

The Changing the course of conservation.  
Freshwater Trust®

If we ever build a chiller at the expense of ecosystems, we've failed."

Dick Pedersen, Director  
Oregon Department of Environmental Quality

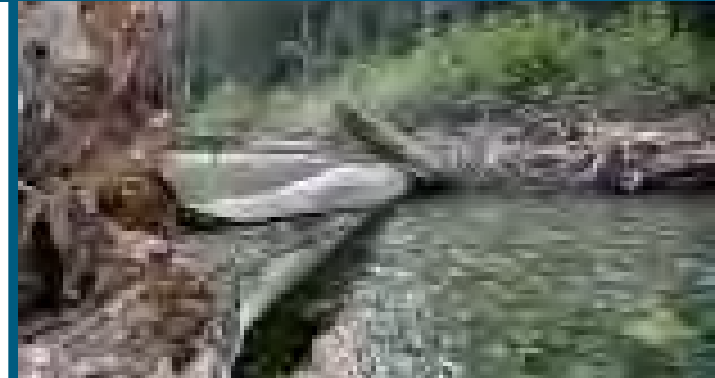


# Non-Point Alternatives for NPDES Compliance

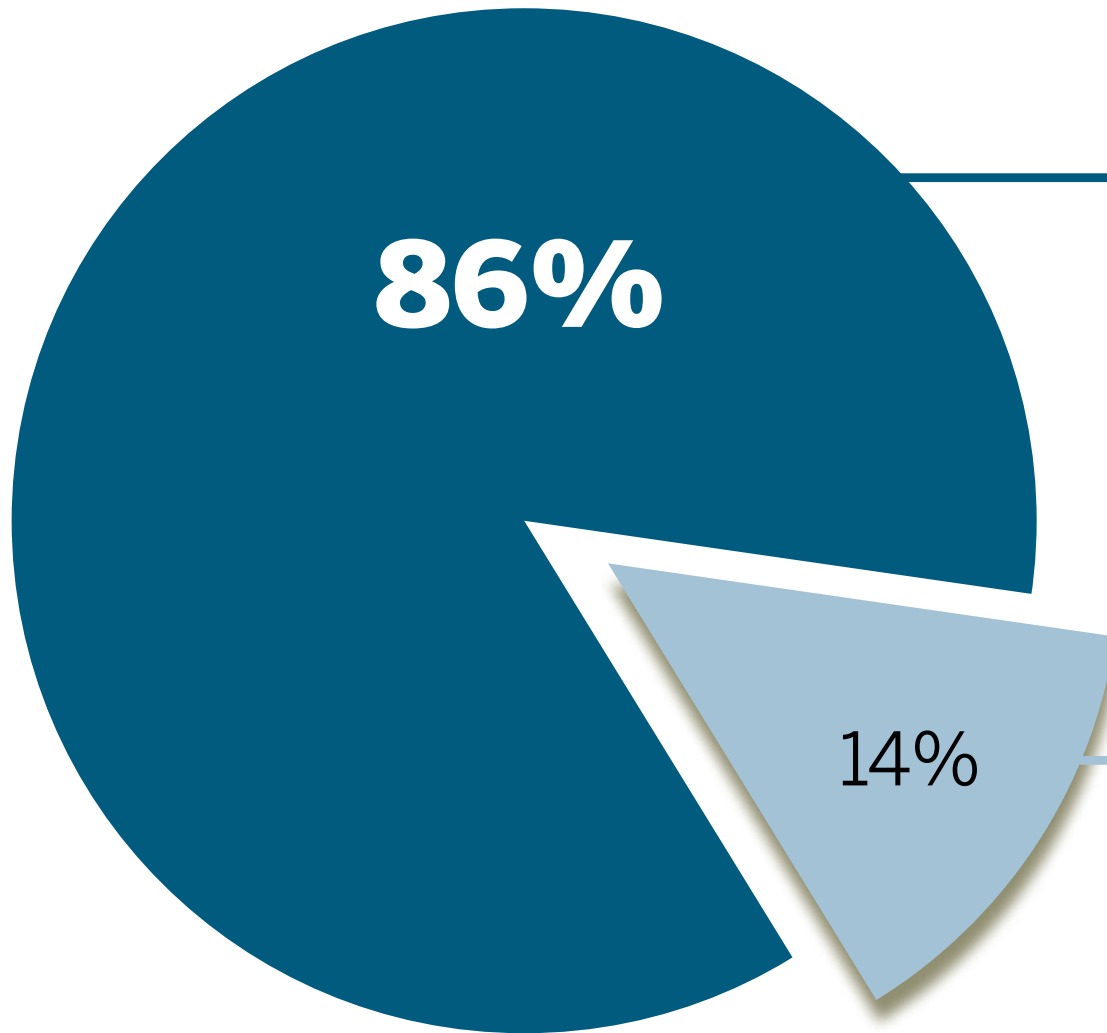
**David Primozich**, *Senior Director of Ecosystem Services*

