

THE PACIFIC SALMON COMMISSION

CHINOOK TECHNICAL REPORT ON

PRELIMINARY 1989 CATCH AND ESCAPEMENT

REPORT TCCHINOOK (90) - 1

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1.0 1989 CHINOOK SALMON CATCHES IN FISHERIES WITH CEILINGS

Estimates of 1989 catch for each fishery managed under a harvest ceiling established by the Treaty are presented below. These data (numbers x 1,000) are preliminary, compiled with information available as of 29/11/89 for U.S. data and 06/02/90 for Canada.

AREA AND FISHERY	CEILING	CATCH	DIFFERENCE	
			#'s	%
SE Alaska (T,N,S) a/ b/	263	267.4	4.4	+1.7%
North/Central B.C. (T,N,S)	263	305.3	42.3	+16.1%
West Coast Vancouver I. (T)	360	200.6	-159.4	-44.3%
Georgia Strait (T,S)	275	160.8	-114.2	-41.5%
Northern B.C. (T,N,S) c/	254.4	290.1	35.7	+14.0%

a/ T=Troll; N=Net; S=Sport

b/ The actual total catch was 288,000 chinook, including a hatchery add-on of 20,600.

c/ Alternative catch values as per Canada's terminal area exclusion paper Feb.13/89; excludes 8,600 chinook caught in 3 extreme terminal areas during the base period and 15,200 chinook caught in these areas in 1989, difference is 6,600 chinook.

Catches in all fisheries of interest to the Pacific Salmon Commission are documented in Table 1.

2.0 CUMULATIVE DEVIATIONS FROM CATCH CEILINGS

A 7.5% cumulative management range was established by the Commission in 1987. Catches and deviations from catch ceilings since 1987 (in thousands of fish) are as follows:

AREA AND FISHERY	CEILING	1987	1988	1989	TOTAL DEVIATIONS	CUMULATIVE DEVIATIONS	
		CATCH a/	CATCH a/	CATCH a/		#'s	%
SE Alaska (T,N,S) b/	263	266.1	253.7	267.4	-1.8	-1.8	-0.7%
North/Central B.C. (T,N,S)	263	283.0	247.1	305.3	+46.4	+46.4	17.6% c/
West Coast Vancouver I. (T)	360	379.0	407.2	200.6	-93.2	-27.0	-7.5% d/
Georgia Strait (T,S)	275	159.0	138.7	160.8	-380.9	-20.6	-7.5% d/
North/Central B.C. (T,N,S) e/	254.4	283.0	247.1	290.1	+39.7	+39.7	+15.6%

a/ Compiled with information available as of 29/11/89 for U.S. data and 06/02/90 for Canada.

b/ S.E. Alaska catches exclude hatchery add-ons of 16,000, 25,000, and 20,600 for 1987, 1988, and 1989 respectively.

c/ Exceeds 7.5% management range; management action required.

d/ Negative deviations below the 7.5% management range can not be accumulated.

e/ Alternative catch values as per Canada's terminal area exclusion paper Feb.13/89; footnote c Table 1.0.

3.0 REVIEW OF FISHERIES WITH CATCH CEILINGS

3.1 S.E. Alaska Fisheries

In 1989, Southeast Alaska fisheries were managed under the following provisions established by the Pacific Salmon Commission:

- (1) an all-gear base catch ceiling of 263,000 chinook salmon;
- (2) an Alaska hatchery addon to be calculated in-season on the basis of coded-wire tag sampling;
- (3) a 7.5% management range, calculated in numbers of fish, for cumulative deviations from the base catch ceiling beginning in 1987. This is equivalent to +/- 19,700 chinook for a 263,000 base catch ceiling.

Preliminary data for 1989 indicate the following:

- (1) the total all-gear catch (commercial and recreational) was 288,000 chinook salmon, including an all-gear base catch of 267,400 plus a hatchery addon of 20,600;
- (2) the 1989 Alaska hatchery addon, calculated on the basis of coded-wire tag recoveries, was 20,600 chinook. This yielded a total 1989 catch ceiling of 283,600 chinook. The addon was calculated as the estimated total Alaska hatchery harvest of 27,900 chinook reduced by 5,000 for pre-Treaty hatchery harvest and 2,300 for estimation error risk adjustment;
- (3) the deviation of the 1989 Southeast Alaska chinook catch from the base ceiling was 4,400 or +1.7%. Combined with a positive deviation of +3,100 or 1.2% in 1987, and a negative deviation of -9,300 in 1988, the cumulative deviation since 1987 is -1,800 chinook or -0.7%.

