PACIFIC SALMON COMMISSION
CHINOOK TECHNICAL COMMITTEE

REPORT TCCHINOOK (93)-1

CHINOOK TECHNICAL REPORT ON PRELIMINARY 1992 CATCH AND ESCAPEMENT

FEBRUARY 11, 1993

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1.0 1992 CHINOOK SALMON CATCHES IN FISHERIES WITH CEILINGS

Estimates of 1992 catch for each fishery managed under a harvest ceiling established by the Pacific Salmon Commission (PSC) are presented below. These data are preliminary, but major changes are not expected. Catches in all chinook fisheries of interest to the PSC for the years 1989-1992 are documented in Table 1.

Area/Fisheries a/	Ceiling	Catch	Difference	
			Numbers	Percent
S.E. Alaska (T,N,S) b/	263	221.9	-41.1	-15.6%
North/Central B.C. (T,N,S) c/	263	262.0	-1.0	-0.3%
West Coast Vancouver Island (T)	360	339.8	-20.2	-5.6%
Strait of Georgia (T,S)	275	153.8	-121.2	-44.1%

a/ T=Troll; N=Net; S=Sport
b/ The actual total catch was 260,500 chinook, including a hatchery add-on of 38,600.
c/ Excludes 6,070 chinook caught in terminal areas in 1992, which Canada proposes to exclude from the ceiling.

2.0 CUMULATIVE DEVIATIONS FROM CATCH CEILINGS

A 7.5% cumulative management range was established by the PSC in 1987. Annual catches (without add-on) and deviations from catch ceilings since 1987 are as follows:

(numbers x 1,000) Compiled with information available as of January 29, 1993.

Area/Fisheries	Ceiling	Catch						Cumulative Deviation	
		1987	1988	1989	1990	1991	1992	Numbers	Percent
S.E. Alaska (T,N,S) a/	263 b/	265.2	255.2	264.4	313.1	295.6	221.9	-11.6	-4.4%
North/Central B.C. (T,N,S) c/	263 b/	282.8	245.6	301.2	253.0	303.2	262.0	+21.0	+8.0% d/
West Coast Vancouver Island (T)	360	379.0	408.7	203.7	298.0	202.9	339.8	-27.0	-7.5% e/
St. of Georgia (T,S)	275	159.8	138.7	161.3	146.3	147.7	153.8	-20.6	-7.5% e/

a/ S.E. Alaska catches exclude hatchery add-ons of 16,700, 23,700, 26,700, 53,700, 61,400 and 38,600 for 1987 through 1992.
b/ The 1990 ceiling was 302,000, and the 1991 ceiling was 273,000.
c/ Catches exclude 4,819, 5,549, 6,066, and 6,070 chinook caught in terminal areas in 1989, 1990, 1991, and 1992 respectively, for a total of 22,504.
d/ This deviation exceeds the 7.5% management range.
e/ Negative deviations below the 7.5% management range can not be accumulated.

3.0 REVIEW OF FISHERIES WITH CATCH CEILINGS

3.1 S.E. Alaska Fisheries

In 1992, SEAK fisheries were managed under the following provisions established by the PSC:

(1) An all-gear base catch of 263,000 chinook salmon.

(2) An Alaska hatchery add-on calculated on the basis of coded-wire-tag sampling.

(3) To bring the total cumulative deviation in numbers of fish since 1987 back to within the 7.5% management range. For SEAK, the management range is equivalent to +/- 19,700 chinook salmon for a ceiling of 263,000.

Catch data for 1992 indicate the following:

(1) The total all-gear catch (commercial and recreational) was 260,500, including a hatchery add-on of 38,600. The 1992 all gear harvest of 260,500 consisted of a commercial catch of 216,500 and a recreational catch of 44,000.

(2) The total estimated catch of Alaska hatchery produced chinook salmon was 45,800 (17.6% of the total catch). The add-on was calculated by reducing this by 5,000 for the estimated pre-Treaty harvest of Alaska hatchery chinook salmon and by 2,175 for risk adjustment.

(3) The deviation of the 1992 SEAK chinook salmon catch was -41,100. The cumulative deviation since 1987 is -11,600.

Troll Fisheries: The troll fishery harvested a total of 184,300 chinook salmon of which 25,800 (14%) were of Alaska hatchery origin. Catches were as follows:

Fishery	Total Catch	AK Hatchery Catch
Winter Fishery (October 1, 1991 through April 14, 1992)	71,800	7,000
Hatchery Access (June 1-3 and 17-20)	23,800	6,400
Experimental and Terminal	15,600	9,700
Summer Fishery (July 1-4 and August 25)	73,100	2,700
Total Troll	184,300	25,800

The troll fishery was managed to bring the total cumulative deviation back within the 7.5% management range. Because of the cumulative deviation and a high winter catch, only a small portion of the ceiling was left for the summer fishery. Chinook non-retention was implemented beginning at noon on July 4. By regulation, all vessels are required to off-load chinook salmon before continuing to fish for coho salmon during a non-retention period. The fishery closed for ten days in mid-August for coho salmon management. When the fishery was reopened, one additional day of chinook salmon retention was allowed. As in the past, areas with high chinook abundance

were closed during the chinook non-retention period. In 1992, the total number of chinook non-retention fishing days was 67.5.

Net Fisheries: The SEAK net fisheries have a guideline harvest of 20,000 non-Alaska hatchery chinook. The 1992 commercial net catch included 32,200 chinook salmon, of which 10,100 (31%) were from Alaska hatcheries. Of these, 6,400 were harvested in terminal area fisheries. Net harvest of chinook salmon in the purse seine fishery is limited by a 28" (70 cm) size limit and chinook non-retention regulations. In addition, chinook below 21" may be retained at all times, while chinook between 21" and 28" may never be retained. Net harvest for the gillnet fisheries is limited by early season and night closures.

