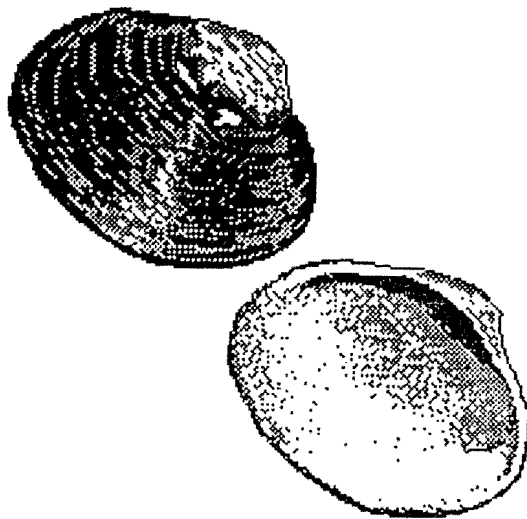


OREGON DEPARTMENT
OF
FISH AND WILDLIFE

BAY CLAM
DATA SERIES REPORT

1989



1989 BAY CLAM DATA SERIES REPORT

by

Thomas F. Gaumer

Oregon Department of Fish and Wildlife
Marine Region
Newport, Oregon

December 1990

CONTENTS

	<u>Page</u>
INTRODUCTION.....	1
RECREATIONAL CLAM FISHERY.....	1
COMMERCIAL CLAM HARVEST.....	3
SPECIAL STUDIES.....	3
Hatchery Stock Enhancement.....	3
Tillamook Bay.....	3
Yaquina Bay.....	3
Coos Bay.....	3
Natural Recruitment Studies.....	4
Yaquina Bay.....	4
Netarts Bay.....	4
ACKNOWLEDGMENTS.....	4
APPENDIX.....	5

TABLES

<u>Number</u>		<u>Page</u>
1	Annual summary of recreational interview data; Garibaldi Flat, Tillamook Bay.....	6
2	Annual summary of recreational interview data; Happy Camp, Netarts Bay.....	7
3	Annual summary of recreational interview data; Cape Lookout Sand Spit, Netarts Bay.....	8
4	Annual summary of recreational interview data; Little Nestucca Flat, Nestucca Bay.....	9
5	Annual summary of recreational interview data; Bridge Bed, Yaquina Bay.....	10
6	Annual summary of recreational interview data; Breakwater Bed, Yaquina Bay.....	11
7	Annual summary of recreational interview data; Idaho Point, Yaquina Bay.....	12
8	Annual summary of recreational interview data; Northwest Gas Plant, Yaquina Bay.....	13
9	Annual summary of recreational interview data; Coquille Point, Yaquina Bay.....	14
10	Annual summary of recreational interview data; Critser's Island, Yaquina Bay.....	15
11	Annual summary of recreational interview data; North Bank Softshell, Yaquina Bay.....	16
12	Annual summary of recreational interview data; North Shore, Alsea Bay.....	17
13	Annual summary of recreational interview data; Bayshore, Alsea Bay.....	18
14	Annual summary of recreational interview data; Breakwater, Alsea Bay.....	19
15	Annual summary of recreational interview data; Softshell, Alsea Bay.....	20
16	Annual summary of recreational interview data; North Fork, Siuslaw Bay.....	21
17	Annual summary of recreational interview data; Charleston Triangle, Coos Bay.....	22

TABLES (continued)

<u>Number</u>		<u>Page</u>
18	Annual summary of recreational interview data; Charleston Flat, Coos Bay.....	23
19	Annual summary of recreational interview data; Pigeon Point, Coos Bay.....	24
20	Annual summary of recreational interview data; North Spit, Coos Bay.....	25
21	Annual summary of recreational interview data; Clam Island, Coos Bay.....	26
22	Annual summary of recreational interview data; all estuaries combined.....	27
23	Peak counts of clam diggers.....	28
24	Oregon commercial clam harvest in pounds, 1970-89.....	31
25	Summary of pounds of bay clams reported commercially harvested in Oregon by species, 1970-89.....	32
26	Summary of pounds of bay clams reported commercially harvested in major Oregon estuaries, 1970-89.....	33
27	Summary of experimental Manila littleneck clam plants in Coos Bay, 1973-89.....	34

FIGURES

<u>Number</u>		<u>Page</u>
1	Length composition of recreationally harvested bay clams, all bays combined, 1975-89.	29
2	Correlation between peak digger counts and total digger counts, 1989.	30
3	Recruitment of gaper clams in Netarts and Yaquina bays, 1975-89.	35

1989 BAY CLAM DATA SERIES REPORT

INTRODUCTION

This report summarizes the results of our bay clam studies in 1989. Activities summarized include recreational and commercial clam fishery monitoring, hatchery stock enhancement, and natural recruitment studies. This report is presented as a series of tables and figures with a minimum of discussion; other reports will evaluate the data presented here. The tables and figures included give a historical overview of clam harvesting activities and are presented in a manner to allow future analysis to show trends or changes in stock status and fishing activities. This report is intended primarily to be an internal document, to be used as a reference by the shellfish staff.

RECREATIONAL CLAM FISHERY

Recreational clam digger interviews are conducted annually on each of the major clam harvesting tideflats of the Tillamook, Netarts, Nestucca, Yaquina, Alsea, Siuslaw, and Coos estuaries. Interviews are usually conducted by two shellfish staff members. A count of diggers is made on each tideflat at low tide; this provides a peak digger count for that day. Currently, an effort is made to visit each tideflat at least two times per season, in the spring and again in midsummer. This is about half of the sampling effort that we expended annually from 1975 to 1984 to collect recreational use data.

We attempt to measure a minimum of 200 clams of each species for each tideflat. In 1988, we discontinued aging the clams we measured. We measure the height of the cockle clam and the length of the butter, gaper, littleneck, and softshell clams.

Interview data collected included catch/effort, digger origin, species, and length composition. These data are presented for each tideflat in Appendix Tables 1-21. Table 22 summarizes the recreational activities presented in Tables 1-21 and Table 23 shows the peak counts of clam diggers taken at low tide for each of the surveyed tideflats.

In 1989, we interviewed 1,549 clam diggers that expended 2,259 hours of effort to harvest 26,708 clams (Table 22). The clam diggers averaged 17.2 clams/trip or 11.8 clams/hour. Digging success was slightly better in 1989 than in 1988 when 16.6 clams/trip were taken. Since 1977, when the

Commission approved a reduction in bag limit from 36 to 20, clam digger harvest has ranged between 14.7 and 18.8 clams/trip. In 1976, prior to the reduced bag limit, clam diggers averaged 20.9 clams/trip.

As in previous years, most clam diggers traveled some distance to harvest clams. In 1989, 32.6% of the diggers were local county residents, 58.2% were from Oregon but living outside the county of harvest, and 9.2% were out-of-state residents (Table 22). These figures were generally the same as in 1988.

The cockle clam was the most frequently observed species in the recreational fishery representing 26.8% of the 1989 harvest (Table 22). Softshell, gaper, butter, and littleneck clams comprised 20.9, 19.8, 19.4, and 11.9% of the bag, respectively. These values fluctuate annually but the general trend shows a gradual decline in the gaper, cockle, and littleneck harvest and an increase in the take of softshell and butter clams. Somewhat surprising was the strong, unexplained showing of softshells, providing nearly 21% of the harvest. The reduced occurrence of gaper clams can be partially attributed to poor recruitment of this species in a number of our more popular clam beds, especially at Happy Camp in Netarts Bay.

Data collected on length composition since 1979 revealed only minor variations in overall mean size for each species (Figure 1). Gaper, softshell, butter, cockle, and littleneck clams averaged 110.4, 87.5, 78.5, 63.5, and 51.8 mm in 1989, respectively.

Changes in digging effort through time as reflected by peak digger counts revealed a considerable increase in digging effort from 1988 for most of the surveyed tideflats north of Alsea Bay (Table 23). The largest increase in peak digger counts was observed for the Garibaldi Flat clam bed in Tillamook Bay (257 diggers to 547 diggers). There was no apparent reason observed for this increase in digging activity. Digging pressure on Alsea Bay and south was generally similar to that observed in 1988.

In 1989, we conducted a study to determine if there was a correlation between peak digger counts at low tide and total number of clam diggers using the clam bed during the same tide day. Staff were hired to make counts at Garibaldi Flat in Tillamook Bay, Happy Camp in Netarts Bay, Bridge Flats in Yaquina Bay, and the Charleston Triangle Flat in Coos Bay. Counts were made during 21 days during the major low tide series in April, May, and June. Results of this study are shown in Figure 2 and reveal a clear

correlation does exist between the two counts, especially for Tillamook, Netarts, and Yaquina bays (r values ranged from 0.937 to 0.987).

COMMERCIAL CLAM HARVEST

In 1989, we issued 111 permits to commercial fishermen to harvest bay clams (Table 24). Of this total, 24 reported landing 60,482 lb of clams (Table 25). In 1988, 28 clam diggers reported landing 44,696 lb of clams. Of the total clams landed in 1989, 44,344 lb (73.3%) were cockles. Tillamook Bay was the major producer with 42,325 lb (95.4%) of the total cockle harvest. Other clams harvested coastwide were littlenecks (6,032 lb), gapers (5,164 lb), butters (3,806 lb), and softshells (1,136 lb). The general decline in harvest of gaper clams since 1982, when 106,440 lb were taken, again illustrates poor recruitment of this species in several of our bays.

Tillamook Bay produced the most clams in 1989 with 49,650 lb reported (Table 26); Coos Bay produced 6,183 lb. Nehalem, Yaquina, Alsea, Siuslaw, Umpqua, and Coquille bays produced minor poundages of clams.

SPECIAL STUDIES

Hatchery Stock Enhancement

Tillamook Bay

No Manila clams were planted in Tillamook Bay in 1989. In addition, we did not sample the Manila clams planted in previous years.

Yaquina Bay

Manila littleneck clam test plots were not sampled in Yaquina Bay in 1989.

Coos Bay

Two Manila littleneck clam test plots were sampled in Coos Bay in 1989. Table 27 shows the results of our Manila littleneck clam plants in Coos Bay since 1973. Manilas planted in 1985 under Vexar netting continued to survive at a much higher rate (82.7%) than those released without netting protection.

Natural Recruitment Studies

Yaquina Bay

We discontinued our subtidal stock assessment surveys in Yaquina Bay in 1989. Future surveys in this area will depend on available staff.

Netarts Bay

We continued to monitor annual recruitment of gaper clams in Happy Camp at Netarts Bay. Six 1 sq ft samples were collected from the intertidal clam bed and washed through a 3 mm screen. Results revealed that recruitment continued to be extremely poor with only 0.5 clams/sq ft, (Figure 3). In 1988, the same area produced 4.1 new recruits/sq ft. None of the 1988 year-class clams were recovered in 1989.

ACKNOWLEDGMENTS

I wish to thank Darrell Demory, Terry Link, Jean McCrae, Steve Jones, Neil Richmond, and Mark Saelens for their assistance in gathering the data that was used in this report.

APPENDIX

Table 1. Annual summary of recreational interview data; Garibaldi Flat, Tillamook Bay.

