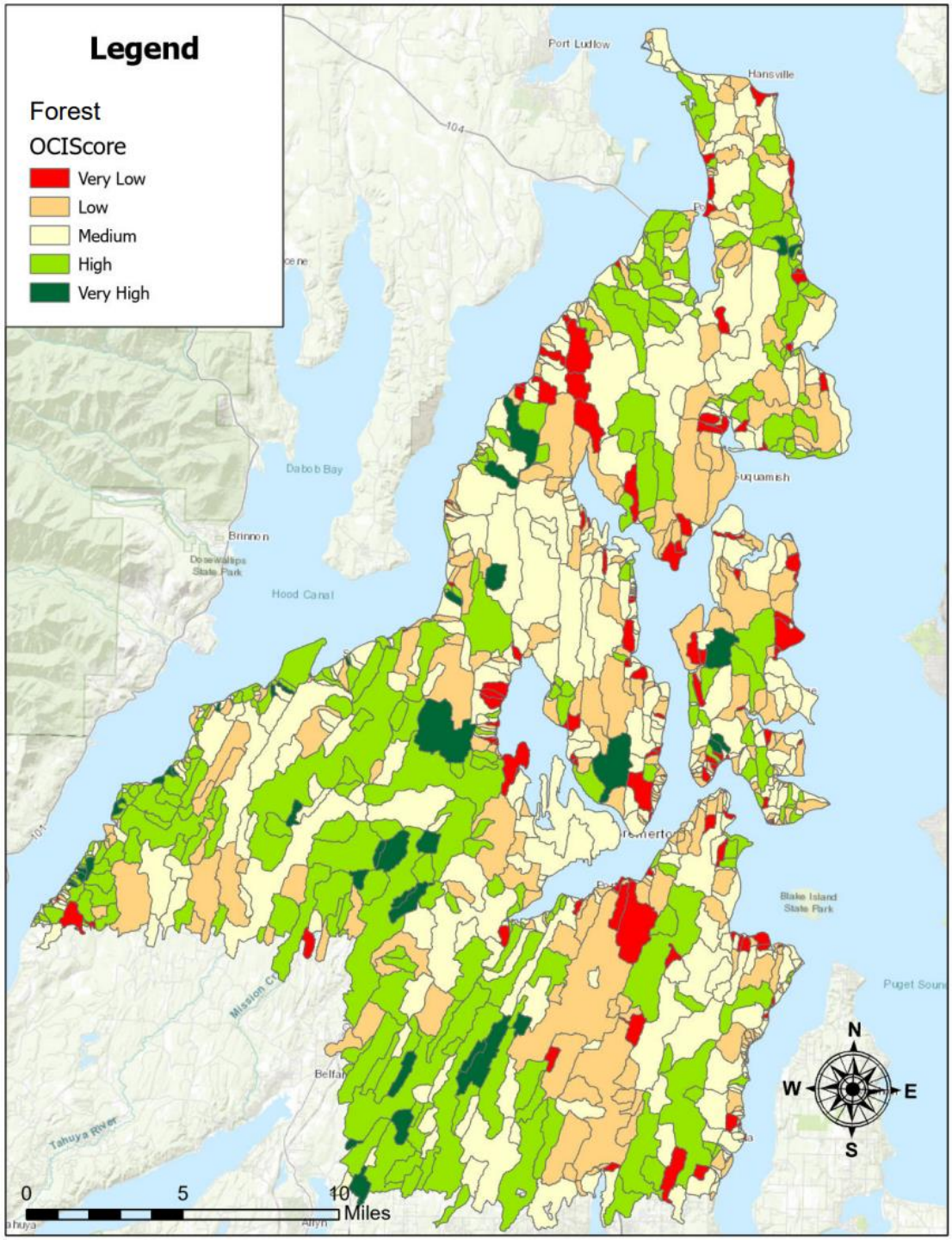
Current Level of Service (LOS) Scoring Methods for Attributes and Updated Full County Maps

