



Annual Report

July 1, 2016 - June 30, 2017

Greater Wheeler County Accomplishments

While Mountain Creek is the Wheeler Soil and Water Conservation District's Focus Area, the neighboring watersheds of Bridge Creek, Bear Creek and Cherry Creek have been the additional recipients of the North Slope Ochoco Holistic Restoration project grant from NRCS. The district and watershed council also work in other areas of the county as opportunities arise. The following are projects that were completed in Wheeler County, outside of the Mountain Creek Focus Area in the district's 2016-2017 fiscal year.

Butte Creek Passage

Butte Creek, a tributary of the John Day River, runs through the city of Fossil in Wheeler County and provides excellent habitat for steelhead. This project corrected four passage barriers on Butte Creek upstream of the city of Fossil. The two upper sites (Culvert #1 and Culvert #2) are located 5.6 and 4.2 miles upstream from the city of Fossil respectively on land belonging to A.L. and Patsy Hoover. The lower sites (Culvert #3 and Headcut) are located just upstream



Butte Creek Culvert #1 Before



Culvert #1 After

of the town of Fossil. At the Headcut site, Butte Creek had

downcut excessively due to past livestock usage and a jump barrier was present.

All four sites represented partial or complete passage barriers to steelhead movement through Butte Creek. The three original culverts were all undersize and two of them were perched as to present serious passage barriers to migrating adult and juvenile steelhead. The other area that was addressed is the headcut where erosion of the soft soils due to lack of vegetation from over grazing caused a jump barrier where the stream has encountered a layer of less erodible material.

ODFW personnel from the John Day Screen Shop assisted with the construction at all four sites. The quality of their work and attention to detail was exemplary

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NRCS- Resource Conservation Partnership Program Grant Update

The North Slope Ochoco Holistic Restoration Project is a comprehensive conservation project that will improve water quantity and quality, restore fish and wildlife habitat, improve forest and rangeland health, and sustain agricultural productivity in Wheeler County. Experts will use innovative Geographic Information Systems (GIS) technology to address priority natural resource concerns in a ridge-top to ridge-top manner. The project relies on the longstanding, collaborative program by the Wheeler SWCD that focuses on improving and protecting natural resources to benefit agricultural producers, fish and wildlife, and the local community.

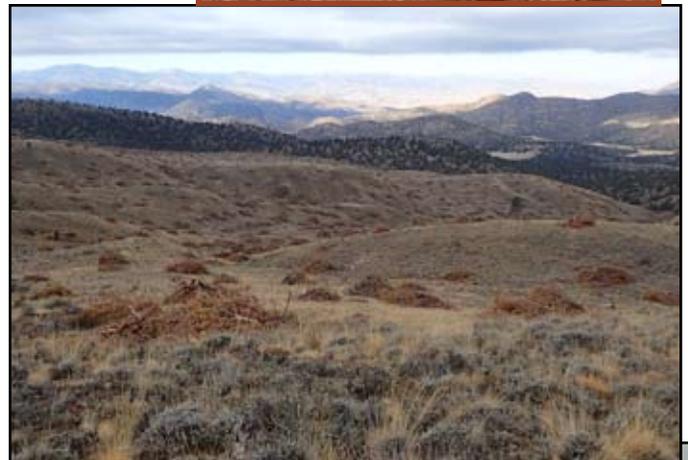
The Wheeler Soil and Water Conservation District and Natural Resources Conservation Service continue to implement the North Slope Ochoco Holistic Restoration Project with three years of the five year project ended, and a completion date set at a year early. To date 39 contracts have been approved by NRCS with a total obligation just under \$2.9 million in project implementation costshare.

The contracted conservation elements in the North Slope Ochoco Holistic Restoration Project include approximately:

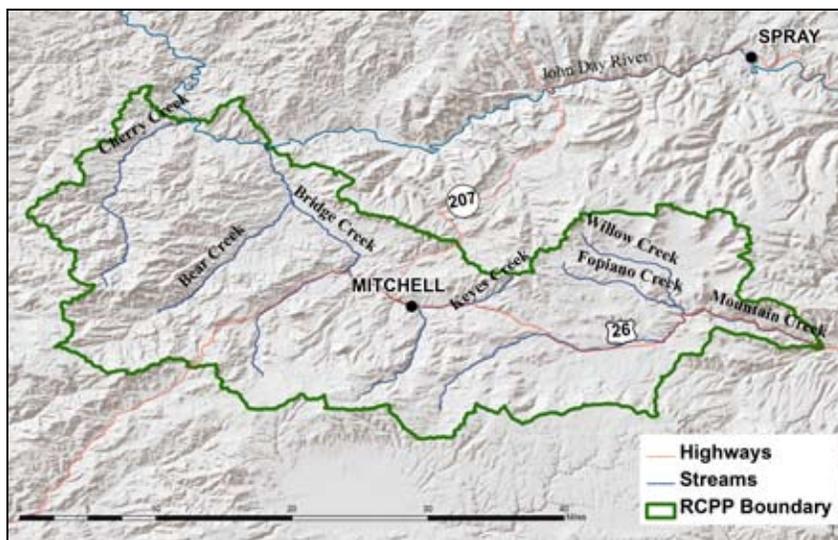
- 84,780 feet of irrigation efficiency and improvement
- 3,739 acres juniper removal
- 495 acres of forest stand improvement
- 27 spring developments

