

'Quantified Conservation' & Trading Programs for Regulatory Compliance



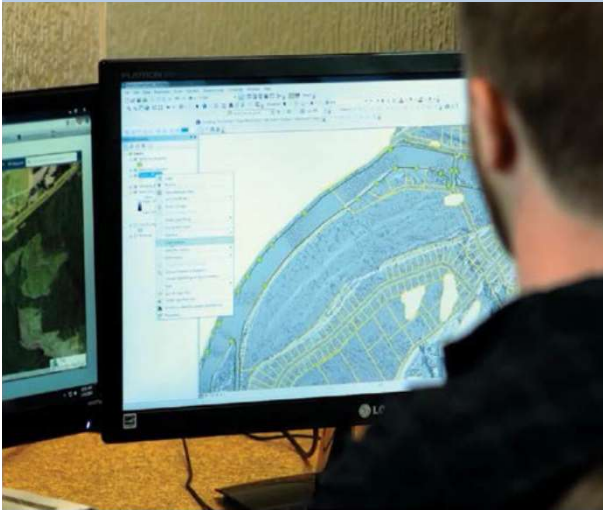
Erik Ringelberg, California Director



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Consulting and Water Quality Trading Services



Analysis & Quantification

Feasibility analysis and quantification of “uplift” -GHG and N benefits in units for regulatory compliance.



Permitting Support

Provide guidance and permitting support to gain agency approval for regional solutions to meet Clean Water Act and Endangered Species Act obligations.*



Credit Program Management

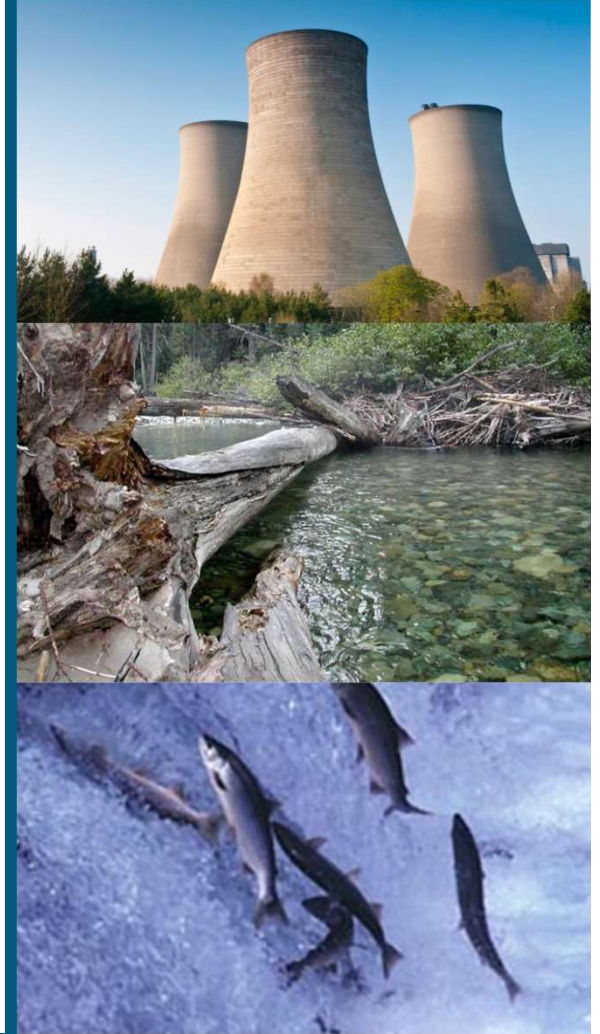
Design, manage & implement compliance programs and deliver certified credits.



