

ANNEX IV

CHAPTER 1

TRANSBOUNDARY RIVERS

The provisions of this Chapter shall apply for the period 2009 through 2018.

1. Recognizing the desirability of accurately determining exploitation rates and spawning escapement requirements of salmon originating in the Transboundary Rivers, the Parties shall maintain a joint Transboundary Technical Committee (the "Committee") reporting, unless otherwise agreed, to the Transboundary Panel and to the Commission. The Committee shall, *inter alia*:

- (a) assemble and refine available information on migratory patterns, extent of exploitation and spawning escapement requirements of the stocks;
- (b) examine past and current management regimes and recommend how they may be better suited to achieving escapement goals;
- (c) identify existing and/or future enhancement projects that:
 - (i) assist the devising of harvest management strategies to increase benefits to fishermen with a view to permitting additional salmon to return to Canadian waters;
 - (ii) have an impact on natural transboundary river salmon production.

2. The Parties shall improve procedures for coordinated or cooperative management of the fisheries on transboundary river stocks. To this end, the Parties affirm their intent to continue to implement and refine abundance-based management regimes for Transboundary Chinook in the Taku and Stikine Rivers, sockeye in the Taku and Stikine Rivers, and coho salmon in the Taku River. Further, the Parties affirm their intent to continue to fully develop and implement abundance-based management regimes for Chinook and sockeye in the Alsek River and coho in the Stikine River during the Chapter period.

3. Recognizing the objectives of each Party to have viable fisheries, the Parties agree that the following arrangements shall apply to the United States

and Canadian fisheries harvesting salmon stocks originating in the Canadian portion of:

- (a) the Stikine River:
- (1) Sockeye Salmon:
 - (i) Assessment of the annual run of Stikine River sockeye salmon shall be made as follows:
 - a. a pre-season forecast of the Stikine River sockeye run will be made by the Committee prior to April 1 of each year. This forecast may be modified by the Committee prior to the opening of the fishing season;
 - b. in-season estimates of the Stikine River sockeye run and the Total Allowable Catch (TAC) shall be made under the guidelines of an agreed Stikine Management Plan and using a forecast model developed by the Committee. Both U.S. and Canadian fishing patterns shall be based on current weekly estimates of the TAC. At the beginning of the season and up to an agreed date, the weekly estimates of the TAC shall be determined from the pre-season forecast of the run strength. After that date, the TAC shall be determined from the in-season forecast model;
 - c. modifications to the Stikine Management Plan and forecast model may be made prior to June 1 of each year by agreement of both Parties. Failure to reach agreement in modifications shall result in use of the model and parameters used in the previous year;
 - d. estimates of the TAC may be adjusted in-season only by concurrence of both Parties' respective managers. Reasons for such adjustments shall be provided to the Committee.
 - (ii) The Parties desire to maximize the harvest of Tahltan/Tuya sockeye salmon in their existing fisheries while considering the conservation needs of wild salmon runs. The Parties agree to manage the returns of Stikine River sockeye to ensure that each country obtains 50% of the TAC in their existing fisheries. Canada will endeavor to harvest all of the fish

surplus to escapement and broodstock needs returning to the Tuya and Tahltan Lake systems.

- (iii) During this Chapter period, the Parties will continue to develop and implement joint Stikine enhancement programs designed to produce annually 100,000 returning sockeye salmon. If either Party intentionally departs from this goal, harvest share adjustments will be made as follows:
- a. A Stikine Enhancement Production Plan (SEPP), designed to produce 100,000 returning adult sockeye salmon per year, shall be prepared annually by the Committee by February 1. The SEPP will summarize planned projects for the coming year and expected production from all planned enhancement activities including expected production from site specific egg takes, access improvements, and all other enhancement activities outlined in the annual SEPP. The Committee will use these data to prepare an enhancement production forecast based on the best available information.
 - b. The Panel shall review the annual SEPP and make recommendations to the Parties concerning the SEPP by February 28.
 - c. The Committee shall annually review and document joint enhancement projects and activities undertaken by the Parties, including returns, and present the results to the Panel during the annual post season review.
 - d. During 2009 through 2013, the Parties harvest shares will be as per paragraph 3(a)(1)(ii).
 - e. During 2014 through 2018, the Parties performance relative to the SEPP produced 5 years earlier will be evaluated by the Panel. The Panel will make recommendation to the Parties if harvest shares as outlined in paragraph 3(a)(1)(ii) are to be adjusted. A Party's catch share shall be reduced by 1.5 percentage points for each 10,000 lost expected enhanced production if a Party:

- (i) intentionally did not comply with the SEPP five years earlier; and/or
- (ii) intentionally affected the ability of the other Party to comply with that SEPP.
- (iii) If the loss of expected enhanced production is caused by both Parties, penalties will be prorated according to the division of responsibility assessed each Party for the loss.

Catch shares will be adjusted to total 100% of the TAC. Net reductions in the catch share of one Party will be offset by increases in the catch share of the other Party.

- f. For new enhancement projects, Canada will endeavor to harvest fish surplus to escapement and brood stock needs.
- (iv) Pursuant to this agreement, a directed U.S. subsistence fishery in U.S. portions of the Stikine River will be permitted, with a guideline harvest level of 600 sockeye salmon to be taken between June 19 and July 31. These fish will be part of the existing U.S. allocation of Stikine River sockeye salmon. For this fishery:
- a. The fishing area will include the main stem of the Stikine River, downstream of the international border, with the exception that fishing at stock assessment sites identified prior to each season is prohibited unless allowed under specific conditions agreed to by both Parties' respective managers.
 - b. Catches will be reported weekly, including all incidentally caught fish. All tags recovered shall be submitted to the Alaska Department of Fish and Game.
 - c. A written report on the fishery summarizing harvests, fishing effort and other pertinent information requested by the Transboundary Panel will be submitted by the management agency for consideration by the Panel at its annual post season meeting.

- d. Any proposed regulatory changes to the fishery during the remaining years of this annex would need to be reviewed by the bilateral Transboundary panel and approved by the Pacific Salmon Commission.

(2) Coho salmon:

- (i) By 2018, the Parties agree to develop and implement an abundance-based approach to managing coho salmon on the Stikine River. Assessment programs need to be further developed before a biologically based escapement goal can be established. By 2014, the Parties shall review progress on this obligation.
- (ii) In the interim, the United States' management intent is to ensure that sufficient coho salmon enter the Canadian section of the Stikine River to meet the agreed spawning objective, plus an annual Canadian catch of 5,000 coho salmon in a directed coho salmon fishery.
 - a. The catch limit of 5,000 coho salmon specified herein for the Canadian fishery in the Stikine River may be exceeded provided that bilaterally agreed in-season run assessments indicate that salmon passage into Canada has exceeded or is projected to exceed the specified 5,000 fish Canadian harvest limit plus bilaterally agreed spawning requirements.
- (iii) Pursuant to this agreement, a directed U.S. subsistence fishery in U.S. portions of the Stikine River will be permitted, with a guideline harvest level of 400 coho salmon to be taken between August 1 and October 1. For this fishery:
 - a. The fishing area will include the main stem of the Stikine River, downstream of the international border, with the exception that fishing at stock assessment sites identified prior to each season is prohibited unless allowed under specific conditions agreed to by both Parties' respective managers.
 - b. Catches will be reported weekly, including all incidentally caught fish. All tags recovered shall be submitted to the Alaska Department of Fish and Game.

- c. A written report on the fishery summarizing harvests, fishing effort and other pertinent information requested by the Transboundary Panel will be submitted by the management agency for consideration by the Panel at its annual post season meeting.
- d. Any proposed regulatory changes to the fishery during the remaining years of this annex would need to be reviewed by the bilateral TBR Panel and approved by the Pacific Salmon Commission.

(3) Chinook salmon:

- (i) This agreement shall apply to large (greater than 659 mm mid-eye to fork length) Chinook salmon originating in the Stikine River.
- (ii) Both Parties shall take the appropriate management action to ensure that the necessary escapement goals for Chinook salmon bound for the Canadian portions of the Stikine River are achieved. The Parties agree to share in the burden of conservation. Fishing arrangements must take biodiversity and eco-system requirements into account.
- (iii) Consistent with paragraph 2 above, management of directed fisheries will be abundance-based through an approach developed by the Committee. The Parties agree to implement assessment programs in support of the abundance-based management regime.
- (iv) Unless otherwise agreed, directed fisheries on Stikine River Chinook salmon will occur only in the Stikine River drainage in Canada, and in District 108 in the U.S.
- (v) Pursuant to this agreement, a directed U.S. subsistence fishery in U.S. portions of the Stikine River will be permitted, with a guideline harvest level of 125 Chinook salmon to be taken between May 15 and June 20. For this fishery:
 - a. The fishing area will include the main stem of the Stikine River, downstream of the international border, with the exception that fishing at stock assessment sites identified prior to each season is prohibited unless allowed under

specific conditions agreed to by both Parties' respective managers.

- b. Catches will be reported weekly, including all incidentally caught fish. All tags recovered shall be submitted to the Alaska Department of Fish and Game.
 - c. A written report on the fishery summarizing harvests, fishing effort and other pertinent information requested by the Transboundary Panel will be submitted by the management agency for consideration by the Panel at its annual post season meeting.
 - d. Any proposed regulatory changes to the fishery during the remaining years of this annex would need to be reviewed by the bilateral TBR Panel and approved by the Pacific Salmon Commission.
- (vi) Management of Stikine River Chinook salmon will take into account the conservation of specific stocks or conservation units when planning and prosecuting their respective fisheries. To avoid over-harvesting of specific components of the run, weekly guideline harvests or other agreed management measures will be developed by the Committee by apportioning the allowable harvest of each Party over the total Chinook season based on historical weekly run timing.
- (vii) Commencing 2009, the Parties agree to implement through the Committee an agreed Chinook genetic stock identification (GSI) program to assist the management of Stikine Chinook salmon. The Parties agree to continue the development of joint GSI baselines.
- (viii) The Parties agree to periodically review the above-border Stikine River Chinook salmon spawning escapement goal which will be expressed in terms of large fish (greater than 659 mm mid-eye to fork length).
- (ix) A preseason forecast of the Stikine River Chinook salmon terminal run³ size will be made by the Committee by December 1 of each year.

3 Terminal run = total Stikine Chinook run size minus the US troll catch of Stikine Chinook

- (x) Directed fisheries may be implemented based on preseason forecasts only if the preseason forecast terminal run size equals or exceeds the midpoint of the MSY escapement goal range plus the combined Canada, U.S. and test fishery base level catches (BLCs) of Stikine River Chinook salmon. The preseason forecast will only be used for management until inseason projections become available.
- (xi) For the purposes of determining whether to allow directed fisheries using inseason information, such fisheries will not be implemented unless the projected terminal run size exceeds the bilaterally agreed escapement goal point estimate (N_{MSY}) plus the combined Canada, U.S. and test fishery BLCs of Stikine River Chinook salmon. The Committee shall determine when inseason projections can be used for management purposes and shall establish the methodology for inseason projections and update them weekly or at other agreed intervals.
- (xii) The allowable catch (AC) will be calculated as follows:
- Base terminal run (BTR) = escapement target + test fishery BLC + U.S. BLC + Cdn BLC
- Terminal run – (BTR) = AC
- (xiii) BLCs include the following:
- a. U.S. Stikine BLC: 3,400 large Chinook⁴;
 - b. Canadian Stikine BLC: 2,300 large Chinook⁵;
 - c. Test fishery: 1,400 large Chinook.

salmon outside District 108.

4 Includes average combined US gillnet, troll and sport catches of Stikine Chinook salmon in District 108.

5 Includes average combined Canadian Aboriginal, commercial and sport catches of Stikine Chinook salmon.

(xiv) Harvest sharing and accounting of the AC shall be as follows:

Allowable Catch Range		Allowable Catch Share			
		U.S.		Canada	
Lower	Upper	Lower	Upper	Lower	Upper
0	5,000	0	500	0	4,500
5,001	20,000	501	11,000	4,500	9,000
20,001	30,000	11,001	17,500	9,000	12,500
30,001	50,000	17,501	30,500	12,500	19,500
50,001	100,000	30,501	63,000	19,500	37,000

Within each Allowable Catch Range, each Party's Allowable Catch Share will be calculated proportional to where the AC occurs within the range.

- (xv) The U.S. catch of the Stikine Chinook salmon AC will not count towards the SEAK AABM allocation. In particular:
- a. non-Stikine Treaty Chinook salmon harvested in District 108 will continue to count toward the SEAK AABM harvest limit;
 - b. the U.S. BLC of Stikine Chinook salmon in District 108 will count toward the SEAK AABM harvest limit;
 - c. the U.S. catch of Stikine Chinook salmon in District 108 above the U.S. BLC will not count towards the SEAK AABM allocation.

Accounting for the SEAK AABM Chinook salmon catches as pertains to transboundary rivers harvests will continue to be the responsibility of the Chinook Technical Committee as modified by (a) through (c) above.

- (xvi) With the exception of the provisions included in paragraph (v) above, the Parties shall determine the domestic allocation of their respective harvest shares.

- (xvii) When the terminal run is insufficient to provide for the Party's Stikine Chinook BLC and the lower end of the escapement goal range, the reductions in each Party's base level fisheries, i.e. the fisheries that contributed to the BLCs, will be proportionate to the BLC shares, excluding the test fishery.
- (xviii) If the escapement of Stikine River Chinook salmon is below the lower bound of the agreed escapement range for three consecutive years, the Parties will examine the management of base level fisheries and any other fishery which harvests Stikine River Chinook salmon stocks, with a view to rebuilding the escapement.

(b) the Taku River:

(1) Sockeye salmon:

- (i) Directed fisheries on Taku River sockeye salmon will occur only in the Taku River drainage in Canada, and in District 111 in the U.S.
- (ii) Annual abundance of the wild run of Taku River sockeye salmon will be estimated by adding the catch of wild run sockeye salmon in U.S. District 111 to the estimated above-border passage of wild run sockeye salmon. The annual Total Allowable Catch (TAC) of wild run Taku River sockeye salmon will be estimated by subtracting the agreed spawning escapement goal from the annual abundance estimate.
- (iii) The management of U.S. and Canadian fisheries shall be based on weekly estimates of the TAC of wild sockeye salmon.
- (iv) For inseason management purposes, identifiable enhanced Taku River origin sockeye salmon will not be included in the calculations of the annual TAC. Notwithstanding paragraph (vi) below, enhanced sockeye will be harvested in existing fisheries incidentally to the harvest of wild Taku sockeye salmon.
- (v) The primary management objective of the Parties is to achieve the agreed spawning escapement goal. If the projected in-river escapement of wild run sockeye salmon is greater than 1.6, or other agreed factor, times the agreed spawning escapement goal,

Canada may, in addition to its share of the TAC, harvest the projected surplus in-river escapement apportioned by run timing.

- (vi) It is anticipated that surplus enhanced sockeye salmon will remain unharvested in existing commercial fisheries due to management actions required to ensure the wild spawning escapement. Canada may implement additional fisheries upstream of the existing commercial fishery to harvest surplus enhanced sockeye salmon.
- (vii) Both Parties agree to the objective of increasing sockeye salmon runs in the Taku River. The United States long-term objective is to maintain the 82% U.S. harvest share of wild Taku sockeye salmon only adjusted based on documented enhanced sockeye salmon returns. Canada's long-term objective is to achieve an equal sharing arrangement for sockeye salmon. The Parties agree to continue to develop and implement a joint Taku enhancement program intended to eventually produce annually 100,000 returning enhanced sockeye salmon.

