

SHELLFISH INVESTIGATION
INFORMATION REPORT

1983 Razor Clam Fishery

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Marine Region

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INTRODUCTION

Razor clams from Clatsop Beach (Tillamook Head to Columbia River) were sampled regularly from March through September and periodically the rest of the year. Sport and commercial diggers were interviewed to obtain data on number, age composition of clams dug and harvest area. Data from other beaches south of Tillamook Head were collected as time permitted. Random wastage and age-length samples were collected and data from the shellfish license survey are summarized.

SPORT FISHERY

Clatsop Beach

A record low of 117,000 clams were dug, including 12,000 clams wasted, on 32,000 digger trips. This represents a 85.6% decrease in number of clams dug and a 54.9% decrease in digger trips for the ten-year average 1973-82. Area 3 accounted for 30.5% of the clams dug and 28.4% of the digger trips while Area 1 had 28.7% of the clams dug and 20.4% of the digger trips. Table 1 lists harvest, catch rates and number of diggers by statistical area.

Clam wastage was calculated at 10.0%. Wastage was minimal due to scarcity of clams as most diggers kept everything they dug. Age composition of sport catch was about the same as the ten-year average (Table 2).

Clatsop beach averaged a record low of 3.3 clams per digger trip. Clam populations declined during winter months when unusual beach erosion greatly reduced populations on Seaside and Gearhart beaches. Seaside Cove area was eroded severely exposing a 12 to 14-foot berm of rocks in front of the Tides Motel. Summer found little in the way of 1982 age class, and fall digging was poor, as clams could only be found on outside bars. Fall effort was light.

Table 1. Sport harvest of razor clams and number of diggers by area from Clatsop Beach, March to September 1983.

Area	Miles of Beach	No. of Digger Trips	Clams Dug/ Digger Trip	No. of Clams Dug	No. of Clams Wasted	Harvest Total
1	3.6	6,527	4.6	30,155	3,351	33,506
2	6.2	7,527	3.1	23,310	2,590	25,900
3	5.0	9,089	3.5	31,984	3,555	35,549
4	1.2	1,144	3.9	4,451	495	4,946
5	2.0	7,728	2.0	15,147	1,683	16,830
Total	18.0	32,015	3.3	105,047	11,674	116,731

Area 1 - Columbia River to Ft. Stevens Park Rd.
 2 - Ft. Stevens Park Rd. to Sunset Beach Rd.
 3 - Sunset Beach Rd. to Gearhart Beach Rd.
 4 - Gearhart Beach Rd. to Necanicum River
 5 - Necanicum River to Tillamook Head, Seaside

Table 2. Age composition in percent of sport dug clams, from Clatsop Beach, 1978-1983.

Year of Harvest	Age					
	0	1	2	3	4	5
1978	28.7	61.8	4.0	3.5	1.3	0.7
1979	12.3	75.3	11.1	0.9	0.3	0.1
1980	44.6	32.0	16.7	6.1	0.5	0.1
1981	44.1	51.4	3.1	1.3	0.1	0.0
1982	18.1	80.7	0.6	0.5	0.1	0.0
1983	29.5	55.7	13.7	1.1	0.0	0.0
10-year Average	26.5	54.7	12.2	4.7	1.4	0.5

The parasite called NIX, (unknown nuclear inclusion) that is being blamed for a massive die off of Washington clams, was found in Clatsop beach clams, also. A sample of 10 clams collected in December, 1983 revealed that nine clams were lightly infected. "Losses in Oregon due to the parasite would be argumentative", according to Battel Laboratories who examined the clams. The parasite seems to affect mostly older clams, but random samples collected in December, 1983, showed no lack of older clams.

Beaches South of Tillamook Head

Data were obtained from 9 beaches and are summarized in Table 3. Beaches south of Tillamook Head were heavily eroded during the winter, but were wide with well formed bars by spring. Beach elevations at Arch Cape taken by James Markham has shown a general loss of sand over the last 4 years and up to a 4.2-foot loss of sand in Jan-Feb, 1983. Rapid erosion was also observed at the same time in the Seaside-Gearhart area.

Table 3. Razor clam data from beaches south of Tillamook Head.

Area Samples	No of Diggers	No of clams	Clams/Digger	Age Composition						
				0	1	2	3	4	5	6
Indian Beach	2	5	2.5		20.0	80.0				
Silver Point Beach	1	1	1.0			100.0				
Short Sands Beach	5	20	4.0	65.0	30.0	3.0	2.0			
Agate Beach	22	316	14.4			23.4	39.4	17.0	20.2	
Bastendorf Beach	3	5	1.7							
Whiskey Run	49	262	5.4	1.9	20.2	55.8	21.6	.5		
Port Orford	1	13	13.0							
Bailey Beach	32	348	10.9	19.4	5.3	20.9	8.8	38.8	5.3	1.5
Myers Creek	21	133	6.3	5.8	15.9	20.3	26.1	29.0	2.9	

COMMERCIAL FISHERY

A record low of 100 pounds of clams was sold by 9 diggers. Clatsop Beach produced 49 pounds while 51 pounds came from beaches south of Tillamook Head. The age composition is given in Table 4 and shows that one-year old clams predominate. Catches were so small most were kept for personal use.

Table 4. Age composition in percent of commercially dug clams from Clatsop Beach 1978-1983.

