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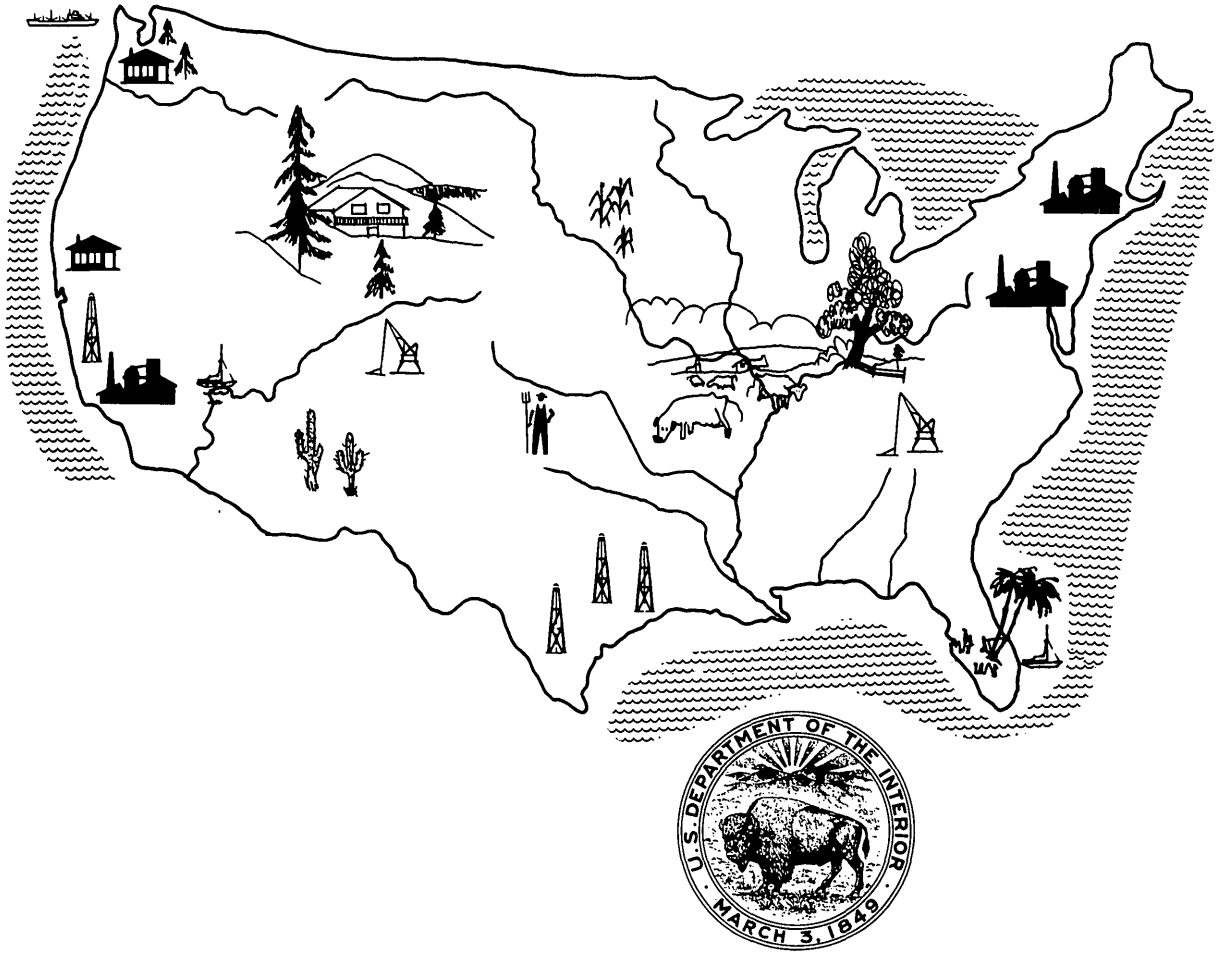
QUALITY OF RIVERS OF THE UNITED STATES, 1974 WATER YEAR--BASED ON THE NATIONAL STREAM QUALITY ACCOUNTING NETWORK (NASQAN)

U.S. GEOLOGICAL SURVEY

Open-File Report 77-151



UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY

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by Richard O. Hawkinson, John F. Ficke, and Linda G. Saindon

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QUALITY OF RIVERS OF THE UNITED STATES, 1974 WATER YEAR--BASED ON THE NATIONAL STREAM QUALITY ACCOUNTING NETWORK (NASQAN)

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ABSTRACT

The National Stream Quality Accounting Network (NASQAN) was established by the U.S. Geological Survey to determine and compare the quality at key locations on the Nation's major rivers. In the function-and-level concept of network design, NASQAN is classified as a Level I (for National and regional planning objectives) Accounting Network. Stations have been located to measure the quantity and quality of water flowing from hydrologic accounting units. NASQAN is different from most other water-quality data programs because of its national scale, and because of its dedication to detecting long-term changes in stream quality, its commonality in methodology, and its measurement of a consistent and comprehensive list of physical, chemical, and biological characteristics. There are 345 stations in the network--data from the first 101 of these (those operating during the 1974 water year) are summarized in this report.

Temperature data (usually continuous or daily measurements) from NASQAN stations have been fitted to a first order harmonic equation, the parameters of which have been summarized for each station. At most stations the harmonic provides an estimate of daily temperatures with a standard error of estimate of 2.5°C or less.

According to 1974 water-year data summarized from NASQAN operations, water quality of the rivers of the United States is best (by most standards) in the Northeast, Southeast, and Northwest. Waters there generally are low in dissolved solids and major and minor chemical constituents, generally are soft (except in Florida), and carry relatively small amounts of sediment. However, many of these waters carry moderate or high levels of major nutrients and have correspondingly high populations of attached and floating plants. High counts of indicator bacteria also show signs of local pollution at some sites.

Rivers of most of the Mid-Continent and Southwest are characterized by moderate to high levels of dissolved major and minor constituents, sediment, major nutrients, and biota (floating and attached aquatic plants and indicator bacteria).

INTRODUCTION

Environmental changes associated with population growth and industrial expansion in the United States often manifest themselves through significant changes in the quality of the Nation's rivers and lakes. The nature and severity of the Nation's water problems were emphasized in 1961 in reports prepared by the Senate Select Committee on Water Resources.

Public pressure and local, State, and Federal government legislation are causing greater emphasis to be placed on the protection and conservation of our water resources. At the Federal level, concern for the maintenance and improvement of our environment, and particularly our water resources, has been expressed through the passage of such laws as the Water Resources Research Act of 1964, the Water Resources Planning Act and the Water Quality Act of 1965, the Clean Water Restoration Act of 1966, the Federal Water Pollution Control Act Amendments of 1972 (PL 92-500), and the Safe Drinking Water Act of 1974.

As required to fulfill various sections of recent Acts, actions are being taken by industries as well as all levels of government to develop water-quality monitoring networks and environmental studies that will assess water-quality problems. The monitoring networks and environmental studies are expected to provide the data and information necessary (1) to make water-quality management decisions, (2) to assess the specific and overall effectiveness of water pollution control measures, (3) to determine if specified water-quality criteria are being met, and (4) to enforce legislation for non-compliance with the established regulations.

At the Federal level, the U.S. Geological Survey, is designated by Bureau of Budget Circular A-67 as lead agency responsible for describing and appraising the Nation's water resources and has designed several national and regional networks for monitoring water quality. Networks and subnetworks presently in existence for monitoring the various facets of water quality in the Nation include:

(1) The National Stream Quality Accounting Network (NASQAN);

(2) The National Pesticide Water Monitoring Program (Samples are collected by U.S. Geological Survey at selected NASQAN stations and analyzed by the Environmental Protection Agency; design described by Feltz, Sayers, and Nicholson, 1971);

(3) The Radiochemical Surveillance Network (Samples are collected at selected NASQAN stations and determinations made of radioelements present);

(4) The Benchmark Network (Described by Cobb and Biesecker, 1971, and Biesecker and Leifeste, 1975; aim is to define the range of "natural" streamflow and water quality in small basins); and

(5) The Tritium Network (Determinations are made of tritium concentrations in samples collected at about 16 streamflow stations and 17 precipitation sampling stations in the United States).

NASQAN, at a present (1977) size of 345 stations, is the largest of these networks. It was established to provide uniform and continuing measurements to document the quality of the Nation's rivers. The operation of NASQAN includes the measurement of a comprehensive list of physical, chemical, and biological characteristics which were selected to fulfill information needs of national and regional water-resource planners and managers.

Primary NASQAN objectives are (1) to account for the quantity and quality of surface water flowing within and from the United States, (2) to depict areal variability in surface-water quality, (3) to detect long-term changes in stream quality, and (4) to lay the groundwork for future assessments of changes in stream quality.

Ficke and Hawkinson (1975), in a publication that introduced NASQAN, described the concepts employed by the Geological Survey in establishing the network, its purposes, design, and anticipated value. Pickering and Ficke (1976) in a paper on design of water-quality monitoring networks, discussed the various concepts utilized by the Geological Survey in the design of its water-data collection networks. Thus, for the purposes of this report, it is sufficient to point out that NASQAN is based on the function and level concept of network design (figure 1).

NASQAN, as emphasized by its name, has accounting as its functional category, and is to provide information requisite to level I needs for stream flow and stream quality. To fulfill "accounting" requirements, NASQAN design requires data-collection sites (stations) to be located at or near the downstream end of each of 349 hydrographic or accounting units or at representative sites along coastal areas and the Great Lakes. The quality of major U.S. rivers is described by the network through the measurement of the quality of water flowing from one accounting unit to the next or to the ocean and (or) the Great Lakes.

Growth of NASQAN to its present (1977) size of 345 stations (figure 2) has taken place in three stages. Data-collection activities were either begun or upgraded at 51 stations in January 1973, and at 50 additional stations in January 1974. Fiscal year 1975 appropriations permitted network expansion to its present size of 345 stations with one station in nearly every accounting unit.

Table 1 provides a listing (by state) of the 101 stations operating during the 1974 water year and used in the preparation of this report. A listing by station number is provided in table 8. USGS Circular 719 (Ficke and Hawkinson, 1975) contains a listing of all 345 stations in operation as of January 1, 1975.

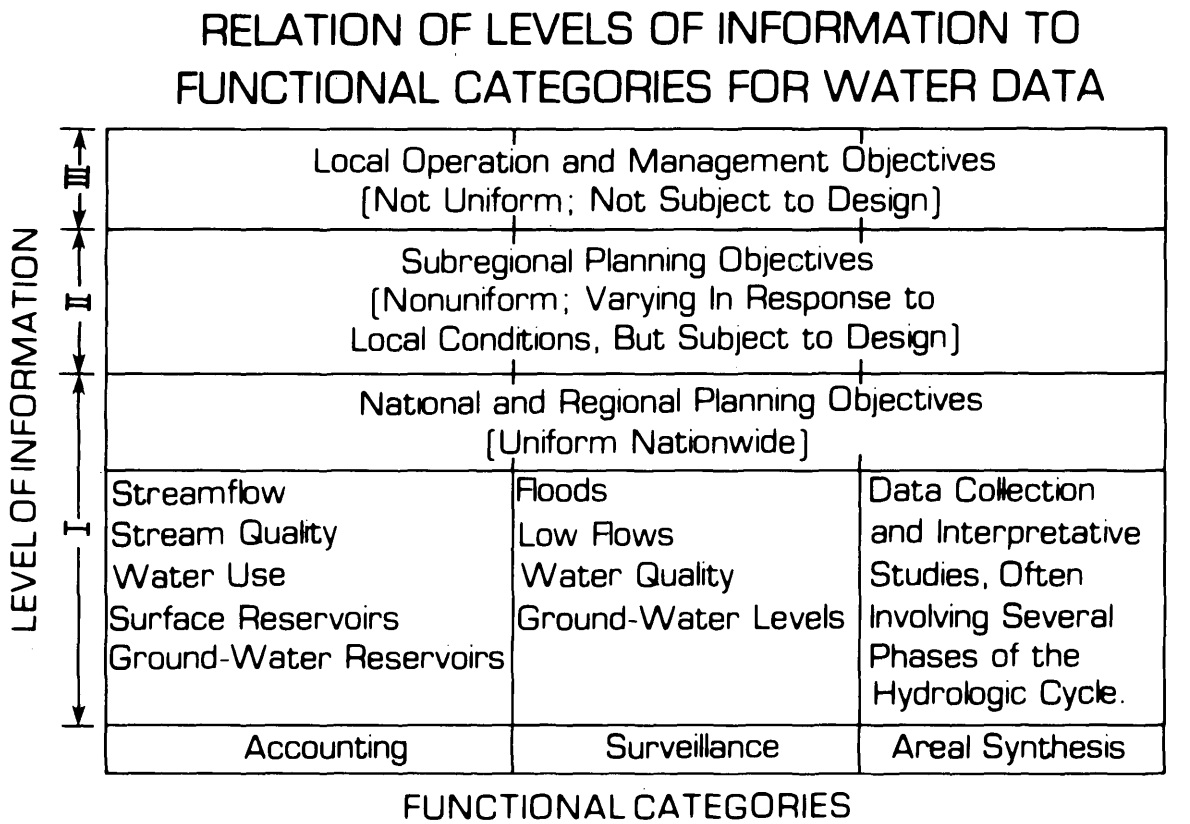


Figure 1.--Relation of information levels and fuctional categories in the national system for water data acquisition. (Adapted from Langford and Davis, 1970)

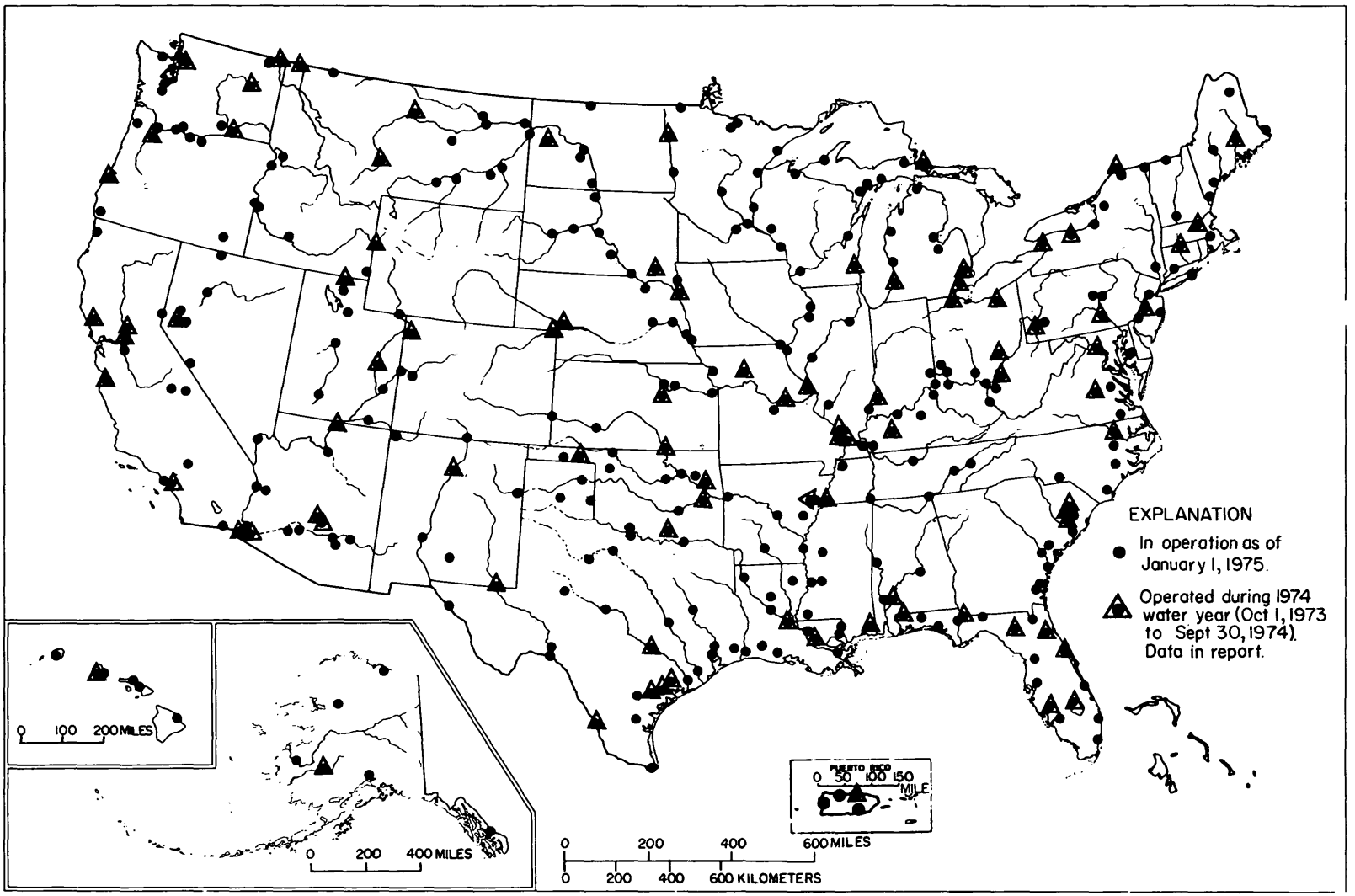


Figure 2.--Locations of stations in the National Stream Quality Accounting Network.

TABLE 1: NATIONAL STREAM QUALITY ACCOUNTING NETWORK STATIONS
STATIONS OPERATED DURING 1974 WATER YEAR
(SORTED ALPHABETICALLY BY STATE)

USGS STAT.NO.	STATION NAME	ST	LATITUDE DEG/MIN	LONGITUDE DEG/MIN
02429500	ALABAMA RIVER AT CLAIBORNE	AL	3133	08731
09380000	COLORADO RIVER AT LEES FERRY	AZ	3652	11135
09502000	SALT RIVER BELOW STEWART MT DAM	AZ	3334	11132
09510000	VERDE RIVER BELOW BARTLETT DAM	AZ	3349	11138
09518000	GILA RIVER ABOVE DIV AT GILLESPIE DAM	AZ	3314	11246
09522000	COLORADO RIVER AT N.INT.BDRY.AB MORELOS DA	AZ	3243	11443
07032000	MISSISSIPPI RIVER AT MEMPHIS (TN)	AR	3508	09004
07047800	ST FRANCIS RIVER NEAR PARKIN	AR	3516	09034
07047900	ST FRANCIS BAY AT RIVERFRONT	AR	3516	09041
10254970	NEW RIVER AT INT. BDRY. NR. CALEXICO	CA	3240	11530
11103010	LOS ANGELES R.AT WIL.ST.BRDG.AT LONG BCH	CA	3348	11812
11303500	SAN JOAQUIN RIVER NEAR VERNALIS	CA	3741	12116
11447650	SACRAMENTO RIVER AT FREEPORT	CA	3827	12130
11467000	RUSSIAN RIVER NEAR GUERNEVILLE	CA	3830	12256
06764000	SOUTH PLATTE RIVER AT JULESBURG	CO	4059	10215
09251000	YAMPA RIVER NEAR MAYBELL	CO	4030	10802
01184000	CONNECTICUT RIVER AT THOMPSONVILLE	CT	4159	07236
02231000	ST MARYS RIVER NEAR MACCLENNY	FL	3022	08205
02244450	ST JOHNS RIVER AT PALATKA	FL	2939	08138
02273000	KISSIMMEE RIVER AT S65E NEAR OKEECHOBEE	FL	2714	08058
02296750	PEACE RIVER AT ARCADIA	FL	2713	08153
02320500	SUWANNEE RIVER AT BRANFORD	FL	2957	08256
02358000	APALACHICOLA RIVER AT CHATTAHOOCHEE	FL	3042	08452
16213000	WAIKELE STREAM AT WAIPAHU	HI	2123	15801
12318500	KOOTENAI RIVER NEAR COPELAND	ID	4855	11625
13213000	BOISE RIVER NEAR PARMA	ID	4347	11659
03374100	WHITE RIVER NEAR HAZELTON	IN	3829	08733
06486000	MISSOURI RIVER AT SIOUX CITY	IA	4229	09625
06856600	REPUBLICAN RIVER AT CLAY CENTER	KS	3921	09708
07146500	ARKANSAS RIVER AT ARKANSAS CITY	KS	3703	09704
03290500	KENTUCKY RIVER AT LOCK 2 AT LOCKPORT	KY	3826	08458
03438220	CUMBERLAND RIVER NEAR GRAND RIVERS	KY	3701	08813
03609750	TENNESSEE RIVER AT HWY 60 NEAR PADUCAH	KY	3702	08832
03612500	OHIO RIVER AT L&D 53 NEAR GRAND CHAIN(IL)	KY	3712	08902
02489500	PEARL RIVER NEAR BOGALUSA	LA	3048	08949
07355500	RED RIVER AT ALEXANDRIA	LA	3119	09227
07374508	MISSISSIPPI RIVER AT NEW ORLEANS	LA	2957	09008

07378510	AMITE RIVER AT 4-H CAMP NR DENHAM SPGS	LA	3026	09058
01034500	PENOBSCOT RIVER AT WEST ENFIELD	ME	4514	06839
01645500	POTOMAC RIVER AT GREAT FALLS	MD	3900	07715
01096550	MERRIMACK RIVER ABOVE LOWELL	MA	4238	07122
04045580	ST MARYS RIVER ABOVE SAULT STE MARIE	MI	4629	08425
04108690	KALAMAZOO RIVER AT SAUGATUCK	MI	4239	08612
04122030	MUSKEGON RIVER AT BRIDGETON	MI	4319	08602
04165700	DETROIT RIVER AT DETROIT	MI	4221	08258
05331000	MISSISSIPPI RIVER AT ST PAUL	MN	4457	09305
02479020	PASCAGOULA RIVER NEAR BENNDALE	MS	3053	08846
07289000	MISSISSIPPI RIVER AT VICKSBURG	MS	3219	09054
05490600	DES MOINES RIVER AT ST FRANCISVILLE	MO	4028	09134
06902000	GRAND RIVER NEAR SUMNER	MO	3938	09316
06934500	MISSOURI RIVER AT HERMAN	MO	3843	09126
07022000	MISSISSIPPI RIVER AT THEBES (IL)	MO	3713	08928
06054500	MISSOURI RIVER AT TOSTON	MT	4609	11125
06174500	MILK RIVER AT NASHUA	MT	4808	10622
06686000	NORTH PLATTE RIVER AT LISCO	NB	4130	10238
10351700	TRUCKEE RIVER NEAR NIXON	NV	3947	11920
01463500	DELAWARE RIVER AT TRENTON	NJ	4013	07447
08313000	RIO GRANDE AT OTOWI BRIDGE NR S.ILDEFONSO	NM	3552	10608
08407500	PECOS RIVER AT RED BLUFF	NM	3204	10402
01372043	HUDSON RIVER NEAR POUGHKEEPSIE	NY	4143	07356
04219640	NIAGARA RIVER AT FORT NIAGARA	NY	4316	07904
04232006	GENESEE R AT CHARLOTTE DOCKS AT ROCHESTER	NY	4313	07737
04264331	ST LAWRENCE R AT CORNWALL ONT NR MASSENA	NY	4500	07448
02105769	CAPE FEAR RIVER AT LOCK 1 NEAR KELLY	NC	3424	07818
05054020	RED RIVER OF THE NORTH BELOW FARGO	ND	4656	09647
05083500	RED RIVER OF THE NORTH AT OSLO (MN)	ND	4812	09708
06337000	LITTLE MISSOURI RIVER NEAR WATFORD CITY	ND	4735	10315
03150000	MUSKINGUM RIVER AT MCCONNELSVILLE	OH	3939	08151
04193500	MAUMEE RIVER AT WATERVILLE	OH	4130	08343
04208000	CUYAHOGA RIVER AT INDEPENDENCE	OH	4124	08138
07178620	NEWT GRAHAM L&D (VERDIGRIS R) NEAR INOLA	OK	3603	09532
07193500	NEOSHO R BL FT GIBSON RES NR FT GIBSON	OK	3551	09514
07234000	NORTH CANADIAN (BEAVER) RIVER AT BEAVER	OK	3649	10031
07331000	WASHITA RIVER NEAR DURWOOD	OK	3414	09659
14128910	COLUMBIA RIVER AT WARRENDALE	OR	4537	12202
14321000	UMPQUA RIVER NEAR ELKTON	OR	4335	12333
01570500	SUSQUEHANNA RIVER AT HARRISBURG	PA	4015	07653
03085000	MONONGAHELA RIVER AT BRADDOCK	PA	4024	07953

50046000	RIO DE LA PLATA AT TOA ALTA	PR	1824	06615
02170500	LAKE MARION MOULTRIE CANAL NR PINEVILLE	SC	3323	08008
02171500	SANTEE RIVER NEAR PINEVILLE	SC	3327	08009
06452000	WHITE RIVER NEAR OACOMA	SD	4345	09933
08066500	TRINITY RIVER AT ROMAYOR	TX	3026	09451
08116650	BRAZOS RIVER AT ROSHARON	TX	2921	09535
08158000	COLORADO RIVER AT AUSTIN	TX	3015	09742
08176500	GUADALUPE RIVER AT VICTORIA	TX	2848	09701
08459000	RIO GRANDE AT LAREDO	TX	2730	09930
09315000	GREEN RIVER AT GREEN RIVER	UT	3859	11009
10126000	BEAR RIVER NEAR CORINNE	UT	4135	11206
10171000	JORDAN RIVER AT SALT LAKE CITY	UT	4044	11155
02035000	JAMES RIVER AT CARTERSVILLE	VA	3740	07805
12200500	SKAGIT RIVER NEAR MT VERNON	WA	4831	12220
12398600	PEND OREILLE R AT INTERNATIONAL BOUNDARY	WA	4900	11721
12433000	SPOKANE RIVER AT LONG LAKE	WA	4750	11751
13353200	SNAKE RIVER AT BURBANK	WA	4613	11901
03201300	KANAWHA RIVER AT WINFIELD	WV	3832	08155
04087000	MILWAUKEE RIVER AT MILWAUKEE	WI	4306	08755
13022500	SNAKE RIVER ABOVE RESERVOIR NEAR ALPINE	WY	4318	11047

1/ Station 04122080 is not a NASQAN station, but data are included in this report to supplement data from station 04122030.

Purpose and Scope

The purposes of this report are: (1) to depict areal stream-quality variability in the United States based on those 101 network stations having data available for the 1974 water year (October 1973 to September 1974); and (2) to account for the quality and quantity of water flowing from the accounting units represented by the 101 stations. Subsequent reports, having the same purposes, will be much more comprehensive in that data will be available from 345 stations representing essentially all of the accounting units into which the Nation is divided.

It is important to realize that water quality of tributary streams within an accounting unit may deviate greatly from that shown by a downstream NASQAN station. If some of the upstream tributaries are polluted but others are not, the NASQAN station values for that accounting unit depend very much upon the relative rates of flow in the tributaries and the distance of the sampling point from the upstream sources of pollution.

This report is intended to serve as the prototype for future summary reports of basic data collected through the National Stream Quality Accounting Network. Comments from readers of this report and potential users of NASQAN information is welcome.

Acknowledgments

Although NASQAN is a U.S. Geological Survey water-quality data network, a portion of the data used to fulfill network data requirements are provided by or obtained from programs operated by numerous state and local organizations, and other Federal agencies such as the Tennessee Valley Authority, U.S. Army Corps of Engineers, Environmental Protection Agency, and International Boundary and Water Commission. These agencies are acknowledged for their cooperation in helping the U.S. Geological Survey achieve the goals of NASQAN.

Data used to compile this report were first screened for erroneous values. Data were verified and corrected, where necessary, in the District offices of the Geological Survey.

Special appreciation is extended to Kristi Wine and William Standish for help in developing programs for compiling tables and preparing graphs.

DEVELOPMENT OF THE U.S. GEOLOGICAL SURVEY WATER-QUALITY DATA PROGRAM

Cooperative programs between the U.S. Geological Survey and state agencies have traditionally made up a majority of the USGS overall effort in collecting water-quality data. These programs, until recent years, were concerned primarily with the analysis of water for concentrations of major inorganic chemical constituents and sediment. Since about 1965, programs have expanded to include such constituents as nitrogen and phosphorous species, organics, trace metals, and biological characteristics. Analyses of these constituents now constitute a major portion of many cooperative programs. The present sampling schedule used in the operation of NASQAN stations is shown in table 2.

Table 2.--Characteristics measured at NASQAN stations

(Frequencies: C, continuous; D, daily; M, monthly; Q, quarterly)

	Frequency
Field determinations:	
Water temperature	[1]C, D, or M
Specific conductance	[1]C, D, or M
pH	M
Discharge	C
Coliform, fecal	M
Streptococci, fecal	M
Common constituents (dissolved)[2]: (Bicarbonate, carbonate, total hardness, non-carbonate hardness, calcium, magnesium, fluoride, sodium, potassium, dissolved solids, silica, turibidity, chloride, and sulfate).	[3]M or Q
Major nutrients:	
Phosphorus, total[4] as P	M
Nitrite plus nitrate, total as N	M
Nitrogen, total Kjeldahl as N	M
Trace elements (total and dissolved): (Arsenic, cadmium, chromium, cobalt, copper, iron, lead, manganese, mercury, selenium, and zinc).	Q
Organics and biological:	
Organic carbon, total	Q
Phytoplankton, total, cells/ml	M
Phytoplankton, identification of 3 co-dominants	M
Phytoplankton, 3 co-dominants, percent of total	M
Periphyton, biomass, dry weight g/m^2	Q
Periphyton, biomass, ash weight g/m^2	Q
Periphyton, chlorophyll a	Q
Periphyton, chlorophyll b	Q
Suspended sediment:	
Suspended sediment concentration	M
Percent finer than 0.062-mm sieve diameter	M

[1]Continuous or daily depending upon whether the station is equipped with a monitor or whether daily observations are made. Monthly measurements made at stations where a long-term record is available.

[2]Dissolved constituents in water are those remaining after filtering samples through 0.45-micrometre membrane filters.

[3]Quarterly or monthly, depending upon whether relationships have been established between conductance and concentrations of various common constituents.

[4]Total concentrations are those determined by analyses of unfiltered samples. They include both dissolved and suspended materials.

Unfortunately, there is no clear, simple, quantitative way to describe "water quality." In practice, the quality of water in rivers is represented by measurements of a large suite of physical, chemical, and biological characteristics. Results of these many different measurements generally are compared with a set of standards or water-quality criteria in order to judge the suitability of the water. The problem is complicated by the fact that there are several different sets of criteria, depending upon the intended use of the water. Obviously, water that meets the criteria for one particular use will not necessarily meet the criteria for other uses.

Discussions in the subsections that follow deal with the results of measurements of selected water-quality characteristics, and relate the results to some of the criteria for selected water uses. Among the commonly cited standards and criteria are Water Quality Criteria of the National Academy of Sciences (1972), Quality Criteria for Water of the U.S. Environmental Protection Agency (1976a), National Interim Drinking Water Regulations (U.S. Environmental Protection Agency, 1975; 1976b), standards and criteria set by individual states, and recommended criteria proposed in miscellaneous articles and reports.

The Water Resources Regions as shown in figure 3 are used in the discussion of areal variability of the various groups of physical, chemical, and biological constituents. Use of the regions as a basis for discussion is done primarily to provide consistency throughout the text.

Stream-Temperature Record

Measurement of stream temperature at NASQAN stations varies in frequency from continuous, to once daily, to once a month. The design of the network specifies that a period (generally about 3 years) of either continuous or daily temperature measurements be available for analysis.

The statistical technique of Steele (1974) was used for analysis of the temperature data to obtain annual harmonic fits of daily stream temperature records. Steele's procedure is similar to that previously used by Ward (1963) and Collings (1969). The annual harmonic used in the analysis has the following general form:

$$T_d' = M + A \sin [(b) \times (d) + C]$$

where

T_d' represents estimated temperature on the d^{th} day, in ^{o}C,

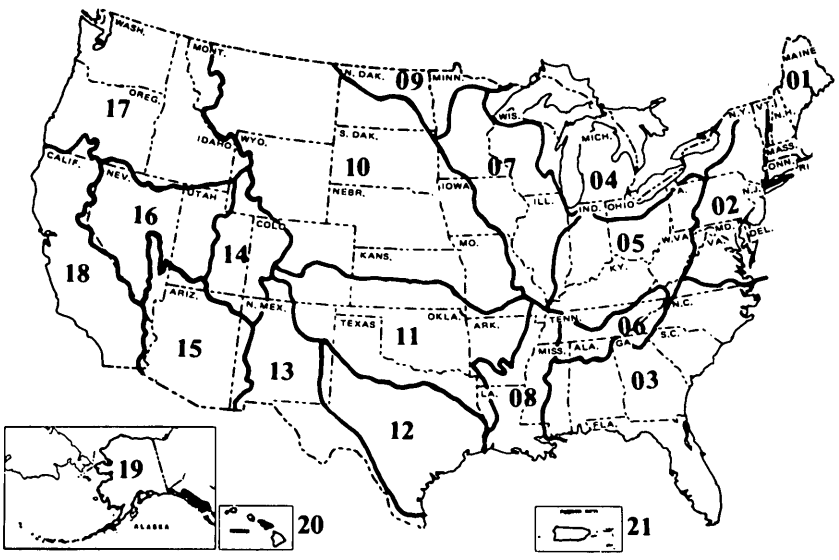
d represents a day of year (in this case October 1, the beginning of the water year is represented by integer 1),

b a constant equal to 0.0172, i.e. $2\pi \div 365$, or 366,

A represents the harmonic amplitude of stream temperature curve, in ^{o}C,

M represents the harmonic mean annual water temperature, in ^{o}C, and

C represents the phase angle, in radians.



EXPLANATION: Region numbers and names

01 New England	12 Texas Gulf
02 Mid Atlantic	13 Rio Grande
03 South Atlantic-Gulf	14 Upper Colorado
04 Great Lakes	15 Lower Colorado
05 Ohio	16 Great Basin
06 Tennessee	17 Pacific Northwest
07 Upper Mississippi	18 California
08 Lower Mississippi	19 Alaska
09 Souris-Red-Rainy	20 Hawaii and other Pacific Islands
10 Missouri Basin	
11 Arkansas-White-Red	21 Caribbean

Figure 3.--Water Resources Regions of the United States, as designated by the U.S. Water Resources Council.

The annual harmonic analyses of 1974 water-year stream temperature records for each station, where available, are summarized near the middle of each page of table 9. In addition to the harmonic coefficients, the standard error of estimate of a daily temperature value in °C and the percentage of the variation in daily temperature values that is accounted for by the harmonic function is also presented. These latter two values, standard error of estimate and percentage variation explained by the harmonic, will be used in the future to decide whether or not the sampling frequency can be reduced to monthly.

As would be expected, mean temperatures of streams, as measured at NASQAN stations, are lowest in the North and graduate to highest values in the subtropical regions along the southern border of the country. Of the 59 streams for which harmonic analyses were performed, eight had harmonic means less than 10°C. Seven of these were at latitudes greater than 43°N., and the eighth, the Colorado River at Lees Ferry, Arizona (at lat 36°51"N.) is influenced by outflow from a large stratified reservoir. Harmonic mean temperatures were in the range of 20-25°C at 18 stations, all located south of lat 35°N. None of the means exceeded 25°C.

Generally there is an inverse relationship between the harmonic mean temperature, M, and the amplitude, A--the coldest rivers showed the greatest annual variation in temperature, and vice versa. Amplitudes of 10°C or greater were found frequently for stations north of lat 40°N., but amplitudes commonly were less than 10°C for stations south of that latitude. However, the temperature damping influences of reservoirs were observed at some northern stations. Amplitudes of less than 1°C were found for the Colorado River at Lees Ferry, Arizona, and for Waikele Stream at Waipahu, Oahu, Hawaii.

Standard errors of estimate of stream temperature provided by the harmonic equation were 2°C or less at about 60 percent of the stations, and were 2.5°C or less at about 80 percent. The standard error was greater than 4°C (actually 4.15°C) at only one station.

Major Inorganic Chemicals

When discussing major inorganic chemicals it is common to use the label "common constituents," as was done in table 2 of this report. Chemicals in this group generally dominate the total mass of dissolved material in water, and thus have been the objective of most chemical analyses performed in the past.

Several earlier reports have been prepared describing national patterns of water quality in terms of major inorganic chemicals. Two of the most comprehensive of these are a U.S. Geological Survey Hydrologic Investigations Atlas by Rainwater (1962), and an analysis of data from 88 NASQAN stations by Steele and others (1974).

Data summaries for major inorganic chemicals measured at NASQAN stations during the 1974 water year are given in the top portion of table 9. The second through fifth column in the table for each station list the number of measurements, mean concentration (arithmetic average), standard deviation of measurements, and range of values for each constituent during the 1974 water year. Because NASQAN stations are sampled at uniform time intervals, without concern for the hydrologic patterns of high or low flow, most of the samples are collected during periods of relatively low flow. They therefore provide a fairly representative sample of what one would expect to find in the stream on any given day. They do not, however, necessarily provide good information on the total load carried during a year or the complete range of concentrations because the samples tend to miss the periods of highest flows and extremes in concentrations.

Paragraphs that follow in this subsection describe general national patterns of water quality based on 1974 water year data of certain major inorganic chemicals. Illustrations including histograms and maps are used to show frequencies, ranges, and distributions of concentrations of common constituents. Some of the histograms consider data from more than 101 stations--in some cases as many as 106. In these histograms, supplemental data from a few extra stations located near the NASQAN stations have been considered.

Dissolved solids.--A quantitative measure of the amount of dissolved minerals in water is represented by the concentration of dissolved solids. Data on dissolved solids are widely used as general indicators of water quality. Waters with dissolved-solids concentrations less than 500 milligrams per liter (mg/L) usually are considered by most standards and criteria to be suitable for drinking, assuming that other factors also are acceptable. However, waters with higher concentration of dissolved solids can be and are used for domestic purposes, provided that certain critical substances are within suitable concentration ranges. Irrigation water usually is expected to contain less than 2,000 mg/L of dissolved solids (National Academy of Sciences, 1972, p. 335), but again, higher concentrations can be tolerated in some soil situations, depending upon the concentrations of certain ions. Krieger and others (1957, p. 5) have classified water with 1,000 to 3,000 mg/L of dissolved solids as slightly saline, water with 3,000 to 10,000 mg/L as moderately saline, and water with 10,000 to 35,000 mg/L as very saline.

Frequency distributions of mean concentrations of dissolved-solids at 105 stations are shown on the histogram at the top of figure 4. Concentrations are less than 300 mg/L at about two-thirds of the stations, and are less than 500 mg/L at 84 percent of the stations. One station, with a mean concentration of 14,200 mg/L was not included on the histogram in order to maintain the expanded scale shown.

Areal patterns in dissolved-solids concentrations are shown by the U.S. map at the bottom of figure 4. The outlines of accounting units are shown on the map, and those units for which 1974 NASQAN data are available are colored to show the mean concentrations of dissolved solids at the NASQAN station monitoring drainage from the respective accounting units.

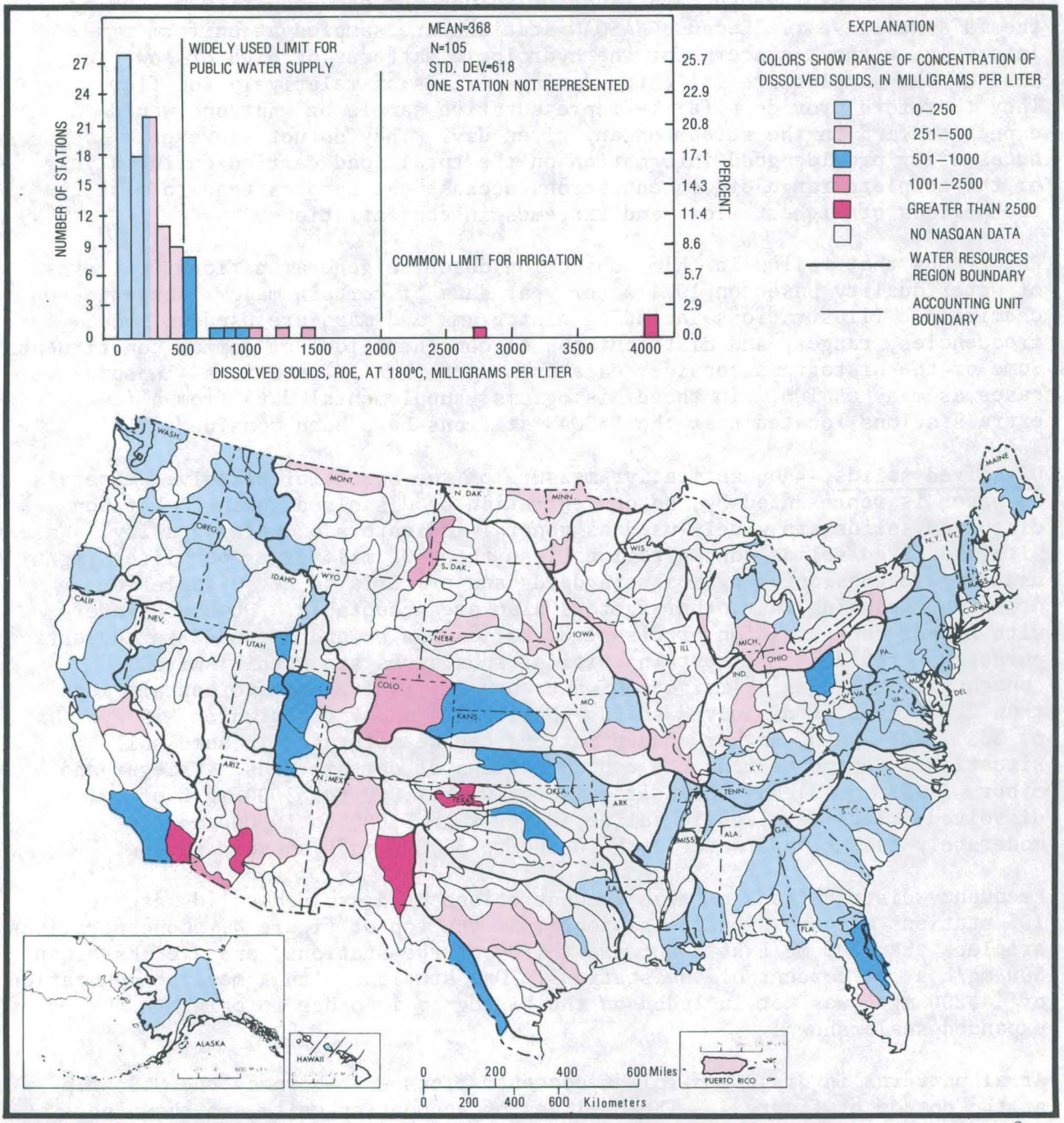


Figure 4.--Mean concentration of dissolved solids measured as residue on evaporation (ROE) at 180°C at NASQAN stations during 1974 water year. Map at the bottom is colored to show station data representing flow from the accounting unit.

Lowest concentrations of dissolved solids existed in the following Water Resources Regions (see fig. 3): New England, Mid-Atlantic, South Atlantic-Gulf, Tennessee, Lower Mississippi, Pacific Northwest, Alaska, and Hawaii. These are the regions having the greatest amount of precipitation.

High concentrations occurred in the regions of Missouri, Arkansas-White-Red, Rio Grande, Upper and Lower Colorado, and the southern-most part of California, regions of lesser precipitation and irrigated agriculture. The highest mean concentration of dissolved solids, 14,200 mg/L, was at the station on the Pecos River of New Mexico; and concentrations greater than 4,000 mg/L were found at stations on the Gila River in Arizona and the New River in southern California.

Hardness.--Many industrial and domestic water users are concerned about hardness. Hard water requires more soap and synthetic detergents for home laundry and washing, and contributes to scaling in boilers and in industrial equipment. Hardness is caused by compounds of calcium and magnesium, and by a variety of other metals. In this report hardness is reported as an equivalent concentration of calcium carbonate, $CaCO_3$. General guidelines for classification of waters in this report are: 0 to 60 mg/L as $CaCO_3$ is classified as soft; 61 to 120 mg/L as moderately hard; 121 to 180 mg/L as hard; and more than 180 mg/L as very hard (Durfor and Becker, 1964, p. 27).

Mean values of hardness at 105 stations during the 1974 water year are represented by the histogram at the top of figure 5. About half of the mean hardness values for the stations are in the soft to moderately hard categories, and about half can be classified as hard to very hard. Data for one station, the Pecos River at Red Bluff, N.Mex., with a mean hardness of 2,760 mg/L as $CaCO_3$, are not shown in order to maintain the expanded scale of the histogram.

Patterns of hardness in different parts of the country are shown on the map of accounting units at the bottom of figure 5. Softest waters are in parts of the following regions: New England, South Atlantic-Gulf, and Pacific Northwest. Hard and very hard waters were found in every other region except Tennessee and Hawaii.

Chloride.--Presence of chloride in drinking water can adversely affect taste, and chloride in industrial water supplies can lead to corrosion and other adverse effects. Water Quality Criteria 1972 (National Academy of Sciences, 1972) suggests that chloride in drinking water not exceed 250 mg/L, if possible, because of problems with taste.

Ranges of mean chloride concentrations at 106 stations during the 1974 water year are shown in the histogram at the top of figure 6. Most of the chloride concentrations represented in the figure are quite low--about three-fourth are less than 30 mg/L. The highest concentration shown on the histogram is for the Arkansas River in Kansas, which had a mean concentration of 287 mg/L. However, the histogram is somewhat nonrepresentative of the national situation because four stations with high mean chloride concentrations are not represented in order to maintain the enlarged scale. Not represented on the histogram are the following-listed stations:

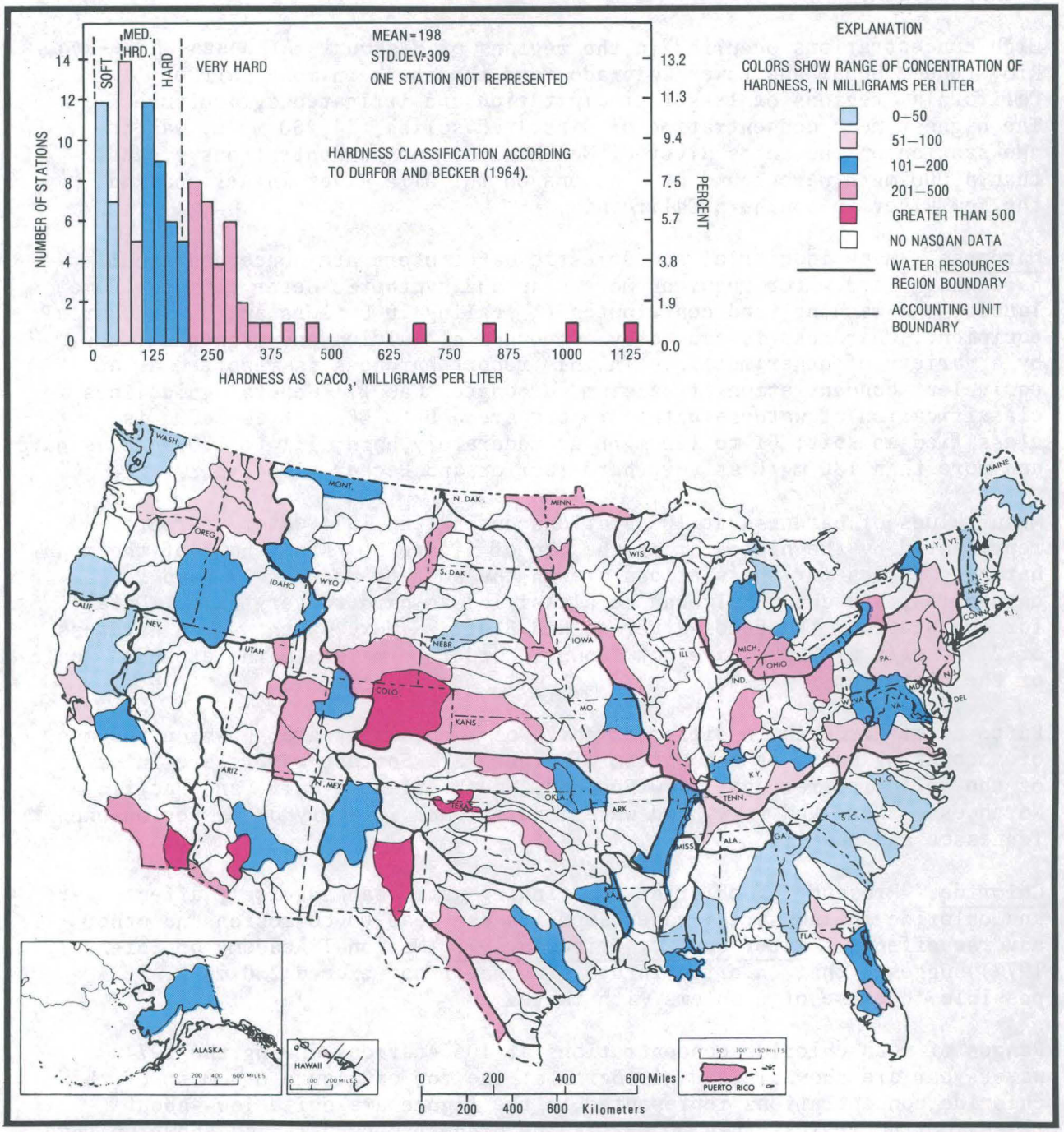


Figure 5.--Mean concentration of hardness as $CaCO_3$ at NASQAN stations during 1974 water year. Map at bottom is colored to show station data representing flow from the accounting unit.

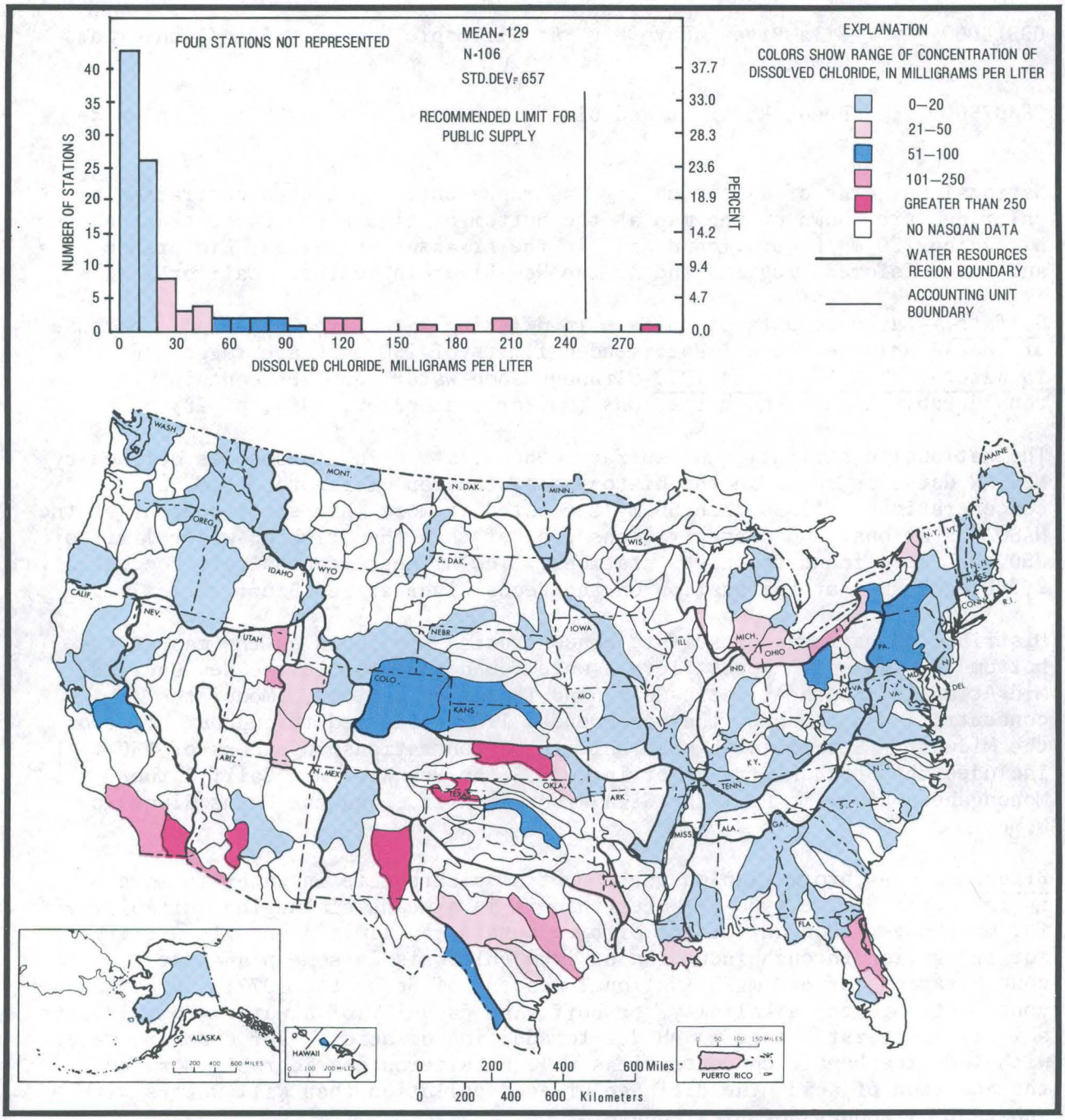


Figure 6.--Mean concentration of dissolved chloride at NASQAN stations during 1974 water year. Map at bottom is colored to show station data representing flow from the accounting unit.

07234000	Beaver River at Beaver, Oklahoma	1,000 mg/L chloride
10254970	New River at Int. Bdry. nr Calexico, Calif.	1,560 mg/L chloride
09518000	Gila River above Div. at Gillespie Dam, Az.	4,000 mg/L chloride
08407500	Pecos River at Red Bluff, N.M.	6,420 mg/L chloride

National patterns of water quality, as represented by the concentration of chloride, are shown on the map at the bottom of figure 6. Concentrations exceeding 250 mg/L were found only in the Arkansas-White-Red, Rio Grande, and Lower Colorado regions and in the New River in southern California.

Sulfate.--Large amounts of sulfate in drinking water are undesirable because of the laxative effects. Recommended limits of 250 mg/L are suggested in Water Quality Criteria 1972 although some water supplies contain considerably higher concentrations (Durfor and Becker, 1964, p. 78).

The national distribution of sulfate concentration in streams, as defined by NASQAN data, is shown in the histogram at the top of figure 7. Mean concentrations of less than 50 mg/L existed at more than sixty percent of the NASQAN stations, and concentrations greater than the drinking-water limit of 250 mg/L were found at only 9 stations. The highest mean sulfate concentration, 2,390 mg/L, was at the station on the Pecos River at Red Bluff, N.Mex.

Distribution patterns of sulfate concentration are shown on the map at the bottom of figure 7. Lowest levels were found to occur in the New England, Mid-Atlantic, South Atlantic-Gulf, and Tennessee regions. Moderate concentrations, not over the recommended limit, existed throughout most of the Midwest. Streams with mean sulfate concentrations in excess of 650 mg/L included the South Platte River in Colo., the New River in Calif., the Monongahela River in Pa., the Gila River in Ariz., and the Pecos River in N.Mex.

Bicarbonate.--Information on the amount of bicarbonate in water is more of an indicator of the type of water than it is a means of judging suitability for most uses. Concentrations of bicarbonate can limit a water's utility for irrigation through induction of iron chlorosis in some plants at concentrations of 610 mg/L (National Academy of Sciences, 1972). Bicarbonate contributes to the alkalinity, or buffering capacity of a water--that is, its ability to resist change in pH due to addition of acids. For example, water with low bicarbonate concentrations will be altered considerably more by the addition of acid mine drainage or acid pollution than will waters with substantial amounts of bicarbonate.

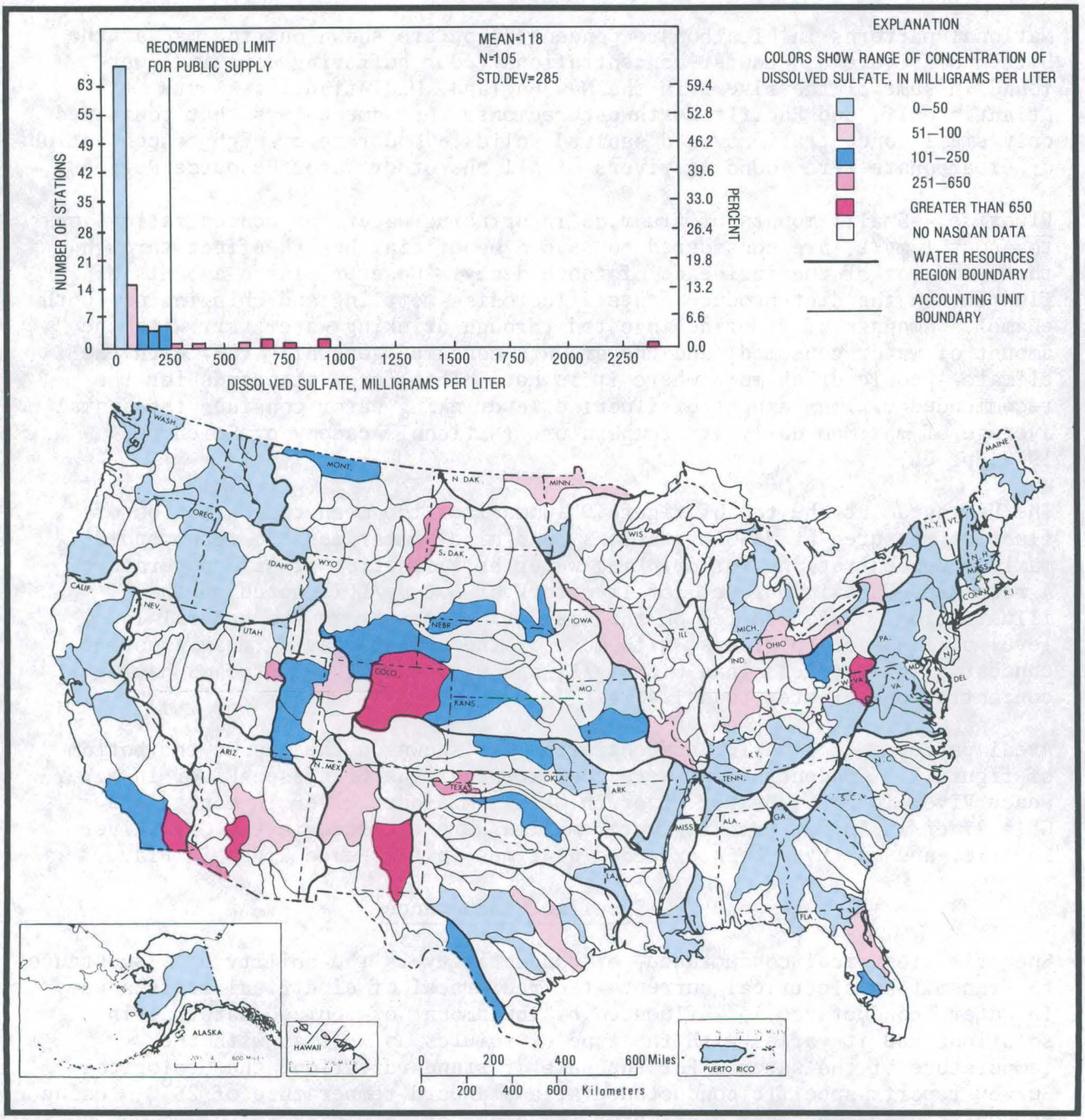


Figure 7.--Mean concentration of dissolved sulfate at NASQAN stations during 1974 water year. Map at bottom is colored to show station data representing flow from the accounting unit.

Variations in bicarbonate concentration at NASQAN stations are shown by the histogram at the top of figure 8. The histogram is quite uniform; the greatest mean bicarbonate concentration was slightly more than 300 mg/L; and the median was about 120 mg/L.

National patterns in bicarbonate concentration are shown on the map at the bottom of figure 8. Lowest concentrations (poor buffering capacity) were found in some of the rivers in the New England, Mid-Atlantic, South Atlantic-Gulf, and Pacific Northwest regions, the same waters that contained only small concentrations of dissolved solids. Moderate or high concentrations of bicarbonate were found in rivers of all the other Water Resource Regions.

Fluoride.--Small amounts of fluoride in drinking water, at concentrations up to about 1 mg/L, are considered to have a beneficial health effect through the reduction of the incidence of tooth decay. However, large amounts of fluoride in the diet produce dental fluorosis--mottling and chipping of tooth enamel. Amounts of fluoride ingested through drinking water vary with the amount of water consumed, and the amounts consumed generally vary with the climate--people drink more where it is hot. Therefore, standards for the recommended maximum amount of fluoride in drinking water consider the annual average of maximum daily air temperature (National Academy of Sciences, 1972, p. 66).

The histogram at the top of figure 9 summarizes the mean concentration of fluoride measured at NASQAN stations, and also summarizes the recommended maximum concentrations for drinking water as a function of air temperature. A recommended maximum level for livestock of 2.0 mg/L is noted on the illustration. Data plotted on the histogram demonstrate the general low level of fluoride in rivers, with most of the streams having mean fluoride concentrations of less than 0.60 mg/L, and with only three streams having concentrations greater than 1.4 mg/L.

Areal patterns of fluoride concentration are shown on the map at the bottom of figure 9. Concentrations were low except at the Gennessee River in N.Y., Peace River in Fla., Beaver River in Okla., Missouri River in Mont., and Gila River in Ariz. Drinking water maxima were exceeded in the Gila River in Ariz. and may have been exceeded at times in the Peace River in Fla.

Specific Conductance

Specific electrical conductance, or conductivity is the ability of a substance to transmit an electrical current--the reciprocal of electrical resistance. In water, conductance is influenced by the amount of ionized material in solution, and it varies with the type of solutes as well as with the temperature of the water. For the sake of standardization, the Geological Survey reports specific conductance at a standard temperature of 25°C, using the units "micromhos per centimeter (μmho/cm) at 25°C."

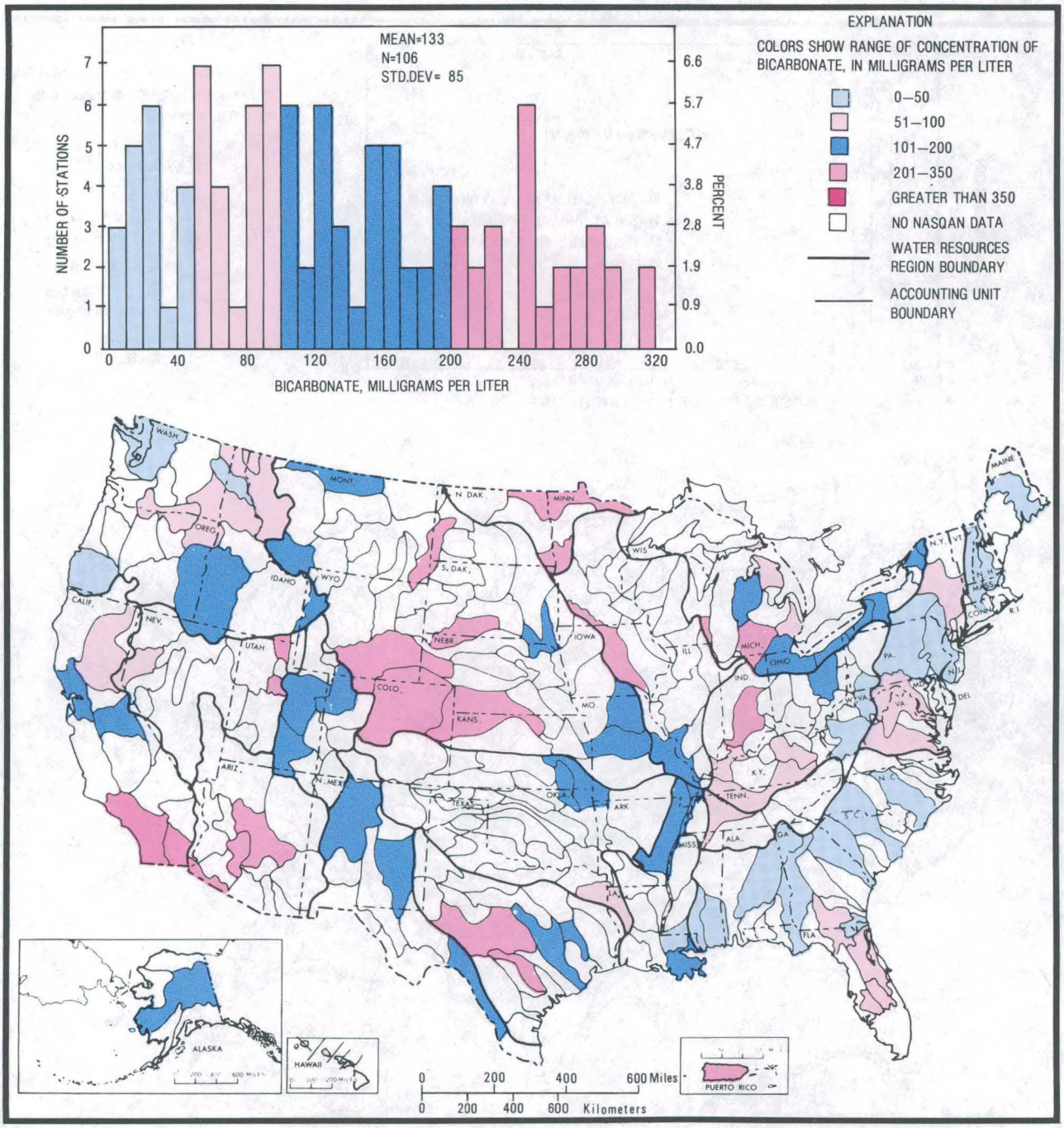


Figure 8.--Mean concentration of bicarbonate at NASQAN stations during 1974 water year. Map at bottom is colored to show station data representing flow from the accounting unit.

