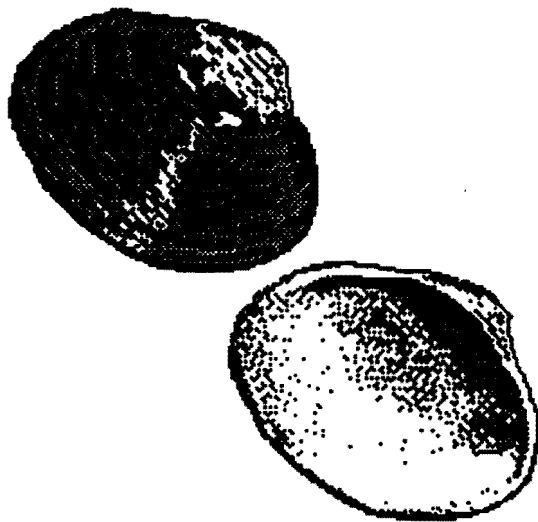


OREGON DEPARTMENT
OF
FISH AND WILDLIFE

BAY CLAM
DATA SERIES REPORT

1995



1995 BAY CLAM DATA SERIES REPORT

by

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1995 BAY CLAM DATA SERIES REPORT

INTRODUCTION

This report summarizes the results of our bay clam studies in 1995. Activities summarized include recreational and commercial clam fisheries. The tables and figures included give an 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.

RECREATIONAL CLAM FISHERY

Recreational clam digger interviews were 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. Recreational clam digger interviews for 1992 were totally eliminated due to budgetary restraints for the first time since 1976. We decided to initiate a volunteer recreational clam use survey for selected estuaries in 1993. Volunteers conducted 4,710 interviews in 1995 during selected low tides from April through July at key locations in Netarts, Tillamook, Yaquina, Alsea and Siuslaw bays. Volunteers examined 87,712 clams and gathered valuable data concerning catch per effort, species composition, digger origin, and peak use. Prior to the recent volunteer program, staff effort averaged about 1,200 interviews each year at a relatively high cost of staff time and money, compared to the volunteer program. We hope to expand this volunteer program to cover other estuaries for 1996. These data are presented in Tables 1-9, and Table 10 shows peak counts of clam diggers taken at low tide for each of the surveyed tideflats.

In 1995, volunteers interviewed 4,710 clam diggers that expended 4,571 hours to harvest 87,712 clams (Table 11). Clam diggers averaged 18.6 clams per trip and

19.2 clams per hour. Digging success was less than in 1994, when 19.5 clams per trip and 22.7 clams per hour were taken. The Commission approved a reduction in bag limit in 1977 from 36 to 20 as overharvest was a real concern. Diggers have averaged from 14.7 to 19.6 clams per trip since that time.

Oregon clam diggers normally travel some distance to harvest clams. In 1995, 36% of the diggers were local county residents. 53.1% were from Oregon but living outside the county of harvest, and 10.9% were out-of-state residents (Table 11).

As usual, the cockle clam was the most frequently observed species in the recreational fishery, representing 62% of the 1995 harvest (Table 11). Gaper, littleneck, softshell, and butter clams comprised 6.3%, 14.7%, 1%, and 16% of the bag, respectively.

No major changes in digging effort were evident for 1995. The peak count at Garibaldi Flat was an estimated 450 people, making it the most popular bay clam flat in Oregon. Effort in Netarts Bay at Happy Camp continued to decline. Peak count summary for 1995 is summarized in Table 10.

COMMERCIAL CLAM HARVEST

We issued 132 permits to commercial fishermen to harvest bay clams in 1995 (Table 12). Twenty four fishermen reported landings of 126,967 lbs of clams. In 1994, 32 fishermen reported landings of 180,934 lbs. Cockle clams represented the bulk of the commercial catch in 1995 at 97,324 lbs (76.7%) (Table 13). Tillamook Bay was the major producer of bay clams in Oregon with 103,702 lbs (81.7%). The Nehalem, Yaquina, and Netarts estuaries followed in order producing 9,143, 5,593, and 4,612 lbs of clams in 1995, respectively (Table 14).

