

**WIND RIVER TEMPERATURE TOTAL MAXIMUM DAILY LOAD:  
REPORT ON DECEMBER 4, 2007 ADAPTIVE MANAGEMENT MEETING  
(March 11, 2008)**

**Participants**

Carrie Munz, U.S. Geological Survey  
Tova Cochrane, Underwood Conservation District  
Bengt Coffin, Gifford Pinchot National Forest  
Tonnie Cummings, Department of Ecology

Rex Hapala, Washington Department of Natural Resources (DNR), and Charly Boyd, a consultant to Skamania County, were not able to attend but provided input prior to the meeting on DNR and Skamania County activities, respectively.

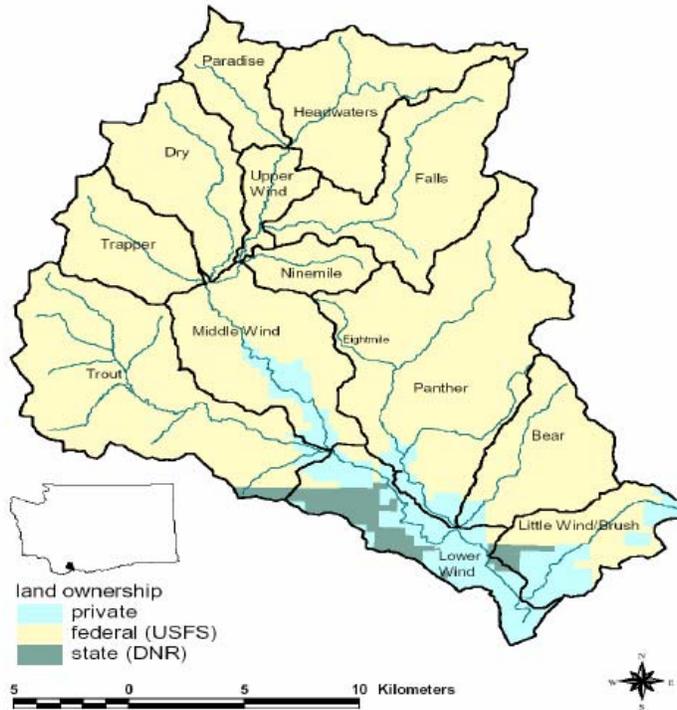
**Meeting Objectives**

- Discuss progress in completing implementation activities listed in the 2004 Wind River Temperature Total Maximum Daily Load (TMDL) Detailed Implementation Plan.
- Identify barriers to completing activities and brainstorm resources needed to overcome those barriers.
- Determine format and content of, and timeline for, adaptive management meeting report(s).
- Agree on frequency of future adaptive management meetings.

**Background**

The Wind River watershed covers 582 square kilometers (km<sup>2</sup>) and supports a stream system that discharges to the Columbia River near the town of Carson in Skamania County. Land ownership is a mixture of public and privately owned forest land with some minimal residential use in the lower end of the watershed. Eighty eight percent of the watershed is owned by the U.S. Forest Service (USFS) in a portion of the Gifford Pinchot National Forest (Figure 1). There are no known point sources of water pollution within the watershed.

Intensive monitoring conducted at 33 stations in the watershed between 1994 and 2000 indicated water temperatures often exceeded water quality standards. Department of Ecology staff used the existing water quality data to model the amount of shade that would be required in each stream segment to bring the Wind River watershed into compliance with the water quality temperature standard. The modeling results and a strategy to achieve those results were included in an August 2002 TMDL submittal report to the U.S. Environmental Protection Agency. More information on responsible agencies and specific activities was provided in Ecology's 2004 Detailed Implementation Plan for the Wind River watershed. Activities to lower temperature focused on improved timber management practices, riparian restoration, and forest road improvement and decommissioning.



**Figure 1. Wind River Land Ownership**

Figure 1. Map of the Wind River watershed.

**Accomplishments to Date and Planned Activities**

U.S. Geological Survey (USGS):

- Instream temperature data have been collected in the watershed since 1996, with 33 monitoring sites recording data in summer 2007. Seven monitors were lost in the floods of November 2007 and will not be replaced (Figure 2).

