WATER-QUALITY ASSESSMENT OF THE SMITH RIVER DRAINAGE BASIN, CALIFORNIA AND OREGON

U.S. GEOLOGICAL SURVEY
Water-Resources Investigations
81-22

Prepared in cooperation with the
CALIFORNIA STATE WATER RESOURCES CONTROL BOARD

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Future studies are needed to establish: (1) a sustained long-term monitoring program to provide a broad coverage of water-quality conditions in order to define long-term water-quality trends; and (2) interpretive studies to determine the source of known and potential water-quality problems.

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CONTROL BOARD

March 1982

UNITED STATES DEPARTMENT OF THE INTERIOR

JAMES G. WATT, Secretary

GEOLOGICAL SURVEY

Dallas L. Peck, Director

For additional information write to:

District Chief
U.S. Geological Survey
2800 Cottage Way, Room W-2235
Sacramento, Calif. 95825

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CONVERSION FACTORS

For readers who may prefer to use metric units rather than inch-pound units, the conversion factors for the terms used in this report are:

Multiply	By	To obtain
acre-ft (acre-feet)	0.001233	hm^2 (cubic hectometers)
ft (feet)	0.3048	m (meters)
ft/mi (feet per mile)	0.1894	m/km (meters per kilometer)
ft^3/s (cubic feet per second)	0.02832	m^3/s (cubic meters per second)
inches	25.4	mm (millimeters)
lb (pounds)	0.4536	kg (kilograms)
mi (miles)	1.609	km (kilometers)
mi^2 (square miles)	2.590	km^2 (square kilometers)
ton (short)	0.9072	Mg (megagrams)
ton/mi^2 (tons per square mile)	0.3503	Mg/km^2 (megagrams per square kilometer)
µmho (micromhos)	1.000	µS (microsiemens)

Degrees Fahrenheit (°F) is converted to degrees Celsius (°C) by using the formula: Temp °C = (temp °F-32)/1.8.

Other abbreviations used:

FTU (Formazin turbidity units)
$(g/m^2)/d$ (grams per square meter per day)
JTU (Jackson turbidity units)
mbf (million board feet)
mg/L (milligrams per liter)
mg/m^2 (milligrams per square meter)
mL (milliliters)
MPN (most probable number)
NTU (Nephelometric turbidity units)
µg/L (micrograms per liter)
STORET (Storage and Retrieval System)
WATSTORE (National Water Data Storage and Retrieval System)

The use of brand names in this report is for identification purposes only and does not imply endorsement by the U.S. Geological Survey.

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By Rick T. Iwatsubo and Donna S. Washabaugh

ABSTRACT

A water-quality assessment of the Smith River drainage basin was made to provide a summary of the water-quality conditions including known or potential water-quality problems. Results of the study showed that the water quality of the Smith River is excellent and generally meets the water-quality objectives for the beneficial uses identified by the California Regional Water Quality Control Board, North Coast Region.

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INTRODUCTION

Background

The Smith River, whose drainage basin is located along the northern California Coast and extends into Oregon, is known to be one of the cleanest and most pristine rivers in California. The Smith River is one of the few remaining unregulated streams in California and has been nominated for inclusion in the National Wild and Scenic Rivers Program. Because of these scenic attributes, concerns have been expressed that possible accelerated erosion and sedimentation, caused by logging and mining activities, may cause degradation of the river quality with resulting damage to fisheries and a less attractive environment from a scenic and recreational standpoint. For these reasons, the Smith River was selected as one of several California streams for water-quality assessment by the U.S. Geological Survey in cooperation with the California State Water Resources Control Board.

The moist, mild climate and seasonally heavy rainfall are suitable for growth of the coast redwood (*Sequoia sempervirens*) and associated vegetation. Six Rivers National Forest, Jedediah Smith and Del Norte Coast Redwoods State Parks (both parks are now part of the Redwoods National Park), and Siskiyou National Forest all border the Smith River. These forests contain some of the largest and finest coast redwoods in the world.

Resources include timber, agriculture, mining, and recreational areas. The forested areas are of major economic importance as sources of wood fiber and timber. The coast redwood is an important commercial resource providing a soft, strong, colorful wood that is resistant to decay and insect infestation. Dairy pasture and the commercial raising of lily bulbs and flowers are the chief agricultural activities. Significant mineral deposits in the region include nickel, cobalt, silver, mercury, copper, platinum, and clay U.S. Department of Interior, 1980). Total chromite deposits in the basin are the largest in the nation (California Nickel Corporation, 1980). The scenic Smith River and bordering forests with numerous species of fish and wildlife provide esthetic and recreational enjoyment for visitors. Recreational activities include sightseeing, camping, hiking, picnicking, fishing, and hunting.

The California Legislature has designated "the Smith River and all its tributaries, from the Oregon-California state boundary to the Pacific Ocean" as part of the California Wild and Scenic Rivers system. Under this designation, the California Resources Agency is required to protect and enhance the scenic, recreational, fishery, and wildlife resources of the Smith River and all its tributaries (California Department of Fish and Game, 1980).

The Legislative Declaration of the California Wild and Scenic Rivers Act states: "It is the policy of the State of California that certain rivers which possess extraordinary scenic, recreational, fishery, or wildlife values, shall be preserved in their free-flowing state, together with their immediate environments, for the benefit and enjoyment of the people of the state. The Legislature declares that such use of these rivers is the highest and most beneficial use and is a reasonable and beneficial use of water within the meaning of Section 3 of Article XIV of the State Constitution (Sec. 5093.50)."

Sections 5093.50 through 5093.65 of the California Public Resources Code, the California Wild and Scenic Rivers Act, were made law by the California Legislature in 1972. By letter of July 18, 1980, the Governor of California petitioned the Secretary of the Interior to include certain river segments of the California Wild and Scenic Rivers System (Smith River and tributaries included) as components of the National Wild and Scenic Rivers System (U.S. Department of Interior, 1980).

Purpose and Scope

The purpose of this assessment was to study and interpret water-quality conditions as they exist in the Smith River drainage basin of California and Oregon on the basis of existing data and information. In addition to an assessment of water-quality conditions, the study included an evaluation of man's activities and land uses as they may adversely impact identified beneficial uses. Ground-water quality was included in the scope of the study. Finally, the assessment included identification of potential water-quality problems and suggested monitoring and studies that might be needed to deal with these problems.

The water-quality assessment of the Smith River basin is one of a series of similar assessments being done as part of a cooperative agreement between the U.S. Geological Survey and the California State Water Resources Control Board. Other drainage basins included in this program are the Merced River, American River, and Cache Creek.

Acknowledgments

Valuable assistance and cooperation were given by Robert Klamt, California Regional Water Quality Control Board, North Coast Region; Chris Knopp, U.S. Forest Service (Six Rivers National Forest); Tom Lavenda, California State Water Resources Control Board; Gene Blankenbaker, U.S. Forest Service (Cleveland National Forest); Gene Stagner, U.S. Forest Service (Siskiyou National Forest); and David Hanson, Planning Department, County of Del Norte. Christopher D. Farrar, U.S. Geological Survey, prepared the section on ground water. Marc A. Sylvester, U.S. Geological Survey, took the aerial photographs.

DESCRIPTION OF THE STUDY AREA

Physical Features

The Smith River drainage area covers 719 mi^2: 628 mi^2 in California, and 91 mi^2 in Oregon (fig. 1). The main feature in the study area is the Smith River itself, known for its sparkling clear water of excellent quality. The Smith River winds its way through one of the most scenic and forested lands in California with steep wooded canyons containing lush ferns and lofty redwoods. The Smith River is known for clearing rapidly after storms, thus allowing anglers to fish the Smith River when other north coast rivers, such as the Klamath and Eel Rivers, are still turbid.

The Smith River Plain was originally called the Crescent City platform by Maxson (1933). The Smith River Plain is a broad, subrectangular emerged marine terrace (Back, 1957) with approximate dimensions of 4 by 15 mi (California Regional Water Quality Control Board, North Coast Region, 1975).

The Smith River system is 3,100 mi long. The principal branches of the Smith River are the Lower Smith River, the Middle Fork Smith River, the North Fork Smith River, and the South Fork Smith River. From the headwater of the Middle Fork Smith River to the Pacific Ocean, the Smith River is 45 mi long. Tributaries included in this study are Rowdy Creek, Dominie Creek, Mill Creek, West Branch Mill Creek, East Fork Mill Creek, Myrtle Creek, Hardscrabble Creek, Patrick Creek, Shelly Creek, Monkey Creek, Siskiyou Fork Smith River, Hurdygurdy Creek, and Jones Creek.

The low relief near the Pacific Ocean gives way abruptly to rugged mountains that range from 2,500 to 5,000 ft and rise steeply to the Siskiyou Mountain Divide at over 6,000 ft (Back, 1957). The highest peak is Bear Mountain with an altitude of 6,424 ft. Streambed slopes range from less than 10 ft/mi at the coast to more than 100 ft/mi at the headwaters.

Geology and Ground Water

The Smith River drainage basin is divided into two distinct geological provinces by a thrust fault that trends generally northward (fig. 2). The eastern province covers about 80 percent of the basin and is underlain by consolidated formations, mostly the Galice Formation of Late Jurassic age (approximately 205 to 138 million years old). The Galice Formation is composed of sedimentary and metasedimentary rocks including slate, phyllite, and tuffaceous sandstone. The eastern province was intruded by ultrabasic rocks of Jurassic age consisting of pyroxenite, dunite, and peridotite. Minor occurrences of serpentinite, a metavolcanic rock, are included in the Late Jurassic sequence. A considerable area along the eastern boundary of this province is underlain by granitic rock of Jurassic and Cretaceous age (U.S. Department of Agriculture, 1972).

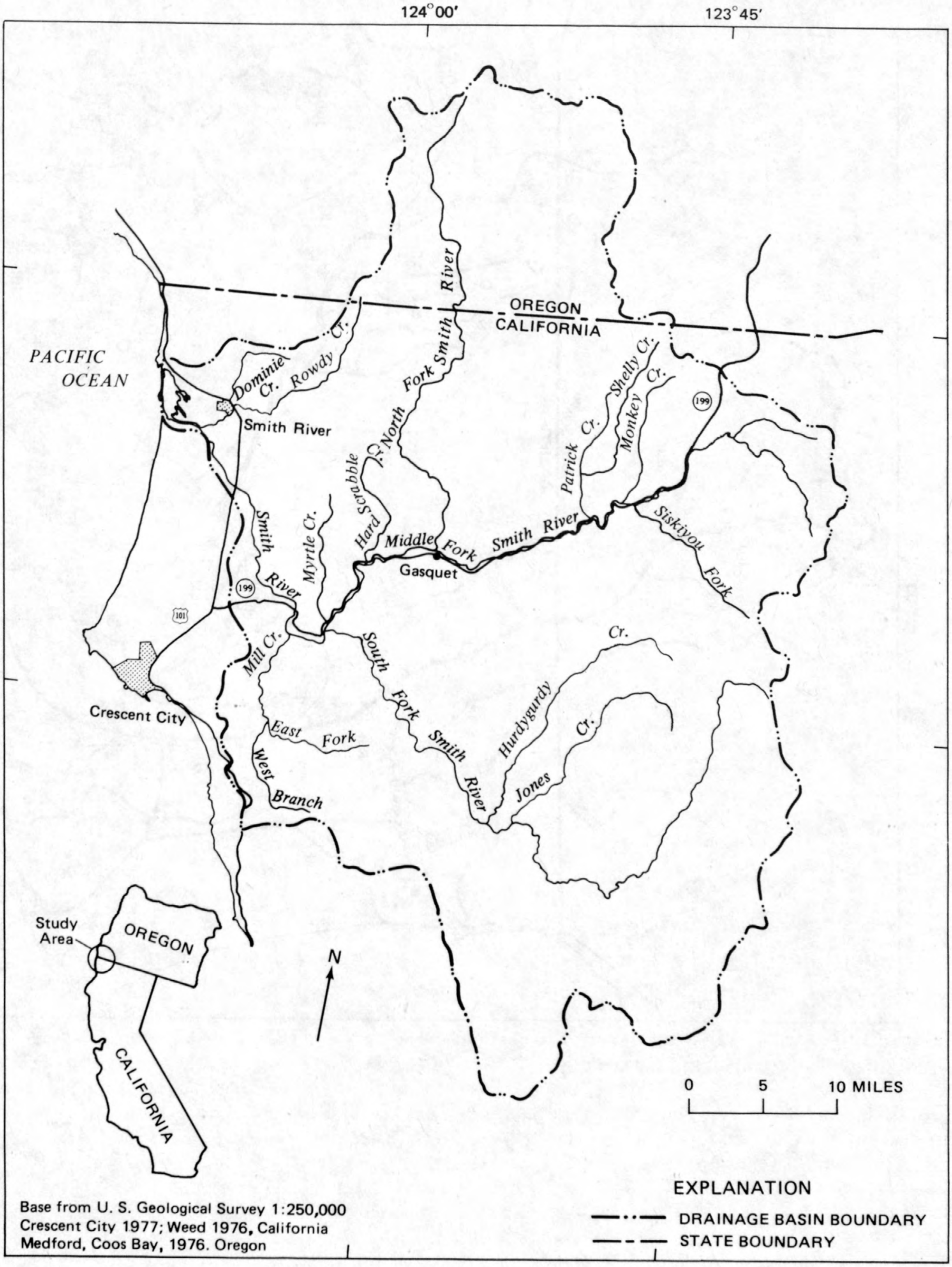


FIGURE 1.--Study area.

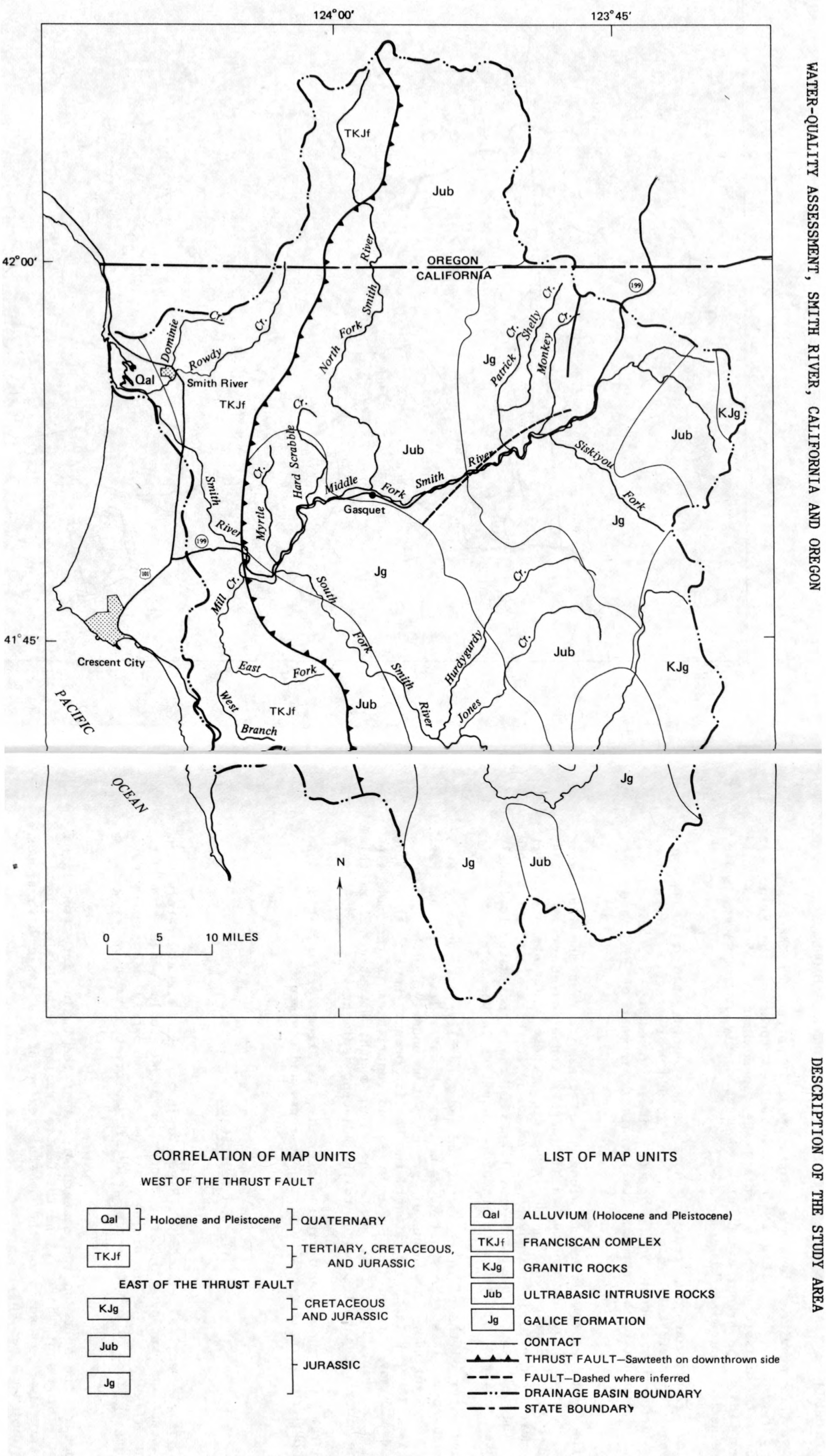


FIGURE 2.--Generalized geology of the Smith River drainage basin (Modified from U.S. Department of Agriculture, 1972).

The western province along the coast, about 20 percent of the basin, is composed largely of the softer folded and faulted rocks of the Franciscan Complex of Late Jurassic to early Tertiary age (approximately 165 to 138 million years old). The Franciscan Complex consists mostly of graywacke, shale, chert, greenstone, and minor conglomerate.

Alpine glaciation occurred in some areas during the Pliocene and Pleistocene (approximately 5 million to 20,000 years ago). Landslides occurred during Pleistocene and Holocene time, caused by tectonic uplift followed by downcutting by streams (California Department of Fish and Game, 1980).

On the Smith River Plain and along some stream courses the Franciscan Complex is overlain by unconsolidated to loosely consolidated gravel, sand, silt, and clay of Pleistocene and Holocene age. These sediments are 100 ft thick or more on the plain and may be as much as 50 ft thick along main stream courses. The well sorted sand and gravel beds in the consolidated to loosely consolidated sediments are the most productive aquifers in the area.

Ground water on the plain is unconfined and generally is encountered at a depth of 30 ft or less. Seasonal fluctuations of water levels are at least 10-15 ft in magnitude. Movement of ground water underlying the plain is westward from the mountain front toward the Pacific Ocean. Locally the ground water tends to move toward the Smith River and contributes to the base flow upstream of a point about 5 mi above the river mouth; downstream from this point, the river tends to lose water to the adjacent sediments.

Recharge to the ground-water reservoir is from precipitation and infiltration from streams crossing permeable rocks and sediments.

Soils and Vegetation

Most of the soils in the Smith River drainage basin are moderately deep to very deep and support timber. Slopes on these soils range from 0 to 75 percent (fig. 3). The remaining shallow to moderately deep soils have slopes ranging from 0 to 50 percent and are cultivated or used as pasture lands.

Slopes of the soils on the eastern ridges of the basin range from 15 to 75 percent. Slopes of the soils on the Central region of the basin range from 9 to 75 percent. The soils on the Coastal region of the basin have slopes ranging from 0 to 9 percent.

The erosional hazards are moderate to high for most of the soils in the basin. Because of the erosive nature of the soils, most of the basin is highly susceptible to landsliding.

The vegetation within the Smith River drainage basin is highly complex owing to the diverse combination of climate and rainfall, geology and soils, and topography, and provides a habitat for one of the highest total numbers of species of conifers in an area of its size in the world (California Department of Fish and Game, 1980). Most of the basin is forested with an overlap of overstory and understory species.

In the western coastal region of the basin, the dominant overstory species is the coast redwood. In the higher elevations of the remainder of the basin, Douglas fir (Pseudotsuga menziesii) is the dominant overstory species. Overstory conifers associated with the coast redwood and Douglas fir include Sitka spruce (Picea sitchensis), weeping spruce (Picea breweriana), grand fir (Abies grandis), white fir (Abies magnifica), noble fir (Abies procera), mountain hemlock (Tsuga mertensiana), western hemlock (Tsuga heterophylla), western red cedar (Thuja plicata), Port Orford cedar (Chamaecyparis lawsoniana), incense cedar (Calocedrus decurrens), sugar pine (Pinus lambertiana), jeffrey pine (Pinus jeffreyi), knobcone pine (Pinus attenuata), lodgepole pine (Pinus contorta murryana), western white pine (Pinus monticolo), ponderosa pine (Pinus ponderosa), and Pacific yew (Taxus brevifolia). Overstory hardwoods include red alder (Alnus rubra), madrone (Arbutus meziesii), tanoak (Lithocarpus densiflorus), canyon live oak (Quercus, chrysolepis), giant chinquapin (Castanopsis chrysophylla), bigleaf maple (Acer macrophyllum), Oregon white oak (Quercus garryana), and bay (Umbellularia californica).

The understory vegetation includes sword fern (Polystichum munitum), bush monkey flower (Diplacus aurantiacus), oxalis (Oxalis oregana), coyote brush (Baccharis pilularis), hazel (Corylus cornuta), blackberry (Rubus vitifolius), rhododendron (Rhododendron macrophyllum), azalea (Rhododendron occidentale), red huckleberry (Vaccinium parviflorus), salal (Gaultheria shallon), dogwood (Cornus nuttallii), bush lupine (Lupinus variicolor), paintbrush (Castilleja latifolia), and poison oak (Rhus diversiloba), as well as several species of Manzanita and Ceanothus. Annual grasses, perennial herbs, lichens and mosses, and some succulents occur throughout the basin.

Climate

The western part of the Smith River drainage basin, strongly influenced by its proximity to the Pacific Ocean, has a coastal Mediterranean climate characterized by mild winters and short, warm summers with frequent fog. The eastern part of the drainage basin has an interior Mediterranean climate characterized by mild winter temperatures and heavy rainfall and hot, dry summers with infrequent fog. Air temperatures range from freezing to over 90°F with the coldest month (January) averaging 46°F, and the warmest months (June, July, and August) averaging 65-75°F. Winds prevail west to northwest and bring the cool, moist air on shore from the Pacific Ocean. Precipitation along the northern coast of California is of greater frequency and annual magnitude than anywhere else in California. Most of the precipitation occurs as rain with no appreciable quantities of snow. Ninety percent of the annual precipitation occurs between October 1 and April 30 (California Department of Water Resources, 1965). The average annual precipitation ranges between 75 and 125 inches (fig. 4). The heaviest precipitation recorded was 140 inches at the headwaters of the Smith River in 1919 (California Regional Water Quality Control Board, North Coast Region, 1975).

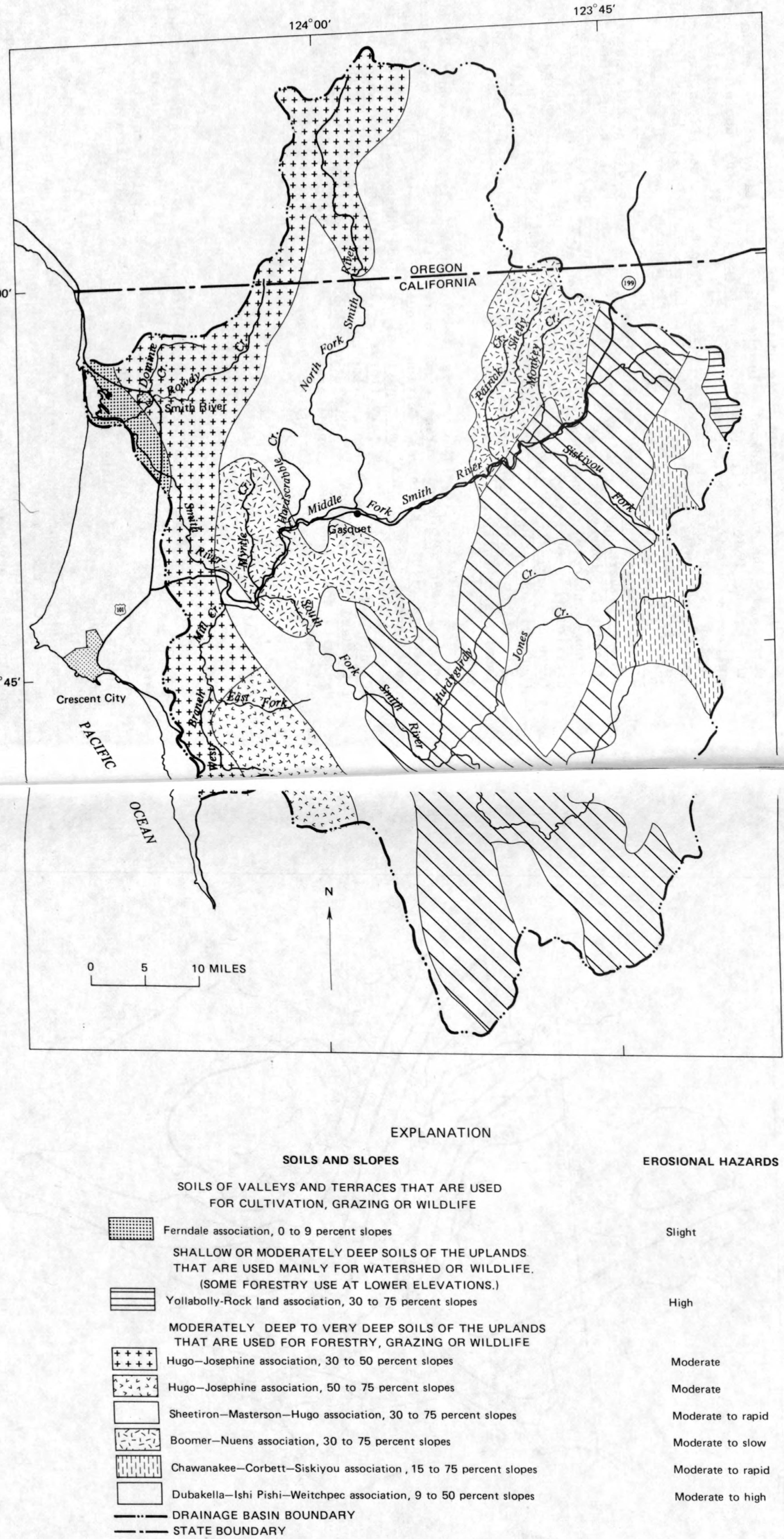


FIGURE 3.--Generalized soils, slopes, and erosional hazards of the Smith River drainage basin (Modified from U.S. Department of Agriculture, 1972).

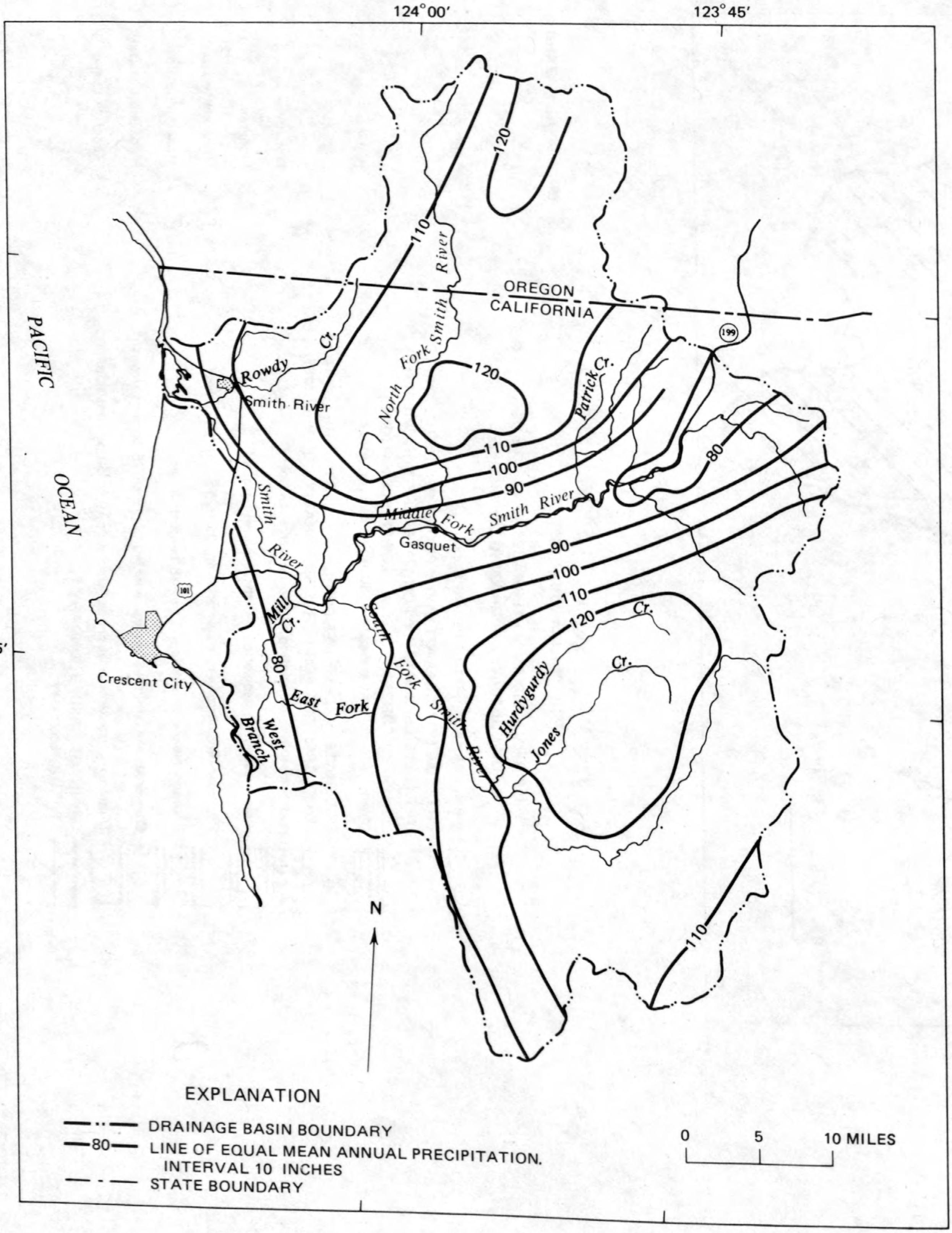


FIGURE 4.--Mean annual precipitation, Smith River drainage basin (modified from Rantz, 1969).

Fish and Wildlife

The waters of the Smith River and tributaries provide habitat for many species of anadromous fish and other aquatic life. The prominent species of fish in the drainage basin are chinook (Oncorhynchus tshawytscha) and coho (Oncorhynchus kisutch) salmon, steelhead trout (Salmo gairdneri gairdneri), coast cutthroat trout (Salmo clarki clarki), and rainbow trout (Salmo gairdneri). The chinook and coho salmon are economically important and contribute to sport and commercial fishing from mid-August to December (fig. 5). The chinook salmon is the largest of all salmon and averages about 20 pounds when mature, while the coho salmon usually weighs between 7 and 12 pounds (California Department of Water Resources, 1974a). Steelhead trout fishing is best November through February, while coast cutthroat and rainbow trout fishing is best during the autumn.

The Smith River and tributaries provide a high quality aquatic habitat especially suitable for fish spawning. "Fall-run" chinook salmon enter the Smith River as maturing adults during the late summer or autumn and spawn between October and January. "Spring- and summer-run" chinook salmon enter the river during the spring and early summer and spend several months in the cool waters of upstream areas before spawning in early autumn (California Department of Water Resources, 1974a). Coho salmon and steelhead trout enter the river in late autumn or early winter. Coho salmon spawn between November and January; steelhead trout spawn during the winter or spring months. Coast cutthroat trout enter the river in autumn and spawn in winter. Rainbow trout spawn in spring.

FIGURE 5.--View looking south at sport salmon fishing at the mouth of the Smith River (September 26, 1979).

The nonsport, noncommercial, and other aquatic biota are important to the Smith River ecosystem. Many of these organisms contribute to the food chain required by the economically important species.

The Smith River drainage basin provides a water supply and habitat for the maintenance of wildlife. The numerous species of wildlife include black-tailed deer (Odocoileus hemionus columbianus), Roosevelt elk (Cervus canadensis roosevelti), black bear (Euarctos americanus), mountain lion (Felis concolor), bobcat (Lynx rufus), raccoon (Procyon lotor), striped and spotted skunks (Mephitis mephitis and Spilogale putorius), long-tailed weasel (Mustela frenata), fisher (Martes pennanti), ringtail (Rassariscus astutus), marten (Martes americana), mink (Mustela vison), wolverine (Gulo luscus), mountain beaver (Aplodontia rufa), river otter (Lutra canadensis), birds of prey, and other game and nongame birds. The basin has excellent populations of black-tailed deer, black bear, and water fowl for hunting. In particular, there are good hunting areas near the estuary and mouth of the Smith River for waterfowl.

Five rare or endangered species of wildlife have been observed in the Smith River drainage basin. They include: southern bald eagle, American peregrine falcon, Aleutian Canada goose, California brown pelican, and wolverine (California Department of Fish and Game, 1980).

Land Use and Ownership

Land use in the Smith River drainage basin includes timber production, transportation, grazing and cropland, recreation and wilderness, residential, fish and wildlife, and mining.

The predominant land use in the basin is timber harvesting (fig. 6). The U.S. Forest Service, Six Rivers National Forest, hereinafter referred to as Six Rivers National Forest, and several privately owned timberlands provide the timber for annual harvesting. The annual allowable timber harvest from Six Rivers National Forest is estimated at 40 mbf (million board feet) and is based on a sustained yield management of an estimated 3,900 mbf of standing timber. Sustained yield is achieved when the amount of timber growth equals the amount harvested. Since the U.S. Forest Service has been using sustained yield management successfully to achieve continued high harvests, some of the private landowners have shifted to sustained yield management. The total production from public and private lands has been averaging approximately 220 mbf per year since 1970 (California Department of Fish and Game, 1980).

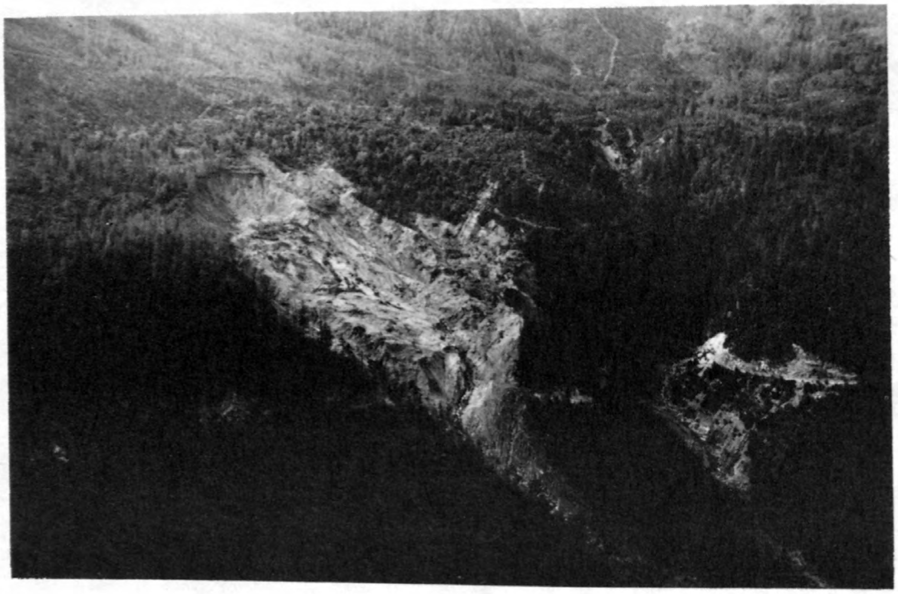
Road building and other transportation-related activities have had a profound effect on the land use in the basin. Road building has been beneficial to the operation of the timber industry and other industries in the basin by increasing accessibility to the area but has caused problems related to soil disturbance and erosion (figs. 7 and 8). Several Federal highways and numerous State, county, forest, and private roads provide a transportation network. Adding to the network are thousands of miles of logging roads and tractor trails crisscrossing the basin, and several railroads serving the area.

FIGURE 6.--Clearcut timber-harvest unit along the left-bank Middle Fork Smith River (October 6, 1979).

Grazing of cattle (fig. 9) and sheep was one of the earliest land uses in the basin (U.S. Department of Agriculture, 1972). Dairying and the commercial raising of lily bulbs and flowers have become the chief agricultural activities. The land around the town of Smith River produces nearly 100 percent of bulbs for potted Easter lilies in the United States (California Department of Fish and Game, 1980).

Recreation and wilderness land use is widespread because of the outstanding recreational activities and scenic beauty of the basin. Residential land use with year-round and seasonal occupancy is concentrated around the urban center of Crescent City and the smaller towns of Smith River, Gasquet, Hiouchi, and Big Flat (fig. 10). In addition, Crescent City is dependent on the lower Smith River as a source of municipal and domestic water supplies (fig. 11).

Gold, copper, mercury, chromium, sand, and gravel have been mined in significant quantities (fig. 12). Platinum, clay, cobalt, and silver have been mined to a lesser extent. Deposits of manganese, graphite, coal, iron, and nickel are present in the basin, but not in large commercial quantities and therefore have limited importance in the mineral industry (California Department of Water Resources, 1965).



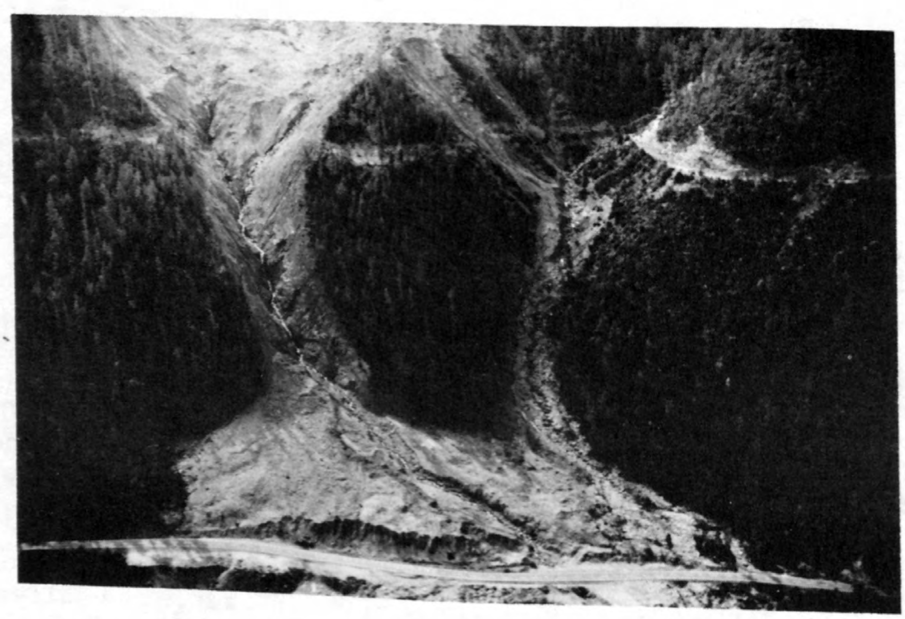
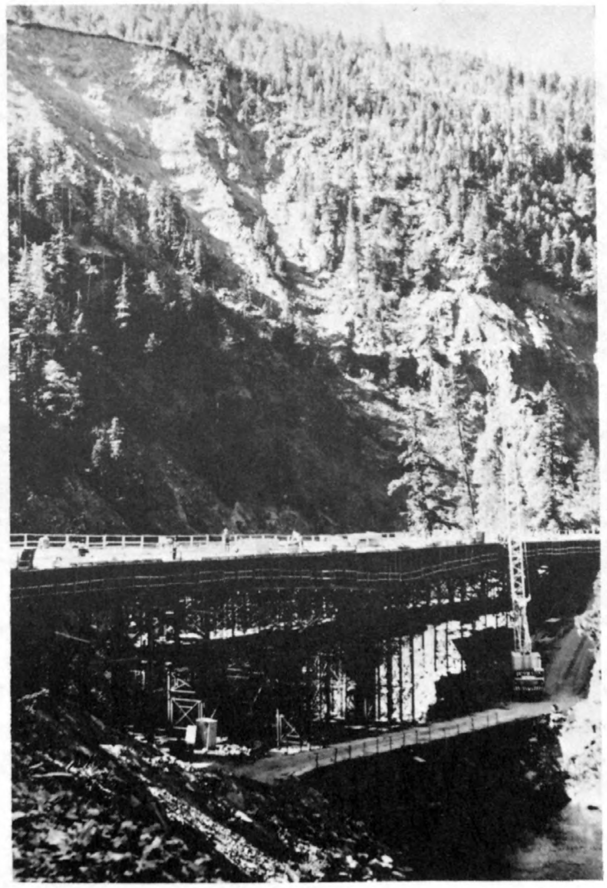


FIGURE 7.--Upper and lower part of massive landslide along South Fork Smith River county road (October 6, 1979).



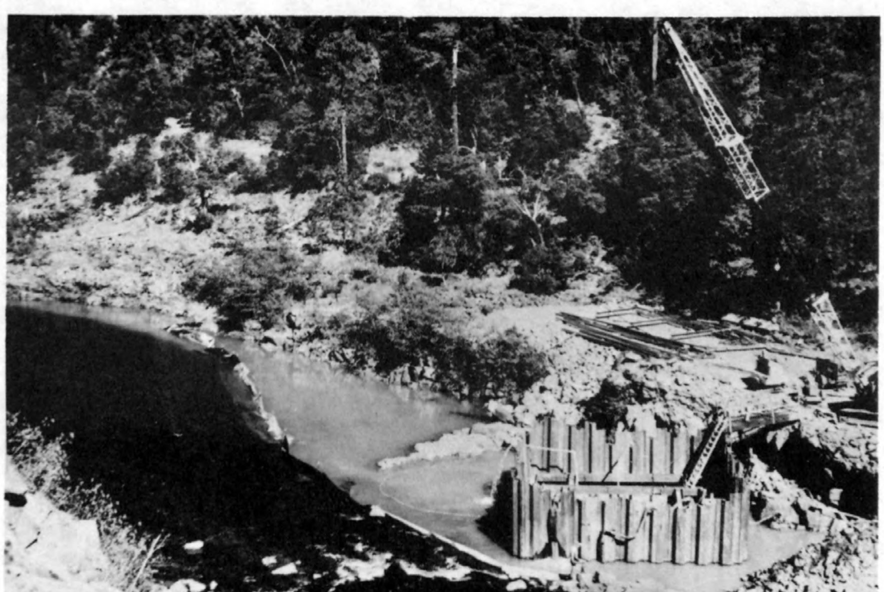


FIGURE 8.--Two views looking downstream at bridge construction related to rerouting South Fork Smith River county road around massive landslide (September 26, 1979).

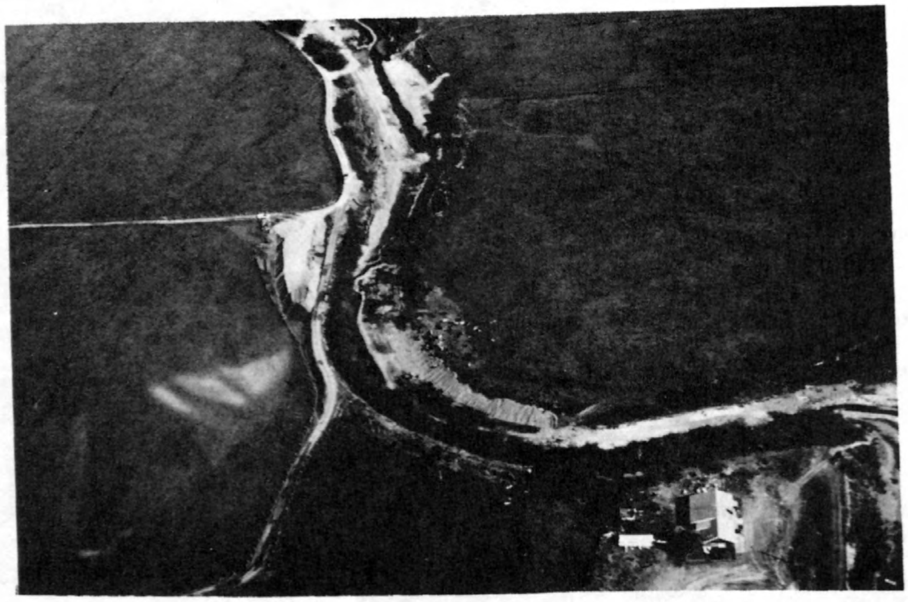


FIGURE 9.--View looking upstream of Rowdy Creek at cattle grazing near the mouth. Note cattle in stream channel and landowner's attempt to stabilize streambank with gravel (October 6, 1979).

FIGURE 10.--View looking northeast at the town of Smith River, California (October 6, 1979).

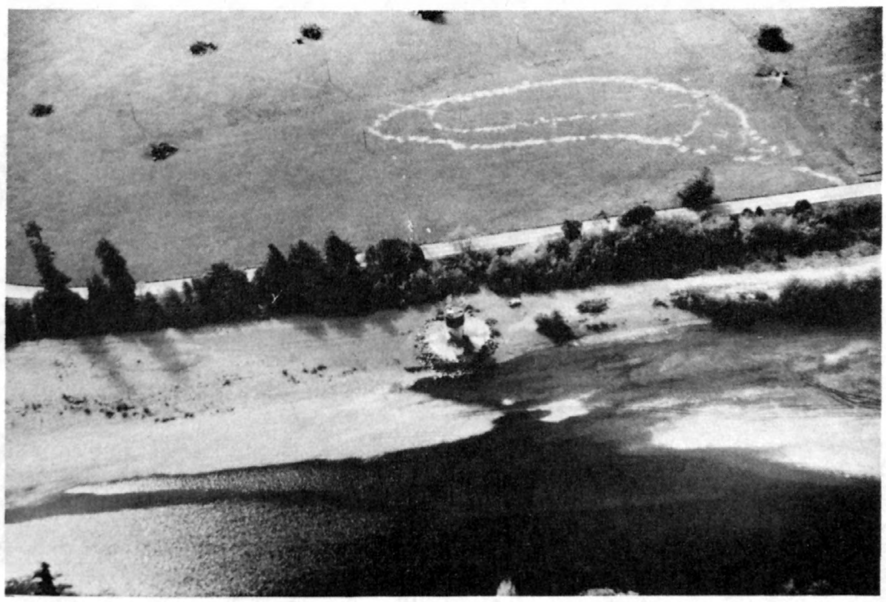


FIGURE 11.--Ranney collector located on the lower Smith River (October 6, 1979).

FIGURE 12.--Dredging and surface removal of gravel and sand from the lower Smith River. Note closeness of dredge pond to Smith River flowing on the left in upper photograph taken September 26, 1979. Lower photograph taken October 6, 1979.

The Smith River and tributaries are 3,100 mi long (table 1). The U.S. Forest Service owns 2,573.5 mi of the Smith River and tributaries; private, State and local governments own 526.5 mi.

More than 75 percent of the land situated in California within the basin is publicly owned (fig. 13) and maintained by Six Rivers National Forest and the National Park Service, Redwood National Park (including the recently incorporated Jedediah Smith and Del Norte Coast Redwoods State Parks). More than 90 percent of the land situated in Oregon along the North Fork Smith River is publicly owned (fig. 13) and maintained by the U.S. Forest Service, Siskiyou National Forest. The remainder is owned by timber companies, private individuals, and local agencies.

TABLE 1. - Federal/non-Federal land ownership along the Smith River, in miles[1]

Smith River system	Length	Federal	Non-Federal
		Forest Service	Private, State and local governments
Lower Smith River	16.5	--	16.5
North Fork Smith River	13.5	13.5	--
Middle Fork Smith River	32.0	32.0	--
South Fork Smith River	38.0	38.0	--
Other tributaries	3,000.0	2,490.0	510.0
Total	3,100.0	2,573.5	526.5

[1]Modified from U.S. Department of Interior, 1980.

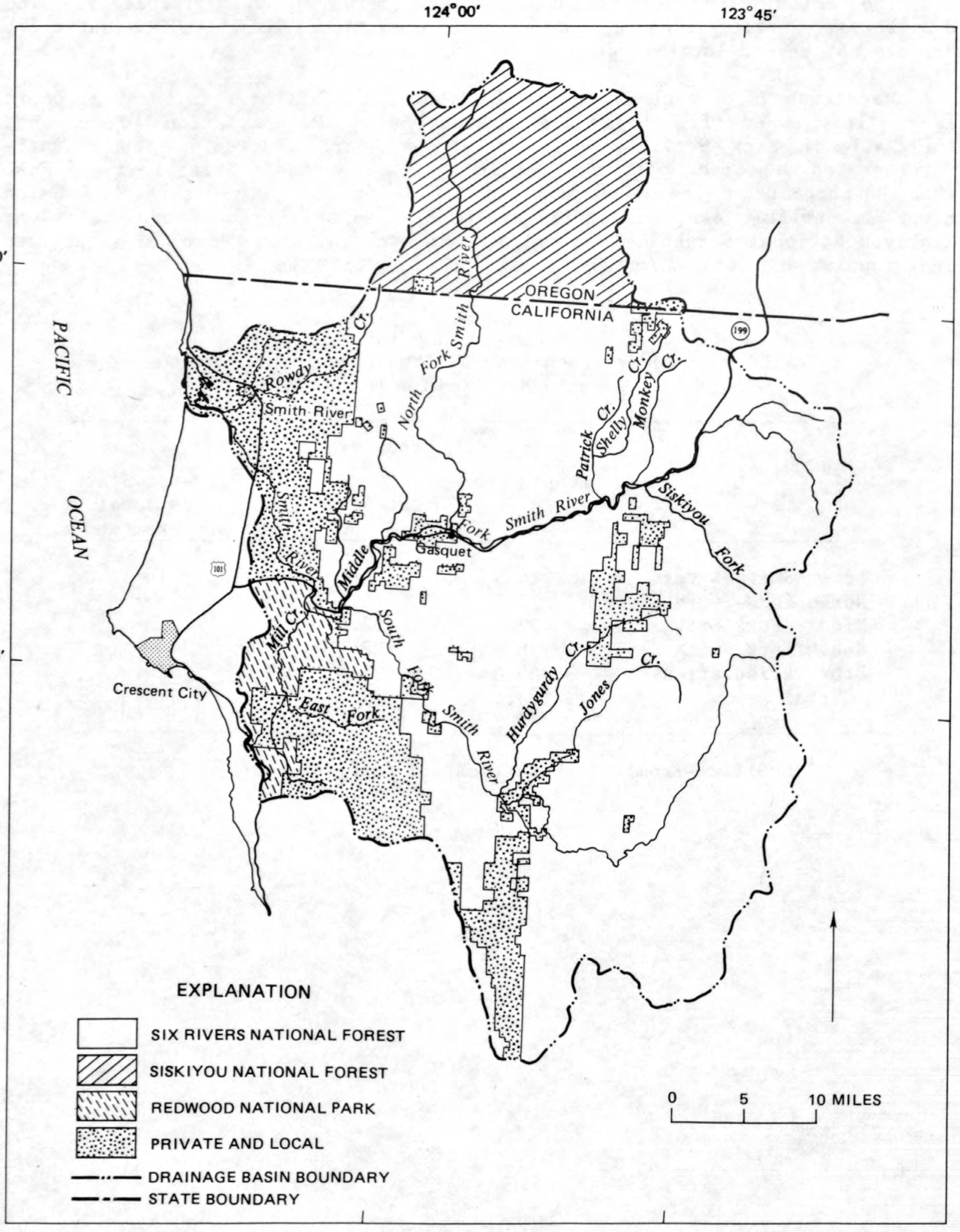


FIGURE 13.--Land ownership in the Smith River drainage basin (California Department of Fish and Game, 1980).

Population and Economy

The first census taken in 1860 showed 2,000 settlers. The population increased slowly to 2,500 in 1920. By 1940 the population had nearly doubled to 4,745. Increased demand for timber and homes and improved transportation spurred the population to 8,078 by 1950 and 17,800 by 1960. A decline in forest product jobs in the late 1960's resulted in a decline in population to 14,600 in 1970. This trend is expected to be reversed in future years, however, because of such growth-producing factors as better highways, National and State parks, improved air service, and the desire of many people to leave the overcrowded metropolitan areas (California Department of Water Resources, 1970). The population is expected to be 16,700 in 1980, 19,100 in 1990, and 21,700 in 2000 with 90 percent of these people living on the Smith River Plain.

The economy of the Smith River drainage basin is based on natural resources related activities such as mining, timber harvest, agriculture, recreation and tourism, and commercial fishing. The economy has undergone considerable change since the influx of the first settlers during the gold rush in the mid-1800's to the present diversified economy with increasing recreation and tourism.

Mining was the major source of income in the late 1800's and early 1900's. Growth was slow as the gold-bearing formations were not as productive as those in areas to the southeast. Total chromite deposits in the basin, however, are the largest in the nation (California Nickel Corporation, 1980). Extensive laterite deposits in the central and north-central part of the basin are potentially rich sources of chromium, cobalt, and nickel. Geological investigations and exploratory drilling (fig. 14) indicate that the laterite deposits of Gasquet Mountain, for example, could yield 440,000 tons of nickel; 45,000 tons of cobalt; and 1 million tons of elemental chromium (U.S. Department of Interior, 1980).

Since the 1950's, timber harvesting has been the major source of income in the basin, supplying more than one-third of the jobs. The total lumber production has ranged from 142 mbf in 1950 to a peak of approximately 350 mbf in 1964. The 1968 lumber production was 302 mbf (California Department of Water Resources, 1970). During the 1960's timber-harvest activities and wood products employment declined. By the 1970's timber-harvest activities and wood products employment remained relatively stable. The total lumber production from 1970 to 1977 averaged 231 mbf per year (California Department of Fish and Game, 1980).

Agricultural activities in the basin began in the mid-1800's. Grazing and dairying became the chief agricultural activities by the late 1800's. The agricultural industry as a whole was boosted in the 1960's by the bulb and flower industry. The total value of agricultural production was $11,299,000 in 1979 (California Department of Fish and Game, 1980).