The 1989 Southeast Alaska all-gear harvest of 288,000 chinook salmon consisted of a commercial harvest of 260,000 (90.3%) and a projected recreational harvest of 28,000 (9.7%). Alaska hatcheries contributed an estimated 27,900 chinook salmon or 10% of the total harvest.

Troll Fisheries: The troll fishery harvest of 235,800 chinook included 34,300 harvested in the winter fishery (October 1, 1988 to April 14, 1989), 3,100 in experimental and terminal hatchery fisheries (June 6-June 29), 31,200 in June special hatchery access fisheries (June 5-7 and June 21-23), and 167,200 during the general summer season (July 1-July 13). The 1989 winter troll catch was similar to the 1985 to 1988 average of 33,600 but 44% less than the 1988 winter troll harvest of 60,400. The decreased catch resulted from reduced effort and lower chinook abundance as well as less

favorable weather conditions. The 1989 general summer troll season opened July 1 and remained open for 13 days through July 13. Approximately 167,200 chinook were harvested during this period for an average catch rate of 12,900 chinook per fleet day. This was slightly lower than the record 1988 summer season rate of 13,500 chinook per fleet day. About 3% of the chinook harvested during the summer troll season was produced by Alaska hatcheries, compared to 14% and 17% during the winter troll season and June openings.

Chinook non-retention regulations were implemented during the remainder of the summer troll season from July 14-August 13, and August 24-September 20. The troll fishery was closed to all fishing from August 14-23 and September 21-30. As in past years, several outer coastal areas of high chinook abundance were closed to all trolling to reduce chinook salmon hook and release mortality. Troll harvest of other species during the summer season included 1.4 million coho, 1.8 million pink, 69,000 chum, and 20,200 sockeye salmon.

Net Fisheries: The 1989 commercial catch included 24,200 chinook harvested incidentally in net fisheries where chinook represent less than 0.1% of the total net harvest of 62 million salmon. Net fisheries are managed for a guideline harvest level of 20,000 chinook (excluding Alaska hatchery harvest) established by the Alaska Board of Fisheries. The 1989 incidental net harvest was 13% above the 1988 catch of 21,500 and 52% above the 1987 catch of 15,900. Net harvest of chinook is limited by a 28-inch minimum size limit and non-retention regulations for the purse seine fishery, and by spring closures in the gillnet fisheries.

Recreational Fisheries: Recreational fisheries are managed under a two fish per day bag limit and a 28-inch minimum size limit. No recreational harvest guideline has been established by the Alaska Board of Fisheries. The projected 1989 harvest of 28,000 chinook is about 5,000 fish above the 1985 to 1988 average.

3.2 Canadian Fisheries

The minimum size limit for troll fisheries in all areas except the Strait of Georgia remained at 67 cm fork length. Catch statistics for commercial fisheries are based on sales slips accumulated through the week ending November 15, 1989. These data are clearly preliminary at this time. In 1989, an industry strike disrupted fishing from July 21 to August 7. Fishing effort was substantially reduced in this period.

3.2.1 North/Central British Columbia

Troll Fisheries: The troll chinook catch is estimated to be 223,200. The 1989 troll fishery opened for all species on July 1. Small portions of Areas 10 and 11 remained closed throughout the troll season to slow the chinook catch. Additional closures to

trolling were made during the season for Skeena coho conservation and because Fraser sockeye allocations were reached. For example, on August 14, chinook target fisheries on the west coast of the Queen Charlotte Islands closed to trolling for all salmon species. The North/Central Coast closed to chinook trolling September 5. Following this, chinook non-retention fisheries occurred for the final 9 days of the 1989 season until the season closed Sept. 14.

Net Fisheries: The total net catch of chinook in the North/Central areas was 46,400, including catch in extreme terminal areas (see below). The Queen Charlotte Island chinook net catch was higher (12,900) in 1989 than 1988. This is a result of heavy targeting on abundant Fraser sockeye and an exceptional abundance of chinook salmon in this area. The Skeena-Nass (Areas 3,4,5) chinook net catch was relatively high in 1989 (26,900). Central coast chinook catches were relatively low (6,600) reflecting an apparent low chinook abundance in these areas in 1989, and low fishing effort directed at pink and sockeye.

