Voluntary Stewardship Program (VSP): Planting seeds of success

Washington State Conservation Commission

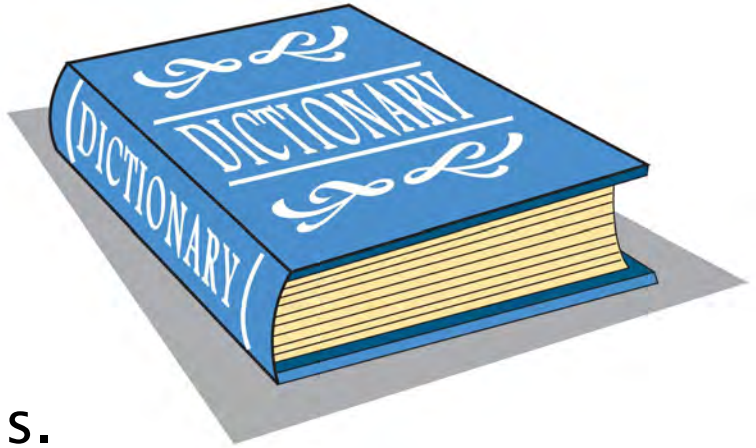
Brian Cochrane, Levi Keesecker, Ryan Boylan, Commissioner Crose

Washington State Conservation Commission Meeting

21 January 2021

Success:

suc·cess
/səkˈses/
noun: success; plural noun: successes



1. the accomplishment of an aim or purpose.
    *the attainment of fame, wealth, or social status.
    *a person or thing that achieves desired aims or attains fame, wealth, etc.

A successful man is one who can lay a firm foundation with the bricks others have thrown at him.

David Brinkley

Success today:

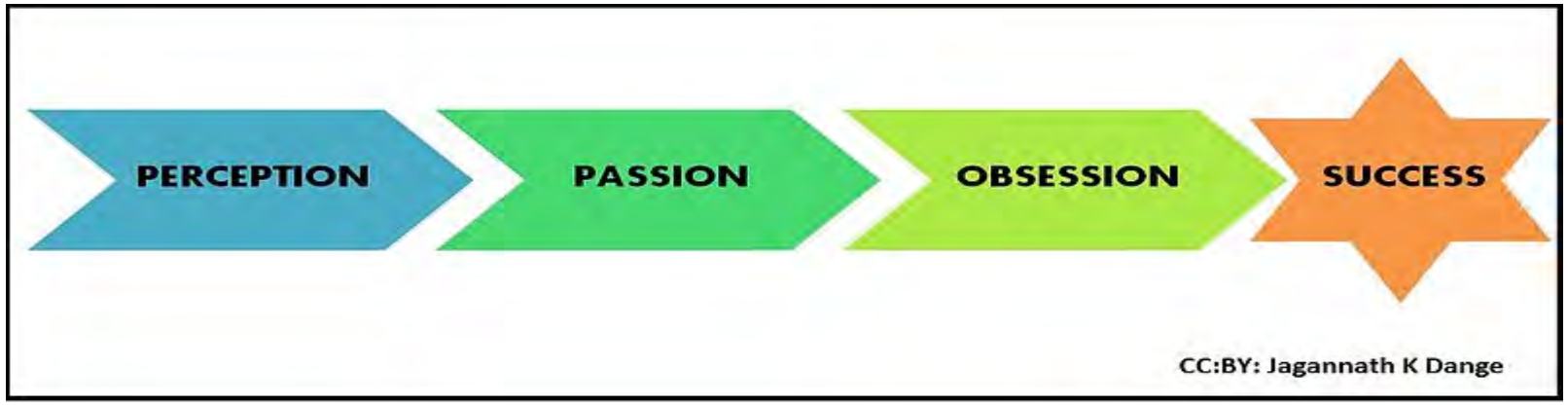
VSP Overview – Brian

Approaches to evaluate success - Levi

Monitoring approach to show success in Whitman County – Ryan

Implementation tracking approach to show success in Grant County – Harold

Reporting and Wrap-up - Brian



Overview:

"The Growth Management Act (GMA) is a series of state statutes, … that requires fast-growing cities and counties to develop a comprehensive plan to manage their population growth."

"Under the GMA, all cities and counties … are directed to designate natural resource lands … and identify steps to preserve them"

http://mrsc.org/Home/Explore-Topics/Planning/General-Planning-and-Growth-Management/Comprehensive-Planning-Growth-Management.aspx

Overview:

"In addition, all cities and counties in Washington are also required to adopt critical areas regulations."

- Wetlands
- Frequently flooded areas
- Aquifer recharge areas
- Geologically hazardous areas
- Fish and wildlife habitats

http://mrsc.org/Home/Explore-Topics/Planning/General-Planning-and-Growth-Management/Comprehensive-Planning-Growth-Management.aspx

Overview:

VSP is an option for counties to manage critical areas where ag activity is conducted while maintaining the viability of agriculture

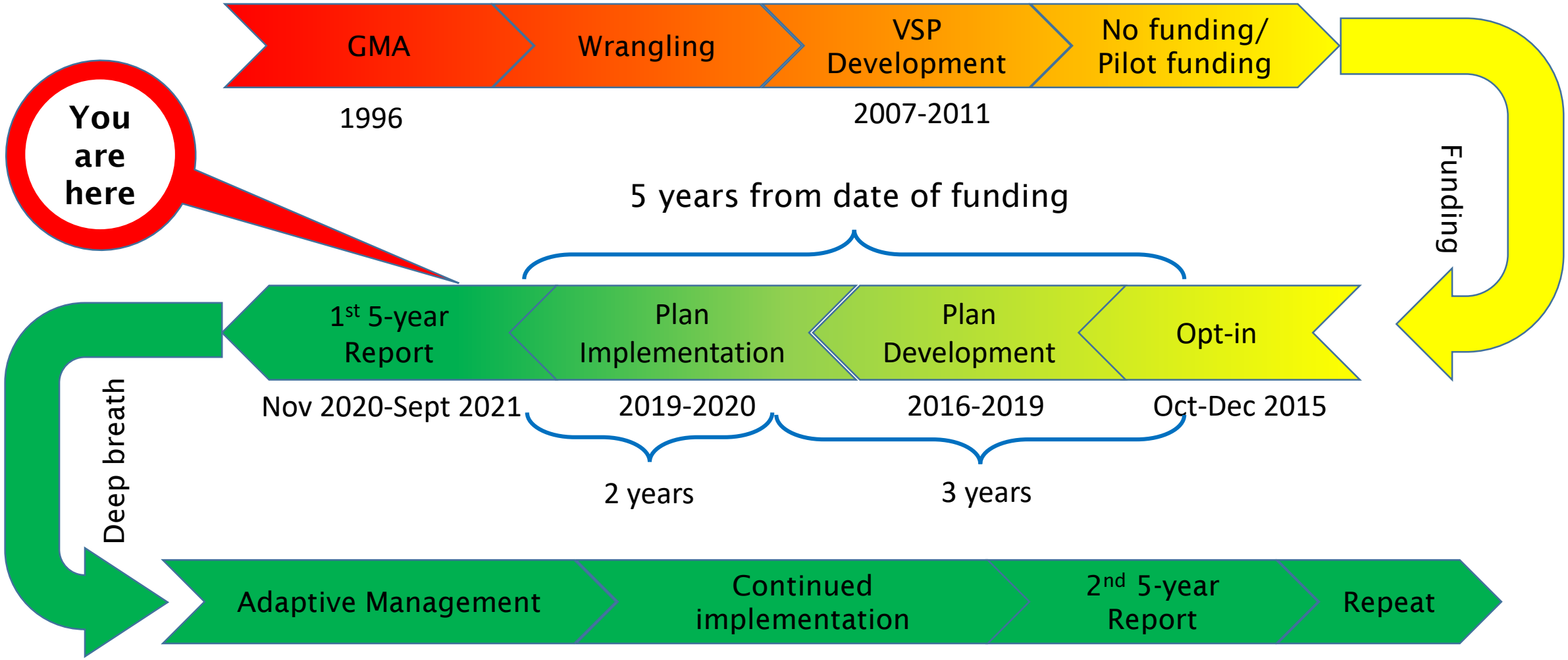
Vv is for Voluntary

Overview:

Vs.

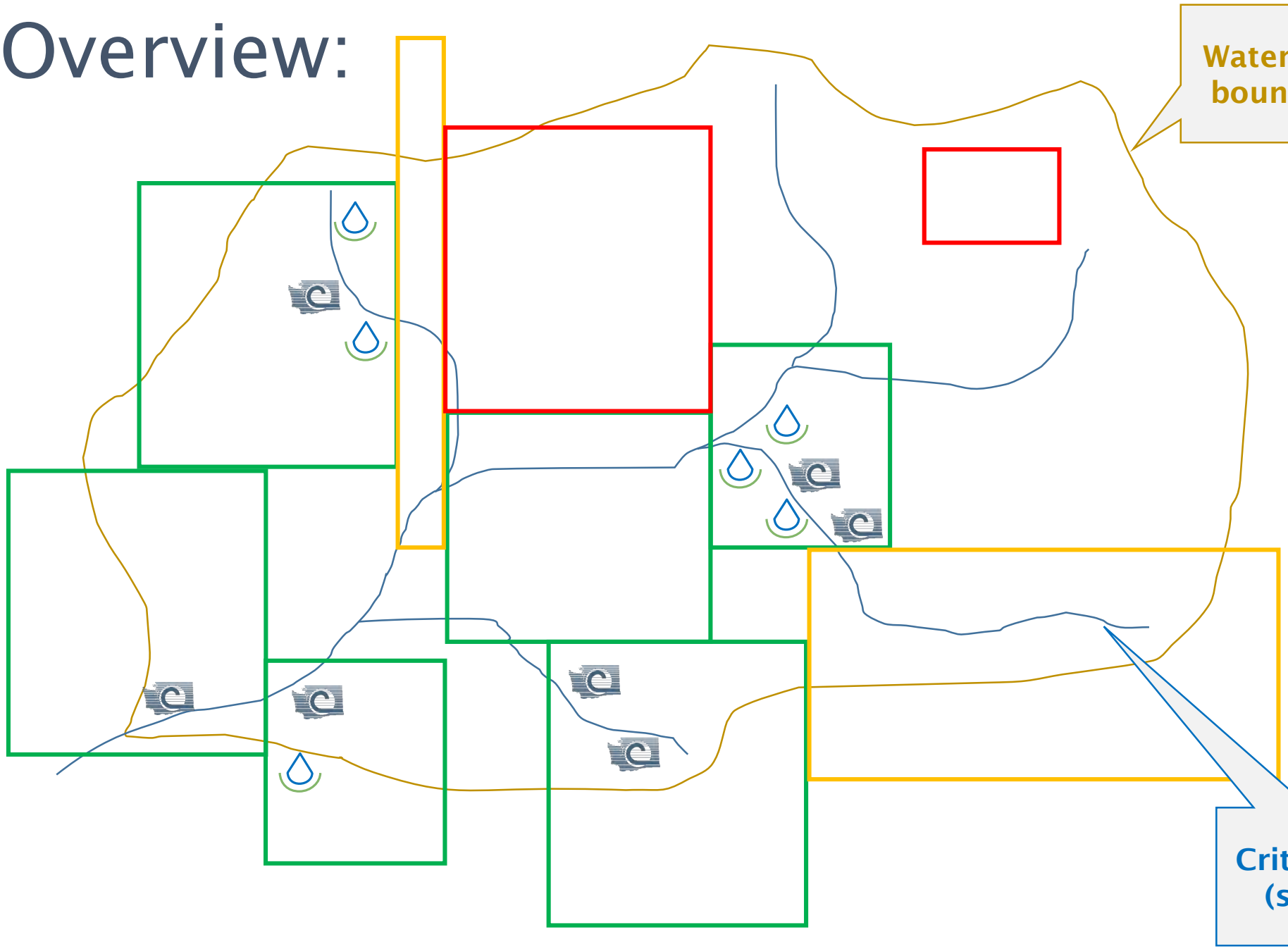
GMA		VSP
Parcel	**Protection scale**	Watershed
One-size/negotiated	**Actions**	Site specific
Presumptive	**Effectiveness model**	Demonstrative
Regulatory	**Participation model**	Voluntary
Not required	**Monitoring**	Required

