

Original Message-----

From: Dave Grainger [mailto:dwgrainger@gmail.com]

Sent: Sunday, January 02, 2011 11:45 AM

To: Duberstein, Leonard (Lenny) B

Subject: Reclamation's Big Horn Basin Water Management plan comments

Mr. Duberstein:

I write to you as a voter, avid fly fisherman, riverman, boater, waterskier, outdoorsman and middle-ground conversationist, regarding the Big Horn basin. While I recognize multiple perspectives involved in the Big Horn River management planning process, and the multiple agendas, both political and economic, involved, I do NOT believe -- based on my own experiences with the Big Horn Lake, the Big Horn River and my balanced portfolio of decades of water recreation experiences -- that your agency has put forth proper recommendations in your DRAFT report: BR's Big Horn Lake Operating Criteria Evaluation Study and Report, 2010 ([http://bighornriver.org/uploads/operating\\_criteria\\_evaluation.pdf](http://bighornriver.org/uploads/operating_criteria_evaluation.pdf)).

The focus of your agency's DRAFT report on preserving excessive lake levels "required" for lake recreation and power generation is a thinly veiled political maneuver cow-towing to Wyoming and Montana powerboater interests, hydro-power production plus a few high-powered politicians with an occasional interest in ensuring their boating and waterskiing access in the upper lake year-round. This myopia was readily recognized in recent years through repeated informal census of upper lake users in both drought (e.g., 2007) and higher lake level (e.g., 1999, 2009) conditions, and identifies how this current lake level policy as formulated in the DRAFT is a "tyranny of the minority" of all stakeholders in this basin. The lack of equal attention paid to below-dam tail-water river stream flows, river flow maintenance beyond irrigation supply and flood control, improved balancing of extreme annual flow fluctuations, attention to the river as a unique, fragile and diverse ecosystem with its wildlife and fishery, and the increasing economic vitality and draw of the river as a fisherman's economy is in fact deplorable. Specifically, the 1500 CFS target as a minimal stream flow in the tail-water River section is insufficient for sustained trout fishery health as almost any fisheries expert and experienced River guide will tell you. Fisheries data from 3 decades ago when the River ecosystem was quite different is dangerously relied upon for current DRAFT fisheries guidance. Very recent empirical evidence (in the apparent absence of more scientific studies) for fishery impact of low River stream flows (2006-2008) could tell your agency a lot more about Big Horn low stream flow impacts to both species of trout managed there, as well as many other wildlife species in the Big Horn River basin. Extreme river flow fluctuations as recently witnessed could also provide evidence for emerging issues as well.

In this 21st Century, with our nation's vast communication, climate, hydrology and environmental resources, I cannot imagine that your agency cannot better engage other agencies, the various pro-Lake constituencies in Wyoming and Montana, as well as all downstream River interests, including those involved with fisheries and wildlife protection, agriculture, and the Crow Agency, to better articulate and execute a Big Horn plan that

guarantees the Big Horn River below Yellowtail Dam a increased minimum "healthy" stream flow year-round, and also can avoid the excessive releases and purges and high-low fluctuations that characterize current stream flow controls. Additionally, there is an immense amount of practical user-based knowledge, built on almost 4 decades of experience of daily monitoring of the Big Horn River flows and wildlife activity below Yellowtail Dam, embedded in those who make their daily livelihoods and recreation interests on the tail-water river section, that could be better tapped in understanding how Lake management affects River management in the Big Horn/Wind River drainage daily and annually. A lot of this local wisdom is absent in the current document.

I personally am interested in and will advocate my will through whatever powers I can access to ensure that both future generations and my own can enjoy a wonderful and unique Big Horn River fishing and recreation resource without upstream interests tyrannically serving their own commercial and recreation interests at the expense of the river ecological health. The risk of losing the blue ribbon fishery and its associated economic activity is too great. I do not enjoy watching Big Horn river fisheries interests be held hostage to Lake recreation minority stakeholders, and irrigation interests downstream. In the absence of a broadly balanced River focus, this is not part of a rational comprehensive management strategy. The DRAFT has "special interests" written in between the lines that are unfairly balanced.

I look forward to your agency's better weighting of all stakeholders' interests in maintaining Big Horn river health and longevity through a better balanced approach to the River as a goal, vis-à-vis balanced Lake and dam controls. This would best be embodied in a revised DRAFT policy for the Big Horn Lake/River system that better considers the tail-water through the increasing economic prosperity and growing impact that its trout fishing brings.

I thank you in advance for your efforts on behalf of me and many of my like-minded Big Horn River enthusiasts. I look forward to seeing DRAFT revisions.

Sincerely,

Dave Grainger

**From:** Mike Parnell [<mailto:mparnell@rockisland.com>]  
**Sent:** Monday, January 03, 2011 5:18 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Fw: bihorn river foraml comments

Mr. Duberstein

I own a residence and farm along the Bighorn River aprox 8.9 miles downstream form the afterbay.

I have reviewed your report of the "Draft Operating Criteria" for the Yellowtail Lake/Bighorn River and would like to make the following comments to be included in your formal records.

1. The Draft agreement did not provide any data that might show "use" of these facilities by category. Lake VS. River VS hiking etc. This information would be required as part of any allocation by government agencies for the allocation of resources in any determination of priorities or economic impact. Is it possible to get your agencies estimates or counts of recreational users of the lake, marinas and the same for recreational fishing interest for the river?

2. Your proposed guidance to elevate the water levels in the lake would have a catastrophic effect on the down stream economies, farm lands and use of the river.

3. Many ranches, grazing lands and farmland was in jeopardy this last season as the dam had to spill storage. This caused bank erosion and in my case required the use of sand bags and other water diversion tactics to protect my home and supporting structures. The river level was within 2" of overflowing my bank and property, homestead.

4. Unlike the Lake, the river is not subject to silting that over time will eliminate public use facilities at the entrance of the lake as higher and higher water levels will require. Is one of the remedies the agency considered, dredging the inflow channels so that water levels can be more reasonably lowered and used for the most populous users of the water resources ( the River) and not impede into the flood plane?

5. The release of high water flows, that may be increased as less room is made in the flood pool for occasional increased moisture, is dangerous for young, elderly or inexperienced anglers that regularly, and in much higher numbers than lake users are in the river.

Please provide a draft of water use based on the benefit to the largest users, don't remove flood pool storage that is critical in protecting farms and ranches downstream of the dam and do not ignore the largest users of the lakes water resources.

I would appreciate your reply to these questions and comments. I am not really interested in filing these comments as part of a political action organization but I would like to become as educated as I can so that I can passionately try to effect reasonable decision making for equitable use of the water in the Lake and the River!

Respectfully,

Mike Parnell  
PO Box 7285, Ft Smith Mt. 59035  
360 317-4026c

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## United States Senate

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January 4, 2011

Mr. Dan Jewell  
Area Manager  
Bureau of Reclamation, Montana Area Office  
PO Box 30137  
Billings, Montana 59107

Dear Dan:

Those of us from the west abide by the saying: whiskey is for drinking, water is for fighting. Water is the lifeblood of our economy, our environment, and our outdoor heritage in Montana. The Bighorn River is no exception. The Bighorn is an iconic water system in Montana's southeastern corner, home to one of the state's most robust blue ribbon fisheries. The fishing industry in Montana generates about \$3 billion per year, statewide. Anglers spend between 70,000 to 90,000 days per year fishing on the Bighorn River, contributing \$30 million dollars per year to the local economy. The Bighorn River, like most western waterways, is also home to conflict between upstream and downstream users.

The Bureau of Reclamation and the National Park Service have a difficult job to do to balance upstream and downstream uses. The key word there is BALANCE. Montanans recognize that we are all in this together. Upstream and downstream users must share the consequences in times of water shortage as well as water surplus, and ensure that no permanent, unrecoverable damage is done to the irreplaceable resources in the Bighorn.

You have a difficult job. People in Montana, and I suspect, people in Wyoming are going to complain and raise concerns. Someone once said to me – this is a western water project, no one is going to be happy. Probably true, but, level of difficulty is not an excuse for simply retaining the status quo.

The Yellowtail Dam is a multi-purpose project supporting hydropower, irrigation, and flood control, as well as recreation and conservation. The structure does not exist solely to support recreational opportunities within the boundaries of Bighorn Canyon Recreation Area. I am very concerned that the Bureau's management of this feature fails to recognize the multi-purpose nature of the project.

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Today's meeting on the Draft Operating Criteria may be a step in the right direction. I am pleased that this group is gathered here today to provide comments directly from the users of this system to the Bureau.

Today, the Bureau of Reclamation will be hearing comments from a wide variety of stakeholders, each of whom is likely to believe that their priority should be the Bureau's priority. I am no different – the downstream fishery, flood control, and power generation must be a part of the Bureau's balanced management plan for this structure. But, I trust that the Bureau can find a way to BALANCE these priorities with those of upstream users to ensure that adversity as well as prosperity are equally shared.

Wallace Stegner wrote in *Marking the Sparrow's Fall*: "It is true that the West's history is punctuated with the lives of rugged individualists—Henry Villard, Marcus Dailey, Henry Miller, Jim Hill—but they built such things as railroad empires, land empires, and the Anaconda Copper Company. Who built the West as a living-place, a frugal, hard, gloriously satisfying civilization scabbling for its existence against the forces of weather and a land as fragile as it is demanding, was not rugged individuals but cooperators, neighbors who knew how to help out in crises, who could get together to build a school and figure out a way to get the kids there, pool their efforts to search for lost cattle or lost people, and join in infrequent blowouts, dances, and fairs."

I trust that the Bureau, and each of us, will find a way to work together as neighbors to manage this resource for us all.

Sincerely,



MSB/bd

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**From:** Nelson St. Thomas [<mailto:stthomas@tctwest.net>]

**Sent:** Wednesday, January 05, 2011 8:13 AM

**To:** Duberstein, Leonard (Lenny) B

**Subject:** Equal amount

Sir,

The interest of everybody of this matter, isn't going to resolve as you know it. The main concern ,is these years of drought ,takes it's toll. Fighting over water is ignorant, instead there should be a concern how to manage better. Water, rivers,and lakes, is worth more than gold. At the same time water waste in each state , has it's own set of problems. I admire you for the heavy task of getting an agreement between Montana and Wyoming.

.....Nelson

**From:** ed-jack [<mailto:ephemera@mydurango.net>]  
**Sent:** Wednesday, January 05, 2011 6:25 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Minimum Flows - Bighorn River

Greetings,

This is in response to considering minimum flows on the Bighorn. I advocate the flows be no lower than 1800 cfs. Anything below that would have negative impact on the natural reproduction of trout species in the river and would thus have a cascading affect on the fishery, as well as the tourist dollars that are spent in the communities nearby the river. Please consider this in your calculations.

Thank you,

EJ Dvorak

**From:** Michael Hoiness [<mailto:flygoods@wtp.net>]  
**Sent:** Friday, January 07, 2011 1:29 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** FW: Bighorn River System Issues

Hello Larry,

It was nice to hear all the discussion and comments during Tuesdays Meeting.