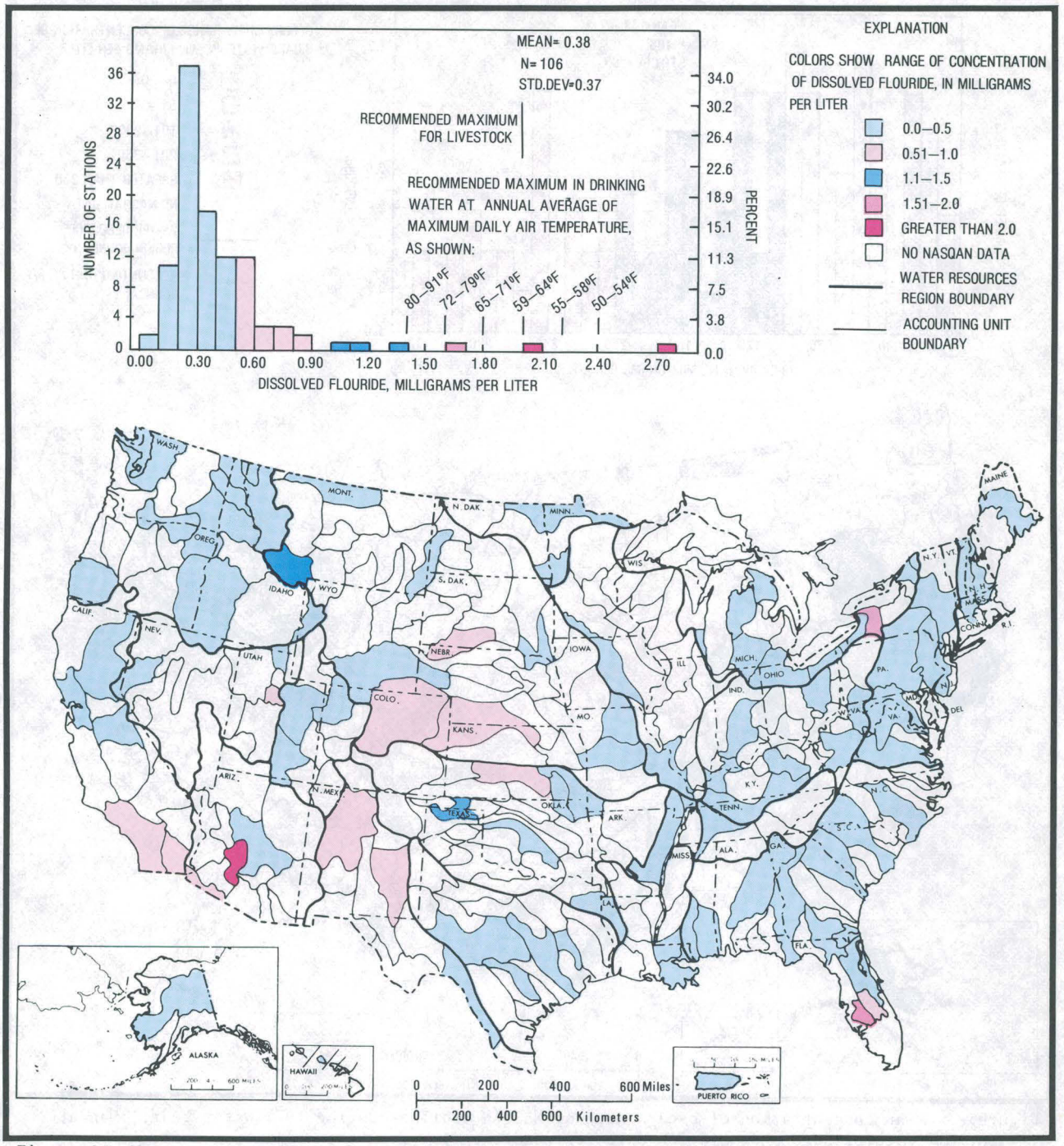


Figure 9.--Mean concentration of dissolved flouride at NASQAN stations during 1974 water year. Map at bottom is colored to show station data representing flow from the accounting unit. Recommended maxima shown on the histogram are from the National Academy of Sciences (1972).

Because specific conductance of water varies more or less in proportion to the amount of material in solution, it is widely used as an indicator of water quality. Specific conductance correlates well with the concentration of dissolved solids in many waters, and in many instances it also correlates well with the concentrations of many specific ions in solution. NASQAN data frequently show good relationships of specific conductance with concentrations of calcium, magnesium, sodium, sulfate, chloride, and hardness as $CaCO_3$. In addition, good relationships also exist at some stations between specific conductance and nitrogen, as nitrite plus nitrate ($NO_2 + NO_3$), or as ammonia plus organic nitrogen (Kjeldahl nitrogen).

Correlation and regression statistics describing the relationships between specific conductance and several other water-quality characteristics were determined for the NASQAN stations described in this report. The statistical parameters for each station are described in the several columns on the right side of the data table at the top of each page of table 9. Terms including the regression coefficient, R, and the regression constant, B, can be used to estimate concentration of a particular substance by the equation

$$\text{Concentration, in mg/L} = R\ (SC) + B,$$

where SC is specific conductance in µmho/cm at 25°C.

Although table 9 includes regression coefficients and constants for many of the constituents measured at each station, the values should be used with caution in estimating concentrations of some constituents due to the effect of relatively small sample size. To guide the data user, the tables contain values of the correlation coefficient between concentration and conductance, as well as the standard error of estimate for each regression.

Duration tables of specific conductance are included in table 9 for most NASQAN stations. These tables show the values of conductance that were exceeded during specific percentages of the year. They describe the annual variation as determined from daily observations or from continuous records of conductance. Data in the duration tables provide more detail than are provided by the summary of conductance values measured at the time of the periodic chemical sampling. They provide more information on the extremes, and generally have a greater range than is shown by the 12 or so periodic measurements.

As an example of the application of the duration tables and the regression equations, consider the data in table 9 for station 03290500, the Kentucky River at Lock 2 at Lockport, Ky. As shown by values in the duration table, specific conductance at the station is in the range of 191 to 291 µmho/cm for 80 percent of the year. Also, hardness correlates with conductance with a correlation coefficient of 0.94, and the regression equation is

$$\text{Hardness, in mg/L as } CaCO_3 = 0.447\ (SC) + (-0.33).$$

Therefore, hardness values range from 85 to 130 mg/L for 80 percent of the time, with a standard error of estimate of 8 mg/L. The table further shows that specific conductance exceeded 330 µmho/cm for 1 percent of the time, from which it can be estimated that hardness exceeds about 147 mg/L as $CaCO_3$ for about 1 percent of the time.

As mentioned previously, users of the values in table 9 should keep in mind that limited data can create false impressions regarding both the first and second statistical moments (mean and variance) and the relationships between concentrations of dissolved materials and specific conductance. There may be situations where generally good relationships should exist, but where it is not evident from the 8 to 12 samples collected; and vice versa, 8 to 12 samples over a limited range may indicate a good relationship which in fact has no physical meaning and which will be discredited with the collection of additional data. It also should be remembered that it is risky to extrapolate any of the functional relationships between conductance and concentrations beyond the range of the data used to establish the relationships.

Major Nutrients, Nitrogen and Phosphorus

Principal concerns for nitrogen and phosphorus in natural water have to do with the roles these major nutrients play in the process of eutrophication. Generally, eutrophication is a slow, natural process, and commonly is talked of mainly in connection with lakes; but the slow, natural process of eutrophication frequently is speeded up by the addition of nutrients from the activities of man. Also, it is not unusual for streams to be rich in nutrients in much the same manner that lakes are eutrophic.

Nitrogen.--Several forms of nitrogen are found in natural waters. Most common are the nitrate (NO_3) and nitrite (NO_2) ions, ammonia (NH_3 or NH_4^+), and several forms of organic nitrogen. Samples (unfiltered) from NASQAN stations are analyzed for the sum of nitrite plus nitrate ($NO_2 + NO_3$), and for the sum of ammonia plus organic nitrogen, frequently called Kjeldahl nitrogen (KN).

There frequently is confusion in the reporting of concentrations of the various forms of nitrogen because some investigators report the concentrations of the ions, in mass per unit volume, and other investigators report only the weight of nitrogen. Results can be considerably different. For example, 1.0 milligram per liter (mg/L) of "nitrate nitrogen as N" (NO_3--N) is equivalent to 4.4 mg/L of nitrate (NO_3); and 1.0 mg/L of "nitrite nitrogen as N" (NO_2--N) is equivalent to 3.3 mg/L of nitrite (NO_2).

There are numerous sets of standards and criteria for the concentrations of the various forms of nitrogen in natural waters. The National Academy of Sciences (1972), in Water Quality Criteria 1972 recommends a maximum concentration of NO_3--N of 10 mg/l; and a similar limitation for public water supply is given in the 1975 Annual Report of the U.S. Council on Environmental Quality (CEQ) (1976, p. 353). On the other hand, CEQ used a maximum NO_3--N concentration of 0.6 mg/L as a criterion for "aquatic life protection," suggesting that higher levels are indicative of undesirable eutrophication.

Many state water-quality standards specify 45 mg/L NO_3 (equivalent to 10 mg/L NO_3--N), but several states have adopted more rigid standards or criteria. In most cases the rigid standards represent an interest in controlling rates of eutrophication. According to a summary by the U.S. Environmental Protection Agency (EPA) (1971b), general criteria for California list maximum values of total N ranging from 1.0 to 3.0 mg/L, depending on region. Criteria for Lake Tahoe are more rigid, giving a maximum for the average value of total N of 24 µg/L (equal to 0.024 mg/L). Several classes of waters in Hawaii have criteria for maximum levels of total N in the ranges of 0.10 to 0.20 mg/L. Criteria for Lake Michigan set by Illinois and Indiana state that total N should not exceed 0.4 mg/L. Established criteria for total NO_3 concentrations in various waters within Nevada range from 0.5 mg/L to 2 or 3 mg/L of NO_3.

Data representing annual mean concentrations of nitrite plus nitrate, as nitrogen (NO_3 + NO_2--N) at 100 NASQAN stations during the 1974 water year are shown on the histogram at the top of figure 10. Mean concentrations were less than 0.5 mg/L at 60 stations, and were less than 1.0 mg/L at about 90 stations. The widely used standard for drinking water, 10 mg/L NO_3--N, possibly may be exceeded at the stations on the Gila River above the Diversion at Gillespie Dam, Ariz., where the average NO_3 + NO_2--N was 10.99 mg/L. Assuming that the amount of nitrite is small, as it frequently is in large streams, it is estimated that the CEQ criterion of 0.6 mg/L maximum NO_3--N for aquatic life protection was exceeded by the annual mean concentration at about one-fourth of the rivers represented.

Patterns of national distribution of nitrite plus nitrate nitrogen are shown on the colored map at the bottom of figure 10. Lowest concentrations appear to conform to regions having both moderate to high rainfall and relatively small amounts of intensive agriculture. Higher concentrations, those above the CEQ criterion of 0.6 mg/L, generally seem to be associated with farming regions or the areas of high population density. The single highest station, the Gila River above Gillespie Dam, is in an area that receives local runoff that is high in nitrogen with little opportunity for dilution.

The distribution of data on the mean concentration of organic nitrogen plus ammonia (Kjeldahl nitrogen, KN), at NASQAN stations during the 1974 water year is represented on the histogram at the top of figure 11. Amounts of KN alone were enough to exceed some of the more rigid criteria for levels of total nitrogen set for some U.S. waters.

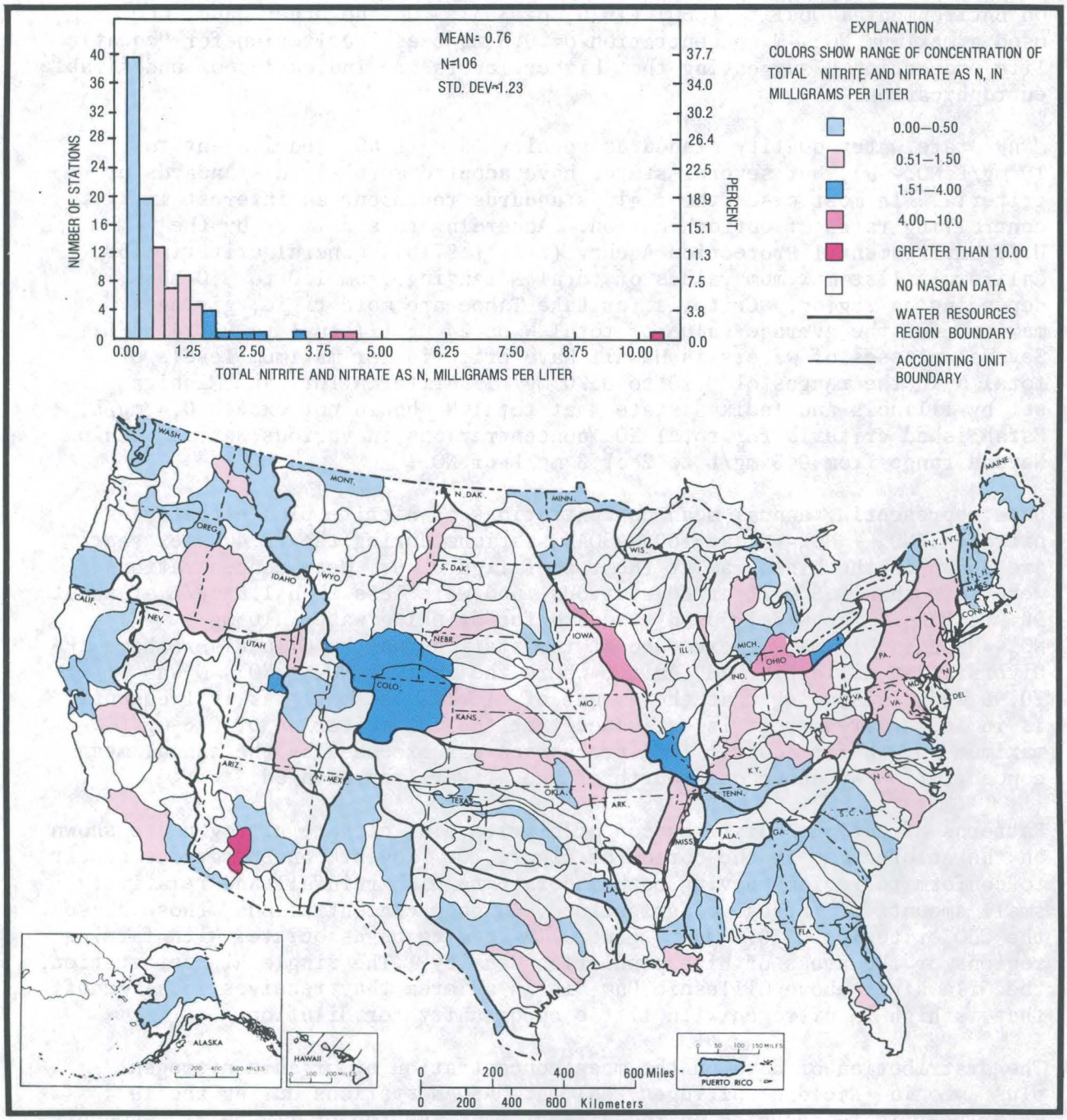


Figure 10.--Mean concentration of total nitrite plus nitrate as N at NASQAN stations during 1974 water year. Map at bottom is colored to show station data representing flow from the accounting unit.

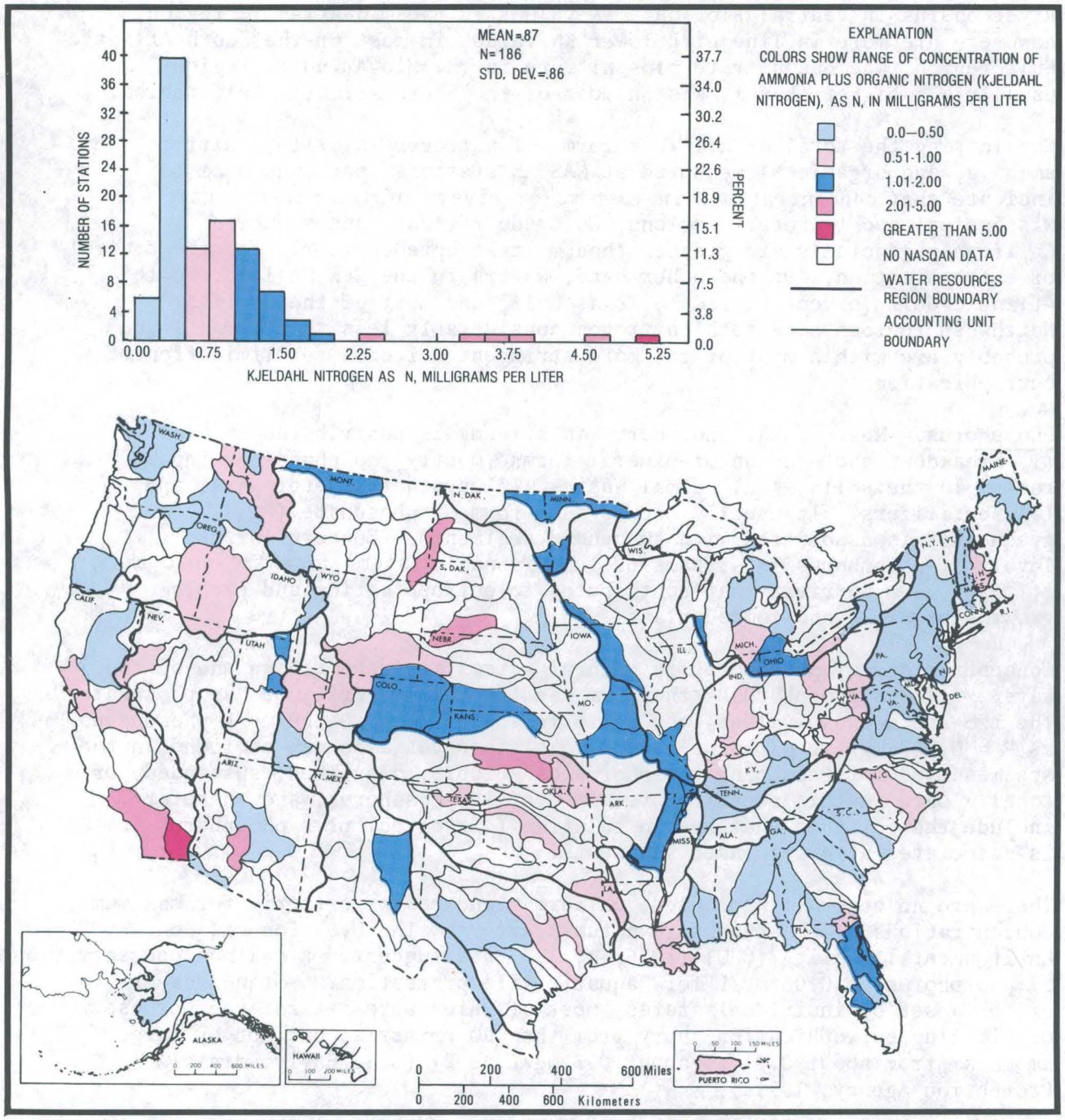


Figure 11.--Mean concentration of ammonia plus organic nitrogen (Kjeldahl nitrogen), as N, at NASQAN stations during 1974 water year. Map at bottom is colored to show station data representing flow from the accounting unit.

Patterns of KN concentration shown on the map at the bottom of figure 11 are similar to the patterns for concentrations of nitrite plus nitrate nitrogen shown in the map portion of figure 10. Highest concentrations (greater than 1 mg/L as N) are in farming regions, near population centers in the Midwest and Southwest, and in the St. Johns and Peace River basins in central Florida. KN values in the Mid-Atlantic region, however, are more in line with lower KN values in most of the South Atlantic-Gulf region, whereas nitrite plus nitrate in the Mid-Atlantic region usually was higher than it was in most of the South Atlantic-Gulf region.

Considering the total of all four forms of nitrogen (nitrite, nitrate, ammonia, and organic N) measured at NASQAN stations, patterns seem to indicate that concentrations in most major rivers of the Mid-Atlantic Mississippi and tributary regions, Colorado regions, and southern California generally are greater than most accepted criteria for the control of eutrophication. On the other hand, waters in the New England, South Atlantic-Gulf (except Florida), Texas Gulf, and most of the Pacific Northwest regions have total nitrogen considerably less than 1 mg/L, and probably are within most of the more stringent criteria for limitation of eutrophication.

Phosphorus.--Most of the phosphorus in streams is contributed by (1) breakdown and erosion of mineral forms (mostly phosphate-bearing rocks) in the soils, (2) animal wastes, (3) synthetic detergents, and (4) fertilizers. It usually occurs as a form of phosphate (PO_4^{-3}), and frequently is associated with suspended sediments. Concern for the levels of phosphorus in streams or lakes usually stems from the role that it plays as a nutrient that contributes to eutrophication and problem growths of algae and rooted plants.

Concentrations of phosphorus in natural waters are reported in one of two ways: (1) "as phosphorus" (the form used in this report), or "as phosphate." The two are not equivalent--the ratio is 1:3.07 (e.g. 0.100 mg/L phosphorus as P = 0.307 mg/L phosphorus as PO_4). Differences also may be found in the schemes used for reporting phosphorus as soluble, dissolved, suspended, or total. Data in this report represent "total" phosphorus, and therefore include the portions that are in solution (dissolved) plus phosphorus that is associated with suspended sediments.

There are no generally accepted, uniform standards or criteria for maximum concentrations of phosphorus in natural waters. The U.S. Council on Environmental Quality (CEQ) (1976, p. 353) has suggested a maximum concentration of phosphorus of 0.03 mg/L for "aquatic life protection." Standards or criteria set by individual states, most of which were set for the purpose of limiting eutrophication, vary from the CEQ criteria, but not by large amounts (from about 0.01 to about 0.3 mg/L as P) (U.S. Environmental Protection Agency, 1971a).

Distribution of the mean concentration of total phosphorus at NASQAN stations during the 1974 water year is shown on the histogram at the top of figure 12. About 15 percent of the stations have mean concentrations of P less than 0.05 mg/L, about forty percent have concentrations less than 0.1 mg/L, and about forty percent have mean concentrations greater than 0.2 mg/L--clearly in the range above the criteria for maintaining minimal eutrophication.

Colored patterns on the map at the bottom of figure 12 show the national patterns of phosphorus concentration measured at NASQAN stations. Lowest concentrations were in the East (New England, part of Mid-Atlantic and South Atlantic-Gulf regions) and the Northwest (Pacific Northwest region), areas of relatively heavy rainfall and minimal to moderate farming. Highest levels were associated with the farming regions and erodible soils of the Mississippi and tributary regions, and regions of the Colorado, Great Basin, and California. Greatest mean concentrations were measured at the stations on the White River at Oacoma, South Dakota (10 mg/L), and the Peace River at Arcadia, Fla. (3.3 mg/L).

Suspended Sediment

Technical and non-technical interest in stream sedimentation stems mainly from concerns for (1) the effects of erosion and deposition of material, and (2) influences that sediments have on the usefulness and attractiveness of water. Therefore, there is considerable need to document the amount of sediment being carried by streams.

Sediment in streams results from erosion of soils by overland (sheet) erosion, and by scouring of ditches and stream channels. Flowing streams carry some sediment almost all of the time, but by far the highest concentrations and biggest loads are carried by storm runoff.

Sediment data at most NASQAN stations are collected by sampling at a frequency of once per month. Samples are analyzed for (1) concentrations of suspended sediment (reported in mg/L), and (2) clay-silt fraction (percent finer than 0.062 mm diameter). Problems regarding sampling frequency, which were discussed in the subsection on major inorganic chemicals, also must be considered in evaluation of suspended sediment data. Suspended sediment data in this report generally provide a fairly representative sample of what one would expect to find in the stream on any given day; but they may not provide good information on the total sediment load or the mean size of the sediment carried during a year. The samples tend to miss the periods of highest concentrations, greatest sediment loads, and largest portions of a coarse material.

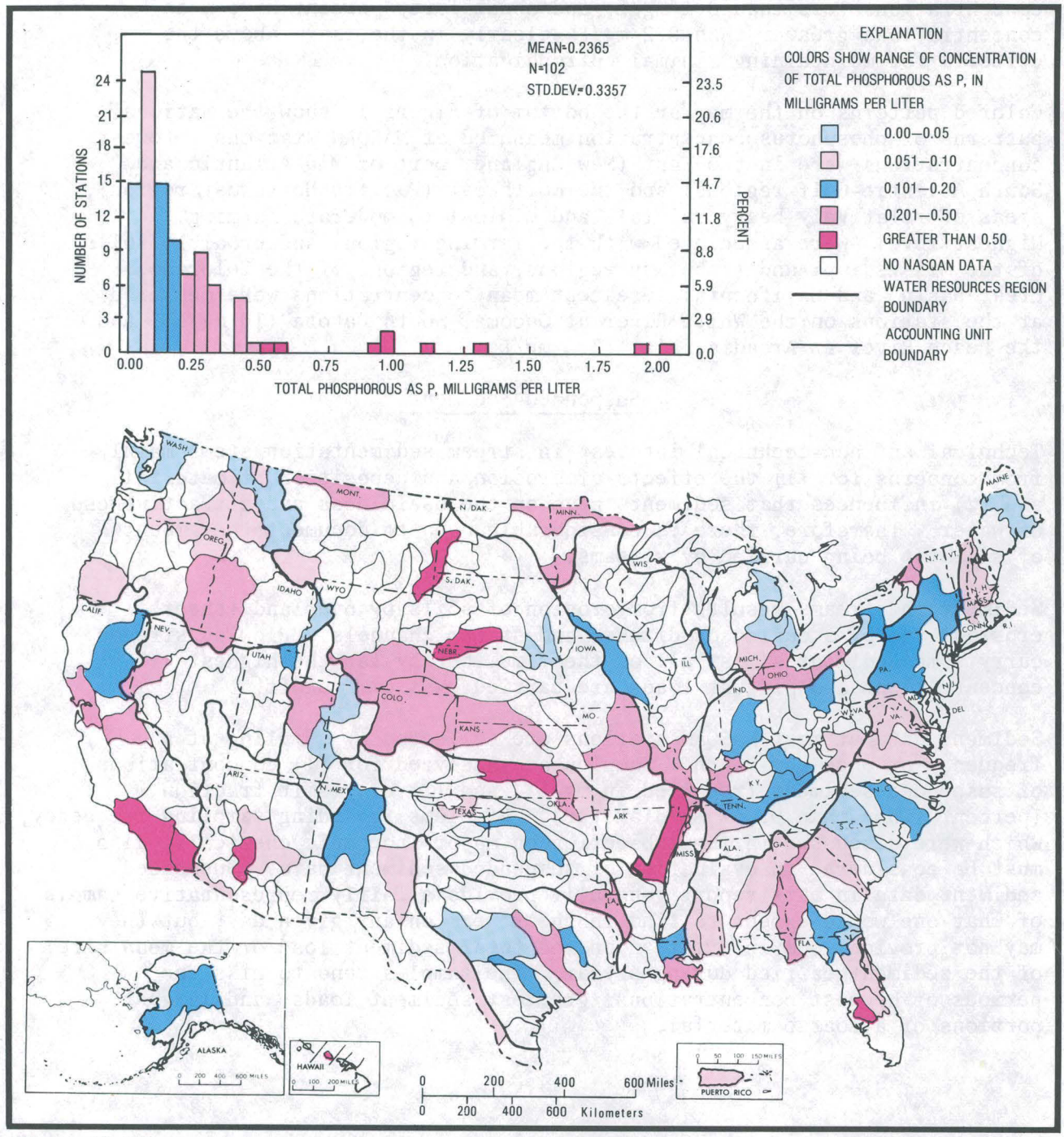


Figure 12.--Mean concentration of total phosphorous as P at NASQAN during 1974 water year. Map at bottom is colored to show station data representing flow from the accounting unit.

Summaries of the sediment data collected at NASQAN stations during the 1974 water year are included in table 9. Histograms and maps in figures 13 and 14 show the national patterns of sediment as represented by the mean and maximum concentrations measured at the stations. At about half of the stations, mean concentrations were less than 100 mg/L, and maximum measured concentrations were less than 300 mg/L. Low concentrations generally were associated with the forested regions of the East, North, and Northwest. Higher concentrations of sediments occurred in the streams draining the more heavily farmed, semi-arid, or sparsely vegetated areas of the Mid-Atlantic, Mississippi and tributary, and Colorado regions, and Alaska and Hawaii.

Maps in figures 13 and 14 seem to show anomalously low concentrations of sediment for the accounting unit represented by the NASQAN station on the Colorado River at Austin, Tex. Concentrations at this station were in the narrow, low range of 5 to 20 mg/L. The Colorado River at Austin obviously is influenced by Lake Travis, Town Lake, and several other reservoirs located upstream, which act as traps for sediments. In other words, sediments are being eroded from the land, but they are not leaving the basin because they are being trapped in the reservoirs.

Maximum sediment concentrations represented by the histogram and map of figure 13 obviously grossly underestimate the true maximum concentrations occurring in most of the rivers.

Bacteria

There are many forms of bacteria in natural waters; some are pathogenic, or disease causing, but fortunately most are harmless. People, of course, are concerned mainly about those that present threats of disease.

It is impossible to monitor for all forms of pathogens. Instead, knowing that certain disease producing organisms move from person to person through the water, the waters are examined for signs that these organisms may be present. Classically, this has been done by monitoring for indicator organisms in the so-called coliform group, and more recently in the fecal streptococcal group. The logic of the scheme is: (1) indicator bacteria show the presence of pollution, and (2) polluted waters are likely to contain pathogens in numbers proportional to the numbers of indicator bacteria.

At NASQAN stations, data are collected at monthly intervals on numbers of (1) fecal coliforms (those members of the coliform group found in the feces of various warm-blooded animals), and (2) fecal streptococci. Most standards and criteria of water quality are written in terms on numbers of total coliforms or fecal coliforms. Water Quality Criteria 1972 (National Academy of Sciences, 1972) recommends that raw waters used as a source for public supply contain not more than 2,000 fecal coliform colonies per 100 mL, and that waters used for bathing have a log mean fecal coliform count of not more than 200 colonies per 100 mL. State standards and criteria generally are similar, but may differ over a broad range in some cases. Waters used for shellfish harvesting generally have much more stringent standards. Treated drinking waters usually have limits for total coliforms of not more than 1 colony per 100 mL.

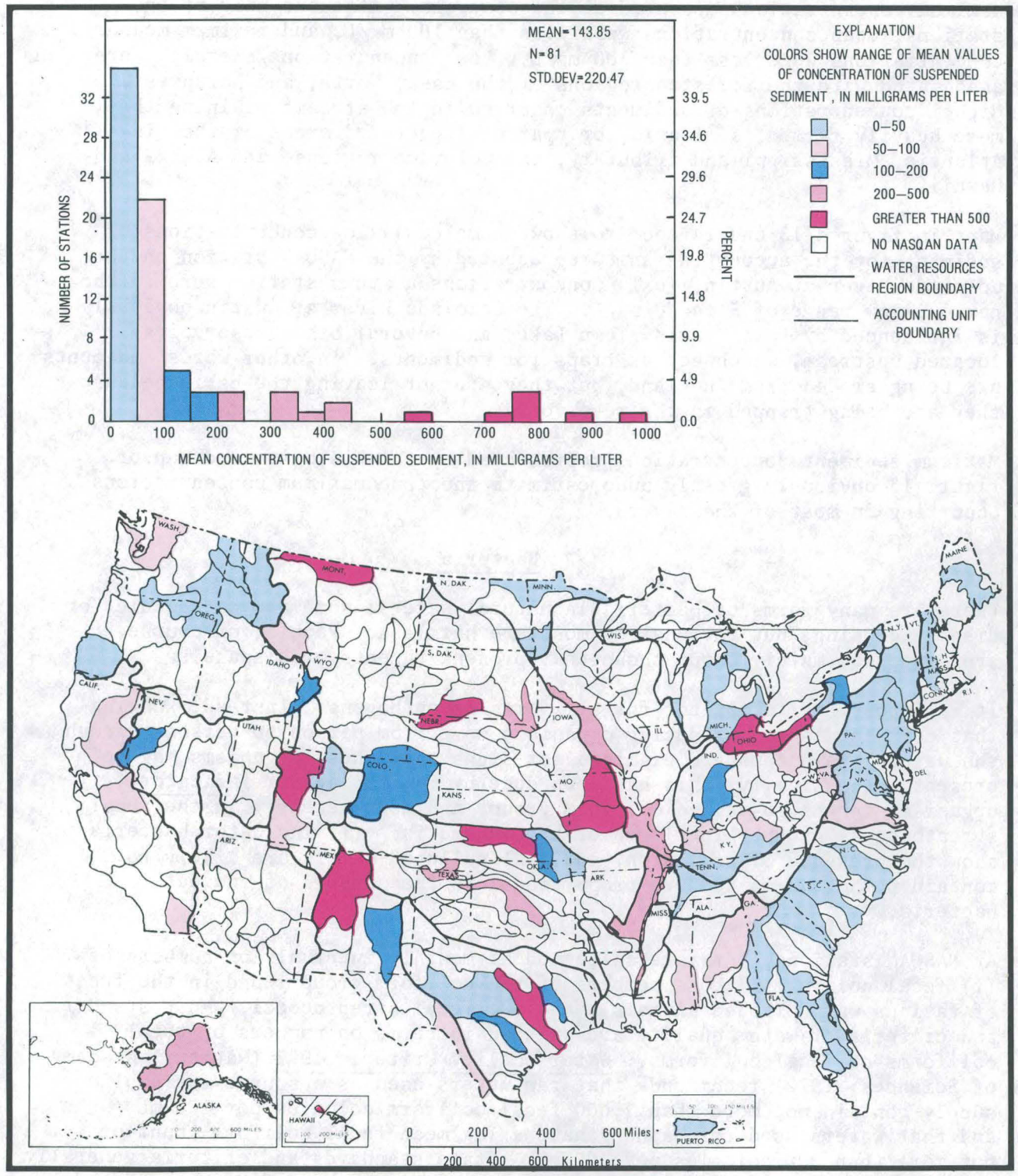


Figure 13.--Mean concentration of suspended sediment at NASQAN stations during 1974 water year. Map at the bottom is colored to show station data representing flow from the accounting unit.

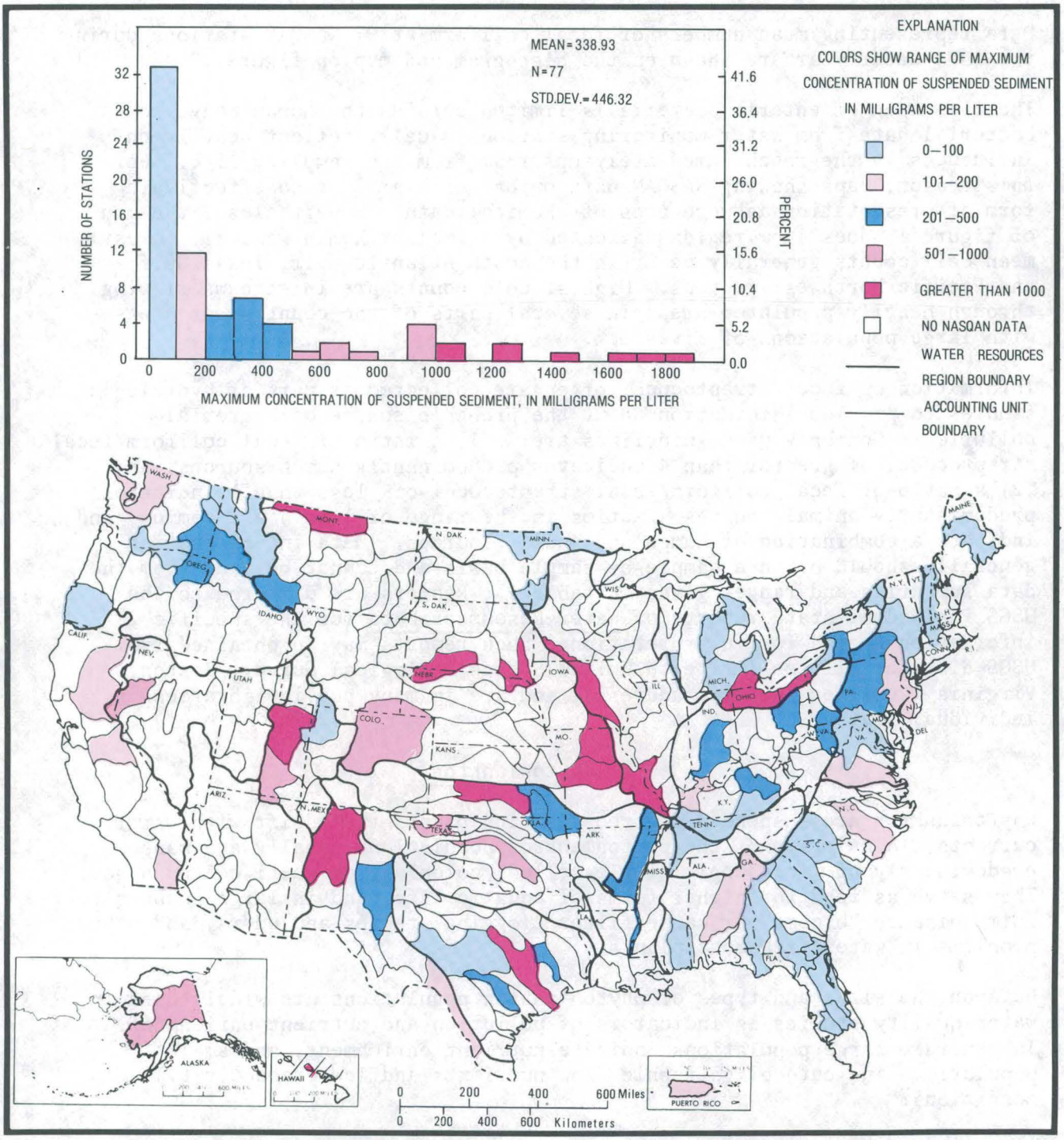


Figure 14.--Maximum concentration of suspended sediment at NASQAN stations during 1974 water year. Map at the bottom is colored to show station data representing flow from the accounting unit.

Fecal coliform data are used in hydrological studies as indicators of human and animal pollution. Rivers with high fecal coliform counts usually are influenced by untreated sewage or by animal wastes.

Data representing mean numbers of fecal coliform at 97 NASQAN stations during the 1974 water year are shown on the histogram and map on figure 15.

The life span of enteric bacteria is limited outside the human body, so bacterial data from water monitoring stations usually reflect heavily on influences in the reach immediately upstream from the sampling site. For this reason, maps showing NASQAN data on bacteria are not so effective a form of presentation as were maps of chemical data. Nevertheless, the map of figure 15 does show regions affected by animal or human wastes. Lowest mean cell counts generally occur in the South Atlantic-Gulf, Texas Gulf, and Pacific Northwest regions. Highest cell counts are in streams flowing through heavily populated areas in several parts of the country, or areas with large populations of livestock.

Information on fecal streptococci often are collected as part of hydrologic studies to provide information about the probable source of bacterial pollution. Commonly used guidelines are: (1) a ratio of fecal coliform/fecal streptococci of greater than 4 indicates predominantly human sources, and (2) a ratio of fecal coliform/fecal streptococci of less than 1 indicates predominantly animal sources. Ratios in the range of 1 to 4 are common, and indicate a combination of human and animal sources. Data interpretation generally should be on a sample-by-sample basis and cannot be made from the data summaries and ranges given in table 9. Readers are directed to the USGS individual state reports of Water Resources Data for the specific information needed for interpretation. Such reports may be obtained from USGS district offices (write to United States Geological Survey, Reston, Virginia 22092 for specific address), and are in many public libraries in individual states.

Phytoplankton

Phytoplankton are suspended or free floating plants that drift with water currents. A majority of the phytoplankton populations usually are made up predominantly of microscopic single-celled, colonial, or multi-celled algae. They serve as food for higher forms of aquatic life, and in large numbers they form nuisance "blooms" or cause filter clogging, tastes and odors, and other problems in water-treatment plants.

Data on the sizes and types of phytoplankton populations are widely used in water-quality studies as indicators of pollution and nutrient enrichment. In general, large populations indicate nutrient enrichment, and small populations indicate oligotrophic (low nutrients and low productivity) conditions.

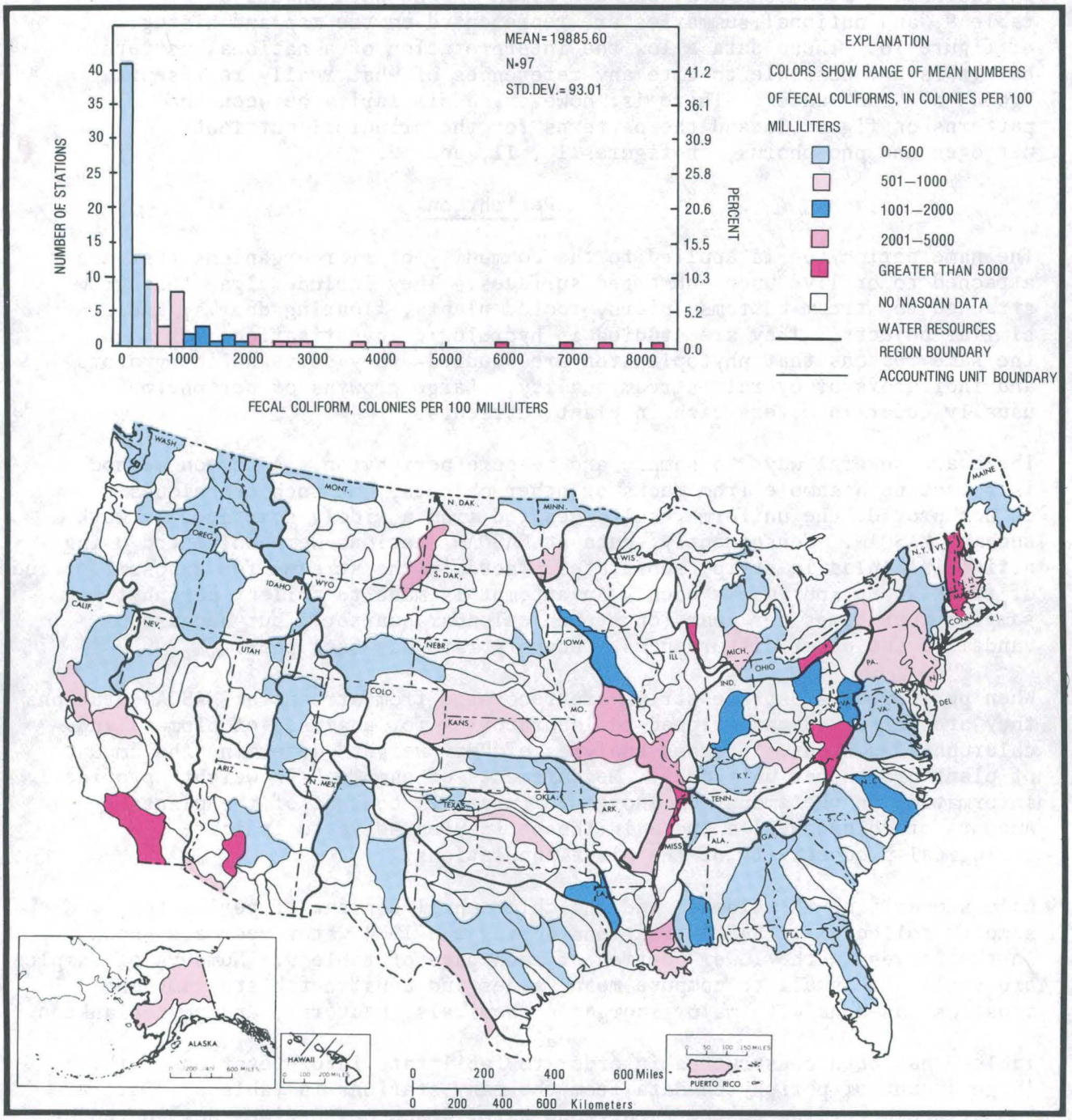


Figure 15.--Mean numbers of fecal coliforms sampled at NASQAN stations during 1974 water year. Map at bottom is colored to show station data representing flow from the accounting unit.

Samples for phytoplankton analyses are collected at NASQAN stations at approximately monthly intervals. They are analyzed for numbers of cells, and the predominant forms are identified. Summaries of the numbers of phytoplankton at NASQAN stations are given on the data sheets of table 9, and national summaries are represented on the map and histogram of figure 16. These data allow the interpretation of a national pattern, but it is not possible to cite any references of what really represents "good" or "bad" water. There is, however, a similarity between the color patterns on figure 16 and the patterns for the principal nutrients, nitrogen and phosphorus, on figures 10, 11, and 12.

Periphyton

The name periphyton is applied to the community of microorganisms that are attached to or live upon submerged surfaces. They include algae that grow attached to stream bottoms, piers, rooted plants, floating debris, and other similar objects. They are studied in hydrologic investigations for much the same reasons that phytoplankton are studied--they serve as integrators and indicators of overall stream quality. Large growths of periphyton usually occur in waters rich in plant nutrients.

There are several ways to sample and measure periphyton. A common method is to scrape a sample from rocks or other objects, but such techniques do not provide the uniform results desired from a widely scattered network such as NASQAN. Consequently, data at NASQAN stations were collected using artificial (plastic strip) substrates placed in the streams for exposure periods of from two to four weeks each. An attempt is made to collect periphyton samples four times per year (once each calendar quarter), but because of vandalism and other disturbances, recovery rate has been poor.

When periphyton substrate strips are recovered from streams at NASQAN stations they are preserved and shipped to laboratories for analyses of biomass and chlorophyll content. Biomass analyses of "dry weight" determine the amount of plant growth per unit area. Measurements of sample "ash weight" provide information on the amount of inorganic (mineral) content of the plants. Amounts of chlorophyll a and b in the periphyton serve to indicate the biological productivity of the plant populations.

Data summarizing the biomass and the chlorophyll content of periphyton samples collected at NASQAN stations during the 1974 water year are shown in the tables in the lower portion of each page of table 9. Numbers of samples are small--too small to compute mean values and construct histograms and maps, as was done with major inorganic chemicals, bacteria, and phytoplankton.

Table 3 has been constructed in order to facilitate interpretation of the large amount of periphyton data from the many stations in table 9. Data are summarized according to the twenty-one Water Resources Regions designated by the U.S. Water Resources Council. Outlines of these Regions are shown on the map in figure 3.

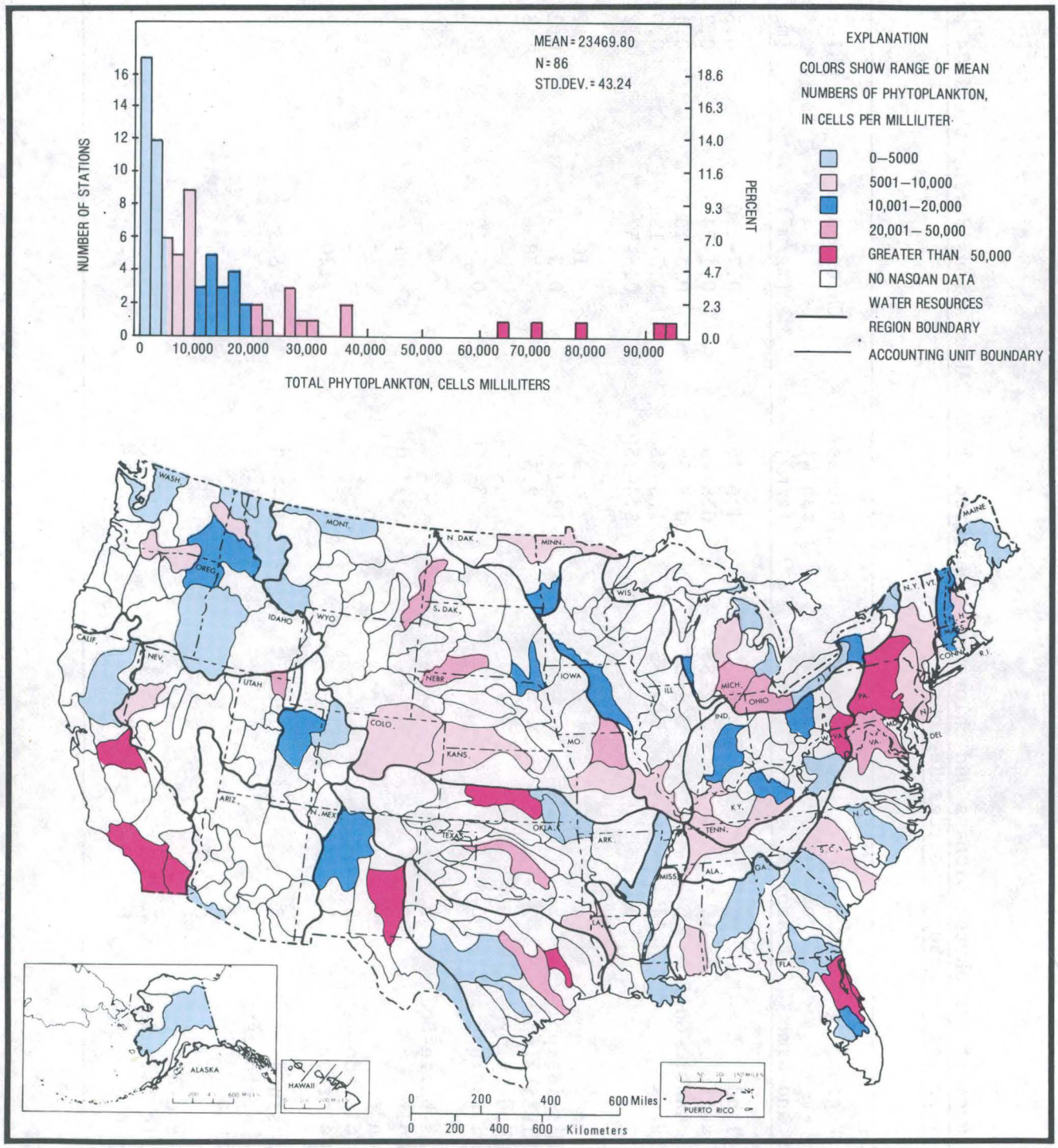


Figure 16.--Mean numbers of phytoplankton sampled at NASQAN stations during 1974 water year. Map at bottom is colored to show station data representing flow from the accounting unit.

Table 3.--Ranges of periphyton biomass and chlorophyll measured at NASQAN stations during the 1974 water year, summarized by Water Resources Regions

Region Number	Region Name	Number of samples	Biomass, dry wt. (g/m^2)	Biomass, ash wt. (g/m^2)	Chlorophyll a (mg/m^2)	Chlorophyll b (mg/m^2)
01	New England	3	60	4.6-46	0.7-2.0	0.8-0.9
02	Mid Atlantic	15	1.7-85	0.8-29	0.1-94	0.2-37
03	South Atlantic-Gulf	6	3.1-22	0.8-56	0.3-15	0.1-5.6
04	Great Lakes	14	30-133	1.5-38	1.3-19	0.0-25
05	Ohio	5	-	5.4-130	0.5-57	0.2-16
06	Tennessee	1	-	6.9	16	26
07	Upper Mississippi	2	-	12-14	0.5-7.7	0.2-6
08	Lower Mississippi	2	-	2.3	38	8.4
09	Souris-Red-Rainy	0	-	-	-	-
10	Missouri Basin	6	-	2.3-360	0.2-10	0.4-1.4
11	Arkansas-White-Red	0	-	-	-	-
12	Texas Gulf	2	-	38-110	41	10
13	Rio Grande	0	-	-	-	-
14	Upper Colorado	0	-	-	-	-
15	Lower Colorado	1	-	45	120	21
16	Great Basin	2	1200	47-790	9.6-36	0.8-2
17	Pacific Northwest	4	-	3.1-58	-	-
18	California	1	-	52	-	-
19	Alaska	0	-	-	-	-
20	Hawaii and other Pacific Islands	3	1.5-4.6	.76-9.2	-	-
21	Caribbean	0	-	-	-	-

Because of the small amount of data and the variability at each station and in each region, it is difficult to interpret the periphyton data, even on a regional basis. The biomass and chlorophyll data in table 3 suggest that periphyton growths tend to be greatest in the Great Basin and Lower Colorado region.

Minor Elements

So-called minor elements are those that commonly occur in relatively small amounts in natural water. They also frequently are called trace metals. Many are of concern because, even in trace quantities, they may be toxic to people, to aquatic plants and animals, or to crops when present in irrigation water.

Eleven minor elements are measured regularly at NASQAN stations--arsenic, cadmium, chronium, cobalt, copper, iron, lead, manganese, mercury, selenium, and zinc. Analyses are performed on unfiltered (whole water) samples and on samples that have been filtered through 0.45 micrometer pore-size membrane filters. Concentrations of materials measured in unfiltered samples are reported as "total" concentrations, and those measured in filtered samples are reported as "dissolved." In a few instances, dissolved values reported for a particular sample exceed reported total values because of lack of precision in the determination, analytical errors, or non-representative sample-splitting for the analyses.

Data on dissolved substances approximate what may be in water after it has passed through public-supply treatment plants. Data on total concentrations approximate amounts that may be consumed by livestock, may be in water used for irrigation, or may be taken up by aquatic plants or animals. Under some conditions, such as change of pH or total ionic balance of the sample, some of the metals present in the undissolved portion of the total concentrations may be converted to the dissolved state.

There are many different sets of criteria or standards for evaluating the suitability of water based upon the concentrations of minor elements. Some of these are summarized in table 4, including: (1) the criteria contained in the 1975 Annual Report of the U.S. Council on Environmantal Quality (1975), (2) Water Quality Criteria of the National Academy of Sciences (1972), (3) criteria recently summarized by the U.S. Environmental Protection Agency (1976), (4) "National Interim Primary Drinking Water Standards" (U.S. Environmental Protection Agency, 1975), and (5) a summary of criteria for fish and aquatic life based on a literature survey by Wentz (1974). The several criteria for public water supply generally are in close agreement, but published criteria for aquatic life differ considerably among themselves and from the public-supply criteria.

Samples for analyses of minor elements are collected about four times per year at most NASQAN stations. Summaries of measured ranges at stations are shown in the bottom part of each summary page in table 9. Not enough data were available to compute mean values or construct maps and histograms as was done for major inorganics.

Table 4.--Criteria and standards for maximum concentration of minor elements in water

(Concentration in micrograms per liter)

Source	Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Manganese (Mn)	Mercury (Hg)	Selenium (Se)	Zinc (Zn)
U.S. Council on Environmental Quality (1975)											
Aquatic life	50	4	-	-	10	300	30	100	-	-	100
Public water supply	50	10	-	-	1000	300	50	50	-	-	5000
Water Quality Criteria 1972 (National Academy of Sciences, 1972)											
Public water supply sources	100 a/	10	50 a/	-	1000	300 b/	50	50 b/	2 a/	10	5000
Freshwater aquatic life	-	30	50	-	c/	-	30	-	0.2	-	f/
Marine aquatic life	d/	c/	e/	-	d/	300	10	100	0.1	10	100
Agriculture, livestock	200	50	1000	1000	500	g/	50	g/	10	50	25000
Agriculture, irrigation h/	100-2000	10-50	100-1000	50-5000	200-5000	5000-20000	5000-10000	200-10000	-	20	2000-10000
U.S. Environmental Prot. Agency (1976a)											
Domestic water supply	50	10	50	-	1000	300	50	50	2	10	5000
Irrigation	100	-	-	-	-	-	-	-	-	-	-
Aquatic life	-	0.4-12	300	-	c/	1000	e/	100	0.05-0.1	e/	e/
National Interim Primary Drinking Water Standards (U.S. Env. Prot. Agen.,1975)	50	10	50	-	-	-	50	-	2	10	-
Wentz (1974, p. 27)											
Fish and other aquatic life	1000	10	50	500	10-20	-	5-10	1000	1	1000	30-70

a/ Criterion specified for total form.
b/ Criterion specified for soluble form.
c/ 0.1 times the median lethal concentration with a 96-hour test period (96-hr. LC50).
d/ 0.05 times 96-hr. LC50.
e/ 0.01 times 96-hr. LC50.
f/ 0.005 times 96-hr. LC50.
g/ No limit needed.
h/ Range given; specific criteria depend on soil texture and pH.

Tables 5 and 6 summarize ranges of concentrations of total and dissolved minor elements by Water Resources Regions (see fig. 3). In some cases table 6 shows higher ranges for dissolved concentrations of some elements than table 5 shows for total concentration of that same element in the same particular region. There are two possible reasons for this: (1) analytical and subsampling errors of the types mentioned in a previous paragraph; and (2) samples collected at different times, so that equivalent pairs of data are not presented.

The following paragraphs briefly summarize some of the more obvious patterns in the minor element data and compare the measured concentrations with some of the common standards and criteria of water quality.

Arsenic.--None of the samples analyzed for dissolved arsenic exceeded the standards or criteria for public water supply. Highest concentrations were found in the West and Northwest, but only in one region (Missouri) did any of the concentrations approach half of the 50 micrograms per liter (µg/L) standard for public supply. Total arsenic values exceeded the public supply standard and more stringent aquatic life criterion of 50 µg/L at 4 stations; but 3 of these maxima were in the range of 50-100 and do not exceed the more liberal aquatic life criteria. Highest concentrations of total arsenic were at the White River near Oacoma, S.Dak., where they ranged from 140 to 300 µg/L, exceeding most standards and criteria at least part of the time. Highest dissolved concentrations in the country also were observed at this same White River station.

Cadmium.--Measured concentrations of dissolved cadmium exceeded public supply standards and criteria of 10 µg/L at two stations--the Niagara River at Fort Niagara, N.Y. (two samples >10 µg/L: 36 µg/L on June 27 and 21 µg/L on Aug. 13), and the Tanana River at Nenana, Alaska (one sample >10 µg/L: 42 µg/L on June 19). These stations also reported the highest measured values of total cadmium (110 and 360 µg/L, respectively), considerably above all standards and criteria for any water uses. Relatively high values of total cadmium (exceeding some, but not all criteria and standards) also were measured at stations in Water Resources Regions 8, 10, 11, 13, and 15 (see fig. 3).

Chromium.--None of the samples analyzed for dissolved chromium exceeded the common public water supply standards of 50 µg/L. This standard, which also is applied by some to aquatic life, was exceeded by values of total chromium at stations in the Mississippi region, in the Ohio region, and in several other places in the Midwest (Missouri region). Highest concentrations of total chromium were found in the Cumberland River in Kentucky and in the White River of South Dakota.

Cobalt.--Data on cobalt show low concentrations (well below most established standards and criteria) at most NASQAN stations. The most stringent criterion (50 µg/L suggested by Water Quality Criteria 1972 for irrigation) was exceeded only by the "total" concentration at three stations. Even the maximum measured value of total cobalt of 250 µg/L was below standards and criteria for livestock and aquatic life shown in table 4.

Table 5.--Ranges of total concentrations of minor elements measured at NASQAN stations during the 1974 water year, summarized by Water Resources Regions

Region Number and Name	Number of stations	Range of Concentrations (micrograms per liter)										
		Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Manganese (Mn)	Mercury (Hg)	Selenium (Se)	Zinc (Zn)
01 New England	3	0.0-2	0.0-≤10	0.0-10	0.0-3	0.0-20	<1-1400	2-75	8-150	<.5	<1-14	20-390
02 Mid Atlantic	5	0.0-4	0.0-2	0.0-30	0.0-10	0.0-80	120-5500	0.0-<100	0.0-840	0.3-1	0.0-18	0.0-400
03 South Atlantic-Gulf	13	0.0-60	0.0-<50	0.0-56	0.0-12	1-<40	50-2100	0.0-<100	0.0-230	0.0-2.1	0.0-16	0.0-1200
04 Great Lakes	11	0.0-19	0.0-110	0.0-20	0.0-10	0.0-690	50-6800	0.0-100	0.0-250	0.0-2.4	0.0-200	5-360
05 Ohio	7	0.0-14	0.0-7	0.0-230	2-22	0.0-49	90-30000	0.0-200	17-1300	0.0-0.7	0.0-16	0.0-310
06 Tennessee	1	1-10	0.0-3	0.0-53	1-5	3-15	610-960	7-39	60-70	0.0-0.4	0.0-9	8-130
07 Upper Mississippi	4	0.0-21	<10-10	0.0-60	<50-50	<10-40	330-14000	<50-200	70-690	0.0-1	0.0-10	20-600
08 Lower Mississippi	6	0.0-45	0.0-25	0.0-36	1-88	6-360	1200-16000	9-300	70-910	0.0-0.7	0.0-11	9-190
09 Souris-Red-Rainy	3	0.0-100	<10	0.0-70	0.0-50	<10-40	160-19000	<50-<100	0.0-530	0.1-2.4	0.0-12	30-420
10 Missouri Basin	10	0.0-300	3-30	0.0-140	4-250	6-410	240-12000	12-400	20-8800	0.0-10	0.0-10	0.0-1000
11 Arkansas-White-Red	6	0.0-9	<10-14	0.0-20	<10-50	6-50	60-26000	16-100	0.0-910	0.0-2.2	0.0-5	10-430
12 Texas Gulf	4	0.0-18	0.0-<10	0.0-10	0.0-<50	2-30	80-18000	0.0-<100	10-710	0.0-1.6	0.0-6	0-470
13 Rio Grande	3	0.0-4	<10-40	0.0-20	<50-200	<10-40	160-3200	50-<100	10-100	0.0-0.3	1-4	20-110
14 Upper Colorado	3	0.0-18	<10-10	0.0-30	0.0-<50	<10-20	100-20000	<100	0.0-570	0.0-0.4	0.0-5	30-190
15 Lower Colorado	4	1-23	<10-20	0.0-60	<25-50	<10-50	220-15000	<50-100	0.0-650	0.0-3.1	0.0-17	20-280
16 Great Basin	2	5-13	<10-10	0.0	<50	<10-70	520-2300	<100-100	60-130	0.2-1.3	0.0-6	30-370
17 Pacific Northwest	9	0.0-9	<10-10	0.0-50	0.0-50	<10-40	80-3600	0.0-340	0.0-3000	0.0-2.5	0.0-7	0.0-1200
18 California	6	0.0-100	<10-10	0.0-50	0.0-50	<10-150	350-9200	<100-100	20-180	0.0-1.8	0.0-8	10-150
19 Alaska	1	0.0-10	<10-360	0.0	<50	<10-110	810-20000	<100	190-350	0.2-0.4	0.0	30-400
20 Hawaii and other Pacific Islands	1	0.0-2	<10-10	0.0	<50	<10-30	0.0-3400	<100	80-180	0.0-0.1	0.0-6	0.0-250
21 Caribbean	1	2-6	0.0-1	0.0-<10	0.0-3	15	220-2300	10-25	0.0-1300	.1	0.0	5-10

Table 6.--Ranges of concentrations of dissolved minor elements measured at NASQAN stations during the 1974 water year, summarized by Water Resources Regions

Region Number and Name	Number of stations	Range of Concentrations (micrograms per liter) Arsenic (As)	Cadmium (Cd)	Chromium (Cr)	Cobalt (Co)	Copper (Cu)	Iron (Fe)	Lead (Pb)	Manganese (Mn)	Mercury (Hg)	Selenium (Se)	Zinc (Zn)
01 New England	3	0.0-2	0.0-2	0.0-10	0.0-1	0.0-20	70-440	0.0-9	20-140	<0.5-0.7	0.0-15	0.0-60
02 Mid Atlantic	5	0.0-2	0.0-11	0.0-10	0.0-8	0.0-20	0.0-500	0.0-10	0.0-600	<0.5-1.6	0.0-3	0.0-60
03 South Atlantic-Gulf	13	0.0-7	0.0-6	0.0-5	0.0-12	0.0-9	0.0-630	0.0-24	0.0-370	0.0-0.3	0.0-20	0.0-100
04 Great Lakes	11	0.0-13	0.0-36	0.0-10	0.0-12	0.0-30	0.0-200	0.0-22	0.0-130	0.0-0.9	0.0-35	0.0-90
05 Ohio	7	0.0-5	0.0-7	0.0-10	0.0-17	0.0-41	0.0-230	0.0-13	0.0-1200	0.0-0.8	0.0-8	0.0-240
06 Tennessee	1	0.0-1	0.0-2	0.0-2	0.0-2	3-6	10-180	0.0-3	0.0-14	0.0-1	0.0-3	4-8
07 Upper Mississippi	4	0.0-6	0.0-1	0.0-30	0.0-1	4-12	10-1500	0.0-7	0.0-240	0.0-0.5	0.0-4	0.0-60
08 Lower Mississippi	6	0.0-10	0.0-4	0.0-2	0.0-3	3-22	0.0-1900	0.0-29	0.0-170	0.0-0.2	0.0-8	0.0-80
09 Souris-Red-Rainy	3	0.0-10	0.0-1	0.0-10	0.0-2	5-19	20-490	0.0-8	0.0-40	0.0-0.2	0.0-6	10-90
10 Missouri Basin	10	0.0-24	0.0-6	0.0-20	0.0-7	0.0-40	20-5600	0.0-14	0.0-500	0.0-1.4	0.0-10	0.0-730
11 Arkansas-White-Red	6	0.0-6	0.0-11	0.0-10	0.0-3	2-12	0.0-260	0.0-14	0.0-40	0.0-0.4	0.0-10	5-60
12 Texas Gulf	4	0.0-12	0.0-1	0.0-10	0.0-1	1-30	0.0-350	0.0-7	0.0-590	0.0-0.5	0.0-2	0.0-100
13 Rio Grande	3	0.0-4	0.0-1	0.0-30	0.0-1	0.0-5	0.0-240	0.0-3	0.0-40	0.0	0.0-3	0.0-40
14 Upper Colorado	3	0.0-19	0.0-2	0.0	0.0-1	2-22	0.0-240	2-8	0.0-25	0.0-0.2	0.0-5	10-30
15 Lower Colorado	4	2-16	0.0-1	0.0-10	0.0-1	0.0-15	0.0-2000	0.0-14	0.0-150	0.0-0.5	0.0-9	0.0-60
16 Great Basin	2	3-11	0.0-6	0.0-10	0.0-1	2-27	10-200	0.0-40	0.0-60	0.0-0.2	0.0-5	0.0-10
17 Pacific Northwest	9	0.0-12	0.0-5	0.0-30	0.0-2	0.0-32	10-390	1-23	0.0-740	0.0-0.7	0.0-5	0.0-310
18 California	6	0.0-13	0.0-2	0.0-30	0.0-4	0.0-30	10-1500	0.0-10	0.0-140	0.0-0.2	0.0-6	0.0-40
19 Alaska	1	0.0-1	1-42	0.0	0.0	3-10	30-390	1-22	250-1200	0.0-0.3	0.0	10-20
20 Hawaii and other Pacific Islands	1	0.0-1	0.0-1	0.0-60	0.0-3	2-10	10-100	0.0-5	50-130	0.0	1-4	0.0-10
21 Caribbean	1	0.0-4	0.0-3	0.0-3	0.0-6	1-6	0.0-10	3-6	290-830	1-2	0.0-4	10-30

Copper.--The criterion for copper in public water supplies (1000 µg/L) was not exceeded by measured dissolved or total concentrations at any NASQAN stations. Some authors have suggested, however, much more stringent criteria (10 to 20 µg/L) for aquatic life. These more stringent criteria are exceeded by measured values of dissolved copper in about half of the Water Resources Regions, and by some of the measured total concentrations in almost all of the Regions.

Iron.--Concentrations of iron measured at NASQAN stations frequently exceeded water-quality criteria. The common criterion for public supply of 300 µg/L was exceeded by dissolved iron levels in more than half of the Water Resources Regions and by measured total concentrations in all of them. Lowest concentrations were in waters of certain parts of the Midwest and West, and in Hawaii and Puerto Rico.

Lead.--Standards and criteria for lead in public water supplies of 50 µg/L were not exceeded by dissolved concentrations at any stations. They were exceeded, however, by some of the total values measured in many of the Water Resources Regions. The more stringent criteria for aquatic life (in the range of 5-30 µg/L) also were exceeded frequently by levels of total lead, and by dissolved levels in many parts of the country.

There is a problem in interpreting some of the data on total lead because of interferences in the analytical methods. It is necessary, therefore, to report some values as "less than 100." The true value is not known and it is impossible to interpret if the standards in the range of 5 to 30 µg/L are exceeded.

