

1979
STATUS REPORT
FOR
OCEAN SALMON FISHERIES OFF OREGON

Oregon Department of Fish and Wildlife

Ocean Salmon Management

November 14, 1979

INTRODUCTION

This report summarizes the 1979 ocean salmon fishing season off the Oregon coast. Troll fishery landings were obtained directly from commercial fish receiving tickets supplemented with a survey of fish buyers to obtain the most up-to-date estimate of total landings. Recreational catch and effort were obtained from creel census survey at coastal ports by ODFW personnel. Recreational catch and effort information is included for the period May 12 through September 16 while commercial troll landings encompass the period from May 1 through November 13.

TROLL FISHERY

Effort

Specific estimates of effort for the Oregon troll fishery are not available; however, overflights of the Oregon coast were made from July 5 to September 11 to monitor the distribution and general magnitude of troll fishing effort. An overflight of the Oregon coast on July 5 revealed intensive troll effort associated with the opening of the all salmon troll season on July 1 (Table 1). Troll effort declined during late July and early August followed by an increase in late August. The high troll effort during the latter half of August was attributed to the poor showing of albacore this year which shifted effort back to salmon. Also, ocean conditions had been extremely favorable prior to September 1 allowing maximum fishing time for vessels of all sizes, both recreational and commercial. Troll effort declined in early September and only 33 vessels were observed on a September 11 flight.

Catch

Commercial troll landings of coho in 1979 were greater than those in 1978 but below the 5-year average. Commercial troll coho landings in 1979 totaled 714,000 fish weighing 5,269,300 pounds (round weight) compared with the 1971-75

average of 980,900 fish and 6,917,700 pounds (Table 2). The 1979 landings were down 27 percent in numbers and 24 percent in weight in comparison to the 5-year average. Landings were improved over 1977 and 1978 but below 1976.

Table 1. Troll fleet distribution (number of vessels) along the Oregon coast July 5 to September 11, 1979.

Area	Date				
	July 5	July 24	August 1	August 24	Sept. 11
Col. R. mouth to Tillamook Head	51	61	2 ^{b/}	86	2 ^{b/}
Tillamook Head to Cape Falcon	3	28	1 ^{b/}	9	1 ^{b/}
Cape Falcon to Cascade Head	158	129	42	99	13
Cascade Head to Heceta Head	163	190	116 ^{c/}	220	12
Heceta Head to Loran 2H4 1100 (Midway Bandon to Port Orford)	459	27	c/	137	0
Loran 2H4 1100 to Brookings	16 ^{a/}	9	c/	230	5 ^{d/}
TOTALS	850	444	161 ^{c/}	781	33

a/ No count south of Gold Beach due to fog.

b/ Running in/out.

c/ Did not fly south of Yachats due to fog; poor fishing and high winds had reduced effort to low levels below Yachats this period so probably few boats missed.

d/ Anchored.

Table 2. Commercial troll salmon catch (thousands) off Oregon, 1971-1979.

Year	Coho		Chinook		Pink	
	No.	Lbs (round)	No.	Lbs (round)	No.	Lbs (round)
1971	1,490.1	10,079.9	102.9	1,150.8	2.0	10.4
1972	824.6	5,584.8	127.3	1,499.3	<0.1	0.1
1973	795.5	5,907.6	363.3	3,980.5	3.2	16.3
1974	1,137.2	8,315.5	224.1	2,634.0	<0.1	0.1
1975	657.4	4,700.7	224.7	2,970.8	0.2	1.0
Average 1971-75	980.9	6,917.7	208.4	2,447.1	1.8 ^{c/}	9.2 ^{c/}
1976	1,827.0	10,420.3	184.3	2,209.8	0	0
1977	446.1	3,036.9	340.0	3,984.7	88.0	455.5
1978 ^{a/}	631.8	3,197.3	202.9	2,175.7	<0.1	0.3
1979 ^{a/}	714.0	5,269.3	241.1 ^{b/}	2,911.2	20.9	122.2

a/ Preliminary catch statistics

b/ Includes landings reported thru 13 Nov. 79

c/ Odd-year average

The monthly distribution of troll coho catches was skewed toward the early part of the season (Table 3). Monthly catches in numbers of fish were above average in July but below average from August through September. Sixty-eight percent of the total catch occurred during the first three weeks of the season (July 1-22). Seventy-five percent of the total catch occurred during July.

