

# 2018 Monitoring Report

## North Umpqua Wild & Scenic River



*Cooperative Effort Between*

**Bureau of Land Management, Roseburg District  
&  
Umpqua National Forest**

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## **I. Background Information**

### **A. Designation of the North Umpqua River**

The North Umpqua River was designated a recreational river in the National Wild and Scenic River System in the Omnibus Oregon Wild and Scenic River Act of 1988.

### **B. North Umpqua River Management Plan**

In 1992, The US Forest Service (USFS), Bureau of Land Management (BLM), and Oregon Parks and Recreation Department cooperated with local, state, and federal agencies to complete the North Umpqua River Management Plan. The plan details a specific management direction and resource monitoring plan for each section of the river. The plan notes fisheries, water, recreation, scenery, and cultural resources as Outstandingly Remarkable Values (ORV's).

### **C. Boating Management Area**

Boundaries include the North Umpqua River from Soda Springs Dam to its confluence with Rock Creek. Management of the lower section of the North Umpqua River (between mile markers 22 and 30 of Highway 138, 8.4 river miles) is the responsibility of the Roseburg BLM and management of the upper section (between mile marker 30 and ¼ mile below Soda Springs Dam, 25.4 river miles) is the responsibility of the USFS. The two agencies work closely to jointly manage the North Umpqua Wild and Scenic River; the USFS administers special use permits for commercial fishing and rafting guides for the entire 33.8 miles and BLM is responsible for monitoring use.

### **D. Management Guidelines**

Commercial rafters, anglers, and agency personnel have discussed user conflicts that can occur on the North Umpqua River. The various user groups agreed that conflicts could be reduced by using the river at different times. Anglers noted that they used the Steamboat area more extensively than other segments and boaters noted that they did not generally use the river during the early morning hours and late evening hours. As a result, certain segments have been placed under voluntary boater restrictions for both non-commercial and commercial boaters during certain hours of the day and certain seasons of the year. Since implementation in 1992, the number of conflicts between boaters and anglers have been reduced. Voluntary guidelines for each segment are as follows:

Soda Springs to Gravel Bin

Open to boating year-round

Voluntary boating closures - 6 p.m. to 10 a.m. from 7/1 through 10/31

Gravel Bin to Bogus Creek

Open to boating 11/1 through 6/30

Boating closure - 6 p.m. to 10 a.m. from 7/1 through 7/14

Voluntary boating closure – All times, 7/15 through 10/31

Bogus Creek to Susan Creek

Open to boating year-around

Voluntary boating closure - 6 p.m. to 10 a.m. from 7/1 through 10/31

Susan Creek to Rock Creek

Open to boating year-round

Voluntary boating closure - 6 p.m. to 10 a.m. from 7/1 through 10/31

Seven commercial whitewater guide/outfitters have a Special Use Permit, which authorizes them to conduct trips on the river between May 20th and September 15th. Stipulations for commercial users exist: commercial trips are not allowed to use Apple Creek campground as a lunch stop; they are restricted from launching from the undeveloped campsites at Eagle Rock campground prior to July 15th; and they may not run trips between September 15th and December 31st to protect spawning fish and their habitat; however, they are authorized to run trips between January 1st and May 20th without using any of their permit allotted days. Private boaters are not required to obtain permits to float the river.

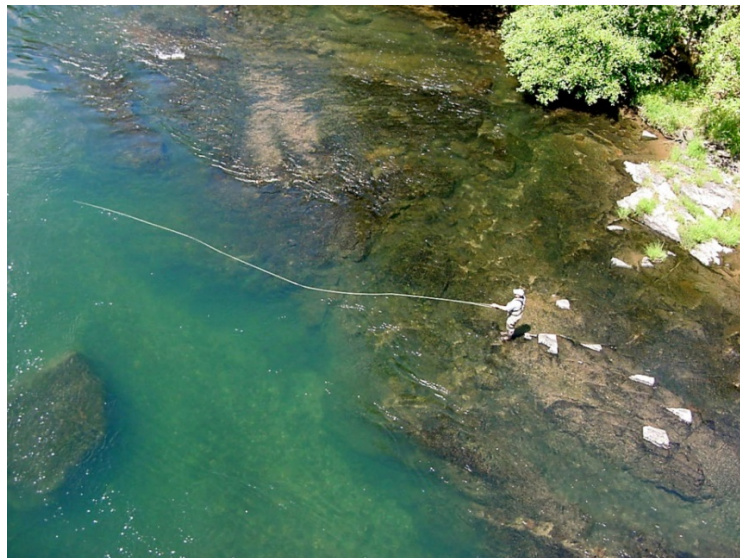
Ten commercial fly-fishing guides are permitted to conduct trips on the river between January 1st and November 14th. Trips are not authorized between November 15th and December 31st in order to protect spawning Coho salmon.

