AIR TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (UMHOS AT 25°C)
OCT. 24, 1973	1240	1.5	10.0	18.5	--
NOV. 28	1330	61	7.0	4.0	--
JAN. 07, 1974	1430	6.7	.0	-10.0	--
FEB. 05	1000	11	.0	-13.5	--
MAR. 13	0955	36	1.5	-3.5	--
APR. 15	1620	23	8.5	7.5	--
MAY 24	1140	18	17.0	21.0	--
JUNE 28	1100	2.8	16.5	21.0	--
AUG. 01	1130	1.5	19.5	28.5	--
SEP. 10	1620	1.3	20.5	28.0	--

04161500 PAINT CREEK NEAR LAKE ORION, MICH.
(LAT 42°46'03" LONG 83°13'12")

WATER YEAR 1974

DATE	TIME	DISCHARGE (CFS)	WATER TEMPERATURE (°C)	AIR TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (UMHOS AT 25°C)
OCT. 26, 1973	1400	4.3	--	18.5	--
NOV. 30	1400	46	6.5	4.5	--
JAN. 10, 1974	1230	33	2.0	2.0	--
FEB. 04	1350	74	2.5	-8.5	--
MAR. 05	1135	156	3.0	8.0	--
MAY 24	1345	94	19.0	17.0	--
JUNE 24	1640	31	19.0	19.5	--
JULY 29	1300	16	23.5	25.0	--
SEP. 09	1555	12	20.5	26.0	--

04161540 PAINT CREEK AT ROCHESTER, MICH.
(LAT 42°41'18" LONG 83°08'35")

WATER YEAR 1974

DATE	TIME	DISCHARGE (CFS)	WATER TEMPERATURE (°C)	AIR TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (UMHOS AT 25°C)
OCT. 26, 1973	1015	17	12.5	15.5	--
NOV. 28	1310	114	7.5	3.5	--
JAN. 07, 1974	1620	60	.0	-9.5	--
FEB. 04	1550	114	--	-8.0	--
APR. 19	1100	125	7.5	4.0	--
MAY 24	1020	148	17.5	21.0	--
JUNE 28	0950	46	17.5	19.5	--
AUG. 01	1000	31	18.0	23.0	--
SEP. 10	1055	24	17.5	24.0	--

04161580 STONY CREEK NEAR ROMEO, MICH
(LAT 42°48'03" LONG 83°05'25")

WATER YEAR 1974

DATE	TIME	DISCHARGE (CFS)	WATER TEMPERATURE (°C)	AIR TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (UMHOS AT 25°C)
OCT. 25, 1973	1800	5.4	14.5	18.5	--
DEC. 04	1630	19	--	7.0	--
JAN. 10, 1974	1130	19	0.5	-6.5	--
FEB. 05	1400	37	.0	-10.0	--
MAR. 13	1640	65	4.5	0.5	--
APR. 18	1520	41	10.5	5.5	--
MAY 23	1630	63	22.5	24.5	--
JUNE 27	1905	8.7	22.0	21.5	--
JULY 29	1415	5.3	24.5	31.5	--
AUG. 09	1735	6.2	21.0	24.5	--

04161800 STONY CREEK NEAR WASHINGTON, MICH.
(LAT 42°42'55" LONG 83°05'31")

WATER YEAR 1974

DATE	TIME	DISCHARGE (CFS)	WATER TEMPERATURE (°C)	AIR TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (UMHOS AT 25°C)
OCT. 26, 1973	1130	46	13.0	18.5	--
NOV. 30	1115	88	5.0	7.5	--
JAN. 10, 1974	1000	43	2.5	-7.0	--
FEB. 05	1200	89	2.5	-12.0	--
MAR. 13	1450	170	3.0	0.5	--
MAY 24	0840	137	18.5	17.5	--
JUNE 27	1655	31	19.5	22.5	--
JULY 31	1615	15	24.5	29.5	--
SEP. 10	1225	19	20.5	25.5	--

STREAMS TRIBUTARY TO LAKE ST. CLAIR --Continued

04162900 BIG BEAVER CREEK NEAR WARREN, MICH.
(LAT 42°32'31" LONG 83°02'52")

WATER YEAR 1974

DATE	TIME	DISCHARGE (CFS)	WATER TEMPERATURE (°C)	AIR TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (UMHOS AT 25°C)
OCT. 24, 1973	1720	3.9	14.0	24.0	--
NOV. 27	1630	24	9.0	7.5	--
JAN. 08, 1974	1130	2.9	.0	-12.5	--
FEB. 07	1420	8.9	.0	-6.5	--
APR. 16	1140	13	8.5	10.5	--
MAY 21	1630	32	19.5	27.0	--
JUNE 26	1350	1.7	19.5	23.5	--
JULY 31	1145	1.7	21.5	31.5	--
SEP. 11	1705	.14	22.5	28.0	--

04163400 PLUM BROOK AT UTICA, MICH.
(LAT 42°36'05" LONG 83°04'27")

WATER YEAR 1974

DATE	TIME	DISCHARGE (CFS)	WATER TEMPERATURE (°C)	AIR TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (UMHOS AT 25°C)
OCT. 24, 1973	1630	1.4	13.0	24.0	--
NOV. 26	1600	20	7.5	4.5	--
JAN. 08, 1974	1245	4.8	.0	-14.5	--
FEB. 07	1610	12	.0	-4.0	--
APR. 16	1035	19	7.0	9.0	--
MAY 21	1500	15	20.0	25.5	--
JUNE 26	1130	1.9	18.0	21.0	--
JULY 31	1300	--	22.0	28.5	--
SEP. 13	1315	2.0	21.5	22.0	--

04164000 CLINTON RIVER NEAR FRASER, MICH.
(LAT 42°34'40" LONG 82°57'00")

WATER YEAR 1974

DATE	TIME	DISCHARGE (CFS)	WATER TEMPERATURE (°C)	AIR TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (UMHOS AT 25°C)
OCT. 24, 1973	1850	154	16.0	18.5	--
NOV. 27	1400	398	9.5	10.0	--
JAN. 08, 1974	1440	287	0.5	-12.5	--
FEB. 07	1130	535	0.5	-8.0	--
MAR. 14	1200	1,040	8.5	--	--
APR. 16	1430	738	9.5	11.5	--
MAY 21	1850	1,120	18.5	27.0	--
JUNE 27	1100	265	19.5	21.0	--
JULY 31	1000	139	21.5	26.0	--
SEP. 11	1155	164	21.0	22.5	--

04164100 EAST POND CREEK AT ROMEO, MICH.
(LAT 42°49'21" LONG 83°01'13")

WATER YEAR 1974

DATE	TIME	DISCHARGE (CFS)	WATER TEMPERATURE (°C)	AIR TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (UMHOS AT 25°C)
OCT. 25, 1973	1700	6.1	13.5	21.5	--
DEC. 04	1430	20	--	7.5	--
JAN. 09, 1974	1720	14	.0	-2.0	--
FEB. 05	1545	35	.0	-8.5	--
MAR. 05	1830	157	5.0	10.0	--
APR. 18	1340	33	11.0	5.5	--
MAY 23	1435	50	21.0	24.0	--
JUNE 25	1445	16	18.5	20.5	--
JULY 29	1530	8.0	26.0	31.5	--
SEP. 12	1815	9.2	21.5	25.5	--

04164500 NORTH BRANCH CLINTON RIVER NEAR MOUNT CLEMENS, MICH.
(LAT 42°37'45" LONG 82°53'25")

WATER YEAR 1974

DATE	TIME	DISCHARGE (CFS)	WATER TEMPERATURE (°C)	AIR TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (UMHOS AT 25°C)
NOV. 28, 1973	1020	130	8.0	7.5	--
JAN. 08, 1974	1715	72	.0	-17.5	--
FEB. 06	1640	121	.0	-8.5	--
APR. 18	1055	153	11.5	12.0	--
MAY 22	1415	235	20.0	24.0	--
JUNE 27	1250	32	20.0	22.5	--
JULY 30	1530	10	23.5	31.0	--
SEP. 11	0925	12	20.0	20.0	--

04164800 MIDDLE BRANCH CLINTON RIVER AT MACOMB, MICH.
(LAT 42°42'23" LONG 82°57'33")

WATER YEAR 1974

DATE	TIME	DISCHARGE (CFS)	WATER TEMPERATURE (°C)	AIR TEMPERATURE (°C)	SPECIFIC CONDUCTANCE (UMHOS AT 25°C)
OCT. 25, 1973	1345	4.8	13.0	24.0	--
DEC. 04	1045	26	--	7.5	--
JAN. 09, 1974	1120	16	.0	-6.5	--
FEB. 06	1420	24	.0	-9.5	--
MAR. 14	1450	50	3.5	4.5	--
APR. 17	1630	34	13.5	17.5	--
MAY 23	1040	46	17.0	21.5	--
JUNE 26	0950	6.7	--	20.5	--
JULY 30	1400	2.8	22.5	26.5	--
SEP. 13	1050	5.3	20.5	22.0	--

