



# Washington Hydrography Program



DEPARTMENT OF  
**ECOLOGY**  
State of Washington

NSGIC 3DHP Forum  
April 17, 2024

Joshua Greenberg (He,Him), PhD. GISP.

WA Hydrography Steward



# Agenda

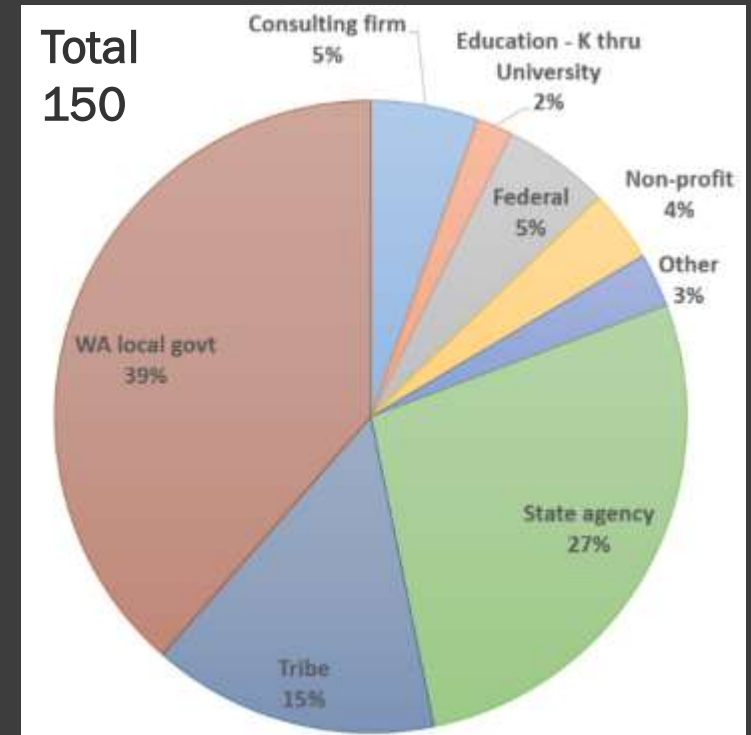
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- Elevation Derived Hydrography Pilot
  - Data Gaps
  - Supporting Change
- 



# Stakeholder Feedback

- **Accuracy**
- Connected Attributes
- Accessibility
- Communication



<https://ecology.wa.gov/WASHD>



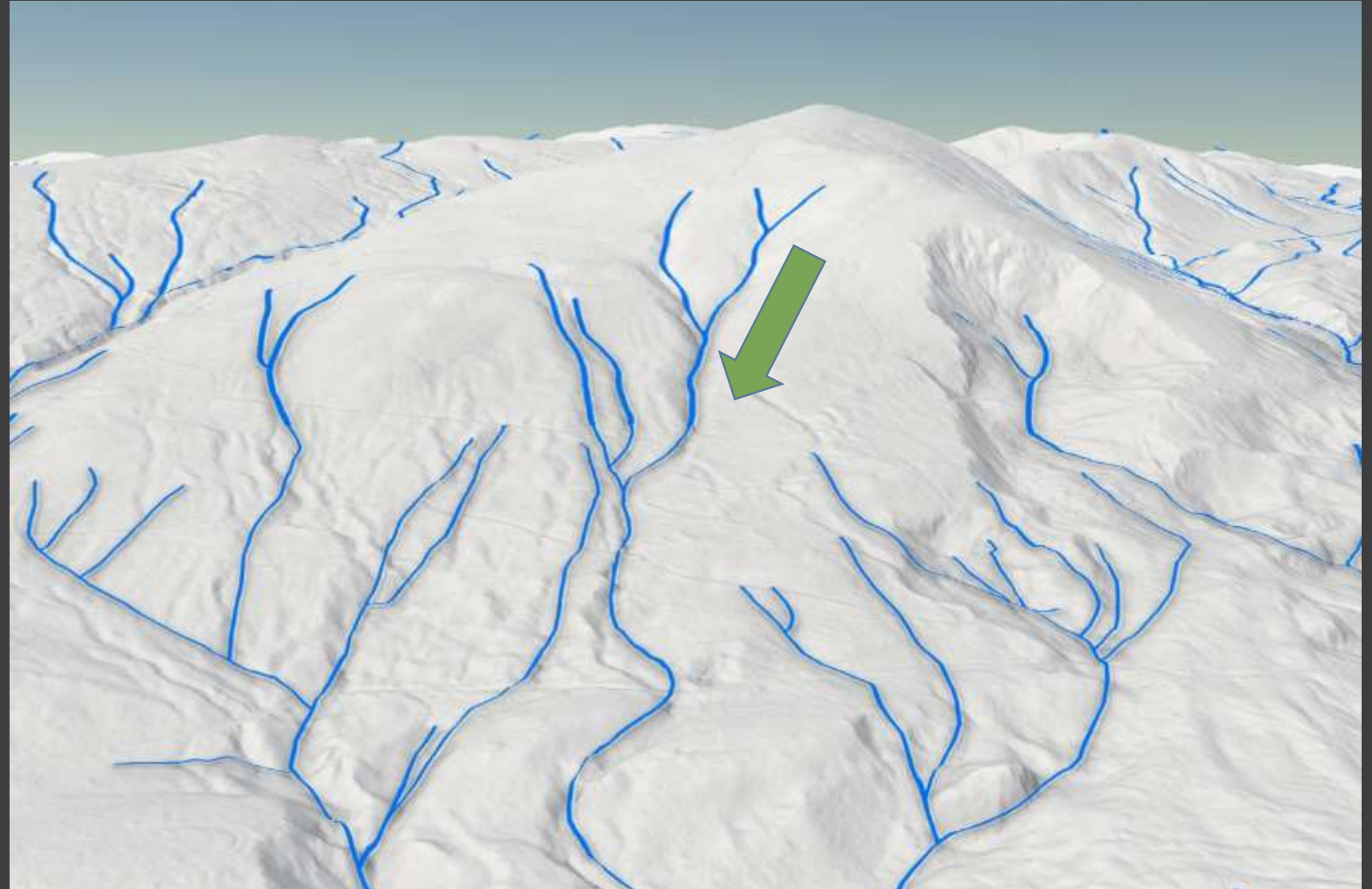
# Decision Package 2022-2024

## Stream Mapping Assessment



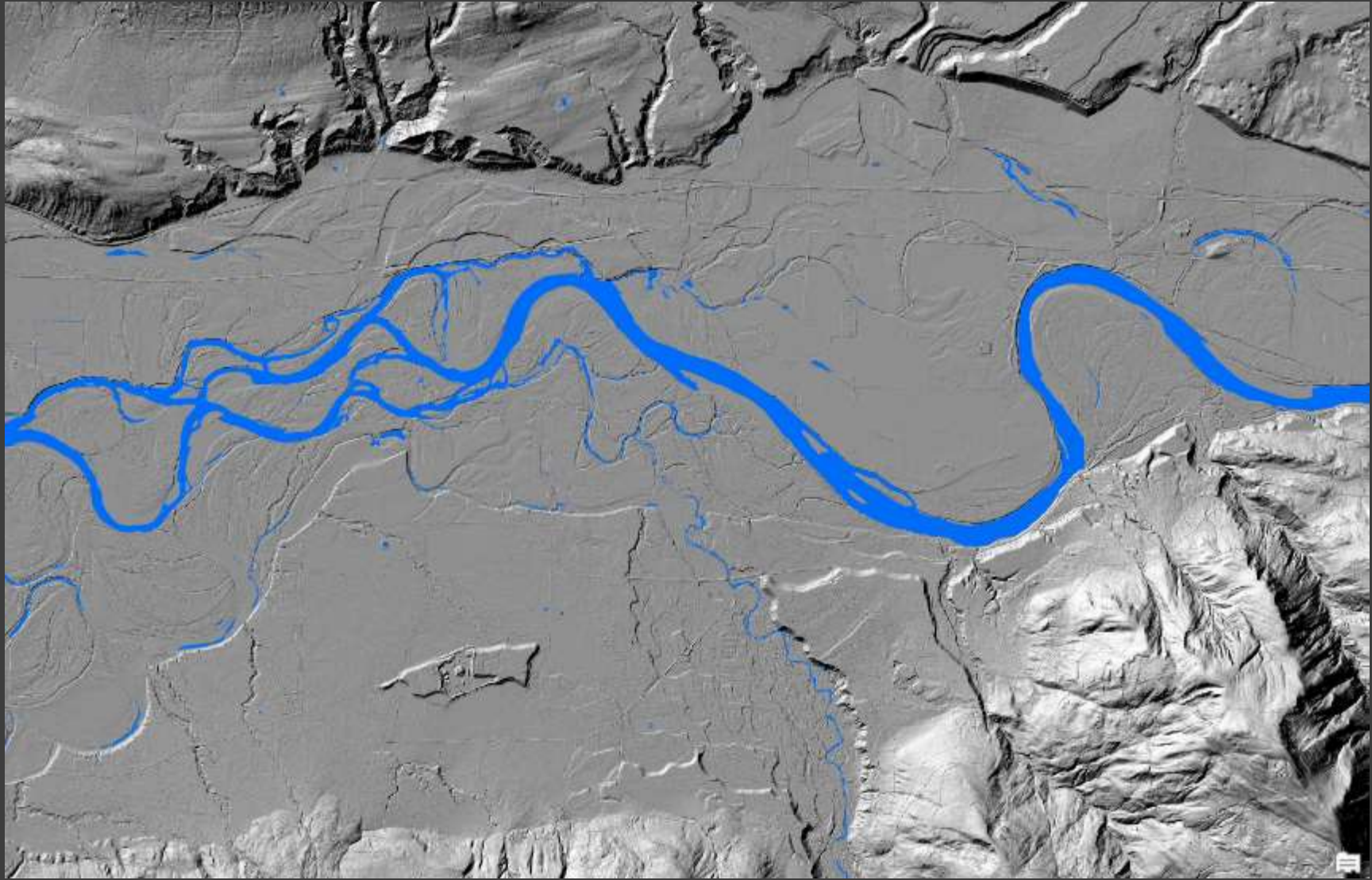
# NHD Updates

Elevation  
Derived  
Hydrography  
(3DHP)