### **E. Methods of Collecting Information**

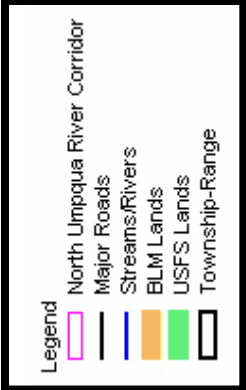
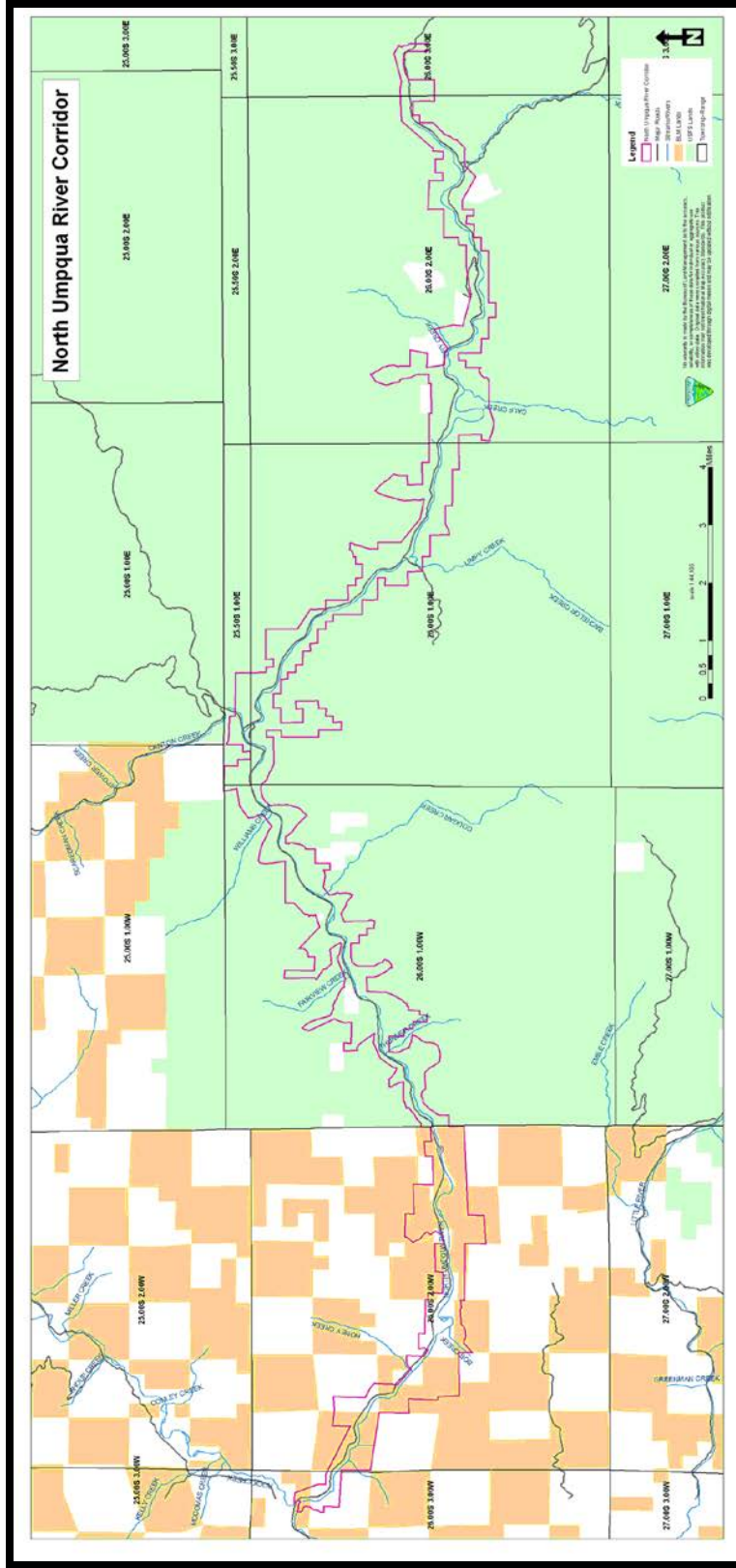
In the winter of 1991, the Roseburg District BLM funded a river manager position to manage and document use of the North Umpqua River. Since then, visual counting by river monitors has varied between two and four BLM and USFS employees per year. In 2018, two USFS and two BLM seasonal employees were in charge of the river monitoring.

### **F. Objectives of River Monitoring**

1. Identify types of recreation use occurring on the river.
2. Document visitor use statistics on the river, including commercial and non-commercial use.
3. Provide a BLM/USFS presence on the river to contact, inform, and educate the public.
4. Coordinate river management issues between the BLM and the USFS.
5. Identify and mitigate safety hazards and minimize user conflicts.
6. Promote preservation of the five ORVs identified in the river management plan.
7. Provide recreational users a quality recreation experience.



Map 1: North Umpqua Wild & Scenic River Corridor



## II. Methodology and River-Use Statistics

### A. Observed Boating Use

The use recorded by the USFS and BLM monitors is referred to as “observed use”. The documented observed use indicates non-commercial use exceeded commercial use in 2018 (Table 1 & Graph 1). Non-commercial users accounted for 55% of the observed use and commercial users accounted for 45% of the observed use. (Note: This compares to 59% non-commercial observed use and 41% commercial observed use in 2017.)

In 2013, with permission from the USFS, commercial anglers, and commercial boaters, the BLM implemented a new monitoring technique using time-lapse cameras. In 2018, as in the previous season, monitoring cameras were placed in each of the five segments of the North Umpqua River. When cameras are operating, the photos were taken every 30 seconds between the hours of 10am-5pm. These cameras were able to observe use when no BLM or USFS monitors were present, as well as pick up boaters BLM and USFS monitors may have missed. The monitoring cameras accounted for 80% of non-commercial observed use and 85% of commercial observed use, compared to 51% of non-commercial and 59% commercial observed use in 2017.

1. Non - Commercial Observed Use: (55% of all use)	
Visual counts observed by BLM/USFS employees.....	308
Visual counts observed by monitoring cameras.....	1,285
Guides observed.....	338
Total observed.....	1,931
2. Commercial Observed Use: (45% of all use)	
Visual counts observed by BLM/USFS employees.....	201
Visual counts observed by monitoring cameras .....	1,149
Total observed.....	1,350

River monitoring, by person or camera, was present on the river 98 out of 119 days (82%). One to five monitoring cameras were active for each of these days during the season. An average of 6 hours were spent visually monitoring every Saturday and Sunday between the hours of 10am-5pm. One monitor was usually present, with occasionally two on Saturday.



**Table 1: Annual Comparison of Observed Boating Use**

Year		*Non-commercial Observed	Commercial Observed	Total Observed Use
2006		3,009	1,873	4,882
2007		2,208	1,256	3,464
2008		2,458	1,367	3,825
2009		2,889	1,401	4,290
2010		2,720	1,345	4,065
2011		1,939	1,436	3,375
2012		1,833	1,266	3,099
2013		1,776	1,093	2,869
2014		2,108	1,438	3,546
2015		1,380	1,256	2,636
2016		2,462	1,319	3,781
2017		1,661	1,145	2,806
2018		1,931	1,350	3,281

\*Figures include the observed guides

Table 2 shows total commercial and non-commercial use by day of the week. Saturday was the busiest day in 2018 for both user groups. Thursday was the slowest day, while it was Monday in 2017. Monitoring took place every Friday, Saturday and Sunday, while typically relying on camera-only coverage Monday-Thursday, with employee monitoring when available.