Recreational Fisheries: The recreational fishery harvested 44,000 chinook salmon, of which 9,900 (23%) were Alaska hatchery chinook. During 1992, a one fish bag limit was in place through July; a two fish bag limit was in place after July. This fishery also has a 28" size limit.

3.2 Canadian Fisheries

The minimum size limit for troll fisheries remained at 62 cm fork length in the Strait of Georgia and at 67 cm fork length in all other areas. Catch statistics for commercial fisheries are based on sales slips accumulated through October 16, 1992.

North/Central B.C.: The 1992 North/Central B.C. fisheries were managed under the following provisions:

(1) An all gear base catch ceiling of 263,000 chinook salmon.

(2) A 7.5% management range, with cumulative deviations calculated since 1987. Based on preliminary 1991 catch estimates and terminal exclusion calculation procedures, the cumulative deviation at the beginning of the 1992 season was estimated at +21,800.

The preliminary 1992 all-gear catch was 261,958, excluding terminal exclusions of 6,070. These preliminary catch statistics indicate a 1992 catch deviation of -1,042, and a cumulative deviation through 1992 of +20,987 chinook (+8.0% of the catch ceiling). This overage exceeds the 7.5% management range.

Terminal exclusions, as allowed in the Letter of Transmittal, are calculated as follows:

Area	Base	1992 Catch	1992 Exclusion
Skeena	2,900	8,762	5,862
Bella Coola	2,950	3,158	208
Kitimat	2,400		0
Total			6,070

Troll Fisheries: The 1992 troll fishery opened for all species on July 1. The following management actions were taken throughout the season:

(1) On August 1, chinook redline closures were implemented as per the Troll Plan.

(2) On August 6, Areas 102-1, 104-5 and 104-3 north of 54o and 104-2 and 104-4 were closed to all trolling for two weeks for conservation of Upper Skeena coho. The boundary was amended to exclude 104-1 from the closed area to permit continued pink fishing, based on inseason advice from OTAC advisers.

(3) On August 8, Areas 142, 130-2 and 130-3 closed to all trolling as per the Troll Plan.

(4) At midnight on August 14, all North Coast areas closed to the retention and possession of chinook.

(5) On August 17, trolling restarted on Fraser sockeye due to a run size upgrade and increased allocation to the troll fleet.

(6) On August 20, trolling for Fraser sockeye closed again in all areas outside of Areas 1, 3, 5 and 101 to 104. Areas 143, 130-2 and 130-3 again closed to all trolling as per the Troll Plan.

(7) On August 21, the chinook redline closed area was modified by moving the boundary west to Seth Point to provide for additional opportunities to harvest pink, based on advice from inseason advisers. Areas 102-1, 104-5 and 104-3 north of 54o and 104-2 and 104-4 reopened to trolling.

(8) On August 24, Area 102 north of 54o, Areas 104-3 and 104-5, and 105-1 closed to all trolling to reduce the incidence of chinook shakers, as per the Troll Plan.

(9) On August 27, the balance of Area 104 closed to all trolling due to reported high incidence of chinook shakers.

(10) On August 28, sub-Areas 3-2, 3-3, 3-4, and 3-7 opened to trolling for all species except chinook.

(11) At midnight on September 15, all North Coast areas closed to trolling.

Trolling for all species closed on September 15, for a total of 32 days of chinook non-retention. The catch of chinook in North/Central B.C. troll fisheries was 179,571.

Net Fisheries: Catch of chinook in North/Central areas was 44,531. Catches by fishery were 5,187 in the Queen Charlotte Islands, 21,704 for the Skeena/Nass and 17,640 in the Central Coast. These catches are the preliminary total catches of chinook >5 lbs. including the catch eligible for terminal exclusion.

Recreational Fisheries: The tidal water sport fishery catch of chinook was 37,856. Catches by fishery were 21,358 for the Queen Charlotte Islands, 6,250 for the Skeena/Nass and 10,248 for the Central Coast.

West Coast Vancouver Island (WCVI) Troll: In 1992, the west coast of Vancouver Island troll fishery was managed under the following provisions:

(1) A catch ceiling of 360,000.

(2) A 7.5% management range about the catch ceiling with cumulative deviations calculated since 1987.

(3) To manage the fishery consistent with the spirit and intent of the Pacific Salmon Treaty and the chinook rebuilding program.

The 1992 troll season started with a short spring fishery. This fishery operated from April 1 to 5 with a catch of about 5,000 chinook. Trolling reopened on July 1 and continued until September 30 with no chinook non-retention fisheries. The conservation Areas F1, S, G and H were closed at the start of the season (Fig. 1). Later in the season, in order to provide access to sockeye, Areas F1, G and H were opened for two days, then closed. Beginning in early September, these areas were reopened (September 6, Area H; September 11, Area F1; September 16, Area G) until the end of the season to provide opportunities to fish for coho salmon.

When trolling closed on September 30, it was estimated that 47,550 boat days had been expended during the troll fishing season. This compared to a target of 50,500 boat days (the 1985-1987 average). Chinook catch in 1992 for the WCVI troll fishery was 339,770.

Strait of Georgia: Chinook catch in 1992 for the combined Strait of Georgia troll and recreational fisheries was 153,841.

Troll: The management objective was a domestic catch ceiling of 31,000 chinook. The ceiling was reduced to this level in 1988 to achieve a 20% harvest rate reduction, relative to 1987 levels, as part of a conservation plan for lower Strait of Georgia chinook.

The troll fishery opened for chinook retention on June 30 and continued until August 6 without interruption. After August 6, chinook non-retention was in effect until the season ended on September 30. In order to reduce chinook shaker mortalities, an area of high chinook abundance was closed to trolling between August 19 and September 9 and a regulation for single barbless hooks was implemented on August 18. There were 55 chinook non-retention days in the 1992 Strait of Georgia troll season. Chinook catch by trollers was 37,262.

