

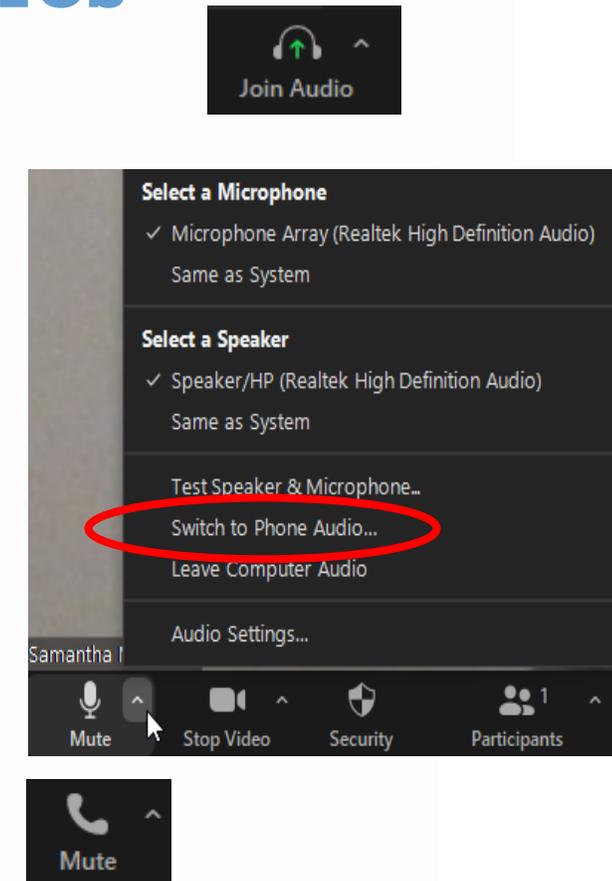
# **Columbia Basin Collaborative Biological Sub-Group**

**Thursday, June 2, 2022**

**9:00am – 11:30am PT/10am – 12:30pm MT**

# Zoom Meeting Features

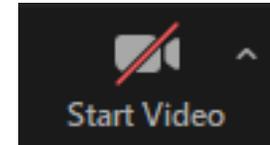
- If you have not **connected your audio**, click on the “Join Audio” at the bottom left of your screen.
- To **switch to phone**, click the arrow next to the mic icon and select “Switch to Phone Audio”.
- **Keep yourself on mute** when not speaking.



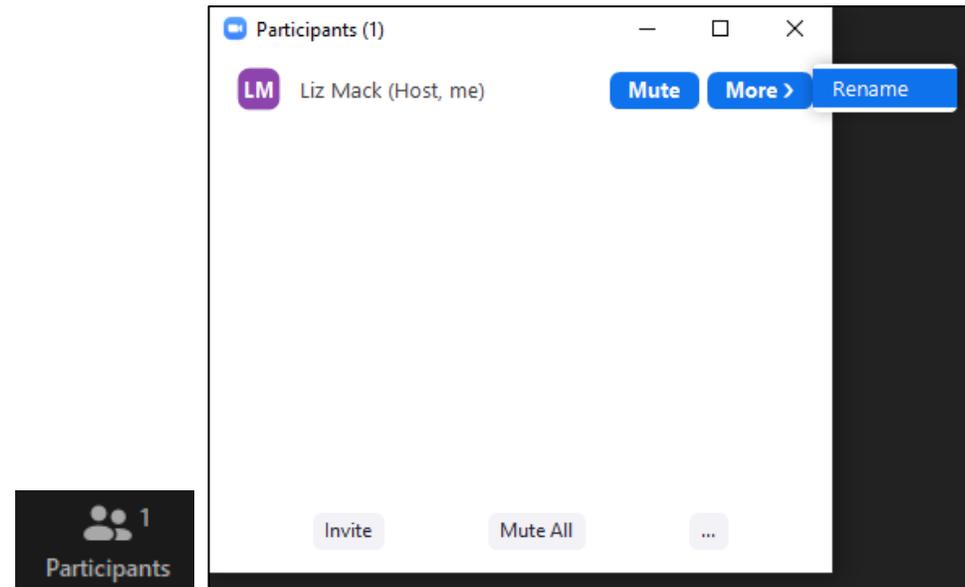
*For technical support, please contact Samantha Meysohn: 360-536-3660*

