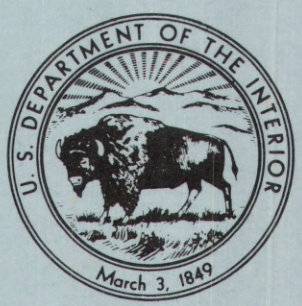
Storm-Water Data for Bear Creek Basin, Jackson County, Oregon 1977-78

U.S. GEOLOGICAL SURVEY
Open-File Report 79-217



Prepared in cooperation with the
ROGUE VALLEY COUNCIL OF GOVERNMENTS

STORM-WATER DATA FOR BEAR CREEK BASIN, JACKSON COUNTY, OREGON, 1977-78

By Loren A. Wittenberg

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1978

UNITED STATES DEPARTMENT OF THE INTERIOR
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CONVERSION FACTORS

The units of measurement used in this report may be converted to metric units of the International System of Units using the factors given below. Metric equivalents should be derived only to the same number of significant figures as the units in this report.

To convert from	To	Multiply by
inch (in.)	millimeter (mm)	25.40
foot (ft)	meter (m)	0.3048
yard (yd)	meter (m)	0.9144
mile (mi)	kilometer (km)	1.609
foot^2 (ft^2)	meter^2 (m^2)	0.09290
mile^2 (mi^2)	kilometer^2 (km^2)	2.590
foot per mile (ft/mi)	meter per kilometer (m/km)	0.1894
gallon (gal)	liter (L)	3.785
foot^3 per second (ft^3/s)	meter^3 per second (m^3/s)	0.02832

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ABSTRACT

Storm-water-quality samples were collected from four subbasins in the Bear Creek basin in southern Oregon. These subbasins vary in drainage size, channel slope, effective impervious area, and land use. Automatic water-quality samplers and precipitation and discharge gages were set up in each of the four subbasins.

During the period October 1977 through May 1978, 19 sets of samples, including two base-flow samples, were collected. Fecal coliform bacteria colonies per 100-milliliter sample ranged from less than 1,000 to more than 1,000,000. Suspended-sediment concentrations ranged from less than 1 to more than 2,300 milligrams per liter. One subbasin consisting of downtown businesses and streets with heavy vehicular traffic was monitored for lead. Total lead values ranging from 100 to 1,900 micrograms per liter were measured during one storm event.

INTRODUCTION

Since March 1976, the U.S. Geological Survey has been studying surface-water quality in the Bear Creek basin in Jackson County, Oreg. This report includes data collected from October 1977 through May 1978 on precipitation, quality and quantity of storm-water runoff, and combined-sewer overflow in four specific areas of Bear Creek basin. Additional storm-water data collected prior to October 1977 are presented in a report by Wittenberg and McKenzie (1978). Water-quality samples were collected several times during base-flow conditions at each site to determine background water-quality conditions.

BASIN LOCATIONS AND CHARACTERISTICS

Basin Locations

Locations of the four streamflow measuring sites, four water-quality sampling sites, and five precipitation measuring sites are shown in figure 1. Each streamflow and sampling site is identified by an eight-digit station number. The precipitation gages are identified by a single digit number

preceded by "P." Station numbers, names, and locations, as determined from Geological Survey 15-minute series topographic maps, are listed in table 1. Drainage area, channel slope, effective impervious area, and land use by type are given in table 2.

Basin Characteristics

The following are definitions or descriptions of basin characteristics listed in table 2:

Drainage area.--Area of the basin, in square miles, planimetered from Geological Survey 15-minute series topographic maps and from maps supplied by the cities of Ashland (1 in. = 800 ft) and Medford and Central Point (1 in. = 400 ft). Basin boundaries were delineated by outlining drainage divides and then modifying the natural drainage with up-to-date storm-sewer information from city and county agencies. A field determination was made where areas were largely unsewered or where drainage divides could not be identified on the maps or aerial photographs. Drainage-area measurements are accurate to within about 5 percent.

Main channel slope.--The difference in elevation, in feet, at points 10 percent and 85 percent of the distance along the longest stream channel in the basin divided by the distance, in miles, between the two points. The slope was determined from Geological Survey 15-minute topographic maps and from Bear Creek Sanitary Authority maps (scale, 1 in. = 400 ft).

Effective impervious area.--That part of the effective drainage area having a direct hydraulic link to the stream and impervious to the infiltration of rain. Percentage of drainage areas impervious to the infiltration of rain include asphalt roads, paved parking lots, and roofs. Obtained from city maps, aerial photographs, and field observation. Accuracy is believed to be within 20 percent. The number of roofs draining onto streets or onto lawns is not known.

Land use.--Percentage of drainage area with land uses of types I through V, based on aerial photographs and field observation.

I. Rural.--Includes all undeveloped and agricultural land, parks, cemeteries, and unpaved school playgrounds.

II. Single-family residential.--Includes single-family detached dwellings and duplexes.

III. Multifamily residential.--Includes multifamily housing units and trailer parks.

IV. Commercial.--Includes general wholesale and retail buildings, schools, churches, light industry, and airports.

V. Industry.--Includes heavy industry.

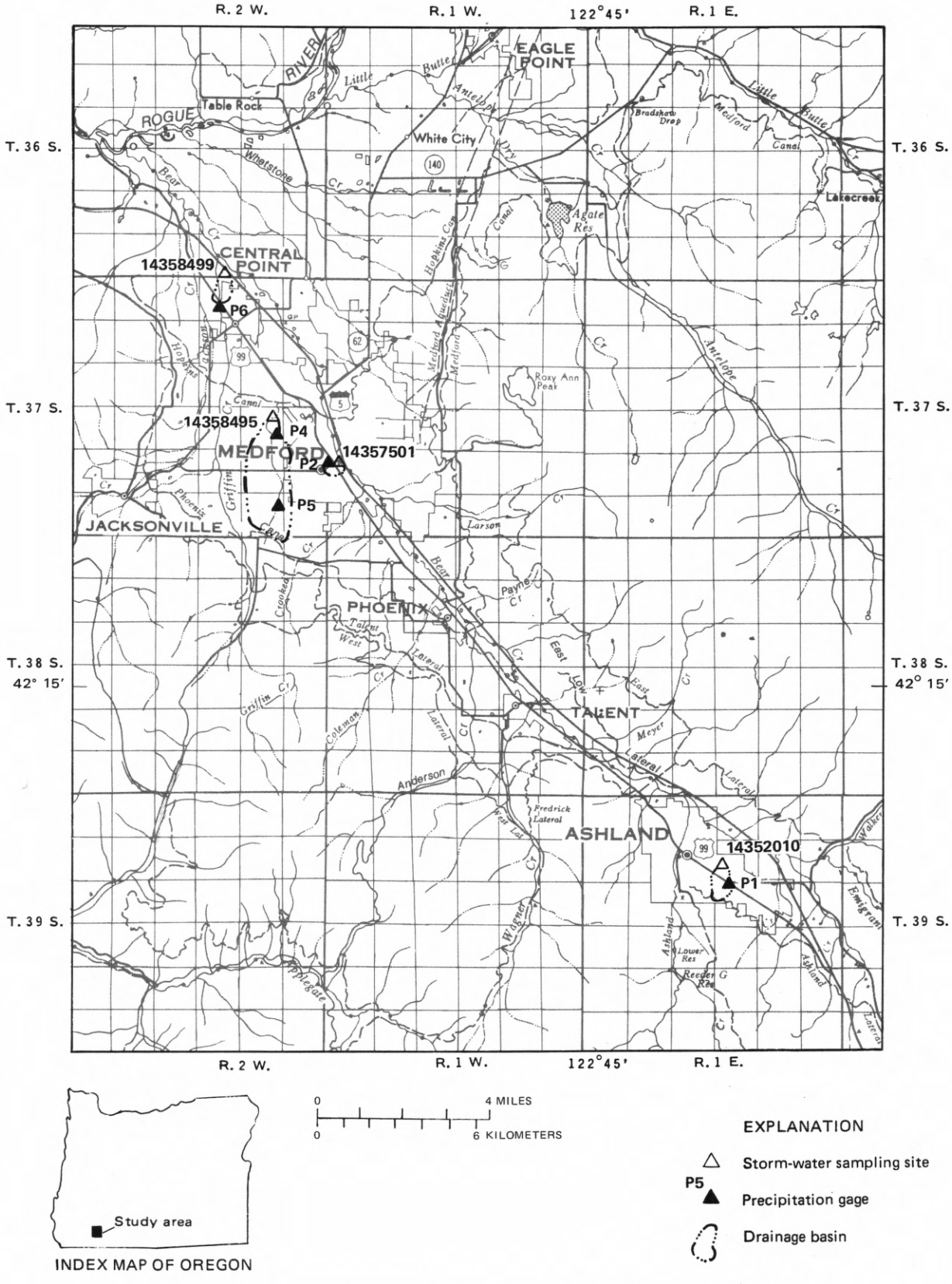

Figure 1.–Locations of storm-water sampling and precipitation sites, in Bear Creek Basin, Jackson County, Oregon.