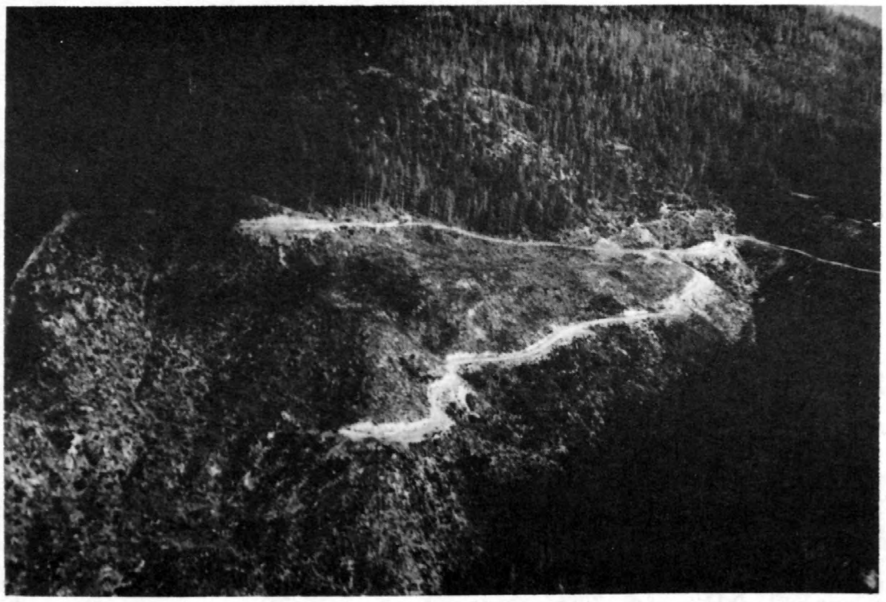


FIGURE 14.--Exploratory drilling sites for proposed mining operations along left bank of North Fork Smith River (October 6, 1979).

Six Rivers National Forest was organized in 1947, and the Gasquet Ranger District received 190,000 visitor-days of use in 1977. Recreation and tourism is reflected in increased retail sales: from $24 million in 1970 to $62 million in 1977 (California Department of Fish and Game, 1980).

The commercial fishing industry contributes more than $1 million annually (California Department of Water Resources, 1970). Although the annual catch varies in quantity and kind, salmon has been the principal variety for a number of years. The U.S. Forest Service estimates that 50 percent of the total commercial salmon landed at Crescent City come from salmon originating in the Smith River drainage basin (U.S. Department of Agriculture, 1975).

HYDROLOGY

Surface Water

Streamflow of the Smith River, like that of most uncontrolled north-coastal rivers, is extremely variable and directly responsive to precipitation in the drainage basin. Some water is stored as snow in the higher parts of the drainage basin, but the amount is not sufficient to affect discharge substantially in the Smith River (California Department of Fish and Game, 1980).

The maximum instantaneous discharge recorded at the Smith River near Crescent City gaging station between 1932 and 1979 was 228,000 ft^3/s on December 22, 1964; whereas the minimum daily discharge was 160 ft^3/s on October 24 and 25, 1964. The highest annual mean discharge occurred in 1974 with a value of 7,030 ft^3/s, and the lowest annual mean discharge occurred in 1977 with a value of 975 ft^3/s. The mean and median values for the period of record were 3,810 and 3,790 ft^3/s, respectively.

Mean monthly discharges are shown in figure 15 for five stations: Smith River near Crescent City (1952 to 1979); South Fork Smith River near Crescent City (1955 to 1961 and 1977 to 1979); Middle Fork Smith River near Crescent City (1951 to 1965); Rowdy Creek at Smith River (1957 to 1962); and Mill Creek near Crescent City (1975 to 1979). Most runoff occurred during the months of high precipitation, November through May. Spatial variations of mean monthly discharge values result principally from differences in drainage basin areas. A summary of streamflow data is given in supplemental data A.

Like most uncontrolled north-coastal drainage basins, the Smith River basin is susceptible to periodic flooding on a large scale. Major flooding occurred in the Smith River drainage basin during December 1955 and December 1964. The 1964 peak discharge, 228,000 ft^3/s, is the greatest on record and occurred during a 9-day storm in which up to 34 inches of precipitation were measured (California Department of Water Resources, 1970).

A plot relating the time and magnitude of annual instantaneous peak discharges at the Smith River near Crescent City gaging station shows that the annual discharges peak may be increasing (fig. 16). Mean annual peak discharge for the period 1932 to 1950 was 62,190 ft^3/s; whereas the mean for the period 1951 to 1979 was 102,220 ft^3/s. Human activities in the drainage basin combined with intense storms that have occurred since 1950 may have contributed to the increased runoff and flooding during storm periods, as indicated by an apparent 64-percent increase in peak discharges (California Department of Fish and Game, 1980).

A flow-duration curve is a cumulative frequency curve that shows the percentage of time during which daily discharges were equaled or exceeded during a given period (Searcy, 1959). The magnitude and the variability of mean daily discharges of Smith River near Crescent City are shown by the flow-duration curve based on streamflow records for the period 1932 to 1979 (fig. 17). Flow-duration data for the years 1932 to 1950 and 1951 to 1979 show no significant difference between the two periods. The annual mean discharge (Q mean) for the 48-year period was 3,810 ft^3/s, a quantity equaled or exceeded about 29 percent of the time.

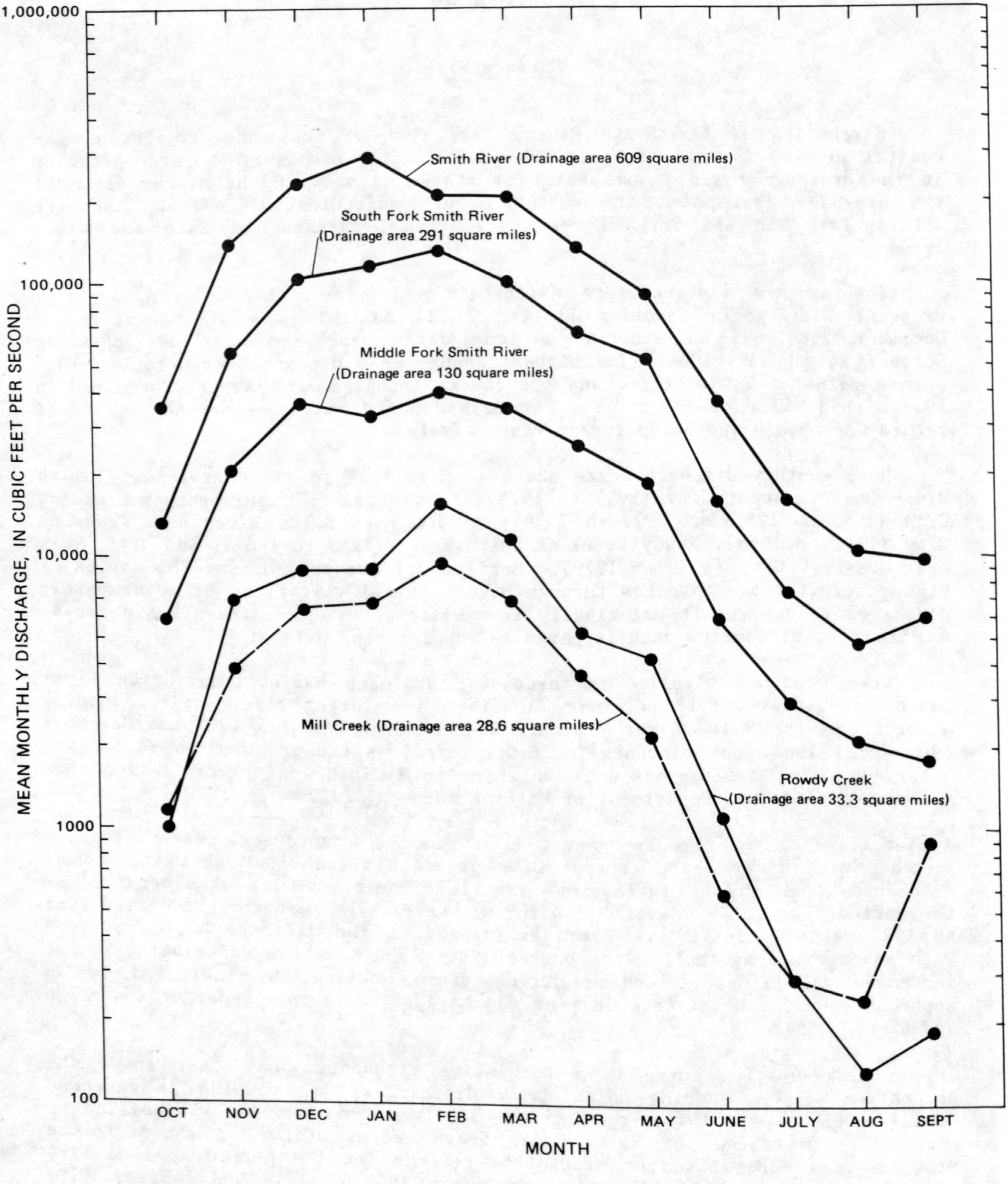


FIGURE 15.--Mean monthly discharge from selected gaging stations, Smith River drainage basin.

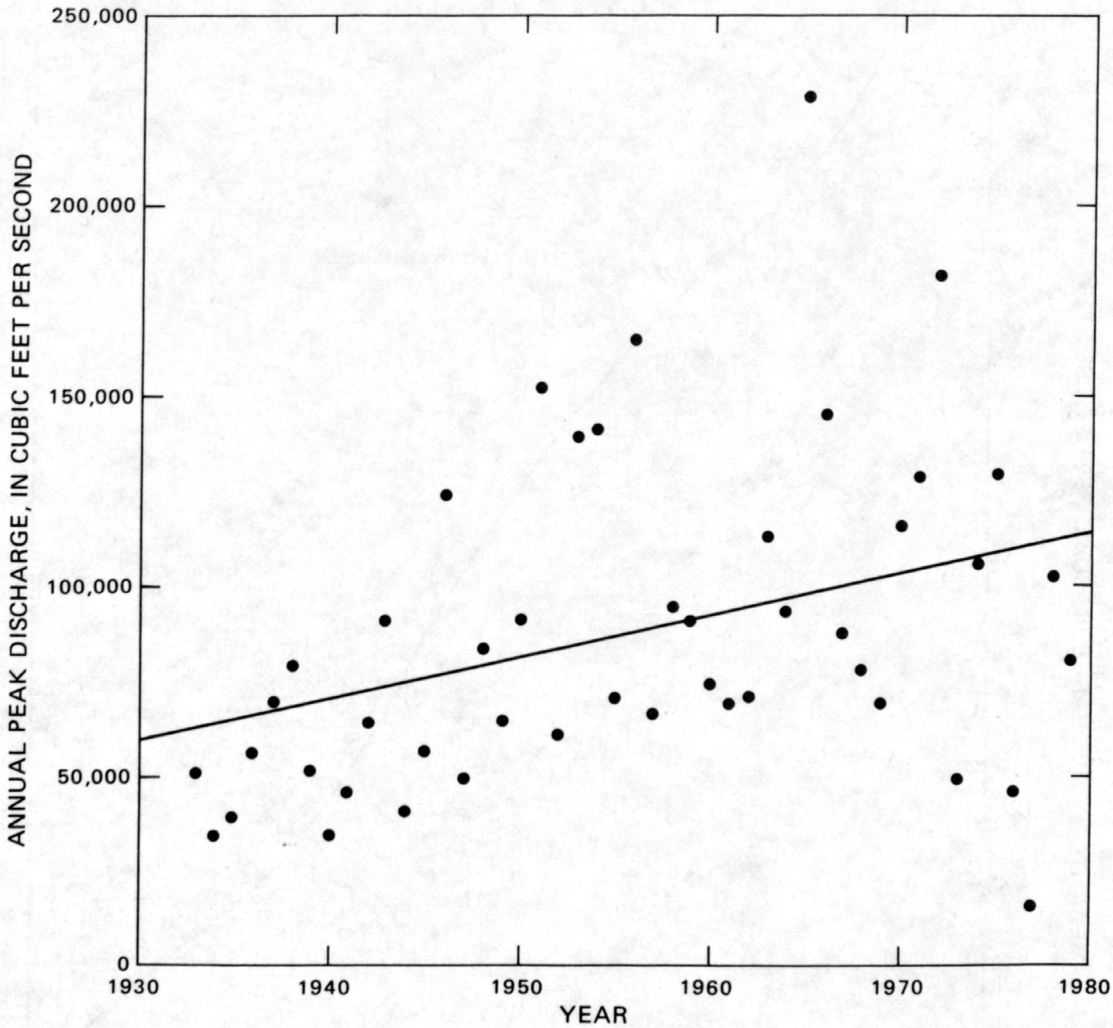


FIGURE 16.--Annual peak discharge versus year, Smith River near Crescent City gaging station, 1932-1979.

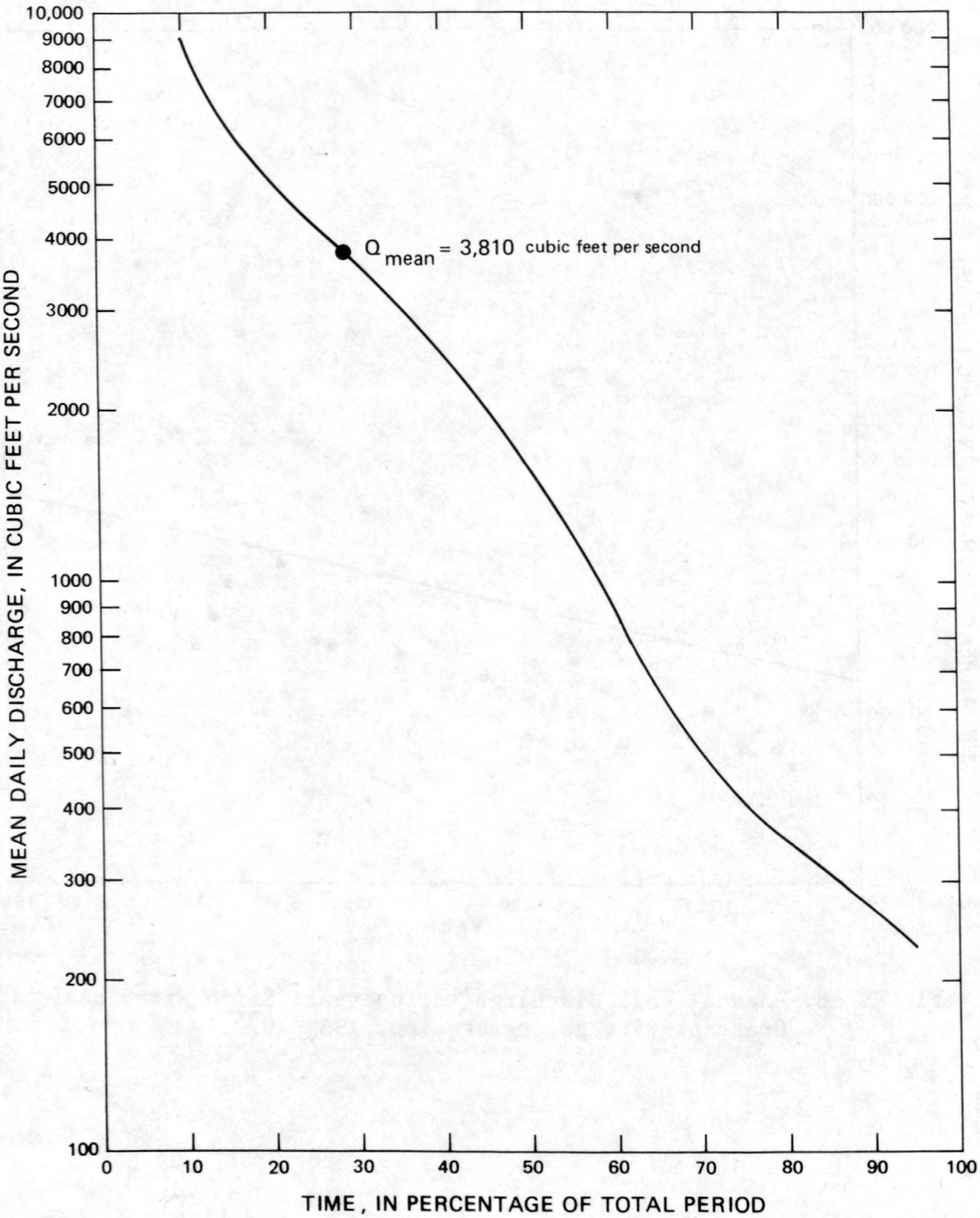


FIGURE 17.--Percentage of days that the indicated discharge was equaled or exceeded, Smith River near Crescent City, 1932 to 1979.

A frequency curve relates magnitude of a variable to frequency of occurrence (Riggs, 1968). Frequency curves relating annual mean discharge to recurrence intervals, in years, were drawn from the discharge data collected from the Smith River near Crescent City gaging station during the periods of 1932 to 1950 and 1951 to 1979 (fig. 18). Recurrence intervals of annual mean discharge for the entire period 1932 to 1979 are also shown in table 2. Annual mean discharge values for specific recurrence intervals for the period 1951 to 1979 generally were higher than the corresponding values during the 1932 to 1950 period. As an example, the graph shows that the recurrence interval of the mean annual discharge of 4,110 ft^3/s was 5 years during 1932 to 1950. This means that during the 1932 to 1950 period, annual mean discharge exceeded 4,110 ft^3/s at intervals that average 5 years in length, or that the probability of the annual mean discharge exceeding 4,110 ft^3/s in any one year was 1/5. During the 1951 to 1979 period, the mean annual discharge for the 5-year recurrence interval was 5,080 ft^3/s. This difference probably was related to the number of intense storms that occurred during the period 1951 to 1979. The increase in land-use activities during this period also may have contributed to the increase in annual mean discharge; however, further investigations are needed to evaluate the relation between changes in land use and increase in annual mean discharge.

TABLE 2. - Recurrence intervals of annual mean discharge, Smith River near Crescent City, 1932-50, 1951-79, and 1932-79

Recurrence interval (years)	Annual mean discharge (ft^3/s)		
	1932-50	1951-79	1932-79
1.05	2,220	2,220	2,100
1.25	2,790	3,010	2,870
2.00	3,430	4,040	3,750
5.00	4,110	5,080	4,720
10.00	4,480	5,630	5,260
25.00	4,890	6,210	5,870
50.00	5,160	6,580	6,270
100.00	5,410	6,920	6,650
200.00	5,650	7,230	7,000

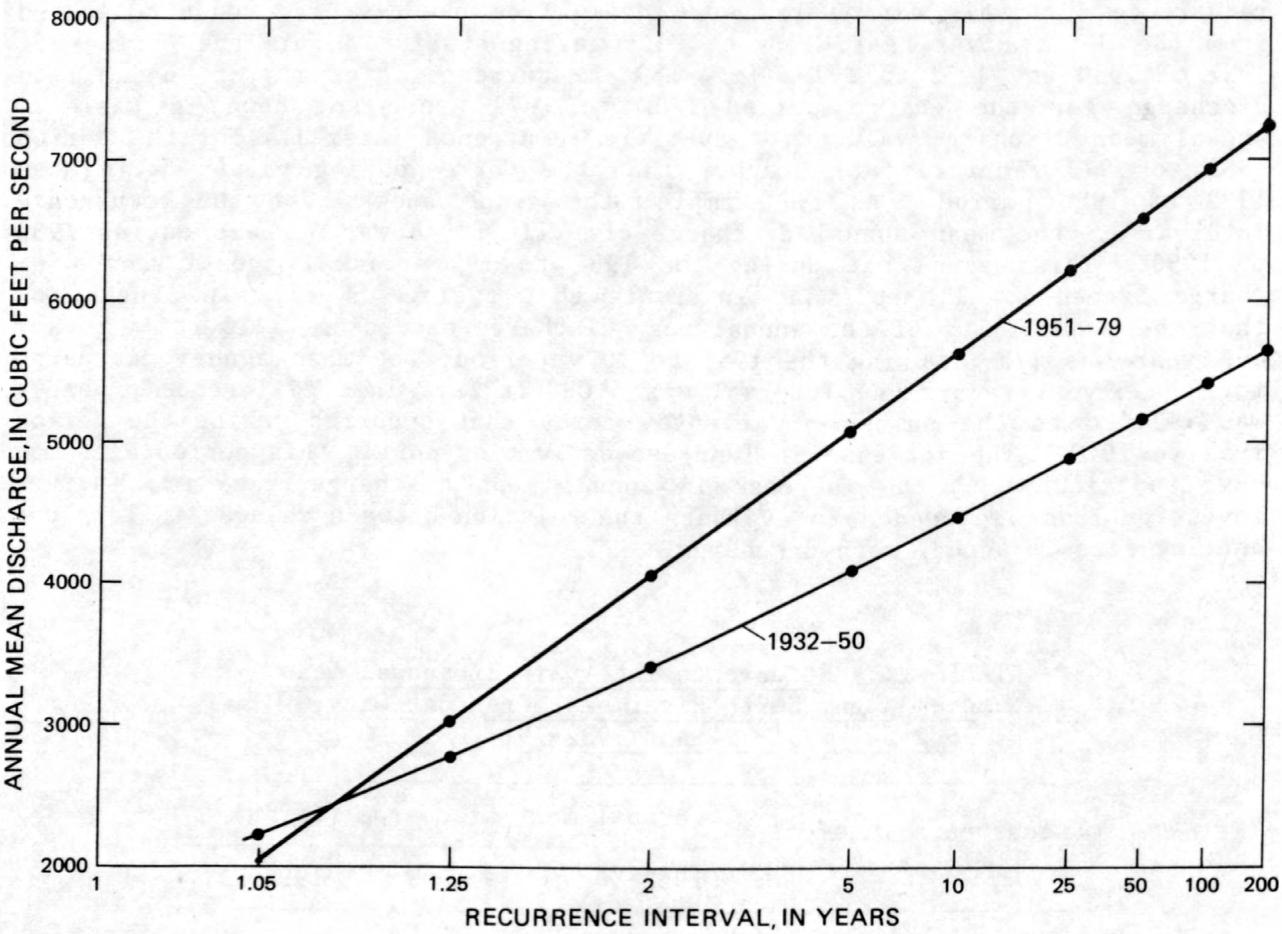


FIGURE 18.--Frequency curves of annual mean discharge, Smith River near Crescent City, 1932-50 and 1951-79.

Beneficial Uses

The California State Water Resources Control Board is commissioned to set standards for the quality of water in California. The standards consist of beneficial uses and water-quality objectives as they are defined for each body of water. The beneficial uses and water-quality objectives for the Smith River as defined by the California Regional Water Quality Control Board, North Coast Region (1975), include:

> "Virtually all present and foreseeable future beneficial uses center around satisfaction of domestic and industrial needs, irrigation of agriculture, maintenance of aquatic habitat, and associated recreational activities. Although some increases in irrigation and domestic uses are projected within the basin, these local consumptive uses are not expected to increase significantly over the next 30 years. However, nonconsumptive uses are expected to increase considerably due to the continual increase in water-oriented recreational activities and the growing importance of habitat for anadromous fish, primarily king and silver salmon and steelhead trout.
>
> "Other important nonconsumptive beneficial uses are wildlife habitat, esthetics, wild rivers * * *.
>
> "In 1972 the passage of Senate Bill 107, entitled 'California Wild and Scenic Rivers Act,' broadened the definition of beneficial uses. The act established a wild and scenic rivers system which includes the Klamath, Trinity, Smith, and Eel Rivers in the north coastal area. The act declares 'that the use of water for scenic, fishery, wildlife, and recreation purposes in connection with such waterways is a beneficial use of water.'"

Table 3 lists by hydrographic subunit the present and potential beneficial uses of the Smith River basin. These uses need to be protected. The abbreviations for the beneficial uses used in table 3 and the definitions of the uses, as modified from California Regional Water Quality Control Board, North Coast Region (1975), are given below.

MUN, Municipal and domestic supply.--Includes usual uses in community or military water systems and domestic uses from individual water supply systems.

AGR, Agricultural supply.--Includes crop, orchard, and pasture irrigation; stock watering; and support of farming and ranching operations.

IND, Industrial service supply.--Includes uses which do not depend primarily on water quality, such as mining, cooling water supply, hydraulic conveyance, gravel washing, fire protection, and oil well repressurization.

PROC, Industrial process supply.--Includes process water supply and all uses related to the manufacturing of products.

GWR, Ground-water recharge.--Natural or artificial recharge for future extraction for beneficial uses and to maintain salt balance or halt saltwater intrusion into freshwater aquifers.

FRSH, Freshwater replenishment.--Provides a source of freshwater for replenishment of inland lakes and streams of varying salinities.

REC 1, Water contact recreation.--Includes all recreational uses involving actual body contact with water, such as swimming, wading, waterskiing, skin diving, surfing, and sport fishing, and other uses where ingestion of water is reasonably possible.

REC 2, Non-contact water recreation.--Recreational uses which involve the presence of water but do not require contact with water, such as picnicking, sunbathing, hiking, beachcombing, camping, pleasure boating, tidepool and marine life study, hunting, and esthetic enjoyment in conjunction with the above activities as well as sightseeing.

COMM, Ocean commercial and sport fishing.--The commercial collection of various types of fish and shellfish, including those taken for bait purposes, and sport fishing in ocean, bays, estuaries, and similar non-freshwater areas.

WARM, Warm freshwater habitat.--Provides a warm-water habitat to sustain aquatic resources associated with a warm-water environment.

COLD, Cold freshwater habitat.--Provides a cold-water habitat to sustain aquatic resources associated with a cold-water environment.

WILD, Wildlife habitat.--Provides a water supply and vegetative habitat for the maintenance of wildlife.

MIGR, Fish migration.--Provides a migration route and temporary aquatic environment for anadromous or other fish species.

SPWN, Fish spawning.--Provides a high quality aquatic habitat especially suitable for fish spawning.

TABLE 3. - Beneficial water uses in the Smith River drainage basin

[Modified from California Regional Water Quality Control Board, North Coast Region (1975). See text p. 31-32 for explanation of abbreviations in boxheads. E, existing, P, potential]

Hydrographic subunit	MUN	AGR	IND	PROC	GWR	FRSH	REC 1	REC 2	COMM	WARM	COLD	WILD	MIGR	SPWN
Smith River														
Smith River	E	E	E	P	E	E	E	E			E	E	E	E
Smith River Plain														
Smith River	E	E	E	E	E	E	E	E	E	E	E	E	E	E
Ground water	E	E	E	E										

WATER-QUALITY OBJECTIVES

Surface Water

The objectives for the quality of inland surface water are generalized (California Regional Water Quality Control Board, North Coast Region, 1975) and were produced on an interim basis until sufficient information became available to establish specific objectives. A key consideration in setting objectives is the policy of nondegradation defined in California State Water Resources Control Board Resolution Number 68-16. Under this policy the State's water will be regulated to achieve the highest water quality consistent with maximum benefit to the population of the State in such a way that water quality will not be degraded from present conditions, even if the present conditions are better than the objectives. Specific objectives for specific conductance, dissolved oxygen, pH, hardness, and boron have been established for segments of the Smith River drainage basin (table 4).

Except for the specific objectives shown in table 4 and for waters used as municipal and domestic supplies, the following general objectives apply for inland surface waters in the Smith River drainage basin as defined by California Regional Water Quality Control Board, North Coast Region (1975):

> Bacteria.--The bacteriological quality of waters of the north coastal region shall not be degraded beyond natural background levels. In no case shall coliform concentrations in waters of the north coastal region exceed the following:
>
> In waters designated for contact recreation (REC 1), the median fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed 50/100 mL, nor shall more than 10 percent of total samples during any 30-day period exceed 400/100 mL.
>
> Biostimulatory substances.--Waters shall not contain biostimulatory substances in concentrations that promote aquatic growths to the extent that such growths cause nuisance or adversely affect beneficial uses.
>
> Chemical constituents.--Waters shall not contain chemical constituents in concentrations that adversely affect AGR and other beneficial uses.
>
> Color.--Waters shall be free of coloration that causes nuisance or adversely affects beneficial uses.
>
> Floating material.--Waters shall not contain floating material, including solids, liquids, foams, and scum, in concentrations that cause nuisance or adversely affect beneficial uses.
>
> Oil and grease.--Waters shall not contain oils, greases, waxes or other materials in concentrations that result in a visible film or coating on the surface of the water or on objects in the water, that cause nuisance, or otherwise adversely affect beneficial uses.

Pesticides.--No individual pesticide or combination of pesticides shall be present in concentrations that adversely affect beneficial uses. There shall be no bioaccumulation in pesticide concentrations found in bottom sediments or aquatic life.

Radioactivity.--Radionuclides shall not be present in concentrations which are deleterious to human, plant, animal, or aquatic life nor which result in the accumulation of radionuclides in the food web to an extent which presents a hazard to human, plant, animal, or indigenous aquatic life.

Sediment.--The suspended sediment load and suspended sediment discharge rate of surface waters shall not be altered in such a manner as to cause nuisance or adversely affect beneficial uses.

Settleable material.--Waters shall not contain substances in concentrations that result in deposition of material that causes nuisance or adversely affects beneficial uses.

Tastes and odors.--Waters shall not contain taste or odor-producing substances in concentrations that impart undesirable tastes or odors to fish flesh or other edible products of aquatic origin, that cause nuisance, or that adversely affect beneficial uses.

Temperature.--The natural receiving water temperature of intrastate waters shall not be altered unless it can be demonstrated to the satisfaction of the residing California Regional Water Quality Control Board that such alteration in temperature does not adversely affect beneficial uses. At no time or place shall the temperature of any COLD water be increased more than 5°F above natural receiving water temperature. At no time or place shall the temperature of WARM water be increased more than 5°F above natural receiving water temperature.

Temperature objectives for COLD interstate waters, WARM interstate waters, and enclosed bays and estuaries are as specified in the "Water Quality Control Plan for Control of Temperature in the Coastal and Interstate Waters and Enclosed Bays of California."

Turbidity.--Turbidity shall not be increased more than 20 percent above naturally occurring background levels. Allowable zones of dilution within which higher percentages can be tolerated may be defined for specific discharges upon the issuance of discharge permits or the waiver thereof.

Ground Water

The California Regional Water Quality Control Board, North Coast Region (1975), has established specific ground-water-quality objectives for specific conductance, pH, hardness, and boron (table 4). In addition, general objectives are established for tastes and odors and chemical constituents. These general objectives are stated in the previous section on surface water.

TABLE 4. - Specific objectives for inland surface and ground waters, bays, and estuaries of basin

[Adapted from California Regional Water Quality Control Board, North Coast Region (1975)]

Hydrographic subunit	Specific conductance (µmho/cm)		Dissolved oxygen (mg/L)		Hydrogen ion (pH)		Hardness (mg/L)	Boron (mg/L)	
	90th percentile	Median[1]	Minimum	Median[1]	Maximum	Minimum	Median[1]	90th percentile	Median[1]
Smith River									
Smith River-main forks	200	125	8.0	11.0	8.5	7.0	60	0.1	0.1
Other streams	[2]150	[2]125	7.0	10.0	8.5	7.0	60	0.1	0.0
Smith River Plain									
Smith River	[2]200	[2]150	8.0	11.0	8.5	7.0	[2]60	[2]0.1	[2]0.0
Other streams	[2]150	[2]125	7.0	10.0	8.5	6.5	[2]60	[2]0.1	[2]0.0
Ground water	350	100	--	--	8.5	6.5	75	1.0	0.0

[1]Median values represent the 50-th percentile values of the monthly means for a calendar year.
[2]Does not apply to estuarine areas.

WATER QUALITY

Surface Water

Surface water-quality data were assembled from published and unpublished information. Sources of information included the following agencies: U.S. Geological Survey; California Department of Water Resources; California Regional Water Quality Control Board, North Coast Region; and U.S. Forest Service (Six Rivers and Siskiyou National Forests). Sample-collection and analytical methods differed between and within agencies and no attempt was made to delineate the differences.

Selected sampling stations are shown in figures 19, 20, and 21. Periods of record for the data, station by station, are listed in table 5. A statistical summary of most of the water-quality data collected from the Smith River drainage basin, by collecting agency and station, is shown in supplemental data A.

Spatial and Temporal Variation

Spatial and temporal variations in water quality are shown by the major-ion composition of water collected from the various sampling stations throughout the Smith River drainage basin (supplemental data A). Several factors that influence the variability of major-ion composition of water include: Geology, land-use activities (impact on overland and base or delayed-return flows), proximity of drainage basin to the Pacific Ocean, time of sampling (rainy or dry season).

At the Smith River near Crescent City gaging station, waters tend to be a magnesium bicarbonate type with some calcium; whereas waters at the Mill Creek near Crescent City gaging station tend to be a calcium sodium bicarbonate type. The trilinear diagram (fig. 22) shows the relative composition of the major cations and anions of water samples collected at these two stations. At Smith River near Crescent City very small temporal changes in water type occurred as waters remain a magnesium bicarbonate with some calcium type from the rainy season through the dry season. At Mill Creek near Crescent City, temporal changes in water type occurred. Water type shifted from a sodium chloride type in the rainy season to a calcium bicarbonate type in the dry season (Bradford and Iwatsubo, 1978).

Major dissolved-solids concentrations (supplemental data A) determined from water-quality samples collected from the sampling stations located in the Smith River drainage basin (upstream of estuary) were low, ranging from 21 to 118 mg/L (milligrams per liter), with a mean value of 54 mg/L. Major dissolved-solids concentrations from the Smith River near Crescent City gaging station ranged from 49 to 118 mg/L with a mean value of 71 mg/L. Tributaries to the Smith River (South Fork Smith River excluded) had substantially lower dissolved-solids concentrations, ranging from 21 to 70 mg/L with a mean value of 35 mg/L. Figure 23 illustrates temporal as well as spatial differences in mean percentage major-ion composition, dissolved-solids concentrations, and discharges for selected chemical-quality samples collected at selected stations during different periods.

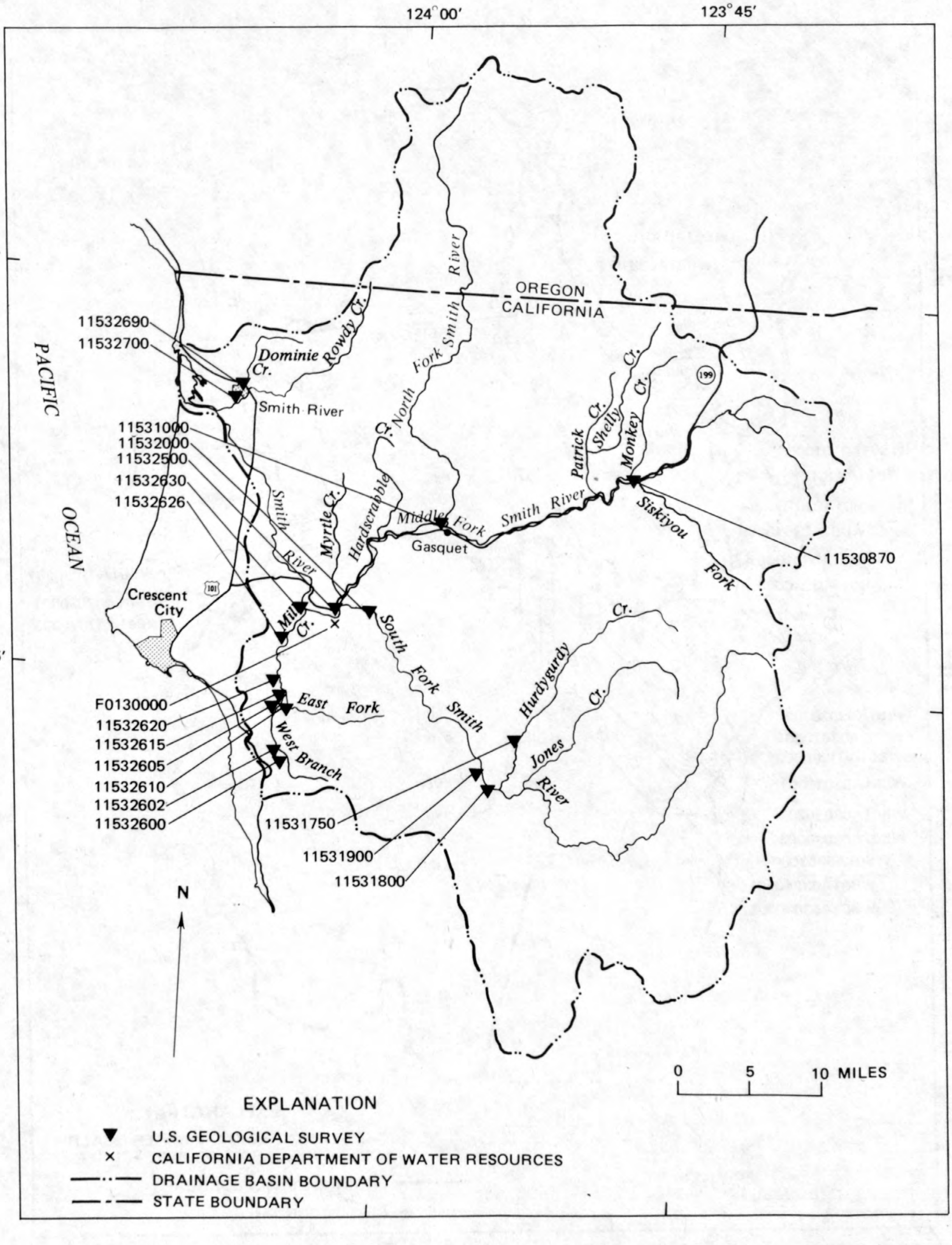


FIGURE 19.--Selected sampling stations, Smith River drainage basin, U.S. Geological Survey and California Department of Water Resources.

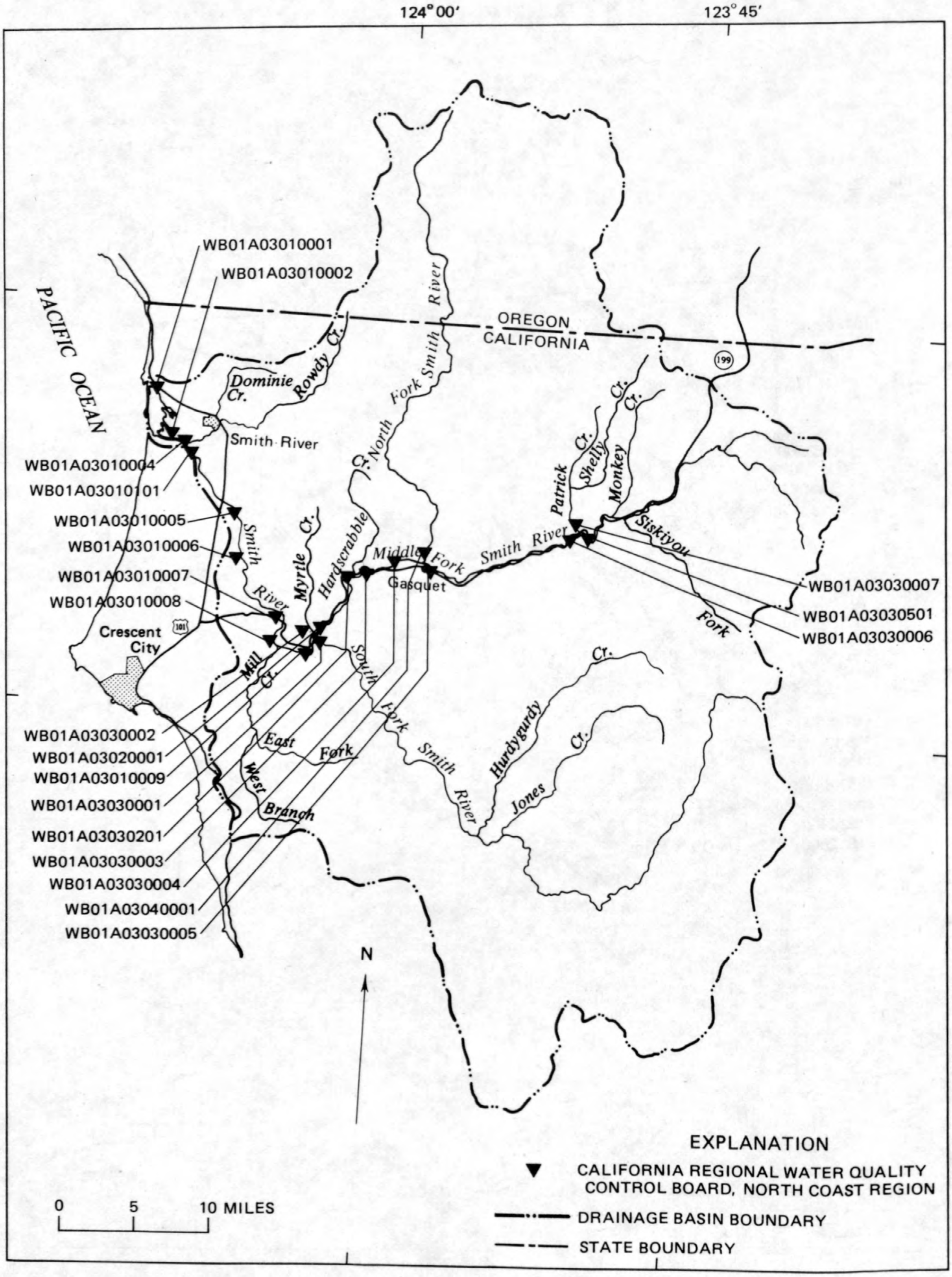


FIGURE 20.--Selected sampling stations, Smith River drainage basin, California Regional Water Quality Control Board, North Coast Region.

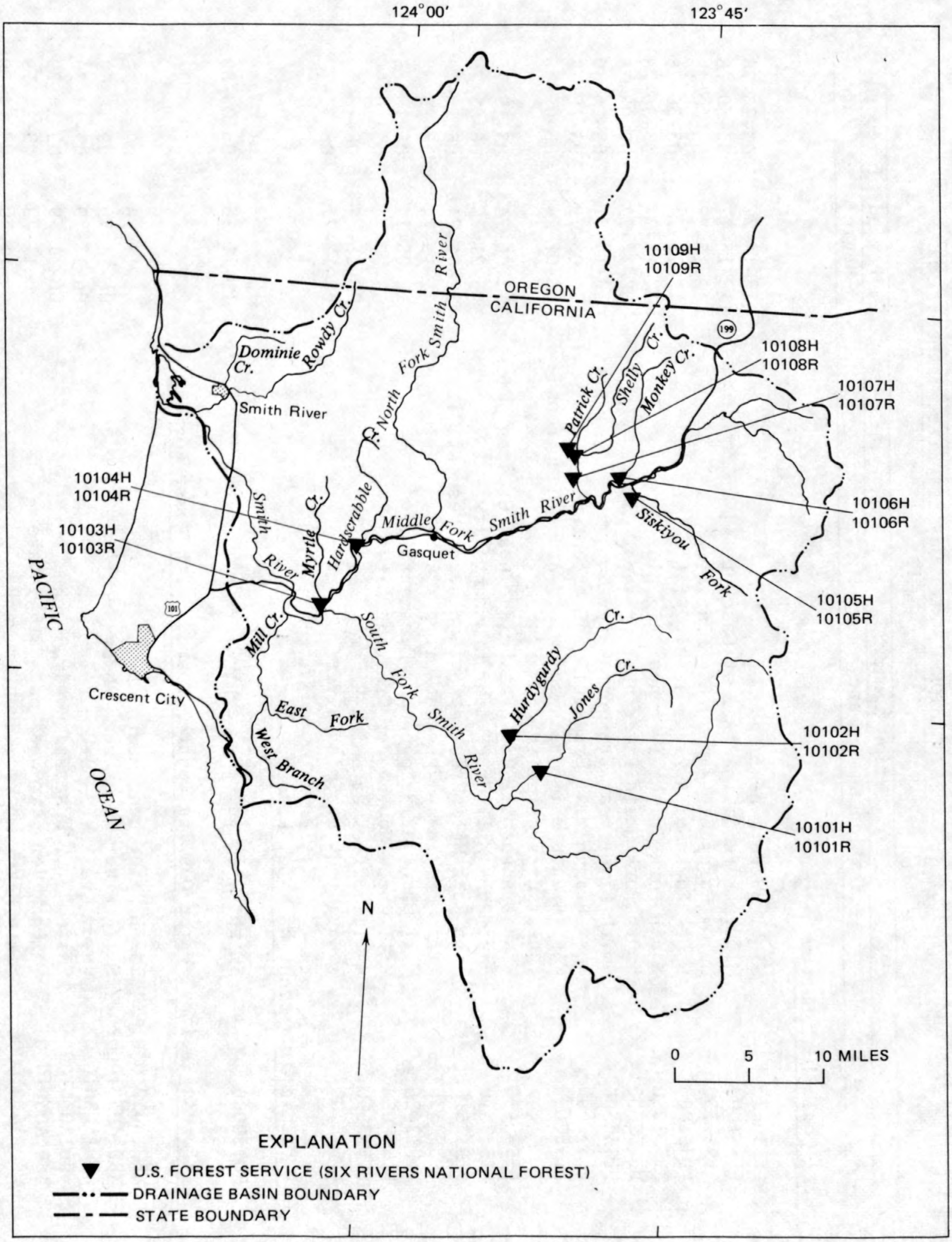


FIGURE 21.--Selected sampling stations, Smith River drainage basin, U.S. Forest Service (Six Rivers National Forest).

TABLE 5. - List of water-quality Smith River drainage basin sampling stations and period of record from STORET Water Quality File, October 1980

Collection agency / Station number and name		Period of record Begin	End
U.S. Geological Survey			
11530870	Siskiyou Fork near Gasquet	12-14-77	03-23-78
11531000	Middle Fork Smith River at Gasquet	12-13-77	03-30-78
11531750	Hurdy Gurdy Creek near Big Flat	12-13-77	03-30-78
11531800	South Fork Smith River at Big Flat	12-15-77	03-30-78
11531900	South Fork Smith River near Big Flat	12-15-77	03-30-78
11532000	South Fork Smith River near Crescent City	08-17-77	02-08-78
11532500	Smith River near Crescent City	10-14-51	08-26-80
11532600	West Branch Mill Creek near aCrescent City	11-05-79	03-18-75
11532602	West Branch Mill Creek below Red Alder Campground near Crescent City	08-01-74	06-05-75
11532605	West Branch Mill Creek at Bridge near Crescent City	12-06-74	03-19-75
11532610	East Fork Mill Creek near Crescent City	05-21-75	06-05-75
11532615	East Fork Mill Creek at Bridge near Crescent City	12-06-74	03-19-75
11532620	Mill Creek near Crescent City	01-16-74	08-25-78
11532626	Mill Creek at Bridge near Crescent City	12-05-74	03-19-75
11532630	Mill Creek Mouth near Crescent City	03-27-74	03-19-75
11532690	Dominie Creek at Smith River	08-18-77	08-18-77
11532700	Rowdy Creek at Smith River	08-17-77	08-17-77
California Department of Water Resources			
F0130000	Smith River near Crescent City	11-11-58	06-03-80
California Regional Water Quality Control Board, North Coast Region			
WB01A03010001	Smith River near Mouth	06-11-79	09-14-79
WB01A03010002	Smith River downstream Rowdy Creek	06-11-79	09-14-79
WB01A03010101	Rowdy Creek at Mouth	06-11-79	09-14-79
WB01A03010004	Smith River upstream Rowdy Creek	06-11-79	09-14-79
WB01A03010005	Smith River near Crescent City Intake	06-11-79	09-14-79
WB01A03010006	Smith River at Van Deventer Park	06-11-79	09-14-79
WB01A03010007	Smith River at Jedediah Smith Beach	06-11-79	09-14-79
WB01A03010008	Smith River near Stout Grove	06-11-79	09-14-79
WB01A03010009	Smith River downstream South Fork	06-11-79	09-14-79
WB01A03030001	Middle Fork Smith River downstream Myrtle Creek	06-11-79	09-14-79
WB01A03030002	Middle Fork Smith River upstream Myrtle Creek	06-11-79	09-14-79
WB01A03020001	South Fork Smith River	06-11-79	09-14-79
WB01A03030201	Hardscrabble Creek near Mouth	06-11-79	09-14-79
WB01A03030003	Middle Fork Smith River downstream Gasquet	06-11-79	09-14-79
WB01A03030004	Middle Fork Smith River at Gasquet	06-11-79	09-14-79
WB01A03040001	North Fork Smith River	06-11-79	09-14-79
WB01A03030005	Middle Fork Smith River upstream North Fork	06-11-79	09-14-79
WB01A03030501	Patrick Creek at Mouth	06-11-79	09-14-79
WB01A03030006	Middle Fork Smith River downstream Patrick Creek	06-11-79	09-14-79
WB01A03030007	Middle Fork Smith River upstream Patrick Creek	06-11-79	09-14-79
U.S. Forest Service (Six Rivers National Forest)[1]			
10101H	Jones Creek DH-48 at Road 16N02	10-05-76	09-10-78
10101R	Jones Creek Grab at Road 16N02	08-07-75	09-02-76
10102H	Hurdy Gurdy Creek DH-48 at Road 15N11	10-05-76	09-10-78
10102R	Hurdy Gurdy Creek Grab at Road 15N11	08-07-75	09-02-76
10103H	Myrtle Creek DH-48 at Route 199	10-07-76	09-10-78
10103R	Myrtle Creek Grab at Route 199	06-02-72	09-02-76
10104H	Hardscrabble Creek DH-48 at Route 199	10-07-76	09-10-78
10104R	Hardscrabble Creek Grab at Route 199	06-02-72	09-02-76
10105H	Siskiyou Fork DH-48 at Road 17N01	10-07-76	09-10-78
10105R	Siskiyou Fork Grab at Road 17N01	05-31-74	09-03-76
10106H	Monkey Creek DH-48 at Route 199	10-07-76	09-10-78
10106R	Monkey Creek Grab at Route 199	06-02-72	09-03-76
10107R	Patrick Creek below Shelly Grab	05-31-74	03-07-75
10108H	Shelly Creek DH-48 at Road 18N02	10-07-76	09-10-78
10108R	Shelly Creek Grab at Road 18N02	08-23-72	09-03-76
10109H	Patrick Creek above Shelly DH-48	10-07-76	09-10-78
10109R	Patrick Creek above Shelly Grab	06-02-72	01-05-76

[1]DH-48 indicates sample collected by depth-integrating sampler, whereas Grab indicates nonintegrating sampler used.

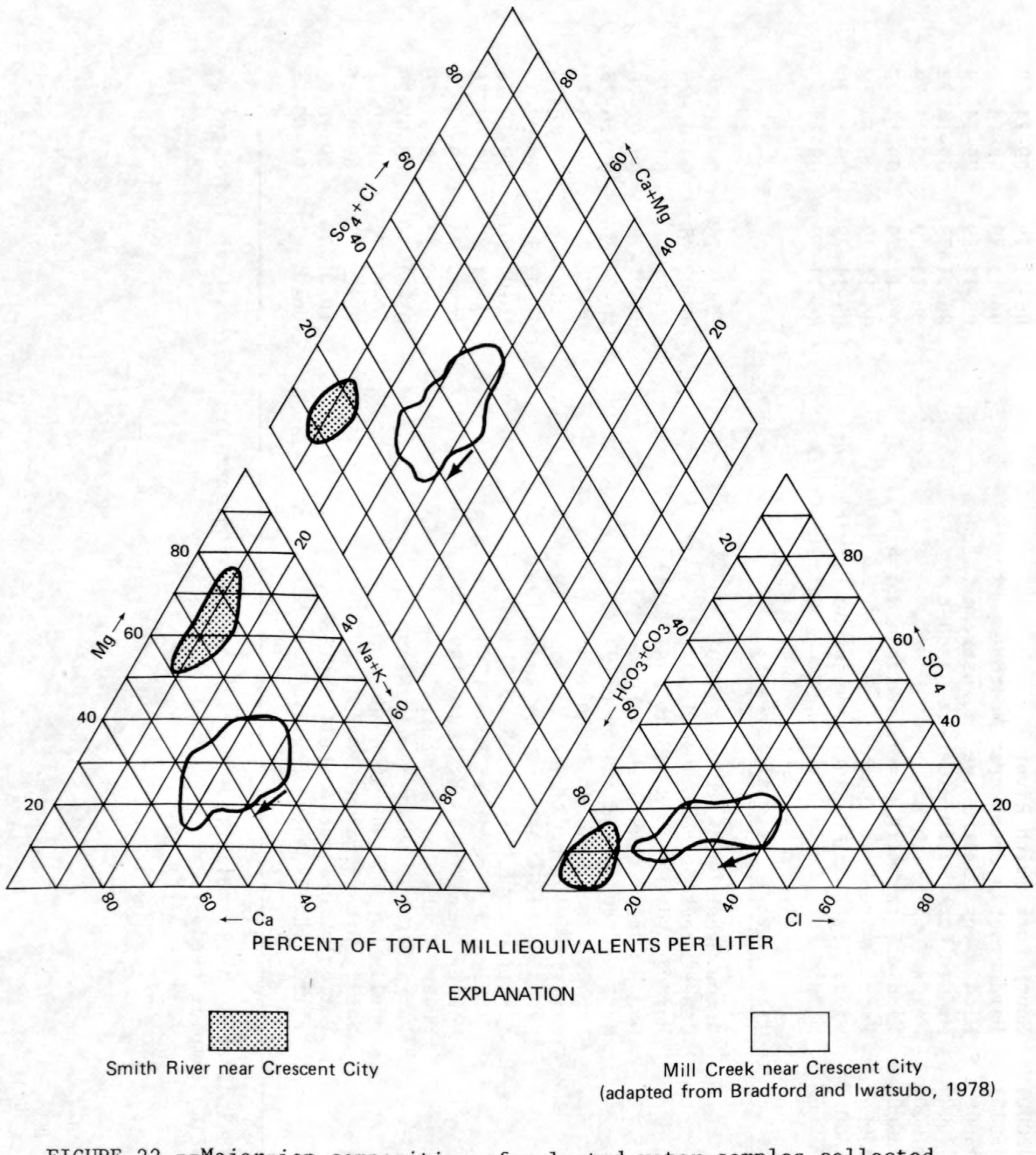


FIGURE 22.--Major-ion composition of selected water samples collected from Smith River and Mill Creek. (Arrow indicates shift in Mill Creek water type from rainy to dry season.)

