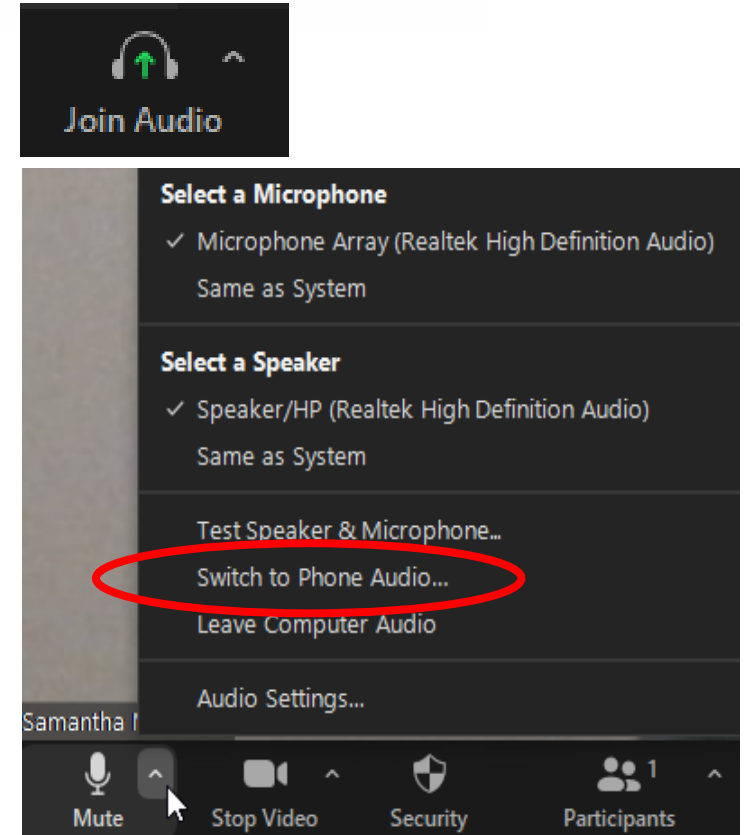


# **Columbia Basin Collaborative Hatchery & Harvest Work Group**

**September 30, 2022**

# Zoom Features

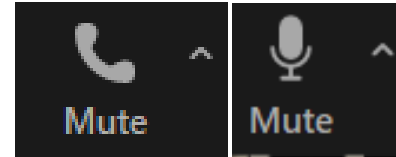
- If you have not **connected your audio**, click on the “Join Audio” at the bottom left of your screen.
- To **switch to phone**, click the arrow next to the microphone icon and select “Switch to Phone Audio”.
- If you have joined by browser, please click “Audio Settings”



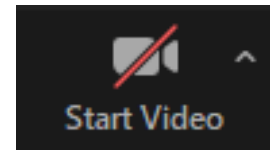
*For technical support, please contact Grant Simmons, 831-331-7077*

# Zoom Features

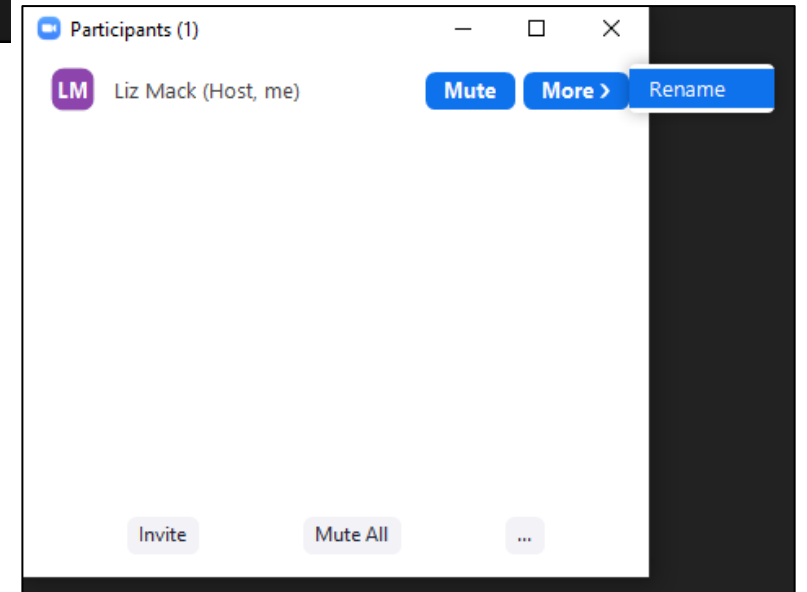
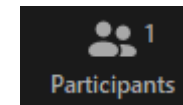
Keep yourself on mute when not speaking.



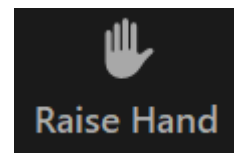
Use video, if possible, to promote face to face communication.



If needed rename yourself in the participant panel.

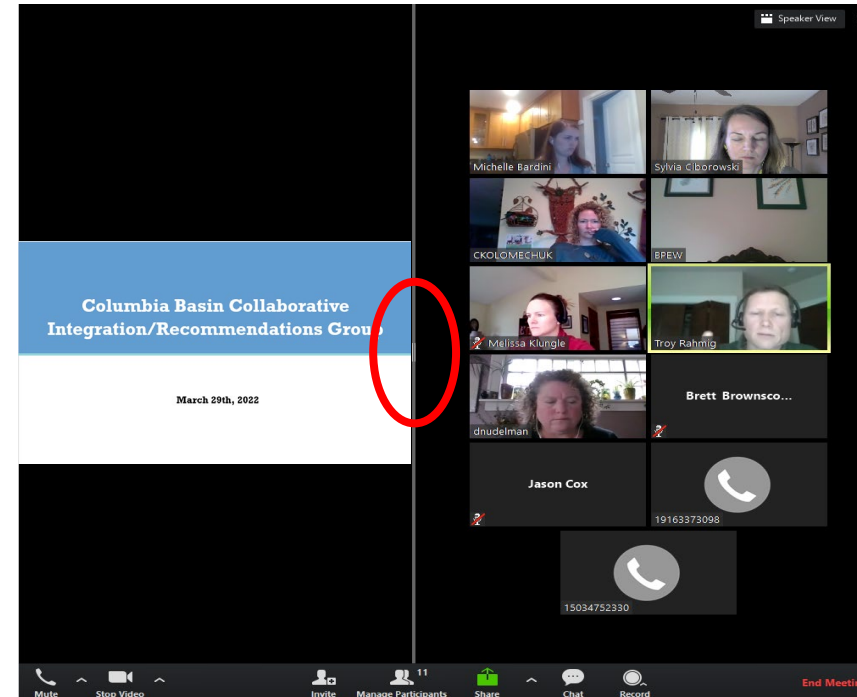
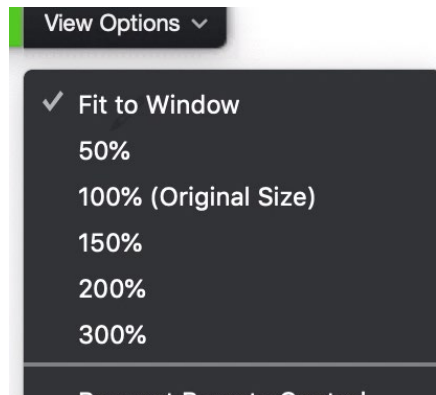
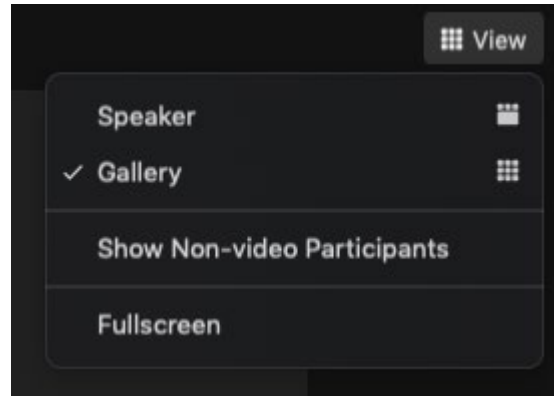