From my observation one of the negatives on keeping a fuller pool in the reservoir is that when a spring or early summer "flood" type occurrence happens, the only option is to release more flows. In 2010 this resulted in 6 weeks of flow over 8,000 CFS in which no power could be generated. By my rough calculations it is around \$2 million dollars in lost revenue from the power. It also significantly reduces the quality of angling below and puts the river in a flood condition. A lower lake pool could absorb the "occurrence".

When making policy with all the factors involved like lake level, river, flood control, irrigation, hydro electric, I realize that many of the criteria or factors are some-what fixed. You have to maintain flood control. You need to produce hydroelectric power. You need to provide irrigation. My question is how all the other variable concerns are weighed. Are spawning walleye or access to Horseshoe Bend equal to the river quality below Yellowtail? I can see both sides. But if you take the river system from Lovell Wyoming to Hardin Montana and break down the usage and economic impact for each section, I believe you would have a majority below Yellowtail dam. If this is the case, the Bighorn River below Yellowtail should weigh a little heavier in the decision making process.

I had one question on the flows below on the Bighorn below Yellowtail. What is the average yearly flow?

Sincerely,

-Mike Hoiness

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To:

Mr. Lenny Duberstein  
Montana Area Office  
Bureau of Reclamation  
P.O. Box 30137  
Billings, MT 59107  
USA

From:

Dr. Alfred G. Oertli  
Bahnhofstrasse 13  
CH-5070 Frick  
Switzerland

[alfred-georges.oertli@basf.com](mailto:alfred-georges.oertli@basf.com)

Page 1 of 2

January 8, 2011

### Bighorn Lake Operating Criteria (Draft)

Dear Lenny,

Please allow me to introduce myself, my name is Alfred Oertli. Growing up on beautiful Lake Zurich in Switzerland, I'm well aware of all the technical and recreational benefits of such a clean and well managed resource which I'm fortunate to enjoy still today.

As a PhD Chemist and Business Manager I have been stationed and have worked for renowned Universities and Chemical Companies in America, Asia-Pacific and Europe. Today I'm based back home in Switzerland.

As an International Traveler, all through my professional career between 1993 and 2010, I had the great pleasure to visit the beautiful Bighorn Valley and the fabled Bighorn River to enjoy the fishing, scenery, and relaxation found.

This means I have been traveling to the Bighorn River twenty (20) times, and I have fished the river well over 180 days, through all seasons, February through December. I'm tempted to say, that I know this river well.

My fishing adventures to the Bighorn River accounted for 65'000 Dollars in guided trips, 20'000 Dollars in Lodging, 6'000 Dollars in Food and about 30'000 Dollars of equipment, garments, accessories and gadgets, totaling at a local turnover in Wyoming and Montana well over 120'000 Dollars.

This does not include international and domestic air travel which would account for an additional 60'000 Dollars spent.

I am not a rich man and money of that magnitude does not come easy nor is it spent without consideration. It is the beauty of the valley, the generosity of the local people and of course the spectacular fishing on the Big Horn River that force me to come back. Having fished in Switzerland, Germany, Austria, Sweden, Finland, Ireland, Canada to mention just a few countries, none of my greatest travels elsewhere come even close to what one can experience on the Bighorn.

I treasure this for all my life and I trust that your organization will do its utmost to preserve this unique jewel.

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I have read the draft proposal of the Bighorn Lake Operation Criteria carefully and do acknowledge the great effort made by you and your organization to understand the Bighorn Lake inflow regimes and to come up with a new management plan to address the needs of energy production, flood control, lake recreational needs, river trout habitat and river fishing. I trust you are considering all needs very carefully.

The new criteria calls for lake levels at least 8 feet higher than in years past, and sets a minimum target lake elevation just 22 feet below the top of the conservation pool which is 13 feet higher than average.

I cannot help mentioning that the proposed operating criteria appears to me as *leaving very little flexibility* for addressing errors or the, admittedly hard to predict, acts of nature such as the rather extreme inflows we have experienced in 2009 and most prominently 2010.

It appears that we will be looking at regular low flows throughout fall, winter and early spring and extreme high flows during the late spring and early summer.

Lenny, I have walked, floated and fished the entire river during both the drought years with very low river flows as well as during years with extreme high river flows. Neither of these damaging situations is necessary or acceptable.

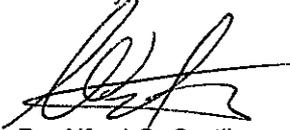
We all know what the result was for fish populations due to the siltation, consequent loss of biomass and spawning habitat during consecutive low water years.

At the same time we have just observed the impact of dangerous and damaging high water which not only goes wasted for clean energy production but erodes stream banks, and puts a variety of businesses at risks as the rivers becomes literally unfishable for up to 2 months at the time.

As much as I believe your plans *are* going in the right direction I urge you to review the underlying assumptions and take into consideration the impact of your plans to the Bighorn River on both extreme ends of the spectrum, i.e. extremely low and extremely high flows. As much as both may happen again in the future, I believe both situations should not be part of a normal operations plan and a somehow bigger window of operation matched up with close observation and speedy response times might well be an acceptable solution to that.

Thanks for your time and consideration.

Sincerely

A handwritten signature in black ink, appearing to read 'A. Oertli', with a stylized flourish at the end.

Dr. Alfred G. Oertli

**From:** Jeff Buszmann [<mailto:jmark@epbillings.com>]  
**Sent:** Friday, January 14, 2011 5:09 PM  
**To:** Holwegner, Paula  
**Subject:** Comments

First let me say thank you for making the issue of lake levels and river flows more open and public. In the past, the process was seen as closed, mysterious, rigid, bizarre, and static. Giving the various parties a voice and an opportunity to add input goes a long way. Please continue the good efforts and work to refine this process so good and logical decisions get made.

### **“He who shouts loudest gets heard”**

It is obvious that many groups have a stake in this issue. No one group should rule nor should any be left out completely. However, it seems that lake interests on the southern end of the lake have been shouting loudest and getting heard more than any other. And before you write the rest of this letter off, please hear me out. The Bighorn River is one of Montana’s greatest assets. It was recently featured in the book *Fifty Places to FlyFish Before You Die*. The economic impact is huge, and it lies in one of the poorest counties in the U.S. The number of people that use the river and the lake during the summer has to be 50 to 100 times the usage on the south end. It also seems the interests of the Dam operators, the fishing economy, the adjacent landowners, taxpayers and more are all aligned together. The only party missing from the “mutual interest” group are the folks on the south end of the lake. It would only make sense that their interests be compromised more than everyone else. If this was a business, the south end would be sold off or closed.

### **"Come on in, the water’s fine”**

I would personally like to invite Dan Jewell and the other decision makers to float and fish the river with me twice during the next year. The first trip should be at a reasonable flow, 2,500 to 3,000. We will be able to float fish AND wade fish easily and safely. If the day is really nice, the river might be busy but there is plenty of room. On any given day you might see folks from Billings, Denver, Los Angeles, or even London. The next time we’ll float should be in June, when the river is near its peak, say 8,000 or above. You will soon notice that fewer boats are on the water, because of guide trips being canceled and non-guided fisherman not feeling safe on the water. We will NOT get out to wade fish, too dangerous. Can we stop and eat lunch, if we can find a spot! The fishing will ok but don’t bother getting out of the boat. Even when you do hook a fish, pulling over to take a picture of it will be dangerous and we’ll have to play the fish to beyond exhaustion before we can land it safely. Floating with me or anyone during these two very different flows will really open your eyes and let you see the consequences first hand. Higher flows for a short period to simulate runoff and push algae and silt down the river is ok, but the last 3 years were way too much.

### **“The 2008 Disaster”**

It is my hope that with your new plan in place, never again will the 2008 Disaster be repeated. If you've forgotten, let me remind you. In the spring of 2008 flows were low at 1900 or so. We had a wet and late spring. The lake levels were getting lower each day while the Memorial Day weekend came closer and were already below minimum launch at Horseshoe bend. A huge snowstorm hits adding to significant snow pack in the basin. Meanwhile, brown trout fry were living in the few side channels that still had water. The rainbow trout were beginning their spawn as well. The BOR decides in order to fill the lake for Memorial Day weekend, flows need to be cut to 1,500 and were. Fisherman were outraged and confused. Our May was cold and runoff was late, anyone with a brain could see that the lake would fill easily, just a tad later than usual. Side channels dried up, the brown trout fry died. Spawning rainbows were lucky to escape and the spawn was interrupted. In days the weather turned and lake began to fill, FAST. In a few short weeks the river goes to more than 9,000. The dropping of flows was beyond idiotic, and can only be explained by the BOR catering to south lake interests. By the way, Memorial Day weekend was cold, rainy and completely void of activity at Horseshoe Bend. Promise me that the BOR has learned from their mistakes and will not repeat them.

### **“Good to the last Drop”**

During the meeting on January 4<sup>th</sup>, Mr. Dueberstein stated that it would take every drop of water they have to keep flows at 2,500 year round. In all but the driest years, this assumption is FALSE. The simulations I've run would add more than 30 feet to the reservoir if flows were kept at 2,500. In all the calculations presented, they use lake level as the end goal. This is a fundamental problem because the system was designed to have a fluctuating lake. I think you should turn your formula around and solve for constant flow (in line with most stakeholder's interests) and widen your operating window for lake levels. The graphic we were provided that outlines Bighorn Lake Allocations set by congress shows all the uses within the Active Conservation window. It appears in order to satisfy Horseshoe Bend you have not operated in that window since 2005. And don't tell me that you need the water for waterfowl hunting on the south end of the lake, that's bunk! I hope you will make 2,500 the absolute minimum flow, and remove any other descriptions such as “normal” “optimal” or “target”.

### **Misc.**

I question Dan Jewell's ability to perform. When a public meeting is held to meet the stakeholders and address them, it is very odd that the fishing guides and farmers show up in more than a hooded sweatshirt. His demeanor and personal appearance show a lack of professionalism that seems to permeate to his job. He sent out a memo regarding this meeting saying there would be a 30-60 minute presentation and then a Q&A session. When we arrived, it turned into a 4 hour presentation with no questions or comments. If he was a politician, he'd be voted out, if a CEO, fired. I just hope if he stays around he can lead the decision makers to a better place. Horseshoe Bend is another thing, the boat launch has a limited life span. Unless you plan on building the dam higher, managing to please boaters on the south end will only drive you nuts.

### **Specifics**

- Prevent river flows from going below 2,500 in all but drought years.
- Prevent river flows from skyrocketing above 4,500.
- When dropping flows, drop them slow enough to prevent erosion.
- Move the target date to launch a boat at Horseshoe bend to June 20<sup>th</sup>.

I also support the letter written by Doug Haacke on behalf of Friends of the Bighorn River and Trout Unlimited. We look forward to seeing your next draft soon.