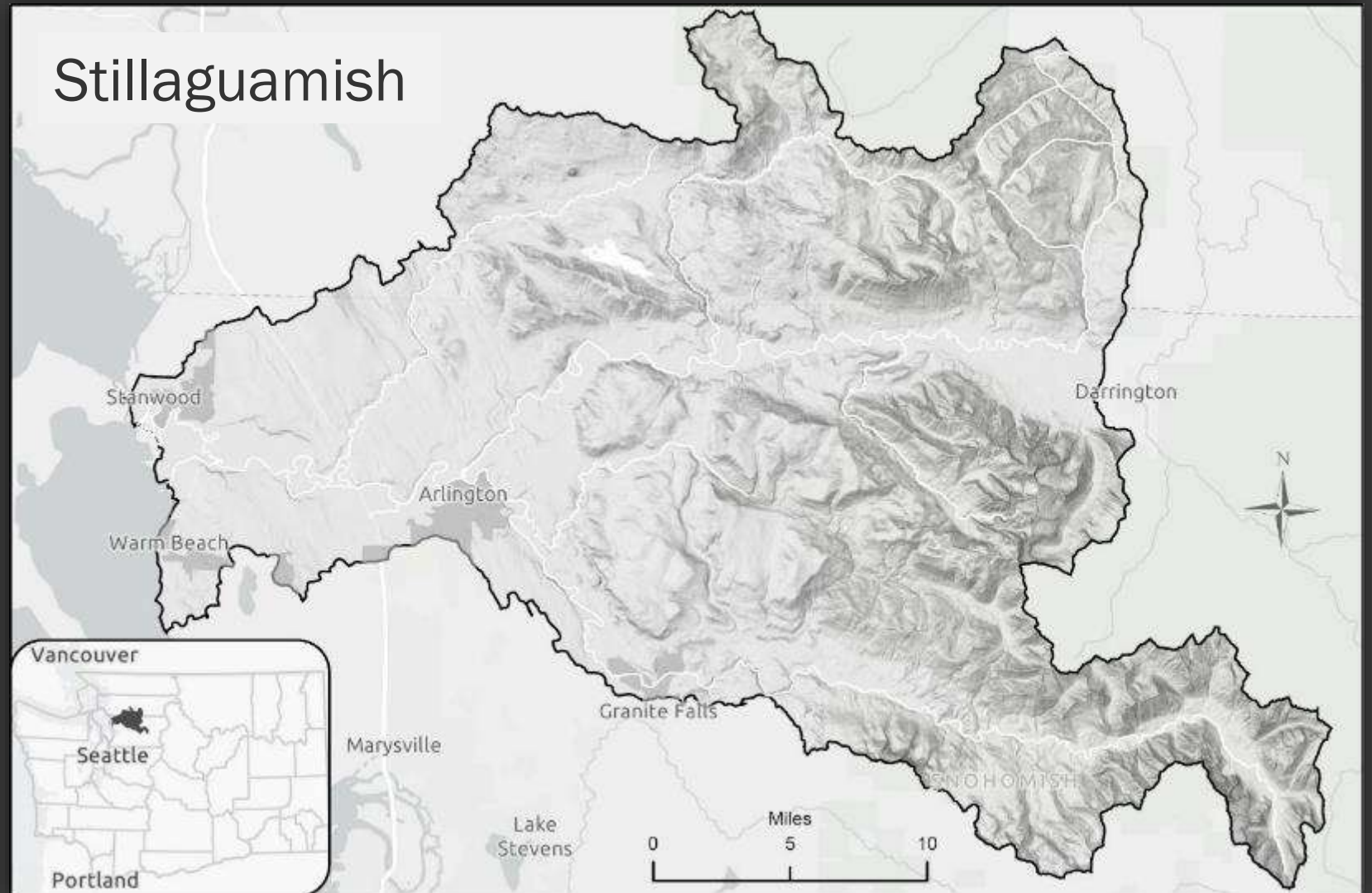






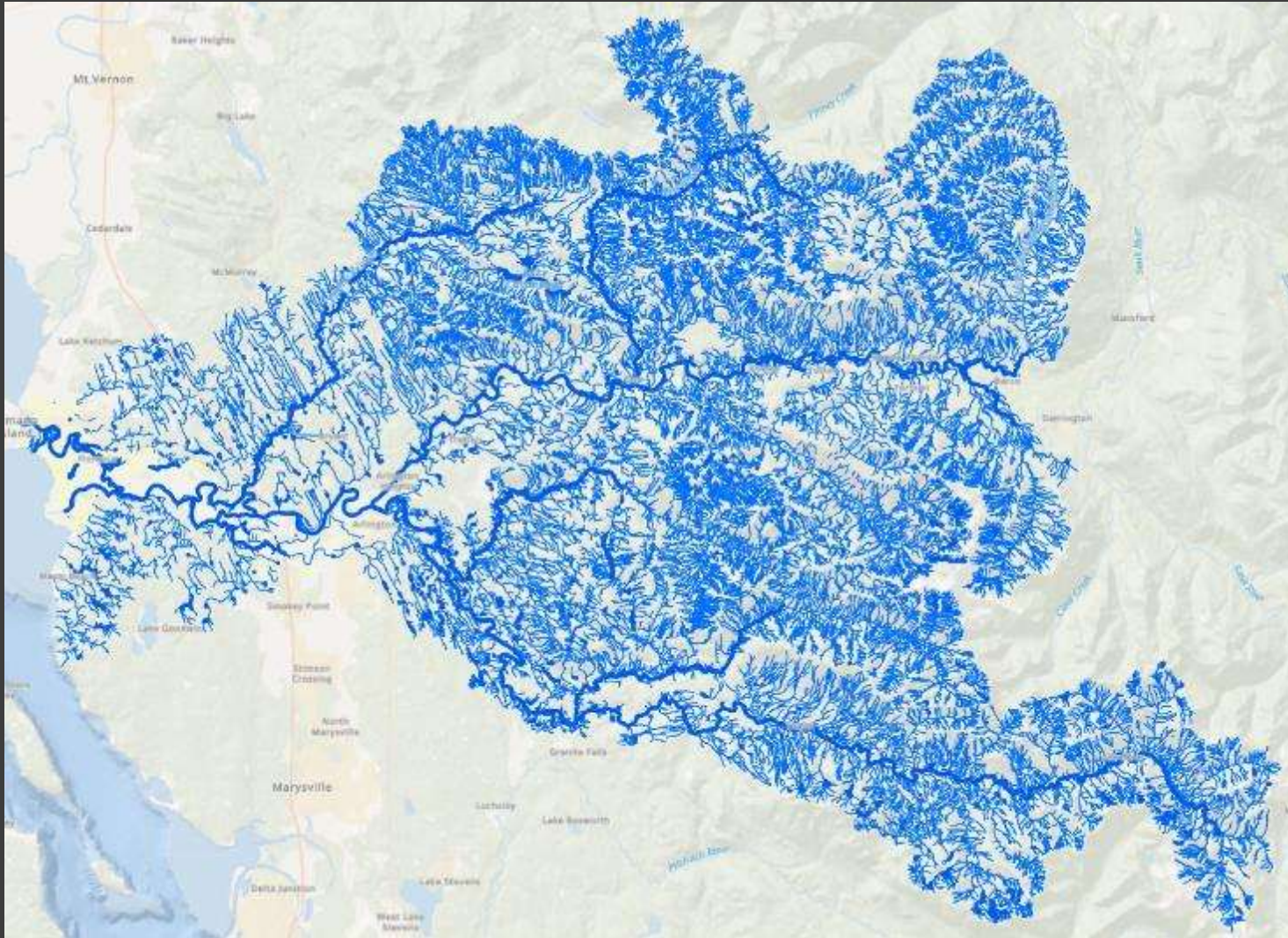


# Stream Mapping Assessment

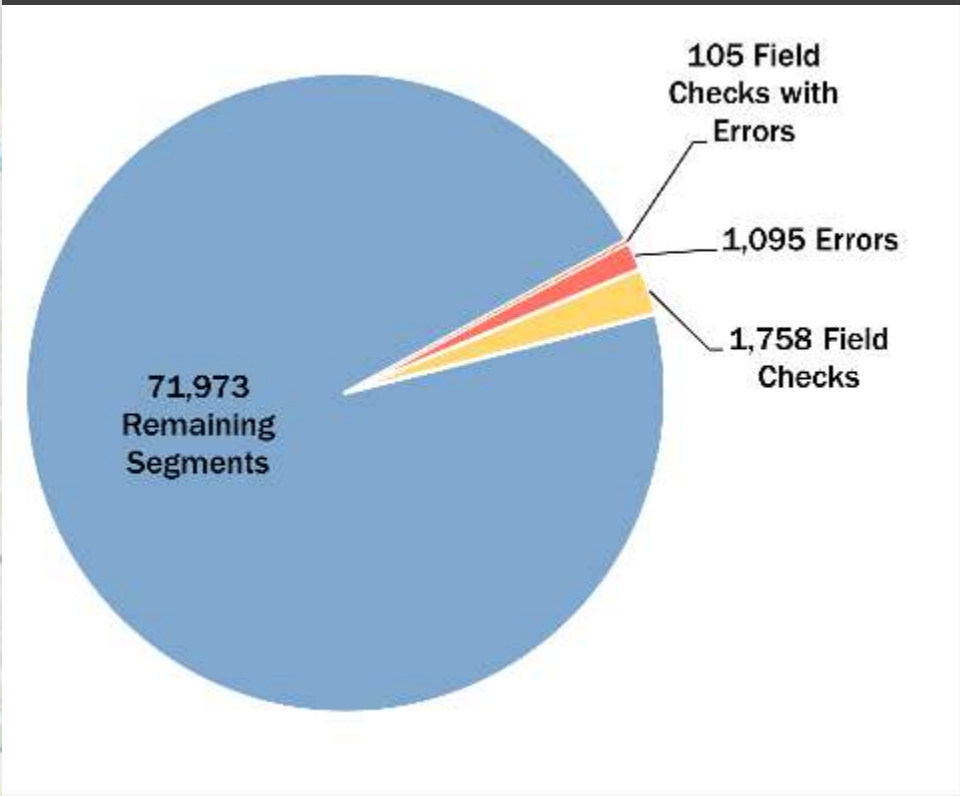




# Pilot evaluation



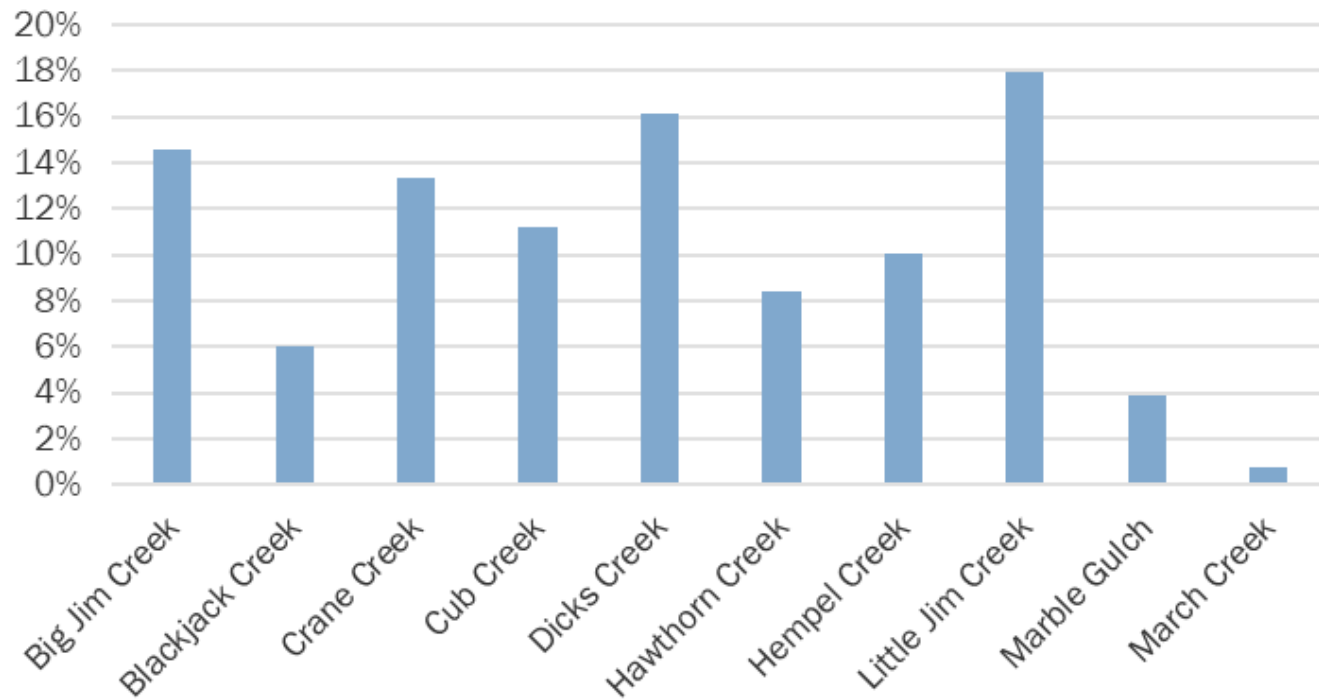
1.6% error rate of segments  
765 NHD features no match (USGS)