Despite the June closure commercial 1979 troll landings of chinook salmon were above 1978 and the 5-year average. Total chinook landings numbered 241,100 fish weighing 2,911,200 pounds compared to the 1971-75 average of 208,400 fish and 2,447,100 pounds. The 1979 landings were up 16 percent in numbers and 19 percent in weight when compared to the 5-year average. Landings were greater than 1978 but below 1977.

Monthly chinook landings were above average in May, July, August and October but below average in September (Table 3).

Pink salmon landings by the troll fishery in 1979 were lower than anticipated. Troll fishery landings of pink salmon totaled 20,900 fish weighing 122,200 pounds compared to the 1971-75 odd year average of 1,800 fish and 9,200 pounds. The 1979 landings were also below levels recorded in 1977.

Fishery Value

Preliminary estimates were made of the ex-vessel values of troll landings in 1978 and 1979. Value of the 1979 landings was \$17.1 million compared to \$7.3 million for the entire 1978 season (Table 4). The 1979 figures represent a 136% increase in landed value over 1978 without making adjustments for inflation. The significant increase in 1979 value is due in part to: (1) higher prices per pound paid to fishermen, (2) larger average size of coho salmon, and (3) increased number of coho and chinook landed.

Table 3. Oregon commercial troll chinook, coho, and pink landings in numbers of salmon by month; 1971-75 average, plus 1976,1977, and preliminary 1978 and 1979.

		April	May	June	July	August	September	October	November ^{a/}	Season
<u>CHINOOK</u>										
1971-75	Monthly	532	8,325	27,528	56,647	69,725	31,442	13,701	1,313 ^{b/}	209,213
mean	Cumulative	532	8,857	36,385	93,032	162,757	194,199	207,900	209,213	
1976	Monthly	-	16,405	33,812	46,771	53,857	23,187	8,459	1,854	184,345
	Cumulative		16,405	50,217	96,988	150,845	174,032	182,491	184,345	
1977	Monthly	-	18,359	50,432	107,568	116,350	32,701	10,463	4,141	340,014
	Cumulative		18,359	68,791	176,359	292,709	325,410	335,873	340,014	
Preliminary	Monthly	-	3,580	41,636	70,766	53,826	20,200	8,910	4,043	202,961
1978	Cumulative		3,580	45,216	115,982	169,808	190,008	198,918	202,961	
Preliminary	Monthly	-	9,068	2,354	76,763	109,641	18,135	24,692	414 ^{d/}	241,067
1979	Cumulative		9,068	11,422	88,185	197,826	215,961	240,653	241,067	
<u>COHO</u>										
1971-75	Monthly	-	-	227,843	414,383	305,753	29,691	3,286	2 ^{b/}	980,958
mean	Cumulative			227,843	642,226	947,979	977,670	980,956	980,958	
1976	Monthly	-	-	478,166	882,265	408,483	51,731	6,315	8	1,826,968
	Cumulative			478,166	1,360,431	1,768,914	1,820,645	1,826,960	1,826,968	
1977	Monthly	-	-	91,995	263,698	79,771	9,692	966	-	446,122
	Cumulative			91,995	355,693	435,464	445,156	446,122		
Preliminary	Monthly	-	-	298,886	229,643	92,070	9,571	1,635	13	631,818
1978	Cumulative			298,886	528,529	620,599	630,170	631,805	631,818	
Preliminary	Monthly	-	-	7,507 ^{c/}	535,571	163,560	7,340	-	-	713,978
1979	Cumulative			7,507	543,078	706,638	713,978			
<u>PINK</u>										
1971-75	Monthly	-	-	146	461	1,181	9	1	-	1,798
odd-year mean	Cumulative			146	607	1,788	1,797	1,798		
1977	Monthly	-	1	5,098	55,189	27,666	82	-	-	88,036
	Cumulative		1	5,099	60,288	87,954	88,036			
Preliminary	Monthly	-	2	-	9,717	9,424	1,766	5	-	20,914
1979	Cumulative		2		9,719	19,143	20,909	20,914		

a/ Late season at mouth of Elk and Chetco Rivers only which was initiated in 1974.

b/ Average from 1974 and 1975 only.

c/ Caught off California and landed in Oregon.

d/ Includes landings reported thru Nov. 13, 1979.