Find your raise hand function at the bottom of your screen



# Zoom Features

Adjust view options



*For technical support, please contact Grant Simmons, 831-331-7077*

# **Welcome, Opening Remarks, and Proposed Agenda**

# Collaboration

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**Focus on your interests, not positions**

**Positions** are a particular stance,  
*“What I want”*

**Interests** are the intangible motivation  
underlying your stance,  
*“Why I want what I want”*



# Collaboration

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## Invent options for mutual gain

- Work for creative solutions
- Increase the size of the pie



# Collaboration

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## Separate the people from the problem

- Put yourself in others' shoes
- Recognize and understand others and your own emotions
- Build a working relationship
- Be hard on the problem, soft on people!





# 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



# Agenda Review

Time (PT)	Topic
9:00 – 9:15 am	Welcome, Opening Remarks, and Agenda
9:15 – 9:30 am	Overview and Context of Columbia Basin Partnership
9:30 – 9:45 am	Overview and Context of Columbia River Basin Hatcheries
9:45 – 10:30 am	Hatcheries Discussion of Resources and Gaps
10:30 – 10:40 am	Break
10:40 – 10:55 am	Overview and Context of Columbia River Basin Harvest
10:55 – 11:35 am	Harvest Discussion of Resources and Gaps
11:35 – 11:55 am	Work Plan and Next Steps
11:55 am – 12:00 pm	Confirm Next Steps, Upcoming Meeting Topics, and Summary

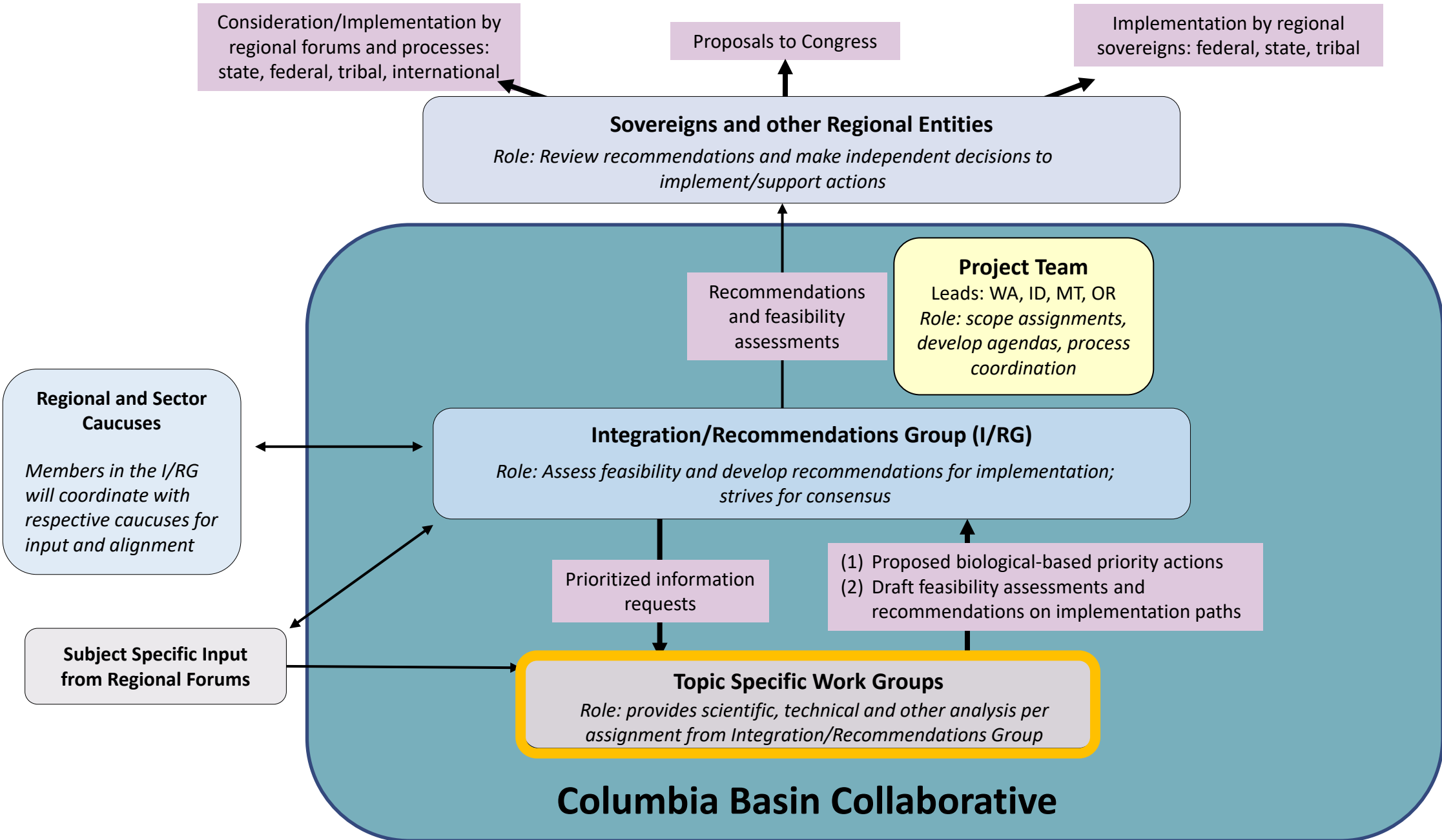
# Introductions

- Name
- Affiliation and expertise
- Hope to accomplish or bring into the discussion
- Favorite spot in the Columbia Basin – *answer on the jamboard!*

# **Overview and Context**

## **Columbia Basin Collaborative**

# A regional approach to achieving the Columbia Basin Partnership goals



# I/RG Membership

Tribe	Federal entity	States
Burns Paiute Tribe	NOAA National Marine Fisheries	State of Idaho
Coeur d'Alene Tribe	Federal action agencies: BPA, Army Corps, and/or Bureau of Reclamation	State of Montana
Confederated Tribes of the Colville Reservation	Columbia Basin Federal Caucus	State of Oregon
Confederated Tribes of the Grand Ronde		State of Washington
Confederated Tribes of the Umatilla Indian Reservation		
Confederated Tribes of Warm Springs		
Cowlitz Indian Tribe		
Fort McDermitt Paiute and Shoshone Tribe		
Nez Perce Tribe		
Shoshone-Paiute Tribes		
Spokane Tribe of Indians		
Yakama Nation		

Sector	Primary Representative	Alternate Representative
<b>Utilities</b>	Seattle City Light	Western Montana G&T
<b>Utilities</b>	Benton PUD	Idaho Consumer-Owned Utilities Association
<b>Non-tribal fisheries</b>	Coastal Trollers Association	Commercial Salmon Fisherman
<b>Non-tribal fisheries</b>	Northwest Sportfishing Industry Association	Idaho Wildlife Federation
<b>River Economies</b>	Idaho Water Users	Kittitas Reclamation District
<b>River Economies</b>	Port of Lewiston	Wheat Farmer
<b>Conservation</b>	Salmon Safe	American Rivers
<b>Conservation</b>	Trout Unlimited	Northwest Energy Coalition