Underwood Conservation District (UCD):

- With funding provided by the Bonneville Power Administration, the UCD has been collecting instream temperature data at 11 locations in the watershed. Two monitors were lost in the November 2007 floods and may not be replaced (Figure 2).
- Approximately 133 acres of riparian area have been restored, i.e., alders thinned and conifers planted to encourage growth of system-potential vegetation that would provide maximum stream shading, since 1998 (Table 1).
- Approximately 0.75 miles of in-stream habitat have been stabilized or restored since 1998 (Table 1).
- Approximately 4.4 miles of road have been decommissioned since 1998 (Table 1).
- Approximately 87 acres of invasive weeds have been removed since 2002 (Table 1).
- Site reports that include forest management recommendations for streambank protection have been prepared for a number of private landowners in the watershed.

Table 1. Restoration by UCD in the Wind River Watershed

<b>YEAR</b>	<b>TYPE OF WORK</b>	<b>NEAREST WATERBODY</b>	<b>ACRES</b>	<b>MILES</b>	<b>NUMBER OF TREES</b>
1998	Riparian Thinning	Watershed-wide	46		
1998	Riparian Planting	Watershed-wide	17	1	8,000
1998	Road Decommissioning and Culvert Removal	Watershed-wide		4.4	
1998 - 1999	Riparian Planting	Martha Creek	3	0.13	240
1998-2005	Instream Restoration & Riparian Planting	Wind River	6	0.36	3,990
2000-2006	Riparian Planting	Wind River	25	0.75	5,420
2001, 2006	Riparian Planting	Wind River	0.33	0.1	742
2002, 2006-2007	Invasive Weed Removal	Wind River	13		
2003	Upland Planting	Wind River	1.5		250
2004-2007	Invasive Weed Removal	Wind River	17		
2005	Invasive Weed Removal	Wind River	10		
2005 - 2007	Riparian Planting	Little Wind River	3	0.1	590
2006-2007	Invasive Weed Removal	Wind River	47		

