

FISHERIES

Pacific Salmon

**Agreement Between the
UNITED STATES OF AMERICA
and CANADA**

**Amending Chapters 1, 2, 3, 5, 6 and
Attachment E of Chapter 7 of Annex IV of the
Treaty of January 28, 1985, as Amended**

Effectuated by Exchange of Notes at Ottawa November 27, 2018
and December 19, 2018

Entered in force May 3, 2019



NOTE BY THE DEPARTMENT OF STATE

Pursuant to Public Law 89—497, approved July 8, 1966
(80 Stat. 271; 1 U.S.C. 113)—

“ . . .the Treaties and Other International Acts Series issued under the authority of the Secretary of State shall be competent evidence . . . of the treaties, international agreements other than treaties, and proclamations by the President of such treaties and international agreements other than treaties, as the case may be, therein contained, in all the courts of law and equity and of maritime jurisdiction, and in all the tribunals and public offices of the United States, and of the several States, without any further proof or authentication thereof.”

Minister of
Foreign Affairs



Ministre des
Affaires étrangères

Ottawa, Canada K1A 0G2

Ottawa,

NOV 27 2018

Note: JLI- 0137

Her Excellency Kelly Craft
Ambassador of the United States of America
Embassy of the United States of America
490 Sussex Drive
Ottawa ON K1N 1G6

Excellency:

I have the honour to refer to the recent recommendations of the Pacific Salmon Commission relating to Chapters 1, 2, 3, 5, 6, and Attachment E of Chapter 7 of Annex IV of the *Treaty between the Government of Canada and the Government of the United States of America Concerning Pacific Salmon*, done at Ottawa on 28 January 1985, as amended (the "Treaty"). These Chapters are scheduled to expire by their own terms on 31 December 2018. I therefore have the honour to propose an agreement between our two Governments, pursuant to Article XIII of the Treaty, to amend Annex IV as follows (the "Agreement"):

1. Chapters 1, 2, 3, 5, 6, and Attachment E of Chapter 7 of Annex IV of the Treaty, with related understandings, appendices, and attachments, shall be replaced in their entirety by the amended Chapters 1, 2, 3, 5, 6, and Attachment E of Chapter 7 of Annex IV, set out in the Appendix to this Note.
2. Our two Governments understand that the provision of funding by the Government of the United States of America is subject to specific appropriations of funds by the appropriate governmental authority. The Government of the United States of America undertakes to seek necessary appropriations at an early date to implement this Agreement. Likewise, the Government of Canada undertakes to seek the necessary funds by the Minister of Foreign Affairs and the Minister of Fisheries, Oceans and the Canadian Coast Guard. Should such appropriations not be obtained in time to fulfill their respective funding obligations, our two Governments hereby agree to suspend the relevant obligations until such funds become available, unless our two Governments decide otherwise.

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Canada

3. This Agreement shall expire on 31 December 2028, unless our two Governments agree otherwise. If the Treaty is terminated in accordance with Article XV(2), this Agreement shall terminate effective from the date of the termination of the Treaty.
4. Compliance with this Agreement shall constitute compliance by our two Governments with their obligations under Article III of the Treaty.
5. This Agreement shall be provisionally applied as of 1 January 2019 and continue until it enters into force.

If the proposal set forth in this Note is acceptable to the Government of the United States of America, I have the honour to propose that this Note, with its Appendix, and your affirmative reply, which shall be equally authentic in the English and French languages, shall constitute an agreement between our two Governments that enters into force on the date of a second note that is part of a subsequent exchange of notes confirming the completion by each Party of all internal procedures necessary for its entry into force.

Please accept, Excellency, the assurances of my highest consideration.

A handwritten signature in black ink, appearing to be 'C. Freeland', written in a cursive style.

The Honourable Chrystia Freeland, P.C., M.P.

Minister of
Foreign Affairs



Ministre des
Affaires étrangères

Ottawa, Canada K1A 0G2

Ottawa, le

NOV 27 2018

Note n° JLI-0137

Son Excellence Kelly Craft
Ambassadrice des États-Unis d'Amérique
Ambassade des États-Unis d'Amérique
490, promenade Sussex
Ottawa (Ontario) K1N 1G6

Excellence,

J'ai l'honneur de me référer aux récentes recommandations de la Commission du saumon du Pacifique concernant les chapitres 1, 2, 3, 5, 6 et la pièce jointe E afférente au chapitre 7 de l'Annexe IV du *Traité entre le gouvernement du Canada et le gouvernement des États-Unis d'Amérique concernant le saumon du Pacifique*, fait à Ottawa le 28 janvier 1985, tel qu'amendé (le « Traité »). L'expiration automatique des chapitres précités est prévue pour le 31 décembre 2018. J'ai donc l'honneur de proposer que nos deux Gouvernements concluent un accord (l'« Accord »), conformément à l'article XIII du Traité, ayant pour objet d'amender l'Annexe IV comme suit :


1. Les chapitres 1, 2, 3, 5, 6 et la pièce jointe E afférente au chapitre 7 de l'Annexe IV du Traité, y compris les ententes, appendices et pièces jointes connexes, sont remplacés dans leur intégralité par la version amendée des chapitres 1, 2, 3, 5, 6 et de la pièce jointe E afférente au chapitre 7 de l'Annexe IV, dont le texte figure à l'annexe de la présente note.
2. Nos deux Gouvernements comprennent que l'octroi d'un financement par le Gouvernement des États-Unis d'Amérique est subordonné à l'affectation des ressources financières spécifiques par l'autorité gouvernementale compétente. Le Gouvernement des États-Unis d'Amérique s'engage à solliciter rapidement les autorisations nécessaires afin de mettre en œuvre le présent Accord. De même, le Gouvernement du Canada s'engage à solliciter les ressources financières nécessaires auprès de la ministre des Affaires étrangères et du ministre des Pêches, des Océans et de la Garde côtière canadienne. Si les ressources financières susmentionnées ne sont pas obtenues à temps pour leur permettre de remplir leurs obligations financières respectives, nos deux Gouvernements conviennent par la présente de suspendre les obligations concernées jusqu'à ce que ces ressources soient mises à disposition, à moins que nos deux Gouvernements n'en décident autrement.

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3. Le présent Accord prend fin le 31 décembre 2028, à moins que nos deux Gouvernements n'en conviennent autrement. Si le Traité est dénoncé conformément à l'article XV(2), le présent Accord cesse d'être en vigueur à partir de la date de la dénonciation du Traité.
4. Il est entendu que le respect du présent Accord par nos deux Gouvernements vaut respect de leurs obligations au titre de l'article III du Traité.
5. Le présent Accord s'applique à titre provisoire à partir du 1^{er} janvier 2019 jusqu'à son entrée en vigueur.

Si la proposition énoncée dans la présente note agréée au Gouvernement des États-Unis d'Amérique, j'ai l'honneur de proposer que la présente note et son annexe, ainsi que votre réponse affirmative, dont les versions en langues française et anglaise font également foi, constituent entre nos deux Gouvernements un accord qui entrera en vigueur à la date de la deuxième note faisant partie d'un échange ultérieur de notes confirmant l'achèvement par chacune des Parties de toutes les procédures internes nécessaires à son entrée en vigueur.

Je vous prie d'agréer, Excellence, l'assurance de ma très haute considération.



L'honorable Chrystia Freeland, C.P., députée

APPENDIX

CHAPTER 1

Transboundary Rivers

This Chapter shall apply to the period from 2019 through 2028 (“Chapter Period”). Subject to the availability of funds, the United States (U.S.) shall make \$2.4 million dollars available on an annual basis to U.S. management agencies for the specific purposes identified in this Chapter. Every year, Canada is responsible for adequately resourcing implementation of its responsibilities as specified in this Chapter within this Chapter Period.

1. Recognizing the desirability of accurately determining exploitation rates and spawning escapement requirements of salmon originating in the Canadian portions of transboundary rivers, the Parties shall maintain a joint Transboundary Technical Committee (the “Committee”) that is composed of their respective representatives. The Committee shall report, unless the Parties otherwise decide, to the Transboundary Panel (the “Panel”) and to the Commission. The Committee shall operate in a bilateral manner and provide all reports and recommendations to the Panel and to the Commission. If the Committee is unable to reach a decision, it shall refer the matter to the Panel or Commission, with supporting information, for decision. The Committee shall, *inter alia*:

- (a) assemble and refine available information on migratory patterns, extent of exploitation, and spawning escapement requirements of the stocks. It is paramount that the Parties are transparent and share available information;
- (b) examine past and current management regimes and recommend how they may be better suited to achieving escapement goals;

- (c) identify existing and 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 rivers salmon production;
- (d) review, develop, design, implement, report on, and explore expanded joint U.S. / Canada salmon assessment programs for Stikine, Taku, and Alsek River salmon stocks;
- (e) work cooperatively and share available information in order to develop bilaterally agreed-to in-season salmon abundance estimates based on the best available information;
- (f) provide the Panel by February 1 of each year for Canadian-origin Stikine, Taku, and Alsek River salmon stocks the following information:
 - (i) number of salmon harvested in U.S. and Canadian fisheries in the preceding season,
 - (ii) estimated spawning escapement for the preceding season,
 - (iii) post-season run reconstruction for the preceding season,
 - (iv) pre-season forecasts of abundance for the upcoming season,
 - (v) assessment programs to determine in-season run abundance or escapement estimates for the upcoming season;

- (g) ensure that an exchange of information required to complete post-season run reconstruction of transboundary salmon stocks occurs by December 1 of each year;
- (h) complete joint stock assessment and fishery management plans by April 15 of each year that include a list of escapement objectives bilaterally approved by the Parties for Canadian-origin salmon stocks in the Stikine, Taku, and Alsek Rivers.

2. The Parties intend to improve procedures for coordinated and cooperative management. To this end, the Parties affirm their intent to continue to implement and refine abundance-based management regimes for Chinook salmon in the Taku and Stikine Rivers, sockeye salmon in the Taku and Stikine Rivers, and coho salmon in the Taku River. Further, the Parties affirm their intent to continue to develop and implement abundance-based management regimes for Chinook and sockeye salmon in the Alsek River and coho salmon in the Stikine River. Both Parties shall take the appropriate management actions to ensure that the necessary escapement objectives defined in the annual management plan are achieved.

- (a) To determine in-season abundance of salmon stocks, assessment fisheries may be implemented as a component of any bilateral U.S. / Canada assessment program. The Parties shall complete the accounting of the harvest in assessment fisheries as follows:
 - (i) Any expected salmon mortality shall be accounted for prior to the determination of the Total Allowable Catch (TAC) for assessment fisheries undertaken as recommended by the Committee and endorsed by the Panel,

- (ii) Any salmon mortality of target species shall not count towards either Parties' Allowable Catch (AC) for assessment fisheries undertaken as recommended by the Committee and endorsed by the Panel,
- (iii) The non-target species of salmon captured and retained shall not be included in determination of TAC or either Parties AC for assessment fisheries undertaken as recommended by the Committee and endorsed by the Panel,
- (iv) Salmon captured and retained in an assessment fishery undertaken in absence of a recommendation from the Committee and endorsement from the Panel shall be considered as directed harvest and count towards a Party's AC.

3. Recognizing the objectives of each Party to have viable fisheries, the Parties agree that the following arrangements shall apply to the U.S. and Canadian fisheries harvesting salmon stocks originating in the Canadian portion of:

(a) the Stikine River:

- (i) Sockeye Salmon: the following provisions apply to U.S. in-river, subsistence, and District 106 and 108 drift gillnet fisheries, and Canadian in-river fisheries:

(A) The Parties shall assess the annual run of Stikine River sockeye salmon as follows:

- (i) the Committee shall produce a pre-season forecast of the Stikine River sockeye salmon run prior to February 1 of each year. The Committee may modify this forecast prior to the opening of the fishing season;
- (ii) in-season estimates of the Stikine River sockeye salmon run and the TAC shall be made under the guidelines of the annual management plan, 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 approved 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;
- (iii) modifications to the annual management plan and forecast model may be made prior to June 1 of each year upon approval of the Parties. If the Parties are unable to approve modifications, the model and parameters applied the previous year shall be used;
- (iv) estimates of the TAC may be adjusted in-season only by concurrence of both Parties' respective managers. Reasons for the adjustments shall be provided to the Committee.

- (B) The Parties desire to maximize the harvest of Tahltan Lake, Tuya Lake and other enhanced sockeye salmon in their existing fisheries, while considering the conservation needs of wild salmon runs. The Parties shall manage the returns of Stikine River sockeye salmon to ensure that each country obtains 50% of the TAC in their existing fisheries. Canada shall endeavour to harvest all of the fish surplus to escapement objectives and broodstock needs returning to the Stikine River as defined in the annual management plan.
- (C) The Parties shall continue to develop and implement joint enhancement programs:
- (i) The Committee shall prepare an annual Stikine Enhancement Production Plan (SEPP), designed to produce 100,000 returning sockeye salmon per year by February 1. The SEPP shall summarize planned projects for the coming year and expected production of identifiable enhanced sockeye salmon from all planned enhancement activities, including expected production from site specific egg takes and fry releases, access improvements, and all other enhancement activities outlined in the annual SEPP. The Committee shall use these data to prepare an enhancement production forecast based on the best available information.

- (ii) The Panel shall review the annual SEPP and make recommendations to the Parties concerning the SEPP by February 28.
- (iii) 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.
- (iv) The Parties' performance relative to a SEPP shall be evaluated by the Panel two years after adoption of that SEPP.
- (v) An annual SEPP becomes final upon the Panel's approval two years after its initial adoption.
- (vi) The Parties affirm their intent to renew or develop new enhancement projects (comparable to the Tuya Lake enhancement project) in the Stikine River drainage, as identified in the SEPP, designed to annually produce 100,000 returning sockeye salmon by 2024.
- (vii) Harvest shares shall be 53% U.S. / 47% Canada from 2019 through 2023. If the final 2017 or 2018 SEPP provides an expected production of 100,000 returning sockeye salmon, the harvest shares shall be 50% U.S. / 50% Canada in 2022 or 2023.

- (viii) Beginning with the final 2019 SEPP and subsequent years, if expected production is 100,000 returning sockeye salmon, the harvest shares three years later shall be 50% U.S. / 50% Canada. Otherwise, the harvest share for the Party that failed to implement enhancement projects designed to annually produce 100,000 returning sockeye salmon shall be reduced by 7.5% and reallocated to the other Party.
 - (ix) If either Party fully terminates or does not continue its participation in the joint enhancement program, that Party's harvest share shall be reduced to 35%, and the harvest share adjustment shall be reallocated to the other Party for the subsequent fishing season(s).
- (D) Harvest of sockeye salmon in the Stikine River U.S. subsistence fishery shall be managed as a component of the U.S. directed fishery for Stikine River sockeye salmon. All sockeye salmon harvested in the U.S. Stikine River subsistence fishery shall count towards the U.S. AC.

(ii) Coho salmon: the following provisions apply to U.S. in-river, subsistence, and Districts 106 and 108 drift gillnet fisheries, and Canadian in-river fisheries:

(A) The Parties shall 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 2024, the Parties shall review the progress on this obligation.

(B) In the interim, the U.S. 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.

(i) The catch limit of 5,000 coho salmon for the Canadian fishery in the Stikine River may be exceeded provided that in-season run assessments indicate that salmon passage into Canada exceeds or is projected to exceed the specified 5,000 fish Canadian harvest limit plus the agreed spawning objective.

- (C) Harvest of coho salmon in the Stikine River U.S. subsistence fishery shall be managed as a component of the U.S. directed fishery for Stikine River coho salmon. All coho salmon harvested in the U.S. Stikine River subsistence fishery shall count towards the U.S. AC.
- (iii) Chinook salmon: the following provisions apply to Chinook salmon that originate from the Canadian portion of the Stikine River ("Stikine River Chinook") with a mid-eye to fork length of 660 mm or greater ("large"):
 - (A) Both Parties shall take the appropriate management actions to ensure that the escapement objectives for Chinook salmon bound for the Canadian portion of the Stikine River are achieved. The Parties agree to share the responsibility for conservation. Fishing arrangements must take biodiversity and eco-system requirements into account.
 - (B) Consistent with paragraph 2, management of directed fisheries shall be abundance-based through an approach developed by the Committee. The Parties shall implement assessment programs in support of the abundance-based management regime.
 - (C) Unless otherwise approved by the Parties , directed fisheries on Stikine River Chinook salmon shall occur only in the Stikine River drainage in Canada and in District 108 in the U.S.

