

2016 JRWC Annual Report



JRWC covers 734 square miles of the upper Jefferson River

In 1999, Jefferson River Watershed Council (JRWC) began its efforts to restore and revitalize the upper Jefferson River and its tributaries. Thanks to the commitment, passion and vision of Jefferson River Watershed Council donors and advocates, local partner organizations, and surrounding communities, JRWC has helped to restore the Jefferson River, address invasive species, restore riparian areas, increase water flows, and help restore fish and wildlife habitat.

In 2016 the JRWC continued its relentless pursuit of scalable, sustainable solutions to natural resource issues in the watershed. In 2015 JRWC continued its efforts to restore the Jefferson Slough and Big Pipestone Creek to combat nonpoint sediment pollution, Eurasian Watermilfoil, drought resiliency, groundwater mapping and renewed efforts to address conifer encroachment.

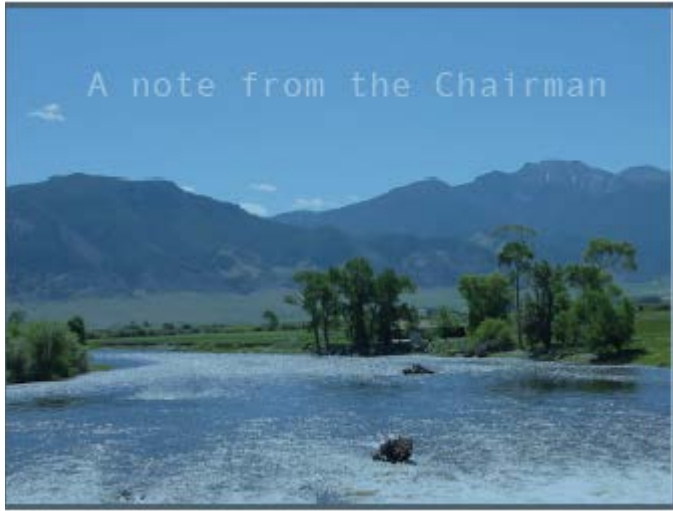
Thank you for joining us!

Contact Information

Jefferson River Watershed
Council
Post Office Box 550
Whitehall, Montana 59759
Phone: (406) 579-3762
Site: <http://www.jeffersonriverwc.org>

Board of Directors

John Kountz, Chairman
Vice Chairman, Chuck Buus
Tom Harrington, Secretary
Treasurer
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Farley Hicks
Jerry Keogh
Byron Mazurek
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Greetings.

While the JRWC has many ongoing projects, some of which we hope to complete in 2017, there are always things that are out of our control. Things that we have to react to in a different way. Good operators can react and make changes. We can always make plans but one little thing can change the whole picture. You just learn to roll with the flow!

In 2017 we can plan for the coming drought based on past history. But with a lucky 7 in there who knows. Who really knows what the future holds. California was never to see rain and snow again now could they be flooding? Time will tell.

The secret? Stay happy. Keep the flow positive. 2017 could be a record year.

John Kountz

Chairman

Jefferson River Watershed Council



2016 SNAPSHOT

Eurasian Watermilfoil Eradication in the Jefferson Slough



Eurasian Watermilfoil was introduced to North America in the late 1940s and since that time has spread across the United States and much of Canada. Once established, this rapidly spreading noxious weed out competes native plants and impacts irrigation and hydropower facilities, recreational activities, and wildlife habitat. In 2011, the lower 4.6 miles of the Jefferson Slough was reported as the uppermost point of Eurasian Watermilfoil in the Missouri River Watershed.

It is estimated that Jefferson Slough contributes about 17,000 pounds of Eurasian Watermilfoil fragments annually to the Jefferson River. These fragments are establishing new infestations in sections of the Jefferson, Madison, and Missouri Rivers.

Projects Completed or Underway in 2016

Slaughter House Slough Diversion: The Slaughter House Slough diversion plays a key role in creating flushing flows down the Jefferson Slough. The redesign of the Slaughter House Slough Diversion was completed in 2016. Funding was requested in a Renewable Resource Grant in 2016. Construction is expected in late 2017 dependent upon receipt of requested funds or the redirection of current funds

Jefferson Slough Channel Reconstruction Phase 1: The final plan first phase of the channel reconstruction project on the lower Jefferson Slough was completed in 2016. A Request for Qualifications (RFQ) from contractors with the necessary expertise was solicited in 2016. Seven contractors were approved to receive the first phase bid package which is expected to be released in early January of 2017. Construction of the first phase channel relocation project is expected to be completed in early 2017.

Casagrande Bypass Project:

Before carrying out any flushing flows on the slough, it was necessary to eliminate a large sediment load behind the Herschel Dam, a structure on the Jefferson Slough. The Casagrande Bypass was constructed to move the sediment behind the Herschel Dam to existing gravel pits on the Casagrande property. Project components installed and completed in 2016 include: 1) installation of a sluice gate, 2) installation of a pin and plank check structure on the Herschel Dam, and 3) excavating connection channels between sediment ponds.