	1971	1975	1976	1977 ¹	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	13,048	104	207	252	239	597	456	359	219	132	200	107	290	277	421	476
No. Clams Sampled	389,946	2,472	4,825	4,647	4,631	11,104	8,728	6,558	4,249	2,471	3,729	2,128	5,598	5,491	8,067	9,150
No. Digger Hours	20,439	-	283	336	261	715	549	443	220	158	243	143	311	312	452	631
Hours/trip	1.6	-	1.4	1.3	1.1	1.2	1.2	1.2	1.3	1.2	1.2	1.3	1.1	1.1	1.1	1.3
Clams/trip	29.9	23.8	23.3	18.4	19.4	18.6	19.1	18.3	19.4	18.7	18.7	19.9	19.3	19.8	19.2	19.2
Clams/hour	19.1	-	17.0	13.8	17.7	15.5	15.9	14.0	14.6	15.6	15.4	14.9	18.0	17.6	17.9	14.5
Digger Origin (%)																
Local	21.0	-	32.9	27.8	33.1	30.2	22.4	27.6	38.8	37.7	30.0	28.0	17.9	23.5	35.2	21.0
State	73.0	-	57.0	57.3	55.2	64.7	72.6	63.5	57.1	46.9	67.5	66.4	78.6	67.9	57.0	69.1
Non-state	-	-	-	-	-	-	-	-	4.1	15.4	2.5	5.6	3.4	8.7	7.8	9.9
Species Comp. (%)																
Butter	16.3	20.7	18.2	10.5	11.5	13.5	28.7	42.8	45.8	39.7	38.8	39.5	32.9	41.6	34.0	45.6
Cockle	16.8	43.4	28.5	46.7	66.6	64.0	46.5	24.2	27.4	27.4	28.5	43.2	51.0	48.7	35.6	32.0
Gaper	5.4	5.3	18.5	17.2	7.1	9.6	7.1	5.7	6.0	4.5	0.7	1.8	1.0	1.3	0.9	1.1
Littleneck	60.8	29.7	34.7	24.9	14.7	12.7	17.7	27.2	20.8	28.4	32.1	15.4	15.1	8.0	29.6	21.3
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams/trip																
Butter	5.0	4.9	4.2	1.9	2.2	2.5	5.5	7.8	8.9	7.4	7.2	7.9	6.3	8.2	6.5	8.8
Cockle	4.9	10.3	6.6	8.6	12.9	11.9	8.9	4.4	5.3	5.1	5.3	8.6	9.9	9.7	6.8	6.2
Gaper	1.6	1.3	4.3	3.2	1.4	1.8	1.4	1.4	1.2	0.9	0.1	0.4	0.2	0.2	0.2	0.2
Littleneck	18.4	7.0	8.1	4.6	2.8	2.4	3.4	5.0	4.0	5.3	6.0	3.1	2.9	1.6	5.7	4.1
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams/hour																
Butter	3.2	-	3.1	1.5	2.0	2.1	4.6	6.3	6.7	6.2	6.0	5.9	5.9	7.3	6.1	6.6
Cockle	3.1	-	4.9	6.5	11.8	9.9	7.4	3.6	4.0	4.3	4.4	6.5	9.2	8.6	6.4	4.6
Gaper	1.1	-	3.2	2.4	1.3	1.5	1.1	0.9	0.9	0.7	0.1	0.3	0.2	0.2	0.2	0.2
Littleneck	11.7	-	5.9	3.5	2.6	2.0	2.8	4.0	3.0	4.4	4.9	2.3	2.7	1.4	5.3	3.1
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Size Comp. (x size)																
Butter	-	77.3	81.6	83.8	83.0	72.3	64.8	70.6	70.3	68.8	78.4	71.4	75.5	79.4	73.8	69.7
Cockle	-	63.9	64.3	55.9	55.2	60.9	55.0	56.9	60.1	54.0	52.8	58.9	58.7	60.6	60.7	57.5
Gaper	-	67.5	56.8	69.3	82.0	84.2	90.2	91.3	114.1	107.9	108.0	106.9	99.4	67.9	86.8	93.5
Littleneck	-	36.7	36.8	39.4	38.2	38.5	36.5	39.5	38.0	37.0	38.3	39.5	39.9	40.4	35.2	38.9
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
No. Clams Measured																
Butter	-	219	536	394	145	555	304	413	379	481	203	241	231	110	263	255
Cockle	-	290	978	1,517	637	1,501	535	254	389	407	240	267	360	88	271	259
Gaper	-	74	349	538	84	327	111	81	7	21	2	17	5	31	27	72
Littleneck	-	297	518	862	233	171	187	251	392	461	236	131	322	142	246	266
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

¹ Regulation change in bag limit; effective January 1, 1977.

Table 2. Annual summary of recreational interview data; Happy Camp, Netarts Bay.

	1971	1975	1976	1977 ¹	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	5,106	18	141	187	146	222	106	71	168	280	84	99	60	103	108	91
No. Clams Sampled	85,230	164	1,709	2,727	1,747	2,823	1,293	991	2,020	2,994	1,009	1,010	579	709	1,068	870
No. Digger Hours	6,613	-	193	254	149	204	68	67	151	290	84	124	92	205	209	182
Hours/trip	1.3	-	1.4	1.4	1.0	0.9	0.6	0.9	0.9	1.0	1.0	1.3	1.5	2.0	1.9	2.0
Clams/trip	16.7	9.1	12.1	14.6	12.0	12.7	12.2	12.9	12.0	10.7	12.0	10.2	9.7	6.9	9.9	9.6
Clams/hour	12.9	-	8.9	10.7	11.7	13.8	19.1	14.8	13.4	10.3	12.0	8.1	6.3	3.5	5.1	4.8
Digger Origin (%)																
Local	17.6	-	29.1	14.9	11.0	28.4	17.9	40.3	48.2	22.5	29.8	32.3	31.7	10.7	16.7	25.3
State	74.8	-	66.0	75.9	71.2	59.9	73.6	50.6	44.0	72.9	64.3	53.5	66.7	87.4	65.7	65.9
Non-state	7.6	-	5.0	9.1	17.8	11.7	8.5	9.1	7.7	4.6	6.0	14.1	1.7	1.9	17.6	8.8
Species Comp. (%)																
Butter	2.6	47.1	20.8	9.2	5.8	7.7	5.4	13.7	5.0	0.7	3.7	4.0	7.9	15.9	20.8	13.3
Cockle	1.0	-	0.1	21.9	-	-	0.1	-	<0.1	0.1	4.0	0.4	2.1	2.1	3.4	1.8
Gaper	95.7	36.6	73.6	62.5	91.0	90.3	92.5	82.7	94.3	98.5	89.5	93.6	84.6	73.1	68.8	72.5
Littleneck	0.8	15.9	5.3	5.4	3.1	0.2	2.0	3.4	0.6	0.8	2.9	2.1	5.4	8.3	7.0	9.2
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams/trip																
Butter	0.4	3.3	2.5	1.3	0.7	1.0	0.7	1.8	0.6	0.1	0.4	0.4	0.8	1.1	2.1	1.6
Cockle	0.2	-	<0.1	3.2	-	-	<0.1	-	<0.1	<0.1	0.5	<0.1	0.2	0.1	0.3	0.2
Gaper	16.0	4.3	8.9	9.1	10.9	11.5	11.3	10.6	11.3	10.5	10.8	9.5	8.2	5.0	6.8	6.9
Littleneck	0.1	1.4	0.6	0.8	0.4	0.2	0.2	0.4	0.1	0.1	0.4	0.2	0.5	0.6	0.7	0.9
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams/hour																
Butter	0.3	-	1.8	1.0	0.7	1.1	1.0	2.0	0.7	0.1	0.4	0.3	0.5	0.6	1.1	0.8
Cockle	0.1	-	<0.1	2.3	-	-	<0.1	-	<0.1	<0.1	0.5	<0.1	0.1	0.1	0.2	0.1
Gaper	12.3	-	6.5	6.7	10.7	12.5	17.7	12.3	12.7	10.2	10.8	7.6	5.3	2.5	3.5	3.5
Littleneck	0.1	-	0.5	0.6	0.4	0.3	0.4	0.5	0.1	0.1	0.4	0.2	0.3	0.3	0.4	0.4
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Size Comp. (x size)																
Butter	-	102.8	100.2	103.0	103.2	107.2	105.9	109.7	102.5	82.0	101.8	103.5	105.2	109.5	108.0	107.6
Cockle	-	-	-	-	-	-	-	-	-	31.0	-	54.0	47.6	-	83.1	63.7
Gaper	93.2	112.1	96.3	86.1	87.5	92.1	93.6	98.9	97.7	101.9	100.3	106.6	111.7	114.0	125.3	126.2
Littleneck	-	65.3	67.6	70.0	70.1	73.6	66.7	71.3	70.7	55.8	70.2	67.2	65.6	65.7	68.9	70.9
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
No. Clams Measured																
Butter	-	66	219	-	-	-	24	109	62	6	32	20	45	26	179	151
Cockle	-	190	-	-	-	-	-	-	-	1	-	1	8	-	57	3
Gaper	282	190	643	557	921	417	468	454	565	338	240	436	405	20	322	213
Littleneck	-	43	99	28	54	34	3	22	9	4	29	12	28	27	69	83
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

¹ Regulation change in bag limit; effective January 1, 1977.

Table 3. Annual summary of recreational interview data; Cape Lookout Sand Spit, Netarts Bay.

	1971	1975	1976	1977 ¹	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	6,473	43	76	509	72	85	63	80	56	118	71	52	42	71	147	100
No. Clams Sampled	115,811	1,038	2,433	9,293	1,324	1,560	1,074	1,397	1,029	2,174	1,362	1,040	819	1,409	2,765	1,713
No. Digger Hours	8,656	-	148	1,055	149	178	89	150	83	197	87	85	92	151	237	196
Hours/trip	1.3	-	1.9	2.1	2.1	2.1	1.4	1.9	1.5	1.7	1.2	1.6	2.2	2.1	1.6	2.0
Clams/trip	17.9	24.1	32.0	18.3	18.4	18.4	17.0	17.5	18.4	18.4	19.2	20.0	19.5	19.8	18.8	17.1
Clams/hour	13.4	-	16.5	8.8	8.9	8.8	12.1	9.3	12.4	11.1	15.8	12.2	9.0	9.4	11.7	8.8
Digger Origin (%)																
Local	17.6	-	23.7	23.1	22.2	36.5	17.5	12.5	44.6	38.1	43.7	53.8	31.0	26.8	18.4	44.0
State	74.8	-	76.3	66.6	77.8	61.2	76.2	81.3	51.8	53.4	52.1	44.2	40.5	62.0	67.3	43.0
Non-state	7.6	-	-	10.6	-	2.3	6.3	7.5	3.6	8.5	4.2	1.9	28.6	11.3	14.3	13.0
Species Comp. (%)																
Butter	38.4	49.0	15.8	6.6	2.0	5.5	1.9	7.7	0.3	11.0	11.0	16.0	7.0	10.6	4.1	18.2
Cockle	44.4	46.0	76.9	72.3	72.7	74.4	93.3	76.7	84.9	80.4	78.0	82.1	89.5	83.1	88.9	67.7
Gaper	8.9	2.7	3.7	15.3	22.4	16.0	4.8	13.3	12.1	5.9	9.0	0.2	3.4	3.2	3.0	5.7
Littleneck	6.9	1.3	3.2	2.1	1.3	3.8	-	1.9	2.6	2.6	0.1	1.7	0.1	0.9	0.9	7.7
Softshell	-	-	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-
Clams/trip																
Butter	6.9	11.8	5.1	1.2	0.4	1.0	0.3	1.4	0.1	2.0	2.1	3.2	1.4	2.1	0.8	3.1
Cockle	8.0	11.1	24.6	13.2	13.4	13.6	15.9	13.4	15.6	14.8	15.0	16.4	17.5	16.5	16.7	11.6
Gaper	1.6	0.7	1.2	2.8	4.1	2.9	0.8	2.3	2.2	1.1	1.7	-	0.7	0.6	0.6	1.0
Littleneck	1.2	0.3	1.0	0.4	0.2	0.7	-	0.3	0.5	0.5	<0.1	0.3	-	0.2	0.2	1.3
Softshell	-	-	-	-	-	-	-	-	-	-	0.4	-	-	-	-	-
Clams/hour																
Butter	5.1	-	2.6	0.6	0.2	0.5	0.2	0.7	<0.1	1.2	1.7	2.0	0.6	1.0	0.5	1.6
Cockle	5.9	-	12.7	6.4	6.5	6.5	11.3	7.2	10.5	8.9	12.3	10.0	8.0	7.8	10.4	5.9
Gaper	1.2	-	0.6	1.3	2.0	1.4	0.6	1.2	1.5	0.7	1.4	-	0.3	0.3	0.4	0.5
Littleneck	0.9	-	0.5	0.2	0.1	0.3	-	0.2	0.3	0.3	<0.1	0.2	-	0.1	0.1	0.7
Softshell	-	-	-	-	-	-	-	-	-	-	0.3	-	-	-	-	-
Size Comp. (x size)																
Butter	84.5	80.3	71.8	74.1	76.9	80.4	75.6	74.2	67.7	68.8	72.2	68.8	69.0	76.0	70.9	66.9
Cockle	65.4	73.3	73.0	75.7	72.7	75.2	72.2	72.0	71.3	69.5	70.0	75.2	72.3	71.2	72.7	66.5
Gaper	108.1	80.4	87.4	103.4	100.5	91.7	110.7	104.7	119.0	117.7	75.1	-	128.0	101.2	106.1	105.5
Littleneck	-	57.8	-	-	57.9	53.7	-	53.3	49.5	42.2	52.5	57.1	47.0	56.4	51.8	49.7
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
No. Clams Measured																
Butter	32	237	294	80	11	86	20	49	3	27	133	110	49	151	55	227
Cockle	245	257	674	851	555	812	525	486	534	238	240	542	277	223	222	380
Gaper	52	257	36	170	144	191	44	48	71	15	18	-	12	4	56	93
Littleneck	-	31	-	-	12	60	-	13	26	53	2	14	1	5	10	94
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

¹ Regulation change in bag limit; effective January 1, 1977.

