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CHINOOK TECHNICAL COMMITTEE REPORT

REPORT TCCHINOOK (87) 1

PRELIMINARY REVIEW OF 1986 FISHERIES

(an up-date of Report TCCHINOOK (86) 2 submitted Nov. 1986;  
all data contained in this report should be considered  
preliminary and is the data available as of Jan. 30, 1987.)

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## INTRODUCTION

The purpose of this report is to present the following preliminary information: (a) estimates of 1986 chinook salmon catches and available escapement information, (b) a brief overview of 1986 fisheries, (c) a preliminary assessment of 1987 stock expectations, and (d) a list of potential 1987 management concerns. In this and other separate reports, under separate cover, the Chinook Technical Committee tried to respond to the Assignments from the Joint Bi-lateral North/South Panel.

## REVIEW OF FISHERIES WITH HARVEST CEILINGS

The following table presents preliminary estimates of 1986 catch for each fishery managed under a harvest ceiling established by the Treaty. These data are preliminary. Please consult Table 1 for a more detailed summary of available coastwide catch statistics.

### PRELIMINARY 1986 CHINOOK SALMON CATCHES IN CEILINGED FISHERIES (Compiled with information available as of 1/22/87)

<u>AREA</u>	<u>Ceiling</u>	<u>Expected Landings</u>
Alaska	264,400	279,000
Base (254,000)		
Hatchery Add-On (10,400)		
North/Central British Columbia	256,000	268,700
West Coast Vancouver Island	360,000	355,300
Georgia Strait	263,000	228,600

#### S.E. Alaska Fisheries

In 1986 management of Southeast Alaska salmon fisheries included the objective of limiting chinook catches by all commercial and recreational fisheries to a base catch ceiling of 254,000 plus an add-on for new Alaska hatchery production to be determined inseason on the basis of coded wire tag recoveries. An estimated 16,800 Alaska hatchery chinook were harvested in 1986, resulting in an add-on allowance of 10,400 after subtracting 5,000 for old (1984) production and 1,400 for risk adjustment for potential error in estimating hatchery contributions. This yielded a total 1986 catch ceiling of 264,400.

Preliminary data indicate that approximately 278,500 chinook were harvested by all gear during the 1986 season. This represents a ceiling overage of 14,100 fish or about 5.1 percent. Catches by gear were: troll - 236,100 (85%); net - 21,900 (8%); recreational - 20,500 (7%). Chinook catches by net gear were incidental to the harvest of other target species as there were no chinook directed net fisheries.

Approximately 22,700 or about 10 percent of the total troll catch of 236,100 occurred during the winter fishery (Oct. 1, 1986 - Dec. 31, 1986). The remaining 213,400 chinook (90%) were harvested in 41 chinook fishing days during the summer troll season. The general summer troll season opened on June 20 and proceeded according to the following schedule:

June 20-July 15 (26 days)	- Open all species
July 16-Aug. 10 (26 days)	- Open all species except chinook
Aug. 11-20 (10 days)	- Closed all species
Aug. 21-26 (6 days)	- Open all species
Aug. 27-31 (5 days)	- Open all species except chinook
Sept. 1-9 (9 days)	- Open all species
Sept. 10-20 (11 days)	- Open all species except chinook

In addition to chinook, the troll fishery harvested 2.1 million coho, 182,000 pinks, 51,000 chum, and 7,000 sockeye during 1986.

The number of chinook non-retention days in the Southeast Alaska troll fishery declined from 48 days in 1985 to 42 in 1986. Hook and release was monitored again in 1986 with onboard observers. Catch and release of chinook salmon was also monitored during non-retention periods in the seine fishery. Results are reported in the ADF&G agency mortality report.

#### North/Central British Columbia

The catch ceiling for the combined North B.C. fisheries (troll, net and sport) was adjusted downward to 256,000 from 263,000 to account for overages in 1985 in accord with decisions made by the PSC in March, 1986. The combined catches (estimated till Jan. 26, 1987) for all north/central B.C. fisheries total 268,700.

The troll fishery opened on June 20 to all species. At midnight August 30/31, the entire west coast of the Queen Charlottes, the western 1/2 of Dixon Entrance and various small areas inside the surf line in the central coast area were closed to all species. The remainder of the area north of Vancouver Island closed at midnight, September 5/6, to all species. The total number of days open for chinook trolling was 78 with no days of non-retention. The estimated catch for the season is 208,200 (sales records till Jan. 26, 1987). In addition to chinook, the troll fishery harvested approximately 2.1 million coho and 173,000 pink, sockeye and chum during the summer season. Details of the complete management of this fishery will be available in a separate document to be submitted to the PSC.

The net catches of chinook in 1986 north of Vancouver Island occurred exclusively as incidental catches during fisheries directed at sockeye, pink and chum. Therefore, fluctuations in the chinook catch in these fisheries reflect changes in the fishing effort on these species as well as abundance changes in the chinook population. The catch totaled 48,500 chinook over 5 lb. round weight. The catch in the Skeena, Nass, and Queen Charlottes was only 26,100 chinooks, reflecting the below average sockeye returns in 1986. The central coast catch increased to 22,400 chinook, however, because of intense late fisheries for pink and chum.

Ocean sport fisheries north of Vancouver Island are estimated by field staff. The estimate for 1986 is 12,000, which is an increase from 1985.