Table 4. Preliminary estimates of ex-vessel values of troll landings in 1978 and 1979.

Year	Species		Total
	Coho	Chinook	
1978 ^{a/}	\$3,748,000	\$3,503,000	\$7,251,000
1979 ^{b/}	\$10,309,000	\$6,835,000	\$17,144,000

^{a/} 1978 values calculated using \$1.35/lb for coho and \$1.85/lb for chinook.

^{b/} 1979 values calculated using \$2.25/lb for coho and \$2.70/lb for chinook.

RECREATIONAL FISHERY

Effort

Recreational effort observed in 1979 was below levels recorded in 1978 and the 1971-75 average. Cumulative effort for the 1979 recreational fishery from May 12 to September 16 totaled 327,400 angler trips (Table 5). The 1979 recreational effort is 20% below the 410,300 trips recorded in 1978 and 5% below the 5-year average of 345,800 angler trips. The ports of Newport, Winchester Bay and Brookings accounted for 56% of the total effort observed. Peaks in recreational effort occurred in early July and again in late August with easing of the gasoline shortage.

Table 5. Recreational ocean salmon effort and catch (thousands) off Oregon 1971-79.

Year	Effort (Angler trips)	Catch			Total	Fish/ angler
		Coho	Chinook	Pinks		
1971	303.7	311.7	29.6		341.3	1.12
1972	331.7	248.4	44.1		292.5	0.88
1973	350.4	232.1	61.0	2.0	295.1	0.84
1974	335.8	314.5	36.7		351.2	1.05
1975	407.5	252.2	75.7	1.2	329.1	0.81
Avg. 1971-75	345.8	272.2	49.4	1.6 ^{b/}	323.2	0.93
1976	538.4	501.3	79.3		580.6	1.08
1977	404.5	195.3	61.4	4.0	260.7	0.62
1978 ^{a/}	410.3	277.5	22.9		300.4	0.73
1979 ^{a/}	327.4	175.6	20.1	0.6	196.3	0.60

^{a/} Preliminary

^{b/} Avg. 1973 and 1975 only.

Catch

Recreational landings of chinook salmon were below those in 1978 and also below the 1971-75 average. The cumulative 1979 recreational catch of chinook salmon from May 12 to September 16 totaled 20,100 fish (Table 5). This catch is 12% below the catch of 22,900 fish in 1978 and 59% below the 1971-75 average catch of 49,400. Best catches of chinook have occurred off the mouth of the Columbia River, at Winchester Bay and Brookings with 77% of the total catch attributed to these ports. Peak monthly catch occurred during August (Table 6).

Landings of coho salmon by the recreational fishery were below 1978 levels and also below the 1971-75 average. The 1979 recreational catch of coho salmon was 175,600 fish. The 1979 catch is 36% below the 1978 catch of 277,500 and 35% below the 1971-75 average catch of 272,200. Winchester Bay, Newport and the mouth of the Columbia River accounted for 65% of the recreational coho catch. Peak monthly catches occurred during July and August.

Pink salmon landings by the recreational fishery in 1979 were lower than anticipated. The recreational fishery landed 581 pink salmon in 1979 compared with 4,000 in 1977, the last odd year.

ASSESSMENT OF COHO HARVEST

The 1979 ocean salmon regulations were set in part to provide added protection to depressed stocks of coho in the Oregon Production Index Area (OPI). The OPI includes Oregon coastal and Columbia River coho stocks harvested in coastal waters from Ilwaco, Washington, south through California. The objective of the Oregon Department of Fish and Wildlife for 1979 was to provide coho escapements equal to 1978 levels with an overall harvest rate not to exceed 80% of total stock size.

In order to assess the 1979 harvest of coho in the OPI it is necessary to

Table 6. Oregon ocean sport chinook, coho, and pink catch in numbers of salmon by month; 1971-75 average, plus 1976, 1977, and preliminary 1978 and 1979.

