UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 10

NATIONAL WATER QUALITY SURVEILLANCE SYSTEM (NWQSS) REPORT

JUNE 1975 - MAY 1976

Surveillance & Analysis Division

REGION X · PACIFIC NORTHWEST & ALASKA
1200 SIXTH AVENUE, SEATTLE, WASHINGTON 98101

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NATIONAL WATER QUALITY
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Division

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SUBJECT: Semi-Annual National Water Quality Surveillance System (NWQSS) Report

DATE: April 13, 1977

FROM: Gary L. O'Neal, Director
Surveillance & Analysis Division, Region 10

TO: Clyde B. Eller, Director
S&A Division, EPA
100 California Street
San Francisco, California 94111

The attached report is the first of a semi-annual report series which is designed to inform environmental managers, planners, and other interested technical individuals about the current water quality status at key river points within Region 10 of the Environmental Protection Agency. Only the contiguous states of Oregon, Washington, and Idaho are included in the report. The water quality status in Alaska will be reported in the future when an adequate water quality network can be established. The current report date range is from June 1975 through May 1976.

Water quality and some biological information is presented in the form of three dimensional graphs depicting water quality over time and distance so that the entire year's status for a river basin can be quickly reviewed. Actual numerical data is available from EPA's "STORET" system at any time if needed for a more detailed evaluation.

Future reports will include trend assessments at key stations within each basin, the current year's water quality (updated every six months), as well as an expanded water quality and biological data coverage in the Yakima and Willamette River Basins. The next report due in May 1977 will include data from January 1976 through December 1976.

Any suggestions or comments by the readers that may help improve future reports will be appreciated. Please address any comments to Bill Schmidt of the Surveillance and Analysis Division.

Enclosure

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REGION 10 NATIONAL WATER QUALITY
SURVEILLANCE SYSTEM (NWQSS) REPORT

INTRODUCTION

Federal and state environmental agencies maintain ambient monitoring networks to measure the quality of our water environment. These monitoring networks are invaluable in determining where pollution problems exist and to measure the success or failures of abatement and pollution prevention programs.

A report similar to this will be published on a semi-annual basis. Any suggestions for improving the information presented in this document and/or future documents will be appreciated. Please direct your comments to the Surveillance and Analysis Division Director, U.S. Environmental Protection Agency, 1200 Sixth Avenue, Seattle, Washington 98101.

1. PURPOSE:

The purpose of this report is to present the ambient water quality and biological status of the waters encompassed by Region 10 of EPA (see map on Figure 1). At the present time this report includes only the freshwater streams of Oregon, Washington, and Idaho. Future monitoring programs will enable coverage that will include the State of Alaska as well as the major estuarine areas within the entire region.

The current report layout includes three dimensional graphs depicting the stream quality constituents spatially and temporally for the major rivers. Corresponding parameters at the mouth stations of the significant tributaries to the major rivers are shown on bar charts on the adjacent facing page. Whenever possible, the criteria levels are shown for the purpose of developing a comparative base for each station and to present graphically the severity of the pollution problem. These criteria are discussed later in the Introduction of this report. Future reports will include trend analysis at key stations when a sufficient amount of compatible data is collected. The data used in this report is stored in EPA's "STORET" computer system. The period of data record used in developing this report are indicated on each graph.

The information provided herein is not intended to answer "cause and effect" questions but is presented to show the current ambient status of water quality throughout the region. It is understood that many of the water quality problems are on tributaries of major streams or are in local areas not associated with major streams; however, the major streams function as integraters of pollution problems and, therefore, reflect the long term changes in water quality conditions of the tributaries. The shorter term state and regional

monitoring programs are designed in part to show immediate and more dramatic changes in water quality closer to the sources. Stations on the major river system lend more support to the national, regional, and state picture than the more erratic and quick response minor streams.

The data base used in this report is from the National Water Quality Surveillance System (NWQSS) which is a minimum primary network of water quality and biological stations which are discussed in the following section.

2. MONITORING PROGRAM DESCRIPTION:

The primary ambient water quality monitoring program used in Region 10 of EPA is part of a national monitoring program called "National Water Quality Surveillance System" or NWQSS which was originally designed to assess the general ambient water quality status of the major rivers and streams of the nation. Region 10 of EPA and the states of Oregon, Washington, and Idaho have modified and expanded the network to include additional stations designed to help identify water quality problems, establish trends, and assess progress toward water quality improvement. The NWQSS network is a primary system of fixed monitoring stations (sampled on a monthly or biweekly basis) by either EPA, the United States Geological Survey, and/or the state environmental agencies. There are approximately 60 such stations in the Region 10 states of Oregon, Washington, and Idaho. Table 1 lists the station location, collecting agency, and other information pertaining to each station within the region. The station locations are shown on specific river basin maps which are presented in each of the following data sections of this report.

The following criteria was used to select the major rivers, significant tributaries, and station locations that represent the regional NWQSS network.

NWQSS CRITERIA

I. MAJOR RIVERS

1. Rivers that are classified as major when they have one of the following characteristics:

   a. A drainage area greater than 100,000 mile^2.
   b. An average annual discharge at the mouth of greater than 50,000 cfs.
   c. A length of 200 miles or more.

d. Major cities of 100,000 or more people and/or major industrial complexes with discharges.
e. Are interstate, international, or terminal streams with a length of 200 miles or more.

Once major rivers are classified, stations on the river are located using the following criteria:

1. Above and below the confluence of significant tributaries (as well as near the mouth of significant tributaries--see II below).
2. Downstream of major land use areas such as agricultural or municipal and industrial.
3. At international or state borders.

A significant tributary is also considered a major river if it meets the above criteria.

II. SIGNIFICANT TRIBUTARIES

1. Significant tributaries are classified using one or more of the following criteria:

   a. The flow of the tributary is 10% or more of the major river (measured downstream of the tributary confluence).
   b. River basin population per square mile of drainage area is at least 70 people/mile^2.
   c. Population of any single community is 200,000 people or more.
   d. Industrial loading adversely affects stream quality in drainage areas greater than 1000 miles^2.
   e. Amount of irrigated land per square mile of drainage area is 0.5 or 50% or more and when drainage area exceeds 1000 miles^2.
   f. Amount of forest land per mile^2 of drainage area is 0.5 or 50% or greater when drainage area exceeds 1000 miles^2.

Other factors may dictate station locations in major rivers and significant tributaries. One factor is the existing location of USGS NASQAN stations. These stations were utilized wherever possible.

EPA is considered to be responsible for all major interstate or international streams since no single state can effectively maintain water quality in those streams.

The states are responsible for the monitoring of and reporting data for interstate streams which include most tributaries to the major rivers.

3. PARAMETRIC COVERAGE:

The parametric coverage for the stations in the NWQSS network is shown on Table 2. At the present time there is some discrepancy among the various agencies' parametric coverage; however, negotiations are presently underway to develop a uniform parameter package. Station parameters covered by this report include a selection of those constituents which are, 1. considered significant in ambient station analysis and/or, 2. collected at each NWQSS station in the river basin under consideration.

4. REGION 10 WATER QUALITY CRITERIA:

Parameter	Criteria Level/Units	Environmental Impact and Reference
Temperature	20°C (68°F) MAX	To protect growth and migration routes of salmonids (Federal Water Pollution Control Administration (FWPCA), Water Quality Criteria, 1968).
Dissolved Oxygen	6 mg/l MIN 90% SAT MIN	For good growth and the general well-being of trout, salmon, and other species of cold water aquatic life, DO concentrations should not be below 6 mg/l (FWPCA, Water Quality Criteria, 1968). In addition, state water quality standards normally require 90% saturation for dissolved oxygen (Idaho and Oregon).
Dissolved Gas	110% SAT MAX	To prevent fish fatalities by "gas bubble disease", in which dissolved gases in the circulatory system come out of solution to form bubbles (emboli), which block the flow of blood through the capillary vessels (Environmental Protection Agency, Quality Criteria for Water, 1976).

Parameter	Criteria Level/Units	Environmental Impact and Reference
pH	6.5 MIN 8.5 MAX	The pH range of 5 to 9 is not directly lethal to fish. However, the toxicity of several common pollutants is markedly affected by pH changes within this range, and increasing acidity or alkalinity may make these poisons more toxic. Therefore, a pH range of 6.5 to 9.0 is desirable to protect freshwater aquatic life (EPA, Quality Criteria for Water, 1976). In primary contact recreation waters, the pH should be within the range of 6.5-8.3 (except when due to natural causes) to prevent the possibilities of eye irritations in humans (FWPCA, Water Quality Criteria, 1968). State pH standards range from 6.5 to 9.0 for Idaho and 6.5 to 8.5 for Oregon and Washington. In light of the above information, our criteria has been set at 6.5 to 8.5.
Turbidity	25 JTU MAX	Most state standards have a turbidity standard of "not to exceed 5 JTU over background or natural conditions". This is rather ambiguous as to what "background or natural conditions" are. Also, this type of standard does not relate to the fishable/swimmable concept. Excessive turbidity reduces photosynthesis by aquatic plant life and damages the spawning grounds of fish and habitat of aquatic invertebrates. Buck (1956) observed that maximum production in hatchery ponds and reservoirs occurred where the average turbidity was less than 25 JTU (FWPCA, Water Quality Criteria, 1968).

Parameter	Criteria Level/Units	Environmental Impact and Reference
Phosphorus	Total 0.05 mg/l-P Total 0.15 mg/l-PO_4 Ortho 0.025 mg/l-P Ortho 0.075 mg/l-PO_4 Diss. Ortho 0.01 mg/l-P	Limited studies made to date indicate that different species of algae have somewhat different phosphorus requirements, with the range of available phosphorus usually falling between 0.01 and 0.05 mg/l as P. At these levels, when other conditions are favorable, blooms may be expected. While there is no set relationship between total and available phosphorus (because the ratio varies with season, temperature, and plant growth), the total phosphorus is governing, as it is the reservoir that supplies the available phosphorus. A desirable guideline for total phosphorus is 0.05 mg/l as P where streams enter lakes or reservoirs (FWPCA, Water Quality Criteria, 1968). The other criteria levels for different units and forms of phosphorus have been determined by unit conversion and relationships found between the phosphorus forms in Region 10. The other forms of phosphorus are used only as indicators when data for total phosphorus is lacking.
Nitrate Nitrogen	0.30 mg/l-N 1.33 mg/l-NO_3	Mackenthum (1965) cited results indicating that inorganic nitrogen at 0.30 mg/l and inorganic phosphorus at 0.01 mg/l, at the start of an active growing season, subsequently permitted algal blooms (FWPCA, Water Quality Criteria, 1968).
Ammonia Nitrogen	Unionized 0.02 mg/l-N Total 0.20 mg/l-N Total 0.26 mg/l-NH_4	The amount of unionized ammonia is very much dependent upon pH, temperature, and concentration of total ammonia. A maximum level of 0.02 mg/l as unionized ammonia is recommended to minimize toxicity to freshwater aquatic life (EPA, Quality Criteria for Water, 1976). Concentrations of total ammonia above 0.20 mg/l as N are indicative of organic pollution (Klein, River Pollution 1., Chemical Analysis, 1959).

Parameter	Criteria Level/Units	Environmental Impact and Reference
Bacteria	Total Coliform 1000/100 ml Fecal Coliform 240/100 ml	Total and fecal coliform are microbiological indicators used to determine or indicate the safety of water for drinking, swimming, and shellfish harvesting. A fecal coliform log mean of 200 per 100 ml for bathing waters and 14 per 100 ml for shellfish harvesting waters is recommended by Quality Criteria for Water, EPA, 1976. State standards range from 240 total/50 fecal per 100 ml for primary contact recreation in Idaho, 1000 total per 100 ml in Oregon for general beneficial use, and 1000 total per 100 ml in Washington for Class B general recreation. From the above discussion, the suggested criteria level based on general recreation is 1000 per 100 ml for total coliform and 240 per 100 ml for fecal coliform.
Dissolved Solids Conductivity	TDS 500 mg/l Cond. 750 umho/cm	High levels of dissolved solids are a hazard for irrigation water. A maximum level of 500 mg/l is indicated for water from which no detrimental effects will usually be noticed. For domestic water supply, the maximum level is 250 mg/l (EPA, Quality Criteria for Water, 1976). A relationship exists between dissolved solids and conductivity where total dissolved solids = .6 to .8 times the conductivity.
Boron	750 ug/l	For long term irrigation, a maximum level of 750 ug/l is recommended for sensitive crops (EPA, Quality Criteria for Water, 1976).

Parameter	Criteria Level/Units	Environmental Impact and Reference
Benthic Invertebrate Biomass	--	Is a measure of the standing crops of the benthic fauna. Typical responses of the standing crop to environmental stress are: Stress — Standing Crop Response Toxic Substance — Reduce Severe Temperature Alterations — Variable Silt — Reduce Inorganic Nutrients — Increase Organic Nutrients (high O_2 demand) — Increase (EPA Biological Field and Laboratory Methods, 1973.)
Chlorophyll a	3 mg/l 3-20 mg/l 20 mg/l	Oligotrophic Mesotrophic Eutrophic (Vollenweider, Dr. R.A., Water Management Research, Scientific Fundamentals of the Eutrophication of Lakes and Flowing Waters with Particular Reference to Nitrogen and Phosphorus as Factors in Eutrophication, DAS/CSI/68.27).
Species Diversity	<1 polluted 1-3 moderate pollution >3 unpolluted	The species diversity index reflects the response of the benthic macroinvertebrate community to pollutional stress (Wilhelm 1970).

Heavy Metals Toxicity

Metal	Criteria Level	Environmental Impact	Reference
Cadmium	Hard Water -	Total Hardness above 100 mg/l as $CaCO_3$	1
	30 ug/l	Aquatic life protected	
	3 ug/l	Eggs and larvae of salmon protected	
	Soft Water -	Total Hardness below 100 mg/l as $CaCO_3$	1
	4 ug/l	Aquatic life protected	
	.4 ug/l	Eggs and larvae of salmon protected	
Chromium	50 ug/l	Mixed aquatic populations protected	1
Copper	20 ug/l	96 hour TL_{50} to Chinook salmon in soft water was 31 ug/l at hatch and 18 ug/l at 1 month old	2
Lead	30 ug/l	Aquatic life protected	1
Mercury	0.2 ug/l	Selected species of fish and predatory aquatic organisms protected	1
Zinc	100 ug/l	96 hour TL_{50} to Chinook salmon in soft water at 1 month old	2
	80 ug/l	Algalcidal concentration for Selenastrum Capriconutum	3
	100 ug/l	1 month old salmonid toxicity	

References:

1. EPA R3.73.033, Ecological Research Series, Water Quality Criteria 1972, U.S. Government Printing Office, 1973.
2. EPA, Quality Criteria for Water, 1976.
3. Green, et. al., Report to Region X on the Results of the Spokane River Algal Assays, 1973.
4. Wilhelm, J.L. 1970. "Range of Diversity Index in Benthic Macroinvertebrate Populations" JWPCF, 42(S); R221-R224.

Pesticide Toxicity

The following criteria levels are recommended to protect the freshwater aquatic life (EPA, Quality Criteria for Water, 1976).

Pesticide	Criteria Level
Aldrin	.003 ug/l
Dieldrin	.003 ug/l
Chlordane	.010 ug/l
DDT	.001 ug/l
Endrin	.004 ug/l
Heptachlor	.001 ug/l
Lindane	.010 ug/l
Malathion	.100 ug/l
Parathion	.040 ug/l

TABLE 1

STORET Station Number	Agency Code	River	Station Location	River	Station Type	Funding Agency	Presently in NWQSS Network? Yes	No
14247400	112WRD	Columbia	@ Bradwood, Ore.	038.9	NWQSS	EPA-HQ/USGS	X	
26B070/14244200	21540000/112WRD	Cowlitz	@ Kelso, WA.	004.9	State	DOE	X	
14211720	112WRD	Willamette	@ Portland, Ore.	012.8	NASQAN	USGS	X	
14128900	112WRD	Columbia	@ Warrendale, Ore.	141.0	NASQAN	USGS	X	
14113000	112WRD	Klickitat	Nr. Pitt, WA.	007.0	NASQAN	USGS	X	
30A070/14105700	21540000/112WRD	Columbia	Blw. The Dalles Dam	188.9	NWQSS	EPA-Region X	X	
14103000	112WRD	Deschutes	Nr. Biggs, Ore.	001.4	NASQAN	USGS	X	
14048000	112WRD	John Day	@ McDonald Ferry	020.5	NASQAN	USGS	X	
14019200	112WRD	Columbia	Blw. McNary Dam	292.0	NWQSS	EPA-X/USGS	X	
12510500	112WRD	Yakima	@ Kiona, WA.	029.9	NASQAN	USGS	X	
36A070	21540000	Columbia	@ Vernita Bridge	388.1	State	DOE/USGS	X	
44A070/12462600	21540000/112WRD	Columbia	Blw. Rock Island Dam	450.9	State	DOE/USGS	X	
53A070/12436500	21540000/112WRD	Columbia	@ Grand Coulee Dam	596.0	State	DOE/USGS	X	
12433000	112WRD	Spokane	@ Long Lake	033.9	NASQAN	USGS	X	
12400520	112WRD	Columbia	@ Northport, WA.	734.1	NASQAN	USGS	X	
13353200	112WRD	Snake	@ Burbank, WA.	004.4	NASQAN	USGS	X	
13343600	112WRD	Snake	Blw. Lower Granite Dam	107.5	NWQSS	EPA-Region X	X	
13342500	112WRD	Clearwater	@ Spalding, Ida.	012.0	State	IDH/USGS	X	
13334300	112WRD	Snake	@ Anatone, Ida.	167.2	NWQSS	EPA-HQ/USGS		
13317000	112WRD	Salmon	@ Whitebird, Ida.	053.7	NASQAN	USGS	X	
13290450	112WRD	Snake	Blw. Hells Canyon Dam	247.0	NASQAN	USGS	X	
13269000	112WRD	Snake	@ Weiser	334.7	State	IDH/USGS		
13267400	112WRD	Weiser	@ Weiser	001.0	State	IDH/USGS	X	
13251000	112WRD	Payette	Nr. Payette	004.2	State	IDH/USGS	X	
13213000	112WRD	Boise	Nr. Parma	005.0	NASQAN	USGS	X	
13172850	112WRD	Snake	@ Marsing, Ida.	424.0	State	IDH/USGS		
13154500	112WRD	Snake	@ King Hill, Ida.	545.6	NASQAN	USGS	X	
13093100	112WRD	Rock Creek	Nr. Mouth	003.6	State	IDH/USGS	X	
13087900	112WRD	Snake	@ Milner Dam	640.0	NWQSS	EPA-HQ/USGS	X	
13082030	112WRD	Snake	Above Burley, Ida.	665.2	NWQSS	EPA-HQ	X	

TABLE 1 (cont.)

STORET Station Number	Agency Code	River	Station Location	River	Station Type	Funding Agency	Presently in NWQSS Network? Yes	No
13077000	112WRD	Snake	@ Neely, Ida.	712.7	NWQSS	EPA-HQ	X	
13075909	112WRD	Portneuf	@ Siphon Rd. Bridge	011.7	State	IDH/USGS	X	
13063500	112WRD	Blackfoot	@ Mouth Nr. Blackfoot	002.3	State	IDH/USGS		
13057100/	112WRD	Snake	E. of Roberts, Ida./	819.8	NWQSS	EPA-HQ/USGS	X	
13057000	112WRD	Snake	Menan, Ida.					
13056500	112WRD	Henry's Fork	Nr. Rexburg, Ida.	009.1	State	IDH/USGS	X	
13022500	112WRD	Snake	@ Alpine, Wyo.	918.0	NASQAN	USGS	X	
12433000	112WRD	Spokane	@ Long Lake	033.9	NASQAN	USGS	X	
12431900	112WRD	Little Spokane	Nr. Mouth	001.1	-----	----------		X
12424200	112WRD	Spokane	@ Riverside St. Park	069.1	NWQSS	EPA-HQ/USGS	X	
12424003	112WRD	Hangman Cr.	@ Mouth Nr. Spokane	000.6	-----	----------		X
12419000	112WRD	Spokane	Blw. Post Falls Dam	102.1	NWQSS	EPA-HQ/USGS	X	
12415075	112WRD	St. Joe	@ St. Maries, Ida.	015.4	State	IDH/USGS	X	
12413810	112WRD	Coeur d'Alene	@ Rose Lake, Ida.	153.4	NWQSS	EPA-HQ/USGS	X	
12413490	112WRD	SF C. d'Alene	@ Enaville, Ida.	000.4	NWQSS	EPA-HQ/USGS		
12413000	112WRD	Coeur d'Alene	@ Enaville, Ida.	168.9	NWQSS	EPA-HQ/USGS		
12318500	112WRD	Kootenai	Nr. Copeland, WA.	132.8	NASQAN	USGS	X	
12305000	112WRD	Kootenai	@ Leonia, Ida.	171.6	State	IDH/USGS		X
12398600	112WRD	Pend Oreille	@ International Border	016.1	NASQAN	USGS	X	
12395500	112WRD	Pend Oreille	@ Newport, WA.	088.2	State	----------		X
12392050	112WRD	Clark Fork	@ Clark Fork, Ida.	149.0	State	IDH/USGS		
151044/10090500	21IDAHO/112WRD	Bear	Nr. Preston, Ida.	097.3	State	IDH/		
153559/10079500	1119C050/112WRD	Bear	Blw. Alexander Reservoir	169.4	-----	----------		X
10059500	112WRD	Bear	Outlet Canal Nr. Paris	008.0	NASQAN	USGS	X	
151042/10075000	21IDAHO/112WRD	Bear	@ Soda Springs, Ida.	174.3	State	IDH/		
151039/10039500	21IDAHO/112WRD	Bear	@ Idaho-Wyoming Border	274.0	State	IDH/USGS	X	
14207500	112WRD	Tualatin	@ West Linn, Ore.	011.6	NASQAN	USGS	X	
14301000	112WRD	Nehalem	Nr. Foss, Ore.	013.3	NASQAN	USGS	X	
14321000	112WRD	Umpqua	Nr. Elkton, Ore.	048.4	NASQAN	USGS	X	
14372300	112WRD	Rogue	Nr. Agness, Ore.	027.5	NASQAN	USGS	X	

TABLE 1 (cont.)

STORET Station Number	Agency Code	River	Station Location	River	Station Type	Funding Agency	Presently in NWQSS Network? Yes	No
10396000	112WRD	Donner/Blitzen	Nr. Frenchglen	042.8	NASQAN	USGS	X	
12031000	112WRD	Chehalis	@ Porter, WA.	033.3	NASQAN	DOE/USGS	X	
12013500	112WRD	Willapa	Nr. Willapa	019.0	State	DOE/USGS		
12155500	112WRD	Snohomish	@ Snohomish	010.4	State	DOE/USGS	X	
12009980	112WRD	Deschutes	Nr. Olympia	003.4	State	DOE/USGS	X	
12045500	112WRD	Elwha	@ Port Angeles	008.6	NASQAN	USGS	X	
12200500	112WRD	Skagit	Nr. Mount Vernon	010.7	NASQAN	USGS	X	
10A050/12101500	21540000/112WRD	Puyallup	@ Puyallup	006.6	State	DOE/USGS	X	
05A070/12167700	21540000/112WRD	Stillaguamish	@ Silvana	013.2	State	DOE/USGS	X	
--------	METRO	Cedar-Green	1 Mile Blw. Renton STP	-----	-----	METRO	X	
12089500	112WRD	Nisqually	@ McKenna	021.8	State	DOE/USGS	X	
400153/11493500	1119C050/112WRD	Klamath	Williamson R. @ Hwy 97 Br.	006.9	-----	EPA-Region X		X
400154/11507500	1119C050/112WRD	Klamath	Link R. @ Hwy 97 Br.	251.9	-----	EPA-Region X		X
400155	1119C050	Klamath	Strait Drain	001.7	-----	EPA-Region X		X
400156	1119C050	Klamath	@ Hwy 97 Bridge	248.3	-----	EPA-Region X		X
400157/11509500	1119C050/112WRD	Klamath	@ Keno Bridge	234.2	-----	EPA-Region X		X
400158/11510700	1119C050/112WRD	Klamath	Blw. Big Bend Power Plant	219.9	-----	EPA-Region X	X	

TABLE 2
NATIONAL WATER QUALITY SURVEILLANCE SYSTEM
PARAMETRIC COVERAGE

PARAMETER		SAMPLING AGENCY						
STORET CODE	NAME	EPA	EPA/USGS[1/]	USGS[2/]	WDOE/USGS[3/]	ODEQ[4/]	IDHW	OTHER
Water Quality				(NASQAN)				
00010	Temperature	M	M	M	B		M	
00080	Color				B			
00095	Specific Conductance		M	M	B		M	
00400	pH	M	M	M	B			
00403	pH						M	
00300	Dissolved Oxygen	M	M		B		M	
00061	Flow (instantaneous)	M	M	M	B		M	
00410	Total Alkalinity	M	M		B			
00440	HCO_3		M	M or Q	B			
00445	CO_3		M	M or Q				
31616	Fecal Coliform	M	M	M	B		M	
31504	Total Coliform				B.			
31501	Total Coliform						M	
31679	Fecal Strep.			M			M	
00660	Ortho Phosphate as PO_4						M	
00671	Dissolved Ortho. P.				B			
00665	Total Phosphorus	M	M	M	B		M	
71887	Total N. as NO_3							
00605	Total Organic N.		M					
00630	$NO_2 + NO_3$ (N)	M	M	M	B		M	
00600	Total Nitrogen	M	M					
00625	Total Kjeldahl N.	M	M	M			M	
00610	NH_4 (N)	M	M		B		M	
00070	Turbidity	M	M	M or Q	B		M	
00530	Total Sus. Solids (105°C)	M	M					

TABLE 2 (cont.)
NATIONAL WATER QUALITY SURVEILLANCE SYSTEM
PARAMETRIC COVERAGE

PARAMETER		SAMPLING AGENCY						
STORET CODE	NAME	EPA	EPA/USGS[1]	USGS[2]	WDOE/USGS[3]	ODEQ[4]	IDHW	OTHER
Water Quality (cont.)								
00500	Total Solids						M	
70300	Residue Diss. @ 180°C	M		Q				
70299	Residue - Suspended (110°C)	M	M					
80154	Suspended Sediments			M				
00940	Chloride as Cl.			M or Q	B		M	
00550	Oil and Grease		Q					
00680	Total Organic Carbon	M	M	Q				
00335	COD low level	M	M				M	
00955	Dissolved Silica	M	M	M or Q				
01045	Total Iron	M	M	Q				
71900	Total Mercury	M	M	Q	B			
01002	Total Arsenic	M	M	Q				
01027	Total Cadmium	M	M	Q				
01034	Total Chromium	M	M	Q				
01042	Total Copper	M	M	Q				
01051	Total Lead	M	M	Q				
01147	Total Selenium	M	M	Q				
01092	Total Zinc	M	M	Q				
Biological								
	Periphyton/Chlorophyll "a" (mg>m^2)			Q				
	Periphyton Biomass			Q				
	Benthic Invertebrate Biomass	5/	5/		5/		5/	
	Species Diversity Index	5/	5/		5/		5/	
	T. Phytoplankton (cells/ml)			M				

TABLE 2 (cont.)
NATIONAL WATER QUALITY SURVEILLANCE SYSTEM
PARAMETRIC COVERAGE

1/ USGS collects and analyzes samples at stations under contract to EPA.

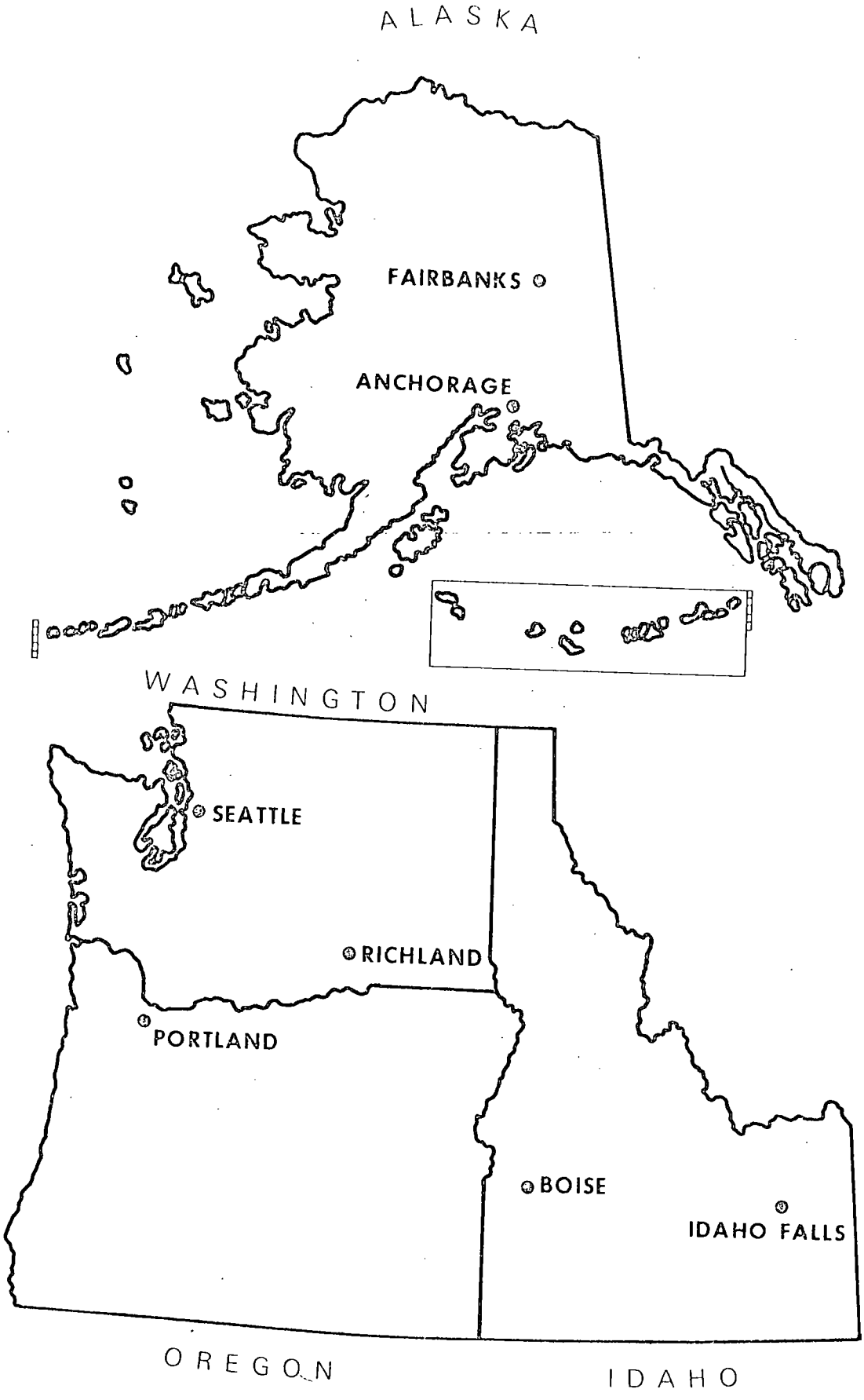
2/ USGS NASQAN station parameters for those stations included in the NWQSS network.

3/ USGS-WDOE cooperative sampling network parameters for those stations included in the NWQSS network.

4/ There are no Oregon DEQ stations in the NWQSS; however, DEQ and EPA are negotiating on a fixed station network.

5/ Samplers are placed and retrieved twice during the summer months of each year. Idaho DHW and Washington DOE collect the samples and EPA analyzes the contents.

FIGURE 1


ALASKA
FAIRBANKS
ANCHORAGE
WASHINGTON
SEATTLE
RICHLAND
PORTLAND
BOISE
IDAHO FALLS
OREGON
IDAHO

UPPER COLUMBIA RIVER BASIN 13-05

The United States portion of the Upper Columbia River basin lies totally within the State of Washington. The Columbia River is the major river within the basin, with the Spokane River the major contributing tributary. The basin boundaries include the Columbia at Northport, Wa. (R.M. 734.1) to the Columbia at Priest Rapids (R.M. 388.1). The major metropolitan centers effecting water quality in the Upper Columbia River basin are Spokane (pop. 171,000), and Wenatchee (pop. 17,700) However, the effects on water quality caused by the city of Spokane will be discussed in greater detail in the Spokane River basin. Irrigated agriculture is the major land use in the basin. Major municipal and industrial point sources associated with this basin are domestic sewage treatment plants and the aluminum industry.

National Water Quality Surveillance System (NWQSS) stations located within this basin are shown on the map. The complete water quality and biological parametric coverage for NWQSS stations is listed in the Introduction of this report along with the EPA criteria associated with those parameters. However, only some of the parameters are included in the following curves. Complete raw data is available from EPA upon request.

The following curve layout is designed to show the mainstem river constituents both spatially and temporally on a single three dimensional plot. Water quality constituents at the mouth of the significant tributaries to the Columbia River are shown temporally on bar charts.

UPPER COLUMBIA RIVER BASIN

Map Station Number	Type of Data Collected		
	Physical	Chemical	Biological
1A	X	X	
1B	X	X	
1C	X	X	
1D	X	X	
1E	X	X	

NOTE: Complete station information shown in Table 1 page 11-13.

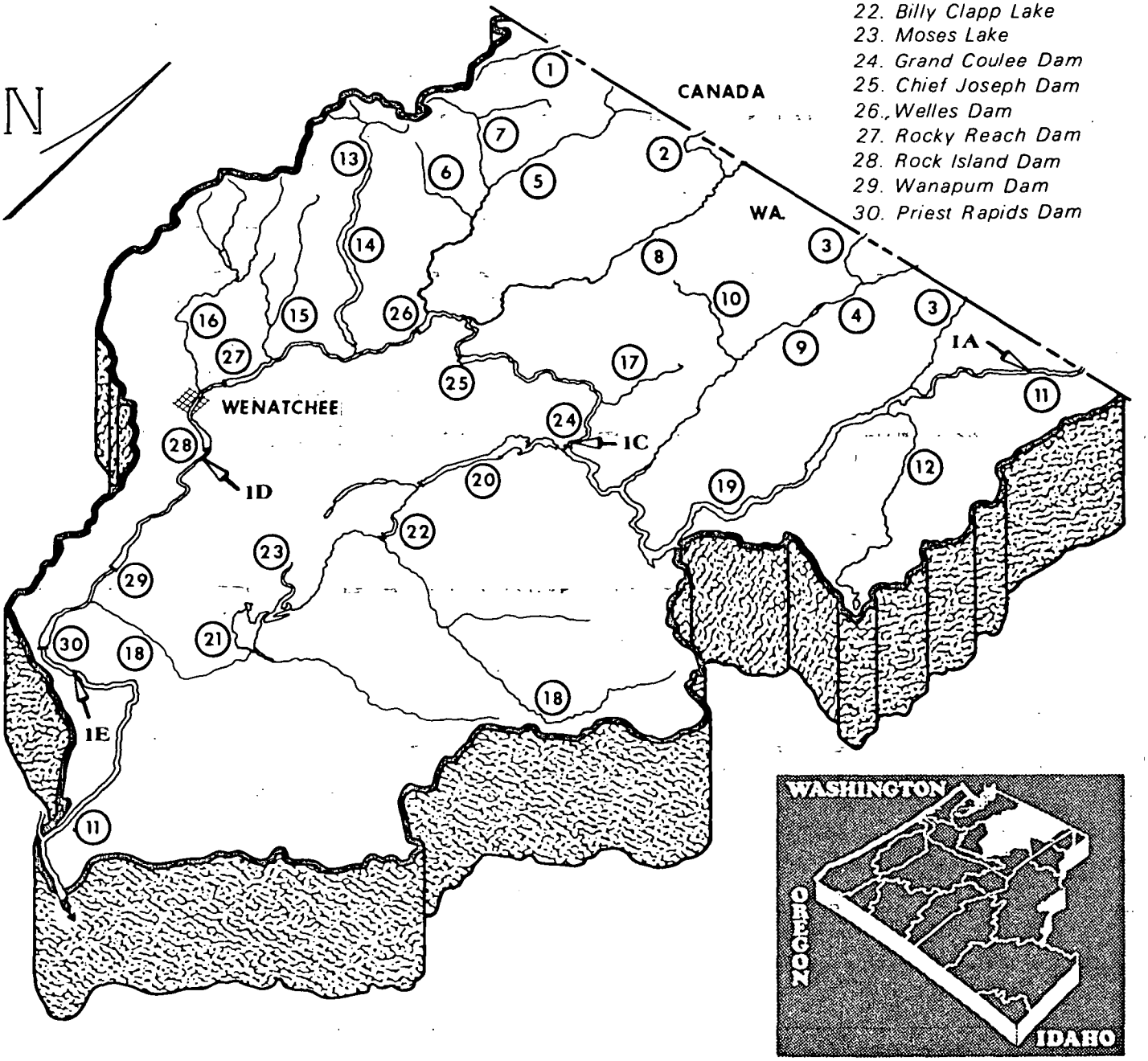
STORET #13-05
UPPER COLUMBIA RIVER BASIN
N.W.Q.S.S. LOCATIONS

NOTE: (1) Sampling Site 1B is physically located within the Spokane River Basin, depicted as Sampling Site 11

(2) Water quality data from Sampling Site 1E is located with Lower Columbia River Basin data. (Sampling Site 1B)

MAJOR SURFACE WATERS AND FEATURES

1. *N. Fk. Paysaten R.*
2. *Similkameen R.*
3. *Kettle R.*
4. *Curlew Cr.*
5. *Chewack R.*
6. *Twisp R.*
7. *Methow R.*
8. *Okanogan R.*
9. *Sanpoil R.*
10. *W. Fk. Sanpoil R.*
11. *Columbia River*
12. *Colville R.*
13. *Stehekin R.*
14. *Lake Chelan*
15. *Entiat R.*
16. *Wenatchee R.*
17. *Nespelem R.*
18. *Crab Cr.*
19. *Franklin Roosevelt Lake*
20. *Banks Lake*
21. *Potholes Res.*
22. *Billy Clapp Lake*
23. *Moses Lake*
24. *Grand Coulee Dam*
25. *Chief Joseph Dam*
26. *Welles Dam*
27. *Rocky Reach Dam*
28. *Rock Island Dam*
29. *Wanapum Dam*
30. *Priest Rapids Dam*



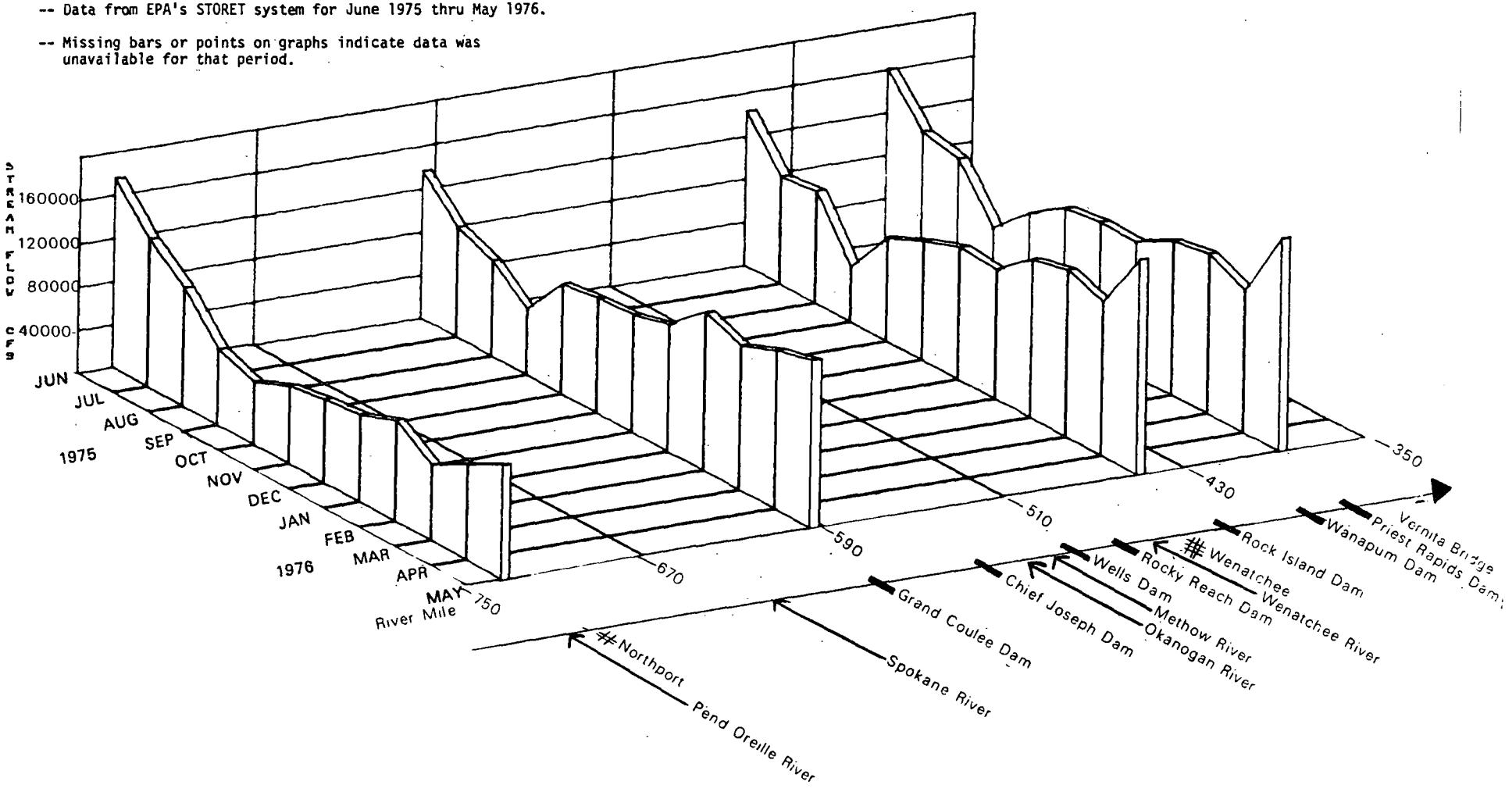
UPPER COLUMBIA RIVER BASIN

STREAM FLOW CFS

NOTES:

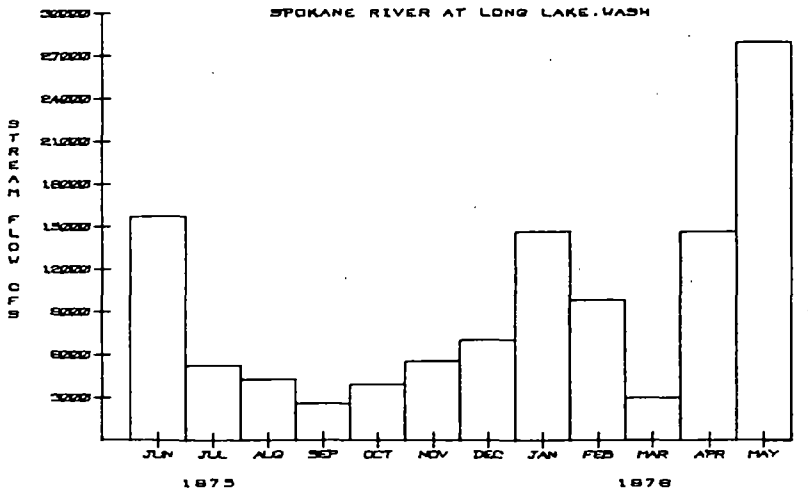
-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.



UPPER COLUMBIA RIVER BASIN

STREAM FLOW CFS



UPPER COLUMBIA RIVER BASIN

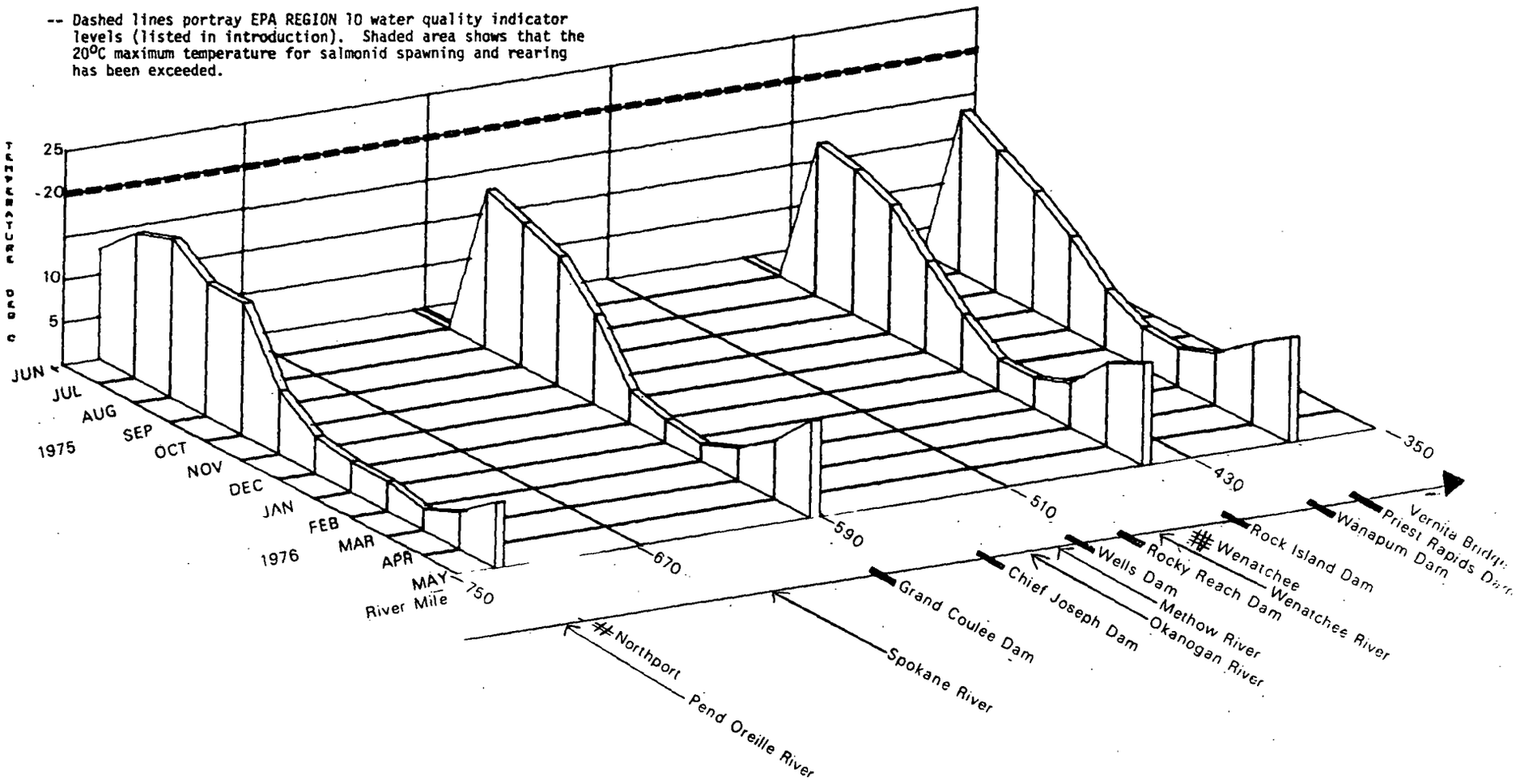
TEMPERATURE DEG C

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

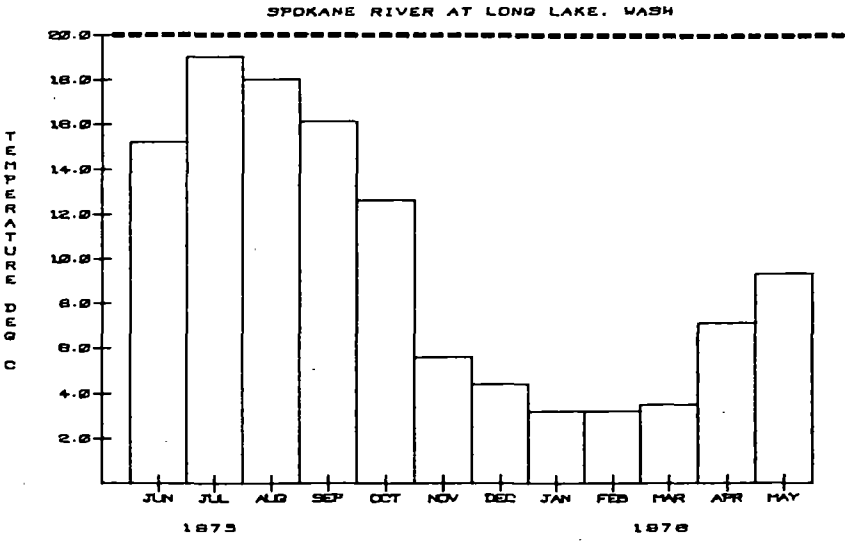
-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the 20°C maximum temperature for salmonid spawning and rearing has been exceeded.



UPPER COLUMBIA RIVER BASIN

TEMPERATURE DEG C



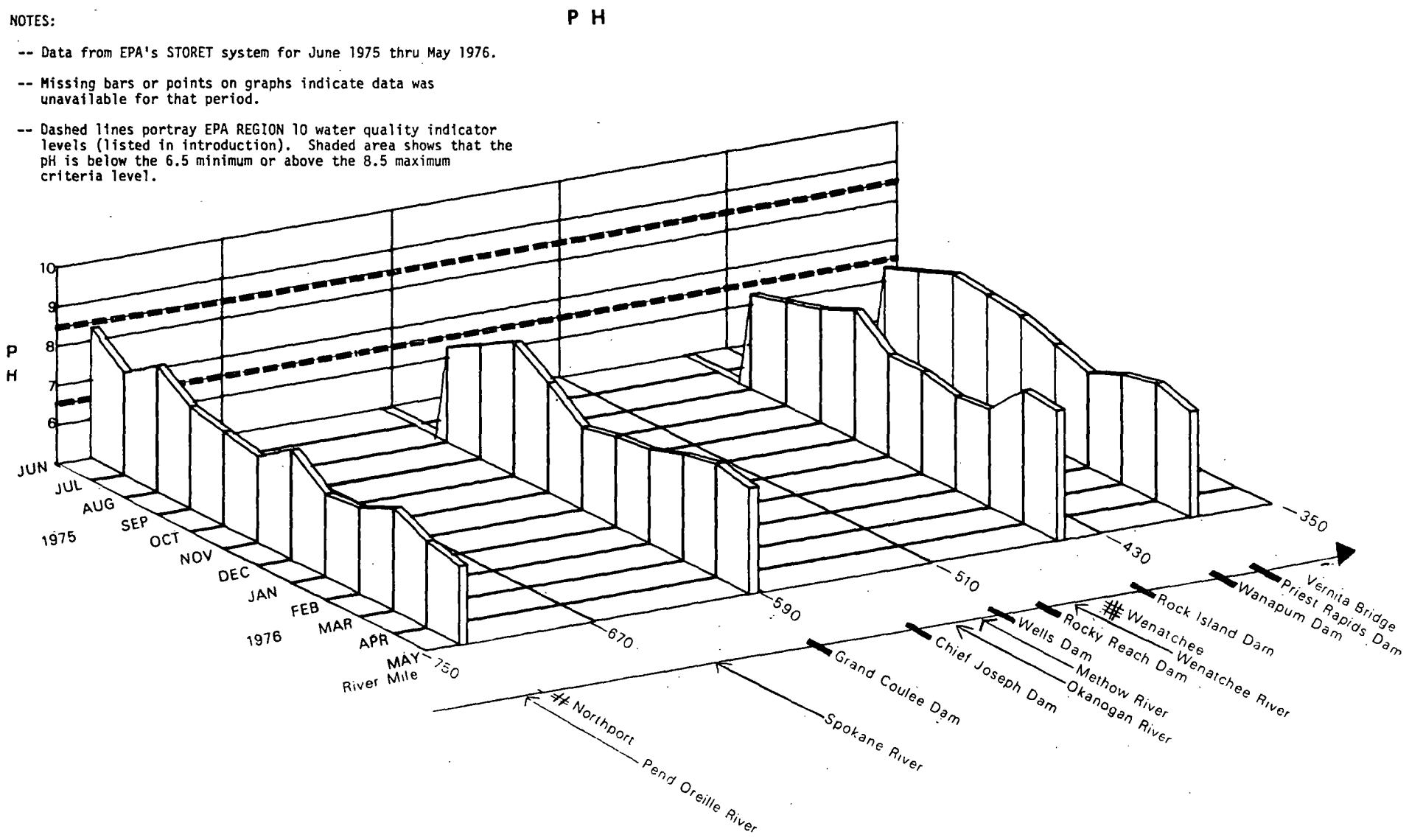
UPPER COLUMBIA RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

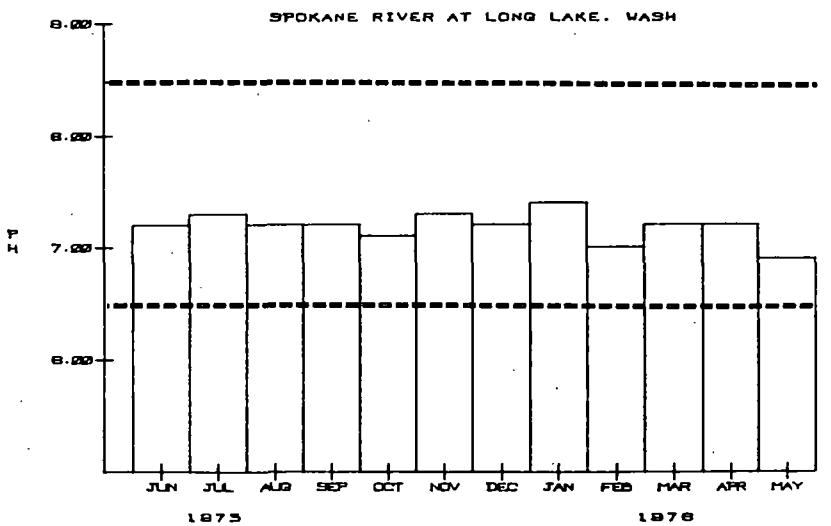
-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the pH is below the 6.5 minimum or above the 8.5 maximum criteria level.



UPPER COLUMBIA RIVER BASIN

P H



UPPER COLUMBIA RIVER BASIN

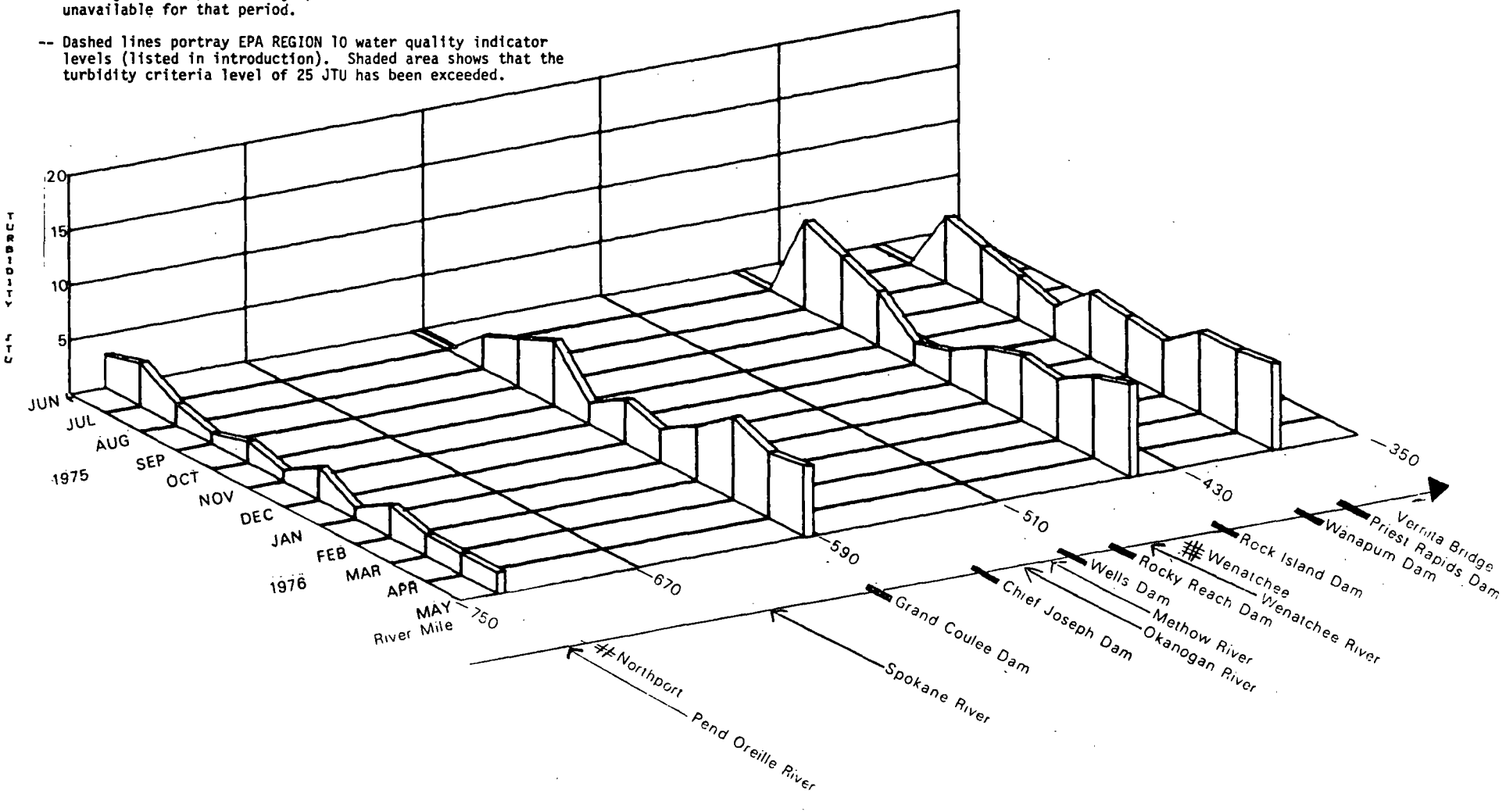
TURBIDITY IN JTU

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

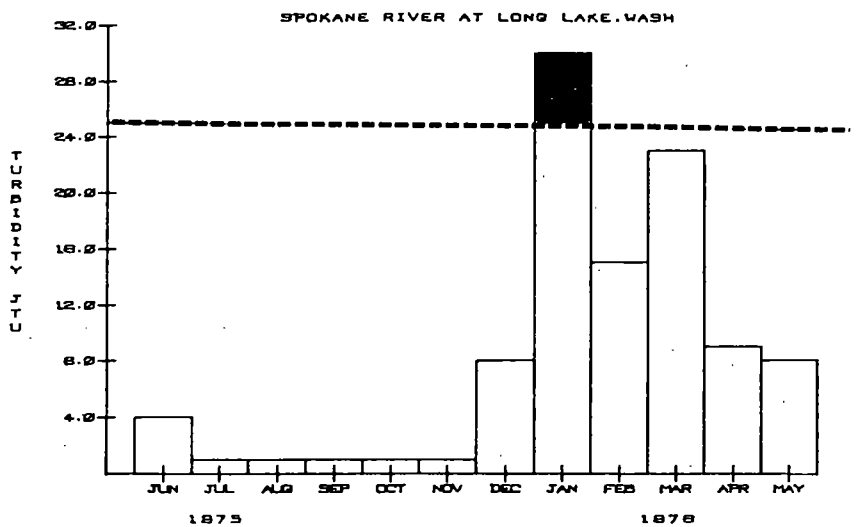
-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the turbidity criteria level of 25 JTU has been exceeded.



UPPER COLUMBIA RIVER BASIN

TURBIDITY IN JTU



UPPER COLUMBIA RIVER BASIN

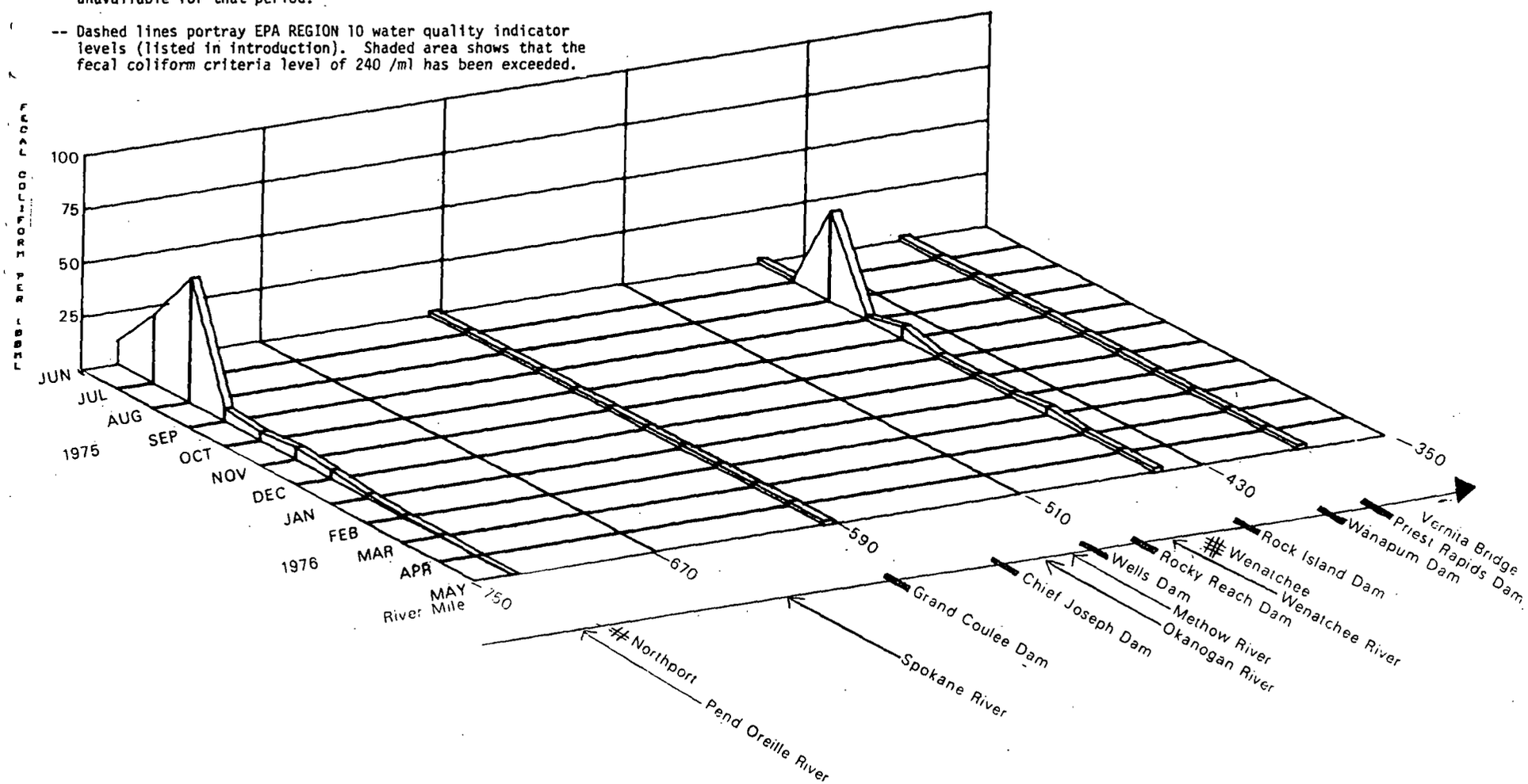
FECAL COLIFORM PER 100 ML

NOTE

-- Data from EPA's STORET system for June 1975 thru May 1976.

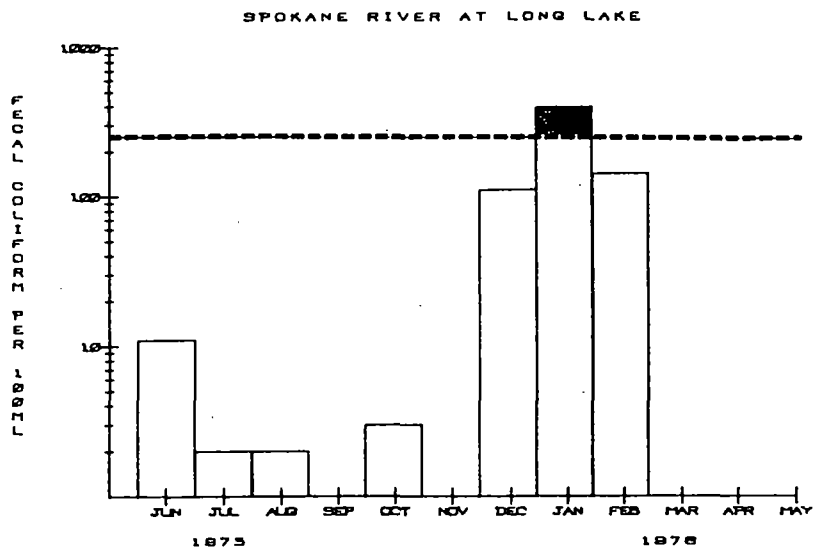
-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the fecal coliform criteria level of 240 /ml has been exceeded.



UPPER COLUMBIA RIVER BASIN

FECAL COLIFORM PER 100 ML



UPPER COLUMBIA RIVER BASIN

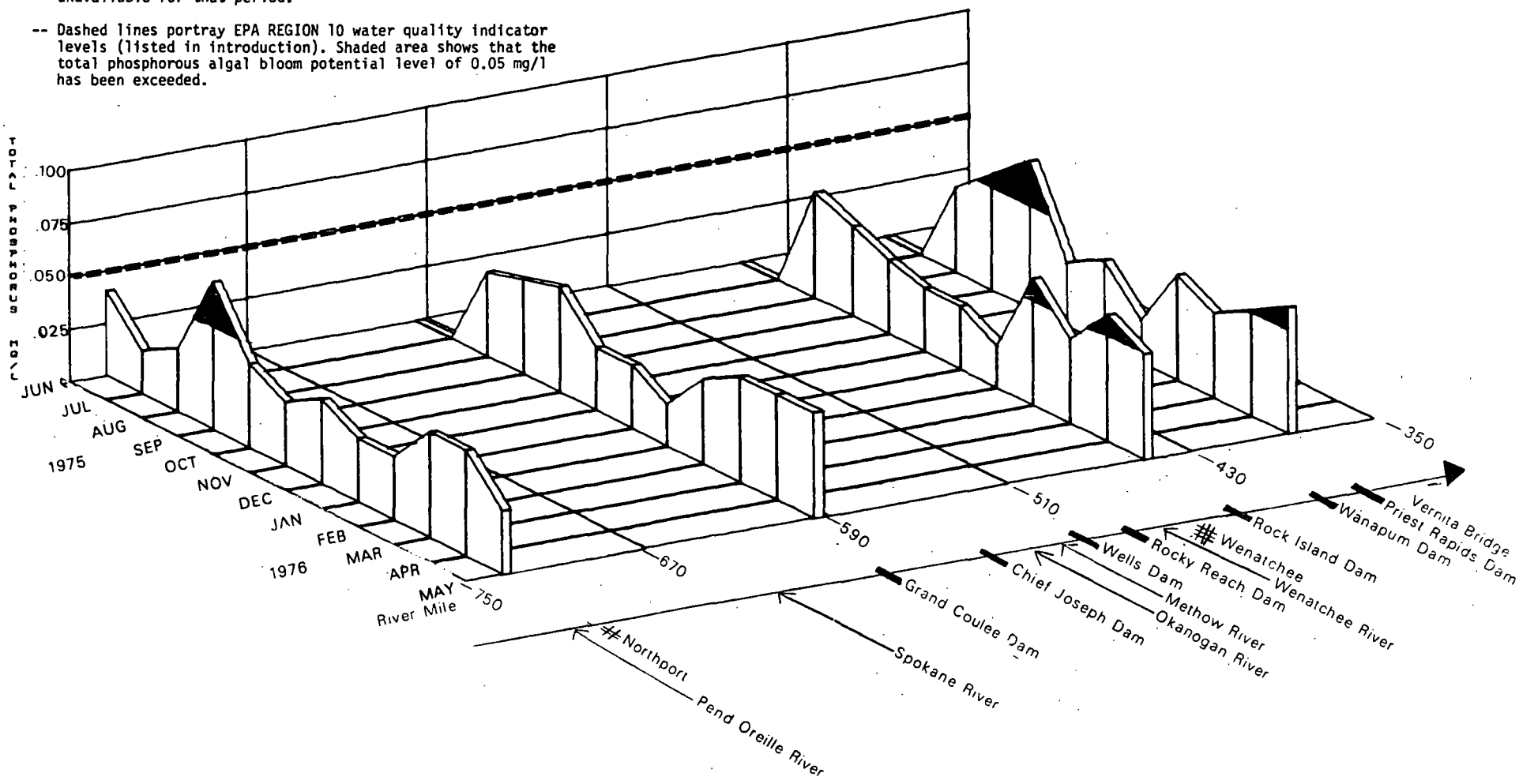
TOTAL PHOSPHORUS MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

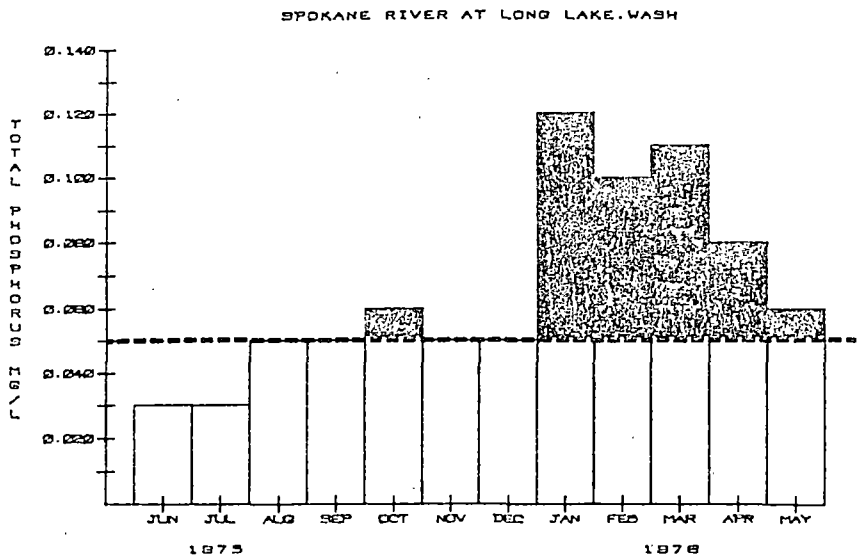
-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the total phosphorous algal bloom potential level of 0.05 mg/l has been exceeded.



UPPER COLUMBIA RIVER BASIN

TOTAL PHOSPHORUS MG/L



UPPER COLUMBIA RIVER BASIN

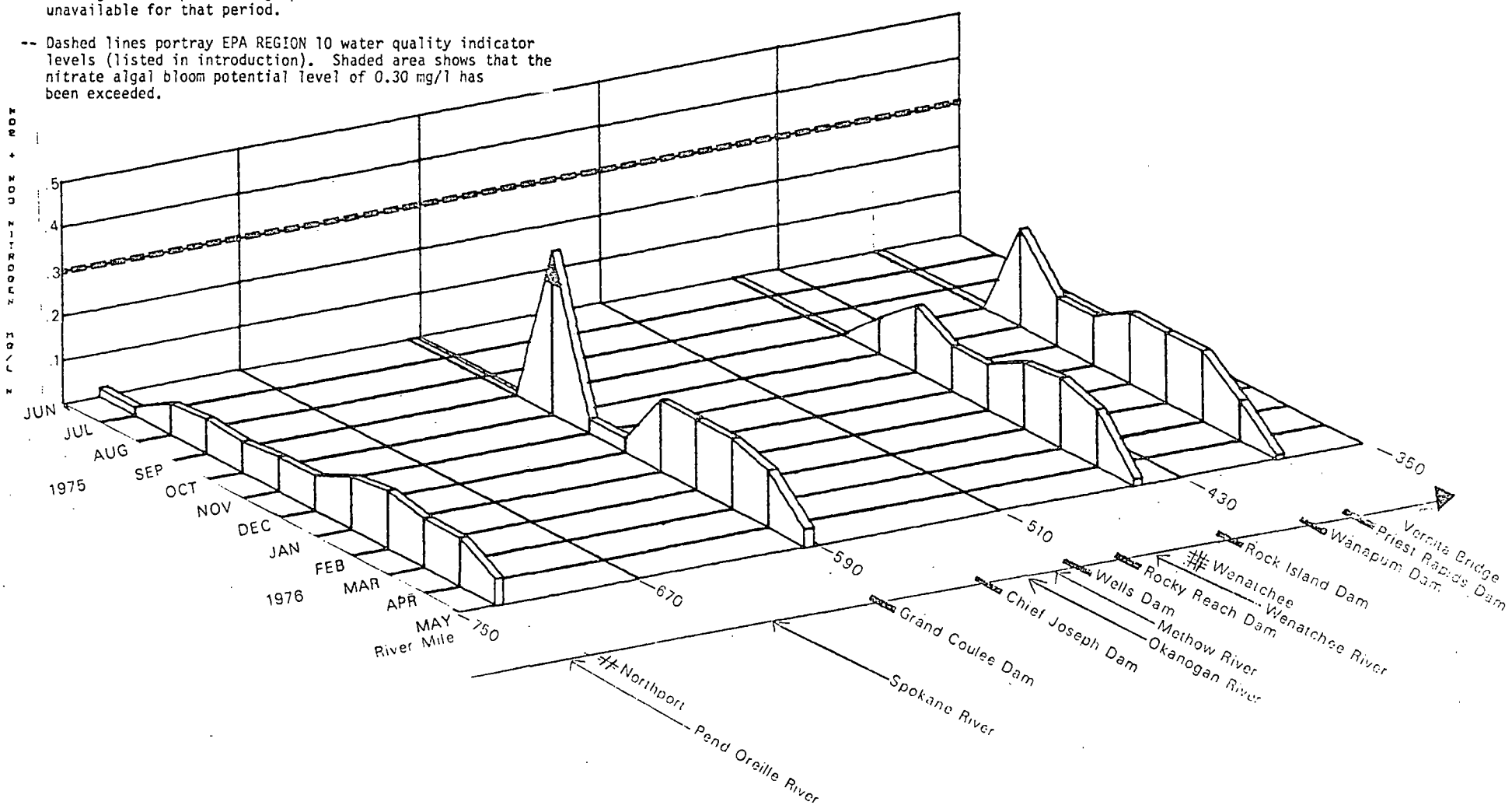
NO2+NO3 NITROGEN MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

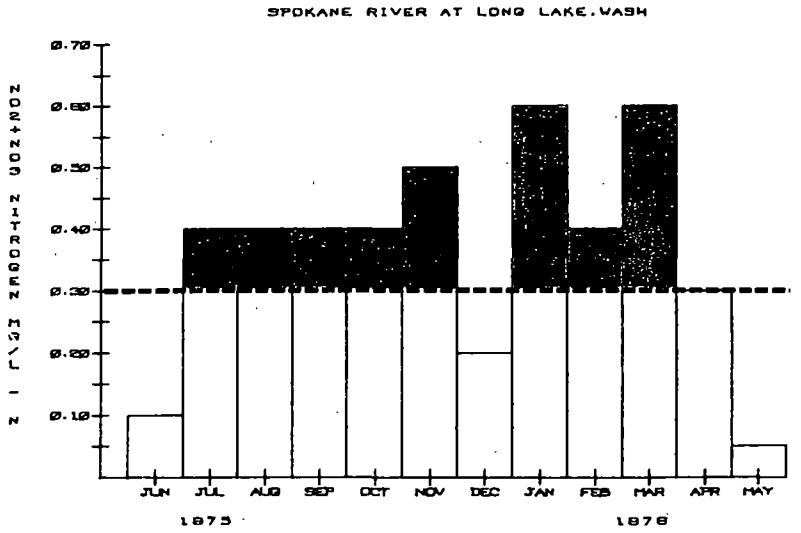
-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the nitrate algal bloom potential level of 0.30 mg/l has been exceeded.



UPPER COLUMBIA RIVER BASIN

NO2+NO3 NITROGEN MG/L



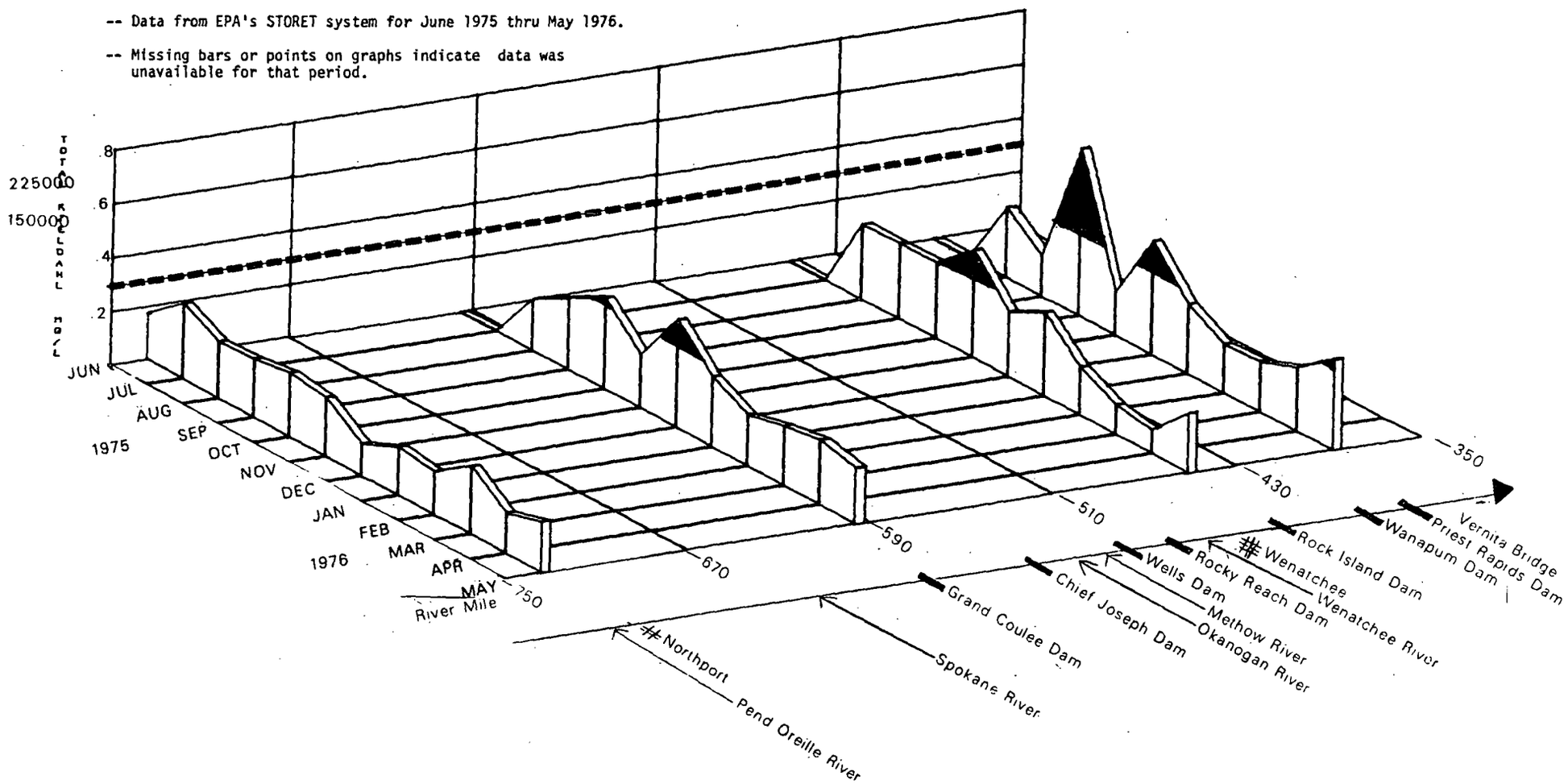
UPPER COLUMBIA RIVER BASIN

TOTAL KJELDAHL NITROGEN MG/L

NOTES:

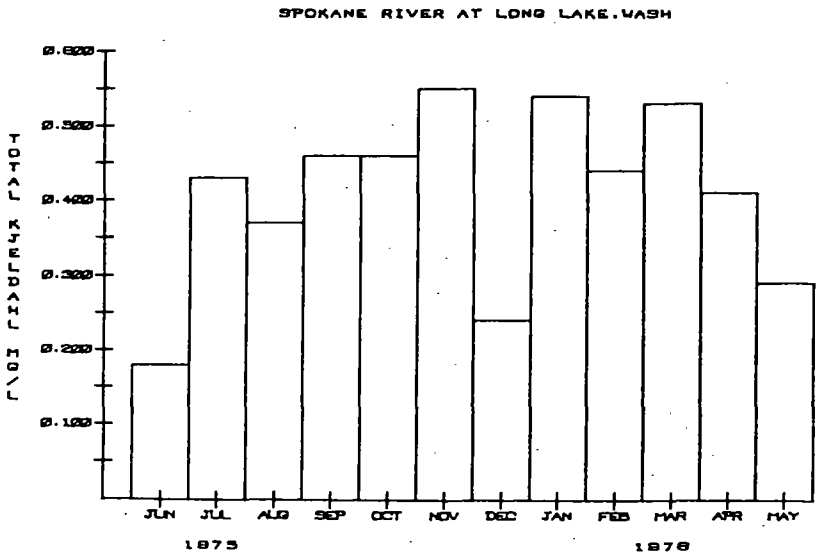
-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.



UPPER COLUMBIA RIVER BASIN

TOTAL KJELDAHL NITROGEN MG/L



UPPER COLUMBIA RIVER BASIN

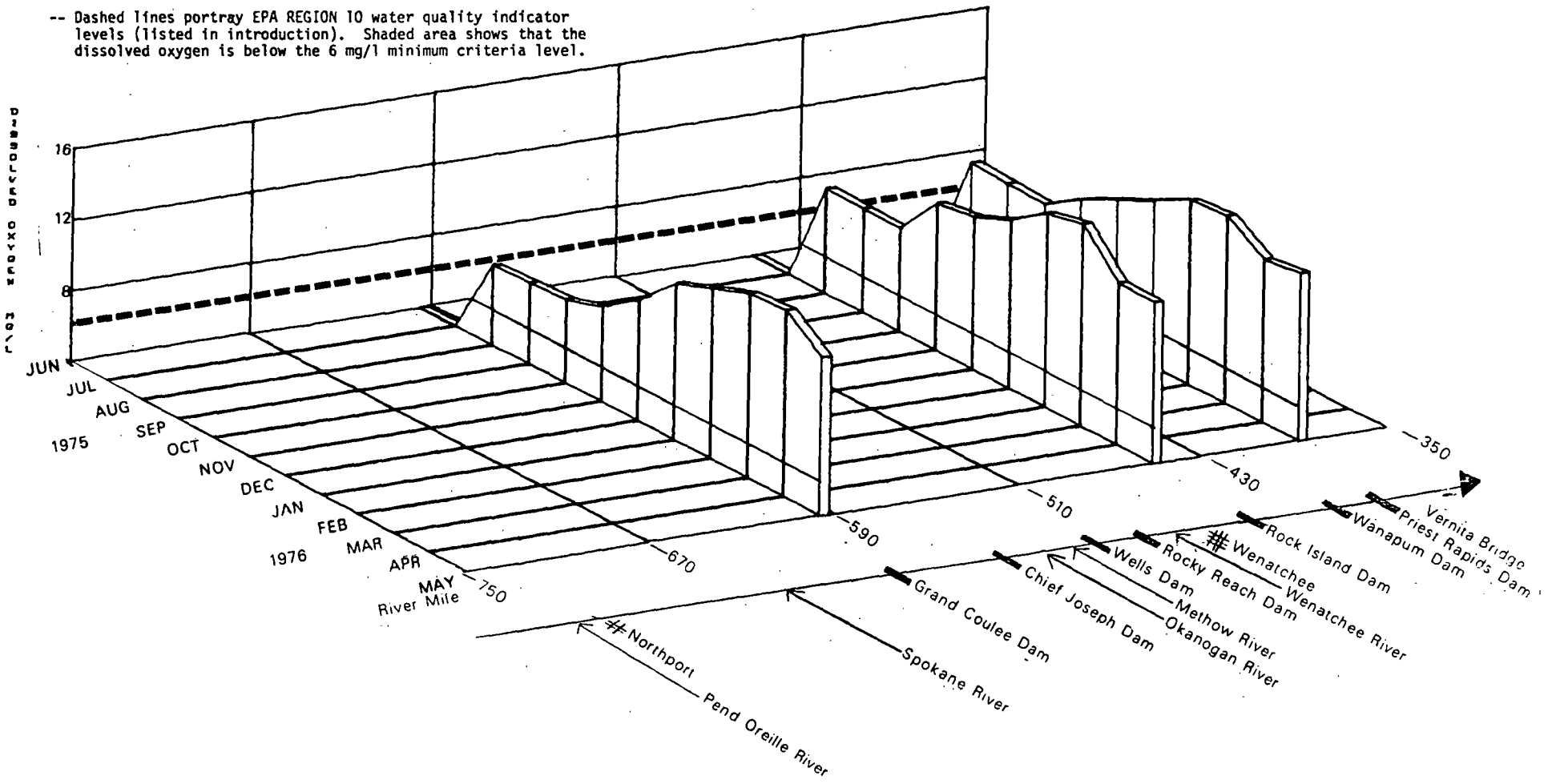
DISSOLVED OXYGEN MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the dissolved oxygen is below the 6 mg/l minimum criteria level.



LOWER COLUMBIA RIVER BASIN 13-10

Except for a small section in Oregon, the Lower Columbia River basin lies within the State of Washington. The major river in the basin is the Columbia. The significant Oregon tributaries presented in this report include the Willamette River, Deschutes River, and John Day River. The major Washington tributaries discussed include the Yakima and Klickitat Rivers. The Snake river will be covered separately in the Middle Snake River Basin. The basin boundaries include the Columbia River at Priest Rapids (R.M. 388.1) to the Columbia River at Bradwood (R.M. 38.9). Astoria (pop. 10,244), Portland (pop. 382,619), Longview (pop. 28,373), and the Tri-Cities (pop. 55,422) are the major Oregon and Washington communities in the basin. The Lower Columbia basin industrial community is strongly oriented to pulp and paper with dependence on agriculture, chemical textile, lumber, and aluminum industry as well.

National Water Quality Surveillance System (NWQSS) stations located within this basin are shown on the map. The complete water quality and biological parametric coverage for the NWQSS stations is listed in the Introduction of this report along with the EPA criteria associated with those parameters. However, only some of the parameters are included in the following curves. Complete raw data is available from EPA upon request.

The following curve layout is designed to show the mainstem river constituents both spatially and temporally on a single three dimensional plot. Water Qaulity constituents at the mouth stations of each of the significant tributaries to the Columbia River are shown temporally on bar charts.

LOWER COLUMBIA RIVER BASIN

Map Station Number	Type of Data Collected		
	Physical	Chemical	Biological
1A	X	X	
1B	X	X	
1C	X	X	
1D	X	X	
1E	X	X	
1F	X	X	
1G	X	X	
1H			
1I	X	X	
1J			
1K	X	X	

NOTE: Complete station information shown in Table 1 page 11-13.

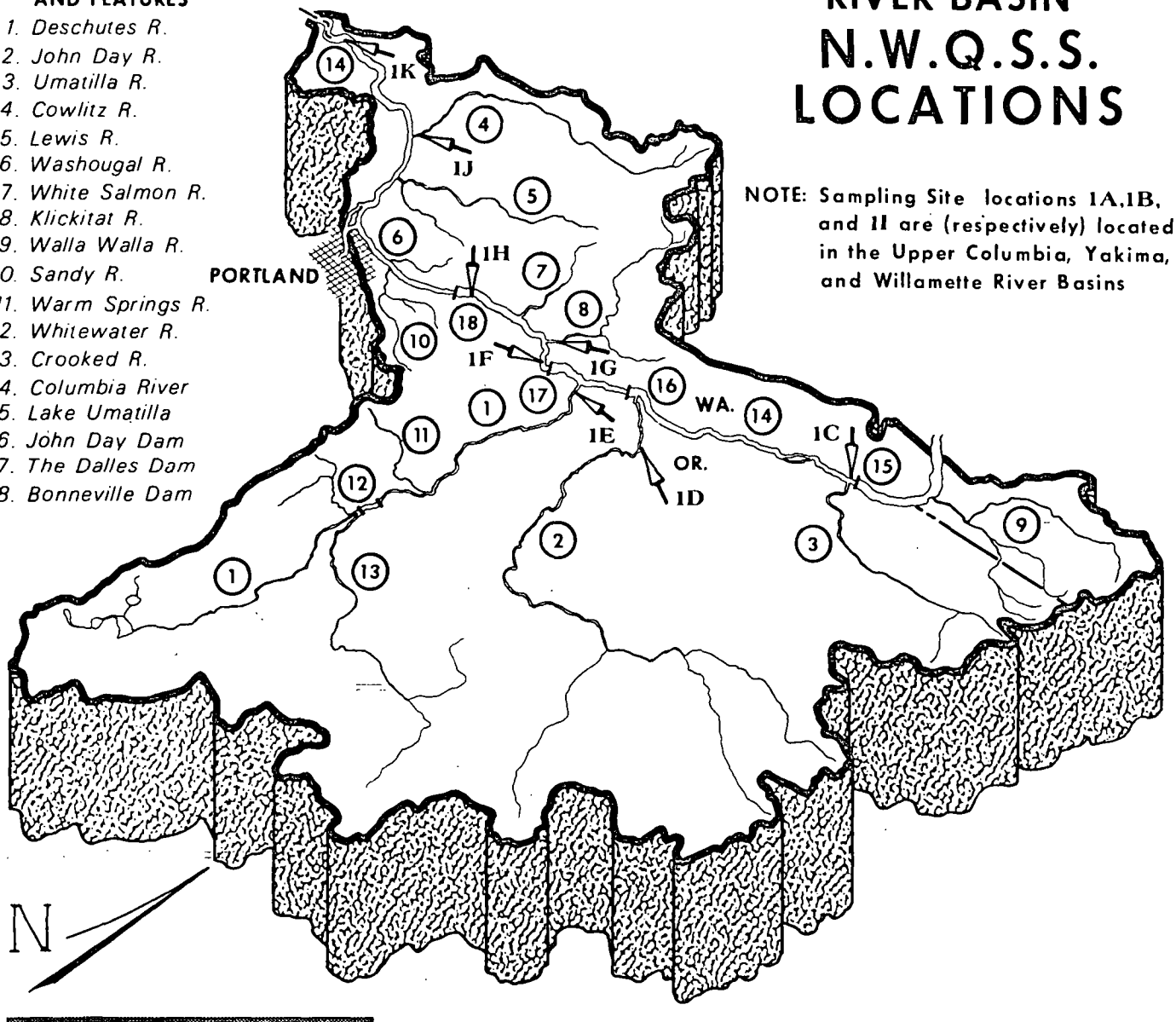
STORET #13-10

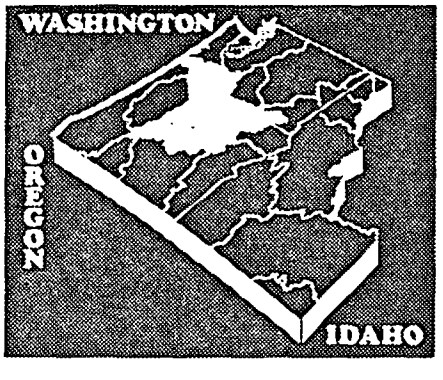
LOWER COLUMBIA RIVER BASIN N.W.Q.S.S. LOCATIONS

MAJOR SURFACE WATERS AND FEATURES

1. *Deschutes R.*
2. *John Day R.*
3. *Umatilla R.*
4. *Cowlitz R.*
5. *Lewis R.*
6. *Washougal R.*
7. *White Salmon R.*
8. *Klickitat R.*
9. *Walla Walla R.*
10. *Sandy R.*
11. *Warm Springs R.*
12. *Whitewater R.*
13. *Crooked R.*
14. *Columbia River*
15. *Lake Umatilla*
16. *John Day Dam*
17. *The Dalles Dam*
18. *Bonneville Dam*

NOTE: Sampling Site locations 1A, 1B, and 1I are (respectively) located in the Upper Columbia, Yakima, and Willamette River Basins





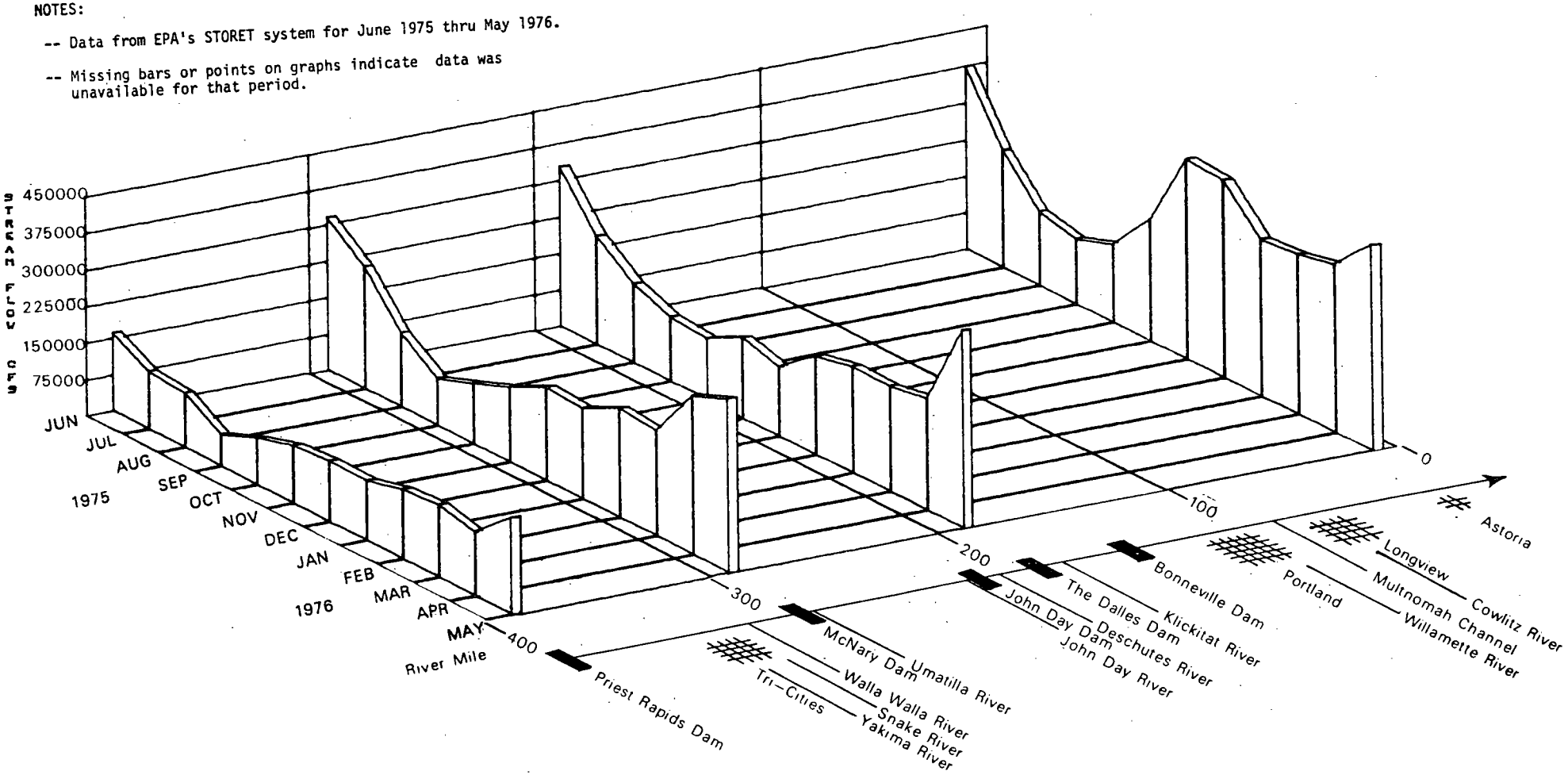
LOWER COLUMBIA RIVER BASIN

STREAM FLOW CFS

NOTES:

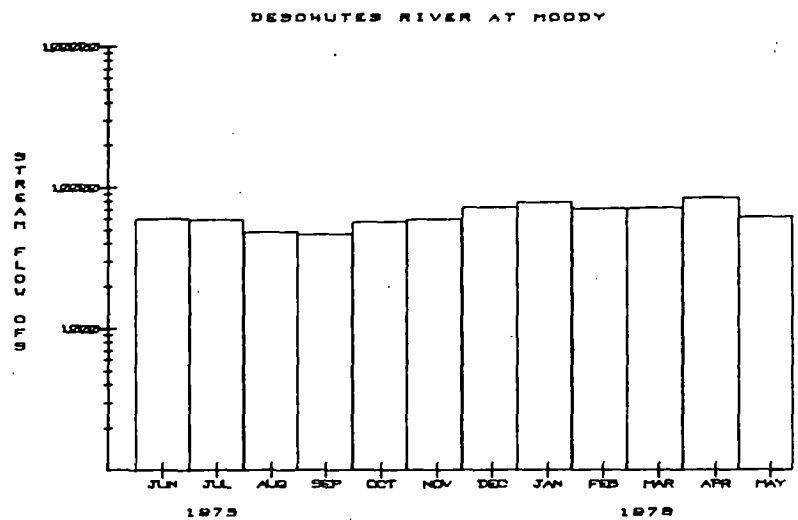
-- Data from EPA's STORET system for June 1975 thru May 1976.

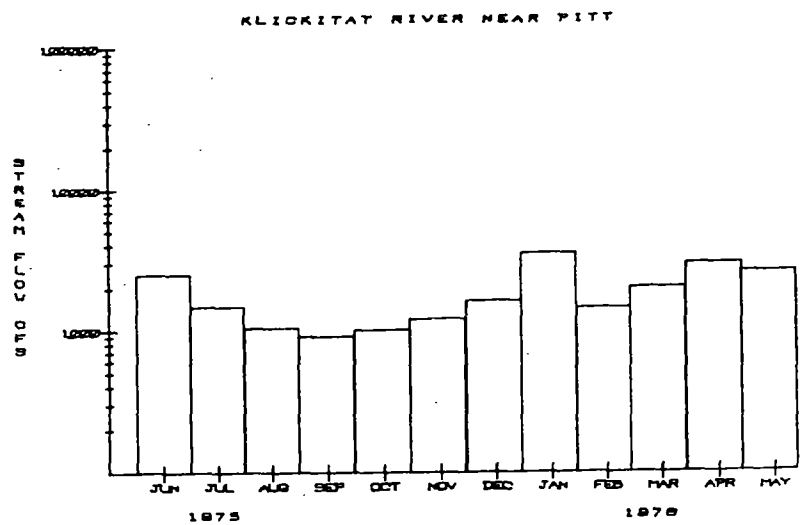
-- Missing bars or points on graphs indicate data was unavailable for that period.

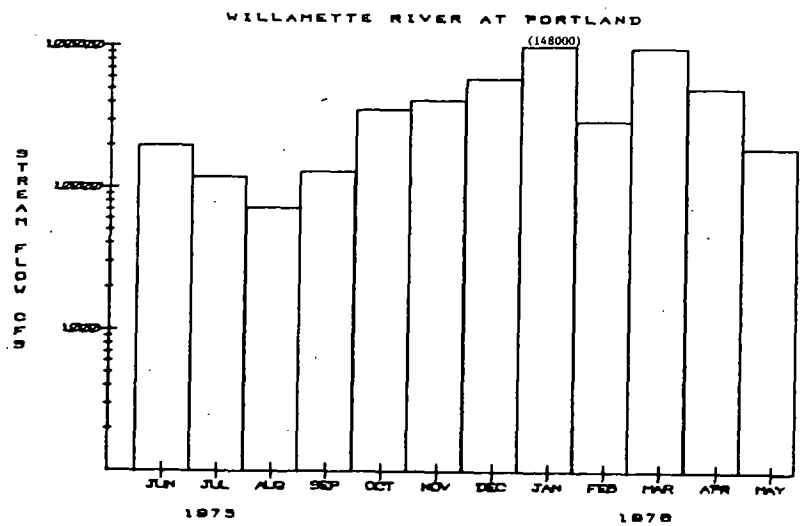


LOWER COLUMBIA RIVER BASIN

STREAM FLOW CFS

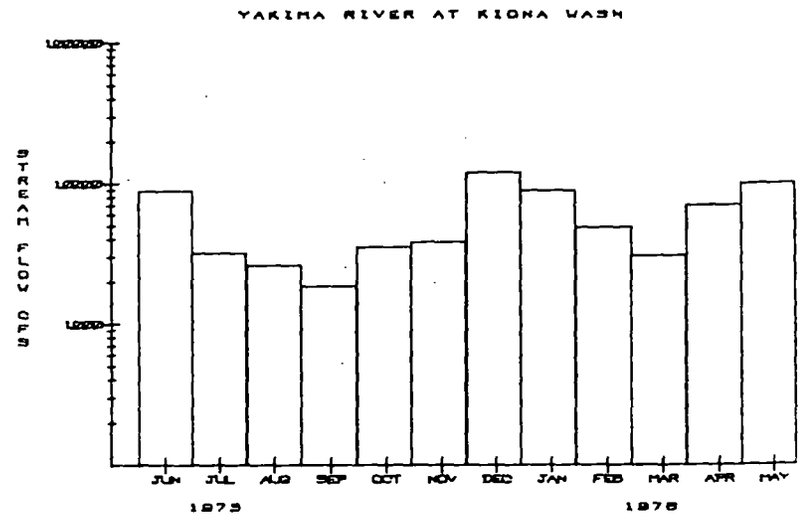


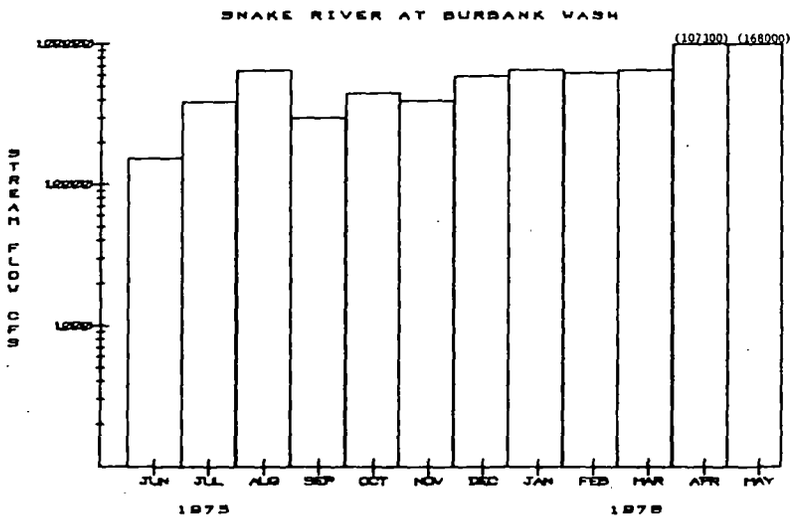


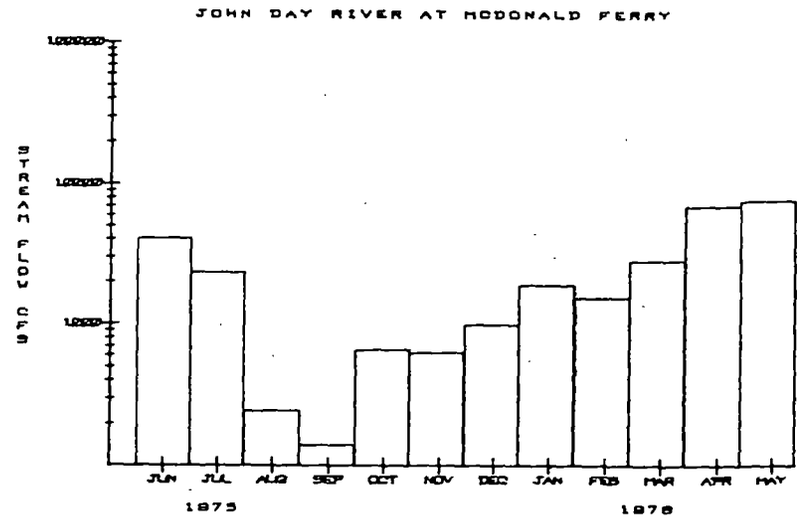


LOWER COLUMBIA RIVER BASIN

STREAM FLOW CFS







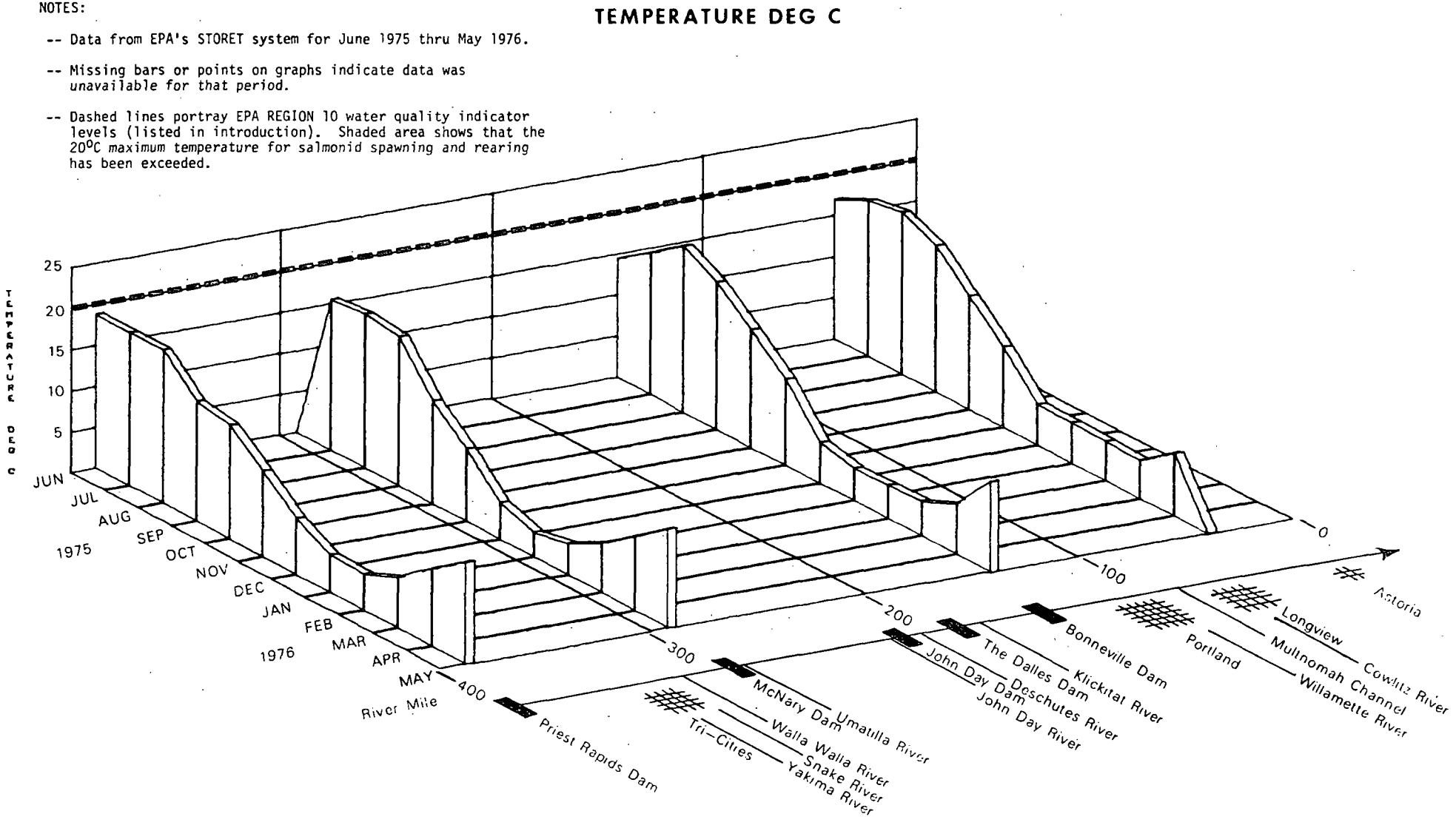
LOWER COLUMBIA RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

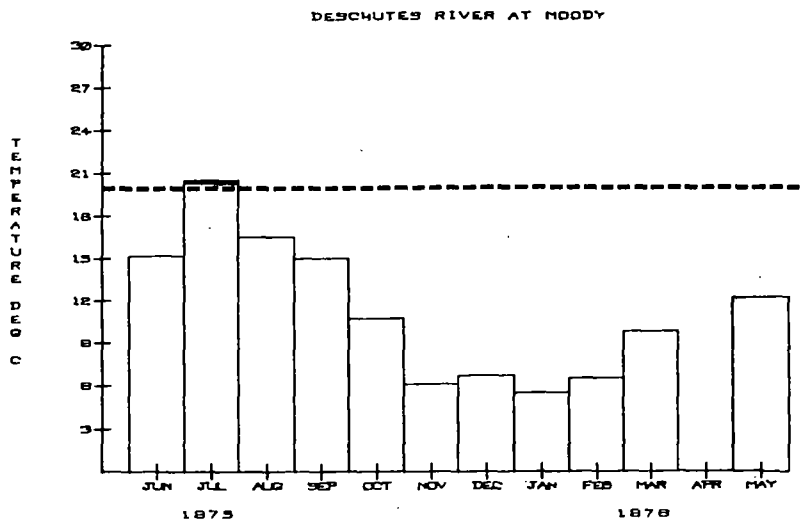
-- Missing bars or points on graphs indicate data was unavailable for that period.

