Freeing the White Salmon River:

Dam removal, climate change, fish and rafting on a tribal sacred river
Motivation for the Study

- 100-year dam removed.
- Lack of Recreational Use Data.
- Eight commercial rafting companies dependent on river
  - Local and seasonal workers
  - Regional and international customers
  - A way of life.
- Chinook Salmon (Endangered Species) returned to river.
- Yakama Tribe.
- Climate Stressors – drought and low water conditions.
Motivation for the Study

• What is the level of disturbance, stress, and associated impacts of rafting on salmon populations?

• What are the spatial and temporal spawning distributions in relation to rafting routes and sacred sites?
Methods

• River divided into three sections for monitoring;

• Plotwatcher Time Lapse Cameras – census of river use along river.

• IGOTU GPS Devices for Continuous Tracking
  – Encased in waterproof cover
  – Distributed to river guides

• Observation and Interaction with river guides
100-Day Sample of River Use
Total Number of Visitors on Boats on the White Salmon River
Daily Pattern of Kayak Use
The most fall Chinook salmon are in the river section with the moderate recreational use.

Spring Chinook spawning in August however a different story.
# Summary of River Use Statistics

River Use Statistics for Summer 2014 on the White Salmon River, WA (100 day sample of peak season)

<table>
<thead>
<tr>
<th>River Section</th>
<th>Total Recreation Users</th>
<th>Total # of Craft</th>
<th>Total # of Rafts</th>
<th>Total # of Kayaks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upper</td>
<td>17,128</td>
<td>4,417</td>
<td>2,571</td>
<td>1,846</td>
</tr>
<tr>
<td>Middle</td>
<td>14,695</td>
<td>4,191</td>
<td>2,099</td>
<td>2,092</td>
</tr>
<tr>
<td>Lower</td>
<td>2,283</td>
<td>722</td>
<td>342</td>
<td>380</td>
</tr>
</tbody>
</table>
Comparison to other Rivers

- River use levels high compared to other rivers.
- White Salmon stretches about 14 miles compared to 300 miles on the Colorado River.
- Critical time when river use is still relatively high, water levels have dropped and Spring Chinook heavily spawning.

![Comparison of River Use](chart.png)
Findings

• The White Salmon River is a heavily used rafting and kayaking river with the Forest Service being the permitting agency for the commercial rafting companies – 14 miles.

• In comparison, 26,000 people raft the Colorado River from Lee’s Ferry to Diamond Creek each year on permitted trips both private and commercial users – 300 miles.

• Approximately 10,000 people float the popular Middle Fork of the Salmon River as it flows through the Frank Church River of No Return on Wilderness, in Idaho on permitted trips as well.
• There are critical times and spatially explicit locations, when stream flows are low, salmon reproductive times are high, and when the rafting use is still at relatively sufficient levels.

• Management implications are:
  • Total Closure;
  • Seasonal or critical time closure;
  • Travel path alternatives;
  • Total river closure;
  • Take out above Falls and carry boats around.