Columbia Basin Collaborative
SDM Steelhead Pilot Project

February 14, 2025
9-11 am PT / 10am – 12pm MT

Welcome, Agenda Review, and Updates

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 – 9:10 am	Welcome, Agenda Review, and Updates • 2/10 I/RG Meeting
9:10 – 10:00 am	Bottlenecks for MPGs
10:00 – 10:40 am	Conceptual Model Updates
10:40 – 10:55 am	Confirm Next Steps
10:55 – 11:00 am	Confirm Action Items and Summary

2/10 I/RG Meeting Update

- Funding uncertainty for the CBC
- Alignment around slowing down efforts until funding is identified
- SDM Steelhead Pilot Project Direction
  - Document Progress
  - Determine which activities could continue moving

Bottlenecks for MPGs

Bottlenecks for MPGs

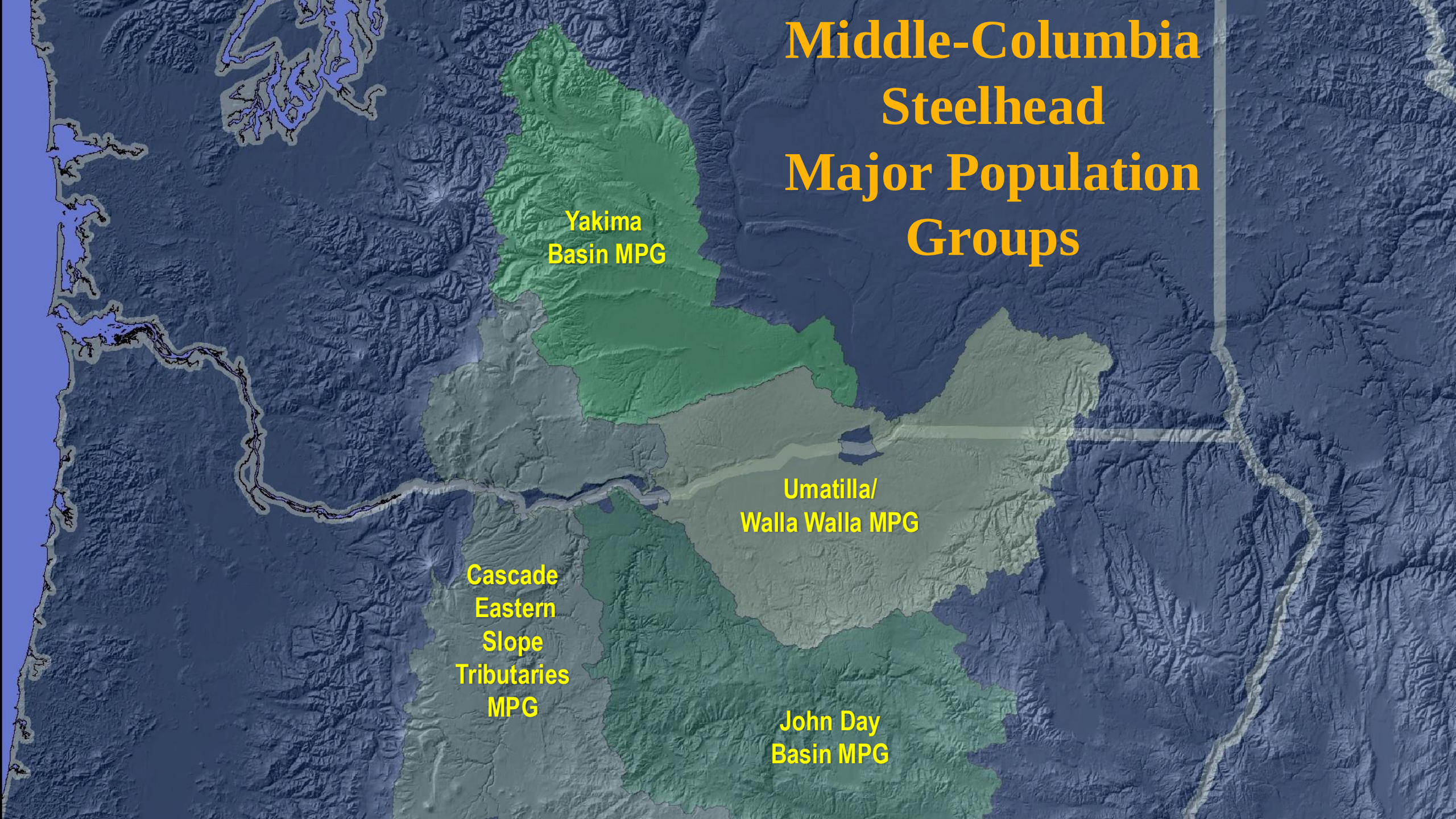
Presentations on the bottlenecks preventing MPGs from reaching viability in the following geographies:

- Yakima River
- Umatilla/Walla Walla
- John Day River and Cascade Eastern Slope (*at a future meeting*)
- Questions, answers, and group discussion

Recovery Bottlenecks for the Yakima Steelhead MPG

Presented by Alex Conley

Executive Director
Yakima Basin Fish and Wildlife Recovery Board


Middle-Columbia
Steelhead
Major Population
Groups
Yakima
Basin MPG
Umatilla/
Walla Walla MPG
Cascade
Eastern
Slope
Tributaries
MPG
John Day
Basin MPG

2009 YAKIMA STEELHEAD RECOVERY PLAN

Extracted from the

2005 Yakima Subbasin Salmon Recovery Plan

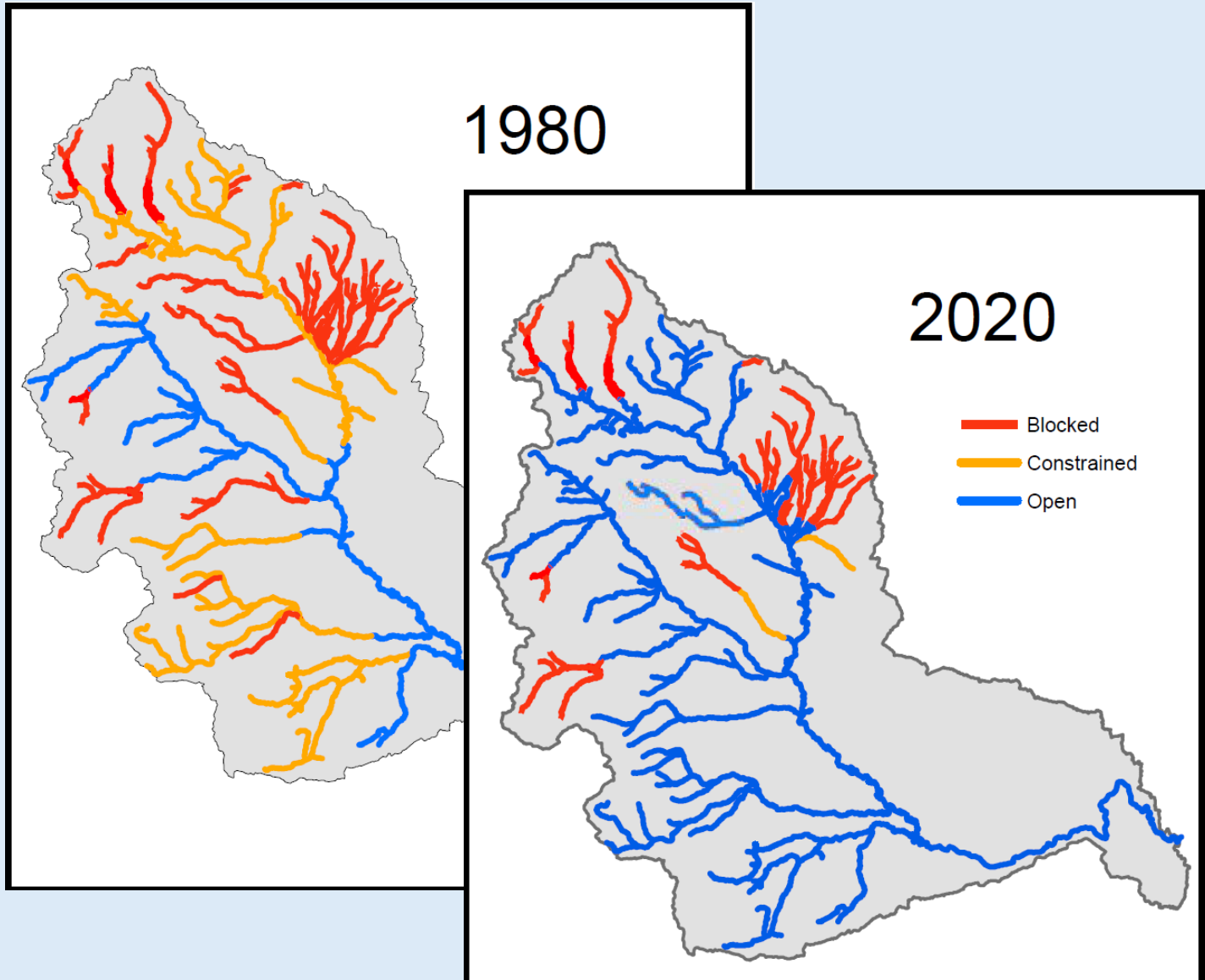
With Updates

Final
August 2009

Implementing the Plan

Some threats much reduced:

- Access much better
- Extensive habitat projects
- Fish screening in place
- Improved flow in key streams
- Fisheries well regulated
- Reduced hatchery strays
- Improved forest management

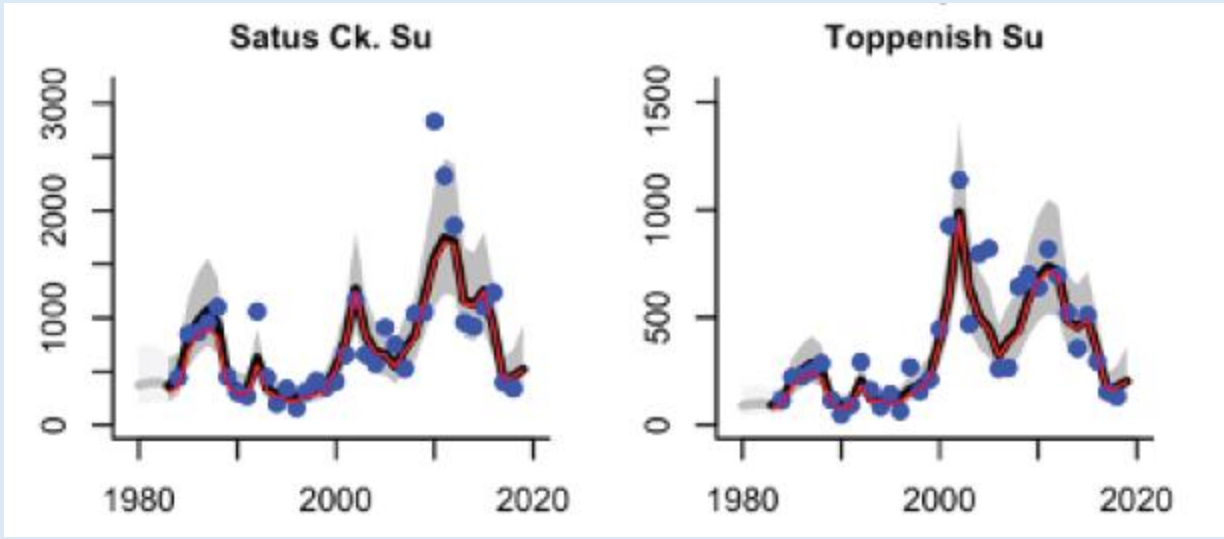


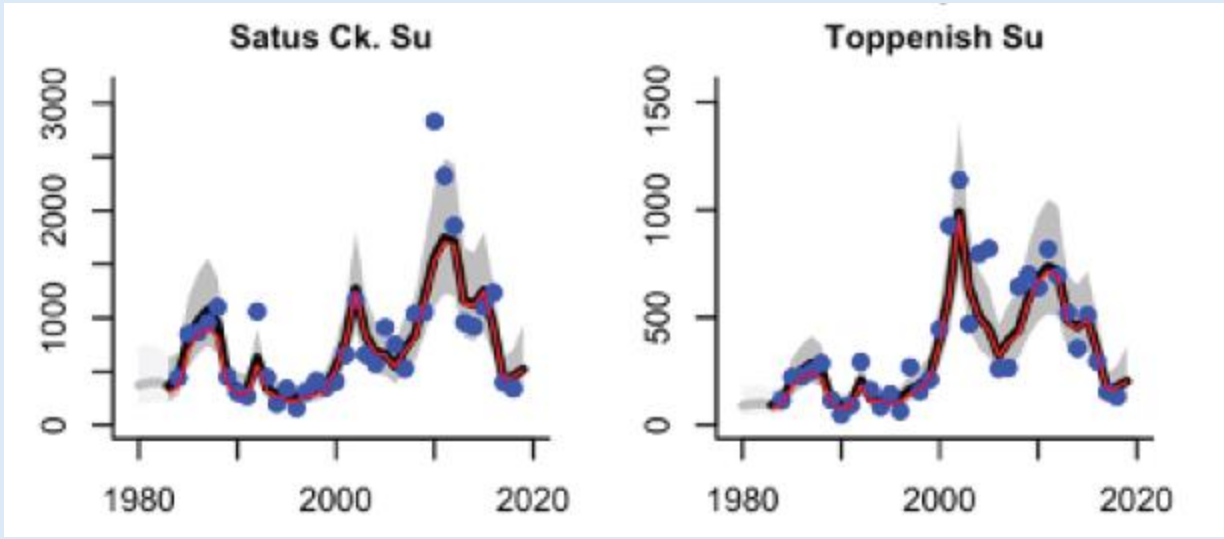
2022 NOAA Viability Ratings

		Risk Rating for Spatial Structure and Diversity			
Risk Rating for Abundance/Productivity		Very Low	Low	Moderate	High
	Very Low (<1%)				
	Low (1–5%)			*Satus Cr.*	
	Moderate (6–25%)			*Toppenish Cr.* *Naches R.*	*Yakima R.* *Upper Mainstem*
	High (>25%)				