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WQ Trading Origins

- **Conservation reacts** to challenges (fish, wildlife, water quality [N/P] and quantity, climate change, etc.) after impacts
- **Regulatory drivers** are focused on the obvious point sources- small percent of overall impacts
- **Technological solutions** employed by regulated entities are appropriate for some, but not all. *Wide net, often too broad. We rethink risks...*



Water Quality Trading 101

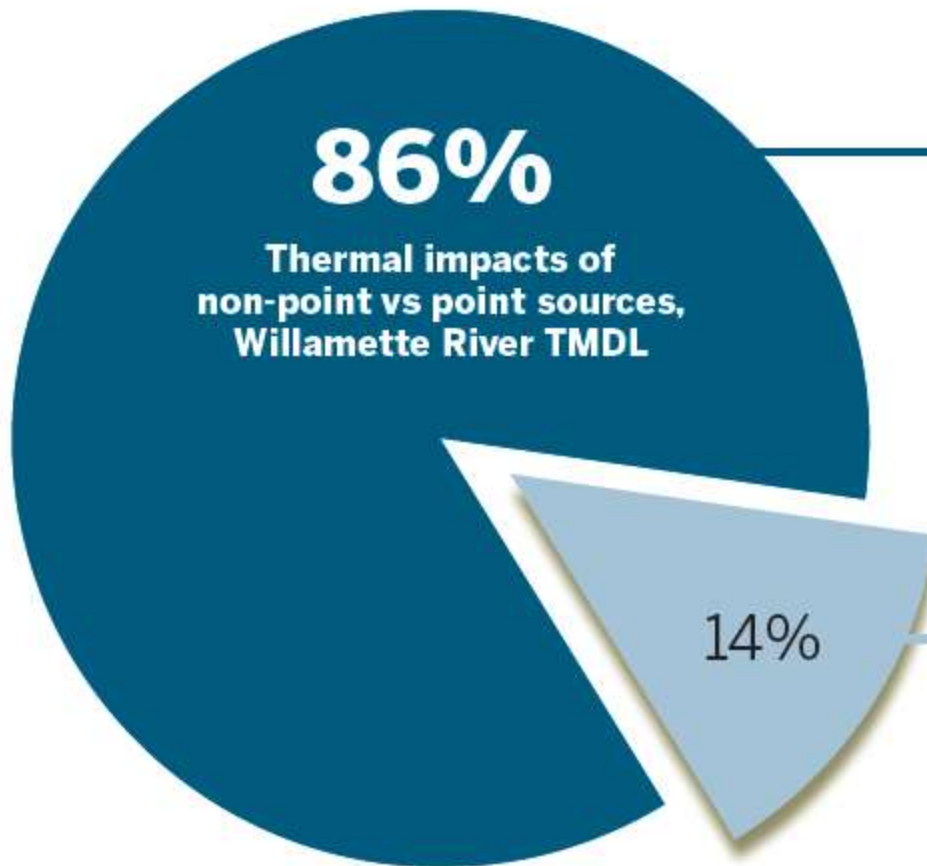
- Regulated point/area source is able to secure and document reductions from a nonpoint source
- PS to NPS trading programs can be more cost-effective and make better **ecological** sense than end-of-pipe technology controls
- Successful WQT programs must have:
 - **Standards** for eligible projects and project quality
 - Calibrated models for **credit measurement**
 - **Transparent systems** for reporting and tracking performance and custody of creditsThese create **Trust** and **Stability**



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Example: Rethinking NPS Challenge