Overview:



Timeline

Overview:



10 parcel example:

- 6 Implement BMPs,
- 2 Don't,
- 2 "regress"…

Overview:

Monitoring is most unique and critical part of VSP

Handoff to Levi

Approaches to Evaluate Success

VSP
VOLUNTARY STEWARDSHIP PROGRAM

Participation

Agricultural Viability

Critical Area Functions & Values

Implementation of Conservation Practices

Approaches to Evaluate Success

VSP
VOLUNTARY STEWARDSHIP PROGRAM

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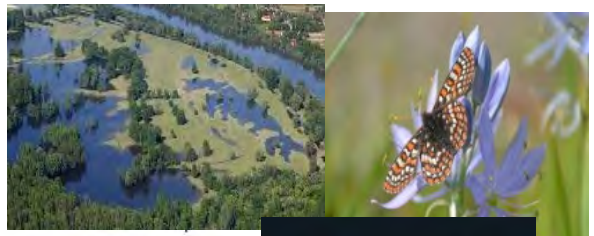
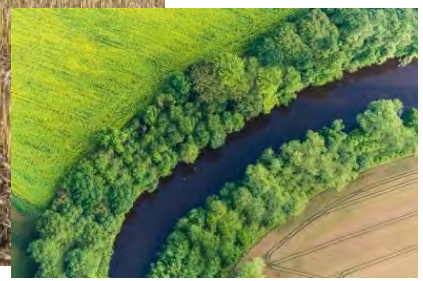


Critical Area Functions & Values



Implementation of Conservation Practices

Approaches to Evaluate Success

Participation

Agricultural Viability

Critical Area Functions & Values

Implementation of Conservation Practices

Field Sampling

Universe of Monitoring

Approaches to Evaluate Success

Participation

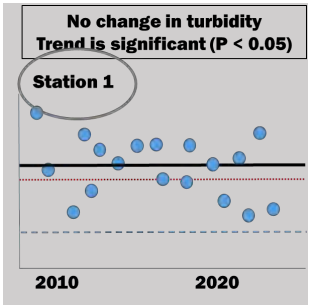
Agricultural Viability

Critical Area Functions & Values

Implementation of Conservation Practices

Field Sampling

Other existing data



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USDA NRCS

WSDA

USGS

Washington State Department of Health

WASHINGTON DEPARTMENT OF FISH AND WILDLIFE

Universe of Monitoring

Approaches to Evaluate Success

Participation

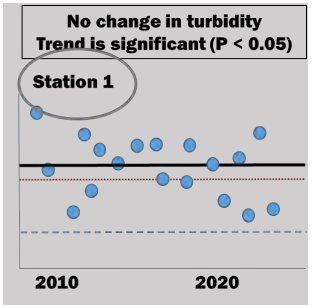
Agricultural Viability

Critical Area Functions & Values

Implementation of Conservation Practices

Field Sampling

Other existing data



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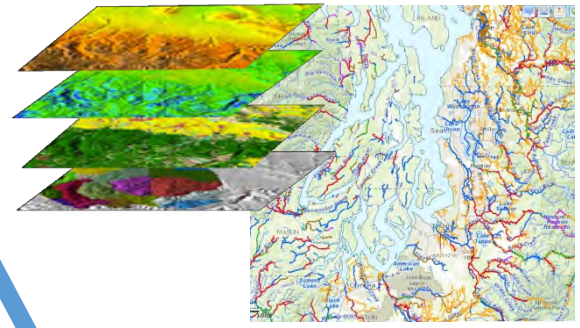
Spatial Analysis & Mapping



Universe of Monitoring

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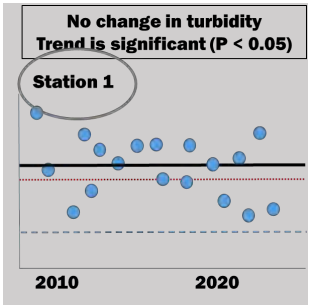
Field Sampling

Other existing data



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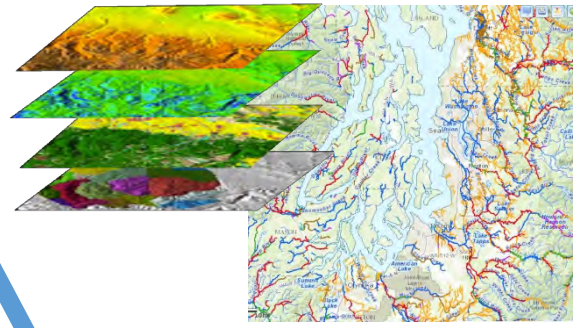
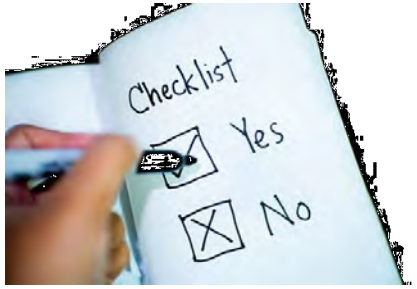


Qualitative/ Observation



Universe of Monitoring

Approaches to Evaluate Success

Assist local VSP work groups with key aspects

(1) What's your question?

(2) What level of accuracy/precision is needed to answer your question?

(3) What is the appropriate scale to ask the question?

Approaches to Evaluate Success

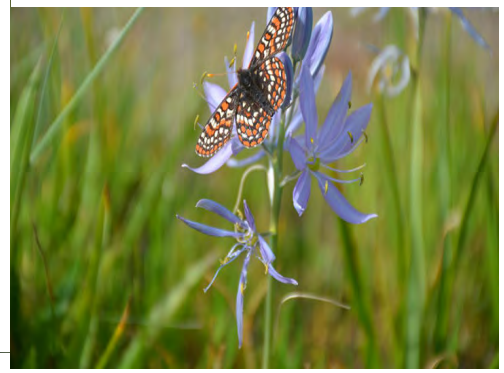
Assist local VSP work groups with key aspects

(1) What's your question?

"How are BMPs affecting critical area ***functions and values***?"

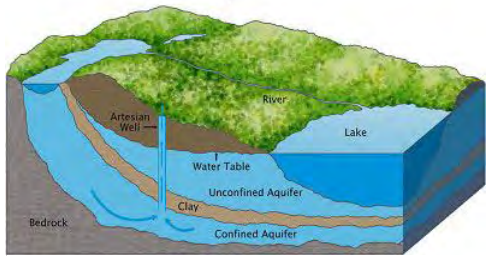
Wetlands

Fish & Wildlife Habitat



"How are cover crops, tillage mgmt., and livestock fencing affecting fish and wildlife ***functions and values*** *in WRIA 24?*"

Frequently Flooded Areas



Critical Aquifer Recharge Areas

Geologically Hazardous Areas

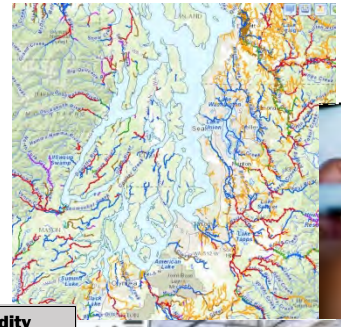
- Flood Storage
- Water Quality Improvement
- Shoreline & Erosion Control
- Natural Products (food/medicines)
- Food/Habitat for Fish & Wildlife
- Groundwater Recharge
- Food Provisioning (e.g., fisheries)
- Pollination of Wild/Cultivated Plants

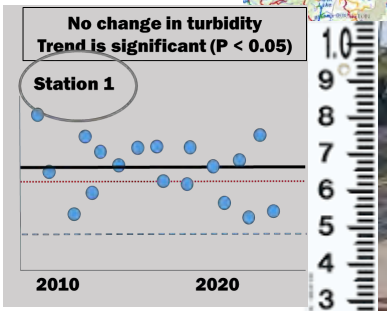
Approaches to Evaluate Success

Assist local VSP work groups with key aspects

(1) What's your question?

(2) What level of accuracy/precision is needed to answer your question?





(3) What is the appropriate scale to ask the question?

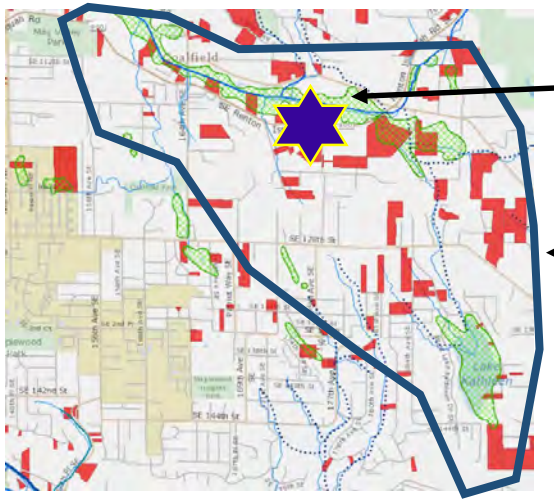
Approaches to Evaluate Success

Assist local VSP work groups with key aspects

(1) What's your question?

(2) What level of accuracy/precision is needed to answer your question?

