

working for clean rivers



Stream habitat changes in Johnson Creek over the past 20 years

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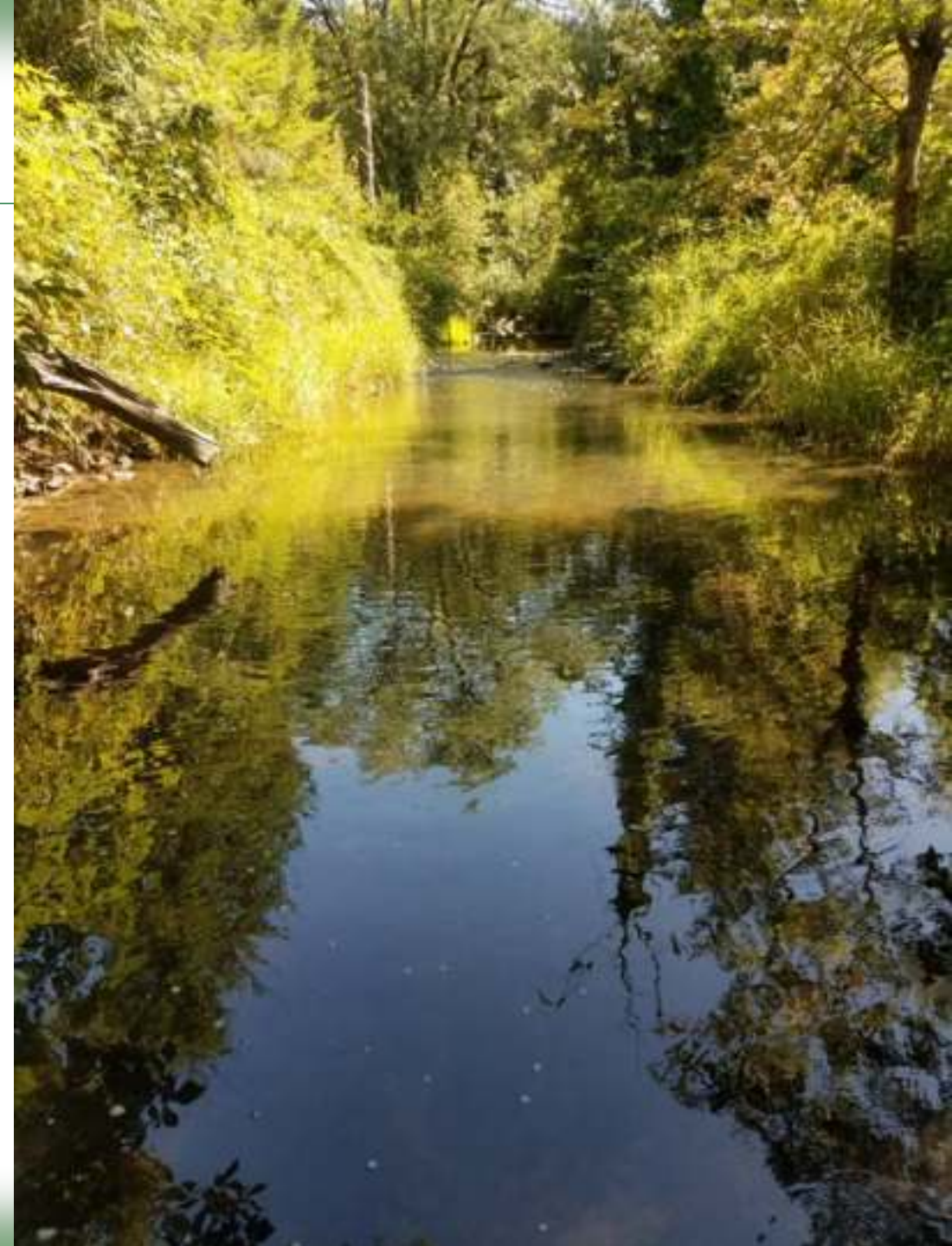
ENVIRONMENTAL SERVICES
CITY OF PORTLAND

