

1977 OREGON SHRIMP SEASON

by

Jerry Lukas

INFORMATIONAL REPORT 78-2

Oregon Department of Fish and Wildlife

March 1978

1977 OREGON SHRIMP SEASON

Oregon pink shrimp (*Pandalus jordani*) landings in 1977 were a record 48.6 million pounds, nearly double the previous record 25.4 million pounds landed in 1976 (Figure 1). The season opened April 1 with an ex-vessel price of 23 cents per pound, up 3 cents from the price at the end of the 1976 season. This price held steady through the season, helped by very good market demand for the product.

Favorable weather, the strong market, and high abundance/availability of shrimp during most of the season allowed for increased effort expended by the Oregon shrimp fleet and increased catch and landings. Another factor also was an increased usage of the high opening (averaging 12 ft) box trawl. The standard for years was a net that opened 4-6 ft high. The higher opening box trawl increased efficiency by capturing shrimp when they were up in the water column especially during periods when light transmission to the bottom was reduced during cloudy weather and/or during heavy plankton blooms.

The high shrimp production in 1977 resulted in record landings at most Oregon ports (Table 1). Twenty processors bought shrimp in Oregon, one more than in 1976, and used 50 shrimp machines to process the product.

Table 1. Annual shrimp landings at Oregon ports 1975-77, in thousands of pounds^{1/}.

Port	Year		
	1975	1976	1977
Astoria	5,062	5,688	11,697 ^{2/}
Garibaldi	3,830	3,761	5,739 ^{2/}
Newport	5,124	7,702	15,361 ^{2/}
Winchester Bay	1,393	578	1,921 ^{2/}
Coos Bay	7,035	6,256	12,056 ^{2/}
Bandon	309	13	-
Port Orford	833	754	1,011
Gold Beach	13	-	-
Brookings	294	640	795

^{1/} Figures represent only the shrimp poundage landed at each port, not the poundage that was processed. (Some was transhipped to other ports).

^{2/} Record annual landing.

Not only did Oregon have a record shrimp harvest; so did our neighboring states of Washington and California (Table 2). Shrimp landings in Washington were slightly above their previous record in 1975. California's preliminary landing data shows a season total three times greater than their record 1975 season. Through the years Oregon's shrimp production has been the largest of the three lower Pacific coast states.