PERIODIC MEASUREMENTS OF WATER TEMPERATURES AND SPECIFIC CONDUCTANCE --Continued

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS AT 25°C)
STREAMS TRIBUTARY TO LAKE ST. CLAIR --Continued					
04165500 CLINTON RIVER AT MOUNT CLEMENS, MICH. (LAT 42°35'45" LONG 82°54'35")					
WATER YEAR 1974					
OCT. 25, 1973	1055	167	14.0	15.5	--
NOV. 27	1200	636	9.0	10.0	--
JAN. 08, 1974	1530	--	.0	-12.5	--
FEB. 06	1745	--	.0	-9.5	--
APR. 16	1720	1,030	9.5	13.0	--
MAY 22	1200	1,420	19.5	20.0	--
JUNE 26	1710	351	20.5	24.0	--
JULY 30	1800	178	24.0	31.5	--
SEP. 11	1535	205	22.5	28.0	--
STREAMS TRIBUTARY TO DETROIT RIVER					
04166000 RIVER ROUGE AT BIRMINGHAM, MICH. (LAT 42°32'45" LONG 83°13'25")					
WATER YEAR 1974					
OCT. 25, 1973	1515	8.7	14.5	21.5	--
DEC. 13	0845	18	1.0	--	--
JAN. 08, 1974	1000	--	.0	15.0	--
MAR. 13	0915	67	2.0	-4.5	--
APR. 22	1700	71	15.0	20.0	--
MAY 30	0830	34	14.5	15.0	--
JULY 09	1630	7.8	29.5	29.5	--
AUG. 12	1525	5.8	26.5	25.5	--
AUG. 14	1525	13	22.0	24.0	--
SEP. 16	1915	4.7	17.5	17.0	--
04166100 RIVER ROUGE AT SOUTHFIELD, MICH. (LAT 42°26'52" LONG 83°17'52")					
WATER YEAR 1974					
OCT. 25, 1973	1620	18	12.5	21.0	--
DEC. 12	1545	46	2.0	--	--
JAN. 07, 1974	1840	56	.0	-8.5	--
FEB. 04	1600	90	0.5	-6.0	--
MAR. 21	1020	107	3.0	1.0	--
APR. 23	1000	143	11.5	10.0	--
MAY 29	1530	116	16.0	24.5	--
JULY 10	1100	21	25.0	28.5	--
AUG. 13	1100	23	23.0	26.0	--
SEP. 17	1500	12	16.5	23.0	--
04166200 EVANS DITCH AT SOUTHFIELD, MICH. (LAT 42° 27'28' LONG 83°16'03")					
WATER YEAR 1974					
OCT. 26, 1973	1330	1.4	14.0	15.5	--
DEC. 13	1000	7.8	3.0	--	--
JAN. 08, 1974	1050	4.0	.0	-20.5	--
FEB. 05	1130	6.4	0.5	-7.0	--
MAR. 21	0915	7.6	4.5	-1.0	--
APR. 22	1430	49.0	13.0	18.0	--
MAY 29	1730	8.2	18.0	24.0	--
JULY 10	0930	2.7	23.0	30.5	--
AUG. 13	0940	4.9	21.0	22.0	--
SEP. 17	1610	1.6	17.5	22.0	--
04166300 UPPER RIVER ROUGE AT FARMINGTON, MICH. (LAT 42°27'52" LONG 83°22'11")					
WATER YEAR 1974					
OCT. 26, 1973	1455	3.1	13.0	18.5	--
DEC. 12	1430	9.3	2.0	--	--
JAN. 07, 1974	1520	12.0	.0	-9.5	--
FEB. 04	1445	20.0	0.5	--	--
MAR. 21	1145	26.0	2.0	.0	--
APR. 22	1100	23.0	12.0	14.5	--
MAY 29	1415	22.0	15.0	22.0	--
JULY 09	1500	2.4	26.5	33.5	--
AUG. 12	1705	2.0	25.0	25.0	--
SEP. 16	1735	2.7	16.0	21.0	--
04166500 RIVER ROUGE AT DETROIT, MICH. (LAT 42°22'20" LONG 83°15'20")					
WATER YEAR 1974					
OCT. 26, 1973	1210	31	12.5	15.5	--
NOV. 29	1630	605	4.5	2.0	--
JAN. 08, 1974	1430	83	.0	-18.0	--
FEB. 05	1330	93	0.5	-5.0	--
MAR. 20	1610	196	5.0	3.0	--
APR. 23	1215	263	12.0	12.0	--
MAY 29	1215	188	14.0	21.0	--
JULY 10	1300	29	25.0	30.0	--
AUG. 13	1235	22	24.0	28.0	--
SEP. 17	1310	22	15.5	24.0	--

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS AT 25°C)
STREAMS TRIBUTARY TO DETROIT RIVER --Continued					
04167000 MIDDLE RIVER ROUGE NEAR GARDEN CITY, MICH. (LAT 42°20'55" LONG 83°18'45")					
WATER YEAR 1974					
OCT. 26, 1973	1020	20	13.0	15.5	--
NOV. 29	1300	298	5.0	2.0	--
JAN. 08, 1974	1550	48	.0	-17.0	--
FEB. 05	1520	104	0.5	-5.0	--
MAR. 20	1500	152	4.5	2.5	--
APR. 23	1420	126	12.0	14.0	--
MAY 29	1100	94	16.0	21.0	--
JULY 10	1530	26	27.0	32.0	--
AUG. 13	1440	23	24.0	24.0	--
SEP. 17	1110	18	17.0	23.0	--
04168000 LOWER RIVER ROUGE AT INKSTER, MICH. (LAT 42°18'00" LONG 83°18'00")					
WATER YEAR 1974					
OCT. 26, 1973	0910	3.3	12.5	13.0	--
NOV. 29	1230	681	5.0	0.5	--
JAN. 08, 1974	1800	29	.0	-15.0	--
FEB. 05	1630	48	0.5	-7.0	--
MAR. 20	1400	70	5.0	3.0	--
APR. 23	1545	54	12.0	11.0	--
MAY 29	1000	31	15.0	19.0	--
JULY 10	1750	4.0	26.0	25.5	--
AUG. 13	1555	2.8	24.5	25.0	--
SEP. 17	0930	2.3	15.0	17.0	--
STREAMS TRIBUTARY TO LAKE ERIE					
04169500 HURON RIVER AT COMMERCE, MICH. (LAT 42°35'25" LONG 83°29'05")					
WATER YEAR 1974					
OCT. 25, 1973	1400	19	13.0	20.0	--
DEC. 13	1120	50	1.0	--	--
JAN. 07, 1974	1130	55	0.5	-6.5	--
FEB. 04	1300	91	1.0	-6.5	--
APR. 23	1730	109	11.0	5.5	--
MAY 30	0955	106	17.0	18.5	--
JULY 09	1330	28	27.0	32.0	--
AUG. 12	1340	17	23.5	27.0	--
SEP. 16	1545	8.8	17.0	21.0	--
04170000 HURON RIVER AT MILFORD, MICH. (LAT 42°34'44" LONG 83°37'36")					
WATER YEAR 1974					
OCT. 25, 1973	1250	79	13.0	21.0	--
NOV. 30	1610	181	4.5	7.0	--
JAN. 07, 1974	1020	127	1.0	-6.5	--
FEB. 04	1230	213	1.0	-6.0	--
MAR. 12	1130	452	4.5	--	--
APR. 23	1600	246	11.5	5.5	--
MAY 30	1110	219	18.5	23.5	--
JULY 09	1200	86	27.0	32.0	--
AUG. 12	1215	53	24.0	24.0	--
SEP. 16	1350	58	19.0	20.0	--
04170500 HURON RIVER NEAR NEW HUDSON, MICH. (LAT 42°30'45" LONG 83°40'35")					
WATER YEAR 1974					
OCT. 29, 1973	1000	150	12.0	7.0	--
DEC. 13	1350	163	2.0	.0	--
JAN. 07, 1974	1150	158	.0	-10.5	--
FEB. 04	1000	258	4.5	-9.0	--
MAR. 21	1430	332	7.0	-3.0	--
APR. 23	1500	293	12.5	5.0	--
MAY 30	1300	252	18.0	23.0	--
JULY 09	1030	86	23.0	30.0	--
AUG. 12	1040	71	23.0	24.0	--
SEP. 16	1210	72	19.0	21.0	--
04172000 HURON RIVER NEAR HAMBURG, MICH. (LAT 42°27'55" LONG 83°48'00")					
WATER YEAR 1972					
OCT. 29, 1973	1110	215	11.0	7.0	--
DEC. 13	1430	281	--	--	--
JAN. 19, 1971	1700	253	1.0	2.0	--
MAR. 30	1420	518	2.5	6.5	--
MAY 04	1615	327	14.0	13.0	--
JUNE 08	1550	328	22.0	24.0	--
JULY 06	1420	178	25.0	21.0	--
SEP. 07	1155	120	17.5	19.0	--

PERIODIC MEASUREMENTS OF WATER TEMPERATURES AND SPECIFIC CONDUCTANCE --Continued

STREAMS TRIBUTARY TO LAKE ERIE --Continued

04173500 MILL CREEK NEAR DEXTER, MICH.
(LAT 42°18'00" LONG 83°53'55")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (°C)	AIR TEMPERA-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS AT 25°C)
OCT. 29, 1973	1315	58	10.0	8.5	--
NOV. 26	1440	115	7.0	6.5	--
JAN. 19, 1974	1300	95	2.0	.0	--
MAR. 30	1155	314	7.5	7.5	--
MAY 04	1155	103	11.0	9.5	--
JUNE 08	1145	111	18.5	21.5	--
JULY 06	1155	43	19.0	20.5	--
AUG. 03	1150	34	19.0	21.5	--
SEP. 05	1120	24	12.5	15.5	--

04174500 HURON RIVER AT ANN ARBOR
(LAT 42°17'10" LONG 83°44'00")

WATER YEAR 1974

OCT. 26, 1973	1415	74	14.0	15.5	--
NOV. 26	1130	650	6.5	5.0	--
JAN. 11, 1974	1640	691	--	-6.5	--
FEB. 07	1630	867	1.0	-6.0	--
MAR. 20	0850	1,670	4.5	6.0	--
APR. 25	1320	1,080	11.5	24.0	--
MAY 28	1350	1,070	16.5	15.0	--
JULY 12	1240	281	26.5	25.5	--
AUG. 15	1100	132	23.0	23.5	--

04175340 STONY CREEK AT OAKVILLE, MICH.
(LAT 42°05'05" LONG 83°34'43")

WATER YEAR 1974

OCT. 26, 1973	1040	11	11.0	10.0	--
DEC. 12	1530	28	0.5	--	--
JAN. 10, 1974	1900	32	.0	-5.5	--
JAN. 22	1010	573	.0	1.0	--
FEB. 06	1000	44	0.5	-8.0	--
MAR. 19	1030	89	4.5	1.0	--
APR. 24	1410	50	8.0	12.0	--
MAY 28	1600	29	13.0	14.0	--
JULY 11	1300	16	21.5	26.5	--
AUG. 14	1230	8.7	20.5	25.0	--
SEP. 18	1245	8.9	17.5	20.0	--

04175600 RIVER RAISIN NEAR MANCHESTER, MICH.
(LAT 42°10'05" LONG 84°04'34")

WATER YEAR 1974

OCT. 25, 1973	1000	24	11.0	13.5	--
NOV. 27	1110	76	7.0	8.5	--
JAN. 10, 1974	1240	109	.0	-6.5	--
FEB. 07	1250	174	0.5	-7.0	--
MAR. 19	1555	323	6.0	4.0	--
MAY 02	1450	149	16.0	17.0	--
JUNE 13	1350	115	19.5	24.0	--
JULY 17	1015	46	23.0	29.0	--
AUG. 29	1030	22	18.5	18.0	--
SEP. 23	1206	52	14.5	17.0	--

04175700 RIVER RAISIN NEAR TECUMSEH, MICH.
(LAT 41°56'35" LONG 83°56'45")

WATER YEAR 1974

OCT. 25, 1973	1400	78	12.5	21.5	--
DEC. 11	1340	179	1.0	--	--
JAN. 09, 1974	1640	208	.0	-3.0	--
FEB. 06	1640	308	0.5	-7.0	--
MAR. 18	1715	559	5.0	5.0	--
MAY 02	1130	280	16.0	16.0	--
JULY 16	1550	110	24.0	27.0	--
AUG. 28	1710	52	20.5	21.0	--
SEP. 23	1426	63	14.5	19.5	--

04176000 RIVER RAISIN NEAR ADRIAN, MICH.
(LAT 41°54'15" LONG 83°58'50")

WATER YEAR 1974

OCT. 25, 1973	1230	108	12.0	15.5	--
NOV. 28	0910	324	8.5	8.0	--
FEB. 06, 1974	1810	545	0.5	-7.0	--
MAR. 18	1510	991	4.5	4.5	--
MAY 01	1620	445	17.5	19.5	--
JUNE 19	1200	447	18.0	25.0	--
JULY 16	1320	142	23.0	27.0	--
AUG. 28	1500	74	21.5	22.0	--
SEP. 23	1611	92	14.5	16.5	--