Commercial harvest of cockle clams in Tillamook Bay decreased from 149,494 lbs in 1994 to 103,702 lbs in 1995. Native littleneck commercial harvest in Nehalem Bay continued to have a dramatic decrease from 31,966 lbs in 1993, and 5,533 lbs in 1994 to 9,143 lbs in 1995. As a result, we will pay particular attention to commercial harvest in these two bays in the future.

SPECIAL STUDIES

Native Oyster Enhancement

Netarts Bay

We initiated a project to re-establish the native oyster into Netarts Bay in 1993. We spawned 300 Yaquina Bay native oysters at Whiskey Creek Oyster Hatchery in Netarts Bay. We set seed on culch, and 6 million juvenile oysters were planted in July of 1993. A field investigation in August of that year showed quarter-sized juveniles. The natives continued to survive well in 1994 and 1995.

Alesea Bay

We planted Yaquina Bay native oysters in five locations in Alesea Bay the summers of 1994 and 1995. However, survival has been poor. We continue to plant the bay in various locations and hope for success.

Yaquina Bay

ODFW and the U.S. Corps of Engineers collaborated on a native oyster habitat enhancement project in 1995. The dredge "Yaquina" was used to haul two ship loads of shell and rock from the lower bay to former native oyster beds in the upper bay. This structure will provide needed spawning habitat for future population expansion.

Table 1. Annual Summary of Recreational Interview Data; Garibaldi Flat, Tillamook Bay

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
No. Diggers Sampled	597	456	359	219	132	200	107	290	277	421	476	450	272	-	2,031	3,028	2,443
No. Clams Sampled	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	-	39,816	59,573	50,363
No. Digger Hours	715	549	443	220	158	243	143	311	312	452	631	568	354	-	1,469	2,168	1,853
Hours per Trip	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	-	0.7	0.7	0.8
Clams per Trip	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	-	19.6	19.7	20.6
Clams per Hour	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	-	27.1	27.5	27.2
Digger Origin (%)																	
Local	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	-	36.0	28.1	27.8
State	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	-	56.9	67.1	62.1
Non-State	-	-	-	4.1	15.4	2.5	5.6	3.4	8.7	7.8	9.9	2.7	9.6	-	7.1	4.8	10.1
Species Comp. (%)																	
Butter	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	-	27.9	16.9	19.1
Cockle	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	-	45.8	55.4	55.4
Gaper	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	-	1.8	1.0	0.2
Littleneck	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	-	24.2	26.2	25.0
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.5	0.2
Clams per Trip																	
Butter	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	-	5.5	3.3	3.90
Cockle	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	-	9.0	10.9	11.40
Gaper	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	-	0.4	0.2	0.04
Littleneck	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	-	4.7	5.2	5.20
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.05
Clams per Hour																	
Butter	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	-	7.5	4.6	5.2
Cockle	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	-	12.4	15.2	15.1
Gaper	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	-	0.5	0.3	0.1
Littleneck	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	-	6.6	7.2	5.2
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	0.2	0.1