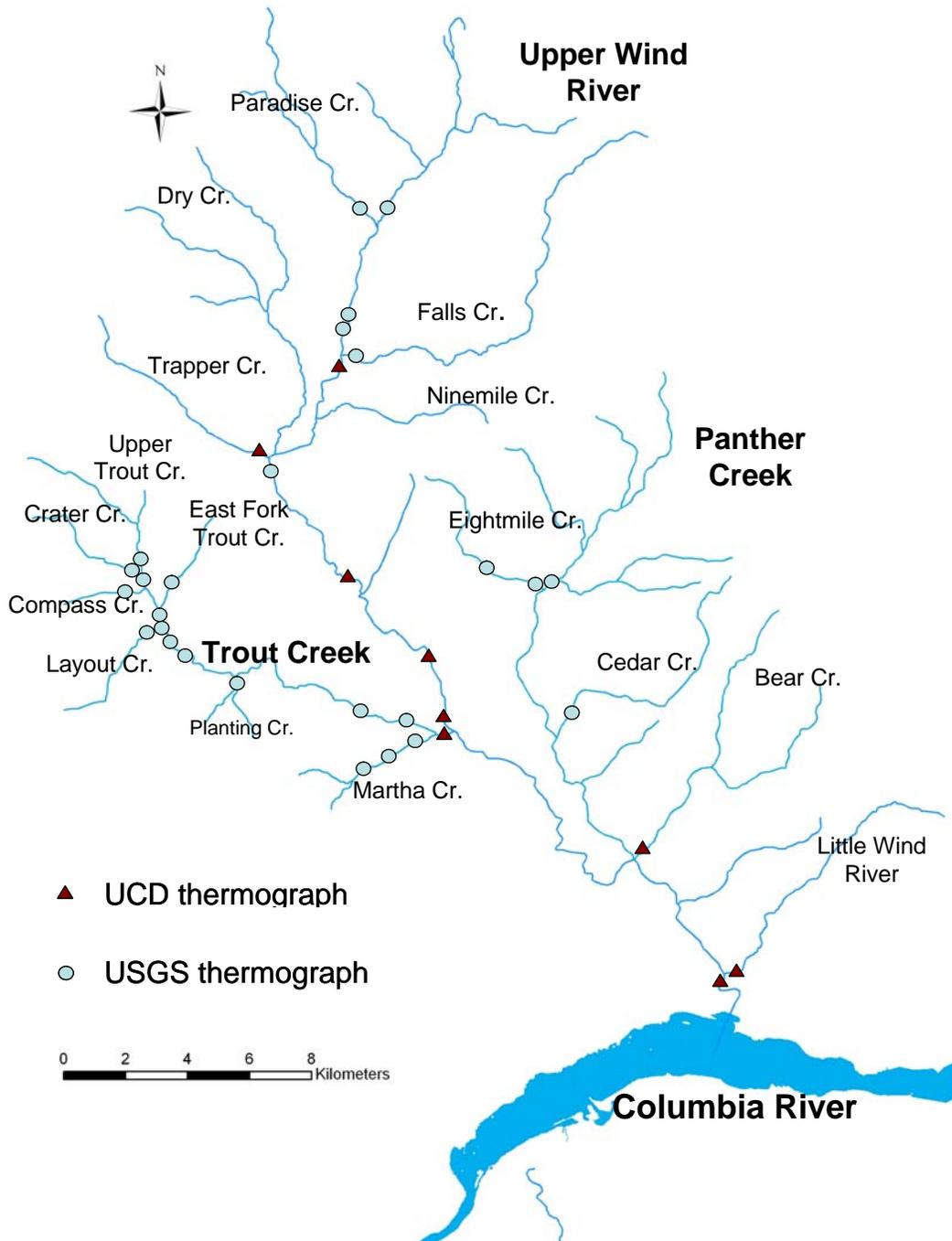


Figure 2. February 2008 UCD and USGS instream temperature monitoring sites in the Wind River watershed. (map courtesy of USGS)

Gifford Pinchot National Forest:

- Instream temperature data have been collected at various locations throughout the watershed since 1977.
- Approximately 270 acres of riparian area have been restored on the forest since 2002, including most plots proposed for thinning in the *Gifford Pinchot National Forest Wind River Watershed Water Quality Restoration Plan* (March 2002) (Table 2 and Figures 3, 4 and 5).
- Approximately 4 miles of instream restoration have been completed since 2005.
- Approximately 1.5 miles of road have been decommissioned since 2005 (Table 2).

Table 2. Restoration in the Wind River Watershed of the Gifford Pinchot National Forest

<b>YEAR</b>	<b>TYPE OF WORK</b>	<b>ACRES</b>	<b>MILES</b>	<b>NUMBER OF TREES</b>
2002	Riparian planting	24		
2003	Riparian planting	34.5		
2003	Riparian thinning	101		
2004	Riparian planting	24		17,000
2005	Riparian thinning	21		
2005	Instream restoration		2.0	
2005	Road decommissioning		1.1	
2006	Dispersed site rehabilitation	~26		
2006	Riparian thinning	26		
2007	Riparian thinning	6		
2007	Instream restoration		2.0	
2007	Road decommissioning		0.4	
2007	Riparian planting	7		5,100