STREAMS TRIBUTARY TO LAKE ERIE --Continued

04176400 SALINE RIVER NEAR SALINE, MICH.
(LAT 42°07'50" LONG 83°46'35")

WATER YEAR 1974

DATE	TIME	DIS-CHARGE (CFS)	WATER TEMPERA-TURE (C°)	AIR TEMPER-TURE (°C)	SPECIFIC CONDUC-TANCE (UMHOS AT 25°C)
OCT. 26, 1973	1245	20	12.0	13.0	--
NOV. 28	1535	328	8.0	3.0	--
JAN. 10, 1974	1650	56	.0	-4.5	--
FEB. 07	1000	81	.0	-8.0	--
MAR. 19	1300	132	6.0	4.5	--
APR. 25	0915	70	8.5	7.0	--
MAY 28	1440	49	13.0	15.0	--
JULY 11	1500	31	21.0	28.0	--
AUG. 14	1520	18	21.5	23.0	--
SEP. 18	1510	16	17.5	21.0	--

04176500 RIVER RAISIN NEAR MONROE, MICH.
(LAT 41°57'40" LONG 83°31'55")

WATER YEAR 1974

OCT. 25, 1973	1625	169	14.0	21.5	--
DEC. 12	0945	387	1.0	-1.0	--
JAN. 09, 1974	1245	615	.0	-6.5	--
FEB. 06	1230	1,110	0.5	-8.0	--
MAR. 19	0910	1,710	5.0	2.0	--
APR. 24	1040	892	12.0	8.0	--
MAY 29	1130	628	18.0	21.0	--
JULY 11	1000	253	24.5	19.5	--
AUG. 14	1030	183	24.0	23.0	--
SEP. 18	1005	127	17.0	15.5	--

ANALYSES OF SAMPLES COLLECTED AT WATER-QUALITY MISCELLANEOUS SITES

CHEMICAL ANALYSES WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

(NOTE-- "E" DENOTES ESTIMATED DISCHARGES OR CONCENTRATIONS BASED ON FIELD ANALYSES.)

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)	DISSOLVED POTASSIUM (K) (MG/L)	BICARBONATE (HCO3) (MG/L)	ALKALINITY AS CACO3 (MG/L)	DISSOLVED SULFATE (SO4) (MG/L)
		04096227 - ST. JOSEPH RIVER BELOW STP AT HILLSDALE, MICH. . (LAT 41 56 04 LONG 084 38 26.01)										
JUNE, 1974												
04...	1530	E21	4.1	10	67	67	20	34	3.0	247	203	37
		04096278 - ST. JOSEPH R BELOW STP AT JONESVILLE, MICH. . (LAT 41 59 37 LONG 084 40 20.01)										
JUNE, 1974												
05...	1200	--	2.8	20	33	71	22	17	1.6	271	222	29
		04102587 - HAVEN-MAX LK DR AT 45 ST NR BLOOMINGDALE, MICH.. (LAT 42 22 25 LONG 085 59 11.01)										
MAR., 1974												
15...	1535	--	--	--	--	--	--	--	--	166	136	19
		04102589 - HAVEN-MAX LK DR AT 46.5 ST NR BLOOMINGDALE, MICH (LAT 42 22 08 LONG 086 00 01.01)										
MAR., 1974												
15...	1630	--	--	--	--	--	--	--	--	173	142	18
		04106412 - W FK PORTAGE C DIV CA AT STA 9 AT KALAMAZOO, MI. (LAT 42 14 28 LONG 085 35 34.01)										
AUG., 1974												
13...	1130	--	6.8	--	--	39	22	9.3	.8	192	158	21
		04106505 - AXTELL CREEK AT PARK ST AT KALAMAZOO, MICH. . (LAT 42 16 38 LONG 085 35 14.01)										
OCT., 1973												
05...	1130	--	--	--	--	--	--	--	--	402	330	E65
25...	1155	--	--	--	--	--	--	--	--	400	328	E63
		04106506 - AXTELL CREEK RECHARGE POND AT KALAMAZOO, MICH. . (LAT 42 16 45 LONG 085 35 03.01)										
OCT., 1973												
05...	1110	--	--	50	87	--	--	--	--	198	162	33
25...	1135	--	--	--	--	--	--	--	--	354	290	E70
		04126520 - MANISTEE RIVER AT MANISTEE, MICH. . (LAT 44 14 54 LONG 086 19 25.01)										
OCT., 1973												
23...	1200	--	--	--	--	--	--	--	--	178	146	E12
		04132052 - CHEBOYGAN R AT LINCOLN AVE AT CHEBOYGAN, MICH. (LAT 45 38 44 LONG 084 28 21.01)										
OCT., 1973												
23...	1730	--	--	--	--	--	--	--	--	183	150	E10
		04165500 - CLINTON RIVER AT MOUNT CLEMENS, MICH. . (LAT 42 35 45 LONG 082 54 35.01)										
OCT., 1973												
24...	1300	--	--	--	--	--	--	--	--	252	207	E65

CHEMICAL ANALYSES WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

(NOTE-- "E" DENOTES ESTIMATED DISCHARGES OR CONCENTRATIONS BASED ON FIELD ANALYSES.)

DATE	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	TOTAL NITRITE PLUS NITRATE (N) (MG/L)	TOTAL ORTHO PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)
04096227 - ST. JOSEPH RIVER BELOW STP AT HILLSDALE, MICH. . (LAT 41 56 04 LONG 084 38 26.01)											
JUNE, 1974											
04...	60	.5	.39	.63	363	250	610	7.7	23.5	10	8
04096278 - ST. JOSEPH R BELOW STP AT JONESVILLE, MICH. . (LAT 41 59 37 LONG 084 40 20.01)											
JUNE, 1974											
05...	33	.3	.45	.13	375	270	560	7.8	21.0	20	2
04102587 - HAVEN-MAX LK DR AT 45 ST NR BLOOMINGDALE, MICH.. (LAT 42 22 25 LONG 085 59 11.01)											
MAR., 1974											
15...	25	--	.45	.02	--	--	377	7.9	5.0	--	--
04102589 - HAVEN-MAX LK DR AT 46.5 ST NR BLOOMINGDALE, MICH (LAT 42 22 08 LONG 086 00 01.01)											
MAR., 1974											
15...	22	--	.67	.02	--	--	380	7.9	4.5	--	--
04106412 - W FK PORTAGE C DIV CA AT STA 9 AT KALAMAZOO, MI. (LAT 42 14 28 LONG 085 35 34.01)											
AUG., 1974											
13...	18	.1	--	--	--	190	389	7.6	--	--	--
04106505 - AXTELL CREEK AT PARK ST AT KALAMAZOO, MICH. . (LAT 42 16 38 LONG 085 35 14.01)											
OCT., 1973											
05...	45	--	E1.2	--	--	410	845	7.4	13.5	10	9
25...	42	--	E.70	--	--	406	810	7.6	14.0	0	26
04106506 - AXTELL CREEK RECHARGE POND AT KALAMAZOO, MICH. . (LAT 42 16 45 LONG 085 35 03.01)											
OCT., 1973											
05...	20	--	--	--	248	210	424	7.4	18.0	--	7
25...	42	--	E.29	--	--	364	730	7.8	18.5	--	5
04126520 - MANISTEE RIVER AT MANISTEE, MICH. . (LAT 44 14 54 LONG 086 19 25.01)											
OCT., 1973											
23...	58	--	E.16	--	--	200	500	7.9	14.0	0	4
04132052 - CHEBOYGAN R AT LINCOLN AVE AT CHEBOYGAN, MICH. (LAT 45 38 44 LONG 084 28 21.01)											
OCT., 1973											
23...	5.0	--	E.02	--	--	--	320	8.2	12.0	0	2
04165500 - CLINTON RIVER AT MOUNT CLEMENS, MICH. . (LAT 42 35 45 LONG 082 54 35.01)											
OCT., 1973											
24...	89	--	E6.3	--	--	--	810	7.6	13.5	10	16

ANALYSES FOR SELECTED NUTRIENTS, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	INSTANTANEOUS DISCHARGE (CFS)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	ALKALINITY AS CACO3 (MG/L)	TOTAL NITRATE (N) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	DISSOLVED ORGANIC NITROGEN (N) (MG/L)
04096205 - BAW BEESE LAKE INLET AT M-99 NR HILLSDALE, MICH. (LAT 41 53 17 LONG 084 35 38.01)												
JUNE, 1974 04...	--	23.5	350	--	.00	--	.01	--	.04	--	.70	--
04096209 - BAW BEESE LK OUT AT GRSWLD RD AT HILLSDALE, MICH (LAT 41 54 23 LONG 084 37 21.01)												
JUNE, 1974 04...	12	22.5	360	--	.01	--	.01	--	.06	--	.61	--
04096210 - KING LK INLET AT CAMBRIA RD AT HILLSDALE, MICH.. (LAT 41 53 48 LONG 084 39 04.01)												
JUNE, 1974 04...	.23	21.0	510	--	.36	--	.03	--	.06	--	.69	--
04096212 - KING LAKE OUTLET AT M-99 AT HILLSDALE, MICH. . (LAT 41 54 01 LONG 084 37 55.01)												
JUNE, 1974 04...	--	21.0	480	--	.66	--	.02	--	.05	--	1.3	--
AUG. 08...	.42	18.0	480	--	3.0	--	.01	--	.00	--	.90	--
04096217 - ST. JOSEPH RIVER AT SOUTH ST AT HILLSDALE, MICH. (LAT 41 54 58 LONG 084 37 32.01)												
JUNE, 1974 04...	16	23.5	412	--	.10	--	.02	--	.10	--	.39	--
04096227 - ST. JOSEPH RIVER BELOW STP AT HILLSDALE, MICH. . (LAT 41 56 04 LONG 084 38 26.01)												
JUNE, 1974 04...	E21	23.5	610	203	.36	.38	.03	.04	1.3	1.4	.50	.90
04096235 - WINONA LK OUT AT HILLSDALE ST AT HILLSDALE, MICH (LAT 41 56 31 LONG 084 37 54.01)												
JUNE, 1974 05...	4.5	20.0	366	--	.06	--	.01	--	.02	--	.48	--
04096240 - BEEBE CREEK AT MAUCK RD NEAR NORTH ADAMS, MICH.. (LAT 41 56 31 LONG 084 31 16.01)												
JUNE, 1974 04...	2.4	16.5	520	--	.37	--	.01	--	.01	--	1.7	--
04096245 - BEEBE CREEK AT KNOWLES RD NR NORTH ADAMS, MICH.. (LAT 41 56 38 LONG 084 31 32.01)												
JUNE, 1974 04...	5.1	17.0	530	--	.91	--	.03	--	.05	--	1.4	--
04096249 - LAKE ADAMS OUT AB STATE RD NR NORTH ADAMS, MICH. (LAT 41 56 25 LONG 084 33 01.01)												
JUNE, 1974 04...	E2.0	22.0	420	--	.33	--	.01	--	.01	--	.93	--
04096257 - BEEBE CREEK AT MILNES RD NEAR HILLSDALE, MICH. . (LAT 41 57 44 LONG 084 35 35.01)												
JUNE, 1974 04...	E2.5	23.5	550	--	.32	--	.03	--	.06	--	.00	--
04096263 - BEEBE C TRIB AT MILNES RD NEAR HILLSDALE, MICH.. (LAT 41 58 08 LONG 084 35 35.01)												
JUNE, 1974 04...	3.1	21.5	610	--	.23	--	.01	--	.05	--	1.1	--
04096264 - TRIB TO BEEBE C TRIB AT MILNES RD NR HILLSDALE.. (LAT 41 58 02 LONG 084 35 35.01)												
JUNE, 1974 04...	.86	21.0	590	--	.20	--	.01	--	.05	--	.72	--
04096278 - ST. JOSEPH R BELOW STP AT JONESVILLE, MICH. . (LAT 41 59 37 LONG 084 40 20.01)												
JUNE, 1974 05...	--	21.0	560	222	.43	.43	.02	.02	.17	.15	.73	.50