Table 4. Annual summary of recreational interview data; Little Nestucca Flat, Nestucca Bay.

	1971	1977 ¹	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	1,466	34	16	38	23	22	22	62	23	14	2	1	13
No. Clams Sampled	23,211	1,049	484	1,120	357	653	623	1,386	561	431	57	26	385
No. Digger Hours	1,584	43	21	72	27	31	34	94	38	27	6	3	26
Hours/trip	1.1	1.3	1.3	1.9	1.2	1.4	1.5	1.5	1.7	1.9	3.0	2.5	2.0
Clams/trip	15.8	30.9	30.3	29.5	15.5	29.7	28.3	22.4	24.4	30.8	28.5	26.0	29.6
Clams/hour	14.7	24.4	23.2	15.6	13.2	21.4	18.6	14.7	14.8	16.3	9.5	10.4	14.8
Digger Origin (%)													
Local	12.4	52.9	18.8	-	13.0	4.5	18.2	21.0	4.3	42.9	100.0	-	23.1
State	73.5	47.1	62.5	86.8	87.0	86.4	77.3	59.7	52.2	57.1	-	100.0	38.5
Non-state	14.1	-	18.8	13.2	-	9.1	4.6	19.4	43.5	-	-	-	38.5
Species Comp. (%)													
Butter	-	-	-	-	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-	-	-	-	-
Softshell	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Clams/trip													
Butter	-	-	-	-	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-	-	-	-	-
Softshell	15.8	30.9	30.3	29.5	15.5	29.7	28.3	22.4	24.4	30.8	28.5	26.0	29.6
Clams/hour													
Butter	-	-	-	-	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-	-	-	-	-
Softshell	14.7	24.4	23.2	15.6	13.2	21.4	18.6	14.7	14.8	16.3	9.5	10.4	14.8
Size Comp. (x size)													
Butter	-	-	-	-	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-	-	-	-	-
Softshell	-	86.0	84.2	79.9	78.3	75.6	80.5	76.6	76.8	72.9	-	60.9	71.7
No. Clams Measured													
Butter	-	-	-	-	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-	-	-	-	-
Softshell	-	250	332	254	163	547	300	240	132	116	-	26	238

¹ Regulation change in bag limit; effective January 1, 1977.

Table 5. Annual summary of recreational interview data; Bridge Bed, Yaquina Bay.

	1971	1975	1976	1977 ¹	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	4,518	88	29	357	89	143	142	342	149	202	191	207	120	110	102	108
No. Clams Sampled	41,769	694	414	2,838	892	1,313	1,222	3,773	1,609	1,543	1,383	1,765	1,363	960	814	834
No. Digger Hours	6,769	-	36	488	110	120	160	354	154	274	265	304	153	160	155	109
Hours/trip	1.5	-	1.2	1.4	1.2	0.8	1.1	1.0	1.0	1.4	1.4	1.5	1.3	1.5	1.5	1.0
Clams/trip	9.2	7.9	14.3	7.9	10.0	9.2	8.6	11.0	10.8	7.6	7.2	8.5	11.4	8.7	8.0	7.7
Clams/hour	6.2	-	11.7	5.8	8.1	10.9	7.7	10.7	10.4	5.6	5.2	5.8	8.9	6.0	5.3	7.7
Digger Origin (%)																
Local	-	-	31.0	19.6	24.7	22.4	18.3	44.7	48.3	32.2	45.5	34.3	25.8	32.7	18.6	38.0
State	-	-	48.3	70.9	69.7	76.2	70.4	49.1	48.3	67.8	49.7	62.8	72.5	64.5	72.5	62.0
Non-state	-	-	20.7	9.5	4.5	1.4	11.3	6.1	3.4	-	4.7	2.9	1.7	2.7	8.8	-
Species Comp. (%) other ²	-	-	-	-	-	-	-	-	-	-	7.8	13.2	-	-	-	-
Butter	0.2	0.8	0.2	0.8	0.6	0.2	1.7	0.8	1.9	3.2	2.4	5.8	4.3	4.4	1.8	3.9
Cockle	79.4	42.1	72.2	45.4	24.6	7.9	1.4	15.7	7.2	12.9	5.2	11.2	14.4	2.8	10.1	9.9
Gaper	19.5	54.8	24.6	43.6	72.1	89.6	94.8	81.0	85.4	72.9	80.1	62.4	65.1	83.6	39.9	69.1
Littleneck	0.8	2.3	1.4	1.4	1.1	0.4	2.1	1.7	4.5	2.8	4.5	7.4	2.6	5.3	3.7	3.6
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams/trip																
Butter	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1	0.2	0.3	0.2	0.5	0.5	0.4	0.1	0.3
Cockle	7.3	3.3	10.3	3.6	2.5	0.7	<0.1	1.7	0.8	1.0	0.4	1.0	1.6	0.6	0.8	0.8
Gaper	1.8	4.3	3.5	3.5	7.2	8.2	8.2	8.9	9.2	5.6	5.8	5.3	7.4	7.3	3.2	5.7
Littleneck	<0.1	0.2	0.2	0.1	0.1	0.1	0.2	0.2	0.5	0.2	0.3	0.6	0.3	0.5	0.3	0.3
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams/hour																
Butter	<0.1	-	<0.1	<0.1	0.1	<0.1	0.1	0.1	0.2	0.2	0.1	0.3	0.4	0.3	0.1	0.3
Cockle	4.9	-	8.4	2.6	2.0	0.9	0.1	1.1	0.8	0.7	0.3	0.6	1.3	0.2	0.5	0.8
Gaper	1.2	-	2.9	2.5	5.9	9.8	7.3	8.6	8.9	4.1	4.2	3.6	5.8	5.0	2.1	5.6
Littleneck	-	-	-	-	-	-	-	-	-	0.2	0.2	0.4	0.2	0.3	0.2	0.3
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Size Comp. (x size)																
Butter	-	-	-	-	-	67.5	71.9	72.5	80.4	74.0	78.9	81.0	84.1	85.4	87.8	89.1
Cockle	60.5	49.3	46.7	57.5	69.9	66.8	55.8	57.4	65.1	66.9	73.2	56.4	64.4	60.7	64.3	64.6
Gaper	-	107.1	115.5	95.0	101.7	96.8	100.0	107.7	105.9	104.6	105.6	108.9	106.3	105.2	100.4	111.9
Littleneck	-	60.3	-	-	-	51.5	62.2	54.7	54.7	52.4	55.9	64.0	62.3	57.1	61.5	62.4
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
No. Clams Measured																
Butter	-	-	-	-	-	-	14	20	5	35	12	23	22	29	15	27
Cockle	-	276	205	592	202	51	6	536	86	138	41	67	57	7	79	100
Gaper	-	316	62	593	154	279	419	1,370	308	406	200	266	362	135	217	278
Littleneck	-	12	-	-	-	2	19	55	9	34	24	49	18	26	31	29
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

¹ Regulation change in bag limit; effective January 1, 1977.² Bentnose 7.0%, Inquinata 0.2%, other 0.6%.

Table 6. Annual summary of recreational interview data; Breakwater Bed, Yaquina Bay.

	1971	1975	1977 ¹	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	1,455	46	48	20	10	21	16	14	17	63	39	31	65	19	33
No. Clams Sampled	22,175	515	511	270	142	261	166	157	190	654	489	303	125	217	413
No. Digger Hours	2,179	-	69	22	20	44	27	21	24	103	51	34	105	24	47
Hours/trip	1.5	-	1.4	1.1	2.0	2.1	1.7	1.5	1.4	1.6	1.3	1.1	1.6	1.3	1.4
Clams/trip	15.2	11.2	10.6	13.5	14.2	12.4	10.4	11.2	11.2	10.4	12.5	9.8	14.2	11.4	12.5
Clams/hour	10.2	-	7.4	12.6	7.1	5.9	6.1	7.7	7.9	6.4	9.7	8.9	8.9	9.0	8.8
Digger Origin (%)															
Local	-	-	35.4	55.0	30.0	28.6	18.8	71.4	52.9	30.2	61.5	32.3	55.4	52.6	39.4
State	-	-	64.6	45.0	-	71.4	50.0	28.6	47.1	66.7	33.3	67.7	41.5	47.4	60.6
Non-state	-	-	-	-	-	-	31.3	-	-	3.2	5.1	-	3.1	-	-
Species Comp. (%) other ²	-	-	-	-	-	-	-	-	-	15.9	2.9	-	-	-	-
Butter	1.2	1.5	1.4	0.7	-	6.5	1.8	2.5	1.1	5.8	3.7	7.3	3.0	9.7	4.8
Cockle	15.3	3.9	18.2	13.7	7.0	11.1	19.9	1.9	8.4	4.0	4.1	3.6	19.0	4.6	5.6
Gaper	83.0	95.0	78.9	84.4	84.5	81.2	75.3	94.9	85.8	71.6	87.5	82.8	73.4	85.3	84.3
Littleneck	0.4	0.2	0.8	0.4	-	1.1	1.2	0.6	0.5	2.8	1.8	5.9	4.5	0.5	5.3
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams/trip															
Butter	0.2	<0.1	0.1	0.1	-	0.8	0.2	0.3	0.1	0.6	0.5	0.7	0.4	0.9	0.6
Cockle	2.3	0.4	1.9	1.8	1.0	1.4	2.1	0.2	0.9	0.4	0.5	0.4	2.7	0.4	0.7
Gaper	12.7	10.6	-	-	-	10.1	7.8	10.6	9.6	7.4	11.0	8.1	10.4	8.0	10.5
Littleneck	<0.1	<0.1	0.1	0.1	-	0.1	0.1	0.1	0.1	0.3	0.2	0.6	0.6	-	0.7
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams/hour															
Butter	0.1	-	0.1	0.1	-	0.4	0.1	0.2	0.1	0.4	0.4	0.6	0.3	0.8	0.4
Cockle	1.6	-	1.3	1.7	0.5	0.6	1.2	0.1	0.7	0.3	0.4	0.3	1.7	0.4	0.5
Gaper	8.4	-	5.8	10.6	6.0	4.8	4.6	7.3	6.8	4.6	8.5	7.4	6.5	6.6	7.4
Littleneck	<0.1	-	0.1	0.1	-	0.1	0.1	<0.1	<0.1	0.2	0.2	0.5	0.4	-	0.5
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Size Comp. (x size)															
Butter	<0.1	-	0.1	<0.1	<0.1	85.3	-	-	97.0	82.3	78.2	80.0	88.8	86.4	80.5
Cockle	75.6	-	72.5	76.1	-	-	62.6	-	81.6	70.1	69.6	67.2	65.5	66.6	73.7
Gaper	113.8	116.2	123.3	118.9	-	109.1	106.4	106.4	100.7	96.3	104.7	108.9	111.8	109.5	107.4
Littleneck	-	-	-	-	-	64.0	-	-	51.0	52.0	55.6	56.6	59.9	-	60.1
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
No. Clams Measured															
Butter	-	-	-	-	-	16	-	4	1	36	14	22	20	21	21
Cockle	-	-	-	79	37	-	27	3	12	32	16	11	129	9	19
Gaper	-	310	198	207	-	195	69	142	109	200	265	176	162	133	201
Littleneck	-	-	-	-	-	3	-	1	1	20	8	18	33	-	18
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

¹ Regulation change in bag limit; effective January 1, 1977.

² Bentnose Clam.

Table 7. Annual summary of recreational interview data; Idaho Point, Yaquina Bay.