Recreational Fisheries: Estimates of the North/Central sport catch in tidal water totaled 35,600, including catch in extreme terminal areas (see below). The Queen Charlotte Island sport chinook catch increased substantially in 1989 to 20,600 fish. Skeena/Nass tidal sport catches remained at 4,200 chinook, and Central coast sport catches increased to 10,800.

Catches in extreme terminal areas: Catches in areas (Skeena terminal gillnet (River/Gap/Slough), Kitimat sport - Sub-area 6-1, and the Bella Coola gillnet area) identified in Canada's paper on Terminal Exclusions (Feb. 13, 1989) were:

	Ave. catch in (1979-82)	1989 Catch	(1989-Base)
Skeena (R/G/S) gillnet	2,400	7,280	4,880
Kitimat sport	3,400	4,800	1,400
Bella Coola gillnet	2,800	3,145	345
Totals	8,600	15,224	6,624

3.2.2 West Coast Vancouver Island Troll

The 1989 catch ceiling for this fishery was reduced through domestic actions from 360,000 to 309,000 to compensate for the catch overages in 1987 and 1988. The fishery opened for chinook on July 1 with area closures in place similar to those used in 1988. The fishery was closed completely July 14 to 19 and August 6 to 11. In addition, area closures were introduced to avoid reaching the coho ceiling early in the season. Chinook fishing closed for the balance of the season in Treaty areas on September 3. There was no chinook non-retention period in 1989. The

preliminary estimate of chinook catch is 200,600.

3.2.3 Strait of Georgia

Troll: As in 1988, the catch ceiling for the troll fishery was 31,000 chinook. The reduced ceiling was maintained to reduce exploitation on the lower Strait of Georgia chinook stock. The troll fishery opened for chinook on July 1 and continued through September 30. Chinook non-retention fisheries did not occur in 1989. The preliminary estimate of the troll catch is 28,000.

Recreational: In 1989, a management plan to reduce the harvest impact of this recreational fishery was implemented. An annual bag limit of 15 and a size limit of 62 cm was implemented for the area north of Cadboro Point (north of Victoria in Statistical area 19B), including Johnstone Strait. These measures represent an increase in the bag limit (from 8 to 15) for the Georgia Strait recreational fishery compared to 1988. In the Victoria area, the bag limit was increased from 8 to 20, and the size limit was decreased from 62 to 45 cm. For Johnstone Strait, the daily bag limit was reduced from 4 to 2, the season limit was reduced from 30 to 15, and the size limit was increased from 45 cm to 62 cm. The estimated 1989 catch in the creel survey area (including the Victoria area but excluding Johnstone Strait) was 132,800. Recreational effort in the Strait was similar to recent years but reduced from 1988, although the proportion of the effort directed on chinook is uncertain.

4.0 REVIEW OF OTHER FISHERIES

4.1 Canadian Fisheries

4.1.1 Transboundary Rivers: Commercial gill net catch of chinook in the Canadian portions of the Transboundary rivers are: Taku River - 895 chinook adults and 140 jacks; Stikine River - 1,590 chinook adults and 174 jacks.

4.1.2 Southern B.C. Commercial Net:

<u>Area (Stat. Area)</u>	<u>Preliminary Catch (chinook > 5 lb.)</u>
Johnstone Strait (11-13)	29,100
Georgia Strait (14-19)	1,800
Fraser River (28,29)	21,500
Juan de Fuca Strait (20)	19,300
Barkley Sound (23)	36,000
Other WCVI (21,22,24-27)	1,600

4.1.3 Area 12 Troll: Preliminary catch is reported as 1,700 chinook.

4.1.4 Tidal Recreational: Catch estimates for the Barkley Sound recreational fishery are not yet available.

4.1.5 Non-tidal Recreational: Non-tidal recreational fisheries exist in most major B.C. rivers, including the Skeena, Nass, Kitimat, Bella Coola, Somass and Fraser rivers and various streams on the east coast of Vancouver Island. A small sport fishery occurs in the upper Alsek River. The reported catch in this fishery was 272 chinook in 1989. In northern B.C. rivers (Areas 1-10), the 1988 chinook catch was estimated by field staff at 9,600 including jack chinooks. In the Fraser River, chinook fisheries occurred in 9 areas (Bowron, Quesnel, Bridge, Clearwater, Shuswap, South Thompson, Thompson, Vedder-Chilliwack and Lower Fraser rivers). Chinook catch was estimated by creel surveys and interviews by fishery officer. Catch estimates are currently unavailable.