Non-Point Source



Point Source

Source <http://www.deq.state.or.us>

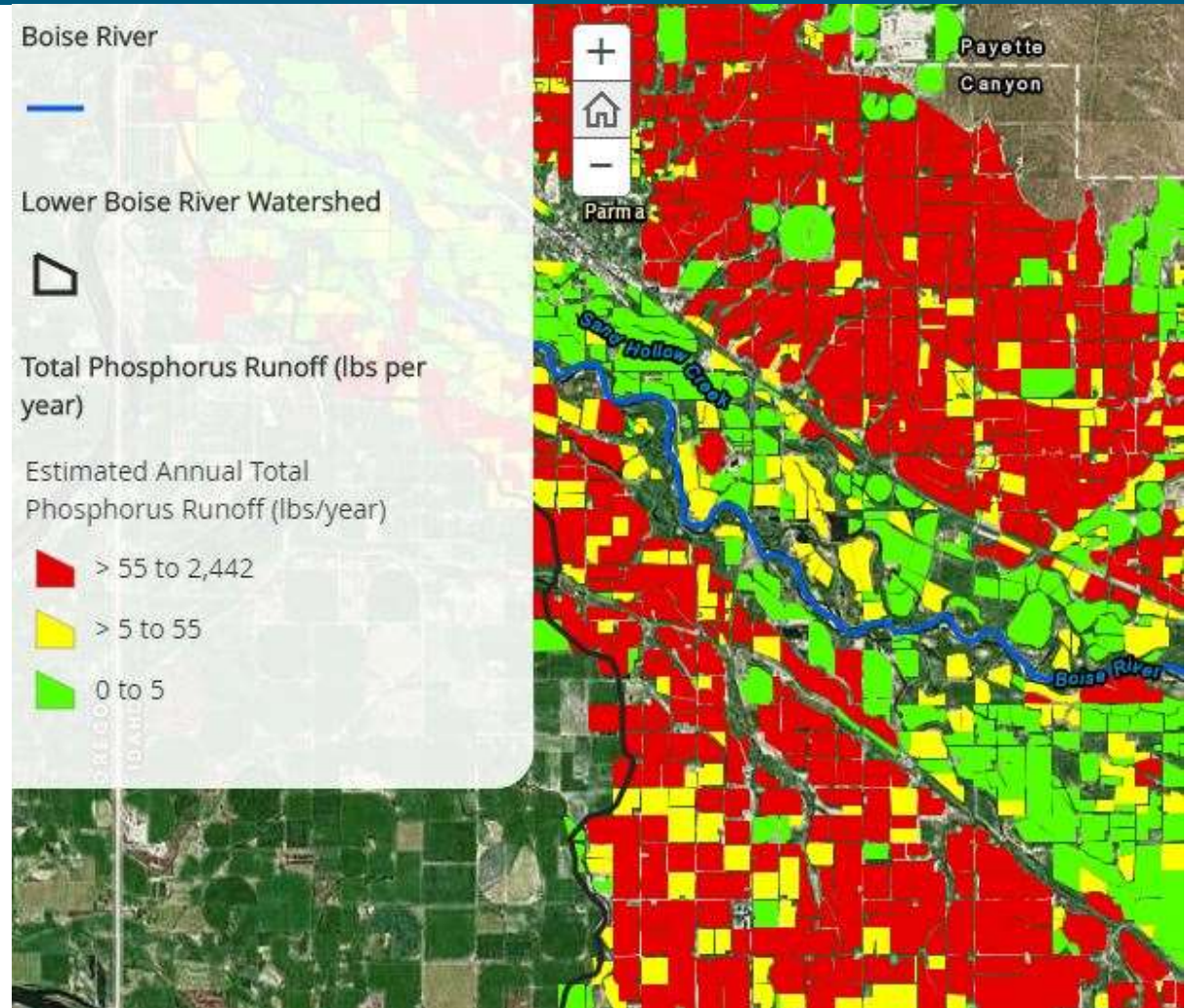


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Target Practice - Quantified Outcomes

Using data and technology to ensure every practice/ops action taken translates to a positive environmental outcome:

- Prioritize
- Implement
- Track



Three Keys for Markets

To be a viable...