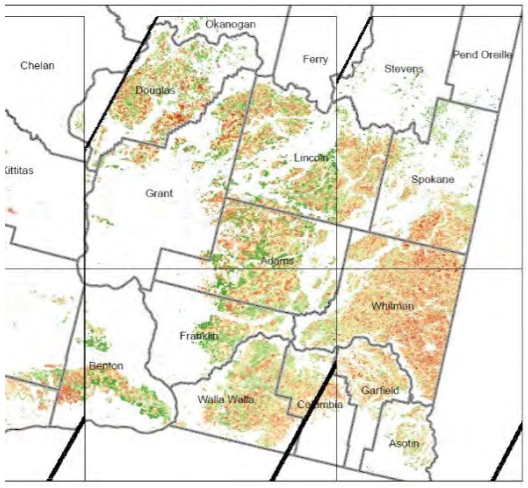
(3) What is the appropriate scale to ask the question?



farm

watershed

region



hours

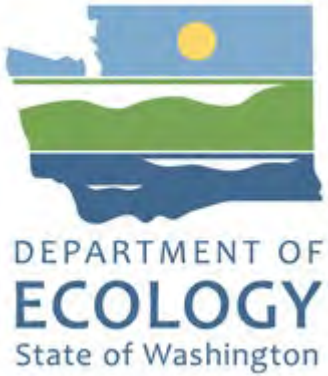
months

years

decades

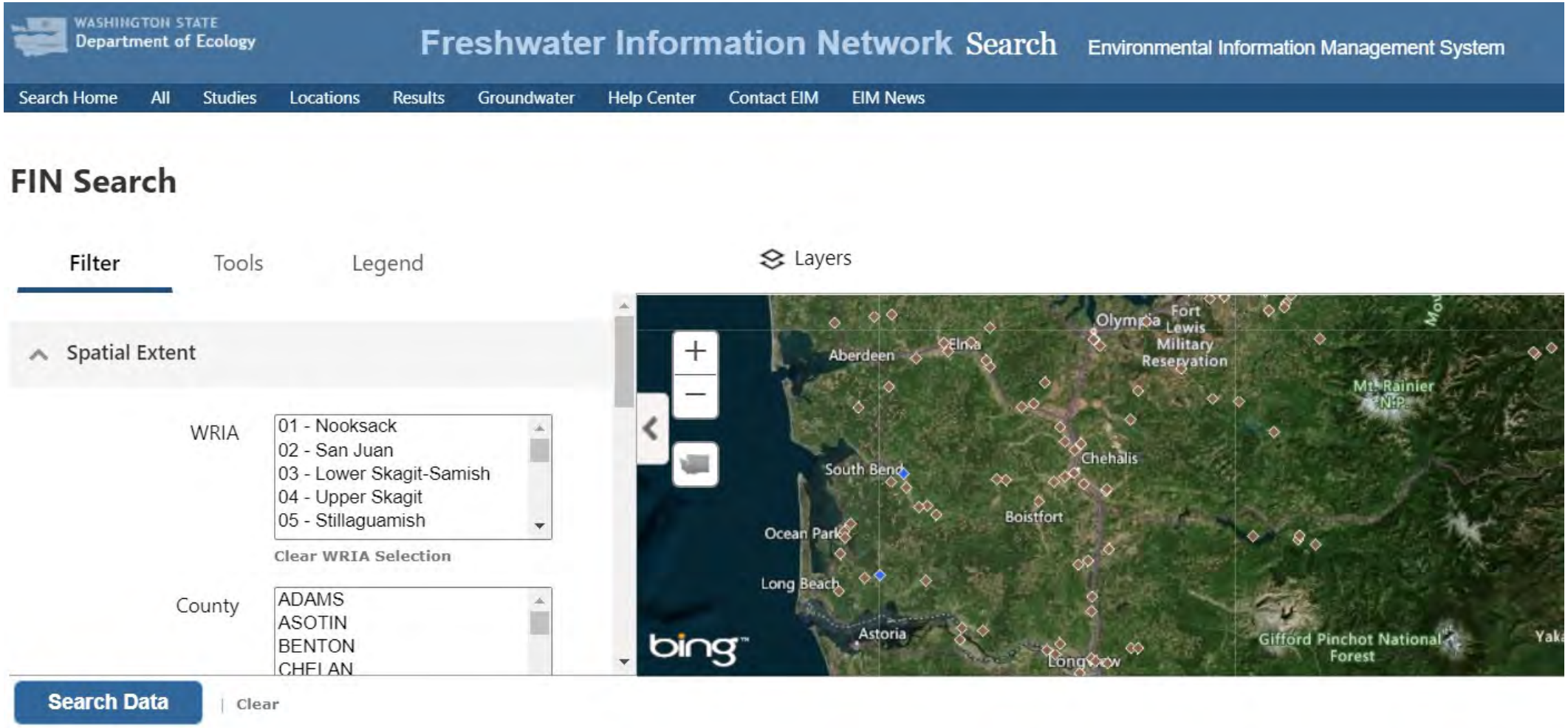
Approaches to Evaluate Success

Foster collaborations and connections between related organizations



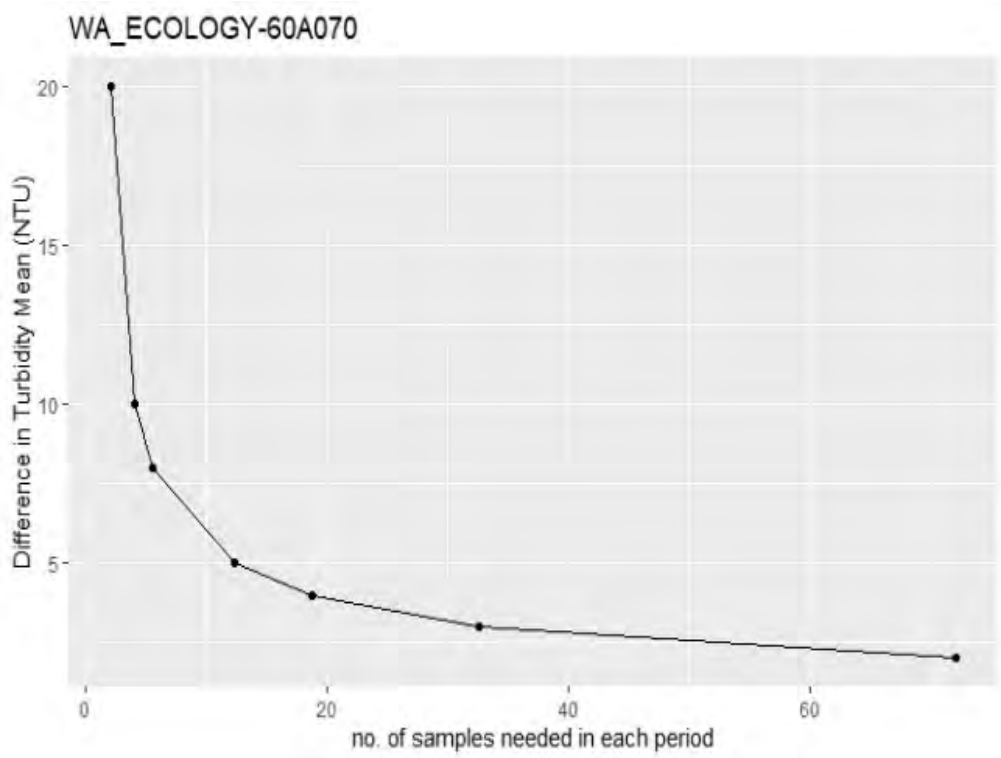
Approaches to Evaluate Success

Assist local VSP work groups in utilizing monitoring data from other local, state, and federal agencies

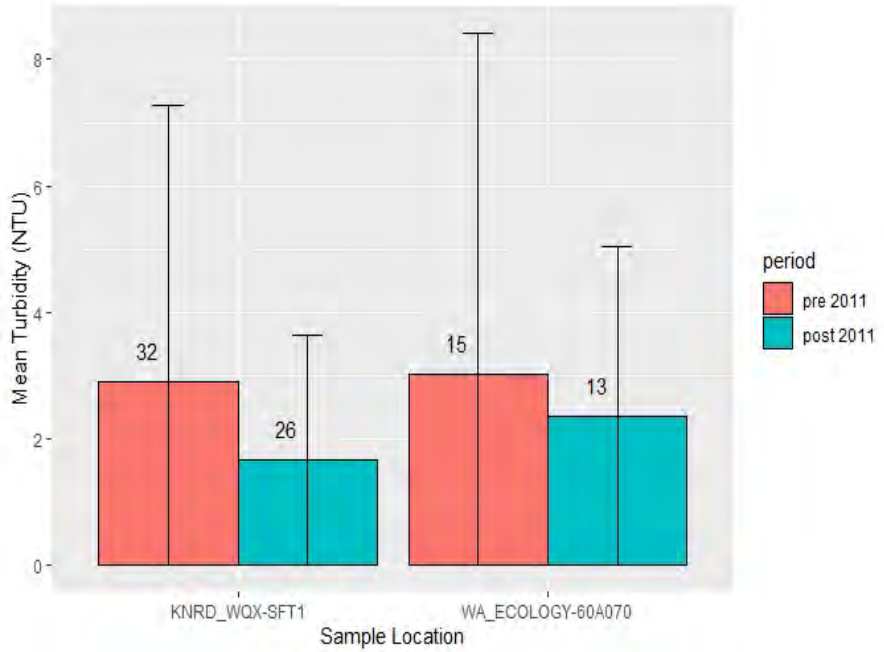


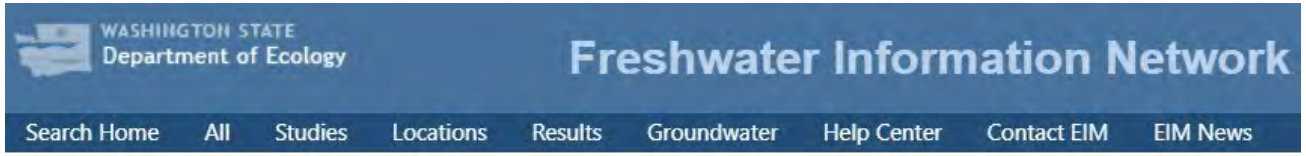
Approaches to Evaluate Success

When will you <u>do something</u> with the monitoring answer?



