The Columbia Basin Collaborative

Revised Recommendation 1-24-24

Introduction

The Columbia Basin Collaborative (CBC) charter aims to achieve the quantitative and qualitative goals for salmon and steelhead documented in the Columbia Basin Partnership Task Force (CBPTF) Phase 1 and 2 Reports, as adopted by the Marine Fisheries Advisory Committee (MAFAC). The CBPTF "explored the various limiting factors that impact salmon and steelhead across their life cycles. The results of the analyses show that no single strategy (e.g., reducing predation, increasing habitat, reducing harvest) will achieve the Goals on its own. Instead, improvements in multiple factors will be needed to increase abundance to desired levels for most stocks. Together, these improvements create synergies that compound benefits greater than those achievable through single actions."

The CBPTF also identified that, "reliable and predictable funding is essential. Funding must be targeted to achieve the Partnership's Quantitative and Qualitative Goals. New funding sources should be identified. Funding must come from multiple sources, consider the burden across communities, and account for past, present, and potential impacts."

The CBC agrees with these MAFAC-adopted objectives and hence the recommendations below are aimed to help achieve those CBPTF Goals. No one recommendation can meet these goals alone.

The parties of the CBC have come to consensus that this recommendation is valid for implementer consideration. As stated in the Charter "sovereigns with management decision-making authority will review recommendations and make independent decisions to implement or support actions. The CBC itself is not a management decision-making body, but will strive to support its recommendations through to implementation."

Recommendation: Assess run timing and entry timing of natural origin juvenile salmon and steelhead

Summary of Action:

Assess run timing and entry timing of natural origin juvenile salmon and steelhead from natal tributaries into the Columbia River to provide information that can be used in adaptive management of spill and/or bypass operations to ensure safe passage routes for early migrants. Data could be collected through smolts traps, PIT tag detection (barges or other) or in some cases mainstem bypasses and traps or other methods.

Existing or New Program:

Varies. Some tributaries and populations are beginning to collect this information, and others are not. In many cases existing monitoring methods (bypass operation, PIT detection, juvenile trapping, etc.) do not begin early enough in the migratory season to understand the scope and magnitude of fish use and migration before April. Beginning in 2018, the juvenile bypass system at one or two lower Snake River dams has begun operating as early as March 1 to assess the extent to which juvenile salmon and steelhead are migrating in the lower Snake River prior to the defined spring spill season. This information is not sufficient to assess individual populations and does not assess when juveniles are entering the Snake River from their natal tributaries. The data gap in the upper Columbia may be greater. To date, other than decades-old fyke net studies at Wells Dam, there has been no early sampling at mainstem mid-Columbia River dams, yet smolt trap data from the Wenatchee and Entiat may indicate a sizable proportion (up to 60%; ISAB 2018-01 of the ESA listed natural origin spring Chinook are entering the Columbia River prior to the start of spill.

This recommendation assumes that adequate numbers of Juveniles are PIT tagged for species or populations.

Citation: Independent Scientific Advisory Board (ISAB). 2018. Review of Spring Chinook Salmon in the Upper Columbia. ISAB 2018-01 February 9, 2018.

Benefit Provided by Action:

These data would inform whether spill and other means of passing juvenile fish begins early enough to provide the same migratory benefits to both wild and hatchery fish. Natural origin spring chinook appear to migrate earlier out of their natal tributaries than their hatchery counterparts. In the upper Columbia potentially up to 50% of the natural origin spring chinook have migrated into the mainstem reservoirs prior to the start of spring spill (based on smolt trap data in the lower reaches of tributaries). In some cases, spring chinook may enter the Columbia and rear in a reservoir for a time prior to migration, but the behavior, passage timing, and survival of these fish is largely not known. Typical bypass operation and associated monitoring do not begin early enough to understand this component of the natural origin spring chinook migration.

Stocks Benefited by the Action:

All early migrating salmon and steelhead stocks throughout the Columbia Basin, including Upper Columbia, Mid-Columbia, and Snake River stocks would benefit if mainstem dam operations are not

aligned with actual migration timing. Magnitude of benefit may be population or MPG-specific and will not be understood until data is collected.

Data Supporting Benefits:

In the Upper Columbia this data gap is supported by information learned from smolts traps in the lower Wenatchee and Entiat Rivers. In the Snake River this data gap is supported, at least in part, by the early bypass operations which have begun at one-to two projects per year. Other populations likely exhibit similar behaviors (Umatilla, Yakima, Klickitat, etc.). In addition, climate change projections (especially increasing winter temperatures) support the idea that many ocean type salmon and steelhead populations might respond to climate change by migrating earlier in the year. Earlier monitoring, both in the lower reaches of tributaries and at key mainstem projects, would ensure that operations designed to protect juvenile migrants retain their effectiveness.

Implementing Entities:

State and Tribal Agencies (tributaries) and federal and non-federal dam operators (key mainstem Snake and Columbia River dams) and fishery co-managers (tributary traps and detection sites).

Time Needed to Implement:

Minimal data can be collected immediately. Acting upon the data can also be implemented quickly but may require use of adaptive management or modification of existing agreements or requirements.