# Existing Conditions

- Regulations largely reactive to environmental challenges at a small scale (fish, wildlife, water quality, etc.)
- Regulatory drivers only present on small percent of overall impacts
- Regulated entities have historically invested heavily in technological solutions to single drivers, which is appropriate for some, but not all new parameters.



# Need Options To Apply Resources Efficiently



**Non-Point Source**



**Point Source**

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



# Three Keys for Non-Point to Work

For non-point actions to be viable as a compliance alternative...

**CLEAR AUTHORITY:** Drivers

→ Regulators need to understand and encourage it

**CLEAR PATH:** Standards

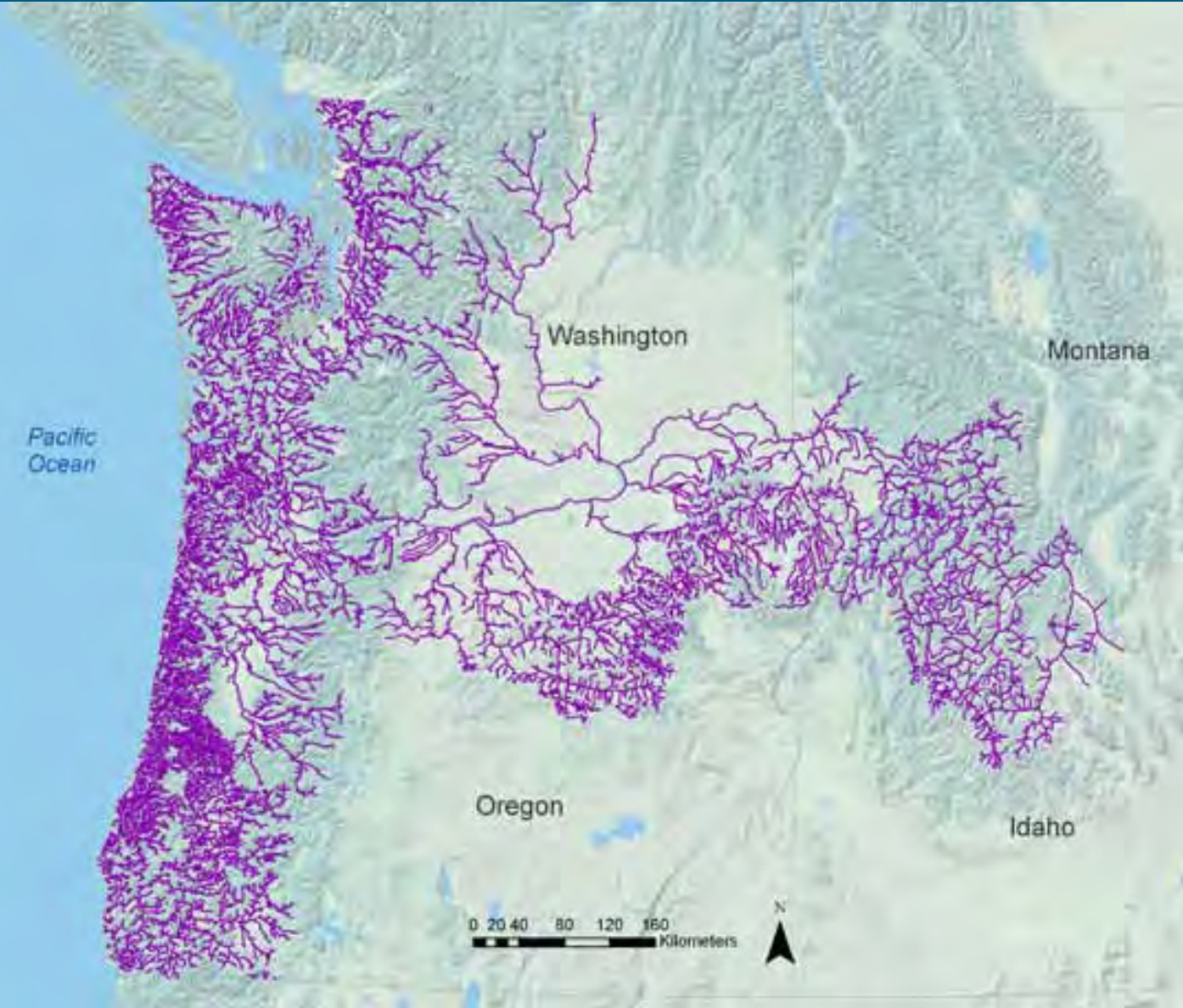
→ Standards to guide project quality and measure benefits