Existing "free" data can be used to estimate costs, methods, and frequency of future monitoring

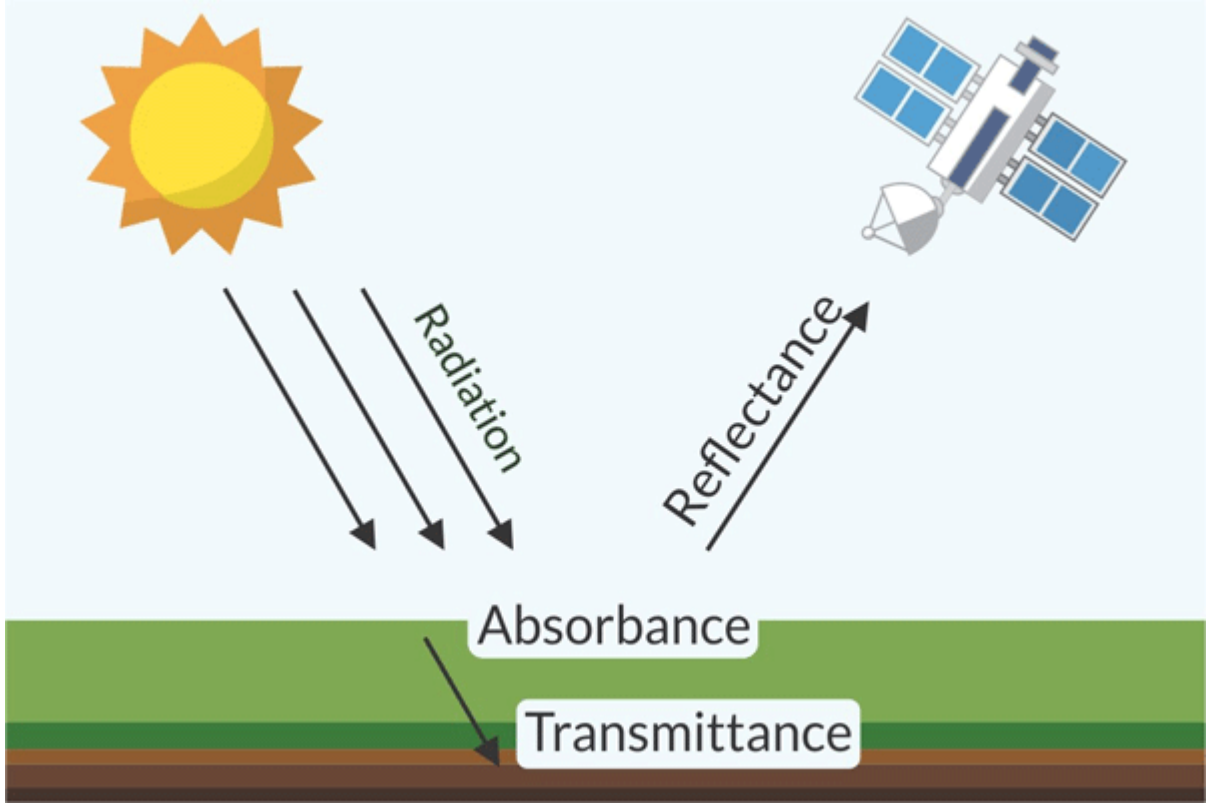




Approaches to Evaluate Success

Agricultural activities and critical areas across counties

Can use satellite imagery that records light reflectance

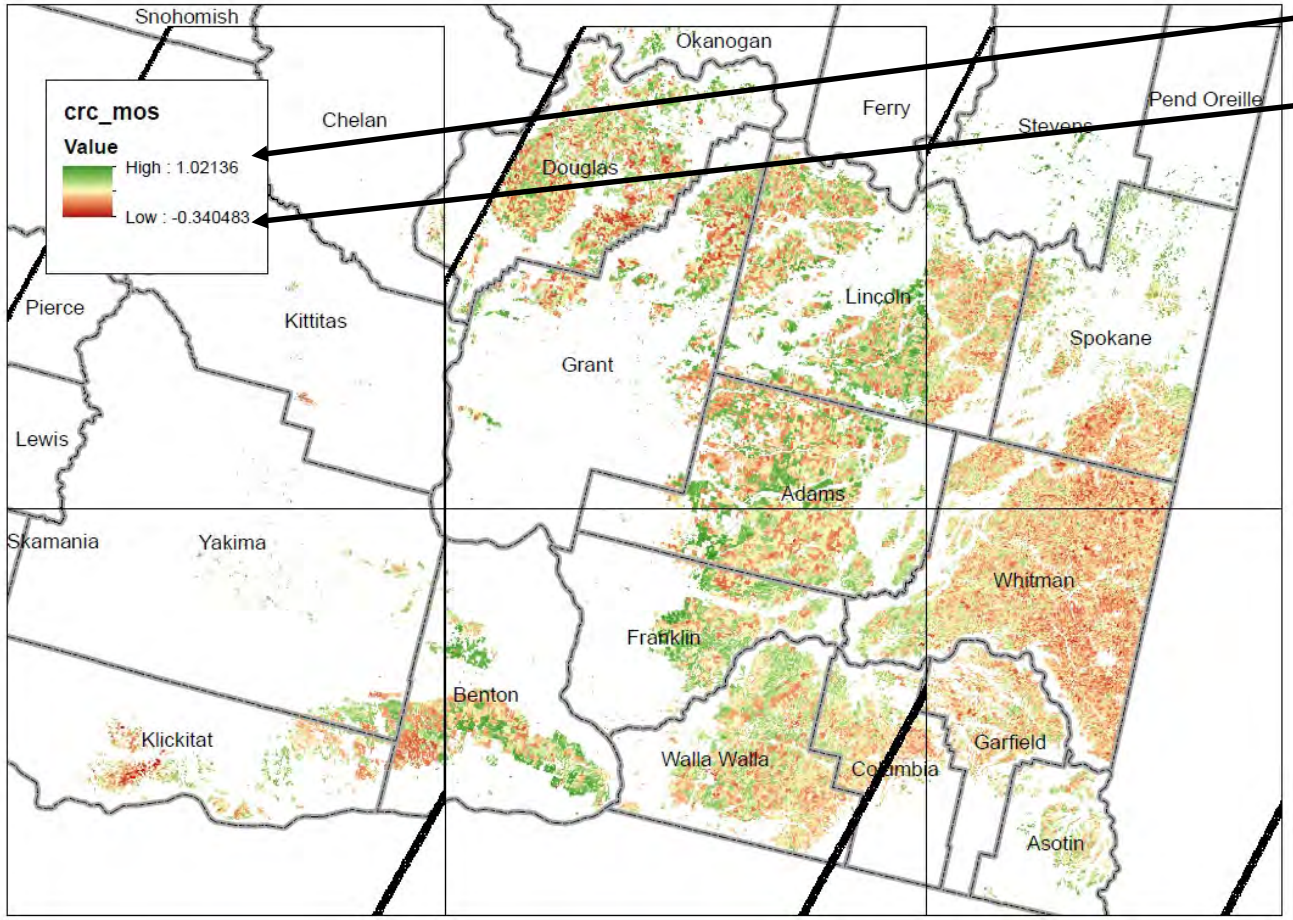


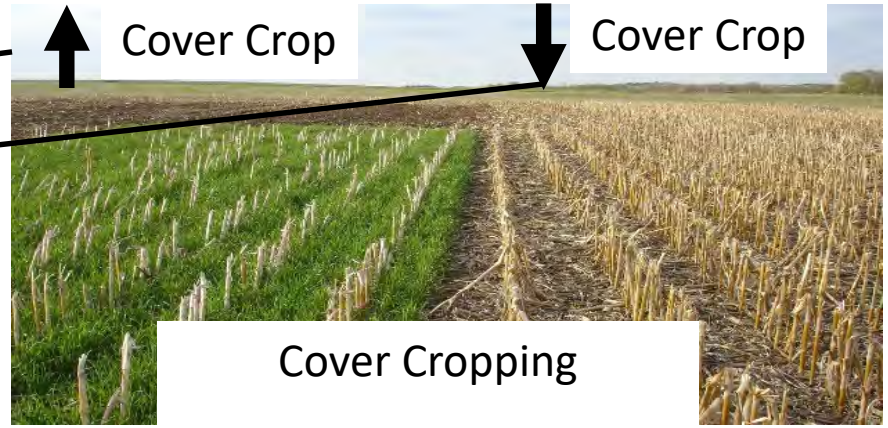
Cover Cropping

Conservation Tillage

Approaches to Evaluate Success

Agricultural activities and critical areas across counties

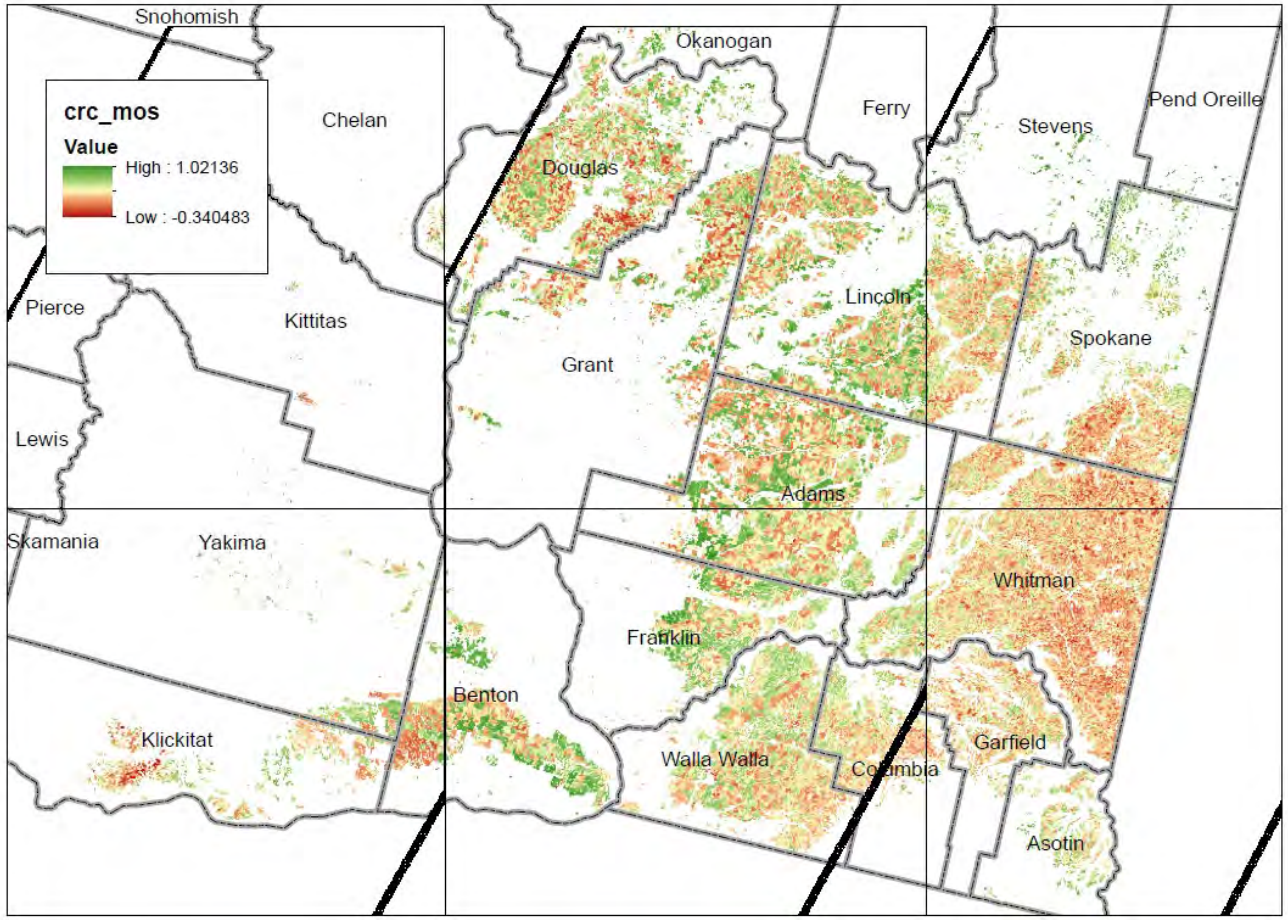


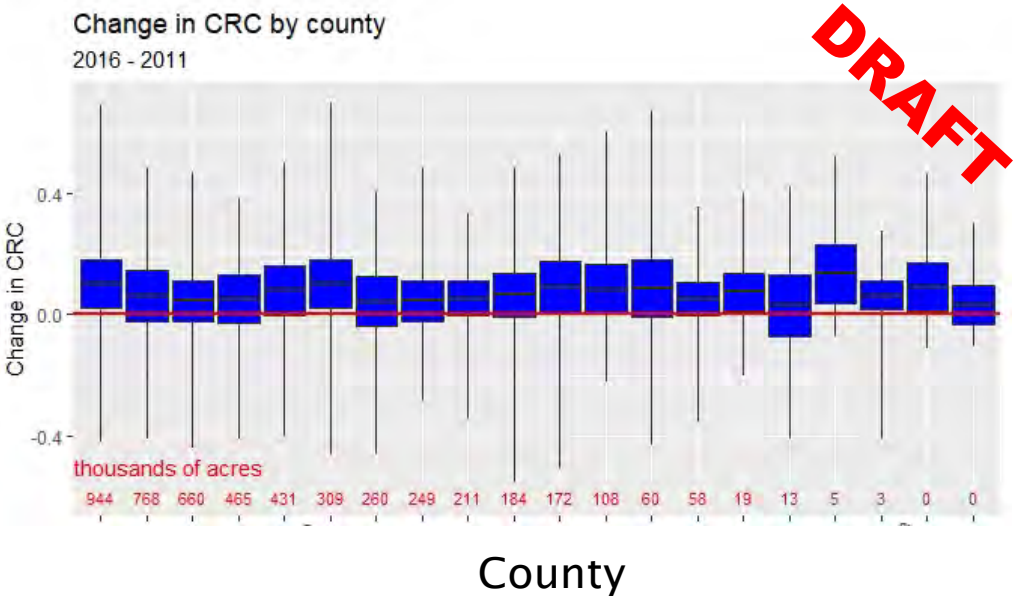


How have patterns of cover cropping changed in a region? (2011-2016)

Approaches to Evaluate Success

Agricultural activities and critical areas across counties