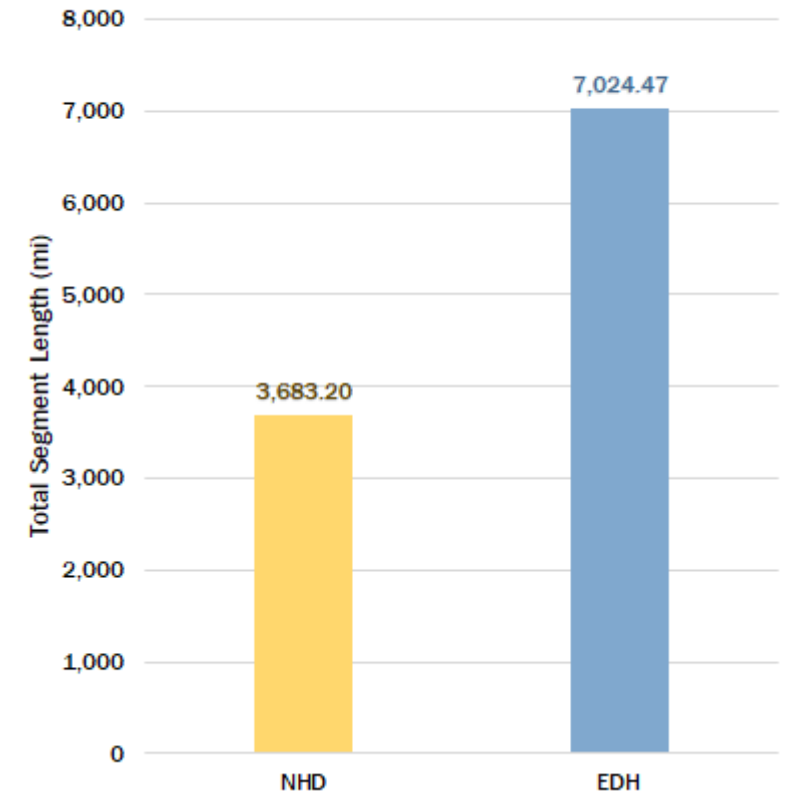
# Pilot evaluation

7,000 total miles

### NHD to EDH: Length increase due to sinuosity

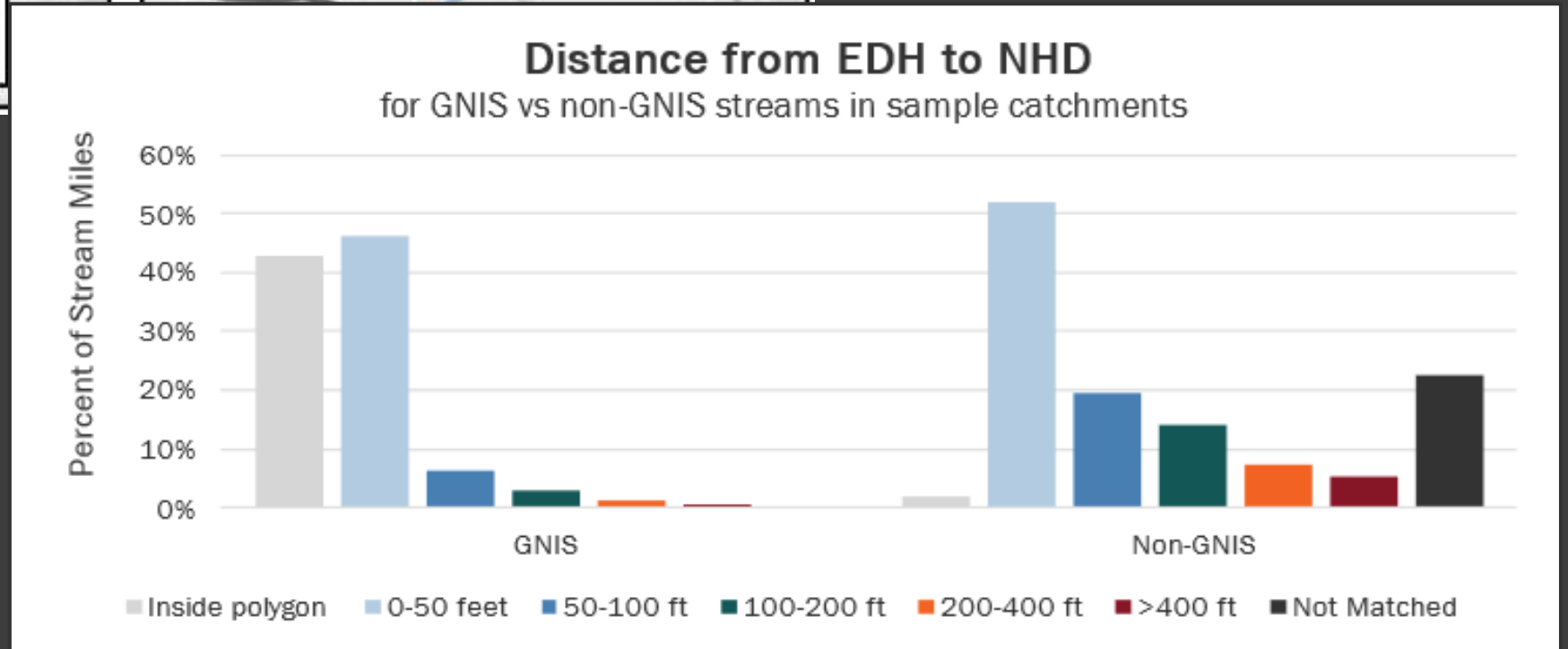
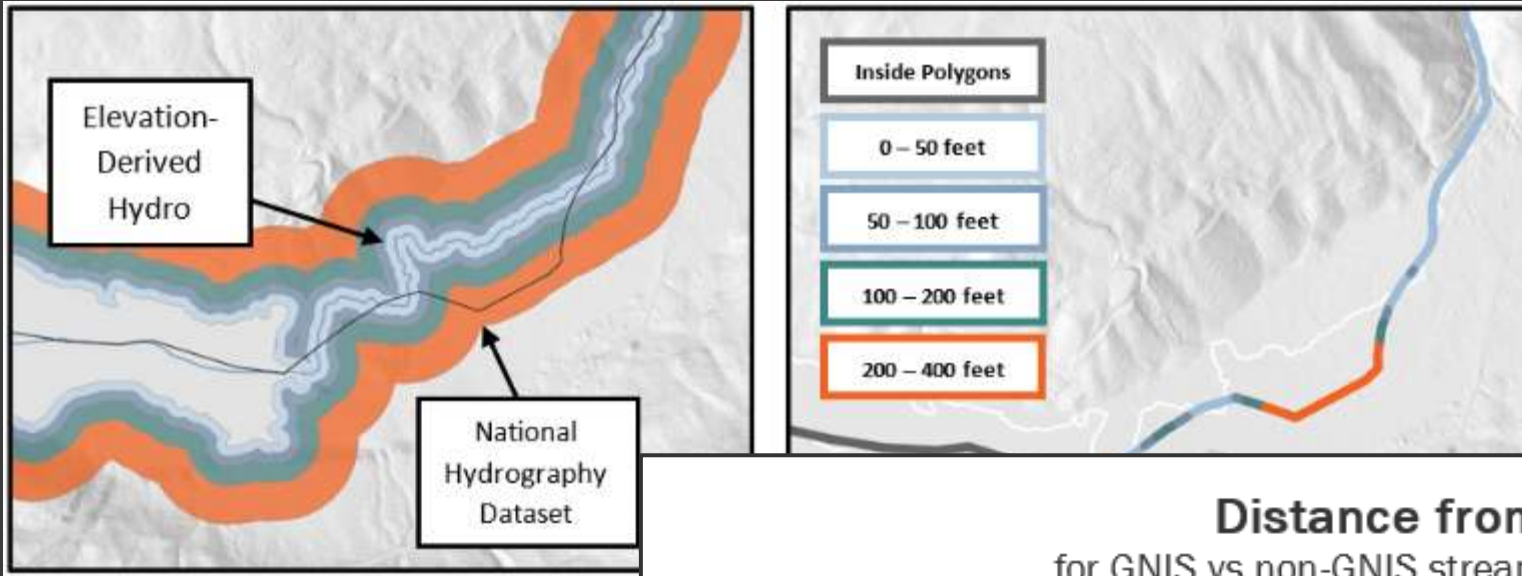


### Total Segment Miles per NHD vs EDH

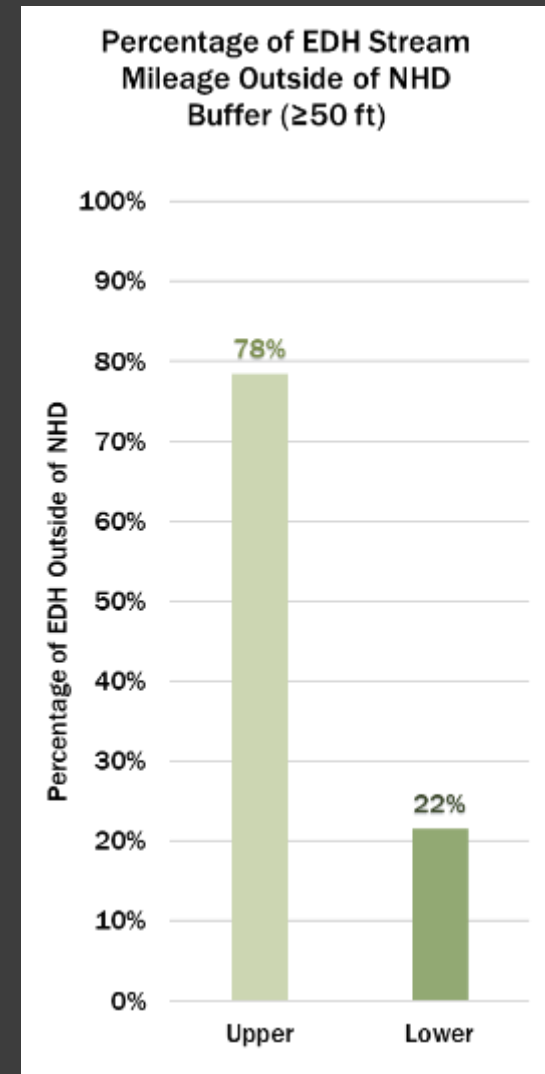
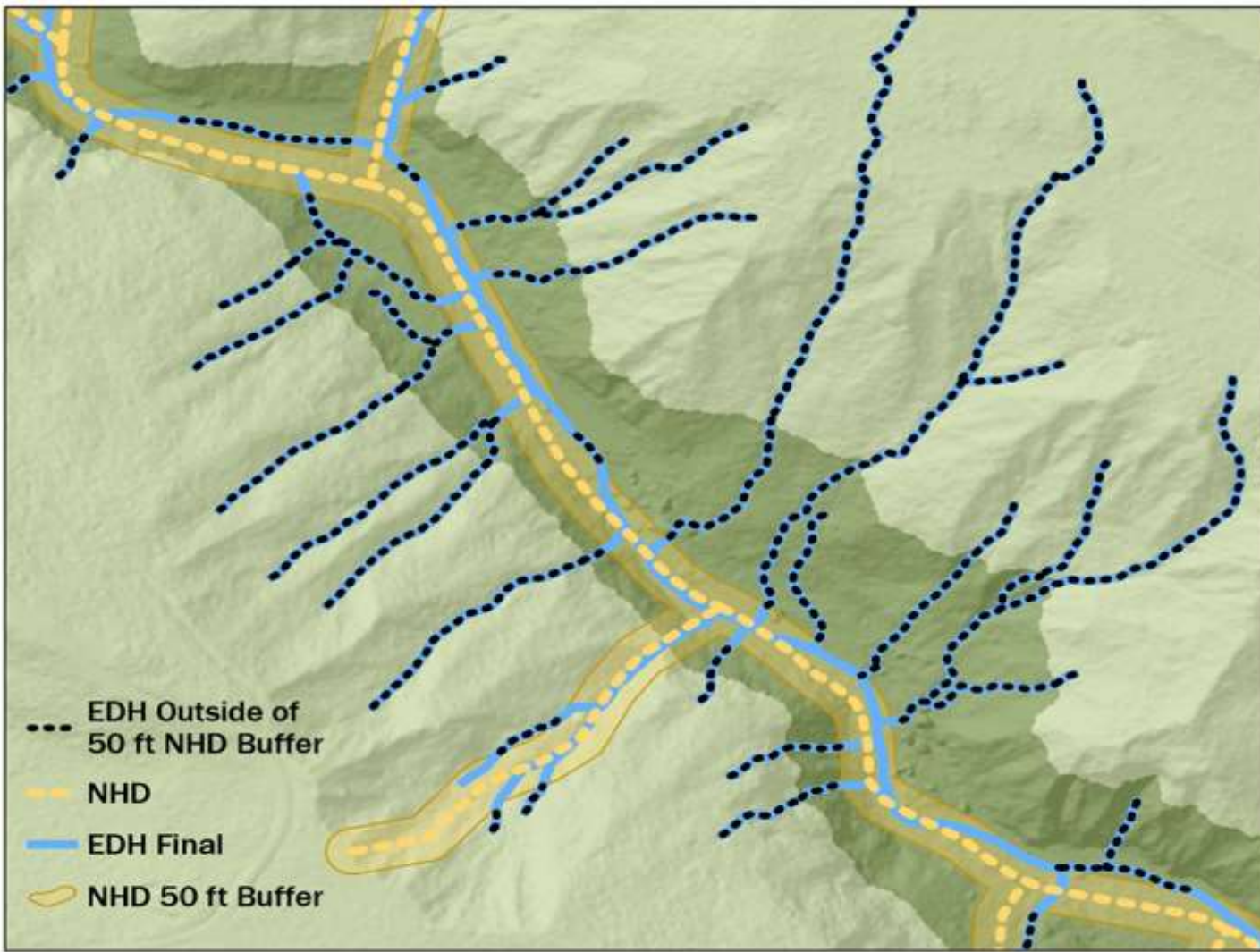




