

A Preliminary Look at Pacific Salmon Catches in 1999

by

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Salmon fisheries are still ongoing in some areas, and harvest statistics are not yet final for any member nation. Even so, the Stock Assessment Working Group¹ has compiled preliminary statistics and run assessments from the 1999 fishing season. Notably, chum salmon runs are below expectations in many areas including Japan, Russian, and Western Alaska. Bristol Bay sockeye runs were greater than expected, while runs to the Fraser River in Canada were down.

Japan

As of October 10, 1999, a total of 27,141,180 chum salmon have been caught in rivers and coastal areas of Japan. This catch is 85% of chum salmon harvest (31,875,861) for the same period in 1998 (Table 1). Chum salmon return numbers are down in all regions of Japan, especially the Pacific and Japan Sea coasts of Honshu during this season. Chum salmon runs still continue in Hokkaido and Honshu until late December. The number of pink salmon returning has also decreased to 7,689,534 adults for October 10, 1999 – down from 13,028,857 adults for the same period of 1998 (Table 2).

The number of adult chum salmon in Hokkaido showed an increasing trend up to the 1970's, and peaked at approximately 57 millions in 1995 and 1996. The 1998 harvest decreased to 77% of the peak, but is still at an historically high level (Figure 1).

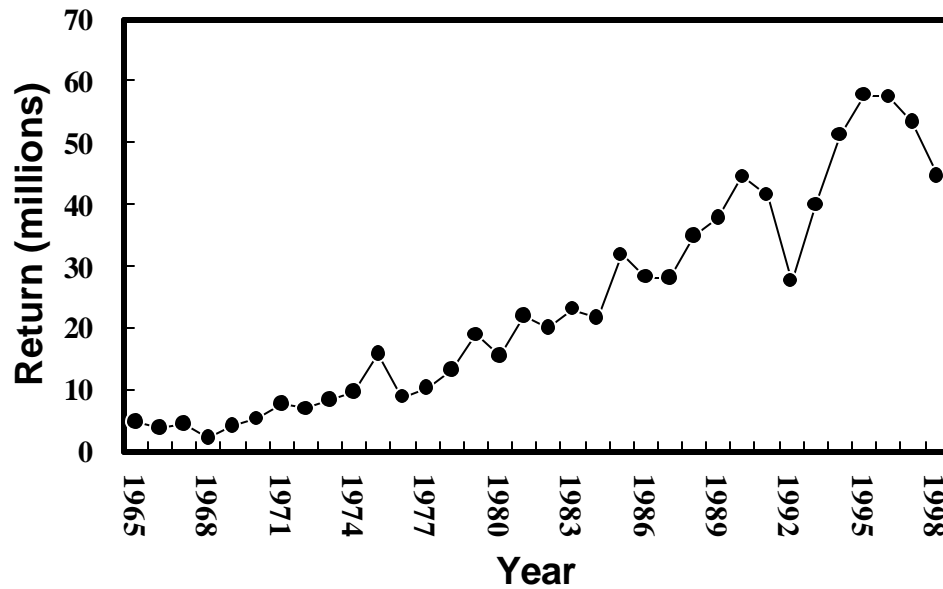


Figure 1. Run size of chum salmon in Hokkaido between 1965 and 1998.

¹This report was prepared jointly by Stock Assessment Working Group members.

Table 1. Adult returns of chum salmon in Japan as of October 10, 1999.

	1999			1998			Average in 1994-98			Ratio of total returns	
	Coastal sea	River	Total	Coastal sea	River	Total	Coastal sea	River	Total	1999/1998	1999/1994-98
HOKKAIDO											
Pacific coast	14,338,459	357,046	14,695,505	16,224,181	575,078	16,799,259	18,814,908	878,132	19,693,040	0.875	0.746
Japan Sea coast	1,865,287	183,822	2,049,109	2,009,909	203,910	2,213,819	3,384,440	361,250	3,745,690	0.926	0.547
Okhotsk Sea coast	8,912,381	507,348	9,419,729	10,670,084	542,703	11,212,787	11,311,699	550,101	11,861,800	0.840	0.794
Subtotal	25,116,127	1,048,216	26,164,343	28,904,174	1,321,691	30,225,865	33,511,047	1,789,483	35,300,530	0.866	0.741
HONSHU											
Pacific coast	872,005	95,669	967,674	1,515,244	99,413	1,614,657	1,537,492	111,209	1,648,701	0.599	0.587
Japan Sea coast	4,684	4,479	9,163	26,996	8,343	35,339	46,504	47,496	94,000	0.259	0.097
Subtotal	876,689	100,148	976,837	1,542,240	107,756	1,649,996	1,583,996	158,705	1,742,701	0.592	0.561
TOTAL	25,992,816	1,148,364	27,141,180	30,446,414	1,429,447	31,875,861	35,095,043	1,948,188	37,043,231	0.851	0.733