How do these patterns translate into “functions and values”?

Approaches to Evaluate Success

Agricultural activities and critical areas across counties

RUSLE Factors

- RUSLE (Revised Universal Soil Loss Equation) is widely used for estimating the rate of soil loss by water.

$$A = R \times K \times L \times S \times C \times P$$

A: annual soil loss per acre

R: rainfall erosivity

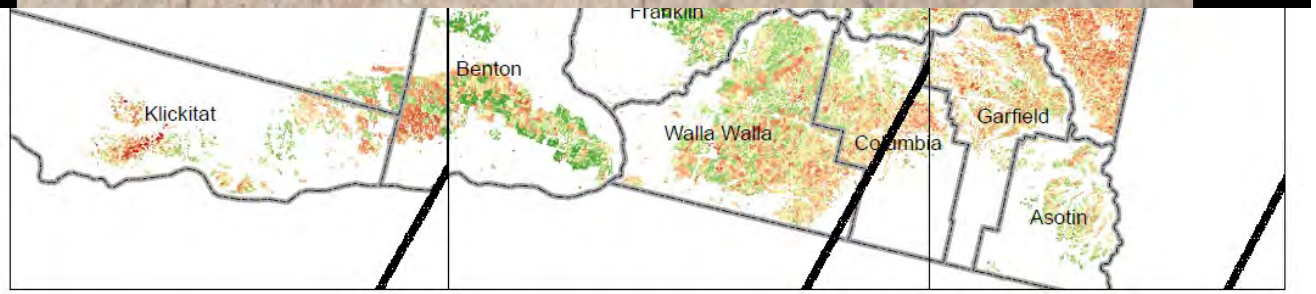
K: soil erodibility

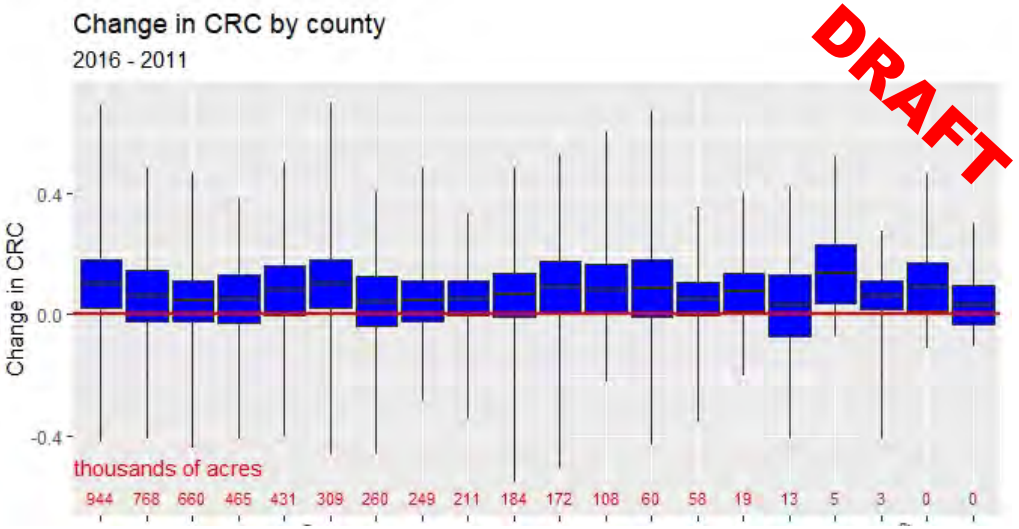
L: slope length

S: slope steepness

C: vegetative cover

P: erosion control practices



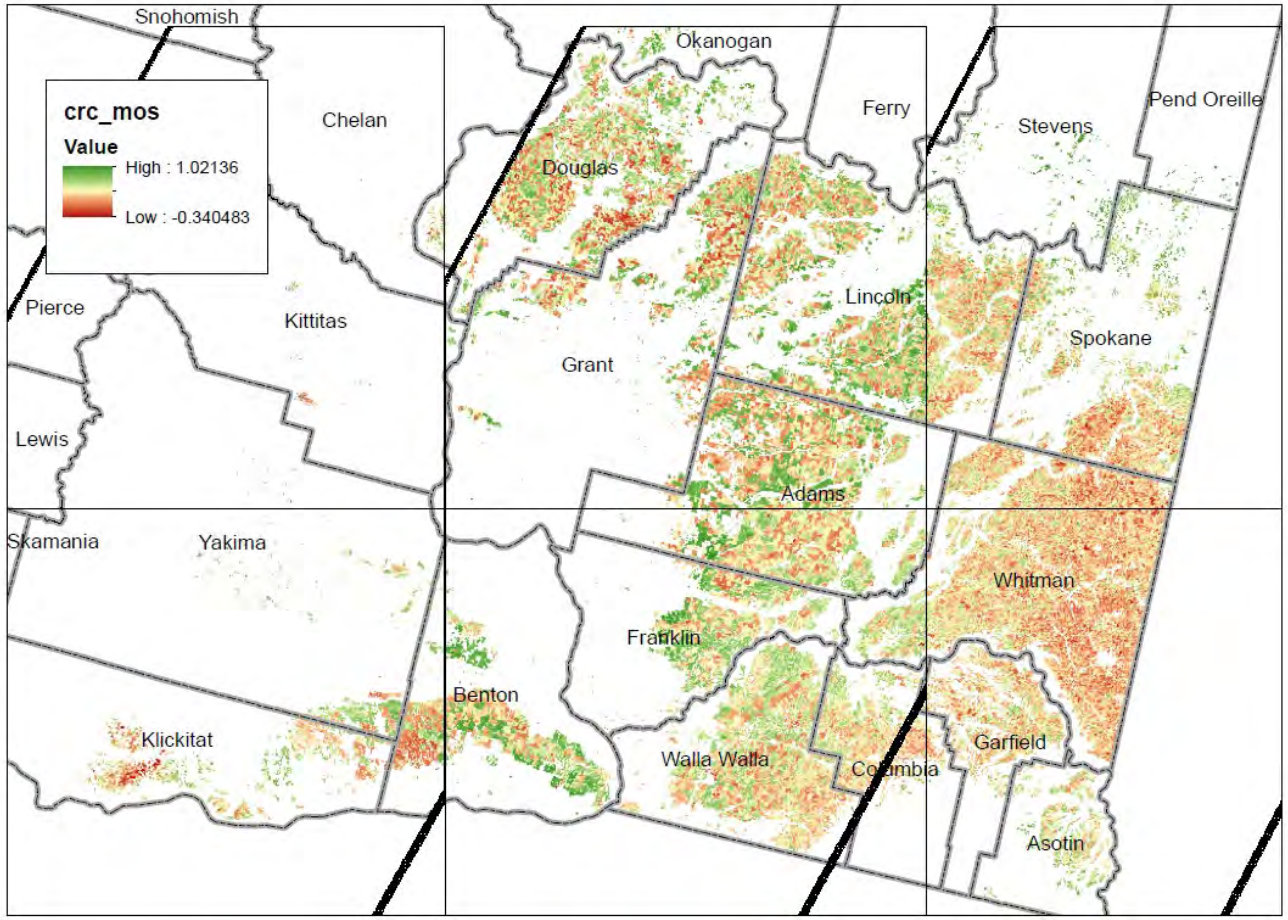


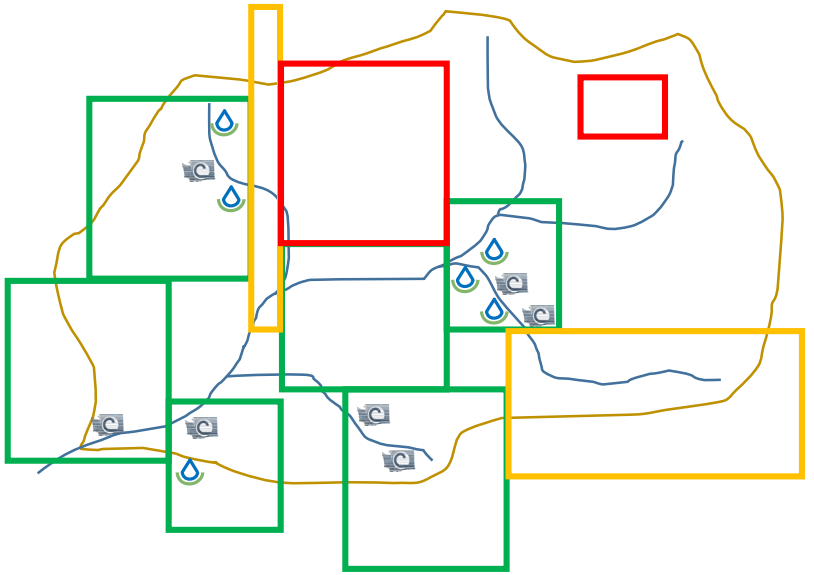
County

Can apply an erosion model to estimate large-scale trends in erosion in response to BMPs