Robinson Low & Mindy Roberts, WCAEF

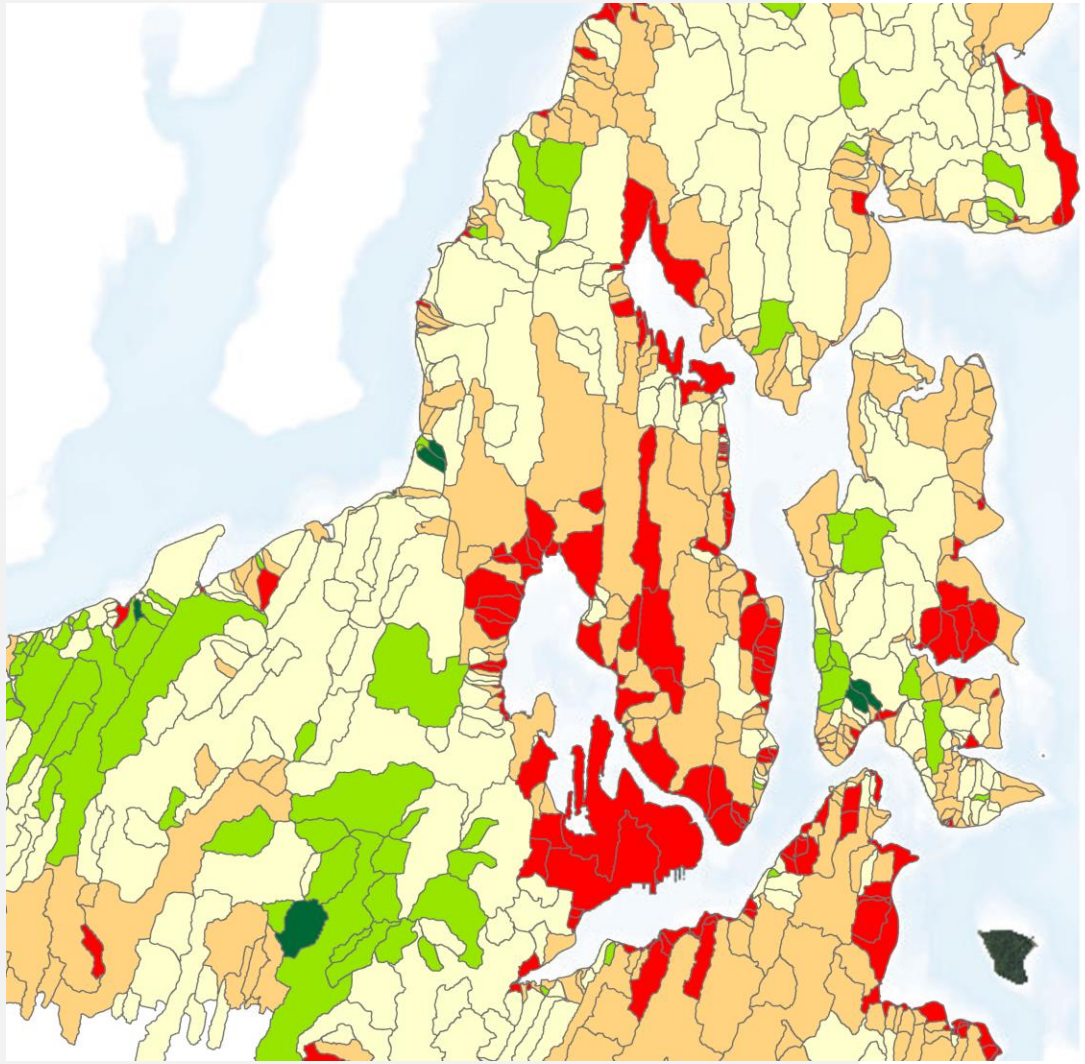
February 2nd 2024 Core Team Workshop

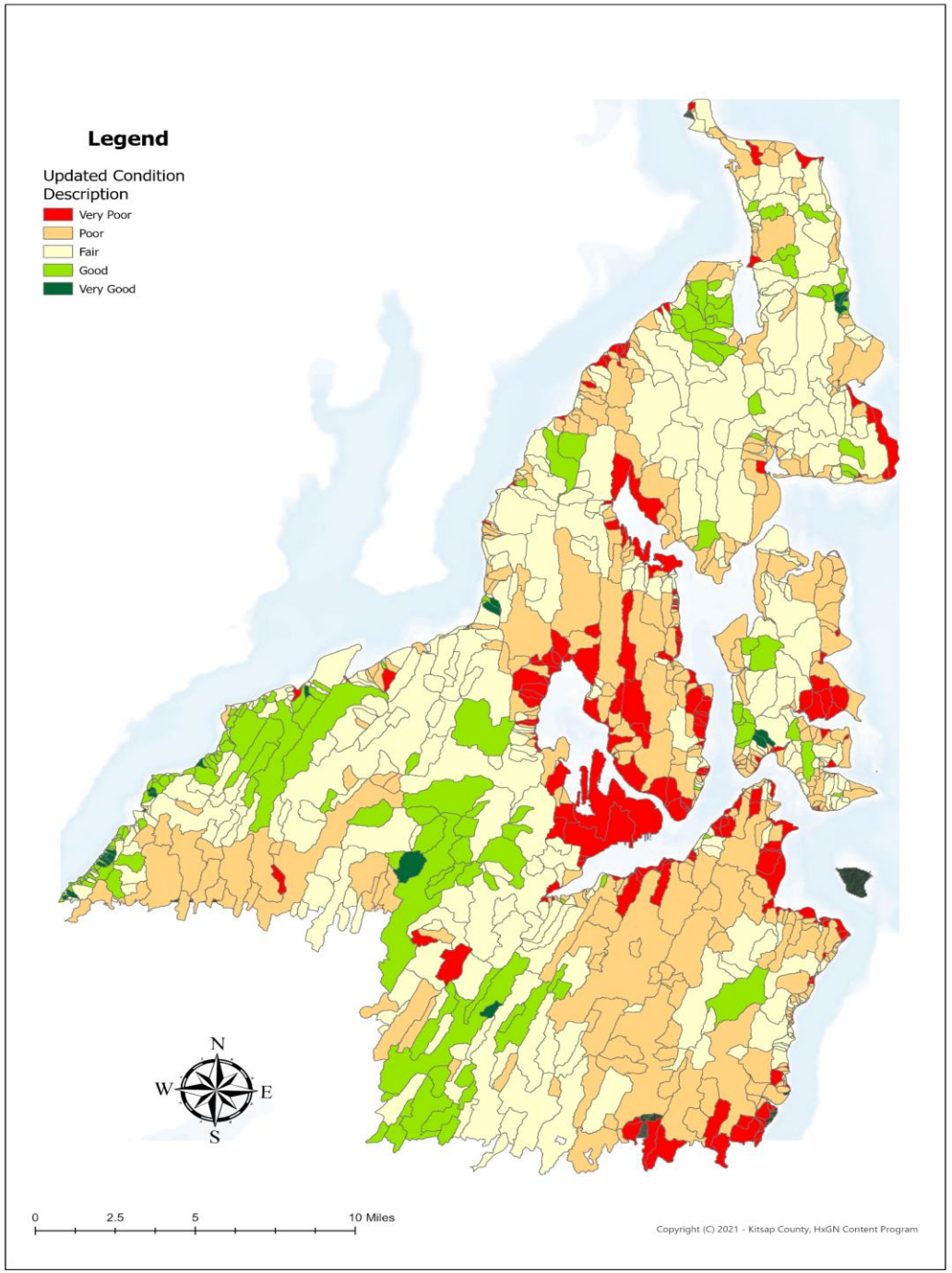
Updated Level of Service (LOS) Scoring for Full County Maps

- Last workshop's full county maps seemed too "rosy".
- Many attributes were being overscored when being translated to OCI.
- (Right) Upland Forest current LOS map from November 2023 Workshop

