

MEMORANDUM
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Publication No. 70-e04

WA-07-1010

Other

TO: John Arnquist, Merley McCall

DATE: August 14, 1970

FROM: Ron Lee 

SUBJECT: Lower Snohomish
River Survey

On July 29, 1970, Ron Devitt and I sampled water quality in the lower Snohomish River above and below the major industrial and municipal waste dischargers (Figure 1). For the sake of clarification, station F was located in the waste plume 25 yards below the Simpson Lee outfall. Station G, adjacent to station F, was in the middle of the river and was not affected by the mill waste.

Coliform counts in all cases, except station F, exceeded 1000, with the highest counts occurring below the Everett lagoon (Table 1). The zero coliform count obtained at station F may have been due to effluent toxicity. The coliform count in a sample taken directly from the Everett lagoon discharge was 44,000. The decrease in conductivity from station A to H is representative of the amount of salt water on the surface at the time of sampling.

Dissolved oxygen concentrations were above 9 mg/l at all stations except station G, where a value of 7.15 was recorded (Table 2). Water temperature rose from 14.5° C at station H to 18.2° C. at station G.

Supplemental to the water quality survey results are composite sample data for the Weyerhaeuser kraft mill lagoon influent and effluent and Simpson Lee effluent (Table 3).

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Figure 1. Lower Snohomish River station locations for a water quality survey conducted on July 29, 1970.

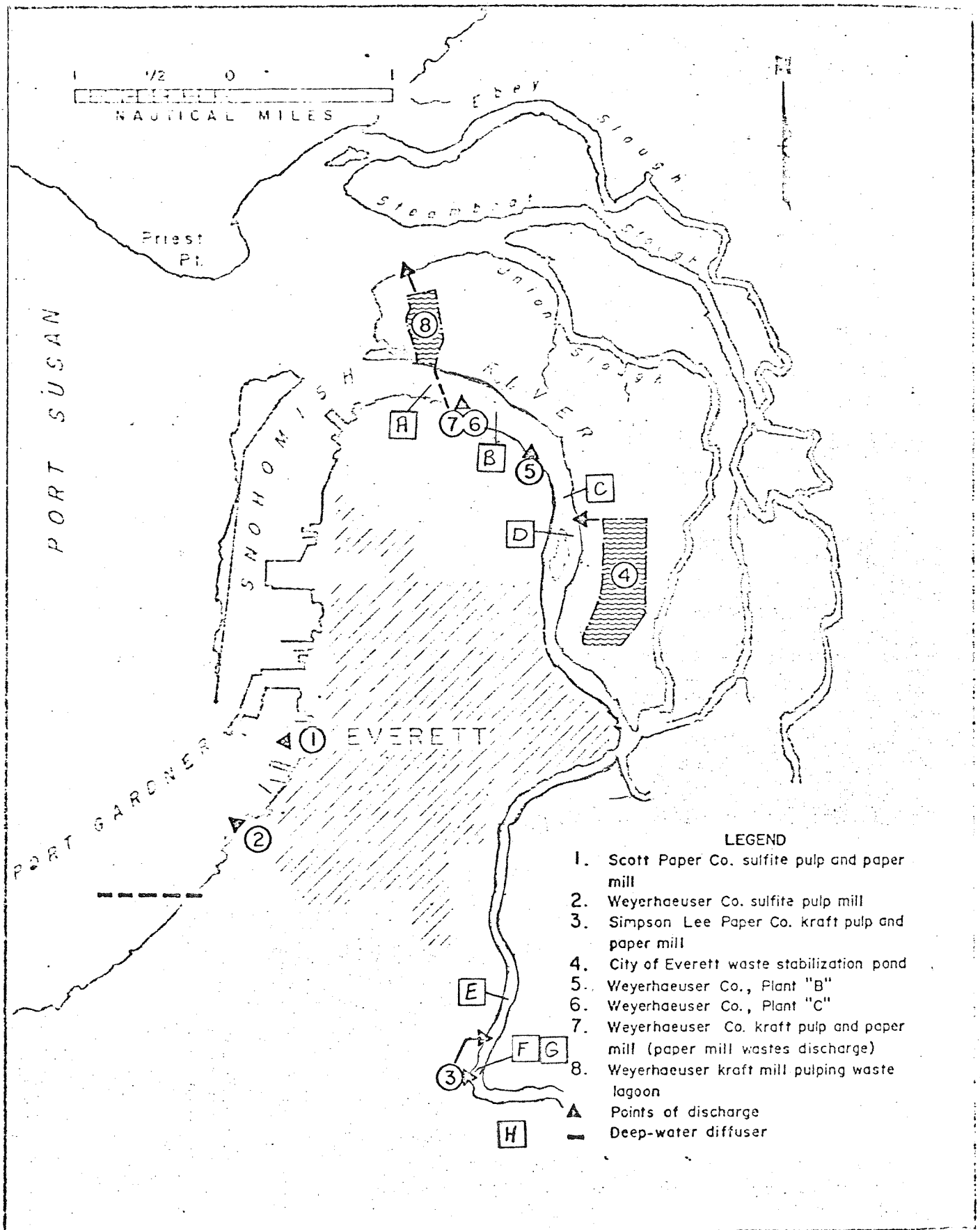


Table 1. Bacteriological, color, PBI, pH, turbidity, and conductivity data for the lower Snohomish River water quality survey.

Station	Total coliform (colonies/100ml)	Color (units)	PBI (ppm)	pH	Turbidity (JTU)	Conductivity (umhos/cm)
A	7700	30	10	7.2	4	2530
B	3700	30	12	7.2	5	1770
C	3400	30	5	7.1	5	1180
D	2100	30	5	7.1	4	1050
E	1500	30	19	6.9	4	69
F	0	140	210	6.5	25	464
G	2000	30	22	7.0	3	43
H	2100	30	0	7.4	2	42

Table 2. Dissolved oxygen, temperature, and percent saturation values for surface water samples collected on the lower Snohomish River on July 29, 1970.

Station	Dissolved oxygen ppm	Temperature ° C	Percent saturation
A	9.40	15.2	96.7
B	9.35	15.2	96.2
C	9.48	15.2	97.5
D	9.50	15.1	97.5
E	9.35	14.8	95.3
F	7.15	18.2	78.1
G	9.58	14.5	97.0
H	9.52	14.4	96.2

Table 3. BOD, COD, suspended combustible solids, pH, PBI, and color data for composite sample from Weyerhaeuser Kraft and Simpson-Lee pulp mills at Everett.

Waste source	BOD (ppm)	COD (ppm)	SCS (ppm)	pH	PBI (ppm)	Color (units)	Turbidity (JTU)
Weyerhaeuser lagoon influent	167	660	56	4.0	625	810	50
Weyerhaeuser lagoon effluent	116	530	26	4.0	570	780	55
Simpson-Lee effluent	148	1030	212	7.1	265	440	220