Publication No. 71-e30

M E M O R A N D U M

TO: DICK BURKHALTER October 12, 1971

FROM: NORM THOMAS

SUBJECT: Grays Harbor Data

Contained in this memo is the summarization of data collected on Grays Harbor and in the Chehalis River, in cooperation with Weyerhaeuser Company of Cosmopolis and ITT Rayonier, Hoquiam. The inclusive dates of this summary are from 22 July 1971 through 30 September 1971, during the Chehalis River low flow period of this year.

Included in the data is the 1971 Cooperative Comprehensive Survey. The sampling period commencing on 16 August 1971 and ending on 20 August 1971.

The following parameters reported are for the entire reporting period. They are:

dissolved oxygen (DO), biochemical oxygen demand (BOD), pH, PBI, DO percent saturations, river flows, and tides. The remaining parameters are reported during the comprehensive survey only: algae cell count, weather, and helixor operation.

The Weyerhaeuser Company mill was down on strike at the beginning of this reporting period, and did not begin discharging until August 26, 1971.

ITT Rayonier was requested to discharge 80,000 lbs. of BOD per day during the comprehensive survey. Because of being in a startup situation and problems with their recovery plant, they were not able to maintain this level of discharge.

During the preliminary survey in July, two new sampling stations were established (light 6 and light 8) to better define the DO recovery area.

Included in this memo is a table listing the operational time of the helixors installed by the Port of Aberdeen, a device utilizing compressed air to prohibit silt from settling out at Terminal 4, about 500 yards west of Station 685. The helixors are only operated when the tide stage is below about 6 feet. Hence, they were not run during any of the high tide sampling, although there was a hard hat diver working on the helixors at the times indicated during sampling periods.

On August 16, 17, and 18, there was a dredging operation at Anderson-Middleton Pier. The spoils being disposed of on the land. This Pier is about 100 yards northwest from Station No. 33.

Observations made during the sampling and laboratory analyses periods should be discussed with the respective industry.

Memo - Dick Burkhalter

At the time of analysis, it was noted that ITT Rayonier uses the colorimetric method for determining the pH value. Standard Methods states that this method is suitable only for rough estimates. Weyerhaeuser Company uses a pH meter, but stated that they buffer the instrument only about once a week. Most instruction manuals for pH meters suggest that the instrument be buffered immediately before and after a series of samples to be as certain as possible of the best results.

The sampling technique of ITT Rayonier was questioned in regard to DO values of the surface samples in that they would take the sample prior to the dissipation of the wheel wash set up from the tug being in the reverse position. This problem was discussed with Dee Johnson.

At a meeting held with Weyerhaeuser Company, ITT Rayonier, and the Department of Ecology, it was agreed that the tentative date for the 1972 survey would be the week of the 20th to 24th in August, 1972.