- (viii) The Parties annual TAC share of Taku River sockeye salmon will be as follows:

Enhanced Production	U.S. TAC Share	Canadian TAC Share
0	82%	18%
1 – 5,000	80%	20%
5,001 – 15,000	79%	21%
15,001 – 25,000	77%	23%
25,001 – 35,000	75%	25%
35,001 – 45,000	73%	27%
45,001 – 55,000	71%	29%
55,001 – 65,000	69%	31%
65,001 – 75,000	68%	32%
75,001 – 85,000	67%	33%
85,001 – 95,000	66%	34%
95,001 – 100,000	65%	35%

The Parties' performance relative to these catch shares will be based on the post season analysis of documented production of enhanced sockeye salmon.

- (ix) A Taku Enhancement Production Plan (TEPP) shall be prepared annually by the Committee by February 1. The TEPP will detail the planned enhancement activities to be undertaken by the Parties and the expected production from site specific egg takes, access improvements and all other enhancement activities outlined in the annual TEPP. The Committee will use these data to prepare an initial enhancement production forecast based on the best available information.
- (x) The Panel shall review the annual TEPP and make recommendations to the Parties concerning the TEPP by February 28.

(xi) The Committee shall annually review and document joint enhancement projects and activities undertaken by the Parties, including the estimated returns of identifiable and unidentifiable enhanced sockeye salmon, and present the results to the Panel during the annual post season review.

(2) Coho salmon:

(i) Consistent with Paragraph 2 above, the Parties agree to implement an abundance-based approach to managing coho salmon on the Taku River. The Parties agree to develop a joint technical report and submit it through the various Parties review mechanisms with the aim of identifying and establishing a bilaterally agreed to MSY goal for Taku coho prior to the 2010 fishing season.

(ii) Until a new abundance-based approach is developed, the management intent of the United States is to ensure a minimum above-border inriver run of 38,000 coho salmon, and the following arrangements will apply:

- a. no numerical limit on the Taku River coho catch will apply in Canada during the directed sockeye salmon fishery (through statistical week 33);
- b. if in-season projections of above-border run size are less than 50,000 coho salmon, a directed Canadian harvest of up to 3,000 coho salmon is allowed for assessment purposes as part of the joint Canada/US Taku River mark-recapture program;
- c. if in-season projections of above-border run size exceed 50,000 coho salmon, a directed Canadian harvest of 5,000 coho salmon is allowed;
- d. if in-season projections of above-border run size exceed 60,000 coho salmon, a directed Canadian harvest of 7,500 coho salmon is allowed;
- e. if in-season projections of above border run size exceed 75,000 coho salmon, a directed Canadian harvest of 10,000 coho is allowed.

(iii) The annual catch limits specified for the Canadian harvest of coho salmon in the Taku River in paragraph 3(b)(2)(ii) above may be exceeded provided that bilaterally agreed in-season run assessments indicate that salmon passage into Canada has exceeded or is projected to exceed the specified Canadian harvest limit plus bilaterally agreed spawning requirements.

(3) Chinook salmon:

(i) This agreement shall apply to large (greater than 659 mm mid-eye to fork length) Chinook salmon originating in the Taku River.

(ii) Both Parties shall take the appropriate management action to ensure that the necessary escapement goals for Chinook salmon bound for the Canadian portions of the Taku River are achieved. The Parties agree to share in the burden of conservation. Fishing arrangements must take biodiversity and eco-system requirements into account.

(iii) Consistent with paragraph 2 above, management of directed fisheries will be abundance-based through an approach developed by the Committee. The Parties agree to implement assessment programs in support of the abundance-based management regime.

(iv) Unless otherwise agreed, directed fisheries on Taku River Chinook salmon will occur only in the Taku River drainage in Canada, and in District 111 in the U.S.

(v) Management of Taku River Chinook salmon will take into account the conservation of specific stocks or conservation units when planning and prosecuting their respective fisheries. To avoid over-harvesting of specific components of the run, weekly guideline harvests, or other agreed management measures, will be developed by the Committee by apportioning the allowable harvest of each Party over the total Chinook season based on historical weekly run timing.

(vi) Commencing 2009, the Parties agree to implement through the Committee an agreed Chinook genetic stock identification (GSI) program to assist the management of Taku Chinook

salmon. The Parties agree to continue the development of joint (GSI) baselines.

- (vii) The Parties agree to periodically review the above-border Taku River Chinook spawning escapement goal which will be expressed in terms of large Chinook fish (greater than 659 mm mid-eye to fork length). By January 15, 2009, the Parties agree to jointly review the currently agreed escapement goal and pass a jointly prepared technical report through accelerated domestic review processes in time for a revised goal to be applied in the 2009 season. Formal review processes will proceed as required.
- (viii) A preseason forecast of the Taku River Chinook salmon terminal run⁶ size will be made by the Committee by December 1 of each year.
- (ix) Directed fisheries may be implemented based on preseason forecasts only if the preseason forecast terminal run size equals or exceeds the midpoint of the MSY escapement goal range plus the combined Canada, U.S. and test fishery base level catches (BLCs) of Taku River Chinook salmon. The preseason forecast will only be used for management until inseason projections become available.
- (x) For the purposes of determining whether to allow directed fisheries using inseason information, such fisheries will not be implemented unless the projected terminal run size exceeds the bilaterally agreed escapement goal point estimate (N_{MSY}) plus the combined Canada, U.S. and test fishery BLCs of Taku River Chinook salmon. The Committee shall determine when inseason projections can be used for management purposes and shall establish the methodology for inseason projections and update them weekly or at other agreed intervals.
- (xi) The allowable catch (AC) is calculated as follows:

Base terminal run (BTR) = escapement target + test fishery BLC + U.S. BLC + Cdn BLC

⁶ Terminal run = total Taku Chinook run size minus the US troll catch of Taku Chinook salmon outside District 111.

Terminal run – (BTR) = AC

(xii) BLCs include the following:

- a. U.S. Taku BLC: 3,500 large Chinook⁷
- b. Canadian Taku BLC: 1,500 large Chinook⁸
- c. Test fishery: 1,400 large Chinook;

7 Includes average combined US gillnet and sport catches of Taku Chinook salmon in District 111.

8 Includes average combined Canadian Aboriginal, commercial and estimated sport catch of Taku Chinook salmon.

(xiii) Harvest sharing and accounting of the AC shall be as follows:

Allowable Catch Range		Allowable Catch Share			
		U.S.		Canada	
Lower	Upper	Lower	Upper	Lower	Upper
0	5,000	0	0	0	5,000
5,001	20,000	1	11,000	5,000	9,000
20,001	30,000	11,001	17,500	9,000	12,500
30,001	50,000	17,501	30,500	12,500	19,500
50,001	100,000	30,501	63,000	19,500	37,000

Within each Allowable Catch Range, each Party's Allowable Catch Share will be calculated proportional to where the AC occurs within the range.

- (xiv) The U.S. catch of the Taku Chinook salmon AC will not count towards the SEAK AABM allocation. In particular:
- a. non-Taku Treaty Chinook salmon harvested in District 111 will continue to count toward the SEAK AABM harvest limit;
 - b. the U.S. BLC of Taku Chinook salmon in District 111 will count toward the SEAK AABM harvest limit;
 - c. the U.S. catch of Taku Chinook salmon in District 111 above the U.S. BLC will not count towards the SEAK AABM allocation.

Accounting for the SEAK AABM Chinook salmon catches as pertains to transboundary rivers harvests will continue to be the responsibility of the Chinook Technical Committee as modified by (a) through (c) above.

- (xv) The Parties shall determine the domestic allocation of their respective harvest shares.
- (xvi) When the terminal run is insufficient to provide for the Party's Taku Chinook BLC and the lower end of the escapement goal range, the reductions in each Party's base level fisheries, i.e. the fisheries that contributed to the BLCs, will be proportionate to the Taku Chinook BLC shares, excluding the test fishery.
- (xvii) When the escapement of Taku River Chinook salmon is below the lower bound of the agreed escapement range for three consecutive years, the Parties will examine the management of base level fisheries and any other fishery which harvests Taku River Chinook salmon stocks, with a view to rebuilding the escapement.

(c) the Alsek River:

- (i) The Parties will continue to develop and implement cooperative abundance-based management programs for Alsek River salmon including agreed above border spawning escapement and management goals for Chinook and sockeye

salmon. The Parties agree to develop joint technical reports and submit it through the various Parties' review mechanisms. The aim is to identify and establish a revised bilaterally agreed to MSY escapement goal for Alsek Chinook and sockeye prior to the 2014 fishing season that will be used until another agreed goal is developed.

- (ii) The Committee will develop an annual pre-season fishery management plan for Alsek River fisheries by May 1.
- (iii) During the effective period of the Chapter, either Party may bring proposals to the Panel for new commercial fisheries to harvest Alsek River drainage salmon. The Party making such a proposal is responsible for defining the specifics of the proposed fishery in terms of location, timing, and gear type to be used. That Party is responsible for recommending a set of fishery management measures for the proposed fishery or fisheries. Implementation of any such fishery, will not proceed without the consent of both Parties and an agreed upon abundance based management regime has been developed.

(iv) Chinook salmon:

- a. Subject to annual review by and approval of the Committee, the Parties agree to conduct an assessment test fishery to be administered by the U.S. under terms to be developed by the Committee. The test fishery will be conducted over the duration of the run. The overall Chinook catch in the test fishery will not exceed 500 fish. All fish caught will be sampled for length, age, sex and tissue (for genetic stock ID).
- b. On an annual basis, the Committee will produce an in-river abundance estimate of Alsek Chinook. The Parties agree to implement through the Committee an agreed Chinook genetic stock identification (GSI) program to assist the management of Alsek Chinook salmon. The Parties agree to continue the development of joint GSI baselines.

(v) Sockeye salmon:

- a. On an annual basis, the Committee will refine and implement inseason abundance-based management. The Parties will endeavour to continue to explore methods for determining inriver abundance (such as genetic stock ID).
- b. On an annual basis, weekly tissue samples will be collected from the Dry Bay commercial fishery in addition to the normal sampling program.
- c. Subject to paragraph 3(c)(i), the interim management intent of the United States is to pass sufficient sockeye salmon into Canada to achieve the agreed Klukshu River spawning escapement goal range plus 3,000 sockeye salmon.

4. The Parties agree that if catch allocations set out for transboundary river salmon are not attained due to management actions by either Party in any one year, compensatory adjustment shall be made in subsequent years. If a shortfall in the actual catch of a Party is caused by management action of that Party, no compensation shall be made. The Parties agree that midway through the Chapter period, the harvest sharing performance will be evaluated and adjustments made over the rest of the Chapter period if necessary. At the end of

the Chapter period cumulative overages or underages will be carried forward to the next Chapter period. The parties agree to review this arrangement prior to 2010. The Transboundary Panel will forward recommendations to the Commissioners on this topic by January 2010.

5. The Parties agree that midway through the Chapter period, or other agreed time, they will review the current Chapter and determine if they want to renew the Chapter for an additional period of time.

6. The Parties agree to consider cooperative enhancement possibilities and to undertake, as soon as possible, studies on the feasibility of new enhancement projects on the transboundary rivers and adjacent areas for the purpose of increasing productivity of stocks and providing greater harvests to the fishermen of both countries.

7. Recognizing that stocks of salmon originating in Canadian sections of the Columbia River constitute a small portion of the total populations of Columbia River salmon, and that the arrangements for consultation and recommendation of escapement targets and approval of enhancement activities set out in Article VII are not appropriate to Columbia River system as a whole, the Parties consider it important to ensure effective conservation of up-river stocks which extend into Canada and to explore the development of mutually beneficial enhancement activities. Therefore, notwithstanding Article VII, paragraphs 2, 3, and 4, the Parties shall consult with a view to developing, for the transboundary sections of the Columbia River, a more practicable arrangement for consultation and setting escapement targets than those specified in Article VII, paragraphs 2 and 3. Such arrangements will seek to *inter alia*:

- (a) ensure effective conservation of the stocks;
- (b) facilitate future enhancement of the stocks on an agreed basis;
- (c) avoid interference with United States management programs on the salmon stocks existing in the non-transboundary tributaries and the main stem of the Columbia River.

APPENDIX TO ANNEX IV

CHAPTER 1

UNDERSTANDING ON THE JOINT ENHANCEMENT OF TRANSBOUNDARY RIVER SCKEYE STOCKS

Pursuant to Annex IV of the Pacific Salmon Treaty, and recognizing the desire of Canada and the United States to continue a joint enhancement program for the transboundary rivers that is carefully planned and coordinated:

1. The Parties agree to the following principles:
 - (a) To implement an enhancement program that is consistent with the protection of existing wild salmon stocks and the habitat upon which they depend;
 - (b) To implement an enhancement program that is diverse, that involves a variety of approaches to increasing production, and that is built upon a good knowledge base of existing wild stocks of salmon;
 - (c) To implement an enhancement program that includes comprehensive planning, assessment, and review;
 - (d) To develop strategies for management of enhanced stocks prior to the return of adult fish;
 - (e) To share the costs of jointly agreed enhancement projects proportionally to the distribution of benefits, unless external funding can be found. The Parties shall recommend a plan, when required, for funding of projects including:
 - (i) cost sharing arrangement between the Parties; and
 - (ii) long-term funding obligations.
2. The Parties agree to maintain an Enhancement Subcommittee of the joint Transboundary Technical Committee whose Terms of Reference shall be, *inter alia*, to:

- (a) Seek to identify diverse enhancement opportunities and to develop preliminary summaries of projects which may assist in meeting enhancement goals established by Annex IV, Chapter 1;
- (b) Communicate identified enhancement opportunities to the Transboundary Panel and the Parties along with technical recommendations concerning these opportunities;
- (c) Develop detailed feasibility studies for projects recommended by either Party or the Transboundary Panel, including:
 - (i) Estimation of costs;
 - (ii) Estimation of benefits to users and communities;
 - (iii) Likelihood of success;
 - (iv) Risk analysis;
 - (v) Schedules for implementation;
 - (vi) Specified timelines and thresholds for major decisions;
 - (vii) Procedures for evaluation; and
 - (viii) Fisheries management plans for the enhanced stocks;
- (d) Monitor implementation of ongoing enhancement projects and annually report progress to the Parties and the Transboundary Panel;
- (e) Periodically provide detailed technical reviews pertaining to biological aspects and items listed in paragraph 2(c) above of implemented projects as requested by either Party, with the concurrence of the other Party.
- (f) Produce an annual Stikine Enhancement Production Plan (SEPP) and a Taku Enhancement Production Plan (TEPP) that detail:
 - (i) The enhancement projects and activities to be undertaken by the Parties;

- (ii) The expected enhanced production from those projects and activities; and
 - (iii) The scientific technique that will be used to document enhanced production.
- (g) Annually review and document the joint enhancement projects and activities undertaken by the Parties including returns. The subcommittee shall assess the enhancement activities each year against the appropriate SEPP and TEPP and provide explanations for any discrepancies.