Approaches to Evaluate Success

Agricultural activities and critical areas across counties





Also helps evaluate “drag vs. lift”

Approaches to Evaluate Success

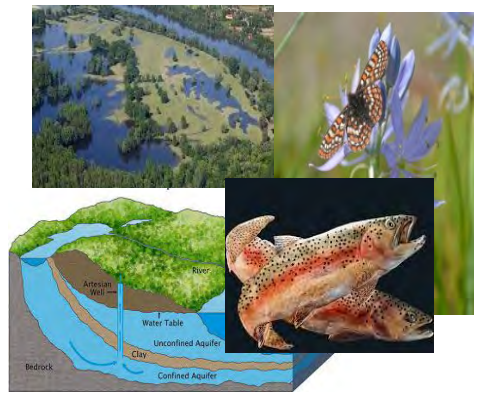
Next up:

Monitoring approaches to show success in Whitman County – Ryan Boylan

Implementation tracking approach to show success in Grant County – Commissioner Crose

Participation

Agricultural Viability



Critical Area Functions & Values

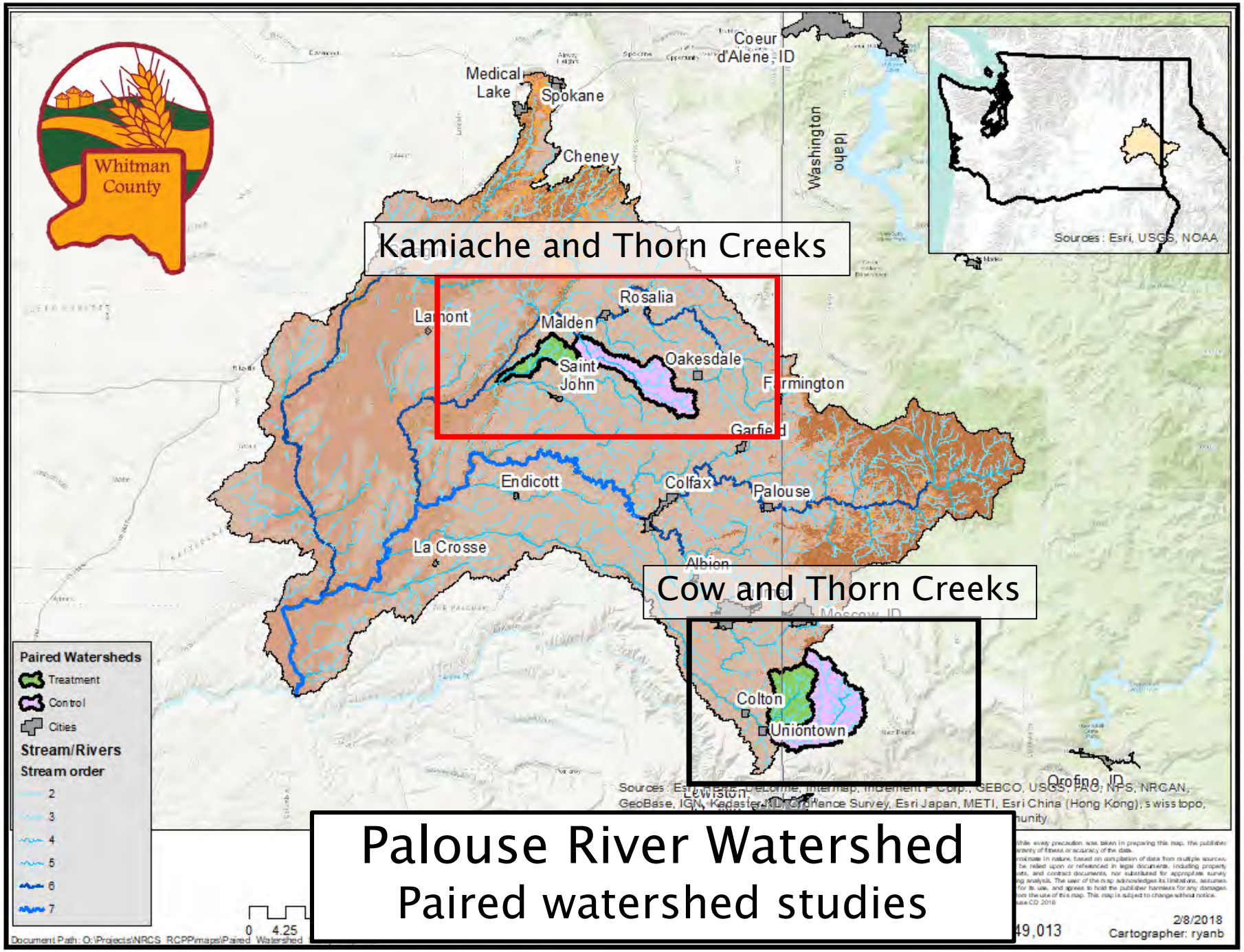
Implementation of Conservation Practices

Handoff to Ryan

Monitoring the Effectiveness our work

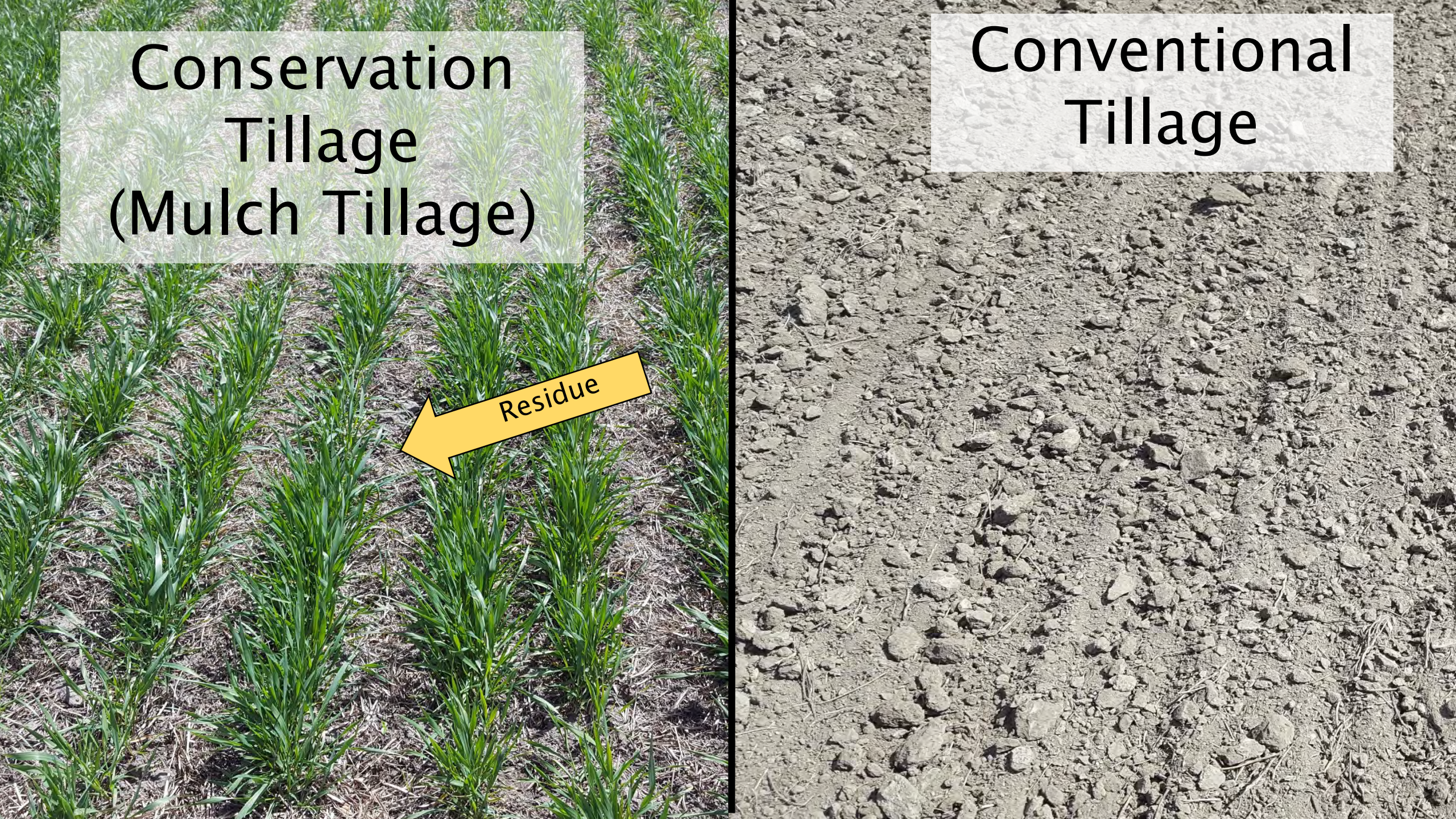
Ryan Boylan - Palouse CD Research and Monitoring Coordinator