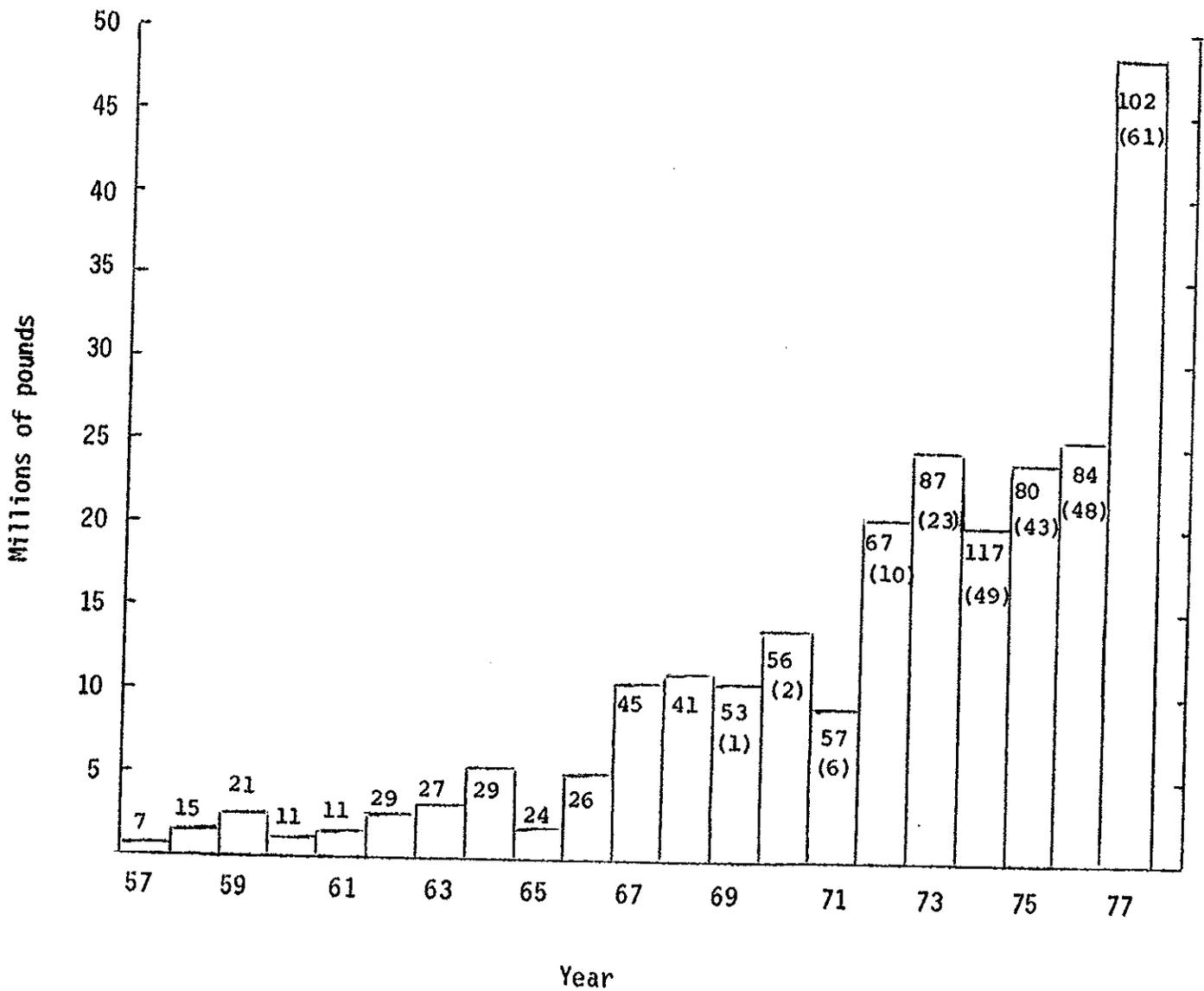


Figure 1. Annual Oregon shrimp landings and number of shrimp boats, number of double-rigged boats in parenthesis and included in total.

Table 2. Annual landings of shrimp by state, province and entire Pacific coast, 1968-1977 (in thousands of pounds; primarily *Pandalus sp.*) Source: PMFC Crab and Shrimp Data Series.

Year	Alaska	Br. Columbia	Washington	Oregon	California	Total
1968	42,023	1,566	1,164	10,976	2,275	58,004
1969	47,851	2,119	1,425	10,505	2,948	64,848
1970	74,256	1,538	926	13,735	4,048	94,502
1971	94,891	735	678	9,291	3,081	108,676
1972	81,262	794	1,582	20,861	2,490	106,989
1973	119,964	1,729	5,271	24,517	1,240	152,704
1974	108,275	2,644	9,325	19,968	2,264	142,496
1975	97,621	1,728	10,167	23,893	4,993	138,402
1976	129,011	8,470	9,261	25,392	3,468	175,602
1977 ^{1/}	116,872	6,200	11,400	48,580	15,630	198,682

^{1/} Preliminary

The opening month of Oregon's shrimp season was rather uneventful. Weather hampered effort somewhat yet 3.3 million pounds were landed (Table 3). This was the best production in April since 1973. In May, landings increased tremendously. Over 10.2 million pounds were harvested, a record for a one-month period. Nearly half of the production for the month came from state area 22, between Cape Perpetua and Coos Bay; and more specifically from an area called the mudhole off the Siuslaw River. Monthly landings from June through August were consistently over 8 million pounds per month, sixty percent greater than monthly production during a comparable period last year. September's landings dropped somewhat but were still at a high level.

The boundaries of the state areas listed in Table 2 are shown in Figure 2. Also shown are the 1977 annual landings with 1976 landings for comparison.