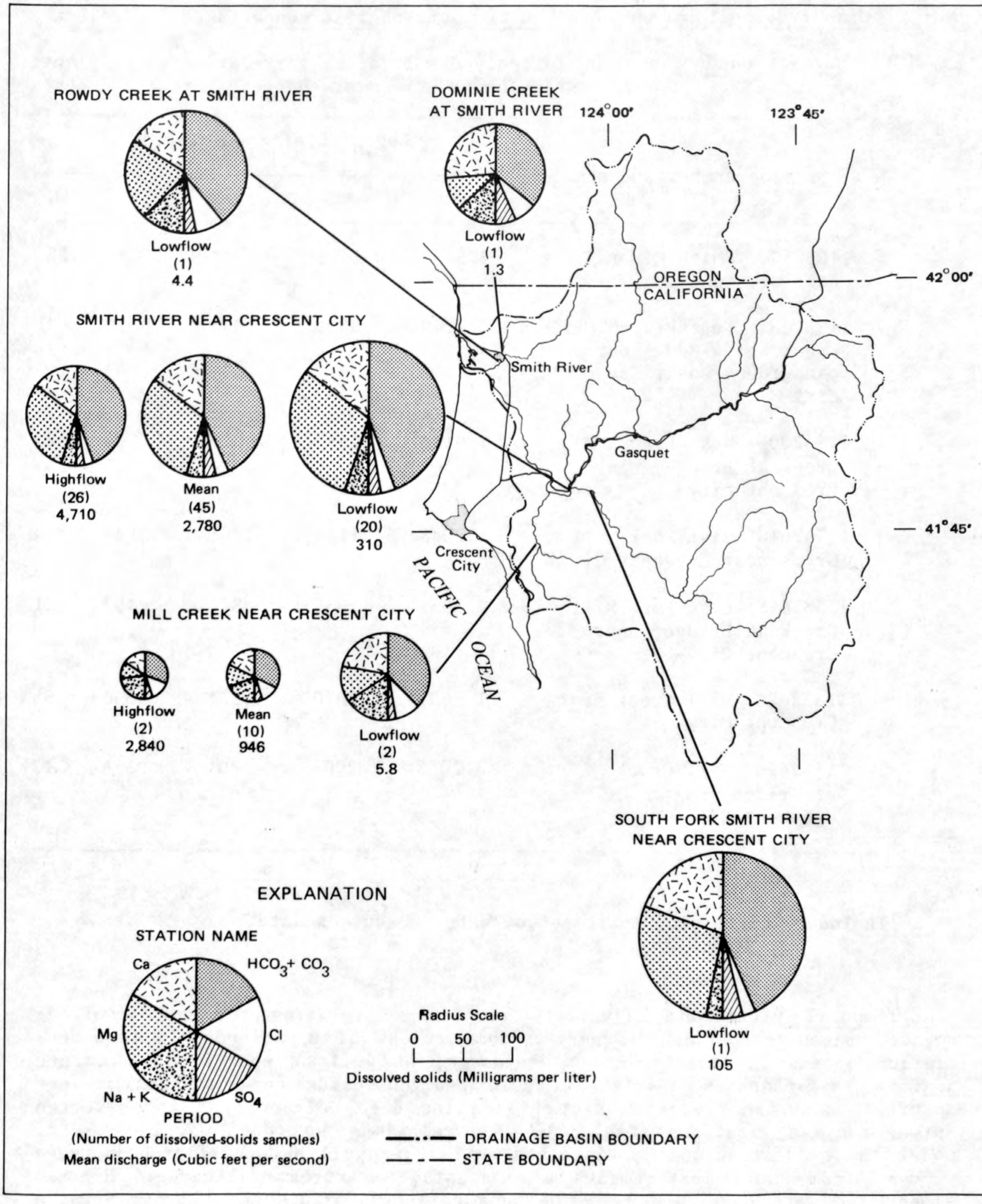


FIGURE 23.--Mean percentage composition of major ions based on total milliequivalents per liter, major dissolved-solids concentrations, and discharges for selected stations, periods, and chemical samples, Smith River drainage basin.

TABLE 6. - Regression coefficients of specific conductance against instantaneous dissolved-solids concentration against specific conductance for selected

[SC, specific conductance; DS, dissolved solids; r, correlation coefficient; Q, instantaneous stream discharge. Asterisk denotes

Station number and name	$Log_{10}(SC)=log_{10}c-klog_{10}Q$				
	Log c	k	r	SE	N
11532500 Smith River near Crescent City[1]	2.5330	0.1615	-0.94*	0.0349	125
11532602 West Branch Mill Creek below Red Alder campground, near Crescent City[2]	1.7749	.0821	-.94*	.0359	21
11532605 West Branch Mill Creek at Bridge, near Crescent City[2]	2.0146	.1590	-.91*	.0292	22
11532610 East Fork Mill Creek near Crescent City[2]	1.8648	.1116	-.96*	.0148	9
11532615 East Fork Mill Creek at Bridge, near Crescent City[2]	2.1981	.2035	-.87*	.0457	21
11532620 Mill Creek near Crescent City[2]	1.9081	.1070	-.95*	.0350	55
11532626 Mill Creek at Bridge, near Crescent City[2]	2.2285	.2005	-.86*	.0375	12

[1]Includes California Department of Water Resources data.

Temporal variations illustrate an inverse relation between dissolved-solids concentration and discharge. Regressions of dissolved-solids concentration against instantantaneous discharge, as well as specific conductance against instantaneous discharge, and dissolved-solids concentration against specific conductance were developed from the data collected at the selected Survey sampling stations (table 6). The relations developed may be used to model the concentrations of dissolved solids, as well as specific-conductance values, from known measurements of instantaneous stream discharge. Regressions also were developed from the data collected at the U.S. Forest Service sampling stations (table 7) to model specific-conductance values from known instantaneous stream-discharge measurements.

discharge, dissolved-solids concentration against instantaneous discharge, and U.S. Geological Survey sampling stations in the Smith River drainage basin

SE, standard error of estimate; N, number of samples; c and k are constants; that the null hypothesis, p = 0, is rejected at $\alpha = 0.05$]

$\log_{10}(DS)=\log_{10}c-k\log_{10}Q$					$DS=a+b(SC)$				
Log c	k	r	SE	N	a	b	r	SE	N
2.2449	0.1314	-0.80*	0.0473	32	1.30	0.552	0.74*	9.11	32
1.5724	.0521	-.87*	.0448	7	8.23	.500	.93*	2.75	8
1.8513	.1436	-.58	.0502	6	9.25	.477	.48	3.67	6
1.6700	.1290	-.95*	.0234	4	-13.8	.880	.98*	1.28	4
1.9583	.1630	-.66	.0484	6					
1.6676	.0621	-.80*	.0519	14	18.3	.321	.80*	4.03	14
2.4584	.2965	-.65	.1000	6	5.40	.687	.47	9.09	6

[2]From Bradford and Iwatsubo (1978).

The significance of each correlation coefficient value of the regression analysis was tested using the null hypothesis, population correlation coefficient (p) = 0, at the 5 percent significance level (Snedecor and Cochran, 1967). Rejection of the null hypothesis indicates a 95 percent likelihood that a non-zero relation exists between the two variables (tables 6 and 7). The null hypothesis was rejected for all but 5 regressions. These 5 regressions that statistically showed no correlation between the two variables were derived from the data collected from the Mill Creek drainage basin. The paucity of the data collected and the fact that the data were collected during two major storms (when the variability of the data is the greatest) are the probable reasons for the lack of correlation between variables.

TABLE 7. - Regression coefficients of specific conductance against instantaneous discharge for U.S. Forest Service sampling stations in the Smith River drainage basin

[SC, specific conductance; Q, instantaneous stream discharge; r, correlation coefficient; SE, standard error of estimate; N, number of samples; and c and k are constants. Asterisk (*) denotes that the null hypothesis, p = 0, is rejected at $\alpha = 0.05$]

Station number and name[1]		$\mathrm{Log}_{10}(SC) = \log_{10}c - k\log_{10}Q$				
		Log c	k	r	SE	N
10101H 10101R	Jones Creek at Road 16NO2	2.3907	0.1441	-0.74*	0.0649	37
10102H 10102R	Hurdygurdy Creek at Road 15N11	2.3703	.1513	-.72*	.0762	34
10103H 10103R	Myrtle Creek at Route 199	1.9422	.0461	-.30*	.0870	57
10104H 10104R	Hardscrabble Creek at Route 199	2.2166	.0634	-.44*	.0758	57
10105H 10105R	Siskiyou Fork at Road 17N01	2.3729	.1969	-.80*	.0752	50
10106H 10106R	Monkey Creek at Route 199	2.1920	.1246	-.77*	.0584	57
10107R	Patrick Creek below Shelly Grab	2.1751	.1358	-.85*	.0547	10
10108H 10108R	Shelly Grab at Road 18NO2	2.0195	.0980	-.64*	.0823	55
10109H 10109R	Patrick Creek above Shelly	2.2126	.1246	-.74*	.0641	57

[1]Data from STORET (August 21, 1980); Six Rivers National Forest; no data available from Siskiyou National Forest.

TABLE 8. - Ranges and medians of mean temperatures and maximum and minimum temperatures measured at stations on the Smith River, main forks, and tributaries

[Data from STORET (October 1980) and based on periodic measurements]

Location	Number of stations	Mean temperature (°C)		Temperature (°C)	
		Range	Median	Maximum	Minimum
Smith River	10	12.0-19.4	18.4	24.0	3.0
South Fork Smith River	4	9.3-17.9	9.7	22.5	7.0
North Fork Smith River	1	17.7	17.7	21.0	14.0
Middle Fork Smith River	8	10.0-18.5	17.6	23.0	12.2
Tributaries	32	8.5-18.5	11.4	23.0	3.0

Physical

Temperature.--In the aquatic environment, water temperature influences physical events, chemical reactions, and life processes. Chemical reactions such as the solubility of elements and compounds in water are, in part, temperature dependent. Increasing water temperature causes the metabolic rate of most aquatic organisms to increase; in contrast, increased water temperature decreases the quantity of dissolved oxygen available to meet the oxygen need of the organisms (Iwatsubo and others, 1976). In addition, temperature controls the presence or absence of many aquatic organisms because of specific temperature-tolerance ranges. Extreme temperatures may be lethal to aquatic organisms.

Range and median mean temperature and maximum and minimum temperature values measured at the Smith River, main forks and tributary stations, are given in table 8. Water temperatures of the upper part of the Smith River drainage basin (main forks and tributaries) are slightly cooler than the lower part of the drainage basin (Smith River downstream from the South Fork confluence). Temporal variations of mean monthly water temperatures were plotted for maximum and minimum daily values from the Smith River near Crescent City gaging station for the period 1966 to 1979 (fig. 24). Ranges of the maximum and minimum mean monthly temperatures were 9.3 to 22.6°C and 4.3 to 17.5°C, respectively. The highest mean monthly temperature occurred in July, whereas the lowest occurred in January. The highest recorded daily temperature was 24.5°C (July 1972 and 1973), whereas the lowest was 2.0°C (December and January 1979).

According to the available data, there currently is no degradation of the temperature quality of the waters of the Smith River drainage basin. Water temperatures are within the tolerance levels of cold-water species that inhabit the basin. Most of the temperature data, however, were collected on a periodic rather than a continuous basis. Continuous temperature records are needed for selected streams within the Smith River drainage basin to establish the impact of logging and other land-use activities on water temperature.

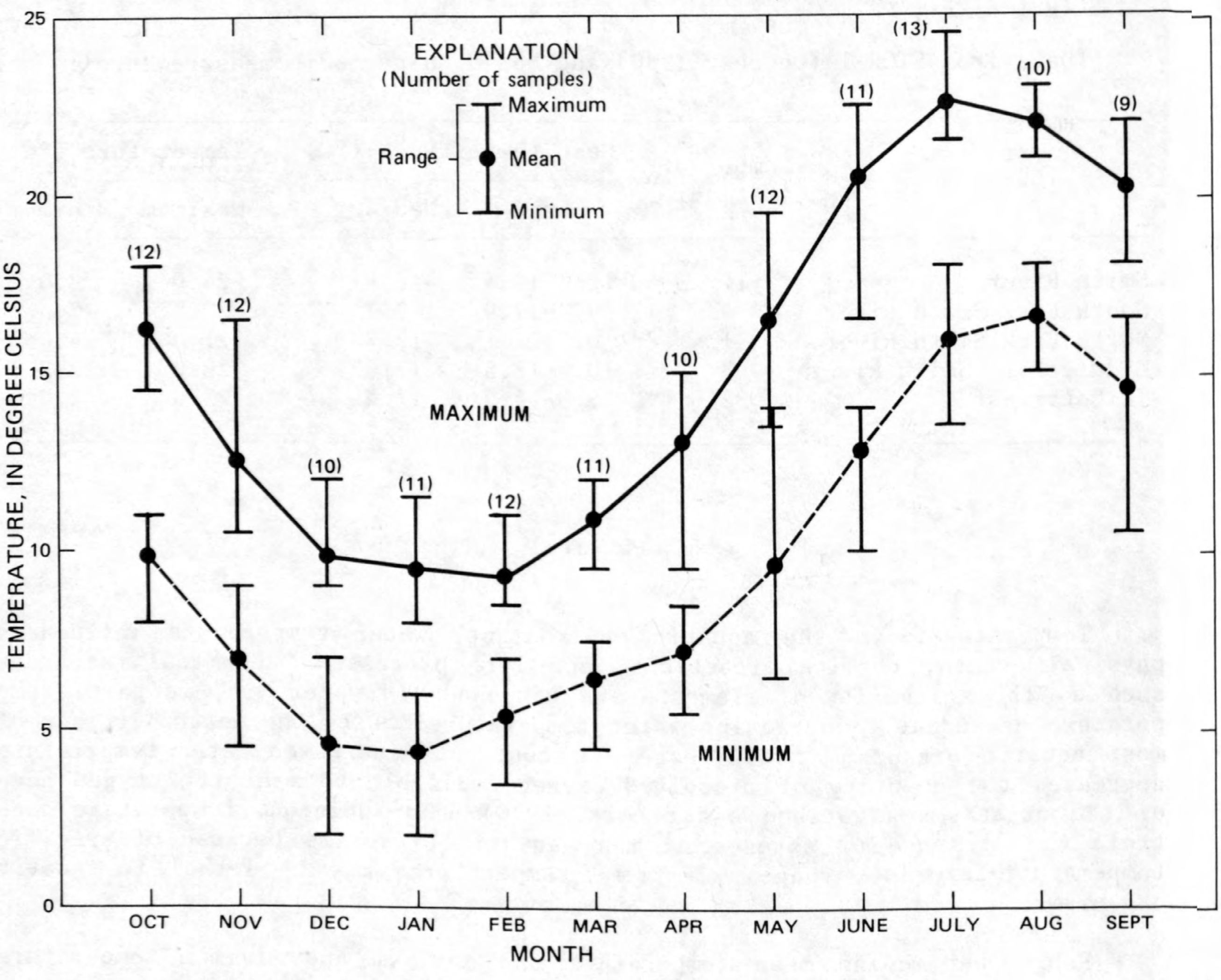


FIGURE 24.--Range and mean monthly maximum and minimum temperature values for period 1966 to 1979, Smith River near Crescent City [U.S. Geological Survey, 1966-78, 1979 written communication].

Sediment.--The quantity and particle-size distribution of sediment are determined by the nature of the eroding materials and the erosional processes operating in a drainage basin. Physical and biological processes in the aquatic environment in turn are influenced strongly by sediment. For example, if light penetration is obstructed by suspended sediment, photosynthesis may be inhibited. Sediment can also be deleterious to aquatic organisms because of direct burial, abrasive action on living tissue, and impeding percolation of oxygenated water into and through streambed-gravel environments. Suspended sediment is the particulate matter that at any given time is maintained in suspension by upward components of stream turbulence, or suspended as colloids. Bedload is sediment that is transported by rolling, sliding, or bouncing along the streambed.

Temporal and spatial variations of mean monthly suspended-sediment discharge are shown in figure 25 for the Smith River near Crescent City and South Fork Smith River near Crescent City gaging stations (1978 and 1979). Suspended-sediment discharges were highest during the months November through May when streamflows were the highest. Suspended-sediment discharge generally was higher at South Fork Smith River near Crescent City than at Smith River near Crescent City. Sediment-transport curves were drawn for the suspended-sediment data collected at these two stations (fig. 26). Sediment-transport curves are useful in showing the relations between suspended-sediment discharge and water discharge. For example, at South Fork Smith River near Crescent City, the mean daily suspended-sediment discharge at a water discharge of 10,000 ft^3/s, is about 3,500 tons per day. At Smith River near Crescent City, the mean daily suspended-sediment discharge, at the same water discharge is about 390 tons per day.

Long-term suspended-sediment discharges per square mile for the Smith River and selected tributaries (table 9) were estimated by using the suspended-sediment model developed by Anderson (1979). This model is a regression equation that was developed from data from 61 watersheds in California. In order to adjust the equation for use in the Smith River drainage basin, suspended sediment and streamflow were measured at four locations during the 1978 water year. Input to the regression equation included hydrological, geological, physical and meteorological variables. The regression model was used to predict the present sediment yield and estimate the yield without roads or logging. These estimates do not mean that each tributary in a given year will actually discharge the indicated amount of sediment per square mile. However, because the estimates are based on long-term streamflow frequency and on local variations in geology, hydrology, and land-use activities, they can provide a comparison of suspended-sediment discharges with various tributary drainage basins. For example, estimated suspended-sediment discharges from tributaries located in the headwaters of the South Fork Smith River indicate that these drainage basins are relatively erosive when compared to the tributary basins of the North and Middle Forks Smith River (California Department of Fish and Game, 1980).

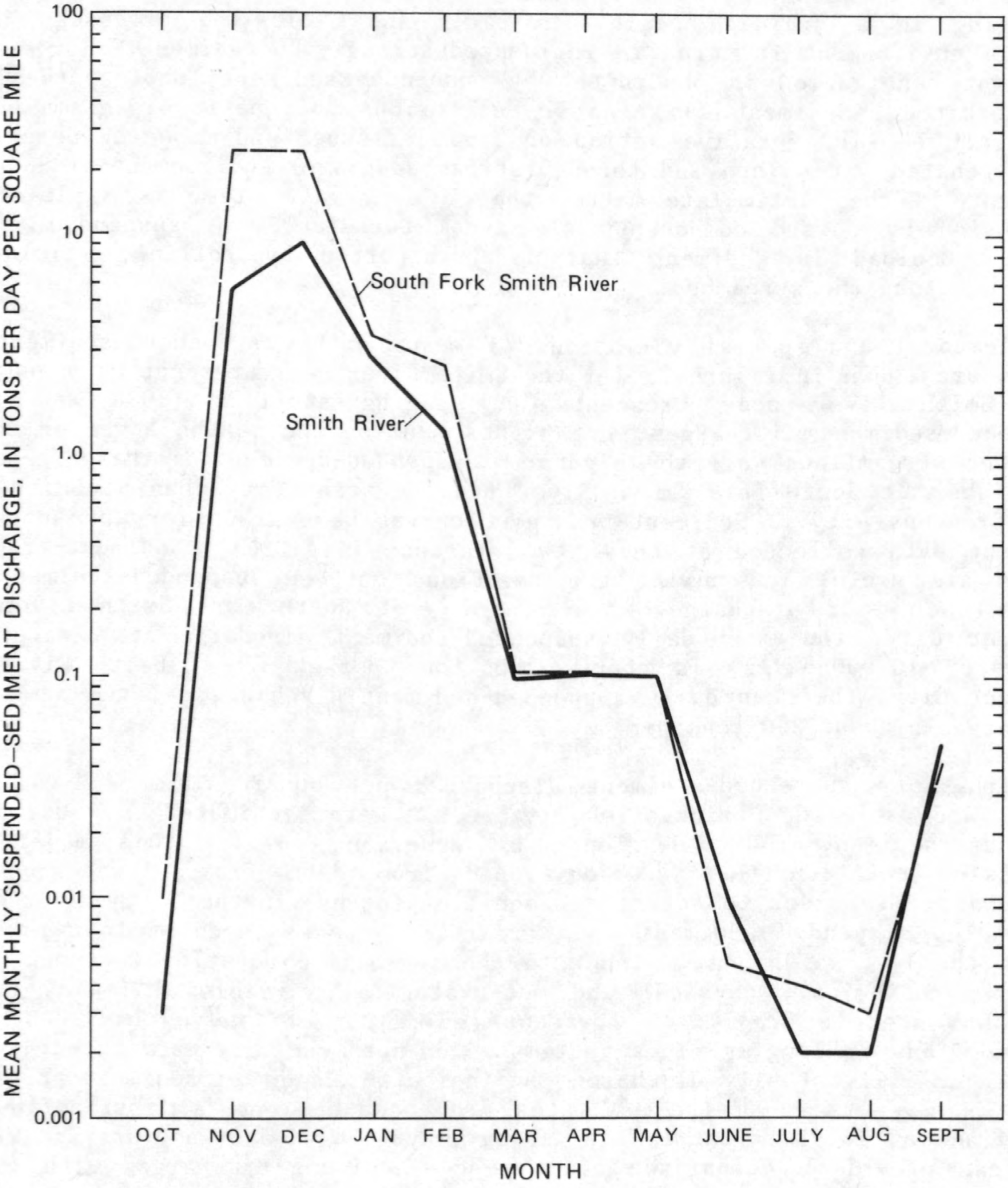


FIGURE 25.--Mean monthly suspended-sediment discharge, Smith River near Crescent City, and South Fork Smith River near Crescent City, 1978 to 1979.

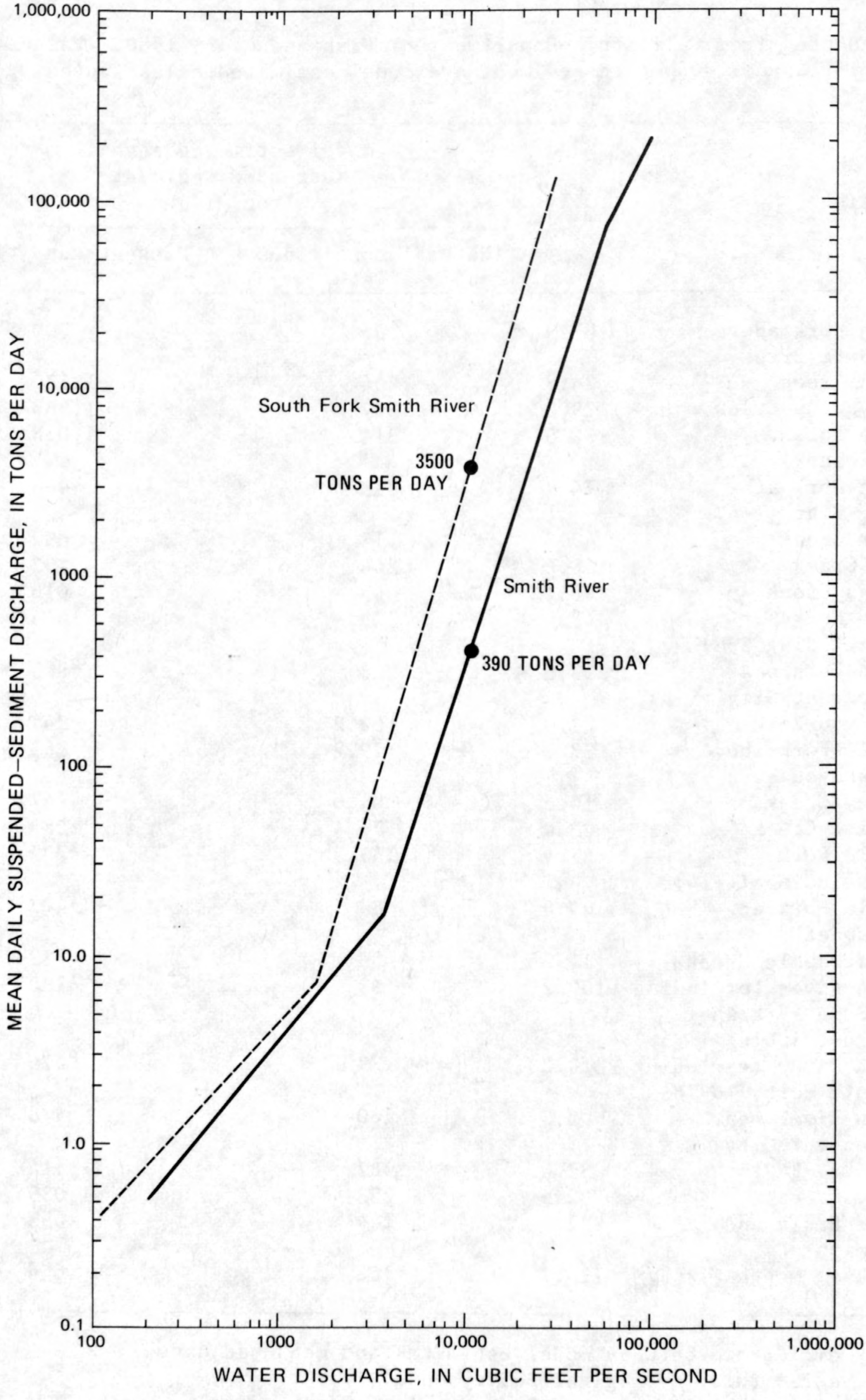


FIGURE 26.--Sediment-transport curves for Smith River near Crescent City and South Fork Smith River near Crescent City, 1978 to 1979.

TABLE 9. - Suspended-sediment estimates for Smith River and tributaries

[Adapted from California Department of Fish and Game, 1980. Values for annual suspended sediment are model estimated unless noted]

Basin	Area (mi^2)	Model estimated annual suspended sediment (ton/mi^2)	
		Natural conditions	Present conditions
1 South Fork above Quartz Creek	87.9	206	500
2 Jones Creek	24.8	404	1,589
3 Hurdygurdy Creek	29.5	377	1,963
4 South Fork (excluding 1-3)	32.5	314	[1]1,018
5 South Fork at Big Flat (1-4)	174.7	283	[2]998
6 Goose Creek	40.3	115	692
7 Rock Creek	16.6	244	1,202
8 Craigs Creek	18.1	145	616
9 South Fork (excluding 5-8)	43.5	129	[1]664
10 South Fork near Crescent City (5-9)	293.0	226	[2]895
11 Siskiyou Fork	27.0	62.2	247
12 Middle Fork above Siskiyou Fork	37.7	79.2	363
13 Monkey Creek	10.6	64.6	247
14 Patrick Creek	23.0	74.4	283
15 Middle Fork (excluding 11-14)	31.9	141	[1]732
16 Middle Fork at Gasquet	129.8	89	407
17 Hardscrabble Creek	11.2	58	138
18 Smith River (excluding Middle Fork and Hardscrabble	169.2	92	[1]190
19 Smith River (excluding South Fork, 16-18)	310.2	89	[3]279
20 Smith River near Crescent City	603.2	160	[2]578
21 Mill Creek	37.6	187	1,114
22 Rowdy Creek	32.6	253	1,035
23 Lower Basin and Plain	52.3	164	653
24 Smith at mouth	725.7	168	654

[1]By difference between model estimates and measured data.
[2]Measured (U.S. Geological Survey data).
[3]Measured (by difference U.S. Geological Survey data).

Turbidity.--The turbidity of a water sample is the reduction of transparency owing to the presence of particulate matter. Suspended materials such as clay, silt, sand, microscopic organisms, and other finely divided organic and inorganic matter all influence turbidity. Turbidity measurements are often used to estimate suspended-sediment concentrations.

A summary of monthly turbidity measurements made by the Survey and, in part, by the California Department of Water Resources at the Smith River near Crescent City gaging station from 1972 to 1979 is presented in table 10. Turbidity values ranged from 0 to 200 NTU (Nephelometric Turbidity Units) with the highest measured, mean, and median values (200, 30, and 2.5 NTU, respectively) occurring in January. During low-flow periods, turbidity values were generally less than 3 NTU. Six Rivers National Forest personnel also measured turbidity monthly in selected tributaries within the Smith River drainage basin (1976 to 1978). Turbidity values ranged from 0.1 to 50 FTU (Formazin Turbidity Units, an equivalent measure to NTU). Periodic turbidity measurements were made by the California Regional Water Quality Control Board, North Coast Region, at selected stations throughout the Smith River drainage basin during the low-flow periods of June and September 1979. Turbidity values ranged from 0.1 to 4.2 FTU with the highest value occurring at Smith River downstream of Rowdy Creek.

Excessive turbidity is primarily an esthetic problem and is evaluated according to the beneficial uses of the Smith River and tributaries. "Clear" or "muddy" water is difficult to distinguish in terms of turbidity. In the Mad River basin study, Brown (1973) refers to water with less than 30 JTU as "clear"; when turbidities exceed this level, fishermen and other recreationists commonly complain to water-management agencies. In the Smith River drainage basin, sediment is the chief cause of turbid waters because of the high amounts of rainfall, runoff, and erosion that occur during the winter season. Another source of turbidity is organic material such as phytoplankton. Primary productivity, however, is low in the drainage basin, and phytoplankton contribute very little to turbidity.

Ritter and Brown (1971) found that turbidity and concentration of suspended sediment were highly correlative ($r>0.90$) at most sampling stations studied in the Russian River drainage basin. Currently, there is an insufficient amount of data to correlate turbidity and suspended-sediment concentrations in the Smith River drainage basin. Nor are there sufficient data to delineate "natural turbidity background levels" stated in the turbidity water-quality objective.

Floating, suspended, and settleable materials.--To date there is very little or no documentation pertaining to these objectives. However, throughout the Smith River drainage basin during high runoff periods, logs and wood debris are carried downstream. Log and debris jams can form barriers which impede fish migration.

TABLE 10. - Summary of monthly turbidity values, Smith River near Crescent City

[Data from U.S. Geological Survey (1972-79). Unit of measurement: JTU, Jackson turbidity units; NTU, Nephelometric turbidity units]

Date	Unit of measurement	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
1972[1]	JTU	1	--	14	3	--	66	15	1	3	0	0	0
1973[1]	JTU	0	1	1	75	15	5	2	2	0	0	0	0
1974[1]	JTU	--	55	10	200	5	5	50	1	1	1	1	1
1975[1]	JTU	1	0	3	15	15	2	1	1	1	0	0	0
1976[1]	JTU	1	1	10	3	0	5	0	0	0	0	0	1
1977[1]	JTU	0	0	0	1	0	0	0	1	0	0	0	3
1978[1]	NTU	.00	1.0	2.0	2.0	18	1.0	10	1.0	.00	1.0	.00	.50
1978[2]	NTU	--	--	--	2.0	2.0	--	1.0	.50	.50	.40	.60	--
1979[1]	NTU	.00	.00	2.0	.00	22	1.0	.00	3.0	.00	.00	.00	1.0
1979[2]	NTU	.40	.40	.30	.50	2.3	.60	1.7	2.0	.50	.70	1.7	.30
	Number of samples	8	8	9	10	9	9	10	10	10	10	10	9
	Range	0-1	0-55	0-14	0-200	0-22	0-66	0-50	0-3	0-3	0-1	0-1.7	0-3
	Mean	0.43	0.73	4.7	30	8.8	9.5	8.1	1.2	0.60	0.31	0.33	0.76
	Median	0.20	0.70	2.0	2.5	5	2	1.4	1	0.25	0.0	0.0	0.50

[1]Analysis made by California Department of Water Resources.
[2]Analysis made by U.S. Geological Survey.

Chemical Properties

Specific Conductance.--Specific conductance is a measure of the ability of a solution to conduct an electrical current and is expressed in micromhos per centimeter at 25°C (μmho). Specific conductance is used to estimate the concentration of major dissolved solids in water.

The specific conductance of water samples collected from the sampling stations located in the Smith River drainage basin, upstream from the estuary, was low, reflecting the low concentration of major dissolved solids. Ranges of specific conductance measured were variable (supplemental data A): Smith River upstream estuary, 63 to 193 μmho; South Fork Smith River, 120 to 170 μmho; North Fork Smith River, 125 to 190 μmho; Middle Fork Smith River, 95 to 190 μmho; tributaries, 26 to 200 μmho; and Smith River estuary, 110 to 370,000 μmho.

As would be expected, specific conductance varied both temporally and spatially. Temporal variations are chiefly flow-dependent and are best described by using the specific-conductance data from the Smith River near Crescent City gaging station. Figure 27 shows monthly specific-conductance and discharge measurements made during the selected years 1953 and 1979. Specific-conductance values were highest during the summer when discharges were lowest and lowest during the winter when discharges were highest. The statistical differences between years was not determined.

Spatial variations of specific-conductance values are shown in figure 28 for selected stations where monthly specific-conductance measurements are being made. Mean specific-conductance values were variable throughout the Smith River drainage basin. Half of the sampling stations shown in figure 28 had mean specific-conductance values less than the mean value for Smith River near Crescent City; whereas the other half of the sampling stations had mean values that were greater. Tributaries to the Smith River, generally, would be expected to have specific-conductance values lower than the main stem, but instead, the reverse was observed. One explanation for higher mean specific-conductance values at the tributary stations may be related to collection of data during the 1976 and 1977 droughts when discharges were lowest and specific conductances were highest.

Specific-conductance data collected from Smith River near Crescent City met the specific water-quality objective for specific conductance except during the 1977 drought. The median specific-conductance value for 1977 was 127 μmho, exceeding the water-quality objective by 2 μmho. Specific conductance never exceeded 193 μmho during 1954 to 1979 and, in most years, values were well below the 90th percentile water-quality objective value of 200 μmho. Specific-conductance data collected from the Six Rivers National Forest sampling stations did not always meet the specific water-quality objectives for specific conductance, especially during the 1976 and 1977 drought years. Jones Creek at Road 16N02, for example, exceeded the median specific-conductance objective (125 μmho) by 50 μmho and the 90th percentile objective (150 μmho) by 43 μmho. A list of the sampling stations with specific-conductance values that exceeded the water-quality objectives for specific conductance is given in table 11.

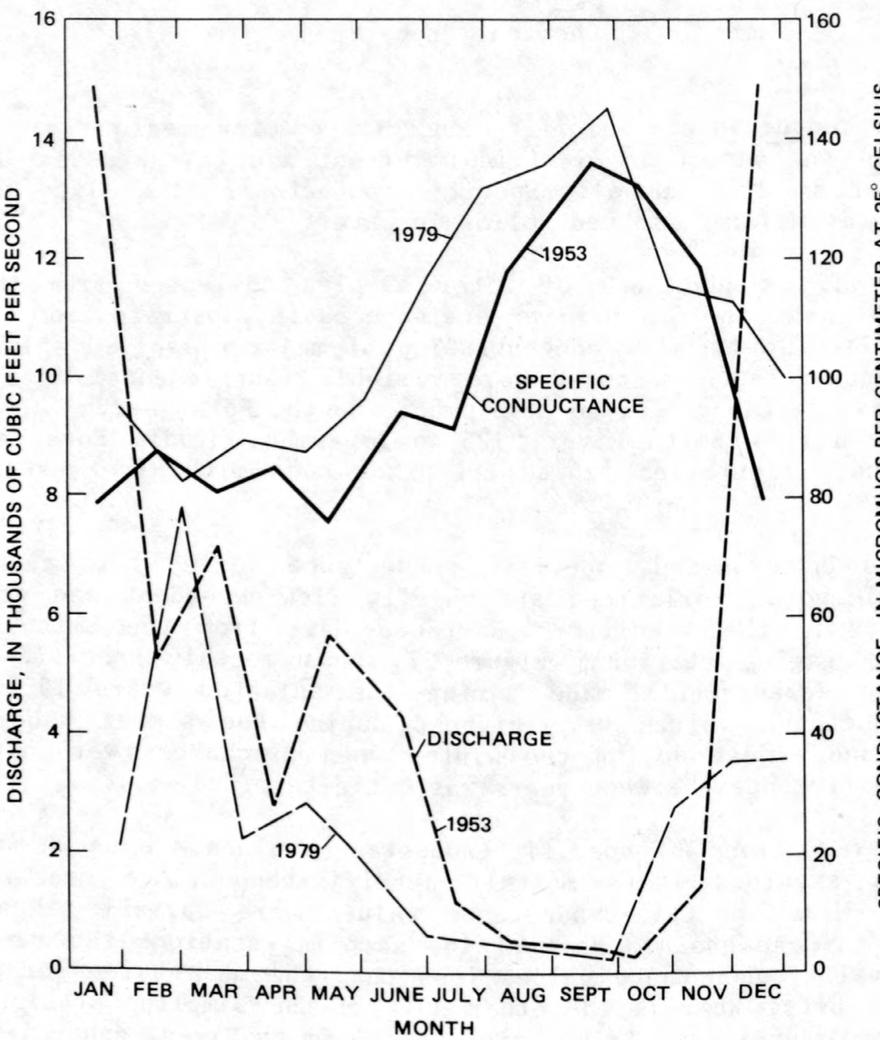


FIGURE 27.--Specific-conductance and discharge values, Smith River near Crescent City, 1953 and 1979.

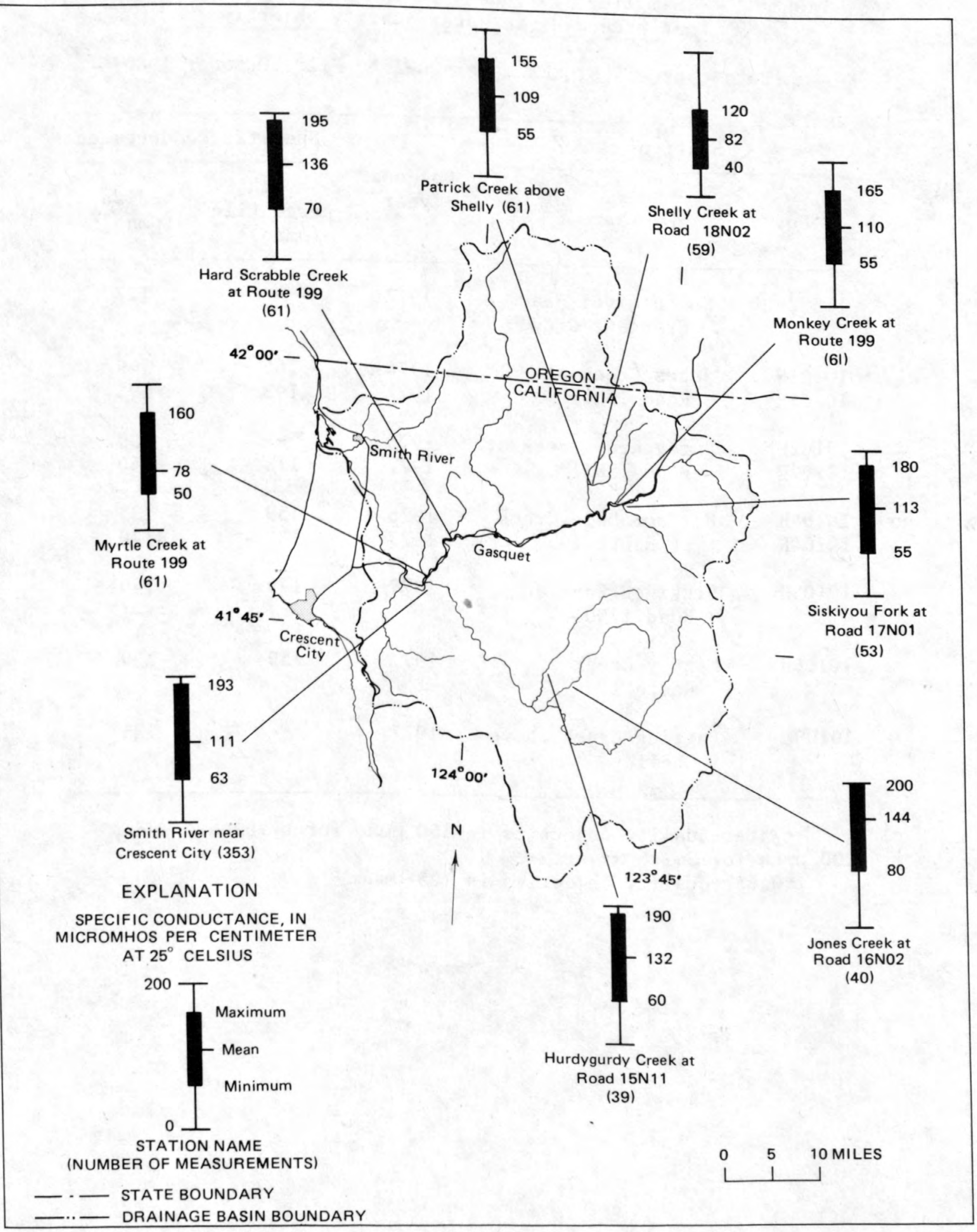


FIGURE 28.--Maximum, minimum, and mean specific-conductance values from selected sampling stations, Smith River drainage basin.

TABLE 11. - Sampling stations with specific-conductance values that exceeded the water-quality objectives

[Data source: STORET Water-Quality File, October 1980]

Station		Calendar year	Specific conductance	
No.	Name		90th percentile (µmho)[1]	Median (µmho)[2]
11532500	Smith River near Crescent City	1977	--	127
10101H	Jones Creek at	1976	166	140
10101R	Road 16N02	1977	193	175
10102H	Hurdygurdy Creek at	1976	--	139
10102R	Road 15N11	1977	178	140
10104H	Hardscrabble Creek	1976	159	135
10104R	at Route 199	1977	182	170
10105H	Siskiyou Fork at Road 17N01	1977	179	140
10106H	Monkey Creek at Route 199	1977	159	129
10109H	Patrick Creek above Shelley	1977	--	135

[1]Water-quality objective is 150 µmho for tributary and 200 µmho for Smith River.

[2]Water-quality objective is 125 µmho.

pH.--The pH of water is the negative logarithm of the hydrogen-ion activity. Solutions with a pH less than 7 are termed acidic, and solutions with a pH greater than 7 are termed basic. Solutions with a pH of 7 are neutral. The presence and concentration of many dissolved chemical constituents found in water are, in part, influenced by the hydrogen-ion activity of water. Biological processes including growth, distribution of organisms, and toxicity of the water to organisms are also influenced, in part, by the hydrogen-ion activity of water.

The pH of water samples (field measured) collected from the sampling stations located in the Smith River drainage basin were variable (supplemental data A): Smith River, 6.6 to 8.6; South Fork Smith River, 7.9 to 8.2; North Fork Smith River, 7.9 to 8.3; Middle Fork Smith River, 7.6 to 8.3; and tributaries, 5.9 to 9.1. Smith River near Crescent City was the only station with sufficient amount of pH data to show temporal variations. Although the pH scale in figure 29 is exaggerated, median monthly pH values ranged from 7.6 to 8.1 and varied seasonally, with lower values occurring in the winter and higher values occurring in the summer. A comparison of the periodic pH data collected by the California Regional Water Quality Control Board, North Coast Region, during June and September 1979 showed very few differences in pH among the sampling stations.

A list of the sampling stations with pH values outside the established water-quality objective range is given in table 12. At Smith River near Crescent City, three pH values were below the minimum water-quality objective value of 7.0 and ranged from 6.6 to 6.8. Compared to the historical pH data collected at this station, these values appear to be suspiciously low and possibly indicated human error during the measurement. Most of the pH data collected from the Mill Creek drainage basin were below the minimum water-quality objective value and ranged from 5.9 to 6.9. These data were collected mostly during major storm runoff periods. Bradford and Iwatsubo (1978), however, did note that pH generally increased from the rainy to dry season in the Mill Creek drainage basin. The maximum pH water-quality objective, 8.5, was exceeded once at two stations, Rowdy Creek at Smith River (9.1) and Smith River near Mouth (8.6). The pH measurement made at the Rowdy Creek at Smith River was during 1977 and may have been influenced by the drought; whereas the measurement made at the Smith River near Mouth may have been influenced by seawater.

Dissolved oxygen.--The dissolved-oxygen concentration in water is the quantity of free oxygen in solution. The corrosive action of water on metals and the solubility of many chemical elements and compounds are influenced, in part, by the dissolved-oxygen concentration. In addition, dissolved oxygen is essential for maintaining the life processes of aquatic organisms and is used as an indicator of biological productivity. Photosynthesis is an oxygen-producing process; respiration is an oxygen-consuming process.

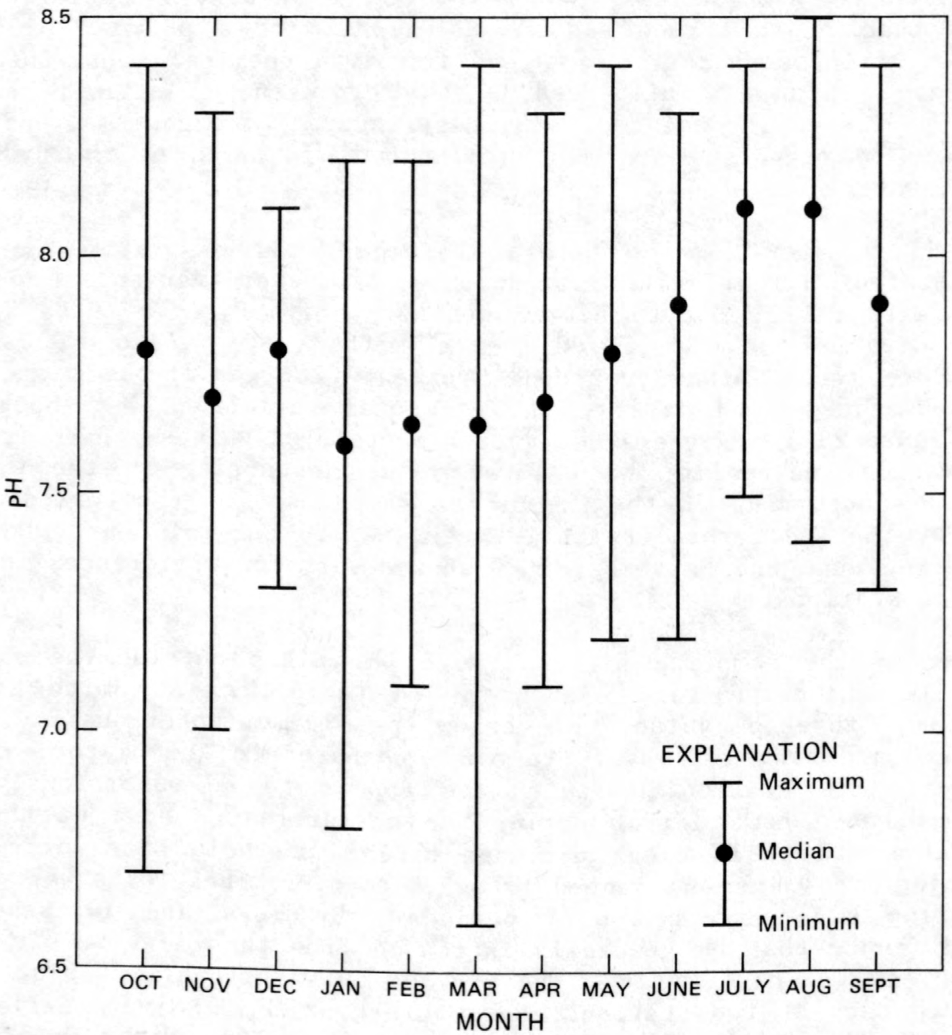


FIGURE 29.--Maximum, minimum, and median monthly pH values, Smith River near Crescent City, 1952 to 1980.

TABLE 12. - Sampling stations with pH values that did not comply with the water-quality objectives

[Data source: STORET Water-Quality File, October 1980]

Station		pH			
No.	Name	Maximum[1]	Number of noncompliance measurements	Minimum[2]	Number of noncompliance measurements
11532500	Smith River near Crescent City	8.5	--	6.6	3
11532600	West Branch Mill Creek near Crescent City	7.7	--	6.0	25
11532602	West Branch Mill Creek below Red Alder Campground near Crescent City	8.0	--	5.9	26
11532605	West Branch Mill Creek at Bridge near Crescent City	7.0	--	6.3	11
11532610	East Fork Mill Creek near Crescent City	7.6	--	6.8	2
11532615	East Fork Mill Creek at Bridge near Crescent City	7.7	--	6.2	13
11532620	Mill Creek near Crescent City	7.5	--	6.1	27
11532626	Mill Creek at Bridge near Crescent City	7.2	--	6.3	8
11532630	Mill Creek at Mouth near Crescent City	7.7	--	6.9	1
11532700	Rowdy Creek at Smith River	9.1	1	--	--
WB01A03010001	Smith River near mouth	8.6	1	7.2	--

[1]Underlined value exceeds water-quality objective maximum value of 8.5.
[2]Underlined value is less than water-quality objective minimum value of 7.0.

The ranges of the dissolved-oxygen concentrations of water samples collected from the sampling stations located in the Smith River drainage basin were variable (supplemental data A): Smith River, 8.9 to 14.2 mg/L; South Fork Smith River, 9.3 to 11.6 mg/L; North Fork Smith River, 9.6 to 10.8 mg/L; Middle Fork Smith River, 7.5 to 11.6 mg/L; and tributaries, 6.3 to 12.1 mg/L. Temporal variation of mean monthly dissolved-oxygen concentrations measured at Smith River near Crescent City is shown in figure 30 and is due, in part, to water temperature, dissolved-solids concentration, photosynthetic activity, and stream discharge. Mean monthly dissolved-oxygen concentrations were highest during the winter and lowest during the summer, and ranged from 9.6 to 12.5 mg/L.

A comparison of the periodic dissolved-oxygen data collected by the California Regional Water Quality Board, North Coast Region, during June and September 1979 showed that mean dissolved-oxygen concentrations from the tributaries and all stations upstream from Smith River at Van Daventer Park were above 10.0 mg/L; whereas the two furthest downstream stations, Smith River at Mouth and downstream Rowdy Creek, both had the lowest mean dissolved-oxygen concentration (9.0 mg/L).

A list of the sampling stations with dissolved-oxygen concentrations that do not meet the specific water-quality objectives is given in table 13. At Smith River near Crescent City, median dissolved-oxygen concentrations were 10.9 mg/L for calendar years 1975 and 1978 and were slightly below the median water-quality objective of 11.0 mg/L. At Smith River downstream Rowdy Creek, six dissolved-oxygen measurements were below the minimum specific water-quality objective value of 8.0 mg/L. Dissolved-oxygen concentrations and percentage saturation levels of these noncompliance values ranged from 6.7 to 7.5 mg/L and 74 to 87 percent, respectively. No explanation can be given for these low values, especially as dissolved-oxygen concentrations of Rowdy Creek and Smith River above Rowdy Creek were above 8.0 mg/L. Smith River near Mouth had three dissolved-oxygen measurements below 8.0 mg/L which ranged from 6.5 to 7.5 mg/L (70 to 82 percent saturation) and may have been influenced by seawater in the estuary. Middle Fork Smith River downstream Myrtle Creek sampling station had one dissolved-oxygen measurement (7.5 mg/L, 80 percent saturation) less than 8.0 mg/L. West Branch Mill Creek near Crescent City also had six dissolved-oxygen measurements less than 7.0 mg/L which ranged from 6.3 to 6.9 mg/L (59 to 66 percent saturation). Field notes, however, indicated that the majority of the measurements were made at night and from a pooled area because of intermittent streamflow.

Major nutrients.--Nitrogen and phosphorus compounds are required by all organisms for growth and reproduction. Although there are other essential plant nutrients, nitrogen and phosphorus are the most common nutrients in natural water that can occur in growth-limiting concentrations. In contrast, nonlimiting quantities of nitrogen and phosphorus may result in rapid plant production and cause nuisance conditions.

The concentrations of major nutrients were low at the various sampling stations located within the Smith River drainage basin (supplemental data A). Total nitrogen as nitrogen concentrations ranged from 0.00 to 0.53 mg/L (excluding a suspiciously high value, 3.3 mg/L). Total phosphorus as phosphorus concentrations ranged from 0.00 to 0.07 mg/L (again excluding a suspiciously high value, 0.17 mg/L).

Currently there are no nuisance aquatic growths related to high concentrations of major nutrients. Major nutrient concentrations of raw waters do not even exceed the maximum contamination level established for municipal and domestic supplies.

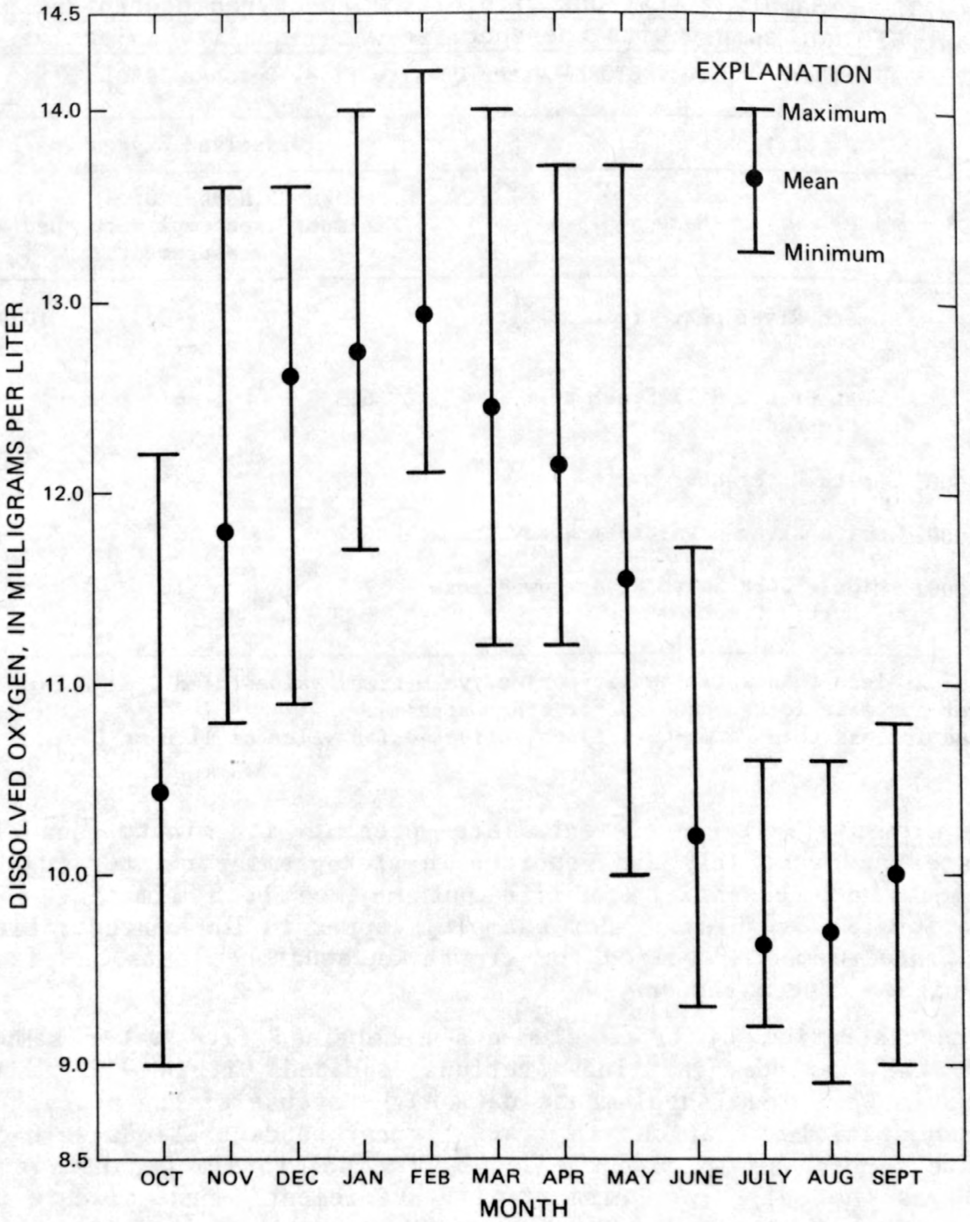


FIGURE 30.--Maximum, minimum, and mean monthly dissolved-oxygen concentrations, Smith River near Crescent City, 1968 to 1980.