Table 1.—Locations of precipitation and storm-water-runoff gages

Station number	Station name	Station location
14352010	Unnamed tributary to Bear Creek in Ashland	Lat 42°12'00", long 122°41'50", in NE¼ sec. 9, T. 39 S., R. 1 E.
P1	Ashland rain gage on Science No. 1 Building, Southern Oregon State College	Lat 42°11'10", long 122°41'40", in SW¼ sec. 10, T. 39 S., R. 1 E.
14357501	Combined sewer outflow to Bear Creek in Medford	Lat 42°19'37", long 122°52'10", in NW¼ sec. 30, T. 37 S., R. 1 W.
P2	Rain gage on Medical Center Building near Red Lion Inn	Lat 42°19'32", long 122°52'20", in NW¼ sec. 30, T. 37 S., R. 1 W.
14358495	Unnamed tributary to Bear Creek at Sage Road near Medford	Lat 42°20'35", long 122°53'50", in NE¼ sec. 23, T. 37 S., R. 2 W.
P4	Sage Road rain gage at station 14358495 site	Lat 42°20'35", long 122°53'50", in NE¼ sec. 23, T. 37 S., R. 2 W.
P5	Sage Road rain gage at 1135 Lozier Lane	Lat 42°18'45", long 122°53'54", in NE¼ sec. 35, T. 37 S., R. 2 W.
14358499	Unnamed tributary to Bear Creek at Upton Road in Central Point	Lat 42°23'20", long 122°55'09", in NE¼ sec. 3, T. 37 S., R. 2 W.
P6	Upton Road rain gage on Central Point School Motor Pool Building	Lat 42°22'45", long 122°55'10", in SE¼ sec. 3, T. 37 S., R. 2 W.

Table 2.—Basin characteristics

Station number and name	Drainage area (mi^2)	Main channel slope (ft/mi)	Effective impervious area (percent)	Land use by type (percent)				
				Rural	Single-family residential	Multi-family residential	Commercial	Industry
14352010 - Ashland	0.39	350	15	6	80	10	1	3
14357501 - Medford	.15	69	65	1	5	11	80	3
14358495 - Sage Road	2.52	58	6	75	20	0	2	3
14358499 - Central Point	.30	42	18	8	70	10	10	2

14352010 (Ashland).--The length of the basin of the unnamed tributary to Bear Creek in Ashland is about 1.5 mi. The basin width averages about 0.2 mi in the upper basin, widens to about 0.5 mi near the center of the basin, and narrows to less than 0.1 mi near the mouth. The stream flows in a northerly direction. The upper basin is single-family residential and is located on steep slopes. The lower basin is single-family and multifamily residential and includes two schools (Ashland High School and Lincoln Grade School). Little or no active construction was taking place in the basin during the study. The streamflow and sampling site was located on the right bank about 0.2 mi upstream from the confluence of the unnamed tributary with Bear Creek. The stage-discharge relationship at this site was obtained by use of a theoretical rating for a corrugated pipe. Streamflows are considered to be accurate to within about 25 percent, based on the theoretical rating. No verification of the theoretical streamflow rating could be made at this site because, except for times of storm runoff which generally occur at night, the discharge from the basin was insignificant. The precipitation gage was on the roof of Science I Building of the Southern Oregon State College immediately adjacent to the basin. The location of this stream-gaging site (table 1) is different from the location listed in the report by Wittenberg and McKenzie (1978). The streamflow gage was moved on November 11, 1977, to include a larger part of the basin than was previously being measured.

14357501 (Medford).--The length of the basin of the combined-sewer outflow to Bear Creek in Medford is about 0.9 mi. The entire area is sewered and drains in a northeasterly direction. The basin averages about 0.2 mi in width. A large percentage of the area is downtown businesses, with paved parking areas. Some graveled areas adjoin the railroad track that runs approximately through the center of the basin. The upper part of the drainage area is mostly dense single-family and multifamily residential. The entire basin is fully developed, and no construction was being done during the sampling period. The streamflow and sampling site was at the outflow of the culvert to Bear Creek on the left bank of Bear Creek. The rating was based on a theoretical stage-discharge relationship developed from a 90° V-notch weir mounted on the outflow end of the culvert. The stage-discharge relationship at this site is considered to be good to within about 10 percent. The precipitation gage was on the roof of the Medical Center Building in Medford.

14358495 (Sage Road).--The length of the unnamed tributary to Bear Creek at Sage Road is about 3 mi, and the basin averages about 0.9 mi in width. The tributary flows in a northerly direction. Land-use types in the basin are generally rural and single family. Two shopping centers are located in the basin. Little construction was done in the area during the study. Discharge at this site is considered to be good to within about 10 percent. The sampling site was upstream from the point where the tributary crosses Sage Road about 0.2 mi downstream from the streamflow site. Two precipitation gages were used in the basin--one in the upper basin and the other at the stream-gaging site.

14358499 (Central Point).--The length of the basin of the unnamed tributary to Bear Creek at Upton Road in Central Point is about 1.0 mi. The upper end of the basin is about 0.5 mi wide and narrows to less than 0.1 mi near the sampling site. The tributary flows in a northerly direction. Most of the basin is single-family residential. Central Point High School is in the upper end of the basin. Discharge is accurate to within about 25 percent and is based on a theoretical rating for culverts. No verification measurements were obtained. The precipitation gage was on the roof of the Central Point School motor pool building near the high school.

EQUIPMENT

Most of the equipment used in this study was described by McKenzie and Miller (1976). One other piece of equipment, a Manning Sampler Model S 4050_/, was used to collect samples at the combined-sewer outflow in Medford. The sampler was turned on automatically by use of a float switch mounted inside the pipe behind the weir. To obtain enough water for analysis, two one-half-liter sample bottles were filled at each sampling time.

DATA COLLECTION

Sampling Guidelines

Geological Survey personnel collected water samples from the four sampling sites during various storm events. The decision to sample a particular storm event was based on predicted rainfall amounts and predicted duration of the approaching storm. Short-lived storms of high intensity, such as thundershowers, and longer storms of low intensity were sampled so as to obtain information on contaminants under varying conditions.

To ensure proper operation, field personnel activated the samplers and checked the discharge and precipitation gages. When the storm was over, field personnel transported the samples to the Geological Survey Field Headquarters laboratory in Medford, Oreg., for processing. Samples were analyzed, measured, or preserved in accordance with procedures described by Brown, Skougstad, and Fishman (1970); Slack, Averett, Greeson, and Lipscomb (1973); Guy (1969); and Standard Methods by American Public Health Association and others (1975). Each sample was measured for specific conductance and turbidity, which indicated the relative dissolved-solids and suspended-sediment concentrations, respectively, of material in the samples. Samples were diluted to reduce the turbidities below 40 Jtu or until the calculated turbidities remained constant upon further dilution. Dilution of the samples generally resulted in higher reported turbidity values than did undiluted samples. Samples having less than 40 Jtu's were not diluted. An adequate number of

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

samples were then selected for analysis of suspended sediment and biochemical oxygen demand to allow calculation of storm loads. Alkalinity and pH were measured at different levels of specific conductance. Samples taken near the beginning, the peak, and end of the storm were analyzed for fecal coliform and occasionally for fecal streptococci or total coliform. To minimize cost, only a few analyses were made of nutrients, chemical oxygen demand, and dissolved solids. Because of equipment problems or errors in rainfall prediction, some data collected did not cover a complete storm period. These data, however, are included in table 5.

Base-Flow Sampling

Several base-flow samples were collected at each site during the study. Base flow is the discharge normally flowing in the channel during nonstorm periods. Ground-water runoff and delayed subsurface runoff make up base flow (Chow, 1964). Analyses of samples are given in table 5. Additional base-flow data collected during the 1977 water year were published in a report by Wittenberg and McKenzie (1978).

