

Appendix K

Confederated Tribes of the Colville Reservation Strategic Options for Okanogan Spring Chinook

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Spring Chinook

The Okanogan Spring Chinook Hatchery & Genetic Management Plan would be developed based on *one* of the following four strategic options. Any spring Chinook reintroduction must be done at minimal risk to the summer Chinook population. The preferred option at this time is IV.

Carson Stock Spring Chinook Only

Hatchery Run Only (isolated harvest)

The goals of this program would be to 1) provide hatchery-origin fish to maintain an artificial run of spring Chinook into the Okanogan basin and to 2) create tribal and sport harvest. Returning adult fish would be targeted for complete harvest in the main stem river and the tributaries. Brood stock and juvenile fish would originate from ongoing programs in other mid-Columbia tributaries. No adult fish would be allowed into Osoyoos Lake.

Omak Creek: Acclimate and release ad-clipped smolts from an off-channel, low-cost facility just below Mission Falls.

Salmon Creek: Acclimate and release ad-clipped smolts from the OID diversion dam and canal.

Oroville Mill Site: Acclimate and release ad-clipped smolts from an off-channel facility at old mill site below Zosel Dam.

Similkameen River: Acclimate and release ad-clipped smolts from an off-channel facility near the existing summer Chinook pond.*

Osoyoos Lake: 1) Acclimate for 1-2 months and release ad-clipped smolts from floating net pens near the lake outlet, and 2) Over-winter rear and release ad-clipped smolts from floating net pens near the lake outlet, if conditions permit.

Supplemented Natural Production (Integrated Harvest)

The goals of this program would be to 1) provide a hatchery-supplemented natural-origin run of spring Chinook into the Okanogan basin and to 2) create tribal and sport harvest. Returning adult, hatchery-origin fish would be managed for natural spawning, hatchery brood stock, and selective harvest. Returning natural-origin fish would be managed for natural spawning and hatchery broodstock. No adult fish would be allowed into Osoyoos Lake for reproduction unless and until agreed upon by the Canadian government and First Nations.

Omak Creek: Allow returning hatchery-origin and natural-origin fish to spawn in the creek. Plant adult surplus Carson stock from other upper Columbia hatcheries in the creek up to escapement objectives. Acclimate and release ad-clipped smolts from an off-channel facility just below Mission Falls.

Salmon Creek: Allow returning hatchery-origin and natural-origin fish to spawn in the creek. Plant adult surplus Carson stock from other upper Columbia hatcheries in the creek up to escapement objectives. Acclimate and release ad-clipped smolts from the OID diversion dam and canal.

Oroville Mill Site: Acclimate and release ad-clipped smolts from an off-channel facility at old mill site below Zosel Dam. Use returning adults for hatchery brood stock and harvest.

Similkameen River Acclimate and release ad-clipped smolts from an off-channel facility near the existing summer Chinook pond. Use returning adults for hatchery brood stock and harvest.*

Osoyoos Lake: 1) Acclimate for 1-2 months and release ad-clipped smolts from floating net pens near the lake outlet, and/or 2) Over-winter rear and release ad-clipped smolts from floating net pens near the lake outlet, if conditions permit. Use returning adults for hatchery brood stock and harvest. If, or when, the Canadian government and First Nations agreed with spring Chinook re-introduction into waters above Zosel Dam, then adults returning to the dam would be collected for hatchery brood stock and allowed to pass for spawning and Canadian harvest.

Other Tributaries: Manage other tributaries, as appropriate, in a manner similar to Omak and Salmon creeks.

Methow Composite Stock Spring Chinook Only

Supplemented Natural Production (Integrated Recovery)

The goals of this program would be to 1) create self-sustaining, natural-origin populations of spring Chinook in suitable habitat to aid in ESA recovery and achieve tribal management objectives (allowing Methow stock to adapt into a potentially unique Okanogan stock), 2) create a hatchery-supplemented, natural-origin populations of spring Chinook as appropriate, and 3) create tribal and sport harvest. Returning adult, hatchery-origin fish would be managed for natural spawning, hatchery brood stock, and selective harvest. Returning natural-origin fish would be managed for natural spawning and hatchery brood stock. No adult fish would be allowed into Osoyoos Lake for reproduction unless and until agreed upon by the Canadian government and First Nations. Methow stock would be introduced into the Okanogan basin only as an “experimental population” under the ESA with no special take prohibitions on fish migrating, spawning, and rearing while in the basin

Omak Creek: Allow returning hatchery-origin and natural-origin fish to spawn in the creek. Plant surplus Methow stock adults from Winthrop and/or Methow hatcheries in the creek only when absolutely needed. Acclimate and release ad-clipped smolts from an off-channel facility just below Mission Falls.