**Table 2: Daily Comparisons of Boaters Observed by USFS and BLM**

Day	Non-Commercial	Commercial	Total
Monday	139	118	257
Tuesday	129	158	287
Wednesday	160	259	419
Thursday	115	132	247
Friday	195	225	420
Saturday	487	281	768
Sunday	368	177	545
<b>Total</b>	<b>1,593</b>	<b>1,350</b>	<b>2,943</b>

\*Figures exclude the 338 observed guides



## B. Reported Boating Use

Reported use is the use that commercial outfitters reported to the USFS at the end of the use season. There is a difference between the number of visitors reported by commercial outfitters and the number observed in the field by the USFS and BLM monitors. Reasons for this discrepancy are:

- Evergreen trees and shrubs along the river continue to reduce the opportunity for observing boaters. Commercial trips were not seen and some commercial trips may have been mistaken for non-commercial boaters.
- The river was not regularly monitored Monday-Thursday by a USFS or BLM employee.
- Camera monitoring can make it difficult to distinguish between commercial users and non-commercial users.

**Table 3: Observed Use and Reported Commercial Use**

Data from May 26 to September 11, 2018

Outfitter	People Observed by BLM/USFS*							People Reported - Commercial Outfitters
	May	June	July	Aug	Sep	Total	Camera**	
High County Expeditions***	0	0	3	0	0	3	3	NA***
North Umpqua Outfitters	2	74	199	155	14	444	400	504
Orange Torpedo Trips	2	76	107	179	9	373	352	387
Oregon River Experiences	0	0	10	0	0	10	0	24
Oregon Whitewater Adventures	0	59	61	71	0	191	164	217
Ouzel Outfitters	0	90	96	0	0	186	125	192
Sun Country Tours	0	0	84	59	0	143	105	143
<b>Total</b>	<b>4</b>	<b>299</b>	<b>560</b>	<b>464</b>	<b>23</b>	<b>1,350</b>	<b>1,146</b>	<b>1,467</b>

\*Figures exclude the 338 observed guides.

\*\*Total captured by camera. Number is included in the total observed column.

\*\*\* No numbers reported. Out of compliance with permit requirements. Use not included in totals.

### C. Adjusted Boating Use

Adjusted boating use is a method used to estimate total boating use based on what is seen and reported. To determine adjusted boating use, observed commercial use is first compared to reported commercial use. Once this ratio is determined, the same ratio is used to determine the non-commercial adjusted use based on observation.

$$\frac{\text{Commercial observed}}{\text{Commercial reported}} = \frac{\text{Non-commercial observed}}{\text{Non-commercial adjusted}}$$

The difference between commercial observed and commercial reported is 22%. This compares to 16% in 2017 and 16% in 2016. In other words, it is estimated that 22% of all boaters were not observed by river monitors or monitoring cameras.

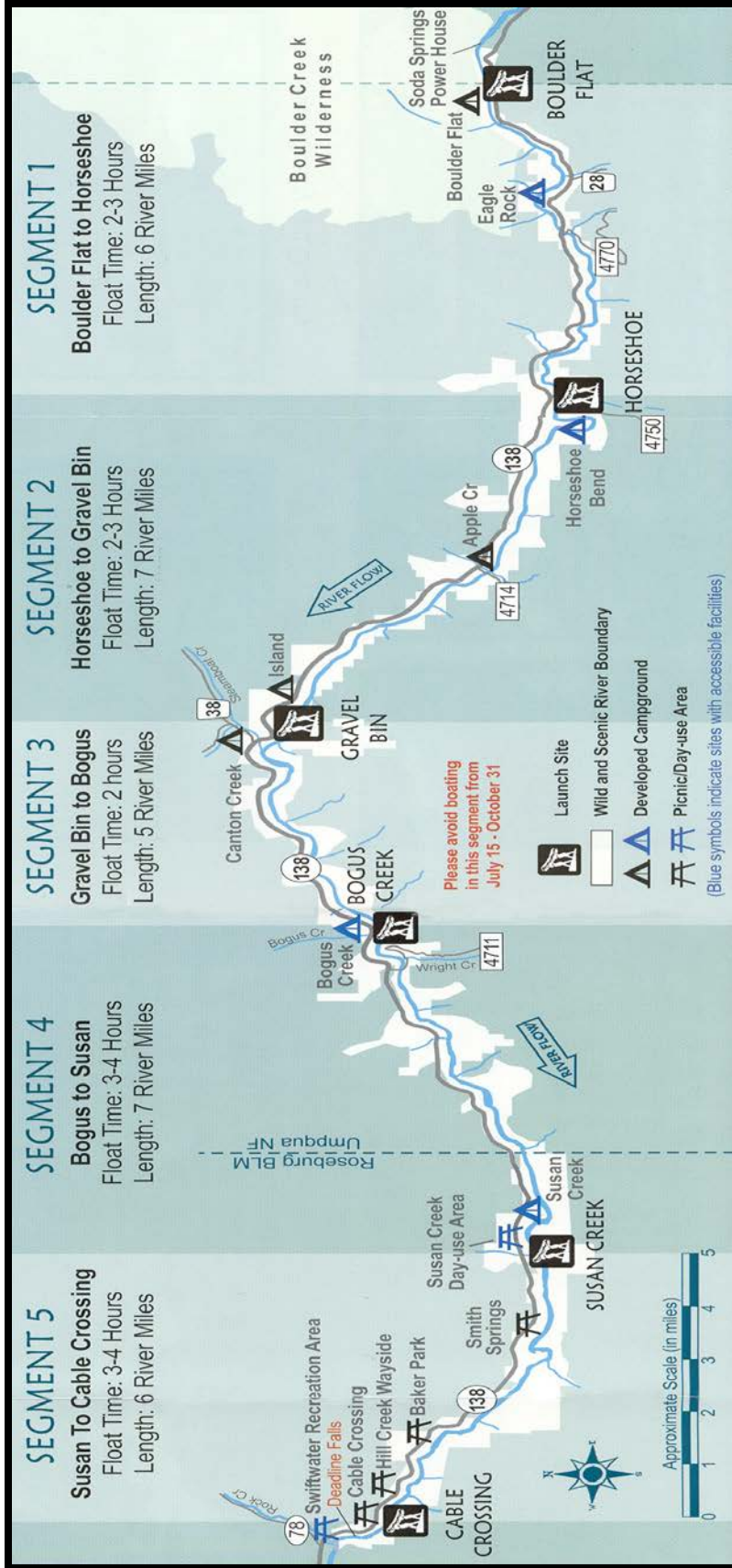
**Total Adjusted Use** is calculated by summing the non-commercial adjusted use with the commercial reported as shown below.