**Table 2. Annual Summary of Recreational Interview Data;
Tillamook Bay**

	Central Bay			Buoy 10		
	1993	1994	1995	1993	1994	1995
No. Diggers Sampled	343	402	209	63	-	-
No. Clams Sampled	6,420	7,965	4,116	1,174	-	-
No. Digger Hours	375	511	242	64	-	-
Hours per Trip	1.1	1.1	1.2	1.0	-	-
Clams per Trip	18.7	19.8	19.7	18.6	-	-
Clams per Hour	17.1	15.6	17.0	18.3	-	-
Digger Origin (%)						
Local	51.3	43.0	69.3	57.1	-	-
State	45.2	56.2	28.7	41.3	-	-
Non-State	3.5	0.8	1.9	1.6	-	-
Species Comp. (%)						
Butter	16.2	27.8	41.1	80.5	-	-
Cockle	79.0	67.4	53.3	18.7	-	-
Gaper	3.8	1.5	5.7	0.8	-	-
Littleneck	1.0	3.3	-	-	-	-
Softshell	-	-	-	-	-	-
Clams per Trip						
Butter	3.0	5.5	8.1	15.0	-	-
Cockle	14.8	13.4	10.5	3.5	-	-
Gaper	1.4	0.3	1.1	0.1	-	-
Littleneck	0.2	0.7	-	-	-	-
Softshell	-	-	-	-	-	-
Clams per Hour						
Butter	2.8	4.3	7.0	14.8	-	-
Cockle	13.5	10.5	9.1	3.4	-	-
Gaper	0.6	0.2	1.0	0.1	-	-
Littleneck	0.2	0.5	-	-	-	-
Softshell	-	-	-	-	-	-

Table 3. Annual Summary of Recreational Interview Data; Happy Camp, Netarts Bay

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
No. Diggers Sampled	222	106	71	168	280	84	99	60	103	108	91	62	27	-	23	13	146
No. Clams Sampled	2,823	1,293	991	2,020	2,994	1,009	1,010	579	709	1,068	870	398	390	-	255	251	1,493
No. Digger Hours	204	68	67	151	290	84	124	92	205	209	182	92	48	-	24	17	224
Hours per Trip	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	-	1.0	1.3	1.5
Clams per Trip	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	-	11.1	19.3	10.2
Clams per Hour	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	-	10.6	14.8	6.7
Digger Origin (%)																	
Local	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	-	43.5	-	20.5
State	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	-	56.5	100.0	69.2
Non-State	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	-	-	-	10.3
Species Comp. (%)																	
Butter	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	-	82.0	53.0	6.2
Cockle	-	0.1	-	0.1	0.1	4.0	0.1	2.1	2.1	3.4	1.8	1.3	10.5	-	4.7	10.4	0.8
Gaper	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	-	13.3	36.6	90.6
Littleneck	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	-	-	-	2.3
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams per Trip																	
Butter	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	-	9.1	10.2	0.6
Cockle	-	0.1	-	0.1	0.1	0.5	0.1	0.2	0.1	0.3	0.2	0.1	1.5	-	0.5	2.0	0.1
Gaper	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	-	1.5	7.1	9.3
Littleneck	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	-	-	-	0.2
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams per Hour																	
Butter	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	-	8.7	7.8	0.4
Cockle	-	0.1	-	0.1	0.1	0.5	0.1	0.1	0.1	0.2	0.1	0.1	0.9	-	0.5	1.5	0.1
Gaper	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	-	1.4	5.4	6.0
Littleneck	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	-	-	-	0.2
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4. Annual Summary of Recreational Interview Data; Cape Lookout Sand Spit, Netarts Bay