Table 2. Adult returns of pink salmon in Japan as of October 10, 1999.

	1999			1998			Average in 1994-98			Ratio of total returns	
	Coastal sea	River	Total	Coastal sea	River	Total	Coastal sea	River	Total	1999/1998	1999/1994-98
HOKKAIDO											
Pacific coast	1,326,188	129,233	1,455,421	2,305,251	191,839	2,497,090	1,812,542	216,776	2,029,318	0.583	0.717
Japan Sea coast	5,368	234	5,602	16,651	0	16,651	10,333	847	11,180	0.336	0.501
Okhotsk Sea coast	5,719,295	509,216	6,228,511	9,411,739	1,103,377	10,515,116	9,870,175	1,072,507	10,942,682	0.592	0.569
TOTAL	7,050,851	638,683	7,689,534	11,733,641	1,295,216	13,028,857	11,693,050	1,290,130	12,983,180	0.590	0.592

Russia

In 1999, the Russian salmon fishery continued trends observed in previous years. The main pink and sockeye stocks remain in good condition in the Russian Far East. Wild stocks of chum salmon are currently in poor condition in many far-eastern regions, except for those of the north Okhotsk Sea coast and Okhotsk region. Coho and chinook salmon contribute an insignificant portion of the total Russian catch of Pacific salmon.

The pink salmon catch exceeded the forecast in both main fishery areas. In the eastern Kamchatka area, the pink salmon run reached an historical record: 81.7 thousand tonnes. On the eastern Sakhalin coast, total catches coincided with last year's forecast (77.0 thousand tonnes), which was based on a pelagic survey on pink salmon juveniles in the southern Okhotsk Sea. The pink salmon catch on the Russian far-eastern coast (updated at 31, August) totals 175.6 thousand tonnes. Fishing continued past the end of August in the southern Kuril Islands. By the end of August, about half of the annual quota was realized (9.6 thousand tonnes).

Chum salmon catches are significantly behind. The total chum catch reached about 55% of the annual quota: 11.5 thousand tonnes. However, chum salmon fishing will continue in many areas of the Russian Far East. In the Okhotsk region, catch stands at about 5.0 thousand tonnes, and in the Amur River catch stands at about 670 tonnes of summer-race chum salmon. In the Primorie, catch stands at about 40 tonnes. The chum salmon fishery is now completed in the western Bering Sea area (the Anadyr River) and catch is reported to be 1.2 thousand tonnes. In eastern Kamchatka, catch stands at 2.13 thousand tonnes.

Sockeye salmon runs were large in the eastern Kamchatka area. Beside the Kamchatka River drainage, where the sockeye catch totaled 5.59 thousand tonnes, 750 tonnes of sockeye were caught in other fishery areas of the north-eastern Kamchatka region. This is only domestic coastal catch. The catch of fishing fleets licensed by State Committee of Fisheries is not included, but this catch was less than in 1998. Sockeye fishing is still underway on the western side of the Kamchatka Peninsula. About 4.0 thousand tonnes of sockeye salmon have been caught before September.

The chinook salmon catch has totaled 706 tonnes. The coho fishery season is still in its early beginning stage. The first 40 tonnes of catch were reported from the eastern and western Kamchatka. The same situation exists for chars: 725 tonnes were caught before September.

A significant lag in salmon run timing was noted in most fishery areas of the Russian Far East in 1999. The lag was estimated to be between one and a half to three weeks. This lag can be explained by late development of the physical processes in offshore and coastal ecosystem, for example the late dissolution of ice, slow heating of upper water layer, etc.

Body length and weight of pink salmon are slightly lower than average. This is common for high-yield years. For other species, these parameters are within normal limits.