**Table 4: Annual Comparison of Observed Watercraft Use**

Year	Non-commercial Adjusted Use	Commercial Reported Use	Total Adjusted Use
2006	3,766	2,344	6,110
2007	3,484	1,982	5,466
2008	3,288	2,104	5,392
2009	3,518	1,706	5,224
2010	3,400	1,802	5,202
2011	2,501	2,005	4,506
2012	2,291	1,688	3,979
2013	2,433	1,750	4,183
2014	2,656	1,932	4,588
2015	1,711	1,655	3,366
2016	2,856	1,569	4,425
2017	2,076	1,527	3,603
2018*	2,356	1,467	3,823

\*Does not include High Country Expeditions Observed/Reported use

Map 2: North Umpqua Wild & Scenic Rafting Segments



Map from: North Umpqua Wild and Scenic River Users Guide

#### D. Craft and Boat Launch Use

Data was queried to show watercraft used to float the river. During the 2018 boating season, rafts outnumbered other crafts on the river (table 5), accounting for 46% of all crafts used. Inflatable kayaks were second with 36% and hard side kayaks third with 18%. Canoe use remains low, and represents less than 1% of total watercraft use in 2018.

**Table 5: Comparison of Watercraft Observed Per Month**

Month	Rafts	Inflatable Kayaks	Hard Kayaks	Canoes	Monthly Total
May	31	19	29	0	79
June	166	127	48	1	342
July	202	130	102	2	436
August	173	170	26	6	375
Sept.	14	15	20	0	49
<b>Total</b>	<b>586</b>	<b>461</b>	<b>225</b>	<b>9</b>	<b>1281</b>

**Table 6: Annual Comparison of Observed Watercraft Use**

Year	Rafts	I. Kayaks	H. Kayaks	Canoes	Total Crafts
2007	593	417	307	19	1,336
2008	659	549	360	7	1,575
2009	781	531	380	35	1,727
2010	771	342	427	68	1,608
2011	625	302	260	8	1,195
2012	557	327	241	17	1,142
2013	464	389	166	3	1,052
2014	642	407	210	1	1,260
2015	363	305	197	15	880
2016	707	435	357	28	1,527
2017	558	230	268	4	1,060
2018	586	461	225	9	1,281

The data queried shows a breakdown of the put-in and take-out locations (see table 7). Boulder Flat was the most heavily used put-in location with 2,044 users and Gravel Bin was the most heavily used take-out location with 2,356 users.

**Table 7: Launch Utilization**

Site	Put-In	Take-Out
	Users	Users
Boulder Flat Boat Launch	2,044	0
Marsters Bridge	18	0
Horseshoe Bend	641	386
Gravel Bin	68	2,356
Bogus Creek	127	12
Susan Creek	45	137
Cable Crossing	0	48
<b>Total</b>	<b>2,943</b>	<b>2,939</b>

\*One trip used confluence of Steamboat Creek and North Umpqua as a Take-Out location.

**E. Boating Summary**

- a) Non-commercial Use – 55% of all use
  - 1) Visual counts observed by BLM/USFS employees.....308
  - 2) Visual counts observed by monitoring camera.....1285
  - 3) Number of guides observed by BLM/USFS employees.....338
  - 4) Total visual counts observed.....1,931
  - 5) Number missed (factored using 22% of users missed).....425
  - 6) Adjusted non-commercial use.....2,356
  
- b) Commercial Use – 45% of all use
  - 1) Visual counts observed by BLM/USFS employees.....201
  - 2) Visual counts observed by monitoring camera.....1,149
  - 3) Total visual counts observed.....1,350
  - 4) Reported Counts by Outfitter/Guides.....1,467
  
- c) Total Adjusted Use - Commercial and Non-commercial.....3,823
  
- d) Observed Watercraft
  - 1) Rafts.....586
  - 2) Hard Kayaks.....225
  - 3) Inflatable Kayaks.....461
  - 4) Canoes.....9
  - 5) Total Watercrafts.....1,281

## F. Observed Fishing Use

Anglers were counted by drive-by observation, with very little contact being made. Outfitters were identified mainly by vehicle type, color, and license plate. Outfitters are required to display a tag in their vehicles identifying they are presently guiding. If an outfitter was spotted, monitors would stop and confirm if the tag was present. If anglers were not visible from the highway, parked vehicles that were not obviously involved in other activities were counted as having transported one and a half anglers.