ANALYSES FOR SELECTED NUTRIENTS, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974--Continued

DATE	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	DIS-SOLVED KJEL. NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED PHOS-PHORUS (P) (MG/L)	TOTAL ORTHO PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	TOTAL HYDRO-LYZABLE PHOS-PHORUS (P) (MG/L)	DIS. HYDRO-LYZABLE PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORGANIC PHOS-PHORUS (P) (MG/L)
04096205 - BAW BEESE LAKE INLET AT M-99 NR HILLSDALE, MICH. (LAT 41 53 17 LONG 084 35 38.01)											
JUNE, 1974 04...	.74	--	.75	.00	--	.00	--	.01	--	.00	--
04096209 - BAW BEESE LK OUT AT GRSWLD RD AT HILLSDALE, MICH (LAT 41 54 23 LONG 084 37 21.01)											
JUNE, 1974 04...	.67	--	.69	.00	--	.00	--	.01	--	.00	--
04096210 - KING LK INLET AT CAMBRIA RD AT HILLSDALE, MICH.. (LAT 41 53 48 LONG 084 39 04.01)											
JUNE, 1974 04...	.75	--	1.1	.02	--	.01	--	.03	--	.00	--
04096212 - KING LAKE OUTLET AT M-99 AT HILLSDALE, MICH. . (LAT 41 54 01 LONG 084 37 55.01)											
JUNE, 1974 04...	1.3	--	2.0	.05	--	.02	--	.06	--	.00	--
AUG. 08...	.90	--	3.9	.02	--	.01	--	.01	--	.00	--
04096217 - ST. JOSEPH RIVER AT SOUTH ST AT HILLSDALE, MICH. (LAT 41 54 58 LONG 084 37 32.01)											
JUNE, 1974 04...	.49	--	.61	.01	--	.01	--	.02	--	.00	--
04096227 - ST. JOSEPH RIVER BELOW STP AT HILLSDALE, MICH. . (LAT 41 56 04 LONG 084 38 26.01)											
JUNE, 1974 04...	1.8	2.3	2.2	.72	.68	.63	.65	.71	.65	.00	.00
04096235 - WINONA LK OUT AT HILLSDALE ST AT HILLSDALE, MICH (LAT 41 56 31 LONG 084 37 54.01)											
JUNE, 1974 05...	.50	--	.57	.00	--	.01	--	.00	--	.00	--
04096240 - BEEBE CREEK AT MAUCK RD NEAR NORTH ADAMS, MICH.. (LAT 41 56 31 LONG 084 31 16.01)											
JUNE, 1974 04...	1.7	--	2.1	.01	--	.01	--	.02	--	.00	--
04096245 - BEEBE CREEK AT KNOWLES RD NR NORTH ADAMS, MICH.. (LAT 41 56 38 LONG 084 31 32.01)											
JUNE, 1974 04...	1.4	--	2.3	.05	--	.03	--	.04	--	.00	--
04096249 - LAKE ADAMS OUT AB STATE RD NR NORTH ADAMS, MICH. (LAT 41 56 25 LONG 084 33 01.01)											
JUNE, 1974 04...	.94	--	1.3	.01	--	.00	--	.01	--	.00	--
04096257 - BEEBE CREEK AT MILNES RD NEAR HILLSDALE, MICH. . (LAT 41 57 44 LONG 084 35 35.01)											
JUNE, 1974 04...	.06	--	.41	.01	--	.01	--	.01	--	.00	--
04096263 - BEEBE C TRIB AT MILNES RD NEAR HILLSDALE, MICH.. (LAT 41 58 08 LONG 084 35 35.01)											
JUNE, 1974 04...	1.1	--	1.3	.05	--	.02	--	.03	--	.00	--
04096264 - TRIB TO BEEBE C TRIB AT MILNES RD NR HILLSDALE.. (LAT 41 58 02 LONG 084 35 35.01)											
JUNE, 1974 04...	.77	--	.98	.06	--	.01	--	.05	--	.00	--
04096278 - ST. JOSEPH R BELOW STP AT JONESVILLE, MICH. . (LAT 41 59 37 LONG 084 40 20.01)											
JUNE, 1974 05...	.90	.65	1.4	.14	.10	.13	.10	.12	.10	.00	.00

ANALYSES FOR SELECTED NUTRIENTS, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974--Continued

DATE	INSTANTANEOUS DISCHARGE (CFS)	TEMPERATURE (DEG C)	SPECIFIC CONDUCTANCE (MICROMHOS)	ALKALINITY AS CACO3 (MG/L)	TOTAL NITRATE (N) (MG/L)	DISSOLVED NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	DISSOLVED NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	DISSOLVED AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	DISSOLVED ORGANIC NITROGEN (N) (MG/L)
04096282 - ST. JOSEPH R AT STERLING RD NR LITCHFIELD, MICH. (LAT 42 00 54 LONG 084 43 16.01)												
JUNE, 1974												
05...	--	21.0	536	--	1.2	--	.04	--	.03	--	1.1	--
04096285 - ST. JOSEPH RIVER AT MILL POND AT LITCHFIELD, MI. (LAT 42 01 58 LONG 084 44 13.01)												
JUNE, 1974												
05...	--	21.0	531	--	1.3	--	.04	--	.02	--	1.2	--
04096293 - S SAND LK OUTLET AT BACON RD NR HILLSDALE, MICH. (LAT 42 55 52 LONG 084 41 56.01)												
JUNE, 1974												
05...	E5.0	22.5	410	--	.13	--	.00	--	.10	--	.24	--
04096298 - SAND C TRIB BELOW MECHANIC RD NR HILLSDALE, MICH (LAT 41 55 58 LONG 084 41 42.01)												
JUNE, 1974												
05...	1.9	17.5	490	--	.45	--	.01	--	.04	--	.57	--
04096299 - M SAND LAKE OUT AT MECHANIC RD NR HILLSDALE, MI. (LAT 42 56 34 LONG 084 42 06.01)												
JUNE, 1974												
05...	E10	22.0	420	--	.24	--	.01	--	.07	--	.35	--
04096304 - SAND CREEK AT US-12 NEAR ALLEN, MICH. . (LAT 41 57 47 LONG 084 44 20.01)												
JUNE, 1974												
05...	--	18.5	460	--	.99	--	.01	--	.02	--	.42	--
04096307 - SAND C TRIBUTARY AT BEULOW RD NEAR ALLEN, MICH.. (LAT 41 58 51 LONG 084 44 20.01)												
JUNE, 1974												
05...	E1.0	19.5	380	--	3.7	--	.04	--	.01	--	.34	--
04096308 - SAND CREEK AT JONESVILLE RD NR ALLEN, MICH. . (LAT 41 59 08 LONG 084 45 04.01)												
JUNE, 1974												
05...	E20	18.5	450	--	1.2	--	.01	--	.03	--	.34	--
04096317 - ST. JOSEPH R AT S CO LINE RD NR LITCHFIELD, MICH (LAT 42 04 21 LONG 084 49 50.01)												
JUNE, 1974												
05...	--	20.5	530	--	1.2	--	.03	--	.04	--	.72	--
05...	E120	22.0	530	--	1.2	--	.04	--	.01	--	.83	--
04096332 - ST. JOSEPH R AT T DRIVE SOUTH NEAR HOMER, MICH.. (LAT 42 06 04 LONG 084 50 38.01)												
JUNE, 1974												
05...	--	21.5	534	--	1.2	--	.04	--	.03	--	.78	--
04102587 - HAVEN-MAX LK DR AT 45 ST NR BLOOMINGDALE, MICH.. (LAT 42 22 25 LONG 085 59 11.01)												
MAR., 1974												
15...	--	5.0	377	136	.45	--	.00	--	.63	--	.00	--
04102589 - HAVEN-MAX LK DR AT 46.5 ST NR BLOOMINGDALE, MICH (LAT 42 22 08 LONG 086 00 01.01)												
MAR., 1974												
15...	--	4.5	380	142	.67	--	.00	--	.53	--	.00	--

ANALYSES FOR SELECTED NUTRIENTS, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974--Continued

