Publication No. 76-e25

MEMORANDUM

January 20, 1976

To: Howard Steeley

From: Scott Jeane

Subject: North Cove Pacific County Dump and Grayland Cranberry Drainage Ditch

I visited the Tokeland area in response to a request from the Shoalwater Indian Tribe. The Tribe questioned the quality of the drainage waters being discharged to the tidal portion of their reservation. They have long range plans for aquaculture projects.

Three stations (See Figure 1) were sampled on October 30, 1975, for Total Alkalinity, Color, Total Solids, COD, PBI, Chlorides, Sulfates, Total Hardness, Calcium, Magnesium, Cadmium, Chromium, Iron, Lead, Copper, Zinc, pH, and Conductivity. No change between stations was noted for Cadmium (<0.02 mg/l) Chromium (<0.02 mg/l) Copper (<0.02 mg/l) Lead (<0.05 mg/l), pH (approximately 6.4), Conductivity (approximately 200) and Total Hardness (Average 9 mg/l).

The below dump station was higher in Zinc, Calcium, and Total Solids. The Total Solids level was probably due to the inorganic solids in suspension due to fine clay soil and higher stream velocity. The level of Zinc (0.07 mg/l) is toxic to aquatic life.

The drainage ditch measured higher than the other stations in COD, PBI, Iron, Color, and Sulfates. The most significant parameters are Color, COD, PBI, Sulfates, and Iron. The Color at 460 units was very dark brown. The PBI value of 14 mg/l is not as high as was observed on similar drainage ditches on Long Beach Peninsula (100 + mg/l) but is of a level that detrimentally affects survival of juvenile oyster larvae. The iron level observed is above recommended receiving water criteria to protect aquatic life.

The discharge flow of the ditch was approximately 25 cfs and the below dump station was approximately 0.5 cfs. The topography of North Cove is steep-sided deep natural channels meandering through salt marsh flats covered with low, brushy vegetation. The channel configuration prevents rapid mixing of either effluents with the bay water except at high tide with windy conditions.

I was accompanied on the survey by Mr. Weller, a biologist for Small Tribes Organization of Western Washington.

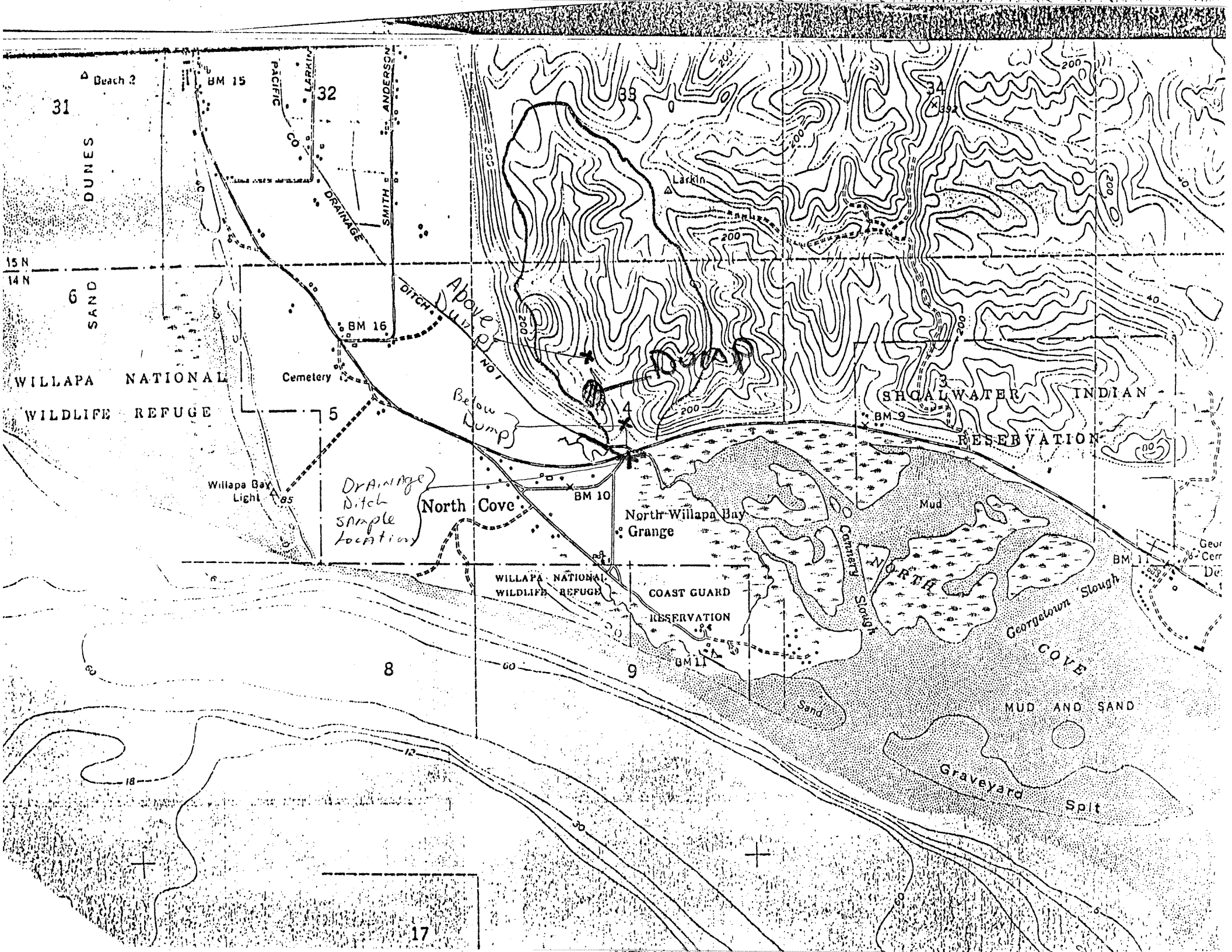
GSJ:ee

cc: K. Weller - STOWW
R. Pine

Shoalwater Bay Survey

	Total Alkalinity ($CaCO_3$)	Color (Color Units)	Total Solids	COD	PBI	Chlorides	Sulfates	Total Hardness ($CaCO_3$)	Calcium	Magnesium	Iron	Zinc	pH (S.U.)	Conductiv (at 25°C)
Above dump	6	130	104	24	--	--	--	7	2.6	2.0	0.3	<0.02	6.4	170
Below dump	8	140	134	24	5	21	<2	10	5.4	2.7	0.4	0.07	6.4	200
Drainage Ditch	10	460	128	54	14	27	9	9	3.5	2.9	1.3	<0.02	6.2	180

All values mg/l



Beach 2
BM 15
PACIFIC
LARKIN
ANDERSON
31
32
33
34
DUNES
SMITH
DRAINAGE
Larkin
15 N
14 N
6
SAND
DITCH
NO 1
Above Dump
BM 16
Dump
WILLAPA NATIONAL
WILDLIFE REFUGE
Cemetery
5
Below Dump
4
3
SHOALWATER INDIAN
RESERVATION
BM 9
Willapa Bay Light
85
Drainage Ditch sample location
North Cove
BM 10
North Willapa Bay Grange
Mud
Cannery Slough
NORTH
COVE
Georgetown Slough
BM 11
WILLAPA NATIONAL WILDLIFE REFUGE
COAST GUARD RESERVATION
BM 11
8
9
Sand
MUD AND SAND
Graveyard Spit
17