# Pilot evaluation



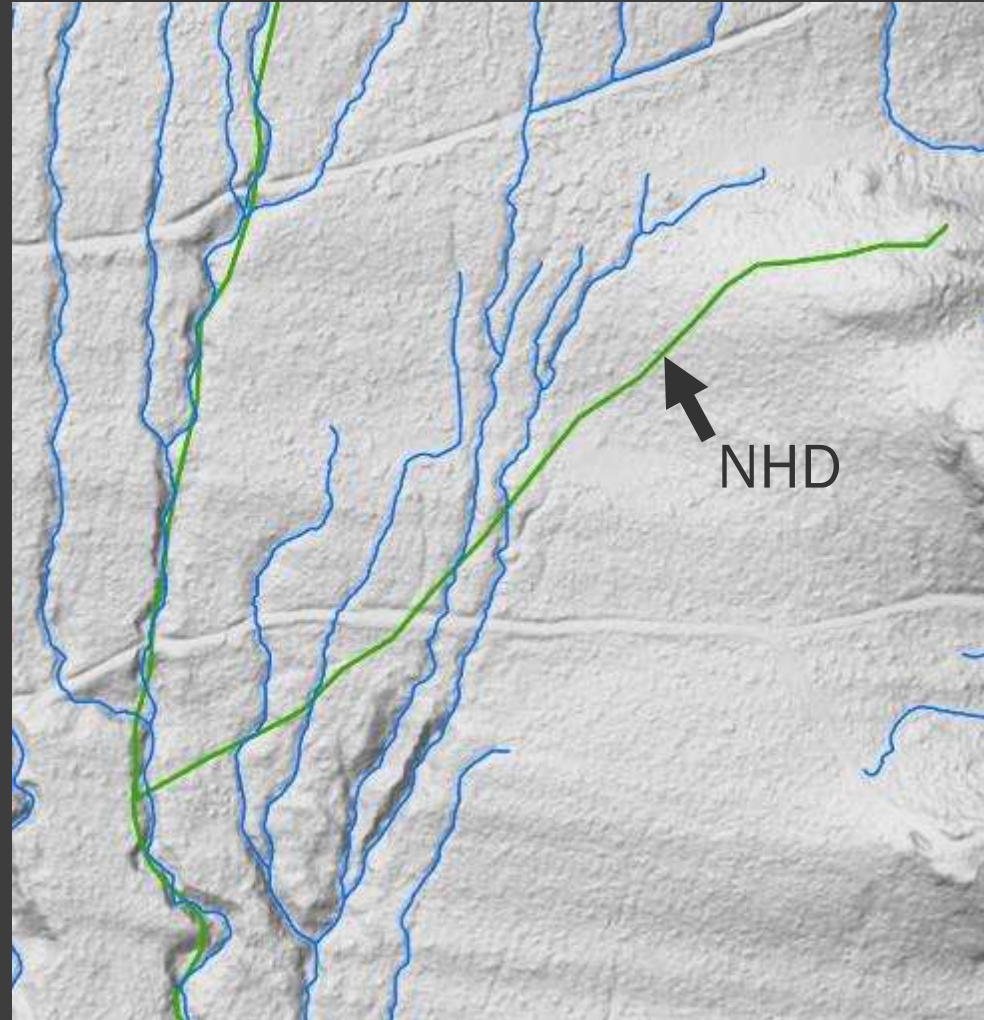
# Pilot evaluation



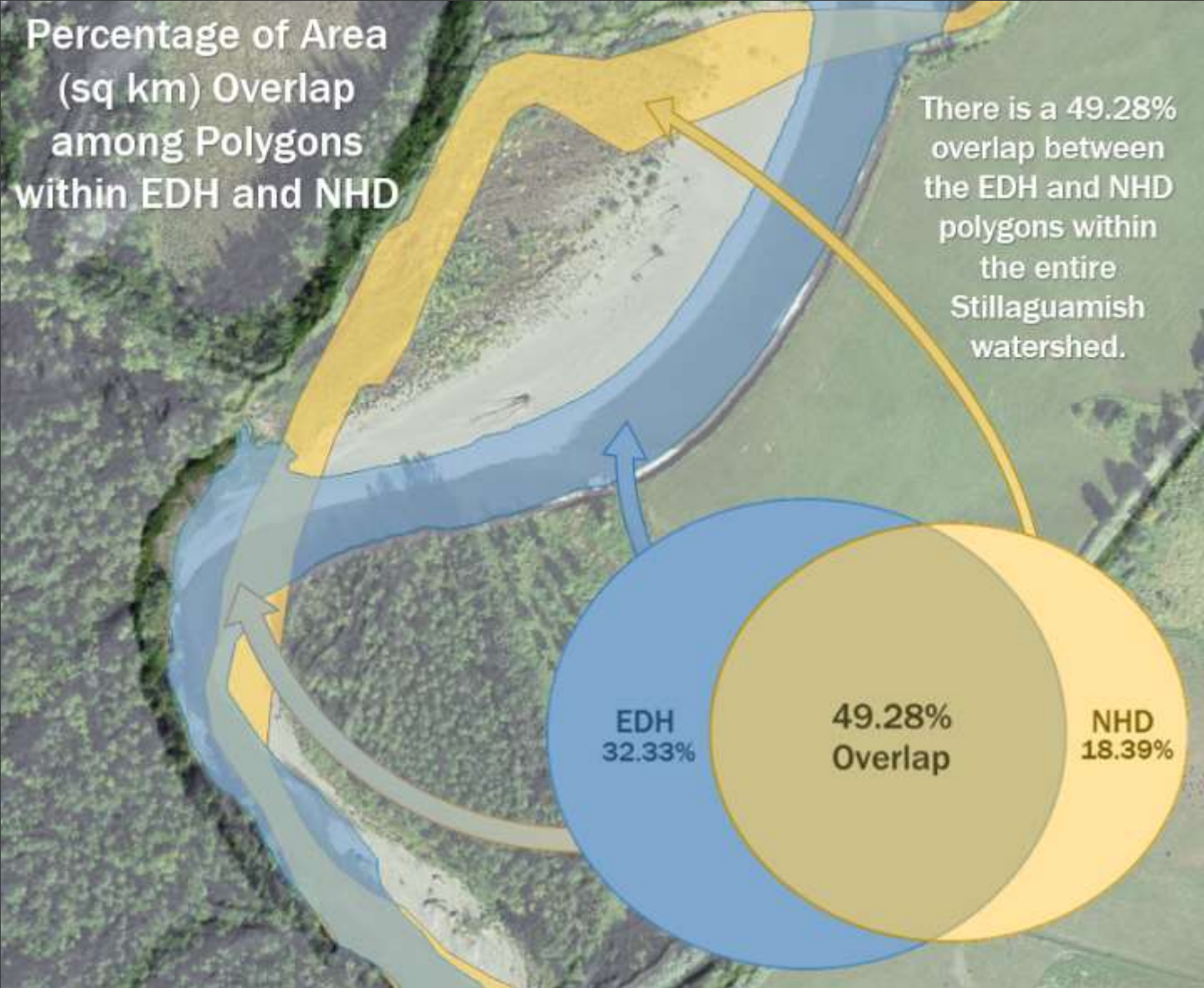


# Pilot evaluation

## Challenges of Conflation

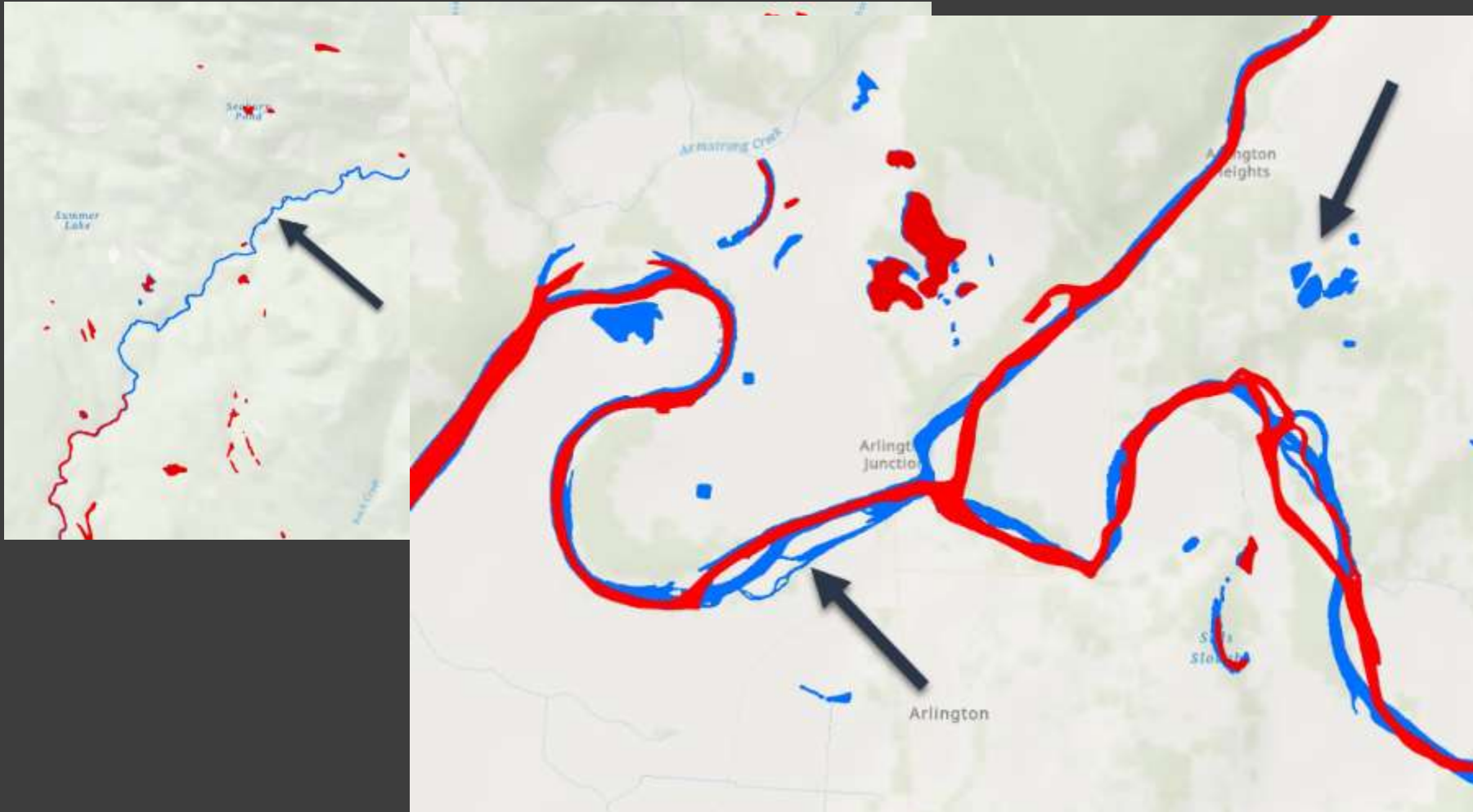


# Pilot evaluation



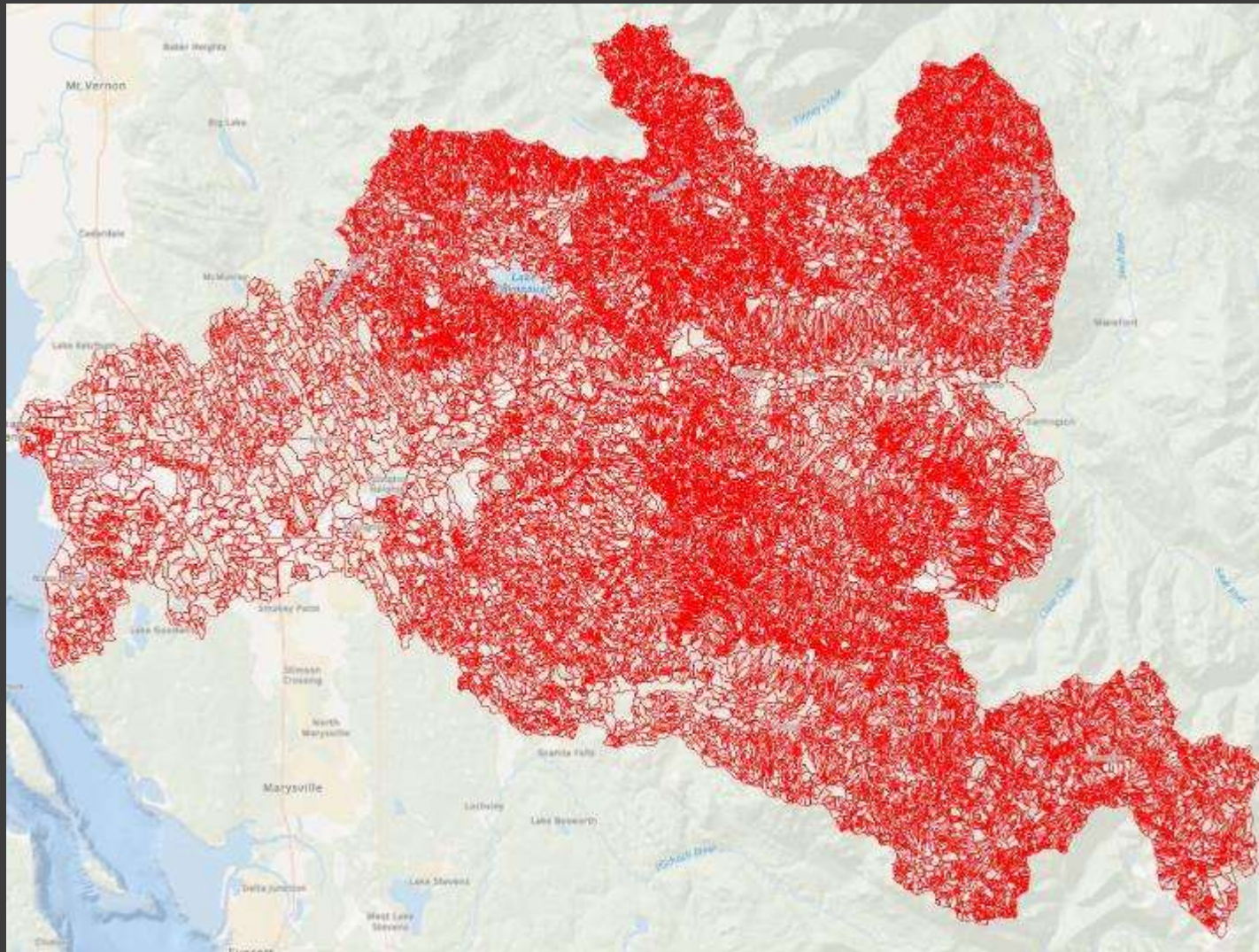