NT/dc
14/05

DO VALUES OF GRAYS HARBOR
STATION NUMBERS

DATE	53		52		50		685		33		47		45		44		LIGHT 6		LIGHT 8		71	
	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B
7/22/71	7.1	7.3	6.9	6.8	6.6	6.4	6.6	6.4	5.9	5.7	5.9	5.4	5.9	5.5	6.6	5.7					8.0	7.6
7/26/71	7.0	7.3	6.6	6.7	6.1	6.6	5.8	6.5	5.6	5.8	5.6	5.5	5.7	5.4	6.2	5.5	6.2	5.9	6.8	5.5	7.5	7.6
7/29/71	6.2	6.8	5.7	6.6	5.4	6.2	5.3	6.1	5.4	5.5	5.9	5.3	6.1	5.3	6.8	5.5					7.6	6.9
8/3/71	6.4	6.9	6.1	6.6	5.6	6.1	5.5	6.0	5.4	5.2	5.4	5.1	5.7	5.3	5.8	5.7	6.3	5.7	6.4	6.0	6.5	6.4
8/5/71	6.4	6.8	5.8	6.2	5.1	5.6	5.1	5.3	4.5	4.4	4.1	4.1	4.3	4.3	4.8	4.3	5.8	4.9	6.1	5.5	6.4	6.1
8/9/71		7.0	6.3	6.5	5.7	6.1	5.6	5.7	5.0	4.9	3.8	5.7	4.1	4.2	4.0	3.8	4.9	6.0	5.9	4.7	6.5	5.9
8/12/71	6.9	6.7	6.7	6.4	6.0	6.2	5.8	6.0	5.7	5.4	5.4	5.3	5.0	4.7	5.1	4.6	5.4	4.9	5.8	5.2	6.1	5.6
8/16/71	6.4	6.5	6.3	6.0	5.9	5.9	5.5	7.0	5.2	5.8	5.6	5.0	5.7	5.5	5.7	6.3	6.5	5.5	6.5	5.6	6.7	6.1
8/17/71	6.5	6.6	6.4	6.1	6.0	6.1	5.5	5.7	5.4	5.0	5.4	5.1	5.3	4.9	5.8	5.2	5.9	5.5	6.1	5.7	6.3	6.3
8/18/71	6.9	7.1	6.4	6.5	5.9	6.2	5.7	6.1	5.3	5.2	5.1	4.9	5.2	4.9	5.6	5.0	6.2	5.4	6.3	5.8	6.7	6.4
8/19/71	6.8	7.1	6.4	6.6	5.6	6.0	5.6	5.8	5.2	5.3	4.8	4.6	4.8	4.6	5.5	4.7	5.9	5.2	6.1	5.7	6.5	6.2
8/20/71	7.5	7.0	7.1	6.9	6.1	6.6	6.0	7.7	5.6	5.5	5.4	4.9	5.0	4.7	5.2	4.7	5.6	5.2	6.0	6.0	6.2	6.3
8/23/71	7.1	6.9	6.8	6.5	6.3	6.2	6.3	6.1	6.1	5.6	5.5	5.1	5.7	4.9	5.8	5.1	6.6	5.2	6.7	5.9	7.3	6.3
8/26/71	7.1	7.1	7.2	7.1	5.9	6.3	5.5	6.2	6.0	5.4	5.6	5.0	5.6	4.8	6.1	5.1	6.8	5.4	7.1	5.7	7.4	6.4
8/30/71	5.9	5.2	6.0	5.5	6.0	5.2	5.8	5.1	5.9	5.1	6.4	4.8	6.6	4.8	6.7	5.2	6.3	5.3	6.8	5.2	7.0	6.1
9/2/71	6.6	7.0	6.4	6.4	5.3	5.9	5.5	5.5	5.5	5.1	5.6	5.1	5.9	5.4	6.1	5.9	6.4	5.9	6.8	6.0	7.5	6.3
9/7/71	7.2	7.2	7.2	7.1	6.5	6.6	6.6	6.9	6.0	6.3	6.2	6.2	6.1	6.2	6.0	6.1	6.6	6.3	6.9	6.5	7.3	7.3
9/9/71	7.1	7.3	6.8	7.1	6.6	6.7	5.6	6.5	5.8	6.1	5.8	5.8	5.8	5.6	6.0	5.5	6.4	5.7	6.4	6.2	7.0	6.5
9/13/71	7.2	7.0	6.7	7.4	6.2	6.6	6.2	6.5	6.4	6.0	6.4	5.9	7.1	5.9	7.5	6.3	7.5	6.6	7.7	6.6	8.3	7.4
9/16/71	7.1	7.0	6.8	6.8	6.5	6.4	6.2	6.3	6.0	5.9	6.0	5.5	6.2	5.5	6.5	5.9	6.6	6.3	7.3	6.7	7.8	7.1
9/21/71	7.1	7.2	7.0	6.8	6.3	6.5	6.0	6.4	5.9	5.8	5.6	5.4	5.6	5.5	6.1	5.3	6.4	6.1	6.7	6.0	7.3	6.8
9/23/71	7.7	7.5	7.1	7.0	6.8	5.9	5.4	6.5	5.4	5.9	6.0	6.2	6.1	5.5	6.2	6.3	6.2	5.9	6.4	6.0	7.0	6.8
9/27/71	6.0	6.1	6.6	6.1	5.5	5.8	5.8	6.1	6.6	5.7	6.5	5.5	6.2	6.0	7.0	6.0	6.0	5.7	7.3	6.0	7.5	6.3
9/30/71	8.1	7.9	7.2	7.3	7.8	7.0	6.6	7.4	6.5	6.6	6.7	6.1	6.8	7.3	7.1	6.1	7.0	6.2	7.2	7.0	7.5	6.7

