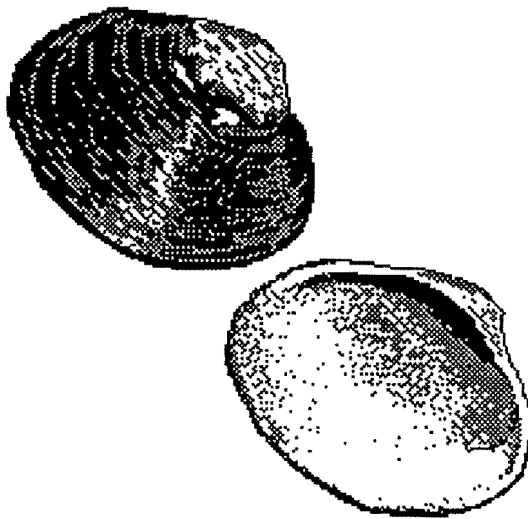


OREGON DEPARTMENT  
OF  
FISH AND WILDLIFE

BAY CLAM  
DATA SERIES REPORT

1991



1991 BAY CLAM DATA SERIES REPORT

by

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## **1991 BAY CLAM DATA SERIES REPORT**

### **INTRODUCTION**

This report summarizes the results of our bay clam studies in 1991. Activities summarized include recreational and commercial clam fishery monitoring and hatchery stock enhancement. 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 of 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. Also, the lower Umpqua triangle was added for 1991. 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 the softshell clams.

Interview data collected includes catch/effort, digger origin, species composition, and length frequency. These data are presented for each tideflat in Appendix Tables 1-22. Table 23 summarizes the recreational activities presented in Tables 1-22 and Table 24 shows the peak counts of clam diggers taken at low tide for each of the surveyed tideflats.

In 1991, we interviewed 1,131 clam diggers that expended 1,662 hours to harvest 19,059 clams (Table 23). The clam diggers averaged 16.9 clams/trip and 11.5 clams/hour. Digging success was somewhat better than in 1990 when 16.8 clams per trip and 11.3 clams per hour were taken. The Commission approved a reduction in bag limit in 1977 from 36 to 20 and since that time the digger harvest has ranged between 14.7 and 18.8 clams/trip. Prior to the bag reduction, clam diggers averaged 20.9 clams/trip.

Oregon clam diggers normally travel some distance to harvest clams. In 1991, 41.1% of the diggers were local county residents, 45.6% were from Oregon but living outside the county of harvest, and 13.3% were out-of-state residents (Table 23). However, the number of local clam diggers increased by almost 10% over 1990.

The cockle clam was, as usual, the most frequently observed species in the recreational fishery representing 28.9% of the 1991 harvest (Table 23). Gaper, littleneck, softshell and butter clams comprised 24.2, 18.5, 18.2, and 10.3% of the bag respectively.

Data collected on length composition since 1979 has revealed only minor variations in overall average size for each species (Figure 1). Gaper, softshell, butter, cockle, and littleneck clams averaged 120.0, 89.0, 81.6, 63.0, and 46.3 mm in 1991 respectively.

Changes in digging effort through time as reflected by digger counts revealed digging effort significantly reduced compared to 1990 (Table 24). The peak count summary for 1991 was 781 diggers compared to 1,678 for 1990.

The Umpqua Triangle, located at the mouth of the Umpqua River has developed into an exciting new clam digging area and has been added to our annual clam creel census check areas. A "triangle" was created in 1980 when the "training" jetty was extended to join with the south jetty. The area is now protected from river current and wave action and apparently now has the correct habitat and growing conditions for hardshell clams.

## **COMMERCIAL CLAM HARVEST**

We issued 126 permits to commercial fishermen to harvest bay clams in 1991 (Table 25). Forty fishermen reported landings of 87,842 lbs of clams. In 1990, 38 fishermen reported landings of 72,756 lbs. Cockle clams represented the bulk of the commercial catch in 1991 at 58,282 lbs (66.3%) (Table 26). Tillamook Bay was the major producer of bay clams in Oregon with 50,860 lbs (57.9%). The Coos, Umpqua, and Netarts estuaries followed in order producing 12,501, 8,322, and 7,451 lbs of clams in 1991 respectively (Table 27).

Commercial harvest in the Umpqua increased dramatically in 1991 with 8,322 lbs of clams harvested compared to 3,432 lbs in 1990. The eastern softshell is the only clam species taken in the Umpqua which represented 90.3% of the state's total softshell harvest for 1991.

## **SPECIAL STUDIES**

### **Hatchery Stock Enhancement**

#### **Coquille Bay**

We planted 50,000 juvenile Manila littleneck clams in a backwater area behind the south jetty in the Coquille estuary in July of 1991. It was an effort to establish a reproducing Manila population that would enhance recreational clam digging opportunities. The Port of Coquille was a major cooperator in this project and ODFW received much good media coverage as a result.

## **ACKNOWLEDGMENTS**

I wish to thank Tom Gaumer, Jim Golden, Bob Hannah, Terry Link, Steve Jones, and Neil Richmond for their assistance in gathering the data used in this report.



## APPENDIX

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

	1976	1977 <sup>1</sup>	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	207	252	239	597	456	359	219	132	200	107	290	277	421	476	450	272
No. Clams Sampled	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	8,665	4,879
No. Digger Hours	283	336	261	715	549	443	220	158	243	143	311	312	452	631	568	354
Hours/trip	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	1.3	1.3
Clams/trip	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	19.3	17.9
Clams/hour	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	15.3	13.8
Digger Origin (%)																
Local	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	17.6	30.1
State	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	79.8	60.3
Non-state	-	-	-	-	-	-	4.1	15.4	2.5	5.6	3.4	8.7	7.8	9.9	2.7	9.6
Species Comp. (%)																
Butter	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	49.0	17.8
Cockle	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	35.9	18.5
Gaper	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	1.5	1.3
Littleneck	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	13.4	62.4
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams/trip																
Butter	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	9.4	3.2
Cockle	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	6.9	3.3
Gaper	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	0.3	0.2
Littleneck	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	2.6	11.2
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams/hour																
Butter	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	7.5	2.5
Cockle	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	5.5	2.6
Gaper	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	0.2	0.2
Littleneck	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	2.0	8.6
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Size Comp. (x size)																
Butter	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	69.5	80.5
Cockle	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	54.4	56.6
Gaper	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	98.2	92.9
Littleneck	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	39.8	44.0
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
No. Clams Measured																
Butter	536	394	145	555	304	413	379	481	203	241	231	110	263	255	305	322
Cockle	978	1,517	637	1,501	535	254	389	407	240	267	360	88	271	259	303	315
Gaper	349	538	84	327	111	81	7	21	2	17	5	31	27	72	124	32
Littleneck	518	862	233	171	187	251	392	461	236	131	322	142	246	266	273	345
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

<sup>1</sup> Regulation change in bag limit; effective January 1, 1977.