**Table 8: Observed Angler Use**

Month	Segment	Total	Non-Commercial	Commercial	
May	1	3	3	0	
	2	0	0	0	
	3	0	0	0	
	4	1	1	0	
	5	0	0	0	
June	1	6	6	0	
	2	7	7	0	
	3	34	34	0	
	4	36	31	5	
	5	34	34	0	
July	1	3	3	0	
	2	9	5	4	
	3	83	69	14	
	4	43	37	6	
	5	11	9	2	
Aug.	1	9	9	0	
	2	9	5	4	
	3	33	21	12	
	4	24	22	2	
	5	7	7	0	
Sep.	1	0	0	0	
	2	0	0	0	
	3	0	0	0	
	4	0	0	0	
	5	0	0	0	
Total	1	21	21	0	Boulder Flat - Horseshoe Bend
	2	25	17	8	Horseshoe Bend - Gravel Bin
	3	150	124	26	Gravel Bin - Bogus Creek
	4	104	91	13	Bogus Creek-Susan Creek
	5	52	50	2	Susan Creek - Cable Crossing
<b>OVERALL TOTAL – 352</b>		<b>NON- 303</b>		<b>COMMERCIAL - 49</b>	

**Table 9: Daily Comparison of Anglers Observed By USFS & BLM**

Day	Non-commercial	Commercial	Total
Monday	0	0	0
Tuesday	3	6	9
Wednesday	2	0	2
Thursday	0	0	0
Friday	48	6	54
Saturday	112	16	128
Sunday	138	21	159
<b>Total</b>	<b>303</b>	<b>49</b>	<b>352</b>

**Table 10: Annual Comparison of Observed Angler Use and Reported Commercial Use**

Year	Observed Non-commercial	Observed Commercial	Total	Reported Commercial
2012	1,506	163	1,669	Not Available
2013	1,077	64	1,141	Not Available
2014	1,342	63	1,405	341
2015	773	68	*841	*364
2016	1,154	136	1,290	419
**2017	426	34	460	281
2018	303	49	303	241

\*The 2015 figures in Table 10 are due to ODFW imposing a fishing ban July 18 through August 31.

\*\*River segments 1-4 were closed from August 19 – September 30, 2017.



**G. Congestion at Parking Areas and Launch Sites**

When parking capacity was exceeded, vehicles parked in unused campsites, overflow parking, staging areas, as well as double-parking with party members.

**Table 11: Number of Occasions Parking Capacity Exceeded Limit**

<b>Boulder Flat - 6 Cars Max</b>		<b>*Horseshoe Bend - 5 Cars Max</b>	<b>Gravel Bin - 30 Cars Max</b>
<b>Date</b>	<b>Vehicles Exceeding Capacity</b>	<b>Vehicles Exceeding Capacity</b>	<b>Vehicles Exceeding Capacity</b>
5/27	2	0	0
6/24	3	0	0
7/29	2	1	0
8/5	3	0	0

\*Vehicles at Horseshoe Bend were counted in pull off area near designated parking



**Table 12: Comments, Hazards, & Violations**

	<b>Issue</b>
<b>Comments/ Compliments</b>	<ul style="list-style-type: none"> <li>• Throughout the summer common inquiries were made about possible river hazards, regulations/restrictions, directions, brochure requests and campsite info/questions.</li> <li>• Many visitors were appreciative of BLM/Forest Service presence at the boat ramps.</li> <li>• The public appreciated the information boards, new river brochures, up-to-date weather and flow information, and river hazard postings.</li> </ul>
<b>Hazards</b>	<ul style="list-style-type: none"> <li>• Excavation and dredging for gravel removal was conducted at the intake just above Rock Creek on 06/06/18 and divers dredged on 06/07/18</li> </ul>
<b>User Conflicts/ Violations</b>	<ul style="list-style-type: none"> <li>• No reported incidents and none observed</li> </ul>
<b>Weather</b>	<ul style="list-style-type: none"> <li>• 2018 was slightly cooler than 2017 with more spikes of temperature in the beginning of the summer.</li> </ul>
<b>Fire</b>	<ul style="list-style-type: none"> <li>• No major fires affecting the North Umpqua River</li> </ul>

<b>Additional Information</b>	<ul style="list-style-type: none"> <li>• Changing rooms and a new roof on the bathroom facilities at Gravel Bin boat launch were installed with the assistance of the Wolf Creek Job Corp.</li> <li>• Park rangers from the Bureau of Land Management and Forest Service conducted 4 interagency river patrol trips to monitor visitor use and river conditions.</li> </ul>
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### III. Outstandingly Remarkable Values

The North Umpqua River Management Plan notes that there are several components that make the North Umpqua Wild and Scenic River. These components are Outstandingly Remarkable Values (ORV's) and the plan recognizes fish, water quality, recreation, scenery and cultural resources as the ORV's within the North Umpqua Wild and Scenic Corridor. The plan also emphasizes the importance of protecting these resources through monitoring programs.

The monitoring being done for recreation is addressed in the first section of this report. The following information documents monitoring for fisheries, water quality, scenic value, and cultural resources.

#### A. Fisheries

The BLM and the Partnership for the Umpqua Rivers (PUR) designed and secured funding for a stream restoration project in Pass Creek, a tributary to Canton Creek that is a tributary to the North Umpqua River. This project was set to be implemented in 2017, however it was pushed back to the 2018 season. Once completed, this restoration project will restore over 2.5 miles of stream by pulling in riparian trees and adding logs and boulders to create important spawning and rearing habitat for summer and winter Steelhead, Cutthroat trout, and Pacific Lamprey. Oregon Department of Fish and Wildlife implemented approximately 1.5 miles of stream restoration work in Rock Creek, a major fish-bearing tributary to the North Umpqua River. The project involved adding logs, boulders, and opening up side channels to main stem Rock Creek. This project will provide much-improved habitat for juvenile salmonids in summer and winter and will provide some improved spawning areas for adult salmon and steelhead. Species benefiting from the restoration project include Spring Chinook salmon, Oregon Coast Coho salmon, Steelhead, Cutthroat trout, and the Pacific lamprey.

Additionally ODFW monitored fish populations in Rock Creek and the North Umpqua. They conducted spawning surveys for adult Spring Chinook in September and October and Coho in November and December. They also conducted snorkel surveys in Rock Creek to count juvenile salmonids. These snorkel surveys were conducted in both summer and winter. Monitoring

indicated significant increases in spawning adult salmon and Steelhead in restored reaches, and increased numbers of juvenile salmonids near stream structures and in newly opened side channels.