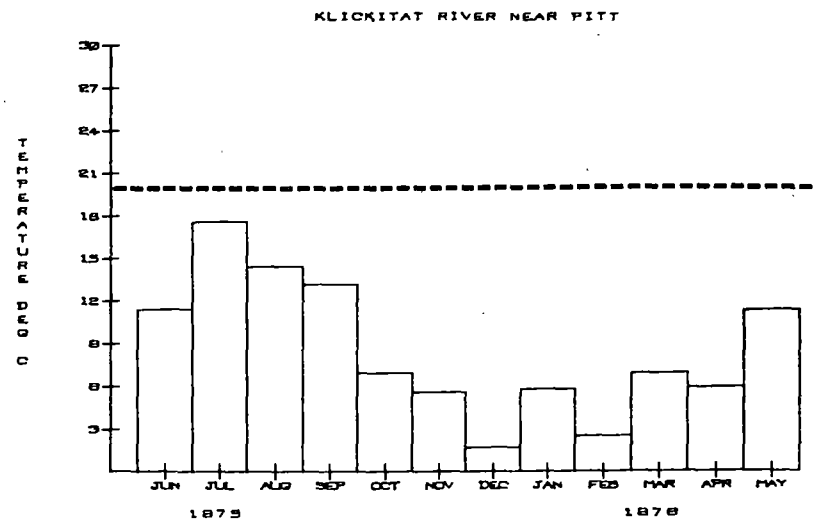
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the 20°C maximum temperature for salmonid spawning and rearing has been exceeded.

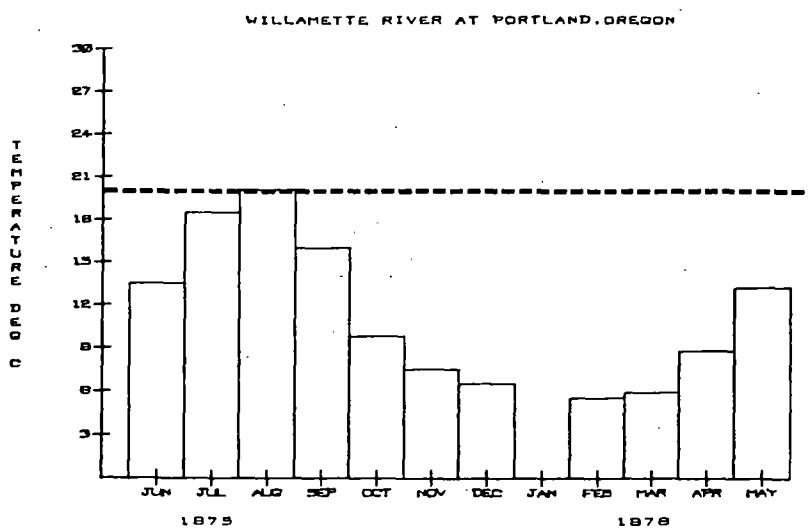


LOWER COLUMBIA RIVER BASIN

TEMPERATURE DEG C

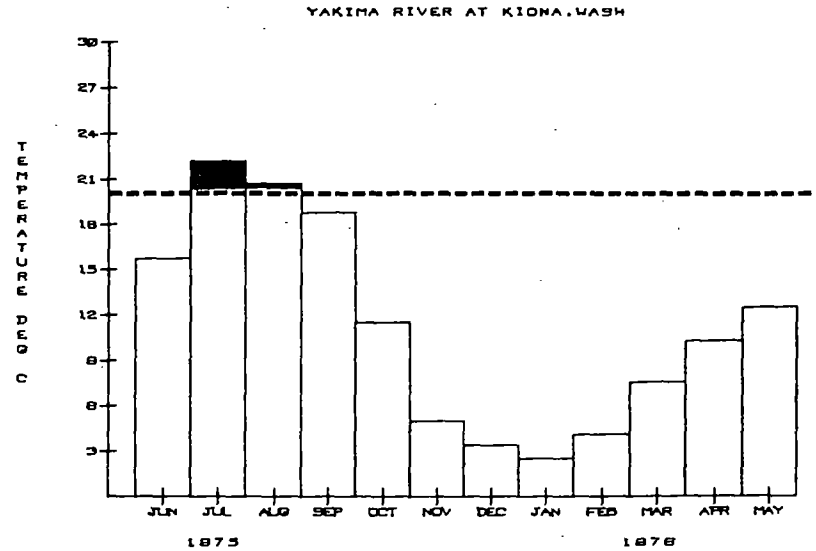


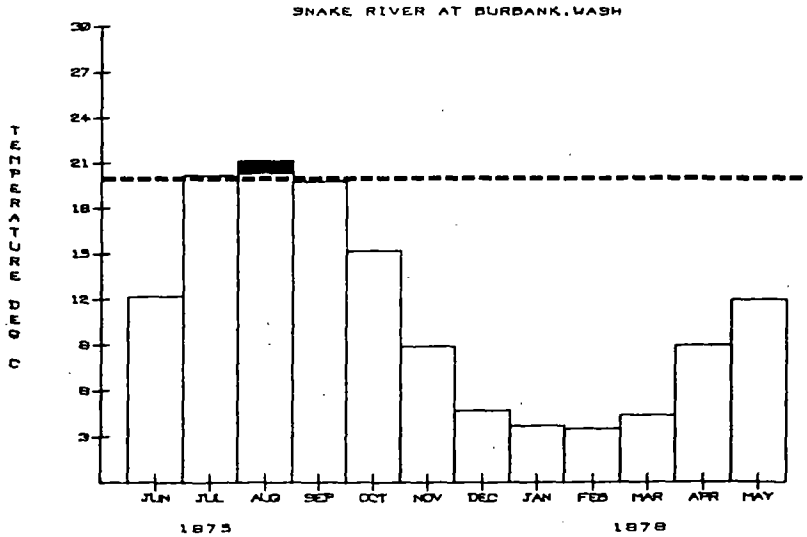


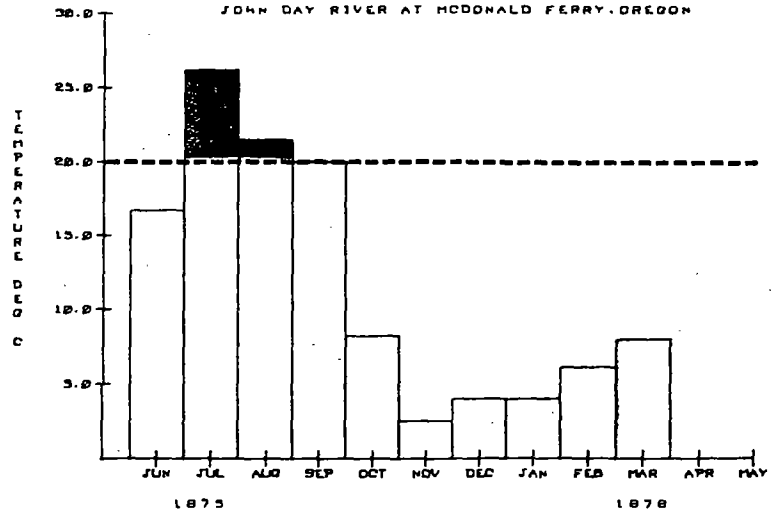


LOWER COLUMBIA RIVER BASIN

TEMPERATURE DEG C







LOWER COLUMBIA RIVER BASIN

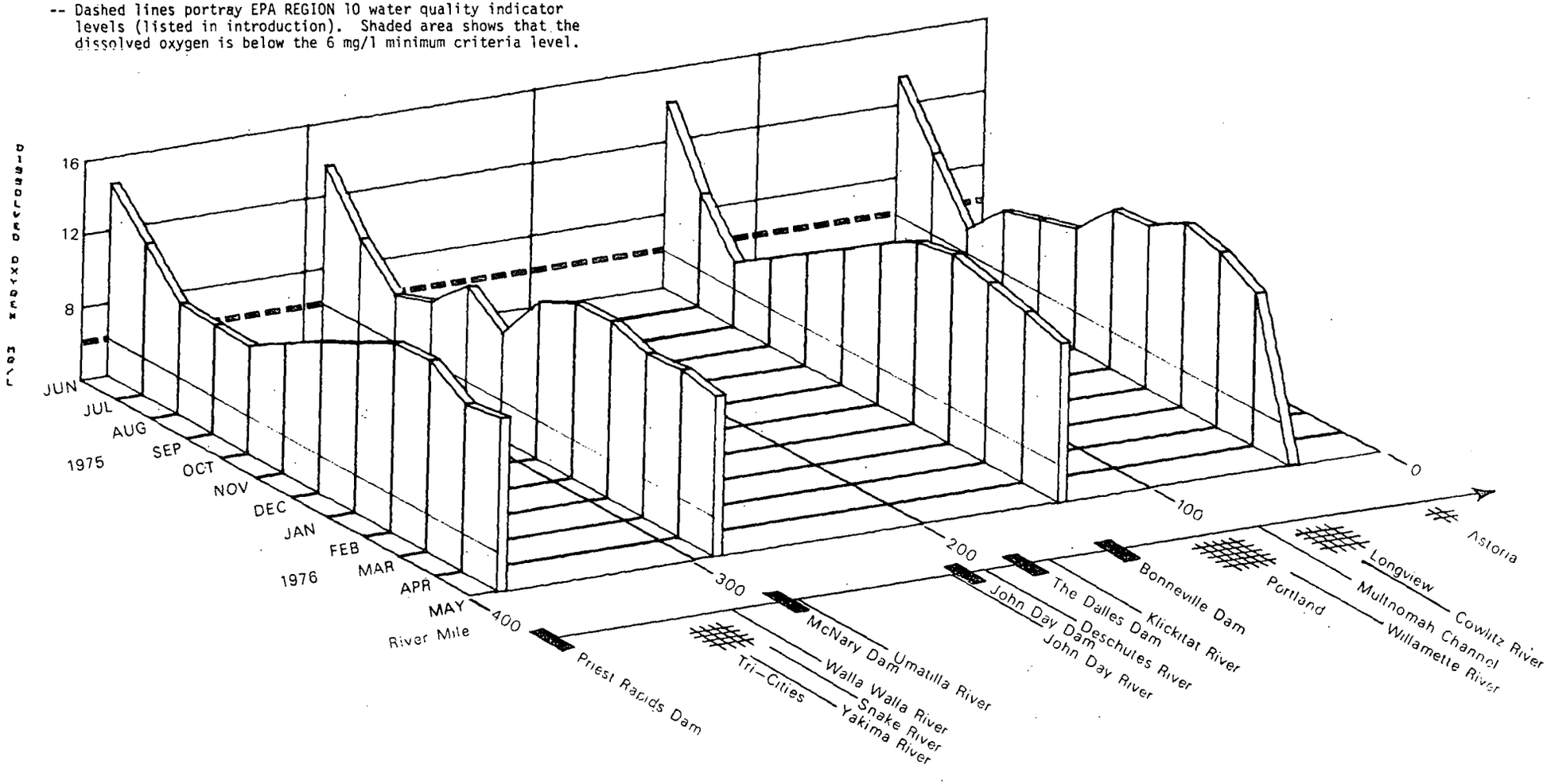
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

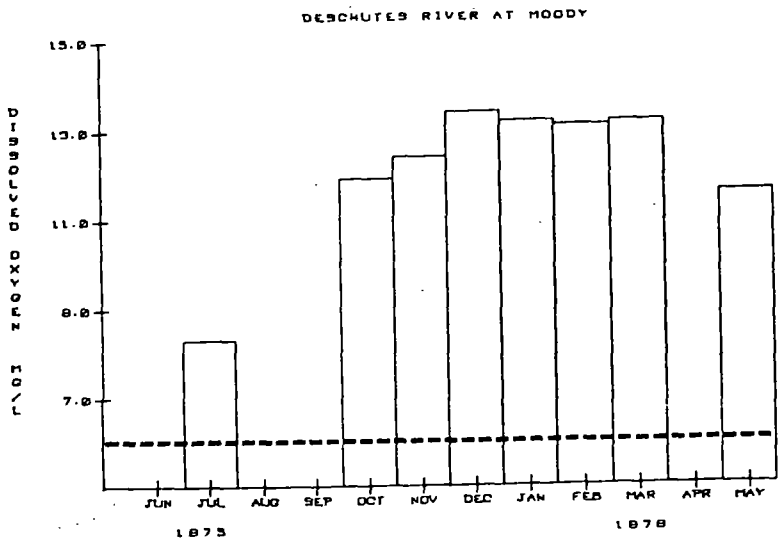
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the dissolved oxygen is below the 6 mg/l minimum criteria level.

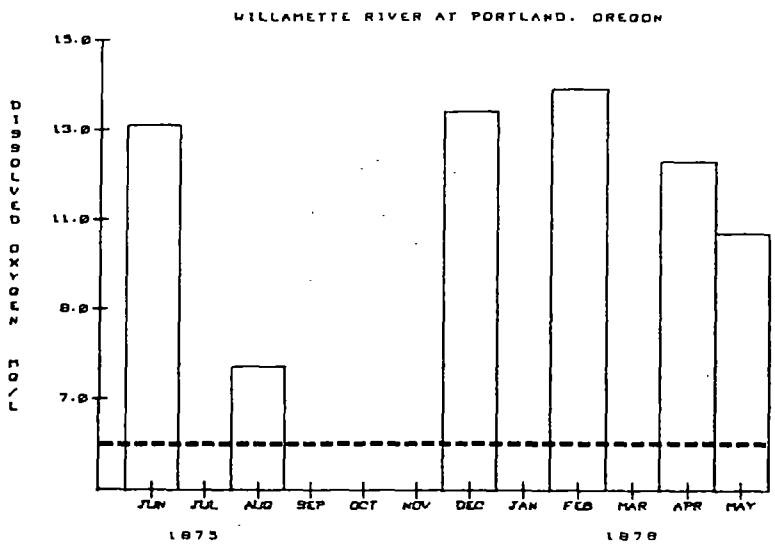
DISSOLVED OXYGEN MG/L



LOWER COLUMBIA RIVER BASIN

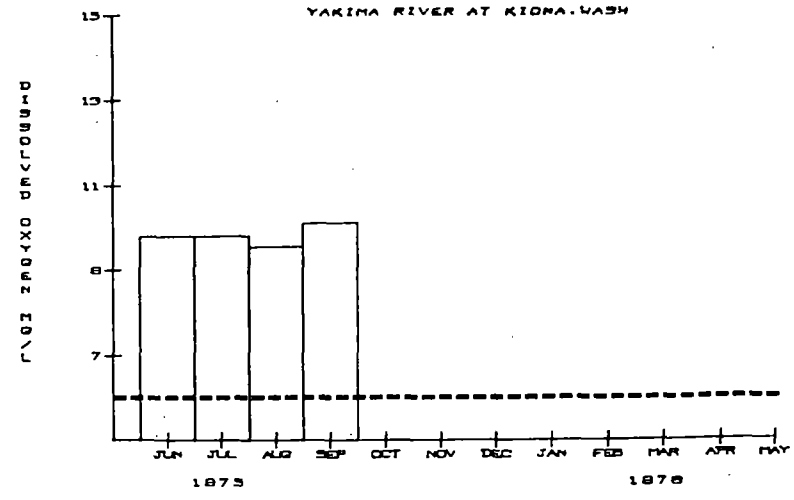
DISSOLVED OXYGEN MG/L

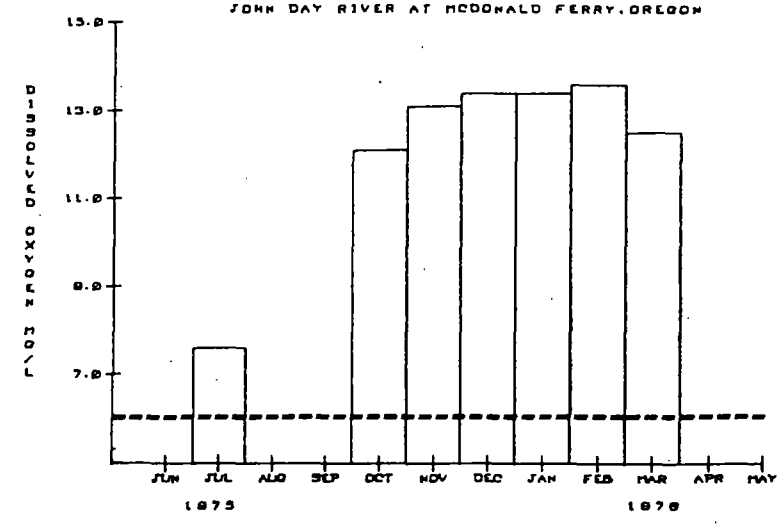




LOWER COLUMBIA RIVER BASIN

DISSOLVED OXYGEN MG/L





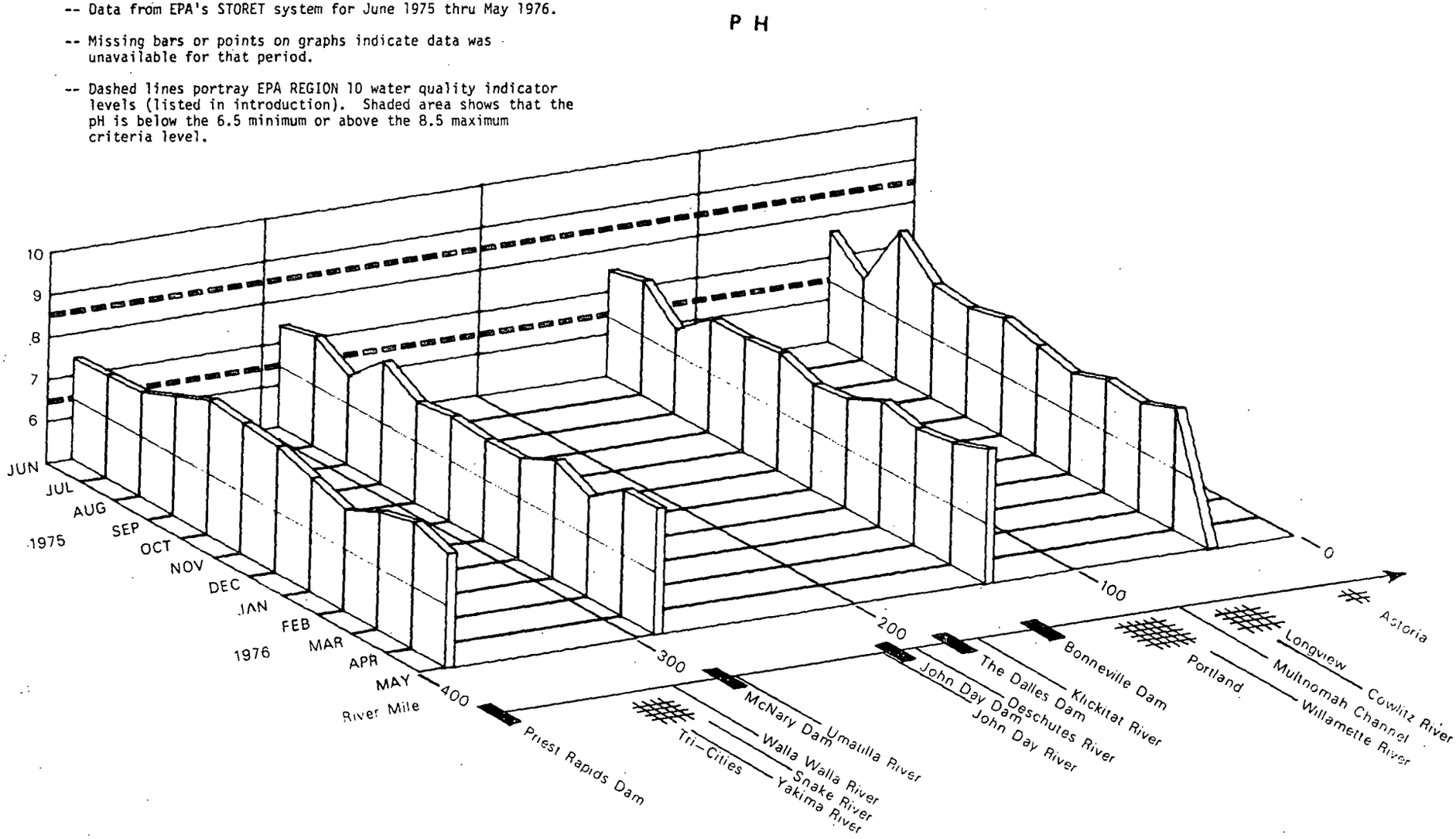
LOWER COLUMBIA RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

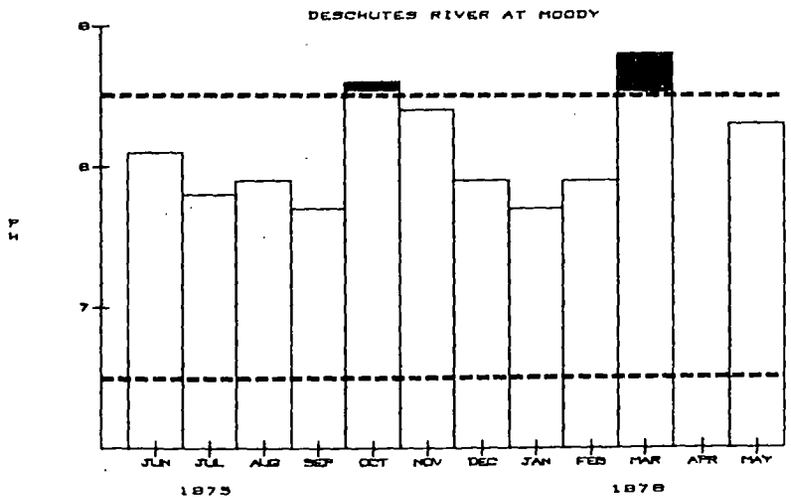
-- Missing bars or points on graphs indicate data was unavailable for that period.

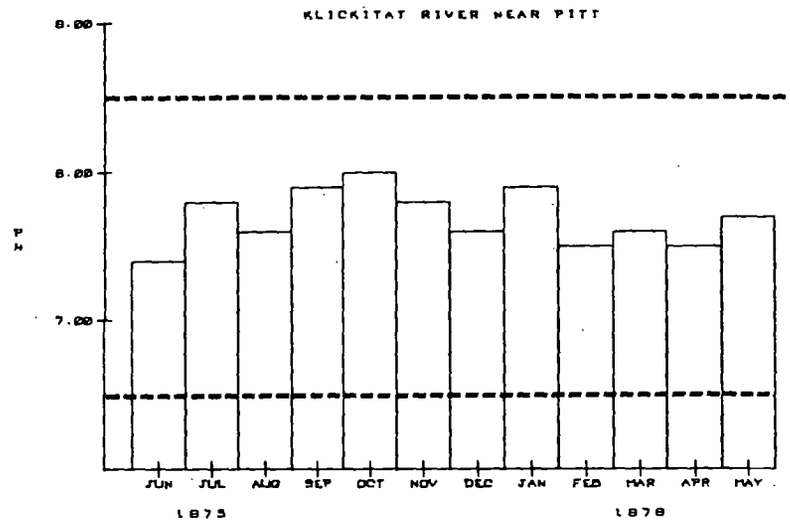
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the pH is below the 6.5 minimum or above the 8.5 maximum criteria level.

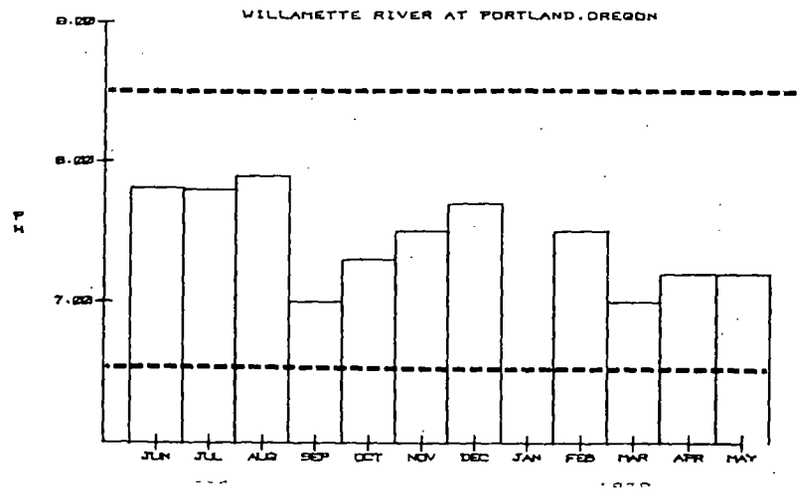


LOWER COLUMBIA RIVER BASIN

P H

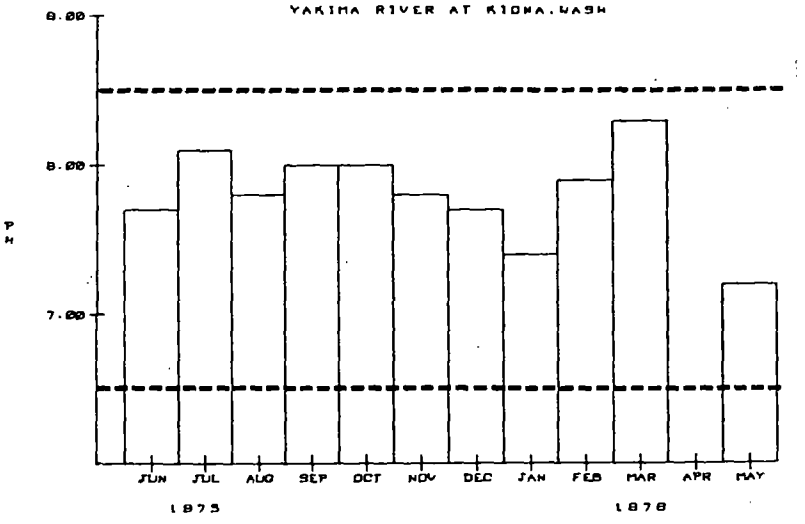


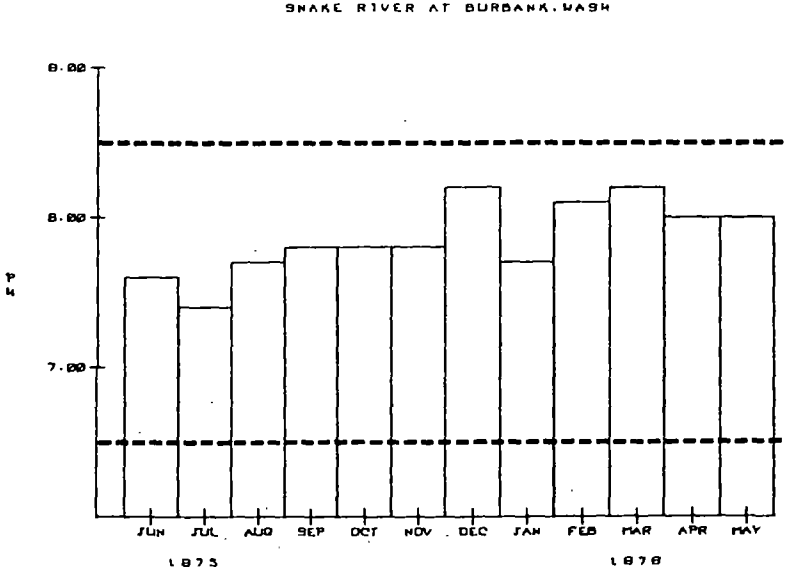


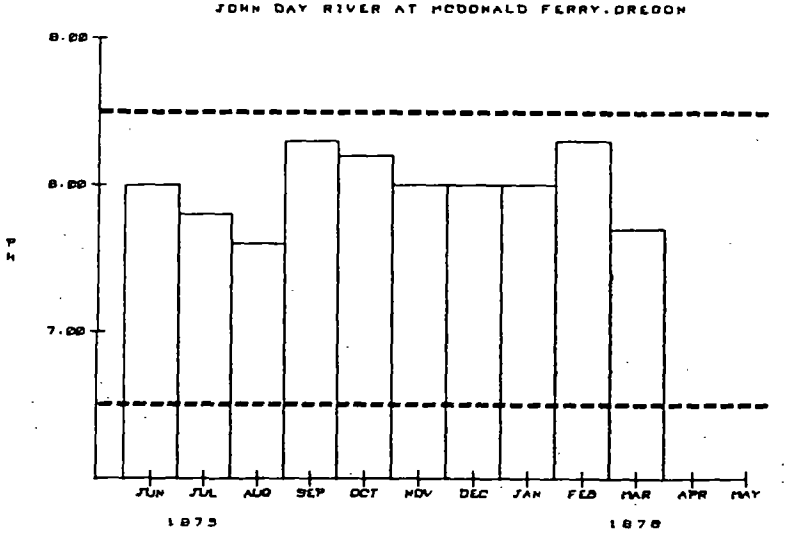


LOWER COLUMBIA RIVER BASIN

P H







LOWER COLUMBIA RIVER BASIN

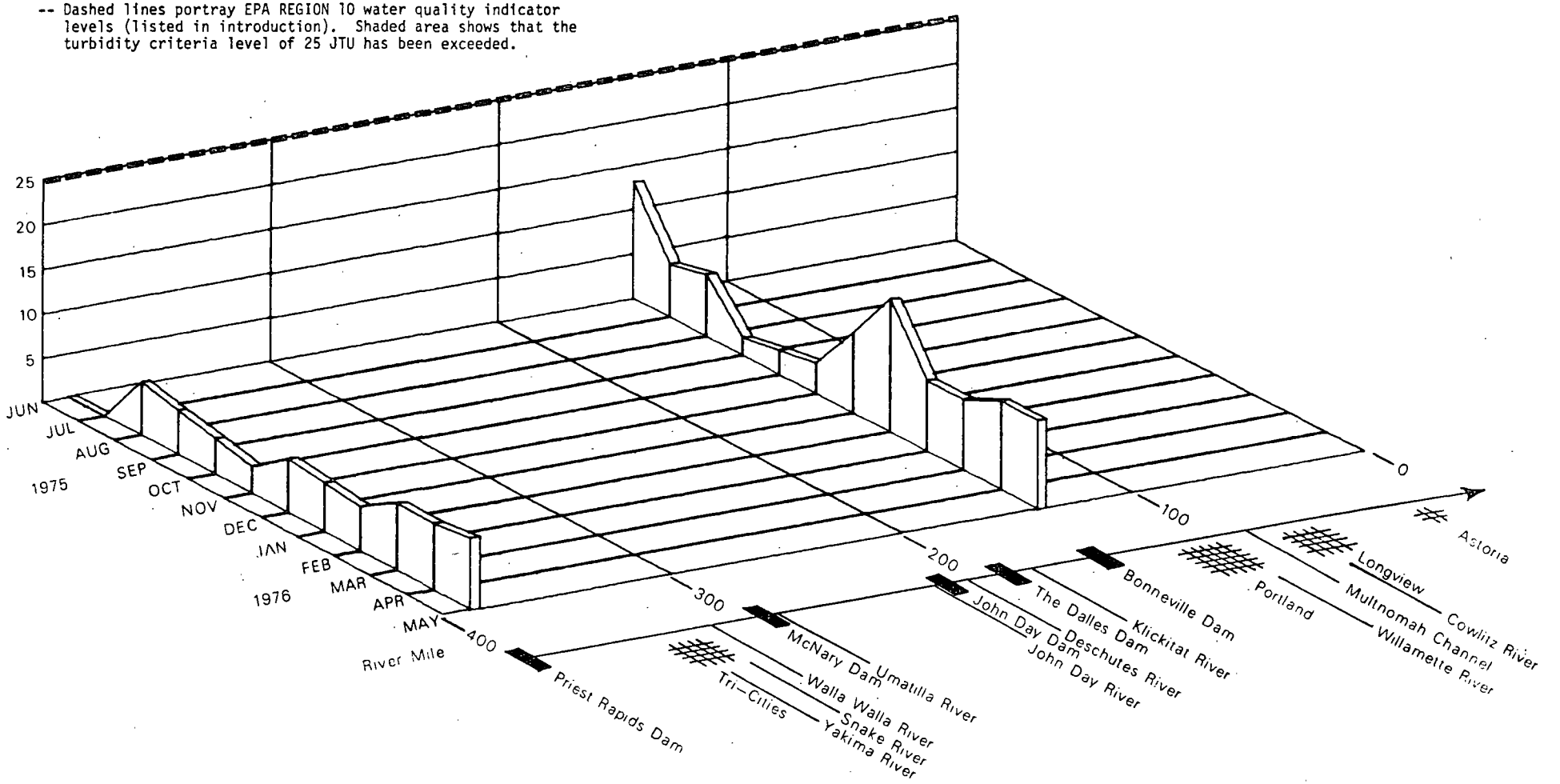
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

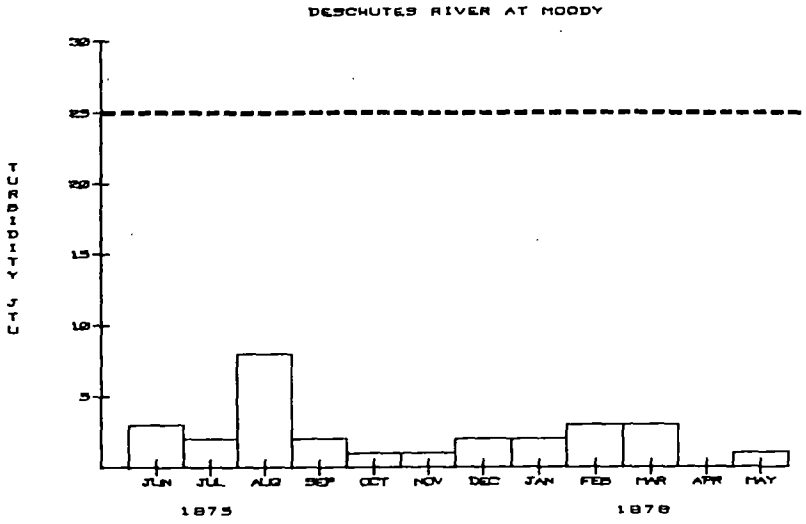
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the turbidity criteria level of 25 JTU has been exceeded.

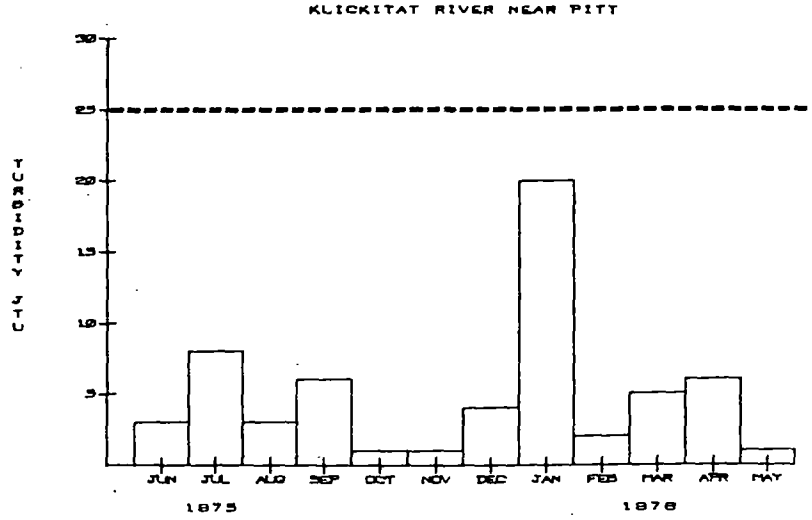
TURBIDITY IN JTU

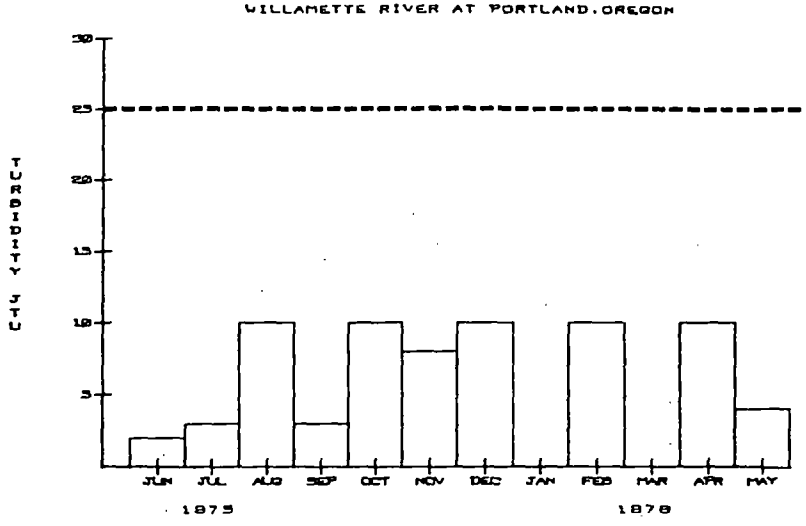


LOWER COLUMBIA RIVER BASIN

TURBIDITY IN JTU

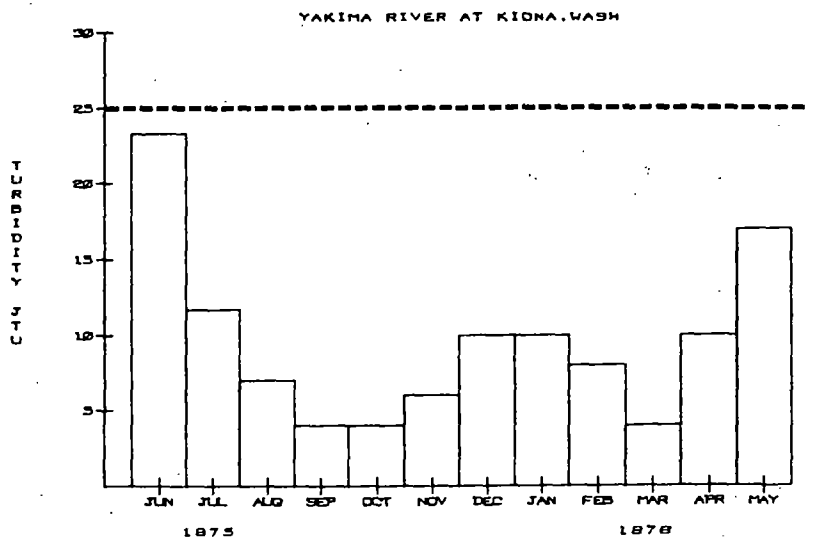


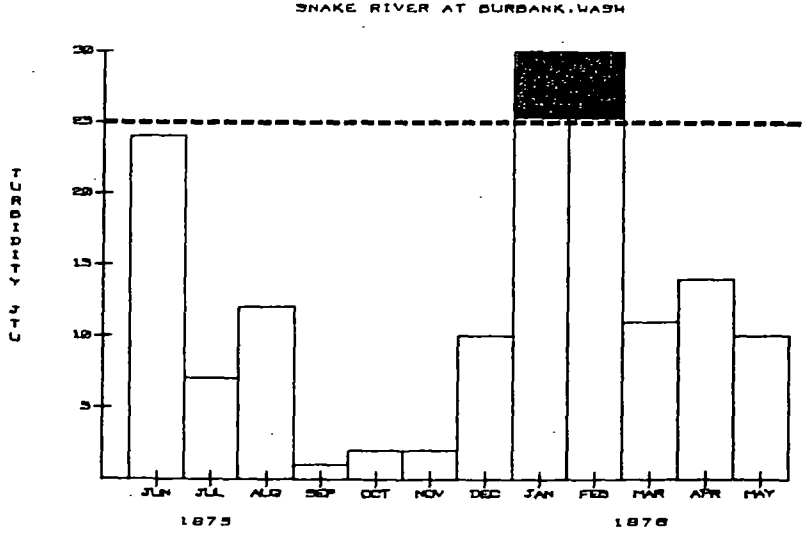


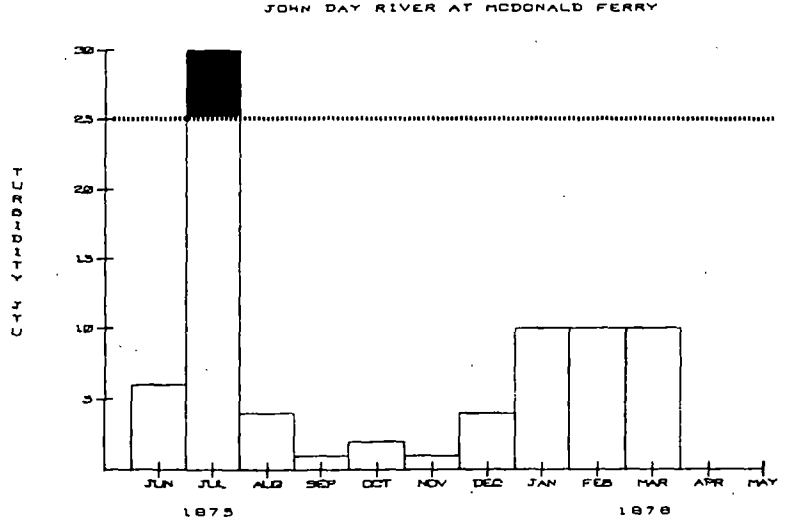


LOWER COLUMBIA RIVER BASIN

TURBIDITY IN JTU







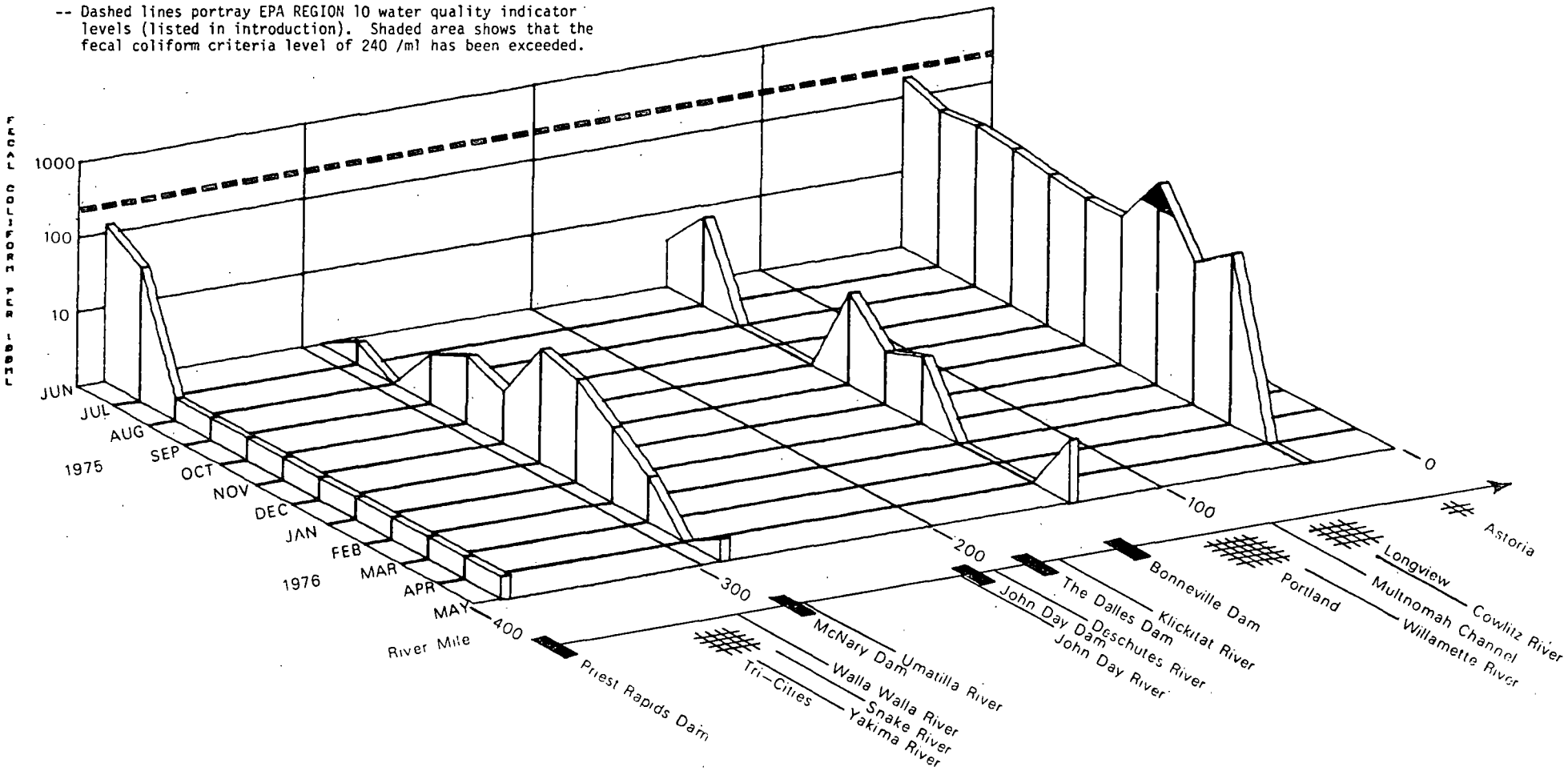
LOWER COLUMBIA RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

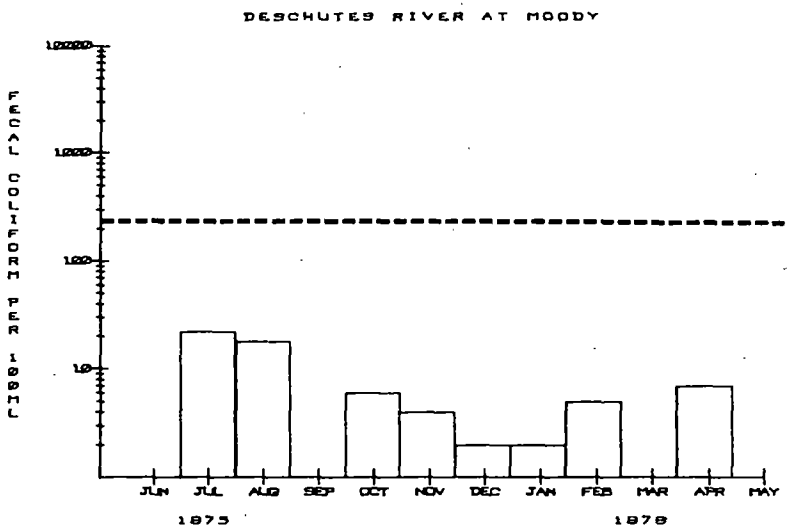
-- Missing bars or points on graphs indicate data was unavailable for that period.

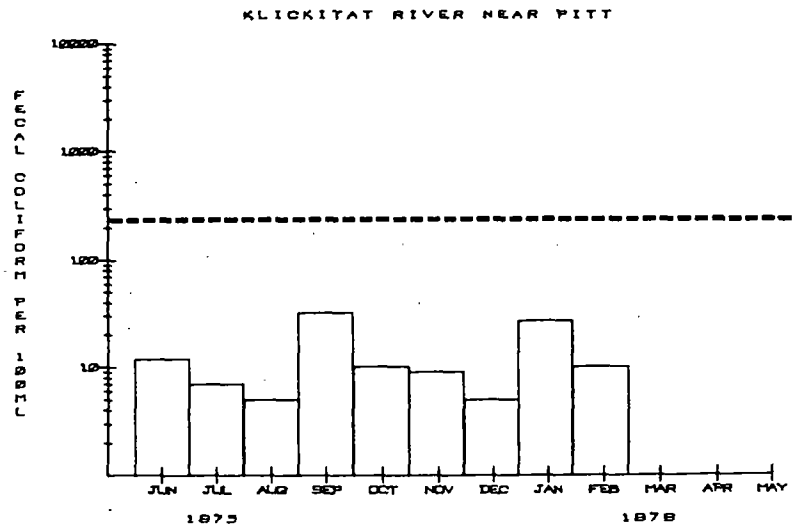
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the fecal coliform criteria level of 240 /ml has been exceeded.

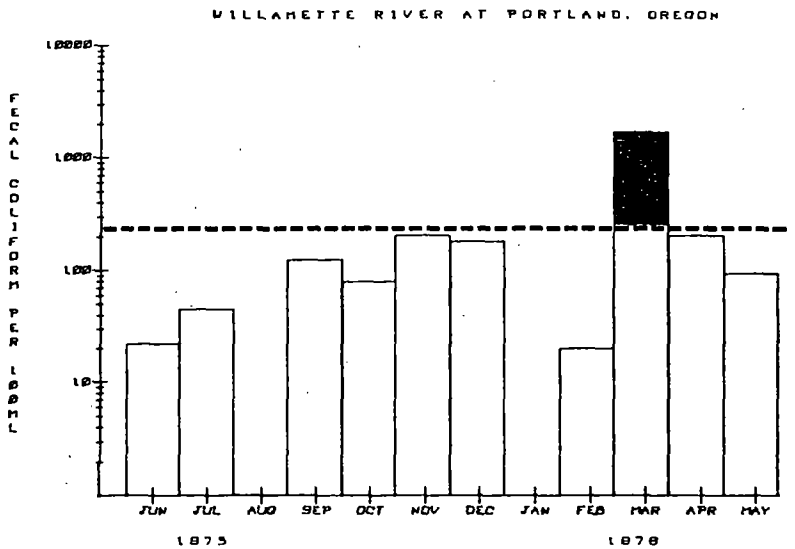


LOWER COLUMBIA RIVER BASIN

FECAL COLIFORM PER 100 ML

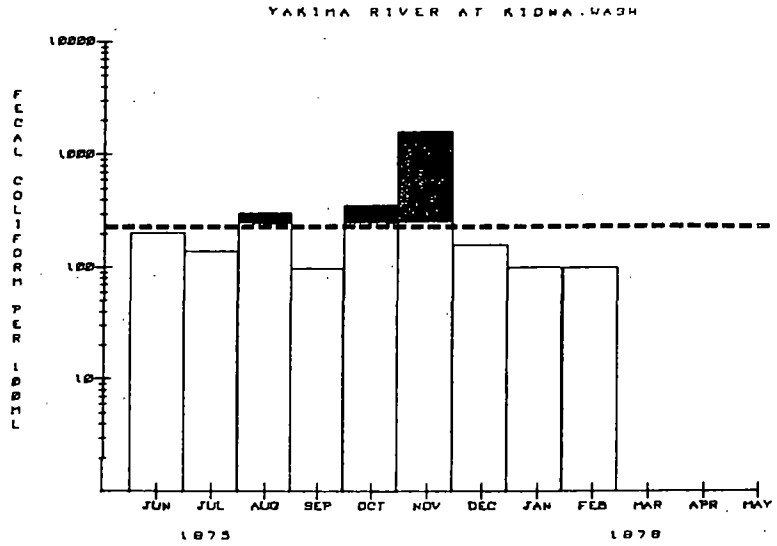


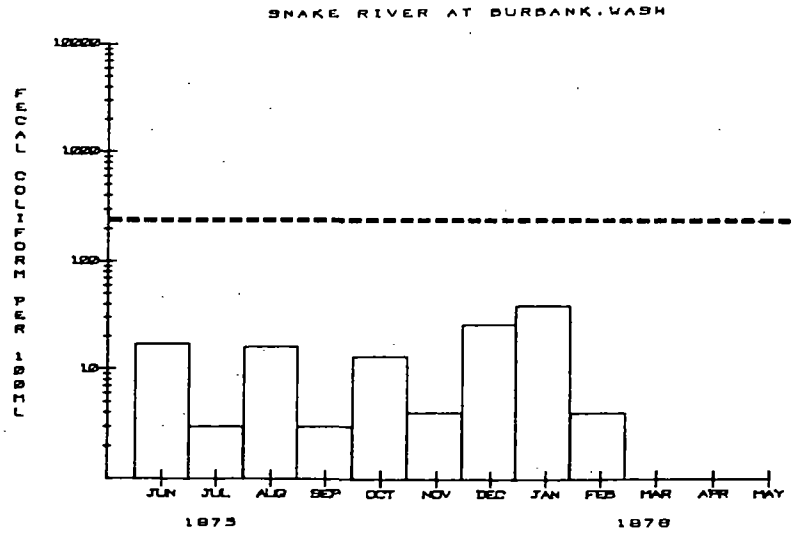


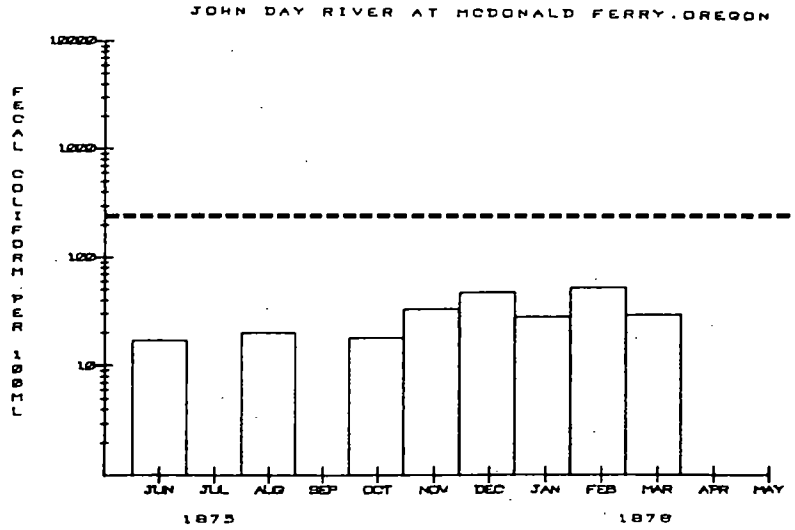


LOWER COLUMBIA RIVER BASIN

FECAL COLIFORM PER 100 ML







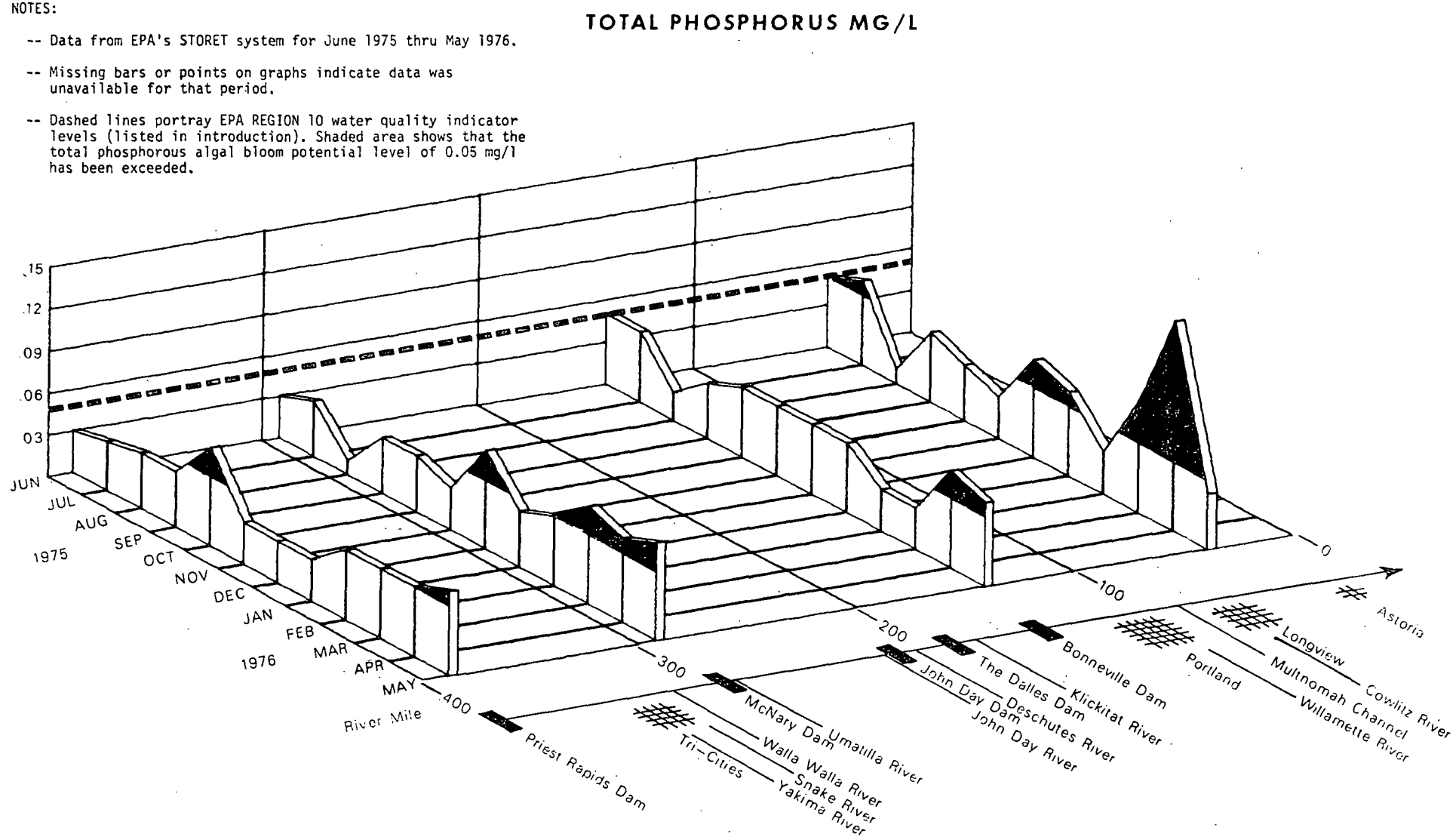
LOWER COLUMBIA RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

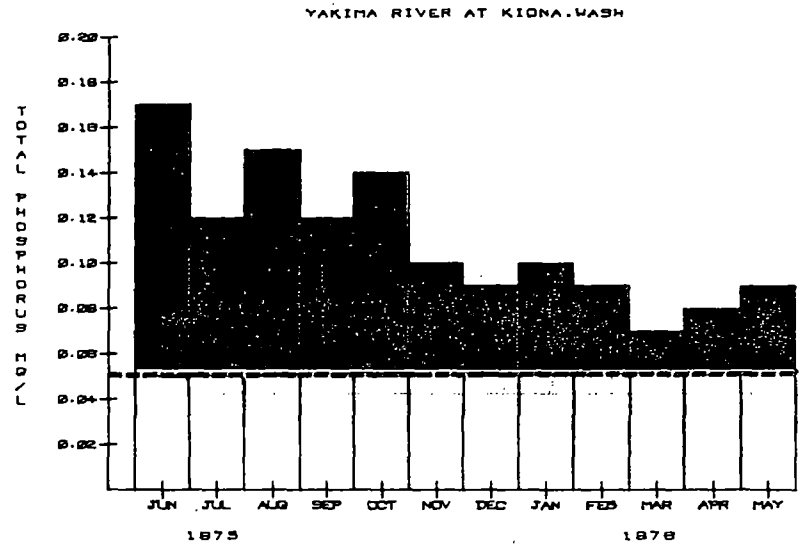
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the total phosphorous algal bloom potential level of 0.05 mg/l has been exceeded.

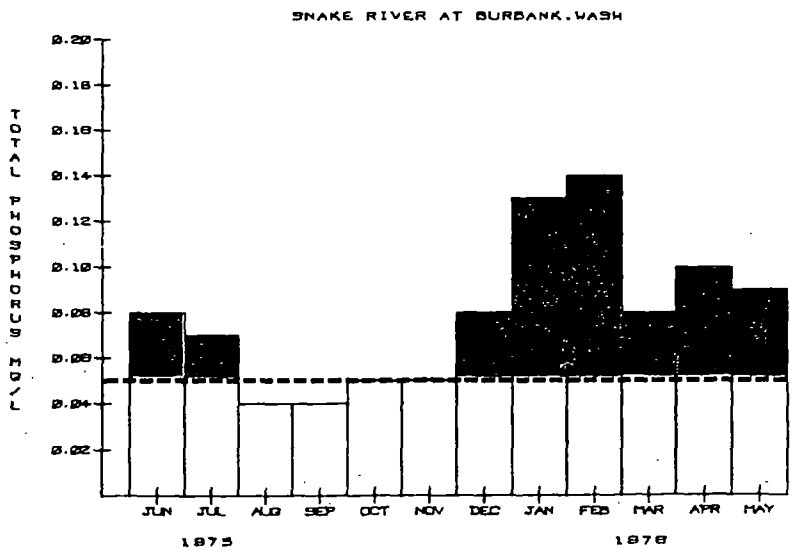


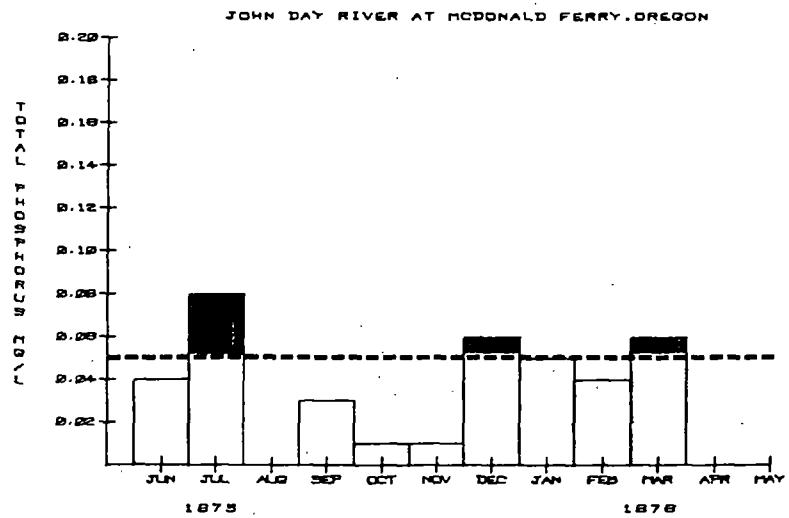
52280

LOWER COLUMBIA RIVER BASIN

TOTAL PHOSPHORUS MG/L



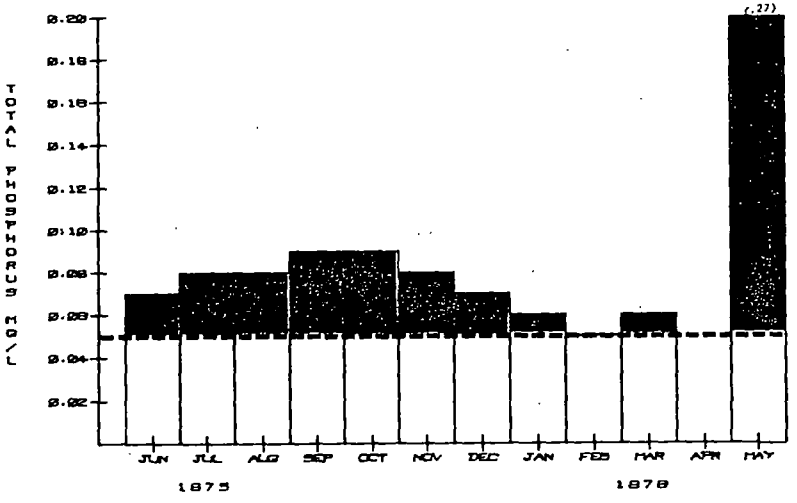




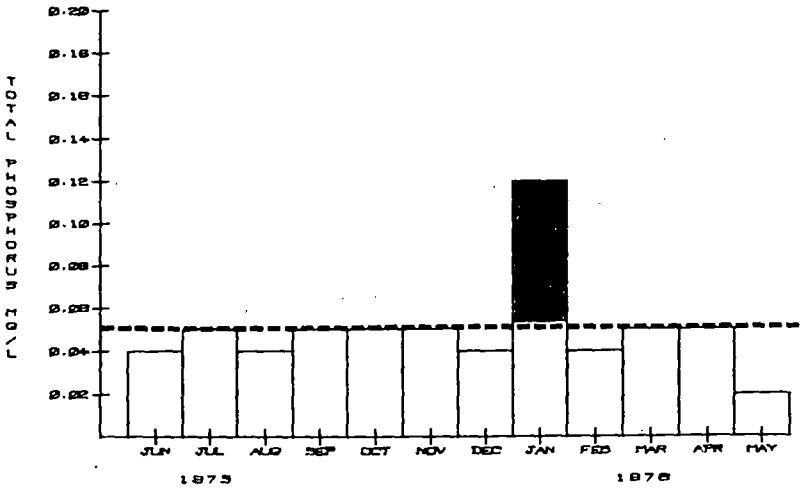
LOWER COLUMBIA RIVER BASIN

TOTAL PHOSPHORUS MG/L

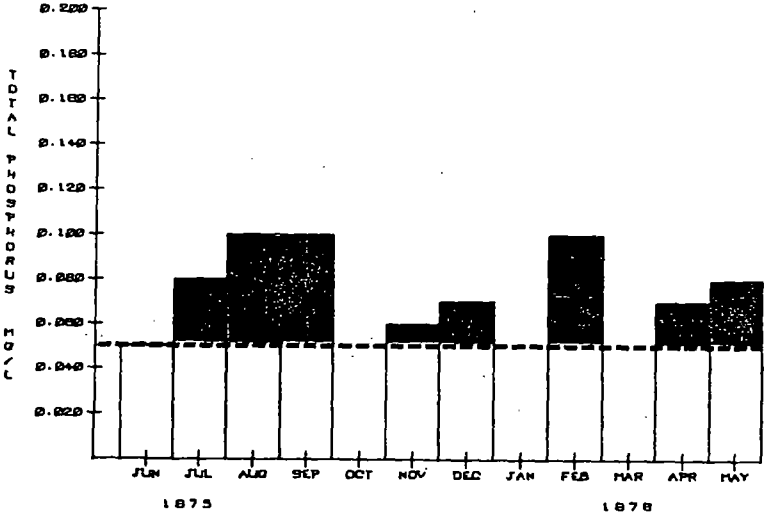
DESCHUTES RIVER AT MOODY



KLICKITAT RIVER NEAR PITT



WILLAMETTE RIVER AT PORTLAND, OREGON



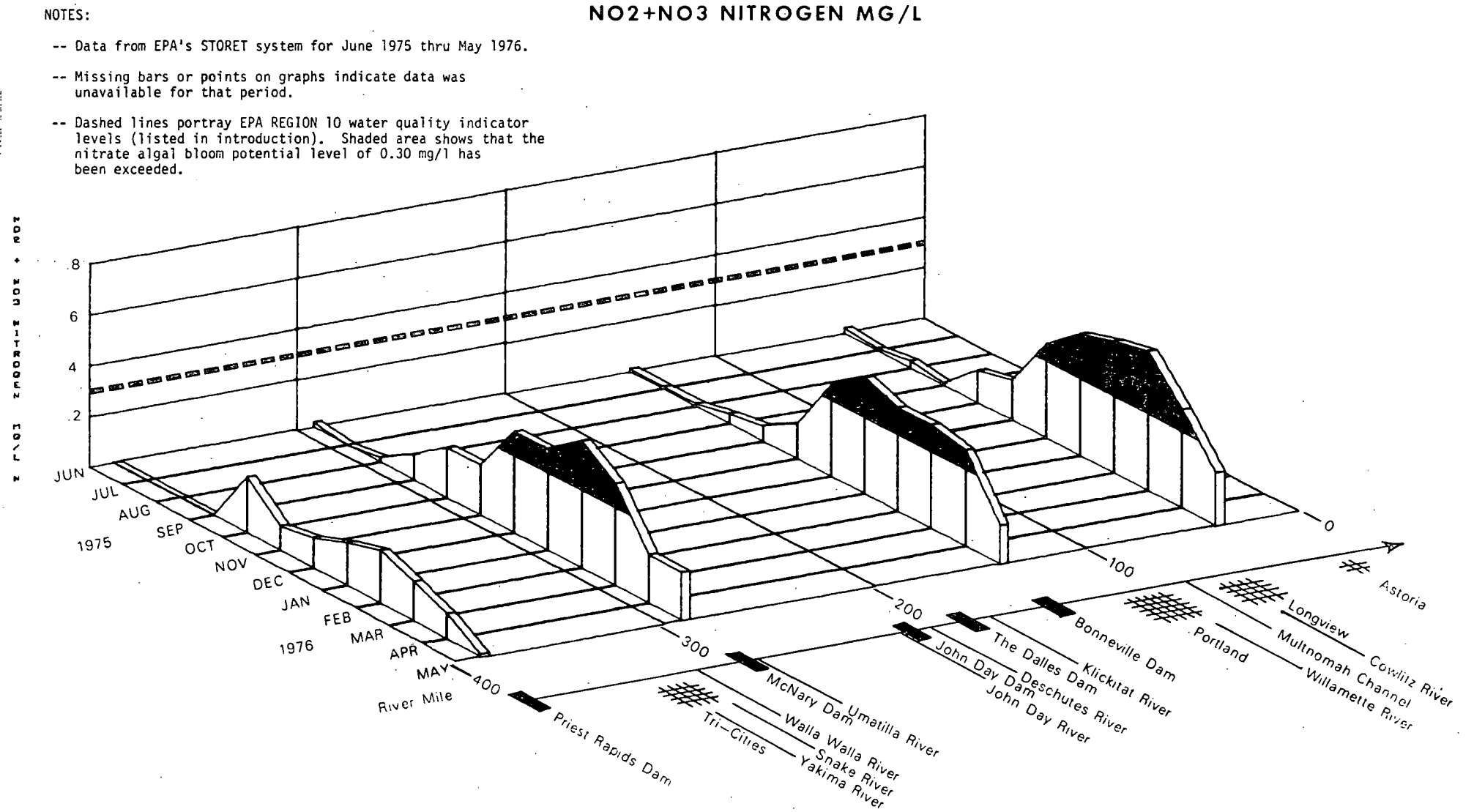
LOWER COLUMBIA RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

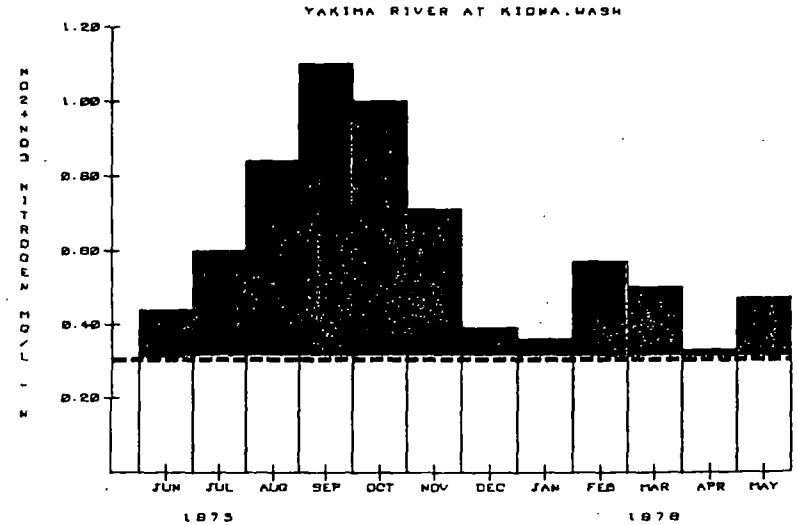
-- Missing bars or points on graphs indicate data was unavailable for that period.

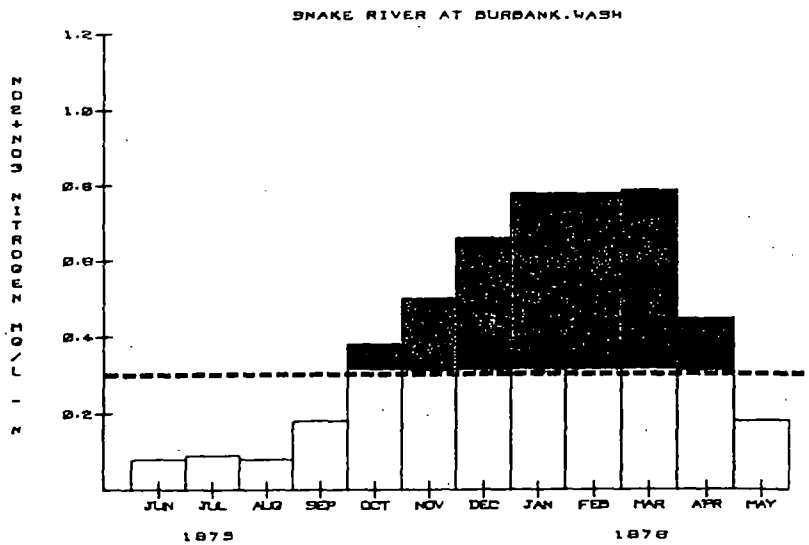
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the nitrate algal bloom potential level of 0.30 mg/l has been exceeded.

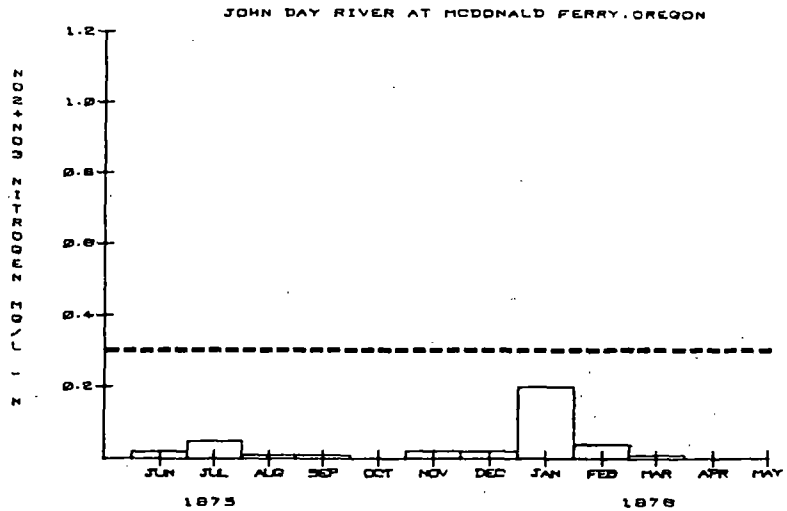


LOWER COLUMBIA RIVER BASIN

NO2+NO3 NITROGEN MG/L

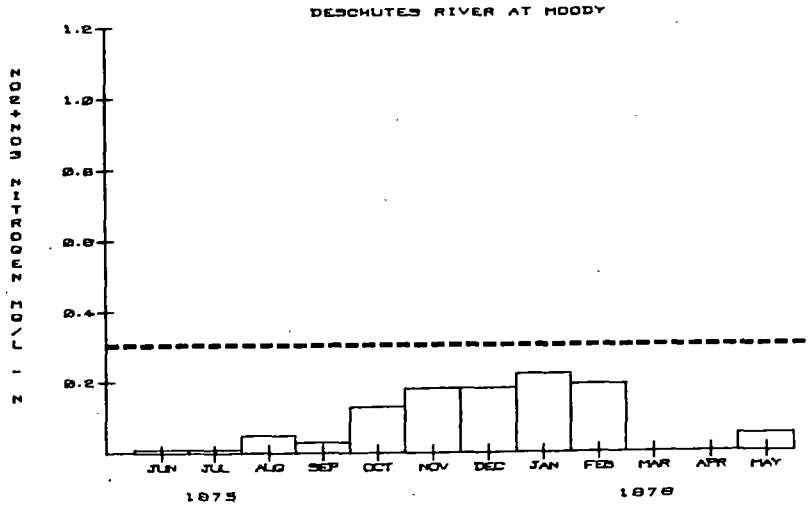


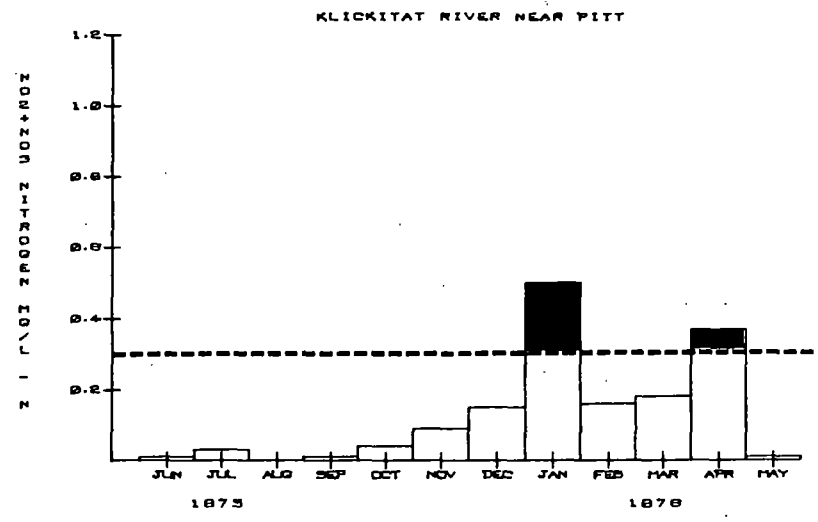


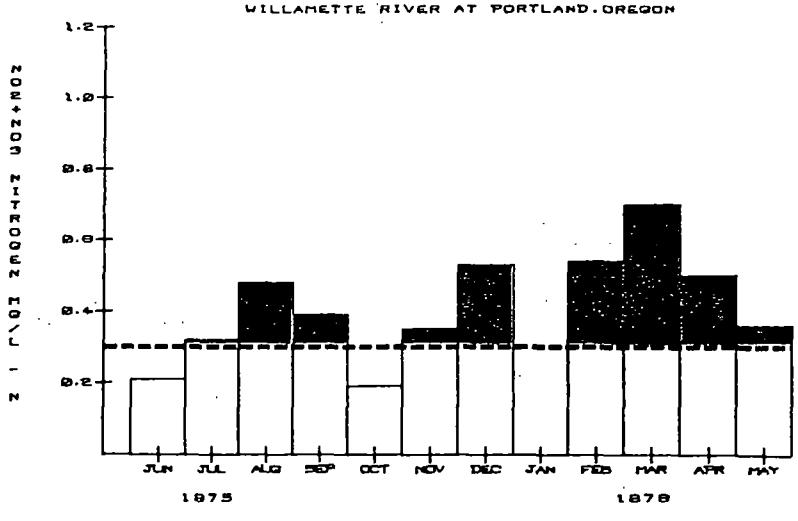


LOWER COLUMBIA RIVER BASIN

NO2+NO3 NITROGEN MG/L







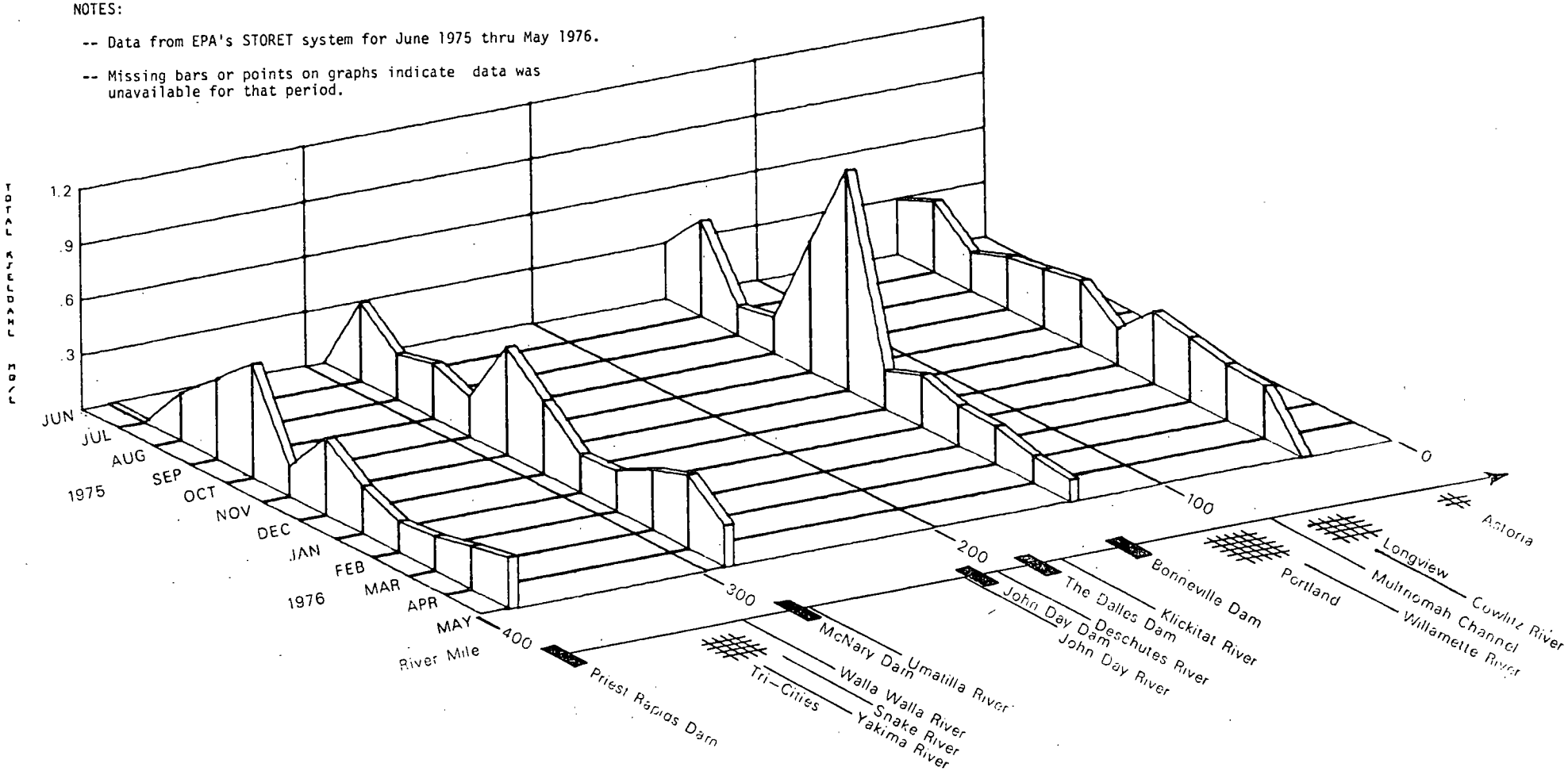
LOWER COLUMBIA RIVER BASIN

TOTAL KJELDAHL NITROGEN MG/L

NOTES:

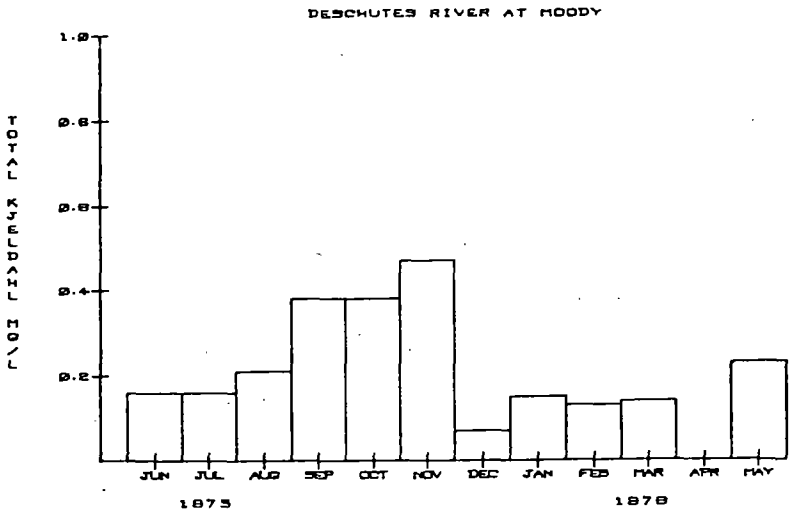
-- Data from EPA's STORET system for June 1975 thru May 1976.

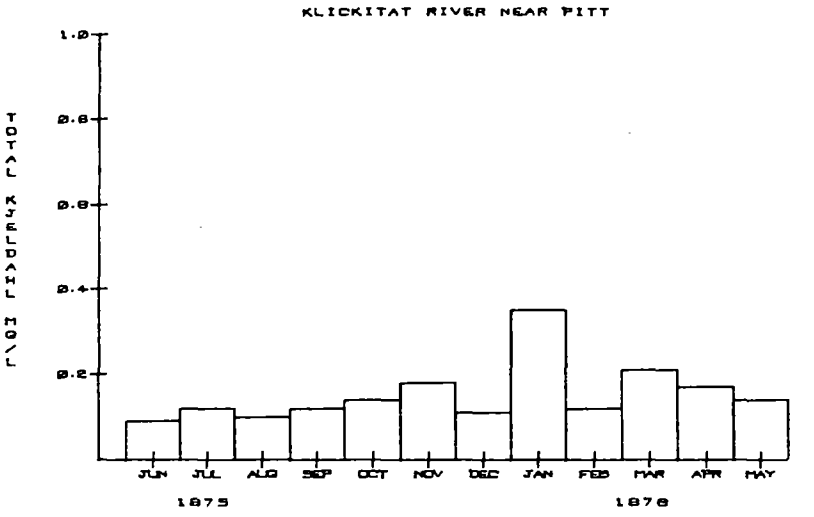
-- Missing bars or points on graphs indicate data was unavailable for that period.

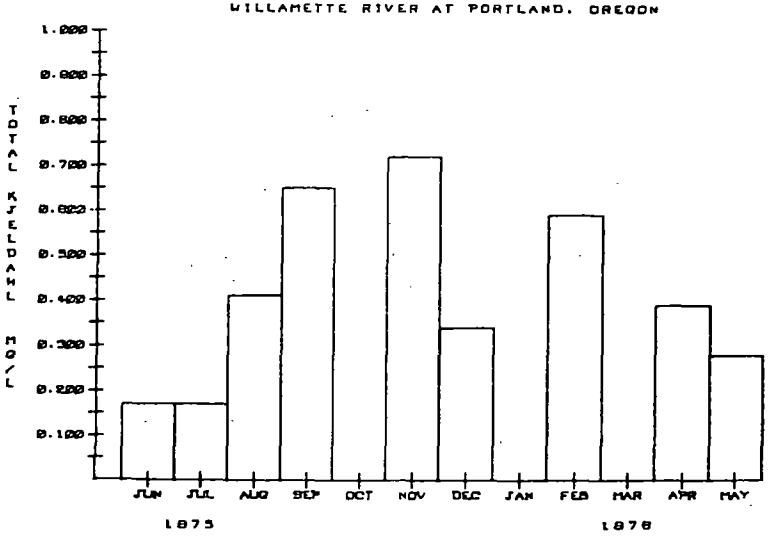


LOWER COLUMBIA RIVER BASIN

TOTAL KJELDAHL NITROGEN MG/L

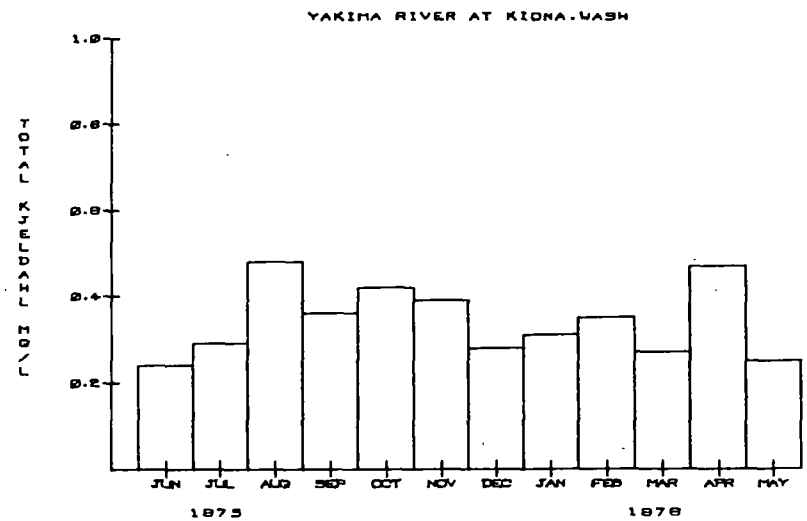


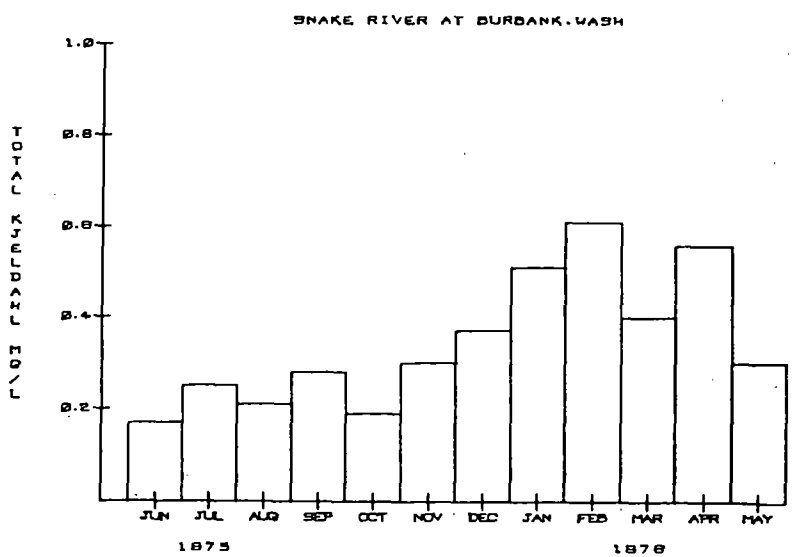


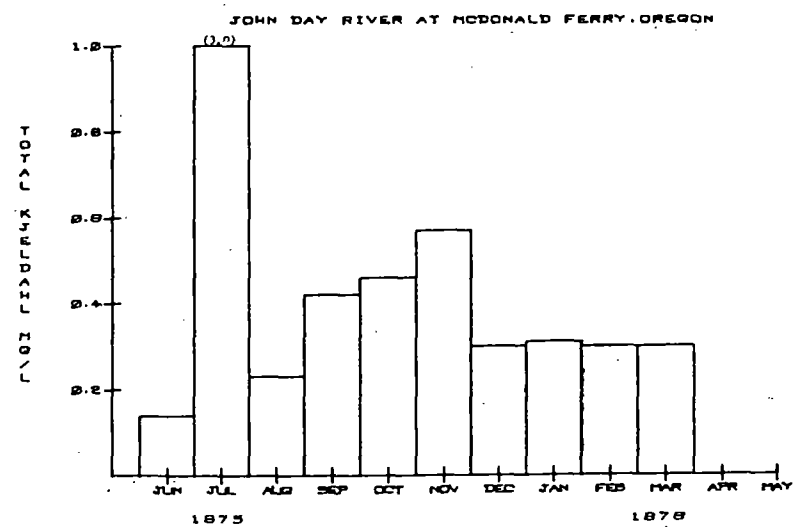


LOWER COLUMBIA RIVER BASIN

TOTAL KJELDAHL NITROGEN MG/L







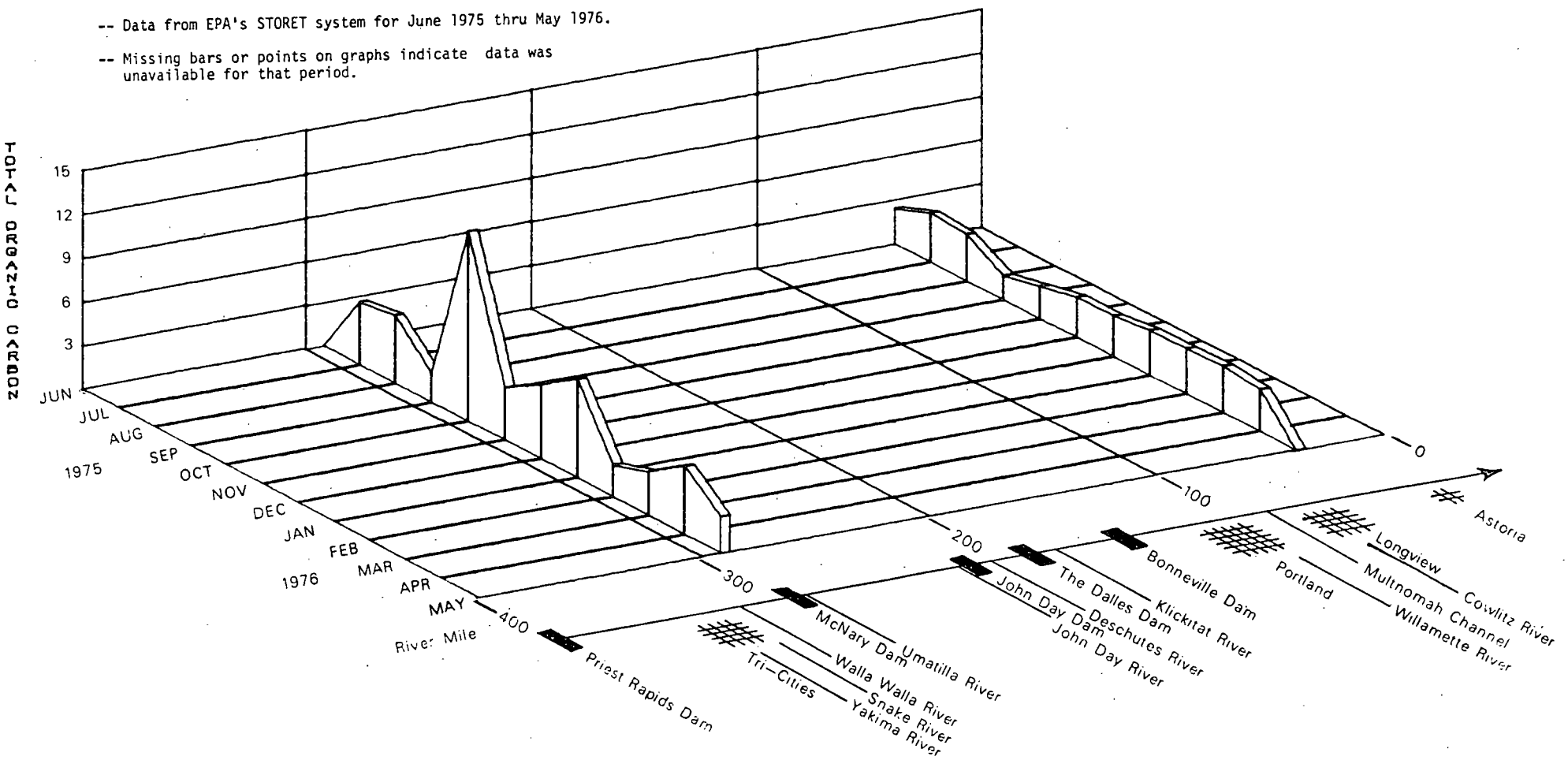
LOWER COLUMBIA RIVER BASIN

TOTAL ORGANIC CARBON MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.



LOWER COLUMBIA RIVER BASIN

TOTAL ORGANIC CARBON MG/L

NO TRIBUTARY DATA AVAILABLE

KOOTENAI RIVER BASIN 13-01

The Panhandle region of Idaho provides some of the highest quality natural environmental areas remaining in Idaho. The major river system in the basin is the Kootenai River. This river drains directly into the Columbia River. There are no major urban areas in the basin. The major land use is irrigated agriculture. Domestic sewage treatment plants are the only point source problem of the basin.

National Water Quality Surveillance System (NWQSS) stations located within this basin are shown on the map. The complete water quality and biological parametric coverage for NWQSS stations is listed in the Introduction of this report along with the EPA criteria associated with those parameters. However, only some of the parameters are included in the following curves. Complete raw data is available from EPA upon request.

The following curve layout is designed to show the significant river constituents temporally presented on bar charts.

KOOTENAI RIVER BASIN

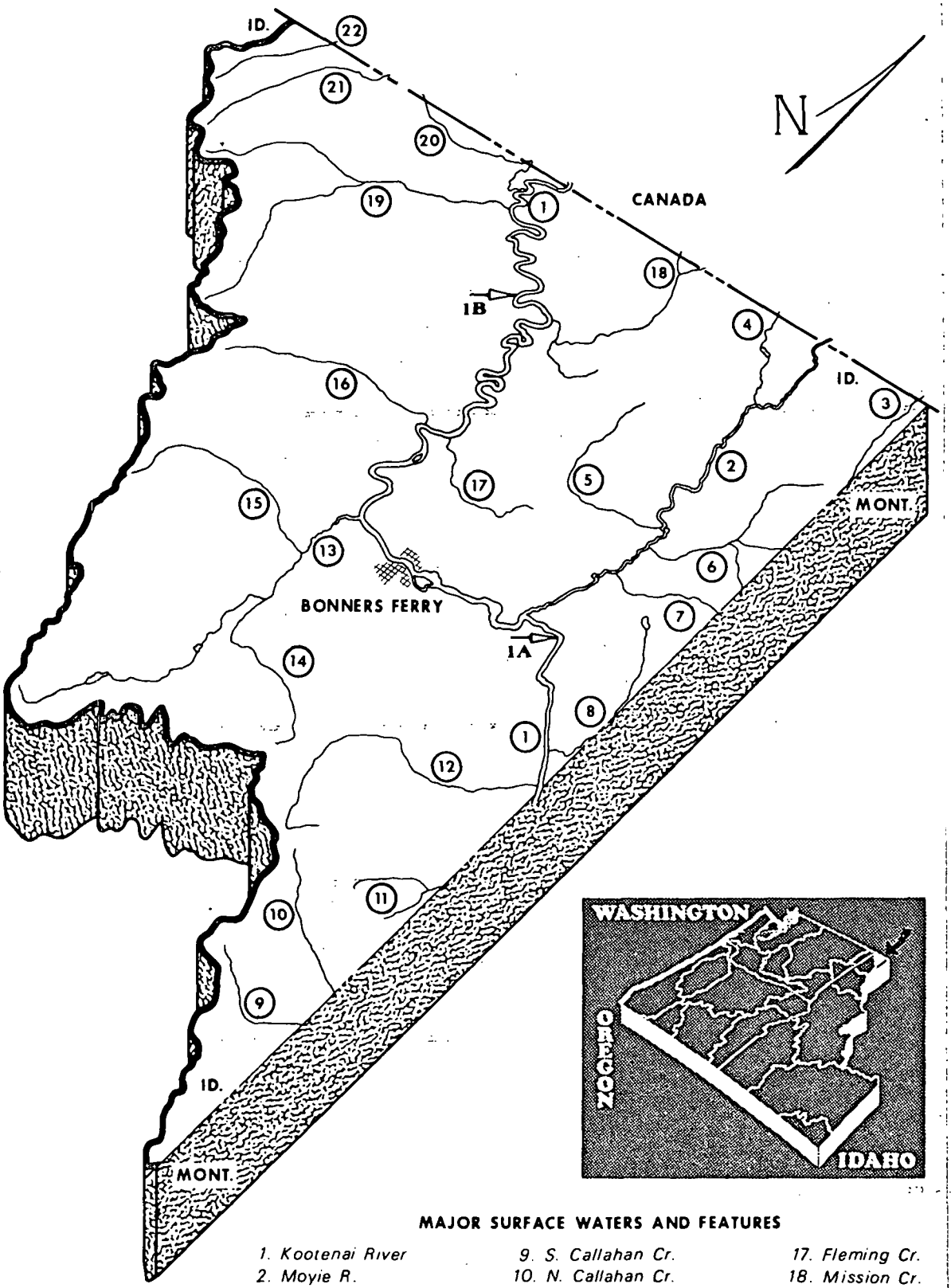
Map Station Number	Type of Data Collected		
	Physical	Chemical	Biological
1A			
1B	X	X	

NOTE: Complete station information shown in Table 1 page 11-13.

STORET #13-01

KOOTENAI RIVER BASIN

N.W.Q.S.S. LOCATIONS



MAJOR SURFACE WATERS AND FEATURES

1. *Kootenai River*
2. *Moyie R.*
3. *Canuck Cr.*
4. *Gillon Cr.*
5. *Meadow Cr.*
6. *Deer Cr.*
7. *Skin Cr.*
8. *Curley Cr.*
9. *S. Callahan Cr.*
10. *N. Callahan Cr.*
11. *Raymond Cr.*
12. *Boulder Cr.*
13. *Deep Cr.*
14. *Twenty-mile Cr.*
15. *Snow Cr.*
16. *Ball Cr.*
17. *Fleming Cr.*
18. *Mission Cr.*
19. *Cow Cr.*
20. *Boundary Cr.*
21. *Grass Cr.*
22. *Blue Joe Cr.*

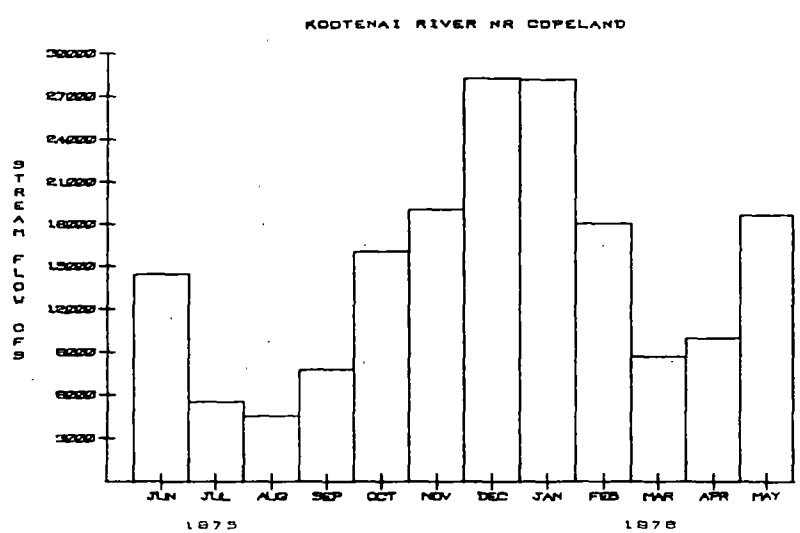
KOOTENAI RIVER BASIN

STREAM FLOW CFS

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.



KOOTENAI RIVER BASIN

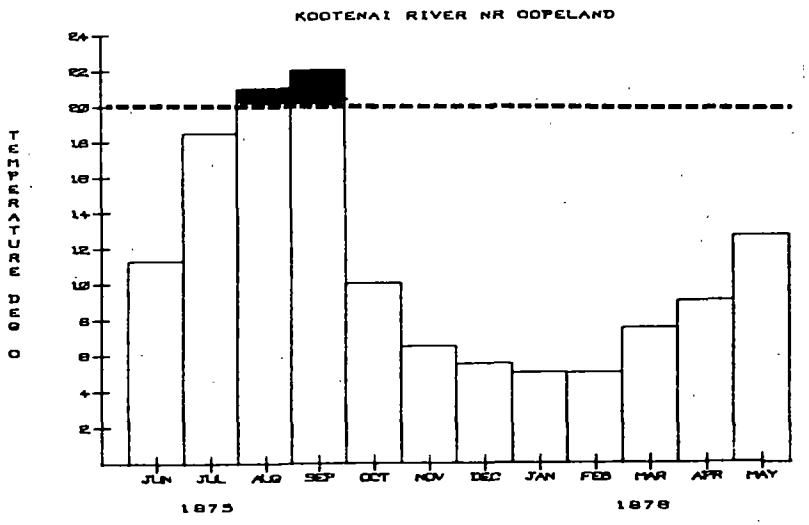
TEMPERATURE DEG C

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the 20°C maximum temperature for salmonid spawning and rearing has been exceeded.



KOOTENAI RIVER BASIN

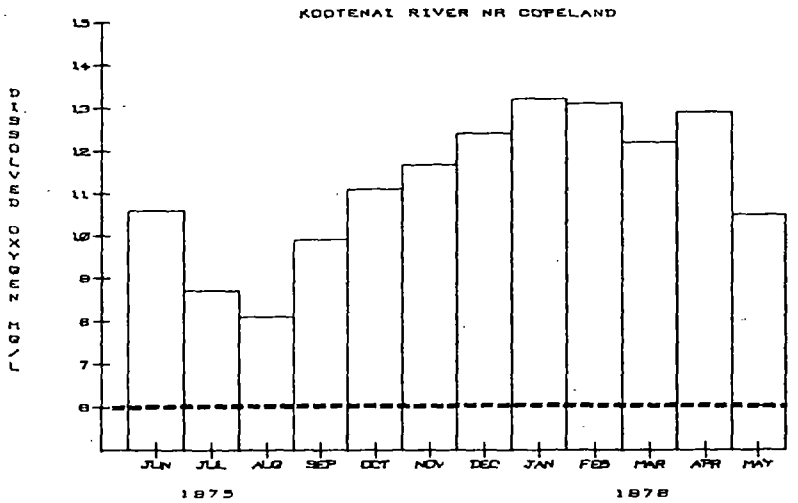
DISSOLVED OXYGEN MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the dissolved oxygen is below the 6 mg/l minimum criteria level.



KOOTENAI RIVER BASIN

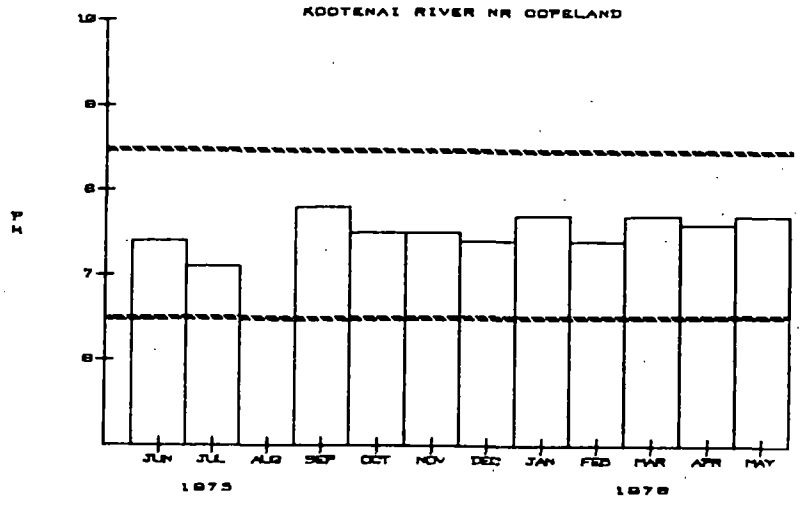
pH

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the *pH is below the 6.5 minimum or above the 8.5 maximum* criteria level.



KOOTENAI RIVER BASIN

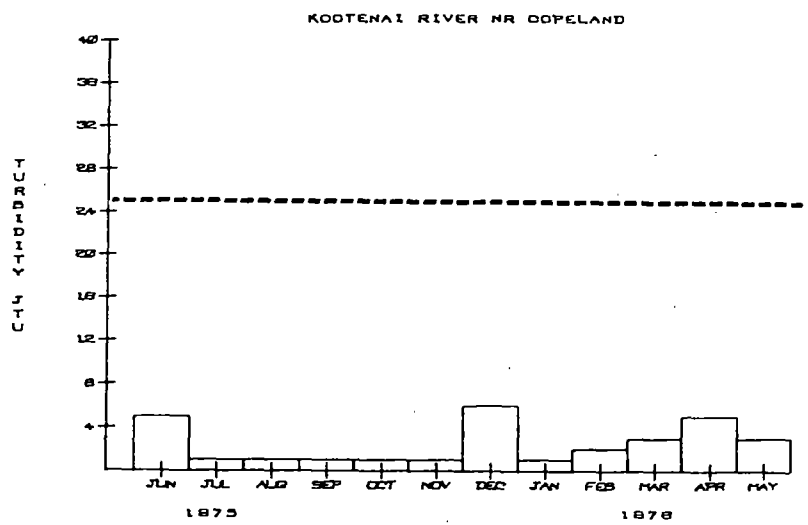
TURBIDITY IN JTU

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the turbidity criteria level of 25 JTU has been exceeded.



KOOTENAI RIVER BASIN

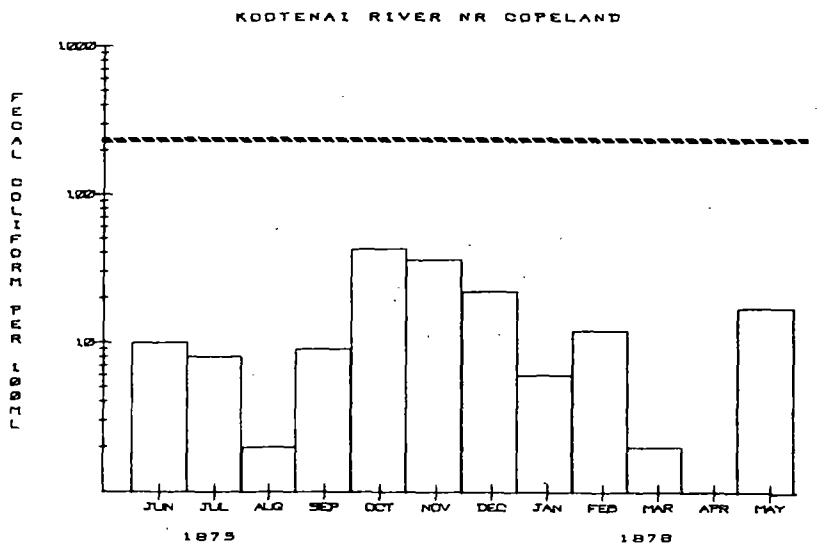
FECAL COLIFORM PER 100 ML

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the fecal coliform criteria level of 240 /ml has been exceeded.