	1971	1975	1976	1977 ¹	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	10,462	123	42	309	20	193	182	147	80	138	52	26	47	47	20	57
No. Clams Sampled	138,784	2,600	812	3,773	298	2,783	3,118	2,339	1,219	2,171	890	403	849	741	435	992
No. Digger Hours	15,621	-	77	464	25	248	302	222	145	219	83	42	77	52	29	82
Hours/trip	1.5	-	1.8	1.5	1.3	1.3	1.7	1.5	1.8	1.6	1.6	1.6	1.6	1.1	1.4	1.4
Clams/trip	13.3	21.1	19.3	12.2	14.9	14.4	17.1	15.9	15.2	15.7	17.1	15.5	18.1	15.8	21.8	17.4
Clams/hour	8.9	-	10.6	8.1	11.8	11.2	10.3	10.5	8.4	9.9	10.7	9.6	11.0	14.4	15.0	12.2
Digger Origin (%)																
Local	-	-	35.7	12.3	45.0	31.6	28.6	15.6	18.8	9.4	21.2	50.0	21.3	38.3	-	31.6
State	-	-	33.3	84.1	50.0	62.7	65.4	70.7	81.3	85.5	76.9	42.3	72.3	38.3	90.0	56.1
Non-state	-	-	31.0	3.6	5.0	5.7	6.0	13.6	-	5.1	1.9	7.7	6.4	23.4	10.0	12.3
Species Comp. (%) other ²	-	-	-	-	-	-	-	-	-	-	0.4	-	-	-	-	-
Butter	.03	<0.1	0.5	0.5	-	1.7	-	0.1	-	0.4	0.6	-	-	-	-	-
Cockle	77.7	93.2	72.5	78.5	83.9	70.2	87.2	93.4	95.0	85.5	97.1	99.0	93.9	99.3	100.0	93.9
Gaper	21.7	5.8	18.4	13.1	15.1	20.7	12.8	4.1	2.9	2.8	1.6	-	5.4	0.1	-	0.5
Littleneck	0.4	<0.1	0.1	0.2	-	0.1	-	0.5	0.9	0.7	0.3	1.0	0.7	0.5	-	2.8
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams/trip																
Butter	<0.1	<0.1	0.1	0.1	-	0.2	-	-	-	0.1	0.1	-	-	-	-	-
Cockle	10.3	19.7	14.0	9.6	12.5	10.1	14.9	14.9	14.5	13.5	16.6	15.3	17.0	15.7	21.8	16.4
Gaper	2.9	1.2	3.6	1.6	2.3	3.0	2.2	0.6	0.4	0.4	0.3	-	1.0	-	-	0.1
Littleneck	<0.1	<0.1	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	0.1	0.1	0.2	0.1	0.1	-	0.5
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams/hour																
Butter	0.1	-	0.1	0.1	-	0.2	-	-	-	<0.1	0.1	-	10.4	-	-	-
Cockle	6.9	-	7.7	6.4	9.9	7.9	1.3	9.8	8.0	8.5	10.4	9.5	0.6	14.3	15.0	11.4
Gaper	1.9	-	2.0	1.1	1.8	2.3	9.0	0.1	0.2	0.3	0.2	-	0.1	-	-	0.1
Littleneck	<0.1	-	<0.1	<0.1	-	<0.1	-	-	0.1	0.1	<0.1	0.1	-	0.1	-	0.3
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Size Comp. (x size)																
Butter	-	-	-	-	-	75.1	-	87.3	-	-	85.8	-	-	-	-	-
Cockle	61.0	58.6	58.3	60.2	59.0	58.2	57.8	54.3	54.4	52.6	52.3	56.8	56.7	45.7	58.5	55.7
Gaper	113.0	96.6	91.3	93.5	95.2	95.9	94.5	91.7	83.3	89.1	-	-	94.2	-	-	102.0
Littleneck	-	-	-	-	-	55.3	-	50.1	42.7	42.6	44.0	42.8	42.0	41.3	-	49.4
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
No. Clams Measured																
Butter	-	-	-	-	-	-	-	4	-	-	5	-	-	-	-	-
Cockle	-	-	-	-	-	45	1,620	1,302	-	540	240	377	477	142	227	294
Gaper	-	369	522	1,804	250	1,471	181	75	-	40	-	-	5	-	-	1
Littleneck	-	171	126	173	42	24	-	9	-	5	4	4	2	3	-	21
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

¹ Regulation change in bag limit; effective January 1, 1977.

² Bentnose clam.

Table 8. Annual summary of recreational interview data; Northwest Gas Plant, Yaquina Bay.

	1971	1975	1976	1977 ¹	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	5,857	92	93	315	49	137	63	38	29	23	9	26	57	66	6	11
No. Clams Sampled	119,702	13,541	583	3,852	684	1,073	495	151	128	219	136	319	1,125	1,107	86	137
No. Digger Hours	8,725	-	139	402	67	165	84	54	33	25	13	33	71	75	9	17
Hours/trip	1.5	-	1.5	1.3	1.4	1.2	1.3	1.4	1.1	1.1	1.4	1.3	1.2	1.1	1.4	1.5
Clams/trip	20.4	14.7	17.0	12.2	14.0	7.8	7.9	4.0	4.4	9.5	15.1	12.3	19.7	16.8	14.3	12.5
Clams/hour	13.7	-	11.4	9.6	10.2	6.5	5.9	2.8	3.9	8.8	10.5	9.7	15.8	14.9	10.1	8.3
Digger Origin (%)																
Local	-	-	9.7	22.5	59.2	33.6	30.2	36.8	65.5	34.8	44.4	50.0	47.4	25.8	66.7	36.4
State	-	-	86.0	72.1	38.8	49.6	68.3	57.9	34.5	65.2	33.3	50.0	38.6	59.1	33.3	54.5
Non-state	-	-	4.3	5.4	2.0	16.8	1.5	5.3	-	-	22.2	-	14.0	15.2	-	9.1
Species Comp. (%) other ²	-	-	-	-	-	-	-	-	-	1.8	2.2	4.7	-	-	-	-
Butter	0.6	1.9	0.1	1.1	0.1	0.2	0.6	2.0	-	0.5	-	-	-	-	-	2.2
Cockle	85.1	60.6	71.3	74.5	82.6	81.9	78.4	11.3	91.4	84.0	94.9	92.2	95.9	96.8	95.3	8.0
Gaper	12.7	29.8	22.0	13.8	16.8	11.9	19.6	34.4	7.0	-	-	0.3	-	-	-	10.1
Littleneck	0.7	1.3	0.3	0.5	0.4	0.6	1.4	2.0	1.6	13.7	2.9	2.8	3.0	2.9	4.7	75.4
Softshell	-	-	-	-	-	-	-	47.0	-	-	-	-	-	-	-	-
Clams/trip																
Butter	0.1	0.3	<0.1	0.1	<0.1	<0.1	0.1	0.1	-	<0.1	-	-	-	-	-	0.3
Cockle	17.4	8.9	12.1	9.1	11.5	6.4	6.2	0.4	4.0	8.0	14.3	11.3	18.9	16.2	13.7	1.0
Gaper	2.6	4.4	3.7	1.7	2.3	0.9	1.5	1.4	0.3	-	-	-	-	-	-	1.3
Littleneck	0.1	0.2	<0.1	0.1	0.1	<0.1	0.1	0.1	0.1	1.3	0.4	0.3	0.6	0.5	0.7	9.5
Softshell	-	-	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-
Clams/hour																
Butter	<0.1	-	<0.1	0.1	<0.1	<0.1	<0.1	0.1	-	<0.1	-	-	-	-	-	0.2
Cockle	11.7	-	8.1	7.1	8.5	5.3	4.6	0.3	3.6	7.4	9.9	8.9	15.2	14.4	9.6	0.7
Gaper	1.7	-	2.5	1.3	1.7	0.8	1.2	1.0	0.3	-	-	-	-	-	-	0.8
Littleneck	<0.1	-	<0.1	0.1	<0.1	<0.1	0.1	0.1	0.1	1.2	0.3	0.3	0.5	0.4	0.5	6.3
Softshell	-	-	-	-	-	-	-	1.3	-	-	-	-	-	-	-	-
Size Comp. (x size)																
Butter	-	-	-	-	-	-	99.0	80.0	-	97.0	-	-	-	-	-	79.0
Cockle	66.3	63.4	56.5	60.7	60.0	59.4	52.5	47.1	50.2	57.0	56.6	54.5	56.5	50.1	53.6	55.9
Gaper	95.3	91.3	91.5	92.8	101.1	94.9	96.0	88.8	87.3	96.5	-	33.0	-	-	-	85.0
Littleneck	-	-	-	-	-	-	47.4	48.0	45.5	45.8	-	48.6	51.3	43.6	47.0	50.6
Softshell	-	-	-	-	-	-	-	57.5	-	-	-	-	-	-	-	-
No. Clams Measured																
Butter	-	-	-	-	-	-	1	1	-	1	-	-	-	-	-	3
Cockle	-	219	648	889	525	606	349	18	60	177	122	293	408	431	60	11
Gaper	-	451	217	152	106	96	61	46	7	8	-	1	-	-	-	14
Littleneck	-	-	-	-	-	5	5	2	-	30	-	9	15	23	1	105
Softshell	-	-	-	-	-	-	-	2	-	-	-	-	-	-	-	-

¹ Regulation change in bag limit; effective January 1, 1977.

² Bentnose clam.

Table 9. Annual summary of recreational interview data; Coquille Point, Yaquina Bay.

	1981	1982	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	11	53	27	-	7	13	20	-	-
No. Clams Sampled	24	267	147	-	45	28	287	-	-
No. Digger Hours	9	75	33	-	6	22	25	-	-
Hours/trip	0.8	1.4	1.2	-	0.8	1.7	1.2	-	-
Clams/trip	2.2	5.0	5.4	-	6.4	2.2	14.3	-	-
Clams/hour	2.7	3.6	4.5	-	8.2	1.3	11.5	-	-
Digger Origin (%)									
Local	-	9.4	25.9	-	57.1	46.2	35.0	-	-
State	100.0	75.5	55.6	-	42.9	23.1	35.0	-	-
Non-state	-	15.1	18.5	-	-	30.8	30.0	-	-
Species Comp. (%)									
Butter	4.2	3.0	40.1	-	60.0	7.1	15.3	-	-
Cockle	-	-	34.7	-	17.8	42.9	41.5	-	-
Gaper	95.8	93.3	15.7	-	-	-	36.2	-	-
Littleneck	-	3.0	8.2	-	22.2	35.7	2.1	-	-
Softshell	-	-	-	-	-	-	0.7	-	-
Clams/trip									
Butter	0.1	0.2	2.2	-	3.9	0.2	2.2	-	-
Cockle	-	-	1.9	-	1.1	0.9	6.0	-	-
Gaper	2.1	4.7	0.9	-	-	-	5.2	-	-
Littleneck	-	0.2	0.4	-	1.4	0.8	0.3	-	-
Softshell	-	-	-	-	-	-	0.1	-	-
Clams/hour									
Butter	0.1	0.1	1.8	-	4.9	0.1	1.8	-	-
Cockle	-	-	1.6	-	1.5	0.5	4.8	-	-
Gaper	2.6	3.3	0.7	-	-	-	4.2	-	-
Littleneck	-	0.1	0.4	-	1.8	0.5	0.2	-	-
Softshell	-	-	-	-	-	-	0.1	-	-
Size Comp. (x size)									
Butter	88.0	93.6	74.9	-	80.4	80.0	77.7	-	-
Cockle	-	-	47.2	-	38.6	37.5	-	-	-
Gaper	94.5	96.6	98.9	-	-	-	-	-	-
Littleneck	-	61.3	45.9	-	41.9	41.8	41.0	-	-
Softshell	-	-	-	-	-	-	-	-	-
No. Clams Measured									
Butter	1	5	22	-	27	2	39	-	-
Cockle	-	-	51	-	9	12	75	-	-
Gaper	23	142	15	-	-	-	1	-	-
Littleneck	-	4	12	-	10	10	5	-	-
Softshell	-	-	-	-	-	-	-	-	-

Table 10. Annual summary of recreational interview data; Critser's Island, Yaquina Bay.