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

Chow, V. T., ed., 1964, Handbook of applied hydrology: New York, McGraw-Hill, 1404 p.

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

McKenzie, S. W., and Miller, T. L., 1976, Basic data on urban storm-water quality, Portland, Oregon: U.S. Geological Survey Open-File Report 76-594, 71 p.

Slack, K. V., Averett, R. C., Greeson, P. E., and Lipscomb, R. G., 1973, Methods for collection and analysis of aquatic biological and microbiological samples: U.S. Geological Survey Techniques of Water-Resources Investigations, book 5, chap. A4, 165 p.

Wittenberg, L. A., and McKenzie, S. W., 1978, Hydrologic data in Bear Creek basin and western Jackson County, Oregon, 1976-77: U.S. Geological Survey Open-File Report 78-230, 181 p.

HYDROLOGIC DATA

Data collected during the period October 1977 through May 1978 are presented in tables 3, 4, and 5. The tables present precipitation, discharge, and storm information, respectively, and are organized in sequential station number order. The data for storm events for each station (table 5) are listed in chronological order. Data for some storms do not cover the entire storm period as noted in the tables. Bacterial samples that did not have one or a combination of filters with a colony count of between the ideal of 20 and 60 for fecal coliform, 20 to 80 for total coliform, or 20 to 100 for fecal streptococci are reported with the remark "B."

Fecal coliform bacteria colonies per 100-milliliter sample ranged from less than 1,000 to more than 1,000,000. Suspended-sediment concentrations ranged from less than 1 to more than 2,300 milligrams per liter. One subbasin consisting of downtown businesses and streets with heavy vehicular traffic was monitored for lead. Total lead values ranging from 100 to 1,900 micrograms per liter were measured during one storm event.

Table 3.--Daily precipitation, in inches, for October 1977-May 1978

[NR, no record; --, no rainfall]

Station number and name: P1 - Ashland rain gage on Science No. 1 Building, Southern Oregon State College

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1	--	--	--	0.04	0.06	--	0.07	0.01
2	--	0.26	0.02	.01	--	0.03	.02	--
3	--	--	.67	--	.28	.13	.11	--
4	0.01	.08	.18	.19	--	.11	.19	--
5	.01	.13	--	.26	.07	.20	.47	--
6	.14	--	--	.04	.01	.01	.09	--
7	.01	--	.05	--	.93	.03	--	--
8	--	--	.01	--	.18	.38	--	--
9	--	--	--	.17	.05	.10	.01	.04
10	--	--	.04	.03	--	.03	.01	--
11	--	--	.82	.01	--	.32	--	.02
12	--	--	.02	.01	--	--	--	.05
13	--	.05	.61	.07	--	.17	--	--
14	--	--	.75	.06	.03	.01	--	--
15	--	.01	.43	.30	.03	--	.17	--
16	--	--	.04	.74	.02	--	.02	.10
17	--	--	.18	.02	.10	--	.01	--
18	--	.05	.05	.03	.05	--	--	.01
19	--	.09	.03	.01	.01	--	.11	--
20	--	.10	--	--	--	--	.06	.01
21	--	1.03	.03	.09	--	.02	.01	--
22	--	.68	.27	.04	--	.05	--	--
23	--	.39	--	.01	--	.18	.01	.05
24	.08	.34	--	--	--	.01	.09	.28
25	.64	.83	--	.04	--	--	.29	.01
26	.03	--	.03	.02	--	--	.11	--
27	--	.23	.33	--	.01	--	--	--
28	--	--	--	--	--	--	--	--
29		.03	.22	--		.16	--	--
30	.06	.01	.15	--		.01	.07	--
31	.01		.01	--		.32		--

Table 3.--Daily precipitation, in inches, for October 1977-May 1978--Continued

Station number and name: P2 - Rain gage on Medical Center Building near Red Lion Inn

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1	--	0.12	--	--	0.22	--	0.01	--
2	--	.27	0.05	0.04	.23	0.06	.08	0.01
3	--	--	.48	--	.67	.09	.16	--
4	--	.06	.03	.08	.01	.02	.04	--
5	--	.07	--	.35	.05	.20	.39	--
6	0.31	--	.01	--	--	.01	.05	--
7	--	--	.01	--	.65	.16	--	--
8	--	--	--	--	.09	.48	--	--
9	--	--	--	.22	.04	.01	--	--
10	--	--	.01	.01	--	.01	--	--
11	--	--	.58	.02	.01	.09	--	.11
12	--	--	.02	.01	--	.01	--	--
13	.01	.03	.55	--	.01	.14	--	--
14	--	--	.94	.03	.02	--	.01	.05
15	--	--	.66	.20	.02	.02	.23	.05
16	--	--	.19	.18	.07	.02	.01	--
17	--	--	.51	.03	.15	--	--	--
18	--	.01	.04	.12	.02	--	--	--
19	--	--	--	.02	.01	--	.03	--
20	--	.10	--	NR	--	--	--	.05
21	--	1.45	--	NR	--	.34	--	.01
22	--	.71	.03	NR	--	.02	--	--
23	--	.28	.02	NR	--	.25	.01	.19
24	.20	.44	--	--	--	--	--	.27
25	--	.64	--	--	--	--	.10	.10
26	--	.01	.05	--	--	--	.08	--
27	--	.12	.45	--	--	--	.01	--
28	--	.02	.01	--	--	--	--	--
29	.02	.02	.27	--		.19	--	--
30	.02	.01	.11	--		.05	.12	--
31	.02		--	--		.05		--

Table 3.--Daily precipitation, in inches, for October 1977-May 1978--Continued

Station number and name: P4 - Sage Road rain gage at station 14358495 site

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1	--	--	NR	NR	NR	--	0.03	0.01
2	--	0.35	NR	NR	NR	0.06	.13	--
3	--	--	NR	NR	NR	.09	.18	--
4	--	.05	NR	0.10	NR	.01	.06	--
5	--	.06	NR	.40	NR	.22	.34	--
6	0.28	--	NR	.12	NR	.01	.06	--
7	.01	--	NR	.01	NR	.18	.01	.01
8	--	--	NR	NR	NR	.48	--	--
9	--	--	NR	NR	NR	.01	--	--
10	--	--	NR	NR	NR	--	--	--
11	--	--	NR	NR	NR	.06	--	.12
12	--	--	NR	NR	NR	.01	--	--
13	--	.03	NR	NR	NR	.11	--	--
14	--	--	NR	NR	NR	--	--	--
15	--	--	NR	NR	0.02	--	.23	.05
16	--	--	NR	NR	.09	--	.01	--
17	--	--	NR	NR	.17	--	--	--
18	--	--	NR	NR	.02	--	.01	--
19	--	--	NR	NR	.01	--	.01	--
20	--	--	NR	NR	--	--	.01	.05
21	--	1.10	NR	NR	--	.15	--	--
22	--	NR	NR	NR	--	.07	.01	.01
23	--	NR	NR	NR	--	.01	.01	.33
24	--	NR	NR	NR	--	.01	--	.27
25	--	NR	NR	NR	--	.01	.09	.05
26	--	NR	NR	NR	--	.01	.05	--
27	--	NR	NR	NR	--	--	--	--
28	--	NR	NR	NR	--	--	--	--
29	.02	NR	NR	NR		.14	--	--
30	.01	NR	NR	NR		.02	.09	--
31	.02		NR	NR		.03		--