Manganese.--Criteria for manganese in public supplies (usually 50 µg/l) were exceeded by dissolved levels in all but a few of the Water Resources Regions (those of the Tennessee region, part of the West, and Hawaii). They were exceeded by total concentrations in all regions. Criteria for aquatic life are much more lenient (from 100 to 1000 µg/L), but even the higher values were exceeded by concentrations of total manganese in the Ohio, Missouri, Pacific Northwest, and Caribbean regions. In general, lowest concentrations of manganese were in the Tennessee and Rio Grande regions.

Mercury.--None of the samples analyzed for dissolved mercury exceeded the common public water supply standard of 2 µg/L. This standard was exceeded by small amounts (1.1 µg/L or less) by total concentrations at stations in five Water Resources Regions. The highest reported mercury value was at the Republican River at Clay Center, Kan. Criteria for mercury for the protection of aquatic life are highly variable--some authors suggest criteria as low as 0.05 to 0.2 µg/l. These stringent criteria were exceeded by measured mercury levels at NASQAN stations in most regions of the United States.

Selenium.--NASQAN stations in the New England, South Atlantic, and Great Lakes Regions contained dissolved and total selenium values greater than the common public supply and aquatic life standard of 10 µg/L. Total selenium concentrations in excess of 10 µg/L also were reported in four other basins of the East and Midwest, as well as in the Lower Colorado Region. In evaluating the selenium data, however, it should be noted that Wentz (1974), based on a literature survey, proposed an aquatic life criterion of 1000 µg/L, a value not exceeded at any of the NASQAN stations. The highest reported concentration at any NASQAN station was 200 µg/L total selenium for the Muskegon River in Michigan.

Zinc.--The common standard for zinc in public water supply of 5000 µg/L was not exceeded by any measured values of total or dissolved concentrations at NASQAN stations. On the other hand, the much more stringent criteria for aquatic life of 30-70 or 100 µg/L were exceeded by dissolved and total concentrations at stations in most regions. Highest concentrations were measured at stations in the South Atlantic-Gulf, Ohio, and Missouri Basin Regions.

Total Organic Carbon

Data on total organic carbon (TOC) represent the amount of organic carbon present in solution as well as that in suspended matter in the water. The data provide a gross measure of plant detritus, decay products, living cells, organic chemicals, and other sources of organic substances.

There is no set of reference levels against which to compare TOC data in order to assess the general goodness or acceptability of a particular sample. Waters high in TOC tend to be those that also are high in major inorganic nutrients and therefore support a large population of algae and other biota; or they may be waters subject to pollution by organic chemicals. Streams that are low in TOC concentrations usually are those that tend to be oligotrophic (low in nutrients). Low levels of TOC do not necessarily mean the absence of potentially dangerous organic pollution because some organic pollutants can be harmful in considerably smaller concentrations than can be detected in TOC data.

Samples for analyses of TOC at NASQAN stations were collected at quarterly intervals. Therefore, there are not enough measurements to make the kinds of statistical analyses, summary map, and histogram that were constructed for inorganic substances. Data on the ranges of TOC concentrations at each station are listed in table 9. These data are summarized by Water Resources Regions in table 7. The regions used in table 7 are outlined on the map in figure 3.

The median concentration of TOC in samples collected at NASQAN stations during the 1974 water year is about 6 mg/L. About one-fourth of the samples had concentrations greater than 11 mg/L, and about one-fourth were less than 4 mg/L. As shown in the summary in table 7, relatively high concentrations (values in the upper quartile) were measured in more than half of the Water Resources Regions. Lowest ranges of concentrations were found in data from the Ohio, Great Basin, Hawaii, and Caribbean regions.

Table 7.--Ranges of concentrations of total organic carbon measured at NASQAN stations during the 1974 water year, summaried by Water Resources Regions

Region Number	Region Name	Number of samples	Concentration (mg/l)
01	New England	16	4.3-11
02	Mid Atlantic	51	0.0-28
03	South Atlantic-Gulf	72	0.0-41
04	Great Lakes	31	1.5-26
05	Ohio	20	0.9-8
06	Tennessee	4	1.4-28
07	Upper Mississippi	11	0.0-16
08	Lower Mississippi	12	1.0-20
09	Souris-Red-Rainy	7	10-28
10	Missouri Basin	37	1.6-78
11	Arkansas-White-Red	15	4.5-11
12	Texas Gulf	24	0.0-24
13	Rio Grande	23	0.0-18
14	Upper Colorado	6	1.0-20
15	Lower Colorado	12	2.3-13
16	Great Basin	5	3.0-8.4
17	Pacific Northwest	36	1.5-78
18	California	19	1.7-29
19	Alaska	2	11-14
20	Hawaii and other Pacific Islands	6	3.3-5
21	Caribbean	6	3.2-8.4

It is difficult to summarize the water quality of the entire country in a few paragraphs. The United States is large and complex, and the variations in the quality of its waters are great. In addition, water quality includes many physical, chemical, and biological factors which need to be integrated and compared with various criteria and standards.

The following paragraphs attempt to integrate the information on water quality presented in this report and to describe the nation's waters according to six geographic areas; the Northeast, Southeast, Mid-continent, Northwest, Southwest, and Alaska, Hawaii, and Puerto Rico. It must be remembered, however, that data from many of the regions are few and, because of the nature of NASQAN, are biased toward larger rivers. The general statements cannot fully describe details of water quality in small tributaries having local influences, or in accounting units not measured during the 1974 water year. Many water-quality characteristics are described here as being "low," "moderate," or "high." These comparative adjectives are used here to (1) compare water quality with standards and criteria use, and (2) compare waters with those in other parts of the country.

Northeast.--The northeastern part of the United States, as referred to here, includes the drainage to the northern part of the Atlantic coast, the lower St. Lawrence River basin, and the eastern part of the Great Lakes. River water there was low in dissolved-solids content, and low in concentrations of most major inorganic chemicals. Waters of the larger rivers were soft to moderately hard, and sediment concentrations generally were low in comparison with regions to the west. Concentrations of major nutrients generally were at low to moderate levels, but in many cases were high enough to cause concern for eutrophication. Data on numbers of phytoplankton, amounts of periphyton, and concentrations of total organic carbon were at moderate levels, and were relatively high at some stations. Counts of fecal coliform bacteria also generally were in the moderate range, but were high in some streams. Concentrations of minor elements in the Northeast were low, both in comparison with the rest of the country and with most standards and criteria. The few exceptions include cadmium, which was high in the Niagara River, and copper, manganese, iron, and zinc. These last three were measured at moderate to high levels at a number of stations, but usually did not exceed criteria for water supplies, at least in measurements of dissolved constituents. They did, however, frequently exceed criteria for aquatic life, particularly in analyses of "total" concentrations.

Southeast.--Waters of streams in the south Atlantic drainage and the drainage to the eastern Gulf of Mexico generally had low concentrations of dissolved solids and most major inorganic chemicals, and were soft. The major exceptions were in Florida where moderate to high concentrations were measured and where streams contained moderately hard or hard water. The concentration of fluoride in the Peace River of Florida was greater at times than recommended standards for drinking water. Concentrations of nutrients generally were at moderate levels throughout the Southeast, although relatively high levels of phosphorus existed in some streams.

Sediment concentrations were low in most southeastern streams, and so were concentrations of fecal coliform bacteria. Numbers of phytoplankton, amounts of periphyton, and concentrations of total organic carbon were at moderate to high levels in about half of the Southeastern accounting units, and were highest in Florida. Most minor elements were at low or very low levels in the Southeast, except for some moderately high concentrations of dissolved and total manganese, and total mercury, selenium, and zinc.

Mid-Continent.--This large region of the central United States includes the basin of the Mississippi River, with its major tributaries, the Ohio, Missouri, and Arkansas, and several smaller tributaries, plus some drainage to the western Great Lakes and Canada. It is a region with generally more erodible soils and less precipitation than in the East. It also contains a major share of the Nation's agriculture.

Waters in the Mid-Continent had higher concentrations of dissolved solids and major inorganic chemicals than did waters of the East, and in some streams these concentrations exceeded standards or criteria for public supply and other uses. The water was hard or very hard in many places. Fluoride concentrations were moderate, many being in the nearly ideal range of 0.5-1.0 mg/L. Concentrations of major nutrients and sediments were at moderate to high levels at many places, and accordingly populations of phytoplankton also frequently were high. Bacterial counts varied greatly throughout the region, and were relatively high in approximately half of the accounting units.

Data on the concentrations of minor elements varied greatly in the Mid-Continent, but most of the metals were at higher levels in this region than in any other. The dissolved concentration of most of these did not exceed recommended standards for public supply, but many of the total concentrations did. In addition, many of the metals exceeded the more stringent standards for maintaining aquatic life at several of the NASQAN stations in the Mid-Continent.

Northwest.--Rivers of the relatively humid Northwest were somewhat like the rivers of the East. Levels of dissolved solids and concentrations of major chemicals were low, and they generally were soft to moderately hard. Concentrations of major nutrients ranged from low to relatively high levels, and sediment concentrations, phytoplankton numbers, and periphyton amounts were in the low to moderate range. Counts of fecal coliform bacteria were low, and concentrations of total organic carbon varied over a wide range. Minor elements generally were at low levels, except for manganese which was high at several stations. Copper and mercury also reached moderate levels, but were below standards for drinking water.

Southwest.--Many of the highest concentrations of dissolved solids and major chemicals were found in the rivers of the Southwest, particularly the Pecos and Gila basins of New Mexico and Arizona, respectively. Concentrations commonly exceeded water-quality standards or criteria. Waters in the rivers of this region were hard or very hard, and carried large amounts of sediment and moderate to high concentrations of nutrients. As would be expected, populations of phytoplankton and amounts of periphyton also were high. Fluoride was at nearly ideal concentrations in several of the rivers, but exceeded the drinking water standards at one site in the Gila basin. Bacterial counts were moderately high and total organic carbon varied over a large range. Concentrations of minor elements usually were low, but moderate levels of cobalt, copper, manganese, mercury, selenium, and zinc were found in a few basins.

Alaska, Hawaii, and Puerto Rico.--There was only one NASQAN station each in Alaska, Hawaii, and Puerto Rico during the 1974 water year. Waters at the Alaska and Hawaii stations were low in dissolved solids and major constituents, while water at the Puerto Rico station had slightly higher concentrations, in the moderate range. The Hawaii water was soft, but that in Alaska and Puerto Rico was hard. Nutrients were in the moderate range, except that high phosphorous was measured in Hawaii. Phytoplankton populations and amounts of periphyton, however, were low compared with the rest of the United States. Concentrations of sediment and numbers of fecal coliform bacteria were low in Puerto Rico, moderately high in Alaska, and high in Hawaii. Minor elements were generally at low levels, except for copper, manganese, and iron which were moderately high in some samples. Cadmium also was high (above recommended standards) at the Alaska station, and mercury was at a moderate level in Puerto Rico.

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TABLES 8 AND 9

(a) Table 8--a listing of NASQAN stations in numerical order by station number, supplementing the alphabetical listing in table 1, and

(b) Table 9--a station-by-station summary of measurements of water-quality characteristics.

Table 9 includes one page per station, arranged in numerical order by USGS station number--the same order given in table 8. Identification information, including the station number and name, latitude and longitude, and drainage area are given at the top of each page.

Most of the upper part of each page of table 9 is devoted to a presentation of a statistical summary of water-quality characteristics measured at approximately monthly intervals. Statistics include the number of measurements, their arithmetic mean, standard deviation, and range. A regression summary shows the results of a regression analysis performed with specific conductance as the independent variable. Use of the regression coefficient, R, the constant, B, and the standard error of estimate are explained in the subsection of this report on specific conductance (pages 22-26).

A duration table of daily measurements of specific conductance is included in table 9 for each station for which more than 100 daily measurements are available. Application of values in the duration table are explained in the subsection on specific conductance.

A summary of the harmonic analysis of data on stream temperature is included in table 9 for each station having more than 50 measurements during the year. The subsection of this report on stream temperature record (pages 12-14) explains the use of the temperature statistics.

Data on minor elements, periphyton, and organic carbon are collected only 4 times per year at most NASQAN stations. Consequently, the summary at the bottom of each page of table 9 is included to show only maximum and minimum measured values.

Details on all the individual measurements summarized in table 9 are published in USGS reports in the series Water Resources Data. These data reports are published annually on a state-by-state basis and copies are available from district offices of the USGS, Water Resources Division, or from the National Technical Information Service, Springfield, Virginia 22151. Most state data reports prior to 1975 are published in two volumes, with water-quality data usually included in volume 2.

TABLE 8: NATIONAL STREAM QUALITY ACCOUNTING NETWORK STATIONS
STATIONS OPERATED DURING 1974 WATER YEAR
(SORTED NUMERICALLY BY STATION NUMBER)

USGS STAT.NO.	STATION NAME	ST	LATITUDE DEG/MIN	LONGITUDE DEG/MIN
01034500	PENOBSCOT RIVER AT WEST ENFIELD	ME	4514	06839
01096550	MERRIMACK RIVER ABOVE LOWELL	MA	4238	07122
01184000	CONNECTICUT RIVER AT THOMPSONVILLE	CT	4159	07236
01372043	HUDSON RIVER NEAR POUGHKEEPSIE	NY	4143	07356
01463500	DELAWARE RIVER AT TRENTON	NJ	4013	07447
01570500	SUSQUEHANNA RIVER AT HARRISBURG	PA	4015	07653
01645500	POTOMAC RIVER AT GREAT FALLS	MD	3900	07715
02035000	JAMES RIVER AT CARTERSVILLE	VA	3740	07805
02105769	CAPE FEAR RIVER AT LOCK 1 NEAR KELLY	NC	3424	07818
02170500	LAKE MARION MOULTRIE CANAL NR PINEVILLE	SC	3323	08008
02171500	SANTEE RIVER NEAR PINEVILLE	SC	3327	08009
02198500	SAVANNAH RIVER NEAR CLYO (GA)	SC	3232	08116
02231000	ST MARYS RIVER NEAR MACCLENNY	FL	3022	08205
02244450	ST JOHNS RIVER AT PALATKA	FL	2939	08138
02273000	KISSIMMEE RIVER AT S65E NEAR OKEECHOBEE	FL	2714	08058
02296750	PEACE RIVER AT ARCADIA	FL	2713	08153
02320500	SUWANNEE RIVER AT BRANFORD	FL	2957	08256
02358000	APALACHICOLA RIVER AT CHATTAHOOCHEE	FL	3042	08452
02429500	ALABAMA RIVER AT CLAIBORNE	AL	3133	08731
02479020	PASCAGOULA RIVER NEAR BENNDALE	MS	3053	08846
02489500	PEARL RIVER NEAR BOGALUSA	LA	3048	08949
03085000	MONONGAHELA RIVER AT BRADDOCK	PA	4024	07953
03150000	MUSKINGUM RIVER AT MCCONNELSVILLE	OH	3939	08151
03201300	KANAWHA RIVER AT WINFIELD	WV	3832	08155
03290500	KENTUCKY RIVER AT LOCK 2 AT LOCKPORT	KY	3826	08458
03374100	WHITE RIVER NEAR HAZELTON	IN	3829	08733
03438220	CUMBERLAND RIVER NEAR GRAND RIVERS	KY	3701	08813
03609750	TENNESSEE RIVER AT HWY 60 NEAR PADUCAH	KY	3702	08832
03612500	OHIO RIVER AT L&D 53 NEAR GRAND CHAIN(IL)	KY	3712	08902
04045580	ST MARYS RIVER ABOVE SAULT STE MARIE	MI	4629	08425
04087000	MILWAUKEE RIVER AT MILWAUKEE	WI	4306	08755
04108690	KALAMAZOO RIVER AT SAUGATUCK	MI	4239	08612
04122030	MUSKEGON RIVER AT BRIDGETON	MI	4319	08602
04122080	MUSKEGON RIVER AT US-31 NR MUSKEGON 1/	MI		
04165700	DETROIT RIVER AT DETROIT	MI	4221	08258
04193500	MAUMEE RIVER AT WATERVILLE	OH	4130	08343
04208000	CUYAHOGA RIVER AT INDEPENDENCE	OH	4124	08138
04219640	NIAGARA RIVER AT FORT NIAGARA	NY	4316	07904
04232006	GENESEE R AT CHARLOTTE DOCKS AT ROCHESTER	NY	4313	07737
04264331	ST LAWRENCE R AT CORNWALL ONT NR MASSENA	NY	4500	07448
05054020	RED RIVER OF THE NORTH BELOW FARGO	ND	4656	09647
05083500	RED RIVER OF THE NORTH AT OSLO (MN)	ND	4812	09708

05331000	MISSISSIPPI RIVER AT ST PAUL	MN	4457	09305
05490600	DES MOINES RIVER AT ST FRANCISVILLE	MO	4028	09134
05585500	ILLINOIS RIVER AT MEREDOSIA	IL	3949	09034
06054500	MISSOURI RIVER AT TOSTON	MT	4609	11125
06174500	MILK RIVER AT NASHUA	MT	4808	10622
06337000	LITTLE MISSOURI RIVER NEAR WATFORD CITY	ND	4735	10315
06452000	WHITE RIVER NEAR OACOMA	SD	4345	09933
06486000	MISSOURI RIVER AT SIOUX CITY	IA	4229	09625
06686000	NORTH PLATTE RIVER AT LISCO	NB	4130	10238
06764000	SOUTH PLATTE RIVER AT JULESBURG	CO	4059	10215
06856600	REPUBLICAN RIVER AT CLAY CENTER	KS	3921	09708
06902000	GRAND RIVER NEAR SUMNER	MO	3938	09316
06934500	MISSOURI RIVER AT HERMAN	MO	3843	09126
07022000	MISSISSIPPI RIVER AT THEBES (IL)	MO	3713	08928
07032000	MISSISSIPPI RIVER AT MEMPHIS (TN)	AR	3508	09004
07047800	ST FRANCIS RIVER NEAR PARKIN	AR	3516	09034
07047900	ST FRANCIS BAY AT RIVERFRONT	AR	3516	09041
07146500	ARKANSAS RIVER AT ARKANSAS CITY	KS	3703	09704
07178620	NEWT GRAHAM L&D (VERDIGRIS R) NEAR INOLA	OK	3603	09532
07193500	NEOSHO R BL FT GIBSON RES NR FT GIBSON	OK	3551	09514
07234000	NORTH CANADIAN (BEAVER) RIVER AT BEAVER	OK	3649	10031
07289000	MISSISSIPPI RIVER AT VICKSBURG	MS	3219	09054
07331000	WASHITA RIVER NEAR DURWOOD	OK	3414	09659
07355500	RED RIVER AT ALEXANDRIA	LA	3119	09227
07374508	MISSISSIPPI RIVER AT NEW ORLEANS	LA	2957	09008
07378510	AMITE RIVER AT 4-H CAMP NR DENHAM SPGS	LA	3026	09058
08066500	TRINITY RIVER AT ROMAYOR	TX	3026	09451
08116650	BRAZOS RIVER AT ROSHARON	TX	2921	09535
08158000	COLORADO RIVER AT AUSTIN	TX	3015	09742
08176500	GUADALUPE RIVER AT VICTORIA	TX	2848	09701
08313000	RIO GRANDE AT OTOWI BRIDGE NR S.ILDEFONSO	NM	3552	10608
08407500	PECOS RIVER AT RED BLUFF	NM	3204	10402
08459000	RIO GRANDE AT LAREDO	TX	2730	09930
09251000	YAMPA RIVER NEAR MAYBELL	CO	4030	10802
09315000	GREEN RIVER AT GREEN RIVER	UT	3859	11009
09380000	COLORADO RIVER AT LEES FERRY	AZ	3652	11135
09502000	SALT RIVER BELOW STEWART MT DAM	AZ	3334	11132
09510000	VERDE RIVER BELOW BARTLETT DAM	AZ	3349	11138
09518000	GILA RIVER ABOVE DIV AT GILLESPIE DAM	AZ	3314	11246
09522000	COLORADO RIVER AT N.INT.BDRY.AB MORELOS DA	AZ	3243	11443
10126000	BEAR RIVER NEAR CORINNE	UT	4135	11206
10171000	JORDAN RIVER AT SALT LAKE CITY	UT	4044	11155
10254970	NEW RIVER AT INT. BDRY. NR. CALEXICO	CA	3240	11530
10351700	TRUCKEE RIVER NEAR NIXON	NV	3947	11920
11103010	LOS ANGELES R.AT WIL.ST.BRDG.AT LONG BCH	CA	3348	11812

11303500	SAN JOAQUIN RIVER NEAR VERNALIS	CA	3741	12116
11447650	SACRAMENTO RIVER AT FREEPORT	CA	3827	12130
11467000	RUSSIAN RIVER NEAR GUERNEVILLE	CA	3830	12256
12200500	SKAGIT RIVER NEAR MT VERNON	WA	4831	12220
12318500	KOOTENAI RIVER NEAR COPELAND	ID	4855	11625
12398600	PEND OREILLE R AT INTERNATIONAL BOUNDARY	WA	4900	11721
12433000	SPOKANE RIVER AT LONG LAKE	WA	4750	11751
13022500	SNAKE RIVER ABOVE RESERVOIR NEAR ALPINE	WY	4318	11047
13213000	BOISE RIVER NEAR PARMA	ID	4347	11659
13353200	SNAKE RIVER AT BURBANK	WA	4613	11901
14128910	COLUMBIA RIVER AT WARRENDALE	OR	4537	12202
14321000	UMPQUA RIVER NEAR ELKTON	OR	4335	12333
15515500	TANANA RIVER AT NENANA	AK	6434	14906
16213000	WAIKELE STREAM AT WAIPAHU	HI	2123	15801
50046000	RIO DE LA PLATA AT TOA ALTA	PR	1824	06615

1/ Station 04122080 is not a NASQAN station, but data are included in this report to supplement data from station 04122030.

Table 9.--Summary of measurements at each station

STATION NUMBER: 01034500 NAME: PENOBSCOT RIVER AT WEST ENFIELD, MAINE

LAT 45D14M15S LENG 068D59M10S
DRAINAGE AREA: 6670 SQ MI (17275 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	8.2	8.6	0.0	21					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	58	10	41	75					
STREAMFLOW (CUBIC FT/SEC)	12	20000	21000	5980	80000					
PH (STANDARD UNITS)	12	6.6	.1	6.4	6.8	12	6.79	-.00626	-.44	.130
PHOSPHORUS, TOTAL	12	.03	.01	.01	.04	12	-.009	.00060	.65	.007
NITRITE + NITRATE, TOTAL	12	.04	.04	0.0	.11	12	.012	.00043	.11	.039
NITROGEN, KJELDAHL	12	.34	.21	.15	.96	12	.6483	-.0053	-.24	.214
PHYTOPLANKTON, TOTAL (CELLS/ML)	11	2900	3100	350	11000	11	-2132	87.83	.29	3200
SEDIMENT, SUSPENDED	12	8	6	4	24					
SEDIMENT, CLAY-SILT (PERCENT)	12	78	10	59	91					
COLIFORM, FECAL (COL/100 ML)	12	93	54	20	220					
STREPTOCOCCI, FECAL (COL/100 ML)	11	92	32	36	150					
SILICA, DISSOLVED	4	3.4	9.3	2.3	4.4	4	.81	.04690	.28	1.096
CALCIUM, DISSOLVED	4	5.0	4.8	4.4	5.5	4	7.14	-.03909	-.45	.532
MAGNESIUM, DISSOLVED	4	1.2	.2	.9	1.4	4	-.75	.03639	.86	.149
SODIUM, DISSOLVED	4	3.0	6.6	2.1	3.5	4	-2.79	.10673	.89	.363
POTASSIUM, DISSOLVED	4	.6	.1	.5	.6	4	.170	.00701	.67	.052
BICARBONATE, ION	4	13	1	11	14	4	14.9	-.04041	-.18	1.516
CARBONATE, ION	4	0	0	0	0	4				
SULFATE, DISSOLVED	4	8.4	2.2	5.7	11	4	-10.56	.34934	.90	1.179
CHLORIDE, DISSOLVED	4	2.6	3.7	2.2	3.1	4	2.25	.00647	.10	.456
DISSOLVED SOLIDS, ROE 180 DEG C	2	40	5	37	44	2	7.73	.63640		
DISSOLVED SOLIDS, SUM OF CONST	4	31	4	27	34	4	6.63	.44470	.66	3.49
HARDNESS, TOTAL	4	18	2	17	20	4	14.68	.05661	.21	1.80
HARDNESS, NONCARBONATE	4	7	10	6	8	4	-.208	.13747	.80	.706
TURBIDITY (JTU)	2	3.0	1.4	2.0	4.0	2	-6.36	.18183		
FLUORIDE, DISSOLVED	4	.3	.3	.0	.7	4	3.13	-.05256	-.98	.075

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 359

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	89	79	73	68	65	58	55	48	46	41

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
291	6.03	13.22	2.6	94.8	1.96

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

01034500 -- PENOBSCOT RIVER AT WEST ENFIELD, MAINE

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	0.0	2.	2	0.0	<1.
CADMIUM (CD), UG/L	4	0.0	1.	2	0.0	0.0
CHROMIUM (CR), UG/L	4	0.0	<10.	2	0.0	0.0
COBALT (CO), UG/L	4	0.0	3.	2	0.0	0.0
COPPER (CU), UG/L	4	10.	20.	2	0.0	10.
IRON (FE), UG/L	4	170.	280.	2	90.	150.
LEAD (PB), UG/L	4	6.	17.	2	8.	9.
MANGANESE (MN), UG/L	4	30.	70.	2	30.	40.
MERCURY (HG), UG/L	4	<.5	<.5	2	<.5	<.5
SELENIUM (SE), UG/L	3	1.	3.	2	3.	3.
ZINC (ZN), UG/L	4	20.	150.	2	10.	60.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	2	4.6	6.2			
CHLOROPHYLL A, MG/SQ M	1	.7				
CHLOROPHYLL B, MG/SQ M	1	.5				
ORGANIC CARBON, MG/L	4	7.8	11.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 01096550 NAME: MERRIMACK RIVER ABOVE LOWELL, MASS.

LAT 42038M20S LONG 071D22M17S
DRAINAGE AREA: NOT DETERMINED
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	10.5	10.0	0.0	26.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	84	20	57	112					
STREAMFLOW (CUBIC FT/SEC)	12	9040	6650	1910	22300					
PH (STANDARD UNITS)	8	6.9	.3	6.5	7.4	8	6.6	.00380	.31	.28
PHOSPHORUS, TOTAL	12	.10	.06	.04	.20	12	-.10	.00241	.86	.031
NITRITE + NITRATE, TOTAL	11	.38	.44	.15	1.7	11	-.53	.01078	.52	.398
NITROGEN, KJELDAHL	12	.86	.39	.37	1.6	12	-.47	.01586	.83	.224
PHYTOPLANKTON, TOTAL (CELLS/ML)	12	8100	11000	430	40000	12	-21200	350	.64	9000
SEDIMENT, SUSPENDED	0									
SEDIMENT, CLAY-SILT (PERCENT)	0									
COLIFORM, FECAL (COL/100 ML)	11	1000	780	110	2300					
STREPTOCOCCI, FECAL (COL/100 ML)	11	210	230	18	660					
SILICA, DISSOLVED	4	5.0	1.2	4.2	6.8	4	4.59	.00501	.08	1.45
CALCIUM, DISSOLVED	4	5.2	.9	3.9	6.0	4	1.13	.04401	.97	.254
MAGNESIUM, DISSOLVED	4	1	.2	.7	1.2	4	.04	.01018	.99	.025
SODIUM, DISSOLVED	4	8.6	3.2	5.5	13	4	-4.4	.14121	.88	1.92
POTASSIUM, DISSOLVED	4	1.2	.4	.8	1.7	4	-.39	.01732	.89	.217
BICARBONATE, ION	4	9	2	8	12	4	6.8	.02628	.28	2.23
CARBONATE, ION	4	0.0	0.0	0.0	0.0	4				
SULFATE, DISSOLVED	4	8.3	1.1	7.1	9.4	4	4.67	.03974	.75	.856
CHLORIDE, DISSOLVED	4	13	3.0	8.6	16	4	-1.19	.15041	.99	.40
DISSOLVED SOLIDS, ROE 180 DEG C	4	61	12	47	74	4	10.47	.54924	.90	6.24
DISSOLVED SOLIDS, SUM OF CONST	4	47	9	35	56	4	7.04	.43430	.99	.351
HARDNESS, TOTAL	4	17	3	13	20	4	3.78	.14367	.98	.65
HARDNESS, NONCARBONATE	4	10	3	6	13	4	-3.4	.14039	.91	1.6
TURBIDITY (JTU)	1	3.0		3.0	3.0					
FLUORIDE, DISSOLVED	4	.3	.1	.1	.4	4	-.171	.00484	.78	.10

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

01096550 -- MERRIMACK RIVER ABOVE LOWELL, MASS.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	1.	2.	3	<1.	1.
CADMIUM (CD), UG/L	3	0.0	2.	3	0.0	2.
CHROMIUM (CR), UG/L	3	0.0	10.	3	0.0	10.
COBALT (CO), UG/L	3	0.0	1.	3	0.0	1.
COPPER (CU), UG/L	3	0.0	20.	3	10.	20.
IRON (FE), UG/L	3	<1.	590.	2	130.	190.
LEAD (PB), UG/L	3	2.	5.	3	2.	5.
MANGANESE (MN), UG/L	3	8.	110.	2	30.	90.
MERCURY (HG), UG/L	3	<.5	<.5	3	<.5	.7
SELENIUM (SE), UG/L	3	<1.	14.	3	<1.	15.
ZINC (ZN), UG/L	3	30.	40.	3	0.0	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	4.3	7.0			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 01184000 NAME: CONNECTICUT RIVER AT THOMPSONVILLE CONN.

LAT 41D59M14S LONG 072D36M21S
DRAINAGE AREA: 9661 SQ MI (25022 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	13	11.5	8.9	.5	25.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	13	107	22	71	152					
STREAMFLOW (CUBIC FT/SEC)	12	19500	18200	5000	60600					
PH (STANDARD UNITS)	13	7.0	.3	6.7	7.6	13	6.4	.00580	.50	.231
PHOSPHORUS, TOTAL	12	.09	.05	.05	.20	12	-.04	.00127	.55	.045
NITRITE + NITRATE, TOTAL	12	.40	.15	.19	.78	12	.22	.00168	.25	.156
NITROGEN, KJELDAHL	12	.48	.20	.23	.94	12	-.04	.00484	.55	.172
PHYTOPLANKTON, TOTAL (CELLS/ML)	5	19000	23000	840	59000	5	-93100	963	.96	7300
SEDIMENT, SUSPENDED	8	13	11	7	41					
SEDIMENT, CLAY-SILT (PERCENT)	8	81	13	58	95					
COLIFORM, FECAL (COL/100 ML)	12	14000	22000	500	80000					
STREPTOCOCCI, FECAL (COL/100 ML)	12	1500	1800	37	6300					
SILICA, DISSOLVED	12	5.0	2.8	2.1	6.0	12	6.17	-.01256	-.27	1.04
CALCIUM, DISSOLVED	12	4.8	1.0	8.8	15	12	1.16	.08724	.88	1.09
MAGNESIUM, DISSOLVED	12	11	2.2	1	3.2	12	-1.13	.02735	.92	.277
SODIUM, DISSOLVED	10	1.8	.7	3.4	9.6	10	-2.12	.07655	.92	.84
POTASSIUM, DISSOLVED	10	1.3	.4	.8	2.1	10	-.03	.01250	.72	.31
BICARBONATE, ION	11	28	8	19	43	11	-6.6	.32152	.92	3.3
CARBONATE, ION	11	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	12	11	1.8	8.3	15	12	2.9	.07680	.95	.63
CHLORIDE, DISSOLVED	12	9.2	3.4	4.6	16	12	-3.99	.12196	.81	2.1
DISSOLVED SOLIDS, ROE 180 DEG C	11	70	14	51	88	11	19.1	.46762	.82	8.2
DISSOLVED SOLIDS, SUM OF CONST	9	60	13	42	82	9	5.4	.50583	.97	3.6
HARDNESS, TOTAL	12	34	8	24	51	12	-1.8	.33115	.91	3.6
HARDNESS, NONCARBONATE	11	11	3	7	17	11	3.4	.07248	.53	2.8
TURBIDITY (JTU)	12	2.4	1.4	.90	5.0	12	5.6	-.02960	-.46	1.3
FLUORIDE, DISSOLVED	9	.2	.1	0.0	.4	9	.05	.00094	.21	.12

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
287	12.51	12.73	2.49	97.5	1.55

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

01184000 -- CONNECTICUT R AT THOMPSONVILLE CONN

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	0.0	1.	3	0.0	2.
CADMIUM (CD), UG/L	3	<10.	<10.	3	2.	2.
CHROMIUM (CR), UG/L	3	0.0	10.	3	0.0	0.0
COBALT (CO), UG/L	3	1.	2.	3	0.0	0.0
COPPER (CU), UG/L	2	10.	20.	5	0.0	10.
IRON (FE), UG/L	3	340.	1400.	10	70.	440.
LEAD (PB), UG/L	3	3.	75.	4	0.0	3.
MANGANESE (MN), UG/L	4	70.	150.	11	20.	140.
MERCURY (HG), UG/L	4	<.5	<.5	2	<.5	<.5
SELENIUM (SE), UG/L	3	1.	2.	3	0.0	<2.
ZINC (ZN), UG/L	3	30.	390.	6	10.	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	1	60.				
BIOMASS, ASH WT., G/SQ M	1	46.				
CHLOROPHYLL A, MG/SQ M	1	2.0				
CHLOROPHYLL B, MG/SQ M	1	.9				
ORGANIC CARBON, MG/L	9	.5	10.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 01372043 NAME: HUDSON RIVER NEAR POUGHKEEPSIE, NY

LAT 41D43M18S LONG 073D56M29S
DRAINAGE AREA: 11700 SQ MI (30303 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	14	12.8	9.1	0.0	25.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	15	180	20	155	220					
STREAMFLOW (CUBIC FT/SEC)	20									
PH (STANDARD UNITS)	16	7.1	.5	5.9	7.8	15	6.3	.00437	.18	.487
NITRATE + NITRITE, TOTAL	16	.70	.18	.46	.96	15	.85	-.00074	-.09	.18
PHOSPHORUS, TOTAL	16	.13	.06	.05	.22	15	.29	-.00096	-.34	.06
NITROGEN, KJELDAHL	16	.41	.14	.19	.76	15	.96	-.00314	-.45	.13
PHYTOPLANKTON, TOTAL (CELLS/ML)	4	5500	3200	1900	8300	4	-23100	154	.85	2100
SEDIMENT, SUSPENDED	4	22	14	11	43					
SEDIMENT, CLAY-SILT (PERCENT)	2	95		95	95					
COLIFORM, FECAL (COL/100 ML)	12	210	210	29	740					
STREPTOCOCCI, FECAL (COL/100 ML)	10	190	310	4	800					
SILICA, DISSOLVED	13	2.4	1.9	.10	4.8	13	6.04	-.02009	-.22	1.96
CALCIUM, DISSOLVED	10	22	2.7	18	26	10	1.3	.11277	.81	1.67
MAGNESIUM, DISSOLVED	10	4.5	.7	3.6	5.5	10	1.4	2.11965	.46	.67
SODIUM, DISSOLVED	10	8.4	2.9	5.6	13	10	-2.5	.06048	.40	2.8
POTASSIUM, DISSOLVED	10	1.3	.2	.9	1.7	10	.25	.00592	.45	.24
BICARBONATE, ION	16	62	10	46	78	15	22.6	.21549	.45	8.9
CARBONATE, ION	16	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	16	20	2.6	16	25	15	9.4	.06099	.45	2.5
CHLORIDE, DISSOLVED	16	11	2.9	8	17	15	.58	.05790	.38	2.9
DISSOLVED SOLIDS, SUM 180 DEG C	5	122	14	102	139	5	69.6	.27994	.40	15.2
DISSOLVED SOLIDS, SUM OF CONST	10	102	13	86	119	10	25.4	.42595	.61	11.3
HARDNESS, TOTAL	10	72	9	60	86	10	8.8	.35261	.72	6.9
HARDNESS, NONCARBONATE	10	22	3	19	29	10	.39	.12013	.74	2.2
TURBIDITY (JTU)	8	19	19	1	60	7	34.4	-.11561	-.21	10.4
FLUORIDE, DISSOLVED	11	.2	.1	.1	.4	11	-.093	.00165	.32	.10

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
311	12.36	12.05	2.49	98.9	.91

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

01372043 -- HUDSON RIVER NEAR POUGHKEEPSIE, NY

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	6	0.0	3.	4	0.0	1.
CADMIUM (CD), UG/L	4	1.	1.	4	0.0	1.
CHROMIUM (CR), UG/L	4	0.0	10.	4	0.0	0.0
COBALT (CO), UG/L	4	0.0	0.0	4	0.0	1.
COPPER (CU), UG/L	6	0.0	30.	4	10.	10.
IRON (FE), UG/L	16	360.	5500.	4	30.	310.
LEAD (PB), UG/L	6	5.	14.	4	0.0	2.
MANGANESE (MN), UG/L	16	50.	840.	4	0.0	190.
MERCURY (HG), UG/L	6	<.5	<.5	4	<.5	<.5
SELENIUM (SE), UG/L	4	0.0	3.	4	0.0	2.
ZINC (ZN), UG/L	4	20.	340.	4	0.0	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	7	1.7	85.			
BIOMASS, ASH WT., G/SQ M	5	.80	18.			
CHLOROPHYLL A, MG/SQ M	2	70.	94.			
CHLOROPHYLL B, MG/SQ M	2	29.	37.			
ORGANIC CARBON, MG/L	4	2.9	6.2			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 01463500 NAME: DELAWARE RIVER AT TRENTON NJ

LAT 40D13M18S LONG 074D46M42S
DRAINAGE AREA: 6780 SQ MI (17560 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	11	15.4	7.7	3.5	25.8					
SPECIFIC CONDUCTANCE (MICROMHOS)	10	159	39	102	210					
STREAMFLOW (CUBIC FT/SEC)	11	33600	53400	4012	184000					
PH (STANDARD UNITS)	10	8.1	.8	7.0	9.2	10	6.07	.01269	.60	.703
PHOSPHORUS, TOTAL	10	.12	.07	.05	.28	10	.026	.00060	.35	.066
NITRITE + NITRATE, TOTAL	9	.92	.31	.59	1.5	9	.009	.00580	.76	.22
NITROGEN, KJELDAHL	7	.46	.20	.27	.81	7	.62	-.00106	-.23	.215
PHYTOPLANKTON, TOTAL (CELLS/ML)	8	8200	9100	900	27000	8	-15000	139	.60	7800
SEDIMENT, SUSPENDED	9	37	50	7	145					
SEDIMENT, CLAY-SILT (PERCENT)	9	87	134	57	100					
COLIFORM, FECAL (COL/100 ML)	9	810	1600	10	5000					
STREPTOCOCCI, FECAL (COL/100 ML)	9	1200	2900	28	9000					
SILICA, DISSOLVED	9	3.0	.9	1.2	4.2	9	3.91	.95496	-.24	.95
CALCIUM, DISSOLVED	9	16	3.6	11	21	9	3.2	.08108	.93	1.4
MAGNESIUM, DISSOLVED	9	5.5	1.8	3	8.6	9	-1.40	.04297	.97	.49
SODIUM, DISSOLVED	9	6.0	1.6	3.5	8	9	.30	.03536	.91	.73
POTASSIUM, DISSOLVED	9	1.8	.8	24	54	9	-.36	.01367	.72	.59
BICARBONATE, ION	9	42	12	0.0	8	9	-1.6	.27199	.97	3.0
CARBONATE, ION	8	1	3	0.0	30	8	-3.8	.03026	.47	2.7
SULFATE, DISSOLVED	9	23	53	15	30	9	3.2	.12285	.96	1.6
CHLORIDE, DISSOLVED	9	8.9	2.0	66	144	9	1.3	.04784	.97	.48
DISSOLVED SOLIDS, ROE 180 DEG C	8	99	28	58	118	8	-2.3	.64235	.98	6.1
DISSOLVED SOLIDS, SUM OF CONST	9	88	22	58	118	9	5.0	.51474	.98	4.6
HARDNESS, TOTAL	9	63	16	40	88	9	2.6	.37752	.97	4.5
HARDNESS, NONCARBONATE	9	3	6	14	33	9	9.6	.11012	.74	4.5
TURBIDITY (JTU)	8	3.9	1.9	2	7	8	9.4	-.03294	-.69	1.5
FLUORIDE, DISSOLVED	9	.2	.1	.1	.3	9	.16	.00018	.08	.10

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE — NO. OF MEAS. = 219

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	219	187	182	173	164	144	124	105	102	94

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

01463500 — DELAWARE R AT TRENTON NJ

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	7	<1.	4.	6	0.0	2.
CADMIUM (CD), UG/L	7	0.0	2.	7	0.0	1.
CHROMIUM (CR), UG/L	7	0.0	<10.	6	0.0	<10.
COBALT (CO), UG/L	7	0.0	3.	7	0.0	2.
COPPER (CU), UG/L	7	10.	80.	7	0.0	20.
IRON (FE), UG/L	6	200.	410.	6	50.	100.
LEAD (PB), UG/L	7	3.	43.	9	0.0	5.
MANGANESE (MN), UG/L	6	40.	70.	6	10.	30.
MERCURY (HG), UG/L	7	<.5	1.0	7	<.5	<.5
SELENIUM (SE), UG/L	5	0.0	4.	4	0.0	3.
ZINC (ZN), UG/L	7	40.	190.	7	20.	60.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	4	2.3	2.3			
CHLOROPHYLL A, MG/SQ M	4	3.8	3.8			
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	8	3.3	28.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 01570500 NAME: SUSQUEHANNA RIVER AT HARRISBURG, PA

LAT 40D15M27S LONG 076D53M12S
DRAINAGE AREA: 24100 SQ MI (29000 SQ MI)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	61	13.0	8.4	0.0	27.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	62	218	65	126	410					
STREAMFLOW (CUBIC FT/SEC)	64	49400	33600	6280	149000					
PH (STANDARD UNITS)	62	7.4	.6	6.3	9.0	62	6.4	.00425	.42	.60
PHOSPHORUS, TOTAL	60	.11	.11	.01	.62	60	.50	.00028	.16	.11
NITRITE + NITRATE, TOTAL	52	1.0	.65	.17	3.2	52	.98	.00025	.03	.66
NITROGEN, KJELDAHL	60	.48	.25	.09	1.1	60	.54	.00028	-.07	.254
PHYTOPLANKTON, TOTAL (CELLS/ML)	3	78000	58000	33000	14000	3	-288300	1180	.99	12300
SEDIMENT, SUSPENDED	44	55	77	3	368					
SEDIMENT, CLAY-SILT (PERCENT)	44	82	16	23	98					
COLIFORM, FECAL (COL/100 ML)	17	540	620	10	2400					
STREPTOCOCCI, FECAL (COL/100 ML)	5	320	180	150	590					
SILICA, DISSOLVED	21	2.9	1.4	.40	5.1	21	3.1	-.00088	-.04	1.4
CALCIUM, DISSOLVED	22	25	8.6	14	52	22	-5.5	.12528	.91	3.72
MAGNESIUM, DISSOLVED	22	7.2	2.0	4.2	12	22	1.8	.02285	.71	1.4
SODIUM, DISSOLVED	22	6.4	1.8	3.5	11	22	1.3	.02110	.74	1.2
POTASSIUM, DISSOLVED	22	1.7	.4	1.1	2.6	22	.32	.00568	.86	.22
BICARBONATE, ION	23	49	37	11	168	23	-44.7	.39126	.65	28.9
CARBONATE, ION	23	.1	.3	.0	1.0	23	.27	-.00079	-.17	.29
SULFATE, DISSOLVED	23	47	21	19	96	23	29.1	.07548	.22	21.1
CHLORIDE, DISSOLVED	22	93	2.8	5.3	18	22	3.9	.02257	.51	2.4
DISSOLVED SOLIDS, ROE 180 DEG C	39	149	34	95	237	39	25.5	.52066	.94	12.1
DISSOLVED SOLIDS, SUM OF CONST	21	127	29	90	200	21	21.6	.43791	.95	9.1
HARDNESS, TOTAL	23	90	26	56	160	23	-6.1	.40108	.95	8.3
HARDNESS, NONCARBONATE	23	50	22	20	100	23	28	.09228	.26	21.7
TURBIDITY (JTU)	42	20	28	2.0	130	42	61.5	-.18139	-.43	25.6
FLUORIDE, DISSOLVED	22	.2	.1	.1	.3	22	.43	.00043	.45	.054

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 138

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	318	298	291	240	222	200	180	152	130	110

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
138	14.53	11.07	2.67	72.5	1.95

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

01570500 -- SUSQUEHANNA RIVER AT HARRISBURG, PA.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	35	0.0	4.	21	0.0	2.
CADMIUM (CD), UG/L	36	0.0	1.	21	0.0	11.
CHROMIUM (CR), UG/L	35	0.0	10.	21	0.0	10.
COBALT (CO), UG/L	21	0.0	10.	21	0.0	8.
COPPER (CU), UG/L	36	0.0	20.	21	0.0	10.
IRON (FE), UG/L	36	120.	4600.	21	10.	500.
LEAD (PB), UG/L	36	0.0	10.	21	0.0	4.
MANGANESE (MN), UG/L	36	30.	570.	21	0.0	600.
MERCURY (HG), UG/L	21	<.5	<.5	21	<.5	<.5
SELENIUM (SE), UG/L	21	0.0	3.	21	0.0	3.
ZINC (ZN), UG/L	35	0.0	150.	21	0.0	60.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	19.				
CHLOROPHYLL A, MG/SQ M	1	24.				
CHLOROPHYLL B, MG/SQ M	1	2.7				
ORGANIC CARBON, MG/L	25	.0				

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 01645500 NAME: POTOMAC RIVER AT GREAT FALLS, MD

LAT 39D00M03S LONG 077D14M56S
DRAINAGE AREA: 11430 SQ MI (29600 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	16	14.2	8.4	1.0	29.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	8	259	56	200	350					
STREAMFLOW (CUBIC FT/SEC)	17	8600	4780	2400	18200					
PH (STANDARD UNITS)	16	8.2	.4	7.6	9.0	7	7.5	.00314	.69	.21
PHOSPHORUS, TOTAL	7	.07	.02	.04	.09	7	.043	.00010	.33	.02
NITRITE + NITRATE, TOTAL	7	.59	.40	.01	1.1	7	2.25	-.00624	-.88	.21
NITROGEN, KJELDAHL	7	.48	.21	.17	.73	7	-.32	.00302	.80	.14
PHYTOPLANKTON, TOTAL (CELLS/ML)	6	48000	37000	6800	100000	6	-85100	486	.72	28700
SEDIMENT, SUSPENDED	7	22	8.2	0.0	35					
SEDIMENT, CLAY-SILT (PERCENT)	7	89	8.1	81	100					
COLIFORM, FECAL (COL/100 ML)	7	44	40	0.0	96					
STREPTOCOCCI, FECAL (COL/100 ML)	7	1000	2500	2	6800					
SILICA, DISSOLVED	7	2.3	2.3	.10	6.4	7	10.0	-.02902	-.72	1.7
CALCIUM, DISSOLVED	7	29	2.8	25	34	7	21.8	.02645	.53	2.6
MAGNESIUM, DISSOLVED	7	7.8	1.8	5	10	7	.19	.02849	.88	.96
SODIUM, DISSOLVED	7	13	7.4	6.5	25	7	-17.7	.11576	.88	3.9
POTASSIUM, DISSOLVED	7	2.1	.6	1.5	3.1	7	-.46	.00977	.93	.23
BICARBONATE, ION	7	89	9	74	105	7	67.3	.08142	.50	8.7
CARBONATE, ION	4	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	10	40	15	0.0	72	7	-25.97	.25430	.85	9.8
CHLORIDE, DISSOLVED	16	13	8.3	5.2	40	7	-10.7	.08175	.93	2.0
DISSOLVED SOLIDS, ROE 180 DEG C	7	165	36	119	223	7	8.7	.58720	.91	16.5
DISSOLVED SOLIDS, SUM OF CONST	7	151	32	113	200	7	10.2	.52919	.93	12.8
HARDNESS, TOTAL	16	102	29	15	144	7	55	.17884	.84	7.2
HARDNESS, NONCARBONATE	16	34	13	21	74	7	.06	.11572	.83	4.8
TURBIDITY (JTU)	16	24	29	4	130	7	-6.7	.07080	.54	6.9
FLUORIDE, DISSOLVED	7	.2	.1	.1	.3	7	.0007	.00064	.48	.073

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 280

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	369	350	330	300	267	225	204	171	160	141

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
299	16.29	10.94	2.70	92.3	2.06

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

01645500 -- POTOMAC RIVER AT GREAT FALLS MD

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	0.0	1.	3	0.0	1.
CADMIUM (CD), UG/L	3	0.0	0.0	3	0.0	0.0
CHROMIUM (CR), UG/L	3	0.0	<10.	3	0.0	0.0
COBALT (CO), UG/L	4	0.0	3.	3	0.0	0.0
COPPER (CU), UG/L	4	0.0	25.	3	0.0	0.0
IRON (FE), UG/L	4	250.	1400.	3	30.	80.
LEAD (PB), UG/L	4	2.	<100.	3	2.	6.
MANGANESE (MN), UG/L	4	40.	90.	3	0.0	10.
MERCURY (HG), UG/L	4	<.5	<.5	3	<.5	.5
SELENIUM (SE), UG/L	2	0.0	0.0	2	2.	4.
ZINC (ZN), UG/L	4	20.	400.	3	10.	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	2	42.	44.			
BIOMASS, ASH WT., G/SQ M	1	29.				
CHLOROPHYLL A, MG/SQ M	1	20.				
CHLOROPHYLL B, MG/SQ M	1	3.3				
ORGANIC CARBON, MG/L	5	3.5	11.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 02035000 NAME: JAMES RIVER AT CARTERSVILLE, VA

LAT 37D54M15S LONG 078D05M10S
DRAINAGE AREA: 6257 SQ MI (16206 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	42	15.6	7.2	5.0	27.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	42	137	38	75	230					
STREAMFLOW (CUBIC FT/SEC)	42	7170	5880	1020	26800					
PH (STANDARD UNITS)	37	7.1	.4	5.8	7.8	37	6.8	.00203	.18	.42
PHOSPHORUS, TOTAL	15	.10	.05	.01	.19	15	.17	-.00082	-.49	.04
NITRITE + NITRATE, TOTAL	13	.22	.18	.01	.47	13	.71	-.00363	-.60	.15
NITROGEN, KJELDAHL	15	.26	.23	0.0	.76	15	.27	.00009	-.01	.23
PHYTOPLANKTON, TOTAL (CELLS/ML)										
SEDIMENT, SUSPENDED	9	57	52	5	144					
SEDIMENT, CLAY-SILT (PERCENT)	2	100		100	100					
COLIFORM, FECAL (COL/100 ML)	19	82	57	4	210					
STREPTOCOCCI, FECAL (COL/100 ML)	6	6	30	2	110					
SILICA, DISSOLVED	31	8.7	2.1	1.5	12	31	8.9	-.00099	-.02	2.18
CALCIUM, DISSOLVED	31	15	3.3	9.6	21	31	5.0	.07034	.82	1.9
MAGNESIUM, DISSOLVED	31	3.5	.75	2	4.9	31	1.4	.01517	.78	.48
SODIUM, DISSOLVED	31	6.4	3.3	3	14	31	-4.4	.07727	.90	1.4
POTASSIUM, DISSOLVED	31	1.9	.7	1.0	3.4	31	.38	.01074	.62	.53
BICARBONATE, ION	31	55	12	34	82	31	18.7	.26272	.81	7.4
CARBONATE, ION	26	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	30	12	3.7	7.7	22	30	.84	.07926	.84	2.0
CHLORIDE, DISSOLVED	30	7.6	4.3	2.2	18	30	-6.7	.10322	.94	1.5
DISSOLVED SOLIDS, ROE 180 DEG C	39	92	25	56	143	39	10.3	.58772	.88	12.2
DISSOLVED SOLIDS, SUM OF CONST	31	84	21	57	130	31	16.1	.48323	.91	8.8
HARDNESS, TOTAL	31	51	11	34	72	31	18.5	.23574	.83	6.3
HARDNESS, NONCARBONATE	31	6	2	0.0	12	31	2.3	.02582	.42	2.2
TURBIDITY (JTU)	14	18	17	1	60	14	68	-.37174	-.62	13.6
FLUORIDE, DISSOLVED	30	.1	.1	0.0	.3	30	.10	.00017	.11	.06

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 299

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	240	202	181	164	151	132	116	98	89	67

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
296	15.32	9.70	2.79	91.4	2.07

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

02035000 -- JAMES RIVER AT CARTERSVILLE VA

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	0.0	1.	3	0.0	0.0
CADMIUM (CD), UG/L	3	0.0	1.	3	0.0	7.
CHROMIUM (CR), UG/L	3	0.0	30.	3	0.0	2.
COBALT (CO), UG/L	3	0.0	0.0	3	0.0	1.
COPPER (CU), UG/L	3	0.0	7.	3	0.0	6.
IRON (FE), UG/L	3	130.	380.	28	0.0	210.
LEAD (PB), UG/L	3	0.0	5.	3	0.0	10.
MANGANESE (MN), UG/L	3	0.0	53.	3	0.0	7.
MERCURY (HG), UG/L	1	.3		2	.7	1.6
SELENIUM (SE), UG/L	3	0.0	18.	3	0.0	2.
ZINC (ZN), UG/L	3	0.0	40.	3	0.0	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	1.5				
CHLOROPHYLL A, MG/SQ M	1	.1				
CHLOROPHYLL B, MG/SQ M	1	.2				
ORGANIC CARBON, MG/L	9	1.5	6.5			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 02105769 NAME: CAPE FEAR RIVER AT LOCK 1 NR. KELLY, NC

LAT 34D24M15S LONG 078D17M38S
DRAINAGE AREA: 5220 SQ MI (13520 SQ MI)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	37	20.1	6.1	7.0	30.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	14	88	44	30	181					
STREAMFLOW (CUBIC FT/SEC)	45	4680	4560	730	19900					
PH (STANDARD UNITS)	31	6.5	.4	5.8	7.5	14	6.5	-.00266	-.38	.298
PHOSPHORUS, TOTAL	10	.19	.11	.01	.43	10	-.023	.00239	.85	.061
NITRITE + NITRATE, TOTAL	10	.52	.23	.14	.98	10	.07	.00496	.86	.122
NITROGEN, KJELDAHL	10	.76	.31	.24	1.4	10	.33	.00473	.60	.27
PHYTOPLANKTON, TOTAL (CELLS/ML)	9	2000	1400	180	4900	9	397	16.8	.49	1260
SEDIMENT, SUSPENDED	9	44	35	15	126					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	42	2000	9500	510	60000					
STREPTOCOCCI, FECAL (COL/100 ML)	9	64	60	20	170					
SILICA, DISSOLVED	9	7.8	1.8	4.1	9.6	9	11.5	-.03926	-.86	.99
CALCIUM, DISSOLVED	9	4.6	1.5	2.3	7.2	9	2.7	.02070	.55	1.4
MAGNESIUM, DISSOLVED	9	1.8	.5	1.3	2.9	9	.70	.01129	.93	.18
SODIUM, DISSOLVED	9	10	6.8	5	25	9	-595	.16726	.98	1.4
POTASSIUM, DISSOLVED	9	2.1	.6	1.4	3.1	9	.99	.01178	.74	.45
BICARBONATE, ION	9	22	11	14	48	9	-2.5	.26285	.94	4.1
CARBONATE, ION	4	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	9	9.9	2.6	8.1	16	9	4.2	.06089	.95	.88
CHLORIDE, DISSOLVED	9	8.8	5.6	4.2	21	9	-3.9	.13476	.96	1.7
DISSOLVED SOLIDS, ROE 180 DEG C	9	73	20	55	113	9	38.3	.36910	.74	14
DISSOLVED SOLIDS, SUM OF CONST	9	57	20	43	104	9	10.7	.49126	.97	4.8
HARDNESS, TOTAL	9	19	5	13	28	9	10.2	.09396	.77	3.4
HARDNESS, NONCARBONATE	9	2.6	3	0.0	8.0	9	4.99	-.02589	-.34	3.1
TURBIDITY (JTU)	10	18	11	2	30	8	19.1	-.02213	-.08	12.9
FLUORIDE, DISSOLVED	9	.2	.1	0.0	.4	9	.20	-.00026	-.08	.14

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE — NO. OF MEAS. = 364

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	204	184	169	141	126	98	78	59	53	38

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
365	17.90	8.71	2.70	90.2	1.97

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

02105769 — CAPE FEAR RIVER AT LOCK 1 NR KELLY, N.C.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	8	0.0	60.	7	0.0	7.
CADMIUM (CD), UG/L	8	0.0	<50.	7	0.0	4.
CHROMIUM (CR), UG/L	8	0.0	<50.	7	0.0	2.
COBALT (CO), UG/L	7	0.0	6.	7	0.0	9.
COPPER (CU), UG/L	8	3.	<40.	7	2.	8.
IRON (FE), UG/L	8	640.	2100.	7	180.	630.
LEAD (PB), UG/L	8	1.	<100.	7	1.	15.
MANGANESE (MN), UG/L	8	75.	230.	7	33.	370.
MERCURY (HG), UG/L	19	.0	2.1	7	.0	.3
SELENIUM (SE), UG/L	7	0.0	12.	7	0.0	9.
ZINC (ZN), UG/L	8	10.	60.	7	0.0	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	3	3.1	22.			
BIOMASS, ASH WT., G/SQ M	3	.8	1.5			
CHLOROPHYLL A, MG/SQ M	1	.3				
CHLOROPHYLL B, MG/SQ M	1	.1				
ORGANIC CARBON, MG/L	5	3.9	41.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 02170500 NAME: LAKES MARION-MOULTRIE DIVERSION CANAL NR. PINEVILLE, SC

LAT 33D23M15S LONG 080D06M25S
DRAINAGE AREA: NOT DETERMINED
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	19.0	6.3	160	28.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	81	6	72	93					
STREAMFLOW (CUBIC FT/SEC)	9	14600	6640	4270	25000					
PH (STANDARD UNITS)	12	7.2	.1	7.0	7.4	12	7.7	-.00589	-.31	.12
PHOSPHORUS, TOTAL	12	.03	.04	.00	.16	12	.27	-.00294	-.41	.042
NITRITE + NITRATE, TOTAL	11	.11	.14	.00	.48	11	.75	-.00776	-.34	.14
NITROGEN, KJELDAHL	9	.25	.14	.11	.47	9	.31	-.00075	.04	.148
PHYTOPLANKTON, TOTAL (CELLS/ML)	11	11000	14000	1700	49000	11	-28000	477	.22	14300
SEDIMENT, SUSPENDED	12	21	16	6	65					
SEDIMENT, CLAY-SILT (PERCENT)	10	100	0.0	100	100					
COLIFORM, FECAL (COL/100 ML)	12	3	2	1	7					
STREPTOCOCCI, FECAL (COL/100 ML)	10	3	4	1	13					
SILICA, DISSOLVED	12	8.9	1.3	6.9	11	12	7.7	.01475	.07	1.3
CALCIUM, DISSOLVED	12	4.9	1.0	3.3	6.3	12	.53	.05353	.32	1.03
MAGNESIUM, DISSOLVED	12	1.7	.50	.3	2.4	12	-1.0	.03344	.41	.48
SODIUM, DISSOLVED	12	7.8	1.0	6.5	10	12	4.9	.15659	.92	.43
POTASSIUM, DISSOLVED	12	2.0	.4	1.6	2.9	12	-.27	.02833	.48	.33
BICARBONATE, ION	12	23	2	20	26	12	5.3	.22029	.73	1.31
CARBONATE, ION	10	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	12	7.5	.8	6.1	8.7	12	6.4	.01443	.11	.83
CHLORIDE, DISSOLVED	12	6.6	.6	5.7	7.7	12	9.2	-.03177	-.32	.60
DISSOLVED SOLIDS, ROE 180 DEG C	11	60	11	49	88	11	23.9	.45040	.25	11.5
DISSOLVED SOLIDS, SUM OF CONST	12	51	3	46	56	12	21.3	.36690	.74	2.13
HARDNESS, TOTAL	12	19	3.0	13	22	12	-.52	.24257	.49	2.7
HARDNESS, NONCARBONATE	12	1	2	0.0	4.0	12	-3.6	.05909	.24	1.5
TURBIDITY (JTU)	10	9.1	9.0	1	30	10	54.6	-.56588	-.36	8.9
FLUORIDE, DISSOLVED	10	.2	.1	0.0	.3	10	-.38	.00656	.50	.078

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 353

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	130	94	91	88	87	86	83	81	76	65

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
356	20.05	8.67	2.72	93.8	1.58

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

02170500 -- LAKES M-M DIV CANAL NR. PINEVILLE, S.C.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	0.0	8.	4	0.0	3.
CADMIUM (CD), UG/L	4	1.	5.	4	0.0	4.
CHROMIUM (CR), UG/L	4	0.0	1.	4	0.0	1.
COBALT (CO), UG/L	4	0.0	8.	4	0.0	8.
COPPER (CU), UG/L	4	3.	34.	4	1.	6.
IRON (FE), UG/L	4	230.	560.	4	0.0	100.
LEAD (PB), UG/L	4	3.	70.	4	0.0	13.
MANGANESE (MN), UG/L	4	20.	88.	4	0.0	17.
MERCURY (HG), UG/L	4	.0	.4	3	.0	.0
SELENIUM (SE), UG/L	3	0.0	12.	4	0.0	20.
ZINC (ZN), UG/L	4	30.	230.	4	0.0	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	56.				
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	3.8	5.7			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 02171500 NAME: SANTEE RIVER NR. PINEVILLE, SC

LAT 33D27M15S LONG 080D09M25S
DRAINAGE AREA: 14700 SQ MI (38073 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	16	24.0	5.8	12.5	29.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	21	78	8	65	96					
STREAMFLOW (CUBIC FT/SEC)	9	1460	2710	458	8680					
PH (STANDARD UNITS)	16	7.0	.2	6.7	7.3	16	6.3	.00912	.55	.14
PHOSPHORUS, TOTAL	21	.04	.02	.02	.09	21	-.005	.00052	.22	.02
NITRITE + NITRATE, TOTAL	21	.13	.21	.02	1.0	21	-1.0	.01485	.58	.18
NITROGEN, KJELDAHL	20	.40	.12	.19	.61	20	.25	-.00363	-.26	.12
PHYTOPLANKTON, TOTAL (CELLS/ML)	3	17000	13000	3300	30000					
SEDIMENT, SUSPENDED	9	28	25	1.0	76					
SEDIMENT, CLAY-SILT (PERCENT)	9	84	31	26	100					
COLIFORM, FECAL (COL/100 ML)	9	24	21	2	60					
STREPTOCOCCI, FECAL (COL/100 ML)	8	7	6	2	15					
SILICA, DISSOLVED	9	8.1	1.5	5.6	10	9	-3.8	.14585	.74	1.08
CALCIUM, DISSOLVED	3	5.0	1.7	3.5	6.9	3	15.9	-.13469	-.47	2.18
MAGNESIUM, DISSOLVED	3	1.7	.10	1.6	1.8	3	2.6	-.01087	-.66	.11
SODIUM, DISSOLVED	5	7.4	.6	6.9	8.5	3	-3.4	.13491	.99	.02
POTASSIUM, DISSOLVED	5	1.8	.2	1.5	2.0	3	-1.6	.04135	.99	.03
BICARBONATE, ION	5	24	1	23	25	5	26	-.02576	-.18	1.2
CARBONATE, ION	5	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	5	8.5	1.2	7.1	9.8	5	-3.6	.14176	.93	.49
CHLORIDE, DISSOLVED	5	7.2	1.4	5.9	8.9	5	-4.2	.13395	.73	1.12
DISSOLVED SOLIDS, ROE 180 DEG C	4	67	12	49	74	4	-67.4	1.61826	.80	8.76
DISSOLVED SOLIDS, SUM OF CONST	3	51	3	48	53	3	20.4	.37632	.86	1.9
HARDNESS, TOTAL	3	19	5	15	25	3	51.9	-.40031	-.47	6.4
HARDNESS, NONCARBONATE	3	1	2	0.0	4	3	7.4	-.07426	-.20	3.2
TURBIDITY (JTU)	12	6.3	4.9	2	20	12	13.4	-.09245	-.18	5.0
FLUORIDE, DISSOLVED	4	.1	.1	0.0	.2	4	-.60	.00873	.53	.099

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

02171500 — SANTEE RIVER NR. PINEVILLE, SC

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	1.	6.	3	1.	6.
CADMIUM (CD), UG/L	3	0.0	16.	5	0.0	4.
CHROMIUM (CR), UG/L	3	0.0	10.	5	0.0	0.0
COBALT (CO), UG/L	3	0.0	8.	3	0.0	8.
COPPER (CU), UG/L	3	4.	13.	5	4.	6.
IRON (FE), UG/L	3	170.	610.	5	0.0	150.
LEAD (PB), UG/L	3	0.0	17.	5	0.0	16.
MANGANESE (MN), UG/L	3	40.	75.	5	0.0	50.
MERCURY (HG), UG/L	3	.1	.2	5	.0	.2
SELENIUM (SE), UG/L	2	0.0	1.	3	0.0	8.
ZINC (ZN), UG/L	3	10.	70.	5	0.0	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	5	3.7				

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 02198500 NAME: SAVANNAH RIVER NR. CLYO, GA

LAT 32D31M30S LONG 081D15M45S
DRAINAGE AREA: 9850 SQ MI (25512 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	14	19.2	7.0	8.0	27.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	14	68	7	54	76					
STREAMFLOW (CUBIC FT/SEC)	14	12400	6480	7680	26200					
PH (STANDARD UNITS)	14	7.1	.2	6.8	7.7	14	7.72	-.00963	-.32	.206
PHOSPHORUS, TOTAL	14	.08	.02	.05	.10	14	.013	.00095	.40	.016
NITRITE + NITRATE, TOTAL	9	.34	.23	.16	.91	9	1.17	-.01230	-.38	.226
NITROGEN, KJELDAHL	8	.40	.13	.22	.58	8	-.252	.00903	.54	.12
PHYTOPLANKTON, TOTAL (CELLS/ML)	2	1100	1300	230	2000	2	126900	-1780	-1.00	0.0
SEDIMENT, SUSPENDED	8	36	11	24	54					
SEDIMENT, CLAY-SILT (PERCENT)	3	100	0.0	100	100					
COLIFORM, FECAL (COL/100 ML)	9	140	110	35	270					
STREPTOCOCCI, FECAL (COL/100 ML)	7	27	26	8	82					
SILICA, DISSOLVED	5	9.3	.8	8.3	10	5	8.4	.01360	.15	.904
CALCIUM, DISSOLVED	3	5.9	1.4	4.5	7.3	3	30.4	-.34433	-.55	1.65
MAGNESIUM, DISSOLVED	3	1.2	.1	1.1	1.3	3	2.6	-.01967	-.44	.127
SODIUM, DISSOLVED	3	7.7	.53	7.3	8.3	3	19.6	-.16716	-.71	.53
POTASSIUM, DISSOLVED	3	1.3	.1	1.2	1.4	3	4.6	-.04590	-.90	.072
BICARBONATE, ION	5	22	3	18	24	5	.18	.33368	.98	.62
CARBONATE, ION	5	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	5	5.0	7.4	4.3	5.8	5	1.97	.04672	.57	.70
CHLORIDE, DISSOLVED	5	5.0	1.0	4.0	6.2	5	-1.07	.09439	.81	.712
DISSOLVED SOLIDS, ROE 180 DEG C	4	62	13	52	80	4	51.9	.14323	.10	15.3
DISSOLVED SOLIDS, SUM OF CONST	3	49	2	46	50	3	114	-.91814	-.90	1.45
HARDNESS, TOTAL	8	17	3	14	23	8	8.6	.12192	.24	3.04
HARDNESS, NONCARBONATE	3	1	2	0.0	3.0	3	4.5	-.04921		2.4
TURBIDITY (JTU)	9	15	4.8	9.0	20	9	18.6	-.04855	-.08	5.08
FLUORIDE, DISSOLVED	4	.1	0.0	.1	.1	4	.10	0.0	0.0	.00007