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
No. Diggers Sampled	85	63	80	56	118	71	52	42	71	147	100	117	35	-	244	253	735
No. Clams Sampled	1,560	1,074	1,397	1,029	2,174	1,362	1,040	819	1,409	2,765	1,713	2,314	387	-	4,649	3,658	12,385
No. Digger Hours	178	89	150	83	197	87	85	92	151	237	196	232	43	-	316	344	1,089
Hours per Trip	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	-	1.3	1.4	1.5
Clams per Trip	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	-	19.1	14.5	16.9
Clams per Hour	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	-	14.7	10.6	11.4
Digger Origin (%)																	
Local	36.5	17.5	12.5	41.6	38.1	43.7	53.8	31.0	26.8	18.4	41.0	31.6	8.6	-	52.0	36.1	38.9
State	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	-	40.0	58.6	50.3
Non-State	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	-	8.0	5.2	10.8
Species Comp. (%)																	
Butter	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	-	44.0	-	21.8
Cockle	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	-	47.0	82.6	56.0
Gaper	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	-	6.9	17.2	20.0
Littleneck	3.8	-	1.9	2.6	2.6	0.1	1.7	0.1	0.9	0.9	7.7	0.6	0.8	-	2.1	0.2	0.7
Softshell	-	-	-	-	-	1.8	-	-	-	-	-	3.2	2.3	-	-	-	1.4
Clams per Trip																	
Butter	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	-	8.4	-	3.7
Cockle	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	-	9.0	12.0	9.4
Gaper	2.9	0.8	2.3	2.2	1.1	1.7	-	0.7	0.6	0.6	1.0	2.4	5.8	-	1.3	2.5	3.4
Littleneck	0.7	-	0.3	0.5	0.5	<0.1	0.3	-	0.2	0.2	1.3	0.1	0.1	-	0.4	-	0.1
Softshell	-	-	-	-	-	0.4	-	-	-	-	-	0.6	0.3	-	-	-	0.2
Clams per Hour																	
Butter	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	-	6.5	-	2.5
Cockle	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	-	6.9	8.8	6.4
Gaper	1.4	0.6	1.2	1.5	0.7	1.4	-	0.3	0.3	0.4	0.5	1.2	4.8	-	1.0	1.8	2.3
Littleneck	0.3	-	0.2	0.3	0.3	<0.1	0.2	-	0.1	0.1	0.7	0.1	0.1	-	0.3	-	0.1
Softshell	-	-	-	-	-	0.3	-	-	-	-	-	0.3	0.2	-	-	-	0.2

Table 5. Annual Summary of Recreational Interview Data; Bridge Bed, Yaquina Bay

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
No. Diggers Sampled	143	142	342	149	202	191	207	120	110	102	108	91	72	-	319	94	70
No. Clams Sampled	1,313	1,222	3,773	1,609	1,543	1,383	1,765	1,363	960	814	834	1,031	818	-	3,612	976	783
No. Digger Hours	120	160	354	154	274	265	304	153	160	155	109	159	106	-	457	126	83
Hours per Trip	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	-	1.4	1.3	1.2
Clams per Trip	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	-	11.3	10.4	11.2
Clams per Hour	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	-	7.9	7.7	9.4
Digger Origin (%)																	
Local	22.1	18.3	41.7	48.3	32.2	45.5	31.3	25.8	32.7	18.6	38.0	28.6	26.4	-	26.3	26.6	68.3
State	76.2	70.1	49.1	48.3	67.8	49.7	62.8	72.5	64.5	72.5	62.0	61.8	63.9	-	67.1	62.8	31.7
Non-State	1.4	11.3	6.1	3.4	-	4.7	2.9	1.7	2.7	8.8	-	6.6	9.7	-	6.6	10.6	0.0
Species Comp. (%)																	
Butter	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	-	2.8	0.7	1.3
Cockle	7.9	1.1	15.7	7.2	12.9	5.2	11.2	11.1	2.8	10.1	9.9	12.1	1.9	-	9.8	8.8	1.0
Gaper	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	-	85.0	88.0	95.3
Littleneck	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	-	-	2.1	-
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other *	-	-	-	-	-	7.8	13.2	-	-	-	-	-	-	-	2.4	-	2.4
Clams per Trip																	
Butter	<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	-	0.3	0.1	0.1
Cockle	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	-	1.1	0.9	0.1
Gaper	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	-	9.6	9.1	10.7
Littleneck	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	-	-	0.2	-
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Clams per Hour																	
Butter	<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	-	0.22	0.1	0.1
Cockle	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	-	0.77	0.7	0.1
Gaper	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	-	6.70	6.8	9.0
Littleneck	-	-	-	-	0.2	0.2	0.4	0.2	0.3	0.2	0.3	0.2	0.2	-	-	0.2	-
Softshell	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