Year of Harvest	Age					
	0	1	2	3	4	5
1978	0.8	70.8	10.7	12.6	3.4	1.7
1979	0.0	61.9	26.1	7.1	4.0	0.9
1980	0.7	90.9	7.5	0.7	0.0	0.2
1981	1.4	89.8	8.8	0.0	0.0	0.0
1982	0.4	98.7	0.7	0.2	0.0	0.0
1983	2.5	65.5	24.0	8.0	0.0	0.0
10-year Average	1.7	66.6	18.0	8.3	4.2	1.2

EL NINO AFFECT

Razor clam landings have fluctuated annually with no known cause or predictability (Table 5). It is thought that an El Nino is usually followed by a decline in clam population. In 1941 an El Nino occurred and a low commercial catch was recorded in 1942-43. In 1957-58 an El Nino occurred and total landings dropped over a million clams in 1959. Catch fluctuated around one million clams until 1972-73 when an El Nino occurred and again harvest dropped to a record low harvest in 1974. Landings reached over 2 million clams in 1976 but fell to .8 million in 1977 after the recording of a El Nino in 1976-77. The presence of the 1982-83 El Nino noted a decline in 1983 in clams to a new record low .1 million.

Table 5. Annual Harvest and Effort Data for the Sport and Commercial Fishery.

Year	Commercial		Sport			Wastage	Total Harvest
	Number of Diggers	Number of Clams Landed	Number of Diggers	Clams per Digger Trip	Number of Clams Dug		
1955	295	904,000	56,000	21.6	1,212,000	295,000	2,411,000
1956	253	490,000	60,000	17.7	1,061,000	295,000	1,846,000
1957	193	336,000	77,000	21.4	1,646,000	416,000	2,398,000
1958*	221	386,000	89,000	18.9	1,679,000	218,000	2,283,000
1959	118	179,000	54,000	12.0	646,000	124,000	949,000
1960	93	154,000	48,000	12.4	596,000	46,000	796,000
1961	58	80,000	51,000	11.4	583,000	70,000	733,000
1962	79	102,000	56,000	15.9	892,000	105,000	1,099,000
1963	77	107,000	55,000	13.0	713,000	70,000	890,000
1964	125	125,000	71,000	15.5	1,098,000	264,000	1,487,000
1965	213	399,000	76,000	14.9	1,134,000	186,000	1,719,000
1966	217	282,000	78,000	13.6	1,052,000	434,000	1,768,000
1967	297	494,000	74,000	19.9	1,472,000	195,000	2,161,000
1968	340	361,000	64,000	13.0	831,000	162,000	1,354,000
1969	185	111,000	59,000	14.4	851,000	155,000	1,117,000
1970	79	61,000	56,000	12.8	751,000	125,000	901,000
1971	134	123,000	77,000	12.6	968,000	213,000	1,304,000
1972	76	49,000	69,000	9.2	636,000	139,000	824,000
1973*	111	89,000	76,000	9.5	725,000	159,000	973,000
1974	58	32,000	44,000	7.9	347,000	5,000	384,000
1975	146	171,000	75,000	10.5	785,000	157,000	1,113,000
1976	391	717,000	119,000	12.0	1,431,000	63,000	2,211,000
1977*	269	143,000	51,000	9.6	499,000	33,000	675,000
1978	253	205,000	72,000	11.8	849,000	137,000	1,191,000
1979	236	180,000	90,000	10.7	958,000	63,000	1,201,000
1980	145	116,000	70,000	10.6	747,000	143,000	1,006,000
1981	91	128,000	30,000	6.2	187,000	49,000	364,000
1982	209	165,000	84,000	9.1	758,000	123,000	1,046,000
1983*	9	1,000	32,000	3.3	105,000	12,000	118,000

* Occurrences of El Nino

Researchers describe the entire period since 1976 as a "mild" El Nino characterized by southward shift of winter storm tracks. This correlates with sporadic year classes, high mortality and lack of population of clams during the same period. Although declines may be predicted on occurrences of El Nino which causes a cycling of the population, causes of fluctuations of annual harvest are not known.

SHELLFISH LICENSE SURVEY

Razor clam diggers were surveyed on Clatsop Beach and south coast beaches to determine effect of a shellfish license. Table 6 summarizes the results of the survey. The number of diggers shown in column 2 were derived by applying the percentages to the effort count of 1982 of 83,563 for Clatsop Beach and 8,356 diggers for the south coast beaches.

Table 6. Summary of shellfish license survey.

		No. Individuals based on 83,563 digger trips
Clatsop Beach		
Diggers digging last year	65.1%	
Diggers not digging last year	38.5%	
Digging trips per Individual	6.5	12,797
Diggers under 14 years of age	3.8%	337
Diggers over 14 years of age	96.2%	12,460
Diggers over 14 years of age having license	88.7%	11,052
Diggers over 14 years of age not having license	11.3%	1,408
Diggers who would buy license if required	84.6%	1,191
Diggers digging other species of clams	7.9%	1,011
Digging trips per digger for other species	3.1	
South Coast Beaches		
		No. Individuals based on 8,356 digging trips
Diggers digging last year	49.4%	
Diggers not digging last year	50.6%	
Digging trips per Individual	6.5	1,705
Diggers under 14 years of age	3.5%	60
Diggers over 14 years of age	96.5%	1,645
Diggers over 14 years of age having license	96.1%	1,581
Diggers over 14 years of age not having license	3.9%	64
Diggers who would buy license if required	45.0%	29

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