NOTES: S = 5' From Surface
B = 5' From Bottom

DO SATURATION % VALUES OF GRAYS HARBOR
STATION NUMBERS

	53		52		50		685		33		47		45		44		LIGHT 6		LIGHT 8		71	
DATE	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B
7/22/71	84	85	82	78	76	74	76	74	67	66	67	62	67	64	75	66					88	83
7/26/71	81	85	77	78	71	77	67	75	64	67	64	63	64	61	69	63	69	66	75	60	82	83
7/29/71	72	81	67	78	62	73	61	72	61	65	67	62	69	61	75	63					84	77
8/3/71	77	83	74	79	67	73	65	72	63	63	61	59	65	62	67	65	72	65	72	68	73	72
8/5/71	78	82	71	76	62	68	62	64	54	53	48	48	50	51	56	50	66	56	70	62	72	68
8/9/71		86	78	80	70	75	69	70	61	60	46	70	50	51	48	46	58	71	69	55	75	68
8/12/71	85	82	83	78	73	76	71	74	68	66	65	65	60	57	60	55	64	59	67	60	70	65
8/16/71	77	77	76	71	70	70	65	83	61	68	66	59	66	65	66	73	75	63	75	64	76	69
8/17/71	79	80	78	74	73	74	66	70	65	61	64	61	63	58	68	62	69	65	70	67	72	72
8/18/71	85	87	79	79	73	76	70	75	64	63	61	59	63	59	66	59	72	63	73	67	77	73
8/19/71	85	87	79	81	70	73	69	71	64	65	59	55	58	55	65	56	69	61	71	66	74	72
8/20/71	93	86	88	83	75	81	75	95	68	68	65	60	60	57	62	56	66	62	70	70	74	70
8/23/71	88	86	85	78	77	76	77	74	76	68	66	61	69	59	69	62	77	61	76	67	86	72
8/26/71	85	88	89	87	72	77	67	76	72	66	66	60	66	57	71	60	78	63	80	66	83	73
8/30/71	69	62	71	65	70	61	67	60	68	60	74	56	74	56	75	61	72	62	75	60	79	69
9/2/71	76	81	75	73	61	67	63	62	63	58	64	57	66	61	71	66	71	65	74	66	80	68
9/7/71	84	84	85	84	73	76	76	80	70	72	70	70	68	70	65	68	70	68	72	68	75	75
9/9/71	84	87	80	84	87	78	64	76	65	71	65	66	65	64	66	67	69	63	68	66	72	68
9/13/71	83	80	73	72	68	76	67	75	70	66	67	66	75	66	79	69	78	71	79	70	85	77
9/16/71	82	80	79	78	74	73	71	72	68	67	68	61	67	60	71	64	70	68	76	70	82	75
9/21/71	81	82	78	76	70	72	67	71	66	64	62	59	61	60	66	58	69	66	71	64	76	72
9/23/71	85	83	78	77	75	65	59	71	59	64	65	67	66	60	67	66	65	63	68	63	72	70
9/27/71	63	67	70	67	59	61	61	67	70	61	67	59	64	62	71	63	61	59	74	62	75	64
9/30/71	85	82	76	87	82	74	69	79	68	69	69	64	70	76	73	64	71	64	73	77	75	68