Recreational: The 1992 management objective for the Strait of Georgia recreational fishery was to achieve a 20% harvest rate reduction, relative to 1987 levels, on lower Strait of Georgia chinook. Consequently, the management plan implemented in 1989 was continued in 1992. This plan consists of the following management actions:

(1) An annual bag limit of 15 chinook and a size limit of 62 cm were 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 Strait of Georgia recreational fishery, compared to 1988.

(2) For Johnstone Strait, the daily bag limit was reduced from four to two chinook, the season limit was reduced from 30 to 15, and the size limit was increased from 45 cm to 62 cm, relative to 1988.

The estimated 1992 catch in the creel survey area (including the Victoria area but excluding Johnstone Strait) was 116,579 chinook.

4.0 REVIEW OF OTHER FISHERIES

4.1 Canadian Fisheries

Transboundary Rivers: Chinook catch in the Canadian gillnet fishery was: Taku River, 1,445 chinook adults and 147 jacks, and Stikine River, 925 chinook adults and 107 jacks. The catch of chinook in these rivers is limited to incidental catch during fisheries targeting on sockeye salmon.

Southern B.C. Commercial Net:

Area (Statistical Area)	Catch (chinook > 5 lbs.)
Johnstone Strait (11-13)	9,144
Strait of Georgia (14-19) and Fraser River (28,29)	8,565
Juan de Fuca Strait (20)	9,252
Barkley Sound (23)	2,653
Other WCVI (21,22,24-27)	4,435

The catch of chinook in all of these net fisheries is limited to their incidental catch during fisheries targeting on sockeye, pink, or chum, with the exception of the August/September gillnet fishery in Alberni Inlet (Area 23). This fishery is a terminal gillnet fishery for returns to the Robertson Creek Hatchery. Small numbers of chinook may also be harvested incidentally during gillnet and seine fisheries on sockeye salmon in Barkley Sound in July. Management of southern B.C. net fisheries has an objective to reduce the base period harvest rate on chinook by 25% (an obligation in the PSC chinook rebuilding program). Further, the Johnstone Strait net fisheries have the added objective of reducing harvest rates since 1987 by an additional 20% as part of the conservation program for chinook stocks in the lower Strait of Georgia.

In all the fisheries, regulations and research programs are attempting to limit the incidental mortality of juvenile chinook and coho. Fishing time, location, and gear are limited in southern B.C. net fisheries to conserve juvenile and adult chinook salmon. In Johnstone and Juan de Fuca Straits, known areas of high chinook vulnerability are closed and minimum depth strata are set to reduce the catch of juvenile chinook and coho. In Juan de Fuca, a maximum number of juvenile chinook and

coho salmon per set has been established, beyond which the fishing area is further restricted or even closed. Chinook catch in the Fraser River area is usually limited to gillnet fishing and chinook catch is incidental.

Area 12 Troll: Catch is reported as 2,654 chinook for 1992. This fishery is made up of a small localized group of trollers at the southern limit of Queen Charlotte Sound. The fishery is limited to a catch ceiling of 5,000 chinook, which is included in the overall WCVI catch ceiling of 360,000.

Tidal Recreational: The catch estimate for the 1992 Barkley Sound recreational fishery is 47,095, of which 8,947 were taken in the terminal fishery inside Alberni Canal and 38,148 in Barkley Sound. The survey period covered July 15 through September 30. The early to mid-summer fishery primarily occurs in outer Barkley Sound and is regulated by size limit, catch per day, and possession limits. The Alberni Canal portion occurs primarily in August and is directed on returns to the Robertson Creek Hatchery. A creel survey was conducted in Johnstone Strait in 1992. The catch figures for this fishery are still in the process of being tabulated. Catch estimates for sport fisheries off WCVI are not available at this time.

Non-tidal Recreational: Non-tidal recreational fisheries occur in most B.C. rivers, including the Alsek, Skeena, Nass, Kitimat, Bella Coola, Somass and Fraser Rivers and various streams on the east coast of Vancouver Island. Most of these fisheries are small, localized fisheries to provide the local public with some access to salmon fishing. Recent fisheries in the upper Fraser have been limited to the larger chinook populations which have responded well to the chinook rebuilding program and most have an established catch ceiling.

Chinook catch was estimated at 102 in the Alsek, 9,438 in northern B.C. rivers (Areas 1-10), and 1,500 in 11 small sport fisheries in the Upper Fraser River. Sport fisheries also occur in the Vedder-Chilliwack River and lower Fraser mainstem, but were not assessed in 1992.

Indian Food Fisheries:

Fishing Area	Adult Catches	Jack Catch
North/Central B.C.	31,094 a/	-
Somass River	32,824	-
Fraser River	12,694	-
Stikine	904	130
Alsek	84	-
Taku	83	-
Cowichan	200	-
Squamish	1,553	-

a/ very preliminary estimate

Each of these fisheries involves directed chinook fishing periods and the incidental catch of chinook during fisheries on other species. Small portions of the catch may be taken in marine waters, with the exception of the Stikine and Alsek catches. Catch in these fisheries is mostly limited by fishing time, but allocation to meet Native food fishing requirements is the first priority use of allowable catches.

4.2 Southern U.S. Fisheries

Strait of Juan de Fuca and San Juan Islands: As in previous years, management measures were taken in the Strait of Juan de Fuca and other mixed stock areas to protect depressed spring chinook stocks. No directed spring chinook fisheries were permitted and no commercial fisheries were permitted during the spring chinook management period (April 15-June 15). Recreational fisheries were also restricted by a maximum size limit of 30" during the spring chinook management period.

Further actions were taken in all mixed stock areas to protect depressed summer/fall stocks from Puget Sound. Purse seine and reef net fisheries were restricted by a 28" chinook minimum size limit. Most seine fisheries were required to have a 5" net strip to reduce the catch of small chinook. Gill net fisheries had no chinook minimum size, but mesh size restrictions were used to reduce chinook catch. It was recognized that the combined actions for chinook salmon should also serve to protect depressed Canadian-origin chinook stocks (primarily Fraser River runs).