Time Needed to Benefit Fish Populations:

Immediately: if it is determined that spill and other bypass measures should start earlier to ensure that earlier migrating natural origin fish are provided adequate spill and bypass operations.

Estimated Cost:

Variable based on method of data collection and pre-existing monitoring programs. Where existing sampling infrastructure exists, costs may be minimal to collect the information. Cost of implementing responsive operations would be variable and depend upon the specific project starting spring spill operations at an earlier date.

Uncertainties:

The behavior of juvenile salmon and steelhead after entering the mainstem Snake and Columbia Rivers (do they continue migrating, rear for extended periods before continuing to migrate, etc.). The ability (and willingness) of dam operators to implement early bypass and data collection. Costs may be incurred to obtain data values of zero; but this should not be a deterrent to learning.

Associated Regulatory Processes or Policies:

To collect data where fish sampling permits currently exist there may be no new regulatory processes. In areas where new sampling infrastructure are needed, new state and federal permits may be required.

Potential Challenges:

Data collection and sampling may require improved facilities, earlier staffing and training, and other challenges. Data collected may have implications for system-wide water management, power production, predator management (avian, native, and non-native fish, and pinnipeds), resident

recreational fisheries management, (and navigation?) which will present challenges to adaptive management.

Adaptive Management:

Data informing when fish are entering the Columbia and Snake rivers could be used to adaptively manage when spill and bypass operations start each season if a relationship between mainstem entry and passage at key mainstem projects could be established.

Stock Benefits Report Card:

Hydropower: Recommendation for assessment of run timing and entry timing of natural origin juveniles

			Abundance			MAFAC Phase II Impact Priority								
Sub-Region	Stock	Status	Current	MAFAC Medium goal	Current as % of Medium Goal	Tributary Habitat	Estuary Habitat	Hydro (Mainstem)	Hydro (Latent)	Hydro (Blocked)	Predation	Fishery	Hatchery	Harvest
Low-C	L Col R Spring Chinook	Threatened	2,240	21,550	10%	1	3	3	3	2	3	3	2	3
Low-C	L Col R Winter Steelhead	Threatened	5,989	27,900	21%	1	2	3	3	3	3	3	3	3
Low-C	L Col R Fall (tule) Chinook	Threatened	12,329	54,100	23%	1	2	3	3	3	3	1	2	1
Low-C	L Col R Coho	Threatened	31,524	129,550	24%	1	3	3	3	3	3	3	2	3
Low-C	L Col R Summer Steelhead	Threatened	10,594	29,800	36%	2	4	4	4	2	4	4	4	4
Low-C	Col R Chum	Threatened	11,762	33,000	36%	2	2	4	4	4	4	4	4	
Low-C	SW WA Winter Steelhead	Threatened	3,252	5,850	56%	2	4	5	5	5	5	5	5	5
Low-C	L Col R Late Fall (bright) Chinook		10,800	16,700	65%									
Low-C	L Col R Fall (bright) Chinook	Threatened	11,000	11,000	100%	5	5	5	5	4	5	4	5	4
Mid-C	M Col Sockeye	Not Listed	1,036	45,000	2%	3	3	3	2	1	3	3		3
Mid-C	M Col R Spring Chinook	Not Listed	11,600	40,425	29%	2	4	4	4	4	4	4	4	4
Mid-C	M Col R Summer Steelhead	Threatened	18,155	43,850	41%	2	4	4	4	4	2	4	4	4
Mid-C	M Col R Coho	Not Listed	6,324	11,600	55%		5	4	5	5	5	4		4
Mid-C	M Col R Summer/Fall Chinook	Not Listed	11,500	13,000	88%	5	5	5	5	5	5	4	5	4
Up-C	U Col R Coho	Not Listed	392	15,000	3%									
Up-C	U Col R Summer Steelhead	Threatened	1480	31,000	5%	1	1	2	1	1	1	3	2	3
Up-C	U Col R Sockeye	Not Listed	40,850	580,000	7%	1	3	1	1	1	2	3	3	3
Up-C	U Col R Spring Chinook	Endangered	1430	19,840	7%	1	3	1	1	1	2	3	1	3
Up-C	U Col R Summer Chinook	Not Listed	16920	78,350	22%	1	2	1	1	1	3	1	2	1
Up-C	U Col R Fall Chinook	Not Listed	92,400	62,215	149%	5	5	4	5	5	5	4	5	4
Snake	Snake R Coho	Not Listed	100	26,600	0%									
Snake	Snake R Sockeye	Endangered	100	15,750	1%	3	3	1	1	1	2	3		3
Snake	Snake R Spring/Summer Chinook	Threatened	6,988	98,750	7%	1	3	1	1	2	2	3	3	3
Snake	Snake R Summer Steelhead	Threatened	28,000	75,000	37%	2	4	4	2	2	2	4	4	4
Snake	Snake R Fall Chinook	Threatened	8,360	10,780	78%	5	5	4	4	4	5	4		3
Willam	U Will R Spring Chinook	Threatened	4,278	47,850	9%	1	2	3	3	1	3	3	2	3
Willam	U Will R Winter Steelhead	Threatened	2,816	27,805	10%	1	2	3	3	3	1	3	3	3

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Stocks most benefited
Stocks receiving secondary benefit