

Columbia Basin Collaborative Biological Sub-Group

Thursday, April 28, 2022

Agenda Review

Time (PT)	Topic	Who
10:00 – 10:15am	Welcome, Agenda Review, Updates, and Introductions	<ul style="list-style-type: none">Liz Mack, Kearns & West
10:15 – 10:20am	Overview and Context	<ul style="list-style-type: none">Guy Norman, Washington
10:20 – 10:30am	Columbia Basin Partnership Data	<ul style="list-style-type: none">Tucker Jones, ODFW
10:30 – 11:40am	Proposed Biological Matrices <ul style="list-style-type: none">Methods and resultsQuestions for clarification and discussion	<ul style="list-style-type: none">Guy Norman, WashingtonLiz Mack, KW
11:40 – 11:50am	<i>Break</i>	<ul style="list-style-type: none">All
11:50am – 12:50pm	Additional uses of CBPTF data and process thoughts <ul style="list-style-type: none">PresentationDiscussion about additional alternatives	<ul style="list-style-type: none">Gary James, CTUIRLiz Mack, KW
12:50 – 1:00pm	Confirm Next Steps, Upcoming Meeting Topics, and Summary <ul style="list-style-type: none">Seek agreement on use of CBPTF data	<ul style="list-style-type: none">AllLiz Mack, KW

Meeting Guidelines

- Honor the agenda
- Listen to understand and ask questions to clarify
- Balance speaking time
- Don't pile on
- Be hard on the problems, soft on the people
- Seek alignment and common ground wherever possible
- Be present



Overview and Context

Biological Sub-group:

- **Purpose:** To come to agreement on biological foundation that will feed into Topic Specific Work Groups.
- **Member qualifications:** Those with technical expertise who can review the biological foundation that was started by the Columbia Basin Partnership.
- **Member selection:** Each I/RG member can choose to serve on this sub-group if they bring the correct technical expertise, delegate their spot to another individual from the group they represent, or abstain from joining. Non-technical participants can observe.

Proposed Process for the Biological Sub-Group

Late March I/RG Meeting

- Share completed matrices
- Introduce Biological Sub-group
- Begin recruitment for Biological Sub-group



April 28, 2022 Biological Sub- group Meeting 1

- Review matrices and scoring process



June 2, 2022 Biological Sub- group Meeting 2

- Come to agreement on biological foundation (matrices and scoring process)



Early June I/RG Meeting

- Biological sub-group shares the agreed foundation with the I/RG
- Discuss assignments for work groups

Role of the Biological Sub-group

- Discuss use of the Partnership data as a biological foundation to assist in focusing WG discussions
- Review the application of the data and scoring criteria that were used to build the topic specific matrices
- Discuss any alternative scoring criteria to build the matrices using the Partnership data
- Discuss other alternatives or additional ways to utilize Partnership data to provide a biological foundation to assist in focusing WG discussions
- Discuss any other thoughts for providing biological guidance for WG discussions

Columbia Basin Partnership Data

Columbia Basin Partnership Task Force Data

- Columbia Basin Partnership brought together sovereigns and stakeholders to develop the basin-wide salmon and steelhead goals.
- Entities and experts in the area developed the goals and collected data included in the report.
- The goals and data in the report had broad-based support from CBPTF.

TABLE 8. Aggregate stock-specific abundance values for natural-origin escapement under current and historical conditions, and low, medium, and high goal ranges.