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

	1976	1977 <sup>1</sup>	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	141	187	146	222	106	71	168	280	84	99	60	103	108	91	62	27
No. Clams Sampled	1,709	2,727	1,747	2,823	1,293	991	2,020	2,994	1,009	1,010	579	709	1,068	870	398	390
No. Digger Hours	193	254	149	204	68	67	151	290	84	124	92	205	209	182	92	48
Hours/trip	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	1.5	1.5
Clams/trip	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	6.4	14.4
Clams/hour	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	4.3	8.1
Digger Origin (%)																
Local	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	16.1	55.6
State	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	51.6	37.0
Non-state	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	32.3	7.4
Species Comp. (%)																
Butter	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	16.3	14.8	52.6
Cockle	0.1	21.9	-	-	0.1	-	<0.1	0.1	4.0	0.4	2.1	2.1	3.4	1.8	1.3	10.5
Gaper	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	81.4	31.8
Littleneck	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	2.5	5.1
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams/trip																
Butter	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	1.0	7.6
Cockle	<0.1	3.2	-	-	<0.1	-	<0.1	<0.1	0.5	<0.1	0.2	0.1	0.3	0.2	0.1	1.5
Gaper	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	5.2	4.6
Littleneck	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	0.2	0.7
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams/hour																
Butter	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	0.6	4.3
Cockle	<0.1	2.3	-	-	<0.1	-	<0.1	<0.1	0.5	<0.1	0.1	0.1	0.2	0.1	0.1	0.9
Gaper	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	3.5	2.6
Littleneck	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	0.1	0.4
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Size Comp. (x size)																
Butter	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	108.9	108.8
Cockle	-	-	-	-	-	-	-	31.0	-	54.0	47.6	-	83.1	63.7	55.6	-
Gaper	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	123.1	128.5
Littleneck	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	69.4	71.0
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
No. Clams Measured																
Butter	219	-	-	-	24	109	62	6	32	20	45	26	179	151	55	185
Cockle	-	-	-	-	-	-	-	1	-	1	8	-	57	3	5	-
Gaper	643	557	921	417	468	454	565	338	240	436	405	20	322	213	80	116
Littleneck	99	28	54	34	3	22	9	4	29	12	28	27	69	83	10	19
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> Regulation change in bag limit; effective January 1, 1977.

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

	1976	1977 <sup>1</sup>	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	76	509	72	85	63	80	56	118	71	52	42	71	147	100	117	35
No. Clams Sampled	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	2,314	387
No. Digger Hours	148	1,055	149	178	89	150	83	197	87	85	92	151	237	196	232	43
Hours/trip	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	2.0	1.2
Clams/trip	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	19.8	11.1
Clams/hour	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	10.0	9.1
Digger Origin (%)																
Local	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	31.6	8.6
State	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	64.1	57.1
Non-state	-	10.6	-	2.3	6.3	7.5	3.6	8.5	4.2	1.9	28.6	11.3	14.3	13.0	4.3	34.3
Species Comp. (%)																
Butter	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	13.9	9.8
Cockle	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	68.0	34.6
Gaper	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	11.9	52.5
Littleneck	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	0.6	0.8
Softshell	-	-	-	-	-	-	-	-	1.8	-	-	-	-	-	3.2	2.3
Clams/trip																
Butter	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	2.7	1.1
Cockle	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	13.4	3.8
Gaper	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	2.4	5.8
Littleneck	1.0	0.4	0.2	0.7	-	0.3	0.5	0.5	<0.1	0.3	-	0.2	0.2	1.3	0.1	0.1
Softshell	-	-	-	-	-	-	-	-	0.4	-	-	-	-	-	0.6	0.3
Clams/hour																
Butter	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	1.4	0.9
Cockle	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	6.8	3.2
Gaper	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	1.2	4.8
Littleneck	0.5	0.2	0.1	0.3	-	0.2	0.3	0.3	<0.1	0.2	-	0.1	0.1	0.7	0.1	0.1
Softshell	-	-	-	-	-	-	-	-	0.3	-	-	-	-	-	0.3	0.2
Size Comp. (x size)																
Butter	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	77.6	65.7
Cockle	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	74.0	75.7
Gaper	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	110.7	124.1
Littleneck	-	-	57.9	53.7	-	53.3	49.5	42.2	52.5	57.1	47.0	56.4	51.8	49.7	64.2	41.1
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	91.3
No. Clams Measured																
Butter	294	80	11	86	20	49	3	27	133	110	49	151	55	227	95	56
Cockle	674	851	555	812	525	486	534	238	240	542	277	223	222	380	201	181
Gaper	36	170	144	191	44	48	71	15	18	-	12	4	56	93	47	45
Littleneck	-	-	12	60	-	13	26	53	2	14	1	5	10	94	6	21
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11

<sup>1</sup> Regulation change in bag limit; effective January 1, 1977.

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

	1971	1977 <sup>1</sup>	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	1,466	34	16	38	23	22	22	62	23	14	2	1	13	6	14
No. Clams Sampled	23,211	1,049	484	1,120	357	653	623	1,386	561	431	57	26	385	158	361
No. Digger Hours	1,584	43	21	72	27	31	34	94	38	27	6	3	26	14	28
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	2.3	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	26.3	25.8
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	11.3	12.9
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	33.3	7.1
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	66.7	92.9
Non-state	14.1	-	18.8	13.2	-	9.1	4.6	19.4	43.5	-	-	-	38.5	0.0	0.0
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	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	26.3	25.8
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	11.3	12.9
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	88.2	78.5
No. Clams Measured															
Butter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Softshell	-	250	332	254	163	547	300	240	132	116	-	26	238	81	164

<sup>1</sup> Regulation change in bag limit; effective January 1, 1977.

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

	1976	1977 <sup>1</sup>	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	29	357	89	143	142	342	149	202	191	207	120	110	102	108	91	72
No. Clams Sampled	414	2,838	892	1,313	1,222	3,773	1,609	1,543	1,383	1,765	1,363	960	814	834	1,031	818
No. Digger Hours	36	488	110	120	160	354	154	274	265	304	153	160	155	109	159	106
Hours/trip	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	1.7	1.5
Clams/trip	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	11.3	11.4
Clams/hour	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	6.5	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	28.6	26.4
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	64.8	63.9
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	-	6.6	9.7
Species Comp. (%)																
Butter	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	1.9	1.6
Cockle	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	12.1	1.9
Gaper	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	60.2	93.3
Littleneck	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	3.8	3.1
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other <sup>2</sup>	-	-	-	-	-	-	-	-	7.8	13.2	-	-	-	-	-	-
Clams/trip																
Butter	<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	0.2	0.2
Cockle	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	1.4	0.2
Gaper	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	6.8	10.3
Littleneck	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	0.4	0.3
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams/hour																
Butter	<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	0.1	0.1
Cockle	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	0.8	0.1
Gaper	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	3.9	7.0
Littleneck	-	-	-	-	-	-	-	0.2	0.2	0.4	0.2	0.3	0.2	0.3	0.2	0.2
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	93.7	102.6
Cockle	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	64.6	57.7
Gaper	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	110.0	119.3
Littleneck	-	-	-	51.5	62.2	54.7	54.7	52.4	55.9	64.0	62.3	57.1	61.5	62.4	64.5	68.2
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
No. Clams Measured																
Butter	-	-	-	-	14	20	5	35	12	23	22	29	15	27	19	10
Cockle	205	592	202	51	6	536	86	138	41	67	57	7	79	100	122	15
Gaper	62	593	154	279	419	1,370	308	406	200	266	362	135	217	278	216	299
Littleneck	-	-	-	2	19	55	9	34	24	49	18	26	31	29	32	15
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> Regulation change in bag limit; effective January 1, 1977.

<sup>2</sup> Bentnose 7.0%, Inquinata 0.2%, other 0.6%.