- (D) Harvest of Chinook salmon in the Stikine River U.S. subsistence fishery shall be managed as a component of the U.S. directed fishery for Stikine River Chinook salmon. All Chinook salmon harvested in the U.S. Stikine River subsistence fishery shall count towards the U.S. AC.
- (E) Management of Stikine River Chinook salmon shall take into account the conservation of specific stocks or conservation units when planning and prosecuting the Parties' respective fisheries. To avoid over-harvesting of specific components of the run, the Committee shall develop weekly harvest guidelines or other management measures by apportioning the allowable harvest of each Party over the Chinook salmon run based on historical weekly run timing.
- (F) The Parties reaffirm their interest in continued monitoring of Little Tahltan River Chinook salmon to investigate factors that may be influencing productivity and long-term health.
- (G) The Parties shall implement, through the Committee, a Chinook salmon genetic stock identification (GSI) program approved by the Parties to assist the management of Stikine River Chinook salmon. The Parties agree to continue the development of joint GSI baselines.

- (H) The Parties shall periodically review the above-border Stikine River Chinook salmon spawning escapement goal that is expressed in terms of large fish.
- (I) The Committee shall produce a pre-season forecast of the Stikine River Chinook salmon terminal run¹ size by December 1 of each year.
- (J) Directed fisheries may be implemented based on pre-season forecasts only if the pre-season forecast terminal run size equals or exceeds the spawning objective as defined in the annual management plan in addition to the combined Canada and U.S. base level catches (BLCs) and assessment fishery catches of Stikine River Chinook salmon. The pre-season forecast shall only be used for management until bilaterally approved in-season projections become available.

¹ Terminal run = total Stikine Chinook run size minus the U.S. troll catch of Stikine Chinook salmon outside of District 108.

- (K) For the purposes of determining whether to allow directed fisheries using in-season information, such fisheries shall not be implemented unless the projected terminal run size exceeds the spawning objective as defined in the annual management plan in addition to the combined Canada and U.S. BLCs and assessment fishery catches of Stikine River Chinook salmon. The Committee shall determine when in-season projections can be used for management purposes and establish the methodology for in-season projections and update them weekly or at other approved intervals.
- (L) The Total Allowable Catch (TAC) for directed fisheries shall be calculated as follows:
- (i) Base Terminal Run (BTR) = Spawning Objective
+Assessment Fishery + U.S. BLC + Canadian BLC;
 - (ii) Terminal Run – BTR = TAC.
- (M) Definitions include the following:
- (i) U.S. BLC: 3,400 large Chinook salmon²;
 - (ii) Canadian BLC: 2,300 large Chinook salmon³;

² Includes average combined U.S. gillnet, troll and sport catches of Stikine Chinook salmon in District 108.

³ Includes average combined Canadian Aboriginal, commercial, and sport catches of Stikine Chinook salmon.

- (iii) Assessment fishery: up to 1,400 large Chinook salmon.
- (N) Harvest sharing and accounting of the TAC shall be as follows:
 - (i) 50% is allocated to the U.S.;
 - (ii) 50% is allocated to Canada;
 - (iii) If the pre-season TAC forecast exceeds 30,000 Chinook salmon, the Panel shall review and recommend potential harvest share adjustments to the Parties.
- (O) With consideration for the Southeast Alaska (SEAK) Chinook salmon terminal exclusion and provisions of Chapter 3, U.S. harvest of Stikine River Chinook salmon up to 3,400 fish and non-Stikine River Chinook salmon harvested in District 108 will be accounted for in Chapter 3.
- (P) The Parties shall determine the domestic allocation of their respective harvest shares.

- (Q) When the terminal run is insufficient to provide for the Parties' Stikine River Chinook salmon 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, shall be proportional to the Stikine BLC shares. In this situation, the Committee may recommend details for an alternate assessment program. Following the Panel's approval, an assessment fishery may be implemented which fully considers the conservation needs of the stock.
- (R) If the escapement of Stikine River Chinook salmon is below the lower end of the agreed escapement goal range for three consecutive years, the Parties shall examine the management of base level fisheries and of any other fishery that harvests Stikine River Chinook salmon stocks, with a view to rebuilding the escapement.

(b) the Taku River:

- (i) Sockeye salmon: the following provisions apply to the U.S. District 111 drift gillnet fishery and to Canadian in-river fisheries. 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.:

- (A) Annual abundance of wild Taku River sockeye salmon shall be estimated by adding the catch of wild Taku River sockeye salmon in U.S. District 111 to the estimated above-border abundance of wild sockeye salmon. The annual TAC of wild Taku River sockeye salmon shall be estimated by subtracting the agreed escapement objective as defined in the annual management plan from the annual terminal run abundance estimate.
- (B) The Parties shall develop a joint technical report and submit it through the Parties' respective review mechanisms with the aim of establishing a bilaterally approved maximum sustainable yield (MSY) goal for Taku River sockeye salmon prior to the 2020 fishing season.
- (C) The Taku River sockeye salmon assessment program will be reviewed by two experts (one selected by each Party) in mark-recovery estimation techniques. The Parties shall instruct these experts to make a joint recommendation to the Parties concerning improvements to the existing program including how to address inherent mark-recovery assumptions with an aim to minimize potential bias prior to the 2020 fishing season.
- (D) The management of U.S. and Canadian fisheries shall be based on weekly estimates of the TAC of wild sockeye salmon.

- (E) For in-season management purposes, identifiable enhanced Taku River origin sockeye salmon shall not be included in the calculations of the annual TAC. Enhanced sockeye salmon are harvested in existing fisheries incidentally to the harvest of wild Taku River sockeye salmon.
- (F) The Parties' primary management objective is to achieve the agreed spawning objective as defined in the annual management plan. As a result, the following apply:
- (i) To the end of 2019, Canada may, in addition to its share of the TAC, harvest any projected sockeye salmon escapement in excess of 80,000 fish apportioned by run timing.
 - (ii) For the remainder of the Chapter Period beyond 2019, the Parties shall manage fisheries in accordance with spawning objectives and the resulting ACs unless otherwise indicated in sub-subparagraph (iii).
 - (iii) Upon acceptance of a revised Taku River sockeye salmon escapement goal by the Parties and upon adoption by the Committee of recommendations from the experts as deemed critical by the Panel, Canada may, in addition to its share of the TAC, harvest any projected sockeye salmon in excess of spawning objectives and broodstock needs apportioned by run timing returning to the Taku River.

- (iv) In absence of establishing a bilaterally approved MSY escapement goal for Taku River sockeye salmon prior to the 2020 fishing season, the Panel shall recommend an interim spawning objective.
- (G) Notwithstanding paragraph (E), the Parties recognize that not all surplus enhanced sockeye salmon are harvested 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.
- (H) The 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 River 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 shall continue to develop and implement a joint Taku River sockeye salmon enhancement program intended to eventually annually produce 100,000 returning enhanced sockeye salmon.

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

Enhanced Production	U.S. TAC Share	Canadian TAC Share
0	82%	18%
1 – 5,000	80%	20%
5,001 – 15,000	77%	23%
15,001 – 25,000	75%	25%
25,001 – 50,000	72%	28%
50,001 – 75,000	68%	32%
75,001 – 100,000+	65%	35%

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

- (J) The Committee shall prepare an annual Taku Enhancement Production Plan (TEPP) 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 and fry releases, access improvements and all other enhancement activities outlined in the annual TEPP. The Committee shall use these data to prepare an initial enhancement production forecast based on the best available information.

- (K) The Panel shall review the annual TEPP and make recommendations to the Parties concerning the TEPP by February 28.
 - (L) 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.
- (ii) Coho salmon: the following provisions apply to the U.S. District 111 drift gillnet fishery and the Canadian in-river fisheries:
- (A) The Parties agree to implement an abundance-based approach to managing coho salmon on the Taku River.
 - (B) The following applies to the management and allocation of terminal run Canadian-origin Taku River coho salmon:
 - (i) the calculation of terminal abundance shall include harvest prior to statistical week 34;

- (ii) the following applies to the assessment of the terminal run of Taku River coho salmon after accounting for the harvest prior to statistical week 34:
 - (1) If the pre-season terminal abundance forecast is less than the lower end of the escapement goal range plus 5,000 fish, the Committee may recommend an alternate assessment program. Following the Panel's approval, an assessment fishery may be implemented which fully considers the conservation needs of the stock.
 - (2) When the terminal abundance exceeds the lower end of the escapement goal range, plus 5,000 coho salmon, and up to the MSY point goal plus 5,000 fish, Canada may harvest 5,000 coho salmon apportioned by bilaterally approved run timing;

(iii) The Parties' annual terminal and in-river TAC share of Taku River coho salmon shall be as follows:

(1) For terminal abundances in excess of 75,000 coho salmon, AC accumulates as follows:

Terminal Run Size		Allowable Catch Range		Harvest Share	
Lower	Upper	Lower	Upper	U.S.	Canada
75,001	80,000	1	5,000	100%	0%
80,001	100,000	5,001	25,000	50%	50%
Greater than 100,000		25,001+		90%	10%

Note: the harvest shares associated with the above terminal run sizes are based on an escapement goal range of 50,000 to 90,000 coho salmon with an MSY Point goal of 70,000 fish.

- (iv) The Parties' primary management objective is to achieve the agreed spawning escapement goal. If the projected spawning escapement of Canadian-origin Taku River coho salmon is greater than the agreed spawning escapement point goal, Canada may, in addition to its AC, harvest the projected surplus to spawning escapement apportioned by run timing.
- (v) The performance of coho salmon fisheries shall be evaluated on an annual basis as follows:
 - (1) no new directed terminal or in-river fisheries for Taku River coho salmon shall be undertaken prior to statistical week 34;
 - (2) coho salmon harvested incidentally in terminal, in-river, and assessment fisheries that occur prior to statistical week 34 are not included in paragraph 4 Trigger 2 considerations;

- (3) if a Party does not fully harvest its AC to the extent that spawning escapement exceeds the upper end of the spawning escapement goal range in 3 consecutive years, the Panel shall review the Party's harvest and allocation and the factors contributing to fishery performance, and may recommend the adjustment of allocations to terminal or in-river fishery AC for the following year;
- (4) determination of the terminal abundance of Taku River coho salmon shall occur through the administration of a bilateral assessment program. When a mark-recapture program is employed to determine abundance, the program shall be designed to ensure that tag recovery (mark evaluation) is apportioned by run timing.

(iii) Chinook salmon:

- (A) the following provisions apply to Chinook salmon that originate from the Canadian portion of the Taku River ("Taku River Chinook") with a mid-eye to fork length of 660 mm or greater ("large"):

- (B) Both Parties shall take the appropriate management actions to ensure that the escapement objectives for Chinook salmon bound for the Canadian portion of the Taku River are achieved. The Parties agree to share the responsibility for conservation. Fishing arrangements must take biodiversity and eco-system requirements into account.
- (C) Consistent with paragraph 2, management of directed fisheries shall be abundance-based through an approach developed by the Committee. The Parties shall implement assessment programs in support of the abundance-based management regime.
- (D) Unless otherwise approved by the Parties, directed fisheries on Taku River Chinook salmon shall occur only in the Taku River drainage in Canada, and in District 111 in the U.S.
- (E) Management of Taku River Chinook salmon shall take into account the conservation of specific stocks or conservation units when planning and prosecuting the Parties' respective fisheries. To avoid over-harvesting of specific components of the run, the Committee shall develop weekly harvest guidelines, or other agreed management measures, by apportioning the allowable harvest of each Party over the Chinook salmon run based on historical weekly run timing.

- (F) The Parties shall implement through the Committee a Chinook salmon genetic stock identification (GSI) program approved by the Parties to assist the management of Taku River Chinook salmon. The Parties agree to continue the development of joint GSI baselines.
- (G) The Parties shall periodically review the above-border Taku River Chinook salmon spawning escapement goal that is expressed in terms of large fish.
- (H) The Committee shall produce a pre-season forecast of the Taku River Chinook salmon terminal run⁴ size by December 1 of each year.
- (I) Directed fisheries may be implemented based on pre-season forecasts only if the pre-season forecast terminal run size equals or exceeds the spawning objective as defined in the annual management plan plus the combined Canada and U.S. base level catches (BLCs) and assessment fishery catches of Taku River Chinook salmon. The pre-season forecast shall only be used for management until bilaterally approved in-season projections become available.

⁴ Terminal run = total Taku Chinook run size minus the U.S. troll catch of Taku Chinook salmon outside District 111.

- (J) For the purposes of determining whether to allow directed fisheries using in-season information, such fisheries shall not be implemented unless the projected terminal run size exceeds the spawning objective as defined in the annual management plan in addition to the combined Canada and U.S. BLCs and assessment fishery catches of Taku River Chinook salmon. The Committee shall determine when in-season projections can be used for management purposes and establish the methodology for in-season projections and update them weekly or at other approved intervals.
- (K) The Total Allowable Catch (TAC) for directed fisheries shall be calculated as follows:
- (i) Base Terminal Run (BTR) = Spawning Objective
+ Assessment Fishery + U.S. BLC + Canadian BLC;
 - (ii) Terminal Run – BTR = TAC.
- (L) Definitions include the following:
- (i) U.S. BLC: 3,500 large Chinook salmon⁵;

⁵ Includes average combined U.S. gillnet and sport catches of Taku Chinook salmon in District 111.

- (ii) Canadian BLC: 1,500 large Chinook salmon⁶;
 - (iii) Assessment fishery: up to 1,400 large Chinook salmon.
- (M) Harvest sharing and accounting of the TAC shall be as follows:
 - (i) 50% is allocated to the U.S.;
 - (ii) 50% is allocated to Canada;
 - (iii) If the pre-season TAC forecast exceeds 30,000 Chinook salmon, the Panel shall review and recommend potential harvest share adjustments to the Parties.
- (N) With consideration for the SEAK Chinook salmon terminal exclusion and provisions of Chapter 3, U.S. harvest of Taku River Chinook salmon up to 3,500 fish and non-Taku River Chinook salmon harvested in District 111 will be accounted for in Chapter 3.
- (O) The Parties shall determine the domestic allocation of their respective harvest shares.

⁶ Includes average combined Canadian Aboriginal, commercial, and estimated sport catch of Taku Chinook salmon.

- (P) When the terminal run is insufficient to provide for the Parties' Taku River Chinook salmon 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, shall be proportional to the Taku BLC shares. In this situation, the Committee may recommend details for an alternate assessment program. Following the Panel's approval, an assessment fishery may be implemented which fully considers the conservation needs of the stock.
- (Q) If the escapement of Taku River Chinook salmon is below the lower end of the agreed escapement range for three consecutive years, the Parties shall examine the management of base level fisheries and of any other fishery that harvests Taku River Chinook salmon stocks, with a view to rebuilding the escapement.
- (c) the Alsek River: The following provisions apply to the U.S. Subdistrict 182-30 commercial and subsistence fisheries and to Canadian in-river fisheries.

The Parties agree to continue to exchange information on Canadian-origin Alsek River salmon stocks to facilitate a complete understanding of life history and productivity of the stocks.

The Parties shall 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.

During the Chapter Period, 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 shall not proceed without the consent of both Parties and until an approved abundance-based management regime has been developed.

(i) Chinook salmon:

- (A) on an annual basis, weekly tissue samples shall be collected from incidentally caught Chinook salmon in the Dry Bay commercial fishery in addition to the normal sampling program;
- (B) on an annual basis, the Committee shall produce an in-river abundance estimate of Alsek River Chinook salmon. The Parties shall maintain, through the Committee, a Chinook genetic stock identification (GSI) program approved by the Parties to assist the management of Alsek River Chinook salmon. The Parties agree to continue the development of joint GSI baselines.