# Trout Creek and Middle Wind Subwatersheds

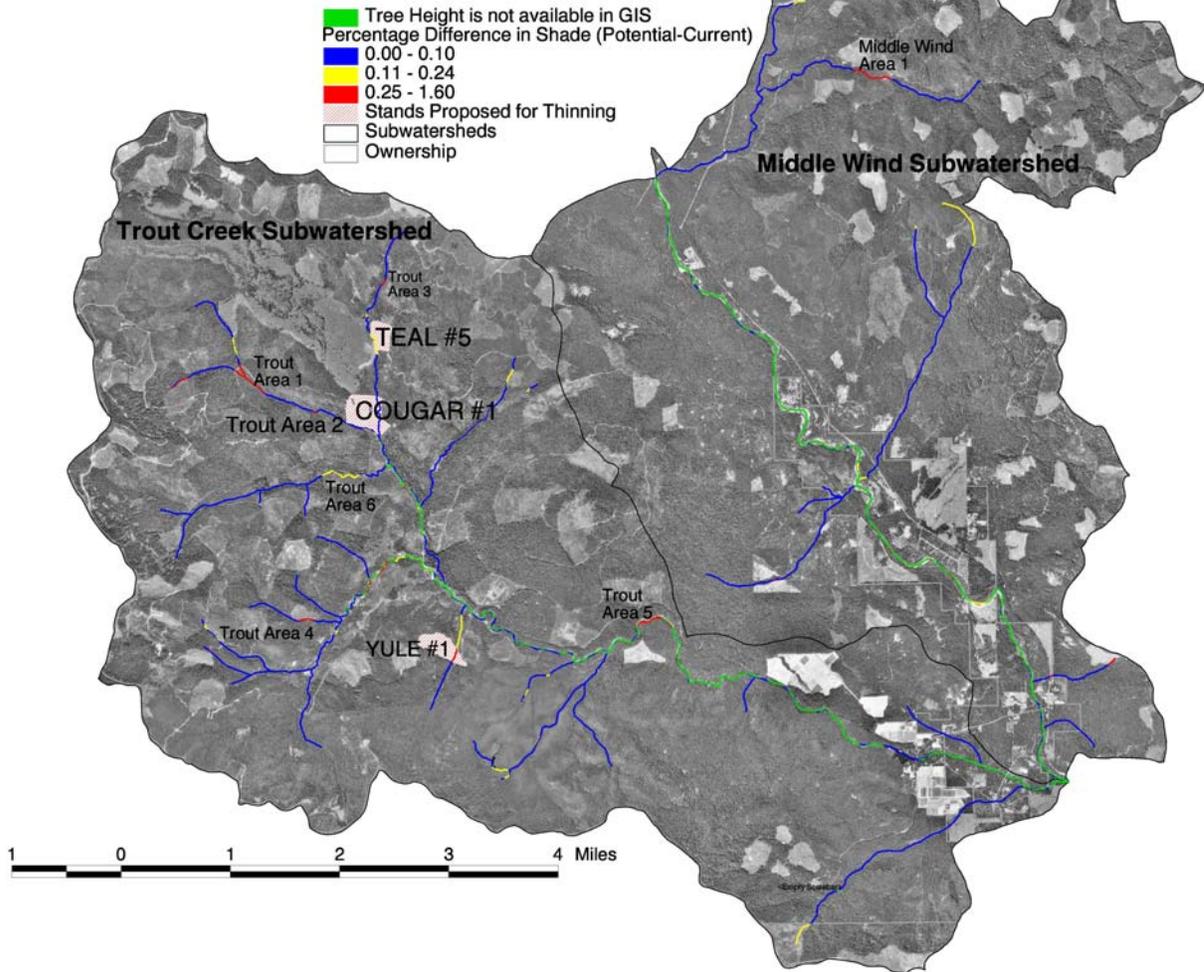


Figure 3. Priority shade restoration areas in the Trout Creek and Middle Wind Subwatersheds. (from *Gifford Pinchot National Forest Wind River Watershed Water Quality Restoration Plan* (March 2002))