KOOTENAI RIVER BASIN

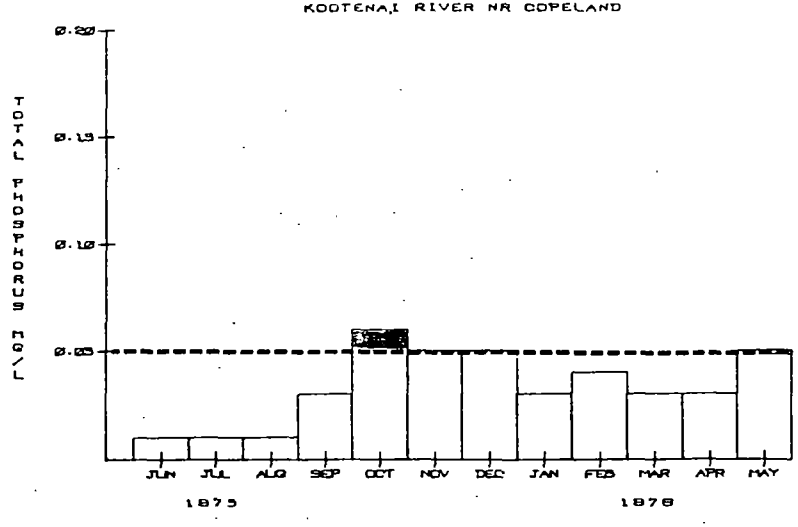
TOTAL PHOSPHORUS MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the total phosphorous algal bloom potential level of 0.05 mg/l has been exceeded.



KOOTENAI RIVER BASIN

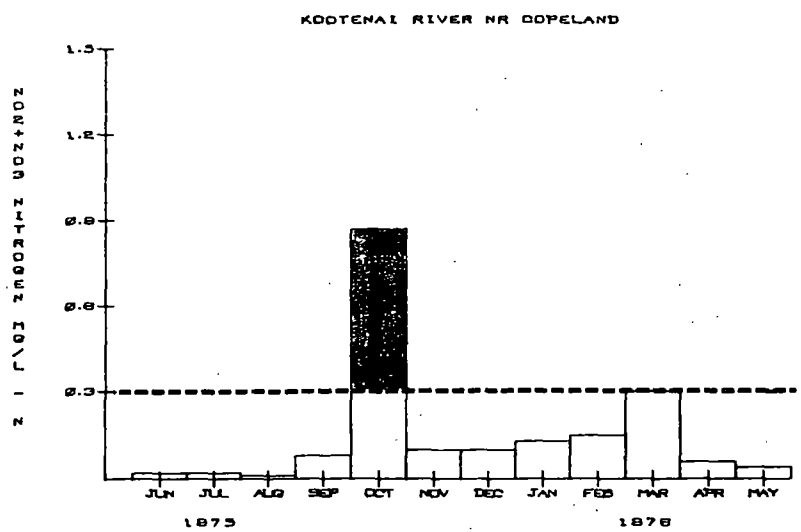
NO2+NO3 NITROGEN MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the nitrate algal bloom potential level of 0.30 mg/l has been exceeded.



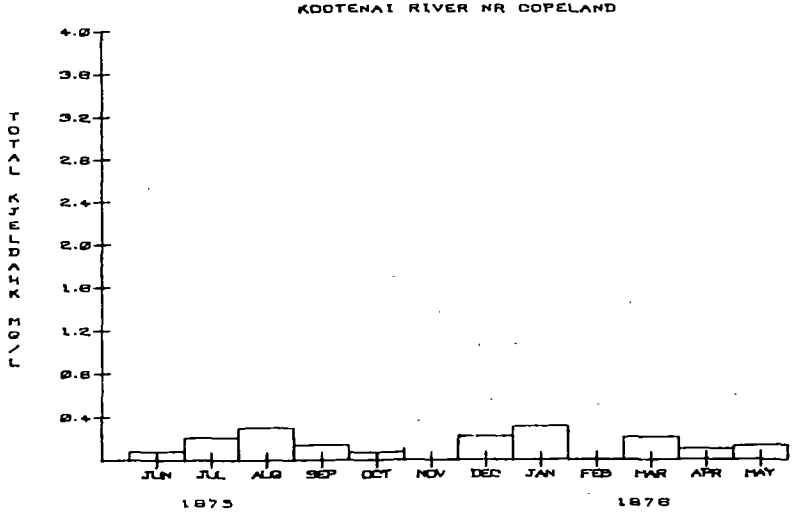
KOOTENAI RIVER BASIN

TOTAL KJELDAHL NITROGEN MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.



CLARK FORK-PEND OREILLE RIVER BASIN 13-02

The Panhandle region of Idaho provides some of the highest quality natural environmental areas remaining in Idaho. The major river systems in the basin include the Clark Fork-Pend Oreille Rivers. Each of these rivers drain directly into the Columbia River. The major cities in the basin include Sandpoint (pop. 4,144), Bonners Ferry (pop. 1,909), and Newport,Wa. (pop.1,418). The major land use in the basin is irrigated agriculture. Domestic sewage treatment plants account for the major point source problem in the basin.

National Water Quality Surveillance System (NWQSS) stations located within this basin are shown on the map. The complete water quality and biological parametric coverage for NWQSS stations is listed in the Introduction of this report along with the EPA criteria associated with those parameters. However, only some of the parameters are included in the following curves. Complete raw data is available from EPA upon request.

The following curve layout is designed to show the significant river constituents temporally presented on bar charts.

CLARK FORK-PEND OREILLE RIVER BASIN

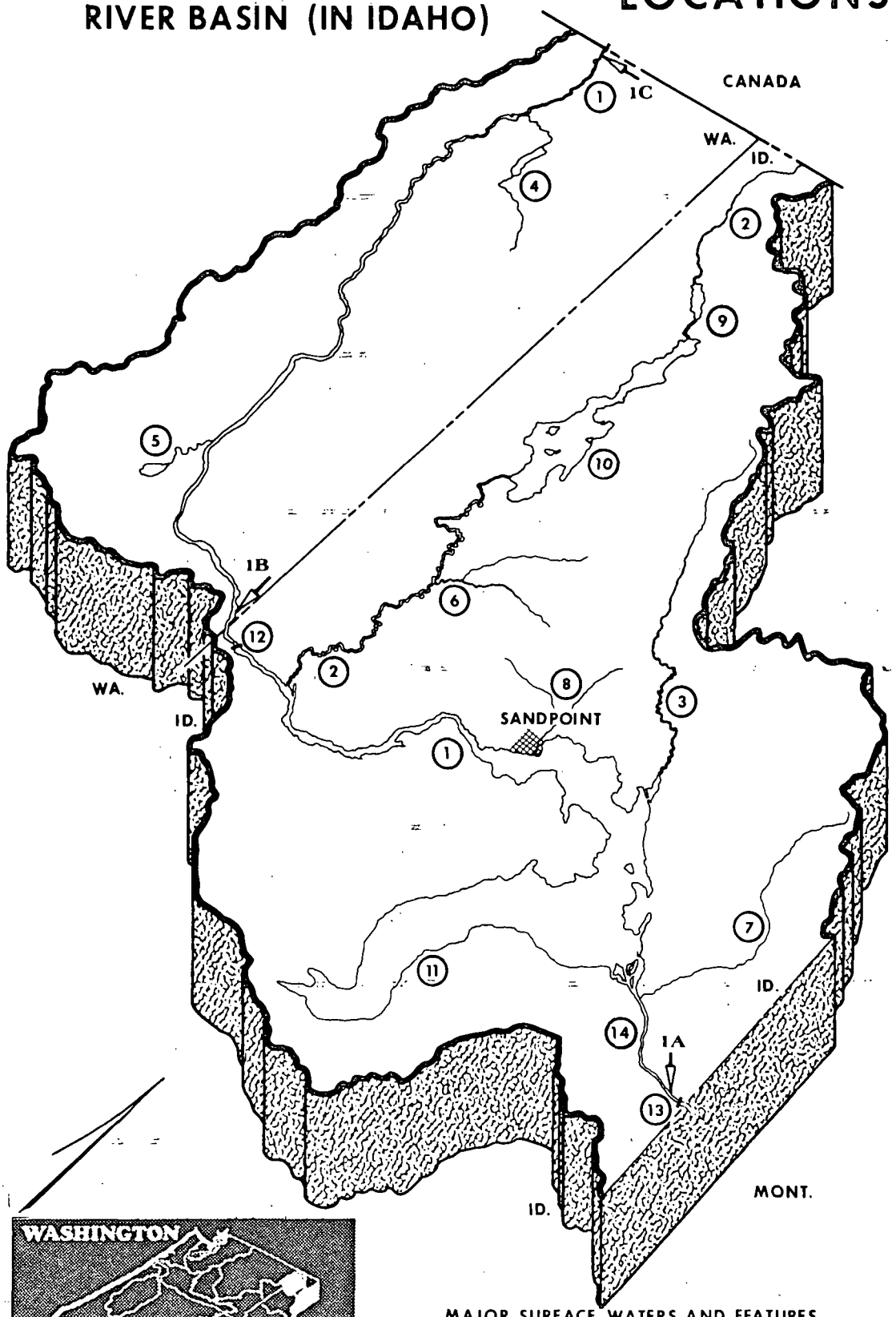
Map Station Number	Type of Data Collected		
	Physical	Chemical	Biological
1A	X	X	
1B	X	X	
1C	X	X	

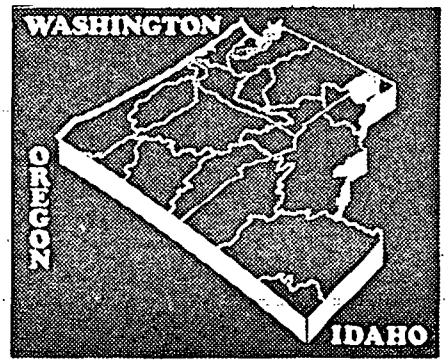
NOTE: Complete station information shown in Table 1 page 11-13.

STORET #13-02

CLARK FORK-PEND OREILLE RIVER BASIN (IN IDAHO)

N.W.Q.S.S. LOCATIONS





MAJOR SURFACE WATERS AND FEATURES

1. *Pend Oreille River*
2. *Priest R.*
3. *Pack R.*
4. *Harvey Cr./Sullivan Lk.*
5. *Calispell Cr. & Lk.*
6. *East R.*
7. *Lightning Cr.*
8. *Sandpoint Cr.*
9. *Upper Priest Lk.*
10. *Priest Lk.*
11. *Pend Oreille Lk.*
12. *Albeni Falls Dam*
13. *Cabinet Gorge Dam*
14. *Clark Fork River*

CLARK FORK- PEND OREILLE RIVER BASIN

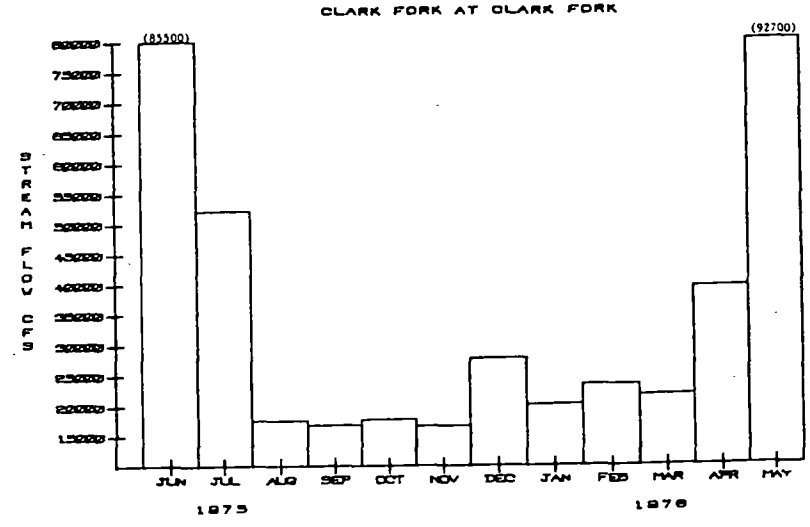
STREAM FLOW CFS

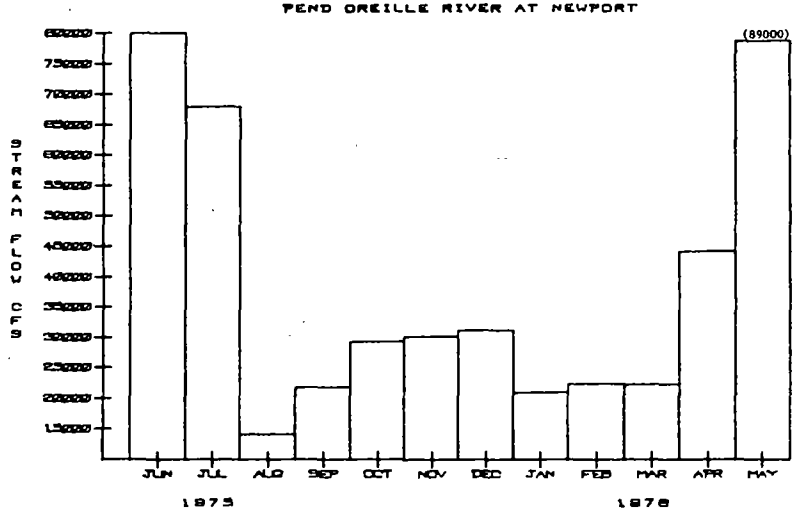
Data from Clark Fork at Whitehorse Rapids (= 12392000)

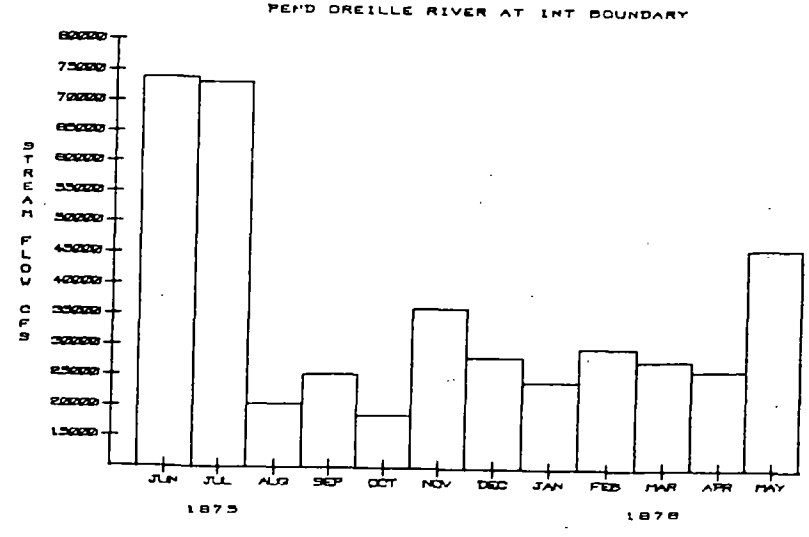
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.







CLARK FORK- PEND OREILLE RIVER BASIN

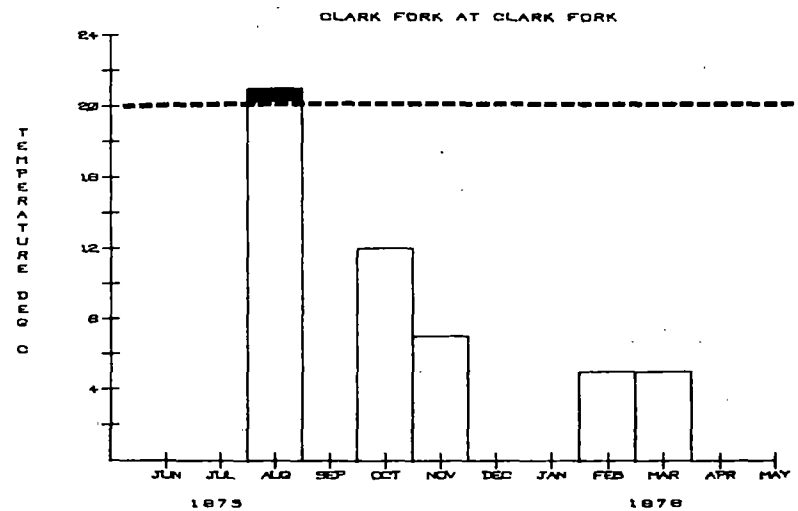
TEMPERATURE DEG C

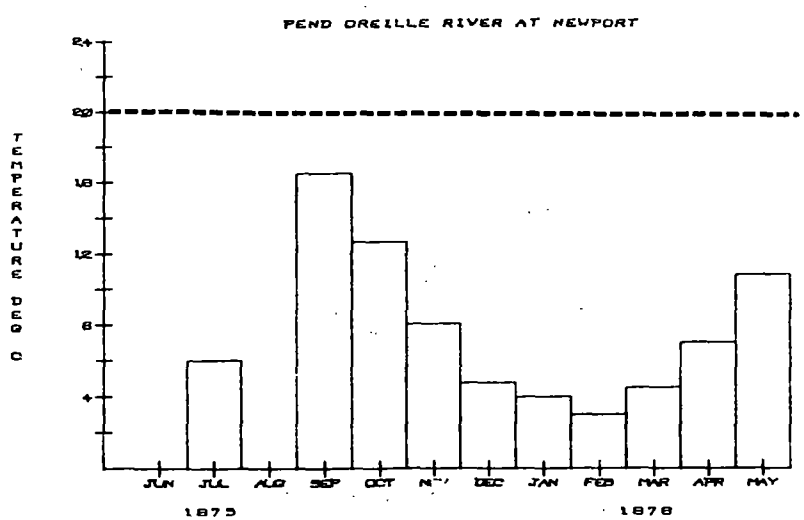
NOTES:

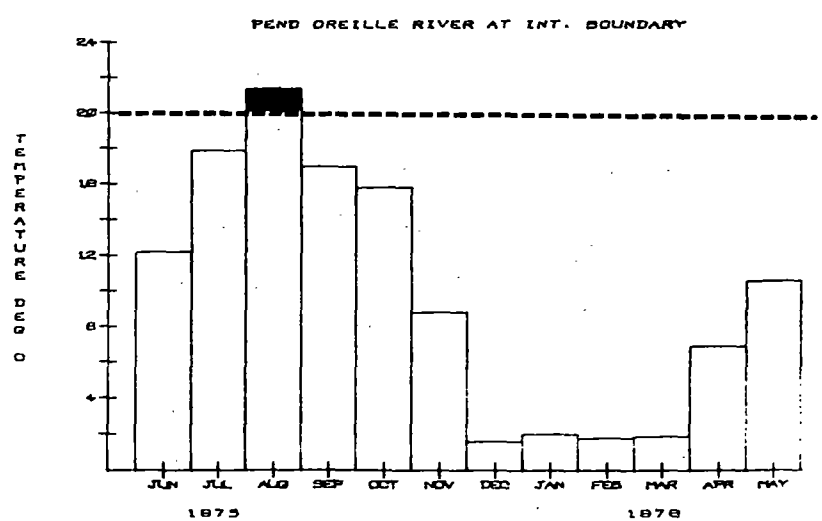
-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the 20°C maximum temperature for salmonid spawning and rearing has been exceeded.







CLARK FORK- PEND OREILLE RIVER BASIN

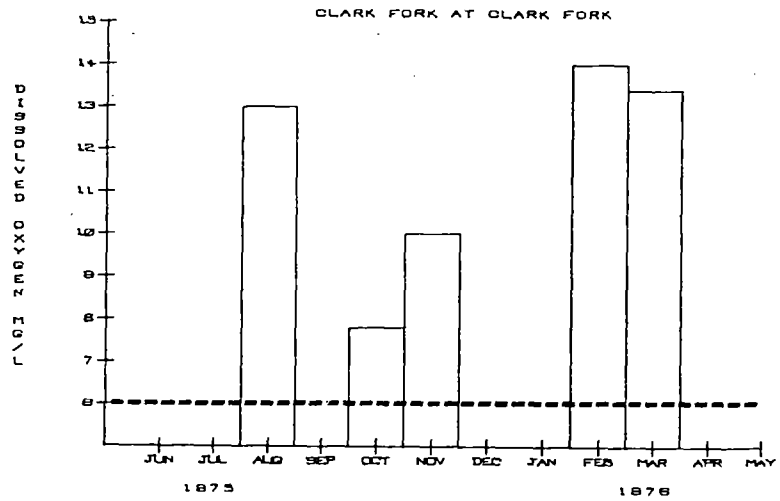
DISSOLVED OXYGEN MG/L

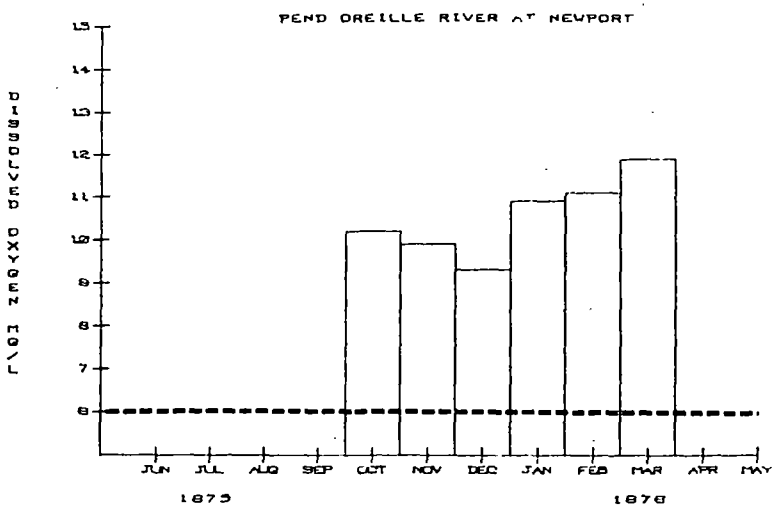
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the dissolved oxygen is below the 6 mg/l minimum criteria level.





CLARK FORK- PEND OREILLE RIVER BASIN

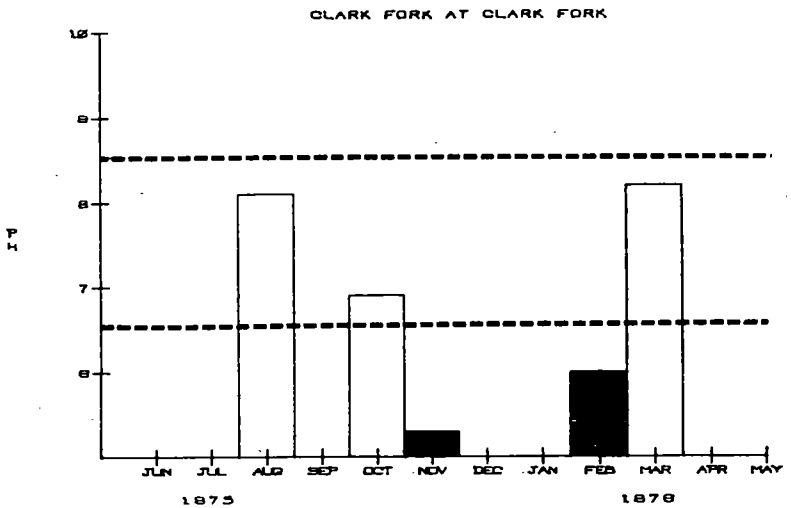
P H

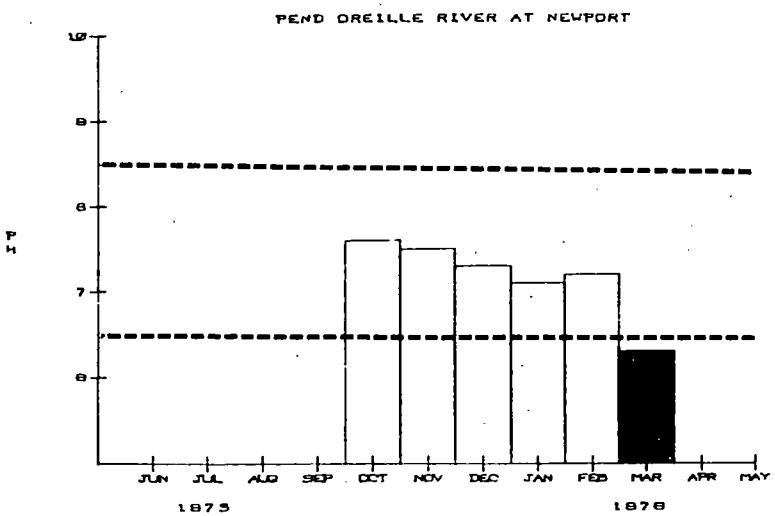
NOTES:

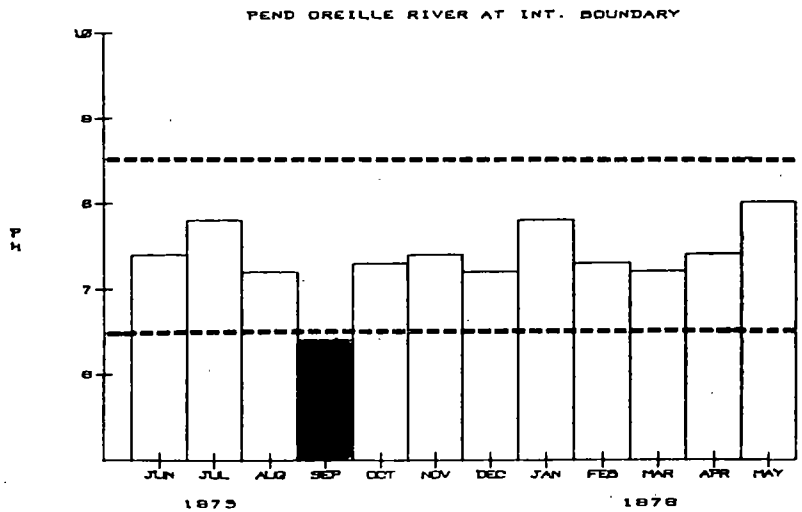
-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the pH is below the 6.5 minimum or above the 8.5 maximum criteria level.







CLARK FORK- PEND OREILLE RIVER BASIN

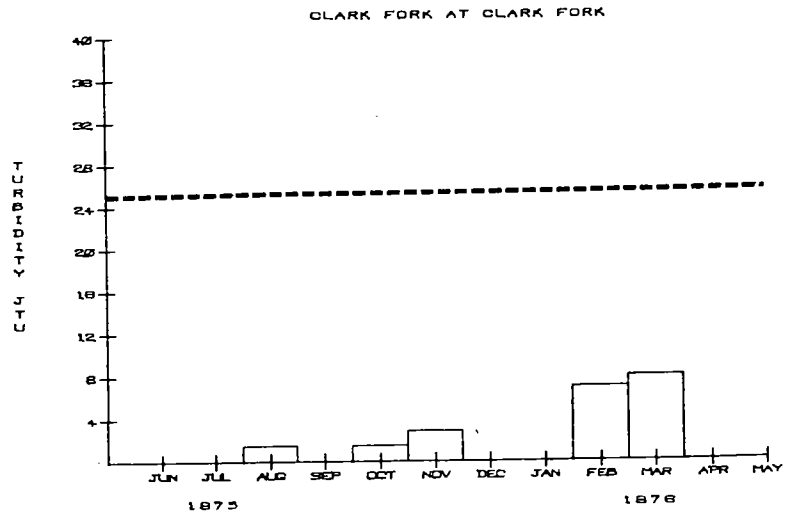
TURBIDITY IN JTU

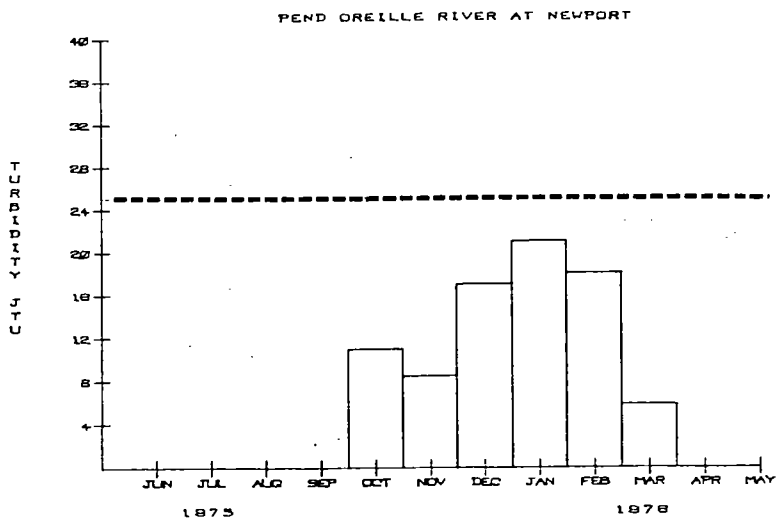
NOTES:

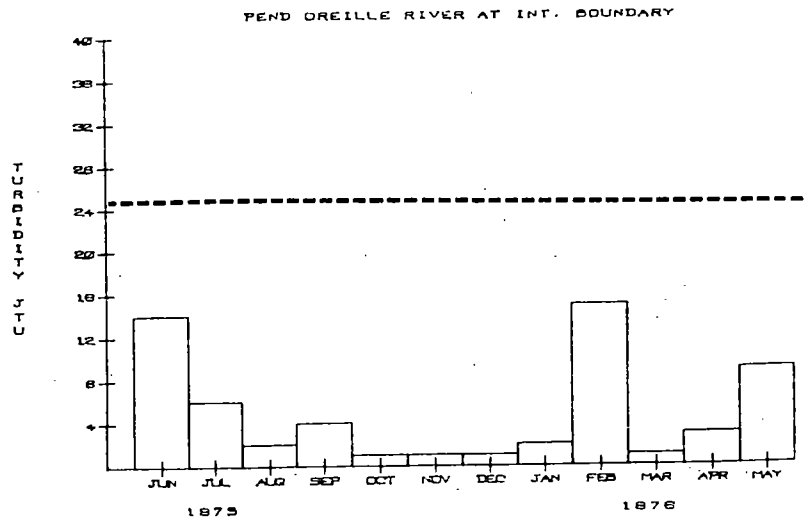
-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the turbidity criteria level of 25 JTU has been exceeded.







CLARK FORK-PEND OREILLE RIVER BASIN

FECAL COLIFORM PER 100 ML

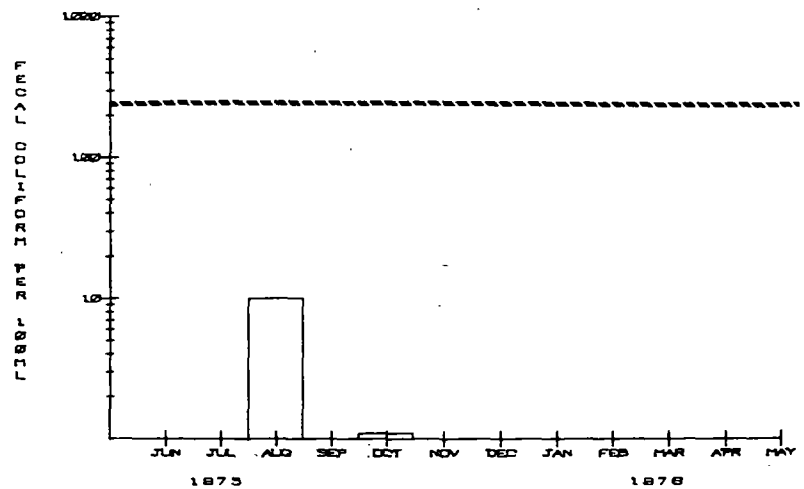
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

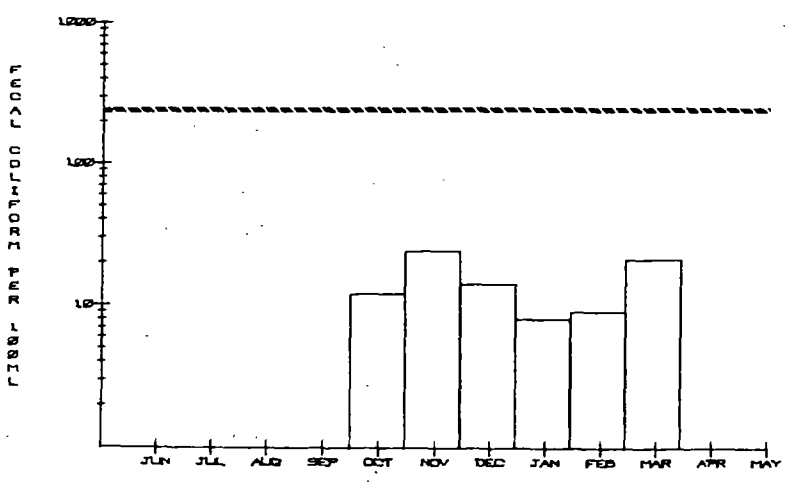
-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the fecal coliform criteria level of 240 /ml has been exceeded.

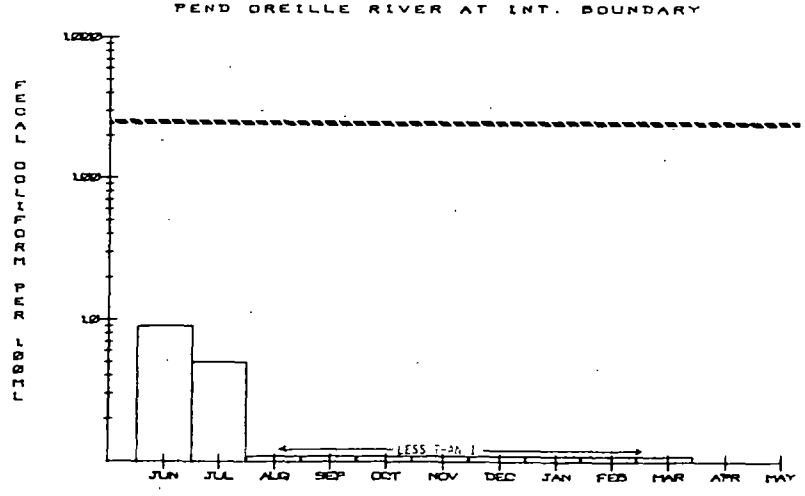
CLARK FORK AT CLARK FORK



PEND OREILLE RIVER AT NEWPORT



PEND OREILLE RIVER AT INT. BOUNDARY



CLARK FORK- PEND OREILLE RIVER BASIN

NO2+NO3 NITROGEN MG/L

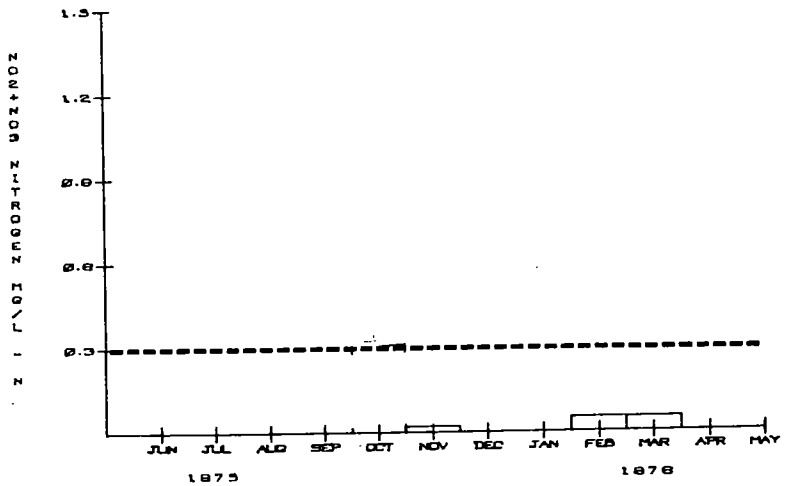
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

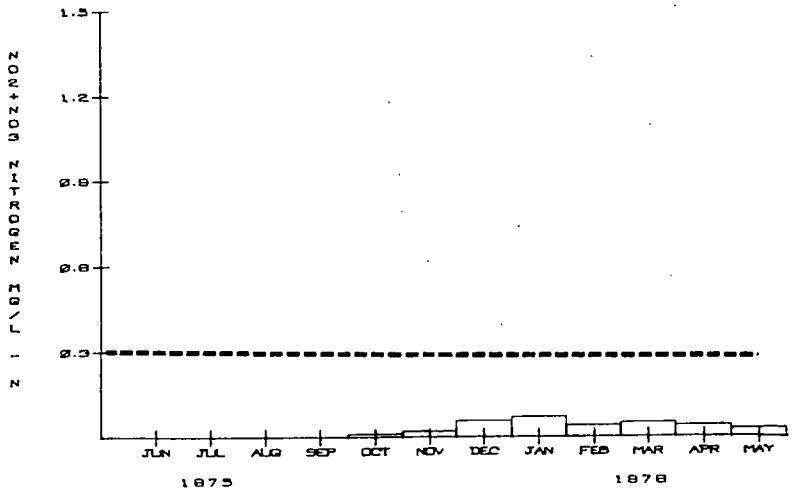
-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the nitrate algal bloom potential level of 0.30 mg/l has been exceeded.

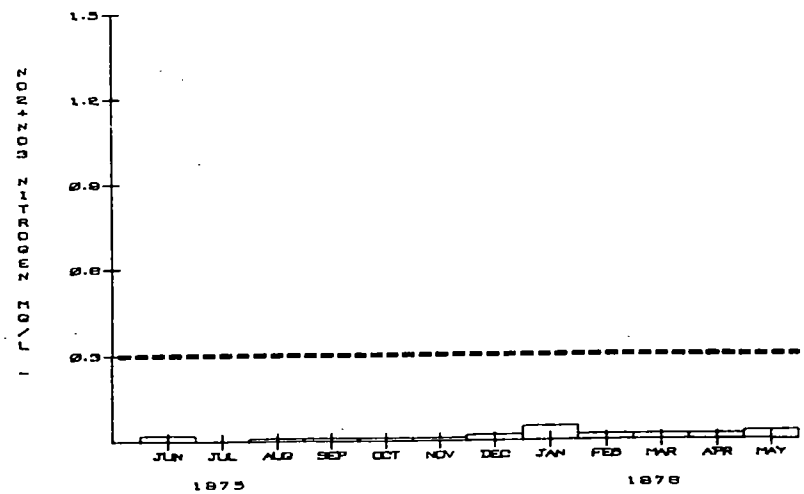
CLARK FORK AT CLARK FORK



PEND OREILLE RIVER AT NEWPORT



PEND OREILLE RIVER AT INT. BOUNDARY



CLARK FORK- PEND OREILLE RIVER BASIN

TOTAL PHOSPHORUS MG/L

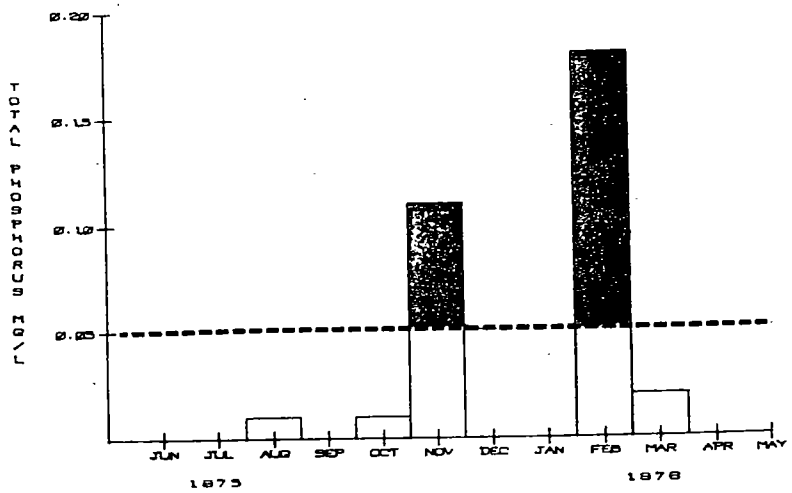
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

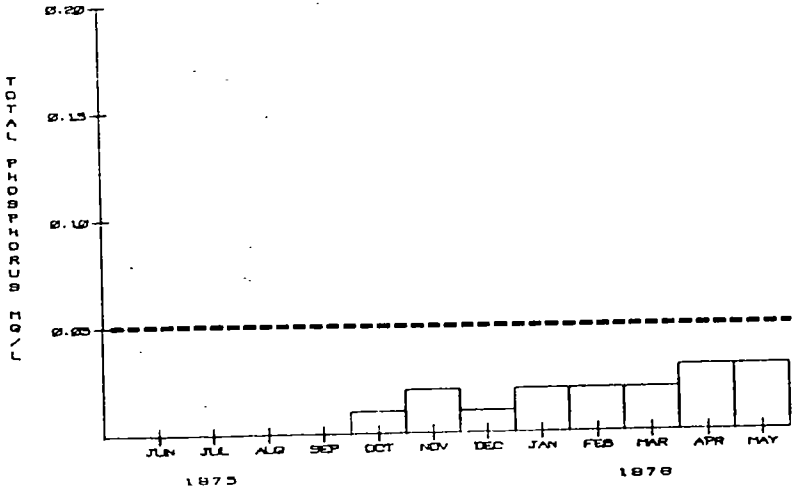
-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the total phosphorous algal bloom potential level of 0.05 mg/l has been exceeded.

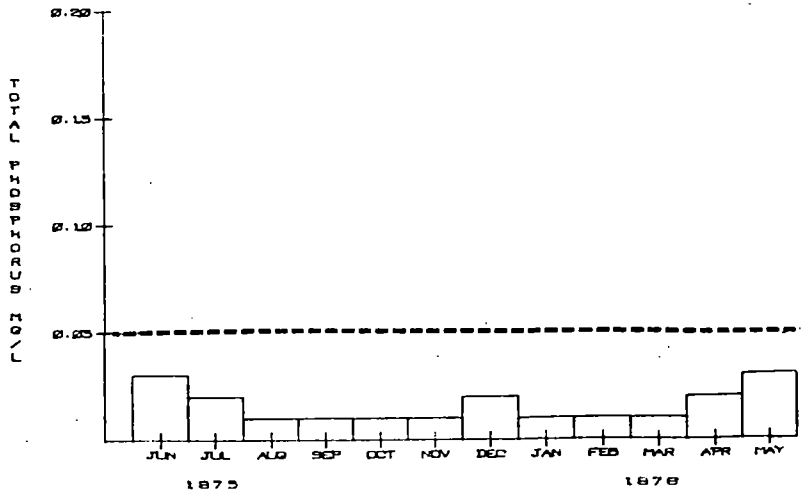
CLARK FORK AT CLARK FORK



PEND OREILLE RIVER AT NEWPORT



PEND OREILLE RIVER AT INT. BOUNDARY



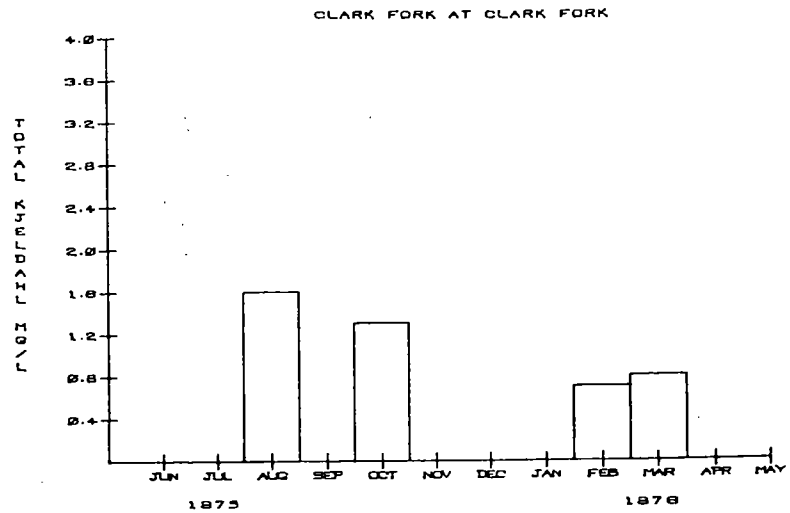
CLARK FORK- PEND OREILLE RIVER BASIN

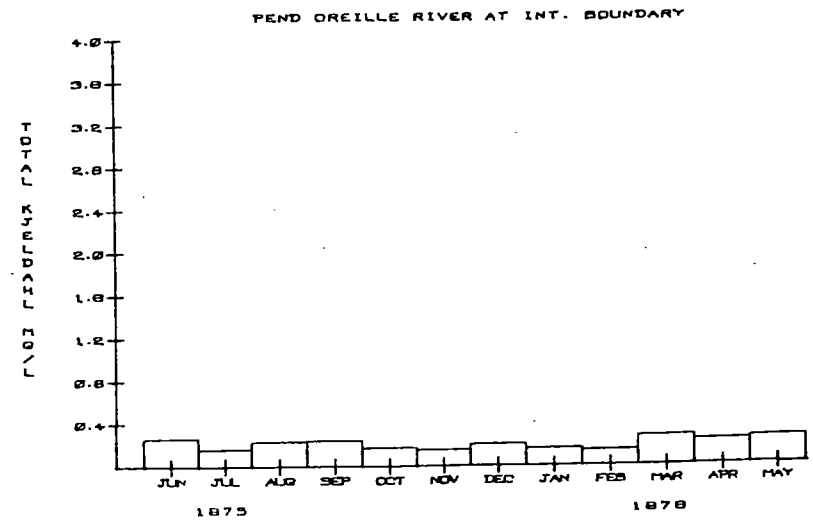
TOTAL KJELDAHL NITROGEN MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.





SPOKANE RIVER BASIN 13-03

The Spokane River basin encompasses an area of approximately 6,640 square miles and is located in northern Idaho and northeastern Washington. The basin boundaries include the Coeur d'Alene River at Enaville (R.M. 168.9) to the Spokane River at Long Lake (R.M. 33.9). The basin's main stream, the Spokane River, is fed by two major tributaries, the Coeur d'Alene River and the St. Joe River. The Coeur d'Alene River drainage basin consists of two sub-drainages: the South Fork Coeur d'Alene River draining the mining district and the North Fork Coeur d'Alene River. Spokane (pop. 171,000), Coeur d'Alene (pop. 16,200), and Kellogg (pop. 3,800) are the major communities within the basin. Major industrial discharges due to mining operations are associated with this area. Municipal discharges are also a problem in the Coeur d'Alene Lake and Spokane area. Agriculture and forestry are the major land uses in this basin.

National Water Quality Surveillance System (NWQSS) stations located within this basin are shown on the map. The complete water quality and biological parametric coverage for NWQSS stations is listed in the Introduction of this report along with the EPA criteria associated with those parameters. However, only some of the parameters are included in the following curves. Complete raw data is available from EPA upon request.

The following curve layout is designed to show the mainstem river constituents both spatially and temporally on a single three dimensional plot. Water quality constituents at the mouth stations of the significant tributaries to the Spokane and Coeur d'Alene Rivers are shown temporally on bar charts.

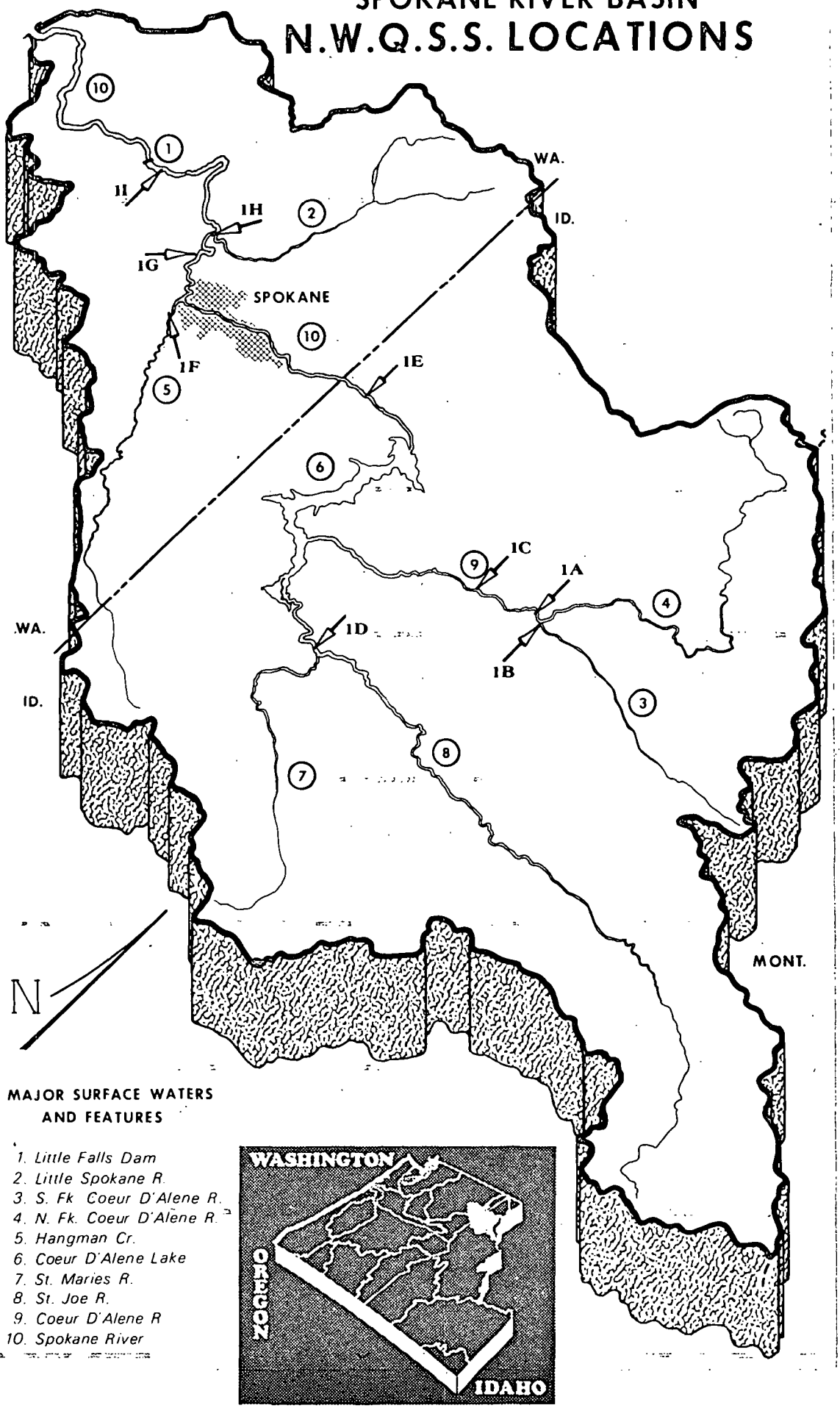
SPOKANE RIVER BASIN

Map Station Number	Type of Data Collected		
	Physical	Chemical	Biological
1A	X	X	
1B	X	X	
1C	X	X	
1D	X	X	
1E	X	X	
1F			
1G	X	X	
1H			
1I	X	X	

NOTE: Complete station information shown in Table 1 page 11-13 .

STORET #13-03

SPOKANE RIVER BASIN
N.W.Q.S.S. LOCATIONS



MAJOR SURFACE WATERS AND FEATURES

1. *Little Falls Dam*
2. *Little Spokane R.*
3. *S. Fk Coeur D'Alene R.*
4. *N. Fk. Coeur D'Alene R.*
5. *Hangman Cr.*
6. *Coeur D'Alene Lake*
7. *St. Maries R.*
8. *St. Joe R.*
9. *Coeur D'Alene R*
10. *Spokane River*

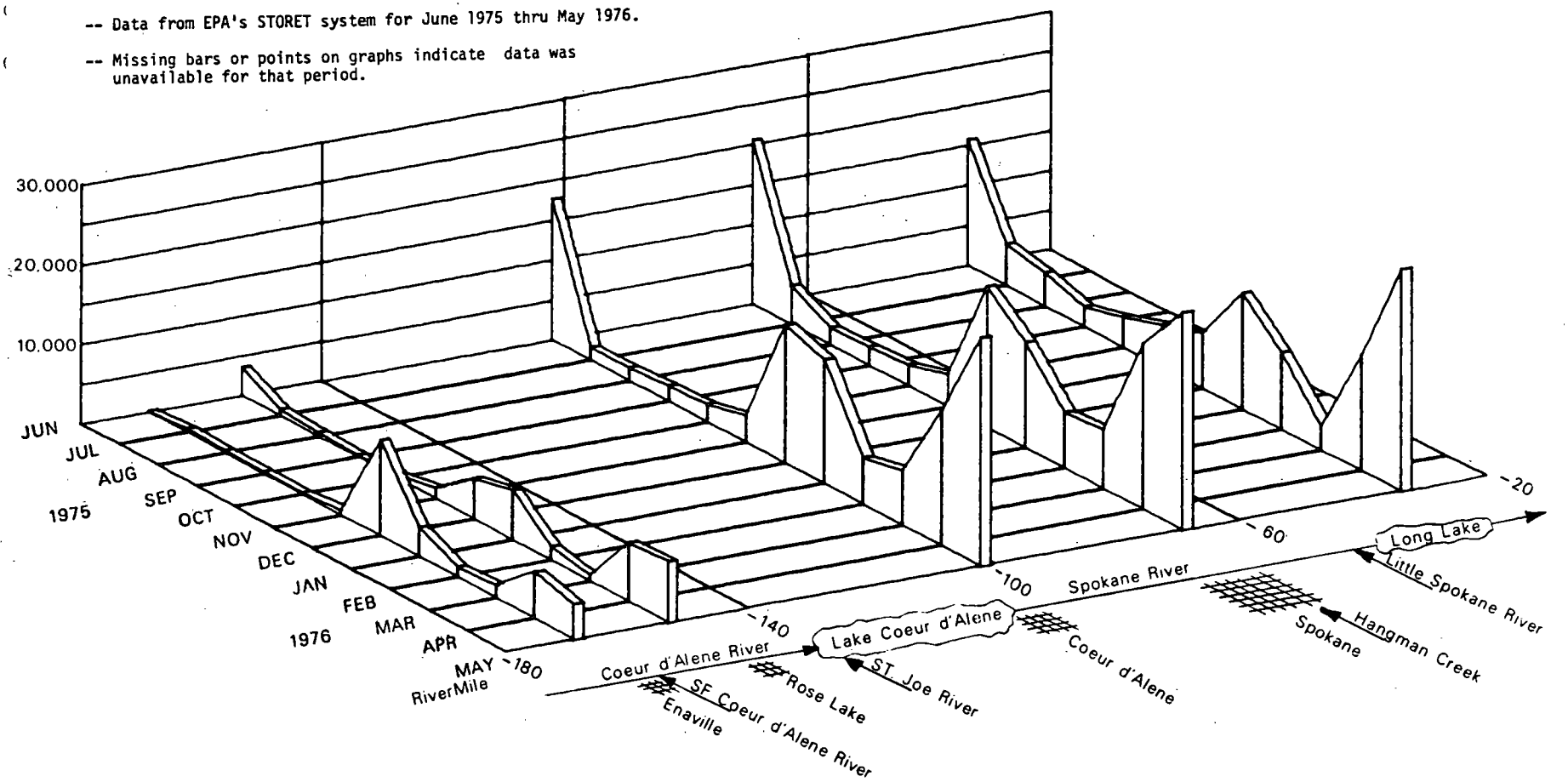
SPOKANE RIVER BASIN

STREAM FLOW CFS

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

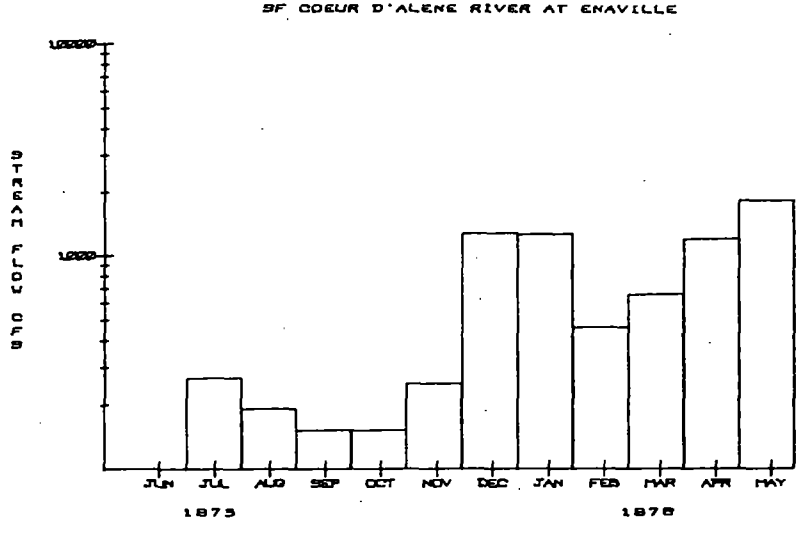


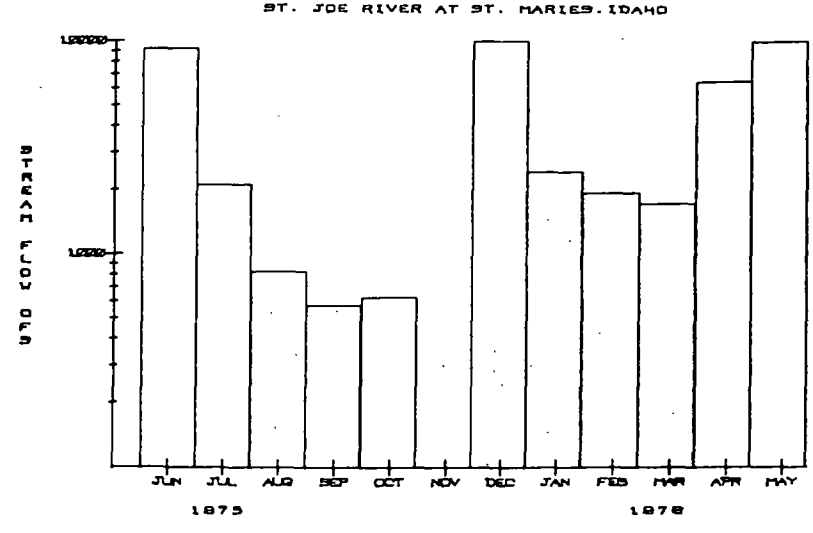
47814

SPOKANE RIVER BASIN

STREAM FLOW CFS

Data from St. Joe River at Calder (# 12414500)
St. Maries at Santa (# 12414900)





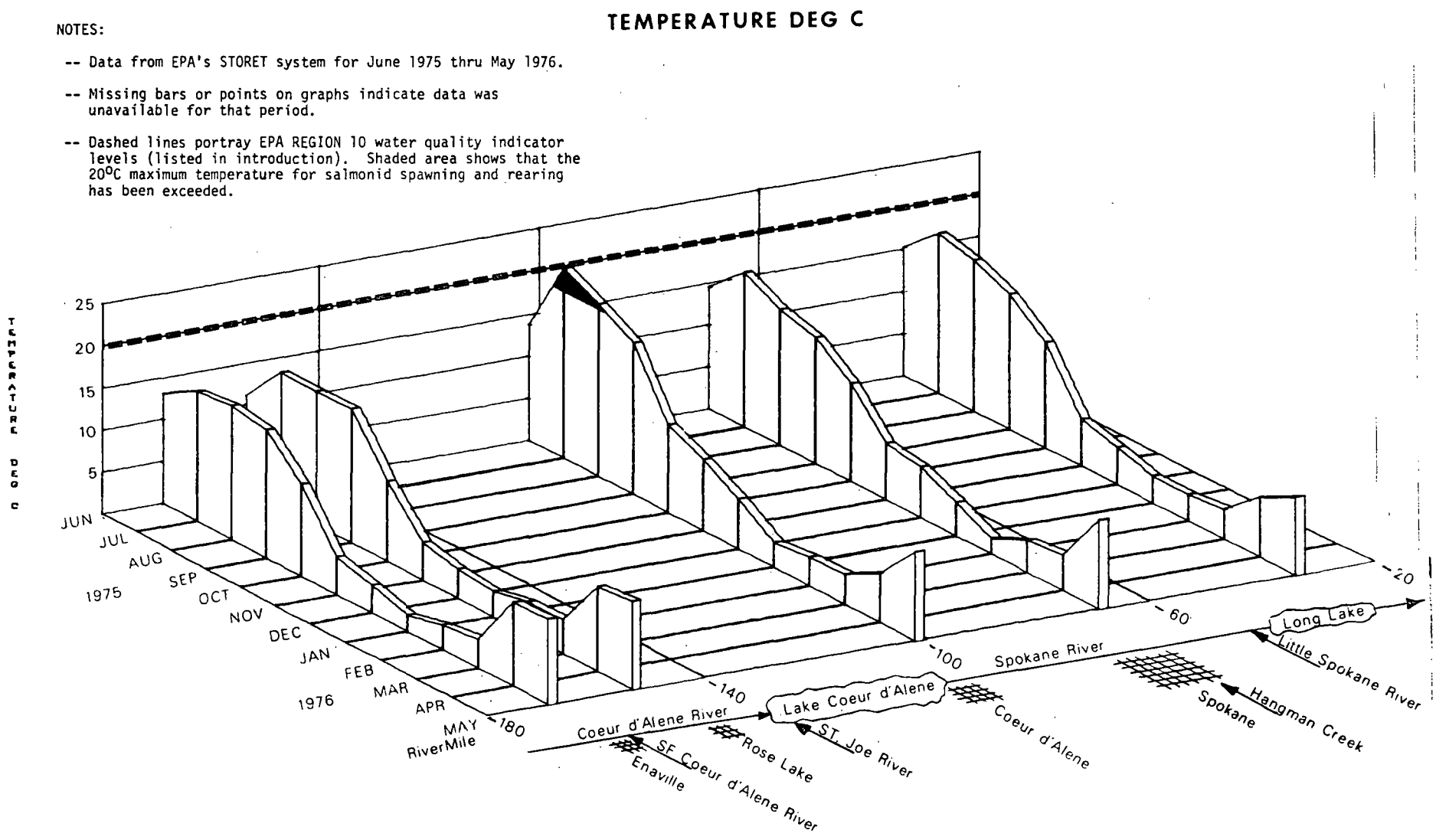
SPOKANE RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

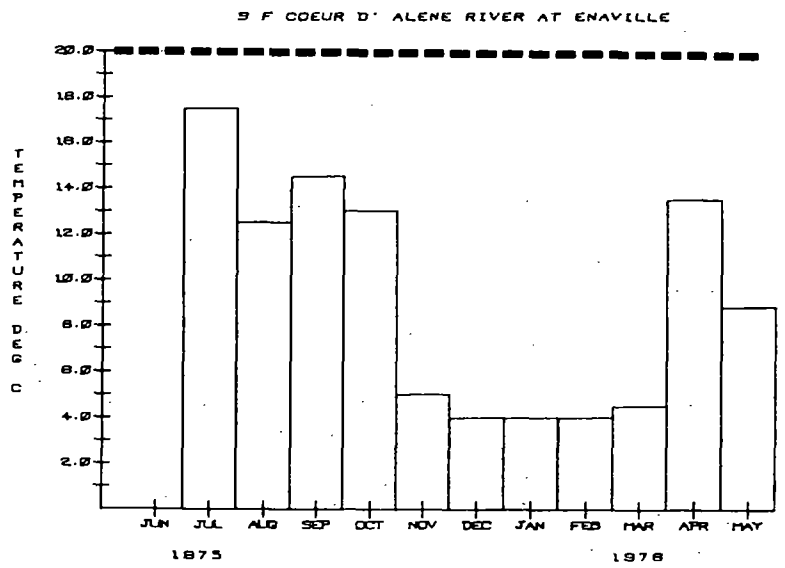
-- Missing bars or points on graphs indicate data was unavailable for that period.

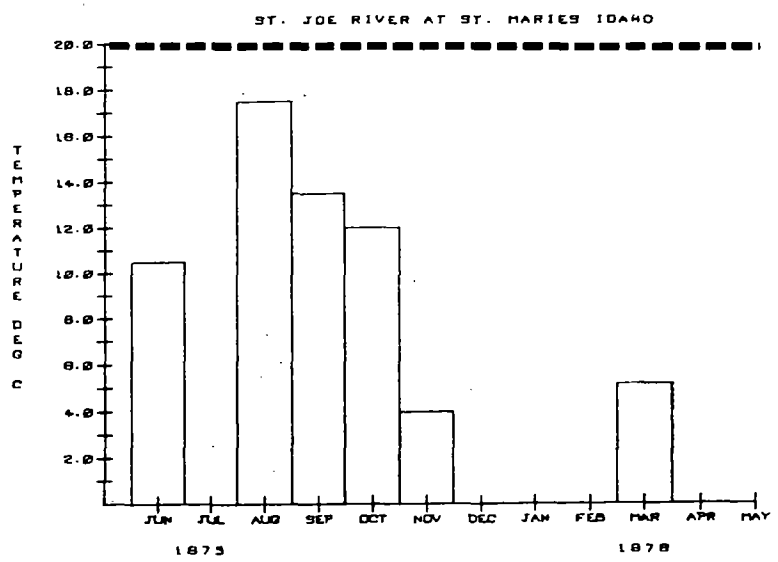
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the 20°C maximum temperature for salmonid spawning and rearing has been exceeded.



SPOKANE RIVER BASIN

TEMPERATURE DEG C





SPOKANE RIVER BASIN

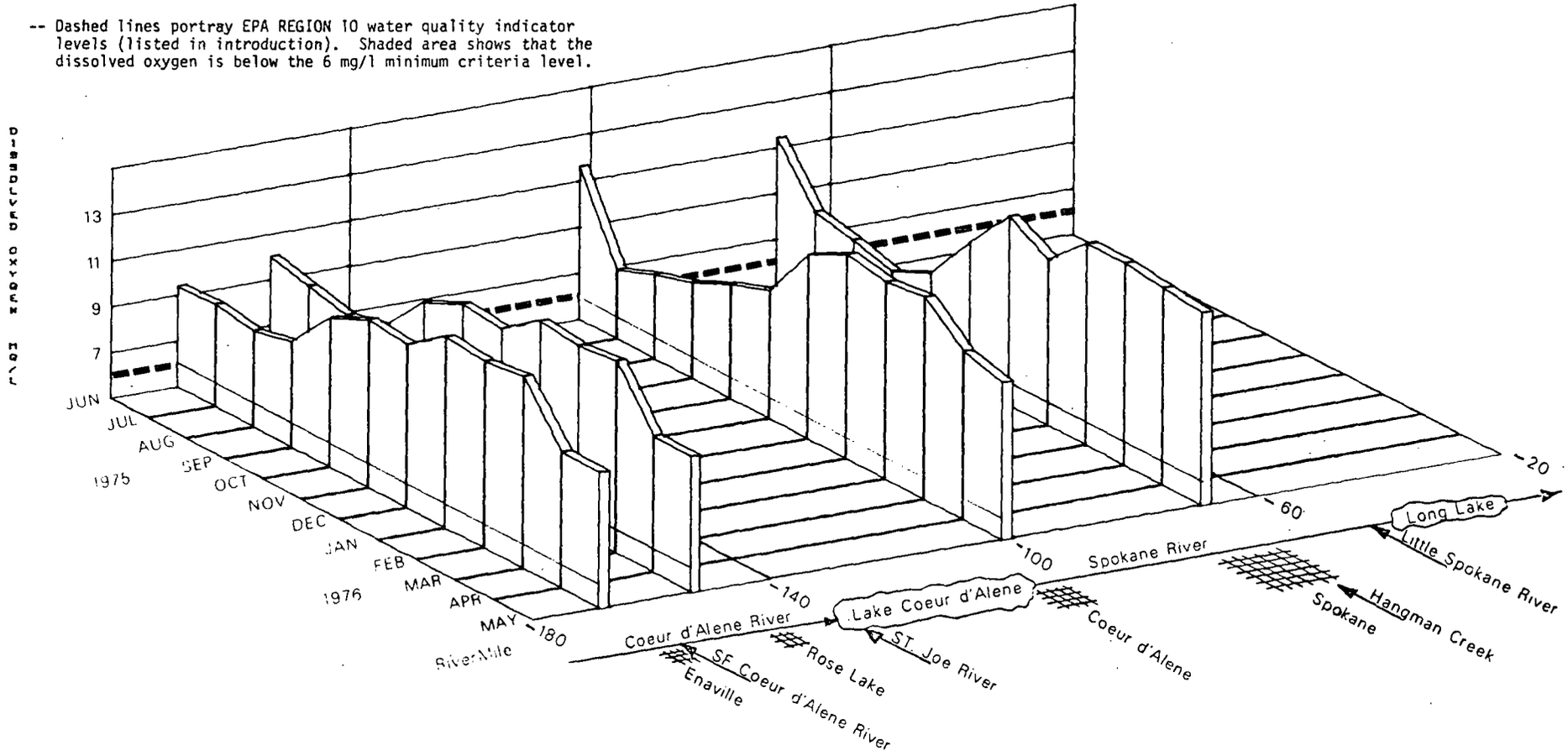
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

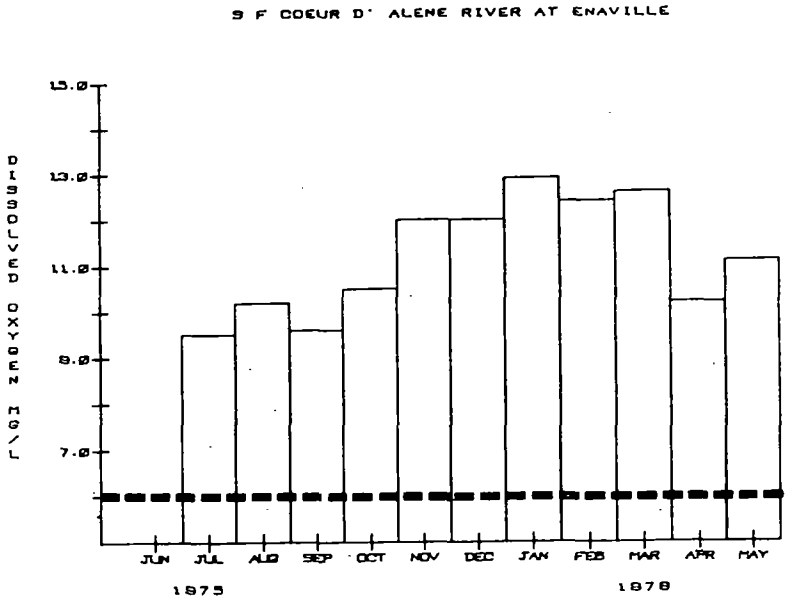
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the dissolved oxygen is below the 6 mg/l minimum criteria level.

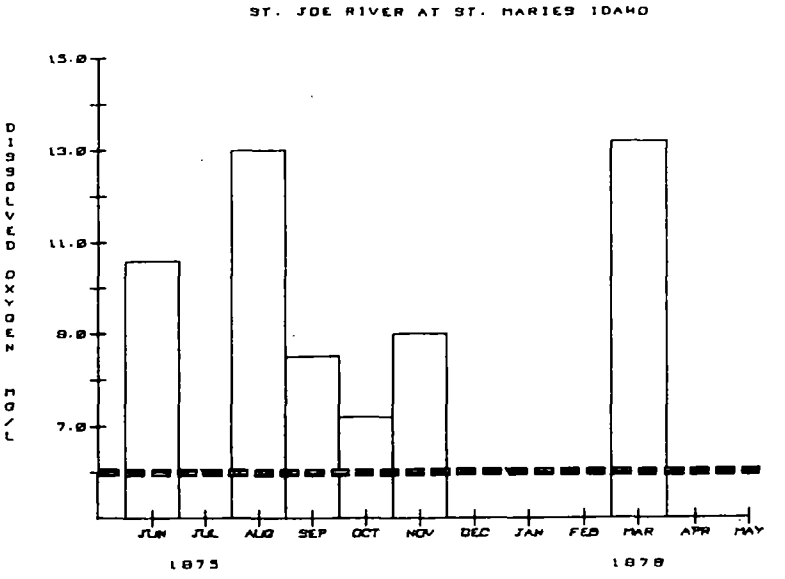
DISSOLVED OXYGEN MG/L



SPOKANE RIVER BASIN

DISSOLVED OXYGEN MG/L





SPOKANE RIVER BASIN

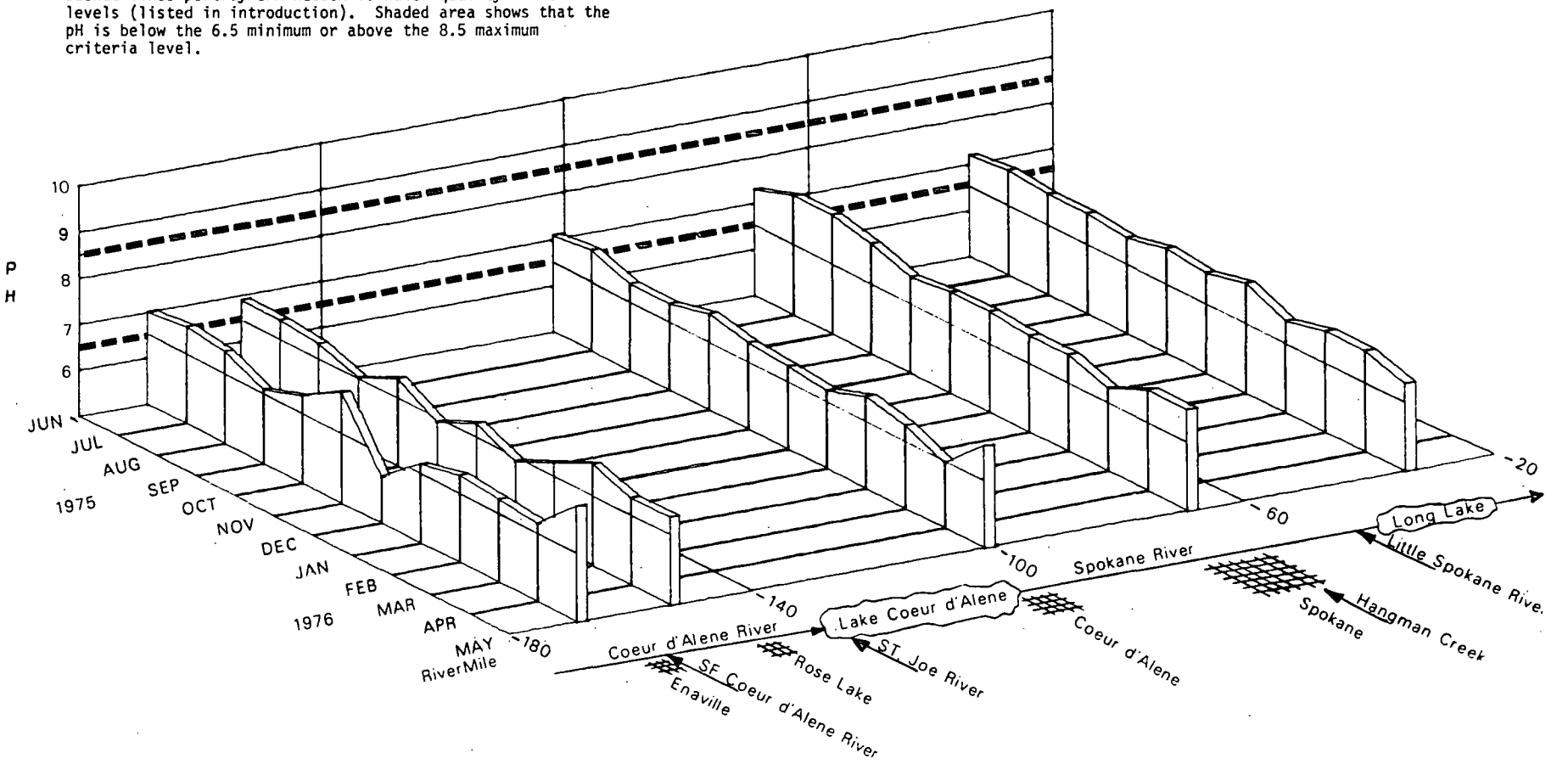
P H

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

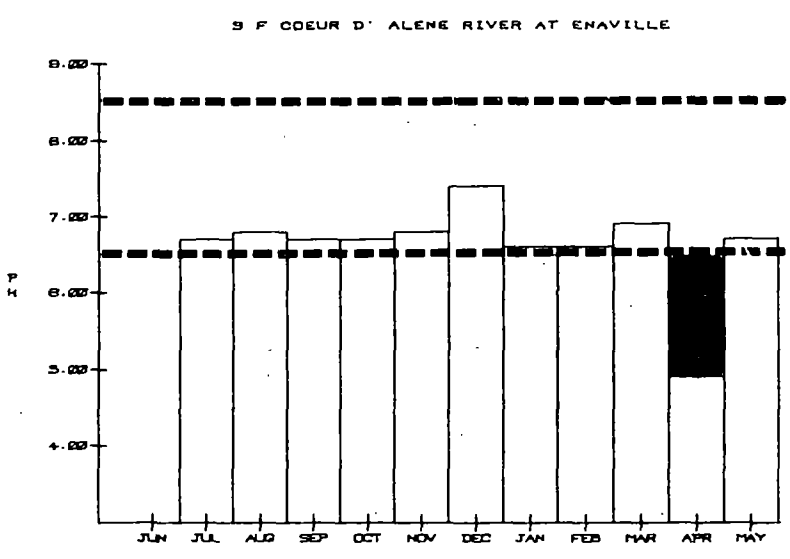
-- Missing bars or points on graphs indicate data was unavailable for that period.

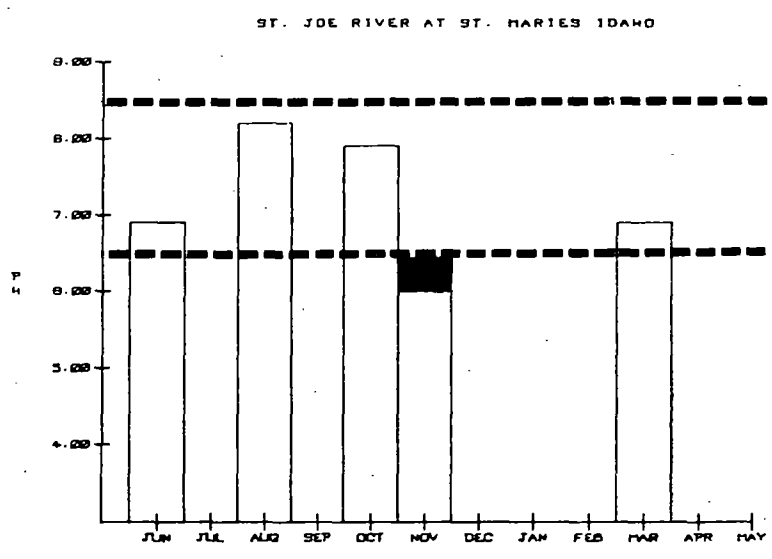
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the pH is below the 6.5 minimum or above the 8.5 maximum criteria level.



SPOKANE RIVER BASIN

P H





SPOKANE RIVER BASIN

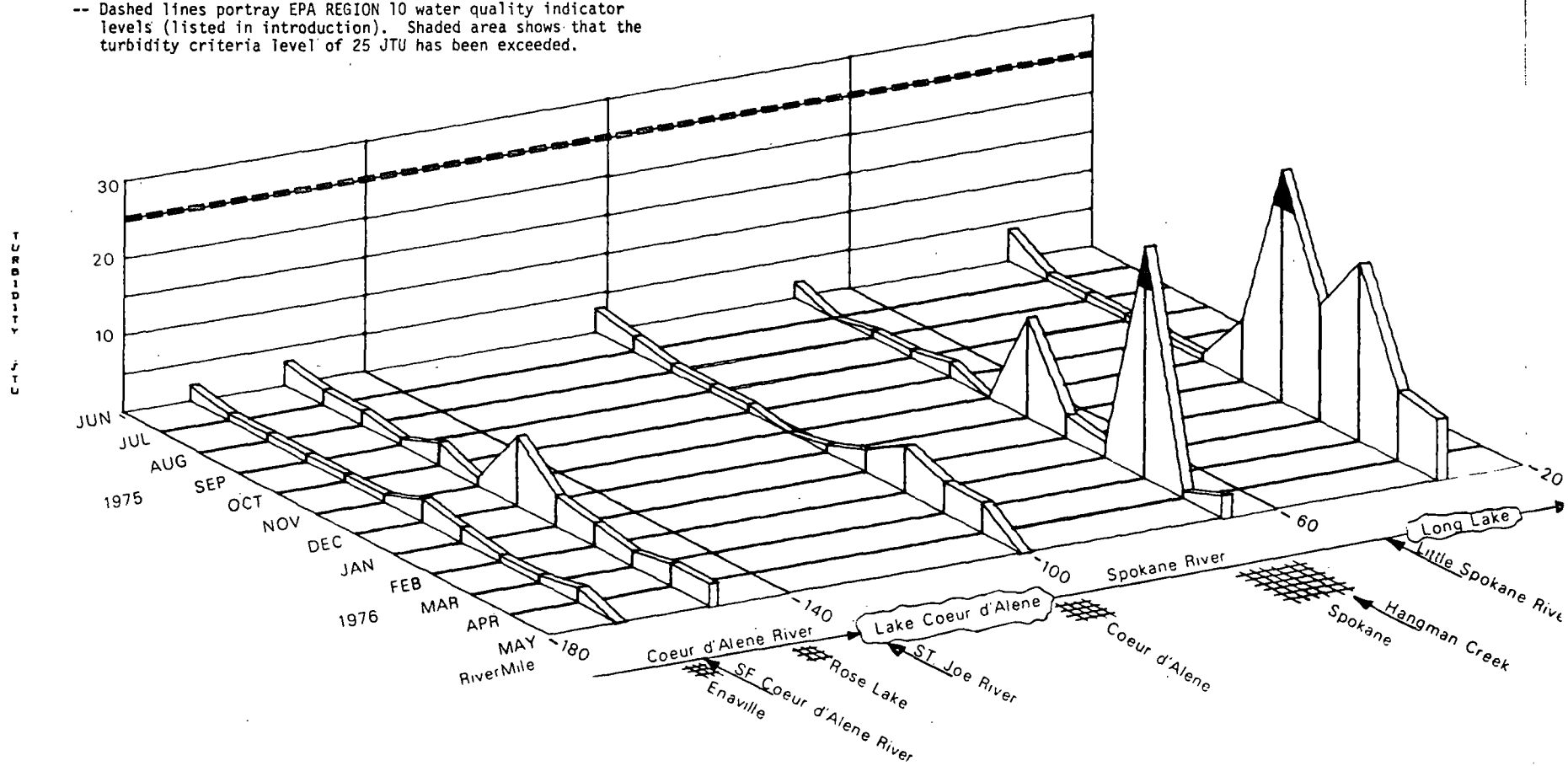
TURBIDITY IN JTU

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

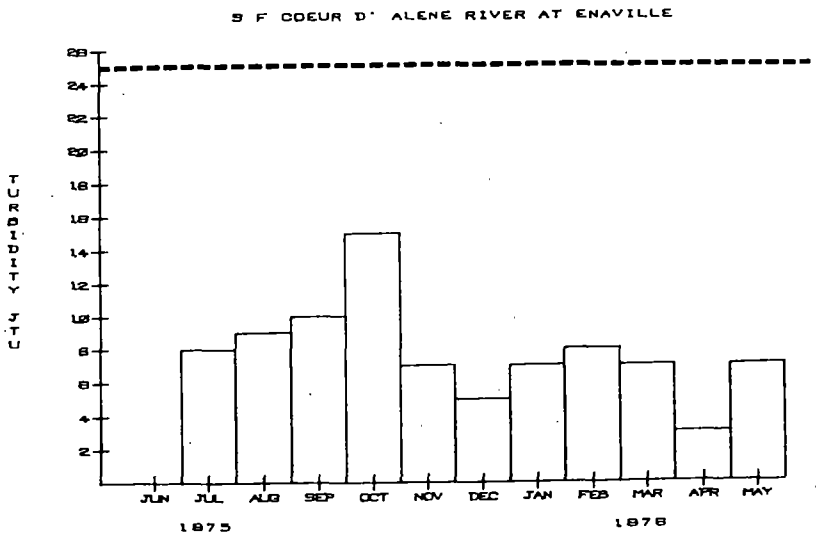
-- Missing bars or points on graphs indicate data was unavailable for that period.

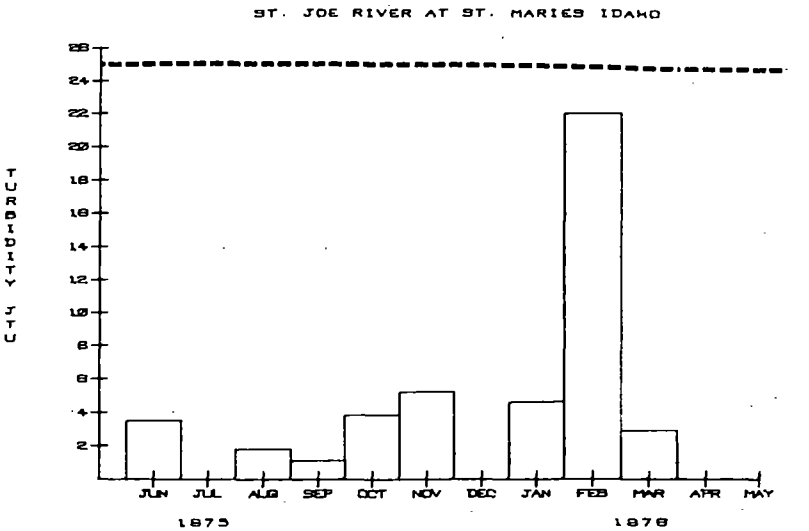
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the turbidity criteria level of 25 JTU has been exceeded.



SPOKANE RIVER BASIN

TURBIDITY IN JTU





SPOKANE RIVER BASIN

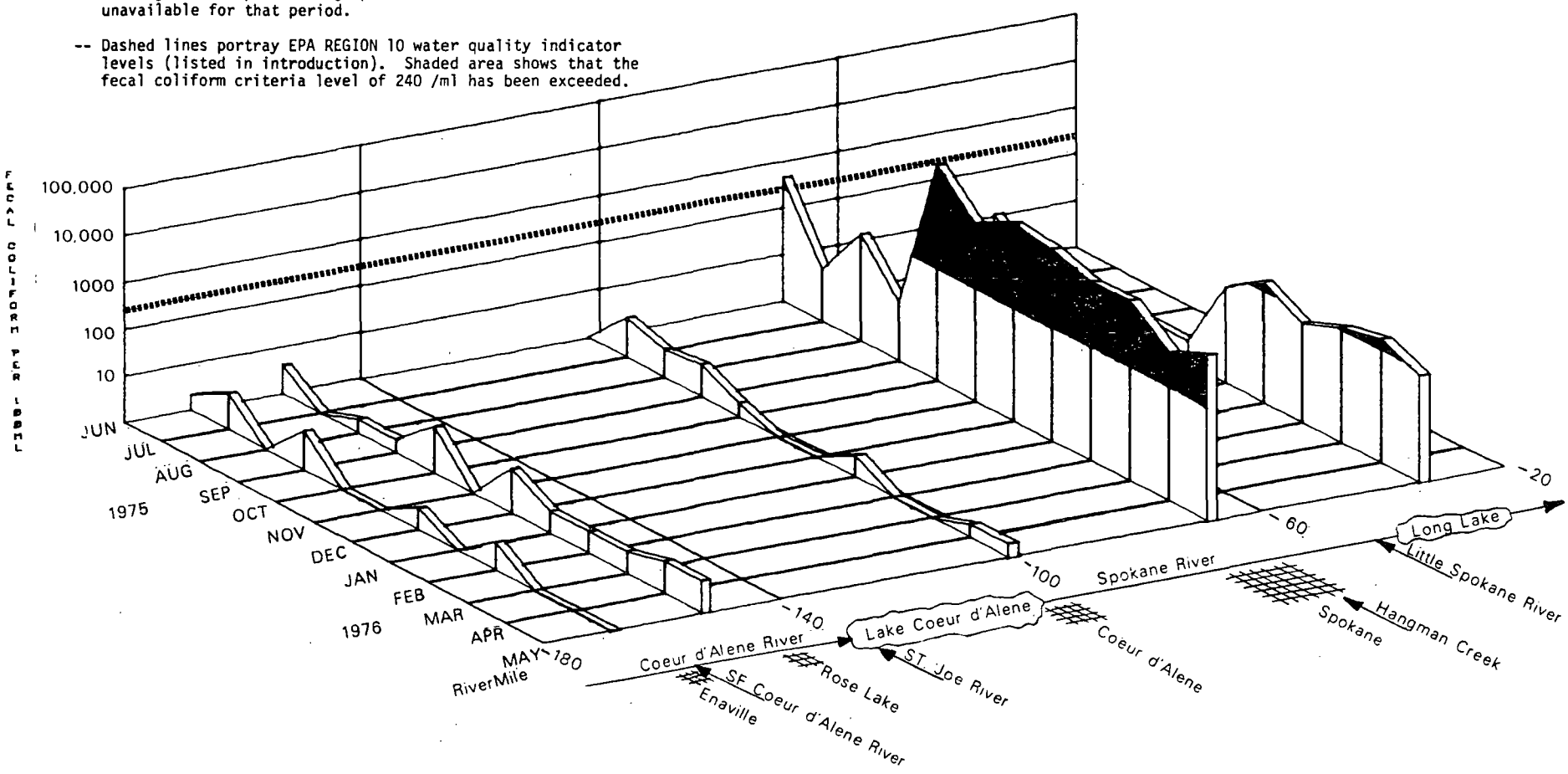
FECAL COLIFORM PER 100 ML

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

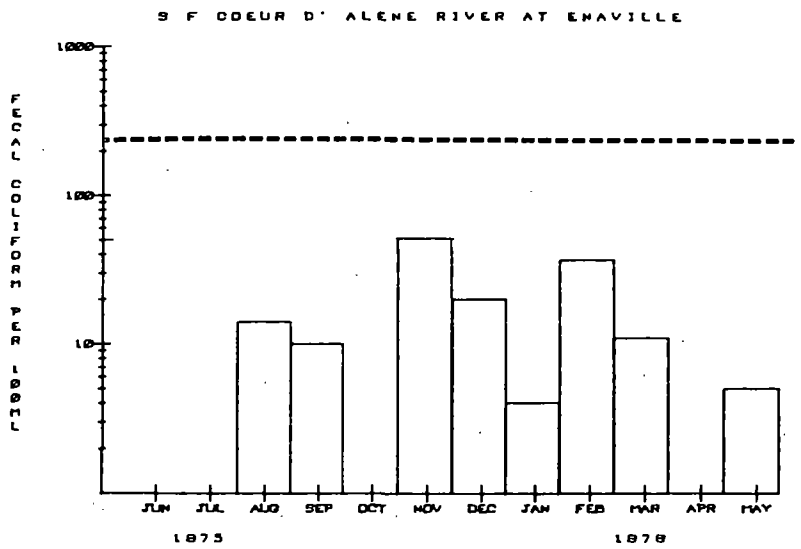
-- Missing bars or points on graphs indicate data was unavailable for that period.

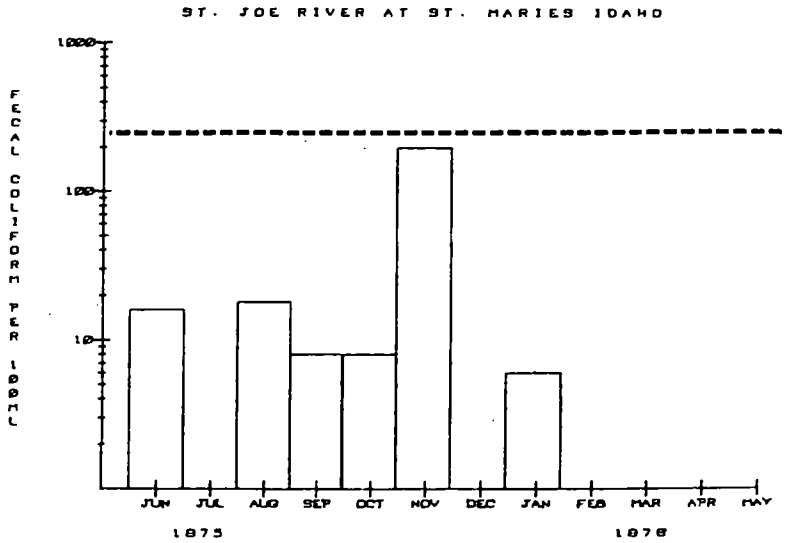
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the fecal coliform criteria level of 240 /ml has been exceeded.



SPOKANE RIVER BASIN

FECAL COLIFORM PER 100 ML





SPOKANE RIVER BASIN

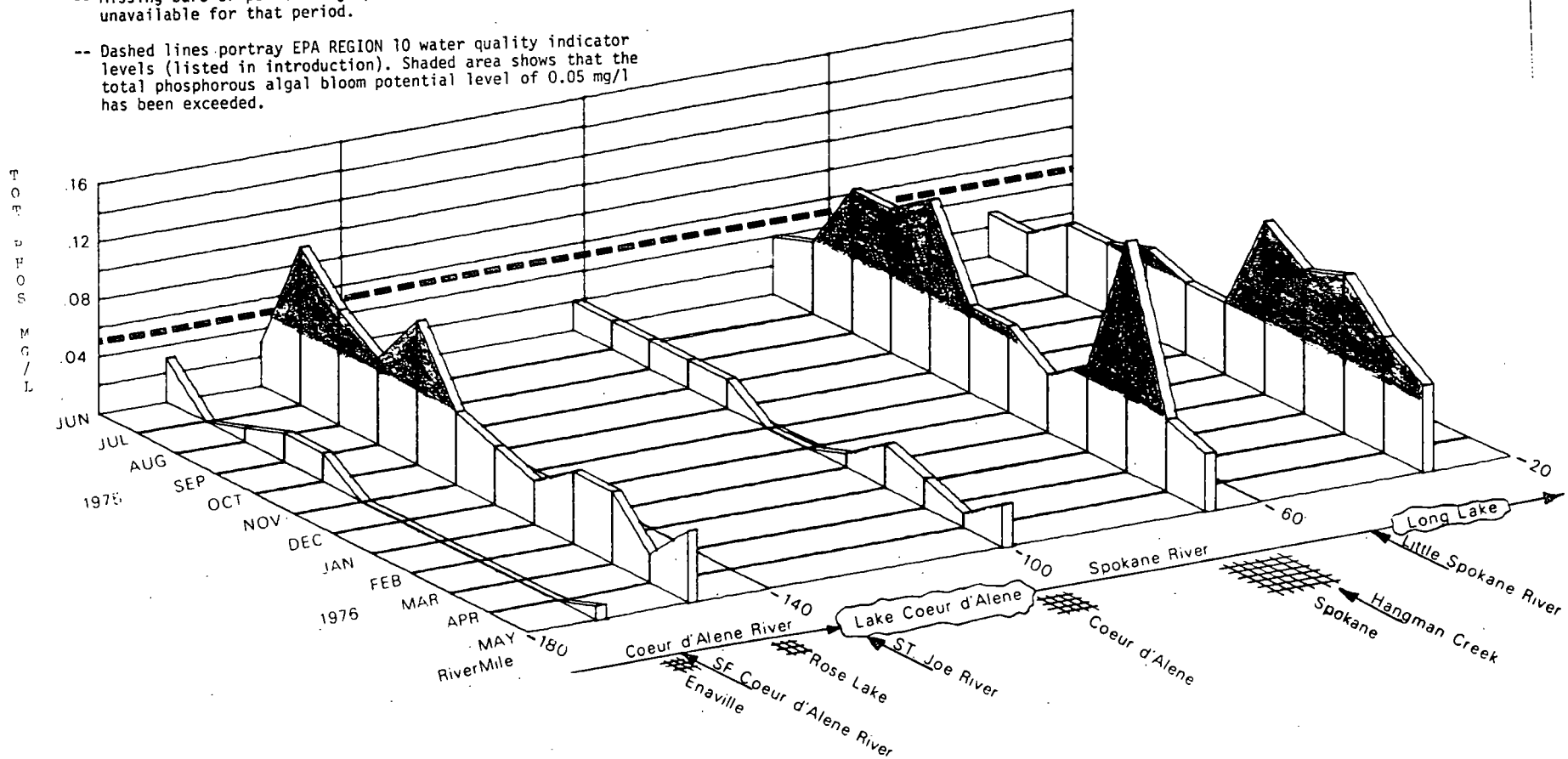
TOTAL PHOSPHORUS MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

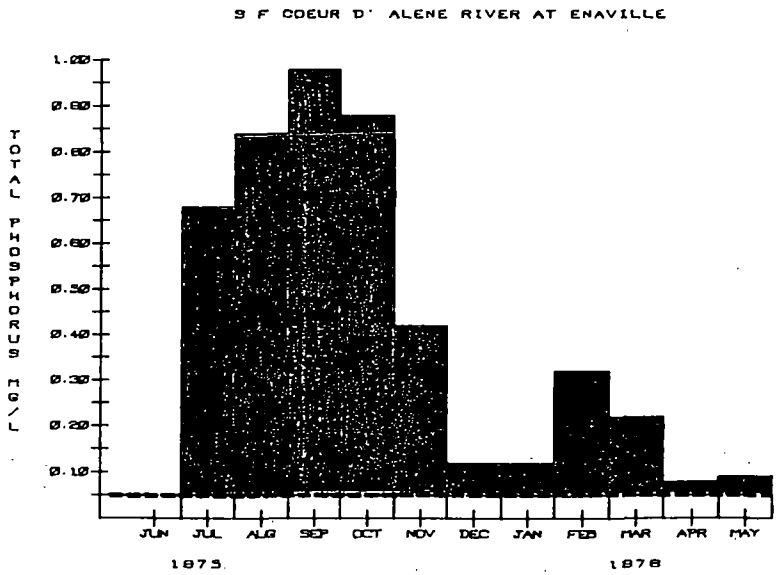
-- Missing bars or points on graphs indicate data was unavailable for that period.

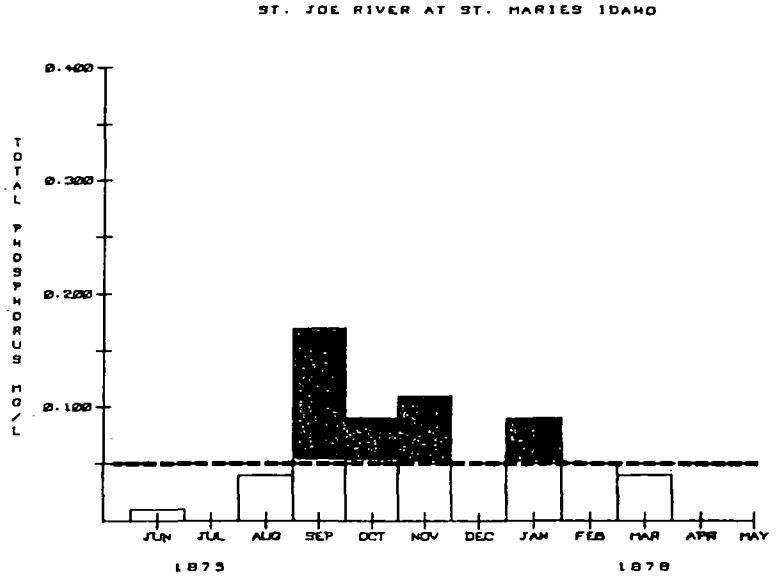
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the total phosphorous algal bloom potential level of 0.05 mg/l has been exceeded.



SPOKANE RIVER BASIN

TOTAL PHOSPHORUS MG/L





SPOKANE RIVER BASIN

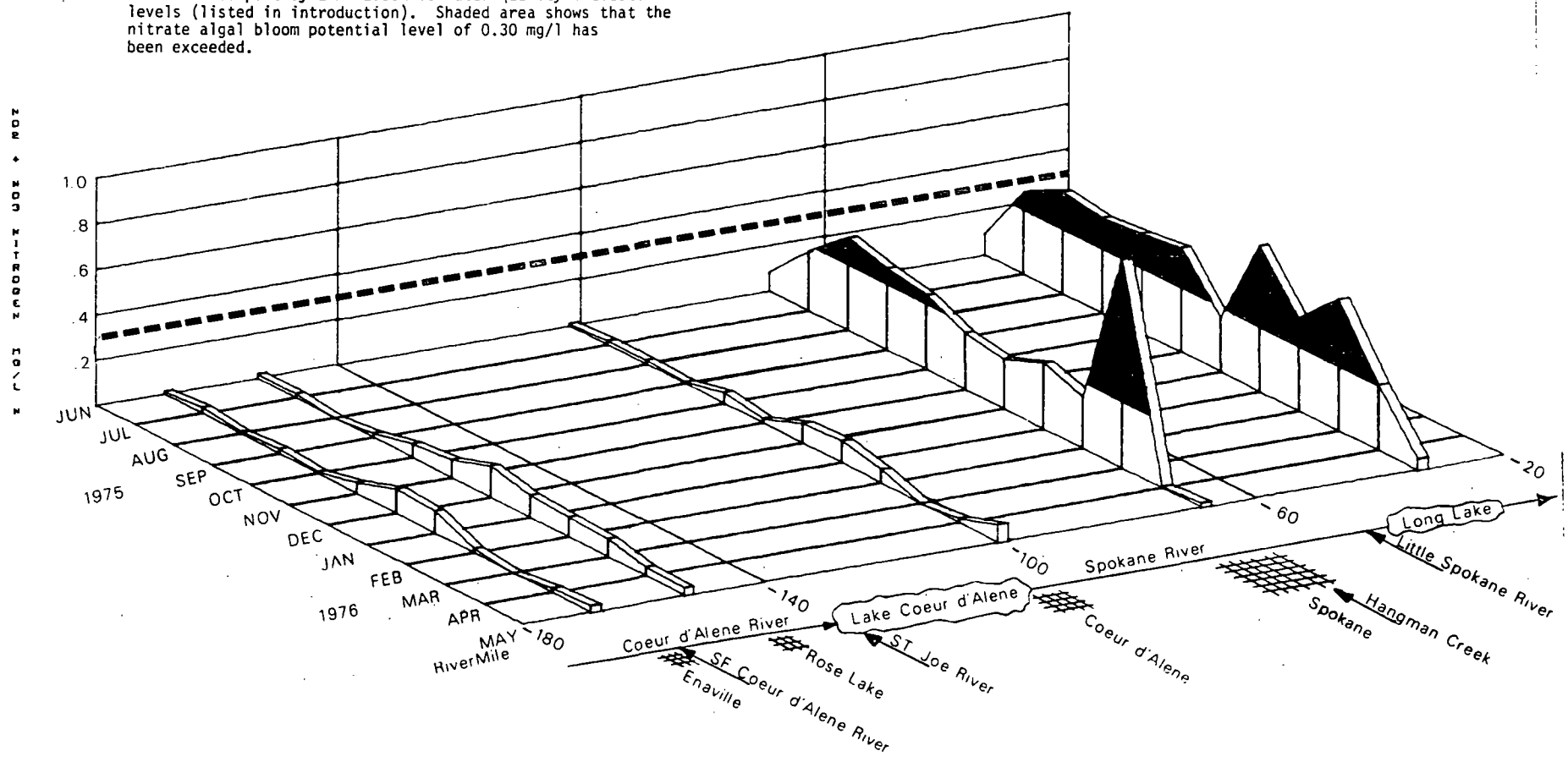
NO2+NO3 NITROGEN MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

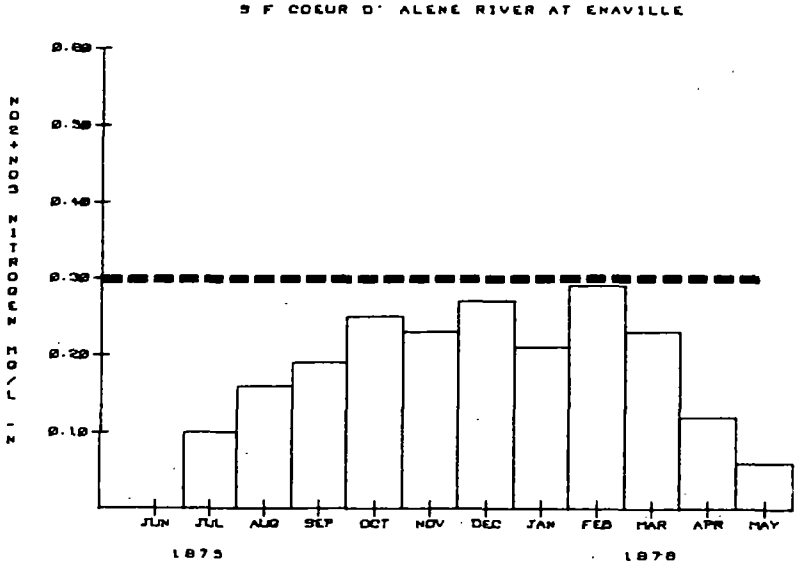
-- Missing bars or points on graphs indicate data was unavailable for that period.

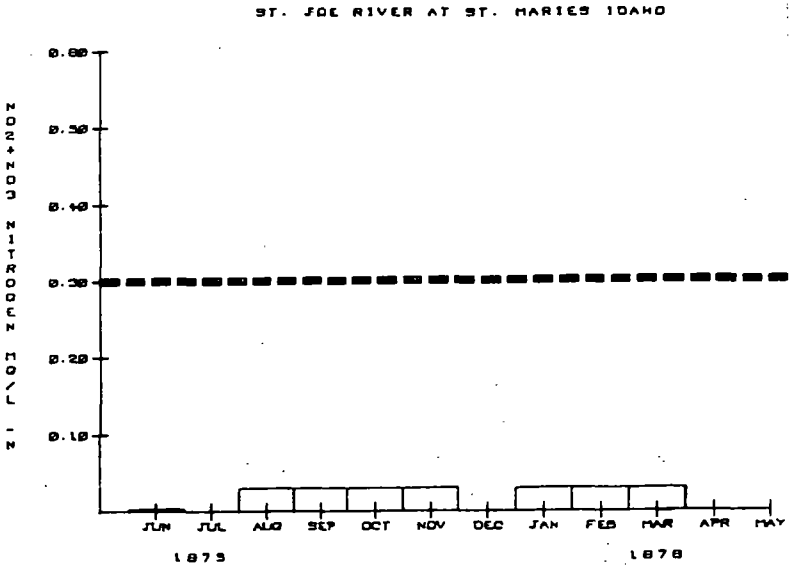
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the nitrate algal bloom potential level of 0.30 mg/l has been exceeded.