NOTES: S = 5' From Surface
B = 5' From Bottom

pH VALUES OF GRAYS HARBOR
STATION NUMBERS

DATE	53		52		50		685		33		47		45		44		LIGHT 6		LIGHT 8		71	
	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B
7/22/71	7.6	7.6	7.5	7.6	7.4	7.5	7.4	7.4	7.3	7.3	7.2	7.2	7.2	7.2	7.2	7.1					7.4	7.3
7/26/71	7.4	7.4	7.4	7.4	7.3	7.4	7.3	7.3	7.3	7.3	7.2	7.2	7.1	7.1	7.1	7.1	7.1	7.0	7.1	7.1	7.1	7.1
7/29/71	7.4	7.7	7.4	7.6	7.3	7.6	7.3	7.5	7.3	7.4	7.3	7.3	7.3	7.3	7.3	7.3					7.4	7.3
8/3/71	7.5	7.5	7.4	7.5	7.3	7.4	7.2	7.4	7.2	7.3	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
8/5/71	7.6	7.7	7.5	7.6	7.3	7.4	7.3	7.4	7.2	7.2	7.2	7.1	7.1	7.1	7.1	7.1	7.2	7.1	7.2	7.1	7.1	7.1
8/9/71	7.4	7.5	7.5	7.4	7.4	7.4	7.3	7.4	7.3	7.3	7.1	7.2	7.0	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1	7.1
8/12/71	7.6	7.7	7.6	7.6	7.4	7.6	7.4	7.5	7.3	7.3	7.3	7.3	7.2	7.2	7.1	7.2	7.1	7.2	7.1	7.2	7.1	7.1
8/16/71	7.4	7.4	7.4	7.4	7.3	7.3	7.2	7.3	7.3	7.3	7.2	7.2	7.3	7.2	7.2	7.4	7.2	7.2	7.2	7.2	7.0	7.2
8/17/71	7.4	7.4	7.4	7.4	7.2	7.2	7.2	7.2	7.2	7.4	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2
8/18/71	7.6	7.7	7.6	7.6	7.4	7.5	7.4	7.5	7.3	7.3	7.2	7.2	7.2	7.1	7.2	7.1	7.2	7.1	7.2	7.1	7.2	7.2
8/19/71	7.7	7.8	7.6	7.7	7.4	7.5	7.4	7.4	7.3	7.3	7.2	7.2	7.2	7.1	7.2	7.1	7.2	7.1	7.2	7.1	7.2	7.2
8/20/71	7.4	7.4	7.3	7.4	7.2	7.2	7.3	7.3	7.1	7.1	7.2	7.1	7.2	7.2	7.1	7.1	7.1	7.1	7.0	7.1	7.1	7.1
8/23/71	7.5	7.5	7.6	7.6	7.5	7.6	7.5	7.6	7.5	7.5	7.4	7.4	7.2	7.2	7.3	6.7	7.3	7.1	7.1	7.1	7.1	7.1
8/26/71	7.6	7.7	7.6	7.6	7.3	7.5	7.3	7.5	7.3	7.3	7.2	7.2	7.2	7.1	7.2	7.1	7.3	7.2	7.3	7.2	7.3	7.2
8/30/71	7.3	7.5	7.2	7.5	7.2	7.4	7.2	7.4	7.1	7.4	7.2	7.3	7.2	7.4	7.2	7.3	7.1	7.3	7.1	7.2	7.1	7.1
9/2/71	7.4	7.5	7.4	7.4	7.3	7.3	7.3	7.2	7.2	7.2	7.2	7.2	7.2	7.1	7.2	7.1	7.2	7.2	7.3	7.1	7.3	7.1
9/7/71	7.6	7.8	7.7	7.7	7.5	7.4	7.5	7.4	7.3	7.3	7.3	7.3	7.3	7.2	7.3	7.2	7.3	7.2	7.3	7.2	7.4	7.2
9/9/71	7.7	8.0	7.9	8.0	7.6	7.8	7.5	7.8	7.4	7.7	7.5	7.4	7.5	7.3	7.4	7.3	7.3	7.3	7.2	7.2	7.1	7.2
9/13/71	7.4	7.4	7.2	7.2	7.1	7.4	7.1	7.4	7.1	7.2	7.0	7.2	7.0	7.2	7.0	7.1	7.0	7.2	7.0	7.0	6.9	6.9
9/16/71	7.8	7.9	7.9	7.9	7.7	7.8	7.5	7.7	7.6	7.6	7.5	7.4	7.4	7.4	7.5	7.4	7.4	7.4	7.5	7.4	7.5	7.4
9/21/71	7.7	7.7	7.5	7.7	7.6	7.7	7.3	7.4	7.3	7.3	7.3	7.2	7.2	7.2	7.2	7.2	7.1	7.2	7.0	7.1	7.1	7.0
9/23/71	7.5	7.5	7.4	7.4	7.1	7.2	7.1	7.2	7.1	7.3	7.1	7.2	7.4	7.3	7.1	7.1	7.1	7.1	7.1	7.1	7.0	7.2
9/27/71	7.4	7.5	7.4	7.4	7.3	7.2	7.0	7.4	7.2	7.4	7.2	7.2	7.1	7.2	7.1	7.2	7.1	7.2	7.1	7.2	7.0	7.1
9/30/71	7.6	7.6	7.4	7.4	7.2	7.4	7.2	7.4	7.2	7.4	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2	7.2