**CLEAR RISK:** Turn-Key

→ Third-parties willing to develop and assure delivery of compliance-grade credits with secure, turn-key projects



# NPDES Permits

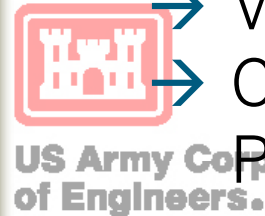


→ **82 new TMDLs** in Oregon, Washington and Idaho since 2006.

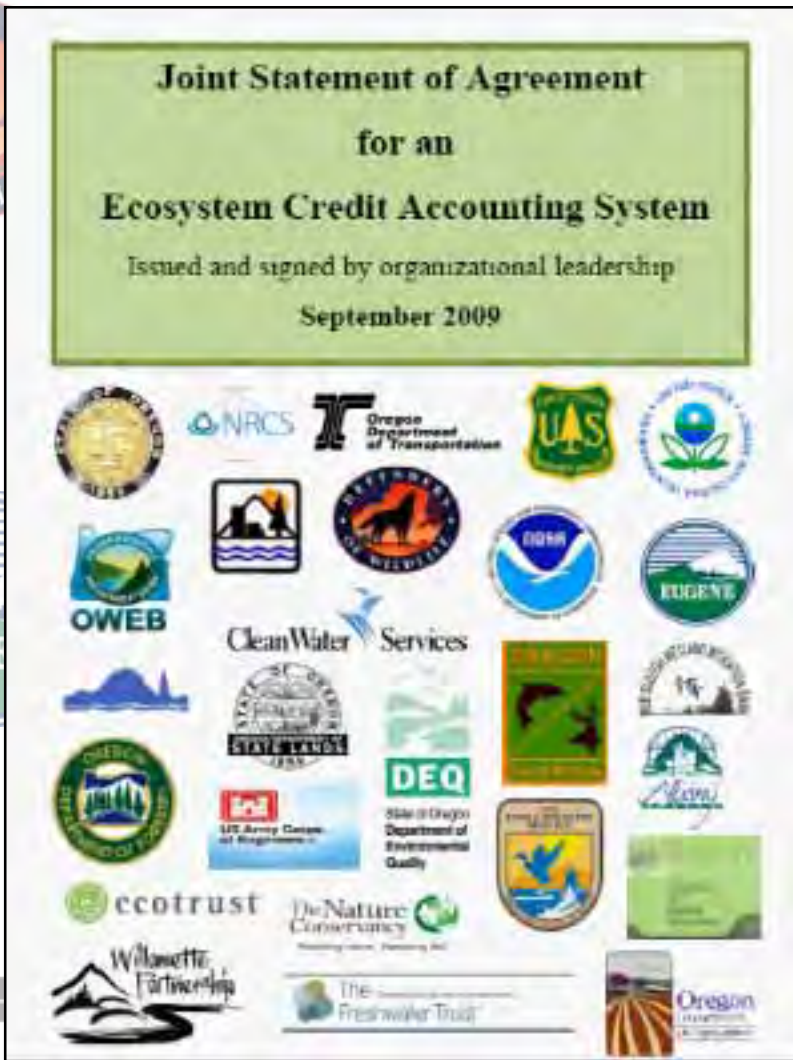
# Transparent and Credible Procedures

## Crediting Protocol

- Metrics
- Allowable Project Types and Quality Standards
- Verification Procedures
- Credit Registration and Performance Tracking



US Army Corps of Engineers.