# **Topic Specific and Science Integration Work Groups**

# Work Groups

- Estuary/Tributary Habitat
- **Hatcheries/Harvest**
- Hydrosystem (mainstem and blocked areas)
- Predation
- Science Integration Work Group



# Purpose of Work Groups

- **Develop draft recommendations** for actions, and assist the I/REG in feasibility assessments of those actions
- **Work collaboratively** to clarify and assess subject-specific issues and potential actions and solutions
- **Leverage existing data and studies** to support their assessments
- **Coordinate and collaborate** across other Work Groups for complementary analyses and solutions

# Work Group Membership

Army Corps of Engineers

Columbia River Inter-Tribal Fish Commission

Commercial Fisheries

Confederated Tribes of the Colville Reservation

Confederated Tribes of the Umatilla Indian  
Reservation

Idaho Conservation League

Idaho Fish and Game

Idaho Outfitters and Guides Association

Idaho Power Company

Idaho Water Users

Lower Columbia Fish Recovery Board

Nez Perce Tribe

Northwest Steelheaders

Orca Conservancy

Oregon Department of Fish and Wildlife

Pacific Coast Federation of Fishermen's  
Associations

State of Washington

The Conservation Angler

Trout Unlimited

US Geological Survey

Washington Department of Fish and Wildlife

Yakama Nation Fisheries

Action Type	Steps	Description	Status/Schedule	Responsible Group	Deliverable
CBPTF Technical Planning	1) Define Fish Goals	<b>ESTABLISH GOALS</b> Identify current status and L, M & H goals by species and by sub-region based on historic data and available habitat	Completed in 2019 as part of CBPTF Ph I	Developed by CBPTF consultant and sub-region tech teams and agreed upon by Task Force members	CBPTF Phase 1 Report
	2) Define Current Fish Mortalities	<b>IDENTIFY FISH LOSSES</b> Quantify anthropogenic fish mortality factors throughout life history by species and by sub-region (summarized on "heat map")	Completed in 2020 as part of CBPTF Ph II	Developed by CBPTF consultant and sub-region tech teams and agreed upon by Task Force members	CBPTF Phase 2 Report
	3) Develop Salmon Analyzer Predictive Model	<b>CONSTRUCT "SLIDER" MODEL</b> Develop model with variable restoration components and levels to predict fish restoration action responses and level of goal achievement by species	Completed in 2020 as part of CBPTF Ph II	Developed by CBPTF consultant and sub-region tech teams and agreed upon by Task Force members	Salmon Analyzer Predictive Model
CBC Technical Planning	4) Confirm science-based approach for working groups	<b>CONFIRM BIOLOGICAL FOUNDATION</b> Review and confirm matrices that use the data from the CBPTF to serve as the foundation of the working groups	April 2022- June 2022	Biological Sub-group	- Biological Matrices - Approach for TSWGs
	5) Identify Needs for: - Tributary Habitat - Mainstem Hydro - Blocked Areas - Estuary Habitat - Predation - Hatcheries - Harvest - Integration across threat categories	<b>IDENTIFY ACTIONS/PROJECTS BY TOPIC</b> - Using CBPTF tools and data, identify priority restoration actions/programs that address impact reduction need for each respective mortality factor and collaborate with existing forums (for example, regional recovery organizations) and the IRG as needed - Consider recommendations, actions, and shovel-ready projects from existing forums (for example the CBPTF P2 report) - Consider actions that benefit multiple stocks and regions/watershed populations - Estimate mortality magnitude, source, and location	Ongoing starting July 2022	Topic Specific work groups	List of actions to address needs



		- Acknowledging tribal and treaty rights and legal constraints			
		<b>IDENTIFY ACTIONS/PROJECTS INTEGRATED PACKAGES</b> Using CBPTF tools and data as well as additional information to look across threat categories to identify cross-cutting actions to achieve L/M/H	Ongoing starting July 2022	Science Integration work group	List of actions to address needs

# **Columbia Basin Partnership Data**

**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%
<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 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
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%			

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

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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	7	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)
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Win Steelhead LCR	65	28	0	0 (0-0)	10	19	5	9 (1-16)	
	65	28	0	0 (0-0)	20	19	3	25 (3-46)	
Willamette	Win Steelhead	80	28	0	0 (0-0)	20	32	3	2 (0-4)
	85	17	23	14 (3-25)	25	25	5	24 (3-45)	
Middle Columbia	Fall Chinook	20	27	13	9 (2-17)	5	10	5	0 (0-0)
	Coho	NA	11	30	19 (5-33)	0	17	2	NA
	Sockeye	0	17	19	9 (2-17)	95	8	3	NA
	Sumr Steelhead	80	28	11	14 (3-25)	20	33	0	17 (2-33)
Upper Columbia	Spr Chinook	45	18	49	38 (9-67)	75	29	5	32 (5-59)
	Summer Chinook	50	27	49	38 (9-67)	50	13	6	27 (4-51)
	Fall Chinook	25	27	65	19 (5-33)	5	13	6	10 (1-18)
	Sockeye	50	17	38	38 (9-67)	80	24	12	10 (1-18)
Snake	Sumr Steelhead	40	31	30	38 (9-67)	95	52	1	24 (3-45)
	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)	

Stock Status	Impact Level				Impact Level Low: less than 20% Medium: 20-30% High: 31-50% Very High: Greater than 50%
	Low	Medium	High	Very High	
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		<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 MC Sum Sthd LC Chum	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		<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 MC Sum Sthd LC Chum	MC SpCH SN Sum Sthd			
	High	SWW WSthd MC Coho SN FCH				
	Very High	LC Bright FCH MC FCH UC FCH				



# Compiled Impacts by Stock

Sub- Region	Stock	Status	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	Harvest	Hatchery
Low-C	L Col R Spring Chinook	Threatened	2,240	21,550	10%	1	3	3	3	2	3	3	2
Low-C	L Col R Winter Steelhead	Threatened	5,989	27,900	21%	1	2	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
Low-C	L Col R Coho	Threatened	31,524	129,550	24%	1	3	3	3	3	3	3	2
Low-C	L Col R Summer Steelhead	Threatened	10,594	29,800	36%	2	4	4	4	2	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
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
Mid-C	M Col Sockeye	Not Listed	1,036	45,000	2%	3	3	3	2	1	3	3	
Mid-C	M Col R Spring Chinook	Not Listed	11,600	40,425	29%	2	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
Mid-C	M Col R Coho	Not Listed	6,324	11,600	55%		5	4	5	5	5	4	
Mid-C	M Col R Summer/Fall Chinook	Not Listed	11,500	13,000	88%	5	5	5	5	5	5	4	5
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
Up-C	U Col R Sockeye	Not Listed	40,850	580,000	7%	1	3	1	1	1	2	3	3
Up-C	U Col R Spring Chinook	Endangered	1430	19,840	7%	1	3	1	1	1	2	3	1
Up-C	U Col R Summer Chinook	Not Listed	16920	78,350	22%	1	2	1	1	1	3	1	2
Up-C	U Col R Fall Chinook	Not Listed	92,400	62,215	149%	5	5	4	5	5	5	4	5
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	
Snake	Snake R Spring/Summer Chinook	Threatened	6,988	98,750	7%	1	3	1	1	2	2	3	3
Snake	Snake R Summer Steelhead	Threatened	28,000	75,000	37%	2	4	4	2	2	2	4	4
Snake	Snake R Fall Chinook	Threatened	8,360	10,780	78%	5	5	4	4	4	5	4	
Willam	U Will R Spring Chinook	Threatened	4,278	47,850	9%	1	2	3	3	1	3	3	2
Willam	U Will R Winter Steelhead	Threatened	2,816	27,805	10%	1	2	3	3	3	1	3	3