\*\*Fish counts will no longer be produced in this report due to ODFW not conducting counts at Winchester Dam anymore.

## B. Water Quality

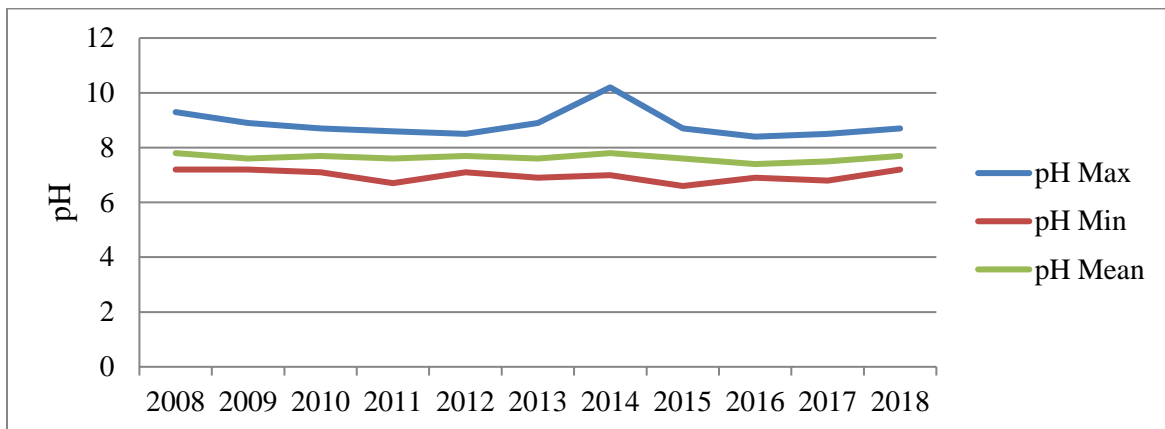
Water quality affects most of the other Outstandingly Remarkable Values. Table 13 shows some of the water quality parameters that have been consistently monitored over the past several years. The water samples were taken between Idleyld Park and Rock Creek at a USGS gaging station. Data is taken for the calendar year. The Discharge (cfs) data is taken from the Copeland Creek cage and is based on a monthly mean during the monitoring season months (May-September).

**Table 13: Annual Water Quality Statistics**

Year	Measurement	pH (units)	Temperature (°C)	Dissolved Oxygen (mg/L)	Specific Conductance (us/cm)	Discharge (CFS)
<b>Desired Conditions</b>		<b>6.5-8.5</b>	<b>&lt; 17.8</b>	<b>&gt; 6.5</b>	<b>maintain</b>	<b>&gt; 800</b>
2008	Maximum	8.9	18.5	14.3	72	3250
	Minimum	7.2	1.4	9.4	31	967
	<b>Mean</b>	<b>7.6</b>	<b>9.7</b>	<b>11.9</b>	<b>51</b>	<b>1798</b>
2009	Maximum	8.7	19.0	14.4	71	2340
	Minimum	7.1	0.7	9.3	32	822
	<b>Mean</b>	<b>7.7</b>	<b>9.6</b>	<b>11.6</b>	<b>54</b>	<b>1288</b>
2010	Maximum	8.6	20.5	14.8	70	2110
	Minimum	7.2	0.0	8.9	33	846
	<b>Mean</b>	<b>7.7</b>	<b>9.6</b>	<b>11.7</b>	<b>55</b>	<b>1328</b>
2011	Maximum	8.6	17.6	13.9	68	2730
	Minimum	6.7	2.1	9.3	28	1040
	<b>Mean</b>	<b>7.6</b>	<b>9.1</b>	<b>11.6</b>	<b>51</b>	<b>1806</b>
2012	Maximum	8.5	18.4	14.3	69	2536
	Minimum	7.1	2.0	9.2	29	983
	<b>Mean</b>	<b>7.7</b>	<b>9.0</b>	<b>11.7</b>	<b>54</b>	<b>1553</b>
2013	Maximum	8.9	20.5	15.0	72	1616
	Minimum	6.9	0.0	9.0	36	823
	<b>Mean</b>	<b>7.6</b>	<b>9.6</b>	<b>11.6</b>	<b>56</b>	<b>1101</b>
2014	Maximum	10.2	21.1	15.0	70	1880
	Minimum	7.0	0.0	8.8	32	801
	<b>Mean</b>	<b>7.8</b>	<b>10.0</b>	<b>11.5</b>	<b>57</b>	<b>1100</b>

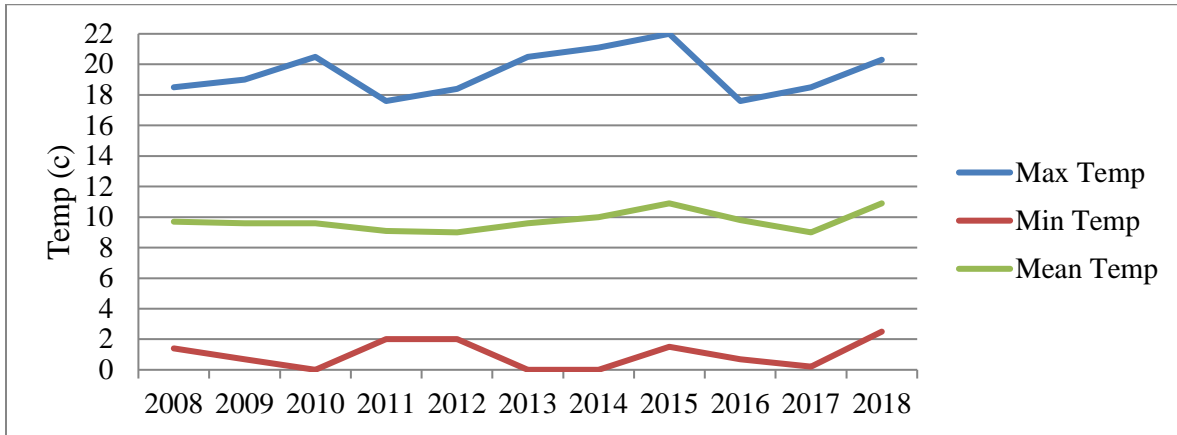
2015	Maximum	8.7	22.4	13.7	74	1070
	Minimum	6.6	1.5	8.4	32	718
	<b>Mean</b>	<b>7.6</b>	<b>10.9</b>	<b>11.0</b>	<b>61</b>	<b>854</b>
2016	Maximum	8.4	17.6	13.8	71	1700
	Minimum	6.9	0.7	9.0	31	863
	<b>Mean</b>	<b>7.4</b>	<b>9.8</b>	<b>11.3</b>	<b>54</b>	<b>1125</b>
2017	Maximum	8.5	18.5	14.5	71	2830
	Minimum	6.8	.2	9.2	34	996
	<b>Mean</b>	<b>7.5</b>	<b>9</b>	<b>11</b>	<b>55</b>	<b>1595</b>
2018	Maximum	8.7	20.3	14.7	72	1330
	Minimum	7.2	2.5	10.1	37	777
	<b>Mean</b>	<b>7.7</b>	<b>10.9</b>	<b>11.5</b>	<b>60</b>	<b>962</b>