4.1.6 Indian Food Fisheries: The 1989 chinook catch by native Indians in the Stikine River was 1,078 adults and 115 jacks; catch in the Taku River was 6 adults; and catch in the Alsek River was 167 chinook.

<u>Fishing Area</u>	<u>Preliminary 1989 Catches</u>
North/Central B.C.	23,400
Somass River	12,000
Fraser River	5,800

Catches in northern B.C. and the Somass River were similar to the 1988 catches. However, the 1989 chinook catch in the Fraser River was 5,762, well below the 1988 level of 15,589. Catches in the Cowichan and Squamish rivers were estimated to total 1,078 chinook, up from the 818 reported for 1988.

4.2 Puget Sound

Recreational and commercial net fisheries in Puget Sound were regulated by time and area closures to protect depressed spring chinook stocks. With several exceptions, Puget Sound summer/fall type stocks returned at levels of abundance sufficient to support some terminal fisheries. Preliminary estimates of commercial net catch total 178,700 in 1989, compared to 173,000 in 1988 and 164,000 in 1987. The Puget Sound recreational fisheries were managed in the same general manner as in the last several years. Recreational catch data for 1989 are not available at this time.

4.3 Washington Coast

Ocean escapements of northern Washington coastal stocks were sufficient to allow both commercial and recreational fisheries. Commercial net catch estimates for coastal rivers are not complete for 1989. Preliminary estimates total 27,900, compared to 25,100 in 1988. The 1989 Washington coastal net catch in Grays Harbor and Willapa Harbor is estimated at 59,700, compared to 47,500 for 1988.

4.4 Columbia River

Although the 1989 Columbia River freshwater recreational and commercial net fisheries are incomplete, preliminary catch estimates suggest a substantial reduction in harvest compared to 1988. The net fishery catch is estimated at 266,200, compared to 491,300 in 1988. To date, the freshwater recreational fishery, including approximately 16,200 in the Buoy 10 fishery, has harvested approximately 59,900, compared to 94,000 in 1988.

4.5 Ocean Fisheries North of Cape Falcon

In 1989, ocean commercial and recreational fisheries operating in the PFMC region north of Cape Falcon were constrained by quotas for both chinook and coho salmon. Separate quotas were established for the Treaty troll and non-Treaty fisheries.

Overall, chinook catch success was very poor, consistent with 1989 pre-season expectations that indicated low abundance of key stocks. Mixed or all-species fisheries were terminated when coho quotas were achieved; chinook quotas were not fully harvested. Preliminary estimates of ocean troll harvest total 73,700 chinook (70,700 Washington, 3,000 Oregon north of Cape Falcon), compared to 105,800 in 1988. Preliminary estimates of ocean recreational harvest total 21,300 chinook (19,900 Washington, 1,400 Oregon north of Cape Falcon), compared to 19,500 in 1988.

4.6 Ocean Fisheries From Cape Falcon To Cape Blanco

Ocean fisheries in Oregon's central coast area harvest a mixture of stocks originating primarily from California's central valley and north coast rivers and the Rogue river in Southern Oregon. These stocks do not migrate north into PSC jurisdiction. Stocks that do migrate north into PSC fisheries include the north migrating coastal Oregon stock aggregate. The north migrating stocks are harvested only incidentally (probably <10%) in Oregon fisheries in this area. The only fishery harvesting predominately north migrating stocks is the late season near-shore fishery off the mouth of the Elk River, a small local fishery that typically harvests 2,000-4,000 chinook.

Preliminary 1989 ocean catches of chinook salmon are substantially

reduced from prior years for both the commercial and sport fisheries. As of 29 October the catches are:

1) 1989 Troll - 350,200; this is 127,500 or 27% less than the 1988 troll catch of 477,700 to this date. A local near-shore troll fishery continued until 30 November. This fishery harvests a north migrating stock and has historically caught 1,000-4,000 fish.

