



## Spring Newsletter

2019

### BOR to Modify Dam Operations

By: Anne Marie Emery, Executive Director

In response to the Bighorn River Alliance's "Save the Bighorn" campaign, and after eighteen months of inter-agency modeling and statistical review analysis, we are pleased to announce that the Bureau of Reclamation (BOR) will implement *all* fourteen recommendations identified to improve water inflow forecasts and operations at Yellowtail Dam, improving balance between reservoir and river needs.

Since 2018 the Alliance has led efforts to improve dam discharge conditions that, due to high water events, poor forecasting and perceived operational bias, have negatively affected the river, its wild trout and recreational use. With joint support from the agricultural community, the Alliance received political support from Governor Bullock, Senator Tester, Senator Daines and Congressman Gianforte, as well as support from the Montana Fish, Wildlife and Parks commission to encourage BOR to review 2012 operating criteria to determine if operating plans were meeting objectives, and identify where improvements to criteria need to be made.

In reply, the BOR created a technical working group consisting of the Alliance, lake users and federal/state agencies with the goal of involving all users in a thorough, transparent scientific review of current operations. For eighteen months the technical work group reviewed statistical reports and ran modeling programs that ultimately identified fourteen recommendations that could improve dam operations pertaining to forecasting, operating criteria and general operations.

One of the findings from this comprehensive review was that when BOR was forecasting April through July inflows (water entering the reservoir), they were incorrect more than half the time, and often of considerable magnitude, equating to a much higher reservoir in the spring. To resolve this issue BOR is implementing new software programs to better calculate low elevation snow melt and runoff, in addition to evaluating the skill of their forecast ensembles and statistical forecasts. With advanced knowledge of early spring runoff, BOR can be proactive in drawing the reservoir down, equating to less risk on the River.

In addition to improving forecasting, the technical review team identified several changes to the operating criteria that include updating rule curves to deal with inflows exceeding current historical records, as well as adding explicit procedures for low water years, including years where a dry early spring followed by late spring resurgence in snow and precipitation. Lastly, BOR will not generate operating plans that include the use of the flood pool (unless under flood conditions), which will help temper the urge to keep the lake elevations higher.

It is important to understand that during extreme drought years, and extreme high water years, general dam operations will always be challenged. The strength and flexibility of all dams in the west are



*Yellowtail Dam at the seam of the Reservoir and Bighorn River. Alliance driven improvements are being made to return balance between reservoir and river needs.*

performance limited when met with hydrological extremes. Yellowtail dam operating plans prior to the 2012 plan challenged the river during years of drought, leaving the river with less than ideal stream flow conditions. New criteria developed in 2012 helped establish minimum stream flow requirements to protect the river during years of drought, but did not consider (at the time) the consequence of high flows.

The recommendations described help improve operations to deal with high (not record) water years, fine tuning and modifying current operating plans so that balance is restored between reservoir and river needs. The recommendations are also extensive, time consuming, and costly. BOR has committed to implementing them all, with many already in progress. We applaud the Bureau of Reclamation for this action. *Cont. on next page*

### Current River Stats

- ▶ River Flows - 3,586 cfs
- ▶ Reservoir Level - 76.6% full



For updated flows, visit [bighornriveralliance.org/current-river-flows](http://bighornriveralliance.org/current-river-flows)





# Protect. Preserve. Enhance.

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Moving forward, the Alliance will continue to participate in the technical work group process to ensure all recommendations are implemented in a timely fashion and that recommendations equate to anticipated benefits on the river.

In addition to the above campaign success the Alliance is committed to expanding our scientific knowledge of the Bighorn River through our Research Initiative (described on page 3). The unique hydrological periods on the Bighorn have left many questions unanswered pertaining to current river health. This initiative will strengthen our scientific knowledge of the resource which will equate to stronger strategies and policies that will help #SavetheHorn for tomorrow's conservation challenges. After all, at the end of the day, a river's greatest protection is being understood.

To read the RiverWare Modeling Review of Bighorn Lake Operating Criteria final report and recommendations, please visit <https://bighornriveralliance.org/campaign-results>.

## Recycle your Line

Unlike a day on the water, fishing line, when disposed of improperly, lasts forever. Help keep the Bighorn River and its raptors "tangle free" by disposing fishing line at one of the monofilament recycling stations the Bighorn Alliance has built and installed at public access sites along the river. Line disposed of at these stations is collected by the Alliance and sent off to be recycled and reused.



## Stay Connected & Limit Impact

To reduce our organizations environmental impact, the Alliance limits physical mailings to two a year (Spring and Fall). To stay connected to our work on a monthly basis, please sign up for our email updates by submitting your information to [info@bighornriveralliance.org](mailto:info@bighornriveralliance.org), or by signing up online at [bighornriveralliance.org/newsletters](http://bighornriveralliance.org/newsletters).