Stock	Current	Historical	Low goal	Med goal	High goal	High as % of historical
L Col R Spring Chinook	2,240	101,700	9,800	21,550	33,300	33%
L Col R Fall (tule) Chinook	12,329	169,700	28,050	54,100	82,000	48%
L Col R Late Fall (bright) Chinook	10,800	33,000	11,100	16,700	22,200	67%
L Col R Fall (bright) Chinook	11,000	0	11,000	11,000	11,000	-
L Col R Coho	31,524	301,900	67,925	129,550	191,400	63%
Col R Chum	11,762	461,300	16,500	33,000	49,500	11%
SW WA Winter Steelhead	3,252	19,100	4,650	5,850	6,950	36%
L Col R Winter Steelhead	5,989	41,900	19,000	27,900	36,400	87%
L Col R Summer Steelhead	10,594	61,200	21,100	29,800	38,100	62%
M Col R Spring Chinook	11,600	246,500	17,750	40,425	114,500	46%
M Col R Summer/Fall Chinook	11,500	17,000	4,000	13,000	16,000	94%
M Col R Coho	6,324	75,000	5,300	11,600	19,900	27%
M Col Sockeye	1,036	230,000	7,500	45,000	107,500	47%
M Col R Summer Steelhead	18,155	132,800	21,500	43,850	69,150	52%
U Col R Spring Chinook	1,430	259,450	11,500	19,840	30,135	12%
U Col R Summer Chinook	16,920	733,500	9,000	78,350	131,300	18%
U Col R Fall Chinook	92,400	680,000	9,200	62,215	87,835	13%
U Col R Coho	392	44,500	7,500	15,000	26,000	58%
U Col R Sockeye	79,511	1,800,000	31,500	580,000	1,235,000	69%
U Col R Summer Steelhead	1,480	1,121,400	7,500	31,000	47,000	4%
Snake R Spring/Summer Chinook	6,988	1,000,000	33,500	98,750	159,500	16%
Snake R Fall Chinook	8,360	500,000	4,200	10,780	23,360	5%
Snake R Coho	100	200,000	8,900	26,600	44,100	22%
Snake R Sockeye	100	84,000	5,500	15,750	26,000	31%
Snake R Summer Steelhead	28,000	600,000	22,500	75,000	131,500	22%
U Will R Spring Chinook	4,278	312,170	28,900	47,850	66,800	21%
U Will R Winter Steelhead	2,816	220,000	16,290	27,805	39,320	18%
Totals	352,119	9,446,120	441,165	1,572,265	2,845,750	30%

FIGURE 13. Heat map of impacts of limiting factors by stock and region, including ranges reflecting uncertainties where appropriate. Units are percentage reductions in equilibrium abundance (generally equivalent to mortality rates).

	Stock	Tributary Habitat	Estuary Habitat	Hydro (mainstem)	Hydro (latent)	Hydro (blocked)	Predation	Fishery	Hatchery	
Lower Columbia	Spr Chinook	85	17	0	0 (0-0)	30	14	17	29 (4-54)	
	Fall (tule) Chinook	70	21	0	0 (0-0)	15	11	33	25 (3-47)	
	Fall (bright) Chinook	10	21	0	0 (0-0)	40	11	47	0 (0-0)	
	Chum	95	50	5	0 (0-0)	0	2	1	10 (1-18)	
	Coho	80	11	0	0 (0-0)	5	13	17	22 (3-42)	
	Sumr Steelhead	65	28	4	0 (0-0)	40	19	5	8 (1-15)	
	Win Steelhead SWW	60	28	0	0 (0-0)	0	19	5	17 (2-33)	
	Win Steelhead LCR	65	28	0	0 (0-0)	10	19	5	9 (1-16)	
Willamette	Spr Chinook	85	20	0	0 (0-0)	50	19	13	25 (3-46)	
	Win Steelhead	80	28	0	0 (0-0)	20	32	3	2 (0-4)	
Middle Columbia	Spr Chinook	85	17	23	14 (3-25)	25	25	15	24 (3-45)	
	Fall Chinook	20	27	13	9 (2-17)	5	10	55	0 (0-0)	
	Coho	NA	11	30	19 (5-33)	0	17	22	NA	
	Sockeye	0	17	19	9 (2-17)	95	8	3	NA	
	Sumr Steelhead	80	28	11	14 (3-25)	20	33	10	17 (2-33)	
Upper Columbia	Spr Chinook	45	18	49	38 (9-67)	75	29	15	32 (5-59)	
	Summer Chinook	50	27	49	38 (9-67)	50	13	61	27 (4-51)	
	Fall Chinook	25	27	65	19 (5-33)	5	13	61	10 (1-18)	
	Sockeye	50	17	38	38 (9-67)	80	24	12	10 (1-18)	
	Sumr Steelhead	40	31	30	38 (9-67)	95	52	10	24 (3-45)	
Snake	Spr Chinook	50	16	39	38 (9-67)	30	29	14	15 (2-28)	
	Fall Chinook	25	27	62	38 (9-67)	80	13	45	NA	
	Sockeye	10	17	47	38 (9-67)	70	24	6	NA	
	Sumr Steelhead	45	27	30	38 (9-67)	40	43	25	24 (3-45)	
		<5%	5-20%	21-30%	31-50%	>50%				