DATE	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	DIS-SOLVED KJEL. NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	DIS-SOL-VED PHOS-PHORUS (P) (MG/L)	TOTAL ORTHO PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	TOTAL HYDRO-LYZABLE PHOS-PHORUS (P) (MG/L)	DIS. HYDRO-LYZABLE PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC PHOS-PHORUS (P) (MG/L)	DIS-SOLVED ORGANIC PHOS-PHORUS (P) (MG/L)
04096282 - ST. JOSEPH R AT STERLING RD NR LITCHFIELD, MICH. (LAT 42 00 54 LONG 084 43 16.01)											
JUNE, 1974 05...	1.1	--	2.3	.16	--	.11	--	.15	--	.00	--
04096285 - ST. JOSEPH RIVER AT MILL POND AT LITCHFIELD, MI. (LAT 42 01 58 LONG 084 44 13.01)											
JUNE, 1974 05...	1.2	--	2.5	.20	--	.11	--	.18	--	.00	--
04096293 - S SAND LK OUTLET AT BACON RD NR HILLSDALE, MICH. (LAT 42 55 52 LONG 084 41 56.01)											
JUNE, 1974 05...	.34	--	.47	.00	--	.01	--	.00	--	.00	--
04096298 - SAND C TRIB BELOW MECHANIC RD NR HILLSDALE, MICH (LAT 41 55 58 LONG 084 41 42.01)											
JUNE, 1974 05...	.61	--	1.1	.00	--	.01	--	.00	--	.00	--
04096299 - M SAND LAKE OUT AT MECHANIC RD NR HILLSDALE, MI. (LAT 42 56 34 LONG 084 42 06.01)											
JUNE, 1974 05...	.42	--	.67	.00	--	.01	--	.00	--	.00	--
04096304 - SAND CREEK AT US-12 NEAR ALLEN, MICH. . (LAT 41 57 47 LONG 084 44 20.01)											
JUNE, 1974 05...	.44	--	1.4	.00	--	.01	--	.00	--	.00	--
04096307 - SAND C TRIBUTARY AT BEULOW RD NEAR ALLEN, MICH.. (LAT 41 58 51 LONG 084 44 20.01)											
JUNE, 1974 05...	.35	--	4.1	.00	--	.00	--	.01	--	.00	--
04096308 - SAND CREEK AT JONESVILLE RD NR ALLEN, MICH. . (LAT 41 59 08 LONG 084 45 04.01)											
JUNE, 1974 05...	.37	--	1.6	.01	--	.01	--	.01	--	.00	--
04096317 - ST. JOSEPH R AT S CO LINE RD NR LITCHFIELD, MICH (LAT 42 04 21 LONG 084 49 50.01)											
JUNE, 1974 05...	.76	--	2.0	.08	--	.07	--	.10	--	.00	--
05...	.84	--	2.0	.08	--	.06	--	.11	--	.00	--
04096332 - ST. JOSEPH R AT T DRIVE SOUTH NEAR HOMER, MICH.. (LAT 42 06 04 LONG 084 50 38.01)											
JUNE, 1974 05...	.81	--	2.0	.09	--	.06	--	.11	--	.00	--
04102587 - HAVEN-MAX LK DR AT 45 ST NR BLOOMINGDALE, MICH.. (LAT 42 22 25 LONG 085 59 11.01)											
MAR., 1974 15...	.47	--	.92	.05	--	.02	--	.02	--	.01	--
04102589 - HAVEN-MAX LK DR AT 46.5 ST NR BLOOMINGDALE, MICH (LAT 42 22 08 LONG 086 00 01.01)											
MAR., 1974 15...	.44	--	1.1	.07	--	.02	--	.03	--	.02	--

PESTICIDE ANALYSES, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	DISSOLVED ORGANIC CARBON (C) (MG/L)	ALDRIN (UG/L)	CHLORDANE (UG/L)	DDD (UG/L)	DDE (UG/L)	DDT (UG/L)	DIAZINON (UG/L)	DIELDRIN (UG/L)	ENDRIN (UG/L)	ETHION (UG/L)	HEPTACHLOR (UG/L)
04096227 - ST. JOSEPH RIVER BELOW STP AT HILLSDALE, MICH. (LAT 41 56 04 LONG 084 38 26.01)											
JUNE, 1974 04...	9.5	.00	.0	.00	.00	.00	.00	.00	.00	.00	.00
04096278 - ST. JOSEPH R BELOW STP AT JONESVILLE, MICH. (LAT 41 59 37 LONG 084 40 20.01)											
JUNE, 1974 05...	7.9	--	--	--	--	--	--	--	--	--	--

DATE	HEPTACHLOR EPOXIDE (UG/L)	LINDANE (UG/L)	METHYL PARATHION (UG/L)	METHYL TRITHION (UG/L)	PARATHION (UG/L)	PCB (UG/L)	TOXAPHENE (UG/L)	TRITHION (UG/L)	2,4,5-T (UG/L)	SILVEX (UG/L)
04096227 - ST. JOSEPH RIVER BELOW STP AT HILLSDALE, MICH. (LAT 41 56 04 LONG 084 38 26.01)										
JUNE, 1974 04...	.00	.00	.00	.00	.00	.0	0	.00	.00	.05
04096278 - ST. JOSEPH R BELOW STP AT JONESVILLE, MICH. (LAT 41 59 37 LONG 084 40 20.01)										
JUNE, 1974 05...	--	--	--	--	--	--	--	--	--	--

MINOR--ELEMENT ANALYSES, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TOTAL ARSENIC (AS) (UG/L)	DISSOLVED ARSENIC (AS) (UG/L)	TOTAL CADMIUM (CD) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)	TOTAL CHROMIUM (CR) (UG/L)	DISSOLVED CHROMIUM (CR) (UG/L)	TOTAL COBALT (CO) (UG/L)	DISSOLVED COBALT (CO) (UG/L)	TOTAL COPPER (CU) (UG/L)	DISSOLVED COPPER (CU) (UG/L)	DISSOLVED IRON (FE) (UG/L)	TOTAL LEAD (PB) (UG/L)
04096227 - ST. JOSEPH RIVER BELOW STP AT HILLSDALE, MICH. (LAT 41 56 04 LONG 084 38 26.01)												
JUNE, 1974 04...	3	3	2	2	2	1	2	2	--	9	10	3
04096278 - ST. JOSEPH R BELOW STP AT JONESVILLE, MICH. (LAT 41 59 37 LONG 084 40 20.01)												
JUNE, 1974 05...	0	0	4	4	0	0	4	4	1	1	20	2

DATE	DISSOLVED LEAD (PB) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	TOTAL MERCURY (HG) (UG/L)	DISSOLVED MERCURY (HG) (UG/L)	TOTAL NICKEL (NI) (UG/L)	DISSOLVED NICKEL (NI) (UG/L)	TOTAL SELENIUM (SE) (UG/L)	DISSOLVED SELENIUM (SE) (UG/L)	TOTAL SILVER (AG) (UG/L)	DISSOLVED SILVER (AG) (UG/L)	TOTAL ZINC (ZN) (UG/L)	DISSOLVED ZINC (ZN) (UG/L)
04096227 - ST. JOSEPH RIVER BELOW STP AT HILLSDALE, MICH. (LAT 41 56 04 LONG 084 38 26.01)												
JUNE, 1974 04...	2	67	.0	.0	--	7	--	5	3	3	40	10
04096278 - ST. JOSEPH R BELOW STP AT JONESVILLE, MICH. (LAT 41 59 37 LONG 084 40 20.01)												
JUNE, 1974 05...	1	33	.0	.0	--	8	5	5	1	0	50	20

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TEMPERATURE (DEG C)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
04096205 - BAW BEESE LAKE INLET AT M-99 NR HILLSDALE, MICH. (LAT 41 53 17 LONG 084 35 38.01)					
JUNE, 1974					
04...	1020	--	23.5	1	--
04096209 - BAW BEESE LK OUT AT GRSWLD RD AT HILLSDALE, MICH (LAT 41 54 23 LONG 084 37 21.01)					
JUNE, 1974					
04...	1150	12	22.5	2	.06
04096210 - KING LK INLET AT CAMBRIA RD AT HILLSDALE, MICH.. (LAT 41 53 48 LONG 084 39 04.01)					
OCT., 1973					
26...	0810	E.10	10.5	10	--
JUNE, 1974					
04...	1405	.24	24.0	14	.01
04096212 - KING LAKE OUTLET AT M-99 AT HILLSDALE, MICH. . (LAT 41 54 01 LONG 084 37 55.01)					
OCT., 1973					
26...	--	E1.0	10.5	41	--
JUNE, 1974					
04...	1445	3.1	23.0	20	.17
AUG.					
08...	1055	.42	18.0	24	.03
04096217 - ST. JOSEPH RIVER AT SOUTH ST AT HILLSDALE, MICH. (LAT 41 54 58 LONG 084 37 32.01)					
OCT., 1973					
26...	--	E1.0	12.5	1	--
JUNE, 1974					
04...	1250	16	23.5	5	.22
SEP.					
12...	1135	--	21.0	27	--
04096227 - ST. JOSEPH RIVER BELOW STP AT HILLSDALE, MICH. . (LAT 41 56 04 LONG 084 38 26.01)					
JUNE, 1974					
05...	0830	22	20.5	10	.59
04096235 - WINONA LK OUT AT HILLSDALE ST AT HILLSDALE, MICH (LAT 41 56 31 LONG 084 37 54.01)					
OCT., 1973					
26...	--	E2.0	16.5	16	--
JUNE, 1974					
05...	0900	4.5	20.0	1	.01
04096240 - BEEBE CREEK AT MAUCK RD NEAR NORTH ADAMS, MICH.. (LAT 41 56 31 LONG 084 31 16.01)					
JUNE, 1974					
04...	1100	2.4	16.5	7	.05
04096245 - BEEBE CREEK AT KNOWLES RD NR NORTH ADAMS, MICH.. (LAT 41 56 38 LONG 084 31 32.01)					
JUNE, 1974					
04...	1150	5.1	17.0	19	.26
04096257 - BEEBE CREEK AT MILNES RD NEAR HILLSDALE, MICH. . (LAT 41 57 44 LONG 084 35 35.01)					
OCT., 1973					
26...	1400	E3.0	13.0	1	--
JUNE, 1974					
05...	1100	2.5	20.5	13	.09
04096260 - BEEBE C TRIB AT BARKER RD NR NORTH ADAMS, MICH.. (LAT 41 59 02 LONG 084 33 53.01)					
OCT., 1973					
26...	--	E1.0	13.5	28	--
04096263 - BEEBE C TRIB AT MILNES RD NEAR HILLSDALE, MICH.. (LAT 41 58 08 LONG 084 35 35.01)					
OCT., 1973					
26...	--	E1.0	12.0	5	--
JUNE, 1974					
04...	1510	3.1	21.5	38	.32
04096264 - TRIB TO BEEBE C TRIB AT MILNES RD NR HILLSDALE.. (LAT 41 58 02 LONG 084 35 35.01)					
OCT., 1973					
26...	--	E1.0	13.0	39	--
JUNE, 1974					
04...	1530	E.85	21.0	42	.10

SUSPENDED-SEDIMENT DISCHARGE MEASUREMENTS, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974--Continued