Department of Transportation



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STANDARDS

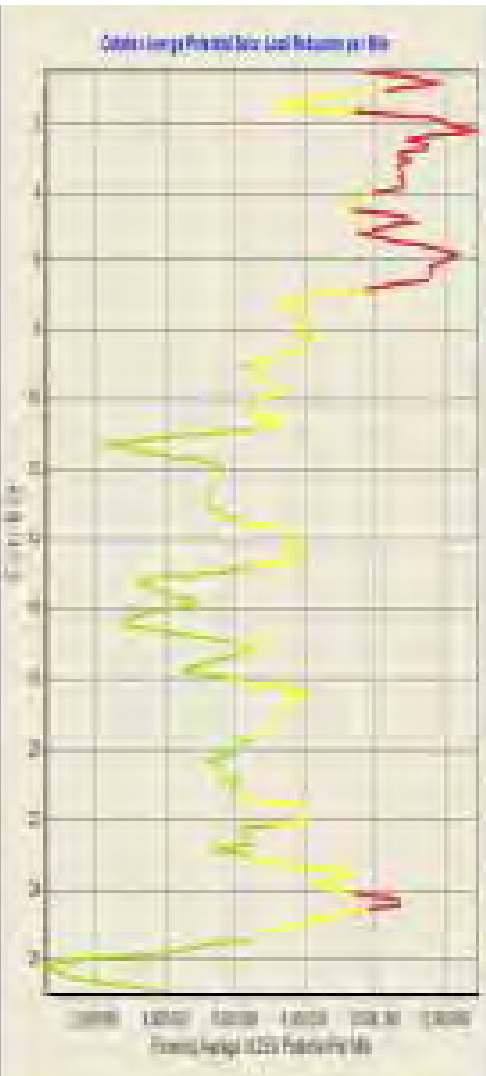
# Compliance Grade Credits Not Grant Programs

<b>Traditional Restoration Steps</b>	<b>Compliance-Grade Credit Generation Steps</b>
Identify project site	Identify project site
Fundraising	Financing
	Negotiate 20+ year contract with landowner
	Collect baseline data
Project design	Project design
	Estimated credit values
Implement	Implement
	Verification that implementation meets standards
	Certification that credits meet accounting protocols
	Credit registration
Monitoring and maintenance (Years 1 – 3)	Monitoring and maintenance (Years 1 – 3)
	Monitoring and maintenance (Years 4 – 20)
	Annual payments to landowners (20+ years)



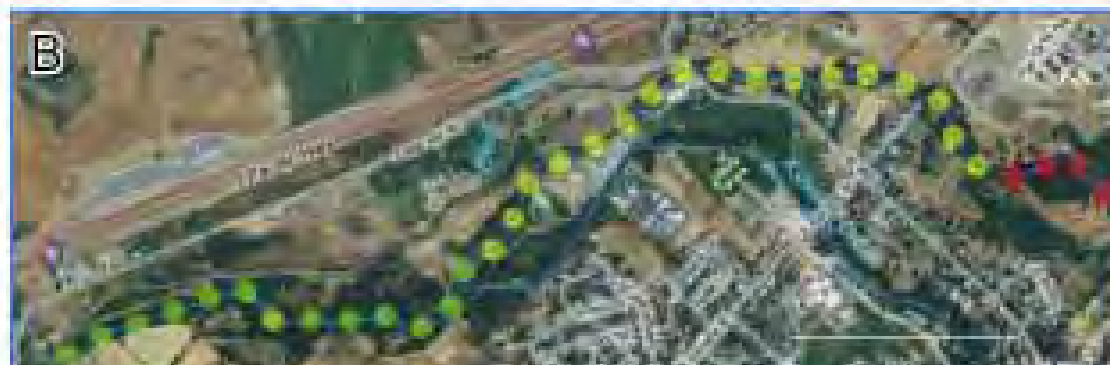
# Alternatives and Permitting Support

## Turn Key Approach Alternatives Analysis and Permitting Support



Category	Data Points (Point-source Model)	Summary Category (kcal/day)
low	176	190,704,357
mid	174	328,415,365
high	96	267,160,890
<b>Totals</b>	<b>446</b>	<b>806,280,357</b>