#### West Coast Vancouver Island Troll

The catch ceiling for this fishery remained at 360,000 in 1986. Trolling opened on June 20 for chinook, coho, and chum. It closed on midnight, August 30/31 for chinook and coho. Management actions taken in-season are detailed in the Canadian agency report on 1986 fisheries submitted to the Commission in November 1986. The total number of days open to chinook trolling was 72 with no days of chinook non-retention. Several local closures on the Swiftsure Bank (off Juan de Fuca Strait) and on the Big Bank (off Barkley Sound) were implemented to slow down chinook catches or to reduce the incidence of shakers. The estimated catch for the season is 355,300. Other species of importance in this fishery include sockeye and coho. Effort directed at these species slowed down the rate of chinook catch during the peak of the season.

#### Georgia Strait

The combined catch ceiling for Georgia Strait (troll and sport) was reduced in 1986 to 263,000 from 275,000. This was done to account for troll shaker mortalities incurred in 1985 (reduction of 2,300), to adjust for an increased size limit (reductions of 2,500) and to adjust for overages incurred in 1985.

The troll fishery opened to all species on June 20. It closed to chinook retention at midnight, July 16/17. The fishery continued, primarily directed at sockeye and coho, up to September 30. A few minor areas remained opened to coho only after September 30. Details of the management of this fishery are presented in the Canadian agency report on 1986 fisheries. The total number of days open to chinook fishing totalled 27 days and the number of non-retention days were 76 (to September 30). The size limit for chinook in this fishery was raised from 54 to 62 cm (nose-fork length), in an attempt to slow down the catch of chinook. The catch ceiling was adjusted downward to account for additional mortalities associated with this change in size limit. The current estimate of catch in this fishery is 46,700 chinook. Sampling for catch and release rates during

chinook non-retention periods was conducted; an estimated 5151 legal-sized chinooks were hooked and released during this period. Sampling details are contained in an appendix to the Canada agency report on 1986 fisheries.

The Georgia Strait sport fishery catch estimate for 1986 is 181,900 chinook. The primary catch assessment tool in this fishery continues to be the Georgia Strait creel survey. This year, as in 1985, the major management initiative consisted of local area closures ("spot" closures) which were very detailed as to area and times affected. A list of these closures is included in the Canadian agency report on 1986 fisheries.

The combined total catch in the Georgia Strait hook and line fisheries are estimated to total 228,600.

### REVIEW OF OTHER FISHERIES

Available catch statistics for fisheries not managed under PSC harvest ceilings are presented in Table 1. These statistics are preliminary. We have prepared the narratives below to describe the general 1986 fishery status for the major non-ceilinged fisheries of concern to PSC chinook management.

#### British Columbia

Tidal sport fisheries for chinook salmon exist in most other regions of B.C. However, none of these are assessed with the rigor of the Georgia Strait fishery. The ocean sport fishery off the west coast of Vancouver Island is confined mainly to the inside areas of Barkley Sound. The Barkley Sound fishery is assessed by a creel survey during its peak weeks in August and September. The balance of the year is estimated by field staff. Creel surveys in 1986 were restricted to inner Barkley Sound (inside of Gibraltar and Nanat Islands up to Alberni Inlet) and Alberni Canal due to budget constraints. Catch in the survey is estimated to have been about 13,000 chinook salmon, however, in comparing catches between years in Table 1 the area surveyed in 1986 was less than during 1984 and 1985 surveys.

Chinook catches in southern net fisheries were almost exclusively incidental to target fisheries on sockeye (and on chum late in the season). Both Juan de Fuca and Johnstone Straits had relatively short fishing seasons due to the short duration of the run of the primary target stock (Adams River sockeye). The estimated catch for both areas is 17,500 chinook over 5 lb. round weight. The Fraser River gillnet fishery for sockeye also harvests chinook incidentally to the target species. Catches in this fishery are estimated to be 29,000 and thus are slightly above 1985 levels. Incidental and/or unreported chinook catches were assessed by a pilot study in the Johnstone Strait sockeye fishery. Preliminary results indicate that the rate of incidental encounters of sub-legal chinook in the 1986 Johnstone Strait seine fishery were less than that for legal sized fish. A

report summarizing the findings of this study has been prepared for the Technical Committee.

The Barkley Sound gillnet fishery directed at Robertson Creek chinook had a single 12 hour "test" fishery in late August. The estimated stock abundance was so poor that no further fisheries were scheduled. Total catch for this fishery including incidental catches during sockeye fishing in June and early July was 1900 chinook above 5 lb. round weight.

Gillnet catches in the Canadian sections of the Transboundary Rivers are reported as follows:

- 1) Taku River - 275 adult chinook and 77 jacks.
- 2) Stikine River - 910 adult chinook and 406 jacks.

Freshwater sport fisheries exist in many of the major rivers in B.C. These include the Skeena, Nass, Kitimat, Bella Coola, Somass and Fraser Rivers and various streams on the east coast of Vancouver Island. In general, these fisheries are not rigorously assessed and some do not even have a catch estimate generated by field staff. Freshwater sport catch for northern B.C. rivers (areas 1-10) was estimated to be about 3,400 chinooks, caught primarily in the Skeena and Atnarko rivers.

In 1986, experimental freshwater sport fisheries were begun in the Fraser River to provide limited opportunities for inland fisheries. Fisheries were started in the following systems:

- 1) Bowron River: A 2-day/week fishery operated from July 15 to August 15 for a total of 10 days of fishing. A catch ceiling of 300 fish was established and it appears that the catch was well below the ceiling.