Table 3. Preliminary Commercial salmon catch in Russia (Far East) by species, region and subregion, in thousands of fish, 1999.

* Updated 10 October, 1999

Region, subregion	Pink	Chum	Sockeye	Coho	Chinook	Total
Western Bering Sea	35.9	1269.8	112.1			1417.8
Eastern Kamchatka	83946.1	6275.6	7014.3	779.7	678.5	98694.2
Kuriles	16092.0	420.0				16512.0
The Sea of Okhotsk						
Continental coast	5678.0	7197.0	78.3	170.0		13123.3
Western Kamchatka	57.0	1308.6	4885.9	305.2	57.3	6614.0
Sakhalin coast	80130.0	112.0				80242.0
Amur Basin	760.8	3088.1				3848.9
The Sea of Japan						
Primor'e	43.0	2.1				45.1
Southwestern Sakhalin	860.0	2586.0				3446.0
Total	187602.8	22259.2	12090.6	1254.9	735.8	223943.3

Canada

Conservation concerns in 1999 led to severe restrictions in harvest for a number of salmon stocks. There were no directed commercial fisheries for coho salmon and low returns of Fraser River sockeye salmon resulted in the closure of fisheries targeting those stocks. The total catch through September 1999 was approximately 13,500 t (675,637 pieces). Catches by species were coho – 2.3 t (712 fish), chinook – 510 t (65,181 fish), sockeye – 1,580 t (618,474 fish), chum – 2,340 t (378,480 fish), and pink – 9,030 t (5,693,490 fish). Figure 2 provides a graphical summary. Some fisheries for chum salmon are expected to take place in October and early November and the total catch for all species of salmon will likely be in the range of 15,000 - 20,000 t.

Escapement estimates are not available for 1999 and have not been finalized for some recent years, particularly for sockeye and pink salmon. In general, escapement has decreased for most species in the 1990s (Figure 3). Escapement of sockeye, pink, and chum salmon has been quite variable over time and are at the low end of the distribution at this time. Coho salmon escapement has been declining steadily since the mid-1970s and is at historic low levels. Chinook salmon escapement started to increase in the mid-1980s and is now at average levels. Figures 4 and 5 show escapement series for the Fraser and Skeena Rivers.

