

MEMORANDUM
Water Pollution Control Commission
P. O. Box 829
OLYMPIA, WASHINGTON
98501

Publication No. 70-e13

WA-28-1020

TO: Nelson, Merley, files

DATE: June 29, 1970

FROM: Ron Lee *RL*

SUBJECT: Salmon Creek Survey

The analytical results for the Salmon Creek survey have been completed and are somewhat indicative of our preliminary appraisal of present water quality conditions. Total coliform counts were above Class A standards at all stations (Table 1, Figure 1). High fecal coliform counts were obtained at station 1, but decreased to lower levels further downstream. The concentration of nitrate was substantial at station 1, but also decreased to low levels at stations 3 and 4 (Table 2). The presence of ammonia at all stations would suggest very recent contamination since it is unstable and is quickly converted to other forms of nitrogen under aerobic conditions.

Dissolved oxygen concentrations were found to meet Class A standards at the monitor site (station 1), but were somewhat marginal at stations 2, 3, and 4 (Table 1). A BOD of 2.0 ppm was obtained at station 2. Maximum, minimum and mean daily values for dissolved oxygen, temperature, % saturation, pH, and turbidity at the monitor site are presented in Table 3.

Conclusions:

- (1) high coliform counts obtained at station 1 would indicate the influence of septic tank and/or agricultural drainage from residential areas upstream.
- (2) existing water quality in Salmon Creek is extremely marginal for Class A standards.
- (3) adverse hydrological conditions during critical periods of stream flow exist in the area proposed for the secondary-tertiary treatment plant; high water in the Columbia River causes Salmon Creek to back up forming a slow meandering waterway in the lower 2 to 3 miles of stream.
- (4) The Creek has no further assimilative capacity for waste if water quality standards are to be maintained.

RL:ah

Figure 1. Salmon Creek survey sampling station locations.