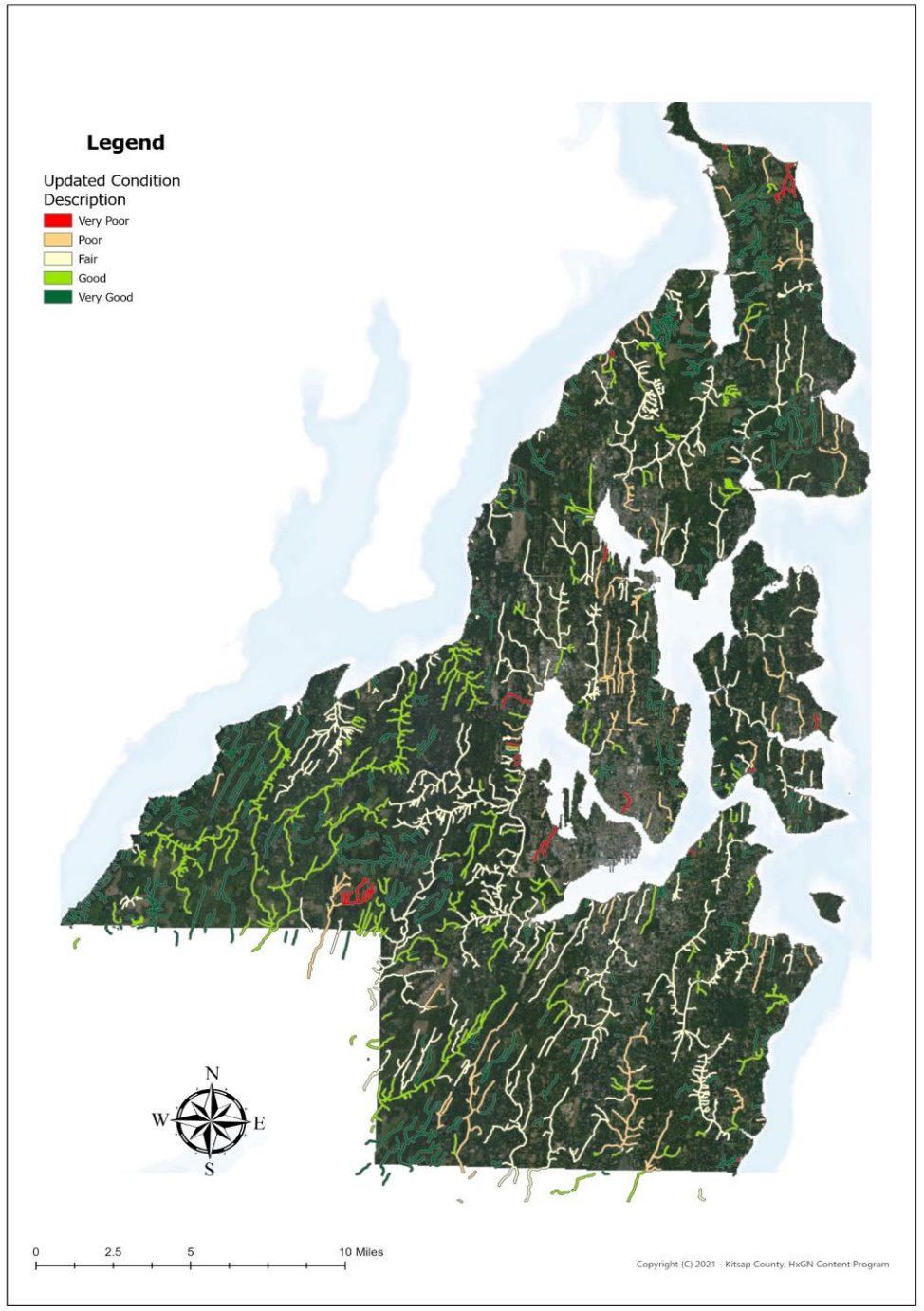


Upland Forest

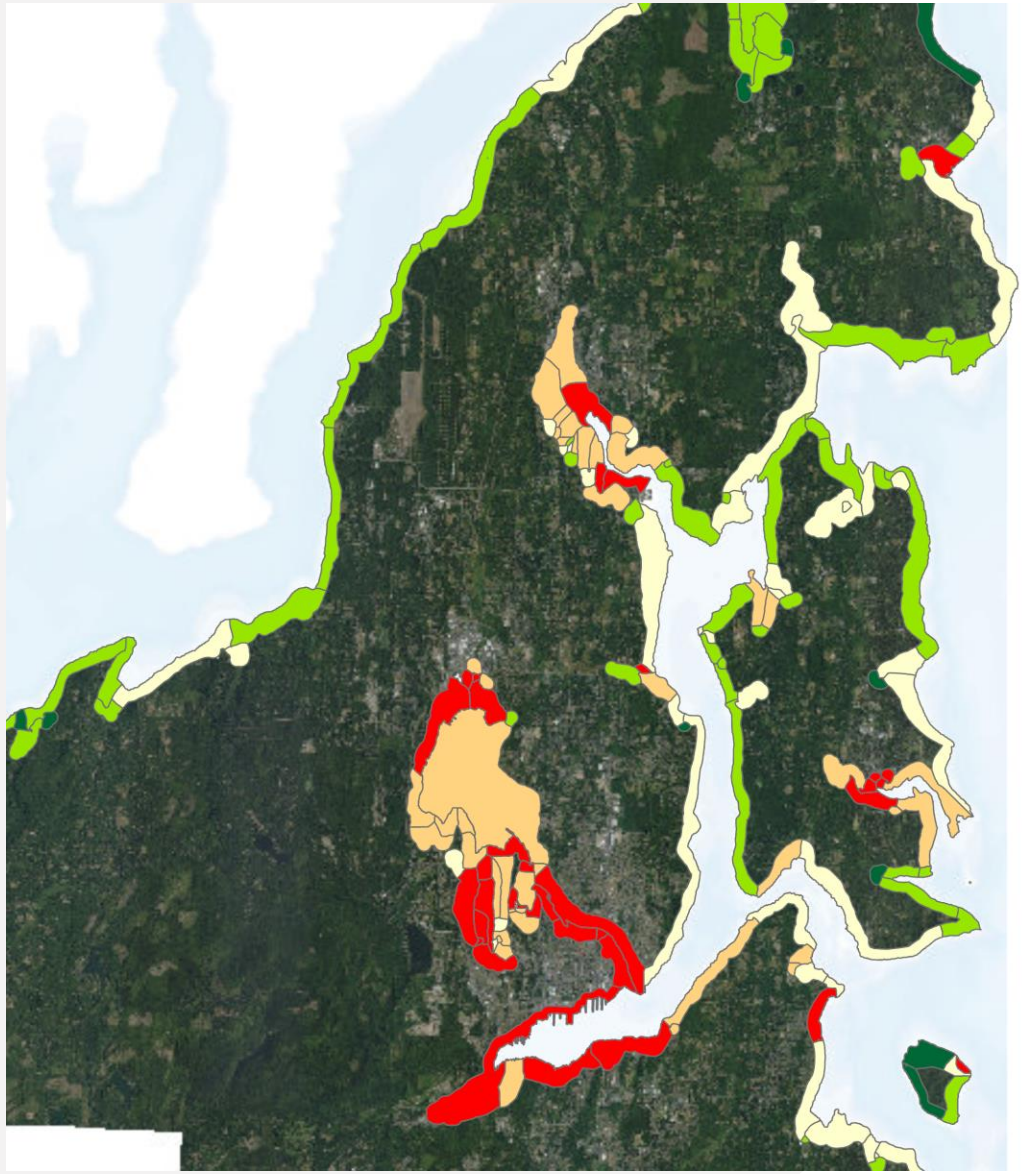


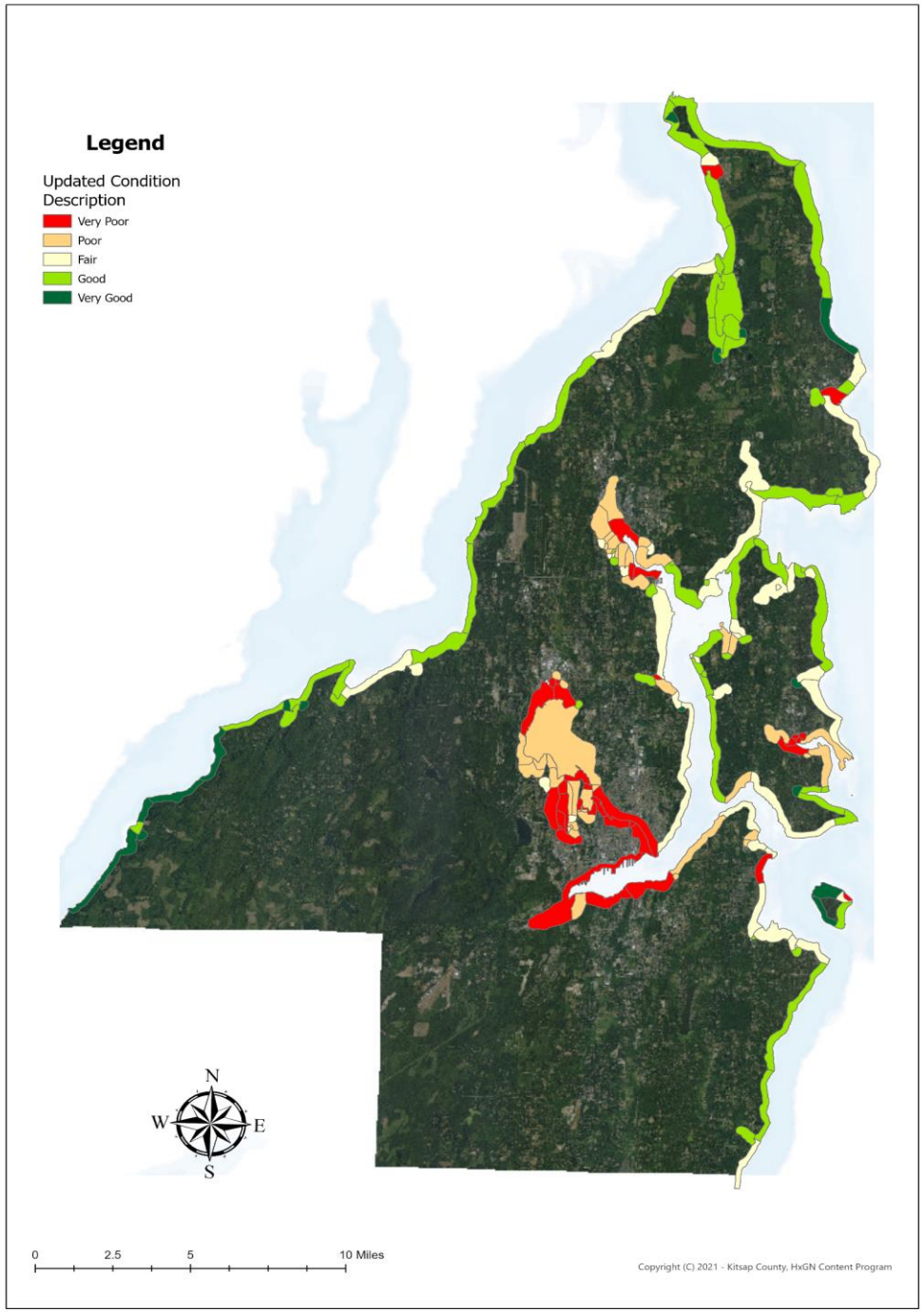


Riparian Streams



Shorelines




Legend
Updated Condition Description
Very Poor
Poor
Fair
Good
Very Good
N
W
E
S
0
2.5
5
10 Miles
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Current Level of Service (LOS) Scoring Methods