**Graph 3: North Umpqua Annual pH**



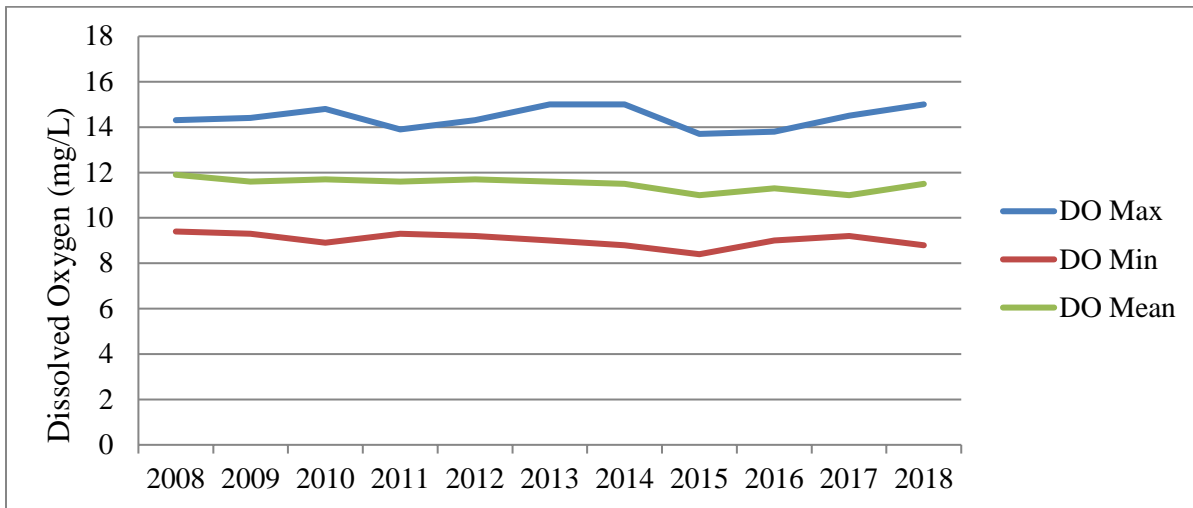
An acceptable pH range for the Umpqua Basin is between 6.5 and 8.5. It would be considered 'water quality limited' if greater than 10% of the samples exceeded this standard (fall outside the acceptable range), and a minimum of at least two samples exceeded the standard during a season of interest. An acceptable pH range was maintained during 2018.

**Graph 4: North Umpqua Annual Temperature (C)**



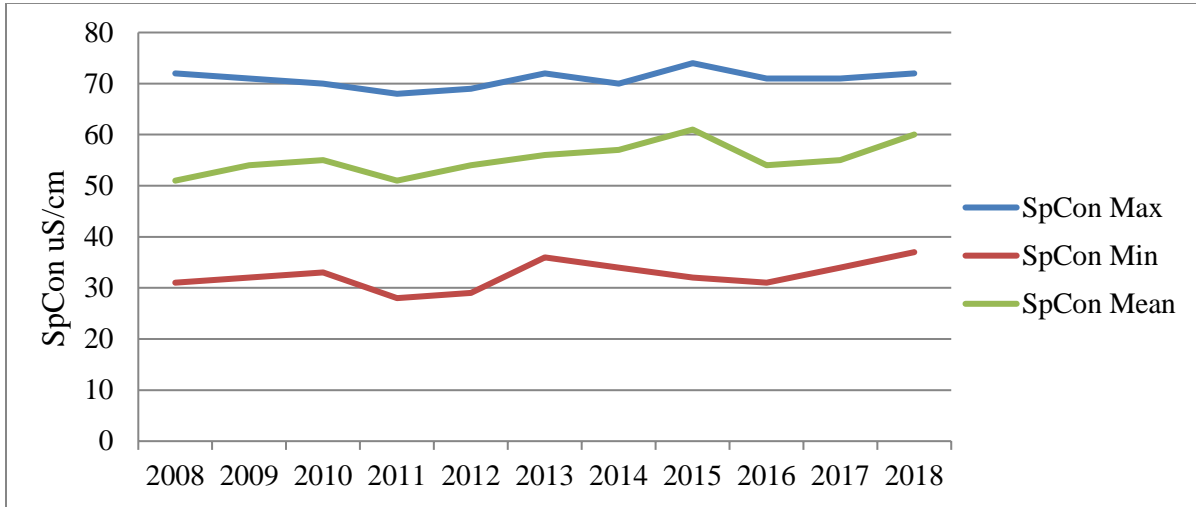
Maximum temperature standard reflects a 7-day average maximum. For good spawning conditions, the 7-day maximum average temperature of the river should not exceed 17.8°C between June 1 and September 14, and the 7-day maximum average temperature should not exceed 12.8°C at other times of the year. There were only a few instances over the course of the summer where river temperature thresholds were exceeded. The mean temperature had also decreased again, similar to 2012. Except for 2016, which shows a sharp decrease, and this is due to the temperature readings now available at Copeland Creek as opposed to Idleyld Park. This reading is more indicative of water conditions within the WSR Corridor.

