

FISH COMMISSION OF OREGON

HYDROGRAPHIC DATA FOR YAQUINA,
COOS, AND TILLAMOOK BAYS

Project Title: Oyster Mortality Study

Prepared by: Gary Gibson
C. Dale Snow

U. S. Fish and Wildlife Service
Bureau of Commercial Fisheries
Contract: 14-17-0001-1739
Period Covered: June 1966-November 1967

December 1967

HYDROGRAPHIC DATA FOR YAQUINA,
COOS, AND TILLAMOOK BAYS

INTRODUCTION

The following tables show all the hydrographic data that have been collected through November 1967 under the Bureau of Commercial Fisheries oyster mortality study contract. This information appears in the quarterly and annual reports as either mean values or ranges, but is presented in the following tables as collected. It is hoped that this information can be used for comparison in areas where high oyster mortalities occur.

The methods of obtaining these data and explanation of the seasonal hydrographic patterns found in Yaquina, Tillamook, and Coos bays can be found in the quarterly and annual oyster mortality reports.

Tables 1 through 5 give salinity, temperature, dissolved oxygen, turbidity, and pH data for Yaquina Bay while Table 6 gives temperature and salinity for Tillamook and Coos bays.

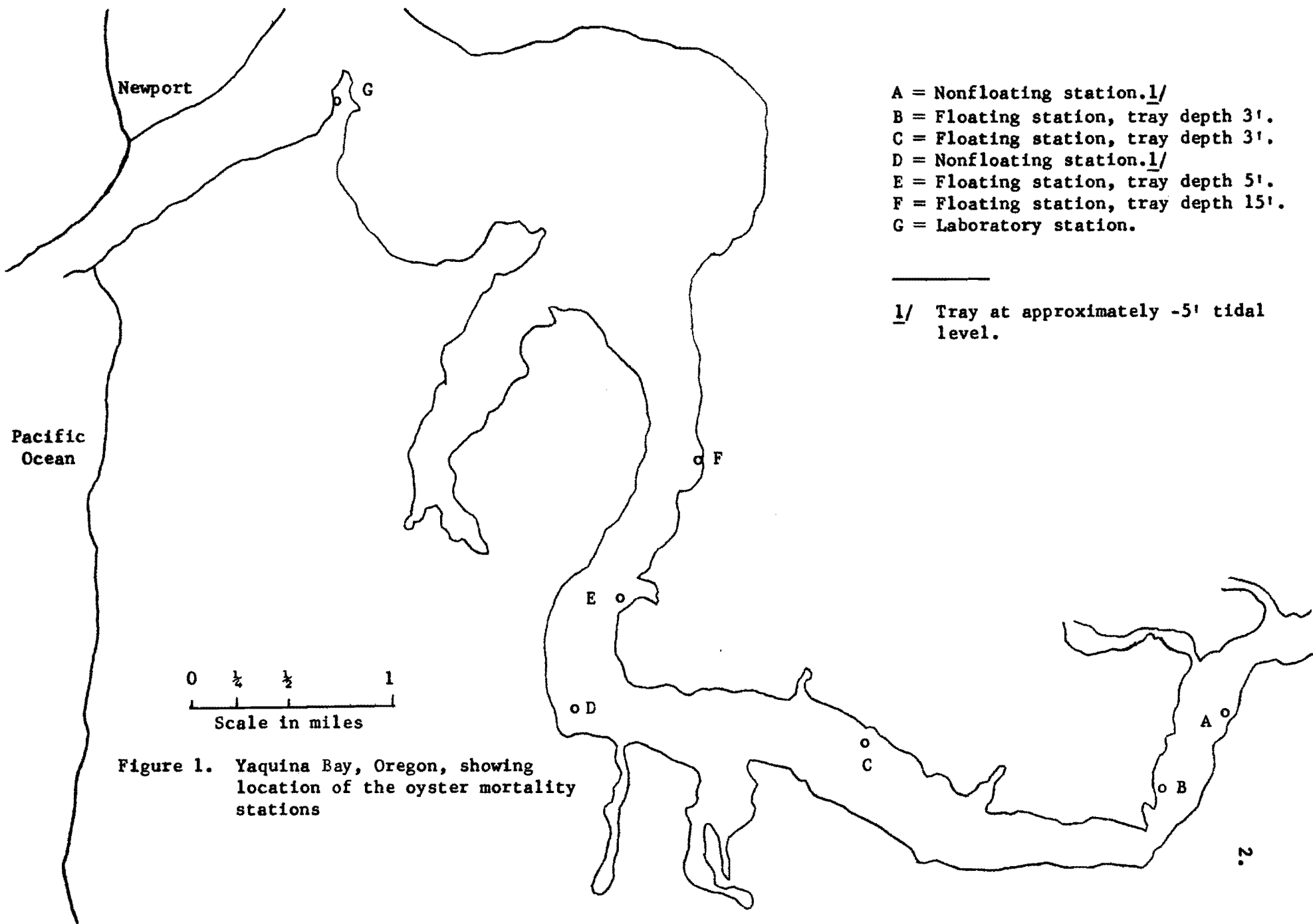


Figure 1. Yaquina Bay, Oregon, showing location of the oyster mortality stations

Table 1. Salinities (o/oo) for Yaquina Bay, June 1966-