Proposed Biological Matrices

Biological Matrices - Methods

TABLE 8. Aggregate stock-specific abundance values for natural-origin escapement under current and historical conditions, and low, medium, and high goal ranges.

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	Fall (bright) Chinook	10	21	0	0 (0-0)	40	11	47	0 (0-0)
	Chum	95	50	5	0 (0-0)	0	2	1	10 (1-18)
	Coho	80	11	0	0 (0-0)	5	13	17	22 (3-42)
	Sumr Steelhead	65	28	4	0 (0-0)	40	19	5	8 (1-15)
	Win Steelhead SWW	60	28	0	0 (0-0)	0	19	5	17 (2-33)
	Win Steelhead LC	65	28	0	0 (0-0)	10	19	5	9 (1-16)
Willamette	Spr Chinook	85	20	0	0 (0-0)	50	19	13	25 (3-46)
	Win Steelhead	80	28	0	0 (0-0)	20	32	3	2 (0-4)
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	Fall Chinook	20	27	13	9 (2-17)	5	10	55	0 (0-0)
	Coho	NA	11	30	19 (5-33)	0	17	22	NA
	Sockeye	0	17	19	9 (2-17)	95	8	3	NA
	Sumr Steelhead	80	28	11	14 (3-25)	20	33	10	17 (2-33)
Upper Columbia	Spr Chinook	45	18	49	38 (9-67)	75	29	15	32 (5-59)
	Summer Chinook	50	27	49	38 (9-67)	50	13	61	27 (4-51)
	Fall Chinook	25	27	65	19 (5-33)	5	13	61	10 (1-18)
	Sockeye	50	17	38	38 (9-67)	80	24	12	10 (1-18)
	Sumr Steelhead	40	31	30	38 (9-67)	95	52	10	24 (3-45)
Snake	Spr Chinook	50	16	39	38 (9-67)	30	29	14	15 (2-28)
	Fall Chinook	25	27	62	38 (9-67)	80	13	45	NA
	Sockeye	10	17	47	38 (9-67)	70	24	6	NA
Sumr Steelhead	45	27	30	38 (9-67)	40	43	25	24 (3-45)	

Tributary Habitat

		Impact Level				
		Low	Medium	High	Very High	
Low	SN Sock			UC SpCH	LC SpCH	Impact Level Low: less than 20% Medium: 20-30% High: 31-50% Very High: Greater than 50%
	MC Sock			UC Sum CH	LC Tule FCH	
Medium			SN Sum Steelhead		LC Chum	Stock Status (based on CBP medium goal) Low: less than 25% Medium: 25-50% High: 51-75% Very High: greater than 75%
					LC Sum Sthd	
High	MC Coho		SN FCH		SWW	Prioritization Status Red: Priority 1 Orange: Priority 2 Yellow: Priority 3 Blue: Back burner Green: Good shape
					WSthd	
Very High	LC Bright FCH		MC FCH		UC FCH	

Biological Matrices - Results

- Harvest
- Hatchery
- Hydro- Blocked Areas
- Hydro-Mainstem (without latent mortality)
- Hydro-Mainstem (with latent mortality)
- Predation
- Tributary Habitat
- Estuary Habitat