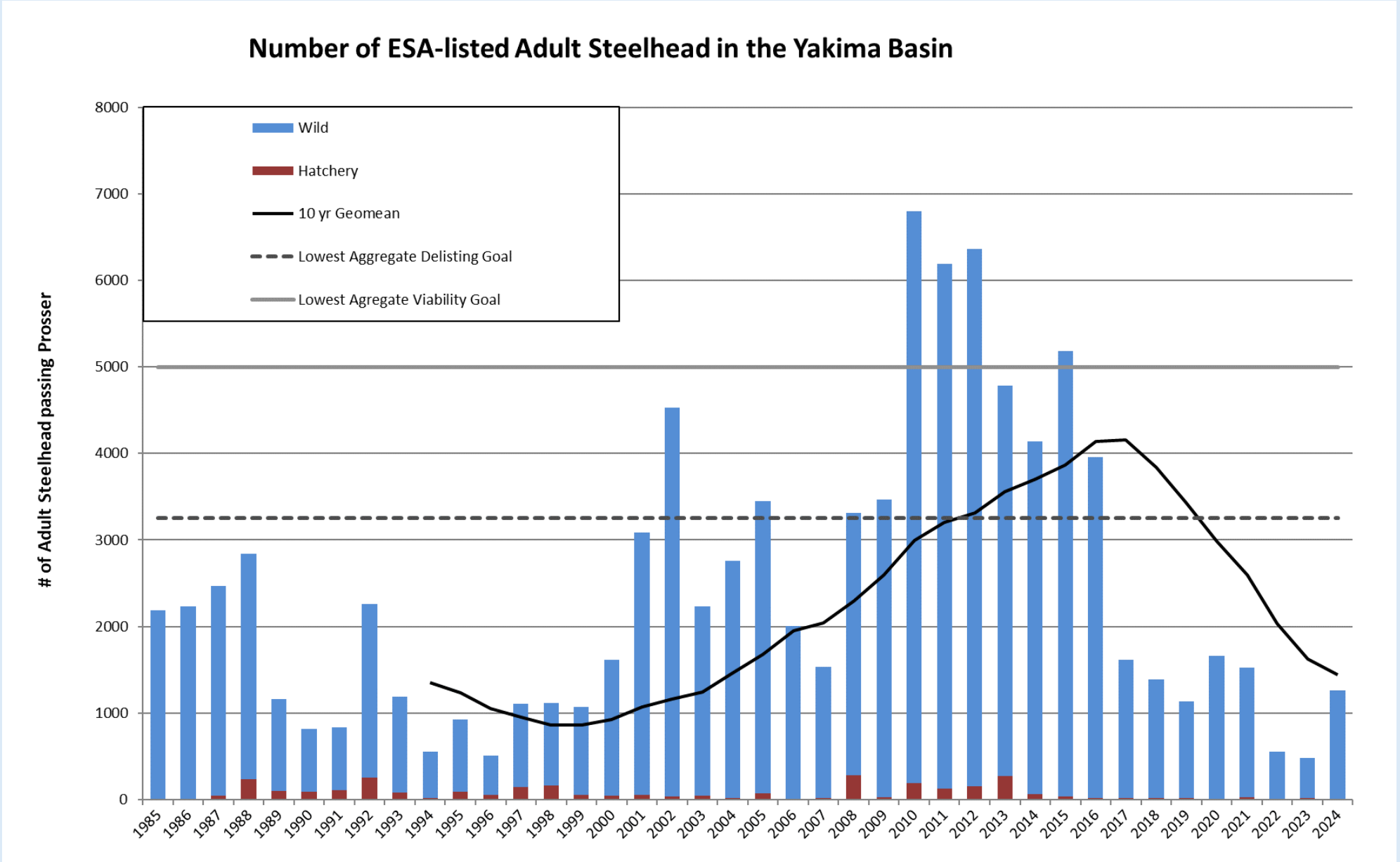
Figure 5. Yakima River MPG population risk ratings integrated across the four VSP parameters. Viability key: dark green – highly viable; light green – viable; orange – maintained; and red – high risk (does not meet viability criteria)

Abundance Trends from 2022 5yr Review

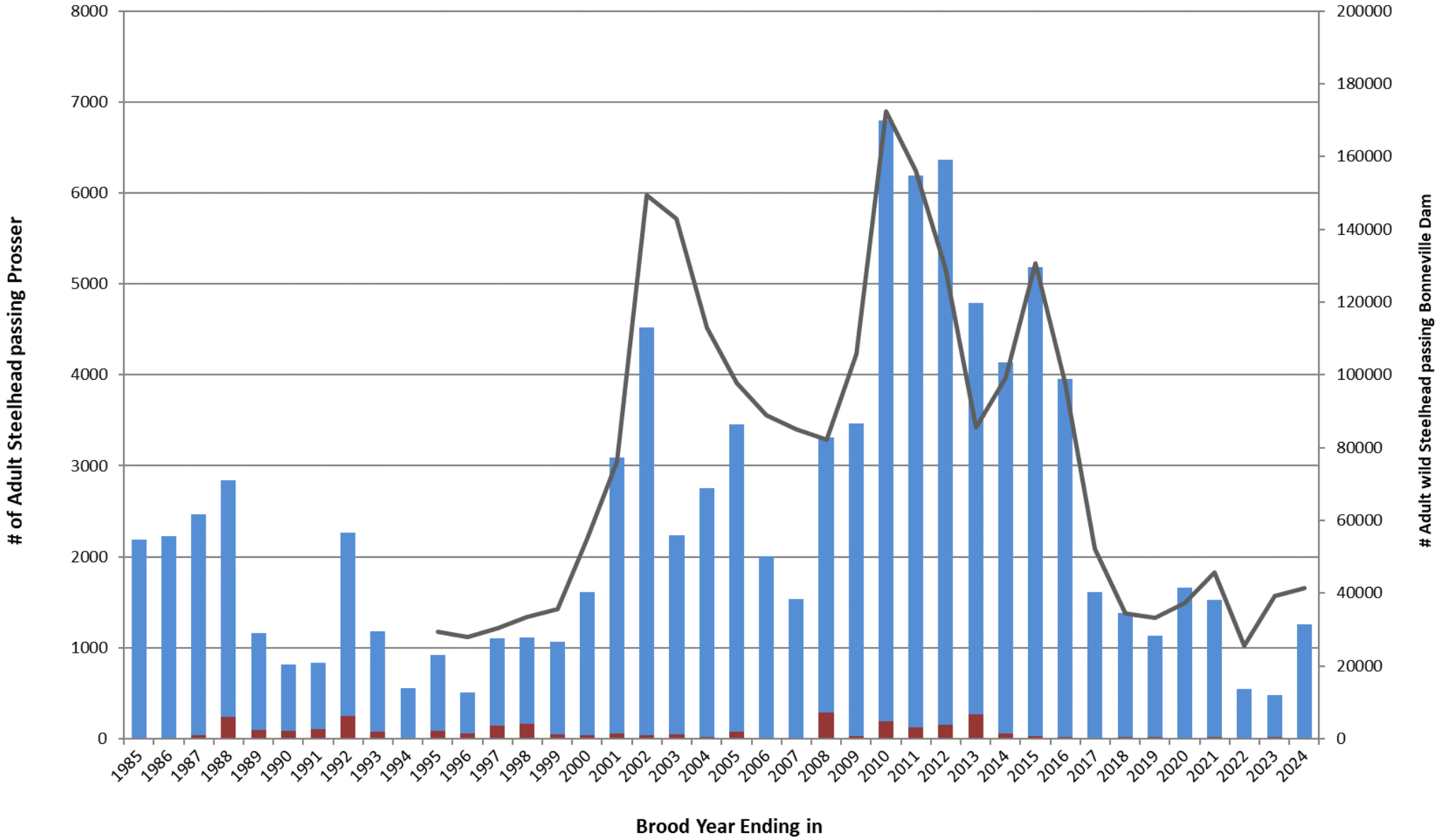




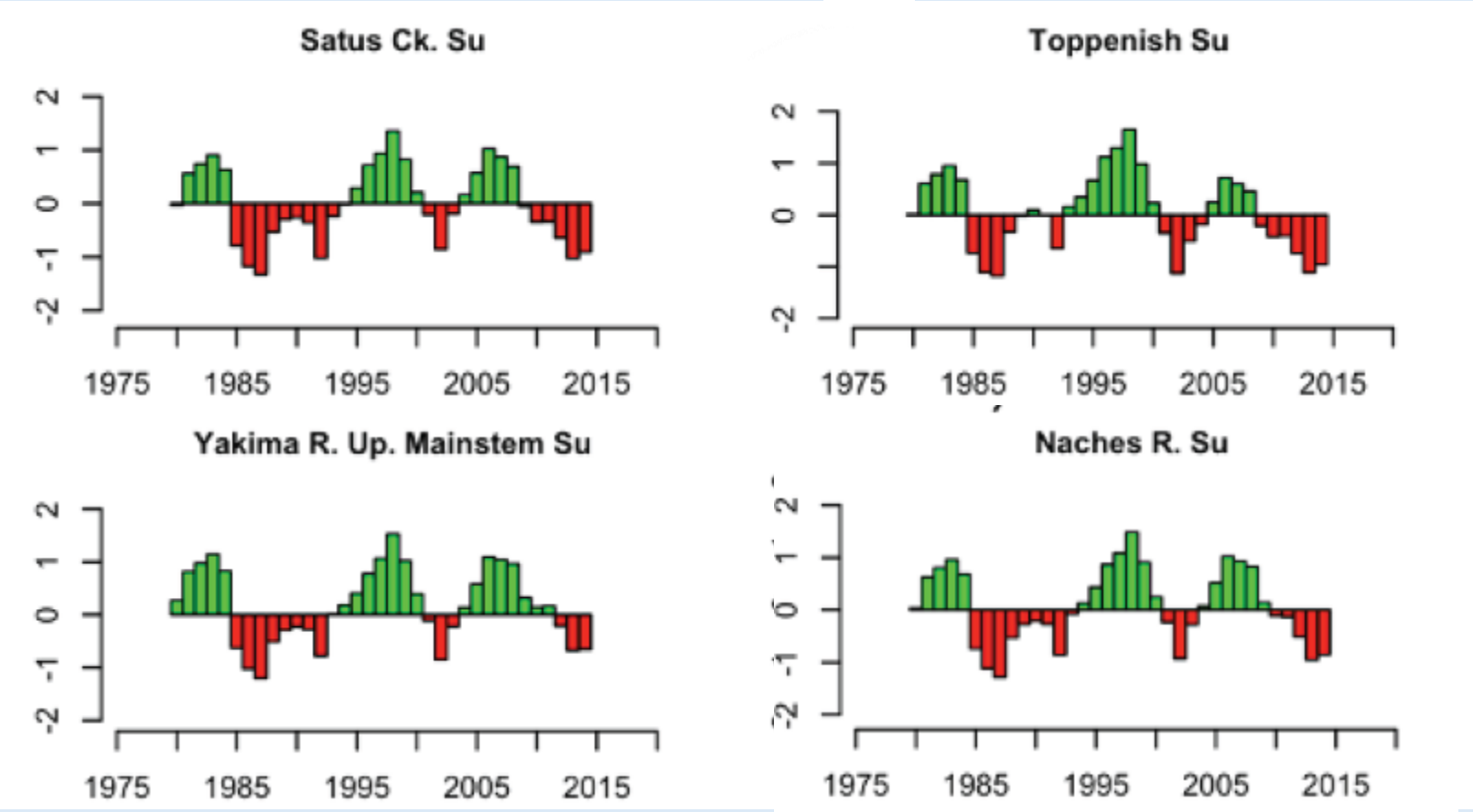
The Good Times Don't Last....