(ii) Sockeye salmon:

- (A) on an annual basis, the Committee shall refine and implement in-season abundance-based management. The Parties shall endeavour to continue to explore methods for determining in-river abundance (such as GSI);
- (B) on an annual basis, weekly tissue samples shall be collected from the Dry Bay commercial fishery in addition to the normal sampling program;
- (C) the interim management intent of the U.S. is to pass sufficient sockeye salmon into Canada to achieve the agreed Klukshu River spawning escapement goal range plus 3,000 sockeye salmon.
 - (i) If the MSY point goal plus 3,000 sockeye salmon is not achieved for three of five consecutive years, the U.S. shall examine the management of their fisheries and shall take corrective action to ensure future catches are in line with this Treaty.
- (D) the U.S. shall manage fisheries with the intent of providing improved Canadian access to early season Alsek River stocks by enabling a greater proportion of sockeye salmon to pass upstream of the international border up to and including statistical week 27.

4. The Parties agree to manage their fisheries to the best of their abilities and to achieve approved spawning objectives and harvest sharing provisions of this Chapter. On an annual basis, the Committee shall review the performance of the fisheries, including the ability to meet spawning objectives and the relationship between actual harvests versus TAC allocations, and present the results to the Panel. The Committee shall develop these assessments based on bilaterally approved post-season run reconstructions:

- (a) (Trigger 1) Deviations from target escapements and harvests are anticipated to occur as a result of imprecision in management, pre-season forecast errors, in-season run projection errors, and other factors such as environmental conditions. Notwithstanding annual review and subsequent modification to address conservation concerns, the Parties shall review the overall management regime and recommend adjustments commencing the following year to better address conservation requirements if the lower end of agreed escapement goal ranges in three consecutive years is not achieved.
- (b) (Trigger 2) If in any three of five consecutive years either Party exceeds its allocation by more than 10% or if post-season it is determined there is no allocation and directed harvest is more than 1% of the point goal, that Party shall take corrective action to ensure future catches are in line with this Treaty commencing the following year. By the end of the Annual meeting of the Panel, proposals regarding what actions shall be taken and the expected outcomes thereof shall be discussed with the other Party prior to implementation.

- (c) (Trigger 3) The Parties agree that if the TAC of one Party is not attained due to management actions by the other, compensatory adjustments 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. At the beginning and mid-point in the Chapter Period, the Parties agree that the harvest sharing performance over the previous five years shall be evaluated and adjustments made over the next five year period, if necessary. At the end of the Chapter period, cumulative overages and underages shall be carried forward to the next Chapter Period.

5. The Parties shall review midway through the Chapter Period, or other time mutually decided by the Parties, the current Chapter and determine if they want to renew this Chapter for an additional period of time.

6. The Parties shall consider cooperative enhancement possibilities and undertake, as soon as possible, studies on the feasibility of new enhancement projects on the Stikine and Taku rivers and adjacent areas for the purpose of increasing productivity of salmon stocks and providing greater harvests to the fishermen of Canada and the U.S.

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. Any such arrangement is intended to *inter alia*:

- (a) ensure effective conservation of the stocks;
- (b) facilitate future enhancement of the stocks as jointly approved by the Parties;
- (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 Sockeye 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:
 - (a) implement an enhancement program that is consistent with the protection of existing wild salmon stocks and the habitat upon which they depend;
 - (b) implement an enhancement program that is diverse, involves a variety of approaches to increasing production, and builds upon a good knowledge base of existing wild stocks of salmon;
 - (c) implement an enhancement program that includes comprehensive planning, assessment, and review;
 - (d) develop strategies for management of enhanced stocks prior to the return of adult fish;
 - (e) share the costs of jointly approved 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;
 - (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 of this Treaty;
- (b) communicate identified enhancement opportunities to the Panel and the Parties along with technical recommendations concerning these opportunities;
- (c) develop detailed feasibility studies for projects recommended by either Party or by the 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) recommend harvest opportunities of enhanced stocks;
- (d) monitor implementation of ongoing enhancement projects and annually report progress to the Parties and the Panel;
- (e) periodically provide detailed technical reviews pertaining to biological aspects and items listed in paragraph 2(c) 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) enhancement projects and activities to be undertaken by the Parties;
 - (ii) expected enhanced production from those projects and activities; and
 - (iii) assessment techniques that will be used to document enhanced production;
- (g) annually review and document the joint enhancement projects and activities undertaken by the Parties and assess enhanced returns; the Enhancement Subcommittee shall assess the enhancement activities each year against the appropriate SEPP and TEPP and provide explanations for any discrepancies.

3. The Panel shall consider technical input from the Enhancement Subcommittee, in addition to its knowledge of local economic, social, and cultural conditions and values, to communicate recommendations to the Parties concerning enhancement project selection, implementation, assessment and termination.

4. General Guidelines:

- (a) stock identification techniques shall be available to estimate the contribution of enhanced sockeye in mixed stock fisheries in order for large scale enhancement projects to proceed. The Committee shall recommend the most appropriate stock identification techniques for each project;

- (b) egg collection is limited to a maximum of 30% of the system specific escapement (where possible this limit should be applied to the female component of the escapement);
- (c) unless otherwise approved by the Parties, the overall objective is not to exceed a 1:1 ratio of enhanced: wild smolt.

5. the Stikine River:

The Parties shall pursue a diverse program to enhance sockeye salmon production in the Stikine River to meet the annual SEPP goal of 100,000 enhanced sockeye salmon. The existing enhancement program may be expanded to include new activities such as barrier removal, habitat improvement or other approved enhancement projects. The annual egg-take goal for the Stikine sockeye enhancement program reflects what is required to meet the annual enhancement goal taking into account the expected production from all other Stikine sockeye salmon enhancement projects. Eggs are incubated at the Port Snettisham central incubation facility (CIF), unless otherwise approved by the Parties. Fry are released into Tahltan Lake, Tuya Lake or other sites in the following manner, subject to review by the Committee:

- (a) if the count of sockeye salmon through the Tahltan Lake weir is less than 15,000 fish or an alternate threshold approved by the Parties, all Tahltan origin fry will be returned to Tahltan Lake;
- (b) if the count of sockeye salmon through the Tahltan Lake weir is greater than 15,000 fish or an alternate threshold approved by the Parties, subject to paragraph (c), the Tahltan origin fry will be distributed to Tahltan Lake, Tuya Lake or other sites in a manner that is identified in the SEPP;

- (c) egg takes may take place in locations other than at Tahltan Lake; fry outplants may take place in locations other than Tahltan and Tuya lakes.

6. the Taku River:

The Parties shall pursue a diverse Taku sockeye salmon enhancement program intended eventually to meet the annual goal of 100,000 enhanced sockeye salmon. The Parties shall expand the existing enhancement program to include new activities and may include:

- (a) continuation of the Trapper Lake enhancement project;
- (b) other barrier removal projects;
- (c) continuation of the Tatsamenie Lake enhancement efforts;
- (d) other projects focusing on salmon passage and habitat improvement. The Tatsamenie Lake salmon stock is used as a source of eggs unless alternate or additional egg sources are identified and approved by the Parties. The annual egg-take goal for the Taku sockeye salmon enhancement program is defined in the TEPP. Eggs taken as part of this enhancement effort are incubated at the Port Snettisham CIF unless otherwise approved by the Parties. Fry may be released into Tatsamenie Lake, Trapper Lake, or other sites in the Taku drainage, subject to review by the 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 stocks;

- (b) to avoid impacts on co-migrating salmon stocks and species, exploitation rates applied to Taku and Stikine river sockeye salmon in existing mixed stock fisheries in Canada and the U.S., shall be at levels compatible with the maintenance of wild stocks and based on returns of identifiable enhanced fish.

8. Cost sharing for the continuation of existing enhancement projects: the costs of producing Taku and Stikine origin enhanced sockeye salmon shall be shared as follows:

- (a) Canada shall pay for:
 - (i) egg takes;
 - (ii) egg transports;
 - (iii) sampling and numerical analysis necessary to determine the contribution of enhanced sockeye salmon to Canadian fisheries;
 - (iv) limnological assessments;
 - (v) processing of sockeye otolith samples collected from spawning escapement, broodstock and juveniles;
- (b) The United States shall pay for:
 - (i) operations and improvements of that portion of the Port Snettisham CIF that is dedicated to enhancement projects on the transboundary rivers;
 - (ii) transports of fry to the enhancement sites;

- (iii) sampling and analysis necessary to determine the contribution of enhanced transboundary river sockeye salmon to United States fisheries; and
 - (iv) processing of all other sockeye otolith samples;
- (c) Projects that are conducted and paid for jointly by the Parties:
- (i) disease sampling and analysis;
 - (ii) identification and evaluation of alternative sockeye salmon enhancement opportunities;
 - (iii) assessments of unforeseen issues that arise from joint enhancement activities; and
 - (iv) projects that investigate why outcomes differ from expected outcomes.

CHAPTER 2

Northern British Columbia and Southeastern Alaska

This Chapter shall apply to the period from 2019 through 2028, unless both Parties agree that amendments are required to this Chapter by January 2024 to support conservation of Nass and Skeena River sockeye salmon or avoid undue disruption of the pink salmon fishery in District 104. The Parties shall complete a review of the results of the implementation of this Chapter by the Commission post-season meeting in January 2022. The review shall identify management actions taken to support the conservation of Nass River and Skeena River sockeye, to evaluate the consistency of those actions with the obligations of this Chapter and outline, if feasible, the benefit of those actions for Nass River and Skeena River sockeye.

Subject to the availability of funds, the United States (U.S.) shall make \$1.1 million available on an annual basis to U.S. management agencies for the specific purposes identified in this Chapter.

The Parties agree that:

1. With respect to the Portland Canal chum salmon fishery, a Party shall not conduct net fisheries in Alaskan Section 1A and Canadian sub-areas 3-15 and 3-16 or 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 the Parties approve these chum fisheries.
2. With respect to sockeye salmon, the Parties shall develop a coordinated approach to management that reflects their commitment to apply appropriate management measures for Nass River and Skeena River sockeye salmon.

3. The Parties shall maintain a joint Northern Boundary Technical Committee (the "Committee") that reports, unless the Parties otherwise decide, 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) provide the most current information on the stocks' harvest rates and patterns, and develop a joint data base for assessments;
- (d) devise analytical methods for the development of alternative regulatory and production strategies;
- (e) identify information and research needs, including future monitoring programs for stock assessments; and
- (f) for each season, make stock and fishery assessments and recommend to the Northern Panel conservation measures that are consistent with this Treaty.

4. Canada shall provide the Committee with pre-season run-size forecasts for Skeena River and Nass River sockeye salmon prior to the annual January post-season meeting of the Northern Panel, as well as updated weekly run-size estimates as in-season information becomes available. The Parties agree that the 50% probability (p50) of the run-size forecasts may be used to make management decisions regarding fishing plans for Canada and the U.S., respectively.

5. The Parties shall continue to exchange the data and information from the in-season management regime at both the Skeena Tyee test fishery and from the Nass River assessments to facilitate understanding of run-size estimation.

6. The U.S. 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% 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 that annual catch share. 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% 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 that annual catch share. Details of the procedure are outlined in the Appendix to this Chapter.

7. Based on run-size estimates for Nass River and Skeena River sockeye, the Parties shall undertake additional management actions prior to statistical week 31 in District 104 as follows:

(a) Skeena River

- (i) The expected total run is below 900,000 sockeye salmon. At this level, there are no Canadian commercial marine harvests. The U.S. shall undertake measures to reduce the impact of the District 104 purse seine fishery, which may include delaying the start date and duration of the fishery.
- (ii) The expected total run is below 600,000 sockeye salmon. At this level, there are no Canadian marine or in-river commercial harvests, with the exception of terminal fisheries adjacent to enhancement spawning channels. The U.S. shall undertake additional measures to reduce the impact of the District 104 purse seine fishery, which may include delaying the start date and duration of the fishery, or reducing the fishing area.

(b) Nass River

- (i) The expected total run is below 200,000 sockeye salmon. At this level, there are no Canadian commercial marine harvests. The U.S. shall undertake measures to reduce the impact of District 101 drift gillnet and District 104 purse seine fisheries, which may include delaying the start date and duration of these fisheries.

- (ii) The expected total run is below 180,000 sockeye salmon. At this level, there are no Canadian marine or in-river commercial harvests. The U.S. shall undertake measures to reduce the impact of District 101 drift gillnet and District 104 purse seine fisheries, which may include delaying the start date, reducing the duration, reducing the area, or implementing mesh restrictions (District 101 drift gillnet fishery only) for these fisheries.

8. 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% 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 that annual catch share. 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% 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 that annual catch share. Details of the procedure are outlined in the Appendix to this Chapter.

9. In order to accomplish the objectives of this Chapter, each Party shall not initiate new intercepting fisheries, or conduct or redirect fisheries in a manner that intentionally increases interceptions.

10. Canada agrees to complete a comprehensive escapement goal analysis (prior to the 2023 fishing season) for Nass and Skeena river sockeye salmon that shall be peer-reviewed by an independent contractor and then submitted to the Committee and Northern Panel for further review.

11. The Northern Panel and the Committee shall co-develop the Terms of Reference for the (biological or MSY-based) escapement goal analysis and shall include a review of:

- (a) long-term run-timing patterns;
- (b) short-term run-timing anomalies;
- (c) the potential influence of stock-specific abundance changes on perceived run timing shifts;
- (d) data limitations for modeling run timing through the District 104 fishery; and
- (e) any other related information that could be relevant to management of Boundary Area fisheries.

12. The U.S. agrees to complete a harvest pattern analysis of the pink salmon fishery in District 104 salmon that shall be peer-reviewed by an independent contractor and then submitted to the Committee and the Northern Panel for further review.

13. The Northern Panel and the Committee shall co-develop the Terms of Reference for the harvest pattern analysis and shall include a review of:

- (a) the long-term changes in abundance of the various pink salmon stocks in the Boundary Area;
- (b) the changes in the timing, and location, of the pink salmon harvest in District 104;
- (c) the impact of pink salmon harvest in District 104 on Skeena River and Nass River sockeye; and
- (d) the efficacy of assessing pink salmon run timing through District 104 using available data.

14. The Committee shall review the sockeye run reconstruction model to provide recommendations to the Northern Panel, at or before the January 2022 Commission post-season meeting, regarding the creation of a simpler run reconstruction model using genetic data and to provide recommendations on any improvements to the program, if needed.

15. The Parties shall continue to collect sockeye salmon genetic samples from appropriate marine fisheries for use in the annual run reconstruction including Alaska Districts 101, 102, 103, and 104 purse seine and Districts 101 and 106 drift gillnet fisheries. The Parties shall also take sockeye salmon genetic samples in Canadian Area 3 and 4 gillnet and seine fisheries for use in the annual run reconstruction or other fisheries as jointly determined by the Parties.

**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

- (i) The AAH each year shall 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. If the actual Nass and Skeena spawning escapement for the season is below the target level, the actual spawning escapement shall be used in the AAH calculation.
- (ii) 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 in the total run calculation as determined by the Committee.

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

- (i) The AAH each year shall be calculated as the total run of adult Nass sockeye in that year less the escapement target of 0.2 million fish. If the actual Nass spawning escapement for the season is below the target level, the actual spawning escapement shall be used in the AAH calculation.
- (ii) 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 in the total run calculation as determined by the Committee.

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

- (i) The AAH each year shall 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. If the actual escapement for the season is below the target level, the actual escapement shall be used in the AAH calculation.

- (ii) The total pink salmon run to Alaskan Districts 101, 102 and 103 shall 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

The Committee shall provide the pre-season estimates of the AAHs by May 1 of each year.

(b) In-season

The Parties shall exchange management and assessment information in-season.

The exchange shall occur weekly (or more often, if required) and includes (but is not limited to) catch, catch per unit effort, escapement and run-size estimations.