Table 3.--Daily precipitation, in inches, for October 1977-May 1978--Continued

Station number and name: P5 - Sage Road rain gage at 1135 Lozier Lane

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1	NR	--	--	--	0.20	--	0.02	0.02
2	NR	0.44	0.14	0.05	.27	0.06	.08	--
3	NR	.01	.42	.01	.64	.08	.10	--
4	NR	.05	.01	.10	.01	.03	.06	--
5	NR	.06	--	.42	.10	.24	.38	--
6	NR	.01	.01	.17	--	.02	.08	--
7	NR	--	.01	--	.80	.12	.02	--
8	NR	--	--	--	.08	.50	--	--
9	NR	.02	--	.19	.03	.02	--	--
10	NR	--	.10	.01	--	.01	--	--
11	NR	--	.46	.02	.02	.09	--	.14
12	NR	.01	.04	.01	--	.01	--	--
13	--	.03	.58	--	--	.14	--	--
14	--	--	1.01	.02	.03	--	--	.06
15	--	--	.75	.25	.03	--	.25	.08
16	--	--	.48	.23	.06	--	.02	--
17	--	--	.25	.04	.15	--	--	--
18	--	.03	.04	.09	--	--	--	--
19	--	.03	--	.02	--	--	.06	--
20	--	.13	--	.01	--	--	--	--
21	--	1.48	.01	.06	--	.21	--	--
22	--	.95	.03	.01	--	.02	--	--
23	--	.32	.03	--	--	.32	--	.15
24	0.12	.38	.02	.05	--	.01	--	.19
25	.60	.70	.03	--	--	--	.07	.10
26	.02	.01	.06	--	--	--	.07	--
27	--	.12	.31	--	--	--	--	--
28	--	.02	.01	--	--	--	--	--
29	.03	.02	.27	--		.20	--	--
30	.04	.03	.16	--		.04	.08	--
31	.02		--	--		.03		--

Table 3.--Daily precipitation, in inches, for October 1977-May 1978--Continued

Station number and name: P6 - Upton Road rain gage on Central Point School Motor Pool Building

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1	--	NR	--	0.02	0.41	0.04	0.10	0.01
2	--	NR	0.08	.10	.54	.12	.07	--
3	--	NR	.41	.01	.64	.19	--	--
4	--	NR	.01	.11	.01	.01	.30	--
5	--	NR	--	.50	.09	--	.32	--
6	0.25	NR	.02	.14	.01	--	.01	--
7	--	NR	.01	--	.77	.25	.17	--
8	--	NR	--	.01	.11	.47	--	--
9	--	NR	.01	.22	.03	.01	--	--
10	--	NR	.01	.07	--	--	--	--
11	--	NR	.68	.02	.01	.02	--	.11
12	--	NR	.02	--	--	.05	--	--
13	--	NR	.70	.01	--	.09	--	--
14	--	NR	1.30	.04	.05	--	.02	--
15	--	NR	.51	.32	.01	--	.23	.09
16	--	NR	.35	.46	.10	--	.02	--
17	--	NR	.49	.06	.15	--	--	--
18	--	NR	.04	.11	.03	--	.02	--
19	--	NR	.01	.02	--	--	.08	--
20	NR	NR	--	--	.02	--	--	.50
21	NR	NR	--	.06	--	--	--	--
22	NR	NR	.04	.05	--	.44	--	--
23	NR	0.33	.06	--	--	.22	--	.46
24	NR	.51	--	.05	--	.17	--	.26
25	NR	.58	--	.01	--	--	.12	.01
26	NR	.01	.04	.01	--	--	.04	--
27	NR	.10	.48	.01	--	--	.01	--
28	NR	.01	--	--	.08	--	--	--
29	NR	.02	.24	--		.20	--	--
30	NR	.01	.11	.02		.03	.11	--
31	NR		--	.01		--		--

Table 4.--Mean daily discharge, in cubic feet per second, for October 1977-May 1978

[NR, no record]

Station number and name: 14352010 - Unnamed tributary to Bear Creek in Ashland

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1	0.04	0.03	0.2	0.2	0.2	<0.1	NR	0.1
2	.03	.03	.2	.06	.2	< .1	NR	.1
3	.03	.03	1.5	.1	.3	.1	0.2	.1
4	.03	.03	1.0	.4	.2	.2	.5	.1
5	.03	.03	.4	.8	.2	.3	1.0	.1
6	.06	.03	.3	.4	.2	.2	.3	.1
7	.03	.03	.3	.2	2.0	.2	.2	.1
8	.03	.03	.2	.2	.8	.7	.1	.1
9	.03	.03	.2	.5	.5	.4	.1	.1
10	.03	.03	.2	.3	.3	.2	.1	.1
11	.03	1/ <.1	2.0	.3	.2	.6	.1	.1
12	.03	<.1	.8	.2	.2	.3	.1	.1
13	.03	<.1	1.5	.3	.2	.4	.1	NR
14	.03	<.1	2.0	.3	.2	.2	.1	NR
15	.03	NR	2.0	.7	.2	.2	.3	NR
16	.03	NR	1.0	1.5	.2	.2	.1	NR
17	.03	NR	1.0	.6	.2	.2	.1	NR
18	.03	NR	.7	.5	.2	.2	.1	NR
19	.02	NR	.4	.4	.1	.2	.2	NR
20	.03	NR	.4	.4	.1	.3	.1	NR
21	.02	NR	.4	.5	.1	.3	.1	NR
22	.02	1.5	.4	.4	.1	.3	.1	NR
23	.02	1.0	.5	.2	.1	.6	.1	NR
24	.04	1.0	.3	.2	<.1	.5	.2	NR
25	.4	.9	.3	.3	<.1	.5	.8	NR
26	.05	1.0	.3	.3	<.1	.5	.4	NR
27	.03	.9	.9	.3	<.1	.5	.2	NR
28	.04	.4	.3	.3	<.1	.3	.1	NR
29	.03	.3	.5	.2		.2	.1	NR
30	.05	.3	.6	.2		.1	.2	NR
31	.03		.2	.2		NR		NR

1/ New rating in effect at new gaging site approximately 0.2 mi below first gaging site starting November 11, 1977.

Table 4.--Mean daily discharge, in cubic feet per second, for October 1977-May 1978--Continued

Station number and name: 14357501 - Combined sewer outflow to Bear Creek in Medford

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1	NR	0.28	0.15	0.14	0.56	NR	0.16	0.18
2	NR	.91	.18	.21	.57	NR	.27	.15
3	NR	.14	1.2	.15	1.8	NR	.47	.14
4	0.12	.21	.40	.18	.14	NR	.32	.14
5	.17	.23	.18	1.1	.25	NR	.98	.15
6	.54	.15	.19	.59	.14	NR	.25	.14
7	.20	.12	.19	.16	1.7	NR	.23	.13
8	.16	.12	.19	.14	.44	NR	.13	.16
9	.16	.13	.25	.61	.30	0.27	.12	.15
10	.16	.11	.14	.23	.22	.21	.13	.13
11	.16	.13	1.3	.21	.19	.35	.13	.25
12	.16	.10	.39	.15	.16	.20	.13	.12
13	.19	.12	1.1	.15	.17	.47	.13	.12
14	.19	.11	2.2	.18	.18	.21	.15	.16
15	.17	.11	2.6	.60	NR	.22	.62	.20
16	.16	.14	.80	.60	NR	.21	.13	.12
17	.17	.11	1.9	.20	NR	.20	.14	.13
18	.16	.13	.34	.41	NR	.20	.17	.14
19	.16	.11	.21	.16	NR	.20	.18	.15
20	.15	.10	.18	.16	NR	.24	.13	.25
21	.15	3.4	.16	.21	NR	.87	.11	.14
22	.14	2.2	.19	.13	NR	.19	.12	.14
23	.14	.86	.17	.13	NR	.73	.11	.46
24	.27	1.4	.14	.13	NR	.16	.14	.65
25	1.7	1.6	.14	.13	NR	.15	.28	.30
26	.25	.29	.18	.12	NR	.15	.28	.14
27	.22	.46	1.2	.13	NR	.18	.13	.17
28	.22	.19	.17	.11	NR	.18	.14	.18
29	NR	.18	.69	.11		.72	.14	.21
30	NR	.18	.52	.12		.31	.30	.21
31	NR		.16	.10		.23		.19

Table 4.--Mean daily discharge, in cubic feet per second, for October 1977-May 1978--Continued

Station number and name: 14358495 - Unnamed tributary to Bear Creek at Sage Road near Medford

Remarks: Minimum recordable value equal to 0.40 ft^3/s after Feb. 14.

