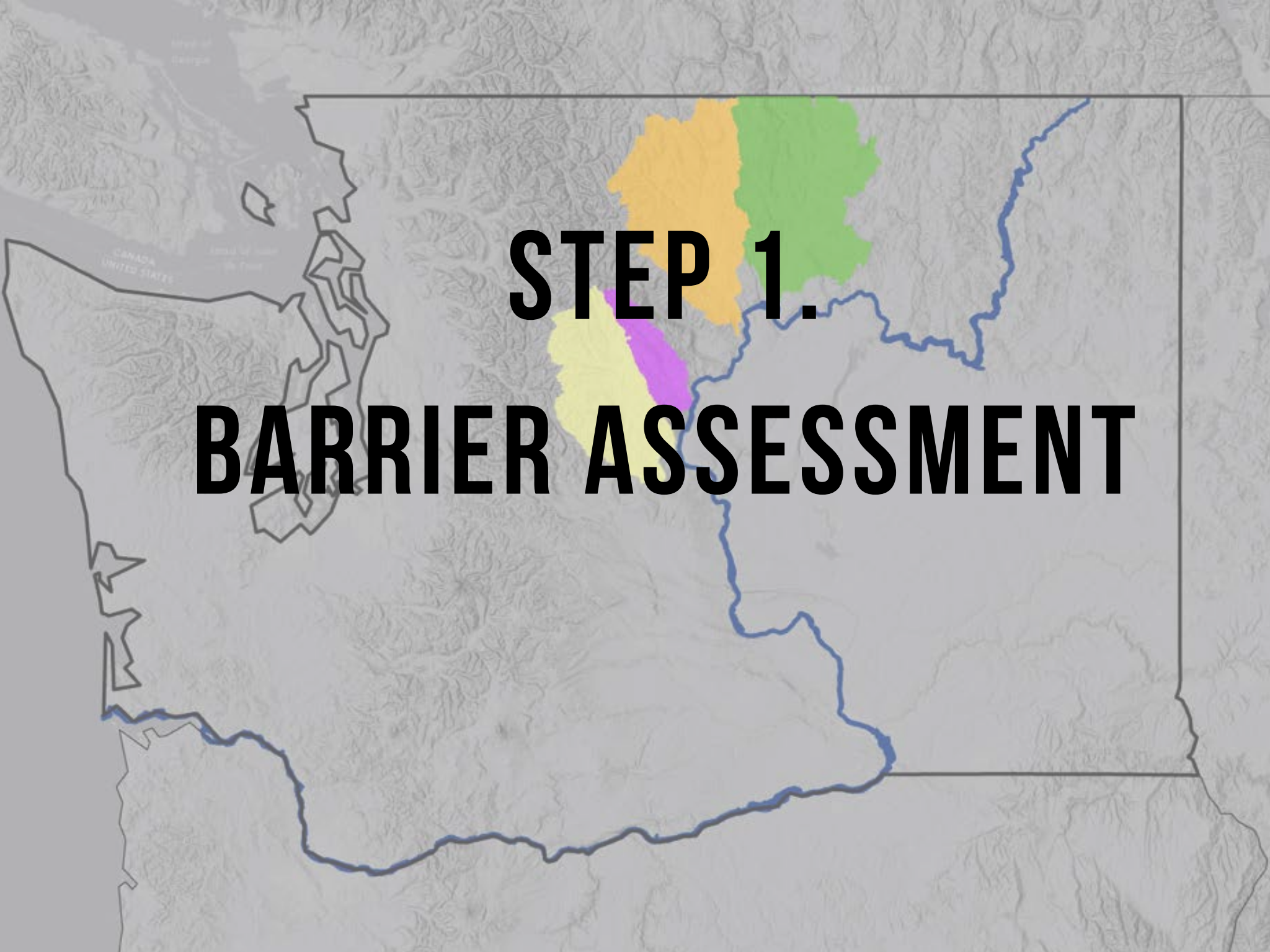
Fish Passage Project Prioritization

WINNING THE UPSTREAM BATTLE

GREER MAIER, UPPER COLUMBIA SALMON RECOVERY BOARD
&
ASPECT CONSULTING, LLC
CACADE COLUMBIA FISHERIES ENHANCEMENT GROUP

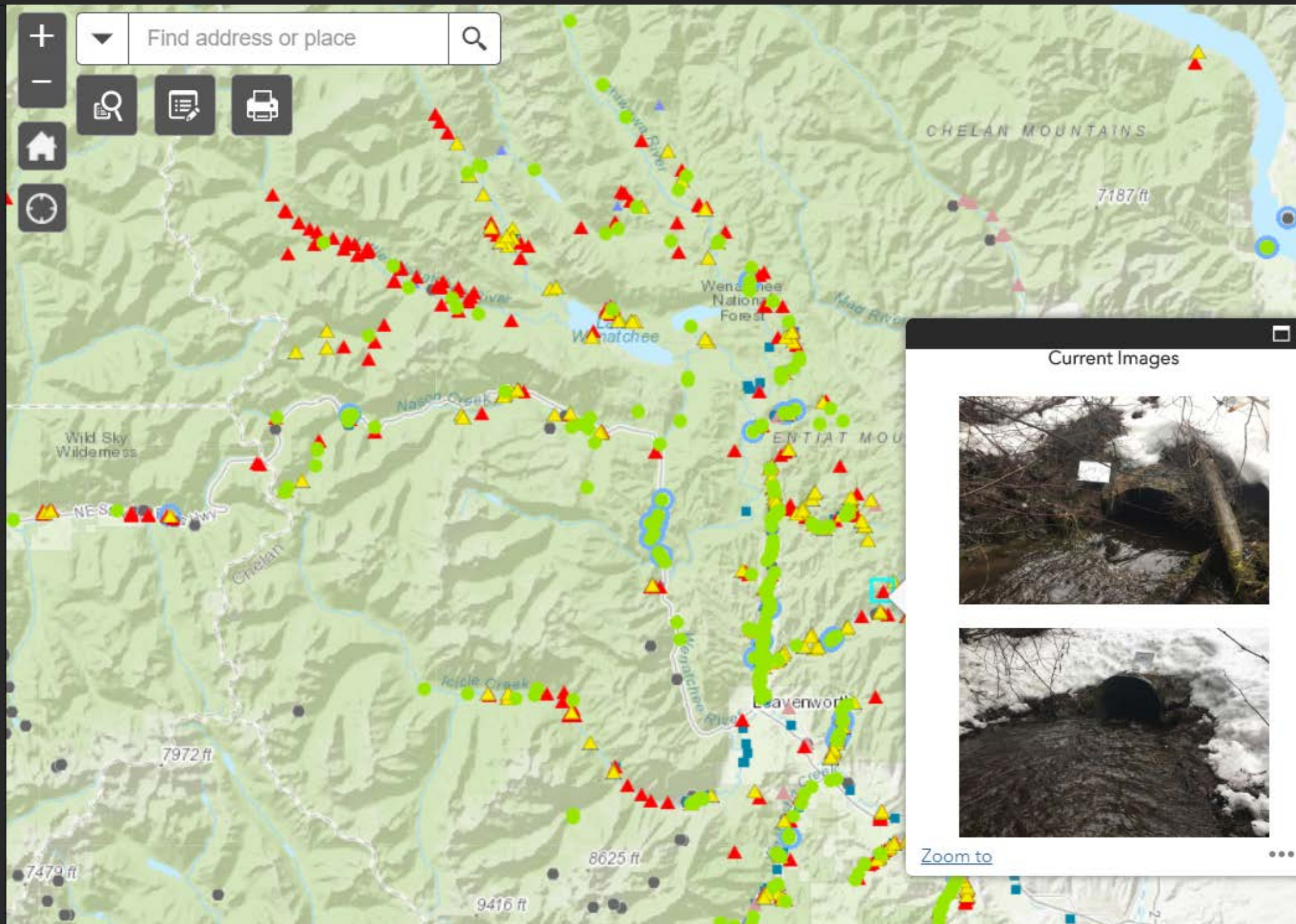
THE CHALLENGE

- *1,000+ known & potential barriers*
- *Incomplete assessment data*
- *Lack of available, consistent information*
- *Outdated prioritization*



STEP 1.
BARRIER ASSESSMENT

Washington State Fish Passage



STEP 2.