Robinson Low & Mindy Roberts, WCAEF

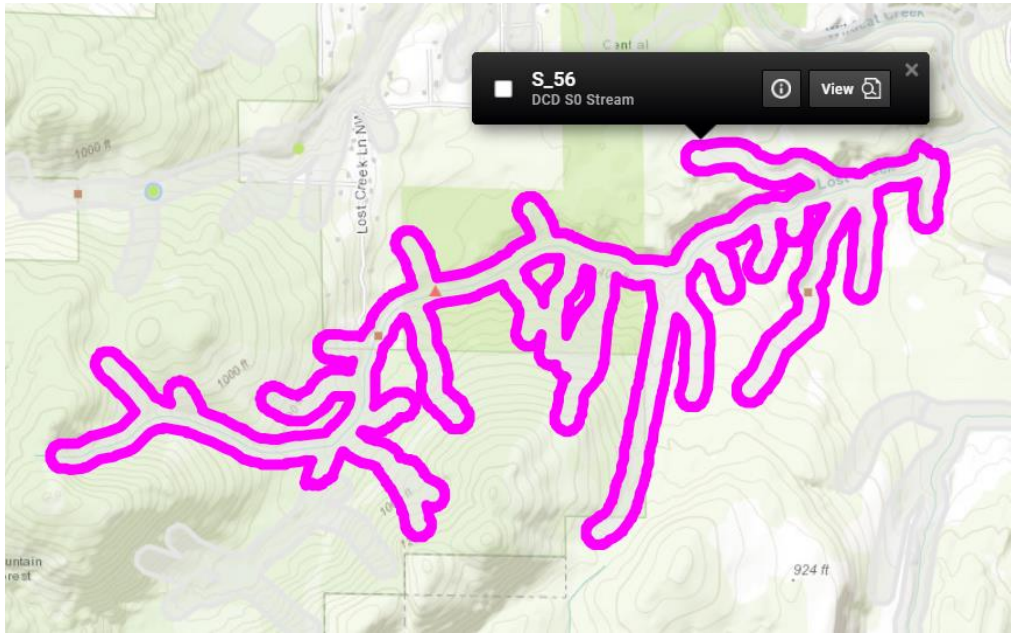
February 2nd 2024 Core Team Workshop

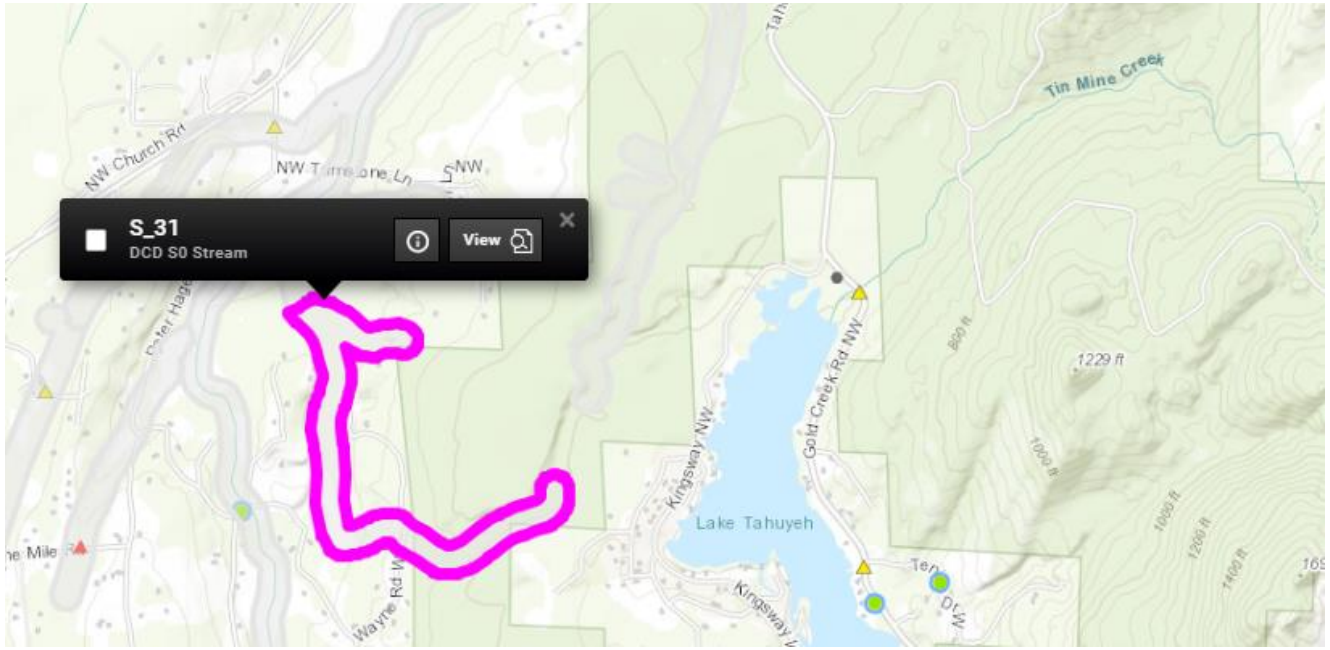
Fish Passage Barrier Attribute Evolution

Attribute	Indicator	Condition Rating				
		Very Low	Low	Medium	High	Very High
S4. Fish Passage	Barrier presence/absence in MU	NA	Yes	NA	NA	No