# **Overview and Context of Columbia Basin Hatcheries**

# Why do we have hatchery production in the Columbia River?



➤ Hatcheries were built and/or authorized to mitigate for impacts caused by :

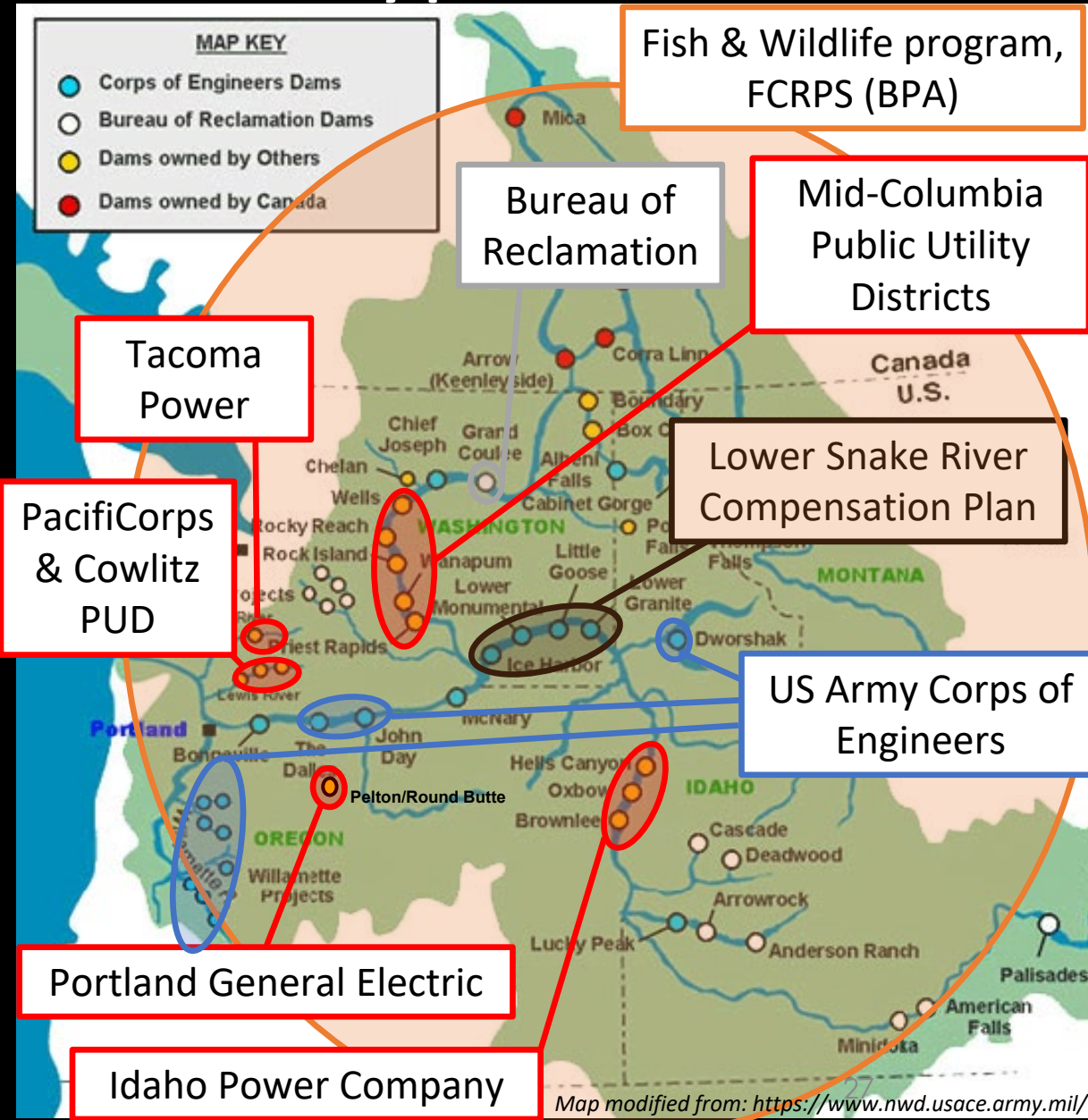


- Construction and operation of hydropower dams
- Development of the Columbia River Basin



# Funding

## Hatchery production in the Columbia River Basin



### Construction & operation of hydroelectric dams:

- LSRCP
- USACE
- BoR
- Private & Public Utilities
- BPA

### Development Impacts:

- Mitchell Act
- US Fish and Wildlife Service

### No mitigation requirement:

- Pacific Coastal Salmon Recovery Fund

# How much hatchery production?

Currently approximately 140 million juvenile salmon and steelhead released annually\*