	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	42	14	11	29	12	3	6
No. Clams Sampled	1,380	491	377	906	297	108	214
No. Digger Hours	56	24	15	53	17	5	10
Hours/trip	1.3	1.7	1.4	1.8	1.4	1.5	1.7
Clams/trip	32.9	35.1	34.3	31.2	24.8	36.0	35.7
Clams/hour	24.6	20.9	25.1	17.3	18.0	24.0	21.4
Digger Origin (%)							
Local	40.5	50.0	81.8	48.3	100.0	100.0	50.0
State	59.5	50.0	18.2	51.7	-	-	50.0
Non-state	-	-	-	-	-	-	-
Species Comp. (%)							
Butter	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-
Softshell	100.0	100.0	100.0	100.0	100.0	*100.0	100.0
Clams/trip							
Butter	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-
Softshell	32.9	35.1	34.3	31.2	24.8	36.0	35.7
Clams/hour							
Butter	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-
Softshell	24.6	20.9	25.1	17.3	18.0	24.0	21.4
Size Comp. (x size)							
Butter	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-
Softshell	82.5	93.3	93.1	85.4	94.5	90.3	85.9
No. Clams Measured							
Butter	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-
Softshell	569	68	280	306	138	102	140

Table 11. Annual summary of recreational interview data; North Bank Softshell, Yaquina Bay.

	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	26	27	10	25	16	8
No. Clams Sampled	971	698	156	709	336	225
No. Digger Hours	25	27	20	35	16	11
Hours/trip	0.9	1.0	2.0	1.4	1.0	1.4
Clams/trip	37.4	25.9	15.6	28.4	21.0	28.1
Clams/hour	39.6	25.9	7.8	20.3	21.0	20.5
Digger Origin (%)						
Local	84.6	51.9	100.0	40.0	-	75.0
State	15.4	33.3	-	60.0	100.0	25.0
Non-state	-	14.8	-	-	-	-
Species Comp. (%)						
Butter	-	-	-	-	-	-
Cockle	-	-	-	-	-	-
Gaper	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-
Softshell	100.0	99.9	100.0	100.0	100.0	100.0
Clams/trip						
Butter	-	-	-	-	-	-
Cockle	-	-	-	-	-	-
Gaper	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-
Softshell	37.4	25.8	15.6	28.4	21.0	28.1
Clams/hour						
Butter	-	-	-	-	-	-
Cockle	-	-	-	-	-	-
Gaper	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-
Softshell	39.6	25.8	7.8	20.3	21.0	20.5
Size Comp. (x size)						
Butter	-	-	-	-	-	-
Cockle	-	-	-	-	-	-
Gaper	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-
Softshell	74.6	63.6	83.5	65.6	66.6	91.6
No. Clams Measured						
Butter	-	-	-	-	-	-
Cockle	-	-	-	-	-	-
Gaper	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-
Softshell	240	366	63	104	192	142

Table 12. Annual summary of recreational interview data; North Shore, Alsea Bay.

	1982	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	4	3	-	-	-	20	15	4
No. Clams Sampled	71	22	-	-	-	329	208	57
No. Digger Hours	6	5	-	-	-	24	23	12
Hours/trip	1.5	1.5	-	-	-	1.2	1.5	3.0
Clams/trip	17.8	7.3	-	-	-	16.4	13.9	14.2
Clams/hour	11.8	4.9	-	-	-	13.7	9.2	4.8
Digger Origin (%)								
Local	100.0	-	-	-	-	90.0	80.0	50.0
State	-	100.0	-	-	-	10.0	6.7	50.0
Non-state	-	-	-	-	-	-	13.3	-
Species Comp. (%)								
Butter	-	-	-	-	-	-	-	-
Cockle	100.0	90.9	-	-	-	93.9	75.0	71.9
Gaper	-	-	-	-	-	5.8	0.5	3.5
Littleneck	-	4.6	-	-	-	0.3	24.0	24.6
Softshell	-	4.6	-	-	-	-	-	-
Clams/trip								
Butter	-	-	-	-	-	-	-	-
Cockle	17.8	6.7	-	-	-	15.4	10.4	10.2
Gaper	-	-	-	-	-	0.9	0.1	0.5
Littleneck	-	0.3	-	-	-	0.1	3.3	3.5
Softshell	-	0.3	-	-	-	-	-	-
Clams/hour								
Butter	-	-	-	-	-	-	-	-
Cockle	11.8	4.4	-	-	-	12.9	6.9	3.4
Gaper	-	-	-	-	-	0.8	-	0.2
Littleneck	-	0.2	-	-	-	-	2.2	1.2
Softshell	-	0.2	-	-	-	-	-	-
Size Comp. (x size)								
Butter	-	-	-	-	-	-	-	-
Cockle	80.1	71.0	-	-	-	76.5	59.2	57.7
Gaper	-	-	-	-	-	116.7	-	72.5
Littleneck	-	39.0	-	-	-	-	39.9	38.2
Softshell	-	58.0	-	-	-	-	-	-
No. Clams Measured								
Butter	-	-	-	-	-	-	-	-
Cockle	39	20	-	-	-	169	57	41
Gaper	-	-	-	-	-	19	-	2
Littleneck	-	-	-	-	-	-	45	14
Softshell	-	-	-	-	-	-	-	-

Table 13. Annual summary of recreational interview data; Bayshore, Alsea Bay.

	1982	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	32	24	17	35	9	20	21	-
No. Clams Sampled	529	316	156	478	138	314	310	-
No. Digger Hours	46	40	29	61	18	27	35	-
Hours/trip	1.4	1.7	1.7	1.7	2.0	1.4	1.6	-
Clams/trip	16.5	13.2	9.2	13.7	15.3	15.7	14.8	-
Clams/hour	11.5	8.0	5.5	7.9	7.7	11.6	9.0	-
Digger Origin (%)								
Local	59.4	66.7	41.2	48.6	66.7	35.0	33.3	-
State	25.0	25.0	58.8	45.7	33.3	50.0	52.4	-
Non-state	15.6	8.3	-	5.7	-	15.0	14.3	-
Species Comp. (%)								
Butter	-	-	-	-	-	-	-	-
Cockle	99.8	99.7	98.7	88.9	94.2	90.4	76.5	-
Gaper	0.2	-	1.3	2.9	5.1	8.6	20.3	-
Littleneck	-	-	-	0.4	0.7	1.0	3.2	-
Softshell	-	0.3	-	7.5	-	-	-	-
Clams/trip								
Butter	-	-	-	-	-	-	-	-
Cockle	16.5	13.1	9.1	12.1	14.4	14.2	11.3	-
Gaper	<0.1	-	0.1	0.4	0.8	1.4	3.0	-
Littleneck	-	-	-	0.1	0.1	0.1	0.5	-
Softshell	-	<0.1	-	1.0	-	-	-	-
Clams/hour								
Butter	-	-	-	-	-	-	-	-
Cockle	11.5	8.0	5.4	7.0	7.2	10.5	6.9	-
Gaper	<0.1	-	0.1	0.2	0.4	1.0	1.8	-
Littleneck	-	-	-	-	0.1	-	0.3	-
Softshell	-	<0.1	-	0.6	-	-	-	-
Size Comp. (x size)								
Butter	-	-	-	-	-	-	-	-
Cockle	72.9	76.4	76.3	73.8	74.8	69.8	62.2	-
Gaper	-	-	116.0	130.9	121.7	85.5	79.0	-
Littleneck	-	-	-	44.0	49.0	48.0	39.5	-
Softshell	-	-	-	-	-	-	-	-
No. Clams Measured								
Butter	-	-	-	-	-	-	-	-
Cockle	159	295	154	331	109	180	217	-
Gaper	-	-	2	10	6	24	49	-
Littleneck	-	-	-	2	1	3	10	-
Softshell	-	-	-	-	-	-	-	-

Table 14. Annual summary of recreational interview data; Breakwater, Alsea Bay.

	1986	1987	1988	1989
No. Diggers Sampled	23	14	31	71
No. Clams Sampled	122	144	417	559
No. Digger Hours	25	24	42	92
Hours/trip	1.1	1.7	1.3	1.3
Clams/trip	5.3	10.3	13.5	7.9
Clams/hour	5.0	6.0	10.0	6.1
Digger Origin (%)				
Local	47.8	28.6	41.9	25.4
State	52.2	50.0	45.2	57.7
Non-state	-	21.4	12.9	16.9
Species Comp. (%)				
Butter	-	-	0.2	5.8
Cockle	89.3	81.9	98.1	44.3
Gaper	-	13.9	0.2	48.8
Littleneck	10.7	4.2	1.2	1.1
Softshell	-	-	-	-
Clams/trip				
Butter	-	-	-	0.5
Cockle	4.7	8.4	13.2	3.5
Gaper	-	1.4	-	3.8
Littleneck	0.6	0.4	0.2	0.1
Softshell	-	-	-	-
Clams/hour				
Butter	-	-	-	0.3
Cockle	4.4	4.9	9.9	2.7
Gaper	-	0.8	-	3.0
Littleneck	0.5	0.2	0.1	0.1
Softshell	-	-	-	-
Size Comp. (x size)				
Butter	47.0	-	36.0	-
Cockle	64.1	45.4	59.0	66.0
Gaper	-	120.8	69.0	71.3
Littleneck	45.1	45.8	36.2	33.3
Softshell	-	-	-	-
No. Clams Measured				
Butter	1	-	1	-
Cockle	83	138	262	222
Gaper	-	15	1	6
Littleneck	8	6	5	39
Softshell	-	-	-	-

Table 15. Annual summary of recreational interview data; Softshell, Alsea Bay.

	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	4	5	5	8	14	5	23
No. Clams Sampled	91	138	151	148	431	164	662
No. Digger Hours	6	7	10	9	23	7	36
Hours/trip	1.5	1.4	2.0	1.1	1.6	1.4	1.6
Clams/trip	22.8	27.6	30.2	18.5	30.8	32.8	28.8
Clams/hour	15.2	19.7	15.1	16.4	19.2	23.4	18.4
Digger Origin (%)							
Local	50.0	60.0	80.0	50.0	78.6	80.0	65.2
State	50.0	-	20.0	25.0	21.4	20.0	34.8
Non-state	-	40.0	-	25.0	-	-	-
Species Comp. (%)							
Butter	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-
Softshell	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Clams/trip							
Butter	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-
Softshell	22.8	27.6	30.2	18.5	30.8	32.8	28.8
Clams/hour							
Butter	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-
Softshell	15.2	19.7	15.1	16.4	19.2	23.4	18.4
Size Comp. (x size)							
Butter	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-
Softshell	96.8	94.6	95.0	97.1	94.0	99.2	85.1
No. Clams Measured							
Butter	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-
Softshell	86	135	180	102	190	158	281

Table 16. Annual summary of recreational interview data; North Fork², Siuslaw Bay.

	1971	1976	1977 ¹	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	3,203	39	51	21	42	7	115	21	33	168	70	47	42	41	129
No. Clams Sampled	72,756	1,067	1,426	670	1,140	188	3,445	875	1,163	5,418	2,297	1,704	1,453	1,388	4,107
No. Digger Hours	4,844	54	101	32	55	5	145	28	32	231	104	65	67	64	187
Hours/trip	1.5	1.4	20.	1.5	1.3	0.7	1.3	1.3	1.0	1.4	1.5	1.4	1.6	1.6	1.4
Clams/trip	22.7	27.4	28.0	31.9	27.1	26.9	30.0	41.7	35.2	34.0	32.8	36.3	34.6	33.9	31.8
Clams/hour	15.0	19.8	14.1	21.3	20.6	37.6	23.7	31.3	36.3	24.7	22.2	26.4	21.7	21.7	22.0
Digger Origin (%)															
Local	-	12.8	28.8	28.6	19.0	28.6	38.3	47.6	51.5	27.4	17.1	34.0	35.7	31.7	28.7
State	-	84.6	66.7	71.4	47.6	71.4	48.7	52.4	42.4	67.3	70.0	61.7	64.3	68.3	61.2
Non-state	-	2.6	4.4	-	33.3	-	13.0	-	9.1	5.4	12.9	4.3	-	-	10.1
Species Comp. (%)															
Butter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Softshell	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Clams/trip															
Butter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Softshell	22.7	27.4	28.0	31.9	27.1	26.9	30.0	41.7	35.2	34.0	32.8	36.3	34.6	33.9	31.8
Clams/hour															
Butter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Softshell	15.0	19.8	14.1	21.3	20.6	37.6	23.7	31.3	36.3	24.7	22.2	26.4	21.7	21.7	22.0
Size Comp. (x size)															
Butter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Softshell	-	107.4	96.5	99.0	89.5	90.0	89.4	90.7	92.8	95.0	99.2	96.1	97.8	97.1	97.5
No. Clams Measured															
Butter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Softshell	-	741	408	335	676	110	1,629	757	867	297	670	670	585	294	336

¹ Regulation change in bag limit; effective January 1, 1977.