3. The Transboundary Panel will consider technical input from the Enhancement Subcommittee of the joint Transboundary Technical Committee and that technical information coupled with the Panel's knowledge of local economic, social, and cultural conditions and values will be used by the Panel to make and communicate recommendations to the Parties concerning enhancement project selection, implementation, assessment and termination.

4. General Guidelines:

- (a) A reasonable expectation that stock identification technique will be available to estimate the contribution of enhanced sockeye in mixed stock fisheries is suggested in order for large scale enhancement projects to proceed. Potential and most appropriate stock identification techniques for each project will be recommended by the joint Transboundary Technical Committee.
- (b) Egg collection is limited to a maximum of 30% of the available adults at potential brood stock sites (where possible this limit should be applied to the female component of the escapement).
- (c) Unless otherwise agreed, the overall objective is not to exceed a 1:1 ratio of enhanced:wild smolt.

5. Stikine River:

For the duration of this Chapter, the Parties will pursue a diverse program to enhance sockeye production in the Stikine River to meet the annual SEPP production target of 100,000 enhanced sockeye salmon. The existing enhancement program may be expanded to include new activities such as barrier removal, habitat improvement and/or other agreed enhancement projects. The annual egg-take goal for the Stikine sockeye enhancement program will reflect what is required to meet the annual enhancement production target taking into account the expected production from all other Stikine sockeye enhancement projects.

If either Party intentionally departs from the SEPP, the resulting harvest shares will be adjusted as per paragraph 3(a)(1)(iii)(e).

For the duration of this Chapter, the Tahltan Lake sockeye salmon stock will be used as the source of eggs unless alternate or additional egg sources are identified and agreed to by the Parties.

Eggs will be incubated at the Port Snettisham central incubation facility (CIF), unless otherwise agreed.

Fry will be planted into Tahltan and/or Tuya lake(s) and/or other sites in the following manner, subject to review by the joint Transboundary Technical Committee:

- (a) When the sockeye escapement through the Tahltan Lake weir is less than 15,000 fish or an agreed alternate threshold, all Tahltan origin fry will be returned to Tahltan Lake;
- (b) When the sockeye escapement through the Tahltan Lake weir is greater than 15,000 fish or an agreed alternate threshold, subject to paragraph (d) below, the Tahltan origin fry will be distributed to Tahltan and Tuya lakes and/or other sites in a manner that is agreed upon by the Parties and is specified in the SEPP.
- (c) Fry outplants may be conducted to assess the production capacity of other enhancement sites.
- (d) If the Tuya enhancement program is terminated by either Party, that Party's harvest share will be reduced as per paragraph 3(a)(1)(iii)(e) of Chapter 1. As the lost expected enhanced production is replaced, that

Party's harvest share will be increased by 1.5 percentage points for each 10,000 expected enhanced production.

6. Taku River:

For the duration of this Chapter, the Parties will pursue a diverse program to intended to increase enhanced sockeye production in the Taku River and eventually meet the annual production target of 100,000 enhanced sockeye salmon.

The existing enhancement program may be expanded to include new activities and consideration will be given to enhancing the various temporal components of the Taku sockeye run.

The program may include egg-takes at Tatsamenie Lake with resultant fry outplants back into Tatsamenie Lake.

The program may include egg-takes with resultant fry outplants back into King Salmon, Kuthai and/or other lakes or other sites in the Taku drainage.

The program may include:

- (a) continuation of the Trapper Lake access project;
- (b) other barrier removal projects; and/or
- (c) other projects focusing on salmon passage and habitat improvement.

The Tatsamenie Lake salmon stock will be used as a source of eggs unless alternate or additional egg sources are identified and agreed to by the Parties.

Unless otherwise agreed by the Parties, the annual egg-take goal for the Taku sockeye enhancement program will be outlined in the TEPP.

Eggs taken as part of this enhancement effort will be incubated at the Port Snettisham central incubation facility (CIF) unless otherwise agreed.

Fry may be planted into Tatsamenie and/or Trapper Lake, and/or other sites in the Taku drainage, subject to review by the joint Transboundary Technical Committee.

7. Harvest principles:

- (a) The Parties desire to maximize the harvest of enhanced sockeye salmon in their existing fisheries while considering the conservation needs of wild salmon runs.
- (b) To avoid impacts on co-migrating stocks and species, exploitation rates applied to Taku and Stikine river sockeye salmon in existing mixed stock fisheries in Canada and the United States, shall be at levels compatible with the maintenance of wild stocks.

8. Cost sharing for the continuation of existing enhancement projects (Tahltan, Tuya, Tatsamenie and Trapper):

- (a) the costs of producing Taku and Stikine origin enhanced sockeye salmon shall be shared as follows:
 - (i) To be paid by Canada:
 - a. Egg takes;
 - b. Egg transports;
 - c. Sampling and numerical analysis necessary to determine the contribution of enhanced sockeye salmon to Canadian fisheries;
 - d. Limnological assessments;
 - e. Processing of sockeye otolith samples collected from spawning escapement, broodstock and juveniles.
 - (ii) To be paid by the United States:
 - a. Construction and operation of that portion of the Port Snettisham CIF that is dedicated to enhancement projects on the transboundary rivers;
 - b. Transports of fry to the enhancement sites;
 - c. Sampling and analysis necessary to determine the contribution of enhanced transboundary river sockeye salmon to United States fisheries; and
 - d. Processing of all other sockeye otolith samples.

- (iii) Projects to be conducted jointly:
 - a. Disease sampling and analysis;
 - b. Identification and evaluation of alternative sockeye salmon enhancement opportunities;
 - c. Assessments of unforeseen issues that arise from joint enhancement activities and projects that investigate why outcomes differ from expected outcomes.

CHAPTER 2

NORTHERN BRITISH COLUMBIA AND SOUTHEASTERN ALASKA

The provisions of this Chapter shall apply for the period 2009 through 2018.

1. With respect to the Portland Canal chum salmon fishery, neither Party shall conduct net fisheries in Alaskan Section 1A and Canadian sub-areas 3-15 and 3-16 nor conduct directed chum fisheries in Alaskan Section 1B north and east of Akeku Point or in Canadian sub-areas 3-11 and 3-13 unless agreed otherwise by the Parties.
2. With respect to sockeye salmon, the United States shall
 - (a) manage the Alaskan District 104 purse seine fishery prior to statistical week 31 to:
 - (i) achieve an annual catch share of Nass and Skeena sockeye of 2.45 percent of the Annual Allowable Harvest (AAH) of the Nass and Skeena sockeye stocks in that year. The methodology for AAH calculations is provided in the Appendix to this Chapter.
 - (ii) carry forward from year to year annual deviations from the prescribed catch share arrangement in (i). Details of the procedure are outlined in the Appendix to this Chapter.
 - (b) manage the Alaskan District 101 drift gillnet fishery to:
 - (i) achieve an annual catch share of Nass sockeye of 13.8 percent of the AAH of the Nass sockeye stocks in that year. The methodology for AAH calculations is provided in the Appendix to this Chapter.
 - (ii) carry forward from year to year annual deviations from the prescribed catch share arrangement in (i). Details of the procedure are outlined in the Appendix to this Chapter.
3. With respect to pink salmon, Canada shall
 - (a) manage the Canadian Area 3-1, 3-2, 3-3 and 3-4 net fishery to:

- (i) achieve an annual catch share of 2.49 percent of the AAH of Alaskan Districts 101, 102 and 103 pink salmon in that year. The methodology for AAH calculations is provided in the Appendix to this Chapter.
 - (ii) carry forward from year to year annual deviations from the prescribed catch share arrangement in (i). Details of the procedure are outlined in the Appendix to this Chapter.
 - (b) manage the Canadian Area 1 troll fishery to:
 - (i) achieve an annual catch share of 2.57 percent of the AAH of Alaskan Districts 101, 102 and 103 pink salmon in that year. The methodology for AAH calculations is provided in the Appendix to this Chapter.
 - (ii) carry forward from year to year annual deviations from the prescribed catch share arrangement in (i). Details of the procedure are outlined in the Appendix to this Chapter.
4. In order to accomplish the objectives of this Chapter, neither Party shall initiate new intercepting fisheries, nor conduct or redirect fisheries in a manner that intentionally increases interceptions.
5. The Parties shall maintain a joint Northern Boundary Technical Committee (the “Committee”) reporting, unless otherwise agreed, to the Northern Panel and the Commission. The Committee shall, *inter alia*,:
- (a) evaluate the effectiveness of management actions;
 - (b) identify and review the status of pink, chum, sockeye and coho stocks;
 - (c) present the most current information on harvest rates and patterns on these stocks, and develop a joint data base for assessments;

- (d) collate available information on the productivity of stocks in order to identify escapements which produce maximum sustainable harvests and allowable harvest rates;
- (e) present historical catch data, associated fishing regimes, and information on stock composition in fisheries harvesting these stocks;
- (f) devise analytical methods for the development of alternative regulatory and production strategies;
- (g) identify information and research needs, including future monitoring programs for stock assessments; and
- (h) for each season, make stock and fishery assessments and recommend to the Northern Panel conservation measures consistent with the principles of the Treaty.

APPENDIX TO ANNEX IV

CHAPTER 2

UNDERSTANDING ON THE APPLICATION OF ANNEX IV, CHAPTER 2 (NORTHERN BRITISH COLUMBIA AND SOUTHEASTERN ALASKA)

1. Annual Allowable Harvest (“AAH”)
 - (a) Combined Nass and Skeena Sockeye AAH for Alaska District 104 Purse Seine Fishery

The AAH each year will be calculated as the combined total run of adult Nass and Skeena sockeye salmon in that year less the combined Nass and Skeena escapement target of 1.1 million fish. In the event that the actual Nass and Skeena spawning escapement for the season is below the target level, the actual spawning escapement will be used in the AAH calculation.

The total run calculation includes the catches of Nass and Skeena sockeye salmon in the principal boundary area fisheries and the spawning escapements to the Nass and Skeena watersheds. This includes the catch of Nass and Skeena sockeye salmon in: Alaskan Districts 101, 102, 103, 104 and 106 net fisheries; Canadian Areas 1, 3, 4 and 5 net fisheries; and Canadian Nass and Skeena in-river fisheries. Catches in other boundary area fisheries may be included as jointly agreed by the Northern Boundary Technical Committee.

- (b) Nass Sockeye AAH for Alaska District 101 Drift Gillnet Fishery

The AAH each year will be calculated as the total run of adult Nass sockeye in that year less the escapement target of 0.2 million fish. In the event that the actual Nass spawning escapement for the season is below the target level, the actual spawning escapement will be used in the AAH calculation.

The total run calculation includes the catches of Nass sockeye salmon in the principal boundary area fisheries and the spawning escapement to the Nass watershed. This includes the catch of Nass sockeye salmon in: Alaskan Districts 101, 102, 103, 104 and 106 net fisheries; Canadian Areas 1, 3, 4, and 5 net fisheries; and Canadian Nass in-river

fisheries. Catches in other boundary area fisheries may be included as jointly agreed by the Northern Boundary Technical Committee.

- (c) Districts 101, 102 and 103 Pink Salmon AAH for Canadian Area 3(1-4) Net and Area 1 Troll Fisheries

The AAH in each year will be calculated as the total run of adult pink salmon to Alaskan Districts 101, 102 and 103 in that year less the minimum escapement target of 10.75 million fish. In the event that the actual escapement for the season is below the target level, the actual escapement will be used in the AAH calculation.

The total pink salmon run to Alaskan Districts 101, 102 and 103 will be calculated as the catch of Alaskan pink salmon in: Canadian Areas 1, 3, 4 and 5 net and troll fisheries; Alaskan Districts 101, 102, 103 and 104 net and troll fisheries; and in the escapements to Districts 101, 102 and 103.

2. Exchange of Management and Stock Assessment Information

(a) Pre-season

Pre-season estimates of the AAHs will be provided through the Northern Boundary Technical Committee by May 1 of each year.

(b) In-season

The Parties will exchange management and assessment information in-season. The exchange will occur weekly (or more often if required) and include (but not be limited to) catch, catch per unit effort, escapement and run size estimations.

(c) Post-season

The calculation of the allowable and actual harvests of salmon, as specified in Annex IV, Chapter 2, shall be determined by the Northern Boundary Technical Committee (prior to January 31 of the following year unless otherwise agreed) using the current agreed post-season accounting methodology. These methods are expected to change as improved techniques or assessments become available. Any new jointly agreed method will be used from that point onward in Northern Boundary Technical Committee post-season accounting. These new techniques or assessments could include (but would not be limited to) changes to escapement targets, stock identification methods and reconstruction models. Any new techniques or assessments will not be used to alter the Annex IV, Chapter 2, AAH shares, or to recalculate previous years where the accounting has been finalized.

3. Overage and underage provisions for the Annex IV, Chapter 2, paragraphs 2 and 3 (sockeye and pink salmon).

(a) The intent of the overage/underage provision is to provide an arrangement where the Parties are accountable for catch shares but have flexibility in their management of fisheries subject to the Treaty.

(b) Although the management intent shall be to harvest salmon at the allowable percentage AAH, it is recognised that overages and underages will occur and an accounting mechanism is required.

- (c) The payback mechanism for each fishery will be based on the number of fish and use the agreed-upon accounting method.
 - (d) After each season, the calculation of the allowable and actual harvests of salmon as specified in Annex IV, Chapter 2, shall be determined by the agreed post-season accounting methodology. If the actual harvest deviates from the allowable harvest as stipulated in the Annex, the deviation is added to any cumulative deviation.
 - (e) The management intent for each fishery shall be to return any overages to a neutral or negative balance as soon as possible. After five years of consecutive overages, the Party with the cumulated overage shall provide the Northern Panel with specific management actions that will eliminate the overage in that fishery.
4. Unless mutually agreed, the accrual of underages is not intended to allow a Party to modify its fishing behaviour in any given year to harvest the total accrued underage. Parties shall manage with the intent to harvest no more than 150 percent of their AAH in any season.
5. The Parties agree to review Annex IV, Chapter 2, a minimum of two years prior to its expiration with a view to renewing it. If such renewal is not successfully concluded prior to the expiration date, then overages and underages shall be carried forward to the next Chapter period.

CHAPTER 3

CHINOOK SALMON

The provisions of this Chapter shall apply for the period 2009 through 2018.

1. The Parties agree that:
- (a) Chinook stocks subject to the Pacific Salmon Treaty have varying levels of status with many being healthy and meeting goals for long-term production while others have been identified as conservation concerns, including some in the U.S. Pacific Northwest that have been listed under the U.S. Endangered Species Act;

- (b) fishery management measures implemented under the Treaty are appropriate for recovering, maintaining and protecting salmon stocks in Canada and the United States;
- (c) while fishing has contributed to the decline of many stocks of concern, the continued depressed status of these stocks generally reflects the long-term cumulative effects of other factors, particularly chronic habitat degradation, in some instances deleterious hatchery practices, and cyclic natural phenomena which may be exacerbated by climate change;
- (d) successful Chinook conservation, restoration and harvest management depends on a sustained and bilaterally coordinated program of resource protection, restoration, enhancement, and utilization based upon:
 - (i) science-based fishery management regimes that foster healthy and abundant Chinook stocks by contributing to the restoration and rebuilding of depressed natural stocks while providing sustainable harvest opportunities on abundant stocks;
 - (ii) implementation of protective and remedial actions identified in local and regional recovery planning processes that address non-fishing factors limiting the abundance, productivity, genetic diversity or spatial structure of natural salmon stocks; and
 - (iii) scientifically sound enhancement activities that provide mitigation to fisheries for habitat loss or degradation and/or improve productivity through the appropriate use of artificial propagation and supplementation techniques;
- (e) a healthy and productive Chinook resource will impart sustainable benefits for the fisheries of both Parties, contribute other social, economic, and cultural benefits to the people of both Parties, and provide ecosystem benefits to other species;
- (f) the harvest levels and other fishery management approaches to target healthy natural and hatchery stocks while constraining impacts on depressed natural stocks, including various spatial and temporal fishery shaping measures that are bilaterally coordinated as necessary, coupled with improvements in fishery management programs prescribed or referenced in this Chapter, are intended to complement recovery

actions being undertaken in the fishing and non-fishing sectors in each country.