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 271

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	80	70	69	68	66	65	57	51	48	47

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
272	17.69	5.88	2.62	91.0	1.41

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

02198500 -- SAVANNAH R NR CLYO GA

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	0.0	6.	3	0.0	6.
CADMIUM (CD), UG/L	3	1.	4.	3	1.	4.
CHROMIUM (CR), UG/L	3	0.0	1.	3	0.0	1.
COBALT (CO), UG/L	3	2.	8.	3	0.0	8.
COPPER (CU), UG/L	3	6.	14.	3	5.	6.
IRON (FE), UG/L	3	860.	1300.	3	80.	210.
LEAD (PB), UG/L	3	0.0	6.	3	0.0	5.
MANGANESE (MN), UG/L	3	60.	88.	3	0.0	17.
MERCURY (HG), UG/L	3	.1	.3	3	.0	.1
SELENIUM (SE), UG/L	2	0.0	0.0	3	0.0	10.
ZINC (ZN), UG/L	3	20.	80.	3	10.	80.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	8	3.0	7.0			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 02231000 NAME: ST. MARYS RIVER NR. MACCLENNY, FLORIDA

LAT 30D21M31S LONG 082D04M54S
DRAINAGE AREA: 700 SQ MI (1813 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	9	21.5	5.6	12.5	28.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	9	65	40	37	165					
STREAMFLOW (CUBIC FT/SEC)	9	958	1480	92	4640					
PH (STANDARD UNITS)	8	5.4	1.0	3.7	6.8	8	4.7	.00972	.39	1.02
PHOSPHORUS, TOTAL	8	.05	.01	.03	.06	9	.05	-.00001	-.05	.011
NITRITE + NITRATE, TOTAL	8	.05	.02	.02	.09	9	.068	-.00003	-.39	.024
NITROGEN, KJELDAHL	8	.79	.18	.53	1.1	8	.84	-.00045	-.11	.185
PHYTOPLANKTON, TOTAL (CELLS/ML)	3	400	280	130	700	3	660	-3.1871	-.82	232
SEDIMENT, SUSPENDED	9	4	2	2.0	9.0					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	9	180	260	14	800					
STREPTOCOCCI, FECAL (COL/100ML)	9	78	88	10	300					
SILICA, DISSOLVED	4	4.2	1.5	3.1	6.4	3	3.8	-.00403	-.60	.534
CALCIUM, DISSOLVED	4	2.8	.8	2.1	3.8	3	2.8	-.00403	-.60	.534
MAGNESIUM, DISSOLVED	4	1.5	1.4	.6	3.5	3	.68	.00142	.58	.19
SODIUM, DISSOLVED	4	4.7	3.0	2.8	9.1	3	3.6	-.00458	-.49	.82
POTASSIUM, DISSOLVED	4	.6	.4	.30	1.2	3	.497	-.00116	-.82	.082
BICARBONATE, ION	4	2	2	0.0	5	3	2.6	-.01501	-.69	1.6
CARBONATE, ION	4	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	4	6.9	3.6	6.1	7.8	3	7.5	-.00602	-.64	.73
CHLORIDE, DISSOLVED	4	6.8	.72	4.6	13	3	6.4	-.01090	-.85	.67
DISSOLVED SOLIDS, ROE 180 DEG C	4	78	3	76	82	3	81.6	-.02660	-.74	2.4
DISSOLVED SOLIDS, SUM OF CONST	4	30	11	21	46	3	27.5	-.03818	-.77	3.2
HARDNESS, TOTAL	4	13	7	8	24	3	9.5	-.00212	-.10	2.15
HARDNESS, NONCARBONATE	4	11	6	7	20	3	7.5	.00947	.58	16
TURBIDITY (JTU)	9	4.2	1.6	2	6	3	6.3	-.02831	-.74	1.2
FLUORIDE, DISSOLVED	4	.2	.2	0.0	.4	3	.15	.00137	.42	.30

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 271

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	73	65	59	51	47	46	36	38	36	35

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
271	21.39	4.50	2.40	60.1	2.85

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

02231000 -- ST MARYS RIVER NR MACCLENNY, FLA.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	2.	7.	3	0.0	1.
CADMIUM (CD), UG/L	4	0.0	6.	3	0.0	6.
CHROMIUM (CR), UG/L	3	0.0	20.	3	0.0	0.0
COBALT (CO), UG/L	3	0.0	5.	3	0.0	3.
COPPER (CU), UG/L	3	3.	10.	4	1.	8.
IRON (FE), UG/L	4	510.	690.	4	420.	560.
LEAD (PB), UG/L	4	0.0	13.	4	0.0	10.
MANGANESE (MN), UG/L	4	11.	63.	4	9.	17.
MERCURY (HG), UG/L	4	0.0	.2	3	.0	.2
SELENIUM (SE), UG/L	3	10.	16.	3	8.	13.
ZINC (ZN), UG/L	3	30.	40.	4	10.	60.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	5	18.	29.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 02244450 NAME: ST. JOHNS RIVER AT PALATKA, FLORIDA

LAT 29D38M46S LONG 081D37M32S
DRAINAGE AREA: 7665 SQ MI (19298 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	10	22.5	4.1	16.0	27.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	10	976	197	592	1340					
STREAMFLOW (CUBIC FT/SEC)	10	7450	15300	16600	35500					
PH (STANDARD UNITS)	10	7.9	.9	7.0	9.4	10	7.3	.00061	.14	.898
PHOSPHORUS, TOTAL	10	.11	.04	.05	.19	10	.24	.00013	.63	.03
NITRITE + NITRATE, TOTAL	10	.06	.07	.01	.20	10	.157	-.00010	-.26	.076
NITROGEN, KJELDAHL	10	1.3	.90	.1	2.5	10	1.18	.00013	.04	.78
PHYTOPLANKTON, TOTAL (CELLS/ML)	3	130000	10000	11000	210000	3	-129600	270	.94	50800
SEDIMENT, SUSPENDED	9	10	3	5	15					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	8	240	420	5	1200					
STREPTOCOCCI, FECAL (COL/100 ML)	8	1300	2800	0.0	8000					
SILICA, DISSOLVED	6	5.4	3.2	.5	9.5	6	4.3	.00111	.09	3.6
CALCIUM, DISSOLVED	6	48	11	30	59	6	26.6	.02136	.49	10.5
MAGNESIUM, DISSOLVED	6	16	3.8	10	20	6	7.3	.00908	.60	3.4
SODIUM, DISSOLVED	6	110	28	70	140	6	53.3	.05756	.52	26.5
POTASSIUM, DISSOLVED	6	4.7	1.6	3.5	7.9	6	3.5	.00117	.18	1.8
BICARBONATE, ION	6	98	29	6	150	6	57.3	.04167	.36	30.6
CARBONATE, ION	6	0	0	0	0					
SULFATE, DISSOLVED	6	60	16	36	79	6	25.98	.03433	.55	14.4
CHLORIDE, DISSOLVED	8	210	41	130	250	8	108	.09979	.52	37.5
DISSOLVED SOLIDS, ROE 180 DEG C	6	565	110	408	687	6	250	.23015	.52	105
DISSOLVED SOLIDS, SUM OF CONST	6	496	114	318	613	6	250	.24686	.54	107
HARDNESS, TOTAL	8	199	47	120	280	8	110	.08900	.40	46.6
HARDNESS, NONCARBONATE	6	104	25	66	140	6	47	.05761	.58	22.4
TURBIDITY (JTU)	10	5.5	2.8	1	9	10	4.2	.00137	.10	3
FLUORIDE, DISSOLVED	6	.4	.2	.2	.7	6	-.135	.00050	.72	.136

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 238

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	1286	1160	1093	1053	1009	856	752	560	420	310

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
258	24.38	5.15	2.59	89.4	1.33

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

02244450 — ST. JOHNS RIVER AT PALATKA, FLA.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	0.0	10.	3	1.	3.
CADMIUM (CD), UG/L	3	0.0	6.	3	0.0	5.
CHROMIUM (CR), UG/L	3	0.0	20.	3	0.0	0.0
COBALT (CO), UG/L	3	1.	5.	3	0.0	4.
COPPER (CU), UG/L	3	1.	4.	3	2.	6.
IRON (FE), UG/L	3	160.	330.	3	0.0	230.
LEAD (PB), UG/L	3	8.	10.	3	0.0	5.
MANGANESE (MN), UG/L	3	11.	20.	3	0.0	14.
MERCURY (HG), UG/L	3	.0	.2	3	.0	.4
SELENIUM (SE), UG/L	3	5.	10.	3	5.	8.
ZINC (ZN), UG/L	3	7.	50.	3	3.	7.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	6	8.0	26.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 02273000 NAME: KISSIMMEE RIVER AT S-65E NR. OKEECHOBEE, FLORIDA

LAT 27D13M32S LONG 080D57M46S
DRAINAGE AREA: INDETERMINATE
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, REGRESSION A	COEFFICIENT, REGRESSION B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	20	26.3	3.4	18.0	30.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	20	173	46	114	255					
STREAMFLOW (CUBIC FT/SEC)	19	3320	3840	50	12600					
PH (STANDARD UNITS)	18	6.8	.4	6.1	7.4	18	6.37	.00232	.26	.41
PHOSPHORUS, TOTAL	19	.08	.04	.02	.18	19	.13	-.00026	-.30	.039
NITRITE + NITRATE, TOTAL	20	.08	.10	0.0	.34	20	-.12	.00117	.53	.088
NITROGEN, KJELDAHL	20	.11	.26	.48	1.5	20	1.6	-.00323	-.57	.22
PHYTOPLANKTON, TOTAL (CELLS/ML)	10	12000	26000	580	85000	10	61300	-281	-.51	23900
SEDIMENT, SUSPENDED	12	6	8	0.0	30					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	20	28	63	0.0	280					
STREPTOCOCCI, FECAL (COL/100 ML)	12	28	52	0.0	180					
SILICA, DISSOLVED	17	3.0	1.0	1.7	5.1	17	3.3	-.00123	-.05	1.07
CALCIUM, DISSOLVED	3	21	4.1	18	26	3	-1.05	.10175	.92	2.3
MAGNESIUM, DISSOLVED	3	4.8	1.0	3.8	5.9	3	1.3	.01596	.57	1.2
SODIUM, DISSOLVED	3	15	1.7	13	16	3	5.74	.04211	.92	.97
POTASSIUM, DISSOLVED	3	2.0	.4	1.7	2.4	3	.03	.00912	.98	.097
BICARBONATE, ION	3	53	8	47	62	3	18.3	.15614	.72	7.9
CARBONATE, ION	3	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	3	20	6.7	13	26	3	-18.3	.17543	.99	.975
CHLORIDE, DISSOLVED	3	25	3.8	21	28	3	4.11	.09649	.96	1.46
DISSOLVED SOLIDS, ROE 180 DEG C	15	131	29	84	189	15	29	.58064	.90	13.2
DISSOLVED SOLIDS, SUM OF CONST	3	120	21	98	139	3	-.42	.54738	.99	.331
HARDNESS, TOTAL	3	73	12	61	85	3	3.47	.31754	.99	1.13
HARDNESS, NONCARBONATE	3	30	8	21	36	3	-10.6	.18596	.86	5.84
TURBIDITY (JTU)	20	5.2	2.0	2	10	20	9.17	-.02326	-.53	1.75
FLUORIDE, DISSOLVED	3	.6	.6	.2	1.2	3	.49	.00035	.02	.78

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 365

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	260	254	250	235	220	181	148	113	111	87

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
348	24.12	4.79	2.72	77.3	1.83

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

02273000 — KISSIMMEE RIVER AT S-65E NR OKEECHOBEE, FLA.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	1.	7.	4	0.0	
CADMIUM (CD), UG/L	4	1.	6.	4	0.0	
CHROMIUM (CR), UG/L	4	0.0	30.	4	0.0	
COBALT (CO), UG/L	4	0.0	2.	4	0.0	
COPPER (CU), UG/L	4	1.	6.	4	0.0	
IRON (FE), UG/L	17	70.	590.	4	70.	
LEAD (PB), UG/L	4	0.0	16.	4	1.	
MANGANESE (MN), UG/L	4	0.0	20.	4	0.0	
MERCURY (HG), UG/L	4	.0	.8	4	.0	
SELENIUM (SE), UG/L	4	0.0	10.	4	4.	
ZINC (ZN), UG/L	4	0.0	50.	4	0.0	
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	2	4.6	6.9			
BIOMASS, ASH WT., G/SQ M	2	1.5	3.1			
CHLOROPHYLL A, MG/SQ M	1	15.				
CHLOROPHYLL B, MG/SQ M	1	5.6				
ORGANIC CARBON, MG/L	18	8.0	21.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 02296750 NAME: PEACE RIVER AT ARCADIA, FLORIDA

LAT 27D13M19S LONG 081D52M34S
DRAINAGE AREA: 1367 SQ MI (3541 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	15	24.3	4.2	16.0	30.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	13	428	143	100	540					
STREAMFLOW (CUBIC FT/SEC)	15	909	1480	61	4700					
PH (STANDARD UNITS)	9	7.1	1.1	4.5	7.8	8	1.13	.00441	.71	.86
PHOSPHORUS, TOTAL	7	3.3	1.3	.92	4.8	7	-.15	.00856	.95	.44
NITRITE + NITRATE, TOTAL	2	1.4	1.7	.19	2.6	2	-.75	.00946	1.0	0.0
NITROGEN, KJELDAHL	2	1.2	.13	1.1	1.2	2	1.35	-.00069	-.99	0.0
PHYTOPLANKTON, TOTAL (CELLS/ML)	1	1500		1500	1500					
SEDIMENT, SUSPENDED	7	11	16	1.0	45					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	6	14	15	<1	40					
STREPTOCOCCI, FECAL (COL/100 ML)	7	100	160	5	440					
SILICA, DISSOLVED	6	5.4	3.2	1.4	9.9	7	8.6	-.00781	-.31	3.6
CALCIUM, DISSOLVED	7	42	16	12	54	6	-5.99	.11169	.99	1.6
MAGNESIUM, DISSOLVED	7	17	6.7	5.6	22	6	-1.4	.04352	.99	.89
SODIUM, DISSOLVED	7	16	4.5	7.5	20	6	2.5	.03024	.96	1.45
POTASSIUM, DISSOLVED	7	2.2	.8	1.2	3.3	6	2.98	-.00207	-.39	.803
BICARBONATE, ION	7	77	29	34	100	6	8.5	.16355	.97	6.8
CARBONATE, ION	6	0.0	0.0	0.0	0.0	6	-23.4	.32255	.99	2.15
SULFATE, DISSOLVED	7	119	46	29	150					
CHLORIDE, DISSOLVED	7	16	2.4	11	18	6	8.7	.01517	.89	1.29
DISSOLVED SOLIDS, ROE 180 DEG C	7	307	89	140	392	6	39.7	.60790	.98	21.6
DISSOLVED SOLIDS, SUM OF CONST	7	256	87	92	310	6	-5.0	.59993	.99	5.79
HARDNESS, TOTAL	7	176	68	52	220	6	-20.5	.45547	.99	4.55
HARDNESS, NONCARBONATE	7	119	47	25	150	6	-28.5	.33219	.99	9
TURBIDITY (JTU)	10	5.4	2.9	1.0	8.9	9	8.6	-.00757	-.41	2.89
FLUORIDE, DISSOLVED	7	1.6	.5	.7	2.3	6	.22	.00318	.84	.33

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 310

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	580	555	545	530	510	470	380	180	150	90

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
291	24.57	3.77	2.94	56.6	2.31

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

02296750 — PEACE RIVER AT ARCADIA FLA

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	1.	4.	3	0.0	2.
CADMIUM (CD), UG/L	4	0.0	2.	3	0.0	2.
CHROMIUM (CR), UG/L	2	0.0	<10.	3	0.0	1.
COBALT (CO), UG/L	3	0.0	1.	3	0.0	4.
COPPER (CU), UG/L	3	3.	6.	4	0.0	9.
IRON (FE), UG/L	4	50.	830.	9	10.	570.
LEAD (PB), UG/L	3	1.	11.	3	0.0	5.
MANGANESE (MN), UG/L	4	20.	50.	4	0.0	28.
MERCURY (HG), UG/L	3	.0	.3	3	.0	.2
SELENIUM (SE), UG/L	3	6.	21.	3	3.	17.
ZINC (ZN), UG/L	3	30.	1200.	4	0.0	10.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	5.0				

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 02320500 NAME: SUWANNEE RIVER AT BRANFORD, FLORIDA

LAT 29D57M20S LONG 082D55M40S
DRAINAGE AREA: 7740 SQ MI (20047 SQ MI)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	9	21.3	3.0	17.0	26.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	8	208	72	121	330					
STREAMFLOW (CUBIC FT/SEC)	8	4630	1090	2700	6200					
PH (STANDARD UNITS)	8	7.2	.3	6.7	7.7	8	6.7	.00220	.52	.284
PHOSPHORUS, TOTAL	9	.20	.47	.12	.27	8	.26	-.00028	-.41	.048
NITRITE + NITRATE, TOTAL	3	.38	.08	.29	.44	3	-.254	.00326	.97	.027
NITROGEN, KJELDAHL	3	.42	.11	.29	.52	3	.26	.00085	.17	.167
PHYTOPLANKTON, TOTAL (CELLS/ML)	2	200	160	87	320	2	-755.8	4.95750	1.0	
SEDIMENT, SUSPENDED	4	11	6	5	18					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	5	87	120	20	300					
STREPTOCOCCI, FECAL (COL/100 ML)	5	100	120	20	300					
SILICA, DISSOLVED	6	7.4	.9	5.8	8.2	5	7.4	-.00094	-.07	1.04
CALCIUM, DISSOLVED	6	29	12	14	49	6	-10.9	.19880	.99	2.09
MAGNESIUM, DISSOLVED	6	5.2	1.4	3.2	7.2	6	.523	.02367	.96	.422
SODIUM, DISSOLVED	6	5.5	1.1	3.9	7.2	6	7.35	-.00923	-.49	1.06
POTASSIUM, DISSOLVED	6	.7	.2	.40	1.0	6	1.05	-.00176	-.43	.239
BICARBONATE, ION	6	96	32	47	148	6	-17.1	.56924	.99	3.55
CARBONATE, ION	5	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	6	13	3.8	8.9	18	6	1.3	.05874	.90	1.86
CHLORIDE, DISSOLVED	6	6.5	.8	5.7	7.6	6	7.8	-.00628	-.46	.77
DISSOLVED SOLIDS, ROE 180 DEG C	6	135	31	98	186	6	29.1	.53402	.98	7.45
DISSOLVED SOLIDS, SUM OF CONST	5	113	36	71	170	5	1.22	.57205	.99	1.12
HARDNESS, TOTAL	6	92	33	48	150	6	-23.0	.57973	.99	3.61
HARDNESS, NONCARBONATE	6	14	9	7.0	31	6	-10.7	.12683	.85	5.1
TURBIDITY (JTU)	9	5.4	4.8	1.0	15	8	14.6	-.04231	-.61	4.29
FLUORIDE, DISSOLVED	8	.2	.1	.1	.5	8	.24	.0000	0.00	.140

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE — NO. OF MEAS. = 351

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	327	320	309	288	265	229	150	80	62	50

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
348	24.00	3.35	3.65	45.7	2.56

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

02320500 -- SUWANNEE RIVER AT BRANFORD, FLA.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	0.0	8.	1	3.	
CADMIUM (CD), UG/L	2	0.0	0.0	1	0.0	
CHROMIUM (CR), UG/L	1	0.0		1	1.	
COBALT (CO), UG/L	1	1.		1	0.0	
COPPER (CU), UG/L	1	7.		1	4.	
IRON (FE), UG/L	2	400.	750.	1	180.	
LEAD (PB), UG/L	2	3.	10.	1	5.	
MANGANESE (MN), UG/L	2	14.	43.	1	17.	
MERCURY (HG), UG/L	2	.5	1.7	1	.0	
SELENIUM (SE), UG/L	1	0.0		1	2.	
ZINC (ZN), UG/L	1	50.		1	10.	
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	5	.0	19.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 02358000 NAME: APALACHICOLA RIVER AT CHATTAHOOCHEE, FLORIDA

LAT 30D42M03S LONG 084D51M33S
DRAINAGE AREA: 17100 SQ MI (44289 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	7	22.9	4.8	17.0	29.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	6	98	23	62	125					
STREAMFLOW (CUBIC FT/SEC)	7	22400	17600	10800	61000					
PH (STANDARD UNITS)	7	7.3	.3	6.9	7.6	6	6.97	.00324	.26	.301
PHOSPHORUS, TOTAL	7	.27	.14	.03	.11	6	.164	-.00111	-.85	.017
NITRITE + NITRATE, TOTAL	5	.19	.17	.14	.46	4	.75	-.00490	-.98	.034
NITROGEN, KJELDAHL	5	.44	.14	.20	.56	4	.32	.00130	.21	.195
PHYTOPLANKTON, TOTAL (CELLS/ML)										
SEDIMENT, SUSPENDED	5	18	6	1	24					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	4	19	22		50					
STREPTOCOCCI, FECAL (COL/100 ML)	4	6	4	2	12					
SILICA, DISSOLVED	6	6.4	.9	5.3	7.8	5	5.9	.00396	.10	1.09
CALCIUM, DISSOLVED	5	12	4.8	5.0	17	4	.19	.11376	.60	4.8
MAGNESIUM, DISSOLVED	5	1.1	.1	1.0	1.2	4	1.02	.00060	.16	.116
SODIUM, DISSOLVED	5	4.7	1.1	2.9	5.9	4	3.5	.01092	.22	1.52
POTASSIUM, DISSOLVED	5	1.3	.2	1.1	1.6	4	1.86	-.00520	-.65	.19
BICARBONATE, ION	7	42	10	23	53	6	10.7	.30005	.69	7.99
CARBONATE, ION	7	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	6	5.3	.64	4.1	6.0	5	3.96	.01441	.47	.73
CHLORIDE, DISSOLVED	6	3.7	.6	3.1	4.6	5	2.68	.00848	.56	.34
DISSOLVED SOLIDS, ROE 180 DEG C	6	61	10	42	70	5	29.96	.32297	.68	9.46
DISSOLVED SOLIDS, SUM OF CONST	5	55	10	39	66	4	27.14	.26350	.71	8.4
HARDNESS, TOTAL	5	35	12	17	47	4	4.99	.28557	.61	12.02
HARDNESS, NONCARBONATE	5	2	4	.0	9.0	4	1.11	.01692	.10	5.2
TURBIDITY (JTU)	7	21	10	10	41	6	67.7	-.47721	-.97	3.02
FLOURIDE, DISSOLVED	6	.2	.10	0	3	5	.156	-.00016	-.04	.103

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

02358000 -- APALACHICOLA RIVER AT CHATTAHOOCHEE FLA

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	2.	7.	3	3.	7.
CADMIUM (CD), UG/L	4	0.0	2.	3	0.0	2.
CHROMIUM (CR), UG/L	3	0.0	4.	3	0.0	4.
COBALT (CO), UG/L	3	0.0	12.	3	0.0	12.
COPPER (CU), UG/L	3	2.	13.	4	2.	9.
IRON (FE), UG/L	3	360.	500.	4	0.0	110.
LEAD (PB), UG/L	3	0.0	12.	4	0.0	4.
MANGANESE (MN), UG/L	3	400.	100.	4	0.0	20.
MERCURY (HG), UG/L	2	.0	.1	3	.0	.1
SELENIUM (SE), UG/L	3	5.	7.	3	0.0	7.
ZINC (ZN), UG/L	3	0.0	370.	4	0.0	100.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	7	.0	8.0			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 02429500 NAME: ALABAMA RIVER AT CLAIBORNE, ALABAMA

LAT 31032M48S LONG 087030M45S
DRAINAGE AREA: 22000 SQ MI (56980 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	20.7	7.1	11.0	30.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	109	90	135						
STREAMFLOW (CUBIC FT/SEC)	12	33800	32600	6700	106000					
PH (STANDARD UNITS)	12	7.3	.2	6.9	7.7	12	6.06	.01166	.69	.185
PHOSPHORUS, TOTAL	12	.06	.02	.02	.09	12	.129	-.00064	-.49	.017
NITRITE + NITRATE, TOTAL	12	.41	.54	.09	2.1	12	.873	-.00427	-.12	.56
NITROGEN, KJELDAHL	11	.33	.17	.06	.64	11	.344	-.00016	-.01	.177
PHYTOPLANKTON, TOTAL (CELLS/ML)	10	590	1100	25	3700	10	-56.6	5.9497	.07	1174.1
SEDIMENT, SUSPENDED	10	64	51	18	135					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	12	160	280	2.0	940					
STREPTOCOCCI, FECAL (COL/100 ML)	12	86	120	2.0	390					
SILICA, DISSOLVED	12	6.5	.7	5.3	7.7	12	8.59	-.01892	-.40	.659
CALCIUM, DISSOLVED	12	12	1.2	9.5	14	12	12.9	-.01175	-.14	1.27
MAGNESIUM, DISSOLVED	12	2.8	.8	2.1	4.5	12	-2.26	.04693	.904	.339
SODIUM, DISSOLVED	12	5.3	2.4	2.9	11	12	-11.3	.15270	.91	1.07
POTASSIUM, DISSOLVED	12	1.7	.4	1.4	3.0	12	-.0159	.01553	.513	.397
BICARBONATE, ION	12	46	6	38	57	12	5.3	.36890	.889	2.9
CARBONATE, ION	12	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	12	6.8	.84	5.8	8.4	12	4.07	.02538	.44	.79
CHLORIDE, DISSOLVED	12	4.8	1.3	3.4	7.0	12	-1.6	.05905	.678	.98
DISSOLVED SOLIDS, ROE 180 DEG C	11	73	10	58	89	11	16.9	.52174	.79	6.6
DISSOLVED SOLIDS, SUM OF CONST	12	62	8	54	79	12	11.5	.46828	.90	3.37
HARDNESS, TOTAL	12	41	4	33	46	12	23.2	.16077	.59	3.4
HARDNESS, NONCARBONATE	12	4	3	0	7.0	12	16.6	-.12021	-.58	2.6
TURBIDITY (JTU)	12	38	31	10	150	12	51.6	-.12204	-.06	32.8
FLUORIDE, DISSOLVED	12	.2	.2	.0	.8	12	.084	.00099	.07	.211

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

02429500 — ALABAMA RIVER AT CLAIBORNE, ALA.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	0.0	1.	2	0.0	1.
CADMIUM (CD), UG/L	2	1.	2.	2	1.	1.
CHROMIUM (CR), UG/L	2	0.0	<10.	2	0.0	0.0
COBALT (CO), UG/L	2	0.0	0.0	2	0.0	1.
COPPER (CU), UG/L	2	15.	37.	2	6.	8.
IRON (FE), UG/L	2	390.	850.	2	90.	120.
LEAD (PB), UG/L	2	17.	22.	2	0.0	13.
MANGANESE (MN), UG/L	2	20.	63.	2	0.0	17.
MERCURY (HG), UG/L	2	.1	.2	2	.1	.3
SELENIUM (SE), UG/L	2	0.0	4.	2	0.0	1.
ZINC (ZN), UG/L	2	0.0	10.	2	7.	10.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	4.1	4.9			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 02479020 NAME: PASCAGOULA RIVER NEAR BENNDALE, MISS.

LAT 30D52M45S LONG 088D46M22S
DRAINAGE AREA: 6690 SQ MI (17300 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	21.0	5.3	12.5	29.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	75	17	45	110					
STREAMFLOW (CUBIC FT/SEC)	12	13700	13300	1820	47300					
PH (STANDARD UNITS)	11	6.3	.6	5.4	6.9	11	5.19	.01448	.47	.518
PHOSPHORUS, TOTAL	8	.09	.07	.02	.26	8	.109	-.00022	-.06	.077
NITRITE + NITRATE, TOTAL	8	.10	.10		.29	8	.26	-.00203	-.42	.098
NITROGEN, KJELDAHL	8	.46	.19	.18	.81	8	.61	-.00206	-.23	.197
PHYTOPLANKTON, TOTAL (CELLS/ML)	5	8700	8700	700	19000	5	9080	220	.36	9350
SEDIMENT, SUSPENDED	5	53	26	37	99					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	4	1300	1000	20	2300					
STREPTOCOCCI, FECAL (COL/100 ML)	4	4700	9200	20	19000					
SILICA, DISSOLVED	9	9.2	1.6	7.1	12	9	3.6	.07120	.73	1.21
CALCIUM, DISSOLVED	9	5.1	1.0	3.3	6.6	9	1.47	.04599	.78	.67
MAGNESIUM, DISSOLVED	9	1.2	.3	.8	1.7	9	-.081	.01631	.87	.17
SODIUM, DISSOLVED	9	7.9	2.3	5.4	12	9	-2.56	.13258	.97	.61
POTASSIUM, DISSOLVED	9	1.4	4.0	.9	2.3	9	.108	.01645	.69	.31
BICARBONATE, ION	9	16	5.0	7	24	9	.31	.19524	.66	3.98
CARBONATE, ION	9	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	9	5.0	.98	3.3	6.6	9	2.07	.03700	.64	.81
CHLORIDE, DISSOLVED	11	11	4.0	6.9	19	11	-1.16	.16549	.75	2.8
DISSOLVED SOLIDS, ROE 180 DEG C	11	63	13	47	86	11	29	.44511	.63	10,7
DISSOLVED SOLIDS, SUM OF CONST	9	50	11	37	68	9	2.05	.60940	.94	3.8
HARDNESS, TOTAL	9	18	3	12	23	9	3.72	.17608	.89	1.66
HARDNESS, NONCARBONATE	9	5	3	0	10	9	2.32	.03100	.16	3.41
TURBIDITY (JTU)	9	24	9.9	5.0	30	9	47.3	-.29521	-.50	9.18
FLUORIDE, DISSOLVED	9	.2	.1	.1	.3	9	.073	.00104	.24	.08

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

02479020 — PASCAGOULA RIVER NEAR BENNDALE, MISS.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	0.0	5.	4	0.0	5.
CADMIUM (CD), UG/L	4	0.0	9.	4	0.0	5.
CHROMIUM (CR), UG/L	4	0.0	56.	4	0.0	5.
COBALT (CO), UG/L	4	1.	3.	4	0.0	3.
COPPER (CU), UG/L	4	2.	4.	4	1.	7.
IRON (FE), UG/L	4	1300.	1900.	4	450.	610.
LEAD (PB), UG/L	4	4.	62.	4	4.	24.
MANGANESE (MN), UG/L	4	67.	170.	4	33.	110.
MERCURY (HG), UG/L	2	.0	.2	4	.0	.2
SELENIUM (SE), UG/L	4	3.	10.	4	2.	7.
ZINC (ZN), UG/L	4	0.0	290.	4	.0	50.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	7.4	12.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 02489500 NAME: PEARL RIVER NEAR BOGALUSA, LA.

LAT 30D47M35S LONG 089D49M15S
DRAINAGE AREA: 6630 SQ MI (17172 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	20.9	6.1	10.5	29.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	66	16	46	91					
STREAMFLOW (CUBIC FT/SEC)	12	13900	17400	2150	57500					
PH (STANDARD UNITS)	7	6.5	.4	6.1	7.2	7	5.74	.01219	.47	.409
PHOSPHORUS, TOTAL	12	.10	.05	.03	.17	12	.22	-.00177	-.52	.048
NITRITE + NITRATE, TOTAL	10	.14	.10		.30	10	.422	-.00404	-.55	.092
NITROGEN, KJELDAHL	6	.35	.13	.22	.60	6	.919	-.00780	-.91	.060
PHYTOPLANKTON, TOTAL (CELLS/ML)										
SEDIMENT, SUSPENDED										
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	10	200	270	8	350					
STREPTOCOCCI, FECAL (COL/100 ML)	9	170	150	20	440					
SILICA, DISSOLVED	5	5.8	3.0	1.7	10	5	5.6	.00280	.02	3.5
CALCIUM, DISSOLVED	5	4.0	1.3	2.6	5.8	5	.088	.05883	.79	.94
MAGNESIUM, DISSOLVED	5	1.5	.6	1.0	2.4	5	-.246	.02612	.78	.44
SODIUM, DISSOLVED	5	6.4	3.4	1.9	11	5	-3.97	.15632	.81	2.3
POTASSIUM, DISSOLVED	5	2.0	1.0	1	4	5	.27	.02622	.42	1.15
BICARBONATE, ION	7	16	7.0	8.0	28	7	-6.89	.35466	.83	4.3
CARBONATE, ION	7	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	5	7.6	2.8	4.7	12	5	3.94	.05503	.35	3.06
CHLORIDE, DISSOLVED	5	6.2	2.7	3.5	9.6	5	-1.9	.12133	.81	1.8
DISSOLVED SOLIDS, ROE 180 DEG C	5	54	11	40	67	5	27.7	.39112	.61	10.4
DISSOLVED SOLIDS, SUM OF CONST	5	43	12	30	55	5	-.185	.64011	.93	5.2
HARDNESS, TOTAL	5	16	6	11	24	5	-.88	.25548	.81	3.7
HARDNESS, NONCARBONATE	5	2	2	0	6.0	5	6.6	-.07173	-.53	2.3
TURBIDITY (JTU)										
FLUORIDE, DISSOLVED	5	.1	.1	.1	.2	5	.115	.00038	.12	.063

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

02489500 — PEARL RIVER NEAR BOGALUSA, LA

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	1.	24.	3	1.	6.
CADMIUM (CD), UG/L	4	0.0	10.	4	0.0	1.
CHROMIUM (CR), UG/L	4	0.0	10.	4	0.0	1.
COBALT (CO), UG/L	4	1.	<10.	4	0.0	4.
COPPER (CU), UG/L	4	4.	<10.	4	4.	10.
IRON (FE), UG/L	4	860.	2500.	4	80.	290.
LEAD (PB), UG/L	4	2.	<100.	4	0.0	12.
MANGANESE (MN), UG/L	4	75.	190.	4	20.	90.
MERCURY (HG), UG/L	4	.0	.2	4	.0	.2
SELENIUM (SE), UG/L	4	2.	6.	4	2.	6.
ZINC (ZN), UG/L	4	0.0	40.	4	0.0	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	4.4				

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 03085000 NAME: MONONGAHELA RIVER AT BRADDOCK, PA.

LAT 40D24M19S LONG 079D52M53S
DRAINAGE AREA: 7337 SQ MI (19003 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	14	14.8	8.2	4.0	29.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	13	308	120	20	480					
STREAMFLOW (CUBIC FT/SEC)	13	24500	33300	2900	98200					
PH (STANDARD UNITS)	32	5.5	1.3	3.4	7.7	13	6.68	-.00038	-.05	.87
PHOSPHORUS, TOTAL	12	.11	.13	.03	.52	12	.238	-.00040	-.26	.135
NITRITE + NITRATE, TOTAL	9	.67	.14	.54	.89	9	.87	-.00063	-.43	.132
NITROGEN, KJELDAHL	12	.69	.44	.30	1.6	12	.81	-.00038	-.08	.46
PHYTOPLANKTON, TOTAL (CELLS/ML)	12	71000	240000	60	840000	12	-18700	278	.10	252600
SEDIMENT, SUSPENDED	13	85	163	1.0	464					
SEDIMENT, CLAY-SILT (PERCENT)	13	84	13	50	96					
COLIFORM, FECAL (COL/100 ML)	12	1700	2100	270	7500					
STREPTOCOCCI, FECAL (COL/100 ML)	12	980	2500	35	9000					
SILICA, DISSOLVED	11	4.9	.7	3.7	6.0	11	4.78	.00053	.07	.69
CALCIUM, DISSOLVED	12	29	15	1.6	59	12	-1.71	.10688	.84	8.6
MAGNESIUM, DISSOLVED	12	7.8	3.2	2.0	14	12	.99	.02354	.86	1.8
SODIUM, DISSOLVED	11	18	13	6.6	48	11	-14.4	.10441	.71	9.4
POTASSIUM, DISSOLVED	11	2.0	1.0	1	5	11	-.125	.00793	.62	.91
BICARBONATE, ION	11	20	6.8	9.0	31	11	8.5	.03631	.46	6.4
CARBONATE, ION	10	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	11	114	64.4	43	240	12	-477.7	2.47013	.59	421
CHLORIDE, DISSOLVED	11	9.8	5.0	4.6	23	11	.119	.03085	.53	4.5
DISSOLVED SOLIDS, ROE 180 DEG C	11	230	110	104	473	11	-73.5	.96779	.76	76.1
DISSOLVED SOLIDS, SUM OF CONST	11	344	533	118	1930	11	-1070	4.50148	.73	386.5
HARDNESS, TOTAL	12	106	51	13	210	12	.084	.36463	.84	29.3
HARDNESS, NONCARBONATE	11	105	42	49	190	11	9.9	.30182	.61	35.1
TURBIDITY (JTU)	12	18	27	3.0	100	12	56	-.11725	-.38	26.3
FLUORIDE, DISSOLVED	11	.2	.1	.1	.4	11	.044	.00061	.47	.104

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

03085000 -- MONONGAHELA RIVER AT BRADDOCK, PA.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	<1.	10.	4	0.0	2.
CADMIUM (CD), UG/L	4	0.0	0.0	4	0.0	6.
CHROMIUM (CR), UG/L	4	<10.	60.	4	0.0	0.0
COBALT (CO), UG/L	4	2.	22.	4	0.0	6.
COPPER (CU), UG/L	4	0.0	40.	4	0.0	10.
IRON (FE), UG/L	24	90.	30000.	5	10.	230.
LEAD (PB), UG/L	4	3.	39.	4	0.0	1.
MANGANESE (MN), UG/L	5	40.	700.	5	460.	840.
MERCURY (HG), UG/L	4	<.5	<.5	4	<.5	.5
SELENIUM (SE), UG/L	3	0.0	2.	2	0.0	<2.
ZINC (ZN), UG/L	4	30.	260.	4	40.	130.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	35.				
CHLOROPHYLL A, MG/SQ M	2	.5	2.2			
CHLOROPHYLL B, MG/SQ M	2	.2	.6			
ORGANIC CARBON, MG/L	4	.9	8.0			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 03150000 NAME: MUSKINGUM RIVER AT MCCONNELSVILLE, OHIO

LAT 39D38M42S LONG 081D51M00S
DRAINAGE AREA: 7422 SQ MI (19223 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	29	13.0	7.1	2.0	26.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	28	697	286	359	1470					
STREAMFLOW (CUBIC FT/SEC)	32	10200	7870	2200	32100					
PH (STANDARD UNITS)	28	7.5	.3	7.0	8.2	28	7.4	.00020	.17	.327
PHOSPHORUS, TOTAL	13	.19	.28	.03	1.1	12	.413	-.00029	-.30	.297
NITRITE + NITRATE, TOTAL	29	1.5	.46	.51	2.3	28	1.98	-.00065	-.40	.439
NITROGEN, KJELDAHL	12	.67	.39	.13	1.3	11	.173	.00069	.52	.365
PHYTOPLANKTON, TOTAL (CELLS/ML)	6	15000	13000	1300	34000	5	-17700	50.0	.85	6020
SEDIMENT, SUSPENDED	10	83	64	24	234					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	12	1300	1100	40	3400					
STREPTOCOCCI, FECAL (COL/100 ML)	12	610	730	10	2300					
SILICA, DISSOLVED	4	5.8	.4	.2	7.9	4	11.7	-.00752	-.92	1.8
CALCIUM, DISSOLVED	17	68	30	22	140	17	5.3	.08637	.92	11.8
MAGNESIUM, DISSOLVED	17	19	4.9	12	27	17	8.65	.01389	.92	1.97
SODIUM, DISSOLVED	4	50	48	16	120	4	-32.8	.10492	.99	5.23
POTASSIUM, DISSOLVED	4	4.9	3.0	2.8	9.2	4	-.265	.00649	.95	.37
BICARBONATE, ION	21	108	22	59	141	21	75.9	.04485	.63	17.6
CARBONATE, ION	21	0	0	0	0					
SULFATE, DISSOLVED	21	122	37	76	200	21	42.2	.11322	.94	12.5
CHLORIDE, DISSOLVED	21	91	76	24	300	21	-79.8	.24.48	.98	14.6
DISSOLVED SOLIDS, ROE 180 DEG C	4	526	302	272	946	4	-1.78	.66346	.99	26.0
DISSOLVED SOLIDS, SUM OF CONST	4	464	265	242	836	4	-.752	.58368	.99	14.2
HARDNESS, TOTAL	17	247	94	110	460	17	49.0	.27370	.95	30.2
HARDNESS, NONCARBONATE	17	158	84	45	360	17	-13.5	.23702	.92	32.9
TURBIDITY (JTU)	4	44	42	10	100	4	61.7	-.02255	.25	49.3
FLUORIDE, DISSOLVED	21	.4	.2	.2	.8	21	.19	.00025	.51	.132

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 348

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	1431	1221	1110	960	861	708	590	480	410	338

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

03150000 — MUSKINGUM R AT MCCONNELSVILLE OH

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	6	0.0	8.	4	0.0	5.
CADMIUM (CD), UG/L	3	1.	3.	4	0.0	1.
CHROMIUM (CR), UG/L	4	1.	20.	4	0.0	10.
COBALT (CO), UG/L	3	3.	11.	4	0.0	7.
COPPER (CU), UG/L	4	16.	20.	4	5.	18.
IRON (FE), UG/L	2	2500.	3600.	4	10.	60.
LEAD (PB), UG/L	3	0.0	32.	4	0.0	1.
MANGANESE (MN), UG/L	2	500.	1300.	4	200.	1200.
MERCURY (HG), UG/L	6	.0	.5	4	.0	.5
SELENIUM (SE), UG/L	4	1.	8.	4	0.0	1.
ZINC (ZN), UG/L	3	40.	90.	4	0.0	70.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	15.				
CHLOROPHYLL A, MG/SQ M	1	57.				
CHLOROPHYLL B, MG/SQ M	1	16.				
ORGANIC CARBON, MG/L	5	5.0				

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 03201300 NAME: KANAWHA RIVER AT WINFIELD, W VA

LAT 38D31M32S LONG 081D54M40S
DRAINAGE AREA: 11809 SQ MI (30585 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	6	19.3	7.9	5.5	27.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	6	209	51	140	260					
STREAMFLOW (CUBIC FT/SEC)	4	15600	10800	3480	28000					
PH (STANDARD UNITS)	6	7.2	.2	7.0	7.5	6	7.26	-.00018	-.05	.217
PHOSPHORUS, TOTAL	6	.08	.04	.04	.14	6	.016	.00031	.41	.04
NITRITE + NITRATE, TOTAL	5	.67	.39	.57	1.1	5	.210	.00284	.70	.189
NITROGEN, KJELDAHL	6	.80	.23	.43	1.1	6	-.532	.00907	.47	.974
PHYTOPLANKTON, TOTAL (CELLS/ML)	4	1800	1100	530	4500	4	-3540	27.0	.83	1300
SEDIMENT, SUSPENDED	6	32	16	12	53					
SEDIMENT, CLAY-SILT (PERCENT)	6	85	11	68	96					
COLIFORM, FECAL (COL/100 ML)	6	23000	55000	44	140000					
STREPTOCOCCI, FECAL (COL/100 ML)	6	180	400	0.0	1000					
SILICA, DISSOLVED	6	5.4	.3	5.0	506	6	4.85	.00239	.47	.255
CALCIUM, DISSOLVED	6	17	41	12	22	6	.844	.07644	.96	1.27
MAGNESIUM, DISSOLVED	6	5.2	1.3	3.5	7.0	6	.631	.02193	.90	.621
SODIUM, DISSOLVED	6	16	8.8	8.7	33	6	-9.05	.12193	.71	6.89
POTASSIUM, DISSOLVED	6	2.5	.9	1.5	3.8	6	-.026	.01184	.69	.711
BICARBONATE, ION	6	46	16	30	66	6	-13.6	.28499	.93	6.25
CARBONATE, ION	6	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	6	38	16	23	68	6	-2.4	.19401	.64	13.4
CHLORIDE, DISSOLVED	6	17	7.6	8.5	30	6	-9.04	.12410	.83	4.7
DISSOLVED SOLIDS, ROE 180 DEG C	5	145	59	91	239	5	-23.2	.80574	.79	41.7
DISSOLVED SOLIDS, SUM OF CONST	6	125	43	78	201	6	19.9	.69278	.82	27.9
HARDNESS, TOTAL	6	64	15	44	84	6	4.5	.28212	.94	5.8
HARDNESS, NONCARBONATE	6	26	6	20	35	6	15.4	.05088	.47	5.5
TURBIDITY (JTU)	6	21	14	7.0	40	6	50.2	-.14128	-.50	13.9
FLUORIDE, DISSOLVED	6	.18	.04	.1	.2	6	.26	-.00035	-.44	.041

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE — NO. OF MEAS. = 258

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	361	355	309	270	252	188	132	112	100	83

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
258	17.14	10.08	2.52	94.8	1.82

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

03201300 -- KANAWHA RIVER AT WINFIELD, W.VA.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	<1.	1.	2	0.0	2.
CADMIUM (CD), UG/L	2	1.	6.	2	1.	6.
CHROMIUM (CR), UG/L	2	0.0	10.	1	0.0	
COBALT (CO), UG/L	1	2.		2	0.0	0.0
COPPER (CU), UG/L	1	40.		2	10.	30.
IRON (FE), UG/L	2	1000.	1100.	2	30.	100.
LEAD (PB), UG/L	2	16.	60.	2	5.	5.
MANGANESE (MN), UG/L	2	100.	100.	2	60.	70.
MERCURY (HG), UG/L	2	<.5	<.5	2	<.5	<.5
SELENIUM (SE), UG/L	2	1.	1.	2	1.	1.
ZINC (ZN), UG/L	2	90.	310.	2	90.	240.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	1	3.0				

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 03290500 NAME: KENTUCKY RIVER AT LOCK 2. AT LOCKPORT, KY

LAT 38D26M20S LONG 084D57M48S
DRAINAGE AREA: 6180 SQ MI (16006 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	4	23	1.5	21.5	25.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	238	44	123	300					
STREAMFLOW (CUBIC FT/SEC)	13	12300	21000	406	75000					
PH (STANDARD UNITS)	7	7.3	.2	7.0	7.7	6	6.95	.00140	.15	.275
PHOSPHORUS, TOTAL	13	.19	.13	.05	.43	12	.068	.00044	.18	.111
NITRITE + NITRATE, TOTAL	11	.67	.34	.07	1.1	10	.832	-.00087	-.12	.346
NITROGEN, KJELDAHL	13	.41	.30		1.1	12	-.193	.00248	.37	.291
PHYTOPLANKTON, TOTAL (CELLS/ML)	11	20000	63000	60	210000	12	330900	-1340	-.88	33700
SEDIMENT, SUSPENDED	12	95	98	3	336					
SEDIMENT, CLAY-SILT (PERCENT)	12	92	98	71	100					
COLIFORM, FECAL (COL/100 ML)	10	590	670	40	2400					
STREPTOCOCCI, FECAL (COL/100 ML)	11	1200	2500	16	8500					
SILICA, DISSOLVED	13	5.1	2.0	.1	6.9	12	.53	.01928	.40	2.03
CALCIUM, DISSOLVED	13	32	7.1	15	43	12	.824	.13069	.81	4.41
MAGNESIUM, DISSOLVED	13	6.3	1.1	4.6	11	12	.145	.02661	.63	1.5
SODIUM, DISSOLVED	13	6.2	2.9	2.3	14	12	-6.28	.05257	.76	2.08
POTASSIUM, DISSOLVED	13	2.7	.7	1.5	3.6	12	.498	.00873	.55	.62
BICARBONATE, ION	13	91	23	34	130	12	-11.8	.42541	.82	13.9
CARBONATE, ION	13	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	13	32	9.1	21	51	12	5.6	.11218	.53	8.24
CHLORIDE, DISSOLVED	13	8.7	4.0	3.1	16	12	-8.09	.07008	.74	2.93
DISSOLVED SOLIDS, ROE 180 DEG C	13	158	28	96	198	12	25.3	.54174	.92	10.9
DISSOLVED SOLIDS, SUM OF CONST	13	139	27	67	183	12	14.0	.63927	.99	4.6
HARDNESS, TOTAL	13	107	21	56	140	12	-.33	.44726	.94	7.8
HARDNESS, NONCARBONATE	13	33	9	16	50	12	13.3	.08270	.41	8.5
TURBIDITY (JTU)	13	60	66	6.0	200	12	314	-.97895	-.64	54.9
FLOURIDE, DISSOLVED	13	.2	.6	0.0	.3	12	-.15	.00140	.60	.086

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 350

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	330	300	291	283	270	250	221	191	179	141

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
302	16.88	9.54	2.62	93.8	1.81

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

03290500 -- KENTUCKY RIVER AT LOCK 2,AT LOCKPORT,KY.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	5	2.	9.	5	0.0	4.
CADMIUM (CD), UG/L	5	0.0	7.	5	0.0	7.
CHROMIUM (CR), UG/L	4	0.0	20.	4	0.0	1.
COBALT (CO), UG/L	5	2.	13.	5	1.	17.
COPPER (CU), UG/L	5	11.	43.	5	6.	41.
IRON (FE), UG/L	5	540.	5300.	5	0.0	90.
LEAD (PB), UG/L	5	6.	33.	5	3.	6.
MANGANESE (MN), UG/L	5	100.	130.	5	0.0	43.
MERCURY (HG), UG/L	4	.0	.7	5	<.5	.8
SELENIUM (SE), UG/L	5	0.0	16.	5	0.0	7.
ZINC (ZN), UG/L	5	10.	170.	5	10.	40.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	5.4				
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	3.4				

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 03374100 NAME: WHITE RIVER AT HAZLETON, INDIANA

LAT 38D26M23S LONG 087D33M00S
DRAINAGE AREA: 11305 SQ MI (29280 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	11	14.3	7.4	4.0	26.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	11	489	104	360	670					
STREAMFLOW (CUBIC FT/SEC)	11	14600	11900	2250	37000					
PH (STANDARD UNITS)	11	7.8	.2	7.6	8.3	6	7.219	.00086	.30	.29
PHOSPHORUS, TOTAL	6	.15	.10	.03	.25	6	.31741	-.00032	-.31	.104
NITRITE + NITRATE, TOTAL	6	1.5	1.3	.1	3.2	6	2.36	-.00168	-.12	1.43
NITROGEN, KJELDAHL	6	.67	.27	.25	.98	6	.22	.00086	.30	.29
PHYTOPLANKTON, TOTAL (CELLS/ML)	4	16000	24000	1900	52000	4	-80400	204	.82	17000
SEDIMENT, SUSPENDED	11	133	104	27	332					
SEDIMENT, CLAY-SILT (PERCENT)	2	88	13	79	97					
COLIFORM, FECAL (COL/100 ML)	7	1200	1605	25	4100					
STREPTOCOCCI, FECAL (COL/100 ML)	11	760	1600	20	5300					
SILICA, DISSOLVED	11	6.2	2.4	.3	9.0	11	8.16	-.00391	-.17	2.5
CALCIUM, DISSOLVED	11	62	17	36	83	11	-7.88	.14300	.89	7.97
MAGNESIUM, DISSOLVED	11	18	7.7	2.4	30	11	-3.23	.04403	.59	6.5
SODIUM, DISSOLVED	11	14	6.4	7.0	27	11	-8.7	.04646	.76	4.4
POTASSIUM, DISSOLVED	11	3.3	1.3	2.1	6.4	11	-.192	.00721	.60	1.06
BICARBONATE, ION	11	211	55	134	272	11	-35.3	.50298	.95	17.4
CARBONATE, ION	10	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	11	56	11	41	73	11	9.09	.09493	.94	3.67
CHLORIDE, DISSOLVED	11	20	6.8	11	31	11	-10.8	.06239	.96	2.08
DISSOLVED SOLIDS, ROE 180 DEG C	11	330	78	217	426	11	-1.43	.67795	.91	34
DISSOLVED SOLIDS, SUM OF CONST	11	284	68	191	371	11	-31.0	.64329	.98	13.2
HARDNESS, TOTAL	11	230	61	150	310	11	-35.3	.54214	.92	24.6
HARDNESS, NONCARBONATE	11	58	27	0	88	11	-4.4	.12741	.49	24.8
TURBIDITY (JTU)	10	69	28	20	100	10	139	-.14380	-.56	24.7
FLUORIDE, DISSOLVED	11	.3	.2	.1	.6	11	.07654	.00048	.31	.158

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 279

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	748	681	653	628	590	486	381	270	244	225

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
283	16.00	8.02	2.69	64.7	4.15

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

03374100 — WHITE RIVER AT HAZLETON, IND.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	1	3.		1	3.	
CADMIUM (CD), UG/L	1	2.		1	0.0	
CHROMIUM (CR), UG/L	1	10.		1	0.0	
COBALT (CO), UG/L	1	5.		1	3.	
COPPER (CU), UG/L	1	17.		1	5.	
IRON (FE), UG/L	1	3300.		1	0.0	
LEAD (PB), UG/L	1	200.		1	13.	
MANGANESE (MN), UG/L	1	300.		1	33.	
MERCURY (HG), UG/L	1	.0		1	.0	
SELENIUM (SE), UG/L	1	8.		1	8.	
ZINC (ZN), UG/L	1	50.		1	20.	
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	1	3.5				

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 03438220 NAME: CUMBERLAND RIVER NEAR GRAND RIVERS, KY

LAT 37D01M16S LONG 088D13M16S
DRAINAGE AREA: 17598 SQ MI (45579 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	11	18.1	7.0	9.0	28.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	11	175	10	163	199					
STREAMFLOW (CUBIC FT/SEC)	11	51000	36400	12000	133000					
PH (STANDARD UNITS)	4	7.6	.2	7.4	7.9	4	5.6	.01189	.41	.241
PHOSPHORUS, TOTAL	11	.12	.05	.08	.26	11	-.069	.00110	.22	.053
NITRITE + NITRATE, TOTAL	11	.42	.26	.01	.71	11	1.37	-.00543	-.22	.268
NITROGEN, KJELDAHL	11	.39	.18	.16	.72	11	-1.24	.00931	.55	.155
PHYTOPLANKTON, TOTAL (CELLS/ML)	11	5700	5900	200	15000	10	-34200	228	.38	6020
SEDIMENT, SUSPENDED	11	31	21	11	84					
SEDIMENT, CLAY-SILT (PERCENT)	11	91	15	48	100					
COLIFORM, FECAL (COL/100 ML)	1	11		11	11					
STREPTOCOCCI, FECAL (COL/100 ML)	8	350	600	33	1800					
SILICA, DISSOLVED	11	4.0	1.1	2.3	5.1	11	.314	.02104	.21	1.08
CALCIUM, DISSOLVED	11	26	28	21	30	11	-4.69	.17570	.66	2.24
MAGNESIUM, DISSOLVED	11	3.9	.5	3.2	5.1	11	.804	.01767	.36	.512
SODIUM, DISSOLVED	11	3.7	.9	2.4	5.3	11	3.56	.00068	.01	.987
POTASSIUM, DISSOLVED	11	1.6	.3	1.3	2.4	11	1.08	.00286	.10	.328
BICARBONATE, ION	11	81	6	75	94	11	-.0797	.46491	.82	3.5
CARBONATE, ION	11	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	11	15	1.9	12	18	11	-6.26	.12190	.68	1.44
CHLORIDE, DISSOLVED	11	3.7	1.2	2.3	5.5	11	2.45	.00731	.06	1.2
DISSOLVED SOLIDS, ROE 180 DEG C	11	113	22	96	162	11	-93.5	1.17749	.56	19.07
DISSOLVED SOLIDS, SUM OF CONST	11	99	6	91	112	11	11.7	.49838	.88	3.04
HARDNESS, TOTAL	11	82	8	68	95	11	23.4	.33711	.44	9.32
HARDNESS, NONCARBONATE	11	16	6	7	28	11	20.9	-.02879	-.05	5.88
TURBIDITY (JTU)	10	23	13	8.0	40	10	40.45	-.10024	-.08	13.49
FLUORIDE, DISSOLVED	11	.2	.1	.1	.4	11	.627	-.00259	-.27	.102

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 290

	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	238	210	204	189	181	173	161	143	134	117

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
292	16.91	9.42	2.69	95.1	1.64

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

03438220 -- CUMBERLAND RIVER NEAR GRAND RIVERS, KY.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	1.	14.	4	0.0	4.
CADMIUM (CD), UG/L	4	0.0	1.	4	1.	2.
CHROMIUM (CR), UG/L	4	1.	230.	4	0.0	0.0
COBALT (CO), UG/L	4	1.	4.	4	0.0	3.
COPPER (CU), UG/L	4	3.	49.	4	1.	8.
IRON (FE), UG/L	4	60.	960.	4	0.0	30.
LEAD (PB), UG/L	4	7.	21.	4	0.0	6.
MANGANESE (MN), UG/L	4	17.	90.	4	0.0	9.
MERCURY (HG), UG/L	4	.0	.3	4	0.0	.1
SELENIUM (SE), UG/L	4	0.0	8.	4	2.	2.
ZINC (ZN), UG/L	4	0.0	60.	4	0.0	10.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	130.				
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	4.0	6.4			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 03609750 NAME: TENNESSEE RIVER AT HIGHWAY 60, NR PADUCAH, KY

LAT 37002M16S LONG 088031M46
DRAINAGE AREA: 40330 SQ MI (104455 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	10	17.6	7.1	8.5	28.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	11	146	15	127	180					
STREAMFLOW (CUBIC FT/SEC)	11	86000	72200	35400	258000					
PH (STANDARD UNITS)	3	7.2	.6	6.6	7.6	3	3.07	.02590	.87	.381
PHOSPHORUS, TOTAL	10	.06	.03	.01	.10	10	.356	-.00204	-.78	.018
NITRITE + NITRATE, TOTAL	10	.31	.22	.01	.60	10	2.58	-.01588	-.73	.1624
NITROGEN, KJELDAHL	10	.27	.11	.12	.47	10	-.166	.00305	.29	.11
PHYTOPLANKTON, TOTAL (CELLS/ML)	11	5100	7400			11	7390	-15.6	-.03	7780
SEDIMENT, SUSPENDED	11	15	4	8.0	20					
SEDIMENT, CLAY-SILT (PERCENT)	11	92	11	68	100					
COLIFORM, FECAL (COL/100 ML)	2	22	9	15	28					
STREPTOCOCCI, FECAL (COL/100 ML)	9	120	99	20	310					
SILICA, DISSOLVED	11	4.1	1.3	2.1	5.8	11	4.63	-.00328	-.04	1.4
CALCIUM, DISSOLVED	11	20	1.3	18	23	11	16.04	.02521	.28	1.37
MAGNESIUM, DISSOLVED	11	3.4	.7	2.7	5.2	11	-3.0	.04402	.91	.314
SODIUM, DISSOLVED	11	4.5	1.3	3.4	7.6	11	-3.42	.05428	.64	1.01
POTASSIUM, DISSOLVED	11	1.7	.5	1.3	3.2	11	-1.36	.02072	.57	.469
BICARBONATE, ION	11	65	5	57	74	11	23.11	.28558	.86	2.6
CARBONATE, ION	10	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	11	11	1.7	9.3	15	11	-2.67	.09494	.85	.915
CHLORIDE, DISSOLVED	11	5.5	1.6	3.8	8.3	11	-7.06	.08597	.82	.946
DISSOLVED SOLIDS, ROE 180 DEG C	11	91	15	66	115	11	-10.12	.68778	.67	11.84
DISSOLVED SOLIDS, SUM OF CONST	11	83	7	75	99	11	15.2	.46076	.97	1.84
HARDNESS, TOTAL	11	63	5	57	74	11	26.8	.25031	.76	3.3
HARDNESS, NONCARBONATE	11	10	3	6.0	16	11	9.45	.00441	.02	3.178
TURBIDITY (JTU)	11	17	12	5.0	40	11	49.3	-.22041	-.28	12.01
FLUORIDE, DISSOLVED	11	.24	.12	.10	.50	11	.079	.00108	.13	.126

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 303

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	193	173	164	159	153	144	135	118	117	115

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
305	17.10	10.18	2.74	94.2	1.92

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

03609750 -- TENNESSEE RIVER AT HIGHWAY 60,NEAR PADUCAH,KY.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	1.	10.	4	0.0	1.
CADMIUM (CD), UG/L	4	0.0	3.	4	0.0	2.
CHROMIUM (CR), UG/L	4	0.0	53.	3	0.0	2.
COBALT (CO), UG/L	4	1.	5.	4	0.0	2.
COPPER (CU), UG/L	4	3.	15.	4	3.	6.
IRON (FE), UG/L	4	610.	960.	4	10.	180.
LEAD (PB), UG/L	4	7.	39.	4	0.0	3.
MANGANESE (MN), UG/L	4	60.	70.	4	0.0	14.
MERCURY (HG), UG/L	4	.0	.4	4	0.0	.1
SELENIUM (SE), UG/L	4	0.0	9.	4	0.0	3.
ZINC (ZN), UG/L	4	8.	130.	4	4.	8.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	6.9				
CHLOROPHYLL A, MG/SQ M	1	16.				
CHLOROPHYLL B, MG/SQ M	1	26.				
ORGANIC CARBON, MG/L	4	1.4	28.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 03612500 NAME: OHIO RIVER AT LOCK AND DAM 53 NR. GRAND CHAIN, ILLINOIS

LAT 37D12M11S LONG 089D02M30S
DRAINAGE AREA: 203100 SQ MI (526029 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	9	17.1	8.3	8.0	28.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	11	300	43	229	390					
STREAMFLOW (CUBIC FT/SEC)	11	429000	304000	32100	907000					
PH (STANDARD UNITS)	5	7.5	.5	6.8	8.2	5	7.06	.00129	.11	.576
PHOSPHORUS, TOTAL	11	.25	.29	.03	1.0	11	1.26	-.00338	-.51	.260
NITRITE + NITRATE, TOTAL	10	1.4	.81	.39	3.4	10	.284	.00367	.15	.85
NITROGEN, KJELDAHL	11	.57	.22	.24	.84	11	.66	-.00031	-.06	.226
PHYTOPLANKTON, TOTAL (CELLS/ML)	9	6700	13000	76	39000	9	-6640	46.8	.12	13400
SEDIMENT, SUSPENDED	11	81	50	13	166					
SEDIMENT, CLAY-SILT (PERCENT)	11	97	3.0	92	100					
COLIFORM, FECAL (COL/100 ML)	2	310	170	190	430					
STREPTOCOCCI, FECAL (COL/100 ML)	10	360	500	60	1700					
SILICA, DISSOLVED	11	4.9	1.7	.9	6.2	11	10.6	-.01889	-.47	1.61
CALCIUM, DISSOLVED	11	35	5.9	28	50	11	-.776	.12059	.89	2.83
MAGNESIUM, DISSOLVED	11	8.7	1.2	6.6	11	11	4.54	.01396	.51	1.08
SODIUM, DISSOLVED	11	11	3.8	7.3	19	11	-12.67	.07977	.92	1.59
POTASSIUM, DISSOLVED	11	2.7	.6	2.0	3.8	11	.27	.00806	.58	.52
BICARBONATE, ION	11	90	13	68	116	11	19.2	.23642	.81	7.67
CARBONATE, ION	10	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	11	48	8.5	35	63	11	-5.82	.17972	.91	3.68
CHLORIDE, DISSOLVED	11	14	50	9.5	26	11	-17.3	.10451	.91	2.17
DISSOLVED SOLIDS, ROE 180 DEG C	11	194	32	147	252	11	-5.73	.66354	.90	15.04
DISSOLVED SOLIDS, SUM OF CONST	11	170	27	128	229	11	-12.1	.60675	.99	2.8
HARDNESS, TOTAL	11	123	17	97	160	11	9.52	.37892	.94	6.06
HARDNESS, NONCARBONATE	11	51	9.0	40	67	11	.109	.16787	.80	5.68
TURBIDITY (JTU)	10	59	34	10	100	10	166	-.35833	-.47	32.3
FLUORIDE, DISSOLVED	11	.2	.2	.1	.6	11	-.23	.00156	.45	.142

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 312

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	560	456	419	360	350	322	300	245	225	200

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED, (%)	STANDARD ERROR OF ESTIMATE (DEG C)
313	16.32	10.56	2.61	94.4	1.75

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

03612500 -- OHIO R AT LOCK AND DAM 53 NR GRAND CHAIN ILL

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	1.	4.	4	0.0	1.
CADMIUM (CD), UG/L	4	0.0	1.	4	1.	5.
CHROMIUM (CR), UG/L	4	0.0	10.	4	0.0	1.
COBALT (CO), UG/L	4	1.	6.	4	1.	3.
COPPER (CU), UG/L	4	8.	48.	4	3.	9.
IRON (FE), UG/L	4	1200.	3800.	4	0.0	70.
LEAD (PB), UG/L	4	2.	18.	4	1.	4.
MANGANESE (MN), UG/L	4	110.	230.	4	0.0	75.
MERCURY (HG), UG/L	4	.1	.6	4	.0	.0
SELENIUM (SE), UG/L	4	0.0	9.	4	0.0	4.
ZINC (ZN), UG/L	4	20.	60.	4	0.0	35.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	4.4	8.0			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 04045580 NAME: ST. MARYS RIVER ABOVE SAULT ST. MARIE, MICHIGAN

LAT 46D29M29S LONG 084D25M17S
DRAINAGE AREA: 80900 SQ MI (210000 SQ KM) APPROXIMATELY
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	8	8.2	6.8	1.0	18.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	8	93	4.0	89	100					
STREAMFLOW (CUBIC FT/SEC)	8	71500	8750	60000	76000					
PH (STANDARD UNITS)	8	7.1	.3	6.7	7.5	8	7.28	-.00706	-.03	.2923
PHOSPHORUS, TOTAL	8	.01	.01		.04	8	.014	-.00002	-.01	.0138
NITRITE + NITRATE, TOTAL	8	.24	.04	.15	.27	8	.69	-.00486	--.53	.035
NITROGEN, KJELDAHL	8	.14	.08	.06	.26	8	-.192	.00362	.20	.080
PHYTOPLANKTON, TOTAL (CELLS/ML)	3	630	480	140	1100	3	3150	-27.8	-.04	679
SEDIMENT, SUSPENDED	3	3.0	.6	2.0	3.0					
SEDIMENT, CLAY-SILT (PERCENT)	3	100	0.0	100	100					
COLIFORM, FECAL (COL/100 ML)	5	5	4	<1	<10					
STREPTOCOCCI, FECAL (COL/100 ML)	7	54	53	<1	140					
SILICA, DISSOLVED	8	2.3	.2	2.0	2.5	8	.124	.02350	.54	.164
CALCIUM, DISSOLVED	8	13	.7	12	14	8	12.9	.00518	.03	.80
MAGNESIUM, DISSOLVED	8	2.8	.2	2.3	3.0	8	2.96	.02010	-.04	.223
SODIUM, DISSOLVED	8	1.2	.2	.9	1.6	8	-2.88	.04339	.80	.146
POTASSIUM, DISSOLVED	8	.6	.1	.5	.7	8	.36	.00204	.11	.081
BICARBONATE, ION	8	52	2.0	49	5	8	29.9	.24111	.52	1.77
CARBONATE, ION	8	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	8	3.9	1.0	2.8	6.2	8	13.3	-.10088	-.41	1.02
CHLORIDE, DISSOLVED	8	1.1	.4	.50	2.0	8	-2.87	.04289	.41	.42
DISSOLVED SOLIDS, ROE 180 DEG C	8	70	29	46	138	8	366	-3.19156	.46	28.08
DISSOLVED SOLIDS, SUM OF CONST	8	51	2.0	48	54	8	34.0	.18528	.42	1.79
HARDNESS, TOTAL	8	45	3.0	39	47	8	43.8	.01042	.02	2.93
HARDNESS NONCARBONATE	8	2.0	3.0	0	7.7	8	28.4	-.27946	-.44	2.59
TURBIDITY (JTU)	8	2.2	3.2	1.0	10	8	19.1	-.18088	-.241	3.3
FLUORIDE, DISSOLVED	8	.2	.2	.0	.5	8	-1.15	.01413	.39	.15

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 201

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	97	95	94	93	92	91	90	85	84	81

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
199	8.00	9.39	2.17	96.05	1.29

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

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

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	1	1.		1	0.0	
CADMIUM (CD), UG/L	0			1	2.	
CHROMIUM (CR), UG/L	1	0.0		1	0.0	
COBALT (CO), UG/L	1	0.0		0		
COPPER (CU), UG/L	1	1.		1	4.	
IRON (FE), UG/L	1	80.		1	20.	
LEAD (PB), UG/L	0			1	0.0	
MANGANESE (MN), UG/L	1	0.0		1	0.0	
MERCURY (HG), UG/L	1	.9		1	.9	
SELENIUM (SE), UG/L	1	0.0		1	0.0	
ZINC (ZN), UG/L	1	160.		1	20.	
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	2					
BIOMASS, ASH WT., G/SQ M	2	22.	22.			
CHLOROPHYLL A, MG/SQ M	0	6.9	6.9			
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	1	1.5				

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 04087000 NAME: MILWAUKEE RIVER AT MILWAUKEE, WIS.