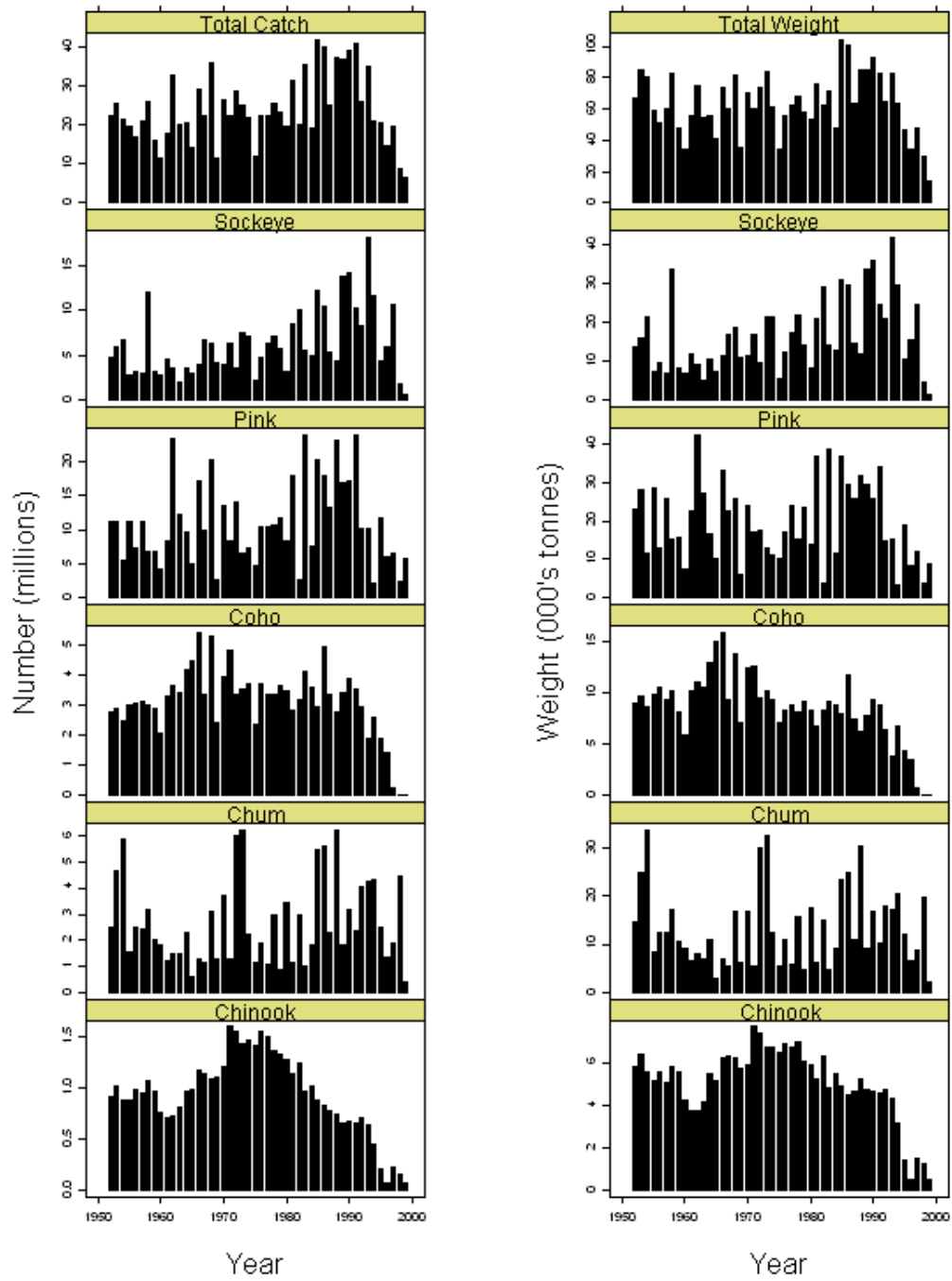


Figure 2. Catch of Pacific salmon in British Columbia from the early 1950s to 1999.