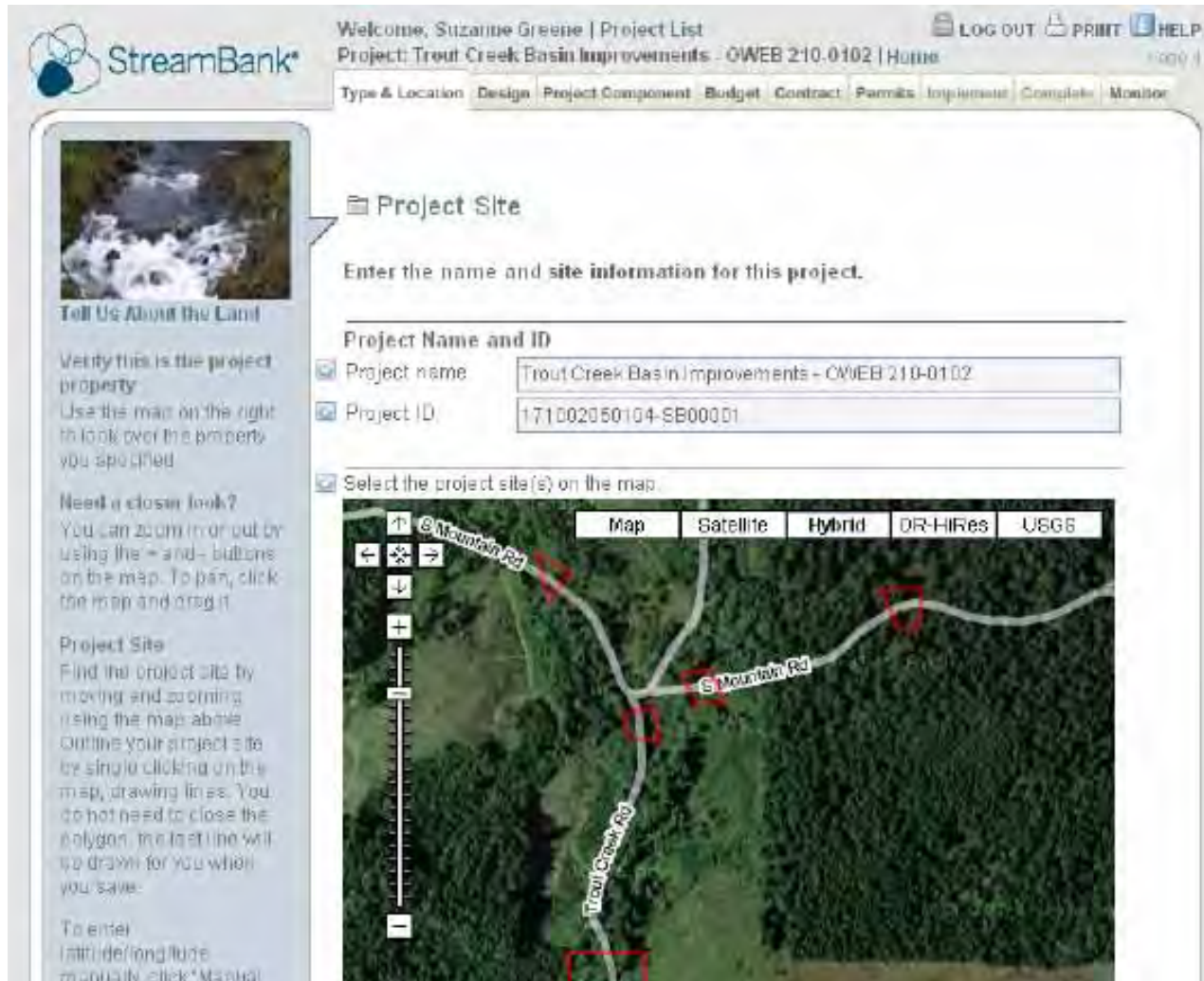
Average Point Potential Report are based on total load change as calculated by EPC's freshwater model. Total Load Change = WTP (Ground Thinning Potential) - LUP (Current) Category (kcal/day). For the purposes of this analysis Potential is 20% of Total Load Change (to account for unmodeled point-source) values, as well as wetland emissions. Potential is measured in kcal of total freshwater per mile per day (MM kcal/day/mile).





