STATE OF WASHINGTON

DEPARTMENT OF ECOLOGY

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MEMORANDUM

Publication No. 71-e00

December 13, 1971

MEMO TO: STEW MESSMAN

FROM: BOB BISHOP

SUBJECT: Newaukum Creek Surveys

On June 12, 1970, and August 24, 1970, surveys were conducted by Mike Palko to provide water quality data for Newaukum Creek near Enumclaw, which would define certain effects of spray manure fertilization in pastures and waste excretion from dairy and beef cattle feeding in the pastures bordering the Creek. Sampling was done during rainy weather in June and low flow and low rainfall conditions in latter August. Further data was defined in a survey conducted on July 14, 1971.

On July 14, 1971, nine stations were sampled for DO, nutrient, temperature, and total and fecal coliform bacteria determination, Figure 1. During June and early July, 1971, the weather was very rainy; on July 14, it was overcast with no rain.

There were no well-defined control stations in the survey; all stations were influenced by pasture runoff. Station 3, which was about 400 yards from a wooded area, was exposed to some pasture runoff, and was the best control. Station 4 was similar to number 3. The flow was low at Stations 3 and 4. If the survey is repeated, personnel should walk the stream beyond pasture influence to sample a well-defined control station. For July 14, 1971, the DO was above 10.0 mg/l. at four stations and was lowest, 4.9 mg/l. at Station 1. Temperature increased as station sampling progressed from upstream to downstream, Table 1.

Table 1. DO and temperature at stations on Newaukum Creek, July 14, 1971

Station	DO	Temperature
1	4.9 mg/l	10.6° C
2		10.6
3	10.4	10.8
4		10.6
5	10.6	11.4
6		11.6
7	10.9	11.4
8	10.4	12.1
9		12.2

Memo to Stew Messman
December 13, 1971

On survey dates August 24, 1970 and July 14, 1971, total coliform counts per 100 ml. were quite high. Fecal coliform tests were conducted for the 1971 Survey. At Stations 1 and 8, fecal counts were 600 colonies; the counts for Stations 5 and 9 were greater than 600 colonies. At the date of sampling the fecal coliform levels in certain sections of the Creek indicated a possible health hazard for human water contact, such as swimming or wading, Table 2.

Table 2. Total coliform counts for August 24, 1970 and July 14, 1971. Fecal coliform counts for July 14, 1971.

	Total Coliform Colonies Per 100 ml. Sample		Fecal Coliform Colonies Per 100 ml. of Sample
Stations	8-24-70	7-14-71	7-14-71
1	3800	5000	600
2	5800	+16,000	200
3	3300	500	50
4	940	2500	230
5	4400	4000	+600
6	3000	2000	300
7	1900	1800	400
8	*	2000	600
9	3200	4000	+600

* Station 8 of the 1970 Survey was the same location as No. 9 for the 1971 Survey and will be referred to as No. 9

\+ means greater than

Nutrient nitrogen and phosphorous concentrations for Newaukum Creek surveys were determined, Tables 3, 4, and 5.

Table 3. Nitrate and nitrite nitrogen concentrations for June 12 and August 24, 1970, and July 14, 1971

	NO_3 - N (filtered) mg/l.			NO_2 - N (filtered mg/l.
Stations	6-12-70	8-24-70	7-14-71	7-14-71*
1		2.03	2.58	.12
2		.69	1.59	.12
3	.58	.37	.92	.00
4	.78	.44	.84	.00
5		.61	1.01	.02
6	1.26	.44	1.26	.04
7	1.26	.75	1.14	.02
8		-	1.21	.02
9		1.63	1.21	.06

* 8-24-70 data not reported, errors.

Memo to Stew Messman
December 13, 1971

Nitrate as nitrogen was greater in concentration on July 14, 1971 and June 12, 1970 than on August 24, 1970, except at Station 9.

Table 4. Nutrient phosphorous concentrations for June 12, 1970, August 24, 1970, and July 14, 1971.