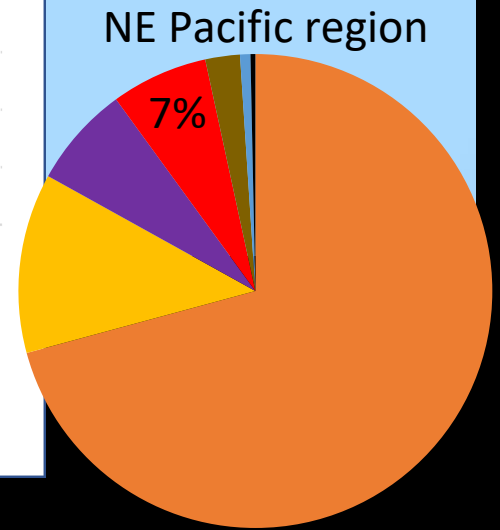
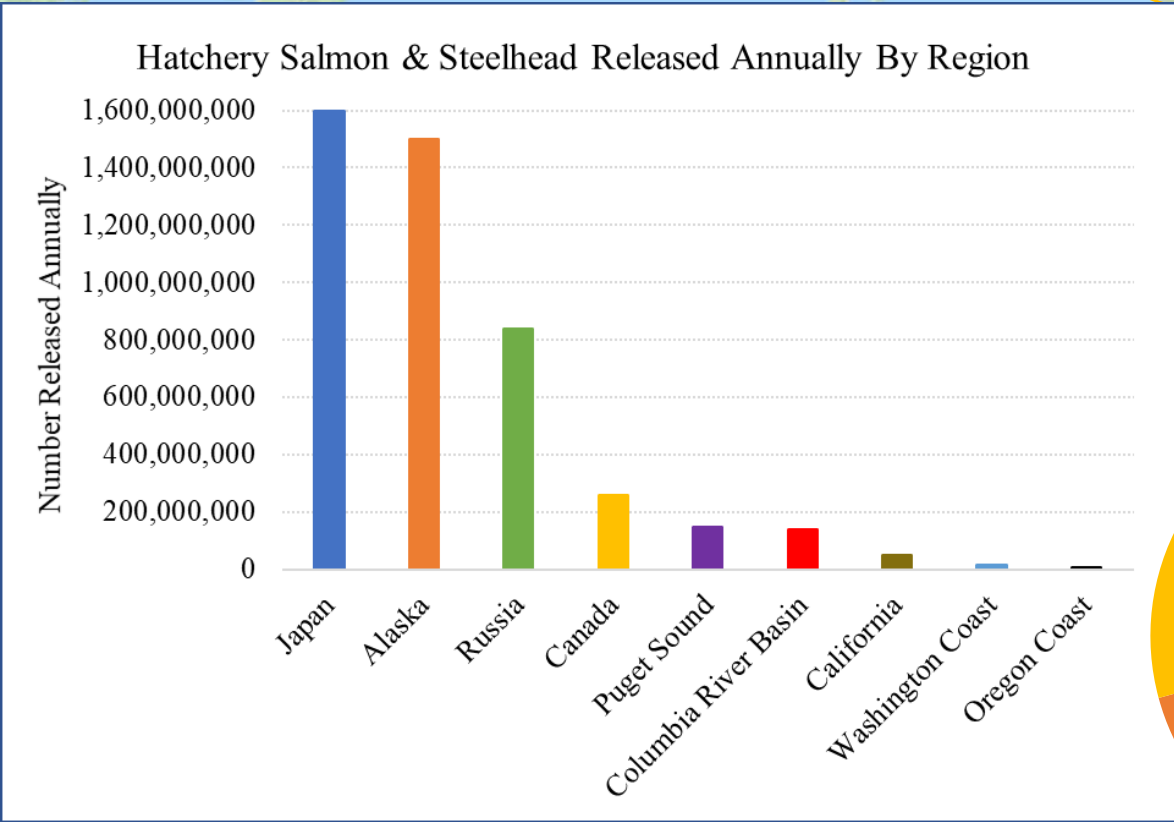
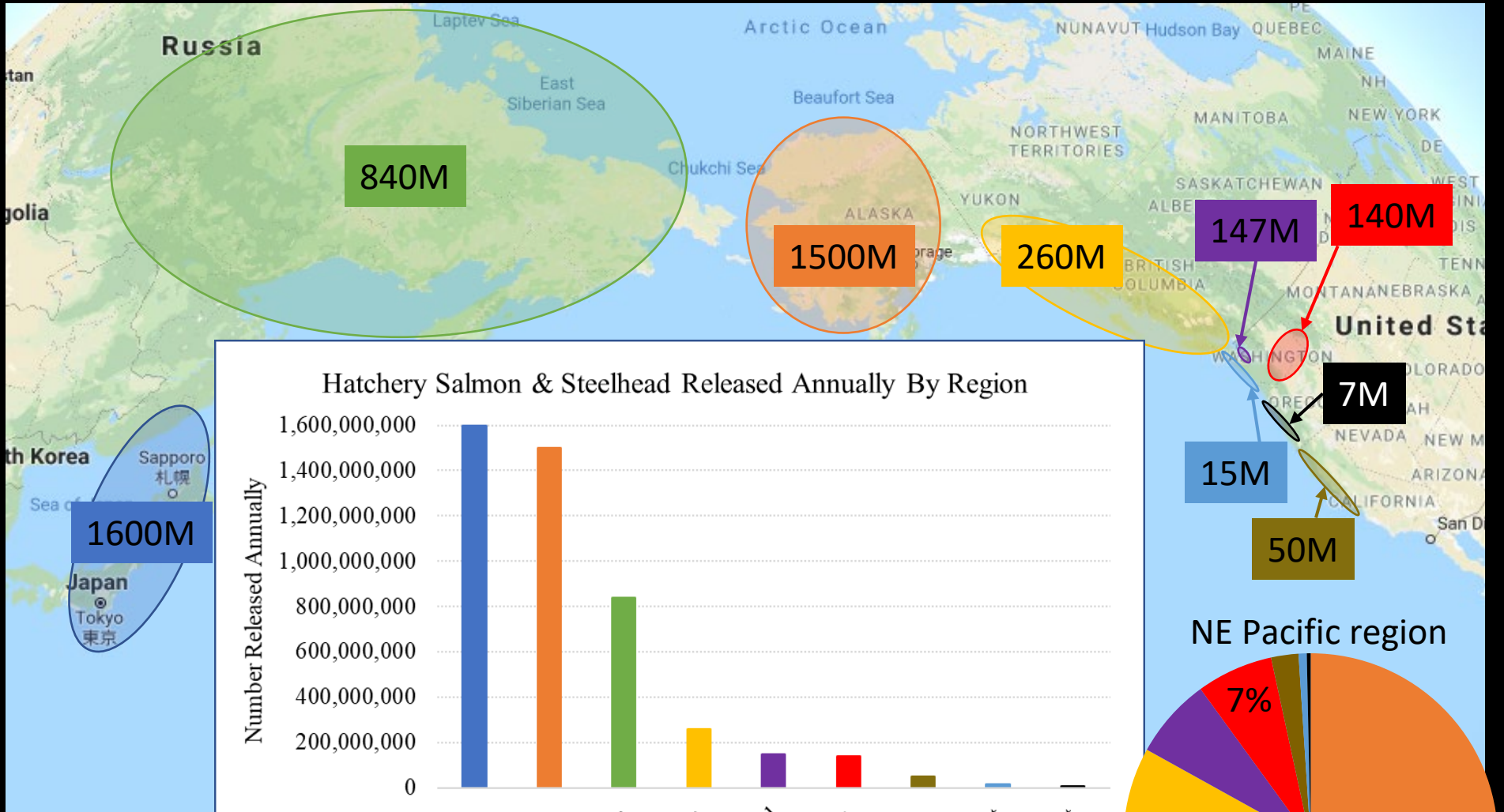
## ➤ 4 regions

- Columbia River – Below Bonneville
- Columbia River – Bonneville to McNary
- Columbia River – Above McNary
- Snake River

\* Estimated from 2015 Fish Passage Center data



# Context for scale of current hatchery salmon release numbers



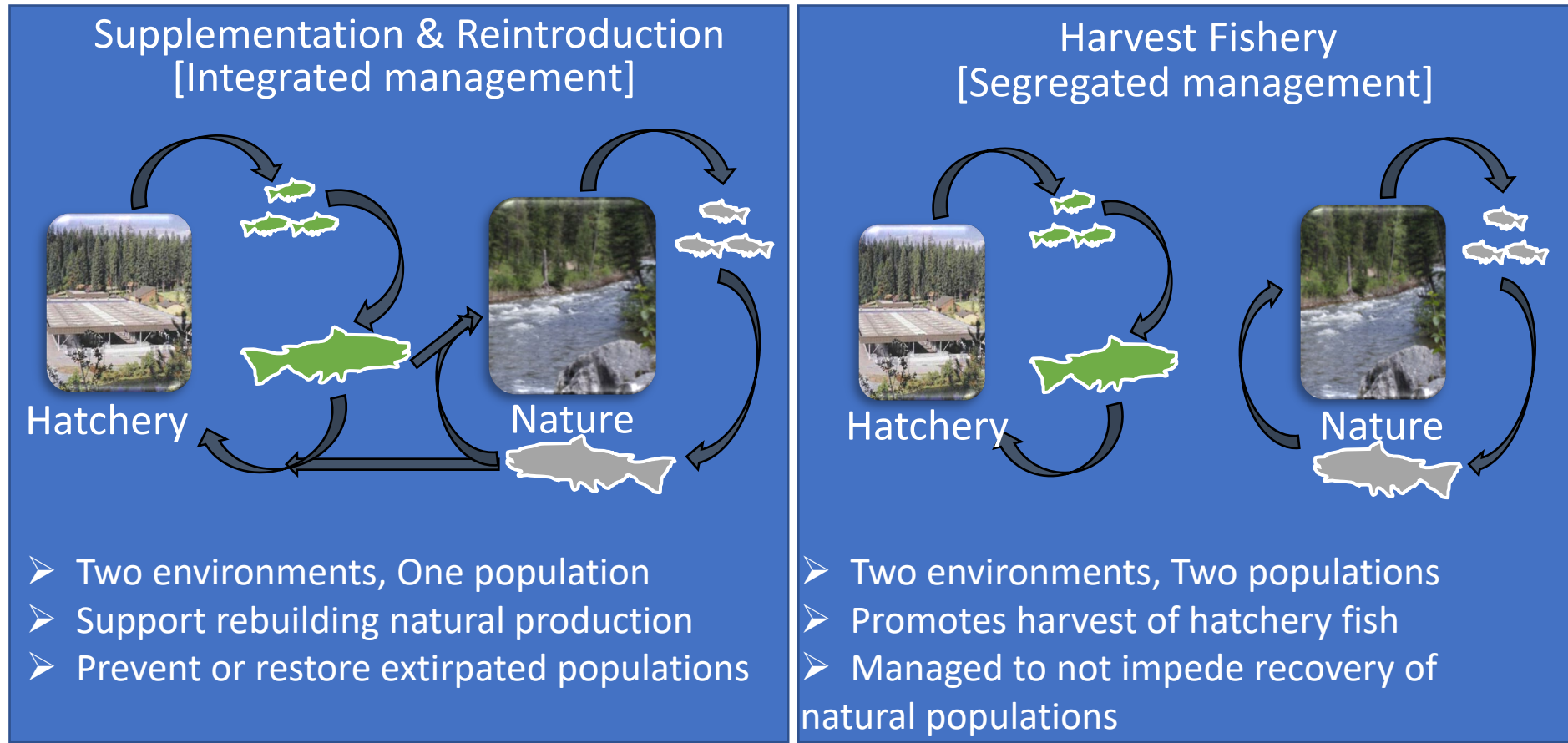
Data sources:  
 Outside CRB:  
<https://npafc.org/statistics/>