Clear Authority:

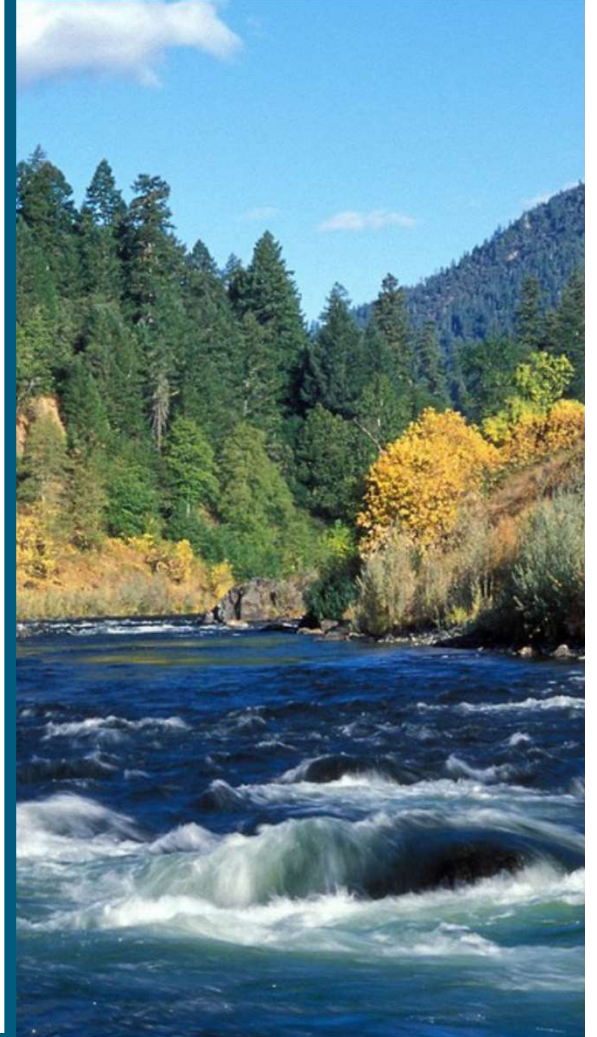
- Regulators must adopt and support required rules (biggest impediment to success)

Clear Framework:

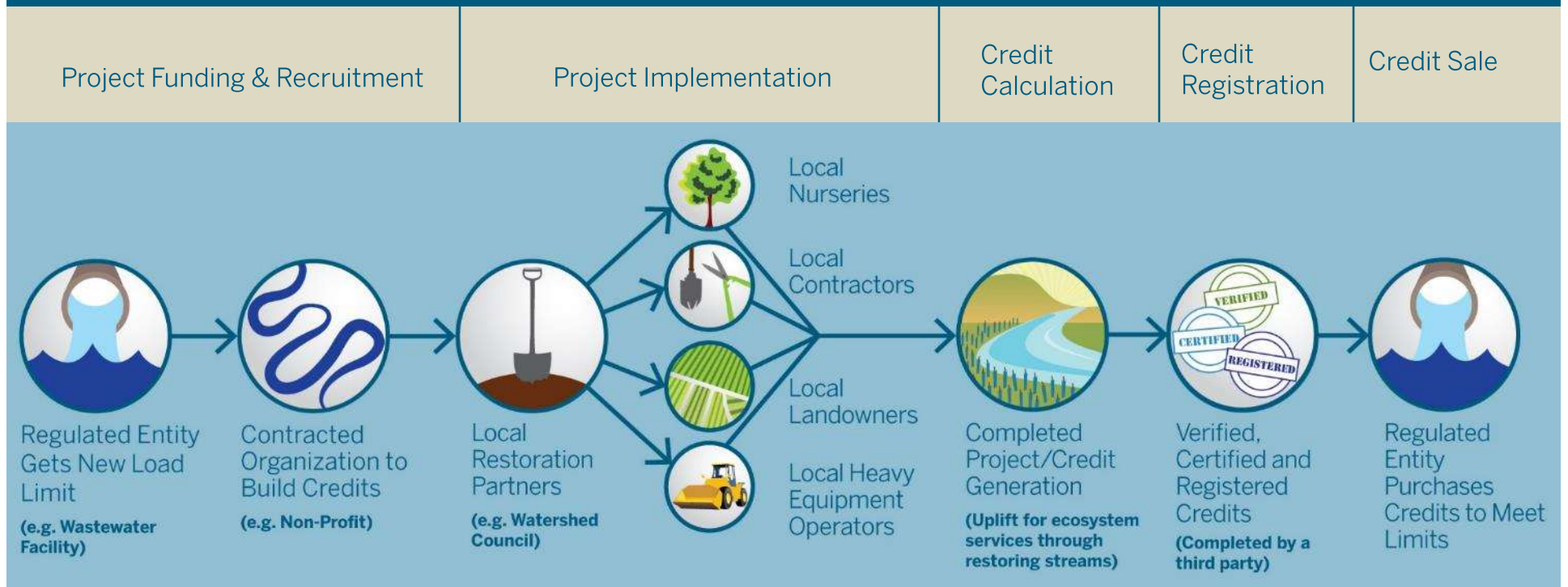
- Approved standards and protocols for measuring reductions/ecosystem services, and implementing credit generating projects