2) 1989 Sport - 30,600; this is 7,200 or 19% less than the 1988 chinook ocean sport catch of 37,800 to this date. This fishery is now closed for the season

5.0 PRELIMINARY REVIEW OF 1989 ESCAPEMENTS

Some fall running chinook stocks are still spawning at this time. Consequently, only a brief preliminary escapement overview can be presented (see Table 2). We have prepared the following brief narratives to summarize the information which is currently available. This information should be considered very preliminary.

5.1 S.E. Alaska

The estimated total escapement of chinook salmon for all Southeast Alaska and transboundary rivers declined from 60,500 fish in 1988, to 54,400 fish in 1989, reversing the trend of increasing escapements observed over the last six years. The total escapement of chinook salmon in 1989 was 10% or 6,100 fish less than in 1988 and only 85% of the management escapement goal of 64,000 chinook salmon. Still, the 1989 escapement represented an increase of approximately 109% or 28,400 chinook salmon compared to the 1975-1980 base period average of 26,000 chinook salmon and an increase of 39% or 15,300 chinook salmon, compared to the 1981-1985 average of 39,100 chinook salmon.

Although total escapements of chinook salmon declined, increases were observed in seven of the 11 index systems. Chinook escapements were strong in the Taku River, where the 1989 escapement of 15,500 chinook salmon was the second largest observed since 1975 and 15% above the 1988 escapement of 13,400 fish. In the Chilkat River, chinook escapements increased from 780 fish in 1988 to 1,400 in 1989, an increase of 74% or 580 fish. However, chinook escapements to the Chilkat were still 32% below the management escapement goal of 2,000 fish. Chinook escapements also increased in the Alsek River (+24%), Andrew Creek (+13%), Keta River (+101%), Chickamin River (+19%), and King Salmon River (+16%).

Chinook salmon escapements declined in four of the 11 index systems. The largest decline occurred in the Stikine River where the 1989 escapement of 18,900 chinook salmon was 35% (10,300 fish)

below the 1988 record escapement 29,200 fish. Still, the 1989 escapement to the Stikine River was 203% (12,600 fish) higher than the 1975-1980 base period average of 6,200 fish and 40% higher than the U.S. management escapement goal of 13,440 large (age 1.3 and 1.4) chinook salmon. If the Stikine River is excluded, the total escapement to the remaining 10 index systems actually increased by 13%. Chinook escapements also declined in the Unuk River (-34%), Blossom River (-10%), and Situk River (-28%).

5.2 Transboundary Rivers

Escapements to the Alsek and Taku rivers improved in 1989 compared to 1988 but decreased in the Stikine River. Canadian and U.S. estimates of escapements are recorded in Table 2.

5.3 Northern B. C. (Areas 1,3,and 4):

The 1989 Queen Charlotte Island (Area 1) chinook escapement is estimated at 2,800, an increase from 1988. Nass area escapements were stronger than in 1988, totalling 12,500 in 1989. Escapement estimates totaled 57,200 in 1989, lower than the 1988 escapement but similar to the 1985-87 returns.

5.4 Central B.C. (Areas 6-10):

In 1989, as in 1988, escapements to indicator stocks in Area 6 and Area 8 have been adjusted to remove rivers with substantial hatchery contributions. The escapement goals for these systems have been adjusted accordingly. Chinook escapements to Kitimat area (Area 6) streams appeared weak in 1989, at 1,000 spawners. Escapements to the Bella Coola area natural streams were very good in 1989 (2,500). Rivers Inlet and Smith Inlet (Areas 9 & 10) chinook escapements both decreased in 1989.

5.5 Southern British Columbia (outside the Fraser River):

Escapement data are preliminary and incomplete, however, early indications show an increase in spawners to the upper Georgia Strait stocks in 1989. Most of the increase is due to improved returns to the Nimpkish river. The 1989 reported returns to west coast of Vancouver Island stocks are higher than those reported since 1975 primarily due to improved returns to the Gold, Tahsis and Marble rivers. Preliminary estimates of returns to Lower Georgia Strait (LGS) indicate a small decline in spawning escapement compared to 1988. However, escapement to the Squamish River continues to show no response to the rebuilding program. It should be noted that the reported escapement and escapement goals for LGS have been revised to include natural spawners only.

