Use of Payments for Ecosystem Services to Protect the McKenzie Watershed

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Eugene Water & Electric Board
Discussion Summary

• Background
  – EWEB utility background
  – McKenzie Watershed
  – EWEB’s Source Protection Program

• Voluntary Incentives Program for Good Stewardship (investment in natural capital)
EWEB Basics

• Publically owned water & electric utility since 1911.

• Electric Side:
  – 87,277 customer accounts
  – EWEB owned generation (wind farms, hydroelectric, solar, co-generation facilities)
  – $166.8 million in revenue (retail sales)

• Water Side (McKenzie River sole source):
  – 51,628 customer accounts
  – $22.52 million in revenue from sales
Regional Water Cost Comparison
Residential House

Northwest
Table 1: Source Protection Program Costs from 2001 to 2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Dollars</th>
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<td>2011</td>
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<td>2012</td>
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Watershed size: 1,338 sq miles
Elevation range: approx 430’-10,358’
Average annual river flow at confluence: 5,809 cfs
Average annual precipitation: 40”-110” (mostly snow at higher elevations)
High Cascades

Young basalts, basaltic andesites, andesites, pumice, and ash < 7 million years old

Youngest McKenzie Pass lava flows (≤ 3000 years old)
Cascade Springs - blue pools

Tamolitch Pool, McKenzie River

Great Springs, Clear Lake
Cascade Springs - GUSHERS!
The McKenzie River provides a disproportionate share of water to the Willamette in low flow periods.
Fully Appropriated Summer Flow

AUGUST AVAILABLE STREAMFLOW
Streamflow calculated at 80% exceedance
Source Protection Program Objective

• To measure the balance between watershed health and human use over time and to implement actions that maintain a healthy balance for production of exceptional water quality.
Increase economic viability while reducing chemical use/increase buffers
Development on River

Urban Runoff

Industry

Hazardous Material Spills
RISK CATEGORIES RANKED BY AVERAGE SCORE

Urban Stormwater Runoff
Development/Septics
HazMat Transport Spills
Industrial Facilities
Road Herbicide Spraying
Agricultural Activities
Forestry Activities
Camp Grounds/Recreation
Fish Hatcheries
Dams & Powerhouses
Elements of Source Protection Program

- Comprehensive Monitoring
- Disaster Preparedness and Response
- Point Source Evaluation and Mitigation
- Nonpoint Source Evaluation and Mitigation
- Education and Research Assistance
- Land Acquisition and Conservation Easements
- Watershed Land Use Tracking and Management
- Public Outreach and Information Sharing
Floodplain and Riparian Protection

- Biological Opinions
- Water Quality
- Fish and Wildlife Habitat
- TMDLs
- Groundwater Management Area
- Community Rating System (FEMA)
- On-Site Program
- Domestic Wells
Healthy Riparian areas and Floodplains Provide Critical WQ Functions

FIGURE ES-1 Schematic of a generic riparian area showing a zone of influence relative to aquatic and upland areas. The intensity of riparian influence is depicted with shading. “Material flows” refers to energy, organic matter, water, sediment, and nutrient flow.
Figure 1 - The Link between Natural Infrastructure and Ecosystem Goods and Services

- Forests Capture and Filters Water
- Water Supply
- Drinking Water

Ecosystem Infrastructure & Processes
Ecosystem Functions
Specific Ecosystem Goods & Services
Table 5 - Ecosystem Services Valued and/or Identified in the Skykomish Watershed

<table>
<thead>
<tr>
<th>Provisioning Services</th>
<th>Agricultural Lands</th>
<th>Forest</th>
<th>Grazlands</th>
<th>Lakes/Rivers</th>
<th>Pasture</th>
<th>Riparian Buffer</th>
<th>Shrub/Snub</th>
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</table>

Key:
- X Ecosystem service produced by land cover and valued in this report
- Ecosystem service produced by land cover but not valued in this report
- Ecosystem service not produced by land cover
EWEB data shows direct correlation between increased turbidity and treatment costs.
## McKenzie Draft ESV Riparian Buffer Value

$1,031 to $6,717/acre/year

<table>
<thead>
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<th>Ecosystem Service</th>
<th>Low Value ($/acre/year)</th>
<th>High Value ($/acre/year)</th>
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<td><strong>TOTAL</strong></td>
<td><strong>1030.66</strong></td>
<td><strong>6716.62</strong></td>
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**WATERSHED INVESTMENT FUND**

**MITIGATION FUNDS**
- Developers
- ODOT
- Permits
- Hydroelectric

**CORPORATIONS**
- Offsets
- Sponsorship

**SWCD**
- % of tax base

**EWWEB**
- Rate Payer Funds

**USFS**
- Stewardship Contracting

**OWEB/DSL**
- Restoration & Protection funds

**FEDS**
- CREP + BPA
- Tax deductions

**Grants/Foundations**
- One-Time Investments

**LANDOWNERS**
- Forestry (F2)
- Agriculture
- Residential
- Nonprofits
- Local Governments

**Payments for Stewardship**

**Payments for Services**

**Grants/Funding for Restoration**

**Program Infrastructure**
- Riparian Health Assessment
- Landowner Agreement
- Fiscal Mgmt/Accounting
- Monitoring & Planning
- Agreement Enforcement
- Education/Outreach/Marketing

**McKenzie River Trust**
**McKenzie Watershed Councils**
**Soil & Water Conservation Dist.**
**Lane Council of Governments**
**Cascade Pacific RC&D**
LIDAR sends out bursts of laser pulses. Laser pulses hit branches and leaves and some energy bounces back to a sensor... remaining energy from pulse hits ground & bounces back. Sensor records exact position, height and signal strength.
Better Mapping of Channel Features
Walterville

Vegetation Percent cover by Eligible Taxlot Area

- 0% - 16%
- 17% - 33%
- 34% - 48%
- 49% - 66%
- 67% - 81%
- 82% - 109%

CPW Reaches
## Paying Dividends on Landowner’s Natural Capital

$\frac{250,000}{6,463 \text{ acres}} = \$38.68/\text{ac}

Year 1 – 300 acres enrolled = $11,604 payout

$\frac{488,396}{6,463 \text{ acres}} = \$75.56/\text{ac}

Year 2 – 600 acres enrolled = $45,341 payout

$\frac{693,055}{6,463 \text{ acres}} = \$107.23/\text{ac}

Year 3 – 1,000 acres enrolled = $107,230 payout

$\frac{835,825}{6,463 \text{ acres}} = \$129.32/\text{ac}

<table>
<thead>
<tr>
<th>Percent Cover</th>
<th>Acres</th>
<th>Percent of Total Area</th>
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<tbody>
<tr>
<td>0-33%</td>
<td>1,664</td>
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<td>34-66%</td>
<td>1,927</td>
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<td>67-100%</td>
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<td>Total Acres</td>
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Demonstration Farm

- 13 Partners (same partners as with PES infrastructure)
- Demonstrate Riparian Market to Producers
Contact Karl Morgenstern at:
(541) 685-7365 or via e-mail Karl.morgenstern@eweb.org

http://www.eweb.org/waterquality/protection