(c) Post-season

The Committee shall determine the calculation of the allowable and actual harvests of salmon, as specified in this Chapter (prior to the annual January post-season meeting unless the Committee determines otherwise) using the agreed post-season accounting methods. These methods are expected to change as improved techniques or assessments become available. Any new jointly determined method shall be used in Committee post-season accounting. These new methods could include (but are not limited to) changes to escapement targets, stock identification methods and reconstruction models. Any new methods shall not be used to alter the AAH shares in this Chapter, or to recalculate previous years for which the accounting has been finalized.

3. Overage and underage provisions for paragraphs 6(a), 6(b), 8(a), and 8(b) of this Chapter (sockeye and pink salmon)

- (a) The intent of the overage/underage provision is to provide an arrangement that makes the Parties accountable for catch shares but that offers flexibility in the Parties' management of fisheries subject to this Treaty.
- (b) Although the management intent is to harvest salmon at the allowable percentage AAH, the Parties recognize that overages and underages may occur and that an accounting mechanism is required.
- (c) The payback mechanism for each fishery shall be based on the number of fish and on the use of the accounting method referred to in paragraph 2(c) of this Appendix.

- (d) After each season, the Committee shall determine the calculation of the allowable and actual harvests of salmon specified in this Chapter based on the post-season accounting method. If the actual harvest deviates from the annual allowable harvest that is stipulated in this Chapter, the amount of the deviation shall be 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 a cumulated overage shall provide the Northern Panel with specific management actions to eliminate the overage in that fishery.
4. Unless the Parties jointly decide otherwise, the accrual of underage is not intended to allow a Party to modify its fishing behavior in any given year to harvest the total accrued underage. The Parties shall manage their fishing behavior with the intent to harvest no more than 150% of their AAH in any season.
5. The Parties agree to review this Chapter a minimum of two years prior to its expiration with a view to renewing it. If such renewal is not successfully concluded before this Chapter expires, then the Parties shall carry forward the overages and underages described in this Appendix to the next Chapter period.

CHAPTER 3

Chinook Salmon

This Chapter shall apply to the period from 2019 through 2028 (the “Chapter Period”).

1. The Parties agree that:

- (a) Chinook stocks that are subject to this Treaty have varying levels of status with many being healthy and meeting goals for long-term production while others are identified as conservation concerns, including some in the U.S. Pacific Northwest that are listed under the U.S. Endangered Species Act (ESA) and some in Canada that are assessed to be at increasing risk of extinction;
- (b) fishery management measures that are implemented under this Treaty are intended to be appropriate for recovering, sustaining, and protecting Chinook salmon stocks in Canada and the U.S. and are responsive to changes in productivity of Chinook salmon stocks associated with environmental conditions;

- (c) while fishing has contributed to the decline of some Chinook stocks, the continued status of Chinook stocks that are considered depressed generally reflects the long-term cumulative effects of other factors, particularly chronic habitat degradation, in some instances deleterious hatchery practices, cyclic natural phenomena, and large scale environmental variability affecting both marine and freshwater habitats;
- (d) successful Chinook conservation, restoration, and harvest management depends on a sustained and bilaterally coordinated program of resource protection, restoration, enhancement, and utilization based on:
 - (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 opportunities to harvest sustainably abundant natural stocks as well as abundant hatchery produced fish,
 - (ii) the implementation of protective and remedial actions identified in local and regional recovery planning processes that address non-fishing factors that limit the abundance, productivity, genetic diversity, or spatial structure of natural Chinook salmon stocks,
 - (iii) scientifically sound enhancement activities that provide mitigation to fisheries for habitat loss or degradation, or improve productivity through the appropriate use of artificial propagation and supplementation techniques, and

- (iv) the continued modification of fisheries to maintain or increase the overall harvest rates exerted on hatchery-origin Chinook, where desirable, while simultaneously decreasing or maintaining limits on the overall mortality rates on natural-origin Chinook;
- (e) a healthy and productive Chinook resource imparts sustainable benefits for the fisheries of both Parties, contributes other social, economic, and cultural benefits to both Parties, and provides ecosystem benefits to other species;
- (f) the harvest levels and other fishery management approaches used 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 referred to in this Chapter, are intended to complement recovery actions that are undertaken in the fishing and non-fishing sectors in Canada and the U.S.; and
- (g) changes in ocean and freshwater conditions, stock-specific cohort survivals, stock abundances, and stock distribution are being observed. To the extent practical, the Parties shall consider these sources of uncertainty to avoid unwarranted escalation of Chinook mortalities.

2. The Parties shall:

- (a) implement a comprehensive and coordinated Chinook fishery management program that:
 - (i) uses an abundance-based framework to manage all Chinook fisheries that are subject to this Chapter,
 - (ii) is responsive to significant changes in the productivity of Chinook salmon stocks associated with environmental conditions,
 - (iii) uses harvest regimes based on annual indices of abundance that are responsive to changes in production, that take into account all fishery induced mortalities, and that are designed to meet maximum sustainable yield (MSY) or other agreed biologically-based numeric escapement or exploitation rate objectives, including those set out in Attachment I,
 - (iv) contributes to the improvement in trends in spawning escapements of depressed Chinook salmon stocks and is consistent with improved Chinook salmon production,
 - (v) considers the limitations of regulatory systems, including the need for timely Commission decisions that are necessary for the Parties to cooperate in management,
 - (vi) seeks to preserve biological diversity of the Chinook salmon resource and contributes to the restoration of currently depressed stocks by improving the abundance, productivity, genetic diversity, and spatial structure of stocks over time,

- (vii) specifies fishery management obligations to maintain healthy stocks, to rebuild depressed naturally spawning stocks, and to provide a means for sharing the harvest and the conservation responsibility for Chinook salmon stocks coast-wide between the Parties,
 - (viii) develops additional biological information pursuant to a program of work and incorporates that information into the coast-wide management regime, and considers the latest scientific information developed in each Party's recovery planning processes,
 - (ix) includes a commitment to discuss within the Commission significant management changes⁷ that a Party is considering that may alter the stock or age composition and incidental mortality of a fishery regime's catch;
- (b) maintain a joint Chinook Technical Committee (the "CTC"). The CTC shall report, unless the Parties otherwise decide, to the Commission. The CTC shall, *inter alia*:
- (i) at the request of the Commission, evaluate management actions and report:
 - (A) if there is a concern about the consistency of the actions with the measures set out in this Chapter, or
 - (B) on the effectiveness of the actions in attaining the specified objectives,

⁷ The model configuration from March 2018 (CLB 1804) shall be used to establish a baseline run. The Parties shall document specific concerns or inconsistencies between that configuration and the management regime in 2018.

- (ii) report annually on catches, terminal exclusions, hatchery add-ons, harvest rate indices, estimates of incidental mortality, and exploitation rates, that apply best available information to account for mark-selective fishery (MSF) impacts for all Chinook fisheries and stocks harvested within the Treaty area,
- (iii) report annually on naturally spawning Chinook stocks in relation to the agreed MSY or other agreed biologically-based escapement objectives, rebuilding exploitation rate objectives, or other metrics, and evaluate trends in the status of stocks and report on progress in the rebuilding of naturally spawning Chinook stocks,
- (iv) evaluate and review 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, when requested by the Commission, recommend goals for naturally spawning Chinook stocks that are consistent with this Chapter,

- (v) recommend, to the Commission, standards for the minimum assessment program required to effectively implement this Chapter together with an estimate of the costs to meet, and effectiveness of, the standards, provide information on stock assessments relative to these standards adopted by the Commission and periodically recommend to the Commission any improvements in stock assessments that are needed to meet adopted standards,
- (vi) recommend research projects, and their costs, intended to improve the implementation of this Chapter,
- (vii) provide an annual report to the Commission regarding the stock-specific impacts of MSF for Chinook in the Treaty area,
- (viii) provide annual calibrations of the Commission Chinook model⁸ with pre-season and post-season abundance indexes by April 1 of each year,
- (ix) provide to the Commission an annual summary concerning the Catch and Escapement Indicator Improvement (CEII) and Coded-Wire Tag and Recovery (CWT&R) programs, and
- (x) undertake specific assignments as determined by the Commission that relate to the implementation of this Chapter, including the assignments described in Appendix A to this Chapter;

⁸ TCCHINOOK (18) 1 – 2017 Exploitation Rate Analysis and Model Calibration (May 2018).

- (c) implement through their respective domestic management authorities, a 10-year Chinook salmon CWT&R program that begins in 2019 that provides timely data to implement this Chapter via improvements and studies designed to achieve CTC and CWT work group data standards and guidelines⁹. The purpose of the CWT&R program shall be to:
- (i) maintain and improve the precision and accuracy of critical CWT-based statistics used by the CTC and Selective Fisheries Evaluation Committee (SFEC) in support of this Chapter,
 - (ii) accelerate the processing of CWT data to provide CWT data for the pre-season planning process,
 - (iii) increase the number of exploitation rate indicator stocks to represent Chinook production and fishery exploitation rates for escapement indicator stocks,
 - (iv) examine the representativeness of exploitation rate indicator stocks for escapement indicator stocks and CWT model stocks, and
 - (v) develop analytical tools that involve the analysis of CWT data in the implementation of this Chapter;

⁹ Guidelines in TCCHINOOK(13)-2 and PSC Technical Report 25.

- (d) implement through their respective domestic management authorities, a 10-year Chinook salmon CEII program that begins in 2019 that provides timely data to implement this Chapter via objective and repeatable methodologies in data limited situations and in others via improvements and studies designed to achieve CTC data standards, guidelines, and analysis schedules. The purpose of the CEII program includes the development of analytical tools that involve catch and escapement data in the implementation of this Chapter; and
- (e) create and maintain a work group to discuss the programs initiated in subparagraphs (c) and (d) by 2020. The work group shall:
 - (i) create opportunities for the exchange of project results and conclusions, advancements in knowledge, and discussion of the direction of these programs between the Parties, management entities, and knowledgeable individuals;
 - (ii) review project results and conclusions from these programs and provide these reviews to the project proponents and the Commission; and
 - (iii) identify, for the Commission, changes to projects or suggest new projects to fill gaps in knowledge.

3. The Parties agree to implement, during the Chapter Period, an abundance-based coast-wide Chinook salmon management regime to meet the objectives set out in paragraph 2(a). Fishery regimes shall be classified under this management regime 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 shall 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 Haida Gwaii sport (Pacific Fishery Management Areas 1-2, 101, 102 and 142)¹⁰, and
 - (iii) The 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 that distinguish WCVI outside sport from inside sport)¹¹;

¹⁰ The NBC AABM Chinook salmon fishery includes portions of Aboriginal rights based fisheries.

¹¹ The WCVI AABM Chinook salmon fishery includes:

- Sport fishery in Pacific Fishery Management Areas (PFMA) 21, 23, 24 inside the Canadian “surflines” and PFMA 121, 123, 124 during the period from 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.
- Sport fishery in PFMA 25, 26, 27 inside the Canadian “surflines” and PFMA 125, 126, 127 during the period from 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 from July 1 through October 15.
- Portions of Aboriginal rights based fisheries.

- (b) An ISBM fishery is a regime that constrains the annual impacts within the fisheries of a jurisdiction for a naturally spawning Chinook salmon stock or stock group. ISBM regimes apply to all Chinook salmon fisheries that are subject to this Chapter that are not AABM fisheries. The obligations that apply to ISBM fisheries are stock-specific limits as set out in paragraph 5(a) for all ISBM fisheries that include, but are not necessarily limited to: northern British Columbia marine net and coastal sport (excluding Haida Gwaii), 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; WCVI 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 freshwater sport; Idaho (Snake River Basin) freshwater sport and net.

4. The Parties agree:

- (a) to monitor and manage incidental fishing mortality in AABM fisheries with the intent of not exceeding levels as specified in paragraph 4(f) during the Chapter Period;
- (b) that landed catch and incidental mortalities in ISBM fisheries are limited according to paragraph 5;
- (c) to provide estimates of incidental mortality of Chinook salmon in all ISBM and AABM fisheries. ISBM fisheries have total mortality constraints (catch plus associated incidental mortality) while AABM fisheries have catch limits.

The CTC shall recommend standards for the desired level of precision and accuracy of data required to estimate incidental fishing mortality by February 2020;

- (d) to provide estimates of encounters of Chinook released in fisheries that, when multiplied by assumed gear-specific mortality rates, provide estimates of incidental mortality that are used in sub-paragraph (c). These estimates:
 - (i) shall be developed by the Parties annually from direct observation of fisheries, or
 - (ii) shall be calculated from a predictable relationship between encounters and landed catch based on a time series of direct observations of fisheries reviewed by the CTC;

- (e) that the CTC shall complete an annual post-season assessment for fisheries that includes:
 - (i) estimates of encounters and incidental mortalities in all fisheries that are subject to this Treaty,
 - (ii) post-season estimates of incidental mortality that includes incidental mortality from MSF and total mortality, and
 - (iii) a description of the causes (if identifiable) of significant changes in rates or patterns of incidental mortalities in all fisheries that are subject to this Treaty relative to paragraphs 4(a) and 4(f) for AABM fisheries (1999-2016) and paragraph 5 for ISBM fisheries (1999-2015);
- (f) that, if it is determined by the Commission through the monitoring and evaluation described in sub-paragraph (e), that an AABM fishery has a level of incidental mortality that exceeds 59,400 for the SEAK AABM fishery or 38,600 for the combined aggregate for the NBC and WCVI AABM fisheries, the Commission shall review the information, determine if fishery adjustments are needed during the Chapter Period, and recommend any appropriate remedial action to ensure that the Parties do not exceed incidental mortality limits;
- (g) that MSFs are conducted subject to the following conditions or understandings, as applicable:
 - (i) MSFs for Chinook shall be conducted in a manner that selectively reduces fishery impacts on natural spawning salmon relative to hatchery-origin salmon,

- (ii) annual post-season reports generated by each Party shall contain a summary of the MSFs implemented in that season,
- (iii) MSFs implemented by either Party that affect stocks subject to this Treaty shall be sampled, monitored, and reported in accordance with the applicable protocols reviewed by the SFEC and adopted by the Commission; including estimates of catches and releases of mass-marked and unmarked Chinook for sublegal and legal-size categories,
- (iv) SFEC shall report on MSFs, assist with developing analytical procedures, and recommend to the Commission approaches that could improve the estimation of impacts on natural Chinook stocks, and
- (v) subject to the availability of funds, the U.S. shall establish a Mark Selective Fishery Fund (Fund). The Fund shall be administered by the Commission to assist fishery management agencies with equipment and operations, as needed, to mass-mark hatchery produced Chinook salmon, to estimate incidental mortality, and to maintain and improve the ability to estimate exploitation rates on Chinook salmon indicator stocks that are encountered in MSF, including improvements and development of bilateral analytical tools. The Commission shall adopt procedures to solicit proposals from U.S. and Canadian management entities for the use of the Fund, be advised on the merits of proposals by specialists as it determines appropriate, and make funding decisions.

5. With respect to ISBM fisheries, the Parties agree that for the Chapter Period:

- (a) U.S. and Canadian ISBM fisheries shall be managed to limit the total adult equivalent mortality for stocks listed in Attachment I that are not meeting agreed biologically-based management objectives, or that do not have agreed management objectives, to no more than the limits identified in Attachment I;
- (b) the Commission shall establish a work group to explore issues related to Okanagan Chinook, including the establishment of management objectives, enhancement and the possible use of Okanagan Chinook as an indicator stock¹². The work group shall report to the Commission by October 2019;
- (c) 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;
- (d) actual ISBM fishery performance relative to the obligations set out in this paragraph shall be evaluated by the CTC and reported annually to the Commission. Because the performance analysis¹³ is dependent on recovery of CWT, the CTC shall provide the evaluation for ISBM fisheries on a post-season basis; and

¹² The work shall be consistent with paragraph 7 of Chapter 1 of this Treaty.