Jeff Buszmann

Flyfishing Guide and Ft. Smith Landowner

Billings, MT



January 20, 2011

**To: Lenny Duberstein**

US Bureau of Reclamation

Montana Area Office

Via email: [lduberstein@usbr.gov](mailto:lduberstein@usbr.gov)

**From: Paul C. Rusanowski, Ph.D.**

Regional Manager

The Shipley Group

56 North Main Street

PO Box 908

Farmington, UT 84025

888-270-2157

Subject: Comments on the Bighorn River draft operating criteria plan

I am writing to comment on the draft operating plan for the Bighorn River. I wish to suggest that there may be a long term solution to the water allocation issues related to trout resources, lake recreation, power generation, flood control and irrigation that may not have been fully considered or appreciated within the debate so far. It is clear that there are conflicting values and allocation priorities between various sectors, as well as not enough water to meet everyone's demands. Unless one of these factions achieves an overwhelming political advantage the debate is likely to remain unresolved for a long time. The present debate has centered on priorities within the groups and the value of competing interests. I maintain that more can be gained by looking to a different way to manage the available water resources that will result in a more equitable distribution of those water resources that are actually available to satisfy the different interest sectors. Personally, I have fished the Bighorn River and am most sympathetic to the wildlife and trout management issues. However, I am sensitive to the fact that the goals desired by the fisheries managers can never be met in the current system, or any reasonable solution that might come forward in the foreseeable future. We must focus on minimum requirements to satisfy competing interests rather than ideal environmental conditions or habitat values for a single interest.



I suggest that the USBR consider enhanced water storage to better use the water resources within the Bighorn River. By banking water during high flow period for use later in the hydrologic year for competing uses will provide a more equitable way to manage the river than is currently in place. This can be accomplished with a pumped storage or water diversion reservoir outside of the mainstem of the Bighorn River. The storage reservoir could be located either near Lovell or Yellowtail dam, depending on the purposes desired for the stored water. It would be more cost effective to build the reservoir near Yellowtail Dam if cost is a driving issue. While this might seem on the surface a poor solution, I would mention that the USBR has done this before to better manage water flows. Specifically, I would call your attention to two projects, the San Luis Rey Reservoir Forebay in California, and the Willard Bay Reservoir in Utah. The second example, which may be most applicable, is the Willard Bay Reservoir in Utah. This is a 10,000 acre, mostly above grade impoundment adjacent to the Great Salt Lake. It was formed by the construction of a 14 mile long rectangular earthen dike allowing the reservoir to be filled 20 feet above the elevation of the Great Salt Lake. Water diverted into the reservoir is used for both agricultural and culinary uses and is administered by the Weber River Water Conservancy District. The water district diverts 155,500 acre feet of water annually into this reservoir. Without this storage reservoir the water district would not have this water available for use during the year.

The same type of storage reservoir could be built on uplands adjacent to the Bighorn River either near Lovell (near the Lovell canal) or west of the Yellowtail dam. If the location were near Lovell, the water could serve multiple purposes, if near Yellowtail Dam it would primarily serve fisheries and irrigation interests. While I have referred to this reservoir as pumped or diversion storage, I think either location could operate with a diversion canal system just as well. The point is to divert surplus water when available from the river into the reservoir for use later in the hydrologic year as needed to meet user demands, or your water management/allocation plan. It would provide a much needed flexibility in the seasonal availability of water for competing uses. It would work well under normal or abundant water years, would ease the conflicts during shortages, and would help the USBR to meet minimum flows under drought conditions.

The construction of the reservoir only to a depth of 20-30 feet using an earthen dike approach and diversion canals would also be cheaper than other construction techniques. Both locations could support a storage reservoir of 1,000 to 1,500 surface acres, and most likely larger if necessary. At Yellowtail Dam a diversion canal could be incorporated into the existing dam



design to fill the storage reservoir that could be built in a variety of nearby locations (within 5 miles) to the west of the Bighorn River. A return canal would allow water to flow back into the River below the dam. The addition of 130 cfs in this manner from stored water during high flow periods would meet the minimum requirements of the fishery managers for that stretch of the river. It would be more difficult to develop a diversion canal at the Lovell location due to more challenging terrain and elevation issues. However, pumped storage would be a possible way to move the water from the river into the reservoir using non peak electrical generation capacity. In this case return flows to Bighorn Reservoir has the added advantage that it could also be used to supplement power needs during peak use periods. Use of the Lovell location would allow greater fisheries enhancement along the Bighorn River than available from the Yellowtail Dam site, but at a much increased project cost.

Based on the USBR plan to provide a base flow of 2370 cfs to the river, it would only take a supplemental flow of 130 cfs to meet the minimum criteria desired by fishery managers. Such a flow could be met for at least a period of 180 days each year with a reservoir of 1300 surface acres and a depth of 20 ft, assuming all of the water was available for fisheries habitat enhancement. I would recommend that it be located in the vicinity of the Lovell canal or on the west side of Yellowtail dam. I believe both locations could support a canal feeder system rather than pump storage.

I recognize that there is considerable cost in implementing such an approach. However, there is little you can do now in managing these water resources with competing interests - everyone feels they should have a priority and no one wants to compromise. The solution is to allow all of the water flowing in the river to be used within the management plan. Surplus flows must be balanced out with low periods of flow. This can't be done any better than you are now proposing without an additional storage reservoir to make surplus flows available. It is in everyone's interest to raise the money through user fees or other mechanisms; or by lobbying Congress to fund such a project. This solution may not resolve the conflicts, but it will improve the positions of all user groups to meet their needs. If the needs are not met it will be clear to all that the water resources are not there to do a better job.

Thank you for the opportunity to comment on this management plan for the Bighorn River. I would be glad to work with others interested in improving water resource management on the Bighorn River if the opportunity arises. I, for one, appreciate your efforts to do the best you can to manage the water resources of the Bighorn River to meet the needs of all user groups.

**From:** Mike McMeans [<mailto:delmike@comcast.net>]  
**Sent:** Wednesday, January 19, 2011 3:29 PM  
**To:** Holwegner, Paula  
**Cc:** [dhaacke@gmail.com](mailto:dhaacke@gmail.com); 'Frank'; [Rachel\\_Court@tester.senate.gov](mailto:Rachel_Court@tester.senate.gov); [Brianne\\_Dugan@Baucus.Senate.Gov](mailto:Brianne_Dugan@Baucus.Senate.Gov); [denny\\_reherg@mail.house.gov](mailto:denny_reherg@mail.house.gov)  
**Subject:** COMMENTSHEET for Bighorn Lake Draft Operating Criteria 1 18 2011

## COMMENT SHEET

### Bighorn Lake Draft Operating Criteria Informational Meeting January 4<sup>th</sup>, 2011

January 18, 2011

O. Michael and Vicky L. McMeans

P.O. Box 389

Hardin, MT 59034

406-665-3365

[delmike@comcast.net](mailto:delmike@comcast.net)

Narrative Comments:

My wife and I live on the Bighorn River and are extremely concerned with the radical and unstable flows that have been coming from the dam operations over the last three years. The Draft proposal, which to a degree has somewhat been in affect over those years, does not address nor did it look at any issues or problems below the dam.

The fast and high releases and the subsequent quick slowing of the releases from the dam over those three years has caused us to loose 400 feet of river bank. Our barbwire fence is now hanging suspended over the river due to the river bank we lost in one area.

Because of this dam operation we have had to acquire 310 permits to rip rap our river bank to stop this erosion. This rip rap is costly and we pay for it entirely ourselves.

Due to the lack of storage space for water coming into the dam from the Wyoming side, the discharges from the dam in to the Bighorn River in the spring have been in excess of 12,000 csf. This rapid and high water releases gives no opportunity for the river banks to absorb the water slowly. This causes the banks to become very unstable. Then the flows have been dropped at a very fast rate, in order to retain a high water level in the dam. This aggravates the unstable banks making them slough off into the river. This sloughing off creates huge sediment and environmental issues downstream along with costly property destruction.

When I brought the point up of high releases quickly and very fast slow downs of the releases at the January 4<sup>th</sup> meeting Lenny Duberstein said that issue was never considered. He stated he understood the principal because the irrigation ditches are also affected with fast build ups and fast slow downs of the water in them. The BOR raises the water level slowly and then lowers it slowly in the ditches to protect the banks. Why would the BOR not apply the same procedures and criteria used for protecting the ditch banks to protecting the river banks?

What surprises me is that no one with property on the river was ever asked to comment on the effects of the dam operations. This process has been on going for years and not one of our neighbors or we were contacted about this process. No one from the BOR ever did a survey of the river to see what the conditions are below the dam. Flooding is one of the major reasons for the dam's existence and I would think that those who are most at risk would figure into the operational equation somewhere.

Because of the lack of storage space in the dam over the last three years we have experienced water flows in excess of 12,000 cfs. Instead of decreasing the amount of water that the dam can retain in May and June, as proposed in this plan, it needs to be increased to protect down river properties and lives. If managed correctly the flows from the dam should not exceed 6000 cfs at anytime. Property owners on this river rely on the operation of the dam to protect them from flooding. .

The flooding of Black Canyon the past two years is an additional issue to be addressed. The canyon is a very popular recreation area and has been unusable for most of the past two summer seasons. The picnic tables and bear boxes were destroyed the first year, only to be replaced then removed the following year when it flooded again. The campground finally became fully usable at the end of boating season.

We are also concerned about the ill effects this plan has on the fishery below the dam. This is a world class fishery that needs to be protected. There are channels filling in with sediment that are prime fish hatcheries. The levels of extreme water flow are detrimental to the health and breeding of fish on the river. The economy of the Bighorn River Valley depends greatly on the tourism the fishing brings here. The high river flows of the past few years have hurt many of the businesses in this area.

We ask that you consider the issues below the dam with as much merit as those above the dam have been.

Respectfully;

Mike and Vicky McMeans

Sent via email to [pholwegner@usbr.gov](mailto:pholwegner@usbr.gov) on 1/20/2011

Cc: D. Haacke  
F. Johnson

File: Bighorn Dam commentsheet 1 18 2011

-----Original Message-----

From: terry evans [<mailto:terrye@ccnaples.com>]

Sent: Thursday, January 20, 2011 2:12 PM

To: Duberstein, Leonard (Lenny) B

Subject: bighorn flows

Lenny,

KEEP THE BIGHORN FLOWS AT OPTIMUM 3,500CFS SO WE ALL CAN BENEFIT FROM THE  
BIGHORN'S FISHERY TERRY EVANS T.U.BOARD MEMBER

**From:** Tacia, Thomas [[mailto:t\\_tacia@lernerfinacial.com](mailto:t_tacia@lernerfinacial.com)]

**Sent:** Thursday, January 20, 2011 5:31 PM

**To:** Duberstein, Leonard (Lenny) B

**Subject:** Bighorn River

I'm writing this in response to the proposed draft operating criteria for Yellowtail Dam on the Bighorn River.

I attended the University of Montana from 1993 thru 1998 and had the chance to fish Bighorn River several times. It is one of the greatest tailwater rivers in the United States and should be protected at all costs. Please consider the following in proposing your operating criteria.

- Balance the reservoir pool with healthy flows in the Bighorn to protect the estimated \$50 million a year to Montana's economy.
- 2500 cfs should be a minimum target to shoot for only during drought years and 3500 cfs is the optimum flows for a healthy fishery.
- Draw down the reservoir lower in the spring than called for in the draft criteria to an elevation of about 3,614 feet in April. This will reduce the need to rapidly evacuate the reservoir should spring storms become a problem. This will secure more water for hydro protection and reduce the flooding risk to public campgrounds and marinas on the north side of the reservoir, as well as to Montana landowners along the river. It will also help secure the fishery and fishing in the Bighorn River.