NOTES: S = 5' From Surface
B = 5' From Bottom

P.B.I. VALUES OF GRAYS HARBOR
STATION NUMBERS

	53		52		50		685		33		47		45		44		LIGHT 6		LIGHT 8		71	
DATE	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B
7/22/71	12	11	15	13	26	18	22	17	30	22	25	26	22	25	15	21					3	4
7/26/71	18	12	31	18	106	23	55	23	37	28	27	29	25	33	13	24	15	21	13	18	14	15
7/29/71	26	18	34	20	35	22	34	21	29	26	20	29	20	26	15	24					9	11
8/3/71	21	20	20	16	33	20	27	23	27	27	23	25	22	28	16	22	12	19	17	18	12	16
8/5/71	16	11	50	15	45	24	26	26	30	26	27	32	26	30	21	26	13	18	9	14	11	9
8/9/71	10	7	11	4	21	8	22	16	27	20	31	28	28	29	26	29	15	29	11	18	9	11
8/12/71	12	9	33	14	25	9	32	18	31	26	32	28	34	30	32	31	21	27	19	26	13	20
8/16/71	8	8	16	7	9	13	10	20	26	21	19	33	17	24	18	23	6	12	4	11	6	4
8/17/71	17	16	17	22	18	14	14	23	22	26	14	24	22	28		24	12	15	13	17	7	12
8/18/71	23	15	21	17	25	15	24	24	36	26	30	26	27	35	14	28	20	21	13	15	12	11
8/19/71	18	12	26	18	28	26	26	25	28	27	32	35	31	33	12	18	9	13	9	16	9	9
8/20/71	7	6	13	9	7	11	21	16	29	18	22	23	30	20	19	22	13	11	15	17	10	9
8/23/71	10	8	16	13	20	13	21	17	23	20	18	24	27	27	19	26	30	17	25	18	22	15
8/26/71	15	10	17	31	32	15	40	18	36	26	22	39	30	29	25	31	20	26	20	33	22	23
8/30/71	13	6	22	7	15	7	22	9	13	8	9	8	7	7	6	6	7	8	4	8	4	6
9/2/71	24	15	20	21	38	24	27	22	29	27	18	21	13	21	12	17	9	20	9	9	4	8
9/7/71	10	9	9	14	20	9	17	11	19	13	18	19	16	19	17	17	17	16	11	15	10	11
9/9/71	22	8	16	11	42	17	30	20	44	35	42	38	31	44	23	32	19	21	16	11	13	11
9/13/71	10	10	13	14	13	9	12	10	5	11	3	7	6	8	5	8	2	7	2	6	1	2
9/16/71	17	14	23	18	30	14	26	23	28	26	26	28	22	30	20	25	10	20	17	12	9	14
9/21/71	15	15	20	21	27	21	33	28	31	26	29	30	26	29	26	32	23	23	16	19	12	15
9/23/71	15	15	19	18	44	39	40	48	50	28	42	41	37	41	35	36	26	33	35	34	17	17
9/27/71	31	18	26	23	19	33	33	35	26	25	25	26	18	22	15	22	17	24	9	18	9	20
9/30/71	19	20	21	22	31	20	25	18	13	24	18	27	21	24	18	12	15	16	11	12	9	15