November 1967 (values at high tide unless noted)

Station Date	A	B	C	D	E	F	Seaward
6-28-66	24.0	24.8	26.0	28.2	29.0	31.0	Surface
	25.3	24.8	26.2	28.5	30.0	31.2	Mid-depth
	27.2	25.3	27.7	29.9	31.6	31.5	Bottom
7-15-66	27.6	28.6	30.2	32.1	32.0	32.4	
	27.8	28.9	30.4	32.5	32.8	33.3	
	28.1	29.1	31.6	32.8	33.0	33.3	
8-1-66	30.2	31.4	33.0	33.3	33.4	33.8	
	30.2	31.5	32.3	33.6	33.8	34.1	
	30.4	31.6	32.9	33.8	33.8	34.1	
8-15-66	32.1	32.5	32.5	33.7	34.2	34.2	
	32.3	32.5	32.7	34.2	34.4	34.4	
	32.3	32.7	32.8	34.2	34.1	34.4	
8-31-66	28.2	28.6	28.9	30.8	31.2	31.8	
	29.0	28.2	28.9	31.0	31.2	32.4	
	29.0	28.2	28.9	30.8	31.2	32.3	
9-14-66	29.7	30.3	30.4	31.5	32.0	31.4	
	30.2	30.6	31.0	32.0	32.1	32.3	
	30.2	30.6	30.4	31.9	32.1	32.4	
10-4-66	29.4	29.4	29.8	31.2	31.5	32.1	
	29.9	29.4	32.2	31.2	32.0	32.3	
	29.9	30.3	30.7	31.9	32.9	32.3	
10-18-66	29.6	30.6	30.9	31.6	31.9	32.7	
	29.6	31.1	30.9	32.4	32.1	33.0	
	30.1	31.1	31.1	32.5	32.4	33.2	
11-1-66	25.6	26.3	27.6	30.6	31.9	32.3	
	26.1	26.9	28.9	32.1	32.4	32.8	
	26.8	28.2	31.2	32.4	32.4	33.0	
11-18-66	-	10.3	13.5	15.8	17.4	17.9	
	17.0	10.8	15.4	16.3	20.9	26.1	
	22.1	19.7	24.2	25.9	27.6	30.6	
12-5-66	0.3	0.9	1.7	2.2	2.8	4.0	
	2.1	1.6	3.4	8.4	13.9	17.7	
	5.9	2.1	16.2	22.1	20.5	25.9	
12-22-66	10.8	12.3	15.6	16.2	20.3	17.5	
	11.1	12.8	15.8	16.6	23.1	18.7	
	19.0	13.5	19.0	20.3	23.1	26.8	

Table 1. (cont'd)