CRB: Fish Passage Center

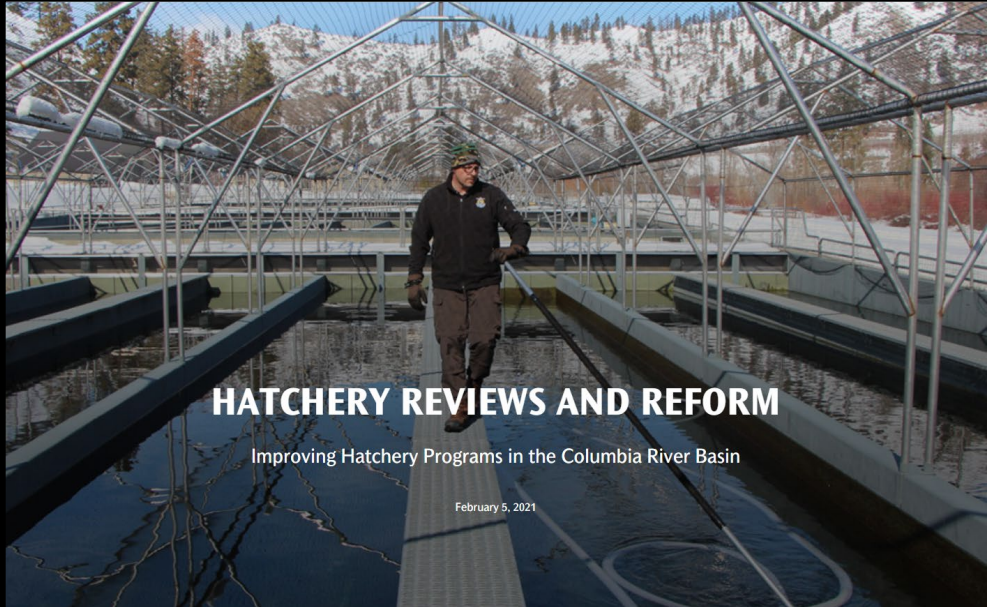
# Management purpose of hatchery programs

- 1.) Harvest Fishery – Fish for harvest
- 2.) Supplementation – Prevent extirpation, rebuild natural production
- 3.) Reintroduction – Restore extirpated populations

## Two different management approaches



# Significant efforts to review and improve hatcheries over the last 30 years



- 1990-1992: Regional Assessment of Supplementation Project
- 1992-1995: Integrated Hatchery Operations Team (IHOT)
- 1997-1999: Artificial Production Review (APR)
- 2001: Performance Standards and Indicators (PSI)
- 2002-2005: Artificial Production Review and Evaluation (APRE) and Hatchery and Genetics Management Plan (HGMP)
- 2003-2005: Independent Scientific Advisory Board Review of Salmon and Steelhead Supplementation
- 2006-2007: Ad Hoc Supplementation Monitoring and Evaluation Workshops
- 2005-2015: Hatchery Scientific Review Group (HSRG)



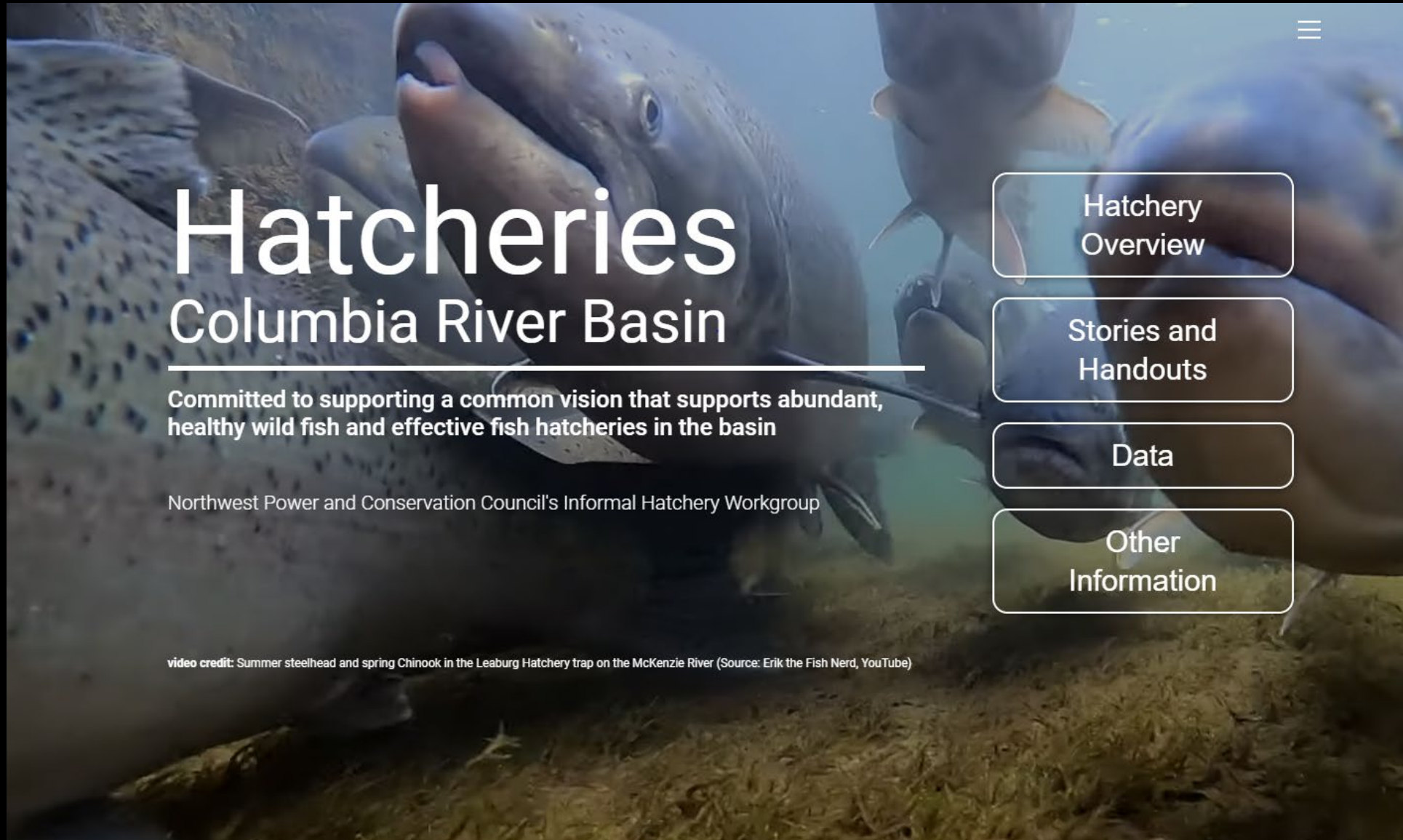
# Hatchery infrastructure and deferred maintenance