NOTES: S – 5' From Surface
B = 5' From Bottom

TIME & HEIGHTS OF HIGH & LOW TIDES ON GRAYS HARBOR AT ABERDEEN

DATE	PREVIOUS LOW TIME	PREVIOUS LOW HEIGHT	SAMPLED HIGH TIME	SAMPLED HIGH HEIGHT	FOLLOWING LOW TIME	FOLLOWING LOW HEIGHT	RIVER FLOW IN CFS	COMBINED BOD DISCHARGE IN POUNDS PER DAY
7/22/71	0818	-1.6	1500	8.1	2024	2.7	1940	79,300
7/26/71	2230	2.1	0412	8.7	1048	0.0	1680	55,300
7/29/71	0048	1.7	0630	7.0	1236	2.2	1620	45,600
8/3/71	0536	-0.1	1200	6.8	1730	4.0	1380	78,600
8/5/71	0718	-1.4	1342	7.9	1924	3.0	1320	81,400
8/9/71	1012	-1.1	1618	10.1	2236	0.4	1230	95,000
8/12/71	1218	1.6	1824	10.3	0118	0.1	1160	50,300
8/16/71	0436	0.0	1124	6.9	1630	3.8	1100	46,100
8/17/71	0536	-0.3	1224	7.3	1736	3.5	1070	57,000
8/18/71	0630	-0.6	1312	7.8	1830	3.0	1000	99,300
8/19/71	0712	-0.8	1354	8.3	1924	2.5	965	79,100
8/20/71	0754	-0.8	1424	8.6	2006	2.0	965	86,300
8/23/71	0942	0.2	1548	9.1	2206	1.1	1420	51,300
8/26/71	1118	2.2	1712	9.2	0006	1.1	1010	70,380
8/30/71	0300	1.2	0912	6.3	1442	4.5	865	130,500
9/2/71	0600	-0.4	1218	8.0	1812	3.0	11,800	79,900
9/7/71	0942	0.0	1536	11.0	2218	-0.9	2330	71,000
9/9/71	1106	1.7	1700	10.8	2354	-0.7	2860	158,200
9/13/71	0300	0.6	0954	7.0	1506	4.1	1740	118,000
9/16/71	0600	0.4	1236	8.5	1818	2.6	1420	128,200
9/21/71	0912	1.4	1500	9.7	2136	0.3	1140	173,700
9/23/71	1018	2.6	1554	9.7	2254	0.5	1160	145,100
9/27/71	0118	1.2	0730	6.9	1242	4.7	1270	104,400
9/30/71	0430	0.8	1048	8.2	1654	3.5	2390	150,200

WEATHER DATA
REPORTED FROM 0800 to 2000

DATE	WIND DIRECTION	WIND SPEED			AMBIENT TEMP		SUNSHINE
		Min	Aver	Max	Min	Max	in hours
8/16/71	Variable from the West	4.0	6.5	9.0	58°F	67°F	12
8/17/71	Variable from the West	2.0	5.4	9.0	48	67	12
8/18/71	Variable from the West	2.0	4.4	7.0	50	70	12
8/19/71	Variable from the North & West	2.0	4.5	9.0	50	66	10
8/20/71	Variable from the South	5.5	7.5	9.0	57	68	12

OPERATION TIME OF THE HELIXORS ON TERMINAL 4

DATE	STARTUP TIME	SHUT DOWN TIME	TOTAL OPER TIME	HARD HAT DIVER WORKING ON HELIXORS	
8/16/71	----	----	0. hrs	0900-1200	1300-1600
8/17/71	0100	1100	10. hrs	0900-1200	1300-1600
8/17/71	1530	2030	5. hrs	--------	--------
8/18/71	0310	1200	9. hrs	0900-1200	1300-1600
8/18/71	1600	2130	5.5 hrs	--------	--------
8/19/71	----	----	0. hrs	0900-1200	1300-1600
8/20/71	0630	1300	6.5 hrs	--------	--------

BIO MASS ALGAE CELL COUNT

DATE	STATION NUMBERS 33	45	50	53	71
8/16/71	79	95	16	16	71
8/18/71	151	103	87	270	206
8/20/71	127	174	151	333	167

NOTE: Value is per 1 ML of original sample

STATION DESCRIPTIONS

53	Light Number 50
52	ITT Rayonier MIll
50	Light Number 57
685	Hulberts Mill
33	Railroad Bridge
47	Standard Oil Dock
45	Bay City Mill
44	Weyerhaeuser Mill
Light 6	Light 6
Light 8	Light 8
71	Light 11

COMPANY THAT MADE SAMPLING RUN

DATE	
7/22/71	Weyerhaeuser Co.
7/26/71	ITT Rayonier
7/29/71	Weyerhaeuser Co.
8/3/71	ITT Rayonier
8/5/71	Weyerhaeuser Co.
8/9/71	ITT Rayonier
8/12/71	Weyerhaeuser Co.
8/16/71	ITT Rayonier
8/17/71	ITT Rayonier
8/18/71	Weyerhaeuser Co.
8/19/71	Weyerhaeuser Co.
8/20/71	ITT Rayonier
8/23/71	ITT Rayonier
8/26/71	Weyerhaeuser Co.
8/30/71	ITT Rayonier
9/2/71	Weyerhaeuser Co.
9/7/71	ITT Rayonier
9/9/71	Weyerhaeuser
9/13/71	ITT Rayonier
9/16/71	Weyerhaeuser
9/21/71	ITT Rayonier
9/23/71	ITT Rayonier
9/27/71	ITT Rayonier
9/30/71	ITT Rayonier