The Wheeler Soil and Water Conservation District has spent the last two years seeking match funding for the project and has successfully secured over \$2.8 million in non-federal funds. These funds are from several different partners including the Oregon Watershed Enhancement Boards, The Confederated Tribes of the Warm Springs, The Western Juniper Alliance, Oregon State University, and Oregon Department of Fish and Wildlife. The projects associated with these funds are fish passage improvements, fish habitat restorations, juniper removal, weed control, and spring developments.

Five signups have been completed with what is projected to be the final signup currently open. The deadline for the final signup is March 16th, 2018. For more information, contact Chase Schultz, at the Wheeler SWCD at 541-468-2990, or Damon Brosnan, NRCS at 541-384-2671, ext 107.



From Top: Spring development site in Mountain Creek, juniper removal site in Bridge Creek, and juniper removal site in Bear Creek



Conservation Information Available

Wheeler SWCD has a multitude of flyers, brochures and workbooks with topics ranging from forestry to weeds and water quality.

Some examples:

- Making the Most of Manure
- Water Quality & Agriculture
- Noxious Weeds
- Riparian Grazing
- Western Juniper in Oregon
- Xeriscaping in the High Desert

If there is a natural resource topic that you would like to know more about, give us a call. If we don't have information on the topic, we are happy to find something. Wheeler SWCD staff can be contacted at 541/468-2990.

Thanks to our Partners

This Annual Report of the Wheeler Soil and Water Conservation District (WSWCD) reflects activities that occurred during the fiscal year - from July 1, 2016 to June 30, 2017. In the 2016-2017 fiscal year, the Wheeler SWCD completed five projects, monitored six previously completed projects and managed another 27 projects in various stages of completion.

The successful implementation of projects would not be possible without the SWCD's partners. Cash or in-kind contributions were made by the Bonneville Power Administration (BPA) in partnership with the Confederated Tribes of Warm Springs, Oregon Watershed Enhancement Board (OWEB), Oregon Department of Agriculture, Oregon State Weed Board, U.S. Fish and Wildlife Service, U.S. Forest Service, Oregon Department of Forestry, Oregon Department of Fish and Wildlife, USDA Natural Resources Conservation Service, Mid-John Day - Bridge Creek Watershed Council, Blue Mountain Land Trust, and, of course the cooperating landowners.



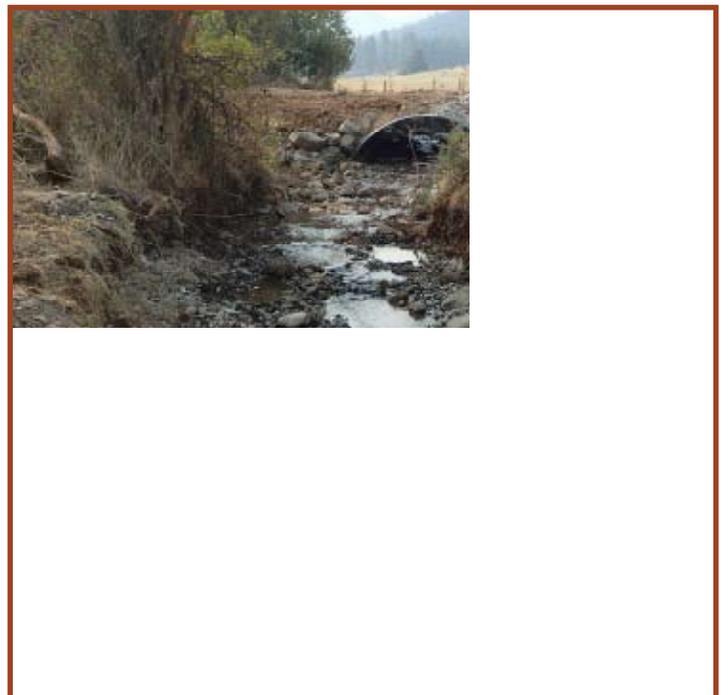
Wheeler, continued

and it is the hope of the District that we may continue to work with them on future projects.

Culvert 1: (32 feet long, 13 feet wide, 5 feet tall) This was the most challenging site with the largest elevation difference and the most amount of fill/removal. Work began by constructing a lined bypass channel on the west side of the creek. The channel was blocked at the lower end and fish salvage was conducted. The old culvert was removed and the site was excavated to grade. No cobble or gravel layer was encountered during the excavation and the project was further complicated by sub-optimal sealing of the bypass channel which would seep into the work area causing saturation of the soils. In order to achieve the soil bearing capacity necessary for the culvert footers it was required to add large rock until stability was attained. The downstream channel grading was completed by adding large rock and fill until the channel was up to grade.