DATE	TIME	INSTANTANEOUS DISCHARGE (CFS)	TEMPERATURE (DEG C)	SUSPENDED SEDIMENT (MG/L)	SUSPENDED SEDIMENT DISCHARGE (T/DAY)
04096265 - HALF MOON LK OUT AT N ADAMS RD NR JONESVILLE, MI (LAT 41 58 38 LONG 084 36 40.01)					
OCT., 1973					
26...	--	E1.0	14.5	3	--
JUNE, 1974					
04...	1330	E.01	24.0	14	.00
04096278 - ST. JOSEPH R BELOW STP AT JONESVILLE, MICH. . (LAT 41 59 37 LONG 084 40 20.01)					
JUNE, 1974					
04...	1245	62	21.5	9	1.5
04096282 - ST. JOSEPH R AT STERLING RD NR LITCHFIELD, MICH. (LAT 42 00 54 LONG 084 43 16.01)					
JUNE, 1974					
04...	1410	73	19.5	16	3.2
04096285 - ST. JOSEPH RIVER AT MILL POND AT LITCHFIELD, MI. (LAT 42 01 58 LONG 084 44 13.01)					
JUNE, 1974					
05...	1115	61	20.5	70	12
SEP.					
12...	1245	--	23.0	0	--
04096293 - S SAND LK OUTLET AT BACON RD NR HILLSDALE, MICH. (LAT 42 55 52 LONG 084 41 56.01)					
OCT., 1973					
25...	--	E1.0	15.5	2	--
JUNE, 1974					
05...	1045	5.0	23.0	6	.08
04096298 - SAND C TRIB BELOW MECHANIC RD NR HILLSDALE, MICH (LAT 41 55 58 LONG 084 41 42.01)					
JUNE, 1974					
05...	0850	1.9	17.0	25	.13
04096299 - M SAND LAKE OUT AT MECHANIC RD NR HILLSDALE, MI. (LAT 42 56 34 LONG 084 42 06.01)					
OCT., 1973					
25...	--	E3.0	16.0	3	--
JUNE, 1974					
05...	1015	9.6	22.0	10	.26
04096304 - SAND CREEK AT US-12 NEAR ALLEN, MICH. . (LAT 41 57 47 LONG 084 44 20.01)					
OCT., 1973					
25...	--	E8.0	15.0	6	--
04096307 - SAND C TRIBUTARY AT BEULOW RD NEAR ALLEN, MICH.. (LAT 41 58 51 LONG 084 44 20.01)					
OCT., 1973					
25...	1655	E.50	15.0	26	--
JUNE, 1974					
04...	1440	1.2	22.5	16	.05
04096308 - SAND CREEK AT JONESVILLE RD NR ALLEN, MICH. . (LAT 41 59 08 LONG 084 45 04.01)					
JUNE, 1974					
04...	1300	23	--	18	1.1
04096317 - ST. JOSEPH R AT S CO LINE RD NR LITCHFIELD, MICH (LAT 42 04 21 LONG 084 49 50.01)					
OCT., 1973					
25...	--	--	--	6	--
JUNE, 1974					
04...	1105	123	19.0	23	7.6
04096327 - SOAP CREEK AT S CO LINE RD NR LITCHFIELD, MICH.. (LAT 42 04 20 LONG 084 50 04.01)					
AUG., 1974					
06...	0855	6.4	19.5	15	.26
04096332 - ST. JOSEPH R AT T DRIVE SOUTH NEAR HOMER, MICH.. (LAT 42 06 04 LONG 084 50 38.01)					
OCT., 1973					
25...	0900	--	11.5	22	--

ANALYSES OF SAMPLES COLLECTED AT LAKES

04101605 GRAVEL LAKE NEAR MARCELLUS, MICH.

Lat 42°04'18", long 85°51'37", in secs. 31 and 32, T.4 S., R.3 W., Van Buren County, 4.0 mi (6.4 km) northwest of Marcellus. Drainage area, 3.5 mi^2 (9.1 km^2), approximately. Surface area, 296 acres (120 hectares). Maximum depth, 52 ft (16 m). Inlet, Sputterdock Creek, an intermittent stream with its source near Little Cedar Lake. Outlet, at southeast side, flows into Saddlebag Creek. Sampling sites: A, at fork 800 ft (240 m) above mouth of dredged canal at west end of lake; B, 100 ft (30 m) off northeast shore; C, center of north 1/3rd of lake.

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

SITE	DATE	AZIMUTH FROM OUTLET (DEG)	DISTANCE FROM OUTLET (FT)	TOTAL DEPTH (FT)	TIME	SAMPLE DEPTH (FT)	DIS-SOLVED SILICA (SIO2) (MG/L)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)
	SEP.										
A	10...	125	5000	5.0	1130	3.0	.9	50	60	7.7	14
B	10...	177	1750	8.0	1200	5.0	--	--	--	--	--
C	10...	140	3200	46	1300	44	5.1	60	38	9.3	13
C	10...	140	3200	46	1345	2.0	4.7	10	0	9.6	13

DATE	DIS-SOLVED SODIUM (NA) (MG/L)	DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)
SEP.									
10...	2.6	1.0	130	0	107	4.0	.1	.02	.00
10...	--	--	--	--	--	--	--	.01	.00
10...	3.0	.8	149	0	122	4.6	.1	.00	.00
10...	3.0	.8	144	0	118	4.1	.1	.01	.00

DATE	AMMONIA NITRO-GEN (N) (MG/L)	TOTAL ORGANIC NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	TOTAL ORTHO PHOS-PHORUS (P) (MG/L)	TOTAL HYDRO-LYZABLE PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)
SEP.									
10...	.05	.57	.62	.64	.01	.00	.02	.00	128
10...	.00	.46	.46	.47	.01	.01	.01	.00	--
10...	.03	.60	.63	.63	.01	.00	.01	.00	154
10...	.00	.47	.47	.48	.01	.00	.00	.01	142

DATE	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)	FECAL STREP-TOCOCCI KF AGAR (COL. PER 100 ML)
SEP.									
10...	120	11	225	4	1	2.4	<1	80	81
10...	--	--	--	--	--	1.0	<1	39	<1
10...	130	9	245	3	1	--	--	--	--
10...	130	10	247	4	1	1.0	<1	43	<1

SITE	TOTAL PHYTO-PLANKTON COUNT (CELLS/ML)	DOMINANT GENERA	PERCENT OF TOTAL	MINOR GENERA	PERCENT OF TOTAL	MINOR GENERA	PERCENT OF TOTAL
C	11,000	ANACYSTIS INCERTA	77	GOMPHOSPAERIA	10	CRUCIGENIA	2
				MICRACTINIUM	5	CHODATELLA	2
				ANACYSTIS	3	OOCYSTIS	1
				ANABAENA	2		

ANALYSES OF SAMPLES COLLECTED AT LAKES--Continued

04102588 GREAT BEAR LAKE NEAR BLOOMINGDALE, MICH.

Lat 42°22'11", long 85°59'51", in secs. 13, 18, 19, and 24, T.1 S., R.14 and 15 W., Van Buren County, 2.3 mi (3.7 km) southwest of Bloomingdale. Drainage area, 11 mi^2 (28.4 km^2), approximately. Surface area, 150 acres (60.7 hectares). Maximum depth, 54 ft (16 m). Inlet, Haven and Max Lake Drain, enters east side. Outlet, Haven and Max Lake Drain, at west side flows about 4 mi (6.4 km) to South Branch Black River. Sampling sites: Inlet and outlet as indicated; lake at approximately center of north lobe of lake.

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DATE	AZIMUTH FROM OUTLET (DEG)	DISTANCE FROM OUTLET (FT)	TOTAL DEPTH (FT)	TIME	SAMPLE DEPTH (FT)	DIS-SOLVED IRON (FE) (UG/L)	DIS-SOLVED MAN-GANESE (MN) (UG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED MAG-NE-SIUM (MG) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)
04102587 - HAVEN-MAX LK DR AT 45 ST NR BLOOMINGDALE, MICH.. (LAT 42 22 25 LONG 085 59 11.01)											
MAR., 1974											
15...	--	--	--	1535	--	--	--	19	--	166	0
04102588 - GREAT BEAR LAKE NR BLOOMINGDALE, MICH. . (LAT 42 21 48 LONG 085 59 43.01)											
MAR., 1974											
15...	50.0	2000	52	1630	1.0	70	50	18	16	174	0
15...	50.0	2000	52	1640	50	50	50	18	16	166	0
04102589 - HAVEN-MAX LK DR AT 46.5 ST NR BLOOMINGDALE, MICH (LAT 42 22 08 LONG 086 00 01.01)											
MAR., 1974											
15...	--	--	--	1600	--	--	--	18	--	173	0

DATE	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITRO-GEN (N) (MG/L)	TOTAL ORGANIC NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	TOTAL ORTHO PHOS-PHORUS (P) (MG/L)
04102587 - HAVEN-MAX LK DR AT 45 ST NR BLOOMINGDALE, MICH.. (LAT 42 22 25 LONG 085 59 11.01)										
MAR., 1974										
15...	136	25	.45	.00	.63	.00	.47	.92	.05	.02
04102588 - GREAT BEAR LAKE NR BLOOMINGDALE, MICH. . (LAT 42 21 48 LONG 085 59 43.01)										
MAR., 1974										
15...	143	22	.68	.00	.53	.00	.42	1.1	.08	.02
15...	136	22	.68	.00	.53	.00	.48	1.2	.08	.02
04102589 - HAVEN-MAX LK DR AT 46.5 ST NR BLOOMINGDALE, MICH (LAT 42 22 08 LONG 086 00 01.01)										
MAR., 1974										
15...	142	22	.67	.00	.53	.00	.44	1.1	.07	.02

ANALYSES OF SAMPLES COLLECTED AT LAKES--Continued

04102588 GREAT BEAR LAKE NEAR BLOOMINGDALE, MICH.--Continued

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974--Continued

DATE	TOTAL HYDRO-LYZABLE PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC PHOS-PHORUS (P) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATUR-ATION	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)
04102587 - HAVEN-MAX LK DR AT 45 ST NR BLOOMINGDALE, MICH.. (LAT 42 22 25 LONG 085 59 11.01)										
MAR., 1974										
15...	.02	.01	--	--	377	7.9	5.0	12.2	97	.0
04102588 - GREAT BEAR LAKE NR BLOOMINGDALE, MICH. . (LAT 42 21 48 LONG 085 59 43.01)										
MAR., 1974										
15...	.04	.02	180	37	380	7.8	4.0	11.2	87	.0
15...	.03	.03	180	44	381	7.8	3.5	8.2	--	.0
04102589 - HAVEN-MAX LK DR AT 46.5 ST NR BLOOMINGDALE, MICH (LAT 42 22 08 LONG 086 00 01.01)										
MAR., 1974										
15...	.03	.02	--	--	380	7.9	4.5	11.8	98	.0

DISSOLVED OXYGEN PROFILE-GREAT BEAR LAKE, MARCH 15, 1974

TIME	DEPTH (FT)	TEMP. (°C)	DIS. OXYGEN (MG/L)
1630	1	4.0	11.2
1631	10	3.5	11.6
1632	20	3.5	9.8
1633	30	3.5	8.8
1634	40	3.5	8.2
1635	45	3.5	8.2

ANALYSES OF SAMPLES COLLECTED AT LAKES--Continued

04102611 NORTH LAKE NEAR GRAND JUNCTION, MICH.

Lat 42°22'38", long 86°4'32", in secs. 16 and 17, T.1 S., R.15 W., Van Buren County, 2 mi (3.2 km) south of Grand Junction. Surface area, 63 acres (25 hectares). Maximum depth, 17 ft (5.2 m). No inlet. Outlet at southwest end of lake flows intermittently into unnamed tributary to the Black River. Sampling sites: A, at west end about 100 ft (30 m) offshore; B, at middle about 200 ft (61 m) off south shore; C, at east end about 150 ft (46 m) offshore.