Salmon Creek: Allow returning hatchery-origin and natural-origin fish to spawn in the creek. Plant surplus Methow stock adults from Winthrop and/or Methow hatcheries in the creek only when absolutely needed. Acclimate and release ad-clipped smolts from the OID diversion dam and canal, or an off-channel acclimation facility, if needed.

Oroville Mill Site: Acclimate and release ad-clipped smolts from an off-channel facility at old mill site below Zosel Dam. Use returning adults for hatchery brood stock and harvest.

Similkameen River: Acclimate and release ad-clipped smolts from an off-channel facility near the existing summer Chinook pond. Use returning adults for hatchery brood stock and harvest.*

Osoyoos Lake: 1) Acclimate for 1-2 months and release ad-clipped smolts from floating net pens near the lake outlet, and/or 2) Over-winter rear and release ad-clipped smolts from floating net pens near the lake outlet, if conditions permit. Use returning adults for hatchery brood stock and harvest. If, or when, the Canadian government and First Nations agreed with spring Chinook re-introduction into waters above Zosel Dam, then adults returning to the dam would be collected for hatchery brood stock and allowed to pass for natural spawning and Canadian harvest. If spawning is allowed above Osoyoos Lake, then management of spring Chinook in the Okanogan basin should focus on two populations to account for adaptation to a lake rearing strategy.

Other Tributaries: Manage other tributaries, as appropriate, in a manner similar to Omak and Salmon creeks.

Joint Carson and Methow Stocks

Hatchery Run Only (Isolated Harvest) & Supplemented Natural Production (Integrated Recovery)

The goals of this program would be to 1) create self-sustaining, natural-origin populations of spring Chinook in suitable habitat to aid in ESA recovery and achieve tribal management objectives (allowing Methow stock to adapt into a potentially unique Okanogan stock), 2) create hatchery-supplemented, natural-origin populations of Methow-stock spring Chinook as appropriate, and 3) create tribal and sport harvest targeting on an artificial run of Carson stock Chinook. Returning adult, Methow stock would be managed for natural spawning and hatchery brood stock. Returning hatchery-origin, Carson stock would be managed for tribal and sport harvest, and hatchery brood stock. No adult fish would be allowed into Osoyoos Lake for reproduction unless and until agreed upon by the Canadian government and First Nations. If agreeable to all parties, Methow stock would be allowed to escape into Osoyoos Lake for spawning and Canadian harvest. Methow stock would be introduced into the Okanogan basin only as an “experimental population” under the ESA with no special take prohibitions on fish migrating, spawning, and rearing while in the basin. Performance of Methow and Carson stocks would be compared.

Omak Creek: Use Methow Composite stock. Allow returning hatchery-origin and natural-origin fish to spawn in the creek. Plant surplus Methow stock adults from Winthrop and/or Methow hatcheries in the creek only when absolutely needed.

Acclimate and release unmarked smolts from an off-channel facility just below Mission Falls.

Salmon Creek: Use Methow Composite stock. Allow returning hatchery-origin and natural-origin fish to spawn in the creek. Plant surplus Methow stock adults from Winthrop and/or Methow hatcheries in the creek only when absolutely needed. Acclimate and release unmarked smolts from the OID diversion dam and canal, or an off-channel acclimation facility, if needed.

Oroville Mill Site: Acclimate and release ad-clipped, Carson stock smolts from an off-channel facility at old mill site below Zosel Dam. Use returning adults for hatchery brood stock and harvest.

Similkameen River: Acclimate and release ad-clipped, Carson stock smolts from an off-channel facility near the existing summer Chinook pond. Use returning adults for hatchery brood stock and harvest.*

Osoyoos Lake: 1) Acclimate for 1-2 months and release ad-clipped Carson stock smolts from floating net pens near the lake outlet, and/or 2) Over-winter rear and release ad-clipped Carson stock smolts from floating net pens near the lake outlet, if conditions permit, and 3) Acclimate for 1-2 months and release unmarked Methow stock smolts from floating net pens.

Other Tributaries: Manage other tributaries, as appropriate, in a manner similar to Omak and Salmon creeks.