- Funding is insufficient to maintain and repair critical hatchery infrastructure
- Mitigation requirements, fisheries, and re-building objectives are at risk
- Opportunities for modernization – plan for less water, use new technologies



<https://hatchery.nwcouncil.org>



# Hatcheries

## Columbia River Basin

Committed to supporting a common vision that supports abundant, healthy wild fish and effective fish hatcheries in the basin

Northwest Power and Conservation Council's Informal Hatchery Workgroup

Hatchery  
Overview

Stories and  
Handouts

Data

Other  
Information

video credit: Summer steelhead and spring Chinook in the Leaburg Hatchery trap on the McKenzie River (Source: Erik the Fish Nerd, YouTube)

# **Hatcheries**

## **Discussion of Resources and Gaps**





# Break

10 minutes

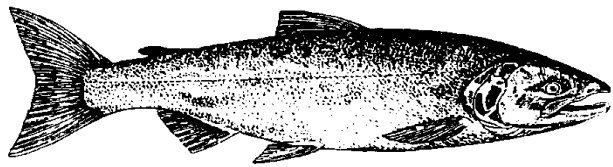


# **Overview and Context of Columbia Basin Harvest**



# TRIBAL FISHERY AT CELILO FALLS



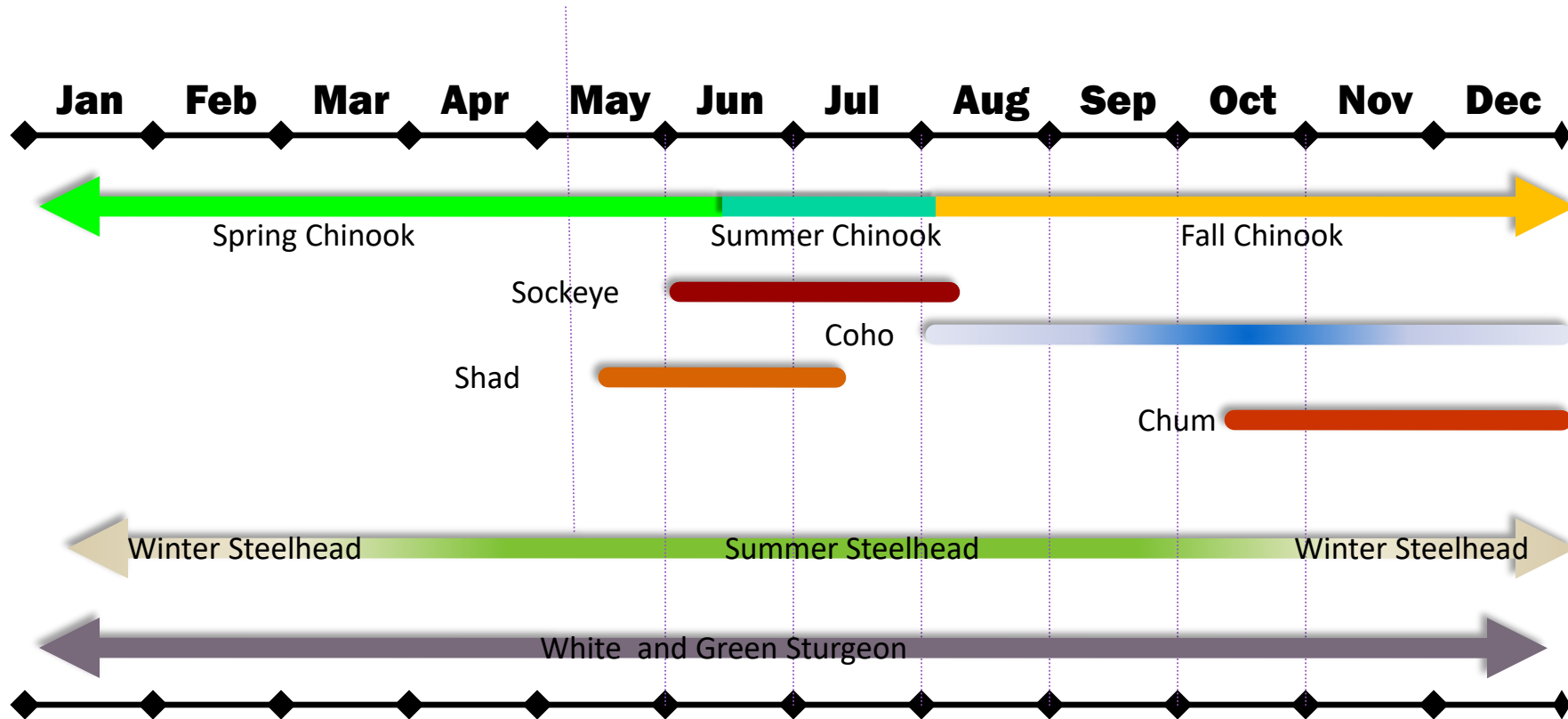


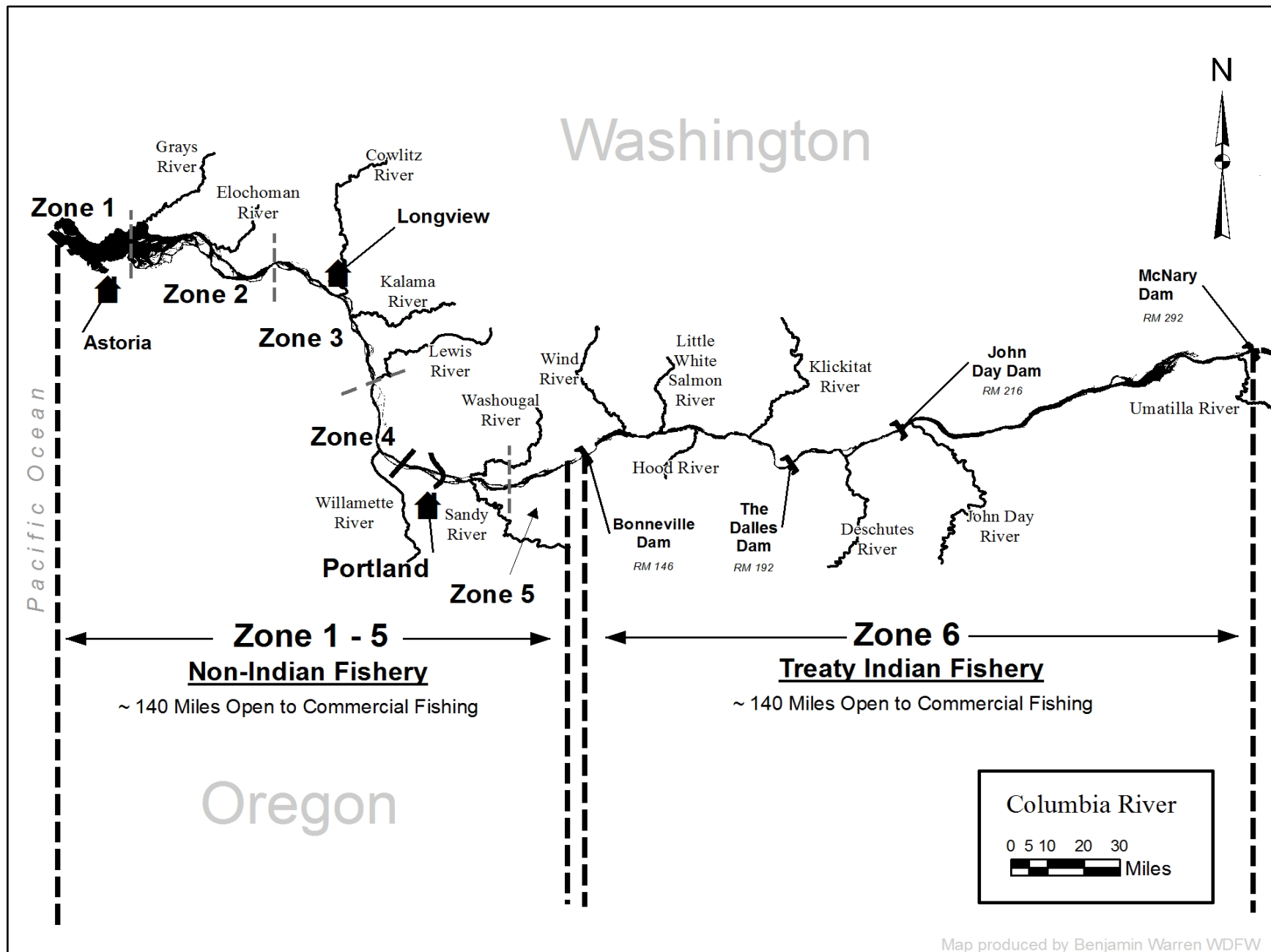
# Chinook Management Processes



# Columbia River

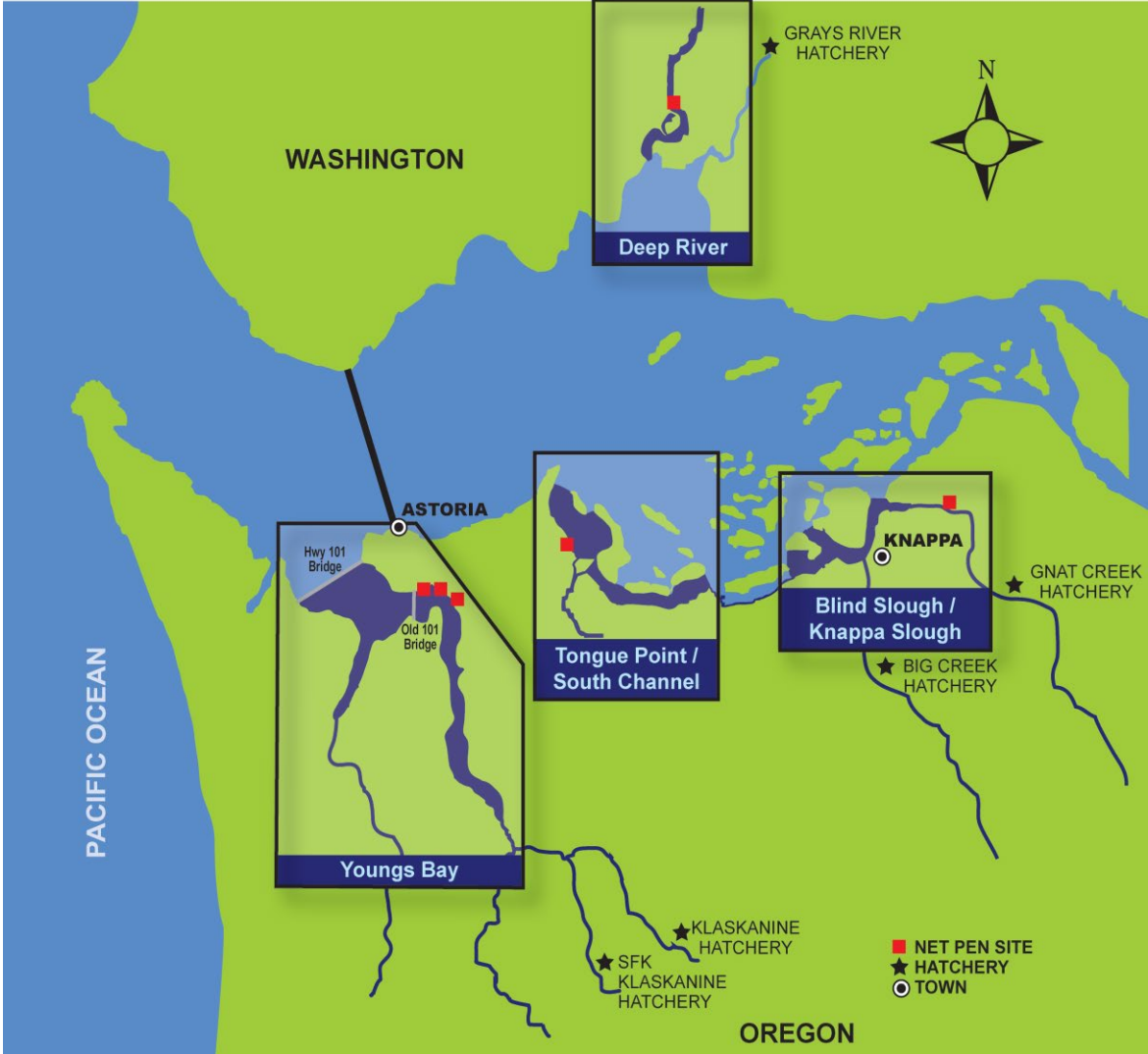
## Annual presence of management species







# Select Area Fisheries (SAFE)



# Abundance Based Management

Spring Management Period Harvest Rate Schedule-U.S. v. Oregon							