# Pilot evaluation



Update of river  
More Lake/Ponds

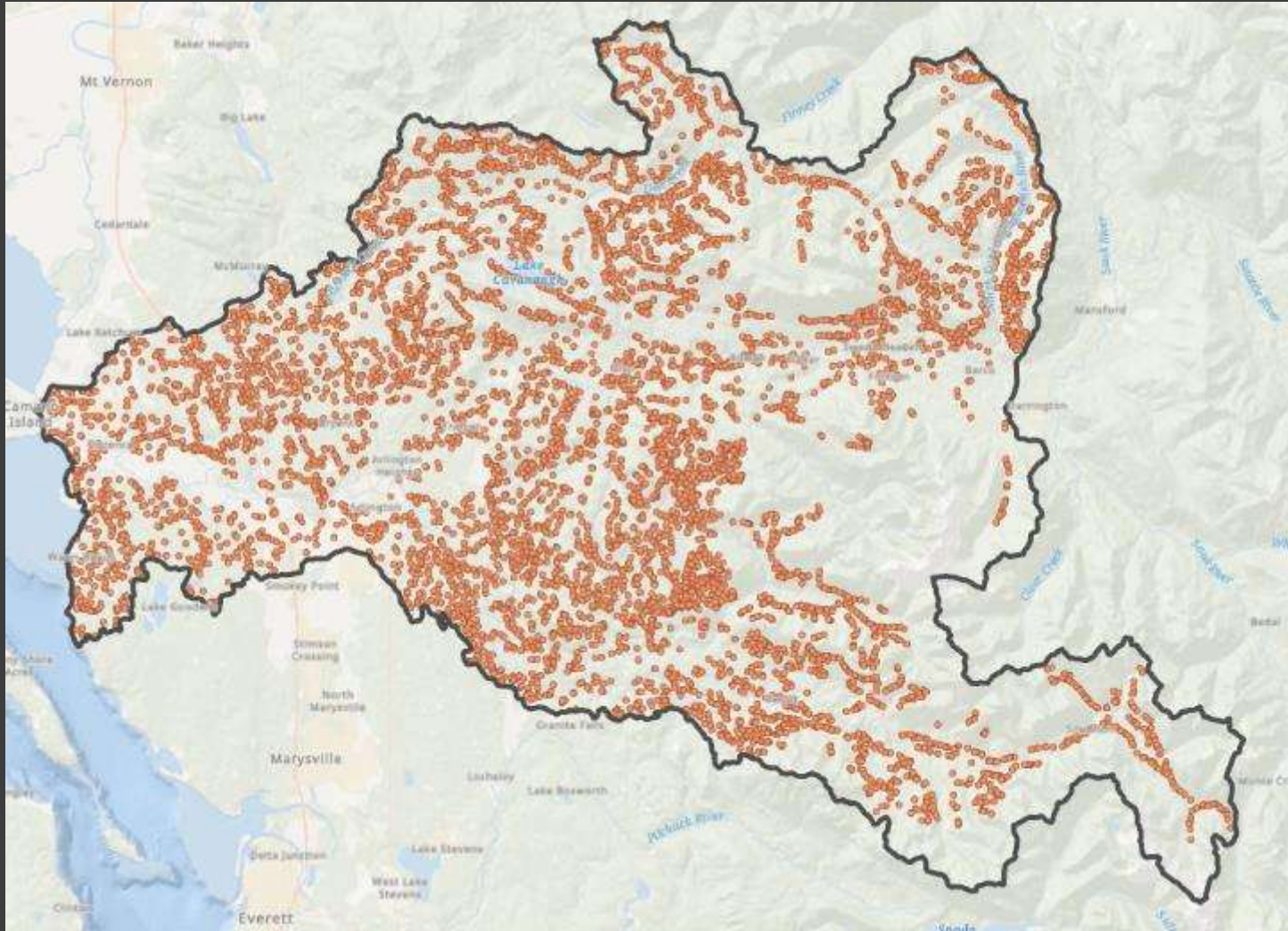
# Pilot evaluation



55,628 catchments



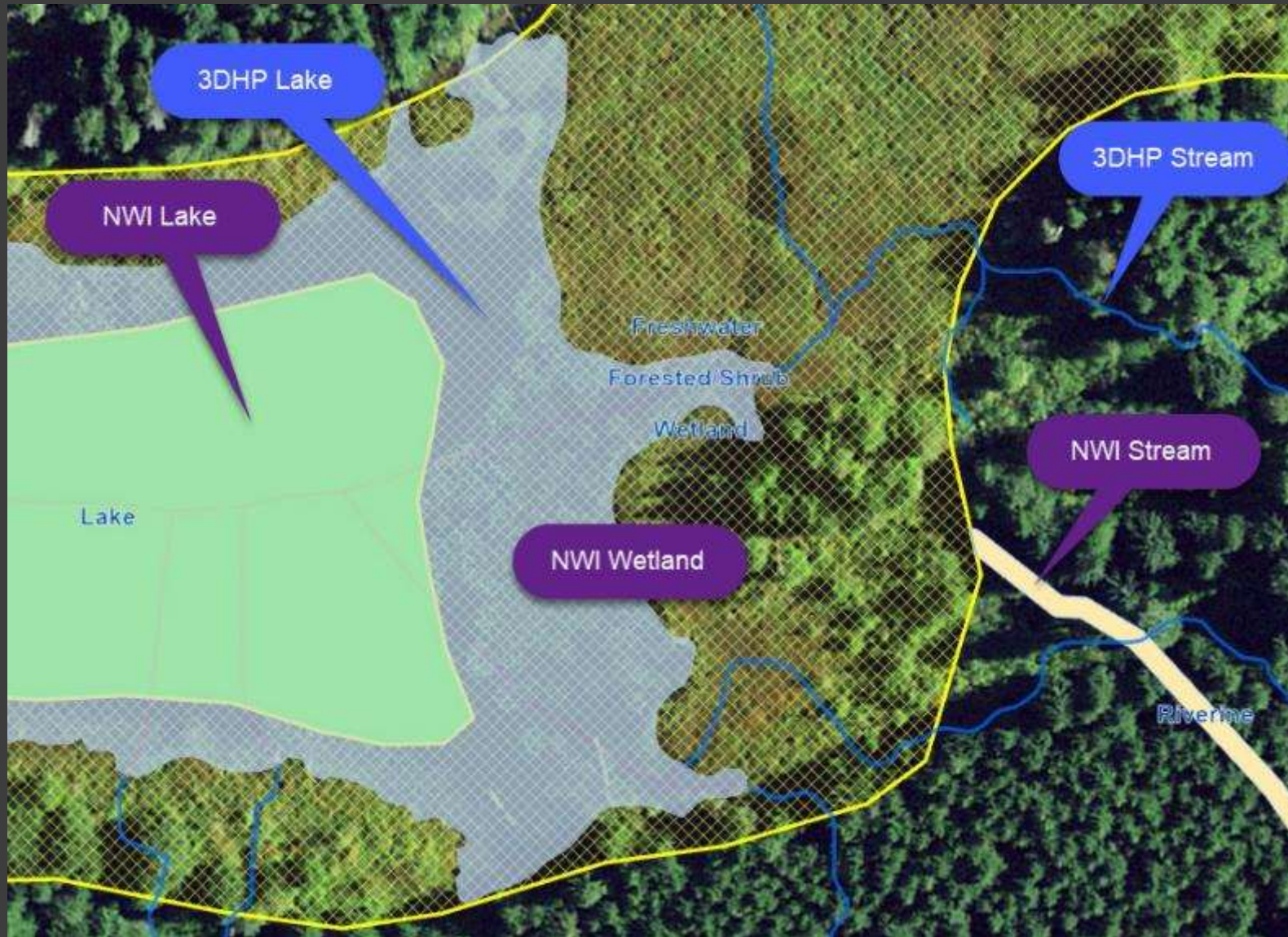
# Pilot evaluation



8,779 Culverts  
(Terrain Breach over road)