The footers were set and carefully measured to ensure consistent separation and slope. Once the footers were in place material was mounded on the insides of the footers. The culvert was constructed starting at the upstream end and using a fully constructed half-hoop to start. This provided the initial rigidity and helped to prevent twisting of the footer blocks. Once the culvert was fully assembled the mounded material was flushed in to seal around the footers. The culvert was backfilled with lifts on alternating sides. The excavated material was mixed with pit run from a local pit in order to reduce the moisture content as much of the removed material was very wet due

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The District's Board of Directors

At the January 2017 Wheeler SWCD Board meeting, Jeremiah Holmes was re-elected as Chairman of the Wheeler Soil & Water Conservation District. Jeremiah and his family have lived in the Spray area for nine and a half years.

Wayne Lindquist was re-elected to the position of Vice-Chairman. Wayne grew up in South Dakota and moved to Wheeler County in 1995. He and his wife Peggy raise purebred Angus, purebred Charolais cattle and hay.

Matt Williams is the District's Secretary-Treasurer. He grew up in Twickenham, where he still lives and ranches today. Matt has served on the SWCD Board for 30 years.

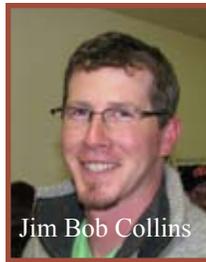
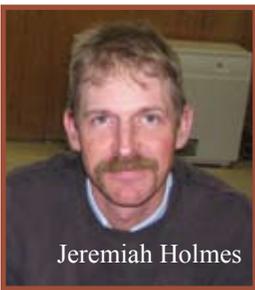
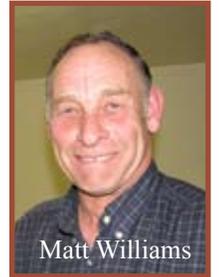
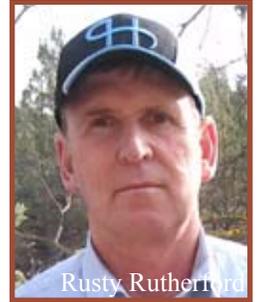
Ted Molinari and his wife have lived outside of Fossil for the past 26 years. Ted has served on the SWCD board for 20 years.

Herb Jones has ranched east of Mitchell for 18 years. Herb has served on the Board for nine years.

Jim Bob Collins ranches east of Mitchell and joined the Wheeler SWCD Board of Directors in 2011. Jim Bob's family has a long history with the Wheeler SWCD with his father and two uncles serving on the Board in the past.

Rusty Rutherford was appointed to the Board of Directors in April 2017. Rusty and his family live outside of Fossil.

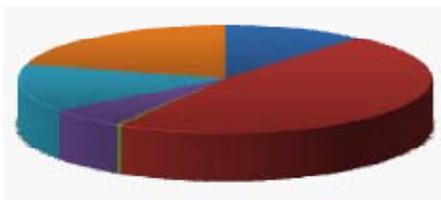
The District appreciates the service and dedication of the current Directors. Thank you for your service!



Wheeler SWCD Financial Statement

July 1, 2016 ~ June 30, 2017

Revenues



- ODA Grants
- OWEB Grants
- USFWS/USFS/BLM Contracts
- USDA NRCS
- BPA/CTWS Grants
- Other/Misc Income

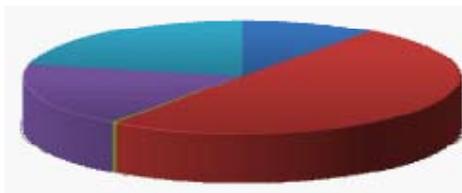
Beginning balance July 1, 2016.....\$671,964

REVENUES:

Oregon Dept of Ag Grants	\$80,190
OWEB Grants	\$332,450
USFWS/USFS/BLM Contracts	\$2,471
USDA NRCS	\$42,702
BPA Contracts	\$101,932
Other/Misc Income	\$147,531
TOTAL REVENUES.....	\$707,276

Expenses

- ODA Grants
- OWEB Grants
- USFWS/USFS/BLM Contract
- BPA/CTWS Grants
- District Operating Costs



EXPENSES:

ODA Grants	\$80,190
OWEB Grants	\$389,395
USFWS/USFS/BLM Contracts	\$2,471
BPA Contracts	\$143,672
District Operating Costs.....	\$170,426
TOTAL EXPENSES	\$786,154
Ending balance June 30, 2017	\$593,086

Mountain Creek Watershed-Focus Area Accomplishments

Wheeler Soil & Water Conservation District has identified the Mountain Creek watershed in southeast Wheeler County as a Focus Area under the Oregon Department of Agriculture. With this designation, the District is concentrating restoration and tracking efforts in this area. The District has multiple projects in the watershed in planning, implementation, and monitoring stages, and one project was completed between July 1, 2016 and June 30, 2017.