		April**	May	June	July	August	Sept.	Oct.	Nov.	Season
<u>CHINOOK</u>										
1974-75*	Monthly	108	780	4,906	20,065	20,982	8,820	582	0	56,243
mean	Cumulative	108	888	5,794	25,859	46,841	55,661	56,243	56,243	
1976	Monthly	59	1,930	12,540	19,616	35,317	8,826	904	124	79,316
	Cumulative	59	1,989	14,529	34,145	69,462	78,288	79,192	79,316	
1977	Monthly	24	734	6,623	18,284	29,590	5,334	734	41	61,364
	Cumulative	24	758	7,381	25,665	55,255	60,589	61,323	61,364	
Preliminary 1978	Monthly	6	643	3,459	7,002	10,406	1,200	111	95	22,922
	Cumulative	6	649	4,108	11,110	21,516	22,716	22,827	22,922	
Preliminary 1979	Monthly	-	917	4,804	5,068	9,221	156	-	-	20,166
	Cumulative	-	917	5,721	10,789	20,010	20,166			
<u>COHO</u>										
1974-75*	Monthly	834	5,875	36,298	102,257	101,859	34,171	2,061	0	283,355
mean	Cumulative	834	6,709	43,007	145,264	247,123	281,294	283,355	283,355	
1976	Monthly	576	18,663	75,711	170,092	192,096	39,564	4,050	554	501,306
	Cumulative	576	19,239	94,950	265,042	457,138	496,702	500,752	501,306	
1977	Monthly	510	15,949	28,566	84,146	57,439	7,569	1,041	57	195,277
	Cumulative	510	16,459	45,025	129,171	186,610	194,179	195,220	195,277	
Preliminary 1978	Monthly	833	4,688	86,144	100,579	73,689	9,852	1,782	11	277,578
	Cumulative	833	5,521	91,665	192,244	265,933	275,785	277,567	277,578	
Preliminary 1979	Monthly	-	7,273	36,094	70,046	60,612	1,563	0		175,588
	Cumulative	-	7,273	43,367	113,413	174,025	175,588	175,588		
<u>PINK</u>										
1975	Monthly			44	643	527	4			1,218
	Cumulative			44	687	1,214	1,218			
1977	Monthly		15	486	2,258	1,277	1			4,037
	Cumulative		15	501	2,759	4,036	4,037			
Preliminary 1979	Monthly	-	18	101	381	130	0			630
	Cumulative			119	500	630	630			

* Only 1974 & 1975 of 1971-75 period is available on a monthly basis by species

** April value includes any early season catches

review the estimate of stock size. The total adult production for the index area can be predicted with a high degree of accuracy ($R^2 = 0.941$) from the abundance of coho jacks of the previous year. Based on the coho jack predictor the total adult prediction for 1979 was predicted to be 1,294,000 fish with a 95% confidence interval of $\pm 200,000$ (1,094,000 to 1,494,000) (Table 7, Figure 1).

Table 7. Relationship of total accountable Columbia and coastal coho jacks to the adult Oregon production index in thousands of fish, 1966-79.

Year of adult production	Jacks ^{a/} of previous year			Adult Production Index ^{b/}	
	Columbia	Coastal	Total	Predicted ^{d/}	Actual
1966	83.2	22.4	105.6	2,268	2,330
1967	104.6	31.3	135.9	2,781	2,949
1968	85.2	45.9	131.1	2,700	2,224
1969	57.0	16.6	73.6	1,725	1,685
1970	125.0	28.0	153.0	3,071	2,769
1971	151.7	62.9	214.6	4,115	3,672
1972	88.3	13.1	101.4	2,396	2,030
1973	74.7	6.4	81.1	1,841	1,991
1974	105.3	19.0	124.3	3,022	3,113
1975	66.7	3.9	70.6	1,553	1,748
1976	130.9	25.8	156.7	3,908	4,066
1977	43.4	6.9	50.3	999	(1,106) ^{c/}
1978	88.0	2.2	90.2	2,090	(1,756) ^{c/}
1979	55.0	6.1	61.1	1,294	

^{a/} Components of jacks are ODFW hatcheries below Bonneville, Cowlitz Hatchery, Bonneville and Willamette dam counts, Oregon coastal hatcheries and Tenmile Lakes counts prior to 1975.

^{b/} Oregon production index includes catches in the ocean and Columbia River, hatchery escapement and dam counts for the area from California to Ilwaco and the Columbia River.