## Remembering Frank Johnson

By Steve Hilbers, BHRA Vice President

On January 7th, 2019, the fly-fishing world lost one of its main players and advocates. Frank Johnson, with his love of the sport, strong personality, quick wit and dry sense of humor became one of the most requested and respected guides and fly tiers on the Bighorn River and around the country. Locally known as "the Guide Father," Frank helped many of the young guides learn the ins and outs of the craft of guiding.

Among his many endeavors and accomplishments, Frank was one of the founding fathers of the Bighorn River Alliance. From its inception, Franks steady hand and logical thinking helped the Alliance become a viable entity in dealing with the goals of maintaining and enhancing the river he loved. His desire to promote and educate young people in the art of fly fishing and fly tying made him one of the great characters of our sport.

On a personal note, Frank was a mentor, co-worker and dear friend to me for many years. He will be greatly missed by many here among his Bighorn Family.



## Tenkara with the Tribe

The Alliance is excited to announce that we will be joining with Patagonia to host Tenkara with the Tribe 2019! This event, which was canceled last year due to high flows, connects local Crow youth to their local Bighorn waters while also introducing them to fishing as a positive form of recreation. We look forward to sharing how you can help us with this important day later this summer.



## Stay Hooked on BHRA Updates



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Frank Johnson sharing a Bighorn catch with a four legged friend.

The Bighorn River Alliance is a 501c(3) not for profit organization.

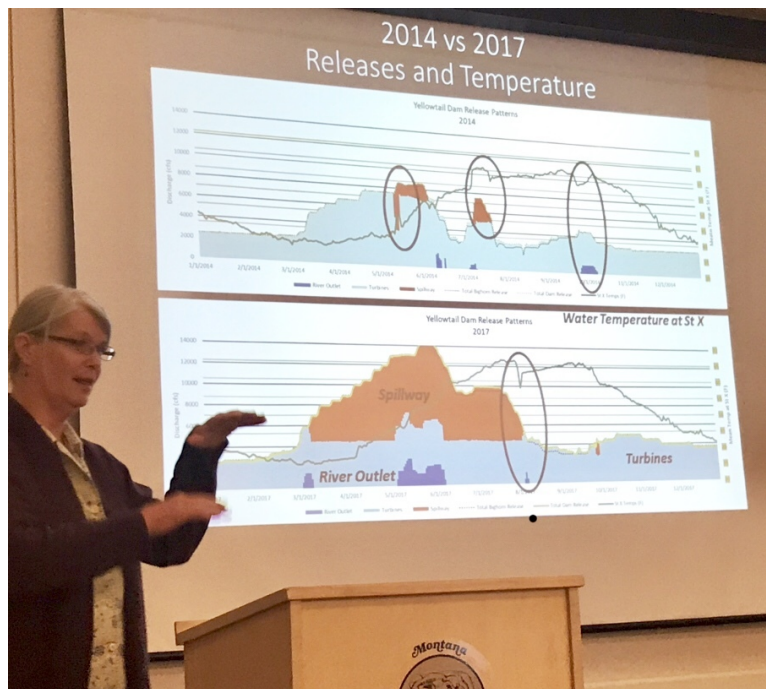


## Research Initiative Underway

The Bighorn River Alliance is excited to announce that the Bighorn Research Initiative is up and running. On May 2, the Alliance hosted a meeting at the Montana Fish, Wildlife and Parks Region 5 office to hear progress reports from five contractors engaged in year one research efforts. We firmly believe that the effectiveness of the Alliance in advocating for the Bighorn River depends on the quality of the information of which its action agenda is based. The Research Initiative has been designed to provide that foundation of credible research.

The meeting was attended by a large group of individuals representing the Alliance and federal, state and local agencies with responsibilities involving the river. Executive director Anne Marie Emery welcomed the participants on behalf of the Alliance and Jim Chalmers, board Research Chair, gave a brief overview of the Research Initiative history. Warren Kellogg, who has been retained to provide technical management of the research, then introduced the contractors responsible for the five projects funded in the year one program (see right column).

Overall reaction to the progress being made was very positive. The work is focused on issues of great practical significance and it was clear the contractors were operating from a wealth of on-the-ground knowledge. Final reports from each of the contractors will be submitted by the end of August with the draft work program for year 2 available for review by October 1st.



Karin Boyd (Applied Geomorphology Inc.) describes relationships between Bighorn temperatures and releases. Releases from various elevations from within the reservoir (i.e. spillway, turbines, outlet works) can affect river temperatures downstream.