- 2) Quesnel River: A 2-day/week fishery operated from August 1 to 29 for a total of 9 days of fishing. A catch ceiling of 200 fish was established and again the catch appears to be well below the ceiling.

- 3) Clearwater River: A 2-day/week fishery operated from July 15 to August 15 with a catch ceiling of 300 fish. The total days fishing were 10. It appears that the open dates were established before the fish appeared in strength because the estimated catch is only 2 fish.

- 4) Shuswap River: Two 2-days/week fishing periods were established in this river, the first covering July 29 to August 8 (5 days fishing) and the second spanning September 9 to 23 (also 5 days fishing). The ceiling for the first period was established at 50 fish and for the second period at 450 fish. Preliminary assessments of the catch data indicate that the ceilings have been met or exceeded in both periods.

- 5) lower Fraser bar fishery: This fishery is a mixed stock fishery which has been under restriction since 1980 (catch

of chinook larger than 50 cm is prohibited). An experimental fishery targeting on Harrison River chinook lasted from September 5 to November 30 caught approximately 3,400 jacks and 1,017 adults.

#### British Columbia Native Food Fisheries

Transboundary Rivers: The native food fish catch in the Alsek River was approximately 100 adults. Native food fishermen in the Stikine River caught 1,000 adults and 600 jacks. No data is presently available for the Taku River.

North and Central B.C.: Native fisheries are primarily in the Nass River (est. catch 3800 chinook), Skeena River (est. catch 19900 chinook), and in the Bella Coola-Atnarko River areas (est. catch 2,100 chinook). Total catch by native fisheries in the north and central area is 26,600 chinook.

Somass River: The native fishery on the Somass River harvested about 11,000 chinook in 1986. This is similar to the catch in 1985. However, the fishery extended over a longer period of time in 1986 than in 1985.

Fraser River: The native fishery on the Fraser harvested about 15,645 chinook in 1986. This harvest is higher than in 1985, but represents a drop from the recent 81 - 85 average (about 20,000 pieces).

Strait of Georgia fisheries: Small fisheries occur in several rivers in the Strait but catch data for 1986 has not yet been summarized.

Native catches in B.C. totaled 54,345 chinook and is an increase relative to recent total catches.

#### Puget Sound

Sport and commercial net fisheries in Puget Sound continued to be restricted to protect depressed spring chinook stocks. With several exceptions, Puget Sound summer/fall chinook are generally healthy and support terminal fisheries. Commercial net catch declined slightly, from 229,000 in 1985 to 204,000 in 1986. Sport catch data for 1986 will not be available until February 15, 1987. These fisheries have been managed in the same general manner for the last several years.

#### Washington Coast

The northern Washington coastal stocks from the Quillayute, Hoh and Queets Rivers are managed on the basis of escapement floors and terminal exploitation rates. With the exception of the Quillayute summer run, these coastal stocks are not of immediate conservation concern. No directed fisheries were conducted on the Quillayute spring stock. In-river fisheries impacting the Quillayute summer stock were primarily limited to incidental harvests taken during fisheries directed at summer steelhead and summer coho. No directed commercial fisheries were conducted on fall chinook stocks from Grays Harbor. Grays Harbor spring



chinook continue at a very low level. The only terminal harvest of this stock was a small jack only sport fishery and a small harvest by Indian net fisheries on the Chehalis Reservation.

#### Columbia River

1986 Columbia River net fisheries harvested approximately 276,000 chinook, as compared to 150,300 in 1985. The sport fishery harvested 61,900 as compared to 45,800 in 1985. A lower river winter gillnet fishery, targeting on surplus lower river spring stocks, harvested 9,700 chinook. There were no directed commercial fisheries on upper Columbia River spring or summer running chinook stocks in 1986. There were tribal ceremonial and subsistence fisheries on these runs which harvested about 6,700 upriver spring chinook. Commercial chinook salmon fisheries were directed primarily at lower river fall run stocks and upriver bright stocks. Fall commercial seasons were structured to maximize harvest of surplus upriver brights and lower river tule (hatchery) stocks, while providing protection for the very depressed Spring Creek Hatchery stock. Preliminary estimates indicate a 1986 catch of approximately 3,600 Spring Creek origin fish during the fall commercial seasons. Columbia River sport fisheries caught 61,900 chinook in 1986 (32,300 spring chinook and 29,600 fall chinook). The spring chinook sport fishery was targeted on surplus lower river hatchery stocks, while the fall chinook sport fishery primarily harvested surplus upriver brights and lower river tule stocks.

#### Ocean Fisheries North of Cape Falcon

Ocean chinook fisheries off the Washington coast and Oregon coast, north of Cape Falcon, are managed primarily for Columbia River chinook stocks. Far northerly migrating chinook stocks are taken incidentally to harvests directed at Columbia River fall tule stocks. In 1986, ocean troll and recreational fisheries in the area were managed under established quotas in response to concerns for continuing depressed Columbia River tule stocks destined for Spring Creek Hatchery. The total ocean troll harvest in this area was 55,700 chinook, 7 percent lower than the 1985 harvest. Washington landings were 49,300 chinook while Oregon landings North of Cape Falcon were 6,400 chinook. Ocean recreational fisheries north of Cape Falcon landed 22,900 chinook, 28 percent below the 1985 harvest. Washington and Oregon catches, north of Cape Falcon, were 21,000 and 1,900 respectively.