TOOL DEVELOPMENT

FISH PASSAGE PROJECT PRIORITIZATION IN THE UPPER COLUMBIA

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METRICS

SPECIES INDICATORS

- Spawning Area Designation
- *Colonization Potential- distance to known fish distribution
- Number of Species Benefiting

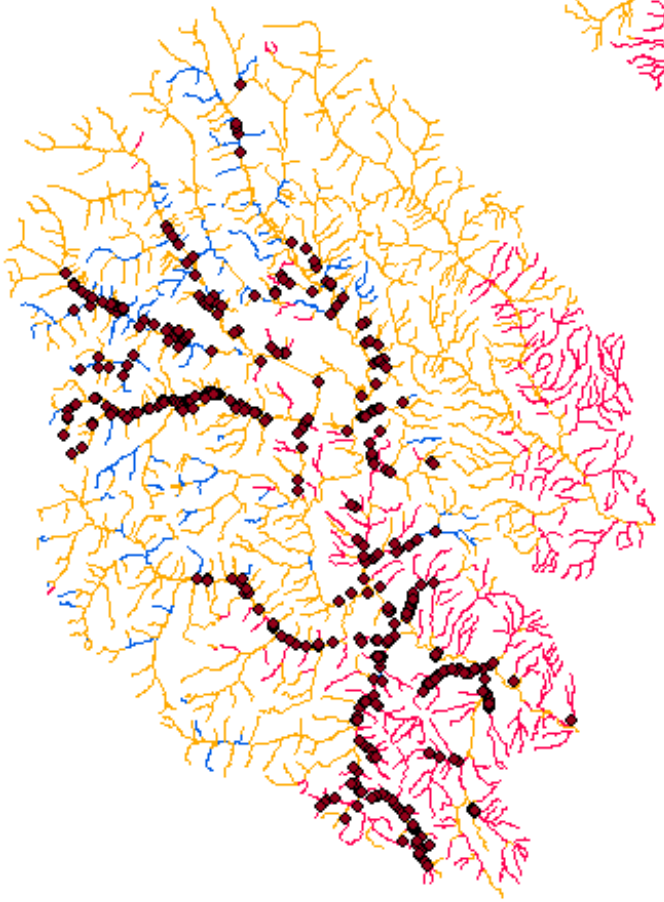
HABITAT INDICATORS

- *Habitat Potential (Habitat Quantity)- Miles of upstream IP
- Habitat Potential (Habitat Quality)
- Future Habitat Potential- Climate change risk