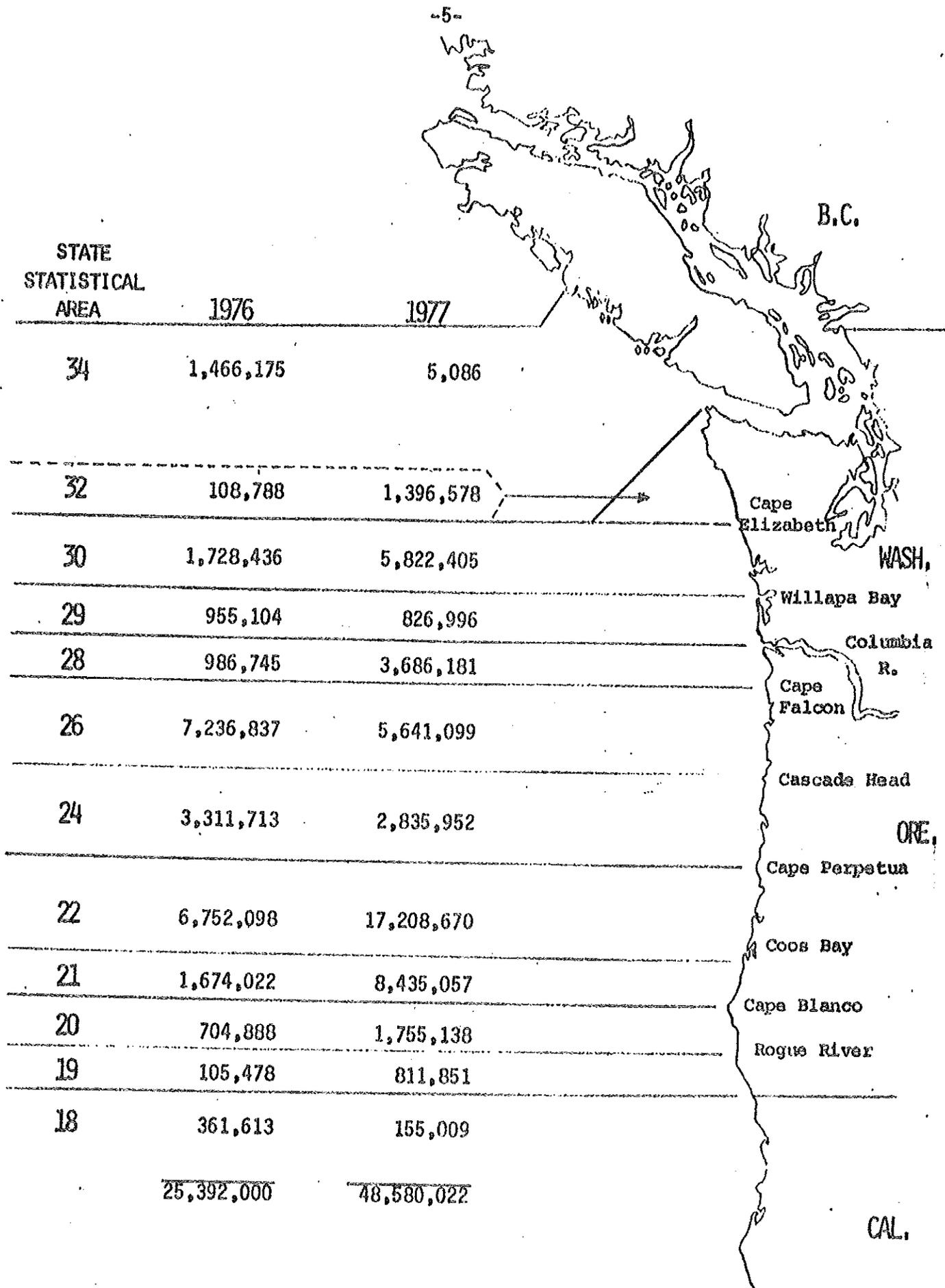
Only 5,000 pounds of Oregon-landed shrimp were caught off Vancouver Island in 1977, an area that had been a good producer for Oregon (and Washington) boats in 1974 and 1976 (Table 5). The Canadians closed the area at the end of June and did not reopen it during the remainder of the season.

Over 8 million pounds of shrimp were caught by Oregon boats off the coast of Washington. The majority of the production came from area 30 off Grays Harbor and was a record annual catch for this area (Table 4). Over a million pounds per month was taken from this area from May through August. Double rig vessels averaged 1,052 lbs per hour and single rig vessels averaged 822 lbs per hour. Production from the Destruction Island grounds (area 32) was greater than in 1976 but not a record.

Over 40 million pounds of shrimp were caught in coastal waters off Oregon. Shrimp production from northern Oregon (areas 24, 26 and 28) was 12.2 million pounds, slightly more than the 11.5 million pounds landed in 1976. Area 28 production at 3.7 million pounds was a record. Monthly landings were sporadic with peaks in June and August and low production during the rest of the season. Shrimp landings from areas 24 and 26 were down from the 1976 record landings of 10.5 million pounds.

Table 3. Oregon 1977 monthly shrimp catch and catch-per-effort by statistical area for single and double-rigged vessels.