Current Methodology of Scoring Fish Passage Barriers

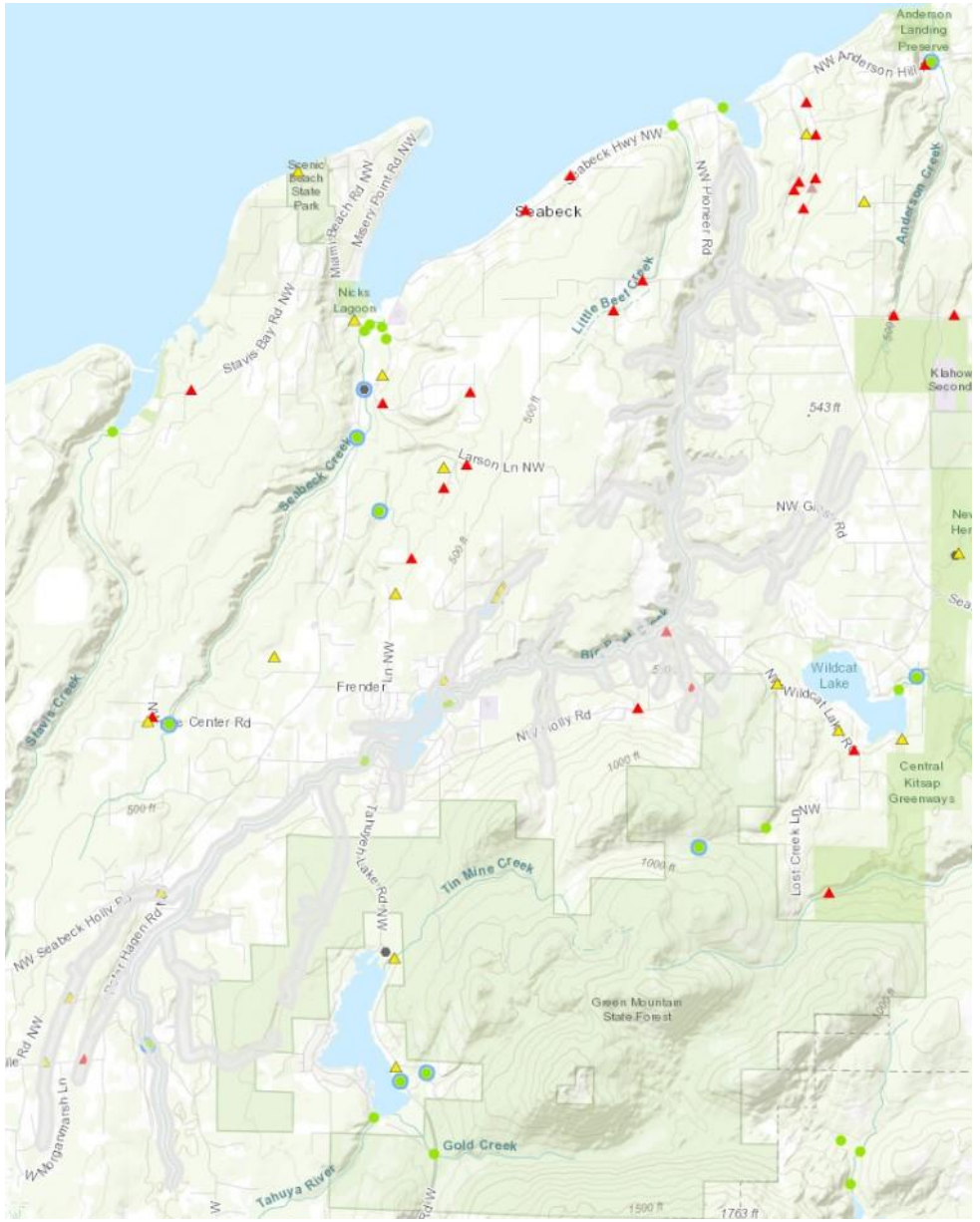
- ONLY count barriers that are less than 100% passable (as reported by WDFW).
- ONLY count barriers that fall within the management unit polygon
- OCI Scoring is either 1 (meaning there ARE barriers within the polygon) or 100 (meaning there are NO barriers within the polygon).



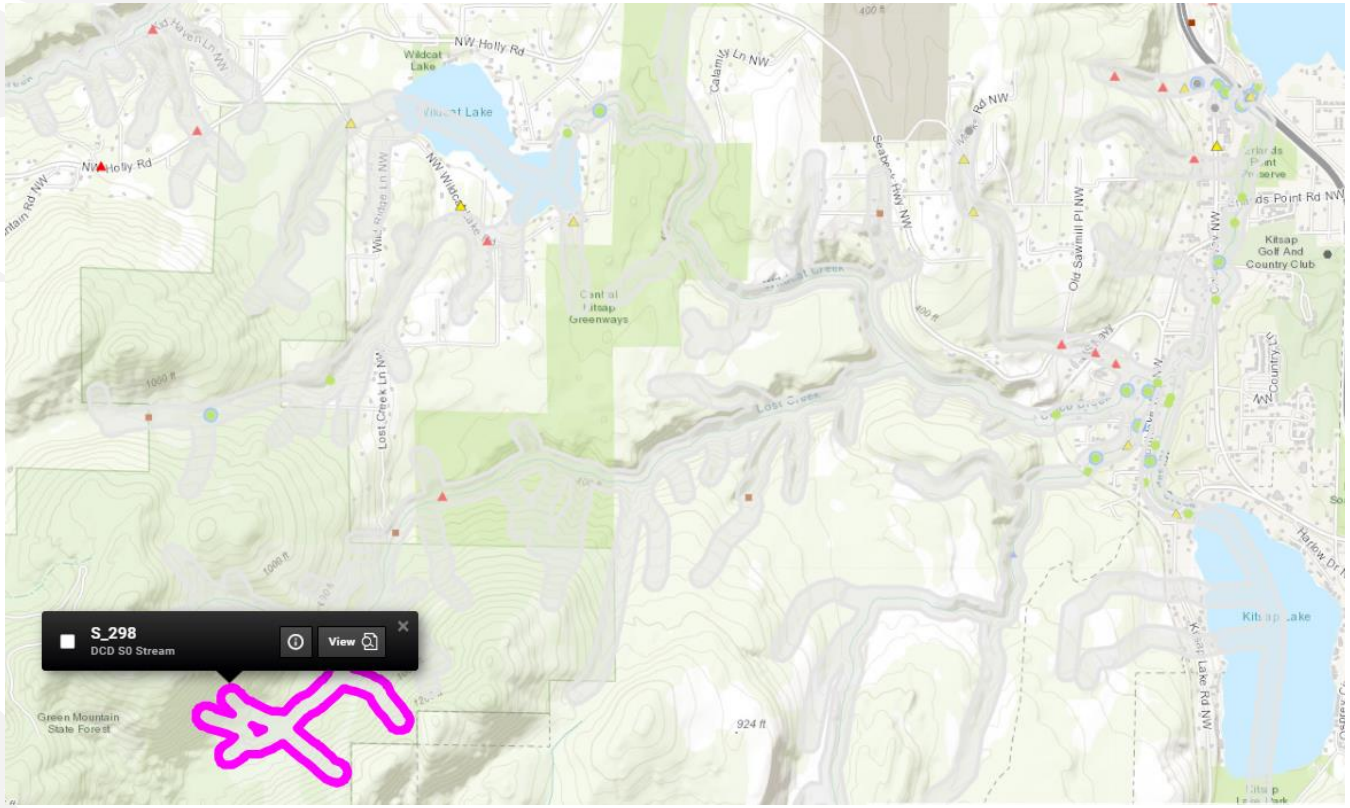


What about cumulative downstream barriers

- This management unit (S_31) has NO fish passage barriers within its polygon, so its OCI for fish passage barriers is 100.
- However, If I were a fish I would have to pass through 2 (supposedly) 100% passable fish barriers on either side of Lake Symington.



Chico Creek Example



Similarly for Chico Creek, S_298 currently has a rating of 100 (meaning no fish passage barriers within the polygon) .

However, if I were a fish, I'd have to pass through 2 barriers counted in Cartegraph and 5 barriers listed as 100% passable.

Missing Elements

- Should barriers that are classified by WDFW as 100% passable be counted”
    - (Left) Fishway downstream of Lake Symington in Big Beef Creek (100% passable).
- Should downstream barriers be counted toward upstream MUs?

Scoring Options – If I were a Fish

Option 1 – Stringent Scoring

- Anything more than 3 barriers is Very Low.
- More categories to track improvements over time.

Attribute	Indicator	Condition Rating				
		Very Low	Low	Medium	High	Very High
S4. Fish Passage	Barrier's present	4+	3	2	1	0

Option 2 – Most Stringent Scoring

- Anything more than 1 barrier is Very Low
- More similar to current scoring.

