Pacific Northwest & California Regional Forum

Alex Johnson, Senior Freshwater Solutions Director
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The Freshwater Trust® www.thefreshwatertrust.org
The Freshwater Trust

A 501(c)(3) non-profit organization with a 32-year history of actively working to preserve and restore freshwater ecosystems.

**Habitat Restoration**
Actively restoring stream, off-channel and riparian habitat to improve functional conditions for fish.

**Flow Restoration**
Keeping water in streams to support water quality and habitat while supporting working lands.

**Water Quality Trading**
Applying compliance-driven funding to prioritized restoration/conservation actions to increase overall watershed health.

The Freshwater Trust

[www.thefreshwatertrust.org](http://www.thefreshwatertrust.org)
Analysis & Quantification
Feasibility analysis and quantification of “uplift” from habitat restoration in units for regulatory compliance.

Permitting Support
Provide guidance and permitting support to gain agency approval for restoration solutions to meet Clean Water Act and Endangered Species Act obligations.

Credit Program Management
Design, manage & implement watershed restoration programs and deliver certified credits.
Where We Work

Current Water Quality Trading Contracts & Analyses
Credit protocols from the Willamette Partnership, a third-party verifier of credits

- **General Crediting Protocol** for water quality trading
- **KTAP Protocols** for approved quantification methods for temperature and nutrients in the Klamath River

Policy Foundations

Regional Recommendations for the Pacific Northwest on Water Quality Trading
Joint statement from ID, OR, and WA agencies (with EPA Region 10) that defines recommendations for implementing water quality trading.
Case Study: Rogue River, OR

**Buyer:** City of Medford (population 170,000)

**Seller:** 20+ landowners in Rogue River Basin

**Contractor:** The Freshwater Trust

**Driver:** Projected excess heat under TMDL limits:
- 300 million kcals/day in 10 years

**Options:**
- Giant holding pond to store water for 1 month of each year: **$16 million**
- 10-15 miles of native riparian vegetation restored and maintained for 20 years: **$6.5 million**

**With trading program for riparian revegetation:**
- Money pays local restoration contractors
- Farmers get annual lease payments
- Restoration = 20 jobs per $1 million spent
- Facility achieves compliance
Transaction Process

<table>
<thead>
<tr>
<th>Project Funding &amp; Recruitment</th>
<th>Project Implementation</th>
<th>Credit Calculation</th>
<th>Credit Registration</th>
<th>Credit Sale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regulated Entity gets new load limit (&lt;em&gt;e.g. Wastewater Facility&lt;/em&gt;)</td>
<td>Local Nurseries</td>
<td>Local Landowners</td>
<td>Completed Project/Credit Generation (&lt;em&gt;Uplift for ecosystem services through restoring streams&lt;/em&gt;)</td>
<td>Verified, Certified and Registered Credits (&lt;em&gt;Completed by a third party&lt;/em&gt;)</td>
</tr>
<tr>
<td>Contracted organization to build credits (&lt;em&gt;e.g. Non-Profit&lt;/em&gt;)</td>
<td>Local Contractors</td>
<td>Local Heavy Equipment Operators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Local Restoration Partners (&lt;em&gt;e.g. Watershed Council&lt;/em&gt;)</td>
<td></td>
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</tbody>
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Temperature Model

Solar radiation is measured pre- and post-project implementation.

Reductions in solar radiation are the result of increased canopy cover for riparian re-vegetation or reduced channel surface area in channel modification projects.

This is called ‘Uplift’.

**Solar Load Avoided**

<table>
<thead>
<tr>
<th>Solar Load Avoided</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Before (pre-project)</td>
<td>10,000,000</td>
</tr>
<tr>
<td>After (post-project)</td>
<td>4,500,000</td>
</tr>
<tr>
<td><strong>UPLIFT</strong></td>
<td><strong>5,500,000 kcal/day</strong></td>
</tr>
</tbody>
</table>

Sample conservation actions:
- Plant streamside vegetation
## Calculating Credits: Example Ledger

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

Removing invaders

Planting natives
Riparian Planting
Monitoring: Performance & Transparency

Long-term monitoring:
→ Plant survival
→ Species diversity
→ Invasive species cover
→ Photo point monitoring

Ongoing maintenance:
→ Invasive species control
→ Plant replacement
→ Irrigation where necessary
Case Study: Klamath Basin, OR

**Buyer:** PacifiCorp  
**Seller:** 1 landowner  
**Contractor:** The Freshwater Trust  
**Driver:** Klamath Hydroelectric Settlement Agreement  

**Goals of Pilot Project:**  
- ½ mile of livestock exclusion fencing to reduce phosphorus and sediment loading and re-establish riparian zone  
- Part of a suite of regional actions to improve degraded water quality, support fish habitat and reduce algal blooms
Nitrogen, phosphorus and sediment load reductions are modeled by comparing pre-project conditions to modeled conditions after restoration or changed farm practices.

Assess impact of site-level restoration as a component of a basin-scale water quality problem.

Examples: NTT, Snap Plus, SISL, RUSLE2, APEX
Case Study: Meridian, ID

**Buyer:** City of Meridian (population 214,000)
**Seller:** Private Landowners (none contracted yet)
**Contractor:** The Freshwater Trust
**Driver:** New phosphorus limit in upcoming NPDES permit.

**Options:**
- Mechanical: Biological nutrient removal; membrane filtration; tertiary treatment; recycled water program; aquifer recharge
- Ecological: Implement agricultural best management practices on surface irrigated fields

**Next steps:**
- Revisions to Lower Boise River Trading Framework
- Pilot project for ag BMPs

**Goals:**
- Reduce nutrient load in the Boise River-Snake River system
- Reduce downstream algal growth that impacts water quality and fish mortality
Questions?

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