TABLE 13. - Sampling stations with dissolved-oxygen concentrations that did not comply with the specific water-quality objectives

[Data source: STORET Water-Quality File, October 1980]

Station		Dissolved oxygen (mg/L)		
No.	Name	Minimum[1]	Number of noncompliance measurements	Median (year)[2]
11532500	Smith River near Crescent City	--	--	10.9 (1975)
		--	--	10.9 (1978)
11532600	West Branch Mill Creek near Crescent City	6.3	6	--
WB01A03010001	Smith River near mouth	6.5	3	--
WB01A03010002	Smith River downstream Rowdy Creek	6.7	6	--
WB01A03030001	Middle Fork Smith River downstream Myrtle Creek	7.5	1	--

[1]Value is less than water-quality objective minimum values of 8.0 mg/L for Smith River and main forks, and 7.0 for other streams.
[2]Value is less than water-quality objective median value of 11.0 mg/L.

Trace elements.--Trace elements are present in minute quantities in natural water and generally are reported in micrograms per liter (μg/L). Most trace elements are essential to life but may be both limiting and lethal factors to aquatic organisms. For example, copper in low concentrations is an essential trace element required for growth of aquatic plants but is toxic to plants at higher concentrations.

The concentration of trace elements determined from water samples collected at the various sampling stations located within the Smith River drainage basin were low (supplementa data A). Because of the paucity of data, temporal and spatial variations in trace-element concentrations were difficult to delineate. Boron (samples collected by the California Department of Water Resources) was the only trace element with sufficient amount of data to illustrate any type of temporal variations. Mean monthly boron concentrations ranged from 6.7 to 30 μg/L for the Smith River near Crescent City sampling station from 1952 to 1977 and showed no distinct temporal variations (fig. 31). Although the quantity of data is limited, spatial variation of trace-element concentrations was not discernible from the June 1979 samples collected by the California Regional Water Quality Board, North Coast Region.

Maximum contaminant levels for selected trace elements have been designated for municipal and domestic water supplies: "arsenic, 0.05 mg/L; barium, 1 mg/L; cadmium, 0.010 mg/L; chromium, 0.05 mg/L; lead, 0.05 mg/L; mercury, 0.002 mg/L; selenium, 0.01 mg/L; and silver, 0.05 mg/L," California Regional Water Quality Control Board, North Coast Region (1975). There were three instances where trace-element concentrations of raw water samples exceeded maximum contaminant levels established for municipal and domestic water supplies: Middle Fork Smith River upstream Myrtle Creek, cadmium 0.02 mg/L; Rowdy Creek at Smith River, chromium 0.096 mg/L; and Smith River near Crescent City, lead 0.071 mg/L. Each of these instances, however, was a one-time occurrence. Boron concentrations never exceeded the established water-quality objectives.

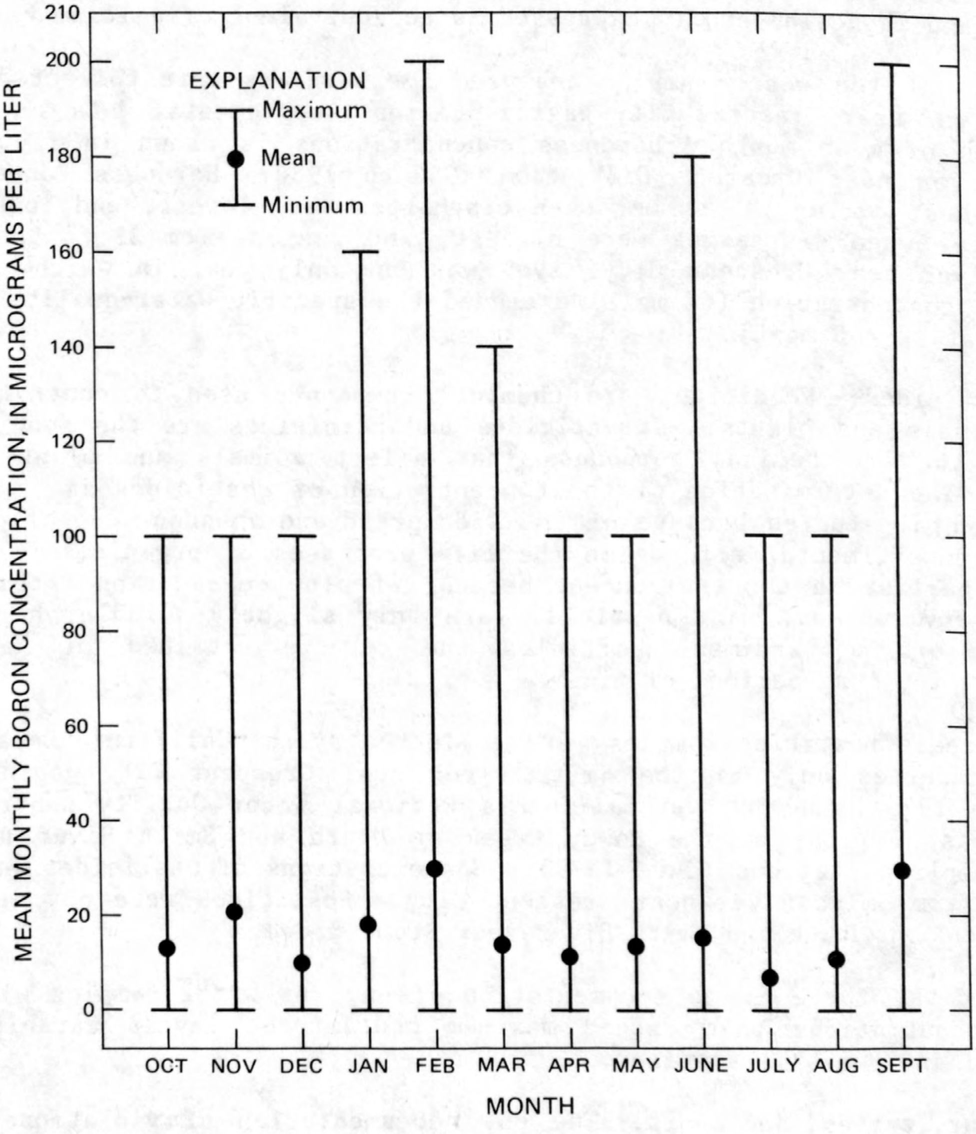


FIGURE 31.--Maximum, minimum, and mean monthly boron concentrations, Smith River near Crescent City, 1952 to 1977.

Hardness.--Hardness of water relates to the water's capacity to produce lather from soap. Hardness is principally determined by the presence of calcium and magnesium and is expressed as an equivalent of calcium carbonate.

Most of the water samples analyzed for hardness were collected from the Smith River near Crescent City gaging station (supplemental data A). Temporal variation of mean monthly hardness concentrations is shown in figure 32 for Smith River near Crescent City from 1952 to 1980. Hardness concentrations were highest during the summer when discharges were lowest, and lowest during the winter when discharges were highest, and ranged from 31 to 96 mg/L. At Smith River near Crescent City, 1965 was the only year in which the median hardness concentration (67 mg/L) exceeded the specific water-quality objective concentration (60 mg/L).

Pesticides.--Pesticides are chemical compounds used to control undesirable animals and plants. Insecticides and herbicides are the specific terms applied to the chemical compounds that affect animals and plants, respectively. The determination of the concentration of pesticides is important in environmental studies because of the widespread and abundant use of pesticides and their detrimental effects on the life processes of organisms. Pesticides usually persist in the environment because of slow degradation rates. In the aquatic environment, many pesticides are only slightly soluble; however they readily sorb on sediment particles and can be retained in the aquatic ecosystem for long periods of time.

Periodic pesticide samples were collected by the California Department of Water Resources only at the Smith River near Crescent City gaging station (1972 to 1975), and by the California Regional Water Quality Control Board, North Coast Region, at the Rowdy Creek at Mouth and Smith River near Stout Grove sampling stations (June 1979). Concentrations of pesticides were low in samples from Smith River near Crescent City. Pesticides were not detected at Rowdy Creek at Mouth and Smith River near Stout Grove.

To date, there is no documentation of any raw water samples with pesticide concentrations that exceed maximum contaminant levels established for municipal and domestic supplies.

Color, tastes, and odors.--The only documentation of violations of these objectives relate to industrial pollution. In the past, steam vault liquors from Miller Redwood Company have overflowed into Mill Creek; however the company currently recycles the liquors through a clarifier and spills no longer occur.

Oil and grease.--Fish kills and oil residues occasionally occur on lower Rowdy and Dominie Creeks below Simonson Lumber Company. So far, the California State Water Resources Control Board has been unable to show the cause of the fish kills and prove the source of the pollutants involved (California Department of Fish and Game, 1980).

Radioactivity.--No data exist that indicate radioactive contamination of waters in the Smith River drainage basin.

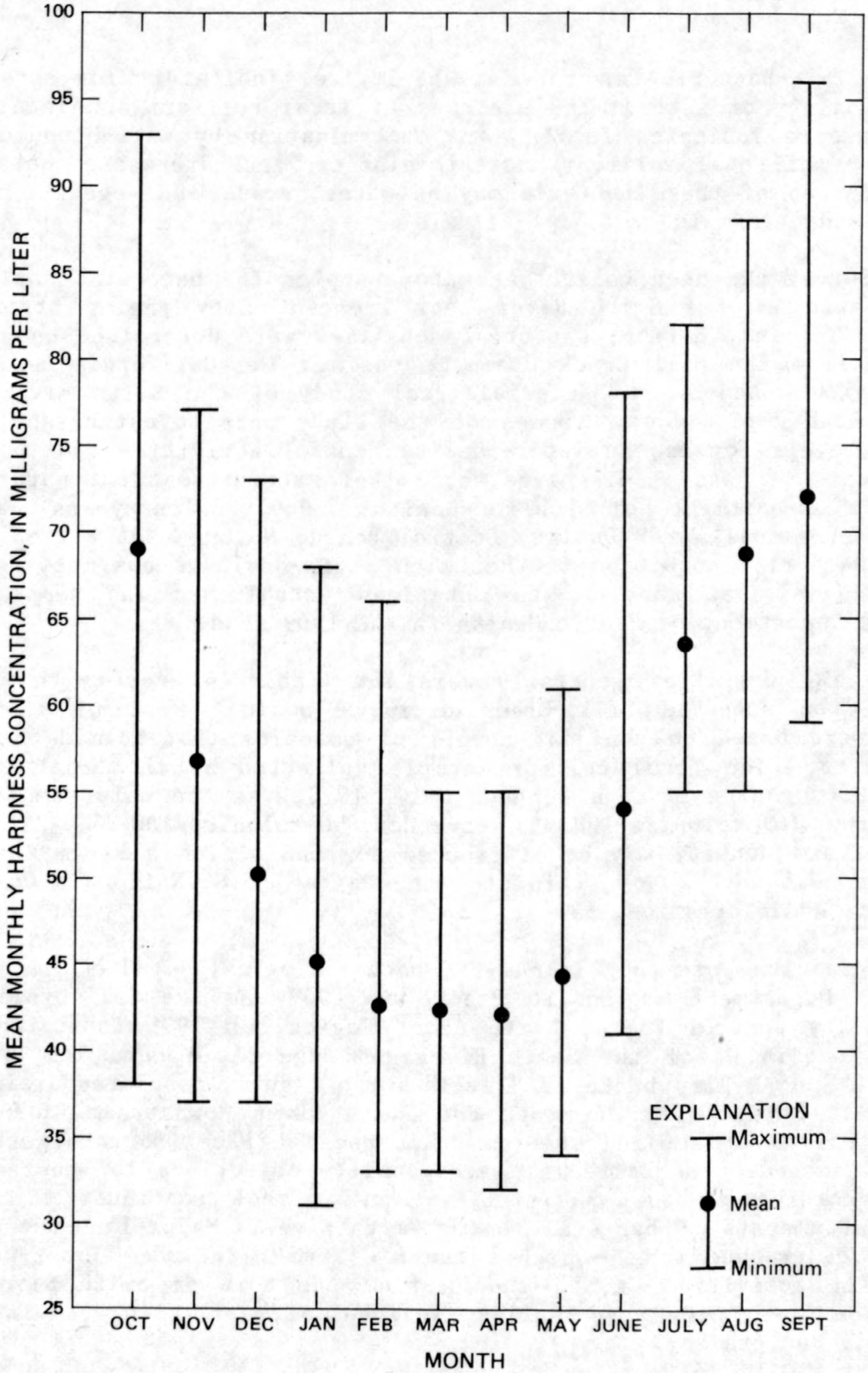


FIGURE 32.--Maximum, minimum, and mean monthly hardness concentration, Smith River near Crescent City, 1952 to 1980.

Biological Properties

Bacteria.--Bacteria can serve as biological indicators for assessing the sanitary quality of water. The presence of fecal coliform and fecal streptococcal bacteria indicates fecal waste contamination by warm-blooded animals. The presence of total coliform bacteria also can indicate waste contamination; however sources of these bacteria may be water, soil, and vegetation, as well as warm-blooded animals.

The Survey has been collecting water samples for bacterial analysis on a monthly basis at the Smith River near Crescent City gaging station since January 1978. In addition, bacterial densities were determined on a periodical basis from the Mill Creek drainage basin. The California Department of Public Health conducted a bacteriological study of the Smith River drainage basin in June 1969. The purposes of the study were to establish meaningful bacterial levels for use in water-quality control activities and to determine the effects of waste discharge or other activities on water quality (California Department of Public Health, 1969). Ten years later, the California Regional Water Quality Control Board, North Coast Region, reevaluated the bacterial condition of the Smith River drainage basin by determining bacterial levels at many of the stations established and sampled by the California Department of Public Health in the 1969 study.

Bacterial densities generally were low (table 14) for Smith River near Crescent City and the Mill Creek drainage basin. Most of the results, however, were based on nonideal number of colonies that formed on each membrane filter. The fecal coliform sample collected at the Smith River near Crescent City gaging station on August 24, 1978, was the only sample in which the density (61 colonies/100 mL) exceeded 50 colonies/100 mL. This higher fecal coliform density may be attributed to runoff from a storm that brought more than 2.5 inches of rain to the area (U.S. National Oceanic and Atmospheric Administration, 1978).

The results of the intensive bacteriological studies made by the California Department of Public Health in 1969 and the California Regional Water Quality Control Board, North Coast Region, in 1979 indicated that the bacterial densities of the Smith River drainage basin were low upstream of Rowdy Creek and typify bacterial levels for a lightly populated drainage basin (table 15). Rowdy Creek at Mouth and Smith River downstream of Rowdy Creek were the only two sampling stations that had fecal coliform bacterial densities that exceeded the bacterial water-quality objectives for contact recreation. According to the two studies, Rowdy Creek continues to contribute significant amounts of bacteria to the Smith River. Major land-use activities that may contribute to the high bacterial levels include timber-harvesting, lumber mill activities, urban runoff from the town of Smith River, a fish hatchery on Rowdy Creek, recreation, residential, agriculture, dairy industry (feedlots), and grazing.

TABLE 14. - Results of bacterial analyses of water samples collected by the U.S. Geological Survey

[Data from U.S. Geological Survey (1971, 1978, and 1979) and Iwatsubo and others (1976). Asterisk (*) indicates count based on nonideal number of colonies on membrane filter]

Station number and name	Date	Bacterial density (col/100mL)		
		Fecal coliform	Fecal streptococcal	Total coliform
11532500 Smith River near Crescent City	1-24-78	2*	65	--
	2-17-78	4*	11	--
	3-22-78	1*	2*	--
	4-26-78	1*	10	--
	5-24-78	2*	2*	--
	6-23-78	3*	1*	--
	7-25-78	7*	1*	--
	8-24-78	61*	42	--
	9-22-78	2*	2*	--
	10-26-78	3*	1*	--
	11-22-78	28*	5	--
	12-20-78	3*	1*	--
	1-23-79	1*	1*	--
	2-22-79	9	4*	--
	3-27-79	5*	1*	--
	4-25-79	1*	1*	--
	5-23-79	1*	14	--
	6-26-79	3*	2*	--
	7-25-79	3*	2*	--
	8-29-79	10	9	--
	9-26-79	3*	10	--
11532600 West Branch Mill Creek near Crescent City	11-5-70	--	--	1
	11-5-70	--	--	3
	11-5-70	--	--	7
	6-8-71	--	--	35
	6-9-71	--	--	23
	6-9-71	--	--	21
	6-9-71	--	--	24
	6-9-71	--	--	52
11532602 West Branch Mill Creek below Red Alder Campground near Crescent City	8-13-74	3*	4*	--
11532610 East Fork Mill Creek near Crescent City	8-13-74	7*	13*	--
11532620 Mill Creek near Crescent City	8-13-74	18*	4*	--
11532630 Mill Creek at mouth near Crescent City	8-13-74	13*	21	--

TABLE 15. - Summary of bacterial data collected by the California Department of Public Health and the California Regional Water Quality Control Board, North Coast Region

[Ten samples collected during each sampling period. 1969 data from California Department of Public Health (1969); 1979 data from California Regional Water Quality Control Board, North Coast Region (written commun., 1980)]

Station number and name		Dates	Bacterial density (MPN/100 mL) Fecal coliform		Fecal Streptococcal		Total coliform	
			Range	Median[1]	Range	Median	Range	Median
WB01A03010001	Smith River near Mouth	June 2-6, 1969	7-240	33	--	--	79-720	255
		June 11-21, 1979	2-49	15	<2-13	<2	22-110	33
		September 5-14, 1979	2-240	30	2-130	6	11-240	94
WB01A03010002	Smith River downstream of Rowdy Creek	June 11-21, 1979	2-130	24	<2-70	8	33-540	170
		September 5-14, 1979	23-1,600	124	2-240	64	350->2,400	≥2,000
WB01A03010101	Rowdy Creek at Mouth	June 2-6, 1969	33-490	94	--	--	170-5,400	970
		June 11-21, 1979	5-920	350	11-540	33	350-2,400	920
		September 5-14, 1979	540-2,400	1,600	49-350	120	1,600-≥2,400	≥2,400
WB01A03010004	Smith River upstream of Rowdy Creek	June 2-6, 1969	2-43	14	--	--	34-1,200	120
		June 11-21, 1979	<2-33	3	<2-5	2	5-79	14
		September 5-14, 1979	5-33	15	<2-23	6	33-1,600	130
WB01A03010005	Smith River near Crescent City Intake	June 2-6, 1969	<2-22	8	--	--	33-180	72
		June 11-21, 1979	<2-17	4	<2-13	2	8-240	28
		September 5-14, 1979	2-13	5	<2-23	4	23-240	49
WB01A03010006	Smith River at Van Deventer Park	June 2-6, 1969	<2-23	6	--	--	33-490	79
		June 11-21, 1979	<2-17	5	<2-5	<2	8-49	30
		September 5-14, 1979	2-17	13	<2-23	5	22-350	49
WB01A03010007	Smith River at Jedediah Smith Beach	June 2-6, 1969	5-33	8	--	--	17-790	104
		June 11-21, 1979	<2-13	2	<2-14	4	8-130	28
		September 5-14, 1979	<2-23	8	<2-13	6	49-540	175
WB01A03010008	Smith River near Stout Grove	June 11-21, 1979	<2-33	4	<2-14	<2	13-350	33
		September 5-14, 1979	<2-31	4	<2-17	6	33-350	94
WB01A03010009	Smith River downstream of South Fork	June 11-21, 1979	<2-17	4	<2-17	<2	5-240	33
		September 5-14, 1979	2-13	6	<2-22	2	8-240	60
WB01A03030001	Middle Fork Smith River downstream of Myrtle Creek	June 11-21, 1979	<2-17	4	<2-17	2	23-350	94
		September 5-14, 1979	<2-33	5	2-14	2	33-540	130
WB01A03030002	Middle Fork Smith River upstream of Myrtle Creek	June 11-21, 1979	2-13	3	<2-8	2	33-130	60
		September 5-14, 1979	<2-49	4	2-33	8	33-540	104
--	South Fork Smith River upstream from Bridge	June 2-6, 1969	<2-7	2	--	--	13-220	110
WB01A03020001	South Fork Smith River	June 11-21, 1979	<2-13	2	<2-5	2	5-79	18
		September 5-14, 1979	2-13	6	<2-23	6	33-350	79

WB01A03030002	Middle Fork Smith River upstream of Myrtle Creek	June 11-21, 1979	2-13	3	<2-8	2	33-130	60
		September 5-14, 1979	<2-49	4	2-33	8	33-540	104
--	South Fork Smith River upstream from Bridge	June 2-6, 1969	<2-7	2	--	--	13-220	110
WB01A03020001	South Fork Smith River	June 11-21, 1979	<2-13	2	<2-5	2	5-79	18
		September 5-14, 1979	2-13	6	<2-23	6	33-350	79

WB01A03030003	Middle Fork Smith River downstream of Gasquet	June 2-6, 1969	<2-11	2	--	--	7-260	60
		June 11-21, 1979	<2-7	4	<2-14	2	5-350	23
		September 5-14, 1979	2-13	5	<2-23	3	49-920	110
WB01A03030201	Hardscrabble Creek near Mouth	June 11-21, 1979	<2-5	<2	<2-12	4	5-23	13
		September 5-14, 1979	2-49	10	2-130	14	23-350	49
WB01A03030004	Middle Fork Smith River at Gasquet	June 11-21, 1979	<2-13	6	<2-13	2	23-350	64
		September 5-14, 1979	2-130	10	2-79	16	49-920	240
WB01A03040001	North Fork Smith River	June 2-6, 1969	<2-5	2	--	--	33-400	135
		June 11-21, 1979	<2-350	3	<2-7	2	23-540	48
		September 5-14, 1979	<2-8	4	2-23	5	23-350	49
WB01A03030005	Middle Fork Smith River upstream of North Fork	June 2-6, 1969	2-170	6	--	--	40-430	110
		June 11-21, 1979	<2-5	2	<2-8	2	5-49	13
		September 5-14, 1979	2-23	4	2-11	6	22-130	33
WB01A03030501	Patrick Creek at Mouth	June 2-6, 1969	<2-12	2	--	--	33-1,700	94
		June 11-21, 1979	<2-2	<2	<2-5	2	4-41	8
		September 5-14, 1979	<2-4	<2	2-13	5	8-49	28
WB01A03030006	Middle Fork Smith River downstream of Patrick Creek	June 11-21, 1979	<2-8	5	<2-13	2	2-79	13
		September 5-14, 1979	<2-140	5	<2-130	7.5	33-920	104
WB01A03030007	Middle Fork Smith River upstream of Patrick Creek	June 11-21, 1979	<2-21	5	<2-7	4	8-220	20
		September 5-14, 1979	2-33	10	2-33	10	23-540	64
--	Middle Fork Smith River at Siskiyou Fork Bridge	June 2-6, 1969	<2-13	<2	--	--	33-790	90

[1]Underlined values exceed contact recreation water-quality objective.

Benthic Invertebrates.--Benthic invertebrates are the community of animals without backbones that live on or in the bottom of streams and lakes. Benthic invertebrates are found in specific types of habitats and are sensitive to water-quality changes; therefore, they often are used as biological integrators and indicators of the quality of the aquatic ecosystem (Hynes, 1964 and 1970, and Cummins, 1973).

The Survey collected benthic invertebrates from the Mill Creek drainage basin (Iwatsubo and others, 1976). Benthic-invertebrate densities of the autumn samples were greater than the densities of the spring samples (table 16). The benthic invertebrates collected during the spring, after high winter flows had receded, represented individuals that were able to overwinter and those that recently had hatched. The benthic invertebrates collected during the autumn, when streamflows were the lowest and water temperatures and insolation the highest, represented individuals that had grown and not emerged throughout the summer and new individuals that had hatched since spring.

Ephemeroptera (mayflies) were the dominant benthic-invertebrate group collected (51.3 percent) with Diptera (two-winged flies) and Plecoptera (stoneflies) representing 22.2 and 9.6 percent, respectively. Dominance of benthic-invertebrate communities by these groups generally indicates good water-quality and habitat conditions. The taxonomic list and percentage composition of the total number of benthic invertebrates collected are given in supplemental data B.

TABLE 16. - Numbers of benthic invertebrates from samples collected at Mill Creek stations

[Numbers of individuals per square meter]

Station name	1974	
	Spring	Autumn
West Branch Mill Creek below Red Alder Campground near Crescent City	21,000	36,000
East Fork Mill Creek near Crescent City	5,500	5,800
Mill Creek near Crescent City	7,800	13,000
Mill Creek at mouth near Crescent City	5,900	--

Periphyton.--Periphyton is the assemblage of organisms that attach to or live on underwater substrates and includes algae, bacteria, fungi, protozoans, rotifers, and other small organisms. An increase in nutrient level can stimulate algal growth to the point where algal mats may form. These mats may become esthetically unpleasing and can also degrade water quality. Insolation, streambed stability, sedimentation, nutrients, and water temperature are environmental factors that have an effect on the abundance and diversity of the periphytic community.

The Survey has been collecting periphyton data (table 17) at the Smith River near Crescent City gaging station since May 1978. In addition, the Survey collected periphyton data from the Mill Creek drainage basin (Iwatsubo and others, 1976). Data from these studies indicate that periphyton rates of accrual were low in the Smith River drainage basin and do not indicate any immediate degradation of the water quality for the beneficial uses described earlier. Accrual rate of the organic weight of periphyton ranged from <0.01 to 0.10 $(g/m^2)/d$ (grams per square meter per day) in the Smith River and 0.02 to 0.11 $(g/m^2)/d$ in the Mill Creek drainage basin. Chlorophyll concentrations in periphyton in the Smith River were generally low and extremely variable, with concentrations ranging from 0.000 to 8.10 milligrams per square meter (mg/m^2).

Diatoms were the dominant periphytic algae from the Mill Creek drainage basin with Cymbella, Achnanthes, and Cocconeis being the most numerous genera. The dominance of diatoms in the periphytic community may have resulted from low insolation, as diatoms can occur as abundantly in shaded areas as in areas exposed to the sun. The dominant genera of diatoms that occurred in the periphyton samples are not only classified among the group of organisms that are first to colonize newly exposed surfaces (competitive edge over other algal types), but are genera that commonly occur during the winter when low light intensities and low temperatures exist (Hutchinson, 1975, and Hynes, 1970). Green algae were never dominant in the periphyton samples collected. Green algae unlike diatoms, require higher light intensities; therefore, their abundance may have been limited by lack of insolation (Iwatsubo and Averett, 1981). The taxonomic list of algae occurring in periphyton samples collected from the Mill Creek drainage basin is shown in supplemental data C.

Phytoplankton.--Phytoplankton are the aggregate of passively drifting plant organisms in water. The abundance and taxonomic composition of phytoplankton can be related to the quality of the water at the time of sampling because of the direct association between plant organisms and the water in which they are suspended. Phytoplankton can affect water-quality conditions such as pH, dissolved-oxygen concentrations, and the optical properties of water. Under certain conditions, algal blooms may occur and cause the water to become esthetically objectionable.

TABLE 17. - Rates and summary of biomass accrual and chlorophyll concentrations of periphyton collected by the U.S. Geological Survey

Station number and name		Date	Length of exposure (days)	Biomass accrual [(g/m²)/d] Dry wt.	Ash wt.	Organic wt.	Chlorophyll (mg/m²) a	b
11532500	Smith River near Crescent City	5-11-78[1]	16	0.12	0.07	0.05	0.890	0.100
		6-23-78[1]	19	.01	<.01	<.01	.160	.030
		7-25-78[1]	33	.07	.04	.03	2.17	.000
		8-24-78[1]	31	.04	.02	.02	.530	.090
		9-22-78[1]	30	.15	.11	.04	6.09	.120
		10-26-78[1]	34	.05	.03	.02	5.09	.000
		11-22-78[1]	27	.05	.03	.02	3.92	.000
		4-25-79[1]	29	.12	.10	.02	2.66	.360
		7-25-79[1]	29	.04	.02	.02	1.86	.430
		9-26-79[1]	28	.02	.01	.01	.350	.150
		4-24-80[2]	29	.21	.20	.01	3.59	.120
		6-25-28[2]	28	.22	.12	.10	8.10	1.99
	SUMMARY	Number of samples	12	12	12	12	12	12
		Mean	28	0.09	0.06	0.03	2.951	0.283
		Median	29	0.06	0.04	0.02	2.415	0.110
		Range	16-34	0.01-0.22	<0.01-0.20	<0.01-.010	0.160-8.10	0.000-1.99
11532602	West Branch Mill Creek below Red Alder Campground near Crescent City	7-16-74[3]	56	0.34	0.23	0.11	-	-
		9-12-74[3]	58	.08	.04	.04	-	-
		7-29-75[3]	54	.13	.07	.06	-	-
	SUMMARY	Number of samples	3	3	3	3	-	-
		Mean	56	0.18	0.11	0.07	-	-
		Median	56	0.13	0.07	0.06	-	-
		Range	54-58	0.08-0.34	0.04-0.23	0.04-0.11	-	-
11532610	East Fork Mill Creek near Crescent City	7-16-74[3]	56	0.05	0.03	0.02	-	-
		9-12-74[3]	58	.07	.03	.04	-	-
		7-29-75[3]	54	.05	.03	.02	-	-
	SUMMARY	Number of samples	3	3	3	3	-	-
		Mean	56	0.06	0.03	0.03	-	-
		Median	56	0.05	0.03	0.02	-	-
		Range	54-58	0.05-0.07	0.03	0.02-0.04	-	-
11532620	Mill Creek near Crescent City	7-16-74[3]	56	0.10	0.05	0.05	-	-
		9-12-74[3]	58	.17	.10	.07	-	-
		7-29-75[3]	54	.10	.04	.06	-	-
	SUMMARY	Number of samples	3	3	3	3	-	-
		Mean	56	0.12	0.06	0.06	-	-
		Median	56	0.10	0.05	0.06	-	-
		Range	54-58	0.10-0.17	0.04-0.10	0.05-0.07	-	-

[1]U.S. Geological Survey (1978 and 1979).
[2]U.S. Geological Survey (Unpublished data).
[3]Iwatsubo and others (1976).

The Survey has been collecting phytoplankton data (table 18) at the Smith River near Crescent City gaging station since March 1978. In addition, the Survey collected phytoplankton data from the Mill Creek drainage basin (Iwatsubo and others, 1976). The California Regional Water Quality Control Board, North Coast Region, collected phytoplankton data during 1979 (table 19).

Densities of the phytoplankton samples collected by the Survey were variable and ranged from 0 to 220 cells/mL (cells per milliliter) at the Smith River near Crescent City gaging station and from 28 to 170 cells/mL from the Mill Creek drainage basin. Densities of the phytoplankton samples collected by the California Regional Water Quality Control Board, North Coast Region, in 1979 varied both temporally and spatially. Median phytoplankton density values of the September samples were higher than those of the June samples at all but the two lowermost stations, Smith River downstream Rowdy Creek and Smith River near Mouth. In northern California rivers, primary productivity generally is highest during late summer because water temperature and insolation are the highest and streamflow is the lowest. The temporal decline in phytoplankton densities at the two lowermost stations may be related to estuarine conditions at the time of sampling. Further investigations, however, are needed to document phytoplankton densities in the lower Smith River drainage basin.

Analysis of the spatial variation of median phytoplankton densities revealed a general increase in the downstream direction. The lowermost station, Smith River near Mouth, deviated from this trend. Rowdy Creek at Mouth was the only station with median phytoplankton densities that were consistently higher during both the June and September sampling. Land-use activities such as lumber industry, urban runoff from the town of Smith River, recreation, residential, fish hatchery, dairy, agriculture, and grazing may have contributed to higher phytoplankton densities in Rowdy Creek. These phytoplankton densities, however, are extremely low and do not indicate any immediate degradation of water quality of the Smith River drainage basin for the beneficial uses described earlier.

Most of the phytoplankton samples were dominated by diatoms. Cocconeis, Gomphonema, Navicula, and Nitzschia occurred most frequently in the Smith River samples collected by the Survey; whereas unknown flagellates, Achnanthes, Gomphonema, and Cocconeis dominated the samples collected from the Mill Creek drainage basin. Cocconeis, Gomphonema, and Achnanthes are not truly planktonic but epiphytic (Smith, 1950). Analyses of the life histories of the remaining phytoplankton genera suggested that the majority of the phytoplankton were dislodged periphyton that were passively drifting downstream at the time of collection. McCoy (1974) also found that most of the algae sampled as phytoplankton were dislodged periphyton. Unknown flagellates occurred in all phytoplankton samples collected from the Mill Creek drainage basin. Most of the flagellates were very small, quadriflagellated, and most likely zoospores; however, without culturing live material, identification was not possible (Jan B. Brocksen, written commun., 1974). The taxonomic list of phytoplankton collected from the Smith River drainage basin is given in supplemental data D.

TABLE 18. - Taxonomic composition of phytoplankton collected by the U.S. Geological Survey

[T = <1 percent; all values rounded to two significant figures]

Station number and name	Date	Percentage composition					Total	
		Chlorophyta	Chrysophyta	Cyanophyta	Unknown flagellates	Groups of uncertain systematic positions	Types of individuals	Cells per milliliter
11532500 Smith River near Crescent City	3-22-78[1]	0	100	0	0	0	1	41
	5-24-78[1]	0	0	0	0	0	0	0
	6-23-78[1]	0	100	0	0	0	3	73
	7-25-78[1]	10	90	0	0	0	7	220
	8-24-78[1]	11	39	50	0	0	5	35
	9-22-78[1]	0	100	0	0	0	2	29
	11-22-78[1]	0	100	0	0	0	5	69
	3-27-79[1]	33	67	0	0	0	3	15
	5-23-79[1]	0	100	0	0	0	1	90
	6-26-79[1]	0	0	100	0	0	1	26
	7-25-79[1]	0	100	0	0	0	1	26
	8-29-79[1]	0	100	0	0	0	7	100
	9-26-79[1]	100	0	0	0	0	1	100
	11-21-79[1]	5	95	0	0	0	9	200
	3-26-80[2]	80	20	0	0	0	7	100
	5-28-80[2]	0	8	92	0	0	0	170
11532602 West Branch Mill Creek below Red Alder Campground, near Crescent City	8-1-74[3]	0	75	0	25	0	6	67
	9-12-74[3]	8	72	0	20	0	14	39
	7-29-75[3]	12	66	0	22	0	11	170
11532610 East Fork Mill Creek near Crescent City	8-1-74[3]	0	12	0	88	0	3	58
	9-12-74[3]	11	46	0	43	0	16	28
	7-29-75[3]	3	65	0	32	T	19	37
11532620 Mill Creek near Crescent City	8-1-74[3]	2	47	0	51	0	9	120
	9-12-74[3]	5	63	0	32	0	17	38
	7-29-75[3]	8	66	0	26	0	23	76

[1]U.S. Geological Survey (1978 and 1979).
[2]U.S. Geological Survey (unpublished data).
[3]From Iwatsubo and Averett (1981).

TABLE 19. - Summary of phytoplankton data collected by the California Regional Water Quality Control Board, North Coast Region

[California Regional Water Quality Control Board, North Coast Region (written commun., 1980]

Station number and name		Density (cells per milliliter)[1]						Chlorophyll *a*, *b*, and *c* (micrograms per liter)					
		June 11-21, 1979			September 5-14, 1979			June 11-21, 1979			September 5-14, 1979		
		Number	Median	Range	Number	Median	Range	Number	Median	Range	Number	Median	Range
WB01A03010001	Smith River near Mouth	3	16	14-50	5	5	0-18	5	6.2	0.9-16.2	5	0.45	0.18-0.96
WB01A03010002	Smith River downstream Rowdy Creek	4	34	16-52	5	16	11-32	5	3.7	1.3-12.5	5	.76	.69-.99
WB01A03010101	Rowdy Creek at Mouth	4	32	17-57	5	35	19-74	5	2.4	1.9-2.8	5	7.48	4.39-8.52
WB01A03010004	Smith River upstream Rowdy Creek	4	14	11-37	5	30	13-35	5	1.0	.7-1.5	5	1.22	.56-1.67
WB01A03010005	Smith River near Crescent City Intake	2	6	0-12	5	11	3-51	5	.6	.3-1.2	5	.63	.21-1.96
WB01A03010006	Smith River at Van Deventer Park	4	12	11-31	5	19	5-29	5	.5	.3-.7	5	.63	.20-.76
WB01A03010007	Smith River at Jedediah Smith Beach	4	15	3-30	5	16	0-17	5	.5	.4-.6	5	.43	.23-1.06
WB01A03010008	Smith River near Stout Grove	4	8	4-18	5	16	14-700	5	.4	.3-.4	5	.38	.23-.54
WB01A03010009	Smith River downstream South Fork	4	2	0-5	5	12	3-24	5	.3	.2-.4	5	.49	.30-.68
WB01A03030001	MF Smith River downstream Myrtle Creek	4	4	3-8	5	14	5-100	5	.3	.2-.4	5	.63	.23-1.15
WB01A03030002	MF Smith River upstream Myrtle Creek	4	4	0-6	5	9	0-18	5	.4	.2-.6	5	.44	.34-.53
WB01A03020001	South Fork Smith River	4	4	0-8	5	8	4-28	5	.3	.2-.6	5	.33	.24-.39
WB01A03030201	MF Smith River downstream Gasquet	4	5	0-15	5	20	3-30	5	.4	.2-.5	5	.31	.22-.68
WB01A03030003	Hardscrabble Creek near Mouth	4	1	0-3	5	4	0-69	5	.3	.1-.6	5	.18	.11-.28
WB01A03030004	MF Smith River at Gasquet	4	3	0-94	5	4	4-38	5	.4	.3-.5	5	.21	.10-.90
WB01A03040001	North Fork Smith River	3	8	6-14	5	14	0-17	5	.5	.1-1.4	5	.17	.04-.48
WB01A03030005	MF Smith River upstream North Fork	3	0	0-12	5	12	7-30	5	.4	.3-.4	5	.44	.32-.58
WB01A03030501	Patrick Creek at Mouth	3	0	0	5	4	0-38	5	.2	.1-.5	5	.18	.18-.20
WB01A03030006	MF Smith River downstream Patrick Creek	3	3	3	5	8	4-20	5	.3	.2-.6	5	.39	.21-.68
WB01A03030007	MF Smith River upstream Patrick Creek	3	6	3-17	5	12	0-18	5	.4	.3-.8	5	.34	.16-.98

[1]All values rounded to two significant figures.

Ground Water

The largest yield of ground water from the Smith River Plain is obtained from the unconfined aquifer of the flood-plain deposits that are found adjacent to the Smith River. Chemical analyses of the ground water from these deposits generally indicated that the water is excellent in quality and suitable for beneficial uses with only a few localized exceptions. Most of the ground water is characterized by a magnesium bicarbonate water type. Dissolved-solids concentrations are low, less than 200 mg/L. The ground water is slightly acidic with pH values generally ranging from 6.0 to 7.2. This acidic condition is probably due to carbonic acid from the atmosphere and organic acids from vegetation (Back, 1957). A summary of the chemical analyses of ground-water samples collected from wells in the flood-plain deposits is presented in table 20. Occasional pH values below the minimum pH water-quality objective of 6.5 have been measured.

TABLE 20. - Ranges of concentrations of mineral constituents in water from wells in the flood-plain deposits

[Adapted from California Department of Water Resources, 1966]

Range	Constituents (mg/L)									
	Calcium	Magnesium	Sodium	Bicarbonate	Sulfate	Chlorine	Nitrate	Dissolved Solids	Hardness as $CaCO_3$	Percent Sodium
Maximum	15	53	12	289	3.8	24	52	264	245	54
Median	6.2	16	4.8	78	1.2	6.7	2.8	118	67	8
Minimum	1.7	2.7	2.3	14	0.3	4.8	0.4	57	9	4

To date, there is no documentation of ground-water-quality data related to radioactivity and very little documentation of chemical constituents and bacterial data, and taste and odor problems. Results of a study made by the California Department of Water Resources (1966) indicated that there are no large areas in which the quality of ground water is impaired. There are, however, a few localized problems. Several wells in the western part of the Smith River Plain contain water with high iron concentrations (up to 9.7 mg/L) and have violated the taste and odor objective. In addition, the high iron concentrations have exceeded the criterion (0.3 mg/L) established by the U.S. Environmental Protection Agency (1976) for domestic water supplies. Certain wells also contain water with higher than expected nitrate, chloride, and dissolved-solids concentrations.

Bacterial analyses of ground water (table 21) indicated that bacterial impairment of ground water has occurred in the Smith River Plain in numerous localized areas, and, in particular, the impairment was greatest in wells less than 20 ft deep (California Department of Water Resources, 1966). The historical bacterial data from selected wells were collected periodically and, therefore, cannot be applied to the bacterial water-quality objective established by the California Regional Water Quality Control Board, North Coast Region (1975), which states: "In ground waters used for domestic or municipal supply (MUN), the concentration of coliform organisms over any 7-day period shall not exceed a median of 2.2/100 mL."

TABLE 21. - Comparison of most probable number (MPN) of coliform organisms per 100 mL found in wells with depth of well, Del Norte County, 1961

[Adapted from California Department of Water Resources, 1966]

Coliform bacteria MPN/100 mL	Wells							
	Depth, 10-20 ft		Depth, 21-30 ft		Depth, 31-50 ft		Depth, >50 ft	
	No.	Percent	No.	Percent	No.	Percent	No.	Percent
2	7	22	22	43	24	52	2	50
2-20	14	44	13	25	12	26	2	50
21-100	2	6	8	16	6	13	0	0
100 plus	9	28	8	16	4	9	0	0
Total	32	100	51	100	46	100	4	100

ASSESSMENT OF WATER-QUALITY PROBLEMS

A water-quality problem, as the term is used in this report, is defined as the degradation of some physical, chemical, and/or biological aspect of the water that adversely affects one or more of the stated beneficial uses. The Smith River basin is affected by several water-quality problems. Other water-quality problems that do not exist at present can be foreseen as potential problems. Beneficial uses are so broadly defined, however, that it is difficult to relate a specific water-quality problem to any one beneficial use.

TABLE 22. - Assessment of water-quality

[For each beneficial use: E, existing water-quality problem; P,

Beneficial use	Common water-quality			
	Water temperature	Suspended sediment	Dissolved solids	Dissolved oxygen
Municipal and domestic supply	O	P	P	O
Agricultural supply	O	P	O	O
Industrial process supply	O	P	O	O
Industrial service supply	O	P	O	O
Contact water recreation	O	P	O	O
Noncontact water recreation	O	P	O	O
Warm freshwater habitats	O	P	O	P
Cold freshwater habitats	P	E	O	P
Spawning	P	E	O	P
Wildlife habitat	O	P	O	O
Fish migration	O	P	O	O

For instance, some water-quality problems, such as excessively low dissolved oxygen, may impair the use of the stream for one beneficial use, such as spawning, but may have no effect on other beneficial uses, such as agricultural supply. Water-quality problems can result from natural causes, from man's activities, or from a combination of the two. The source of the problem determines, to a large extent, the corrective actions that can be taken. Stated beneficial uses of Smith River and tributaries and several of the more common water-quality problems found in surface waters are given in table 22. Also included in table 22 for each beneficial use is an indication as to whether the stated problem exists, has the potential to exist, or does not exist in the Smith River drainage basin.

problems in the Smith River drainage basin

potential water-quality problem; and 0, not a water-quality problem]

problems in surface water					
		Toxic substances			
Boron	Plant nutrients	Trace elements	Pesticides	Indicator bacteria	Floating suspended and settleable solids
0	0	P	P	P	P
0	0	0	0	0	0
0	0	0	0	0	P
0	0	0	0	0	0
0	0	0	0	P	P
0	0	0	0	P	P
0	0	P	P	0	P
0	0	P	P	0	P
0	0	P	P	0	P
0	0	P	P	0	0
0	0	0	0	0	E

Known and Potential Water-Quality Problems

The most significant water-quality problem in the Smith River drainage basin is the high sediment discharge that results from erosion and mass wasting. Sediments enter the Smith River and tributaries as a result of natural erosional processes that are further accelerated by man's activities. Most of the soils of the Smith River drainage basin have been classified with moderate to high erosion hazard ratings. Therefore, the drainage basin is highly susceptible to mass wasting. In addition to the unstable soils, the quantity and intensity of rainfall and the steep terrain are factors that influence the erosional processes occurring in the Smith River drainage basin.

The mean annual suspended-sediment discharge at Smith River near Crescent City was 378,300 tons per year and at South Fork Smith River near Crescent City, 227,400 tons per year during the period of record (1977 to 1979). Estimated suspended-sediment discharge from tributaries in the headwaters of the South Fork Smith River indicates that these drainage basins have a higher erosion potential than the tributary basins of the North and Middle Forks Smith River (California Department of Fish and Game, 1980).

High suspended-sediment discharges affect several beneficial uses. Irrigation is affected by the accumulation of fine sediment in conveyance systems. High suspended-sediment discharges are esthetically unappealing for contact and noncontact recreation. High sediment discharges may also affect aquatic habitats where sediment is deposited on the streambed and can cause deleterious effects to the aquatic biota of the streams. The effects of high suspended-sediment discharge on the fishery resource in the Smith River have not been specifically documented. North coast rivers in general, however, over the past three decades have shown declines in populations of chinook and coho salmon and steelhead trout. High suspended-sediment discharges are suspected to be a cause of the declines (California Department of Fish and Game, 1980).

Floating debris occurs throughout the basin, especially during the high runoff period. One of the major potential impacts is log and debris jams that create barriers to fish migration.

Bacterial contamination of the Smith River and tributaries is another existing water-quality problem. Most sewage is disposed of by individual septic-tank and drain field systems. Occasionally, drain fields have overloaded and caused localized problems. Concentrated recreational use in areas where sanitation facilities are not provided is another source of bacterial contamination. In particular, the lack of campsites encourages illegal camping at unauthorized sites which may create sanitation problems. Fecal coliform bacterial densities at Rowdy Creek at Mouth and Smith River downstream Rowdy Creek sampling stations exceeded the water-quality objectives for contact recreation. Grazing activity probably was the most significant source of contamination; other causes, however, such as urban runoff, the fish hatchery on Rowdy Creek, and dairy feedlots also may be considered as sources. In the Smith River Plain, the presence of permeable earth materials and a shallow water table increases the potential for bacterial contamination of domestic wells. Furthermore, there is the potential for contaminated ground water to infiltrate through the streambed to the Smith River in the localized areas where ground water moves toward the river.

Contamination by pesticides is considered a potential water-quality problem. As part of the reforestation program for cut-over areas, herbicides are used to reduce competition of hardwoods and brush with Douglas fir. Herbicides are not applied directly over waterways, and application guidelines have been established to eliminate or minimize impact to fisheries. Although pesticide monitoring has not been extensive to date, observed concentrations of pesticides in raw waters have not exceeded the maximum contamination levels for municipal and domestic supplies established by the California Regional Water Quality Control Board, North Coast Region.

Currently, water temperatures in the Smith River and tributaries have no adverse effects on the stated beneficial uses. Water temperatures are within the tolerance levels of the cold-water biota that inhabit the Smith River and tributaries. However, if land-use activities increase, such as timber harvest, slash burning, and mining, then there is the possibility that water temperatures can increase and exceed the tolerance levels of the cold-water biota.

Although occasional dissolved-oxygen concentrations in the Smith River and tributaries have not complied with the specific water-quality objectives, dissolved-oxygen concentrations generally do not appear to be at levels that would adversely affect beneficial uses. Continual inputs of organic materials such as logging debris and domestic wastes, and increases in primary productivity could result in high biochemical oxygen demand and the eventual decrease in dissolved-oxygen concentrations to levels that would adversely affect the aquatic biota.

The chemical quality of the waters analyzed from the Smith River drainage basin generally met the water-quality objectives. Specific conductance exceeded the water-quality objectives mostly during the 1976-77 drought period. Another potential problem is the possible contamination of the aquatic habitat by oil and grease and other chemical substances as the result of accidental spills along roads, especially Highway 199.

In parts of the Smith River Plain, iron concentrations as high as 9.7 mg/L have been measured in well water. High iron concentrations can create problems such as incrustation and corrosion of wells and plumbing, staining of laundry and plumbing fixtures, and unappealing taste and odor of water and beverages made with the water. Some wells also yield water with high nitrate, chloride, and dissolved-solids concentrations which generally indicate contamination from domestic wastes. In addition, increased withdrawals of ground water could lower the water table and cause seawater intrusion into the freshwater aquifers.

Causes of Potential Water-Quality Problems

Man's activities in the Smith River drainage basin such as timber harvest, roads, mining, grazing, and recreation have increased the sediment input and have contributed to the degradation of water quality of the Smith River and its tributaries. Timber harvesting has been the predominant land use in the drainage basin. Accelerated erosion induced by past timber-harvest activities was initiated because yarding operations (tractor yarding of clear-cut units, in particular) and access-road construction exposed large areas of bare soil, reduced the rainfall interception by vegetation, and altered the finer details of the natural drainage pattern. Increases in overland flow have accelerated fluvial-induced mass-movement processes along existing stream channels, skid trails and roadside ditches (Janda, 1976). Major improvements in forest practices over the last several years, however, have reduced the amount of ground-surface disruption.

Sedimentation from roads usually is the result of erosion from poorly located, designed, constructed, and maintained roads. Such roads often cause landslides, aggravate streambank erosion, disrupt drainage patterns, degrade scenic resources, and require costly maintenance or even costlier reconstruction (U.S. Department of Agriculture, 1972). In the Smith River drainage basin, the Middle Fork Smith River has been affected by the construction and maintenance of Highway 199, and the South Fork Smith River has been affected by the South Fork County Road. Construction and maintenance of both roads has caused landslides (removal of the toe of slides) and the eventual deposition of sediment into the river channel. In particular, the South Fork Smith River has periodically been completely dammed by materials from the large landslide (approximately 1 mi^2 in area) that occurs along the lower part of the river (fig. 7).

Gravel mining is occurring in lower Smith River from the mouth to about 14 mi upstream (California Department of Water Resources, 1974). This activity causes localized disturbance to the stream channels, including release of fine sediments to downstream habitat. The presence of gravel operations detracts from noncontact water recreation, a beneficial use. The impact of gravel mining on the fisheries is unknown.

Another source of water-quality impairment throughout the basin is the potential failure of individual treatment and waste disposal systems. Most of these systems are on the Smith River Plain in unincorporated areas around Crescent City. Occasional failures of individual waste disposal systems, however, have occurred in areas upstream from the Smith River Plain (California Department of Fish and Game, 1980).

Possible Future Water-Quality Problems

Cold-water habitat and recreation will probably continue to be the largest future use of Smith River water. The designation of the Smith River as a national wild and scenic river will attract more recreational users. For both cold-water habitat and recreational uses, sedimentation from natural and man-caused sources is the factor most degrading to water quality. Turbidity caused by suspended sediment is largely an esthetic nuisance for most contact and noncontact recreational activities. Increased recreational use along the Smith River may further aggravate problems associated with waste discharges, especially if proper sanitation facilities are not provided.

Past mining activities have been limited to small-scale extractions of metals such as chromium, copper, mercury, and gold. The California Regional Water Quality Control Board, North Coast Region compiled a list of the existing and potential problems related to mining activities that include contamination and toxicity from mercury and copper (table 23). Currently, there is a high level of mineral exploration activity in the Gasquet Mountain areas, primarily searching for sources of nickel, cobalt, and chromium. If future mining operations are allowed, possible leaching of trace elements and an increase in erosion and sedimentation of streams could occur. The absence of acid sulfide ores in the drainage basin, however, largely removes threat of acid mine-water discharge.

TABLE 23. - Known and potential problems related to mining activities, Smith River drainage basin

[Adapted from California Regional Water Quality Control Board, North Coast Region, 1975]

Mine	Known or potential problem	Affected stream
Webb	Mercury contamination and toxicity	West Fork of Patrick Creek
Big Boy	Mercury contamination and toxicity	North Fork of Diamond Creek (North Fork tributary)
French Hill Creek	Copper contamination and toxicity	French Gulch, Redwood Creek, Craigs Creek (South Fork tributaries)
Alta	Copper contamination and toxicity	Hardscrabble Creek, Smith River

FUTURE STUDIES

Known Monitoring Programs

At present, water-quality monitoring is being done at Smith River near Crescent City bimonthly by the U.S. Geological Survey and monthly by the California Department of Water Resources. The Survey's Smith River monitoring program is part of the National Stream Quality Accounting Network (NASQAN) which has the primary objectives (1) to account for the quantity and quality of water moving within and from the United States, (2) to depict areal variability, (3) to detect changes in stream quality, and (4) to lay the groundwork for future assessments of changes in stream quality (Ficke and Hawkinson, 1975). California Department of Water Resources' monitoring program is part of the State's surveillance and monitoring program established by the California State Water Resources Control Board in compliance with Public Law 92-500 (Federal Water Pollution Control Act Amendments of 1972). The California Department of Water Resources also is monitoring on a monthly basis ground-water-quality from selected wells located in the Smith River Plain.

Six Rivers National Forest is monitoring water quality from nine selected tributaries (table 5) on a monthly basis. The primary objective of this study is to establish baseline water-quality conditions (Chris Knopp, oral commun., 1981).

Study Needs

Study needs can be divided into two categories: Sustained long-term monitoring programs and short-term interpretive studies. The establishment of long-term trends of water-quality conditions and an indication of the bioaccumulation of toxic substances are the primary purposes of this monitoring. A suggested long-term monitoring program includes the establishment of five stations in the Smith River drainage basin: Smith River near Crescent City, South Fork Smith River near Crescent City, North Fork Smith River near Gasquet, Mill Creek near Crescent City, and Rowdy Creek at Smith River.

At these stations, the following information is needed: (1) Continuous measurements of water discharge, temperature, and specific conductance; (2) daily sediment discharge determinations; (3) monthly measurements of pH, alkalinity, dissolved-oxygen concentration and percentage saturation level, major-ion composition, major nutrient concentrations, bacterial densities, and size distribution of streambed materials; (4) quarterly measurements of pesticides and trace elements in water, streambed materials, and algal and fish tissue. Methods of sampling need to be well documented and consistent among collection agencies so that statistically valid trends can be established.

Special short-term interpretive studies are needed to determine sources of sediment, impacts of various land-use activities that accelerate erosional processes, sediment discharges, rates of stream-channel aggradation and degradation, and impacts of sediment on fishery resources. Quantitative studies need to focus on tributary basins with extensive existing or proposed land-use activities such as timber harvest, road construction, and mining. Design of these studies would allow the collection of sediment data before, during, and after the land cover in a basin is disturbed. At the same time, the impact of the activities on the fishery habitat could be delineated.

