Core Element

Regulatory Protection

Tracie Nadeau
USEPA, Oregon Operations Office

Region 10 Tribal Wetland Workshop
Spokane, Washington
9 December 2009

Core Element

Regulatory Protection

OVERVIEW

- Elements of a Regulatory Program
- Categories of Tribal/State Regulatory Programs
- Determining Jurisdiction
  - Streamflow Duration Assessment Method

Core Element

Regulatory Protection

- Allow direct control over management of aquatic resources
- Ensure overarching wetland and watershed goals are met
- Programs can be more protective and/or comprehensive than federal program
- Enable incorporation of other land use regs, goals, and policies for more effective management on watershed scale

Elements of a Regulatory Program

- Define a jurisdictional scope – what resources will your program cover?
- Develop a method to authorize impacts to resource – what will your permitting program look like?
- Develop a method to insure compliance – how will you enforce your program?

Categories of T/S Regulatory Programs

- Strengthen CWA Section 401 WQ Certification Program *(L.Storm/K. Mathews)*
- Implement State Programmatic or Regional General Permit
- Assume CWA Section 404 Program
- Implement a Tribal Permitting Program *(J. Freimund)*

Determining Jurisdiction

- Jurisdictional scope of CWA is “waters of the U.S.”
- SWANCC/Rapanos U.S. Supreme Ct Decisions
  - Created regulatory uncertainty for “isolated” wetlands and headwater streams
  - Affects all CWA Programs
- Greater emphasis placed on determining the duration of streamflow (ephemeral, intermittent, perennial) for Section 404 jurisdictional

Determining Jurisdiction

Streamflow Duration Assessment Method

- A rapid field assessment tool to distinguish between ephemeral, intermittent and perennial streams.
- Provide a scientifically supported, rapid assessment framework to support tough post-*Rapanos* jurisdictional determinations in a consistent, robust, repeatable and defensible way.
- Allow more timely and predictable CWA jurisdictional determinations.
- Common technical framework for discussion of complex stream-related issues.

Determining Jurisdiction

Overview of Streamflow Assessment Method

- Observations of flow-dependent "indicators" along discrete stream reaches.
- Indicators are scored according to abundance and prominence.
- Scores are added to determine an overall score, which is basis for categorizing streams as ephemeral, intermittent, or perennial.
- "Single indicators" provide a stand-alone basis for categorizing streams as at least intermittent: presence of fish, certain herpetofauna, and certain macroinvertebrates

Interim Method – March 2009

Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)

Project # / Name	Evaluator Attended ☐ Orientation ☐ Field Training	
Address	Date	
Waterway Name	Coordinates at downstream end (ddd.mm.ss) Lat. N	
Reach Boundaries	Long. W	
Precipitation w/in 48 hours (cm)	Channel Gradient (%)	Channel Width (m)

Observed Hydrology: "Dry Channel" ☐ Water Absent ☐ No surface flow but at least one pool present; "Wet Channel" ☐ Surface flow present but not spatially continuous ☐ Continuous surface flow

☐ Disturbed Site / Difficult Situation (Describe in "Notes")

		Absent	Weak	Moderate	Strong
Geomorphology	1. Continuous Bed and Bank	☐ 0	☐ 1	☐ 2	☐ 3
	2. In-channel Structure / Organized Sequences	☐ 0	☐ 1	☐ 2	☐ 3
	3. Soil texture or stream substrate sorting	☐ 0	☐ 1	☐ 2	☐ 3
	4. Erosional Features (☐ Check this box if >50% of the streambed consists of exposed bedrock)	☐ 0	☐ 0.5	☐ 1	☐ 1.5
	5. Depositional Features	☐ 0	☐ 1	☐ 2	☐ 3
	6. Sinuosity	☐ 0	☐ 1	☐ 2	☐ 3
	7. Headcuts And Grade Controls	☐ 0	☐ 0.5	☐ 1	☐ 1.5
	GEOMORPHOLOGY SUBTOTAL:				_____
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	☐ 0	☐ 1	☐ 2	☐ 3
	9. Springs And Seeps (Note Locations)	☐ 0	☐ 1	☐ 2	☐ 3
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	☐ 1.5	☐ 1	☐ 0.5	☐ 0
	11. Debris Piles And Wrack Lines	☐ 0	☐ 0.5	☐ 1	☐ 1.5
	12. Redoximorphic Features In Toe Of Bank	☐ Absent = 0		☐ Present = 1.5	
	HYDROLOGY SUBTOTAL:				_____
Biology	13. Wetland Plants In / Near Streambed	☐ FAC 0.5	☐ FACW 0.75	☐ OBL 1.5	☐ SAV 2 ☐ None
	14. Fibrous Roots / Rooted Plants In Thalweg ▼	☐ 3	☐ 2	☐ 1	☐ 0
	15. Streamer Mosses And Algal Mats	☐ 0	☐ 0.5	☐ 1	☐ 1.5
	16. Iron Oxidizing Bacteria, Fungus, Flocculent	☐ 0	☐ 1	☐ 2	☐ 3
	17. Macroinvertebrates	☐ 0	☐ 1	☐ 2	☐ 3
	18. Amphibians	☐ 0	☐ 0.5	☐ 1	☐ 1.5
	19. Fish	☐ 0	☐ 1	☐ 2	☐ 3
	20. Lichen Line (Arid Regions and Alpine Areas Only)	☐ 0	☐ 0.5	☐ 1	☐ 1.5
	21. Riparian Corridor (Arid Regions Only)	☐ 0	☐ 1	☐ 2	☐ 3
	BIOLOGY SUBTOTAL:				_____

