Due to projected population growth and an increase in discharge volume of treated wastewater, the City of Medford’s wastewater treatment facility faced a potential exceedance of thermal load when renewing its NPDES permit. The plant handles 17 mgd typically and up to more than 100 mgd during storm events.

To address the higher temperature load of its discharge (which has minimal impacts to the mainstem Rogue where the outfall is located), the City of Medford entered into an agreement in 2011 to offset the temperature exceedance through a state-regulator-approved water quality trading program.

The offset credit contract directs The Freshwater Trust to plant and maintain 10-15 miles of streamside vegetation on the Rogue River and its tributaries to reduce the solar load on the water over time and protect critical spawning habitat for salmon.

In return, Medford’s Regional Water Reclamation Facility achieves temperature compliance with regulators. This $6.5-million habitat restoration solution proved more cost-effective for the city when compared to the estimated $16-million facility upgrades, and a majority of that investment remains in the community as monitoring and maintenance continues for 20 years.
At a Glance: Medford Temperature Trading Program

Options:

- Holding pond to store treated water for 1 month of the year: **$16 Million**
- 10-15 miles of native riparian vegetation planted and maintained for 20 years: **$6.5 Million**

Current Progress:

Riparian Shade Generates Credits:

- **262 million kilocalories/day** blocked by vegetation at critical spawning time of mid-October (current progress)
- **600 million kilocalories/day** will be blocked by vegetation at maturity—a 2:1 trading ratio for projected exceedance of 300 million kcals/day in 10 years

<table>
<thead>
<tr>
<th>Site</th>
<th>Planting Year</th>
<th>Acreage</th>
<th>Mileage</th>
<th>Phosphorus Reduction (lbs/yr)</th>
<th>Nitrogen Reduction (lbs/yr)</th>
<th>Sediment Reduction (lbs/yr)</th>
<th>Solar Load Avoided (kcal/day)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rogue RM 128</td>
<td>2012</td>
<td>3.40</td>
<td>0.31</td>
<td>0</td>
<td>0.5</td>
<td>13.6</td>
<td>69,073,622</td>
</tr>
<tr>
<td>Applegate RM 28.5</td>
<td>2013</td>
<td>4.70</td>
<td>0.56</td>
<td>24.4</td>
<td>121.1</td>
<td>40,117</td>
<td>41,809,600</td>
</tr>
<tr>
<td>Applegate RM 29.5</td>
<td>2013</td>
<td>2.60</td>
<td>0.30</td>
<td>0.4</td>
<td>3.8</td>
<td>1,249</td>
<td>23,572,100</td>
</tr>
<tr>
<td>Applegate RM 30</td>
<td>2013</td>
<td>2.40</td>
<td>0.31</td>
<td>0.4</td>
<td>3.7</td>
<td>808</td>
<td>56,921,925</td>
</tr>
<tr>
<td>Applegate RM 3</td>
<td>2014</td>
<td>6.0</td>
<td>0.80</td>
<td>8.4</td>
<td>93.2</td>
<td>39,171</td>
<td>56,701,835</td>
</tr>
<tr>
<td>Little Butte RM 8.5</td>
<td>2014</td>
<td>2.73</td>
<td>0.58</td>
<td>3.2</td>
<td>15.8</td>
<td>2,577</td>
<td>21,412,533</td>
</tr>
<tr>
<td>Rogue RM 95</td>
<td>2014</td>
<td>5.92</td>
<td>0.77</td>
<td>0</td>
<td>6.5</td>
<td>0</td>
<td>67,768,658</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>27.75</td>
<td>3.63</td>
<td>36.8</td>
<td>244.6</td>
<td>83,935.6</td>
<td>337,260,273</td>
</tr>
</tbody>
</table>

Ancillary Benefits:

In addition to the main environmental benefits of restoring streamside vegetation and reducing solar load, the restoration solution also results in:

- Less energy consumption than gray infrastructure upgrades
- Reduced streambank erosion and silting
- Improved habitat for Chinook salmon and steelhead

Economic Impact:

- Money pays local restoration contractors and services
- Farmers/landowners receive annual lease payments
- 20 jobs per $1 Million spent on restoration

Services Provided:

To create a compliance-grade program, The Freshwater Trust provided consulting services to Medford, including:

- Quantification of benefits of habitat restoration
- Trading program design and administration
- Site analysis and modeling
- Landowner outreach and contract negotiations
- Project financing and financial liability
- Liaison with regulator, consulting engineer, and permit holder
- Permit review
- Credits application and third-party verification
- Long-term monitoring of sites