Clear Roles:

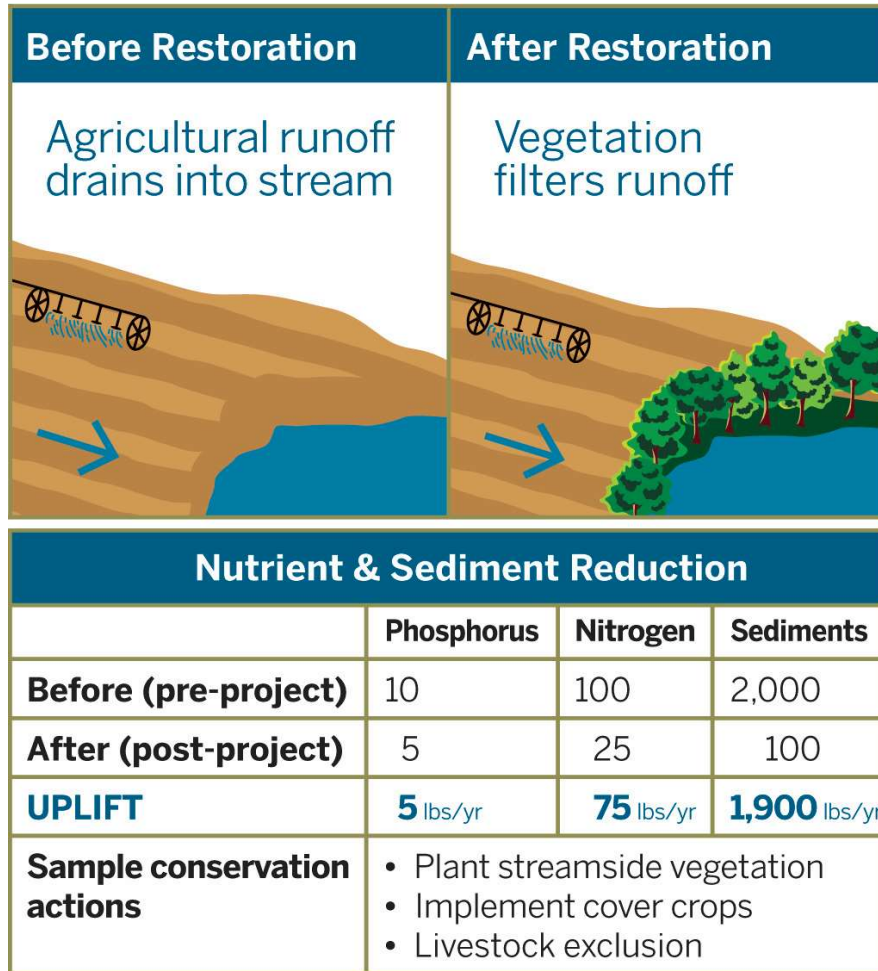
- Producers, Regulators, Oversight, and Third parties willing to assure delivery of compliance-grade credits with secure, turnkey projects