British Columbia Escapement

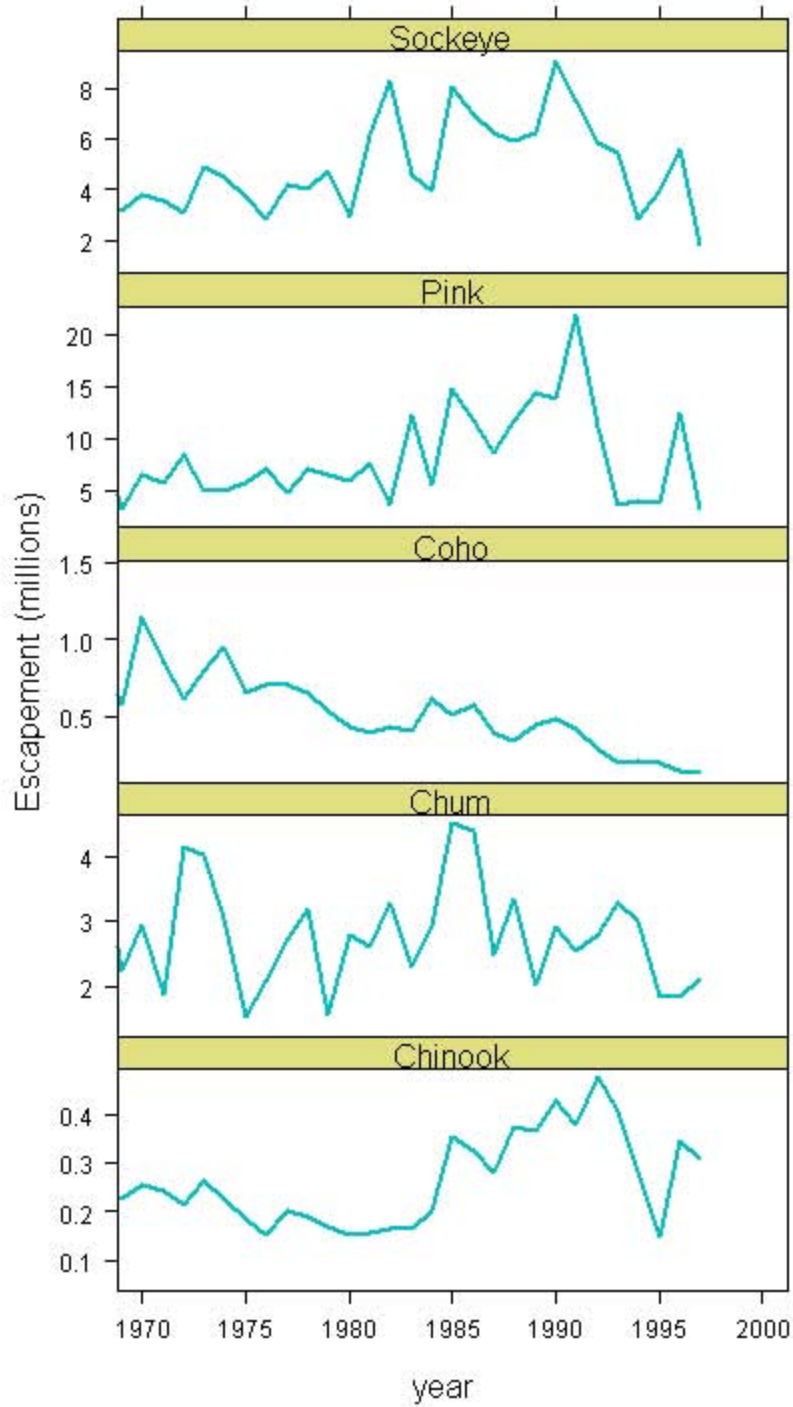


Figure 3. British Columbia salmon escapement series through the mid-1990s.