Single Indicators: ☐ Fish ☐ Amphibians ☐ Macroinvertebrates

Note: Scoring scale is reversed for indicators marked with ▼.

★ ***TOTAL SCORE:*** _____

Flow Duration (select only one)

- **Ephemeral** ☐ Total Score < 13
- **Intermittent** ☐ Total Score ≥ 13 **or** Single Indicator
- **Perennial** ☐ Total Score ≥ 25

Determining Jurisdiction

Validation Study Objectives

- Defensible, robust, repeatable method
- Applicable and adaptable across the Pacific Northwest/West
- Research to directly inform the program/policy arena on jurisdictional issues

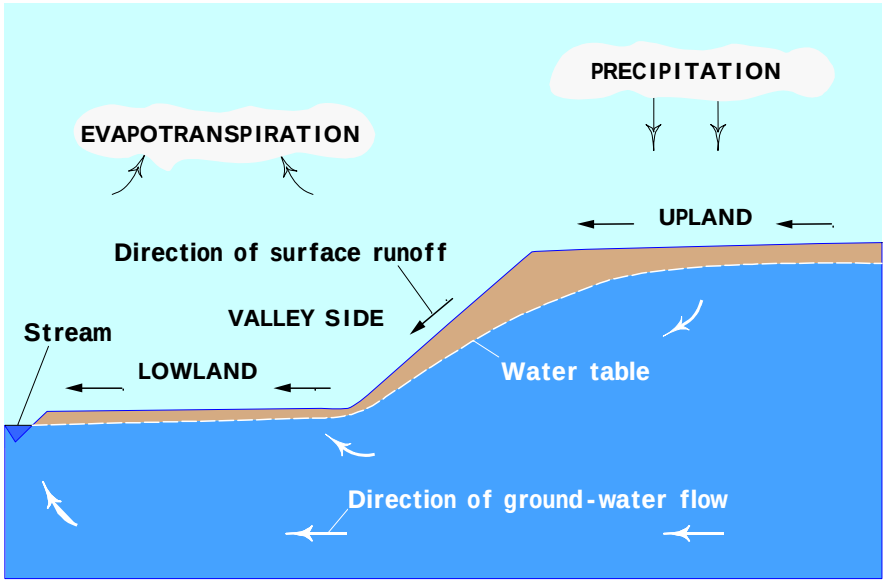
Determining Jurisdiction

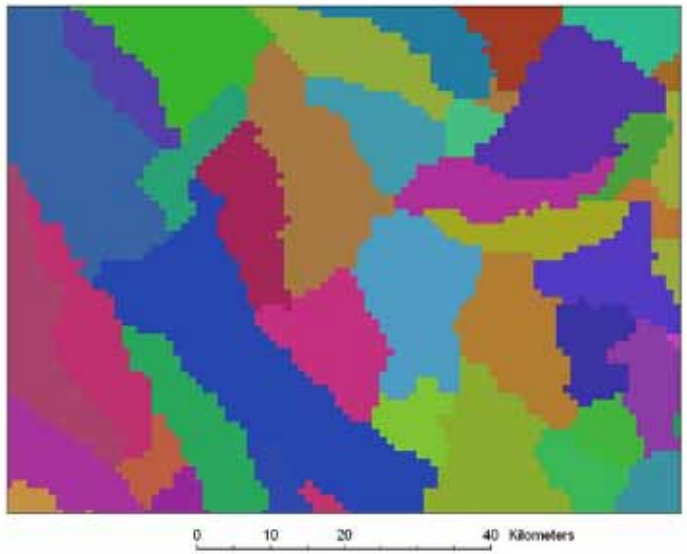
Study Questions

- Does the method give the “right” answer?
- Equally applicable in different (wet/dry) seasons?
- Equally applicable in different hydrologic landscapes across the state?
- Are these the right indicators? Are all indicators necessary (i.e. provide explanatory power to “answer”)?
- Should different indicators be differently weighted depending on above variables (e.g. season, HLR)