	Total PO_4 - P mg/l.				ortho - PO_4 mg/l.	
		(unfiltered)		(filtered)	(unfilt.)	(filt.)
Station	6-12-70	8-24-70	7-14-71	7-14-71	7-14-71	7-14-71
1		.018	.03	.03	.02	.03
2		.036	.03	.03	.02	.02
3	.12	.037	.04	.01	.02	.01
4	.15	.016	.03	.02	.03	.02
5		.028	.04	.02	.02	.02
6	.08	.028	.02	.02	.02	.02
7	.08	.039	.04	.02	.02	.02
8		-	.04	.03	.03	.02
9		.019	.04	.03	.03	.02

Table 5. Organic Kjeldahl-N and HN_3 - N concentrations for August 24, 1970 and July 14, 1971

	Kjeldahl - N (unfilt.) mg/l		NH_3-N (unfilt.) mg/l.	
Station	8-24-70	7-14-71	8-24-70	7-14-71
1	.00	.16	.00	.02
2	.00	.20	.017	.00
3	.00	.00	.00	.08
4	.00	.00	.00	.10
5	.00	.16	.00	.00
6	.00	.10	.00	.00
7	.00	.10	.08	.00
8	-	.11	-	.00
9		.18	.17	.00

On March 20, 1971, March 24, 1970 and April 21, 1971, I investigated complaints about problems of manure wastes in the Enumclaw countryside. Complaint forms are enclosed. Odor problems were the primary complaint of the rural Enumclaw residents concerned with spray fertilizing.

At Station 7, at 1030 hours on July 14, 1971, a farmer was spraying fertilizer about 100 yards from the Creek; foul odor was noted. Slime, similar to Sphaerotilus was noticed at St. 9; there was very little slime of this nature at the other stations on July 14, 1971.

More than just Newaukum Creek alone is involved; there are several roadside ditches with manure flowing in during heavy rain; manure dries in hot weather

causing foul odor. It may be that certain sanitation laws, such as those of the County, are being violated. Ground water problems may occur.

I enclosed three pamphlets on manure waste disposal; these may have some useful material applicable to the farm waste problems in the Enumclaw countryside.