Harvest

		Impact Level				
		Low	Medium	High	Very High	
Stock Status	Low	LC SpCH LC Coho LC WSthd Will SpCH MC Sock UP SpCH UC Sock UC Sum Sthd SN SpCH SN Sock Will W Sthd		LC Tule FCH	UC Sum CH	<p>Impact Level Low: less than 20% Medium: 20-30% High: 31-50% Very High: Greater than 50%</p> <p>Stock Status (based on CBP medium goal) Low: less than 25% Medium: 25-50% High: 51-75% Very High: greater than 75%</p> <p>Prioritization Status Red: Priority 1 Orange: Priority 2 Yellow: Priority 3 Blue: Back burner Green: Good shape</p>
	Medium	LC Chum LC Sum Sthd MC Sum Sthd MC SpCH	SN Sum Sthd			
	High	SWW WSthd	MC Coho	SN FCH		
	Very High			LC Bright FCH	MC FCH UC FCH	

Hatchery

		Impact Level				
		Low	Medium	High	Very High	
Stock Status	Low	Will WSthd MC Sock UC Sock SN SpCH SN Sock	LC SpCH Tule FCH LC Coho LC Wsthd UC Sum CH Will Sp CH UC Sum Sthd	UC SpCH		<u>Impact Level</u> Low: less than 20% Medium: 20-30% High: 31-50% Very High: Greater than 50% <u>Stock Status (based on CBP medium goal)</u> Low: less than 25% Medium: 25-50% High: 51-75% Very High: greater than 75%
	Medium	LC Sum Sthd MC Sum Sthd LC Chum	MC SpCH SN Sum Sthd			<u>Prioritization Status</u> Red: Priority 1 Orange: Priority 2 Yellow: Priority 3 Blue: Back burner Green: Good shape
	High	SWW WSthd MC Coho SN FCH				
	Very High	LC Bright FCH MC FCH UC FCH				

Hydro-Blocked Areas

		Impact Level				
		Low	Medium	High	Very High	
Stock Status	Low	LC Tule FCH LC Coho LC WSthd	LC SpCh Will WSthd SN SpCH	Will SpCH UC Sum CH	MC Sock UC SpCH UC Sock UC Sum Sthd SN Sock	<p><u>Impact Level</u> Low: less than 20% Medium: 20-30% High: 31-50% Very High: Greater than 50%</p> <p><u>Stock Status (based on CBP medium goal)</u> Low: less than 25% Medium: 25-50% High: 51-75% Very High: greater than 75%</p> <p><u>Prioritization Status</u> Red: Priority 1 Orange: Priority 2 Yellow: Priority 3 Blue: Back burner Green: Good shape</p>
	Medium	LC Chum	LC SpCH MC Sum Sthd	LC Sum Sthd SN Sum Sthd		
	High	SWW WSthd MC Coho			SN FCH	
	Very High	MC FCH UC FCH		LC Bright FCH		

Hydro-Mainstem (without latent mortality)

		Impact Level				
		Low	Medium	High	Very High	
Stock Status	Low	LC SpCH LC Tule CH LC Coho LC WSthd Will SpCH Will Sthd MC Sock	UC SumSthd	UC SpCH UC Sum CH UC Sock SN SpCH	SN Sock	<u>Impact Level</u> Low: less than 20% Medium: 20-30% High: 31-50% Very High: Greater than 50% <u>Stock Status (based on CBP medium goal)</u> Low: less than 25% Medium: 25-50% High: 51-75% Very High: greater than 75% <u>Prioritization Status</u> Red: Priority 1 Orange: Priority 2 Yellow: Priority 3 Blue: Back burner Green: Good shape
	Medium	LC Chum LC Sum Sthd MC Sum Sthd	MC SpCH SN Sum Sthd			
	High	SWW WSthd	MC Coho	SN FCH		
	Very High	LC Bright FCH	MC FCH		UC FCH	