working for clean rivers

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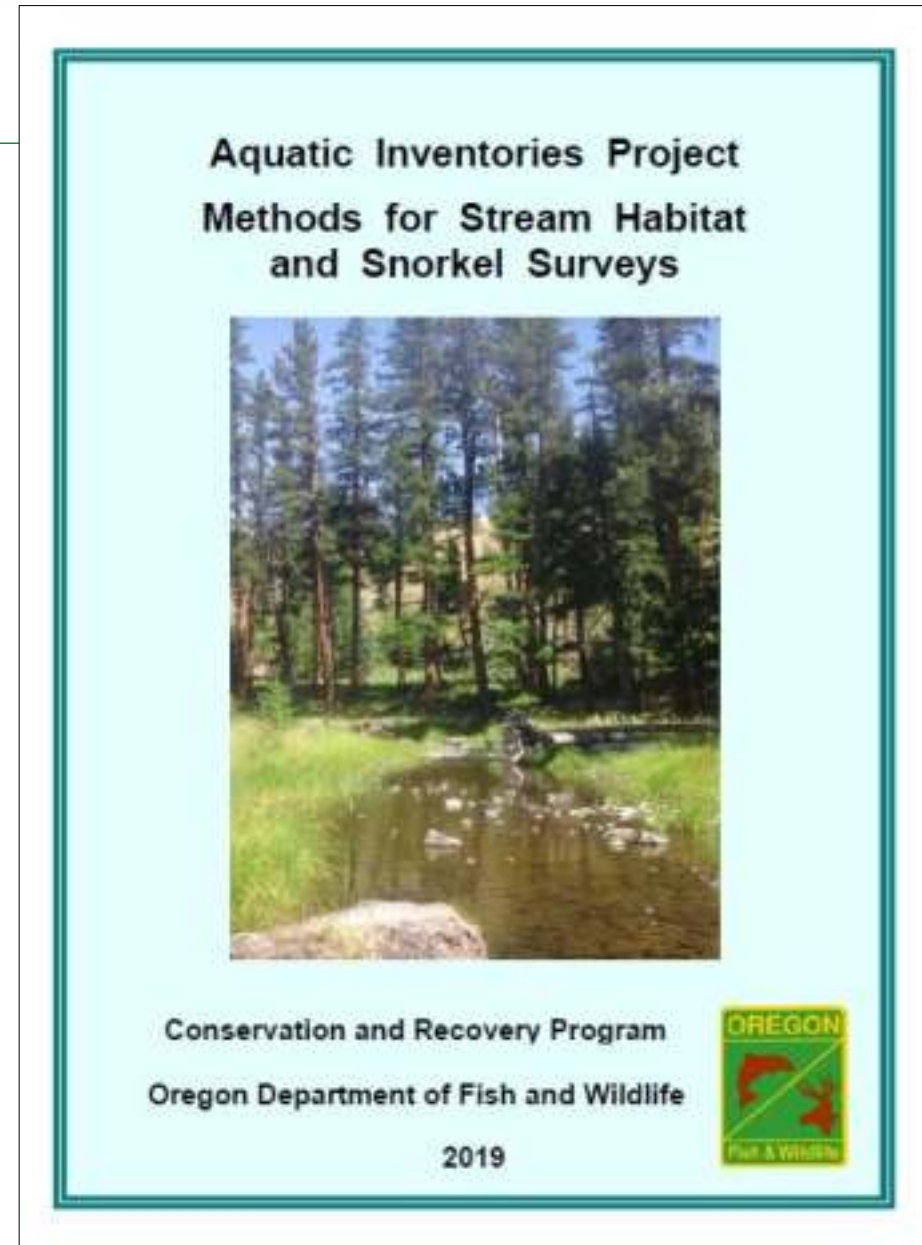
Overview & Background

- Johnson Creek stream surveys conducted by Oregon Department of Fish & Wildlife
 - 1999/2000
 - 2019
- Stream Survey Methodology
 - Approach/protocol
 - Metrics
- Where are the surveys?
- Have there been any changes?