#### Ocean Fisheries from Cape Falcon to Cape Blanco

Ocean fisheries between Cape Falcon and Cape Blanco (i.e., central coast) are managed primarily for Oregon coastal stocks originating in the area. Small terminal river mouth ocean fisheries and inriver recreational fisheries target on these stocks as mature fish return. The catches for the ocean troll and recreational fisheries in this area are estimated by ODFW to be composed of less than 10 percent of north migrating stocks.

TABLE 1. PRELIMINARY 1986 CHINOOK CATCHES FROM STOCKS CONTRIBUTING TO U.S./CANADA SALMON TREATY AREAS, COMPARED WITH 1983 - 1985 (numbers of fish in 1,000's).

03-Feb-87 - PRELIMINARY DATA

AREA	TROLL				NET				SPORT				TOTAL				
	1986	1985	1984	1983	1986	1985	1984	1983	1986	1985	1984	1983	1986	1985	1984	1983	
S.E. ALASKA	a/	236	217	236	271	22	36	32	20	21	25	22	22	279	278	290	313
BRITISH COLUMBIA						b/				c/							
North/Cent. Coast	f/	208	215	254	254	48	51	36	30	12	9	20	20	268	275	310	304
W. Vanc. Island	f/	355	358	460	385	3	11	44	38	d/	13	14	44	371	383	548	423
Georgia Strait		47	52	88	105	32	31	20	18	e/	182	235	369	198	261	318	477
Johnstone Strait		4	5	9	15	18	38	18	28		10	10	10	10	32	53	37
Juan de Fuca Strait		0.3	0.4	0.3	0.2	18	17	6	0.3	e/				18	17	6	1
sub-total		615	630	811	759	119	148	124	114	217	268	443	228	950	1046	1378	1102
WASHINGTON										g/							
Puget Sound		32	11	15	18	189	229	226	182	0	149	177	197	221	389	418	397
Coast		50	51	27	74	22	14	16	14	21	31	16	50	93	96	59	138
sub-total		82	62	42	92	211	243	242	196	21	180	193	247	314	485	477	535
COLUMBIA RIVER		-	-	-	- /h	276	150	128	58	i/	62	46	56	42	338	196	184
OREGON																	
North Coast		6	4	9	6	0	0	0	0	2	4	0	3	8	8	9	9
Central Coast	j/	2	3	3	3	0	0	0	0	35	30	29	20	37	33	32	23
sub-total		8	7	12	9	0	0	0	0	37	34	29	23	45	41	41	32
GRAND TOTAL		940	916	1101	1131	628	577	526	388	358	553	743	562	1926	2046	2370	2082

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.

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

d/ Estimates of tidal sport catches from Barkley Sound only.

e/ Georgia Strait sport catches include Juan de Fuca Strait sport catches. 1986 estimate includes projected catch through remainder of year.

f/ Catches for 1986 are final inseason estimates. Actual count from tickets received through 10/22 are 207,000 for North/Central Coast and 350,000 for W. Vancouver Island.

g/ Sport catches include both marine and freshwater catches, but only adults in freshwater. Preliminary 1986 estimates will not be available until Feb 15, 1987.

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

i/ Columbia River sport catches are for adults only and include only Washington and Oregon anglers.

j/ Includes only terminal ocean troll and estuary inriver sport catches from Cape Falcon to Cape Blanco.

## PRELIMINARY REVIEW OF ESCAPEMENT

Data from some of the fall spawning escapements are still being tabulated. Consequently, only a preliminary escapement overview can be presented. We have prepared the following brief narratives to summarize the information which is currently available. This information is preliminary.

### S.E. Alaska

Estimated total chinook escapements to Southeast Alaska and transboundary systems totaled 46,000 in 1986, representing a 24 percent increase over the 1985 escapement of 37,000. For the eleven escapement indicator systems, escapements increased over 1985 levels in 9 systems and decreased in 2. Escapements reached or exceeded management goals in seven of the eleven indicator systems in 1986.

Although average escapements increased over the 1975-80 base period for nine of the eleven indicator stocks during 1981-85, the first cycle of the rebuilding program, escapement responses have been quite variable between systems and between years. Five of the eleven indicator stocks have responded more strongly than expected, and are currently at or near escapement goals. At least two indicator stocks have lagged expectations during the first cycle, and appear to be behind schedule. For the other indicator stocks, rebuilding progress appears uncertain due to lack of clear trends in escapements.

A more complete assessment of rebuilding progress for Southeast Alaska stocks is currently being conducted. In addition, management escapement goals, initially established in the early 1980s are being reviewed in light of new information obtained during the first cycle of the rebuilding program.

### Transboundary Rivers

Chinook escapements in 1986 increased over 1985 levels in four of the six transboundary rivers, and decreased in two. Systems with increases were the Alsek (+90%), Taku (+12%), Unuk (+83%) and Chickamin (+75%). Systems with decreasing escapements were the Chilkat (-73%) and the Stikine (-22%).

Average escapements increased in five of the six transboundary systems during the first cycle or five years of the S.E. Alaskan rebuilding program. However, the degree of progress toward rebuilding has been quite variable between systems. An assessment of rebuilding progress for chinook stocks of the transboundary rivers is currently being conducted in response to a request from the PSC joint northern panels.