*Bentnose 7.0%, Inquinata 0.2%, other 0.6%

Table 6. Annual Summary of Recreational Interview Data

	Umpqua Triangle					Alsea Bay		N Fork	Smith River Bridge		
	1991	1992	1993	1994	1995	Seawall	N Shore	Siuslaw	1993	1994	1995
						1995	1995	1995			
No. Diggers Sampled	59	-	66	-	-	750	349	8	48	135	-
No. Clams Sampled	894	-	569	-	-	14,143	4,234	195	1,566	5,691	-
No. Digger Hours	81	-	97	-	-	774	290	16	58	143	-
Hours per Trip	1.4	-	1.5	-	-	1.0	0.83	2.0	1.2	1.1	-
Clams per Trip	15.2	-	9.6	-	-	18.9	12.10	24.4	32.6	42.2	-
Clams per Hour	11.1	-	5.8	-	-	18.3	14.60	12.2	27.0	39.8	-
Digger Origin (%)											
Local	52.5	-	47.0	-	-	46.4	53.4	0.0	37.5	53.0	-
State	33.9	-	25.8	-	-	39.8	29.9	87.5	52.1	32.1	-
Non-State	13.6	-	27.2	-	-	13.8	16.7	12.0	10.4	15.0	-
Species Comp. (%)											
Butter	0.0	-	-	-	-	0.0	0.0	-	-	-	-
Cockle	82.4	-	79.8	-	-	98.9	80.3	-	-	-	-
Gaper	17.4	-	20.0	-	-	0.3	13.4	-	-	-	-
Littleneck	0.1	-	-	-	-	0.8	2.4	-	-	-	-
Softshell	-	-	-	-	-	-	3.9	100.0	100.0	100.0	-
Clams per Trip											
Butter	0.0	-	-	-	-	-	0.0	-	-	-	-
Cockle	12.5	-	6.9	-	-	18.6	9.7	-	-	-	-
Gaper	2.6	-	1.7	-	-	0.1	1.6	-	-	-	-
Littleneck	-	-	-	-	-	0.2	0.3	-	-	-	-
Softshell	-	-	-	-	-	-	0.5	24.4	32.6	42.2	-
Clams per Hour											
Butter	0.0	-	-	-	-	0.0	0.0	-	-	-	-
Cockle	12.5	-	4.7	-	-	18.1	11.7	-	-	-	-
Gaper	2.6	-	1.2	-	-	0.1	2.0	-	-	-	-
Littleneck	-	-	-	-	-	0.2	0.4	-	-	-	-
Softshell	-	-	-	-	-	-	0.6	12.2	27.0	39.8	-

Table 7. Annual Summary of Recreational Interview Data; Charleston Triangle, Coos Bay