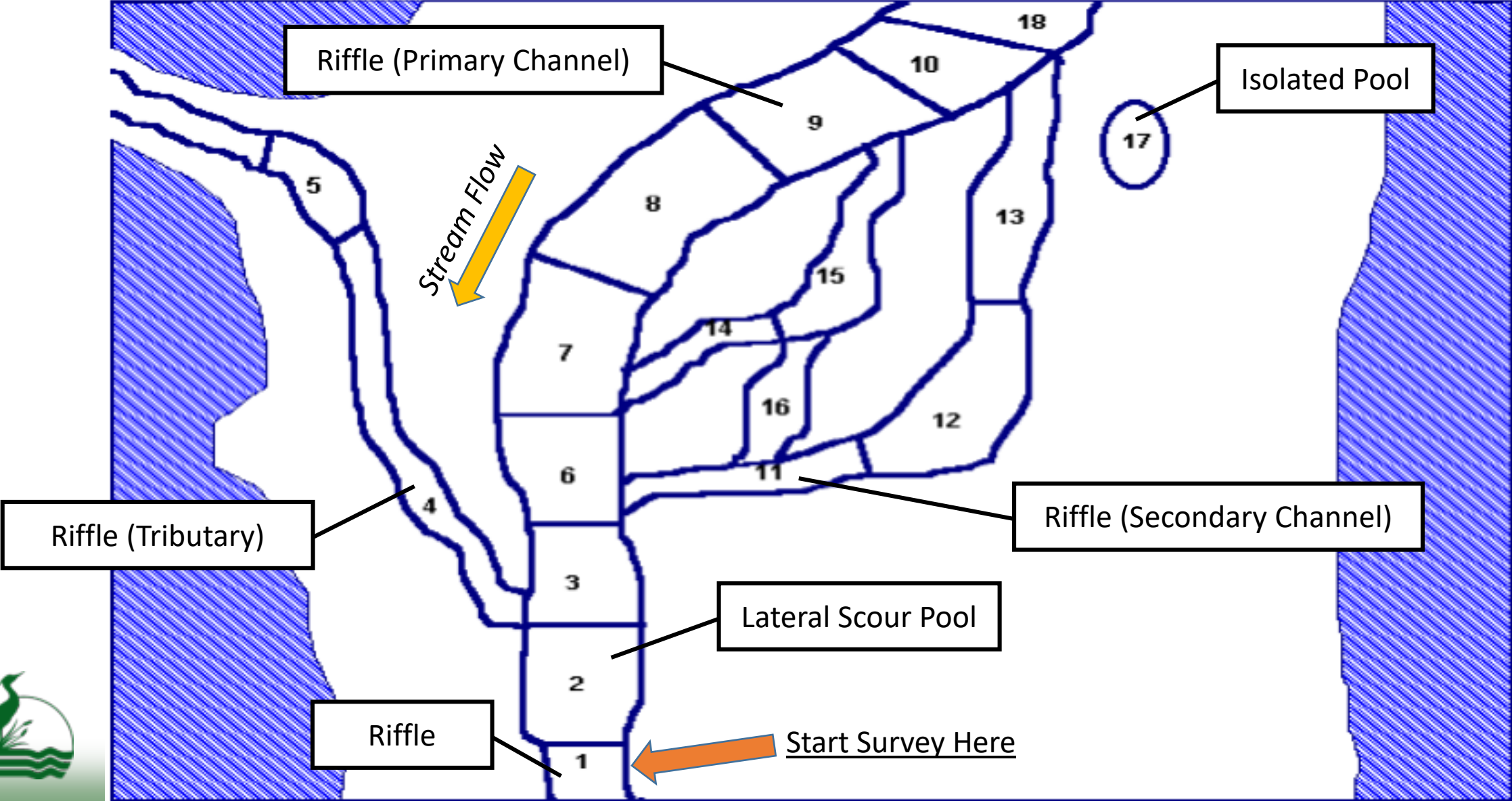


Stream Survey Methods

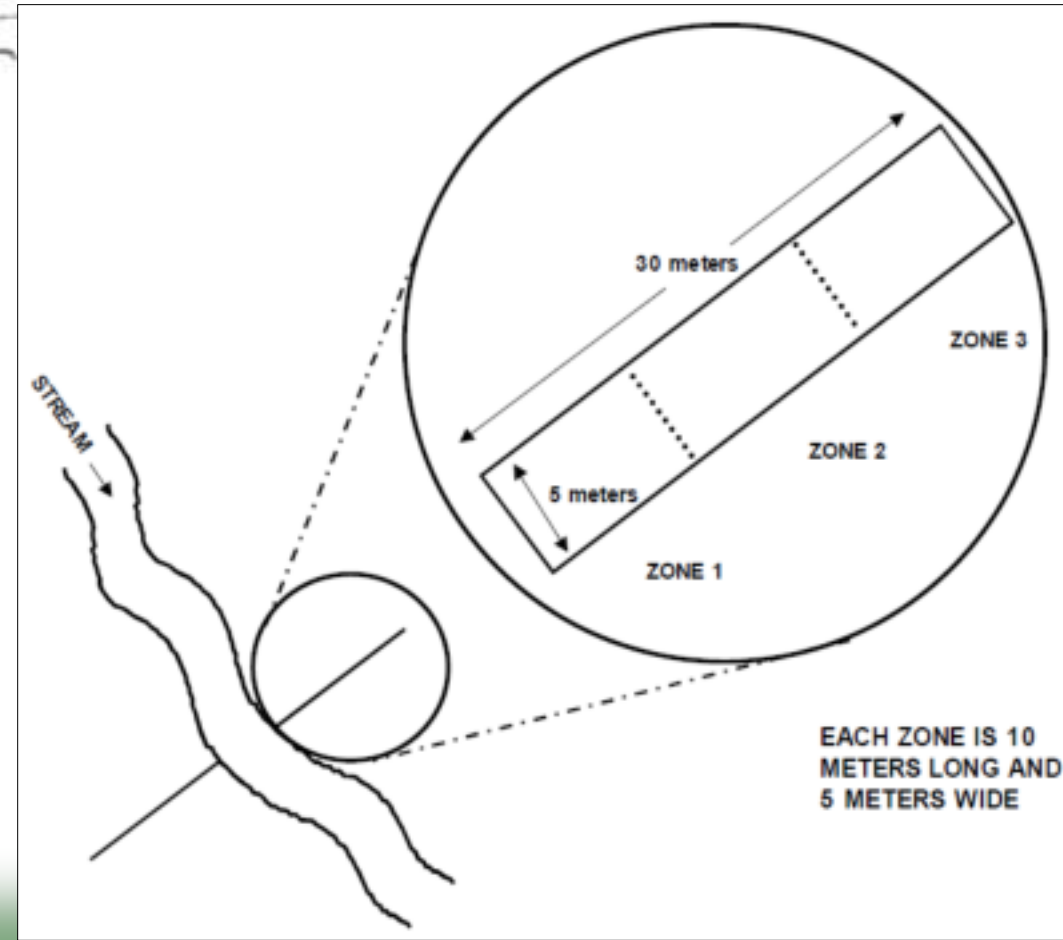
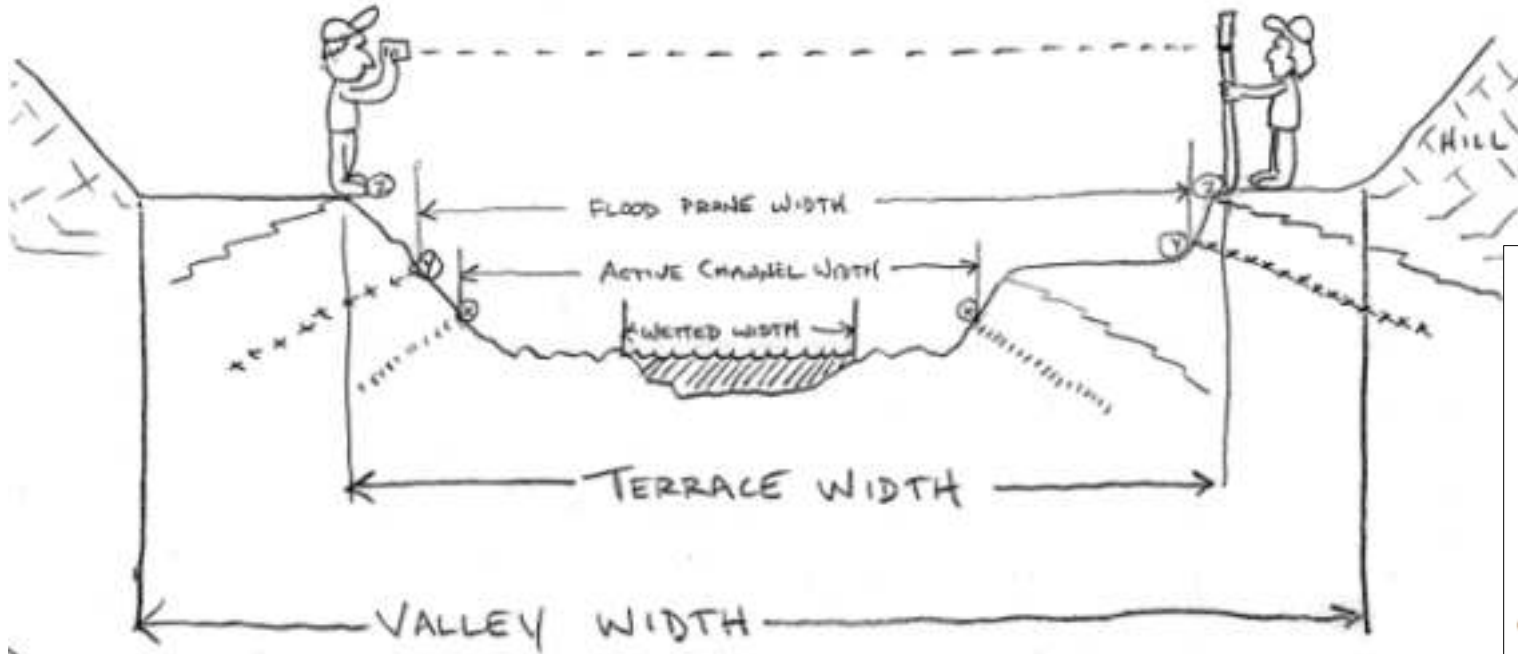
- City of Portland partnered with Oregon Department of Fish & Wildlife (ODFW)
- ODFW's Methods for Stream Habitat and Snorkel Surveys
- Originally developed in 1989 for wadeable streams in Oregon
- Method used to support the state's salmon recovery efforts
- Same survey method used in 1999/2000 and 2019