BB:mh
60/1,2,3,4,5,6

Enclosure

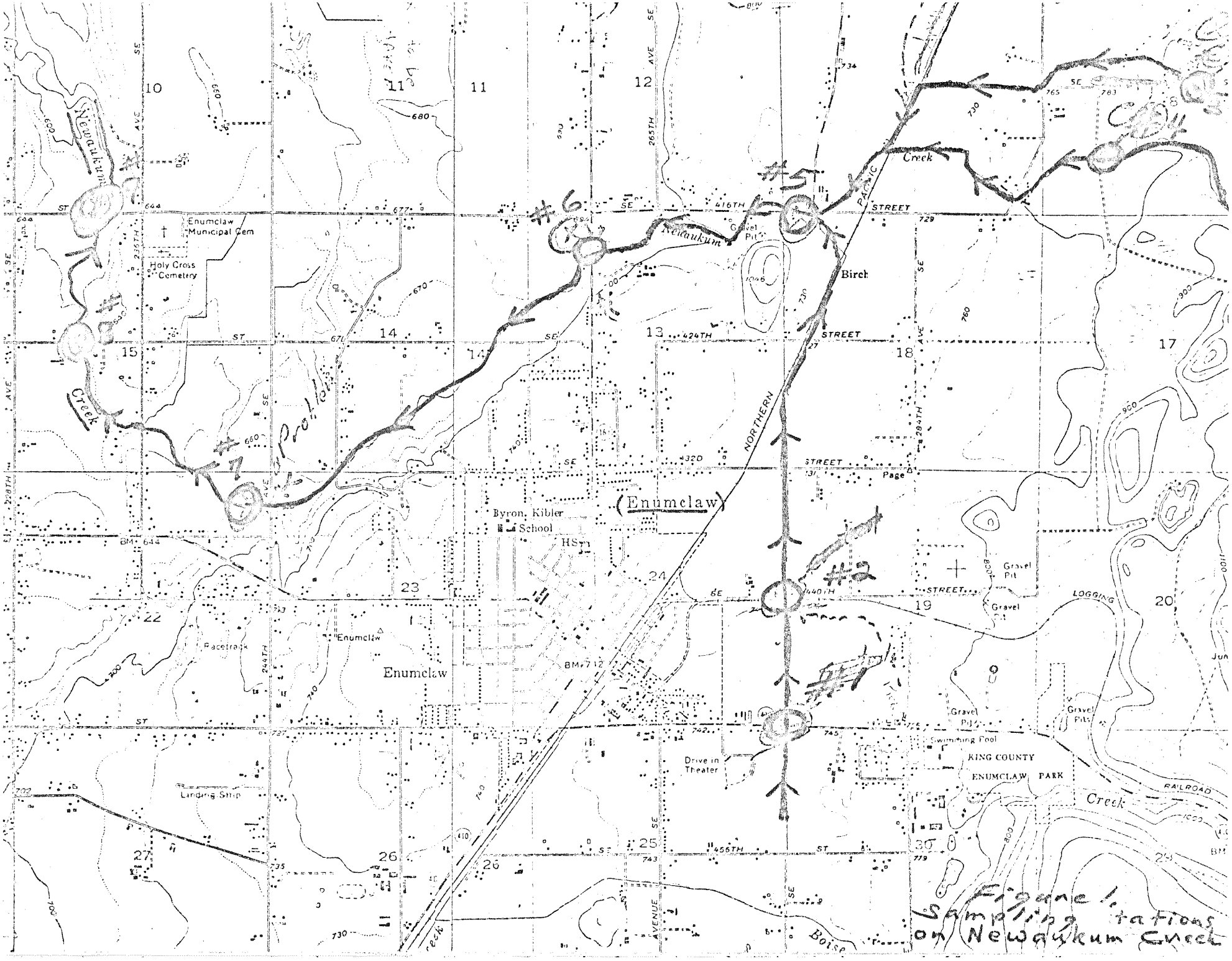

Figure 1. Sampling Stations on Newaukum Creek

POLLUTION COMPLAINT REPORT FORM

ile No. ..... Date April 21, 1971

Investigator Bob Bishop

I. Complaint Reported By:

1. Name Mr. Jack Hooper Phone No. Vi 7-2537
2. Address North of 208th St., on 28 Ave East — Rt. Box 2277
3. Date and time complaint first noted 4-20-71
4. Other information

II. Location:

1. Stream or watercourse run off ditch through Houtsma Dairy pasture and adjacent hills & farm land.
2. Town Spanaway County Pierce
3. Landmark ~~auction~~ auction building, railroad trestle

III. Pollutant:

1. Pollutant material manure
2. Area or miles affected ½ mile of ditch flow
3. Describe effects (color, slick, etc.) (If dead or dying fish are visible, fill out Nos. VII and VIII) water not moving, some manure in it — field pasture dry after spraying — very little manure got into the ditch.

IV. Responsibility: well contamination not certain, not certain whether there is a serious problem or not. has been problem in past winter

1. Person or entity: Name
   Address (no pollution responsibility firmly fixed) Phone No.
2. If responsible party is ship's crew obtain: Name of ship
   Ship's Captain N. A.
   Owner Address
   Agent Address

V. Miscellaneous:

1. Were pictures taken no
2. Were samples taken no Where
3. Individuals notified —
4. Witnesses: Name —
   Address —
5. Attachments —

VI. Complaint Received By:

1. Name Merley McCall
2. Time and Date 4-21-71 1400 hrs.

VII. Fish Kill:

1. Estimated number of dead fish N. A.
2. Estimated percent scrapfish
3. Estimated percent food and game fish
4. Predominant species and size

VIII. Suspected Agent or Reason for Kill:

1. Agent N. A.
2. Describe effects

Action taken

→ Man hours for investigation 5 hrs.

IX. What other Agencies have been notified: Pierce County Health Dept. will be notified

X. What could have prevented this complaint: was a legitimate complaint

On 4-21-70, Mr. Jack Hooper submitted a complaint regarding the possibility of his well becoming contaminated from manure being sprayed onto pastures by Houtsma Dairy owner, Al Houtsma.

I went to Mr. Hooper's residence, but he was not home. At 1530 hours, I met Mr. Houtsma. He stated that spraying was being done on Mr. Cooper's pasture which is south of his. Runoff from pastures and local area flows into a drainage ditch which flows through Houtsma's pasture, at the base of Cooper's pasture and on to a forest area by Hooper's property, where the water goes underground in a gravelly area. He said that in late May and over the summer, the ditch is dried up. There was manure in the ditch, but flow was nil. Along 208th St. it was noted that septic tank drainage enters roadside ditches which flow to the pasture ditch.

The Pierce County Health Dept. should handle this problem.