SPOKANE RIVER BASIN

NO2+NO3 NITROGEN MG/L





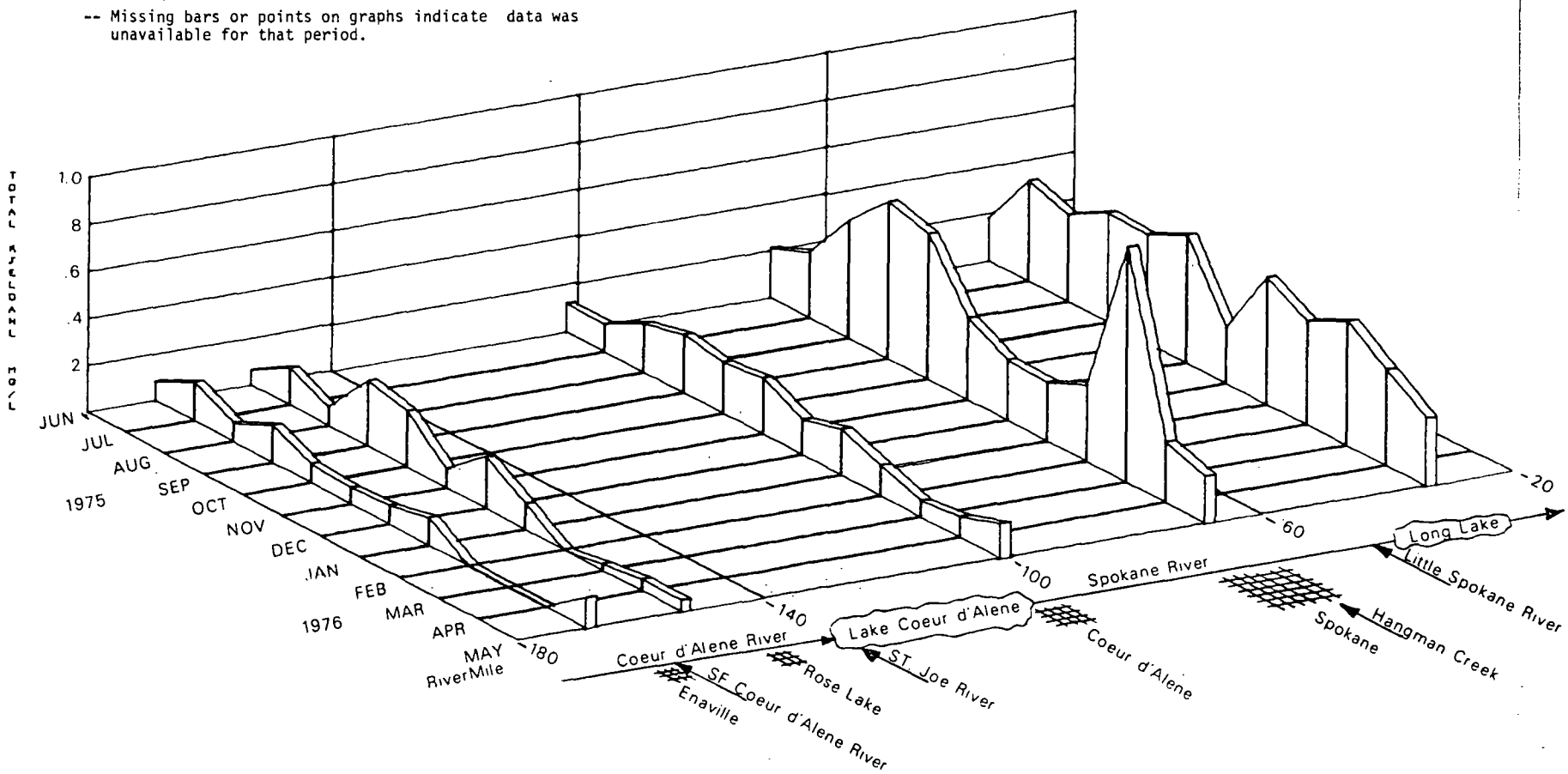
SPOKANE RIVER BASIN

TOTAL KJELDAHL NITROGEN MG/L

NOTES:

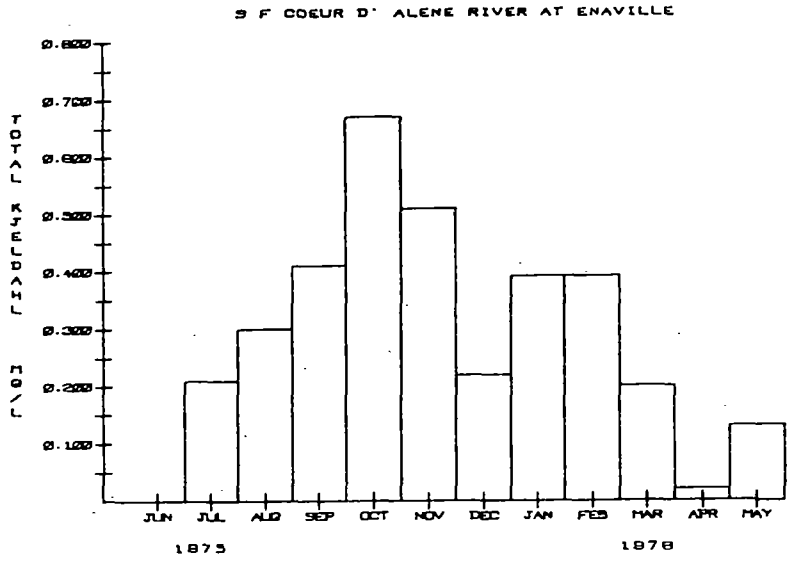
-- Data from EPA's STORET system for June 1975 thru May 1976.

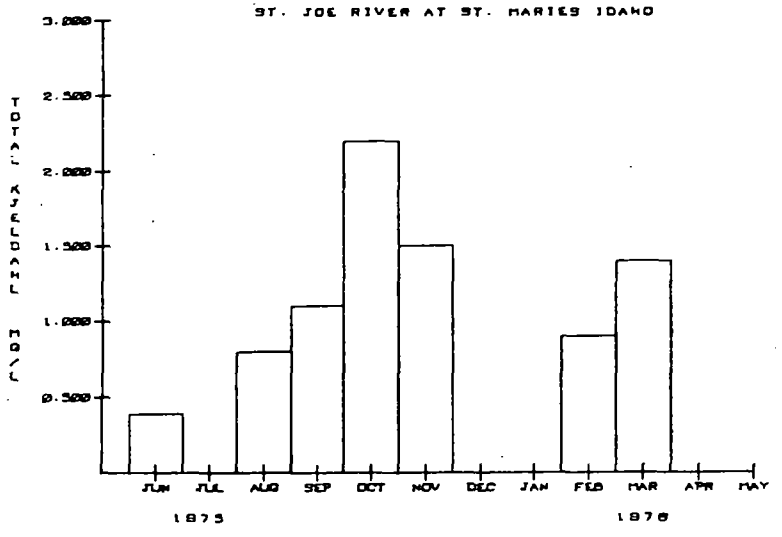
-- Missing bars or points on graphs indicate data was unavailable for that period.



SPOKANE RIVER BASIN

TOTAL KJELDAHL NITROGEN MG/L





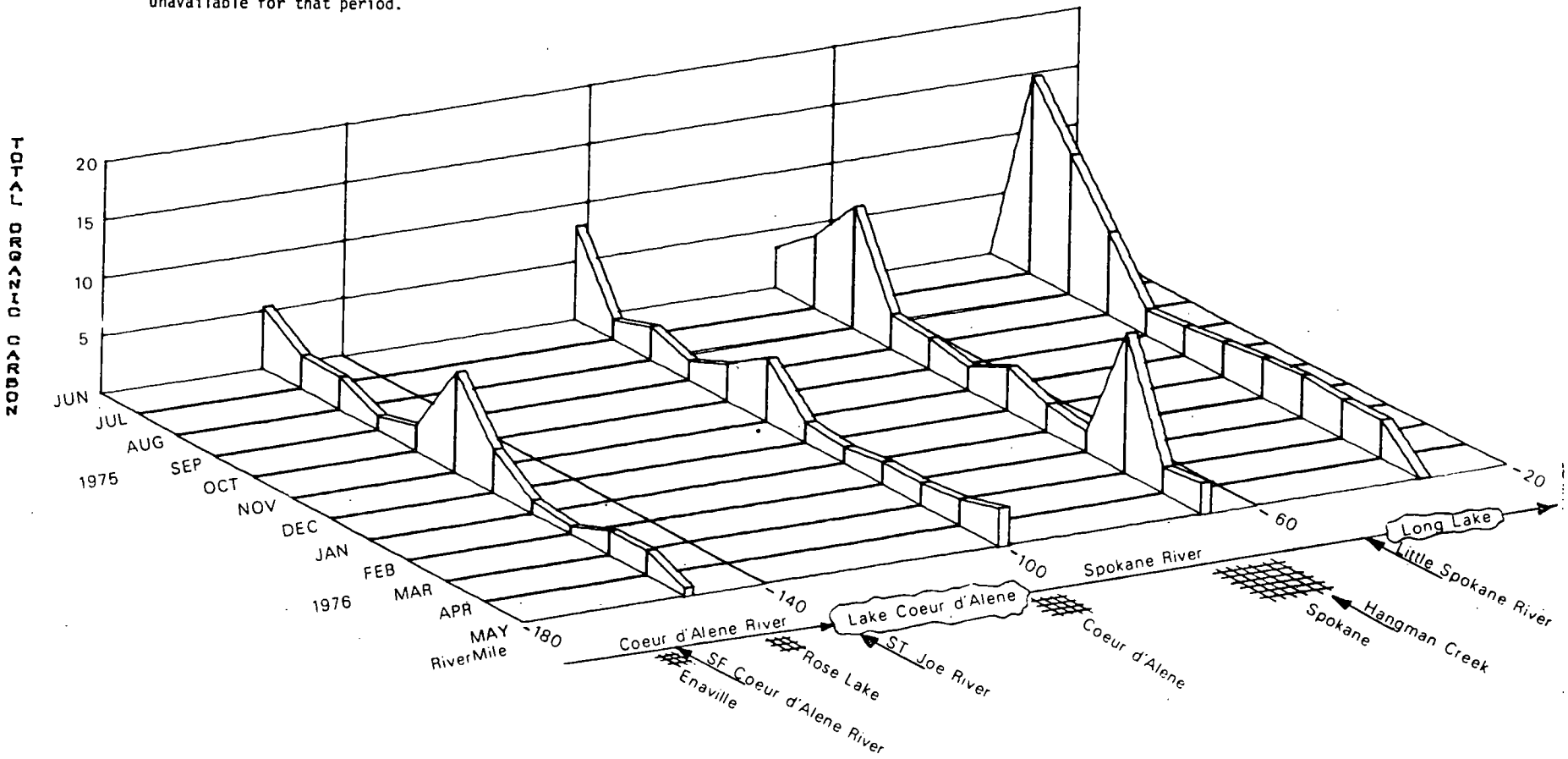
SPOKANE RIVER BASIN

TOTAL ORGANIC CARBON MG/L

NOTES:

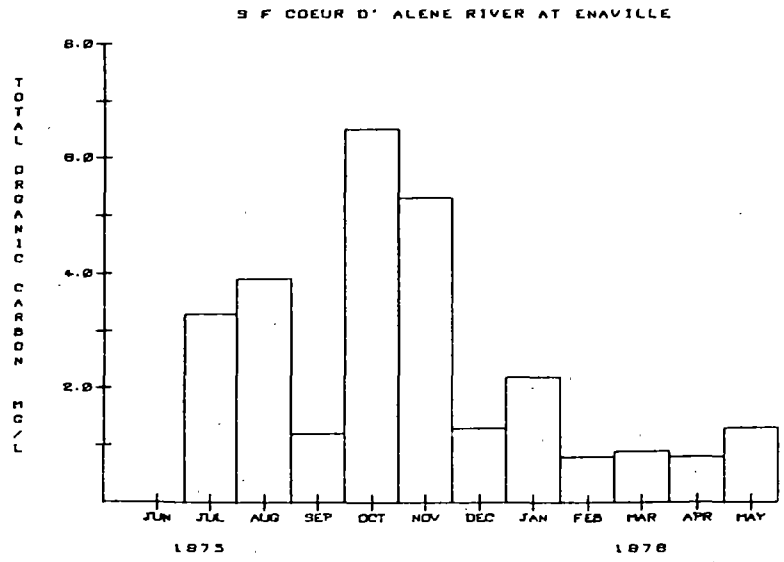
-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.



SPOKANE RIVER BASIN

TOTAL ORGANIC CARBON MG/L



SPOKANE RIVER BASIN

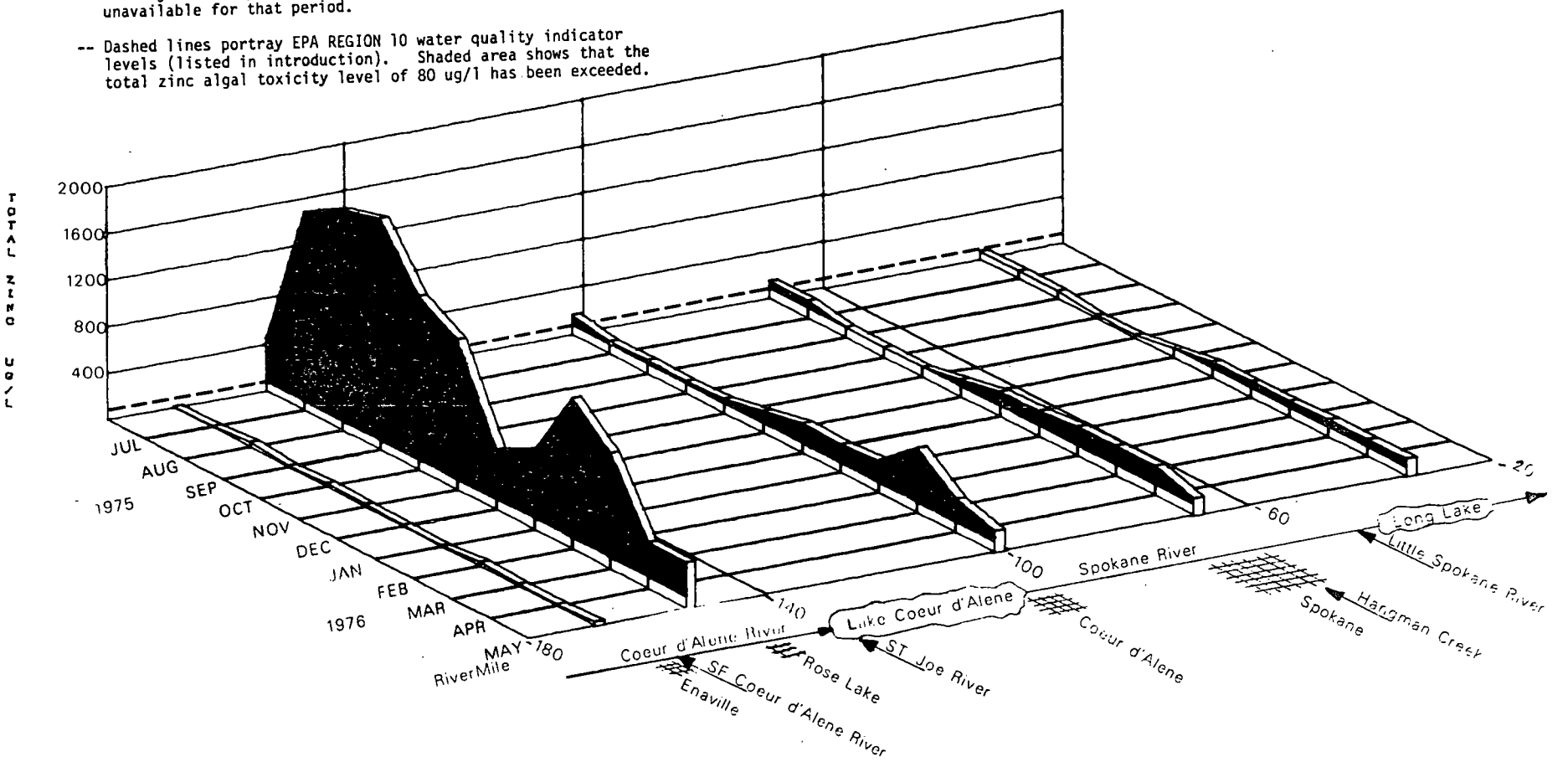
TOTAL ZINC UG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

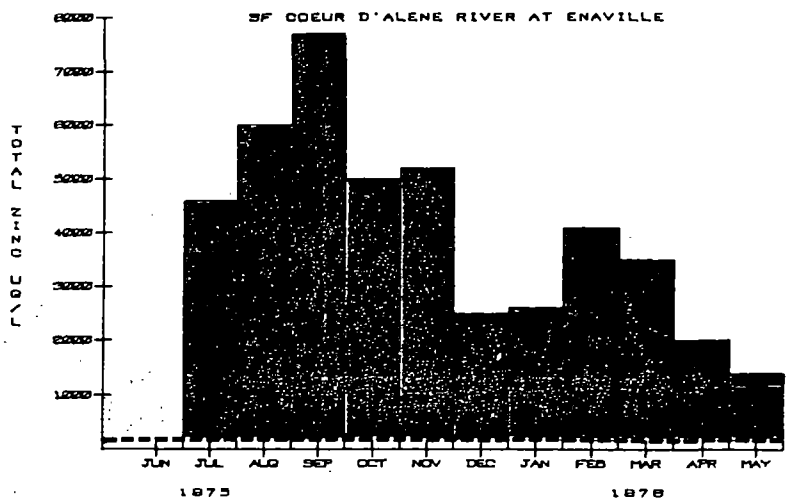
-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the total zinc algal toxicity level of 80 ug/l has been exceeded.



SPOKANE RIVER BASIN

TOTAL ZINC UG/L



YAKIMA RIVER BASIN 13-04

The Yakima River basin is a STORET basin, however, currently only one NWQSS station is located at the mouth of the river. The parametric coverage for this station is shown as a tributary to the Lower Columbia River basin (pg. 31). Future reports will include additional river coverage, and therefore will be included as a complete basin.

YAKIMA RIVER BASIN

Map Station Number	Type of Data Collected		
	Physical	Chemical	Biological
1B *	X	X	

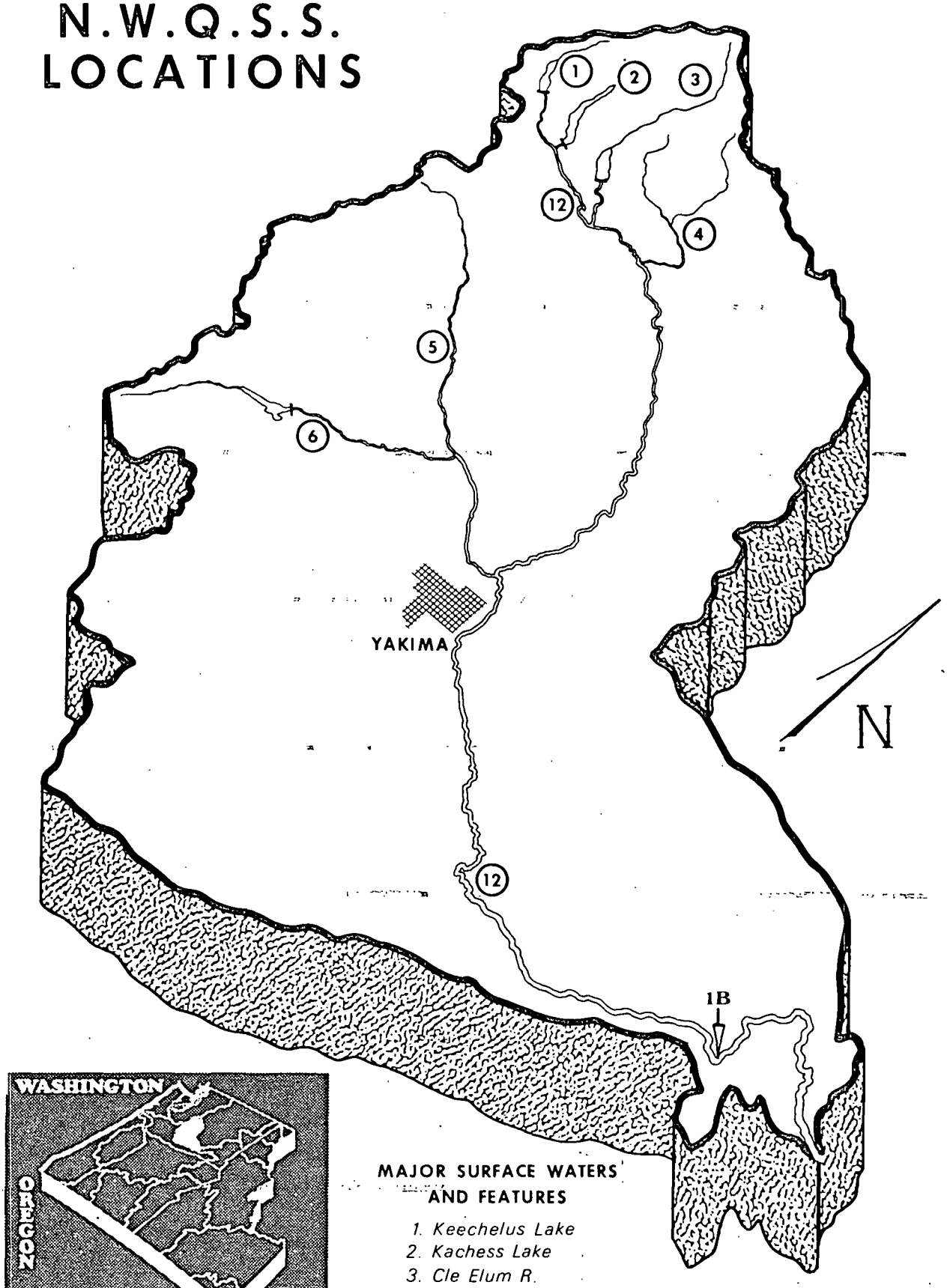
NOTE: Complete station information shown in Table 1 page 11-13.

* See Lower Columbia River Basin.

STORET #13-04

NOTE: Water quality data from Sampling Site 1B is located with Lower Columbia River Basin data.

YAKIMA RIVER BASIN
N.W.Q.S.S. LOCATIONS



MAJOR SURFACE WATERS AND FEATURES

1. *Keechelus Lake*
2. *Kachess Lake*
3. *Cle Elum R.*
4. *Teanaway R.*
5. *Naches R.*
6. *Tieton R.*
12. *Yakima River*

UPPER SNAKE RIVER BASIN 13-06

The Upper Snake River basin is located in southeastern Idaho as shown on the accompanying map. The Snake River is the major river within the basin, and the basin boundaries include the drainage area associated with the river from the Wyoming-Idaho stateline (R.M. 918) to Milner Reservoir (R.M. 640). The significant tributaries presented in this document are the Henry's Fork, Blackfoot, and Portneuf Rivers. Idaho Falls (pop. 35,776), Pocatello (pop. 40,036), Burley (pop. 8,279), and Rexburg (pop. 8,272) are the major Idaho communities within the basin. Major industrial and municipal discharges are associated with these population centers; however, irrigated agriculture is the major land use within the basin.

National Water Quality Surveillance System (NWQSS) stations located within this basin are shown on the map. The complete water quality and biological parametric coverage for NWQSS stations is listed in the Introduction of this report along with the EPA criteria associated with those parameters. However, only some of the parameters are included in the following curves. Complete raw data is available from EPA upon request.

The following curve layout is designed to show the mainstem river constituents both spatially and temporally on a single three dimensional plot. Water quality constituents at the mouth stations of the significant tributaries to the Snake River are shown temporally on bar charts.

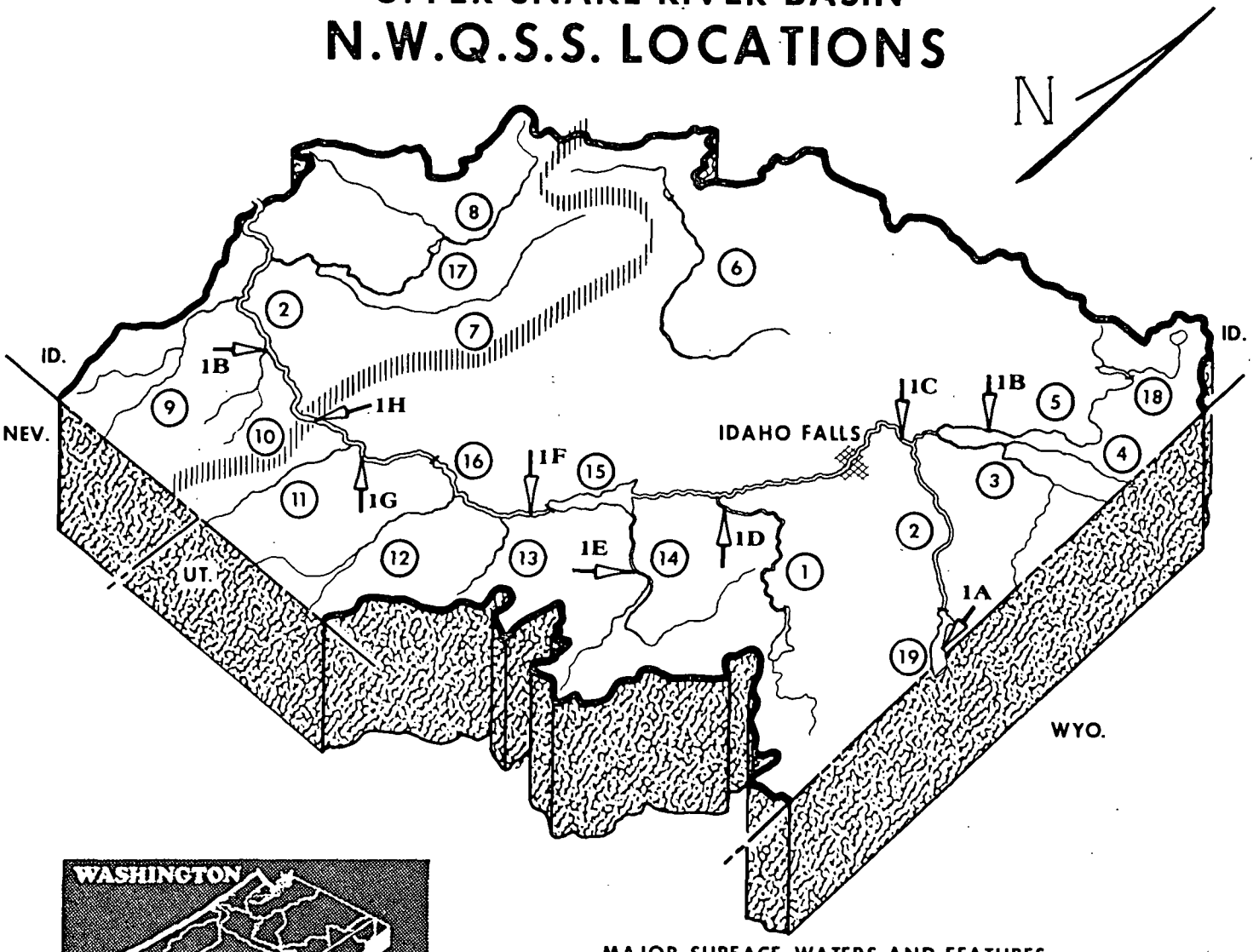
UPPER SNAKE RIVER BASIN

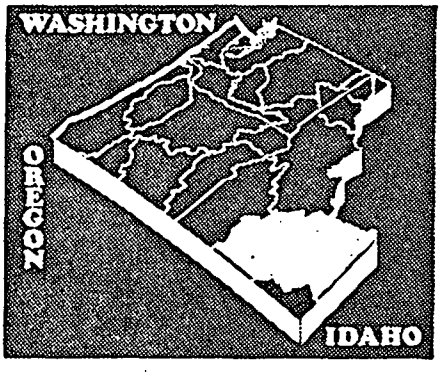
Map Station Number	Type of Data Collected		
	Physical	Chemical	Biological
1A	X	X	X
1B	X	X	X
1C	X	X	X
1D	X	X	X
1E	X	X	
1F	X	X	X
1G	X	X	X
1H	X	X	X

NOTE: Complete station information shown in Table 1 page 11-13.

STORET #13-06

UPPER SNAKE RIVER BASIN
N.W.Q.S.S. LOCATIONS





MAJOR SURFACE WATERS AND FEATURES

1. *Blackfoot R.*
2. *Snake River*
3. *Teton R.*
4. *Falls R.*
5. *Henry's Fork*
6. *Big Lost R.*
7. *Little Wood R.*
8. *Big Wood R.*
9. *Salmon Falls Cr.*
10. *Rock Cr.*
11. *Goose Cr.*
12. *Raft R.*
13. *Rock Cr.*
14. *Portneuf R.*
15. *American Falls Res.*
16. *Lake Walcott*
17. *Magic Res.*
18. *Island Park Res.*
19. *Palisades Res.*

NOTE: Water quality data for surface waters to the west of the boundary will be found with water quality data for the Middle Snake River Basin

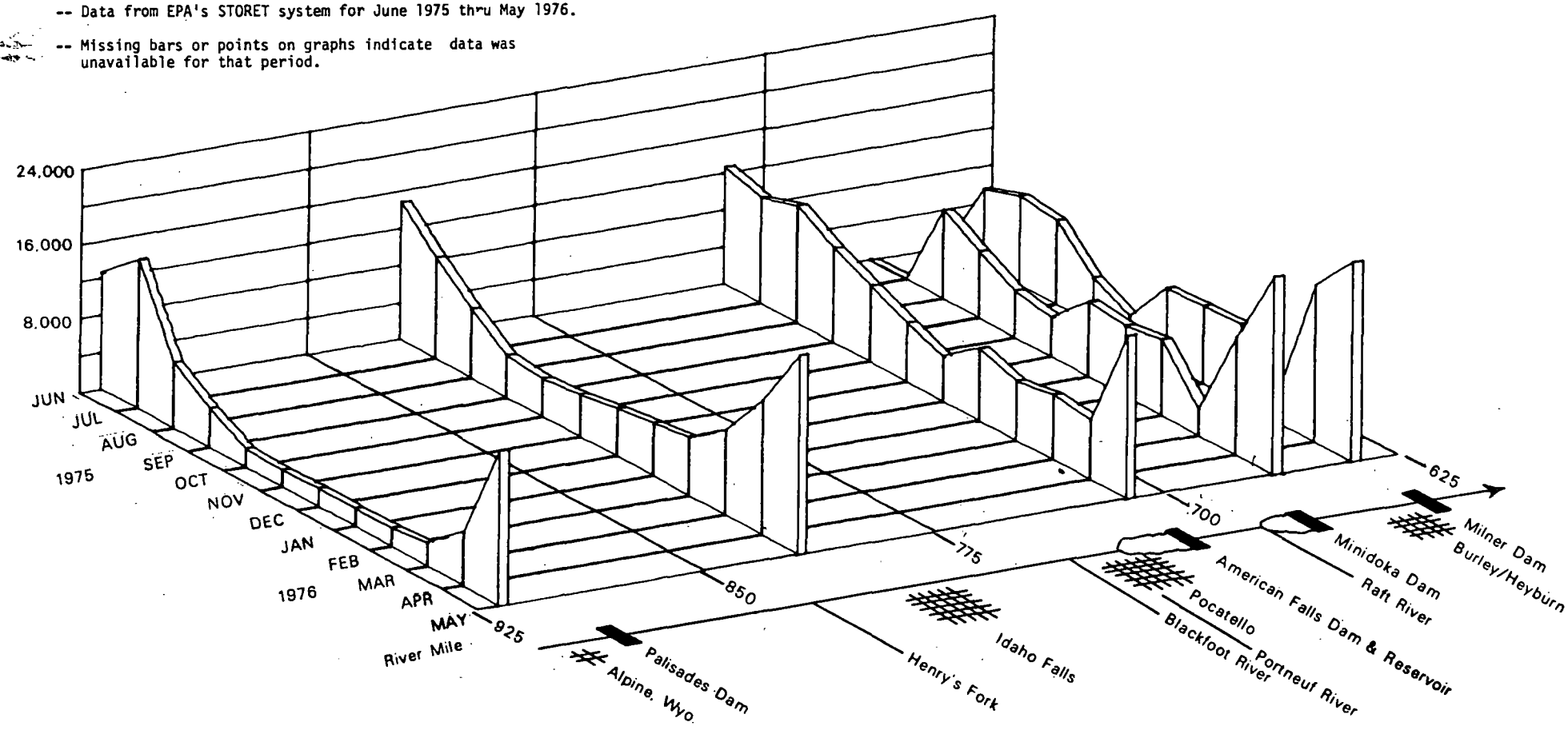
UPPER SNAKE RIVER BASIN

STREAM FLOW CFS

NOTES:

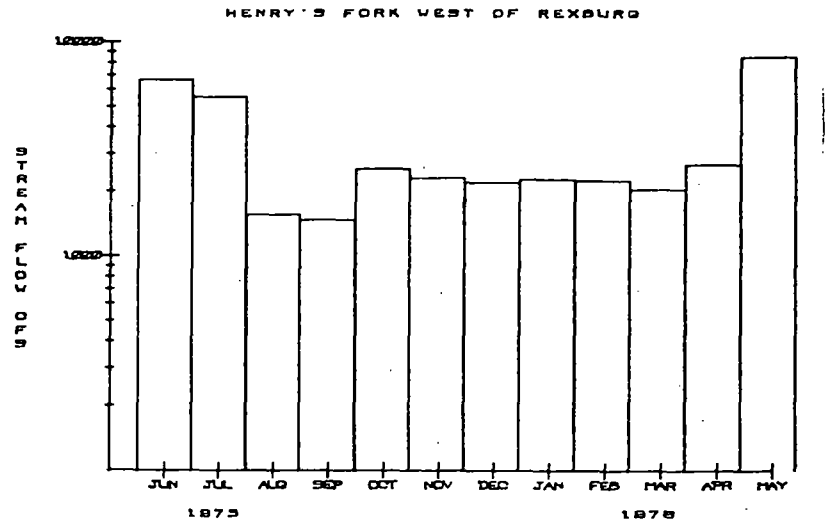
-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

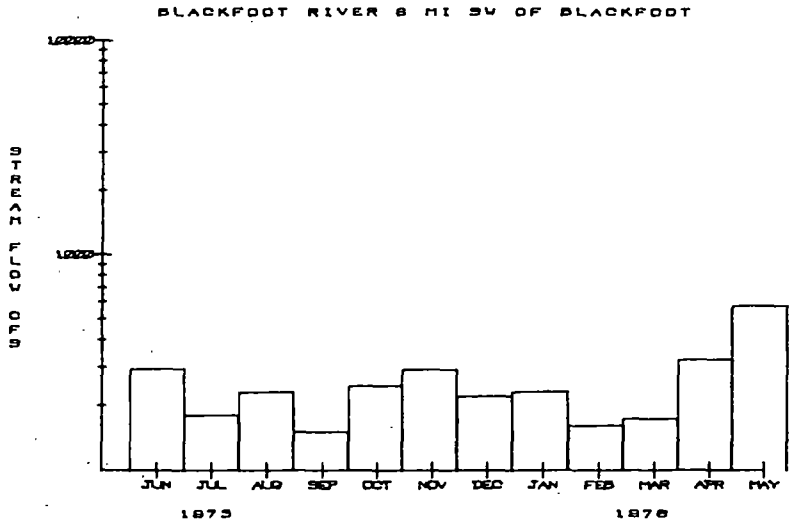


UPPER SNAKE RIVER BASIN

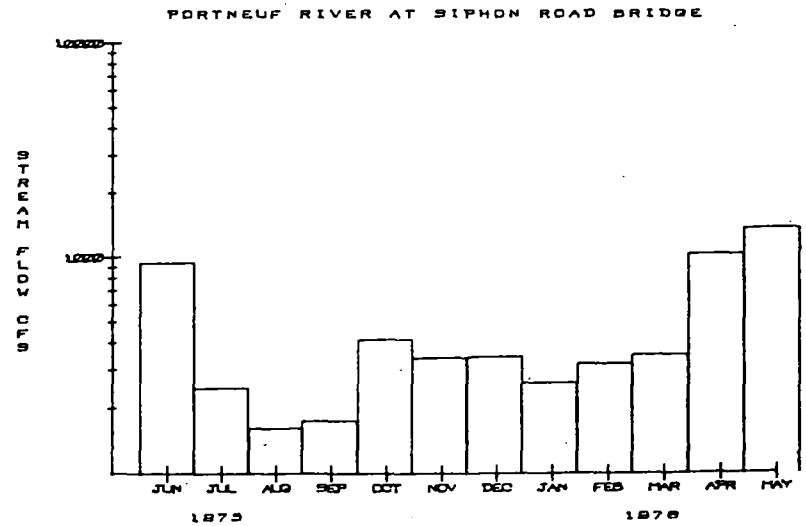
STREAM FLOW CFS



Data from Blackfoot River at mouth (# 13068500)



Data from Portneuf River at Pocatello (# 13075500)



UPPER SNAKE RIVER BASIN

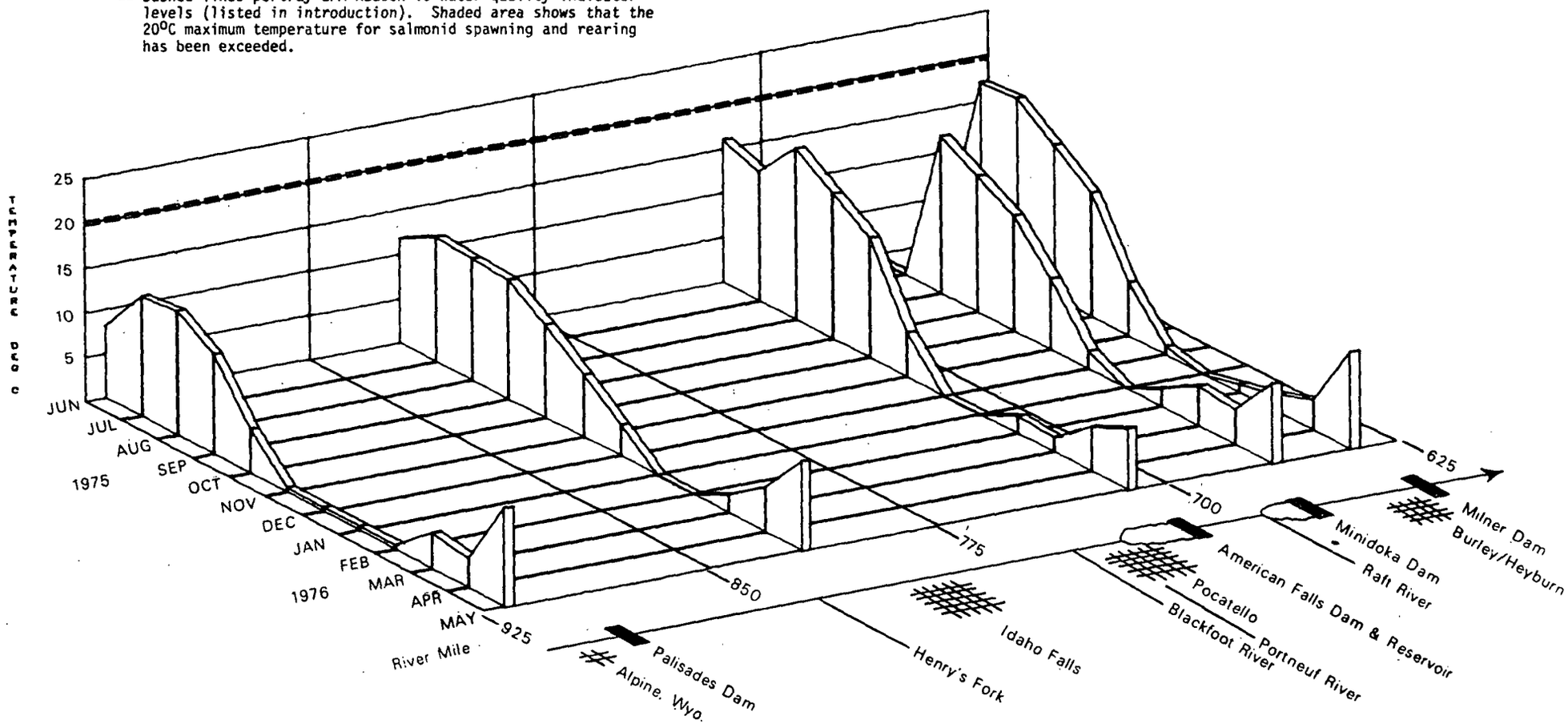
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

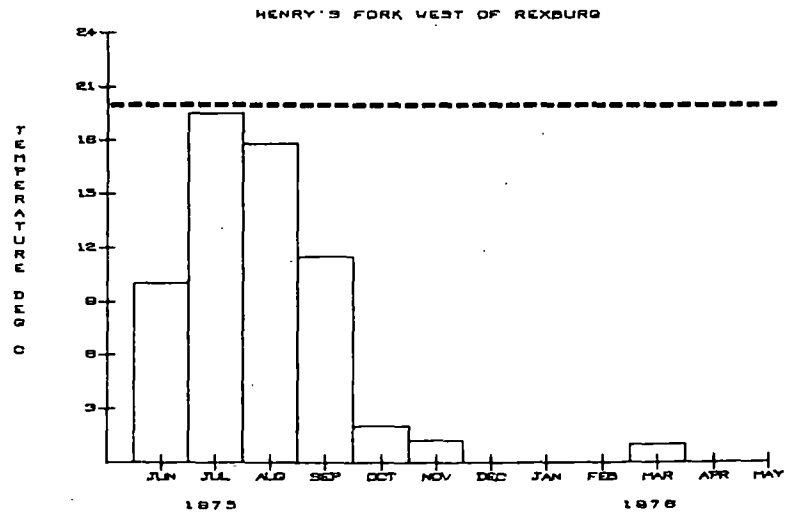
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the 20°C maximum temperature for salmonid spawning and rearing has been exceeded.

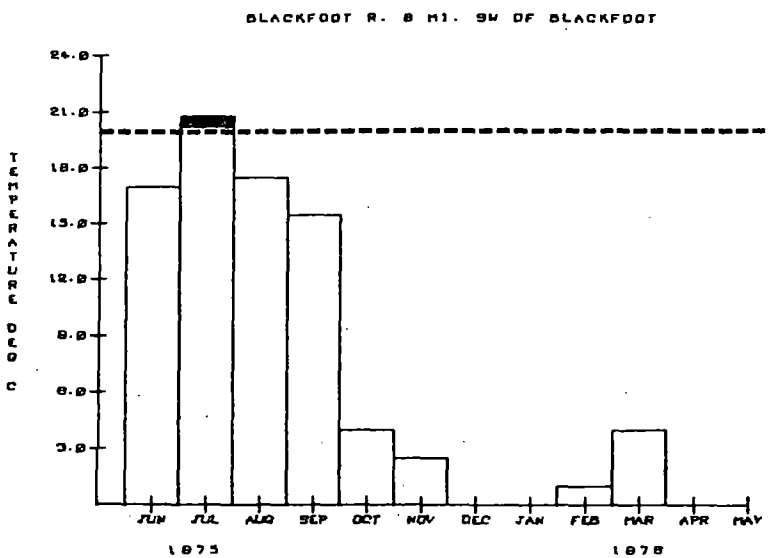
TEMPERATURE DEG C

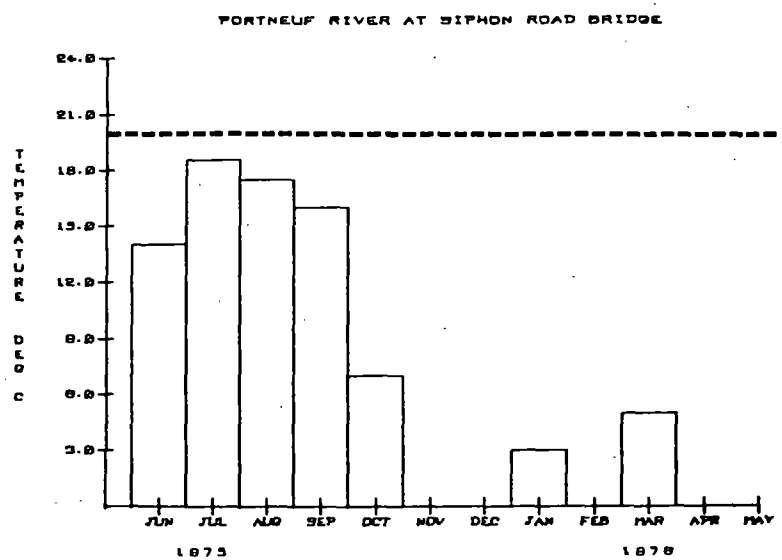


UPPER SNAKE RIVER BASIN

TEMPERATURE DEG C







UPPER SNAKE RIVER BASIN

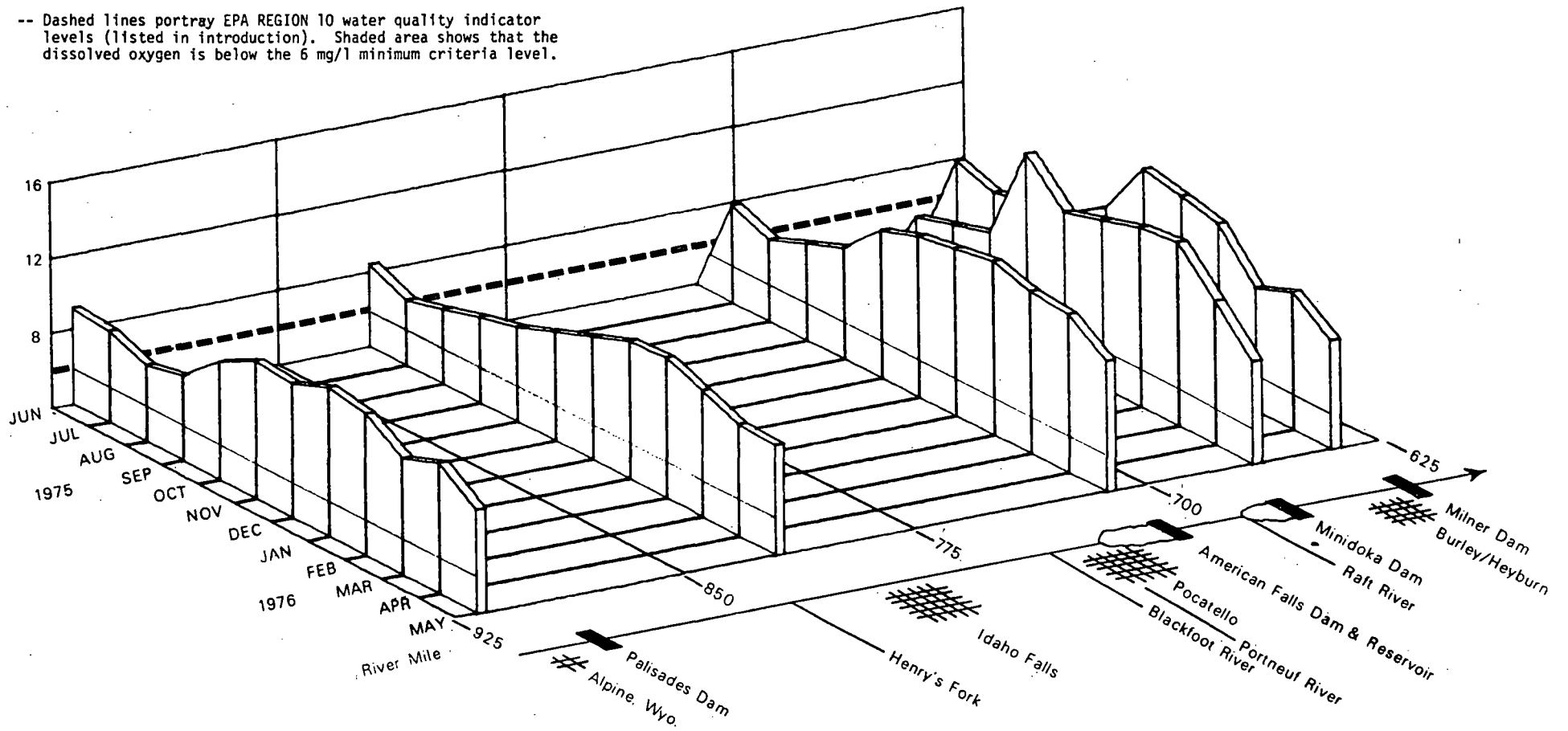
DISSOLVED OXYGEN MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

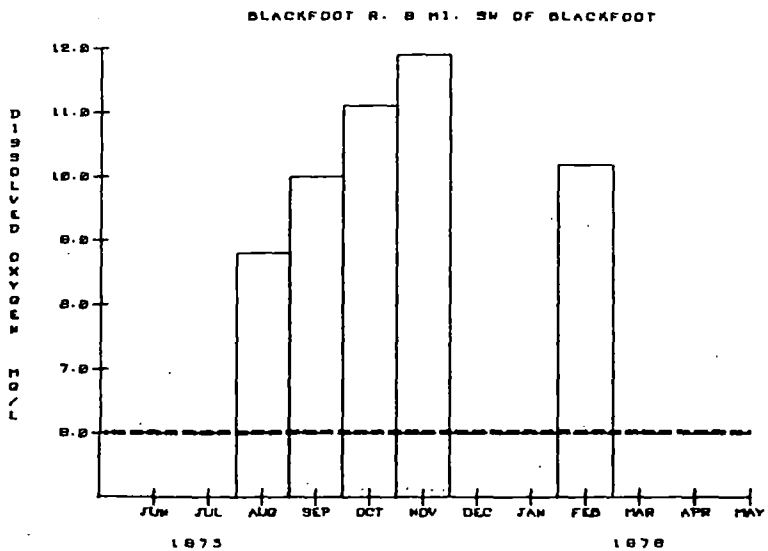
-- Missing bars or points on graphs indicate data was unavailable for that period.

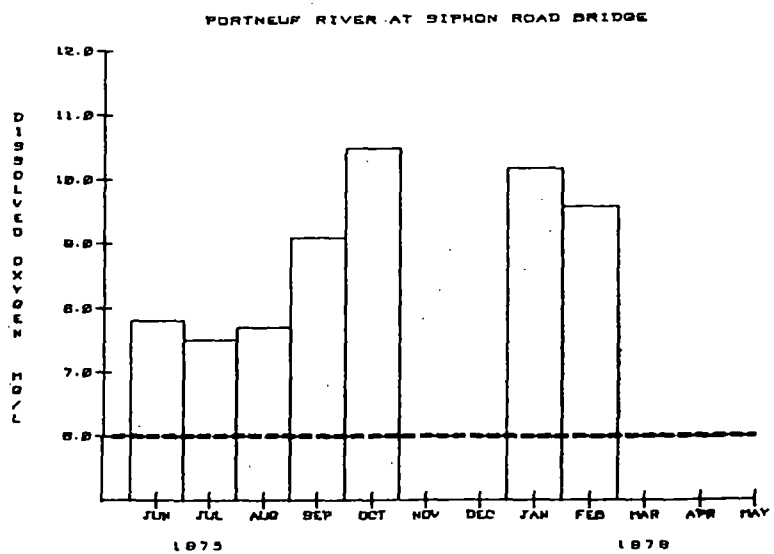
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the dissolved oxygen is below the 6 mg/l minimum criteria level.



UPPER SNAKE RIVER BASIN

DISSOLVED OXYGEN MG/L





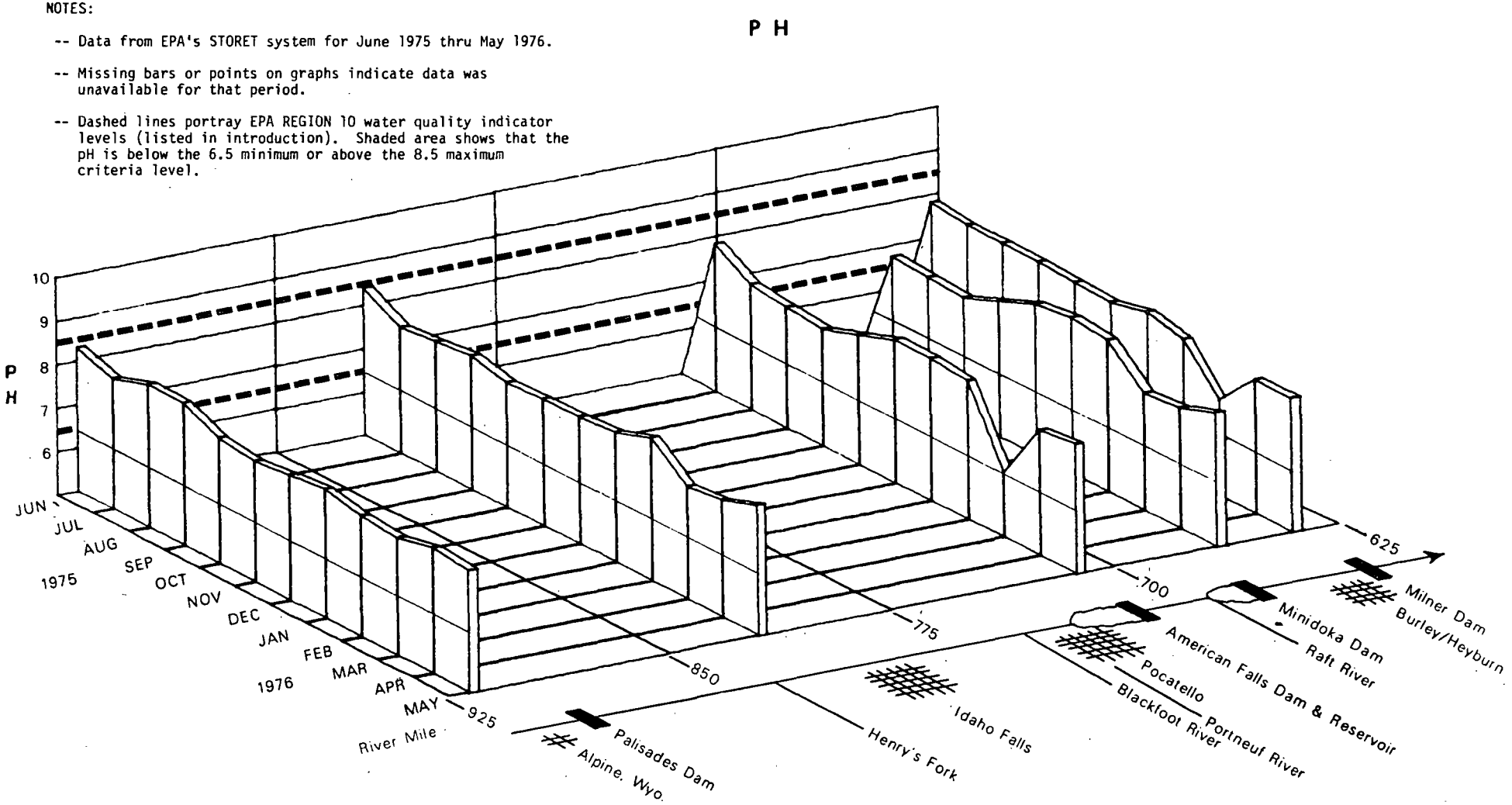
UPPER SNAKE RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the pH is below the 6.5 minimum or above the 8.5 maximum criteria level.



UPPER SNAKE RIVER BASIN

P H

NO TRIBUTARY DATA AVAILABLE

UPPER SNAKE RIVER BASIN

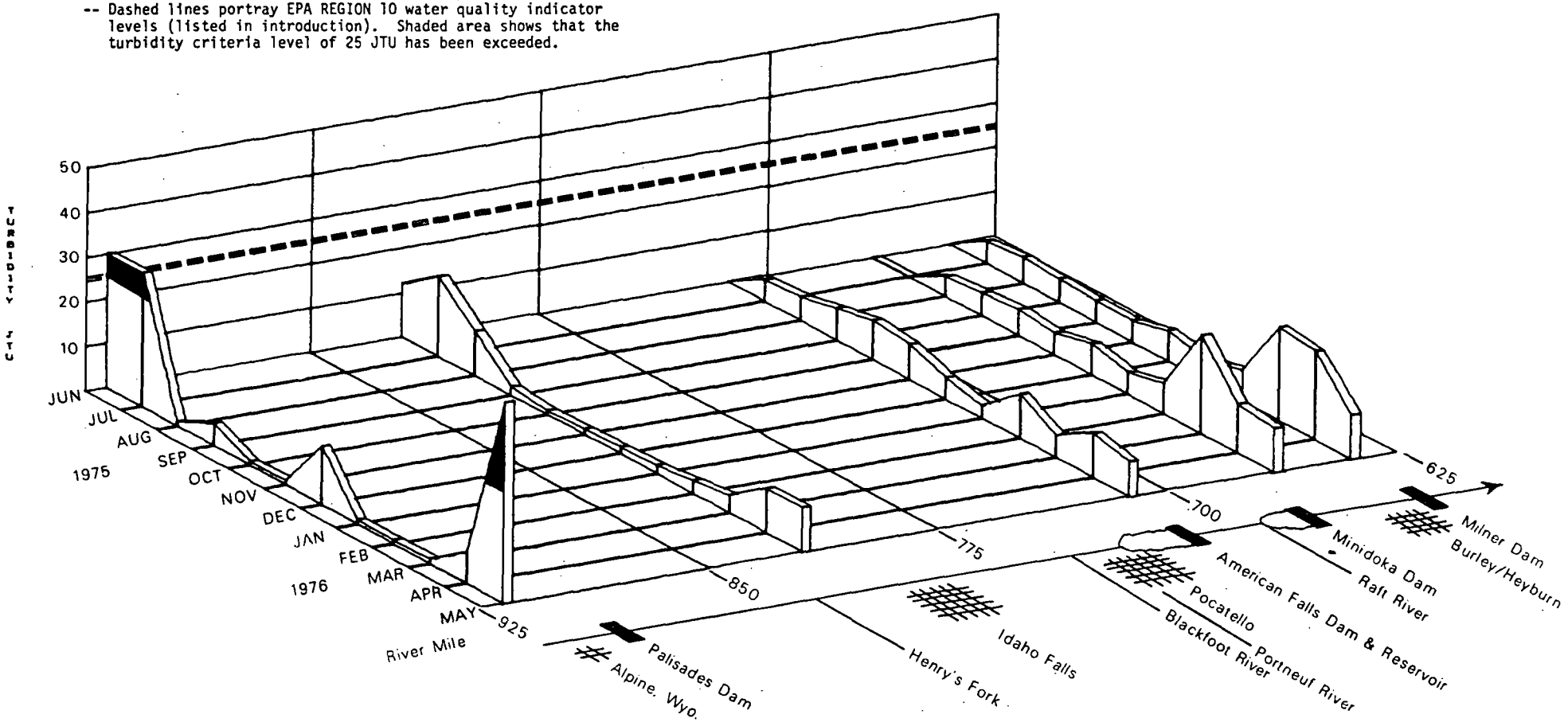
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

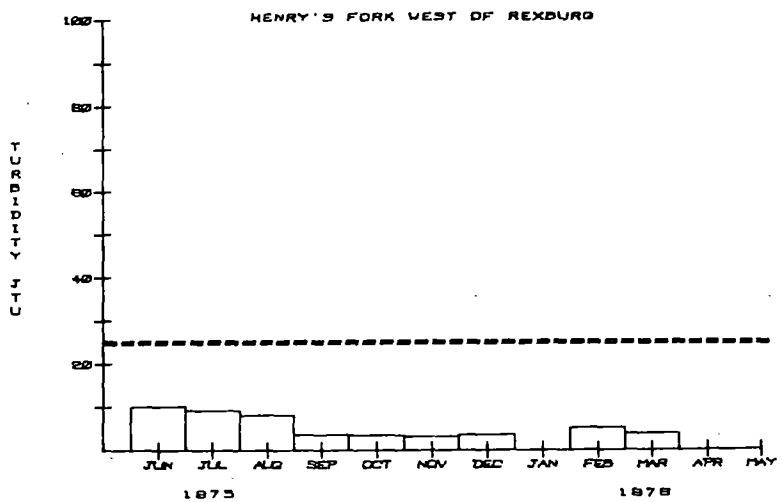
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the turbidity criteria level of 25 JTU has been exceeded.

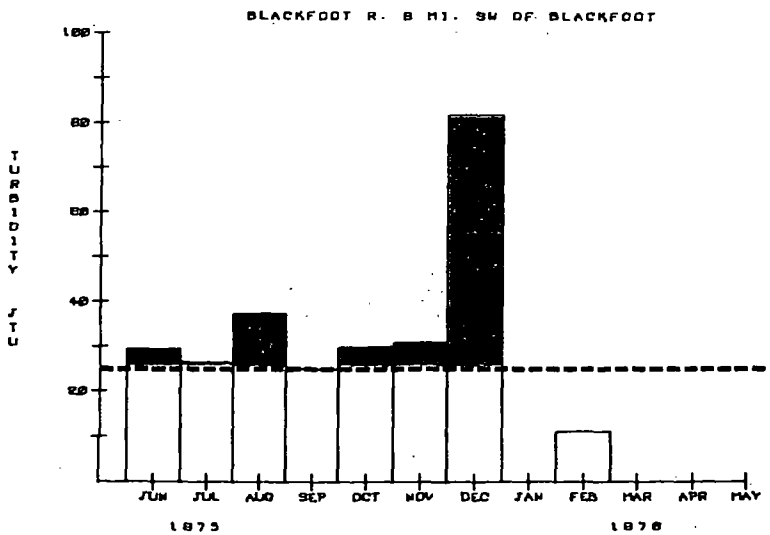
TURBIDITY IN JTU

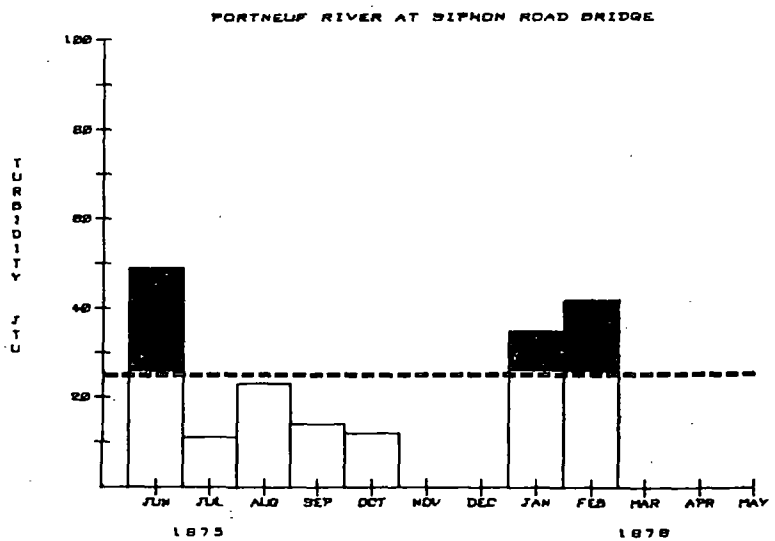


UPPER SNAKE RIVER BASIN

TURBIDITY IN JTU







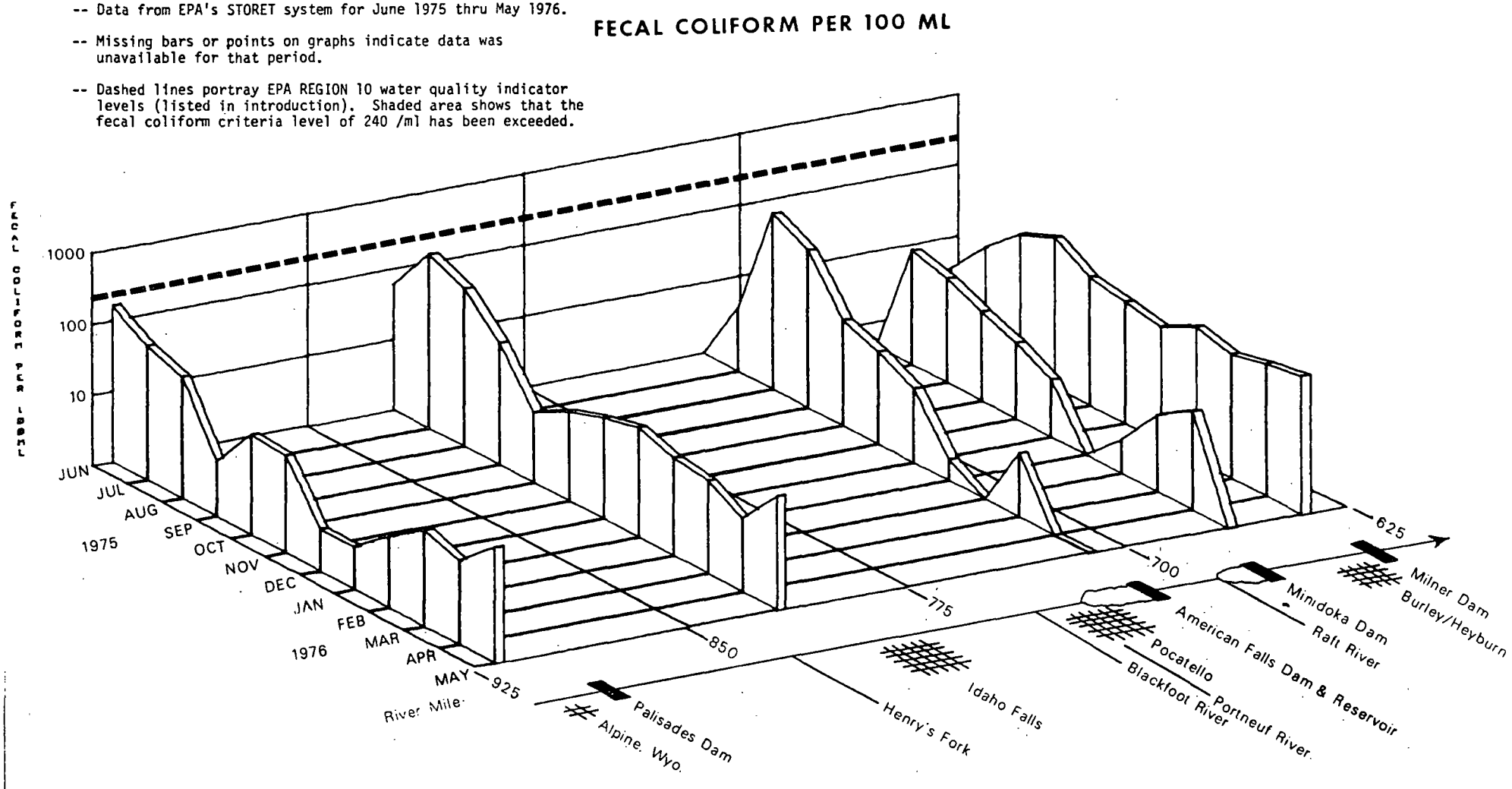
UPPER SNAKE RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

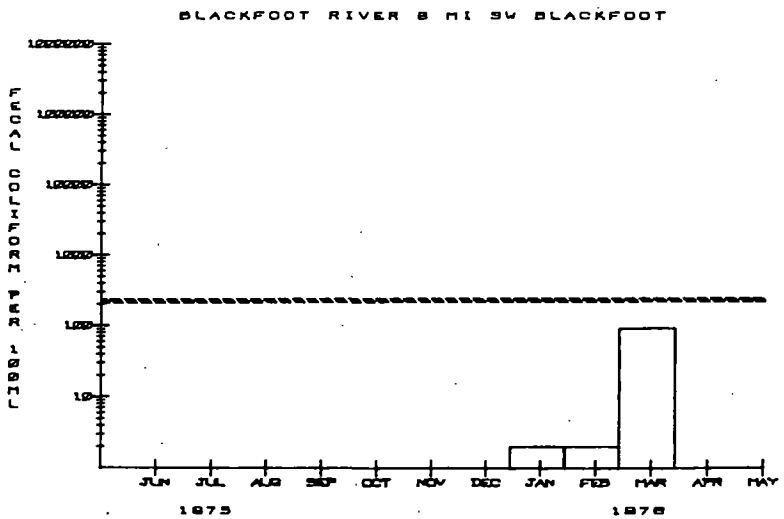
-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the fecal coliform criteria level of 240 /ml has been exceeded.



UPPER SNAKE RIVER BASIN

FECAL COLIFORM PER 100 ML



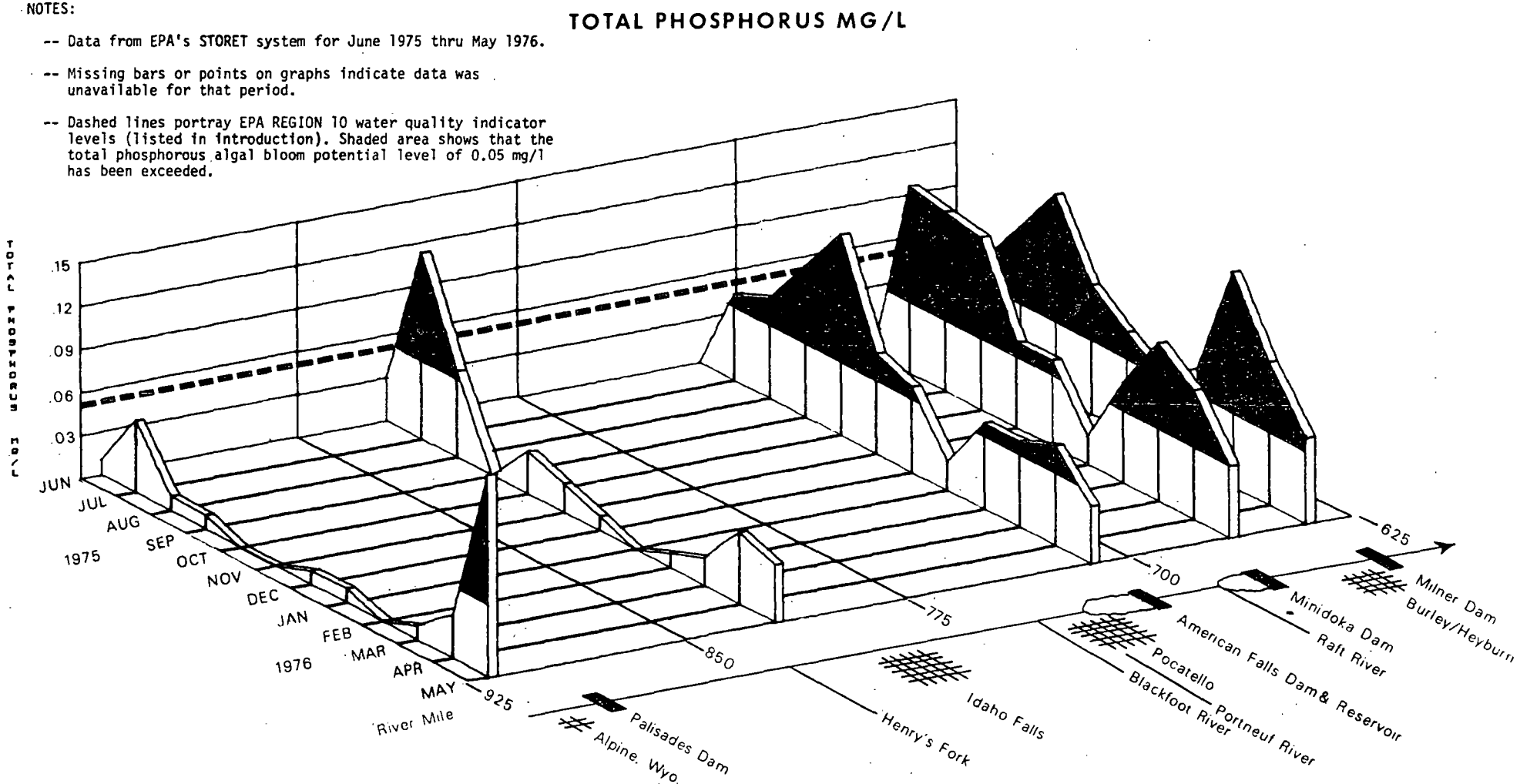
UPPER SNAKE RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

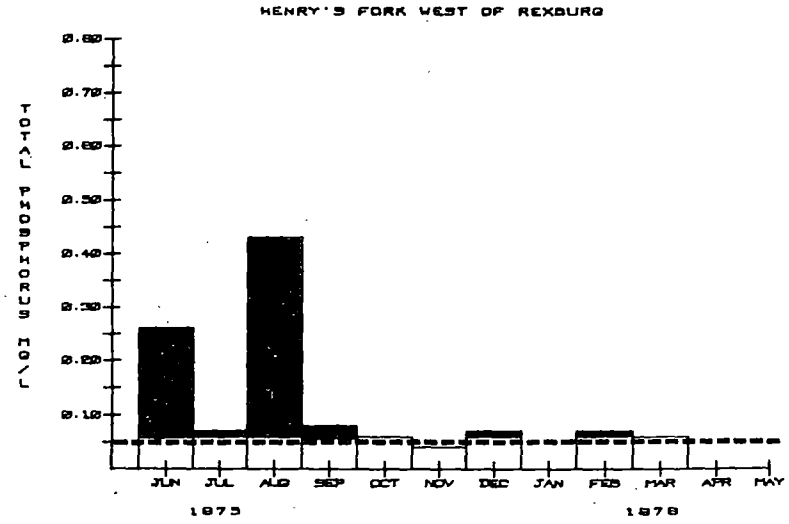
-- Missing bars or points on graphs indicate data was unavailable for that period.

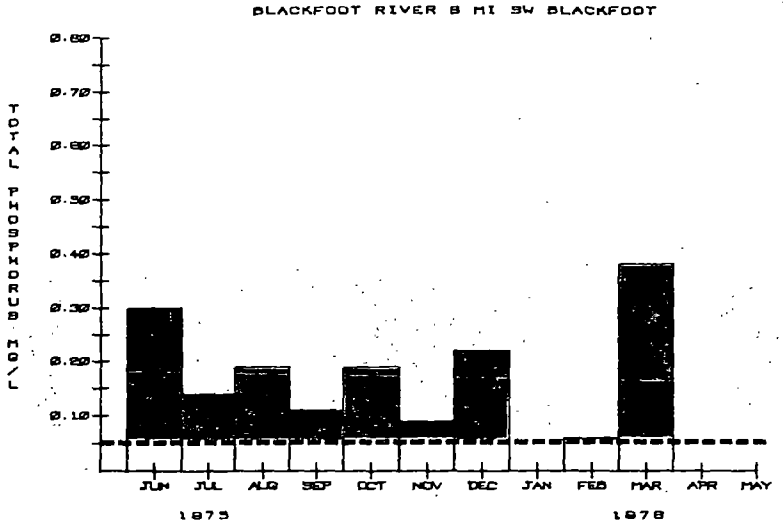
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the total phosphorous algal bloom potential level of 0.05 mg/l has been exceeded.

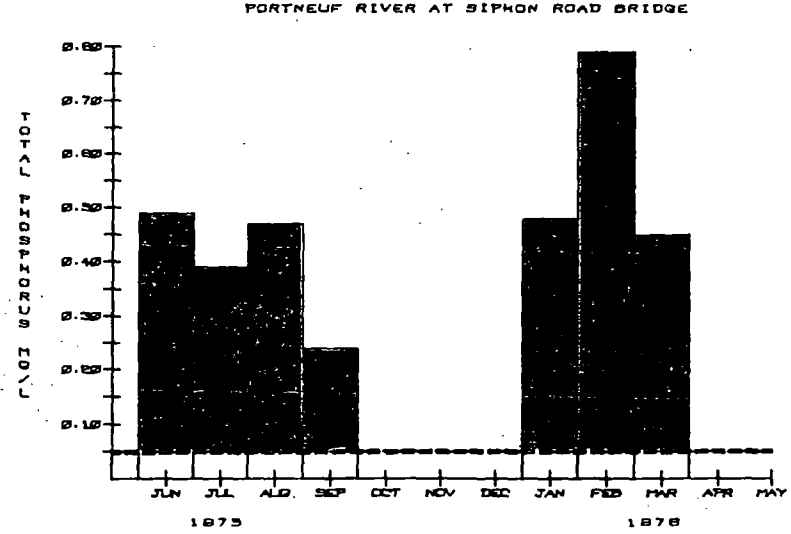


UPPER SNAKE RIVER BASIN

TOTAL PHOSPHORUS MG/L







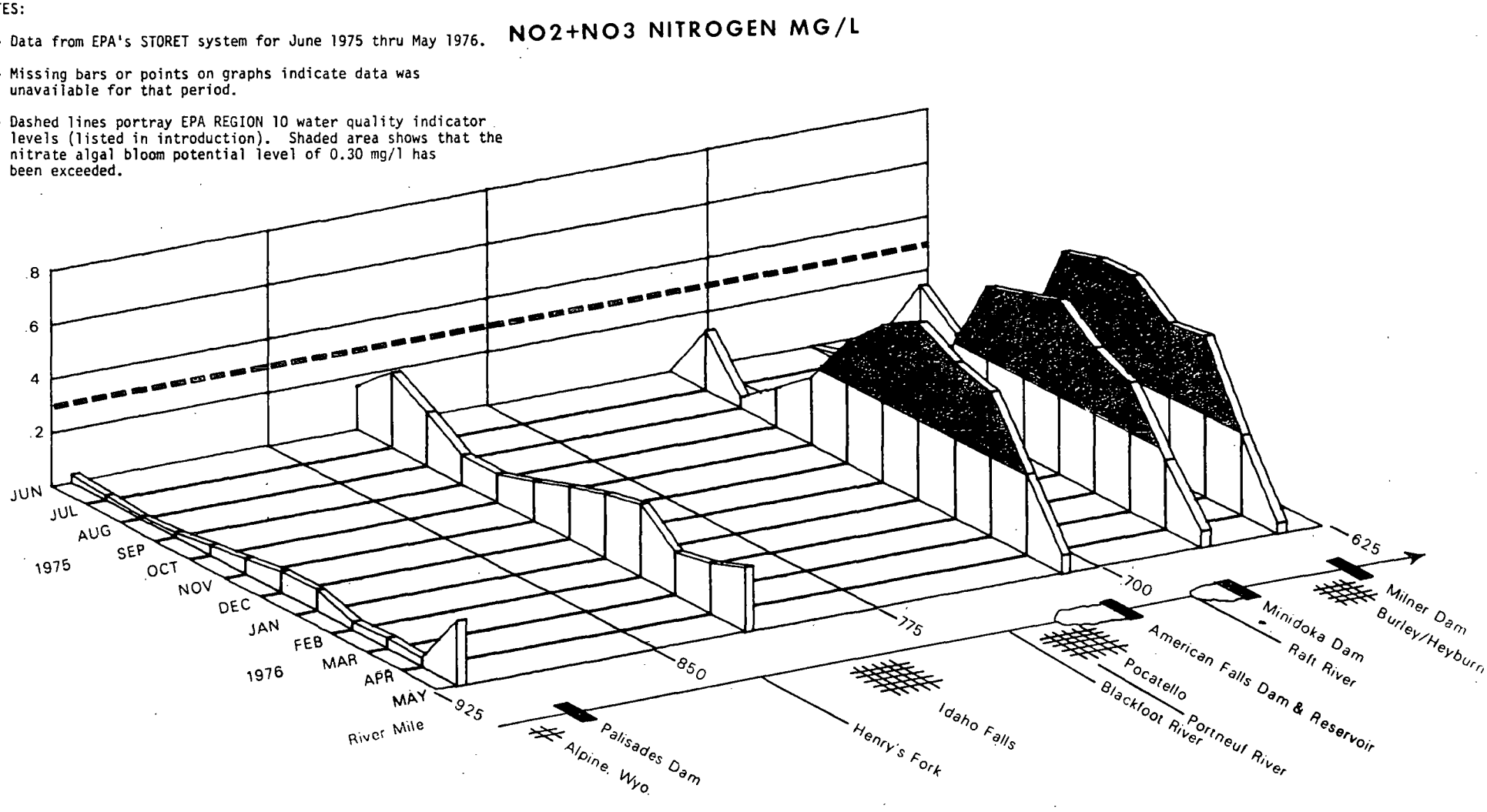
UPPER SNAKE RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

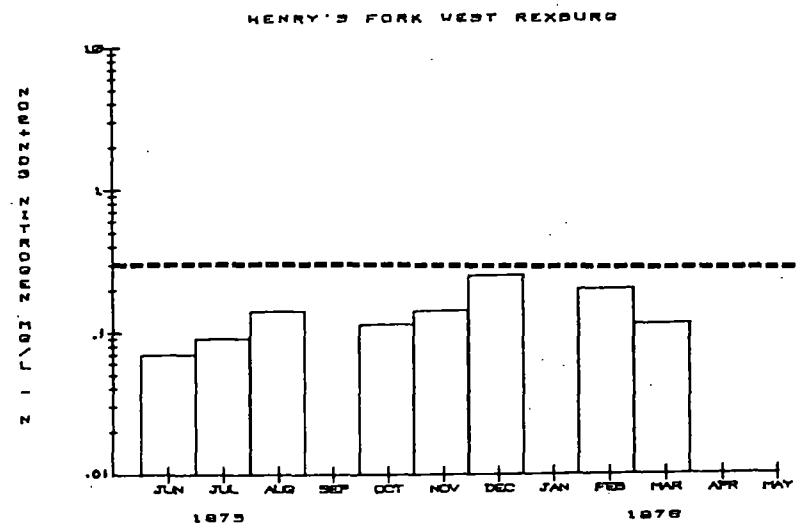
-- Missing bars or points on graphs indicate data was unavailable for that period.

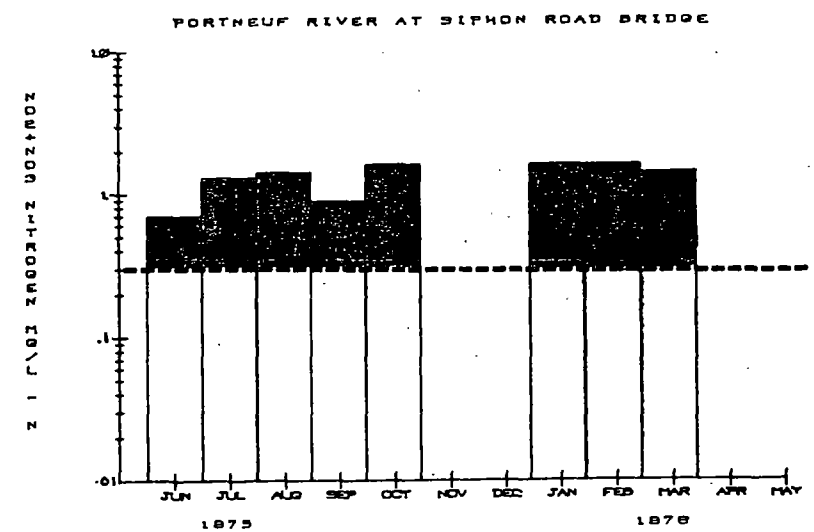
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the nitrate algal bloom potential level of 0.30 mg/l has been exceeded.



UPPER SNAKE RIVER BASIN

NO2+NO3 NITROGEN MG/L





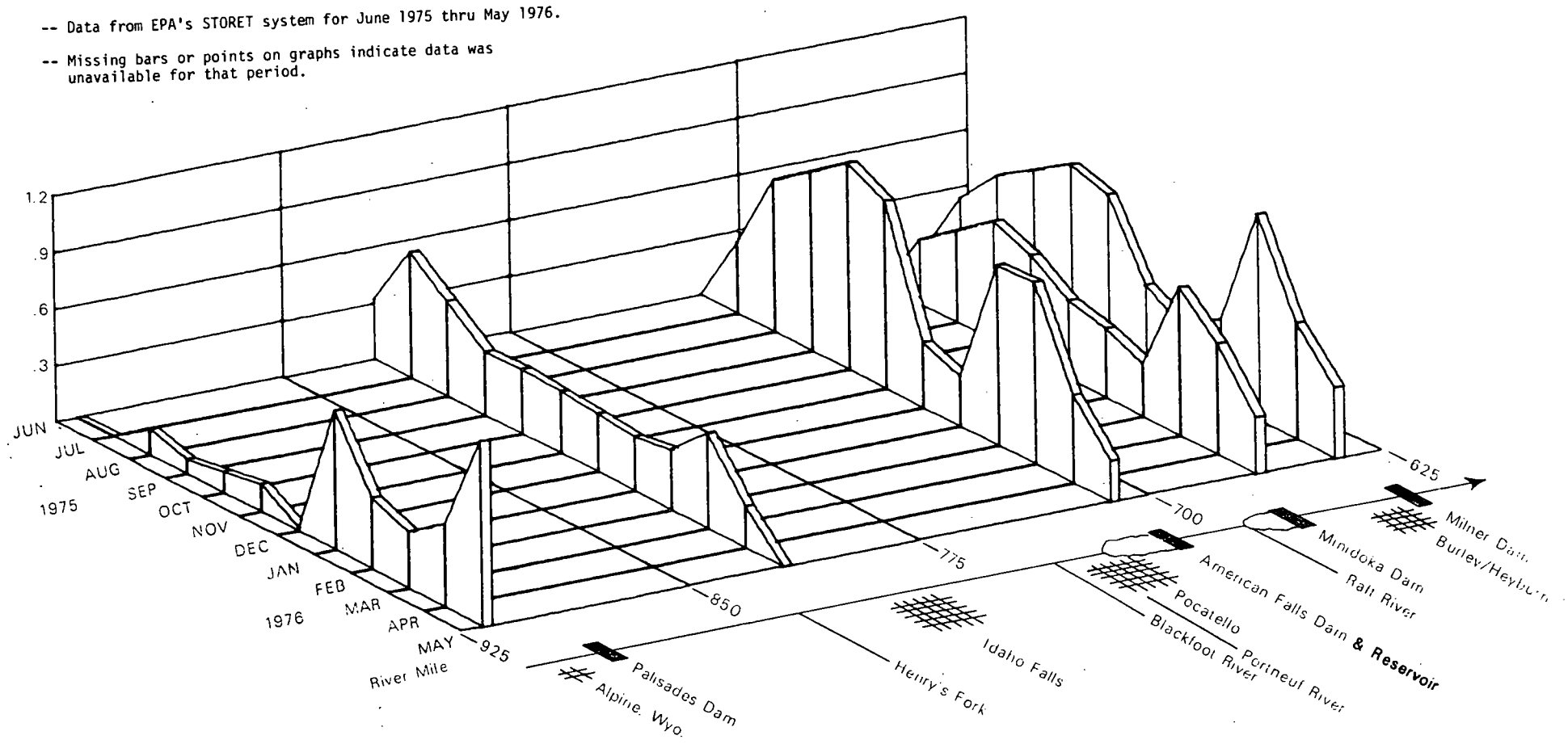
UPPER SNAKE RIVER BASIN

TOTAL KJELDAHL NITROGEN MG/L

NOTES:

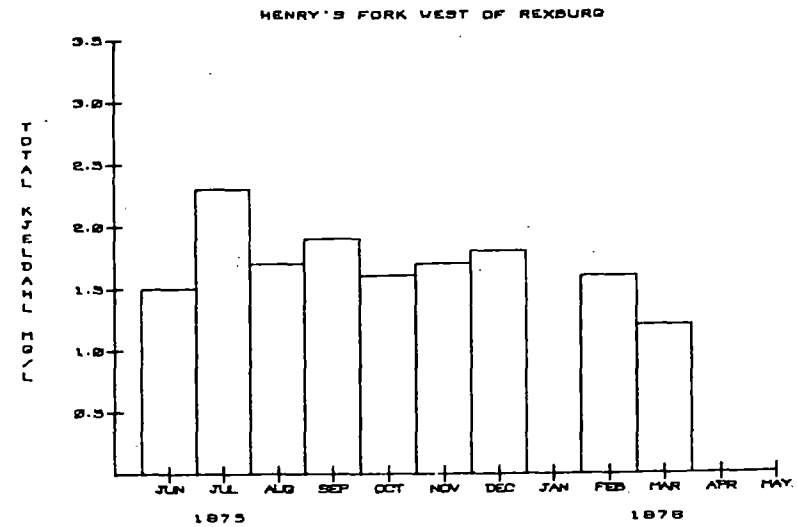
-- Data from EPA's STORET system for June 1975 thru May 1976.

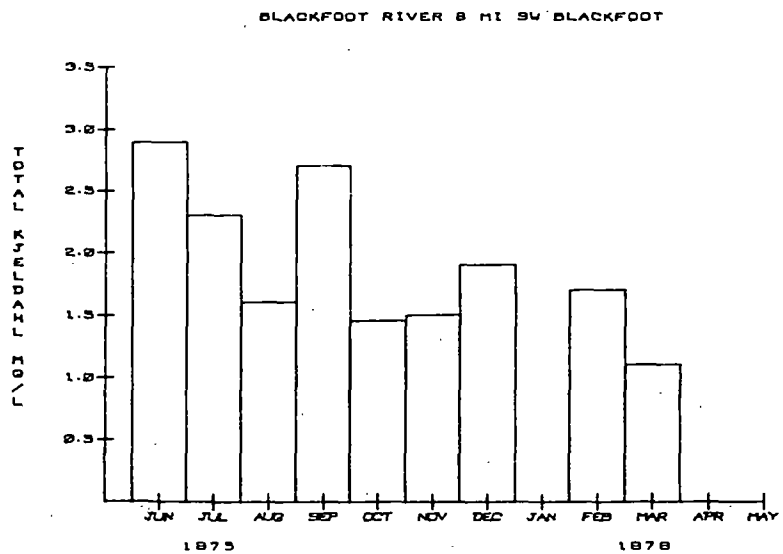
-- Missing bars or points on graphs indicate data was unavailable for that period.

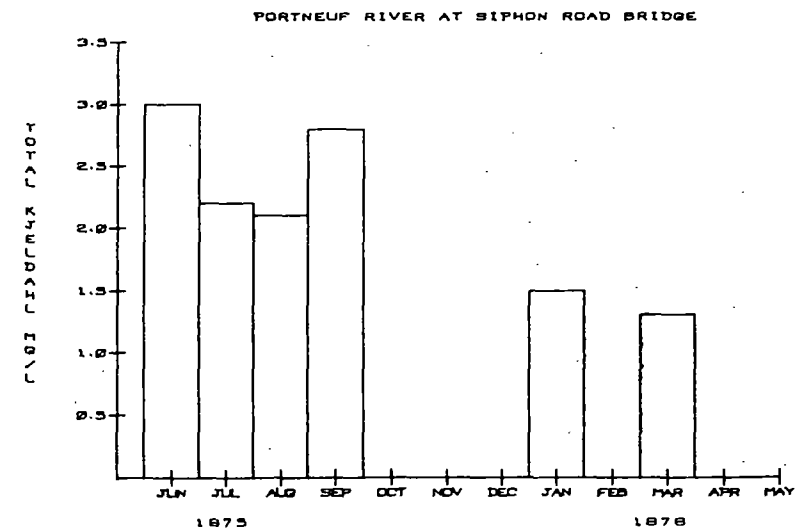


UPPER SNAKE RIVER BASIN

TOTAL KJELDAHL NITROGEN MG/L







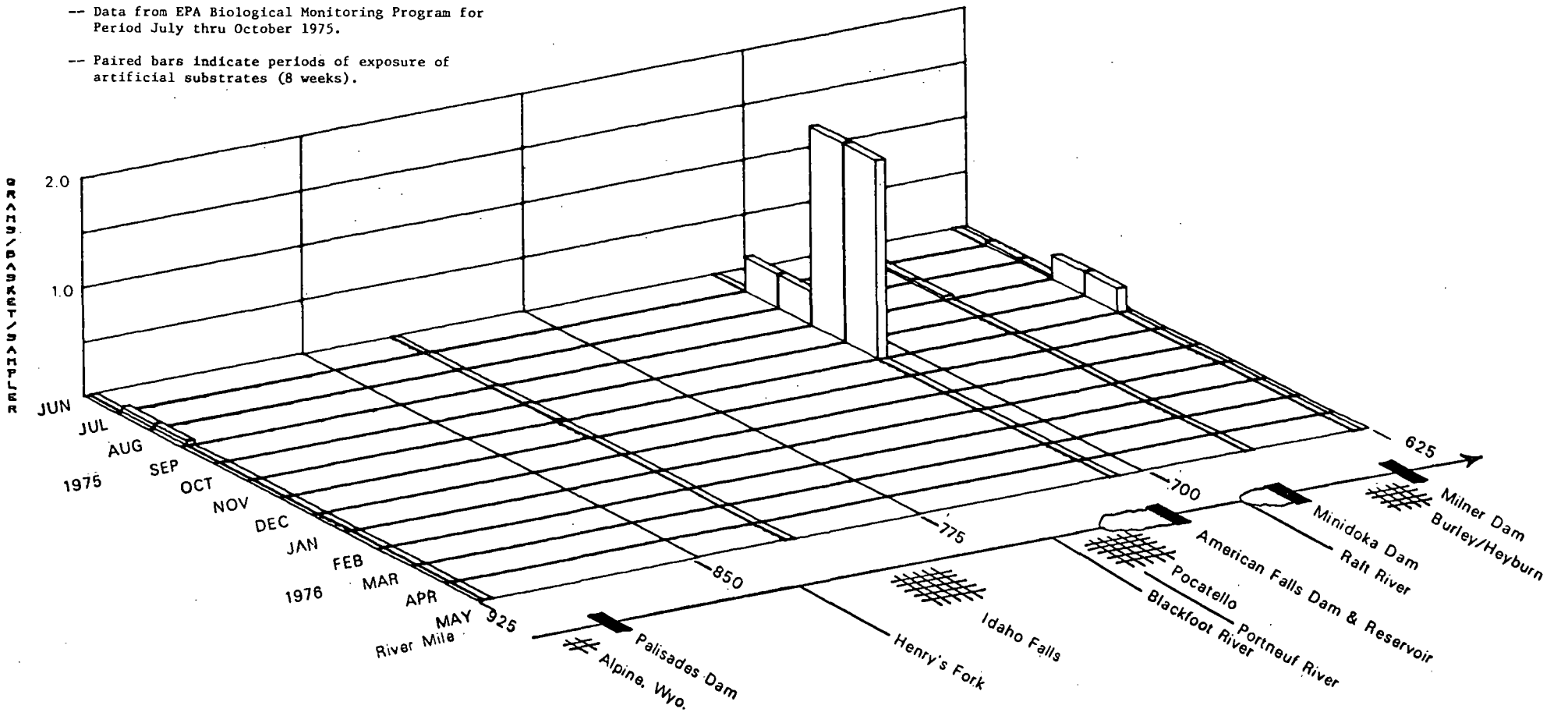
UPPER SNAKE RIVER BASIN

BENTHIC INVERTEBRATE BIOMASS/ASH-FREE DRY WEIGHT

NOTES:

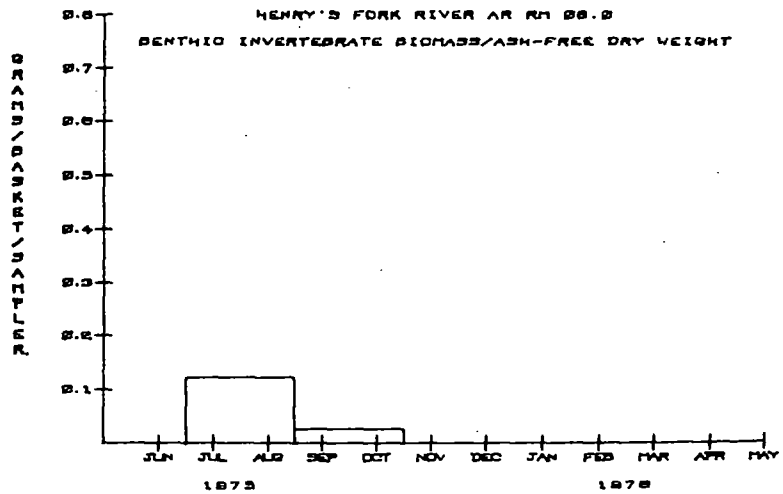
-- Data from EPA Biological Monitoring Program for Period July thru October 1975.

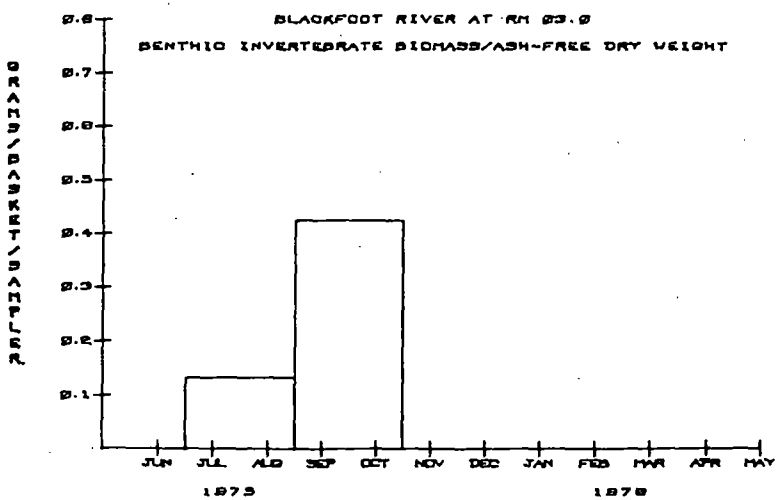
-- Paired bars indicate periods of exposure of artificial substrates (8 weeks).



UPPER SNAKE RIVER BASIN

BENTHIC INVERTEBRATE BIOMASS/ASH-FREE DRY WEIGHT





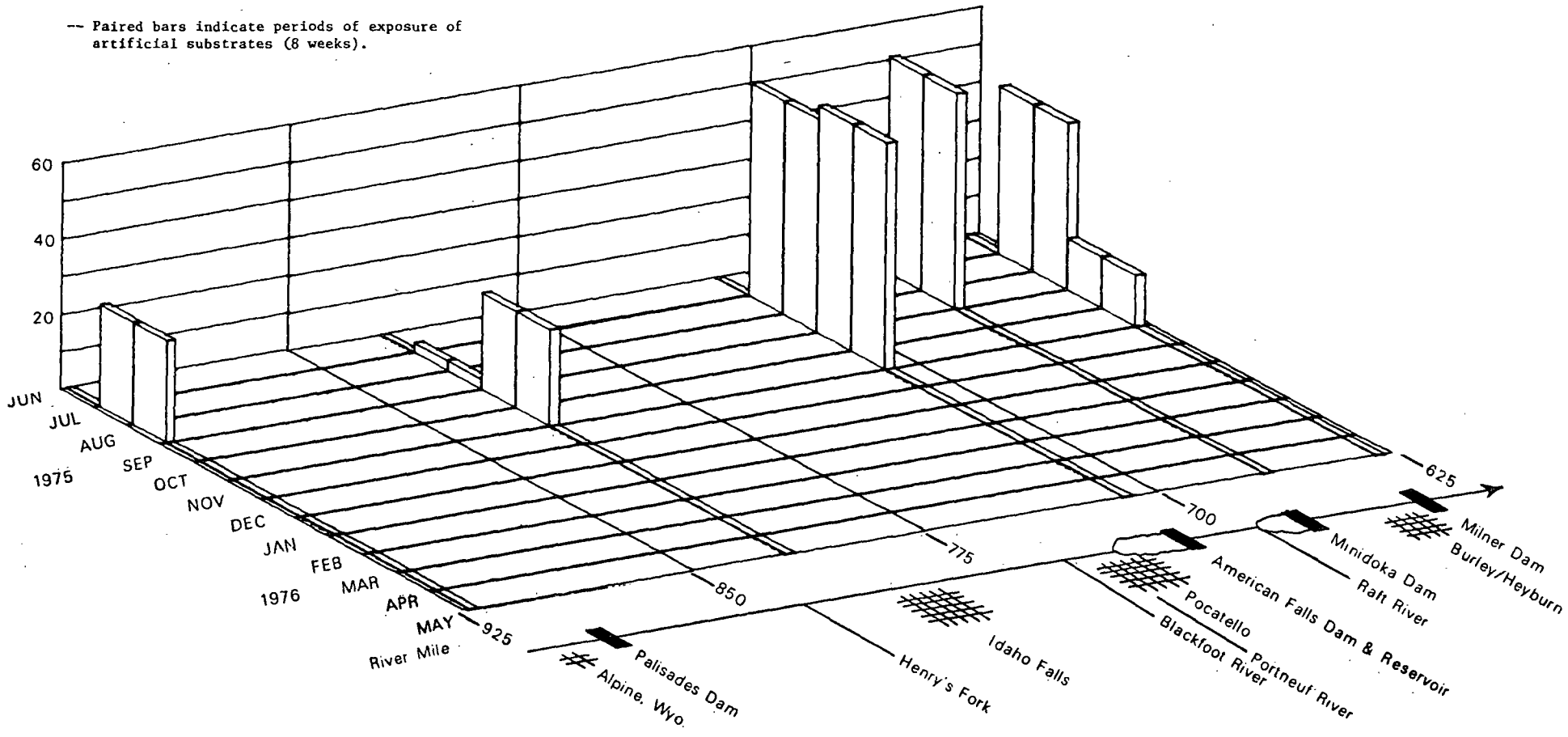
UPPER SNAKE RIVER BASIN

PERIPHYTON/CHLOROPHYLL-A MG/M2

NOTES:

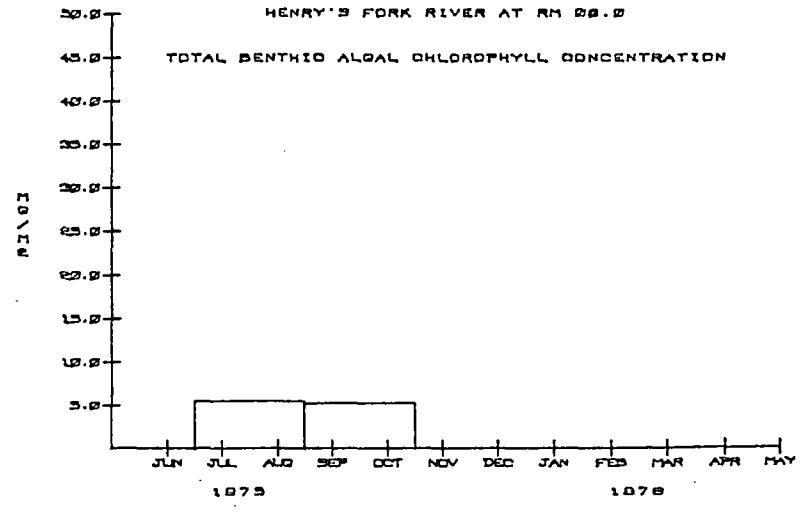
-- Data from EPA Biological Monitoring Program for Period July thru October 1975.

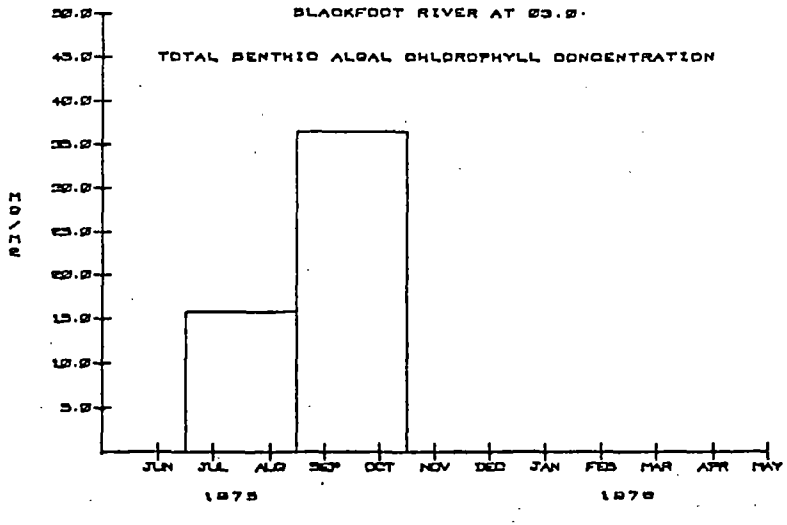
-- Paired bars indicate periods of exposure of artificial substrates (8 weeks).



UPPER SNAKE RIVER BASIN

PERIPHYTON/CHLOROPHYLL-A MG/M2





UPPER SNAKE RIVER BASIN

SPECIES DIVERSITY INDEX

NOTES:

-- Data from EPA Biological Monitoring Program for Period July thru October 1975.

-- Paired bars indicate periods of exposure of artificial substrates (8 weeks).

-- <1 polluted
1-3 moderate pollution
>3 unpolluted

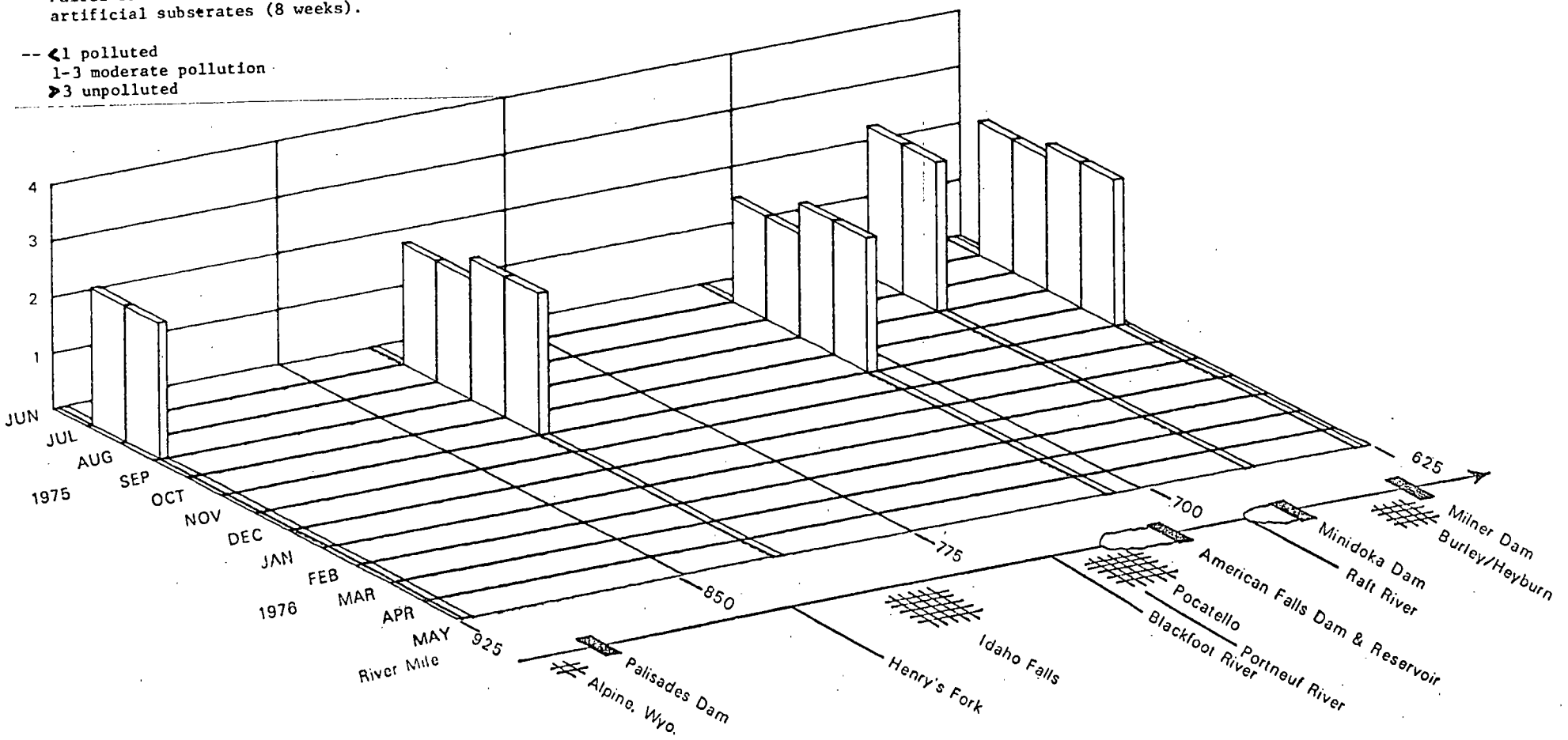
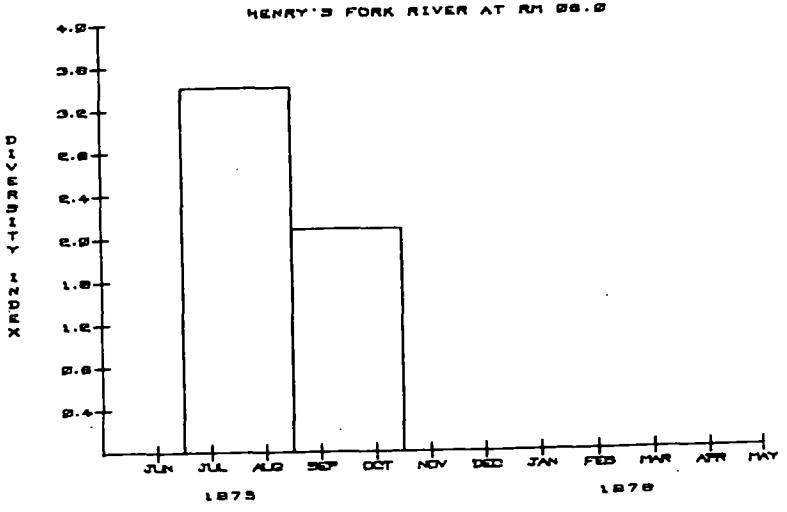
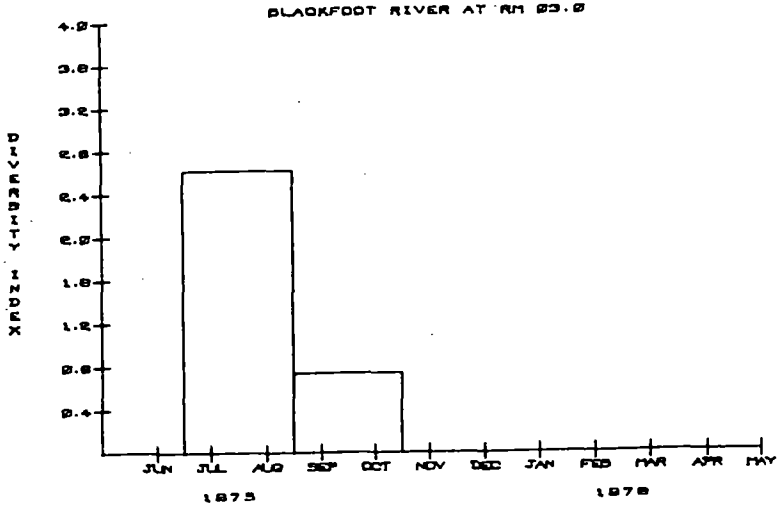


FIG 14

UPPER SNAKE RIVER BASIN

SPECIES DIVERSITY INDEX





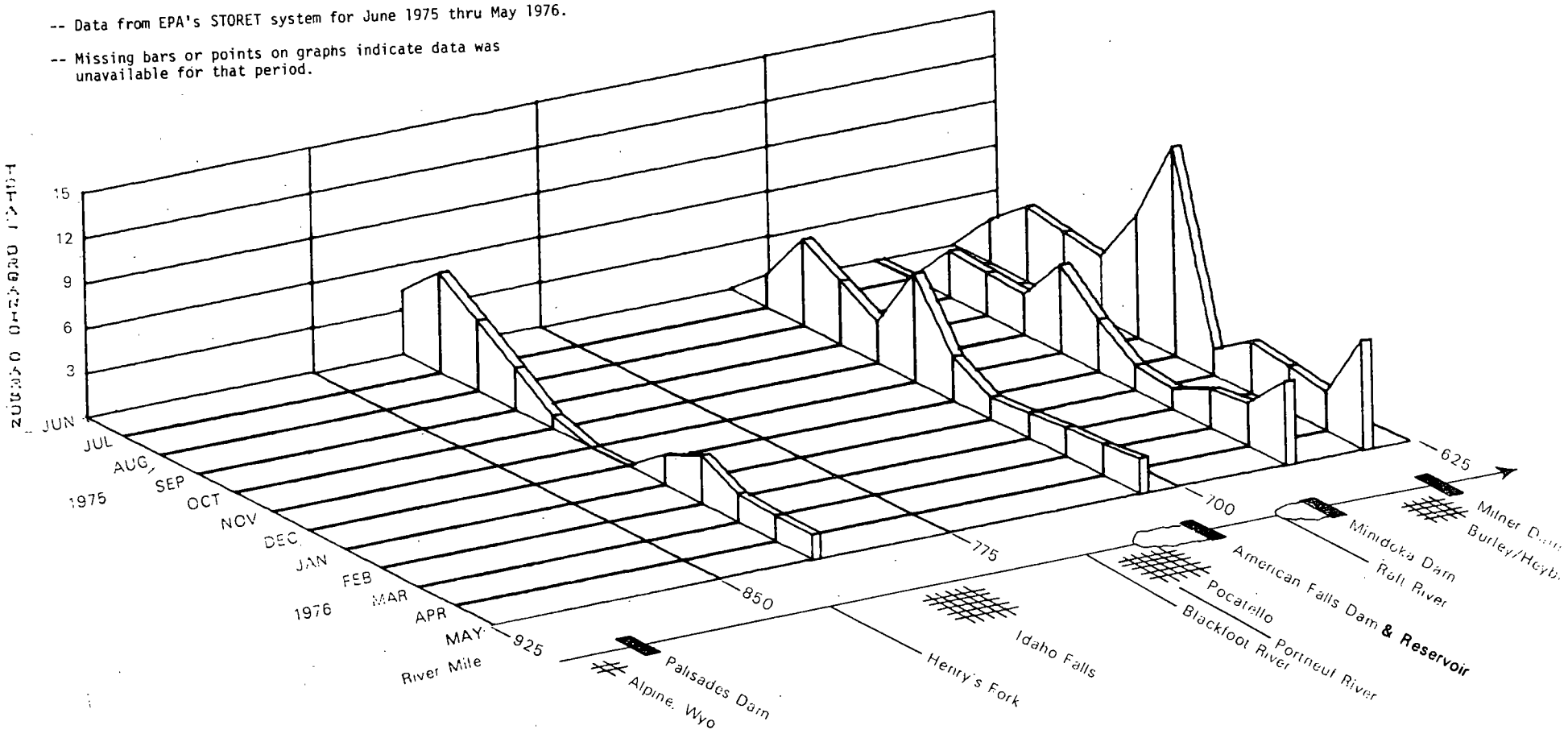
UPPER SNAKE RIVER BASIN

TOTAL ORGANIC CARBON MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.