Comparing Bonneville and Yakima Basin Counts

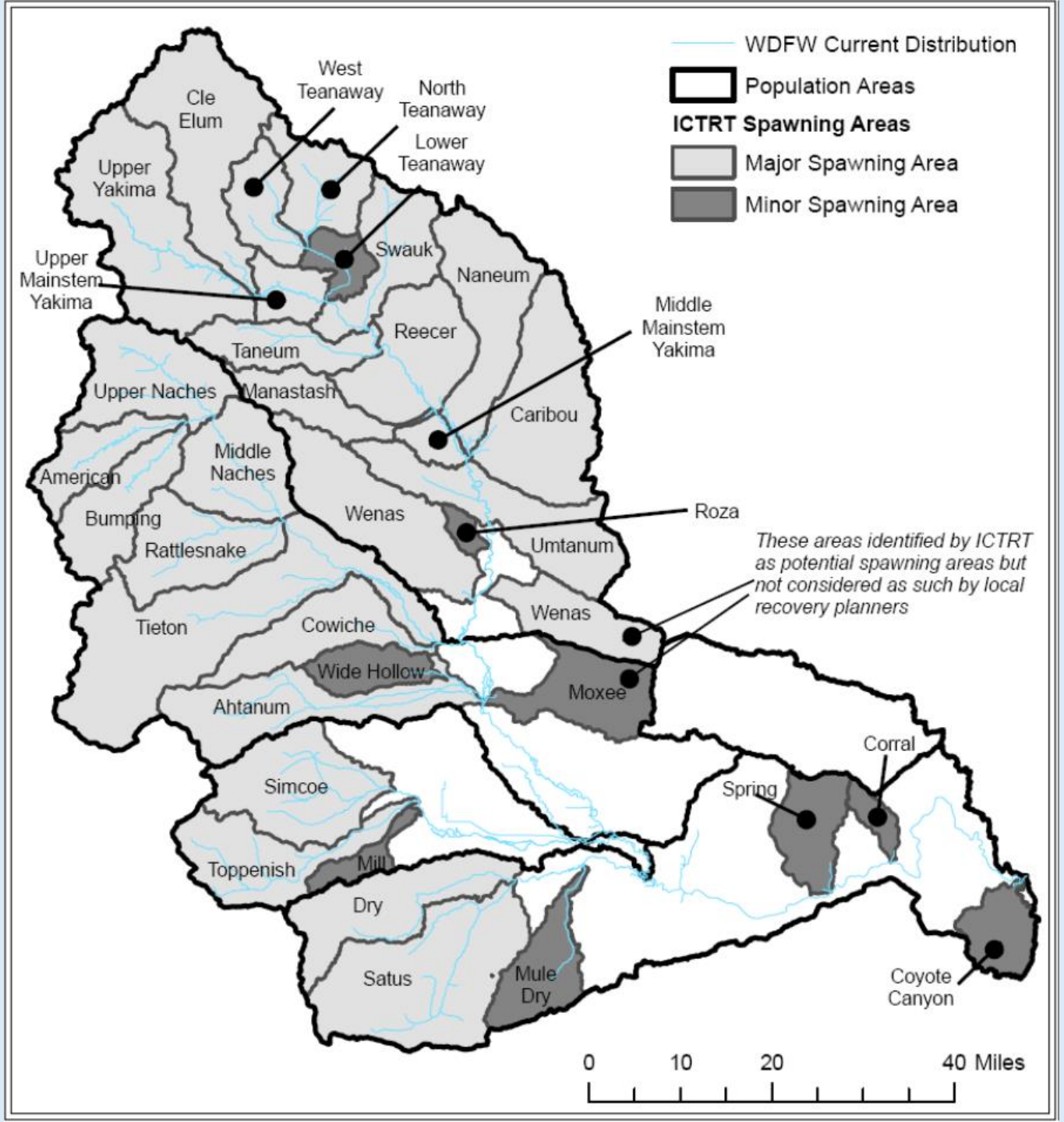


Productivity from 2022 5 yr Review

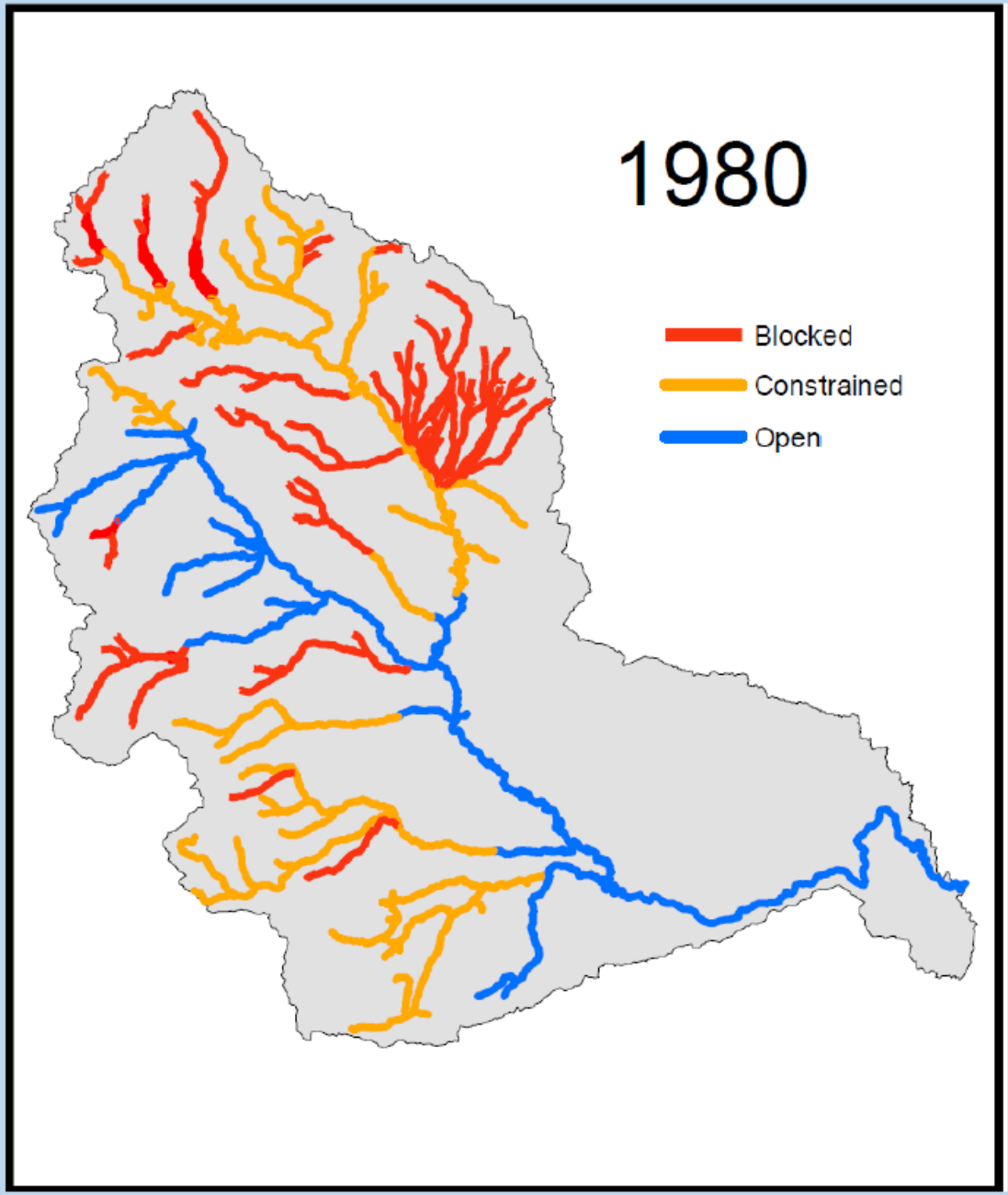


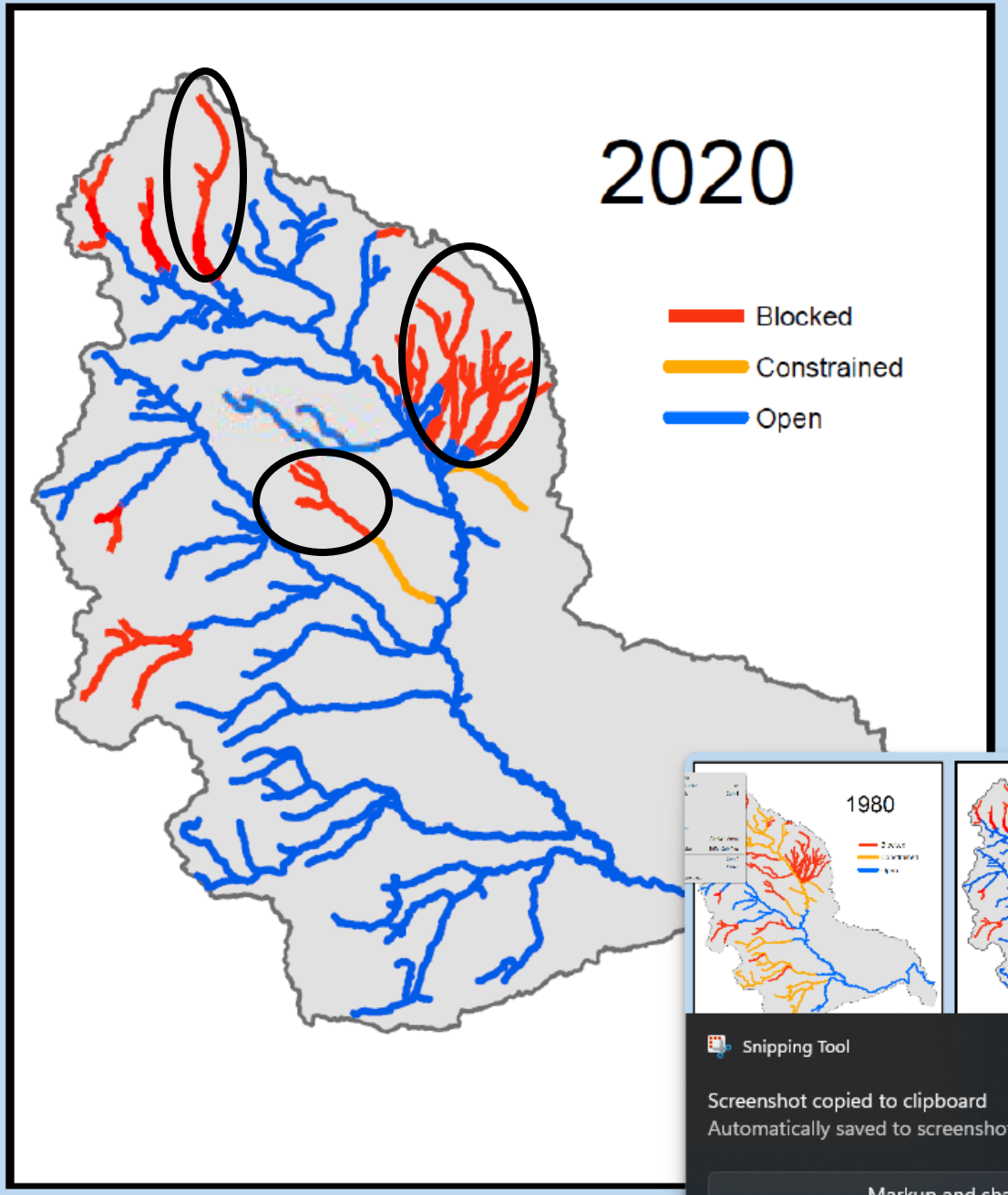
Measuring
Spatial Structure

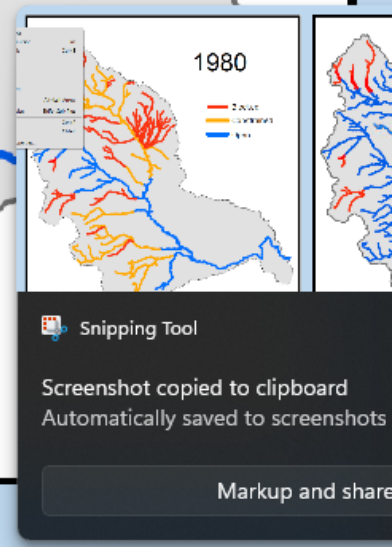
OCCUPANCY EVALUATION



FISH PASSAGE OVER TIME







Key Bottlenecks to Address

1) Need to increase abundance and productivity:

- Improve smolt survival rates in lower tributaries, Yakima River & Columbia
  PIT tag studies have highlighted high mortality rates
- Improve adult survival from Ocean to spawning ground
  Currently lose 25-50%
- *Get better ocean survival…*
- *Improve spawning and rearing habitat?*

Key Bottlenecks to Address

2) Need to complete passage work in the Upper Yakima

- Monitor steelhead reestablishment above Cle Elum Dam
- Identify/implement passage strategy in Wenas and/or Wilson watersheds

3) Improve key diversity metrics

- Broaden outmigration timing and shift earlier
  Recent years have high proportions of late outmigrants
- Increase diversity of juvenile/smolt life histories

NOAA Viability Ratings

		Risk Rating for Spatial Structure and Diversity			
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QUESTIONS?

Bottlenecks for the Umatilla/Walla Walla Major Population Group (MPG)

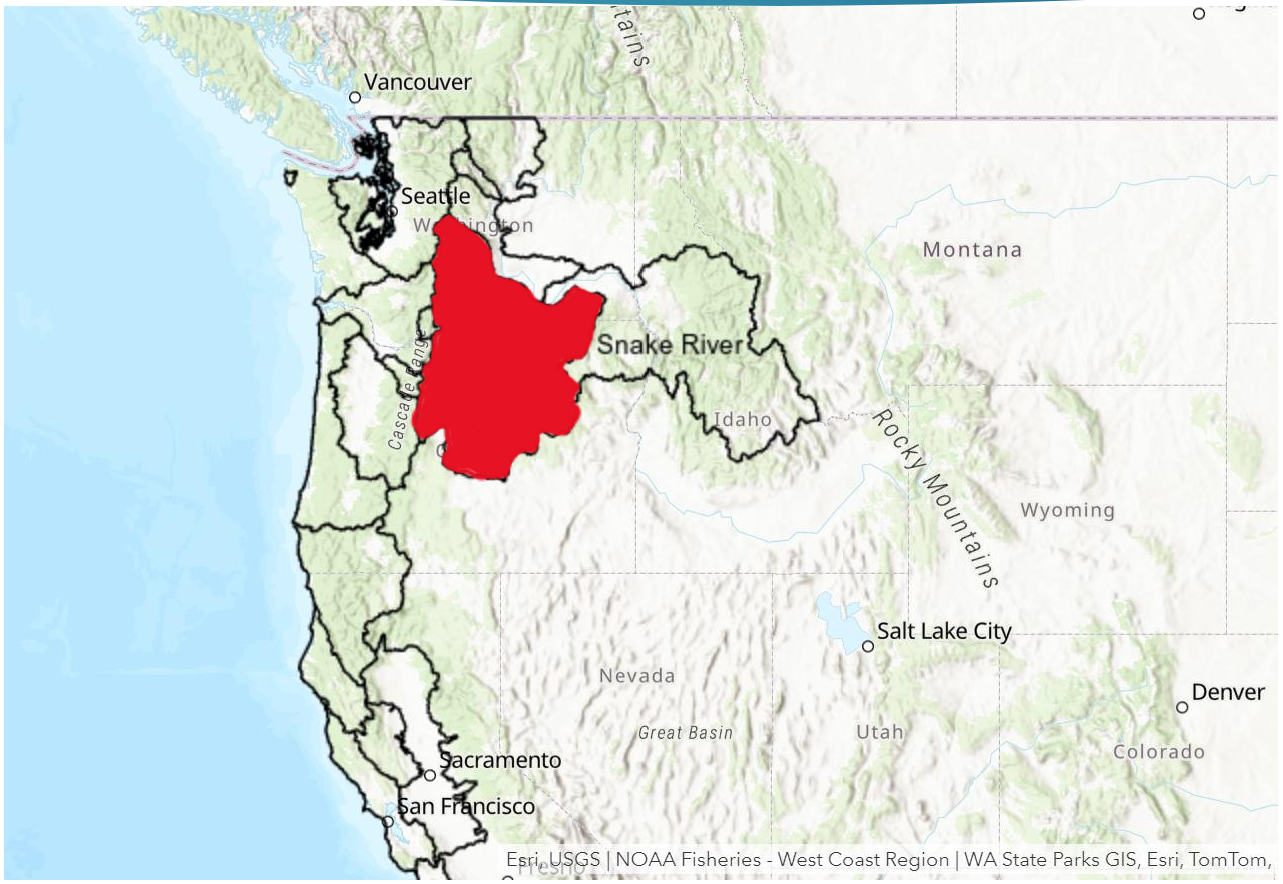
Background and Bottlenecks Inhibiting the Umatilla/Walla Walla Major Population Grouping from Reaching Viability

Steve Martin (SRSRB)and Jerimiah Bonifer (CTUIR)

(NOTE: nearly all of the information in this ppt is from the NOAA 2022 middle Columbia steelhead DPS status review and from the recovery chapter in the Snake River Salmon Recovery Plan for WW and Touchet populations).