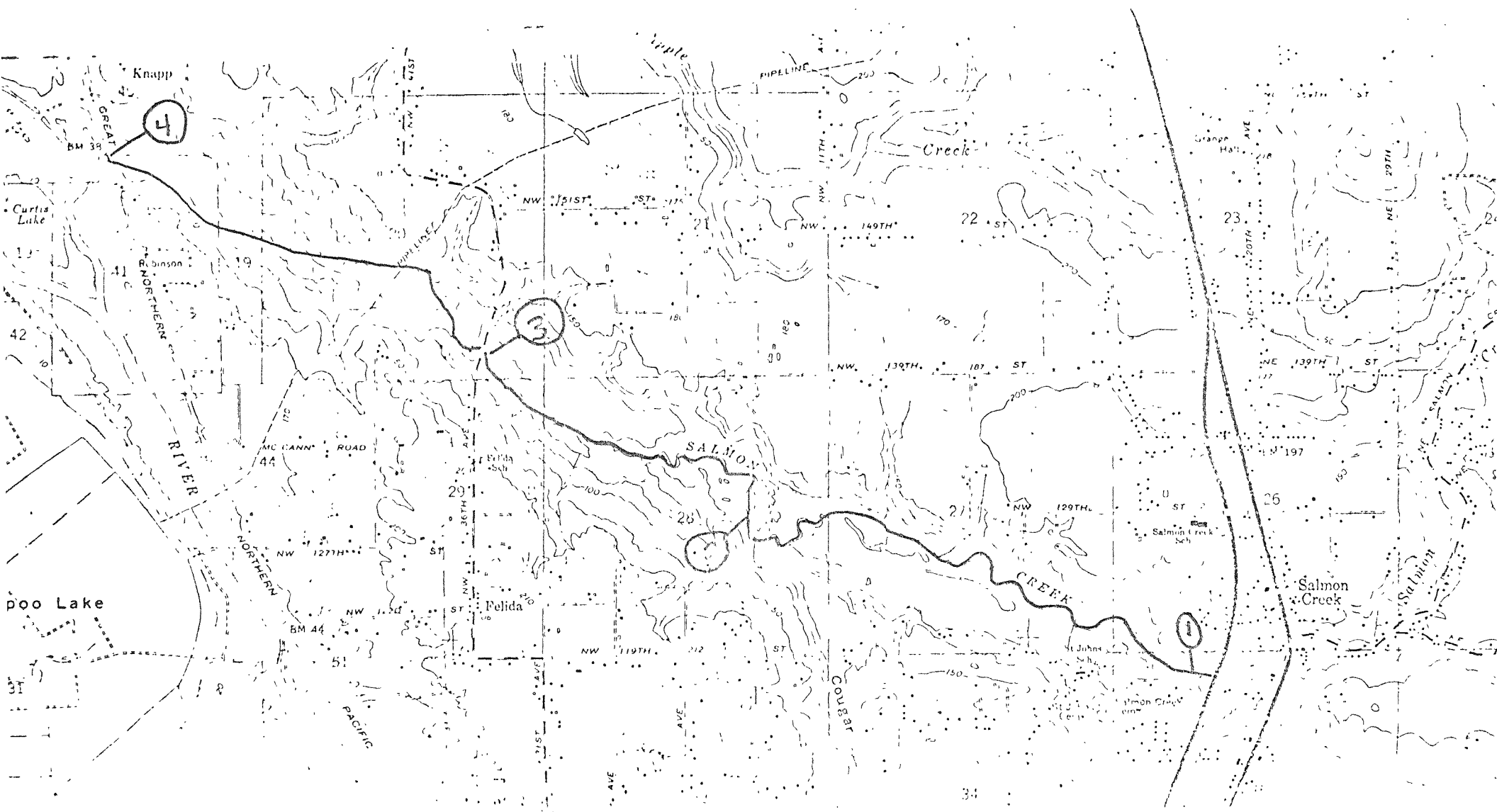


Table 1

Station	Coliform		D.O. (mg/l)	Temp (°C)	%Sat.	pH	Specific Conductance (umhos)	Turbidity (JTU)
	Total	Fecal						
1	8200	265	8.5	16.0	89	7.8	116	9
2	1300	41	6.2	19.5	69	7.2	140	11
3	1250	22	7.7	20.1	90	7.2	138	19
4	1400	17	7.9	22.0	92	7.2	135	13

Table 2 Nutrient values for Salmon Creek Water Quality conducted on 6-8-70, values are in mg/l as N or P.

Station	NO ₃	NH ₃	Kjeldahl - N	Total PO ₄	
				Unfiltered	Filtered
1	1.16	0.08	0.18	0.20	0.14
2	0.45	0.10	0.22	0.20	0.09
3	0.06	0.15	0.53	0.16	0.11
4	0.04	0.14	0.30	0.18	0.12

Table 3 Maximum, minimum, and mean daily values for dissolved Oxygen, temperature, %saturation, pH, and turbidity for Station 1 (monitor site) on Salmon Creek.

Date		D.O. (mg/l)	Temp (°C)	pH	Turb. (JTU)	%Saturation
6-8-70	Max	10.2	17.2	8.6	32	106
	Min	9.6	13.2	7.6	15	97
	Mean	10.2	15.2	8.0	20	105
6-9-70	Max	11.2	16.4	8.5	39	113
	Min	10.0	12.8	7.6	22	101
	Mean	10.4	14.8	8.1	27	105
6-10-70	Max	11.2	15.6	8.3	29	112
	Min	10.0	12.8	7.6	23	100
	Mean	10.6	13.2	8.0	25	104

MEMORANDUM
Water Pollution Control Commission
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98501

	Check
Information	<input type="checkbox"/>
For Action	<input type="checkbox"/>
Permit	<input type="checkbox"/>
Other	<input type="checkbox"/>

TO: Gene A., Merley M., & Ron L. R.L.