Herbicide application:

The first herbicide application for control of the Eurasian Watermilfoil in the Jefferson Slough was completed in 2016. Monitoring of the application was completed by MSU in the fall of 2016. Follow-up chemical application and continued monitoring are scheduled for the summer of 2017.

Big Pipestone Creek Stream Restoration

Extensive human activities including removal of beaver and the stream straightening by both the railroad and a landowner have changed the character of the Big Pipestone Creek. These actions have left significant portions of the creek cut to a depth of 15 to 20 feet causing a huge sediment deposit in the lower Big Pipestone Creek. This resulted in:

- Big Pipestone Creek having the second highest sediment load of any Montana stream, with approximately 7,900 tons of sediment sent down stream annually.
- Aggravating flooding in Whitehall.
- Loss of agricultural land, loss of access to permitted irrigation water.
- Sediment deposition in Jefferson Slough provides a perfect nursery for the growth and spread of Eurasian Watermilfoil, an invasive aquatic weed, which now threatens the upper Missouri River basin

Projects Underway in 2016

Capp Ranch Big Pipestone Creek Stream Restoration

Jefferson County and the Jefferson River Watershed Council failed to negotiate a letter of agreement with the Capp Ranch in 2016 for construction of a new channel. A new planning effort and negotiations are expected to be resumed in 2017. The planning will involve a proposal to develop an inset flood plain in the existing channel. The proposed project when completed will reduce the sediment transported to the Town of Whitehall and the Jefferson slough.

Jefferson Canal Blowout



The inability to regulate the flows from the canal back into Big Pipestone Creek created a large blowout on Big Pipestone Creek in turn creating massive sediment flows in to Big Pipestone Creek at the junction of the Jefferson Canal return flows into the creek. The Jefferson Canal Blowout is scheduled for restoration in early 2017 as part of the Capp Ranch stream restoration project using previously awarded funding from the 2013 Montana State legislature

Flood mitigation of the southeast side of Whitehall

Three projects were identified as key to addressing a 10-year flood event on the Southeast side of the Town of Whitehall. They include; the John Smith diversion, the bridge on Kountz Road and the Montana Rail Link siding bridge over Big Pipestone Creek. The John Smith diversion was completed in 2015. The bridge on Kountz Road and the Montana Rail link siding are both scheduled to be completed in early 2017. All three projects were identified through the 2013 Big Pipestone Creek/Jefferson Slough assessment carried out in 2012. The John Smith project was funded jointly by John Smith and state funds. The bridge project is funded by the state of Montana, the rail link siding will be funded by Montana Rail link.



2011 Flooding Whitehall Montana from Big Pipestone Creek

Upper Jefferson River MBMG Ground Water Study

During 2016 the Upper Jefferson Groundwater Investigation analyzed surface-water and groundwater data collected from 2013 to 2015. The data allows us to better understand groundwater/surface-water interactions, including the effects of canal leakage on groundwater recharge, and the geographic extent and magnitude of gaining and losing reaches of the Jefferson River and the Jefferson Slough. Groundwater budgets were also developed for the Waterloo and Whitehall areas. A groundwater flow model was developed for the Waterloo area, and was calibrated using monitoring data and the groundwater budget. The Waterloo model was then used to evaluate the hydrologic effects from changes in land use (i.e. changes from flood to pivot irrigation), and changes in water management (i.e. lining different parts of the canal system). A second groundwater model for the Whitehall area is being developed. Once the Whitehall model is calibrated it will be used to predict effects from increased groundwater development (i.e. new subdivisions).

Conifer Encroachment

Grasslands and forests associated with ponderosa pine, douglas fir, lodge pole pine, and Rocky Mountain juniper provide a variety of ecological goods and services including biodiversity, water, wildlife habitat, livestock forage, and timber as well as recreational and aesthetic values. These ecosystems are a major component of most of western Montana's social and economic fabric through their linkage to natural resource-based industries including agriculture, tourism, mining, logging, hunting and recreation. Over the last 150 years, a loss of the frequent low intensity fire regime that maintained a resiliency in these ecosystems has effected a change toward a vastly different landscape with much higher tree densities in existing forests and an expansion of tree dominated vegetation into historically

non-forested landscapes. In many cases, these "new" ecosystems have crossed an ecological threshold requiring active management at the landscape scale to restore functioning, resilient landscapes able to sustain the provision of desired ecosystem goods and services. Continued expansion of coniferous trees in southwest Montana, without active management will result in continued degradation in biodiversity, wildlife habitat, forage production, and watershed values and an increasing risk and hazard of high intensity and severity wildfires. Wildfire risk is especially important in the increasingly common wildland-urban interface where wildfires pose substantial risk to life and property. Moreover, losses in habitat, forage, and watershed values are exacerbated with large-scale high intensity wildfires.