Mountain Creek Effectiveness Monitoring

The Wheeler Soil and Water Conservation District implemented a temperature and flow monitoring effort on a four mile section of Mountain Creek, in the John Day Basin. The monitoring was conducted in conjunction with a multi-phase stream restoration effort that returned a diked and channelized portion of Mountain Creek to its historic channel. The effectiveness monitoring conducting for this project included monitoring water temperature in Mountain Creek at seven locations along with flow monitoring conducted at three sites. The monitoring in this project documents the before and after conditions associated with the historic channel engagement as well as assessed the thermal influence of two infiltration galleries installed on the northern side of the meadow. The monitoring efforts also provided a clearer picture of dewatering times in different portions of the system and documented those changes as the stream was returned to the historic channel.

Results

All available data from April 7, 2012 through December 1, 2016 were examined and reported. Flow data are not available for a brief period of May 17 - July 9, 2013. Additionally, no temperature data are available from the Mid Historic site from September 3, 2012 through April 28, 2014. Other than these two issues, the database is intact with 15 minute data intervals.

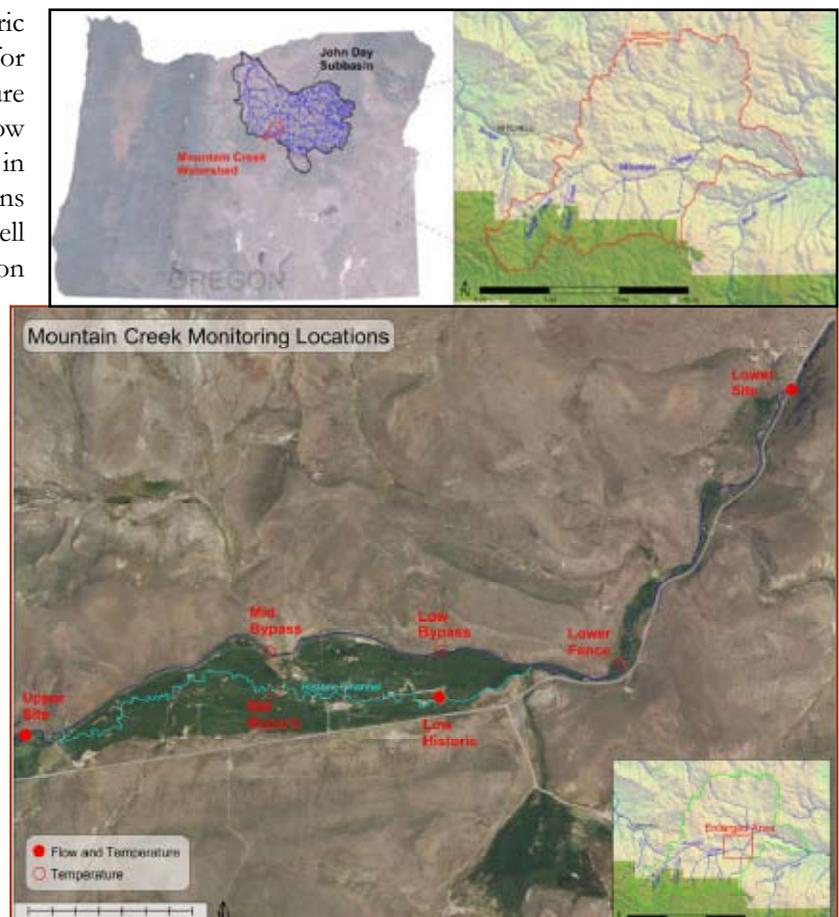
Seven day average maximum temperatures were calculated at each site including the ambient Air Site. This data metric is important for fish managers in determining viability of a certain stream segment for salmonids use. It is possible to examine spatial temperature variations from one site to the next as well as easily being able to identify when the various monitoring stations go dry.

Discussion: Dewatering in the Historic and Bypass Channels

One of the major concerns with the past flow regime in Mountain Creek is that there was a complete upstream and downstream passage barrier during the summer months because the vast majority of Mountain Creek flow becomes subsurface through the meadow in the area of the Collin's Ranch. The stream originally flowed through the center of

the meadow, but was diverted to the northern edge of the hills to mitigate flooding. During periods of low water, the bypass channel was unable to maintain flow because of the porous gravel layer present four to six feet below ground level. Much of this water found its way back into the historic channel by way of subsurface flow and was aided by two recently installed infiltration galleries, but it is apparent that much of the flow remains subsurface though the meadow.