Total Upriver Run Size	Snake River Natural Run Size	Treaty Indian Harvest Rate	Treaty Indian Catch Guideline	Non-Indian Harvest Rate	Non-Indian Mortality Guideline	Total Harvest Rate	
82,000	8,200	7.4%	6,068	1.6%	6,068	9.0%	
109,000	10,900	8.3%	9,047	1.7%	9,047	10.0%	
141,000	14,100	9.1%	12,831	1.9%	12,831	11.0%	
217,000	21,700	10.0%	21,700	2.0%	21,700	12.0%	
271,000	27,100	10.8%	29,268	2.2%	29,268	13.0%	
326,000	32,600	11.7%	38,142	2.3%	38,142	14.0%	
380,000	38,000	12.5%	47,500	2.5%	47,500	15.0%	
434,000	43,400	13.4%	58,156	2.6%	58,156	16.0%	
488,000	48,800	14.3%	69,784	2.7%	69,784	17.0%	

# 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	<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	SN FCH		
	Very High			LC Bright FCH	MC FCH UC FCH	

# **Harvest**

## **Discussion of Resources and Gaps**

# **Work Plan, Next Steps, and Summary**

# Future Meeting Topics

- Come to terms with impacts of fisheries – further discuss
- Thinking about finer-scale impact (e.g., Lower Tules) to help decide where to focus efforts across Hs
- Stock by stock approach
- Discuss and consider how to frame impacts of hatcheries to other goals
- Consider equitable distribution of harvest shares
- Decide most critical info gaps/needs and opportunities AND crosswalk with past similar exercises/recommendations from other efforts
- Discuss hatchery/harvest interrelationship

# Next Steps

Work Group:

- ACTION 1
- ACTION 2





Thank you ~



Photo credit: Roger Tabor