Restoring the function of these systems is a critical issue in Montana. Improving resiliency in the linked ecologic, economic, and social systems will enhance the capacity to adapt to an uncertain future. The need for these natural resources in the State of Montana is apparent and working to improve the health of these landscapes is critically important. The proposed project seeks to develop novel approaches to cooperatively manage landscape-scale conifer expansion issues and seeks to improve our understanding how treatment opportunities affect the ability of these systems to support the provision of the desired goods and services. "Dr. Craig Carr, MSU Range Department"

The JRWC once again submitted a grant request to the Montana Department of Natural Resources and Conservation (DNRC) to initiate a pilot program of conifer encroachment using prescribed burning. The grant was not successful. The JRWC is therefore working with Representative Ray Shaw and others to develop legislation to bring the DNRC Forestry into a program of conifer encroachment reduction with local organizations and landowners. The legislation will be proposed in the 2017 Montana State Legislature.



Jefferson River Watershed Drought Management Program

The purpose of the Jefferson River Watershed Drought Management Plan (DMP) is to reduce resource damage and to aid in the equitable distribution of water resources during water critical times. The Plan is a voluntary effort involving local interests including agriculture, conservation groups, anglers, municipalities, businesses, and government agencies.

The first DMP was prepared and approved by the Jefferson River Watershed Council on 25 July, 2000. The Plan was implemented for five years (2000 through 2004) and increased flow at the target location (Waterloo Gage below Fish Creek Canal) was documented by monitoring river and irrigation canal flows during the period. The drought management plan goal of maintaining at least 50 cfs at Waterloo was not always met during these years, but cooperation by water users helped improve flows at this critical location. Prior to developing the drought plan, the Jefferson River was severely dewatered at this location during dry years, and in 1988, 5 cfs was measured at the Waterloo gage location.

The 2000 version of the DMP established flow triggers for directing actions of anglers, water users, and government agencies. The triggers were revised in February 2005 based on observations of the previous 5 years of plan implementation. As of 2007, the current drought plan triggers are listed in their DMP which is provided at www.jeffersonriverwc.org. Funding for the drought management effort is provided annually by the Golden Sunlight Mine.

In 2016, the extreme low flows in July once again triggered the activation of the DMP. The JRWC Board of Directors and Fish Wildlife and Parks once again activated the local Drought Management Committee. The committee worked voluntarily with irrigators, and others in a successful effort to reestablish adequate flows to protect the Jefferson River fishery.



August 31, 2015. Parsons Bridge/USGS Parsons 06027600

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Drought resilience in the Missouri Headwaters Basin, A National Demonstration Project a National Demonstration Project

The urgency for drought resilience planning has never been greater. With rapid changes in land use and increasing impacts from climate change, communities need to determine ways to meet their drought planning goals. Montana is forging new ground to join agencies, resource managers and communities to plan for drought impacts and build drought resilience. The State of Montana and the National Drought Resilience Partnership (NDRP)--a collaborative of federal and state agencies, non-governmental organizations (NGOs), and watershed stakeholders--are working together to leverage and deliver technical, human and financial resources to help address drought in the arid West.

The Missouri Headwaters Basin in southwest Montana was selected as one of two national Drought Resilience pilots by the NDRP to demonstrate collaborative efforts to build resilience. The Basin plays an important role in landscape connectivity in the northern Rockies, experiences frequent drought, and faces rapidly changing population and land use. Although local groups in the area recognize the need to prepare for drought, they lack the human and financial capacity to fully utilize planning tools and implement solutions. Federal and State resources can assist greatly with drought monitoring, forecasts, and early warning systems, but the information isn't always readily accessible to local planners and decision makers.

The goal of the Missouri Headwaters Drought Resilience Demonstration Project is a two-way proposition -- to deliver government drought mitigation tools and resources to watershed stakeholders who need them, and to build information from local groups in direct contact with the landscape. This project will produce a model for information sharing, efficient water use and storage, and community collaboration. It will also prepare people to mitigate for drought while preserving cultural and ecological values in the face of a drier future.

In 2016 JRWC and the Jefferson County Department of Emergency Services (DES) jointly drafted a proposal to the DNRC to establish a position of Drought Management Coordinator to implement the pilot project in Jefferson County. The JRWC and the DES are currently waiting for a response to their grant request

Missouri Headwaters Partnership

The JRWC cooperates with all of the other eight watershed organizations in the Upper Missouri River Basin through the Missouri Headwaters Partnership (MHP). In 2016 the MHP voted to reorganize the organizations bylaws and to begin to coordinate and cooperate more closely on basin wide initiatives and projects. The effort is aided by funding from the Wilberforce Foundation. The MHP expects to continue and expand the MHP's level of cross basin cooperation in 2017.