The most notable change through the years is the flow regime seen during the summer of 2016. Both bypass stations exhibited extended periods of dewatering due to the main flow of Mountain Creek being directed through the historic channel. 2016 was also the first year that did not exhibit any dewatering of the Mid-Historic site, but the lower site in



the historic channel still became dry towards the end of the summer. This may be due to the location of the Mid-Historic site being just down from the return of the larger of the two infiltration galleries.

Peak Flow Analysis

The three flow measurement sites were examined for instantaneous peak flows for all years of record. The highest flow observed at the Upper Site over the period of record was 206 CFS in 2014. The rating curve at

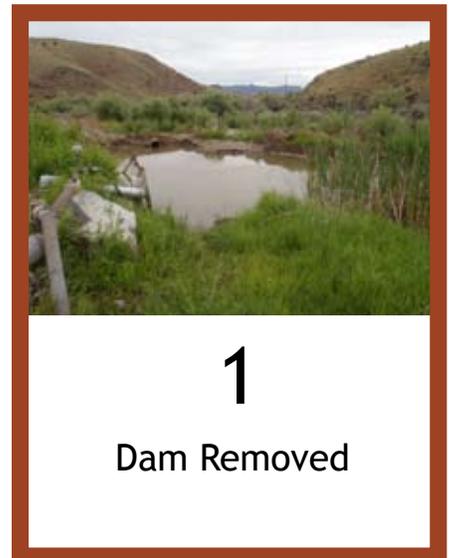
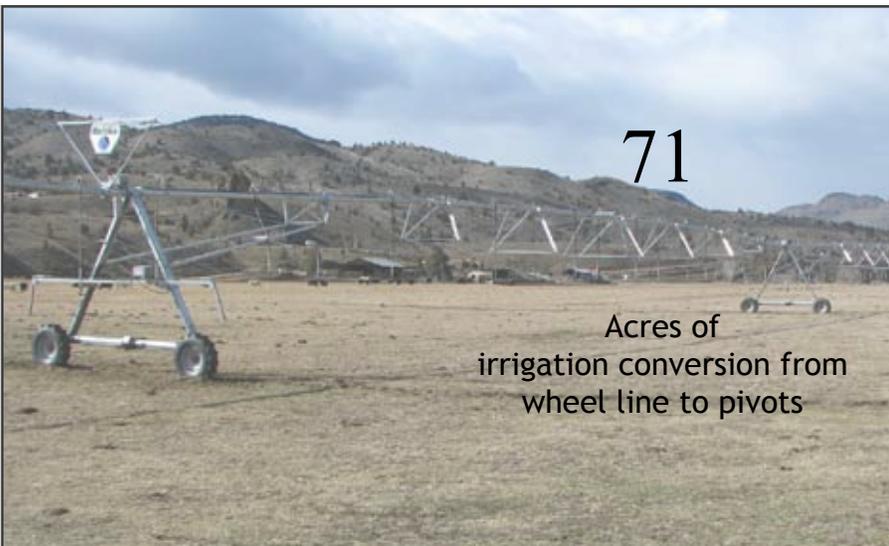
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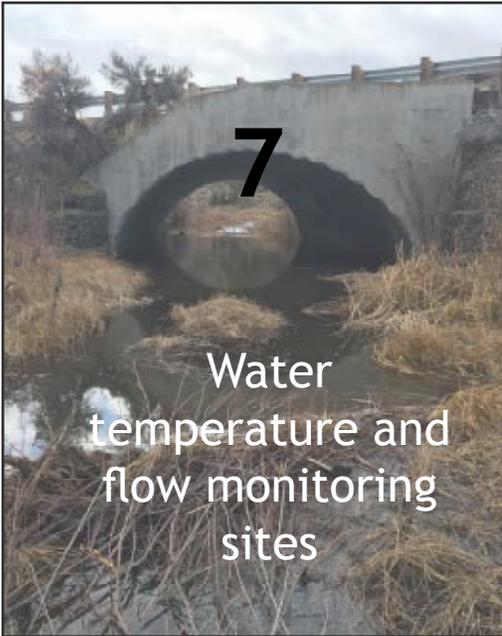
Wheeler Soil & Water Conservation District