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

	1975	1977 <sup>1</sup>	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	46	48	20	10	21	16	14	17	63	39	31	65	19	33	11	32
No. Clams Sampled	515	511	270	142	261	166	157	190	654	489	303	125	217	413	148	432
No. Digger Hours	-	69	22	20	44	27	21	24	103	51	34	105	24	47	18	38
Hours/trip	-	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	1.6	1.2
Clams/trip	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	13.5	13.5
Clams/hour	-	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	8.2	11.5
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	9.1	68.8
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	90.9	31.3
Non-state	-	-	-	-	-	31.3	-	-	3.2	5.1	-	3.1	-	-	-	-
Species Comp. (%)																
Butter	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	3.4	3.0
Cockle	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	1.4	2.3
Gaper	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	80.4	91.9
Littleneck	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	11.5	2.8
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other <sup>2</sup>	-	-	-	-	-	-	-	-	15.9	2.9	-	-	-	-	-	-
Clams/trip																
Butter	<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	0.5	0.4
Cockle	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	0.2	0.3
Gaper	10.6	-	-	-	10.1	7.8	10.6	9.6	7.4	11.0	8.1	10.4	8.0	10.5	10.8	12.4
Littleneck	<0.1	0.1	0.1	-	0.1	0.1	0.1	0.1	0.3	0.2	0.6	0.6	-	0.7	1.5	0.4
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams/hour																
Butter	-	0.1	0.1	-	0.4	0.1	0.2	0.1	0.4	0.4	0.6	0.3	0.8	0.4	0.3	0.3
Cockle	-	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	0.1	0.3
Gaper	-	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	6.6	10.6
Littleneck	-	0.1	0.1	-	0.1	0.1	<0.1	<0.1	0.2	0.2	0.5	0.4	-	0.5	0.9	0.3
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Size Comp. (x size)																
Butter	-	0.1	<0.1	<0.1	85.3	-	-	97.0	82.3	78.2	80.0	88.8	86.4	80.5	92.8	88.0
Cockle	-	72.5	76.1	-	-	62.6	-	81.6	70.1	69.6	67.2	65.5	66.6	73.7	76.0	64.0
Gaper	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	119.8	123.9
Littleneck	-	-	-	-	64.0	-	-	51.0	52.0	55.6	56.6	59.9	-	60.1	63.4	64.2
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
No. Clams Measured																
Butter	-	-	-	-	16	-	4	1	36	14	22	20	21	21	5	21
Cockle	-	-	79	37	-	27	3	12	32	16	11	129	9	19	2	10
Gaper	310	198	207	-	195	69	142	109	200	265	176	162	133	201	113	284
Littleneck	-	-	-	-	3	-	1	1	20	8	18	33	-	18	16	14
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> Regulation change in bag limit; effective January 1, 1977.

<sup>2</sup> Bentnose Clam.

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

	1976	1977 <sup>1</sup>	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	42	309	20	193	182	147	80	138	52	26	47	47	20	57	39	46
No. Clams Sampled	812	3,773	298	2,783	3,118	2,339	1,219	2,171	890	403	849	741	435	992	579	698
No. Digger Hours	77	464	25	248	302	222	145	219	83	42	77	52	29	82	70	71
Hours/trip	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	1.8	1.5
Clams/trip	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	14.8	15.2
Clams/hour	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	8.3	9.8
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	5.1	37.0
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	89.7	37.0
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	5.1	26.1
Species Comp. (%)																
Butter	0.5	0.5	-	1.7	-	0.1	-	0.4	0.6	-	-	-	-	-	0.5	0.6
Cockle	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	77.5	92.1
Gaper	18.4	13.1	15.1	20.7	12.8	4.1	2.9	2.8	1.6	-	5.4	0.1	-	0.5	6.4	5.6
Littleneck	0.1	0.2	-	0.1	-	0.5	0.9	0.7	0.3	1.0	0.7	0.5	-	2.8	2.1	1.6
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	0.1
Other <sup>2</sup>	-	-	-	-	-	-	-	-	0.4	-	-	-	-	-	-	-
Clams/trip																
Butter	0.1	0.1	-	0.2	-	-	-	0.1	0.1	-	-	-	-	-	0.1	0.1
Cockle	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	11.5	14.0
Gaper	3.6	1.6	2.3	3.0	2.2	0.6	0.4	0.4	0.3	-	1.0	-	-	0.1	0.9	0.8
Littleneck	<0.1	<0.1	-	<0.1	-	<0.1	<0.1	0.1	0.1	0.2	0.1	0.1	-	0.5	0.3	0.2
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.1	-
Clams/hour																
Butter	0.1	0.1	-	0.2	-	-	-	<0.1	0.1	-	10.4	-	-	-	-	0.1
Cockle	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	6.5	9.0
Gaper	2.0	1.1	1.8	2.3	9.0	0.1	0.2	0.3	0.2	-	0.1	-	-	0.1	0.5	0.5
Littleneck	<0.1	<0.1	-	<0.1	-	-	0.1	0.1	<0.1	0.1	-	0.1	-	0.3	0.2	0.2
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Size Comp. (x size)																
Butter	-	-	-	75.1	-	87.3	-	-	85.8	-	-	-	-	-	58.1	-
Cockle	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	53.8	55.9
Gaper	91.3	93.5	95.2	95.9	94.5	91.7	83.3	89.1	-	-	94.2	-	-	102.0	104.5	115.7
Littleneck	-	-	-	55.3	-	50.1	42.7	42.6	44.0	42.8	42.0	41.3	-	49.4	45.3	52.0
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100.0
No. Clams Measured																
Butter	-	-	-	-	-	4	-	-	5	-	-	-	-	-	13	-
Cockle	-	-	-	45	1,620	1,302	-	540	240	377	477	142	227	294	199	297
Gaper	522	1,804	250	1,471	181	75	-	40	-	-	5	-	-	1	34	35
Littleneck	126	173	42	24	-	9	-	5	4	4	2	3	-	21	7	15
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1

<sup>1</sup> Regulation change in bag limit; effective January 1, 1977.

<sup>2</sup> Bentnose clam.



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

	1976	1977 <sup>1</sup>	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	93	315	49	137	63	38	29	23	9	26	57	66	6	11	2	27
No. Clams Sampled	583	3,852	684	1,073	495	151	128	219	136	319	1,125	1,107	86	137	-	97
No. Digger Hours	139	402	67	165	84	54	33	25	13	33	71	75	9	17	3	29
Hours/trip	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	1.5	1.1
Clams/trip	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	-	3.6
Clams/hour	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	-	3.4
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	-	3.7
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	100.0	11.1
Non-state	4.3	5.4	2.0	16.8	1.5	5.3	-	-	22.2	-	14.0	15.2	-	9.1	-	85.2
Species Comp. (%)																
Butter	0.1	1.1	0.1	0.2	0.6	2.0	-	0.5	-	-	-	-	-	2.2	-	-
Cockle	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	-	45.3
Gaper	22.0	13.8	16.8	11.9	19.6	34.4	7.0	-	-	0.3	-	-	-	10.1	-	-
Littleneck	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	-	54.7
Softshell	-	-	-	-	-	47.0	-	-	-	-	-	-	-	-	-	-
Other <sup>2</sup>	-	-	-	-	-	-	-	1.8	2.2	4.7	-	-	-	-	-	-
Clams/trip																
Butter	<0.1	0.1	<0.1	<0.1	0.1	0.1	-	<0.1	-	-	-	-	-	0.3	-	-
Cockle	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	-	1.6
Gaper	3.7	1.7	2.3	0.9	1.5	1.4	0.3	-	-	-	-	-	-	1.3	-	-
Littleneck	<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	-	1.9
Softshell	-	-	-	-	-	1.9	-	-	-	-	-	-	-	-	-	-
Clams/hour																
Butter	<0.1	0.1	<0.1	<0.1	<0.1	0.1	-	<0.1	-	-	-	-	-	0.2	-	-
Cockle	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	-	1.5
Gaper	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	1.2	0.3	0.3	0.5	0.4	0.5	6.3	-	1.8
Softshell	-	-	-	-	-	1.3	-	-	-	-	-	-	-	-	-	-
Size Comp. (x size)																
Butter	-	-	-	-	99.0	80.0	-	97.0	-	-	-	-	-	79.0	-	-
Cockle	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	-	50.2
Gaper	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	-	51.4
Softshell	-	-	-	-	-	57.5	-	-	-	-	-	-	-	-	-	-
No. Clams Measured																
Butter	-	-	-	-	1	1	-	1	-	-	-	-	-	3	-	-
Cockle	648	889	525	606	349	18	60	177	122	293	408	431	60	11	-	43
Gaper	217	152	106	96	61	46	7	8	-	1	-	-	-	14	-	-
Littleneck	-	-	-	5	5	2	-	30	-	9	15	23	1	105	-	52
Softshell	-	-	-	-	-	2	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> Regulation change in bag limit; effective January 1, 1977.