Preliminary estimates of 1992 net catch in the Strait of Juan de Fuca total 800 chinook, compared to 3,200 in 1991. These fisheries take chinook incidental to the harvest of other species. Preliminary estimates of 1992 tribal troll catch in the Straits (Areas 4B, 5, and 6C) total 30,500 chinook, compared to 34,700 caught in 1991. This is a chinook directed fishery. Note that tribal troll catch estimates from this area do not include tribal catch in Area 4B during the May 1-September 30 PFMC management period; catches during this period are included in the North of Cape Falcon troll summary.

In 1992, about 30 chinook were caught in the Area 4B state waters fishery, after the PFMC fishery, compared to 400 in 1991. Recreational catch estimates for 1992 in Areas 5 and 6 are not available at this time. Preliminary 1991 recreational chinook catches for Areas 5 and 6 are estimated at 39,300, compared to 50,500 in 1990. In 1992, a creel census was conducted in Area 5 between June 1 and August 23. Chinook catch during this time is estimated at 22,300.

Preliminary 1992 estimates of chinook net catch in the San Juan Islands total 15,800, compared to 13,800 in 1991. The recreational catch estimate for 1992 in Area 7 is not available at this time. Preliminary 1991 recreational chinook catch for Area 7 is estimated at 5,100, compared to 7,400 in 1990.

Puget Sound: The status of many Puget Sound chinook stocks continued to be poor in 1992. As in past years, recreational and commercial fisheries in Puget Sound were regulated by time and area closures to avoid direct harvest and minimize incidental harvest of these depressed stocks. Some directed harvest was allowed on a few Puget Sound summer/fall stocks. However, several terminal areas, including Area 8 (located near the mouth of the Stillaguamish and Snohomish Rivers), did not have directed chinook net fisheries in order to protect depressed summer/fall stocks. As in the Strait of Juan de Fuca, purse seine fisheries were restricted by a 28" chinook minimum size limit. Most

seine fisheries were required to use a 5" net strip to reduce the catch of small chinook. Gill net fisheries had no chinook minimum size, but mesh size restrictions were used to reduce chinook catch.

Net catch of chinook was down again in 1992 due to a combination of poor catch rates (likely due to low abundance) and management actions taken to protect both chinook and coho. Preliminary estimates of 1992 net catch in Puget Sound marine areas total 51,100 chinook, compared to 70,800 in 1991. Preliminary estimates of 1992 net catch in Puget Sound freshwater areas total 10,500 chinook, compared to 18,400 in 1991.

Puget Sound recreational catch estimates for 1992 are not available at this time. Recreational fisheries were managed in the same general manner as in recent years. Preliminary Puget Sound marine (Areas 8-13) recreational chinook catch for 1991 is estimated at 46,700, compared to 67,600 in 1990. Catch estimates for Puget Sound freshwater areas in 1991 are not yet available.

Washington Coast: In 1992, terminal runs of northern Washington coastal stocks were expected to be above minimum spawning levels, allowing both commercial and recreational directed chinook fisheries in terminal areas. Preliminary 1992 estimates of Grays Harbor and Willapa Bay net catch total 50,700 chinook, compared to 42,300 in 1991. Preliminary 1992 estimates of commercial net fisheries in north coastal rivers total 13,200 chinook, compared to 11,900 in 1991.

Washington coastal recreational catch estimates for 1991 and 1992 are not available at this time. Chinook catch for coastal rivers in 1990 is estimated at 4,500.

Ocean Fisheries North of Cape Falcon: In 1992, ocean commercial and recreational fisheries operating in the Pacific Fisheries Management Council (PFMC) region north of Cape Falcon were regulated by domestic quotas for both chinook and coho salmon. Separate quotas were established for the tribal troll and non-tribal fisheries.

Under PFMC quota management, ocean fisheries are terminated either when coho or chinook quotas are achieved or when seasons expire. In 1992, coho quotas were substantially reduced due to concerns for the Hood Canal wild coho stock. Fisheries were closed when coho quotas were reached. The non-tribal trollers traded 21,000 coho to the recreational groups in exchange for an additional 7,000 chinook. In an attempt to improve efficiency in chinook targeting, trollers were required to use 6" or larger plugs and no more than four spreads per line during the all species season. The chinook quota was almost fully harvested before the coho quota was reached. Preliminary estimates of non-tribal troll chinook catch total 45,900 (2,300 Oregon and 43,600 Washington), about 98% of the 47,000 chinook quota and up from 29,700 in 1991. Approximately 36,900 of these non-tribal troll-caught chinook were taken during the early season chinook fishery, May 1 through June 15, 1992.

Preliminary recreational catches are estimated at 19,000 (500 Oregon and 18,500 Washington), about 58% of the 33,000 chinook quota and up from 13,300 in 1991. In 1992, an all salmon except coho fishery was conducted in Area 4B during May. The catch of 100 chinook counted against the ocean chinook quota. This fishery was not conducted in 1991.

Preliminary estimates of 1992 tribal troll chinook catch total 22,500, 68% of the 33,000 chinook quota and up from 20,600 in 1991.

Columbia River: Since 1988, all in-river management of Columbia River fish runs and fisheries has been based on the Columbia River Fish Management Plan (CRFMP). "The purpose of this management plan is to provide a framework....to protect, rebuild, and enhance upper Columbia River fish runs while providing harvest for both treaty Indian and non-Indian fisheries" (CRFMP, 1988, p.2). The CRFMP specifies management goals, season timing, catch limits, and maximum incidental impacts for all depressed upriver runs of anadromous fish in the Columbia River.

The 1992 in-river commercial catch of chinook was 54,311, compared to 106,843 in 1991 and 147,300 in 1990. Total freshwater recreational catch in 1992 (including a Buoy 10 catch of 10,655) is estimated to be 65,107 compared to 82,713 in 1991 and 95,320 in 1990. The recreational catch figures include Idaho sport catches of 553 in 1992, 0 in 1990, and 500 in 1990.