2016-2017 Key Accomplishments By the Numbers



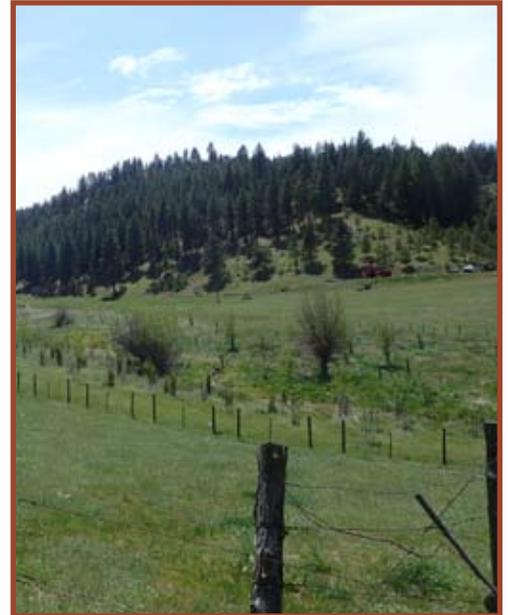
74,208
Feet of Riparian Fencing





1,053

Acres of Juniper Removed



399

ACRES OF
RIPARIAN AREA
PLANTED

Mountain Creek, continued

the Upper Site is the most robust; consequently there is a high degree of confidence in the peak flow numbers provided for that station. Conversely, the peak flow numbers at the other two gauges are highly suspect. We would expect an increase in flow from the Upper Site to the Lower Site, but not double (as seen in 2016). The Lower Site had shown high variability in channel form with significant aggradation which would cause increased discharge numbers above the actual flow. Additionally, beaver activity in the area could be responsible for the elevated discharge values. The peak flow values for the Low-Historic site are about what would be expected through 2015 considering the majority of the flow was being conveyed through the bypass channel. The peak flow value of 63 CFS in 2016 is much greater than any event seen previously at that station, but is far less than the 151 CFS measured upstream during the same event. There are two factors likely contributing to this below expected value: 1)the rating curve at this site is not robust and does not take into account any high flow events, and 2)the structure installed in 2015 is still allowing a significant amount of flow into the bypass channel. Both of these factors are likely contributing the resultant value.

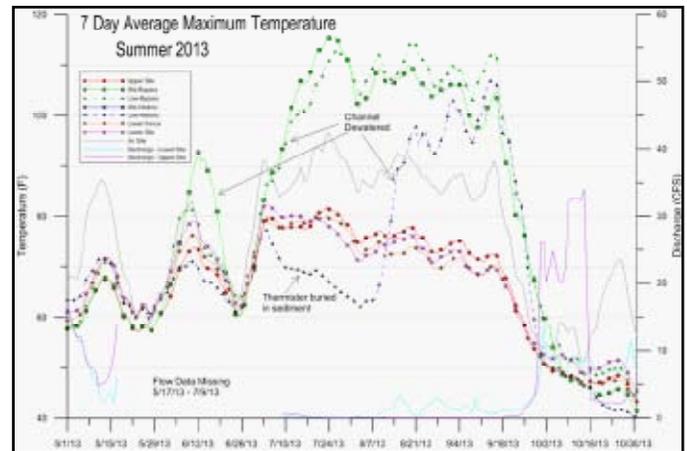
Temperature Analysis

Not surprisingly, the majority of the thermal sensors followed similar patterns throughout the monitoring period. Dewatering of the sensors produced large temperature variations and high Seven Day Average Maximum Temperatures. This makes it easy to identify when a sensor has become dewatered. The other temperature anomaly that was observed was an artificially low value at the Low Historic site in 2013 (and possibly 2012 as well). This was likely caused by sediment accumulation over the sensor.

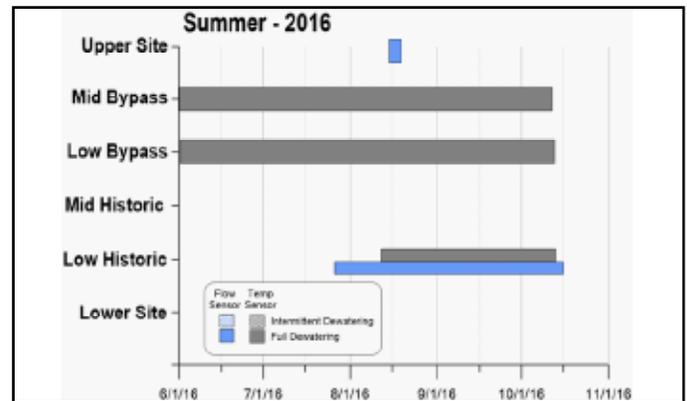
The 7 Day Average Maximum Temperature (7DAMT) plots show that the main channel sites experience high 7DAMT with values approaching or exceeding 80° F in all years. All portions of Mountain Creek monitored for this project saw consistent 7DAMT over 64.4° F by the first week of June for all years. By the end of June, all stations in the main system (excluding bypass channel stations) were exceeding seven day average maximum temperatures proposed by ODFW. Further examination of 7DAMT's may be necessary over other time periods depending on the timing of the steelhead usage.

Recommendations

The discharge rating curves combined with the calculated flow data suggest that the flow monitoring sites at the Low Historic and Lower Site are producing less than ideal results. Channel aggradation along with recent beaver activity at the Lower Site has made all results at this site questionable. The high degree of noise and low R-squared value of the discharge curve confirm these suspicions. It is the recommendation that this site either be re-established at a different location or be converted to a temperature only monitoring site. High flow



7 Day Average Maximum Temperature Summer 2013



Dewatering Time Periods during Summer 2016

measurements at the Low-Historic site need to be measured in order to increase confidence of the discharge measurements at this site. With the majority of flow of Mountain Creek being routed through the historic channel this should be accomplished in the near future.