Station Date	A	B	C	D	E	F	Seaward
1-11-67	10.5	11.9	15.2	11.4	27.4	25.4	
	10.6	16.0	24.8	18.2	28.5	28.5	
	12.2	16.7	26.5	28.1	29.5	30.0	
1-30-67 <u>1/</u>	0.0	0.0	0.0	0.0	0.7	8.2	
	0.0	0.0	0.0	0.3	0.8	8.2	
	0.0	0.0	0.0	0.5	3.9	23.9	
2-15-67	6.8	8.0	10.1	17.4	13.3	13.3	
	12.2	9.3	12.2	20.6	21.7	23.8	
	22.5	16.9	21.0	24.6	24.2	26.9	
3-27-67 <u>1/</u>	3.5	3.4	4.8	9.9	10.5	13.9	
	3.8	6.2	5.1	13.1	12.3	19.3	
	2.9	6.3	6.4	13.1	17.3	21.2	
4-5-67	13.3	14.1	13.9	21.6	19.5	22.6	
	21.8	23.4	26.0	27.3	26.8	29.1	
	23.4	24.1	27.8	29.4	29.1	29.7	
5-4-67	10.1	15.3	21.0	20.9	21.0	20.8	
	11.0	20.4	26.4	26.3	27.3	29.9	
	12.2	24.0	26.4	28.5	29.5	30.7	
5-16-67 <u>1/</u>	13.2	13.9	14.5	18.5	18.7	21.8	
	13.2	-	14.6	20.3	20.9	26.9	
	13.2	14.2	15.0	21.8	24.0	30.0	
6-5-67	25.9	25.9	27.2	30.8	30.8	35.0	
	25.9	26.5	28.1	30.8	31.5	33.6	
	26.0	27.3	28.4	31.2	31.8	33.4	
6-22-67	23.5	24.4	26.8	29.7	27.1	30.4	
	23.4	24.7	27.1	30.2	29.9	30.4	
	25.0	26.3	28.1	30.7	31.5	31.0	
7-18-67	28.9	30.8	31.2	33.2	33.4	33.8	
	28.9	30.8	31.2	33.8	33.4	33.8	
	28.9	31.1	32.4	33.8	33.6	34.1	
8-14-67	30.7	31.8	32.1	33.6	33.3	34.5	
	30.7	31.9	32.4	33.8	33.8	34.5	
	31.2	31.9	33.2	33.8	34.2	34.6	
8-30-67	32.7	32.8	33.2	33.8	34.1	34.4	
	32.9	32.8	33.6	34.4	34.4	34.4	
	32.9	33.3	33.6	34.4	34.4	34.5	

1/ Readings at low tide.

Table 1. (Cont'd)

Station Date	A	B	C	D	E	F	Seaward
9-12-67	32.0	32.3	32.7	33.6	33.4	34.0	
	32.0	32.4	32.9	33.8	33.7	34.1	
	32.0	32.4	32.9	33.8	33.8	34.1	
9-28-67	31.6	32.1	32.7	33.3	33.3	33.4	
	31.8	32.3	32.7	33.3	33.3	33.7	
	31.8	32.8	32.8	33.4	33.4	33.7	
10-12-67	29.4	30.3	31.8	32.4	32.5	32.9	
	30.0	30.6	31.8	32.7	32.5	33.2	
	30.7	31.0	31.8	32.5	33.0	33.3	
10-26-67	22.6	23.3	24.8	26.3	29.1	30.4	
	22.6	24.6	26.8	28.1	29.7	31.2	
	24.0	24.7	28.0	30.2	30.6	32.5	
11-14-67	21.6	21.6	25.9	27.1	31.4	31.7	
	25.0	25.8	27.7	31.2	31.8	32.3	
	25.5	26.4	28.5	30.8	31.5	32.2	
11-30-67	17.5	24.3	21.8	24.8	32.0	32.0	
	29.0	29.3	30.8	31.9	32.7	32.5	
	29.0	30.4	30.7	32.1	32.7	32.4	

Table 2. Temperatures (F) for Yaquina Bay, June 1966-
November 1967 (values at high tide unless noted)

Date	Station	A	B	C	D	E	F	Seaward
6-28-66		70	70	69	68	67	66	Surface
		69	70	69	68	65	65	Mid-depth
		67	70	68	67	64	63	Bottom
7-15-67		67	66	64	63	60	59	
		67	66	64	61	59	58	
		67	66	62	60	58	54	
8-1-66		68	64	62	55	55	50	
		68	64	62	53	53	50	
		68	64	59	51	51	49	
8-15-66		66	66	64	54	51	50	
		64	-	61	51	50	50	
		62	60	60	51	50	48	
8-31-66		66	65	65	64	63	62	
		66	65	65	64	63	62	
		66	65	65	64	63	62	
9-14-66		64	64	64	62	62	61	
		64	64	64	62	62	61	
		64	64	64	62	62	61	
10-4-66		63	63	62	60	60	58	
		63	63	62	60	58	58	
		62	62	61	60	57	57	
10-18-66		55	55	54	53	52	50	
		54	55	53	52	52	50	
		54	55	53	52	52	50	
11-1-66		56	56	56	55	54	54	
		56	56	55	54	54	53	
		55	55	54	53	53	52	
11-18-66		51	51	51	51	51	51	
		51	51	51	51	51	51	
		51	51	51	51	51	51	
12-5-66		48	48	48	48	48	48	
		48	48	48	49	49	50	
		48	48	50	50	50	50	
12-22-66		49	49	50	49	50	50	
		50	50	50	50	51	50	
		50	50	50	50	51	51	