² Includes digging on west side, east side and in North Fork of Siuslaw and near Florence.

Table 17. Annual summary of recreational interview data; Charleston Triangle, Coos Bay.

	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	40	32	20	58	91	50	96
No. Clams Sampled	771	588	410	1,193	1,647	814	1,535
No. Digger Hours	44	27	25	75	105	75	115
Hours/trip	1.1	0.8	1.2	1.3	1.2	1.5	1.2
Clams/trip	19.3	18.4	20.5	20.6	18.1	16.3	16.0
Clams/hour	17.5	22.0	16.7	16.0	15.7	10.9	13.4
Digger Origin (%)							
Local	22.5	40.6	50.0	29.3	34.1	20.0	21.9
State	72.5	56.3	35.0	62.1	47.3	52.0	68.8
Non-state	5.0	3.1	15.0	8.6	18.1	28.0	9.4
Species Comp. (%)							
Butter	19.6	10.9	13.2	2.6	13.2	11.8	2.7
Cockle	55.1	69.2	56.6	66.5	47.3	43.2	47.5
Gaper	3.9	15.0	20.5	17.5	31.3	32.9	44.9
Littleneck	23.2	4.9	9.5	8.5	5.8	8.8	5.0
Softshell	-	-	-	0.3	0.1	-	-
Clams/trip							
Butter	3.8	2.0	2.7	0.5	2.4	1.9	0.4
Cockle	10.6	12.7	11.6	13.7	8.6	7.0	7.4
Gaper	0.8	2.8	4.2	3.6	5.7	5.4	7.0
Littleneck	4.5	0.9	1.9	1.8	1.1	1.4	0.8
Softshell	-	-	-	0.1	-	-	-
Clams/hour							
Butter	3.4	2.4	2.2	0.4	2.1	1.3	0.3
Cockle	9.7	15.2	9.5	10.6	7.4	4.7	6.2
Gaper	0.7	3.3	3.4	2.8	4.9	3.6	5.9
Littleneck	4.1	1.1	1.6	1.4	0.9	1.0	0.7
Softshell	-	-	-	0.1	-	-	-
Size Comp. (x size)							
Butter	73.3	80.2	82.5	75.3	78.2	80.7	85.9
Cockle	51.2	66.3	62.6	63.2	61.2	61.4	59.1
Gaper	88.6	95.2	98.2	97.3	99.1	103.3	98.7
Littleneck	55.2	57.6	61.3	61.1	58.9	62.1	64.8
Softshell	-	-	-	-	-	-	-
No. Clams Measured							
Butter	39	17	52	15	118	88	30
Cockle	45	218	185	175	298	149	169
Gaper	26	54	67	30	187	165	158
Littleneck	18	159	41	51	64	63	29
Softshell	-	-	-	-	-	-	-

Table 18. Annual summary of recreational interview data; Charleston Flat, Coos Bay.

	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	60	27	18	100	113	97	61
No. Clams Sampled	859	435	341	1,980	2,145	1,523	974
No. Digger Hours	125	29	32	180	185	176	103
Hours/trip	2.1	1.1	1.8	1.8	1.6	1.8	1.7
Clams/trip	14.3	16.1	18.9	19.8	19.0	15.7	16.0
Clams/hour	6.9	15.1	10.7	11.0	11.6	8.7	9.5
Digger Origin (%)							
Local	21.7	40.7	16.7	35.0	28.3	20.6	14.8
State	73.3	51.9	38.9	57.0	48.7	66.0	68.9
Non-state	5.0	7.4	44.4	8.0	23.0	13.4	16.4
Species Comp. (%)							
Butter	2.0	4.6	6.7	2.8	2.7	10.2	4.8
Cockle	46.6	60.9	72.4	83.3	63.9	35.4	31.8
Gaper	38.8	27.6	17.3	8.8	26.2	42.5	47.7
Littleneck	10.6	3.7	3.5	4.1	4.7	10.8	14.5
Softshell	-	3.0	-	0.1	-	0.4	1.3
Clams/trip							
Butter	0.3	0.7	1.3	0.6	0.5	1.6	0.7
Cockle	6.7	9.8	13.7	16.5	12.1	5.6	4.9
Gaper	5.6	4.4	3.3	1.8	5.0	6.7	7.3
Littleneck	1.5	0.6	0.7	0.8	0.9	1.7	2.2
Softshell	-	0.5	-	<0.1	-	0.1	0.2
Clams/hour							
Butter	0.1	0.7	0.7	0.3	0.3	0.9	0.4
Cockle	3.2	9.2	7.7	9.2	7.4	3.1	2.9
Gaper	2.7	4.6	1.8	1.0	3.0	3.7	4.3
Littleneck	0.7	0.6	0.4	0.5	0.5	0.9	1.3
Softshell	-	-	-	<0.1	-	-	0.1
Size Comp. (x size)							
Butter	84.0	78.1	75.0	78.9	81.3	78.3	93.7
Cockle	59.9	63.2	62.2	66.9	65.6	62.3	62.6
Gaper	100.6	105.9	110.1	109.1	109.0	106.9	102.4
Littleneck	55.0	65.0	62.2	60.5	58.4	65.8	59.3
Softshell	-	-	-	-	-	-	-
No. Clams Measured							
Butter	1	13	20	43	44	86	39
Cockle	38	92	247	234	128	193	163
Gaper	13	80	58	70	188	271	109
Littleneck	3	2	13	30	86	96	102
Softshell	-	-	-	-	-	-	-

Table 19. Annual summary of recreational interview data; Pigeon Point, Coos Bay.

	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	111	43	10	68	64	24	59
No. Clams Sampled	1,681	679	190	1,160	1,003	444	927
No. Digger Hours	95	70	19	145	119	42	105
Hours/trip	0.9	1.6	1.9	2.1	1.9	1.8	1.8
Clams/trip	15.1	15.8	19.0	17.1	15.7	18.5	15.7
Clams/hour	17.7	9.7	10.0	8.0	8.4	10.6	8.9
Digger Origin (%)							
Local	45.9	65.1	20.0	51.5	32.8	41.7	23.7
State	48.6	27.9	60.0	41.2	51.6	58.3	61.0
Non-state	5.4	7.0	20.0	7.4	15.6	-	15.3
Species Comp. (%)							
Butter	27.1	36.4	47.9	56.5	48.6	44.8	40.5
Cockle	0.7	8.0	2.1	1.3	6.0	-	4.5
Gaper	51.2	32.7	10.0	17.2	11.1	15.3	3.0
Littleneck	20.9	22.5	39.5	24.1	33.3	32.9	51.9
Softshell	-	0.6	-	0.8	-	0.7	-
Clams/trip							
Butter	4.1	5.4	9.1	9.6	7.6	8.3	6.4
Cockle	0.1	1.3	0.4	0.2	0.9	-	0.7
Gaper	7.7	5.2	1.9	2.9	1.7	2.8	0.5
Littleneck	3.2	3.6	7.5	4.1	5.2	6.1	8.1
Softshell	-	0.1	-	0.1	-	0.1	-
Clams/hour							
Butter	4.8	3.5	4.8	4.5	4.1	4.7	3.6
Cockle	0.1	0.8	0.2	0.1	0.5	-	0.4
Gaper	9.1	3.2	1.0	1.4	0.9	1.6	0.3
Littleneck	3.7	2.2	3.9	1.9	2.8	3.5	4.6
Softshell	-	0.1	-	0.1	-	0.1	-
Size Comp. (x size)							
Butter	85.9	84.8	84.3	84.0	87.2	81.0	76.0
Cockle	37.9	-	40.0	-	-	-	-
Gaper	108.0	104.5	85.3	107.9	102.6	109.5	92.1
Littleneck	67.2	62.0	60.6	63.3	54.6	58.6	57.2
Softshell	-	-	-	-	-	-	-
No. Clams Measured							
Butter	44	93	51	145	186	108	214
Cockle	7	-	4	-	-	-	-
Gaper	46	52	19	15	82	20	42
Littleneck	9	50	74	22	172	29	234
Softshell	-	-	-	-	-	-	-

Table 20. Annual summary of recreational interview data; North Spit, Coos Bay.

	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	65	50	29	163	103	111	122
No. Clams Sampled	692	746	449	2,262	1,492	1,506	1,574
No. Digger Hours	93	82	59	246	151	164	171
Hours/trip	1.4	1.6	2.0	1.5	1.5	1.5	1.4
Clams/trip	10.7	14.9	15.5	13.9	14.5	13.6	12.9
Clams/hour	7.4	9.2	7.6	9.2	9.9	9.2	9.2
Digger Origin (%)							
Local	72.3	68.0	37.9	65.0	68.0	70.3	86.1
State	27.7	28.0	58.6	32.5	27.2	27.0	13.9
Non-state	-	4.0	3.4	2.5	4.9	2.7	-
Species Comp. (%)							
Butter	3.5	6.4	5.1	6.7	7.9	3.3	0.1
Cockle	17.6	22.0	17.1	13.7	18.1	17.7	8.8
Gaper	75.3	65.5	74.6	73.7	66.4	75.5	90.2
Littleneck	3.6	6.0	2.4	3.9	2.7	2.3	0.9
Softshell	-	-	-	-	0.1	0.1	-
Clams/trip							
Butter	0.4	1.0	0.8	0.9	1.1	0.4	-
Cockle	1.9	3.3	2.7	1.9	2.6	2.4	1.1
Gaper	8.0	9.8	11.6	10.2	9.6	10.2	11.3
Littleneck	0.4	0.9	0.4	0.5	0.4	0.3	0.1
Softshell	-	-	-	-	<0.1	-	-
Clams/hour							
Butter	0.3	0.6	0.4	0.6	0.8	0.3	-
Cockle	1.3	2.0	1.3	1.3	1.8	1.6	0.8
Gaper	5.6	6.0	5.7	6.8	6.6	6.9	8.0
Littleneck	0.3	0.6	0.2	0.4	0.3	0.2	0.1
Softshell	-	-	-	-	<0.1	-	-
Size Comp. (x size)							
Butter	-	77.0	81.8	87.0	85.2	85.8	78.0
Cockle	67.7	62.2	65.1	64.4	60.2	78.5	75.7
Gaper	109.6	111.2	100.5	122.7	114.6	113.9	117.8
Littleneck	72.0	59.5	46.5	64.4	60.6	60.8	66.4
Softshell	--	-	-	-	-	-	-
No. Clams Measured							
Butter	-	28	9	21	65	46	2
Cockle	20	39	29	62	104	133	105
Gaper	185	138	117	71	159	107	172
Littleneck	2	28	2	14	37	34	7
Softshell	-	-	-	-	-	-	-

Table 21. Annual summary of recreational interview data; Clam Island, Coos Bay.