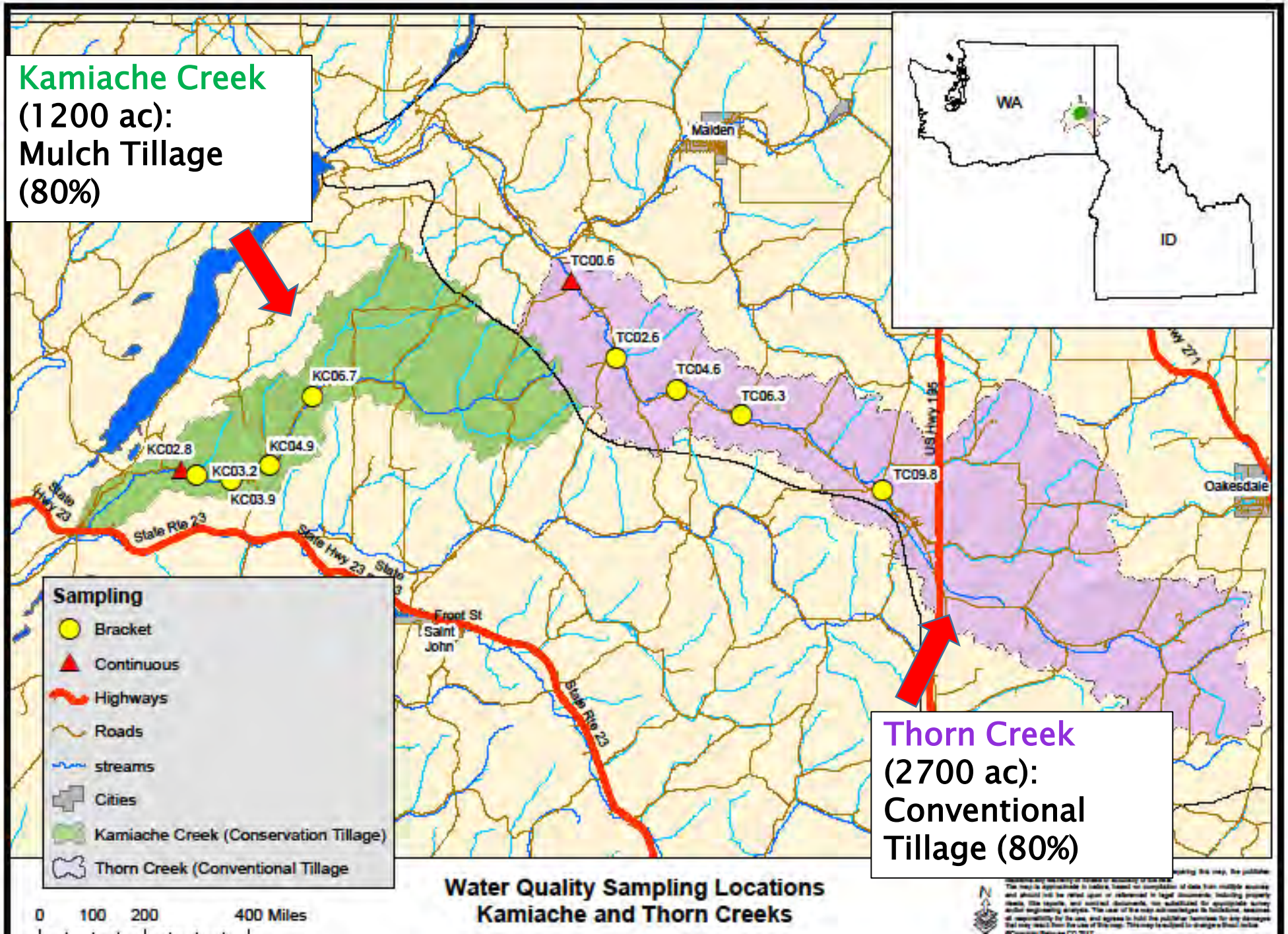
- Soil Health
- Habitat
- Water Quality



Palouse River Watershed

Paired watershed studies


Conservation Tillage (Mulch Tillage)
Residue
Conventional Tillage


Kamiache Creek
(1200 ac):
Mulch Tillage
(80%)
Thorn Creek
(2700 ac):
Conventional
Tillage (80%)
WA
ID
Malden
TC00.6
TC02.6
TC04.6
TC06.3
TC09.8
KC06.7
KC04.9
KC02.8
KC03.2
KC03.9
Oakesdale
US Hwy 195
State Hwy 23
State Rte 23
Front St
Saint John
Sampling
Bracket
Continuous
Highways
Roads
streams
Cities
Kamiache Creek (Conservation Tillage)
Thorn Creek (Conventional Tillage
0 100 200 400 Miles
Water Quality Sampling Locations
Kamiache and Thorn Creeks

Continuous Data Collection (outlets):

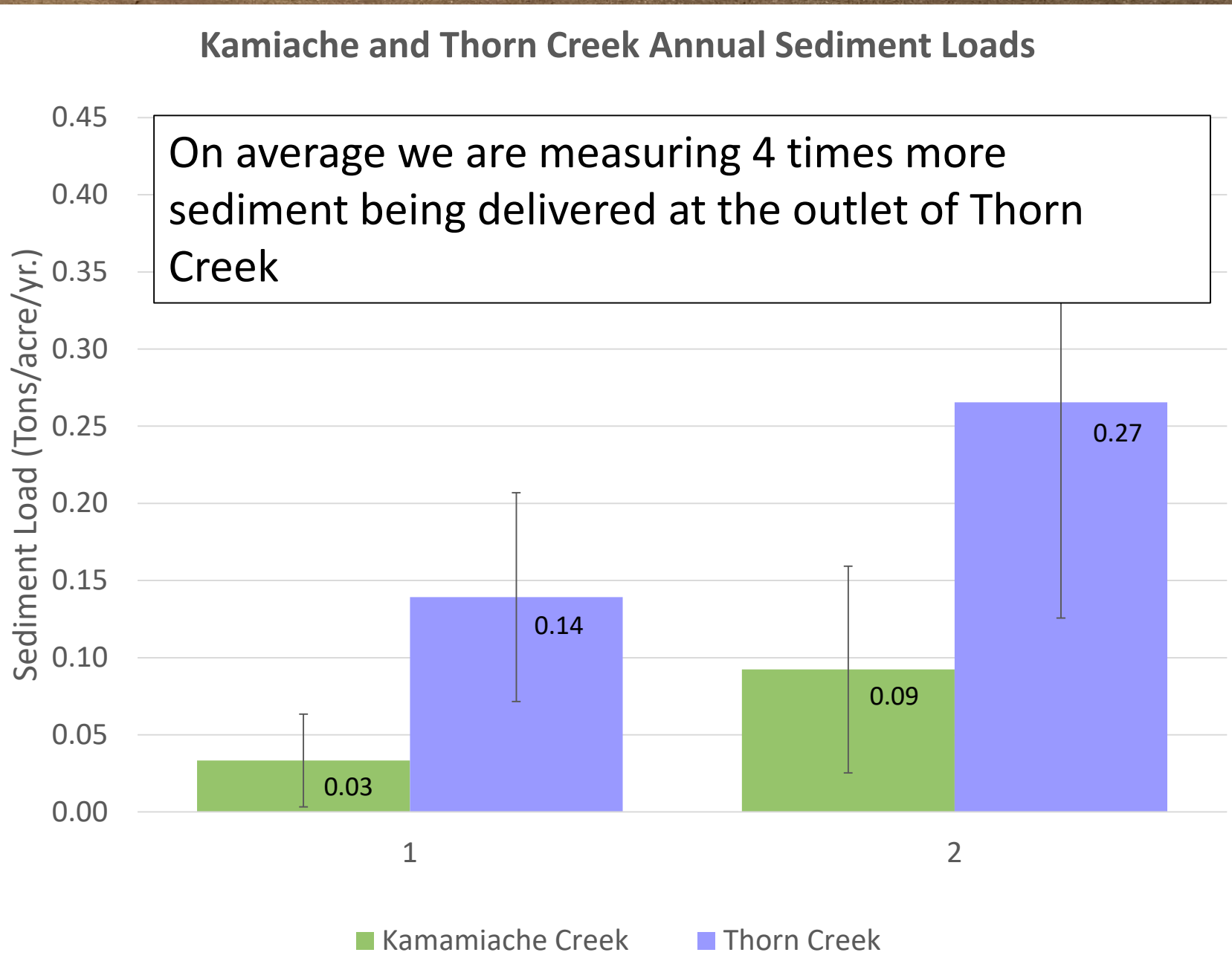
- Air temperature, water temperature, stage height, pH, dissolved oxygen, conductivity, turbidity

Monthly Data Collection (Ambient):

- Nutrients
- Sediments
- Stream flow measurements
- Continuous stage height

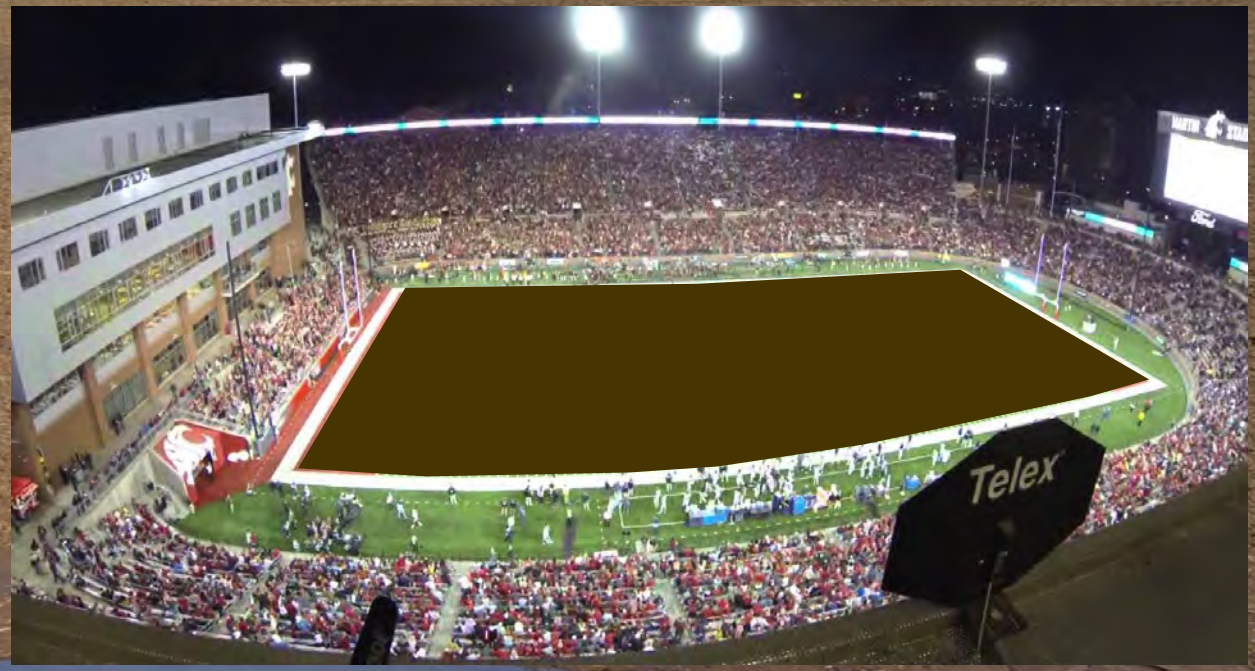
Thorn Creek

Kamiache Creek



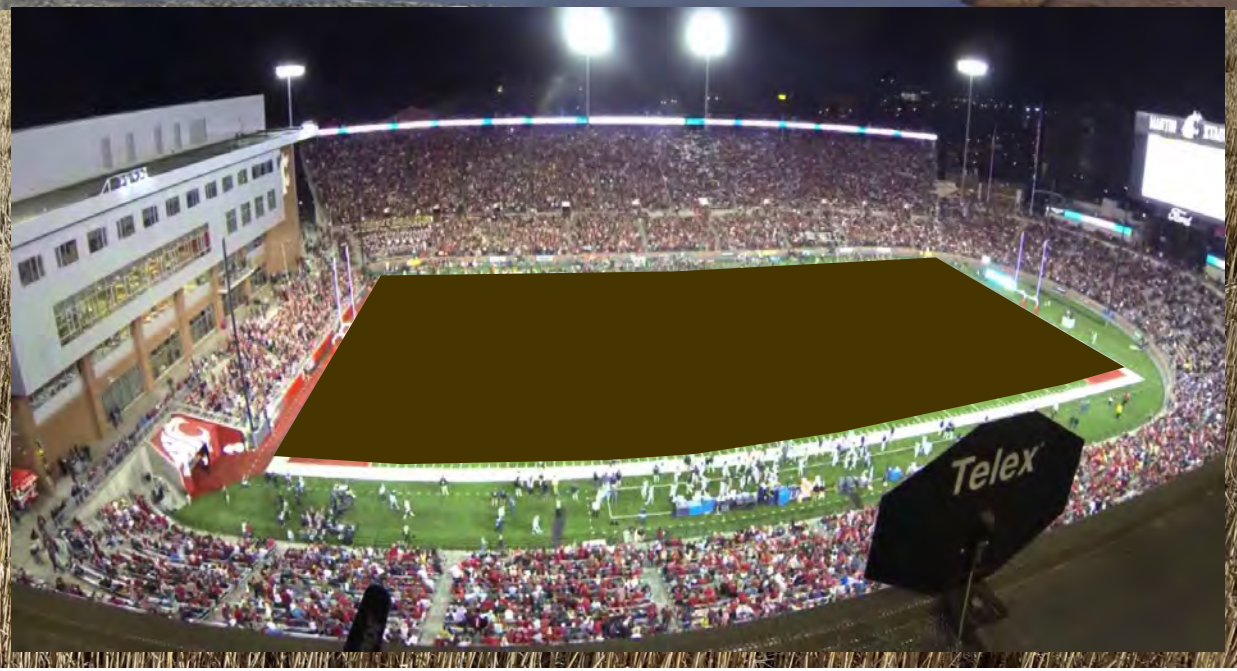
Thorn Creek:

Enough sediment to cover the entire field in Martin Stadium with 52’’ of soil



Kamiache Creek:

Enough sediment to cover the entire field Martin Stadium with 6’’of soil



Handoff to Commissioner Crose

Handoff back to Brian
(last lap)

2 items left :

1. 5-year reports
2. Wrap up

5-year Reports:

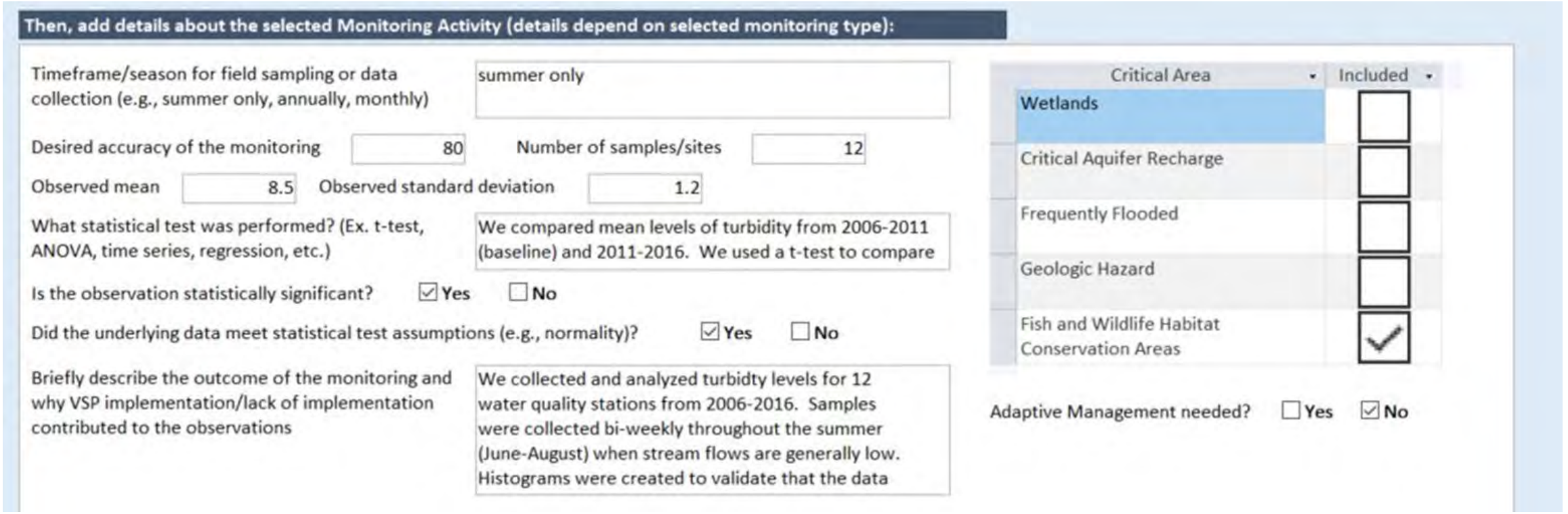
1. What was in the plan?
2. How much was accomplished?
3. How do you know what you accomplished?
4. Are critical areas protected?
5. Show me …

5-year Reports:

Reviewer questions:

- What kind of monitoring was done?
- What was the question?
- How well was it done?
- Was enough done?
- Are the conclusions supported by the data?

5-year Reports:



Then, add details about the selected Monitoring Activity (details depend on selected monitoring type):

Timeframe/season for field sampling or data collection (e.g., summer only, annually, monthly)	summer only
Desired accuracy of the monitoring	80
Number of samples/sites	12
Observed mean	8.5
Observed standard deviation	1.2
What statistical test was performed? (Ex. t-test, ANOVA, time series, regression, etc.)	We compared mean levels of turbidity from 2006-2011 (baseline) and 2011-2016. We used a t-test to compare
Is the observation statistically significant?	☑ Yes ☐ No
Did the underlying data meet statistical test assumptions (e.g., normality)?	☑ Yes ☐ No
Briefly describe the outcome of the monitoring and why VSP implementation/lack of implementation contributed to the observations	We collected and analyzed turbidty levels for 12 water quality stations from 2006-2016. Samples were collected bi-weekly throughout the summer (June-August) when stream flows are generally low. Histograms were created to validate that the data

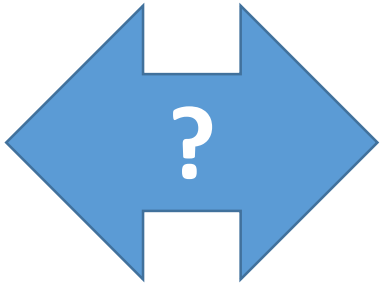
Critical Area	Included
Wetlands	☐
Critical Aquifer Recharge	☐
Frequently Flooded	☐
Geologic Hazard	☐
Fish and Wildlife Habitat Conservation Areas	✓

Adaptive Management needed? ☐ Yes ☑ No

The 5-year report asks for enough information to allow reviewers to evaluate the monitoring

Wrap up:

suc·cess
/səkˈses/
noun: success; plural noun: successes



Success:

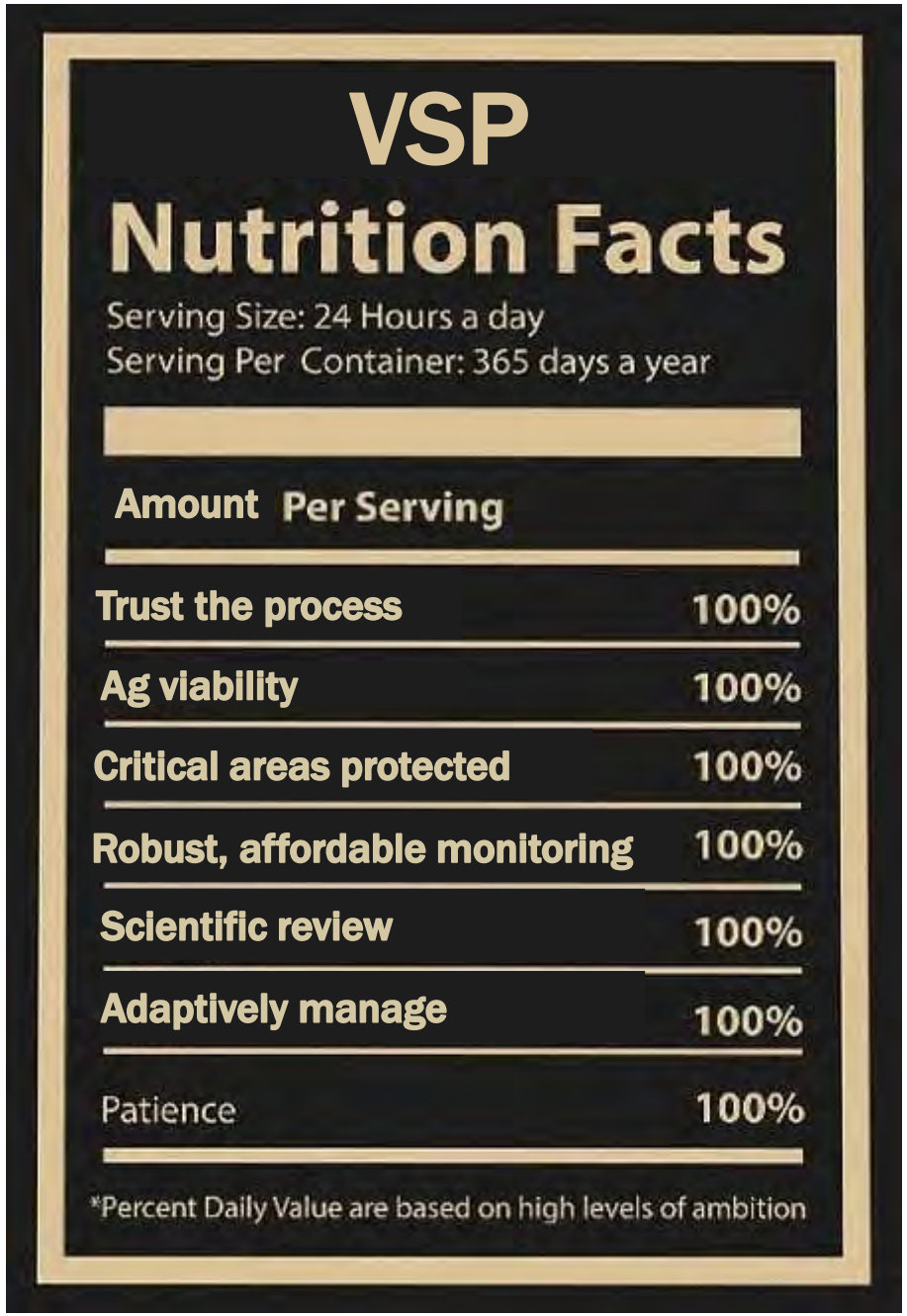

VSP
Nutrition Facts
Serving Size: 24 Hours a day
Serving Per Container: 365 days a year
Amount Per Serving
Trust the process 100%
Ag viability 100%
Critical areas protected 100%
Robust, affordable monitoring 100%
Scientific review 100%
Adaptively manage 100%
Patience 100%
*Percent Daily Value are based on high levels of ambition

Photo credit: Emily Hirsh, Whatcom CD

Thank you!

Contacts:

Brian Cochrane
Habitat and Monitoring Coordinator
bcochrane@scc.wa.gov
360-701-5749

Levi Keesecker
Natural Resources Scientist
lkeesecker@scc.wa.gov
360-789-3650

Ryan Boylan
Research and Monitoring Coordinator
RyanB@PalouseCD.org
509-332-4101 x112

Commissioner Harold Crose
Resource Conservationist
harold-crose@conservewa.net

Washington State Conservation Commission