### British Columbia

Indices of escapement based on fishery officer observations during 1986 are again mixed across B.C. Escapement to Northern British Columbia populations, on average, improved. Preliminary estimates for the early/middle timing stocks of the

Fraser River stocks (above Hope) is 109,000, an increase of 17 % over 1985. Preliminary escapement estimates for the Harrison River indicate a moderate increase from 1985. Escapement estimates for fall run-timing stocks in the Strait of Georgia and along the west coast of Vancouver Island indicate a mixed response in this area. Notable increases spawners occurred in the Upper Georgia Strait stocks (areas 12 and 13 along Vancouver Island and the mainland) but continued to decrease in the Southeast Vancouver Island rivers; particularly in the Nanaimo, Chemainus, and Cowichan Rivers. Escapements to hatcherys or rivers with hatchery contributions increased in escapement. Escapement to the Somass River and Robertson Creek hatchery was below 1984 and 1985 levels, as expected, but escapement to the hatchery was sufficient for their egg requirements (adult returns were approximately 67% females) and the return of jack chinook improved significantly. Highly reliable escapement counts were collected in the Somass River in 1986 through the use of video recordings of fish passing through the Stamp Falls fishway.

#### Puget Sound

Within the context of the Puget Sound spring chinook stock's depressed status, the results of the 1986 season indicate a moderately successful year for escapement of spring chinook. The Dungeness River escapement estimate, (its first), while very low, (197) was not as severely depressed as many people had anticipated. A 1986 escapement estimate has not been made for the Nooksack River as of this date. However, spawner survey data indicate continued low abundance. Skagit River spring chinook escapement for 1986 was above average for recent years, but was still well below goal. Escapements continued to be depressed for the Skagit River and Stillaguamish River summer chinook stocks. The fall chinook escapement to the Green River appears to have been above preseason predictions and may have achieved its goal.

#### Washington Coast

Preliminary indications for coastal spring and summer chinook escapements indicate a continued trend of being below their goals. Fall stocks appear to have met most of the goals, with the possible exception of the Grays Harbor stock.

#### Columbia River

Columbia River chinook stocks continued to show a mixed response to rebuilding efforts. Escapement needs for lower river spring chinook stocks (Willamette and Cowlitz) were met. The Bonneville Dam count of 118,200 upriver spring chinook adults continued the upward trend from 83,100 adults in 1985 and approached the Bonneville Dam goal of 120,000. It is expected that the goal will be partitioned into hatchery and naturally spawning components that will better reflect the intent to rebuild the natural stock. The proportion of hatchery fish in this run has changed substantially since the goal was established. Preliminary analysis of recent year returns indicates a reversing of the composition from 70% wild to 70% hatchery. Therefore, the natural component of the run is still very depressed.

The 1986 return of 26,300 adult summer chinook over Bonneville Dam was a 6% increase from the 1985 return of 24,800 and was the largest since 1980. While improving slightly this stock still remains seriously depressed compared to its 85,000 escapement goal.

The upriver bright fall chinook adult count at McNary Dam was 113,200 fish. This compares to the escapement goal of 40,000 adults. Sport fisheries and a limited tribal commercial gillnet fishery harvested some of this surplus, 5,000 and 1,000 respectively.

The 1986 return to Spring Creek Hatchery, including Tules trapped at Bonneville Dam as supplemental broodstock, totaled only 3,300 adults compared to 5,400 in 1985 and the escapement goal of 8,200 adults. However, the total 1986 Spring Creek egg take was about 12.5 million eggs, near last year's egg take of about 13.5 million. This was possible due to: (1) a higher than anticipated proportion of the 1986 run were females (nearly 80% versus 60% of the typical run); (2) a higher fecundity due to a larger than normal percentage of four year olds in the return and (3) a transfer of 1.4 million Spring Creek type tule eggs from Little White Salmon Hatchery.

Bonneville and Big Creek (Oregon side) tule fall chinook escapements were 15% - 20% below their goals. Surpluses at Washington hatchery facilities, however, were sufficient to make up these shortfalls.

#### Oregon Coast

Oregon coastal north migrating chinook stocks are predominantly natural spawning fall chinook with minor natural spring and hatchery production contributions. Specific techniques for quantitative abundance forecasts have not historically been developed for the approximately 20 river systems supporting north-migrating chinook stocks on the Oregon coast. Spawning escapements have been assessed through standard spawning index surveys (peak adults/mile counts on ten systems) to obtain stock trends for the predominant fall chinook stocks. For 1986, an aggregate peak count of adults for all index streams was 97 adults, 17 percent below the 1985 historic high index of 117 adults, but 17 percent above the 1979-82 average base period index of 83 adults per mile.

TABLE 2. Summary of chinook escapement indicator stocks  
(primarily naturally spawning) of interest in PSC management. All  
figures in thousands of fish.

Preliminary data as of Feb.3,1987.