BARRIER INDICATORS

- Barrier Severity- 0%, 33%, 67% passable
- *Downstream Barriers- connectivity to barrier in question

Combining Data and Assigning Attributes



CLIMATE CHANGE VULNERABILITY

=

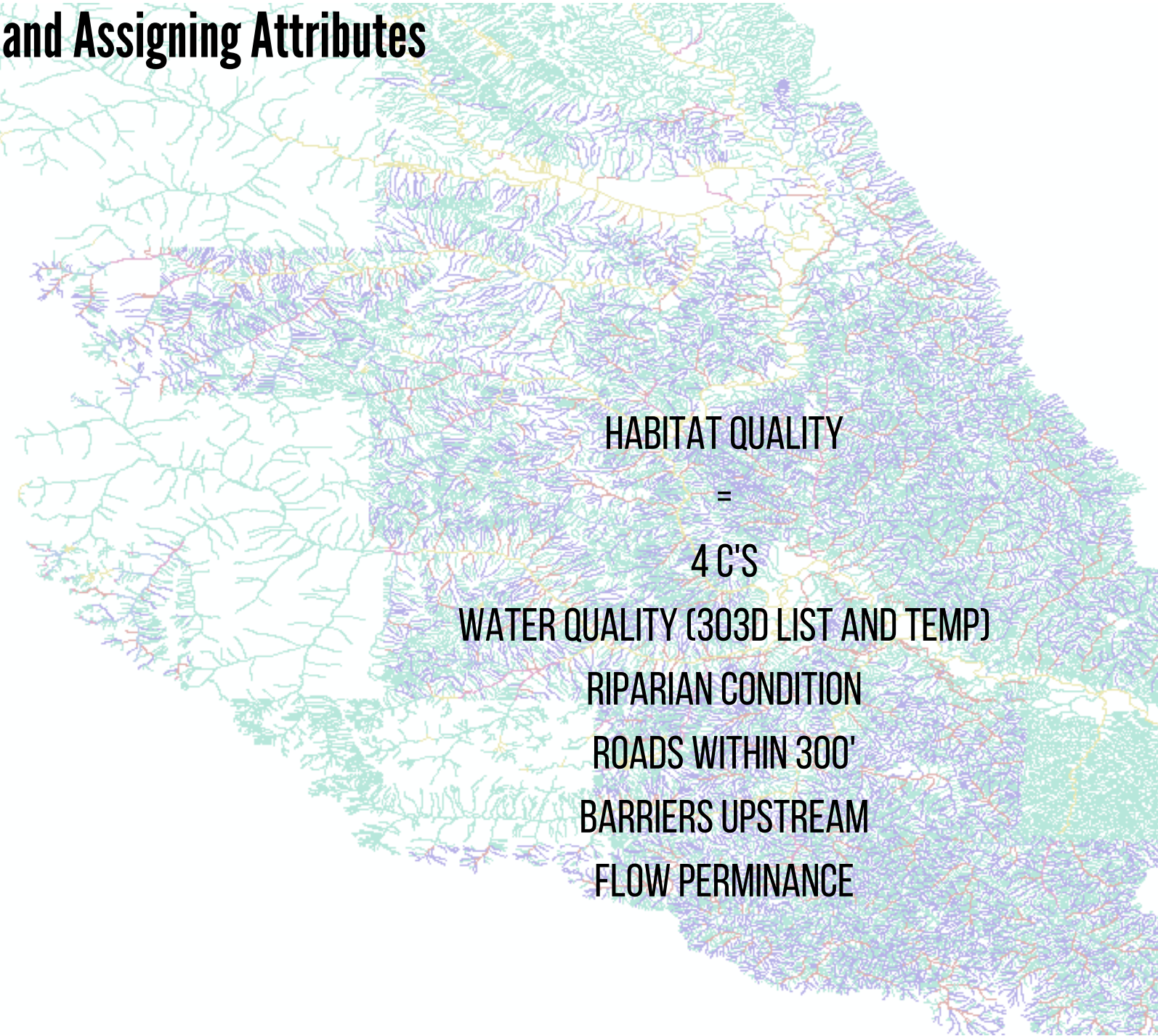
CHANGE IN LOW FLOW

CHANGE IN RUNOFF TIMING

CHANGE IN HIGH FLOW

2040 TEMP

Combining Data and Assigning Attributes



HABITAT QUALITY

=

4 C'S

WATER QUALITY (303D LIST AND TEMP)