Habitat Units



Channel Dimensions & Riparian Inventory



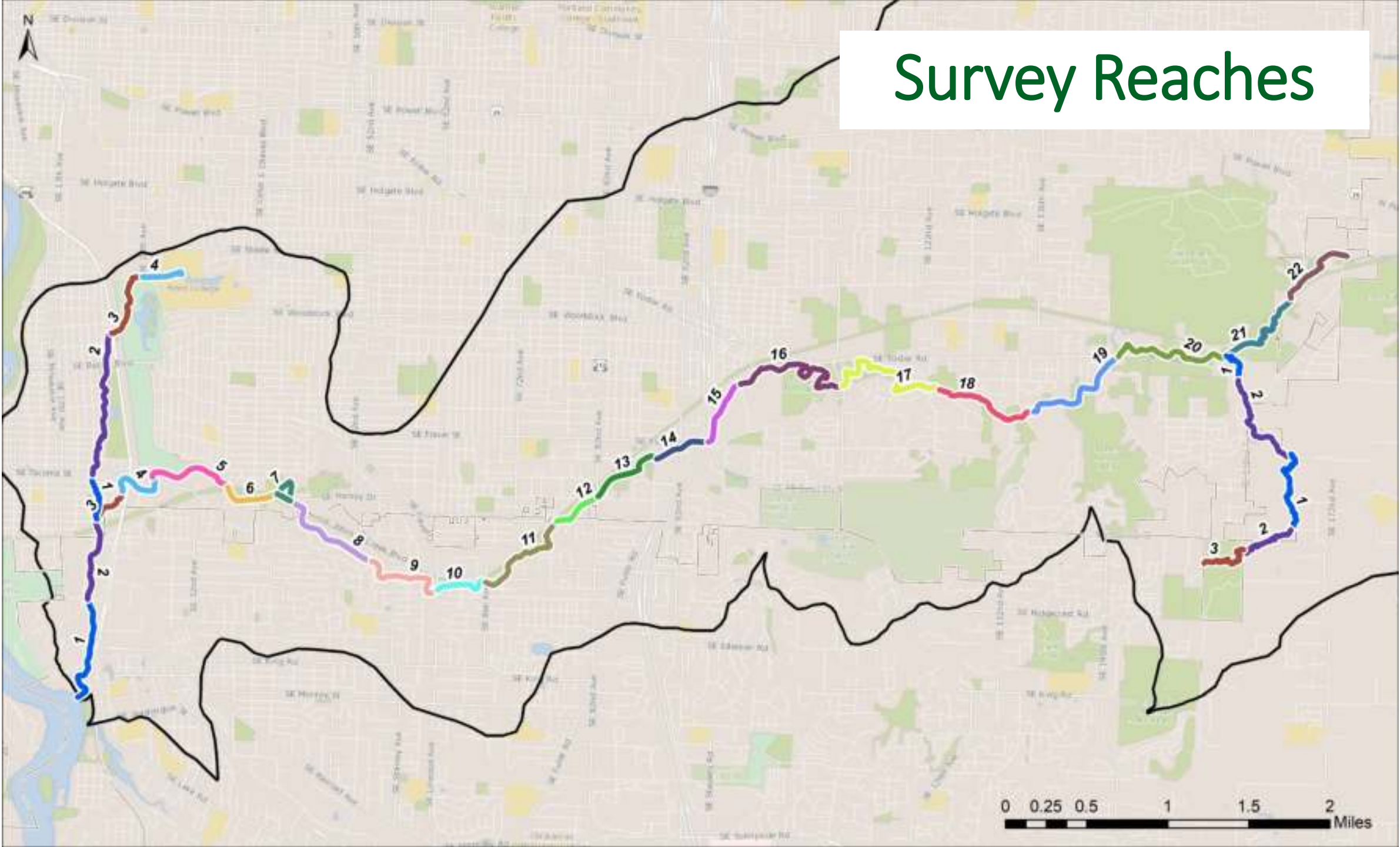
It's been 20 years, have things changed?