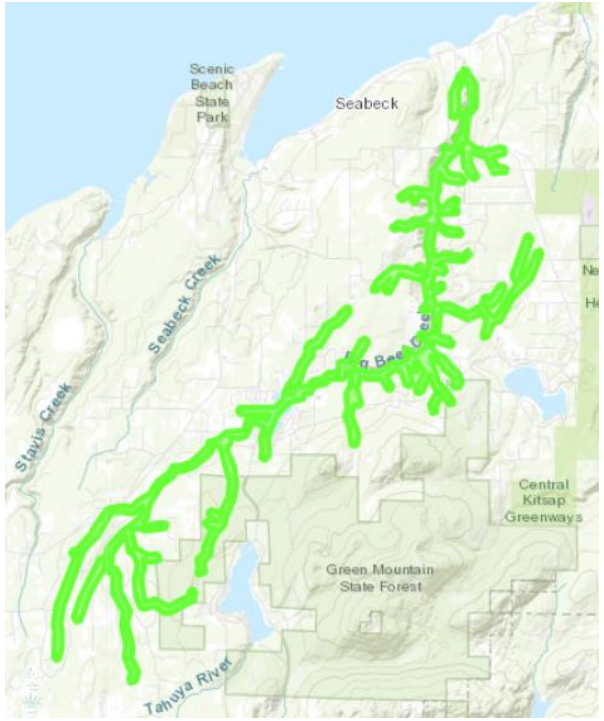
Attribute	Indicator	Condition Rating				
		Very Low	Low	Medium	High	Very High
S4. Fish Passage	Barrier's present	2+		1		0

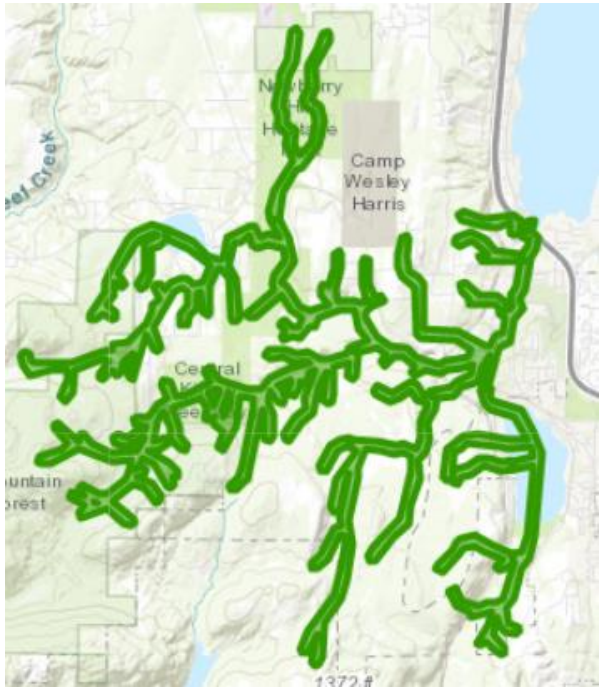
BIBI Scoring

Attribute	Indicator	Condition Rating				
		Very Low	Low	Medium	High	Very High
S2. Biological condition (B-IBI)	Aggregated B-IBI score for stream	≤ 20	21-40	41-60	61-80	81-100

Current methodology for BIBI scoring

- Aggregated throughout an entire watershed (Chico is 83.05, BB Creek is 67.425 raw score)
- Unsure of how far back the aggregate data goes, but the raw score was uploaded in 2020.
- There are multiple sampling stations within a watershed (e.g., Chico has 6 sample points in 2021/2022, BB Creek has 3 samples)



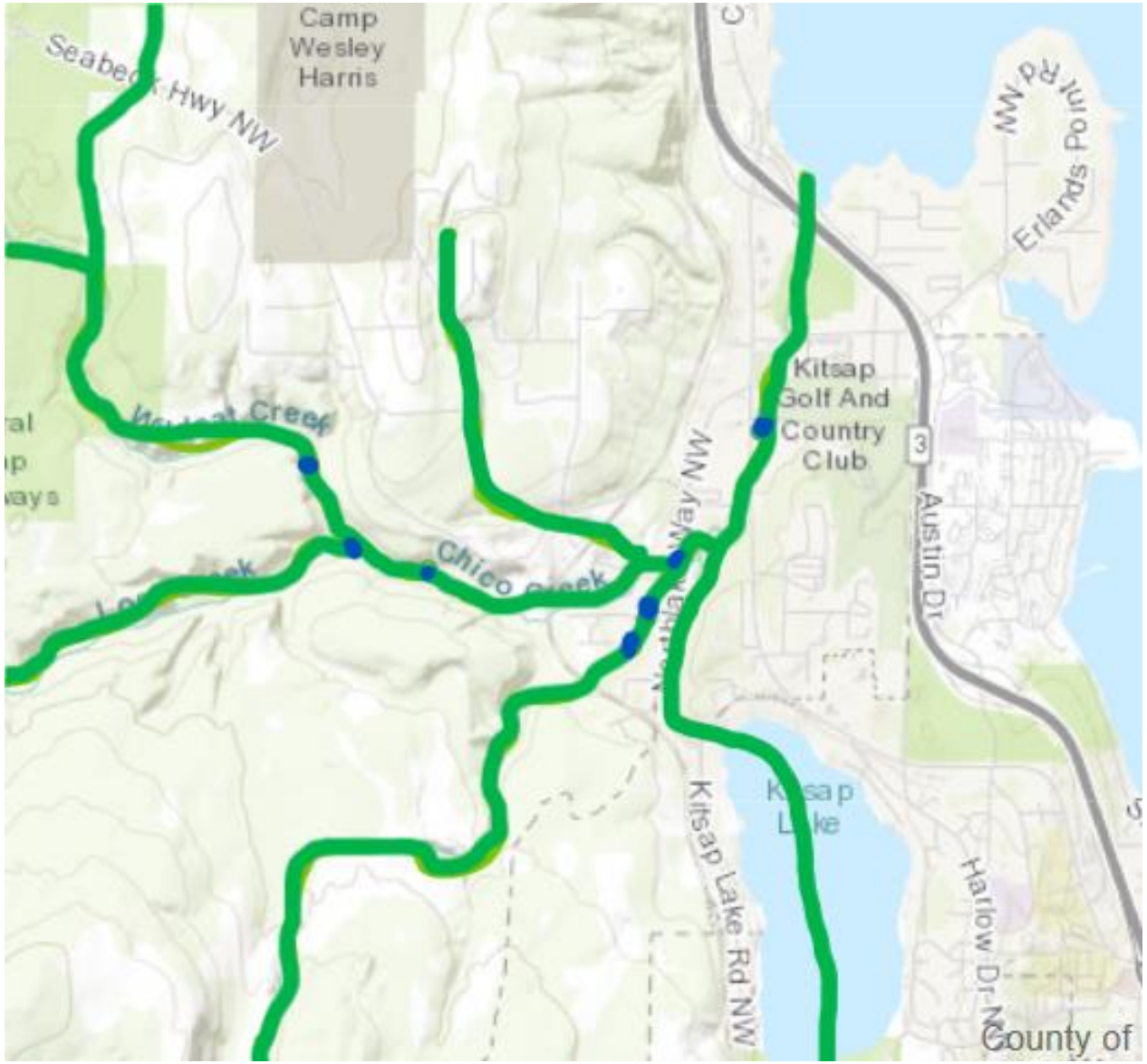


Missing Elements

- Clear timescale -- How old is too old of data? 3-year aggregate? 5-year aggregate?
- Trends -- Should we have a baseline to track trends for sampling stations/streams?
- Multiple sampling stations -- Should we have scores for management units upstream of sampling stations AND a watershed wide aggregated score?