¹³ The Parties acknowledge that some stocks identified in Attachment I have a small number of CWT recoveries in ISBM fisheries. This circumstance can occur for a number of reasons and may contribute to imprecision in estimates of CYERs that may present challenges in management and compliance with paragraph 5. The Commission shall discuss ISBM fishery performance that may occur as described in paragraph 7(c) and may consider this imprecision and other circumstances. The implementation of the CEII and CWT&R programs is expected to assist in addressing these challenges.

- (e) the Commission shall use the Calendar Year Exploitation Rate (CYER) metric to monitor the total mortality in ISBM fisheries and shall review the CYER metric during the year 2022 to make a decision on its continued application or the use of an alternative metric. In the absence of a Commission decision to use an alternative metric, the use of the CYER metric continues. Before the review, the CTC shall complete the development of the Data Generation Model, complete the evaluation of alternative metrics for the evaluation of ISBM fisheries and develop data standards for the application of CYER as a metric.

6. The Parties agree that:

- (a) for the Chapter Period, the SEAK, NBC, and WCVI AABM fisheries shall be abundance based with the annual catch limits specified in Table 1 (catch limits specified for AABM fisheries at levels of the Chinook abundance index) based on the annual calibrations of the version of the Commission Chinook model as configured in March 2018 (CLB 1804), and Table 2 (catch limits for the SEAK AABM fishery and the catch per unit effort (CPUE)-based tiers), unless otherwise decided by the Commission;
- (b) subject to paragraph 7(d), the SEAK AABM fishery annual Treaty Chinook catch limits shall be defined as follows:
 - (i) the fishing year shall start on October 1 and continue through September 30 of the following year,

- (ii) the U.S. shall provide to the Commission by February 1 of each year a proposed annual catch limit based on the estimated CPUE from the winter power troll fishery in District 113 during statistical weeks 41-48 (using method and base period data in Appendix B to this Chapter) and Table 2,
 - (iii) if, due to unforeseen circumstances, the winter power troll fishery in District 113 during statistical weeks 41-48 does not take place, the Commission Chinook model pre-season estimate of the abundance index (AI) shall be used to set the SEAK pre-season Treaty Chinook limit using Table 2,
 - (iv) the SEAK fishery shall be managed to the degree possible to achieve agreed escapement goals for the SEAK and Transboundary Rivers (TBR) Chinook stocks listed in Attachment I;
- (c) Canada may develop an alternate approach to the Commission Chinook model for the NBC and WCVI fisheries, based on observational fishery data, and the Commission shall review and may adopt the alternate approach;
- (d) the graduated harvest rate approach underlying the catch limits associated with the abundance index values for the AABM fisheries is designed to contribute to the achievement of MSY or other agreed biologically-based escapement objectives;
- (e) the graduated harvest rate approach is based on a relationship between the aggregate abundance of Chinook stocks that are available to the fishery and the harvest rate index described in Appendix C to this Chapter;

- (f) AABM fisheries shall be managed annually so as not to exceed the catch limits designated in paragraphs 6(a) and 6(b);
- (g) the CTC shall determine annually if there are deviations between the observed catches and both the pre-season and post-season allowable catches for the SEAK, NBC, and WCVI AABM Chinook catches;
- (h) the following actions in AABM fisheries shall be taken if the actual catch differs from the pre-season limit (management error);
 - (i) if the actual catch exceeds the pre-season catch limit (overage) then the overage shall be paid back in the fishing year after the overage occurs, and
 - (ii) if the actual catch is lower than the pre-season catch limit (underage) then the underage shall not be accumulated;
- (i) the procedures and accepted exclusions established by the Commission shall continue to apply so that Chinook salmon catches may be excluded from counting against AABM catch limitations in selected terminal areas;
- (j) the procedures established by the Commission shall continue to allow for hatchery add-ons harvested in AABM fisheries to not count against AABM catch limitations;
- (k) the CTC shall provide detailed information concerning any catches of Chinook associated with paragraphs 6(i) and 6(j) and a summary of information used to determine the allowable exclusion or hatchery add-on in the annual catch and escapement report; and

- (l) the CTC shall provide the first post-season AI estimates for the SEAK, NBC, and WCVI AABM fisheries using the Commission Chinook model and compare the following estimates and calculate model error related overages for the annual post-season review:
 - (i) the CPUE-based tier to the tier based on the first post-season AI, using the Commission Chinook model, for the SEAK AABM fishery, and
 - (ii) the Commission Chinook model pre-season AI or alternative approach to the Commission Chinook model first post-season AI in the NBC and WCVI AABM fisheries.

7. The Parties agree:

- (a) to manage their fisheries to the best of their ability to achieve agreed-to stock specific management objectives and harvest provisions of this Chapter. The CTC shall annually review the performance of the fisheries to meet management objectives and harvest provisions and present its findings to the Commission during the annual meeting. The Commission shall take any action, as needed, based on this annual review. Specifically, the CTC shall provide the Commission with:
 - (i) the AABM fisheries pre-season limits, actual catches, and identify the extent of any exceedance (overage) of those limits for the prior fishing season (management error),

- (ii) the AABM fisheries post-season limits for fisheries that occurred two years prior and any exceedance (overage) between the annual pre- and post-season limits from two years prior (model error),
- (iii) recommendations for minimizing deviations between pre- and post-season fishery limits (model and management tool improvements), and
- (iv) the status concerning the achievement of stock-specific management objectives; specifically, a table of agreed-to management objectives for each stock included in Attachment I and the annual stock-specific metrics, if available, with the identification of stocks that achieved less than 85% of the point estimate (or lower end range) of the management objective for three consecutive years beginning in 2019¹⁴;

¹⁴ For stocks with an exploitation rate management objective, the trigger shall be a CYER that exceeds the management objective by more than 15% (i.e., the estimated CYER is 1.15 of the CYER management objective) on average in three consecutive years.

- (b) to define AABM post-season fishery limits by using the first post-season Commission Chinook model estimate. Deviations between AABM post-season catch limits and actual catches are anticipated. Overages are of particular concern. The Commission encourages management entities to use pre-season models to plan fisheries, but to use in-season indicators and other tools to minimize potential overages evaluated from post-season catch limits. If, in two consecutive years, the NBC or WCVI AABM fishery catches exceed post-season limits by more than 10%, or the SEAK AABM fishery the pre-season tier and catches exceed the post-season tier, then:
- (i) the Commission shall request that the management entity responsible for the management of that AABM fishery take necessary actions to minimize variance between the pre-season and post-season catch limits commencing the following year. By the end of the annual meeting of the Commission, the Commission shall discuss proposals from the management entity regarding the actions to be taken and the expected outcomes of those actions before those actions are implemented, and
 - (ii) the CTC shall recommend to the Commission a plan to improve the performance of pre-season, in-season, and other management tools so that the deviations between catches and post-season fishery limits to AABM fisheries are narrowed to a maximum level of 10%;

- (c) that for ISBM fisheries, the CTC shall annually compute and report the metrics described in paragraphs 5(a), and, using the best available post-season data and analysis, report performance to the Commission of those metrics and the obligations set out in this Chapter. If a Party anticipates that there is a risk that it may exceed its CYER limit in a given year, that Party shall advise the Commission before the fishing season, provide supporting rationale and explain how the CYER limit shall be achieved on average over a three-year period. Beginning with the 2019-2021 catch years¹⁵, the CTC shall compute a running three-year average of CYERs for all stocks in ISBM fisheries set out in Attachment I. For stocks in Attachment I without agreed management objectives, all years shall be used to calculate the running three-year average. For each stock with an agreed management objective set out in Attachment I, the running three-year average shall include all years in which the management objective is not achieved, and the years in which the management objective is achieved with a CYER that is less than or equal to the ISBM obligation identified in paragraph 5. For stocks that have a running three-year average CYER that exceeds the limit of paragraph 5 by more than 10% (i.e., the estimated CYER is greater than 1.1 of the CYER limit):
- (i) the Commission shall request that the management entities responsible for the management of the ISBM fishery take necessary actions to minimize the deviation between the three-year CYER average and the CYER limits in Attachment I. By the end of the annual meeting of the Commission, the Commission shall discuss proposals from the management entity regarding the actions to be taken and the expected outcomes of those actions before those actions are implemented, and

¹⁵ The CTC shall begin reporting the running average of CYERs for each stock in Attachment I when data from catch years 2019-2021 are available from both Parties' ISBM fisheries. It is anticipated that estimates of CYERs for the 2019-2021 fishing years shall be available for all stocks no later than 2023 or by 2022 if the processing of CWTs collected in U.S. ISBM fisheries and escapement is accelerated as identified by the Parties in paragraph 2(c)(ii) of this Chapter.

- (ii) the CTC shall provide to the Commission a plan to improve performance of pre-season, in-season, and other management tools so that the deviations between CYERs and CYER limits are narrowed to a maximum level of 10% when limits apply (Attachment I);
- (d) to conduct up to two reviews of the CPUE-based approach to decide whether to continue to use this method to determine the catch limit for the SEAK AABM fishery, to return back to use of the Commission Chinook model, or to adopt an alternative method as determined by the Parties, to determine pre-season estimates of the aggregate AI of Chinook stocks available to the SEAK troll fishery and the relationship between the catch and AIs specified in Table 1. The first review shall occur as soon as practical after the 2022 first post-season AI is calculated and the second review shall occur as soon as practical after the 2025 first post-season AI is calculated. The Commission decision shall be based on the outcome of:
 - (i) a comparison of cumulative actual catch and the cumulative post-season catch limit from the Commission Chinook model,
 - (ii) a comparison of the cumulative performance of the CPUE-based catch limit and the pre-season catch limit from the Commission Chinook model to predict the catch limit estimated from the first post-season calibration of the Commission Chinook model (model error), and

- (iii) a comparison of the abundance tier selected by use of the CPUE method and the abundance tier that is selected by use of the pre-season calibration of the Commission Chinook model with the abundance tier selected from the first post-season calibration derived from the Commission Chinook model;
- (e) to consider the results of reviews described in sub-paragraph (d), immediately, and decide whether to continue to use the CPUE method for the SEAK AABM fishery. Unless the Commission decides to continue to use the CPUE-based approach or adopt an alternative method, the Commission Chinook model estimate of the AI and Table 1 shall be used to determine the annual pre-season and post-season catch limits;
- (f) that, 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 those circumstances. That recommendation shall be part of a coordinated management plan that shall include actions taken in all marine and freshwater fisheries that significantly affect the stock or stock group;
- (g) that unusual circumstances may arise in the management of ISBM and AABM fisheries. Either Party may ask the Commission for some flexibility in the implementation of this Chapter to avoid undue disruption of fisheries while maintaining the conservation and allocation principles embodied in this Treaty; and

- (h) that, by January 2023, the CTC shall develop a draft outline for a five-year review to evaluate the effectiveness of harvest reduction measures that are taken for AABM and ISBM fisheries. The draft outline shall include stock status (including spawners, productivity, and abundance indices) and fishery performance (including catches, incidental mortality, and fishery indices such as fishery harvest rates) and seek Commission direction to proceed with preparing a report. In January 2025, the Commission shall review the report to identify any appropriate modifications to this Chapter to improve its implementation.

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

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

Abundance Index	SEAK	NBC	WCVI
0.25	41,300	32,500	28,100
0.30	46,400	39,000	33,700
0.35	51,500	45,500	39,300
0.40	56,600	52,000	44,900
0.45	61,700	58,500	50,500
0.495	66,300	64,400	55,600
0.50	66,800	65,000	65,500
0.55	71,900	71,500	72,100
0.60	77,100	78,000	78,600
0.65	82,200	84,500	85,200
0.70	87,300	91,000	91,700
0.75	92,400	97,500	98,300
0.80	97,500	104,000	104,800
0.85	102,600	110,500	111,400
0.90	107,700	117,000	117,900
0.95	112,800	123,500	135,400

Abundance Index	SEAK	NBC	WCVI
1.00	117,900	130,000	142,600
1.005	119,100	130,700	163,700
1.05	129,100	136,500	171,100
1.10	140,300	143,000	179,200
1.15	151,500	149,500	192,100
1.20	162,800	156,000	200,400
1.205	184,800	156,700	201,300
1.25	191,200	163,300	208,800
1.30	198,200	170,700	217,100
1.35	205,200	178,000	225,500
1.40	212,200	185,300	233,800
1.45	219,200	192,700	242,200
1.50	226,200	200,000	250,500
1.505	244,500	219,600	251,400
1.55	251,400	226,100	258,900
1.60	259,000	233,400	267,200
1.65	266,600	240,700	275,600
1.70	274,200	248,000	283,900
1.75	281,800	255,300	292,300
1.80	289,400	262,600	300,600
1.805	303,500	263,300	301,500
1.85	310,600	269,900	309,000
1.90	318,600	277,200	317,300
1.95	326,500	284,500	325,700
2.00	334,500	291,800	334,000
2.05	342,400	299,100	342,400
2.10	350,400	306,400	350,700
2.15	358,300	313,700	359,100
2.20	366,300	321,000	367,500
2.25	381,000	328,300	375,800

Table 2. Catch limits for the SEAK AABM fishery and the CPUE-based tiers.

CPUE-based Tier	AI-based Tier	Catch Limit
Less than 2.0	Less than 0.875	Commission Determination
2.0 to less than 2.6	Between 0.875 and 1.0	111,833
2.6 to less than 3.8	Between 1.005 and 1.2	140,323
3.8 to less than 6.0	Between 1.205 and 1.5	205,165
6.0 to less than 8.7	Between 1.505 and 1.8	266,585
8.7 to less than 20.5	Between 1.805 and 2.2	334,465
20.5 and greater	Greater than 2.2	372,921

Appendix A to Annex IV, Chapter 3: Understandings Regarding Chinook Technical Committee Assignments Relating to the Implementation of Chapter 3 of Annex IV

1. The CTC shall, *inter alia*:
 - (a) at the request of the Commission, evaluate management actions and report:
 - (i) if there is a concern about the consistency of the actions with the measures set out in this Chapter, or
 - (ii) on the effectiveness of the actions in attaining the specified objectives;
 - (b) report annually on catches, terminal exclusions, hatchery add-ons, harvest rate indices, estimates of incidental mortality, and exploitation rates that apply best available information to account for MSF impacts for all Chinook fisheries and stocks harvested within the Treaty area;
 - (c) report annually on naturally spawning Chinook stocks in relation to the agreed MSY or other agreed biologically-based escapement objectives, rebuilding exploitation rate objectives, or other metrics and evaluate trends in the status of stocks and report on progress in the rebuilding of naturally spawning Chinook stocks;

- (d) evaluate and review 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, when requested by the Commission, recommend goals for naturally spawning Chinook stocks that are consistent with this Chapter;
- (e) recommend, to the Commission, standards for the minimum assessment program that are required to effectively implement this Chapter together with an estimate of the costs to meet, and effectiveness of, the standards, provide information on stock assessments relative to the standards adopted by the Commission and periodically recommend to the Commission any improvements in stock assessments that are needed to meet adopted standards;
- (f) recommend research projects, and describe their costs, intended to improve the implementation of this Chapter;
- (g) provide an annual report to the Commission regarding the stock-specific impacts of MSF for Chinook salmon in the Treaty area;
- (h) provide annual calibrations of the Commission Chinook model¹⁶ with pre-season and post-season abundance indexes by April 1 of each year; and
- (i) provide to the Commission an annual summary concerning the CEII and CWT&R programs.

¹⁶ TCCHINOOK (18) 1 – 2017 Exploitation Rate Analysis and Model Calibration (May 2018).

2. The CTC shall recommend standards for the level of precision and accuracy of data required to estimate incidental fishing mortality by February 2020.
3. The CTC shall complete an annual post-season assessment for fisheries that includes:
 - (a) an evaluation of estimates of encounters and incidental mortalities in all fisheries subject to this Treaty;
 - (b) post-season estimates of incidental mortality that includes incidental mortality from MSF, and total mortality; and
 - (c) a description of the causes (if identifiable) of significant changes in rates or patterns of incidental mortalities in fisheries relative to paragraph 4(a) and 4(f) of this Chapter for AABM fisheries (1999-2016) and paragraph 5 of this Chapter for ISBM fisheries (1999-2015).
4. The CTC shall evaluate the ISBM fishery performance relative to the obligations set forth in paragraph 5 of this Chapter and report annually to the Commission. Because the performance analysis is dependent on recovery of coded wire tags, the CTC shall provide the evaluation for ISBM fisheries on a post-season basis.