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1	4.0	0.39	2.2	1.4	3.0	0.40	<0.4	<0.4
2	2.4	2.2	1.8	1.4	3.1	.44	< .4	< .4
3	1.6	.73	8.7	1.2	14	.47	< .4	.44
4	1.3	.59	6.1	1.1	3.2	.50	< .4	.69
5	.97	.58	3.2	6.9	1.8	.72	1.1	.69
6	2.1	.54	2.4	4.7	1.4	.62	.76	.42
7	1.2	.48	1.9	1.9	9.7	.52	.53	.43
8	.80	.45	1.5	1.3	6.5	3.1	<.4	.51
9	.61	.44	1.3	1.9	3.0	2.4	<.4	.57
10	.53	.44	1.2	2.6	1.7	.96	<.4	.81
11	.72	.43	8.2	1.4	1.2	.80	<.4	1.2
12	.48	.42	5.5	1.1	.99	.70	<.4	1.0
13	.45	.42	12	1.0	.78	.76	<.4	1.2
14	.44	.42	33	.94	.69	.61	<.4	1.4
15	.42	.42	35	1.6	.68	.49	.50	1.4
16	.38	.40	12	4.6	.69	.45	<.4	.98
17	.38	.39	23	3.0	1.1	.43	<.4	1.0
18	.36	.41	6.0	3.0	1.1	.42	<.4	1.0
19	.36	.39	3.1	3.0	.80	.42	<.4	1.3
20	.37	.38	2.1	3.0	.69	<.4	<.4	1.1
21	.33	12	1.6	3.0	.60	.64	.47	1.0
22	.32	35	1.3	3.0	.53	.59	< .4	1.4
23	.32	18	1.2	3.0	.51	.90	< .4	1.0
24	.36	25	1.0	3.0	.48	.59	< .4	2.5
25	4.1	14	.92	3.0	.45	.43	< .4	3.0
26	.90	22	.91	3.0	.42	<.4	<.4	3.0
27	.57	8.3	5.1	3.0	.42	<.4	<.4	3.0
28	.48	4.6	2.5	3.0	.40	<.4	<.4	3.0
29	.43	3.3	2.9	3.0		.45	<.4	3.0
30	.42	2.7	5.5	3.0		.47	<.4	3.0
31	.40		2.1	3.0		<.4		3.0

Table 4.--Mean daily discharge, in cubic feet per second, for October 1977-May 1978--Continued

Station number and name: 14358499 - Unnamed tributary to Bear Creek at Upton Road in Central Point

Day	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
1	0.08	0.05	0.2	0.2	1.0	0.1	0.2	0.07
2	.09	.4	.2	.4	1.5	.2	.1	.07
3	.07	.05	1.0	.2	3.0	.2	.3	.07
4	.06	.1	.2	.2	.3	.2	.3	.08
5	.06	.09	.2	1.5	.4	.4	.8	.07
6	.4	.06	.2	.7	.2	.1	.5	.07
7	.06	.05	.1	.2	2.5	.5	.2	.09
8	.05	.04	.1	.2	.7	1.5	.1	.07
9	.05	.04	.1	.6	.3	.2	.1	.07
10	.05	.04	.1	.3	.2	.2	.09	.07
11	.05	.05	2.0	.2	.2	.2	.09	.1
12	.05	.04	.2	.2	.2	.1	.08	.07
13	.05	.05	2.0	.2	.2	.2	.08	.07
14	.04	.04	6.0	.2	.2	.1	.09	.05
15	.04	.04	3.5	.8	.2	.1	.3	.08
16	.04	.04	1.5	1.5	.2	.1	.09	.06
17	.04	.04	3.0	.3	.4	.1	.08	.05
18	.04	.04	.5	.5	.2	.1	.08	.06
19	.04	.04	.3	.2	.2	.1	.1	.07
20	.04	.04	.2	NR	.2	.1	.08	.8
21	.04	1.5	.2	NR	.1	.9	.08	.2
22	.04	5.5	.2	NR	.1	.2	.08	.07
23	.04	2.0	.2	.2	.1	.8	.08	.6
24	.1	4.0	.2	.2	.1	.1	.08	.6
25	1.0	2.5	.2	.2	.1	.1	.1	.2
26	.07	1.0	.2	.2	.1	.1	.09	.08
27	.05	.6	1.5	.2	.1	.1	.07	.08
28	.05	.2	.2	.2	.1	.1	.07	.08
29	.05	.2	.6	.2		.4	.07	.07
30	.05	.2	.6	.1		.1	.1	.09
31	.05		.2	.1		.1		.08

Table 5.--Hydrologic data collected at precipitation and storm-water-runoff gages

STATION NUMBER AND NAME: 14352010 - Unnamed tributary to Bear Creek in Ashland

Time (2400 hours)	Stage (ft)	Discharge (ft^3/s)	Specific conductance (micromhos/cm at 25°C)	Turbidity (Jtu)	Suspended sediment		BOD, 5-day (mg/L)	BOD, ultimate (mg/L)	Fecal coliform (count/100 ml)	Fecal streptococci (count/100 ml)	Total coliform (count/100 ml)	Temperature (°C)	pH (units)	Milligrams per liter					
					Concentration (mg/L)	Less than 0.062-mm diameter (percent)								Alkalinity (as $CaCO_3$)	COD	Dissolved solids (residue at 180°C)	Total phosphorus (as P)	Nitrite + nitrate (total as N)	Total Kjeldahl nitrogen (as N)
Baseline sample																			
December 12, 1977																			
1510	0.66	0.60	420	15	34	98	--	--	--	--	--	--	7.6	120	39	271	0.65	4.6	1.6
Storm event: December 13, 1977																			
TOTAL RAINFALL: 0.36 in.																			
PEAK DISCHARGE: 2.4 ft^3/s.																			
REMARKS: Maximum rainfall intensity (in./hr): 5 min, 0.36; 15 min, 0.28; 30 min, 0.26.																			
0940	0.90	1.9	355	110	362	--	--	--	--	--	--	--	6.5	73	--	234	--	--	--
1000	.98	2.4	202	170	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1020	.98	2.4	99	200	1,420	70	--	--	--	--	--	--	6.2	12	210	62	7.4	.71	.91
1100	.98	2.4	82	170	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1120	.98	2.4	122	160	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1310	.98	2.4	143	130	466	77	--	--	--	--	--	--	6.5	35	--	93	--	--	--
Storm event: February 5, 1978																			
TOTAL RAINFALL: 0.07 in.																			
PEAK DISCHARGE: 0.20 ft^3/s.																			
REMARKS: Maximum rainfall intensity (in./hr): 5 min, 0.24; 15 min, 0.16; 30 min, 0.8. Not a full storm.																			
1400	.52	.17	368	6	398	10	3.0	4.3	1,300	5,000B	--	10.0	7.7	33	--	243	--	--	--
1530	.50	.12	103	150	1,140	53	13	24	1,500B	55,000	22,000	--	7.0	9	110	70	.78	.45	1.3
1600	.50	.12	135	100	220	78	10	15	--	--	--	--	7.2	14	--	--	--	--	--
1630	.50	.12	169	80	360	45	9	13	--	--	--	--	7.3	28	56	107	.69	.79	.35
1800	.53	.20	265	15	134	34	3.3	5.4	--	--	--	--	7.6	69	--	--	--	--	--

Table 5.--Hydrologic data collected at precipitation and storm-water-runoff gages--Continued

STATION NUMBER AND NAME: 14352010 - Unnamed tributary to Bear Creek in Ashland--Continued

Time (2400 hours)	Stage (ft)	Discharge (ft^3/s)	Specific conductance (micromhos/cm at 25°C)	Turbidity (Jtu)	Suspended sediment		BOD, 5-day (mg/L)	BOD, ultimate (mg/L)	Fecal coliform (count/100 ml)	Fecal streptococci (count/100 ml)	Total coliform (count/100 ml)	Temperature (°C)	pH (units)	Milligrams per liter					
					Concentration (mg/L)	Less than 0.062-mm diameter (percent)								Alkalinity (as $CaCO_3$)	COD	Dissolved solids (residue at 180°C)	Total phosphorus (as P)	Nitrite + nitrate (total as N)	Total Kjeldahl nitrogen (as N)
Storm event: February 7, 1978																			
TOTAL RAINFALL: 0.67 in.																			
PEAK DISCHARGE: 23.0 ft^3/s.																			
REMARKS: Maximum rainfall intensity (in./hr): 5 min, 0.48; 15 min, 0.36; 30 min, 0.34. Full storm. Stream gage was working improperly until 1030 hours. Stage readings were made by fieldperson.																			
0820	1.70	9.7	64	300	2,190	65	17	29	--	--	--	--	7.1	27	280	45	3.8	0.19	0.29
0850	--	--	95	260	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0905	1.48	6.4	96	160	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0920	1.57	8.2	97	120	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0935	--	--	110	130	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0950	--	--	180	240	1,990	60	14	24	5,900	43,000	11,000	--	--	--	--	--	--	--	--
1005	2.39	20.0	143	300	2,320	70	--	--	--	--	--	--	7.2	30	330	45	4.3	.24	.44
1020	2.59	23.0	120	400	1,550	85	19	33	--	--	--	7.0	7.1	25	--	--	--	--	--
1035	2.51	22.0	94	300	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1050	1.80	11.0	118	220	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1105	1.44	6.5	134	220	1,130	69	12	21	6,500	48,000	--	--	7.5	44	--	--	--	--	--
1120	1.25	4.6	150	160	846	62	10	18	--	--	--	--	7.6	51	--	--	--	--	--
1135	1.14	3.6	168	120	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1150	1.08	3.1	180	130	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1205	1.02	2.7	200	120	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1220	1.00	2.5	215	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1235	.94	2.1	225	75	472	50	11	20	--	--	--	--	7.7	75	--	158	--	--	--
1251	.89	1.9	230	70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 5.--Hydrologic data collected at precipitation and storm-water-runoff gages--Continued

