Resurrection Creek Restoration

- ~1 Mile Stream
- ~.75 Mile Side Channels
- ~100,000 yd^3
- 58 Acres of Flood Plain

$550,000

May 10, 2005
RESURRECTION CREEK RESTORATION
2005 Monitoring

**2005 MONITORING GOALS**
- Baseline data to monitor change
- Compare channel dimensions to design
- Relate channel morphology to fish habitat

**2005 MONITORING TASKS**
- Photo points
- Aerial photos
- Longitudinal Profile
- 11 Cross Sections
- Substrate size
- Fish counts / Nutrients

Example Longitudinal Profile
Riffle-Run-Pool-Glide Sequence

- Riffle
- Run
- Pool
- Glide

- Average Bankfull Slope
- Average Water Surface Slope
- Thalweg
- Water Surface
## Channel Characteristics
### 3 Cross Sections

<table>
<thead>
<tr>
<th></th>
<th>Riffle</th>
<th>Glide</th>
<th>Pool</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>XS 14+82</td>
<td>XS 15+38</td>
<td>XS 15+76</td>
</tr>
<tr>
<td><strong>Bankfull Width</strong></td>
<td>75 ft</td>
<td>78 ft</td>
<td>108 ft</td>
</tr>
<tr>
<td><strong>Average Bankfull Depth</strong></td>
<td>2.3 ft</td>
<td>3.0 ft</td>
<td>3.7 ft</td>
</tr>
<tr>
<td><strong>Bankfull Cross-Sectional Area</strong></td>
<td>172 ft²</td>
<td>230 ft²</td>
<td>396 ft²</td>
</tr>
<tr>
<td><strong>Maximum Bankfull Depth</strong></td>
<td>3.7 ft</td>
<td>5.1 ft</td>
<td>8.0 ft</td>
</tr>
<tr>
<td><strong>D₅₀</strong></td>
<td>118 mm</td>
<td>46 mm</td>
<td></td>
</tr>
</tbody>
</table>

### Particle Size Distribution

- **Pre-Restoration**
  - Reference Reach: D₅₀ = 99 mm
  - RIFFLE XS (XS14+82): D₅₀ = 46 mm
  - GLIDE XS (XS15+38): D₅₀ = 60 mm

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**Graph:**
- Cumulative Substrate Distribution
- Particle Size (mm) vs. Percent Finer
- D₅₀ = 46 mm

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Fish Monitoring / Nutrients Study

- Graduate study: Marine derived nutrients
- Escapement Counts July-August 2005
- Fish Snorkel Counts
- Fish Carcass Counts

![Fish Monitoring Chart]

Reach 4 Reach 3 Reach 2 Palmer Creek Reach 1

- Pink
- Chinook
- Chum
- Coho
- Sockeye

Channel Length 4272ft Sinuosity 1.1 Average Slope: 1.3%

Estimated Pool Volume: 170,000 ft³

Channel Length 3600ft Sinuosity 1.1 Average Slope: 1.7%

Estimated Pool Volume: 10,000 ft³
RESURRECTION CREEK RESTORATION: Summary of 2005 Monitoring

<table>
<thead>
<tr>
<th></th>
<th>PRE-RESTORATION</th>
<th>POST-RESTORATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pools &amp; Glides</td>
<td>1% of reach</td>
<td>25% of reach</td>
</tr>
<tr>
<td>Sinuosity</td>
<td>1.1</td>
<td>1.3</td>
</tr>
<tr>
<td>Average Slope</td>
<td>1.7% (consistent)</td>
<td>1.4% (Riffles 2-4% / Pools &lt;0.1%)</td>
</tr>
<tr>
<td>D₅₀</td>
<td>Project Reach: 122 mm</td>
<td>Riffles: 103 - 118 mm Glides: 46 - 66 mm</td>
</tr>
</tbody>
</table>

2006 MONITORING TASKS:
- Monitor existing cross sections
- Establish additional cross sections
- Monitor side channel morphology
- Characterize substrate
- Continue fish counts / nutrients study

Resurrection Creek Restoration
Aerial Photo of Pre-Project Channel

2010 Planned Construction
Natural Revegetation of Imported Soil

Youth Restoration Corps & Resurrection Creek Restoration Project

Working Together

In Partnership
YRC’s Role in the Resurrection Creek Project 2006

- Accelerate native plant establishment through planting and seeding.

- Give the youth a working knowledge on erosion control, stream design, construction, and revegetation techniques.
YRC’s Role in the Resurrection Creek Project 2006

- Incorporate local schools in long term monitoring
- Develop a web site to access monitoring data

Thank You