# Software to Support Quality Assurance

## Tools are Developed and Operational



The screenshot displays the StreamBank software interface. At the top, it says "Welcome, Suzanne Greene | Project List" and "Project: Trout Creek Basin Improvements - OWEB 210-0102 | Home". Below this is a navigation menu with options: Type & Location, Design, Project Component, Budget, Contract, Permits, Implement, Complete, Monitor. The main content area is titled "Project Site" and includes a form to "Enter the name and site information for this project." The form has fields for "Project Name and ID", "Project name" (Trout Creek Basin Improvements - OWEB 210-0102), "Project ID" (171002050104-SB00001), and a checkbox for "Select the project site(s) on the map." Below the form is a map showing a satellite view of a river area with red outlines indicating project sites. The map includes navigation controls and a scale bar.

- Assures quality and consistency of projects
- Embeds regulator approved governors
- Accelerates project implementation
- Enforces compliance-grade credit standards



# Monitoring: Performance & Transparency

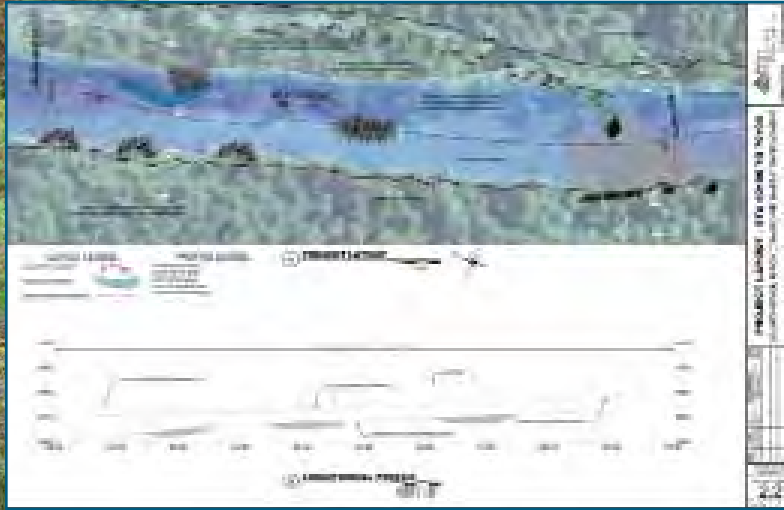
## Web Accesible Tools for Transparency

The screenshot shows the StreamBank web application interface. At the top, it says "Welcome, Anna McKinney | Project List" and "Project: Johnson Creek Restoration Project | Home". Below this are navigation tabs: "Type & Location", "Design", "Project Components", "Budget", "Contract", "Parents", "Implement", "Complete", and "Monitor". The main content area is titled "Project Monitoring" and includes a "Monitoring Photopoints (Procedures: 1)" section. A "Monitoring Information" section contains fields for Camera Point (A), Landowner (Jane Smith), GPS Coord (N 45° 24' 45.0", W 125° 15' 30.0"), and Map Datum (NAD 83). Below this is a "Location" section with fields for Photo Point (AT), Compass Bmtg (0.0 N), Distance (20.0 Feet), and Camera Height (4.0 Feet). The interface also displays "Before" and "After" photo columns with "Taken" and "By" fields. At the bottom, there are three photo upload boxes, each with a "Taken" field, a "By" field, and an "Upload" button.