Thank you,

Tom Tacia  
University of Montana Alum 1998

**From:** Lori Latta [mailto:lattalori@msn.com]  
**Sent:** Thursday, January 20, 2011 3:32 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Draft Operation Criteria for Yellowtail Dam

To Whom It May Concern:

For the life of me I do not understand why you guys can't get the flows right on the Bighorn? We have had plenty of water the last few years for all parties concerned and you still cause problems with bighorn flows! What the hell is the problem? Last year the Bighorn River generated \$52 million dollars to economy of which the federal government received at least 25% out of which your salaries are paid. What part of this do you not understand????

The Montana Fish, Wildlife and Parks' research shows that to maintain a healthy fishery in the Bighorn River is 3,500 cfs, not 2,500 cfs. Your criteria of lowering the river flow to 1,500 cfs without reducing the flood pool causes the following problems; damage to the Bighorn river due to fish kill, the possibility of flooding during the run off period which can't be used for hydro generation, not to mention increasing flooding risk to public campgrounds and marinas on the north side of the reservoir.

I believe that setting the optimum flow at 3,500 cfs and a minimum flow of 2,500 during periods of drought, along with reducing the reservoir pool to 3,614 feet in the spring there by reducing the need to rapidly evacuate the reservoir would server all interests to the best possible outcome.

Come on guys do the right thing here.

Lori Latta  
406-690-1842  
lattalori@msn.com

**From:** William Flick [<mailto:hunhaven@wispwest.net>]  
**Sent:** Thursday, January 20, 2011 2:12 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Big Horn River Flows

Dear Mr. Duberstein:

For years that has been a problem with flows in the Big Horn river. This river has in the past been one of the most productive trout rivers in the world. In recent years trout numbers have declined and a valuable fishery is not what it was 10 years ago. Careful studies by fishery biologists have determined that flows should be no lower then 3500 cfs. Flows under this are detrimental to insect life and recruitment of trout through natural spawning. I can not believe that a flow schedule can not be determined that would allow for a full, or nearly full, reservoir and still maintain a steady flow of 3500 cfs or above. Shutting down flow for periods and then opening the dam wide does not make much sense. Try and come up with a solution that will benefit the fishery and businesses in Montana.

Thanks,

Bill Flick  
36Loch Leven Rd.  
Livingston, Mt. 59047

**From:** Gary Eudaily [<mailto:eudaily@bresnan.net>]  
**Sent:** Thursday, January 20, 2011 2:15 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** bighorn river

Please manage the flows in the Bighorn River with an eye towards maintaining a healthy trout population. There has been too much hoarding of water in recent years to benefit Powell etc. This is a world class fishery and deserves to be your first concern, besides it produces millions in generated revenue both in WY and MT annually. Step up to the plate and make the river your biggest concern.

Dr. Gary Eudaily  
234 Kensington Avenue  
Missoula, MT 59801

**From:** Stephanie Smith [<mailto:ssmith625@gmail.com>]  
**Sent:** Thursday, January 20, 2011 2:26 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Yellowtail Dam Proposal

Dear Mr. Duberstein,

I am writing to ask that you improve the proposal for operating the Yellowtail Dam. It is imperative that the Bighorn River fishery be adequately protected by the proposal.

A flow of 3500 cfs should be the ideal for protecting the fishery and a minimum of 2500 cfs should only be allowed in drought years when the optimal 3500 cfs just can't be attained.

Further, the draft criteria for spring reservoir levels should be adjusted down to avoid the necessity to rapidly evacuate the reservoir in the event of spring storm problems. This will also protect properties below the dam and the fishery of the river.

Thanks for your consideration.

Sincerely,

Stephanie Smith

**From:** Paul Fickes [<mailto:Paul@csjlaw.com>]  
**Sent:** Thursday, January 20, 2011 3:36 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Bighorn River

I care about the Big Horn River. I have reviewed your operating criteria. You appear to not have Trout as a priority. Healthy trout, health river.

You should balance the reservoir pool to allow more healthy flows in the Bighorn. This should be a primary objective. the river fishery over there supports a \$50Million dollar economy for Montana.

You should acknowledge that 3500, not 2500, cfs is the optimum flow for a health fishery. I can see 2500 as a minimum target during drought years, but lets get serious.

In the spring it seems you should draw down the reservoir lower than the draft criteria calls for, such as 3.614 in April. My understanding is that this reduces the need to rapidly evacuate the reservoir if spring storms cause issues. My further understanding is that this secures more water for hydro protection and will reduce risk to campgrounds and marinas on the north side. Should be better for landowners along the river also. To provide lasting fishing for the Bighorn River, please consider these matters wisely.

Thanks,

Paul E. Fickes  
310 W. Spruce Street  
Missoula, Montana 59802  
(406) 721-7772



**From:** Jim Foley [<mailto:jim@foleygroupinfo.com>]  
**Sent:** Thursday, January 20, 2011 2:11 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Big Horn River Flows

B

D Dear Lenny:

Ie I am writing you to insist that the balance of the reservoir pool with healthy flows in the Bighorn is an objective that helps protect the river fishery. This fishery generates an estimated \$50 million a year to Montana's economy. A flow of 3,500 cfs is the optimum flows for a healthy fishery and a flow of 2,500 cfs is a minimum target to shoot for only during drought years when the higher objective is unobtainable.

- I also believe that it makes sense to draw down the reservoir lower in the spring than called for in the draft criteria – to an elevation of about 3,614 feet in April -- thereby reducing the need to rapidly evacuate the reservoir should spring storms become a problem. This will secure more water for hydro protection and reduce flooding risk to public campgrounds and marinas on the north side of the reservoir, as well as to Montana landowners along the river. It will also better secure the fishery and fishing in the Bighorn River.

Sincerely,

James R. Foley

Billings, Montana

**From:** Allen Norris [<mailto:anorrisjr@gmail.com>]  
**Sent:** Thursday, January 20, 2011 4:41 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Better protection of the Bighorn River fishery

Lenny Duberstein  
Bureau of Reclamation

Dear Lenny,

I am writing this email in regard to the Bureau's proposed operating criteria for the Yellowtail Dam. I am an avid fisherman of the Bighorn River, I travel every year from Pennsylvania to fish Montana's rivers and I feel that this proposal does not adequately address the minimum flows required to maintain a healthy fishery. After much research I feel that a flow of 3500 cfs is optimum for a healthy fishery and that 2500 cfs should be a minimum target to aim for only during extreme drought years. I feel the Bureau should keep a better balance on the reservoir pool along with healthy flows on the Bighorn, this objective helps protect the river fishery, which is estimated to generate \$50 million dollars a year to the Montana economy. I also feel that drawing down the reservoir lower in the Spring than called for in the draft criteria, to an elevation of 3600 feet in April would be greatly beneficial. This would reduce the need to rapidly draw down the reservoir should spring storms become a problem. In doing this more water would be secured for hydro protection and a reduced flooding risk to public campgrounds and marinas on the north side of the reservoir, as well as to Montana landowners along the river. This will also help to better secure the fishery in the Bighorn River.

Sincerely,

Allen Norris Jr

**From:** david cunningham [<mailto:davidc@bresnan.net>]  
**Sent:** Thursday, January 20, 2011 9:38 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Bighorn / Yellowtail

I became a member of Trout Unlimited and now they are telling me what to tell you about their concerns of water flow quantities in the Bighorn River.

I don't seem to agree with Trout Unlimited on this.

If the trout are so weak that they can't handle low flow situations, they should be allowed to die, the healthy fish will live. (it's a little strongly stated, but you get the idea)

The flow rates of the Bighorn River should not be set by fishing guides but by engineers, keeping interests of all parties in mind.

David Cunningham  
[davidc@bresnan.net](mailto:davidc@bresnan.net)  
406-671-7488 mb  
406-245-6465 hm / fax  
po box 50599  
Billings, MT 59105

**From:** James Johnson [<mailto:8thday10@gmail.com>]  
**Sent:** Thursday, January 20, 2011 6:17 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Bighorn River flows

Dear Mr. Duberstein,

As an avid fisherman on the Bighorn River below afterbay (Fort Smith, MT) I wish to add my two cents worth regarding the proposal from Wyoming re: the flow of the Bighorn River.

I have regularly fished the Bighorn for over 25 years, and have seen with my own eyes the problems that have happened because of too little flow, or too great a flow in too short a time.

The state of Wyoming is claiming that the optimum flow for a healthy fishery on the Bighorn is 2500 cfs - but a regular flow of 3500 is much better for sustaining this fishery which contributes over \$50 million to the local economy.

A year or two ago, the flow was reduced to below 1500 cfs to fill the resevoir by Memorial Day, killing an entire "class" of Rainbow Trout - I was there, I saw it! To add insult to injury, I understand that the turnout of boaters on the lake was extremely low that weekend - like 5 boats. Then came the spring storms which necessitated a huge increase of flow - over 10,000cfs which severely damaged the river for recreational fishermen such as myself (I did not return for many months because of this).

To maintain an elevation of about 3,500 feet in the lake in April would insure that there would be room for the water caused by spring storms, and protect the fisheries as well as the property of landowners downstream.

Please look hard at the proposal, and be mindful that boaters are not the only - or main - people finding recreation on this great watershed.

Sincerely, James G. Johnson  
PO Box 375  
Red Lodge, MT 59068

**From:** Jim R. Hintz [<mailto:jhintz@crowleyfleck.com>]  
**Sent:** Thursday, January 20, 2011 1:30 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Bighorn River Flow Comment

I understand you are taking public comment on the proposed draft operating criteria for Yellowtail Dam on the Bighorn River. As a fisherman, I would like to see better regulated flows on the Bighorn to protect the trout fishery on a legendary river, which is important not only to local but also nationwide fisherman who come here for the fish and spend a lot of money in the local economy. According to MT FW&P research 3,500 cfs is the optimum flows for a healthy fishery, and 2,500 cfs is only a minimum target for drought years. Operating criteria should reflect that. In the past couple years we've seen low spring flows while the reservoir is being filled to the limit, and then we see massive releases that flood the river after spring rains that make the river unfishable. I cannot imagine such dramatic fluctuations in water levels, especially during the spawning period, help the fishery in any way. An easy solution would be to lower reservoir levels in the spring to about 3,614 feet in April -thereby reducing flooding downstream from spring storms. This will insure even better fishing on the Bighorn River, enhance its national reputation as blue ribbon waters, and that would mean more dollars in the local economy. Thanks.

Jim Hintz  
Billings, MT

From: Cary Gubler [<mailto:cgubler@kulr.com>]  
Sent: Thursday, January 20, 2011 1:33 PM  
To: Duberstein, Leonard (Lenny) B  
Subject: Big Horn River

Please protect the "world class" fisherie that is the Big Horn River. Without proper water flow, the entire aquatic eco system suffers. Consequently, the trout suffer and it takes a very long time to recover. By the time they recover, it is possible that the low water event that effected them in the first place could cycle itself back in, making full recovery all but impossible...Thank you, Cary Gubler, a concerned Montana citizen, angler and friend of our environment....