Escapement Stock Unit	Indicator Escapement Goal	1986	1985	Escapements 1984	1983	1982
S.E. Alaska _1/ (exclude Trans.)	11.5		8.3	10.7	7.2	6.6
Transboundary _2/ (Ak. and B.C.)	58.3		23.3	17.2	10.8	30.2
British Columbia _3/						
North Coast	25.4	10.4	9.5	12.7	10.7	5.5
Central Coast	18.5	21.5	10.0	9.3	8.6	8.0
Georgia St. _4/	11.5	7.6	6.3	5.8	3.0	3.5
W. Cst. Vanc. I. _4/	76.0	30.0	28.0	38.0	11.0	8.5
Fraser / Lower	175.0	156.1	106.0	87.5	6.0	22.0
Fraser / Mid	N/A		N/A			
Fraser / Upper	9.8	7.9	7.0	4.9	4.3	1.4
Fraser/Thompson	14.3	11.0	12.7	7.1	6.4	3.3
Washington						
Puget Sound _6/						
Nooksack R. Spr	2.0		0.8	n/a	n/a	n/a
Skagit Spring						
Skagit Summer						
Stillaguamish Summer						
Green River Fall	5.8		2.9	3.4	3.7	1.8
White River Spring						
Skokomish River Spring		0.0				
Dungeness River Spring		0.2				
Dungeness River Fall		0.0				
Hoko River Fall						
Coast						
Quillayute River Summer						
Quillayute River Fall						
Hoh River Spring	0.9		1.0	1.5	1.8	1.6
Hoh River Fall						
Queets River Spring						
Queets River Fall	2.5		3.9	3.9	2.6	4.1
Columbia River						
Upper R. Spring _7/	120.0	118.2	83.1	46.8	54.9	70.0
Upper R. Summer _7/	85.0	25.9	24.8	22.4	18.0	20.1
Upper R. Brights	40.0	113.2	94.6	61.0	48.7	
Willamette R. Spring						

Oregon Coast Not Available

1. Estimated total escapements of S.E. Alaska indicator stocks excluding Transboundary rivers.
2. Transboundary goals shown are the average current Canadian (72,500) and Alaskan (44,000) escapement goals.
3. Escapement monitoring methodology changed between 1983 and 1984, resulting in increased estimates of escapements.
4. Preliminary values only, escapement monitoring program is being reviewed.
5. Escapement floor. Terminal fishery managed for fixed exploitation rate provided escapement exceeds floor.
6. Additional stock escapements are monitored and maybe used to measure rebuilding.
7. These stock groupings will be disaggregated as individual stock escapement goals are finalized.

### PRELIMINARY EXPECTATIONS FOR 1987

Preliminary qualitative forecasts for 1987 are presented below. For most stocks, quantitative forecasts are not made. For a small number of stocks, quantitative forecasts are scheduled to become available this spring. These preliminary forecasts may change within the next two months, but general comments concerning stock status are not expected to change drastically.

#### STOCK

#### PRELIMINARY 1987 EXPECTATIONS

Southeast Alaska  
Transboundary

Generally above recent year levels  
Generally above recent year levels

British Columbia

Returns in 1987 will largely result from escapements previous to the rebuilding program. Production from some hatcheries will be increasing, but will not contribute significantly to abundances in mixed stock fisheries of concern. Total run strength of B.C. chinooks will likely not be different from 1984 - 1986 levels.

Puget Sound

Spring stocks very poor. Summer and fall stocks, average levels, except, as noted below.

Washington Coastal

Generally at recent year average levels. Grays Harbor spring and Quillayute summer stocks continue to be depressed.

Columbia River

Upriver brights, very good. Upper Columbia springs, expected to decline from 1986, still poor. Upriver summers, very poor. Spring Creek Hatchery, very poor.

Oregon

Generally healthy.

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Preliminary forecasts for Washington stocks with expected conservation concerns for 1987.

<u>STOCK</u>	<u>1987 EXPECTATIONS</u>	<u>FISHERIES OF MAIN HARVEST</u>
Nooksack R. Spring	85 % below goal	Georgia Strait sport and troll, W.Vanc. Isl troll, PS sport
Stillaguamish R. Summer	60 % below goal	unknown
Skagit R. Summers	31 % below goal	Georgia Strait sport, W. Vanc. Isl. troll, Term. net, N.BC troll



In addition, there are a number of stocks that are at or close to the current estimate of MSH escapement. These stocks are being fully harvested in mixed stock areas, allowing no terminal area harvest. In Washington, these include, but are not limited to the Green River fall, Skagit River spring and several coastal spring, summer and fall stocks.

Southeast Alaska: Limited information exists to forecast annual run strength of natural chinook salmon stocks in Southeast Alaska. Primary indicators available are brood year escapement levels and returns of jacks or other early maturing progeny. Relative survival of early maturing hatchery chinook stocks also provides a potential indication of marine survival rates of natural chinook stocks.

Returns of natural chinook spawners to Southeast Alaska systems in 1987 are primarily progeny from the brood years 1981 (6-year) and 1982 (5-year). Escapements in 1981-82 increased substantially (approx. +90%) over the 1975-80 base period in response to conservation measures implemented under the rebuilding program begun in 1981. Increased returns are expected in 1987 due to the larger brood year escapements.

Information obtained in 1986 from both natural and hatchery chinook stocks indicates good survival rates for 4-year fish from the 1982 brood year. If this is indicative of good, overall progeny survival, strong returns of 5-year fish in 1987 (and 6-year fish in 1988) might also be expected.

In summary, 1987 natural chinook returns to Southeast Alaska systems are expected to be substantially improved over 1975-80 base levels as a result of increased brood year escapements and apparent good progeny survival rates.

Transboundary Rivers: Limited information also exists for projecting annual run strength of transboundary chinook stocks. Escapements in five of the six transboundary systems increased during 1981-82 compared to the 1975-80 base period. In addition, there is evidence of good survival from the 1982 brood year from 4-year fish returning in 1986. Based on this information, 1987 natural chinook returns to transboundary rivers are generally expected to be improved over base year levels.