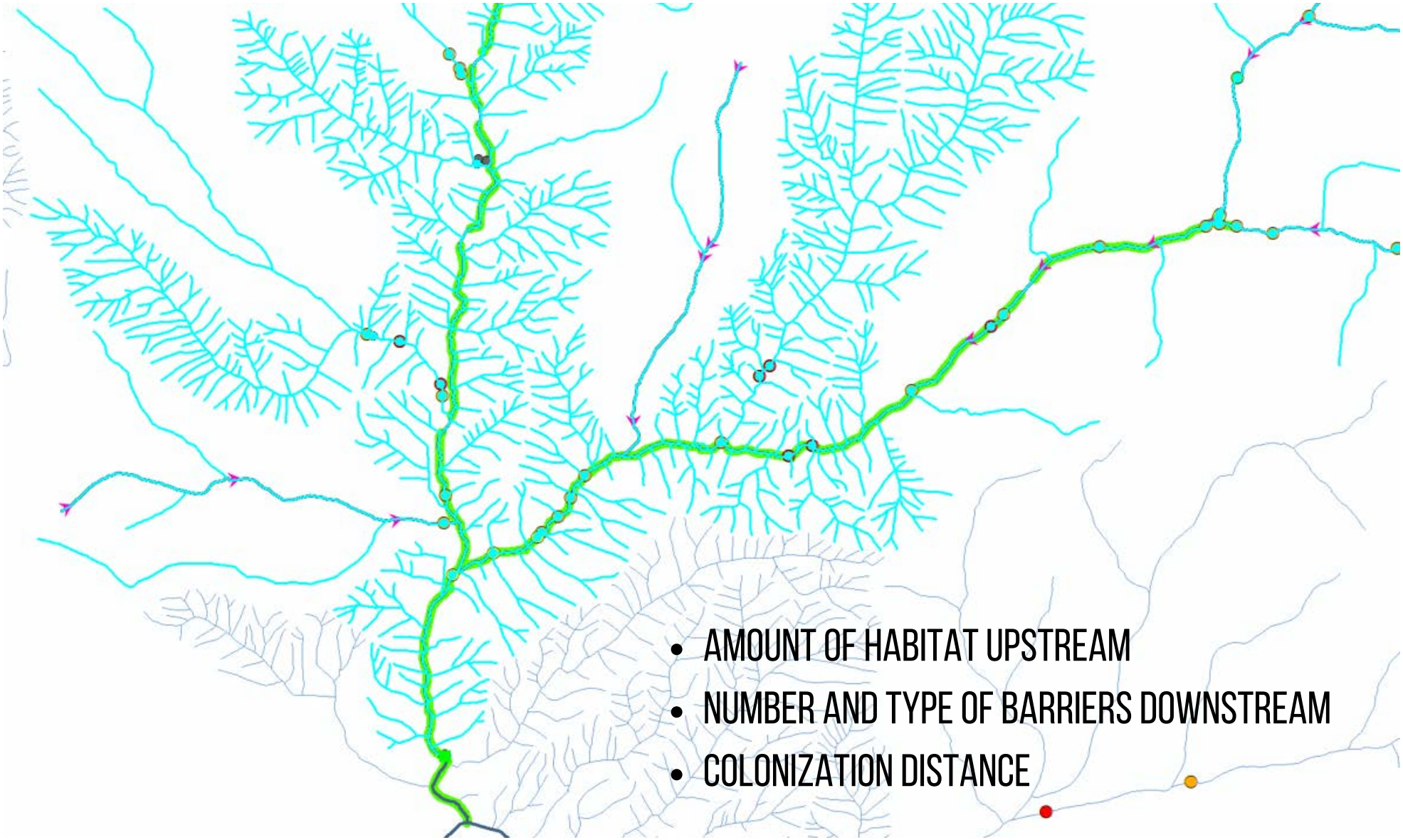
RIPARIAN CONDITION

ROADS WITHIN 300'