LAT 43D06M00S LONG 087D54M32S
DRAINAGE AREA: 686 SQ MI (17777 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	15	10.3	9.8		27.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	507	91	370	663					
STREAMFLOW (CUBIC FT/SEC)	23	1050	1030	180	4570					
PH (STANDARD UNITS)	12	8.2	.4	7.8	8.9	12	7.20	.00197	.46	.356
PHOSPHORUS, TOTAL	11	.18	.11	.04	.38	11	.035	.00029	.25	.11
NITRITE + NITRATE, TOTAL	10	1.2	.94		2.7	10	4.8	-.00745	-.53	1.03
NITROGEN, KJELDAHL	10	1.4	.42	.85	2.4	10	1.33	.00009	.02	.448
PHYTOPLANKTON, TOTAL (CELLS/ML)	11	17000	26000	820	86000	11	-26700	86.4	.31	26500
SEDIMENT, SUSPENDED	16	22	13	8.0	52					
SEDIMENT, CLAY-SILT (PERCENT)	12	83	19	43	100					
COLIFORM, FECAL (COL/100 ML)	17	24000	42000	62	150000					
STREPTOCOCCI, FECAL (COL/100 ML)	19	2300	4300	38	16000					
SILICA, DISSOLVED	12	7.0	4.4	.1	14	12	12.8	-.01144	-.24	4.46
CALCIUM, DISSOLVED	12	67	12	52	86	12	95.3	-.05528	-.43	11.02
MAGNESIUM, DISSOLVED	12	37	7.5	26	53	12	51.2	-.02871	-.35	7.43
SODIUM, DISSOLVED	12	20	8.9	5.6	41	12	32.0	-.02304	-.24	9.07
POTASSIUM, DISSOLVED	12	3.3	.7	2.6	.50	12	4.36	-.00203	-.27	.69
BICARBONATE, ION	12	296	44	244	364	12	356	-.11738	-.24	44.5
CARBONATE, ION	12	4	8	0.0	20	12	-14.4	.03680	.42	7.52
SULFATE, DISSOLVED	12	43	9.9	31	63	12	62.9	-.03916	-.36	9.7
CHLORIDE, DISSOLVED	12	43	17	27	75	12	101	-.11488	-.63	13.4
DISSOLVED SOLIDS, ROE 180 DEG C	12	421	71	346	584	12	628	-.40719	-.52	.524
DISSOLVED SOLIDS, SUM OF CONST	12	372	58	285	462	12	517	-.28599	-.45	54.3
HARDNESS, TOTAL	12	318	55	250	400	12	459	-.27709	-.46	51.6
HARDNESS, NONCARBONATE	12	69	33	28	140	12	181	-.22004	-.61	27.3
TURBIDITY (JTU)	11	20	29	2.0	100	11	10.5	.01978	.06	30.1
FLUORIDE, DISSOLVED	12	.4	.3	.1	1.4	12	-.215	.00120	.32	.343

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 171

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	807	782	760	708	650	606	516	384	366	235

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

04087000 -- MILWAUKEE RIVER AT MILWAUKEE, WIS.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	7.	9.	4	6.	11.
CADMIUM (CD), UG/L	2	0.0	3.	4	0.0	9.
CHROMIUM (CR), UG/L	3	0.0	9.	4	0.0	3.
COBALT (CO), UG/L	2	1.	1.	4	0.0	12.
COPPER (CU), UG/L	2	1.	12.	4	1.	9.
IRON (FE), UG/L	2	400.	450.	4	0.0	60.
LEAD (PB), UG/L	2	10.	31.	4	0.0	22.
MANGANESE (MN), UG/L	2	120.	180.	4	17.	30.
MERCURY (HG), UG/L	2	.0	1.2	3	.0	.1
SELENIUM (SE), UG/L	2	0.0	5.	4	0.0	35.
ZINC (ZN), UG/L	3	30.	130.	4	0.0	60.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	2	1.5	2.3			
CHLOROPHYLL A, MG/SQ M	2	13.	19.			
CHLOROPHYLL B, MG/SQ M	2	1.2	25.			
ORGANIC CARBON, MG/L	1	12.				

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 04108690 NAME: KALAMAZOO RIVER AT SAUGATUCK, MICHIGAN

LAT 42D38M50S LONG 086D11M53S
DRAINAGE AREA: 2020 SQ MI (5232 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	9	13.6	10.3	1.0	29.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	9	512	77	396	590					
STREAMFLOW (CUBIC FT/SEC)	9	2710	1380	1050	4950					
PH (STANDARD UNITS)	9	7.7	.4	7.1	8.3	9	7.97	-.00050	-.09	.472
PHOSPHORUS, TOTAL	7	.07	.05	.01	.12	8	-.203	.00215	.66	.207
NITRITE + NITRATE, TOTAL	8	.49	.40	.01	1.2	8	-.0033	-.00328	-.64	.327
NITROGEN, KJELDAHL	8	.88	.25	.31	1.1	7	-.1616	.00044	.68	.037
PHYTOPLANKTON, TOTAL (CELLS/ML)	2	36000	26000	17000	54000	2	1472000	-2470	-.99	0.0
SEDIMENT, SUSPENDED	6	24	21	9	66					
SEDIMENT, CLAY-SILT (PERCENT)	6	71	24	37	100					
COLIFORM, FECAL (COL/100 ML)	6	1000	2300	62	5700					
STREPTOCOCCI, FECAL (COL/100 ML)	8	270	200	3	620					
SILICA, DISSOLVED	8	4.3	1.9	1.8	6.8	8	13.2	-.01753	-.70	1.48
CALCIUM, DISSOLVED	8	60	11	40	71	8	-1.65	.12137	.86	5.97
MAGNESIUM, DISSOLVED	8	18	3.7	12	22	8	-3.5	.04319	.90	1.74
SODIUM, DISSOLVED	8	16	5.6	8.2	23	8	-18.6	.06815	.95	1.89
POTASSIUM, DISSOLVED	8	2.0	.2	1.6	2.4	8	1.9	.00023	.07	.273
BICARBONATE, ION	9	226	46	149	285	9	-60.3	.55862	.94	16.2
CARBONATE, ION	9	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	8	41	8.8	21	49	8	1.43	.07829	.69	6.86
CHLORIDE, DISSOLVED	9	27	8.0	15	36	9	-23.4	.09830	.95	2.6
DISSOLVED SOLIDS, ROE 180 DEG C	8	298	58	200	356	8	-60.3	.71105	.96	17.19
DISSOLVED SOLIDS, SUM OF CONST	8	275	52	183	327	8	-49.7	.64463	.97	14.2
HARDNESS, TOTAL	9	230	42	150	270	9	-29.8	.50276	.92	18.15
HARDNESS, NONCARBONATE	9	46	12	27	65	9	4.88	.07983	.50	11.6
TURBIDITY (JTU)	9	13	13	2.0	38	9	32.13	-.03691	-.22	13.58
FLUORIDE, DISSOLVED	8	.4	.4	.1	1.4	8	.68272	-.00059	-.11	.446

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 241

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	599	590	580	575	565	520	495	436	416	381

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

04108690 -- KALAMAZOO RIVER AT SAUGATUCK, MICH.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	3.	12.	3	0.0	13.
CADMIUM (CD), UG/L	2	0.0	2.	3	0.0	1.
CHROMIUM (CR), UG/L	3	0.0	<10.	3	0.0	2.
COBALT (CO), UG/L	2	1.	6.	3	1.	5.
COPPER (CU), UG/L	2	8.	12.	3	3.	6.
IRON (FE), UG/L	3	240.	1000.	3	0.0	70.
LEAD (PB), UG/L	2	0.0	9.	3	2.	13.
MANGANESE (MN), UG/L	3	60.	130.	3	33.	50.
MERCURY (HG), UG/L	3	.0	.0	3	.0	.5
SELENIUM (SE), UG/L	2	4.	8.	3	0.0	6.
ZINC (ZN), UG/L	3	10.	60.	3	0.0	7.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	3	30.	30.			
BIOMASS, ASH WT., G/SQ M	3	10.	10.			
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	7.5	12.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 04122030 NAME: MUSKEGON RIVER NR. BRIDGETON, MICH.

LAT 43D19M05S LONG 086D02M11SS
DRAINAGE AREA: 2420 SQ MI (6270 SQ KM) APPROXIMATELY
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	4	20.1	4.1	14.0	22.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	4	354	48	285	395					
STREAMFLOW (CUBIC FT/SEC)	3	1540	418	1240	2020					
PH (STANDARD UNITS)	4	8.1	.1	7.9	8.2	4	7.26	.00230	.87	.075
PHOSPHORUS, TOTAL	3	.02	.02	.01	.04	3	-.068	.00027	.85	.011
NITRITE + NITRATE, TOTAL	3	1.0	.04	.06	.13	3	.32	-.00066	-.90	.022
NITROGEN, KJELDAHL	3	.48	.12	.39	.61	3	.359	.00035	.15	.161
PHYTOPLANKTON, TOTAL (CELLS/ML)	3	10000	9600	2300	21000	3	-45800	165	.83	7530
SEDIMENT, SUSPENDED	2	16	3.0	14	18					
SEDIMENT, CLAY-SILT (PERCENT)	2	77	33	54	100					
COLIFORM, FECAL (COL/100 ML)	3	170	120	35	>240					
STREPTOCOCCI, FECAL (COL/100 ML)	3	60	11	49	71					
SILICA, DISSOLVED	3	4.6	.8	3.9	5.5	3	2.95	.00495	.30	1.09
CALCIUM, DISSOLVED	3	43	3.6	39	46	3	17.8	.07419	.99	.63
MAGNESIUM, DISSOLVED	3	12	1.5	11	14	3	8.68	-01075	-.34	2.032
SODIUM, DISSOLVED	3	9.2	2.0	7.0	11	3	-4.95	.04172	.99	.483
POTASSIUM, DISSOLVED	3	1.1	.1	1.0	1.2	3	1.87	-.00237	-.99	.025
BICARBONATE, ION	4	171	14	152	186	4	68.2	29053	.98	3.00
CARBONATE, ION	4	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	3	17	3.5	14	21	3	-4.97	.06559	.90	2.16
CHLORIDE, DISSOLVED	4	18	4.1	13	23	4	-10.0	.07859	.92	2.00
DISSOLVED SOLIDS, ROE 180 DEG C	3	232	26	204	256	3	74.1	.46452	.85	19.3
DISSOLVED SOLIDS, SUM OF CONST	3	186	19	166	203	3	58.8	.37311	.97	6.74
HARDNESS, TOTAL	4	166	15	150	184	46	69.4	.27317	.90	7.6
HARDNESS, NONCARBONATE	4	24	7	15	31	4	-.0998	.06883	.45	7.9
TURBIDITY (JTU)	4	2.2	.50	2.0	3.0	4	1.9	.00090	.09	.61
FLUORIDE, DISSOLVED	3	.2	.1	.1	.2	3	-.235	.00118	.99	.013

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

04122030 — MUSKEGON RIVER NEAR BRIDGETON, MICH.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	1	0.0		1	1.	
CADMIUM (CD), UG/L	0			1	1.	
CHROMIUM (CR), UG/L	1	<10.		1	0.0	
COBALT (CO), UG/L	0			1	7.	
COPPER (CU), UG/L	0			1	3.	
IRON (FE), UG/L	1	190.		1	10.	
LEAD (PB), UG/L	0			1	15.	
MANGANESE (MN), UG/L	1	25.		1	17.	
MERCURY (HG), UG/L	1	.3		1	.6	
SELENIUM (SE), UG/L	1	4.		1	4.	
ZINC (ZN), UG/L	1	30.		1	0.0	
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	1	11.				

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 04122080 NAME: MUSKEGON RIVER NEAR MUSKEGON, MICHIGAN

LAT 43D16M00S LONG 86D12M25S
DRAINAGE AREA: 2567 SQ. MI. (6648.5 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	6	9.3	9.0	.5	24.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	6	323	21	300	355					
STREAMFLOW (CUBIC FT/SEC)	6	3440	567	2740	4020					
PH (STANDARD UNITS)	6	7.8	.5	7.1	8.4	6	11.5	-.01152	-.54	.43
PHOSPHORUS, TOTAL	6	.02	.02	0.0	.06	6	.032	-.00002	-.02	.025
NITRITE + NITRATE, TOTAL	6	.39	.36	.11	1.1	6	-.95	.00414	.24	.395
NITROGEN, KJELDAHL	6	.47	.19	.13	.70	6	1.84	-.00422	-.48	.185
PHYTOPLANKTON, TOTAL (CELLS/ML)	1	9100		9100	9100					
SEDIMENT, SUSPENDED	6	47	33	12	97					
SEDIMENT, CLAY-SILT (PERCENT)	6	40	20	15	65					
COLIFORM, FECAL (COL/100 ML)	4	850	1600	82	3200					
STREPTOCOCCI, FECAL (COL/100 ML)	6	230	250	6.0	620					
SILICA, DISSOLVED	6	5.8	1.1	4.0	7.3	6	-9.2	.04634	.90	.54
CALCIUM, DISSOLVED	5	43	5.9	35	51	5	-48.75	.28881	.81	4.03
MAGNESIUM, DISSOLVED	5	13	1.5	11	15	5	-9.12	.06851	.74	1.17
SODIUM, DISSOLVED	6	8.6	.81	7.7	9.7	6	.66	.02459	.65	.69
POTASSIUM, DISSOLVED	6	1.6	.3	1.2	2.1	6	3.45	-.00576	-.39	.33
BICARBONATE, ION	6	155	16	136	176	6	-34.1	.58531	.787	10.98
CARBONATE, ION	6	0.0	0.0	0.0	0.0	6				
SULFATE, DISSOLVED	6	21	9.0	15	39	6	-10.22	.09706	.23	9.8
CHLORIDE, DISSOLVED	6	16	1.4	14	18	6	-2.4	.05692	.86	.806
DISSOLVED SOLIDS, ROE 180 DEG C	6	205	28	170	245	6	-29.44	.72612	.55	26.4
DISSOLVED SOLIDS, SUM OF CONST	5	184	25	164	226	5	-187	1.17101	.76	10.5
HARDNESS, TOTAL	5	158	22	130	190	5	-156	.99063	.75	16.5
HARDNESS, NONCARBONATE	5	33	9	21	45	5	-22.08	.17313	.31	10.1
TURBIDITY (JTU)	6	6.2	3.2	1.0	10	6	20.09	-.04305	-.28	3.49
FLUORIDE, DISSOLVED	6	.4	.5	.1	1.4	6	4.86	-.01379	-.60	.44

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

04122080 -- MUSKEGON RIVER AT US-31 NR MUSKEGON, MICH.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	2.	6.	3	0.0	3.
CADMIUM (CD), UG/L	2	1.	2.	3	1.	1.
CHROMIUM (CR), UG/L	3	0.0	10.	3	0.0	0.0
COBALT (CO), UG/L	2	0.0	<7.	3	1.	<7.
COPPER (CU), UG/L	2	6.	690.	3	1.	3.
IRON (FE), UG/L	3	410.	0.0	2	50.	70.
LEAD (PB), UG/L	2	0.0	100.	3	<3.	12.
MANGANESE (MN), UG/L	3	30.	.2	3	17.	33.
MERCURY (HG), UG/L	3	.0	8.	3	.0	.5
SELENIUM (SE), UG/L	2	6.	200.	3	0.0	7.
ZINC (ZN), UG/L	3	7.		3	0.0	10.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	5.0	8.9			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 04165700 NAME: DETROIT RIVER AT DETROIT, MICHIGAN

LAT 42D20M50S LONG 082D57M52S
DRAINAGE AREA: 228800 SQ MI (592600 SQ KM) APPROXIMATELY
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	8	12.8	7.1	4.5	22.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	8	224	8	210	230					
STREAMFLOW (CUBIC FT/SEC)	8	237000	10500	219000	245000					
PH (STANDARD UNITS)	8	7.5	.5	6.9	8.1	8	13.1	-.02499	-.43	.463
PHOSPHORUS, TOTAL	7	.01	.01		.03	7	.265	-.00112	-.78	.006
NITRITE + NITRATE, TOTAL	7	.24	.08	0.1	.36	7	-.21	.00200	.156	.087
NITROGEN, KJELDAHL	7	.18	.05	.11	.25	7	.88387	-.00311	-.428	.045
PHYTOPLANKTON, TOTAL (CELLS/ML)	3	1300	230	1200	1600	3	-5000	28.5	.94	107
SEDIMENT, SUSPENDED	7	7	5	1.0	15					
SEDIMENT, CLAY-SILT (PERCENT)	5	42	42	30	100					
COLIFORM, FECAL (COL/100 ML)	7	50	84	<1	230					
STREPTOCOCCI, FECAL (COL/100 ML)	8	4	5	<1	13					
SILICA, DISSOLVED	8	1.1	.3	.80	1.6	8	-.089	.00530	.16	.285
CALCIUM, DISSOLVED	8	28	2.7	25	32	8	15.8	.05567	.17	2.89
MAGNESIUM, DISSOLVED	8	7.3	.6	6.1	8.0	8	3.21	.01842	.28	.57
SODIUM, DISSOLVED	8	5.1	1.9	4.1	9.8	8	-7.95	.05812	.25	2.0
POTASSIUM, DISSOLVED	8	1.0	.1	.8	1.1	8	.831	.00053	.05	.0999
BICARBONATE, ION	8	99	2.0	96	102	8	68.4	.13516	.51	2.04
CARBONATE, ION	8	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	8	17	7.1	16	18	8	15.0	.00795	.09	.76
CHLORIDE, DISSOLVED	8	8.0	1.5	6.0	11	8	-14.4	.09984	.54	1.38
DISSOLVED SOLIDS, ROE 180 DEG C	8	132	12	113	146	8	156	-.10551	-.07	12.5
DISSOLVED SOLIDS, SUM OF CONST	8	117	6	111	127	8	31.5	.38125	.56	5.02
HARDNESS, TOTAL	8	103	10	94	120	8	29.6	.32579	.28	.828
HARDNESS, NONCARBONATE	8	21	7	12	33	8	-29.3	.22510	.27	7.066
TURBIDITY (JTU)	8	5.1	2.8	1.0	10	8	19.1	-.06222	-.18	3.029
FLUORIDE, DISSOLVED	8	.3	.5	.1	1.4	8	.018	.01787	.32	.46

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
365	10.17	11.37	2.48	97.45	1.265

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

04165700 — DETROIT RIVER AT DETROIT, MICH.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	0.0	19.	3	0.0	9.
CADMIUM (CD), UG/L	2	1.	2.	3	0.0	1.
CHROMIUM (CR), UG/L	2	<10.	10.	3	0.0	0.0
COBALT (CO), UG/L	2	1.	10.	3	0.0	10.
COPPER (CU), UG/L	2	8.	9.	3	3.	6.
IRON (FE), UG/L	3	50.	340.	3	0.0	40.
LEAD (PB), UG/L	2	2.	5.	3	2.	13.
MANGANESE (MN), UG/L	3	10.	25.	3	0.0	0.0
MERCURY (HG), UG/L	2	.0	.0	3	.0	.2
SELENIUM (SE), UG/L	2	2.	3.	3	2.	3.
ZINC (ZN), UG/L	3	5.	360.	3	0.0	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	3	133.	133.			
BIOMASS, ASH WT., G/SQ M	3	38.	38.			
CHLOROPHYLL A, MG/SQ M	3	2.7	2.7			
CHLOROPHYLL B, MG/SQ M	3	1.0	1.0			
ORGANIC CARBON, MG/L	3	3.5	11.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 04193500 NAME: MAUMEE RIVER AT WATERVILLE, OHIO

LAT 41D30M00S LONG 083D42M46S
DRAINAGE AREA: 6330 SQ MI (16395 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	26	11.8	8.3		27.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	25	579	143	345	963					
STREAMFLOW (CUBIC FT/SEC)	29	9060	14400	280	65200					
PH (STANDARD UNITS)	24	7.9	.5	7.2	8.6	24	7.68	.00035	.10	.509
PHOSPHORUS, TOTAL	23	.31	.18	.06	.67	23	.501	-.00033	-.24	.181
NITRITE + NITRATE, TOTAL	24	4.2	2.5	.01	8.7	24	7.4	-.00539	-.30	2.44
NITROGEN, KJELDAHL	9	1.3	.50	.55	2.4	9	.39	.00152	.33	.509
PHYTOPLANKTON, TOTAL (CELLS/ML)	4	26000	20000	580	50000	4	29000	-5.00	-.03	25000
SEDIMENT, SUSPENDED	2	773	646	316	1230					
SEDIMENT, CLAY-SILT (PERCENT)	2	97	2.8	95	99					
COLIFORM, FECAL (COL/100 ML)	9	200	320	16	1000					
STREPTOCOCCI, FECAL (COL/100 ML)	9	340	520	30	1600					
SILICA, DISSOLVED	3	5.8	2.5	3.2	8.1	3	20.2	-.02436	-.32	3.3
CALCIUM, DISSOLVED	14	72	9.6	5.3	8.4	14	52.8	.03330	.39	9.2
MAGNESIUM, DISSOLVED	14	21	3.4	13	28	14	9.9	.01984	.65	2.73
SODIUM, DISSOLVED	3	17	4.5	13	22	3	-7.8	.04224	.30	6.09
POTASSIUM, DISSOLVED	3	4.1	1.3	2.8	5.3	3	13.2	.02907	.74	1.19
BICARBONATE, ION	18	186	38	114	238	18	68.7	.19512	.73	26.6
CARBONATE, ION	18	.6	.2	0.0	10					
SULFATE, DISSOLVED	18	91	31	51	170	18	-37.8	.21356	.95	10.05
CHLORIDE, DISSOLVED	18	35	15	16	76	18	-28.24	.10476	.96	4.38
DISSOLVED SOLIDS, ROE 180 DEG C	3	400	50	354	454	3	-464	1.45302	.92	28.5
DISSOLVED SOLIDS, SUM OF CONST	3	340	24	325	368	3	13.4	.54926	.72	23.8
HARDNESS, TOTAL	14	266	31	200	310	14	170	.16828	.60	26
HARDNESS, NONCARBONATE	14	109	29	35	160	14	158	-.08598	-.33	28.6
TURBIDITY (JTU)	4	109	37.7	30	200	3	1010	-1.6249	-.99	5.45
FLUORIDE, DISSOLVED	18	.5	.4	.1	.2	18	.04123	.00083	.29	.396

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 304

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	960	893	814	737	677	615	556	441	380	320

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
316	14.46	12.13	2.69	93.6	2.11

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

04193500 -- MAUMEE R AT WATERVILLE OH

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	5.	8.	3	1.	3.
CADMIUM (CD), UG/L	2	2.	2.	3	0.0	2.
CHROMIUM (CR), UG/L	3	1.	20.	3	1.	10.
COBALT (CO), UG/L	2	0.0	9.	3	0.0	2.
COPPER (CU), UG/L	3	15.	30.	3	9.	30.
IRON (FE), UG/L	2	2100.	2200.	3	10.	70.
LEAD (PB), UG/L	2	2.	44.	3	0.0	10.
MANGANESE (MN), UG/L	2	88.	130.	3	0.0	25.
MERCURY (HG), UG/L	5	.0	.5	3	.0	.5
SELENIUM (SE), UG/L	3	3.	10.	3	3.	5.
ZINC (ZN), UG/L	2	20.	20.	3	3.	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	14.				
CHLOROPHYLL A, MG/SQ M	1	12.				
CHLOROPHYLL B, MG/SQ M	1	2.3				
ORGANIC CARBON, MG/L	5	7.3	12.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 04208000 NAME: CUYAHOGA RIVER AT INDEPENDENCE, OHIO

LAT 41D23M43S LONG 081D37M48S
DRAINAGE AREA: 707 SQ MI (1831 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	33	10.6	6.6	1.0	26.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	27	781	331	358	1490					
STREAMFLOW (CUBIC FT/SEC)	33	1930	1910	222	5950					
PH (STANDARD UNITS)	27	7.5	.5	6.9	8.5	27	7.10	.00050	.37	.426
PHOSPHORUS, TOTAL	9	.42	.17	.26	.81	9	.24	.00023	.40	.170
NITRITE + NITRATE, TOTAL	27	2.7	1.1	1.0	5.0	27	.974	.00216	.63	.900
NITROGEN, KJELDAHL	9	1.0	.53	.48	2.0	9	.326	.00093	.53	.479
PHYTOPLANKTON, TOTAL (CELLS/ML)	4	1700	1200	770	3500	4	1780	-.11052	-.02	1530
SEDIMENT, SUSPENDED	5	721	631	132	1800					
SEDIMENT, CLAY-SILT (PERCENT)	5	83	6.7	74	91					
COLIFORM, FECAL (COL/100 ML)	9	7500	6900	4100	22000					
STREPTOCOCCI, FECAL (COL/100 ML)	9	1500	2100	150	6600					
SILICA, DISSOLVED	3	7.6	2.8	4.4	9.4	3	1.35	.00947	.86	1.98
CALCIUM, DISSOLVED	15	57	13.0	35	75	15	29.9	.03716	.90	5.96
MAGNESIUM, DISSOLVED	15	13	3.0	9.1	18	15	8.01	.00779	.82	1.79
SODIUM, DISSOLVED	3	51	26	25	78	3	-17.6	.10402	.99	3.78
POTASSIUM, DISSOLVED	3	5.4	2.1	3.0	7.1	3	-.054	.00821	.98	.58
BICARBONATE, ION	21	126	27	84	182	21	77.5	.06318	.79	17.1
CARBONATE, ION	21	.24	.8	0	3					
SULFATE, DISSOLVED	21	87	23	52	140	21	42.4	.05763	.84	12.9
CHLORIDE, DISSOLVED	21	120	86	32	300	21	-74.2	.25203	.99	14.3
DISSOLVED SOLIDS, ROE 180 DEG C	3	413	170	221	544	3	-15.7	.64959	.97	58.9
DISSOLVED SOLIDS, SUM OF CONST	3	367	139	218	493	3	6.7	.54646	.99	15.6
HARDNESS, TOTAL	15	200	42	130	250	15	112	.11850	.89	19.07
HARDNESS, NONCARBONATE	15	98	23	62	140	15	47.0	.06945	.94	8
TURBIDITY (JTU)	3	68	110	0.0	200	3	335	-.40267	-.90	69.9
FLUORIDE, DISSOLVED	20	.5	.6	.2	1.2	20	.213	.00030	.40	.249

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 331

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	1590	1348	1088	880	793	700	592	478	440	383

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

04208000 — CUYAHOGA R AT INDEPENDENCE OH

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	4.	12.	3	2.	4.
CADMIUM (CD), UG/L	2	1.	2.	3	0.0	1.
CHROMIUM (CR), UG/L	3	0.0	40.	3	1.	10.
COBALT (CO), UG/L	2	0.0	6.	3	0.0	0.0
COPPER (CU), UG/L	3	23.	36.	3	9.	26.
IRON (FE), UG/L	2	660.	1100.	3	10.	70.
LEAD (PB), UG/L	2	15.	20.	3	0.0	9.
MANGANESE (MN), UG/L	2	100.	250.	3	50.	130.
MERCURY (HG), UG/L	5	.0	.9	3	.0	.6
SELENIUM (SE), UG/L	3	3.	10.	3	1.	6.
ZINC (ZN), UG/L	2	30.	90.	3	9.	90.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	6.2				
CHLOROPHYLL A, MG/SQ M	1	1.3				
CHLOROPHYLL B, MG/SQ M	1	.2				
ORGANIC CARBON, MG/L	5	7.5	26.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 04219640 NAME: NIAGARA RIVER (LAKE ONTARIO) AT FORT NIAGARA N.Y.

LAT 43D15M40S LONG 079D03M47S
DRAINAGE AREA: 265000 SQ MI (686350 SQ MI)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	8.2	7.2		18.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	359	49	280	420					
STREAMFLOW (CUBIC FT/SEC)	12	243000	17400	222000	276000					
PH (STANDARD UNITS)	12	7.6	.4	7.2	8.2	12	8.02	-.00125	-.16	.400
PHOSPHORUS, TOTAL	4	.02	.01	.02	.03	4	.054	-.00008	-.96	.00196
NITRITE + NITRATE, TOTAL	13	.10	.19		64	4	1.35	-.00300	-.80	.183
NITROGEN, KJELDAHL	4	.34	.05	.29	.41	4	.092	.00072	.93	.023
PHYTOPLANKTON, TOTAL (CELLS/ML)	11	1300	950	290	3600	11	-379	4.67	.24	972.2
SEDIMENT, SUSPENDED	13	2	5	0.0	17					
SEDIMENT, CLAY-SILT (PERCENT)	3	82	5	77	87					
COLIFO-M, FECAL (COL/100 ML)	11	230	210	26	550					
STREPTOCOCCI, FECAL (COL/100 ML)	11	69	98	3	330					
SILICA, DISSOLVED	4	.2	.1	.1	.3	4	.186	.00011	.08	.117
CALCIUM, DISSOLVED	4	38	0.0	38	38	4	38.0	0.0	0.0	.0001
MAGNESIUM, DISSOLVED	4	8.5	.4	8.0	8.9	4	6.5	.00580	.90	.223
SODIUM, DISSOLVED	4	12	.5	11	13	4	10.8	.00420	.29	1.12
POTASSIUM, DISSOLVED	4	1.6	1.3	1.5	1.8	4	1.2	.00130	.66	.118
BICARBONATE, ION	4	108	4	102	111	4	102	.01948	.30	4.99
CARBONATE, ION	4	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	13	8.0	13	0.0	30	43	35.5	-.02748	-.49	4.007
CHLORIDE, DISSOLVED	4	26	1.8	24	28	4	31.3	-.01527	-.55	1.86
DISSOLVED SOLIDS, ROE 180 DEG C	4	204	9	196	217	4	229	-.07327	-.53	9.4
DISSOLVED SOLIDS, SUM OF CONST	4	166	4	162	172	4	173	-.01869	-.29	4.9
HARDNESS, TOTAL	4	130	0.0	130	130	41	130	.00001	.00	.224
HARDNESS, NONCARBONATE	4	41	3	38	44	4	38.4	.00763	.20	3.1
TURBIDITY (JTU)	4	4.0	4.0	2.0	10	4	13.5	-.02748	-.45	4.37
FLUORIDE, DISSOLVED	4	.2	.1	.1	.2	4	.267	-.00027	-.35	.057

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

04219640 -- NIAGARA RIL ONTARIO) AT FORT NIAGARA NY

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	0.0	5.	3	0.0	<1.
CADMIUM (CD), UG/L	3	0.0	110.	3	0.0	36.
CHROMIUM (CR), UG/L	3	0.0	10.	3	0.0	10.
COBALT (CO), UG/L	3	0.0	0.0	3	0.0	0.0
COPPER (CU), UG/L	4	10.	10.	3	0.0	0.0
IRON (FE), UG/L	3	90.	290.	3	40.	90.
LEAD (PB), UG/L	4	0.0	13.	3	0.0	4.
MANGANESE (MN), UG/L	3	10.	40.	3	0.0	10.
MERCURY (HG), UG/L	4	<.5	.7	3	<.5	<.5
SELENIUM (SE), UG/L	3	0.0	2.	3	0.0	2.
ZINC (ZN), UG/L	3	20.	30.	3	10.	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	1	.0				
CHLOROPHYLL B, MG/SQ M	1	.0				
ORGANIC CARBON, MG/L	4	2.5	3.9			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 04232006 NAME: GENESEE R. (CHARLOTTE DOCKS) AT ROCHESTER, NY

LAT 43D10M50S LONG 077D37M40S
DRAINAGE AREA: 2457 SQ MI (6364 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND
REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	4	15.9	4.7	10.5	22.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	4	782	380	290	1200					
STREAMFLOW (CUBIC FT/SEC)	4	2800	3120	705	7450					
PH (STANDARD UNITS)	4	7.6	.2	7.3	7.8	4	7.56	-.00002	-.03	.29
PHOSPHORUS, TOTAL	4	.19	.05	.13	.25	4	.131	.00008	.59	.0499
NITRITE + NITRATE, TOTAL	4	.66	.44	.29	1.3	4	.444	.00031	.26	.52
NITROGEN, KJELDAHL, TOTAL	4	.19	.05	.70	1.6	4	.710	.00063	.64	.35
PHYTOPLANKTON, TOTAL (CELLS/ML)	4	12000	6800	5800	18000	4	23400	-14.4	-.80	5040
SEDIMENT, SUSPENDED	4	158	161	38	388					
SEDIMENT, CLAY-SILT (PERCENT)	4	87	16	64	98					
COLIFORM, FECAL (COL/100 ML)	4	640	310	210	960					
STREPTOCOCCI, FECAL (COL/100 ML)	4	130	150	11	330					
SILICA, DISSOLVED	4	3.2	1.4	1.7	5.0	4	2.66	.00075	.21	1.62
CALCIUM, DISSOLVED	4	67	23	36	90	4	19.7	.06042	.99	2.76
MAGNESIUM, DISSOLVED	4	14	4.7	7.6	19	4	3.88	.01249	.99	.168
SODIUM, DISSOLVED	4	40	28	14	80	4	-12.1	.06718	.91	14.05
POTASSIUM, DISSOLVED	4	3.2	.9	1.9	3.8	4	1.53	.00219	.91	.453
BICARBONATE, ION	4	151	46	93	197	4	70.2	.10299	.86	28.6
CARBONATE, ION	4	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	4	100	42	48	150	4	15.4	.10749	.98	10.2
CHLORIDE, DISSOLVED	4	60	38	18	110	4	-14.7	.09540	.96	13.4
DISSOLVED SOLIDS, ROE 180 DEG C	4	406	175	190	618	4	47.3	.45811	.99	28.3
DISSOLVED SOLIDS, SUM OF CONST	4	364	148	182	542	4	60.1	.38778	.99	20.4
HARDNESS, TOTAL	4	223	76	120	300	4	66.6	.19926	.99	7.2
HARDNESS, NONCARBONATE	4	99	42	45	160	4	6.6	.11838	.95	17.7
TURBIDITY (JTU)	4	72	85	20	200	4	229	-.20058	-.89	47.4
FLUORIDE, DISSOLVED	4	2.0	3.6	.1	7.4	4	8.5	-.00830	-.87	2.2

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 350

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	897	794	737	677	616	473	378	314	276	243

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
344	12.54	12.7°	2.62	92.6	2.56

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS
SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

04232006 — GENESEE RIVER(CHARLOTTE DOCKS)AT ROCHESTER NY

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	7	0.0	7.	3	<1.	5.
CADMIUM (CD), UG/L	3	0.0	6.	3	1.	6.
CHROMIUM (CR), UG/L	3	10.	20.	3	0.0	<10.
COBALT (CO), UG/L	3	0.0	2.	3	0.0	1.
COPPER (CU), UG/L	7	10.	30.	3	0.0	10.
IRON (FE), UG/L	3	1700.	6800.	3	80.	200.
LEAD (PB), UG/L	7	7.	23.	3	3.	5.
MANGANESE (MN), UG/L	3	120.	210.	3	20.	90.
MERCURY (HG), UG/L	6	<.5	2.4	3	<.5	<.5
SELENIUM (SE), UG/L	3	0.0	2.	3	0.0	2.
ZINC (ZN), UG/L	3	50.	130.	3	20.	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	7.6	8.2			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 04264331 NAME: ST. LAWRENCE RIVER AT CORNWALL ONTARIO NR. MASSENA, NY

LAT 45000M22S LONG 074D47M43S
DRAINAGE AREA: 299000 SQ MI (774410 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	10	12.1	8.3	.60	22.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	10	323	46	250	388					
STREAMFLOW (CUBIC FT/SEC)	10	308000	27600	250000	341000					
PH (STANDARD UNITS)	10	8.2	.3	7.6	8.5	10	7.9	.00076	.10	.35176
PHOSPHORUS, TOTAL	10	.22	.62	.02	2.0	10	-.347	.00176	.13	.66
NITRITE + NITRATE, TOTAL	10	.19	.13	.06	.5	10	-.027	.00067	.24	.13636
NITROGEN, KJELDAHL	9	.31	.09	.11	.43	9	-.096	.00122	.54	.08157
PHYTOPLANKTON, TOTAL (CELLS/ML)	2	4600	1200	3800	5500	2	22500	-56.7	-1.0	
SEDIMENT, SUSPENDED	2	10	8	4	16					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	9	7	8	4	27					
STREPTOCOCCI, FECAL (COL/100 ML)	8	5	10	<1	29					
SILICA, DISSOLVED	10	.3	.2		.6	10	.672	-.00112	-.30	.175
CALCIUM, DISSOLVED	10	38	1.9	35	41	10	32.9	.01492	.35	1.9
MAGNESIUM, DISSOLVED	10	8.0	.6	7.3	9.1	10	7.14	.00267	.21	.599
SODIUM, DISSOLVED	10	13	.6	12	14	10	14.2	-.00391	-.32	.571
POTASSIUM, DISSOLVED	10	1.6	.3	1.4	2.4	10	2.19	-.00176	-.28	.299
BICARBONATE, ION	10	108	5	100	114	10	101	.02099	.21	4.7
CARBONATE, ION	10	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	10	26	1.5	24	29	10	20.2	.01811	.56	1.31
CHLORIDE, DISSOLVED	10	27	1.2	24	28	10	28.5	-.00569	-.23	1.2
DISSOLVED SOLIDS, ROE 180 DEG C	10	204	14	186	231	10	277	-.22504	-.74	9.92
DISSOLVED SOLIDS, SUM OF CONST	10	167	4	162	173	10	156	.03436	.45	3.3
HARDNESS, TOTAL	10	127	5	120	130	10	128	-.00207	-.02	5.124
HARDNESS, NONCARBONATE	10	38	5	29	43	10	30.2	.02520	.25	4.77
TURBIDITY (JTU)	10	3.5	2.3	1.0	8.0	10	2.4	.00344	.07	2.4
FLUORIDE, DISSOLVED	10	.2	.4	.1	.2	10	.175	.00002	.02	.045

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 228

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	538	520	515	477	469	421	340	234	221	183

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
364	9.79	10.93	2.36	98.6	0.93

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

04264331 -- ST LAWRENCE R AT CORNWALL ONT NR MASSENA, NY

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	5	1.	3.	4	0.0	2.
CADMIUM (CD), UG/L	4	0.0	0.0	5	0.0	1.
CHROMIUM (CR), UG/L	3	0.0	<10.	4	0.0	0.0
COBALT (CO), UG/L	4	0.0	2.	5	0.0	0.0
COPPER (CU), UG/L	4	0.0	10.	5	0.0	10.
IRON (FE), UG/L	3	100.	540.	4	10.	40.
LEAD (PB), UG/L	4	0.0	4.	5	0.0	2.
MANGANESE (MN), UG/L	3	10.	30.	4	0.0	20.
MERCURY (HG), UG/L	4	<.5	<.5	5	<.5	<.5
SELENIUM (SE), UG/L	4	0.0	3.	4	0.0	<2.
ZINC (ZN), UG/L	4	10.0	70.	5	10.	70.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	14.				
CHLOROPHYLL A, MG/SQ M	1	7.3				
CHLOROPHYLL B, MG/SQ M	1	1.8				
ORGANIC CARBON, MG/L	3	2.8	4.2			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 05054020 NAME: RED RIVER OF THE NORTH BL FARGO, ND

LAT 46D55M50S LONG 096D47M05S
DRAINAGE AREA: 6820 SQ MI (17664 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	11	9.5	10.0		27.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	11	459	58	385	567	11 a/	379.74	.11420	.60	49.17
STREAMFLOW (CUBIC FT/SEC)	11	692	309	304	1300					
PH (STANDARD UNITS)	11	7.9	.3	7.4	8.5					
PHOSPHORUS, TOTAL	10	.31	.08	.19	.44	10	.19	.00027	.17	.08
NITRITE + NITRATE, TOTAL	10	.31	.33	.08	1.2	10	-.64	.00212	.31	.33
NITROGEN, KJELDAHL	10	1.5	.37	.94	2.2	10	-.13	.00357	.47	.34
PHYTOPLANKTON, TOTAL (CELLS/ML)	5	20000	19000	360	51000	5	-4690	27.4	.54	18649
SEDIMENT, SUSPENDED	2	46	17	34	58	2	168	-.24490		
SEDIMENT, CLAY-SILT (PERCENT)	2	93	1.0	92	94	2	103	-.02041		
COLIFORM, FECAL (COL/100 ML)	7	914	2040	7	5500					
STREPTOCOCCI, FECAL (COL/100 ML)	9	484	708	4	1900					
SILICA, DISSOLVED	10	12	4.1	5.5	17	10	30.3	-.03948	-.54	3.70
CALCIUM, DISSOLVED	10	42	4.9	37	52	10	6.21	.07593	.87	2.54
MAGNESIUM, DISSOLVED	10	30	2.0	27	34	10	22.7	.01520	.43	1.91
SODIUM, DISSOLVED	10	13	3.3	9.6	19	10	-8.90	.04798	.83	1.95
POTASSIUM, DISSOLVED	10	4.7	.95	3.7	6.7	10	-1.15	.01253	.74	.68
BICARBONATE, ION	11	249	9.2	236	264	11	247	.00494	.03	9.74
CARBONATE, ION	9	.9	2.7	0	8	9	2.59	-.00362	-.08	2.84
SULFATE, DISSOLVED	10	43	24	19	95	10	-1.36	.38452	.88	12.34
CHLORIDE, DISSOLVED	10	7.5	1.3	5.2	9.3	10	-1.05	.01841	.77	.92
DISSOLVED SOLIDS, ROE 180 DEG C	10	288	37	251	370	10	19.3	.57653	.87	19.27
DISSOLVED SOLIDS, SUM OF CONST	10	276	31	252	348	10	44.2	.49835	.89	14.88
HARDNESS, TOTAL	10	226	20	200	270	10	99.5	.27139	.78	13.04
HARDNESS, NONCARBONATE	10	21	18		63					
TURBIDITY (JTU)	10	24	19	1	50					
FLUORIDE, DISSOLVED	10	.28	.18	.1	.7					

a/ Streamflow is independent variable.

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
236	10.82	13.23	2.78	94.5	2.03

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

05054020 -- RED RIVER OF THE NORTH BELOW FARGO, N. DAK.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	3.	100.	4	1.	10.
CADMIUM (CD), UG/L	4	<10.	<10.	4	0.	1.
CHROMIUM (CR), UG/L	4	0.	10.	4	0.	10.
COBALT (CO), UG/L	4	<25.	50.	4	0.	2.
COPPER (CU), UG/L	4	<10.	20.	4	5.	14.
IRON (FE), UG/L	4	330.	2900.	4	20.	60.
LEAD (PB), UG/L	4	<50.	<100.	4	0.	2.
MANGANESE (MN), UG/L	4	50.	190.	4	0.	40.
MERCURY (HG), UG/L	4	.1	.2	4	.0	.0
SELENIUM (SE), UG/L	4	0.	6.	4	0.	6.
ZINC (ZN), UG/L	4	30.	420.	4	10.	90.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	10.	10.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 05083500 NAME: RED RIVER OF THE NORTH AT OSLO, MINN

LAT 48D11M40S LONG 097D08M30S
DRAINAGE AREA: 31200 SQ MI (80808 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	11	9.0	9.6		26.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	10	479	73	350	580	10 a/	502	-.00396	-.36	71.7
STREAMFLOW (CUBIC FT/SEC)	12	5210	6210	1600	23000					
PH (STANDARD UNITS)	10	7.8	.29	7.4	8.2					
PHOSPHORUS, TOTAL	10	.27	.23	.11	.86	9	1.03	-.00160	-.45	.23
NITRITE + NITRATE, TOTAL	10	.38	.32	.06	.97	9	1.26	-.00180	-.40	.31
NITROGEN, KJELDAHL	10	1.5	.64	.95	2.8	9	3.85	-.00490	-.50	.63
PHYTOPLANKTON, TOTAL (CELLS/ML)	4	8275	10640	500	24000	4 a/	16750	-.82288	-.71	9130
SEDIMENT, SUSPENDED	2	50	40	22	78					
SEDIMENT, CLAY-SILT (PERCENT)	2	97	0.0	97	97					
COLIFORM, FECAL (COL/100 ML)	7	397	386	78	1200					
STREPTOCOCCI, FECAL (COL/100 ML)	9	2423	6594	11	>20000					
SILICA, DISSOLVED	10	12	2.0	8.8	16	9	11.4	.00038	.01	2.32
CALCIUM, DISSOLVED	10	54	7.0	40	64	9	8.08	.09322	.94	2.61
MAGNESIUM, DISSOLVED	10	24	3.1	17	29	9	5.54	.03825	.87	1.74
SODIUM, DISSOLVED	10	16	5.3	9.2	25	9	-14.1	.06269	.87	2.83
POTASSIUM, DISSOLVED	10	4.8	.89	3.6	6.7	9	2.60	.00467	.38	.91
BICARBONATE, ION	10	242	32	160	272	9	124	.24697	.56	29.0
CARBONATE, ION	9	0	0	0	0					
SULFATE, DISSOLVED	10	53	24	22	100	9	-60.5	.23313	.67	20.2
CHLORIDE, DISSOLVED	10	12	6.3	5.1	28	9	-20.4	.06655	.75	4.63
DISSOLVED SOLIDS, RUE 180 DEG C	10	319	55	239	422	9	-43.0	.08615	.96	28.0
DISSOLVED SOLIDS, SUM OF CONST	10	294	45	222	366	9	-6.37	.05376	.97	11.2
HARDNESS, TOTAL	10	234	30	170	280	9	39.0	.40028	.93	12.1
HARDNESS, NONCARBONATE	10	35	24	2	80					
TURBIDITY (JTU)	10	39	58	5	200					
FLUORIDE, DISSOLVED	10	.27	.13	.0	.5					

a/ Streamflow is independent variable.

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

05083500 -- RED RIVER OF THE NORTH AT OSLO, MINN.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	0.	25.	4	0.	7.
CADMIUM (CD), UG/L	4	<10.	<10.	4	1.	1.
CHROMIUM (CR), UG/L	4	0.	70.	4	0.	10.
COBALT (CO), UG/L	4	0.	50.	4	0.	2.
COPPER (CU), UG/L	4	<10.	40.	4	10.	19.
IRON (FE), UG/L	4	160.	19000.	4	20.	230.
LEAD (PB), UG/L	4	<50.	<100.	4	1.	8.
MANGANESE (MN), UG/L	4	0.	530.	4	8.	20.
MERCURY (HG), UG/L	4	.1	2.4	4	.0	.2
SELENIUM (SE), UG/L	4	0.	12.	4	0.	3.
ZINC (ZN), UG/L	4	30.	220.	4	10.	40.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	4	15.	28.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 05331000 NAME: MISSISSIPPI RIVER AT ST. PAUL, MINN.

LAT 44D56M40S LONG 93D05M20S
DRAINAGE AREA: 36800 SQ MI (95300 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICALCONSTITUENTS AND
REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	11	10.89	9.61	.0	27.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	11	416.91	108.3	271	490					
STREAMFLOW (CUBIC FT/SEC)	11	13760	9194	3330	34100					
PH (STANDARD UNITS)	11	8.19	.33	7.8	8.7	11	8.24	-.00012	-.04	.348
PHOSPHORUS, TOTAL	4	.09	.05	.03	.15	4	-.09	.000005	.01	.0038
NITRITE + NITRATE, TOTAL	10	1.23	1.13	.13	3.3	10	1.11	.000287	.03	1.368
NITROGEN, KJELDAHL	10	2.48	1.29	1.4	5.3	10	2.72	-.00058	-.05	1.37
PHYTOPLANKTON, TOTAL (CELLS/ML)										
SEDIMENT, SUSPENDED	11	32.36	33.16	2	118					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	9	503.3	395.9	80	1200	9	486	.042	.01	423
STREPTOCOCCI, FECAL (COL/100 ML)	7	140	138.6	0	368	7	-238	.906	.71	107
SILICA, DISSOLVED	8	11.24	3.22	5.9	15	8	2.35	.021	.72	5.04
CALCIUM, DISSOLVED	11	50.55	9.26	39	65	11	49.94	.01825	.21	9.54
MAGNESIUM, DISSOLVED	11	18.36	3.7	12	25	11	15.22	.00753	.22	3.78
SODIUM, DISSOLVED	11	9.74	3.68	4.9	17	11	7.16	.00619	.18	3.81
POTASSIUM, DISSOLVED	11	2.63	.38	2.2	3.5	11	2.39	.00058	.17	1.25
BICARBONATE, ION										
CARBONATE, ION										
SULFATE, DISSOLVED	11	35.18	11.28	18	59	11	35.00	.02061	.20	16.65
CHLORIDE, DISSOLVED	11	12.13	4.18	6.0	20	11	9.46	.00642	.17	6.19
DISSOLVED SOLIDS, ROE 180 DEG C	11	259.8	45.8	197	337	11	219.16	.09752	.23	47.01
DISSOLVED SOLIDS, SUM OF CONST	8	258.75	46.13	202	325	8	93.42	.39657	.93	18.19
HARDNESS, TOTAL	11	201.8	37.9	150	270	11	168.56	.08034	.23	38.88
HARDNESS, NONCARBONATE	11	36.6	12.4	19	58	11	28.79	.01883	.16	12.86
TURBIDITY (JTU)	11	13.7	10.7	3	40	11	13.00	.00176	.02	127.89
FLUORIDE, DISSOLVED	10	.31	.17	.2	.7	10	.45	-.00033	-.21	.18

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS
SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

05331000 -- MISSISSIPPI RIVER AT ST.PAUL,MINN.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	0.	4.	3	0.	2.
CADMIUM (CD), UG/L	4	<10.	10.	3	0.	1.
CHROMIUM (CR), UG/L	4	0.	30.	3	0.	30.
COBALT (CO), UG/L	4	<50.	50.	3	0.	0.
COPPER (CU), UG/L	4	<10.	30.	4	4.	10.
IRON (FE), UG/L	4	330.	1000.	4	20.	200.
LEAD (PB), UG/L	4	<50.	200.	3	5.	6.
MANGANESE (MN), UG/L	4	70.	150.	4	0.	60.
MERCURY (HG), UG/L	4	.0	.0	3	.0	.0
SELENIUM (SE), UG/L	4	0.	10.	3	0.	4.
ZINC (ZN), UG/L	3	20.	600.	4	0.	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	.0	16.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 05490600 NAME: DES MOINES RIVER AT ST. FRANCISVILLE, MO

LAT 40027M45S LONG 091D34M00S
DRAINAGE AREA: NOT DETERMINED
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	13.5	9.5		27.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	568	114	382	725	12a/	677	-.00748	.45	107
STREAMFLOW (CUBIC FT/SEC)	12	14500	6860	1710	25800					
PH (STANDARD UNITS)	12	8.5	2.2	7.9	8.6					
PHOSPHORUS, TOTAL	12	.20	.10	.10	.46	12	.31	-.00019	-.22	.10
NITRITE + NITRATE, TOTAL	12	4.4	2.8	.04	8.9	2	-2.01	-.01129	.46	2.63
NITROGEN, KJELDAHL	12	1.1	.41	.55	2.0	12	1.98	-.00147	.41	.40
PHYTOPLANKTON, TOTAL (CELLS/ML)	4	17500	26390	2100	57000	4a/	61890	-2.97200	.99	1830
SEDIMENT, SUSPENDED	10	306	349	34	1255	10a/	-148.1	.02928	.58	3
SEDIMENT, CLAY-SILT (PERCENT)	9	48	19	24	74	9a/	65.5	-.00124	.40	19.0
COLIFORM, FECAL (COL/100 ML)	12	1400	3820	10	13500					
STREPTOCOLCI, FECAL (COL/100 ML)	12	2050	5680	30	20000					
SILICA, DISSOLVED	12	14	5.3	3.0	22	12	-5.03	.03394	.73	3.84
CALCIUM, DISSOLVED	12	74	19	45	98	12	-15.1	.15605	.94	6.92
MAGNESIUM, DISSOLVED	12	23	5.5	14	29	12	-1.62	.04392	.91	2.38
SODIUM, DISSOLVED	12	10	3.1	6.6	17	12	2.85	.01162	.43	2.94
POTASSIUM, DISSOLVED	12	3.2	.71	2.2	4.9	12	5.53	-.00408	-.65	.56
BICARBONATE, ION	12	240	65	144	324	12	-62.1	.53236	.93	25.3
CARBONATE, ION	12	1.3	2.6	0	8	12	1.45	-.00021	-.01	2.73
SULFATE, DISSOLVED	12	60	17	44	93	12	23.3	.06482	.44	15.7
CHLORIDE, DISSOLVED	12	15	4.2	8.8	21	12	-.29	.02673	.73	2.98
DISSOLVED SOLIDS, ROE 180 DEG C	12	341	82	185	460	12	35.8	.66298	.93	32.0
DISSOLVED SOLIDS, SUM OF CONST	12	320	69	218	415	12	-17.9	.59512	98	14.0
HARDNESS, TOTAL	12	280	65	170	360	12	-39.0	.56139	.98	12.1
HARDNESS, NONCARBONATE	12	80	18	39	99					
TURBIDITY (JTU)	4	22	23	2	50					
FLUORIDE, DISSOLVED	12	.39	.12	.2	.7					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 199

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	791	775	733	680	636	575	535	453	391	350

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
313	13.20	12.35	2.74	96.2	1.79

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

05490600 — DES MOINES RIVER AT ST. FRANCISVILLE, MO.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	1.	6.	4	0.	6.
CADMIUM (CD), UG/L	4	<10.	<10.	4	0.	1.
CHROMIUM (CR), UG/L	4	0.	60.	4	0.	20.
COBALT (CO), UG/L	4	<50.	50.	4	0.	1.
COPPER (CU), UG/L	4	<10.	10.	4	4.	9.
IRON (FE), UG/L	4	390.	3700.	12	10.	450.
LEAD (PB), UG/L	4	<100.	100.	4	0.	3.
MANGANESE (MN), UG/L	4	100.	210.	12	0.	220.
MERCURY (HG), UG/L	4	.0	1.0	4	.0	.5
SELENIUM (SE), UG/L	4	0.	4.	4	1.	4.
ZINC (ZN), UG/L	4	30.	220.	4	10.	60.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	14.	14.			
CHLOROPHYLL A, MG/SQ M	1	.5	.5			
CHLOROPHYLL B, MG/SQ M	1	.2	.2			
ORGANIC CARBON, MG/L	4	4.8	11.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 06054500 NAME: MISSOURI RIVER AT TOSTON, MT

LAT 46D08M46S LONG 111D25M18S
DRAINAGE AREA: 14669 SQ MI (37993 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	9.0	7.5	.5	21.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	345	78	210	429	12 a/	434	-.01437	-.82	46.6
STREAMFLOW (CUBIC FT/SEC)	12	6195	4452	2430	16600					
PH (STANDARD UNITS)	12	8.1	.41	7.5	8.6					
PHOSPHORUS, TOTAL	12	.10	.12	.03	.44	12	.50	-.00117	.77	.08
NITRITE + NITRATE, TOTAL	12	.13	.11		.32	12	-.20	.00094	.69	.08
NITROGEN, KJELDAHL	12	.44	.14	.22	.70	12	.82	-.00111	-.60	.12
PHYTOPLANKTON, TOTAL (CELLS/ML)	12	3132	2117	620	6800	12 a/	1740	.22497	.47	1960
SEDIMENT, SUSPENDED	12	68	86	6	241	12 a/	48.7	.01880	.97	20.4
SEDIMENT, CLAY-SILT (PERCENT)	12	73	10	50	86	12 a/	80.8	-.00130	-.57	8.69
COLIFORM, FECAL (COL/100 ML)	12	38	69	3	240					
STREPTOCOCCI, FECAL (COL/100 ML)										
SILICA, DISSOLVED	12	23	3.4	16	27	12	11.1	.03511	.82	2.03
CALCIUM, DISSOLVED	12	37	7.7	24	46	12	3.36	.09632	.97	1.94
MAGNESIUM, DISSOLVED	12	11	2.7	6.0	13	12	-.74	.03348	.95	.85
SODIUM, DISSOLVED	12	19	4.6	8.2	23	12	.09	.05512	.93	1.72
POTASSIUM, DISSOLVED	12	3.5	.72	1.8	4.2	12	.86	.00768	.83	.41
BICARBONATE, ION	12	157	31	103	186	12	23.3	.38870	.97	7.38
CARBONATE, ION	10	1.2	2.1	0.0	6	10	6.12	-.01323	-.32	2.19
SULFATE, DISSOLVED	12	35	10	15	45	12	-7.39	.12340	.94	3.73
CHLORIDE, DISSOLVED	12	10	3.0	3.5	13	12	-2.13	.03548	.93	1.10
DISSOLVED SOLIDS, ROE 180 DEG C	12	215	43	125	269	12	31.2	.53319	.96	13.4
DISSOLVED SOLIDS, SUM OF CONST	12	218	46	127	260	12	17.6	.58188	.98	9.30
HARDNESS, TOTAL	12	136	30	87	170	12	6.80	.37362	.97	7.68
HARDNESS, NONCARBONATE	12	6	6.3	0.0	17					
TURBIDITY (JTU)	12	11	12	3	40					
FLUORIDE, DISSOLVED	12	1.1	.32	.4	1.5					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 365

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	487	418	405	399	391	379	342	248	228	175

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

06054500 -- MISSOURI RIVER AT TOSTON, MT.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	22.	34.	3	11.	24.
CADMIUM (CD), UG/L	3	<10.	10.	3	1.	1.
CHROMIUM (CR), UG/L	3	0.	0.	3	0.	0.
COBALT (CO), UG/L	3	<50.	<50.	3	0.	2.
COPPER (CU), UG/L	3	10.	140.	3	1.	4.
IRON (FE), UG/L	3	240.	4400.	3	20.	30.
LEAD (PB), UG/L	3	<100.	<100.	3	0.	5.
MANGANESE (MN), UG/L	3	20.	190.	3	0.	20.
MERCURY (HG), UG/L	3	.0	.1	3	.0	.0
SELENIUM (SE), UG/L	3	0.	0.	3	0.	0.
ZINC (ZN), UG/L	3	30.	70.	3	0.	40.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	20.	20.			
CHLOROPHYLL A, MG/SQ M	1	10.	10.			
CHLOROPHYLL B, MG/SQ M	1	.9	.9			
ORGANIC CARBON, MG/L	3	4.2	9.6			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 06174500 NAME: MILK RIVER AT NASHUA, MT

LAT 48007M52S LONG 106021M50S
DRAINAGE AREA: 22332 SQ MI (57840 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	10	11.0	9.5	0	24.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	9	740	287	386	1190	9 a/	797	-.03159	-.29	294
STREAMFLOW (CUBIC FT/SEC)	0	1814	2638	133	8070					
PH (STANDARD UNITS)	9	7.4	.25	7.2	7.9					
PHOSPHORUS, TOTAL	9	.41	.28	.07	.91	9	.46	-.00007	-.07	.30
NITRITE + NITRATE, TOTAL	9	.20	.12	.01	.36	9	.43	-.00032	-.73	.09
NITROGEN, KJELDAHL	9	1.3	.76	.16	2.7	9	1.78	-.00060	-.23	.79
PHYTOPLANKTON, TOTAL (CELLS/ML)	3	3933	1904	2100	5900					
SEDIMENT, SUSPENDED	7	762	973	30	2630	7 a/	363	.21557	.66	800
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	9	155	97	20	330					
STREPTOCOCCI, FECAL (COL/100 ML)										
SILICA, DISSOLVED	9	7.0	1.7	4.1	10	9	5.26	.00240	.41	1.65
CALCIUM, DISSOLVED	9	38	15	22	162	9	1.90	.04866	.96	4.26
MAGNESIUM, DISSOLVED	9	17	8.0	8.7	32	9	-2.23	.02566	.92	3.37
SODIUM, DISSOLVED	9	85	40	39	150	9	-16.2	.13695	.98	7.49
POTASSIUM, DISSOLVED	9	6.5	1.2	4.6	8.8	9	4.25	.00301	.69	.96
BICARBONATE, ION	9	156	67	95	271	9	7.02	.20099	.87	35.3
CARBONATE, ION	3	0	0	0	0					
SULFATE, DISSOLVED	9	207	99	85	350	9	37.4	.33071	.96	30.6
CHLORIDE, DISSOLVED	9	11	7.2	4.7	27	9	-3.02	.01896	.76	4.97
DISSOLVED SOLIDS, ROE 180 DEG C	9	468	193	248	787	9	19.3	.65907	.98	39.3
DISSOLVED SOLIDS, SUM OF CONST	9	449	193	221	762	9	-43.4	.66540	.99	30.9
HARDNESS, TOTAL	9	165	70	91	280	9	-7.18	.23221	.95	22.9
HARDNESS, NONCARBONATE	9	36	22	12	70					
TURBIDITY (JTU)	9	239	250	10	700					
FLUORIDE, DISSOLVED	0	.33	.09	.2	.5					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 273

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	2035	1969	1135	987	888	741	537	380	335	270

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

06174500 -- MILK RIVER AT NASHUA, MT.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	5.	8.	3	0.	6.
CADMIUM (CD), UG/L	3	<10.	10.	3	0.	4.
CHROMIUM (CR), UG/L	3	0.	0.	3	0.	0.
COBALT (CO), UG/L	3	<50.	<50.	3	0.	1.
COPPER (CU), UG/L	3	20.	30.	3	9.	12.
IRON (FE), UG/L	3	2600.	12000.	3	60.	80.
LEAD (PB), UG/L	3	<100.	<100.	3	0.	6.
MANGANESE (MN), UG/L	3	100.	280.	3	0.	90.
MERCURY (HG), UG/L	3	.2	.7	3	.1	.5
SELENIUM (SE), UG/L	3	0.	10.	3	1.	10.
ZINC (ZN), UG/L	3	90.	200.	3	30.	40.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	7.3	8.7			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 06337000 NAME: LITTLE MISSORI RIVER NR WATFORD CITY, N.D.