The 1992 total catch of upriver spring chinook was 8,657 fish, consisting of 1,973 caught in the non-Indian sport and commercial fisheries (including 553 caught in the Idaho recreational fishery), 5,700 caught in Zone 6 Ceremonial and Subsistence (C&S) fisheries, and 984 caught in C&S fisheries in Snake River tributaries. The CRFMP provides that on runs between 50,000 and 128,800, the mainstem harvest below Bonneville Dam is limited to the 1983-1985 average impact (4.1%) on the upriver run and Treaty C&S fisheries in Zone 6 are limited to 7% of the run. The estimated 1992 impacts in mainstem fisheries were 1.6% and 6.3% respectively.

There has not been a targeted mainstem fishery on upriver summer chinook since 1964. In the past, incidental harvest of summer chinook occurred during commercial sockeye fisheries. However, no commercial sockeye fisheries have occurred below McNary Dam since 1988. In 1992, a small Treaty commercial sockeye fishery in the pool behind Priest Rapids dam in the mid-Columbia harvested four summer chinook. There is a very small catch of summer chinook in the mainstem tribal C&S sockeye fishery. The total catch in 1992 in this fishery was less than 60 fish. A Treaty C&S fishery in Idaho harvested 100 summer chinook.

Commercial catch of fall chinook in 1992 totaled 49,231 (17,789 in lower river non-Indian fisheries below Bonneville Dam). Management constraints included achieving the Spring Creek hatchery escapement goal of 8,200 adult chinook, and an adult escapement of 45,000 Upriver Bright chinook over McNary Dam. The Upriver Bright escapement goal at McNary Dam was increased by 5,000 chinook to 45,000 adults for 1990, 1991, and 1992 on an interim basis, by agreement of the CRFMP parties, to account for increased broodstock hatchery needs.

Ocean Fisheries Cape Falcon to Humbug Mountain: Ocean fisheries off Oregon's central coast primarily harvest a mixture of southern chinook stocks not involved in the PSC rebuilding program; these stocks do not migrate north into PSC jurisdiction to any great extent. Some stocks that spawn in Oregon coastal streams do migrate into PSC fisheries, including the Northern Oregon Coastal (NOC) stock aggregate. These north migrating stocks are harvested incidentally (probably $< 10\%$) in Oregon ocean fisheries. The only troll fishery that predominately harvests the NOC stock aggregate is the late season near-shore fishery off the mouth of the Elk River. In 1992 this Elk River fishery caught an estimated 400 chinook. In 1991 this fishery was not conducted due to conservation concerns. Recreational catch estimates for 1992 are not available at this time.

5.0 PRELIMINARY REVIEW OF 1992 ESCAPEMENTS

Some chinook escapement estimates are still being calculated at this time. A brief overview is presented below and in Table 2, summarizing the information that is currently available. This information should be considered very preliminary.

5.1 S.E. Alaska and Non-Annex Transboundary Rivers

Escapement to the Situk river was above goal for the 9th consecutive year. Escapements to the King Salmon and Keta rivers were lower than in 1991 (and less than 50% of their escapement goals) while escapement into Andrew Creek was the second highest on record and exceeded the escapement goal. Escapements into the Behm Canal system as a whole declined. Of the Behm Canal escapement indicator stocks (Blossom, Unuk, and Chickamin), only the Unuk River showed an improvement from recent years. All three Behm Canal stocks had escapements less than 50% of their escapement goals.

5.2 Annex Transboundary Rivers

Escapement to the Alsek River declined in 1992 to only 29% of the goal; this is the lowest escapement seen since 1985. Escapement to the Transboundary Taku and Stikine improved over 1991, with the Stikine exceeding its escapement goal.

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

In 1992, chinook escapements to the Nass area were almost double those of 1991. In 1992, considerable resources were available for review of Area 3 chinook escapements through Nisga'a land claim funds. Preliminary estimates of Nass escapement through these more rigorous surveys suggest much higher escapements (perhaps triple) than the Fishery Officer estimates provided. The data from the new survey methods have not yet been reviewed by the Department of Fisheries and Oceans.

Skeena chinook escapements were very strong in 1992, remaining well above goal. Yakoun escapements were also above goal. Total escapement to Northern B.C. was 76,598.

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

Since 1988, index escapements for Area 6 and Area 8 have been adjusted by eliminating rivers with substantial hatchery contributions. The escapement goals for these systems have been adjusted accordingly. Chinook escapements to the Kitimat area (Area 6 Index) streams increased compared to 1991. Escapements to the Bella Coola area (Area 8 Index) natural streams in 1992 were up substantially from 1991. Rivers Inlet escapements were also up from 1991 levels. Total escapement to Central B.C. was 14,120.

5.5 Southern B.C. (outside the Fraser River)

In 1992, chinook escapement to the Upper Strait of Georgia was up over recent years for the Nimpkish and Devereux River indicator stocks. The Nimpkish River 1992 returns were 3,400; up significantly from the 1988-1991 average escapement level of 2,350. The Devereux also had good escapement returns in 1992, with an estimated 1,350 spawners. This is almost three times the 1988-

1991 average escapement of 500. The Kingcome River estimate of 316 is similar to the recent year average of 382. The Wakemen and Kakweiken, two other Upper Strait of Georgia indicator stocks, actually had decreased escapement levels in 1992 compared to recent year averages. The 1992 escapement estimates for the two rivers were 50 and 152, respectively. Overall, chinook escapements were up in 1992 and were greater than the escapement goal of 5,100, with a total estimate of chinook spawners of 5,268.

The estimates of 1992 returns to the Lower Strait of Georgia were similar to 1991. The Cowichan, Squamish and Nanaimo rivers, that make up this indicator group, had a total return of 15,218, of which 10,893 were estimated to have naturally spawned, 2,502 were taken for broodstock and 1,823 were taken in in-river fisheries. While the total return was the second highest since 1975, the number of natural spawners was just 50% of the goal.