Hydro-Mainstem (with latent mortality)

		Impact Level				
		Low	Medium	High	Very High	
Stock Status	Low	LC SpCH LC Tule CH LC Coho LC WSthd Will SpCH Will WSthd	MC Sock		UC SpCH UC Sum CH UC Sock UC Sum Sthd SN SpCH SN Sock	<u>Impact Level</u> Low: less than 20% Medium: 20-30% High: 31-50% Very High: Greater than 50% <u>Stock Status (based on CBP medium goal)</u> Low: less than 25% Medium: 25-50% High: 51-75% Very High: greater than 75% <u>Prioritization Status</u> Red: Priority 1 Orange: Priority 2 Yellow: Priority 3 Blue: Back burner Green: Good shape
	Medium	LC Chum LC Sum Sthd	MC Sum Sthd	MC SpCH	SN Sum Sthd	
	High	SWW WSthd		MC Coho	SN FCH	
	Very High	LC Bright FCH		MC FCH	UC FCH	

Predation

		Impact Level				
		Low	Medium	High	Very High	
Stock Status	Low	LC SpCH LC Tule FCH LC Coho LC WSthd Will SpCH MC Sock UC Sum CH Will WSthd	UC SpCH UC Sockeye SN SpCH SN Sock		UC Sum Sthd	Impact Level Low: less than 20% Medium: 20-30% High: 31-50% Very High: Greater than 50% Stock Status (based on CBP medium goal) Low: less than 25% Medium: 25-50% High: 51-75% Very High: greater than 75% Prioritization Status Red: Priority 1 Orange: Priority 2 Yellow: Priority 3 Blue: Back burner Green: Good shape
	Medium	LC Sum Sthd LC Chum	MC SpCH	MC Sum Sthd SN Sum Steelhead		
	High	SWW WSthd MC Coho SN FCH				
	Very High	LC Bright FCH MC FCH UC FCH				

Tributary Habitat

		Impact Level				
		Low	Medium	High	Very High	
Stock Status	Low	SN Sock MC Sock		UC SpCH UC Sum CH UC Sock UC Sum Sthd SN SpCH	LC SpCH LC Tule FCH LC Coho LC WSthd Will SpCH Will Wsthd	Impact Level Low: less than 20% Medium: 20-30% High: 31-50% Very High: Greater than 50% Stock Status (based on CBP medium goal) Low: less than 25% Medium: 25-50% High: 51-75% Very High: greater than 75% Prioritization Status Red: Priority 1 Orange: Priority 2 Yellow: Priority 3 Blue: Back burner Green: Good shape
	Medium		SN Sum Steelhead		LC Chum LC Sum Sthd MC SpCH MC Sum Sthd	
	High	MC Coho	SN FCH		SWW WSthd	
	Very High	LC Bright FCH	MC FCH UC FCH			

Estuary Habitat

		Impact Level				
		Low	Medium	High	Very High	
Stock Status	Low	LC SpCH LC Coho MC Sock UP SpCH UC Sock SN SpCH SN Sock	LC Tule FCH LC WSthd Will SpCH Will WSthd UC Sum Chin	UC Sum Sthd		Impact Level Low: less than 20% Medium: 20-30% High: 31-50% Very High: Greater than 50%
	Medium	MC SpCH	LC Sum Sthd MC Sum Sthd SN Sum Sthd	LC Chum		Stock Status (based on CBP medium goal) Low: less than 25% Medium: 25-50% High: 51-75% Very High: greater than 75%
	High	MC Coho	SWW WSthd	SN FCH		Prioritization Status Red: Priority 1 Orange: Priority 2 Yellow: Priority 3 Blue: Back burner Green: Good shape
	Very High		LC Bright FCH MC FCH UC FCH			