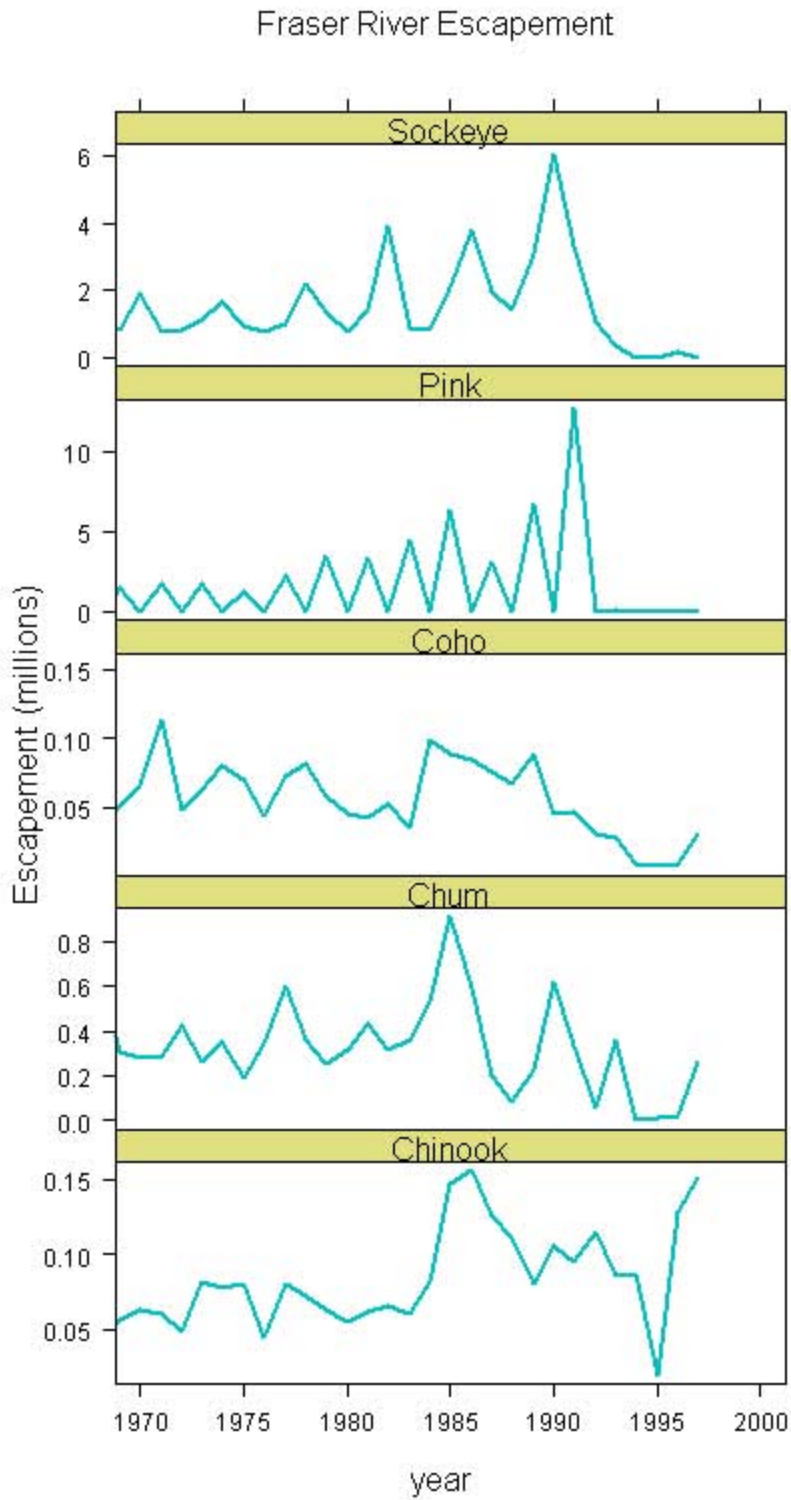


Figure 4. Escapement into the Fraser River, British Columbia.