Table 2. (Cont'd)

Date	Station	A	B	C	D	E	F	Seaward
1-11-67		48	48	48	48	49	50	
		48	48	49	49	50	50	
		48	48	49	50	50	50	
1-30-67 <u>1/</u>		48	48	48	48	48	48	
		48	48	48	48	48	49	
		48	48	48	48	48	50	
2-15-67		48	48	48	48	48	48	
		48	48	48	48	48	48	
		48	48	48	48	48	48	
3-27-67 <u>1/</u>		50	49	50	49	49	49	
		49	49	49	49	49	50	
		49	49	49	49	49	50	
4-5-67		50	50	50	50	50	50	
		50	50	50	49	49	50	
		50	50	50	49	49	50	
5-4-67		56	55	55	54	54	54	
		55	55	54	54	53	52	
		54	54	53	52	52	52	
5-16-67 <u>1/</u>		64	64	65	64	65	62	
		64	-	65	64	63	58	
		64	65	65	62	62	57	
6-5-67		62	63	62	60	60	54	
		62	62	61	60	60	54	
		62	62	61	60	59	54	
6-22-67		62	62	60	56	58	52	
		62	62	60	54	54	52	
		61	60	58	54	53	52	
7-18-67		69	67	66	64	62	54	
		69	67	65	58	58	54	
		69	66	62	57	56	54	
8-14-67		69	68	66	62	62	53	
		69	68	66	59	59	53	
		69	67	63	59	58	53	
8-30-67		64	64	63	60	58	57	
		64	63	62	59	58	57	
		64	63	62	58	58	57	

1/ Readings at low tide.

Table 2. (Cont'd)

Date	Station	A	B	C	D	E	F	Seaward
9-12-67		64	64	63	61	60	58	
		64	64	62	60	60	58	
		64	63	62	60	60	58	
9-28-67		64	64	63	59	60	57	
		64	64	63	59	59	55	
		64	63	62	59	58	55	
10-12-67		60	60	59	58	57	57	
		60	60	59	58	57	56	
		59	59	58	58	57	56	
10-26-67		55	55	56	54	55	55	
		55	56	56	54	55	55	
		55	56	56	55	55	55	
11-14-67		54	55	55	55	55	55	
		55	55	55	55	55	55	
		55	55	55	55	55	55	
11-30-67		47	48	48	50	51	51	
		49	49	50	51	51	51	
		49	49	50	51	51	51	

Table 3. Dissolved oxygen (ppm at tray level) values for Yaquina Bay, June 1966-November 1967 (values at high tide unless noted)

Date	Station A	B	C	D	E	F
6-28-66	5.8	6.4	6.8	7.4	7.2	8.2
7-15-66	6.8	6.8	7.2	8.8	8.8	10.6
8-1-66	6.8	6.4	6.4	4.8	5.2	4.0
8-15-66	6.8	6.9	6.6	5.8	5.9	5.2
8-31-66	4.8	5.0	5.0	5.6	6.3	6.5
9-14-66	4.6	4.6	4.6	5.4	6.0	6.2
10-4-66	5.3	5.5	5.6	6.5	6.8	6.6
10-18-66	6.5	6.6	6.6	7.2	7.3	7.8
11-1-66	7.9	7.9	8.1	8.3	8.4	8.5
11-18-66	8.3	8.5	8.6	8.4	8.4	8.8
12-5-66	9.2	9.8	9.7	8.7	9.4	9.0
12-22-66	8.4	8.5	8.8	8.7	8.6	8.6
1-11-67	9.2	9.3	9.3	9.3	9.3	9.3
1-30-67 <u>1/</u>	10.2	10.2	10.0	9.9	9.8	9.6
2-15-67	8.6	9.8	10.0	8.8	9.2	9.2
3-27-67 <u>1/</u>	9.6	9.6	9.8	9.2	9.4	9.0
4-5-67	8.2	8.8	9.1	8.7	8.7	8.9
5-4-67	8.2	9.7	9.4	8.4	8.8	8.6
5-16-67 <u>1/</u>	8.2	8.2	8.4	8.6	8.5	7.6
6-5-67	7.1	7.3	7.0	7.5	7.7	6.3
6-22-67	6.7	7.1	6.8	9.1	9.1	9.1
7-18-67	6.6	6.4	8.0	7.0	7.0	8.4
8-14-67	5.2	5.4	5.6	5.8	5.6	5.4
8-30-67	5.8	6.0	6.0	7.8	8.0	8.2