State Area	April	May	June	July	August	Sept.	Oct.	Total
34 C	5.1	-	-	-	-	-	-	5.1
C/E ₁	-	-	-	-	-	-	-	-
C/E ₂	565	-	-	-	-	-	-	565
32 C	-	-	422.4	584.8	111.0	278.4	-	1,396.6
C/E ₁	-	-	895	1,224	679	-	-	1,045
C/E ₂	-	-	1,407	1,365	811	1,146	-	1,170
30 C	246.9	1,192.3	1,401.1	1,036.4	1,189.9	644.0	111.8	5,822.4
C/E ₁	1,090	987	1,118	752	897	652	548	822
C/E ₂	919	1,146	1,198	935	1,046	944	667	1,052
29 C	137.5	10.4	69.1	275.1	130.0	150.6	54.4	827.0
C/E ₁	460	-	581	460	399	480	358	465
C/E ₂	646	418	708	795	1,063	721	659	751
28 C	11.8	434.2	1,253.8	448.6	1,125.6	240.7	171.5	3,686.2
C/E ₁	-	994	779	739	613	536	424	695
C/E ₂	253	1,259	832	807	982	815	636	886
26 C	646.2	1,844.1	855.8	1,475.5	632.2	156.1	31.2	5,641.1
C/E ₁	338	728	724	507	530	397	323	582
C/E ₂	552	909	876	785	567	633	464	751
24 C	679.7	602.5	11.5	1,400.0	101.6	4.1	36.5	2,836.0
C/E ₁	374	462	125	556	436	-	-	437
C/E ₂	667	923	83	877	442	237	2,030	790
22 C	866.3	4,802.1	2,815.4	1,469.8	1,224.0	4,486.2	1,544.9	17,208.7
C/E ₁	538	1,057	720	514	709	1,103	626	786
C/E ₂	895	1,706	1,305	771	961	1,250	1,086	1,232
21 C	556.2	1,079.5	1,515.3	558.7	3,212.5	472.8	1,040.1	8,435.1
C/E ₁	832	1,330	1,235	780	1,193	994	1,251	1,120
C/E ₂	1,065	1,959	1,819	954	1,503	1,341	1,830	1,526
20 C	-	110.7	112.5	1,038.8	313.6	120.6	59.1	1,755.1
C/E ₁	-	1,403	1,035	1,630	904	1,396	-	1,424
C/E ₂	-	-	-	1,956	1,337	-	1,779	1,920
19 C	107.5	110.4	-	-	79.1	380.0	134.8	811.9
C/E ₁	-	-	-	-	1,530	2,166	1,002	1,585
C/E ₂	1,465	1,280	-	-	-	1,593	-	1,424
18 C	13.7	23.6	-	-	28.9	-	88.9	155.0
C/E ₁	-	-	-	-	4,012	-	-	4,012
C/E ₂	888	890	-	-	-	-	3,328	1,838
Total	3,270.8	10,209.9	8,456.8	8,287.6	8,148.2	6,933.5	3,273.1	48,580.0
	564	1,045	870	745	893	1,076	817	865
	721	1,282	1,151	891	1,051	1,139	1,171	1,062



STATE STATISTICAL AREA	1976	1977
34	1,466,175	5,086
32	108,788	1,396,578
30	1,728,436	5,822,405
29	955,104	826,996
28	986,745	3,686,181
26	7,236,837	5,641,099
24	3,311,713	2,835,952
22	6,752,098	17,208,670
21	1,674,022	8,435,057
20	704,888	1,755,138
19	105,478	811,851
18	361,613	155,009
	<u>25,392,000</u>	<u>48,580,022</u>

Figure 2. Oregon 1976 and 1977 shrimp landings by state statistical area.

Table 4. Annual Oregon shrimp landings in thousands of pounds and catch-per-effort by statistical area for single and double-rigged vessels, 1968-1977.