Example Transaction Process



Nuts and bolts: Nutrient Reduction



- Nitrogen, phosphorus and sediment load reductions are modeled by comparing baseline (pre-project) conditions to modeled conditions after modified farm practices or BMPs
- Assess impact of site-level actions as a component of a basin-scale water quality challenge



Buffer Project Implementation



Removing invasives



Planting natives



Calculating Credits: Example Ledger

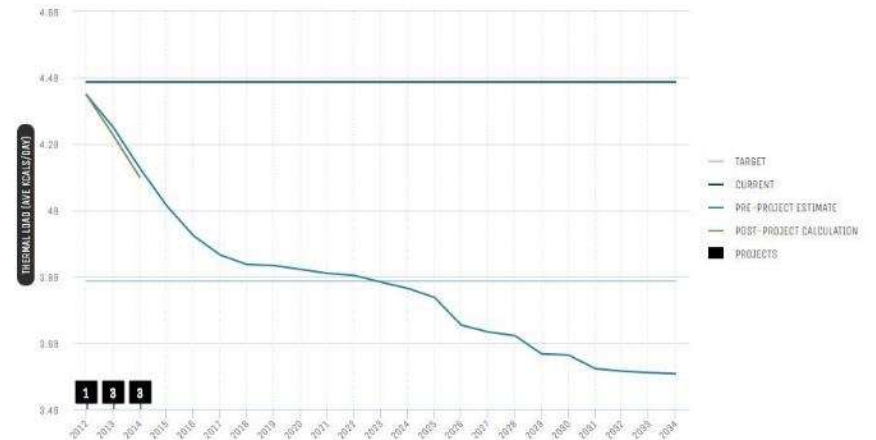
Credit Type	Pre-project	Post-Restoration	Reduction
Temperature <i>(kCals/day)</i>	56,246,205	41,726,475	14,519,730
Phosphorus <i>(lbs/year)</i>	6	1	5
Nitrogen <i>(lbs/year)</i>	103	12	91
Sediment <i>(lbs/year)</i>	8,243	3,331	4,912



Verification, Registration, Tracking



WATER QUALITY TARGET



markit

Financial Information Services

Registry - Public View

Clear Search: Registry: COTE Willamette: Water Quality (Temperature) Standard All Links Page 1

Account Holders	Projects	Issuances / Listings	Holdings	Retired Credits					
Name	Category	Standard Name	Project Type	Status	Certification	Validator	Developer	Location	Documents
Oaks Creek	Water Quality	COTE Willamette: Water Quality (Temperature) Standard	Temperature	Active		Willamette Partnership	Oregon Department of Forestry	United States, Oregon	View
	Biodiversity and Habitat	COTE Willamette: Salmonid Standard	Salmonid Habitat Protection	Active		Willamette Partnership			
Half Mile Lane	Water Quality	COTE Willamette: Water Quality (Temperature) Standard	Temperature	Active		Willamette Partnership	Oregon Department of State Lands	United States, Oregon	View
	Biodiversity and Habitat	Oregon Wetlands Regulatory (Rabos) Standard	Freshwater Wetland	Active		Willamette Partnership			
	Biodiversity and Habitat	COTE Willamette: Wetland Hatched Standard	Freshwater Wetland	Active		Willamette Partnership			
	Biodiversity and Habitat	COTE Willamette: Salmonid Standard	Salmonid Habitat Protection	Active		Willamette Partnership			
	Biodiversity and Habitat	COTE Willamette: Wetland Hatched Standard	Freshwater Wetland	Active		Willamette Partnership			
	Biodiversity and Habitat	Oregon Wetlands Regulatory (Rabos) Standard	Freshwater Wetland	Active		Willamette Partnership			
	Biodiversity and Habitat	Oregon Wetlands Regulatory (Rabos) Standard	Freshwater Wetland	Active		Willamette Partnership			
	Biodiversity and Habitat	Oregon Wetlands Regulatory (Rabos) Standard	Freshwater Wetland	Active		Willamette Partnership			
Mehavek River Riparian Enhanced Project	Biodiversity and Habitat	COTE Willamette: Salmonid Standard	Salmonid Habitat Protection	Active		Willamette Partnership	The Freshwater Trust	United States, Oregon	View
	Water Quality	COTE Willamette: Water Quality (Temperature) Standard	Temperature	Active		Willamette Partnership			