5. The Commission shall use the CYER metric to monitor the total mortality in ISBM fisheries. By 2021, the CTC shall include in the annual Exploitation Rate Analysis and Model Calibration (ERA) report a description of the procedures used to adjust the CYERs in order to represent the effects of MSF on the naturally spawning Chinook stocks specified in Attachment I, and describe any adjustments of terminal fishery impacts for the exploitation rate indicator stock in order to represent the impacts on the associated escapement indicator stock specified in Attachment I. The Commission shall review the CYER metric during the year 2022 to make a decision on its continued application or the use of an alternative metric. In the absence of a Commission decision to use an alternative metric, the use of the CYER metric shall continue. Before the review, the CTC shall complete the development of the Data Generation Model, complete the evaluation of alternative metrics for the evaluation of ISBM fisheries and develop data standards to apply the CYER as a metric.
6. The CTC shall determine annually if deviations have occurred between the observed catches and both the pre-season and post-season allowable catches for the SEAK, NBC, and WCVI AABM Treaty Chinook catches.
7. The CTC shall provide detailed information concerning any catches of Chinook associated with paragraphs 6(i) and 6(j) of this Chapter, and a summary of information used to determine the allowable exclusion or hatchery add-on, in the annual catch and escapement report.

8. The CTC shall provide the first post-season AI estimates for the SEAK, NBC, and WCVI AABM fisheries using the Commission Chinook model and compare the following estimates and calculate model error related overages for the annual post-season review:

- (a) the CPUE-based tier to the tier based on the first post-season AI, using the Commission Chinook model, for the SEAK AABM fishery; and
- (b) the Commission Chinook model pre-season AI or alternative approach to the Commission Chinook model first post-season AI in the NBC and WCVI AABM fisheries.

9. The CTC shall review the performance of the fisheries to meet management objectives and harvest provisions and present its findings to the Commission during the annual meeting. The Commission shall take any action, as needed, based on this annual review. Specifically, the CTC shall provide the Commission with:

- (a) the AABM fisheries pre-season limits, actual catches, and identify the extent of any exceedance (overage) of those limits for the prior fishing season (management error),
- (b) the AABM fisheries post-season limits for fisheries that occurred two years prior and any exceedance (overage) between the annual pre- and post-season limits from two years prior (model error),
- (c) recommendations for minimizing deviations between pre- and post-season fishery limits (model and management tool improvements), and

- (d) the status concerning the achievement of stock-specific management objectives; specifically, a table of agreed-to management objectives for each stock included in Attachment I and the annual stock-specific metrics, if available, with the identification of stocks that achieved less than 85% of the point estimate (or lower end range) of the management objective for three consecutive years beginning in 2019¹⁷.

10. The CTC shall annually compute and report AABM post-season fishery limits defined by using the first post-season Commission Chinook model estimate. Deviations between AABM post-season catch limits and actual catches are anticipated. Overages are of particular concern. The Commission encourages management entities to use pre-season models to plan fisheries, but to use in-season indicators and other tools to minimize potential overages evaluated from post-season catch limits. If, in two consecutive years, the NBC or WCVI AABM fishery catches exceed post-season limits by more than 10%, or the SEAK AABM fishery the pre-season tier and catches exceed the post-season tier:

- (a) The Commission shall request that the management entity responsible for the management of the AABM fishery take necessary actions to minimize variance between the pre-season and post-season catch limits commencing the following year. By the end of the annual meeting of the Commission, the Commission shall discuss proposals from the management entity regarding the actions to be taken and the expected outcomes of those actions before those actions are implemented; and

¹⁷ For stocks with an exploitation rate management objective, the trigger shall be a CYER that exceeded the management objective by more than 15 percent (i.e., estimated CYER is 1.15 of the CYER management objective) on average in three consecutive years.

- (b) The CTC shall recommend to the Commission a plan to improve the performance of pre-season, in-season and other management tools so that the deviations between catches and post-season fishery limits to AABM fisheries are narrowed to a maximum level of 10%.

11. For ISBM fisheries, the CTC shall annually compute and report the metrics described in paragraphs 5(a) of this Chapter, and, using the best available post-season data and analysis, report performance to the Commission of those metrics and the obligations set out in this Chapter. Beginning with the 2019-2021 catch years¹⁸, the CTC shall compute a running three-year average of CYERs for all stocks in ISBM fisheries set out in Attachment I. For stocks in Attachment I without agreed management objectives, all years shall be used to calculate the running three-year average. For each stock with an agreed management objectives set out in Attachment I, the running three-year average shall include all of the years in which the management objective is not achieved, and the years in which the management objective is achieved with a CYER that is less than or equal to the ISBM obligation identified in paragraph 5 of this Chapter. For stocks that have a running three-year average CYER that exceeds the limit of paragraph 5 of this Chapter by more than 10% (i.e., the estimated CYER is greater than 1.1 of the CYER limit):

- (a) the Commission shall request that the management entities responsible for the management of the ISBM fishery take necessary actions to minimize the deviation between the three-year CYER average and the CYER limits in Attachment I. By the end of the annual meeting of the Commission, the Commission shall discuss proposals from the management entities regarding the actions to be taken and the expected outcomes of those actions before those actions are implemented; and

¹⁸ The CTC shall begin reporting the running average of CYERs for each stock in Attachment I when data from catch years 2019-2021 are available from both Parties' ISBM fisheries. It is anticipated that estimates of CYERs for the 2019-2021 fishing years shall be available for all stocks no later than 2023 or by 2022 if the processing of CWTs collected in U.S. ISBM fisheries and escapement is accelerated as identified by the Parties in paragraph 2(c)(ii) of this Chapter.

- (b) the CTC shall provide to the Commission a plan to improve the performance of pre-season, in-season and other management tools so that the deviations between the CYERs and the CYER limits are narrowed to a maximum level of 10% when limits apply (Attachment I).

12. The Commission may request CTC support in conducting up to two reviews of the CPUE-based approach to decide whether to continue to use this method to determine the catch limit for the SEAK AABM fishery, to return back to use of the Commission Chinook model, or to adopt an alternative method as determined by the Parties, to determine pre-season estimates of the aggregate AI of Chinook stocks available to the SEAK troll fishery and the relationship between the catch and AIs specified in Table 1.

13. By January 2023, the CTC shall develop a draft outline for a five-year review to evaluate the effectiveness of harvest reduction measures that are taken for AABM and ISBM fisheries. The draft outline shall include stock status (including spawners, productivity, and abundance indices) and fishery performance (including catches, incidental mortality, and fishery indices such as fishery harvest rates) and seek Commission direction to proceed with preparing a report. In January 2025, the Commission shall review the report to identify any appropriate modifications to this Chapter to improve its implementation.

14. The CTC shall work to complete by February 2019 improvements to the Commission Chinook model in order to add and refine the stocks and fisheries (referred to as Phase 2 in CTC 2018 work plan). The Commission shall receive the model improvements from Phase 2 and make a decision about their implementation. The CTC shall complete its Phase 3 work (e.g., improved capabilities for pre-season abundance forecasts, representation of MSF and other types of fisheries regulations, inclusion of release data to estimate incidental mortalities in Chinook fisheries, incorporation of stock-specific growth functions, etc.) in time to support the five-year review. The Commission shall receive the model improvements from Phase 3 and make a decision about their implementation.

Appendix B to Annex IV, Chapter 3:
Calculations and Base Period Data Related to Estimated CPUE From
the Winter Troll fishery in District 113 During Statistical Weeks 41-48

1. SEAK CPUE is defined as catch divided by effort:

$$CPUE = \frac{Catch}{Effort}$$

Where *catch* is the number of Chinook caught in the power troll fishery and *effort* is the number of power troll fishery boat days, which is the date fishing ends, minus the date fishing begins plus one (e.g., a boat that started and stopped fishing on the same day fished for 1 boat day).

Both catch and effort are computed using all fish ticket data collected during the SEAK District 113 early winter power troll fishery (Alaska Department of Fish and Game (ADF&G)) statistical weeks 41-48).

2. A table of SEAK CPUE and first postseason AI from the Commission Chinook model for accounting years 2001-2015 are shown below.

Accounting Year	SEAK CPUE	First postseason AI
2001	8.3	1.29
2002	16.9	1.82
2003	20.4	2.17
2004	8.0	2.06
2005	8.3	1.90
2006	10.3	1.73
2007	3.4	1.34
2008	2.3	1.01
2009	3.4	1.20
2010	4.3	1.31

Accounting Year	SEAK CPUE	First postseason AI
2011	6.1	1.62
2012	4.7	1.24
2013	4.4	1.63
2014	7.4	2.20
2015	13.2	1.95

3. Seven tiers of CPUE-based abundance were defined by: 1) an extremely low CPUE to account for extremely low abundance years; 2) four intermediate abundance CPUE tiers that correspond to the four segments of the broken stick relationship between harvest rate index (HRI) and AI in the *Exchange of Notes between the Government of Canada and the Government of the United States of America relating to Annex IV of the Treaty between the Government of Canada and the Government of the United States of America concerning Pacific Salmon*, done at Washington on 23 December 2008 (the “2009 Agreement”); and, 3) two tiers of CPUE that account for high and extremely high abundance years.

4. Results of an allometric power regression of SEAK CPUE on the first postseason AI during 2001-2015 were used to convert AI-based breakpoints to CPUE-based breakpoints between the seven tiers of catch ceiling:

$$\widehat{CPUE} = 2.636 \cdot AI^{2.029}.$$

The three AI-based breakpoints in the 2009 Agreement were converted as follows:

AI breakpoint = 1.005; CPUE-based breakpoint = 2.6

AI breakpoint = 1.2; CPUE-based breakpoint = 3.8

AI breakpoint = 1.5; CPUE-based breakpoint = 6.0

Two new tiers were added to provide greater resolution for AIs greater than 1.5. For the highest abundance tier, the highest observed CPUE was paired with the highest AI during 2001-2015. The second tier added was for an AI = 1.80, approximately centered between an AI of 1.5 and 2.2.

5. The catch ceiling for tiers 2 through 6 was calculated by first determining the midpoint of the corresponding AI-based tier as shown in paragraph 6. The AI corresponding to the seventh tier was set to 2.2, the largest first post-season AI observed during 2001-2015 (an AI of 2.2 in 2014). The catch ceiling for tiers 2 through 7 was then determined from the catch corresponding to the midpoint of the AI-based tier of Table 1 in the 2009 Agreement. The Commission shall determine, as needed, the catch ceiling in the lowest abundance tier during conditions of extremely low abundance.

6. The following table shows the correspondence between the CPUE-based tier, AI-based tier and midpoint, and corresponding catch ceilings from Table 1 in the 2009 Agreement.

Tier	CPUE-based tier	AI-based tier	Midpoint of AI-based tier	Catch Ceiling
1	Less than 2.0	Less than 0.875	-	Commission Determination
2	2.0 to less than 2.6	Between 0.875 and 1.0	0.94	120,900
3	2.6 to less than 3.8	Between 1.005 and 1.2	1.10	151,700
4	3.8 to less than 6.0	Between 1.205 and 1.5	1.35	221,800
5	6.0 to less than 8.7	Between 1.505 and 1.8	1.65	288,200
6	8.7 to less than 20.5	Between 1.805 and 2.2	2.00	345,700
7	20.5 and greater	Greater than 2.2	2.20	378,600

7. The resultant CPUE-based catch ceilings in paragraph 6 were then reduced by 7.5% for AI values less than or equal to 1.8, 3.25% for AI values greater than 1.8 but less than or equal to 2.2, and 1.5% for AI values greater than 2.2. The CPUE-based tier, AI-based tier and midpoint, and the corresponding final catch ceilings are shown in the following table.

Tier	CPUE-based tier	AI-based tier	Midpoint of AI-based tier	Catch Ceiling
1	Less than 2.0	Less than 0.875	-	Commission Determination
2	2.0 to less than 2.6	Between 0.875 and 1.0	0.94	111,833
3	2.6 to less than 3.8	Between 1.005 and 1.2	1.10	140,323
4	3.8 to less than 6.0	Between 1.205 and 1.5	1.35	205,165
5	6.0 to less than 8.7	Between 1.505 and 1.8	1.65	266,585
6	8.7 to less than 20.5	Between 1.805 and 2.2	2.00	334,465
7	20.5 and greater	Greater than 2.2	2.20	372,921

Appendix C to Annex IV, Chapter 3: Relationships between AIs, Catches and HRIs¹⁹

Southeast Alaska All Gear	North BC Troll & QCI Sport	WCVI Troll & Outside Sport
Proportionality Constant (PC) = 12.38	Proportionality Constant (PC) = 11.83	Proportionality Constant (PC) = 13.10
Harvest Rate Index (HRI) = $\text{EXP}(\text{LN}(\text{Troll Catch} / \text{AI}) - \text{PC})$	Harvest Rate Index = $\text{EXP}(\text{LN}(\text{Troll Catch} / \text{AI}) - \text{PC})$	Harvest Rate Index = $\text{EXP}(\text{LN}(\text{Troll Catch} / \text{AI}) - \text{PC})$
Troll Catch = $(\text{Total Catch} - \text{Net Catch}) * 0.8 = \text{EXP}(\text{PC} + \text{LN}(\text{HRI} * \text{AI}))$	Troll Catch = $\text{Total Catch} * 0.8 = \text{EXP}(\text{PC} + \text{LN}(\text{HRI} * \text{AI}))$	Troll Catch = $\text{Total Catch} * 0.8 = \text{EXP}(\text{PC} + \text{LN}(\text{HRI} * \text{AI}))$
Total Catch = $\text{Net Catch} + \text{Troll Catch} / 0.8$	Total Catch = $\text{Troll Catch} / 0.8$	Total Catch = $\text{Troll Catch} / 0.80$
<u>Reduction in Total Catch from 2009 Agreement:</u>	<u>Reduction in Total Catch from 2009 Agreement:</u> 0%	<u>Reduction in Total Catch from 2009 Agreement:</u>
AIs less than 1.805 - 7.5%, Net Catch = 15,725		AIs less than 0.93 - 12.5%

¹⁹ If alternative harvest rate metrics are adopted in any of the AABM fisheries the proportionality constants in the affected fisheries shall be recalculated, and the associated HRI values in this Appendix shall be adjusted. However, the formulas to estimate total catch in this Appendix and the catches in Table 1 shall remain unaffected.