## Meet our Contractors



Warren Kellogg  
Stream and Watershed  
Consulting

### 1. Water Quality Sampling and Analysis Plan

Warren Kellogg currently serves as the BHRA Research Manager with the responsibility of coordinating 2019 Research Initiative efforts. In addition, Kellogg is developing a long term water quality monitoring plan that will characterize the Bighorn's water quality from the reservoir and river down to the Yellowstone confluence. This data will be used to determine how dam releases, tributary inflows and corridor land uses influence the overall health of the Bighorn River.



Tony Thatcher  
President  
DTM Consulting Inc.

### 2. Compilation of Spatial Imagery and Data

Tony Thatcher has a master's degree in spatial science and has spent the past 23 years developing data, tools & analysis techniques for studying both the natural environment & human influences to the environment. Thatcher is compiling a historic time line of spatial data for the Bighorn to help understand changes to the river both pre & post dam construction. These data are key for interpreting the often slow & subtle changes on the river & help managers make informed decisions moving forward.



Karin Boyd  
Owner, Applied  
Geomorphology Inc.

### 3. Hydrology: Flow Release Patterns & Fluctuations

Karin Boyd is working to create and compile spatial data while also evaluating flow patterns on the river. Compiling a baseline project set that includes air photos, mapped bank lines and bank armor, Boyd will help us understand some aspects of how the river has changed historically, and how it is reacting to current management. She will also produce a summary of flow patterns on the river that include historic changes to the dam and more recent factors such as drought, upstream reservoir expansion and operating criteria.



David Stagliano  
Montana Biological  
Society

### 4. Benthic Macro-Invertebrate Sampling Plan

Aquatic insects are important to anglers and also important indicators of stream health. Dave Stagliano is compiling a literature review of all macro invertebrate studies done on the Bighorn to devise a long term sample strategy for aquatic insect monitoring. Revisiting past sampling sites will provide information on how aquatic life has changed over time, while also giving us information on how flow releases, and other factors may impact aquatic insect success on the Bighorn River.



Ken Frazer  
Former MFWP Region 5  
Fisheries Manager

### 5. Governmental Operating Criteria & Authorities

A clear understanding of the authorizations and priorities of Yellowtail dam as well as defined roles of the many agencies with involvement in the dam, reservoir and river is essential to future planning. Frazer is researching project authorizations and identifying the roles and responsibilities of state/federal/tribal responsibilities relevant to the Bighorn river. Most interesting are areas of overlapping jurisdiction, or non exercised jurisdiction with potential to have significant effect on the river.

To learn more about the Bighorn Research Initiative  
please visit  
[www.bighornriveralliance.org/research-initiative](http://www.bighornriveralliance.org/research-initiative)



## Bighorn River Day and Carp Tournament Benefit for the Bighorn River Alliance

**FRIDAY, JUNE 14th, 2019**

**Fort Smith, Montana**



### Schedule of Events

Carp Tournament \$40 per team

9:00 AM Registration opens at Ok-A-Beh Marina

10:00 AM-4:00 PM Big Lips Carp Tournament

### Benefit Dinner and Fundraiser

6:30 PM Reception and silent auction

7:00 PM Benefit Dinner. \$20 per person.

7:30 PM Awards Presentation

8:00 PM Silent auction closes. Membership raffle, Adipose boat raffle, and Winston fly rod raffle drawings!

Live music with local band, Exit 53!

To register for the Carp Tournament,  
and to learn more, please visit:

[WWW.BIGHORNIVERALLIANCE.ORG](http://WWW.BIGHORNIVERALLIANCE.ORG)



Join us for a day of Bighorn celebration and participate in Montana's oldest carp tournament while supporting cold water conservation efforts of the Bighorn Alliance! On Friday, June 14th the Alliance will host the 2019 Bighorn Carp Tournament on Bighorn Lake followed by a benefit celebration and silent auction, all to benefit the work of the Bighorn River Alliance. If you would like to register for the tournament, donate an item to our silent auction, or learn more contact us at [info@bighornriveralliance.org](mailto:info@bighornriveralliance.org) or 406.606.2353.

### Support the Alliance with a custom MT License Plate

Support the Bighorn River Alliance with a custom Montana license plate available at all Montana DMV offices. Designed by famed artist Derek DeYoung, this unique plate represents the wild trout waters of the Bighorn while also showing your passion for recreating on its waters. All proceeds go towards benefiting conservation efforts for the Bighorn. You can also order a sample license plate by contacting the Alliance at [info@bighornriveralliance.org](mailto:info@bighornriveralliance.org).