Beaver dam in Tideman Johnson wood structures

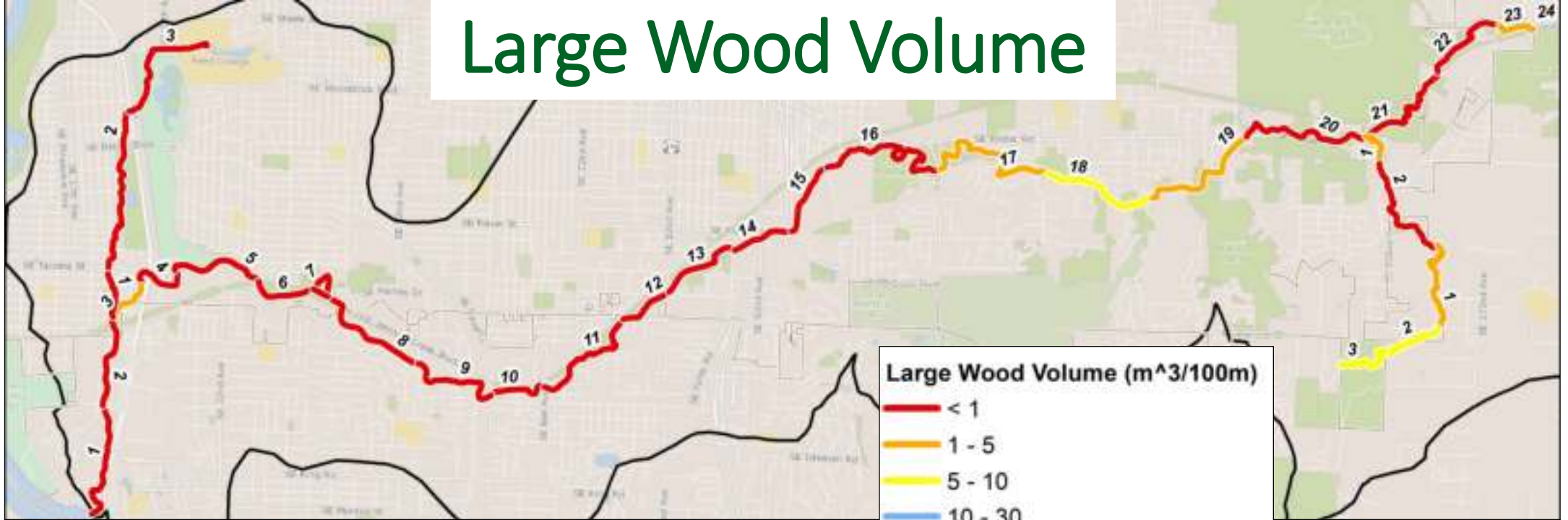


Survey Reaches



1999/2000

Large Wood Volume



2019



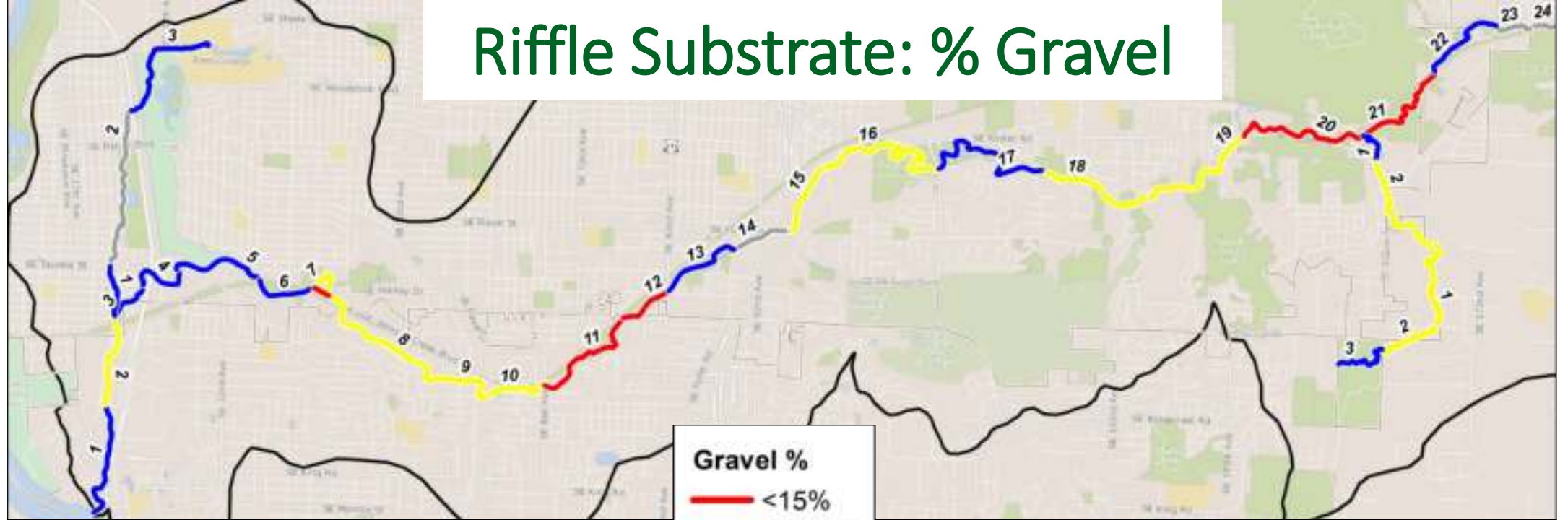
Reaches w/ more change in large wood

| | 1999/2000 | | 2019 | | |
|------------------|-----------|-------------------------------|--------|-------------------------------|-------------------|
| Reach | Pieces | Volume (m ³ /100m) | Pieces | Volume (m ³ /100m) | Volume Difference |
| Mitchell Creek_3 | 63 | 7.7 | 377 | 33.2 | +25.5 |
| Johnson Creek_6 | 9 | 0.6 | 88 | 9.0 | +8.4 |
| Kelley Creek_1 | 3 | 1.4 | 50 | 9.7 | +8.3 |
| Johnson Creek_7 | 3 | 0.9 | 47 | 7.9 | +7.0 |
| Johnson Creek_21 | 43 | 0.7 | 121 | 6.9 | +6.2 |
| Johnson Creek_19 | 24 | 1.1 | 53 | 6.6 | +5.5 |