<sup>2</sup> Bentnose clam.

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

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	11	53	27	-	7	13	20	-	-	-	2
No. Clams Sampled	24	267	147	-	45	28	287	-	-	-	0
No. Digger Hours	9	75	33	-	6	22	25	-	-	-	1
Hours/trip	0.8	1.4	1.2	-	0.8	1.7	1.2	-	-	-	0.5
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	-	-	-	100.0
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	1990	1991
No. Diggers Sampled	42	14	11	29	12	3	6	7	24
No. Clams Sampled	1,380	491	377	906	297	108	214	225	798
No. Digger Hours	56	24	15	53	17	5	10	5	40
Hours/trip	1.3	1.7	1.4	1.8	1.4	1.5	1.7	0.7	1.6
Clams/trip	32.9	35.1	34.3	31.2	24.8	36.0	35.7	32.1	33.3
Clams/hour	24.6	20.9	25.1	17.3	18.0	24.0	21.4	45.0	20.2
Digger Origin (%)									
Local	40.5	50.0	81.8	48.3	100.0	100.0	50.0	100.0	45.8
State	59.5	50.0	18.2	51.7	-	-	50.0	-	54.2
Non-state	-	-	-	-	-	-	-	-	-
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
Clams/trip									
Butter	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-
Softshell	32.9	35.1	34.3	31.2	24.8	36.0	35.7	32.1	33.3
Clams/hour									
Butter	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-
Softshell	24.6	20.9	25.1	17.3	18.0	24.0	21.4	45.0	20.2
Size Comp. (x size)									
Butter	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-
Softshell	82.5	93.3	93.1	85.4	94.5	90.3	89.5	81.6	91.8
No. Clams Measured									
Butter	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-
Softshell	569	68	280	306	138	102	140	93	161

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

	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	26	27	10	25	16	8	-	9
No. Clams Sampled	971	698	156	709	336	225	-	307
No. Digger Hours	25	27	20	35	16	11	-	10
Hours/trip	0.9	1.0	2.0	1.4	1.0	1.4	-	1.1
Clams/trip	37.4	25.9	15.6	28.4	21.0	28.1	-	34.1
Clams/hour	39.6	25.9	7.8	20.3	21.0	20.5	-	30.7
Digger Origin (%)								
Local	84.6	51.9	100.0	40.0	-	75.0	-	66.7
State	15.4	33.3	-	60.0	100.0	25.0	-	33.3
Non-state	-	14.8	-	-	-	-	-	-
Species Comp. (%)								
Butter	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-
Softshell	100.0	99.9	100.0	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	-	34.1
Clams/hour								
Butter	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-
Softshell	39.6	25.8	7.8	20.3	21.0	20.5	-	30.7
Size Comp. (x size)								
Butter	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-
Softshell	74.6	63.6	83.5	65.6	66.6	91.6	-	64.6
No. Clams Measured								
Butter	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-
Softshell	240	366	63	104	192	142	-	130

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

	1982	1983	1984	1985	1986	1987	1988	1989	1990 <sup>1</sup>	1991 <sup>2</sup>
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	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> New 101 bridge is being built - this prevented clam diggers from accessing this clam bed.

<sup>2</sup> Not sampled in 1991.

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

	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991 <sup>1</sup>
No. Diggers Sampled	32	24	17	35	9	20	21	-	10	-
No. Clams Sampled	529	316	156	478	138	314	310	-	153	-
No. Digger Hours	46	40	29	61	18	27	35	-	11	-
Hours/trip	1.4	1.7	1.7	1.7	2.0	1.4	1.6	-	1.1	-
Clams/trip	16.5	13.2	9.2	13.7	15.3	15.7	14.8	-	15.3	-
Clams/hour	11.5	8.0	5.5	7.9	7.7	11.6	9.0	-	14.6	-
Digger Origin (%)										
Local	59.4	66.7	41.2	48.6	66.7	35.0	33.3	-	40.0	-
State	25.0	25.0	58.8	45.7	33.3	50.0	52.4	-	20.0	-
Non-state	15.6	8.3	-	5.7	-	15.0	14.3	-	40.0	-
Species Comp. (%)										
Butter	-	-	-	-	-	-	-	-	-	-
Cockle	99.8	99.7	98.7	88.9	94.2	90.4	76.5	-	100.0	-
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	-	15.3	-
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	-	14.6	-
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	-	75.8	-
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	-	115	-
Gaper	-	-	2	10	6	24	49	-	-	-
Littleneck	-	-	-	2	1	3	10	-	-	-
Softshell	-	-	-	-	-	-	-	-	-	-

<sup>1</sup> Not sampled in 1991.

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

	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	23	14	31	71	17	59
No. Clams Sampled	122	144	417	559	346	957
No. Digger Hours	25	24	42	92	19	75
Hours/trip	1.1	1.7	1.3	1.3	1.1	1.3
Clams/trip	5.3	10.3	13.5	7.9	20.4	16.2
Clams/hour	5.0	6.0	10.0	6.1	18.7	12.8
Digger Origin (%)						
Local	47.8	28.6	41.9	25.4	88.2	39.0
State	52.2	50.0	45.2	57.7	5.9	54.2
Non-state	-	21.4	12.9	16.9	5.9	6.8
Species Comp. (%)						
Butter	-	-	0.2	5.8	0.0	0.1
Cockle	89.3	81.9	98.1	44.3	99.7	97.9
Gaper	-	13.9	0.2	48.8	0.0	1.2
Littleneck	10.7	4.2	1.2	1.1	0.3	0.8
Softshell	-	-	-	-	-	0.0
Clams/trip						
Butter	-	-	-	0.5	0.0	0.0
Cockle	4.7	8.4	13.2	3.5	20.3	15.8
Gaper	-	1.4	-	3.8	0	0.2
Littleneck	0.6	0.4	0.2	0.1	0.1	0.1
Softshell	-	-	-	-	-	-
Clams/hour						
Butter	-	-	-	0.3	0.0	0.0
Cockle	4.4	4.9	9.9	2.7	18.6	12.5
Gaper	-	0.8	-	3.0	0.0	0.1
Littleneck	0.5	0.2	0.1	0.1	0.1	0.1
Softshell	-	-	-	-	-	-
Size Comp. (x size)						
Butter	47.0	-	36.0	-	-	58.0
Cockle	64.1	45.4	59.0	66.0	58.0	64.9
Gaper	-	120.8	69.0	71.3	-	97.9
Littleneck	45.1	45.8	36.2	33.3	46.0	40.6
Softshell	-	-	-	-	-	-
No. Clams Measured						
Butter	1	-	1	-	-	1
Cockle	83	138	262	222	208	242
Gaper	-	15	1	6	-	8
Littleneck	8	6	5	39	1	7
Softshell	-	-	-	-	-	-