LAT 47035M25S LONG 103015M05S
DRAINAGE AREA: 8310 SQ MI (21523 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	7	14.5	6.5	7.0	24.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	7	1799	373	1420	2390	7 a/	1890	-.12780	.51	352
STREAMFLOW (CUBIC FT/SEC)	7	736	1491	28	4100					
PH (STANDARD UNITS)	6	8.4	.20	8.1	8.6					
PHOSPHORUS, TOTAL	7	1.9	3.6	.11	10	7	10.9	-.00501	-.52	3.37
NITRITE + NITRATE, TOTAL	7	.56	.69	.02	1.8	7	2.24	-.00094	-.51	.65
NITROGEN, KJELDAHL	7	3.3	3.0	1.1	9.6	7	12.3	-.00500	-.62	2.61
PHYTOPLANKTON, TOTAL (CELLS/ML)	3	2741	43023	32	77000					
SEDIMENT, SUSPENDED										
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	4	2079	3882	7	7900					
STREPTOCOCCI, FECAL (COL/100 ML)	4	4106	7929	7	>16000					
SILICA, DISSOLVED	7	9.6	2.5	6.5	13	7	2.50	.00394	.60	2.16
CALCIUM, DISSOLVED	7	63	13	41	77	7	21.7	.02274	.66	10.6
MAGNESIUM, DISSOLVED	7	31	9.6	16	42	7	1.53	.01639	.64	8.12
SODIUM, DISSOLVED	7	306	79	210	430	7	-51.7	.20205	.96	25.6
POTASSIUM, DISSOLVED	7	10	2.5	7.4	14	7	-1.48	.00638	.94	.97
BICARBONATE, ION	7	316	88	196	422	7	-52.1	.20452	.87	47.7
CARBONATE, ION	5	9	12		28	5	-45.0	.02834	.94	4.81
SULFATE, DISSOLVED	7	650	131	480	870	7	37.1	.34075	.97	34.8
CHLORIDE, DISSOLVED	7	9.6	3.8	4.8	15	7	-6.81	.00914	.90	1.83
DISSOLVED SOLIDS, ROE 180 DEG C	7	1271	296	888	1750	7	-125	.77602	.98	64.8
DISSOLVED SOLIDS, SUM OF CONST	7	1242	278	883	1680	7	69.6	.72918	.98	59.1
HARDNESS, TOTAL	7	286	72	170	370	7	57.1	.12712	.66	59.8
HARDNESS, NONCARBONATE	7	31	52		130					
TURBIDITY (JTU)	7	2277	4337	40	12000					
FLUORIDE, DISSOLVED	7	.50	.10	.4	.7					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 202

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	2699	2520	2490	2380	2175	1971	1760	1290	1080	500

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

06337000 — LITTLE MISSOURI RIVER NR WATFORD CITY, N. DAK.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	4.	25.	3	1.	2.
CADMIUM (CD), UG/L	3	<10.	<10.	3	0.	6.
CHROMIUM (CR), UG/L	3	0.	50.	3	0.	0.
COBALT (CO), UG/L	3	<50.	<50.	3	0.	1.
COPPER (CU), UG/L	3	30.	80.	3	11.	20.
IRON (FE), UG/L	3	2700.	45000.	3	40.	170.
LEAD (PB), UG/L	3	<100.	<100.	3	2.	4.
MANGANESE (MN), UG/L	3	200.	980.	3	0.	20.
MERCURY (HG), UG/L	3	.2	.5	3	.0	.5
SELENIUM (SE), UG/L	3	0.	3.	3	1.	3.
ZINC (ZN), UG/L	3	50.	660.	3	0.	40.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	3.1	3.1			
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	1.6	18.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 06452000 NAME: WHITE RIVER NR OACOMA, SD

LAT 43044M54S LONG 099D33M22S
DRAINAGE AREA: 10200 SQ MI (26418 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	29	16.5	7.0	1.0	26.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	7	576	134	439	823	7 a/	561	.05802	.11	146
STREAMFLOW (CUBIC FT/SEC)	29	399	597	16	2560					
PH (STANDARD UNITS)	6	8.2	3.7	7.7	8.6					
PHOSPHORUS, TOTAL	7	10	8.8	.90	27	7	-1.00	.01950	.30	9.20
NITRITE + NITRATE, TOTAL	7	1.0	.72	.25	2.2	7	.15	.00154	.29	.75
NITROGEN, KJELDAHL	7	4.0	4.3	.82	13	7	-12.9	.02931	.92	1.81
PHYTOPLANKTON, TOTAL (CELLS/ML)	5	27600	29200	0	60000					
SEDIMENT, SUSPENDED	29	27156	17198	1730	82000	29 a/	18900	19.5	.68	12900
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)										
STREPTOCOCCI, FECAL (COL/100 ML)										
SILICA, DISSOLVED	7	32	7.8	20	43	7	57.2	-.04426	-.76	5.50
CALCIUM, DISSOLVED	7	8.9	12	1.0	34	7	28.6	-.03417	-.39	11.08
MAGNESIUM, DISSOLVED	7	1.2	1.4	0	3.8	7	4.86	-.00635	-.62	1.20
SODIUM, DISSOLVED	7	130	54	66	220	7	12.1	.20507	.51	51.3
POTASSIUM, DISSOLVED	7	4.8	1.4	3.4	7.0	7	1.30	.00614	.60	1.20
BICARBONATE, ION	7	261	144	141	574	7	457	-.33951	-.32	149
CARBONATE, ION	7	2.4	2.6	0	7	P	8.64	-.01078	-.55	2.41
SULFATE, DISSOLVED	7	103	77	43	270	7	-199	.52459	.92	32.6
CHLORIDE, DISSOLVED	7	7.4	2.3	4.0	11	7	.10	.01269	.74	1.68
DISSOLVED SOLIDS, ROE 180 DEG C	7	391	85	301	555	5	36.3	.61596	.97	21.0
DISSOLVED SOLIDS, SUM OF CONST	7	420	125	308	625	7	141	.48349	.52	117
HARDNESS, TOTAL	7	27	34	3	100	7	19.1	-.11097	-.44	33.6
HARDNESS, NONCARBONATE	7	0	0	0	0					
TURBIDITY (JTU)	6	6483	4808	1500	15000					
FLUORIDE, DISSOLVED	7	.73	.21	.4	1.0					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 210

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	977	1450	1346	980	730	630	537	503	490	450

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
234	11.52	10.23	2.95	82.2	3.31

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

06452000 -- WHITE RIVER NEAR OACOMA,S.D.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	140.	300.	2	6.	23.
CADMIUM (CD), UG/L	2	20.	30.	2	0.	0.
CHROMIUM (CR), UG/L	2	100.	140.	2	0.	0.
COBALT (CO), UG/L	2	150.	250.	2	0.	0.
COPPER (CU), UG/L	2	220.	320.	2	10.	20.
IRON (FE), UG/L	2	30000.	120000.	2	40.	120.
LEAD (PB), UG/L	2	300.	400.	2	2.	3.
MANGANESE (MN), UG/L	2	8500.	8800.	2	0.	20.
MERCURY (HG), UG/L	2	.4	1.2	2	.0	.0
SELENIUM (SE), UG/L	2	0.	3.	2	2.	8.
ZINC (ZN), UG/L	2	510.	1000.	2	0.	0.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	360.	360.			
CHLOROPHYLL A, MG/SQ M	1	.2	.2			
CHLOROPHYLL B, MG/SQ M	1	.4	.4			
ORGANIC CARBON, MG/L	1	38.	38.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 06486000 NAME: MISSOURI RIVER AT SIOUX CITY, IOWA

LAT 42D29M10S LONG 096D24M47S
DRAINAGE AREA: 314600 SQ MI (814814 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	38	13.5	9.0	0	27.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	18	740	42	690	850	18 a/	685	.00184	.28	41.5
STREAMFLOW (CUBIC FT/SEC)	38	29534	6131	18000	37600					
PH (STANDARD UNITS)	18	8.1	.29	7.3	8.8					
PHOSPHORUS, TOTAL	18	.04	.02		.09	18	.06	-.00003	-.05	.02
NITRITE + NITRATE, TOTAL	18	.09	.09		.27	18	.43	-.00046	-.22	.09
NITROGEN, KJELDAHL	17	.41	.15	.16	.70	17	-.46	.00116	.34	.14
PHYTOPLANKTON, TOTAL (CELLS/ML)	9	18079	42087	640	103000					
SEDIMENT, SUSPENDED	25	363	204	144	1010	25 a/	420	-.00202	-.06	208
SEDIMENT, CLAY-SILT (PERCENT)	12	37	16	18	76					
COLIFORM, FECAL (COL/100 ML)	15	318	702	16	2400					
STREPTOCOCCI, FECAL (COL/100 ML)	6	28	25	8	75					
SILICA, DISSOLVED	16	8.4	1.7	6.3	12	16	21.2	-.01730	-.46	1.52
CALCIUM, DISSOLVED	9	60	2.4	56	63	9	56.2	.00511	.10	2.55
MAGNESIUM, DISSOLVED	9	22	.9	20	23	9	19.5	.00319	.16	.98
SODIUM, DISSOLVED	9	66	7.6	55	79	9	14.5	.07026	.44	7.23
POTASSIUM, DISSOLVED	8	5.7	.51	5.0	6.6	8	7.58	-.00256	-.26	.53
BICARBONATE, ION	11	190	5.1	184	202	11	171	.02486	.23	5.26
CARBONATE, ION	12	.6	1.5	0	5	12	-17.2	.02395	.74	1.07
SULFATE, DISSOLVED	9	207	13	180	220	9	117	.12131	.44	12.7
CHLORIDE, DISSOLVED	9	10	2.3	8.5	16	9	8.26	.00294	.06	2.41
DISSOLVED SOLIDS, ROE 180 DEG C	51	491	21	441	529	15	258	.31543	.69	15.6
DISSOLVED SOLIDS, SUM OF CONST	7	467	19	432	490	7	296	.23062	.65	16.0
HARDNESS, TOTAL	9	240	7.1	230	250	9	-196	.05954	.40	6.92
HARDNESS, NONCARBONATE	9	83	8.7	70	96					
TURBIDITY (JTU)	12	15	8.9	7	35					
FLUORIDE, DISSOLVED	9	.50	.11	.4	.7					

a/ Streamflow is dependent variable.

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
76	10.76	12.37	2.74	92.1	2.08

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

06486000 -- MISSOURI RIVER AT SIOUX CITY, IOWA

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	3.	3.	15	0.	15.
CADMIUM (CD), UG/L	2	3.	3.	15	0.	6.
CHROMIUM (CR), UG/L	2	1.	10.	14	0.	3.
COBALT (CO), UG/L	2	4.	16.	2	0.	4.
COPPER (CU), UG/L	2	6.	9.	14	0.	12.
IRON (FE), UG/L	11	640.	2400.	2	20.	40.
LEAD (PB), UG/L	2	12.	40.	14	0.	20.
MANGANESE (MN), UG/L	2	86.	100.	15	0.	500.
MERCURY (HG), UG/L	2	.1	.6	2	.1	1.1
SELENIUM (SE), UG/L	2	2.	5.	2	1.	2.
ZINC (ZN), UG/L	2	0.	50.	15	0.	60.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	13	3.2	11.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 06686000 NAME: NORTH PLATTE RIVER AT LISCO, NEBRASKA

LAT 41030M00S LONG 102038M00S
DRAINAGE AREA: 30700 SQ MI (79513 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	11.0	8.0	.5	24.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	871	80	734	1020	12 a/	925	-.02152	-.42	76.3
STREAMFLOW (CUBIC FT/SEC)	12	2500	1560	603	5700					
PH (STANDARD UNITS)	12	7.9	.36	7.5	8.5					
PHOSPHORUS, TOTAL	9	.22	.17	.03	.58	9	.21	.00002	.01	.18
NITRITE + NITRATE, TOTAL	12	1.6	.68	.64	2.5	12	-4.27	.00671	.80	.43
NITROGEN, KJELDAHL	12	.85	.34	.38	1.6	12	2.84	-.00228	-.54	.30
PHYTOPLANKTON, TOTAL (CELLS/ML)										
SEDIMENT, SUSPENDED										
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	11	131	243	2	830					
STREPTOCOCCI, FECAL (COL/100 ML)	11	172	207	37	704					
SILICA, DISSOLVED	8	30	9.0	19	41	8	-87.7	.14261	.74	6.53
CALCIUM, DISSOLVED	12	76	5.4	66	85	12	27.1	.05649	.83	3.15
MAGNESIUM, DISSOLVED	12	20	1.1	18	22	12	20.3	-.00063	-.05	1.11
SODIUM, DISSOLVED	12	78	7.2	65	88	12	15.5	.07196	.80	4.54
POTASSIUM, DISSOLVED	12	9.2	1.7	6.5	1	12	-.88	.01151	.55	1.46
BICARBONATE, ION	12	267	30	221	306	12	20.8	.28306	.77	19.9
CARBONATE, ION	11	2.7	7.1	0	24	11	9.91	-.00825	-.10	7.48
SULFATE, DISSOLVED	12	185	10	170	200	12	176	.01029	.08	10.4
CHLORIDE, DISSOLVED	12	19	2.1	14	22	12	4.49	.01684	.65	1.66
DISSOLVED SOLIDS, ROE 180 DEG C										
DISSOLVED SOLIDS, SUM OF CONST	8	547	85	477	583	8	70.2	.74594	.98	7.91
HARDNESS, TOTAL	12	272	14	240	290	12	162	.12684	.71	10.4
HARDNESS, NONCARBONATE	12	48	15	25	77					
TURBIDITY (JTU)	11	43	28	20	100					
FLUORIDE, DISSOLVED	3	.47	.06	.4	.5					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 365

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	1009	885	870	856	846	833	812	776	751	723

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
359	12.38	10.49	2.85	88.8	2.62

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

06686000 -- NORTH PLATTE RIVER AT LISCO, NEBR.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	5.	11.	3	1.	6.
CADMIUM (CD), UG/L	3	<10.	<10.	3	0.	1.
CHROMIUM (CR), UG/L	3	0.	0.	3	0.	0.
COBALT (CO), UG/L	3	<50.	<50.	3	0.	1.
COPPER (CU), UG/L	3	<10.	410.	3	2.	40.
IRON (FE), UG/L	3	1800.	5500.	3	20.	60.
LEAD (PB), UG/L	3	<100.	<100.	3	0.	8.
MANGANESE (MN), UG/L	3	150.	230.	3	0.	13.
MERCURY (HG), UG/L	3	.0	.1	3	.0	.0
SELENIUM (SE), UG/L	3	4.	5.	3	2.	6.
ZINC (ZN), UG/L	3	80.	800.	3	50.	730.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	7.5	11.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 06764000 NAME: SOUTH PLATTE RIVER AT JULESBURG, CO

LAT 40D56M46S LONG 102D15M15S
DRAINAGE AREA: 23138 SQ MI (59927 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	10	11.0	8.0	0	27.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	9	1854	143	1580	2030	8a/	2000	-.20202	-.83	91.1
STREAMFLOW (CUBIC FT/SEC)	9	661	600	15	1500					
PH (STANDARD UNITS)	8	8.1	.20	7.7	8.3					
PHOSPHORUS, TOTAL	9	.40	.29	.01	.76	9	3.54	-.00169	-.82	.18
NITRITE + NITRATE, TOTAL	9	1.9	.15	.07	3.6	9	17.4	-.00833	-.78	1.01
NITROGEN, KJELDAHL	9	1.2	.52	.59	2.2	9	6.60	-.00289	-.79	.34
PHYTOPLANKTON, TOTAL (CELLS/ML)	6	7067	4759	2400	15000					
SEDIMENT, SUSPENDED	6	193	218	40	618	4a/	37.8	.25933	.93	36.4
SEDIMENT, CLAY-SILT (PERCENT)	6	62	26	19	90					
COLIFORM, FECAL (COL/100 ML)										
STREPTOCOCCI, FECAL (COL/100 ML)										
SILICA, DISSOLVED	9	19	3.7	15	26	9	11.0	.00444	.17	3.93
CALCIUM, DISSOLVED	9	174	23	140	210	9	-64.2	.12874	.80	14.6
MAGNESIUM, DISSOLVED	9	60	4.8	50	65	9	20.7	.02087	.63	4.00
SODIUM, DISSOLVED	9	172	12	150	190	9	29.8	.07987	.92	5.16
POTASSIUM, DISSOLVED	9	13	3.1	9.5	19	9	-20.2	.01813	.83	1.85
BICARBONATE, ION	9	289	28	235	320	9	325	-.01961	-.10	30.0
CARBONATE, ION	7	0	0	0	0					
SULFATE, DISSOLVED	9	671	71	540	770	9	-205	.47261	.95	24.0
CHLORIDE, DISSOLVED	9	81	6.7	72	93	9	25.8	.02954	.63	5.59
DISSOLVED SOLIDS, ROE 180 DEG C	9	1412	127	1150	1570	9	-216	.87849	.99	20.6
DISSOLVED SOLIDS, SUM OF CONST	9	1332	114	1120	1490	9	-50.3	.74586	.93	43.9
HARDNESS, TOTAL	9	682	66	560	760	9	-71.8	.40679	.88	33.8
HARDNESS, NONCARBONATE	9	446	67	33	530					
TURBIDITY (JTU)	9	35	28	1	70					
FLUORIDE, DISSOLVED	9	.83	.17	.5	1.0					

a/ Streamflow is independent variable.

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
337	11.47	10.92	2.85	92.38	2.11

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

06764000 -- SOUTH PLATTE RIVER AT JULESBURG, CO.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	2.	4.	3	3.	3.
CADMIUM (CD), UG/L	3	<10.	10.	3	0.	1.
CHROMIUM (CR), UG/L	3	0.	0.	3	0.	0.
COBALT (CO), UG/L	3	<50.	<50.	3	0.	1.
COPPER (CU), UG/L	3	10.	20.	3	2.	10.
IRON (FE), UG/L	3	900.	4300.	3	80.	640.
LEAD (PB), UG/L	3	<100.	<100.	3	0.	5.
MANGANESE (MN), UG/L	3	150.	280.	3	0.	60.
MERCURY (HG), UG/L	3	.0	.5	3	.0	.1
SELENIUM (SE), UG/L	3	1.	8.	3	1.	8.
ZINC (ZN), UG/L	3	40.	70.	3	10.	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	.80	.80			
CHLOROPHYLL A, MG/SQ M	1	4.1	4.1			
CHLOROPHYLL B, MG/SQ M	1	.8	.8			
ORGANIC CARBON, MG/L	2	7.3	8.7			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 06856600 NAME: REPUBLICAN RIVER NEAR CLAY CENTER, KS

LAT 39D21M20S LONG 097D07M34S
DRAINAGE AREA: 24542 SQ MI (63564 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	11	14.0	10.0	1.0	26.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	11	1094	196	888	1560	10 a/	1230	-0.17325	-0.51	185
STREAMFLOW (CUBIC FT/SEC)	11	904	588	136	1960					
PH (STANDARD UNITS)	11	8.0	.28	7.4	8.3					
PHOSPHORUS, TOTAL	11	.31	.12	.10	.50	10	0.01	0.00029	0.52	0.10
NITRITE + NITRATE, TOTAL	11	.79	.93	.01	2.2	10	1.95	-0.00120	-0.29	0.86
NITROGEN, KJELDAHL	11	1.4	.70	.43	2.7	10	-0.21	0.00153	0.47	0.62
PHYTOPLANKTON, TOTAL (CELLS/ML)	10	94707	149920	396	430000					
SEDIMENT, SUSPENDED										
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	9	959	1264	100	4000					
STREPTOCOCCI, FECAL (COL/100 ML)	9	728	1000	45	3100					
SILICA, DISSOLVED	11	17	7.3	2.5	27	10	38.2	-0.02052	-0.61	5.79
CALCIUM, DISSOLVED	11	89	33	24	140	10	105	-0.01936	-0.13	31.8
MAGNESIUM, DISSOLVED	11	19	2.4	15	23	10	18.7	-0.00011	-0.01	2.51
SODIUM, DISSOLVED	11	76	14	56	100	10	33.1	0.03886	0.53	13.2
POTASSIUM, DISSOLVED	10	11	2.0	8.5	15	9	11.6	-0.00014	-0.02	2.08
BICARBONATE, ION	11	282	67	170	380	10	394	-0.11305	-0.37	61.3
CARBONATE, ION	5	0	0	0	0					
SULFATE, DISSOLVED	11	152	19	120	180	10	132	0.01580	0.19	18.0
CHLORIDE, DISSOLVED	11	75	17	47	100	10	46.3	0.02591	0.30	17.8
DISSOLVED SOLIDS, ROE 180 DEG C	11	598	78	483	742	10	637	-0.04997	-0.16	67.7
DISSOLVED SOLIDS, SUM OF CONST	11	580	91	460	736	10	573	-0.00823	-0.02	83.1
HARDNESS, TOTAL	11	301	87	130	440	10	342	-0.05059	-0.13	82.0
HARDNESS, NONCARBONATE	11	74	32		120					
TURBIDITY (JTU)	7	46	27	20	100					
FLUORIDE, DISSOLVED	11	.55	.33	.3	1.4					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 365

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	1315	1228	1167	1037	952	900	802	721	593	241

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

06856600 -- REPUBLICAN R AT CLAY CENTER, KS

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	1.	10.	4	1.	9.
CADMIUM (CD), UG/L	4	<10.	20.	4	1.	3.
CHROMIUM (CR), UG/L	4	0.	50.	4	0.	20.
COBALT (CO), UG/L	4	<50.	50.	4	0.	0.
COPPER (CU), UG/L	4	<10.	50.	4	4.	9.
IRON (FE), UG/L	4	250.	1700.	4	30.	100.
LEAD (PB), UG/L	4	<100.	100.	4	2.	10.
MANGANESE (MN), UG/L	4	80.	480.	4	0.	100.
MERCURY (HG), UG/L	4	.2	10.	4	.0	1.4
SELENIUM (SE), UG/L	2	3.	6.	4	0.	7.
ZINC (ZN), UG/L	4	40.	110.	4	0.	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	2.3	2.3			
CHLOROPHYLL A, MG/SQ M	1	2.3	2.3			
CHLOROPHYLL B, MG/SQ M	1	1.4	1.4			
ORGANIC CARBON, MG/L	3	3.6	13.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 06902000 NAME: GRAND RIVER NR. SUMNER, MO

LAT 39D38M25S LONG 093D16M25S
DRAINAGE AREA: 6880 SQ MI (17819 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	15.5	10.5		30.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	382	118	203	550	12 a/	432	-.00633	-.69	90.3
STREAMFLOW (CUBIC FT/SEC)	12	7918	12817	491	38000					
PH (STANDARD UNITS)	12	7.8	.22	7.5	8.3					
PHOSPHORUS, TOTAL	12	.42	.38	.02	1.4	12	1.21	-.00205	-.64	.31
NITRITE + NITRATE, TOTAL	12	.87	.83		2.5	12	2.37	-.00393	-.52	.72
NITROGEN, KJELDAHL	12	1.7	1.2	.35	4.1	12	4.95	-.00850	-.84	.69
PHYTOPLANKTON, TOTAL (CELLS/ML)	2	36000	41012	7000	65000					
SEDIMENT, SUSPENDED	9	759	1113	13	3490	9 a/	119	.06776	.89	540
SEDIMENT, CLAY-SILT (PERCENT)	9	75	22	35	99					
COLIFORM, FECAL (COL/100 ML)	12	3669	4651	30	16000					
STREPTOCOCCI, FECAL (COL/100 ML)	12	3343	4655	50	16000					
SILICA, DISSOLVED	12	10	4.4	.2	16	12	.20	.02646	.71	3.23
CALCIUM, DISSOLVED	12	54	18	25	78	12	-4.41	.15187	1.00	1.80
MAGNESIUM, DISSOLVED	12	10	4.0	2.8	15	12	-2.65	.03336	.99	.68
SODIUM, DISSOLVED	12	9.7	3.3	4.2	14	12	-.84	.02764	.98	.68
POTASSIUM, DISSOLVED	12	3.9	.65	2.8	5.4	12	3.86	.00000	.00	.68
BICARBONATE, ION	12	190	68	84	286	12	-27.0	.56735	.99	8.21
CARBONATE, ION	12	0	0	0	0					
SULFATE, DISSOLVED	12	34	11	16	50	12	1.64	.08476	.92	4.37
CHLORIDE, DISSOLVED	12	6.3	1.5	3.4	7.9	12	3.30	.00773	.62	1.21
DISSOLVED SOLIDS, ROE 180 DEG C	12	231	65	130	314	12	24.7	.54000	.99	10.3
DISSOLVED SOLIDS, SUM OF CONST	12	222	72	101	319	12	-9.14	.60622	.99	9.13
HARDNESS, TOTAL	12	175	62	74	260	12	-24.7	.52364	1.00	4.55
HARDNESS, NONCARBONATE	12	20	9.5	0	34					
TURBIDITY (JTU)	5	210	124	50	400					
FLUORIDE, DISSOLVED	12	.32	.17	.1	.7					

a/ Streamflow is independent variable.

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

SAMPLE SIZE	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (PERCENT)	STANDARD ERROR OF ESTIMATE (DEG C)
219	13.97	11.25	2.84	88.83	2.53

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

06902000 -- GRAND RIVER NEAR SUMNER MO

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	0.	15.	3	0.	1.
CADMIUM (CD), UG/L	3	<10.	<10.	3	0.	2.
CHROMIUM (CR), UG/L	3	0.	20.	3	0.	0.
COBALT (CO), UG/L	3	<50.	<50.	3	0.	0.
COPPER (CU), UG/L	3	10.	100.	3	3.	7.
IRON (FE), UG/L	3	3700.	22000.	12	20.	5600.
LEAD (PB), UG/L	3	<100.	<100.	3	2.	14.
MANGANESE (MN), UG/L	3	250.	950.	12	0.	200.
MERCURY (HG), UG/L	3	.1	.3	3	.0	.5
SELENIUM (SE), UG/L	3	0.	3.	3	0.	3.
ZINC (ZN), UG/L	3	50.	160.	3	0.	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	11.	11.			
CHLOROPHYLL A, MG/SQ M	1	1.0	1.0			
CHLOROPHYLL B, MG/SQ M	1	.7	.7			
ORGANIC CARBON, MG/L	2	5.4	35.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 06934500 NAME: MISSOURI R AT HERMANN, MO

LAT 38042M36S LONG 091026M21S
DRAINAGE AREA: 528700 SQ MI (1368038 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	22	15.5	9.5	1.0	29					
SPECIFIC CONDUCTANCE (MICROMHOS)	22	582	131	340	840	22 [a/]	769	-.00178	-.84	73.2
STREAMFLOW (CUBIC FT/SEC)	22	104564	61840	45100	289000					
PH (STANDARD UNITS)	22	8.0	.20	7.7	84					
PHOSPHORUS, TOTAL	9	.27	.11	.12	.45	9	.60	-.00057	-.66	.09
NITRITE + NITRATE, TOTAL	9	1.1	.45	.15	1.7	9	2.03	-.00152	-.43	.43
NITROGEN, KJELDAHL	9	1.1	.36	.58	1.8	9	1.84	-.00133	-.48	.34
PHYTOPLANKTON, TOTAL (CELLS/ML)	5	7380	6586	1100	15000					
SEDIMENT, SUSPENDED	11	882	1074	135	3930	11 [a/]	-672	.01316	.87	551
SEDIMENT, CLAY-SILT (PERCENT)	11	57	20	17	93					
COLIFORM, FECAL (COL/100 ML)	22	2567	5039	150	24000					
STREPTOCOCCI, FECAL (COL/100 ML)	12	1932	3382	30	10500					
SILICA, DISSOLVED	4	10	4.3	5.2	15					
CALCIUM, DISSOLVED	4	58	10	43	67					
MAGNESIUM, DISSOLVED	4	15	4.7	9.0	20					
SODIUM, DISSOLVED	4	38	23	16	70					
POTASSIUM, DISSOLVED	4	5.7	1.0	4.5	6.9					
CARBONATE, ION	21	.10	.44	0	2	21	-.31	.00070	.21	.44
BICARBONATE, ION	21	182	28	128	232	21	94.4	.15134	.71	20.5
SULFATE, DISSOLVED	4	101	52	45	170					
CHLORIDE, DISSOLVED	4	20	7.4	9.4	26					
DISSOLVED SOLIDS, ROE 180 DEG C	4	338	107	198	458					
DISSOLVED SOLIDS, SUM OF CONST	4	205	56	140	240					
HARDNESS, TOTAL	4	55	13	39	67					
HARDNESS, NONCARBONATE	5	200	336	20	800					
TURBIDITY (JTU)	4	.28	.13	.1	.4					
FLUORIDE, DISSOLVED										

a/ Streamflow is independent variable.

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

06934500 -- MISSOURI RIVER AT HERMANN, MO

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	5	3.	48.	5	0.	4.
CADMIUM (CD), UG/L	5	<10.	10.	5	<1.	1.
CHROMIUM (CR), UG/L	5	0.	50.	5	0.	0.
COBALT (CO), UG/L	5	<50.	50.	5	0.	2.
COPPER (CU), UG/L	5	<10.	200.	5	2.	8.
IRON (FE), UG/L	5	990.	54000.	5	20.	240.
LEAD (PB), UG/L	5	<100.	100.	5	2.	4.
MANGANESE (MN), UG/L	5	140.	3300.	5	0.	30.
MERCURY (HG), UG/L	5	.0	.3	5	.0	.1
SELENIUM (SE), UG/L	5	0.	3.	5	1.	5.
ZINC (ZN), UG/L	5	30.	270.	5	0.	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	5	4.2	78.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 07022000 NAME: MISSISSIPPI RIVER AT THEBES, IL

LAT 37D13M00S LONG 089D27M50S
DRAINAGE AREA: 717200 SQ MI (1857548 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	15.0	9.5	1.5	28					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	501	71	390	610	12 a/	634.66	-.00049	-.85	39.7
STREAMFLOW (CUBIC FT/SEC)	12	276000	123380	108000	498000					
PH (STANDARD UNITS)	12	8.0	.1	7.8	8.1					
PHOSPHORUS, TOTAL	12	.34	.17	.15	.70					
NITRITE + NITRATE, TOTAL	12	2.3	.84	.73	3.5	12	3.15	-.00173	-.15	.87
NITROGEN, KJELDAHL	12	1.2	.41	.64	1.9	12	2.95	-.00346	-.50	.35
PHYTOPLANKTON, TOTAL (CELLS/ML)	4	8450	4982	2900	15000					
SEDIMENT, SUSPENDED	7	411	371	42	1095	7 a/	-90.46	.00177	.73	277
SEDIMENT, CLAY-SILT (PERCENT)	6	82	11	64	94	6 a/	75.3	.00003	.39	11.4
COLIFORM, FECAL (COL/100 ML)	12	2598	2528	480	8200					
STREPTOCOCCI, FECAL (COL/100 ML)	12	1666	3608	20	13000					
SILICA, DISSOLVED	12	8.9	3.4	.2	13	12	.81	.01616	.34	3.37
CALCIUM, DISSOLVED	12	53	6.0	43	64	12	14.8	.07690	.91	2.64
MAGNESIUM, DISSOLVED	12	18	2.8	13	23	12	-.82	.03791	.95	.91
SODIUM, DISSOLVED	12	21	6.9	12	33	12	-14.2	.07105	.73	5.00
POTASSIUM, DISSOLVED	12	3.9	.59	3.1	5.0	12	3.61	.00051	.06	.62
BICARBONATE, ION	12	195	24	158	240	12	47.0	.29561	.88	11.6
CARBONATE, ION	12	0	0	0	0					
SULFATE, DISSOLVED	12	64	18	43	90	12	-20.1	.16846	.67	13.7
CHLORIDE, DISSOLVED	12	18	3.8	14	26	12	-5.50	.04711	.87	2.01
DISSOLVED SOLIDS, ROE 180 DEG C	11	301	47	230	366	11	2.91	.59912	.94	17.3
DISSOLVED SOLIDS, SUM OF CONST	12	285	44	210	345	12	2.12	.56450	.90	20.3
HARDNESS, TOTAL	12	208	26	160	250	12	36.8	.34084	.94	9.00
HARDNESS, NONCARBONATE	12	48	11	30	64					
TURBIDITY (JTU)	4	92	73	40	200					
FLUORIDE, DISSOLVED	12	.34	.20	.1	.9					

a/ Streamflow is independent variable.

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

07022000 — MISSISSIPPI RIVER AT THEBES ILL

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	3.	21.	4	0.	3.
CADMIUM (CD), UG/L	4	<10.	<10.	3	1.	1.
CHROMIUM (CR), UG/L	4	0.	0.	3	0.	0.
COBALT (CO), UG/L	4	<50.	50.	3	0.	1.
COPPER (CU), UG/L	4	20.	40.	3	8.	12.
IRON (FE), UG/L	4	3500.	14000.	12	10.	1500.
LEAD (PB), UG/L	4	<100.	<100.	3	3.	7.
MANGANESE (MN), UG/L	4	180.	690.	12	0.	240.
MERCURY (HG), UG/L	4	.0	.2	4	.0	.5
SELENIUM (SE), UG/L	4	2.	9.	4	0.	4.
ZINC (ZN), UG/L	4	50.	90.	4	10.	50.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	12.	12.			
CHLOROPHYLL A, MG/SQ M	1	7.7	7.7			
CHLOROPHYLL B, MG/SQ M	1	6.0	6.0			
ORGANIC CARBON, MG/L	4	.4	16.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 07032000 NAME: MISSISSIPPI RIVER AT MEMPHIS, TN

LAT 35D07M37S LONG 090D04M25S
DRAINAGE AREA: 932800 SQ MI (24159152 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	3	11.0	10.0	2.5	22					
SPECIFIC CONDUCTANCE (MICROMHOS)	3	344	37	304	378					
STREAMFLOW (CUBIC FT/SEC)	3	825000	290900	492000	1030000					
PH (STANDARD UNITS)	3	7.6	.12	7.5	7.7					
PHOSPHORUS, TOTAL	3	.41	.26	.22	.70	3	-1.69	.00610	.89	.16
NITRITE + NITRATE, TOTAL	3	1.4	.38	.95	1.7					
NITROGEN, KJELDAHL	3	1.1	.21	.90	13					
PHYTOPLANKTON, TOTAL (CELLS/ML)										
SEDIMENT, SUSPENDED	2	413	334	177	649					
SEDIMENT, CLAY-SILT (PERCENT)	2	97	0	97	97					
COLIFORM, FECAL (COL/100 ML)	3	5860	8791	140	16000					
STREPTOCOCCI, FECAL (COL/100 ML)	3	277	293	60	610					
SILICA, DISSOLVED	3	7.1	.40	6.7	7.5					
CALCIUM, DISSOLVED	3	35	2.0	33	37					
MAGNESIUM, DISSOLVED	3	11	1.7	9.1	12					
SODIUM, DISSOLVED	3	14	4.2	11	19					
POTASSIUM, DISSOLVED	3	2.6	.68	2.1	3.4					
BICARBONATE, ION	3	121	22	100	143					
CARBONATE, ION	3	0	0	0	0					
SULFATE, DISSOLVED	3	49	2.1	47	51					
CHLORIDE, DISSOLVED	3	12	3.3	7.9	14					
DISSOLVED SOLIDS, ROE 180 DEG C	3	209	38	171	247					
DISSOLVED SOLIDS, SUM OF CONST	3	192	20	173	213					
HARDNESS, TOTAL	3	133	12	120	140					
HARDNESS, NONCARBONATE	3	34	7.5	25	38					
TURBIDITY (JTU)	3	117	72	70	200					
FLUORIDE, DISSOLVED	3	.47	.38	.20	.90					

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 360

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	516	477	460	433	404	366	343	303	287	250

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
359	16.63	10.58	2.57	92.1	2.19

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

07032000 -- MISSISSIPPI RIVER AT MEMPHIS, TENN.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	10.	45.	2	3.	7.
CADMIUM (CD), UG/L	2	<10.	<10.	2	0.	1.
CHROMIUM (CR), UG/L	3	0.	30.	2	0.	0.
COBALT (CO), UG/L	2	<25.	50.	2	0.	0.
COPPER (CU), UG/L	2	70.	360.	2	9.	16.
IRON (FE), UG/L	2	6300.	16000.	2	30.	1900.
LEAD (PB), UG/L	2	50.	300.	2	2.	5.
MANGANESE (MN), UG/L	2	290.	910.	2	8.	20.
MERCURY (HG), UG/L	1	.1	.1	2	.0	.0
SELENIUM (SE), UG/L	2	2.	10.	2	4.	4.
ZINC (ZN), UG/L	2	80.	160.	2	50.	80.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL P, MG/SQ M	0					
ORGANIC CARBON, MG/L	0					

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 07047800 NAME: ST. FRANCIS RIVER AT PARKIN, ARK.

LAT 35D16M23S LONG 090D33M33S
DRAINAGE AREA: INDETERMINATE
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	11	19.0	6.5	8.5	28.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	11	281	121	104	513	11 a/	444	-.05328	-.85	67.5
STREAMFLOW (CUBIC FT/SEC)	11	3064	1936	460	7110					
PH (STANDARD UNITS)	11	7.7	.29	7.3	8.2					
PHOSPHORUS, TOTAL	11	.53	.33	.14	1.2	11	.74	-.00077	-.28	.34
NITRITE + NITRATE, TOTAL	11	.54	.51	.10	1.8	11	1.25	-.00254	-.60	.43
NITROGEN, KJELDAHL	11	1.2	.75	.39	2.9	11	1.78	-.00214	-.34	.75
PHYTOPLANKTON, TOTAL (CELLS/ML)	4	975	1124	130	2600					
SEDIMENT, SUSPENDED	7	228	161	45	483	7 a/	120	.04358	.43	159
SEDIMENT, CLAY-SILT (PERCENT)	7	88	19	51	99					
COLIFORM, FECAL (COL/100 ML)	10	650	945	20	3000					
STREPTOCOCCI, FECAL (COL/100 ML)	11	2402	4329	10	14000					
SILICA, DISSOLVED	11	13	4.6	6.4	20	11	3.17	.03456	.91	2.07
CALCIUM, DISSOLVED	11	39	18	12	72	11	1.99	.13004	.90	8.27
MAGNESIUM, DISSOLVED	11	9.9	4.2	2.8	18	11	.31	.03409	.98	.99
SODIUM, DISSOLVED	11	7.7	3.3	3.5	14	11	3.03	.01655	.61	2.77
POTASSIUM, DISSOLVED	11	2.7	.40	2.0	3.3	11	2.54	.00052	.16	.42
BICARBONATE, ION	11	163	76	44	300	11	7.38	.55491	.89	36.6
CARBONATE, ION	11	0	0	0	0					
SULFATE, DISSOLVED	11	16	4.2	8.2	22	11	8.23	.02899	.83	2.48
CHLORIDE, DISSOLVED	11	5.4	1.8	2.0	7.4	11	3.94	.00506	.35	1.73
DISSOLVED SOLIDS, ROE 180 DEG C	10	172	58	80	239	10	38.3	.51826	.88	29.1
DISSOLVED SOLIDS, SUM OF CONST	11	175	69	69	299	11	28.2	.52111	.91	29.6
HARDNESS, TOTAL	11	137	60	42	250	11	7.34	.46193	.93	23.6
HARDNESS, NONCARBONATE	11	4.8	4.9		14					
TURBIDITY (JTU)	11	131	103	6	300					
FLUORIDE, DISSOLVED	11	.39	.43	.1	1.6					

a/ Streamflow is independent variable.

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
362	17.21	10.28	2.84	87.81	2.74

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

07047800 -- ST FRANCIS RIVER AT PARKIN, ARK.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	4.	8.	3	1.	3.
CADMIUM (CD), UG/L	3	<10.	<10.	3	0.	1.
CHROMIUM (CR), UG/L	3	0.	0.	3	0.	0.
COBALT (CO), UG/L	3	<50.	50.	3	0.	0.
COPPER (CU), UG/L	3	30.	50.	3	7.	22.
IRON (FE), UG/L	3	4700.	9400.	3	20.	1500.
LEAD (PB), UG/L	3	<100.	<100.	3	0.	2.
MANGANESE (MN), UG/L	3	130.	350.	3	0.	10.
MERCURY (HG), UG/L	3	.0	.0	3	.0	.0
SELENIUM (SE), UG/L	3	0.	3.	3	0.	4.
ZINC (ZN), UG/L	3	70.	90.	3	10.	60.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	0					

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 07047900 NAME: ST. FRANCIS BAY AT RIVERFRONT, ARK

LAT 35D15M34S LONG 090D40M48S
DRAINAGE AREA: INDETERMINATE
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	11	18.5	6.5	8.5	26.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	11	249	85	128	386	10[a/]	363	-.01642	-.92	36.8
STREAMFLOW (CUBIC FT/SEC)	10	6691	4951	1610	13800					
PH (STANDARD UNITS)	11	7.7	.41	7.1	8.4					
PHOSPHORUS, TOTAL	11	.25	.09	.14	.44	11	.20	.00017	.16	.09
NITRITE + NITRATE, TOTAL	11	.23	.16	0	.50	11	.60	-.00149	-.78	.11
NITROGEN, KJELDAHL	11	.80	.38	.19	1.6	11	1.22	-.00169	-.37	.38
PHYTOPLANKTON, TOTAL (CELLS/ML)	4	11875	9589	4700	26000					
SEDIMENT, SUSPENDED	6	86	35	47	135	5[a/]	93.5	.00163	-.27	37.8
SEDIMENT, CLAY-SILT (PERCENT)	6	85	19	47	98					
COLIFORM, FECAL (COL/100 ML)	10	295	408	10	1200					
STREPTOCOCCI, FECAL (COL/100 ML)	11	512	808	50	2800					
SILICA, DISSOLVED	11	13	3.7	7.5	17	11	3.59	.03633	.84	2.09
CALCIUM, DISSOLVED	11	30	12	15	49	11	-3.64	.13635	.99	1.26
MAGNESIUM, DISSOLVED	11	9.0	2.8	4.4	13	11	.99	.03221	.99	.41
SODIUM, DISSOLVED	11	6.5	2.2	3.8	9.7	11	.20	.02514	.96	.68
POTASSIUM, DISSOLVED	11	2.0	.32	1.5	2.6	11	1.57	.00165	.44	.31
BICARBONATE, ION	11	134	52	56	214	11	-16.8	.60624	.99	7.25
CARBONATE, ION	11	.18	.60	0	2	11	-.76	.00378	.53	.54
SULFATE, DISSOLVED	11	13	2.4	9.5	17	11	7.92	.01911	.67	1.91
CHLORIDE, DISSOLVED	11	5.4	1.4	3.2	7.4	11	2.09	.01325	.78	.94
DISSOLVED SOLIDS, ROE 180 DEG C	11	147	47	89	228	11	8.25	.55459	.99	5.86
DISSOLVED SOLIDS, SUM OF CONST	11	145	48	75	223	11	4.08	.56587	.99	4.14
HARDNESS, TOTAL	11	113	41	56	180	11	7.00	.48234	.91	2.09
HARDNESS, NONCARBONATE	11	3.7	4.1	0	10					
TURBIDITY (JTU)	11	64	22	30	100					
FLUORIDE, DISSOLVED	11	.21	.13	0	.5					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 294

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	385	350	309	277	241	197	172	122	105	90

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

07047900 -- ST. FRANCIS BAY AT RIVERFRONT, ARK.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	0.	4.	3	0.	1.
CADMIUM (CD), UG/L	3	<10.	10.	3	1.	2.
CHROMIUM (CR), UG/L	3	0.	0.	3	0.	0.
COBALT (CO), UG/L	3	<50.	<50.	3	0.	0.
COPPER (CU), UG/L	3	20.	30.	3	5.	20.
IRON (FE), UG/L	3	2600.	4900.	3	60.	90.
LEAD (PB), UG/L	3	<100.	<100.	3	1.	9.
MANGANESE (MN), UG/L	3	80.	490.	3	0.	50.
MERCURY (HG), UG/L	3	.0	.3	3	.0	.0
SELENIUM (SE), UG/L	3	0.	5.	3	0.	2.
ZINC (ZN), UG/L	3	40.	140.	3	20.	50.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	1	38.	38.			
CHLOROPHYLL B, MG/SQ M	1	8.4	8.4			
ORGANIC CARBON, MG/L	0					

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 07146500 NAME: ARKANSAS RIVER AT ARKANSAS CITY, KS

LAT 37D03M23S LONG 097D03M32S
DRAINAGE AREA: 43713 SQ MI (113217 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	22	10.0	8.5	0	26.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	31	1549	558	232	2640	30 a/	1790	-.05138	-.61	452
STREAMFLOW (CUBIC FT/SEC)	33	5451	7770	598	37200					
PH (STANDARD UNITS)	18	8.0	.47	7.1	9.1					
PHOSPHORUS, TOTAL	17	.91	1.0	.27	4.8	17	.08	.00057	.34	1.01
NITRITE + NITRATE, TOTAL	8	1.1	.78	.13	2.2	8	-.00004	-00004	-.03	.84
NITROGEN, KJELDAHL	8	2.3	1.3	.97	4.8	8	4.09	-.00092	-.36	1.31
PHYTOPLANKTON, TOTAL (CELLS/ML)	3	106667	45093	60000	150000					
SEDIMENT, SUSPENDED	3	1261	441	793	1670	3 a/	1120	.00869	.24	607
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	9	363	192	50	630					
STREPTOCOCCI, FECAL (COL/100 ML)	9	246	168	78	560					
SILICA, DISSOLVED	9	9.9	4.8	.40	17	9	13.1	-.00170	-.17	5.02
CALCIUM, DISSOLVED	17	81	26	22	120	17	23.8	.03799	.92	10.4
MAGNESIUM, DISSOLVED	17	18	7.6	4.7	29	17	2.35	.01042	.86	3.94
SODIUM, DISSOLVED	17	182	86	31	370	17	-16.2	.3251	.97	22.6
POTASSIUM, DISSOLVED	9	7.0	1.0	5.6	8.9	9	4.85	.00115	.55	.91
BICARBONATE, ION	18	201	55	68	300	18	107	.06413	.71	40.2
CARBONATE, ION	15	3.7	13		49	15	-10.4	.00966	.50	11.4
SULFATE, DISSOLVED	30	141	53	29	230	30	14.7	.08204	.87	26.5
CHLORIDE, DISSOLVED	31	287	124	46	590	31	-46.5	.21524	.97	31.6
DISSOLVED SOLIDS, ROE 180 DEG C	30	897	323	188	1410	30	7.54	.52712	.98	66.1
DISSOLVED SOLIDS, SUM OF CONST	9	1012	248	631	390					
HARDNESS, TOTAL	17	274	94	74	420	17	68.4	.13783	.92	37.9
HARDNESS, NONCARBONATE	17	103	50	19	200					
TURBIDITY (JTU)	6	94	104	20	300					
FLUORIDE, DISSOLVED	9	.51	.15	.2	.8					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 364

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	2575	2370	2200	2100	1970	1660	1250	657	440	200

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

07146500 -- ARKANSAS R AT ARKANSAS CITY, KS

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	5.	6.	2	3.	5.
CADMIUM (CD), UG/L	2	<10.	10.	2	2.	2.
CHROMIUM (CR), UG/L	2	10.	10.	2	0.	10.
COBALT (CO), UG/L	2	<50.	50.	2	0.	2.
COPPER (CU), UG/L	2	<10.	10.	2	7.	9.
IRON (FE), UG/L	2	60.	700.	2	50.	60.
LEAD (PB), UG/L	2	<100.	100.	2	3.	14.
MANGANESE (MN), UG/L	2	0.	60.	2	0.	20.
MERCURY (HG), UG/L	2	.6	2.2	2	.2	.4
SELENIUM (SE), UG/L	2	0.	4.	2	1.	6.
ZINC (ZN), UG/L	2	10.	40.	2	10.	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	4.7	11.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 07178620 NAME: NEWT GRAHAM LOCK AND DAM (VERDIGRIS RIVER) NEAR INOLA, OK

LAT 36D03M29S LONG 095D32M06S
DRAINAGE AREA: 8030 SQ MI (20797 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	17	20.5	8.0	3.0	29.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	45	331	64	160	480	9 a/	365	-.00194	-.29	64.6
STREAMFLOW (CUBIC FT/SEC)	9	9615	9588	74	30100					
PH (STANDARD UNITS)	44	7.9	.27	7.1	8.5					
PHOSPHORUS, TOTAL	42	.22	.20	.00	1.1					
NITRITE + NITRATE, TOTAL	9	.48	.19	.08	.76	9	-.05	.00154	.51	.17
NITROGEN, KJELDAHL	9	.84	.19	.63	1.1	9	.77	.00020	.07	.20
PHYTOPLANKTON, TOTAL (CELLS/ML)	1	310	0	310	0					
SEDIMENT, SUSPENDED	7	117	111	59	367	7 a/	25.3	.01399	.81	71.0
SEDIMENT, CLAY-SILT (PERCENT)	7	96	3.4	90	99					
COLIFORM, FECAL (COL/100 ML)	5	406	519	7	1200					
STREPTOCOCCI, FECAL (COL/100 ML)	7	162	184	6	550					
SILICA, DISSOLVED	8	7.3	1.0	6.2	9.6	8	7.54	-.00070	-.05	1.11
CALCIUM, DISSOLVED	40	38	7.9	17	51	40	3.77	.10350	.88	3.72
MAGNESIUM, DISSOLVED	44	6.8	1.5	2.2	10	44	.15	.01996	.88	.70
SODIUM, DISSOLVED	39	18	5.2	12	39	39	-3.04	.06248	.72	3.68
POTASSIUM, DISSOLVED	8	2.9	.69	2.3	4.4	8	.23	.00762	.74	.50
BICARBONATE, ION	39	115	25	48	151	39	16.2	.29594	.79	15.6
CARBONATE, ION	43	.02	.15	0	1	43	.05	-.00009	-.04	.15
SULFATE, DISSOLVED	36	28	6.8	13	47	36	-3.45	.09472	.85	3.67
CHLORIDE, DISSOLVED	42	27	10	17	67	42	-7.60	.10587	.69	7.55
DISSOLVED SOLIDS, ROE 180 DEG C	41	198	30	125	276	41	28.8	.51398	.95	9.41
DISSOLVED SOLIDS, SUM OF CONST	7	185	25	146	212	7	7.42	.53635	.94	9.15
HARDNESS, TOTAL	40	124	25	54	170	40	10.4	.33987	.90	11.1
HARDNESS, NONCARBONATE	35	26	8.3	12	46					
TURBIDITY (JTU)	9	59	56	7	200					
FLUORIDE, DISSOLVED	8	.25	.08	.1	.3					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 332

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	500	469	418	388	360	331	310	260	237	160

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

07178620 -- NEWT GRAHAM LOCK AND DAM NEAR INOLA, OKLA.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	2.	3.	3	0.	2.
CADMIUM (CD), UG/L	4	<10.	10.	3	0.	1.
CHROMIUM (CR), UG/L	4	0.	10.	3	0.	0.
COBALT (CO), UG/L	3	<50.	<50.	3	0.	1.
COPPER (CU), UG/L	3	<10.	50.	3	3.	12.
IRON (FE), UG/L	3	1800.	5600.	3	30.	260.
LEAD (PB), UG/L	4	<100.	<100.	3	3.	5.
MANGANESE (MN), UG/L	3	40.	200.	3	0.	20.
MERCURY (HG), UG/L	3	.0	.1	3	.0	.0
SELENIUM (SE), UG/L	3	0.	1.	3	0.	1.
ZINC (ZN), UG/L	4	30.	90.	3	0.	40.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	4	5.4	9.5			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 07193500 NAME: NEOSHO RIVER BL FT. GIBSON LAKE, NR. FT. GIBSON, OKLAHOMA

LAT 35D51M15S LONG 095D13M45S
DRAINAGE AREA: 12495 SQ MI (32362 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	13	16.0	7.0	5.0	29.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	13	248	18.3	212	280	13[a]	247	.00006	.05	19
STREAMFLOW (CUBIC FT/SEC)	13	20026	16271	457	50400					
PH (STANDARD UNITS)	11	7.7	.33	7.2	8.2					
PHOSPHORUS, TOTAL	10	.10	.05	.02	.16	10	.31	-.00086	-.26	.05
NITRITE + NITRATE, TOTAL	9	.57	.40	.03	1.1	9	4.62	-.01643	-.53	.36
NITROGEN, KJELDAHL	9	.57	.17	.37	.91	9	.94	-.00148	-.11	.18
PHYTOPLANKTON, TOTAL (CELLS/ML)	7	3325	4404	58	12000					
SEDIMENT, SUSPENDED	8	85	156	3	467	8[a]	87.5	-.00015	-.02	168
SEDIMENT, CLAY-SILT (PERCENT)	8	68	12	68	100					
COLIFORM, FECAL (COL/100 ML)	9	41	22	10	73					
STREPTOCOCCI, FECAL (COL/100 ML)	8	57	22	22	80					
SILICA, DISSOLVED	10	6.2	2.0	3.4	9.1	10	8.60	-.00952	-.08	2.14
CALCIUM, DISSOLVED	9	33	2.0	29	36	9	6.83	.10861	.92	.84
MAGNESIUM, DISSOLVED	11	4.9	.42	4.0	5.6	11	.28	.01896	.87	.22
SODIUM, DISSOLVED	11	7.3	.81	5.4	8.6	11	-.32	.03106	.74	.57
POTASSIUM, DISSOLVED	10	2.8	.50	2.2	3.5	10	3.95	-.00457	-.15	.52
BICARBONATE, ION	11	102	9.1	86	119	11	24.1	.31479	.66	7.19
CARBONATE, ION	11	0	0	0	0					
SULFATE, DISSOLVED	11	28	5.3	19	35	11	-4.53	.13321	.48	4.93
CHLORIDE, DISSOLVED	11	7.0	1.2	5.7	10	11	4.96	.00831	.14	1.23
DISSOLVED SOLIDS, ROE 180 DEG C	11	154	14	125	177	11	-12.9	.67917	.91	6.13
DISSOLVED SOLIDS, SUM OF CONST	8	142	4.5	136	150	8	66.3	.30705	.96	1.42
HARDNESS, TOTAL	9	102	6.9	89	110	9	23.6	.32380	.80	4.44
HARDNESS, NONCARBONATE	9	20	5.1	13	29					
TURBIDITY (JTU)	10	22	11	9	40					
FLUORIDE, DISSOLVED	10	.23	.13	.1	.5					

[a] Streamflow is independent variable.

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
359	16.36	9.71	2.65	94.0	1.72

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

07193500 -- NEOSHO RIVER BL FT GIBSON LAKE, NR FT GIBSON, OK

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	0.	1.	3	0.	2.
CADMIUM (CD), UG/L	2	<10.	<10.	2	1.	1.
CHROMIUM (CR), UG/L	2	0.	0.	2	0.	0.
COBALT (CO), UG/L	2	<50.	<50.	2	0.	1.
COPPER (CU), UG/L	2	<10.	<10.	2	5.	<10.
IRON (FE), UG/L	2	400.	1400.	3	30.	80.
LEAD (PB), UG/L	2	<100.	<100.	2	2.	10.
MANGANESE (MN), UG/L	2	40.	70.	2	0.	13.
MERCURY (HG), UG/L	2	0.	0.	3	0.	0.
SELENIUM (SE), UG/L	2	0.	2.	2	0.	3.
ZINC (ZN), UG/L	2	20.	40.	2	40.	40.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	4.5	6.2			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 07234000 NAME: BEAVER RIVER AT BEAVER, OKLAHOMA

LAT 36D49M26S LONG 100D31M05S
DRAINAGE AREA: 7955 SQ MI (20603 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	8	15.0	11.0	3.0	30.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	32	4278	815	2310	6020	32 a/	4650	-40	-.58	677
STREAMFLOW (CUBIC FT/SEC)	32	9.3	12	.06	50					
PH (STANDARD UNITS)	32	8.0	.23	7.5	8.4					
PHOSPHORUS, TOTAL	6	.06	.03	.03	.12					
NITRITE + NITRATE, TOTAL	6	.09	.12	0	.32	6	.06	.00001	.06	.13
NITROGEN, KJELDAHL	6	.76	.27	.41	1.1	6	1.21	-.00011	-.31	.29
PHYTOPLANKTON, TOTAL (CELLS/ML)										
SEDIMENT, SUSPENDED	6	230	204	48	594	6 a/	45.0	15.8	.70	162
SEDIMENT, CLAY-SILT (PERCENT)	6	61	12	69	95	6 a/	87.3	-.50189	-.39	12.1
COLIFORM, FECAL (COL/100 ML)	4	183	204	2	460					
STREPTOCOCCI, FECAL (COL/100 ML)	6	360	192	140	650					
SILICA, DISSOLVED	5	23	5.9	17	30	5	1.29	.00537	.78	4.26
CALCIUM, DISSOLVED	30	177	43	100	250	30	16.2	.03754	.73	30.0
MAGNESIUM, DISSOLVED	30	95	26	51	140	30	-18.4	.02650	.87	12.8
SODIUM, DISSOLVED	30	635	137	310	920	30	25.6	.15376	.93	53.0
POTASSIUM, DISSOLVED	5	8.7	1.4	7.0	10	5	8.46	.00001	.04	1.65
BICARBONATE, ION	31	291	83	203	483	31	-22.3	.07351	.73	57.3
CARBONATE, ION	31	.10	.54	0	3	31	.63	-.00013	-.19	.54
SULFATE, DISSOLVED	31	554	141	250	800	31	-23.1	.13520	.79	87.9
CHLORIDE, DISSOLVED	29	1061	202	490	1400	29	-28.7	.23850	.95	61.7
DISSOLVED SOLIDS, ROE 180 DEG C	30	2708	561	1430	3730	30	-62.6	.64790	.97	144
DISSOLVED SOLIDS, SUM OF CONST	4	2605	198	2420	2800	4	1260	.30668	.90	108
HARDNESS, TOTAL	29	838	208	460	1100	29	-32.3	.20238	.82	121
HARDNESS, NONCARBONATE	28	605	169	280	940					
TURBIDITY (JTU)	5	19	20	2	50					
FLUORIDE, DISSOLVED	5	1.3	.26	.9	1.5					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 270

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	5791	5570	5387	4791	4510	4230	3910	3360	2986	1200

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
254	18.28	12.12	3.06	84.6	3.4

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

07234000 -- BEAVER RIVER AT BEAVER, OKLA.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	1	6.	6.	1	6.	6.
CADMIUM (CD), UG/L	1	10.	10.	1	2.	2.
CHROMIUM (CR), UG/L	1	0.	0.	1	0.	0.
COBALT (CO), UG/L	1	<50.	<50.	1	1.	1.
COPPER (CU), UG/L	1	10.	10.	1	4.	4.
IRON (FE), UG/L	1	460.	460.	1	20.	20.
LEAD (PB), UG/L	1	<100.	<100.	1	6.	6.
MANGANESE (MN), UG/L	1	110.	110.	1	40.	40.
MERCURY (HG), UG/L	1	.1	.1	1	.1	.1
SELENIUM (SE), UG/L	1	0.	0.	1	0.	0.
ZINC (ZN), UG/L	1	60.	60.	1	10.	10.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	1	5.1	5.1			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 07289000 NAME: MISSISSIPPI RIVER AT VICKSBURG, MISS.

LAT 32018M45S LONG 090054M25S
DRAINAGE AREA: 1144500 SQ MI (2964255 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	18.0	7.0	8.0	28					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	331	66	243	479	12 a/	431	-.00011	-.76	44.9
STREAMFLOW (CUBIC FT/SEC)	12	936249	468252	334000	1910000					
PH (STANDARD UNITS)	11	7.7	.24	7.4	8.3					
PHOSPHORUS, TOTAL	9	.25	.13	.08	.51	9	.39	-.00044	-.17	.13
NITRITE + NITRATE, TOTAL	9	1.3	.45	.78	2.0	9	2.93	-.00526	-.56	.40
NITROGEN, KJELDAHL	9	.65	.41	.24	1.4	9	.70	-.00018	-.02	.44
PHYTOPLANKTON, TOTAL (CELLS/ML)	7	4871	5717	300	17000					
SEDIMENT, SUSPENDED	8	314	133	129	485	8 a/	230	.00009	0.34	135
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	1	820	0	820	0					
STREPTOCOCCI, FECAL (COL/100 ML)	1	170	0	170	0					
SILICA, DISSOLVED	11	6.0	2.2	.3	8.9	11	10.12	-.01227	-.35	2.16
CALCIUM, DISSOLVED	11	36	5.3	30	47	11	13.4	.07317	.86	2.85
MAGNESIUM, DISSOLVED	11	12	2.3	8.5	16	11	.90	.03203	.89	1.08
SODIUM, DISSOLVED	11	17	4.7	11	26	11	.49	.05000	.67	3.70
POTASSIUM, DISSOLVED	11	3.2	.96	2.4	5.8	11	2.89	.00103	.07	1.01
BICARBONATE, ION	11	130	25	90	171	11	33.2	.28574	.71	18.8
CARBONATE, ION	10	0	0	0	0					
SULFATE, DISSOLVED	11	45	8.2	33	59	11	9.87	.10301	.78	5.38
CHLORIDE, DISSOLVED	12	17	4.7	12	29	12	-2.54	.05924	.83	2.79
DISSOLVED SOLIDS, ROE 180 DEG C	12	217	35	154	271	12	83.3	.40473	.77	23.3
DISSOLVED SOLIDS, SUM OF CONST	11	204	33	149	264	11	52.1	.44547	.85	18.3
HARDNESS, TOTAL	11	145	23	110	180	11	39.4	.31271	.87	11.8
HARDNESS, NONCARBONATE	11	37	8.2	18	49					
TURBIDITY (JTU)	11	103	67	20	200					
FLUORIDE, DISSOLVED	11	.26	.11		.4					

a/ Streamflow is independent variable.