2. The Parties shall:

- (a) implement a comprehensive and coordinated Chinook fishery management program that:
 - (i) utilizes an abundance-based framework for managing all Chinook fisheries subject to the Treaty;
 - (ii) continues harvest regimes based on annual estimates of abundance that are responsive to changes in production, take into account all fishery induced mortalities and designed to meet MSY or other agreed biologically-based escapement and/or harvest rate objectives; with the understanding that harvest rate management is designed to provide a desired range of escapements over time;
 - (iii) contributes to the improvement in trends in spawning escapements of depressed Chinook salmon stocks and is consistent with improved salmon production;
 - (iv) seeks to sustain stocks at healthy and productive levels by ensuring that stocks achieve MSY or other agreed biologically-based escapement and/or harvest rate objectives;
 - (v) considers the limitations of regulatory systems;
 - (vi) seeks to preserve biological diversity of the Chinook resource and contributes to restoration of currently depressed stocks by improving the abundance, productivity, genetic diversity and spatial structure of stocks over time;
 - (vii) specifies fishery management obligations for maintaining healthy stocks, rebuilding depressed naturally spawning stocks and providing a means for sharing the harvest and the conservation responsibility for Chinook stocks coast-wide among the Parties;
 - (viii) develops additional biological information pursuant to an agreed program of work and incorporates that information into the coastwide management regime, and considers the latest

scientific information developed in each country's recovery planning processes;

- (ix) includes procedures for changes in management agreed to by the Commission based on scientific advice provided by the Chinook Technical Committee (CTC); and
 - (x) includes a commitment to discuss within the Commission significant management changes that a Party is considering that may alter the stock or age composition of a fishery regime's catch;
- (b) maintain a joint Chinook Technical Committee (the "CTC") reporting, unless otherwise agreed, to the Pacific Salmon Commission, which shall, *inter alia*,:
- (i) evaluate management actions for their consistency with measures set out in this Chapter, and for their potential effectiveness in attaining the specified objectives;
 - (ii) report annually on catches, harvest rate indices, estimates of incidental mortality and exploitation rates for all Chinook fisheries and stocks harvested within the Treaty area;

- (iii) report annually on the escapement of naturally spawning Chinook stocks in relation to the agreed escapement objectives referred to below, evaluate trends in the status of stocks and report on progress in the rebuilding of naturally spawning Chinook stocks;
- (iv) evaluate and review existing escapement objectives that fishery management agencies have set for Chinook stocks subject to this Chapter for consistency with MSY or other agreed biologically-based escapement goals and, where needed, recommend goals for naturally spawning Chinook stocks that are consistent with the intent of this Chapter;
- (v) recommend standards for the minimum assessment program required to effectively implement this Chapter, provide information on stock assessments relative to these standards and recommend to the Commission any needed improvements in stock assessments;
- (vi) review effects of enhancement programs on abundance-based management regimes and recommend strategies for the effective utilization of enhanced stocks;
- (vii) recommend research projects, and their associated costs, required to implement this Chapter effectively;
- (viii) exchange information necessary to analyze the effectiveness of alternative fishery regulatory measures to satisfy conservation objectives;
- (ix) provide a yearly report to the Commission that details the progress in assessment and monitoring for each stock in the Sentinel Stocks Program;
- (x) provide a yearly report to the Commission that details the progress in implementing improvements to the CWT program in the treaty area as a result of recommendations from the CWT workgroup;
- (xi) provide a yearly report to the Commission that compiles information from the management agencies regarding the

conduct and stock specific impacts of any mark-selective fisheries for Chinook in the treaty area, pending bilateral resolution of outstanding technical issues (e.g., methods for estimating incidental mortalities); and

- (xii) undertake specific assignments such as those described in Appendix A to this Chapter;

3. Subject to the provision of funding by the Parties (\$7.5 million (\$C) from Canada and \$41.5 million (U.S.) from the United States) for the specific purposes and in the amounts identified in this paragraph and paragraphs 4 and 5, below, and a commitment of \$10 million (U.S.) (\$2.0 million (U.S.) per year for five years, beginning in 2009) from the Northern Boundary and Transboundary Rivers Restoration and Enhancement Fund and the Southern Boundary Restoration and Enhancement Fund by the Northern Fund Committee and the Southern Fund Committee, respectively, the Parties agree:

- (a) to implement through their respective domestic management authorities a five-year research program (Sentinel Stocks Program) utilizing approximately \$2.0 million (U.S.) annually provided by the Northern and Southern Funds as follows:
 - (i) the purpose of the program shall be to improve the estimates of escapements of selected Chinook populations in British Columbia, Washington State and Oregon;
 - (ii) the Commission shall select a bilateral body of scientists to recommend to the Commission and the Fund Committees how best to utilize these funds for the purposes identified herein;
 - (iii) the program shall focus on estimating the escapements of a limited number of stocks consistent with standards to be developed by the bilateral CTC; and
 - (iv) stocks shall include a limited number of escapement indicator stocks for the North Oregon coast, Puget Sound (one of which shall be the Stillaguamish River), west coast of Vancouver Island, northern British Columbia and Fraser River;
- (b) to provide \$7.5 million each in their respective currencies, subject to the availability of funds to implement over a five year period beginning no later than 2010 within their respective jurisdictions critical improvements to the coast wide coded wire tagging program operated

by their respective management agencies. The Commission shall select a bilateral body to recommend funding of specific action items identified in the Pacific Salmon Commission Technical Report Number 25 that are priority uses of these funds to improve the precision and accuracy of statistics such as abundance, exploitation rates, survival estimates, etc. for Chinook salmon used by the CTC in support of this Chapter; and

- (c) that up to \$1.0 million (U.S.) would be made available by the United States Section (using funds appropriated by Congress to implement the U.S. Chinook Salmon Agreement) to implement over a two year period beginning in 2009, with guidance from the CTC, specific measures to improve the bilateral Chinook model and related management tools used by the CTC to support implementation of this Chapter.

4. The Parties agree that \$30 million (U.S.) of the funding to be provided by the United States identified in paragraph 3, above, is to be made available to Canada to assist in the implementation of this Chapter. Specifically, \$15 million (U.S.) is to be provided in each of two U.S. fiscal years from 2009 to 2011, inclusive, or sooner (for a total of \$30 million U.S.), with the following understandings:

- (a) the bulk of this funding would be used by Canada for a fishery mitigation program designed, among other purposes, to reduce effort in its commercial salmon troll fishery; and
- (b) Canada will inform the Commission as to how this funding was utilized in support of the mitigation program within two years of receiving such funding.

5. The Parties agree that the feasibility and effectiveness of mark-selective fisheries warrant continuing investigation and evaluation and, if pursued, should occur subject to the following conditions and/or understandings, as applicable:

- (a) mark-selective fisheries for Chinook will be conducted in a manner that reduces fishery impacts on natural spawning salmon relative to non-selective fishing alternatives;
- (b) if Canada decides to experiment in 2009 and 2010 with mark-selective fisheries for Chinook and funding is provided by the United States for this purpose, the affected management authorities will collaborate with the Selective Fisheries Evaluation Committee (SFEC) on the design of an appropriate monitoring program;

- (c) mark-selective fisheries implemented by either Party that affect stocks subject to the Pacific Salmon Treaty will be sampled, monitored and reported in accordance with applicable protocols recommended by the SFEC and adopted by the Commission; and the SFEC will facilitate the annual exchange of information regarding the conduct of mark-selective fisheries, including estimates of catches of mass-marked hatchery Chinook; and
- (d) it is understood that the evaluation of mark-selective fisheries in Canada may be subject to funding or other assistance provided by the State of Washington (with support as appropriate from the United States) in an amount not to exceed \$3 million (U.S.), an amount that is included in the United States funding amount identified in paragraph 3, above, with such funding subject to the obtaining of specific legislative authority as may be required and the availability of funds.

6. The Parties agree to implement, beginning in 2009 and extending through 2018, an abundance-based coast-wide Chinook salmon management regime to meet the objectives set forth in paragraph 2(a) above, under which fishery regimes shall be classified as aggregate abundance-based management regimes (“AABM”) or individual stock-based management regimes (“ISBM”):

- (a) an AABM fishery is an abundance-based regime that constrains catch or total mortality to a numerical limit computed from either a pre-season forecast or an in-season estimate of abundance, from which a harvest rate index can be calculated, expressed as a proportion of the 1979 to 1982 base period. The following regimes will be managed under an AABM regime:
 - (i) southeast Alaska (SEAK) sport, net and troll;
 - (ii) Northern British Columbia (NBC) troll (Pacific Fishery Management Areas 1-5, 101-105 and 142) and Queen Charlotte Islands (QCI) sport (Pacific Fishery Management Areas 1-2, 101, 102 and 142); and

- (iii) west coast of Vancouver Island (WCVI) troll (Pacific Fishery Management Areas 21, 23-27, and PFMA 121, 123-127) and outside sport (also Pacific Fishery Management Areas 21, 23-27, and 121, 123-127 but with additional time and area specifications which distinguish WCVI outside sport from inside sport);⁹
- (b) an ISBM fishery is an abundance-based regime that constrains to a numerical limit the total catch or the total adult equivalent mortality rate within the fisheries of a jurisdiction for a naturally spawning Chinook salmon stock or stock group. ISBM management regimes apply to all Chinook salmon fisheries subject to the Treaty that are not AABM fisheries. The obligations applicable to ISBM fisheries are:
- (i) a general obligation as set out in paragraph 8(c) for all ISBM fisheries which include, but are not necessarily limited to: northern British Columbia marine net and coastal sport (excluding Queen Charlotte Islands), and freshwater sport and net; central British Columbia marine net, sport and troll and freshwater sport and net; southern British Columbia marine net, troll and sport and freshwater sport and net; West Coast of Vancouver Island inside marine sport and net and freshwater sport and net; south Puget Sound marine net and sport and freshwater sport and net; north Puget Sound marine net and sport and freshwater sport and net; Juan de Fuca marine net, troll and sport and freshwater sport and net; Washington Coastal marine net, troll and sport and freshwater sport and net; Washington Ocean marine troll and sport; Columbia River net and sport; Oregon marine net, sport and troll, and

⁹ The part of the West Coast Vancouver Island Chinook salmon sport fishery included in the WCVI AABM Chinook salmon fishery includes:

- Pacific Fishery Management Areas (PFMA) 21, 23, 24 inside the Canadian “surflines” and PFMA 121, 123, 124 during the period October 16 through July 31, plus that portion of PFMA 21, 121, 123, 124 outside of a line generally one nautical mile seaward from the shoreline or existing Department of Fisheries and Oceans surflines, during the period August 1 through October 15.
- PFMA 25, 26, 27 inside the Canadian “surflines” and PFMA 125, 126, 127 during the period October 16 through June 30, plus that portion of PFMA 125, 126, 127 outside of a line generally one nautical mile seaward from the shoreline or existing Department of Fisheries and Oceans surflines, for the period July 1 through October 15.

freshwater sport; Idaho (Snake River Basin) freshwater sport and net; and

(ii) an additional obligation as set out in paragraph 8(c) for those stock groups for which the general obligation is insufficient to meet the agreed escapement objectives.

(c) In 2014, the Commission will review the performance of the conservation program established by this Chapter to evaluate the effectiveness of, and continuing need for, the harvest measures taken for the AABM fisheries, including the provisions for application of paragraph 13.

7. The Parties agree:

(a) to adopt total mortality management to constrain fisheries for Chinook salmon based on total fishing mortality, which is the sum of the landed catch and the associated incidental mortalities from fishing, adjusted for landed catch equivalency;

(b) that, to implement total mortality management, estimates of the encounters of Chinook salmon are required, such that estimates:

(i) are developed annually from direct observation of fisheries; or

(ii) result from a predictable relationship reviewed by the CTC between encounters and landed catch based on a time series of direct observations of fisheries;

(c) while ISBM fisheries currently employ total mortality management, methods for estimating incidental fishing mortality in ISBM fisheries will be reviewed by the CTC by 2011;

(d) that, total mortality management will be implemented in all AABM fisheries in 2011, once the CTC advises and the Commission agrees that fishery-specific incidental mortality can be reliably estimated;

(e) that, prior to 2011, AABM fisheries shall be managed for the annual ceilings for landed catch provided in Paragraph 10 and Table 1 of this Chapter with jurisdictions striving to avoid increases in incidental

mortalities relative to landed catch when compared to those anticipated under a standardized fishery management regime;¹⁰

- (f) that, beginning in 2011, total mortality management shall be implemented as follows:
- (i) Table 1 of paragraph 10 will be revised, using the average historical relationship between landed catch and incidental mortality observed between 1985 and 1995 across all gears, to calculate the total allowable fishing mortality level for each existing combination of abundance index and allowable landed catch for each AABM fishery,
 - (ii) the annual ceiling for each AABM fishery in a year will be the allowable total fishing mortality expressed in landed catch equivalents;¹¹
 - (iii) pre-season, the CTC shall estimate the allowable total fishing mortality for the applicable abundance index according to the revised Table 1 referred to in sub-paragraph 7(f)(i), above;
 - (iv) the responsible management jurisdictions shall strive to manage each AABM fishery to ensure that fishing mortalities across all gears do not exceed the total allowable fishing mortalities in landed catch equivalents appropriate for the annual abundance index; and
 - (v) transfers of Chinook salmon mortalities between gears, with the exception of net fisheries, and between landed catch and incidental mortality are allowed and will be made in terms of landed catch equivalents;

¹⁰ A standardized fishery regime represents how agencies intended their AABM fisheries to be conducted, in the interim period, under the terms of the 1999 Agreement. Descriptions of standardized regimes for SEAK and NBC AABM fisheries have been submitted and approved by the CTC and published as PSC documents TCCHINOOK(04)-3 and TCCHINOOK(05)-1.

¹¹ Landed catch equivalents (to be developed by the CTC pursuant to Appendix A) represent means to ensure that changes in the conduct of an AABM fishery do not increase total landed catch equivalent fishing mortality above the levels appropriate to a given abundance index.