STATION NUMBER AND NAME: 14352010 - Unnamed tributary to Bear Creek in Ashland--Continued

Time (2400 hours)	Stage (ft)	Discharge (ft^3/s)	Specific conductance (micromhos/cm at 25°C)	Turbidity (Jtu)	Suspended sediment		BOD, 5-day (mg/L)	BOD, ultimate (mg/L)	Fecal coliform (count/100 ml)	Fecal streptococci (count/100 ml)	Total coliform (count/100 ml)	Temperature (°C)	pH (units)	Milligrams per liter					
					Concentration (mg/L)	Less than 0.062-mm diameter (percent)								Alkalinity (as $CaCO_3$)	COD	Dissolved solids (residue at 180°C)	Total phosphorus (as P)	Nitrite + nitrate (total as N)	Total Kjeldahl nitrogen (as N)
Storm event: March 31, 1978																			
TOTAL RAINFALL: 0.31 in.																			
PEAK DISCHARGE: Estimated 2.4 ft^3/s.																			
REMARKS: Maximum rainfall intensity (in./hr): 5 min, 0.36; 15 min, 0.28; 30 min, 0.24. No discharge record.																			
1650	--	--	360	120	--	--	--	--	--	--	--		--	--	--	--	--	--	--
1705	--	--	285	55	476	75	--	--	12,000	32,000	28,000	--	8.0	98	150	172	1.2	1.2	1.8
1720	--	--	250	65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1735	--	--	223	55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1750	--	--	217	85	--	--	--	--	--	--	--	--	7.5	70	--	--	--	--	--
1820	--	--	132	160	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1835	--	--	99	120	988	67	26	38	--	--	--	--	7.2	30	120	73	1.9	.63	2.9
1850	--	--	103	90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1905	--	--	112	75	--	--	16	23	--	--	--	--	--	--	--	--	--	--	--
1920	--	--	120	75	922	58	15	24	--	--	--	--	7.5	39	110	72	1.0	.62	2.0
1935	--	--	131	65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1950	--	--	103	260	--	--	22	36	--	--	--	--	--	--	--	--	--	--	--
2005	--	--	59	220	--	--	21	32	--	--	--	--	7.0	19	320	--	2.2	.27	3.6
2020	--	--	54	170	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2035	--	--	60	170	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2050	--	--	75	170	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2105	--	--	90	140	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2120	--	--	112	130	775	60	14	20	--	--	--	--	7.3	38	110	65	1.4	.49	1.9
2135	--	--	127	110	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2150	--	--	142	90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2205	--	--	157	70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
(4-1-78) 0800	--	--	340	4	27	93	.8	1.7	720	4,400	2,100	--	8.1	120	19	192	.41	1.2	.49

Table 5.--Hydrologic data collected at precipitation and storm-water-runoff gages--Continued

STATION NUMBER AND NAME: 14352010 - Unnamed tributary to Bear Creek in Ashland--Continued

Time (2400 hours)	Stage (ft)	Discharge (ft^3/s)	Specific conductance (micromhos/cm at 25°C)	Turbidity (Jtu)	Suspended sediment		BOD, 5-day (mg/L)	BOD, ultimate (mg/L)	Fecal coliform (count/100 ml)	Fecal streptococci (count/100 ml)	Total coliform (count/100 ml)	Temperature (°C)	pH (units)	Milligrams per liter					
					Concentration (mg/L)	Less than 0.062-mm diameter (percent)								Alkalinity (as $CaCO_3$)	COD	Dissolved solids (residue at 180°C)	Total phosphorus (as P)	Nitrite + nitrate (total as N)	Total Kjeldahl nitrogen (as N)
Storm event: April 3, 1978																			
2140	0.48	0.08	392	2	0	0	0.8	1.3	--	--	--	--	8.2	134	--	--	0.41	1.3	0.52
2220	.48	.08	372	9	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2235	.64	.52	300	90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2250	.88	1.7	195	110	341	82	17	28	13,000	9,600	460,000	--	7.6	44	200	104	.14	.72	2.8
2305	.88	1.7	102	90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2320	.76	1.1	96	110	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2335	.70	.80	98	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2350	.68	.69	108	35	120	72	7.0	12	3,900B	8,700	--	--	7.4	41	41	71	.52	.51	.97
(4-4-78)																			
0005	.66	.60	114	20	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0020	.63	.48	108	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0035	.65	.56	136	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0050	.74	.97	128	40	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0105	.87	1.7	96	65	327	77	11	19	5,600	8,800	48,000	--	7.2	38	41	72	.86	.54	1.6
0120	1.00	2.5	70	130	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0135	1.07	3.0	62	90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0150	1.08	3.1	58	70	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0205	1.07	3.0	62	60	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0220	1.02	2.7	65	55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0235	.95	2.2	75	45	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0250	.95	2.2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0305	.98	2.4	79	35	106	81	5.1	8.4	--	--	--	--	7.2	31	97	56	.37	.44	.74
0320	.97	2.3	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

TOTAL RAINFALL: 0.22 in.
PEAK DISCHARGE: 3.3 ft^3/s at 0140 hours on April 4, 1978.
REMARKS: Maximum rainfall intensity (in./hr): 5 min, 0.12; 15 min, 0.08; 30 min, 0.06.

Table 5.--Hydrologic data collected at precipitation and storm-water-runoff gages--Continued

STATION NUMBER AND NAME: 14357501 - Combined sewer outflow to Bear Creek in Medford

Time (2400 hours)	Stage (ft)	Discharge (ft^3/s)	Specific conductance (micromhos/cm at 25°C)	Turbidity (Jtu)	Suspended sediment		BOD, 5-day (mg/L)	BOD, ultimate (mg/L)	Fecal coliform (count/100 ml)	Fecal streptococci (count/100 ml)	Total coliform (count/100 ml)	Temperature (°C)	pH (units)	Milligrams per liter						
					Concentration (mg/L)	Less than 0.062-mm diameter (percent)								Alkalinity (as $CaCO_3$)	COD	Dissolved solids (residue at 180°C)	Total phosphorus (as P)	Nitrite + nitrate (total as N)	Total Kjeldahl nitrogen (as N)	Total lead (ug/L)
Storm event: October 6, 1977																				
TOTAL RAINFALL: 0.27 in.																				
PEAK DISCHARGE: 8.00 ft^3/s.																				
REMARKS: Maximum rainfall intensity (in./hr): 5 min, 0.24; 15 min, 0.24; 30 min, 0.20.																				
0745	10.26	0.08	445	4	14	--	13	25	> 220,000	980,000	--	16.0	7.4	170	31	261	17	2.7	7.8	100
0755	10.29	.11	415	25	--	--	--	--	--	--	--	15.0	7.3	--	--	--	--	--	--	--
0805	10.78	1.30	270	50	--	--	--	--	--	--	--	14.0	7.1	--	--	--	--	--	--	--
0815	11.25	4.60	145	55	499	62	66	110	160,000	690,000	2,200,000	13.0	9.0	36	310	116	1.0	.18	7.5	800
0825	11.23	4.40	103	50	--	--	--	--	--	--	--	13.0	8.3	--	--	--	--	--	--	--
0835	11.25	4.60	73	40	256	67	--	--	--	--	--	12.0	7.8	--	--	--	--	--	--	--
0845	11.34	5.60	57	25	186	68	--	--	--	--	--	12.0	7.9	--	--	--	--	--	--	--
0855	11.31	5.10	49	25	186	92	24	33	--	--	--	11.5	7.2	13	--	32	--	--	--	--
0910	11.33	5.30	46	25	--	--	--	--	--	--	--	11.0	7.2	--	--	--	--	--	--	--
0915	11.55	8.00	60	25	--	--	--	--	--	--	--	12.0	7.3	--	--	--	--	--	--	--
0940	11.02	2.70	67	25	80	92	18	29	--	--	--	11.5	7.1	18	43	--	--	--	--	--
0955	10.89	1.90	83	25	--	--	--	--	--	--	--	12.0	7.2	--	--	--	--	--	--	--
Storm event: December 13, 1977																				
TOTAL RAINFALL: 0.38 in.																				
REMARKS: Maximum rainfall intensity (in./hr): 5 min, 0.36; 15 min, 0.36; 30 min, 0.32. Partial storm.																				
1210	0.43	0.30	32	120	513	80	16	27	--	--	--	--	7.2	19	230	19	.66	.22	1.3	750
1400	.34	.16	151	65	78	92	8	14	--	--	--	--	7.0	46	59	93	.69	1.2	2.8	200