UPPER SNAKE RIVER BASIN

TOTAL ORGANIC CARBON MG/L

NO TRIBUTARY DATA AVAILABLE

MIDDLE SNAKE RIVER BASIN 13-07

The Middle Snake River basin consists of the Snake River drainage area from below Oxbow Dam (R.M. 273) upstream to Milner Dam (R.M. 640). Major tributaries entering the Snake River are the Weiser, Payette, and Boise Rivers and Rock Creek. Weiser (pop. 4,108), Payette (pop. 4,521), and Twin Falls (pop. 21,914) are the major Idaho communities in the Middle Snake basin. Irrigated agriculture is the major land and water use within the basin, however, several types of industrial and municipal dischargers occur in the basin. Two of the major dischargers include domestic sewage treatment plants and food processing.

National Water Quality Surveillance System (NWQSS) stations located within this basin are shown on the map. The complete water quality and biological parametric coverage for NWQSS stations is listed in the Introduction of this report along with the EPA criteria associated with those parameters. However, only some of the parameters are included in the following curves. Complete raw data is available from EPA upon request.

The following curve layout is designed to show the mainstem river constituents both spatially and temporally on a single three dimensional plot. Water quality constituents at the mouth stations of the significant tributaries to the Snake River are shown temporally on bar charts.

MIDDLE SNAKE RIVER BASIN

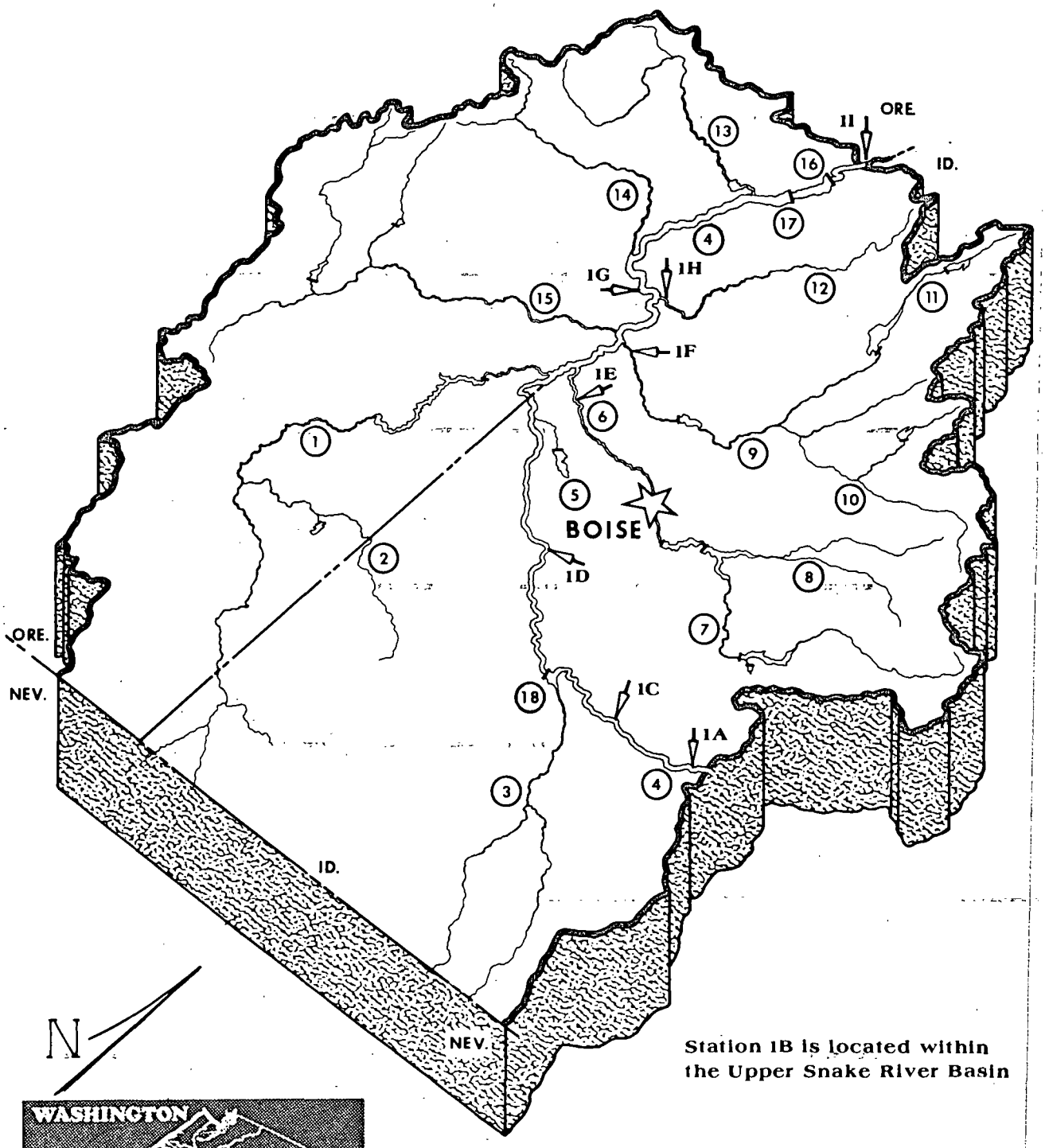
Map Station Number	Type of Data Collected		
	Physical	Chemical	Biological
1A	X	X	X
1B	X	X	
1C	X	X	X
1D	X	X	X
1E	X	X	X
1F	X	X	
1G	X	X	
1H	X	X	X
1I	X	X	X

NOTE: Complete station information shown in Table 1 page 11-13.

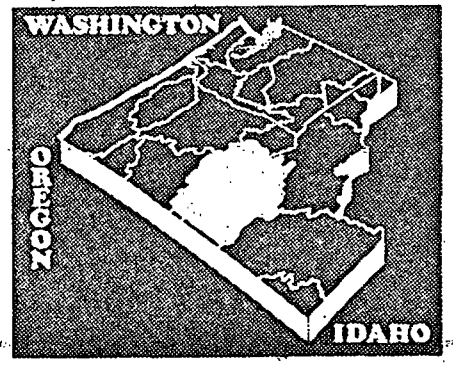
STORET #13-07

MIDDLE SNAKE RIVER BASIN

N.W.Q.S.S. LOCATIONS



Station 1B is located within the Upper Snake River Basin



MAJOR SURFACE WATERS AND FEATURES

1. *Owyhee R.*
2. *Jordan Cr./ Antelope Res.*
3. *Bruneau R.*
4. *Snake River*
5. *Lake Lowell*
6. *Boise R.*
7. *S. Fk. Boise R./ Anderson Ranch Res.*
8. *Mid. & N. Fks. Boise R.*
9. *Payette R./ Black Canyon Res.*
10. *S. Fk. Payette R.*
11. *N. Fk. Payette R./ Cascade Res.*
12. *Weiser R.*
13. *Powder R.*
14. *Burnt R.*
15. *Malheur R.*
16. *Oxbow Res.*
17. *Brownlee Res.*
18. *C. J. Strike Res.*

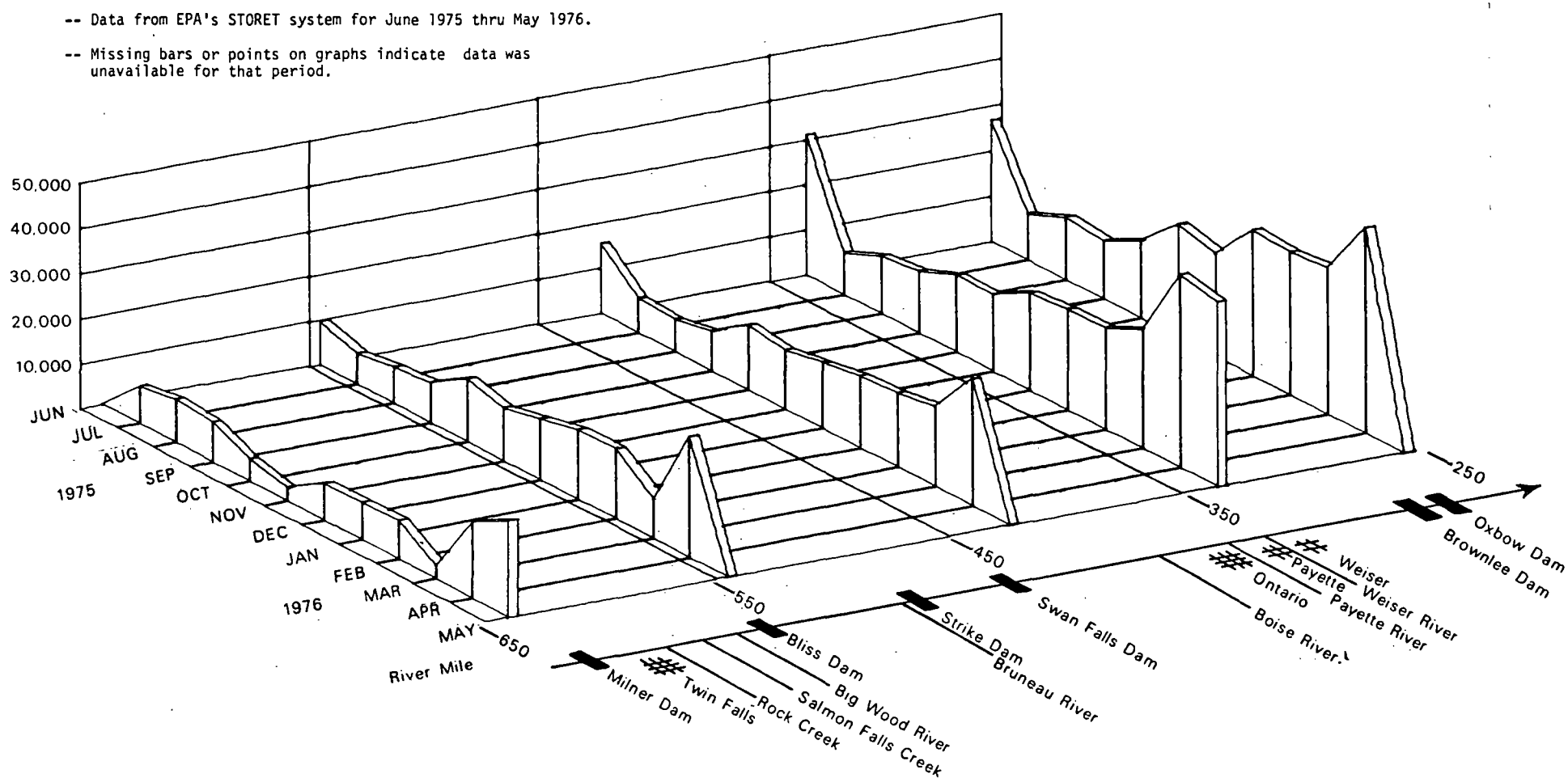
MIDDLE SNAKE RIVER BASIN

STREAM FLOW CFS

NOTES:

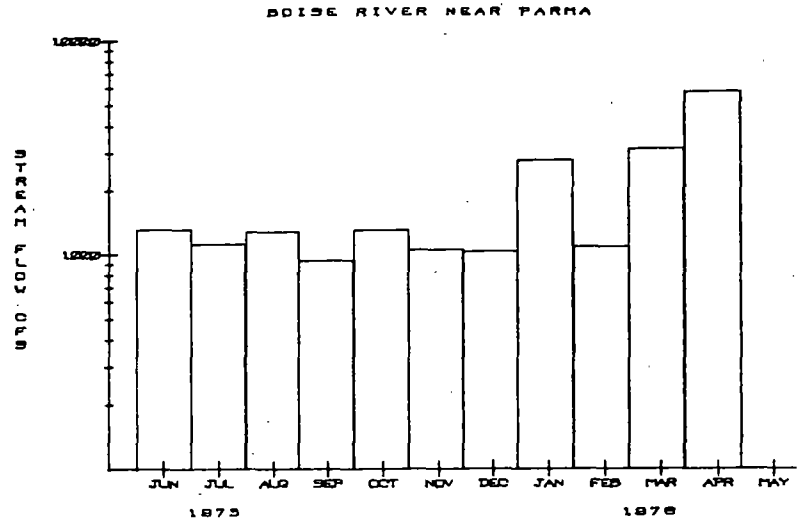
-- Data from EPA's STORET system for June 1975 thru May 1976.

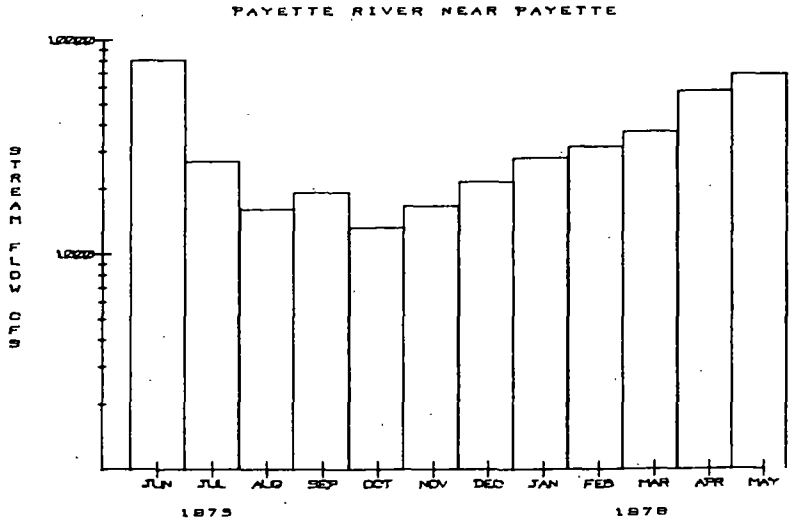
-- Missing bars or points on graphs indicate data was unavailable for that period.

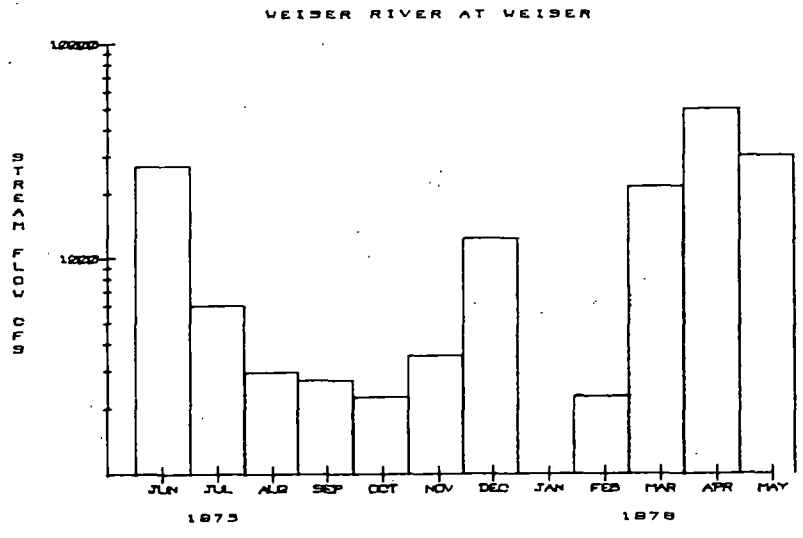


MIDDLE SNAKE RIVER BASIN

STREAM FLOW CFS







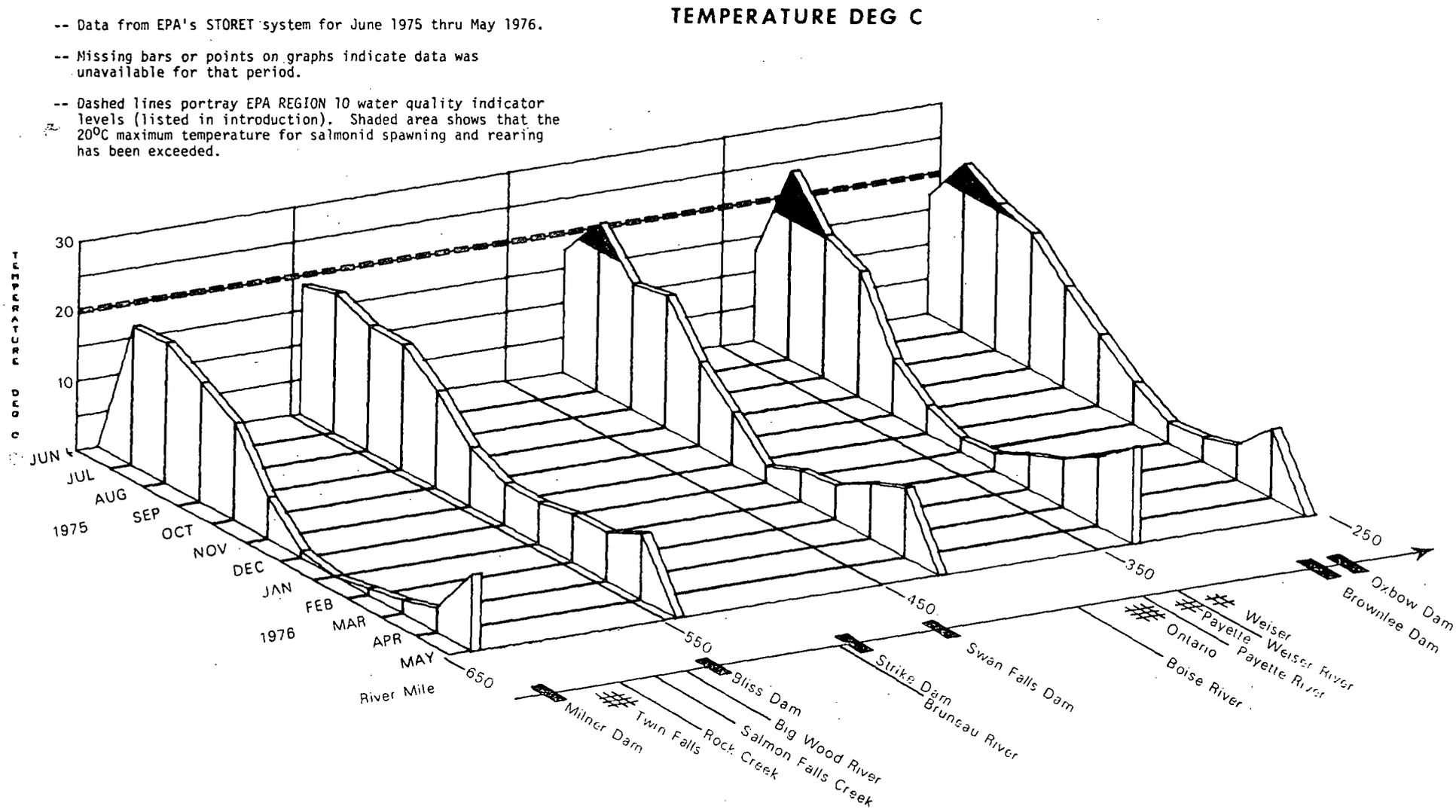
MIDDLE SNAKE RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

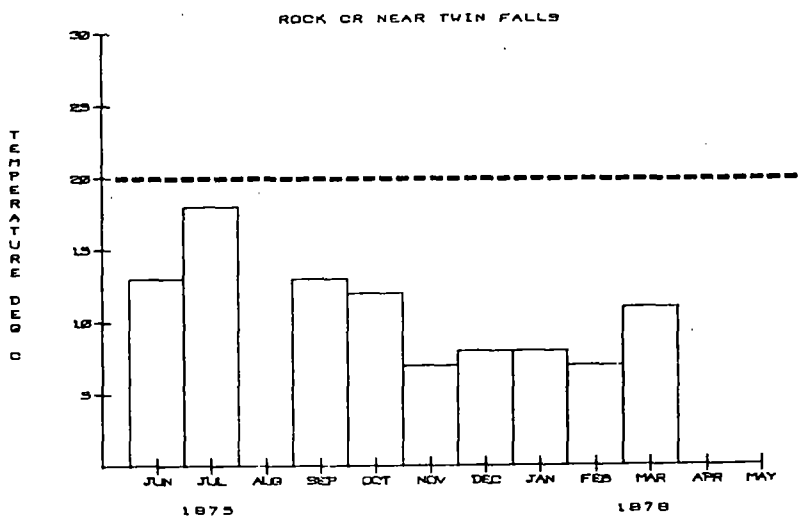
-- Missing bars or points on graphs indicate data was unavailable for that period.

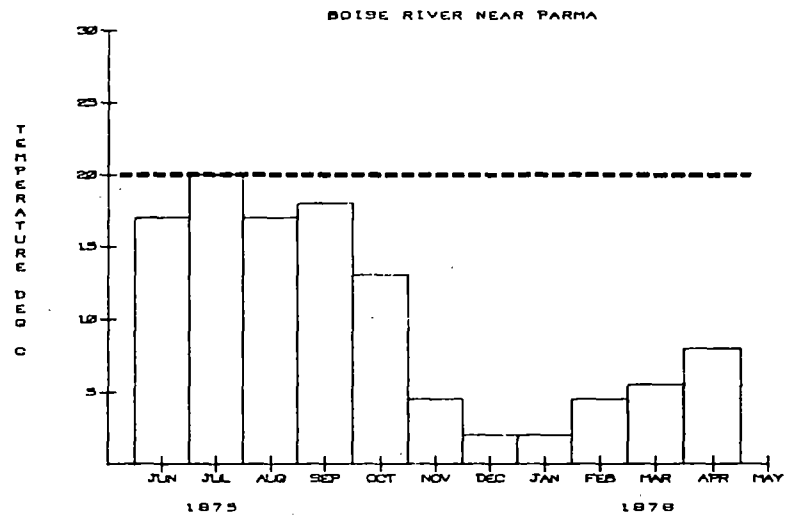
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the 20°C maximum temperature for salmonid spawning and rearing has been exceeded.

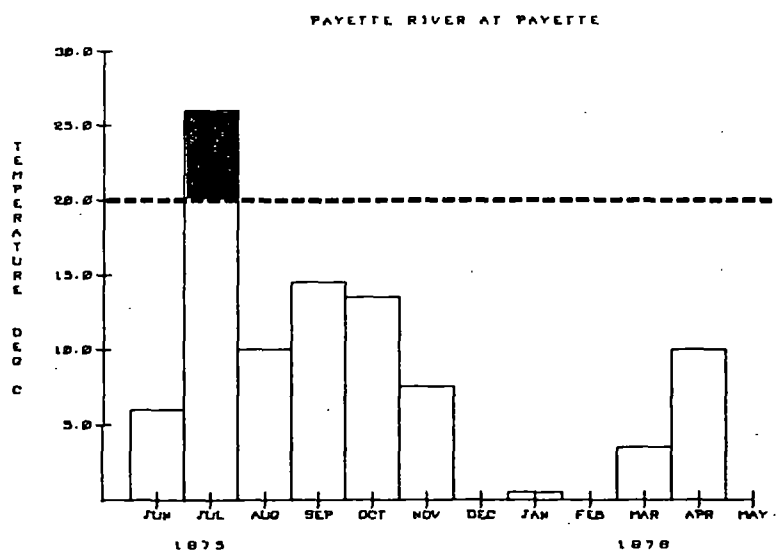


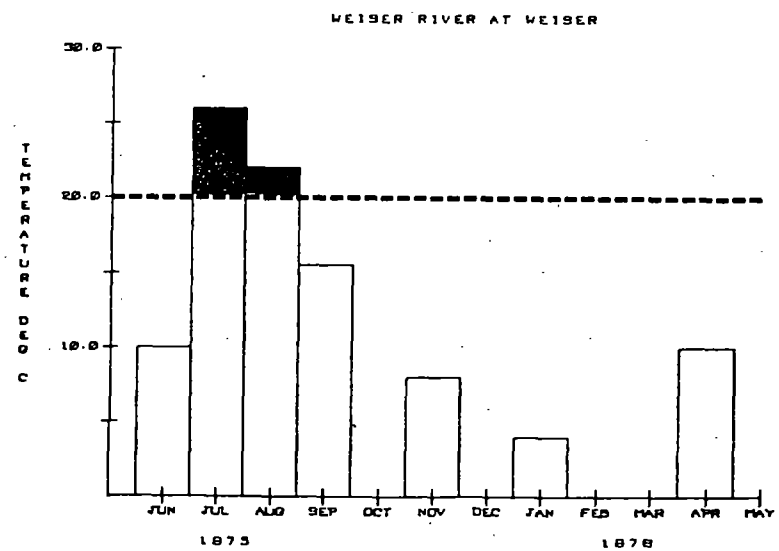
MIDDLE SNAKE RIVER BASIN

TEMPERATURE DEG C









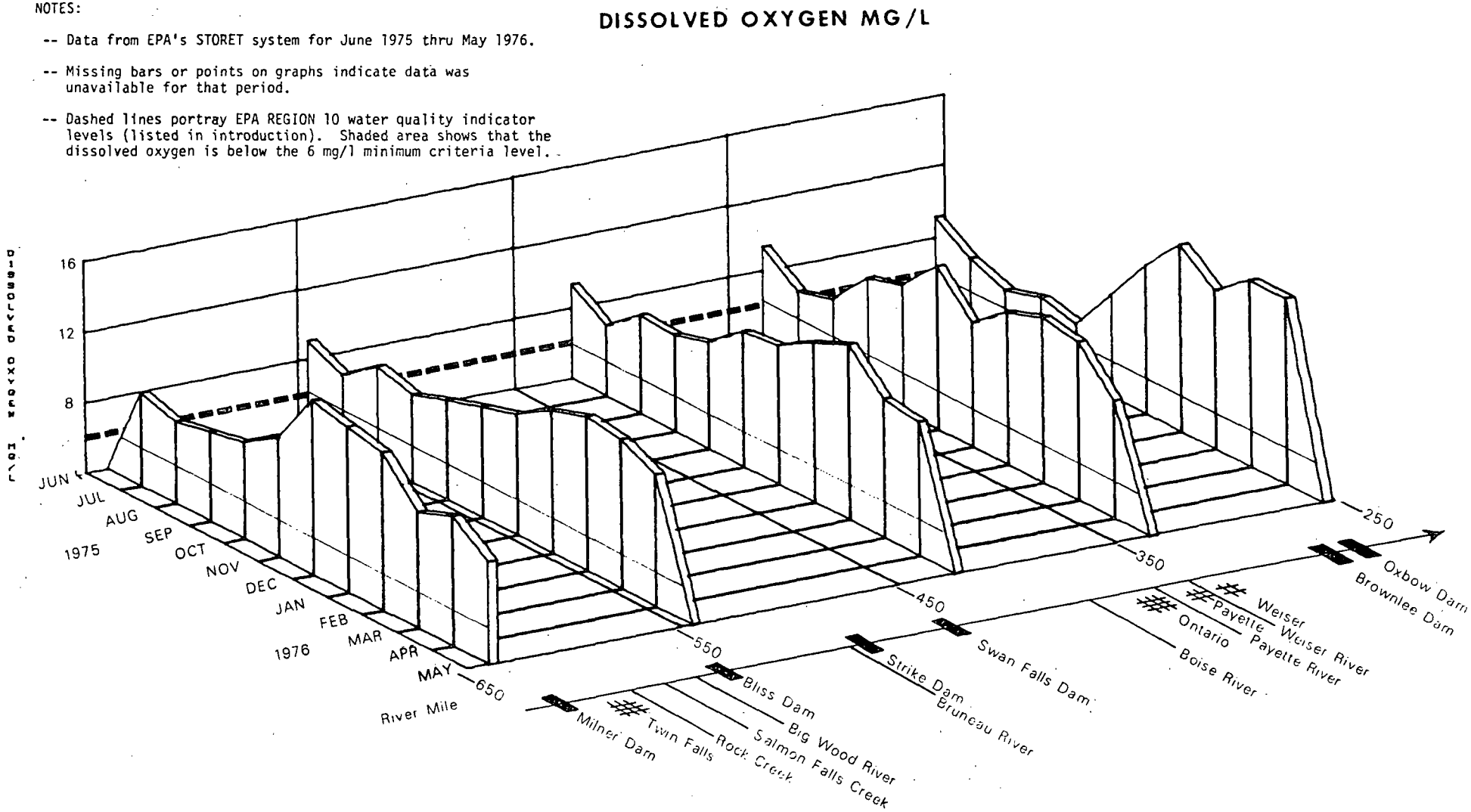
MIDDLE SNAKE RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

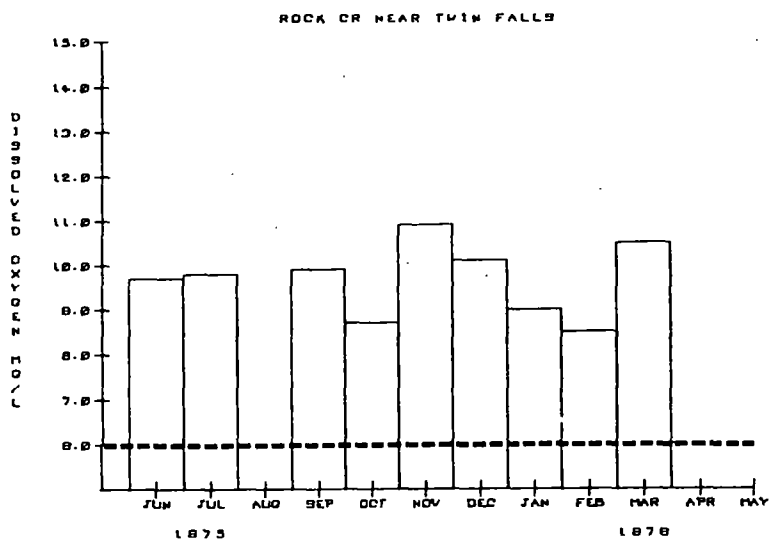
-- Missing bars or points on graphs indicate data was unavailable for that period.

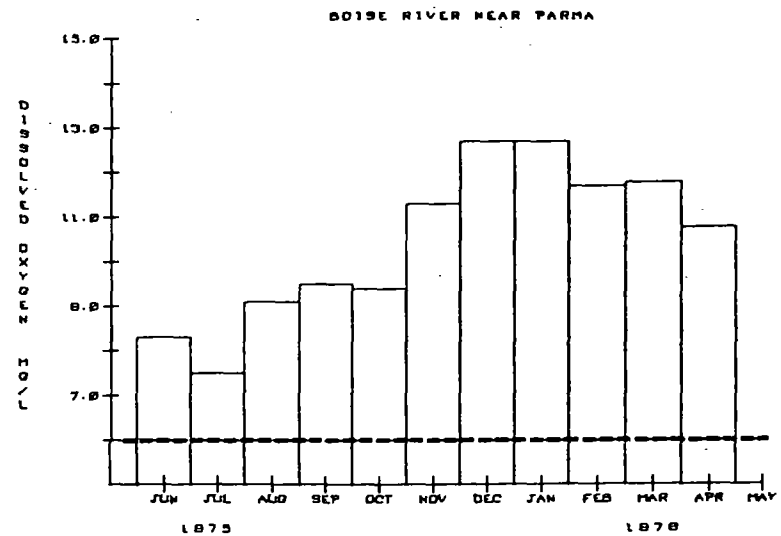
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the dissolved oxygen is below the 6 mg/l minimum criteria level.

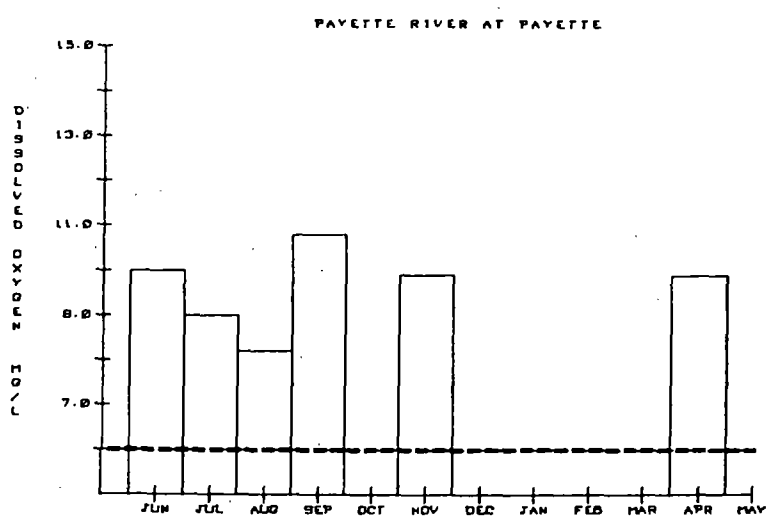


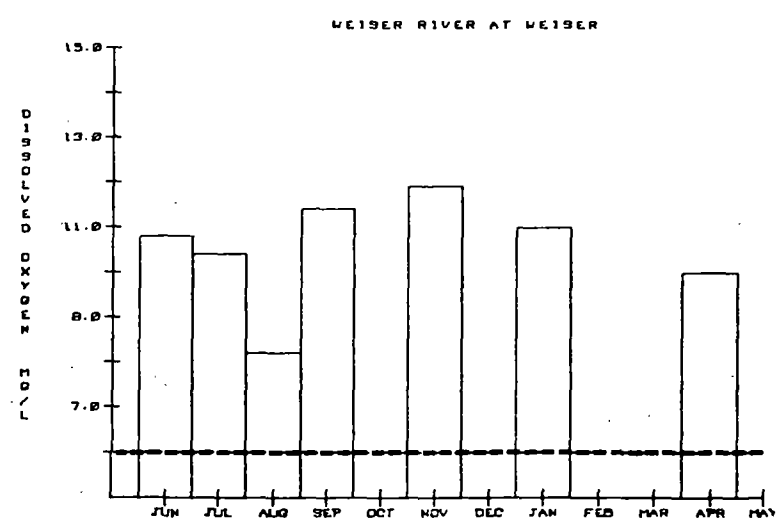
MIDDLE SNAKE RIVER BASIN

DISSOLVED OXYGEN MG/L









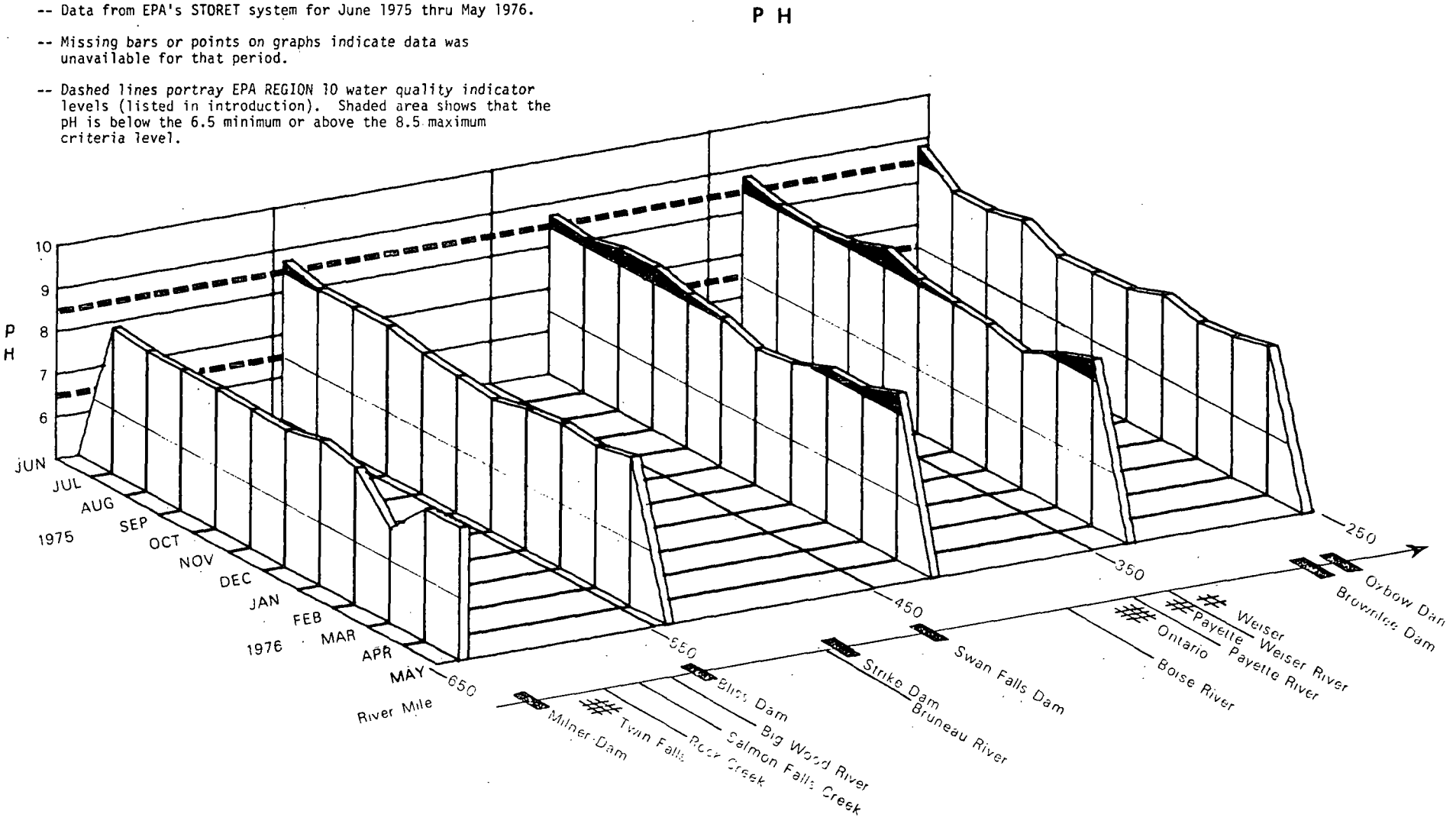
MIDDLE SNAKE RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

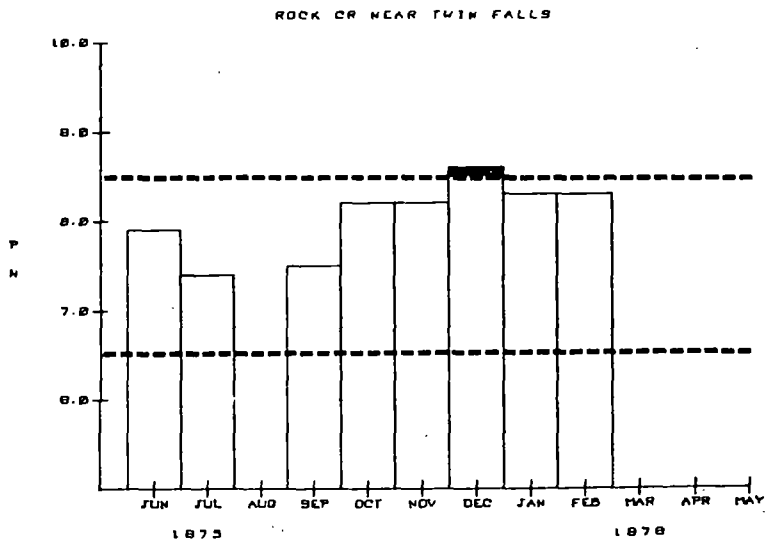
-- Missing bars or points on graphs indicate data was unavailable for that period.

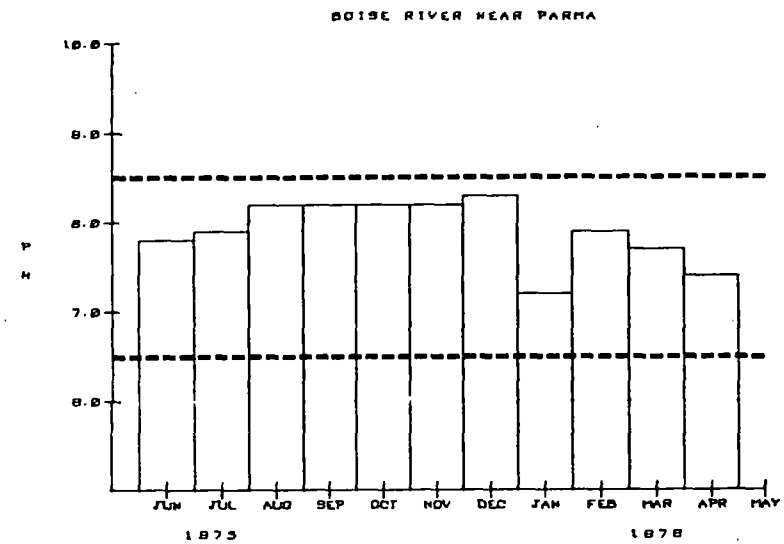
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the pH is below the 6.5 minimum or above the 8.5 maximum criteria level.

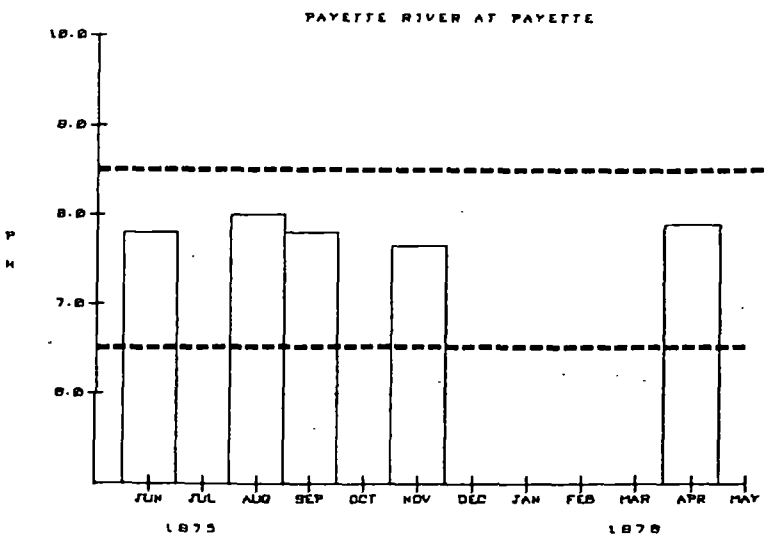


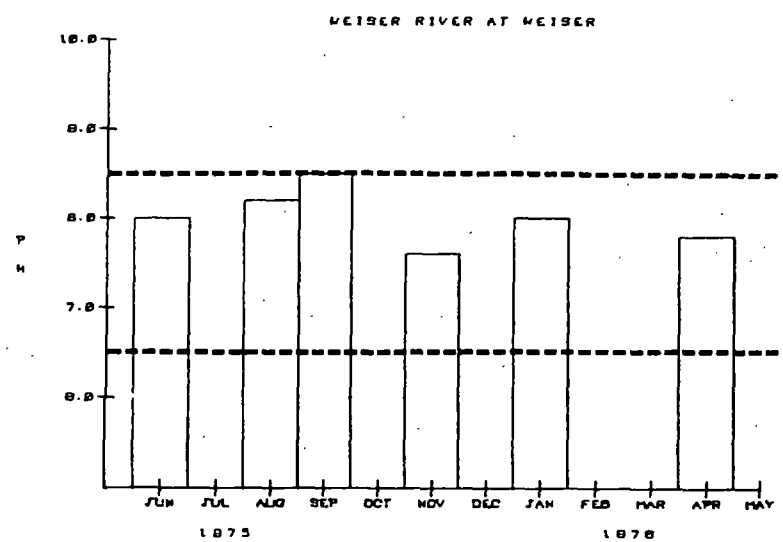
MIDDLE SNAKE RIVER BASIN

P H









MIDDLE SNAKE RIVER BASIN

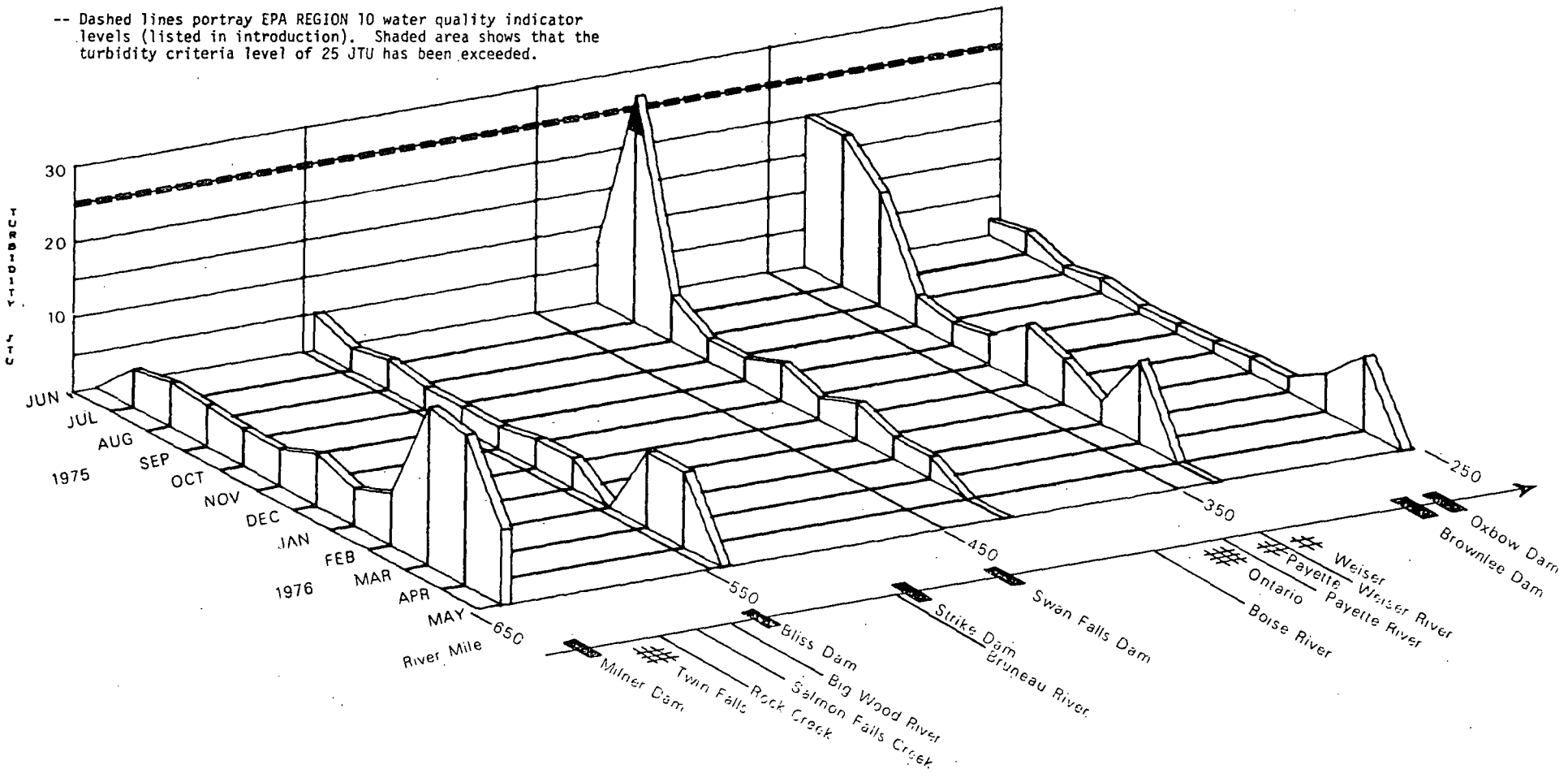
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

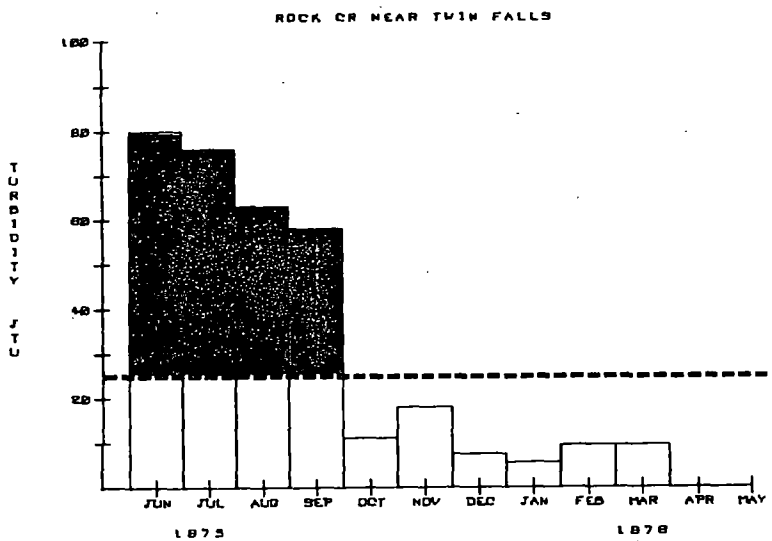
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the turbidity criteria level of 25 JTU has been exceeded.

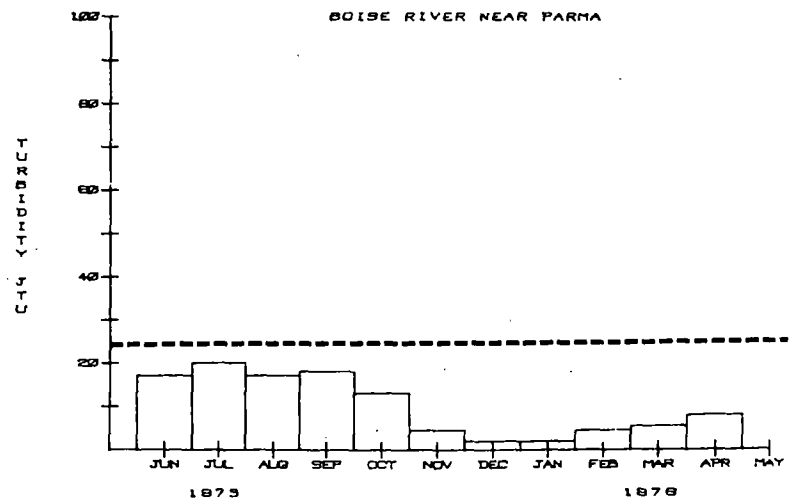
TURBIDITY IN JTU

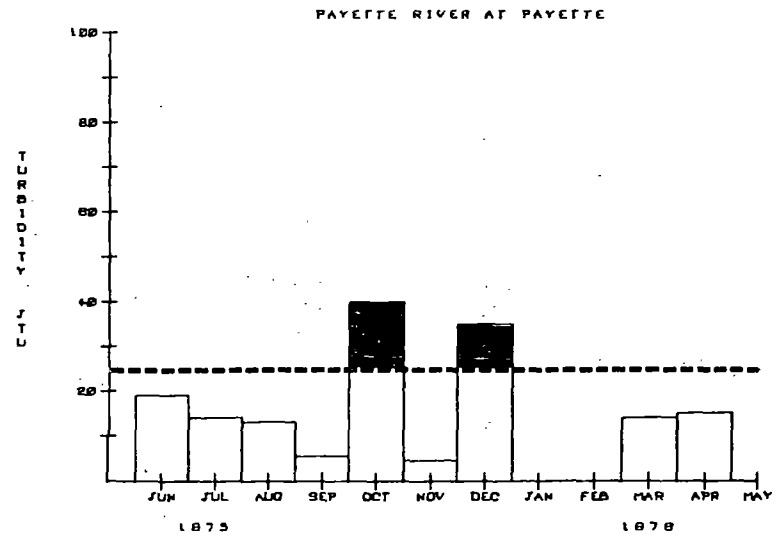


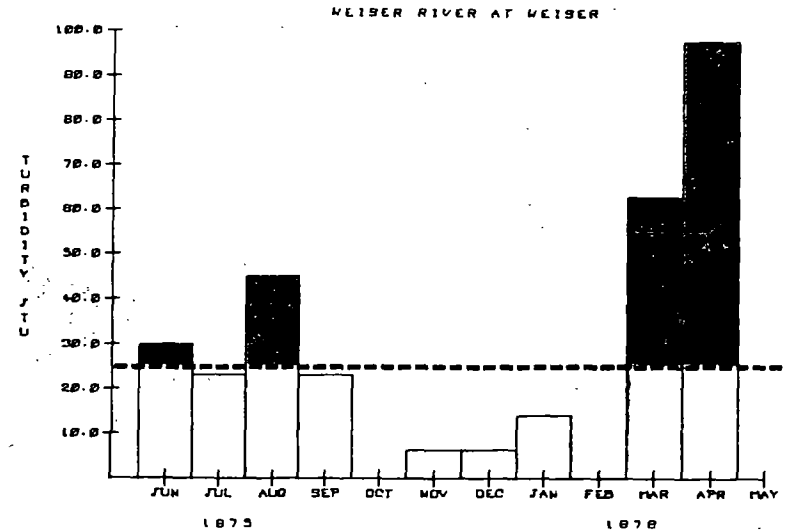
MIDDLE SNAKE RIVER BASIN

TURBIDITY IN JTU









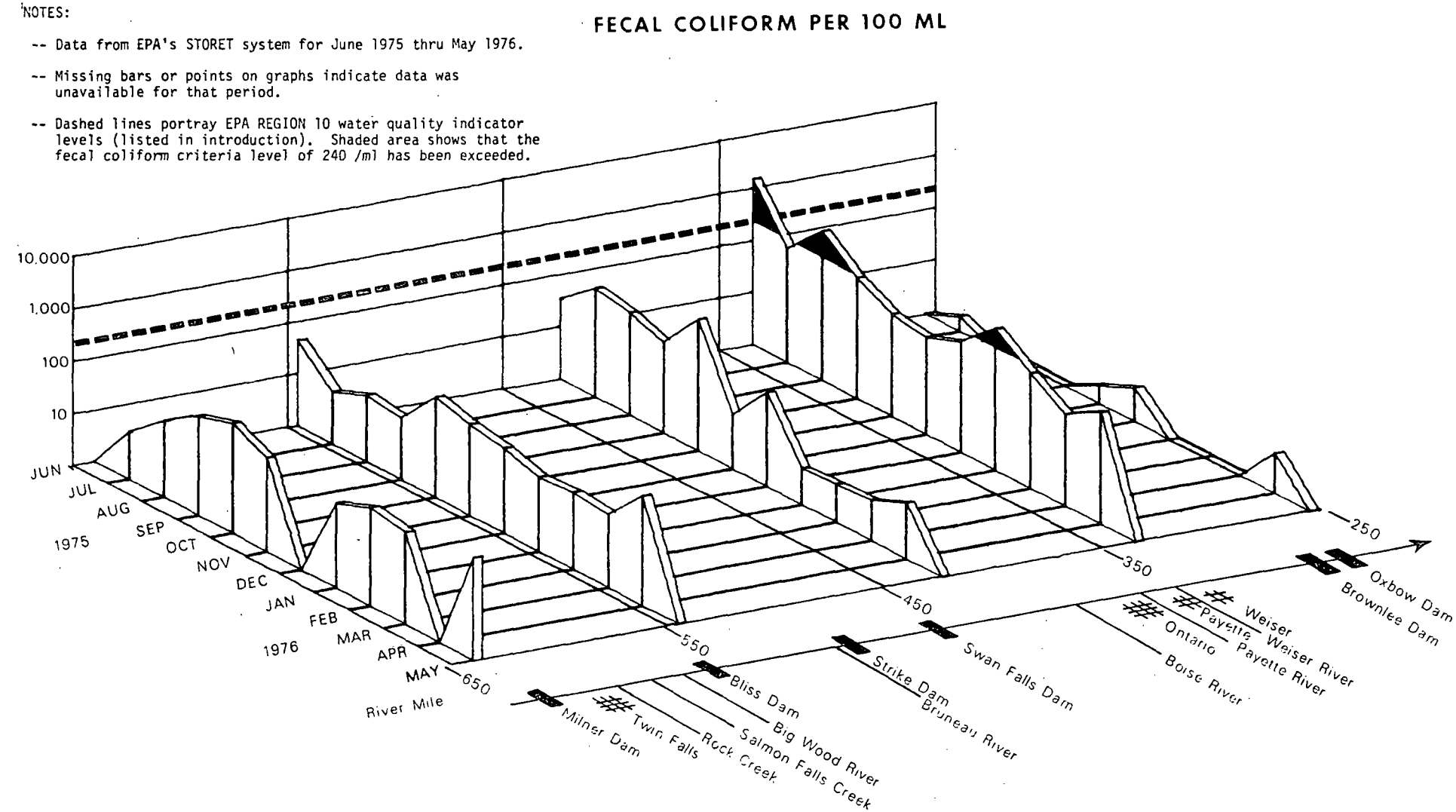
MIDDLE SNAKE RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

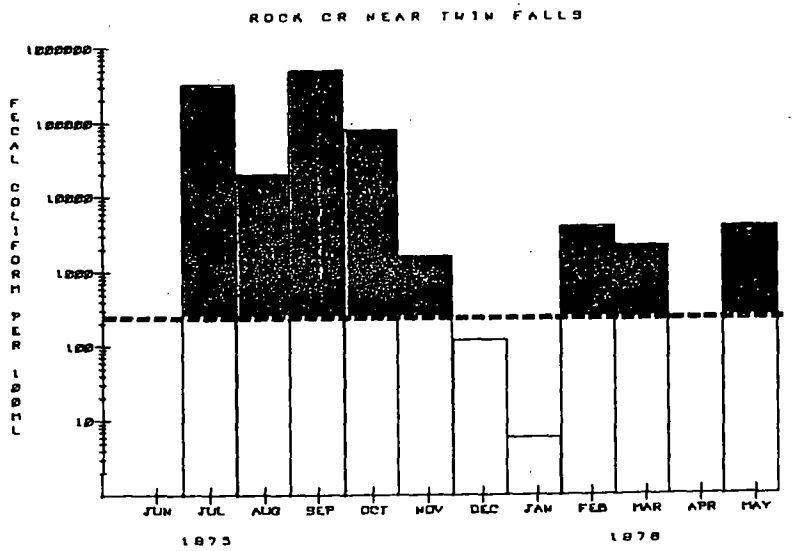
-- Missing bars or points on graphs indicate data was unavailable for that period.

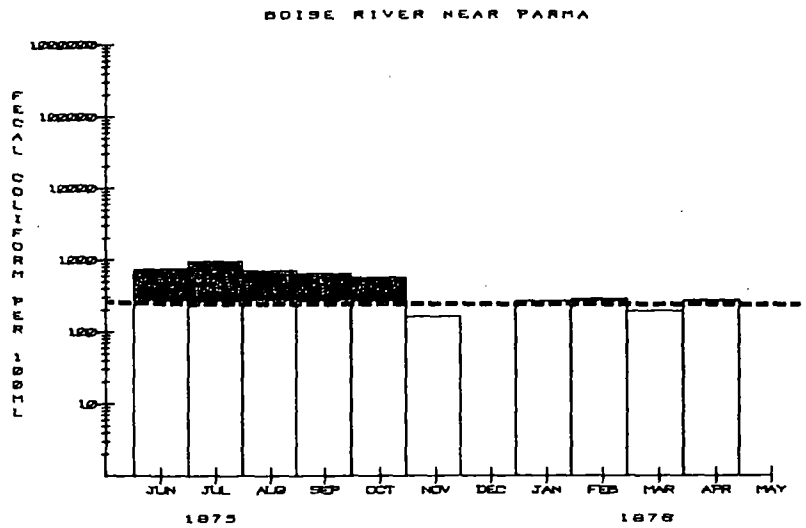
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the fecal coliform criteria level of 240 /ml has been exceeded.

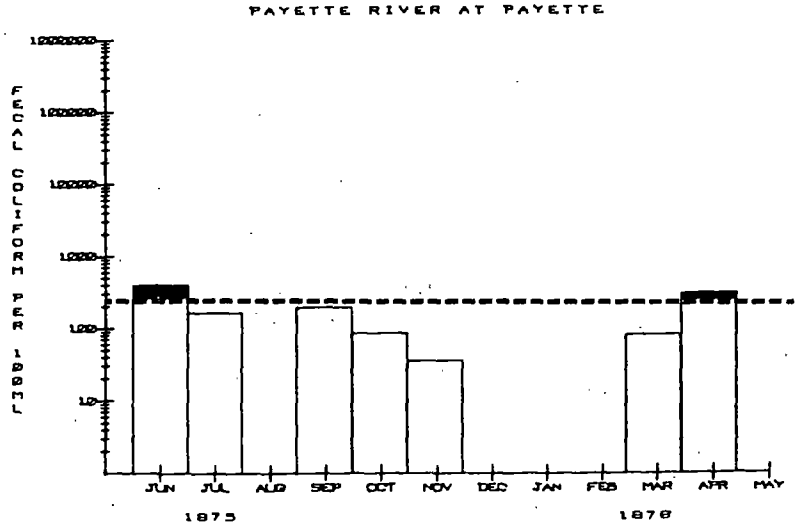


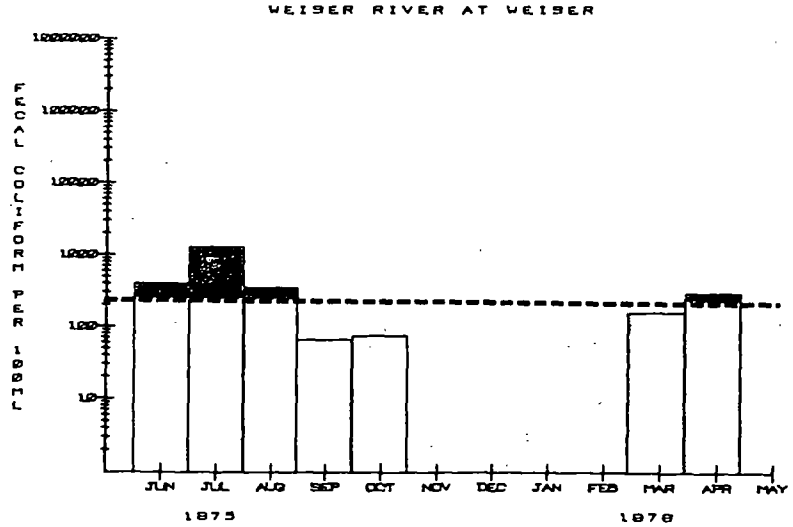
MIDDLE SNAKE RIVER BASIN

FECAL COLIFORM PER 100 ML









MIDDLE SNAKE RIVER BASIN

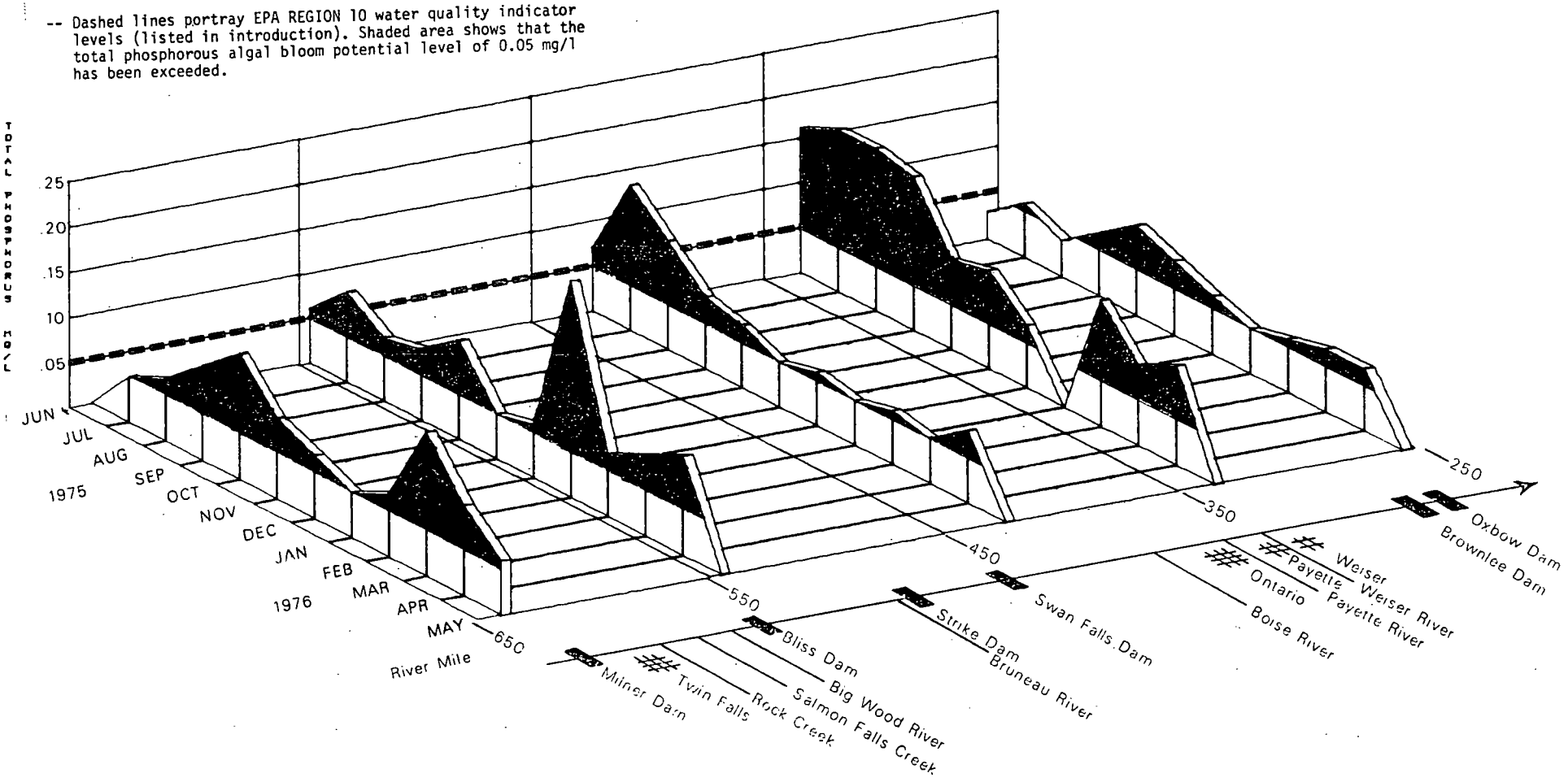
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

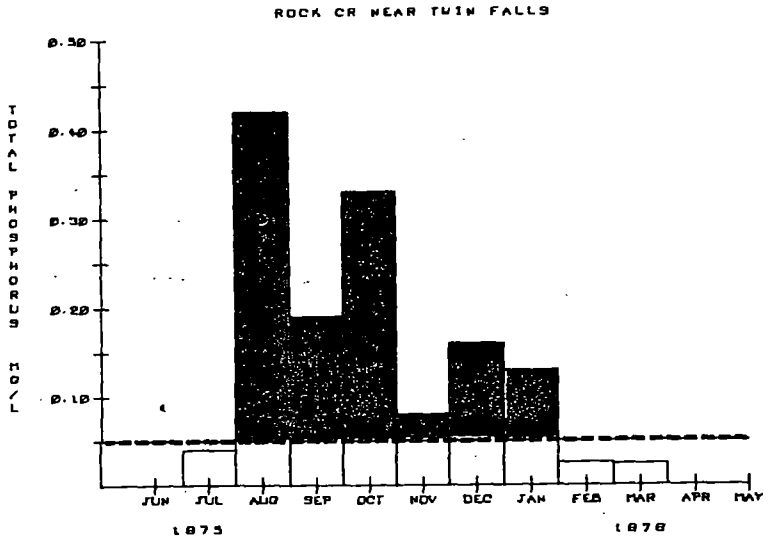
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the total phosphorous algal bloom potential level of 0.05 mg/l has been exceeded.

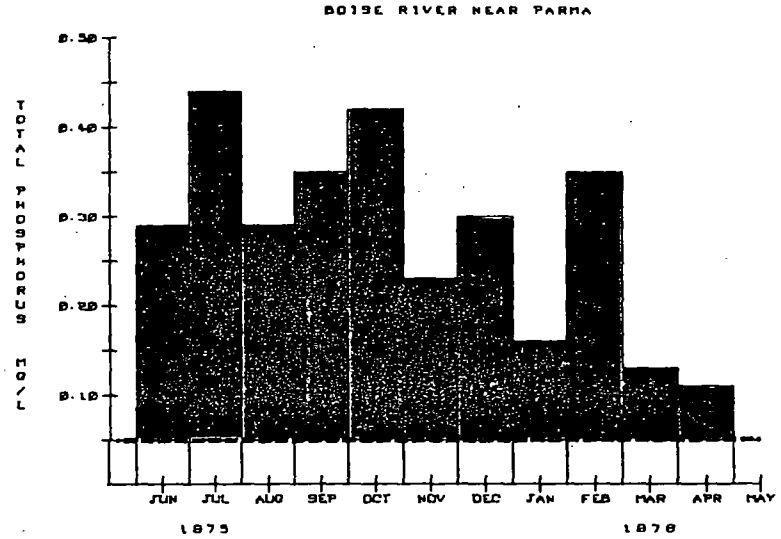
TOTAL PHOSPHORUS MG/L

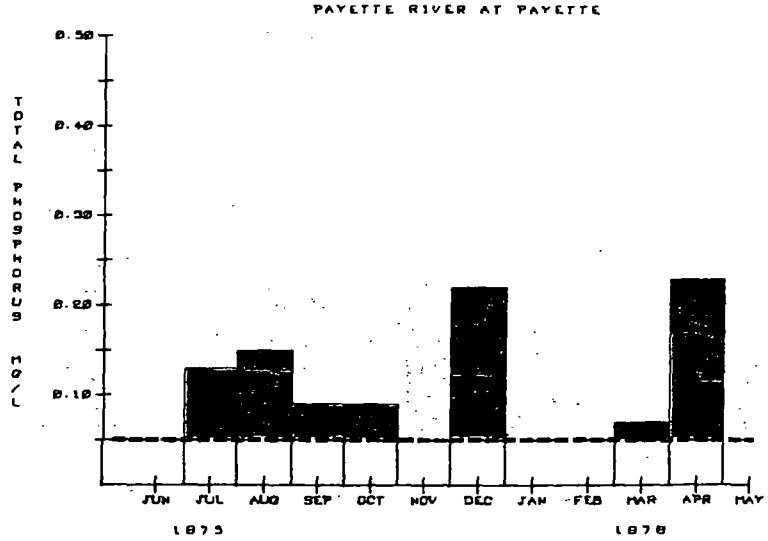


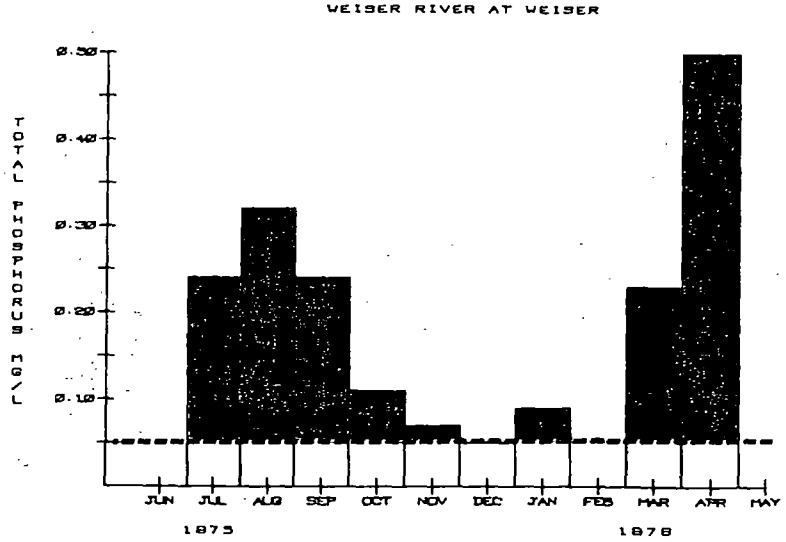
MIDDLE SNAKE RIVER BASIN

TOTAL PHOSPHORUS MG/L









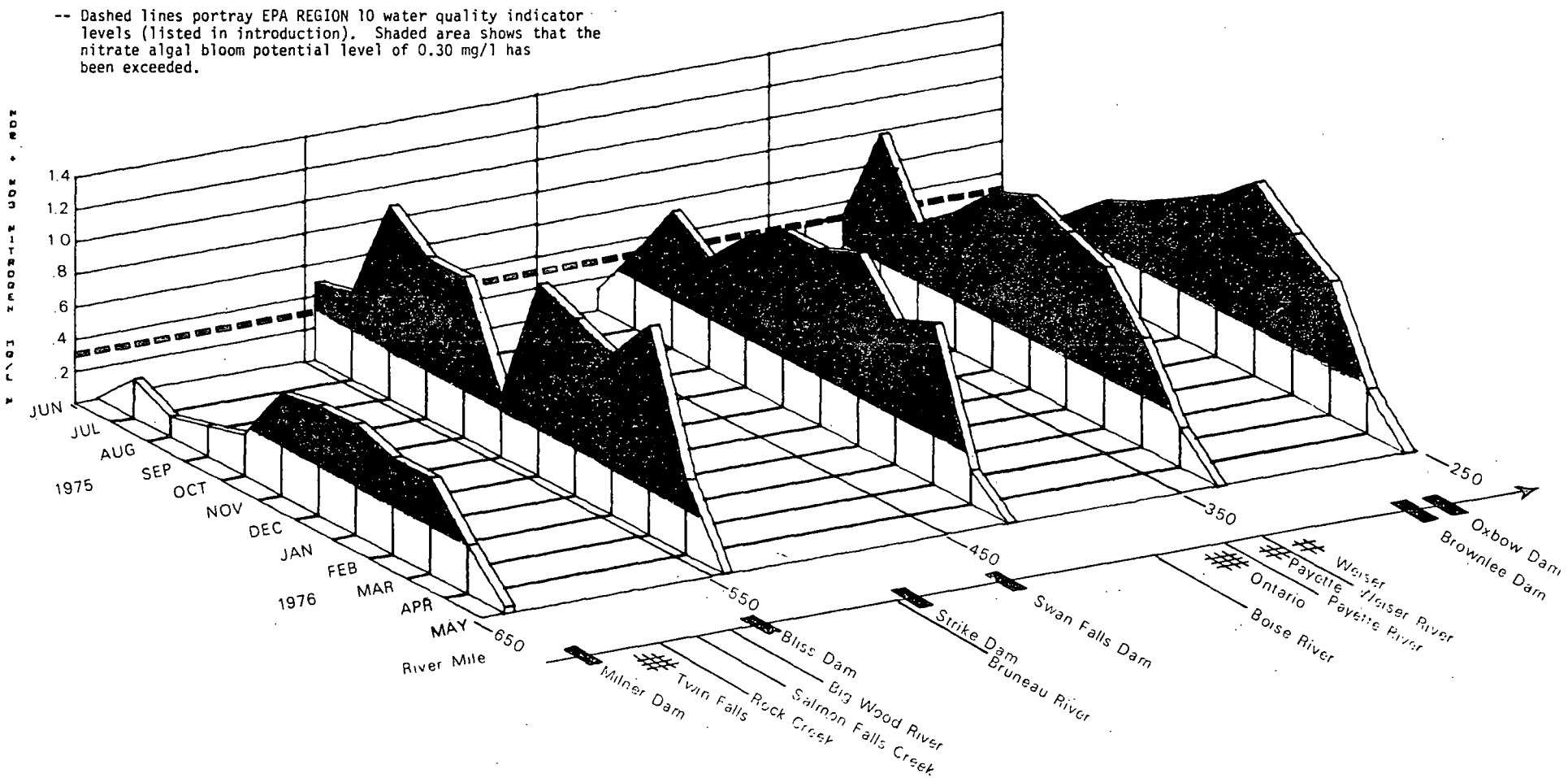
MIDDLE SNAKE RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

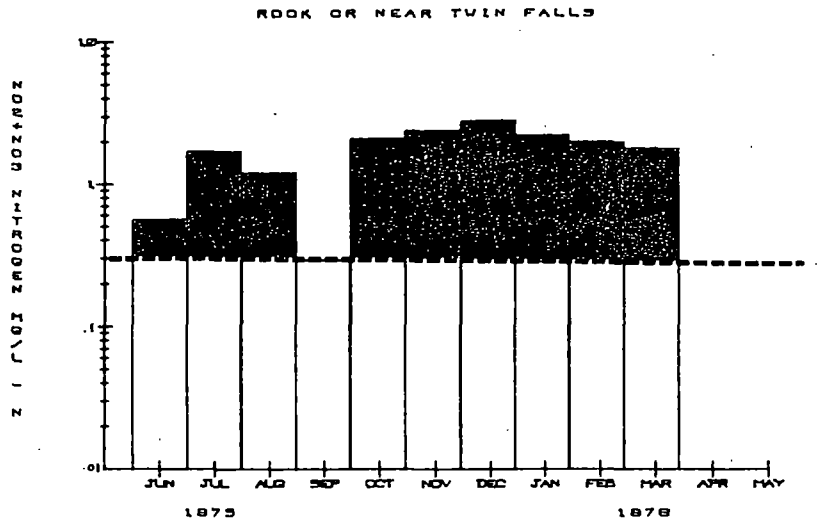
-- Missing bars or points on graphs indicate data was unavailable for that period.

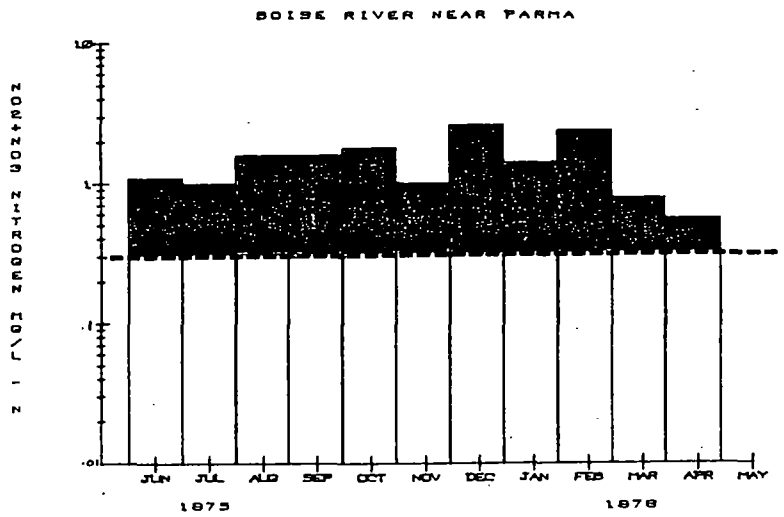
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the nitrate algal bloom potential level of 0.30 mg/l has been exceeded.

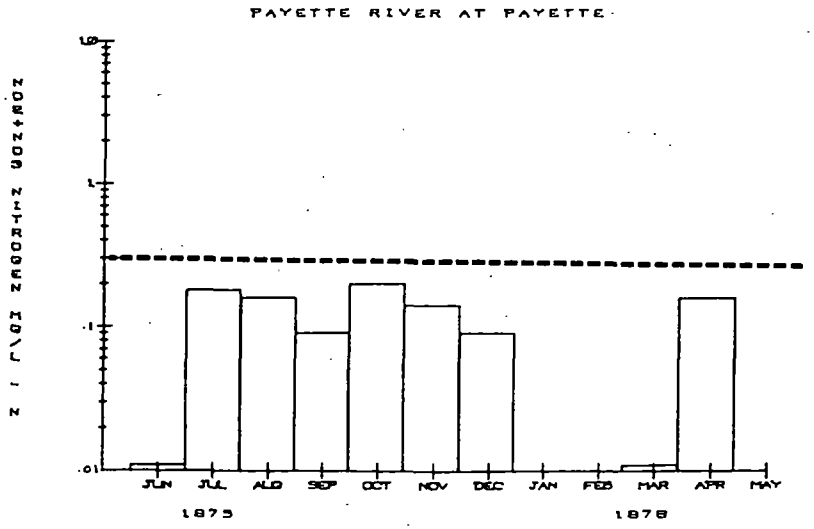


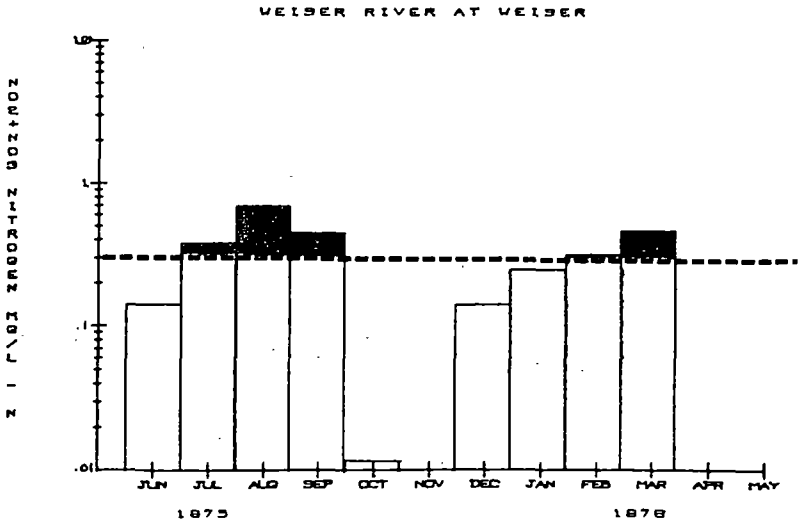
MIDDLE SNAKE RIVER BASIN

NO2+NO3 NITROGEN MG/L









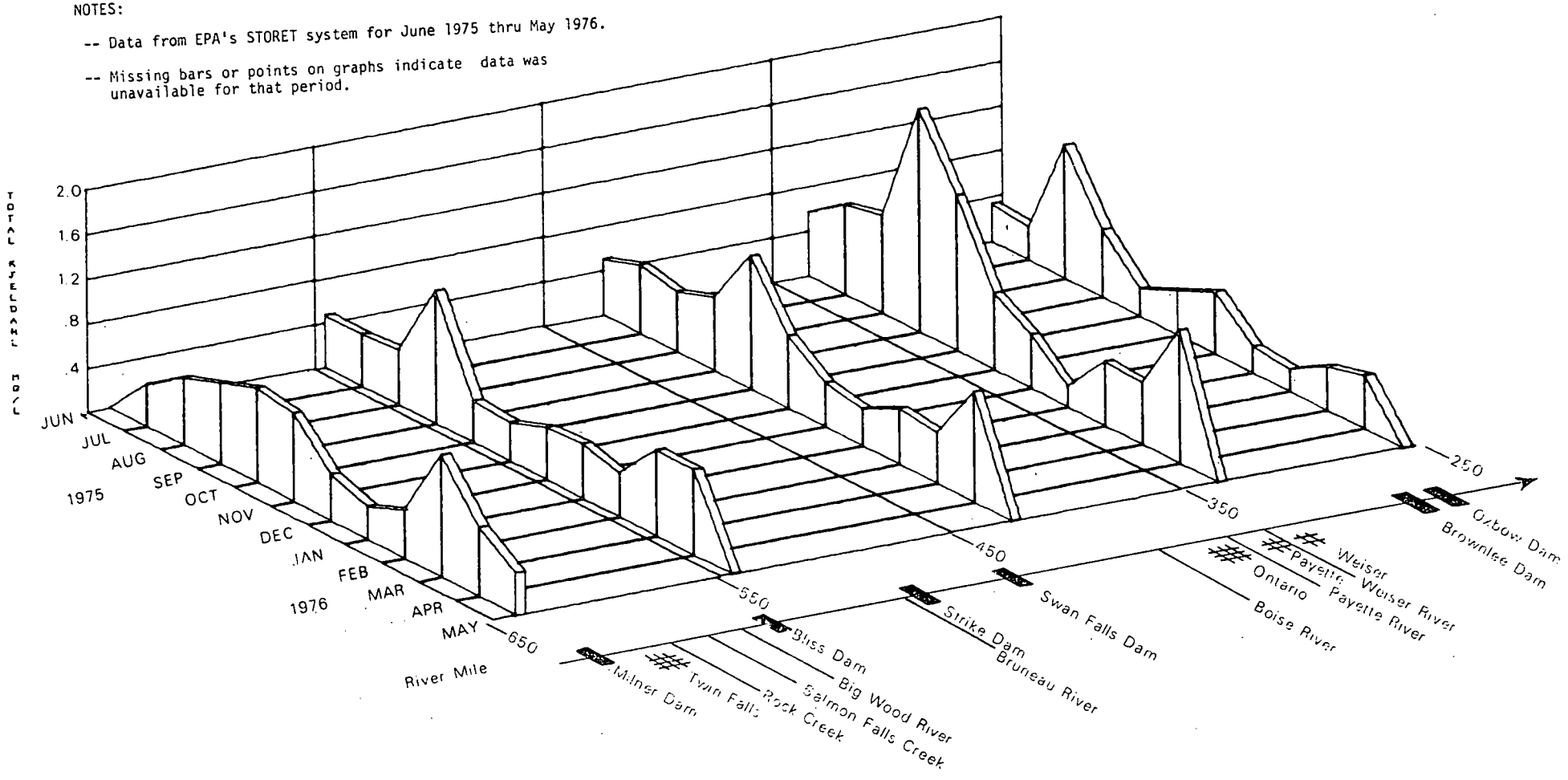
MIDDLE SNAKE RIVER BASIN

TOTAL KJELDAHL NITROGEN MG/L

NOTES:

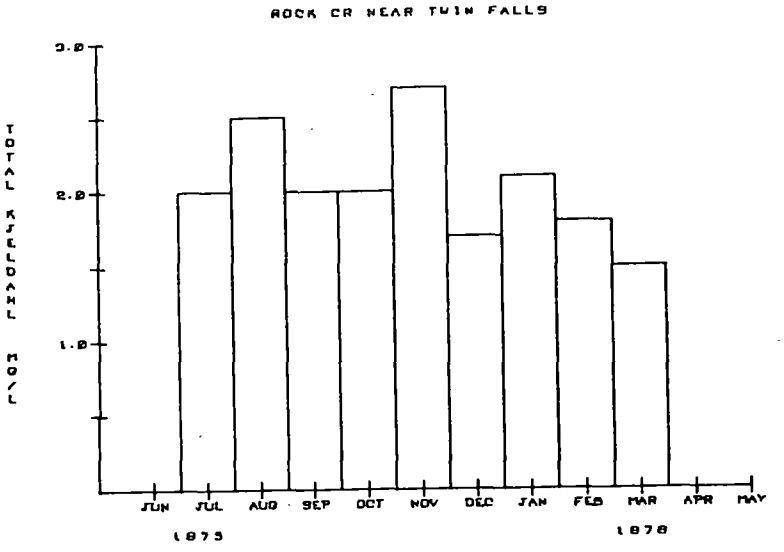
-- Data from EPA's STORET system for June 1975 thru May 1976.

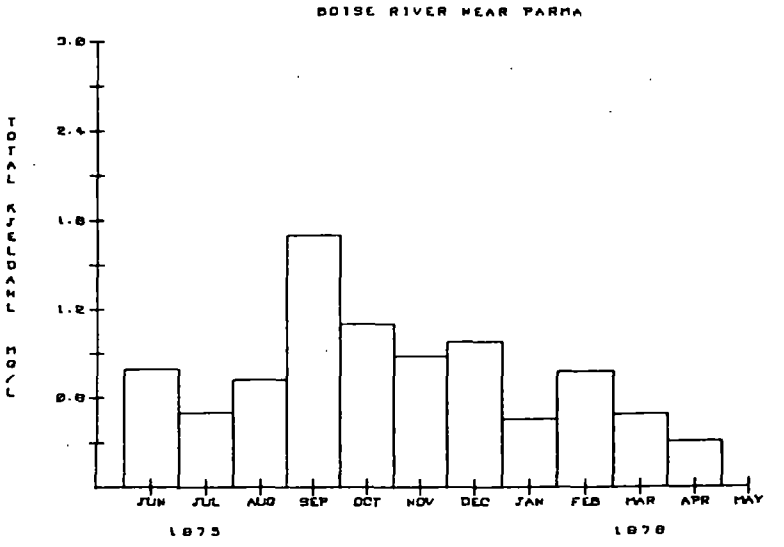
-- Missing bars or points on graphs indicate data was unavailable for that period.

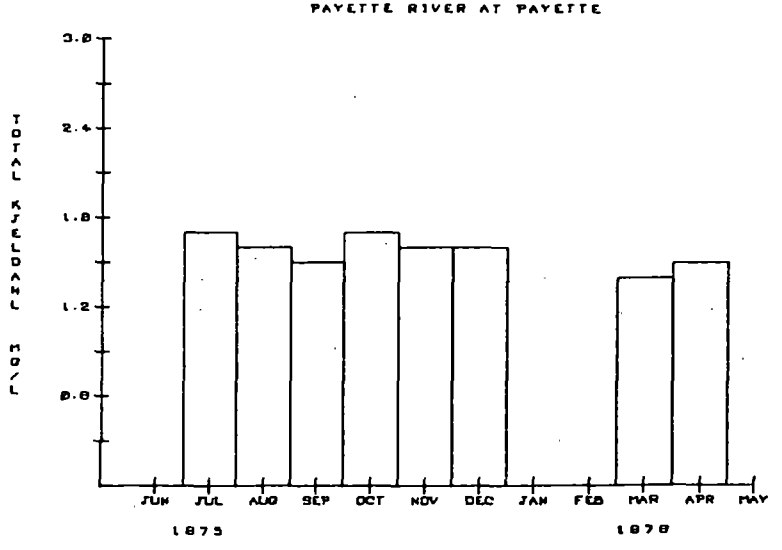


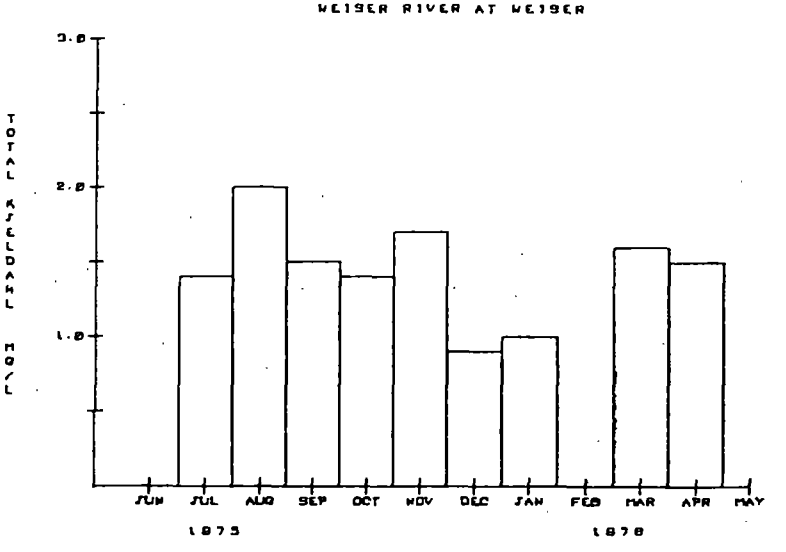
MIDDLE SNAKE RIVER BASIN

TOTAL KJELDAHL NITROGEN MG/L



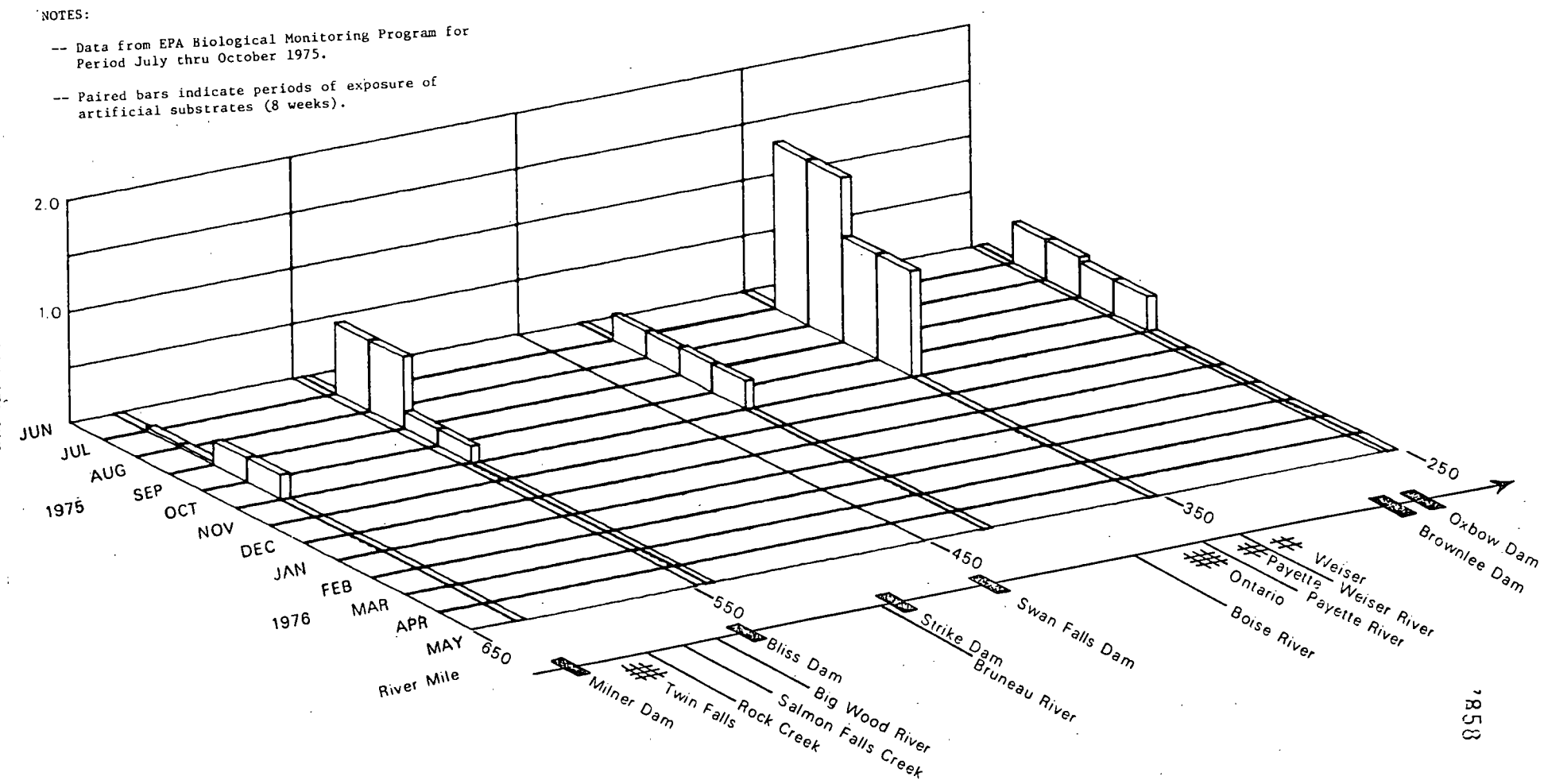






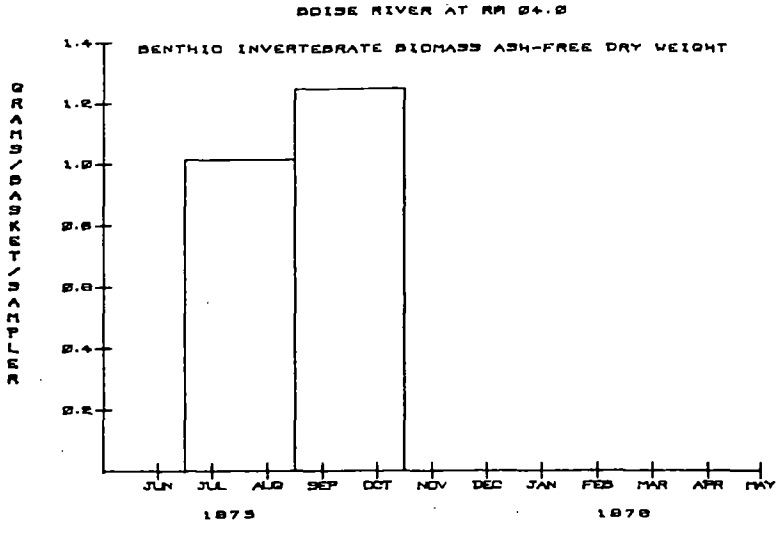
MIDDLE SNAKE RIVER BASIN

BENTHIC INVERTEBRATE BIOMASS/ASH-FREE DRY WEIGHT



MIDDLE SNAKE RIVER BASIN

BENTHIC INVERTEBRATE BIOMASS/ASH-FREE DRY WEIGHT



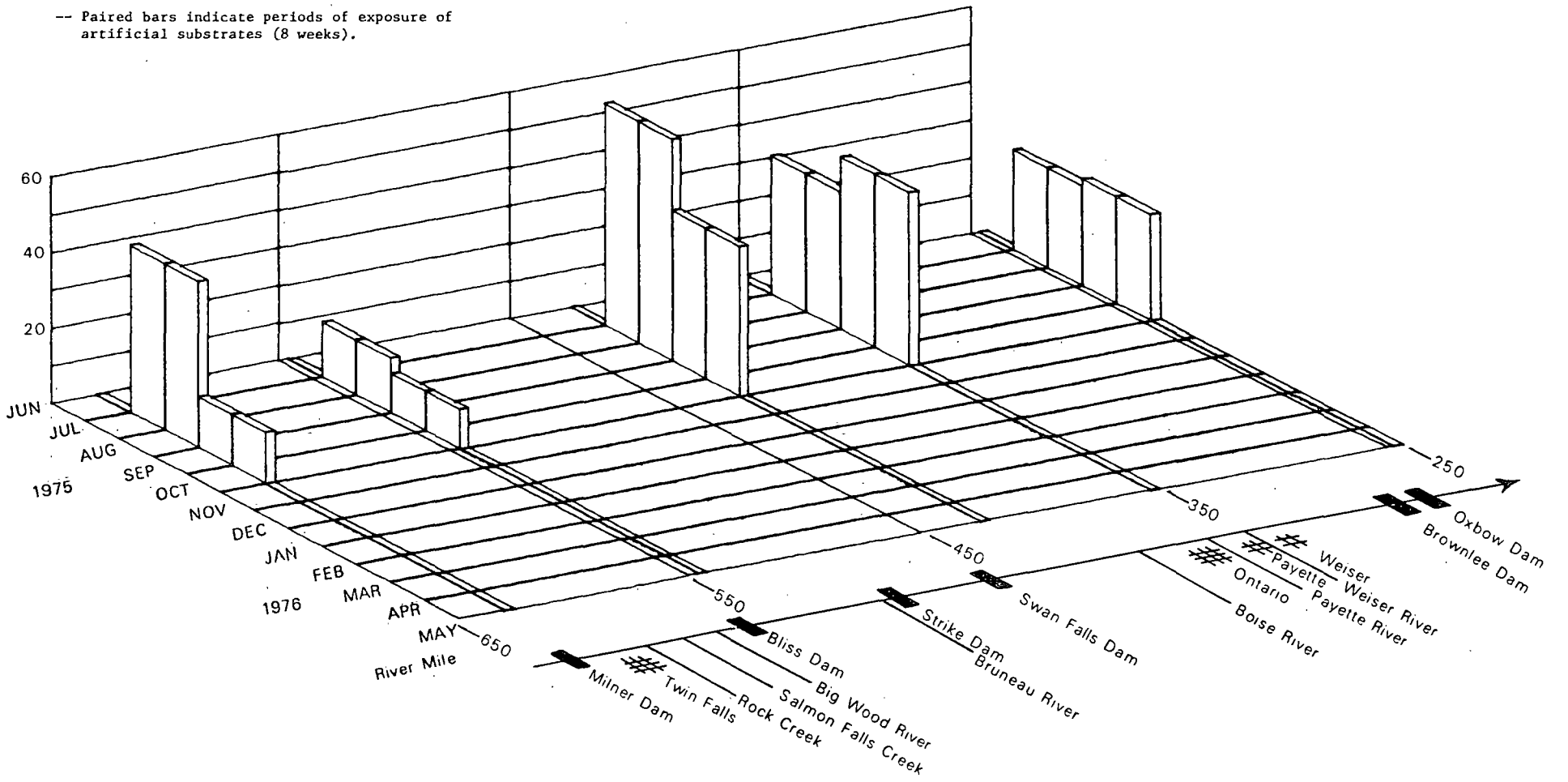
MIDDLE SNAKE RIVER BASIN

PERIPHYTON/CHLOROPHYLL-A MG/M2

NOTES:

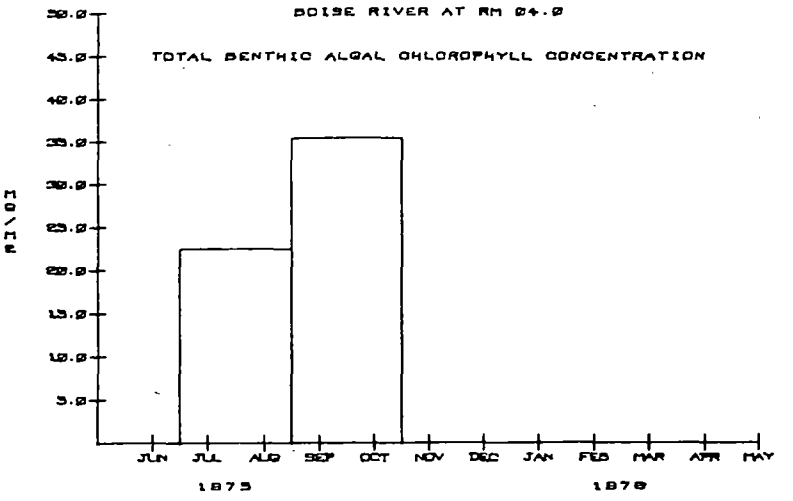
-- Data from EPA Biological Monitoring Program for Period July thru October 1975.

-- Paired bars indicate periods of exposure of artificial substrates (8 weeks).



MIDDLE SNAKE RIVER BASIN

PERIPHYTON/CHLOROPHYLL-A MG/M2



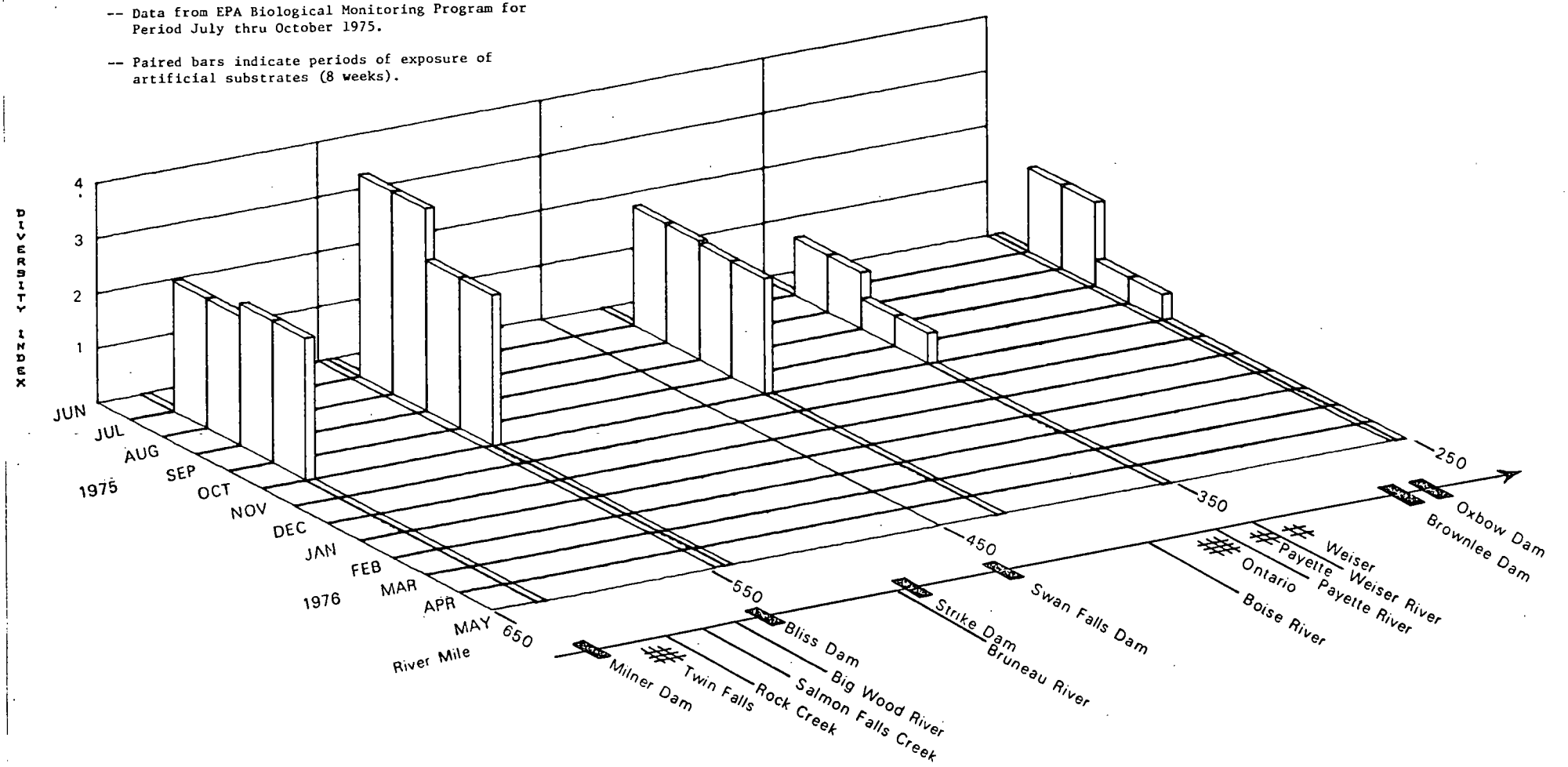
MIDDLE SNAKE RIVER BASIN

SPECIES DIVERSITY INDEX

NOTES:

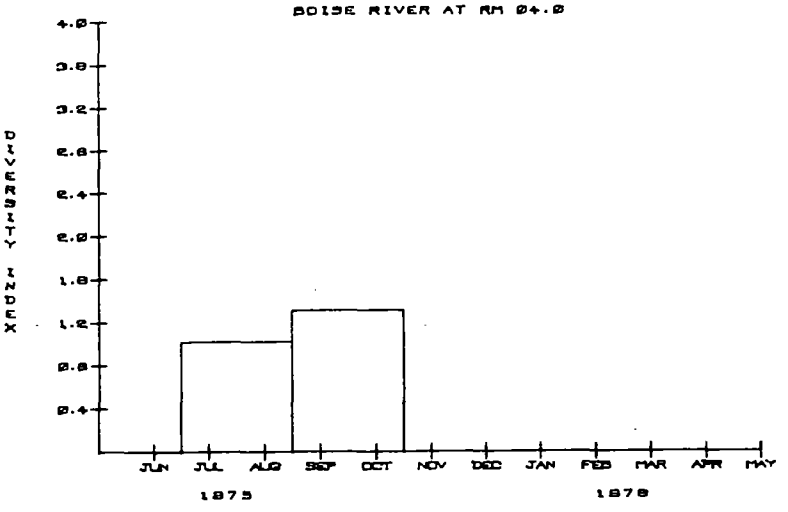
-- Data from EPA Biological Monitoring Program for Period July thru October 1975.