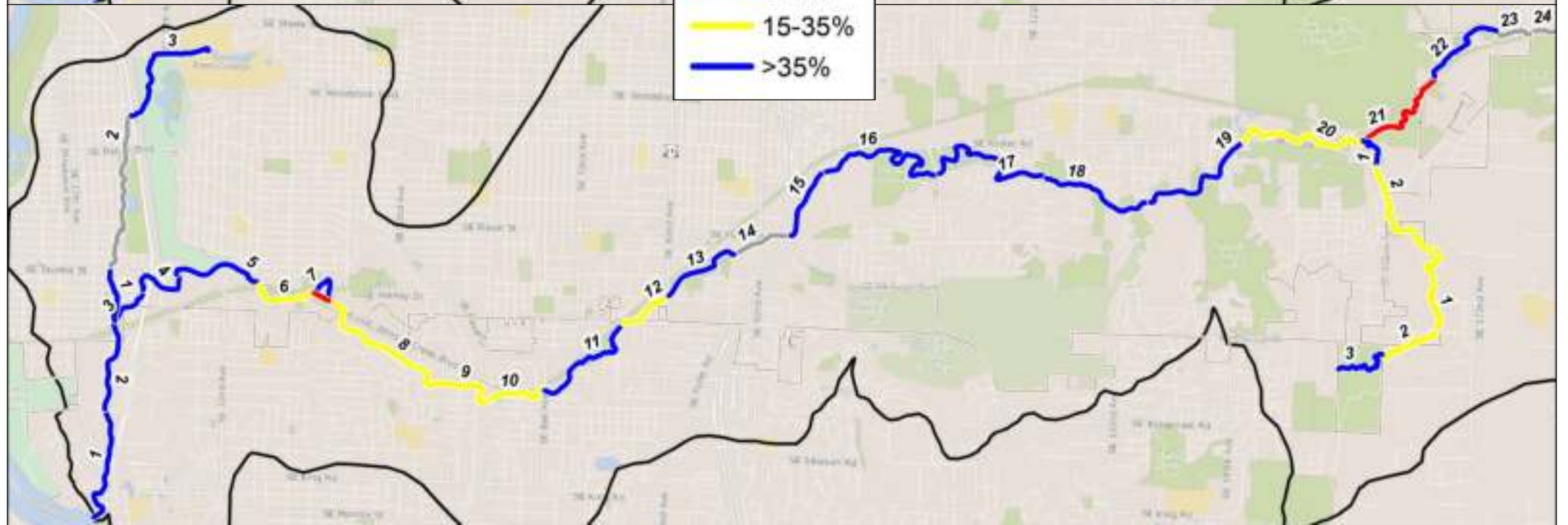


1999/2000

Riffle Substrate: % Gravel

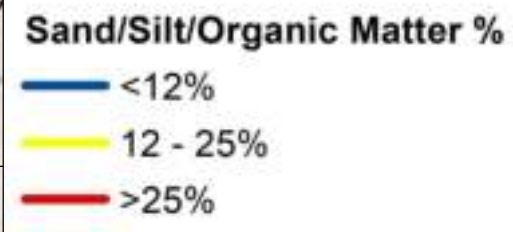
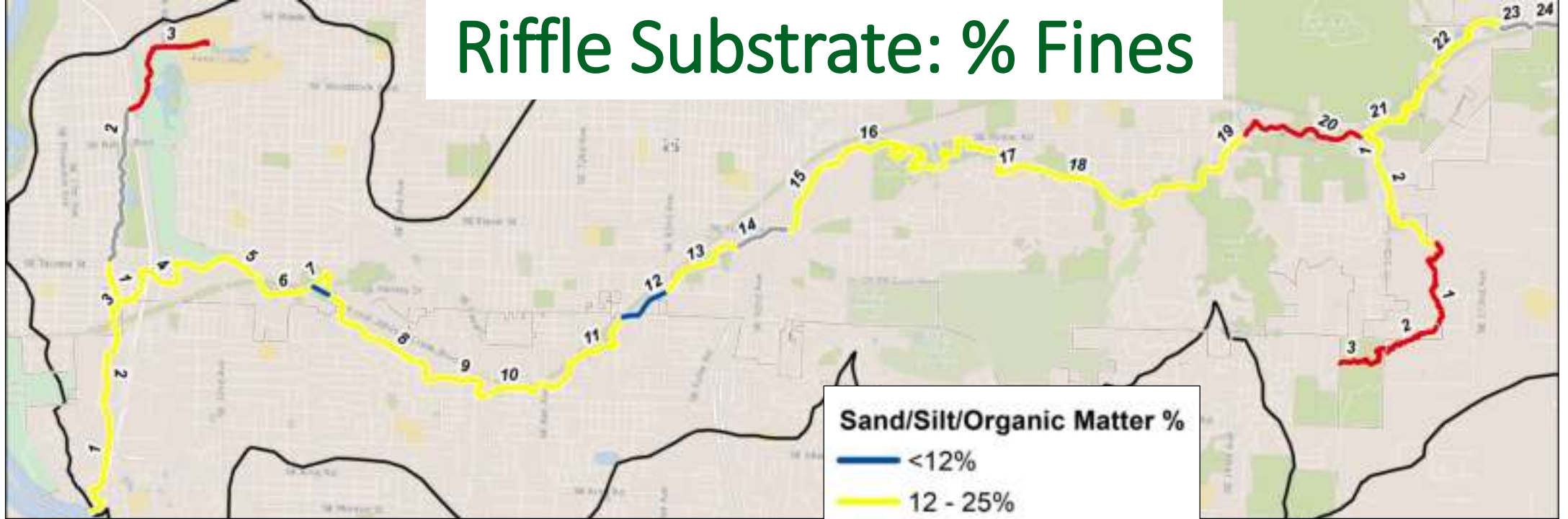