1/ Readings at low tide.

Table 3. (Cont'd)

Date \ Station	A	B	C	D	E	F
9-12-67	5.7	5.8	6.2	7.3	7.3	8.5
9-28-67	5.8	6.0	6.1	7.1	6.9	7.8
10-12-67	6.0	6.3	6.3	7.1	7.4	8.3
10-26-67	6.6	6.7	6.7	7.2	7.2	8.2
11-14-67	7.4	7.7	7.6	7.9	7.9	8.2
11-30-67	8.3	8.3	8.3	8.7	8.8	8.8

Table 4. Turbidity (ft) values for Yaquina Bay,
June 1966-November 1967 (values at high
tide unless noted)

Date \ Station	A	B	C	D	E	F
6-28-66	4.0	4.5	3.0	4.5	4.5	3.5
7-15-66	5.0	4.5	5.0	5.0	5.0	6.0
8-1-66	3.0	3.5	4.5	7.0	7.5	11.0
8-15-66	4.0	3.5	4.0	5.0	6.5	6.5
8-31-66	3.5	2.5	3.0	3.5	3.5	4.0
9-14-66	2.5	2.5	2.5	3.0	3.0	3.5
10-4-66	4.0	5.0	4.5	4.5	5.0	4.5
10-18-66	6.5	6.6	6.6	7.2	7.3	7.8
11-1-66	5.0	5.0	5.0	7.0	6.0	11.0
11-18-66	4.5	4.5	5.0	5.0	5.0	5.0
12-5-66	1.0	1.0	1.0	1.0	1.0	1.0
12-22-66	7.0	7.0	6.0	6.0	6.0	6.0
1-11-67	4.0	5.0	5.0	5.0	3.0	6.0
1-30-67 <u>1/</u>	1.0	1.0	1.0	1.0	1.0	1.0
2-15-67	4.5	5.0	5.0	6.5	6.0	6.0
3-27-67 <u>1/</u>	1.0	2.0	2.5	3.0	4.0	4.0
4-5-67	7.0	5.0	6.0	6.0	6.0	5.0
5-4-67	6.0	5.5	6.5	6.0	5.5	6.0
5-16-67 <u>1/</u>	3.0	2.0	4.0	3.0	4.5	5.0
6-5-67	3.5	3.0	3.5	4.0	5.0	4.0
6-22-67	3.5	3.0	3.5	3.5	3.0	4.0
7-18-67	3.5	4.0	4.0	4.0	4.0	5.0
8-14-67	3.0	3.0	3.0	4.0	4.0	6.0

1/ Readings at low tide.

Table 4. (Cont'd)

Station Date	A	B	C	D	E	F
8-30-67	3.5	3.5	3.5	4.0	4.5	5.5
9-12-67	3.5	3.5	3.5	4.0	4.0	4.5
9-28-67	3.5	4.5	4.5	4.0	4.0	5.0
10-12-67	4.0	4.0	4.0	5.0	5.0	6.5
10-26-67	5.0	5.0	3.5	5.0	4.0	6.0
11-14-67	5.0	5.0	5.0	5.5	5.5	6.0

Table 5. Hydrogen ion (pH) values for Yaquina Bay,
June 1966-November 1967 (values at high
tide unless noted)