-- Paired bars indicate periods of exposure of artificial substrates (8 weeks).



MIDDLE SNAKE RIVER BASIN

SPECIES DIVERSITY INDEX



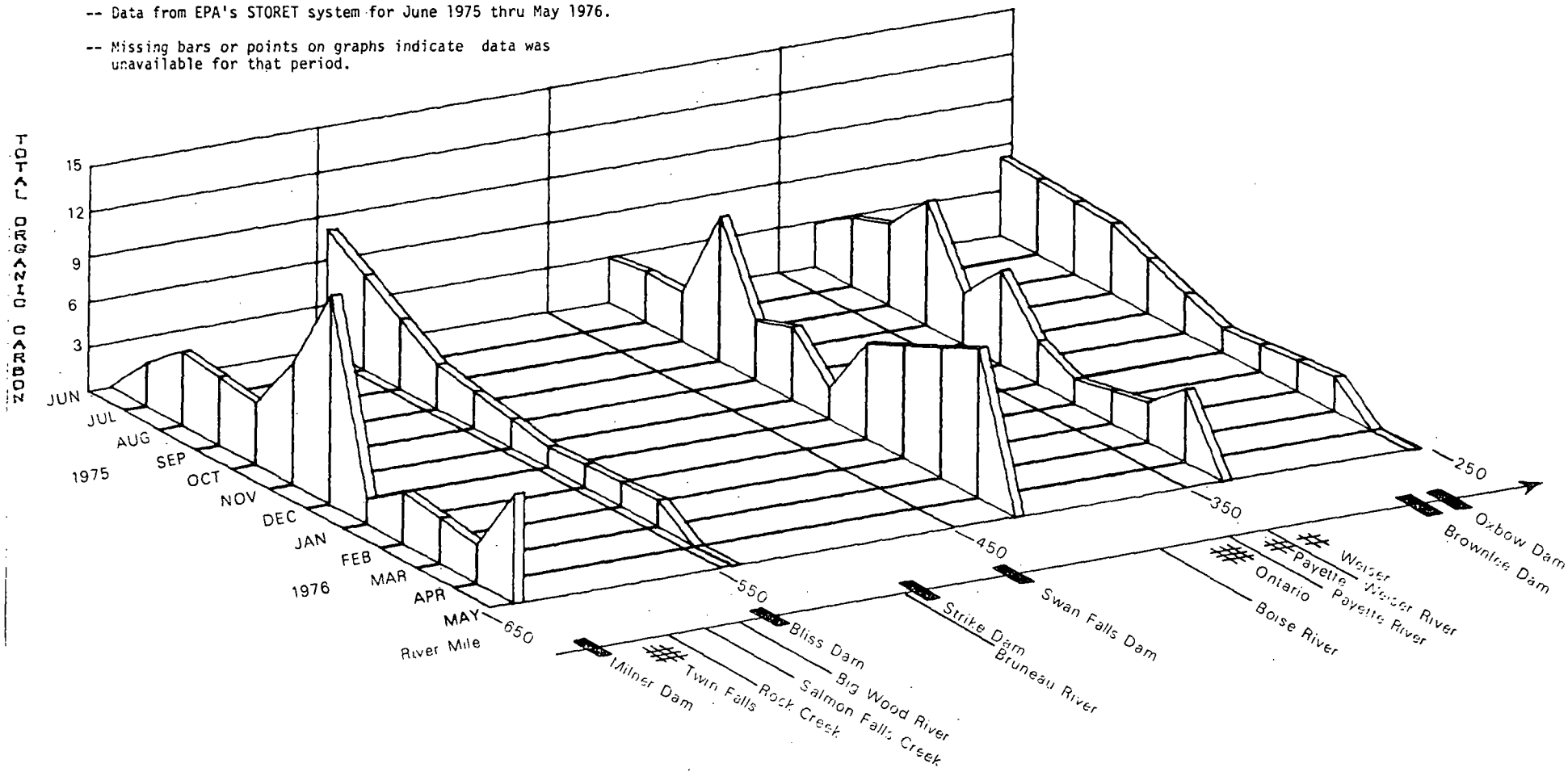
MIDDLE SNAKE RIVER BASIN

TOTAL ORGANIC CARBON MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.



MIDDLE SNAKE RIVER BASIN

TOTAL ORGANIC CARBON MG/L

NO TRIBUTARY DATA AVAILABLE

LOWER SNAKE RIVER BASIN 13-08

The Lower Snake River basin lies within the three states of Washington, Oregon, and Idaho, and includes the Palouse, Clearwater, Salmon, and Grande Ronde River basins. The basin boundaries include the Snake River below Hells Canyon Dam (R.M. 247) to the Snake River at Burbank, Washington (R.M. 4.4). The two principal tributaries are the Salmon and Clearwater Rivers. The cities of Lewiston, Idaho and Clarkston, Washington located on the Snake River are the largest with a combined population of 32,000. Major point sources in this basin include pulp mill, food processing, and domestic sewage treatment plants.

National Water Quality Surveillance System (NWQSS) stations located within this basin are shown on the map. The complete water quality and biological parametric coverage for NWQSS stations is listed in the Introduction of this report along with the EPA criteria associated with those parameters. However, only some of the parameters are included in the following curves. Complete raw data is available from EPA upon request.

The following curve layout is designed to show the mainstem river constituents both spatially and temporally on a single three dimensional plot. Water quality constituents at the mouth stations of the significant tributaries to the Snake River are shown temporally on bar charts.

LOWER SNAKE RIVER BASIN

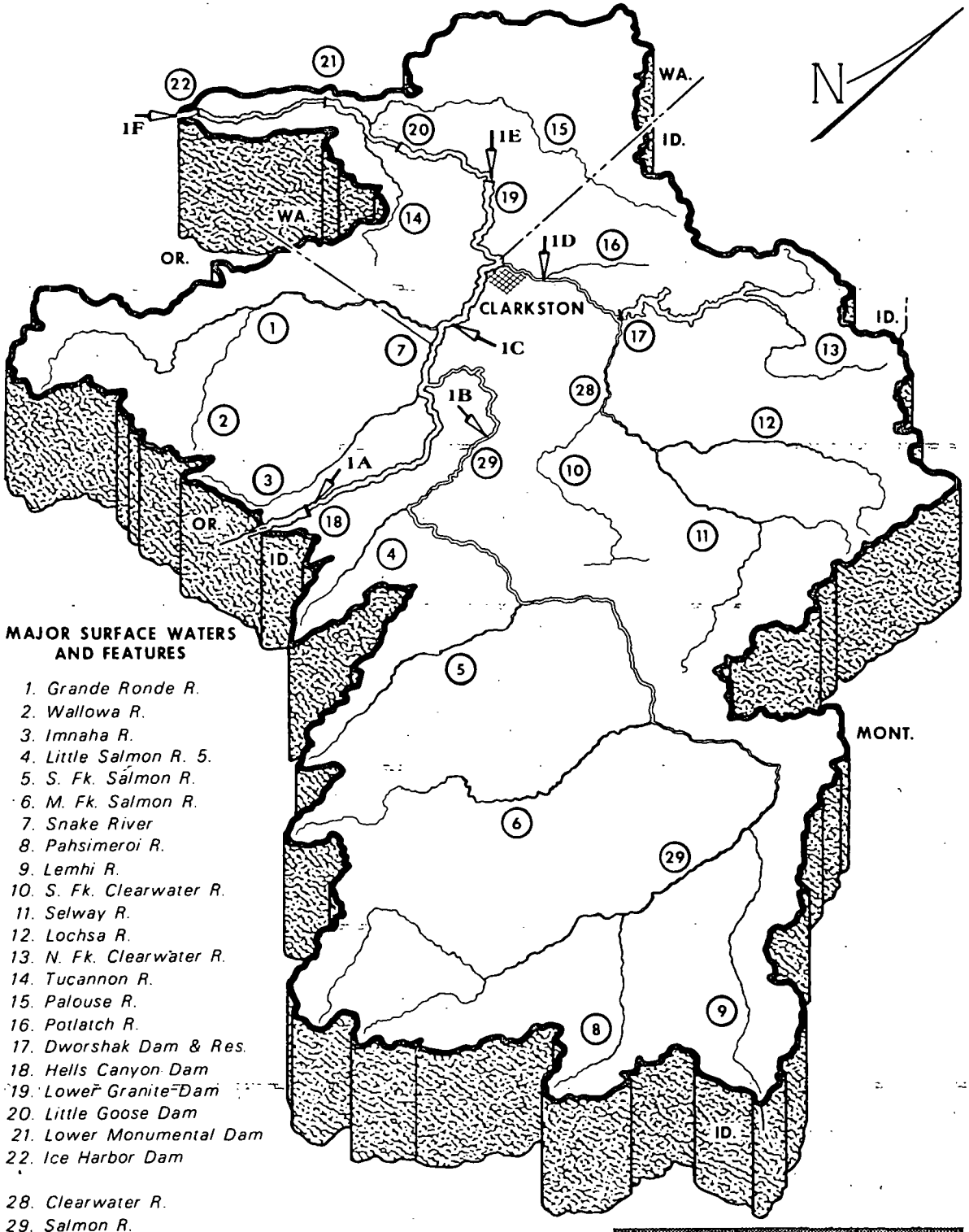
Map Station Number	Type of Data Collected		
	Physical	Chemical	Biological
1A	X	X	X
1B	X	X	
1C	X	X	X
1D	X	X	
1E	X	X	X
1F	X	X	X

NOTE: Complete station information shown in Table 1 page 11-13.

STORET #13-08

LOWER SNAKE RIVER BASIN

N.W.Q.S.S. LOCATIONS

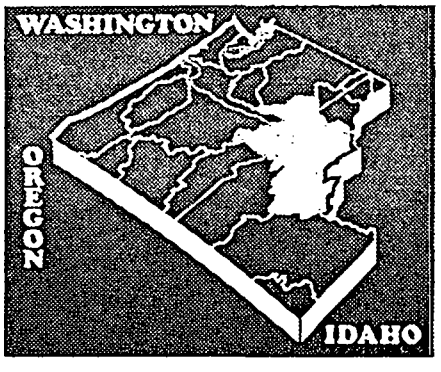


MAJOR SURFACE WATERS AND FEATURES

1. *Grande Ronde R.*
2. *Wallowa R.*
3. *Imnaha R.*
4. *Little Salmon R. 5.*
5. *S. Fk. Salmon R.*
6. *M. Fk. Salmon R.*
7. *Snake River*
8. *Pahsimeroi R.*
9. *Lemhi R.*
10. *S. Fk. Clearwater R.*
11. *Selway R.*
12. *Lochsa R.*
13. *N. Fk. Clearwater R.*
14. *Tucannon R.*
15. *Palouse R.*
16. *Potlatch R.*
17. *Dworshak Dam & Res.*
18. *Hells Canyon Dam*
19. *Lower Granite Dam*
20. *Little Goose Dam*
21. *Lower Monumental Dam*
22. *Ice Harbor Dam*

28. *Clearwater R.*
29. *Salmon R.*

NOTE: The Salmon & Clearwater River mainstems are numbered to co-incide with the Regional Map numbering system.



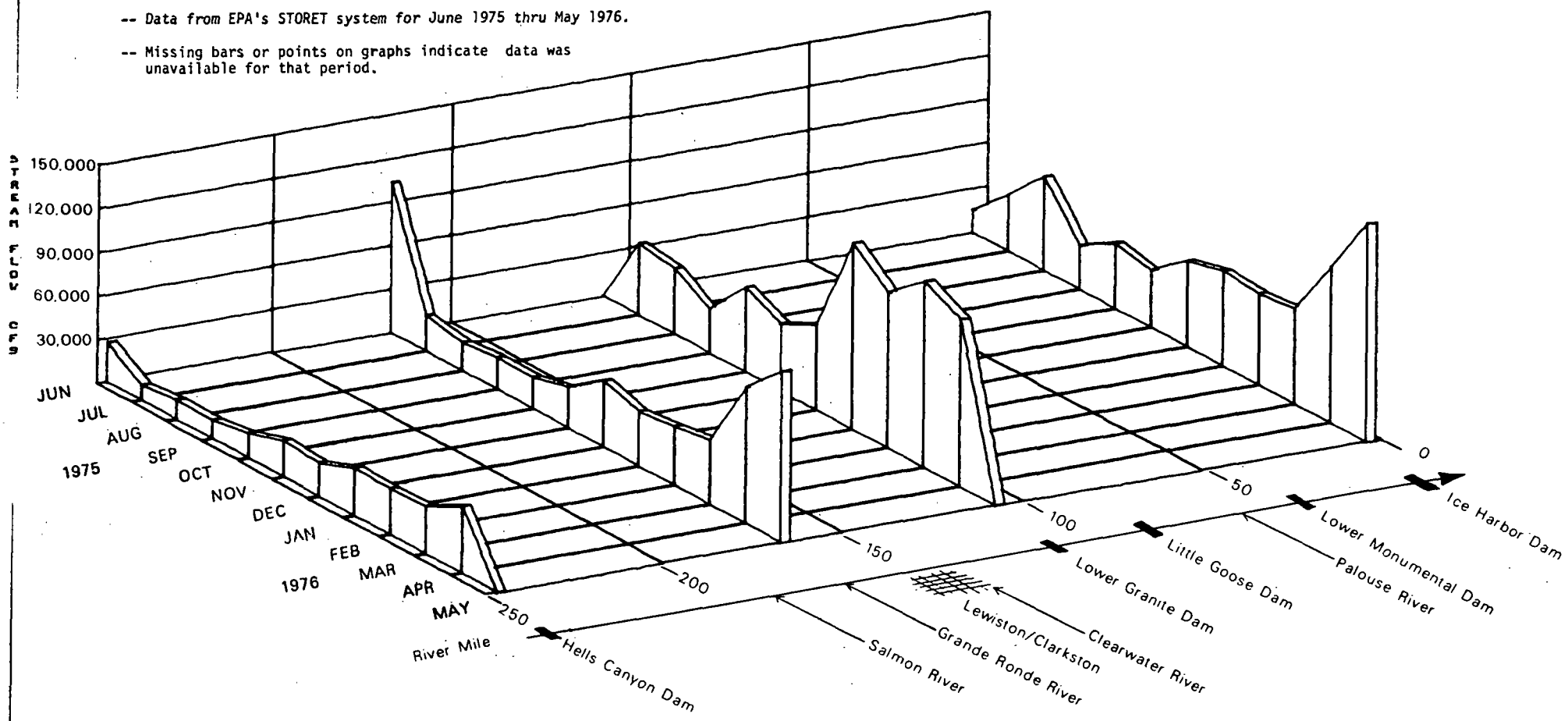
LOWER SNAKE RIVER BASIN

STREAM FLOW CFS

NOTES:

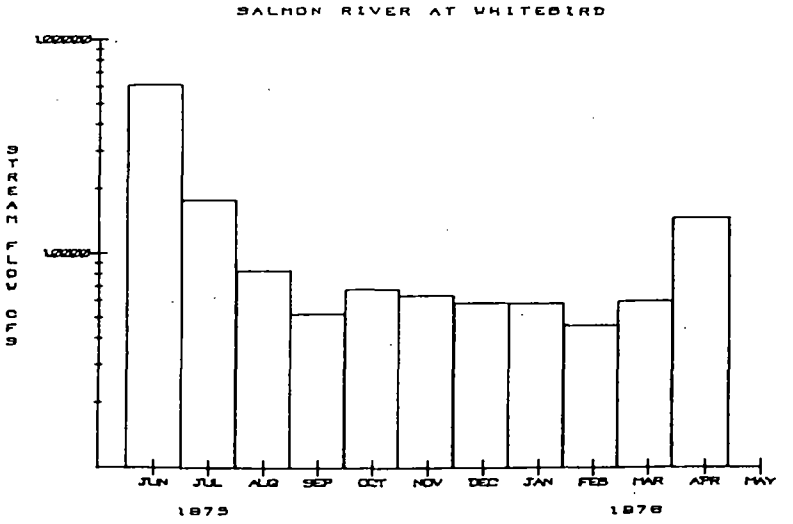
-- Data from EPA's STORET system for June 1975 thru May 1976.

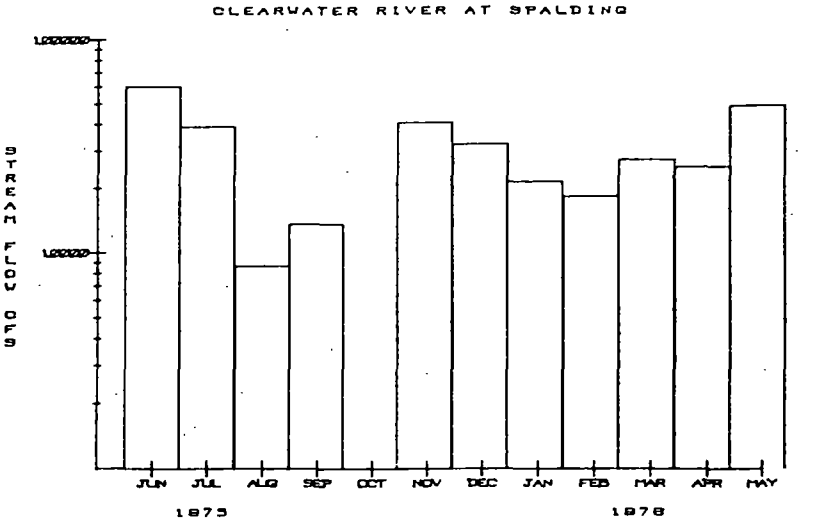
-- Missing bars or points on graphs indicate data was unavailable for that period.



LOWER SNAKE RIVER BASIN

STREAM FLOW CFS





LOWER SNAKE RIVER BASIN

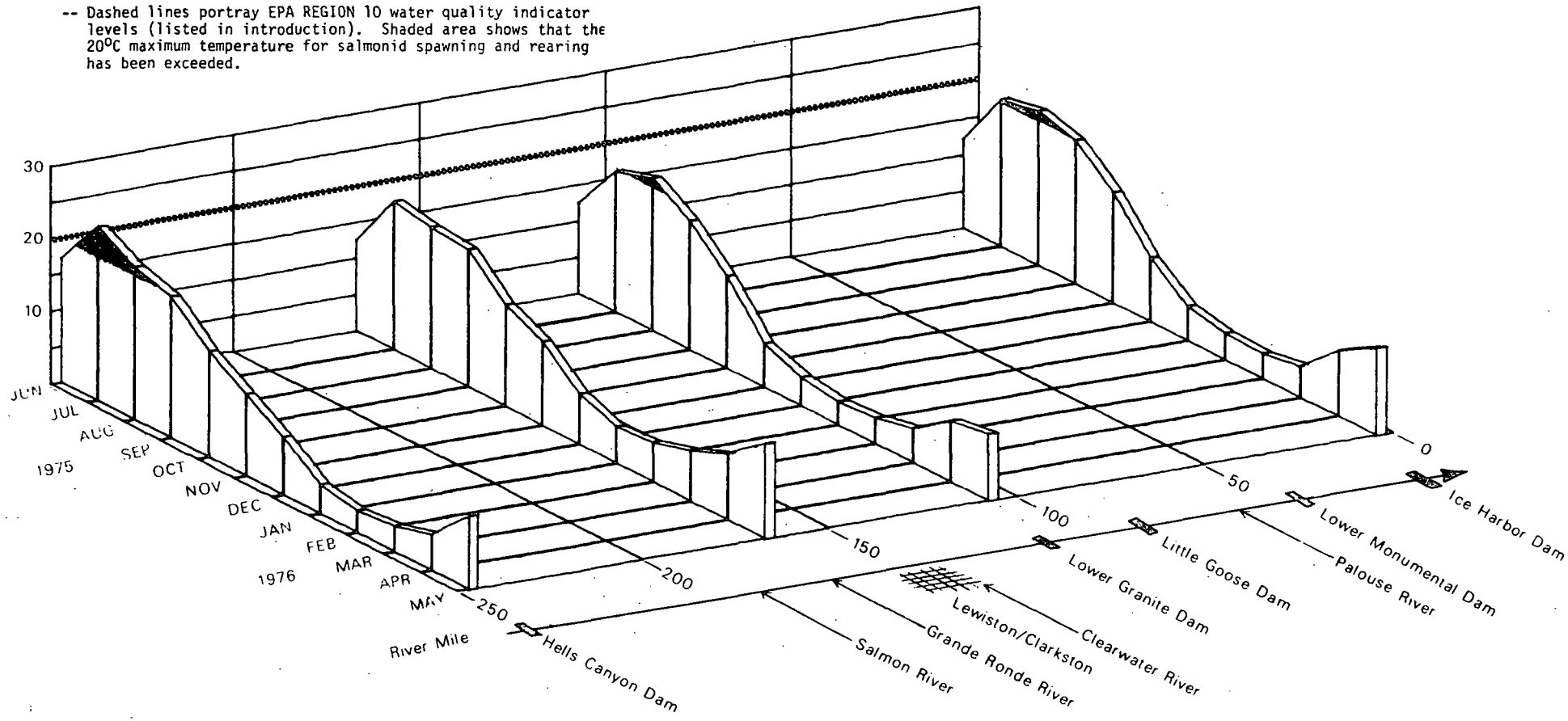
TEMPERATURE DEG C

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

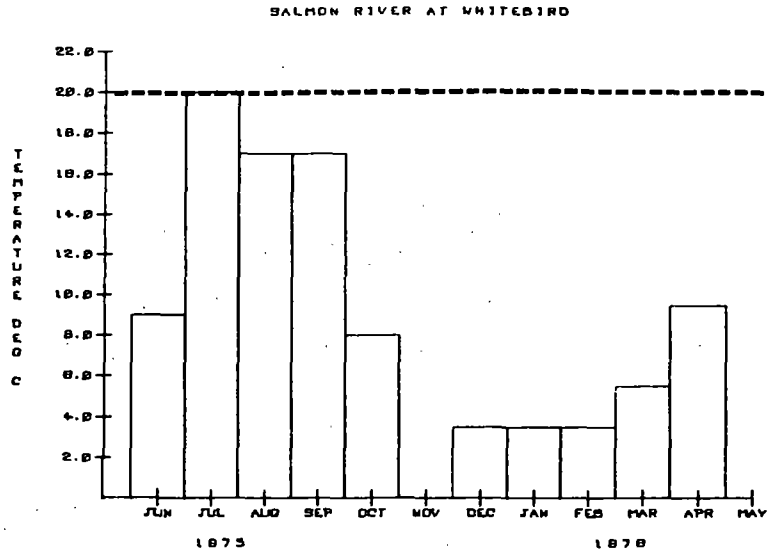
-- Missing bars or points on graphs indicate data was unavailable for that period.

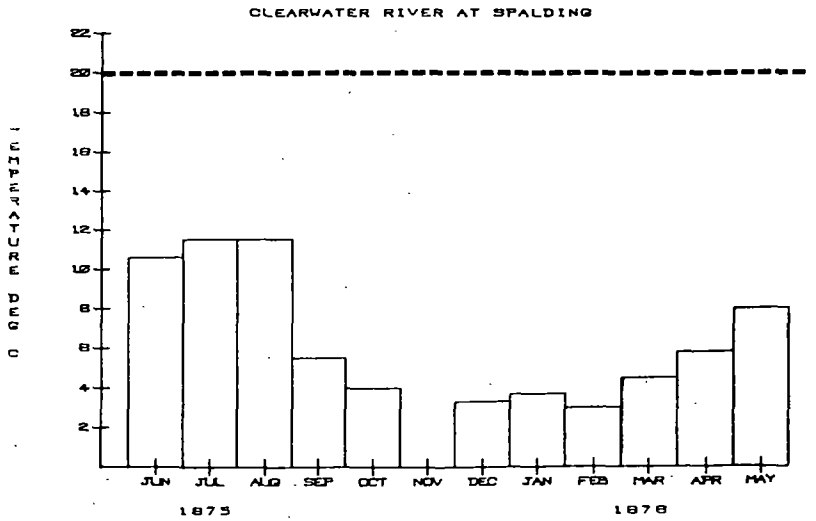
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the 20°C maximum temperature for salmonid spawning and rearing has been exceeded.



LOWER SNAKE RIVER BASIN

TEMPERATURE DEG C





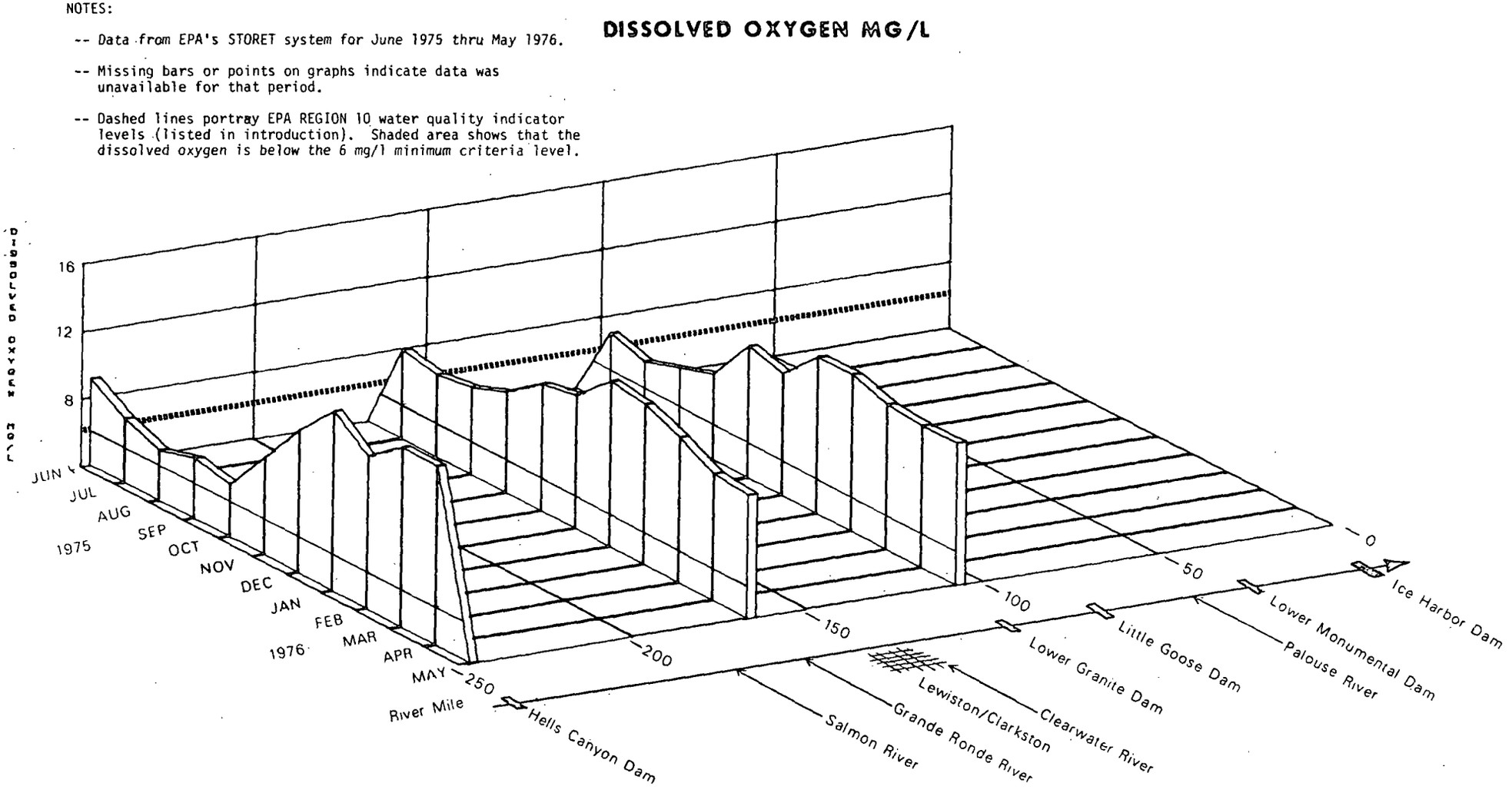
LOWER SNAKE RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

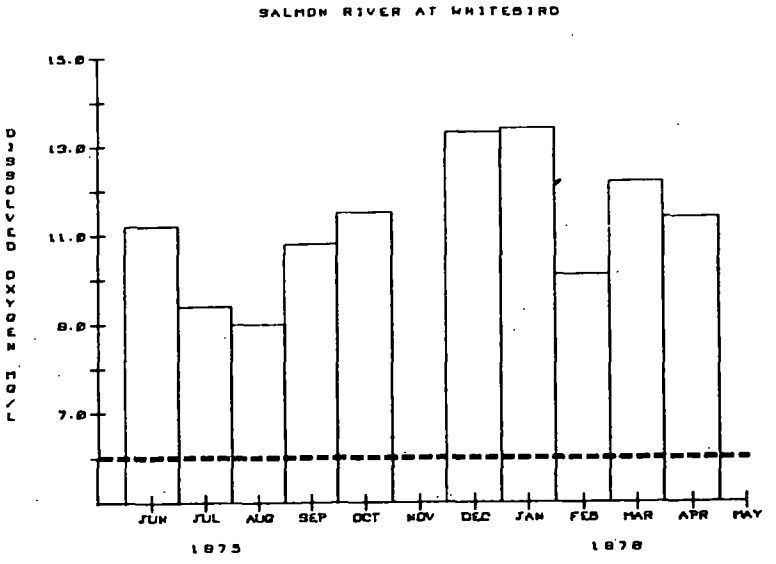
-- Missing bars or points on graphs indicate data was unavailable for that period.

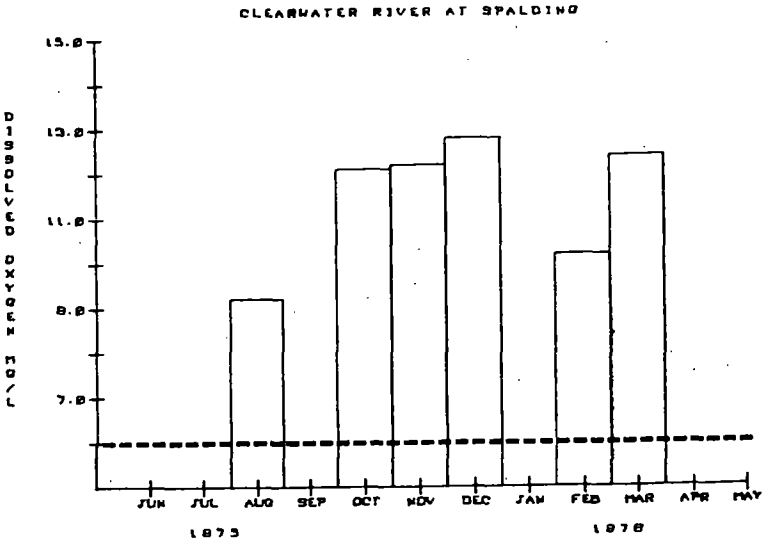
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the dissolved oxygen is below the 6 mg/l minimum criteria level.



LOWER SNAKE RIVER BASIN

DISSOLVED OXYGEN MG/L





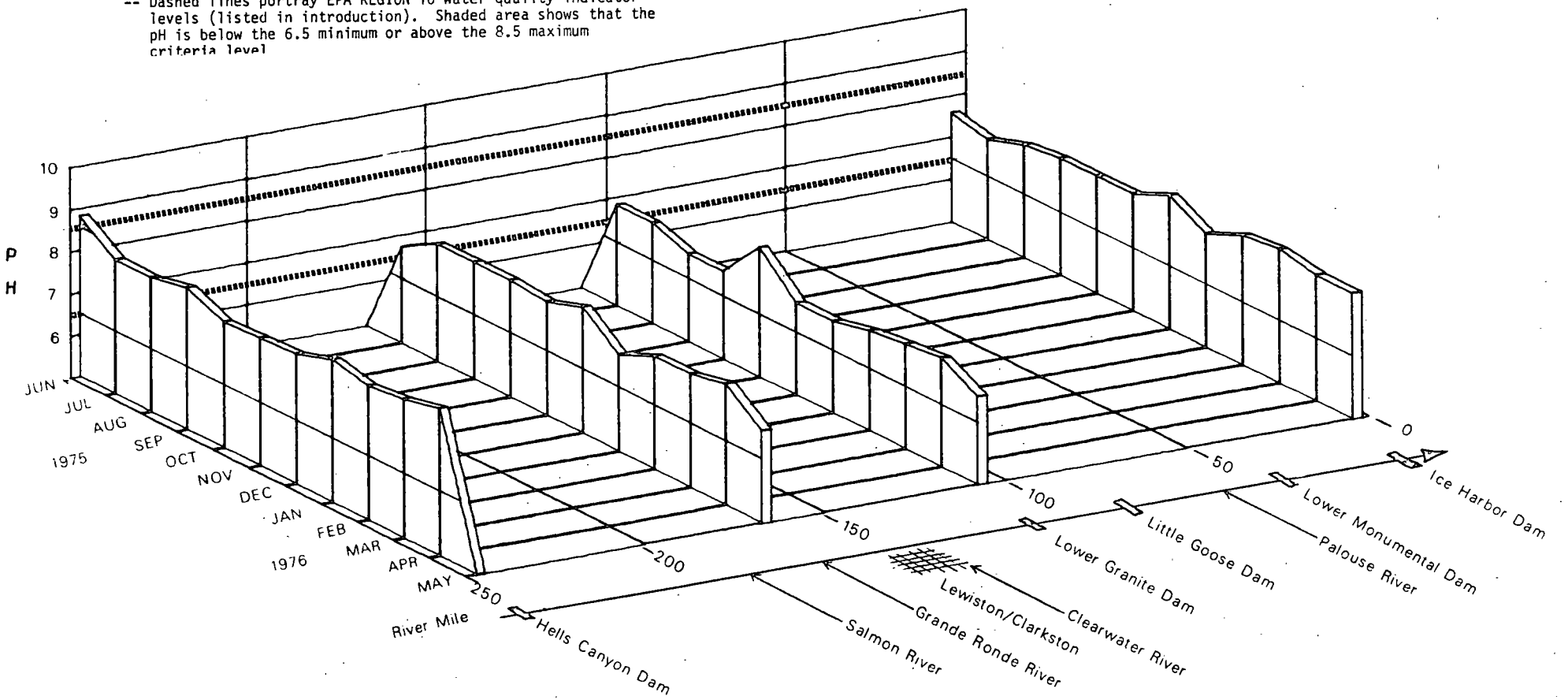
LOWER SNAKE RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

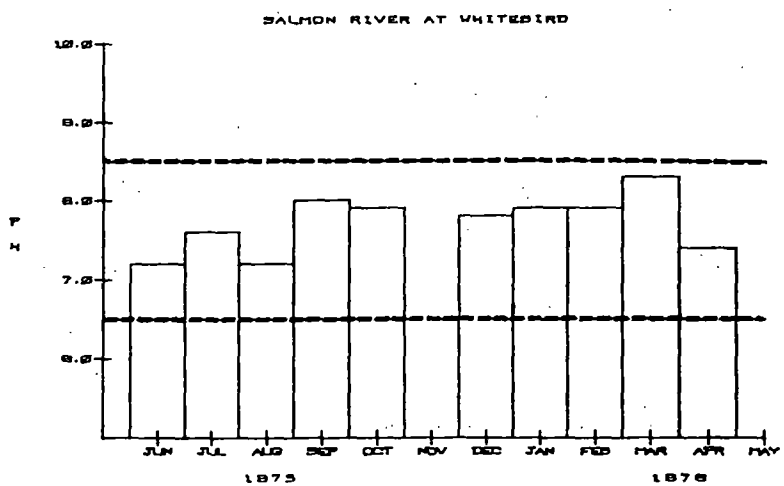
-- Missing bars or points on graphs indicate data was unavailable for that period.

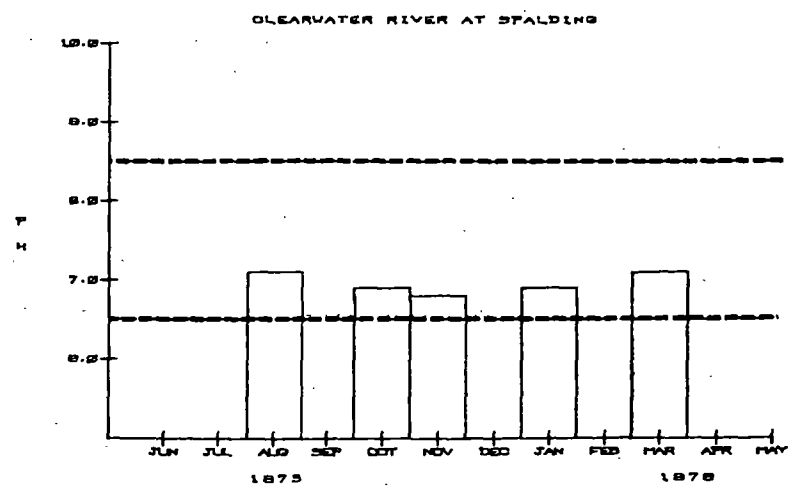
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the pH is below the 6.5 minimum or above the 8.5 maximum criteria level



LOWER SNAKE RIVER BASIN

P H





LOWER SNAKE RIVER BASIN

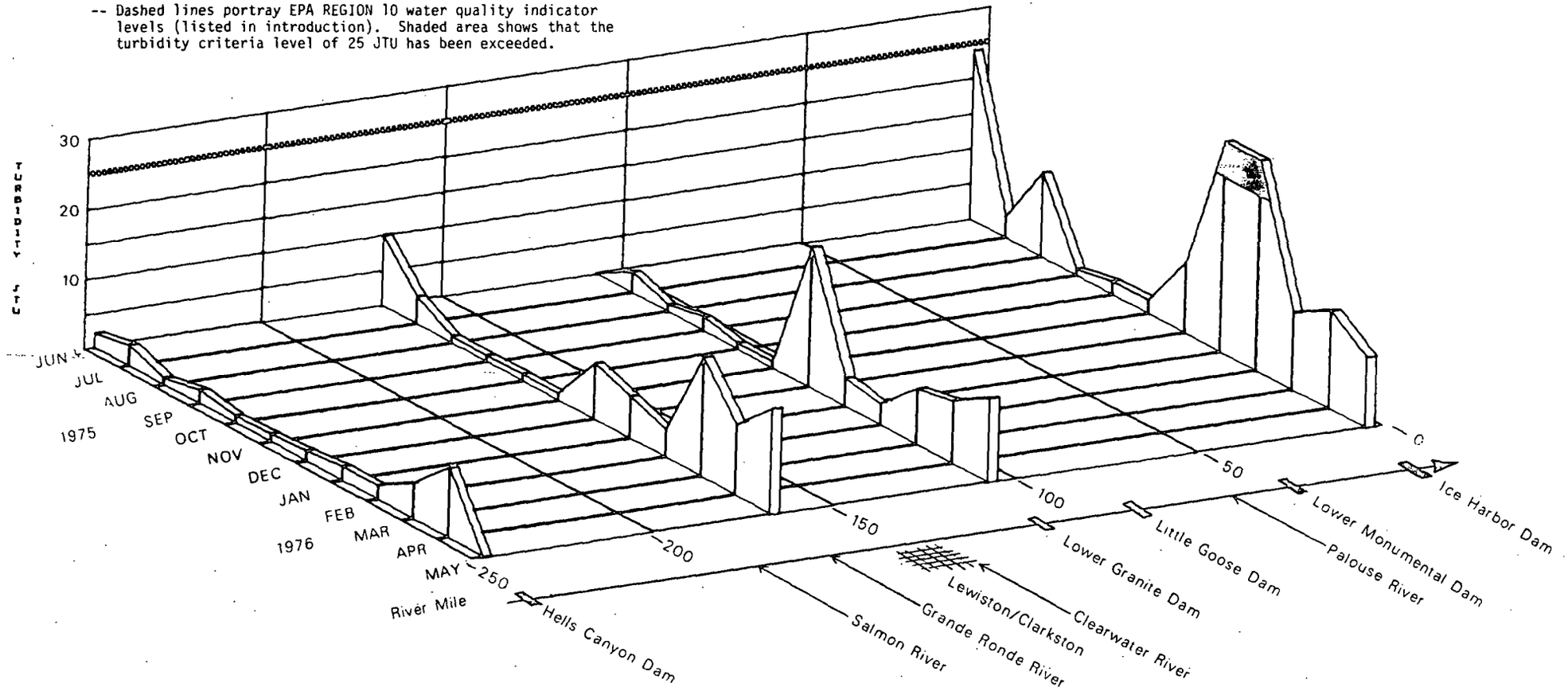
TURBIDITY IN JTU

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

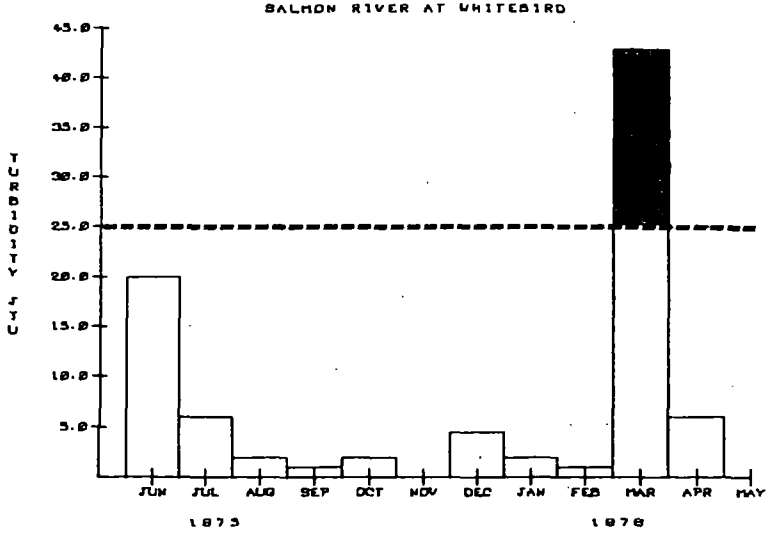
-- Missing bars or points on graphs indicate data was unavailable for that period.

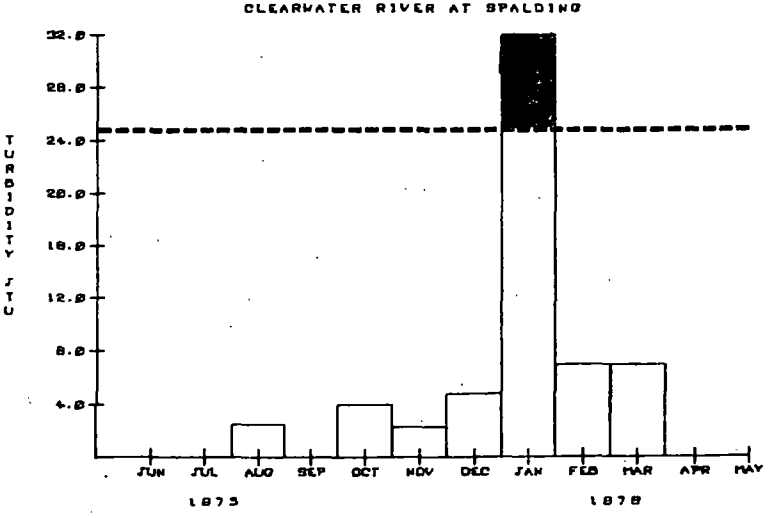
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the turbidity criteria level of 25 JTU has been exceeded.



LOWER SNAKE RIVER BASIN

TURBIDITY IN JTU





LOWER SNAKE RIVER BASIN

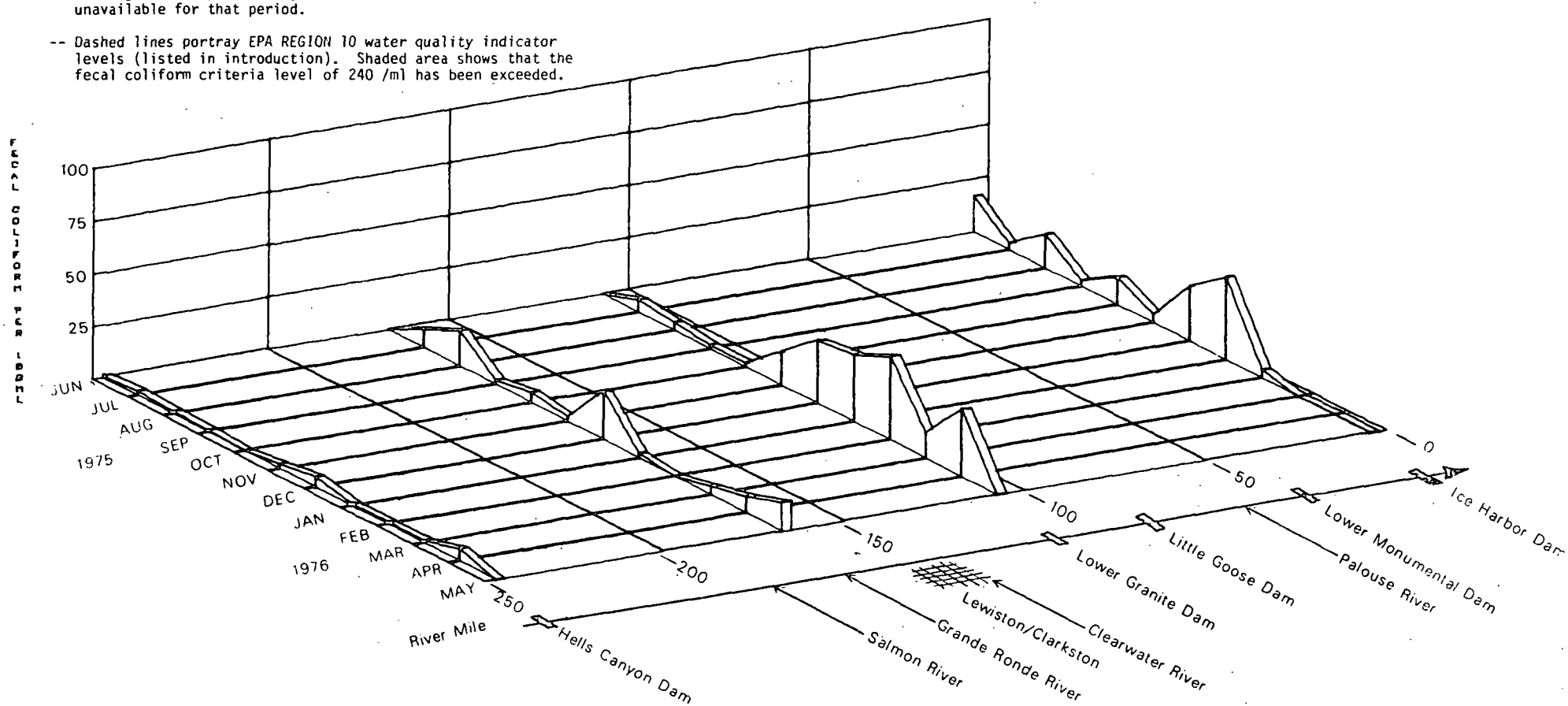
FECAL COLIFORM PER 100 ML

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

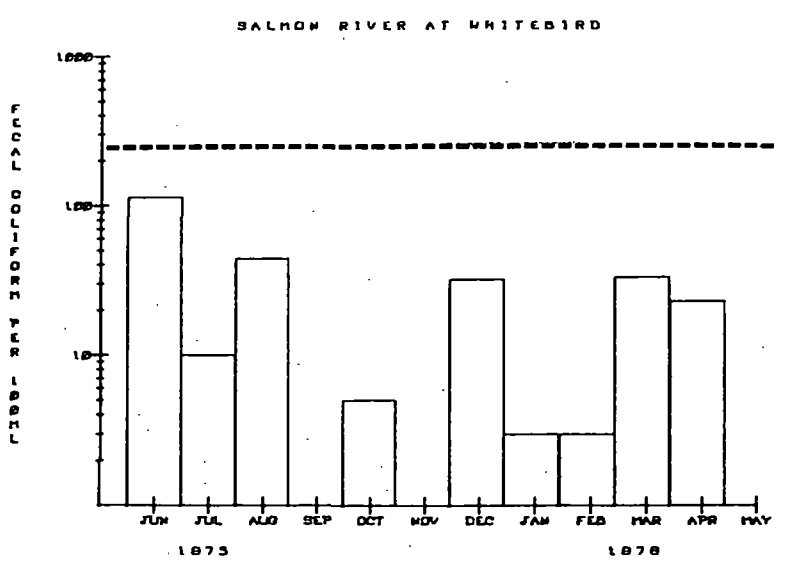
-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the fecal coliform criteria level of 240 /ml has been exceeded.



LOWER SNAKE RIVER BASIN

FECAL COLIFORM PER 100 ML



LOWER SNAKE RIVER BASIN

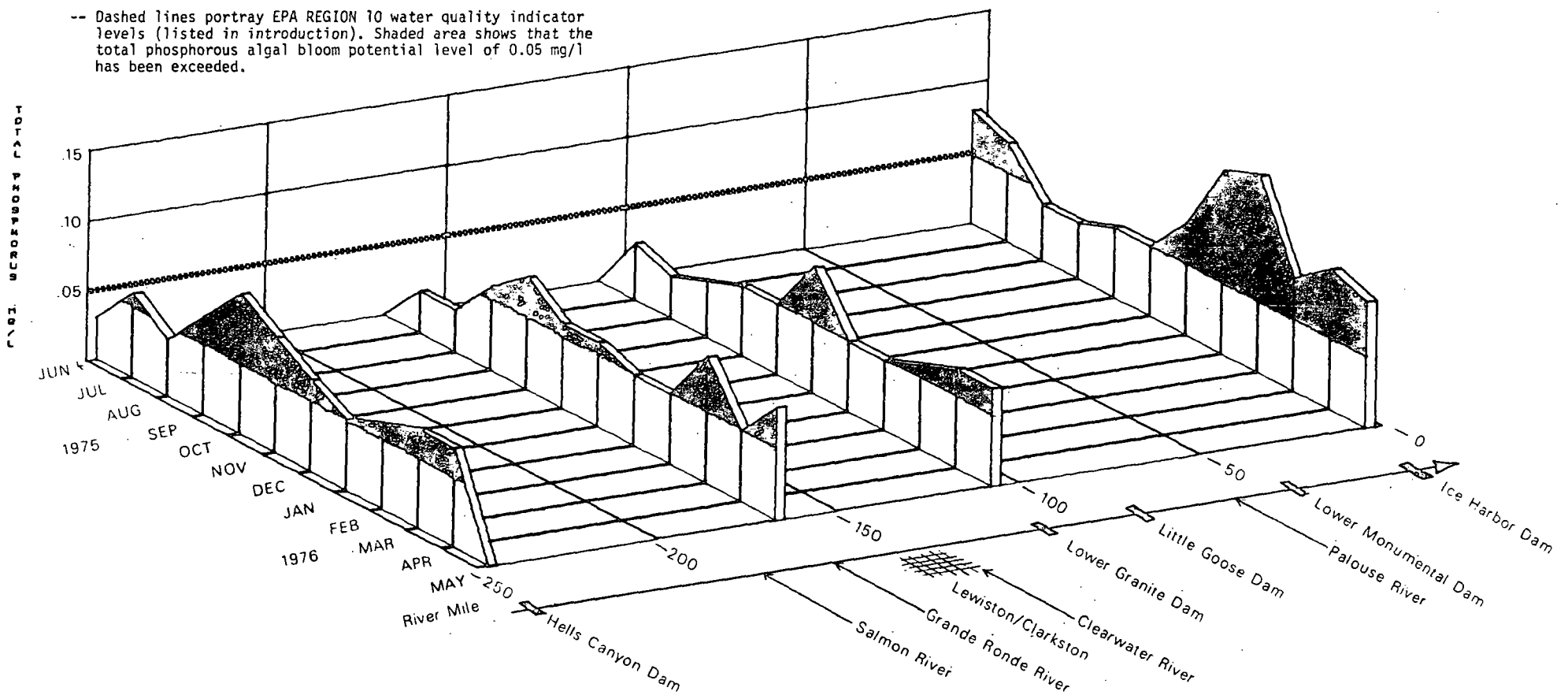
TOTAL PHOSPHORUS MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

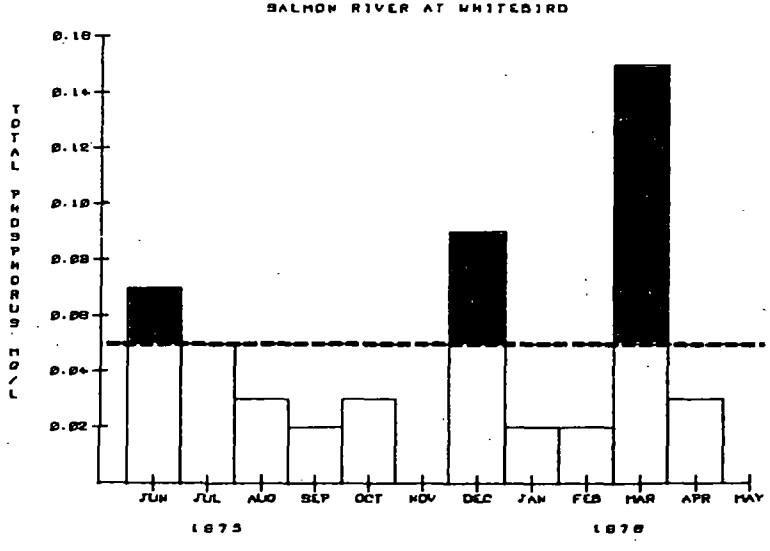
-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the total phosphorous algal bloom potential level of 0.05 mg/l has been exceeded.



LOWER SNAKE RIVER BASIN

TOTAL PHOSPHORUS MG/L



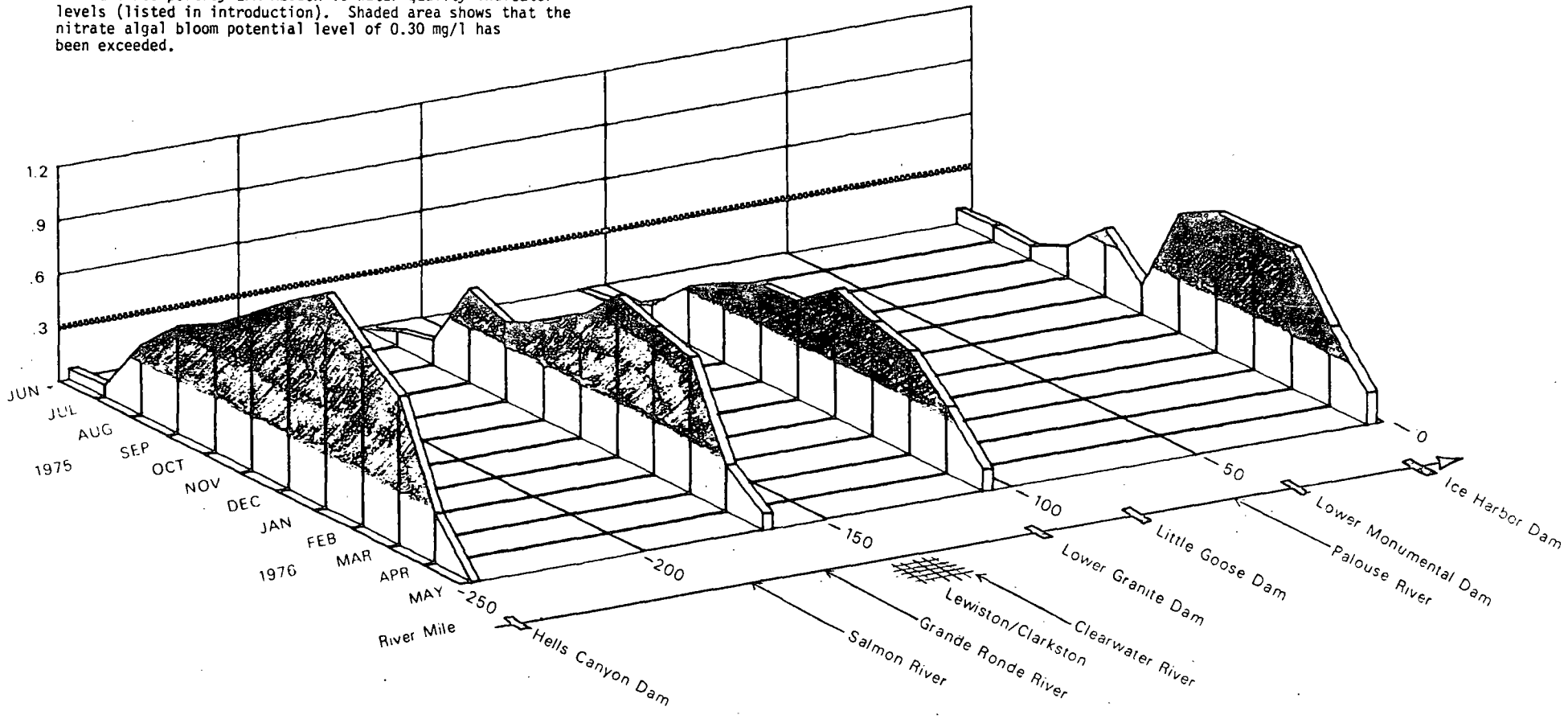
LOWER SNAKE RIVER BASIN

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

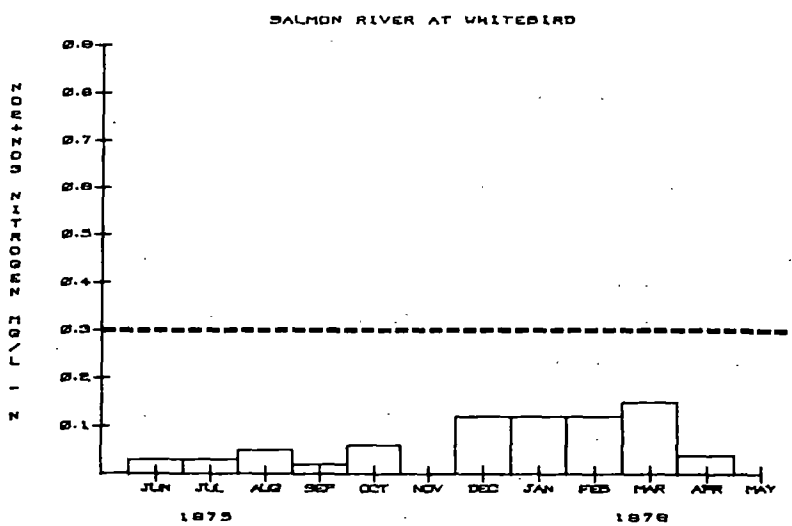
-- Missing bars or points on graphs indicate data was unavailable for that period.

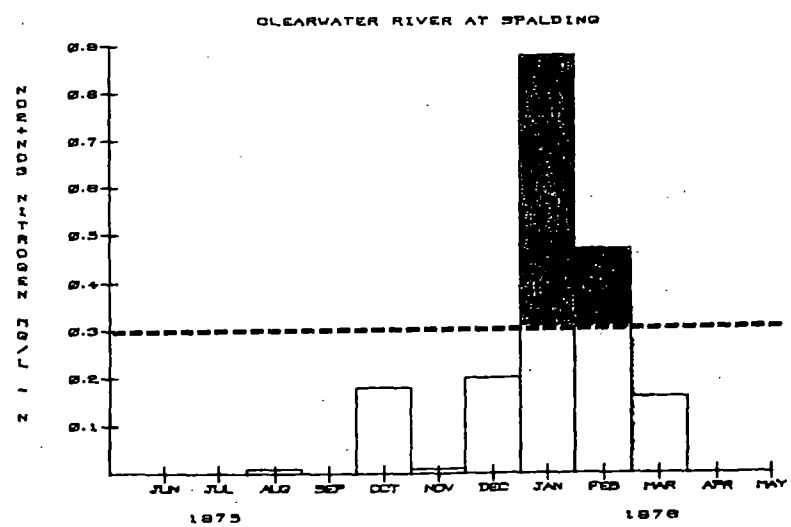
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the nitrate algal bloom potential level of 0.30 mg/l has been exceeded.



LOWER SNAKE RIVER BASIN

NO2+NO3 NITROGEN MG/L





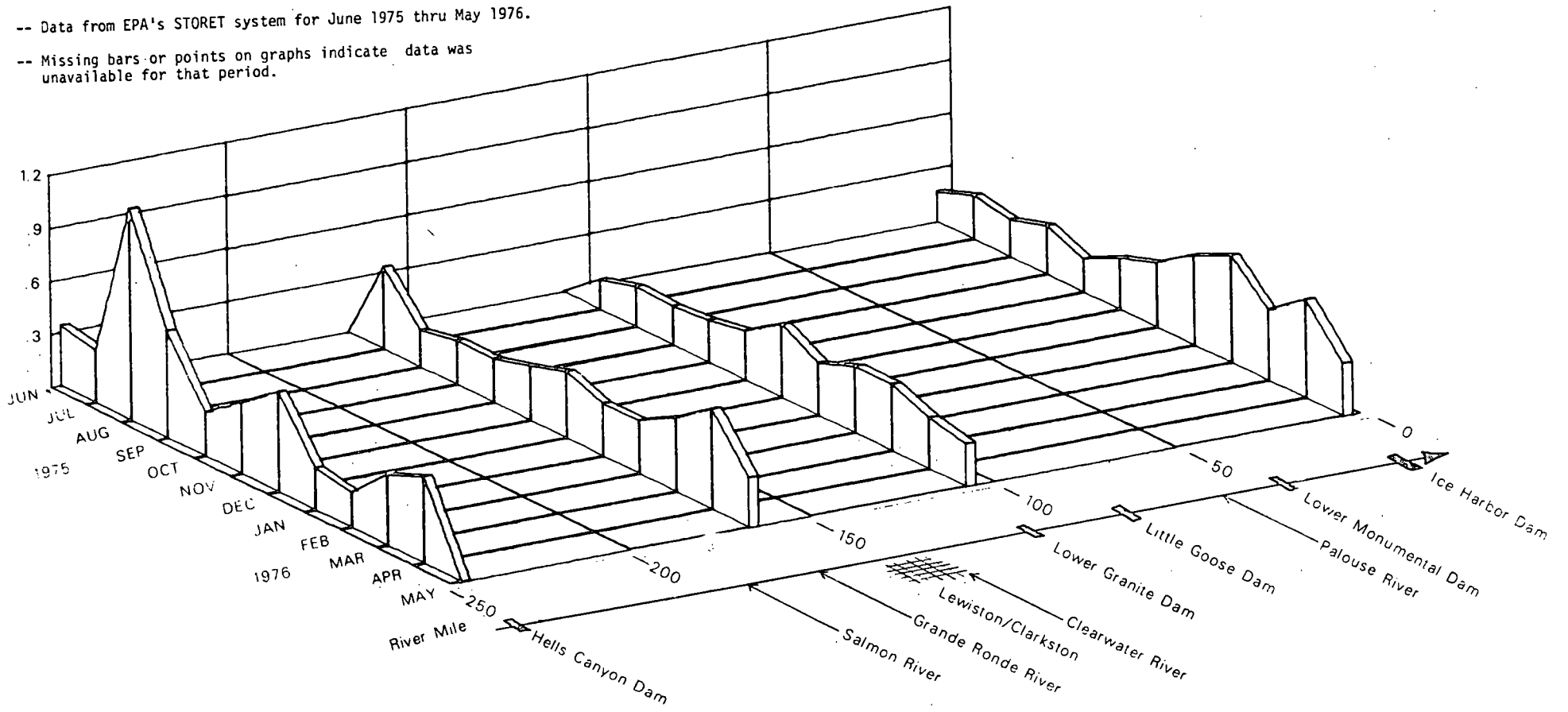
LOWER SNAKE RIVER BASIN

TOTAL KJELDAHL NITROGEN MG/L

NOTES:

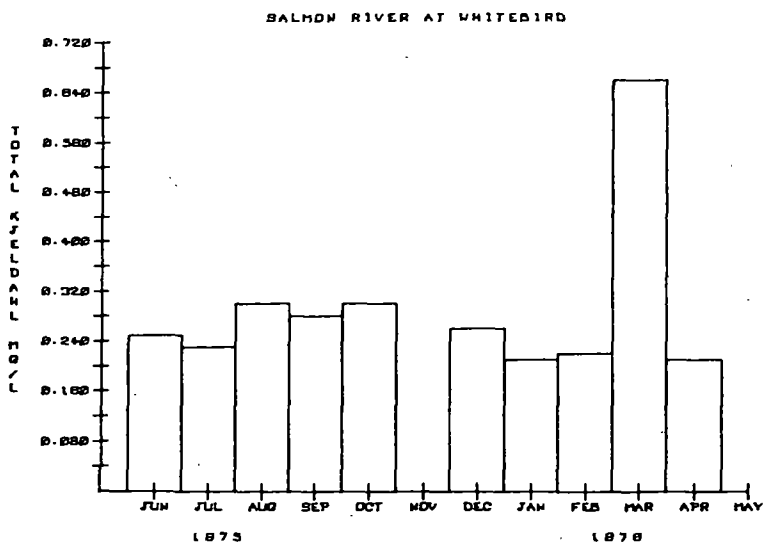
-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.



LOWER SNAKE RIVER BASIN

TOTAL KJELDAHL NITROGEN MG/L



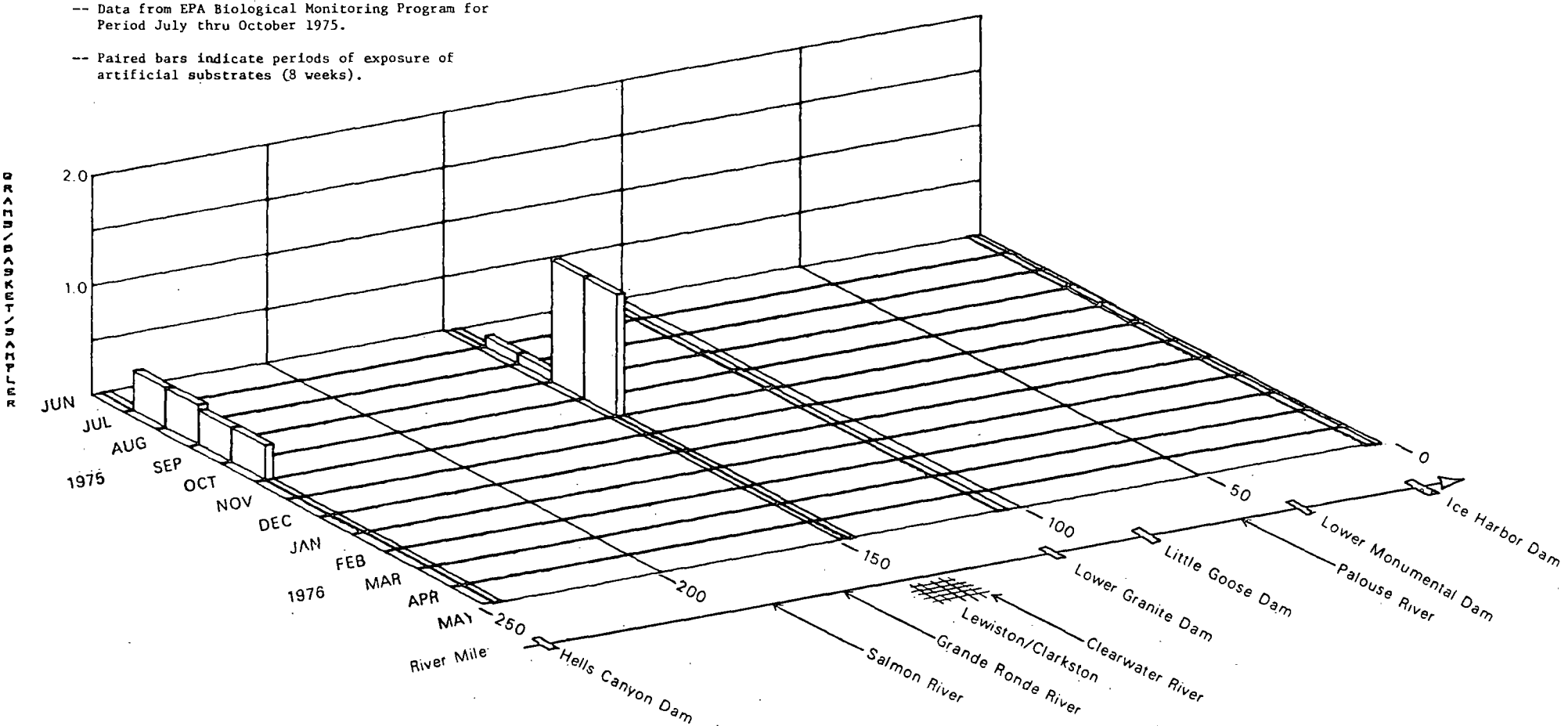
LOWER SNAKE RIVER BASIN

BENTHIC INVERTEBRATE BIOMASS/ASH-FREE DRY WEIGHT

NOTES:

-- Data from EPA Biological Monitoring Program for Period July thru October 1975.

-- Paired bars indicate periods of exposure of artificial substrates (8 weeks).



LOWER SNAKE RIVER BASIN

BENTHIC INVERTEBRATE BIOMASS/ASH-FREE DRY WEIGHT

NO TRIBUTARY DATA AVAILABLE

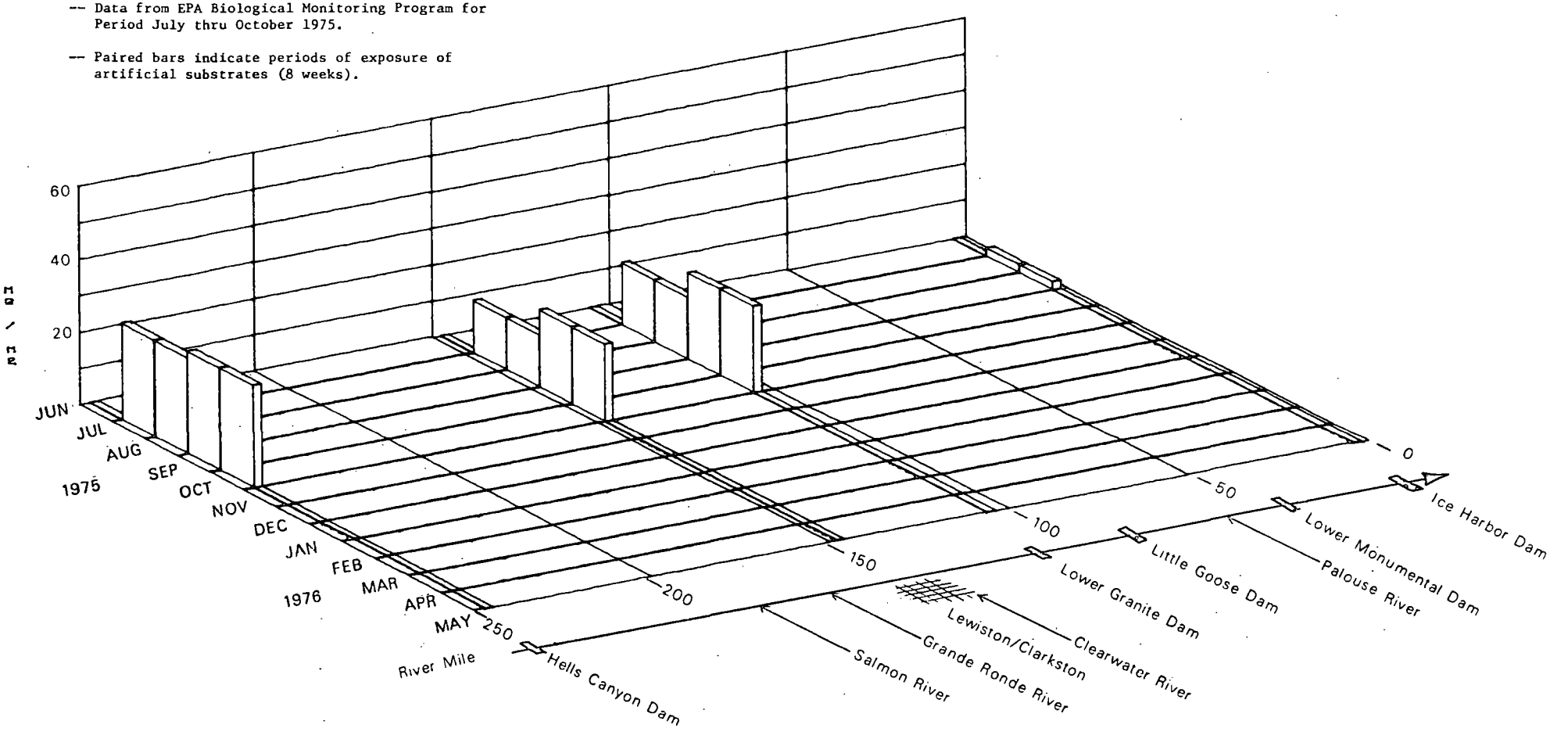
LOWER SNAKE RIVER BASIN

PERIPHYTON/CHLOROPHYLL-A MG/M2

NOTES:

-- Data from EPA Biological Monitoring Program for Period July thru October 1975.

-- Paired bars indicate periods of exposure of artificial substrates (8 weeks).



LOWER SNAKE RIVER BASIN

PERIPHYTON/CHLOROPHYLL-A MG/M2

NO TRIBUTARY DATA AVAILABLE

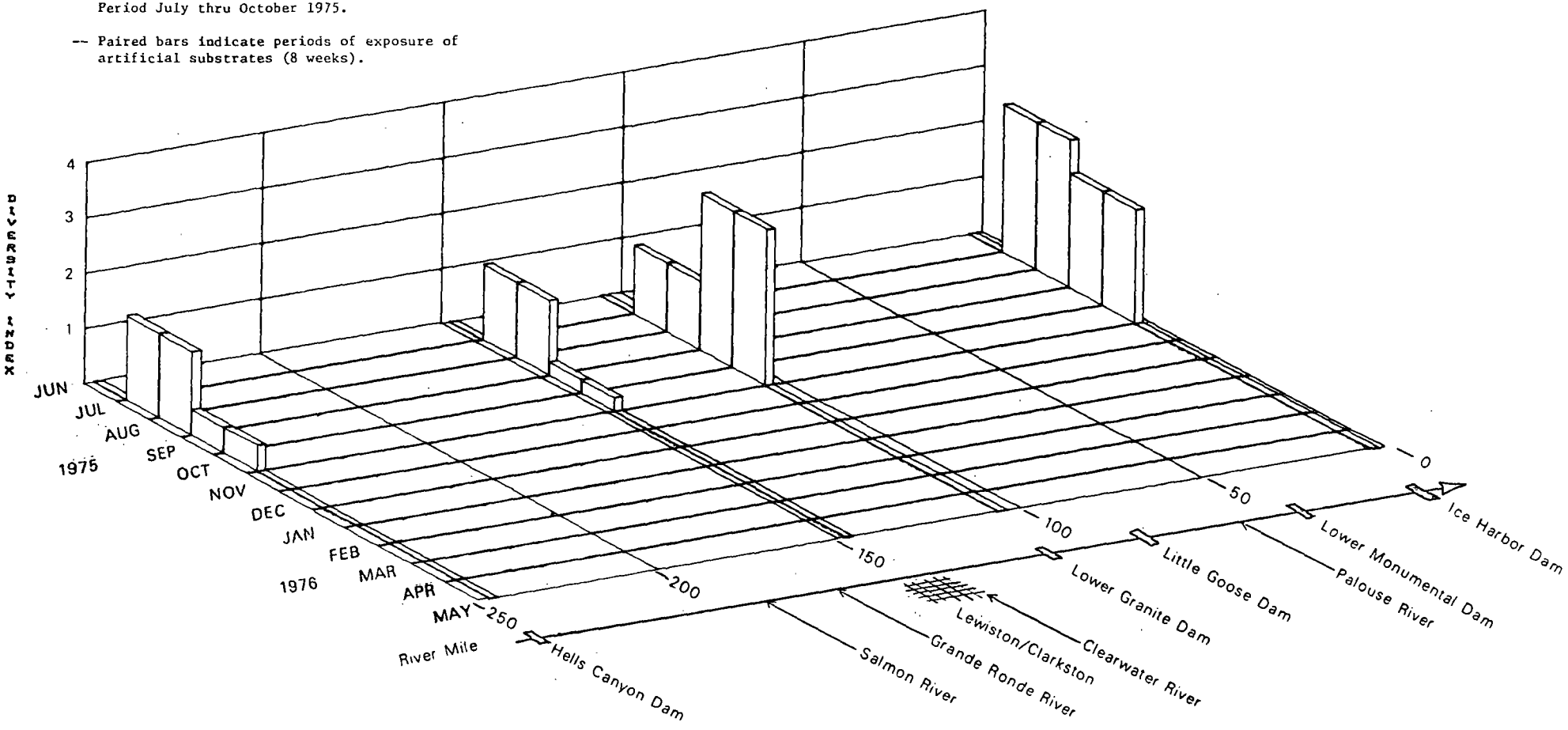
LOWER SNAKE RIVER BASIN

SPECIES DIVERSITY INDEX

NOTES:

-- Data from EPA Biological Monitoring Program for Period July thru October 1975.

-- Paired bars indicate periods of exposure of artificial substrates (8 weeks).



LOWER SNAKE RIVER BASIN

SPECIES DIVERSITY INDEX

NO TRIBUTARY DATA AVAILABLE

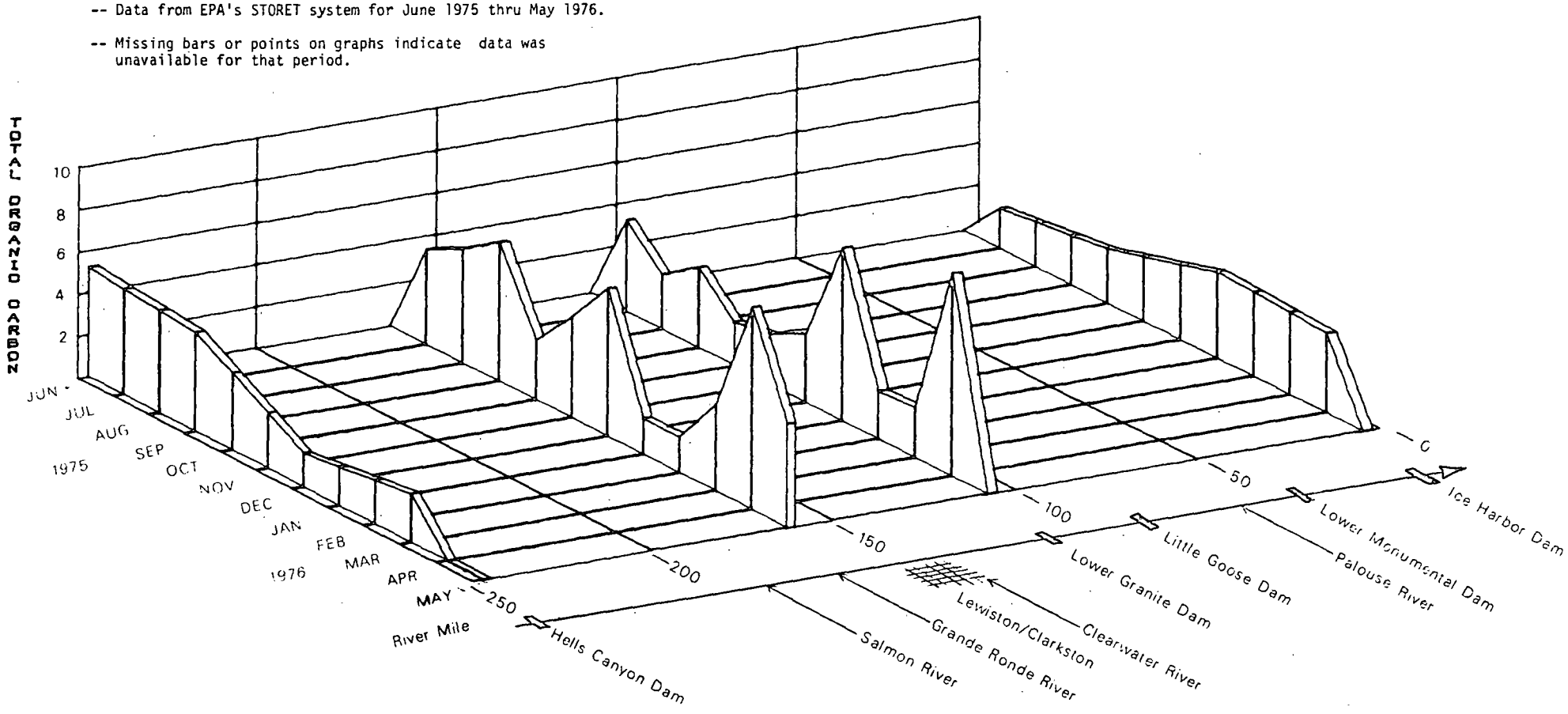
LOWER SNAKE RIVER BASIN

TOTAL ORGANIC CARBON MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.



LOWER SNAKE RIVER BASIN

TOTAL ORGANIC CARBON MG/L

NO TRIBUTARY DATA AVAILABLE

WILLAMETTE RIVER BASIN 13-09

The Willamette River basin is a STORET basin, however, currently only one NWQSS station is located at the mouth of the river. The parametric coverage for this station is shown as a tributary to the Lower Columbia River basin on (pg. 31). Future reports will include additional river coverage, and therefore will be included as a complete basin.

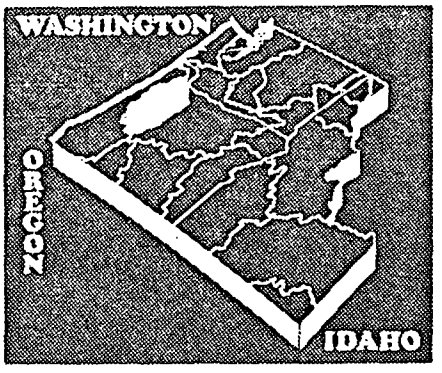
WILLAMETTE RIVER BASIN

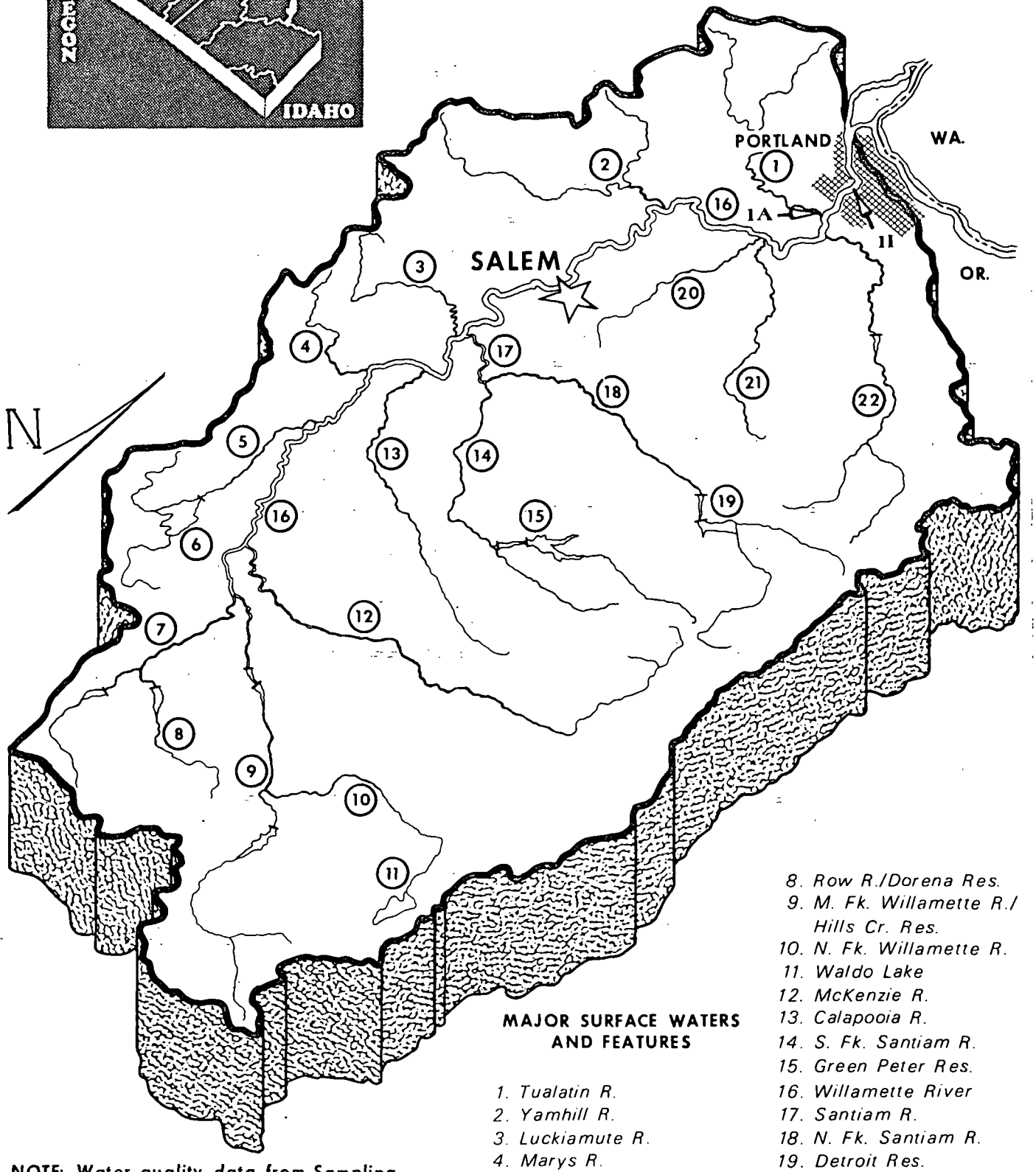
Map Station Number	Type of Data Collected		
	Physical	Chemical	Biological
1A			
1I *	X	X	

NOTE: Complete station information shown in Table 1 page 11-13.

* See Lower Columbia River Basin.

STORET #13-09
WILLAMETTE RIVER BASIN
N.W.Q.S.S. LOCATIONS





MAJOR SURFACE WATERS AND FEATURES

1. *Tualatin R.*
2. *Yamhill R.*
3. *Luckiamute R.*
4. *Marys R.*
5. *Long Tom R.*
6. *Fern Ridge Res.*
7. *Coast Fk. Willamette R./ Cottage Grove Res.*
8. *Row R./Dorena Res.*
9. *M. Fk. Willamette R./ Hills Cr. Res.*
10. *N. Fk. Willamette R.*
11. *Waldo Lake*
12. *McKenzie R.*
13. *Calapooia R.*
14. *S. Fk. Santiam R.*
15. *Green Peter Res.*
16. *Willamette River*
17. *Santiam R.*
18. *N. Fk. Santiam R.*
19. *Detroit Res.*
20. *Pudding R.*
21. *Mollala R.*
22. *Clackamas R./ North Fk. Res.*

NOTE: Water quality data from Sampling Site II is located with Lower Columbia River Basin data.

BEAR RIVER BASIN 15-07

The Bear River basin is located in southeastern Idaho as shown on the accompanying map. Unlike other major rivers that flush into the oceans, the Bear River discharges into the Great Salt Lake. The basin boundaries include the drainage area from the Idaho-Wyoming border (R.M. 274) to Preston, Idaho (R.M. 97.3). The principal uses of water in the Bear River basin are hydroelectric power and irrigation, with irrigated agriculture the major land use. Preston (pop. 3,310), Soda Springs (pop. 2,977), and Montpelier (pop. 2,604) are the major cities in the Bear River basin. The major industrial and municipal dischargers in the basin include domestic sewage treatment plants, food processing and chemical processing plants.

National Water Quality Surveillance System (NWQSS) stations located within this basin are shown on the map. The complete water quality and biological parametric coverage for NWQSS stations is listed in the Introduction of this report along with the EPA criteria associated with those parameters. However, only some of the parameters are included in the following curves. Complete raw data is available from EPA upon request.

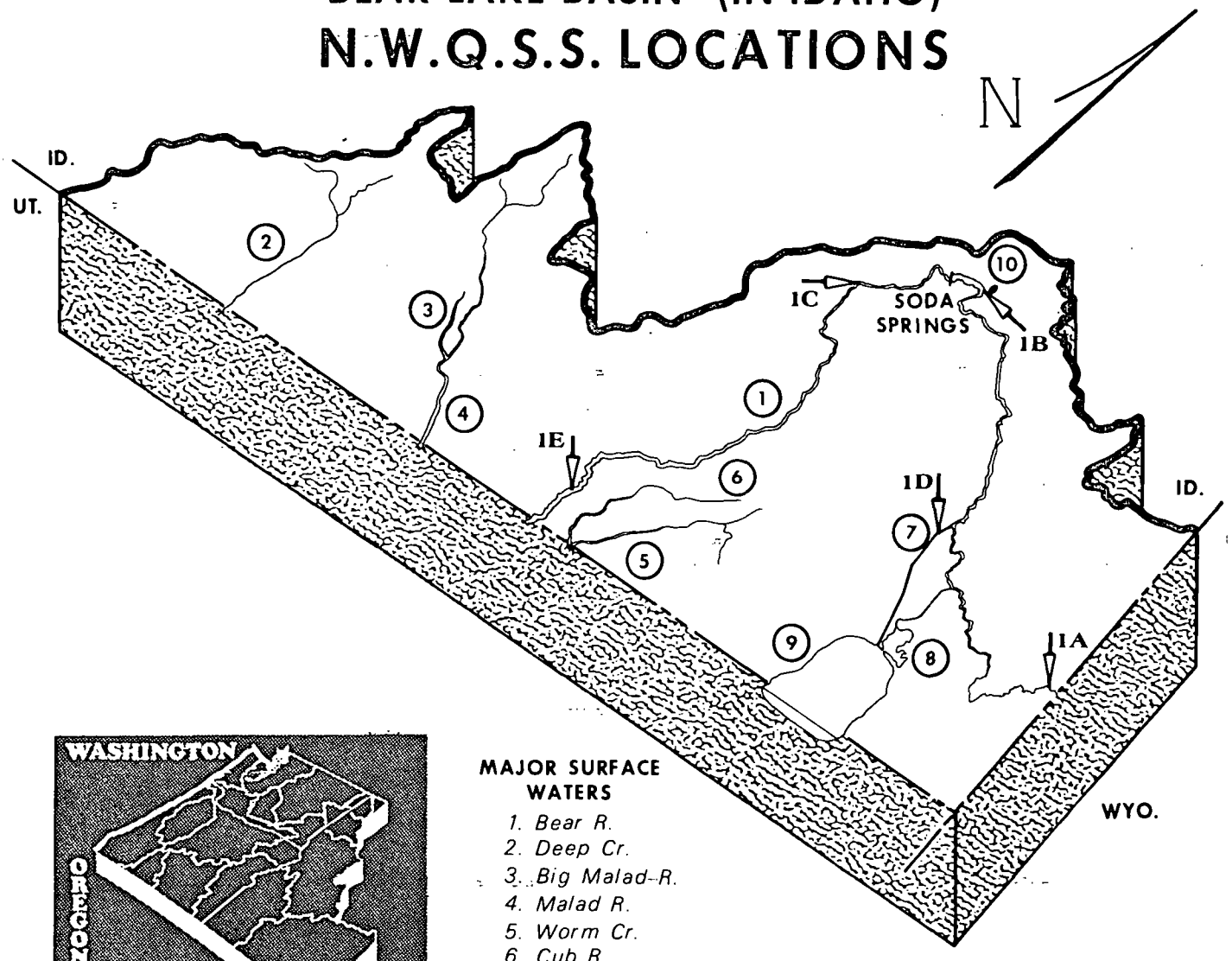
The following curve layout is designed to show the significant river constituents temporally presented on bar charts.

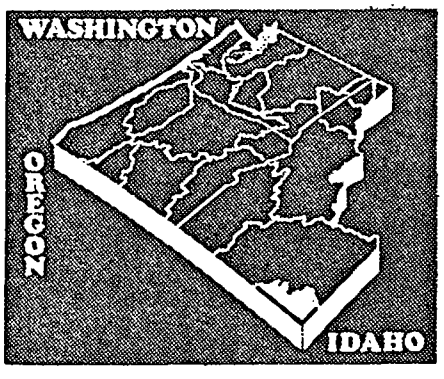
BEAR RIVER BASIN

Map Station Number	Type of Data Collected		
	Physical	Chemical	Biological
1A			
1B	X	X	
1C			
1D	X	X	
1E	X	X	

NOTE: Complete station information shown in Table 1 page 11-13.

STORET #15-07
BEAR LAKE BASIN (IN IDAHO)
N.W.Q.S.S. LOCATIONS



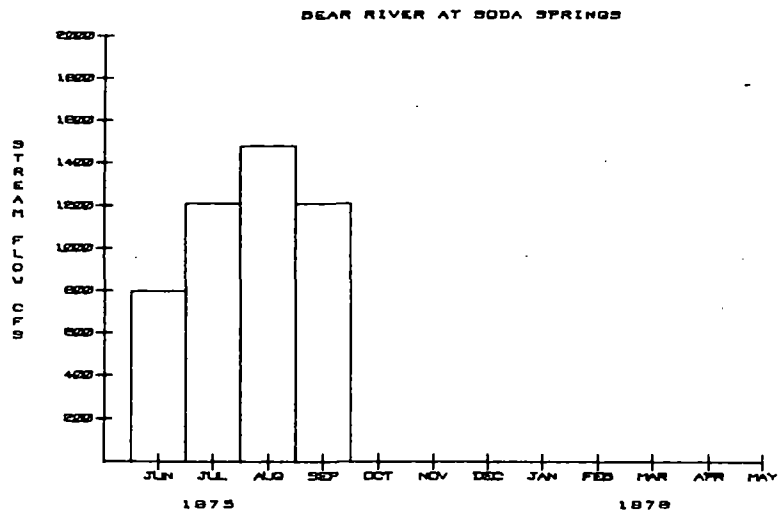


MAJOR SURFACE WATERS

1. *Bear R.*
2. *Deep Cr.*
3. *Big Malad R.*
4. *Malad R.*
5. *Worm Cr.*
6. *Cub R.*
7. *Bear Lake Outlet Canal*
8. *Mud Lk./Rainbow Canal*
9. *Bear Lake*
10. *Alexander Res.*

BEAR RIVER BASIN

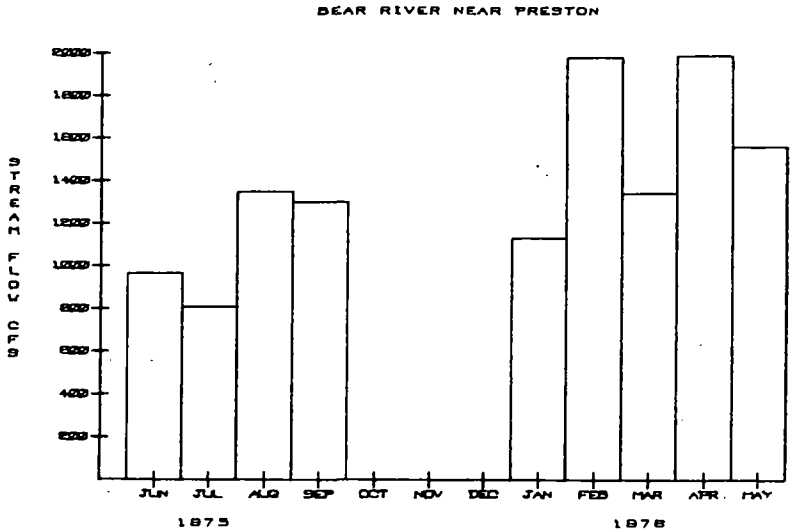
STREAM FLOW CFS

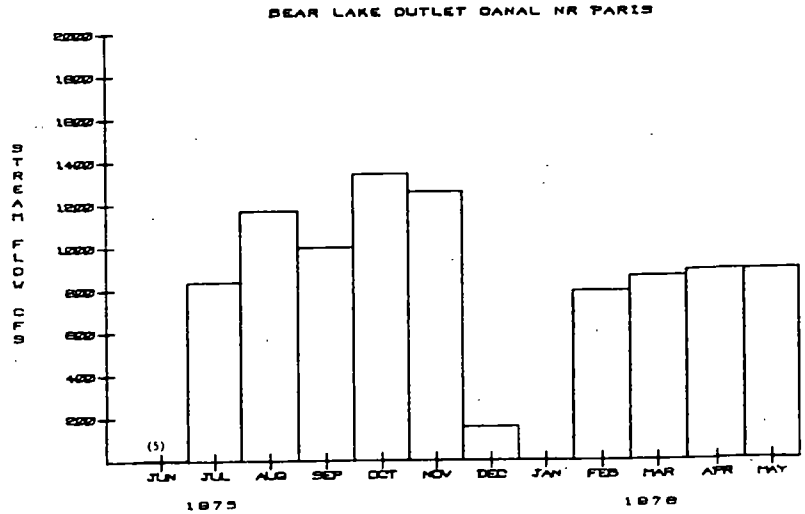


NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

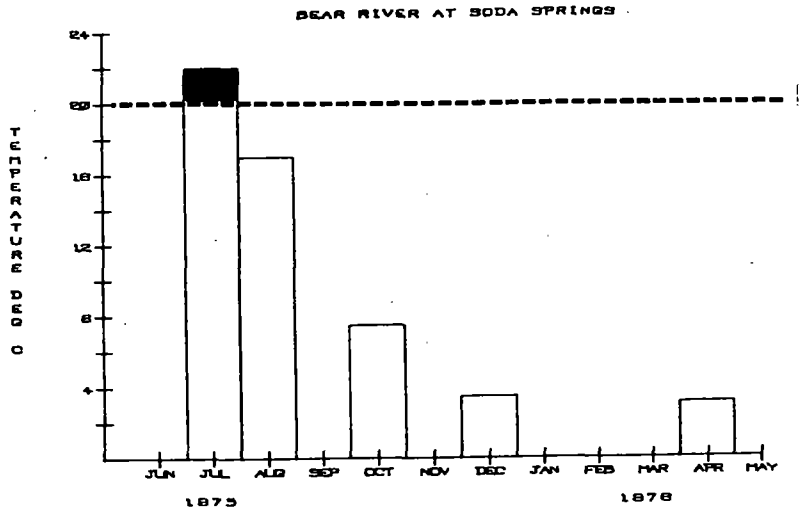
-- Missing bars or points on graphs indicate data was unavailable for that period.





BEAR RIVER BASIN

TEMPERATURE DEG C

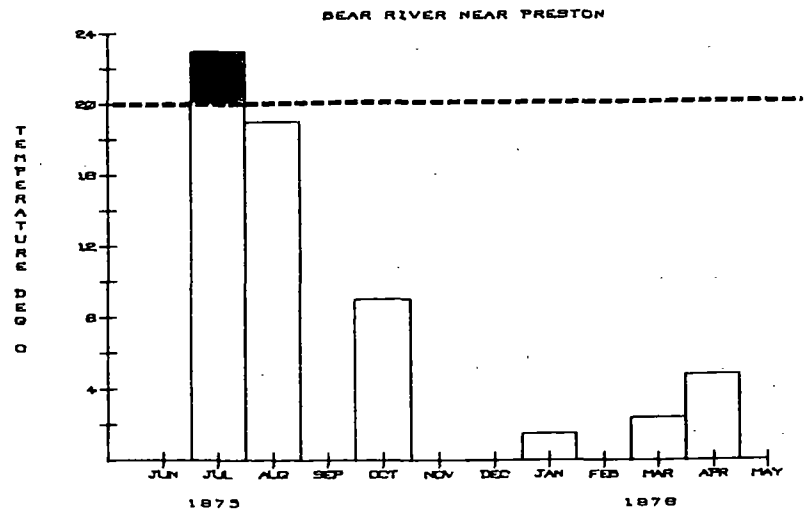


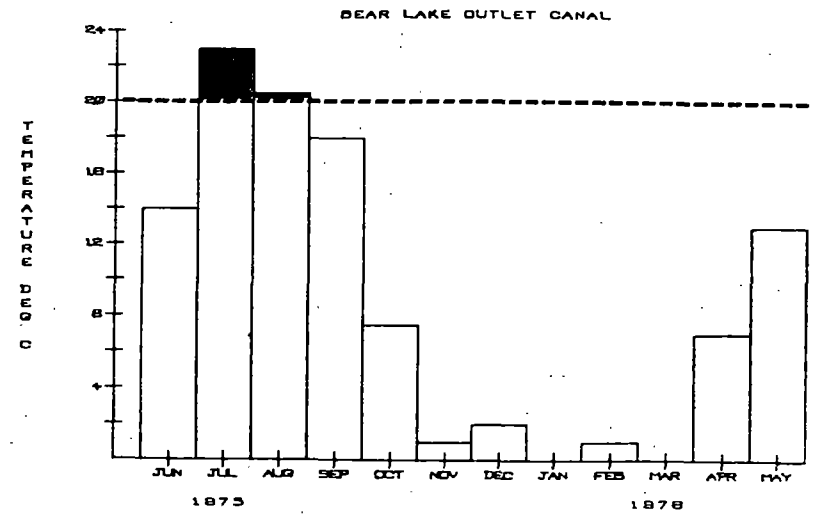
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

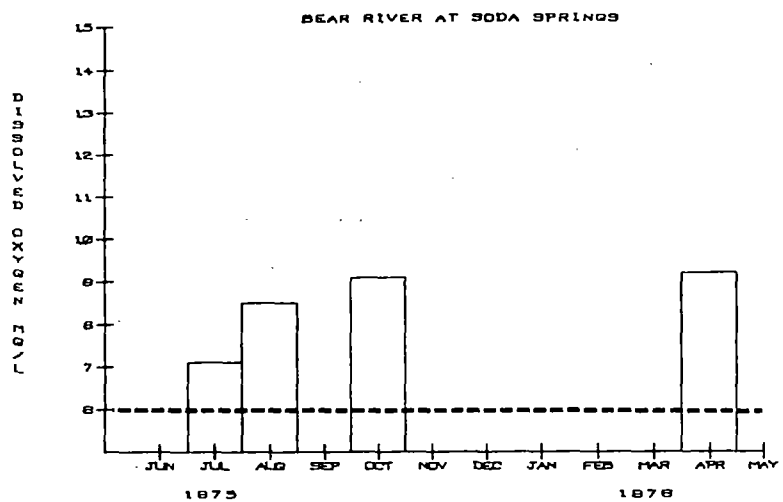
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the 20°C maximum temperature for salmonid spawning and rearing has been exceeded.





BEAR RIVER BASIN

DISSOLVED OXYGEN MG/L

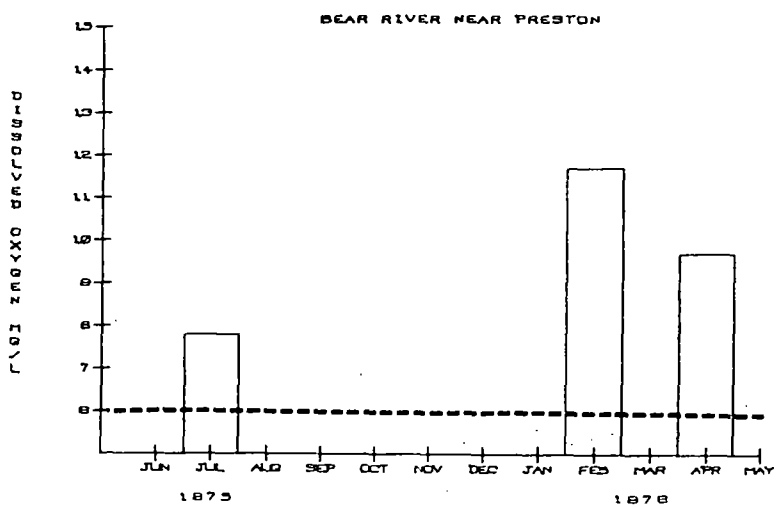


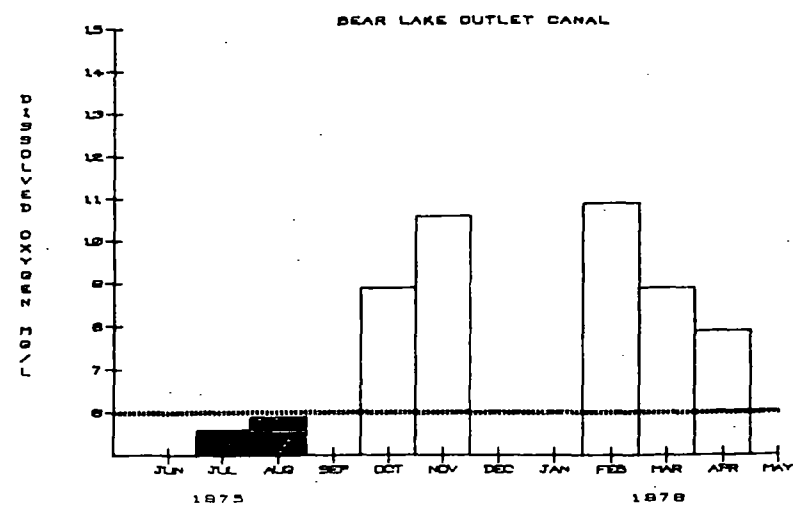
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the dissolved oxygen is below the 6 mg/l minimum criteria level.





BEAR RIVER BASIN

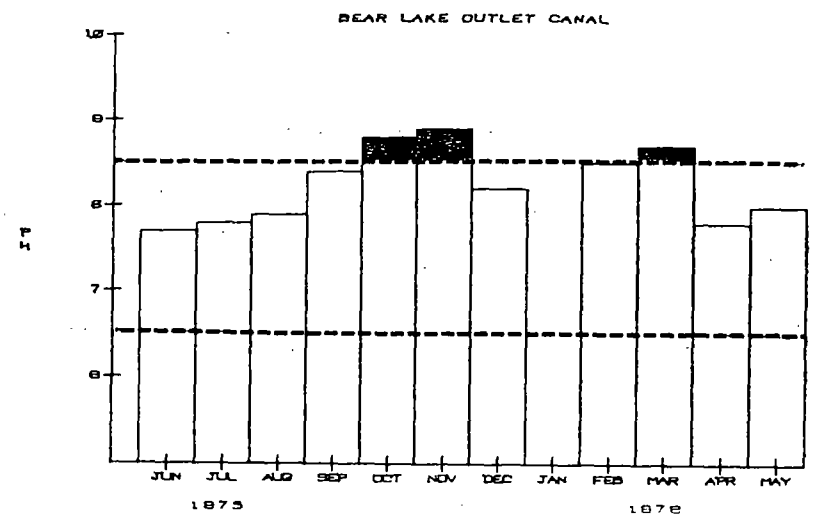
P H

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the pH is below the 6.5 minimum or above the 8.5 maximum criteria level.



AR RIVER BASIN

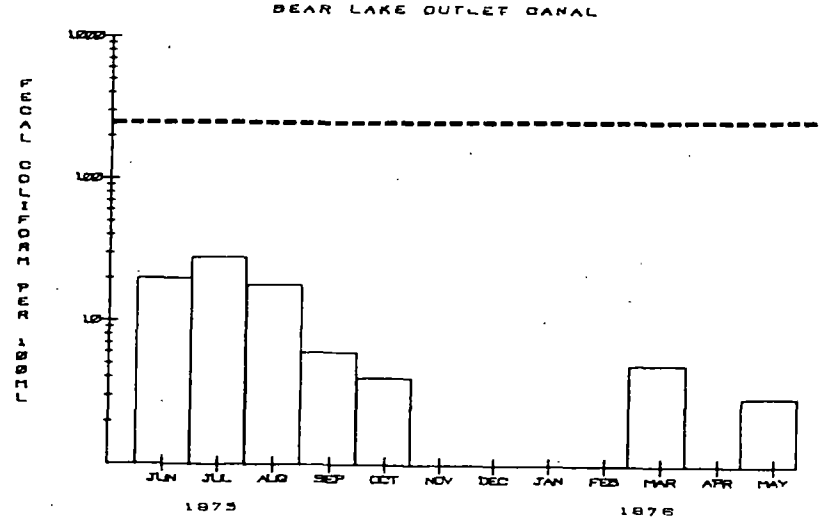
FECAL COLIFORM PER 100 ML

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

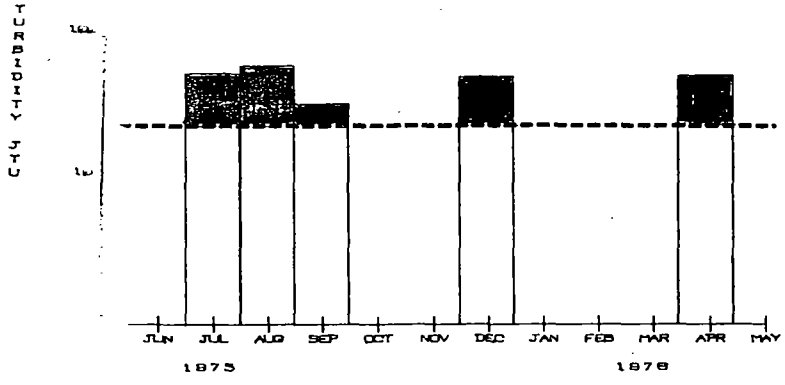
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the fecal coliform criteria level of 240 /ml has been exceeded.