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

	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	4	5	5	8	14	5	23	7	15
No. Clams Sampled	91	138	151	148	431	164	66	255	476
No. Digger Hours	6	7	10	9	23	7	36	11	22
Hours/trip	1.5	1.4	2.0	1.1	1.6	1.4	1.6	1.5	1.5
Clams/trip	22.8	27.6	30.2	18.5	30.8	32.8	28.8	36.4	31.7
Clams/hour	15.2	19.7	15.1	16.4	19.2	23.4	18.4	24.3	21.6
Digger Origin (%)									
Local	50.0	60.0	80.0	50.0	78.6	80.0	65.2	71.4	86.7
State	50.0	-	20.0	25.0	21.4	20.0	34.8	14.3	13.3
Non-state	-	40.0	-	25.0	-	-	-	14.3	-
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
Clams/trip									
Butter	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-
Softshell	22.8	27.6	30.2	18.5	30.8	32.8	28.8	36.4	31.7
Clams/hour									
Butter	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-
Softshell	15.2	19.7	15.1	16.4	19.2	23.4	18.4	24.3	21.6
Size Comp. (x size)									
Butter	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-
Softshell	96.8	94.6	95.0	97.1	94.0	99.2	85.1	93.4	97.3
No. Clams Measured									
Butter	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-
Softshell	86	135	180	102	190	158	281	108	189



Table 16. Annual summary of recreational interview data; North Fork<sup>2</sup>, Siuslaw Bay.

	1976	1977 <sup>1</sup>	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	39	51	21	42	7	115	21	33	168	70	47	42	41	129	77	47
No. Clams Sampled	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	2,104	1,474
No. Digger Hours	54	101	32	55	5	145	28	32	231	104	65	67	64	187	121	81
Hours/trip	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	1.6	1.7
Clams/trip	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	27.3	31.4
Clams/hour	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	17.5	18.3
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	15.6	21.3
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	80.5	78.7
Non-state	2.6	4.4	-	33.3	-	13.0	-	9.1	5.4	12.9	4.3	-	-	10.1	3.9	-
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	100.0
Clams/trip																
Butter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Softshell	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	27.3	31.4
Clams/hour																
Butter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Softshell	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	17.5	18.3
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	94.2	100.8
No. Clams Measured																
Butter	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cockle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Gaper	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Littleneck	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Softshell	741	408	335	676	110	1,629	757	867	297	670	670	585	294	336	336	243

<sup>1</sup> Regulation change in bag limit; effective January 1, 1977.

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

Table 17. Annual summary of recreational interview data; Umpqua Triangle.

<u>1991</u>	
No. Diggers Sampled	59
No. Clams Sampled	894
No. Digger Hours	81
Hours/trip	1.4
Clams/trip	15.2
Clams/hour	11.1
Digger Origin (%)	
Local	52.5
State	33.9
Non-state	13.6
Species Comp. (%)	
Butter	0.0
Cockle	82.4
Gaper	17.4
Littleneck	0.1
Softshell	-
Clams/trip	
Butter	0.0
Cockle	12.5
Gaper	2.6
Littleneck	-
Softshell	-
Clams/hour	
Butter	0.0
Cockle	12.5
Gaper	2.6
Littleneck	-
Softshell	-
Size Comp. (x size)	
Butter	-
Cockle	9.2
Gaper	1.9
Littleneck	-
Softshell	-
No. Clams Measured	
Butter	-
Cockle	174
Gaper	149
Littleneck	1
Softshell	-

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

	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	40	32	20	58	91	50	96	107	40
No. Clams Sampled	771	588	410	1,193	1,647	814	1,535	1,742	606
No. Digger Hours	44	27	25	75	105	75	115	141	47.5
Hours/trip	1.1	0.8	1.2	1.3	1.2	1.5	1.2	1.3	1.2
Clams/trip	19.3	18.4	20.5	20.6	18.1	16.3	16.0	16.3	15.2
Clams/hour	17.5	22.0	16.7	16.0	15.7	10.9	13.4	12.4	12.8
Digger Origin (%)									
Local	22.5	40.6	50.0	29.3	34.1	20.0	21.9	20.6	22.5
State	72.5	56.3	35.0	62.1	47.3	52.0	68.8	71.0	37.5
Non-state	5.0	3.1	15.0	8.6	18.1	28.0	9.4	8.4	40.0
Species Comp. (%)									
Butter	19.6	10.9	13.2	2.6	13.2	11.8	2.7	3.3	0.2
Cockle	55.1	69.2	56.6	66.5	47.3	43.2	47.5	34.6	57.6
Gaper	3.9	15.0	20.5	17.5	31.3	32.9	44.9	48.1	41.7
Littleneck	23.2	4.9	9.5	8.5	5.8	8.8	5.0	9.4	0.5
Softshell	-	-	-	0.3	0.1	-	-	0.1	-
Clams/trip									
Butter	3.8	2.0	2.7	0.5	2.4	1.9	0.4	0.5	-
Cockle	10.6	12.7	11.6	13.7	8.6	7.0	7.4	5.6	8.7
Gaper	0.8	2.8	4.2	3.6	5.7	5.4	7.0	7.8	6.3
Littleneck	4.5	0.9	1.9	1.8	1.1	1.4	0.8	1.5	0.1
Softshell	-	-	-	0.1	-	-	-	<0.1	-
Clams/hour									
Butter	3.4	2.4	2.2	0.4	2.1	1.3	0.3	0.4	-
Cockle	9.7	15.2	9.5	10.6	7.4	4.7	6.2	4.3	7.3
Gaper	0.7	3.3	3.4	2.8	4.9	3.6	5.9	6.0	5.3
Littleneck	4.1	1.1	1.6	1.4	0.9	1.0	0.7	1.2	0.1
Softshell	-	-	-	0.1	-	-	-	<1.2	-
Size Comp. (x size)									
Butter	73.3	80.2	82.5	75.3	78.2	80.7	85.9	80.6	85.3
Cockle	51.2	66.3	62.6	63.2	61.2	61.4	59.1	60.6	55.1
Gaper	88.6	95.2	98.2	97.3	99.1	103.3	98.7	113.3	107.7
Littleneck	55.2	57.6	61.3	61.1	58.9	62.1	64.8	63.9	66.0
Softshell	-	-	-	-	-	-	-	-	-
No. Clams Measured									
Butter	39	17	52	15	118	88	30	19	3
Cockle	45	218	185	175	298	149	169	97	238
Gaper	26	54	67	30	187	165	158	125	192
Littleneck	18	159	41	51	64	63	29	57	3
Softshell	-	-	-	-	-	-	-	-	-

Table 19. Annual summary of recreational interview data; Charleston Flat, Coos Bay.