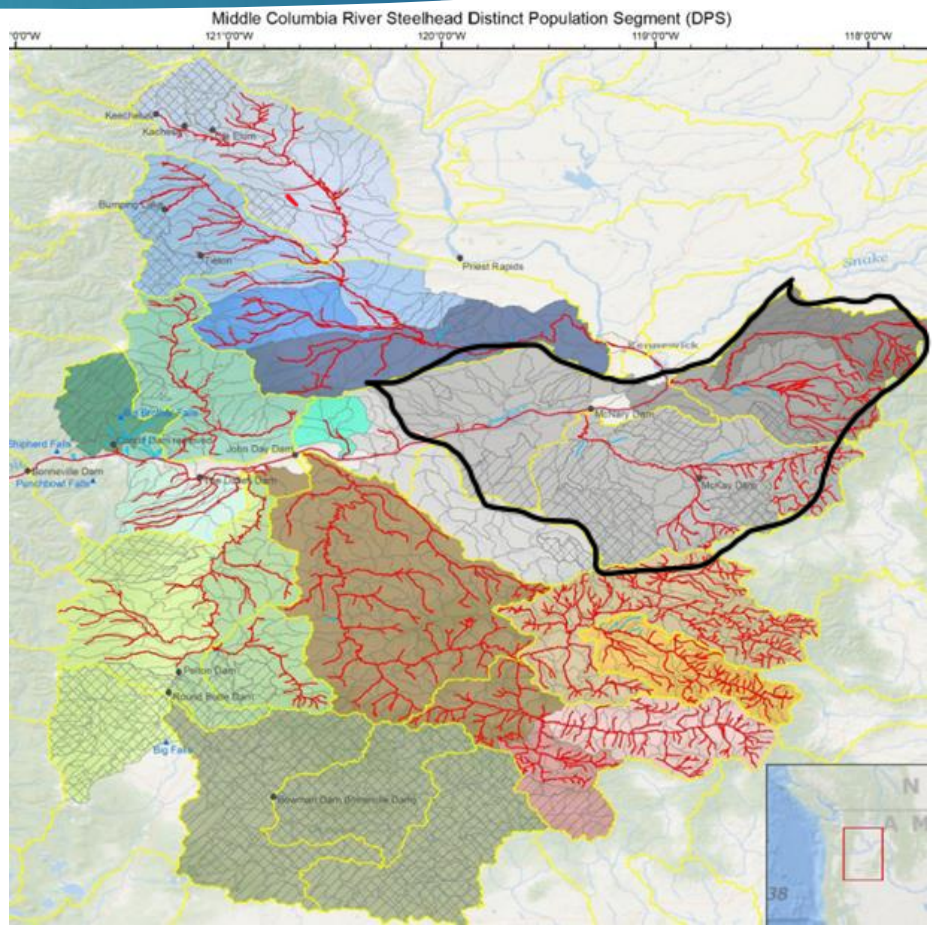
Little has changed over the course of the last 20 years regarding *known bottlenecks* – much work remains but improvements are occurring in the watersheds; survival bottlenecks remain outside of the watersheds

Middle Columbia Steelhead ***DPS***



Middle Columbia Steelhead DPS and the Major Population Groupings (***MPG***)

MPG	Extant Populations	Goal
Cascades	N = 5	
John Day	N = 5	
UMT/WW	Touchet	Option
	Walla Walla	Option
	Umatilla	Viable
Yakima	N = 4	



Bottlenecks limiting VSP criteria/goals

- Low stream flow, warm water, degraded habitat quantity and quality, and lack of floodplain access and function due to diking, levees and channel straightening
- Fish passage: Bennington Dam, Nursery and McKay dams and the Mill Creek flood control channel
- Adult pre spawn mortality i.e., conversion from adults at BON to spawning grounds (2022) est at 26% of the adults – mechanisms not understood
- Overshoot and challenges with fall back, i.e, ~ 25% of UMT adults overshoot McNary and Ice Harbor dams (both are upstream from the Umatilla River) – perhaps hydropower operations or other mechanisms inhibit adult returns to natal areas

Ubiquitous watershed/tributary threats for the MPG

Widespread areas of degraded or inaccessible habitat continue to persist for all four MPG's due to: (1) passage impediments; (2) low summer flows and high summer water temperatures; (3) disconnected floodplains; and (4) loss of riparian function. Lower tributary mortality emerging as critical threat but mechanisms not fully understood.

Levees and dikes persist while development/encroachment on the floodplain continues (land use policies)

"more effective and inexpensive to protect than it is to restore"

Mainstem Columbia River threats for all populations within the MPG

- Avian ***predation*** is a significant factor limiting ***juvenile*** steelhead survival for all populations across the DPS and those populations upstream from the DPS
- Piscine ***predation*** is a significant factor limiting ***juvenile*** steelhead survival for all populations across the DPS and those populations upstream from the DPS
- Total predation on ***adult*** steelhead appears to be a low risk; not likely to be predation but loss of adults between BON and natal watershed concerning

RME is needed to inform adaptive management especially outside the watersheds:

- Develop life cycle models to evaluate limiting factor reduction scenarios in situ
- Evaluate the mechanisms for pre-spawn adult steelhead mortality between Bonneville Dam and natal watersheds
- Evaluate the effects of tributary overshoot on populations within the MPG
- Avian and piscine predation are on going threats to the DPS that warrant considerable evaluation and implementation of ambitious management strategies; 2023 pinniped evaluation at BON tail race indicates summer adult steelhead predation (NMI)

To address the bottlenecks:

WW/UMT Major Population Grouping Habitat and Mainstem Columbia River Recommendations

Increase instream flow in all three rivers; complete the Walla Walla Integrated Flow Enhancement Study and implement the preferred alternative

Install new ladders at Bennington and McKay dams; upgrade or otherwise improve Nursery Bridge Dam ladder, and finalize fish passage up the seven mile long Mill Creek flood control channel

Implement levee set backs and floodplain restoration actions in priority watersheds/areas

Protect and enhance cold water refuge areas between BON and McNary dams

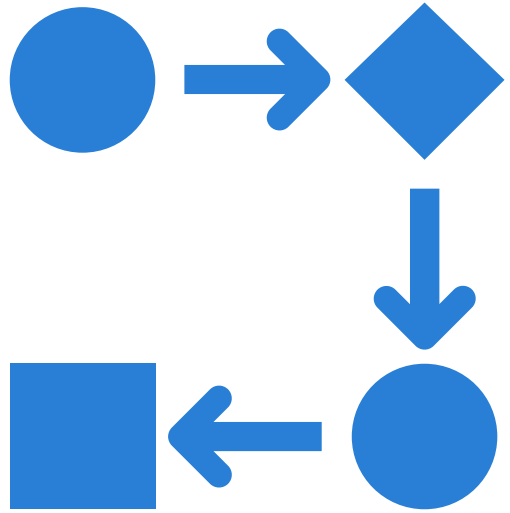
Improve management, facilities or hydropower operations to facilitate adult fall back

Predator control (modify their habitat, manage their numbers, other strategies)

Conceptual Models

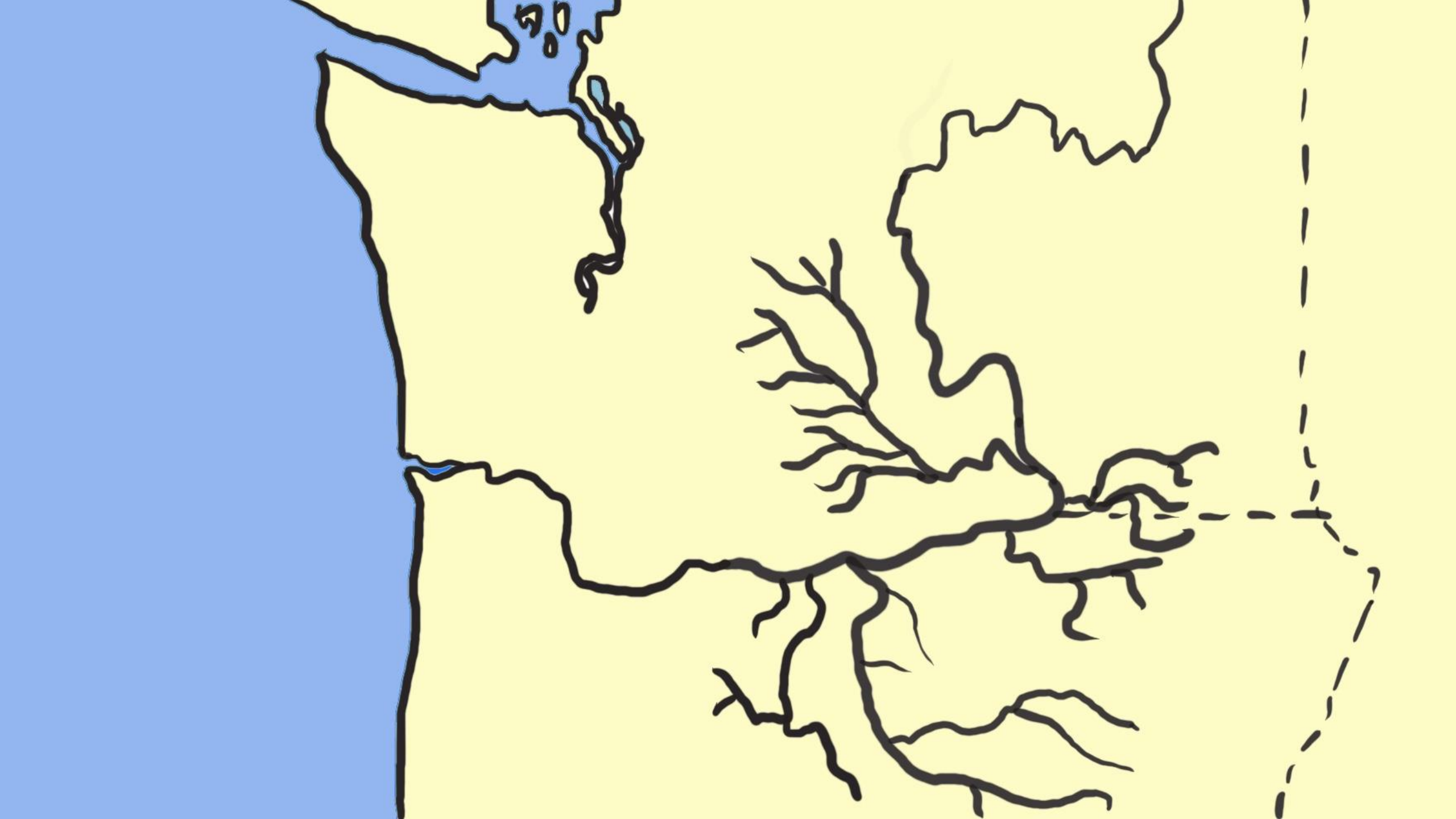
Conceptual Models

- Presentation on the draft conceptual model for the Mid-Columbia Recovery plans
- Update on the Predation Conceptual Model progress
- Questions, answers, and group discussion

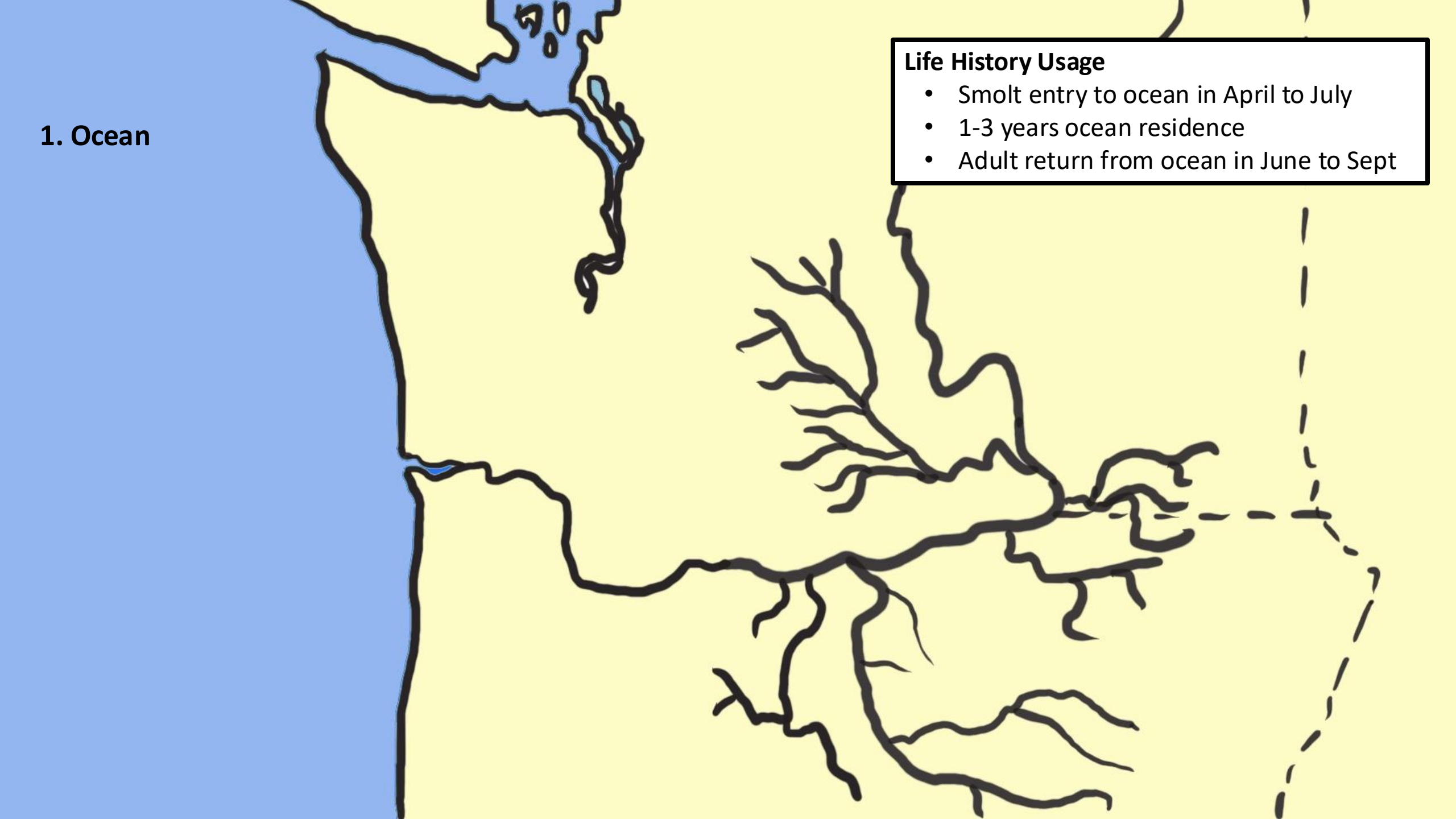


Conceptual Model – Layered Approach

1. **Geography**
2. **Life-stage/ life history(ies)** -- mapped to the geographic layer
3. **Fish experience**
   - **Timing of and residence time in each of the geographies** for each of the life stage/histories that occupies it
     - **Movement** between geographies and timing/ rules governing it
   - **Growth & survival** -- for each of the life-stage/geography relationships relative to timing and movement
4. **Factors directly affecting the content of (3)**
   - specific to the life-stage/ geography relationships
   - with a focus on those things that management actions could change. (e.g. spawning habitat extent/ availability vs. water temperature for incubation success).