BIBI Option 1 – Aggregate to watershed

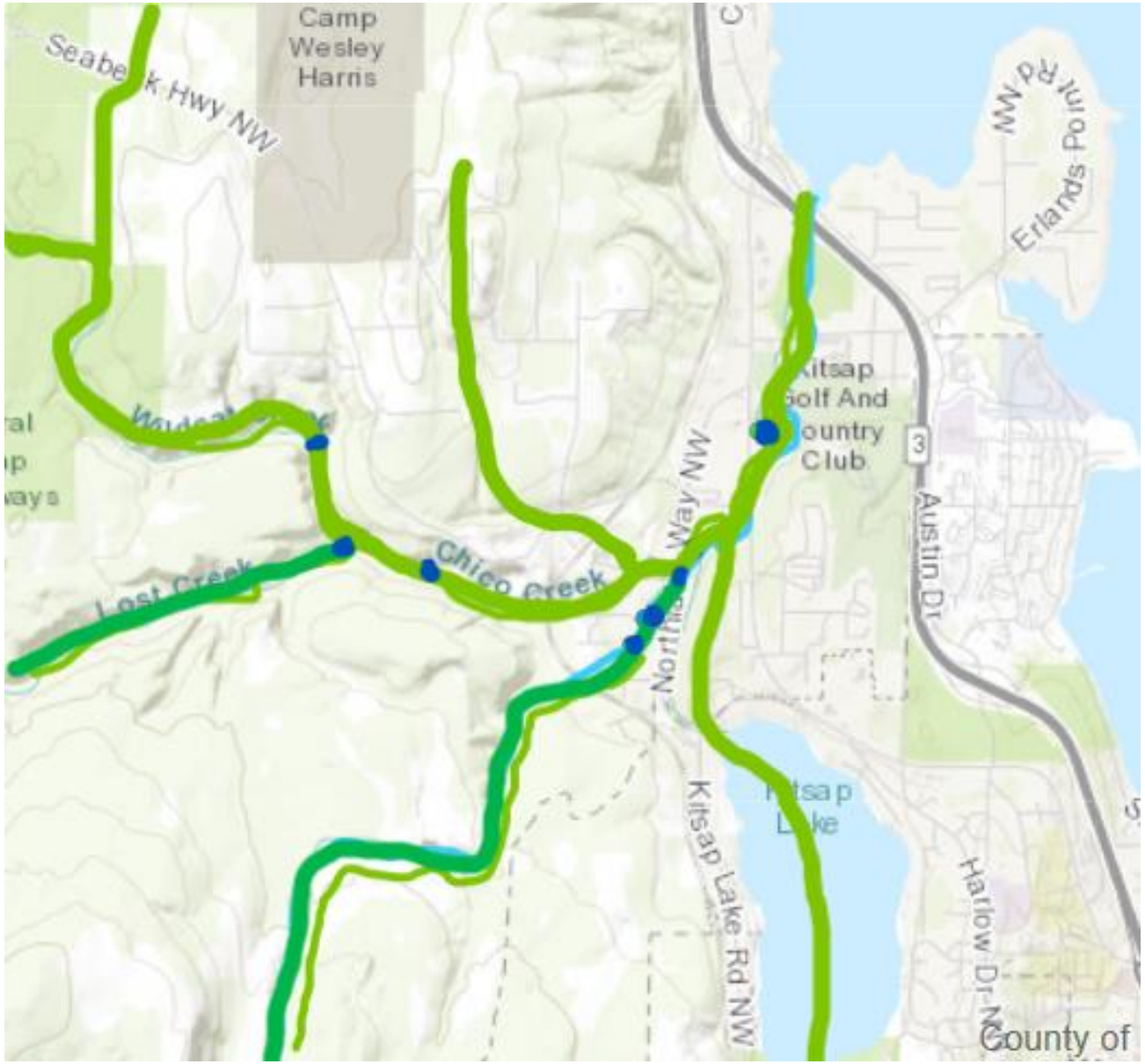
- Only include the 3 most recent years of data. Currently no data from 2023 so we aggregate from 2020 through 2022.
  - Chico Creek had 10 samples over 3 years with an average score of 82.89 (Very High)
  - Big Beef Creek had 3 samples over 3 years with an average score of 77.13 (High)



BIBI Option 2 – Aggregate Upstream

- 1) Assign BIBI scoring to any MUs upstream of sampling stations, but aggregate if multiple samples on the same stream reach/segment.

- EG – Dickerson Creek has 4 sampling stations that affect its BIBI score while Kitsap Creek and Dry Creek only have 1.



Water Quality Scoring (Original)

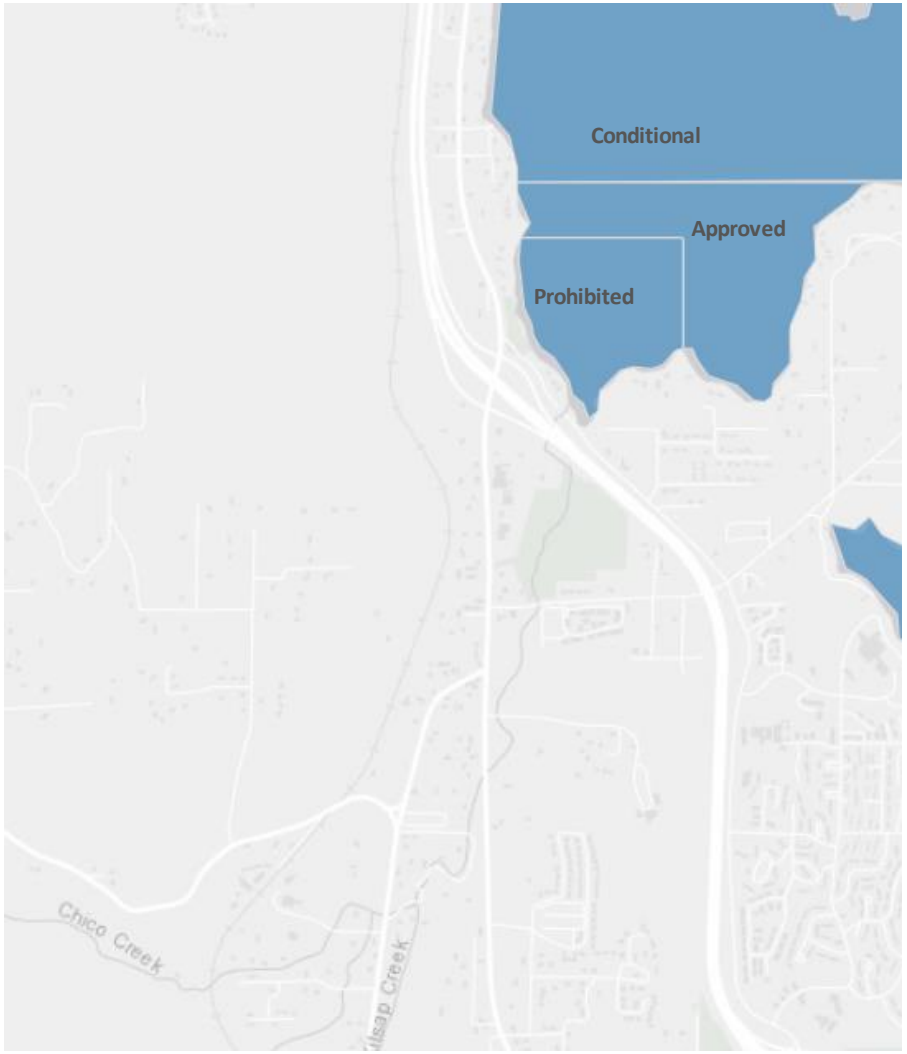
Attribute	Indicator	Condition Rating				
		Very Low	Low	Medium	High	Very High
M3. Water Quality	SGA Classification status in MU	Prohibited	Prohibited & cond./appr.	Conditional	Conditional & appr.	Approved