Table 5.--Hydrologic data collected at precipitation and storm-water-runoff gages--Continued

STATION NUMBER AND NAME: 14357501 - Combined sewer outflow to Bear Creek in Medford--Continued

Time (2400 hours)	Stage (ft)	Discharge (ft^3/s)	Specific conductance (micromhos/cm at 25°C)	Turbidity (Jtu)	Suspended sediment		BOD, 5-day (mg/L)	BOD_u, ultimate (mg/L)	Fecal coliform (count/100 ml)	Fecal streptococci (count/100 ml)	Total coliform (count/100 ml)	Temperature (°C)	pH (units)	Milligrams per liter						
					Concentration (mg/L)	Less than 0.062-mm diameter (percent)								Alkalinity (as $CaCO_3$)	COD	Dissolved solids (residue at 180°C)	Total phosphorus (as P)	Nitrite + nitrate (total as N)	Total Kjeldahl nitrogen (as N)	Total lead (ug/L)
Storm event: January 14, 1978																				
TOTAL RAINFALL: 0.03 in.																				
PEAK DISCHARGE: 0.86 ft^3/s.																				
2215	10.60	0.70	268	85	--	--	--	--	13,000	110,000	450,000	--	6.9	--	240	187	2.6	0.71	1.2	--
2222	10.65	.86	252	80	144	92	39	57	--	--	--	--	--	--	--	--	--	--	--	--
2230	10.62	.76	252	85	132	92	29	48	--	--	--	--	--	--	--	--	--	--	--	--
2237	10.59	.67	250	80	--	--	--	--	--	--	--	--	6.9	--	170	170	1.9	1.1	2.1	500
Storm event: January 15, 1978																				
TOTAL RAINFALL: 0.06 in.																				
PEAK DISCHARGE: 2.0 ft^3/s at 1105 hours.																				
REMARKS: Maximum rainfall intensity (in./hr): 5 min, 0.12; 15 min, 0.08; 30 min, 0.06.																				
1020	10.71	1.1	238	80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1027	10.80	1.4	240	80	148	93	26	42	--	--	--	--	--	--	--	--	--	--	--	--
1035	10.76	1.3	220	85	--	--	--	--	18,000	30,000B	--	--	7.4	--	160	153	1.4	1.1	1.3	--
1043	10.72	1.1	220	85	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1050	10.75	1.2	222	80	103	97	26	41	--	--	--	--	--	--	--	--	--	--	--	--
1057	10.84	1.6	218	85	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1105	10.90	2.0	222	85	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1112	10.87	1.8	280	110	248	94	32	46	--	--	--	--	--	--	240	--	2.3	1.3	2.8	700
Storm event: February 5, 1978																				
TOTAL RAINFALL: 0.04 in.																				
PEAK DISCHARGE: 5.60 ft^3/s.																				
REMARKS: Maximum rainfall intensity (in./hr): 5 min, 0.12; 15 min, 0.12; 30 min, 0.08.																				
1440	10.43	.30	200	160	--	--	--	--	5,100	50,000	610,000	8.0	6.7	4.9	360	208	1.7	.29	5.0	--
1455	11.35	5.60	110	130	570	86	28	46	--	--	--	8.0	--	--	--	--	--	--	--	800
1510	10.99	2.50	80	110	429	80	19	30	7,600B	4,800	--	8.0	6.8	4.9	--	--	--	--	--	--
1525	10.72	1.10	92	85	274	95	--	--	--	--	--	8.0	--	--	--	--	--	--	--	--
1540	10.58	.64	116	80	244	91	20	34	--	--	--	8.0	6.8	4.9	--	--	--	--	--	--

Table 5.--Hydrologic data collected at precipitation and storm-water-runoff gages--Continued

STATION NUMBER AND NAME: 14357501 - Combined sewer outflow to Bear Creek in Medford--Continued

Time (2400 hours)	Stage (ft)	Discharge (ft^3/s)	Specific conductance (micromhos/cm at 25°C)	Turbidity (Jtu)	Suspended sediment		BOD, 5-day (mg/L)	BOD, ultimate (mg/L)	Fecal coliform (count/100 ml)	Fecal streptococci (count/100 ml)	Total coliform (count/100 ml)	Temperature (°C)	pH (units)	Milligrams per liter						
					Concentration (mg/L)	Less than 0.062-mm diameter (percent)								Alkalinity (as $CaCO_3$)	COD	Dissolved solids (residue at 180°C)	Total phosphorus (as P)	Nitrite + nitrate (total as N)	Total Kjeldahl nitrogen (as N)	Total lead (ug/L)
Baseline sample																				
February 6, 1978																				
0940	10.50	0.44	420	15	--	--	--	--	--	--	--	--	7.2	13	25	259	0.94	2.6	1.7	--
Storm event: February 7, 1978																				
TOTAL RAINFALL: 0.37 in.																				
PEAK DISCHARGE: 20.0 ft^3/s at 0955 hours.																				
REMARKS: Maximum rainfall intensity (in./hr): 5 min, 0.60; 15 min, 0.48; 30 min, 0.36.																				
0820	11.02	2.70	235	450	1,020	91	--	--	16,000	130,000	160,000	--	--	--	450	142	2.8	.41	3.1	--
0835	11.37	5.80	89	240	967	73	22	40	--	--	--	--	7.4	33	--	--	--	--	--	900
0850	11.16	3.80	58	140	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0905	10.75	1.70	62	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0920	11.37	5.80	54	120	451	76	12	21	--	--	--	--	7.1	18	--	45	--	--	--	--
0935	11.86	13.0	41	120	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0950	12.10	18.0	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1005	11.91	14.0	26	100	--	--	--	--	--	--	--	--	--	--	210	26	.86	.13	.33	--
1020	11.37	5.80	44	95	433	83	8	15	25,000	49,000	--	--	7.1	14.8	--	--	--	--	--	--
1035	10.99	2.50	57	90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1050	10.81	1.50	81	80	152	94	14	23	--	--	--	--	7.2	26.2	--	--	--	--	--	--
1105	10.69	1.00	102	60	92	96	--	--	--	--	--	--	--	--	--	69	--	--	--	--
Storm event: March 29, 1978																				
TOTAL RAINFALL: 0.15 in.																				
PEAK DISCHARGE: 26 ft^3/s at 1815 hours.																				
REMARKS: Maximum rainfall intensity (in./hr): 5 min, 1.32; 15 min, 0.56; 30 min, 0.30.																				
1810	11.86	13	118	210	--	--	65	95	1,200,000B	850,000	800,000	--	7.1	38	--	58	1.6	.18	5.7	--
1825	11.86	13	84	190	1,570	79	50	83	--	--	--	--	6.9	21	630	--	--	--	--	100
1840	11.22	4.3	79	190	--	--	43	70	--	--	--	--	7.0	22	--	53	1.6	.40	6.3	--
1855	10.89	1.9	68	180	1,430	82	49	82	570,000	350,000	--	--	6.9	18	410	--	--	--	--	--
1910	10.69	1.0	68	170	1,470	68	37	54	--	--	--	--	6.9	18	--	--	--	--	--	1,900