**From:** Edwin Meredith [<mailto:etm4@fiberpipe.net>]  
**Sent:** Friday, January 21, 2011 8:05 AM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Big Horn River

Dear Sir,

As an angler and rancher I have concerns about the proposed Big Horn lake and river project. Optimum flow for the fishery in the Big Horn River is 3,500 CFS, according to the Montana Fish Wildlife and Parks. This fishery also produces some \$50 Million in revenue for Montana. The lake above the Yellowtail Dam should not be raised above 3614 ft in April, otherwise spring storms create the need to rapidly release water from the dam, reducing Hydroelectric output and threatening the fishery and ranches downstream. An increase in lake level also threatens the campgrounds and marinas on the north end of the lake. In drought years a target of 2,500 CFS flow should be maintained in the Big Horn River. This extraordinary fishery needs to be properly managed both from an environmental and revenue standpoint. One of the few opportunities to accommodate both in today's world.

Thank you for your time,

Edwin T. (Tom) Meredith IV  
Little Goose Ranch LLC  
P.O. Box 414  
Big Horn, WY 82833  
307-672-9471 Home/office  
307-751-2471 Cell  
[etm4@littlegooseranch.com](mailto:etm4@littlegooseranch.com)

**From:** Halvor Tweto [<mailto:htweto@hotmail.com>]  
**Sent:** Friday, January 21, 2011 9:10 AM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Bighorn reservoir pool flows

Dear Mr. Duberstein,

I am writing to encourage your agency to consider a different flow plan regarding the reservoir on the Bighorn river. The Montana FWP has said that the optimum flows for this fishery is 3500 cfs, and your agency would be remiss in formulating a plan that does not acknowledge this reality. The 2500 cfs target the current plan specifies is only applicable in drought years, and making this the new norm ignores the needs of the fishery. Further, increased draw down in the spring months would prevent any possible need to flood the fishery in a high water scenario; an elevation of 3614 feet has been suggested. Such a draw down would go a long way towards protecting the public and private assets along the river, not to mention the premiere trout habitat.

Thanks for your consideration,

Hal Tweto  
3275 N Reserve St Ste D11  
Missoula, MT  
59808

**From:** Carr, Douglas MD [<mailto:dcarr@billingsclinic.org>]  
**Sent:** Friday, January 21, 2011 8:49 AM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Big Horn River Proposal

Mr. Duberstein:

The Big Horn River downstream from the dam is one of the premier fishing destinations in the United States that bring anglers from all over the region as well as the nation.

Ignoring the Montana FWP research that verified that the optimum flow is 3500 cfs for this fishery and managing the reservoir to optimize the reservoir carrying capacity for less utilized recreation on Big Horn Lake

is a lose-lose proposition. It is both ecologically and economically inferior to the region.

**F. Douglas Carr**  
250 Avenue F  
Billings, MT 59101-0651  
406-670-2170

21 January 2011

Lenny Duberstein  
Bureau of Reclamation  
Billings, Montana

Re: Draft Revised Criteria for Yellowtail Dam

Dear Lenny:

Thank you for the opportunity to comment on the proposed Draft Operating Criteria for Yellowtail Dam. Though we believe the Draft Operating Criteria don't adequately address the needs of all Yellowtail stakeholders, they are certainly a good start. We sincerely hope the bureau will continue to view the operating criteria as a work in progress, implement them using precepts of adaptive management and accept future comment in order to create equity and reduce risk in water management at this project.

Below we outline our concerns and offer in good faith reasonable alternatives and modifications to the Draft Operating Criteria. Our recommendations are based on a detailed review of past river releases, lake elevations and long-term reservoir management.

## OVERVIEW

The Draft Operating Criteria came about after a significant drought period, when local, state, tribal and federal entities expressed concern to Reclamation that "the Bighorn River System was not being managed in a way that fully protects and utilizes the system's resources for the multiple demands, needs, and expectations of the public<sup>1</sup>". Many stakeholders believed their interests were being ignored, and that Reclamation's management has failed to recognize the multi-purpose nature of the reservoir, and is purposely favoring lake interests at the south end of Bighorn Lake over nearly all other interests. It is important to note that these same stakeholders hold similar concerns with the National Park Service and their management practices of Bighorn Canyon National Recreation Area. Prior to the release of the Draft Operating Criteria in November 2010, stakeholders were not aware of the development of the Draft Operating Criteria, only that rule curves had been designed and tested, and that Reclamation was compiling feedback from quarterly stakeholder meetings. It is regrettable that no private or tribal interests, or state agencies, were asked for comments before publication of the Draft Operating Criteria, a time when such information could have helped shape the initial draft. It is further disappointing that during the only public meeting in Montana to discuss the Draft Operating Criteria, attendees were specifically asked *not* to comment on or "shoot holes<sup>2</sup>" in the draft, but only to ask questions that might better prepare them to make written comments. As a result, this letter is our first official opportunity to address the Draft Operating Criteria. We first outline concerns with regard to Yellowtail reservoir operations, then identify issues that still need to be addressed, and conclude with specific recommendations for the Draft Operating Criteria.

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<sup>1</sup> Draft Bighorn Lake Operating Criteria Evaluation Study & Report, Page 2, November, 2010

<sup>2</sup> Dan Jewell, Area Manager, MTAO, Bureau of Reclamation, Public Meeting, Billings, MT, January 4, 2011

## ADDITIONAL STAKEHOLDER CONCERNS

We believe the bureau overlooked a number of stakeholders that utilize the resources of the Yellowtail project. Most public meetings have had ample representation from the south end of the lake (representing the lake fishery and flat water recreation) and the river (representing the river fishery and river recreation). The Draft Operating Criteria addresses a few of those interests, but additional stakeholders seemed to have been overlooked, including:

- Lake recreationists at the north end of the lake
- Landowners adjacent to the river below the project
- Downstream river recreationists
- Outfitters, guides, lodge owners and other economic interests
- Waterfowl habitat and hunting enthusiasts
- Taxpayers concerned about lost hydropower revenues

### Lake recreation at the north end of the lake

Based on access, facilities, seasonal water availability and observation, it appears that boaters and campers using the north end of the lake comprise the majority of lake recreationists. However, the National Park Service says, "Visitor use statistics are collected in each district but are not broken down to specific sites within the park<sup>3</sup>." Therefore an accurate comparison of lake usage in the north and south ends is not possible. Regardless, a substantial number of recreationists count on summer boating and camping opportunities on Bighorn Lake each year. Unfortunately, Reclamation's recent desire to maintain unprecedented high lake levels has caused most of the lake recreation at the *north* end of the lake to be lost for significant periods during the height of the lake recreation season. (See Exhibit 1). The Park Service recognizes that recreation is impacted at lake elevations above 3,642ft. Lake elevations have exceeded those levels each of the last three years.

### Downstream river recreation and river habitat

Sustained high releases affect more than just adjacent private or tribal landowners. River recreationists a considerable distance from Yellowtail Dam have also been adversely affected. In 2008, high releases destroyed a state Fishing Access Site seven miles downstream of Hardin, MT, (See Exhibit 2). Damage was so severe that it appears there might not be enough property left to restore the site. River habitat is also affected. Recent years have seen higher rates of side-channel occlusion and loss, degradation of island complexes or loss, and a significant increase above normal in the trend of channelization. It should be noted that flood control is one of the project's authorized purposes.

### Landowners adjacent to the river

Residents owning or leasing property along the banks of the Bighorn River below Yellowtail Dam have enjoyed the benefits of flood mitigation since the dam was built. Protection from inordinately high flooding is one of the authorized benefits of Yellowtail Dam. However the bureau's recent desire to maintain unprecedented high lake levels while providing insufficient storage to accommodate spring runoff has

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<sup>3</sup> Response to Dr. Alan Shaw from Kira Finkler, Deputy Commissioner, BOR and Herbert Frost, Associate Director, National Park Service, December 22, 2010

caused downstream flood damage that would not have otherwise occurred in previous years when lake elevations were kept lower. In the last three years, landowners have lost significant portions of property at unprecedented rates due to sustained high water and flooding (See Exhibit 3).

#### Outfitters, guides, lodge owners and other economic interests

A recently updated Montana Fish, Wildlife, and Parks report estimates that angling on the river below Yellowtail generates approximately \$50 million to Montana each year. Sustained river releases that are too high or too low can dramatically affect the economic potential of the river, just as pool elevations affect the economic potential of the lake. Releases that are habitually too low reduce or destroy important side-channel habitat, harm the river fishery and result in poor angling opportunities. That leads to decreased visitation, lodge bookings and outfitter/guide services. Sustained high releases discourage anglers because of the increased danger they pose for navigating drift boats, and because they decrease the quality of the angling experience. Angling quality suffers because wading becomes difficult or impossible, and it requires anglers to then procure a boat (See Exhibit 4). In contrast to lake recreation at the south end of the lake, the river economy continues to be a vibrant, thriving economy which exists in one of the three poorest counties in the United States. However, if full consideration is given our recommendations, with additional thought given to operating criteria, this economy need not be put at risk each year.

#### Waterfowl habitat and hunting

Waterfowl hunting is a large scale-economy unto itself on the Bighorn River. Waterfowl enthusiasts should receive the same consideration from Reclamation as the waterfowl enthusiasts on the lake. Though similar consideration might not be expected from the Park Service, the bureau should treat lake and river waterfowl hunting interests equitably.

#### Taxpayers

The bureau stated that \$2 million was lost in the fall of water year 2008 on potential hydropower revenues because water was spilled at Yellowtail Dam. Though weather played a part in making water management difficult that year, had more storage been available in the reservoir prior to spring runoff, revenue losses could have been minimized. According to data available on the bureau's website, historically 97% of the water released out of Yellowtail passes through the turbines. Under the draft criteria however, spillage (releases in excess of the turbine capacities) would increase on the order of 5 to 10 percent.

### **ISSUES STILL NEEDING TO BE ADDRESSED**

#### Proactively identify, expand and engage stakeholders

At the 1-4-11 public meeting and in response to a question from the public, the lead bureau engineer for developing the draft operating criteria stated they will produce NO ADVERSE IMPACTS. Similarly, when asked how the river benefitted from the Draft Operating Criteria, another bureau engineer stated in essence that though the river might not be gaining anything from implementation of the draft operating criteria, it also wasn't "losing anything". Many of the stakeholders at the meeting disagreed and in turn identified existing and potential impacts. The issues and concerns identified by the public are missing from the draft, and certainly the bureau has revealed no analysis that counters the public concerns.

### River Releases for fishery flows

The bureau is doing what it can to accommodate recommended fishery flows where possible *under the existing criteria*. However, we believe several simple changes to the proposed criteria can improve on this. The first change is to recognize that 2,500cfs *is neither an optimal nor a target release for the river*. Montana FWP, based on years of fishery data it has collected that correlates flows with population abundance and other fishery metrics, states that 3,500cfs is an optimal river release. We recognize that maintaining this discharge year round can practically occur only during high to normal water years. However, 2,500cfs should not be the optimum target. This discharge is the level at which every attempt will be made to stay at or above it, when conditions permit.

### Maintain lake elevations at or below 3,640ft prior to and during the Fourth of July holiday.

Reclamation should make every effort to maintain lake elevations at or below 3,640ft before and during the Fourth of July holiday. This limitation benefits all lake recreationists. Adherence to this goal each year would allow the flood pool to be used judiciously and only rarely, instead of routinely.