# Zoom Meeting Features

**Use video**, if possible, to promote face to face communication.



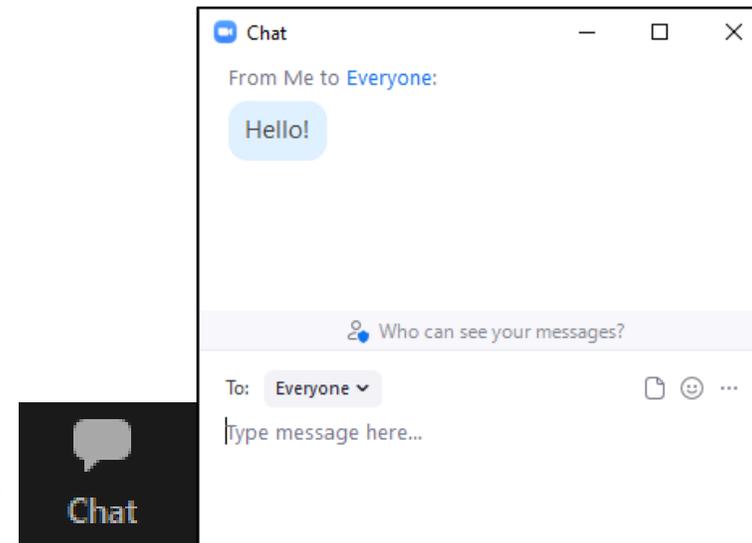
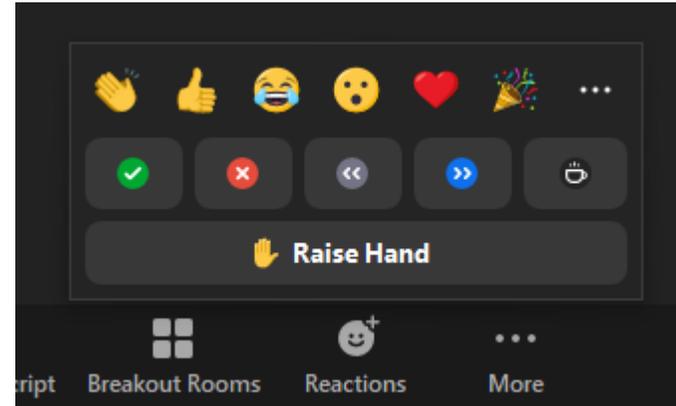
If needed **rename yourself** in the participant panel.



# Zoom Meeting Features

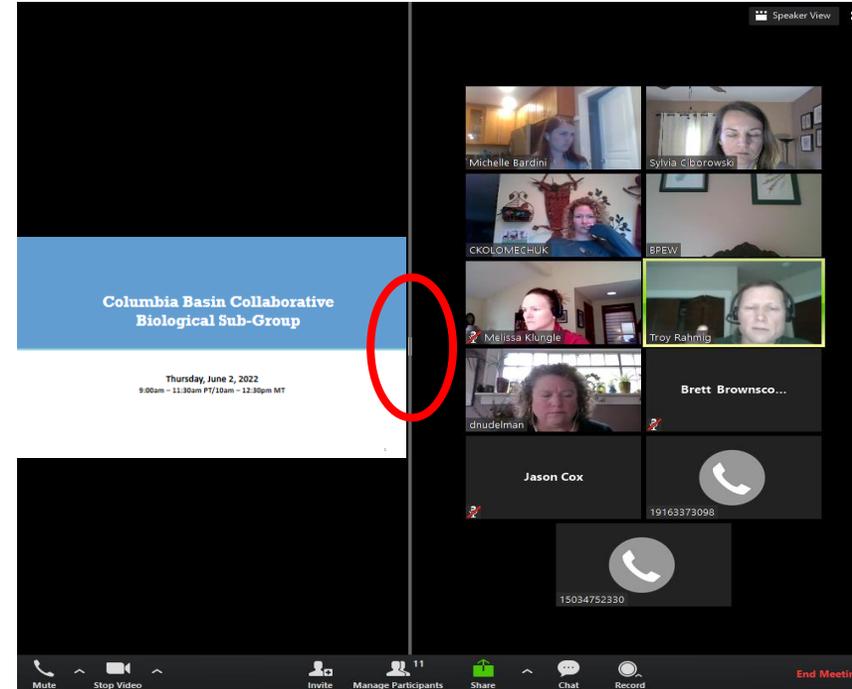
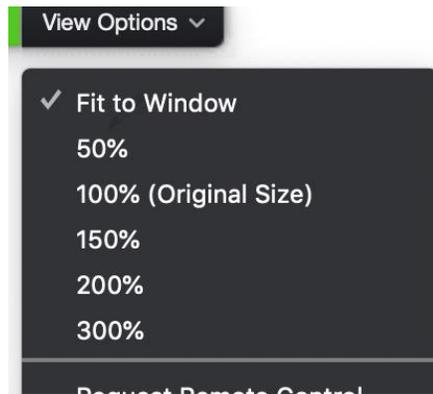
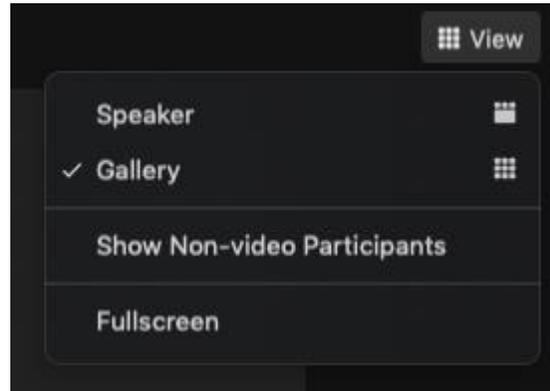
Use the “**Raise Hand**” icon if you have a question or comment. On a phone press \*9.

