



Department of Fish and Wildlife

MARINE REGION

MARINE SCIENCE DRIVE, BLDG. NO. 3, NEWPORT, OREGON 97365

MEMO

TO: OREGON SHRIMP INDUSTRY

FROM: BOB HANNAH, ODFW SHRIMP PROJECT LEADER

SUBJECT: FISHERY DATA FROM THE 1989 SEASON

As you probably know, the ODFW Shellfish Program produces a Pink Shrimp section for the Marine Region Newsletter once every two months during the shrimp season. The newsletter reports sampling results and notes significant events, usually for the preceding month. This year we'd like to expand these efforts in order to give you a more complete picture of the fishery. We will try to put out a short memo like this prior to the beginning of each season. This memo contains data summaries and a brief discussion of the preceding season. The summaries are derived from logbook data supplied to us by fishermen, from the market samples we collect at the dock, and from landing tickets supplied by processors.

The 1989 fishery for ocean pink shrimp (*Pandalus jordani*) resulted in the second highest total harvest since the fishery began in 1957. The landed catch totalled 49.1 million pounds (Table 1). This compares to the 1978 - 1988 average annual landing of 26.9 million pounds. A total of 188 vessels made 2,839 deliveries during the 1989 season. Comparatively, 172 vessels made 2,558 deliveries during the 1988 season.

Fishing effort was the second highest ever recorded in the Oregon shrimp fishery. Approximately 140,000 hours (single-rig equivalents) were spent catching the shrimp landed in Oregon during 1989 (Figure 1). The only higher effort level was experienced in 1987 when approximately 144,000 hours (SRE) were expended.

The age composition of the catch was more balanced in 1989 than in recent years. Preliminary data indicate that the percentage of age two shrimp in the catch was larger than in 1987 or 1988. This percentage reflects the abundance of age two shrimp on the grounds and industry efforts to improve the grade of shrimp landed. The larger percentage of age two shrimp helped to alleviate count-per-pound problems in 1989. It shows that large numbers of age one shrimp survived in 1988 and were carried over to the 1989 season.

Although the 1989 data shows good carry-over of age one shrimp, the 1966-1988 data series shows some trends which concern us. The total number of shrimp harvested has been at near record levels since 1987 (Figure 2). We believe that the 1989 level may exceed 1987. The percentage of age 1 shrimp in the catch shows a generally increasing trend from about 1977 through 1988 (Figure 3). The age one percentage in 1989 will be lower than in 1988, but will probably maintain the trend. We are waiting on data from the other states to finalize this figure. As you all know, pandalid shrimp populations are prone to wide swings in abundance. As the fishery becomes more dependent on the harvest of age one shrimp the potential severity of any future stock decline increases. Prior to the 1980's, the fishery was less susceptible to the effects of poor recruitment by a single year-class because age two and three shrimp were more available. This recent trend of high effort levels combined with high percentages of age one shrimp in the catch indicates increased harvest rates. We are concerned

that heavy exploitation of the age one shrimp population may lower future recruitment by reducing the spawning stock. In its present state the shrimp population relies heavily on age one females for spawning. The strong year classes moving through the fishery in the last several years may indicate that the fishery has not yet reduced the spawning stock to a level that creates serious impacts on recruitment. Future catches should shed more light on this.

As usual there's some good news to go with the bad news. The good news for shrimp is that if we harvest age one shrimp this heavily without declines in recruitment, then we can expect a high sustained average yield from this resource. Anyway, these are some of the problems and ideas we're working with. In order to pursue them, we need your continued support by providing the most accurate and complete logbooks that you can. We also need your support to help the count-per-pound regulation to be effective in protecting the shrimp stocks. Although this size limit is partly based on biology and partly based on economic concerns, it is the cornerstone of the tri-state management program for pink shrimp. As most of you probably know, we completed two reports last year which were designed to help fishermen and processors comply with this regulation. These studies provide information on the accuracy of several reasonably priced scales for use at sea, and estimate the expected weight change of pink shrimp from capture to landing. These reports are still available upon request, and are highly recommended to anyone who still has concerns or doubts about estimating the average count of their product, in order to stay within the limits of the regulation. For further information, or copies of these reports, contact us at the Newport office (503-867-4741).