Other short-term interpretive studies that are needed include:

- Detailed hydrographic analysis of runoff (peak discharge) related to storm intensity and land-use activities from gaging stations with long-term records. This information would provide insight as to whether increases in storm intensities or man's activities have caused an increase in peak discharge over the last 49 years.

- Verification of Anderson's sediment model (California Department of Fish and Game, 1980) that estimated suspended-sediment yields from areas in the drainage basin.

Dissolved-oxygen, pH, and specific-conductance measurements did not always comply with specific water-quality objectives. To better establish the reasonableness of these objectives, the following studies are suggested:

- Measuring dissolved-oxygen concentration during low-flow diel periods below areas of land-use activities, measuring pH during high runoff periods, and measuring specific conductance during low-flow (drought) periods.

- Continuous 24-hour temperature and dissolved-oxygen monitoring of small tributary basins to determine effects of timber harvest, road construction, and mining activities. The data collection needs to take place before, during, and after ground-cover disruption.

- Studying the sources and magnitude of the bacterial contamination of Rowdy Creek, Smith River downstream Rowdy Creek, and wells in the Smith River Plain. This information could provide an evaluation of the potential contamination of the Smith River and tributaries most heavily used by boaters, swimmers, and campers.

- Reporting the impact of pesticide applications on the aquatic resources.

- Determining the extent and magnitude of trace-element contamination of water and toxicity to the aquatic biota as the result of mining activity.

Future studies need to be problem-oriented and designed to be flexible and detailed enough to respond to changing water-quality conditions in the Smith River drainage basin. The suggested long-term monitoring program is designed to provide a broad coverage of water-quality conditions; whereas, interpretive studies are problem-oriented.

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SUPPLEMENTAL DATA

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)

U.S. GEOLOGICAL SURVEY

11530870 Siskiyou Fork near Gasquet

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	9	8.50000	2.18750	1.47902	.174002	.493007	10.0000	6.00000	77/12/14	78/03/23
00061	STREAM	FLOW.	INST-CFS	10	663.500	748796	865.330	1.30419	273.641	2430.00	107.000	77/12/14	78/03/23
70331	SUSP SED	PARTSIZE	%<.062MM	10	51.5000	81.1667	9.00925	.174937	2.84898	61.0000	32.0000	77/12/14	78/03/23
70332	SUSP SED	PARTSIZE	%<.125MM	2	46.5000	112.500	10.6066	.228099	7.50000	54.0000	39.0000	77/12/14	77/12/14
70333	SUSP SED	PARTSIZE	%<.250MM	2	58.5000	180.500	13.4350	.229659	9.50000	68.0000	49.0000	77/12/14	77/12/14
70334	SUSP SED	PARTSIZE	%<.500MM	2	74.0000	200.000	14.1421	.191110	10.0000	84.0000	64.0000	77/12/14	77/12/14
70335	SUSP SED	PARTSIZE	%<1.00MM	2	89.0000	98.0000	9.89949	.111230	7.00000	96.0000	82.0000	77/12/14	77/12/14
70336	SUSP SED	PARTSIZE	%<2.00MM	2	99.5000	.500000	.707107	.007107	.500000	100.000	99.0000	77/12/14	77/12/14
70337	SUSP SED	PARTSIZE	%<.002MM	2	8.50000	4.50000	2.12132	.249567	1.50000	10.0000	7.00000	77/12/14	77/12/14
70338	SUSP SED	PARTSIZE	%<.004MM	2	12.0000	8.00000	2.82843	.235702	2.00000	14.0000	10.0000	77/12/14	77/12/14
70339	SUSP SED	PARTSIZE	%<.008MM	2	19.0000	18.0000	4.24264	.223297	3.00000	22.0000	16.0000	77/12/14	77/12/14
70340	SUSP SED	PARTSIZE	%<.016MM	2	26.5000	40.5000	6.36396	.240149	4.50000	31.0000	22.0000	77/12/14	77/12/14
70341	SUSP SED	PARTSIZE	%<.031MM	2	33.5000	60.5000	7.77817	.232184	5.50000	39.0000	28.0000	77/12/14	77/12/14
80154	SUSP SED	CONC	MG/L	10	265.400	315833	561.990	2.11752	177.717	1570.00	2.00000	77/12/14	78/03/23
80155	SUSP SED	DISCHARG	TONS/DAY	10	1585.22	.113E+08	3369.87	2.12561	1065.64	8990.00	.580000	77/12/14	78/03/23

11531000 Middle Fork Smith River at Gasquet

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	10	10.0500	1.46948	1.21222	.120619	.383338	12.0000	8.00000	77/12/13	78/03/30
00061	STREAM	FLOW.	INST-CFS	10	2269.30	.122E+08	3499.43	1.54207	1106.62	11900.0	535.000	77/12/13	78/03/30
70331	SUSP SED	PARTSIZE	%<.062MM	10	60.8000	103.514	10.1742	.167338	3.21736	71.0000	43.0000	77/12/13	78/03/30
70332	SUSP SED	PARTSIZE	%<.125MM	1	59.0000					59.0000	59.0000	77/12/13	77/12/13
70333	SUSP SED	PARTSIZE	%<.250MM	1	72.0000					72.0000	72.0000	77/12/13	77/12/13
70334	SUSP SED	PARTSIZE	%<.500MM	1	86.0000					86.0000	86.0000	77/12/13	77/12/13
70335	SUSP SED	PARTSIZE	%<1.00MM	1	95.0000					95.0000	95.0000	77/12/13	77/12/13
70336	SUSP SED	PARTSIZE	%<2.00MM	1	100.000					100.000	100.000	77/12/13	77/12/13
70337	SUSP SED	PARTSIZE	%<.002MM	1	21.0000					21.0000	21.0000	77/12/13	77/12/13
70338	SUSP SED	PARTSIZE	%<.004MM	1	24.0000					24.0000	24.0000	77/12/13	77/12/13
70339	SUSP SED	PARTSIZE	%<.008MM	1	31.0000					31.0000	31.0000	77/12/13	77/12/13
70340	SUSP SED	PARTSIZE	%<.016MM	1	38.0000					38.0000	38.0000	77/12/13	77/12/13
70341	SUSP SED	PARTSIZE	%<.031MM	1	44.0000					44.0000	44.0000	77/12/13	77/12/13
80154	SUSP SED	CONC	MG/L	10	82.4000	55117.8	234.772	2.84917	74.2414	750.000	3.00000	77/12/13	78/03/30
80155	SUSP SED	DISCHARG	TONS/DAY	10	2453.65	.578E+08	7606.41	3.10004	2405.36	24100.0	4.30000	77/12/13	78/03/30

11531750 HurdyGurdy Creek near Big Flat

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	10	8.80000	1.90004	1.37842	.156638	.435894	11.5000	6.00000	77/12/13	78/03/30
00061	STREAM	FLOW.	INST-CFS	10	380.300	135425	368.001	.967661	116.372	1330.00	115.000	77/12/13	78/03/30
70331	SUSP SED	PARTSIZE	%<.062MM	10	72.1000	238.325	15.4378	.214116	4.88185	100.000	50.0000	77/12/13	78/03/30
70332	SUSP SED	PARTSIZE	%<.125MM	1	73.0000					73.0000	73.0000	77/12/13	77/12/13
70333	SUSP SED	PARTSIZE	%<.250MM	1	83.0000					83.0000	83.0000	77/12/13	77/12/13
70334	SUSP SED	PARTSIZE	%<.500MM	1	92.0000					92.0000	92.0000	77/12/13	77/12/13
70335	SUSP SED	PARTSIZE	%<1.00MM	1	97.0000					97.0000	97.0000	77/12/13	77/12/13
70336	SUSP SED	PARTSIZE	%<2.00MM	1	100.000					100.000	100.000	77/12/13	77/12/13
80154	SUSP SED	CONC	MG/L	10	16.2000	1774.40	42.1236	2.60022	13.3207	136.000	1.00000	77/12/13	78/03/30
80155	SUSP SED	DISCHARG	TONS/DAY	10	51.2229	23559.4	153.491	2.99653	48.5381	488.000	.310000	77/12/13	78/03/30

11531800 South Fork Smith River at Big Flat

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	10	9.40000	2.82227	1.67996	.178719	.531250	12.5000	7.00000	77/12/15	78/03/30
00061	STREAM	FLOW.	INST-CFS	10	3400.40	.198E+08	4450.84	1.30892	1407.48	15200.0	984.000	77/12/15	78/03/30
70331	SUSP SED	PARTSIZE	%<.062MM	10	65.4000	225.602	15.0201	.229665	4.74976	85.0000	42.0000	77/12/15	78/03/30
70332	SUSP SED	PARTSIZE	%<.125MM	1	50.0000					50.0000	50.0000	77/12/15	77/12/15
70333	SUSP SED	PARTSIZE	%<.250MM	1	63.0000					63.0000	63.0000	77/12/15	77/12/15
70334	SUSP SED	PARTSIZE	%<.500MM	1	76.0000					76.0000	76.0000	77/12/15	77/12/15
70335	SUSP SED	PARTSIZE	%<1.00MM	1	90.0000					90.0000	90.0000	77/12/15	77/12/15
70336	SUSP SED	PARTSIZE	%<2.00MM	1	100.000					100.000	100.000	77/12/15	77/12/15
70337	SUSP SED	PARTSIZE	%<.002MM	1	12.0000					12.0000	12.0000	77/12/15	77/12/15
70338	SUSP SED	PARTSIZE	%<.004MM	1	16.0000					16.0000	16.0000	77/12/15	77/12/15
70339	SUSP SED	PARTSIZE	%<.008MM	1	23.0000					23.0000	23.0000	77/12/15	77/12/15
70340	SUSP SED	PARTSIZE	%<.016MM	1	31.0000					31.0000	31.0000	77/12/15	77/12/15
70341	SUSP SED	PARTSIZE	%<.031MM	1	37.0000					37.0000	37.0000	77/12/15	77/12/15
80154	SUSP SED	CONC	MG/L	10	99.6000	60800.2	246.577	2.47071	77.9745	786.000	3.00000	77/12/15	78/03/30
80155	SUSP SED	DISCHARG	TONS/DAY	10	3544.64	.102E+09	10144.2	2.86183	3207.86	32300.0	8.00000	77/12/15	78/03/30

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

U.S. GEOLOGICAL SURVEY

11531900 South Fork Smith River near Big Flat

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	10	9.30000	1.45559	1.20648	.129729	.381523	11.5000	8.00000	77/12/15	78/03/30
00061	STREAM	FLOW,	INST-CFS	10	3981.20	.243E+08	4932.16	1.23886	1559.69	16800.0	982.000	77/12/15	78/03/30
70331	SUSP SED	PARTSIZE	%<.062MM	10	59.7000	256.013	16.0004	.268014	5.05977	81.0000	35.0000	77/12/15	78/03/30
70332	SUSP SED	PARTSIZE	%<.125MM	1	47.0000					47.0000	47.0000	77/12/15	77/12/15
70333	SUSP SED	PARTSIZE	%<.250MM	1	57.0000					57.0000	57.0000	77/12/15	77/12/15
70334	SUSP SED	PARTSIZE	%<.500MM	1	69.0000					69.0000	69.0000	77/12/15	77/12/15
70335	SUSP SED	PARTSIZE	%<1.00MM	1	79.0000					79.0000	79.0000	77/12/15	77/12/15
70336	SUSP SED	PARTSIZE	%<2.00MM	1	86.0000					86.0000	86.0000	77/12/15	77/12/15
70337	SUSP SED	PARTSIZE	%<.002MM	1	13.0000					13.0000	13.0000	77/12/15	77/12/15
70338	SUSP SED	PARTSIZE	%<.004MM	1	18.0000					18.0000	18.0000	77/12/15	77/12/15
70339	SUSP SED	PARTSIZE	%<.008MM	1	24.0000					24.0000	24.0000	77/12/15	77/12/15
70340	SUSP SED	PARTSIZE	%<.016MM	1	31.0000					31.0000	31.0000	77/12/15	77/12/15
70341	SUSP SED	PARTSIZE	%<.031MM	1	36.0000					36.0000	36.0000	77/12/15	77/12/15
80154	SUSP SED	CONC	MG/L	10	103.500	51385.8	226.684	2.19019	71.6839	694.000	2.00000	77/12/15	78/03/30
80155	SUSP SED	DISCHARG	TONS/DAY	10	3804.08	.985E+08	9926.79	2.60951	3139.13	31500.0	6.80000	77/12/15	78/03/30

11532000 South Fork Smith River near Crescent City

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00004	STREAM	WIDTH	FEET	3	153.333	58.4062	7.64240	.049842	4.41234	160.000	145.000	77/11/23	78/02/08
00010	WATER	TEMP	CENT	15	10.0333	6.30240	2.51046	.250212	.648198	18.5000	8.00000	77/08/17	78/02/08
00061	STREAM	FLOW,	INST-CFS	15	12281.0	.492E+08	7015.58	.571255	1811.42	23600.0	105.000	77/08/17	78/02/08
00063	NO. OF	SAMPLING	POINTS	3	7.33333	.333397	.577405	.078737	.333365	8.00000	7.00000	77/11/23	78/02/08
00095	CNDUCTVY	AT 25C	MICROMHO	1	170.000					170.000	170.000	77/08/17	77/08/17
00300	DO		MG/L	1	9.30000					9.30000	9.30000	77/08/17	77/08/17
00400	PH		SU	1	8.20000					8.20000	8.20000	77/08/17	77/08/17
00405	CO2		MG/L	1	.900000					.900000	.900000	77/08/17	77/08/17
00410	T ALK	CACO3	MG/L	1	73.9999					73.9999	73.9999	77/08/17	77/08/17
00440	HCO3 ION	HCO3	MG/L	1	89.9999					89.9999	89.9999	77/08/17	77/08/17
00445	CO3 ION	CO3	MG/L	1	.000000					.000000	.000000	77/08/17	77/08/17
00631	NO2&NO3	N-DISS	MG/L	1	.000000					.000000	.000000	77/08/17	77/08/17
00900	TOT HARD	CACO3	MG/L	1	78.0000					78.0000	78.0000	77/08/17	77/08/17
00902	NC HARD	CACO3	MG/L	1	4.00000					4.00000	4.00000	77/08/17	77/08/17
00915	CALCIUM	CA,DISS	MG/L	1	13.0000					13.0000	13.0000	77/08/17	77/08/17
00925	MGNSIUM	MG,DISS	MG/L	1	11.0000					11.0000	11.0000	77/08/17	77/08/17
00930	SODIUM	NA,DISS	MG/L	1	2.50000					2.50000	2.50000	77/08/17	77/08/17
00931	SODIUM	ADSRTION	RATIO	1	.100000					.100000	.100000	77/08/17	77/08/17
00932	PERCENT	SODIUM	%	1	7.00000					7.00000	7.00000	77/08/17	77/08/17
00935	PTSSIUM	K,DISS	MG/L	1	.500000					.500000	.500000	77/08/17	77/08/17
00940	CHLORIDE	CL	MG/L	1	2.60000					2.60000	2.60000	77/08/17	77/08/17
00945	SULFATE	SO4-TOT	MG/L	1	5.00000					5.00000	5.00000	77/08/17	77/08/17
00950	FLUORIDE	F,DISS	MG/L	1	.000000					.000000	.000000	77/08/17	77/08/17
00955	SILICA	DISOLVED	MG/L	1	12.0000					12.0000	12.0000	77/08/17	77/08/17
01020	BORON	B,DISS	UG/L	1	10.0000					10.0000	10.0000	77/08/17	77/08/17
01046	IRON	FE,DISS	UG/L	1	20.0000					20.0000	20.0000	77/08/17	77/08/17
70301	DISS SOL	SUM	MG/L	1	91.0000					91.0000	91.0000	77/08/17	77/08/17
70302	DISS SOL	TONS/DAY		1	25.8000					25.8000	25.8000	77/08/17	77/08/17
70303	DISS SOL	TONS PER	ACRE-FT	1	.120000					.120000	.120000	77/08/17	77/08/17
70331	SUSP SED	PARTSIZE	%<.062MM	11	51.8182	171.765	13.1059	.252921	3.95158	79.0000	32.0000	77/11/21	78/02/03
70332	SUSP SED	PARTSIZE	%<.125MM	11	61.4545	161.675	12.7151	.206903	3.83376	87.0000	42.0000	77/11/21	78/02/03
70333	SUSP SED	PARTSIZE	%<.250MM	11	75.3636	111.057	10.5384	.139833	3.17743	96.0000	60.0000	77/11/21	78/02/03
70334	SUSP SED	PARTSIZE	%<.500MM	11	90.0909	29.3000	5.41295	.060083	1.63206	99.0000	79.0000	77/11/21	78/02/03
70335	SUSP SED	PARTSIZE	%<1.00MM	11	98.1818	2.96875	1.72301	.017549	.519506	100.000	94.0000	77/11/21	78/02/03
70336	SUSP SED	PARTSIZE	%<2.00MM	9	100.000	.000000	.000000		.000000	100.000	100.000	77/11/21	78/02/03
70337	SUSP SED	PARTSIZE	%<.002MM	6	17.3333	20.6669	4.54608	.262274	1.85593	24.0000	10.0000	77/11/21	77/11/24
70338	SUSP SED	PARTSIZE	%<.004MM	6	23.3333	37.4670	6.12103	.262330	2.49890	34.0000	15.0000	77/11/21	77/11/24
70339	SUSP SED	PARTSIZE	%<.008MM	6	32.6667	72.6680	8.52455	.260956	3.48013	48.0000	22.0000	77/11/21	77/11/24
70340	SUSP SED	PARTSIZE	%<.016MM	6	42.0000	118.000	10.8628	.258636	4.43471	62.0000	30.0000	77/11/21	77/11/24
70341	SUSP SED	PARTSIZE	%<.031MM	6	50.5000	143.500	11.9791	.237211	4.89047	72.0000	37.0000	77/11/21	77/11/24
80154	SUSP SED	CONC	MG/L	11	427.000	90334.3	300.557	.703880	90.6213	1190.00	110.000	77/11/21	78/02/03
80155	SUSP SED	DISCHARG	TONS/DAY	11	20968.2	.452E+09	21264.5	1.01413	6411.47	75800.0	1980.00	77/11/21	78/02/03
80225	BEDLOAD	DISCHARG	TONS/DAY	3	740.000	803071	896.142	1.21100	517.388	1770.00	139.000	77/11/23	78/02/08
80227	BEDLOAD	PARTSIZE	%<.125MM	2	.000000	.000000	.000000		.000000	.000000	.000000	77/11/23	78/02/08
80228	BEDLOAD	PARTSIZE	%<.250MM	3	1.00000	1.00000	1.00000	1.00000	.577350	2.00000	.000000	77/11/23	78/02/08
80229	BEDLOAD	PARTSIZE	%<.500MM	3	10.6667	66.3335	8.14454	.763550	4.70225	20.0000	5.00000	77/11/23	78/02/08
80230	BEDLOAD	PARTSIZE	%<1.00MM	3	28.3333	37.3339	6.11014	.215652	3.52769	35.0000	23.0000	77/11/23	78/02/08
80231	BEDLOAD	PARTSIZE	%<2.00MM	3	57.3333	702.336	26.5016	.462238	15.3007	87.0000	36.0000	77/11/23	78/02/08
80232	BEDLOAD	PARTSIZE	%<4.00MM	3	70.0000	481.000	21.9317	.313310	12.6623	94.0000	51.0000	77/11/23	78/02/08
80233	BEDLOAD	PARTSIZE	%<8.00MM	3	82.3333	197.336	14.0476	.170619	8.11040	97.0000	69.0000	77/11/23	78/02/08
80234	BEDLOAD	PARTSIZE	%<16.0MM	3	93.0000	31.0000	5.56776	.059866	3.21455	98.0000	87.0000	77/11/23	78/02/08
80235	BEDLOAD	PARTSIZE	%<32.0MM	3	98.6667	5.34766	2.31250	.023437	1.33512	100.000	96.0000	77/11/23	78/02/08
80236	BEDLOAD	PARTSIZE	%<64.0MM	1	100.000					100.000	100.000	77/11/23	77/11/23

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

U.S. GEOLOGICAL SURVEY

11532500 Smith River near Crescent City

PARAMETER			NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010 WATER	TEMP	CENT	184	12.1570	24.4002	4.93965	.406323	.364156	24.0000	3.30000	56/02/01	80/08/26
00022 LENGTH	OF EXPOS	URE-DAYS	10	27.6000	33.3767	5.77726	.209321	1.82693	34.0000	16.0000	78/05/11	79/09/26
00027 COLLECT	AGENCY	CODE	46	9815.97	273.067	16.5247	.001683	2.43644	9816.00	9815.98	74/10/02	76/08/07
00028 ANALYZE	AGENCY	CODE	76	37525.6	.119E+10	34540.1	.920442	3962.02	80020.0	9815.98	74/10/02	80/08/26
00060 STREAM	FLOW	CFS	268	5598.96	.922E+08	9603.82	1.71529	586.646	66300.0	174.000	51/10/14	78/09/22
00061 STREAM	FLOW,	INST-CFS	143	6913.69	.186E+09	13669.3	1.97713	1143.08	71800.0	205.000	71/10/19	80/08/26
00070 TURB	JKSN	JTU	69	8.68106	761.424	27.5939	3.17863	3.32192	200.000	.000000	71/10/19	77/09/19
00075 TURB	HLGE	PPM SIO2	38	24.1315	3008.97	54.8540	2.27313	8.89850	290.000	.000000	68/10/01	72/02/07
00076 TURB	TRBIDMTR	HACH FTU	54	1.83333	15.2652	3.90707	2.13113	.531686	22.0000	.000000	77/10/11	80/08/26
00095 CNDUCTVY	AT 25C	MICROMHO	353	111.193	749.477	27.3766	.246208	1.45711	193.000	62.9999	51/10/14	80/08/26
00300 DO		MG/L	173	11.3756	1.99982	1.41415	.124314	.107516	14.2000	8.89999	67/10/03	80/08/26
00301 DO	SATUR	PERCENT	14	104.857	12.9087	3.59286	.034264	.960233	110.000	98.0000	78/10/02	80/05/28
00400 PH		SU	350	7.77861	.109465	.330854	.042534	.017685	8.50000	6.60000	51/10/14	80/08/26
00405 CO2		MG/L	120	2.71997	5.11700	2.26208	.831657	.206499	21.0000	.400000	51/10/14	80/01/24
00410 T ALK	CACO3	MG/L	197	50.6497	178.128	13.3465	.263505	.950897	130.000	30.0000	51/10/14	80/08/26
00440 HCO3 ION	HCO3	MG/L	252	61.8766	250.305	15.8210	.255687	.996632	105.000	36.0000	51/10/14	78/04/26
00445 CO3 ION	CO3	MG/L	157	.121019	.517312	.719244	5.94323	.057402	8.00000	.000000	60/10/12	78/04/26
00572 BIOMASS	PERPHYTN	G/SQ M	13	1.85946	2.63968	1.62471	.873752	.450613	5.75000	.079000	78/05/11	80/07/25
00573 BIOMASS	PERPHYTN	DW G/M2	13	2.64661	3.98435	1.99734	.754676	.553961	6.14000	.236000	78/05/11	80/07/25
00600 TOTAL N	N	MG/L	31	.363226	.335316	.579065	1.59423	.104003	3.30000	.030000	78/01/24	80/08/26
00602 DISS.	NITROGEN	MG/L N	12	.364167	.031700	.178044	.488907	.051397	.780001	.110000	79/09/26	80/08/26
00605 ORG N	N	MG/L	31	.273548	.091017	.301690	1.10288	.054185	1.50000	.000000	78/01/24	80/08/26
00607 ORG N	DISS-N	MG/L	11	.343636	.038506	.196229	.571037	.059165	.770001	.050000	79/10/24	80/08/26
00608 NH3+NH4-	N DISS	MG/L	11	.011818	.000136	.011678	.988097	.003521	.030000	.000000	79/10/24	80/08/26
00610 NH3+NH4-	N TOTAL	MG/L	32	.015312	.000490	.022141	1.44594	.003914	.090000	.000000	78/01/24	80/08/26
00618 NO3-N	DISS	MG/L	1	.010000					.010000	.010000	76/04/06	76/04/06
00620 NO3-N	TOTAL	MG/L	3	.010000	.000100	.010000	1.00000	.005773	.020000	.000000	73/11/14	75/04/15
00623 KJELDL N	DISS	MG/L	30	.217667	.033329	.182562	.838723	.033331	.770001	.010000	78/01/24	80/08/26
00624 KJELDL N	SUSP	MG/L	31	.103226	.073076	.270325	2.61878	.048552	1.50000	.000000	78/01/24	80/08/26
00625 TOT KJEL	N	MG/L	34	.262647	.087693	.296130	1.12748	.050786	1.50000	.000000	74/04/02	80/08/26
00630 NO2&NO3	N-TOTAL	MG/L	32	.073125	.099519	.315466	4.31407	.055767	1.80000	.000000	78/01/24	80/08/26
00631 NO2&NO3	N-DISS	MG/L	12	.016667	.000315	.017753	1.06515	.005125	.060000	.000000	79/09/26	80/08/26
00650 T PO4	PO4	MG/L	4	.062500	.001425	.037749	.603990	.018875	.100000	.030000	67/05/09	79/06/26
00660 ORTHOPO4	PO4	MG/L	2	.015000	.000450	.021213	1.41421	.015000	.030000	.000000	74/04/02	76/04/06
00665 PHOS-TOT		MG/L P	35	.019429	.000870	.029500	1.51838	.004986	.170000	.000000	74/04/02	80/08/26
00666 PHOS-DIS		MG/L P	32	.014687	.000110	.010468	.712707	.001850	.050000	.000000	78/01/24	80/08/26
00671 PHOS-DIS	ORTHO	MG/L P	2	.005000	.000050	.007071	1.41421	.005000	.010000	.000000	74/04/02	76/04/06
00680 T ORG C	C	MG/L	22	1.50909	1.90183	1.37907	.913841	.294018	6.60000	.300000	78/01/24	80/08/26
00681 D ORG C	C	MG/L	10	4.94000	120.000	10.9545	2.21750	3.46411	36.0000	.700000	78/03/22	80/06/25
00689 S ORG C	C	MG/L	10	.250000	.029445	.171594	.686379	.054263	.600000	.100000	78/04/26	80/06/25
00900 TOT HARD	CACO3	MG/L	280	53.8316	193.447	13.9085	.258371	.831193	96.0000	31.0000	51/10/14	80/08/26
00902 NC HARD	CACO3	MG/L	268	3.08582	12.0263	3.46790	1.12382	.211835	36.0000	.000000	51/10/14	80/08/26
00915 CALCIUM	CA,DISS	MG/L	121	6.46358	4.89844	2.21324	.342417	.201204	17.0000	2.60000	52/05/22	80/08/26
00925 MGNSIUM	MG,DISS	MG/L	121	9.06524	5.34577	2.31209	.255050	.210190	14.0000	4.80000	52/05/22	80/08/26
00930 SODIUM	NA,DISS	MG/L	279	2.15298	.514721	.717441	.333231	.042952	6.50000	.600000	51/10/14	80/08/26
00931 SODIUM	ADSRTION	RATIO	267	.116100	.002109	.045920	.395519	.002810	.400000	.499E-06	51/10/14	80/08/26
00932 PERCENT	SODIUM	%	128	8.60937	12.3029	3.50755	.407410	.310026	26.0000	5.00000	52/05/22	80/08/26
00933 NA+K		MG/L	11	2.46363	.250560	.500560	.203179	.150924	3.20000	1.80000	79/04/25	80/02/22
00935 PTSSIUM	K,DISS	MG/L	118	.332200	.038785	.196938	.592830	.018130	1.00000	.000000	52/05/22	80/08/26
00940 CHLORIDE	CL	MG/L	279	2.58918	1.16124	1.07761	.416198	.064515	7.50000	.000000	51/10/14	80/08/26
00945 SULFATE	SO4-TOT	MG/L	76	3.69341	4.46146	2.11222	.571888	.242288	9.00000	.000000	52/05/22	80/06/26
00950 FLUORIDE	F,DISS	MG/L	57	.036842	.003440	.058650	1.59194	.007768	.200000	.000000	52/05/22	80/08/26
00955 SILICA	DISOLVED	MG/L	63	13.6190	5.59463	2.36530	.173676	.297999	27.0000	10.0000	52/05/22	80/08/26
01000 ARSENIC	AS,DISS	UG/L	11	.636364	.654546	.809040	1.27135	.243935	2.00000	.000000	71/05/04	80/06/25
01001 ARSENIC	AS,SUSP	UG/L	7	.142857	1.14286	1.06904	7.48332	.404061	1.00000	-.200E+01	78/04/26	80/06/25
01002 ARSENIC	AS,TOT	UG/L	10	.800000	1.06667	1.03280	1.29099	.326599	3.00000	.000000	78/04/26	80/06/25
01005 BARIUM	BA,DISS	UG/L	11	15.2727	829.818	28.8066	1.88614	8.68551	100.000	.000000	71/05/04	80/06/25
01006 BARIUM	BA,SUSP	UG/L	10	39.0000	4765.55	69.0330	1.77008	21.8301	200.000	.000000	78/04/26	80/06/25
01007 BARIUM	BA,TOT	UG/L	10	50.0000	7222.22	84.9836	1.69967	26.8742	200.000	.000000	78/04/26	80/06/25
01020 BORON	B,DISS	UG/L	240	16.5000	1463.01	38.2493	2.31815	2.46898	200.000	.000000	52/05/22	77/09/19
01025 CADMIUM	CD,DISS	UG/L	11	.818182	.363636	.603023	.737028	.181818	2.00000	.000000	71/05/04	80/06/25
01026 CADMIUM	CD,SUSP	UG/L	9	1.00000	5.50000	2.34521	2.34521	.781736	7.00000	.000000	78/04/26	80/03/26
01027 CADMIUM	CD,TOT	UG/L	13	1.23077	4.69231	2.16617	1.76002	.600788	8.00000	.000000	74/04/02	80/06/25
01030 CHROMIUM	CR,DISS	UG/L	10	2.50000	18.0555	4.24918	1.69967	1.34371	10.0000	.000000	78/04/26	80/06/25
01031 CHROMIUM	CR,SUSP	UG/L	10	10.5000	80.2778	8.95979	.853313	2.83333	20.0000	.000000	78/04/26	80/06/25
01034 CHROMIUM	CR,TOT	UG/L	10	13.0000	45.5555	6.74948	.519191	2.13437	20.0000	.000000	78/04/26	80/06/25
01035 COBALT	CO,DISS	UG/L	10	1.90000	2.10000	1.44914	.762705	.458258	3.00000	.000000	78/04/26	80/06/25
01036 COBALT	CO,SUSP	UG/L	9	.000000	.000000	.000000		.000000	.000000	.000000	78/04/26	80/03/26
01037 COBALT	CO,TOTAL	UG/L	10	.300000	.455556	.674949	2.24983	.213437	2.00000	.000000	78/04/26	80/06/25
01040 COPPER	CU,DISS	UG/L	10	.700000	.677778	.823273	1.17610	.260342	2.00000	.000000	78/04/26	80/06/25
01041 COPPER	CU,SUSP	UG/L	10	4.90000	35.2111	5.93389	1.21100	1.87646	19.0000	.000000	78/04/26	80/06/25
01042 COPPER	CU,TOT	UG/L	13	5.07692	31.9102	5.64891	1.11266	1.56673	19.0000	.000000	74/04/02	80/06/25
01044 IRON	FE,SUSP	UG/L	7	65.7143	4861.91	69.7274	1.06107	26.3545	200.000	10.0000	78/06/23	80/03/26
01045 IRON	FE,TOT	UG/L	12	507.499	2096389	1447.89	2.85300	417.970	5099.99	10.0000	74/04/02	80/06/25
01046 IRON	FE,DISS	UG/L	30	9.99999	158.621	12.5945	1.25945	2.29942	40.0000	.000000	52/05/22	80/06/25
01049 LEAD	PB,DISS	UG/L	10	3.60000	25.8222	5.08156	1.41154	1.60693	14.0000	.000000	71/05/04	80/06/25
01050 LEAD	PB,SUSP	UG/L	10	14.3000	487.566	22.0809	1.54412	6.98259	71.0000	.000000	78/04/26	80/06/25
01051 LEAD	PB,TOT	UG/L	13	16.6923	362.397	19.0367	1.14045	5.27984	71.0000	.000000	74/04/02	80/06/25
01054 MANGNESE	MN,SUSP	UG/L	10	7.80000	239.289	15.4690	1.98320	4.89172	50.0000	.000000	78/04/26	80/06/25

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

U.S. GEOLOGICAL SURVEY

11532500 Smith River near Crescent City (continued)

PARAMETER			NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
01055 MANGNESE	MN	UG/L	12	10.00000	290.909	17.0560	1.70560	4.92366	50.0000	.000000	74/04/02	80/06/25
01056 MANGNESE	MN.DISS	UG/L	11	.727273	.818182	.904534	1.24373	.272727	3.00000	.000000	76/04/06	80/06/25
01065 NICKEL	NI.DISS	UG/L	3	6.33333	.333389	.577399	.091168	.333361	7.00000	6.00000	79/12/19	80/06/25
01066 NICKEL	NI.SUSP	UG/L	3	4.00000	9.00000	3.00000	.750000	1.73205	7.00000	1.00000	79/12/19	80/06/25
01067 NICKEL	NI.TOTAL	UG/L	3	10.3333	6.33350	2.51664	.243546	1.45298	13.0000	8.00000	79/12/19	80/06/25
01075 SILVER	AG.DISS	UG/L	10	.000000	.000000	.000000		.000000	.000000	.000000	78/04/26	80/06/25
01076 SILVER	AG.SUSP	UG/L	10	.000000	.000000	.000000		.000000	.000000	.000000	78/04/26	80/06/25
01077 SILVER	AG.TOT	UG/L	14	.071429	.071429	.267261	3.74166	.071429	1.00000	.000000	78/04/26	80/08/26
01090 ZINC	ZN.DISS	UG/L	10	4.10000	12.1000	3.47851	.848416	1.10000	10.0000	.000000	78/04/26	80/06/25
01091 ZINC	ZN.SUSP	UG/L	9	18.4444	421.778	20.5372	1.11346	6.84574	70.0000	.000000	78/04/26	80/03/26
01092 ZINC	ZN.TOT	UG/L	13	18.4615	280.769	16.7562	.907626	4.64732	70.0000	.000000	74/04/02	80/06/25
01145 SELENIUM	SE.DISS	UG/L	11	.000000	.000000	.000000		.000000	.000000	.000000	71/05/04	80/06/25
01146 SELENIUM	SE.SUSP	UG/L	10	.000000	.000000	.000000		.000000	.000000	.000000	78/04/26	80/06/25
01147 SELENIUM	SE.TOT	UG/L	10	.000000	.000000	.000000		.000000	.000000	.000000	78/04/26	80/06/25
01515 ALPHA-D	AS U-NAT	PC/L	1	.500000					.500000	.500000	79/06/26	79/06/26
01516 ALPHA-S	AS U-NAT	PC/L	1	.300000					.300000	.300000	79/06/26	79/06/26
03515 BETA-D	AS CS137	PC/L	3	.466666	.013334	.115473	.247442	.066668	.600000	.400000	78/06/23	79/06/26
03516 BETA-S	AS CS137	PC/L	2	.400000	-.596E-07	.000000		.000000	.400000	.400000	78/12/20	79/06/26
09511 RA-226-D	RADON MT	PC/L	3	.036667	.000233	.015275	.416598	.008819	.050000	.020000	78/06/23	79/06/26
31625 FEC COLI	M-FCAGAD	/100 ML	21	7.28571	186.614	13.6607	1.87499	2.98100	61.0000	.999999	78/01/24	79/09/26
31673 FECSTREP	MFKFAGAR	/100ML	21	8.90476	249.489	15.7952	1.77380	3.44680	65.0000	1.00000	78/01/24	79/09/26
60050 ALGAE	TOTAL	/ML	17	152.588	91562.4	302.593	1.98307	73.3895	1300.00	.000000	78/03/22	80/07/25
70300 RESIDUE	DISS-180	C MG/L	42	65.7380	327.419	18.0947	.275255	2.79208	146.000	38.0000	68/05/07	80/08/26
70301 DISS SOL	SUM	MG/L	63	70.7936	219.460	14.8142	.209259	1.86641	118.000	48.9999	52/05/22	80/08/26
70302 DISS SOL	TONS/DAY		60	392.376	291913	540.290	1.37697	69.7511	2980.00	47.8000	52/05/22	80/08/26
70303 DISS SOL	TONS PER	ACRE-FT	72	.093611	.000604	.024571	.262479	.002896	.200000	.050000	52/05/22	80/08/26
70331 SUSP SED	PARTSIZE	%<.062MM	14	57.9286	101.766	10.0879	.174144	2.69611	73.0000	33.0000	77/11/21	78/02/03
70332 SUSP SED	PARTSIZE	%<.125MM	8	65.7500	151.071	12.2911	.186937	4.34556	83.0000	43.0000	77/11/21	78/02/03
70333 SUSP SED	PARTSIZE	%<.250MM	8	79.5000	114.571	10.7038	.134639	3.78437	93.0000	60.0000	77/11/21	78/02/03
70334 SUSP SED	PARTSIZE	%<.500MM	8	91.8750	31.2678	5.59177	.060863	1.97699	99.0000	84.0000	77/11/21	78/02/03
70335 SUSP SED	PARTSIZE	%<1.00MM	8	98.6250	2.55357	1.59799	.016203	.564975	100.000	96.0000	77/11/21	78/02/03
70336 SUSP SED	PARTSIZE	%<2.00MM	4	100.000	.000000	.000000		.000000	100.000	100.000	77/11/21	78/02/03
70337 SUSP SED	PARTSIZE	%<.002MM	3	14.6667	16.3335	4.04147	.275555	2.33334	19.0000	11.0000	77/11/21	77/12/13
70338 SUSP SED	PARTSIZE	%<.004MM	3	19.6667	16.3340	4.04153	.205502	2.33338	24.0000	16.0000	77/11/21	77/12/13
70339 SUSP SED	PARTSIZE	%<.008MM	3	27.3333	26.3339	5.13165	.187743	2.96276	33.0000	23.0000	77/11/21	77/12/13
70340 SUSP SED	PARTSIZE	%<.016MM	3	36.3333	34.3340	5.85952	.161271	3.38300	43.0000	32.0000	77/11/21	77/12/13
70341 SUSP SED	PARTSIZE	%<.031MM	3	45.3333	46.3359	6.80705	.150156	3.93005	53.0000	40.0000	77/11/21	77/12/13
70950 BIOMASS-	CHLRATIO	PERIUNIT	6	314.000	20310.4	142.515	.453868	58.1813	481.000	109.000	79/04/25	80/07/25
70957 CHLRPHYL	A-PERIPH	CHFLUG/L	13	2.96384	5.73864	2.39555	.808256	.664405	8.10001	.160000	78/05/11	80/07/25
70958 CHLRPHYL	B-PERIPH	CHFLUG/L	13	.274615	.283077	.532050	1.93744	.147564	1.99000	.000000	78/05/11	80/07/25
71845 AMMONIA	TOT-NH4	MG/L	17	.020588	.000993	.031518	1.53087	.007644	.110000	.000000	79/04/25	80/08/26
71846 AMMONIA	DISS-NH4	MG/L	11	.015455	.000267	.016348	1.05784	.004929	.040000	.000000	79/10/24	80/08/26
71850 NITRATE	TOT-NO3	MG/L	18	.211111	.125751	.354615	1.67975	.083583	1.50000	.000000	52/05/22	60/09/14
71851 NITRATE	DISS-NO3	MG/L	23	.382609	.541504	.735869	1.92329	.153439	3.10000	.000000	61/05/09	76/04/06
71885 IRON	FE	UG/L	2	10.0000	200.001	14.1422	1.41421	10.0000	20.0000	.499E-06	61/05/09	61/09/05
71886 TOTAL P	AS PO4	MG/L	17	.044118	.001363	.036922	.836900	.008955	.120000	.000000	79/04/25	80/08/26
71887 TOTAL N	AS NO3	MG/L	31	1.62032	6.91625	2.62988	1.62306	.472340	15.0000	.100000	78/01/24	80/08/26
71890 MERCURY	HG.DISS	UG/L	10	.030000	.002333	.048305	1.61015	.015275	.100000	.000000	78/04/26	80/06/25
71895 MERCURY	HG.SUSP	UG/L	10	.020000	.001778	.042164	2.10818	.013333	.100000	.000000	78/04/26	80/06/25
71900 MERCURY	HG.TOTAL	UG/L	11	.036364	.002545	.050453	1.38744	.015212	.100000	.000000	71/05/04	80/06/25
80020 U-DISS.	EXT.FLR.	UG/L	3	.100000	.024300	.155884	1.55884	.090000	.280000	.010000	78/06/23	79/06/26
80030 ALPHA-D	AS U-NAT	UG/L	3	.800000	.070001	.264576	.330720	.152753	1.10000	.600000	78/06/23	79/06/26
80040 ALPHA-S	AS U-NAT	UG/L	2	.400000	-.596E-07	.000000		.000000	.400000	.400000	78/12/20	79/06/26
80050 BETA-D	AS SR-Y-	90. PC/L	3	.433333	.003333	.057736	.133238	.033334	.500000	.400000	78/06/23	79/06/26
80060 BETA-S	AS SR-Y-	90. PC/L	2	.400000	-.596E-07	.000000		.000000	.400000	.400000	78/12/20	79/06/26
80154 SUSP SED	CONC	MG/L	18	191.778	55885.4	236.401	1.23268	55.7202	849.000	2.00000	55/09/16	78/02/03
80155 SUSP SED	DISCHARG	TONS/DAY	18	21404.2	.844E+09	29067.4	1.35802	6851.24	97200.0	3.70000	55/09/16	78/02/03

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

U.S. GEOLOGICAL SURVEY

11532600 West Branch Mill Creek near Crescent City

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	41	10.6950	1.62510	1.27479	.119195	.199089	14.0000	8.99999	70/11/05	75/03/18
00020	AIR	TEMP	CENT	4	14.3750	4.56250	2.13600	.148592	1.06800	17.5000	13.0000	74/07/31	75/03/18
00060	STREAM	FLOW	CFS	9	4.79999	.000065	.008053	.001676	.002684	4.80000	4.80000	71/06/08	71/06/09
00070	TURB	JKSN	JTU	4	150.000	1533.35	39.1581	.261054	19.5790	190.000	99.9998	75/03/18	75/03/18
00095	CNDUCTVY	AT 25C	MICROMHO	40	55.6998	217.178	14.7370	.264578	2.33012	80.9999	26.0000	70/11/05	75/03/18
00300	DO		MG/L	38	9.87100	2.17928	1.47624	.149553	.239477	11.2000	6.29999	70/11/05	75/03/18
00301	DO	SATUR	PERCENT	22	94.2270	4.66071	2.15887	.022911	.460272	101.000	90.0000	70/11/05	71/06/09
00310	BOD	5 DAY	MG/L	1	120.000					120.000	120.000	70/11/05	70/11/05
00340	COD	HI LEVEL	MG/L	1	43.9999					43.9999	43.9999	75/03/18	75/03/18
00400	PH		SU	39	6.82306	.175087	.418434	.061326	.067003	7.70000	6.00000	70/11/05	75/03/18
00405	CO2		MG/L	2	17.0000	-.244E-03	.000000		.000000	17.0000	17.0000	75/03/18	75/03/18
00410	T ALK	CACO3	MG/L	39	39.3844	799.331	28.2724	.717859	4.52721	90.0000	5.99999	70/11/05	75/03/18
00440	HCO3 ION	HCO3	MG/L	1	13.0000					13.0000	13.0000	75/03/18	75/03/18
00605	ORG N	N	MG/L	1	.430000					.430000	.430000	70/11/06	70/11/06
00613	NO2-N	DISS	MG/L	1	.000000					.000000	.000000	75/03/18	75/03/18
00618	NO3-N	DISS	MG/L	2	.250000	.057800	.240416	.961665	.170000	.420000	.080000	70/11/06	75/03/18
00623	KJELDL N	DISS	MG/L	1	.190000					.190000	.190000	75/03/18	75/03/18
00625	TOT KJEL	N	MG/L	1	.430000					.430000	.430000	70/11/06	70/11/06
00631	NO2&NO3	N-DISS	MG/L	1	.420000					.420000	.420000	75/03/18	75/03/18
00650	T PO4	PO4	MG/L	1	.040000					.040000	.040000	70/11/06	70/11/06
00660	ORTHOPO4	PO4	MG/L	2	.070000	.005000	.070711	1.01015	.050000	.120000	.020000	70/11/06	75/03/18
00666	PHOS-DIS		MG/L P	1	.000000					.000000	.000000	75/03/18	75/03/18
00671	PHOS-DIS	ORTHO	MG/L P	1	.040000					.040000	.040000	75/03/18	75/03/18
00681	D ORG C	C	MG/L	1	2.80000					2.80000	2.80000	75/03/18	75/03/18
00689	S ORG C	C	MG/L	1	5.79999					5.79999	5.79999	75/03/18	75/03/18
00900	TOT HARD	CACO3	MG/L	1	11.0000					11.0000	11.0000	75/03/18	75/03/18
00902	NC HARD	CACO3	MG/L	1	.999999					.999999	.999999	75/03/18	75/03/18
00915	CALCIUM	CA,DISS	MG/L	1	2.90000					2.90000	2.90000	75/03/18	75/03/18
00925	MGNSIUM	MG,DISS	MG/L	1	.999999					.999999	.999999	75/03/18	75/03/18
00930	SODIUM	NA,DISS	MG/L	1	2.30000					2.30000	2.30000	75/03/18	75/03/18
00931	SODIUM	ADSBTION	RATIO	1	.300000					.300000	.300000	75/03/18	75/03/18
00932	PERCENT	SODIUM	%	1	29.0000					29.0000	29.0000	75/03/18	75/03/18
00935	PTSSIUM	K,DISS	MG/L	1	.799999					.799999	.799999	75/03/18	75/03/18
00940	CHLORIDE	CL	MG/L	1	2.40000					2.40000	2.40000	75/03/18	75/03/18
00945	SULFATE	SO4-TOT	MG/L	1	1.80000					1.80000	1.80000	75/03/18	75/03/18
00950	FLUORIDE	F,DISS	MG/L	1	.200000					.200000	.200000	75/03/18	75/03/18
00955	SILICA	DISOLVED	MG/L	1	5.09999					5.09999	5.09999	75/03/18	75/03/18
01025	CADMIUM	CD,DISS	UG/L	1	.000000					.000000	.000000	75/03/18	75/03/18
01040	COPPER	CU,DISS	UG/L	1	.999999					.999999	.999999	75/03/18	75/03/18
01046	IRON	FE,DISS	UG/L	1	30.0000					30.0000	30.0000	75/03/18	75/03/18
01090	ZINC	ZN,DISS	UG/L	1	59.9999					59.9999	59.9999	75/03/18	75/03/18
01106	ALUMINUM	AL,DISS	UG/L	1	40.0000					40.0000	40.0000	75/03/18	75/03/18
31501	TOT COLI	MFIMENDO	/100ML	8	20.7500	298.500	17.2771	.832634	6.10839	52.0000	1.000000	70/11/05	71/06/09
70301	DISS SOL	SUM	MG/L	1	25.0000					25.0000	25.0000	75/03/18	75/03/18
70303	DISS SOL	TONS PER	ACRE-FT	1	.030000					.030000	.030000	75/03/18	75/03/18
70331	SUSP SED	PARTSIZE	%<.062MM	5	54.7999	11.2061	3.34754	.061087	1.49707	59.9999	50.9999	75/03/18	75/03/18
70332	SUSP SED	PARTSIZE	%<.125MM	1	68.9999					68.9999	68.9999	75/03/18	75/03/18
70333	SUSP SED	PARTSIZE	%<.250MM	1	87.9999					87.9999	87.9999	75/03/18	75/03/18
70334	SUSP SED	PARTSIZE	%<.500MM	1	98.9999					98.9999	98.9999	75/03/18	75/03/18
70335	SUSP SED	PARTSIZE	%<1.00MM	1	99.9998					99.9998	99.9998	75/03/18	75/03/18
71846	AMMONIA	DISS-NH4	MG/L	1	.000000					.000000	.000000	70/11/06	70/11/06
71851	NITRATE	DISS-NO3	MG/L	1	1.90000					1.90000	1.90000	75/03/18	75/03/18
71856	NITRITE	DISS-NO2	MG/L	1	.000000					.000000	.000000	75/03/18	75/03/18
80154	SUSP SED	CONC	MG/L	5	722.199	54746.7	233.980	.323983	104.639	931.999	377.000	75/03/18	75/03/18

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

U.S. GEOLOGICAL SURVEY

11532602 West Branch Mill Creek below Red Alder Campground near Crescent City

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	68	12.3675	8.61077	2.93441	.237269	.355850	16.0000	8.99999	74/03/26	75/06/05
00020	AIR	TEMP	CENT	32	17.1155	13.3978	3.66030	.213859	.647056	24.0000	13.0000	74/03/26	75/06/05
00061	STREAM	FLOW,	INST-CFS	48	101.419	30125.2	173.566	1.71138	25.0521	679.999	.449999	74/03/26	75/06/05
00065	STREAM	STAGE	FEET	18	4.42499	17.2810	4.15704	.939447	.979824	21.0000	2.97000	74/12/06	75/03/17
00070	TURB	JKSN	JTU	16	17.5625	650.127	25.4976	1.45182	6.37440	99.9998	.999999	74/08/01	75/06/05
00095	CNDUCTVY	AT 25C	MICROMHO	65	48.9075	136.594	11.6873	.238966	1.44963	77.9999	29.0000	74/05/21	75/06/05
00300	DO		MG/L	47	9.58291	1.18716	1.08957	.113699	.158930	11.3000	8.19999	74/03/26	75/06/05
00335	COD	LOWLEVEL	MG/L	3	2.00000	.999999	.999999	.500000	.577350	3.00000	.999999	74/08/01	74/09/23
00340	COD	HI LEVEL	MG/L	6	12.8333	254.167	15.9426	1.24228	6.50854	44.0000	2.00000	75/01/07	75/06/05
00400	PH		SU	52	6.86149	.133937	.365975	.053337	.050752	7.99999	5.89999	74/03/26	75/06/05
00405	CO2		MG/L	5	12.8800	140.832	11.8673	.921372	5.30720	32.0000	4.60000	74/08/01	75/06/05
00410	T ALK	CACO3	MG/L	53	14.9996	28.2715	5.31709	.354477	.730359	21.0000	5.99999	74/03/26	75/06/05
00440	HCO3 ION	HCO3	MG/L	9	16.3333	33.5001	5.78793	.354363	1.92931	25.0000	9.99999	74/08/01	75/06/05
00445	CO3 ION	CO3	MG/L	4	.000000	.000000	.000000		.000000	.000000	.000000	74/08/01	75/06/05
00600	TOTAL N	N	MG/L	1	.000000					.000000	.000000	74/09/12	74/09/12
00607	ORG N	DISS-N	MG/L	4	.802500	1.47216	1.21333	1.51193	.606663	2.60000	.040000	74/08/01	75/06/05
00608	NH3+NH4-	N DISS	MG/L	4	.040000	.003600	.060000	1.50000	.030000	.130000	.010000	74/08/01	75/06/05
00613	NO2-N	DISS	MG/L	9	.001111	.000011	.003333	3.00000	.001111	.010000	.000000	74/08/01	75/06/05
00618	NO3-N	DISS	MG/L	9	.321111	.065211	.255365	.795254	.085121	.750001	.030000	74/08/01	75/06/05
00623	KJELDL N	DISS	MG/L	9	.565555	.658678	.811590	1.43503	.270530	2.60000	.050000	74/08/01	75/06/05
00631	NO2&NO3	N-DISS	MG/L	9	.322222	.064719	.254400	.789516	.084800	.750001	.030000	74/08/01	75/06/05
00660	ORTHOPO4	PO4	MG/L	6	.060000	.001440	.037947	.632456	.015492	.120000	.030000	75/01/07	75/06/05
00666	PHOS-DIS		MG/L P	8	.007500	.000193	.013887	1.85164	.004910	.040000	.000000	74/08/01	75/06/05
00671	PHOS-DIS	ORTHO	MG/L P	6	.020000	.000160	.012649	.632458	.005164	.040000	.010000	75/01/07	75/06/05
00681	D ORG C	C	MG/L	8	3.52500	4.38788	2.09473	.594249	.740598	6.49999	1.10000	74/09/12	75/06/05
00685	T. INORG	C	MG/L	1	3.20000					3.20000	3.20000	74/08/13	74/08/13
00688	S IORG C	C	MG/L	3	.233333	.023333	.152752	.654653	.088191	.400000	.100000	74/08/01	74/09/23
00689	S ORG C	C	MG/L	7	1.18571	4.18143	2.04485	1.72456	.772882	5.80000	.200000	74/09/12	75/06/05
00691	D IORG C	C	MG/L	3	1.46666	2.50333	1.58219	1.07877	.913479	3.20000	.100000	74/08/13	74/09/23
00900	TOT HARD	CACO3	MG/L	9	14.7778	15.9445	3.99306	.270207	1.33102	23.0000	11.0000	74/08/01	75/06/05
00902	NC HARD	CACO3	MG/L	9	2.00000	2.25001	1.50000	.750002	.500001	4.00000	.000000	74/08/01	75/06/05
00915	CALCIUM	CA,DISS	MG/L	9	4.09999	1.26505	1.12474	.274328	.374915	5.99999	2.90000	74/08/01	75/06/05
00925	MGNSIUM	MG,DISS	MG/L	9	1.10000	.415001	.644206	.585642	.214735	2.50000	.100000	74/08/01	75/06/05
00930	SODIUM	NA,DISS	MG/L	9	3.42222	.666977	.816687	.238643	.272229	4.69999	2.30000	74/08/01	75/06/05
00931	SODIUM	ADSRTION	RATIO	9	.377777	.004445	.066669	.176476	.022223	.500000	.300000	74/08/01	75/06/05
00932	PERCENT	SODIUM	%	9	32.5555	14.0293	3.74557	.115052	1.24852	40.0000	29.0000	74/08/01	75/06/05
00935	PTSSIUM	K,DISS	MG/L	9	.566666	.052500	.229129	.404346	.076376	.999999	.300000	74/08/01	75/06/05
00940	CHLORIDE	CL	MG/L	6	3.50000	.996020	.998008	.285145	.407435	4.69999	2.30000	75/01/07	75/06/05
00945	SULFATE	SO4-TOT	MG/L	9	1.63333	.262495	.512343	.313679	.170781	2.30000	.899999	74/08/01	75/06/05
00950	FLUORIDE	F,DISS	MG/L	5	.060000	.008000	.089443	1.49071	.040000	.200000	.000000	75/01/07	75/03/18
00955	SILICA	DISOLVED	MG/L	9	7.03332	2.13757	1.46204	.207874	.487348	8.79999	5.10000	74/08/01	75/06/05
01025	CADMIUM	CD,DISS	UG/L	9	.333333	.249999	.499999	1.50000	.166666	.999999	.000000	74/08/01	75/06/05
01040	COPPER	CU,DISS	UG/L	9	3.00000	16.5000	4.06202	1.35401	1.35400	13.0000	.000000	74/08/01	75/06/05
01046	IRON	FE,DISS	UG/L	9	28.8889	161.113	12.6930	.439374	4.23101	50.0000	10.0000	74/08/01	75/06/05
01049	LEAD	PB,DISS	UG/L	1	1.00000					1.00000	1.00000	75/06/05	75/06/05
01090	ZINC	ZN,DISS	UG/L	9	16.6667	649.999	25.4951	1.52970	8.49836	60.0000	.000000	74/08/01	75/06/05
01106	ALUMINUM	AL,DISS	UG/L	9	23.3333	225.000	15.0000	.642858	5.00000	40.0000	.000000	74/08/01	75/06/05
31616	FEC COLI	MFM-FCBR	/100ML	1	3.00000					3.00000	3.00000	74/08/13	74/08/13
31679	FECSTREP	MF M-ENT	/100ML	1	4.00000					4.00000	4.00000	74/08/13	74/08/13
70290	CHLORIDE	TONS/DAY		3	4.09999	.430008	.655750	.159939	.378597	4.69999	3.40000	74/08/01	74/09/23
70301	DISS SOL	SUM	MG/L	9	31.1111	47.1108	6.86373	.220620	2.28791	41.9999	23.0000	74/08/01	75/06/05
70302	DISS SOL	TONS/DAY		7	12.9914	384.788	19.6160	1.50992	7.41416	51.4000	.040000	74/08/01	75/06/05
70303	DISS SOL	TONS PER	ACRE-FT	9	.042222	.000094	.009718	.230171	.003239	.060000	.030000	74/08/01	75/06/05
70331	SUSP SED	PARTSIZE	%<.062MM	7	55.5713	140.292	11.8445	.213141	4.47680	66.9999	34.0000	74/12/15	75/03/17
70332	SUSP SED	PARTSIZE	%<.125MM	2	63.4999	112.496	10.6064	.167030	7.49987	70.9999	55.9999	75/01/07	75/01/07
70333	SUSP SED	PARTSIZE	%<.250MM	2	79.9999	98.0000	9.89949	.123744	7.00000	86.9999	72.9999	75/01/07	75/01/07
70334	SUSP SED	PARTSIZE	%<.500MM	2	94.9999	7.99609	2.82774	.029766	1.99951	96.9999	92.9999	75/01/07	75/01/07
70335	SUSP SED	PARTSIZE	%<1.00MM	2	99.9998	.000000	.000000		.000000	99.9998	99.9998	75/01/07	75/01/07
70342	SUSP SED	PARTSIZE	%<.062MM	1	39.0000					39.0000	39.0000	75/03/17	75/03/17
70343	SUSP SED	PARTSIZE	%<.125MM	1	51.9999					51.9999	51.9999	75/03/17	75/03/17
70344	SUSP SED	PARTSIZE	%<.250MM	1	75.9999					75.9999	75.9999	75/03/17	75/03/17
70345	SUSP SED	PARTSIZE	%<.500MM	1	99.9998					99.9998	99.9998	75/03/17	75/03/17
71846	AMMONIA	DISS-NH4	MG/L	4	.050000	.006400	.080000	1.60000	.040000	.170000	.010000	74/08/01	75/06/05
71851	NITRATE	DISS-NO3	MG/L	9	1.41222	1.30049	1.14039	.807516	.380130	3.30000	.130000	74/08/01	75/06/05
71856	NITRITE	DISS-NO2	MG/L	9	.003333	.000100	.010000	3.00000	.003333	.030000	.000000	74/08/01	75/06/05
80154	SUSP SED	CONC	MG/L	13	63.5383	9023.41	94.9916	1.49503	26.3459	251.000	.999999	74/08/01	75/06/05
80155	SUSP SED	DISCHARG	TONS/DAY	11	47.0054	13410.6	115.804	2.46363	34.9162	387.000	.000000	74/08/01	75/06/05
80225	BEDLOAD	DISCHARG	TONS/DAY	1	20.0000					20.0000	20.0000	75/01/08	75/01/08
80228	BEDLOAD	PARTSIZE	%<.250MM	1	.999999					.999999	.999999	75/01/08	75/01/08
80229	BEDLOAD	PARTSIZE	%<.500MM	1	3.00000					3.00000	3.00000	75/01/08	75/01/08
80230	BEDLOAD	PARTSIZE	%<1.00MM	1	6.99999					6.99999	6.99999	75/01/08	75/01/08
80231	BEDLOAD	PARTSIZE	%<2.00MM	1	23.0000					23.0000	23.0000	75/01/08	75/01/08
80232	BEDLOAD	PARTSIZE	%<4.00MM	1	50.9999					50.9999	50.9999	75/01/08	75/01/08
80233	BEDLOAD	PARTSIZE	%<8.00MM	1	71.9999					71.9999	71.9999	75/01/08	75/01/08
80234	BEDLOAD	PARTSIZE	%<16.0MM	1	79.9999					79.9999	79.9999	75/01/08	75/01/08
80235	BEDLOAD	PARTSIZE	%<32.0MM	1	99.9998					99.9998	99.9998	75/01/08	75/01/08