Carson Stock Transitioning to Methow Stock

Supplemented Natural Production (Integrated Recovery) & Hatchery Run Only (Isolated Harvest)

The goals of this program would be to initiate spring Chinook re-introduction into the Okanogan basin using Carson stock to 1) assess habitat viability for spring Chinook and 2) provide tribal and sport harvest. As surplus hatchery-origin Methow stock become available on a consistent basis from Winthrop and/or Methow hatcheries, Methow stock would replace Carson stock in the Okanogan and its tributaries. At that time, program goals would be to 1) create self-sustaining, natural-origin populations of spring Chinook in suitable habitat to aid in ESA recovery and achieve tribal management objectives (allowing Methow stock to evolve into a potentially unique Okanogan stock), 2) create hatchery-supplemented, natural-origin populations of Methow stock spring Chinook as appropriate, and 3) create tribal and sport harvest. Carson and Methow stocks released from main stem Okanogan and Similkameen acclimation sites would be targeted for complete harvest and collection for brood stock.

No adult fish would be allowed into Osoyoos Lake for reproduction unless, and until, agreed upon by the Canadian government and First Nations. If agreeable to all parties, Methow stock would be allowed to escape into Osoyoos Lake for spawning and Canadian harvest. Methow stock would be introduced into the Okanogan basin only as an “experimental population” under the ESA with no special take prohibitions on fish migrating, spawning, and rearing while in the basin.

Omak Creek: Use Carson stock initially. Allow returning hatchery-origin and natural-origin fish to spawn in the creek. Supplement low escapements with surplus adult Carson stock from other upper Columbia hatcheries up to minimum escapement objective. Acclimate and release ad-clipped smolts from an off-channel facility just below Mission Falls. When Methow stock becomes available (second priority for use of Methow stock), replace the Carson stock. Acclimate and release ad-clipped Methow smolts from the off-channel facility, allowing natural and hatchery-origin fish to spawn in the creek. Supplement low escapements with surplus hatchery adults from Methow and/or Winthrop hatcheries.

Salmon Creek: Use Carson stock initially. Allow returning hatchery-origin and natural-origin fish to spawn in the creek. Supplement low escapements with surplus adult Carson stock from other upper Columbia hatcheries up to a minimum escapement objective. Acclimate and release ad-clipped smolts from the OID diversion dam and canal. When Methow stock becomes available (first priority for use of Methow stock), replace the Carson stock. Acclimate and release ad-clipped Methow smolts from the acclimation facility (in or off-channel), allowing natural and hatchery-origin fish to spawn in the creek. Supplement low escapements with surplus hatchery adults from Methow and/or Winthrop hatcheries.

Oroville Mill Site: Use Carson stock initially. Acclimate and release ad-clipped, Carson stock smolts from an off-channel facility at the old mill site below Zosel Dam. Use returning adults for hatchery brood stock and harvest. When Methow stock becomes available (third priority for use of Methow stock), replace the Carson stock. Acclimate and release ad-clipped Methow smolts from the acclimation facility. Use returning Methow adults for hatchery brood stock and harvest. If, or when, the Canadian government and First Nations agreed with spring Chinook re-introduction into waters above Zosel Dam, then Methow adults returning to the dam would be collected for hatchery brood stock and allowed to pass for natural spawning and Canadian harvest.

Similkameen River: Use Carson stock initially. Acclimate and release ad-clipped, Carson stock smolts from an off-channel facility near the existing summer Chinook pond. Use returning adults for hatchery brood stock and harvest. When Methow stock becomes available (fourth priority for use of Methow stock), replace the Carson stock. Acclimate and release ad-clipped Methow smolts from the acclimation facility. Use returning Methow adults for hatchery brood stock and harvest.*

Osoyoos Lake: Use Carson stock initially. 1) Acclimate for 1-2 months and release ad-clipped smolts from floating net pens near the lake outlet, and/or 2) Over-winter rear and release ad-clipped smolts from floating net pens near the lake outlet, if conditions permit. Use returning adults for hatchery brood stock and harvest. When Methow stock becomes available (fifth priority for use of Methow stock), replace the Carson stock. If, or when, the Canadian government and First Nations agreed with spring Chinook re-introduction into waters above Zosel Dam, then Methow adults returning to the dam would be collected for hatchery brood stock and allowed to pass for natural spawning and Canadian harvest.

Other Tributaries: Manage other tributaries, as appropriate, in a manner similar to Omak and Salmon creeks.

Other Spring Chinook Stocks

The goal of this program would be to use other than Carson stock and Methow stock in the Okanogan basin should these stocks not perform adequately in the above programs. Potential stocks for consideration include Wenatchee stock spring Chinook and Fraser River stock spring Chinook that may have evolutionary links to the Okanogan basin **(provisional data)**.

* Any reintroduction of spring Chinook into the Similkameen River would be undertaken only if further planning indicates the population could be kept isolated from the summer Chinook, with inconsequential genetic introgression, competition, predation, and disease transmission.