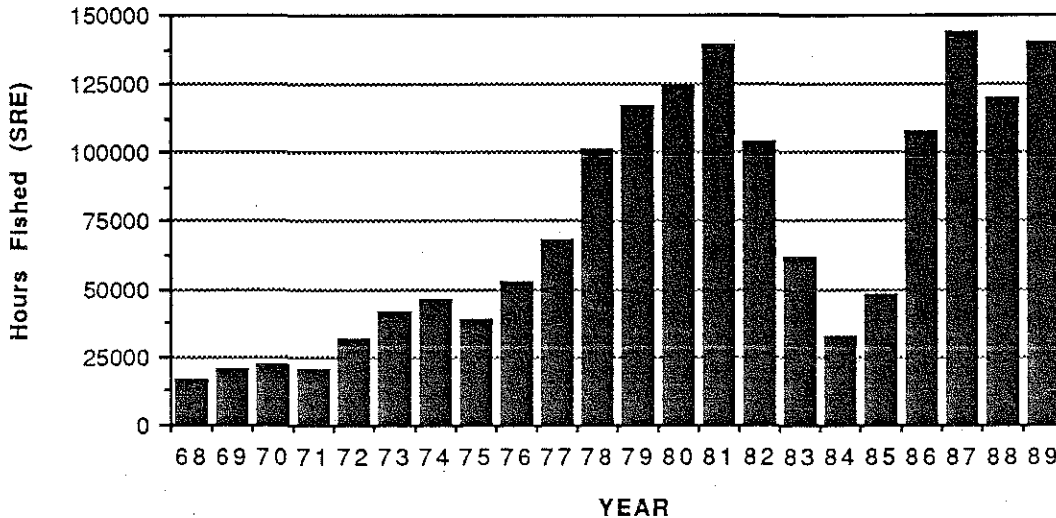


Figure 1. Annual Shrimp Vessel Effort (SRE) Expended Catching Pink Shrimp Landed in Oregon from 1968 through 1989.

Table 1. Oregon Pink Shrimp Catch (lb X 1000), Effort in Single-Rig Equivalent Hours (SRE), and Catch-per-Unit of Effort (CPUE = lb/SRE hour) by Oregon State Statistical Area for 1989. (Note: single-rig hours = double-rig hours X 1.6)

AREA**	APR	MAY	JUN	JUL	AUG	SEP	OCT	TOTAL
32 CATCH	151.4	449.1	639.8	138.3	97.2	198.6	44.4	1718.9
EFFORT	392.3	1185.4	1634.9	404.5	327.0	703.8	175.5	4823.5
CPUE	386	379	391	342	297	282	253	356
30 CATCH	551.7	227.3	251.8	322.2	351.4	419.4	33.2	2157.1
EFFORT	1327.7	581.7	951.0	833.9	914.2	1448.2	108.2	6164.9
CPUE	416	391	265	386	384	290	307	350
29 CATCH	108.3	60.9	0.9	116.3	16.4	0.0	0.0	302.9
EFFORT	200.5	166.5	10.7	442.6	141.3	0.0	0.0	961.5
CPUE	540	366	83	263	116	N/A	N/A	315
28 CATCH	518.4	1679.2	656.9	391.7	524.8	248.9	690.7	4710.6
EFFORT	1454.0	5227.5	2408.2	1276.2	2439.2	1093.6	2398.2	16296.9
CPUE	357	321	273	307	215	228	288	289
26 CATCH	1776.2	1157.1	1534.3	638.8	1522.9	826.2	398.0	7853.5
EFFORT	5153.4	4553.3	5395.1	1756.8	5926.0	3340.4	1554.4	27679.4
CPUE	345	254	284	364	257	247	256	284
24 CATCH	1143.0	466.6	997.3	193.9	737.0	1470.3	1151.1	6159.3
EFFORT	3034.5	1786.5	3207.6	513.4	2368.7	5100.6	4182.5	20193.9
CPUE	377	261	311	378	311	288	275	305
22 CATCH	1870.3	3596.2	1519.5	649.8	2547.7	1690.1	1129.1	13002.7
EFFORT	3768.5	7854.9	4530.2	1529.1	7436.1	5332.3	4161.8	34612.8
CPUE	496	458	335	425	343	317	271	376
21 CATCH	1247.0	782.3	631.8	396.1	704.9	1203.9	759.5	5725.6
EFFORT	2242.2	2042.2	1543.2	756.5	2251.7	3363.7	2506.3	14705.6
CPUE	556	383	409	524	313	358	303	389
20 CATCH	225.5	490.4	408.8	457.7	360.6	290.0	518.9	2752.0
EFFORT	327.8	883.5	626.1	566.5	1002.7	768.7	1126.1	5301.2
CPUE	688	555	653	808	360	377	461	519
19 CATCH	568.5	358.6	233.7	180.8	949.0	709.9	464.3	3464.8
EFFORT	1043.4	1033.3	564.4	227.2	1507.8	1545.8	1069.5	6991.4
CPUE	545	347	414	796	629	459	434	496
18 CATCH	93.5	104.4	138.0	173.3	326.0	247.6	153.6	1236.3
EFFORT	239.5	239.4	284.9	196.8	462.3	454.6	373.8	2251.2
CPUE	391	436	484	880	705	545	411	549
TOTAL CATCH	8253.9	9372.2	7012.7	3658.8	8137.9	7305.1	5343.0	49083.5
EFFORT	19183.7	25554.1	21156.3	8503.3	24777.0	23151.5	17656.3	139982.3
CPUE	430	367	331	430	328	316	303	351