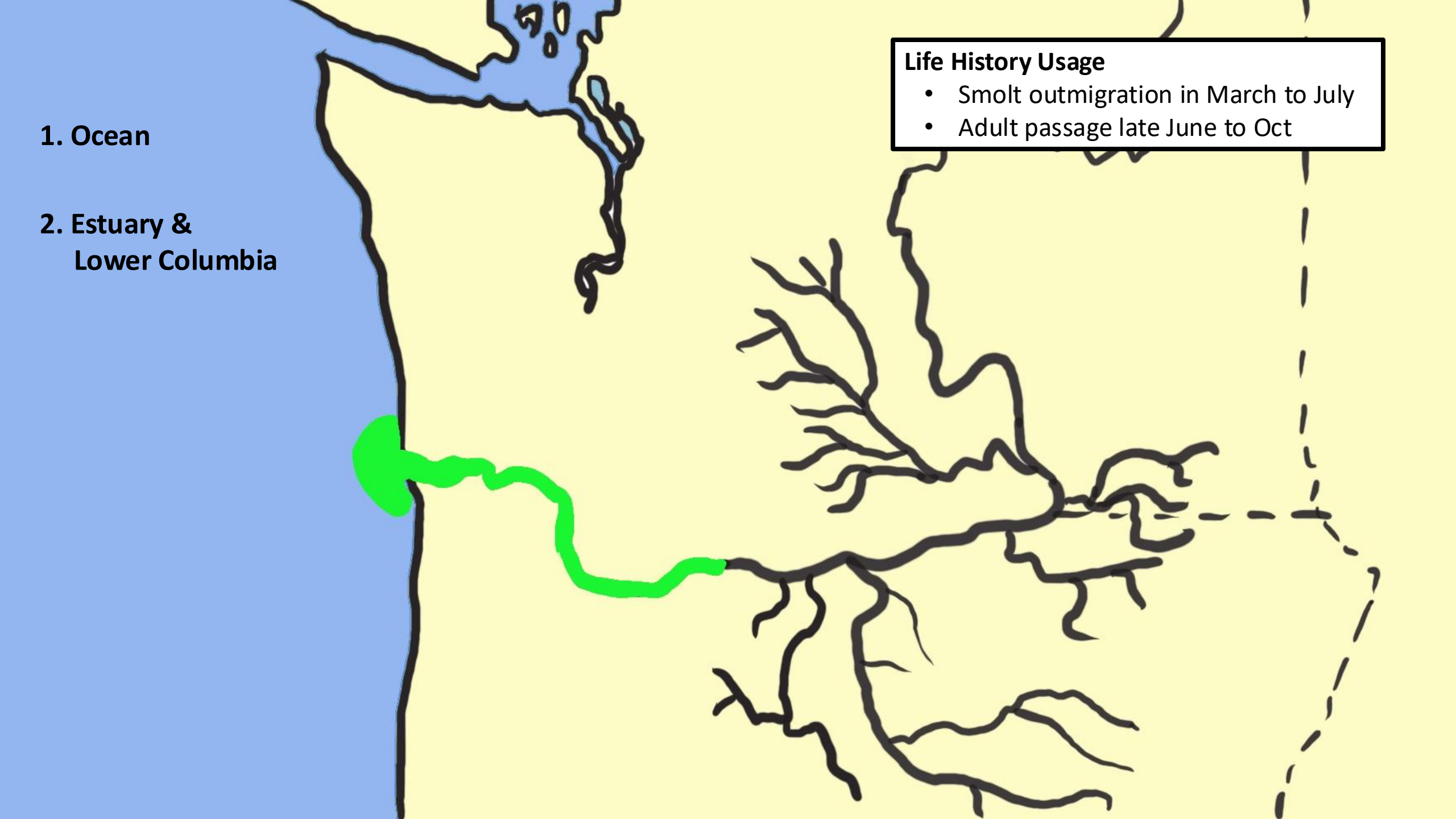


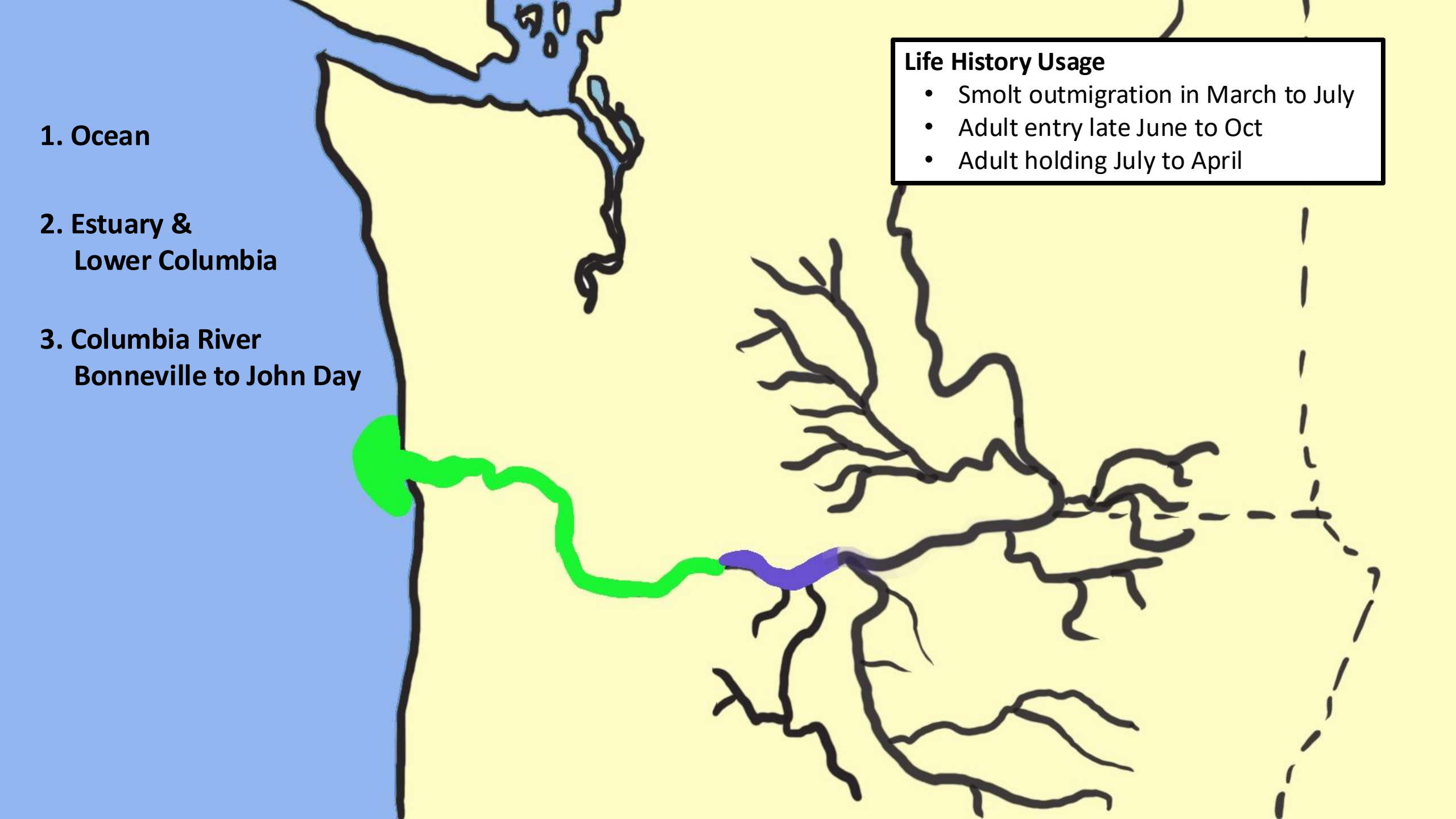
1. Ocean

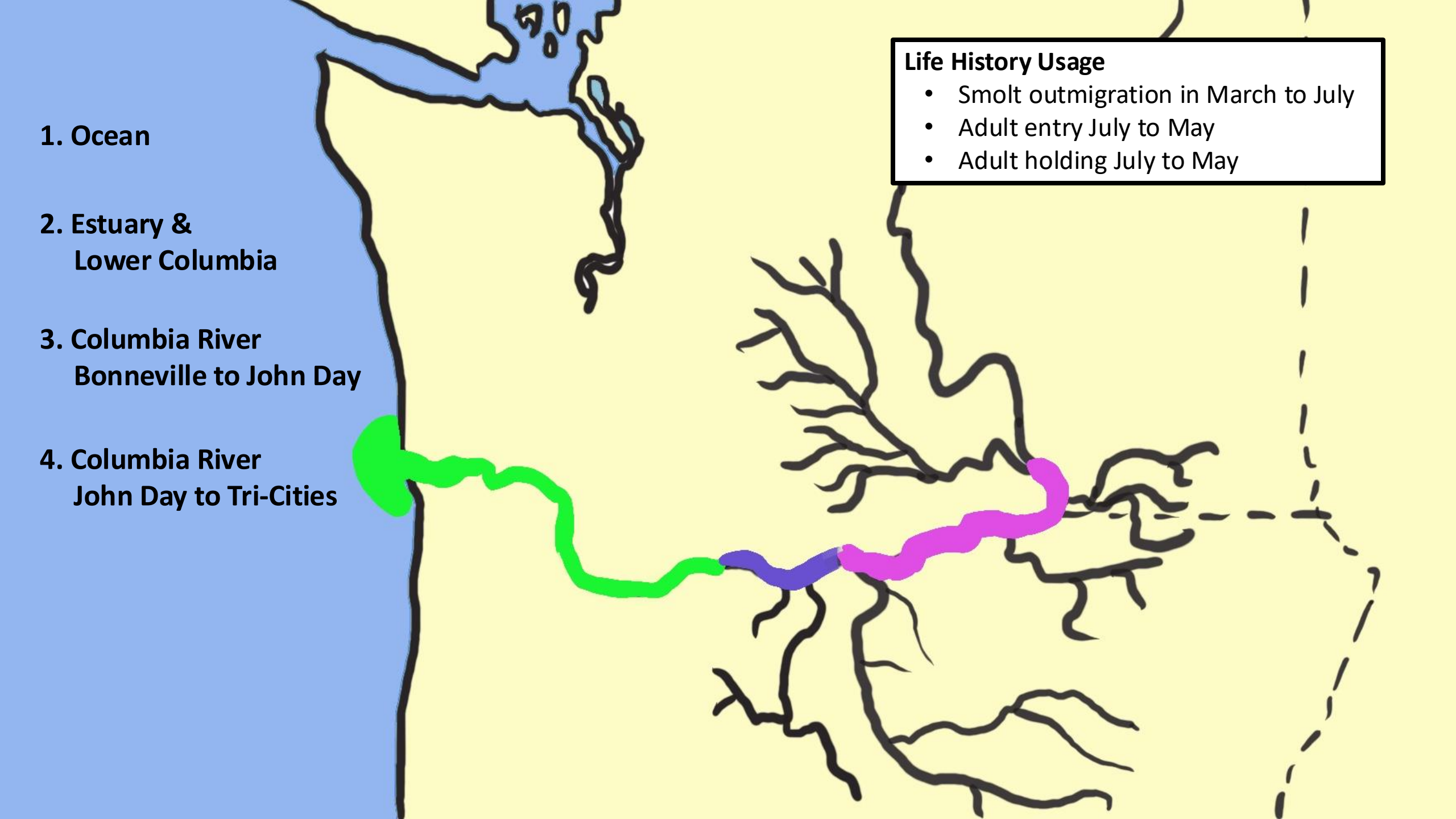


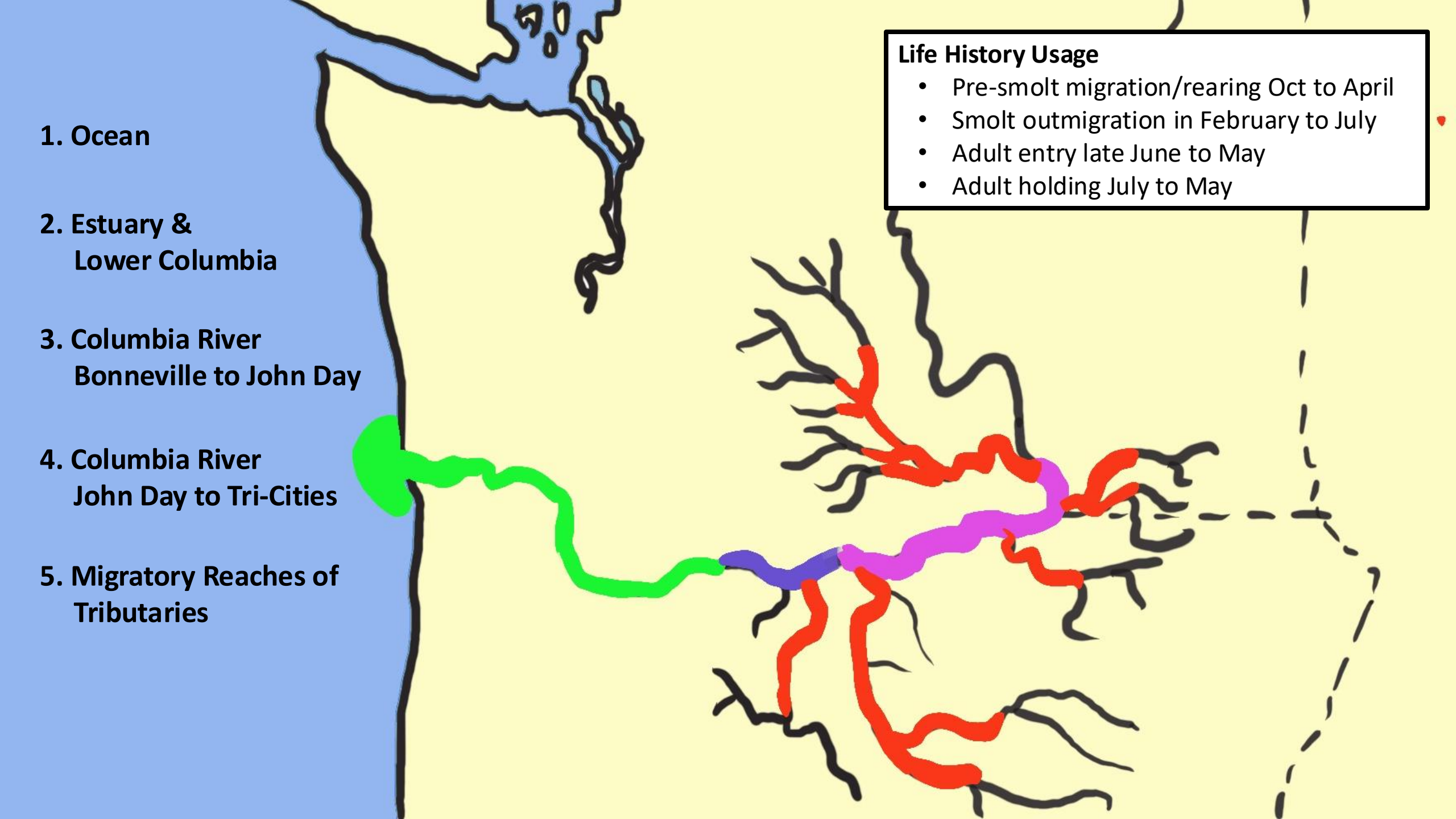
Life History Usage

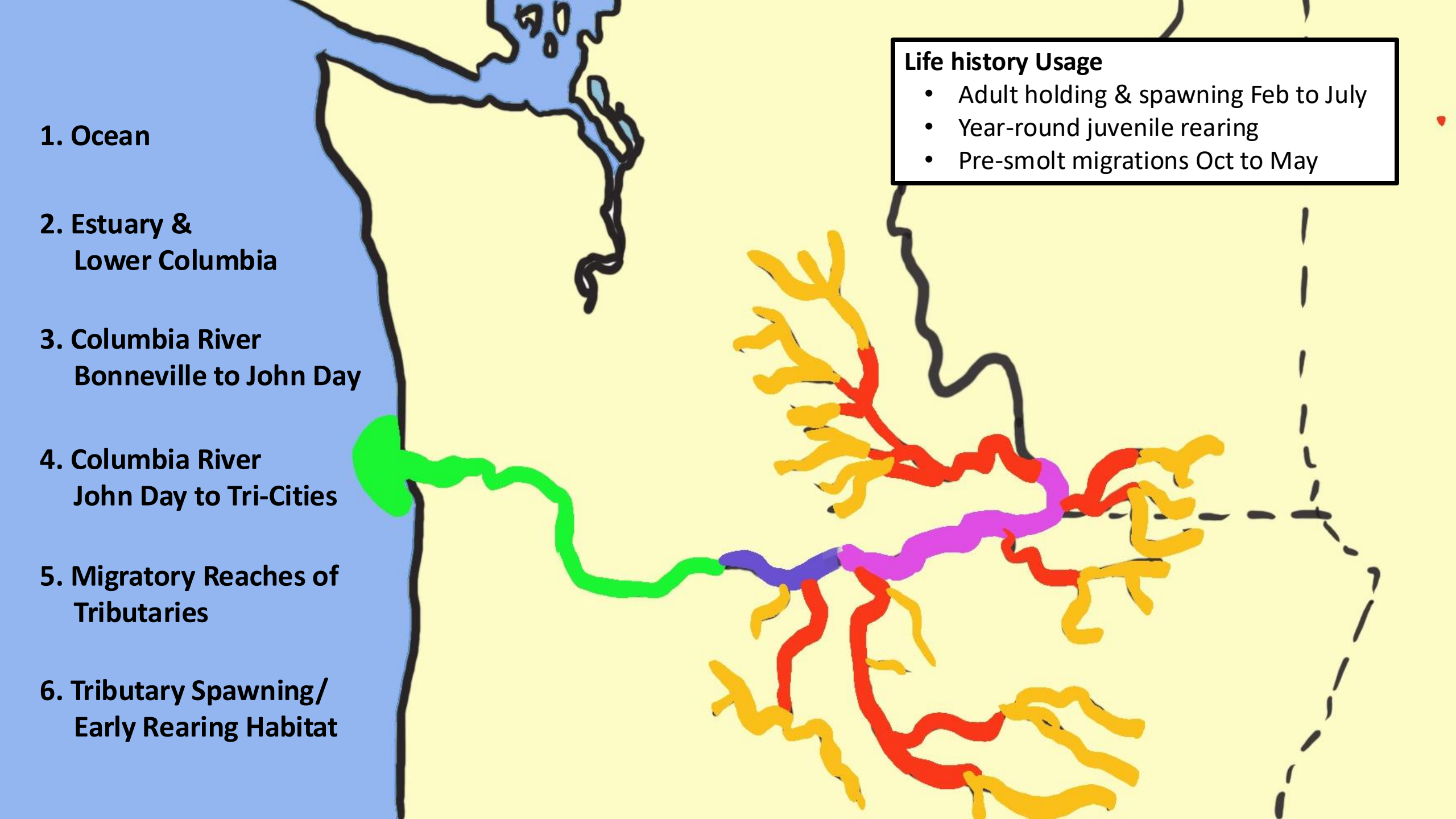
- Smolt entry to ocean in April to July
- 1-3 years ocean residence
- Adult return from ocean in June to Sept


1. Ocean
2. Estuary &
Lower Columbia
Life History Usage
• Smolt outmigration in March to July
• Adult passage late June to Oct


1. Ocean
2. Estuary &
Lower Columbia
3. Columbia River
Bonneville to John Day
Life History Usage
• Smolt outmigration in March to July
• Adult entry late June to Oct
• Adult holding July to April


1. Ocean
2. Estuary &
Lower Columbia
3. Columbia River
Bonneville to John Day
4. Columbia River
John Day to Tri-Cities
Life History Usage
• Smolt outmigration in March to July
• Adult entry July to May
• Adult holding July to May


1. Ocean
2. Estuary &
Lower Columbia
3. Columbia River
Bonneville to John Day
4. Columbia River
John Day to Tri-Cities
5. Migratory Reaches of
Tributaries
Life History Usage
• Pre-smolt migration/rearing Oct to April
• Smolt outmigration in February to July
• Adult entry late June to May
• Adult holding July to May


1. Ocean
2. Estuary &
Lower Columbia
3. Columbia River
Bonneville to John Day
4. Columbia River
John Day to Tri-Cities
5. Migratory Reaches of
Tributaries
6. Tributary Spawning/
Early Rearing Habitat
Life history Usage