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

U.S. GEOLOGICAL SURVEY

11532605 West Branch Mill Creek at bridge near Crescent City

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	30	9.51663	.233062	.482765	.050729	.088140	11.0000	8.99999	74/12/06	75/03/19
00061	STREAM	FLOW,	INST-CFS	41	706.241	218295	467.220	.661559	72.9675	1710.00	31.0000	74/12/06	75/03/19
00065	STREAM	STAGE	FEET	33	24.1641	2.69373	1.64126	.067921	.285706	27.6800	21.0100	74/12/06	75/03/19
00070	TURB	JKSN	JTU	16	51.1249	4122.09	64.2035	1.25582	16.0509	240.000	2.00000	74/12/06	75/03/19
00095	CNDUCTVY	AT 25C	MICROMHO	30	39.1331	33.3041	5.77097	.147470	1.05363	57.9999	29.0000	74/12/06	75/03/19
00300	DO		MG/L	12	10.6333	.155251	.394019	.037055	.113744	11.2000	10.1000	75/01/06	75/03/19
00340	COD	HI LEVEL	MG/L	6	17.8333	122.967	11.0890	.621815	4.52708	39.0000	10.0000	75/01/07	75/03/19
00400	PH		SU	12	6.57499	.052979	.230171	.035007	.066444	6.99999	6.29999	75/01/06	75/03/19
00405	CO2		MG/L	6	5.50000	9.87204	3.14198	.571270	1.28271	9.60000	1.90000	75/01/07	75/03/19
00410	T ALK	CACO3	MG/L	12	10.5833	1.35616	1.16454	.110036	.336174	13.0000	8.99999	75/01/06	75/03/19
00440	HCO3 ION	HCO3	MG/L	6	11.5000	7.10000	2.66458	.231703	1.08781	16.0000	8.00000	75/01/07	75/03/19
00613	NO2-N	DISS	MG/L	6	.005000	.000150	.012247	2.44949	.005000	.030000	.000000	75/01/07	75/03/19
00618	NO3-N	DISS	MG/L	6	.431666	.079296	.281596	.652347	.114961	.889999	.030000	75/01/07	75/03/19
00623	KJELDL N	DISS	MG/L	5	.268000	.035170	.187537	.699765	.083869	.539999	.020000	75/01/07	75/03/19
00631	NO2&NO3	N-DISS	MG/L	6	.436666	.078466	.280119	.641493	.114358	.889999	.030000	75/01/07	75/03/19
00660	ORTHOPO4	PO4	MG/L	6	.030000	.000720	.026833	.894429	.010954	.060000	.000000	75/01/07	75/03/19
00666	PHOS-DIS		MG/L P	6	.013333	.000107	.010328	.774598	.004216	.030000	.000000	75/01/07	75/03/19
00671	PHOS-DIS	ORTHO	MG/L P	6	.010000	.000080	.008944	.894428	.003651	.020000	.000000	75/01/07	75/03/19
00681	D ORG C	C	MG/L	6	3.78333	4.93371	2.22119	.587101	.906799	8.20000	2.10000	75/01/07	75/03/19
00689	S ORG C	C	MG/L	6	.500000	.152000	.389872	.779745	.159165	1.20000	.200000	75/01/07	75/03/19
00900	TOT HARD	CACO3	MG/L	6	12.5000	10.7000	3.27109	.261687	1.33541	18.0000	8.00000	75/01/07	75/03/19
00902	NC HARD	CACO3	MG/L	6	3.33333	1.06669	1.03281	.309842	.421641	5.00000	2.00000	75/01/07	75/03/19
00915	CALCIUM	CA,DISS	MG/L	6	3.33333	1.66668	1.29100	.387301	.527049	5.69999	2.00000	75/01/07	75/03/19
00925	MGNSIUM	MG,DISS	MG/L	6	1.03333	.034669	.186196	.180190	.076014	1.30000	.800000	75/01/07	75/03/19
00930	SODIUM	NA,DISS	MG/L	6	2.93333	.046674	.216041	.073650	.088198	3.20000	2.60000	75/01/07	75/03/19
00931	SODIUM	ADSRTION	RATIO	6	.366666	.002667	.051643	.140845	.021083	.400000	.300000	75/01/07	75/03/19
00932	PERCENT	SODIUM	%	6	32.8333	18.9664	4.35504	.132641	1.77794	38.0000	26.0000	75/01/07	75/03/19
00935	PTSSIUM	K,DISS	MG/L	6	.616666	.005667	.075280	.122076	.030733	.700000	.500000	75/01/07	75/03/19
00940	CHLORIDE	CL	MG/L	6	4.15000	.683032	.826458	.199147	.337400	5.09999	3.00000	75/01/07	75/03/19
00945	SULFATE	SO4-TOT	MG/L	6	1.56667	.094669	.307684	.196394	.125611	2.00000	1.30000	75/01/07	75/03/19
00950	FLUORIDE	F,DISS	MG/L	6	.033333	.002667	.051640	1.54919	.021082	.100000	.000000	75/01/07	75/03/19
00955	SILICA	DISOLVED	MG/L	6	6.43333	.282696	.531692	.082646	.217062	6.99999	5.70000	75/01/07	75/03/19
01025	CADMIUM	CD,DISS	UG/L	6	.666667	.666667	.816497	1.22474	.333333	2.00000	.000000	75/01/07	75/03/19
01040	COPPER	CU,DISS	UG/L	6	3.16666	24.5667	4.95648	1.56520	2.02347	13.0000	.000000	75/01/07	75/03/19
01046	IRON	FE,DISS	UG/L	5	46.0000	180.000	13.4164	.291661	6.00000	60.0000	30.0000	75/01/07	75/03/19
01090	ZINC	ZN,DISS	UG/L	6	54.3332	3424.66	58.5206	1.07707	23.8909	170.000	6.00000	75/01/07	75/03/19
01106	ALUMINUM	AL,DISS	UG/L	6	60.0000	1600.01	40.0001	.666668	16.3300	120.000	10.0000	75/01/07	75/03/19
70301	DISS SOL	SUM	MG/L	6	28.0000	14.0008	3.74176	.133634	1.52757	35.0000	24.0000	75/01/07	75/03/19
70302	DISS SOL	TONS/DAY		6	56.4499	850.697	29.1667	.516682	11.9073	111.000	32.5000	75/01/07	75/03/19
70303	DISS SOL	TONS PER	ACRE-FT	6	.040000	.000040	.006325	.158115	.002582	.050000	.030000	75/01/07	75/03/19
70331	SUSP SED	PARTSIZE	%<.062MM	16	54.5623	80.5417	8.97450	.164482	2.24362	67.9999	40.0000	74/12/15	75/03/19
70332	SUSP SED	PARTSIZE	%<.125MM	9	66.6665	89.0161	9.43484	.141523	3.14494	79.9999	53.9999	75/01/07	75/03/19
70333	SUSP SED	PARTSIZE	%<.250MM	9	80.6665	81.2681	9.01488	.111755	3.00496	92.9999	68.9999	75/01/07	75/03/19
70334	SUSP SED	PARTSIZE	%<.500MM	9	90.6664	66.5234	8.15619	.089958	2.71873	98.9999	78.9999	75/01/07	75/03/19
70335	SUSP SED	PARTSIZE	%<1.00MM	9	94.5553	51.2891	7.16164	.075740	2.38721	99.9998	81.9999	75/01/07	75/03/19
70336	SUSP SED	PARTSIZE	%<2.00MM	4	94.4998	21.6797	4.65614	.049271	2.32807	99.9998	88.9999	75/01/07	75/03/18
70337	SUSP SED	PARTSIZE	%<.002MM	1	17.0000					17.0000	17.0000	75/03/18	75/03/18
70338	SUSP SED	PARTSIZE	%<.004MM	1	24.0000					24.0000	24.0000	75/03/18	75/03/18
70339	SUSP SED	PARTSIZE	%<.008MM	1	33.0000					33.0000	33.0000	75/03/18	75/03/18
70340	SUSP SED	PARTSIZE	%<.016MM	1	42.9999					42.9999	42.9999	75/03/18	75/03/18
70341	SUSP SED	PARTSIZE	%<.031MM	1	54.9999					54.9999	54.9999	75/03/18	75/03/18
71851	NITRATE	DISS-NO3	MG/L	6	1.92167	1.51201	1.22964	.639881	.501997	3.90000	.130000	75/01/07	75/03/19
71856	NITRITE	DISS-NO2	MG/L	6	.016667	.001667	.040825	2.44949	.016667	.100000	.000000	75/01/07	75/03/19
80010	U-DISS.	DIR.FLR.	PC/L	1	9998.98					9998.98	9998.98	74/12/15	74/12/15
80154	SUSP SED	CONC	MG/L	17	257.234	93771.3	306.221	1.19044	74.2695	1140.00	2.00000	74/12/06	75/03/19
80155	SUSP SED	DISCHARG	TONS/DAY	17	792.527	1750665	1323.13	1.66950	320.905	4830.00	.170000	74/12/06	75/03/19
80225	BEDLOAD	DISCHARG	TONS/DAY	4	130.250	8992.23	94.8273	.728042	47.4137	246.000	24.0000	75/01/07	75/03/18
80226	BEDLOAD	PARTSIZE	%<.062MM	1	.999999					.999999	.999999	75/03/17	75/03/17
80227	BEDLOAD	PARTSIZE	%<.125MM	2	.999999	.000000	.000000		.000000	.999999	.999999	75/03/17	75/03/18
80228	BEDLOAD	PARTSIZE	%<.250MM	4	1.75000	.250001	.500001	.285715	.250000	2.00000	.999999	75/01/07	75/03/18
80229	BEDLOAD	PARTSIZE	%<.500MM	4	4.99999	4.00002	2.00000	.400001	1.00000	7.99999	4.00000	75/01/07	75/03/18
80230	BEDLOAD	PARTSIZE	%<1.00MM	4	8.49998	19.0001	4.35691	.512814	2.17945	15.0000	5.99999	75/01/07	75/03/18
80231	BEDLOAD	PARTSIZE	%<2.00MM	4	17.7500	70.9165	8.42119	.474434	4.21060	26.0000	9.99999	75/01/07	75/03/18
80232	BEDLOAD	PARTSIZE	%<4.00MM	4	27.0000	342.666	18.5113	.685603	9.25563	49.9999	12.0000	75/01/07	75/03/18
80233	BEDLOAD	PARTSIZE	%<8.00MM	4	39.4999	515.664	22.7082	.574893	11.3541	65.9999	16.0000	75/01/07	75/03/18
80234	BEDLOAD	PARTSIZE	%<16.0MM	4	50.2499	516.915	22.7358	.452454	11.3679	74.9999	29.0000	75/01/07	75/03/18
80235	BEDLOAD	PARTSIZE	%<32.0MM	4	64.9999	582.005	24.1248	.371151	12.0624	86.9999	39.0000	75/01/07	75/03/18
80236	BEDLOAD	PARTSIZE	%<64.0MM	4	96.4998	49.0065	7.00046	.072544	3.50023	99.9998	85.9999	75/01/07	75/03/18
80237	BEDLOAD	PARTSIZE	%<76.0MM	1	99.9998					99.9998	99.9998	75/03/17	75/03/17

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

U.S. GEOLOGICAL SURVEY

11532610 East Fork Mill Creek near Crescent City

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	30	17.4165	3.77950	1.94409	.111623	.354941	20.0000	10.5000	74/05/21	75/06/05
00020	AIR	TEMP	CENT	24	19.2499	4.82812	2.19730	.114146	.448522	23.0000	15.5000	74/05/21	75/06/05
00061	STREAM	FLOW,	INST-CFS	19	7.50525	85.1881	9.22974	1.22977	2.11745	39.0000	1.80000	74/07/31	75/06/05
00065	STREAM	STAGE	FEET	1	.320000					.320000	.320000	74/12/06	74/12/06
00070	TURB	JKSN	JTU	4	.999998	.635E-06	.000797	.000797	.000399	.999999	.999999	74/08/01	75/06/05
00095	CNDUCTVY	AT 25C	MICROMHO	23	63.3476	36.0568	6.00473	.094790	1.25207	73.9999	50.9999	74/05/21	75/06/05
00300	DO		MG/L	24	8.99582	.357836	.598194	.066497	.122106	11.0000	8.29999	74/05/21	75/06/05
00335	COD	LOWLEVEL	MG/L	3	6.66665	52.3334	7.23418	1.08513	4.17666	15.0000	2.00000	74/08/01	74/09/23
00340	COD	HI LEVEL	MG/L	1	1.00000					1.00000	1.00000	75/06/05	75/06/05
00400	PH		SU	20	7.18498	.038227	.195518	.027212	.043719	7.59999	6.79999	74/05/21	75/06/05
00405	CO2		MG/L	4	3.00000	1.88666	1.37356	.457852	.686778	5.00000	1.90000	74/08/01	75/06/05
00410	T ALK	CACO3	MG/L	19	22.4209	4.03776	2.00942	.089622	.460992	26.0000	17.0000	74/05/21	75/06/05
00440	HCO3 ION	HCO3	MG/L	4	28.0000	22.0005	4.69047	.167517	2.34523	31.0000	21.0000	74/08/01	75/06/05
00445	CO3 ION	CO3	MG/L	4	.000000	.000000	.000000		.000000	.000000	.000000	74/08/01	75/06/05
00607	ORG N	DISS-N	MG/L	4	.725000	1.40177	1.18396	1.63305	.591981	2.50000	.080000	74/08/01	75/06/05
00608	NH3+NH4-	N DISS	MG/L	4	.005000	.000033	.005773	1.15470	.002887	.010000	.000000	74/08/01	75/06/05
00613	NO2-N	DISS	MG/L	4	.002500	.000025	.005000	2.00000	.002500	.010000	.000000	74/08/01	75/06/05
00618	NO3-N	DISS	MG/L	4	.035000	.004900	.070000	2.00000	.035000	.140000	.000000	74/08/01	75/06/05
00623	KJELDL N	DISS	MG/L	4	.730000	1.39427	1.18079	1.61752	.590395	2.50000	.080000	74/08/01	75/06/05
00631	NO2&NO3	N-DISS	MG/L	4	.035000	.004900	.070000	2.00000	.035000	.140000	.000000	74/08/01	75/06/05
00660	ORTHOPO4	PO4	MG/L	1	.060000					.060000	.060000	75/06/05	75/06/05
00666	PHOS-DIS		MG/L P	4	.010000	.000067	.008165	.816496	.004082	.020000	.000000	74/08/01	75/06/05
00671	PHOS-DIS	ORTHO	MG/L P	1	.020000					.020000	.020000	75/06/05	75/06/05
00681	D ORG C	C	MG/L	4	3.17500	14.6625	3.82917	1.20604	1.91458	8.90000	.999999	74/08/01	75/06/05
00689	S ORG C	C	MG/L	4	.100000	.006667	.081650	.816496	.040825	.200000	.000000	74/08/01	75/06/05
00900	TOT HARD	CACO3	MG/L	4	23.7500	10.9167	3.30404	.139116	1.65202	27.0000	20.0000	74/08/01	75/06/05
00902	NC HARD	CACO3	MG/L	4	1.25000	2.25000	1.50000	1.20000	.750000	3.00000	.000000	74/08/01	75/06/05
00915	CALCIUM	CA,DISS	MG/L	4	5.42500	1.32249	1.15000	.211981	.574999	6.49999	4.00000	74/08/01	75/06/05
00925	MGNSIUM	MG,DISS	MG/L	4	2.47500	.029170	.170791	.069007	.085396	2.70000	2.30000	74/08/01	75/06/05
00930	SODIUM	NA,DISS	MG/L	4	4.02499	.262522	.512369	.127297	.256185	4.50000	3.30000	74/08/01	75/06/05
00931	SODIUM	ADSRTION	RATIO	4	.374999	.002500	.050003	.133342	.025002	.400000	.300000	74/08/01	75/06/05
00932	PERCENT	SODIUM	%	4	26.2500	1.58350	1.25837	.047938	.629185	28.0000	25.0000	74/08/01	75/06/05
00935	PTSSIUM	K,DISS	MG/L	4	.624999	.035834	.189298	.302877	.094649	.899999	.500000	74/08/01	75/06/05
00940	CHLORIDE	CL	MG/L	4	4.32499	1.52252	1.23390	.285296	.616952	5.69999	2.70000	74/08/01	75/06/05
00945	SULFATE	SO4-TOT	MG/L	4	3.40000	1.81999	1.34907	.396786	.674535	5.00000	1.70000	74/08/01	75/06/05
00955	SILICA	DISOLVED	MG/L	4	7.92499	.829239	.910626	.114906	.455313	8.90000	7.09999	74/08/01	75/06/05
01025	CADMIUM	CD,DISS	UG/L	4	.000000	.000000	.000000		.000000	.000000	.000000	74/08/01	75/06/05
01040	COPPER	CU,DISS	UG/L	4	2.50000	13.6666	3.69684	1.47874	1.84842	7.99999	.000000	74/08/01	75/06/05
01046	IRON	FE,DISS	UG/L	4	32.5000	225.000	15.0000	.461539	7.50000	49.9999	20.0000	74/08/01	75/06/05
01049	LEAD	PB,DISS	UG/L	1	3.00000					3.00000	3.00000	75/06/05	75/06/05
01090	ZINC	ZN,DISS	UG/L	4	4.99999	33.3332	5.77349	1.15470	2.88675	9.99999	.000000	74/08/01	75/06/05
01106	ALUMINUM	AL,DISS	UG/L	4	12.5000	91.6665	9.57426	.765942	4.78713	20.0000	.000000	74/08/01	75/06/05
31616	FEC COLI	MFM-FCBR	/100ML	1	6.99999					6.99999	6.99999	74/08/13	74/08/13
31679	FECSTREP	MF M-ENT	/100ML	1	13.0000					13.0000	13.0000	74/08/13	74/08/13
70301	DISS SOL	SUM	MG/L	4	42.2500	32.2487	5.67879	.134409	2.83940	46.9999	34.0000	74/08/01	75/06/05
70302	DISS SOL	TONS/DAY		4	.640000	.425801	.652534	1.01956	.326267	1.60000	.230000	74/08/01	75/06/05
70303	DISS SOL	TONS PER	ACRE-FT	4	.057500	.000025	.005000	.086962	.002500	.060000	.050000	74/08/01	75/06/05
71846	AMMONIA	DISS-NH4	MG/L	4	.005000	.000033	.005773	1.15470	.002887	.010000	.000000	74/08/01	75/06/05
71851	NITRATE	DISS-NO3	MG/L	4	.150000	.090000	.300000	2.00000	.150000	.599999	.000000	74/08/01	75/06/05
71856	NITRITE	DISS-NO2	MG/L	4	.007500	.000225	.015000	2.00000	.007500	.030000	.000000	74/08/01	75/06/05
80154	SUSP SED	CONC	MG/L	4	1.75000	2.24999	1.50000	.857143	.749999	4.00000	.999999	74/08/01	75/06/05
80155	SUSP SED	DISCHARG	TONS/DAY	2	.095000	.014450	.120208	1.26535	.085000	.180000	.010000	74/09/12	75/06/05

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

U.S. GEOLOGICAL SURVEY

11532615 East Fork Mill Creek at bridge near Crescent City

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	31	9.41932	.518815	.720288	.076469	.129368	11.0000	8.49999	74/12/06	75/03/19
00061	STREAM-	FLOW,	INST-CFS	43	1126.25	693956	833.040	.739657	127.037	3299.99	37.0000	74/12/06	75/03/19
00065	STREAM	STAGE	FEET	37	2.86621	2.29224	1.51401	.528229	.248902	6.59999	.310000	74/12/06	75/03/19
00070	TURB	JKSN	JTU	15	74.3999	16723.2	129.318	1.73815	33.3898	499.999	3.00000	74/12/06	75/03/19
00095	CNDUCTVY	AT 25C	MICROMHO	30	43.0331	134.737	11.6076	.269738	2.11926	86.9999	28.0000	74/12/06	75/03/19
00300	DO		MG/L	15	10.9000	.210083	.458348	.042050	.118345	11.5000	9.79999	74/12/15	75/03/19
00340	COD	HI LEVEL	MG/L	6	14.6667	202.267	14.2221	.969686	5.80613	41.0000	1.00000	75/01/07	75/03/19
00400	PH		SU	15	6.73998	.131226	.362251	.053747	.093533	7.69999	6.19999	74/12/15	75/03/19
00405	CO2		MG/L	5	6.97999	13.6421	3.69353	.529159	1.65180	12.0000	3.30000	75/01/07	75/03/19
00410	T ALK	CACO3	MG/L	16	15.3125	11.2959	3.36094	.219490	.840235	26.0000	12.0000	74/12/15	75/03/19
00440	HCO3 ION	HCO3	MG/L	6	16.1667	4.16670	2.04125	.126263	.833337	19.0000	13.0000	75/01/07	75/03/19
00613	NO2-N	DISS	MG/L	6	.000000	.000000	.000000		.000000	.000000	.000000	75/01/07	75/03/19
00618	NO3-N	DISS	MG/L	6	.276666	.107507	.327882	1.18512	.133857	.929999	.050000	75/01/07	75/03/19
00623	KJELDL N	DISS	MG/L	6	.285000	.037590	.193882	.680288	.079152	.500000	.030000	75/01/07	75/03/19
00631	NO2&NO3	N-DISS	MG/L	6	.276666	.107507	.327882	1.18512	.133857	.929999	.050000	75/01/07	75/03/19
00660	ORTHOPO4	PO4	MG/L	6	.040000	.000240	.015492	.387301	.006325	.060000	.030000	75/01/07	75/03/19
00666	PHOS-DIS		MG/L P	6	.010000	.000080	.008944	.894428	.003651	.020000	.000000	75/01/07	75/03/19
00671	PHOS-DIS	ORTHO	MG/L P	6	.013333	.000027	.005164	.387302	.002108	.020000	.010000	75/01/07	75/03/19
00681	D ORG C	C	MG/L	6	4.08333	.433694	.658555	.161279	.268854	5.30000	3.50000	75/01/07	75/03/19
00689	S ORG C	C	MG/L	5	.440000	.113000	.336155	.763989	.150333	1.00000	.200000	75/01/07	75/03/19
00900	TOT HARD	CACO3	MG/L	6	14.1667	11.7667	3.43027	.242137	1.40040	19.0000	9.00000	75/01/07	75/03/19
00902	NC HARD	CACO3	MG/L	6	1.50000	4.30000	2.07364	1.38243	.846561	5.00000	.000000	75/01/07	75/03/19
00915	CALCIUM	CA,DISS	MG/L	6	2.93333	1.25067	1.11833	.381250	.456558	4.19999	1.70000	75/01/07	75/03/19
00925	MGNSIUM	MG,DISS	MG/L	6	1.66667	.270669	.520259	.312156	.212395	2.40000	1.10000	75/01/07	75/03/19
00930	SODIUM	NA,DISS	MG/L	6	2.65000	.223001	.472230	.178200	.192787	3.40000	2.00000	75/01/07	75/03/19
00931	SODIUM	ADSBTION	RATIO	6	.300000	.004000	.063247	.210824	.025820	.400000	.200000	75/01/07	75/03/19
00932	PERCENT	SODIUM	%	6	28.3333	16.6680	4.08264	.144093	1.66673	34.0000	22.0000	75/01/07	75/03/19
00935	PTSSIUM	K,DISS	MG/L	6	.600000	.020000	.141422	.235704	.057735	.799999	.400000	75/01/07	75/03/19
00940	CHLORIDE	CL	MG/L	6	3.19999	.896030	.946588	.295809	.386443	4.29999	1.80000	75/01/07	75/03/19
00945	SULFATE	SO4-TOT	MG/L	6	1.68333	.157669	.397076	.235887	.162105	2.40000	1.30000	75/01/07	75/03/19
00950	FLUORIDE	F,DISS	MG/L	6	.016667	.001667	.040825	2.44949	.016667	.100000	.000000	75/01/07	75/03/19
00955	SILICA	DISOLVED	MG/L	6	7.15000	.651074	.806892	.112852	.329412	8.09999	5.90000	75/01/07	75/03/19
01025	CADMIUM	CD,DISS	UG/L	6	.500000	.299999	.547722	1.09544	.223607	1.00000	.000000	75/01/07	75/03/19
01040	COPPER	CU,DISS	UG/L	6	2.33333	7.06665	2.65832	1.13928	1.08525	6.99999	.000000	75/01/07	75/03/19
01046	IRON	FE,DISS	UG/L	6	53.3333	706.671	26.5833	.498437	10.8526	80.0000	10.0000	75/01/07	75/03/19
01090	ZINC	ZN,DISS	UG/L	6	23.3333	226.667	15.0555	.645235	6.14637	50.0000	10.0000	75/01/07	75/03/19
01106	ALUMINUM	AL,DISS	UG/L	6	45.0000	1190.00	34.4963	.766586	14.0831	110.000	10.0000	75/01/07	75/03/19
70301	DISS SOL	SUM	MG/L	6	29.1667	14.5672	3.81670	.130858	1.55816	34.0000	24.0000	75/01/07	75/03/19
70302	DISS SOL	TONS/DAY		6	96.1833	2963.74	54.4403	.566005	22.2251	203.000	55.3000	75/01/07	75/03/19
70303	DISS SOL	TONS PER	ACRE-FT	6	.040000	.000040	.006325	.158115	.002582	.050000	.030000	75/01/07	75/03/19
70331	SUSP SED	PARTSIZE	%<.062MM	16	59.9998	248.815	15.7739	.262899	3.94347	79.9999	24.0000	74/12/15	75/03/19
70332	SUSP SED	PARTSIZE	%<.125MM	6	64.1665	499.775	22.3556	.348400	9.12666	82.9999	28.0000	75/01/07	75/03/19
70333	SUSP SED	PARTSIZE	%<.250MM	6	70.3332	569.873	23.8720	.339413	9.74571	92.9999	32.0000	75/01/07	75/03/19
70334	SUSP SED	PARTSIZE	%<.500MM	6	79.4998	467.515	21.6221	.271976	8.82718	98.9999	44.9999	75/01/07	75/03/19
70335	SUSP SED	PARTSIZE	%<1.00MM	6	94.9998	61.6172	7.84966	.082628	3.20461	99.9998	82.9999	75/01/07	75/03/19
70336	SUSP SED	PARTSIZE	%<2.00MM	2	98.4999	4.49609	2.12040	.021527	1.49935	99.9998	96.9999	75/01/07	75/01/08
70337	SUSP SED	PARTSIZE	%<.002MM	2	21.5000	.499756	.706934	.032881	.499878	22.0000	21.0000	75/03/18	75/03/18
70338	SUSP SED	PARTSIZE	%<.004MM	2	28.5000	.500000	.707107	.024811	.500000	29.0000	28.0000	75/03/18	75/03/18
70339	SUSP SED	PARTSIZE	%<.008MM	2	38.0000	-.244E-03	.000000		.000000	38.0000	38.0000	75/03/18	75/03/18
70340	SUSP SED	PARTSIZE	%<.016MM	2	49.4999	.500000	.707107	.014285	.500000	49.9999	48.9999	75/03/18	75/03/18
70341	SUSP SED	PARTSIZE	%<.031MM	2	61.9999	.000000	.000000		.000000	61.9999	61.9999	75/03/18	75/03/18
70342	SUSP SED	PARTSIZE	%<.062MM	1	71.9999					71.9999	71.9999	75/03/18	75/03/18
70343	SUSP SED	PARTSIZE	%<.125MM	1	82.9999					82.9999	82.9999	75/03/18	75/03/18
70344	SUSP SED	PARTSIZE	%<.250MM	1	90.9999					90.9999	90.9999	75/03/18	75/03/18
70345	SUSP SED	PARTSIZE	%<.500MM	1	98.9999					98.9999	98.9999	75/03/18	75/03/18
70346	SUSP SED	PARTSIZE	%<1.00MM	1	99.9998					99.9998	99.9998	75/03/18	75/03/18
71851	NITRATE	DISS-NO3	MG/L	6	1.22167	2.08764	1.44487	1.18270	.589865	4.10000	.220000	75/01/07	75/03/19
71856	NITRITE	DISS-NO2	MG/L	6	.000000	.000000	.000000		.000000	.000000	.000000	75/01/07	75/03/19
80154	SUSP SED	CONC	MG/L	18	239.777	176258	419.831	1.75092	98.9551	1740.00	2.00000	74/12/06	75/03/19
80155	SUSP SED	DISCHARG	TONS/DAY	18	1358.98	.132E+08	3636.69	2.67605	857.177	15500.0	.200000	74/12/06	75/03/19
80225	BEDLOAD	DISCHARG	TONS/DAY	6	424.499	224681	474.006	1.11662	193.512	1210.00	18.0000	75/01/06	75/03/18
80226	BEDLOAD	PARTSIZE	%<.062MM	1	.999999					.999999	.999999	75/03/17	75/03/17
80227	BEDLOAD	PARTSIZE	%<.125MM	2	.999999	.000000	.000000		.000000	.999999	.999999	75/03/17	75/03/18
80228	BEDLOAD	PARTSIZE	%<.250MM	5	1.80000	1.69999	1.30384	.724355	.583094	4.00000	.999999	75/01/06	75/03/18
80229	BEDLOAD	PARTSIZE	%<.500MM	6	5.49999	15.9000	3.98748	.724998	1.62788	13.0000	3.00000	75/01/06	75/03/18
80230	BEDLOAD	PARTSIZE	%<1.00MM	6	15.0000	74.7998	8.64869	.576580	3.53081	29.0000	5.99999	75/01/06	75/03/18
80231	BEDLOAD	PARTSIZE	%<2.00MM	6	30.3333	268.666	16.3910	.540364	6.69161	49.9999	8.99999	75/01/06	75/03/18
80232	BEDLOAD	PARTSIZE	%<4.00MM	6	47.6666	379.069	19.4697	.408456	7.94846	70.9999	21.0000	75/01/06	75/03/18
80233	BEDLOAD	PARTSIZE	%<8.00MM	6	64.8332	302.182	17.3834	.268125	7.09673	83.9999	39.0000	75/01/06	75/03/18
80234	BEDLOAD	PARTSIZE	%<16.0MM	6	80.8331	213.784	14.6214	.180883	5.96915	93.9999	56.9999	75/01/06	75/03/18
80235	BEDLOAD	PARTSIZE	%<32.0MM	6	92.1665	76.9883	8.77430	.095201	3.58209	99.9998	75.9999	75/01/06	75/03/18
80236	BEDLOAD	PARTSIZE	%<64.0MM	5	99.9998	.017578	.132583	.001326	.059293	99.9998	99.9998	75/01/07	75/03/18

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

U.S. GEOLOGICAL SURVEY

11532620 Mill Creek near Crescent City

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00004	STREAM	WIDTH	FEET	3	53.3333	108.336	10.4085	.195159	6.00932	65.0000	45.0000	74/01/16	74/04/02
00010	WATER	TEMP	CENT	127	12.8562	22.2270	4.71456	.366716	.418349	23.0000	5.00000	74/02/15	78/08/25
00020	AIR	TEMP	CENT	34	15.0293	10.8194	3.28928	.218858	.564107	22.0000	6.99999	74/03/26	75/06/05
00060	STREAM	FLOW	CFS	11	1108.54	269487	519.121	.468291	156.521	1700.00	156.000	74/02/16	78/02/08
00061	STREAM	FLOW,	INST-CFS	145	765.640	1101129	1049.35	1.37055	87.1435	4389.99	2.50000	74/01/16	78/08/25
00063	NO. OF	SAMPLING	POINTS	3	5.00000	.000000	.000000		.000000	5.00000	5.00000	74/01/16	74/04/02
00065	STREAM	STAGE	FEET	124	2.64368	4.18940	2.04680	.774223	.183808	8.42999	.799999	74/01/16	75/08/01
00070	TURB	JKSN	JTU	44	43.6453	7254.57	85.1737	1.95150	12.8404	389.999	.400000	74/02/19	75/06/05
00095	CNDUCTVY	AT 25C	MICROMHO	97	50.5662	185.542	13.6214	.269377	1.38304	87.9999	30.0000	74/02/15	77/08/16
00300	DO		MG/L	49	9.56728	1.51440	1.23061	.128627	.175802	11.6000	7.79999	74/02/19	77/08/16
00335	COD	LOWLEVEL	MG/L	3	3.00000	2.99999	1.73205	.577350	.999999	5.00000	2.00000	74/08/01	74/09/23
00340	COD	HI LEVEL	MG/L	8	23.7500	426.786	20.6588	.869844	7.30399	53.0000	5.00000	75/01/07	75/06/05
00400	PH		SU	56	6.95173	.083882	.289624	.041662	.038703	7.49999	6.09999	74/02/15	77/08/16
00405	CO2		MG/L	11	4.45454	22.3007	4.72236	1.06012	1.42385	18.0000	1.60000	74/02/15	77/08/16
00410	T ALK	CACO3	MG/L	56	18.4641	32.7660	5.72416	.310016	.764923	28.0000	7.99999	74/02/15	77/08/16
00440	HCO3 ION	HCO3	MG/L	18	20.2777	52.8017	7.26648	.358348	1.71272	34.0000	12.0000	74/02/15	77/08/16
00445	CO3 ION	CO3	MG/L	11	.000000	.000000	.000000		.000000	.000000	.000000	74/02/15	77/08/16
00607	ORG N	DISS-N	MG/L	6	.570000	1.20096	1.09588	1.92260	.447393	2.80000	.030000	74/08/01	75/06/05
00608	NH3+NH4-	N DISS	MG/L	6	.010000	.000040	.006325	.632455	.002582	.020000	.000000	74/08/01	75/06/05
00613	NO2-N	DISS	MG/L	17	.001176	.000011	.003321	2.82290	.000805	.010000	.000000	74/02/15	75/06/05
00618	NO3-N	DISS	MG/L	17	.295294	.367426	.606157	2.05272	.147015	2.60000	.000000	74/02/15	75/06/05
00623	KJELDL N	DISS	MG/L	17	.370588	.433206	.658184	1.77605	.159633	2.80000	.040000	74/02/15	75/06/05
00631	NO2&NO3	N-DISS	MG/L	18	.280000	.350447	.591986	2.11423	.139532	2.60000	.000000	74/02/15	77/08/16
00660	ORTHOPO4	PO4	MG/L	12	.040000	.000709	.026629	.665720	.007687	.090000	.000000	74/02/15	75/06/05
00666	PHOS-DIS		MG/L P	17	.010588	.000143	.011974	1.13090	.002904	.040000	.000000	74/02/15	75/06/05
00671	PHOS-DIS	ORTHO	MG/L P	12	.013333	.000079	.008876	.665722	.002562	.030000	.000000	74/02/15	75/06/05
00680	T ORG C	C	MG/L	1	3.20000					3.20000	3.20000	74/08/13	74/08/13
00681	D ORG C	C	MG/L	18	2.91666	5.08620	2.25526	.773234	.531570	9.19999	.100000	74/02/15	75/06/05
00689	S ORG C	C	MG/L	14	1.40714	9.05302	3.00882	2.13825	.804142	8.50000	.000000	74/03/26	75/06/05
00900	TOT HARD	CACO3	MG/L	18	17.0000	30.5889	5.53072	.325337	1.30360	28.0000	9.00000	74/02/15	77/08/16
00902	NC HARD	CACO3	MG/L	18	1.16666	2.50000	1.58114	1.35526	.372678	5.00000	.000000	74/02/15	77/08/16
00915	CALCIUM	CA,DISS	MG/L	18	4.27777	2.59595	1.61119	.376644	.379762	6.49999	1.70000	74/02/15	77/08/16
00925	MGNSIUM	MG,DISS	MG/L	18	1.51666	.494416	.703147	.463615	.165733	3.00000	.100000	74/02/15	77/08/16
00930	SODIUM	NA,DISS	MG/L	18	3.54999	.656792	.810427	.228290	.191019	4.70000	2.40000	74/02/15	77/08/16
00931	SODIUM	ADSRTION	RATIO	18	.366666	.004706	.068600	.187092	.016169	.500000	.300000	74/02/15	77/08/16
00932	PERCENT	SODIUM	%	18	30.8333	16.8541	4.10537	.133147	.967646	40.0000	24.0000	74/02/15	77/08/16
00935	PTSSIUM	K,DISS	MG/L	18	.672221	.120948	.347776	.517353	.081971	1.30000	.300000	74/02/15	77/08/16
00940	CHLORIDE	CL	MG/L	18	3.92221	.614818	.784103	.199913	.184815	5.10000	2.30000	74/02/15	77/08/16
00945	SULFATE	SO4-TOT	MG/L	18	2.15555	.440281	.663536	.307827	.156397	3.50000	1.30000	74/02/15	77/08/16
00950	FLUORIDE	F,DISS	MG/L	12	.075000	.007500	.086602	1.15470	.025000	.200000	.000000	74/02/15	77/08/16
00955	SILICA	DISOLVED	MG/L	18	7.27221	1.11623	1.05652	.145281	.249023	8.69999	5.60000	74/02/15	77/08/16
01020	BORON	B,DISS	UG/L	1	40.0000					40.0000	40.0000	77/08/16	77/08/16
01025	CADMIUM	CD,DISS	UG/L	17	.235294	.191176	.437237	1.85826	.106045	1.00000	.000000	74/02/15	75/06/05
01040	COPPER	CU,DISS	UG/L	17	3.35294	10.1177	3.18083	.948669	.771464	10.0000	.000000	74/02/15	75/06/05
01046	IRON	FE,DISS	UG/L	18	77.7776	9982.96	99.9147	1.28462	23.5501	469.999	20.0000	74/02/15	77/08/16
01049	LEAD	PB,DISS	UG/L	1	2.00000					2.00000	2.00000	75/06/05	75/06/05
01090	ZINC	ZN,DISS	UG/L	17	32.3529	3331.62	57.7201	1.78408	13.9992	240.000	.000000	74/02/15	75/06/05
01106	ALUMINUM	AL,DISS	UG/L	17	64.1175	9800.69	98.9985	1.54402	24.0106	369.999	.000000	74/02/15	75/06/05
31616	FEC COLI	MFM-FCBR	/100ML	1	18.0000					18.0000	18.0000	74/08/13	74/08/13
31679	FECSTREP	MF M-ENT	/100ML	1	4.00000					4.00000	4.00000	74/08/13	74/08/13
70301	DISS SOL	SUM	MG/L	18	34.7222	46.3318	6.80675	.196035	1.60437	45.0000	24.0000	74/02/15	77/08/16
70302	DISS SOL	TONS/DAY		15	65.4013	6864.49	82.8522	1.26683	21.3923	275.000	.420000	74/02/15	77/08/16
70303	DISS SOL	TONS PER	ACRE-FT	18	.047222	.000092	.009583	.202932	.002259	.060000	.030000	74/02/15	77/08/16
70331	SUSP SED	PARTSIZE	%<.062MM	53	64.0564	177.124	13.3088	.207767	1.82810	98.0000	38.0000	74/01/16	78/04/26
70332	SUSP SED	PARTSIZE	%<.125MM	19	72.1578	143.264	11.9693	.165877	2.74594	99.0000	45.9999	74/01/16	78/03/23
70333	SUSP SED	PARTSIZE	%<.250MM	19	82.2630	97.6632	9.88247	.120133	2.26719	100.000	54.9999	74/01/16	78/03/23
70334	SUSP SED	PARTSIZE	%<.500MM	17	89.4704	70.0234	8.36800	.093526	2.02954	96.9999	60.9999	74/01/16	78/02/03
70335	SUSP SED	PARTSIZE	%<1.00MM	17	95.2351	70.8164	8.41525	.088363	2.04100	99.9998	65.9999	74/01/16	78/02/03
70336	SUSP SED	PARTSIZE	%<2.00MM	12	97.8332	56.3466	7.50644	.076727	2.16692	100.000	73.9999	74/01/16	78/02/03
70337	SUSP SED	PARTSIZE	%<.002MM	8	23.2500	126.501	11.2472	.483753	3.97650	50.0000	14.0000	74/01/16	78/03/23
70338	SUSP SED	PARTSIZE	%<.004MM	8	31.7500	213.929	14.6263	.460671	5.17118	67.0000	21.0000	74/01/16	78/03/23
70339	SUSP SED	PARTSIZE	%<.008MM	8	41.2500	300.215	17.3267	.420042	6.12591	83.0000	29.0000	74/01/16	78/03/23
70340	SUSP SED	PARTSIZE	%<.016MM	8	51.3749	321.413	17.9280	.348964	6.33851	94.0000	39.0000	74/01/16	78/03/23
70341	SUSP SED	PARTSIZE	%<.031MM	8	61.3749	241.698	15.5466	.253306	5.49657	97.0000	47.9999	74/01/16	78/03/23
70342	SUSP SED	PARTSIZE	%<.062MM	2	73.4999	.496094	.704339	.009583	.498043	73.9999	72.9999	75/03/18	75/03/18
70343	SUSP SED	PARTSIZE	%<.125MM	2	83.9999	.000000	.000000		.000000	83.9999	83.9999	75/03/18	75/03/18
70344	SUSP SED	PARTSIZE	%<.250MM	2	92.9999	1.99609	1.41283	.015192	.999023	93.9999	91.9999	75/03/18	75/03/18
70345	SUSP SED	PARTSIZE	%<.500MM	2	98.4999	.496094	.704339	.007151	.498043	98.9999	97.9999	75/03/18	75/03/18
70346	SUSP SED	PARTSIZE	%<1.00MM	2	99.9998	.000000	.000000		.000000	99.9998	99.9998	75/03/18	75/03/18
71846	AMMONIA	DISS-NH4	MG/L	6	.011667	.000097	.009832	.842736	.004014	.030000	.000000	74/08/01	75/06/05
71851	NITRATE	DISS-NO3	MG/L	17	1.33882	7.85528	2.80273	2.09343	.679761	12.0000	.000000	74/02/15	75/06/05
71856	NITRITE	DISS-NO2	MG/L	17	.003529	.000099	.009963	2.82290	.002416	.030000	.000000	74/02/15	75/06/05
80154	SUSP SED	CONC	MG/L	90	112.366	61519.9	248.032	2.20736	26.1449	1450.00	.999999	74/01/16	78/08/25
80155	SUSP SED	DISCHARG	TONS/DAY	89	808.682	6910091	2628.71	3.25061	278.642	16000.0	.010000	74/01/16	78/08/25
80225	BEDLOAD	DISCHARG	TONS/DAY	13	91.6154	15743.1	125.471	1.36955	34.7995	342.000	.000000	74/01/16	75/03/19
80226	BEDLOAD	PARTSIZE	%<.062MM	1	1.00000					1.00000	1.00000	75/03/18	75/03/18
80227	BEDLOAD	PARTSIZE	%<.125MM	1	1.00000					1.00000	1.00000	75/03/18	75/03/18
80228	BEDLOAD	PARTSIZE	%<.250MM	6	3.16667	4.16668	2.04124	.644604	.833335	7.00000	1.00000	74/01/16	75/03/18
80229	BEDLOAD	PARTSIZE	%<.500MM	7	8.57143	35.2858	5.94018	.693021	2.24518	21.0000	2.00000	74/01/16	75/03/19
80230	BEDLOAD	PARTSIZE	%<1.00MM	7	19.2857	112.239	10.5943	.549333	4.00426	31.0000	5.00000	74/01/16	75/03/19
80231	BEDLOAD	PARTSIZE	%<2.00MM	7	31.8571	337.477	18.3705	.576654	6.94341	51.0000	9.00000	74/01/16	75/03/19
80232	BEDLOAD	PARTSIZE	%<4.00MM	7	42.8571	540.479	23.2482	.542458	8.78699	67.0000	15.0000	74/01/16	75/03/19
80233	BEDLOAD	PARTSIZE	%<8.00MM	7	53.2857	598.574	24.4658	.459143	9.24719	78.0000	22.0000	74/01/16	75/03/19
80234	BEDLOAD	PARTSIZE	%<16.0MM	7	69.4286	572.290	23.9226	.344564	9.04188	98.0000	32.0000	74/01/16	75/03/19
80235	BEDLOAD	PARTSIZE	%<32.0MM	7	86.4286	321.624	17.9339	.207499	6.77837	100.000	55.0000	74/01/16	75/03/19
80236	BEDLOAD	PARTSIZE	%<64.0MM	4	90.7500	202.250	14.2215	.156710	7.11073	100.000	70.0000	75/01/07	75/03/19
80237	BEDLOAD	PARTSIZE	%<76.0MM	2	100.000	.000000	.000000		.000000	100.000	100.000	75/03/17	75/03/19