	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	60	27	18	100	113	97	61	65	65
No. Clams Sampled	859	435	341	1,980	2,145	1,523	974	887	938
No. Digger Hours	125	29	32	180	185	176	103	113	110
Hours/trip	2.1	1.1	1.8	1.8	1.6	1.8	1.7	1.7	1.7
Clams/trip	14.3	16.1	18.9	19.8	19.0	15.7	16.0	13.6	14.4
Clams/hour	6.9	15.1	10.7	11.0	11.6	8.7	9.5	7.8	8.6
Digger Origin (%)									
Local	21.7	40.7	16.7	35.0	28.3	20.6	14.8	36.9	41.5
State	73.3	51.9	38.9	57.0	48.7	66.0	68.9	49.2	46.2
Non-state	5.0	7.4	44.4	8.0	23.0	13.4	16.4	13.8	12.3
Species Comp. (%)									
Butter	2.0	4.6	6.7	2.8	2.7	10.2	4.8	5.5	19.4
Cockle	46.6	60.9	72.4	83.3	63.9	35.4	31.8	9.1	16.5
Gaper	38.8	27.6	17.3	8.8	26.2	42.5	47.7	71.6	58.3
Littleneck	10.6	3.7	3.5	4.1	4.7	10.8	14.5	11.6	5.8
Softshell	-	3.0	-	0.1	-	0.4	1.3	-	0.0
Clams/trip									
Butter	0.3	0.7	1.3	0.6	0.5	1.6	0.7	0.8	2.7
Cockle	6.7	9.8	13.7	16.5	12.1	5.6	4.9	1.2	2.3
Gaper	5.6	4.4	3.3	1.8	5.0	6.7	7.3	9.8	8.1
Littleneck	1.5	0.6	0.7	0.8	0.9	1.7	2.2	1.6	0.8
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	0.4	1.6
Cockle	3.2	9.2	7.7	9.2	7.4	3.1	2.9	0.7	1.4
Gaper	2.7	4.6	1.8	1.0	3.0	3.7	4.3	5.6	4.8
Littleneck	0.7	0.6	0.4	0.5	0.5	0.9	1.3	0.9	0.5
Softshell	-	-	-	<0.1	-	-	0.1	-	-
Size Comp. (x size)									
Butter	84.0	78.1	75.0	78.9	81.3	78.3	93.7	79.3	72.5
Cockle	59.9	63.2	62.2	66.9	65.6	62.3	62.6	56.2	67.2
Gaper	100.6	105.9	110.1	109.1	109.0	106.9	102.4	103.1	107.2
Littleneck	55.0	65.0	62.2	60.5	58.4	65.8	59.3	61.8	50.8
Softshell	-	-	-	-	-	-	-	-	-
No. Clams Measured									
Butter	1	13	20	43	44	86	39	46	129
Cockle	38	92	247	234	128	193	163	88	135
Gaper	13	80	58	70	188	271	109	150	166
Littleneck	3	2	13	30	86	96	102	98	42
Softshell	-	-	-	-	-	-	-	-	-

Table 20. Annual summary of recreational interview data; Pigeon Point, Coos Bay.

	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	111	43	10	68	64	24	59	37	44
No. Clams Sampled	1,681	679	190	1,160	1,003	444	927	485	700
No. Digger Hours	95	70	19	145	119	42	105	67	78
Hours/trip	0.9	1.6	1.9	2.1	1.9	1.8	1.8	1.8	1.8
Clams/trip	15.1	15.8	19.0	17.1	15.7	18.5	15.7	13.1	15.9
Clams/hour	17.7	9.7	10.0	8.0	8.4	10.6	8.9	7.3	9.0
Digger Origin (%)									
Local	45.9	65.1	20.0	51.5	32.8	41.7	23.7	40.5	43.2
State	48.6	27.9	60.0	41.2	51.6	58.3	61.0	51.4	20.5
Non-state	5.4	7.0	20.0	7.4	15.6	-	15.3	8.1	36.4
Species Comp. (%)									
Butter	27.1	36.4	47.9	56.5	48.6	44.8	40.5	37.7	57.7
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	23.9	15.5
Littleneck	20.9	22.5	39.5	24.1	33.3	32.9	51.9	37.5	26.9
Softshell	-	0.6	-	0.8	-	0.7	-	-	-
Clams/trip									
Butter	4.1	5.4	9.1	9.6	7.6	8.3	6.4	4.9	9.2
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	3.1	2.5
Littleneck	3.2	3.6	7.5	4.1	5.2	6.1	8.1	4.9	4.3
Softshell	-	0.1	-	0.1	-	0.1	-	-	-
Clams/hour									
Butter	4.8	3.5	4.8	4.5	4.1	4.7	3.6	2.8	5.2
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	1.7	1.4
Littleneck	3.7	2.2	3.9	1.9	2.8	3.5	4.6	2.7	2.4
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	81.1	74.1
Cockle	37.9	-	40.0	-	-	-	-	-	-
Gaper	108.0	104.5	85.3	107.9	102.6	109.5	92.1	84.7	109.1
Littleneck	67.2	62.0	60.6	63.3	54.6	58.6	57.2	60.2	57.6
Softshell	-	-	-	-	-	-	-	-	-
No. Clams Measured									
Butter	44	93	51	145	186	108	214	123	291
Cockle	7	-	4	-	-	-	-	-	-
Gaper	46	52	19	15	82	20	42	86	128
Littleneck	9	50	74	22	172	29	234	102	119
Softshell	-	-	-	-	-	-	-	-	-

Table 21. Annual summary of recreational interview data; North Spit, Coos Bay.

	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	65	50	29	163	103	111	122	171	121
No. Clams Sampled	692	746	449	2,262	1,492	1,506	1,574	2,203	1,902
No. Digger Hours	93	82	59	246	151	164	171	238	171
Hours/trip	1.4	1.6	2.0	1.5	1.5	1.5	1.4	1.4	1.4
Clams/trip	10.7	14.9	15.5	13.9	14.5	13.6	12.9	12.9	15.7
Clams/hour	7.4	9.2	7.6	9.2	9.9	9.2	9.2	9.3	11.2
Digger Origin (%)									
Local	72.3	68.0	37.9	65.0	68.0	70.3	86.1	75.4	68.6
State	27.7	28.0	58.6	32.5	27.2	27.0	13.9	23.4	29.8
Non-state	-	4.0	3.4	2.5	4.9	2.7	-	1.2	1.7
Species Comp. (%)				†					
Butter	3.5	6.4	5.1	6.7	7.9	3.3	0.1	5.8	7.0
Cockle	17.6	22.0	17.1	13.7	18.1	17.7	8.8	6.6	13.8
Gaper	75.3	65.5	74.6	73.7	66.4	75.5	90.2	80.0	76.1
Littleneck	3.6	6.0	2.4	3.9	2.7	2.3	0.9	7.0	3.1
Softshell	-	-	-	-	0.1	0.1	-	-	-
Clams/trip									
Butter	0.4	1.0	0.8	0.9	1.1	0.4	-	0.7	1.1
Cockle	1.9	3.3	2.7	1.9	2.6	2.4	1.1	0.9	2.1
Gaper	8.0	9.8	11.6	10.2	9.6	10.2	11.3	10.3	11.6
Littleneck	0.4	0.9	0.4	0.5	0.4	0.3	0.1	0.9	0.5
Softshell	-	-	-	-	<0.1	-	-	-	-
Clams/hour									
Butter	0.3	0.6	0.4	0.6	0.8	0.3	-	0.5	0.8
Cockle	1.3	2.0	1.3	1.3	1.8	1.6	0.8	0.6	1.5
Gaper	5.6	6.0	5.7	6.8	6.6	6.9	8.0	7.4	8.3
Littleneck	0.3	0.6	0.2	0.4	0.3	0.2	0.1	0.7	0.3
Softshell	-	-	-	-	<0.1	-	-	-	-
Size Comp. (x size)									
Butter	-	77.0	81.8	87.0	85.2	85.8	78.0	80.7	76.8
Cockle	67.7	62.2	65.1	64.4	60.2	78.5	75.7	64.9	58.3
Gaper	109.6	111.2	100.5	122.7	114.6	113.9	117.8	119.9	117.6
Littleneck	72.0	59.5	46.5	64.4	60.6	60.8	66.4	58.1	62.3
Softshell	--	-	-	-	-	-	-	-	-
No. Clams Measured									
Butter	-	28	9	21	65	46	2	101	114
Cockle	20	39	29	62	104	133	105	129	123
Gaper	185	138	117	71	159	107	172	251	291
Littleneck	2	28	2	14	37	34	7	137	54
Softshell	-	-	-	-	-	-	-	-	-

Table 22. Annual summary of recreational interview data; Clam Island, Coos Bay.