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
No. Diggers Sampled	40	32	20	58	91	50	96	107	40	-	-	43	-
No. Clams Sampled	771	588	410	1,193	1,647	814	1,535	1,742	606	-	-	438	-
No. Digger Hours	44	27	25	75	105	75	115	141	47.5	-	-	69	-
Hours per Trip	1.1	0.8	1.2	1.3	1.2	1.5	1.2	1.3	1.2	-	-	1.6	-
Clams per Trip	19.3	18.4	20.5	20.6	18.1	16.3	16.0	16.3	15.2	-	-	10.2	-
Clams per Hour	17.5	22.0	16.7	16.0	15.7	10.9	13.4	12.4	12.8	-	-	6.3	-
Digger Origin (%)													
Local	22.5	40.6	50.0	29.3	34.1	20.0	21.9	20.6	22.5	-	-	26.8	-
State	72.5	56.3	35.0	62.1	47.3	52.0	68.8	71.0	37.5	-	-	51.2	-
Non-State	5.0	3.1	15.0	8.6	18.1	28.0	9.4	8.4	40.0	-	-	22.0	-
Species Comp. (%)													
Butter	19.6	10.9	13.2	2.6	13.2	11.8	2.7	3.3	0.2	-	-	0.5	-
Cockle	55.1	69.2	56.6	66.5	47.3	43.2	47.5	34.6	57.6	-	-	3.0	-
Gaper	3.9	15.0	20.5	17.5	31.3	32.9	44.9	48.1	41.7	-	-	91.6	-
Littleneck	23.2	4.9	9.5	8.5	5.8	8.8	5.0	9.4	1.5	-	-	-	-
Softshell	-	-	-	0.3	0.1	-	-	0.1	-	-	-	-	-
Clams per Trip													
Butter	3.8	2.0	2.7	0.5	2.4	1.9	0.4	0.5	-	-	-	0.1	-
Cockle	10.6	12.7	11.6	13.7	8.6	7.0	7.4	5.6	8.7	-	-	0.3	-
Gaper	0.8	2.8	4.2	3.6	5.7	5.4	7.0	7.8	6.3	-	-	9.3	-
Littleneck	4.5	0.9	1.9	1.8	1.1	1.4	0.8	1.5	0.1	-	-	0.5	-
Softshell	-	-	-	0.1	-	-	-	<0.1	-	-	-	-	-
Clams per 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	-	-	0.2	-
Gaper	0.7	3.3	3.4	2.8	4.9	3.6	5.9	6.0	5.3	-	-	5.8	-
Littleneck	4.1	1.1	1.6	1.4	0.9	1.0	0.7	1.2	0.1	-	-	0.3	-
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 8. Annual Summary of Recreational Interview Data; Charleston Flat, Coos Bay

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
No. Diggers Sampled	60	27	18	100	113	97	61	65	65	-	-	90	-
No. Clams Sampled	859	435	341	1,980	2,145	1,523	974	887	938	-	-	925	-
No. Digger Hours	125	29	32	180	185	176	103	113	110	-	-	113	-
Hours per Trip	2.1	1.1	1.8	1.8	1.6	1.8	1.7	1.7	1.7	-	-	1.26	-
Clams per Trip	14.3	16.1	18.9	19.8	19.0	15.7	16.0	13.6	14.4	-	-	10.30	-
Clams per Hour	6.9	15.1	10.7	11.0	11.6	8.7	9.5	7.8	8.6	-	-	8.20	-
Digger Origin (%)													
Local	21.7	40.7	16.7	35.0	28.3	20.6	14.8	36.9	41.5	-	-	11.4	-
State	73.3	51.9	38.9	57.0	48.7	66.0	68.9	49.2	46.2	-	-	65.9	-
Non-State	5.0	7.4	44.4	8.0	23.0	13.4	16.4	13.8	12.3	-	-	22.7	-
Species Comp. (%)													
Butter	2.0	4.6	6.7	2.8	2.7	10.2	4.8	5.5	19.4	-	-	3.6	-
Cockle	46.6	60.9	72.4	83.3	63.9	35.4	31.8	9.1	16.5	-	-	4.5	-
Gaper	38.8	27.6	17.3	8.8	26.2	42.5	47.7	71.6	58.3	-	-	84.7	-
Littleneck	10.6	3.7	3.5	4.1	4.7	10.8	14.5	11.6	5.8	-	-	7.0	-
Softshell	-	3.0	-	0.1	-	0.4	1.3	-	0.0	-	-	-	-
Clams per Trip													
Butter	0.3	0.7	1.3	0.6	0.5	1.6	0.7	0.8	2.7	-	-	0.4	-
Cockle	6.7	9.8	13.7	16.5	12.1	5.6	4.9	1.2	2.3	-	-	0.5	-
Gaper	5.6	4.4	3.3	1.8	5.0	6.7	7.3	9.8	8.1	-	-	8.7	-
Littleneck	1.5	0.6	0.7	0.8	0.9	1.7	2.2	1.6	0.8	-	-	0.7	-
Softshell	-	0.5	-	<0.1	-	0.1	0.2	-	-	-	-	-	-
Clams per Hour													
Butter	0.1	0.7	0.7	0.3	0.3	0.9	0.4	0.4	1.6	-	-	0.3	-
Cockle	3.2	9.2	7.7	9.2	7.4	3.1	2.9	0.7	1.4	-	-	0.4	-
Gaper	2.7	4.6	1.8	1.0	3.0	3.7	4.3	5.6	4.8	-	-	6.9	-
Littleneck	0.7	0.6	0.4	0.5	0.5	0.9	1.3	0.9	0.5	-	-	0.6	-
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 9. Annual Summary of Recreational Interview Data; Pigeon Point, Coos Bay