5.6 Fraser River:

The 1989 escapement of spring and summer run Fraser River indicator stocks was estimated at 69,380 (preliminary), 22,5% below goal and a decline of 34% from the 1988 escapement. Escapements declined in all regions, by 30% in the Upper Fraser and Thompson regions and by 49% in the Middle Fraser Region. A mark-recapture study is underway in the Harrison River, but the escapement estimate is not yet available.

5.7 Puget Sound:

Spawning escapement surveys are complete on most systems, but numerical estimates will not be available until December or January. Most escapements appear to be average, with the exception of the spring chinook spawners in the South fork of the Nooksack River and the summer chinook spawners in the Stillaguamish River. These two stocks continue to be chronically depressed.

5.8 Washington Coast:

The northern Washington coastal chinook stocks from the Quillayute (except summer run), Hoh and Queets Rivers are managed on the basis of escapement floors and terminal area fishery harvest rates. Terminal area abundance for these stocks was sufficient to allow directed harvest and minimum escapement levels have been achieved. Grays Harbor spring chinook will achieve the escapement goal of 1,400 adult spawners. Information on Grays Harbor fall chinook is unavailable at this time.

5.9 Columbia River:

The 1989 escapement data for Columbia River chinook stocks are incomplete, however, preliminary estimates suggest a reduction from 1988 levels for most stocks. The 1989 total adult escapement of upriver spring chinook at Bonneville Dam was 74,600. Separation of the upriver spring chinook run into the hatchery and wild components for the 1989 return has not yet been accomplished. However, applying the 1984-88 average wild proportion (37.4%) to the Bonneville Dam escapement of 74,600 results in an escapement estimate for wild stocks of 27,900 chinook. This is a significant reduction from improved escapements for 1986-1988 and is only slightly above the base period level of 27,400. The reduced escapements for the last two years are probably due, in part, to poor flow conditions during smolt outmigration in recent years.

The preliminary Bonneville Dam adult escapement estimate for 1989 summer chinook is 28,800 fish, a 4% reduction from the 1988 escapement of 30,100 fish. This continues the slight decline for the 1988 escapement from the peak in 1987.

The 1989 upriver bright adult escapement at McNary Dam was 96,500 fish. Although the adult escapement exceeded the 40,000 goal, there is concern that this stock may be entering into a major abundance decline based upon significantly reduced jack counts in recent years. There is a strong relationship between jack and adult returns from the same cohort. The 1989 upriver bright jack count was the lowest since 1980.

The escapement of tule hatchery stocks in 1989 was mixed. The 1989 adult return to Spring Creek Hatchery, including tule fall chinook trapped at Bonneville Dam for supplemental broodstock, totaled 4,300 fish, compared to 3,600 in 1988 and the goal of 8,200. Returns to several lower river tule hatchery facilities were short of broodstock needs while surpluses were reported at others.

5.10 Oregon Coast:

The fall chinook salmon stocks that compose the north migrating aggregate are just entering into the spawning areas. Surveys of these areas are underway but not complete. Indications of escapement at this time show a substantial decrease in spawner abundance from 1988. The spawner abundance index in 9 of the 10 standard streams shows a value about 63% of the 1988 level. The coastal exploitation rate indicator stock return this year is presently estimated at about 40% of the 1988 level.

TABLE 1. PRELIMINARY 1989 CHINOOK CATCHES IN FISHERIES RELEVANT TO THE U.S./CANADA SALMON TREATY. (numbers in 1,000's of fish)
Catches as of 29/11/89 for U.S. data and 06/02/90 for Canada.