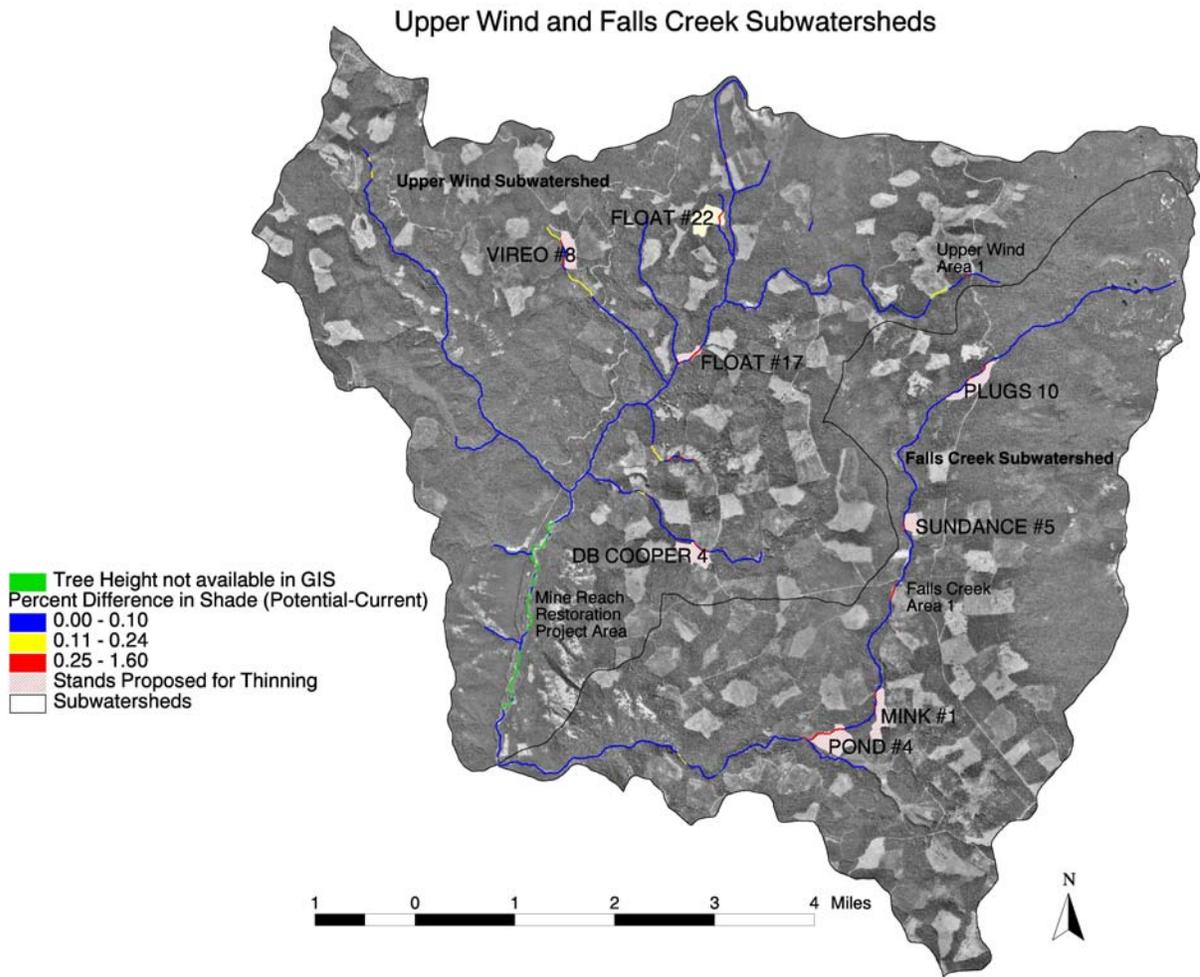


Figure 4. Priority shade restoration areas in the Upper Wind and Falls Creek Subwatersheds. (from *Gifford Pinchot National Forest Wind River Watershed Water Quality Restoration Plan* (March 2002))