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

U.S. GEOLOGICAL SURVEY

11532626 Mill Creek at bridge near Crescent City

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	19	9.42104	.618435	.786407	.083473	.180414	11.0000	8.49999	74/12/15	75/03/19
00020	AIR	TEMP	CENT	10	8.84998	4.44724	2.10885	.238288	.666876	12.0000	5.00000	74/12/15	75/03/19
00061	STREAM	FLOW,	INST-CFS	25	2124.76	3245800	1801.61	.847914	360.322	6999.99	135.000	74/12/05	75/03/19
00065	STREAM	STAGE	FEET	17	3.76764	2.73400	1.65348	.438864	.401028	7.82999	2.21000	75/01/06	75/03/19
00070	TURB	JKSN	JTU	9	76.8887	12347.8	111.121	1.44521	37.0402	330.000	4.00000	74/12/05	75/03/19
00095	CNDUCTVY	AT 25C	MICROMHO	20	41.8998	80.1048	8.95013	.213608	2.00131	58.9999	26.0000	74/12/05	75/03/19
00300	DO		MG/L	10	11.1500	.185113	.430247	.038587	.136056	12.1000	10.8000	74/12/15	75/03/19
00340	COD	HI LEVEL	MG/L	6	14.3333	55.4667	7.44760	.519600	3.04047	25.0000	7.00000	75/01/07	75/03/19
00400	PH		SU	10	6.74999	.060547	.246063	.036454	.077812	7.19999	6.29999	74/12/15	75/03/19
00405	CO2		MG/L	3	4.93333	1.49334	1.22202	.247707	.705535	6.00000	3.60000	75/01/07	75/03/19
00410	T ALK	CACO3	MG/L	12	13.8333	50.1515	7.08177	.511936	2.04433	35.0000	8.00000	74/12/15	75/03/19
00440	HCO3 ION	HCO3	MG/L	6	13.0000	4.40000	2.09762	.161355	.856349	15.0000	10.0000	75/01/07	75/03/19
00613	NO2-N	DISS	MG/L	6	.000000	.000000	.000000		.000000	.000000	.000000	75/01/07	75/03/19
00618	NO3-N	DISS	MG/L	6	.930000	2.19115	1.48025	1.59167	.604312	3.90000	.110000	75/01/07	75/03/19
00623	KJELDL N	DISS	MG/L	6	.395000	.091390	.302308	.765336	.123417	.970001	.130000	75/01/07	75/03/19
00631	NO2&NO3	N-DISS	MG/L	6	.930000	2.19115	1.48025	1.59167	.604312	3.90000	.110000	75/01/07	75/03/19
00660	ORTHOPO4	PO4	MG/L	6	.040000	.000600	.024495	.612374	.010000	.060000	.000000	75/01/07	75/03/19
00666	PHOS-DIS		MG/L P	6	.011667	.000097	.009832	.842737	.004014	.020000	.000000	75/01/07	75/03/19
00671	PHOS-DIS	ORTHO	MG/L P	6	.013333	.000067	.008165	.612374	.003333	.020000	.000000	75/01/07	75/03/19
00681	D ORG C	C	MG/L	6	3.86666	.426715	.653234	.168940	.266682	4.60000	3.10000	75/01/07	75/03/19
00689	S ORG C	C	MG/L	6	1.16667	1.53067	1.23720	1.06046	.505086	3.30000	.200000	75/01/07	75/03/19
00900	TOT HARD	CACO3	MG/L	6	15.5000	27.5000	5.24404	.338325	2.14087	25.0000	9.00000	75/01/07	75/03/19
00902	NC HARD	CACO3	MG/L	6	5.00000	17.6000	4.19523	.839047	1.71270	13.0000	1.00000	75/01/07	75/03/19
00915	CALCIUM	CA,DISS	MG/L	6	4.03333	3.49469	1.86941	.463490	.763182	7.70000	2.50000	75/01/07	75/03/19
00925	MGNSIUM	MG,DISS	MG/L	6	1.35000	.115001	.339118	.251198	.138444	1.60000	.700000	75/01/07	75/03/19
00930	SODIUM	NA,DISS	MG/L	6	3.03333	.182666	.427394	.140899	.174483	3.69999	2.50000	75/01/07	75/03/19
00931	SODIUM	ADSBTION	RATIO	6	.350000	.007000	.083667	.239048	.034157	.400000	.200000	75/01/07	75/03/19
00932	PERCENT	SODIUM	%	6	30.0000	37.6000	6.13188	.204396	2.50333	36.0000	19.0000	75/01/07	75/03/19
00935	PTSSIUM	K,DISS	MG/L	6	.583333	.013667	.116907	.200412	.047727	.800000	.500000	75/01/07	75/03/19
00940	CHLORIDE	CL	MG/L	6	3.66666	.882696	.939519	.256233	.383557	4.50000	2.50000	75/01/07	75/03/19
00945	SULFATE	SO4-TOT	MG/L	6	1.53333	.090669	.301113	.196378	.122929	2.10000	1.30000	75/01/07	75/03/19
00950	FLUORIDE	F,DISS	MG/L	6	.050000	.003000	.054772	1.09544	.022361	.100000	.000000	75/01/07	75/03/19
00955	SILICA	DISOLVED	MG/L	6	6.56666	.722754	.850149	.129464	.347072	7.29999	4.90000	75/01/07	75/03/19
01025	CADMIUM	CD,DISS	UG/L	6	.666666	.266667	.516398	.774597	.210819	1.00000	.000000	75/01/07	75/03/19
01040	COPPER	CU,DISS	UG/L	6	5.66666	52.2666	7.22957	1.27581	2.95146	20.0000	.000000	75/01/07	75/03/19
01046	IRON	FE,DISS	UG/L	6	38.3333	136.667	11.6905	.304969	4.77262	50.0000	20.0000	75/01/07	75/03/19
01090	ZINC	ZN,DISS	UG/L	6	26.6667	346.667	18.6190	.698212	7.60117	60.0000	9.99999	75/01/07	75/03/19
01100	TIN	SN,DISS	UG/L	1	.020000					.020000	.020000	75/03/18	75/03/18
01106	ALUMINUM	AL,DISS	UG/L	6	56.6666	506.670	22.5093	.397224	9.18940	90.0000	20.0000	75/01/07	75/03/19
70301	DISS SOL	SUM	MG/L	6	31.5000	86.3000	9.28978	.294914	3.79254	49.0000	21.0000	75/01/07	75/03/19
70302	DISS SOL	TONS/DAY		6	175.667	8754.28	93.5643	.532624	38.1975	349.000	105.000	75/01/07	75/03/19
70303	DISS SOL	TONS PER	ACRE-FT	6	.043333	.000187	.013663	.315291	.005578	.070000	.030000	75/01/07	75/03/19
70331	SUSP SED	PARTSIZE	%<.062MM	6	59.4999	15.5047	3.93760	.066178	1.60752	64.9999	54.9999	74/12/15	75/03/19
70332	SUSP SED	PARTSIZE	%<.125MM	1	62.9999					62.9999	62.9999	75/01/07	75/01/07
70333	SUSP SED	PARTSIZE	%<.250MM	1	73.9999					73.9999	73.9999	75/01/07	75/01/07
70334	SUSP SED	PARTSIZE	%<.500MM	1	85.9999					85.9999	85.9999	75/01/07	75/01/07
70335	SUSP SED	PARTSIZE	%<1.00MM	1	97.9999					97.9999	97.9999	75/01/07	75/01/07
70336	SUSP SED	PARTSIZE	%<2.00MM	1	99.9998					99.9998	99.9998	75/01/07	75/01/07
70337	SUSP SED	PARTSIZE	%<.002MM	2	20.0000	7.99976	2.82838	.141419	1.99997	22.0000	18.0000	75/03/18	75/03/18
70338	SUSP SED	PARTSIZE	%<.004MM	2	29.0000	7.99976	2.82838	.097531	1.99997	31.0000	27.0000	75/03/18	75/03/18
70339	SUSP SED	PARTSIZE	%<.008MM	2	39.4999	12.5012	3.53571	.089512	2.50012	41.9999	37.0000	75/03/18	75/03/18
70340	SUSP SED	PARTSIZE	%<.016MM	2	46.4999	4.50000	2.12132	.045620	1.50000	47.9999	44.9999	75/03/18	75/03/18
70341	SUSP SED	PARTSIZE	%<.031MM	2	63.9999	17.9961	4.24218	.066284	2.99967	66.9999	60.9999	75/03/18	75/03/18
70342	SUSP SED	PARTSIZE	%<.062MM	2	74.4999	12.4961	3.53498	.047449	2.49961	76.9999	71.9999	75/03/18	75/03/18
70343	SUSP SED	PARTSIZE	%<.125MM	2	84.4999	4.50391	2.12224	.025115	1.50065	85.9999	82.9999	75/03/18	75/03/18
70344	SUSP SED	PARTSIZE	%<.250MM	2	95.4999	.496094	.704339	.007375	.498043	95.9999	94.9999	75/03/18	75/03/18
70345	SUSP SED	PARTSIZE	%<.500MM	2	99.9998	.000000	.000000		.000000	99.9998	99.9998	75/03/18	75/03/18
71851	NITRATE	DISS-NO3	MG/L	6	4.08833	41.5037	6.44234	1.57579	2.63007	17.0000	.490000	75/01/07	75/03/19
71856	NITRITE	DISS-NO2	MG/L	6	.000000	.000000	.000000		.000000	.000000	.000000	75/01/07	75/03/19
80154	SUSP SED	CONC	MG/L	9	281.999	145584	381.554	1.35303	127.185	1060.00	5.99999	74/12/05	75/03/19
80155	SUSP SED	DISCHARG	TONS/DAY	7	4765.14	.587E+08	7663.50	1.60824	2896.53	20000.0	104.000	75/01/06	75/03/19
80225	BEDLOAD	DISCHARG	TONS/DAY	5	135.900	21057.0	145.110	1.06777	64.8953	356.000	3.50000	75/01/06	75/03/18
80227	BEDLOAD	PARTSIZE	%<.125MM	1	.999999					.999999	.999999	75/03/18	75/03/18
80228	BEDLOAD	PARTSIZE	%<.250MM	4	1.50000	1.00000	1.00000	.666664	.500000	3.00000	.999999	75/01/06	75/03/18
80229	BEDLOAD	PARTSIZE	%<.500MM	5	5.39999	10.3000	3.20937	.594328	1.43527	8.99999	.999999	75/01/06	75/03/18
80230	BEDLOAD	PARTSIZE	%<1.00MM	5	18.2000	228.700	15.1228	.830926	6.76313	41.9999	3.00000	75/01/06	75/03/18
80231	BEDLOAD	PARTSIZE	%<2.00MM	5	33.5999	774.296	27.8262	.828161	12.4442	71.9999	5.00000	75/01/06	75/03/18
80232	BEDLOAD	PARTSIZE	%<4.00MM	5	43.1999	1048.70	32.3836	.749621	14.4824	81.9999	7.99999	75/01/06	75/03/18
80233	BEDLOAD	PARTSIZE	%<8.00MM	5	50.7999	925.198	30.4171	.598762	13.6029	83.9999	18.0000	75/01/06	75/03/18
80234	BEDLOAD	PARTSIZE	%<16.0MM	5	64.5998	768.805	27.7273	.429216	12.4000	99.9998	40.0000	75/01/06	75/03/18
80235	BEDLOAD	PARTSIZE	%<32.0MM	4	66.4999	297.005	17.2338	.259156	8.61692	88.9999	52.9999	75/01/07	75/03/18
80236	BEDLOAD	PARTSIZE	%<64.0MM	4	84.4999	111.001	10.5357	.124683	5.26786	99.9998	76.9999	75/01/07	75/03/18
80237	BEDLOAD	PARTSIZE	%<76.0MM	3	99.9998	.021484	.146575	.001466	.084625	99.9998	99.9998	75/01/08	75/03/18

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

U.S. GEOLOGICAL SURVEY

11532630 Mill Creek at Mouth near Crescent City

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	29	18.5343	4.98354	2.23238	.120446	.414543	22.5000	10.5000	74/03/27	74/08/01
00020	AIR	TEMP	CENT	26	17.1152	11.2881	3.35978	.196303	.658907	24.5000	9.99999	74/03/27	74/08/01
00049	SURFACE	AREA	SQ. MI.	38	36.9998	.012458	.111614	.003017	.018106	37.0000	37.0000	74/03/27	74/12/05
00061	STREAM	FLOW,	INST-CFS	14	27.9142	1953.07	44.1935	1.58319	11.8112	135.000	6.79999	74/03/27	74/12/05
00070	TURB	JKSN	JTU	3	15.3333	660.332	25.6969	1.67589	14.8361	44.9999	.000000	74/05/20	75/03/19
00095	CNDUCTVY	AT 25C	MICROMHO	29	64.2411	59.1875	7.69334	.119757	1.42862	72.9999	38.0000	74/05/20	75/03/19
00300	DO		MG/L	27	9.01850	.531550	.729075	.080842	.140311	11.6000	8.49999	74/03/27	74/08/01
00335	COD	LOWLEVEL	MG/L	1	.999999					.999999	.999999	74/08/01	74/08/01
00400	PH		SU	28	7.42855	.022153	.148841	.020036	.028128	7.69999	6.89999	74/03/27	74/08/01
00405	CO2		MG/L	1	.999999					.999999	.999999	74/08/01	74/08/01
00410	T ALK	CACO3	MG/L	19	24.3157	8.45443	2.90765	.119579	.667061	27.0000	15.0000	74/03/27	74/08/01
00440	HCO3 ION	HCO3	MG/L	1	32.0000					32.0000	32.0000	74/08/01	74/08/01
00445	CO3 ION	CO3	MG/L	1	.000000					.000000	.000000	74/08/01	74/08/01
00607	ORG N	DISS-N	MG/L	1	.210000					.210000	.210000	74/08/01	74/08/01
00608	NH3+NH4-	N DISS	MG/L	1	.000000					.000000	.000000	74/08/01	74/08/01
00613	NO2-N	DISS	MG/L	1	.000000					.000000	.000000	74/08/01	74/08/01
00618	NO3-N	DISS	MG/L	1	.000000					.000000	.000000	74/08/01	74/08/01
00623	KJELDL N	DISS	MG/L	1	.210000					.210000	.210000	74/08/01	74/08/01
00631	NO2&NO3	N-DISS	MG/L	1	.000000					.000000	.000000	74/08/01	74/08/01
00666	PHOS-DIS		MG/L P	1	.010000					.010000	.010000	74/08/01	74/08/01
00681	D ORG C	C	MG/L	1	.999999					.999999	.999999	74/08/01	74/08/01
00689	S ORG C	C	MG/L	1	.899999					.899999	.899999	74/08/01	74/08/01
00900	TOT HARD	CACO3	MG/L	1	23.0000					23.0000	23.0000	74/08/01	74/08/01
00902	NC HARD	CACO3	MG/L	1	.000000					.000000	.000000	74/08/01	74/08/01
00915	CALCIUM	CA,DISS	MG/L	1	6.39999					6.39999	6.39999	74/08/01	74/08/01
00925	MGNSIUM	MG,DISS	MG/L	1	1.60000					1.60000	1.60000	74/08/01	74/08/01
00930	SODIUM	NA,DISS	MG/L	1	4.29999					4.29999	4.29999	74/08/01	74/08/01
00931	SODIUM	ADSBTION	RATIO	1	.400000					.400000	.400000	74/08/01	74/08/01
00932	PERCENT	SODIUM	%	1	29.0000					29.0000	29.0000	74/08/01	74/08/01
00935	PTSSIUM	K,DISS	MG/L	1	.599999					.599999	.599999	74/08/01	74/08/01
00940	CHLORIDE	CL	MG/L	1	4.69999					4.69999	4.69999	74/08/01	74/08/01
00945	SULFATE	SO4-TOT	MG/L	1	3.69999					3.69999	3.69999	74/08/01	74/08/01
00955	SILICA	DISOLVED	MG/L	1	6.59999					6.59999	6.59999	74/08/01	74/08/01
01025	CADMIUM	CD,DISS	UG/L	1	.000000					.000000	.000000	74/08/01	74/08/01
01040	COPPER	CU,DISS	UG/L	1	3.00000					3.00000	3.00000	74/08/01	74/08/01
01046	IRON	FE,DISS	UG/L	1	40.0000					40.0000	40.0000	74/08/01	74/08/01
01090	ZINC	ZN,DISS	UG/L	1	20.0000					20.0000	20.0000	74/08/01	74/08/01
01106	ALUMINUM	AL,DISS	UG/L	1	9.99999					9.99999	9.99999	74/08/01	74/08/01
31616	FEC COLI	MFM-FCBR	/100ML	1	13.0000					13.0000	13.0000	74/08/13	74/08/13
31679	FECSTREP	MF M-ENT	/100ML	1	21.0000					21.0000	21.0000	74/08/13	74/08/13
70301	DISS SOL	SUM	MG/L	1	43.9999					43.9999	43.9999	74/08/01	74/08/01
70302	DISS SOL	TONS/DAY		1	.829999					.829999	.829999	74/08/01	74/08/01
70303	DISS SOL	TONS PER	ACRE-FT	1	.060000					.060000	.060000	74/08/01	74/08/01
71846	AMMONIA	DISS-NH4	MG/L	1	.000000					.000000	.000000	74/08/01	74/08/01
71851	NITRATE	DISS-NO3	MG/L	1	.000000					.000000	.000000	74/08/01	74/08/01
71856	NITRITE	DISS-NO2	MG/L	1	.000000					.000000	.000000	74/08/01	74/08/01
80154	SUSP SED	CONC	MG/L	2	2.50000	.500004	.707109	.282844	.500002	3.00000	2.00000	74/05/20	74/08/01
80155	SUSP SED	DISCHARG	TONS/DAY	2	.135000	.018050	.134350	.995188	.095000	.230000	.040000	74/05/20	74/08/01

11532690 Dominie Creek at Smith River

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	1	13.5000					13.5000	13.5000	77/08/18	77/08/18
00061	STREAM	FLOW,	INST-CFS	1	1.30000					1.30000	1.30000	77/08/18	77/08/18
00095	CNDUCTVY	AT 25C	MICROMHO	1	84.9999					84.9999	84.9999	77/08/18	77/08/18
00300	DO		MG/L	1	10.0000					10.0000	10.0000	77/08/18	77/08/18
00400	PH		SU	1	7.50000					7.50000	7.50000	77/08/18	77/08/18
00405	CO2		MG/L	1	1.90000					1.90000	1.90000	77/08/18	77/08/18
00410	T ALK	CACO3	MG/L	1	30.0000					30.0000	30.0000	77/08/18	77/08/18
00440	HCO3 ION	HCO3	MG/L	1	37.0000					37.0000	37.0000	77/08/18	77/08/18
00445	CO3 ION	CO3	MG/L	1	.000000					.000000	.000000	77/08/18	77/08/18
00613	NO2-N	DISS	MG/L	1	.000000					.000000	.000000	77/08/18	77/08/18
00618	NO3-N	DISS	MG/L	1	.210000					.210000	.210000	77/08/18	77/08/18
00631	NO2&NO3	N-DISS	MG/L	1	.210000					.210000	.210000	77/08/18	77/08/18
00900	TOT HARD	CACO3	MG/L	1	29.0000					29.0000	29.0000	77/08/18	77/08/18
00902	NC HARD	CACO3	MG/L	1	.000000					.000000	.000000	77/08/18	77/08/18
00915	CALCIUM	CA,DISS	MG/L	1	8.30000					8.30000	8.30000	77/08/18	77/08/18
00925	MGNSIUM	MG,DISS	MG/L	1	2.10000					2.10000	2.10000	77/08/18	77/08/18
00930	SODIUM	NA,DISS	MG/L	1	4.20000					4.20000	4.20000	77/08/18	77/08/18
00931	SODIUM	ADSBTION	RATIO	1	.300000					.300000	.300000	77/08/18	77/08/18
00932	PERCENT	SODIUM	%	1	23.0000					23.0000	23.0000	77/08/18	77/08/18
00935	PTSSIUM	K,DISS	MG/L	1	.500000					.500000	.500000	77/08/18	77/08/18
00940	CHLORIDE	CL	MG/L	1	4.90000					4.90000	4.90000	77/08/18	77/08/18
00945	SULFATE	SO4-TOT	MG/L	1	5.40000					5.40000	5.40000	77/08/18	77/08/18
00950	FLUORIDE	F,DISS	MG/L	1	.100000					.100000	.100000	77/08/18	77/08/18
00955	SILICA	DISOLVED	MG/L	1	8.70000					8.70000	8.70000	77/08/18	77/08/18
01020	BORON	B,DISS	UG/L	1	10.0000					10.0000	10.0000	77/08/18	77/08/18
01046	IRON	FE,DISS	UG/L	1	90.0000					90.0000	90.0000	77/08/18	77/08/18
70301	DISS SOL	SUM	MG/L	1	53.0000					53.0000	53.0000	77/08/18	77/08/18
70302	DISS SOL	TONS/DAY		1	.190000					.190000	.190000	77/08/18	77/08/18
70303	DISS SOL	TONS PER	ACRE-FT	1	.070000					.070000	.070000	77/08/18	77/08/18
71851	NITRATE	DISS-NO3	MG/L	1	.930001					.930001	.930001	77/08/18	77/08/18
71856	NITRITE	DISS-NO2	MG/L	1	.000000					.000000	.000000	77/08/18	77/08/18

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

U.S. GEOLOGICAL SURVEY

11532700 Rowdy Creek at Smith River

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	1	18.0000					18.0000	18.0000	77/08/17	77/08/17
00061	STREAM	FLOW,	INST-CFS	1	4.40000					4.40000	4.40000	77/08/17	77/08/17
00095	CNDUCTVY	AT 25C	MICROMHO	1	105.000					105.000	105.000	77/08/17	77/08/17
00300	DO		MG/L	1	10.5000					10.5000	10.5000	77/08/17	77/08/17
00400	PH		SU	1	9.10000					9.10000	9.10000	77/08/17	77/08/17
00405	CO2		MG/L	1	.100000					.100000	.100000	77/08/17	77/08/17
00410	T ALK	CACO3	MG/L	1	40.9999					40.9999	40.9999	77/08/17	77/08/17
00440	HCO3 ION	HCO3	MG/L	1	49.9999					49.9999	49.9999	77/08/17	77/08/17
00445	CO3 ION	CO3	MG/L	1	9.00000					9.00000	9.00000	77/08/17	77/08/17
00631	NO2&NO3	N-DISS	MG/L	1	.000000					.000000	.000000	77/08/17	77/08/17
00900	TOT HARD	CACO3	MG/L	1	40.0000					40.0000	40.0000	77/08/17	77/08/17
00902	NC HARD	CACO3	MG/L	1	.000000					.000000	.000000	77/08/17	77/08/17
00915	CALCIUM	CA,DISS	MG/L	1	6.70000					6.70000	6.70000	77/08/17	77/08/17
00925	MGNSIUM	MG,DISS	MG/L	1	5.60000					5.60000	5.60000	77/08/17	77/08/17
00930	SODIUM	NA,DISS	MG/L	1	4.70000					4.70000	4.70000	77/08/17	77/08/17
00931	SODIUM	ADSBTION	RATIO	1	.300000					.300000	.300000	77/08/17	77/08/17
00932	PERCENT	SODIUM	%	1	20.0000					20.0000	20.0000	77/08/17	77/08/17
00935	PTSSIUM	K,DISS	MG/L	1	.400000					.400000	.400000	77/08/17	77/08/17
00940	CHLORIDE	CL	MG/L	1	5.80000					5.80000	5.80000	77/08/17	77/08/17
00945	SULFATE	SO4-TOT	MG/L	1	3.50000					3.50000	3.50000	77/08/17	77/08/17
00950	FLUORIDE	F,DISS	MG/L	1	.000000					.000000	.000000	77/08/17	77/08/17
00955	SILICA	DISOLVED	MG/L	1	9.10000					9.10000	9.10000	77/08/17	77/08/17
01020	BORON	B,DISS	UG/L	1	10.0000					10.0000	10.0000	77/08/17	77/08/17
01030	CHROMIUM	CR,DISS	UG/L	1	96.0000					96.0000	96.0000	77/08/17	77/08/17
01046	IRON	FE,DISS	UG/L	1	40.0000					40.0000	40.0000	77/08/17	77/08/17
70301	DISS SOL	SUM	MG/L	1	70.0000					70.0000	70.0000	77/08/17	77/08/17
70302	DISS SOL	TONS/DAY		1	.830000					.830000	.830000	77/08/17	77/08/17
70303	DISS SOL	TONS PER	ACRE-FT	1	.100000					.100000	.100000	77/08/17	77/08/17

CALIFORNIA DEPARTMENT OF WATER RESOURCES

F0130000 Smith River near Crescent City

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	177	12.5728	22.1245	4.70367	.374114	.353550	24.0000	5.00000	58/11/11	80/06/03
00011	WATER	TEMP	FAHN	76	53.3816	81.3067	9.01702	.168916	1.03432	79.0000	38.0000	65/02/10	77/08/17
00027	COLLECT	AGENCY	CODE	251	5050.00	-.294E+03	.000000		.000000	5050.00	5050.00	58/11/11	80/06/03
00029	FIELD	IDENT	NUMBER	73	38244.7	.524E+08	7245.17	.189442	847.983	48022.0	11.0000	59/01/21	79/03/12
00042	ALTITUDE	FEET	AB MSL	1	90.0000					90.0000	90.0000	01/01/01	01/01/01
00061	STREAM	FLOW,	INST-CFS	239	4056.68	.493E+08	7022.46	1.73023	454.245	63900.0	176.000	58/11/11	80/01/09
00065	STREAM	STAGE	FEET	248	9.55578	15.8768	3.98457	.416980	.253020	27.9800	3.76999	58/11/11	80/06/03
00075	TURB	HLGE	PPM SIO2	156	19.7051	2210.11	47.0118	2.38576	3.76395	325.000	.000000	58/11/11	72/02/07
00076	TURB	TRBIDMTR	HACH FTU	93	7.04301	574.128	23.9610	3.40209	2.48464	200.000	.000000	72/03/07	80/06/03
00094	CNDUCTVY	FIELD	MICROMHO	95	113.789	754.585	27.4697	.241408	2.81833	164.000	63.0000	71/10/19	80/06/03
00095	CNDUCTVY	AT 25C	MICROMHO	178	112.573	850.288	29.1597	.259029	2.18561	193.000	66.0000	58/11/11	80/01/09
00300	DO		MG/L	250	11.2359	1.89350	1.37604	.122466	.087029	14.2000	8.50000	58/11/11	80/06/03
00400	PH		SU	249	7.60311	.103043	.321003	.042220	.020343	8.40000	7.00000	58/11/11	80/06/03
00403	LAB	PH	SU	176	7.90560	.076719	.276981	.035036	.020678	8.50000	7.10000	59/01/21	80/01/09
00410	T ALK	CACO3	MG/L	103	53.9611	217.923	14.7622	.273571	1.45456	90.0000	30.0000	65/02/10	78/09/11
00618	NO3-N	DISS	MG/L	5	.014000	.000130	.011402	.814410	.005099	.030000	.000000	72/02/07	76/04/06
00625	TOT KJEL	N	MG/L	5	.020000	.002000	.044721	2.23607	.020000	.100000	.000000	72/02/07	76/04/06
00665	PHOS-TOT		MG/L P	5	.044000	.004980	.070569	1.60384	.031559	.170000	.010000	72/02/07	76/04/06
00671	PHOS-DIS	ORTHO	MG/L P	5	.006000	.000030	.005477	.912871	.002449	.010000	.000000	72/02/07	76/04/06
00900	TOT HARD	CACO3	MG/L	178	55.1517	217.024	14.7317	.267113	1.10419	96.0000	31.0000	58/11/11	80/01/09
00915	CALCIUM	CA,DISS	MG/L	38	7.57893	8.32567	2.88542	.380716	.468077	17.0000	3.50000	59/05/05	80/01/09
00925	MGNSIUM	MG,DISS	MG/L	38	9.48156	7.38569	2.71766	.286626	.440863	14.0000	5.70000	59/05/05	80/01/09
00930	SODIUM	NA,DISS	MG/L	178	2.11232	.411671	.641616	.303749	.048091	5.30000	.600000	58/11/11	80/01/09
00935	PTSSIUM	K,DISS	MG/L	37	.445945	.072553	.269357	.604014	.044282	1.00000	.000000	59/05/05	78/09/11
00940	CHLORIDE	CL	MG/L	178	2.61850	1.25444	1.12002	.427733	.083949	7.50000	.400000	58/11/11	80/01/09
00946	SULFATE	SO4-DISS	MG/L	30	3.39666	5.32583	2.30778	.679424	.421340	9.00000	.000000	59/05/05	78/09/11
00950	FLUORIDE	F,DISS	MG/L	11	.036364	.002545	.050452	1.38744	.015212	.100000	.000000	59/05/05	64/05/13
00955	SILICA	DISOLVED	MG/L	17	13.7059	5.84561	2.41777	.176404	.586395	20.0000	10.0000	59/05/05	67/05/09
01020	BORON	B,DISS	UG/L	178	15.1685	1633.02	40.4106	2.66411	3.02890	200.000	.000000	58/11/11	80/01/09
01027	CADMIUM	CD,TOT	UG/L	4	.000000	.000000	.000000		.000000	.000000	.000000	72/05/02	76/04/06
01042	COPPER	CU,TOT	UG/L	4	2.50000	25.0000	5.00000	2.00000	2.50000	10.00000	.000000	72/05/02	76/04/06
01045	IRON	FE,TOT	UG/L	4	1425.00	6040288	2457.70	1.72471	1228.85	5100.00	20.0000	72/05/02	76/04/06
01051	LEAD	PB,TOT	UG/L	4	5.00000	33.3333	5.77350	1.15470	2.88675	10.00000	.000000	72/05/02	76/04/06
01055	MANGNESE	MN	UG/L	4	12.5000	358.333	18.9297	1.51438	9.46484	40.0000	.000000	72/05/02	76/04/06
01092	ZINC	ZN,TOT	UG/L	4	9.99999	66.6666	8.16496	.816497	4.08248	20.0000	.000000	72/05/02	76/04/06
39036	ALKLNITY	CACO3FIL	MG/L	75	48.9067	138.600	11.7729	.240721	1.35941	73.0000	30.0000	58/11/11	80/01/09
39040	DEF	WTR SMPL	UG/L	2	.000000	.000000	.000000		.000000	.000000	.000000	74/04/02	75/04/15
39042	NO OPC	WHL SMPL	UG/L	3	.000000	.000000	.000000		.000000	.000000	.000000	72/02/07	75/04/15
39380	DIELDRIN		TOTUG/L	1	.025000					.025000	.025000	72/05/02	72/05/02
39570	DIAZINON	WHL SMPL	UG/L	1	.010000					.010000	.010000	72/05/02	72/05/02
39770	DACTHAL	WHL SMPL	UG/L	1	.015000					.015000	.015000	72/05/02	72/05/02
49010	UNKNOWNC	WHL SMPL	UG/L	2	.017500	.000112	.010607	.606091	.007500	.025000	.010000	72/02/07	72/05/02
70300	RESIDUE	DISS-180	C MG/L	22	68.7273	318.878	17.8571	.259826	3.80716	101.000	38.0000	62/09/07	78/09/11
71851	NITRATE	DISS-NO3	MG/L	29	.327586	.444924	.667026	2.03619	.123864	3.09999	.000000	59/05/05	78/09/11
84002	CODE	GENERAL	REMARKS	89	TEXT	TEXT	TEXT	TEXT	TEXT	TEXT	TEXT	58/11/11	80/06/03
84028	ANALYZE	AGENCY	CODE	217	TEXT	TEXT	TEXT	TEXT	TEXT	TEXT	TEXT	58/11/11	80/06/03
84029	FIELD	IDENT	NUMBER	179	TEXT	TEXT	TEXT	TEXT	TEXT	TEXT	TEXT	58/11/11	80/06/03

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, NORTH COAST REGION

MC01A03010001 Smith River near Mouth

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	20	17.8650	4.76460	2.18280	.122183	.488088	21.5000	13.9000	79/06/11	79/09/14
00041	WEATHER	WMO CODE	4501	20	.300000	.221053	.470162	1.56721	.105131	1.00000	.000000	79/06/11	79/09/14
00076	TURB	TRBIDMTR	HACH FTU	20	1.27500	.572500	.756637	.593442	.169189	3.70000	.300000	79/06/11	79/09/14
00095	CNDUCTVY	AT 25C	MICROMHO	20	38260.0	.635E+10	79707.8	2.08332	17823.2	370000	2500.00	79/06/11	79/09/14
00300	DO		MG/L	20	8.96499	1.70034	1.30397	.145451	.291576	12.0000	6.50000	79/06/11	79/09/14
00400	PH		SU	20	7.84499	.127865	.357583	.045581	.079958	8.60000	7.20000	79/06/11	79/09/14
00410	T ALK	CACO3	MG/L	10	93.0000	273.333	16.5328	.177772	5.22813	120.000	70.0000	79/06/11	79/09/11
00620	NO3-N	TOTAL	MG/L	10	.760000	.693778	.832933	1.09597	.263397	3.00000	.100000	79/06/11	79/09/14
00625	TOT KJEL	N	MG/L	10	.102000	.000040	.006325	.062012	.002000	.120000	.100000	79/06/11	79/09/14
31505	TOT COLI	MPN CONF	/100ML	20	70.4000	3290.68	57.3644	.814836	12.8271	240.000	11.0000	79/06/11	79/09/14
31615	FEC COLI	MPNECMED	/100ML	20	35.9000	2695.36	51.9168	1.44615	11.6090	240.000	2.00000	79/06/11	79/09/14
31677	FECSTREP	MPNADEVA	/100ML	20	16.6500	1059.08	32.5435	1.95457	7.27696	130.000	2.00000	79/06/11	79/09/14
32210	CHLRPHYL	A	UG/L	10	2.66199	17.5904	4.19410	1.57555	1.32629	13.2000	.180000	79/06/11	79/09/14
32212	CHLRPHYL	B	UG/L	10	.056000	.007493	.086564	1.54578	.027374	.290000	.000000	79/06/11	79/09/14
32214	CHLRPHYL	C	UG/L	10	.632999	.725779	.851926	1.34586	.269403	2.66000	.000000	79/06/11	79/09/14
60050	ALGAE	TOTAL	/ML	8	15.6500	240.551	15.5097	.991037	5.48351	50.5000	.000000	79/06/11	79/09/14
71886	TOTAL P	AS PO4	MG/L	10	.024000	.000116	.010750	.447904	.003399	.050000	.010000	79/06/11	79/09/14

MB01A03010002 Smith River downstream Rowdy Creek

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	20	19.3500	4.59067	2.14258	.110728	.479096	23.0000	15.6000	79/06/11	79/09/14
00041	WEATHER	WMO CODE	4501	20	.300000	.221053	.470162	1.56721	.105131	1.00000	.000000	79/06/11	79/09/14
00076	TURB	TRBIDMTR	HACH FTU	20	1.56500	.776088	.880958	.562914	.196986	4.20000	.500000	79/06/11	79/09/14
00095	CNDUCTVY	AT 25C	MICROMHO	20	198.750	7849.67	88.5984	.445778	19.8112	460.000	110.000	79/06/11	79/09/14
00300	DO		MG/L	20	8.96999	2.42013	1.55568	.173431	.347860	11.8000	6.70000	79/06/11	79/09/14
00400	PH		SU	20	8.06999	.039101	.197740	.024503	.044216	8.40000	7.60000	79/06/11	79/09/14
00410	T ALK	CACO3	MG/L	10	76.5000	33.6111	5.79751	.075784	1.83333	85.0000	70.0000	79/06/11	79/09/11
00620	NO3-N	TOTAL	MG/L	10	.310000	.178778	.422821	1.36394	.133708	1.50000	.100000	79/06/11	79/09/14
00625	TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
31505	TOT COLI	MPN CONF	/100ML	20	922.800	900994	949.207	1.02862	212.249	2400.00	33.0000	79/06/11	79/09/14
31615	FEC COLI	MPNECMED	/100ML	20	279.000	252160	502.156	1.79984	112.285	1600.00	2.00000	79/06/11	79/09/14
31677	FECSTREP	MPNADEVA	/100ML	20	47.4500	3720.36	60.9948	1.28545	13.6389	240.000	2.00000	79/06/11	79/09/14
32210	CHLRPHYL	A	UG/L	10	1.66800	7.29010	2.70002	1.61872	.853821	9.30000	.400000	79/06/11	79/09/14
32212	CHLRPHYL	B	UG/L	10	.039000	.001521	.039001	1.00004	.012333	.100000	.000000	79/06/11	79/09/14
32214	CHLRPHYL	C	UG/L	10	.555000	.892294	.944613	1.70201	.298713	3.21000	.000000	79/06/11	79/09/14
60050	ALGAE	TOTAL	/ML	9	24.7444	209.441	14.4721	.584862	4.82402	52.5000	11.0000	79/06/11	79/09/14
71886	TOTAL P	AS PO4	MG/L	10	.012000	.000040	.006325	.527046	.002000	.030000	.010000	79/06/11	79/09/14

MB01A03010101 Rowdy Creek at Mouth

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	20	18.1150	5.46587	2.33792	.129060	.522775	21.1000	13.9000	79/06/11	79/09/14
00041	WEATHER	WMO CODE	4501	19	.263158	.204678	.452414	1.71917	.103791	1.00000	.000000	79/06/11	79/09/14
00076	TURB	TRBIDMTR	HACH FTU	20	.730000	.091684	.302794	.414787	.067707	1.50000	.300000	79/06/11	79/09/14
00095	CNDUCTVY	AT 25C	MICROMHO	20	105.700	348.855	18.6777	.176705	4.17645	135.000	85.0000	79/06/11	79/09/14
00300	DO		MG/L	20	10.1850	.661390	.813259	.079849	.181850	11.9000	8.70000	79/06/11	79/09/14
00400	PH		SU	20	8.01999	.021703	.147319	.018369	.032941	8.30000	7.60000	79/06/11	79/09/14
00410	T ALK	CACO3	MG/L	10	43.5000	89.1667	9.44281	.217076	2.98608	60.0000	30.0000	79/06/11	79/09/11
00620	NO3-N	TOTAL	MG/L	10	1.01800	.425018	.651934	.640407	.206160	2.20000	.280000	79/06/11	79/09/14
00625	TOT KJEL	N	MG/L	10	.110000	.001000	.031623	.287483	.010000	.200000	.100000	79/06/11	79/09/14
01002	ARSENIC	AS,TOT	UG/L	3	8.00000	12.0000	3.46410	.433013	2.00000	10.0000	4.00000	79/06/14	79/09/12
01027	CADMIUM	CD,TOT	UG/L	3	1.36667	1.20334	1.09697	.802659	.633334	2.00000	.100000	79/06/14	79/09/12
01034	CHROMIUM	CR,TOT	UG/L	3	16.6667	33.3339	5.77355	.346413	3.33336	20.0000	10.0000	79/06/14	79/09/12
01042	COPPER	CU,TOT	UG/L	3	3.46667	7.05334	2.65581	.766100	1.53333	5.00000	.400000	79/06/14	79/09/12
01051	LEAD	PB,TOT	UG/L	3	5.33333	20.3333	4.50925	.845464	2.60342	10.0000	1.00000	79/06/14	79/09/12
01067	NICKEL	NI,TOTAL	UG/L	3	3.66667	5.33334	2.30940	.629837	1.33333	5.00000	1.00000	79/06/14	79/09/12
31505	TOT COLI	MPN CONF	/100ML	20	1708.50	529487	727.659	.425905	162.709	2400.00	350.000	79/06/11	79/09/14
31615	FEC COLI	MPNECMED	/100ML	20	1051.20	746560	864.037	.821953	193.205	2400.00	5.00000	79/06/11	79/09/14
31677	FECSTREP	MPNADEVA	/100ML	20	118.300	19153.8	138.397	1.16988	30.9466	540.000	11.0000	79/06/11	79/09/14
32210	CHLRPHYL	A	UG/L	10	3.31900	3.79551	1.94821	.586986	.616077	6.50000	1.64000	79/06/11	79/09/14
32212	CHLRPHYL	B	UG/L	10	.308000	.109529	.330951	1.07452	.104656	.880000	.000000	79/06/11	79/09/14
32214	CHLRPHYL	C	UG/L	10	.930000	.847776	.920748	.990052	.291166	2.93000	.230000	79/06/11	79/09/14
60050	ALGAE	TOTAL	/ML	9	38.7666	384.931	19.6196	.506096	6.53988	74.5000	16.6000	79/06/11	79/09/14
71886	TOTAL P	AS PO4	MG/L	10	.017000	.000068	.008233	.484280	.002603	.030000	.010000	79/06/11	79/09/14
71900	MERCURY	HG,TOTAL	UG/L	3	.566666	.103334	.321456	.567275	.185593	.800000	.200000	79/06/14	79/09/12

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, NORTH COAST REGION

WB01A03010004 Smith River upstream Rowdy Creek

PARAMETER			NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010 WATER	TEMP	CENT	20	18.8450	3.26398	1.80665	.095869	.403979	22.0000	15.6000	79/06/11	79/09/14
00041 WEATHER	WMO CODE	4501	20	.250000	.197368	.444262	1.77705	.099340	1.00000	.000000	79/06/11	79/09/14
00076 TURB	TRBIDMTR	HACH FTU	20	.485000	.027658	.166307	.342901	.037187	1.00000	.300000	79/06/11	79/09/14
00095 CNDUCTVY	AT 25C	MICROMHO	20	137.500	230.263	15.1744	.110359	3.39310	155.000	120.000	79/06/11	79/09/14
00300 DO		MG/L	20	9.99499	.744745	.862986	.086342	.192969	11.0000	8.50000	79/06/11	79/09/14
00400 PH		SU	20	7.97499	.026213	.161904	.020301	.036203	8.20000	7.50000	79/06/11	79/09/14
00410 T ALK	CACO3	MG/L	11	65.9091	24.0930	4.90846	.074473	1.47996	70.0000	60.0000	79/06/11	79/09/11
00620 NO3-N	TOTAL	MG/L	10	.280000	.157333	.396652	1.41662	.125432	1.40000	.100000	79/06/11	79/09/14
00625 TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
31505 TOT COLI	MPN CONF	/100ML	20	142.550	121837	349.051	2.44862	78.0502	1600.00	5.00000	79/06/11	79/09/14
31615 FEC COLI	MPNECMED	/100ML	20	12.8000	134.063	11.5786	.904575	2.58905	33.0000	2.00000	79/06/11	79/09/14
31677 FECSTREP	MPNADEVA	/100ML	20	5.30000	40.7474	6.38337	1.20441	1.42736	23.0000	2.00000	79/06/11	79/09/14
32210 CHLRPHYL	A	UG/L	10	.838999	.083588	.289116	.344596	.091426	1.29000	.490000	79/06/11	79/09/14
32212 CHLRPHYL	B	UG/L	10	.033000	.000601	.024518	.742956	.007753	.070000	.000000	79/06/11	79/09/14
32214 CHLRPHYL	C	UG/L	10	.241000	.012988	.113965	.472884	.036039	.450000	.060000	79/06/11	79/09/14
60050 ALGAE	TOTAL	/ML	9	23.0333	106.365	10.3134	.447756	3.43778	37.1000	10.9000	79/06/11	79/09/14
71886 TOTAL P	AS PO4	MG/L	10	.012000	.000018	.004216	.351364	.001333	.020000	.010000	79/06/11	79/09/14

WB01A03010005 Smith River near Crescent City Intake

PARAMETER			NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010 WATER	TEMP	CENT	20	18.9750	4.09539	2.02371	.106651	.452515	23.0000	15.0000	79/06/11	79/09/14
00041 WEATHER	WMO CODE	4501	20	.300000	.221053	.470162	1.56721	.105131	1.00000	.000000	79/06/11	79/09/14
00076 TURB	TRBIDMTR	HACH FTU	20	.410000	.011474	.107116	.261256	.023952	.600000	.200000	79/06/11	79/09/14
00095 CNDUCTVY	AT 25C	MICROMHO	20	135.000	192.105	13.8602	.102668	3.09924	155.000	120.000	79/06/11	79/09/14
00300 DO		MG/L	20	9.83999	.505718	.711139	.072270	.159015	11.4000	8.60000	79/06/11	79/09/14
00400 PH		SU	20	8.00500	.045783	.213969	.026729	.047845	8.20000	7.20000	79/06/11	79/09/14
00410 T ALK	CACO3	MG/L	10	64.5000	24.7222	4.97214	.077087	1.57233	70.0000	60.0000	79/06/11	79/09/11
00620 NO3-N	TOTAL	MG/L	10	.219999	.143999	.379472	1.72488	.120000	1.30000	.100000	79/06/11	79/09/14
00625 TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
31505 TOT COLI	MPN CONF	/100ML	20	62.0000	4524.42	67.2638	1.08490	15.0406	240.000	8.00000	79/06/11	79/09/14
31615 FEC COLI	MPNECMED	/100ML	20	6.00000	20.0000	4.47214	.745356	1.00000	17.0000	2.00000	79/06/11	79/09/14
31677 FECSTREP	MPNADEVA	/100ML	20	5.35000	28.5553	5.34371	.998825	1.19489	23.0000	2.00000	79/06/11	79/09/14
32210 CHLRPHYL	A	UG/L	10	.572000	.150173	.387522	.677486	.122545	1.49000	.160000	79/06/11	79/09/14
32212 CHLRPHYL	B	UG/L	10	.036000	.004916	.070111	1.94753	.022171	.230000	.000000	79/06/11	79/09/14
32214 CHLRPHYL	C	UG/L	10	.129000	.009054	.095155	.737636	.030091	.270000	.010000	79/06/11	79/09/14
60050 ALGAE	TOTAL	/ML	7	80.9571	36208.7	190.286	2.35045	71.9213	512.200	.000000	79/06/11	79/09/14
71886 TOTAL P	AS PO4	MG/L	10	.019000	.000477	.021833	1.14909	.006904	.080000	.010000	79/06/11	79/09/14

WB01A0301006 Smith River at Van Daventer Park

PARAMETER			NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010 WATER	TEMP	CENT	20	18.6600	4.22019	2.05431	.110092	.459358	22.0000	14.4000	79/06/11	79/09/14
00041 WEATHER	WMO CODE	4501	20	.300000	.221053	.470162	1.56721	.105131	1.00000	.000000	79/06/11	79/09/14
00076 TURB	TRBIDMTR	HACH FTU	20	.400000	.018947	.137650	.344124	.030779	.800000	.200000	79/06/11	79/09/14
00095 CNDUCTVY	AT 25C	MICROMHO	20	134.750	167.039	12.9244	.095914	2.88998	150.000	120.000	79/06/11	79/09/14
00300 DO		MG/L	20	9.75000	.426861	.653346	.067010	.146093	11.0000	8.70000	79/06/11	79/09/14
00400 PH		SU	20	8.01500	.020302	.142486	.017777	.031861	8.20000	7.60000	79/06/11	79/09/14
00410 T ALK	CACO3	MG/L	9	64.4444	27.7803	5.27070	.081787	1.75690	70.0000	60.0000	79/06/11	79/09/10
00620 NO3-N	TOTAL	MG/L	10	.229999	.142333	.377270	1.64031	.119303	1.30000	.100000	79/06/11	79/09/14
00625 TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
31505 TOT COLI	MPN CONF	/100ML	20	67.7000	7634.01	87.3728	1.29059	19.5372	350.000	8.00000	79/06/11	79/09/14
31615 FEC COLI	MPNECMED	/100ML	20	8.10000	27.4632	5.24053	.646979	1.17182	17.0000	2.00000	79/06/11	79/09/14
31677 FECSTREP	MPNADEVA	/100ML	20	4.15000	22.8711	4.78237	1.15238	1.06937	23.0000	2.00000	79/06/11	79/09/14
32210 CHLRPHYL	A	UG/L	10	.348000	.019618	.140064	.402484	.044292	.560000	.090000	79/06/11	79/09/14
32212 CHLRPHYL	B	UG/L	10	.048000	.001973	.044422	.925463	.014048	.160000	.010000	79/06/11	79/09/14
32214 CHLRPHYL	C	UG/L	10	.101000	.004166	.064541	.639021	.020410	.180000	.020000	79/06/11	79/09/14
60050 ALGAE ⁄	TOTAL	/ML	9	16.6000	85.0150	9.22036	.555444	3.07345	31.3000	5.30000	79/06/11	79/09/14
71846 TOTAL P	AS PO4	MG/L	10	.015000	.000028	.005270	.351366	.001667	.020000	.010000	79/06/11	79/09/14

WB01A03010007 Smith River at Jedehiah Smith Beach

PARAMETER			NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010 WATER	TEMP	CENT	20	18.3400	2.26007	1.50335	.081971	.336160	20.5000	14.4000	79/06/11	79/09/14
00041 WEATHER	WMO CODE	4501	20	.250000	.197368	.444262	1.77705	.099340	1.00000	.000000	79/06/11	79/09/14
00076 TURB	TRBIDMTR	HACH FTU	20	.345000	.009974	.099869	.289475	.022331	.500000	.100000	79/06/11	79/09/14
00095 CNDUCTVY	AT 25C	MICROMHO	20	133.250	192.829	13.8863	.104212	3.10507	150.000	120.000	79/06/11	79/09/14
00300 DO		MG/L	20	10.0900	.432514	.657658	.065179	.147057	11.0000	8.90000	79/06/11	79/09/14
00400 PH		SU	20	8.01500	.013993	.118292	.014759	.026451	8.20000	7.70000	79/06/11	79/09/14
00410 T ALK	CACO3	MG/L	10	65.0000	22.2222	4.71404	.072524	1.49071	70.0000	60.0000	79/06/11	79/09/11
00620 NO3-N	TOTAL	MG/L	10	.219999	.119555	.345767	1.57167	.109341	1.20000	.100000	79/06/11	79/09/14
00625 TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
31505 TOT COLI	MPN CONF	/100ML	20	120.750	18706.9	136.773	1.13270	30.5834	540.000	8.00000	79/06/11	79/09/14
31615 FEC COLI	MPNECMED	/100ML	20	6.35000	30.5553	5.52768	.870501	1.23603	23.0000	2.00000	79/06/11	79/09/14
31677 FECSTREP	MPNADEVA	/100ML	20	5.80000	16.5895	4.07302	.702245	.910755	14.0000	2.00000	79/06/11	79/09/14
32210 CHLRPHYL	A	UG/L	10	.336000	.019649	.140175	.417187	.044327	.670000	.150000	79/06/11	79/09/14
32212 CHLRPHYL	B	UG/L	10	.040000	.001067	.032660	.816497	.010328	.090000	.000000	79/06/11	79/09/14
32214 CHLRPHYL	C	UG/L	10	.165000	.008961	.094664	.573720	.029935	.340000	.000000	79/06/11	79/09/14
60050 ALGAE	TOTAL	/ML	9	13.1222	93.6619	9.67791	.737521	3.22597	29.8000	.000000	79/06/11	79/09/14
71886 TOTAL P	AS PO4	MG/L	10	.020000	.000178	.013333	.666666	.004216	.050000	.010000	79/06/11	79/09/14

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, NORTH COAST REGION

WB01A03010008 Smith River near Stout Grove

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	20	18.5300	1.84807	1.35944	.073364	.303979	21.0000	16.7000	79/06/11	79/09/14
00041	WEATHER	WMO CODE	4501	20	.250000	.197368	.444262	1.77705	.099340	1.00000	.000000	79/06/11	79/09/14
00076	TURB	TRBIDMTR	HACH FTU	20	.349999	.006842	.082718	.236337	.018496	.600000	.200000	79/06/11	79/09/14
00095	CNDUCTVY	AT 25C	MICROMHO	20	134.000	185.789	13.6305	.101720	3.04786	150.000	115.000	79/06/11	79/09/14
00300	DO		MG/L	20	10.2100	.534655	.731201	.071616	.163501	11.5000	9.00000	79/06/11	79/09/14
00400	PH		SU	20	8.02000	.011179	.105731	.013183	.023642	8.20000	7.80000	79/06/11	79/09/14
00410	T ALK	CACO3	MG/L	10	62.5000	18.0555	4.24918	.067987	1.34371	70.0000	60.0000	79/06/11	79/09/10
00620	NO3-N	TOTAL	MG/L	10	.229999	.168999	.411095	1.78737	.130000	1.40000	.100000	79/06/11	79/09/14
00625	TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
31505	TOT COLI	MPN CONF	/100ML	20	102.500	12504.8	111.825	1.09097	25.0048	350.000	13.0000	79/06/11	79/09/14
31615	FEC COLI	MPNECMED	/100ML	20	7.60000	81.5158	9.02861	1.18797	2.01886	33.0000	2.00000	79/06/11	79/09/14
31677	FECSTREP	MPNADEVA	/100ML	20	5.85000	20.8711	4.56849	.780938	1.02154	17.0000	2.00000	79/06/11	79/09/14
32210	CHLRPHYL	A	UG/L	10	.264000	.006671	.081678	.309387	.025829	.390000	.130000	79/06/11	79/09/14
32212	CHLRPHYL	B	UG/L	10	.004000	.000071	.008433	2.10819	.002667	.020000	.000000	79/06/11	79/09/14
32214	CHLRPHYL	C	UG/L	10	.115000	.002628	.051262	.445755	.016210	.220000	.060000	79/06/11	79/09/14
60050	ALGAE	TOTAL	/ML	9	89.2999	53299.5	230.867	2.58530	76.9556	704.800	3.60000	79/06/11	79/09/14
71886	TOTAL P	AS PO4	MG/L	10	.015000	.000117	.010801	.720063	.003416	.040000	.010000	79/06/11	79/09/14

WB01A03010009 Smith River downstream South Fork

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	20	18.0750	2.77637	1.66684	.092218	.372718	21.5000	15.0000	79/06/11	79/09/14
00041	WEATHER	WMO CODE	4501	20	.350000	.239474	.489360	1.39817	.109424	1.00000	.000000	79/06/11	79/09/14
00076	TURB	TRBIDMTR	HACH FTU	20	.325000	.007237	.085070	.261755	.019022	.500000	.200000	79/06/11	79/09/14
00095	CNDUCTVY	AT 25C	MICROMHO	20	135.500	220.789	14.8590	.109660	3.32257	150.000	110.000	79/06/11	79/09/14
00300	DO		MG/L	20	10.3150	.317177	.563185	.054599	.125932	11.0000	9.00000	79/06/11	79/09/14
00400	PH		SU	20	8.03500	.007671	.087585	.010900	.019585	8.20000	7.90000	79/06/11	79/09/14
00410	T ALK	CACO3	MG/L	11	65.4545	22.2746	4.71960	.072105	1.42301	70.0000	60.0000	79/06/11	79/09/11
00620	NO3-N	TOTAL	MG/L	10	.259999	.191555	.437670	1.68335	.138403	1.50000	.100000	79/06/11	79/09/14
00625	TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
31505	TOT COLI	MPN CONF	/100ML	20	68.6500	4329.19	65.7966	.958435	14.7126	240.000	5.00000	79/06/11	79/09/14
31615	FEC COLI	MPNECMED	/100ML	20	7.45000	60.3658	7.76954	1.04289	1.73732	33.0000	2.00000	79/06/11	79/09/14
31677	FECSTREP	MPNADEVA	/100ML	20	4.60000	25.2000	5.01996	1.09130	1.12250	22.0000	2.00000	79/06/11	79/09/14
32210	CHLRPHYL	A	UG/L	10	.232000	.006507	.080665	.347694	.025508	.430000	.140000	79/06/11	79/09/14
32212	CHLRPHYL	B	UG/L	10	.022000	.000307	.017512	.795996	.005538	.050000	.000000	79/06/11	79/09/14
32214	CHLRPHYL	C	UG/L	10	.124000	.013916	.117964	.951327	.037304	.360000	.000000	79/06/11	79/09/14
60050	ALGAE	TOTAL	/ML	9	10.6889	118.996	10.9085	1.02055	3.63618	26.8000	.000000	79/06/11	79/09/14
71886	TOTAL P	AS PO4	MG/L	10	.012000	.000018	.004216	.351364	.001333	.020000	.010000	79/06/11	79/09/14

WB01A03030001 Middle Fork Smith River downstream Myrtle Creek

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	20	18.5400	3.63692	1.90707	.102863	.426434	23.0000	15.0000	79/06/11	79/09/14
00041	WEATHER	WMO CODE	4501	20	.350000	.239474	.489360	1.39817	.109424	1.00000	.000000	79/06/11	79/09/14
00076	TURB	TRBIDMTR	HACH FTU	20	.395000	.011026	.105007	.265840	.023480	.600000	.200000	79/06/11	79/09/14
00095	CNDUCTVY	AT 25C	MICROMHO	20	133.750	173.355	13.1664	.098441	2.94411	150.000	120.000	79/06/11	79/09/14
00300	DO		MG/L	20	10.0100	.557784	.746850	.074610	.167001	10.9000	7.50000	79/06/11	79/09/14
00400	PH		SU	20	8.05500	.019480	.139570	.017327	.031209	8.20000	7.60000	79/06/11	79/09/14
00410	T ALK	CACO3	MG/L	10	65.5000	35.8333	5.98609	.091391	1.89297	75.0000	60.0000	79/06/11	79/09/11
00620	NO3-N	TOTAL	MG/L	10	.229999	.168999	.411095	1.78737	.130000	1.40000	.100000	79/06/11	79/09/14
00625	TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
31505	TOT COLI	MPN CONF	/100ML	20	137.500	16878.0	129.916	.944840	29.0500	540.000	23.0000	79/06/11	79/09/14
31615	FEC COLI	MPNECMED	/100ML	20	6.45000	51.7342	7.19265	1.11514	1.60832	33.0000	2.00000	79/06/11	79/09/14
31677	FECSTREP	MPNADEVA	/100ML	20	4.55000	19.2079	4.38268	.963227	.979997	17.0000	2.00000	79/06/11	79/09/14
32210	CHLRPHYL	A	UG/L	10	.307000	.049779	.223112	.726750	.070554	.750000	.120000	79/06/11	79/09/14
32212	CHLRPHYL	B	UG/L	10	.023000	.000223	.014944	.649755	.004726	.050000	.000000	79/06/11	79/09/14
32214	CHLRPHYL	C	UG/L	10	.134000	.009671	.098342	.733895	.031098	.360000	.000000	79/06/11	79/09/14
60050	ALGAE	TOTAL	/ML	9	27.0555	1367.19	37.2451	1.37661	12.4150	101.900	2.80000	79/06/11	79/09/14
71886	TOTAL P	AS PO4	MG/L	10	.013000	.000046	.006749	.519192	.002134	.030000	.010000	79/06/11	79/09/14