^{c/} Preliminary data.

^{d/} 1966-71 predictions based on 1966-78 data base and 1972-79 predictions based on 1972-78 data base.

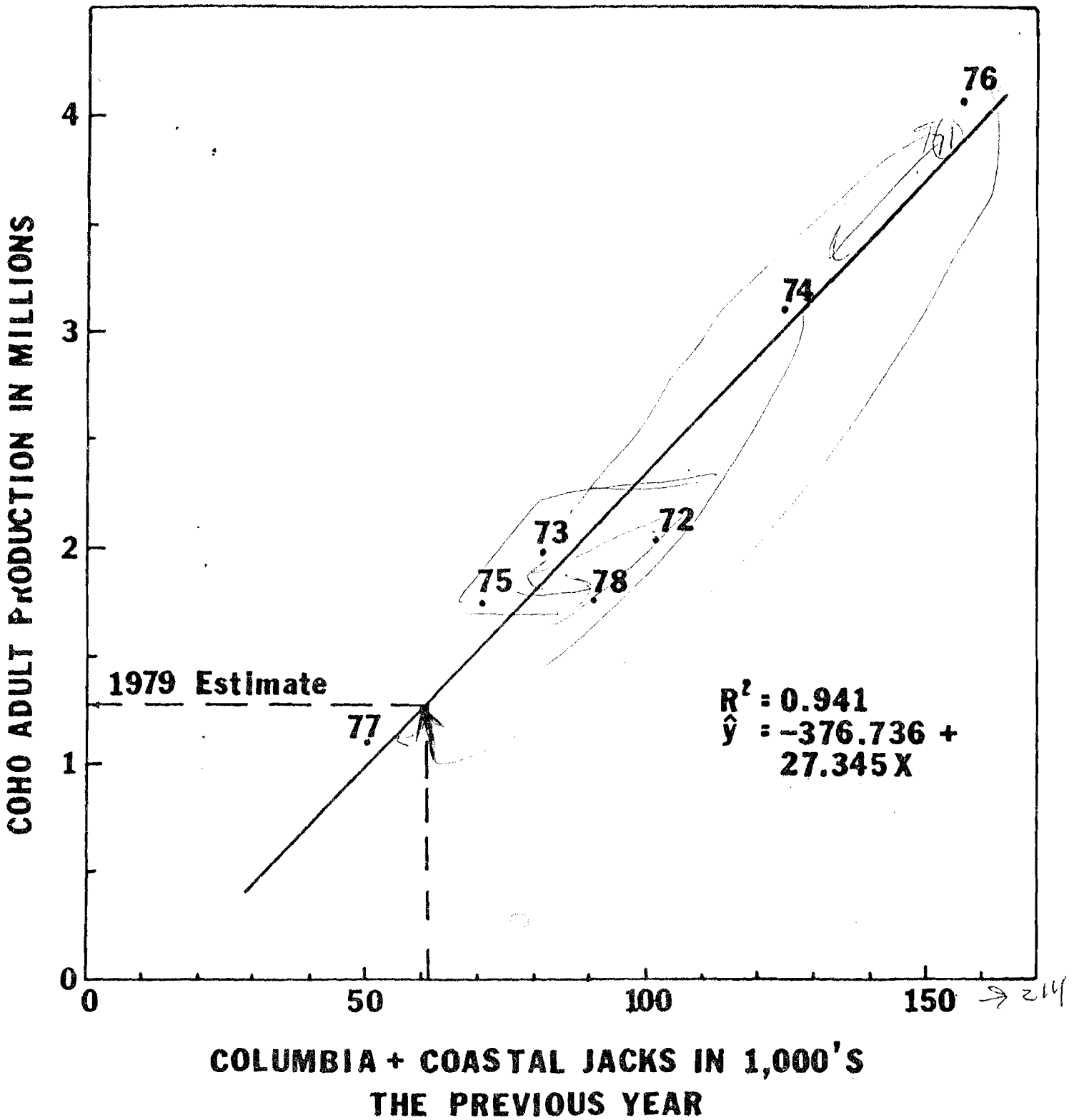


Figure 1. **COLUMBIA + COASTAL JACKS VS COHO ADULT PRODUCTION INDEX, 1972-78**

Preliminary estimates are available for the ocean, Columbia River, and Oregon coastal components of the OPI and provide a comparison of actual stock size to that predicted. An estimated 1,306,048 coho were harvested by the ocean fisheries in the OPI area during 1979 (Table 8). This total includes catches of 240,296 for Ilwaco, 889,566 for Oregon and 176,186 for California. It is estimated that the Columbia River and Oregon coastal components of the OPI will approach 245,000 and 37,600, respectively. (Table 9). The total stock size for the OPI should approach 1,588,648 which is 23% above the point estimate of 1,294,000 but only 6% above the upper limit of the pre-season prediction of 1,494,000.

Table 8. Estimated harvest of coho salmon in the Oregon Production Index area in 1979.

Area	Fishery		Total
	Recreational	Troll	
Ilwaco, Washington	122,264	118,032 ^{a/}	240,296
Oregon coast	175,588	713,978	889,566
California coast ^{a/}	15,807	160,379	176,186
Total	313,659	992,389	1,306,048

a/ Includes 6,102 fish caught off Oregon.

The predictor for 1979 did not include fish returns to observations small releases, so if those catches had been included the prediction would have been greater.

Table 9. Oregon index of production of adult coho in thousands of fish, 1961-79.

Adult Production Year	Adult Production Index Areas ^{a/}				Total
	Ocean			Oregon coast	
	Troll	Sport	Columbia		
1966	1,269.6	404.4	615.3	40.6	2,329.9
1967	1,651.7	651.3	592.1	54.1	2,949.2
1968	1,371.8	479.0	332.8	40.3	2,223.9
1969	907.1	426.3	309.2	42.1	1,684.7
1970	1,373.5	475.2	868.9	51.1	2,768.7
1971	2,403.1	681.7	524.4	62.6	3,671.8
1972	1,207.8	533.6	267.9	20.9	2,030.2
1973	1,251.1	424.1	284.8	31.4	1,991.4
1974	1,987.2	633.3	452.8	39.6	3,112.9
1975	1,016.1	442.8	281.5	7.4	1,747.8
1976	2,768.1	935.7	323.5	38.2	4,065.5