	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
No. Diggers Sampled	111	43	10	68	64	24	59	37	44	-	-	18	-
No. Clams Sampled	1,681	679	190	1,160	1,003	444	927	485	700	-	-	163	-
No. Digger Hours	95	70	19	145	119	42	105	67	78	-	-	24	-
Hours per Trip	0.9	1.6	1.9	2.1	1.9	1.8	1.8	1.8	1.8	-	-	1.3	-
Clams per Trip	15.1	15.8	19.0	17.1	15.7	18.5	15.7	13.1	15.9	-	-	9.0	-
Clams per Hour	17.7	9.7	10.0	8.0	8.4	10.6	8.9	7.3	9.0	-	-	6.8	-
Digger Origin (%)													
Local	45.9	65.1	20.0	51.5	32.8	41.7	23.7	40.5	43.2	-	-	35.3	-
State	48.6	27.9	60.0	41.2	51.6	58.3	61.0	51.4	20.5	-	-	52.9	-
Non-State	5.4	7.0	20.0	7.4	15.6	-	15.3	8.1	36.4	-	-	11.8	-
Species Comp. (%)													
Butter	27.1	36.4	47.9	56.5	48.6	41.8	40.5	37.7	57.7	-	-	37.4	-
Cockle	0.7	8.0	2.1	1.3	6.0	-	4.5	-	-	-	-	5.5	-
Gaper	51.2	32.7	10.0	17.2	11.1	15.3	3.0	23.9	15.5	-	-	3.1	-
Littleneck	20.9	22.5	39.5	24.1	33.3	32.9	51.9	37.5	26.9	-	-	52.8	-
Softshell	-	0.6	-	0.8	-	0.7	-	-	-	-	-	-	-
Clams per Trip													
Butter	4.1	5.4	9.1	9.6	7.6	8.3	6.4	4.9	9.2	-	-	3.4	-
Cockle	0.1	1.3	0.4	0.2	0.9	-	0.7	-	-	-	-	0.5	-
Gaper	7.7	5.2	1.9	2.9	1.7	2.8	0.5	3.1	2.5	-	-	0.3	-
Littleneck	3.2	3.6	7.5	4.1	5.2	6.1	8.1	4.9	4.3	-	-	4.8	-
Softshell	-	0.1	-	0.1	-	0.1	-	-	-	-	-	-	-
Clams per Hour													
Butter	4.8	3.5	4.8	4.5	4.1	4.7	3.6	2.8	5.2	-	-	2.5	-
Cockle	0.1	0.8	0.2	0.1	0.5	-	0.4	-	-	-	-	0.4	-
Gaper	9.1	3.2	1.0	1.4	0.9	1.6	0.3	1.7	1.4	-	-	0.2	-
Littleneck	3.7	2.2	3.9	1.9	2.8	3.5	4.6	2.7	2.4	-	-	3.6	-
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	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 10. Peak Counts of Clam Diggers*