Skeena River Escapement

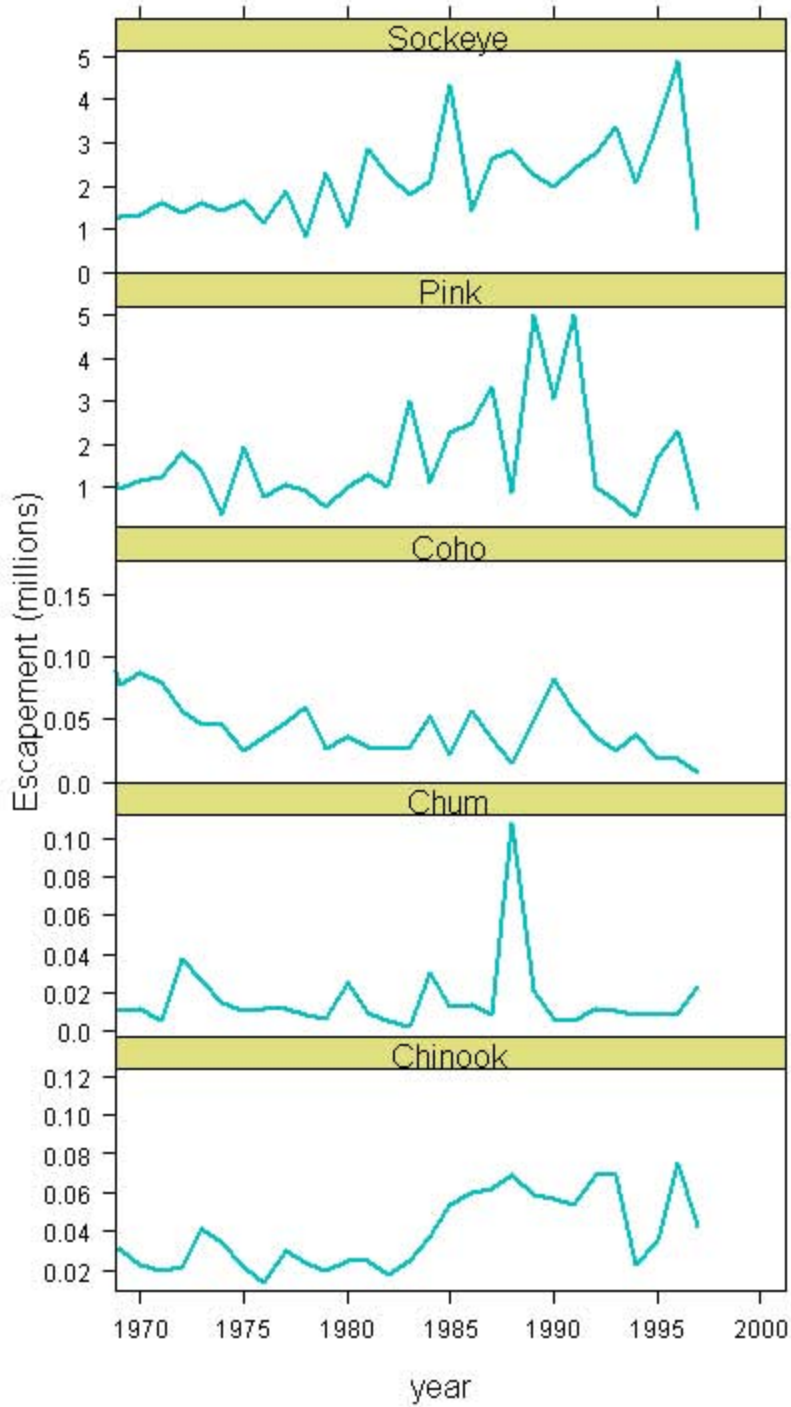


Figure 5. Escapement into the Skeena River, British Columbia.

United States (Alaska)

Final catch and escapement numbers for the 1999 season will not be complete for some time; the preliminary numbers, available now, are expected to be very close. The 1999 commercial catch of salmon in Alaska is about 214 million fish, or about 390,000 t. This was well above the preseason expectation of 148 million units and was the second largest commercial harvest in Alaska history. This figure for commercial catch does not include numbers of sport- and subsistence-caught salmon. Commercial catch levels exceeded the 200 million mark only once before: in 1995 the salmon catch topped 217 million. See Table 3 for an historical perspective. Notably, sockeye returns to Bristol Bay were above expectations, after two years of returns below preseason forecasts (Figure 6). Also, chum returns to Western Alaska were very depressed for the third straight year.

The statewide pink salmon catch of 145 million fish (195,000 t) set a new record high for that species. The catch of pink salmon in Southeast Alaska was nearly 75 million – far greater than the previous record catch for that region of 64 million in 1966. The pink salmon catch in Prince William Sound was over 40 million, close to that region's record of 44 million achieved in 1990.

Statewide chum catches also surpassed preseason projections. The overall catch of approximately 20 million (81,200 t) chum salmon ranks among the three largest harvests ever. The chum salmon catch in Southeast Alaska was nearly 70 percent of the overall catch, again producing near record numbers of fish for that region. Returns of chum salmon to the Yukon and Kuskokwim Rivers and the Norton Sound region were extremely low for the third straight year.

The statewide sockeye catch, at just under 44 million (110,000 t), ranks among the top 10 harvest years and is about 50% above the preseason projection. The harvest in Bristol Bay was 26 million sockeye salmon – more than twice the preseason forecast.

Returns of coho salmon were down in all areas except Southeast Alaska. Final coho catches are expected to be about 70% of preseason expectations. Catches of coho salmon in the Kuskowim area were only 10 percent of preseason expectations.

The statewide king salmon harvest of approximately 350,000 fish is down by nearly a third from the catch in 1998. The overall catch is only 60 percent of the preseason projection.

Other US Harvests

Chinook and coho catches have improved in Oregon, Washington, and California in 1999 over the level in 1998 (Table 5).

Bristol Bay Sockeye Run Size

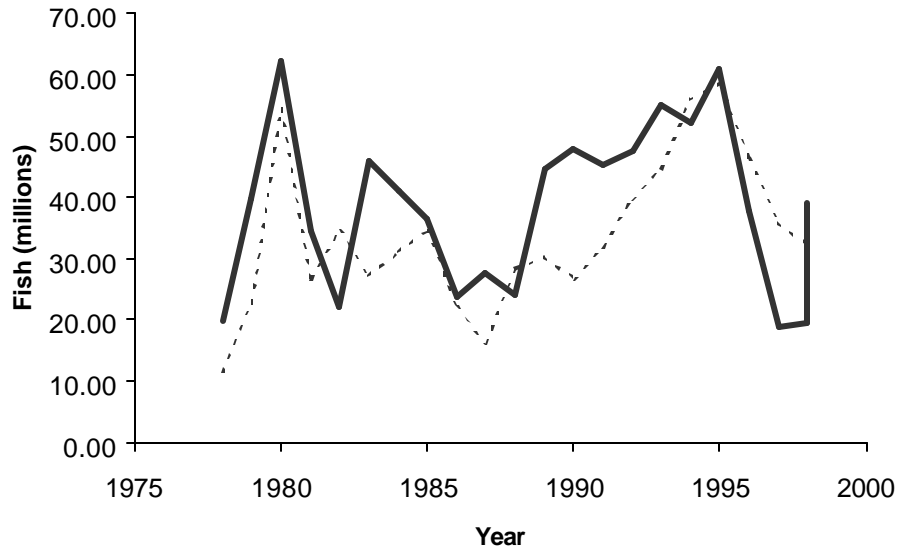


Figure 6. Run size (heavy dark line) and preseason forecast (dashed line) for sockeye salmon in Bristol Bay, Alaska.