	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	57	462	11	76	116	66	65
No. Clams Sampled	1,002	7,931	208	1,097	1,777	987	1,111
No. Digger Hours	82	737	15	98	134	88	103
Hours/trip	1.4	1.9	1.4	1.3	1.2	1.3	1.6
Clams/trip	17.6	17.2	18.9	14.4	15.3	15.0	17.1
Clams/hour	12.2	10.8	13.9	11.3	13.3	11.2	10.8
Digger Origin (%)							
Local	36.8	51.5	81.8	52.6	53.4	48.5	44.6
State	57.9	46.3	18.2	46.1	37.9	39.4	53.8
Non-state	5.3	2.2	-	1.3	8.6	12.1	1.5
Species Comp. (%)							
Butter	2.88	4.6	26.9	0.4	5.5	1.5	1.1
Cockle	36.5	33.7	12.5	26.7	26.6	19.7	31.9
Gaper	54.2	59.8	54.3	72.0	66.6	76.8	62.8
Littleneck	1.1	1.8	6.2	0.9	1.3	1.7	4.2
Softshell	5.4	-	-	-	-	-	-
Clams/trip							
Butter	0.5	0.8	5.1	0.1	0.8	0.2	0.2
Cockle	6.4	5.8	2.4	3.9	4.1	2.9	5.4
Gaper	9.5	10.3	10.3	10.4	10.2	11.5	10.7
Littleneck	0.2	0.3	1.2	0.1	0.2	0.3	0.7
Softshell	1.0	-	-	-	-	-	-
Clams/hour							
Butter	0.3	0.5	3.7	-	0.7	0.2	0.1
Cockle	4.5	3.6	1.7	3.0	3.5	2.2	3.5
Gaper	6.6	6.4	7.5	8.1	8.8	8.6	6.8
Littleneck	0.1	0.2	0.9	0.1	0.2	0.2	0.5
Softshell	0.7	-	-	-	-	-	-
Size Comp. (x size)							
Butter	78.7	95.0	89.5	97.0	86.3	-	90.2
Cockle	54.1	76.8	69.4	80.1	71.0	66.9	72.9
Gaper	107.7	121.0	119.2	118.8	115.7	117.8	117.1
Littleneck	55.5	68.0	66.9	-	61.9	63.8	61.0
Softshell	-	-	-	-	-	-	-
No. Clams Measured							
Butter	6	1	55	1	9	-	12
Cockle	8	12	25	43	102	105	167
Gaper	46	56	108	136	170	194	205
Littleneck	4	1	13	-	9	22	41
Softshell	-	-	-	-	-	-	-

Table 22. Annual summary of recreational interview data; all estuaries combined.

	1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
No. Diggers Sampled	453	721	4,165	847	1,603	1,284	1,276	870	1,506	1,800	898	1,392	1,508	1,324	1,549
No. Clams Sampled	8,837	15,085	62,963	14,008	24,697	21,601	19,610	12,928	22,189	33,916	14,614	24,691	25,313	21,986	26,708
No. Digger Hours	-	1,101	6,833	1,187	1,986	1,718	1,606	1,104	2,113	2,589	1,303	2,128	2,154	1,876	2,259
Hours/trip	-	1.5	1.6	1.4	1.2	1.3	1.3	1.3	1.4	1.4	1.5	1.5	1.4	1.4	1.5
Clams/trip	19.5	20.9	15.1	16.5	15.4	16.8	15.4	14.9	14.7	18.8	16.3	17.7	16.8	16.6	17.2
Clams/hour	-	13.7	9.2	11.8	12.4	12.6	12.2	11.7	10.5	13.1	11.2	11.6	11.8	11.7	11.8
Digger Origin (%)															
Local	-	25.5	30.5	29.0	29.3	22.9	30.6	40.5	33.6	42.7	37.8	36.9	35.6	33.2	32.6
State	-	66.6	64.4	62.8	63.8	70.5	60.0	54.0	60.7	52.7	53.7	56.7	53.4	56.7	58.2
Non-state	-	7.9	5.1	8.3	7.0	6.6	9.4	5.5	5.7	4.7	8.6	6.4	10.9	10.1	9.2
Species Comp. (%)															
Butter	12.9	11.1	7.3	5.2	8.5	12.8	15.8	16.2	9.9	7.8	10.6	13.3	15.3	16.5	19.4
Cockle	58.7	48.2	46.9	56.6	53.1	44.3	29.3	31.3	31.2	22.7	32.2	40.7	41.7	37.7	26.8
Gaper	19.1	20.9	32.5	26.9	25.1	17.9	24.9	31.8	35.6	26.1	23.6	20.8	24.0	20.0	19.8
Littleneck	9.3	12.5	7.5	5.8	6.5	7.5	9.9	8.1	7.8	6.2	5.0	6.7	5.2	14.1	11.9
Softshell	0.1	7.2	5.8	5.5	6.7	17.5	20.1	12.5	15.4	37.2	28.7	17.1	12.4	9.3	20.9
Clams/trip															
Butter	2.5	2.3	1.0	0.9	1.3	2.2	2.4	2.4	1.4	1.5	1.7	2.4	2.6	2.7	3.4
Cockle	11.3	10.0	6.6	9.3	8.1	7.4	4.5	4.6	4.5	4.3	5.1	7.2	7.0	6.3	4.6
Gaper	3.7	4.4	4.6	4.4	3.8	3.0	3.8	4.7	5.1	4.9	3.8	3.7	4.0	3.3	3.4
Littleneck	1.8	2.6	1.1	1.0	1.0	1.3	1.5	1.2	1.1	1.2	0.8	1.2	0.9	2.3	2.0
Softshell	<0.1	1.5	0.8	0.9	1.0	2.9	3.1	1.9	2.2	6.9	4.6	3.0	2.1	1.5	3.6
Clams/hour															
Butter	-	1.5	0.6	0.6	1.0	1.6	1.9	1.9	1.0	1.0	1.2	1.5	1.8	1.9	2.3
Cockle	-	6.6	4.0	6.6	6.5	5.6	3.6	3.6	3.2	3.0	3.5	4.7	4.9	4.4	3.2
Gaper	-	2.9	2.8	3.1	3.1	2.2	3.0	3.7	3.6	3.4	2.6	2.4	2.8	2.3	2.3
Littleneck	-	1.7	0.6	0.7	0.3	0.9	1.2	1.0	0.8	0.8	0.5	0.8	0.6	1.7	1.4
Softshell	-	1.0	0.5	0.6	0.8	2.2	2.4	1.5	1.6	4.8	3.2	2.0	1.5	1.1	2.5
Size Comp. (x size)															
Butter	79.6	81.1	82.4	90.7	78.9	69.2	78.1	75.1	71.0	79.5	76.5	79.8	83.0	83.9	78.5
Cockle	61.4	63.2	62.3	62.6	63.1	60.2	55.3	63.2	60.8	62.0	64.2	63.3	61.9	63.9	63.5
Gaper	104.1	89.5	90.7	95.5	93.0	98.0	104.3	101.4	103.6	104.2	108.0	111.6	107.9	110.3	110.4
Littleneck	42.2	45.8	40.3	44.8	47.0	39.8	44.2	40.2	41.4	50.1	66.5	47.7	53.2	52.0	51.8
Softshell	-	95.5	101.9	83.3	89.5	86.4	88.2	81.8	87.7	86.0	88.4	91.0	92.7	87.9	87.5
No. Clams Measured	3,615	7,441	11,743	5,096	8,643	6,661	5,372	4,044	6,774	5,152	7,438	6,997	6,403	5,990	6,853

Table 23. Peak counts of clam diggers¹.

Estuary	Tideflat	1976	1977 ¹	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989
Tillamook	Garibaldi Flat	350	131	225	256	300	460	516	487	350	118	380	400	257	547
	Bay Ocean	280	122	39	107	-	33	13	10	4	-	17	3	-	-
Netarts	Happy Camp	175	73	-	150	160	425	500	478	200	191	314	265	116	163
Nestucca	Little Nestucca	-	-	-	-	-	44	6	12	6	8	8	-	-	-
Yaquina	Bridge Bed	245	138	30	91	84	225	625	275	84	107	204	225	110	235
	Breakwater Bed	127	120	62	23	20	27	63	26	28	25	30	46	17	63
	Idaho Point	110	98	45	66	61	38	176	46	35	31	50	56	39	29
	NW Gas Plant	-	-	-	24	26	41	16	12	10	11	34	20	10	11
	Coquille Point	-	-	-	17	18	45	41	20	5	9	14	7	4	11
Alsea	North Beach	-	-	-	-	-	-	4	3	-	5	0	13	18	14
	Bay Shore	-	-	-	-	-	-	49	31	14	20	10	15	44	7
	Waldport Breakwater	-	-	-	-	-	-	12	9	-	22	22	4	45	29
Siuslaw	North Fork	55	-	-	109	57	146	33	22	43	41	44	56	45	95
Coos Bay	Charleston Triangle	-	-	-	-	-	-	-	31	24	41	39	87	82	59
	Charleston Flat	-	-	-	-	-	-	-	64	30	26	27	66	103	54
	Peterson Flat	-	-	-	-	-	-	-	5	-	2	15	14	4	7
	Fossil Point	-	-	-	-	-	-	-	38	-	0	44	-	-	-
	Pigeon Point	-	-	-	-	-	-	-	62	50	42	67	97	52	51
	Empire Flat	-	-	-	-	-	-	-	20	-	19	22	44	12	36
	Hanson's Marina	-	-	-	-	-	-	-	5	3	4	-	-	-	6
	Clam Island	-	-	-	-	-	-	-	-	58	-	86	119	93	101
North Spit	-	-	-	-	-	-	-	-	-	-	83	158	102	135	
Bandon	Softshell Bed	-	-	-	-	-	-	-	-	-	-	50	-	-	-

¹ Number of clam diggers actually on tideflat at time of count. Count occurred at or near low tide.

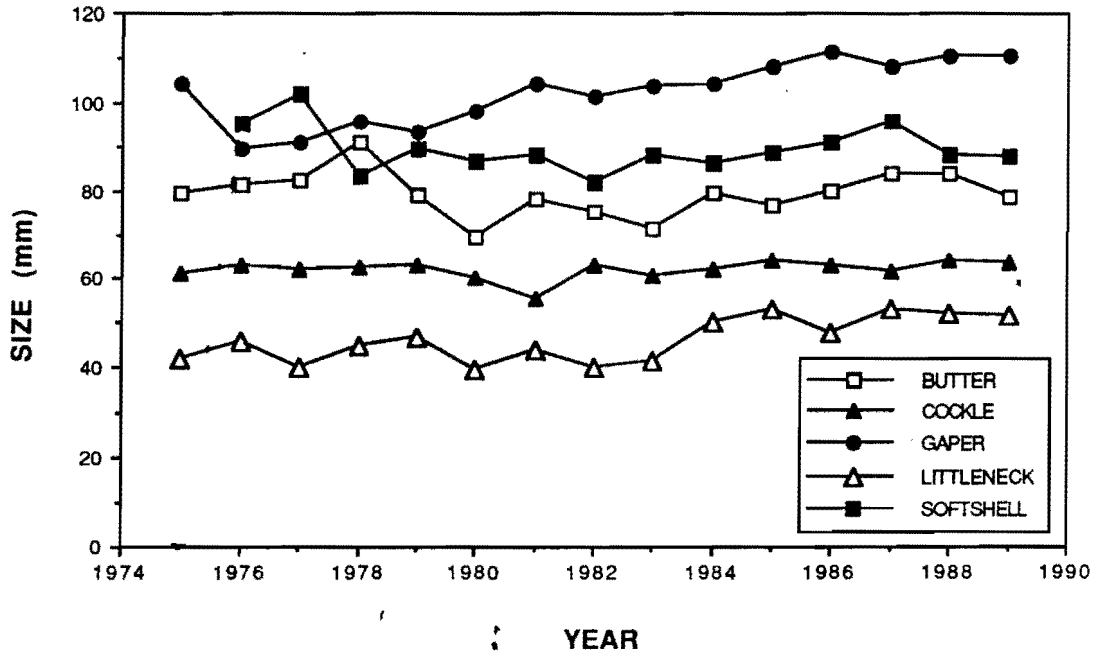


Figure 1. Length composition of recreationally harvested bay clams, all bays combined, 1975-89.