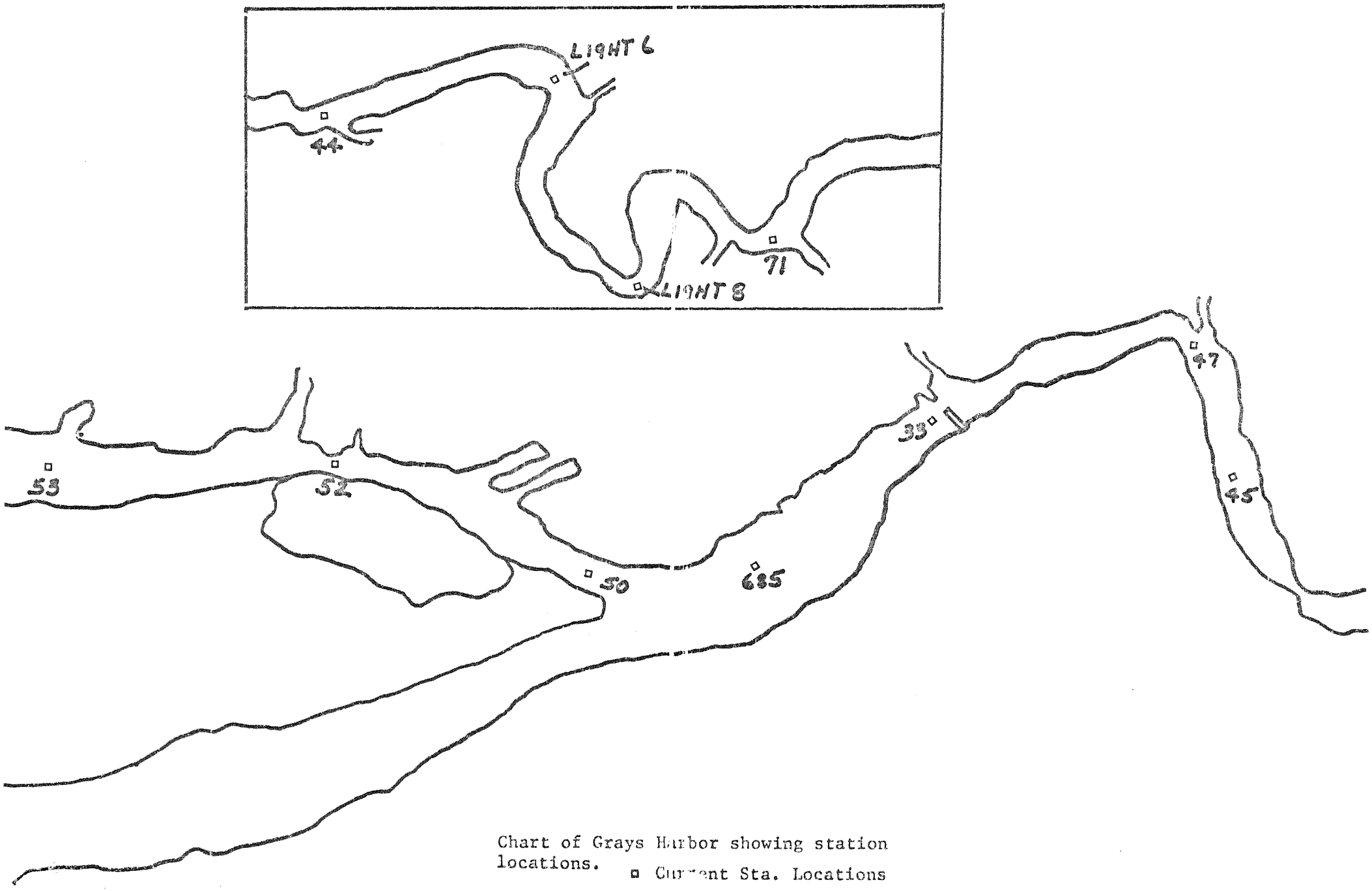

Chart of Grays Harbor showing station locations. ▫ Current Sta. Locations