British Columbia: Returns to later timing middle Fraser stocks and Georgia Strait fall chinook are not expected to increase and may continue to decline unless additional management actions are taken. The decline in escapement to lower southeast Vancouver Island chinook populations has not been stopped, and to do so will likely require additional conservation actions to protect the severely depressed numbers in these populations. Jack returns to Robertson Creek in 1986 showed a dramatic increase over the past few years. Returns to Robertson Creek Hatchery in 1987 will be greater in numbers than in 1986 but the run will be largely composed of male salmon. Management actions to conserve females will be required to achieve egg requirements in the hatchery and

the natural population.

Puget Sound: Spring chinook stocks are expected to remain depressed. The natural stocks of summer and fall chinook salmon originating from Puget Sound are expected to return at levels similar to 1981-84 averages. The exceptions are the Skagit and Stillaguamish River summer chinook stocks and the Green River fall chinook stock, which are all expected to return at levels below the escapement goals for these stocks.

Washington Coast: Washington coastal forecasts for 1987 returns are not yet available. However, preliminary indications are for returns similar to levels experienced in recent years. Grays Harbor spring and Quillayute Summer stocks are expected to return at levels below escapement goals.

Columbia River: The expectations for 1987 chinook returns to the Columbia River are mixed. Lower river spring chinook are projected to be above average with a strong return expected to the Willamette River system. The upriver spring chinook return is expected to decline to about 80,000 adults from the 120,600 level in 1986. Summer chinook returns are expected to continue at the depressed levels of recent years, about 30 % of the escapement goal. Based upon very preliminary forecasts, three of the four Columbia River fall chinook stock management units are expected to increase from 1986 returns: upriver brights, 450,000, this is a record high; Bonneville Pool hatchery, 5,000, this is a record low; lower river wild, 30,000, this is the highest since 1980; lower river hatchery, 200,000, the highest since 1973. These forecasts assume 1987 ocean seasons resulting in harvest rates similar to 1986 seasons.

The projection for a record low return of 5,000 adult BPH fall chinook in 1987 is primarily the result of a Bacterial Gill Disease outbreak in the 1984 brood at Spring Creek Hatchery. All of the tule production had to be released early at very small size (about 160/lb) and in very poor health. Since Spring Creek fish return predominantly as three year olds, the 1987 return will be the year most heavily impacted by this disease problem. In addition, survival of the 1983 brood appears to be very poor, so large numbers of four year olds are not expected in 1987.

Northern Oregon: Expectations for far-northerly migrating Oregon Coastal Chinook are for stock abundance similar to the healthy levels observed in recent years. 1984 thru 1986 adult escapements were at very high levels.

## INITIAL CHINOOK TECHNICAL COMMITTEE CONCERNS

The Committee has discussed, but not fully defined, issues which may need attention in 1987. The following is a list of these issues.

### a. Induced Mortality

Continuing and/or increasing chinook non-retention fisheries were observed again in 1986 and some new size limit increases were implemented in 1986. Rates of catch and release of sublegal chinook during troll fisheries directed at pink, chum and sockeye salmon also merits investigation. There is a Treaty commitment to assess and account for non-catch mortality. The manner in which these issues are addressed from a policy perspective will affect the analytical approach for evaluation of the rebuilding schedule.

### b. Differential Stock Impacts of Management Regimes

There appears to have been a continuation of differential management impacts between some spring running and other chinook stocks.

### c. Catch Reporting Systems

Implementation of ceiling management imparts national obligations to monitor and regulate fisheries based upon inseason data. Deficiencies in reporting and analytical procedures for inseason management can reduce the effectiveness of management measures established to implement the chinook conservation program.

### d. Stocks Which Continue at Reduced Abundance Relative to the Base Period

Production from Spring Creek (Columbia River Tule), Georgia Strait, and Robertson Creek stocks is expected to continue to be depressed. The level of reductions in harvest rate and catches, and/or the application of enhancement techniques which would assist rebuilding, will be determined upon completion of analysis of data from the 1986 season (available in February).

### e. Availability of CWT data from Washington

The lack of data from recent CWT recoveries in Washington is severely limiting the analysis of harvest rate indicator stocks and pass through provisions of the Treaty. Final 1984 recoveries will be available in December, but 1985 and 1986 recoveries are not projected to be complete in time for the February analysis of harvest rates and allowable ceilings.

ATTENDANCE LIST  
JANUARY 20-23, 1987 MEETING OF  
CHINOOK TECHNICAL COMMITTEE

Tom Cooney  
Washington Department of Fisheries  
Rm 115 General Administration Building  
Olympia, WA 98504  
206-753-9142

Mike Fraidenburg, Co-Chairman  
Washington Department of Fisheries  
Rm 115 General Administration Building  
Olympia, WA 98504

Gary Freitag  
SSRAA  
1649 Tongass Avenue  
Ketchikan, AK 99901  
907-225-9605

Ken Henry  
NMFS - Building 4  
7600 Sandpoint Way NE  
Seattle, WA 98155  
206-526-4234

Steve Ignell  
NMFS, Auke Bay Lab  
Box 210155  
Auke Bay, AK 99821  
907-789-7231

Scott Marshall  
Alaska Department of Fish and Game  
PO Box 20  
Douglas, AK 99824

Gary Morishima  
3010 77th SE, Suite 104  
Mercer Island, WA 98040  
206-236-1406