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

SITE	DATE	AZIMUTH FROM OUTLET (DEG)	DISTANCE FROM OUTLET (FT)	TOTAL DEPTH (FT)	TIME	DIS-SOLVED SULFATE (SO4) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	CAR-BONATE (CO3) (MG/L)	ALKA-LINITY AS CACO3 (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)
	SEP.											
A	10...	196	530	3.0	1630	11	126	0	103	4.5	.00	.01
B	10...	244	1590	6.0	1645	11	126	0	103	4.4	.01	.00
C	10...	246	2950	5.0	1700	--	128	0	105	--	.00	.01

DATE	AMMONIA NITRO-GEN (N) (MG/L)	TOTAL ORGANIC NITRO-GEN (N) (MG/L)	TOTAL KJEL-DAHL NITRO-GEN (N) (MG/L)	TOTAL NITRO-GEN (N) (MG/L)	TOTAL PHOS-PHORUS (P) (MG/L)	TOTAL ORTHO PHOS-PHORUS (P) (MG/L)	TOTAL HYDRO-LYZABLE PHOS-PHORUS (P) (MG/L)	TOTAL ORGANIC PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)
SEP.										
10...	.01	.91	.92	.92	.01	.00	.01	.00	123	195
10...	.02	.76	.78	.79	.01	.00	.01	.00	117	195
10...	.02	.80	.82	.83	.01	.01	.01	.00	--	195

DATE	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)	TUR-BID-ITY (JTU)	DIS-SOLVED OXYGEN (MG/L)	PER-CENT SATUR-ATION	METHY-LENE BLUE ACTIVE SUB-STANCE (MG/L)	IMME-DIATE COLI-FORM (COL. PER 100 ML)	FECAL COLI-FORM (COL. PER 100 ML)	FECAL STREP-TOCOCCI KF AGAR (COL. PER 100 ML)
SEP.										
10...	7.9	24.5	5	0	9.5	116	3.9	<1	<5	<1
10...	8.2	23.0	5	1	9.5	112	2.6	<1	<1	<1
10...	8.2	25.0	--	--	9.7	118	2.5	--	--	--

SITE	TOTAL PHYTO-PLANKTON COUNT (CELLS/ML)	DOMINANT GENERA	PERCENT OF TOTAL	MINOR GENERA	PERCENT OF TOTAL	MINOR GENERA	PERCENT OF TOTAL
C	1,300	COELASTRUM	27	ANACYSTIS	13	KIRCHNERIELLA	2
		SCENEDESMUS	15	CHLORELLA	13	NAVICULA	1
				CYCLOTELLA	12	ACHNANTHES	1
				CRUCIGENIA	9	SYNEDRA	1
				CHLAMYDOMONAS	4		

ANALYSES OF SAMPLES COLLECTED AT LAKES--Continued

42065085475801 BANKSON LAKE NEAR LAWTON, MICH.

Lat 42°6'50", long 85°47'58", in secs. 11, 14 and 15, T.4 S., R.13 W., Van Buren County, 4.5 mi (7.2 km) southeast of Lawton. Surface area, 202 acres (81.7 hectares). Maximum depth, 60 ft (18 m). Landlocked lake with no inlet or outlet. Sampling sites: A, approximately center of southwest lobe of lake; B, approximately 120 ft (37 m) off from "The Point" at northwest side of lake.

WATER QUALITY DATA, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

SITE	DATE	AZIMUTH FROM SOUTHERNMOST POINT (DEG)	DISTANCE FROM SOUTHERNMOST POINT (FT)	TOTAL DEPTH (FT)	TIME	DEPTH (FT)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED SULFATE (SO4) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	BICARBONATE (HCO3) (MG/L)	CARBONATE (CO3) (MG/L)
	MAR.											
A	15...	13.0	2000	47	1120	1.0	30	680	8.4	8.2	90	0
A	15...	13.0	2000	47	1140	45	30	25	8.4	8.2	92	0
B	15...	23.0	2700	25	1210	22	--	--	8.8	--	94	0

DATE	ALKALINITY AS CACO3 (MG/L)	DISSOLVED CHLORIDE (CL) (MG/L)	TOTAL NITRATE (N) (MG/L)	TOTAL NITRITE (N) (MG/L)	AMMONIA NITROGEN (N) (MG/L)	TOTAL ORGANIC NITROGEN (N) (MG/L)	TOTAL KJELDAHL NITROGEN (N) (MG/L)	TOTAL NITROGEN (N) (MG/L)	TOTAL PHOSPHORUS (P) (MG/L)	TOTAL ORTHO PHOSPHORUS (P) (MG/L)
MAR.										
15...	74	2.6	.09	.00	.21	.30	.51	.60	.03	.01
15...	75	2.6	.09	.00	.63	.00	.58	.72	.03	.01
15...	77	3.2	.09	.00	.42	.08	.50	.59	.03	.01

DATE	TOTAL HYDROLYZABLE PHOSPHORUS (P) (MG/L)	TOTAL ORGANIC PHOSPHORUS (P) (MG/L)	HARDNESS (CA,MG) (MG/L)	NONCARBONATE HARDNESS (MG/L)	SPECIFIC CONDUCTANCE (MICROMHOS)	PH (UNITS)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)	PERCENT SATURATION	METHYLENE BLUE ACTIVE SUBSTANCE (MG/L)
MAR.										
15...	.01	.01	91	17	180	7.8	4.5	11.6	94	.0
15...	.02	.00	89	14	180	7.7	4.5	11.9	96	.0
15...	.01	.01	--	--	180	7.7	4.0	12.0	95	.0

DISSOLVED OXYGEN PROFILE, SITE A

TIME	DEPTH (FT)	TEMPERATURE (DEG C)	DISSOLVED OXYGEN (MG/L)
1120	1.0	4.5	11.6
1122	10	4.5	12.0
1124	15	4.5	13.6
1126	20	4.5	10.8
1128	30	4.5	12.0
1130	40	4.5	12.0
1140	45	4.5	11.9

GEOLOGIC UNITS: 112, PLEISTOCENE SERIES (LKBDS, LAKEBEDS; PLSC, UNDIFFERENTIATED;

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

LOCAL IDENTIFIER	LATITUDE	LONGITUDE	SEQ. NO.	GEOLOGIC UNIT	DATE OF SAMPLE	TOTAL DEPTH OF WELL (FT)	DISSOLVED SILICA (SIO2) (MG/L)	DISSOLVED IRON (FE) (UG/L)	DISSOLVED MANGANESE (MN) (UG/L)	DISSOLVED CALCIUM (CA) (MG/L)	DISSOLVED MAGNESIUM (MG) (MG/L)	DISSOLVED SODIUM (NA) (MG/L)
ALGER COUNTY												
47N18W03CCD 01 NPS T74-3	46 29 38	086 33 00	01	372MNSG	74-08-07	250	5.1	1100	37	67	34	.7
47N18W03CDA 01 NPS T74-2	46 29 23	086 32 41	01	372MNSG	74-08-06	107	6.4	1000	260	43	19	1.1
47N18W19CAD 01 NPS T74-1	46 27 08	086 36 29	01	112LKBDS	74-05-30	46	16	23000	200	13	5.5	8.6
KALAMAZOO COUNTY												
02S11W04ABDB01 3. STA 9.	42 14 31	085 35 46	01	112SDGV	74-08-13	164	11	--	--	62	22	9.5
02S11W04ABDB02 Q20 STA 9	42 14 32	085 35 47	01	112SDGV	74-08-13	22	13	--	--	86	26	6.3
02S11W04ABDB03 Q40 STA 9	42 14 32	085 35 47	02	112SDGV	74-08-13	42	14	--	--	75	20	18
02S11W04ABDB04 Q60 STA 9	42 14 32	085 35 47	03	112SDGV	74-08-13	62	11	--	--	68	22	8.9
02S11W10DCB 01 KVP-B 11A	42 18 25	085 34 43	01	112SAND	74-08-28	50	11	570	170	130	40	50
02S11W14DACC01 STA 5, W2	42 17 30	085 33 16	01	112PLSC	74-08-28	--	11	10	17	130	35	36
				112PLSC	74-08-29	--	14	670	250	86	24	5.1
02S11W20BBB 01 KNOL 2-A.	42 16 43	085 36 56	01	112PLSC	74-08-28	124	13	960	83	72	24	9.2
02S11W22CCAA01 CNTRL 1-C	42 16 41	085 35 05	01	112PLSC	73-10-05	151	16	170	130	130	33	27
				112PLSC	74-08-28	151	13	110	130	130	33	28

LOCAL IDENTIFIER	LATITUDE	LONGITUDE	SEQ. NO.	DATE OF SAMPLE	DISSOLVED ARSENIC (AS) (UG/L)	DISSOLVED CADMIUM (CD) (UG/L)
ALGER COUNTY						
47N18W03CCD 01 NPS T74-3	46 29 38	086 33 00	01	74-08-07	1	1
47N18W03CDA 01 NPS T74-2	46 29 23	086 32 41	01	74-08-06	1	0
47N18W19CAD 01 NPS T74-1	46 27 08	086 36 29	01	74-05-30	6	0
KALAMAZOO COUNTY						
02S11W04ABDB01 3. STA 9.	42 14 31	085 35 46	01	74-08-13	--	--
02S11W04ABDB02 Q20 STA 9	42 14 32	085 35 47	01	74-08-13	--	--
02S11W04ABDB03 Q40 STA 9	42 14 32	085 35 47	02	74-08-13	--	--
02S11W04ABDB04 Q60 STA 9	42 14 32	085 35 47	03	74-08-13	--	--

SDGV, SAND AND GRAVEL); 372, ST. CROIXIAN SERIES (MNSG, MUNISING SANDSTONE)

CHEMICAL ANALYSES, WATER YEAR OCTOBER 1973 TO SEPTEMBER 1974

DIS-SOLVED PO-TAS-SIUM (K) (MG/L)	BICAR-BONATE (HCO3) (MG/L)	DIS-SOLVED SULFATE (SO4) (MG/L)	DIS-SOLVED CHLO-RIDE (CL) (MG/L)	DIS-SOLVED FLUO-RIDE (F) (MG/L)	DIS-SOLVED NITRITE PLUS NITRATE (N) (MG/L)	DIS-SOLVED ORTHO. PHOS-PHORUS (P) (MG/L)	DIS-SOLVED SOLIDS (RESI-DUE AT 180 C) (MG/L)	HARD-NESS (CA,MG) (MG/L)	NON-CAR-BONATE HARD-NESS (MG/L)	SPE-CIFIC CON-DUCT-ANCE (MICRO-MHOS)	PH (UNITS)	TEMPER-ATURE (DEG C)	COLOR (PLAT-INUM-COBALT UNITS)
						ALGER COUNTY							
1.5	284	52	11	.1	.01	.00	335	310	74	540	6.0	7.0	8
1.2	191	24	1.9	.1	.01	.01	204	190	29	340	6.8	7.0	20
1.2	51	11	18	.2	.11	.60	154	55	13	155	6.0	7.5	600
						KALAMAZOO COUNTY							
1.0	269	23	20	.1	.01	--	--	250	25	596	7.2	12.5	--
1.1	307	56	16	.1	.82	--	--	320	70	609	6.9	12.5	--
2.7	304	24	16	.1	4.7	--	--	270	20	585	6.7	13.0	--
1.0	310	29	18	.1	.72	--	--	260	6	500	7.3	14.5	--
6.0	398	120	93	.2	.05	.01	482	490	160	890	7.0	15.0	3
2.8	342	92	70	.2	5.2	.01	740	470	190	720	7.1	11.5	2
.9	280	68	4.5	.2	.00	.00	372	310	84	440	7.4	10.0	7
.9	296	21	9.7	.1	.00	.00	312	280	36	490	7.2	11.0	3
3.2	390	99	48	.2	--	--	558	460	140	877	7.4	13.5	0
3.1	400	110	58	.2	1.4	.01	608	460	130	700	7.1	13.0	5