You can also send messages via the chat.



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# Agenda Review

Time (PT)	Topic	Who
9:00 – 9:15am	<b>Welcome, Agenda Review, and Updates</b>	• Liz Mack, Kearns & West
9:15 – 9:25am	<b>Summary of the Biological Sub-group Input</b>	• Liz Mack, KW
9:25 – 10:30am	<b>Approach for the Topic Specific Work Groups</b>	• Guy Norman, Washington • Liz Mack, KW
10:30 – 10:35 am	<i>Break</i>	• <i>All</i>
10:35 – 11:20am	<b>Updates on the Biological Matrices</b>	• Guy Norman, Washington • Liz Mack, KW
11:20 – 11:30am	<b>Confirm Next Steps, Upcoming Meeting Topics, and Summary</b>	• All • Liz 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



# Summary of the Biological Sub-group Input

# April 28 Biological Sub-group

- Support for utilizing the Columbia Basin Partnership Task Force information and interest in not duplicating this effort
- Acknowledgement of the limitations of the CBPTF information
- Errors in the Biological Matrices
- Need to look at cumulative impacts of threat categories
- Nuances in some of the stocks are missed in the matrices
- The Salmon Analyzer can be helpful for looking at potential actions and impacts across the threat categories
- Helpful to have sequential next steps for rolling out the Work Groups

# Approach for the Topic Specific Work Groups

Break

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# Updates on the 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.**

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	246,775	40,425	114,500	174,000	44%
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	27,800	39,320	18%
<b>Totals</b>	<b>352,119</b>	<b>9,446,120</b>	<b>441,165</b>	<b>1,572,265</b>	<b>2,845,750</b>	<b>30%</b>

**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 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
	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
	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

	Stock Status	Impact Level				
		Low	Medium	High	Very High	
Low	SN Sock			UC SpCH	LC SpCH	<b>Impact Level</b> 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	<b>Stock Status (based on CBP medium goal)</b> Low: less than 25% Medium: 25-50% High: 51-75% Very High: greater than 75%
					LC Sum Sthd	
High		MC Coho	SN FCH		SWW	<b>Prioritization Status</b> 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

- 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 UC SpCH UC Sock UC Sum Sthd SN SpCH SN Sock Will W Sthd		LC Tule FCH	UC Sum CH	<b>Impact Level</b> Low: less than 20% Medium: 20-30% High: 31-50% Very High: Greater than 50%  <b>Stock Status (based on CBP medium goal)</b> Low: less than 25% Medium: 25-50% High: 51-75% Very High: greater than 75%  <b>Prioritization Status</b> 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			
	Very High			LC Bright FCH SN FCH	MC FCH UC FCH	

NA: LC Late BFCH, UC Coho, SN Coho

# Hatchery

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

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

NA: LC Late BFCH, UC Coho, SN Coho

# Hydro-Mainstem (without latent mortality)

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

NA: LC Late BFCH, UC Coho, SN Coho

# Hydro-Mainstem (with latent mortality)

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

NA: LC Late BFCH, UC Coho, SN Coho

# 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	UC SpCH UC Sock SN SpCH SN Sock	Will WSthd	UC Sum Sthd	<b>Impact Level</b> Low: less than 20% Medium: 20-30% High: 31-50% Very High: Greater than 50%  <b>Stock Status (based on CBP medium goal)</b> Low: less than 25% Medium: 25-50% High: 51-75% Very High: greater than 75%  <b>Prioritization Status</b> 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 Sthd		
	High	SWW WSthd MC Coho				
	Very High	LC Bright FCH MC FCH UC FCH SN FCH				

# Tributary Habitat

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

NA: LC Late BFCH, MC Coho, SN Coho, UC Coho

# Estuary Habitat

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

# Confirm Next Steps, Upcoming Meeting Topics, and Summary

- Seek agreement on the approach for the Topic Specific Work Groups
- Confirm report out at the 6/29 Integration/Recommendations Group Meeting
- Summary of next steps and action items



Photo credit: Roger Tabor