- (g) that, once total mortality management is implemented, the CTC shall complete an annual post-season assessment which includes:
- (i) a periodic evaluation of estimates of encounters and incidental mortalities in all fisheries, against standards developed by the CTC;
 - (ii) a comparison of post-season estimates of landed catch equivalent fishing mortality against allowable landed catch equivalent fishing mortality as estimated with the post-season abundance index;
 - (iii) a report of post-season estimates of total mortality; and
 - (iv) a description of the causes (if identifiable) of significant deviations from expected total mortalities;
- (h) that, to the extent an AABM fishery is determined through monitoring and evaluation described in sub-paragraph (g), above, to have a pattern of exceeding the landed catch equivalent fishery mortality set forth in this paragraph, the responsible management jurisdiction shall implement in a timely manner adjustments to its management program designed to bring the fishery into conformity with the total mortality management objectives set forth in this paragraph, the effectiveness of which will be subsequently evaluated by the CTC and included in its annual report described in sub-paragraph (g), above.

8. With respect to ISBM fisheries, the Parties agree that:

- (a) fisheries shall be managed over time to contribute to the achievement of agreed MSY or other biologically-based escapement objectives that are consistent with recovering and sustaining healthy and productive stocks and fisheries. Escapement objectives may be expressed in terms of numbers of spawners associated with MSY or derived from exploitation rate limits for naturally spawning stocks;
- (b) either or both Parties may implement domestic policies that constrain their respective fishery impacts on depressed Chinook stocks to a greater extent than is required by this Paragraph;
- (c) for the purposes of this Chapter, and based on stock-specific information exchanged pre-season, Canada and the United States shall limit the total adult equivalent mortality rate in the aggregate of their

respective ISBM fisheries to no greater than 63.5 percent and 60 percent, respectively, of that which occurred during the 1979 to 1982 base period on the indicator stocks identified in Attachments IV and V¹² for stocks not achieving their management objectives. This limit shall be referred to as the general obligation. For those stocks for which the general obligation is insufficient to meet the agreed MSY or other biologically-based escapement objectives, the Party in whose waters the stock originates shall further constrain its fisheries to the extent necessary to achieve the agreed MSY or other biologically-based escapement objectives, provided that a Party is not required to constrain its fisheries to an extent greater than the average of that which occurred in the years 1991 to 1996. Notwithstanding the foregoing, a Party need not constrain its ISBM impacts on a stock originating in its waters to an extent greater than necessary to achieve the agreed MSY or other biologically-based escapement objectives;

- (d) unless otherwise recommended by the CTC and approved by the Commission, the non-ceiling index defined in TCChinook (05)-3 where data are available for the required time periods, the average total annual adult equivalent mortality rate that occurred in 1991 to 1996 (see Attachments IV and V), or an alternative metric recommended by the CTC and approved by the Commission will be used to monitor performance of ISBM fisheries relative to the obligations set forth in this paragraph;
- (e) for the purposes of monitoring trends and attributing causes of deviations from expectations, the non-ceiling index, the total annual adult equivalent mortality rates, or alternative metric (as applicable per sub-paragraph (d) above) will be computed for ISBM fisheries on a pre-season basis using forecasted abundance and fishing plans. These statistics will be estimated again using post-season data and refined in subsequent years for each of the escapement indicator stocks listed in Attachments IV and V of this Chapter using the best available data and reported pursuant to sub-paragraph (f) below;
- (f) actual ISBM fishery performance relative to the obligations set forth in this paragraph will be evaluated by the CTC and reported annually to the Commission; and

¹² Assuming size limits in effect during 1991-1996.

- (g) to the extent a Party's ISBM fisheries are determined through the monitoring process described in sub-paragraph (f), above to be inconsistent with the obligations set forth in this paragraph, the jurisdiction(s) responsible for managing the ISBM fisheries shall propose and implement in a timely manner a program of additional management actions designed to bring the fisheries expeditiously into conformity with the obligations set forth in this paragraph, the effectiveness of which will be subsequently evaluated by the CTC and included in the report described in sub-paragraph (f) above.
9. The Parties agree:
- (a) for the years 2009 to 2018 to reduce the catch limits listed in Table 1 of the 1999 Agreement for the SEAK and WCVI AABM fisheries by 15% and 30% respectively. These reductions have been incorporated into the catch limits provided in Table 1 below;
- (b) that the graduated harvest rate approach underlying the catch limits associated with the abundance index values for the AABM fisheries as adjusted is designed to contribute to the achievement of MSY or other agreed biologically-based escapement objectives;
- (c) the graduated harvest rate approach is based on a relationship between the aggregate abundance of Chinook stocks available to the fishery and a harvest rate index described in Appendix B;
- (d) AABM fisheries shall be managed annually so as not to exceed the catch limits (or total mortalities) designated for the applicable abundance index value for each AABM fishery as provided in Table 1 below and shall be monitored over time to evaluate the effect of the catch limits on the aggregate and stock-specific harvest rates and escapements;
- (e) the annual catch (or total mortality) limit applicable to each AABM fishery shall be based upon the best available pre-season predictions of abundance as determined by the CTC; and
- (f) where, as determined by the CTC, in-season methods provide an improved estimate of the abundance relative to pre-season indicators alone, in-season adjustments of pre-season catch limits shall be permitted. In such circumstances, pre-season catch limits shall be adjusted by incorporating in-season estimates of abundance.

10. The Parties agree that:

- (a) indices identified in this paragraph are consistent with CTC analyses through May 1999. In the event that subsequent analyses modify these values, the relationship between catch and abundance indices specified in Table 1 and detailed in Appendix B will be maintained;
- (b) management of the SEAK troll, net, and sport fisheries for Chinook salmon shall be based on the aggregate abundance of Chinook stocks available to the SEAK troll fishery and expanded based on a specific relation or formula to account for the sport and net sectors. Unless otherwise agreed, the total Chinook catch (or total mortalities) in the SEAK troll, sport, and net fisheries shall be managed annually according to catch limits and abundance indices stated in Table 1;
- (c) management of the NBC troll and QCI sport fisheries for Chinook salmon shall be based on the aggregate abundance of Chinook stocks available to the NBC troll fishery, and expanded based on a specific relation or formula to account for the QCI sport sector. Unless otherwise agreed, the total Chinook catch (or total mortalities) in the NBC troll and QCI sport fisheries shall be managed annually according to catch limits and abundance indices stated in Table 1; and
- (d) management of the WCVI troll and outside sport fisheries for Chinook salmon shall be based on the relationship between the aggregate abundance of Chinook stocks available to the WCVI troll fishery, and expanded based on a specific relation or formula to account for the outside sport sector. Unless otherwise agreed, the total Chinook catch (or total mortalities) in the WCVI troll and outside sport fisheries shall be managed annually according to catch limits and abundance indices stated in Table 1.

11. The Parties agree that, beginning in 2009:

- (a) the catch and/or total mortality objectives prescribed or referenced in this Chapter will be monitored and regularly reported to the Commission by the CTC as follows:
 - (i) for AABM fisheries, performance will be evaluated and monitored using the first post-season CTC model calibration to compute the abundance index to determine, using Table 1, the allowable catch and total mortality;

- (ii) for ISBM fisheries, the CTC will annually compute and report the metrics described in Paragraphs 8(c) and 8(d) and, using the best available post-season data and analyses, report performance to the Commission relative to those metrics and the obligations referred to in Paragraphs 8(e) and 8(f);
- (b) if a pattern of significant non-performance emerges, the Commission will consider the matter and recommend appropriate remedial action to ensure that the integrity of the coastwide management regime is maintained.

12. The Parties agree:

- (a) to continue the procedures and accepted exclusions previously established by the Commission to allow for the exclusion of Chinook salmon catches in selected terminal areas from counting against Treaty catch limitations; and
- (b) to continue the procedures previously established by the Commission to allow for hatchery add-ons harvested in AABM fisheries.

13. The Parties agree:

- (a) that, whereas managing salmon fisheries to consistently meet MSY or other agreed biologically-based escapement objectives is a precautionary approach to attaining sustainability of stocks and harvest, management actions outlined in sub-paragraphs (c) and (f) below are intended to increase escapements as expeditiously as possible should management as prescribed in paragraphs 8 and 10 fail to meet MSY or other biologically-based escapement objectives;

- (b) to implement measures that will effectively protect and conserve biological diversity and production under a broad range of unforeseen circumstances, an adaptive, precautionary approach will incorporate explicit, timely adjustments in fishery regimes; within the context of the review in 2014 identified in paragraph 6, the CTC shall evaluate and report to the Commission for its consideration precautionary criteria additional to those described below (e.g., trends in marine survival rates, sustainable exploitation rates compared to current) to achieve the objectives of sub-paragraph (a) above, for specific stocks of conservation concern;

- (c) subject to the provisions of sub-paragraph 13(c)(iii) below, to implement additional management actions in relevant AABM and ISBM fisheries annually as described below for the naturally spawning Chinook salmon stocks or stock groups listed in Attachment I-V. In the circumstances described below that rely on projections of exploitation rates and forecasts of escapement, the methods utilized shall have met standards for precision and accuracy developed by the CTC by February 1 of the first year of their application:
 - (i) an AABM fishery will be reduced when the majority of indicator stocks within a stock group were observed not to achieve their management objectives in the past year and are forecasted not to achieve their management objectives in the upcoming year, assuming paragraph 8 ISBM obligations are met;
 - (1) for stocks with escapement-based management objectives, one-year where observed escapement was at least 15% below agreed escapement objectives and a forecast for escapement falls at least 15% below the escapement objective in the coming year;
 - (2) for stocks with exploitation rate based management objectives, the post season exploitation rate for U.S. ESA listed stocks or Canadian conservation units exceeded agreed stock-specific exploitation rate limits¹³ and are projected to exceed those rates in the coming year;

¹³ Review of stock-specific exploitation rate limits by the CTC is applicable only for implementing provisions of this Chapter.

- (ii) alternatively, an AABM fishery will be reduced when the majority of indicator stocks within a stock group are observed not to achieve their management objectives in the past two consecutive years,
 - (1) for stocks with escapement-based management objectives, two consecutive years of observed escapements at least 15% below agreed escapement objectives, unless a forecast for escapement will exceed the escapement objective in the coming year, assuming ISBM obligations are met;
 - (2) for stocks with exploitation rate based management objectives, two consecutive years of post season exploitation rates for U.S. ESA listed stocks or Canadian conservation units have exceeded agreed stock-specific exploitation rate limits.

(iii) The additional management actions to be taken in relevant AABM fisheries in accordance with this paragraph are as follows:

Percentage reduction in Table 1 catch limit	Minimum number of stock groups meeting criteria to trigger additional action
10%	2 stock groups
20%	3 or more stock groups

- (iv) ISBM fisheries will be reduced to increase the escapement of the depressed Chinook salmon stocks within the stock group not meeting management obligations when the appropriate criterion defined in sub-paragraphs (c)(i) or (c) (ii) are met. Reductions will be designed to increase escapement by the number of mature fish expected to be saved from the AABM fishery reduction defined in (c) (i) or (c) (ii) above; and
- (v) The CTC will notify the Commission of any proposed fishery restrictions to be implemented under this paragraph at its February Annual meeting;

(d) action will be taken consistent with (c)(i) or (c)(ii) for AABM fisheries

even if escapement exceeds 85% of the agreed escapement goal as a consequence of harvest levels in ISBM fisheries in the jurisdiction in which the stock originates that were more restrictive than the obligations required pursuant to paragraph 4;

- (e) action will not be taken under (c)(i) or (c)(ii) above, for AABM fisheries even if escapement is less than 85% of the agreed escapement goal as a consequence of an ISBM fishery not meeting the general obligation listed under paragraph 8;
- (f) in the event that provisions of subparagraphs (d) and (e) above may apply, the CTC will review the management actions taken in the relevant ISBM fisheries, including whether those actions exceeded or fell short of the obligations required pursuant to paragraph 8, and report the matter to the Commission for action;
- (g) in consideration of the adjustments to the WCVI AABM fishery agreed to by the Parties and reflected in paragraph 10 and Table 1 of this Chapter, and notwithstanding the provisions of subparagraphs 13(c), (d) and (e) above, additional reductions in the WCVI AABM fishery will not be taken except as otherwise may be agreed by the Commission;
- (h) in the event of extraordinary circumstances, either Party may recommend, for conservation purposes, that the Commission consider developing additional management actions in the relevant fisheries to respond to such circumstances. Such a recommendation must be based on circumstances when the continued viability of a stock or stock group would be seriously threatened in the absence of such actions. This recommendation must be part of a coordinated management plan that will include actions taken in all marine and freshwater fisheries that significantly affect the stock or stock group;
- (i) the Parties may take other management actions as may be agreed by the Commission, such as time and area restrictions, which have comparable conservation benefits as identified in sub-paragraph (c) above; and
- (j) in the event that the provisions of any of subparagraphs 13(c), (d), (e) or (h) above are invoked, the CTC will subsequently provide a report to the Commission.

Table 1. Catches specified for AABM fisheries at levels of the Chinook abundance index.

Values for catch at levels of abundance between those stated may be linearly interpolated between adjacent values.

Abundance index	SEAK	NBC	WCVI
0.25	44,600	32,500	32,100
0.30	50,200	39,000	38,500
0.35	55,700	45,500	44,900
0.40	61,200	52,000	51,300
0.45	66,700	58,500	57,800
0.495	71,700	64,400	63,500
0.50	72,300	65,000	74,900
0.55	77,800	71,500	82,400
0.60	83,300	78,000	89,800
0.65	88,800	84,500	97,300
0.70	94,400	91,000	104,800
0.75	99,900	97,500	112,300
0.80	105,400	104,000	119,800
0.85	110,900	110,500	127,300
0.90	116,500	117,000	134,800
0.95	122,000	123,500	142,300
1.00	127,500	130,000	149,700
1.005	128,700	130,700	172,000
1.05	139,600	136,500	179,700
1.10	151,700	143,000	188,200
1.15	163,800	149,500	196,800
1.20	176,000	156,000	205,400
1.205	199,800	156,700	206,200
1.25	206,700	163,300	213,900
1.30	214,200	170,700	222,500
1.35	221,800	178,000	231,000
1.40	229,400	185,300	239,600
1.45	237,000	192,700	248,100
1.50	244,600	200,000	256,700
1.505	264,400	219,600	257,600
1.55	271,800	226,100	265,300
1.60	280,000	233,400	273,800
1.65	288,200	240,700	282,400
1.70	296,400	248,000	290,900
1.75	304,600	255,300	299,500
1.80	312,900	262,600	308,000
1.85	321,100	269,900	316,600

1.90	329,300	277,200	325,100
1.95	337,500	284,500	333,700
2.00	345,700	291,800	342,300
2.05	353,900	299,100	350,800
2.10	362,200	306,400	359,400
2.15	370,400	313,700	367,900
2.20	378,600	321,000	376,500
2.25	386,800	328,300	385,000

APPENDIX A TO ANNEX IV

CHAPTER 3

UNDERSTANDINGS REGARDING CHINOOK TECHNICAL COMMITTEE ASSIGNMENTS RELATING TO IMPLEMENTATION OF CHAPTER 3 OF ANNEX IV

(1) Harvest Rate Index Metric Improvements

Alternative metrics for evaluating the harvest rate index in different AABM fisheries will be evaluated. Metrics which best reflect changes in the true harvest rate in a fishery will be employed by the CTC, and used to maintain the underlying relationship to catches in Table 1. The implications of replacing the current metrics while maintaining the relationship between catch and abundance indices (as specified in paragraph 10) will be evaluated and reported to the Commission.