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
202	18.29	11.34	2.68	87.57	2.03

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

07289000 — MISSISSIPPI RIVER AT VICKSBURG, MISS

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	5	0.	11.	5	0.	10.
CADMIUM (CD), UG/L	5	0.	25.	5	0.	4.
CHROMIUM (CR), UG/L	5	0.	36.	5	0.	2.
COBALT (CO), UG/L	5	2.	88.	5	0.	3.
COPPER (CU), UG/L	5	15.	140.	5	3.	7.
IRON (FE), UG/L	5	3900.	8800.	5	0.	750.
LEAD (PB), UG/L	5	9.	80.	5	4.	29.
MANGANESE (MN), UG/L	5	200.	470.	5	0.	33.
MERCURY (HG), UG/L	3	.1	.4	5	.0	.4
SELENIUM (SE), UG/L	5	0.	4.	5	2.	7.
ZINC (ZN), UG/L	5	9.	190.	5	9.	60.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	6.4	20.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 07331000 NAME: WASHITA RIVER NR. DURWOOD, OK

LAT 34014M05S LONG 096055M32S
DRAINAGE AREA: 7202 SQ MI (18653 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	18	23.5	8.0	6.0	35					
SPECIFIC CONDUCTANCE (MICROMHOS)	57	895	336	265	1420	57 a/	1020	-.03630	-.67	253
STREAMFLOW (CUBIC FT/SEC)	56	3383	6100	120	35300					
PH (STANDARD UNITS)	57	8.0	.20	7.7	8.5					
PHOSPHORUS, TOTAL	7	.20	.12	.12	.45	7	.54	-.00029	-.57	.11
NITRITE + NITRATE, TOTAL	7	.21	.27	.01	.62	7	.84	-.00055	-.49	.25
NITROGEN, KJELDAHL	7	.91	.50	.31	1.8	7	2.66	-.00152	-.72	.38
PHYTOPLANKTON, TOTAL (CELLS/ML)	2	25750	22981	7500	40000					
SEDIMENT, SUSPENDED	9	320	241	141	904	9	36.9	0.46738	.60	207
SEDIMENT, CLAY-SILT (PERCENT)	9	59	24	25	96					
COLIFORM, FECAL (COL/100 ML)	7	809	787		2200					
STREPTOCOCCI, FECAL (COL/100 ML)	8	848	1623	7	4800					
SILICA, DISSOLVED	8	9.2	1.5	7.2	12	8	8.06	.00096	.14	1.66
CALCIUM, DISSOLVED	55	89	33	32	150	52	8.93	.09238	.97	8.21
MAGNESIUM, DISSOLVED	56	34	17	7.0	65	55	-10.0	.04970	.99	2.93
SODIUM, DISSOLVED	57	49	24	10	93	55	-10.3	.06684	.96	6.52
POTASSIUM, DISSOLVED	8	4.4	.75	3.0	5.0	8	6.26	-.00165	-.49	.71
BICARBONATE, ION	57	242	73	118	409	56	67.9	.19635	.92	28.2
CARBONATE, ION	57	.33	1.6	0	10	56	.06	.00031	.07	1.57
SULFATE, DISSOLVED	52	175	90	16	330	51	-54.2	.25633	.96	25.7
CHLORIDE, DISSOLVED	56	66	34	12	130	56	-18.2	.09463	.96	9.90
DISSOLVED SOLIDS, ROE 180 DEG C	56	565	236	156	962	55	-40.5	.69250	1.00	21.4
DISSOLVED SOLIDS, SUM OF CONST	7	704	172	495	912	7	-143	.76319	.99	30.1
HARDNESS, TOTAL	53	358	152	110	620	52	-19.4	.43556	.99	15.8
HARDNESS, NONCARBONATE	53	161	97	1	340					
TURBIDITY (JTU)	6	61	68	8	200					
FLUORIDE, DISSOLVED	6	.40	.09	.3	.5					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 355

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	1446	1361	1337	1235	1175	1035	747	529	425	289

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
355	20.55	10.11	2.97	82.7	3.27

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

07331000 -- WASHITA RIVER NR DURWOOD, OKLA.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	4.	9.	3	2.	3.
CADMIUM (CD), UG/L	3	<10.	10.	3	0.	1.
CHROMIUM (CR), UG/L	3	0.	10.	3	0.	0.
COBALT (CO), UG/L	3	<50.	<50.	3	0.	0.
COPPER (CU), UG/L	3	10.	20.	3	2.	10.
IRON (FE), UG/L	3	760.	7200.	3	10.	30.
LEAD (PB), UG/L	3	<100.	<100.	3	0.	2.
MANGANESE (MN), UG/L	3	40.	480.	3	0.	30.
MERCURY (HG), UG/L	3	.0	.1	3	.0	.0
SELENIUM (SE), UG/L	3	0.	1.	3	0.	1.
ZINC (ZN), UG/L	3	40.	80.	3	10.	60.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	7.3	9.3			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 07355500 NAME: RED RIVER AT ALEXANDRIA, LA

LAT 31D18M46S LONG. 092D26M34S
DRAINAGE AREA: 67500 SQ MI (174825 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	11	22.0	6.5	10.5	30.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	11	370	147	180	640					
STREAMFLOW (CUBIC FT/SEC)										
PH (STANDARD UNITS)	11	7.5	.24	7.1	7.9					
PHOSPHORUS, TOTAL	10	.24	.18	.06	.61	10	.22	.00005	.04	.19
NITRITE + NITRATE, TOTAL	9	.09	.07	.01	21	9	.13	-.00010	-.21	.08
NITROGEN, KJELDAHL, TOTAL	6	.75	.13	.59	.98	6	1.03	-.00078	-.66	.11
PHYTOPLANKTON, TOTAL (CELLS/ML)	4	9900	12238	1400	28000					
SEDIMENT, SUSPENDED										
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	10	1259	932	350	3700					
STREPTOCOCCI, FECAL (COL/100 ML)	10	610	626	80	1900					
SILICA, DISSOLVED	10	5.4	1.8	2.6	7.8	10	7.64	-.00605	-.54	1.57
CALCIUM, DISSOLVED	10	30	11	16	49	10	6.90	.06320	.91	4.71
MAGNESIUM, DISSOLVED	10	7.4	3.0	3.8	13	10	.28	.01901	.99	.47
SODIUM, DISSOLVED	10	31	18	11	62	10	-10.7	.11183	.99	2.60
POTASSIUM, DISSOLVED	10	3.3	.85	2.2	4.4	10	1.97	.00369	.67	.67
BICARBONATE, ION	11	95	25	54	130	11	48.2	.12757	.76	16.7
CARBONATE, ION	11	0	0	0	0					
SULFATE, DISSOLVED	10	32	18	11	62	10	-10.4	.11310	.96	5.42
CHLORIDE, DISSOLVED	10	46	29	14	96	10	-20.6	.18050	.98	6.07
DISSOLVED SOLIDS, ROE 180 DEG C	10	234	82	132	362	10	40.4	.51974	.99	14.8
DISSOLVED SOLIDS, SUM OF CONST	10	203	85	102	351	10	.28	.54498	.99	4.29
HARDNESS, TOTAL	10	107	40	56	180	10	16.9	.24348	.95	13.2
HARDNESS, NONCARBONATE	10	34	23	9	70					
TURBIDITY (JTU)	1	100	0	100	0					
FLUORIDE, DISSOLVED	9	.22	.04	.2	.3					

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
100	21.86	12.57	2.61	81.8	1.59

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

07355500 -- RED RIVER AT ALEXANDRIA, LA.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	3.	8.	3	0.	1.
CADMIUM (CD), UG/L	3	<10.	14.	3	0.	11.
CHROMIUM (CR), UG/L	4	0.	20.	4	0.	1.
COBALT (CO), UG/L	4	<10.	11.	4	0.	3.
COPPER (CU), UG/L	3	6.	30.	4	4.	8.
IRON (FE), UG/L	4	2400.	26000.	3	0.	30.
LEAD (PB), UG/L	3	16.	<100.	3	0.	10.
MANGANESE (MN), UG/L	3	120.	910.	4	0.	20.
MERCURY (HG), UG/L	4	.0	.3	4	.0	.2
SELENIUM (SE), UG/L	3	2.	5.	4	3.	10.
ZINC (ZN), UG/L	3	50.	430.	4	5.	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	7.5	11.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 07374508 NAME: MISSISSIPPI RIVER AT NEW ORLEANS, LA

LAT 29D57M03S LONG 090D06M17S
DRAINAGE AREA: 1245000 SQ MI (3220900 SQ KM) ARBITRARILY DETERMINED
PERIOD OF RECORD: 10/1/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	19.0	8.0	6.0	29.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	390	68	270	483					
STREAMFLOW (CUBIC FT/SEC)										
PH (STANDARD UNITS)	11	7.6	.33	7.0	8.1					
PHOSPHORUS, TOTAL	11	.25	.14	.08	.43	11	-.04	.00072	.34	.14
NITRITE + NITRATE, TOTAL	9	1.1	.57	.50	2.1	9	.77	.00075	.07	.55
NITROGEN, KJELDAHL	6	.99	.52	.56	1.9	6	2.43	-.00331	-.31	.55
PHYTOPLANKTON, TOTAL (CELLS/ML)	6	2283	1009	1000	34000					
SEDIMENT, SUSPENDED										
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	6	570	657	120	1800					
STREPTOCOCCI, FECAL (COL/100 ML)	6	472	627	100	1700					
SILICA, DISSOLVED	8	5.7	2.0	2.1	7.4	8	14.0	-.02159	-.74	1.46
CALCIUM, DISSOLVED	10	39	7.5	30	54	10	4.05	.09070	.76	5.15
MAGNESIUM, DISSOLVED	10	12	2.2	8.7	15	10	-.03	.03116	.90	.99
SODIUM, DISSOLVED	11	20	6.7	11	32	11	-15.2	.08956	.87	3.44
POTASSIUM, DISSOLVED	11	3.5	1.0	2.0	5.9	11	-.38	.00977	.61	.87
BICARBONATE, ION	12	126	21	88	164	12	11.8	.29324	.95	6.68
CARBONATE, ION	11	0	0	0	0					
SULFATE, DISSOLVED	12	50	9.8	34	64	12	-4.57	.14008	.97	2.38
CHLORIDE, DISSOLVED	12	23	7.1	14	37	12	-11.5	.08744	.84	4.09
DISSOLVED SOLIDS, ROE 180 DEG C	11	229	34	168	283	11	36.8	.50534	.97	8.30
DISSOLVED SOLIDS, SUM OF CONST	10	216	39	152	277	10	6.76	.57	.99	4.90
HARDNESS, TOTAL	11	151	24	110	190	11	17.1	.33682	.91	10.5
HARDNESS, NONCARBONATE	11	44	10	31	64					
TURBIDITY (JTU)										
FLUORIDE, DISSOLVED	11	.49	.23	.1	.8					

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 323

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	515	495	459	437	396	340	314	293	280	263

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
321	16.56	10.53	2.54	99.97	1.33

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

07374508 -- MISSISSIPPI RIVER AT NEW ORLEANS, LA.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	2.	8.	3	0.	5.
CADMIUM (CD), UG/L	4	0.	<10.	4	0.	0.
CHROMIUM (CR), UG/L	3	0.	0.	4	0.	2.
COBALT (CO), UG/L	3	4.	<10.	3	0.	1.
COPPER (CU), UG/L	4	6.	20.	3	3.	10.
IRON (FE), UG/L	3	2200.	4700.	3	0.	10.
LEAD (PB), UG/L	3	18.	<100.	3	1.	3.
MANGANESE (MN), UG/L	4	70.	180.	4	0.	14.
MERCURY (HG), UG/L	4	.0	.5	4	.0	.0
SELENIUM (SE), UG/L	4	0.	11.	4	4.	8.
ZINC (ZN), UG/L	4	10.	30.	3	0.	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	5	1.0	19.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 07378510 NAME: AMITE RIVER AT 4H CLUB ROAD NR. DENHAM SPRINGS, LA

LAT 30D26M30S LONG 090D58M20S
DRAINAGE AREA: NOT DETERMINED
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	21	5.0	11.5	27.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	55	12	33	80					
STREAMFLOW (CUBIC FT/SEC)										
PH (STANDARD UNITS)	5	6.6	.43	6.2	7.3					
PHOSPHORUS, TOTAL	2	.12	.09	.01	.29	12	.14	-.0031	-.04	.10
NITRITE + NITRATE, TOTAL	9	.19	.31		1.0	9	1.13	-.01607	-.52	.28
NITROGEN, KJELDAHL	5	.59	.36	.14	.97	5	-.12	.01274	.28	.40
PHYTOPLANKTON, TOTAL (CELLS/ML)	3	1667	611	1200	2400					
SEDIMENT, SUSPENDED										
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	9	2895	6525	20	20000					
STREPTOCOCCI, FECAL (COL/100 ML)	10	772	910	35	2800					
SILICA, DISSOLVED	3	9.5	3.2	6.8	13	3	3.98	.10910	.56	3.70
CALCIUM, DISSOLVED	3	3.0	.85	2.1	3.8	3	.38	.05157	.98	.21
SODIUM, DISSOLVED	3	4.7	3.4	1.0	7.7	3	-5.88	.20862	.99	.39
MAGNESIUM, DISSOLVED	3	1.1	.30	.8	1.4	3	0.43	.01318	.72	.30
POTASSIUM, DISSOLVED	3	1.7	.60	1.1	2.3	3	1.05	.01244	.34	.80
BICARBONATE, ION	5	15	3.3	10	18	5	3.28	.23042	.93	1.37
CARBONATE, ION	5	0	0	0	0					
SULFATE, DISSOLVED	3	3.9	.46	3.4	4.3	3	3.82	.00162	.06	.65
CHLORIDE, DISSOLVED	3	5.1	2.1	3.0	7.2	3	-1.20	.12383	.96	.81
DISSOLVED SOLIDS, ROE 180 DEG C	3	48	5.1	44	54	3	64.3	-.31411	-.99	.35
DISSOLVED SOLIDS, SUM OF CONST	3	37	10	25	44	3	4.83	.63249	.99	2.23
HARDNESS, TOTAL	3	12	2.9	9	14	3	3.61	.17	.97	1.00
HARDNESS, NONCARBUNATE	3	0	0	0	0					
TURBIDITY (JTU)	1	50	0	50	0					
FLUORIDE, DISSOLVED	3	.23	.15	.1	.4					

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 341

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	70	64	60	52	51	50	41	36	34	23

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
345	22.62	6.61	2.79	79.8	2.32

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

07378510 — AMITE R AT 4H CLUB RD NR DENHAM SPRINGS, LA.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	1.	25.	3	2.	5.
CADMIUM (CD), UG/L	4	0.	10.	4	0.	1.
CHROMIUM (CR), UG/L	4	0.	20.	4	0.	0.
COBALT (CO), UG/L	4	1.	<10.	4	0.	2.
COPPER (CU), UG/L	4	6.	<10.	4	5.	12.
IRON (FE), UG/L	4	1200.	3000.	4	60.	400.
LEAD (PB), UG/L	4	9.	<100.	4	0.	13.
MANGANESE (MN), UG/L	4	130.	280.	4	40.	170.
MERCURY (HG), UG/L	4	.0	.7	4	.0	.2
SELENIUM (SE), UG/L	4	2.	7.	4	0.	4.
ZINC (ZN), UG/L	4	10.	30.	4	0.	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	2.3	2.3			
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	4	3.0	10.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 08066500 NAME: TRINITY RIVER AT ROMAYOR, TEXAS

LAT 30025M30S LONG 094051M02S
DRAINAGE AREA: 17166 SQ MI (44512 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	18	20.0	6.5	8.0	29.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	14	307	43	235	393	13 a/	336	-.00292	-.52	39.62
STREAMFLOW (CUBIC FT/SEC)	18	11922	11017	1240	32000					
PH (STANDARD UNITS)	14	7.2	.40	6.5	7.9					
PHOSPHORUS, TOTAL	10	.15	.03	.11	.19	9	.25	-.00032	-.45	.03
NITRITE + NITRATE, TOTAL	5	.04	.03	.00	.12	4	-.38	.00118	.58	.05
NITROGEN, KJELDAHL	6	.83	.30	.32	1.1	5	-.46	.00361	.36	.36
PHYTOPLANKTON, TOTAL (CELLS/ML)	4	92250	26613	68000	120000					
SEDIMENT, SUSPENDED	12	84	69	13	207	12 a/	38.5	.00426	.75	48.1
SEDIMENT, CLAY-SILT (PERCENT)	12	67	25	25	94					
COLIFORM, FECAL (COL/100 ML)	8	59	65	1	210					
STREPTOCOCCI, FECAL (COL/100 ML)	6	254	545	18	1600					
SILICA, DISSOLVED	14	6.3	1.9	2.8	8.3	14	16.1	-.03181	-.72	1.38
CALCIUM, DISSOLVED	14	34	3.6	28	41	14	12.1	.07240	.86	1.90
MAGNESIUM, DISSOLVED	14	3.4	.52	2.6	4.7	14	.19	.01043	.86	.28
SODIUM, DISSOLVED	11	21	3.8	17	28	11	-9.01	.09293	.98	.83
POTASSIUM, DISSOLVED	11	4.4	.40	3.8	5.0	11	2.70	.00550	.56	.35
BICARBONATE, ION	14	102	11	86	122	14	46.8	.18115	.72	7.77
CARBONATE, ION	14	0	0	0	0					
SULFATE, DISSOLVED	14	29	5.4	20	39	14	-7.73	.11817	.96	1.65
CHLORIDE, DISSOLVED	14	22	5.3	15	31	14	-11.8	.11155	.92	2.20
DISSOLVED SOLIDS, ROE 180 DEG C	7	207	55	170	327	7	-114	.98527	.79	36.7
DISSOLVED SOLIDS, SUM OF CONST	14	169	21	138	211	14	24.2	.47209	.97	4.85
HARDNESS, TOTAL	14	99	10	81	120	14	35.1	.20855	.89	4.92
HARDNESS, NONCARBONATE	14	16	5.7	5.0	22					
TURBIDITY (JTU)	9	24	22	10	80					
FLUORIDE, DISSOLVED	4	.15	.10	.0	.2					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 365

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	400	399	362	378	356	308	290	272	263	216

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
280	20.30	7.62	2.68	87.5	2.106

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

08066500 -- TRINITY RIVER AT ROMAYOR, TEX.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	0.	7.	5	0.	7.
CADMIUM (CD), UG/L	4	0.	<10.	5	0.	<1.
CHROMIUM (CR), UG/L	4	0.	<10.	5	0.	10.
COBALT (CO), UG/L	4	0.	<50.	5	0.	0.
COPPER (CU), UG/L	4	2.	30.	5	1.	2.
IRON (FE), UG/L	4	560.	1200.	5	50.	280.
LEAD (PB), UG/L	4	0.	<100.	5	0.	2.
MANGANESE (MN), UG/L	4	70.	170.	5	0.	40.
MERCURY (HG), UG/L	4	.1	.5	5	.0	.5
SELENIUM (SE), UG/L	3	1.	1.	3	0.	1.
ZINC (ZN), UG/L	4	20.	470.	5	0.	70.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	9	4.5	12.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 08116650 NAME: BRAZOS RIVER NR. ROSHARON, TEXAS

LAT 29D20M58S LONG 095D34M56S
DRAINAGE AREA: 44340 SQ MI (114841 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	17	20.0	6.0	10.0	29.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	17	776	403	206	1780	16 a/	900	-.01352	-.45	374.99
STREAMFLOW (CUBIC FT/SEC)	16	10804	13541	416	51800					
PH (STANDARD UNITS)	17	7.2	.55	6.0	8.0					
PHOSPHORUS, TOTAL	12	.47	.52	.04	2.0					
NITRITE + NITRATE, TOTAL	2	.91	1.3	.01	1.8					
NITROGEN, KJELDAHL	8	1.0	.57	.20	2.0	8	1.39	-.00041	-.35	.58
PHYTOPLANKTON, TOTAL (CELLS/ML)	10	29995	44361	0	120000	9 a/	47700	-2.23534	-.48	44000
SEDIMENT, SUSPENDED	10	564	578	68	1730	9 a/	229	.04086	.69	460
SEDIMENT, CLAY-SILT (PERCENT)	10	83	16	53	100	9 a/	78.6	.00063	.38	16.5
COLIFORM, FECAL (COL/100 ML)	12	293	291	1	720					
STREPTOCOCCI, FECAL (COL/100 ML)	12	957	2074	20	7400					
SILICA, DISSOLVED	17	9.6	1.3	6.6	11	17	10.3	-.00084	-.26	1.30
CALCIUM, DISSOLVED	17	61	17	25	88	17	41.3	.02593	.62	13.7
MAGNESIUM, DISSOLVED	17	11	5.6	3.5	21	17	4.97	.00771	.56	4.79
SODIUM, DISSOLVED	16	80	72	9.8	300	16	-49.2	.16663	.96	20.2
POTASSIUM, DISSOLVED	16	4.8	.52	4.1	5.9	16	5.02	-.00026	-.21	.52
BICARBONATE, ION	17	170	46	82	242	17	139	.04083	.36	44.2
CARBONATE, ION	17	0	0	0	0					
SULFATE, DISSOLVED	17	64	32	13	120	17	16.2	.06142	.77	21.4
CHLORIDE, DISSOLVED	17	117	108	11	460	17	-83.6	.25806	.96	31.0
DISSOLVED SOLIDS, RUE 180 DEG C	9	436	208	132	727	9	33.5	.54101	.99	27.5
DISSOLVED SOLIDS, SUM OF CONST	17	431	217	123	951		14.1	.53681	.99	14.6
HARDNESS, TOTAL	17	200	63	77	310	17	125	.09664	.62	51.4
HARDNESS, NONCARBONATE	17	59	33	4.0	110					
TURBIDITY (JTU)	12	145	113	10	300					
FLUORIDE, DISSOLVED	5	.22	.08	.1	.3					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 365

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TI E	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	1334	1289	1188	1039	938	739	537	379	337	250

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
362	22.04	7.55	2.87	84.6	2.27

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

08116650 -- BRAZOS RIVER NR ROSHARON, TEX.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	1.	18.	5	0.	4.
CADMIUM (CD), UG/L	5	0.	<10.	5	0.	0.
CHROMIUM (CR), UG/L	5	0.	<10.	5	0.	0.
COBALT (CO), UG/L	5	0.	<50.	5	0.	1.
COPPER (CU), UG/L	5	7.	16.	5	3.	30.
IRON (FE), UG/L	5	750.	18000.	5	30.	350.
LEAD (PB), UG/L	5	6.	<100.	4	0.	2.
MANGANESE (MN), UG/L	5	140.	710.	5	0.	590.
MERCURY (HG), UG/L	5	.0	1.6	4	.0	.2
SELENIUM (SE), UG/L	4	0.	0.	5	0.	2.
ZINC (ZN), UG/L	5	40.	110.	4	0.	100.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	110.	110.			
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	7	7.	24.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 08158000 NAME: COLORADO RIVER AT AUSTIN, TEXAS

LAT 30°15'46" LONG 097°41'39"
DRAINAGE AREA: 38400 SQ MI (99456 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	14	20.5	5.6	13.0	28.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	14	547	273	471	564	14 a/	564	-.01058	-.69	20.7
STREAMFLOW (CUBIC FT/SEC)	14	1672	1773	54	4260					
PH (STANDARD UNITS)	14	7.7	.38	7.0	8.3					
PHOSPHORUS, TOTAL	9	.03	.03	.01	.10	9	-.05	.00016	.20	.03
NITRITE + NITRATE, TOTAL	7	.22	.08	.09	.32	7	-.69	.00165	.83	.05
NITROGEN, KJELDAHL	9	.43	.24	.10	.95	9	-.87	.00239	.34	.25
PHYTOPLANKTON, TOTAL (CELLS/ML)	3	1250	1047	350	2400					
SEDIMENT, SUSPENDED	9	10	5.6	5	20	9 a/	11.1	-.00050	-.16	5.95
SEDIMENT, CLAY-SILT (PERCENT)	7	76	11	58	89					
COLIFORM, FECAL (COL/100 ML)	8	105	103	12	240					
STREPTOCOCCI, FECAL (COL/100 ML)	6	80	82	28	270					
SILICA, DISSOLVED	14	8.5	.52	7.4	9.1	14	12.2	-.00671	-.35	.50
CALCIUM, DISSOLVED	14	52	7.4	40	68	14	-36.4	.16096	.60	6.16
MAGNESIUM, DISSOLVED	14	21	.80	19	22	14	14.0	.01244	.42	.76
SODIUM, DISSOLVED	13	26	3.6	17	31	13	14.4	.02409	.19	3.66
POTASSIUM, DISSOLVED	13	3.3	.34	2.5	3.7	13	4.06	-.00137	-.11	.35
BICARBONATE, ION	14	212	23	177	268	14	-56.7	.49073	.57	19.9
CARBONATE, ION	14	0	0	0	0					
SULFATE, DISSOLVED	14	34	4.9	24	40	14	-6.14	.07330	.41	4.70
CHLORIDE, DISSOLVED	14	48	6.9	28	55	14	30.6	.03265	.13	7.14
DISSOLVED SOLIDS, ROE 180 DEG C	8	304	19	264	323	8	32.2	.49466	.94	7.37
DISSOLVED SOLIDS, SUM OF CONST	14	298	19	258	323	14	4.09	.53727	.77	12.8
HARDNESS, TOTAL	14	215	19	180	250	14	-48.1	.48126	.70	13.8
HARDNESS, NONCARBONATE	14	41	5.9	28	49					
TURBIDITY (JTU)	8	6.8	6.8	2	20					
FLUORIDE, DISSOLVED	2	.2	0	.2	.2					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 365

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	576	566	557	550	545	553	524	483	455	389

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
302	18.41	4.42	2.53	74.1	1.89

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

08158000 -- COLORADO RIVER AT AUSTIN, TEX.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	0.	1.	3	0.	12.
CADMIUM (CD), UG/L	3	<10.	<10.	3	0.	0.
CHROMIUM (CR), UG/L	3	0.	0.	3	0.	10.
COBALT (CO), UG/L	3	<50.	<50.	3	0.	0.
COPPER (CU), UG/L	3	10.	10.	3	2.	5.
IRON (FE), UG/L	3	80.	310.	3	0.	30.
LEAD (PB), UG/L	3	<100.	<100.	3	0.	7.
MANGANESE (MN), UG/L	3	10.	20.	3	0.	10.
MERCURY (HG), UG/L	3	.0	.1	3	.0	.0
SELENIUM (SE), UG/L	2	2.	2.	3	0.	2.
ZINC (ZN), UG/L	3	0.	190.	3	10.	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	38.	38.			
CHLOROPHYLL A, MG/SQ M	1	41.	41.			
CHLOROPHYLL B, MG/SQ M	1	10.	10.			
ORGANIC CARBON, MG/L	3	.0	2.8			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 08176500 NAME: GUADALUPE RIVER AT VICTORIA, TEXAS

LAT 28D47M34S LONG 097D00M46S
DRAINAGE AREA: 5196 SQ MI (13463 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	17	21.5	5.5	11.0	31.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	18	552	126	247	712	18 a/	603	-.01500	-.66	97.2
STREAMFLOW (CUBIC FT/SEC)	18	3435	5570	773	24900					
PH (STANDARD UNITS)	18	7.9	.22	7.6	8.3					
PHOSPHORUS, TOTAL	12	.13	.07	.06	.33	12	.42	-.00052	-.80	.05
NITRITE + NITRATE, TOTAL	6	.96	.20	.75	1.2	6	-.05	.00167	.72	.16
NITROGEN, KJELDAHL	12	.45	.28	.12	.43	12	1.32	-.00152	-.62	.23
PHYTOPLANKTON, TOTAL (CELLS/ML)	12	1414	1790	40	6000					
SEDIMENT, SUSPENDED	12	86	80	31	310	12 a/	29.2	.02519	.58	68.1
SEDIMENT, CLAY-SILT (PERCENT)	10	85	13	55	97					
COLIFORM, FECAL (COL/100 ML)	11	235	320	0	100					
STREPTOCOCCI, FECAL (COL/100 ML)	11	337	376	10	1260					
SILICA, DISSOLVED	18	13	1.7	7.8	15	18	10.1	.00555	.42	1.55
CALCIUM, DISSOLVED	18	67	17	32	86	18	.23	.12178	.92	6.65
MAGNESIUM, DISSOLVED	18	15	4.2	4.6	19	18	-.98	.02966	.88	2.03
SODIUM, DISSOLVED	18	26	8.4	7.6	37	18	-7.19	.05943	.89	3.90
POTASSIUM, DISSOLVED	18	2.9	1.1	2.1	6.3	18	6.78	-.00704	-.82	.63
BICARBONATE, ION	18	249	56	121	308	18	17.0	.42033	.94	19.2
CARBONATE, ION	18	0	0	0	0					
SULFATE, DISSOLVED	18	30	9.2	11	46	18	-4.02	.06240	.85	4.95
CHLORIDE, DISSOLVED	18	37	13	9.5	57	18	-10.8	.08572	.84	7.16
DISSOLVED SOLIDS, ROE 180 DEG C	10	324	61	193	412	10	36.2	.57963	.99	8.23
DISSOLVED SOLIDS, SUM OF CONST	18	315	72	143	401	18	2.05	.56725	.99	7.90
HARDNESS, TOTAL	18	232	55	99	290	18	-.08	.42112	.97	14.4
HARDNESS, NONCARBONATE	18	28	12	0	53					
TURBIDITY (JTU)	12	36	34	10	130					
FLOURIDE, DISSOLVED	3	.20	0	.2	.2					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 365

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	700	682	667	651	634	556	510	358	296	210

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
352	22.01	7.37	2.88	86.6	2.05

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

08176500 — GUADALUPE RIVER AT VICTORIA, TEX.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	1.	2.	4	0.	3.
CADMIUM (CD), UG/L	4	<10.	<10.	4	0.	1.
CHROMIUM (CR), UG/L	4	0.	10.	4	0.	10.
COBALT (CO), UG/L	4	<50.	<50.	4	0.	0.
COPPER (CU), UG/L	4	<10.	10.	4	1.	4.
IRON (FE), UG/L	4	490.	750.	4	10.	20.
LEAD (PB), UG/L	4	<100.	<100.	4	0.	3.
MANGANESE (MN), UG/L	4	10.	30.	4	0.	40.
MERCURY (HG), UG/L	4	.0	.2	4	.0	.1
SELENIUM (SE), UG/L	4	1.	6.	4	1.	2.
ZINC (ZN), UG/L	4	10.	70.	4	0.	10.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	5	.0	3.1			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 08313000 NAME: RIO GRANDE AT OTOWI BRIDGE, N. MEXICO

LAT 35D52M29S LONG 106D08M30S
DRAINAGE AREA: 14300 SQ MI (37037 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	10	10.0	6.5	0	20.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	34	386	73	295	628	34 a/	392	-.00524	-.03	73.7
STREAMFLOW (CUBIC FT/SEC)	40	1041	434	261	2610					
PH (STANDARD UNITS)	27	8.2	.26	7.4	8.9					
PHOSPHORUS, TOTAL	9	.13	.07	.07	.32	9	-.09	.00059	.70	.06
NITRITE + NITRATE, TOTAL	9	.16	.14	.03	.38	9	-.10	.0069	.43	.13
NITROGEN, KJELDAHL	9	.49	.25	.27	1.1	9	.74	-.00066	-.23	.26
PHYTOPLANKTON, TOTAL (CELLS/ML)	1	13000	0	13000	13000					
SEDIMENT, SUSPENDED	6	990	450	405	1470	6 a/	1320	-0.22982	-0.35	472
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	6	250	200	20	600					
STREPTOCOCCI, FECAL (COL/100 ML)	2	98	117	15	180					
SILICA, DISSOLVED	34	20	3.7	12	28	34	21.2	-.00276	-.06	3.78
CALCIUM, DISSOLVED	34	45	14	28	98	34	-20.1	.16835	.89	6.20
MAGNESIUM, DISSOLVED	34	6.2	1.5	5.6	11	34	2.49	.01470	.71	1.07
SODIUM, DISSOLVED	34	21	4.2	14	31	34	8.22	.03393	.59	3.40
POTASSIUM, DISSOLVED	34	2.8	.39	2.3	3.9	34	1.21	.00425	.79	.24
BICARBONATE, ION	33	123	18	45	163	33	123	-.00039		18.6
CARBONATE, ION	23	.35	1.2	0	5	23	-1.90	.00601	.23	1.19
SULFATE, DISSOLVED	34	79	41	43	230	34	121	.51593	.91	17.7
CHLORIDE, DISSOLVED	34	6.7	1.6	3.8	10	34	2.79	.01009	.44	1.50
DISSOLVED SOLIDS, ROE 180 DEG C	9	264	77	206	458	9	58.9	.83579	.95	24.7
DISSOLVED SOLIDS, SUM OF CONST	33	244	56	188	434	33	44.2	.74997	.98	10.8
HARDNESS, TOTAL	34	146	37	110	290	34	37.3	.47587	.93	13.5
HARDNESS, NONCARBONATE	34	48	45	7	200					
TURBIDITY (JTU)	6	68	69	8	200					
FLUORIDE, DISSOLVED	34	.51	.33	.2	1.4					

a/ Streamflow is independent variable.

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

08313000 -- RIO GRANDE AT OTOWI BRIDGE,NM

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	1	4.	4.	2	0.	2.
CADMIUM (CD), UG/L	1	<10.	<10.	1	0.	0.
CHROMIUM (CR), UG/L	1	0.	0.	1	0.	0.
COBALT (CO), UG/L	1	<50.	<50.	1	0.	0.
COPPER (CU), UG/L	1	10.	10.	1	5.	5.
IRON (FE), UG/L	1	2200.	2200.	10	0.	50.
LEAD (PB), UG/L	1	<100.	<100.	1	0.	0.
MANGANESE (MN), UG/L	1	70.	70.	2	20.	30.
MERCURY (HG), UG/L	1	.0	.0	1	.0	.0
SELENIUM (SE), UG/L	1	1.	1.	1	2.	2.
ZINC (ZN), UG/L	1	100.	100.	1	10.	10.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	9	2.6	17.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 08407500 NAME: PECOS RIVER AT RED BLUFF, N. MEX

LAT 32D04M30S LONG 104D02M21S
DRAINAGE AREA: 19540 SQ MI (50609 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	11	20.0	8.5	7.5	29.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	9	20667	9506	11700	36000	9 a/	30370	-366.88	-.80	6092.7
STREAMFLOW (CUBIC FT/SEC)	11	27	21	5.0	58					
PH (STANDARD UNITS)	10	8.1	.42	7.2	8.7					
PHOSPHORUS, TOTAL	9	.07	.02	.05	.11	9	.09	-.00000	-.51	.02
NITRITE + NITRATE, TOTAL	9	.44	.46	.02	1.4	9	1.19	-.00004	-.76	.32
NITROGEN, KJELDAHL	9	1.2	.24	.69	1.9	9	1.08	.00000	.15	.25
PHYTOPLANKTON, TOTAL (CELLS/ML)	2	445000	388908	170000	720000					
SEDIMENT, SUSPENDED	3	115	137	22	271					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	8	4.6	7.5	0	20					
STREPTOCOCCI, FECAL (COL/100 ML)	6	130	318	0	780					
SILICA, DISSOLVED	9	9.7	3.9	1.4	14	9	13.9	-.00020	-.50	3.62
CALCIUM, DISSOLVED	9	608	86	510	760	9	438	.00821	.90	39.3
MAGNESIUM, DISSOLVED	9	299	87	220	450	9	115	.00891	.98	19.4
SODIUM, DISSOLVED	9	4022	2433	1900	8600	9	-1218	.25358	.99	-352
POTASSIUM, DISSOLVED	9	122	83	26	280	9	42	.00388	.45	79.0
BICARBONATE, ION	9	126	34	79	187		162	-.00174	-.49	31.7
CARBONATE, ION	6	0	0	0	0					
SULFATE, DISSOLVED	9	2389	562	1800	3400	9	1200	.05750	.97	141
CHLORIDE, DISSOLVED	8	6422	3626	3000	13000	9	-1414	.37917	.99	420
DISSOLVED SOLIDS, ROE 180 DEG C	9	14174	7095	7870	27500	9	-1097	.73892	.99	1069
DISSOLVED SOLIDS, SUM OF CONST	9	13934	6788	7760	26300	9	-735	.70979	.99	787
HARDNESS, TOTAL	9	2756	581	2200	3800	9	1544	.05862	.96	177
HARDNESS, NONCARBONATE	9	2656	598	2100	3700					
TURBIDITY (JTU)	7	11	12	0	30					
FLUORIDE, DISSOLVED	9	1.0	.35	.3	1.5					

a/ Streamflow is independent variable.

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

08407500 -- PECOS R AT RED BLUFF,NM

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	2.	3.	3	2.	4.
CADMIUM (CD), UG/L	2	30.	40.	3	0.	1.
CHROMIUM (CR), UG/L	2	10.	20.	2	30.	30.
COBALT (CO), UG/L	2	50.	200.	2	0.	1.
COPPER (CU), UG/L	2	30.	40.	3	0.	3.
IRON (FE), UG/L	2	160.	750.	9	10.	240.
LEAD (PB), UG/L	3	50.	100.	2	0.	2.
MANGANESE (MN), UG/L	2	50.	100.	3	13.	40.
MERCURY (HG), UG/L	3	.0	.0	2	.0	.0
SELENIUM (SE), UG/L	2	1.	4.	3	0.	3.
ZINC (ZN), UG/L	2	70.	110.	3	30.	40.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	9	5.	18.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 08459000 NAME: RIO GRANDE AT LAREDO, TEXAS

LAT 27D29M56S LONG 099D29M40S
DRAINAGE AREA: 135976 SQ MI (352178 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	23.0	6.0	12.5	30.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	24	931	91	723	1070	24 a/	958	-.00660	-.62	73.6
STREAMFLOW (CUBIC FT/SEC)	24	4150	8505	459	39000					
PH (STANDARD UNITS)	24	7.7	.23	7.2	8.1					
PHOSPHORUS, TOTAL	11	.09	.07		.26	11	.49	-.00043	-.57	.06
NITRITE + NITRATE, TOTAL	7	.24	.14	.06	.48	7	.49	-.00027	-.21	.15
NITROGEN, KJELDAHL	11	.47	.33	.09	1.1	11	1.46	-.00107	-.31	.33
PHYTOPLANKTON, TOTAL (CELLS/ML)	12	1062	1639	25	5800					
SEDIMENT, SUSPENDED	10	79	59	2	193	10	38.29	.02318	.79	38.6
SEDIMENT, CLAY-SILT (PERCENT)	7	82	26	33	99					
COLIFORM, FECAL (COL/100 ML)	10	662	1530	26	5000					
STREPTOCOCCI, FECAL (COL/100 ML)	10	797	1768	32	5800					
SILICA, DISSOLVED	13	15	3.8	7.1	19	13	28.9	-.01306	-.36	3.73
CALCIUM, DISSOLVED	22	75	7.4	53	91	22	32.1	.04548	.50	6.57
MAGNESIUM, DISSOLVED	22	18	2.9	13	24	22	-3.68	.02324	.66	2.20
SODIUM, DISSOLVED	24	90	14	61	110	24	-28.0	.12697	.86	7.18
POTASSIUM, DISSOLVED	15	4.4	1.3	2.5	65	15	7.50	-.00335	-.22	1.32
BICARBONATE, ION	24	162	17	139	194	24	212	-.05368	-.29	16.2
CARBONATE, ION	24	0	0	0	0					
SULFATE, DISSOLVED	15	190	27	150	230	15	-74.2	.28694	.92	10.9
CHLORIDE, DISSOLVED	24	90	13	63	110	24	-35.2	.13446	.96	3.63
DISSOLVED SOLIDS, ROE 180 DEG C	9	595	67	480	672	9	-5.78	.63980	.92	27.7
DISSOLVED SOLIDS, SUM OF CONST	14	562	57	454	644	14	-12.9	.62605	.96	16.1
HARDNESS, TOTAL	24	259	27	190	310	24	64.4	.20941	.70	19.8
HARDNESS, NONCARBONATE	24	128	28	64	180					
TURBIDITY (JTU)	11	48	54	2	200					
FLUORIDE, DISSOLVED	3	.43	.15	.3	.6					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 362

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	1117	1070	1054	1038	1010	956	911	824	770	542

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
355	24.75	1.46	4.63	42.71	1.18

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

08459000 — RIO GRANDE AT LAREDO, TEX.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	0.	4.	4	0.	4.
CADMIUM (CD), UG/L	4	<10.	20.	4	0.	1.
CHROMIUM (CR), UG/L	4	0.	20.	4	0.	20.
COBALT (CO), UG/L	4	<50.	<50.	4	0.	0.
COPPER (CU), UG/L	4	<10.	20.	4	1.	3.
IRON (FE), UG/L	4	280.	3200.	4	10.	50.
LEAD (PB), UG/L	4	<100.	<100.	4	0.	3.
MANGANESE (MN), UG/L	4	10.	40.	4	0.	20.
MERCURY (HG), UG/L	4	.0	.3	4	.0	.0
SELENIUM (SE), UG/L	4	1.	2.	3	1.	1.
ZINC (ZN), UG/L	4	20.	70.	4	0.	10.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL P, MG/SQ M	0					
ORGANIC CARBON, MG/L	5	.0	5.1			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 09251000 NAME: YAMPA RIVER NR MAYBELL, COLO

LAT 40D30M10S LONG 108D01M45S
DRAINAGE AREA: 3410 SQ MI (8832 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	10	10.0	8.0		23.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	10	492	220	142	790	9[a/]	588	-.04856	-.73	156
STREAMFLOW (CUBIC FT/SEC)	9	2550	3216	231	9200					
PH (STANDARD UNITS)	8	8.0	.26	7.7	8.4					
PHOSPHORUS, TOTAL	3	.04	.06	0	.11	3	.13	-.00019	-.97	.02
NITRITE + NITRATE, TOTAL	4	.06	.08	.01	.18	3	.07	.00000		.13
NITROGEN, KJELDAHL	4	.62	.18	.47	.69	3	.52	.00003	.16	.08
PHYTOPLANKTON, TOTAL (CELLS/ML)	2	2800	424	2500	3100					
SEDIMENT, SUSPENDED	1	42		42						
SEDIMENT, CLAY-SILT (PERCENT)	1	91		91						
COLIFORM, FECAL (COL/100 ML)										
STREPTOCOCCI, FECAL (COL/100 ML)										
SILICA, DISSOLVED	10	9.2	3.4	3.5	14	10	8.19	.00209	.14	3.52
CALCIUM, DISSOLVED	10	39	14	15	55	10	9.17	.06060	.98	2.57
MAGNESIUM, DISSOLVED	10	18	9.1	4.9	34	10	-1.57	.04034	.97	2.16
SODIUM, DISSOLVED	10	37	21	6.2	67	10	-8.34	.09190	.97	5.03
POTASSIUM, DISSOLVED	10	2.6	.95	1.2	4.4	10	.79	.00377	.88	.48
BICARBONATE, ION	10	161	61	59	240	10	36.6	.25343	.91	26.8
CARBONATE, ION	8	.38	1.1	0	3	8	.37	.00000	0	1.15
SULFATE, DISSOLVED	10	98	61	18	230	10	-27.7	.25575	.92	26.1
CHLORIDE, DISSOLVED	10	12	8.4	1.4	30	10	-3.05	.03154	.83	5.02
DISSOLVED SOLIDS, ROE 180 DEG C	3	263	185	81	451	3	-18.6	.60690	.99	35.0
DISSOLVED SOLIDS, SUM OF CONST	10	298	136	87	505	10	-4.08	.61442	.99	17.3
HARDNESS, TOTAL	10	173	71	58	280	10	16.4	.31782	.99	9.27
HARDNESS, NONCARBONATE	10	40	36	8	130					
TURBIDITY (JTU)	3	11	9.0	2	20					
FLUORIDE, DISSOLVED	10	.31	.15	.1	.5					

a/ Streamflow is independent variable.

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

09251000 -- YAMPA RIVER NEAR MAYBELL, CO.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	1	0.	0.	1	2.	2.
CADMIUM (CD), UG/L	1	<10.	<10.	1	1.	1.
CHROMIUM (CR), UG/L	1	0.	0.	1	0.	0.
COBALT (CO), UG/L	1	<50.	<50.	1	0.	0.
COPPER (CU), UG/L	1	<10.	<10.	1	6.	6.
IRON (FE), UG/L	1	910.	910.	8	20.	240.
LEAD (PB), UG/L	1	<100.	<100.	1	2.	2.
MANGANESE (MN), UG/L	1	40.	40.	8	0.	25.
MERCURY (HG), UG/L	1	.1	.1	1	.0	.0
SELENIUM (SE), UG/L	1	0.	0.	1	0.	0.
ZINC (ZN), UG/L	1	60.	60.	1	20.	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	1	11.	11.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 09315000 NAME: GREEN RIVER AT GREEN RIVER, UTAH

LAT 38059M10S LONG 110009M02S
DRAINAGE AREA: 40600 SQ MI (105054 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	17	14.0	8.5		23.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	14	843	208	362	1060	13 a/	1089	-.04547	-.91	94.4
STREAMFLOW (CUBIC FT/SEC)	15	7528	7184	2640	26					
PH (STANDARD UNITS)	14	8.0	.45	7.1	8.7					
PHOSPHORUS, TOTAL	10	.29	.32		.83					
NITRITE + NITRATE, TOTAL	10	.42	.21	.13	.79	10	-.11	.00017	.71	.16
NITROGEN, KJELDAHL	10	.91	.42	.37	1.6	10	1.11	-.00026	-.14	.44
PHYTOPLANKTON, TOTAL (CELLS/ML)	2	14000	4243	11000	17000					
SEDIMENT, SUSPENDED	8	2250	3099	312	9730	8 a/	2435	-.01978	-.05	3342
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	4	487	1014	4	2300					
STREPTOCOCCI, FECAL (COL/100 ML)	8	193	292	8	900					
SILICA, DISSOLVED	14	8.5	2.1	4.7	11	14	8.81	-.00042	-.05	2.23
CALCIUM, DISSOLVED	14	67	17	33	100	14	4.37	.07476	.93	6.50
MAGNESIUM, DISSOLVED	14	30	90	11	45	14	-4.55	.04076	.94	3.25
SODIUM, DISSOLVED	14	77	23	25	100	14	-12.6	.10656	.96	6.94
POTASSIUM, DISSOLVED	14	3.4	.78	1.8	4.3	14	1.31	.00244	.65	.61
BICARBONATE, ION	14	192	46	107	236	14	38.2	.18237	.82	27.3
CARBONATE, ION	9	.67	1.7	0	5	9	-.53	.00131	.16	1.75
SULFATE, DISSOLVED	14	247	84	77	420	14	-71.4	.37759	.93	31.1
CHLORIDE, DISSOLVED	14	27	9.2	8.3	47	14	-3.49	.03638	.82	5.49
DISSOLVED SOLIDS, ROE 180 DEG C	10	534	160	226	711	10	-21.4	.70086	.99	20.8
DISSOLVED SOLIDS, SUM OF CONST	14	557	156	219	618	14	-59.1	.73079	.97	38.51
HARDNESS, TOTAL	14	291	79	130	440	14	-6.92	.35410	.94	38.9
HARDNESS, NONCARBONATE	14	133	54	40	260					
TURBIDITY (JTU)	10	151	193	6	500					
FLUORIDE, DISSOLVED	14	.29	.11	.1	.5					

a/ Streamflow is independent variable.

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

MEAS. NO. OF	HARMONIC MEAN (DEG C) -M	AMPLITUDE (DEG C) -A	PHASE (RADIANS) ANGLE - C	VARIATION (%) EXPLAINED	STANDARD ERROR OF (DEG C) ESTIMATE
229	12.66	11.95	2.68	82.38	3.23

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

09315000 -- GREEN RIVER AT GREEN RIVER UTAH

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	1.	18.	3	0.	4.
CADMIUM (CD), UG/L	3	<10.	10.	3	0.	1.
CHROMIUM (CR), UG/L	3	0.	30.	3	0.	0.
COBALT (CO), UG/L	3	0.	<50.	3	0.	0.
COPPER (CU), UG/L	3	<10.	20.	3	4.	19.
IRON (FE), UG/L	3	790.	20000.	3	10.	90.
LEAD (PB), UG/L	3	<100.	<100.	3	3.	8.
MANGANESE (MN), UG/L	3	30.	570.	3	0.	20.
MERCURY (HG), UG/L	3	.0	.2	3	.0	.1
SELENIUM (SE), UG/L	3	1.	5.	3	1.	5.
ZINC (ZN), UG/L	3	30.	190.	3	20.	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	3.8	20.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 09380000 NAME: COLORADO RIVER AT LEES FERRY, AZ

LAT 36°51'43" LONG 111°35'43"
DRAINAGE AREA: 107900 SQ MI (279461 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	18	8.5	8.0	7.0	10.6					
SPECIFIC CONDUCTANCE (MICROMHOS)	16	879	59	772	985	15 a/	920	-.00295	-.35	58.9
STREAMFLOW (CUBIC FT/SEC)	15	13687	7120	5270	26800					
PH (STANDARD UNITS)	16	8.0	.18	7.6	8.2					
PHOSPHORUS, TOTAL	7	.01	.01	0	.03	7	.06	-.00006	-.31	.01
NITRITE + NITRATE, TOTAL	7	.58	.10	.50	.77	6	-.19	.00083	.88	.03
NITROGEN, KJELDAHL	7	.32	.11	.18	.52	6	.66	-.00038	-.18	.13
PHYTOPLANKTON, TOTAL (CELLS/ML)										
SEDIMENT, SUSPENDED	27	79	180	1	706	27 a/	43.7	.00333	.12	182
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	6	2.5	2.0	1	6					
STREPTOCOCCI, FECAL (COL/100 ML)	6	5.8	3.8	1	11					
SILICA, DISSOLVED	16	8.4	.86	7.2	11	15	2.38	.00671	.46	.82
CALCIUM, DISSOLVED	16	72	4.1	94	78	15	15.7	.06380	.93	1.55
MAGNESIUM, DISSOLVED	16	25	1.7	22	28	15	1.83	.02684	.92	.72
SODIUM, DISSOLVED	17	74	6.6	63	85	15	-16.1	.10293	.87	1.63
POTASSIUM, DISSOLVED	16	3.8	.21	3.5	4.2	15	2.94	.00097	.27	.22
BICARBONATE, ION	16	163	8.1	148	176	15	52.7	.12554	.93	3.08
CARBONATE, ION	12	0	0	0	0					
SULFATE, DISSOLVED	16	234	23	200	280	15	-58	.33405	.91	9.76
CHLORIDE, DISSOLVED	16	49	5.8	39	56	15	28.9	.08864	.92	2.34
DISSOLVED SOLIDS, REE 180 DEG C	16	574	41	493	648	15	-25.5	.68187	.98	9.54
DISSOLVED SOLIDS, SUM OF CONST	16	549	44	484	633	15	-55.4	.68998	.97	10.4
HARDNESS, TOTAL	16	283	18	250	310	15	29.9	.28770	.97	4.73
HARDNESS, NONCARBONATE	16	150	12	130	170					
TURBIDITY (JTU)	7	.9	.4		1					
FLUORIDE, DISSOLVED	16	.28	.07	.2	.4					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 303

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	961	944	936	893	871	849	818	779	768	734

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
303	8.45	.27	.82	6.27	.69

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

09380000 -- COLORADO R AT LEES FERRY, AZ.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	3.	6.	2	2.	19.
CADMIUM (CD), UG/L	2	<10.	10.	2	0.	2.
CHROMIUM (CR), UG/L	2	0.	0.	2	0.	0.
COBALT (CO), UG/L	2	<50.	<50.	2	1.	1.
COPPER (CU), UG/L	2	<10.	10.	2	2.	22.
IRON (FE), UG/L	2	100.	150.	10	0.	110.
LEAD (PB), UG/L	2	<100.	<100.	2	2.	5.
MANGANESE (MN), UG/L	2	0.	0.	2	0.	0.
MERCURY (HG), UG/L	2	.1	.4	2	.0	.2
SELENIUM (SE), UG/L	2	3.	5.	2	3.	3.
ZINC (ZN), UG/L	2	60.	120.	2	10.	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	1.	5.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 09502000 NAME: SALT RIVER BL STEWART MOUNTAIN DAM, AZ

LAT 33033M59S LONG 111032M06S
DRAINAGE AREA: 6232 SQ MI (16141 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	8	16.5	5.0	9.0	22.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	8	732	83	638	850	7 a/	608	.08039	.67	59.4
STREAMFLOW (CUBIC FT/SEC)	7	1339	617	265	2060					
PH (STANDARD UNITS)	8	7.8	.21	7.4	8.1					
PHOSPHORUS, TOTAL	7	.06	.02	.04	.09	7	.04	.00003	.10	.02
NITRITE + NITRATE, TOTAL	7	.06	.06	.02	.17	7	.20	-.00020	-.29	.06
NITROGEN, KJELDAHL	7	.26	.11	.06	.38	7	.20	.00007	.05	.12
PHYTOPLANKTON, TOTAL (CELLS/ML)										
SEDIMENT, SUSPENDED										
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	4	18	16.7	1	41					
STREPTOCOCCI, FECAL (COL/100 ML)	4	187	302	17	640					
SILICA, DISSOLVED	8	16	.35	15	16	8	14.4	.00196	.46	.34
CALCIUM, DISSOLVED	8	43	2.1	41	47	8	29.0	.01961	.79	1.38
MAGNESIUM, DISSOLVED	8	11	.83	10	12	8	4.34	.00927	.92	.35
SODIUM, DISSOLVED	8	80	11	68	94	8	-12.2	.12651	.98	2.26
POTASSIUM, DISSOLVED	8	3.4	.35	3.0	4.0	8	1.05	.00327	.77	.24
BICARBONATE, ION	8	142	6.4	133	152	8	89.7	.07175	.93	2.50
CARBONATE, ION	5	0	0	0	0					
SULFATE, DISSOLVED	8	46	2.6	41	49	8	35.9	.01441	.47	2.45
CHLORIDE, DISSOLVED	8	125	21	99	156	8	-55.8	.24673	.98	4.42
DISSOLVED SOLIDS, ROE 180 DEG C	8	406	39	349	446	8	86.3	.43702	.93	15.2
DISSOLVED SOLIDS, SUM OF CONST	8	396	38	347	446	8	64.6	.45302	.98	7.48
HARDNESS, TOTAL	8	154	9.2	140	170	8	89.2	.08818	.80	5.96
HARDNESS, NONCARBONATE	8	37	3.5	30	42					
TURBIDITY (JTU)	7	2.4	1.1	1	4					
FLUORIDE, DISSOLVED	8	.29	.10	.2	.4					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 245

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	846	843	830	787	765	730	679	620	609	600

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
244	16.40	3.60	2.13	89.67	.85

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

09502000 -- SALT R BL STEWART MOUNTAIN D ARIZ

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	4.	5.	2	4.	4.
CADMIUM (CD), UG/L	2	<10.	10.	2	0.	0.
CHROMIUM (CR), UG/L	2	0.	0.	2	0.	0.
COBALT (CO), UG/L	2	<50.	<50.	2	0.	1.
COPPER (CU), UG/L	2	<10.	20.	2	1.	6.
IRON (FE), UG/L	2	230.	330.	3	20.	50.
LEAD (PB), UG/L	2	<100.	<100.	2	0.	3.
MANGANESE (MN), UG/L	2	0.	60.	2	0.	30.
MERCURY (HG), UG/L	2	.0	.1	2	.0	.0
SELENIUM (SE), UG/L	2	1.	2.	2	1.	1.
ZINC (ZN), UG/L	2	20.	100.	2	7.	40.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	4.1	4.1			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 09510000 NAME: VERDE RIVER BL BARTLETT, AZ

LAT 33049M05S LONG 111037M53S
DRAINAGE AREA: 6188 SQ MI (16027 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	15.0	5.0	9.0	23.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	536	62	432	650	10 [a]	535	.00283	.03	72.1
STREAMFLOW (CUBIC FT/SEC)	10	717	772	42	2500					
PH (STANDARD UNITS)	12	8.3	.21	7.8	8.5					
PHOSPHORUS, TOTAL	7	.06	.04	.03	.14	7	-.25	.00054	.63	.03
NITRITE + NITRATE, TOTAL	7	.11	.08	.02	.23	7	-.08	.00034	.20	.08
NITROGEN, KJELDAHL	7	.35	.26	.11	.90	7	-2.64	.00520	.87	.14
PHYTOPLANKTON, TOTAL (CELLS/ML)										
SEDIMENT, SUSPENDED										
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	5	14	17	1	40					
STREPTOCOCCI, FECAL (COL/100 ML)	6	41	46	2	124					
SILICA, DISSOLVED	12	18	1.1	16	20	12	12.0	.01037	.59	.92
CALCIUM, DISSOLVED	12	45	3.2	39	49	12	21.7	.04297	.82	1.93
MAGNESIUM, DISSOLVED	12	27	3.7	21	34	12	-4.77	.05892	.98	.71
SODIUM, DISSOLVED	12	28	4.4	22	36	12	-8.18	.06777	.96	1.36
POTASSIUM, DISSOLVED	12	2.8	.27	2.5	3.4	12	1.11	.00319	.72	.20
BICARBONATE, ION	12	251	29	202	295	12	3.97	.46075	.98	6.36
CARBONATE, ION	9	1.6	2.4	0	6	9	23.0	-.04199	-.80	1.54
SULFATE, DISSOLVED	12	52	7.3	42	65	12	-7.44	.11099	.94	2.64
CHLORIDE, DISSOLVED	12	18	2.8	14	24	12	-4.60	.04214	.92	1.19
DISSOLVED SOLIDS, ROE 180 DEG C	12	313	32	254	364	12	39.4	.50959	.97	8.87
DISSOLVED SOLIDS, SUM OF CONST	12	316	33	265	377	12	30.2	.53363	.99	5.16
HARDNESS, TOTAL	12	221	22	180	260	12	33.9	.34857	.96	6.57
HARDNESS, NONCARBONATE	12	14	4.9	4	21					
TURBIDITY (JTU)	7	5.7	6.6	1	20					
FLUORIDE, DISSOLVED	12	.38	.12	.2	.6					

[a] Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE

NO. OF MEAS. = 365

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	636	622	615	578	556	526	500	459	440	309

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
354	14.35	5.70	1.98	93.05	1.09

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

09510000 -- VERDE R BL BARTLETT D ARIZ

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	15.	21.	2	10.	16.
CADMIUM (CD), UG/L	2	<10.	10.	2	0.	0.
CHROMIUM (CR), UG/L	2	0.	0.	2	0.	0.
COBALT (CO), UG/L	2	<50.	<50.	2	0.	1.
COPPER (CU), UG/L	2	<10.	10.	2	0.	5.
IRON (FE), UG/L	2	220.	440.	7	0.	50.
LEAD (PB), UG/L	2	<100.	<100.	2	1.	2.
MANGANESE (MN), UG/L	2	50.	120.	2	50.	130.
MERCURY (HG), UG/L	2	.0	.0	2	.0	.0
SELENIUM (SE), UG/L	2	0.	1.	2	1.	3.
ZINC (ZN), UG/L	2	20.	200.	2	0.	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	2.3	2.7			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 09518000 NAME: GILA RIVER AB DIVERSIONS AT GILLESPIE DAM, AZ

LAT 33D13M06S LONG 112D46M17S
DRAINAGE AREA: 4965Q SQ MI (12B594 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	7	23.C	5.5	13.0	2B.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	7	6304	501	5650	7020	4 a/	6845	-47.0	-.78	320.09
STREAMFLOW (CUBIC FT/SEC)	4	14.5	6.9	7	22.4					
PH (STANDARD UNITS)	7	8.2	.35	7.8	8.8					
PHOSPHORUS, TOTAL	7	1.1	.51	.43	2.0	7	5.74	-.00073	-.72	.38
NITRITE + NITRATE, TOTAL	7	10.4	.80	9.3	11.0	7	7.93	.00039	.24	.85
NITROGEN, KJELDAHL	7	3.5	1.8	1.8	7.2	7	14.6	-.00177	-.49	1.75
PHYTOPLANKTON, TOTAL (CELLS/ML)										
SEDIMENT, SUSPENDED										
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	5	6920	6585	1800	17700					
STREPTOCOCCI, FECAL (COL/100 ML)	6	1272	861	280	2400					
SILICA, DISSOLVED	7	14	11	.3	27	7	-40.76	.00874	.42	10.5
CALCIUM, DISSOLVED	7	260	31	210	300	7	-5.08	.04705	.69	24.2
MAGNESIUM, DISSOLVED	7	121	15	100	140	7	-37.3	.02518	.86	8.13
SODIUM, DISSOLVED	7	944	124	800	1100	7	462	.22301	.90	58.6
POTASSIUM, DISSOLVED	7	28	45	9.2	130	7	283	-.04040	-.45	43.86
BICARBONATE, ION	7	275	84	184	382	7	-255	.08405	.50	79.6
CARBONATE, ION	5	0	0	0	0					
SULFATE, DISSOLVED	7	944	178	740	1200	7	-1213	.34234	.96	53.0
CHLORIDE, DISSOLVED	7	1414	121	1300	1600	7	--34.7	.22985	.95	42.3
DISSOLVED SOLIDS, ROE 180 DEG C	7	4003	418	3500	4740	7	-1096	.80885	.97	112
DISSOLVED SOLIDS, SUM OF CONST	7	3914	456	3300	4610	7	-1603	.87521	.96	134
HARDNESS, TOTAL	7	1149	129	940	1300	7	-275	.22585	.88	66.6
HARDNESS, NONCARBONATE	7	921	84	780	980					
TURBIDITY (JTU)	7	51	19	20	70					
FLUORIDE, DISSOLVED	7	2.7	1.5	.4	5.6					

a/ Streamflow is independent variable.

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
125	20.09	8.99	2.65	79.45	1.42

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

09518000 -- GILA R AB DIVERSIONS AT GILLESPIE DAM AZ.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	8.	23.	2	8.	8.
CADMIUM (CD), UG/L	2	<10.	20.	2	0.	0.
CHROMIUM (CR), UG/L	2	10.	30.	2	0.	0.
COBALT (CO), UG/L	2	<50.	<50.	2	0.	1.
COPPER (CU), UG/L	2	40.	50.	2	9.	15.
IRON (FE), UG/L	2	5400.	15000.	2	70.	2000.
LEAD (PB), UG/L	2	<100.	100.	2	2.	3.
MANGANESE (MN), UG/L	2	290.	650.	2	40.	110.
MERCURY (HG), UG/L	2	.0	.1	2	.0	.1
SELENIUM (SE), UG/L	2	8.	10.	2	7.	9.
ZINC (ZN), UG/L	2	100.	280.	2	20.	60.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	12.	13.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 09522000 NAME: COLORADO RIVER AT NORTHERLY INTERNATIONAL BOUNDARY ABOVE MORELOS DAM, NEAR ANDRADE, CALIF.

LAT 32D43M07S LONG 114D43M05S
DRAINAGE AREA: 243000 SQ MI (629370 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	36	24.5	5.0	12.5	29.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	56	1581	136	1380	1880	56[a]	1848	-.14064	-.86	71.1
STREAMFLOW (CUBIC FT/SEC)	72	1917	824	665	4820					
PH (STANDARD UNITS)	41	8.0	.13	7.6	8.1					
PHOSPHORUS, TOTAL	14	.06	.02	.02	.09					
NITRITE + NITRATE, TOTAL	14	.30	.15	.00	.57					
NITROGEN, KJELDAHL	14	.39	.13	.04	.55					
PHYTOPLANKTON, TOTAL (CELLS/ML)	11	2654	4556	220	16000	9[a]	732	1.08605	.28	5070
SEDIMENT, SUSPENDED										
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	10	632	952	38	2700					
STREPTOCOCCI, FECAL (COL/100 ML)	10	1186	1556	25	4800					
SILICA, DISSOLVED	53	10	1.9	7.0	15	53	-7.48	.01123	.83	1.06
CALCIUM, DISSOLVED	53	105	6.7	92	121	53	34.4	.04440	.92	2.61
MAGNESIUM, DISSOLVED	53	36	2.0	33	41	53	18.0	.01138	.81	1.16
SODIUM, DISSOLVED	53	184	23	150	230	53	-78.4	.16536	.99	1.84
POTASSIUM, DISSOLVED	53	6.7	.27	6.1	7.2	53	6.91	-.00012	-.06	.27
BICARBONATE, ION	53	202	14	176	232	53	44.2	.09960	.95	4.36
CARBONATE, ION	53	0	0	0	0					
SULFATE, DISSOLVED	53	377	19	350	420	53	168	.13159	.97	4.27
CHLORIDE, DISSOLVED	53	182	29	140	250	53	-150	.20985	.99	4.17
DISSOLVED SOLIDS, ROE 180 DEG C	53	1011	92	872	1220	53	-29.9	.65708	.99	12.5
DISSOLVED SOLIDS, SUM OF CONST	53	1002	87	870	1180	53	13.2	.62432	.99	3.22
HARDNESS, TOTAL	53	409	22	370	460	53	158	.15885	.98	4.20
HARDNESS, NONCARBONATE	53	244	12	224	270					
TURBIDITY (JTU)	58	2.6	1.6	.5	10					
FLUORIDE, DISSOLVED	53	.61	.13	.07	.8					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 358

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	943	788	741	677	639	533	355	253	230	170

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

09522000 — COLORADO R AT NIB AB MORELOS DAM, ANDRADE, CAL.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	5	1.	5.	5	2.	5.
CADMIUM (CD), UG/L	5	<10.	10.	5	0.	1.
CHROMIUM (CR), UG/L	5	0.	60.	5	0.	10.
COBALT (CO), UG/L	5	<25.	50.	5	0.	1.
COPPER (CU), UG/L	5	<10.	20.	5	2.	8.
IRON (FE), UG/L	11	220.	600.	5	10.	170.
LEAD (PB), UG/L	5	<50.	<100.	5	8.	14.
MANGANESE (MN), UG/L	5	40.	140.	5	0.	150.
MERCURY (HG), UG/L	4	.0	3.1	5	.0	.5
SELENIUM (SE), UG/L	5	1.	17.	5	0.	6.
ZINC (ZN), UG/L	5	20.	110.	5	10.	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	45.	45.			
CHLOROPHYLL A, MG/SQ M	1	120.	120.			
CHLOROPHYLL B, MG/SQ M	1	21.	21.			
ORGANIC CARBON, MG/L	6	2.3	6.0			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 10126000 NAME: BEAR RIVER NR CORINNE, UTAH

LAT 41D34M35S LONG 112D06M00S
DRAINAGE AREA: 7029 SQ MI (18205 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	11	12.5	9.0	0.5	24.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	11	1113	337	646	1630	10 a/	1677	-.24050	-.94	118
STREAMFLOW (CUBIC FT/SEC)	10	2489	1308	573	4050					
PH (STANDARD UNITS)	11	8.3	.18	8.0	8.6					
PHOSPHORUS, TOTAL	9	.19	.05	.12	.27	9	.10	.00008	.57	.04
NITRITE + NITRATE, TOTAL	9	.80	.71	.01	.23	9	.35	.00042	.21	.74
NITROGEN, KJELDAHL	9	1.1	.48	.56	1.7	9	.08	.00093	.68	.38
PHYTOPLANKTON, TOTAL (CELLS/ML)	2	31000	18385	18000	44000					
SEDIMENT, SUSPENDED										
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	8	171	179	28	580					
STREPTOCOCCI, FECAL (COL/100 ML)	7	293	328	60	100					
SILICA, DISSOLVED	10	13	3.3	7.6	17	10	14.0	-.00108	-.11	3.46
CALCIUM, DISSOLVED	10	58	5.2	52	66	10	60.7	-.00229	-.15	5.46
MAGNESIUM, DISSOLVED	10	34	8.2	20	46	10	14.6	.01804	.73	5.94
SODIUM, DISSOLVED	10	109	56	51	230	10	-60.9	.15765	.94	19.78
POTASSIUM, DISSOLVED	10	10	3.7	5.2	17	10	-1.14	.01079	.97	1.03
BICARBONATE, ION	10	310	40	243	367	10	251	.05454	.46	37.69
CARBONATE, ION	8	1.3	3.5	0	10	8	-2.48	.00324	.30	3.64
SULFATE, DISSOLVED	10	46	13	24	59	10	14.8	.02937	.77	8.62
CHLORIDE, DISSOLVED	10	163	92	72	360	10	-118	.26091	.95	30.14
DISSOLVED SOLIDS, ROE 180 DEG C	9	590	182	355	885	9	42.0	.50784	.99	27.11
DISSOLVED SOLIDS, SUM OF CONST	10	589	171	356	903	10	46.0	.50357	.98	34.6
HARDNESS, TOTAL	10	284	38	220	330	10	212	.06665	.58	32.8
HARDNESS, NONCARBONATE	10	29	9.4	10	41					
TURBIDITY (JTU)	8	44	19	20	80					
FLUORIDE, DISSOLVED	10	.30	.05	.2	.4					

a/ Streamflow is independent variable.

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

10126000 -- BEAR RIVER NR. CORINNE, UTAH

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	5.	11.	3	3.	11.
CADMIUM (CD), UG/L	3	<10.	10.	3	0.	0.
CHROMIUM (CR), UG/L	3	0.	0.	3	0.	0.
COBALT (CO), UG/L	3	<50.	<50.	3	0.	1.
COPPER (CU), UG/L	3	<10.	10.	3	2.	5.
IRON (FE), UG/L	3	520.	2300.	4	10.	200.
LEAD (PB), UG/L	3	<100.	<100.	3	0.	2.
MANGANESE (MN), UG/L	3	60.	130.	4	0.	60.
MERCURY (HG), UG/L	3	.2	1.3	3	.0	.2
SELENIUM (SE), UG/L	3	0.	3.	3	0.	4.
ZINC (ZN), UG/L	3	30.	90.	3	0.	10.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	1	1200.	1200.			
BIOMASS, ASH WT., G/SQ M	1	790.	790.			
CHLOROPHYLL A, MG/SQ M	1	9.6	9.6			
CHLOROPHYLL B, MG/SQ M	1	.8	.8			
ORGANIC CARBON, MG/L	3	3.0	8.4			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 10171000 NAME: JORDAN RIVER AT SALT LAKE CITY, UTAH

LAT 40D43M39S LONG 111D55M26S
DRAINAGE AREA: 3420 SQ MI (8858 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	9	11.0	6.0	3.5	21.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	9	1537	304	830	1760	8 a/	1487	.29283	.19	339
STREAMFLOW (CUBIC FT/SEC)	9	207	202	31	731					
PH (STANDARD UNITS)	9	7.7	.43	6.6	8.0					
PHOSPHORUS, TOTAL	9	.98	.26	.64	1.4	9	.58	.00026	.31	.27
NITRITE + NITRATE, TOTAL	9	1.7	.47	1.0	2.4	9	.32	.00088	.57	.42
NITROGEN, KJELDAHL	9	1.9	.56	1.3	2.9	9	1.26	.00041	.22	.58
PHYTOPLANKTON, TOTAL (CELLS/ML)	1	19000		19000						
SEDIMENT, SUSPENDED										
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	7	112	114	0	280					
STREPTOCOCCI, FECAL (COL/100 ML)	8	89	142	3	420					
SILICA, DISSOLVED	9	21	4.9	11	26	9	-2.83	.01529	.95	1.58
CALCIUM, DISSOLVED	9	98	20	55	120	9	9.18	.05802	.90	8.93
MAGNESIUM, DISSOLVED	9	52	13	23	62	9	-9.64	.04004	.97	3.23
SODIUM, DISSOLVED	9	146	41	55	180	9	-58.9	.13344	.99	4.48
POTASSIUM, DISSOLVED	9	14	3.9	6.0	18	9	-4.68	.01183	.91	1.72
BICARBONATE, ION	9	278	52	156	320	9	24.2	.16508	.96	15.0
CARBONATE, ION	4	0	0	0	0					
SULFATE, DISSOLVED	9	267	66	120	330	9	-45.5	.20314	.94	23.7
CHLORIDE, DISSOLVED	9	203	57	79	260	9	-80.6	.18473	.98	11.0
DISSOLVED SOLIDS, ROE 180 DEG C	9	974	238	432	1180	9	-201	.76522	.98	55.0
DISSOLVED SOLIDS, SUM OF CONST	9	937	226	426	1140	9	-180	.72741	.98	52.8
HARDNESS, TOTAL	9	460	99	230	560	9	-23.0	.31433	.96	27.9
HARDNESS, NONCARBONATE	9	231	57	100	290					
TURBIDITY (JTU)	9	30	20	2	60					
FLUORIDE, DISSOLVED	9	.61	.17	.4	1.0					

a/ Streamflow is independent variable.