BARRIERS UPSTREAM

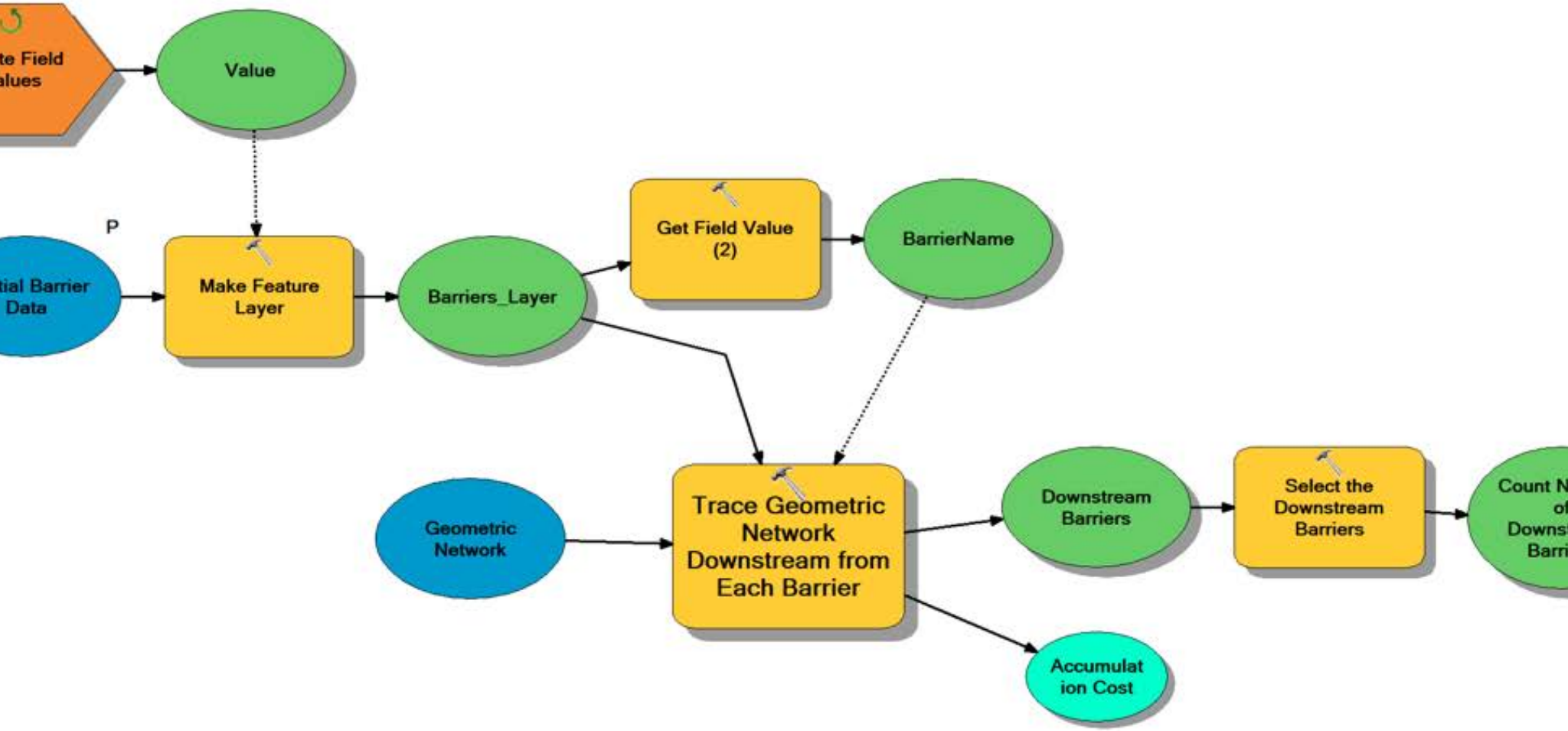
FLOW PERMINANCE

Creating Data and Assigning Attributes

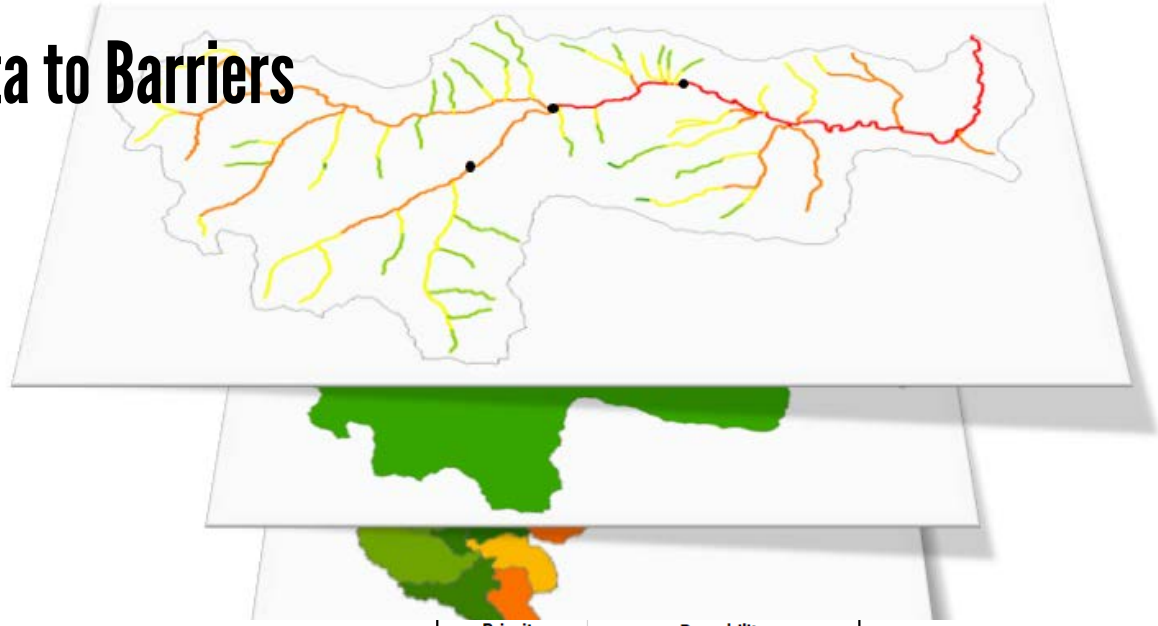


- AMOUNT OF HABITAT UPSTREAM
- NUMBER AND TYPE OF BARRIERS DOWNSTREAM
- COLONIZATION DISTANCE

Developing a Model



Assigning Data to Barriers



BARRIER INFORMATION			Priority	Passability	TOTAL SCORES			
Tributary To	RoadName	BarrierFlag	RTT Tier	RecordedBarrierPassibility	TotalScore_SPCH	TotalScore_SH	TotalScore_BT	TotalScore_AllSpecies
Chumstick Cr	driveway; Eagle Creek Rd	<Null>	2	33	68.2	78.2	42.2	188.6
Wenatchee R	Motteler Rd	<Null>	2	67	69.8	74.6	42.6	187
Wenatchee R		<Null>	2	33	66.6	74.4	56.8	197.8
Chumstick Cr	driveway; Eagle Creek Rd	<Null>	2	33	61.6	74.2	38.2	174
Wenatchee R	private; SR 209	No Bull Trout Habitat Upstream	3	33	59.2	73.8	0	133
Wenatchee R	Eagle Ridge Rd	<Null>	2	67	67.8	72.6	35.4	175.8
Chumstick Cr	private; CR 112	<Null>	2	33	59.6	72.2	36.2	168
Chiwawa Rd	Meadow Creek Rd	<Null>	2	67	69.6	69.6	60	199.2
Wenatchee R	N Dryden Rd	No Chinook Habitat Upstream	3	33	0	69.2	53.8	123
Wenatchee R		<Null>	3	33	56	66.4	43.6	166
Chiwawa R		No Chinook Habitat Upstream	3	67	0	64.8	44	108.8
Chumstick Cr	private; CR 112	<Null>	3	33	57	64.4	36.2	157.6
Chumstick Cr	private; CR 112	<Null>	3	33	57	64.4	36.2	157.6
Chumstick Cr	driveway; Eagle Creek Rd	<Null>	3	33	57	64.4	36.2	157.6
Chumstick Cr	private; Nfd 7801 Rd	No Chinook Habitat Upstream	3	33	0	64.4	52.8	117.2
Chumstick Cr	Merry Canyon Rd	No Chinook Habitat Upstream	3	33	0	64.4	49.8	114.2
Chumstick Cr	private; Nfd 7801 Rd	No Chinook Habitat Upstream	3	33	0	64.4	49.8	114.2
Chumstick Cr	private; Nfd 7801 Rd	No Chinook Habitat Upstream	3	33	0	64.4	49.8	114.2
Wenatchee R	<Null>	<Null>	2	33	41	63.8	71.2	176
Big Meadow Cr	Nfd 6300 Rd	No Chinook Habitat Upstream	3	0	0	63.4	51.2	114.6