Additional information may be found in the full report, available from Wheeler Soil and Water Conservation District.



Wheeler SWCD Staff & Partners

Wheeler SWCD staff members cover a variety of tasks to keep the district running and to serve our constituents.

Judy Potter serves the Wheeler Soil & Water Conservation District as the District Manager, overseeing all operational, personnel and fiscal components of the District.



Judy

Joan Field is the Administrative Assistant, and is responsible for WSWCD board meeting Director packets and minutes, quarterly and annual reports provided to the Oregon Dept of Agriculture (ODA), Biennial Review and LMA oversight, and assists the District Manager and staff with a variety of 'business of the District' tasks. Joan left the District in April to work at Asher Community Health Clinic. **Cindy Burlingame** was hired to take on that position.



Cindy



Joan



Gabe

Gabe Williams continues to contract with the District to design and implement the complex in-stream and irrigation projects.

Herb Winters is the Conservation Specialist, working with landowners to navigate the Farm Service Agency Conservation Reserve Enhancement Program. He is also the project manager for the engineered projects and the RCPP program. Herb left the District in November 2017 to work with Gilliam County SWCD.



Herb & Damon

Chase Schultz is the Field Technician, he assists Herb with the RCPP Grant and the CREP program.



Chase



Debbi

OWEB small grant program in Wheeler County and serving as the lead for the education and outreach program.

Damon Brosnan is the NRCS District Conservationist for Wheeler and Gilliam Counties. He coordinates all of the USDA programs for Wheeler County landowners.

Debra Bunch is the Watershed Technician for the Wheeler SWCD. Debbi serves as coordinator for the Mid-John Day-Bridge Creek Watershed Council, as well as writing grants, project management, monitoring, managing the



Riparian Buffers in Wheeler County

Through the Conservation Reserve Enhancement Program (CREP), landowners or land managers can lease their riparian property for contract periods of 10 to 15 years and receive cost-share funding to make improvements such as tree and shrub plantings, fencing and off channel water developments.

A required component of the program is excluding livestock or any type of use for the life of the contract. Landowners are also responsible for fence maintenance and keeping weeds to a minimum within the buffer area.



The program is funded and managed by the USDA Farm Services Agency office in Condon and is facilitated by the Wheeler Soil & Water Conservation District's Conservation Specialist. Responsibilities include helping landowners navigate the program paperwork, assessing the property to see if it qualifies and writing the conservation plan.

This year 9.3 miles and 373.53 acres were enrolled in the program in Wheeler County. Since CREP began in Oregon, over 95 miles and 1,802 acres of riparian exclusion buffers have been enrolled in Wheeler County.

For more information regarding the CREP program, contact Herb Winters, WSWCD Conservation Specialist, at 541/468-2990.



Wheeler, continued

to the sub-optimal performance of the bypass. The road over the culvert was capped with gravel upon completion.

Culvert 2: (24 feet long, 13 feet wide, 5 feet tall) No bypass was constructed for this culvert as in-stream work was minimal. Blocking nets were put in place above and below the project reach and fish salvage was conducted. A utility locate was conducted on the site and the original placement of the culvert was moved approximately two feet downstream to accommodate a buried phone line. Grading of the site and footer placement was conducted with the existing culvert still in place. This



provided a dry work area as opposed to the work area at Culvert 1. Once the footers were placed the existing



culvert was removed and minor regarding was performed. The culvert was constructed and finished in the same manner as Culvert 1.

Culvert 3: (24 feet long, 13 feet wide, 5 feet tall) This culvert was constructed the same as Culvert 2 with the exception of no utilities in the area.

Headcut Site: The headcut was corrected by installing a constructed riffle. Engineered fill consisting of boulders and a smaller rock gradation was used to construct the riffle. The downstream vertical banks were treated with a plant based bio-engineering technique that incorporated willow bundles and rootwads.

Lower Bridge Creek Connectivity

The John Day Basin is an over-adjudicated basin for irrigation. An over-adjudicated basin is a region where the landowners' legally allotted water-rights are at times greater than the

available flows within that region. The John Day Basin is also identified as critical habitat for listed Steelhead (*Oncorhynchus mykiss*). The Bridge Creek Watershed has been identified through a rigorous multi-agency process as a high-ranking watershed within the John Day Basin on which to focus restoration activities in the efforts to delist Steelhead. Some of the key limiting factors that have been identified are water



quality, water quantity, and fish passage. This project addressed all three of these limiting factors at a very critical and difficult location.