### Investigate and implement strategies for gradually lowering river releases

Sudden drops in river flows create river conditions that not only are stressful for fish and can eliminate macroinvertebrate populations, but can contribute to substantial bank erosion. During water year 2008, river releases plummeted on July 10 from 12,500cfs to 4,500cfs just 10 days later. The bureau should investigate and implement strategies for gradually lowering river releases after spring runoff—perhaps mimicking natural rates -- whenever peak discharges in the spring exceed average in duration and flow. Certainly a gradual ramping down should occur when peak discharges also occur at other periods of the year.

### Stop blaming Mother Nature

One of the authorized purposes of Yellowtail Dam is flood control. Achieving this authorized benefit is complicated by overly conservative approaches to water storage in the spring because, as has occurred in recent years, it can result in drastic increases in releases when moisture appears outside those planned for in predictive models. Spring freshets of varying intensities happen. It appears the climate in the region is shifting towards drier winters, wetter springs and a higher frequency of high-intensity rainstorms, which in our view dictates that the bureau manage its flood pool more conservatively to accommodate larger spring precipitation events. The concept behind the use of rule curves is to spread the risk among authorized purposes and resources. The bureau should diverge from its management objective to fill the lake as its number one priority, thereby enabling its pool management to be better prepared for accommodating outside the norm storm events and runoff patterns.

### Identify adverse consequences

The last three years have clearly shown us that operating a reservoir the size of Yellowtail within a 20 foot lake elevation window can have adverse and unintended consequences. The bureau should endeavor to identify all reasonably expected adverse consequences of its operational management for these management criteria, as well as any future modifications of operations.

### Reclamation flexibility

We don't endorse the bureau straying from adaptive management, but we ask that operational flexibility be used more judiciously. In years that deviate from average conditions, measures that deviate from normal operating conditions are warranted, including in cases of prolonged drought, extreme moisture conditions, or when critical maintenance is necessary or public safety compromised. However, we recommend that the bureau identify upfront measurable criteria that trigger deviations from normal operating measures and pool and discharge levels.

### SPECIFIC RECOMMENDATIONS

Maintain lake elevations at or below 3,640ft prior to and during the Fourth of July weekend. Monthly operating plans that intend to make use of the exclusive flood pool should be documented beforehand.

Move the spring minimum target lake elevation and its concomitant decision point from 3,618ft in March to 3,614ft in April. The benefits to this include:

- an additional month of data and forecast information;
- in most cases, provide for a more conservative fall/winter release rate and tend to provide a higher reservoir content at the end of March than previous plans;
- in dry years, would improve chances of filling, and in wet years still allow adequate time to evacuate storage by the end of May;
- a lower lake elevation from where it can begin to fill, but lake elevations will continue to pass through old March target elevations, hold at the April target elevation and not require further drafting of the reservoir;
- an improved view of water conditions, helping prevent lake elevations from entering the flood pool;
- more time to evaluate all stakeholders needs and coordinate with upstream reservoirs;
- supporting deadlines for recreation on the southern portion of the lake.

Implementation of the above removes the calculation of adjustments to the November through March Release for Calculated Release Below 2,000cfs or Above 2,500cfs<sup>4</sup> as they will no longer be needed.

Recognize that 2,500cfs discharge in the river is not an optimal river fishery flow, but a minimum fishery flow for drought periods.

Investigate and implement a method to schedule a gradual ramp down of river releases following a period of sustained, high releases.

Identify and document potential or actual adverse consequences of the Draft Operating Criteria for the next draft.

Continue to investigate ways to improve coordination of reservoir operations within the whole Bighorn River Basin. This should include coordination of seasonal runoff forecasting procedures and timely communications with the Wyoming Area Office.

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<sup>4</sup> Draft Bighorn Lake Operating Criteria Evaluation Study & Report, Page 19, November, 2010

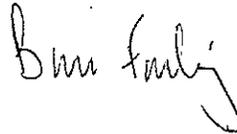
Please recognize that in addition to stakeholders related to authorized purposes and the Recreation Area, adjacent private, public, state, and tribal landowners, as well as outfitters, guides, lodge owners, river recreationists, and lake recreationists at both ends of the lake all have legitimate interests in the Yellowtail project.

Thank you again for your time.

Respectfully,



Doug Haacke  
Friends of the Bighorn River  
Magic City Fly Fishers



Bruce Farling  
Executive Director  
Montana TU



Laura Ziemer  
Director  
Montana Water Project,  
Trout Unlimited



Exhibit 1. An inundated Black Canyon Campground, Fourth of July weekend 2009.

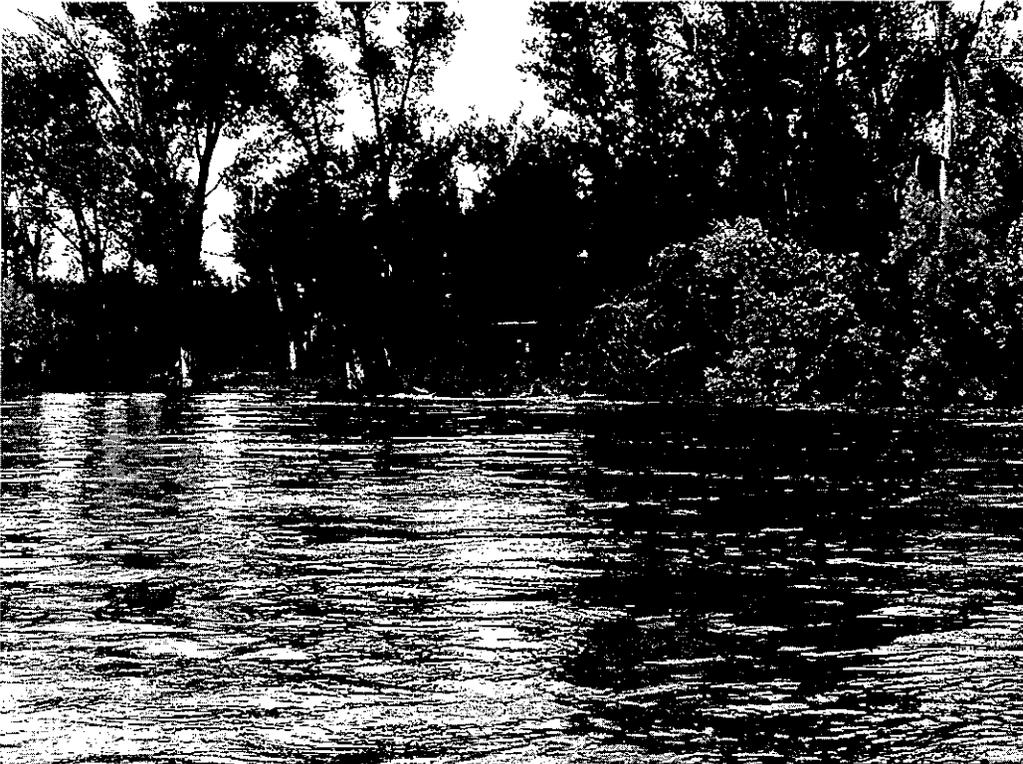


Exhibit 2. Grant Marsh Fishing Access Site, Bighorn River, Summer 2008



Exhibit 3. Bighorn River bank erosion caused from sustained high river releases.

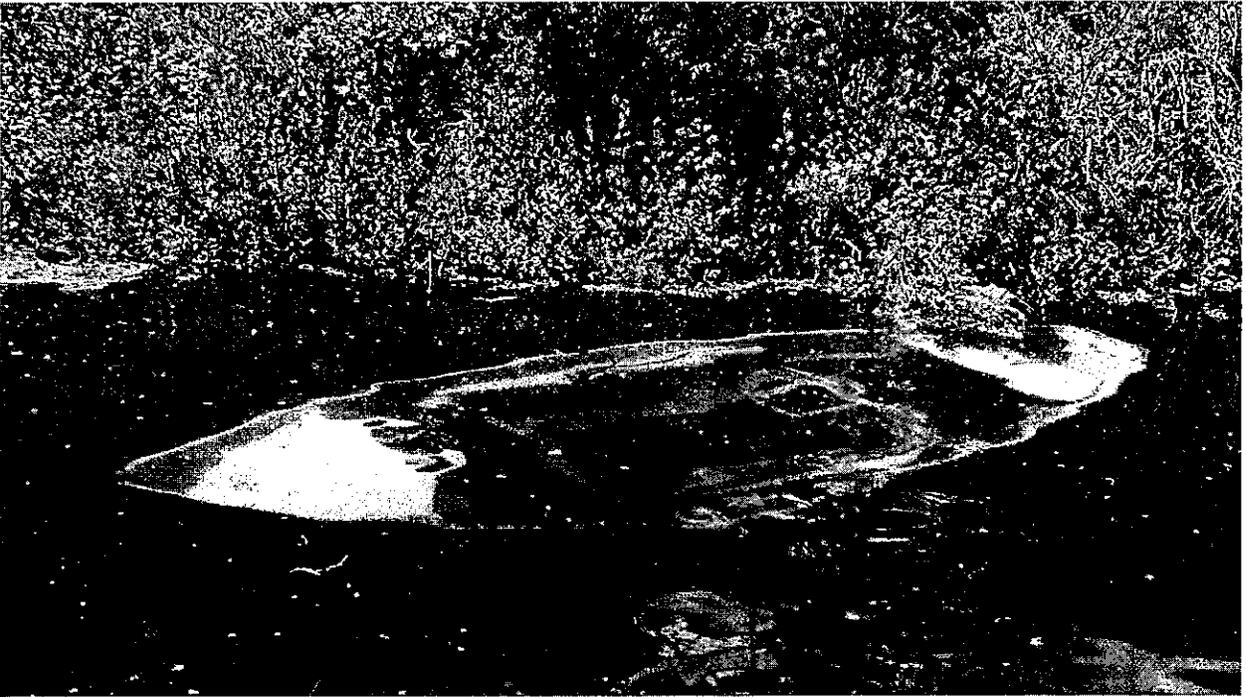


Exhibit 4. One of four boats in four days that swamped during high river releases in 2008.

**From:** [criley@wispwest.net](mailto:criley@wispwest.net) [<mailto:criley@wispwest.net>]

**Sent:** Friday, January 21, 2011 11:09 AM

**To:** Duberstein, Leonard (Lenny) B

**Cc:** [criley@wispwest.net](mailto:criley@wispwest.net)

**Subject:** Comment on proposed draft operating criteria for Yellowtail Dam on the Bighorn River

Please include my comments below regarding your proposal to manage flows in the Bighorn River below Yellowtail Dam:

- 1) Please recognize that the Bighorn River provides a valuable fishery and recreation resource to the citizens of Montana that also brings significant economic impact to the local economy.
- 2) Please consider employing the concept of flow regimes and their respective criteria for Wet, Average, and Dry years, which could be assessed annually based on a respective year's snowpack and water content, particularly in the months of April and May
- 3) Please note in your draft criteria that the 2,500 cfs minimum target flow would only be appropriate in the driest of years. Optimal flow for the fishery itself would be in the range of 3,500 cfs
- 4) Please consider that the spring reservoir drawdown elevation of 3,614 feet to best reduce the risk of elevated outflows in the event of high spring runoff, which can be so destructive to both the downstream aquatic biota and recreation resources (i.e., public facilities).