2019



1999/2000

Riffle Substrate: % Fines



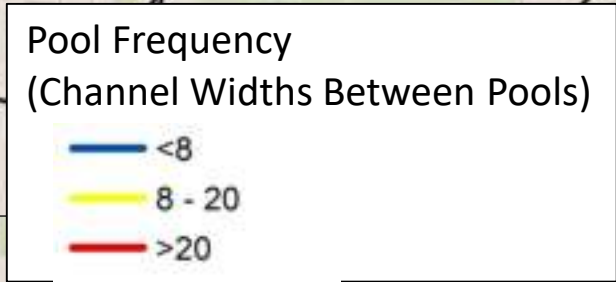
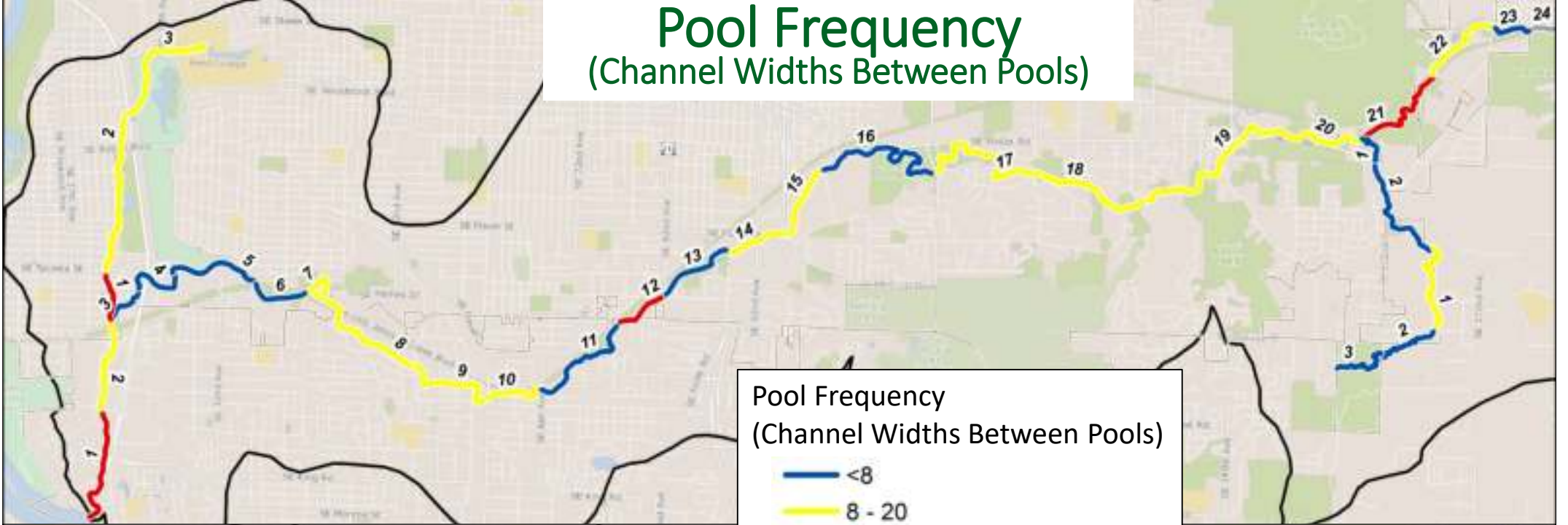
2019





1999/2000

Pool Frequency (Channel Widths Between Pools)

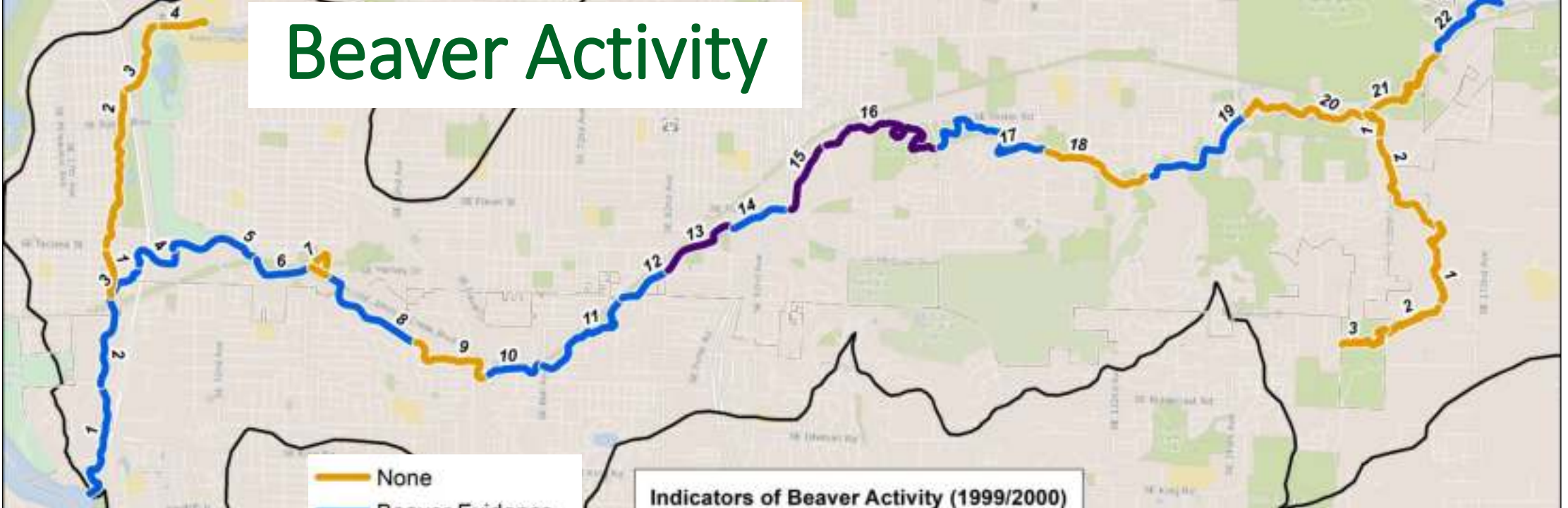


2019



1999/2000

Beaver Activity



2019



Thank You



Resources

- Portland area survey reports:
https://odfw.forestry.oregonstate.edu/freshwater/inventory/basin_portland_reports.html
- ODFW Guide To Interpreting Stream Survey Reports:
<https://odfw.forestry.oregonstate.edu/freshwater/inventory/pdffiles/interpgd.pdf>
- Survey protocol:
<https://odfw.forestry.oregonstate.edu/freshwater/inventory/pdffiles/hmethd19.pdf>