## Panther Creek and Bear Creek Subwatersheds

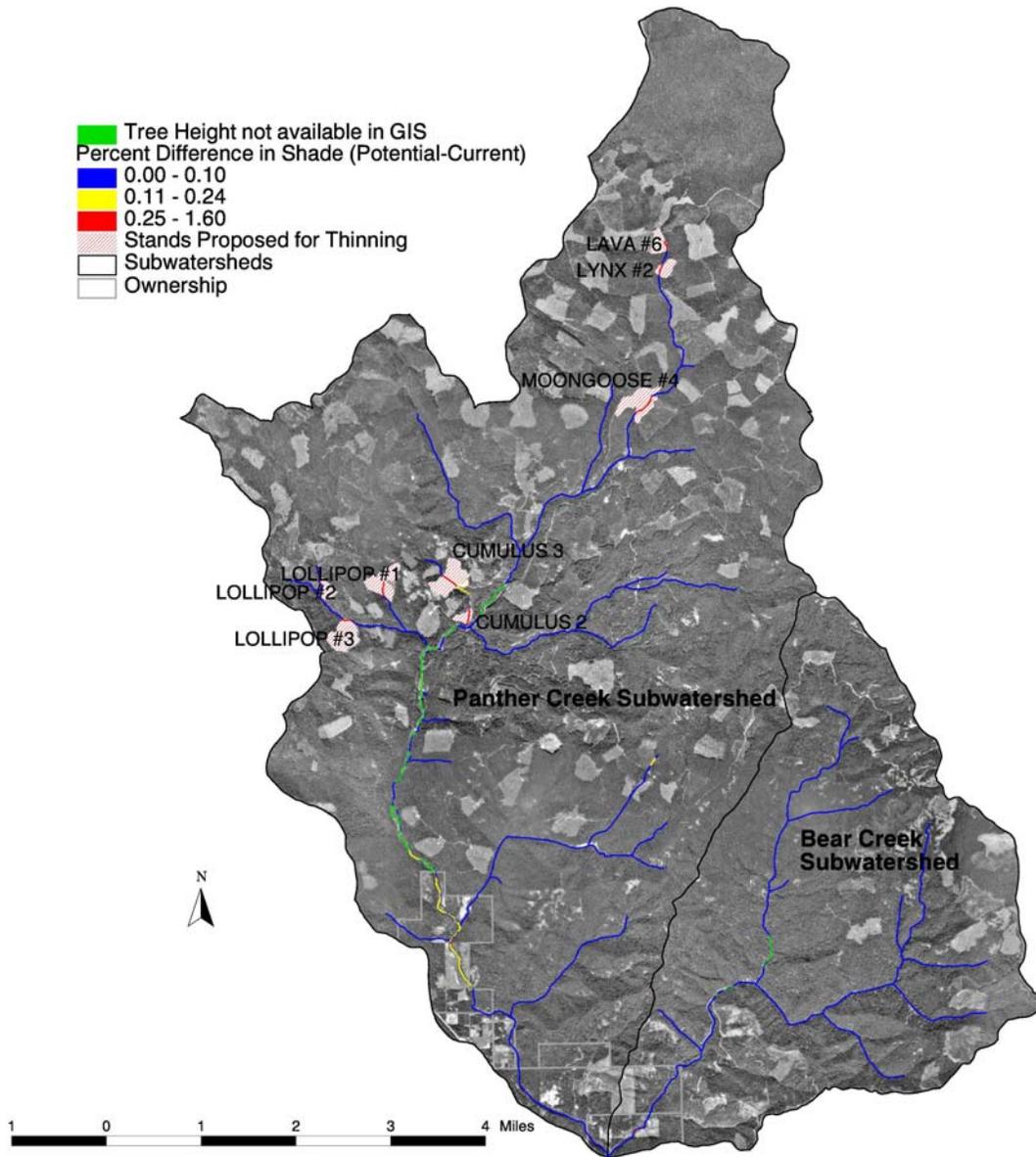


Figure 5. Priority shade restoration areas in the Panther Creek and Bear Creek Subwatersheds. (from *Gifford Pinchot National Forest Wind River Watershed Water Quality Restoration Plan* (March 2002))

Department of Ecology:

- Continues to provide ongoing assistance to local interests in obtaining grant and loan funds.
- Provides continued enforcement of state Water Pollution Control Act.
- Given length of time required to reach maximum stream shading, it is too soon to conduct effectiveness monitoring.

Washington Department of Natural Resources:

The information provided by the Department of Natural Resources is based on four Watershed Administrative Units (WAU) within the Wind River basin.

- Reviewed 150 Forest Practices Applications in the four WAUs combined between January 1995 and October 2007; 25 of those applications were reviewed since 2004. The review ensures forest practice activities minimize impacts on streambank vegetation and instream temperature.
- Forest Practices Rules require that forest landowners construct and maintain roads to minimize damage to public resources, including water quality. A Road Maintenance and Abandonment Plan (RMAP) is a forest road inventory and schedule for any needed road work. In the Department of Natural Resources Pacific Cascade Region, a large area which includes the Wind River watershed, 2,322 RMAPs were approved, and 349 miles of forest road were abandoned, from 2001 to 2006.

Skamania County:

- The 2004 Detailed Implementation Plan called for the county to implement a forest conversion ordinance; however, because of a change in Department of Natural Resources requirements, Skamania County is no longer required to adopt the ordinance.
- The Western WRIA 29 Watershed Plan, which includes the Wind River watershed, was completed in December 2005 and adopted in November 2006.
- A stormwater plan has been adopted by County Commissioners for the Carson area and is in the process of being implemented.

**Discussion and Decisions Regarding Future Implementation Activities**

- Concern that number of instream temperature monitors is decreasing due to funding problems. For example, the U.S. Geological Survey does not have money to replace the monitors lost in the November 2007 floods. Bonneville Power Administration has cut funding to the Underwood Conservation District for their temperature monitoring, and it is unclear how many monitors the district will be able to support with the reduced budget. A funding source for long-term monitoring is needed.
- There are no remaining large unvegetated riparian areas on either forest or private land. The goal now is to change the composition of existing vegetation to that which is more beneficial for stream temperature.
- The Hemlock Dam area will be the Gifford Pinchot National Forest's focus for aquatic restoration over the next several years. The Forest has not completed plans for 2008 riparian restoration, but the likely target area is upper Trout Creek.