BEAR RIVER BASIN

TURBIDITY IN JTU

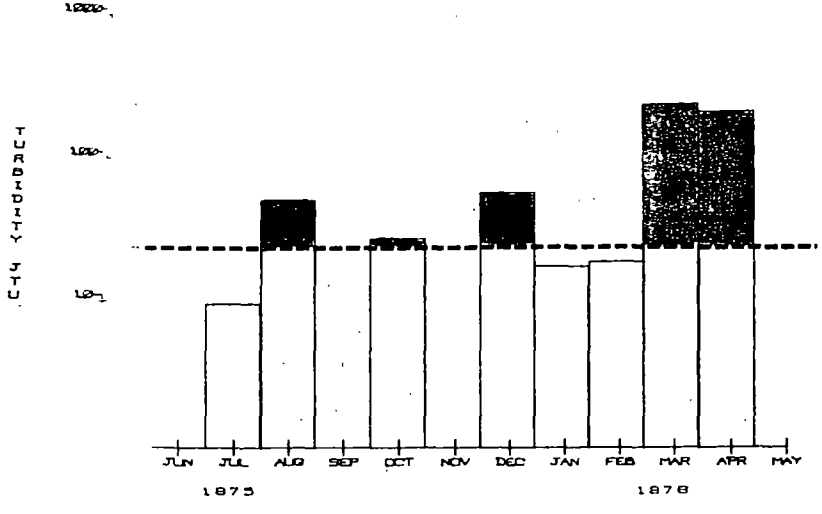
BEAR RIVER AT SODA SPRINGS



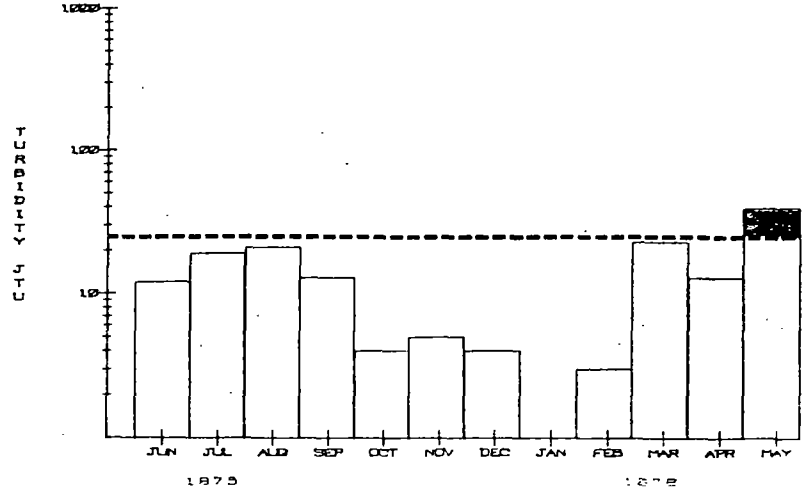
NOTES:

- -- Data from EPA's STORET system for June 1975 thru May 1976.
- -- Missing bars or points on graphs indicate data was unavailable for that period.
- -- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the turbidity criteria level of 25 JTU has been exceeded.

BEAR RIVER NEAR PRESTON

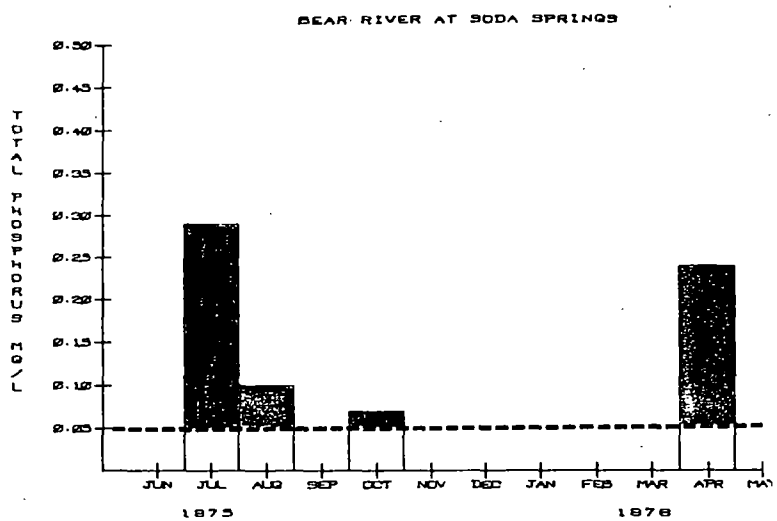


BEAR LAKE OUTLET CANAL



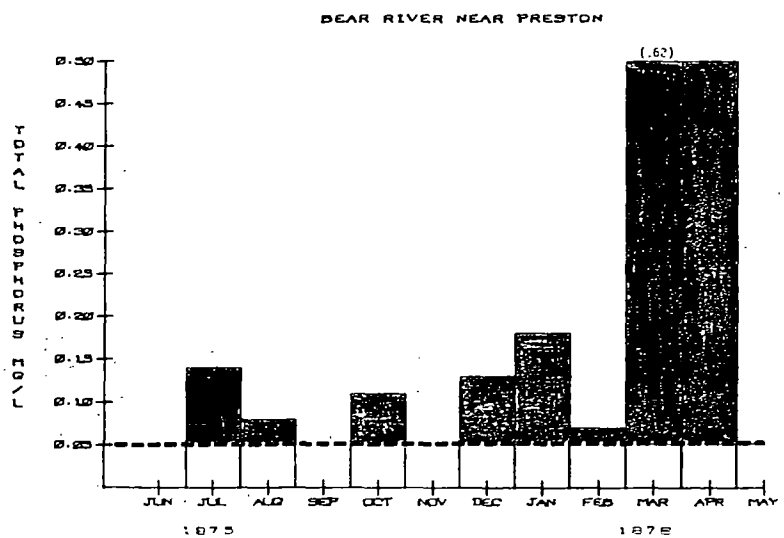
BEAR RIVER BASIN

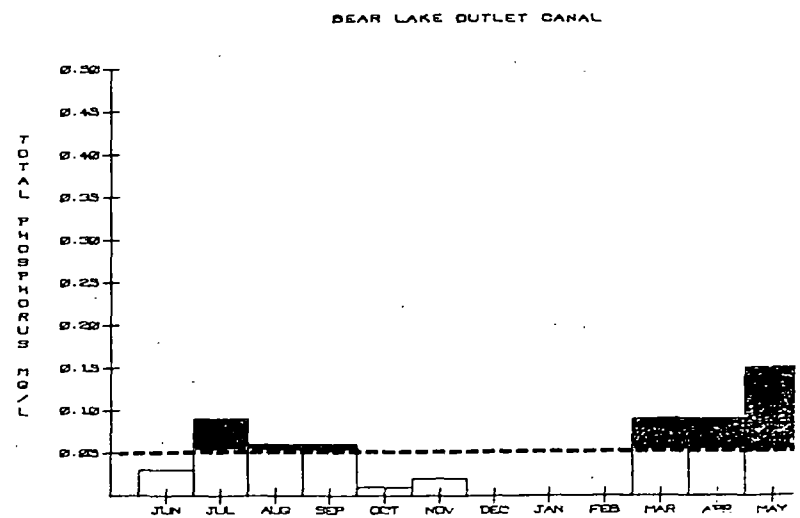
TOTAL PHOSPHORUS MG/L



NOTES:

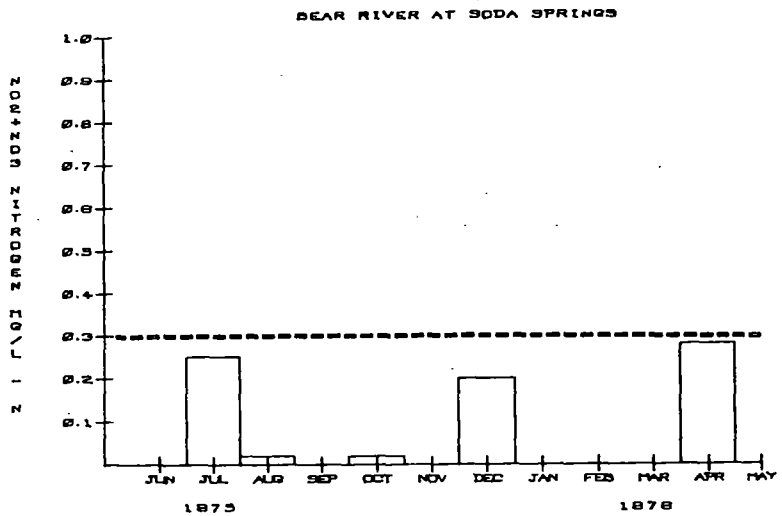
- -- Data from EPA's STORET system for June 1975 thru May 1976.
- -- Missing bars or points on graphs indicate data was unavailable for that period.
- -- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the total phosphorous algal bloom potential level of 0.05 mg/l has been exceeded.





BEAR RIVER BASIN

NO2+NO3 NITROGEN MG/L

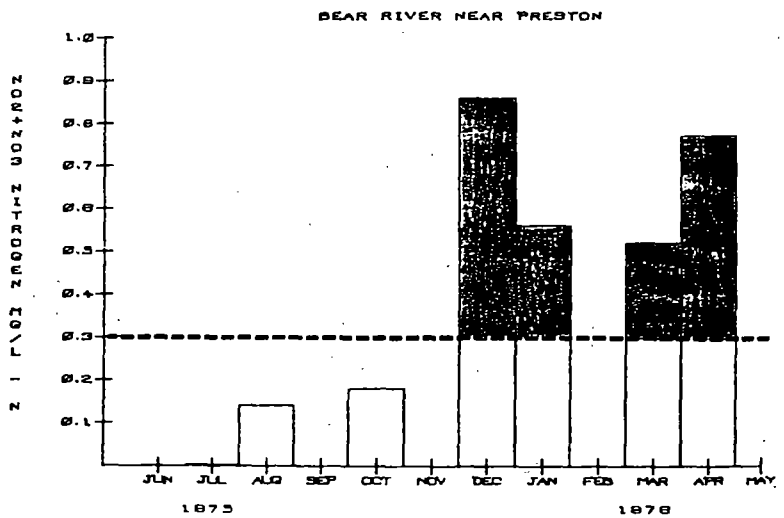


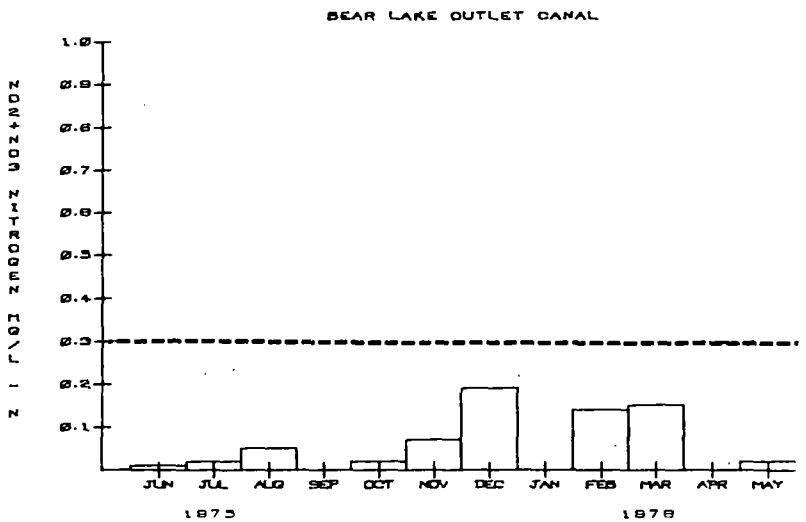
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

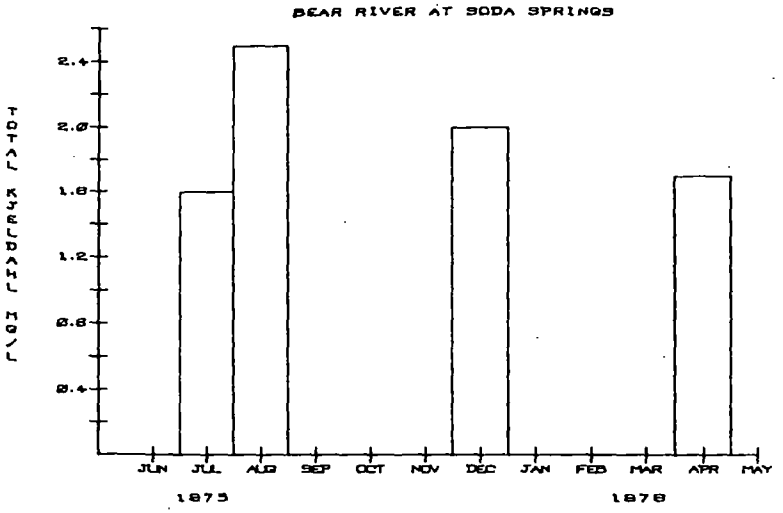
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the nitrate algal bloom potential level of 0.30 mg/l has been exceeded.





BEAR RIVER BASIN

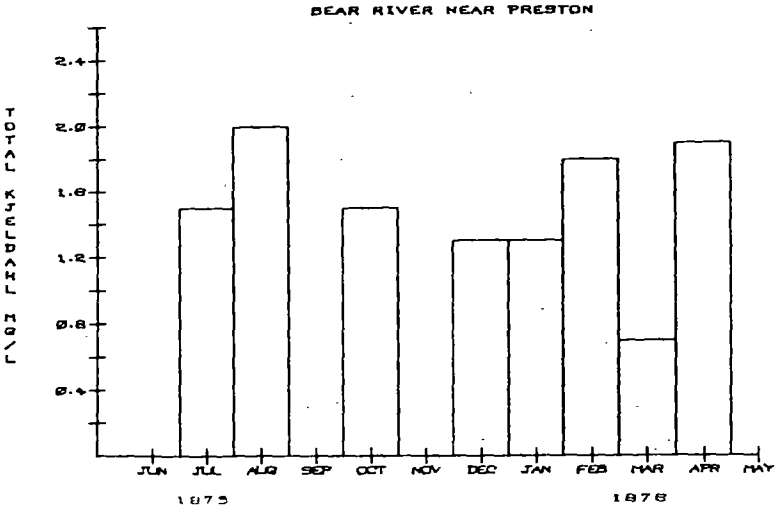
TOTAL KJELDAHL NITROGEN MG/L

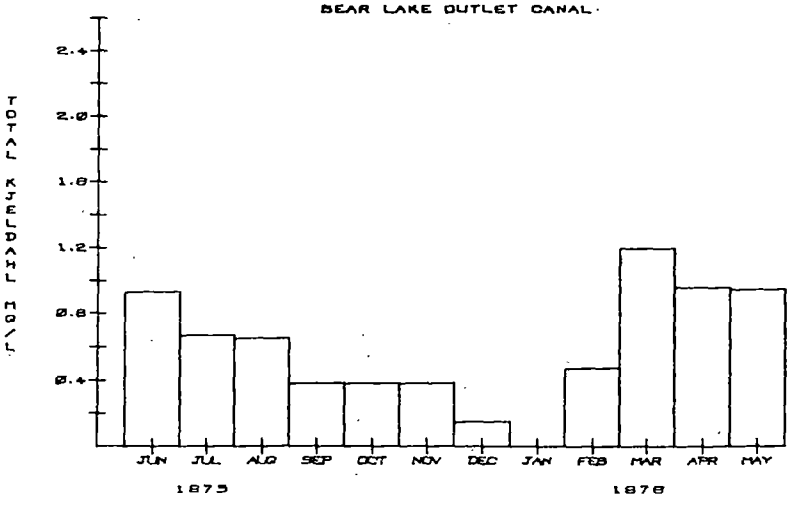


NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.





KLAMATH RIVER BASIN 14-01

The Klamath River basin is located in south central Oregon and northwestern California. For the purposes of this report, only the area within Oregon is presented. The basin boundaries include the Williamson River (R.M. 6.9) situated in the northern portion of the basin, and the Link River (R.M. 251.9) forming the southern boundary. The major urban center within the boundary is the City of Klamath Falls (pop. 20,000). The major land and water use in this basin is irrigated agriculture. The major municipal and industrial point sources include domestic sewage treatment plants and plywood mills.

National Water Quality Surveillance System (NWQSS) stations located within this basin are shown on the map. The complete water quality and biological parametric coverage for NWQSS stations is listed in the Introduction of this report along with the EPA criteria associated with those parameters. However, only some of the parameters are included in the following curves. Complete raw data is available from EPA upon request.

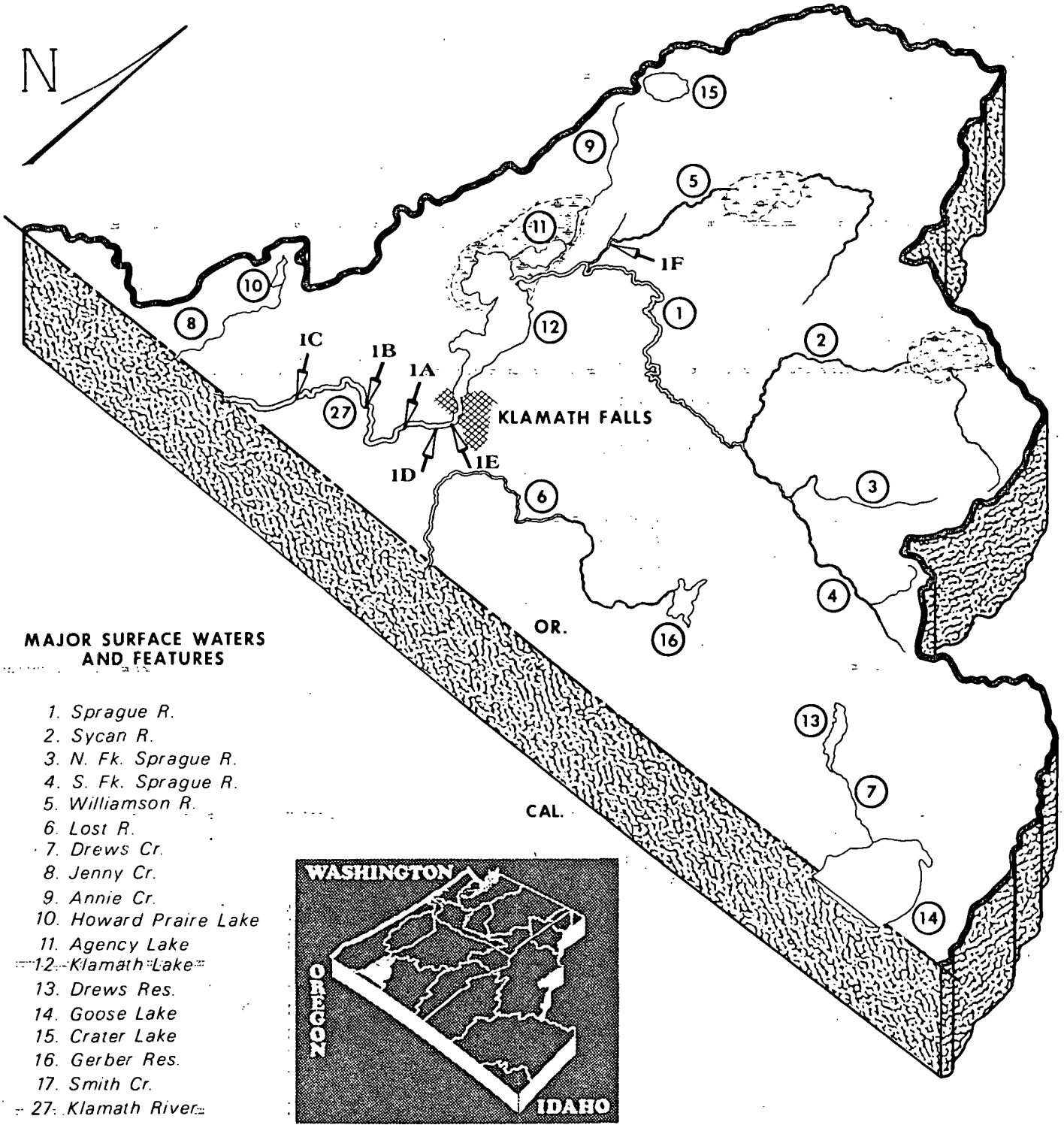
The following curve layout is designed to show the significant river constituents temporally presented on bar charts.

KLAMATH RIVER BASIN

Map Station Number	Type of Data Collected		
	Physical	Chemical	Biological
1A	X	X	
1B	X	X	
1C	X	X	
1D	X	X	
1E	X	X	
1F	X	X	

NOTE: Complete station information shown in Table 1 page 11-13.

STORET #14-01
KLAMATH RIVER BASIN
N.W.Q.S.S. LOCATIONS



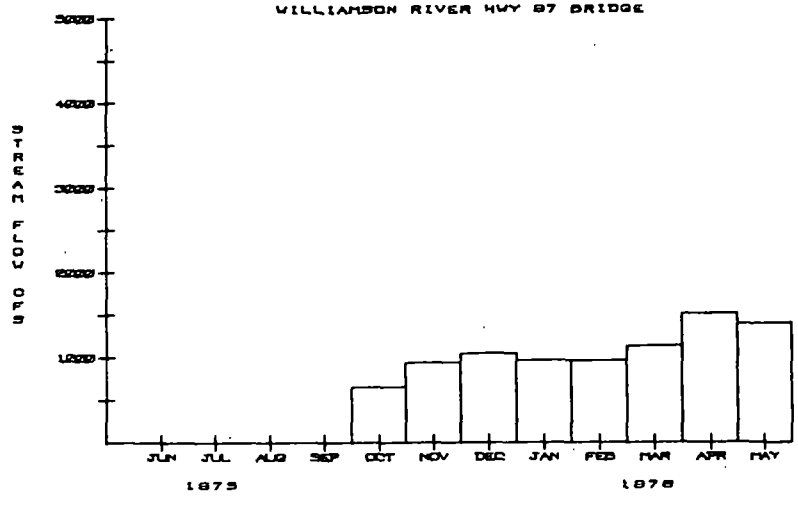
MAJOR SURFACE WATERS AND FEATURES

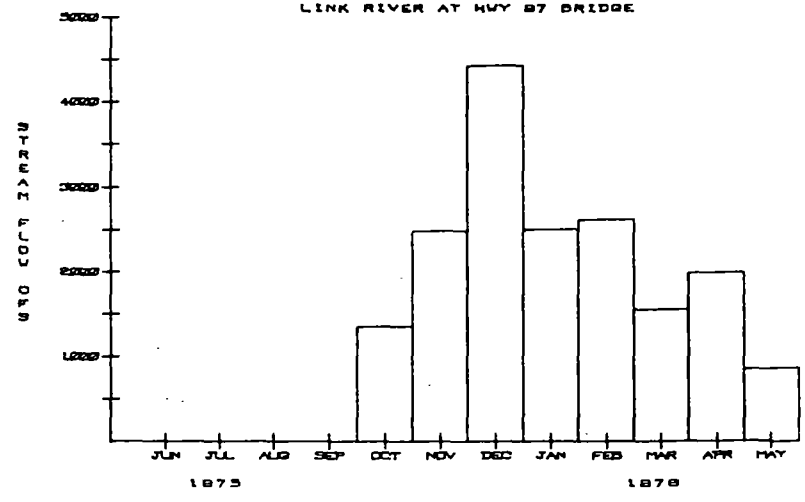
1. *Sprague R.*
2. *Sycan R.*
3. *N. Fk. Sprague R.*
4. *S. Fk. Sprague R.*
5. *Williamson R.*
6. *Lost R.*
7. *Drews Cr.*
8. *Jenny Cr.*
9. *Annie Cr.*
10. *Howard Praire Lake*
11. *Agency Lake*
12. *Klamath Lake*
13. *Drews Res.*
14. *Goose Lake*
15. *Crater Lake*
16. *Gerber Res.*
17. *Smith Cr.*

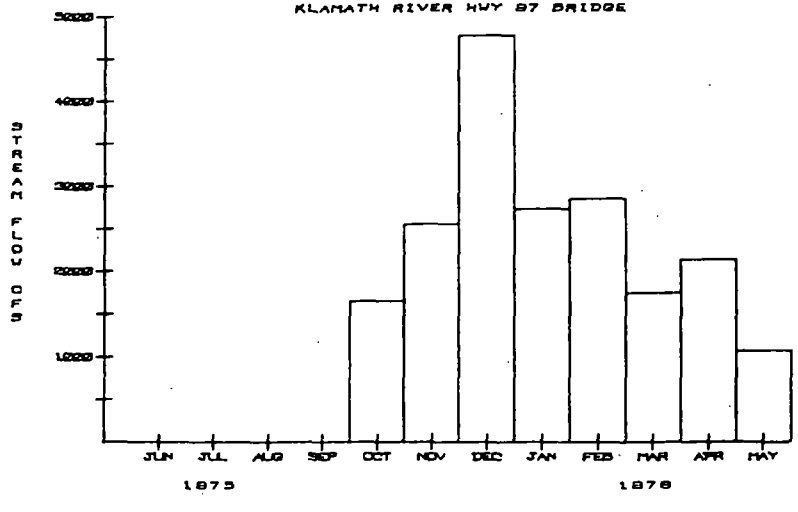
27. *Klamath River*

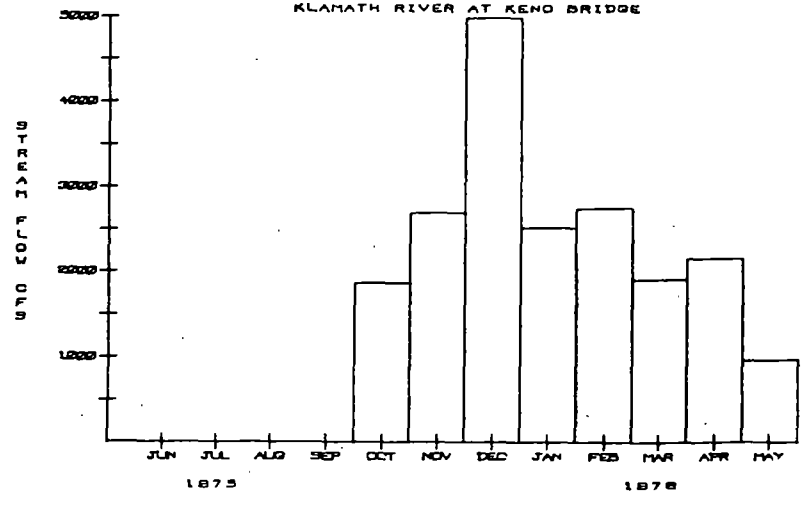
KLAMATH RIVER BASIN

STREAM FLOW CFS



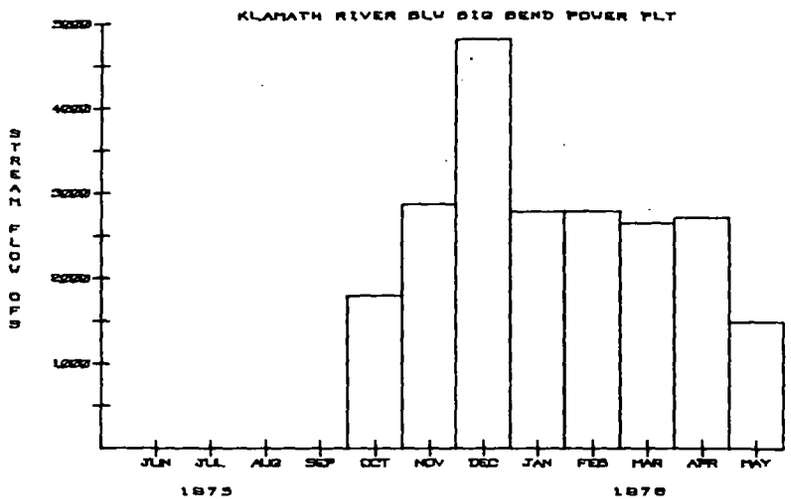


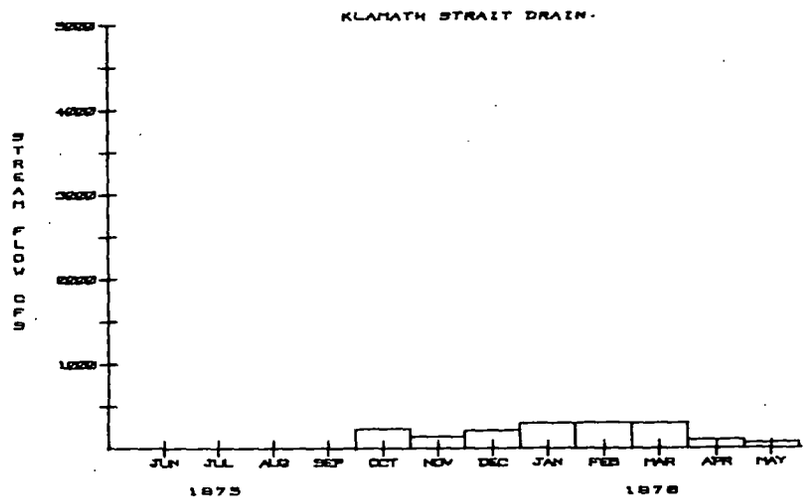




KLAMATH RIVER BASIN

STREAM FLOW CFS





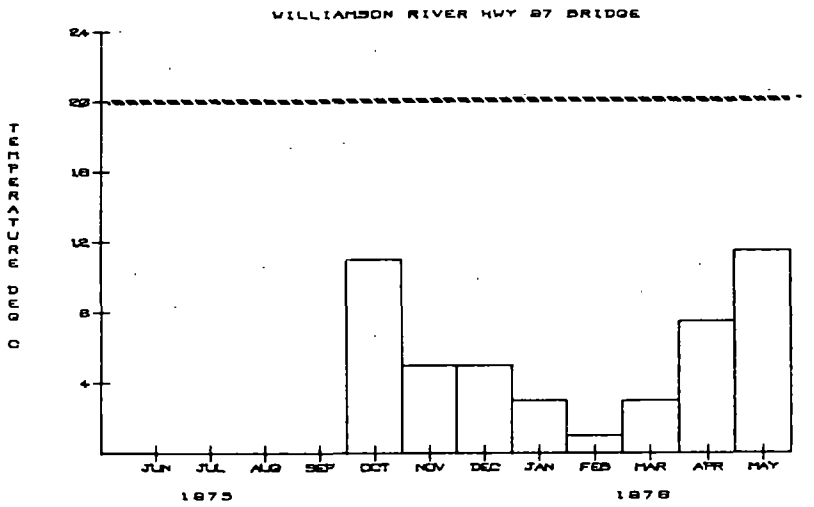
NOTES:

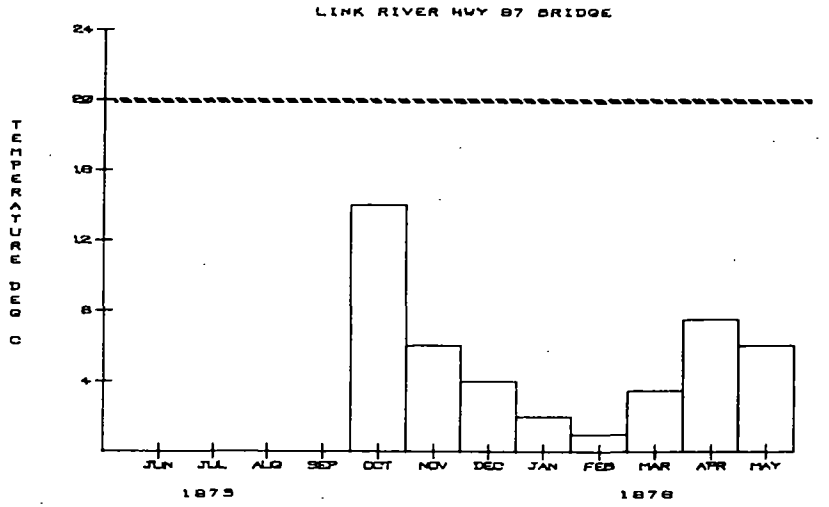
-- Data from EPA's STORET system for June 1975 thru May 1976.

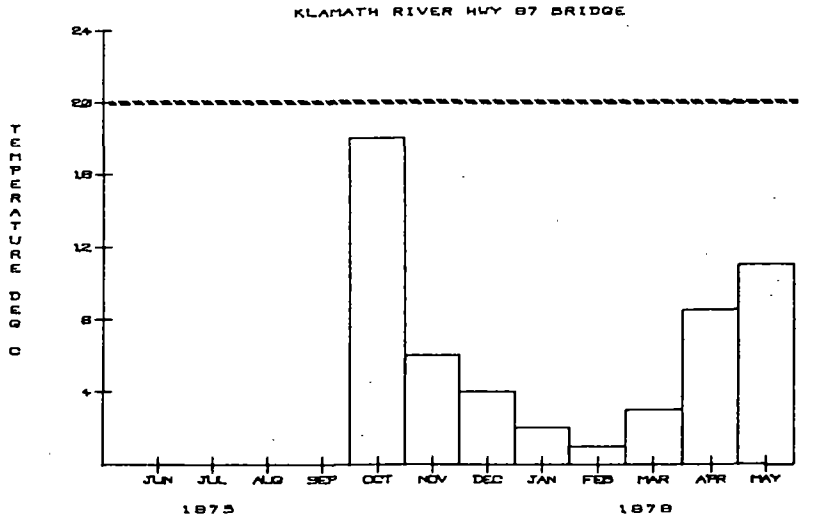
-- Missing bars or points on graphs indicate data was unavailable for that period.

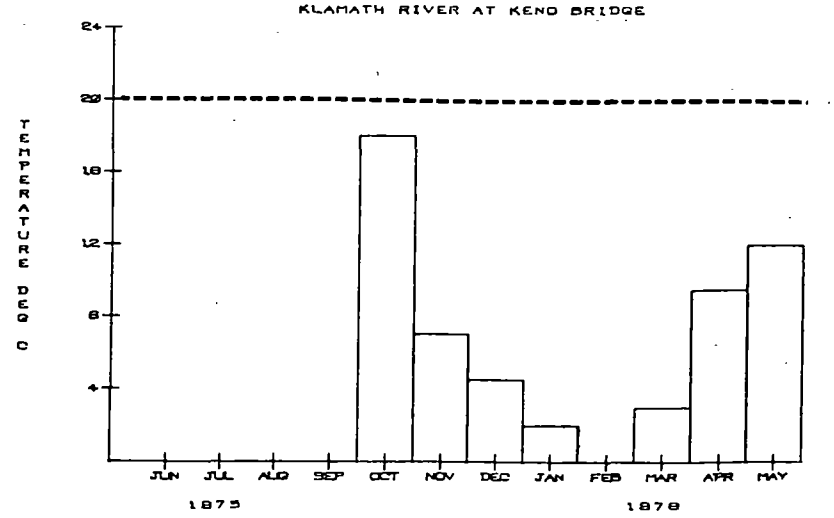
KLAMATH RIVER BASIN

TEMPERATURE DEG C



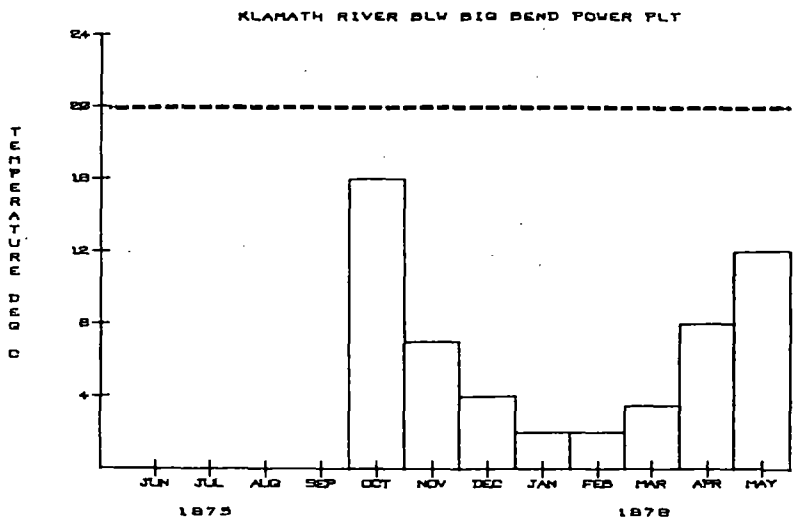


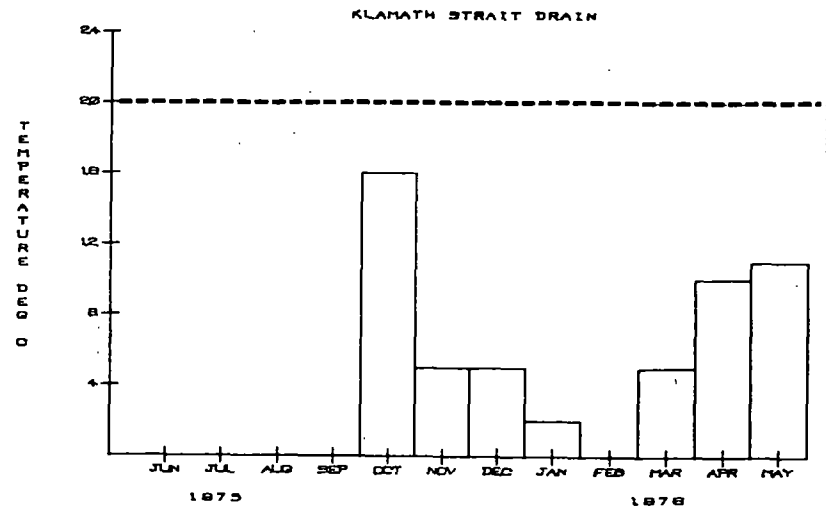




KLAMATH RIVER BASIN

TEMPERATURE DEG C





NOTES:

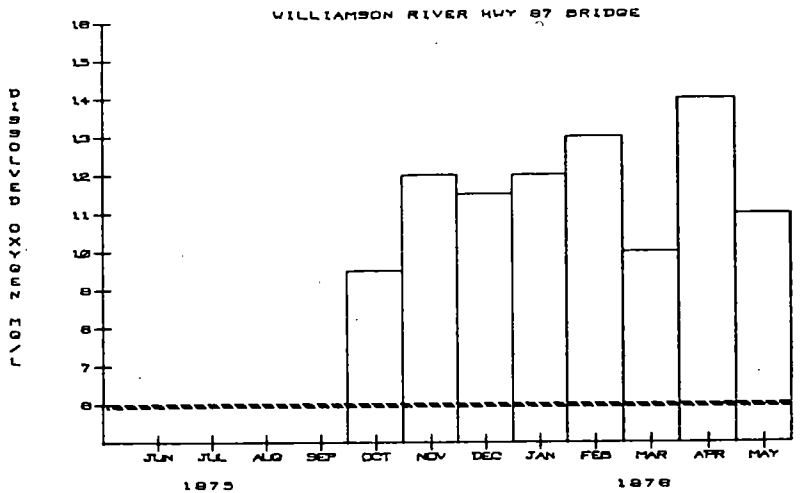
-- Data from EPA's STORET system for June 1975 thru May 1976.

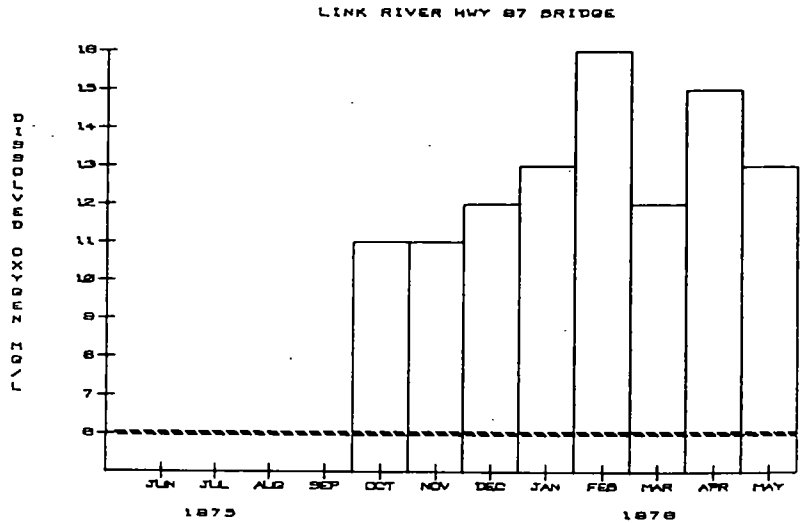
-- Missing bars or points on graphs indicate data was unavailable for that period.

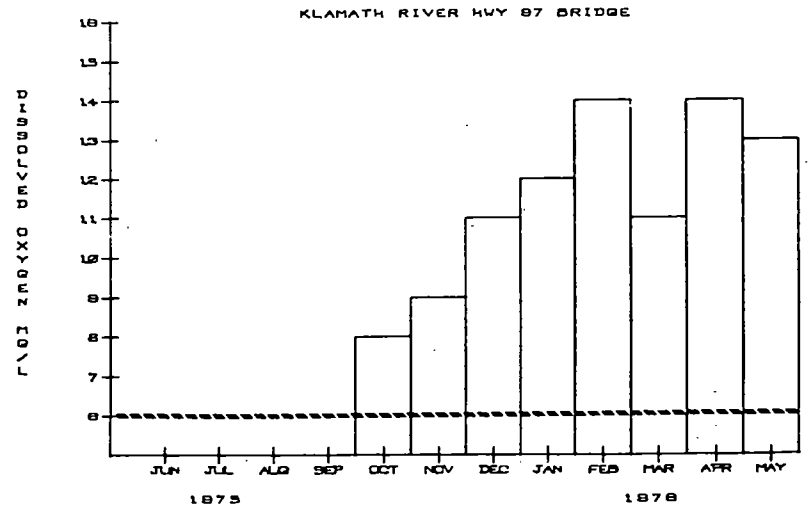
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the 20°C maximum temperature for salmonid spawning and rearing has been exceeded.

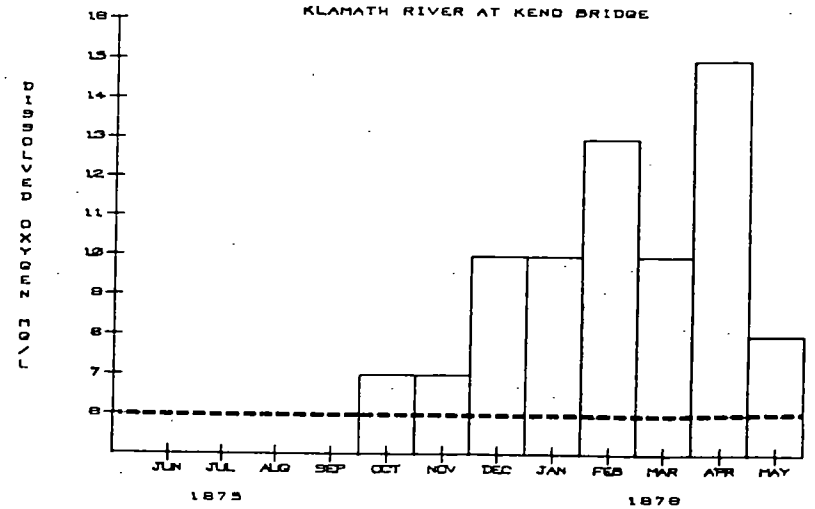
KLAMATH RIVER BASIN

DISSOLVED OXYGEN MG/L



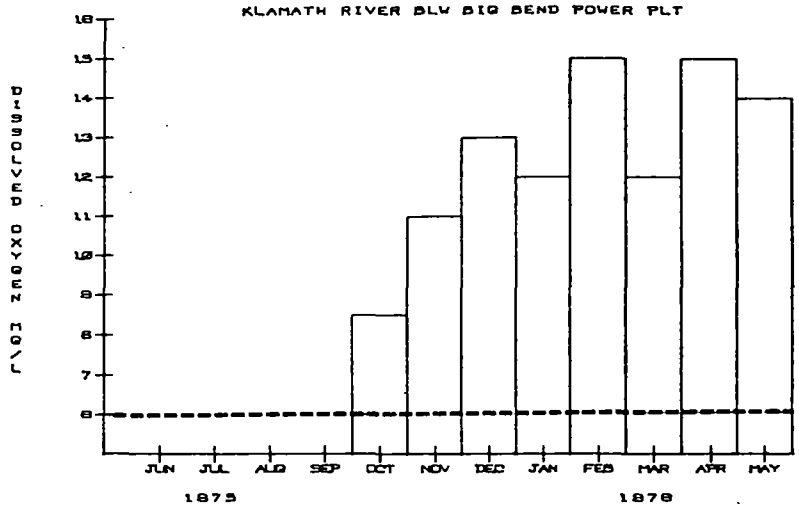


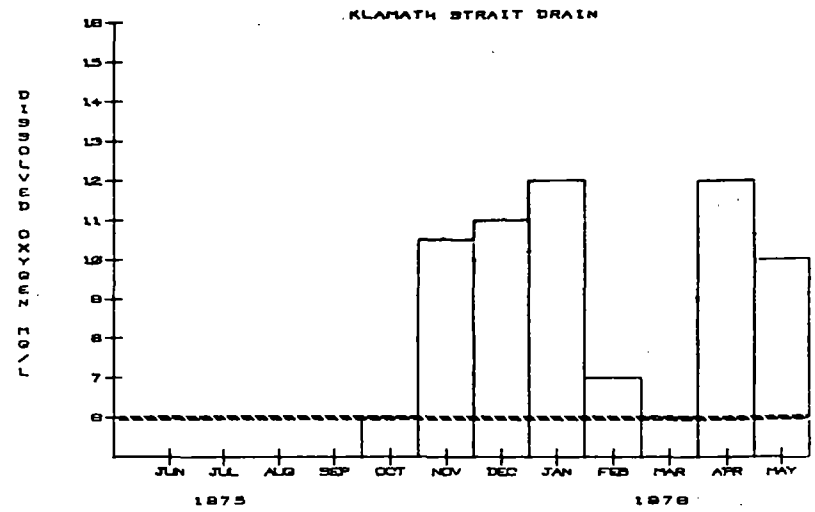




KLAMATH RIVER BASIN

DISSOLVED OXYGEN MG/L





NOTES:

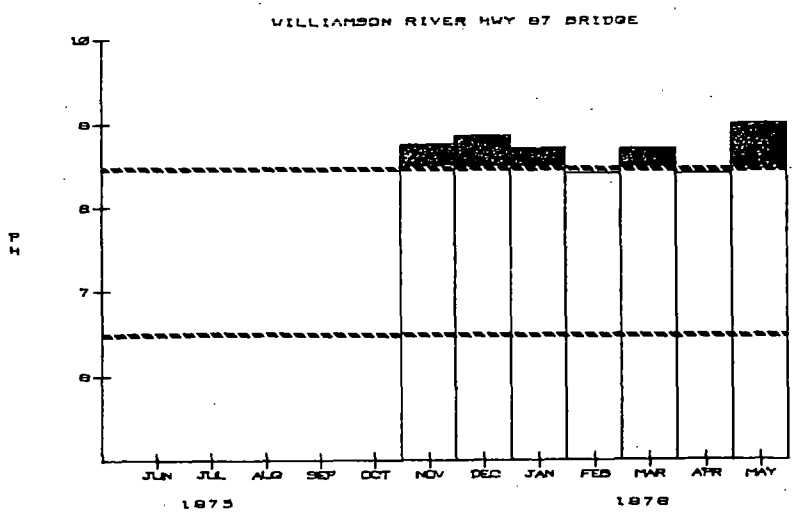
-- Data from EPA's STORET system for June 1975 thru May 1976.

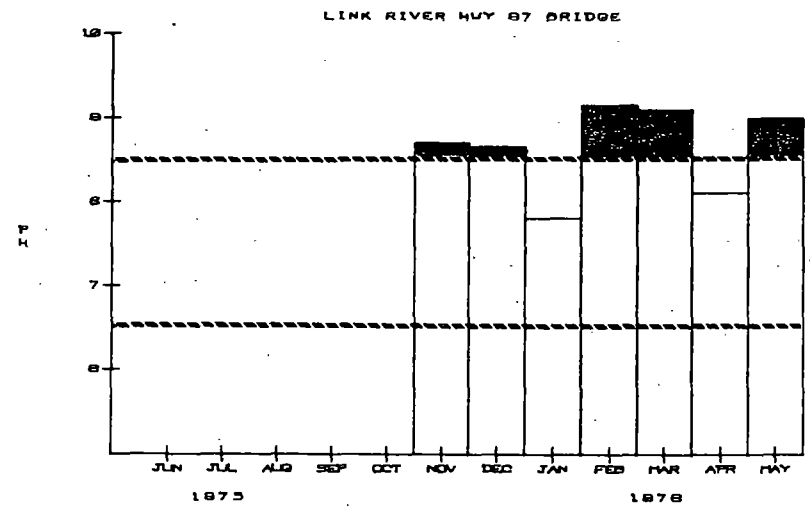
-- Missing bars or points on graphs indicate data was unavailable for that period.

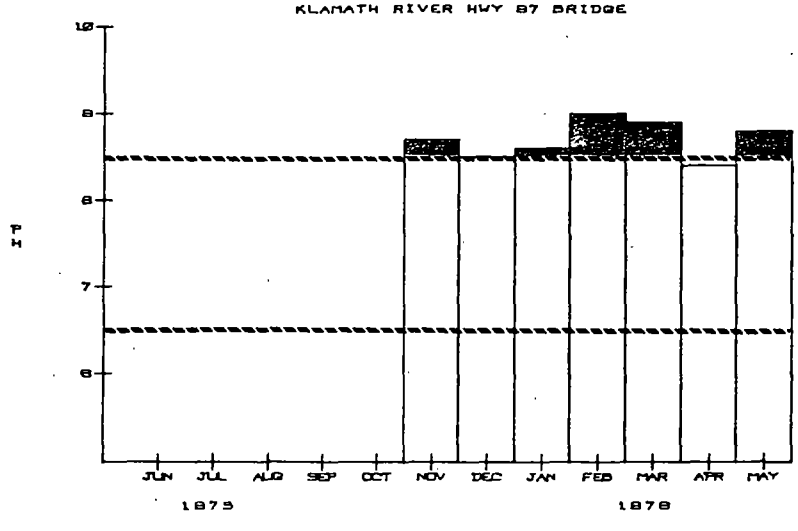
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the dissolved oxygen is below the 6 mg/l minimum criteria level.

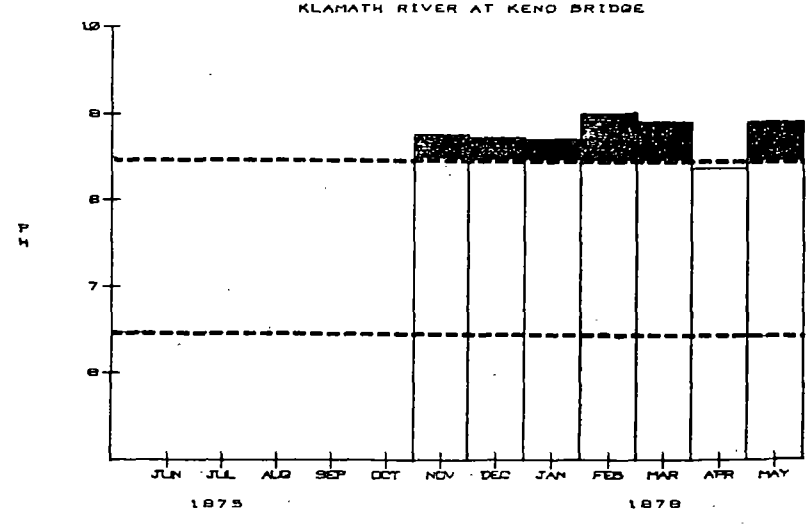
KLAMATH RIVER BASIN

P H



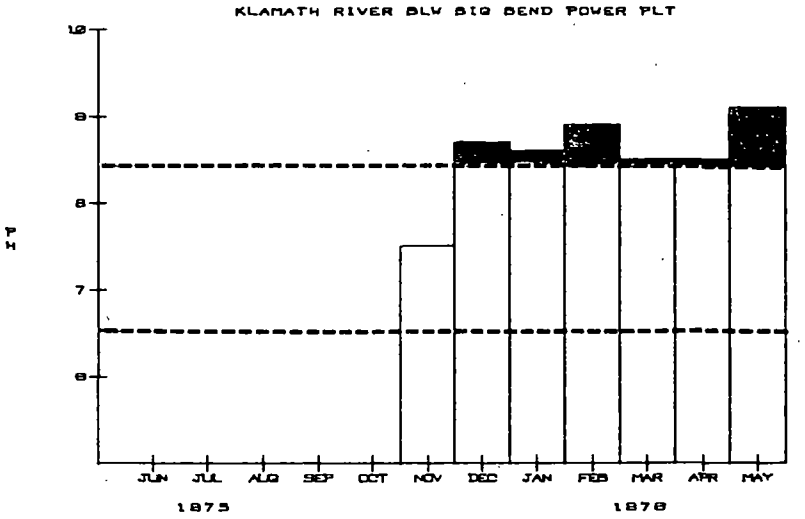


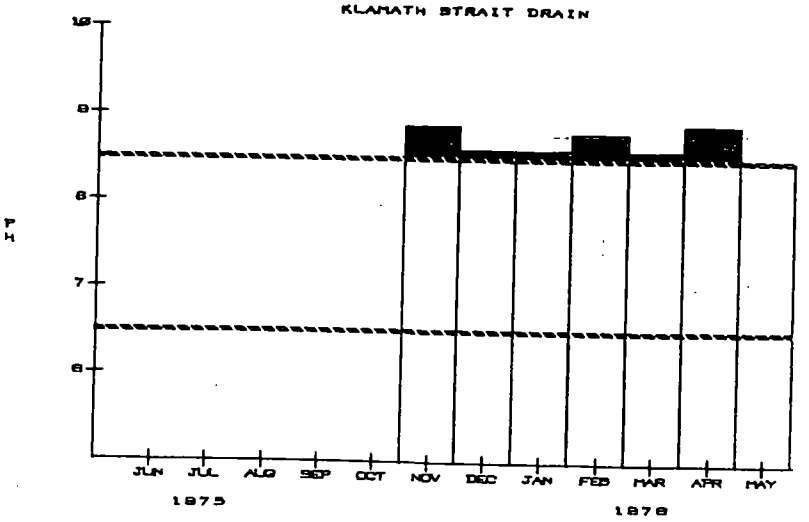




KLAMATH RIVER BASIN

P H





NOTES:

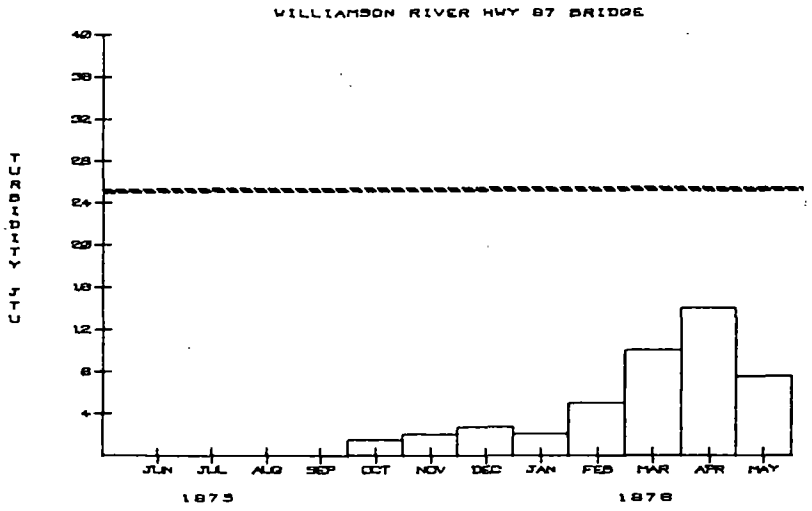
-- Data from EPA's STORET system for June 1975 thru May 1976.

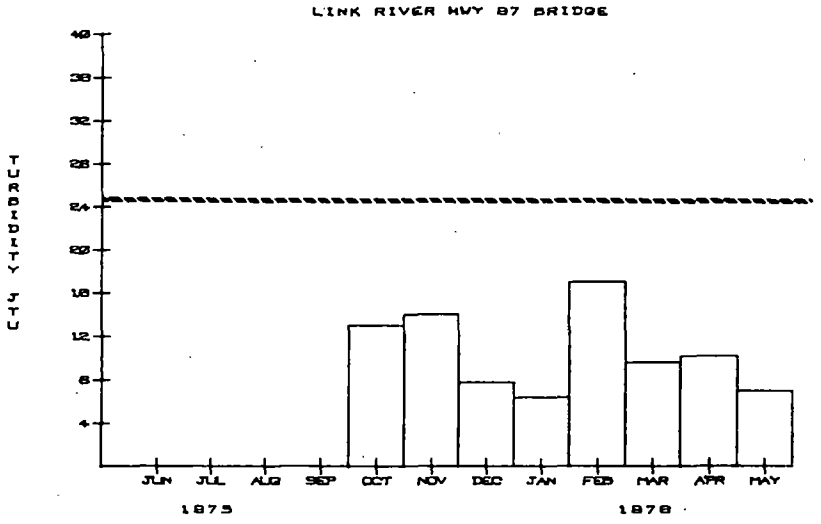
-- Missing bars or points on graphs indicate data was unavailable for that period.

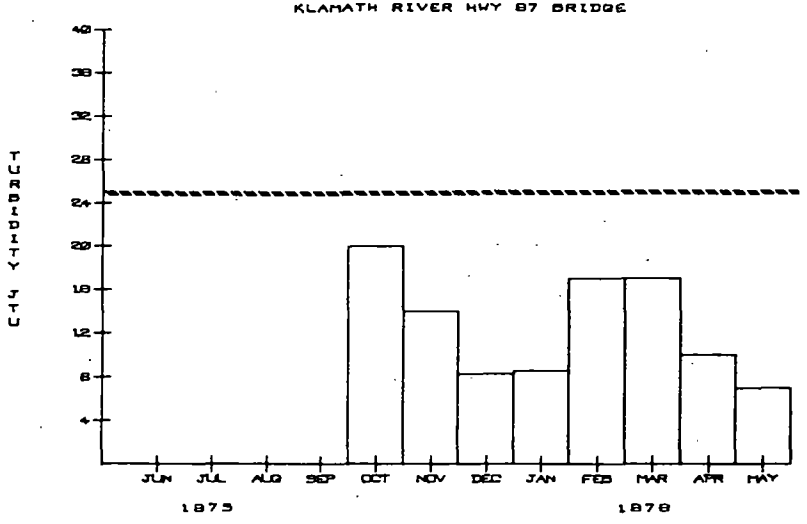
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the pH is below the 6.5 minimum or above the 8.5 maximum criteria level.

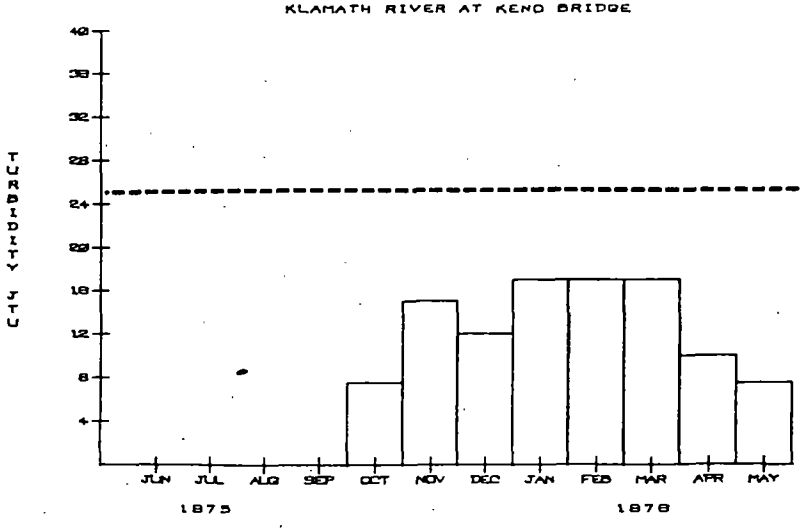
KLAMATH RIVER BASIN

TURBIDITY IN JTU



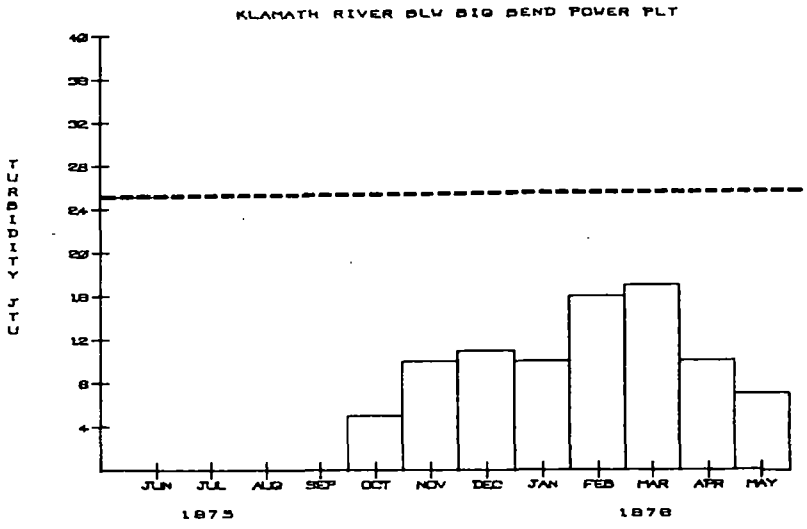


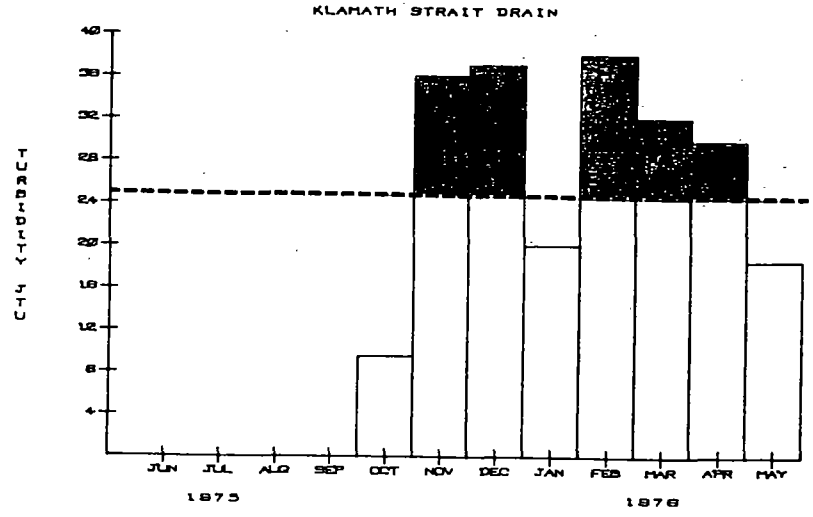




KLAMATH RIVER BASIN

TURBIDITY IN JTU





NOTES:

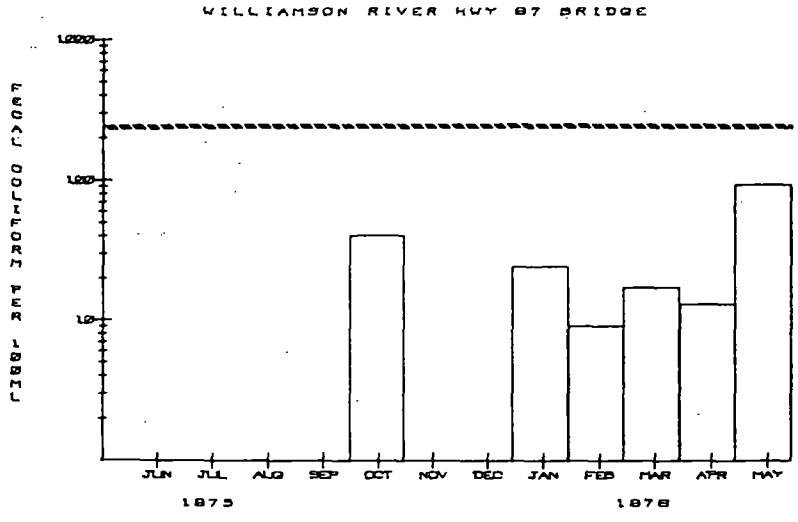
-- Data from EPA's STORET system for June 1975 thru May 1976.

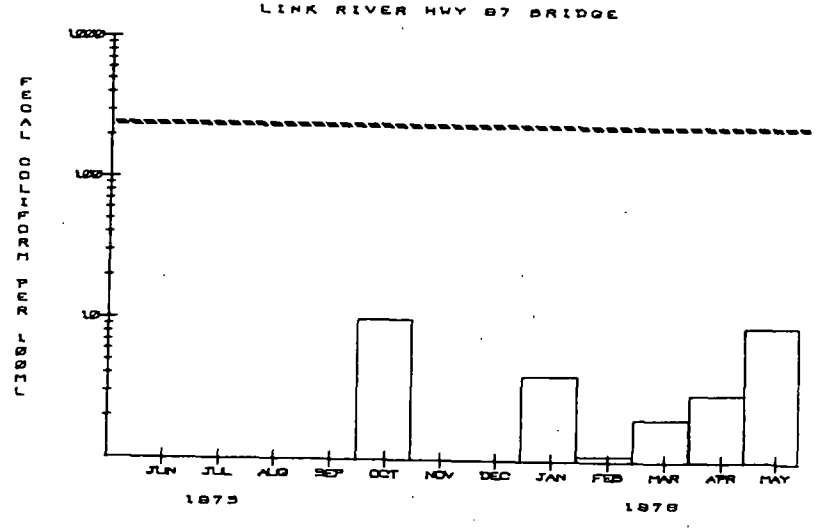
-- Missing bars or points on graphs indicate data was unavailable for that period.

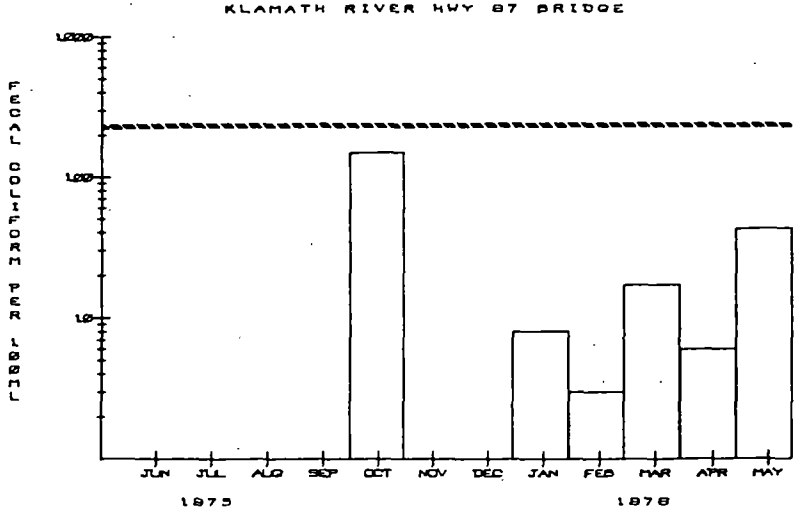
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the turbidity criteria level of 25 JTU has been exceeded.

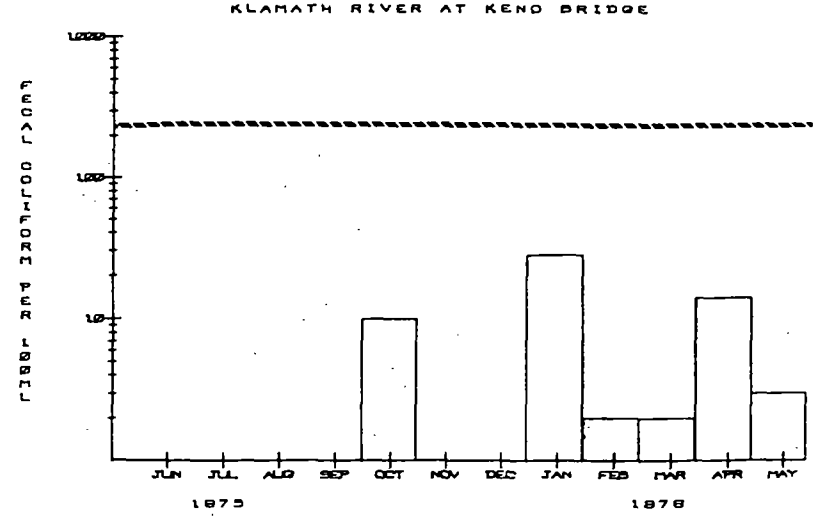
KLAMATH RIVER BASIN

FECAL COLIFORM PER 100 ML



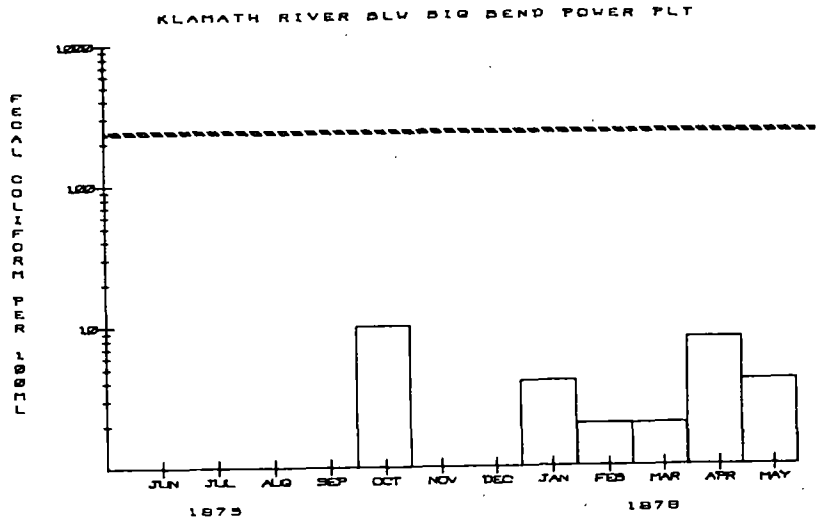


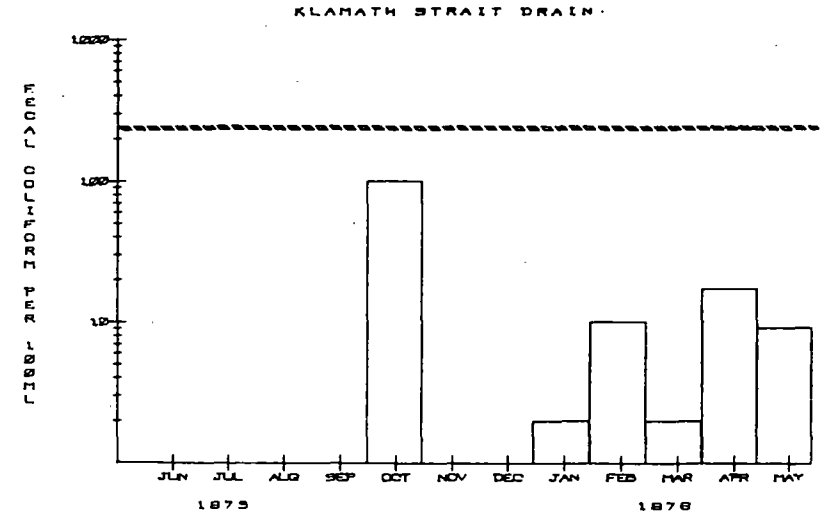




KLAMATH RIVER BASIN

FECAL COLIFORM PER 100 ML





NOTES:

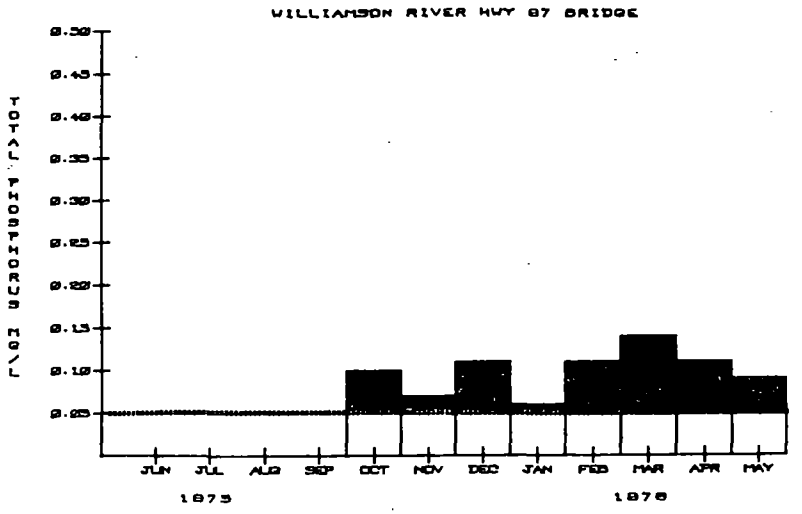
-- Data from EPA's STORET system for June 1975 thru May 1976.

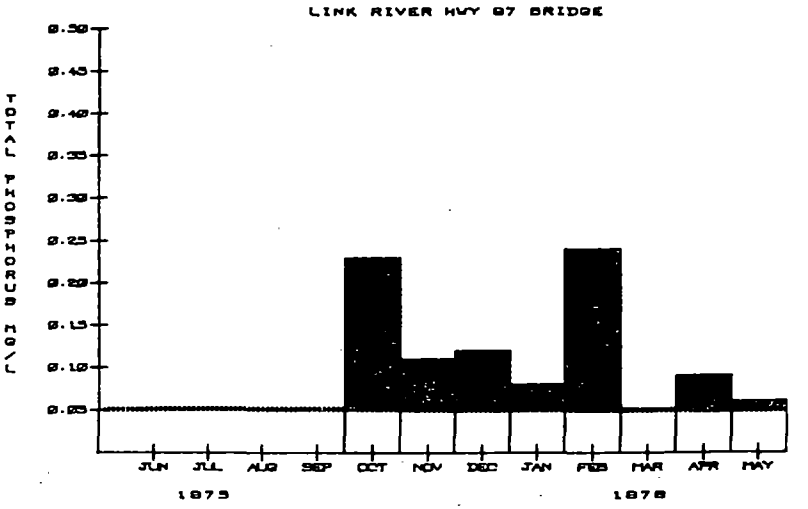
-- Missing bars or points on graphs indicate data was unavailable for that period.

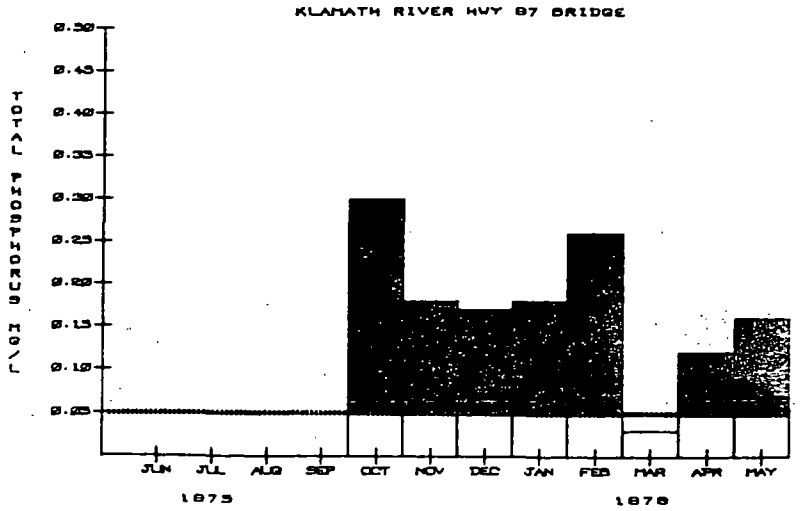
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the fecal coliform criteria level of 240 /ml has been exceeded.

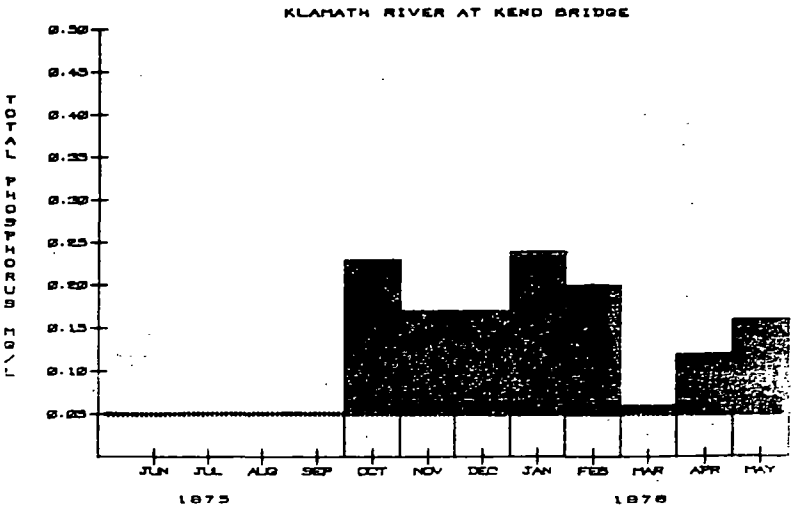
KLAMATH RIVER BASIN

TOTAL PHOSPHORUS MG/L



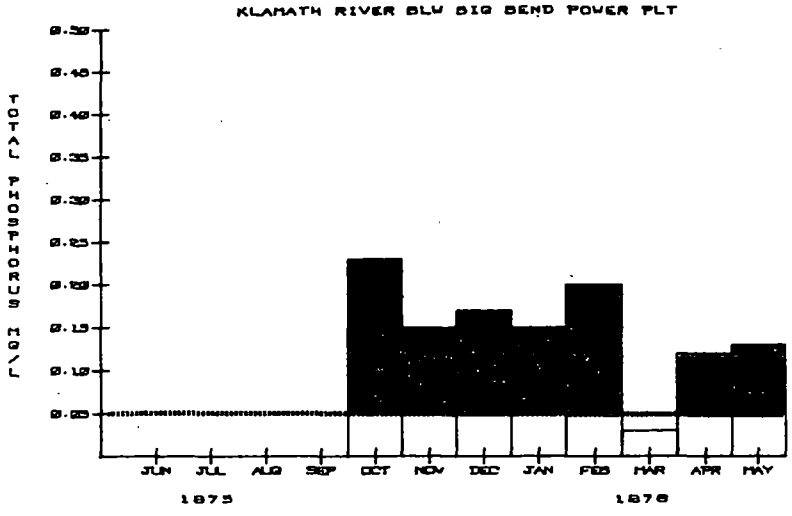


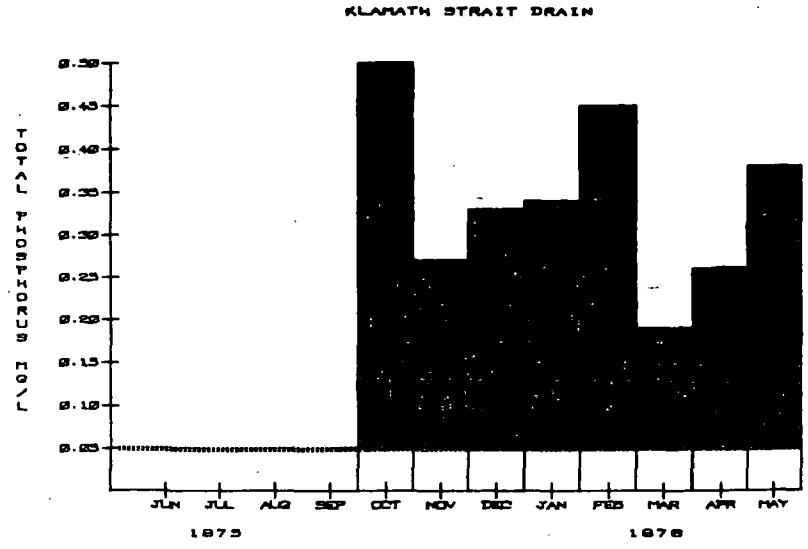




KLAMATH RIVER BASIN

TOTAL PHOSPHORUS MG/L





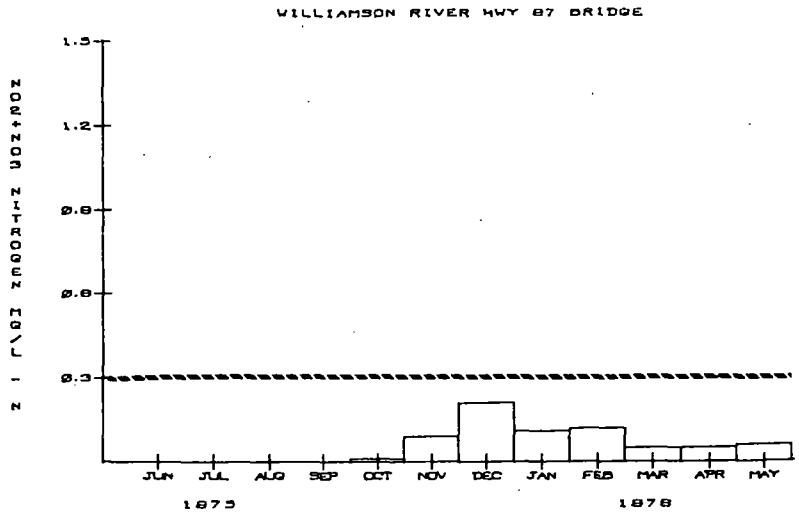
NOTES:

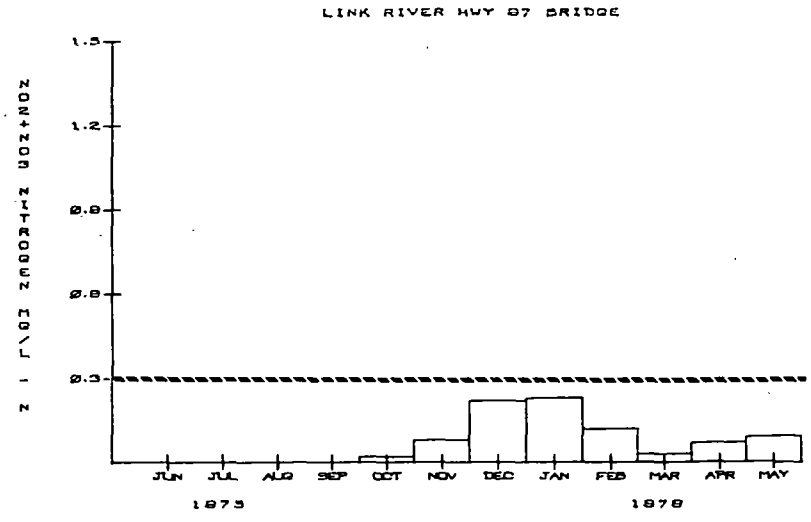
-- Data from EPA's STORET system for June 1975 thru May 1976.

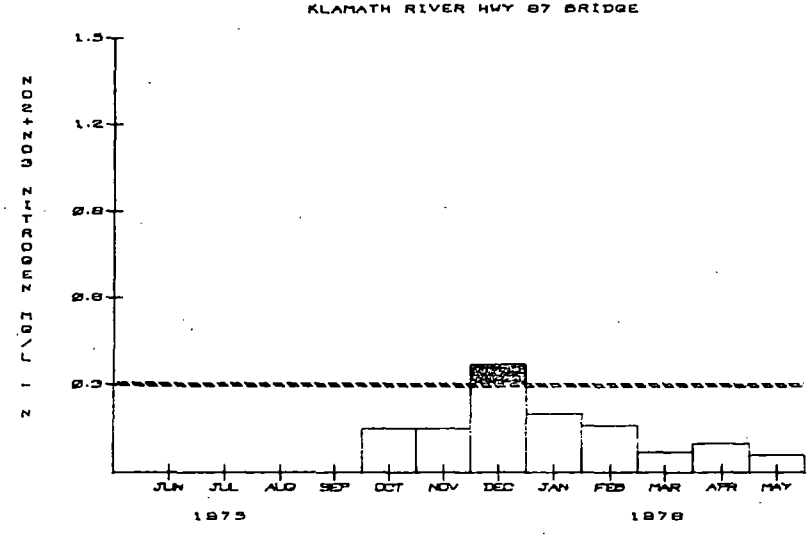
-- Missing bars or points on graphs indicate data was unavailable for that period.

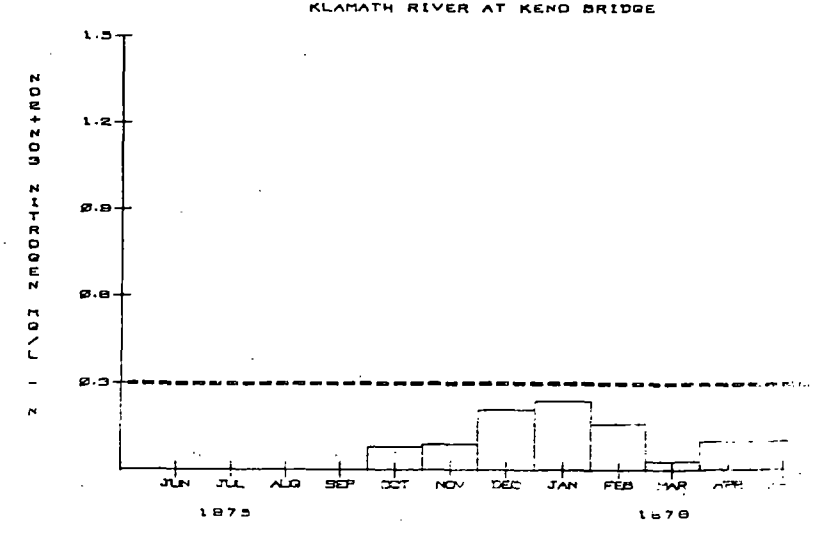
KLAMATH RIVER BASIN

NO2+NO3 NITROGEN MG/L



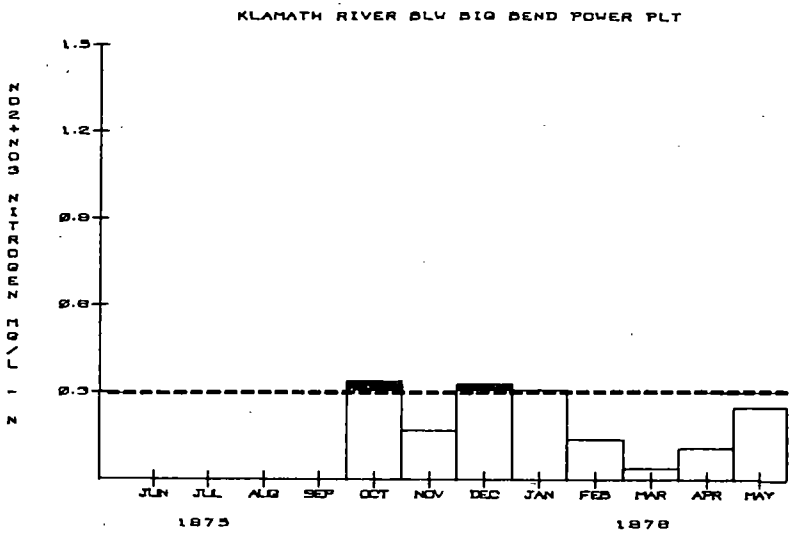


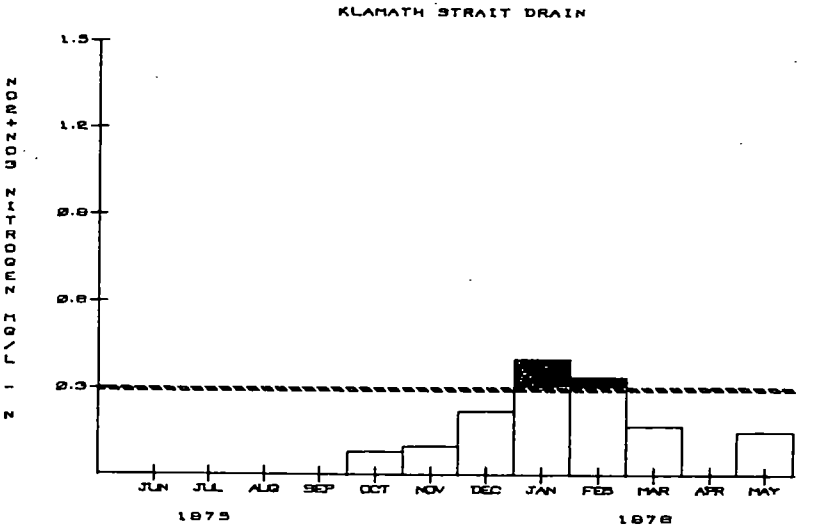




KLAMATH RIVER BASIN

NO2+NO3 NITROGEN MG/L





NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the nitrate algal bloom potential level of 0.30 mg/l has been exceeded.

WASHINGTON COAST BASIN 13-12

The Washington Coast basin is bounded to the north by the Straits of Juan de Fuca, and to the west by the Pacific Ocean. The southern border extends to the Columbia River, and the eastern boundaries are defined by the Olympic Mountains. The basin consists of two major streams, the Chehalis River (R.M. 33.3) and the Willapa River (R.M. 19.0). The major land use in the Aberdeen-Hoquiam Area is logging. The major industrial and municipal point sources associated with this basin are pulp mills and domestic sewage treatment plants.

National Water Quality Surveillance System (NWQSS) stations located within this basin are shown on the map. The complete water quality and biological parametric coverage for NWQSS stations is listed in the Introduction of this report along with the EPA criteria associated with those parameters. However, only some of the parameters are included in the following curves. Complete raw data is available from EPA upon request.

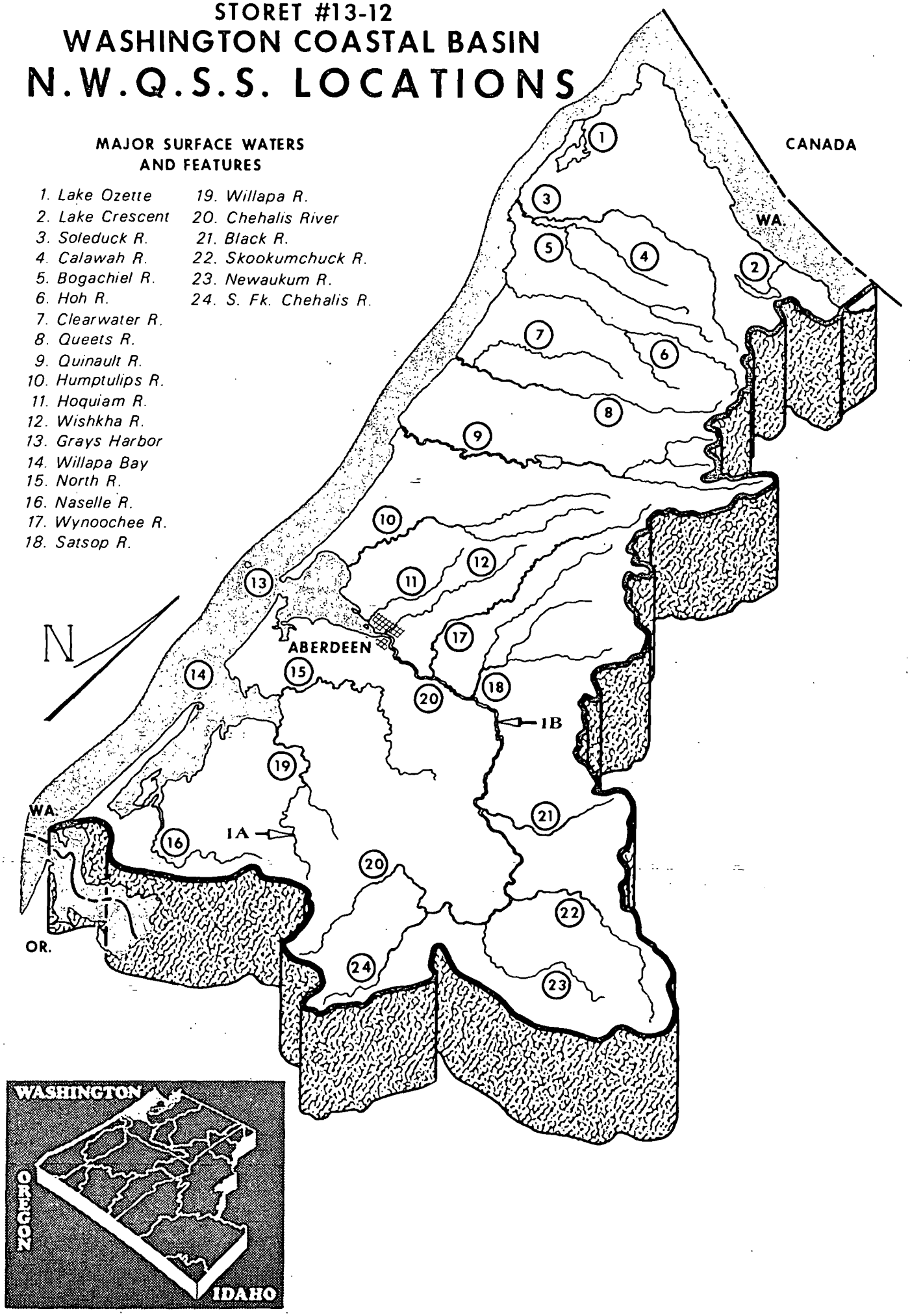
The following curve layout is designed to show the significant river constituents temporally presented on bar charts.

WASHINGTON COAST BASIN

Map Station Number	Type of Data Collected		
	Physical	Chemical	Biological
1A			
1B	X	X	

NOTE: Complete station information shown in Table 1 page 11-13.

STORET #13-12
WASHINGTON COASTAL BASIN
N.W.Q.S.S. LOCATIONS



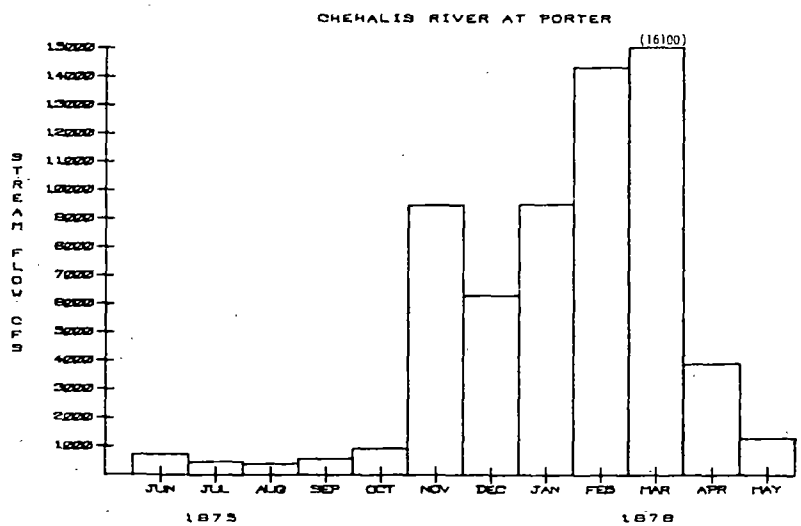
WASHINGTON COAST BASIN

STREAM FLOW CFS

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.



WASHINGTON COAST BASIN

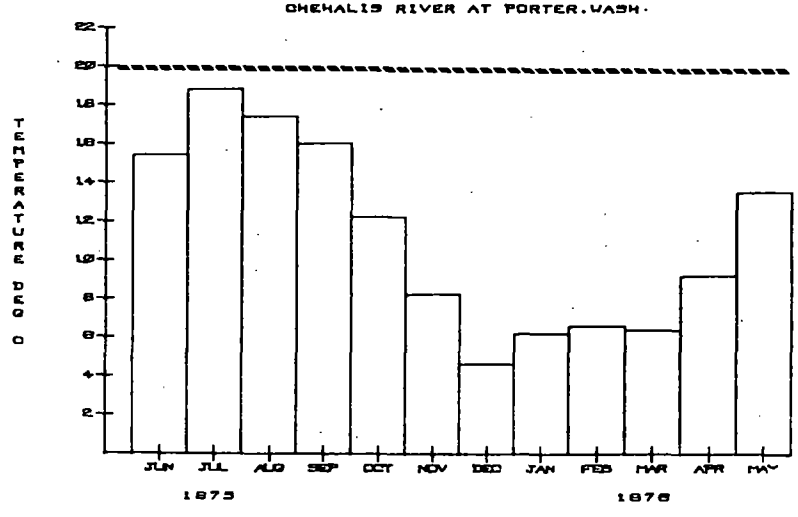
TEMPERATURE DEG C

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the 20°C maximum temperature for salmonid spawning and rearing has been exceeded.



WASHINGTON COAST BASIN

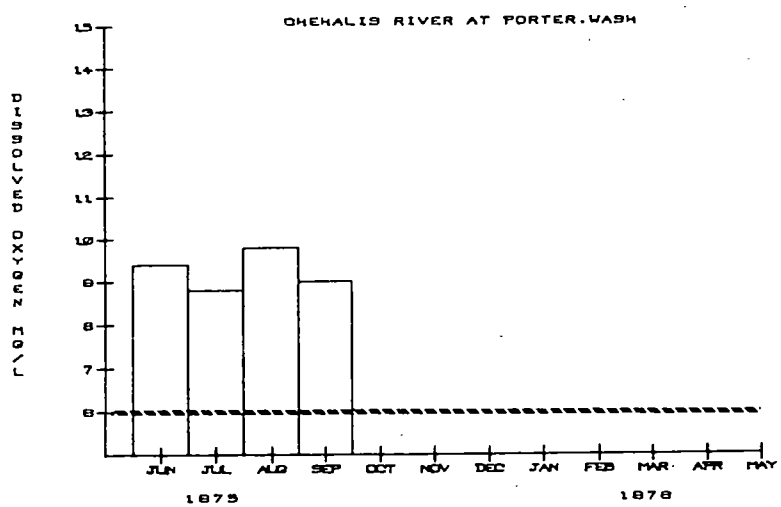
DISSOLVED OXYGEN MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the dissolved oxygen is below the 6 mg/l minimum criteria level.



WASHINGTON COAST BASIN

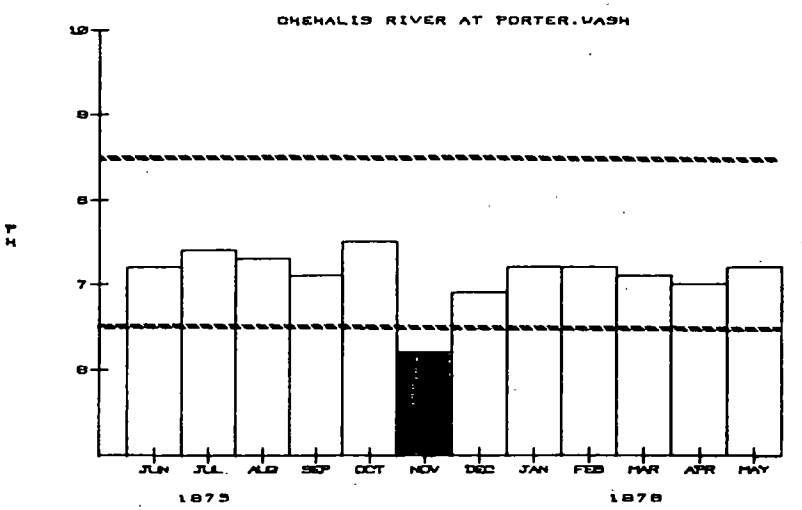
P H

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the pH is below the 6.5 minimum or above the 8.5 maximum criteria level.



WASHINGTON COAST BASIN

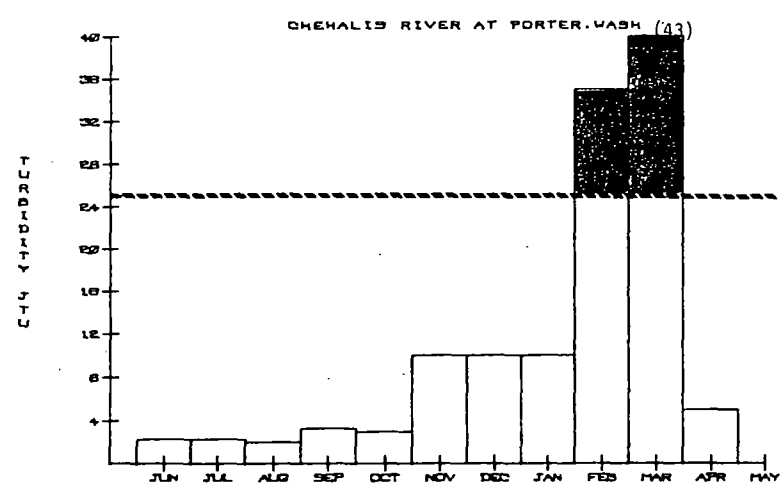
TURBIDITY IN JTU

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the turbidity criteria level of 25 JTU has been exceeded.



WASHINGTON COAST BASIN

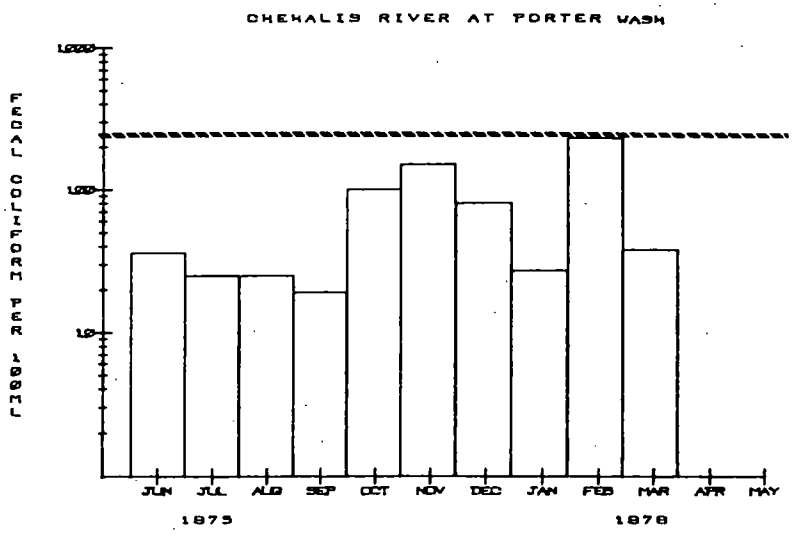
FECAL COLIFORM PER 100 ML

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the fecal coliform criteria level of 240 /ml has been exceeded.



WASHINGTON COAST BASIN

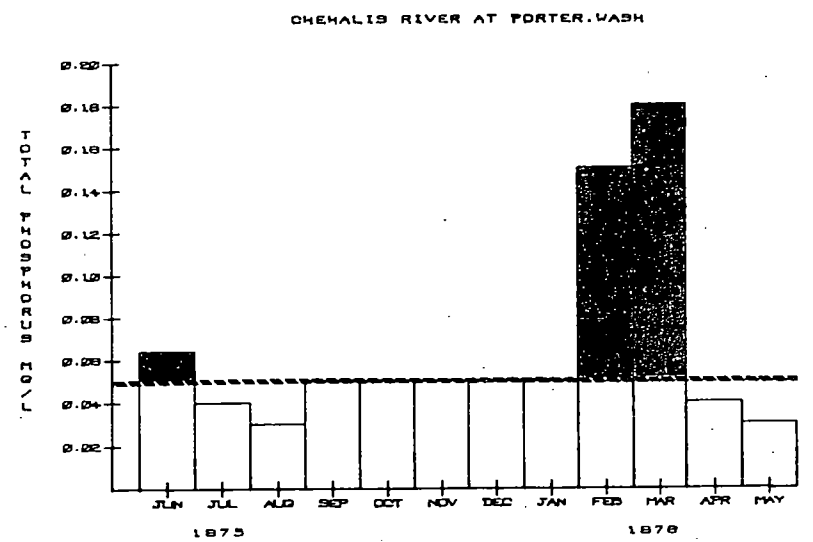
TOTAL PHOSPHORUS MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the total phosphorous algal bloom potential level of 0.05 mg/l has been exceeded.



WASHINGTON COAST BASIN

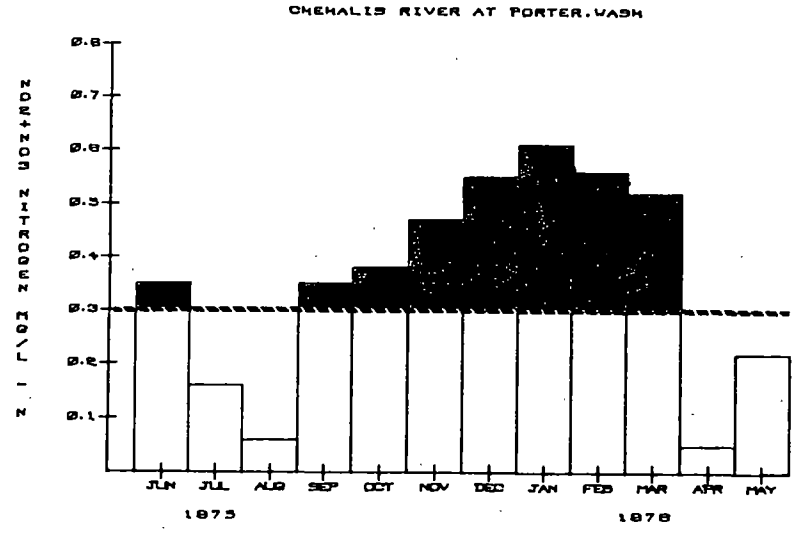
NO2+NO3 NITROGEN MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the nitrate algal bloom potential level of 0.30 mg/l has been exceeded.



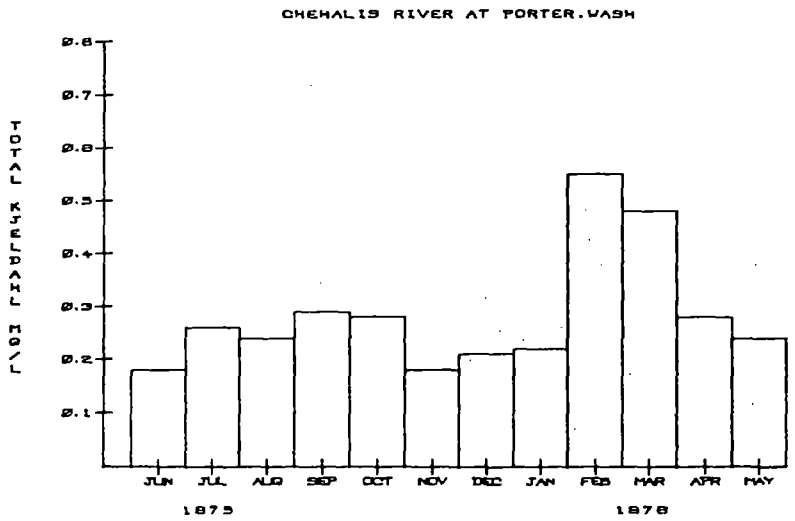
WASHINGTON COAST BASIN

TOTAL KJELDAHL NITROGEN MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.



OREGON COAST BASIN 13-13

The Oregon Coast basin boundaries include the southern border of Oregon and the Columbia River to the north. The basin includes the drainage areas of all streams in Oregon which flow directly into the Pacific Ocean, with the exception of the Columbia River. The major streams being studied in this report include the Nehalem (R.M. 13.3), Umpqua (R.M. 48.4), and Rogue Rivers (R.M. 27.5). The major cities in the basin include Coos Bay (pop. 13,466), Newport (pop. 5,188), and Astoria (pop. 10,244) on the coast, and the inland cities of Grants Pass (pop. 12,445), Medford (pop. 28,454), and Roseburg (pop. 14,461). The major municipal and industrial dischargers in the basin are domestic sewage treatment plants and pulp and paper mills. There is also a heavy reliance on the fisheries industry.

National Water Quality Surveillance System (NWQSS) stations located within this basin are shown on the map. The complete water quality and biological parametric coverage for NWQSS stations is listed in the Introduction of this report along with the EPA criteria associated with those parameters. However, only some of the parameters are included in the following curves. Complete raw data is available from EPA upon request.

The following curve layout is designed to show the significant river constituents temporally presented on bar charts.