Estuary	Tideflat	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
Tillamook	Garibaldi Flat	300	460	516	487	350	118	380	400	257	547	585	127	-	482	500	450
Netarts	Happy Camp	160	425	500	478	200	191	314	265	116	163	126	-	-	150	30	55
Yaquina	Bridge Bed	84	225	625	275	84	107	204	225	110	235	158	176	-	61	22	86
Alsea	North Bank	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	32
	Seawall	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	99
Umpqua	Smith River Bridge	-	-	-	-	-	-	-	-	-	-	-	-	-	23	-	-
	Umpqua Triangle	-	-	-	-	-	-	-	-	-	-	-	43	-	31	-	-
Coos Bay	Charleston Triangle	-	-	-	31	24	41	39	87	82	59	66	36	-	-	44	-
	Charleston Flat	-	-	-	64	30	26	27	66	103	54	84	65	-	-	34	-
	Pigeon Point	-	-	-	62	50	42	67	97	52	51	74	44	-	-	7	-

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

Table 11. Annual Summary of Recreational Interview Data; All Estuaries Combined

	1979	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995
No. Diggers Sampled	1,603	1,284	1,276	870	1,506	1,800	898	1,392	1,508	1,324	1,549	1,363	1,131	-	3,137	4,090	4,710
No. Clams Sampled	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	-	58,061	79,975	87,712
No. Digger Hours	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	-	2,859	3,525	4,571
Hours per Trip	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	-	0.91	0.86	0.97
Clams per Trip	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	-	18.50	19.60	18.60
Clams per Hour	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	-	20.30	22.70	19.20
Digger Origin (%)																	
Local	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	-	38.7	30.3	36.0
State	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	-	54.3	64.2	53.1
Non-State	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	-	7.0	5.5	10.9
Species Comp. (%)																	
Butter	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	-	26.6	15.6	16.0
Cockle	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	-	45.7	52.2	62.0
Gaper	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	-	7.8	4.3	6.3
Littleneck	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	-	16.9	20.1	14.7
Softshell	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	-	2.9	7.8	1.0
Clams per Trip																	
Butter	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	-	4.9	3.1	3.0
Cockle	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	-	8.5	10.2	11.6
Gaper	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	-	1.4	0.8	1.2
Littleneck	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	-	3.1	3.9	2.7
Softshell	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	-	0.5	1.5	0.1
Clams per Hour																	
Butter	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	-	5.4	3.5	3.1
Cockle	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	-	9.3	11.8	11.9
Gaper	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	-	1.6	1.0	1.2
Littleneck	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	-	3.4	4.6	2.8
Softshell	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	-	0.6	1.8	0.1
Size Comp. (x size)																	
Butter	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	63.1	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	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	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	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	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 12. Oregon Commercial Clam Harvest in Pounds; 1970-1995

Year	Harvest (lb)	# Diggers	# Landings	Ave. lb/Landing	# 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
1992	62,044	29	410	151.3	115
1993	127,730	38	733	174.3	111
1994	180,934	32	422	428.8	113
1995	126,967	24	393	323.1	132

**Table 13. Summary of Pounds of Bay Clams Reported
Commercially Harvested in Oregon by Species; 1970-1995**

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
1992	475	35,800	8,609	10,980	6,180	0	62,044
1993	6,382	72,340	4,169	35,913	7,312	0	127,730
1994	1,961	163,295	2,146	6,084	7,448	0	180,934
1995	7,852	97,324	12,677	9,008	106	0	126,967

Table 14. Summary of Pounds of Bay Clams Reported Commercially Harvested in Major Oregon Estuaries; 1970-1995

Year	Nehalem	Tillamook	Netarts	Yaquina	Alsea	Siusiaw	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
1992	4,597	35,935	379	7,067	1,398	0	6,095	5,986	87	62,044
1993	31,966	76,103	54	2,843	1,495	93	7,105	5,698	0	127,730
1994	5,533	149,494	422	2,413	3,441	0	7,403	12,042	25	180,934
1995	9,143	103,702	4,612	5,593	3,737		120	60	0	126,967