- Underwood Conservation District is currently focusing on the middle Wind River for bank stabilization and riparian planting.
- It would be valuable to have the temperature data collected by all three agencies compiled into one database. This would facilitate comprehensive data analyses. Tonnie will submit a project request to Ecology's Ecological Assessment Program in January 2008 to do the historic data compilation and some relevant data analyses, e.g., comparison to water quality standard and trend analysis, if possible.
- It would also be useful to develop a GIS database that includes all restoration activities completed by both the Gifford Pinchot National Forest and the Underwood Conservation District. Tova and Bengt will have further discussions about how that could be accomplished.
- Decision to include narrative, as well as a revised and updated accomplishments table, in the Wind River TMDL adaptive management meeting reports.
- Decision that adaptive management meetings do not need to be held annually. Instead, Ecology will contact individual stakeholders annually to receive updates. The next face-to-face meeting of the stakeholders will be held when deemed appropriate.

Table 3. Goals and Accomplishments Associated with Wind River Temperature Total Maximum Daily Load

Agency/Organization	Goals	Accomplishments
<b>U.S. Geological Survey</b>	Maintain water quality monitoring program	<ul style="list-style-type: none"> <li>- instream temperature data have been collected since 1996</li> <li>- 33 sites were monitored in summer 2007; 26 monitors were operating as of February 2008</li> </ul>
<b>Underwood Conservation District</b>	<p>Maintain water quality monitoring program</p> <p>Restore riparian areas</p> <p>Provide technical assistance to landowners</p>	<ul style="list-style-type: none"> <li>- instream temperature data have been collected at 11 locations in the watershed; 9 monitors were operating as of February 2008</li> <li>- 133 acres of riparian area have been thinned/planted since 1998</li> <li>- 0.75 miles of in-stream habitat have been stabilized/restored since 1998</li> <li>- 4.4 miles of road have been decommissioned since 1998</li> <li>- 87 acres of invasive weeds have been removed since 2002</li> <li>- A number of forest management site reports have been prepared for private landowners</li> </ul>
<b>Gifford Pinchot National Forest</b>	<p>Maintain water quality monitoring program</p> <p>Restore riparian areas on forest lands by implementing the Wind River Watershed Water Quality Restoration Plan</p>	<ul style="list-style-type: none"> <li>- instream temperature data have been collected at a number of locations since 1977</li> <li>- 270 acres of riparian area have been thinned/planted since 2002</li> <li>- 4 miles of instream restoration have been completed since 2005</li> <li>- 1.5 miles of road have been decommissioned since 2005</li> </ul>

<b>Department of Ecology</b>	Provide assistance to local interests in obtaining grant and loan funds	- Ongoing
	Enforce State Water Pollution Control Act (RCW 90.48)	- Ongoing
	Provide assurance that implementation activities result in expected load reductions	- Will determine effectiveness of activities when appropriate amount of time has passed
<b>Department of Natural Resources</b>	Implement Forest and Fish Act requirements with private and state forest landowners	- 150 Forest Practices Applications were reviewed between January 1995 and October 2007; 25 of those applications have been reviewed since 2004 - In DNR Pacific Cascades Region, 2,322 RMAPS were reviewed and 349 miles of forest road abandoned from 2001 to 2006
<b>Skamania County</b>	Implement proposed forest conversion ordinance	- Because of change in DNR requirements, county no longer required to adopt this ordinance
	Develop watershed plan	- Western WRIA 29 Watershed Plan adopted November 2006
	Develop stormwater program for Carson area	- Stormwater plan has been adopted and is in process of being implemented
	Pursue funding to control road-related landslides into Wind River	- Ongoing
<b>Natural Resource Conservation Service</b>	Provide technical guidance for Underwood Conservation District	- Ongoing
	Provide technical and financial assistance for private landowners	- Ongoing

<b>Lower Columbia Fish Recovery Board</b>	During development of the various fish recovery strategies, provide data on stream restoration needs	- Ongoing
	Assist partners with development and implementation of “6-year implementation work schedules” for their actions identified in the Lower Columbia Salmon Recovery and Fish & Wildlife Subbasin Plan.	- Ongoing
	Assist recovery partners with implementation of the Wind River “habitat work schedule”, which identifies and prioritizes habitat restoration actions within the watershed.	- Ongoing
	Assist implementing partners with securing funding (e.g., SRFB, FFFPP, BPA, etc.) for project implementation.	- Ongoing
	Continue to participate in the WRIA 29 watershed planning and implementation process.	- Ongoing