Biological Matrices Combined

Sub-Region	Stock	Abundance			MAFAC Phase II Impact Priority							
		Current	MAFAC Medium goal	Current as % of Medium Goal	Tributary Habitat	Estuary Habitat	Hydro (Mainstem)	Hydro (Latent)	Hydro (Blocked)	Predation	Fishery	Hatchery
Low-C	L Col R Spring Chinook	2,240	21,550	10%	1	3	3	3	2	3	3	2
Low-C	L Col R Winter Steelhead	5,989	27,900	21%	1	2	3	3	3	3	3	3
Low-C	L Col R Fall (tule) Chinook	12,329	54,100	23%	1	2	3	3	3	3	1	2
Low-C	L Col R Coho	31,524	129,550	24%	1	3	3	3	3	3	3	2
Low-C	L Col R Summer Steelhead	10,594	29,800	36%	2	BB	BB	BB	2	BB	BB	BB
Low-C	Col R Chum	11,762	33,000	36%	2	2	BB	BB	BB	BB	BB	BB
Low-C	SW WA Winter Steelhead	3,252	5,850	56%	2	BB	GS	GS	GS	GS	GS	GS
Low-C	L Col R Late Fall (bright) Chinook	10,800	16,700	65%								
Low-C	L Col R Fall (bright) Chinook	11,000	11,000	100%	GS	GS	GS	GS	BB	GS	BB	GS
Mid-C	M Col Sockeye	1,036	45,000	2%	3	3	3	3	1	3	3	
Mid-C	M Col R Spring Chinook	11,600	40,425	29%	2	BB	BB	BB	BB	BB	BB	BB
Mid-C	M Col R Summer Steelhead	18,155	43,850	41%	2	BB	BB	BB	BB	2	BB	BB
Mid-C	M Col R Coho	6,324	11,600	55%		GS	BB	GS	GS	GS	BB	
Mid-C	M Col R Summer/Fall Chinook	11,500	13,000	88%	GS	GS	GS	GS	GS	GS	BB	GS
Up-C	U Col R Coho	392	15,000	3%								
Up-C	U Col R Summer Steelhead	1480	31,000	5%	1	1	2	1	1	1	3	2
Up-C	U Col R Sockeye	40,850	580,000	7%	1	3	1	1	1	2	3	3
Up-C	U Col R Spring Chinook	1430	19,840	7%	1	3	1	1	1		3	1
Up-C	U Col R Summer Chinook	16920	78,350	22%	1	2	1	1	1	3	1	2
Up-C	U Col R Fall Chinook	92,400	62,215	149%	GS	GS	BB	GS	GS	GS	BB	GS
Snake	Snake R Coho	100	26,600	0%								
Snake	Snake R Sockeye	100	15,750	1%	3	3	1	1	1	2	3	
Snake	Snake R Spring/Summer Chinook	6,988	98,750	7%	1	3	1	1	2	2	3	3
Snake	Snake R Summer Steelhead	28,000	75,000	37%	2	BB	BB	2	2	2	BB	BB
Snake	Snake R Fall Chinook	8,360	10,780	78%	GS	GS	BB	BB	BB	GS	BB	
Willam	U Will R Spring Chinook	4,278	47,850	9%	1	2	3	3	1	3	3	2
Willam	U Will R Winter Steelhead	2,816	27,805	10%	1	2	3	3	3	1	3	3

Prioritization Status

Red: Priority 1

Orange: Priority 2

Yellow: Priority 3

Blue: Back burner

Green: Good shape

Questions and Discussion

- Questions for clarification?
- Thoughts, feedback, or concerns with this approach?

Break

See you all at 11:50am PT/12:50pm MT



Additional Uses of CBPTF Data and Process Thoughts

Questions and Discussion

- Questions for clarification?
- Thoughts, feedback, or concerns with this approach?
- What other alternative uses should the group consider?

Confirm Next Steps, Upcoming Meeting Topics, and Summary

- Seek agreement on the use of CBPTF Data
- Confirm meeting topics for 6/2 Biological Sub-group Meeting
- Summary of next steps and action items



Photo credit: Roger Tabor