- Projects have baseline data and are monitored annually
- Monitoring data is collected and stored by the StreamBank web platform, provide a searchable/reportable database of project results that can be ported to other databases



# Verification & Registration



DATE	TIME	TEMP	PH	DO	CONDUCT	TURB	CHLOROPHYLL	PHOSPHORUS	NITROGEN
2013-08-15	10:00	18.5	7.2	6.5	150	10	0.5	0.1	0.2
2013-08-15	10:15	18.5	7.2	6.5	150	10	0.5	0.1	0.2
2013-08-15	10:30	18.5	7.2	6.5	150	10	0.5	0.1	0.2
2013-08-15	10:45	18.5	7.2	6.5	150	10	0.5	0.1	0.2
2013-08-15	11:00	18.5	7.2	6.5	150	10	0.5	0.1	0.2



# Case Study: City of Medford

## FACTS

**Population:** 170,000

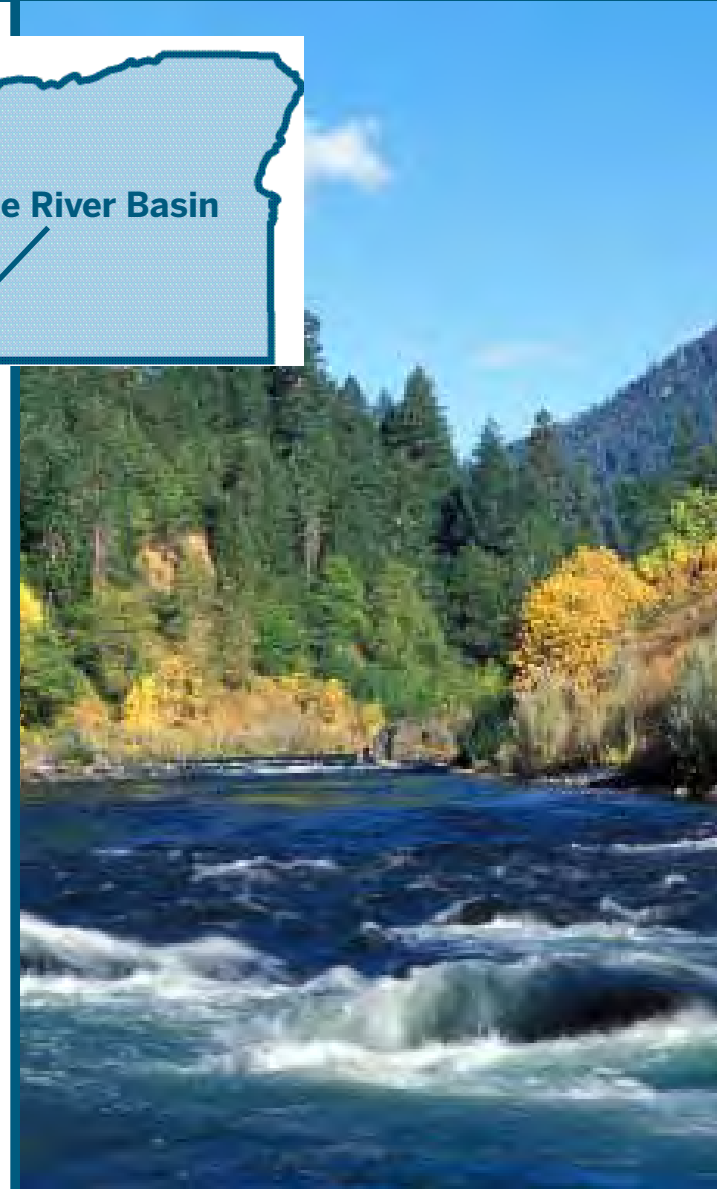
**Projected Excess Heat under TMDL limits:**  
620 million kcals/day

### Options:

- *Giant holding pond to store water for 1 month of each year: **\$16 Million***
- *30 miles of native riparian vegetation restored and maintained for 20 years: **\$8 Million***

### Solution

*City contracted with The Freshwater Trust for credits to be delivered on a ten year schedule. City only pays when credits are delivered*