Station Date	A	C	F	Seaward
6-28-66	7.5	-	8.0	Surface
	7.7	7.7	8.0	Bottom
7-15-66	8.2	8.0	8.6	
	8.0	7.8	8.8	
8-1-66	8.2	8.2	7.8	
	7.8	8.5	7.7	
8-15-66	7.8	8.2	7.7	
	8.0	8.2	7.7	
8-31-66	7.6	7.6	8.0	
	7.5	7.6	8.0	
9-14-66	7.6	7.6	7.9	
	7.6	7.6	7.9	
10-4-66	7.7	7.7	8.0	
	7.7	7.7	8.3	
10-18-66	8.0	8.0	8.0	
	8.0	8.0	8.0	
11-1-66	8.2	8.0	8.2	
	8.2	8.2	8.2	
11-18-66	6.9	7.2	7.7	
	8.0	7.7	8.3	
12-5-66	6.3	6.7	6.8	
	6.8	7.8	8.2	
1-22-67	7.3	7.5	7.7	
	7.3	7.7	8.8	
1-11-67	7.4	7.9	8.2	
	7.4	8.3	8.2	
1-30-67 <u>1/</u>	6.5	6.7	6.7	
	6.7	6.5	8.0	
2-15-67	7.0	7.3	7.8	
	8.0	8.0	8.8	

1/ Readings at low tide.

Table 5. (Cont'd)

Date	Station	A	C	F	Seaward
3-27-67 <u>1/</u>		7.0	7.2	7.7	
		7.1	7.2	7.8	
4-5-67		7.8	7.8	8.2	
		8.2	8.2	8.0	
5-4-67		7.9	8.0	8.2	
		8.5	8.7	8.2	
5-16-67 <u>1/</u>		8.3	8.3	8.7	
		8.3	8.2	8.4	
6-5-67		8.4	8.3	8.4	
		8.3	8.2	8.2	
6-22-67		8.2	8.2	8.2	
		8.2	8.1	8.2	
7-18-67		8.2	8.2	8.5	
		8.2	8.2	8.5	
8-14-67		7.8	8.0	8.3	
		7.8	8.0	8.3	
8-30-67		7.8	8.0	8.3	
		7.8	8.0	8.3	
9-12-67		7.8	7.8	8.2	
		7.8	7.8	8.2	
9-28-67		7.8	8.2	8.3	
		7.8	8.2	8.5	
10-12-67		8.1	8.2	8.3	
		8.3	8.3	8.5	
10-26-67		7.8	8.1	8.2	
		7.9	8.1	8.2	
11-14-67		7.9	8.0	8.3	
		8.1	8.1	8.4	
11-30-67		8.0	8.0	8.4	
		8.0	8.2	8.4	

1/ Readings at low tide.

Table 6. Surface salinities and temperatures for the Tillamook and Coos Bay stations, December 1966-November 1967 (values at low tide)

Month	Tillamook Bay 1/		Coos Bay 2/	
	Temperature F	Salinity o/oo	Temperature F	Salinity o/oo
Dec. 1966	46	8.8	48	3.5
Jan. 1967	43	15.8	49	0.5
Feb.	50	11.1	54	0.9
March	52	20.6	54	1.8
April	70	20.1	52	1.6
May	-	-	-	-
June	-	-	60	-
July	-	-	-	-
August	-	-	-	-
Sept.	60	31.1	64	32.5
Oct.	57	13.2	61	31.0
Nov.	-	-	56	13.3

1/ Station located on intertidal oyster bed in the southwest section of the bay.

2/ Station located on intertidal oyster bed in Joe Ney Slough.

A COMPARISON OF MISCELLANEOUS OYSTER LAWS
IN OREGON, WASHINGTON, AND CALIFORNIA

<u>State</u>	<u>License to Cultivate Oysters</u>	<u>License to Process Oysters</u>	<u>Poundage Tax on Oysters</u>	<u>Filing Fee for Leasing State Land</u>	<u>Rental Fee on Leased State Oyster Land</u>	<u>Lease Period on Oyster Land</u>
Oregon						
Present	No	No	No	No	No	Up to 10 years on natural beds. No period on Tillamook except to file report with County Clerk every 2 years.
With SB-193	No	No	No	\$25	To be set by Land Board.	Up to 10 years.
Washington	\$25	\$50	1¢/gal. Pacific oysters. 6½¢/gal. Native oysters.	\$10	Minimum set by State Fish. Dir. based on productivity. Ave. \$4-5/acre.	5-10 years.
California	\$15	\$25	1¢/gal.	\$50	\$1/acre.	Up to 25 years.

FISH COMMISSION OF OREGON

MARCH 7, 1967

DP&L 50D