AREA	TROLL				NET				SPORT				TOTAL			
	1989	1988	1987	1986	1989	1988	1987	1986	1989	1988	1987	1986	1989	1988	1987	1986
S.E. ALASKA	236	231	242	236 a	24	22	15	22 a	28	26	24	21	288	279	281	279
BRITISH COLUMBIA b,c																
North/Cent. Coast	223	182	240	202	46	44	29	47	36	21	14	12	305	247	283	261
W. Vanc. Island	201	409	379	342	38	15	0.5	3.3	NA	33	32	13 d	NA	457	412	358
Georgia St/Fraser	28	20	38	44	23	8	13	32	133	119	121	182 e	184	147	172	258
Johnstone St	2	2	2	4	29	6	14	18	10	10	10	10	41	18	26	32
Juan de Fuca St	0	0	0	0	19	4	7	18				e	19	4	7	18
sub-total	454	613	659	592	155	77	64	118	NA	183	177	217	NA	873	900	927
WASHINGTON INSIDE f																
Strait (mar)	22	50	45	30 g	10	9	11	19	NA	41	53	69 h	NA	100	109	118
San Juans (mar)	0	0	0	0	16	32	29	21	NA	12	14	17 h	NA	44	43	38
Other PS (mar+fw)	1	0.4	0	0	152	132	124	151	NA	78	59	88 h	NA	210	183	239
Coastal (mar+fw)	0	0	0	0	88	77	54	28	NA	3	3	3 k	NA	80	57	31
sub-total	23	50.4	45	30	266	250	218	219	NA	134	129	177	NA	434	392	426
COLUMBIA RIVER	-	-	-	-	266	491	483	283 i	60	94	84	66 j	326	585	567	349
WA/OR N C FALCON	74	106	78	51	1	3	2	0	21	20	44	23	96	129	124	74
OREGON																
Inside Waters k	NA	4	3	2	-	-	-	-	NA	49	47	33	NA	53	50	35
GRAND TOTAL	787	1004	1027	911	704	843	782	642	NA	506	505	537	NA	2350	2314	2090

a/ Southeast Alaska troll chinook catches shown for Oct. 1- Sept. 30 catch counting year.

b/ British Columbia net catches includes only fish over 5 lb. round weight. Native food fishery catches are not included.

1989 includes catch from terminal sport and gillnet fisheries (6,600) proposed for exclusion from the catch ceiling.

c/ Sport catches are for tidal waters only, catch updates will be provided as available.

d/ Estimates of tidal sport catches are from creel surveys in Barkley Sound only. Survey times and areas vary between years.

e/ Georgia Strait sport catches include Juan de Fuca Strait sport catches.

f/ Coastal and Puget Sound sport catches include marine and freshwater catches, but only adults in freshwater.

g/ Includes areas 5, 6C, 4B troll catches outside of the PFMC management period (May - September) in the Juan de Fuca Strait total.

h/ Adjusted for punch card bias by multiplying punch card estimate by 0.833. This bias adjustment methodology is under review and may result in future adjustment to these numbers.

i/ Columbia River net catches include Oregon, Washington and treaty catches, but not treaty ceremonial.

j/ Columbia River sport catches include adults only, for Washington, Oregon, Idaho and Buoy 10 anglers.

k/ Troll = late season troll off Elk River mouth (Cape Blanco); sport = estuary and inland (preliminary for 1986-88).

Table 2. SUMMARY OF THE 1986 to 1988 ESCAPEMENTS TO ESCAPEMENT INDICATOR STOCKS, AND PRELIMINARY 1989 SPAWNING ESCAPEMENTS.
29-Nov-89