	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	57	462	11	76	116	66	65	38	24
No. Clams Sampled	1,002	7,931	208	1,097	1,777	987	1,111	532	508
No. Digger Hours	82	737	15	98	134	88	103	57	46
Hours/trip	1.4	1.9	1.4	1.3	1.2	1.3	1.6	1.5	1.9
Clams/trip	17.6	17.2	18.9	14.4	15.3	15.0	17.1	14.0	21.2
Clams/hour	12.2	10.8	13.9	11.3	13.3	11.2	10.8	9.4	11.0
Digger Origin (%)									
Local	36.8	51.5	81.8	52.6	53.4	48.5	44.6	63.2	45.8
State	57.9	46.3	18.2	46.1	37.9	39.4	53.8	34.2	54.2
Non-state	5.3	2.2	-	1.3	8.6	12.1	1.5	2.6	-
Species Comp. (%)									
Butter	2.88	4.6	26.9	0.4	5.5	1.5	1.1	12.2	-
Cockle	36.5	33.7	12.5	26.7	26.6	19.7	31.9	0.6	44.9
Gaper	54.2	59.8	54.3	72.0	66.6	76.8	62.8	85.0	55.1
Littleneck	1.1	1.8	6.2	0.9	1.3	1.7	4.2	2.3	-
Softshell	5.4	-	-	-	-	-	-	-	-
Clams/trip									
Butter	0.5	0.8	5.1	0.1	0.8	0.2	0.2	1.7	-
Cockle	6.4	5.8	2.4	3.9	4.1	2.9	5.4	0.1	9.3
Gaper	9.5	10.3	10.3	10.4	10.2	11.5	10.7	11.9	11.5
Littleneck	0.2	0.3	1.2	0.1	0.2	0.3	0.7	0.3	-
Softshell	1.0	-	-	-	-	-	-	-	-
Clams/hour									
Butter	0.3	0.5	3.7	-	0.7	0.2	0.1	1.2	-
Cockle	4.5	3.6	1.7	3.0	3.5	2.2	3.5	0.1	4.9
Gaper	6.6	6.4	7.5	8.1	8.8	8.6	6.8	8.0	6.0
Littleneck	0.1	0.2	0.9	0.1	0.2	0.2	0.5	0.2	-
Softshell	0.7	-	-	-	-	-	-	-	-
Size Comp. (x size)									
Butter	78.7	95.0	89.5	97.0	86.3	-	90.2	81.7	84.0
Cockle	54.1	76.8	69.4	80.1	71.0	66.9	72.9	72.0	-
Gaper	107.7	121.0	119.2	118.8	115.7	117.8	117.1	123.2	126.0
Littleneck	55.5	68.0	66.9	-	61.9	63.8	61.0	67.9	-
Softshell	-	-	-	-	-	-	-	-	-
No. Clams Measured									
Butter	6	1	55	1	9	-	12	64	21
Cockle	8	12	25	43	102	105	167	2	-
Gaper	46	56	108	136	170	194	205	180	48
Littleneck	4	1	13	-	9	22	41	13	-
Softshell	-	-	-	-	-	-	-	-	-

Table 23. Annual summary of recreational interview data; all estuaries combined.

	1976	1977 <sup>1</sup>	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
No. Diggers Sampled	721	4,165	847	1,603	1,284	1,276	870	1,506	1,800	898	1,392	1,508	1,324	1,549	1,363	1,131
No. Clams Sampled	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	22,847	19,059
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	2,029	1,662
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	1.5	1.5
Clams/trip	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	16.8	16.9
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	11.3	11.5
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	31.3	41.1
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	62.7	45.6
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	5.9	13.3
Species Comp. (%)																
Butter	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	22.7	10.3
Cockle	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	30.4	28.9
Gaper	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	23.6	24.2
Littleneck	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	8.7	18.5
Softshell	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	12.4	18.2
Clams/trip																
Butter	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	3.8	1.7
Cockle	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	5.1	4.8
Gaper	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	4.0	4.0
Littleneck	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	1.5	3.1
Softshell	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	2.1	3.0
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	2.6	1.2
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	3.4	3.3
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	2.7	2.7
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	1.0	2.1
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	1.4	2.1
Size Comp. (x size)																
Butter	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	78.5	81.6
Cockle	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	61.4	63.0
Gaper	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	113.7	120.0
Littleneck	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	53.4	46.3
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	89.6	89.0
No. Clams Measured	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	5,448	6,781



Table 24. Peak counts of clam diggers<sup>1</sup>.

Estuary	Tideflat	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991
<b>Tillamook</b>	Garibaldi Flat	131	225	256	300	460	516	487	350	118	380	400	257	547	585	127
	Bay Ocean	122	39	107	-	33	13	10	4	-	17	3	-	-	-	-
<b>Netarts</b>	Happy Camp	73	-	150	160	425	500	478	200	191	314	265	116	163	126	-
<b>Nestucca</b>	Little Nestucca	-	-	-	-	44	6	12	6	8	8	-	-	-	-	-
<b>Yaquina</b>	Bridge Bed	138	30	91	84	225	625	275	84	107	204	225	110	235	158	176
	Breakwater Bed	120	62	23	20	27	63	26	28	25	30	46	17	63	43	39
	Idaho Point	98	45	66	61	38	176	46	35	31	50	56	39	29	44	30
	NW Gas Plant	-	-	24	26	41	16	12	10	11	34	20	10	11	7	-
	Coquille Point	-	-	17	18	45	41	20	5	9	14	7	4	11	2	1
<b>Alesea</b>	North Beach	-	-	-	-	-	4	3	-	5	0	13	18	14	2	-
	Bay Shore	-	-	-	-	-	49	31	14	20	10	15	44	7	10	2
	Waldport Breakwater	-	-	-	-	-	12	9	-	22	22	4	45	29	26	46
<b>Siuslaw</b>	North Fork	-	-	109	57	146	33	22	43	41	44	56	45	95	86	40
<b>Umpqua</b>	Umpqua Triangle	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43
<b>Coos Bay</b>	Charleston Triangle	-	-	-	-	-	-	31	24	41	39	87	82	59	66	36
	Charleston Flat	-	-	-	-	-	-	64	30	26	27	66	103	54	84	65
	Peterson Flat	-	-	-	-	-	-	5	-	2	15	14	4	7	15	-
	Fossil Point	-	-	-	-	-	-	38	-	0	44	-	-	-	-	-
	Pigeon Point	-	-	-	-	-	-	62	50	42	67	97	52	51	74	44
	Empire Flat	-	-	-	-	-	-	20	-	19	22	44	12	36	43	-
	Hanson's Marina	-	-	-	-	-	-	5	3	4	-	-	-	6	11	-
	Clam Island	-	-	-	-	-	-	-	58	-	86	119	93	101	138	72
	North Spit	-	-	-	-	-	-	-	-	-	83	158	102	135	158	85
<b>Bandon</b>	Softshell Bed	-	-	-	-	-	-	-	-	-	50	-	-	-	-	-
<b>Total Peak Count</b>		-	-	-	-	-	-	1,656	944	722	1,510	1,695	1,153	1,653	1,678	781