Current Methodology for Shoreline Water Quality (Shellfish Growing Areas)

- A calculation was implemented in cartegraph without approval from the Core Team
- OCR = sum((%approved*100)+(%conditional*50)+(%prohibited*0))/total % classified
- Three classifications for commercial shellfish growing
  - Approved
  - Conditional
  - Prohibited

Missing Elements

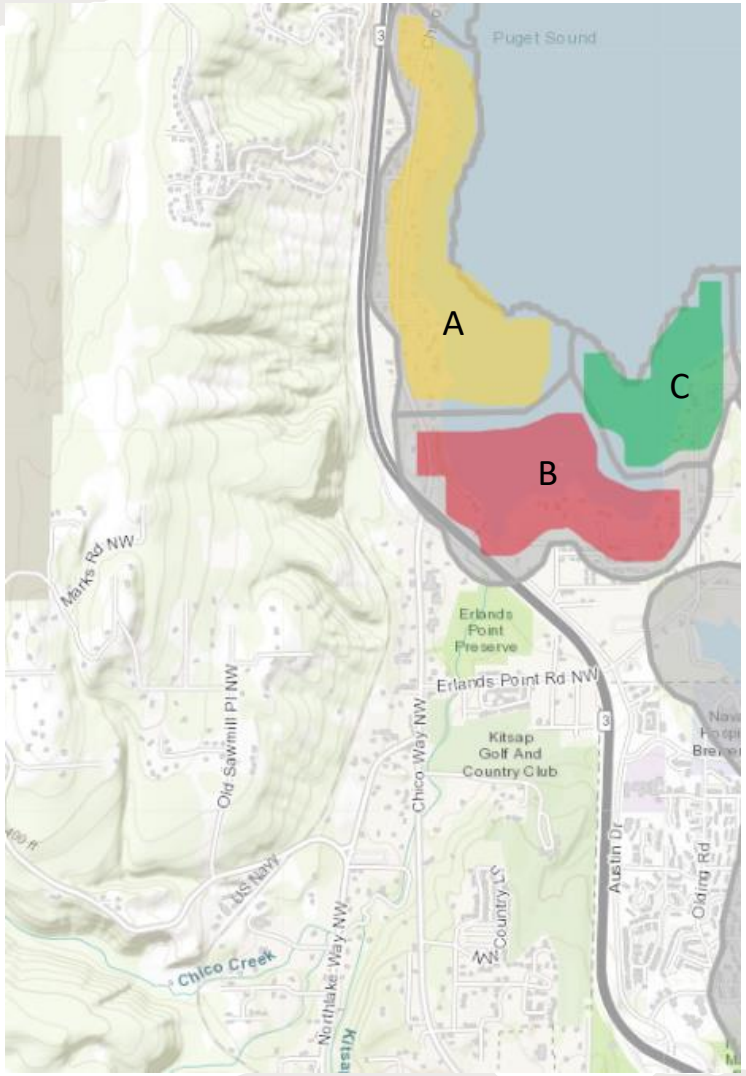
- Clear Reflection of the SGA classification
    - Image on the right shows the different SGA classifications of Chico Creek.
    - Can we simply use the eye test and estimate the majority classification of each management unit?
    - This way the assigned condition rating and corresponding OCI score clearly explains the SGA classification.



Option 1 -- Simple and Clear

- In this example there are three MUs for shoreline in the Chico Creek Watershed, labeled A, B, and C for this exercise.
- MU A is a mix of all three classifications, but a majority is within the "Conditional" classification, so it is assigned Medium.
- MU B is a mix of "Approved" and "Prohibited" but a majority is within the "Prohibited" classification, so it's assigned Very Low.
- MU C is a mix of "Conditional" and "Approved" but a majority is within the "Approved" classification, so it's assigned Very High.

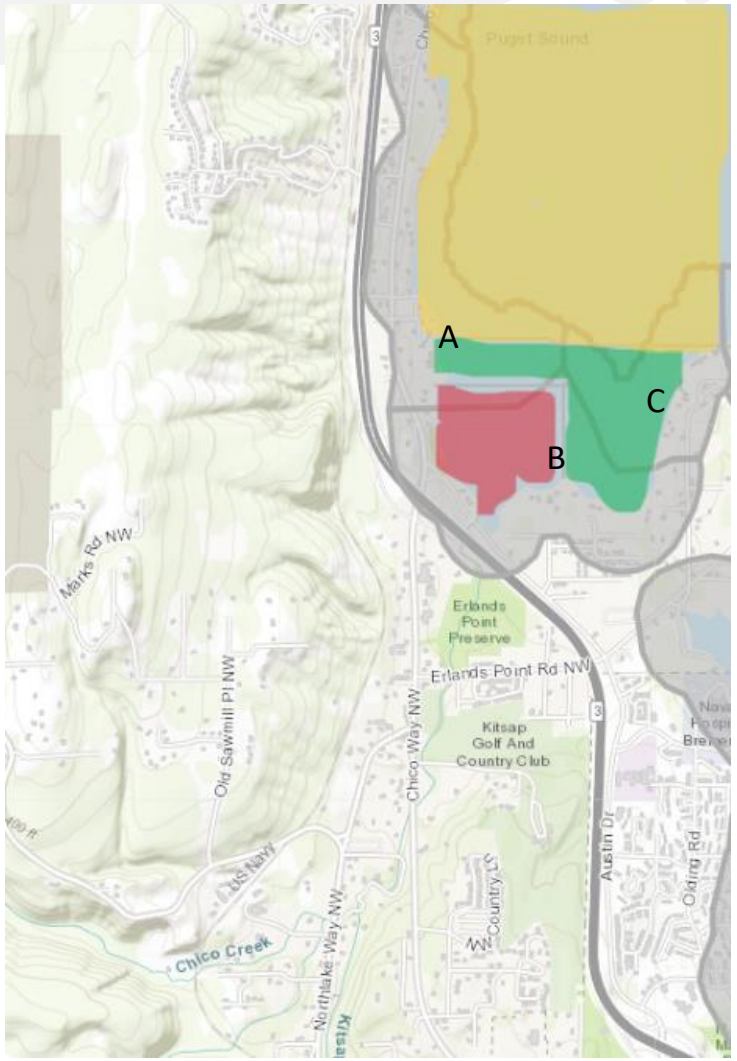
Attribute	Indicator	Condition Rating				
		Very Low	Low	Medium	High	Very High
M3. Water Quality	SGA Classification status in MU	Prohibited		Conditional		Approved



Option 2 -- Slightly More Detail

- If we want slightly more detail, we can include acknowledgement of MUs with multiple classifications in the polygon.
  - MU A is a mix of all three classifications, but since “Prohibited” is part of the mix it is assigned Low
  - MU B is a mix of “Approved” and “Prohibited” but again, since “Prohibited” is included, it is assigned Low.
  - MU C is a mix of “Conditional” and “Approved” so it is assigned High.

Attribute	Indicator	Condition Rating				
		Very Low	Low	Medium	High	Very High
M3. Water Quality	SGA Classification status in MU	Prohibited	Prohibited & cond./appr.	Conditional	Conditional & appr.	Approved



Final Thoughts and Questions

- Raw data needs to be more clearly found, or shown, in Cartegraph. OCI score doesn't mean much if it doesn't clearly represent the raw data.
- Of the BIBI and SGA scores, which feels the best in its current state?
- Any input on how these options can improve to be final?