Southeast Alaska All Gear	North BC Troll & QCI Sport	WCVI Troll & Outside Sport
<p>AIs between 1.805 and 2.2 - 3.25%, Net Catch = 16,448</p> <p>AIs greater than 2.2 - 1.5%, Net Catch = 16,745</p>		<p>AIs between 0.93 and 1.12 - 4.8%</p> <p>AIs greater than 1.12 - 2.4%</p>
<p><u>For AIs less than 1.005</u></p> <p>Total Catch = 15,725 + 102,213 * AI</p> <p>Troll Catch = (102,213 * AI) * 0.8</p> <p>HRI = 0.344</p>	<p><u>For AIs less than 1.205</u></p> <p>Total Catch = 130,000 * AI</p> <p>Troll Catch = (130,000 * AI) * 0.8</p> <p>HRI = 0.757</p>	<p><u>For AIs less than 0.5</u></p> <p>Total Catch = 112,304 * AI</p> <p>Troll Catch = (112,304 * AI) * 0.8</p> <p>HRI = 0.184</p>
<p><u>For AIs between 1.005 and 1.2</u></p> <p>Total Catch = -106,144 + 224,081 * AI</p> <p>Troll Catch = (-121,869 + 224,081 * AI) * 0.8</p> <p>HRI increasing from 0.346 to 0.412</p>	<p><u>For AIs between 1.205 and 1.5</u></p> <p>Total Catch = -20,000 + 146,667 * AI</p> <p>Troll Catch = (-20,000 + 146,667 * AI) * 0.8</p> <p>HRI increasing from 0.757 to 0.777</p>	<p><u>For AIs between 0.5 and 0.925</u></p> <p>Total Catch = 131,021 * AI</p> <p>Troll Catch = (131,021 * AI) * 0.8</p> <p>HRI = 0.214</p>
<p><u>For AIs between 1.205 and 1.5</u></p> <p>Total Catch = 15,725 + 140,342 * AI</p> <p>Troll Catch = (140,342 * AI) * 0.8</p>	<p><u>For AIs greater than 1.5</u></p> <p>Total Catch = 145,892 * AI</p> <p>Troll Catch = (145,892 * AI) * 0.8</p>	<p><u>For AIs between 0.93 and 1.0</u></p> <p>Total Catch = 142,551 * AI</p> <p>Troll Catch = (142,551 * AI) * 0.8</p>

Southeast Alaska All Gear	North BC Troll & QCI Sport	WCVI Troll & Outside Sport
<p>HRI = 0.472</p> <p><u>For AIs between 1.505 and 1.8</u></p> <p>Total Catch = 15,725 + 152,037 * AI</p> <p>Troll Catch = (152,037 * AI) * 0.8</p> <p>HRI = 0.511</p> <p><u>For AIs between 1.805 and 2.2</u></p> <p>Total Catch = 16,448 + 159,023 * AI</p> <p>Troll Catch = (159,023 * AI) * 0.8</p> <p>HRI = 0.535</p> <p><u>For AIs greater than 2.2</u></p> <p>Total Catch = 16,745 + 161,899 * AI</p> <p>Troll Catch = (161,899 * AI) * 0.8</p> <p>HRI = 0.544</p>	<p>HRI = 0.85</p>	<p>HRI = 0.233</p> <p><u>For AIs between 1.005 and 1.12</u></p> <p>Total Catch = 162,916 * AI</p> <p>Troll Catch = (162,916 * AI) * 0.8</p> <p>HRI = 0.267</p> <p><u>For AIs greater than 1.12</u></p> <p>Total Catch = 167,023 * AI</p> <p>Troll Catch = (167,023 * AI) * 0.8</p> <p>HRI = 0.273</p>

Attachment I: Indicator stocks, ISBM fishery limits, and management objectives applicable to obligations specified in paragraphs 1, 5, 6, and 7

Stock Region	Escapement Indicator Stock (CWT Indicator Stock)	Canadian ISBM CYER Limit	US ISBM CYER Limit	Management Objective
SEAK/ TBR	Situk ¹ (TBD)	NA	NA	500-1,000
	Alsek ^{1,2} (TBD)	NA	NA	3,500-5,300
	Taku ^{1,2} (TAK)	NA	NA	19,000-36,000
	Chilkat ¹ (CHK)	NA	NA	1,750-3,500
	Stikine ^{1,2} (STI)	NA	NA	14,000-28,000
	Unuk ¹ (UNU)	NA	NA	1,800-3,800
BC	Skeena (KLM)	100% avg 09-15	NA ³	TBD ⁶
	Atnarko (ATN)	100% avg 09-15	NA ³	5,009 ^{4,5}
	NWVI Natural Aggregate			
	(Colonial-Cayeagle, Tashish, Artlish, Kaouk) (RBT adj)	95% avg 09-15	NA ³	TBD ⁶
	SWVI Natural Aggregate			
	(Bedwell-Ursus, Megin, Moyeha) (RBT adj)	95% avg 09-15	NA ³	TBD ⁶
	East Vancouver Island North			
	(TBD) (QUI adj)	95% avg 09-15	NA ³	TBD ⁶
	Phillips (PHI)	100% avg 09-15	NA ³	TBD ⁶
	Cowichan (COW)	95% avg 09-15	95% avg 09-15	6,500
	Nicola (NIC)	95% avg 09-15	95% avg 09-15	TBD ⁶
	Chilcotin (in development)	95% avg 09-15	NA ³	TBD ⁶
	Chilko (CKO in development)	95% avg 09-15	NA ³	TBD ⁶

Stock Region	Escapement Indicator Stock (CWT Indicator Stock ⁸)	Canadian ISBM CYER Limit	US ISBM CYER Limit	Management Objective
	Lower Shuswap (SHU)	100% avg 09-15	NA ³	12,300 ⁴
	Harrison (HAR)	95% avg 09-15	95% avg 09-15	75,100
	Canadian Okanagan (SUM adj) ⁹	NA ³	TBD	TBD ⁶
WA/ OR/ID	Nooksack Spring (NSF)	87.5% avg 09-15	100% avg 09-15	TBD ⁶
	Skagit Spring (SKF)	87.5% avg 09-15	95% avg 09-15	690 ⁴
	Skagit Summer/Fall (SSF)	87.5% avg 09-15	95% avg 09-15	9,202 ⁴
	Stillaguamish (STL)	87.5% avg 09-15	100% avg 09-15	TBD ⁶
	Snohomish (SKY)	87.5% avg 09-15	100% avg 09-15	TBD ⁶
	Hoko (HOK)	NA ³	10% CYER ⁷	TBD ⁶
	Grays Harbor Fall (QUE adj)	NA ³	85% avg 09-15	13,326
	Queets Fall (QUE)	NA ³	85% avg 09-15	2,500
	Quillayute Fall (QUE adj)	NA ³	85% avg 09-15	3,000
	Hoh Fall (QUE adj)	NA ³	85% avg 09-15	1,200
	Upriver Brights (HAN, URB)	NA ³	85% avg 09-15	40,000
	Lewis (LRW)	NA ³	85% avg 09-15	5,700
	Coweeman (CWF)	NA ³	100% avg 09-15	TBD ⁶

Stock Region	Escapement Indicator Stock (CWT Indicator Stock) ²	Canadian ISBM CYER Limit	US ISBM CYER Limit	Management Objective
	Mid-Columbia Summers (SUM)	NA ³	85% avg 09-15	12,143
	Nehalem (SRH adj)	NA ³	85% avg 09-15	6,989
	Siletz (SRH adj)	NA ³	85% avg 09-15	2,944
	Siuslaw (SRH adj)	NA ³	85% avg 09-15	12,925
	South Umpqua (ELK adj)	NA ³	85% avg 09-15	TBD ⁶
	Coquille (ELK adj)	NA ³	85% avg 09-15	TBD ⁶

¹ Identified for management of SEAK fisheries in paragraph 6(b)(iv).

² Stock-specific harvest limits specified in Chapter 1 of this Treaty.

³ Not Applicable since less than 15% of the recent total mortality was in these fisheries.

⁴ Agency escapement goal has the same status as CTC agreed escapement goal for implementation of this Chapter.

⁵ Natural origin spawners.

⁶ To be determined after CTC review specified in paragraph 2(b)(iv) of this Chapter.

⁷ ISBM limit set at 10% in recognition of closure of the Hoko River to Chinook salmon fishing in 2009-2015.

⁸ CWT indicator stocks and fishery adjustments described in TCCHINOOK (16)-2.

⁹ Pending the review specified in paragraph 5(b) of this Chapter and a subsequent Commission decision.

CHAPTER 5

Coho Salmon

This Chapter shall apply to the period from 2019 through 2028.

1. Recognizing that some coho stocks are below levels necessary to sustain maximum harvest, the Parties shall develop regimes for the sustainable management of coho stocks.
2. The Parties shall establish regimes for their fisheries that are consistent with management objectives described in this Chapter and that are recommended and approved by the Commission:
 - (a) for coho stocks that are shared by the respective fisheries of the U.S. and Canada, the Southern Panel shall recommend fishery regimes for coho salmon that originate in rivers with mouths situated south of Cape Caution, as provided in Annex I to this Treaty; and
 - (b) for coho stocks that are shared by the respective fisheries of the U.S. and Canada, the Northern Panel shall recommend fishery regimes, as provided in Attachment B, for coho salmon that originate in rivers with mouths situated between Cape Caution and Cape Suckling.
3. The Northern Boundary Technical Committee shall carry out technical assignments, at the direction of the Northern Panel and the Commission, for coho salmon that originate in rivers and mouths situated between Cape Caution and Cape Suckling, to:
 - (a) evaluate the effectiveness of management actions;

- (b) identify and review the stocks' status;
- (c) provide current information on the stocks' harvest rates and patterns, and develop a database for assessments;
- (d) collate available information on the stocks' productivity in order to identify escapements and associated exploitation rates that produce maximum sustainable harvests (MSH);
- (e) provide historical catch data, associated fishing regimes, and information on stock composition in fisheries harvesting these stocks;
- (f) devise analytical methods to develop alternative regulatory and production strategies to meet the Commission's objectives;
- (g) identify information and research needs, which include monitoring programs for stock assessments; and
- (h) for each season, conduct stock and fishery assessments and recommend to the Commission conservation measures that are consistent with the principles of this Chapter.

Southern Coho Management Plan

4. This Southern Coho Management Plan ("Plan") specifies how the Parties' fisheries impact on coho salmon that originate in southern British Columbia, Washington and Oregon shall be managed, subject to future approved technical refinements. The Parties shall implement this Plan in their respective fisheries, as well as any technical refinements that are approved.

5. The Parties shall cooperate to develop coho salmon management programs that are designed to:

- (a) limit total fishery exploitation to enable management units (“MUs”) to produce MSH over the long term and to maintain the genetic and ecological diversity of the component populations; further MSH is interpreted throughout this Chapter to include the concept of maintaining the genetic and ecological diversity of component populations;
- (b) improve long-term prospects to sustain healthy fisheries for both Parties;
- (c) establish an approach to fishery resource management that responds to resource status, that is cost-effective, and sufficiently flexible to use technical capability and information as they are developed and approved;
- (d) provide a predictable framework for planning a fishery’s impact on naturally spawning populations of coho; and
- (e) establish an objective means to monitor, evaluate and modify the management regimes, as appropriate.

6. The Parties shall establish and maintain a joint Working Group to implement this Plan. The Working Group shall develop assessment tools and resolve technical differences that may arise. The Working Group shall develop mechanisms to address circumstances when annual limits on exploitation rates (ER)¹ for boundary area fisheries are exceeded. These mechanisms may include provisions for management error and adjustments for overages, but shall not create catch entitlements for any fishery or Party.

¹
$$\frac{\text{Total Fishing Mortality}_{\text{all fisheries}}}{\text{Total Fishing Mortality}_{\text{all fisheries}} + \text{Escapement}}$$

7. The Parties shall establish and maintain a joint Coho Technical Committee (the "Committee") that reports, unless otherwise approved by the Parties, to the Southern Panel. The Committee shall, *inter alia*, at the direction of the Panel:

- (a) evaluate the effectiveness of management actions;
- (b) identify and review the stocks' status;
- (c) provide current information on the stocks' harvest rates and patterns, and develop a joint database for assessments;
- (d) review available information on the productivity of coho stocks in order to support identification of escapements and associated ERs, which produce MSH;
- (e) devise analytical methods or recommendations for consideration by the Working Group to develop alternative regulatory and production strategies and to address uncertainties caused by data limitations and variation in environmental conditions, in order to meet the Southern Panel's objectives;
- (f) identify the information and research needs that are required to implement this Plan;
- (g) develop and enhance 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;
- (h) oversee the exchange of the Parties' determinations of the status of MUs and information on abundance and distribution of coho that are available for the upcoming season, and review the technical basis for that information;

- (i) review the ERs that result from the application of this Plan and advise the Southern Panel if impacts on the MUs are excessive, given the status of those affected MUs;
- (j) oversee the exchange of pre-season expectations and post-season estimates of MU-specific mortalities in the fisheries of each Party;
- (k) oversee the exchange of information regarding mark-selective fisheries, including estimates of interceptions of mass-marked hatchery coho, if requested by the Southern Panel; and
- (l) undertake bilateral, technical investigations and recommend methods to address data uncertainty and the impact of environmental change, for consideration by the Working Group.

8. Unless otherwise approved by the Parties, the Parties shall:

- (a) manage their fisheries to limit ERs on the following MUs:

<u>Southern B.C. Inside Management Units</u>	<u>U.S. Inside Management Units</u>
Interior Fraser	Skagit
Lower Fraser	Stillaguamish
Strait of Georgia	Snohomish
	Hood Canal
	Strait of Juan de Fuca

Southern B.C. Inside Management Units	U.S. Inside Management Units
	Quillayute
	Hoh
	Queets
	Grays Harbor

- (b) establish and document the derivation of the following targets for MUs that originate within their respective jurisdictions:
- (i) escapement goal or ER that achieves MSH;
 - (ii) MSH ERs for each MU; and
 - (iii) ERs for three status categories, *Low*, *Moderate* and *Abundant*. Each Party shall provide maximum ER targets for each MU and status category that originate within its jurisdiction. Until a Party provides the MU ER targets, that Party shall provide maximum ER targets for each MU that originate within its jurisdiction consistent with the attainment of MSH and within the ranges defined below:

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

- (c) manage all fisheries in their respective jurisdictions, whether directed at coho or not, whether mark-selective or not, to ensure that cumulative ERs on MUs described in paragraph 8(a) do not exceed the limits established in paragraph 9, except:
 - (i) Until Canada establishes status determination methods for Canadian MUs other than the Interior Fraser MU, the Parties shall implement this Chapter to comply with status and associated ER caps that relate to the Interior Fraser MU and U.S. MUs only. The Parties shall jointly discuss the management for status and ER caps for the other MUs. Timing of implementation of management to the remaining Canadian MUs shall be included in the discussions.
 - (ii) The MU status determination methods developed by a Party shall be reviewed by the Committee. The Committee shall provide recommendations to the Parties for consideration in improving the effectiveness of the management regime. When a Party completes or updates the status determination methods, breakpoints, and associated ER caps for any of its MUs, the Parties shall discuss a Party's intention to introduce individual MUs for management via a meeting of the bilateral Working Group.

- (iii) When Canada completes determination of status for Canadian MUs that are not yet implemented under this Chapter, the Parties shall include these MUs in the Plan for the season after completion of their status determination methods, bilateral scientific review, and bilateral implementation talks, as long as Canada provides sufficient notice to the U.S. prior to the Commission's annual management cycle. In most circumstances, this notice is required during or prior to the annual Fall session of the Commission;
- (d) implement additional fishery management measures that are practicable and necessary to conserve component stocks of the MUs that originate within their respective jurisdictions;
- (e) maintain capabilities and programs to conduct stock assessments, evaluate fishery impacts, and meet this Plan's objectives;
- (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, through their respective domestic processes, classify the status of each MU that originates in their rivers as, *Low*, *Moderate* or *Abundant*, and provide any changes in maximum, status-dependent ERs. In mid-March every year, the Parties shall exchange information on the status of each MU, the associated ER that applies 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 in this Chapter to facilitate domestic fishery planning processes. In any given year, the Parties shall not change the status or associated ER caps for an MU after March 31; and
- (h) By June 30 of each year, through Canadian and U.S. domestic management authorities, exchange information on the implementation of management measures to ensure that the cumulative ERs 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. Specifically:
 - (i) By April 30 of each year, the U.S. shall provide Canada with projected ERs for its fisheries on Interior Fraser MU for the coming season,
 - (ii) When methodologies to establish status benchmarks and associated ER caps have been established for other Canadian MUs, the U.S. shall provide Canada with estimates of the impact of its fisheries on the Canadian MUs by April 30 in addition to the Interior Fraser MU,

- (iii) By June 30 of each year, Canada shall provide the U.S. with projected ERs for its fisheries on U.S. MUs specified in paragraph 8(a) for the coming season.