DATE: June 5, 1970

FROM: NG
Nelson Graham

SUBJECT: Request for survey on
Salmon Creek, Clark County

This memo is written to request a stream survey on Salmon Creek, to explain the reasons for wanting the survey, and to describe what should be accomplished and how.

The Clark County Regional Planning Council has adopted a comprehensive sewerage study which recommends that some time in the future a sewage treatment plant be built in the Salmon Creek Drainage Basin and the effluent be discharged to Salmon Creek. An interim study is also suggesting that an STP be built farther upstream immediately to serve some present problem areas. Due to the small quantity of flow in this stream during the summer months these proposals appear to be questionable without tertiary treatment.

The purpose of the survey is to determine the extent of treatment necessary by the immediately proposed STP and also to gather some general water quality data on the lower reaches of the stream.

The reach of stream to be surveyed is shown on the attached map. There will be 7 sampling stations at which general water quality measurements will be taken (D.O., temp., turb., total and fecal coliform, nutrients, conductivity, and pH). If possible at least two coliform samples should be collected at each station.

The Streeter Phelps formulation will be used to determine the assimilative capacity of the reach of stream from the confluence of Cougar Creek downstream to the NW 36th Avenue bridge. To use this formulation we need to know the flowing data at station #5: flow, velocity, mean depth, and 5-day BOD.

The monitor could be used at station #1 to gather data on the control station and also at station #7 if we can find a place to locate it. The monitor can easily be located at station #1.

NG:tm

WASHINGTON STATE WATER POLLUTION CONTROL COMMISSION
BACTERIOLOGICAL EXAMINATION

Date Collected	Collected By	Lab. No.	Time On	Endo Agar						F.C. AGAR @ 44.5°				
Date Reported	Reported By			Sheen Colonies Per:						BLUE COLONIES PER:				
				.5	2.	5.	20.	100	Count Per 100 ml	10	20	50	100	Count Per 100 ml
6/8/70	Rowlee													
6/10/70	D		6/9											
SALMON CREEK 1 A		70-2611	1230	41	✓	✓			8200		53		✓	265
1 B		2612	}				TNTC	✓	TNTC	24		✓		240
2 A		2613		✓	26				1300		✓		41	41
2 B		2614				34	✓	✓	680	✓		11		22
3 A		2615		✓	25	✓			1250				22	22
3 B		2616					36 ^x	✓	180	✓		11		22
7 A		2617		✓	28				1400		✓		17	17
7 B		2618				34	✓	✓	680	✓		8		16

COMMENTS: X MANY ATYPICAL COLONIES

Coliform Set 36
Coliform Reported 16

STATE OF WASHINGTON
WATER POLLUTION CONTROL COMMISSION

ANALYTICAL REPORT SHEET

Routing
Original to L.P.B.
Copies to: _____

RON LEE

To: RON LEE

The following are the analytical results from survey conducted at:

SALMON CREEK

Collected 6-8-70

LAB. NO.	STATION NO.	mg/l. TOT. P ₀₄ P. FWT.	mg/l. TOT. P ₀₄ P. UNF.	mg/l. NITRATE N. FWT.	mg/l. AMMONIA N. UNF.	mg/l. KJELDAHL N	Temp	D.O.
70-2619	1	0.14					16.0	8.5
2620	2	0.09					19.5	6.2
2621	3	0.11					10.1	7.7
2622	7	0.12						7.9
2623	1		0.20	1.16	0.08	0.18		
2624	2		0.20	0.45	0.10	0.22		
2625	3		0.14	0.06	0.15	0.53		
2626	7		0.18	0.04	0.14	0.30		
			J.T.U.	UMHUS	mg/L			
		pH	TURBIDITY	SPCOND.	B.O.D.			
70-2627	1-A	7.8	9.2	116				
2628	2-A	7.2	11	140				
2629	3-A	7.2	19	138				
2630	7-A	7.2	13	135				
2631	A	7.9	27	116				
2632	2				2			

Notes:

Summarized by E.U. DENVER

Date 6-17-70