(2) Total Fishing Mortality

Consistent with paragraph 7 of this Chapter, the CTC will:

- a) Establish standards for the desired level of precision and accuracy of data required to estimate incidental fishing mortality (e.g., encounter rates, estimates of incidental and drop off mortality, stock specific mortalities of marked fish in selective fisheries) to be used for total mortality based management;
 - b) Complete technical work required to implement total mortality regimes (Paragraph 7) including reporting on the Landed Catch Equivalent (LCE) concept, describe how gear allocations and transfers will be handled between sectors, and how fisheries will be managed pre-season, and post-season based on direct and derived observational data;
 - c) Describe standardized fishing regimes for all AABM regimes (note: only the description for WCVI requires completion);
 - d) Evaluate the accuracy of pre-season predictions of incidental mortalities, review assumptions, and investigate methods for improving estimates of total mortality in AABM and ISBM fisheries;
- (3) In-season adjustments

Consistent with paragraph 9 of this Chapter, the CTC will evaluate any proposed in-season abundance predictors to determine if these provide more reliable and consistent estimates of post-season abundance as compared to the pre-season predictions currently generated by the PSC Chinook model.

(4) Model Improvements

a) **Improvements to the Model Structure:** The CTC will continue to review and improve the accuracy and precision of the CTC model (e.g., pre-season forecasts of the aggregate Chinook abundance available to the AABM fisheries, modeling additional stocks and fishery strata, estimates of stock specific mortality, base period recalibration, etc.). The CTC will evaluate improvements using quantitative, statistical and management criteria and recommend changes to current models and methods for consideration by the Commission.

b) **Abundance Index Improvements:** The current Abundance Index (AI) tends to lag behind changes in Chinook stock abundance, under-predicting abundance when stock survival begins to increase and over-predicting abundance when survival trends downward. The CTC will explore techniques (e.g., time-series techniques, and/or use external ecosystem indicators) that may enable AIs to more quickly respond to changes in survival regimes.

(5) Management Objective Review

The CTC will evaluate and review existing management objectives (e.g., escapement goals, exploitation rates) that fishery management agencies establish for Chinook stocks subject to this Chapter for consistency with MSY or other agreed biologically-based escapement objectives.

(6) Framework for Precautionary Management

The CTC will develop an assessment framework for precautionary management which incorporates information on stock status and fishery performance for consideration by the Commission by December 2011. Approaches may include multiple criteria such as escapement, exploitation rates, trends and patterns in survival, ecosystem indicators, and overall harvest rates in mixed stock fisheries. The CTC will develop options for timely adjustments to fishery regimes based on objective criteria (e.g. decision analysis techniques) for consideration by the Commission.

(7) Individual Stock Based Management Improvements

- a) **Individual Stock Based Metric Improvement:** The CTC will explore alternative metrics to be used to monitor ISBM fishery impacts, and report to the Commission on the utility of these metrics or approaches by 2011. The non-ceiling index referenced in paragraph 8(d) has not proven to be useful for many stocks as a means to monitor or evaluate the performance of ISBM fisheries relative to the obligations for a variety of reasons, including:
- (i) unreliable base period data;
 - (ii) mismatched and incomplete information between different stock groups;
 - (iii) instability in the metric until all brood years affected by a fishery have completed their life cycles; and
 - (iv) delays in the availability of CWT data.
- b) **Paragraph 13 Obligations for ISBM fisheries:** The CTC will develop methods to estimate the savings of mature fish expected to result from further reductions to AABM fisheries under paragraph 13 and determine adjustments in ISBM fisheries required to ensure that such savings accrue to escapements.
- c) **Evaluate 1991 to 1996 ISBM Average Criteria:** The CTC will provide estimates of the 1991 to 1996 average impacts in ISBM fisheries relative to the 1979 to 1982 base period for the stock groups listed in Attachments IV and V.
- (8) **Development of Paragraph 13 standards or guidelines for escapement estimation and forecasting**

The CTC will establish standards for the desired level of precision and accuracy for estimation of spawning escapements and abundance forecasts. Two key characteristics of the new abundance based management framework rely on information on escapement, and the ability to forecast the next year's abundance. These standards shall be applied to the Sentinel Stock Program developed to track escapement and abundance data over the next 5 years.

- (9) **Five-year review criteria**

The CTC will develop a framework to evaluate the effectiveness of, and continuing need for, the harvest reduction measures taken for the AABM fisheries as outlined in Paragraph 9. Factors to be considered include abundance, exploitation rates (fishery harvest rates), and estimates of productivity for individual stocks and stock groups including, but not limited to, those included under the Sentinel Stock Program.

(10) Review of Attachments I-V ¹⁴

The CTC will complete a review of Attachments I-V by 2014 or earlier if agreed by the Commission to determine the following:

- a) whether the current list of stock groups identified for each attachment continues to be appropriate,
- b) new criteria that could be employed to revise stock group listings for each attachment, and
- c) based on the outcome of (a) and (b), whether any changes to the attachments proposed by a Party may be appropriate.

Based on the above review, the CTC will make recommendations to the Commission regarding what, if any, changes should be made to the current Attachments.

¹⁴. Contingent on policy input and agreement

**APPENDIX B TO ANNEX IV
CHAPTER 3**

Relationships between AIs, Catches and HRIs¹⁵

Southeast Alaska All Gear	North BC Troll & QCI Sport	WCVI Troll & Outside Sport
Proportionality Constant (PC) = 12.38 Harvest Rate Index (HRI) = $\text{EXP}(\text{LN}(\text{Troll Catch} / \text{AI}) - \text{PC})$ Troll Catch = $(\text{Total Catch} - 17,000) * 0.8$ = $\text{EXP}(\text{PC} + \text{LN}(\text{HRI} * \text{AI}))$ Total Catch = $17,000 + \text{Troll Catch} / 0.8$ Reduction in catch from 1999 Agreement: 15% <u>For AIs less than 1.005</u> Total Catch = $17,000 + 110,500 * \text{AI}$ Troll Catch = $(110,500 * \text{AI}) * 0.8$ HRI = 0.371 <u>For AIs between 1.005 and 1.2</u> Total Catch = $-114,750 + 242,250 * \text{AI}$ Troll Catch = $(-131,750 + 242,250 * \text{AI}) * 0.8$	Proportionality Constant (PC) = 11.83 Harvest Rate Index = $\text{EXP}(\text{LN}(\text{Troll Catch} / \text{AI}) - \text{PC})$ Troll Catch = $\text{Total Catch} * 0.8$ = $\text{EXP}(\text{PC} + \text{LN}(\text{HRI} * \text{AI}))$ Total Catch = $\text{Troll Catch} / 0.8$ Reduction in catch from 1999 Agreement: 0% <u>For AIs less than 1.205</u> Total Catch = $130,000 * \text{AI}$ Troll Catch = $(130,000 * \text{AI}) * 0.8$ HRI = 0.757 <u>For AIs between 1.205 and 1.5</u> Total Catch = $-20,000 + 146,667 * \text{AI}$ Troll Catch = $(-20,000 + 146,667 * \text{AI}) * 0.8$	Proportionality Constant (PC) = 13.10 Harvest Rate Index = $\text{EXP}(\text{LN}(\text{Troll Catch} / \text{AI}) - \text{PC})$ Troll Catch = $\text{Total Catch} * 0.8$ = $\text{EXP}(\text{PC} + \text{LN}(\text{HRI} * \text{AI}))$ Total Catch = $\text{Troll Catch} / 0.80$ Reduction in catch from 1999 Agreement: 30% <u>For AIs less than 0.5</u> Total Catch = $128,347 * \text{AI}$ Troll Catch = $(128,347 * \text{AI}) * 0.8$ HRI = 0.21 <u>For AIs between 0.5 and 1.0</u> Total Catch = $149,739 * \text{AI}$ Troll Catch = $(149,739 * \text{AI}) * 0.8$

¹⁵ If alternative harvest rate metrics are adopted in any of the AABM fisheries this will necessitate a recalculation of the proportionality constants in the affected fisheries and will in turn lead to an adjustment of the associated HRI values in this appendix. However, the formulas to estimate total catch in this appendix and the catches in Table 1 will remain unaffected.

HRI increasing from 0.371 to 0.445

For AIs between 1.205 and 1.5

Total Catch = $17,000 + 151,721 * AI$

Troll Catch = $(151,721 * AI) * 0.8$

HRI = 0.51

For AIs greater than 1.5

Total Catch = $17,000 + 164,364 * AI$

Troll Catch = $(164,364 * AI) * 0.8$

HRI = 0.5525

HRI increasing from 0.757 to 0.777

For AIs greater than 1.5

Total Catch = $145,892 * AI$

Troll Catch = $(145,892 * AI) * 0.8$

HRI = 0.85

HRI = 0.245

For AIs greater than 1.0

Total Catch = $171,130 * AI$

Troll Catch = $(171,130 * AI) * 0.8$

HRI = 0.28

Attachment I – Stock Groups, Indicator Stocks and Management Objectives
 Applicable to Obligations Defined in Paragraph 13 for S.E. Alaska Troll, Net,
 and Sport AABM Fisheries

Stock Group ¹⁶	Stocks in Group (Indicator Stocks)	Management Objective
Upper Strait of Georgia	Klinaklini Kakwiekan Wakeman Kingcome Nimpkish	Escapement Escapement Escapement Escapement Escapement
West Coast Vancouver Island Falls	Artlish Burman Gold Kaouk Tahsis Tashish Marble	Escapement Escapement Escapement Escapement Escapement Escapement
North/Central British Columbia	Yakoun Skeena Nass	Escapement Escapement Escapement
Far North Migrating Oregon Coastal Falls	Nehalem Siletz Siuslaw	Escapement Escapement Escapement
Columbia River Falls	Upriver Brights Deschutes Lewis	Escapement Escapement Escapement
Columbia River Summers	Mid-Columbia Summers	Escapement
Washington Coastal Fall Naturals	Hoko Grays Harbor Queets Quillayute Hoh	Escapement Escapement Escapement Escapement Escapement

¹⁶ SEAK fisheries will be managed to achieve escapement objectives for Southeast Alaska and Transboundary River Chinook stocks.

Fraser Early (Spring & summers)	Upper Fraser Mid Fraser Thompson	Escapement Escapement Escapement
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Attachment II – Stock Groups, Indicator Stocks and Management Objectives
 Applicable to Obligations Defined in Paragraph 13 for Northern B.C. (Areas 1-5)
 Troll and Queen Charlotte Island Sport (Areas 1-2) AABM fisheries

Stock Group	Stocks in Group (Indicator Stocks)	Management Objective
North/Central British Columbia	Yakoun Skeena Nass	Escapement Escapement Escapement
Upper Strait of Georgia	Klinaklini Kakwiekan Wakeman Kingcome Nimpkish	Escapement Escapement Escapement Escapement Escapement
West Coast Vancouver Island Falls	Artlish Burman Gold Kaouk Tahsis Tashish Marble	Escapement Escapement Escapement Escapement Escapement Escapement Escapement
Far North Migrating Oregon Coastal Falls	Nehalem Siletz Siuslaw	Escapement Escapement Escapement
Columbia River Falls	Upriver Brights Deschutes Lewis	Escapement Escapement Escapement
Columbia River Summers	Mid-Col Summers	Escapement
Washington Coastal Fall Naturals	Hoko Grays Harbor Queets Quillayute Hoh	Escapement Escapement Escapement Escapement Escapement
Fraser Early (Spring & summers)	Upper Fraser Mid Fraser Thompson	Escapement Escapement Escapement

Attachment III – Stock Groups, Indicator Stocks and Management Objectives Applicable to Obligations Defined in Paragraph 13 West Coast Vancouver Island Troll and Outside Sport AABM Fisheries

Stock Group	Stocks in Group (Indicator Stocks)	Management Objective
Columbia River Falls	Upriver Brights Deschutes Lewis	Escapement Escapement Escapement
Fraser Late	Harrison	Escapement
Puget Sound Natural Summer/Falls	Skagit Stillaguamish Snohomish Lk Washington Green	Exploitation Rate Exploitation Rate Exploitation Rate Escapement Escapement
Columbia River Summers	Mid-Col Summers	Escapement

Attachment IV – Stock Groups, Indicator Stocks and Management Objectives Applicable to Obligations Defined in Paragraphs 8 and 13 for All British Columbia ISBM Fisheries

Stock Group	Stocks in Group (Indicator Stocks)	Management Objective
Lower Strait of Georgia	Cowichan Nanaimo	Escapement Escapement
Fraser Late	Harrison	Escapement
North Puget Sound Natural Springs	Nooksack Skagit	Escapement Exploitation Rate
Upper Strait of Georgia	Klinaklini Kakwiekan Wakeman Kingcome Nimpkish	Escapement Escapement Escapement Escapement Escapement
Fraser Early (Spring & summers)	Upper Fraser Mid Fraser Thompson	Escapement Escapement Escapement
West Coast Vancouver Island Falls	Artlish Burman Gold Kaouk Tahsis Tashish Marble	Escapement Escapement Escapement Escapement Escapement Escapement Escapement
Puget Sound Natural Summer/Falls	Skagit Stillaguamish Snohomish Lk Washington Green	Exploitation Rate Exploitation Rate Exploitation Rate Escapement Escapement
North/Central British Columbia	Yakoun Skeena Nass Area 8 (Atnarko, Dean)	Escapement Escapement Escapement Escapement

Attachment V – Stock Groups, Indicator Stocks and Management Objectives Applicable to Obligations Defined in Paragraphs 8 and 13 for All Southern U.S. Fisheries

Stock Group	Stocks in Group (Indicator Stocks)	Management Objective
Washington Coastal Fall Naturals	Hoko Grays Harbor Queets Quillayute Hoh	Escapement Escapement Escapement Escapement Escapement
Columbia River Falls	Upriver Brights Deschutes Lewis	Escapement Escapement Escapement
Puget Sound Natural Summer/Falls	Skagit Stillaguamish Snohomish Lk Washington Green	Exploitation Rate Exploitation Rate Exploitation Rate Escapement Escapement
Fraser Late	Harrison	Escapement
Columbia River Summers	Mid-Col Summers	Escapement
Far North Migrating Oregon Coastal Falls	Nehalem Siletz Siuslaw	Escapement Escapement Escapement
North Puget Sound Natural Springs	Nooksack Skagit	Escapement Exploitation Rate

CHAPTER 5

COHO SALMON

The provisions of this Chapter shall apply for the period 2009 through 2018.

1. Recognizing that for the past several years some coho stocks have been below levels necessary to sustain maximum harvest and that recent fishing patterns have contributed to a decline in some Canadian and United States coho stocks, the Parties agree to develop management measures and programs to prevent further decline in spawning escapements, adjust fishing patterns, and initiate, develop, or improve management programs for coho stocks.

2. The Parties shall establish regimes for troll, sport and net fisheries consistent with management objectives described herein and as may be subsequently recommended and approved by the Commission:

- (a) for coho stocks shared by fisheries of the United States and Canada, recommendations for fishery regimes shall be made by the Southern Panel for coho salmon originating in rivers with mouths situated south of Cape Caution, as provided in Annex I to the Treaty; and
- (b) for coho stocks shared by fisheries of the United States and Canada, recommendations for fishery regimes, as provided in Attachment B, shall be made by the Northern Panel for coho salmon originating in rivers with mouths situated between Cape Caution and Cape Suckling.