Year	Area of Catch											18
	34	32	30	29	28	26	24	22	21	20	19	
1968	C	0	25.2	1/	1,771.6	2,660.8	325.9	4,062.8	238.9	1,302.7	307.2	281.2
	C/E	-	494		792	635	556	580	636	1,087	554	895
1969	C	166.4	1,067.4	1/	1,220.0	3,852.1	251.1	3,666.9	159.4	2.1	15.0	140.4
	C/E	692	690		662	567	430	431	398	58	157	551
1970	C	475.2	787.1	1/	601.3	2,915.8	2,207.6	4,686.9	199.7	1,550.4	141.9	168.0
	C/E	775	539		497	560	675	565	494	1,228	443	740
1971	C	9.8	461.5	1/	430.2	5,575.9	4/	1,534.4	5/	656.0	576.0	46.7
	C ₂	1.9	190.2		337.0	1,762.1		0		0	0	0
	C/E ₁	416	497		368	465		357		879	472	341
	C/E ₂	552	902		926	720		-		-	-	-
1972	C	0	1,553.6	1/	14.0	9,295.8	4/	7,011.3	5/	1,344.9	1,454.6	187.0
	C ₂	0	606.7		0	4,381.0		400.4		0	0	0
	C/E ₁	-	933		469	671		632		975	677	727
	C/E ₂	-	1,253			1,001		1,213		-	-	-
1973	C	1,829.3	113.9	1/	105.9	8,665.9	4/	10,757.4	5/	2,240.7	802.3	0.9
	C ₂	84.4	35.8		40.3	5,947.8		3,228.6		38.8	89.1	-
	C/E ₁	722	383		489	617		627		1,098	549	132
	C/E ₂	356	702		1,061	795		778		2,589	810	0
1974	C	893.2	2,936.0	642.5	626.0	5,366.6	4/	5,661.5	5/	1,038.2	251.8	25.6
	C ₂	838.6	1,983.1	359.6	479.4	3,607.4		2,888.2		392.3	41.6	18.8
	C/E ₁	872	592	624	639	362		355		565	213	171
	C/E ₂	1,248	726	677	846	550		563		1,261	633	692
1975	C	1.9	259.9	1,350.1	734.0	4,936.9	2,780.4	9,502.4	927.0	754.1	14.8	0.6
	C ₂	1.9	218.8	142.0	617.3	3,891.7	2,076.6	6,048.1	463.0	246.5	14.8	0
	C/E ₁	-	556	551	590	608	603	731	903	654	-	158
	C/E ₂	97	753	717	808	757	813	1,180	1,352	1,500	388	-

Table 4. Continued.

Year	Area of Catch																		
	34	32	30	29	28	26	24	22	21	20	19	18							
1976	C	1,466.2	108.8	1,728.4	955.1	986.7	7,236.8	3,311.7	6,752.1	1,674.0	704.9	105.5	361.6						
	C ₂	1,120.3	92.2	1,358.0	665.1	727.3	6,459.1	2,899.1	4,491.3	538.5	254.8	81.7	227.1						
	C/E ₁	1,462	551	702	544	628	433	374	595	724	690	383	526						
	C/E ₂	1,394	594	745	542	730	658	582	800	875	963	829	993						
1977	C	5.1	1,396.6	5,822.4	827.0	3,686.2	5,641.1	2,836.0	17,208.7	8,435.1	1,755.1	811.9	155.0						
	C ₂	5.1	1,196.5	5,239.9	587.3	2,870.3	4,649.2	2,639.1	12,601.1	4,844.4	571.0	307.0	126.1						
	C/E ₁	-	1,045	822	465	695	582	437	786	1,120	1,424	1,585	4,012						
	C/E ₂	565	1,170	1,052	751	886	751	790	1,232	1,526	1,920	1,424	1,838						

1/ Areas 30 and 29 combined through 1973

2/ C₂ is landed catch by double-rig vessels; included in C, all columns

3/ C/E₁ = catch per hour by single-rig vessels; C/E₂ - catch per hour by double-rig vessels

4/ Area 24 included with Area 26 data

5/ Area 21 included with Area 22 data

In southern Oregon the highest production came from area 22 with a record 17.2 million pounds of shrimp. Approximately 7 million pounds came from the mudhole, an area about 10 by 15 miles square. Double-rig shrimp vessels averaged 1,232 lbs per hour from that area and single-rig vessels averaged 786 lbs per hour. Another high production shrimp ground off southern Oregon was area 21 between Coos Bay and Cape Blanco. The harvest from this area was a record 8.4 million pounds of shrimp. Catch per hour at 1,526 pounds for double-rig vessels and 1,120 pounds for single-rig vessels exceeded the overall season average.

Landings from both area 19 and 20 surpassed last years production but were not records.

Only 155,000 pounds of shrimp were caught in California waters (Area 18) and landed in Oregon. Shrimp production from this area by Oregon boats has usually amounted to only a small portion of Oregon's total production (Table 5). During the past ten years it has ranged as high as only 2.6 percent. Shrimp caught in Washington waters and landed in Oregon have amounted to an average of 11.6 percent of Oregon's production. The peak was in 1974 when over 30 percent came from off Washington.

Table 5. Distribution of catch by state and province of annual Oregon shrimp landings in thousands of pounds and percent, 1968-77.