OREGON COAST BASIN

Map Station Number	Type of Data Collected		
	Physical	Chemical	Biological
1A	X	X	
1B	X	X	
1C	X	X	

NOTE: Complete station information shown in Table 1 page 11-13.

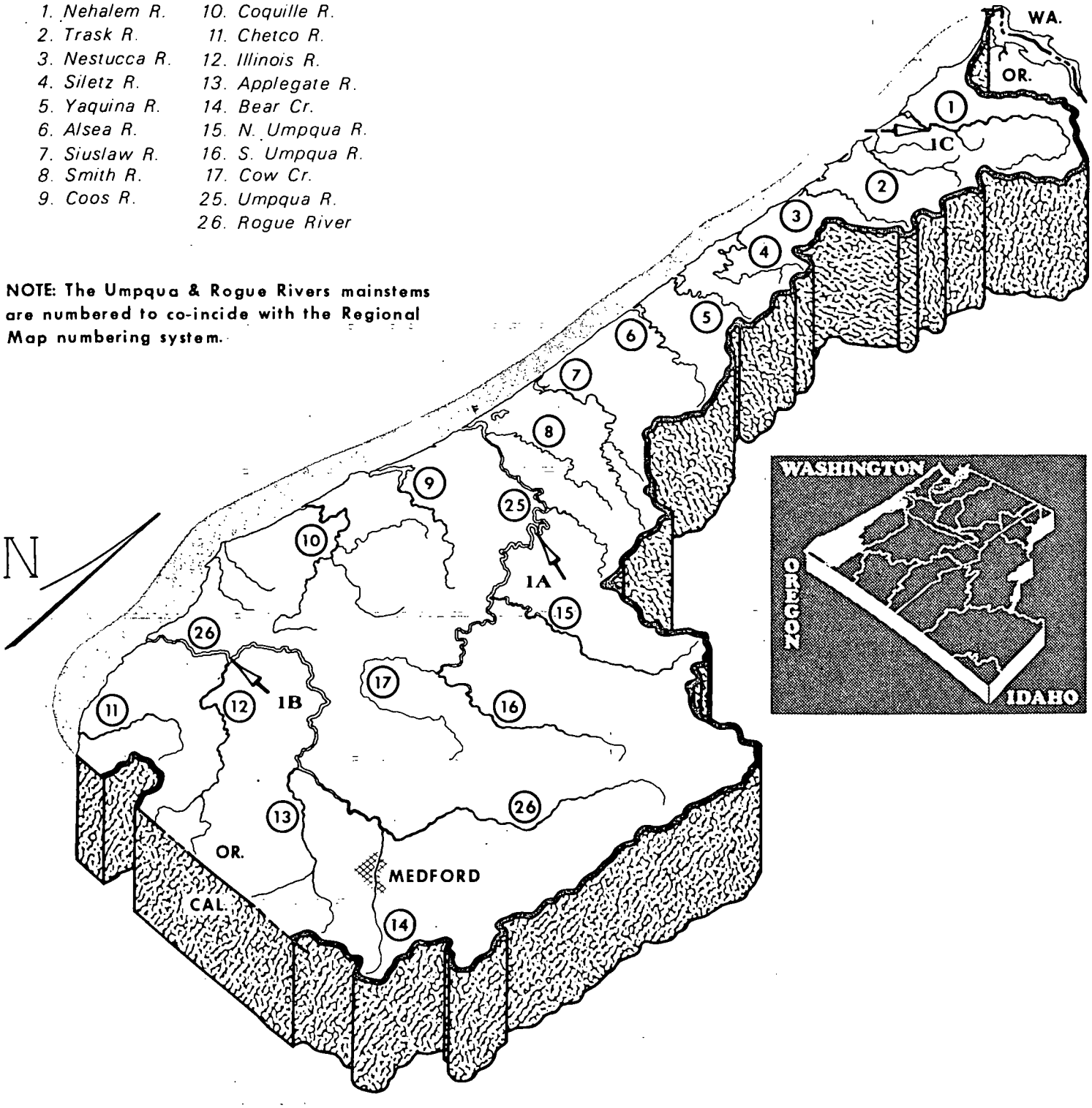
STORET #13-13

OREGON COASTAL BASIN
N.W.Q.S.S. LOCATIONS

MAJOR SURFACE WATERS AND FEATURES

1. *Nehalem R.*
2. *Trask R.*
3. *Nestucca R.*
4. *Siletz R.*
5. *Yaquina R.*
6. *Alsea R.*
7. *Siuslaw R.*
8. *Smith R.*
9. *Coos R.*
10. *Coquille R.*
11. *Chetco R.*
12. *Illinois R.*
13. *Applegate R.*
14. *Bear Cr.*
15. *N. Umpqua R.*
16. *S. Umpqua R.*
17. *Cow Cr.*
25. *Umpqua R.*
26. *Rogue River*

NOTE: The Umpqua & Rogue Rivers mainstems are numbered to co-incide with the Regional Map numbering system.



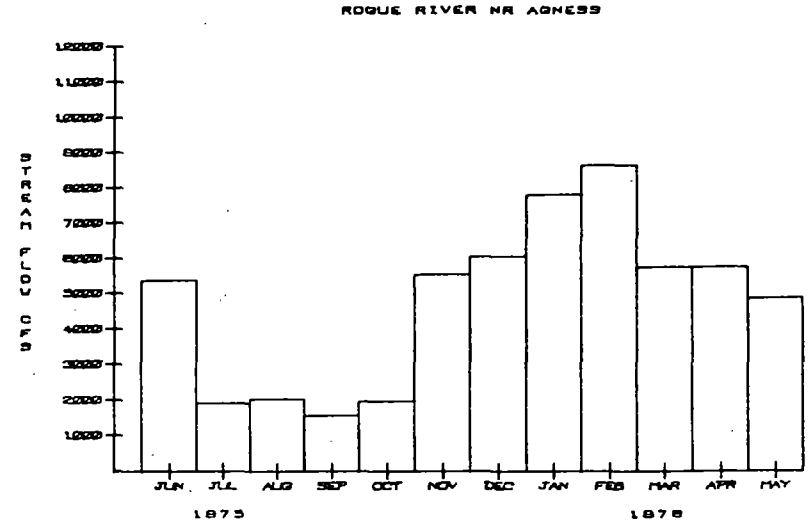
OREGON COAST BASIN

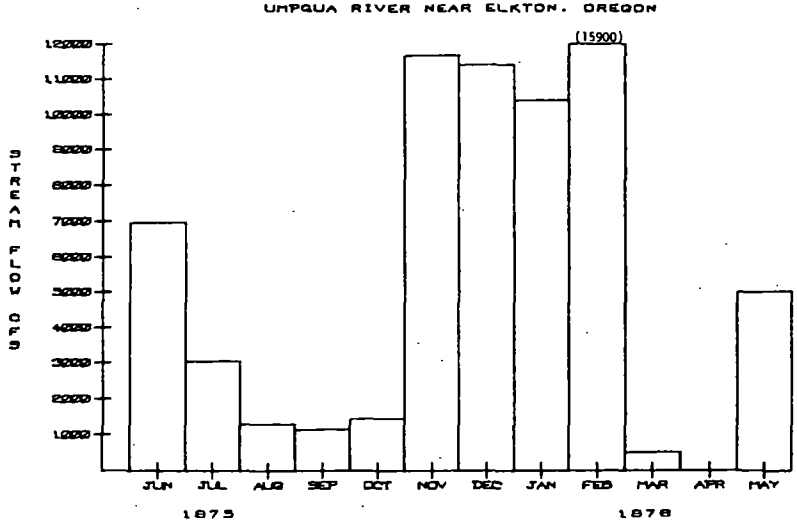
STREAM FLOW CFS

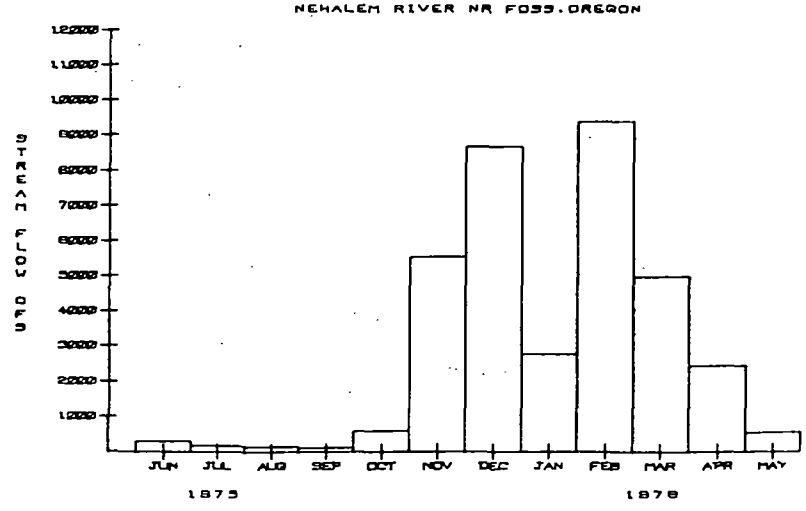
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.







OREGON COAST BASIN

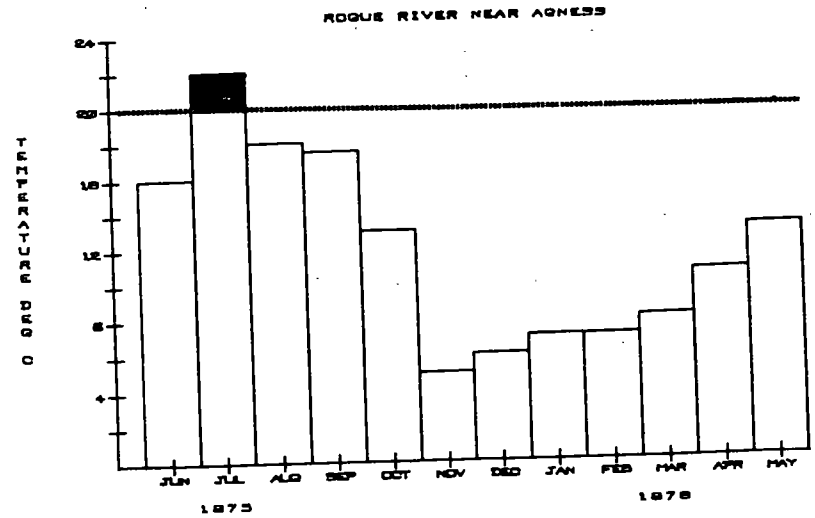
TEMPERATURE DEG C

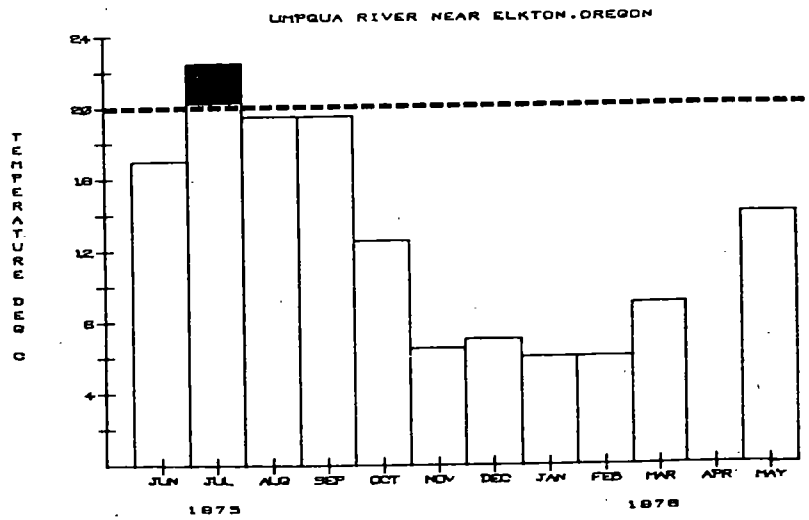
NOTES:

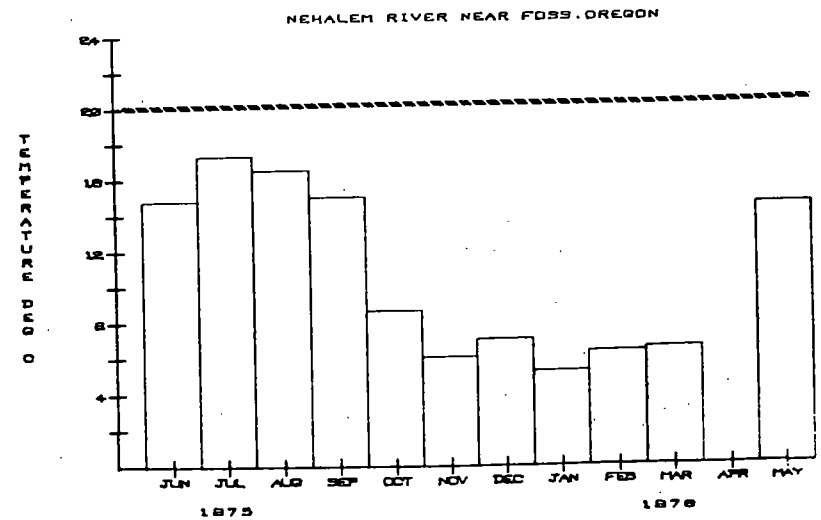
-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the 20°C maximum temperature for salmonid spawning and rearing has been exceeded.







OREGON COAST BASIN

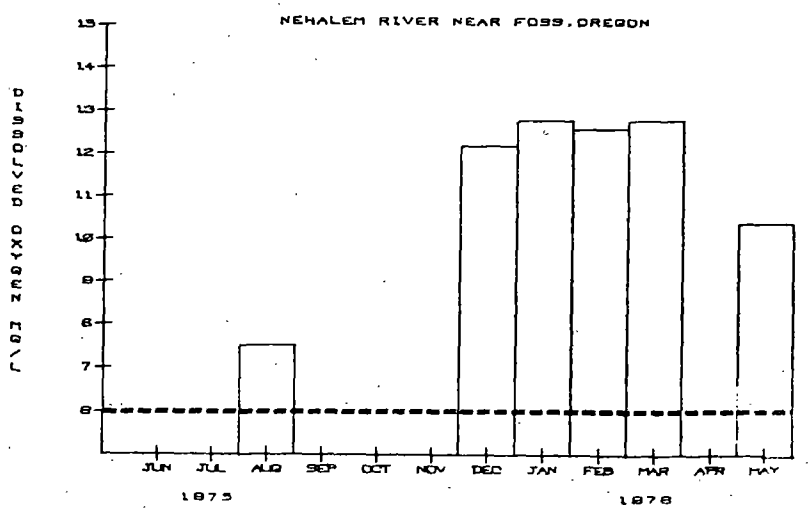
DISSOLVED OXYGEN MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the dissolved oxygen is below the 6 mg/l minimum criteria level.



OREGON COAST BASIN

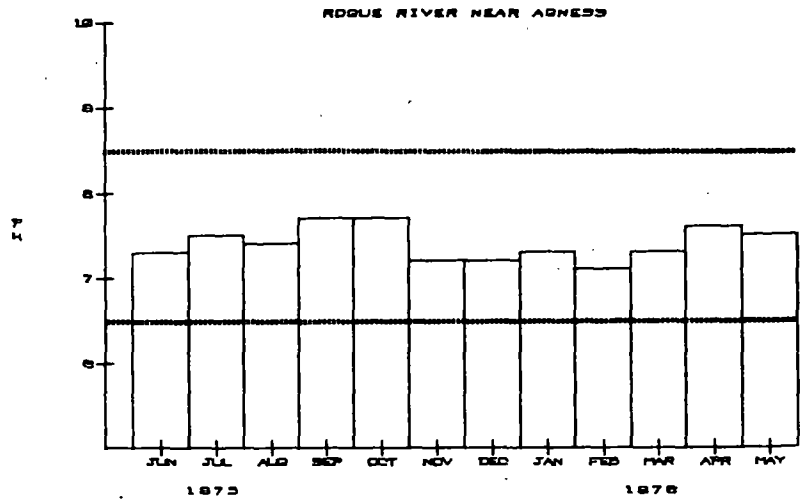
P H

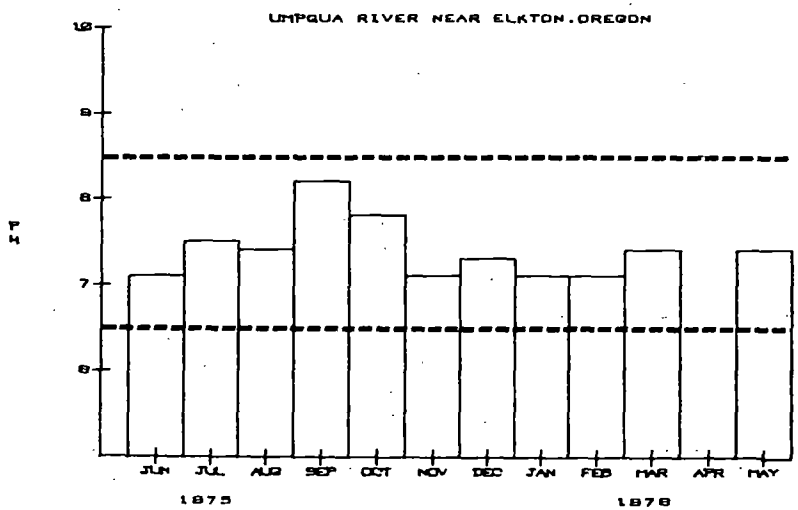
NOTES:

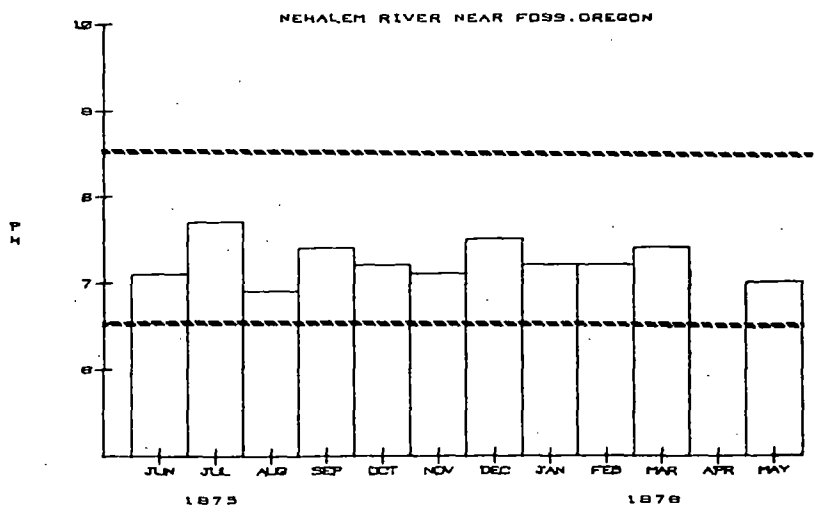
-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the pH is below the 6.5 minimum or above the 8.5 maximum criteria level.







OREGON COAST BASIN

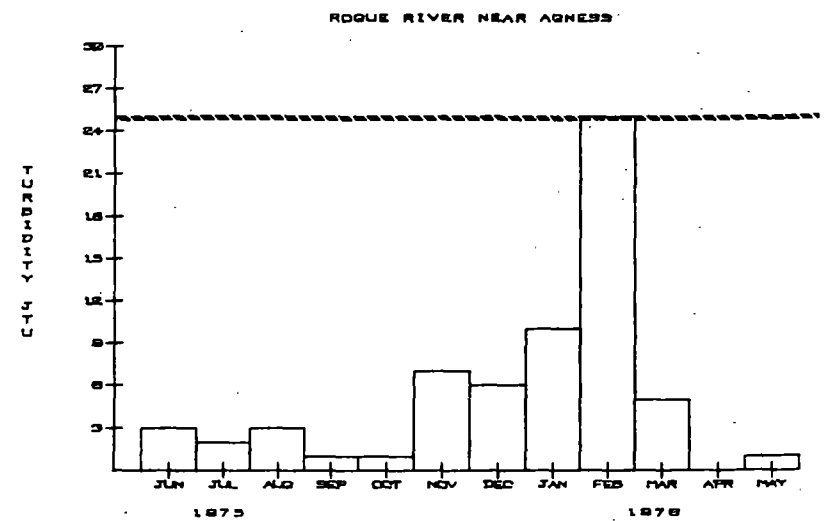
TURBIDITY IN JTU

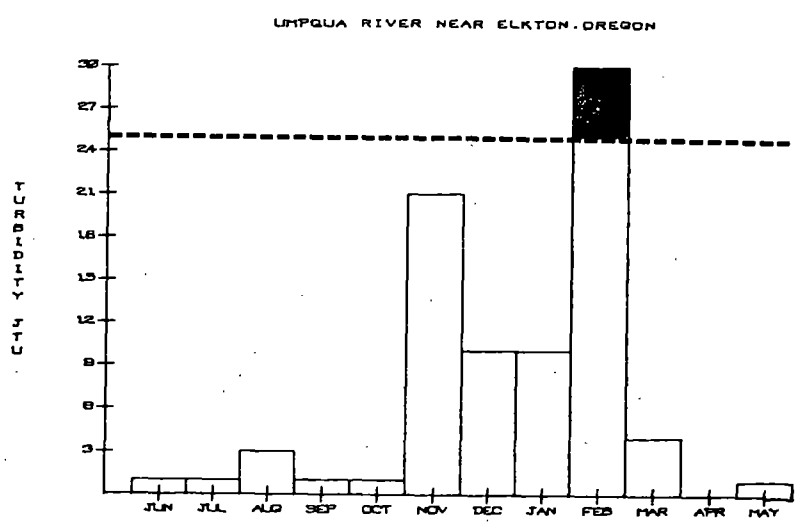
NOTES:

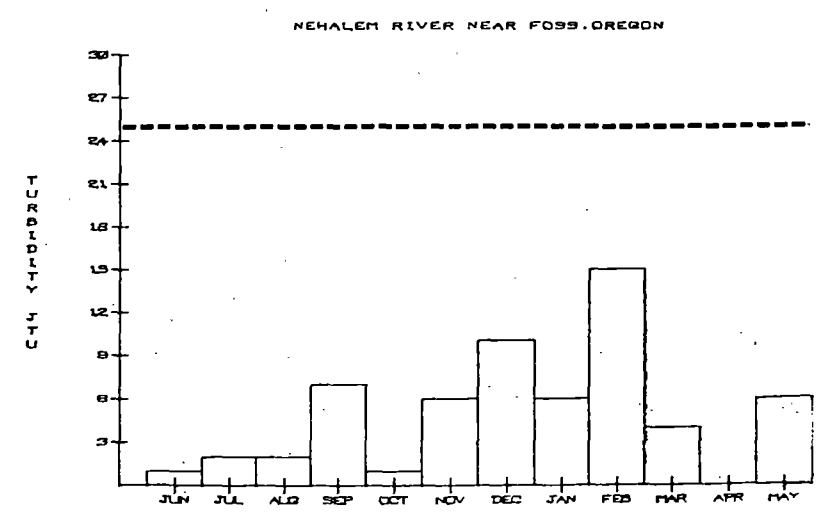
-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the turbidity criteria level of 25 JTU has been exceeded.







OREGON COAST BASIN

FECAL COLIFORM PER 100 ML

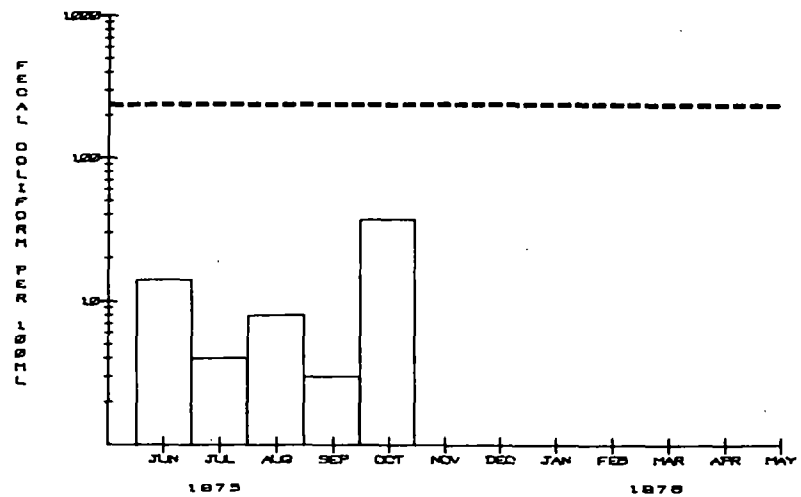
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

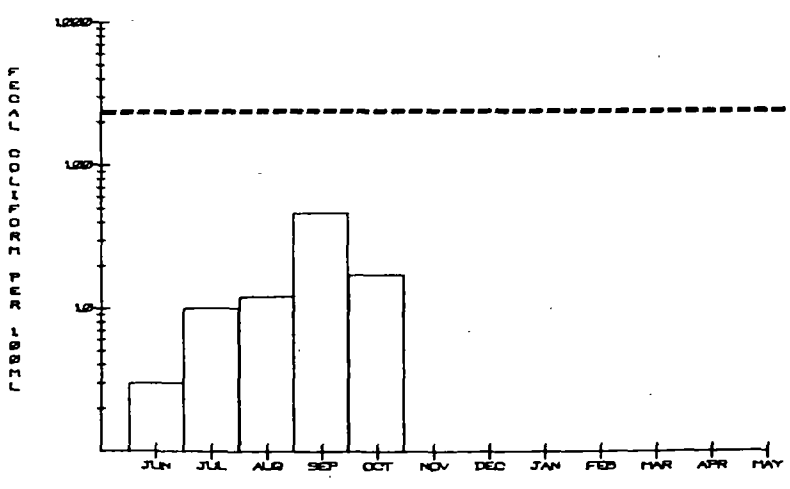
-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the fecal coliform criteria level of 240 /ml has been exceeded.

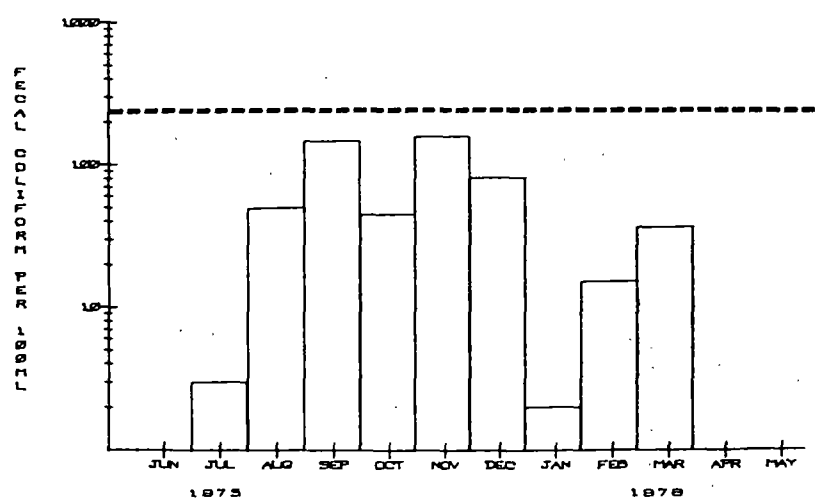
ROGUE RIVER NEAR AGNESS



UMPQUA RIVER NEAR ELKTON



NEHALEM RIVER NEAR FOSS



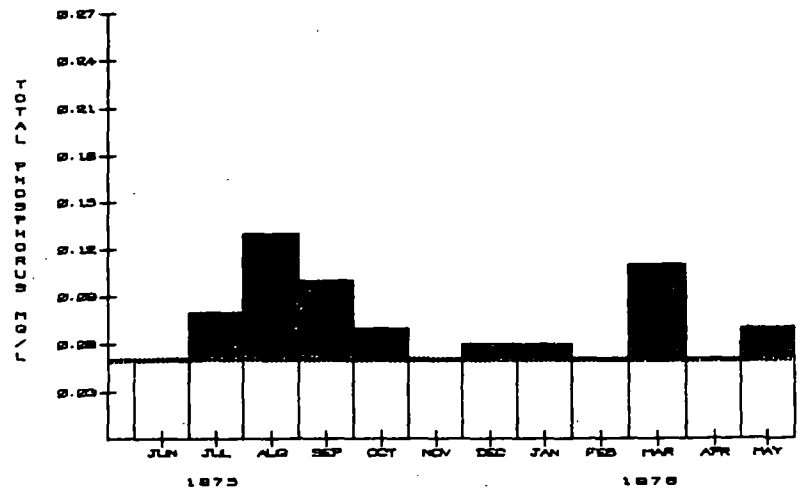
OREGON COAST BASIN

TOTAL PHOSPHORUS MG/L

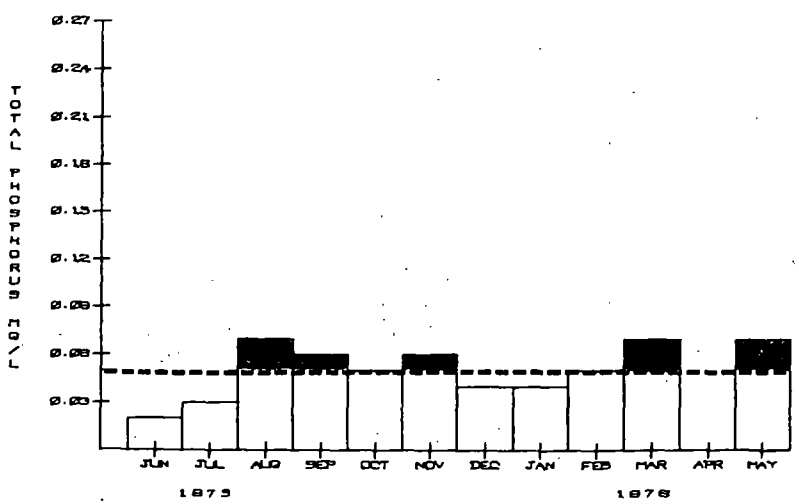
NOTES:

- -- Data from EPA's STORET system for June 1975 thru May 1976.
- -- Missing bars or points on graphs indicate data was unavailable for that period.
- -- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the total phosphorous algal bloom potential level of 0.05 mg/l has been exceeded.

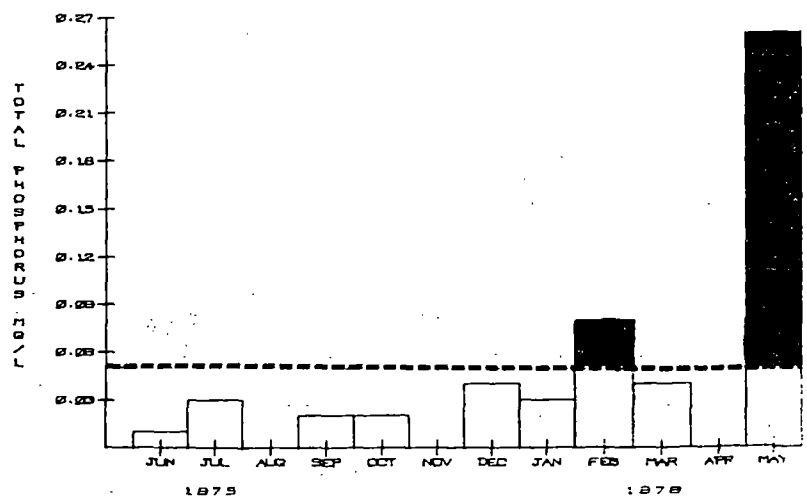
ROGUE RIVER NEAR AGNESS



UMPQUA RIVER NEAR ELKTON, OREGON



NEHALEM RIVER NEAR FOSS, OREGON



OREGON COAST BASIN

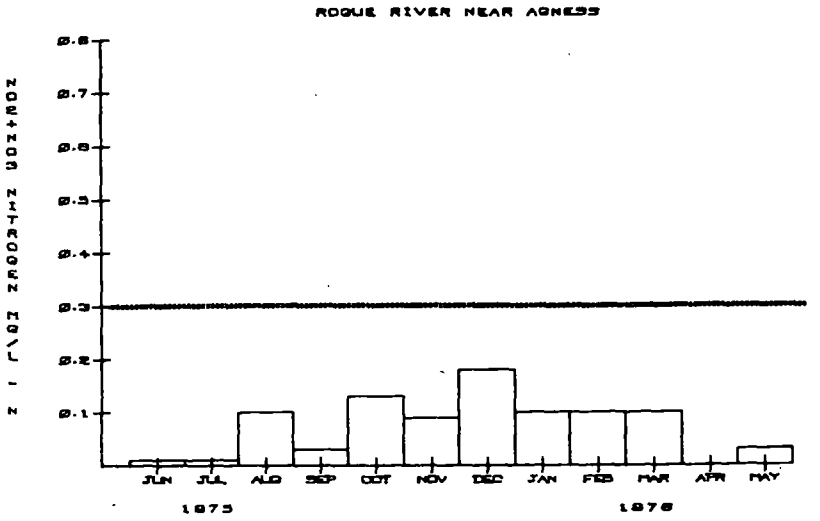
NO2+NO3 NITROGEN MG/L

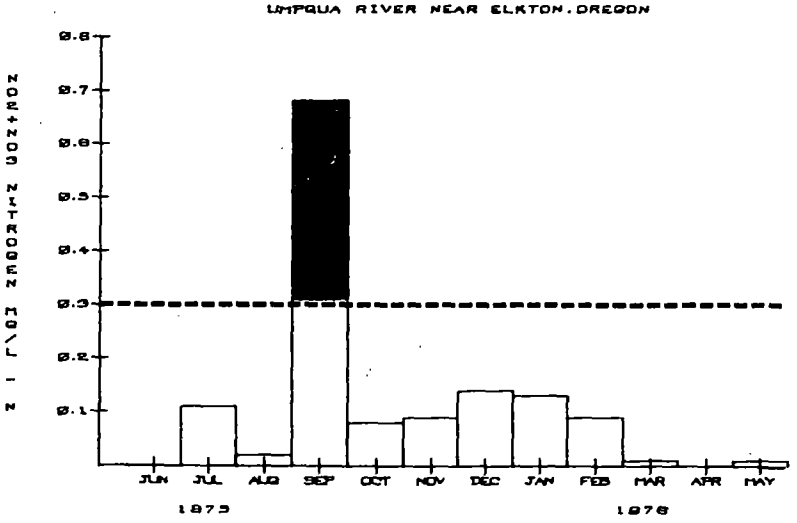
NOTES:

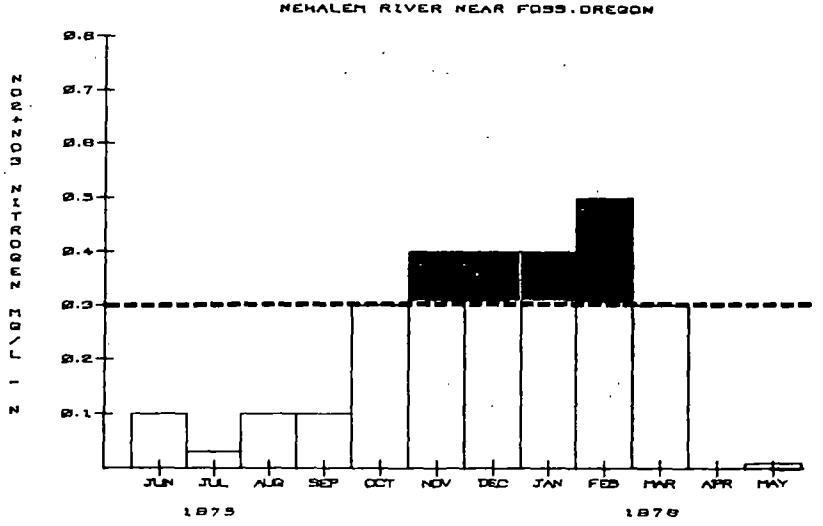
-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the nitrate algal bloom potential level of 0.30 mg/l has been exceeded.







OREGON COAST BASIN

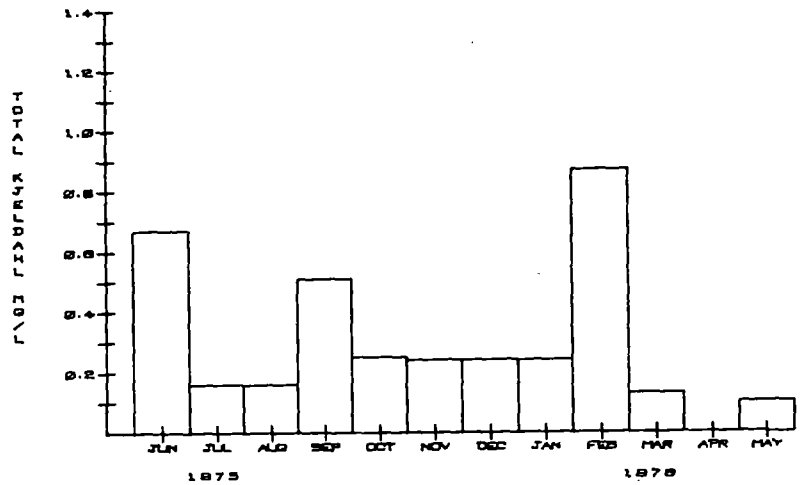
TOTAL KJELDAHL NITROGEN MG/L

NOTES:

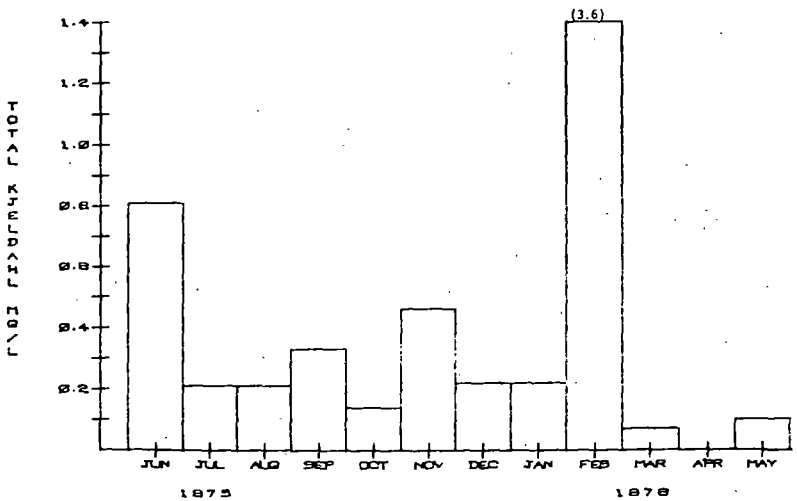
-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

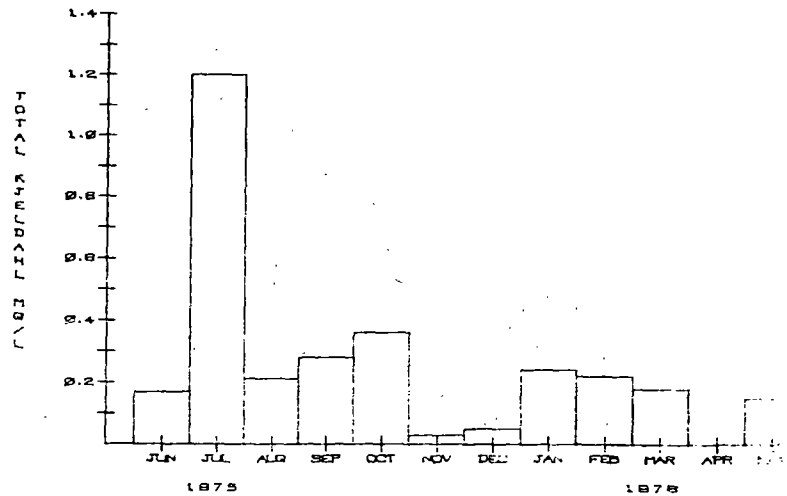
ROGUE RIVER NEAR AGNESS



UMPQUA RIVER NEAR ELKTON, OREGON



NEHALEM RIVER NEAR FOSS, OREGON



PUGET SOUND BASIN 13-11

The Puget Sound basin lies entirely within the State of Washington, occupying the northwest corner of the State. The principal streams include the Snohomish, Deschutes, Elwha, Skagit, and Puyallup, with a total drainage area of 6,279 square miles. Major communities in the basin include Olympia (pop. 23,111), Seattle (pop. 530,831), Tacoma (pop. 154,581), Port Angeles (pop. 16,367), Everett (pop. 53,622), and Bellingham (pop. 39,375). Major municipal and industrial discharges are associated with these population centers.

National Water Quality Surveillance System (NWQSS) stations located within this basin are shown on the map. The complete water quality and biological parametric coverage for NWQSS stations is listed in the Introduction of this report along with the EPA criteria associated with those parameters. However, only some of the parameters are included in the following curves. Complete raw data is available from EPA upon request.

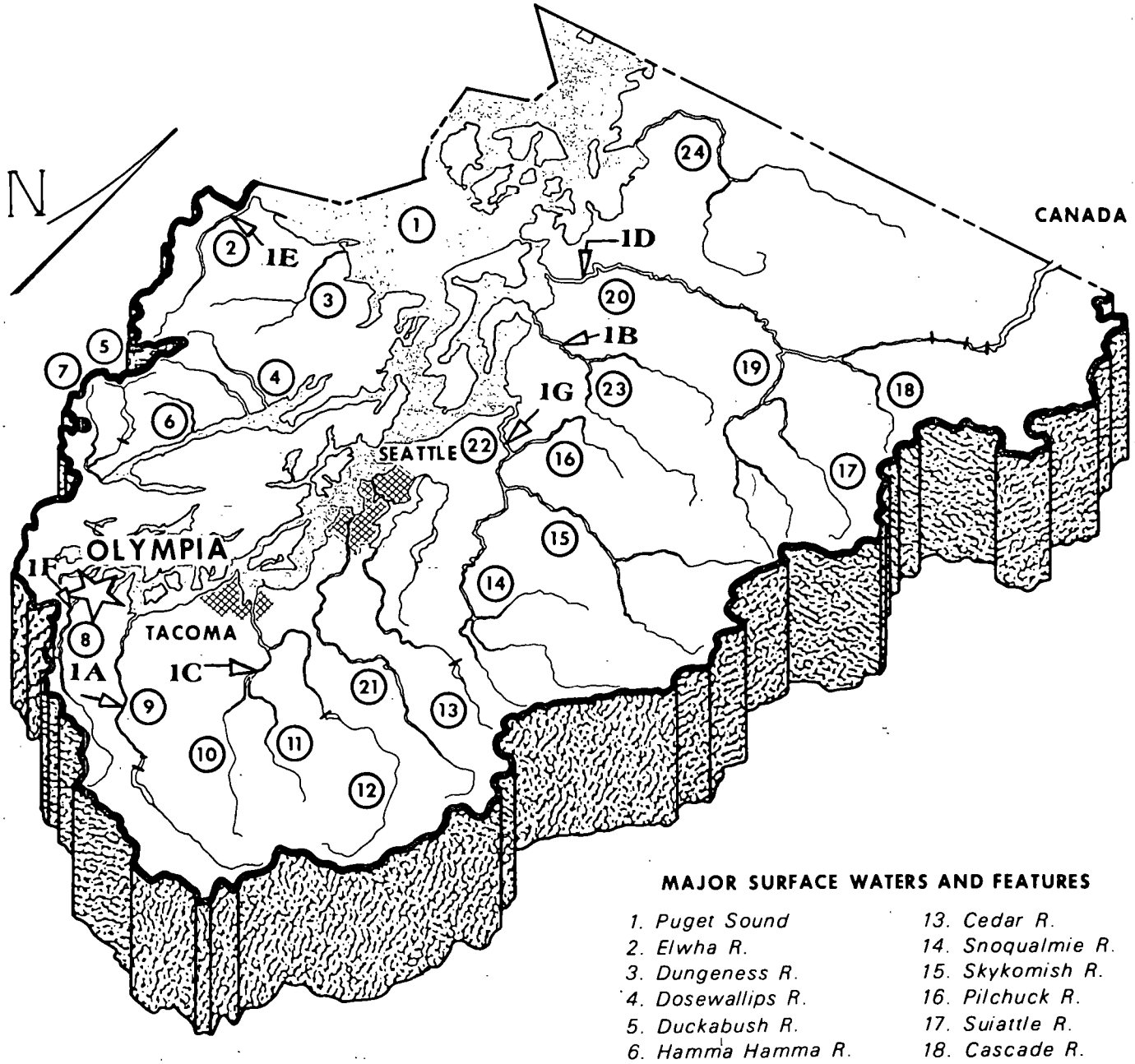
The following curve layout is designed to show the significant river constituents temporally presented on bar charts.

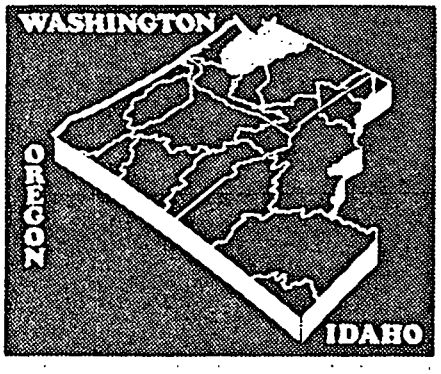
PUGET SOUND BASIN

Map Station Number	Type of Data Collected		
	Physical	Chemical	Biological
1A			
1B			
1C	X	X	
1D	X	X	
1E	X	X	
1F	X	X	
1G	X	X	

NOTE: Complete station information shown in Table 1 page 11-13.

STORET #13-11
PUGET SOUND BASIN
N.W.Q.S.S. LOCATIONS





MAJOR SURFACE WATERS AND FEATURES

1. *Puget Sound*
2. *Elwha R.*
3. *Dungeness R.*
4. *Dosewallips R.*
5. *Duckabush R.*
6. *Hamma Hamma R.*
7. *Skokomish R.*
8. *Deschutes R.*
9. *Nisqually R.*
10. *Puyallup R.*
11. *Carbon R.*
12. *White R.*
13. *Cedar R.*
14. *Snoqualmie R.*
15. *Skykomish R.*
16. *Pilchuck R.*
17. *Suiattle R.*
18. *Cascade R.*
19. *Sauk R.*
20. *Skagit River*
21. *Green R.*
22. *Snohomish R.*
23. *Stillaguamish R.*
24. *Nooksack R.*

PUGET SOUND BASIN

STREAM FLOW CFS

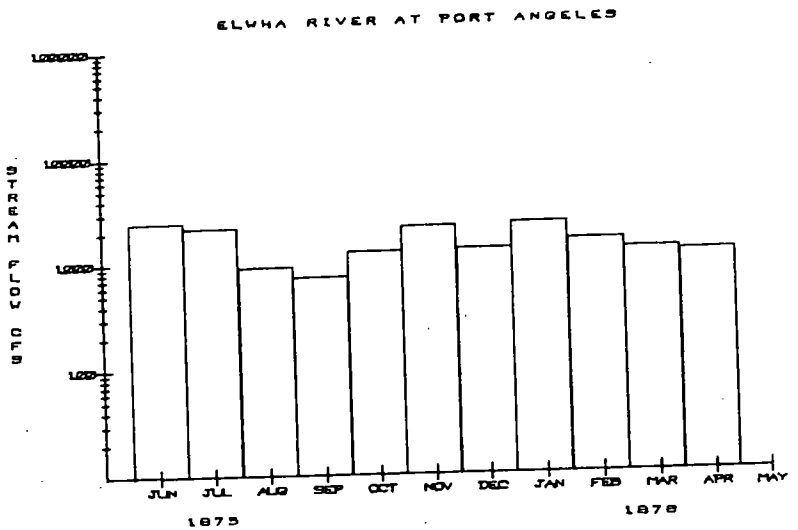
NOTES:

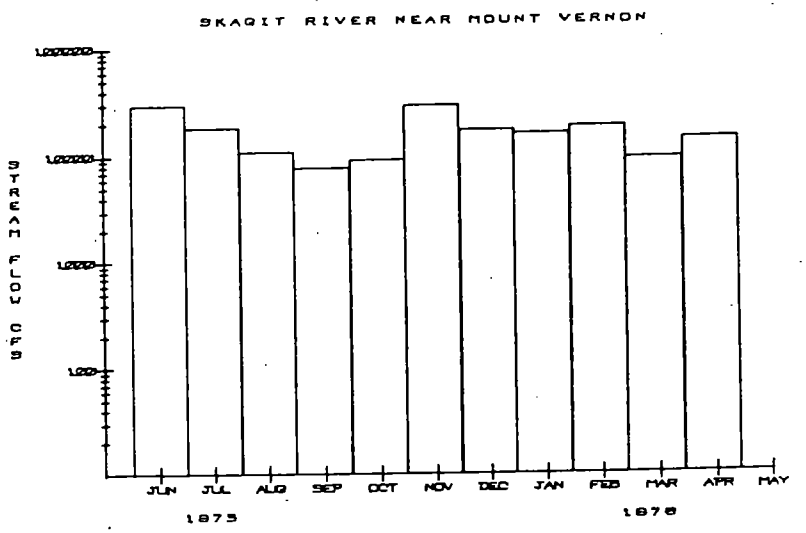
-- Data from EPA's STORET system for June 1975 thru May 1976.

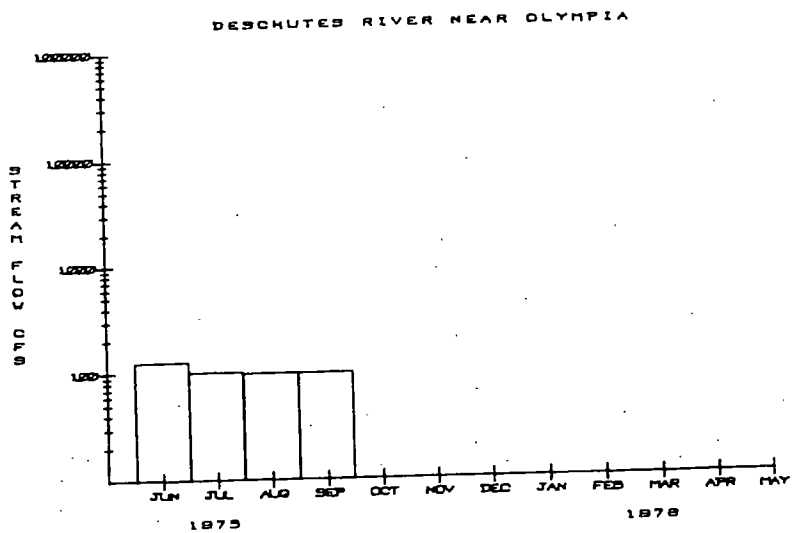
-- Missing bars or points on graphs indicate data was unavailable for that period.

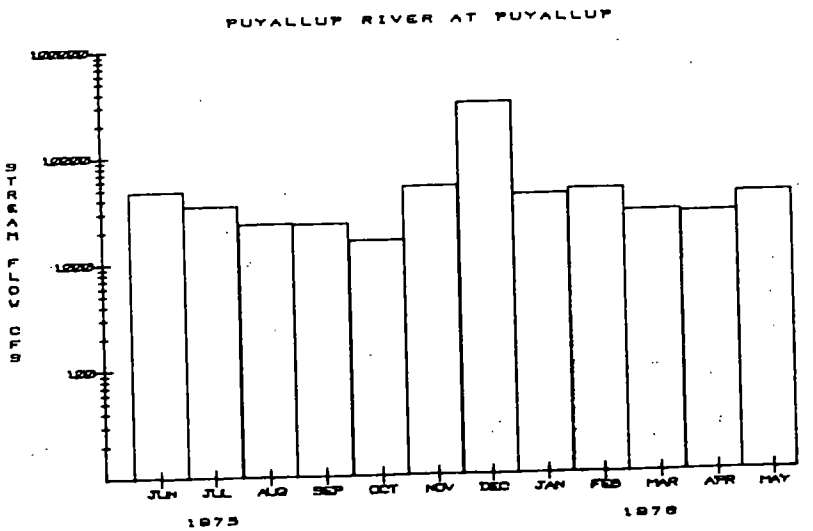
PUGET SOUND BASIN

STREAM FLOW CFS









PUGET SOUND BASIN

TEMPERATURE DEG C

NOTES:

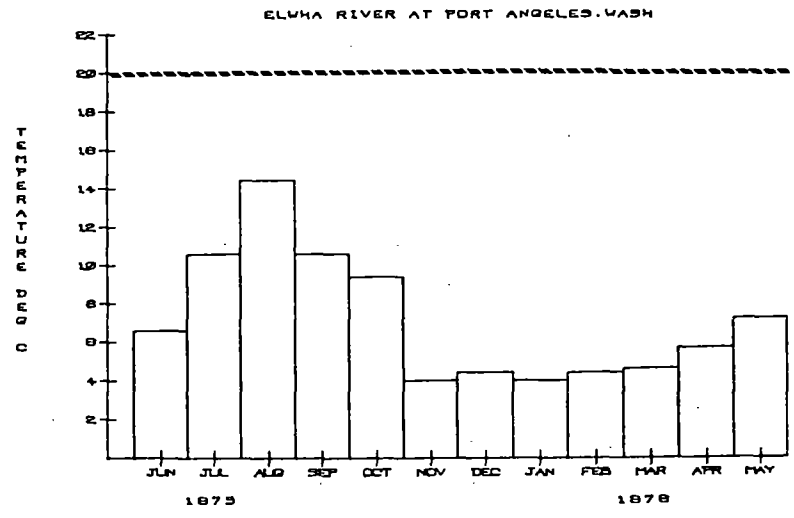
-- Data from EPA's STORET system for June 1975 thru May 1976.

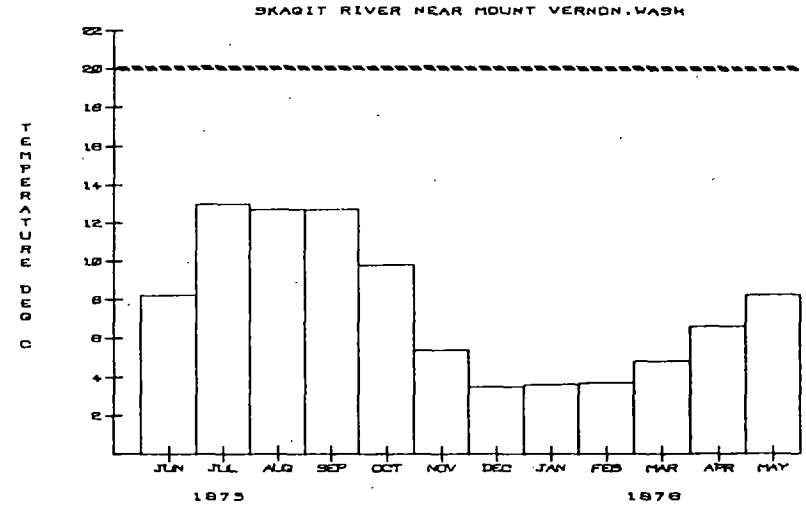
-- Missing bars or points on graphs indicate data was unavailable for that period.

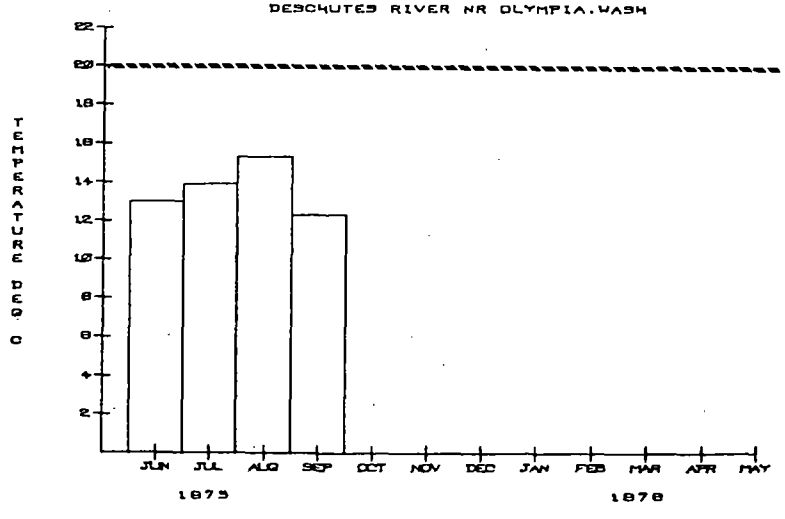
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the 20°C maximum temperature for salmonid spawning and rearing has been exceeded.

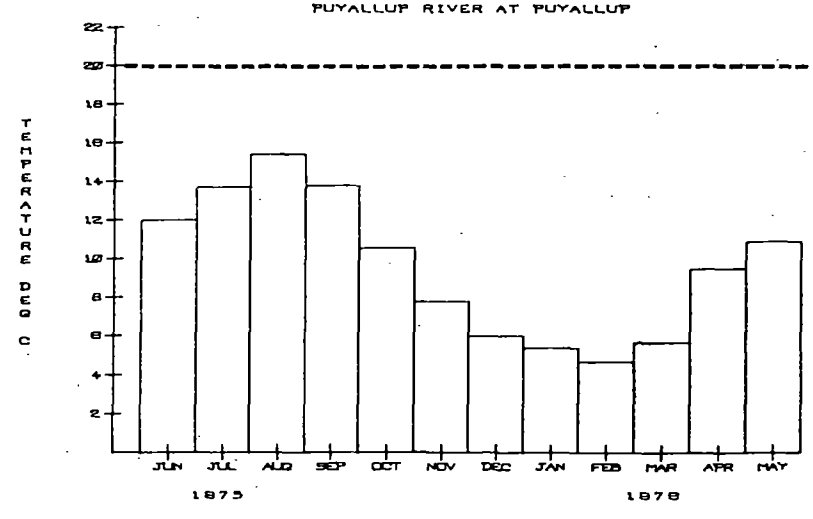
PUGET SOUND BASIN

TEMPERATURE DEG C









PUGET SOUND BASIN

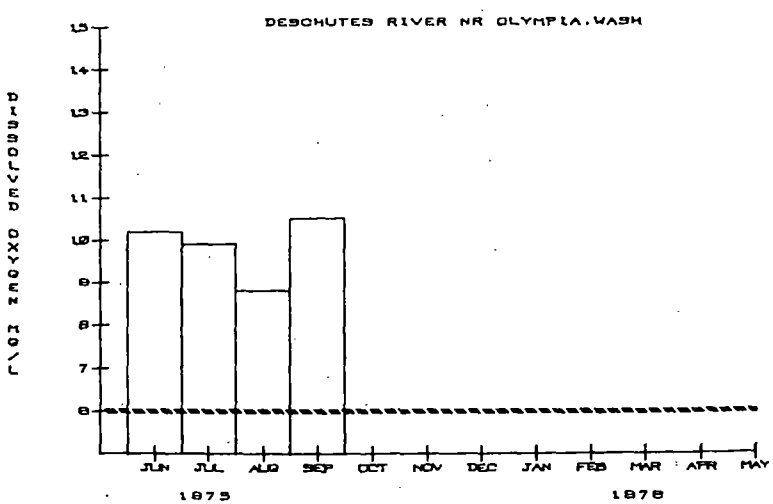
DISSOLVED OXYGEN MG/L

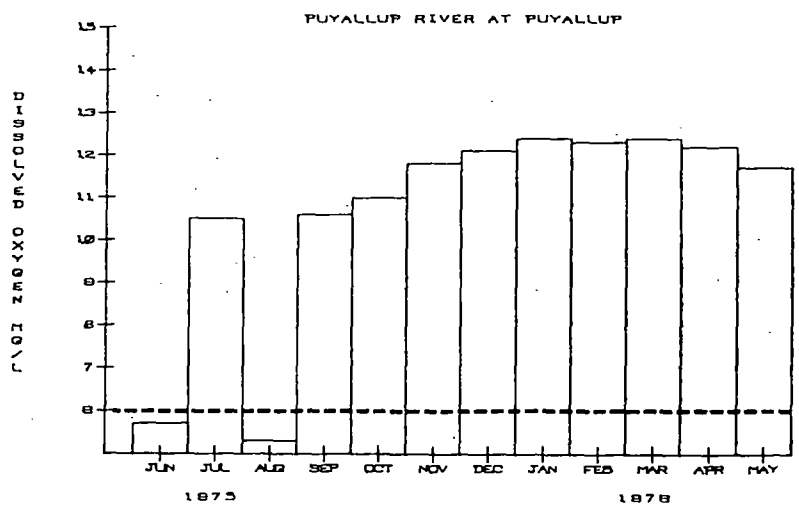
NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the dissolved oxygen is below the 6 mg/l minimum criteria level.





PUGET SOUND BASIN

P H

NOTES:

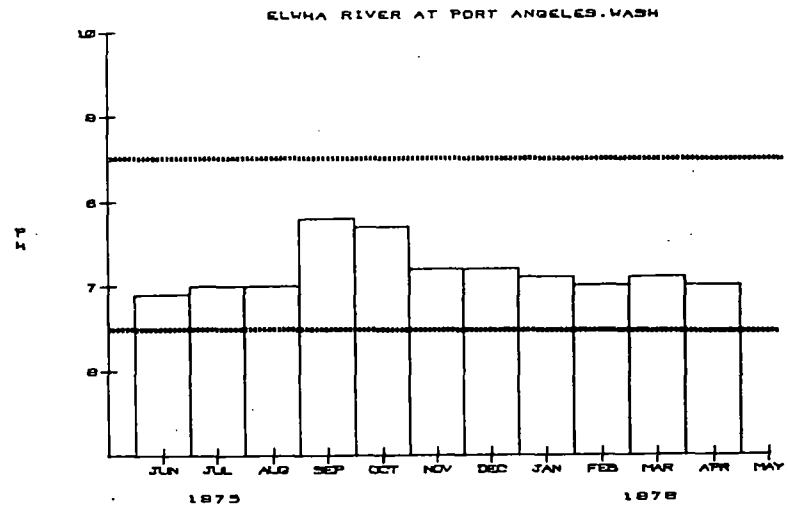
-- Data from EPA's STORET system for June 1975 thru May 1976.

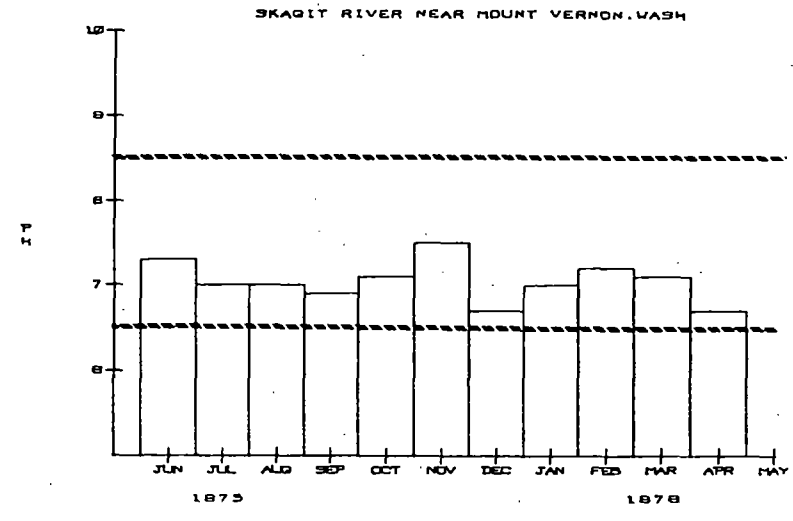
-- Missing bars or points on graphs indicate data was unavailable for that period.

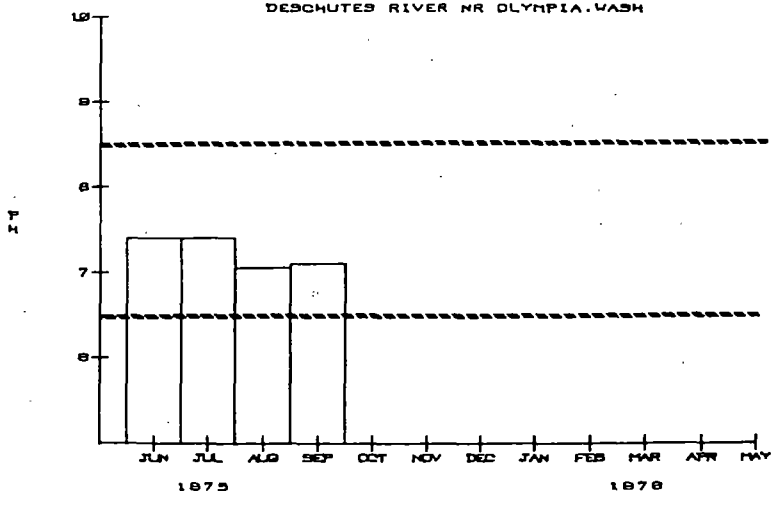
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the pH is below the 6.5 minimum or above the 8.5 maximum criteria level.

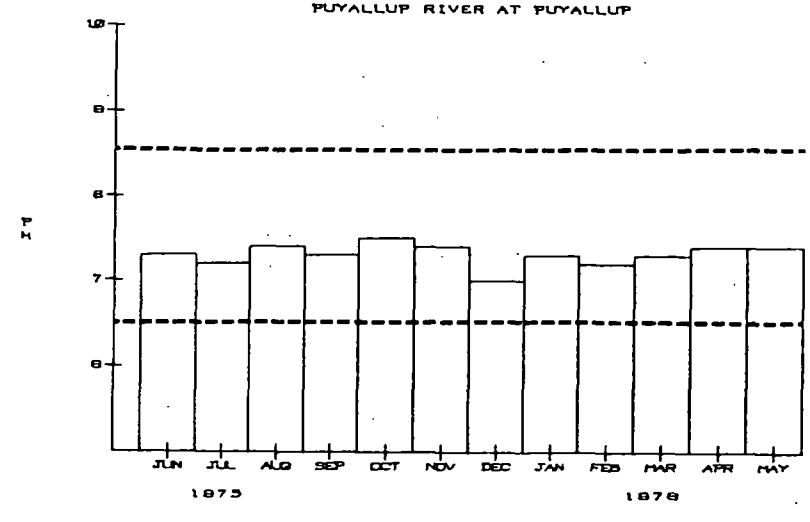
PUGET SOUND BASIN

P H









PUGET SOUND BASIN

TURBIDITY IN JTU

NOTES:

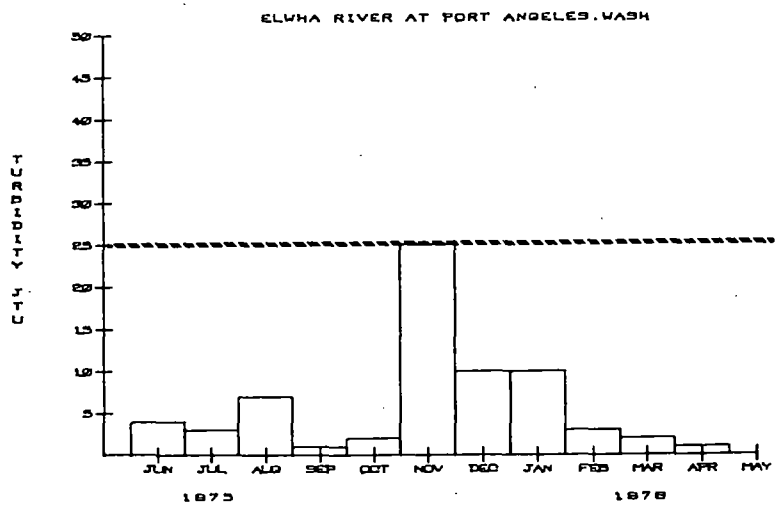
-- Data from EPA's STORET system for June 1975 thru May 1976.

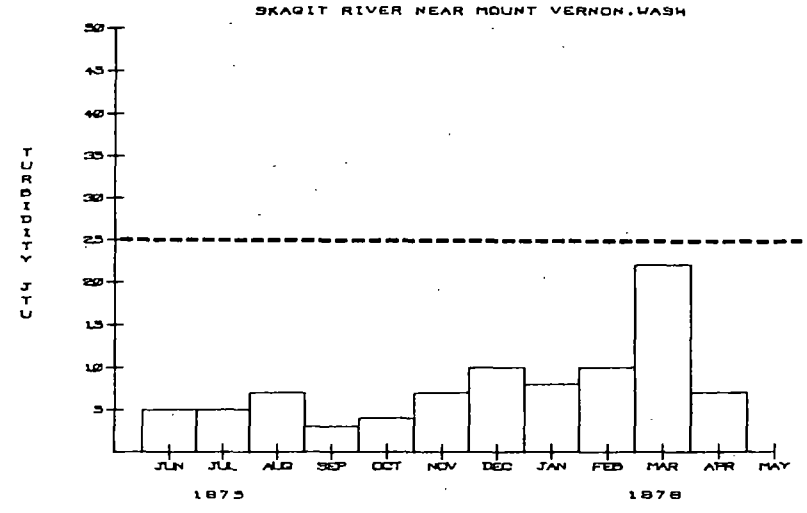
-- Missing bars or points on graphs indicate data was unavailable for that period.

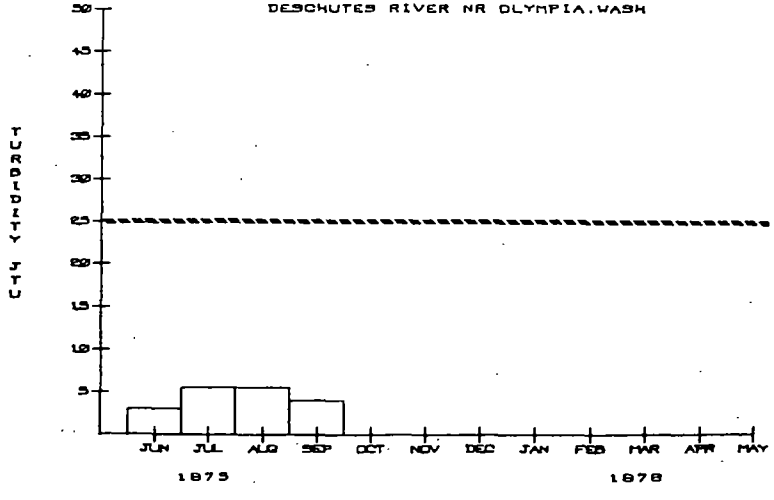
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the turbidity criteria level of 25 JTU has been exceeded.

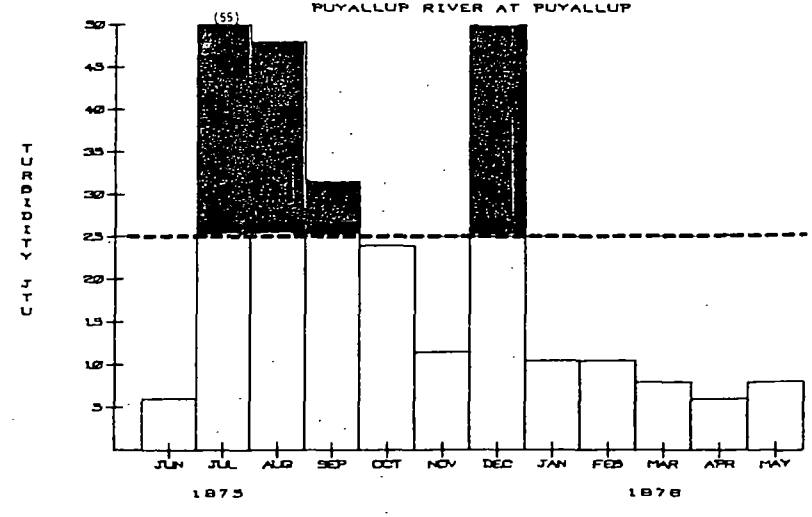
PUGET SOUND BASIN

TURBIDITY IN JTU









PUGET SOUND BASIN

FECAL COLIFORM PER 100 ML

NOTES:

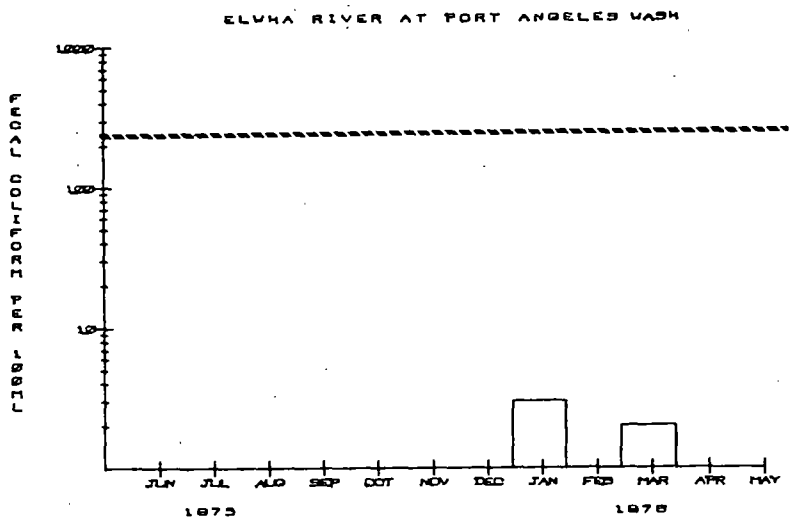
-- Data from EPA's STORET system for June 1975 thru May 1976.

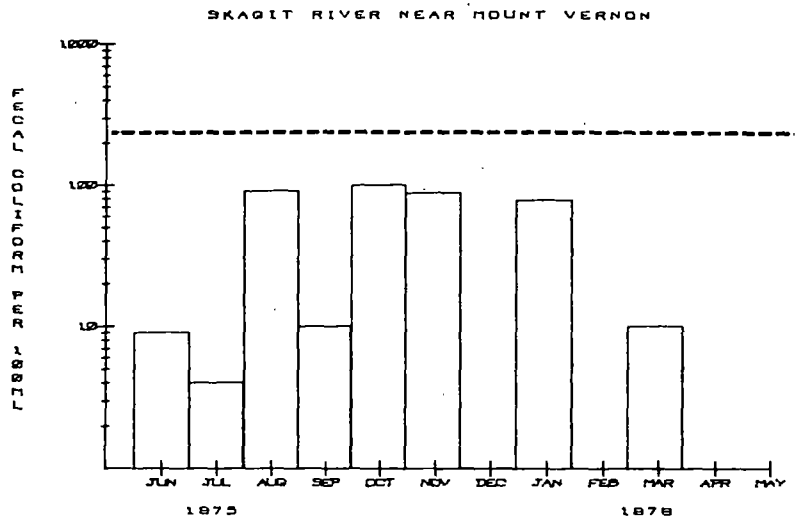
-- Missing bars or points on graphs indicate data was unavailable for that period.

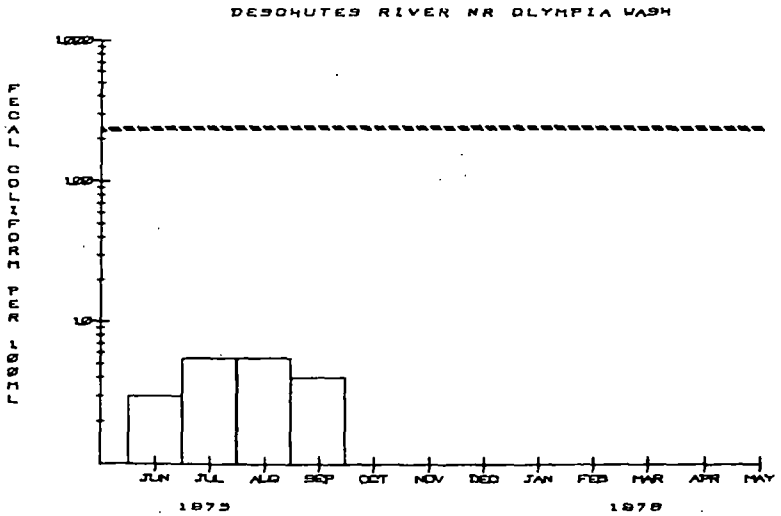
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the fecal coliform criteria level of 240 /ml has been exceeded.

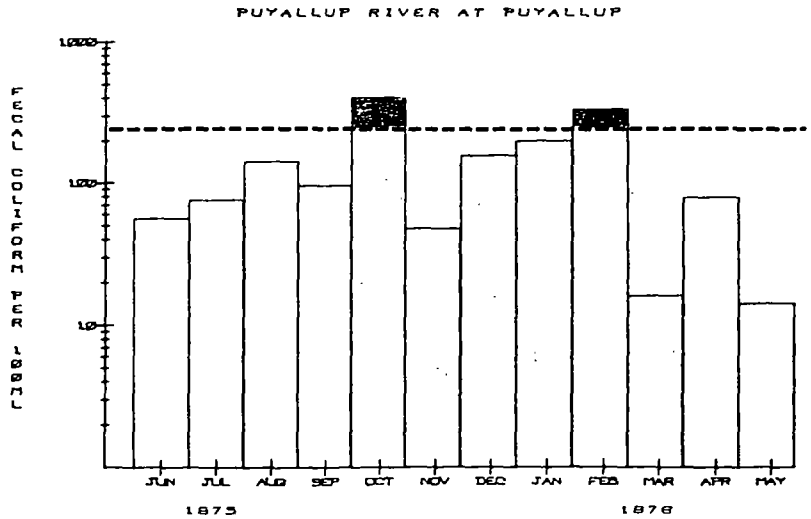
PUGET SOUND BASIN

FECAL COLIFORM PER 100 ML









PUGET SOUND BASIN

TOTAL PHOSPHORUS MG/L

NOTES:

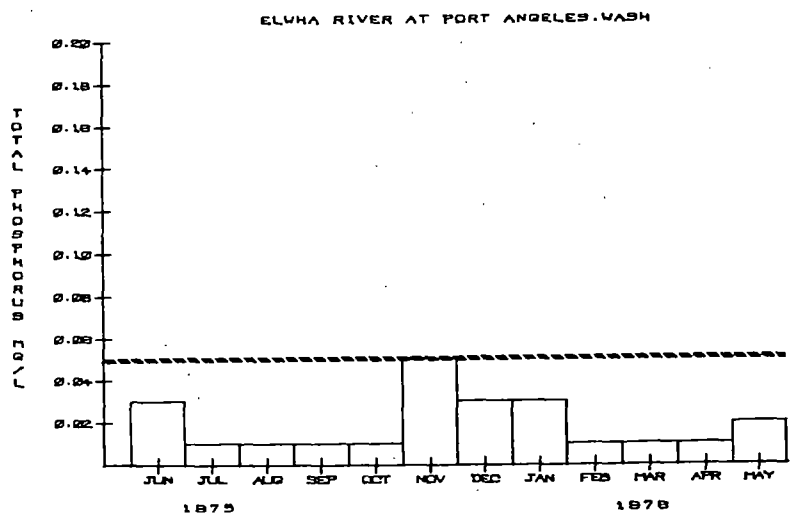
-- Data from EPA's STORET system for June 1975 thru May 1976.

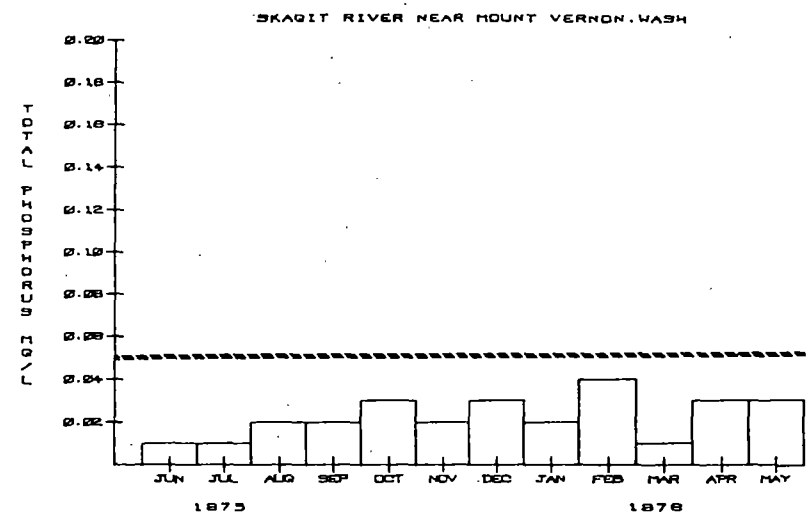
-- Missing bars or points on graphs indicate data was unavailable for that period.

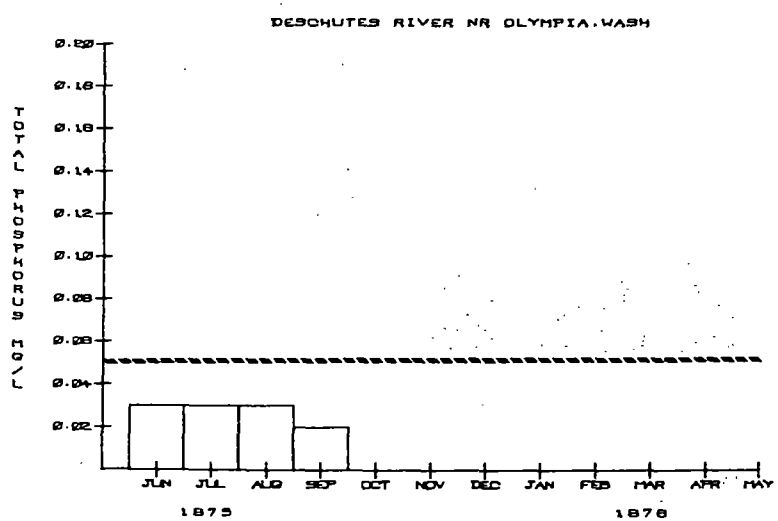
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the total phosphorous algal bloom potential level of 0.05 mg/l has been exceeded.

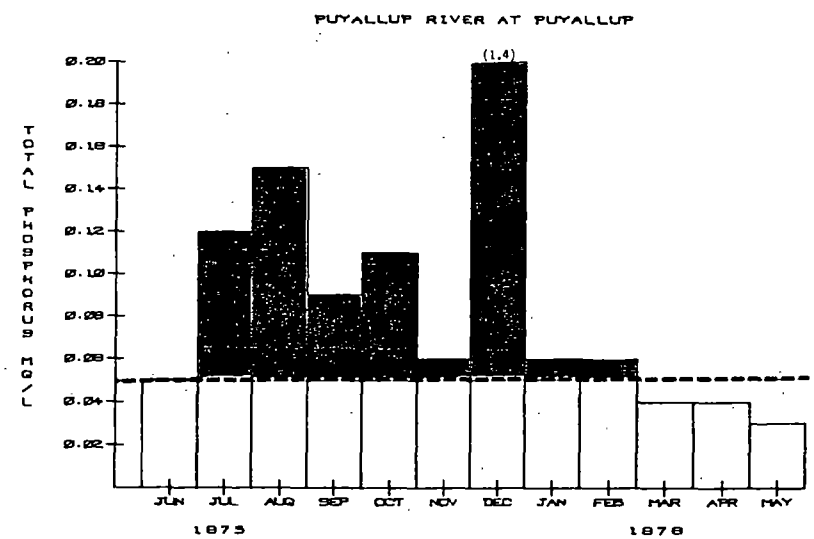
PUGET SOUND BASIN

TOTAL PHOSPHORUS MG/L









PUGET SOUND BASIN

NO2+NO3 NITROGEN MG/L

NOTES:

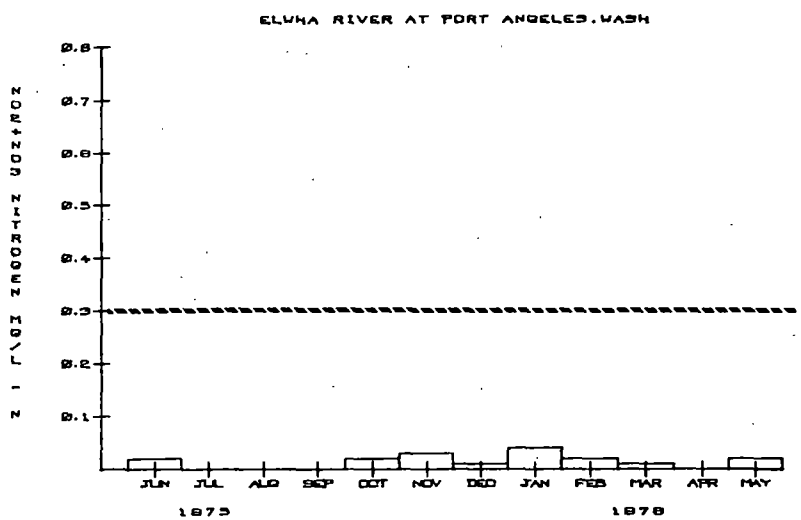
-- Data from EPA's STORET system for June 1975 thru May 1976.

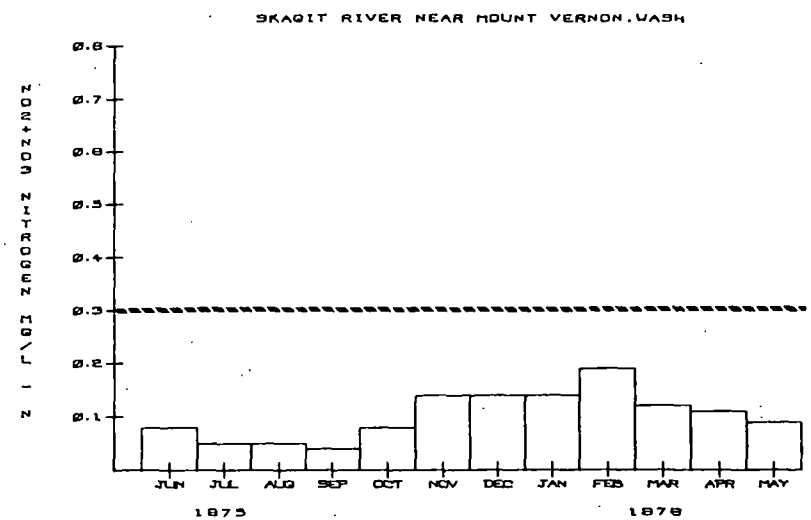
-- Missing bars or points on graphs indicate data was unavailable for that period.

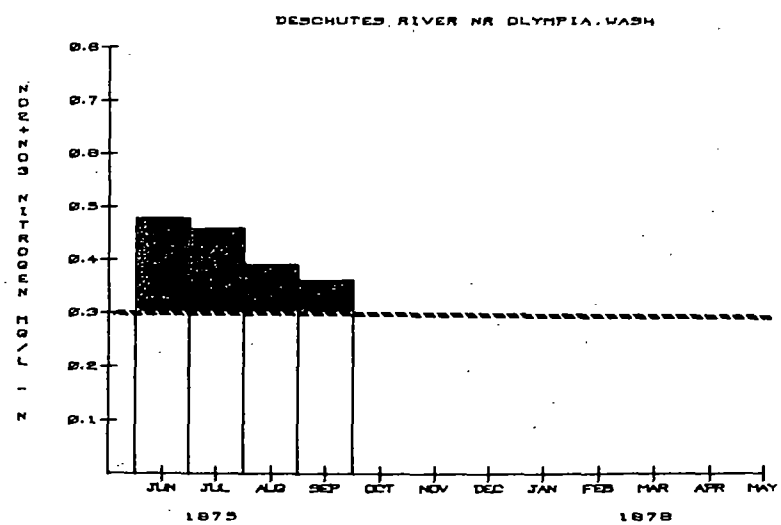
-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the nitrate algal bloom potential level of 0.30 mg/l has been exceeded.

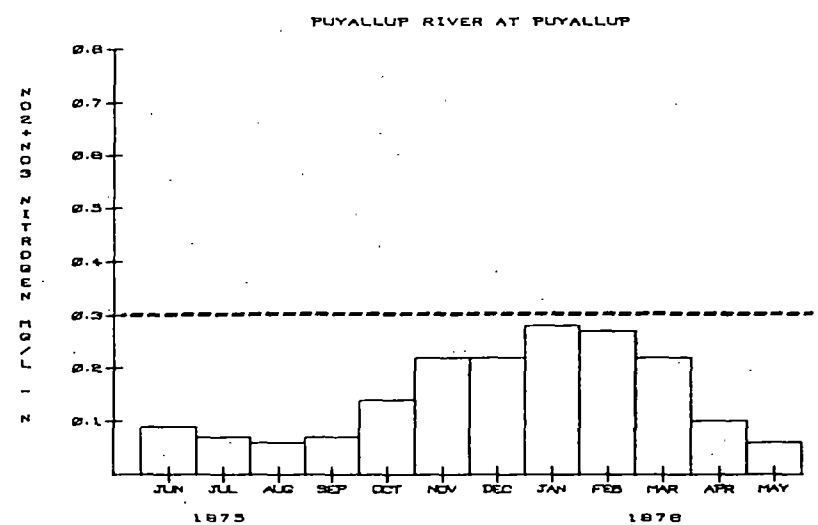
PUGET SOUND BASIN

NO2+NO3 NITROGEN MG/L









PUGET SOUND BASIN

TOTAL KJELDAHL NITROGEN MG/L

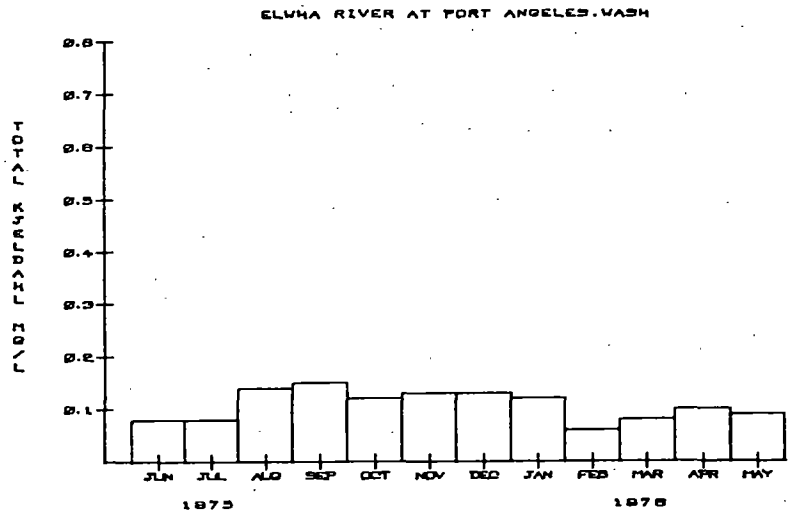
NOTES:

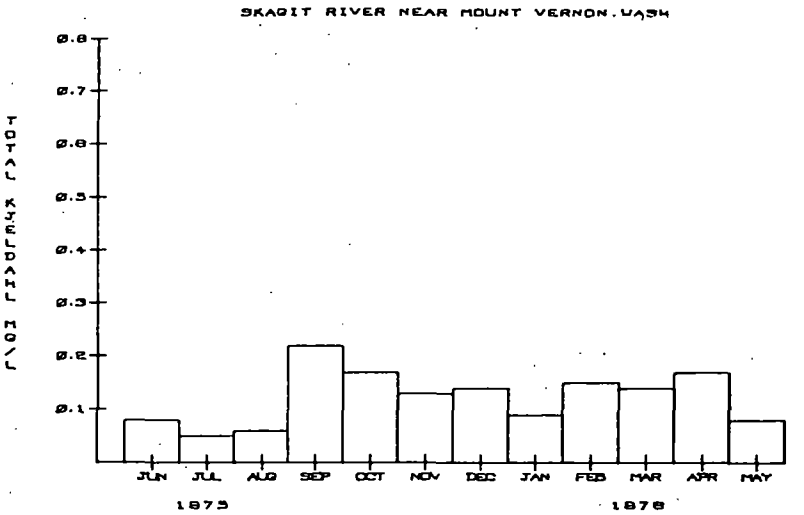
-- Data from EPA's STORET system for June 1975 thru May 1976.

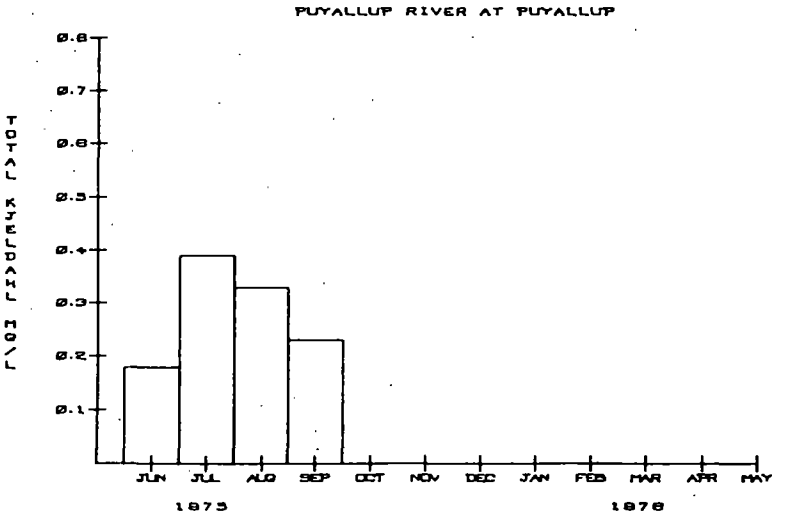
-- Missing bars or points on graphs indicate data was unavailable for that period.

PUGET SOUND BASIN

TOTAL KJELDAHL NITROGEN MG/L







SOUTHERN OREGON LAKES BASIN 13-14

The Southern Oregon Lakes basin is sometimes referred to as the Oregon Closed basin because there is no drainage to the ocean. Streams drain into landlocked lakes as shown on the accompanying map. The basin, located in the southeastern part of Oregon, is totally enclosed by mountains. The basin is drained by three major stream systems, but for the purposes of this report, will be limited to the Donner und Blitzen River (R.M. 42.8). The River has a total length of 72 miles, draining the west slope of the Steens Mountains. The basin is sparsely populated, with the most dense population being near the urban area of Burns (pop. 3,293) and Hines (pop. 1,407). There are no major municipal or industrial point sources associated with this basin. Irrigated agriculture and grazing are the major land uses in the basin.

National Water Quality Surveillance System (NWQSS) stations located within this basin are shown on the map. The complete water quality and biological parametric coverage for NWQSS stations is listed in the Introduction of this report along with the EPA criteria associated with those parameters. However, only some of the parameters are included in the following curves. Complete raw data is available from EPA upon request.

The following curve layout is designed to show the significant river constitutents temporally presented on bar charts.

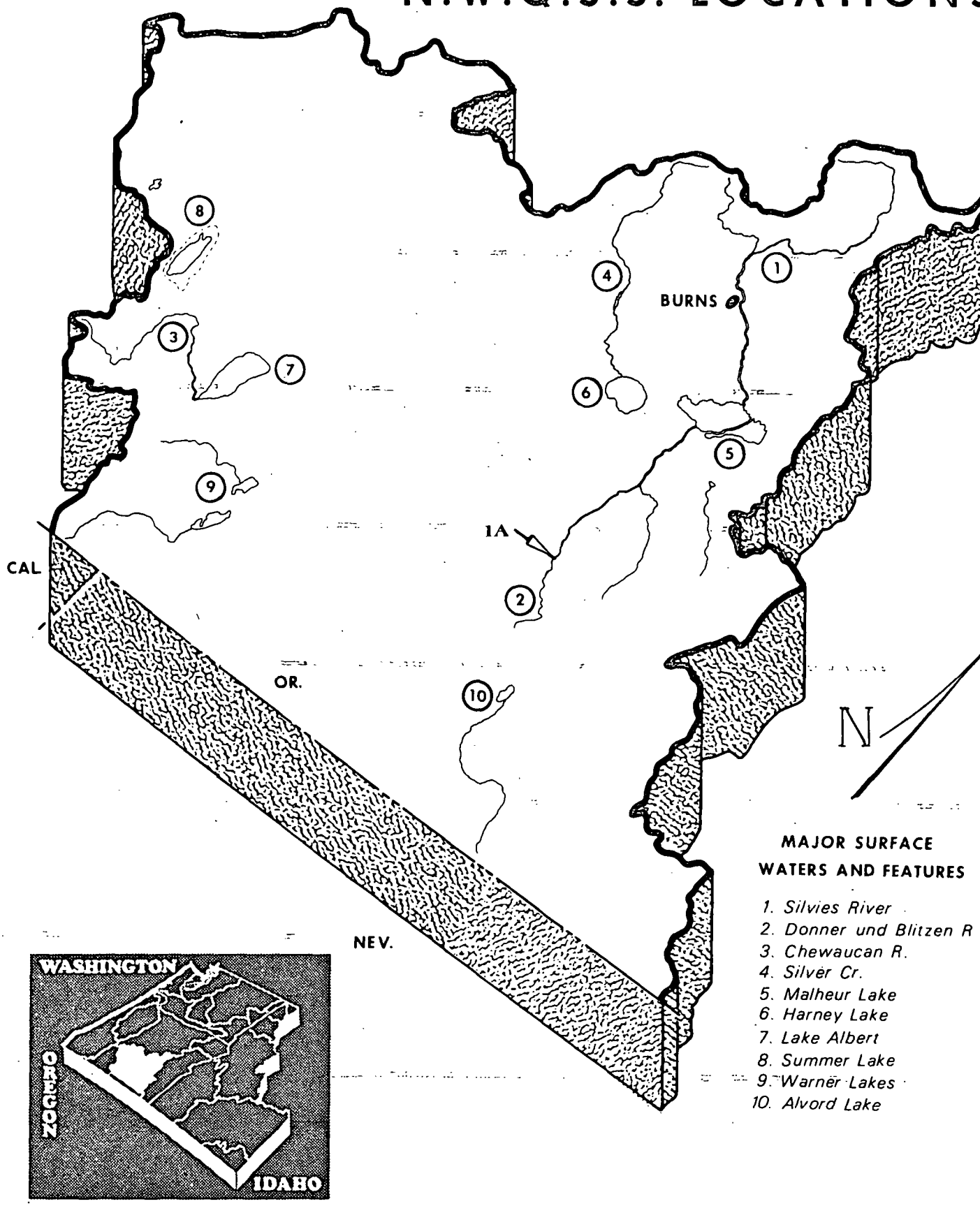
SOUTHERN OREGON LAKES BASIN

Map Station Number	Type of Data Collected		
	Physical	Chemical	Biological
1A	X	X	

NOTE: Complete station information shown in Table 1 page 11-13.

STORET #13-14

SOUTHERN OREGON LAKES BASIN
N.W.Q.S.S. LOCATIONS



MAJOR SURFACE WATERS AND FEATURES

1. *Silvies River*
2. *Donner und Blitzen R*
3. *Chewaucan R.*
4. *Silver Cr.*
5. *Malheur Lake*
6. *Harney Lake*
7. *Lake Albert*
8. *Summer Lake*
9. *Warner Lakes*
10. *Alvord Lake*

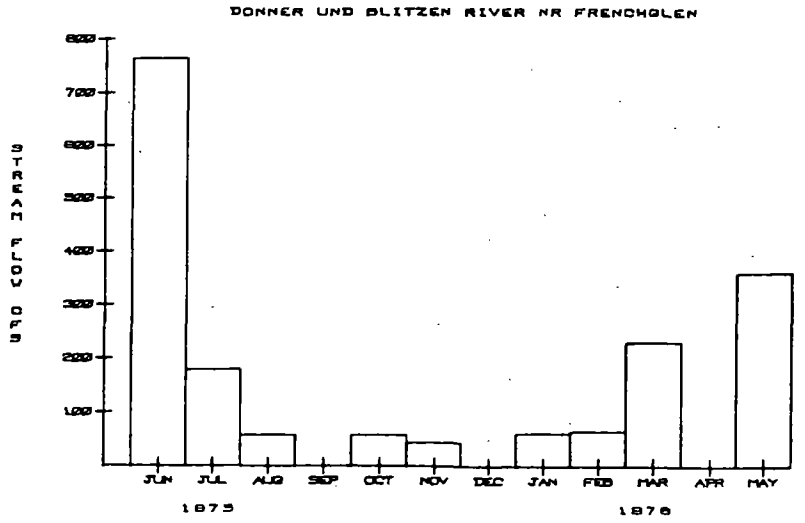
SOUTHERN OREGON LAKES BASIN

STREAM FLOW CFS

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.



SOUTHERN OREGON LAKES BASIN

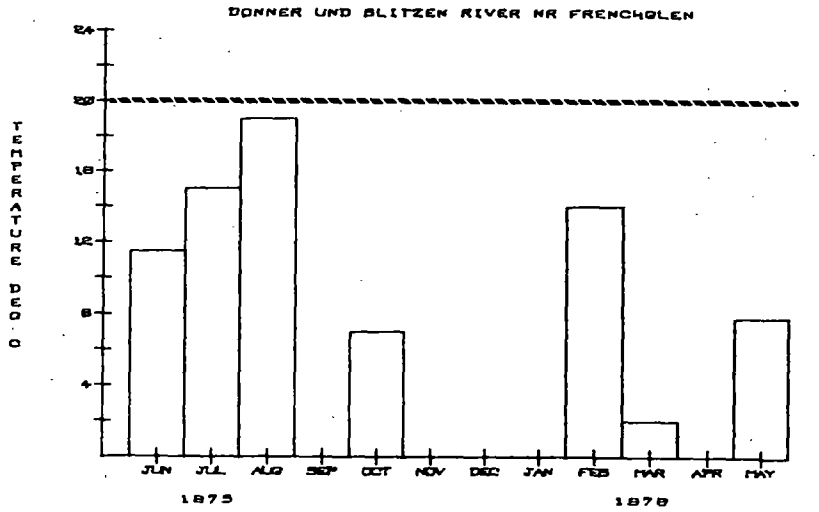
TEMPERATURE DEG C

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the 20°C maximum temperature for salmonid spawning and rearing has been exceeded.



SOUTHERN OREGON LAKES BASIN

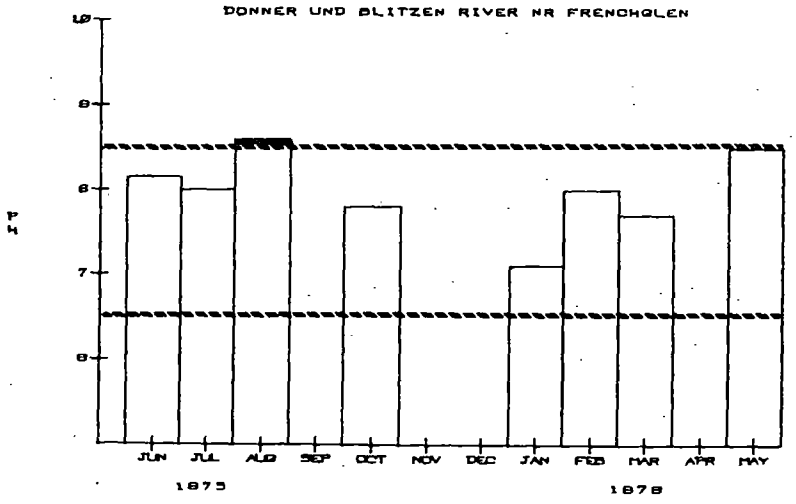
P H

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the pH is below the 6.5 minimum or above the 8.5 maximum criteria level.



SOUTHERN OREGON LAKES BASIN

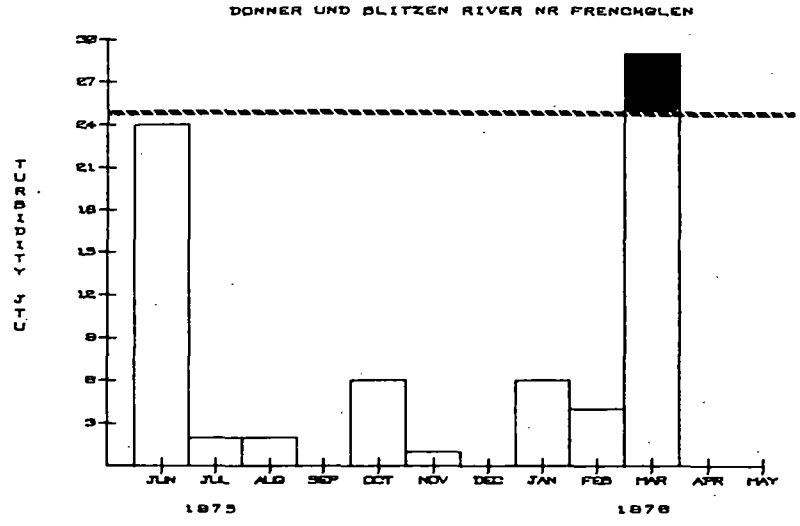
TURBIDITY IN JTU

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the turbidity criteria level of 25 JTU has been exceeded.



SOUTHERN OREGON LAKES BASIN

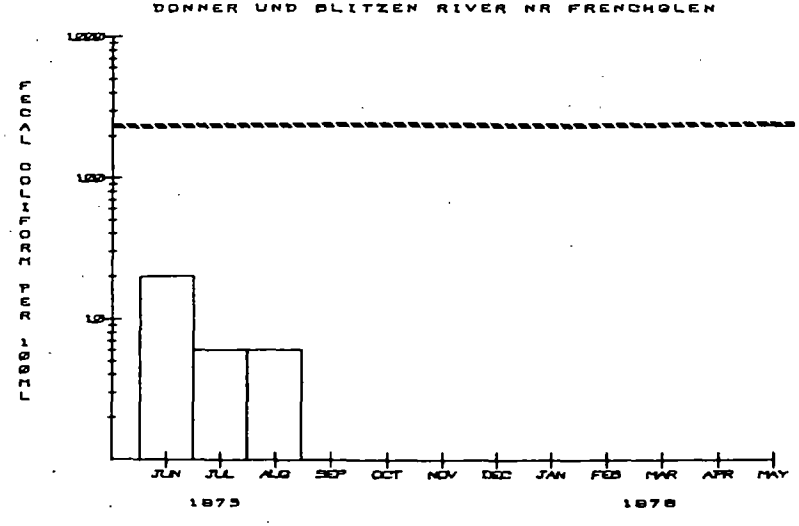
FECAL COLIFORM PER 100 ML

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the fecal coliform criteria level of 240 /ml has been exceeded.



SOUTHERN OREGON LAKES BASIN

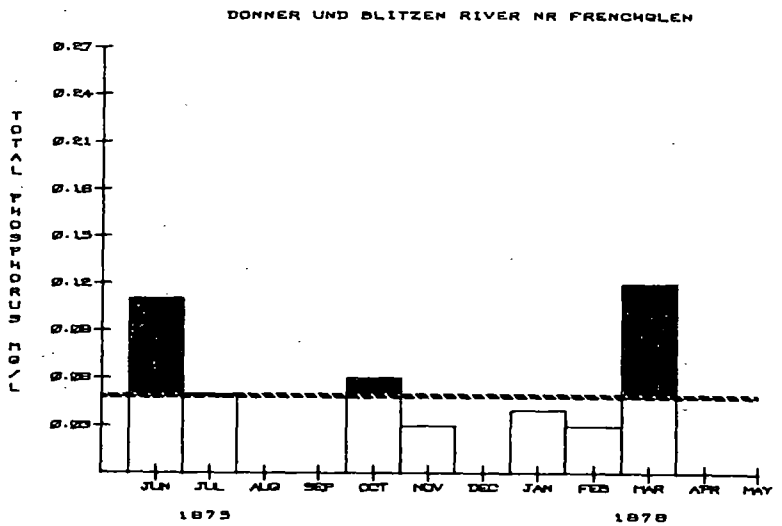
TOTAL PHOSPHORUS MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the total phosphorous algal bloom potential level of 0.05 mg/l has been exceeded.



SOUTHERN OREGON LAKES BASIN

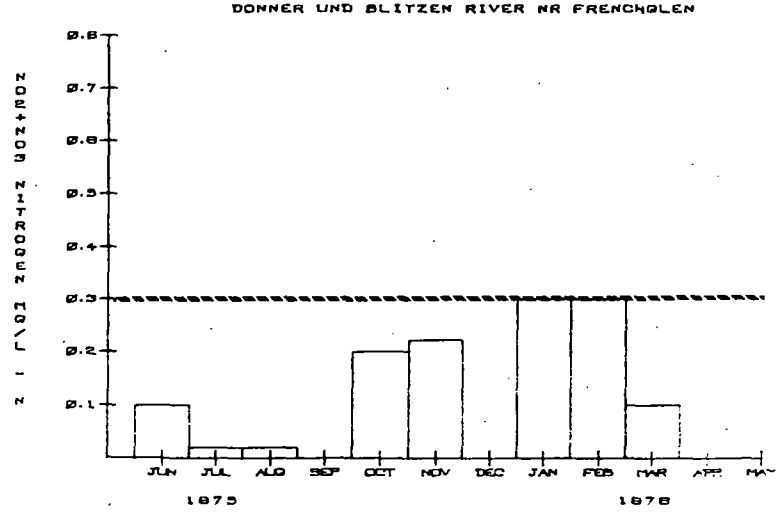
NO2+NO3 NITROGEN MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.

-- Dashed lines portray EPA REGION 10 water quality indicator levels (listed in introduction). Shaded area shows that the nitrate algal bloom potential level of 0.30 mg/l has been exceeded.



SOUTHERN OREGON LAKES BASIN

TOTAL KJELDAHL NITROGEN MG/L

NOTES:

-- Data from EPA's STORET system for June 1975 thru May 1976.

-- Missing bars or points on graphs indicate data was unavailable for that period.