** Area Descriptions

Number	Land marks	Number	Land marks
32	Cape Flattery to Cape Elizabeth	22	Cape Perpetua to Cape Arago
30	Cape Elizabeth to Willapa Bay	21	Cape Arago to Cape Blanco
29	Willapa Bay to Columbia River	20	Cape Blanco to Rogue River
28	Columbia River to Cape Falcon	19	Rogue River to California border
26	Cape Falcon to Cascade Head	18	California border to Cape Mendocino
24	Cascade Head to Cape Perpetua		

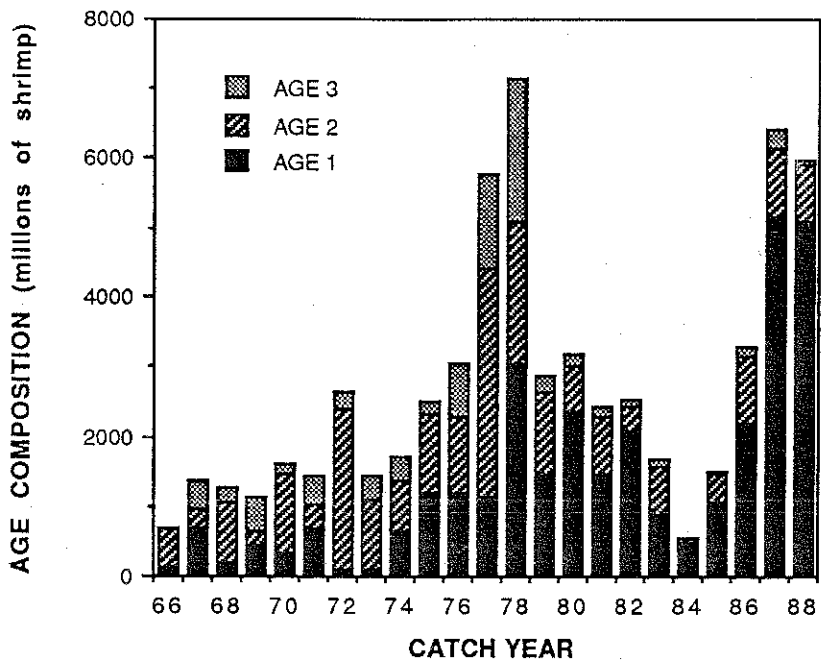


Figure 2. Annual Age Composition of Pink Shrimp (numbers of shrimp) caught in State Statistical Areas 18 - 28, from 1966 through 1988.

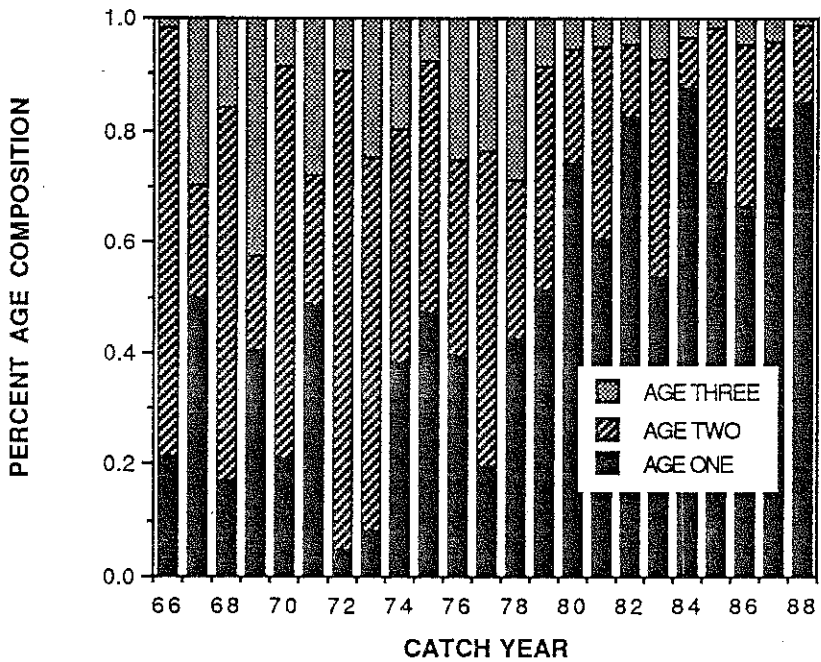


Figure 3. Annual Percent Age Composition of Pink Shrimp Caught in State Statistical Areas 18 - 28, from 1966 through 1988.