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, NORTH COAST REGION

WB01A03030002 Middle Fork Smith River upstream Myrtle Creek

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	20	18.1650	3.52714	1.87807	.103389	.419949	22.5000	15.0000	79/06/11	79/09/14
00041	WEATHER	WMO CODE	4501	20	.350000	.239474	.489360	1.39817	.109424	1.00000	.000000	79/06/11	79/09/14
00076	TURB	TRBIDMTR	HACH FTU	20	.400000	.013684	.116980	.292450	.026158	.600000	.200000	79/06/11	79/09/14
00095	CNDUCTVY	AT 25C	MICROMHO	20	137.250	303.881	17.4322	.127010	3.89796	190.000	120.000	79/06/11	79/09/14
00300	DO		MG/L	20	10.1400	.416260	.645182	.063627	.144267	11.4000	9.20000	79/06/11	79/09/14
00400	PH		SU	20	8.06000	.008866	.094160	.011682	.021055	8.20000	7.90000	79/06/11	79/09/14
00410	T ALK	CACO3	MG/L	9	65.0000	37.5000	6.12372	.094211	2.04124	75.0000	60.0000	79/06/11	79/09/10
00620	NO3-N	TOTAL	MG/L	10	.250000	.193888	.440328	1.76131	.139244	1.50000	.100000	79/06/11	79/09/14
00625	TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
01002	ARSENIC	AS,TOT	UG/L	3	7.33333	21.3334	4.61881	.629837	2.66667	10.0000	2.00000	79/06/14	79/09/12
01027	CADMIUM	CD,TOT	UG/L	3	7.36666	120.603	10.9820	1.49076	6.34043	20.0000	.100000	79/06/14	79/09/12
01034	CHROMIUM	CR,TOT	UG/L	3	16.6667	133.334	11.5470	.692822	6.66668	30.0000	10.0000	79/06/14	79/09/12
01042	COPPER	CU,TOT	UG/L	3	3.36667	8.00334	2.82902	.840302	1.63333	5.00000	.100000	79/06/14	79/09/12
01051	LEAD	PB,TOT	UG/L	3	8.66667	100.333	10.0167	1.15577	5.78312	20.0000	1.00000	79/06/14	79/09/12
01067	NICKEL	NI,TOTAL	UG/L	3	3.66667	5.33334	2.30940	.629837	1.33333	5.00000	1.00000	79/06/14	79/09/12
31505	TOT COLI	MPN CONF	/100ML	20	117.500	15797.4	125.688	1.06966	28.1046	540.000	33.0000	79/06/11	79/09/14
31615	FEC COLI	MPNECMED	/100ML	20	7.80000	119.537	10.9333	1.40170	2.44476	49.0000	2.00000	79/06/11	79/09/14
31677	FECSTREP	MPNADEVA	/100ML	20	6.80000	57.4316	7.57836	1.11446	1.69457	33.0000	2.00000	79/06/11	79/09/14
32210	CHLRPHYL	A	UG/L	10	.264000	.006849	.082758	.313479	.026171	.400000	.120000	79/06/11	79/09/14
32212	CHLRPHYL	B	UG/L	10	.035000	.000694	.026352	.752924	.008333	.080000	.000000	79/06/11	79/09/14
32214	CHLRPHYL	C	UG/L	10	.114000	.009071	.095242	.835460	.030118	.290000	.000000	79/06/11	79/09/14
60050	ALGAE	TOTAL	/ML	9	6.91111	47.8585	6.91798	1.00099	2.30599	18.3000	.000000	79/06/11	79/09/14
71886	TOTAL P	AS PO4	MG/L	10	.011000	.000010	.003162	.287483	.001000	.020000	.010000	79/06/11	79/09/14
71900	MERCURY	HG,TOTAL	UG/L	3	.433333	.043334	.208168	.480388	.120186	.600000	.200000	79/06/14	79/09/12

WB01A03020001 South Fork Smith River

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	20	17.8750	3.75411	1.93755	.108395	.433250	22.5000	15.0000	79/06/11	79/09/14
00041	WEATHER	WMO CODE	4501	20	.350000	.239474	.489360	1.39817	.109424	1.00000	.000000	79/06/11	79/09/14
00076	TURB	TRBIDMTR	HACH FTU	20	.460000	.245684	.495666	1.07753	.110834	2.50000	.200000	79/06/11	79/09/14
00095	CNDUCTVY	AT 25C	MICROMHO	20	133.250	179.671	13.4041	.100594	2.99726	150.000	120.000	79/06/11	79/09/14
00300	DO		MG/L	20	10.5550	.461606	.679416	.064369	.151922	11.6000	9.30000	79/06/11	79/09/14
00400	PH		SU	20	8.01500	.007671	.087585	.010928	.019585	8.20000	7.90000	79/06/11	79/09/14
00410	T ALK	CACO3	MG/L	11	64.5454	22.2754	4.71968	.073122	1.42304	70.0000	60.0000	79/06/11	79/09/11
00620	NO3-N	TOTAL	MG/L	10	.239999	.167110	.408792	1.70330	.129271	1.40000	.100000	79/06/11	79/09/14
00625	TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
01002	ARSENIC	AS,TOT	UG/L	3	8.00000	12.0000	3.46410	.433013	2.00000	10.0000	4.00000	79/06/14	79/09/12
01027	CADMIUM	CD,TOT	UG/L	3	1.70000	2.17000	1.47309	.866525	.850490	3.00000	.100000	79/06/14	79/09/12
01034	CHROMIUM	CR,TOT	UG/L	3	13.3333	33.3335	5.77352	.433014	3.33334	20.0000	10.0000	79/06/14	79/09/12
01042	COPPER	CU,TOT	UG/L	3	3.43333	7.36334	2.71355	.790354	1.56667	5.00000	.300000	79/06/14	79/09/12
01051	LEAD	PB,TOT	UG/L	3	3.66667	5.33334	2.30940	.629837	1.33333	5.00000	1.00000	79/06/14	79/09/12
01067	NICKEL	NI,TOTAL	UG/L	3	3.66667	5.33334	2.30940	.629837	1.33333	5.00000	1.00000	79/06/14	79/09/12
31505	TOT COLI	MPN CONF	/100ML	20	73.9000	9927.67	99.6377	1.34826	22.2797	350.000	5.00000	79/06/11	79/09/14
31615	FEC COLI	MPNECMED	/100ML	20	5.90000	17.7790	4.21651	.714663	.942840	13.0000	2.00000	79/06/11	79/09/14
31677	FECSTREP	MPNADEVA	/100ML	20	6.10000	39.5684	6.29034	1.03120	1.40656	23.0000	2.00000	79/06/11	79/09/14
32210	CHLRPHYL	A	UG/L	10	.191000	.003099	.055668	.291458	.017604	.300000	.120000	79/06/11	79/09/14
32212	CHLRPHYL	B	UG/L	10	.030000	.001178	.034319	1.14396	.010853	.090000	.000000	79/06/11	79/09/14
32214	CHLRPHYL	C	UG/L	10	.107000	.007046	.083938	.784465	.026543	.280000	.000000	79/06/11	79/09/14
60050	ALGAE	TOTAL	/ML	9	15.4444	672.377	25.9302	1.67894	8.64341	80.5000	.000000	79/06/11	79/09/14
71886	TOTAL P	AS PO4	MG/L	10	.011000	.000010	.003162	.287483	.001000	.020000	.010000	79/06/11	79/09/14
71900	MERCURY	HG,TOTAL	UG/L	3	.433333	.043334	.208168	.480388	.120186	.600000	.200000	79/06/14	79/09/12

WB01A0303201 Hardscrabble Creek near Mouth

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	20	16.3550	2.81147	1.67674	.102522	.374931	20.0000	13.9000	79/06/11	79/09/14
00041	WEATHER	WMO CODE	4501	20	.250000	.197368	.444262	1.77705	.099340	1.00000	.000000	79/06/11	79/09/14
00076	TURB	TRBIDMTR	HACH FTU	20	.360000	.009895	.099472	.276313	.022243	.600000	.200000	79/06/11	79/09/14
00095	CNDUCTVY	AT 25C	MICROMHO	20	154.100	139.362	11.8052	.076607	2.63971	170.000	125.000	79/06/11	79/09/14
00300	DO		MG/L	20	10.6750	.142038	.376880	.035305	.084273	11.5000	10.1000	79/06/11	79/09/14
00400	PH		SU	20	8.11499	.005590	.074763	.009213	.016718	8.30000	8.00000	79/06/11	79/09/14
00410	T ALK	CACO3	MG/L	11	74.5454	52.2758	7.23020	.096990	2.17999	90.0000	65.0000	79/06/11	79/09/11
00620	NO3-N	TOTAL	MG/L	10	.239999	.167110	.408792	1.70330	.129271	1.40000	.100000	79/06/11	79/09/14
00625	TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
01002	ARSENIC	AS,TOT	UG/L	3	8.66667	5.33341	2.30942	.266471	1.33334	10.0000	6.00000	79/06/14	79/09/12
01027	CADMIUM	CD,TOT	UG/L	3	1.36667	1.20334	1.09697	.802659	.633334	2.00000	.100000	79/06/14	79/09/12
01034	CHROMIUM	CR,TOT	UG/L	3	19.6667	110.334	10.5040	.534102	6.06449	30.0000	9.00000	79/06/14	79/09/12
01042	COPPER	CU,TOT	UG/L	3	5.00000	9.00000	3.00000	.600000	1.73205	8.00000	2.00000	79/06/14	79/09/12
01051	LEAD	PB,TOT	UG/L	3	3.66667	5.33334	2.30940	.629837	1.33333	5.00000	1.00000	79/06/14	79/09/12
01067	NICKEL	NI,TOTAL	UG/L	3	3.66667	5.33334	2.30940	.629837	1.33333	5.00000	1.00000	79/06/14	79/09/12
31505	TOT COLI	MPN CONF	/100ML	20	52.8500	6353.92	79.7115	1.50826	17.8240	350.000	5.00000	79/06/11	79/09/14
31615	FEC COLI	MPNECMED	/100ML	20	9.15000	159.187	12.6169	1.37890	2.82123	49.0000	2.00000	79/06/11	79/09/14
31677	FECSTREP	MPNADEVA	/100ML	20	14.7000	784.642	28.0115	1.90554	6.26356	130.000	2.00000	79/06/11	79/09/14
32210	CHLRPHYL	A	UG/L	10	.110000	.003400	.058310	.530088	.018439	.200000	.040000	79/06/11	79/09/14
32212	CHLRPHYL	B	UG/L	10	.025000	.001117	.033417	1.33666	.010567	.110000	.000000	79/06/11	79/09/14
32214	CHLRPHYL	C	UG/L	10	.105000	.008894	.094310	.898195	.029824	.350000	.000000	79/06/11	79/09/14
60050	ALGAE	TOTAL	/ML	9	9.28889	503.187	22.4318	2.41491	7.47728	68.9000	.000000	79/06/11	79/09/14
71886	TOTAL P	AS PO4	MG/L	10	.012000	.000040	.006325	.527046	.002000	.030000	.010000	79/06/11	79/09/14
71900	MERCURY	HG,TOTAL	UG/L	3	.533333	.123334	.351189	.658479	.202759	.900000	.200000	79/06/14	79/09/12

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, NORTH COAST REGION

WB01A03030003 Middle Fork Smith River downstream Gasquet

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	20	17.9200	4.54729	2.13244	.118998	.476827	23.0000	14.4000	79/06/11	79/09/14
00041	WEATHER	WMO CODE	4501	20	.250000	.197368	.444262	1.77705	.099340	1.00000	.000000	79/06/11	79/09/14
00076	TURB	TRBIDMTR	HACH FTU	20	.335000	.011869	.108943	.325203	.024360	.600000	.200000	79/06/11	79/09/14
00095	CNDUCTVY	AT 25C	MICROMHO	20	135.250	169.671	13.0258	.096309	2.91265	150.000	120.000	79/06/11	79/09/14
00300	DO		MG/L	20	10.3950	.176295	.419875	.040392	.093887	11.2000	9.70000	79/06/11	79/09/14
00400	PH		SU	20	8.07500	.008314	.091179	.011292	.020388	8.20000	7.90000	79/06/11	79/09/14
00410	T ALK	CACO3	MG/L	10	64.5000	19.1667	4.37797	.067875	1.38444	70.0000	60.0000	79/06/11	79/09/10
00620	NO3-N	TOTAL	MG/L	10	.249999	.224999	.474341	1.89737	.150000	1.60000	.100000	79/06/11	79/09/14
00625	TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
31505	TOT COLI	MPN CONF	/100ML	20	120.350	42789.0	206.855	1.71878	46.2542	920.000	5.00000	79/06/11	79/09/14
31615	FEC COLI	MPNECMED	/100ML	20	4.75000	7.77632	2.78860	.587075	.623551	13.0000	2.00000	79/06/11	79/09/14
31677	FECSTREP	MPNADEVA	/100ML	20	5.65000	34.2395	5.85145	1.03565	1.30842	23.0000	2.00000	79/06/11	79/09/14
32210	CHLRPHYL	A	UG/L	10	.217000	.014979	.122389	.564003	.038703	.560000	.140000	79/06/11	79/09/14
32212	CHLRPHYL	B	UG/L	10	.022000	.000773	.027809	1.26404	.008794	.070000	.000000	79/06/11	79/09/14
32214	CHLRPHYL	C	UG/L	10	.124000	.005960	.077201	.622591	.024413	.260000	.000000	79/06/11	79/09/14
60050	ALGAE	TOTAL	/ML	9	16.5555	125.576	11.2061	.676876	3.73535	30.0000	.000000	79/06/11	79/09/14
71886	TOTAL P	AS PO4	MG/L	10	.016000	.000071	.008433	.527046	.002667	.030000	.010000	79/06/11	79/09/14

WB01A03030004 Middle Fork Smith River at Gasquet

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	20	17.5950	2.94511	1.71613	.097535	.383739	21.0000	14.4000	79/06/11	79/09/14
00041	WEATHER	WMO CODE	4501	20	.200000	.168421	.410391	2.05196	.091766	1.00000	.000000	79/06/11	79/09/14
00076	TURB	TRBIDMTR	HACH FTU	20	.340000	.014105	.118766	.349313	.026557	.700000	.200000	79/06/11	79/09/14
00095	CNDUCTVY	AT 25C	MICROMHO	20	133.250	179.671	13.4041	.100594	2.99726	150.000	120.000	79/06/11	79/09/14
00300	DO		MG/L	20	10.2700	.325414	.570450	.055545	.127557	11.3000	9.40000	79/06/11	79/09/14
00400	PH		SU	20	8.09999	.007414	.086106	.010630	.019254	8.20000	7.90000	79/06/11	79/09/14
00410	T ALK	CACO3	MG/L	10	64.0000	21.1111	4.59468	.071792	1.45297	70.0000	60.0000	79/06/11	79/09/11
00620	NO3-N	TOTAL	MG/L	10	.229999	.142333	.377270	1.64031	.119303	1.30000	.100000	79/06/11	79/09/14
00625	TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
31505	TOT COLI	MPN CONF	/100ML	20	194.800	49538.0	222.571	1.14256	49.7684	920.000	23.0000	79/06/11	79/09/14
31615	FEC COLI	MPNECMED	/100ML	20	15.3500	779.819	27.9252	1.81923	6.24427	130.000	2.00000	79/06/11	79/09/14
31677	FECSTREP	MPNADEVA	/100ML	20	15.1000	546.621	23.3799	1.54834	5.22791	79.0000	2.00000	79/06/11	79/09/14
32210	CHLRPHYL	A	UG/L	10	.217999	.010507	.102503	.470198	.032414	.440000	.050000	79/06/11	79/09/14
32212	CHLRPHYL	B	UG/L	10	.035000	.001050	.032404	.925820	.010247	.090000	.000000	79/06/11	79/09/14
32214	CHLRPHYL	C	UG/L	10	.148000	.014196	.119145	.805035	.037677	.390000	.000000	79/06/11	79/09/14
60050	ALGAE	TOTAL	/ML	9	17.1555	973.286	31.1975	1.81851	10.3992	94.4000	.000000	79/06/11	79/09/14
71886	TOTAL P	AS PO4	MG/L	10	.019000	.000477	.021833	1.14909	.006904	.080000	.010000	79/06/11	79/09/14

WB01A03040001 North Fork Smith River

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	20	17.7200	3.15070	1.77502	.100170	.396907	21.0000	13.9000	79/06/11	79/09/14
00041	WEATHER	WMO CODE	4501	20	.200000	.168421	.410391	2.05196	.091766	1.00000	.000000	79/06/11	79/09/14
00076	TURB	TRBIDMTR	HACH FTU	20	.320000	.009053	.095146	.297331	.021275	.500000	.200000	79/06/11	79/09/14
00095	CNDUCTVY	AT 25C	MICROMHO	20	139.500	228.684	15.1223	.108404	3.38145	190.000	125.000	79/06/11	79/09/14
00300	DO		MG/L	20	10.1800	.168046	.409934	.040269	.091664	10.8000	9.60000	79/06/11	79/09/14
00400	PH		SU	20	8.12499	.013595	.116597	.014350	.026072	8.30000	7.90000	79/06/11	79/09/14
00410	T ALK	CACO3	MG/L	11	68.1818	21.3664	4.62238	.067795	1.39370	75.0000	60.0000	79/06/11	79/09/11
00620	NO3-N	TOTAL	MG/L	10	.259999	.222666	.471875	1.81491	.149220	1.60000	.100000	79/06/11	79/09/14
00625	TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
01002	ARSENIC	AS,TOT	UG/L	3	8.33333	8.33340	2.88676	.346412	1.66667	10.0000	5.00000	79/06/14	79/09/12
01027	CADMIUM	CD,TOT	UG/L	3	1.36667	1.20334	1.09697	.802659	.633334	2.00000	.100000	79/06/14	79/09/12
01034	CHROMIUM	CR,TOT	UG/L	3	16.6667	133.334	11.5470	.692822	6.66668	30.0000	10.0000	79/06/14	79/09/12
01042	COPPER	CU,TOT	UG/L	3	3.40000	7.68001	2.77128	.815083	1.60000	5.00000	.200000	79/06/14	79/09/12
01051	LEAD	PB,TOT	UG/L	3	3.66667	5.33334	2.30940	.629837	1.33333	5.00000	1.00000	79/06/14	79/09/12
01067	NICKEL	NI,TOTAL	UG/L	3	3.66667	5.33334	2.30940	.629837	1.33333	5.00000	1.00000	79/06/14	79/09/12
31505	TOT COLI	MPN CONF	/100ML	20	100.700	17759.2	133.264	1.32337	29.7986	540.000	23.0000	79/06/11	79/09/14
31615	FEC COLI	MPNECMED	/100ML	20	21.7000	5984.75	77.3611	3.56503	17.2985	350.000	2.00000	79/06/11	79/09/14
31677	FECSTREP	MPNADEVA	/100ML	20	4.80000	25.7474	5.07419	1.05712	1.13462	23.0000	2.00000	79/06/11	79/09/14
32210	CHLRPHYL	A	UG/L	10	.124000	.005449	.073817	.595297	.023343	.270000	.030000	79/06/11	79/09/14
32212	CHLRPHYL	B	UG/L	10	.046000	.007716	.087838	1.90952	.027777	.280000	.000000	79/06/11	79/09/14
32214	CHLRPHYL	C	UG/L	10	.187000	.060757	.246489	1.31812	.077947	.810000	.000000	79/06/11	79/09/14
60050	ALGAE	TOTAL	/ML	8	10.1250	29.7222	5.45180	.538450	1.92750	16.8000	.000000	79/06/11	79/09/14
71886	TOTAL P	AS PO4	MG/L	10	.010000	.517E-10	.000007	.000719	.000002	.010000	.010000	79/06/11	79/09/14
71900	MERCURY	HG,TOTAL	UG/L	3	.466666	.063334	.251662	.539276	.145297	.700000	.200000	79/06/14	79/09/12

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, NORTH COAST REGION

WB01A03030005 Middle Fork Smith River upstream North Fork

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	20	17.7050	5.01357	2.23910	.126467	.500678	22.5000	13.3000	79/06/11	79/09/14
00041	WEATHER	WMO CODE	4501	20	.200000	.168421	.410391	2.05196	.091766	1.00000	.000000	79/06/11	79/09/14
00076	TURB	TRBIDMTR	HACH FTU	20	.380000	.013263	.115166	.303070	.025752	.700000	.200000	79/06/11	79/09/14
00095	CNDUCTVY	AT 25C	MICROMHO	20	130.000	202.632	14.2349	.109499	3.18301	150.000	115.000	79/06/11	79/09/14
00300	DO		MG/L	20	10.4050	.172106	.414857	.039871	.092765	11.1000	9.90000	79/06/11	79/09/14
00400	PH		SU	20	8.08500	.012965	.113865	.014083	.025461	8.30000	7.90000	79/06/11	79/09/14
00410	T ALK	CACO3	MG/L	10	62.5000	18.0555	4.24918	.067987	1.34371	70.0000	60.0000	79/06/11	79/09/10
00620	NO3-N	TOTAL	MG/L	10	.239999	.167110	.408792	1.70330	.129271	1.40000	.100000	79/06/11	79/09/14
00625	TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
01002	ARSENIC	AS,TOT	UG/L	3	8.33333	8.33340	2.88676	.346412	1.66667	10.0000	5.00000	79/06/14	79/09/12
01027	CADMIUM	CD,TOT	UG/L	3	1.36667	1.20334	1.09697	.802659	.633334	2.00000	.100000	79/06/14	79/09/12
01034	CHROMIUM	CR,TOT	UG/L	3	20.0000	.000000	.000000		.000000	20.0000	20.0000	79/06/14	79/09/12
01042	COPPER	CU,TOT	UG/L	3	4.40000	15.4800	3.93446	.894196	2.27156	8.00000	.200000	79/06/14	79/09/12
01051	LEAD	PB,TOT	UG/L	3	10.3333	165.333	12.8582	1.24434	7.42369	25.0000	1.00000	79/06/14	79/09/12
01067	NICKEL	NI,TOTAL	UG/L	3	3.66667	5.33334	2.30940	.629837	1.33333	5.00000	1.00000	79/06/14	79/09/12
31505	TOT COLI	MPN CONF	/100ML	20	32.7500	835.460	28.9043	.882575	6.46320	130.000	5.00000	79/06/11	79/09/14
31615	FEC COLI	MPNECMED	/100ML	20	4.10000	22.8316	4.77824	1.16542	1.06845	23.0000	2.00000	79/06/11	79/09/14
31677	FECSTREP	MPNADEVA	/100ML	20	5.10000	10.9369	3.30709	.648449	.739488	11.0000	2.00000	79/06/11	79/09/14
32210	CHLRPHYL	A	UG/L	10	.233000	.011446	.106984	.459160	.033831	.430000	.020000	79/06/11	79/09/14
32212	CHLRPHYL	B	UG/L	10	.032000	.002173	.046619	1.45684	.014742	.150000	.000000	79/06/11	79/09/14
32214	CHLRPHYL	C	UG/L	10	.145000	.004295	.065532	.451949	.020723	.270000	.030000	79/06/11	79/09/14
60050	ALGAE	TOTAL	/ML	8	10.9000	92.7486	9.63061	.883542	3.40493	30.5000	.000000	79/06/11	79/09/14
71886	TOTAL P	AS PO4	MG/L	10	.011000	.000010	.003162	.287483	.001000	.020000	.010000	79/06/11	79/09/14
71900	MERCURY	HG,TOTAL	UG/L	3	.500000	.070001	.264576	.529153	.152753	.700000	.200000	79/06/14	79/09/12

WB01A03030501 Patrick Creek at Mouth

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	20	16.4300	3.92023	1.97996	.120509	.442732	20.0000	12.8000	79/06/11	79/09/14
00041	WEATHER	WMO CODE	4501	20	.200000	.168421	.410391	2.05196	.091766	1.00000	.000000	79/06/11	79/09/14
00076	TURB	TRBIDMTR	HACH FTU	20	.360000	.042526	.206219	.572832	.046112	1.00000	.200000	79/06/11	79/09/14
00095	CNDUCTVY	AT 25C	MICROMHO	20	133.750	170.724	13.0661	.097691	2.92167	150.000	120.000	79/06/11	79/09/14
00300	DO		MG/L	20	10.2550	.281584	.530645	.051745	.118656	11.3000	9.50000	79/06/11	79/09/14
00400	PH		SU	20	8.09000	.019930	.141172	.017450	.031567	8.40000	7.80000	79/06/11	79/09/14
00410	T ALK	CACO3	MG/L	11	57.2727	106.820	10.3354	.180459	3.11624	70.0000	40.0000	79/06/11	79/09/11
00620	NO3-N	TOTAL	MG/L	10	.180000	.035111	.187380	1.04100	.059255	.700000	.100000	79/06/11	79/09/14
00625	TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
01002	ARSENIC	AS,TOT	UG/L	3	8.00000	12.0000	3.46410	.433013	2.00000	10.0000	4.00000	79/06/14	79/09/12
01027	CADMIUM	CD,TOT	UG/L	3	1.36667	1.20334	1.09697	.802659	.633334	2.00000	.100000	79/06/14	79/09/12
01034	CHROMIUM	CR,TOT	UG/L	3	13.3333	33.3335	5.77352	.433014	3.33334	20.0000	10.0000	79/06/14	79/09/12
01042	COPPER	CU,TOT	UG/L	3	6.36666	29.7034	5.45009	.856035	3.14661	10.0000	.100000	79/06/14	79/09/12
01051	LEAD	PB,TOT	UG/L	3	3.66667	5.33334	2.30940	.629837	1.33333	5.00000	1.00000	79/06/14	79/09/12
01067	NICKEL	NI,TOTAL	UG/L	3	4.66667	12.3333	3.51189	.752547	2.02759	8.00000	1.00000	79/06/14	79/09/12
31505	TOT COLI	MPN CONF	/100ML	20	18.3000	238.537	15.4447	.843971	3.45353	49.0000	4.00000	79/06/11	79/09/14
31615	FEC COLI	MPNECMED	/100ML	20	2.10000	.200003	.447217	.212961	.100001	4.00000	2.00000	79/06/11	79/09/14
31677	FECSTREP	MPNADEVA	/100ML	20	4.75000	13.1447	3.62557	.763277	.810702	13.0000	2.00000	79/06/11	79/09/14
32210	CHLRPHYL	A	UG/L	10	.073000	.000623	.024967	.342010	.007895	.110000	.050000	79/06/11	79/09/14
32212	CHLRPHYL	B	UG/L	10	.030000	.000689	.026247	.874890	.008300	.090000	.000000	79/06/11	79/09/14
32214	CHLRPHYL	C	UG/L	10	.093000	.006157	.078464	.843703	.024813	.280000	.000000	79/06/11	79/09/14
60050	ALGAE	TOTAL	/ML	8	5.90000	177.380	13.3184	2.25736	4.70877	38.5000	.000000	79/06/11	79/09/14
71886	TOTAL P	AS PO4	MG/L	10	.012000	.000018	.004216	.351367	.001333	.020000	.010000	79/06/11	79/09/14
71900	MERCURY	HG,TOTAL	UG/L	3	.633333	.143334	.378595	.597761	.218582	.900000	.200000	79/06/14	79/09/12

WB01A03030006 Middle Fork Smith River downstream Patrick Creek

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	20	16.5000	3.90810	1.97689	.119812	.442046	19.5000	12.2000	79/06/11	79/09/14
00041	WEATHER	WMO CODE	4501	20	.250000	.197368	.444262	1.77705	.099340	1.00000	.000000	79/06/11	79/09/14
00076	TURB	TRBIDMTR	HACH FTU	20	.340000	.037263	.193037	.567756	.043164	1.00000	.100000	79/06/11	79/09/14
00095	CNDUCTVY	AT 25C	MICROMHO	20	121.250	241.776	15.5492	.128240	3.47690	140.000	95.0000	79/06/11	79/09/14
00300	DO		MG/L	20	10.2950	.306820	.553914	.053804	.123859	11.2000	9.30000	79/06/11	79/09/14
00400	PH		SU	20	8.02499	.008314	.091179	.011362	.020388	8.20000	7.80000	79/06/11	79/09/14
00410	T ALK	CACO3	MG/L	10	61.5000	11.3889	3.37474	.054874	1.06719	70.0000	60.0000	79/06/11	79/09/10
00620	NO3-N	TOTAL	MG/L	10	.110000	.001000	.031623	.287483	.010000	.200000	.100000	79/06/11	79/09/14
00625	TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
31505	TOT COLI	MPN CONF	/100ML	20	94.3000	40031.0	200.077	2.12171	44.7387	920.000	2.00000	79/06/11	79/09/14
31615	FEC COLI	MPNECMED	/100ML	20	18.1000	1608.73	40.1089	2.21596	8.96863	140.000	2.00000	79/06/11	79/09/14
31677	FECSTREP	MPNADEVA	/100ML	20	14.4500	892.471	29.8742	2.06742	6.68009	130.000	2.00000	79/06/11	79/09/14
32210	CHLRPHYL	A	UG/L	10	.245000	.010983	.104802	.427765	.033141	.420000	.140000	79/06/11	79/09/14
32212	CHLRPHYL	B	UG/L	10	.058000	.005440	.073756	1.27166	.023324	.260000	.000000	79/06/11	79/09/14
32214	CHLRPHYL	C	UG/L	10	.083000	.009779	.098888	1.19142	.031271	.270000	.000000	79/06/11	79/09/14
60050	ALGAE	TOTAL	/ML	8	7.01249	35.8526	5.98771	.853863	2.11697	19.9000	2.80000	79/06/11	79/09/14
71886	TOTAL P	AS PO4	MG/L	10	.015000	.000050	.007071	.471406	.002236	.030000	.010000	79/06/11	79/09/14

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, NORTH COAST REGION

MB01A03030007 Middle Fork Smith River upstream Patrick Creek

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	20	16.2050	3.44099	1.85499	.114470	.414789	19.0000	12.8000	79/06/11	79/09/14
00041	WEATHER	WMO CODE	4501	20	.200000	.168421	.410391	2.05196	.091766	1.00000	.000000	79/06/11	79/09/14
00076	TURB	TRBIDMTR	HACH FTU	20	.315000	.015026	.122582	.389150	.027410	.700000	.200000	79/06/11	79/09/14
00095	CNDUCTVY	AT 25C	MICROMHO	20	113.600	214.993	14.6627	.129073	3.27867	135.000	95.0000	79/06/11	79/09/14
00300	DO		MG/L	20	10.5100	.283113	.532084	.050626	.118978	11.6000	9.70000	79/06/11	79/09/14
00400	PH		SU	20	8.02999	.008558	.092508	.011520	.020685	8.30000	7.90000	79/06/11	79/09/14
00410	T ALK	CACO3	MG/L	10	56.5000	39.1667	6.25833	.110767	1.97906	65.0000	50.0000	79/06/11	79/09/10
00620	NO3-N	TOTAL	MG/L	10	.180000	.048445	.220101	1.22279	.069602	.800000	.100000	79/06/11	79/09/14
00625	TOT KJEL	N	MG/L	10	.100000	.000000	.000000		.000000	.100000	.100000	79/06/11	79/09/14
31505	TOT COLI	MPN CONF	/100ML	20	86.9000	15774.7	125.597	1.44531	28.0844	540.000	8.00000	79/06/11	79/09/14
31615	FEC COLI	MPNECMED	/100ML	20	9.00000	71.7895	8.47287	.941430	1.89459	33.0000	2.00000	79/06/11	79/09/14
31677	FECSTREP	MPNADEVA	/100ML	20	8.25000	83.6710	9.14719	1.10875	2.04537	33.0000	2.00000	79/06/11	79/09/14
32210	CHLRPHYL	A	UG/L	10	.280000	.029245	.171010	.610751	.054078	.740000	.160000	79/06/11	79/09/14
32212	CHLRPHYL	B	UG/L	10	.012000	.000996	.031552	2.62937	.009978	.100000	.000000	79/06/11	79/09/14
32214	CHLRPHYL	C	UG/L	10	.135000	.013806	.117497	.870351	.037156	.380000	.000000	79/06/11	79/09/14
60050	ALGAE	TOTAL	/ML	8	10.1500	43.3028	6.58049	.648324	2.32655	18.5000	.000000	79/06/11	79/09/14
71886	TOTAL P	AS PO4	MG/L	10	.014000	.000027	.005164	.368857	.001633	.020000	.010000	79/06/11	79/09/14

U.S. FOREST SERVICE (SIX RIVERS NATIONAL FOREST)

10101H Jones Creek DH-48 at Road 16N02

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	25	11.4200	19.5143	4.41750	.386821	.883500	20.0000	4.50000	76/10/05	78/09/10
00061	STREAM	FLOW,	INST-CFS	24	86.6553	9790.25	98.9457	1.14183	20.1972	378.820	6.00000	76/10/05	78/09/10
00076	TURB	TRBIDMTR	HACH FTU	26	.876921	.689044	.830087	.946593	.162793	3.70000	.300000	76/10/05	78/09/10
00095	CNDUCTVY	AT 25C	MICROMHO	25	147.000	1056.33	32.5320	.221306	6.50640	200.000	80.0000	76/10/05	78/09/10
00403	LAB	PH	SU	26	7.13076	.007822	.088444	.012403	.017345	7.30000	6.90000	76/10/05	78/09/10
00530	RESIDUE	TOT NFLT	MG/L	26	2.85038	25.2687	5.02680	1.76355	.985836	22.4400	.200000	76/10/05	78/09/10

10101R Jones Creek Grab at Road 16N02

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	15	12.9400	27.7469	5.26753	.407074	1.36007	20.5000	6.50000	75/08/07	76/09/02
00061	STREAM	FLOW,	INST-CFS	14	63.4020	4242.70	65.1360	1.02735	17.4083	231.000	15.1000	75/08/07	76/09/02
00076	TURB	TRBIDMTR	HACH FTU	15	.733333	.300953	.548591	.748080	.141646	2.00000	.200000	75/08/07	76/09/02
00095	CNDUCTVY	AT 25C	MICROMHO	15	137.867	813.987	28.5305	.206942	7.36653	190.000	95.0000	75/08/07	76/09/02
00403	LAB	PH	SU	15	7.53333	.165266	.406529	.053964	.104965	8.50000	7.00000	75/08/07	76/09/02
00530	RESIDUE	TOT NFLT	MG/L	15	2.26800	8.86377	2.97721	1.31270	.768712	10.0000	.100000	75/08/07	76/09/02

10102H HurdyGurdy Creek DH-48 at Road 15N11

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	24	11.4375	17.2242	4.15020	.362859	.847157	20.0000	4.50000	76/10/05	78/09/10
00061	STREAM	FLOW,	INST-CFS	23	92.3564	10526.4	102.598	1.11090	21.3932	386.100	9.50000	76/10/05	78/09/10
00076	TURB	TRBIDMTR	HACH FTU	25	.963998	.914065	.956067	.991773	.191213	3.80000	.300000	76/10/05	78/09/10
00095	CNDUCTVY	AT 25C	MICROMHO	24	135.417	791.128	28.1270	.207707	5.74140	180.000	80.0000	76/10/05	78/09/10
00403	LAB	PH	SU	25	7.15199	.018433	.135767	.018983	.027153	7.40000	6.90000	76/10/05	78/09/10
00530	RESIDUE	TOT NFLT	MG/L	25	4.45799	106.368	10.3135	2.31349	2.06270	48.2100	.200000	76/10/05	78/09/10

10102R HurdyGurdy Creek Grab at Road 15N11

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	15	13.4333	29.3881	5.42108	.403554	1.39972	21.0000	7.00000	75/08/07	76/09/02
00061	STREAM	FLOW,	INST-CFS	12	129.003	18048.4	134.344	1.04140	38.7819	393.600	15.1400	75/08/07	76/09/02
00076	TURB	TRBIDMTR	HACH FTU	15	.993333	1.07638	1.03749	1.04445	.267878	3.70000	.200000	75/08/07	76/09/02
00095	CNDUCTVY	AT 25C	MICROMHO	15	125.333	1119.53	33.4593	.266963	8.63916	190.000	60.0000	75/08/07	76/09/02
00403	LAB	PH	SU	15	7.57333	.179217	.423340	.055899	.109306	8.50000	6.90000	75/08/07	76/09/02
00530	RESIDUE	TOT NFLT	MG/L	15	2.39866	7.33925	2.70910	1.12942	.699488	10.1000	.140000	75/08/07	76/09/02

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

U.S. FOREST SERVICE (SIX RIVERS NATIONAL FOREST)

10103H Myrtle Creek DH-48 at Route 199

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	25	10.6200	7.86012	2.80359	.263991	.560718	17.0000	6.00000	76/10/07	78/09/10
00061	STREAM	FLOW,	INST-CFS	24	41.8524	5718.56	75.6212	1.80685	15.4361	302.000	1.80000	76/10/07	78/09/10
00076	TURB	TRBIDMTR	HACH FTU	26	3.91154	98.0090	9.89995	2.53096	1.94154	50.0000	.400000	76/10/07	78/09/10
00095	CNDUCTVY	AT 25C	MICROMHO	25	86.0000	341.666	18.4842	.214933	3.69684	130.000	50.0000	76/10/07	78/09/10
00403	LAB	PH	SU	26	7.18845	.017861	.133646	.018592	.026210	7.40000	7.00000	76/10/07	78/09/10
00530	RESIDUE	TOT NFLT	MG/L	26	6.33115	324.508	18.0141	2.84531	3.53285	92.8400	.200000	76/10/07	78/09/10

10103R Myrtle Creek Grab at Route 199

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	36	10.4833	9.28262	3.04674	.290627	.507790	15.5000	4.50000	72/06/02	76/09/02
00061	STREAM	FLOW,	INST-CFS	34	39.3073	6128.92	78.2874	1.99168	13.4262	414.500	2.00000	72/06/02	76/09/02
00076	TURB	TRBIDMTR	HACH FTU	36	2.09444	14.1405	3.76039	1.79541	.626731	22.0000	.200000	72/06/02	76/09/02
00095	CNDUCTVY	AT 25C	MICROMHO	36	72.7778	347.495	18.6412	.256139	3.10687	160.000	50.0000	72/06/02	76/09/02
00403	LAB	PH	SU	36	7.58887	.225174	.474525	.062529	.079088	8.80000	6.90000	72/06/02	76/09/02
00530	RESIDUE	TOT NFLT	MG/L	25	3.27319	45.6506	6.75652	2.06420	1.35130	31.8600	.010000	74/11/08	76/09/02

10104H Hardscrabble Creek DH-48 at Route 199

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	25	11.1600	13.0151	3.60765	.323266	.721529	18.5000	5.50000	76/10/07	78/09/10
00061	STREAM	FLOW,	INST-CFS	23	70.3547	11862.3	108.914	1.54807	22.7101	478.800	2.40000	76/10/07	78/09/10
00076	TURB	TRBIDMTR	HACH FTU	26	1.97307	19.0724	4.36719	2.21340	.856477	22.0000	.300000	76/10/07	78/09/10
00095	CNDUCTVY	AT 25C	MICROMHO	25	150.800	772.255	27.7895	.184280	5.55789	195.000	90.0000	76/10/07	78/09/10
00403	LAB	PH	SU	26	7.16153	.020879	.144495	.020177	.028338	7.50000	6.90000	76/10/07	78/09/10
00530	RESIDUE	TOT NFLT	MG/L	26	7.70461	631.830	25.1362	3.26249	4.92962	124.320	.250000	76/10/07	78/09/10

10104R Hardscrabble Creek Grab at Route 199

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	36	11.2778	14.4528	3.80168	.337095	.633614	18.5000	4.50000	72/06/02	76/09/02
00061	STREAM	FLOW,	INST-CFS	35	41.8740	3647.44	60.3940	1.44228	10.2085	223.000	2.50000	72/06/02	76/09/02
00076	TURB	TRBIDMTR	HACH FTU	36	1.19444	1.56969	1.25287	1.04892	.208812	5.80000	.100000	72/06/02	76/09/02
00095	CNDUCTVY	AT 25C	MICROMHO	36	124.889	477.659	21.8554	.174999	3.64257	165.000	70.0000	72/06/02	76/09/02
00403	LAB	PH	SU	36	7.48888	.197140	.444005	.059289	.074001	8.50000	6.90000	72/06/02	76/09/02
00530	RESIDUE	TOT NFLT	MG/L	25	2.78759	22.4804	4.74136	1.70088	.948271	20.7500	.010000	74/11/08	76/09/02

10105H Siskiyou Fork DH-48 at Road 17N01

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	25	10.5200	19.6143	4.42880	.420989	.885760	21.0000	4.50000	76/10/07	78/09/10
00061	STREAM	FLOW,	INST-CFS	23	103.208	24252.1	155.731	1.50891	32.4721	729.600	9.40000	76/10/07	78/09/10
00076	TURB	TRBIDMTR	HACH FTU	25	1.08000	2.06917	1.43846	1.33191	.287692	6.80000	.300000	76/10/07	78/09/10
00095	CNDUCTVY	AT 25C	MICROMHO	24	123.542	1303.22	36.1001	.292210	7.36891	180.000	70.0000	76/10/07	78/09/10
00403	LAB	PH	SU	25	7.15999	.021657	.147164	.020554	.029433	7.50000	6.90000	76/10/07	78/09/10
00530	RESIDUE	TOT NFLT	MG/L	25	5.71600	237.092	15.3978	2.69381	3.07956	74.4700	.260000	76/10/07	78/09/10

10105R Siskiyou Fork Grab at Road 17N01

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	28	11.9286	31.3282	5.59716	.469223	1.05776	22.0000	4.00000	74/05/31	76/09/03
00061	STREAM	FLOW.	INST-CFS	28	90.3874	13609.0	116.658	1.29064	22.0462	500.000	10.0000	74/05/31	76/09/03
00076	TURB	TRBIDMTR	HACH FTU	29	.999996	3.11929	1.76615	1.76616	.327966	7.30000	.200000	74/05/31	76/09/03
00095	CNDUCTVY	AT 25C	MICROMHO	29	104.310	860.225	29.3296	.281176	5.44637	160.000	55.0000	74/05/31	76/09/03
00403	LAB	PH	SU	29	7.54482	.161839	.402292	.053320	.074704	8.50000	6.90000	74/05/31	76/09/03
00530	RESIDUE	TOT NFLT	MG/L	25	7.16639	329.374	18.1486	2.53247	3.62973	74.3000	.010000	74/11/08	76/09/03

SUPPLEMENTAL DATA A.--A statistical summary of the water quality data (STORET Water Quality File, October 1980)--Continued

U.S FOREST SERVICE (SIX RIVERS NATIONAL FOREST)

10106H Monkey Creek DH-48 at Route 199

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	25	9.70000	15.1667	3.89444	.401469	.778888	19.0000	3.00000	76/10/07	78/09/10
00061	STREAM	FLOW.	INST-CFS	24	44.1479	4511.19	67.1654	1.52137	13.7101	304.640	1.20000	76/10/07	78/09/10
00076	TURB	TRBIDMTR	HACH FTU	26	.869230	.637413	.798382	.918493	.156575	3.60000	.300000	76/10/07	78/09/10
00095	CNDUCTVY	AT 25C	MICROMHO	25	120.400	685.252	26.1773	.217420	5.23546	165.000	70.0000	76/10/07	78/09/10
00403	LAB	PH	SU	26	7.19230	.038340	.195806	.027224	.038401	7.60000	6.90000	76/10/07	78/09/10
00530	RESIDUE	TOT NFLT	MG/L	26	4.22038	71.6510	8.46469	2.00567	1.66006	40.5000	.230000	76/10/07	78/09/10

10106R Monkey Creek Grab at Route 199

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	36	11.6778	23.9778	4.89671	.419319	.816119	23.9000	4.00000	72/06/02	76/09/03
00061	STREAM	FLOW.	INST-CFS	34	34.9938	1816.57	42.6212	1.21797	7.30948	162.400	3.40000	72/06/02	76/09/03
00076	TURB	TRBIDMTR	HACH FTU	36	.855552	.666541	.816420	.954261	.136070	3.70000	.100000	72/06/02	76/09/03
00095	CNDUCTVY	AT 25C	MICROMHO	36	103.111	436.448	20.8913	.202610	3.48189	140.000	55.0000	72/06/02	76/09/03
00403	LAB	PH	SU	36	7.45555	.227183	.476637	.063931	.079440	8.60000	6.70000	72/06/02	76/09/03
00530	RESIDUE	TOT NFLT	MG/L	25	3.62080	52.6711	7.25748	2.00439	1.45150	29.7000	.010000	74/11/08	76/09/03

10107R Patrick Creek below Shelly Grab

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	10	11.4500	32.9695	5.74191	.501477	1.81575	21.0000	4.00000	74/05/31	75/03/07
00061	STREAM	FLOW.	INST-CFS	11	121.064	32234.7	179.540	1.48302	54.1334	560.000	11.0000	74/05/31	75/03/07
00076	TURB	TRBIDMTR	HACH FTU	10	1.38000	2.21289	1.48758	1.07796	.470414	4.50000	.200000	74/05/31	75/03/07
00095	CNDUCTVY	AT 25C	MICROMHO	10	89.7000	395.347	19.8833	.221665	6.28767	125.000	60.0000	74/05/31	75/03/07
00403	LAB	PH	SU	10	7.60999	.125488	.354243	.046550	.112022	8.20000	7.10000	74/05/31	75/03/07
00530	RESIDUE	TOT NFLT	MG/L	6	3.92000	32.8598	5.73235	1.46233	2.34022	15.1400	.010000	74/11/08	75/03/07

10108H Shelly Creek DH-48 at Road 18N02

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	25	9.70000	15.8125	3.97649	.409948	.795299	18.0000	3.50000	76/10/07	78/09/10
00061	STREAM	FLOW.	INST-CFS	24	59.7808	12473.2	111.683	1.86822	22.7973	504.000	1.20000	76/10/07	78/09/10
00076	TURB	TRBIDMTR	HACH FTU	26	.788460	.495463	.703891	.892741	.138044	3.30000	.100000	76/10/07	78/09/10
00095	CNDUCTVY	AT 25C	MICROMHO	25	89.4800	390.513	19.7614	.220847	3.95228	120.000	50.0000	76/10/07	78/09/10
00403	LAB	PH	SU	26	7.18461	.024561	.156718	.021813	.030735	7.50000	6.90000	76/10/07	78/09/10
00530	RESIDUE	TOT NFLT	MG/L	26	3.39307	48.3806	6.95561	2.04995	1.36411	34.9300	.250000	76/10/07	78/09/10

10108R Shelly Creek Grab at Road 18N02

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STANQ ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	34	10.8176	19.6065	4.42792	.409324	.759382	19.0000	3.50000	72/08/23	76/09/03
00061	STREAM	FLOW.	INST-CFS	32	44.2590	4178.05	64.6378	1.46045	11.4265	264.000	1.50000	72/08/23	76/09/03
00076	TURB	TRBIDMTR	HACH FTU	34	.938232	.836981	.914867	.975096	.156898	5.00000	.200000	72/08/23	76/09/03
00095	CNDUCTVY	AT 25C	MICROMHO	34	75.3823	292.246	17.0952	.226780	2.93180	100.000	40.0000	72/08/23	76/09/03
00403	LAB	PH	SU	34	7.49117	.190518	.436484	.058266	.074856	8.60000	6.80000	72/08/23	76/09/03
00530	RESIDUE	TOT NFLT	MG/L	25	2.11559	15.6016	3.94988	1.86703	.789976	19.7600	.010000	74/11/08	76/09/03

10109H Patrick Creek above Shelly DH-48

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	25	10.0600	13.2775	3.64383	.362210	.728766	18.0000	5.00000	76/10/07	78/09/10
00061	STREAM	FLOW.	INST-CFS	24	79.0454	17923.0	133.877	1.69367	27.3275	599.400	3.40000	76/10/07	78/09/10
00076	TURB	TRBIDMTR	HACH FTU	26	1.22307	2.68345	1.63812	1.33935	.321263	8.00000	.300000	76/10/07	78/09/10
00095	CNDUCTVY	AT 25C	MICROMHO	25	118.520	614.349	24.7861	.209130	4.95721	155.000	70.0000	76/10/07	78/09/10
00403	LAB	PH	SU	26	7.14999	.016182	.127207	.017791	.024947	7.40000	6.90000	76/10/07	78/09/10
00530	RESIDUE	TOT NFLT	MG/L	26	4.02230	70.3510	8.38755	2.08526	1.64493	42.2200	.230000	76/10/07	78/09/10

10109R Patrick Creek above Shelly Grab

PARAMETER				NUMBER	MEAN	VARIANCE	STAN DEV	COEF VAR	STAND ER	MAXIMUM	MINIMUM	BEG DATE	END DATE
00010	WATER	TEMP	CENT	36	11.4083	17.1419	4.14028	.362918	.690047	19.0000	4.50000	72/06/02	76/09/03
00045	PRECIP	TOT DAY	IN	1	4.00000					4.00000	4.00000	76/01/05	76/01/05
00061	STREAM	FLOW.	INST-CFS	34	56.7282	5414.12	73.5807	1.29708	12.6190	300.000	6.30000	72/06/02	76/09/03
00076	TURB	TRBIDMTR	HACH FTU	35	1.07428	1.26373	1.12416	1.04643	.190018	5.40000	.200000	72/06/02	76/09/03
00095	CNDUCTVY	AT 25C	MICROMHO	36	102.333	424.802	20.6107	.201408	3.43512	140.000	55.0000	72/06/02	76/09/03
00403	LAB	PH	SU	36	7.43610	.220159	.469211	.063099	.078202	8.50000	6.60000	72/06/02	76/09/03
00530	RESIDUE	TOT NFLT	MG/L	25	1.72879	5.21566	2.28378	1.32102	.456756	10.4200	.010000	74/11/08	76/09/03

SUPPLEMENTAL DATA B.--Taxonomic list and percentage composition of the total number of benthic invertebrates sampled

[Iwatsubo and Averett, 1981]

PHYLUM CLASS Order Family Sub-family Tribe *Genus* *Sub-genus*	Mill Creek drainage basin	Percentage taxonomic composition[1]
ANNELIDA		0.8
OLIGOCHAETA (aquatic earthworms)	X	
ARTHROPODA		99.1
ARACHNOIDEA		8.0
Acari (=Hydracarina)	X	
INSECTA		
Coleoptera (beetles)		4.2
Emplenota	X	
Eubrianax	X	
Heterlimnius	X	
Narpus	X	
Optioservus	X	
Ordobrevia	X	
Zaitzevia	X	
Collembola (spring tails)	X	0.1
Diptera (two-winged flies)		22.2
Bezzia	X	
Forcipomyia	X	
Chironomini	X	
Tanytarsini	X	
Thienemanniella	X	
Other genera	X	
Tanypodinae	X	
Dixidae	X	
Dolichopodidae	X	
Empididae	X	
Muscidae	X	
Simuliidae	X	
Tabanidae	X	
Antocha	X	
Ulomorpha	X	
Ephemeroptera (mayflies)		51.3
Ameletus	X	
Baetis	X	
Centroptilum	X	
Cinyamula	X	
Epeorus	X	
Iron	X	
Ironodes	X	
Ironopsis	X	
Ephemerella	X	
Heptagenia	X	
Paraleptophlebia	X	
Phithrogena	X	

SUPPLEMENTAL DATA B.--Taxonomic list and percentage composition of the total number of benthic invertebrates sampled--Continued

PHYLUM CLASS Order Family Sub-family Tribe *Genus* *Sub-genus*	Mill Creek drainage basin	Percentage taxonomic composition[1]
Hymenoptera (wasps)		<0.1
Anagrus	X	
Odonata (dragonflies, damselflies)		<0.1
Erpetogomphus	X	
Ophiogomphus	X	
Plecoptera (stoneflies)		9.6
Acroneuria	X	
Alloperla	X	
Capnia	X	
Isogenus	X	
Isoperla	X	
Leuctra	X	
Nemoura	X	
Paraperla	X	
Peltoperla	X	
Trichoptera (caddisflies)		3.7
Chewmatopsyche	X	
Dicosmeocus	X	
Glossosoma	X	
Hydropsyche	X	
Hydroptila	X	
Micrasema	X	
Neophylax	X	
Ochrotrichia	X	
Oxyethira	X	
Parapsyche	X	
Polycentropus	X	
Protoptila	X	
Rhyacophila	X	
Sericostoma	X	
Wormaldia	X	
MOLLUSCA		<u><0.1</u>
Lanx	X	
Paludestrina	X	
NEMATODA (roundworms)	X	<u><0.1</u>

[1]Summation of the underlined phylum percentage figures equaled 100 percent prior to rounding.

SUPPLEMENTAL DATA C.--Taxonomic list of algae occurring in periphyton samples collected from the ~~Mill~~ Creek drainage basin

[Data from Iwatsubo and others (1976)]

DIVISION Genus
CHLOROPHYTA (Green Algae)
Ankistrodesmus
Eudorina
Scenedesmus
CHRYSOPHYTA (Diatoms)
Achnanthes
Cocconeis
Cymbella
Diatoma
Epithemia
Fragilaria
Gomphonema
Melosira
Navicula
Nitzchia
Pinnularia
Synedra
CYANOPHYTA (Blue-Green Algae)
Chamaesiphon
Oscillatoria
UNKNOWN FLAGELLATES

SUPPLEMENTAL DATA D.--Taxonomic list and occurrence of algae in phytoplankton samples

[U.S. Geological Survey (1978, 1979, and unpublished data). Iwatsubo and others (1976). California Regional Water Quality Control Board, North Coast Region (written communication, 1980)]

DIVISION Genus	U.S. Geological Survey Smith River	 Mill Creek	California Regional Water Quality Control Board, North Coast Region
CHLOROPHYTA (Green Algae)			
Ankistrodesmus	x	x	
Carteria		x	
Chlamydomonas	x		x
Chlorococcum	x		
Chodatella		x	
Closterium		x	
Coelastrum	x		
Crucigenia	x		
Franceia			x
Golenkinia		x	
Kirchneriella	x		
Mougeotia			x
Scenedesmus	x	x	x
Selenastrum		x	
Coccoid green			x
Green flagellate			x
CHRYSOPHYTA (Diatoms)			
Achnanthes	x	x	x
Amphora			x
Anomoeoneis			x
Bacteriastrum			x
Botrydiopsis		x	
Bullmilleriopsis		x	
Chaetoceros			x
Chrysamoeba		x	
Chrysidiastrum		x	
Cocconeis	x	x	x
Cyclotella	x		
Cymbella	x	x	x
Diatoma	x		x
Epithemia	x	x	x
Fragilaria		x	x
Gomphonema	x	x	x
Hannaea			x

SUPPLEMENTAL DATA D.--Taxonomic list and occurrence of algae in phytoplankton samples--Continued

DIVISION Genus	U.S. Geological Survey Smith River	 Mill Creek	California Regional Water Quality Control Board, North Coast Region
CHRYSOPHYTA (Diatoms)--Continued			
Kephyrion		x	
Melosira		x	x
Navicula	x	x	x
Nitzschia	x	x	x
Rhizosolenia			x
Rhoicosphenia	x	x	x
Skeletonema			x
Synedra	x	x	x
Tabellaria			x
Tropidoneis			x
Vinnularia		x	
Centric diatom			x
Pennate diatom			x
Filamentous diatom			x
CYANOPHYTA (Blue-Green Algae)			
Anabaena	x		x
Anacystis	x		
Aphonocapsa			x
Chroococcus			x
Oscillatoria		x	x
Coccoid blue-green			x
Blue-green filament			x
UNKNOWN FLAGELLATES		x	
GROUPS OF UNCERTAIN SYSTEMATIC POSITION			
Cryptomonas		x	

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