• Adult holding & spawning Feb to July
• Year-round juvenile rearing
• Pre-smolt migrations Oct to May

1) OCEAN

Ocean Harvest

1) There are no US/BC ocean steelhead fisheries
2) Foreign ocean salmon driftnet fishery ended in 1992
3) Bycatch?
4) Other fisheries impact on food web?

Potential Actions

Not a focal area for Mid-C?

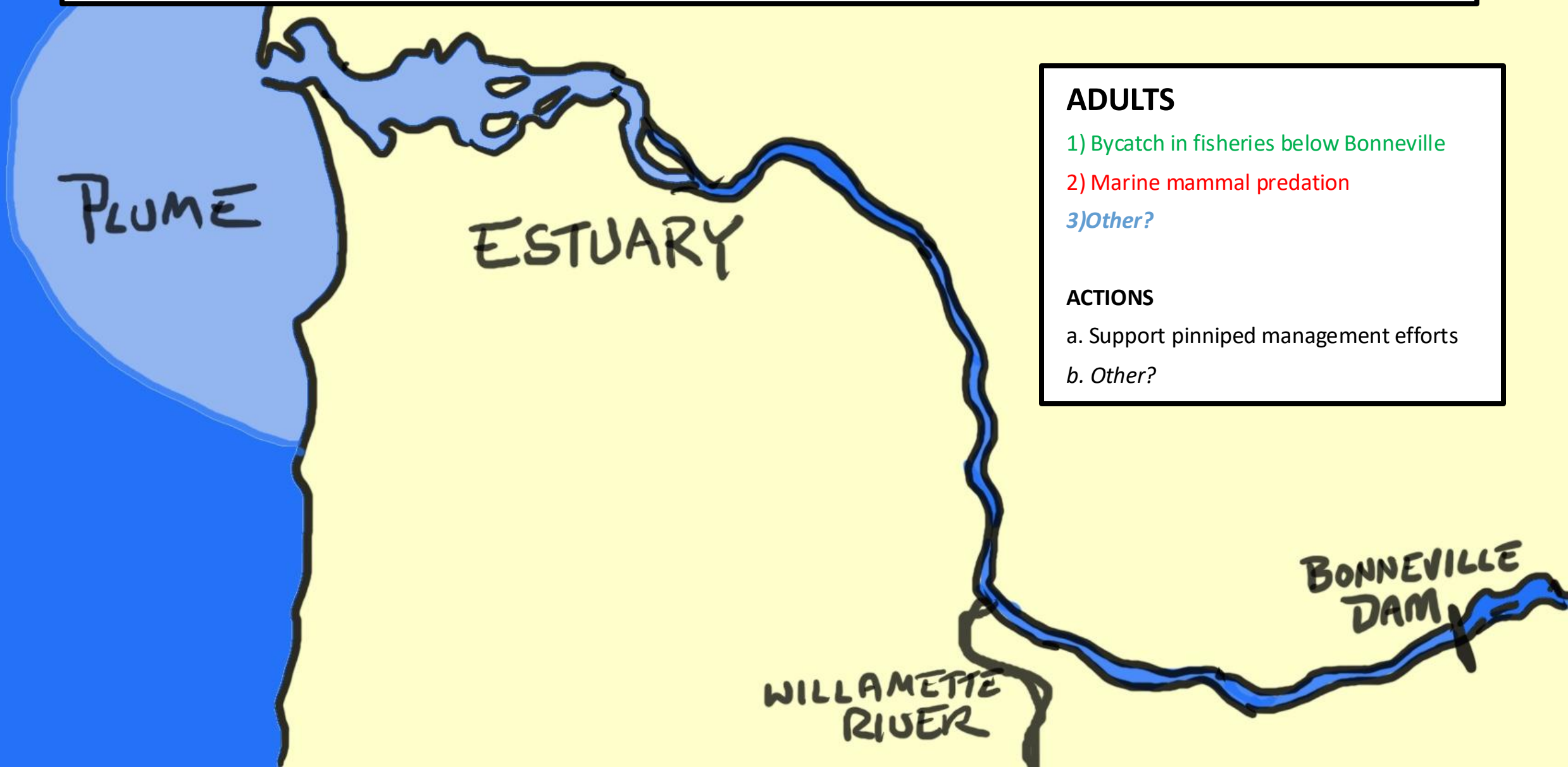
Ocean Food Web

1) Climate impacts on food web
2) Competition with pink salmon?
3) Marine mammal predation?

Potential Actions

a. Review/support ocean science
b. Build models on realistic expectations of future ocean productivity
c. Promote reduction of hatchery pink production?
d. Support efforts to reduce global warming

2) ESTUARY & LOWER COLUMBIA



ADULTS

1) Bycatch in fisheries below Bonneville

2) Marine mammal predation

3)Other?

ACTIONS

a. Support pinniped management efforts

b. Other?

3) COLUMBIA: Bonneville to John Day

HIGH PRIORITY

ADULTS

1) July-Sept heat stress?

2) Downstream passage issues for overshot fish

3) Stress from catch n release fisheries?

4) Fall/winter tribal fisheries impacts?

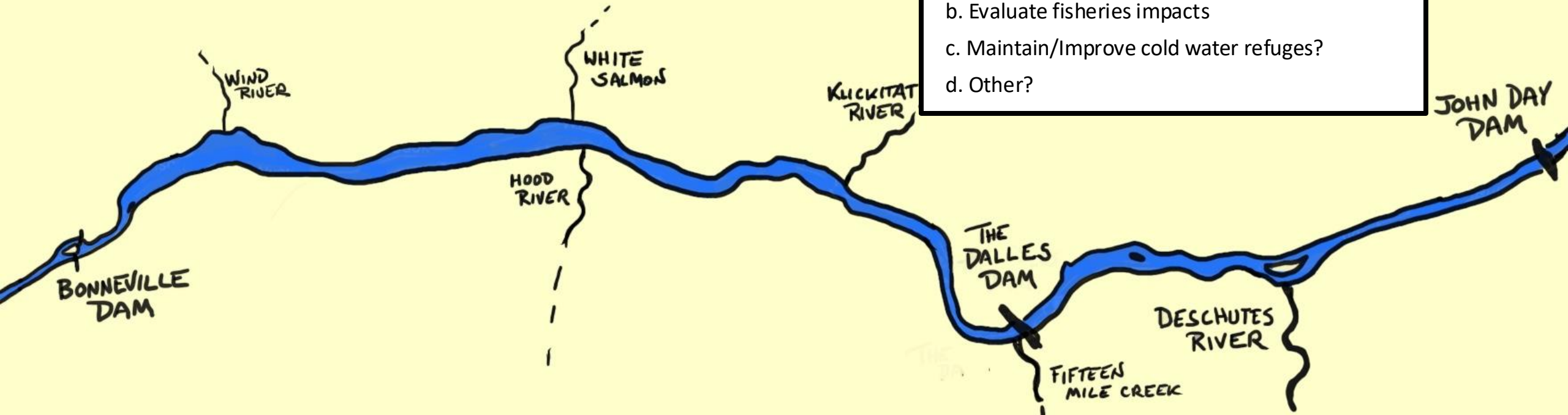
ACTIONS

a. Improve survival of overshot adults

b. Evaluate fisheries impacts

c. Maintain/Improve cold water refuges?

d. Other?



4) COLUMBIA: John Day to Tri-Cities

ADULTS

1) Late July-early Sept heat stress?

2) Downstream passage for overshot fish

2) Stress from catch n release fisheries?

3) Tribal fisheries?