**Graph 5: North Umpqua Dissolved Oxygen (mg/l)**



Dissolved Oxygen (DO) is found in microscopic bubbles of oxygen that are mixed in the water and occur between water molecules. DO is a very important indicator of a water body's ability to support aquatic life. Fish "breathe" by absorbing dissolved oxygen through their gills. DO should have no less than 6.5mg/l or 90% saturation. If the 7 day minimum average for DO is less than this standard, water quality is considered limited. Dissolved oxygen levels were within acceptable levels during 2018.

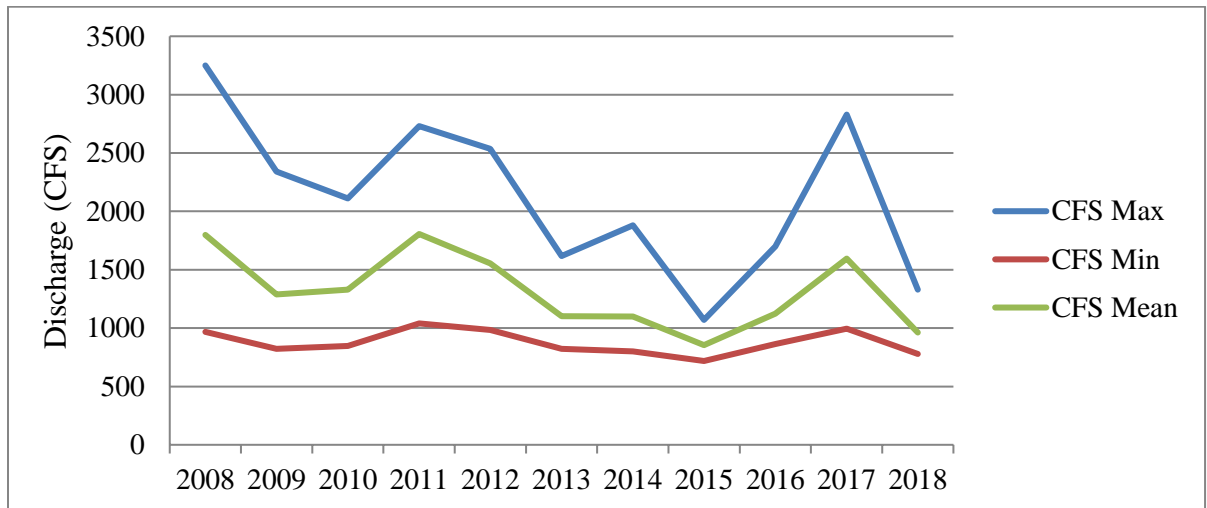
**Graph 6: North Umpqua Annual Specific Conductance (uS/cm)**



Specific Conductance (SC) is a measure of how well water can conduct an electrical current and is an indirect measure of the presence of dissolved solids such as chloride, nitrate, sulfate, phosphate, sodium, magnesium, calcium, and iron that can be used as an indicator of water pollution. Although specific conductance has no standard, it is noted because SC for the North Umpqua River is uniquely low.

### Graph 7: North Umpqua Mean Data for Discharge (cfs)

Discharge, Cubic Feet per Second (cfs), for the North Umpqua River is monitored on a daily basis during the monitoring season, May through September. Readings are taken from the Copeland Creek gage to get an idea of flows for the river and hazards that may become present throughout the year. Data presented in the graph represents monthly means to determine a maximum, minimum, and mean for the season.



\*2018 showed a mean minimum flow below 800 (cfs) for a month, for the first time since 2015 and only the second time in the previous 10 years.

### C. Cultural Resources

The North Umpqua River has attracted people for thousands of years. Because of this long-standing attraction, cultural resources are considered an outstandingly remarkable value of the river.

Archaeologists monitored 15 archaeological sites during the year, including ten sites that are eligible to be listed and one that is listed in the National Register of Historic Places. Archaeologists also tested two sites that had been impacted by wildfire in 2015.

#### **D. Scenery**

The lands within the Wild and Scenic River Corridor will be managed to retain the visual quality objectives (VQO) as defined in the North Umpqua Management Plan. Retention is defined as “management activities that should not be evident to the casual visitor.” The exception to this rule as written in the North Umpqua River Management Plan (pages 31-32) includes:

- a. The vegetation poses a safety hazard along the highway, the river, a trail, a power-line, or in a developed recreation area.
- b. The vegetation is located within an easement or right-of-way area, and a suitable alternate route cannot be found.
- c. The vegetation is in the way of a planned facility development or improvement project.
- d. The vegetation needs to be cut to enhance a significant or outstandingly remarkable value.
- e. A catastrophic natural event (such as wildfire, insect infestation, or blow down from a wind event) has left large numbers of dead, salvageable trees in the corridor.
- f. An insect infestation threatens adjacent timberlands outside the corridor.

There were no agency projects in 2017 that interfered with visual quality objectives within the corridor though the fires did impact the visual quality of the WSR corridor and will for many years.

#### **IV. 2018 Staff**

BLM Monitor – Jacob Holden, 3<sup>rd</sup> year seasonal, Park Ranger

BLM Monitor – Max Lapekas, 3<sup>rd</sup> year seasonal, Park Ranger

USFS Monitor – Alex Walker, 1<sup>st</sup> year seasonal, Botanist

USFS Monitor – Anna Ross, 1<sup>st</sup> year seasonal Botanist

BLM Swiftwater Field Manager – Barb Machado

USFS North Umpqua District Ranger – Sherri Chambers

USFS Recreation Staff – Janie Pardo, Jennifer Taylor

BLM Recreation Staff – Suzanne Shelp

Report Preparers – Jacob Holden, Suzanne Shelp, Max Lapekas