# Post Permit - Turn Key Transaction Process

Project Financing  
& Recruitment

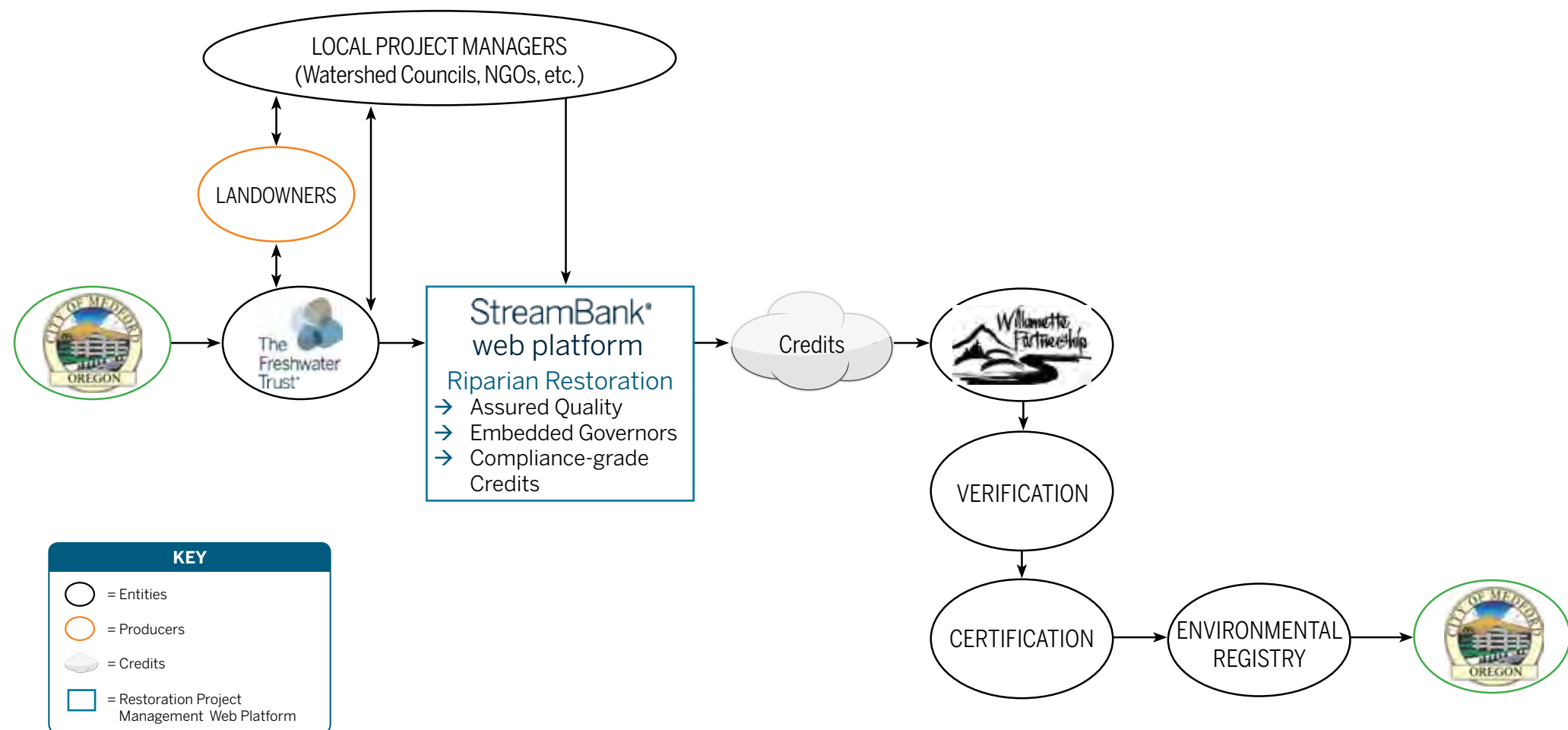
Project  
Implementation

Credit  
Calculation

Verification &  
Certification

Credit  
Registration

Credit Sale



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Freshwater Trust® [www.thefreshwatertrust.org](http://www.thefreshwatertrust.org)

TURN-KEY

# Four Keys for Communities

Non-point actions prevail on factors that matter...

- **ECONOMIC:** Non-point actions are generally far less expensive than technological solutions, spread over many years
- **POLITICAL:** Non-point actions happen in local area creating jobs
- **ECOLOGICAL:** Non-point solutions tend to have multiple environmental benefits
- **TURN-KEY:** Cities only pay for certified credits not process and project components