Table 4. Historical Alaskan commercial catch levels, and preliminary catch levels for 1999, in thousands of fish.

	CHINOOK	SOCKEYE	COHO	PINK	CHUM	TOTAL
1970	645	27,627	1,524	31,096	7,476	68,369
1971	661	14,179	1,444	23,539	7,679	47,502
1972	554	6,999	1,834	15,913	6,657	31,957
1973	551	4,484	1,455	9,805	5,952	22,247
1974	559	4,878	1,860	9,857	4,709	21,863
1975	455	7,458	1,014	12,987	4,323	26,237
1976	531	11,779	1,432	24,755	5,924	44,422
1977	620	12,465	1,789	28,647	7,326	50,847
1978	836	18,140	2,821	53,852	6,677	82,326
1979	779	28,696	3,122	50,137	5,608	88,342
1980	675	33,295	3,115	63,304	9,603	109,992
1981	823	36,348	3,416	60,089	12,613	113,289
1982	877	28,954	6,040	64,859	10,994	111,725
1983	828	52,875	3,636	60,359	10,222	127,921
1984	667	38,450	5,405	76,343	13,096	133,961
1985	721	38,983	5,749	90,335	10,570	146,358
1986	616	32,208	6,293	77,320	12,510	128,948
1987	680	35,431	3,493	46,493	10,527	96,624
1988	589	30,038	4,473	50,358	15,105	100,563
1989	572	44,139	4,650	96,869	7,896	154,125
1990	666	52,693	5,478	88,208	8,010	155,055
1991	614	44,646	6,156	128,339	9,769	189,525
1992	605	58,283	7,094	60,518	10,223	136,723
1993	670	64,311	6,070	109,793	12,266	193,110
1994	633	52,419	9,546	116,721	16,564	195,883
1995	662	63,532	6,471	128,325	18,790	217,779
1996	523	50,271	6,149	97,838	21,321	176,102
1997	659	31,087	3,190	71,958	16,244	123,137
1998	563	22,650	4,590	104,790	18,920	151,520
1999 ¹	420	44,030	4,050	144,750	20,300	213,550

¹ Preliminary data. Released October 22, 1999

Table 5. Chinook and coho catch and effort for Oregon, Washington, and California.

Ocean Salmon Landings

The table below provides preliminary estimates of ocean salmon fishing effort and harvest through August 1999 compared with the previous two years (data compiled by the Salmon Technical Team [STT]).

Preliminary Estimates of Fishing Effort and Ocean Landings in Numbers of Fish through August									
State	Effort (days fished or trips)			Chinook Landed			Coho Landed		
	1999	1998	1997	1999	1998	1997	1999	1998	1997
COMMERCIAL									
Washington									
Treaty Indian	283	133	378	23,745	13,336	13,328	13,214	3,810	11,319
Non-Indian	611	100	500	16,914	5,900	6,400	4,472	0	0
Oregon	4,121	5,800	6,100	57,684	115,200	118,000	172	0	0
California	<u>6,344</u>	<u>10,300</u>	<u>15,000</u>	<u>285,452</u>	<u>200,900</u>	<u>464,500</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	11,359	16,333	21,978	383,795	335,336	602,228	17,858	3,810	11,319
RECREATIONAL									
Washington									
	38,922	18,300	28,500	8,239	1,900	3,700	32,330	19,300	26,400
Oregon	35,117	15,400	24,100	5,554	2,300	6,200	11,847	2,100	6,000
California	<u>138,420</u>	<u>137,400</u>	<u>224,200</u>	<u>65,200</u>	<u>114,900</u>	<u>223,300</u>	<u>0</u>	<u>100</u>	<u>500</u>
Total	212,459	171,100	276,800	78,993	119,100	233,200	44,177	21,500	32,900
ALL									
Grand Total	223,818	187,433	298,778	462,788	454,436	835,428	62,035	25,310	44,219