Of the seven chinook stocks that make up the WCVI indicator group, three had increases in escapement levels in 1992 over 1991, two remained the same, one was down slightly and one stock has not yet been reported (Kennedy River). The Kennedy River stock is of relatively small magnitude and its exclusion should not affect the overall picture for 1992. The reported returns for 1992 total 7,820, an increase of about 2,100 over 1991 levels. A return of this magnitude, while a positive sign, is still short of the escapement goal of 11,665. Additionally, the majority of the increase was due to the Burman and Gold rivers, which have significant enhancement facilities.

5.6 Fraser River

Of the four Fraser River escapement indicator stocks, three showed escapement increases in 1992 compared to 1991, while the Upper Fraser River stock had a modest drop in escapement. Escapement of the Upper Fraser River stock fell from 27,317 in 1991 to 24,330 in 1992, just below the escapement goal of 24,460. The Middle Fraser escapement estimate remained slightly above its escapement goal, but the Thompson and Harrison River stocks were below their goals. Returns to the Harrison in 1992 are estimated to be 140,000, a substantial improvement over the 1991 return of 93,472. Although this is a positive sign, the return is still below the goal of 241,700.

5.7 Puget Sound

In 1992, spawning escapements for all Puget Sound indicator stocks were below their escapement goals; with all but the Green River stock 51% or less than goal. Only the Skagit summer/fall stock showed an escapement increase from 1991. The Snohomish stock had an all time low escapement, and the Skagit spring stock was at its lowest level since 1984. The Green River stock fell below its escapement goal for the first time since 1986.

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. In 1991, all of these stocks had reduced escapements relative to recent years. In 1992, these coastal stocks again had reduced escapements, similar to levels seen in 1991.

Terminal area abundance for the north coastal stocks in 1992 was predicted to be sufficient to allow directed harvest. For several stocks, however, returns were not as strong as predicted. Escapement of Queets spring/summer chinook for 1992 is estimated at 500, below the escapement floor of 700 and the lowest escapement since 1976. Escapement of Quillayute fall chinook, although above the floor, was the lowest escapement since 1985. Escapement of the Hoh spring/summer, Hoh fall and Queets fall stocks were above goal but similar to low 1991 levels.

Escapement of Quillayute summer chinook for 1992 is estimated at 800, below the goal of 1,200. Escapement of Grays Harbor spring chinook was above the goal and up from 1991. The Grays Harbor fall chinook escapement estimate is not yet available.

5.9 Columbia River

Escapement of Upriver Spring chinook over Bonneville Dam (adjusted for mainstem C&S catch) was 82,725 adults, up from the 1991 count of 53,000. Separation of the run into hatchery and wild components has not yet been accomplished. As an approximation, applying the 1987 - 91 average percentage wild (36.8%) yields an estimate of 30,400 wild spring chinook, almost double the 1991 low of 15,500.

Escapements of Upriver Summer chinook (adjusted for mainstem C&S catch) continued to decline in 1992 from the recent high of 30,900 in 1987. The 1992 escapement was 15,000 adults, the lowest count since Bonneville Dam was built in 1938.

Upriver Bright fall chinook escapement over McNary Dam totaled 51,200 adults, exceeding the escapement goal of 45,000. The Lewis River escapement of 8,000 was also above the escapement goal.

5.10 Oregon Coast

Spawning escapement into the ten standard Oregon Coastal index streams was lower than last year, as indicated by counts of the peak number of live and dead fish seen during foot surveys of the spawning grounds. The spawner abundance index for the aggregated north migrating stocks was 141 fish per mile in 1992. This compares with 169 fish per mile in 1991 and 125 fish per mile in 1990.

TABLE 1. Summary of the 1989-1992 chinook catches in fisheries relevant to the U.S./Canada Pacific Salmon Treaty (numbers in thousands of fish). Note: Catches for 1992 are preliminary (estimates as of 29-Jan-93).

	Troll				Net				Sport				Total			
Area	1992	1991	1990	1989	1992	1991	1990	1989	1992	1991	1990	1989	1992	1991	1990	1989
S.E. ALASKA a/	184	264	288	236	32	33	28	24	44	60	51	31	260	357	367	291
BRITISH COLUMBIA b/c/																
North/Cent. Coast	180	221	179	225	45	50	42	41	38	32	31	35	263	303	252	301
W. Vanc. Island d/	340	203	298	204	7	60	30	40	47	80	61	48	394	343	389	292
Georgia St./Fraser e/	37	32	34	28	9	15	15	24	117	116	112	133	163	163	161	185
Johnstone St.	3	1	2	2	9	13	18	29	NA	10	10	10	NA	24	30	41
Juan de Fuca Strait	0	0	0	0	9	8	7	21					9	8	7	21
sub-total	560	457	513	459	79	146	112	155	NA	238	214	226	NA	841	839	840
WASHINGTON INSIDE f/																
Strait (mar) g/	31	35	46	65	1	3	5	10	NA	39	51	53	NA	77	102	128
San Juans (mar) h/	0	0	1	1	16	14	9	16	NA	5	7	10	NA	19	17	27
Other PS (mar+fw) i/	0	0	0	0	62	89	179	156	NA	47	68	75	NA	136	247	231
Coastal (mar+fw) i/	0	0	0	0	64	54	58	85	NA	NA	5	6	NA	NA	63	91
sub-total	31	35	47	66	143	160	251	267	NA	NA	131	144	NA	NA	429	477
COLUMBIA RIVER j/k/	-	-	-	-	54	107	147	275	65	83	95	97	119	190	242	372
WA/OR N OF FALCON l/	68	51	65	75	0	0	0	1	19	14	33	21	87	65	98	96
OREGON																
Inside Waters m/	0	0	0	5	-	-	-	-	NA	45	38	45	NA	45	38	50
GRAND TOTAL	843	807	913	841	308	446	538	722	NA	NA	562	564	NA	NA	2013	2126