ACTIONS

a. Address overshoot at Dams

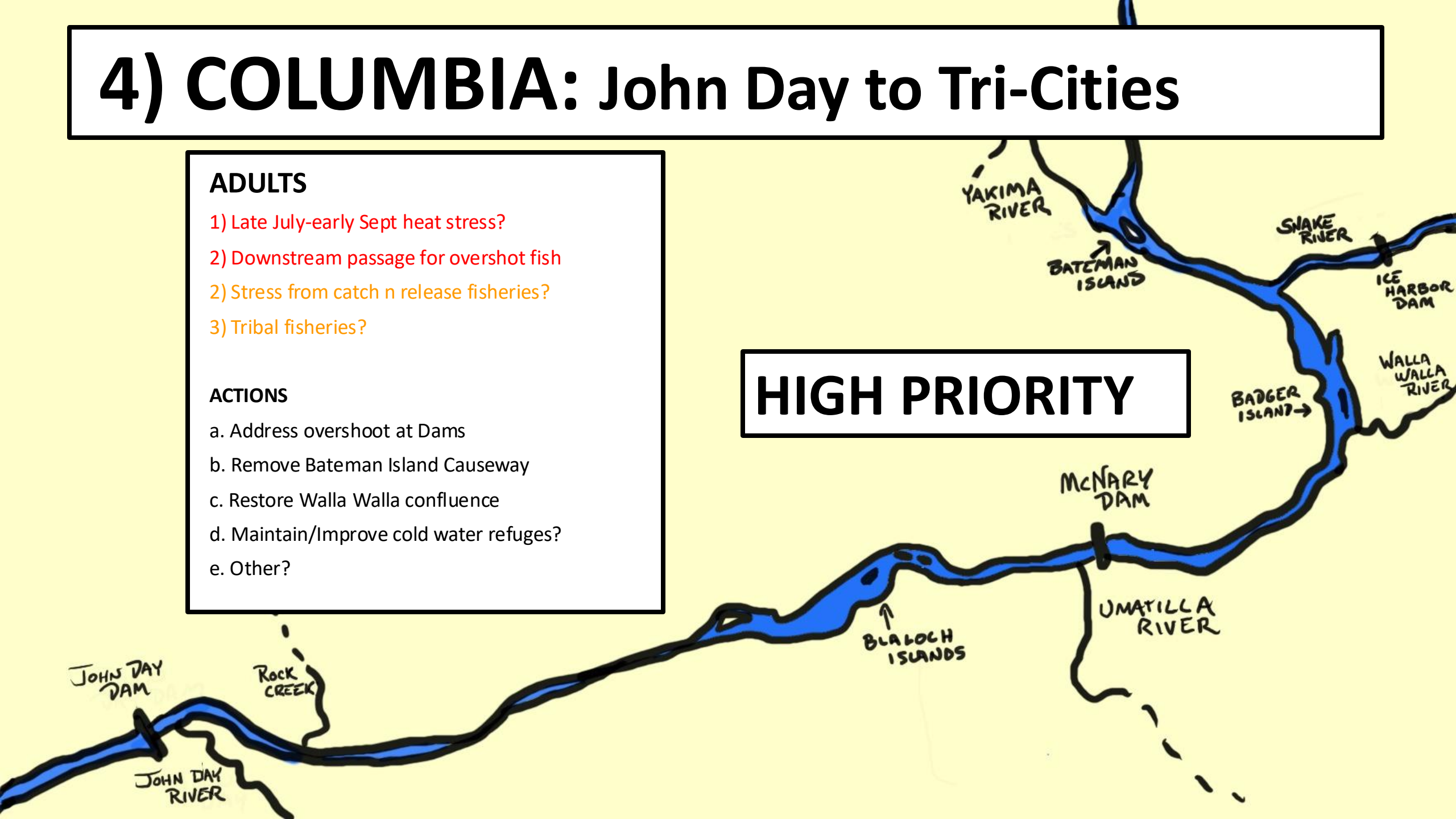
b. Remove Bateman Island Causeway

c. Restore Walla Walla confluence

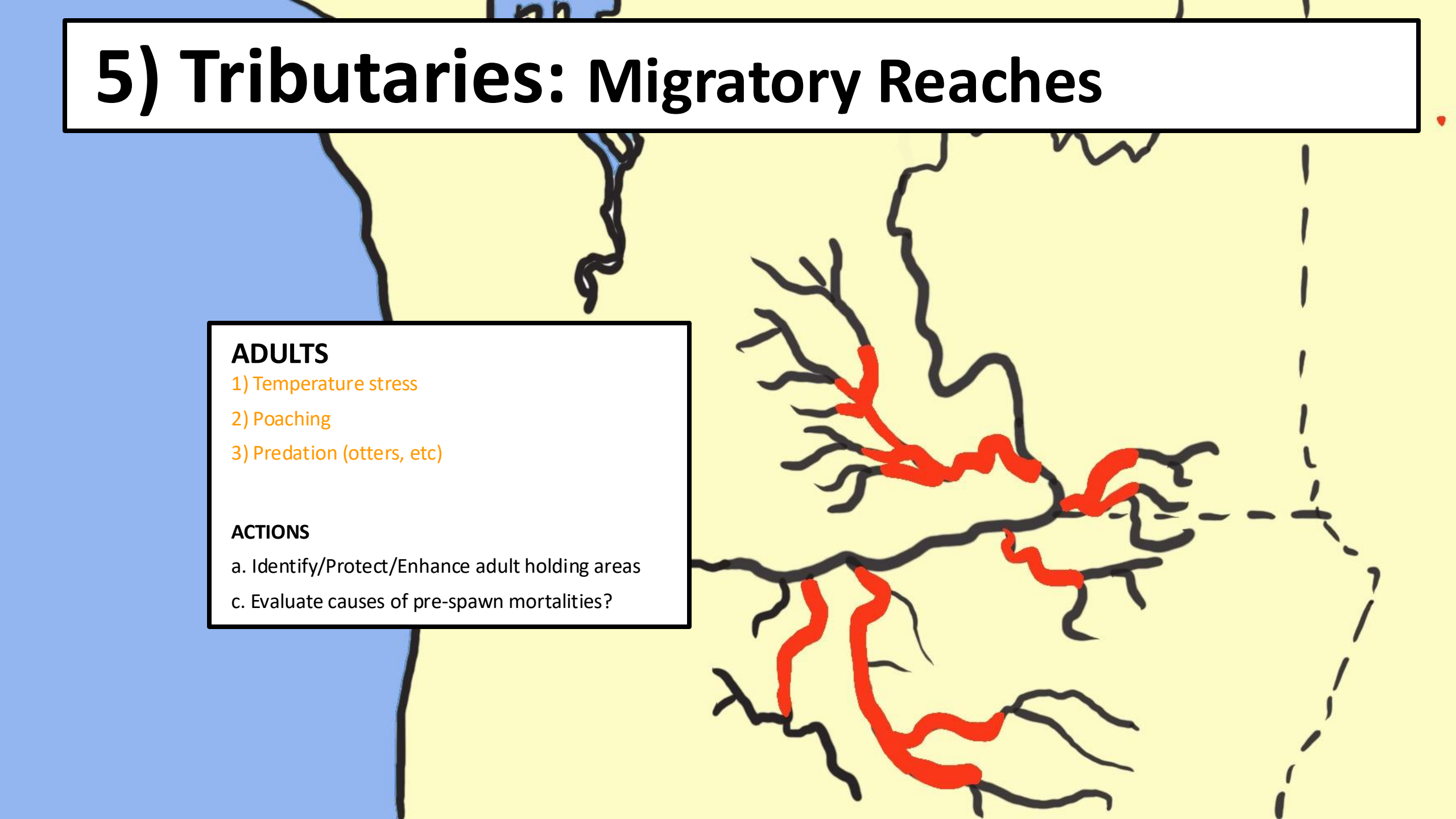
d. Maintain/Improve cold water refuges?

e. Other?

HIGH PRIORITY



5) Tributaries: Migratory Reaches



ADULTS

1) Temperature stress

2) Poaching

3) Predation (otters, etc)

ACTIONS

a. Identify/Protect/Enhance adult holding areas

c. Evaluate causes of pre-spawn mortalities?

6) Tributaries: Spawning/Rearing Habitat

Adult Holding/Spawning

1) Fish passage barriers

2) Spawning habitat conditions

3) Predation (otters, etc)

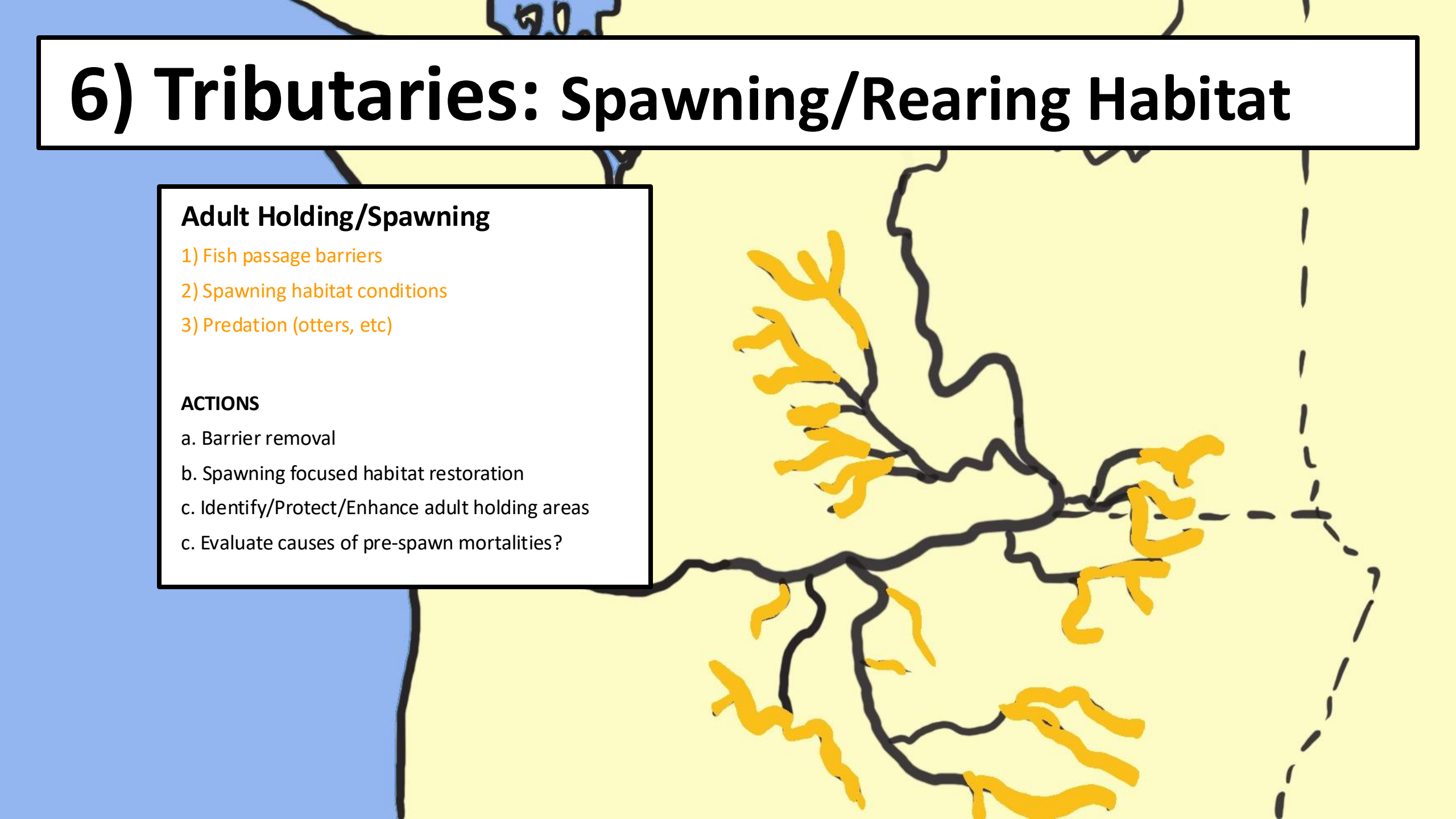
ACTIONS

a. Barrier removal

b. Spawning focused habitat restoration

c. Identify/Protect/Enhance adult holding areas

c. Evaluate causes of pre-spawn mortalities?



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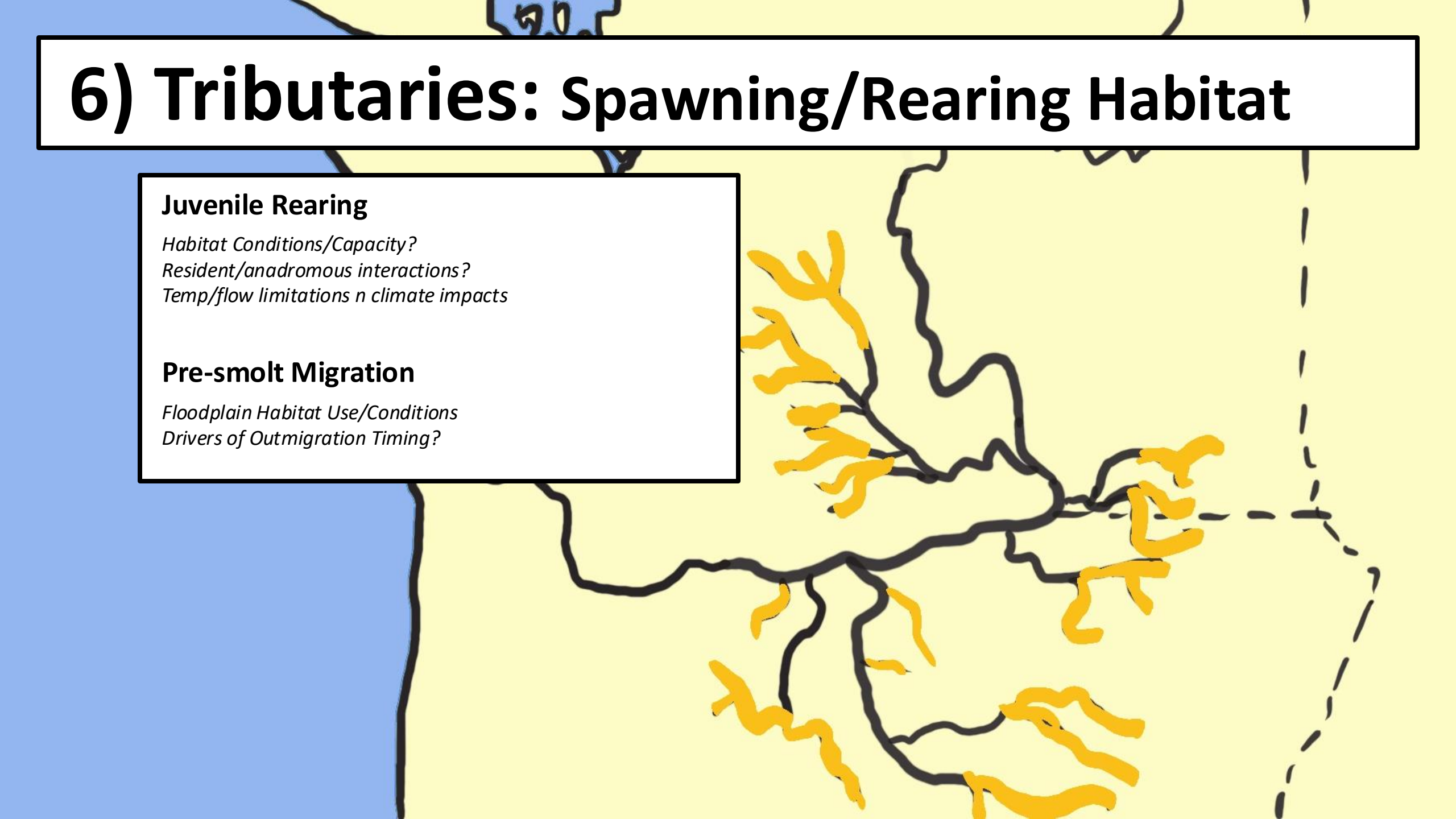


Juvenile Rearing

Habitat Conditions/Capacity?
Resident/anadromous interactions?
Temp/flow limitations n climate impacts

Pre-smolt Migration

Floodplain Habitat Use/Conditions
Drivers of Outmigration Timing?