3. The Northern Boundary Technical Committee shall, at the direction of the Northern Panel and Commission, undertake the technical assignments described below for coho salmon originating in rivers and mouths situated between Cape Caution and Cape Suckling:

- (a) evaluate the effectiveness of management actions;
- (b) identify and review the status of stocks;
- (c) present the most current information on harvest rates and patterns on these stocks, and develop a joint database for assessments;
- (d) collate available information on the productivity of coho stocks in order to identify escapements and associated exploitation rates which produce maximum sustainable harvests (MSH);

- (e) present historical catch data, associated fishing regimes, and information on stock composition in fisheries harvesting these stocks;
- (f) devise analytical methods for the development of alternative regulatory and production strategies to meet objectives set forth by the Commission;
- (g) identify information and research needs, including future monitoring programs for stock assessments; and
- (h) for each season, make stock and fishery assessments and recommend to the Commission conservation measures consistent with the principles of the Treaty.

Southern Coho Management Plan

4. The Parties agree to establish and maintain a joint Coho Technical Committee (the "Committee") reporting, unless otherwise agreed, to the Southern Panels and the Commission. The Committee shall, *inter alia*, at the direction of the Commission and the Panels:

- (a) evaluate the effectiveness of management actions;
- (b) identify and review the status of stocks;
- (c) present the most current information on harvest rates and patterns on these stocks, and develop a joint database for assessments;
- (d) collate available information on the productivity of coho stocks in order to identify escapements and associated exploitation rates which produce MSH;
- (e) present historical catch data, associated fishing regimes, and information on stock composition in fisheries harvesting these stocks;
- (f) devise analytical methods for the development of alternative regulatory and production strategies to meet objectives set forth by the Commission; and
- (g) identify information and research needs, including future monitoring programs for stock assessments.

To assist the Southern Panel, the Committee shall:

- (a) oversee the exchange of the Parties' determinations of the status of "key management units of naturally spawning coho stocks" (MUs) and information on abundance and distributions of coho as available for the upcoming season, and review the technical basis of that information;
- (b) review exploitation rates that result from application of this Plan and advise the Southern Panel if impacts are excessive, given the status of affected MUs;
- (c) review total exploitation rate targets provided by the Parties for MUs and stocks of conservation concern which originate within their respective jurisdictions;
- (d) oversee the exchange of pre-season expectations and post-season estimates of MU-specific mortalities in the fisheries of each Party;
- (e) oversee the exchange of information regarding the conduct of mark-selective fisheries, including estimates of interceptions of mass-marked hatchery coho, as may be requested by the Southern Panel;
- (f) develop regional coho pre-season and post season evaluation tools and protocols to provide a consistent means of evaluating the cumulative impact of U.S. and Canadian fisheries on MUs and stocks of conservation concern;
- (g) undertake bilateral, technical review processes on:
 - (i) biologically determining the categorical status of MUs;
 - (ii) determining MSH levels and maximum, status-dependent exploitation rates, including derivation of risk buffers; and
 - (iii) criteria to define MUs.

5. The Parties agree to establish and maintain a joint Working Group to facilitate the implementation of the Southern coho management regime, including development of assessment tools and resolving technical differences that may arise. The Working Group shall develop mechanisms to address circumstances where annual limits on exploitation rates for boundary area fisheries are exceeded. Such mechanisms may include provisions for management error and adjustments for overages, but shall not create catch entitlements for any fishery or Party.

6. This Southern Coho Management Plan (Plan) specifies how the Parties' fisheries impacting coho salmon originating in southern British Columbia, Washington and Oregon will be managed, subject to future agreed technical refinements. The Parties agree to implement this Plan in their respective fisheries subject to such future agreed refinements.

7. The Parties agree to cooperate in the development of coho salmon management programs designed to meet the following objectives:

- (a) constrain total fishery exploitation to enable MUs to produce MSH over the long term while maintaining the genetic and ecological diversity of the component populations;
- (b) improve long-term prospects for sustaining healthy fisheries in both countries;
- (c) establish an approach to fishery resource management which is responsive to resource status, cost-effective, and sufficiently flexible to utilize technical capabilities and information as they are developed and approved;
- (d) provide a predictable framework for planning fishery impacts on naturally spawning populations of coho; and
- (e) establish an objective basis for monitoring, evaluating and modifying the management regimes as appropriate

8. Unless otherwise agreed, the Parties shall:

- (a) manage their fisheries to constrain exploitation rates on the following MUs:

<u>Southern B.C. Inside Management Units</u>	<u>U.S. Inside Management Units</u>
Interior Fraser (Including Thompson)	Skagit
Lower Fraser	Stillaguamish
Strait of Georgia Mainland	Snohomish
Strait of Georgia Vancouver Island	Hood Canal
	Strait of Juan de Fuca
	<u>U.S. Outside Management Units</u>
	Quillayute
	Hoh
	Queets
	Grays Harbor

- (b) establish and document the derivation of the following targets for MUs which originate within their respective jurisdictions no later than December 31, 2010:
- (i) the escapement goal or exploitation rate that achieves MSH;
 - (ii) MSH exploitation rates for each MU; and
 - (iii) exploitation rates for 3 status categories, *Low*, *Moderate* and *Abundant*. Each Party shall provide maximum exploitation rate targets for each MU and status category which originates within its jurisdiction. Until such time as the Parties provide the MU exploitation rate targets, each Party shall provide maximum exploitation rate targets for each MU which originates within its jurisdiction consistent with attainment of MSH and the ranges defined below:

Status	Total Exploitation Rate
Low	Up to 20 %
Moderate	21% – 40 %
Abundant	41% – 65 %

- (c) manage all fisheries under their respective jurisdictions, whether directed at coho or not, whether mark-selective or not, to ensure that cumulative exploitation rates¹⁷ on MUs do not exceed the limits established by Paragraph 9 below;
- (d) implement additional fishery management measures as may be practicable and necessary to address conservation needs for component stocks of the MUs originating within its jurisdiction;
- (e) maintain capabilities and programs as necessary to conduct stock assessments, evaluate fishery impacts, and meet the objectives of this Plan;
- (f) improve coordination between their domestic management processes through regular bilateral preseason planning discussions at regularly scheduled Panel meetings and through timely bilateral information exchange among fishery managers;
- (g) Each year, the Parties shall, through their respective domestic processes, classify the status of each MU originating in their rivers as, *Low*, *Moderate* or *Abundant*, and provide any changes in maximum, status-dependent exploitation rates. To facilitate domestic fishery planning processes the Parties shall exchange, in mid-March of each year, information on the status of each MU covered by this agreement, the associated exploitation rate applicable to each MU and other factors, including preliminary fishery expectations, that are relevant to the development of plans for their respective fisheries, including those that may result in domestic constraints below the ER caps specified herein; and
- (h) Between April and June of each year, Canadian and U.S. domestic management authorities will exchange information on the management

¹⁷
$$\frac{\text{TotalFishingMortality}_{\text{allfisheries}}}{\text{TotalFishingMortality}_{\text{allfisheries}} + \text{Escapement}}$$

measures that are to be implemented to ensure that the cumulative exploitation rates do not exceed allowable levels for MUs and that total exploitation by all fisheries is consistent with target levels established by the Parties for resource conservation.

9. Each Party shall, preseason, plan its intercepting fisheries so that the total exploitation rates do not exceed the MU-specific exploitation rate caps specified below:

- (a) The ER caps depicted in the tables presented below reflect the following general principles:
 - (i) For MUs in *low* status, both Parties shall be obligated to shape their fisheries to reduce the impact on those MUs. The producing Party is expected to bear a greater share of the conservation responsibility for MUs in *low* status, and in no case shall the intercepting Party be required to reduce its impact below a 10% exploitation rate, subject to actions that may be taken under Paragraph 11(b);
 - (ii) For MUs in *moderate* status, the producing Party should receive the majority of the allowable exploitation rate; this share should increase for MUs in *abundant* status; and
 - (iii) Neither Party should be unduly prevented from accessing its own stocks to achieve its fishery objectives or harvesting other allocations agreed under the PST;

(b) Canadian exploitation rate cap on U.S. Inside MUs (Table 1):

Condition of US Inside MUs	Canadian ER Caps	MU Applicability
Normal Low (> 1 Inside MU low)	0.11	All MUs with Total ER ≤ 0.20
Composite Low (Only 1 Inside MU Low)	0.13	The MU with Total ER ≤ 0.20
Normal Moderate (> 1 Inside MU Moderate)	$.124 + .13 \times \text{ER}$	All MUs with $0.20 < \text{Total ER} \leq 0.40$
Composite Moderate (Only 1 Inside MU Moderate)	$.134 + .13 \times \text{ER}$	The MU with $0.20 < \text{Total ER} \leq 0.40$
Abundant	$.084 + .28 \times \text{ER}$	MUs with $0.40 < \text{Total ER} \leq 0.60$
Abundant	$.024 + .38 \times \text{ER}$	MUs with $0.60 < \text{Total ER}$

(c) Canadian exploitation rate cap on U.S. Outside MUs (Table 2):

Condition of US Outside MUs	Canadian ER Caps	MU Applicability
Normal Low (> 1 Outside MU low)	0.10	All MUs with Total ER ≤ 0.20
Composite Low (Only 1 Outside MU Low)	0.12	The MU with Total ER ≤ 0.20
Normal Moderate (> 1 MU Outside Moderate)	$.024 + .38 \times \text{ER}$	All MUs with $0.20 < \text{Total ER} \leq 0.40$
Composite Moderate (Only 1 Outside MU Moderate)	$.054 + .33 \times \text{ER}$	The MU with $0.20 < \text{Total ER} \leq 0.40$
Abundant	$.024 + .38 \times \text{ER}$	MUs with $0.40 < \text{Total ER}$

(d) U.S. exploitation rate cap on Canadian MUs:

Condition of Canadian MUs	U.S. ER Caps	MU Applicability
Low	0.10	All MUs with Total ER \leq 0.20
Moderate	0.12	All MUs with $0.20 < \text{Total ER} \leq 0.40$
Abundant	0.15	MUs with $0.40 < \text{Total ER}$

- (e) The Parties recognize that bilateral review of methodologies employed to establish target MU-specific status-dependent exploitation rates is desirable. The Parties agree to complete a bilateral review of exploitation rate targets through the Committee;
- (f) The Parties agree that the intercepting exploitation rate caps established for each Party under this paragraph are maximums. If, for any MU, the intercepting Party does not require the full exploitation rate cap to harvest its own stocks, that Party may elect to implement fishing plans that result in exploitation rates below the caps. Should this occur the producing Party may plan fisheries to use the unused portion of the cap, provided that the cumulative exploitation rate limit established for that MU is not exceeded;
- (g) The Parties recognize that an agreed bilateral technical basis is necessary to develop and implement the terms and provisions of this Agreement. The Parties commit to joint development of preseason planning and post season evaluation tools and protocols. In the event that the Parties determine that implementation experience and the bilateral planning tools and protocols indicate that the ER Caps specified in Paragraph 9(b)-(d) are inconsistent with the objectives set forth in Paragraph 7, the Parties will undertake discussions to revise these ER caps in a manner that is consistent with those objectives; and

10. Compliance. Each year, the Committee shall review the results of the previous year's fisheries to determine the reasons underlying any instances in which the exploitation rate limits established pursuant to Paragraph 9(b)-(d) were exceeded, including effects of management error/imprecision. These results will be reported to the Southern Panel to discuss whether the regimes should be adjusted to meet the objectives of the coho agreement.

11. Each Party may:

- (a) shape fisheries to achieve a lower exploitation rate than the limits allowed under Paragraph 9(b)-(d) to address domestic management objectives;
- (b) request additional reductions in exploitation rates determined under Paragraph 9(b)-(d) to meet critical conservation concerns not adequately addressed by the Plan. The requesting Party shall describe the measures taken in its own fisheries to respond to the conservation concern and make its request in a timely manner relative to pertinent management planning processes. The Southern Panel will discuss and explore ways in which agreement might be reached to accommodate the request;
- (c) request increases in the MU-specific exploitation rate caps determined under Paragraph 9(b)-(d) if the Party can demonstrate that the exploitation rate caps prevent it from accessing its own stocks to meet its fishery management objectives or from harvesting other allocations as provided under PST agreements. The Southern Panel will discuss and explore ways in which agreement might be reached to accommodate the request; and
- (d) request that the Committee evaluate the performance of the Plan and recommend measures to correct for systematic biases and potential improvements in the Plan to the Southern Panel.

12. A review of this Plan will occur no later than three years after this agreement goes into effect and will be conducted every three years thereafter. The review will include an assessment of the effectiveness of the Plan in achieving the management objectives of the Parties and any other issues either Party may wish to raise, including, but not limited to:

- (a) whether the exploitation rate caps established under Paragraph 9(b)-(d) have prevented either Party from accessing its own stocks to meet its fishery management objectives or from harvesting other allocations as provided under PST agreements; and
- (b) issues associated with the procedures and methods employed to estimate and account for total coho mortalities, including those incurred in mark-selective fisheries. The Plan will be refined, as required, based on the review and the need to incorporate results of bilateral technical

developments (e.g., establishing criteria to define MUs and the basis for biologically determining allowable exploitation rates, developing a common methodology for measuring exploitation rates occurring in Canadian and U.S. fisheries, development of bilateral management planning tools, etc.).

13. Test fisheries sanctioned by the Fraser Panel of the Pacific Salmon Commission for purposes of providing information for the management of Fraser sockeye and pink salmon should be conducted in a manner that minimizes coho by-catch mortalities.