a/ Southeast Alaska troll chinook catches shown for Oct. 1 - Sept. 30 catch counting year.
b/ British Columbia net catches include only fish over 5 lbs. round weight. Native food fishery catches are not included. 1989, 1990, 1991, and 1992 exclude catch from terminal gillnet fisheries (4 year total of 22,504) which are excluded from the catch ceiling.
c/ Sport catches are for tidal waters only.
d/ Estimates of WCVI tidal sport catches are from creel surveys in Barkley Sound only. Survey times and areas may vary from year to year.
e/ Georgia Strait sport catches include Juan de Fuca Strait sport catches.
f/ All WA inside sport numbers adjusted for punch card bias. See "1988 WA State Sport Catch Report" for details.
g/ Strait troll catch includes all catch in areas 5 and 6C and catch in area 4B outside the PFMC management period (Jan.- May and Oct.- Dec.).
h/ San Juan net catch includes catch in areas 6, 6A, 7 and 7A; sport catch includes area 7.
i/ Coastal and Puget Sound sport catches include marine and freshwater, but only adults in freshwater.
j/ Columbia River net catches include Oregon, Washington and treaty catches, but not ceremonial.
k/ Columbia River sport catches include adults only, for Washington, Oregon, Idaho and Buoy 10 anglers.
l/ North of Falcon troll catch includes catch in area 4B during the PFMC management period (May-Sept.).
m/ Troll = late season troll off Elk River mouth (Cape Blanco); sport = estuary and inland.

TABLE 2. Summary of the 1988-1992 escapement of Pacific Salmon Commission chinook escapement indicator stocks. Escapements for 1992 are very preliminary (estimates as of 29-Jan-93).

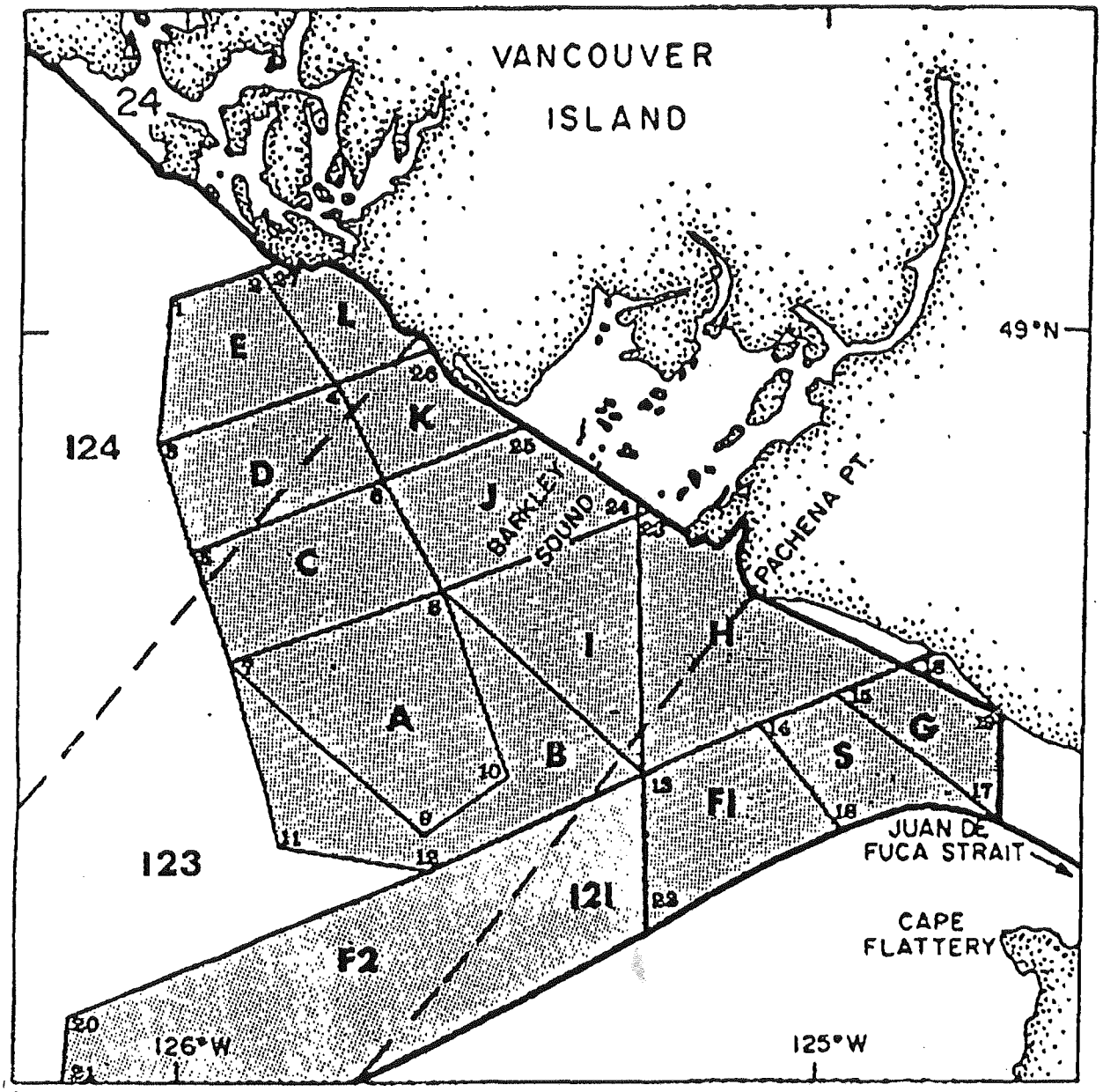
Production Unit	Stock Type	Ave Esc. Base a/	Esc. Goal	1988 Esc.	1989 Esc.	1990 Esc.	1991 Esc.	1992 Esc.	1992 % Base	1992 % Goal
S.E. Alaska										
Situk	Spring	1,299	600	885	652	700	875	1,400	108%	233%
King Salmon	Spring	92	250	206	238	168	134	117	127%	47%
Andrew Creek	Spring	379	750	760	848	1,062	640	1,245	328%	166%
Blossom	Spring	163	1,280	614	550	411	382	240	147%	19%
Keta	Spring	325	800	920	1,848	970	435	347	107%	43%
Transboundary Rivers Not Addressed in Treaty Annexes										
Unuk (U.S.)	Spring	1,469	2,880	2,794	1,838	946	1,221	1,413	96%	49%
Chickamin (U.S.)	Spring	338	1,440	1,258	1,494	902	779	554	164%	38%
Transboundary Rivers Addressed in Treaty Annexes										
Klukshu R. (Alsek)	Spring	2,673	4,700	1,994	2,289	1,742	2,153	1,367	51%	29%
Taku Index	Spring	4,582	13,200	8,626	9,480	12,249	10,153	11,058	241%	84%
Little Tahltan (Stikine)	Spring	1,945	5,300	7,292	4,715	4,392	4,500	6,627	341%	125%
B.C. North Coast										
Yakoun River	Summer	788	1,580	2,000	2,800	2,000	1,900	2,000	254%	127%
Nass area	Spr/Sum	7,944	15,890	10,000	12,525	12,123	4,017	7,312	92%	46%
Skeena area	Spr/Sum	20,883	41,770	68,705	57,202	55,976	52,753	67,076	321%	161%
B.C. Central Coast										
Area 6 Index	Summer	2,760	5,520	3,165	998	281	709	373	14%	7%
Area 8 Index	Spring	2,725	5,450	1,650	2,535	2,385	2,470	3,247	119%	60%
Rivers Inlet	Spr/Sum	2,475	4,950	4,429	3,265	4,039	6,635	10,000	404%	202%
Smith Inlet	Summer	1,055	2,110	1,050	225	510	500	500	47%	24%
West Coast Vancouver Island										
Indicator Stocks	Fall	5,520	11,040	5,500	8,480	5,760	5,756	7,820	142%	71%
Fraser River										
Upper River	Spring	12,229	24,460	34,400	25,310	35,552	27,317	24,330	199%	99%
Middle River	Spr/Sum	9,216	21,130	24,164	15,095	25,510	21,170	24,474	266%	116%
Thompson River	Summer	22,059	55,710	47,103	37,975	41,704	36,460	39,406	179%	71%
Harrison River	Fall	120,837	241,700	35,116	74,685	177,375	90,638	140,000	116%	58%
Georgia Strait										
Upper	Sum/Fall	2,546	5,100	3,300	6,607	2,200	3,276	5,268	207%	103%
Lower	Fall	10,968	21,935	7,040	6,830	7,635	12,895	10,893	99%	50%
Puget Sound										
Skagit	Spring	1,217	3,000	1,988	1,853	1,902	1,411	1,001	82%	33%
Skagit	Sum/Fall	13,265	14,900	11,954	6,776	17,206	6,014	7,671	58%	51%
Stillaguamish	Sum/Fall	817	2,000	717	811	842	1,632	780	95%	39%
Snohomish	Sum/Fall	5,028	5,250	4,513	3,138	4,209	2,783	2,650	53%	50%
Green	Fall	5,723	5,800	7,994	11,512	7,035	10,548	5,267	92%	91%
Washington Coast										
Hoh	Spr/Sum	1,325	NA b/	2,600	4,700	3,900	1,100	1,100	83%	b/
Queets	Spr/Sum	925	NA b/	1,800	2,500	1,800	600	500	54%	b/
Grays Harbor	Spring	425	1,400	3,500	2,100	1,500	1,200	1,700	400%	121%
Grays Harbor	Fall	8,575	14,600	28,200	26,100	17,500	15,000	NA		
Quillayute	Summer	1,275	1,200	1,300	2,400	1,500	1,200	800	63%	67%
Quillayute	Fall	5,850	NA b/	15,200	10,000	13,700	6,300	5,400	92%	b/
Hoh	Fall	2,875	NA b/	4,100	5,100	4,200	1,400	2,000	70%	b/
Queets	Fall	3,875	NA b/	7,600	8,700	10,100	4,500	5,100	132%	b/