Production Unit	Stock Type	Ave Esc. Base 1/	Esc. Goal	1986 Esc.	1987 Esc.	1988 Esc.	1989 Esc.	1989 % Base	1989 % Goal
Southeast Alaska									
Situk	Spring	1,391	2,100	2,067	1,884	885	652	47%	31%
King Salmon	Spring	92	250	245	193	206	238	259%	95%
Andrew Creek	Spring	379	750	1,131	1,042	752	848	224%	113%
Blossom	Spring	163	1,280	2,045	2,158	614	550	337%	43%
Keta	Spring	407	800	1,104	1,229	920	1,848	454%	231%
Transboundary Rivers Not Addressed in Treaty Annexes									
Chilkat (U.S.)	Spring	213	2,009	129	1,286	781	1,362	639%	68%
Unuk (U.S.)	Spring	1,469	2,880	3,402	3,157	2,794	1,838	125%	64%
Chickamin (U.S.)	Spring	338	1,440	2,683	1,560	1,258	1,494	442%	104%
Transboundary Rivers Addressed in Treaty Annexes									
Alsek (U.S.)	Spring	4,214	5,000	4,073	3,892	3,105	3,838	91%	77%
Alsek (Canada)	Spring	5,255	12,500	5,418	5,232	4,060	4,912	93%	39%
Taku (U.S.)	Spring	7,978	25,600	12,178	8,951	13,411	15,451	194%	60%
Taku (Canada)	Spring	9,700	30,000	15,040	11,486	17,252	18,784	194%	63%
Stikine (U.S.)	Spring	6,224	13,440	11,572	19,108	29,168	18,860	303%	140%
Stikine (Canada)	Spring	8,004	25,000	11,572	19,100	29,168	18,860	236%	75%
B.C. North Coast									
Yakoun River	Summer	788	1,576	500	2,000	2,000	2,800	355%	178%
Nass area	Spr/Sum	7,944	15,888	17,390	11,400	10,000	12,500	157%	79%
Skeena area	Spr/Sum	20,883	41,766	59,968	59,120	68,700	57,200	273%	136%
B.C. Central Coast									
Area 6 Index	Summer	2,760	5,521	2,615	1,566	3,165	1,000	36%	18%
Area 8 Index	Spring	2,725	5,450	3,362	1,456	1,650	2,500	92%	46%
Rivers Inlet	Spr/Sum	2,475	4,950	7,623	5,239	4,430	3,300	133%	66%
Smith Inlet	Summer	1,055	2,110	532	1,050	1,050	225	21%	11%
West Coast Vancouver Island									
Indicator Stocks	Fall	5,745	11,500	4,810	3,570	5,525	8,490	148%	74%
Fraser River									
Upper River	Spring	12,229	24,458	41,207	34,520	34,250	24,000	196%	98%
Middle River	Spr/Sum	9,216	21,133	27,349	27,330	24,160	12,300	133%	58%
Thompson River	Summer	22,059	55,714	45,130	36,730	47,100	33,000	150%	59%
Harrison River	Fall	116,791	233,582	162,393	78,693	35,700	75,000	64%	32%
Georgia Strait									
Upper	2/ Sum/Fall	2,546	5,100	1,630	5,700	3,300	6,600	259%	129%
Lower	Fall	11,139	22,278	2,830	2,530	6,914	5,830	52%	26%

Table 2. (Continued)

Production Unit	Stock Type	Ave Esc. Base 1/	Esc. Goal	1986 Esc.	1987 Esc.	1988 Esc.	1989 Esc.	1989 % Base	1989 % Goal
Puget Sound									
Skagit	Spring	1,217	3,000	1,995	2,108	1,988	NA		
Skagit	Sum/Fall	13,265	14,900	18,127	9,647	11,954	NA		
Stillaguamish	Sum/Fall	817	2,000	1,277	1,321	717	NA		
Snohomish	Sum/Fall	5,028	5,250	4,534	4,689	4,513	NA		
Green	Fall	5,723	5,800	4,792	10,338	7,994	NA		
Washington Coast									
Hoh	Spr/Summ	1,325	NA 3/	1,500	1,700	2,600	NA		
Queets	Spr/Summ	925	NA 3/	900	600	1,800	NA		
Grays Harbor	Spring	425	1,400	1,800	800	3,000	NA		
Grays Harbor	Fall	8,575	14,600	10,500	18,800	28,200	NA		
Quillayute	Summer	1,275	1,500	600	700	1,300	NA		
Quillayute	Fall	5,850	NA 3/	10,000	12,400	7,900	NA		
Hoh	Fall	2,875	NA 3/	5,000	4,000	2,700	NA		
Queets	Fall	3,875	NA 3/	7,700	6,000	8,600	NA		
Columbia River									
Upper River 4/	Spring	27,425	84,000	38,500	41,400	35,100	27,900 5/	96%	33%
Upper River	Summer	23,100	85,000	25,700	31,800	30,100	28,800	119%	34%
Lewis River 4/	Fall	13,021	10,000	12,000	12,900	12,100	NA	NA	NA
Upriver Bright	Fall	28,325	40,000	113,300	154,100	114,700	96,500	341%	241%
Oregon Coast									
Aggregate Index 6/	Fall	91	NA	121	129	221	NA		

- 1/ Base period for Alaskan and Transboundary stocks 1975-80; base for all other stocks 1979-82.
2/ 1986 escapement estimate for Upper Georgia Strait reflects unusual survey conditions.
3/ Stocks managed on the basis of floor minimum and fixed harvest rates.
4/ Interim management goal, only includes naturally spawning component.
5/ Based on average wild proportion of total adult escapement.
6/ Oregon coastal north-migrating chinook stocks are assessed in terms of spawners per mile survey units.