Table 1. Canadian ER Caps on U.S. INSIDE MUs

	Total ER for U.S. MU	Canadian ER Cap		Canadian Share of Total ER	
		Normal	Composite	Normal	Composite
LOW	0.10	0.110	0.130	110%	130%
	0.11	0.110	0.130	100%	118%
	0.12	0.110	0.130	92%	108%
	0.13	0.110	0.130	85%	100%
	0.14	0.110	0.130	79%	93%
	0.15	0.110	0.130	73%	87%
	0.16	0.110	0.130	69%	81%
	0.17	0.110	0.130	65%	76%
	0.18	0.110	0.130	61%	72%
	0.19	0.110	0.130	58%	68%
	0.20	0.110	0.130	55%	65%
MODERATE	0.21	0.151	0.161	72%	77%
	0.22	0.153	0.163	69%	74%
	0.23	0.154	0.164	67%	71%
	0.24	0.155	0.165	65%	69%
	0.25	0.157	0.167	63%	67%
	0.26	0.158	0.168	61%	65%
	0.27	0.159	0.169	59%	63%
	0.28	0.160	0.170	57%	61%
	0.29	0.162	0.172	56%	59%
	0.30	0.163	0.173	54%	58%
	0.31	0.164	0.174	53%	56%
	0.32	0.166	0.176	52%	55%
	0.33	0.167	0.177	51%	54%
	0.34	0.168	0.178	49%	52%
	0.35	0.170	0.180	48%	51%
	0.36	0.171	0.181	47%	50%
	0.37	0.172	0.182	47%	49%
	0.38	0.173	0.183	46%	48%
	0.39	0.175	0.185	45%	47%
	0.40	0.176	0.186	44%	47%

Table 1 (cont'd)

	Total ER for U.S. MU	Canadian ER Cap		Canadian Share of Total ER	
		Normal	Composite	Normal	Composite
ABUNDANT	0.41	0.199		48%	
	0.42	0.202		48%	
	0.43	0.204		48%	
	0.44	0.207		47%	
	0.45	0.210		47%	
	0.46	0.213		46%	
	0.47	0.216		46%	
	0.48	0.218		46%	
	0.49	0.221		45%	
	0.50	0.224		45%	
	0.51	0.227		44%	
	0.52	0.230		44%	
	0.53	0.232		44%	
	0.54	0.235		44%	
	0.55	0.238		43%	
	0.56	0.241		43%	
	0.57	0.244		43%	
	0.58	0.246		42%	
	0.59	0.249		42%	
	0.60	0.252		42%	
0.61	0.256		42%		
0.62	0.260		42%		
0.63	0.263		42%		
0.64	0.267		42%		
0.65	0.271		42%		

Table 2. Canadian ER Caps on U.S. OUTSIDE MUs

	Total ER for U.S. MU	Canadian ER Cap		Canadian Share of Total ER	
		Normal	Composite	Normal	Composite
LOW	0.10	0.100	0.120	100%	120%
	0.11	0.100	0.120	91%	109%
	0.12	0.100	0.120	83%	100%
	0.13	0.100	0.120	77%	92%
	0.14	0.100	0.120	71%	86%
	0.15	0.100	0.120	67%	80%
	0.16	0.100	0.120	63%	75%
	0.17	0.100	0.120	59%	71%
	0.18	0.100	0.120	56%	67%
	0.19	0.100	0.120	53%	63%
	0.20	0.100	0.120	50%	60%
MODERATE	0.21	0.104	0.123	49%	59%
	0.22	0.108	0.127	49%	58%
	0.23	0.111	0.130	48%	56%
	0.24	0.115	0.133	48%	56%
	0.25	0.119	0.137	48%	55%
	0.26	0.123	0.140	47%	54%
	0.27	0.127	0.143	47%	53%
	0.28	0.130	0.146	47%	52%
	0.29	0.134	0.150	46%	52%
	0.30	0.138	0.153	46%	51%
	0.31	0.142	0.156	46%	50%
	0.32	0.146	0.160	46%	50%
	0.33	0.149	0.163	45%	49%
	0.34	0.153	0.166	45%	49%
	0.35	0.157	0.170	45%	48%
	0.36	0.161	0.173	45%	48%
	0.37	0.165	0.176	44%	48%
	0.38	0.168	0.179	44%	47%
	0.39	0.172	0.183	44%	47%
	0.40	0.176	0.186	44%	47%

Table 2. (cont'd)

	Total ER for U.S. MU	Canadian ER Cap		Canadian Share of Total ER	
		Normal	Composite	Normal	Composite
ABUNDANT	0.41	0.180		44%	
	0.42	0.184		44%	
	0.43	0.187		43%	
	0.44	0.191		43%	
	0.45	0.195		43%	
	0.46	0.199		43%	
	0.47	0.203		43%	
	0.48	0.206		43%	
	0.49	0.210		43%	
	0.50	0.214		42%	
	0.51	0.218		42%	
	0.52	0.222		42%	
	0.53	0.225		42%	
	0.54	0.229		42%	
	0.55	0.233		42%	
	0.56	0.237		42%	
	0.57	0.241		42%	
	0.58	0.244		42%	
	0.59	0.248		42%	
	0.60	0.252		42%	
	0.61	0.256		42%	
	0.62	0.260		42%	
	0.63	0.263		42%	
	0.64	0.267		42%	
	0.65	0.271		42%	

CHAPTER 6

SOUTHERN BRITISH COLUMBIA AND WASHINGTON STATE CHUM SALMON

The provisions of this Chapter shall apply for the period 2009 through 2018.

1. The Parties shall maintain a Joint Chum Technical Committee (“the Committee”) reporting, unless otherwise agreed, to the Southern Panel and the Commission. The Committee will undertake to, *inter alia*:

- (a) maintain and present historical catch and escapement information for stocks relevant to the Treaty;
- (b) utilize available information to estimate and document stock composition and exploitation rates in fisheries of concern to the Treaty;
- (c) review annually the Parties’ assessment of stock status and fisheries activities for chum fisheries of concern to the Treaty;
- (d) identify high priority research and information needs for the Parties, including fishery and escapement monitoring and assessment, stock identification, and enhancement; and
- (e) periodically and/or when requested;
 - (i) Exchange available information on the productivity and escapement requirements of stocks relevant to the treaty;
 - (ii) Identify and document stocks of concern (with respect to conservation) relevant to the treaty;
 - (iii) Evaluate the effectiveness and performance of management strategies; and
 - (iv) Evaluate the effectiveness of alternative regulatory and production strategies recommended by the Parties.

2. When the Parties provide stock composition information for fisheries, the Committee shall evaluate and report its conclusions using bilaterally agreed upon methods.

3. Canada and the United States shall assess catch levels and make attempts to collect additional genetic samples from any chum salmon caught during the July 1 through September 15 time period in the boundary area fisheries (U.S. Areas 4B, 5, 6C, 7 and 7A; Canadian Areas 18, 19, 20, 21, and 29).
4. During the period from July 1 through September 15, Canada will require the live release of chum salmon from all purse seine gear fishing in the Strait of Juan de Fuca (Canadian Area 20) and the United States will require the same for the non-Indian seine fisheries in Areas 7 and 7A. Note: By U.S. regulation, purse seine fisheries are not permitted in U.S. Areas 4B, 5 and 6C.
5. Canada will manage its Johnstone Strait, Strait of Georgia, and Fraser River chum salmon fisheries to provide continued rebuilding of depressed naturally spawning chum salmon stocks, and, to the extent practicable, not increase interceptions of U.S. origin chum salmon. Terminal fisheries conducted on specific stocks with identified surpluses will be managed to minimize interception of non-targeted stocks.
6. Canada will manage its Johnstone Strait mixed stock fishery as follows:
 - (a) Inside Southern chum salmon levels of less than 1.0 million as estimated by Canada are defined, for the purposes of this chapter, as critical.
 - (b) For run sizes above the critical threshold, Canada will conduct fisheries with an exploitation rate of up to 20% in Johnstone Strait of Inside Southern chum salmon; and
 - (c) When run sizes are expected to be below the critical threshold, Canada will notify the United States and will only conduct assessment fisheries and non-commercial fisheries. Commercial fisheries targeting chum salmon will be suspended.
7. Canada will manage its Fraser River fisheries for chum salmon as follows:
 - (a) For Fraser River terminal area run sizes, identified in-season, at abundance levels lower than 900,000 chum salmon, the Canadian commercial chum salmon fisheries within the Fraser River and in associated marine areas (Area 29), will be suspended; and
 - (b) For Fraser River terminal area run sizes, identified in-season at levels greater than 900,000 chum salmon, Canadian commercial chum salmon

fisheries within the Fraser River shall be guided by the limits of the in-river Total Allowable Catch set by Canada

8. Canada will manage the Nitinat gill net and purse seine fisheries for chum salmon to minimize the harvest of non-targeted stocks.

9. Canada shall conduct a genetic sampling program of chum salmon taken in the West Coast Vancouver Island troll fishery if early-season catch information indicates that catch totals for the July 1 through September 15 season may reach levels similar to 1985 and 1986. Sampling, should it occur, will include catches taken from the southern areas (Canadian Areas 121-124).

10. The United States will manage its chum salmon fishery in Areas 7 and 7A as follows:

- (a) Inside Southern chum salmon levels of less than 1.0 million as estimated by Canada are defined, for purposes of this chapter, as critical;
- (b) For the run sizes below the critical threshold, the U.S. catch of chum salmon in Areas 7 and 7A shall be limited to chum salmon taken incidentally to other species and in other minor fisheries, but shall not exceed 20,000, provided that catches for the purpose of genetic stock identification sampling shall not be included in the aforementioned limit;
- (c) For run sizes above the critical threshold, the catch ceiling for the U.S. chum salmon fishery in Areas 7 and 7A will be 130,000 chum salmon;
- (d) Canada will provide a run size estimate of chum salmon entering the Fraser River no later than October 22. If the estimate is less than 900,000, the U. S. will limit its fishery impacts on Fraser River chum salmon by restricting catch in Areas 7 and 7A to not exceed 20,000 additional chum salmon from the day following the date the U.S. is notified. The total catch is not to exceed the catch ceiling of 130,000 chum salmon;
- (e) U.S. commercial fisheries for chum salmon in Areas 7 and 7A will not occur prior to October 10;
- (f) The U. S. will manage the Areas 7 and 7A fisheries for chum salmon with the intent to minimize the harvest of non-target species;

- (g) No U.S. catch shortfalls may be accrued; however any overages shall be carried forward as indicated in (h) and (i);
- (h) Due to management imprecision, a catch in the U.S. of up to 135,000 chum salmon will not result in an overage calculation. Catches in excess of 135,000 chum salmon shall result in an overage being calculated by subtracting 130,000 from the total chum catch. Overages will be accounted for by reducing the U.S. annual catch ceilings in up to two subsequent non-critical Inside Southern chum salmon years; and
- (i) From the day following the date the U.S. is notified of a run size below the critical threshold as defined in 10(b) or (d), any catches in excess of 20,000 chum salmon will result in an overage. Overages will be accounted for by reducing the U.S. annual catch ceilings in up to two subsequent non-critical Inside Southern chum salmon years.

11. The United States shall conduct its chum salmon fishery in the Strait of Juan de Fuca (United States Areas 4B, 5 and 6C) so as to maintain the limited effort nature of this fishery, and, to the extent practicable, not increase interceptions of Canadian origin chum salmon. The United States shall continue to monitor this fishery to determine if recent catch levels indicate an increasing level of interception.

12. All information concerning by-catch of other salmon species from the chum salmon fisheries covered by this chapter will be shared between the Parties in the annual Post Season Report.

13. Should circumstances arise that are inconsistent with either Party's understanding of the intent of this chapter, the Southern Panel will discuss the matter post season and explore options for taking the appropriate corrective action.

ATTACHMENT B

MANAGEMENT OF NORTHERN BOUNDARY COHO

1. The Government of Canada and the Government of the United States (the “Parties”) agree on the following actions to be taken by their respective management authorities in implementation of the conservation provisions of the Pacific Salmon Treaty.
2. If projected all-gear commercial catch of coho salmon in Southeast Alaska is less than 1.1 million wild fish (as determined from the historical relationship between average catch per boat day in the Alaska troll fishery during statistical weeks 28 and 29 and the total all-gear coho catch in Southeast Alaska), then Alaska will close its troll fishery for up to seven days beginning on or about July 25. If Alaska closes its troll fishery based on this assessment, Canada will close its troll fishery in Areas 1, 3, 4, 5 and adjacent offshore areas for the same time period.
3. If the Alaska Fisheries Performance District (“FPD”) Area 6 troll fishery statistical week 27, 28 and 29 average catch per boat day is:
 - (a) less than 10, Alaska will close its troll during statistical weeks 31, 32 and 33 in waters south of a line from
 - 1) Male Point at 54°47’46”N - 130°36’57”W to
 - 2) Foggy Point at 54°55’20”N - 130° 58’43”W to
 - 3) Duke Point at 54°55’20”N - 131°11’52”W to
 - 4) Percy Point at 54°56’49”N - 131°36’58”W to
 - 5) Rip Point at 55°02’15”N - 131°58’51”W to
 - 6) Leading Point at 54°48’43”N - 132°22’25”W to
 - 7) Dall Island at 54°48’43”N - 132°49’06”W to
 - 8) Sakie Point at 55°03’25”N - 133°13’30”W to
 - 9) Eagle Point on Dall Island at 55°14’32”N - 133°13’06”W to
 - 10) Point Arboleda at 55°19’08”N - 133°27’35”W to

- 11) Point San Roque at 54°20'12"N - 133° 32'36"W to
- 12) Cape Ulitka at 55°33'47"N - 133°43'39"W to
- 13) Cape Lynch at 55°46'59"N - 133°41'47"W to
- 14) Helm Point at 55°49'34"N - 134°16'41"W and then
- 15) westward along the parallel of latitude of 55°49'34"N to the limit of the U.S. Exclusive Economic Zone.

Canada agrees to close its troll fishery in Areas 1, 3, 4, 5 and adjacent offshore areas for the same time period.¹⁸

- (b) between 10 and 14, Alaska will close its troll fishery during statistical weeks 31 and 32 in waters south of a line from:

- 1) Male Point at 54° 47'46"N - 130°36'57"W to
- 2) Foggy Point at 54°55'20"N - 130°58'43"W to
- 3) Duke Point at 54°55'20"N - 131°11'52"W to
- 4) Percy Point at 54° 56'49"N - 131° 36'58"W to
- 5) Rip Point at 55°02' 15"N - 131°58'51"W to
- 6) Leading Point at 54°48'43"N - 132°22'25"W to
- 7) Dall Island at 54°48'43"N - 132° 49'06"W to
- 8) Sakie Point at 55°03'25" - 133°13'30"W and then
- 9) westward along the parallel of latitude of 55°03'25"N to the limit of the U.S. Exclusive Economic Zone.

Canada agrees to close its troll fishery in Areas 1, 3, 4 and 5 and adjacent offshore areas for the same time period.

- (c) between 15 and 22, Alaska will close its troll fishery beginning in statistical week 31 and continuing for 10 days in the same waters referred

¹⁸ The Parties agree to review the decision to close the fishery after fourteen days and consider any new information regarding the need for continuation of the fishery closure.

to in subparagraph (b) above. Canada agrees to close its troll fishery in Areas 1, 3, 4 and 5 and adjacent offshore areas for the same time period.

4. In addition, the Parties agree:

- (a) Canadian managers from the North Coast Division and U.S. managers from Southeast Alaska will exchange on a weekly basis information on coho regarding stock status, catches and fishery management information including open areas and times for each fishery;
- (b) the Northern Boundary Technical Committee shall develop a work plan to develop MSY escapement goals for Skeena and Nass River coho, to improve stock assessment programs, to develop in-season and post-season abundance determinations and to improve fishery performance data;
- (c) that the calculation of the catch per unit effort (the "CPUE") associated with the closure of the Southeast Alaska troll fishery when the all-gear harvest is projected to be less than 1.1 million wild fish may change over time as methods and assessments improve. Any new method will be bilaterally reviewed prior to its implementation;
- (d) that, in the event that Alaskan troll fishery effort in FPD Area 6 is insufficient to provide necessary CPUE data for the determination under paragraph 2 above, the Parties agree to consult prior to statistical week 29 and consider other in-season abundance data to make such determinations; and
- (e) that, during the period of closure referred to above, the Parties may agree on the employment of selective fishing techniques in their troll fisheries to access other species or stocks pursuant to relevant Annex IV provisions.

5. Alaska will maintain its troll management plan with regard to closure of up to 10 days in early to mid August. Alaska may modify its troll management plan in future years to address or reduce incidental mortality of chinook in the coho fishery. Alaska will consult with Canada regarding any such changes prior to implementation.

The provisions of this agreement are without prejudice to the position of either Party with respect to the location of the maritime boundary in the Dixon Entrance area.