Hydrologic Landscape Regions

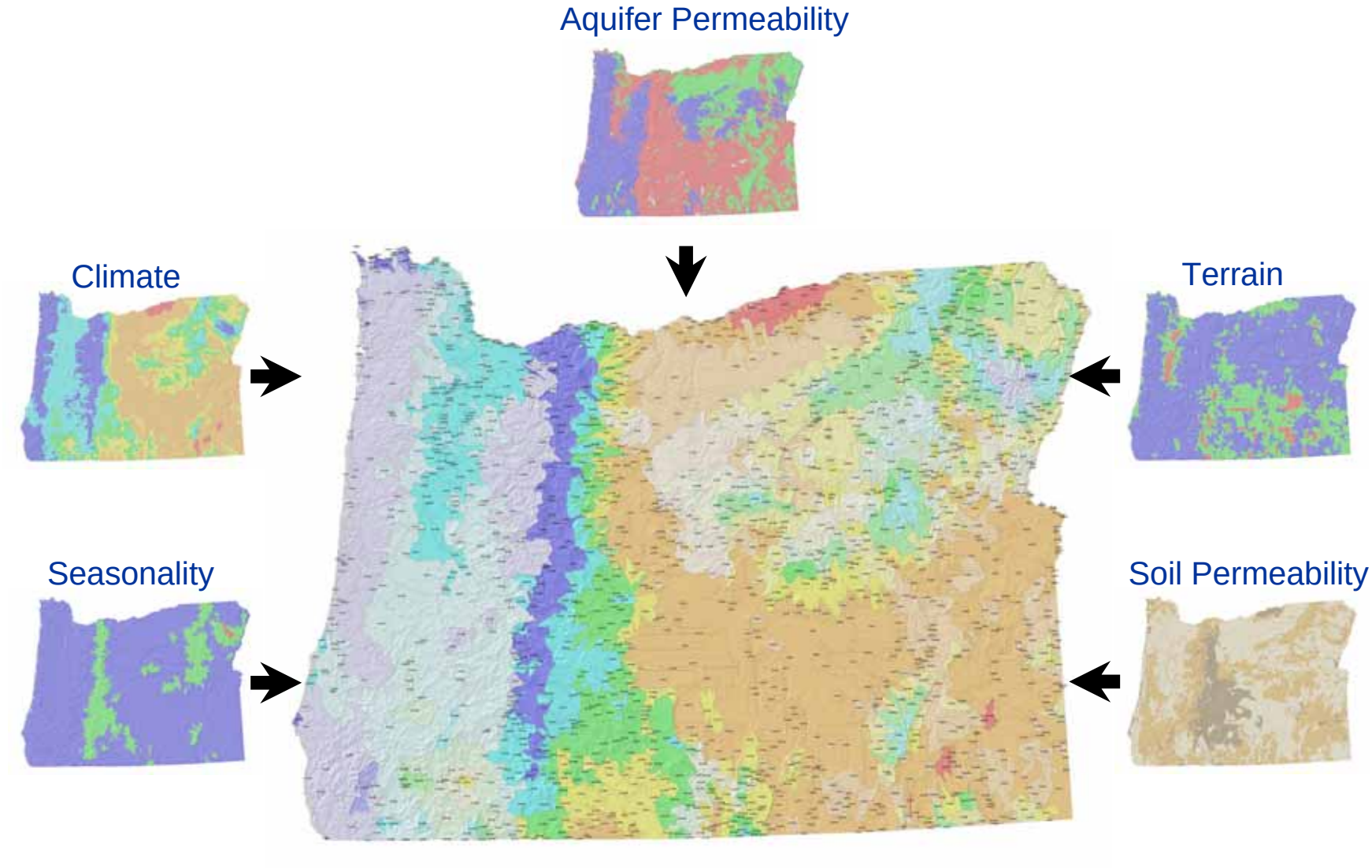
- Climate
  - Mean annual precipitation minus potential ET
- Geology
  - Subsurface permeability class
  - Percent sand in soil
- Terrain
  - Slope
  - Percentage and location of flatland in watershed