# Pilot evaluation (Wetlands - NWI)



~~Swamp/Marsh~~



# Pilot evaluation (Land cover)

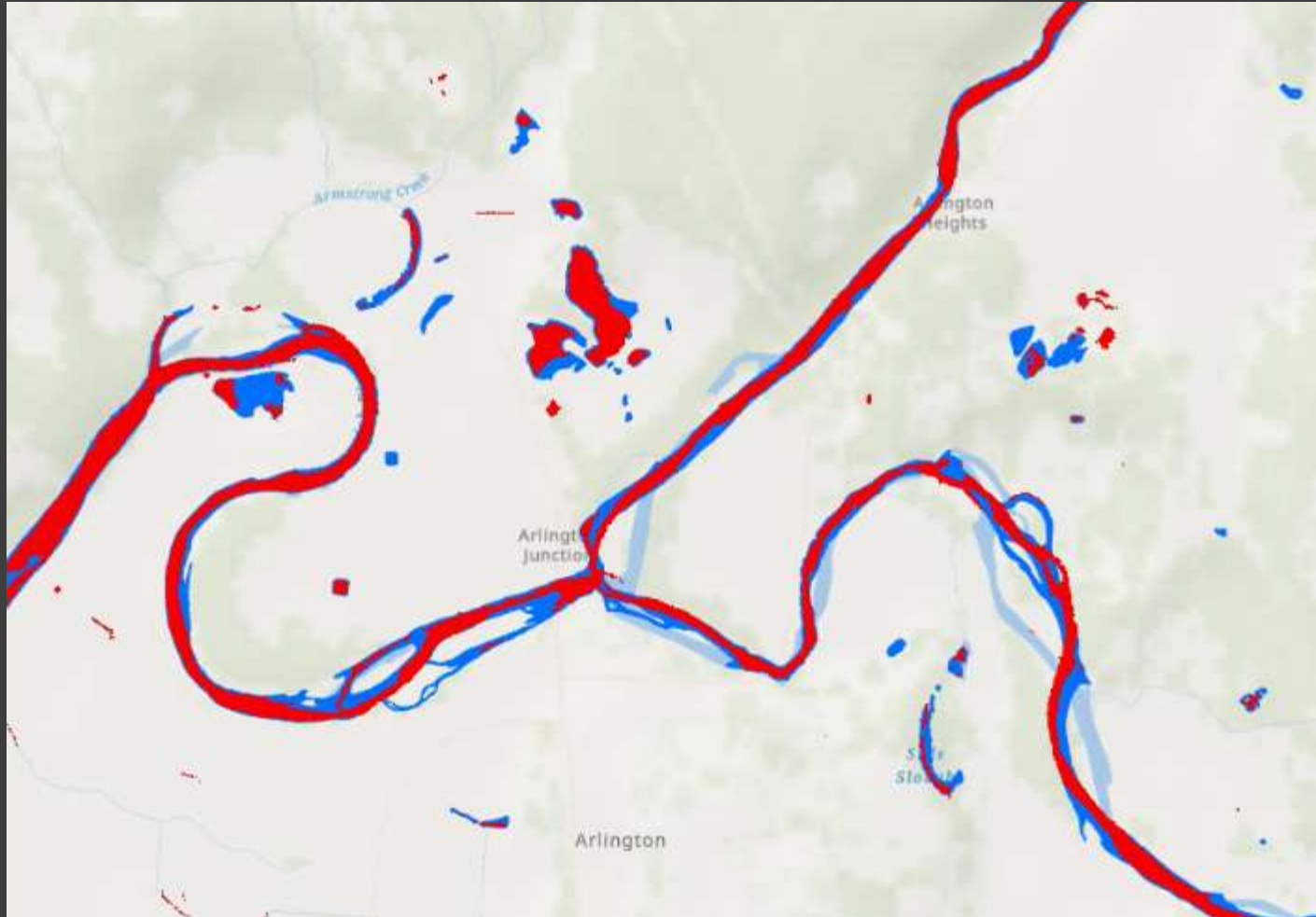
## Aerial Imagery



## Land Cover



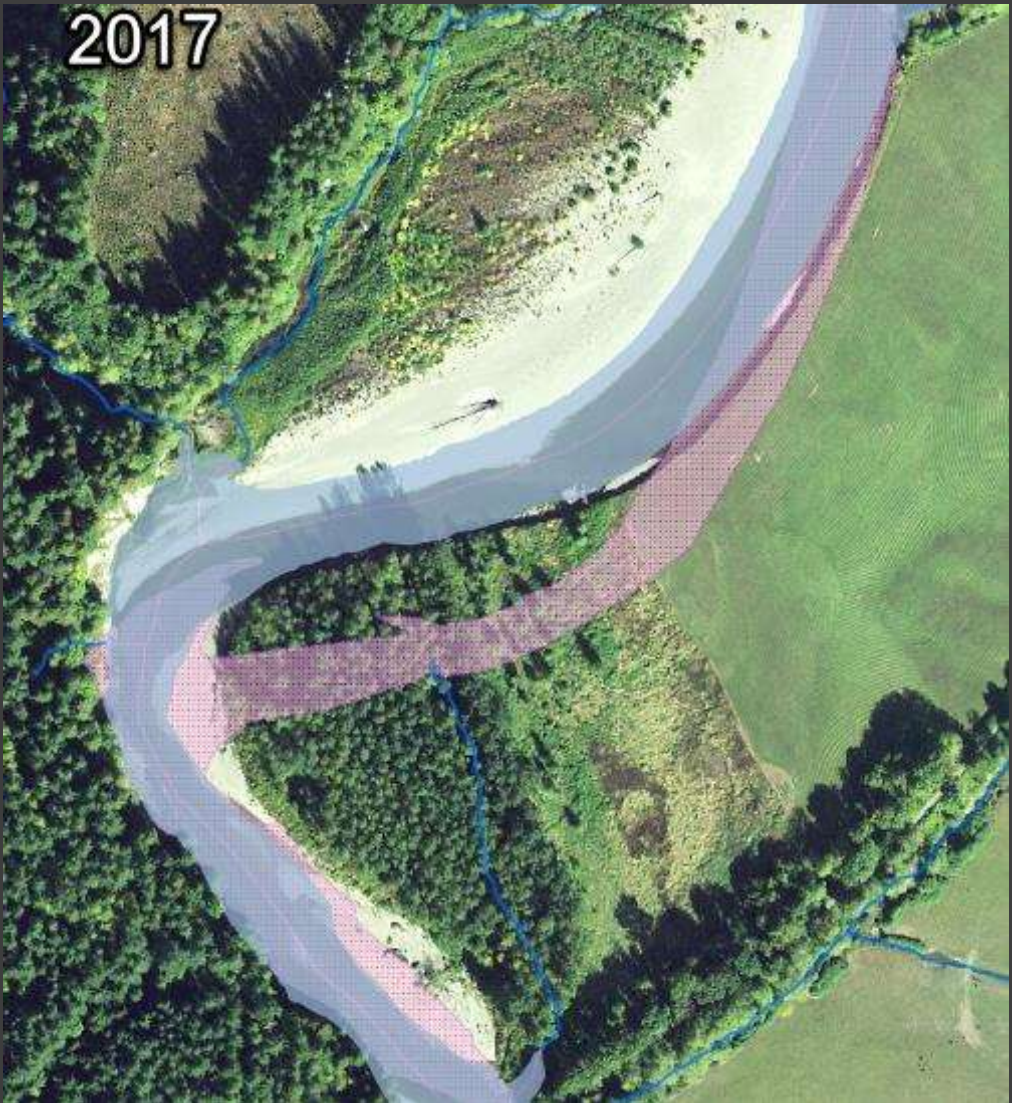
# Pilot evaluation (Land cover)



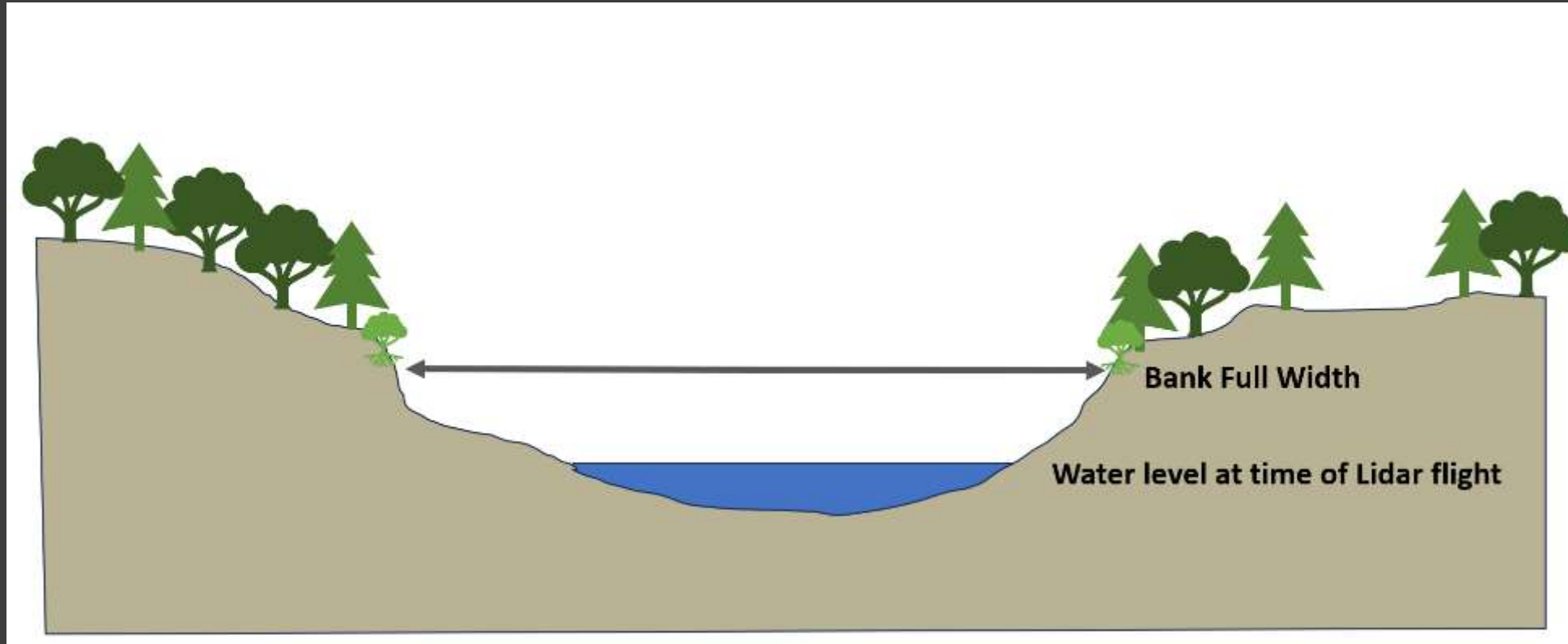
- 2021 Landcover water
- EDH Visible Water