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

10171000 — JORDAN RIVER AT SALT LAKE CITY UTAH

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	7.	13.	2	7.	10.
CADMIUM (CD), UG/L	2	<10.	10.	2	4.	6.
CHROMIUM (CR), UG/L	2	0.	0.	2	0.	10.
COBALT (CO), UG/L	2	<50.	<50.	2	0.	0.
COPPER (CU), UG/L	2	20.	70.	2	20.	27.
IRON (FE), UG/L	2	1100.	1400.	2	30.	50.
LEAD (PB), UG/L	2	100.	100.	2	3.	23.
MANGANESE (MN), UG/L	2	80.	100.	2	30.	40.
MERCURY (HG), UG/L	2	.3	.5	2	.2	.2
SELENIUM (SE), UG/L	2	3.	6.	2	4.	5.
ZINC (ZN), UG/L	2	130.	370.	2	10.	10.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	47.	47.			
CHLOROPHYLL A, MG/SQ M	1	36.	36.			
CHLOROPHYLL B, MG/SQ M	1	2.	2.			
ORGANIC CARBON, MG/L	2	6.9	7.5			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 10254970 NAME: NEW RIVER AT INTERNATIONAL BOUNDARY, AT CALEXICO, CALIFORNIA

LAT 32039M57S LONG 115050M08S
DRAINAGE AREA: NOT DETERMINED
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	9	23.5	7.0	14.0	34.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	9	6531	728	5410	7750	7[a]	5192	7.5792	.25	692
STREAMFLOW (CUBIC FT/SEC)	8	159	20	137	196					
PH (STANDARD UNITS)	9	7.6	.35	7.1	8.1					
PHOSPHORUS, TOTAL	8	1.3	.36	1.1	2.1	8	4.17	-.00044	-.75	.26
NITRITE + NITRATE, TOTAL	8	.44	.41	.02	1.3	8	-.02	.00007	.11	.44
NITROGEN, KJELDAHL	8	5.2	1.6	2.5	7.2	8	11.8	-.00103	-.38	1.63
PHYTOPLANKTON, TOTAL (CELLS/ML)	6	113333	68556	21000	190000					
SEDIMENT, SUSPENDED	2	114	8.5	108	120	2[a]	20.4	.59994	.99	0.0
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	8	1810000	1382000	530000	2900000					
STREPTOCOCCI, FECAL (COL/100 ML)	8	270500	147000	86000	570000					
SILICA, DISSOLVED	7	21	2.5	17	24	7	12.0	.00136	.29	2.62
CALCIUM, DISSOLVED	7	233	14	210	250	7	133	.01590	.62	11.8
MAGNESIUM, DISSOLVED	7	102	31	34	120	7	18.8	.01329	.23	32.9
SODIUM, DISSOLVED	7	963	39	890	1000	7	536	.06824	.96	12.1
POTASSIUM, DISSOLVED	7	43	20	2.7	66	7	117	-.01190	-.33	20.4
BICARBONATE, ION	8	286	26	252	326	8	409	-.01927	-.44	25.6
CARBONATE, ION	4	0	0	0	0					
SULFATE, DISSOLVED	7	763	71	710	900	7	197	.09045	.69	56.4
CHLORIDE, DISSOLVED	7	1557	98	1400	1700	7	501	.16876	.94	37.2
DISSOLVED SOLIDS, ROE 180 DEG C	7	4054	2.7	3720	4280	7	1632	.33908	.85	126
DISSOLVED SOLIDS, SUM OF CONST	7	3821	191	3540	4060		1759	.32951	.93	74.4
HARDNESS, TOTAL	7	1011	135	740	1100	7	509	.08028	.32	140
HARDNESS, NONCARBONATE	7	769	128	530	890					
TURBIDITY (JTU)	7	44	70	2	200					
FLUORIDE, DISSOLVED	7	.83	.24	.6	1.3					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 248

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	6960	7081	6930	6560	6360	5940	5587	4600	4130	2370

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
178	23.38	7.75	2.75	80.34	1.88

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

10254970 -- NEW RIVER AT INTERNATIONAL BOUNDARY AT CALEXICO

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	11.	16.	3	6.	13.
CADMIUM (CD), UG/L	3	<10.	10.	3	1.	1.
CHROMIUM (CR), UG/L	3	0.	30.	3	0.	0.
COBALT (CO), UG/L	3	0.	50.	3	0.	4.
COPPER (CU), UG/L	3	10.	150.	3	5.	10.
IRON (FE), UG/L	3	590.	1800.	3	50.	830.
LEAD (PB), UG/L	3	<100.	100.	3	2.	6.
MANGANESE (MN), UG/L	3	100.	180.	3	80.	100.
MERCURY (HG), UG/L	3	.0	.3	3	.0	.1
SELENIUM (SE), UG/L	3	1.	8.	3	0.	6.
ZINC (ZN), UG/L	3	50.	70.	3	40.	40.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	52.	52.			
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	19.	22.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 10351700 NAME: TRUCKEE RIVER NEAR NIXON, NEVADA

LAT 39D46M40S LONG 119D20M10S
DRAINAGE AREA: 1815 SQ MI (4701 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	17	10.5	5.0	3.0	21.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	242	89	138	420	12 a/	356	-.14334	-.86	48.1
STREAMFLOW (CUBIC FT/SEC)	17	1221	893	154	3290					
PH (STANDARD UNITS)	12	7.6	.29	7.3	8.2					
PHOSPHORUS, TOTAL	12	.26	.08	.17	.43	12	0.18	.00030	.33	.08
NITRITE + NITRATE, TOTAL NITROGEN, KJELDAHL	12	.60	.20	.35	1.0	12	0.68	-.00036	-.16	0.20
PHYTOPLANKTON, TOTAL (CELLS/ML)	5	6120	5472	1500	13000					
SEDIMENT, SUSPENDED	16	155	240	8	920	16 a/	-97.5	0.19905	.75	165
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	11	25	20	2	63					
STREPTOCOCCI, FECAL (COL/100 ML)	11	66	57	15	200					
SILICA, DISSOLVED	12	20	2.3	16	24	12	17.4	.01167	0.45	2.20
CALCIUM, DISSOLVED	12	17	4.4	11	25	12	5.51	.04675	.94	1.53
MAGNESIUM, DISSOLVED	12	6.0	2.1	3.5	9.9	12	0.50	.02270	.98	0.48
SODIUM, DISSOLVED	12	21	9.7	9.3	40	12	-5.0	.10731	.99	1.25
POTASSIUM, DISSOLVED	12	3.1	.99	1.9	4.5	12	0.67	.01012	.91	0.42
BICARBONATE, ION	12	84	19	55	110	12	38.7	.18631	.87	9.88
CARBONATE, ION	12	0	0	0	0					
SULFATE, DISSOLVED	12	21	12	9.1	47	12	-10.5	.12988	.97	3.10
CHLORIDE, DISSOLVED	12	19	12	5.9	48	12	-13.5	.13234	.97	3.19
DISSOLVED SOLIDS, ROE 180 DEG C	11	146	50	88	245	11	13.7	.56700	.99	6.57
DISSOLVED SOLIDS, SUM OF CONST	12	150	50	88	252	12	15.1	.55703	.99	5.88
HARDNESS, TOTAL	12	67	19	42	100	12	17.4	.20252	.96	5.35
HARDNESS, NONCARBONATE	12	2.0	5.7	0	20					
TURBIDITY (JTU)	12	10	6.3	3	20					
FLUORIDE, DISSOLVED	11	.18	.13	.0	.5					

a/ Streamflow is independent variable.

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

10351700 -- TRUCKEE RIVER NEAR NIXON, NEV.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	8.	15.	4	8.	10.
CADMIUM (CD), UG/L	4	<10.	<10.	4	<1.	2.
CHROMIUM (CR), UG/L	4	0.	<10.	4	0.	0.
COBALT (CO), UG/L	4	<50.	<50.	4	0.	2.
COPPER (CU), UG/L	4	<10.	20.	4	0.	7.
IRON (FE), UG/L	4	810.	2100.	4	30.	460.
LEAD (PB), UG/L	4	<100.	<100.	4	1.	7.
MANGANESE (MN), UG/L	4	40.	80.	4	0.	30.
MERCURY (HG), UG/L	3	.2	.5	4	.0	.2
SELENIUM (SE), UG/L	4	0.	4.	4	0.	4.
ZINC (ZN), UG/L	4	10.	40.	4	0.	40.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	1.9	5.1			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 11103010 NAME: LOS ANGELES RIVER AT WILLOW STREET BRIDGE, AT LONG BEACH, CALIF.

LAT 33D48M16S LONG 118D12M15S
DRAINAGE AREA: 83. SQ MI (2150 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	6	19.0	6.5	11.0	26.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	6	1170	461	230	1391	6[a/]	1434	-2.03047	-0.99	75.5
STREAMFLOW (CUBIC FT/SEC)	6	95	186	10	586					
PH (STANDARD UNITS)	6	7.9	1.0	6.7	9.0					
PHOSPHORUS, TOTAL	6	2.0	1.7	.58	5.0	6	.09	.00165	.46	1.65
NITRITE + NITRATE, TOTAL	6	1.2	1.9	.03	5.0	6	1.38	-.00011	-.03	2.16
NITROGEN, KJELDAHL	6	4.7	4.4	1.2	11	6	1.34	.00287	.30	4.74
PHYTOPLANKTON, TOTAL (CELLS/ML)	7	108843	201477	2000	560000					
SEDIMENT, SUSPENDED										
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	8	8285	14597	80	44000					
STREPTOCOCCI, FECAL (COL/100 ML)	7	14650	30095	190	82000					
SILICA, DISSOLVED	6	20	9.6	4.1	28	6	.54	.01650	.80	6.48
CALCIUM, DISSOLVED	6	85	36	17	120	6	-.70	.01189	.95	12.3
MAGNESIUM, DISSOLVED	6	30	14	3.4	40	6	-2.48	.02753	.91	6.36
SODIUM, DISSOLVED	6	122	51	19	150	6	-5.17	.10825	.98	10.3
POTASSIUM, DISSOLVED	6	7.8	2.3	3.3	9.6	6	2.16	.00484	.96	0.70
BICARBONATE, ION	6	229	93	45	289	6	3.21	.19281	.96	29.3
CARBONATE, ION	5	.8	1.8	0	4	5	-.05	.00074	.21	2.02
SULFATE, DISSOLVED	6	240	107	33	330		-18.6	.22146	.96	33.8
CHLORIDE, DISSOLVED	6	113	47	20	150	6	-3.3	.09967	.97	11.9
DISSOLVED SOLIDS, ROE 180 DEG C	6	765	318	147	998	6	-10.8	.67994	.98	61.4
DISSOLVED SOLIDS, SUM OF CONST	6	732	301	122	919	6	-26.2	64779	.99	39.2
HARDNESS, TOTAL	6	334	138	56	410	6	-12.8	.29667	.99	16.8
HARDNESS, NONCARBONATE	6	147	70	2.7	210					
TURBIDITY (JTU)	6	22	24	2	60					
FLUORIDE, DISSOLVED	6	.70	.35	.4	1.4					

a/ Streamflow is independent variable.

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
177	19.14	6.40	2.52	84.68	1.43

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

11103010 -- LOS ANGELES R. A. WILLO ST BR A LB

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	3.	8.	3	6.	8.
CADMIUM (CD), UG/L	3	<10.	<10.	3	<1.	2.
CHROMIUM (CR), UG/L	3	<10.	50.	3	0.	30.
COBALT (CO), UG/L	3	<10.	<50.	3	0.	0.
COPPER (CU), UG/L	3	20.	40.	3	20.	30.
IRON (FE), UG/L	3	350.	1200.	3	20.	150.
LEAD (PB), UG/L	3	<100.	<100.	3	3.	10.
MANGANESE (MN), UG/L	3	70.	160.	3	0.	140.
MERCURY (HG), UG/L	3	.0	.2	3	.0	.1
SELENIUM (SE), UG/L	3	0.	5.	3	1.	5.
ZINC (ZN), UG/L	3	70.	140.	2	20.	40.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	8.5	29.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 11303500 NAME: SAN JOAQUIN RIVER NR VERNALIS, CA

LAT 37D40M34S LONG 121D15M51S
DRAINAGE AREA: 13536 SQ MI (35058 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	392	16.0	5.0	7.5	27.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	17	488	171	316	900					
STREAMFLOW (CUBIC FT/SEC)	377	3608	2024	1240	9770					
PH (STANDARD UNITS)	17	7.7	.45	7.2	8.8					
PHOSPHORUS, TOTAL	16	.25	.11	.10	.52	16	.12	.00026	.43	.10
NITRITE + NITRATE, TOTAL	8	.74	.18	.47	1.1	8	.31	.00086	.83	0.11
NITROGEN, KJELDAHL	7	.88	.41	.48	1.5	7	-.04	.00179	.77	0.29
PHYTOPLANKTON, TOTAL (CELLS/ML)	11	64709	154609	5800	530000					
SEDIMENT, SUSPENDED	380	90	38	33	199	375 a/	114	-.00637	-.34	35.8
SEDIMENT, CLAY-SILT (PERCENT)	24	75	14	45	99					
COLIFORM, FECAL (COL/100 ML)	7	562	305	390	1100					
STREPTOCOCCI, FECAL (COL/100 ML)	8	482	321	20	900					
SILICA, DISSOLVED	11	17	2.2	14	20	11	11.7	.01038	.79	1.38
CALCIUM, DISSOLVED	11	25	7.0	19	41	11	6.26	.04004	.95	2.32
MAGNESIUM, DISSOLVED	11	12	3.9	7.6	20	11	1.04	.02242	.95	1.29
SODIUM, DISSOLVED	11	52	16	32	83	11	11.0	.08689	.92	6.39
POTASSIUM, DISSOLVED	11	3.1	.82	1.8	4.2	11	1.33	.00370	.74	0.58
BICARBONATE, ION	11	103	27	68	153	11	33.2	.14690	.90	12.5
CARBONATE, ION	0	0	0	0	0					
SULFATE, DISSOLVED	11	42	9.4	29	63	11	16.8	.05242	.92	3.84
CHLORIDE, DISSOLVED	11	70	26	38	130	11	-2.25	.15294	.96	7.76
DISSOLVED SOLIDS, ROE 180 DEG C	2	269	40	241	297	2	-14.4	.01537	1.0	
DISSOLVED SOLIDS, SUM OF CONST	11	275	78	182	441	11	63.1	.44600	.94	26.8
HARDNESS, TOTAL	11	112	35	79	190	11	16.0	.20150	.95	11.4
HARDNESS, NONCARBONATE	11	27	14	7.0	60					
TURBIDITY (JTU)	385	22	12	6	65					
FLUORIDE, DISSOLVED	11	.13	.06	.0	.2					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 251

	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	917	839	717	630	557	471	412	326	306	264

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
365	17.01	8.15	2.76	93.67	1.44

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

11303500 — SAN JOAQUIN RIVER NEAR VERNALIS CALIF

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	3.	100.	3	1.	3.
CADMIUM (CD), UG/L	3	<10.	<10.	3	0.	0.
CHROMIUM (CR), UG/L	3	0.	0.	3	0.	0.
COBALT (CO), UG/L	3	<10.	<50.	3	0.	1.
COPPER (CU), UG/L	3	<10.	20.	3	7.	11.
IRON (FE), UG/L	3	2000.	5800.	11	10.	1500.
LEAD (PB), UG/L	3	<100.	<100.	3	1.	1.
MANGANESE (MN), UG/L	3	110.	180.	3	0.	30.
MERCURY (HG), UG/L	3	.1	.3	3	.0	.2
SELENIUM (SE), UG/L	3	0.	4.	3	0.	4.
ZINC (ZN), UG/L	3	30.	80.	3	0.	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	4.7	6.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 11447650 NAME: SACRAMENTO RIVER AT FREEPORT, CA

LAT 38D17M20S LONG 121D30M07S
DRAINAGE AREA: NOT DETERMINED
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	11	11.0	5.0	8.5	22.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	11	122	17	94	149					
STREAMFLOW (CUBIC FT/SEC)										
PH (STANDARD UNITS)	11	7.6	.17	7.4	7.8					
PHOSPHORUS, TOTAL	10	.11	.04	.05	.17	10	-.02	.00108	.49	.04
NITRITE + NITRATE, TOTAL	10	.14	.06	.04	.23	10	.19	- .00038	-.11	0.07
NITROGEN, KJELDAHL	10	.37	.08	.27	.49	10	.23	.00122	.29	0.08
PHYTOPLANKTON, TOTAL (CELLS/ML)	10	3096	2478	740	8100					
SEDIMENT, SUSPENDED	7	62	36	22	123					
SEDIMENT, CLAY-SILT (PERCENT)	7	76	17	47	88					
COLIFORM, FECAL (COL/100 ML)	9	166	202	47	700					
STREPTOCOCCI, FECAL (COL/100 ML)	10	148	120	26	420					
SILICA, DISSOLVED	4	18	.6	17	18	4	15.5	.01677	.52	0.60
CALCIUM, DISSOLVED	4	10	1.4	8.7	12	4	3.78	.05535	.70	1.23
MAGNESIUM, DISSOLVED	4	5.2	.5	4.5	5.5	4	2.27	.02421	.94	0.18
SODIUM, DISSOLVED	4	7.2	1.4	5.7	8.8	4	-.55	.06436	.80	1.03
POTASSIUM, DISSOLVED	4	1.1	.21	.9	1.3	4	1.74	- .00514	-.44	0.23
BICARBONATE, ION	4	62	5.3	54	66	4	27.0	.28720	.97	1.47
CARBONATE, ION	1	0	0	0	0					
SULFATE, DISSOLVED	4	6.3	1.0	5.2	7.6	4	.55	.04811	.87	.61
CHLORIDE, DISSOLVED	4	4.1	.7	3.0	4.6	4	- .72	.04014	.96	.25
DISSOLVED SOLIDS, ROE 180 DEG C	4	84	8.5	74	94	4	36.5	.39203	.82	6.02
DISSOLVED SOLIDS, SUM OF CONST	4	82	6.9	72	87	4	35.6	.27778	.99	0.48
HARDNESS, TOTAL	4	47	5.1	40	52	4	17.9	.24422	.85	3.30
HARDNESS, NONCARBONATE	4	.25	.50	0	1					
TURBIDITY (JTU)	4	29	29	7	70					
FLOURIDE, DISSOLVED	4	.08	.05	0	.1					

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
322	14.74	6.87	2.68	96.7	0.86

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

11447650 — SACRAMENTO RIVER AT FREEPORT CALIF

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	1.	31.	4	0.	2.
CADMIUM (CD), UG/L	4	<10.	10.	4	0.	1.
CHROMIUM (CR), UG/L	4	0.	0.	4	0.	0.
COBALT (CO), UG/L	4	<10.	<50.	4	0.	1.
COPPER (CU), UG/L	4	10.	20.	4	5.	15.
IRON (FE), UG/L	4	990.	6200.	4	40.	70.
LEAD (PB), UG/L	4	<100.	<100.	4	2.	10.
MANGANESE (MN), UG/L	4	20.	130.	4	0.	33.
MERCURY (HG), UG/L	4	.1	1.8	4	.0	.1
SELENIUM (SE), UG/L	4	0.	6.	4	0.	4.
ZINC (ZN), UG/L	4	30.	80.	4	0.	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	4	1.7	3.4			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 11467000 NAME: RUSSIAN RIVER NEAR GUERNEVILLE, CA

LAT 38D30M03S LONG 122D55M59S
DRAINAGE AREA: 1340 SQ MI (3471 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	15	17.0	6.5	9.0	24.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	221	65	130	324	12 a/	225	- .00572	- .77	43.2
STREAMFLOW (CUBIC FT/SEC)	15	5842	8557	198	29800					
PH (STANDARD UNITS)	10	7.6	.34	7.2	8.2					
PHOSPHORUS, TOTAL	9	.30	.15	.15	.59	6	.51	-.00095	-.59	0.10
NITRITE + NITRATE, TOTAL	9	.32	.17	.08	.58	6	.25	.00058	.12	0.24
NITROGEN, KJELDAHL	9	.63	.35	.19	1.3	6	1.39	-.00333	-.60	0.33
PHYTOPLANKTON, TOTAL (CELLS/ML)										
SEDIMENT, SUSPENDED										
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	8	513	872	15	2200					
STREPTOCOCCI, FECAL (COL/100 ML)	1	125		125	125					
SILICA, DISSOLVED	3	16	1.2	15	17	3	19.9	-.01392	-.84	0.87
CALCIUM, DISSOLVED	8	20	6.6	11	28	8	- .15	.09243	.99	1.07
MAGNESIUM, DISSOLVED	5	12	3.3	8	16	5	-.43	.5234	.98	0.69
SODIUM, DISSOLVED	8	8.7	2.5	5.3	12	8	1.46	.03326	.96	0.76
POTASSIUM, DISSOLVED	4	1.5	.21	1.3	1.7	4	1.21	.00112	.39	0.23
BICARBONATE, ION	8	114	37	67	163	8	1.80	.51354	.99	4.47
CARBONATE, ION	8	0	0	0	0					
SULFATE, DISSOLVED	4	11	3.3	8.5	15	4	.63	.04355	.99	0.61
CHLORIDE, DISSOLVED	8	5.1	2.3	2.0	8.5	8	-1.19	.02875	.90	1.06
DISSOLVED SOLIDS, ROE 180 DEG C	8	131	40	63	178	8	12.0	.54395	.96	12.0
DISSOLVED SOLIDS, SUM OF CONST	3	147	33	111	177	3	25.6	.47336	.99	4.60
HARDNESS, TOTAL	8	97	31	64	140	8	3.74	.42894	.99	4.41
HARDNESS, NONCARBONATE	8	3.6	3.1	0	9					
TURBIDITY (JTU)	13	83	111	1	310					
FLUORIDE, DISSOLVED	3	.17	.12	.1	.3					

a/ Streamflow is independent variable.

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 327

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	313	306	298	287	274	252	231	168	142	110

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

11467000 -- RUSSIAN RIVER NR GUERNEVILLE CALIF

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	0.	6.	2	2.	8.
CADMIUM (CD), UG/L	2	<10.	<10.	3	0.	1.
CHROMIUM (CR), UG/L	3	0.	30.	3	0.	10.
COBALT (CO), UG/L	3	<50.	<50.	3	0.	0.
COPPER (CU), UG/L	3	<10.	30.	3	2.	6.
IRON (FE), UG/L	3	630.	9200.	3	20.	140.
LEAD (PB), UG/L	3	<100.	<100.	3	0.	5.
MANGANESE (MN), UG/L	3	60.	340.	3	0.	70.
MERCURY (HG), UG/L	3	.0	.5	3	.0	.1
SELENIUM (SE), UG/L	3	0.	8.	3	0.	3.
ZINC (ZN), UG/L	3	30.	150.	3	0.	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	2.4	4.8			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 12200500 NAME: SKAGIT RIVER NR. MOUNT VERNON, WASHINGTON

LAT 48D30M45S LONG 122D20M35S
DRAINAGE AREA: 3093 SQ MI (8011 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	9	8.2	3.3	2.8	13.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	9	62	11	35	63					
STREAMFLOW (CUBIC FT/SEC)	0	22500	10600	6770	41000					
PH (STANDARD UNITS)	9	7.3	.2	7.0	7.5	9	6.94	.00707	.50	.147
PHOSPHORUS, TOTAL	9	.03	.02	.01	.06	9	.0145	.00021	.12	.021
NITRITE + NITRATE, TOTAL	9	.09	.06	.02	.19	9	-.114	.00414	.72	.048
NITROGEN, KJELDAHL	9	.15	.06	.09	.24	9	-.0113	.00304	.61	.047
PHYTOPLANKTON, TOTAL (CELLS/ML)	9	260	170	14	570	9	372	-2.1393	-.14	183
SEDIMENT, SUSPENDED	9	56	30	15	114					
SEDIMENT, CLAY-SILT (PERCENT)	9	33	10	20	48					
COLIFORM, FECAL (COL/100 ML)	6	36	38	6	110					
STREPTOCOCCI, FECAL (COL/100 ML)	4	360	630	12	1300					
SILICA, DISSOLVED	9	6.4	1.1	4.3	7.5	9	1.61	.09355	.95	.373
CALCIUM, DISSOLVED	9	7.0	1.5	4.9	9.9	9	1.5	.10665	.77	1.04
MAGNESIUM, DISSOLVED	9	1.3	.3	.8	1.6	9	.553	.01405	.60	.22
SODIUM, DISSOLVED	9	1.6	.2	1.3	2.0	9	.908	.01343	.64	.193
POTASSIUM, DISSOLVED	9	.5	.2	.20	.70	9	-.022	.01035	.79	.095
BICARBONATE, ION	9	24	4	17	28	9	5.9	.34402	.90	2.03
CARBONATE, ION	5	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	9	4.1	.62	3.1	4.9	9	2.16	.03821	.69	.48
CHLORIDE, DISSOLVED	9	.9	.6	.2	2.0	9	.211	.01358	.27	.59
DISSOLVED SOLIDS, ROE 180 DEG C	9	35	7	24	43	9	12.7	.44109	.76	4.47
DISSOLVED SOLIDS, SUM OF CONST	9	34	6	25	42	9	10.3	.45703	.93	2.21
HARDNESS, TOTAL	9	23	4	17	31	9	6.08	.32181	.83	2.6
HARDNESS, NONCARBONATE	0	3	2	0	8.0	9	1.28	.03333	.15	2.6
TURBIDITY (JTU)	9	5.9	5.9	1.0	20	9	17.8	-.23170	-.43	5.78
FLUORIDE, DISSOLVED	0	.1	.2	.0	.4	9	-.349	.00893	.59	.146

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE

NO. OF MEAS. = 179

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	70	64	62	60	59	56	50	38	36	31

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

12200500 -- SKAGIT RIVER NEAR MOUNT VERNON, WASH.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	1.	3.	3	0.0	1.
CADMIUM (CD), UG/L	3	<10.	<10.	3	1.	5.
CHROMIUM (CR), UG/L	3	0.0	20.	3	0.0	0.0
COBALT (CO), UG/L	3	50.	<50.	3	0.0	2.
COPPER (CU), UG/L	3	<10.	30.	3	6.	16.
IRON (FE), UG/L	3	260.	1100.	3	30.	70.
LEAD (PB), UG/L	3	<100.	100.	3	4.	15.
MANGANESE (MN), UG/L	3	20.	20.	3	0.0	0.0
MERCURY (HG), UG/L	2	.0	.2	3	.0	.2
SELENIUM (SE), UG/L	3	0.0	2.	3	1.	4.
ZINC (ZN), UG/L	3	20.	110.	3	0.0	50.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	3.1				
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	3	2.0	2.2			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 12318500 NAME: KOOTENAI RIVER NR. COPELAND, IDAHO

LAT 48D59M45S LONG 116D25M00S
DRAINAGE AREA: 13400 SQ MI (34706 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	11	9.0	5.6	3.0	18.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	11	142	35	91	192					
STREAMFLOW (CUBIC FT/SEC)	11	20800	14900	5200	49000					
PH (STANDARD UNITS)	10	7.5	.4	7.0	8.1	10	6.3	.00835	.73	.28
PHOSPHORUS, TOTAL	8	.07	.06	.03	.20	8	.198	-.00094	-.56	.05
NITRITE + NITRATE, TOTAL	11	.09	.12		.33	6	-.0224	.00124	.37	.13
NITROGEN, KJELDAHL	8	.30	.17	.05	.64	8	.68	-.00271	-.52	.16
PHYTOPLANKTON, TOTAL (CELLS/ML)	6	1200	840	530	2600	6	3565	-16.8	-.69	684
SEDIMENT, SUSPENDED	11	0	0	0	0					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	10	24	25	3	72					
STREPTOCOCCI, FECAL (COL/100 ML)										
SILICA, DISSOLVED	9	7.3	1.8	4.5	9.9	9	11.2	-.02681	-.52	1.68
CALCIUM, DISSOLVED	9	22	5.7	16	34	9	5.32	.11729	.73	4.12
MAGNESIUM, DISSOLVED	9	5.6	2.0	3.1	8.9	9	1.56	.02791	.50	1.8
SODIUM, DISSOLVED	9	2.3	.8	1.0	3.5	9	2.11	.00115	.05	.833
POTASSIUM, DISSOLVED	9	.7	.2	.30	.90	9	.86	-.00139	-.28	.178
BICARBONATE, ION	10	86	24	46	122	10	-16.8	.69919	.97	6.47
CARBONATE, ION	10	0	0	0	0					
SULFATE, DISSOLVED	11	11	7.0	.0	21	9	-7.03	.13666	.94	1.86
CHLORIDE, DISSOLVED	9	1.7	.5	.60	2.2	9	.75	.00623	.43	.49
DISSOLVED SOLIDS, ROE 180 DEG C	9	100	20	72	135	9	39.9	.40875	.73	14.3
DISSOLVED SOLIDS, SUM OF CONST	9	93	23	59	132	9	25.9	.45658	.71	17.1
HARDNESS, TOTAL	9	79	21	54	120	9	20.3	.40293	.67	17.0
HARDNESS, NONCARBONATE	9	14	6	6.0	22	9	.312	.09147	.58	4.82
TURBIDITY (JTU)	9	8.3	7.0	1.0	20	9	-.130	-.12960	-.66	5.61
FLUORIDE, DISSOLVED	9	.4	.3	.1	.9	9	-.055	.00281	.40	.246

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
335	8.30	5.60	2.52	86.9	1.53

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

12318500 -- KOOTENAI RIVER NR COPELAND IDAHO

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	1.	4.	3	0.0	2.
CADMIUM (CD), UG/L	3	<10.	<10.	3	0.0	2.
CHROMIUM (CR), UG/L	3	0.0	0.0	3	0.0	0.0
COBALT (CO), UG/L	3	<50.	<50.	3	0.0	1.
COPPER (CU), UG/L	3	<10.	10.	3	1.	5.
IRON (FE), UG/L	3	170.	840.	3	40.	100.
LEAD (PB), UG/L	3	<100.	340.	3	3.	6.
MANGANESE (MN), UG/L	3	0.0	60.	3	0.0	50.
MERCURY (HG), UG/L	3	.0	.1	3	.0	.0
SELENIUM (SE), UG/L	3	0.0	2.	2	0.0	1.
ZINC (ZN), UG/L	3	50.	1200.	2	10.	50.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	2.0	3.6			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 12398600 NAME: PEND OREILLE RIVER AT INTERNATIONAL BOUNDARY

LAT 48059M56S LONG 117021M09S
DRAINAGE AREA: 25200 SQ MI (65268 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	8	11.0	7.7	2.3	22.1					
SPECIFIC CONDUCTANCE (MICROMHOS)	8	146	17	122	166					
STREAMFLOW (CUBIC FT/SEC)	6	56200	35000	32000	131000					
PH (STANDARD UNITS)	6	7.7	.3	7.4	8.4	8	7.18	.00365	.19	.34
PHOSPHORUS, TOTAL	8	.02	.01	.01	.02	8	.0378	-.00016	-.49	.005
NITRITE + NITRATE, TOTAL	8	.10	.18	.01	.53	8	-.683	.00532	.51	.165
NITROGEN, KJELDAHL	8	.72	.77	.18	2.2	8	1.096	-.00258	-.06	.83
PHYTOPLANKTON, TOTAL (CELLS/ML)	8	3100	4500	300	14000	8	15707	-86.2	-.32	4590
SEDIMENT, SUSPENDED	7	11	12	3	37					
SEDIMENT, CLAY_SILT (PERCENT)	8	83	17	43	93					
COLIFORM, FECAL (COL/100 ML)	8	3	4	<1	13					
STREPTOCOCCI, FECAL (COL/100 ML)	8	8	13	<1	40					
SILICA, DISSOLVED	8	7.0	.7	5.8	7.6	8	4.94	.01383	.34	.705
CALCIUM, DISSOLVED	8	20	1.8	17	22	8	7.09	.08986	.83	1.1
MAGNESIUM, DISSOLVED	8	5.3	.6	4.1	5.9	8	1.89	.02317	.69	.44
SODIUM, DISSOLVED	8	2.9	.5	2.1	3.6	8	-.79	.02543	.83	.308
POTASSIUM, DISSOLVED	8	1.0	.3	.7	1.6	8	-.624	.01074	.64	.23
BICARBONATE, ION	6	84	5	73	90	8	46.8	.25209	.80	3.5
CARBONATE, ION	3	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	8	8.3	2.1	5.5	12	8	-2.4	.07282	.58	1.9
CHLORIDE, DISSOLVED	8	1.3	.5	.50	12	8	.45	.00570	.21	.48
DISSOLVED SOLIDS, ROE 180 DEG C	8	91	10	79	108	8	19.4	.48974	.85	5.58
DISSOLVED SOLIDS, SUM OF CONST	8	88	8	72	97	8	33.4	.36952	.82	4.66
HARDNESS, TOTAL	8	72	7	59	79	8	25.4	.32054	.82	4.07
HARDNESS, NONCARBONATE	8	4	2		7.0	8	-12.5	.11094	.81	1.47
TURBIDITY (JTU)	8	5.5	3.8	1.0	10	8	.352	.03514	.16	4.03
FLUORIDE, DISSOLVED	8	.2	.2	.1	.6	8	.475	-.00213	-.20	.187

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

12398600 -- PEND OREILLE RIVER AT INT BOUNDARY

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	1.	4.	2	1.	3.
CADMIUM (CD), UG/L	2	<10.	<10.	1	0.0	
CHROMIUM (CR), UG/L	2	0.0	40.	2	0.0	0.0
COBALT (CO), UG/L	2	0.0	<50.	1	0.0	
COPPER (CU), UG/L	2	<10.	<10.	1	6.	
IRON (FE), UG/L	2	80.	130.	2	30.	70.
LEAD (PB), UG/L	2	<100.	<100.	1	4.	
MANGANESE (MN), UG/L	2	0.0	0.0	2	0.0	0.0
MERCURY (HG), UG/L	2	.1	.5	2	.0	.0
SELENIUM (SE), UG/L	2	0.0	3.	2	5.	5.
ZINC (ZN), UG/L	2	10.	120.	2	0.0	0.0
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	2.8	15.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 12433000 NAME: SPOKANE RIVER AT LONG LAKE, WASHINGTON

LAT 47D50M18S LONG 117D51M05S
DRAINAGE AREA: 6020 SQ MI (15592 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	10.2	6.0	3.0	18.6					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	114	51	51	206					
STREAMFLOW (CUBIC FT/SEC)	12	14900	11400	3960	42300					
PH (STANDARD UNITS)	12	7.6	.4	6.9	.86	12	7.23	.00356	.42	.413
PHOSPHORUS, TOTAL	12	.07	.06	.02	.23	12	.076	-.00003	-.02	.058
NITRITE + NITRATE, TOTAL	12	.51	.30	.03	1.1	12	.253	.00221	.37	.296
NITROGEN, KJELDAHL	12	.55	.37	.19	1.4	12	.65	-.00089	-.12	.38
PHYTOPLANKTON, TOTAL (CELLS/ML)	11	8400	8800	11	29000	11	2326	55.4	.31	8813
SEDIMENT, SUSPENDED	12	18	17	1.0	52					
SEDIMENT, CLAY-SILT (PERCENT)	10	90	17	54	100					
COLIFORM, FECAL (COL/100 ML)	11	69	110	<1	360					
STREPTOCOCCI, FECAL (COL/100 ML)	12	49	61	<1	160					
SILICA, DISSOLVED	11	11	3.4	3.3	15	11	13.8	-.02674	-.40	3.28
CALCIUM, DISSOLVED	11	14	5.5	7.3	23	11	2.35	.09678	.88	2.66
MAGNESIUM, DISSOLVED	11	5.0	2.6	2.2	9.1	11	-.269	.04447	.88	1.3
SODIUM, DISSOLVED	11	3.8	1.3	2.0	6.4	11	2.5	.01102	.43	1.24
POTASSIUM, DISSOLVED	11	1.4	.3	1.0	1.9	11	1.09	.00285	.53	.24
BICARBONATE, ION	11	6	3	28	105	11	.37	.49155	.87	14.8
CARBONATE, ION	8	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	11	10	1.9	6.9	13	11	8.12	.01858	.50	1.7
CHLORIDE, DISSOLVED	11	2.5	1.1	1.3	5.1	11	.93	.01350	.62	.899
DISSOLVED SOLIDS, ROE 180 DEG C	11	86	21	60	119	11	46.8	.32691	.78	14.1
DISSOLVED SOLIDS, SUM OF CONST	11	77	22	48	114	11	29.1	.40158	.90	9.99
HARDNESS, TOTAL	11	55	24	27	92	11	4.50	.42719	.89	11.8
HARDNESS, NONCARBONATE	11	7	4	3	17	11	4.64	.02060	.27	3.9
TURBIDITY (JTU)	10	14	14	1.0	35	10	23.2	-.07978	-.28	14.4
FLOURIDE, DISSOLVED	11	.11	.03	.1	.2	11	.108	.00001	.01	.032

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 257

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	203	198	183	170	157	100	76	61	56	55

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
178	9.82	9.2	2.49	96.78	.80

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

12433000 -- SPOKANE RIVER AT LONG LAKE, WASH.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	2.	4.	4	0.0	3.
CADMIUM (CD), UG/L	4	<10.	10.	4	0.0	3.
CHROMIUM (CR), UG/L	4	0.0	10.	4	0.0	0.0
COBALT (CO), UG/L	4	0.0	50.	4	0.0	0.0
COPPER (CU), UG/L	4	<10.	20.	4	9.	16.
IRON (FE), UG/L	4	160.	2800.	4	20.	90.
LEAD (PB), UG/L	4	50.	<100.	4	1.	8.
MANGANESE (MN), UG/L	4	20.	100.	4	0.0	60.
MERCURY (HG), UG/L	4	.0	1.0	4	.0	.1
SELENIUM (SE), UG/L	4	0.0	7.	4	0.0	4.
ZINC (ZN), UG/L	4	60.	820.	4	40.	310.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	7.7				
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	4	3.8	78.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 13022500 NAME: SNAKE RIVER ABOVE RESEVOIR NEAR ALPINE, WYOMING

LAT 43D16M06S LONG 111D46M53S
DRAINAGE AREA: 3465 SQ MI (8974 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	5.0	5.2		13.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	311	75	197	410					
STREAMFLOW (CUBIC FT/SEC)	40	6030	7100	1600	22400					
PH (STANDARD UNITS)	12	8.5	.3	8.1	9.1	12	8.99	-.00174	-.42	.297
PHOSPHORUS, TOTAL	10	.02	.02	.00	.06	10	.0019	.00005	.18	.021
NITRITE + NITRATE, TOTAL	4	.02	.02	.00	.05	4	.039	-.00005	-.21	.027
NITROGEN, KJELDAHL	6	.38	.41	.04	1.2	6	1.68	-.00393	-.74	.310
PHYTOPLANKTON, TOTAL (CELLS/ML)										
SEDIMENT, SUSPENDED	9	138	317	2	973					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	12	46	52	8	190					
STREPTOCOCCI, FECAL (COL/100 ML)	9	41	56	8	190					
SILICA, DISSOLVED	12	13	1.9	9.0	15	12	7.74	.01529	.61	1.6
CALCIUM, DISSOLVED	12	40	8.8	25	49	12	6.97	.10500	.90	4.0
MAGNESIUM, DISSOLVED	12	8.6	2.8	1.8	12	12	-.74	.02996	.80	1.7
SODIUM, DISSOLVED	12	8.4	2.1	5.4	11	12	1.01	.02367	.84	1.23
POTASSIUM, DISSOLVED	12	1.9	.4	1.4	2.6	12	.496	.00459	.87	.211
BICARBONATE, ION	12	128	21	98	150	12	46.9	.26084	.95	6.83
CARBONATE, ION	12	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	12	40	16	18	60	12	-24.7	.20650	.97	4.2
CHLORIDE, DISSOLVED	12	5.4	2.4	1.8	9.0	12	.53	.01549	.50	2.15
DISSOLVED SOLIDS, ROE 180 DEG C	1	204		204	204					
DISSOLVED SOLIDS, SUM OF CONST	12	180	41	122	226	12	14.2	.53117	.98	8.7
HARDNESS, TOTAL	12	135	31	90	170	12	9.9	.40178	.96	8.9
HARDNESS, NONCARBONATE	12	30	16	10	53	12	-28.8	.18853	.90	7.02
TURBIDITY (JTU)	12	11	26	.5	90	12	58.8	-.15382	.46	23.8
FLUORIDE, DISSOLVED	12	.5	.1	.3	.6	12	.373	.00025	.24	.081

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 273

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	376	366	360	351	340	265	234	211	200	190

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
268	7.76	6.51	2.45	92.84	1.40

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

13022500 -- SNAKE R AB RESERVOIR NEAR ALPINE, WYO

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	3	3.	5.	3	3.	5.
CADMIUM (CD), UG/L	3	<10.	<10.	3	0.0	1.
CHROMIUM (CR), UG/L	3	0.0	0.0	3	0.0	0.0
COBALT (CO), UG/L	3	<50.	100.	3	0.0	2.
COPPER (CU), UG/L	3	<10.	<10.	3	1.	4.
IRON (FE), UG/L	3	50.	210.	4	10.	80.
LEAD (PB), UG/L	3	<100.	<100.	3	3.	14.
MANGANESE (MN), UG/L	3	0.0	20.	3	0.0	20.
MERCURY (HG), UG/L	4	.0	.0	4	.0	.0
SELENIUM (SE), UG/L	3	0.0	1.	3	0.0	2.
ZINC (ZN), UG/L	3	10.	50.	3	0.0	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	2.7	2.7			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 13213000 NAME: BOISE RIVER NR. PARMA, IDAHO

LAT 43D46M54S LONG 116D58M17S
DRAINAGE AREA: 3970 SQ MI (10280 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	8	11.9	6.6	4.5	22.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	8	336	218	129	634					
STREAMFLOW (CUBIC FT/SEC)	7	4370	2640	980	6340					
PH (STANDARD UNITS)	8	6.6	2.7	0	8.1	8	4.4	.00648	.52	2.5
PHOSPHORUS, TOTAL	6	.30	.13	.14	.48	6	.075	.00057	.91	.062
NITRITE + NITRATE, TOTAL	5	1.3	.90	.27	2.5	5	-.164	.00408	.90	.444
NITROGEN, KJELDAHL	5	.94	.42	.39	1.5	5	.907	.00010	.05	.48
PHYTOPLANKTON, TOTAL (CELLS/ML)	1	4600		4600	4600					
SEDIMENT, SUSPENDED										
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	6	480	810	0	2100					
STREPTOCOCCI, FECAL (COL/100 ML)										
SILICA, DISSOLVED	6	27	9.3	15	38	6	9.32	.04388	.99	1.06
CALCIUM, DISSOLVED	6	32	14	13	48	6	5.76	.06636	.99	1.93
MAGNESIUM, DISSOLVED	6	8.6	4.8	2.1	14	6	-.39	.02236	.98	1.01
SODIUM, DISSOLVED	6	42	24	9.7	68	6	-3.8	.11273	.99	3.5
POTASSIUM, DISSOLVED	6	4.0	1.7	1.5	5.7	6	.83	.00799	.97	.45
BICARBONATE, ION	8	153	103	0	281	8	13.6	.41668	.88	52.9
CARBONATE, ION	8	0.0	0.0	0	0					
SULFATE, DISSOLVED	6	39	21	10	64	6	-1.83	.10039	.99	1.73
CHLORIDE, DISSOLVED	6	13	7.9	2.6	21	6	-1.91	.03676	.99	1.32
DISSOLVED SOLIDS, ROE 180 DEG C	6	208	120	80	342	7	18.9	.59148	.98	23.6
DISSOLVED SOLIDS, SUM OF CONST	7	239	130	83	403	7	24.9	.58671	.98	30.6
HARDNESS, TOTAL	7	107	59	41	180	7	8.7	.26892	.99	7.01
HARDNESS, NONCARBONATE	7	0.0	0.0	0.0	0.0					
TURBIDITY (JTU)	5	10	12	1.0	30	5	4.4	.01566	.27	12.8
FLOURIDE, DISSOLVED	6	.5	.1	.3	.6	6	.275	.00052	.94	.046

DURATION TABLE OF DAILY SPECIFIC CONDUCTANCE NO. OF MEAS. = 211

DAILY SPECIFIC CONDUCTANCE IN MICROMHOS AT 25 DEG C, THAT WAS EQUALLED OR EXCEEDED FOR THE INDICATED PERCENTAGE OF TIME	1%	5%	10%	20%	30%	50%	70%	90%	95%	99%
	1038	939	917	783	544	390	289	111	103	50

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
118	3.33	18.92	2.48	76.7	2.80

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

13213000 — BOISE RIVER NEAR PARMA, IDAHO

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	4.	9.	2	4.	12.
CADMIUM (CD), UG/L	2	<10.	10.	3	<1.	3.
CHROMIUM (CR), UG/L	2	0.0	0.0	2	0.0	0.0
COBALT (CO), UG/L	2	<50.	<50.	3	0.0	1.
COPPER (CU), UG/L	2	<10.	20.	3	2.	32.
IRON (FE), UG/L	2	830.	2400.	2	40.	60.
LEAD (PB), UG/L	2	<100.	200.	3	2.	23.
MANGANESE (MN), UG/L	2	70.	650.	2	40.	740.
MERCURY (HG), UG/L	2	.0	1.0	2	.0	.7
SELENIUM (SE), UG/L	2	0.0	1.	2	0.0	1.
ZINC (ZN), UG/L	2	50.	80.	2	40.	80.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	58.				
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	4.3	5.0			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 13353200 NAME: SNAKE RIVER AT BURBANK, WASHINGTON

LAT 46D12M59S LONG 119D01M22S
DRAINAGE AREA: 108000 SQ MI (281800 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	11.6	5.9	4.4	20.8					
SPECIFIC CONDUCTANCE (MICROMHOS)	12	204	83	75	323					
STREAMFLOW (CUBIC FT/SEC)	12	86600	75700	23900	301000					
PH (STANDARD UNITS)	12	7.8	.2	7.3	8.1	12	7.46	.00141	.60	.162
PHOSPHORUS, TOTAL	12	.08	.04	.03	.15	12	.093	-.00007	-.15	.043
NITRITE + NITRATE, TOTAL	12	.43	.34	.05	.98	12	-.053	.00239	.58	.289
NITROGEN, KJELDAHL	12	.28	.14	.12	.61	12	.234	.00024	.14	.143
PHYTOPLANKTON, TOTAL (CELLS/ML)	12	13000	37000	230	130000	12	10808	12.2	.03	38622
SEDIMENT, SUSPENDED	12	35	57	2.0	204					
SEDIMENT, CLAY-SILT (PERCENT)	10	91	12	58	98					
COLIFORM, FECAL (COL/100 ML)	12	19	30	<1	91					
STREPTOCOCCI, FECAL (COL/100 ML)	12	29	40	3	129					
SILICA, DISSOLVED	12	18	4.9	11	23	12	9.68	.03884	.65	3.91
CALCIUM, DISSOLVED	12	18	6.2	7.7	27	12	3.145	.07370	.99	.988
MAGNESIUM, DISSOLVED	12	6.0	3.0	1.6	11	12	-1.41	.03611	.99	.425
SODIUM, DISSOLVED	12	14	7.9	3.9	27	12	-4.4	.09188	.96	2.3
POTASSIUM, DISSOLVED	12	2.2	.9	1.0	3.7	12	.16	.01022	.98	.175
BICARBONATE, ION	12	86	33	32	142	12	4.77	.39913	.99	4.38
CARBONATE, ION	7	.44	1	0	3	7	-1.42	.00733	.60	1.18
SULFATE, DISSOLVED	12	20	12	5.7	42	12	-7.72	.13421	.96	3.18
CHLORIDE, DISSOLVED	12	7.2	3.9	1.8	14	12	-2.3	.04670	.98	.804
DISSOLVED SOLIDS, ROE 180 DEG C	12	131	52	52	212	12	2.8	.62864	.99	5.91
DISSOLVED SOLIDS, SUM OF CONST	12	128	52	49	215	12	-.224	.62886	.99	5.21
HARDNESS, TOTAL	12	69	27	26	110	12	2.89	.32689	.99	3.83
HARDNESS, NONCARBONATE	12	1	2	.0	7.0	12	-.998	.01063	.41	2.08
TURBIDITY (JTU)	12	16	18	2.0	60	12	34.6	-.08924	-.42	16.8
FLUORIDE, DISSOLVED	12	.4	.2	.2	.8	12	.229	.00060	.28	.174

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
279	11.39	8.96	2.37	92.03	1.52

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

13353200 -- SNAKE RIVER AT BURBANK, WASH.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	4	3.	4.	4	0.0	5.
CADMIUM (CD), UG/L	4	<10.	<10.	4	0.0	<1.
CHROMIUM (CR), UG/L	4	0.0	<10.	4	0.0	0.0
COBALT (CO), UG/L	4	<25.	<50.	4	0.0	2.
COPPER (CU), UG/L	4	<10.	40.	4	6.	8.
IRON (FE), UG/L	4	230.	3600.	4	10.	50.
LEAD (PB), UG/L	4	<50.	<100.	4	0.0	2.
MANGANESE (MN), UG/L	4	20.	150.	4	0.0	40.
MERCURY (HG), UG/L	4	.0	.3	4	.0	.1
SELENIUM (SE), UG/L	4	0.0	4.	4	0.0	4.
ZINC (ZN), UG/L	4	0.0	120.	4	0.0	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	1	.80				
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	4	1.5	5.5			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 14128910 NAME: COLUMBIA RIVER AT WARRENDALE, OREGON

LAT 45D36M45S LONG 122D01M35S
DRAINAGE AREA: 240400 SQ MI (622636 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	11	15.6	4.4	9.6	21.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	16	140	27	107	197					
STREAMFLOW (CUBIC FT/SEC)	1	120000		120000	120000					
PH (STANDARD UNITS)	16	7.6	.5	6.5	8.1	16	8.3	-.00511	-.30	.452
PHOSPHORUS, TOTAL	16	.10	.13	.03	.55	16	-.206	.00221	.47	.115
NITRITE + NITRATE, TOTAL	16	.20	.18	.03	.58	16	-.589	.00563	.83	.105
NITROGEN, KJELDAHL	16	.44	.48	.02	2.0	16	.047	.00278	.16	.492
PHYTOPLANKTON, TOTAL (CELLS/ML)	3	8000	4000	3600	11000					
SEDIMENT, SUSPENDED	15	5	4	1.0	14					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	14	8	9	1	32					
STREPTOCOCCI, FECAL (COL/100 ML)	15	6	7	0	20					
SILICA, DISSOLVED	15	11	4.3	5.5	18	15	-.863	.08653	.47	3.9
CALCIUM, DISSOLVED	11	17	2.0	13	19	11	7.8	.06302	.80	1.24
MAGNESIUM, DISSOLVED	11	5.3	2.7	3.2	13	11	4.9	.00292	.03	2.85
SODIUM, DISSOLVED	11	5.4	2.1	3.1	10	11	-4.96	.07484	.88	1.05
POTASSIUM, DISSOLVED	11	1.4	6.3	.60	3.0	11	.29	.00798	.32	.631
BICARBONATE, ION	13	67	10	52	86	13	20.1	.32977	.94	3.78
CARBONATE, ION	11	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	12	12	3	7.9	15	12	-2.5	.10404	.96	.842
CHLORIDE, DISSOLVED	12	2.5	.8	1.1	4.0	12	-1.27	.02767	.83	.49
DISSOLVED SOLIDS, ROE 180 DEG C	14	88	22	64	124	14	-25.5	.84446	.88	10.97
DISSOLVED SOLIDS, SUM OF CONST	9	89	15	71	110	9	14.8	.52366	.96	4.35
HARDNESS, TOTAL	11	63	13	46	96	11	40.4	.30649	.31	13.4
HARDNESS, NONCARBONATE	9	4	3	1.0	11	9	-3.7	.05495	.45	3.11
TURBIDITY (JTU)	10	12	9.8	2.0	30	10	-9.01	.15501	.40	9.5
FLUORIDE, DISSOLVED	11	.3	.2	.0	.7	11	-.272	.00386	.49	.180

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

14128910 -- COLUMBIA RIVER AT WARRENDALE,OREG.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	12	0.0	6.	6	0.0	2.
CADMIUM (CD), UG/L	12	<10.	<10.	3	0.0	0.0
CHROMIUM (CR), UG/L	12	0.0	50.	4	0.0	30.
COBALT (CO), UG/L	6	<50.	<50.	3	0.0	1.
COPPER (CU), UG/L	12	<10.	20.	3	6.	16.
IRON (FE), UG/L	11	100.	1800.	5	50.	200.
LEAD (PB), UG/L	12	0.0	<100.	3	2.	12.
MANGANESE (MN), UG/L	6	0.0	3000.	4	0.0	30.
MERCURY (HG), UG/L	8	.0	2.5	4	.0	.0
SELENIUM (SE), UG/L	12	0.0	3.	6	0.0	3.
ZINC (ZN), UG/L	12	10.	120.	4	10.	50.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	15	2.2	3.8			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 14321000 NAME: UMPQUA RIVER NEAR ELKTON, OREGON

LAT 43D25M10S LONG 123D32M30S
DRAINAGE AREA: 3683 SQ MI (9539 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	11	13.7	6.0	3.5	21.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	10	83.1	14.22	51	124					
STREAMFLOW (CUBIC FT/SEC)	11	8290	7980	1010	24500					
PH (STANDARD UNITS)	10	7.1	.3	6.7	7.6	9	5.89	.01456	.86	.19
PHOSPHORUS, TOTAL	9	.08	.05	.03	.16	9	.083	-.00005	-.02	.049
NITRITE + NITRATE, TOTAL	9	.08	.07	.01	.21	9	.0294	.00057	.17	.076
NITROGEN, KJELDAHL	8	.46	.32	.10	.90	8	-.657	.01485	.66	.266
PHYTOPLANKTON, TOTAL (CELLS/ML)										
SEDIMENT, SUSPENDED	5	10	4	.06	16					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	5	3	2	2	6					
STREPTOCOCCI, FECAL (COL/100 ML)	5	3	2	1	5					
SILICA, DISSOLVED	9	17	1.9	15	21	9	17.2	.00206	.023	1.99
CALCIUM, DISSOLVED	9	6.7	1.0	5.4	9.0	9	4.79	.02359	.49	.94
MAGNESIUM, DISSOLVED	9	2.4	.3	1.7	2.8	9	1.50	.01101	.74	.226
SODIUM, DISSOLVED	9	5.9	3.0	2.8	12	9	-2.87	.10867	.77	2.05
POTASSIUM, DISSOLVED	9	1.0	.3	.60	1.4	9	.205	.00969	.73	.205
BICARBONATE, ION	9	36	6	27	46	9	24.4	.13858	.53	4.98
CARBONATE, ION	5	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	9	3.8	1.2	2.4	6.1	9	1.16	.03221	.57	1.06
CHLORIDE, DISSOLVED	9	4.7	2.4	1.8	8.5	9	-3.24	.09844	.86	1.3
DISSOLVED SOLIDS, ROE 180 DEG C	4	74	41	51	136	4	-7.39	1.201	.33	48.0
DISSOLVED SOLIDS, SUM OF CONST	9	60	96	44	74		28.0	.40109	.88	4.84
HARDNESS, TOTAL	9	26	36	20	34	9	17	.11024	.64	3.00
HARDNESS, NONCARBONATE	9	.22	.67	0	2.0	9	-.055	.00342	.07	.708
TURBIDITY (JTU)	4	1.2	.50	1.0	2.0	4	.490	.01122	.25	.59
FLUORIDE, DISSOLVED	9	.1	.1	.1	.2	9	.084	.00034	.09	.083

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

14321000 -- UMPQUA RIVER NEAR ELKTON, OREG.

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	1.	3.	2	3.	5.
CADMIUM (CD), UG/L	2	<10.	<10.	2	2.	2.
CHROMIUM (CR), UG/L	2	0.0	0.0	2	0.0	0.0
COBALT (CO), UG/L	2	<50.	<50.	2	0.0	1.
COPPER (CU), UG/L	2	10.	20.	2	3.	10.
IRON (FE), UG/L	2	320.	3400.	7	20.	390.
LEAD (PB), UG/L	2	<100.	<100.	2	3.	5.
MANGANESE (MN), UG/L	2	40.	80.	2	20.	80.
MERCURY (HG), UG/L	2	.0	.3	2	.0	.0
SELENIUM (SE), UG/L	2	0.0	1.	2	0.0	2.
ZINC (ZN), UG/L	2	160.	800.	2	10.	40.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	1.5	2.2			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 15515500 NAME: TANANA R. AT NENANA AK.

LAT 64D33M55S LONG 149D05M30S
DRAINAGE AREA: 25600 SQ MI (66300 SQ KM) APPROXIMATELY
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	9	2.9	5.8		15.0					
SPECIFIC CONDUCTANCE (MICROMHOS)	6	262	65	177	340					
STREAMFLOW (CUBIC FT/SEC)	9	10400	11700	4030	34000					
PH (STANDARD UNITS)	6	7.6	3.1	7.0	7.9	6	7.52	.00018	.04	.344
PHOSPHORUS, TOTAL	6	.15	.19	.02	.45	6	.74	-.00226	-.78	.13
NITRITE + NITRATE, TOTAL	9	.12	.11	.00	.30	6	.117	.00024	.20	.084
NITROGEN, KJELDAHL	6	.40	.26	.16	.80	6	1.01	-.00234	-.59	.231
PHYTOPLANKTON, TOTAL (CELLS/ML)	3	640	630	39	1300	3	2376	-7.068	-.94	297
SEDIMENT, SUSPENDED	9	112	305	.0	924					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	3	970	1100	270	2250					
STREPTOCOCCI, FECAL (COL/100 ML)	3	110	100	26	220					
SILICA, DISSOLVED	6	14	4.8	7.4	19	6	.43	.05097	.70	3.8
CALCIUM, DISSOLVED	6	40	12	24	54	6	3.9	.13563	.74	8.89
MAGNESIUM, DISSOLVED	6	8.4	1.9	5.0	10	6	2.7	.02142	.72	1.5
SODIUM, DISSOLVED	6	4.3	9.0	2.7	5.1	6	1.3	.01157	.84	.54
POTASSIUM, DISSOLVED	6	2.4	.5	1.7	2.9	6	1.22	.00431	.60	.413
BICARBONATE, ION	6	137	38	79	173	6	24.2	.43004	.74	28.4
CARBONATE, ION	4	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	9	20	16	.0	34	6	28.16	.00954	.20	3.44
CHLORIDE, DISSOLVED	6	2.3	.5	1.4	2.7	6	2.6	-.00121	-.16	.56
DISSOLVED SOLIDS, ROE 180 DEG C	6	183	29	136	218	6	112.2	.27047		14.2
DISSOLVED SOLIDS, SUM OF CONST	6	170	38	117	212	6	53.5	.44276	.75	28.3
HARDNESS, TOTAL	6	132	376	81	180	6	22.02	.42116	.73	28.8
HARDNESS, NONCARBONATE	6	21	8	11	34	6	.7004	.07612	.63	6.8
TURBIDITY (JTU)	8	33	58	1.0	150	6	225.3	-.69365	.69	52.6
FLUORIDE, DISSOLVED	6	.2	.1	.1	.3	6	.174	.00016	.08	38.5

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

15515500 — TANANA R AT NENANA AK

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	2	0.0	10.	2	0.0	1.
CADMIUM (CD), UG/L	2	<10.	360.	2	1.	42.
CHROMIUM (CR), UG/L	2	0.0	0.0	2	0.0	0.0
COBALT (CO), UG/L	2	<50.	<50.	2	0.0	0.0
COPPER (CU), UG/L	2	<10.	110.	2	3.	10.
IRON (FE), UG/L	2	810.	20000.	2	30.	390.
LEAD (PB), UG/L	2	<100.	<100.	2	1.	22.
MANGANESE (MN), UG/L	2	190.	350.	2	250.	1200.
MERCURY (HG), UG/L	2	.2	.4	2	.0	.3
SELENIUM (SE), UG/L	2	0.0	0.0	2	0.0	0.0
ZINC (ZN), UG/L	2	30.	400.	2	10.	20.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	2	11.	14.			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 16213000 NAME: WAIKELE STREAM AT WAIPAHU, OAHU, HI

LAT 21D23M11S LONG 158D00M49S
DRAINAGE AREA: 46 SQ MI (118 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY				
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	10	22.6	1.4	20.5	25.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	10	328	86	200	430					
STREAMFLOW (CUBIC FT/SEC)	24	316	984	4.6	4770					
PH (STANDARD UNITS)	8	7.0	.4	6.3	7.5	8	6.39	.00183	.37	.375
PHOSPHORUS, TOTAL	11	.98	.44	.17	1.7	10	-.561	.00462	.85	.26
NITRITE + NITRATE, TOTAL	24	.94	1.1	0	3.3	10	-.0815	.00630	.81	.41
NITROGEN, KJELDAHL	11	.57	.24	.08	.92	10	.663	-.00022	-.078	.255
PHYTOPLANKTON, TOTAL (CELLS/ML)	11	2900	5300	140	18000	10	15577	-38.1	-.59	4759
SEDIMENT, SUSPENDED	24	905	2331	0	10100					
SEDIMENT, CLAY-SILT (PERCENT)	12	99	2	93	100					
COLIFORM, FECAL (COL/100 ML)	11	1600	2600	210	9200					
STREPTOCOCCI, FECAL (COL/100 ML)	11	1300	1200	62	3500					
SILICA, DISSOLVED	5	46	16	24	64	5	-17.4	.19578	.99	1.14
CALCIUM, DISSOLVED	5	9.6	65	8.0	11	5	4.07	.01713	.94	.560
MAGNESIUM, DISSOLVED	5	7.0	1.7	4.8	8.8	5	.412	.02036	.96	.577
SODIUM, DISSOLVED	5	43	14	23	58	5	-13.4	.17356	.99	2.86
POTASSIUM, DISSOLVED	5	3.0	.8	2.0	3.9	5	.065	.00897	.97	.208
BICARBONATE, ION	5	58	18	37	79	5	-11.1	.21408	.98	4.07
CARBONATE, ION	2	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	24	3.8	7.6	.0	20	5	8.98	.02859	.94	.98
CHLORIDE, DISSOLVED	5	55	17	32	72	5	-8.16	.19453	.96	5.14
DISSOLVED SOLIDS, ROE 180 DEG C	5	223	68	128	293	5	-43.5	.82607	.99	10.9
DISSOLVED SOLIDS, SUM OF CONST	5	210	62	126	274	5	-31.0	.74592	.99	9.95
HARDNESS, TOTAL	5	53	11	40	64	5	12.2	.12589	.97	3.13
HARDNESS, NONCARBONATE	5	5	4	0	10	5	19.6	-.04404	-.87	2.39
TURBIDITY (JTU)	6	35	28	9.0	80	6	146	-.32747	-.99	4.3
FLUORIDE, DISSOLVED	5	.2	.1	.1	.3	5	-.091	-.00090	.74	.078

SUMMARY OF HARMONIC ANALYSIS OF STREAM TEMPERATURE
FORM OF EQUATION: T'(D) = M + A * SIN(.0172 * D + C)

NO. OF MEAS.	HARMONIC MEAN -M (DEG C)	AMPLITUDE -A (DEG C)	PHASE ANGLE - C (RADIANS)	VARIATION EXPLAINED (%)	STANDARD ERROR OF ESTIMATE (DEG C)
353	22.96	0.55	2.51	98.1	1.37

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

16213000 — WAIKELE STREAM AT WAIPAHU, OAHU, HI

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	6	0.0	2.	6	0.0	1.
CADMIUM (CD), UG/L	5	<10.	10.	6	0.0	1.
CHROMIUM (CR), UG/L	5	0.0	0.0	6	60.0	0.0
COBALT (CO), UG/L	5	<50.	<50.	6	0.0	3.
COPPER (CU), UG/L	5	<10.	30.	6	2.	10.
IRON (FE), UG/L	6	0.0	3400.	6	10.	100.
LEAD (PB), UG/L	5	<100.	<100.	6	0.0	5.
MANGANESE (MN), UG/L	5	80.	180.	6	50.	130.
MERCURY (HG), UG/L	6	.0	.1	6	.0	.0
SELENIUM (SE), UG/L	6	0.0	6.	6	1.	4.
ZINC (ZN), UG/L	5	0.0	230.	6	0.0	10.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	3	1.5	4.6			
BIOMASS, ASH WT., G/SQ M	3	.76	9.2			
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	6	3.3	5.0			

Table 9.--Summary of measurements at each station--Continued

STATION NUMBER: 50046000 NAME: RIO DE LA PLATA AT TOA ALTA, PR

LAT 18D23M50S LONG 066D15M17S
DRAINAGE AREA: 200 SQ MI (518 SQ KM)
PERIOD OF RECORD: 10/01/73 - 09/30/74

STATISTICAL SUMMARY OF SELECTED DISSOLVED CHEMICAL CONSTITUENTS AND REGRESSION RELATIONSHIPS OF CONSTITUENT CONCENTRATIONS TO SPECIFIC CONDUCTANCE

CONSTITUENT	CONSTITUENT (MG/L OR UNIT SHOWN)					REGRESSION SUMMARY			
	NO. OF SAMPLES	MEAN	STANDARD DEVIATION	RANGE		NO. OF SAMPLES	CONSTANT, A	REGRESSION COEFFICIENT, B	CORRELATION COEFFICIENT	STANDARD ERROR OF ESTIMATE
TEMPERATURE, WATER (DEG C)	12	25.6	2.3	23.0	30.5					
SPECIFIC CONDUCTANCE (MICROMHOS)	14	576	253	350	1400					
STREAMFLOW (CUBIC FT/SEC)	7	220	486	0	12					
PH (STANDARD UNITS)	14	7.2	.3	6.6	7.8	14	7.05	.00035	.27	.323
PHOSPHORUS, TOTAL	10	.08	.08	0	.29	10	.051	.00005	.19	.086
NITRITE + NITRATE, TOTAL	14	.07	.11	0	.38	10	.207	-.00019	-.46	.114
NITROGEN, KJELDAHL	11	.77	1.1	.12	4.0	11	.813	-.00007	-.02	1.17
PHYTOPLANKTON, TOTAL (CELLS/ML)	6	9700	21000	57	53000	6	11765	-3.137	.05	23748
SEDIMENT, SUSPENDED	14	39	49	0	157					
SEDIMENT, CLAY-SILT (PERCENT)										
COLIFORM, FECAL (COL/100 ML)	6	550	830	0	2200					
STREPTOCOCCI, FECAL (COL/100 ML)	6	190	250	0	680					
SILICA, DISSOLVED	9	19	3	14	23	9	6.01	.02623	.76	2.15
CALCIUM, DISSOLVED	6	63	13	54	87	6	7.96	.11518	.93	5.15
MAGNESIUM, DISSOLVED	6	13	2.8	7.7	15	6	3.97	.01805	.66	2.32
SODIUM, DISSOLVED	8	21	4.4	14	29	8	1.9	.04037	.79	2.9
POTASSIUM, DISSOLVED	6	2.6	1.3	1.6	4.9	6	4.5	-.00402	-.32	1.34
BICARBONATE, ION	9	221	35	169	298	9	93.9	.25720	.65	28.3
CARBONATE, ION	8	0.0	0.0	0.0	0.0					
SULFATE, DISSOLVED	14	6.8	7.6	0	21	7	28.1	-.02901	-.74	2.94
CHLORIDE, DISSOLVED	9	39	13	25	67	9	-22.3	.12321	.84	7.5
DISSOLVED SOLIDS, ROE 180 DEG C	3	313	90	240	413	3	35.0	.57796	.99	4.9
DISSOLVED SOLIDS, SUM OF CONST	4	290	66	224	381	48	48.0	.51034	.98	17.0
HARDNESS, TOTAL	6	210	37	170	280	6	40.7	.35328	.95	12.6
HARDNESS, NONCARBONATE	6	38	27	13	90	6	30.0	.01660	.06	30.5
TURBIDITY (JTU)	3	13	15	4.0	30	3	46.8	-.07095	-.73	14.5
FLUORIDE, DISSOLVED	9	.2	.1	.1	.3	9	.0027	.00034	.35	.087

SUMMARY OF MAXIMUM AND MINIMUM CONCENTRATIONS OF CONSTITUENTS SAMPLED AT A FREQUENCY OF QUARTERLY (1974 WY)

50046000 -- RIO DE LA PLATA AT TOA ALTA, PR

CONSTITUENT	TOTAL			DISSOLVED		
	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC	NO. SAMPLES	MINIMUM CONC.	MAXIMUM CONC.
MINOR ELEMENTS:						
ARSENIC (AS), UG/L	5	2.	6.	3	0.0	4.
CADMIUM (CD), UG/L	3	0.0	1.	3	0.0	3.
CHROMIUM (CR), UG/L	2	0.0	<10.	3	0.0	3.
COBALT (CO), UG/L	2	0.0	3.	3	0.0	6.
COPPER (CU), UG/L	1	15.		3	1.	6.
IRON (FE), UG/L	2	220.	2300.	3	0.0	10.
LEAD (PB), UG/L	2	10.	25.	3	3.	6.
MANGANESE (MN), UG/L	6	0.	1300.	3	290.	830.
MERCURY (HG), UG/L	1	.1		2	.1	2.
SELENIUM (SE), UG/L	1	0.0		3	0.0	4.
ZINC (ZN), UG/L	2	5.	10.	3	10.	30.
PERIPHYTON:						
BIOMASS, DRY WT., G/SQ M	0					
BIOMASS, ASH WT., G/SQ M	0					
CHLOROPHYLL A, MG/SQ M	0					
CHLOROPHYLL B, MG/SQ M	0					
ORGANIC CARBON, MG/L	6	3.2	8.4			