Sincerely, Chris Riley

3145 West County Line Road  
Manistee, Michigan 49660

**From:** Jamie McLean [<mailto:jkmclean1223@gmail.com>]  
**Sent:** Friday, January 21, 2011 10:39 AM  
**To:** Duberstein, Leonard (Lenny) B  
**Cc:** [bruce@montanayu.org](mailto:bruce@montanayu.org)  
**Subject:** Comments re: Draft Operating Criteria for Yellowtail Dam

Dear Mr. Duberstein,

I understand from Trout Unlimited that the Bureau of Reclamation has proposed operating criteria for the Yellowtail Dam on the Bighorn River. I understand that Montana FWP scientists have determined that a flow rate of 3500 cfs is the ideal rate for this river; however, the Bureau is proposing 2500 cfs, only 71% of the higher rate. Understandably, 3500 cfs may not be available every year, but it should be the target based upon Montana FWP research, with 2500 cfs being the target during drought years. This higher flow rate will help protect the multi-million dollar economic benefit this river provides within the state of Montana.

Additionally, I understand there would be benefits to draw the reservoir down to 3614 feet in April thereby reducing the potential need to quickly drop the level should spring flooding become an issue. As has been seen in the last couple of years, rapidly dropping the level in an emergency situation causes downstream flooding, reduces hydropower production potential due to bypassing the turbines, and harms angling opportunities.

I appreciate your consideration of these points which, if implemented, would better protect the Bighorn River fishery.

Sincerely,

Mr. Jamie McLean  
Butte, MT

TU# 412847139

**From:** Michael Lees [<mailto:mike@wescomm.com>]  
**Sent:** Friday, January 21, 2011 11:10 AM  
**To:** [lduberstein@usbr.gov](mailto:lduberstein@usbr.gov)  
**Cc:** Bonnie Edwards; Hans Stephenson; Joel Wilson  
**Subject:** Comments on Bighorn River operating criteria.

Dear Mr. Duberstein,

As a frequent fisher of the Bighorn River tailwater, downstream of the Yellowtail Dam, I feel that it is very important that the Bureau of Reclamation modify the current draft plan to better protect the potential world class fishery in the Bighorn.

First of all I want to strongly suggest that the flows in the Bighorn be targeted at 3,500 cfs which is the ideal flow to maintain a healthy fishery according to the Montana Fish, Wildlife and Parks research. In my own personal experience, the very low flow conditions that were allowed in the 2009-2010 winter season had a very negative impact on the Bighorn Fishery.

Second, I feel that a better balance needs to be maintained between the reservoir pool, the lake, and the flows in the Bighorn. I suggest that the draft plan be changed to draw the reservoir down to an elevation of 3,614 feet in April, which should reduce the need to evacuate the reservoir should spring storms cause an increase in water levels, as they have for the last few years.

Please change the plan to protect the fishery!

Respectfully,

Michael Lees  
570 Texas Street  
Rapid City, SD 57701

**From:** Jim Benepe [<mailto:jbenepe111@gmail.com>]

**Sent:** Friday, January 21, 2011 11:43 AM

**To:** Duberstein, Leonard (Lenny) B

**Subject:** Big Horn Lake and BH River comment

Hello Lenny,

I would like to submit the following comments regarding the Big Horn Lake and River.

I believe you can better balance the reservoir pool with healthy flows in the Bighorn, an objective that helps protect the river fishery, which generates an estimated \$50 million a year to Montana's economy. I live in Sheridan, WY and have been frequenting the river below the dam for fly fishing days for the past 25 years. I have seen the river in the drought years with fish dying off rapidly and in high water years when the flow was so high fishing was impossible.

I would like you to acknowledge that 3,500 cfs is the optimum flows for a healthy fishery, and that 2,500 cfs is a minimum target to shoot for only during drought years when the higher objective is unobtainable. I propose you draw down the reservoir lower in the spring than called for in the draft criteria – to an elevation of about 3,614 feet in April — thereby reducing the need to rapidly evacuate the reservoir should spring storms become a problem. This will secure more water for hydro protection and reduce flooding risk to public campgrounds and marinas on the north side of the reservoir, as well as to Montana landowners along the river. It will also better secure the fishery and fishing in the Bighorn River.

I've read about the battle for upper lake campgrounds and I believe a balance can be struck w/out destroying one of the best trout fisheries in North America. I venture that there are more people who fish the river below the dam and provide more economic benefit year round than those who might go camping only in the summer months.

Please accept my comments.

Jim Benepe

307-762-2073

**From:** Randy Blaine [<mailto:RBlaine@wercs.com>]  
**Sent:** Friday, January 21, 2011 4:20 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Bighorn River Flows 2011

Thanks Bureau of Rec for the chance to comment.  
Have been a user since the river opened back up in 1982...  
Have used the lake numerous times since 1992...  
River needs to be managed at about 2000-2500 cfs.....during most of the year.... With a **good flushing flow** around 6000 cfs in mid June, and again in mid to late October when the lake and river turns over....

Forecasting the weather and precipitation in Wyoming and Montana, no way,... but if the river can be managed with this the ultimate goal during the year would comfort lake and river users alike!

Randy R. Blaine  
Wyoming Financial Insurance, Inc.  
542 Running W Drive  
Gillette, WY 82718  
307-687-0064  
Fax 307-687-1473  
[rblaine@wercs.com](mailto:rblaine@wercs.com)

**From:** james j martin [<mailto:jim18656@epix.net>]

**Sent:** Friday, January 21, 2011 5:01 PM

**To:** Duberstein, Leonard (Lenny) B

**Subject:** Bighorn flows

Mr. Duberstein, I am writing to ask you to consider a better balance between the Bighorn reservoir height and the Bighorn river flows .Please consider an average flow of 3500 cfs with a minimum drought flow of 2500 cfs.I travel to the Bighorn river every summer to fish and would like to see optimum balance of water for both the lake and the river. Thank you, Jim Martin

**From:** Bonnie Edwards [<mailto:bonnieedwards@rap.midco.net>]  
**Sent:** Saturday, January 22, 2011 7:13 AM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Water flows to Bighorn River Fishery

Dear Mr. Duberstein,

The Bighorn River tailwater fishery, downstream of Yellowtail Dam, is a very important revenue source for the State of Montana, resulting in fishers coming from all of the surrounding states. I respectfully request that the Bureau of Reclamation modify the current draft plan to better protect this world-class and high revenue-generating fishery (up to \$50 million).

I understand the desire to fill Bighorn Lake to provide recreation for summer users of the southern portion. However, this increases the risk of evacuating water rapidly from behind the dam in the event of heavy spring storms, such as happened in 1009 and 2010, resulting in flooding downstream at detriment to the fishery. Whereas Bighorn Lake has limited use, primarily during the major summer months, the Bighorn River attracts hardy souls for a much longer period during the year.

According to the Montana Fish, Wildlife and Parks research, target flows in the Bighorn should be 3500 cfs, with 2500 cfs as the minimum during drought years. I would respectfully suggest that the reservoir level be lower in the spring than called for in your draft (around 3500 or so feet in April) to avoid rapid release of water should spring storms become a problem, thus reducing harm to the campgrounds and marina on the north side of the reservoir as well as Montana landowners and the Bighorn River fishery.

Thank you.

Bonnie and Jack Edwards, Rapid City, SD

**From:** Joel Wilson [<mailto:wilsonjoelr@hotmail.com>]  
**Sent:** Saturday, January 22, 2011 1:05 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Comments on Bighorn River operating criteria

Dear Mr. Duberstein,

As a frequent fisher of the Bighorn River tailwater, downstream of the Yellowtail Dam, I feel that it is very important that the Bureau of Reclamation modify the current draft plan to better protect the potential world class fishery in the Bighorn.

First of all I want to strongly suggest that the flows in the Bighorn be targeted at 3,500 cfs which is the ideal flow to maintain a healthy fishery according to the Montana Fish, Wildlife and Parks research. Second, I feel that a better balance needs to be maintained between the reservoir pool, the lake, and the flows in the Bighorn. I suggest that the draft plan be changed to draw the reservoir down to an elevation of 3,614 feet in April, which should reduce the need to evacuate the reservoir should spring storms cause an increase in water levels, as they have for the last few years.

Please change the plan to protect the fishery!

Respectfully,

Joel Wilson  
Sheridan Wyoming

-----Original Message-----

From: Mike and Sharon Sterbis [<mailto:sterbis@montana.com>]

Sent: Sunday, January 23, 2011 9:29 PM

To: Duberstein, Leonard (Lenny) B

Subject: Bighorn River

Dear Sir,

Please reconsider your proposed flows on the Bighorn River. The trout population took a hit during the last drought when flows dropped. The minimum level should be 2500 cfs.

Sincerely,

Michael Sterbis

**From:** [DANDJKIELY@aol.com](mailto:DANDJKIELY@aol.com) [mailto:[DANDJKIELY@aol.com](mailto:DANDJKIELY@aol.com)]

**Sent:** Sunday, January 23, 2011 4:38 PM

**To:** Duberstein, Leonard (Lenny) B

**Subject:** Protect Bighorn's Wild River Trout

As a concerned Montana citizen, a Trout Unlimited member and supporter of trout habitat I submit the following remarks in support of protecting Bighorn's wild river trout.

Better balance the reservoir pool with healthy flows in the Bighorn, an objective that helps protect the river fishery, which generates an estimated \$50 million a year to Montana's economy.

- Acknowledge that 3,500 cfs is the optimum flows for a healthy fishery, and that 2,500 cfs is a minimum target to shoot for only during drought years when the higher objective is unobtainable.

Draw down the reservoir lower in the spring than called for in the draft criteria – to an elevation of about 3,614 feet in April -- thereby reducing the need to rapidly evacuate the reservoir should spring storms become a problem. This will secure more water for hydro protection and reduce flooding risk to public campgrounds and marinas on the north side of the reservoir, as well as to Montana landowners along the river. It will also better secure the fishery and fishing in the Bighorn River.

Donald E. Kiely

**Subject:** FW: Bighorn Reservoir/River Plan

**From:** c merker [mailto:c\_merker@yahoo.com]

**Sent:** Sunday, January 23, 2011 9:56 PM

**To:** Duberstein, Leonard (Lenny) B

**Subject:** Bighorn Reservoir/River Plan

I would hope and trust that the BUrRec would implement the Montana Fish, Wildlife & Parks flow target of 3500 cfs on the river below the dam. The riparian corridor should take precedence over the artificial recreation of the reservoir. The river deserves priority over water skiing, tubing, and boating and beer drinking. Riparian corridors have been severely degraded in the West, much of it by dam construction, and should have priority.

Thank you for this opportunity to comment.