Eagle Cr	Eagle Creek Rd	<Null>	3	33	52.2	63	49.4	164.6
Eagle Cr	private; Eagle Creek Rd	<Null>	3	33	52.2	63	49.4	164.6
Chumstick Cr	forest rd; Nfd 7500 Rd	No Bull Trout Habitat Upstream	3	0	51	61.8	0	112.8
Peshastin Cr	Mountain Home Ranch Rd	No Chinook or Bull Trout Habitat Up:	3	33	0	61	0	61
Chumstick Cr	Dry Creek Rd	No Chinook Habitat Upstream	3	33	0	60.8	51.2	112
Wenatchee R	private; 2nd Creek Rd	No Chinook Habitat Upstream	3	33	0	60.8	51.2	112

SCORING RULES- EXAMPLE

Habitat Potential: Habitat Quantity *(weighting factor = 2.0, 20%)*	10 = IP >50,000 sq m 9 = IP 41,000 - 50,000 sq m 8 = IP 24,000 - 41,000 sq m 7 = IP 19,000 - 24,000 sq m 6 = IP 15,000 - 19,000 sq m 5 = IP 13,000 - 15,000 sq m 4 = IP 8,000 - 13,000 sq m 3 = IP 5,000 - 8,000 sq m 2 = IP 2,000 - 5,000 sq m 1 = IP >0 - 2,000 sq m **Flagged and assigned an overall score of "0"** 0 = Barrier with no IP upstream

Flags: No Upstream Habitat, Missing Data (Location or Passability Rating)

RESULTS

www.ucsrb.org

Maps and Tools

https://www.ucsrb.org/map-portal-2/

Tool available from Aspect Consulting- Robyn Pepin

Layers
Fish Barrier Ranking - All Specie
Combined
Streams (Named)
Streams (Minor)
Steelhead Intrinsic Potential
Chinook Intrinsic Potential
Bull Trout Intrinsic Potential
Wenatchee River
Wenatchee River
Wenatchee River
Douglas Creek
Second Creek
Dry Creek
Dry Creek
Van Creek
Van Creek
East Van Creek
Walker Creek
Walker Creek
Eagle Creek
Eagle Creek
Eagle Creek
Eagle Creek
Eagle Creek
Freund Creek
Freund Creek
Esri, HERE, Garmin, NGA, USGS, NPS | Esri, HERE, NPS

STEP 3.

STRATEGY DEVELOPMENT

BARRIER TIERING

- Tier 1. High priority barrier for restoration
- Tier 2. Moderate biological benefit
- Tier 3. Low biological benefit
- Tier 4. Not a priority at this time
-
- Need More Information
- Not a priority
- Proceed only as a complex