# Pilot evaluation (Land cover)



# Pilot evaluation (Bank Full Width)





# Pilot evaluation (Bank Full Width)

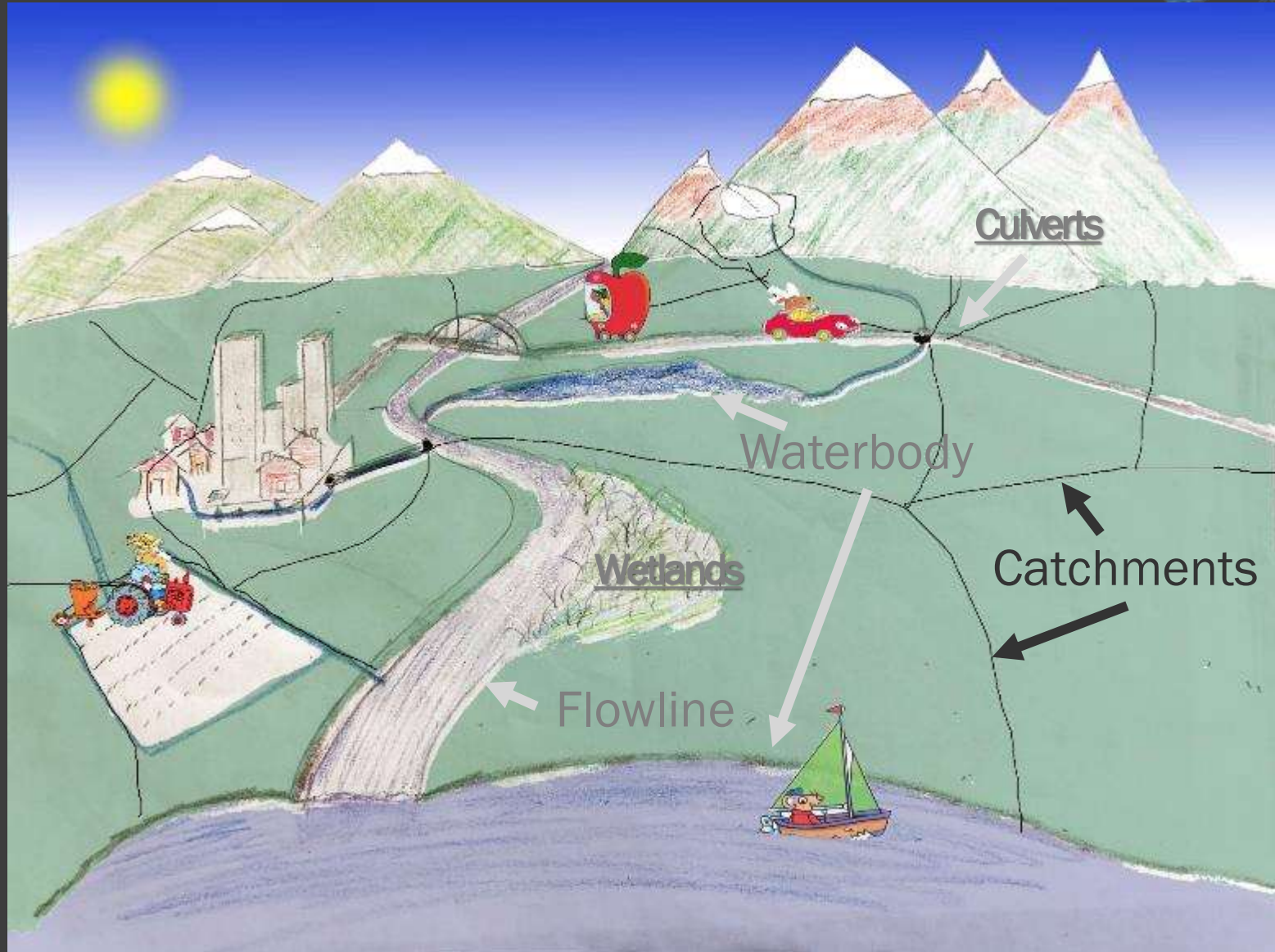


# 3DHP OneHydro





# 3DHP OneHydro



## NHD

- Reachcodes
- Perennial/Intermittent
- Geometric Network

## 3DHP

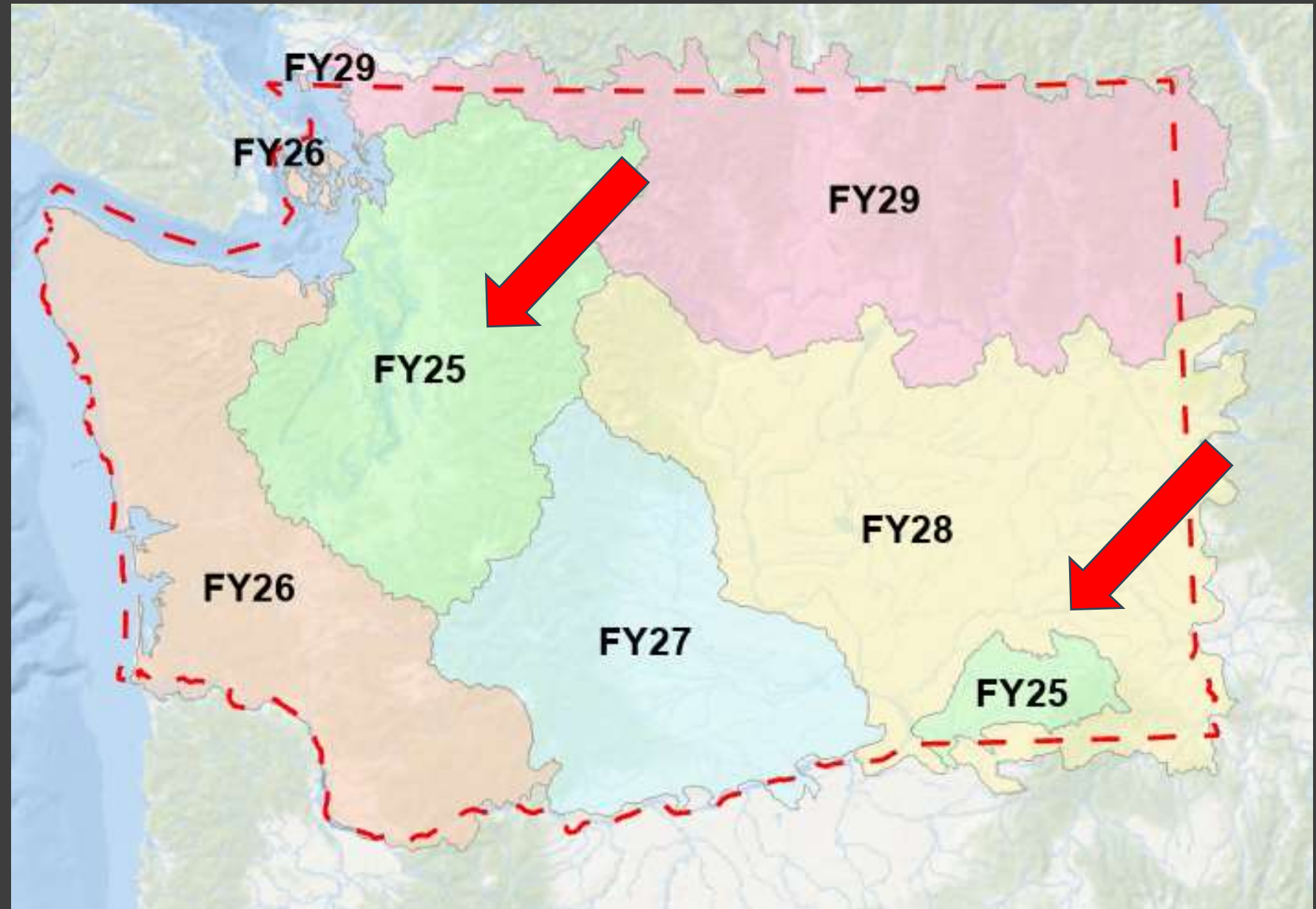
- Mainstem ID
- Stream Order
- Flow Permanence

## WASHD HydroPlus

- Stream Initiation
- Trace Network (Arc Pro)
- Bank Full Width (Active channel)
- Stormwater
- Channel Migration Zone
- Wetlands (Swamp/Marsh)



# Decision Package #2



# Data Reviews



\*USFS will review federal lands



# Transition to 3DHP

## Phase 3

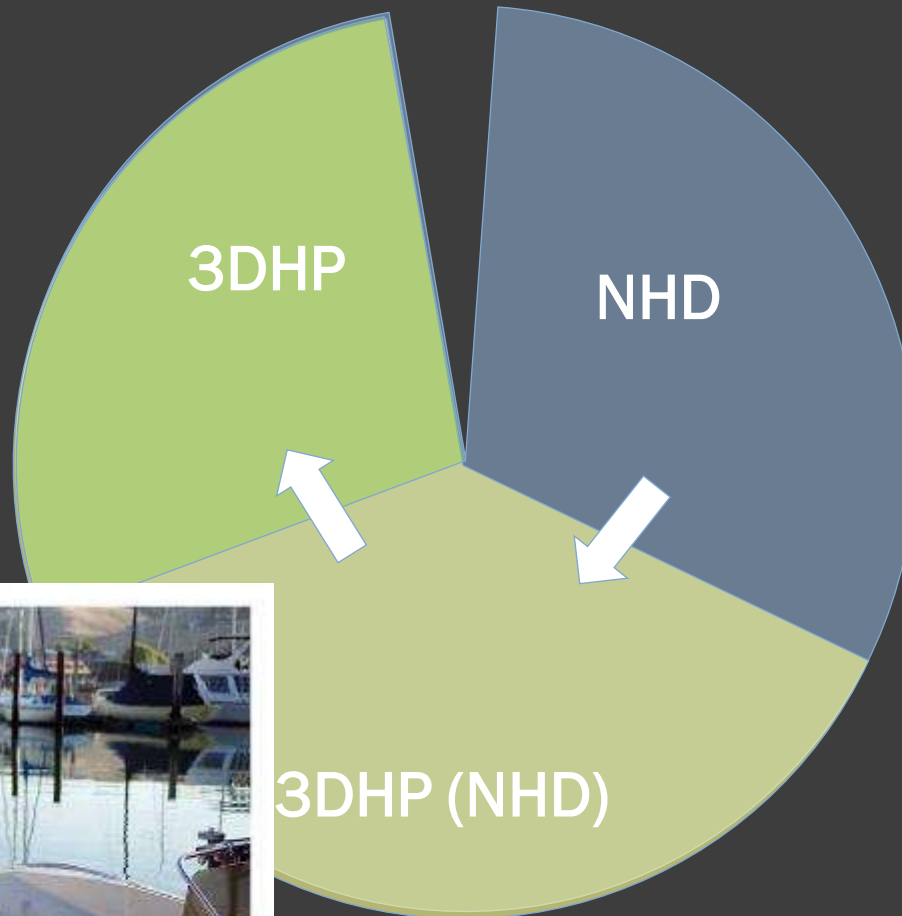
Only 3DHP data  
*\*Mainstem ID*  
*Significant Spatial Change*