1977 ^{b/}	(624.7)	(389.3)	(85.6)	(6.5)	(1,106.1)
1978 ^{b/}	(979.0)	(508.4)	(262.7)	(5.6)	(1,755.7)
1979 ^{b/}	(992.4)	(313.7)	(245.0)	(37.6) ^{c/}	(1,588.7)

^{a/} Components are troll: California, Oregon, Ilwaco
sport: California, Oregon, Ilwaco
Columbia: Gill-net catch, hatchery, and dam escapements
Oregon Coast: Hatchery escapement

^{b/} Preliminary

^{c/} Includes an estimated 17,000 hatchery adults returning from off-station releases since 45% of Oregon coastal production was released off-station in 1978.

The OPI estimate for coho does not include private hatchery production, and the OPI stock size needs to be adjusted to account for the private hatchery component. Preliminary estimates were made of the contribution of private hatchery fish to the Oregon ocean catch for 1979. Final analysis will depend upon mark/unmarked ratios by tagged group determined by actual returns to private hatchery production facilities. It was estimated that private hatcheries contributed 19,600 fish to the total 1979 Oregon ocean catch for a contribution rate of 2.2%. If this contribution rate is applied to the entire OPI ocean catch of 1,306,048 it is estimated that private hatcheries added 28,733 fish to the OPI. Subtracting the estimated private hatchery contribution from the OPI stock size reduces that total to 1,559,915 which is only 4% above the upper limit of the pre-season prediction.

It is possible to assess the "apparent" exploitation rate of coho in the OPI by comparing the 1979 harvest with the total OPI stock size. The coho harvest for the OPI was 1,277,315 in relation to the total stock size of 1,559,915 (adjusted to exclude fish of private hatchery origin). The 1979 ocean harvest represents an exploitation rate of 82% which nearly met the pre-season objective of 80% and provided an escapement of 282,600 to the OPI compared to an escapement of 268,300 in 1978. The impact of 1979 regulations on natural spawning stocks of Oregon coastal coho is not presently known since spawning surveys for coho have just begun.