TABLE 2 continued.

Production Unit	Stock Type	Ave Esc. Base a/	Esc. Goal	1988 Esc.	1989 Esc.	1990 Esc.	1991 Esc.	1992 Esc.	1992 % Base	1992 % Goal
Columbia River										
Upper River	Spring	28,050	84,000	35,100	27,000	28,800	15,500	30,400 c/	108%	36%
Upper River	Summer	23,100	85,000	29,000	28,700	25,000	18,800	15,000	65%	18%
Lewis River	Fall	13,021	5,700	12,100	21,200	17,500	9,100	8,000	61%	140%
Upriver Bright	Fall	28,325	45,000	110,400	92,900	55,200	46,600	51,200	181%	128%
Oregon Coast										
Aggregate Index d/	Fall	91	NA	221	151	125	169	141	155%	

a/ Base period for Alaskan and Transboundary stocks 1975-80; base for all other stocks 1979-82.
b/ Stocks managed on the basis of an escapement floor and fixed harvest rates. Escapement floors are as follows: Queets spring/summer, 700; Queets fall, 2,500; Hoh spring/summer, 900; Hoh fall 1,200; Quillayute fall, 3,000.
c/ Based on average wild proportion of total adult escapement.
d/ Oregon coastal north-migrating chinook stocks are assessed in terms of spawners per mile survey units.

FIGURE 1. 1992 west coast Vancouver Island conservation areas.



CHINOOK AND COHO CONSERVATION AREAS

A - Chinook Conservation Area A
B - Chinook Conservation Area B
C - Chinook Conservation Area C
D - Chinook Conservation Area D
E - Chinook Conservation Area E
G - Chinook Conservation Area G

F1 - Coho Conservation Area F1
F2 - Coho Conservation Area F2
H - Coho Conservation Area H
I - Coho Conservation Area I
J - Coho Conservation Area J
K - Coho Conservation Area K