Table 5.--Hydrologic data collected at precipitation and storm-water-runoff gages--Continued

STATION NUMBER AND NAME: 14358495 - Unnamed tributary to Bear Creek at Sage Road near Medford

Time (2400 hours)	Stage (ft)	Discharge (ft^3/s)	Specific conductance (micromhos/cm at 25°C)	Turbidity (Jtu)	Suspended sediment		BOD, 5-day (mg/L)	BOD, ultimate (mg/L)	Fecal coliform (count/100 ml)	Fecal streptococci (count/100 ml)	Total coliform (count/100 ml)	Temperature (°C)	pH (units)	Milligrams per liter					
					Concentration (mg/L)	Less than 0.062-mm diameter (percent)								Alkalinity (as $CaCO_3$)	COD	Dissolved solids (residue at 180°C)	Total phosphorus (as P)	Nitrite + nitrate (total as N)	Total Kjeldahl nitrogen (as N)
Storm event: December 13, 1977																			
TOTAL RAINFALL: 0.57 in., Lozier; 0.68 in., McAndrews. PEAK DISCHARGE: 26.0 ft^3/s. REMARKS: Maximum rainfall intensity (in./hr): 15 min, 0.48; 30 min, 0.36.																			
1200	0.95	8.8	460	30	66	90	--	--	--	--	--	--	7.4	137	--	--	--	--	--
1230	1.20	14.0	420	110	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1300	1.37	18.0	380	160	367	91	--	--	--	--	--	--	7.3	113	160	221	0.72	2.1	1.7
1400	1.55	23.0	330	160	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1430	1.59	24.0	330	160	371	93	--	--	--	--	--	--	7.5	98	--	199	1.5	2.4	2.7
1500	1.60	24.0	320	150	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1515	1.65	26.0	330	140	302	88	--	--	--	--	--	--	7.4	99	--	--	--	--	--
Storm event: April 5, 1978																			
TOTAL RAINFALL: 0.34 in. PEAK DISCHARGE: 1.7 ft^3/s. REMARKS: Rainfall light and steady over entire day.																			
0735	0.22	.84	450	80	688	49	28	40	7,900	3,300B	78,000	--	8.0	154	590	213	.90	1.1	8.8
0805	.29	1.2	420	25	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0835	.35	1.5	325	200	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
0905	.33	1.4	295	240	1,020	50	34	43	22,000B	56,000	490,000	--	7.8	112	370	161	.92	.57	11
0935	.32	1.3	339	35	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1005	.32	1.3	372	30	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1035	.32	1.3	370	250	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1135	.34	1.4	350	90	233	67	13	22	--	--	--	--	7.9	133	--	--	--	--	--
1315	.37	1.6	360	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1335	.37	1.6	348	90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1405	.36	1.6	340	90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1435	.37	1.6	420	80	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1505	.35	1.5	460	80	164	65	28	40	4,300	9,200	--	--	7.9	123	110	216	.40	.37	11
1535	.36	1.6	440	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1605	.36	1.6	400	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1635	.36	1.6	370	65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1705	.37	1.6	362	65	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1735	.38	1.7	390	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Table 5.--Hydrologic data collected at precipitation and storm-water-runoff gages--Continued

STATION NUMBER AND NAME: 14358499 - Unnamed tributary to Bear Creek at Upton Road in Central Point

Time (2400 hours)	Stage (ft)	Discharge (ft^3/s)	Specific conductance (micromhos/cm at 25°C)	Turbidity (Jtu)	Suspended sediment		BOD, 5-day (mg/L)	BOD, ultimate (mg/L)	Fecal coliform (count/100 ml)	Fecal streptococci (count/100 ml)	Total coliform (count/100 ml)	Temperature (°C)	pH (units)	Milligrams per liter					
					Concentration (mg/L)	Less than 0.062-mm diameter (percent)								Alkalinity (as $CaCO_3$)	COD	Dissolved solids (residue at 180°C)	Total phosphorus (as P)	Nitrite + nitrate (total as N)	Total Kjeldahl nitrogen (as N)
Storm event: October 6, 1977																			
TOTAL RAINFALL: 0.23 in. PEAK DISCHARGE: 4.20 ft^3/s at 0935 hours. REMARKS: Maximum rainfall intensity (in./hr): 5 min, 0.24; 15 min, 0.20; 30 min, 0.16.																			
0815	0.15	0.6	450	2	5	--	3	5	280B	3,600	--	--	8.0	220	14	373	0.10	--	0.96
0850	.64	1.4	370	25	78	96	--	--	--	--	--	--	--	--	--	--	--	--	--
0950	1.08	3.9	55	35	91	--	9	15	5,300	40,000	45,000	--	7.0	14	57	33	.33	0.60	.92
1005	.97	3.2	60	35	78	96	--	--	--	--	--	--	--	--	--	--	--	--	--
1020	.86	2.5	62	35	64	--	10	16	--	--	--	--	7.1	17	--	39	--	--	--
1035	.73	1.8	69	30	57	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Storm event: December 13, 1977																			
TOTAL RAINFALL: 0.36 in. PEAK DISCHARGE: 11.0 ft^3/s at 1240 hours. REMARKS: Maximum ranfall intensity (in./hr): 5 min, 0.48; 15 min, 0.32; 30 min, 0.28.																			
1015	.32	.26	430	10	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1035	.44	.54	420	15	43	66	--	--	--	--	--	--	6.9	120	--	266	--	--	--
1055	.95	3.10	160	55	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1115	1.01	3.50	158	50	--	--	--	--	--	--	--	--	6.8	42	110	100	.41	1.2	1.6
1135	1.19	4.70	72	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1155	1.49	6.90	63	75	227	95	--	--	--	--	--	--	6.7	20	--	--	--	--	--
1215	1.81	9.50	65	110	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1235	1.95	10.00	68	120	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1255	1.95	10.00	97	110	235	99	--	--	--	--	--	--	6.6	25	85	67	.62	.54	1.1
1315	1.60	7.80	112	110	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1335	1.21	4.80	144	90	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
1355	1.00	3.40	166	90	173	92	--	--	--	--	--	--	6.7	44	--	104	--	--	--

Table 5.--Hydrologic data collected at precipitation and storm-water-runoff gages--Continued

STATION NUMBER AND NAME: 14358499 - Unnamed tributary to Bear Creek at Upton Road in Central Point--Continued

Time (2400 hours)	Stage (ft)	Discharge (ft^3/s)	Specific conductance (micromhos/cm at 25°C)	Turbidity (Jtu)	Suspended sediment		BOD, 5-day (mg/L)	BOD, ultimate (mg/L)	Fecal coliform (count/100 ml)	Fecal streptococci (count/100 ml)	Total coliform (count/100 ml)	Temperature (°C)	pH (units)	Milligrams per liter					
					Concentration (mg/L)	Less than 0.062-mm diameter (percent)								Alkalinity (as $CaCO_3$)	COD	Dissolved solids (residue at 180°C)	Total phosphorus (as P)	Nitrite + nitrate (total as N)	Total Kjeldahl nitrogen (as N)
Storm event: March 29, 1978																			
TOTAL RAINFALL: 0.19 in.																			
PEAK DISCHARGE: 6.1 ft^3/s at 1910 hours.																			
REMARKS: Maximum rainfall intensity (in./hr): 5 min, 1.32; 15 min, 0.68; 30 min, 0.34.																			
1825	0.22	0.12	525	65	--	--	9	16	--	--	--	--	8.1	200	--	--	--	--	--
1838	.69	1.6	260	45	57	74	9	18	--	--	--	--	7.4	93	--	155	--	--	--
1855	1.21	4.8	87	200	595	96	18	26	4,500	22,000	26,000	--	6.6	23	130	92	0.87	0.96	2.3
1925	1.27	5.3	134	180	--	--	25	37	--	--	--	--	--	--	--	--	--	--	--
1955	.81	2.2	148	120	229	90	18	27	--	--	--	--	7.0	45	--	--	--	--	--
2025	.52	.84	168	100	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2055	.41	.45	191	85	146	85	28	42	9,700	24,000	77,000	--	7.3	54	96	112	.55	.79	4.7
2125	.38	.38	219	75	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
2155	.39	.40	252	50	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
(3-30-78)																			
0355	.23	.13	386	30	34	70	10	17	--	--	--	--	7.7	152	--	219	--	--	--