5) Tributaries: Migratory Reaches

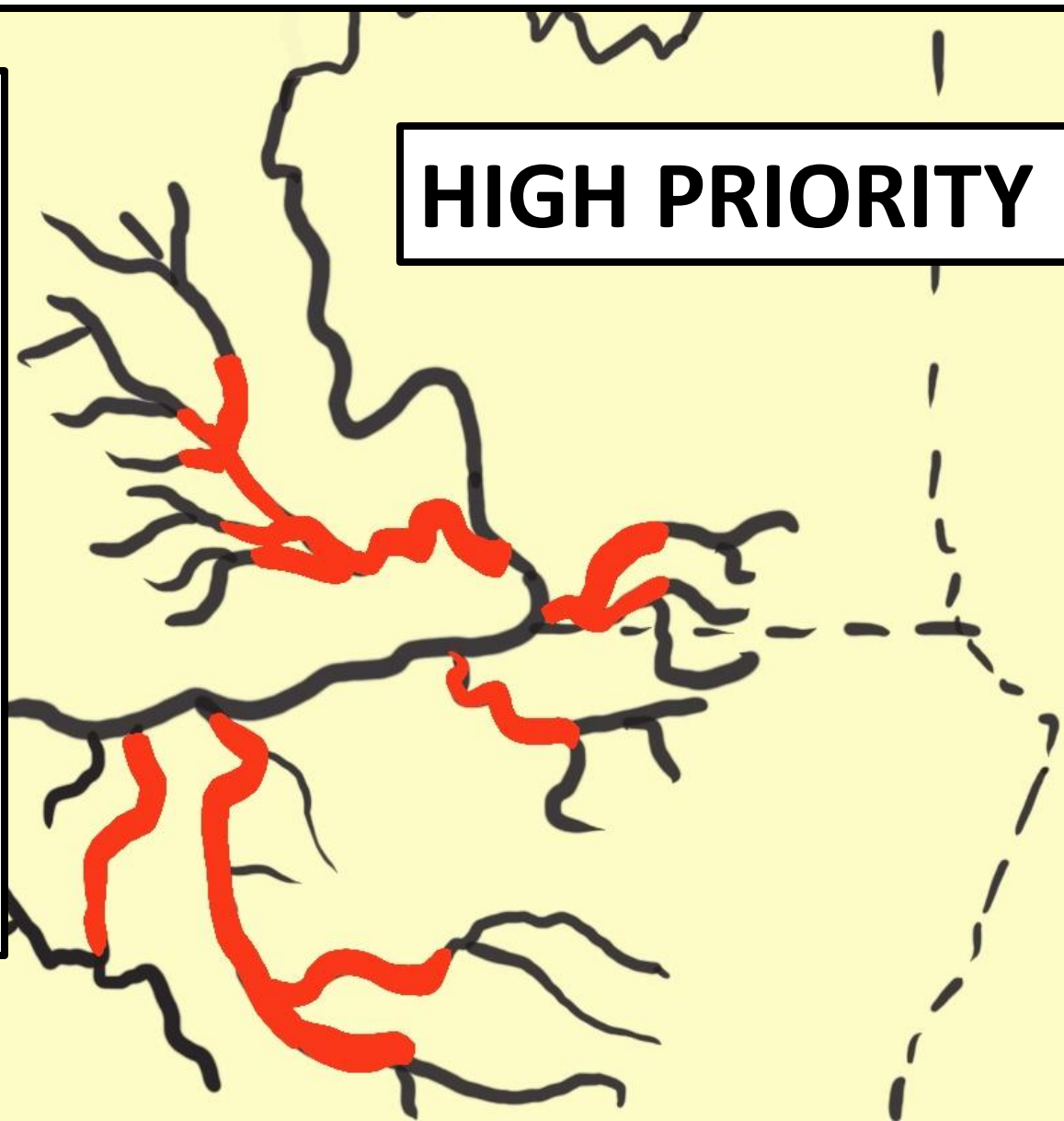
SMOLTS

1) Infrastructure (low head dams/diversions)
2) Flow/Temp impacts on smolt outmigration
3) Bird predation
4) Bass, pikeminnow & resident trout predation
5) Late outmigration decreasing survival
6) Overwintering survival?

ACTIONS

a. Improve Fall to Spring rearing habitat
b. Flow management (to reduce mortality & encourage departure)
c. Support/expand Corps Mid-C bird predation program
b. Evaluate/reduce piscine predation
d. Improve downstream passage at large diversions
e. Change timing of smolt passage?

HIGH PRIORITY



4) COLUMBIA: John Day to Tri-Cities

SMOLTS

1) Bird predation

2) Walleye, bass n pikeminnow predation

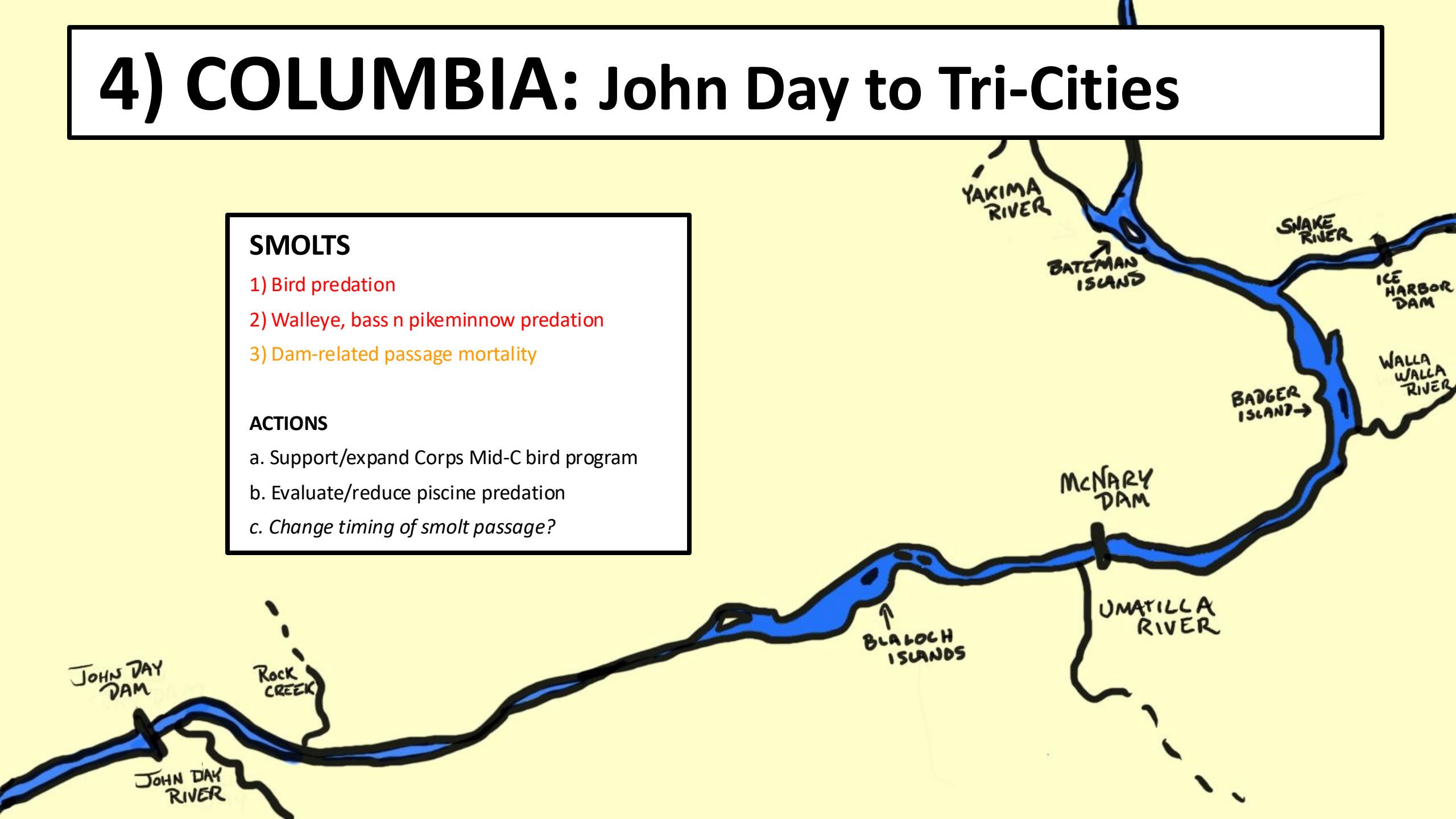
3) Dam-related passage mortality

ACTIONS

a. Support/expand Corps Mid-C bird program

b. Evaluate/reduce piscine predation

c. Change timing of smolt passage?



3) COLUMBIA: Bonneville to John Day

SMOLTS

1) Bird predation

2) Bass n pikeminnow predation?

3) Dam-related passage mortality

ACTIONS

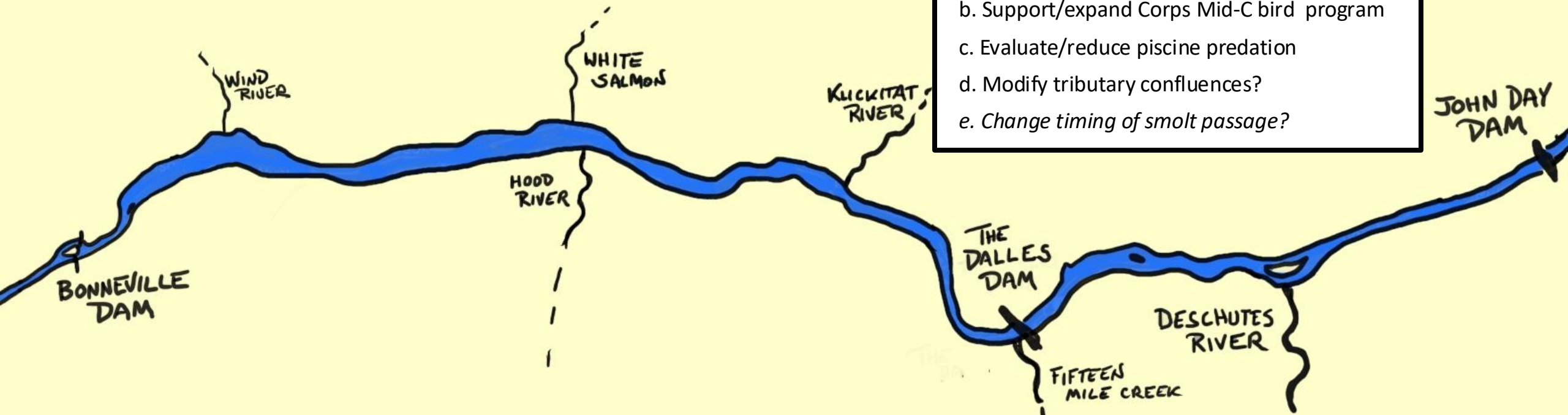
a. Support FCRPS smolt passage priorities

b. Support/expand Corps Mid-C bird program

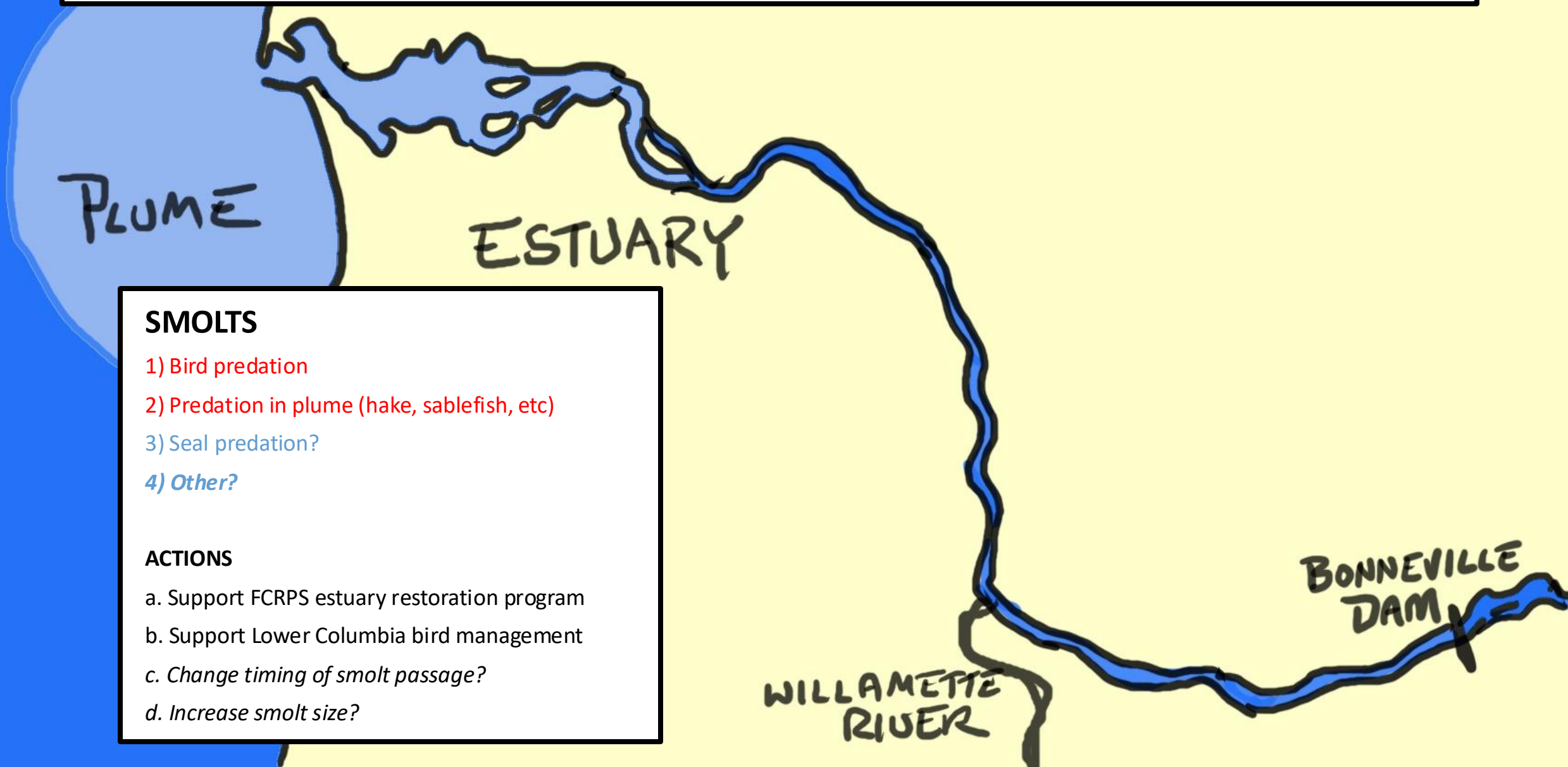
c. Evaluate/reduce piscine predation

d. Modify tributary confluences?

e. Change timing of smolt passage?



2) ESTUARY & LOWER COLUMBIA



SMOLTS

1) Bird predation

2) Predation in plume (hake, sablefish, etc)

3) Seal predation?

4) Other?

ACTIONS

a. Support FCRPS estuary restoration program

b. Support Lower Columbia bird management

c. Change timing of smolt passage?

d. Increase smolt size?

Questions?

- What questions do you have for clarification on this presentation?
- What reflections, comments, or concerns do you have on the presentation?

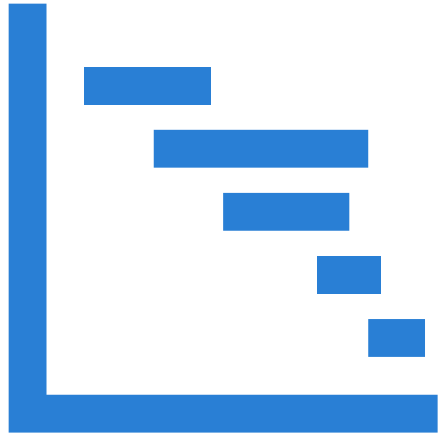
Predation Conceptual Model

- Propose to SDM Steelhead Pilot Project to develop this SDM pilot effort focused on **one MPG** to begin.
- Use criteria to determine which MPG to begin.
- Encourage other MPGs to stay involved to reflect on how to apply to those contexts.
- Scale to whole DPS.

Confirm Next Steps

Confirm Next Steps

- Document progress on the SDM Steelhead Pilot Project
- Identify what activities can continue without regular coordination with the whole SDM Steelhead Pilot Project



Action Items

- **KW:** Coordinate with Kevin and Gary to document SDM Steelhead Pilot Project Work Group progress.
- **KW:** Share survey to identify what activities can continue without regular coordination with the whole SDM Steelhead Pilot Project Work Group.
  - **All:** Please complete the survey to share your feedback on the meeting and your response to the prompt above by Friday, March 7.
- **KW:** Draft a meeting summary and circulate to the work group for review by Friday, March 7.

Thank you

Photo credit: Roger Tabor