Please note this is not a complete listing of all Registered Projects, but only those that the account holder has requested be publicly available.



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Next Steps: Scaling and Credit Weight

Making your program scale from one farm to a watershed: For example saving pounds per acre from other operations seems minor, but from a regional perspective that is program compliance, reduced risk and, potentially a multimillion dollar benefit to a Groundwater Agency. If we can stack GHG, GW and WQ credits, track and transact them efficiently, we all win.



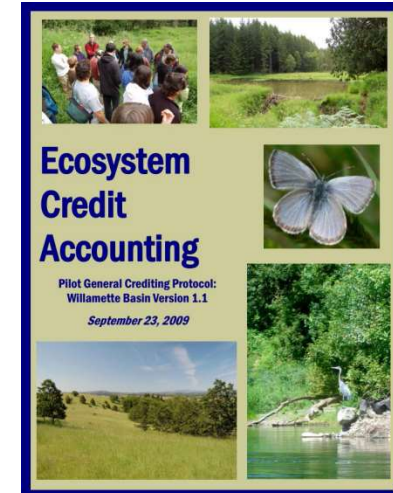
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Examples: Clear Regulatory Framework

Recent crediting protocols developed through *collaborative stakeholder processes*:

- Boise River Phosphorus Trading Framework – 2003 (currently in revisions)
- The Oregon **'General Crediting Protocol'** for water quality trading - 2009
- **KTAP Protocols** for approved quantification methods for temperature and nutrients in the Klamath River - 2012



Step	Step #	Project Developer	Administrator	Investor	Methods, Forms & Instructions	Klamath TAP Products
Select & Validate Project Site	P1	■	■	□	Self-Validation Checklist	Notice of Validation
Implement Project & Calculate Benefit	P2	■	□	□	Field Datasheets, Benefit Release Schedule	Quantified Estimate of Ecosystem Benefits
Verify Conditions	P3	■	■		Verification & Monitoring Report, Agency Certification Form	Verified Project
Register & Issue	P4	■	■		Verification & Monitoring Report	Issued Ecosystem Benefits
Track & Transfer	P5	■	■	■	Approval of Transfer Form	Project Report & Defined Ownership of Ecosystem Benefits

Legend
 ■ Indicates a necessary or active role
 □ Indicates potential participations or a support role

Example: Even with ARB and SWRCB...

Precedence in CA from successful air pollutant trading programs, still slow to implement, takes advocates and coalition building. Still have to meet compliance...but show how it will be faster.

Santa Rosa Nutrient Offset Program

- Adopted July 2008
- Allows for offsetting actions throughout Laguna de Santa Rosa for 10 years

- 2018 **RESOLUTION NO. R1-2008-0061**
Approving the Santa Rosa Nutrient Offset Program for the Santa Rosa Subregional Water Reclamation System **rams**