The project is located at the lower end of the Bridge Creek Watershed along the John Day River. The project area consists of two landowners who own a combined 71.3 acres of irrigated farmland with a combined water-right of 1.7825cfs before June 15th and 0.89125 cfs after June 15th. One landowner can divert from both the mainstem of the John Day River and the diversion site on Bridge Creek, while the other landowner

Continued on page 11

Wheeler, continued

diverts only from Bridge Creek. There are no other irrigation diversions within 5 miles of the diversion site on Bridge Creek. Both landowners' systems were interconnected using a patchwork of mainline fixes that have been attempted over the years to keep both properties in production. All of the PVC mainlines are undersized and failing due to age and constant high velocity flows. The undersizing of the mainlines also requires higher horsepower pumps to overcome the friction losses within the system. The landowners currently utilize wheelline and handline irrigation, but due to their age they no longer operate efficiently.

The diversion site on Bridge Creek is located approximately 500 feet from the confluence of Bridge Creek and the John Day River and requires annual reconstruction due to the flashiness of the system that often drastically reconfigures the stream in the project area. The reconstruction normally consisted of excavating a side channel that transferred water to a pool at the pump site. This diversion layout not only created a significant flow reduction at a critical point in the Bridge Creek system, but it also produced a significant thermal increase in the stream temperature due to solar and ambient heating. It is important to note that the highs for the area can exceed 100 degrees Fahrenheit during July and August.

The project decommissioned the existing diversion on Bridge Creek and transferred both landowners' water rights to the mainstem of the John Day River. The project also installed two high efficiency pumps, two pivots and the PVC mainline infrastructure to operate the system.

Rowe Creek Juniper Removal

This project is located in the Rowe Creek watershed in Wheeler County. Nine landowners (68% of the basin ownership) signed on to this project as participants in a NRCS Cooperative Conservation Partnership Initiative (CCPI) funding pool and OWEB projects to achieve landscape-scale uplands restoration. Invasive species encroachments into riparian zones, loss of native vegetation, juniper expansion, historic land use and historic fire suppression have created a decline in upland habitat and reduced water quality and quantity in Rowe Creek. The project scope, combined with the match



from NRCS, removed 1,053 acres of juniper, piled 481 acres of downed juniper, reseeded 120 acres of range, treated 531 acres of invasive weed species in riparian zones, and restored and protected 14 declining aspen groves. Partners on this project are the nine landowners, OWEB, and NRCS. OWEB dollars were requested for project management, contracted services, supplies/materials, fiscal administration and post implementation status reporting.

Invasive species encroachment into riparian zones, loss of native vegetation, juniper expansion, historic land use and historic fire suppression have created a decline in upland habitat and reduced water quality and quantity in the Rowe Creek watershed. The NRCS CCPI project in the Rowe Creek watershed provided a unique opportunity to partner on a watershed scale to address these resource concerns.

1,053 acres of Juniper were cut (5 landowners), 900 of those acres were piled and re-seeded, 500 acres of weeds were treated (9 landowners), and 14 declining Aspen stands were protected (5 landowners). OWEB funds were used to hand cut 33 acres of juniper, mechanically cut and pile 280 acres of juniper, seed 25 acres of rangeland, treat 14 declining aspen stands, and treat 500 acres of weeds.



MISSION STATEMENT

To maximize economic and environmental watershed values for Wheeler County residents by developing, conserving and protecting water, soil, plant structures and other natural resources.

~ **Improve the health of the watersheds through holistic measures that enhance water quality and quantity, soil health and conservation for beneficial uses**

- Promote implementation of the Mid-John Day Agricultural Water Quality Management Area Plan.
- Promote and implement USDA Programs.
- Assist and promote watershed council activity.
- Seek funding for projects.
- Provide technical assistance to the public.
- Set strategic priority work areas.
- Implement District projects.
- Initiate major offensive against invasive species.
- Form or maintain partnerships with federal, state and local agencies and tribes.
- Promote relevant research and monitoring.
- Conduct watershed assessments/action plans/conservation planning.

~ **Provide education and outreach to the public**

- Produce newsletters and annual report.
- Organize tours and workshops for students, landowners and land managers.
- Participate in community activities.
- Partner with local schools to further natural resource educational opportunities.
- Develop funding source for public education activities.
- Provide AgWQMAP fact sheets and information for distribution.

~ **Manage the business of the district in an efficient and effective manner**

- Encourage staff and director development by attending workshops, conventions and training sessions.
- Meet state filing requirements for budget, audit and reports.
- Hold monthly board meetings and December annual meeting.
- Seek secure funding by exploring creative and productive ways to finance district operations and fund employee positions.
- Develop operational policies and procedures.

BOARD MEMBERS

Jeremiah Holmes,
Chair

Wayne Lindquist,
Vice-Chair

Matt Williams,
Sec. Treasurer

Ted Molinari

Herb Jones

James Robert Collins

Rusty Rutherford

ASSOCIATE BOARD MEMBERS

Amy Derby

Rob Wade

Dave Hunt

Non-Profit
US Postage
PAID
Permit #8
Fossil, OR

WHEELER SOIL & WATER
CONSERVATION DISTRICT
40535 HIGHWAY 19
FOSSIL, OREGON 97830
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FAX: 541 / 468-2991