9. Each Party shall, in the pre-season, plan its intercepting fisheries so that the total ERs do not exceed the MU-specific ER caps as follows:

- (a) The following principles apply to the ER caps in the tables in subparagraphs 9(b) to (d):
 - (i) For MUs in *Low* status, the Parties shall plan and manage their respective fisheries to reduce the impact on those MUs. The producing Party shall bear a greater share of the conservation responsibility for MUs in *Low* status, and the intercepting Party shall not be required to reduce its impact below a 10% ER, 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 ER; 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 this Treaty;

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

Condition of U.S. 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 ER cap on U.S. Outside MUs (Table 2):

Condition of U.S. 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. status-dependent ER caps for Canadian MUs are specified in this table and shall only be used to manage the impacts of the Parties' respective fisheries on the Interior Fraser MU until Canada develops biological status determination methods for the other Canadian MUs. The Parties agree that the status of the Interior Fraser MU shall be managed at a *Low* status until Canada establishes status determination methods that would provide the basis for a change:

Condition of Canadian MUs	U.S. ER Caps	MU Applicability
Low	0.10	All MUs with Total ER ≤ 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 ERs is desirable;
- (f) The intercepting ER caps established for each Party under this paragraph are maximums. If, for any MU, the intercepting Party does not require the full ER cap to harvest its own stocks, that Party may implement fishing plans that result in ERs below the caps. If this occurs, the producing Party may plan fisheries to use the unused portion of the cap, if the cumulative ER limit established for that MU is not exceeded;

- (g) If a producing Party identifies concerns about increasing trends in ER on its MU by the intercepting Party over two or more years, the Parties shall initiate a bilateral discussion on an appropriate response for implementation in the following year;
- (h) The Parties shall establish a bilateral technical plan to develop and implement this Chapter. The Parties commit to joint development of pre-season planning and post-season evaluation tools and protocols. If the Parties determine that implementation experience and the bilateral planning tools and protocols indicate that the ER caps specified in paragraphs 9(b) to (d) are inconsistent with the objectives identified in paragraph 5, the Parties shall undertake discussions, which may refer to the work of the Committee described in paragraph 7, to revise these ER caps in a manner that is consistent with those objectives.

10. Each year, the Committee shall provide post-season estimates of MU ERs for fisheries conducted two years prior, as well as pre-season estimates of MU ERs planned for the upcoming season. The Committee shall review estimates of ERs to determine why ER limits established pursuant to paragraphs 9(b) to (d) were exceeded, or if there are trends identified under paragraph 9(g), including the effects of management error, imprecision or uncertainty of abundance forecasts. The Committee shall report the results to the Southern Panel, and if the ER limits under paragraphs 9(b) to (d) are exceeded, the Parties shall discuss whether the regimes should be adjusted to meet the objectives of this Chapter.

11. Each Party may:

- (a) plan and manage fisheries to achieve a lower ER than the rates allowed under paragraphs 9(b) to (d) to address domestic management objectives;
- (b) request additional reductions in ERs determined under paragraphs 9(b) to (d) to meet critical conservation concerns not adequately addressed by the ER caps. 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 shall develop bilateral guidance to indicate how this could be implemented in a responsible and timely manner during a Party's domestic preseason planning;
- (c) request increases in the MU-specific ER caps determined under paragraphs 9(b) to (d) if the Party can demonstrate that the ER caps prevent it from accessing its own stocks to meet its fishery management objectives or from harvesting other allocations provided under this Treaty. The Southern Panel shall develop bilateral guidance to indicate how this could be implemented in a responsible and timely manner during a Party's domestic preseason planning; and
- (d) request that the Committee evaluate the performance of the management regime described in this Plan and recommend measures to correct for systematic biases and potential improvements to the Southern Panel.

12. The Parties shall review this Plan no later than three years after this Chapter enters into force and every three years after that date, unless otherwise specified by the Southern Panel. The review shall include an assessment of the effectiveness of this Plan in achieving the management objectives of the Parties and any other issues either Party wants to raise, including, but not limited to:

- (a) whether the ER caps established under paragraphs 9(b) to (d) have prevented either Party from accessing its own stocks to meet its fishery management objectives or from harvesting other allocations that are provided under this Treaty; 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 Parties shall modify this Plan, if necessary, based on the review and the need to incorporate results of bilateral technical developments (e.g., to establish criteria to define MUs and to biologically determine allowable ERs, to develop a common methodology for measuring ERs in Canadian and U.S. fisheries, development of bilateral management planning tools, etc.).

13. Test fisheries sanctioned by the Fraser Panel of the Commission for the 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, unless those mortalities are required to support improvements in scientific or technical information about fish stocks.

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. Normal Composite	Canadian Share of Total ER Normal Composite
	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%
ABUNDANT	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%
	0.41	0.180		44%	
	0.42	0.184		44%	
	0.43	0.187		43%	
	0.44	0.191		43%	

Table 2. (cont'd)

	Total ER for U.S. MU	Canadian ER Cap Normal Composite	Canadian Share of Total ER	
			Normal	Composite
ABUNDANT	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

This Chapter shall apply to the period from 2019 through 2028.

1. The Parties shall establish and maintain a Joint Chum Technical Committee (the "Committee"). The Committee shall report, unless the Parties otherwise decide, to the Southern Panel and the Commission. The Committee shall, *inter alia*:

- (a) maintain and present to the Panel historical catch and escapement information for stocks referred to in this Chapter;
- (b) use available information to estimate and document stock composition and exploitation rates in fisheries referred to in this Chapter;
- (c) annually review the Parties' assessment of stock status and fisheries activities for chum fisheries referred to in this Chapter;
- (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 or when requested by the Panel;
 - (i) exchange available information on the productivity and escapement requirements of stocks referred to in this this Chapter,

- (ii) identify and document stocks of concern (with respect to conservation) referred to in this Chapter,
 - (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 use bilaterally approved methods to report its conclusions.
3. The Parties shall assess catch levels and attempt to collect additional genetic samples from any chum salmon caught between July 1 and September 15 in the boundary area fisheries (U.S. Areas 4B, 5, 6C, 7, and 7A; Canadian Areas 18, 19, 20, 21, and 29).
4. From July 1 to September 15, Canada shall 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 (U.S.) shall require the same for the non-Indian seine fisheries in Areas 7 and 7A. By U.S. regulation, purse seine fisheries are not permitted in U.S. Areas 4B, 5, or 6C.
5. Canada shall 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 shall be managed to minimize the interception of non-targeted stocks.

6. Canada shall manage its Johnstone Strait mixed stock fishery as follows:

- (a) The Inside Southern Chum run size estimate by Canada of 1.0 million chum is defined as the Inside Southern Chum Critical Threshold. Inside Southern Chum salmon levels of less than this Threshold are considered critical for the purposes of this Chapter;
- (b) For run sizes above the Inside Southern Chum Critical Threshold, Canada shall 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 Inside Southern Chum Critical Threshold, Canada shall notify the U.S. and shall only conduct assessment fisheries and non-commercial fisheries. Canada shall suspend the operation of commercial fisheries that target chum salmon in Johnstone Strait.

7. Canada shall 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), shall be suspended; and

- (b) For Fraser River terminal area run sizes, identified in-season at abundance levels greater than 900,000 chum salmon, the 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 shall manage the Nitinat gill net and purse seine fisheries for chum salmon to minimize the harvest of non-targeted stocks.
- 9. The U.S. shall manage its chum salmon fishery in Areas 7 and 7A as follows:
 - (a) Inside Southern chum salmon levels of less than the Inside Southern Chum Critical Threshold of 1.0 million as estimated by Canada are considered critical for purposes of this Chapter;
 - (b) For the run sizes below the Inside Southern Chum 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. Catches for the purpose of genetic stock identification sampling shall not be included in this limit;
 - (c) For run sizes above the Inside Southern Chum Critical Threshold, the catch ceiling for the U.S. chum salmon fishery in Areas 7 and 7A shall be 125,000 chum salmon, except as provided in sub-paragraph (d);

- (d) Canada shall provide a run size estimate of chum salmon entering the Fraser River no later than October 22 of each year. Canada shall notify the U.S. whenever Canada updates the formal Fraser River chum run size estimate if that update results in a change to the U.S. catch ceiling. If the Fraser run size estimate is less than 1,050,000, the U. S. shall 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. If the Fraser River run size estimate is between 1,050,000 and 1,600,000, the U.S catch ceiling shall remain at 125,000. If the Fraser River run size estimate is above 1,600,000, the U.S. catch ceiling shall be revised to 160,000;
- (e) U.S. commercial fisheries for chum salmon in Areas 7 and 7A shall not occur prior to October 10 of each year;
- (f) The U. S. shall manage the Areas 7 and 7A fisheries for chum salmon in order to minimize the harvest of non-target species;
- (g) U.S. catch shortfalls may not be accrued; however, overages shall be carried forward as indicated in sub-paragraphs (h), (i), and (j);

- (h) Due to management imprecision:
 - (i) if the U.S. chum catch ceiling is 125,000, a catch in the U.S. of up to 135,000 chum salmon shall not result in an overage calculation. A catch that exceeds 135,000 shall result in an overage, which is calculated by subtracting 125,000 from the total U.S. chum catch; and
 - (ii) if the U.S. chum catch ceiling is 160,000, a catch in the U.S. of up to 170,000 shall not result in an overage calculation. A catch that exceeds 170,000 shall result in an overage, which is calculated by subtracting 160,000 from the total U.S. chum catch;
- (i) Overages under paragraph 9 (h)(i) or 9 (h)(ii) shall be accounted for by reducing the U.S. annual catch ceilings in up to two subsequent non-critical Inside Southern chum salmon years;
- (j) From the day following the date the U.S. is notified of a run size below the Inside Southern Chum Critical Threshold as defined in paragraph 9(a) or below a Fraser River chum run size estimate of 1,050,000, any catch that exceeds 20,000 chum salmon results in an overage. Overages shall be accounted for by reducing the U.S. annual catch ceilings in up to two subsequent non-critical Inside Southern chum salmon years;

- (k) If, subsequent to the revision of the U.S. catch ceiling to 160,000, further in-season run size information changes such that the Fraser River chum run size estimate is revised downward to between 1,050,000 and 1,600,000, the U.S. shall manage their fisheries in Area 7 and 7A to stay below the catch ceiling of 125,000. If the lower catch ceiling has already been reached, the U.S. shall terminate these fisheries; and
- (l) In the circumstances described in paragraph 9(k), overage calculations shall be based on the highest catch ceiling determined in that season provided the U.S. terminates these fisheries.

10. The U.S. shall conduct its chum salmon fishery in the Strait of Juan de Fuca (U.S. Areas 4B, 5 and 6C) with a view to maintaining the limited effort nature of this fishery, and, to the extent practicable, not increase interceptions of Canadian origin chum salmon. The U.S. shall continue to monitor this fishery to determine if recent catch levels indicate an increasing level of interception.

11. The Parties shall exchange all information concerning non-target catch of other salmon species, including steelhead, from the chum salmon fisheries covered by this Chapter in the annual post-season report.

12. If circumstances arise that are inconsistent with a Party's understanding of the intent of this Chapter, the Southern Panel shall discuss the matter in the post-season and explore options for taking the appropriate corrective action.

ATTACHMENT E: HABITAT AND RESTORATION

CONSIDERING the agreements between the Parties to implement abundance-based management regimes designed to prevent overfishing;

TAKING INTO ACCOUNT the decline in the abundance and productivity of important naturally spawning stocks of Pacific salmon subject to this Treaty;

RECOGNIZING that it is vital to protect and restore the salmon habitat and to maintain adequate water quality and quantity in order to improve spawning, the safe passage of adult and juvenile salmon and, therefore, to optimize the production of important naturally spawning stocks;

RECOGNIZING that the Parties can achieve the principles and objectives of this Treaty only if they maintain and increase the production of natural stocks;

RECOGNIZING that a carefully designed enhancement program would contribute significantly to the restoration of depressed natural stocks and help the Parties optimize production; and

DESIRING to cooperate to optimize production of important naturally spawning stocks,

THE PARTIES AGREE:

1. To use their best efforts, consistent with applicable law, to:
 - (a) protect and restore the habitat to promote the safe passage of adult and juvenile salmon and to achieve high levels of natural production;
 - (b) maintain and, as needed, improve safe passage of salmon to and from their natal streams; and

(c) maintain adequate water quality and quantity.

2. To promote these objectives by requesting that the Commission:

- (a) maintain a page on its web site that documents citations, references, or links to publicly accessible information published by the Parties, management entities, or others related to the habitat protection and restoration projects and programs that are important to Pacific salmon stocks subject to this Treaty ; and,
- (b) periodically review and discuss information on the habitat of naturally spawning stocks subject to this Treaty that cannot be restored through harvest controls alone, any non-fishing factors that affect the safe passage or survival of salmon, options for addressing non-fishing constraints and restoring optimum production, and progress of the Parties' efforts to achieve the objectives for the stocks under this Treaty.

Ottawa, December 19, 2018

Note: 918

The Honorable Chrystia Freeland
Minister of Foreign Affairs of Canada
Ottawa, Ontario

Excellency,

I have the honor to acknowledge receipt of your diplomatic note No. JLI-0137 dated November 27, 2018, which reads as follows:

"I have the honour to refer to the recent recommendations of the Pacific Salmon Commission relating to Chapters 1, 2, 3, 5, 6, and Attachment E of Chapter 7 of Annex IV of the *Treaty between the Government of Canada and the Government of the United States of America Concerning Pacific Salmon*, done at Ottawa on 28 January 1985, as amended (the "Treaty"). These Chapters are scheduled to expire by their own terms on 31 December 2018. I therefore have the honour to propose an agreement between our two Governments, pursuant to Article XIII of the Treaty, to amend Annex IV as follows (the "Agreement"):

1. Chapters 1, 2, 3, 5, 6, and Attachment E of Chapter 7 of Annex IV of the Treaty, with related understandings, appendices, and attachments, shall be replaced in their entirety by the amended Chapters 1, 2, 3, 5, 6, and Attachment E of Chapter 7 of Annex IV, set out in the Appendix to this Note.

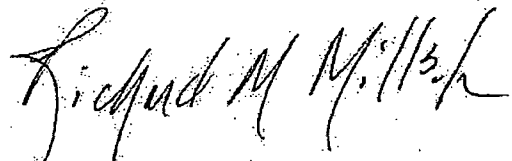
2. Our two Governments understand that the provision of funding by the Government of the United States of America is subject to specific appropriations of funds by the appropriate governmental authority. The Government of the United States of America undertakes to seek necessary appropriations at an early date to implement this Agreement. Likewise, the Government of Canada undertakes to seek the necessary funds by the Minister of Foreign Affairs and the Minister of Fisheries, Oceans and the Canadian Coast Guard. Should such appropriations not be obtained in time to fulfill their respective funding obligations, our two Governments hereby agree to suspend the relevant obligations until such funds become available, unless our two Governments decide otherwise.
3. This Agreement shall expire on 31 December 2028, unless our two Governments agree otherwise. If the Treaty is terminated in accordance with Article XV(2), this Agreement shall terminate effective from the date of the termination of the Treaty.
4. Compliance with this Agreement shall constitute compliance by our two Governments with their obligations under Article III of the Treaty.
5. This Agreement shall be provisionally applied as of 1 January 2019 and continue until it enters into force.

If the proposal set forth in this Note is acceptable to the Government of the United States of America, I have the honour to propose that this Note, with its Appendix, and your affirmative reply, which shall be equally authentic in the English and French languages, shall constitute an agreement between our two Governments that enters into force on the date of a second note that is part of a subsequent exchange of notes confirming the completion by each Party of all internal procedures necessary for its entry into force.

Please accept, Excellency, the assurances of my highest consideration."

I am pleased to inform you that the Government of the United States of America accepts the proposal set forth in your diplomatic note. The Government of the United States of America further agrees that your diplomatic note with its Appendix, together with this reply, which shall be equally authentic in the English and French languages, shall constitute an agreement between the United States of America and Canada that enters into force on the date of a second note that is part of a subsequent exchange of notes confirming the completion by each Party of all internal procedures necessary for its entry into force.

Accept, Excellency, the renewed assurances of my highest consideration.

A handwritten signature in dark ink, reading "Richard M. Mills, Jr." with a stylized flourish at the end.

Chargé d'Affaires Richard M. Mills, Jr.