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

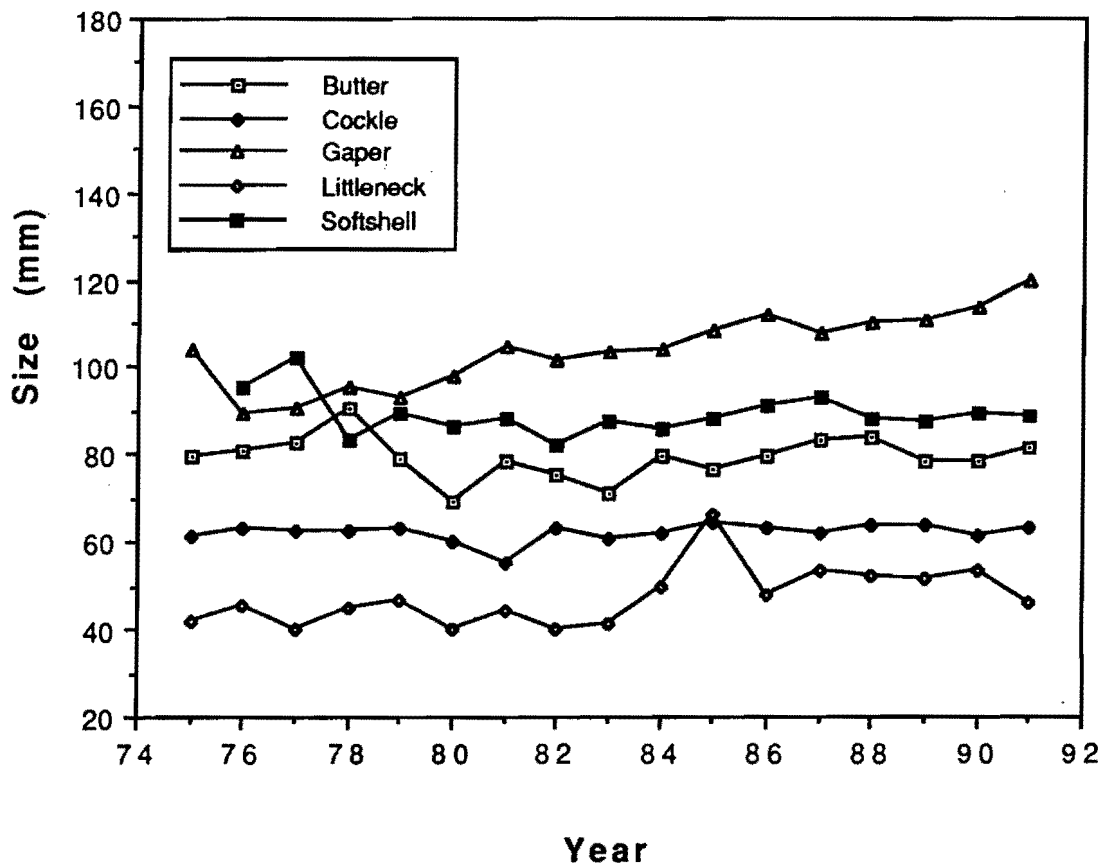


Figure 1. Length composition of recreationally harvested bay clams, all bays combined, 1975-91.

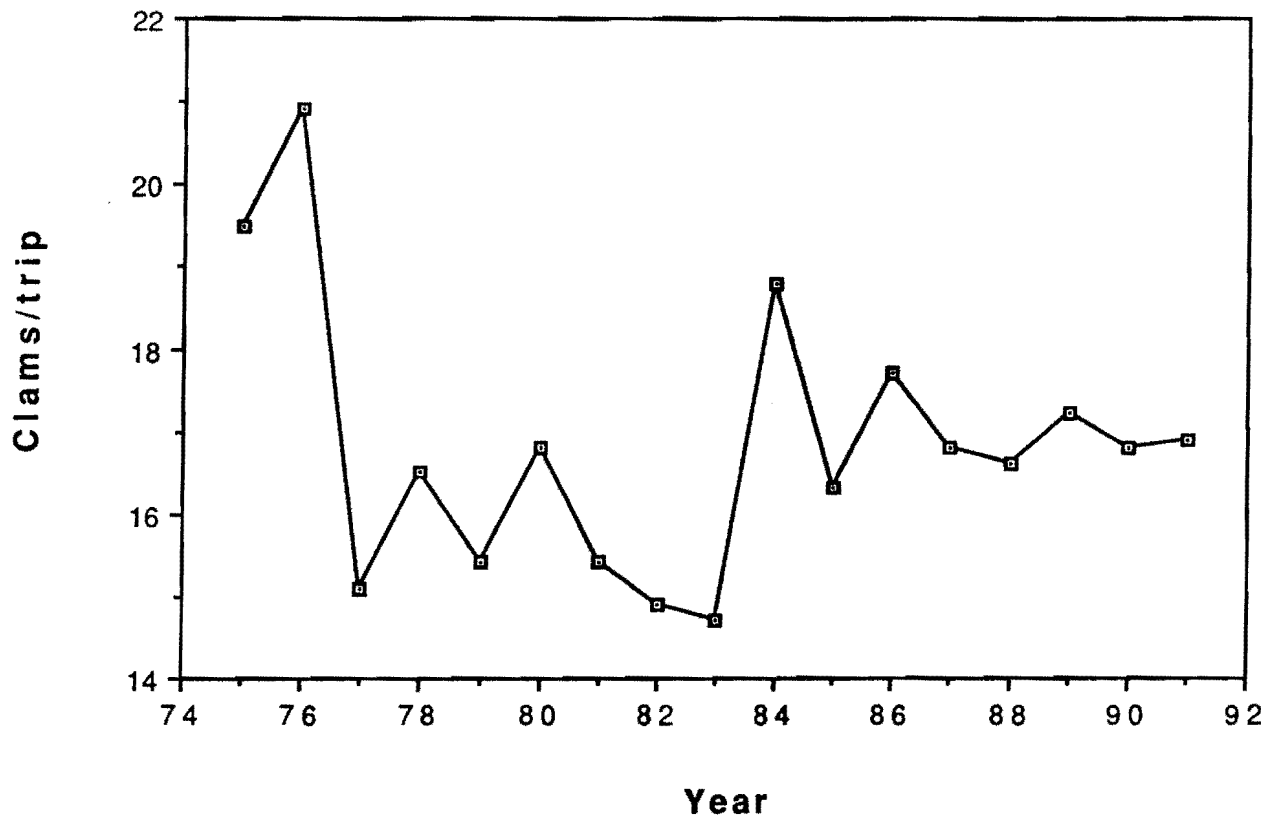


Figure 2. Clams per trip of recreationally harvested bay clams, all bays combined, 1975-91.

Table 25. Oregon commercial clam harvest in pounds, 1970-91.

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
1990	72,756	38	384	189.5	92
1991	87,842	40	473	185.7	126

Table 26. Summary of pounds of bay clams reported commercially harvested in Oregon by species, 1970-91.

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
1990	4,604	45,607	10,391	7,521	4,633	0	72,756
1991	3,690	58,282	8,660	8,708	9,215	0	87,842

Table 27. Summary of pounds of bay clams reported commercially harvested in major Oregon estuaries, 1970-91.

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
1990	5,810	47,198	0	1,543	410	0	3,432	14,363	0	72,756
1991	6,331	50,860	7,451	1,013	530	120	8,322	12,501	60	87,842