Dave Peacock  
Department of Fisheries and Oceans  
North Coast Division  
202-417 2nd Avenue West  
Prince Rupert, BC V8J-1G8  
604-627-8730

Dexter Pitman  
Idaho Fish and Game  
600 S. Walnut  
Box 25  
Boise, ID 83707  
208-334-3791

Ken. Pitre  
Canada Department of Fisheries and Oceans  
1090 W. Pender  
Vancouver, BC V6E-2P1  
604-666-3512

Kurt Reidinger, Observer  
Washington Department of Fisheries  
Rm 115 General Administration Building  
Olympia, WA 98504  
206-753-6190

Brian Riddell, Co-Chairman  
Canada Department of Fisheries and Oceans  
Pacific Biological Station  
Nanaimo, BC V9R-5K6  
604-756-7145

Tim Roth  
U.S. Fish and Wildlife Service  
9317 NE Highway 99, Suite I  
Vancouver, WA 98665  
206-696-7605

Howard Schaller  
Columbia River Inter-Tribal Fisheries Commission  
975 SE Sandy Blvd., Suite 202  
Portland, OR 97214  
503-238-0667

Neil Schubert  
Canada Department of Fisheries and Oceans  
80 6th Street  
New Westminster, BC  
604-666-8452

Jim Scott, Observer  
Northwest Indian Fisheries Commission  
6730 Martin Way East  
Olympia, WA 98506  
206-438-1180

Mel Seibel  
Alaska Department of Fish and Game  
PO Box 20  
Douglas, AK 99824  
907-465-4250

Tom Shardlow  
Canada Department of Fisheries and Oceans  
South Coast Division  
Field Operations Branch  
3225 Stephenson Pt. Rd.  
Nanaimo, BC V9R-5N7  
604-756-7293

Paul Starr  
Canada Department of Fisheries and Oceans  
1090 W. Pender Street  
Vancouver, BC V6E-2P1  
604-666-6648

Terry Wright  
Northwest Indian Fisheries Commission  
6730 Martin Way East  
Olympia, WA 98506  
206-438-1180

Chinook Technical Committee Assignments  
For 1987 Management Planning

1. Collate a joint 1986 fishery and escapement review for all chinook stocks of concern, including a special report documenting historical chinook catch information by statistical areas for Puget Sound, Georgia Strait and Juan de Fuca net and sport fisheries. Any available estimates of stock composition in these fisheries should be provided. (inclusion in the Chinook Tech. Rpt. for Feb. 22, 1987 meeting)
2. Assess progress on the rebuilding schedule.
  - a. Develop analytical tools needed to evaluate harvest management options for 1987 fisheries on stocks of concern to the P.S. Treaty.
  - b. Document the indicator stock program (i.e. profile the harvest rate and escapement indicator stocks and why were they chosen). Assess alternatives to the indicator stock program.
  - c. Define options for assessing rebuilding success (i.e. develop performance measures).
  - d. Describe how new information will be incorporated into the assessment of the joint rebuilding program.
  - e. Provide a specific assessment of the rebuilding progress for all Transboundary River chinook stocks. Record the status of these stocks separately in the joint Technical Committee Report.
  - f. Highlight stocks deviating from the rebuilding schedule. (Rebuilding discussion paper prepared for Feb 8 meeting, Transboundary river paper in preparation for mid-Feb.)
3. Assess the implications of management actions on rebuilding.
  - a. Evaluate the consistency of the 85/86 harvest ceilings with the objectives of the chinook rebuilding program. Evaluate the need or opportunity for changes to these ceilings beginning in 1987.
  - b. Evaluate and discuss the need for adjustments in the ceilings as a result of recent changes in abundance of some major contributing stocks.
  - c. Evaluate uncertainties which may exist in the rebuilding program.
  - d. Evaluate the sensitivity of the chinook rebuilding program to overages and underages in harvest ceilings.

- e. Evaluate success of pass-through measures in fisheries without harvest ceilings.  
(assessments require 1986 coded-wire tag data and cannot be provided before the Feb. 22, 1987 meeting; data pertaining to item (e) will likely be available for the Feb. 8 meetings)
- 4. Evaluate the magnitude and importance of incidental mortality to the rebuilding program.
  - a. Compile available quantitative and qualitative information on the numbers of fish caught incidental to fishing operations. (data reports to be provided for Feb. 8 meetings)
  - b. Identify all information needs on this topic.
  - c. Discuss and make a joint recommendation about appropriate mortality rates to apply to incidental harvests.
  - d. Evaluate the effect of all changes (increases and decreases) in the magnitude of fishing induced mortality on the rate of rebuilding.  
(items b-d require Committee evaluation which cannot be accomplished until mid-Feb.; a report will be prepared for the Feb. 22 meetings)
- 5. Other:
  - a. Review 1986 actual and 1987 expectations for hatchery add-on in S.E. Alaska. (Alaskan proposal received by the Committee and under review)
  - b. Evaluate the consequences on the chinook rebuilding program of applying harvest rate management to terminal northern fisheries in which the catch of chinook is incidental to the harvest of other species. Specify the criteria used to delimit "terminal areas" and the base period. (Canadian discussion paper prepared and presented to the Committee)

The numerous data and analysis requests of the committee has required extensive collation of information within each agency. Much of this data has been collected but the committee has not been able to fully discuss each topic and will continue to do so through February. In order to provide information to the Commission the committee will provide preliminary discussion papers and data reports before final reports are prepared by the full joint technical committee.