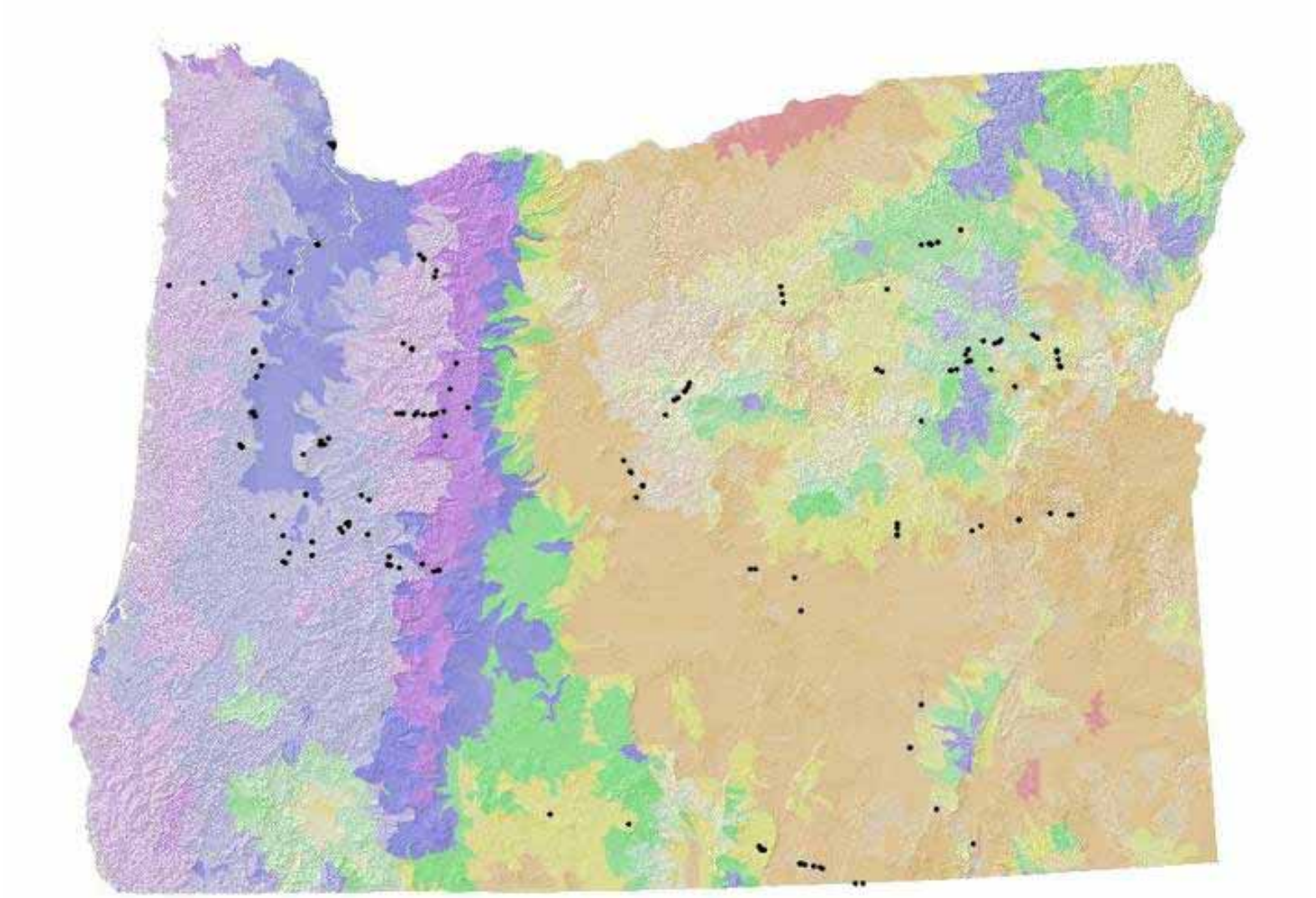
David Wolock, USGS

Oregon Hydrologic Landscape Regions



Wigington et al. (2010) *in preparation*

Validation Study Sites



Determining Jurisdiction

Field Validation Study

- Sampled across a range of hydrologic settings (177 streams, all classes)
- Deployed ER sensors in ~60% of streams
- Supplemental data collected for “problem” indicators
- Fall (dry) 2008 – results refelcted in Interim Version
- Spring (wet) ’09; Fall (dry) ’09
- Completed data collection October ’09…

Determining Jurisdiction

Initial Thoughts from Preliminary Analyses

- Several indicators appear to have strongest explanatory “power” in separating stream categories
- Includes: macroinvertebrates; hydrophytic plants; groundwater; riparian corridor; bed and bank
- Several geomorphic indicators are correlated with each other (measuring the same thing)
- Aim for general models (method) across space and time

Determining Jurisdiction

Next Steps

- More exhaustive and refined analysis
- Including ER data (Dec ’09 removal)
- Focus on individual indicators
- Aiming for March 2010 release of final method for Oregon
- Expand validation study to ID and WA
- Similar and dissimilar HLRs
- Spring 2010- study design
- Fall 2010 – commence study

QUESTIONS?