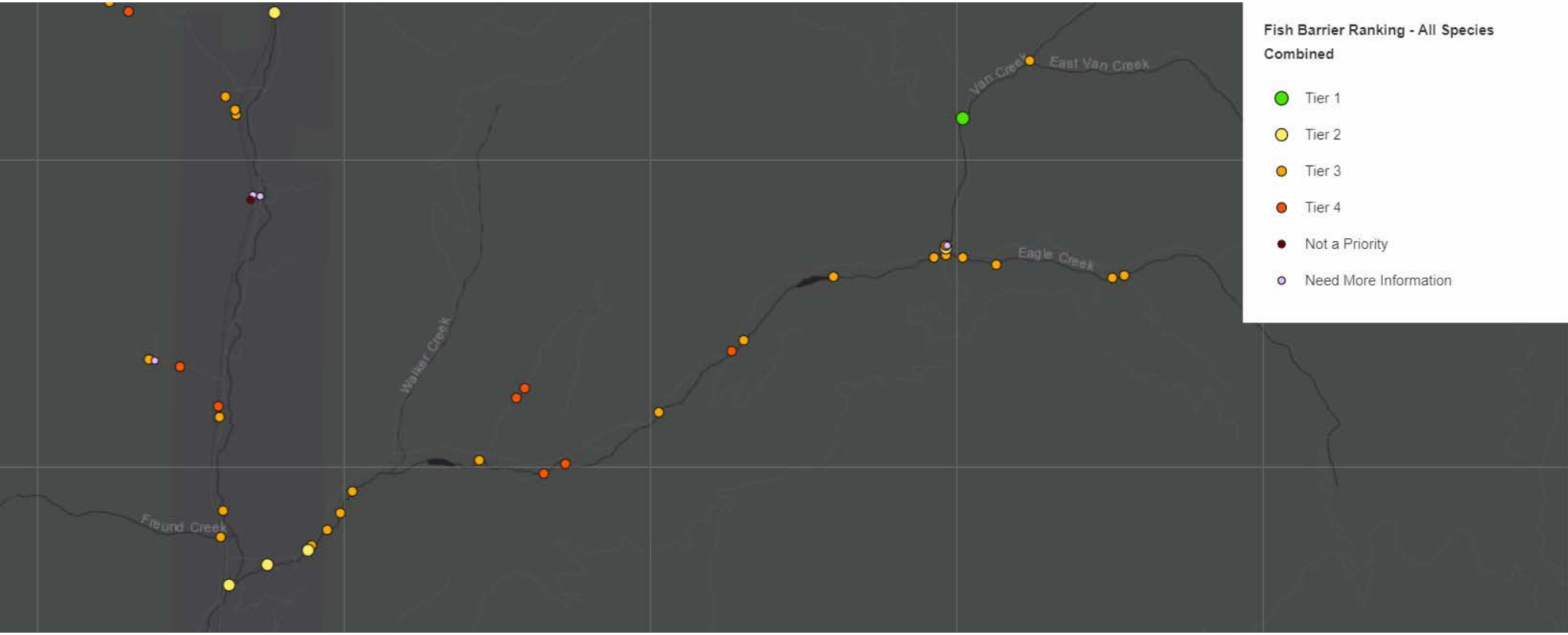
See full report for more detail on definitions

WENATCHEE SUBBASIN OUTCOMES

- Tier 1. High priority barrier for restoration - 0 barriers
- Tier 2. Moderate biological benefit - 8 barriers (1%)
- Tier 3. Low biological benefit - 74 barriers (12%)
- Tier 4. Not a priority at this time - 52 barriers (9%)
-
- Need More Information - 155 barriers (27%)
- Not a priority for listed species - 286 barriers (50%)
- Proceed only as a complex

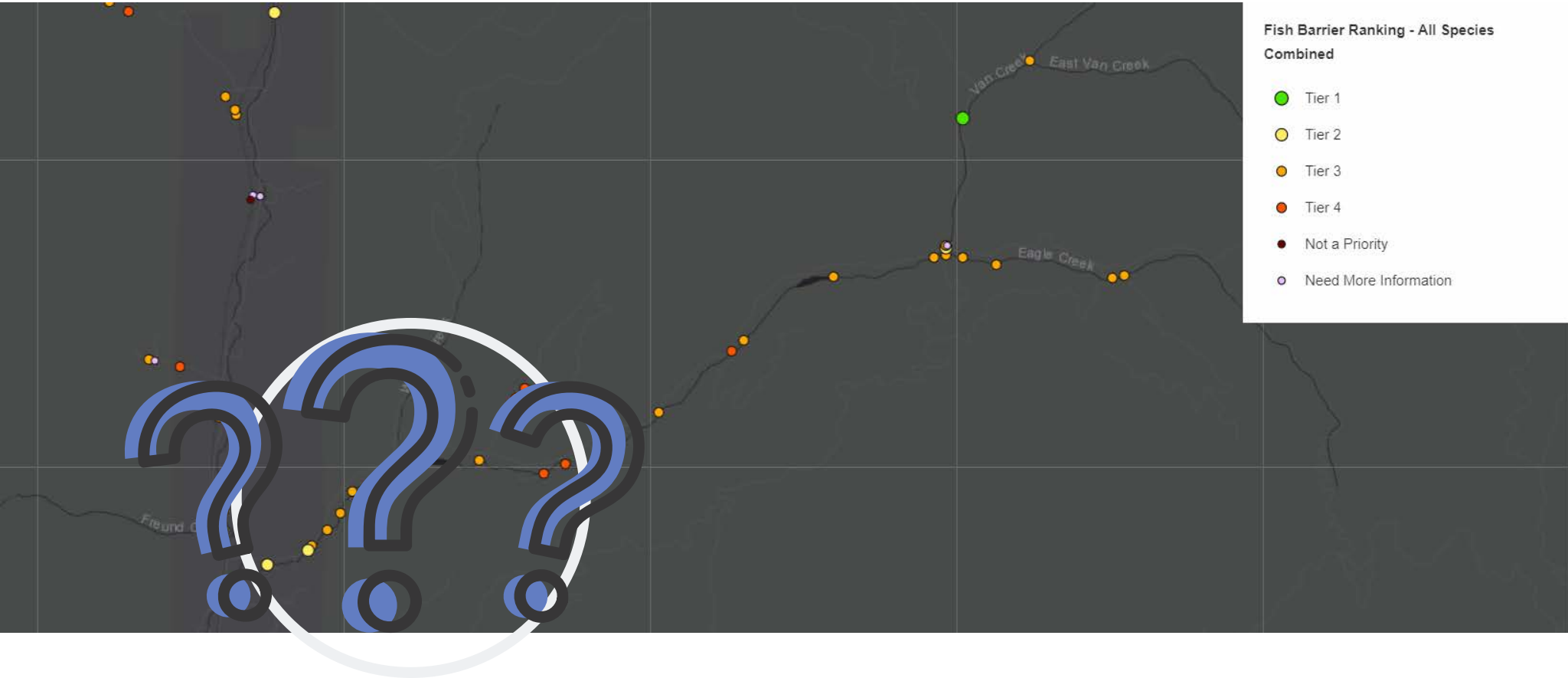
See full report for more detail on definitions