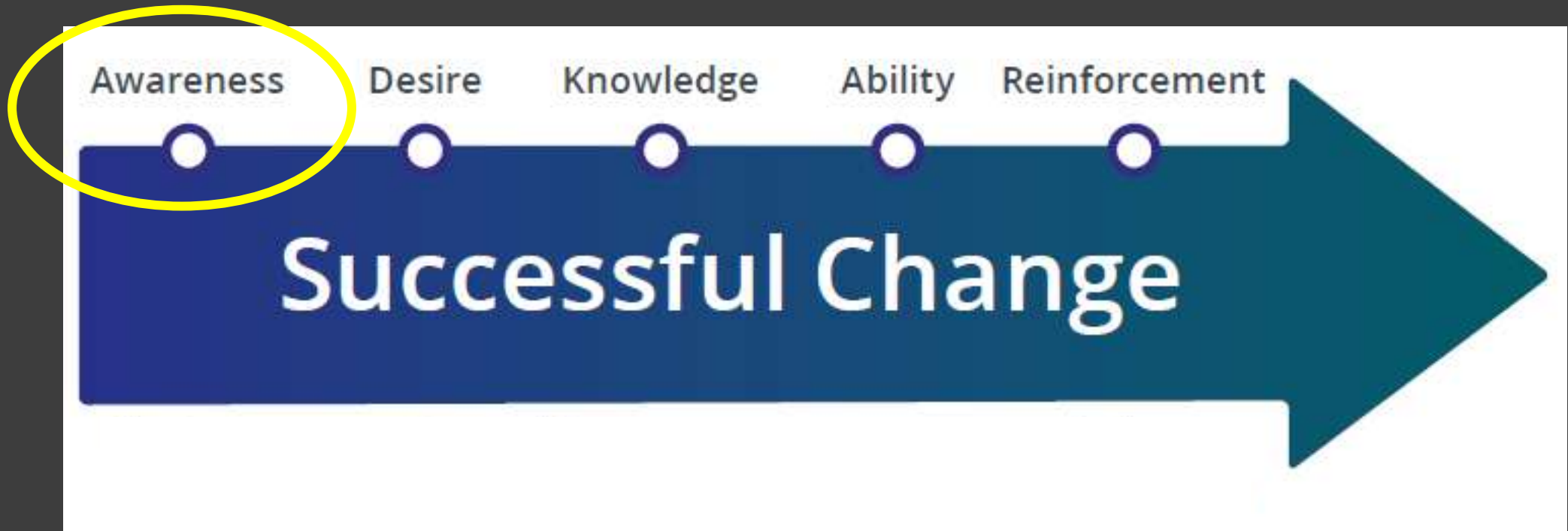
## Phase 1

Update to final NHD  
*\*ReachCode*

## Phase 2

Both NHD and 3DHP data  
*\*ReachCode*  
*\*Mainstem ID*  
*Schema Change*





**Change Management (ProSci ADKAR)**



# Communication

Web page



Strategic Plan



Presentations



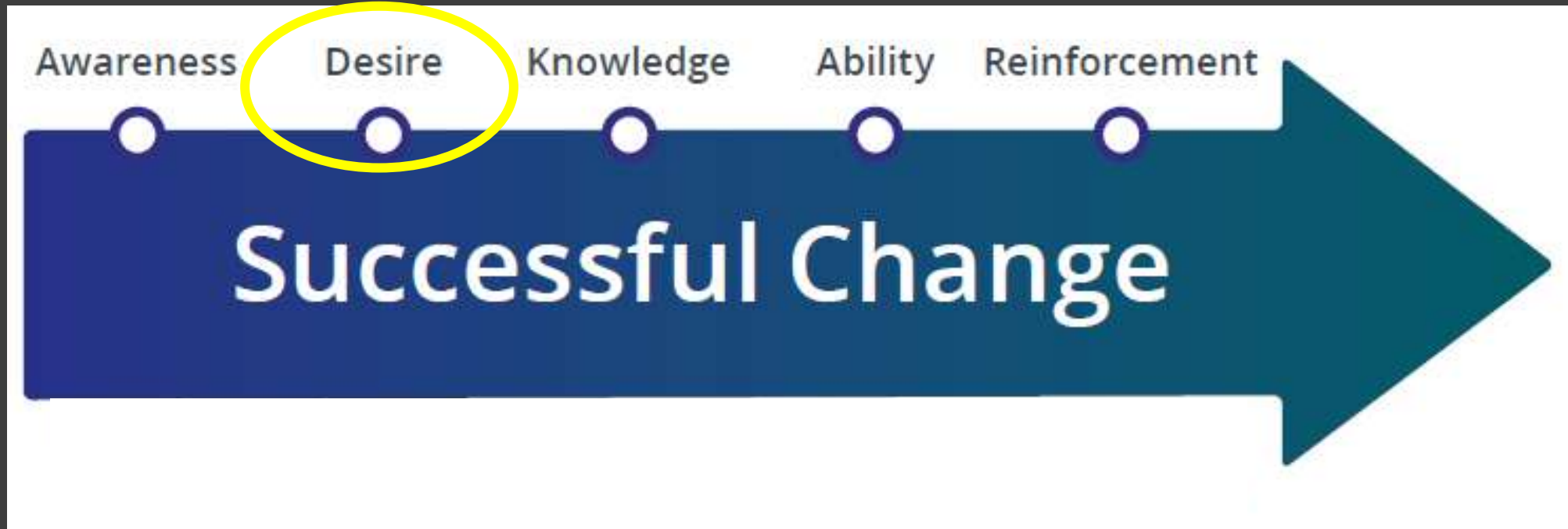
Final Report



Committees

Implementation Plan





**Change Management (ProSci ADKAR)**



# Measuring Success?

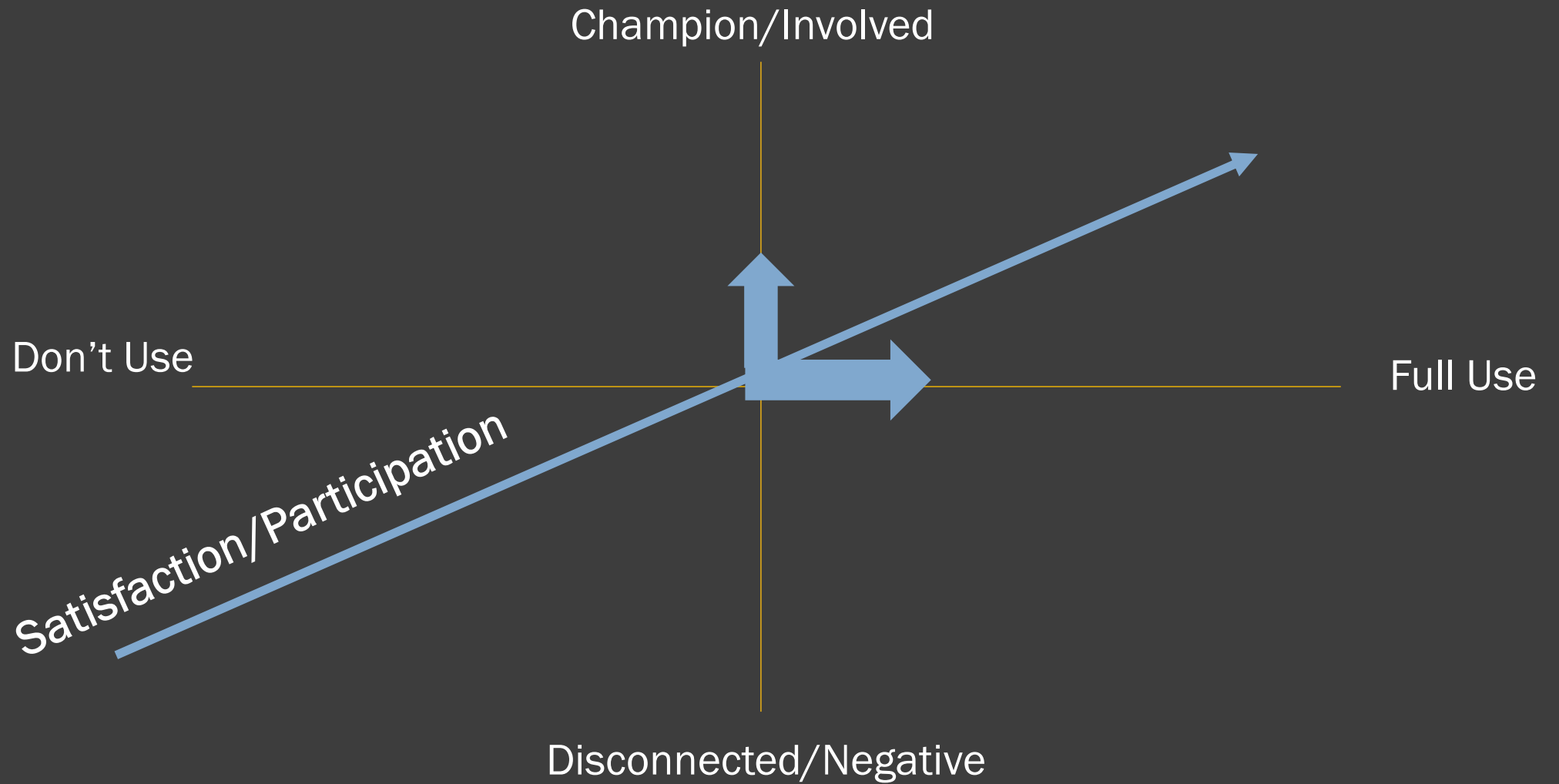
## Stakeholder Desires

- Accuracy
- Connected Attributes
- Accessibility
- Communication

But....are they

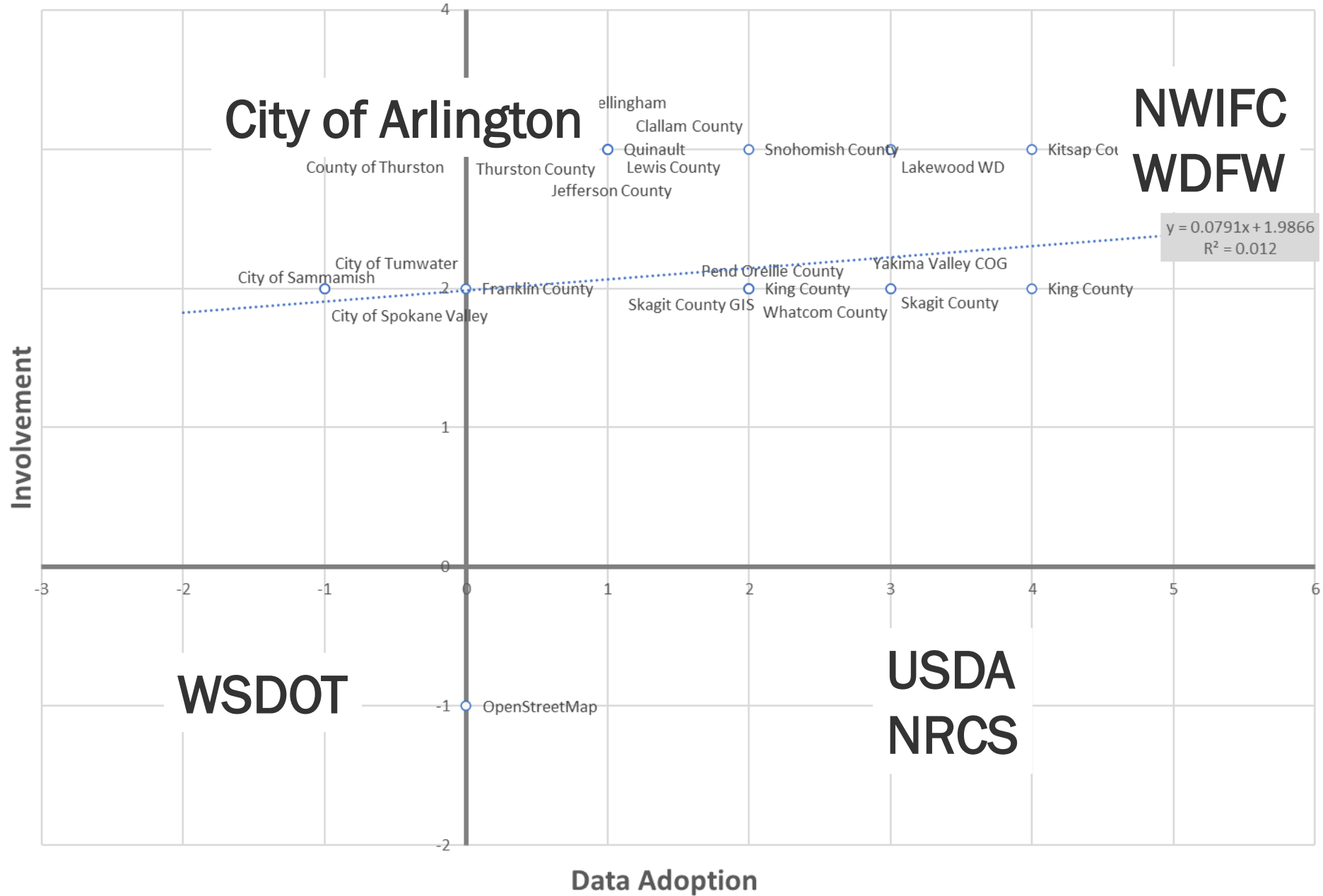
Using the Data

Engaged in program





# Stakeholder Satisfaction



# WORKING TOGETHER!



Local Jurisdictions  
State Agencies  
Tribal Entities  
Federal Partners



# Working with Jurisdictions

- Collecting local data
- Review of contractor EDH
- Ongoing review of changes
- Help determining classifications

## Stay Connected!

Stakeholders (Local, Tribal State)

USGS

NSGIC (GIO, State Stewards)



**Thank you**

Joshua.Greenberg@ecy.wa.gov  
<https://ecology.wa.gov/WASHD>