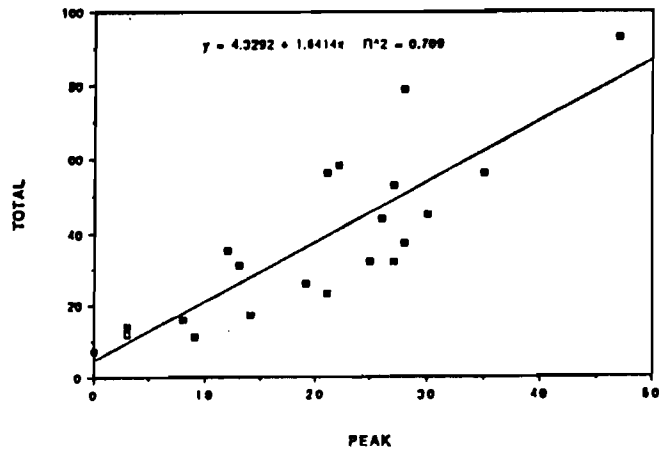
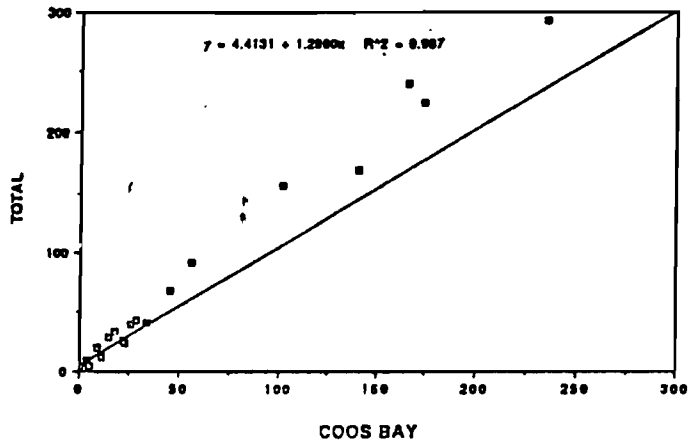
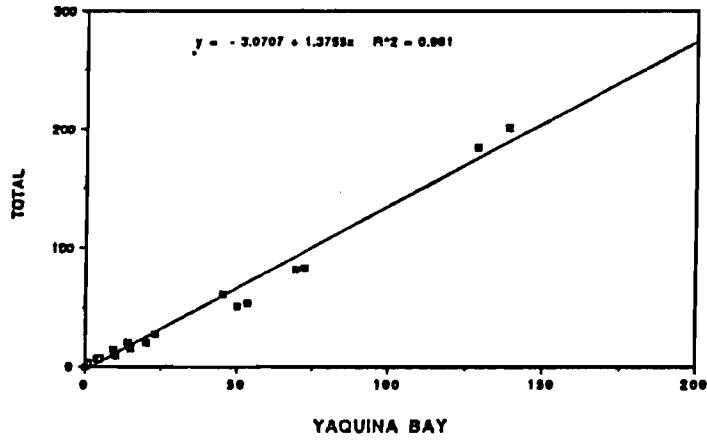
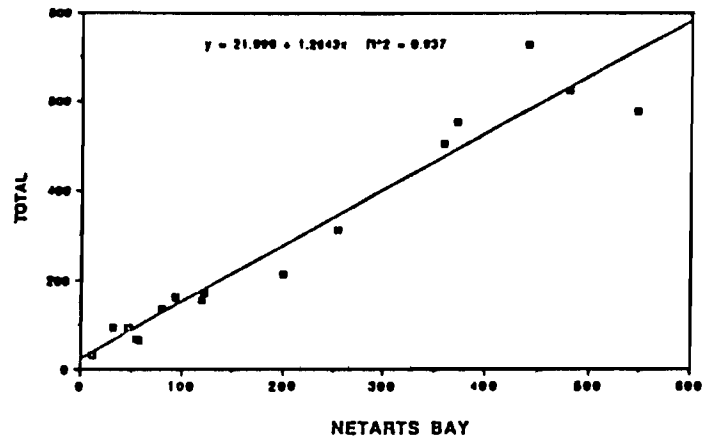


Figure 2. Correlation between peak digger counts and total digger counts, 1989.

Table 24. Oregon commercial clam harvest in pounds, 1970-89.

Year	Harvest (lb)	No. Diggers	No. Landings	Ave. lb/ landing	No. Permits Issued
1970	25,884	40	258	100.3	0
1971	28,526	50	230	124.0	0
1972	61,523	37	354	174.8	0
1973	17,156	19	187	91.7	0
1974	16,315	23	182	39.6	0
1975	25,908	19	116	227.3	0
1976	88,054	7	97	946.8	0
1977	85,733	29	155	304.0	0
1978	216,926	15	218	943.2	0
1979	94,912	19	128	741.5	0
1980	80,467	36	176	442.1	0
1981	81,138	30	336	222.5	0
1982	134,105	46	538	245.3	0
1983	136,185	41	811	168.0	0
1984	120,574	30	704	171.3	0
1985	99,254	44	614	161.7	65
1986	82,829	36	664	124.7	65
1987	46,283	34	385	120.2	121
1988	44,696	28	258	173.2	136
1989	60,482	24	221	273.7	111

Table 25. Summary of pounds of bay clams reported commercially harvested in Oregon by species, 1970-89.

Year	Butter	Cockle	Gaper	Littleneck	Softshell	Macoma	Total
1970	885	12,257	1,218	863	10,661	0	25,884
1971	217	9,391	10,345	639	7,714	220	28,526
1972	52	7,269	34,006	1,406	18,772	0	61,505
1973	95	5,756	185	9,771	1,349	0	17,156
1974	412	6,073	0	8,987	843	0	16,315
1975	0	6,855	15,024	4,311	360	0	26,550
1976	816	322	85,831	455	630	0	88,054
1977	607	859	81,775	232	1,366	894	85,733
1978	1,452	6,717	207,685	1,056	52	0	216,962
1979	606	2,299	91,028	0	979	0	94,912
1980	40	2,244	74,459	4,268	456	0	81,467
1981	2,409	4,580	68,508	4,892	749	0	81,138
1982	3,654	10,517	106,440	13,231	248	0	134,090
1983	4,035	2,579	95,091	34,444	36	0	136,185
1984	4,842	17,912	50,573	46,874	366	0	120,567
1985	1,646	29,412	20,121	46,266	1,809	0	99,254
1986	2,862	31,681	17,021	27,487	3,558	0	82,609
1987	3,046	20,202	6,368	14,140	2,527	0	46,283
1988	2,492	30,068	3,816	6,884	1,436	0	44,696
1989	3,806	44,344	5,164	6,032	1,136	0	60,482

Table 26. Summary of pounds of bay clams reported commercially harvested in major Oregon estuaries, 1970-89.

Year	Nehalem	Tillamook	Netarts	Yaquina	Alsea	Siuslaw	Umpqua	Coos	Coquille	Total
1970	258	7,819	2,210	444	0	0	10,631	4,522	0	25,884
1971	589	6,168	1,598	1,819	0	0	7,459	10,893	0	28,526
1972	80	9,637	914	57	70	0	6,105	44,642	0	61,505
1973	329	11,997	1,191	0	0	0	786	2,853	0	17,156
1974	882	9,309	2,049	398	0	0	445	3,232	0	16,315
1975	0	4,637	0	0	13	0	309	21,553	38	26,550
1976	0	998	0	0	480	0	0	86,576	0	88,054
1977	0	2,619	0	71,013	0	0	35	12,066	0	85,733
1978	0	3,111	0	172,047	0	0	0	41,804	0	216,962
1979	174	433	0	74,565	0	3,432	0	16,308	0	94,912
1980	373	5,320	486	244	0	9,109	0	65,935	0	81,467
1981	65	4,259	0	128	0	684	0	76,002	0	81,138
1982	10,862	11,501	37	15	0	223	25	111,427	0	134,090
1983	31,856	3,144	200	5,253	0	15	0	95,717	0	136,185
1984	23,069	42,663	0	22	0	50	0	54,763	0	120,567
1985	40,349	34,148	240	0	0	895	268	23,030	324	99,254
1986	30,545	28,737	480	6	0	1,206	0	19,557	2,078	82,609
1987	10,723	22,936	0	1,114	250	654	0	10,214	392	46,283
1988	0	34,450	0	1,153	230	1,200	28	7,086	549	44,696
1989	80	49,650	0	2,790	993	600	150	6,183	36	60,482

Table 27. Summary of experimental Manila littleneck clam plants in Coos Bay, 1973-89.

Plot No.	Subplot No.	Planting Date	Number Released	Size at Release (mm)	Planting Density (ft ²)	Sample Date	Recovery Size (mm)	Survival (%)
1	1	8/17/73	11,550	7.1	50	5/8/74	-	0.0
2	1	8/17/73	11,500	7.0	50	5/8/74	-	0.0
3	1	12/19/84	12,660 ¹	31.0	10.3	5/8/85	32.3	39.8
						7/19/85	35.8	35.0
						5/29/86	40.1	10.0
						2/24/87	41.4	10.7
						4/13/88	43.5	6.9
4	1	7/19/85	17,000 ²	12.2	100	5/29/86	23.2	100+
						2/24/87	33.3	85.0
						4/13/88	41.3	82.7
5	1	8/20/86	100,000 ²	6.7	100	2/24/87	12.5	88.7
						4/13/88	32.1	30.0
						7/20/89	43.1	24.0
6	1	8/20/86	3,300	6.7	132	2/24/87	12.5	78.8
						4/13/88	26.2	6.8
						7/20/89	32.4	0.8
7	1	8/20/86	10,000	6.7	100	2/24/87	10.9	30.0
						4/13/88	20.8	1.3
8	1	9/19/86	10,000 ²	10.0	100	4/20/87	17.3	34.4
						4/13/88	38.5	12.3
9	1	9/19/86	10,000	10.0	100	4/20/87	13.3	0.8
						4/13/88	-	0.0

¹ Planted as adult clams.

² Planted under "Vexar" netting.

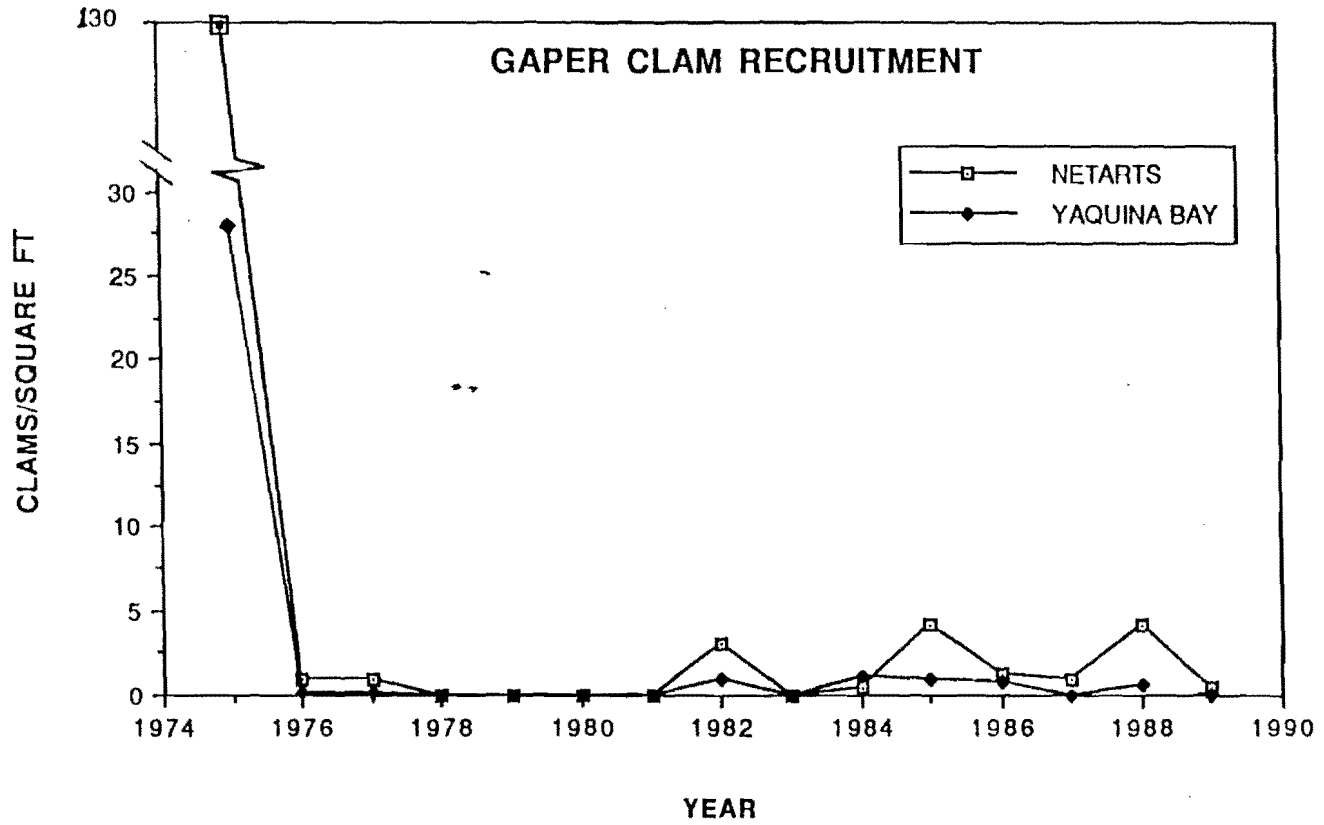


Figure 3. Recruitment of gaper clams in Netarts and Yaquina bays, 1975-89.