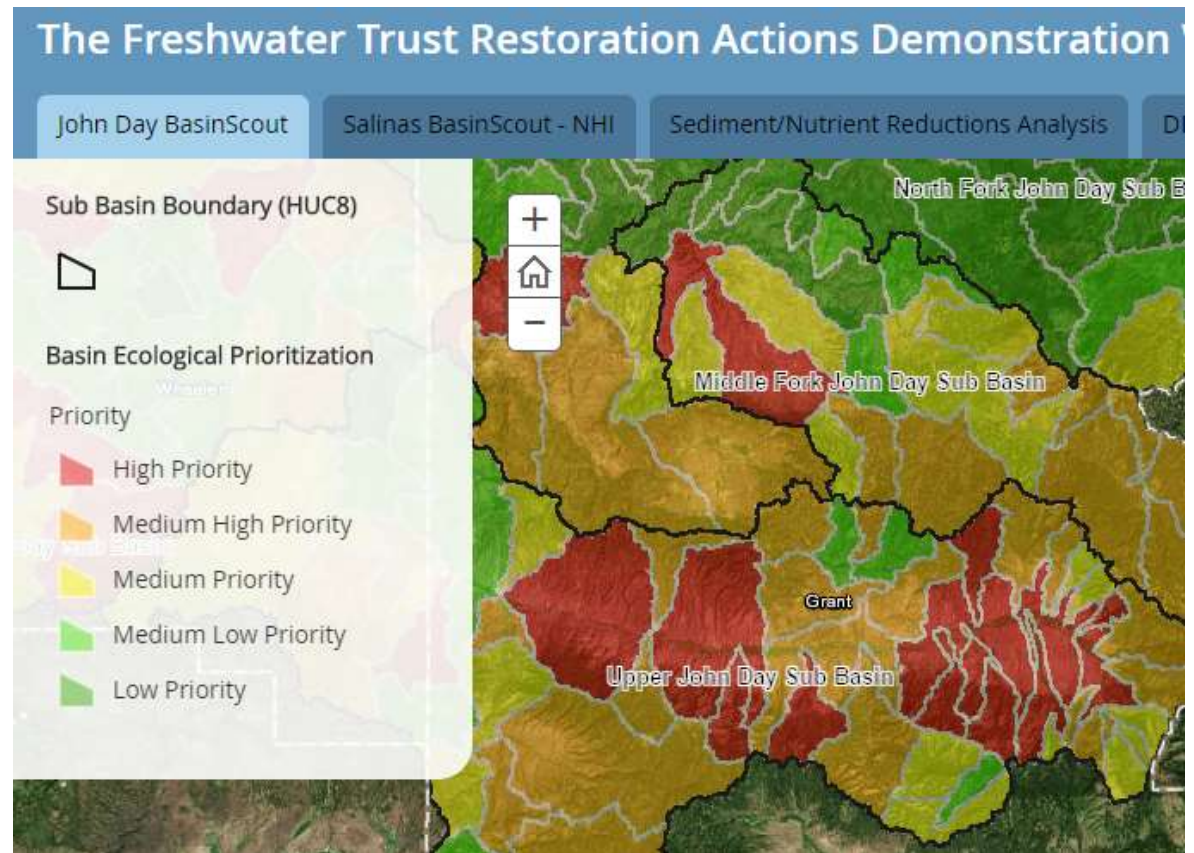
SANTA ROSA NUTRIENT OFFSET PROGRAM



Markets and Buyers

**SGMA
Compliance –
New funding
sources.**

**ILRP Compliance
and CV-Salts –
New regulatory
drivers that allow
trading.**



What does success look like?

- Reduced risk for violations and expensive compliance?
- Flexible market that can leverage sufficient multi-value funding through market trading to reduce other implementation costs?
- Regulatory ‘certainty’?
- Long-term partnership across producers, industry, conservation, and environmental justice community for shared objectives?



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Step 1. Strategic Partnerships

- Establish a small initial strategic working group
 - Ag./Credit Org./Conserv./Board staff if at all possible
 - Set a work product (concept paper) and a timeline (2 months)
 - Report out to who? Conference?
- Group goals are to identify and focus on the strategic impediments and opportunities to informal and formal trading/crediting



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Questions?



Alex Johnson

Freshwater Solutions Director
alex@thefreshwatertrust.org
503-222-9091 x18

Erik Ringelberg

California Director
erik@thefreshwatertrust.org
916-668-7345



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