Year	Br. Columbia		Washington		Oregon		California		Total
	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds	Percent	Pounds
1968	-	-	25.2	16.6	10,669.9	97.2	281.2	2.6	10,976.3
1969	-	-	1,233.8	11.7	9,166.6	87.0	140.4	1.3	10,540.8
1970	-	-	1,262.3	9.2	12,303.6	89.6	168.0	1.2	13,733.9
1971	-	-	471.3	5.1	8,772.5	94.4	46.7	0.5	9,290.5
1972	-	-	1,553.6	7.4	19,120.6	91.7	187.0	0.9	20,861.2
1973	-	-	1,943.2	7.9	22,572.2	92.1	0.9	tr.	24,516.3
1974	893.2	4.5	6,104.8	30.6	12,944.1	64.8	25.6	0.1	19,967.7
1975	1.9	tr.	4,240.4	17.7	19,649.6	82.2	.6	tr.	23,892.5
1976	1,466.2	5.8	2,792.3	11.0	20,771.7	81.8	361.6	1.4	25,391.8
1977	5.0	tr.	8,046.0	16.6	40,374.0	83.1	155.0	0.3	48,580.0

tr. = trace; less than 0.1 percent

At each of the major ports along the Oregon coast shrimp landings are sampled on a monthly basis by Fish and Wildlife Department biologists. From analysis of these samples we can monitor the age and sex composition of shrimp caught along the coast.

Our samples showed that shrimp caught off Washington were primarily two and three-year old shrimp (Table 6). Age-one shrimp (1976 year class) were never in any great abundance during the season except for September. The 1975 year class (age II) was strong and contributed heavily to the landings during the season.

Table 6. Count per pound and age class percent by number of area 29, 30 and 32 shrimp (Washington coast) as summarized from monthly market samples.

Month	Number sampled	Shrimp per pound	Age composition, in percent, by number		
			I	II	III+
April	614	136	0	67.6	32.4
May	446	129	0.2	63.9	35.9
June	1,006	104	2.2	55.0	42.8
July	1,164	98	3.3	56.1	40.6
August	553	104	7.6	59.8	32.6
September	602	101	19.6	51.3	29.1
October	100	85	8.0	63.0	29.0

Shrimp grade off northern Oregon was consistently good during the season (Table 7). The 1976 year class shrimp (age I) did not occur in any great abundance in the samples taken during the season.

Off Coos Bay and Bandon (area 21 and 22) market samples indicated that through July, age two shrimp were major contributors to the catch (Table 8). By July the 1976 year class shrimp (age I) grew enough to be more vulnerable to the gear and contributed nearly a third of the landings (by number) during the remainder of the season.

Table 7. Count per pound and age class percent by number of area 24, 26 and 28 shrimp (northern Oregon) as summarized from monthly market samples.

Month	Number sampled	Shrimp per pound	Age composition, in percent, by number		
			I	II	III+
April	601	85	2.0	46.2	51.8
May	679	105	11.5	62.1	26.4
June	949	80	6.0	50.4	43.6
July	1,061	81	9.1	55.9	35.0
August	506	83	10.5	53.5	36.0
September	No samples	-	-	-	-
October	199	69	6.5	59.3	34.2

Market samples of shrimp caught in area 20 off Port Orford showed that the 1975 year class (age II) shrimp made up the largest proportion of the catch (Table 9). At the end of the season there was a strong showing of age one shrimp.

Table 8. Count per pound and percent age class by number of area 21 and 22 shrimp (Coos Bay-Bandon) as summarized from monthly market samples.

Month	Number sampled	Shrimp per pound	Age composition, in percent, by number		
			I	II	III+
April	942	138	6.6	73.8	19.6
May	1,206	109	11.4	58.6	30.0
June	1,378	110	17.7	65.0	17.3
July	1,304	113	29.1	53.9	17.0
August	925	117	39.5	49.3	11.2
September	798	91	27.4	49.9	22.7
October	1,513	94	26.9	61.3	11.8

Table 9. Count per pound and percent age class by number of area 20 shrimp (Port Orford) as summarized from monthly market samples.

Month	Number sampled	Shrimp per pound	Age composition, in percent, by number		
			I	II	III+
April	No samples	-	-	-	-
May	408	137	7.1	80.6	12.3
June	No samples	-	-	-	-
July	401	109	5.0	76.0	19.0
August	No samples	-	-	-	-
September	200	94	23.0	60.5	16.5
October	404	108	40.8	46.3	12.9