DIS-SOLVED CHRO-MIUM (CR) (UG/L)	DIS-SOLVED COBALT (CO) (UG/L)	DIS-SOLVED COPPER (CU) (UG/L)	DIS-SOLVED LEAD (PB) (UG/L)	DIS-SOLVED MERCURY (HG) (UG/L)	DIS-SOLVED NICKEL (NI) (UG/L)	DIS-SOLVED SELE-NIUM (SE) (UG/L)	DIS-SOLVED SILVER (AG) (UG/L)	DIS-SOLVED STRON-TIUM (SR) (UG/L)	DIS-SOLVED ZINC (ZN) (UG/L)
					ALGER COUNTY				
1	8	1	0	.1	22	0	0	--	20
1	2	1	2	.0	8	4	0	--	4
2	3	4	1	.7	0	3	1	--	230
					KALAMAZOO COUNTY				
--	--	--	--	--	--	--	--	70	--
--	--	--	--	--	--	--	--	90	--
--	--	--	--	--	--	--	--	100	--
--	--	--	--	--	--	--	--	80	--

Temperatures of ground water are measured as part of a state-wide water resource investigation in cooperation with Michigan Department of Natural Resources. The purpose of these measurements is to determine the natural ground-water temperature of selected points throughout the state. These data, when combined with existing theory, can be used to estimate ground-water temperatures at moderate depth at any point in the state. Measurements of temperature were made by means of "lazy" thermometers (Heath 1964), which remain in the well except when being read.

TEMPERATURE (°C) OF GROUND WATER AT INDICATED DEPTH

DATE	WATER TEMPERATURE (°C)	DATE	WATER TEMPERATURE (°C)	DATE	WATER TEMPERATURE (°C)
ALGER COUNTY, 45N19W25BD (LAT 461608, LONG 0863738) DEPTH 67.2 FT.					
DEC. 07, 1973	9.4	APR. 29.....	6.5	AUG. 06.....	8.2
MAR. 11, 1974	7.6				
ALLEGAN COUNTY, 03N14W23DD (LAT 423733, LONG 0855509) DEPTH 41.0 FT.					
OCT. 16, 1973	9.6	FEB. 19.....	9.9	DISCONTINUED	
NOV. 14.....	9.7	MAR. 26.....	9.8		
DEC. 18.....	9.9	MAY 07.....	9.5		
JAN. 14, 1974	9.9	JULY 15.....	12.0		
CHARLEVOIX COUNTY, 32N04W10DA (LAT 451050, LONG 0845634) DEPTH 10.7 FT.					
OCT. 09, 1973	11.5	DEC. 13..... (DISCONTINUED)	8.1	JAN. 07, 1974	6.6
CLINTON COUNTY, 06N02W16DDAD (LAT 425410, LONG 0843235) DEPTH 23.0 FT.					
OCT. 23, 1973	11.5	JAN. 22.....	10.6	MAY 21.....	8.9
OCT. 24.....	11.6	FEB. 21.....	9.5	JUNE 20.....	9.0
NOV. 21.....	11.9	MAR. 21.....	8.3	JULY 24.....	9.3
DEC. 26.....	11.5	APR. 19.....	7.8	AUG. 23.....	9.9
JAN. 02, 1974	11.1	APR. 30.....	7.2	SEP. 24.....	10.0
CRAWFORD COUNTY, 26N04W11CB (LAT 443943, LONG 0844604) DEPTH 11.4 FT.					
OCT. 12, 1973	11.7	NOV. 20.....	9.6	JAN. 22, 1974	6.4
OCT. 23.....	11.4	DEC. 20..... (DISCONTINUED)	7.8	APR. 23.....	4.7

DATE	WATER TEMPER-ATURE (°C)	DATE	WATER TEMPER-ATURE (°C)	DATE	WATER TEMPER-ATURE (°C)
DICKINSON COUNTY, 43N28W32AD (LAT 460459, LONG 0874337) DEPTH 31.0 FT.					
OCT. 18, 1973	7.6	MAR. 21.....	7.3	JULY 09.....	6.4
DEC. 13.....	8.0	MAY 02.....	6.7	AUG. 15.....	6.8
JAN. 08, 1974	7.9	MAY 21.....	6.5	AUG. 23.....	6.8
FEB. 14.....	7.7	JUNE 19.....	6.4	SEP. 16.....	7.1
GRAND TRAVERSE COUNTY 26N09W13CC (LAT 443832, LONG 0852112) DEPTH 12.6 FT.					
OCT. 23, 1973	10.6	DEC. 20..... (DISCONTINUED)	8.5	JAN. 16, 1974	7.3
GRATIOT COUNTY, 12N03W35BC (LAT 432319, LONG 0843847) DEPTH 19.8 FT.					
OCT. 09, 1973	11.5	JAN. 31.....	9.5	JUNE 26.....	8.2
NOV. 02.....	11.6	MAR. 02.....	8.4	JULY 23.....	9.1
NOV. 30.....	11.4	MAR. 29.....	7.8	AUG. 08.....	10.1
JAN. 04, 1974	9.6	MAY 28.....	7.6	(DISCONTINUED)	
HILLSDALE COUNTY, 07S02W10CA (LAT 415236, LONG 0843137) DEPTH 20.0 FT.					
OCT. 03, 1973	10.0	FEB. 26.....	9.7	JULY 23.....	8.6
OCT. 30.....	10.4	MAR. 26.....	9.1	AUG. 22.....	9.2
NOV. 27.....	10.6	APR. 26.....	8.5	SEP. 23.....	9.9
DEC. 28.....	10.5	MAY 23.....	8.4		
JAN. 24, 1974	9.9	JUNE 25.....	8.2		
INGHAM COUNTY, 03N01E07DDCA (LAT 423934, LONG 0842149) DEPTH 40.9 FT.					
OCT. 19, 1973	10.5	FEB. 22.....	9.5	JULY 19.....	10.5
NOV. 19.....	10.5	APR. 24.....	10.0	AUG. 23.....	10.5
DEC. 26.....	10.5	MAY 21.....	10.5	SEP. 24.....	10.5
JAN. 22, 1974	10.0	JUNE 20.....	10.5		
KENT COUNTY, 10N12W13DDDA (LAT 431500, LONG 0854022) DEPTH 30.4 FT.					
OCT. 01, 1973	9.9	MAR. 11.....	9.5	JULY 15.....	8.8
DEC. 12.....	10.2	APR. 08.....	8.8	(DISCONTINUED)	
JAN. 02, 1974	10.0	MAY 22.....	8.9		
FEB. 11.....	9.8	JUNE 03.....	8.9		
LENAWEE COUNTY, 05S01E12DDBD (LAT 420246, LONG 0841506) DEPTH 39.0 FT.					
OCT. 02, 1973	9.4	FEB. 26.....	9.7	JULY 22.....	9.4
OCT. 29.....	9.4	MAR. 26.....	9.7	AUG. 21.....	9.4
NOV. 26.....	9.4	APR. 25.....	9.7	SEP. 19.....	9.4
DEC. 27.....	9.6	MAY 23.....	9.6		
JAN. 24, 1974	9.6	JUNE 24.....	9.5		

DATE	WATER TEMPER-ATURE (°C)	DATE	WATER TEMPER-ATURE (°C)	DATE	WATER TEMPER-ATURE (°C)
MARQUETTE COUNTY, 47N29W02DA (LAT 462959, LONG 0875313) DEPTH 19.1 FT.					
OCT. 11, 1973	10.7	FEB. 06.....	5.9	JUNE 03.....	4.8
NOV. 06.....	10.4	MAR. 13.....	4.7	AUG. 20.....	8.8
DEC. 11.....	8.2	MAR. 28.....	4.0	SEP. 20.....	9.9
JAN. 29, 1974	6.1	MAY 02.....	3.8		
MENOMINEE COUNTY, 37N26W19DA (LAT 453500, LONG 0873315) DEPTH 18.4 FT.					
NOV. 01, 1973	11.3	APR. 10.....	5.7	JULY 16.....	8.4
NOV. 29.....	10.0	MAY 15.....	6.2	SEP. 12.....	11.0
JAN. 17, 1974	8.0	JUNE 19.....	7.3		
FEB. 28.....	6.8	JULY 02.....	7.7		
MONROE COUNTY, 07S06E15AD (LAT 415235, LONG 0834140) Depth 17.9 FT.					
OCT. 25, 1973	11.5	MAR. 18.....	9.5	AUG. 14.....	10.3
DEC. 11.....	11.8	APR. 24.....	8.8	SEP. 18.....	11.2
JAN. 09, 1974	11.3	MAY 29.....	8.9		
FEB. 06.....	10.8	JULY 11.....	9.4		
MUSKEGON COUNTY, 11N15W34DA (LAT 431806, LONG 0860444) DEPTH 32.0 FT.					
FEB. 12, 1974	7.7	APR. 09.....	7.6	JUNE 06.....	9.3
MAR. 12.....	7.3	MAY 22.....	8.9	JULY 16.....	9.9
OAKLAND COUNTY, 05N08E08ACAC (LAT 425116, LONG 0833215) DEPTH 42.0 FT.					
OCT. 15, 1973	9.0	APR. 24.....	8.5	AUG. 19.....	9.5
NOV. 12.....	8.7	MAY 22.....	9.0	SEP. 18.....	9.0
DEC. 26.....	9.0	JUNE 19.....	9.0		
JAN. 24, 1974	9.0	JULY 18.....	8.5		
ONTONAGON COUNTY, 46N38W30ADD (LAT 462118, LONG 0890543) DEPTH 50.0 FT.					
OCT. 03, 1973	6.5	MAR. 06.....	6.6	AUG. 07.....	6.2
NOV. 06.....	6.6	APR. 18.....	6.4	SEP. 10.....	6.5
DEC. 04.....	6.8	MAY 17.....	6.2	SEP. 25.....	6.5
JAN. 22, 1974	6.8	JUNE 13.....	6.0		
ROSCOMMON COUNTY, 24N02W20BA (LAT 442722, LONG 0843507) DEPTH 12.0 FT					
OCT. 15, 1973	9.7	FEB. 20.....	5.8	JULY 22.....	7.9
OCT. 23.....	9.7	MAR. 20.....	5.1	AUG. 21.....	9.0
NOV. 20.....	9.0	APR. 23.....	4.7	SEP. 23.....	9.5
DEC. 20.....	7.8	MAY 21.....	5.8		
JAN. 22, 1974	6.6	JUNE 24.....	6.9		

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