POLLUTION COMPLAINT REPORT FORM

File No. ..... Date 3-24-70

Investigator Bob Bishop

I. Complaint Reported By:

1. Name Ray Spungin Phone No. TA 5-2620
2. Address RR 1 Box 325 Enumclaw
3. Date and time complaint first noted 3-70
4. Other information Turn west off Black-Diamond-Enumclaw Rd. to S.E. 400th. go 1 mile Red House 400 ft. off Rd. near 244th St.

II. Location:

1. Stream or watercourse tributary to Newaukum Creek
2. Town Enumclaw County King
3. Landmark S.E. 400th & 244th St.

III. Pollutant:

1. Pollutant material manure
2. Area or miles affected not known
3. Describe effects (color, slick, etc.) (If dead or dying fish are visible, fill out Nos. VII and VIII) odor problem

IV. Responsibility: not determined;

1. Person or entity: Name not known
   Address ..... Phone No. .....
2. If responsible party is ship's crew obtain: Name of ship .....
   Ship's Captain .....
   Owner NA Address .....
   Agent ..... Address .....

V. Miscellaneous:

1. Were pictures taken no
2. Were samples taken no Where .....
3. Individuals notified ~~none~~ Puget Sound Air Pollution Comm. phone 284-2050 (Rick Kester)
4. Witnesses: Name .....
   Address .....
5. Attachments .....

VI. Complaint Received By:

1. Name John Hodgson
2. Time and Date 3-24-70

VII. Fish Kill:

1. Estimated number of dead fish
2. Estimated percent scrapfish
3. Estimated percent food and game fish N.A.
4. Predominant species and size

VIII. Suspected Agent or Reason for Kill:

1. Agent
2. Describe effects N.A.

Action taken

Man hours for investigation

IX. What other Agencies have been notified:

X. What could have prevented this complaint:

Mr. Ray Spungin stated that manure spraying by a farmer across the road from his farm has been creating a problem.
On hot days the odor is nauseating. During periods of high flow manure could reach Newaukum Creek. ~~To this da~~
At 4-14-70 Newaukum Creek looked clean at various vantage points; there was no Sphaerotilus etc. It would be worthwhile to survey the drainage area for problem sources.

POLLUTION COMPLAINT REPORT FORM

File No. ..... Date 3-20-70

Investigator Bob Bishop

I. Complaint Reported By:

1. Name Mrs. Anderson Phone No. TA 5-4379
2. Address Rt. #1 Box 236
3. Date and time complaint first noted Jan. '70
4. Other information Mr. Watkins - Dept. of Fisheries - referred call to WPCC

II. Location:

1. Stream or watercourse roadside ditches & Newaukum Cr.
2. Town Enumclaw County King
3. Landmark S.E. 424th St. & 228th Ave. S.E.

III. Pollutant:

1. Pollutant material manure
2. Area or miles affected waste entering Newaukum Cr. from ditches
3. Describe effects (color, slick, etc.) (If dead or dying fish are visible, fill out Nos. VII and VIII) odor strong

IV. Responsibility: (not documented) Mrs. Anderson stated that the dairy farms of Mr. Wetzel & Mr. Bill Josie are the problem source

1. Person or entity: Name
   Address 228th & 424th Enumclaw Phone No. ✓
2. If responsible party is ship's crew obtain: Name of ship
   Ship's Captain
   Owner NA Address
   Agent Address

V. Miscellaneous:

1. Were pictures taken no
2. Were samples taken no Where Seattle
3. Individuals notified Puget Sound Air Pollution Comm. phone 284-2050
4. Witnesses: Name
   Address
5. Attachments

VI. Complaint Received By:

1. Name John Hodgson
2. Time and Date 3-20-70

VII. Fish Kill:

1. Estimated number of dead fish
2. Estimated percent scrapfish
3. Estimated percent food and game fish
4. Predominant species and size

VIII. Suspected Agent or Reason for Kill:

1. Agent N A
2. Describe effects

Action taken

Man hours for investigation

IX. What other Agencies have been notified:

X. What could have prevented this complaint:

I investigated the complaint 4-14-70. At ~~the present~~ this time, there was a small amount of manure along a ditch running by the Anderson home; during rainy weather manure would course into NeWaukum Cr. Mrs. Anderson stated that the odor on warm days was nauseating. Rick Kester of the Puget Sound Air Pollution Commo was notified and talked to enforcement people of the agency; further complaints will be investigated. Further investigation will be resumed ~~when~~ by WPCC when a survey of this problem is conducted to disclose pollution sources and effect.