BARRIER COMPLEXING



Eagle Creek- 7 miles of habitat
23 barriers (moderate to low priority),
($100K * 23) = $2.3M

BARRIER COMPLEXING



Eagle Creek - 1 mile of habitat
6 barriers (moderate to low priority),
$100K * 6 = $600K

BARRIER COMPLEXING

Determine if the watershed is a worthwhile endeavor

1) Priority
2) Barrier density
3) General habitat conditions

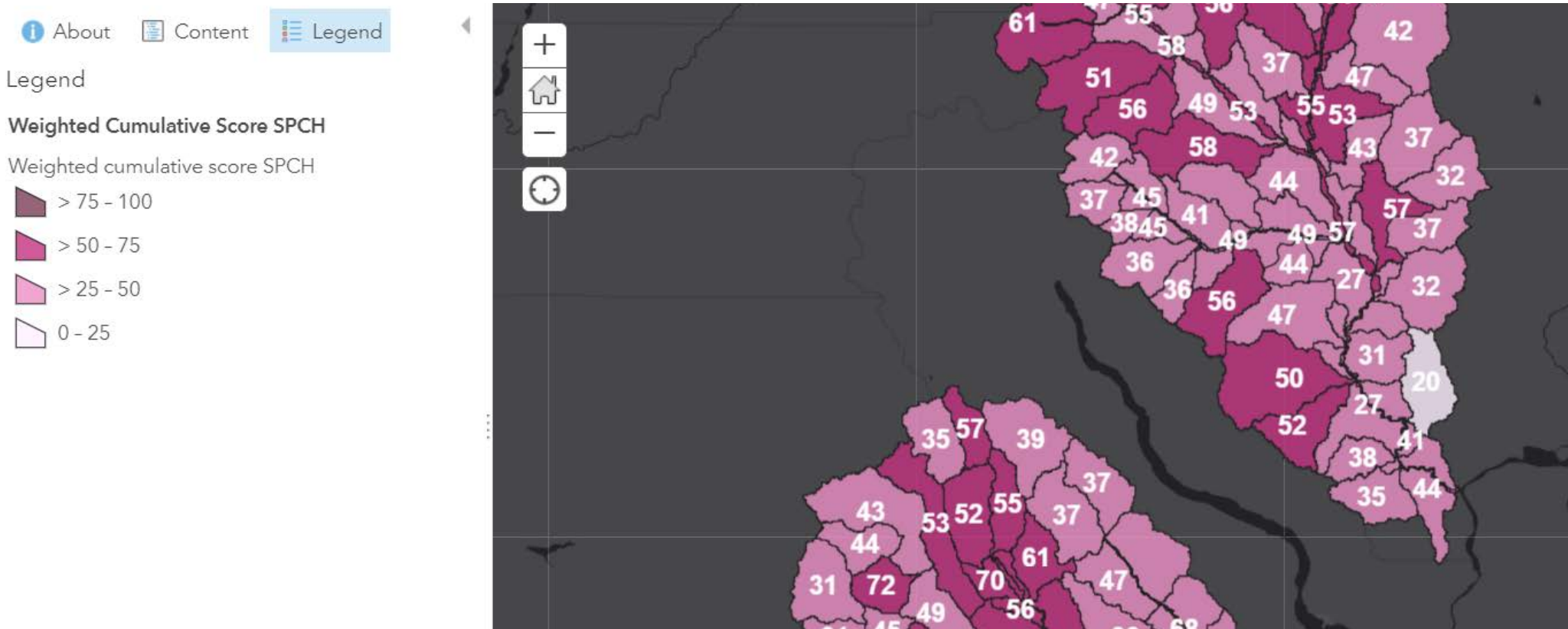
Principles for when and how to group barriers in a complex

1) Include the furthest downstream barrier
2) Group enough barriers to get a meaningful quantity of habitat
3) Group by cost and feasibility considerations
4) Do not proceed if there are barriers of unknown status downstream

POTENTIAL APPLICATIONS

- Specific grant proposals
- Other species (e.g. Orca recovery)
- Other prioritization projects (e.g. floodplain prioritization)
- Expansion to other regions

PRIORITIZING WATERSHEDS



THANKS FOR LISTENING

Data - www.ucsrb.org ArcGIS online data portal
Maps - www.ucsrb.org Maps and Tools Page
Report - Final report @ www.ucsrb.org

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