**Christopher Merker**

*TWS Certified Wildlife Biologist*

(406)535-3788



**United States Department of the Interior**

**NATIONAL PARK SERVICE**

Bighorn Canyon National Recreation Area  
P.O. Box 7458, 5 Ave. B  
Fort Smith, Montana 59035  
(406) 666-2412



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JAN 24 2011

January 20, 2011

Dan Jewell, Area Manager  
Bureau of Reclamation  
Montana Area Office  
P.O. Box 301137  
Billings, MT 59107-0137

Dear Mr. Jewell,

The National Park Service has reviewed the draft Bighorn Lake Operating Criteria Evaluation Study and Report dated September 14, 2011 and we appreciate the hard work from you and your staff in this undertaking. The mandates for managing the Yellowtail Unit for the Bureau are many and complex, as you well know, and satisfying the needs and interests of your constituents only adds to the complexity.

Upon careful review of the draft we agree with the proposed modifications of the operating criteria and feel they will provide a significant benefit for all user groups. Predicting precipitation is not an exact science yet the Bureau has been able to develop operating criteria using historical data and available science that aids in developing major operational decisions in a transparent manner. The complexity is exacerbated by changing climatic conditions affecting historic precipitation patterns and seasonal runoff from winter snowfall.

We understand this is a living document and over time will evolve as historical data is established and the science of predicting precipitation improves. We look forward to working with you in the future to provide a better balance between all Bighorn River water user groups.

Sincerely,

Jerry L. Case  
Superintendent

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# **BOARD OF COMMISSIONERS**

**BIG HORN COUNTY**

**P.O. BOX 908**

**HARDIN, MT 59034**

**(406)665-9700**

**Fax (406) 665-9706**  
[cwells@co.bighorn.mt.us](mailto:cwells@co.bighorn.mt.us)

**E-mail to:**

---

January 24, 2011

Mr. Dan Jewell , Area Manager  
Bureau of Reclamation  
PO Box 30137  
Billings, MT 59107

Re: Draft Big Horn Lake Operating Criteria Evaluation Study & Report

Dear Mr. Jewell:

We, the Board of Commissioners, Big Horn County, Montana, hereby provide the following comments with regard to the Draft Big Horn Lake Operating Criteria.

The purpose for the development of the Yellowtail Dam, at least in part, was for irrigation, flood control, power generation, and recreation. It is certainly debatable depending on who you are talking to the order of importance for these purposes, but all of have significant merit to residents of Big Horn County, Montana.

In discussing the Draft Criteria with our various constituents it has been suggested that the main objective of the Bureau of Reclamation is to provide recreation opportunity for the Horseshoe Bend Area, which may or may not viable recreating area in the future at the rate of sediment being deposited in that area. As per the Draft Criteria, in order for the Horseshoe Bend area to be a "good flat water recreational lake for boating and water skiing" the reservoir elevation would need to exceed 3,630. High lake levels leave inadequate storage for spring runoff and other weather events, often causing lake elevation to exceed 3,640ft. At this water elevation recreation on the north end of the reservoir is negatively impact by the flooding out the campground sites specifically in Black Canyon as well as contributing to the volume of hazardous floating debris. The past two years portions of the north end of the reservoir have been unusable for during times of the peak recreation season.

For Big Horn County, Montana, our major concern would be the increased potential for flooding with reservoir levels exceed the 3,630 water elevation, especially in the event of a major weather occurrence. At this level the flooding pools are being compromised in order to preserve recreational use in the south end of the reservoir. The practice of maintain high reservoir levels through the winter months while releasing large volumes of water into the Big Horn River in the spring must definitely be reconsidered. On occasion over the past few years water release flows from the dam have been in excess of 12,000 cfs. Very dangerous and destructive.

Over the past three years landowner along the Big Horn River have experienced damage by downstream flooding which includes damages to several of the State Fishing Access sites. This issue of bank erosion and property loss adversely affecting the property owners along the Big Horn River can become even more complicated due to the mixed ownership of lands along the Big Horn River. The Big

Horn River corridor has landownership in fee status, tribal trust and allotted trust held by the United States Government. Ownership of lands created by accretion on the Big Horn River has not yet been legally determined, or has a compensation rate been established for lands loss by avulsion. Which may be a legitimate concern if the management of the water levels is ever legally challenged.

Major flooding events are extremely costly to local, state and tribal governments, the Draft Criteria must take every step necessary to mitigate the potential flooding issues. The prediction of season precipitation is complicated, especially with the change in climate in this region.

We cannot ignore the fact that the Big Horn River is known for its world class trout fishing and the economic benefits that go with that role. We recently were presented a report that indicated with the number of angler days and the volume of anglers this river has an annual economic value of over \$50,000,000. That is huge for local employment and businesses. We want the integrity of the Big Horn River to remain for many years to come. We are concerned that Draft Criteria would allow for degradation of this river.

In closing, we would like to provide the following recommendations of the Bureau's consideration:

- Mitigate river bank erosion by not allowing sustained high water releases and sudden drops in river flows.
- Maintenance of the established flood pools for flooding control purposes, not for recreation on the south end.
- Adjustment of 30 days to the spring minimum target lake elevation from in March to in April.
- Remove the 2,500cfs river release as optimum to 3,500 cfs an optimum river release based on the statistics for Montana Fish, Wildlife and Parks.

We acknowledge the major undertaking involved with the management of resources associated with the Big Horn Lake and Yellowtail Dam while complying with public safety needs; state water law, and contractual obligations. Best wishes with this tremendous endeavor.

Very truly yours,

BOARD OF COMMISSIONERS  
BIG HORN COUNTY, MONTANA

John Pretty On Top  
Chairman

Chad Fenner  
Member

Sidney Fitzpatrick  
Member

January 24, 2011

Lenny Duberstein  
Billings Area Office  
Bureau of Reclamation  
P.O. Box 30137  
Billings, MT 59107-0137

Dear Mr. Duberstein:

I would like to comment on the Bureau of Reclamation's Draft Bighorn Lake Operating Criteria Evaluation Study & Report.

My first comment involves Bureau of Reclamation arbitrary value of 2,500 cfs as "optimum flow." For as long as I have been around the Montana Fish, Wildlife & Parks has defined optimum flow as 3,000 cfs or 3,500 cfs; 2,500 cfs was defined as "recommended minimum flow." Why do you ignore the Montana fisheries biologists' recommendations?

Another point of contention is that you propose to drop the river flow to 1,500 cfs without dropping the lake levels appreciably. This should be an equitable sacrifice, not giving precedence to the lake at the expense of the river. The fishery in the Bighorn River is worth many times over the value of the upper end of the reservoir—fishery and recreation combined.

It is very risky to keep the reservoir so full throughout the year. Keeping the reservoir at or above 3640 feet is asking for a natural disaster in the form of large rainfall event causing the flood pool to be filled entirely and perhaps over topping the dam. Your calculations omitted the 1967 data where the reservoir filled quickly thanks to heavy rains when your calculations stated it would take three years. What would happen if we had a Rapid City style flood of 55,000 cfs coming into the reservoir?

You should not be using the flood pool to manage the reservoir. The flood pool should be for emergencies only. Your plans show that you intend to fill into the flood pool on an annual basis.

Filling the reservoir into the flood pool also eliminates camping and boating opportunities on the entire reservoir. Campgrounds are flooded out and floating logs and debris make for dangerous boating conditions.

Ice jams are a problem for the Shoshone River when the reservoir is kept close to 3640. The ice jams cause flooding of the Yellowtail Habitat Unit and eliminate hundreds, if not thousands of acres of pheasant habitat. Pheasant hunting is one major tourist draw and when a significant amount of the cover is flooded, recreation suffers.

Without a decent drawdown of the reservoir during the summer, annual weeds are negated from growing on the take line. These weeds, when flooded in May and June provide cover, forage areas, and spawning habitat for baitfish. Those fish are important to the sauger and smallmouth bass.

It would be wise to lower the reservoir to 3614 so that there will be adequate storage space for spring runoff.

It would also be wise when there have been high flows in the river (say, above 5,000 cfs) to gradually lower the flows by 100 cfs increments over a longer time span. When you cut back 1,000 cfs or higher in just an hour you strand many aquatic invertebrates, baitfish, and trout fry and fingerlings. Water-logged banks tend to cave in when the flows are reduced quickly/

Thank you for taking my comments. I hope that you will incorporate my suggestions into your operating plan.

Sincerely yours,

Bob Krumm

356 E. 4<sup>th</sup> St.  
Sheridan, Wyoming 82801  
[rkrumm@fiberpipe.net](mailto:rkrumm@fiberpipe.net)

**From:** David McDougall [<mailto:finfirst2@yahoo.com>]

**Sent:** Monday, January 24, 2011 4:15 PM

**To:** Duberstein, Leonard (Lenny) B

**Subject:**

Dear Mr. Duberstein-

As a member of the Little Bighorn Chapter of Trout Unlimited and an avid fly fisherman, I'm concerned about some the decisions made regarding water flows of the Bighorn River.

- 1.) I feel that the Bureau should provide a more fish-friendly balance in the reservoir pool on the Bighorn River. Releasing the amounts that we seen last spring are irresponsible and do trout no good. It minimizes recreational use and makes it hazardous for floating and wade fishing.
- 2.) 3,500 cfs is an appropriate level for fish and 2,500 cfs is too little except during drought years. 1500 cfs is drastic.
- 3.) The rapid release of levels seen last year are not necessary, unless the action is left until the last minute. Drawing down the reservoir earlier in the spring to an elevation of 3,614 feet would more than likely eliminate the necessity for this action.

Thanks for reading this and I hope the Bureau will make the right decision regarding fish and fishing on the Bighorn River.

Respectfully,  
David McDougall

You can view my paintings online at:

<http://www.originalartonline.com/buyers/index/content/artwork/ArtistID/1742>

**From:** bob mccready [<mailto:bobmcc41@wildblue.net>]  
**Sent:** Monday, January 24, 2011 12:28 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Bighorn River Fishery Health

Like a lot of other people, I'm concerned about the water flows in the Bighorn river relative to the health of the fishery.

I'm a person from out-of-state who spends approximately a month per year fishing on the Bighorn.

I'm concerned that the minimum flows are allowed to fall too low for trout-health, and that reservoir levels are kept too high in the spring to maintain steady flows.

Please do all you can to maintain the fishery in this "national treasure".

Thank you very much.

Regards,

Bob McCready

**From:** Mark Keeney [<mailto:markwood.keeney@oracle.com>]  
**Sent:** Monday, January 24, 2011 12:13 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** The Bighorn River

Dear Sir, I live in VA. And am a land owner in MT and have spend about 30 days a year for the past 30 years enjoying the Bighorn river. I would like to provide your with my input on how to better manage this incredible resource. At my camp, we have on average 10 -15 anglers every month who come to the Bighorn to enjoy this amazing river. I have no idea how much money they spend or how much money is generate by fishermen and hunters, but I know it is a lot. My fishing and hunting licenses cost me at least \$350 a year. ( I have to buy the tribal license since the State and the Tribe can't seem to agree on how to license the river).

The Bighorn is a treasure, but it must be maintained in order to be enjoyed. Over the past 30 years, I have seen the river fluctuate from 1400 cfs to as much as over 10,000 cfs. This unpredictability at unscheduled times truly is a concern for those who visit the river. The fishermen are affected, but the fish and wildlife are critically affected when these changes occur. There must be some way to intelligently manage the flow from the Bighorn lake in such a way that the river could flow at a normal 3500cfs and would not go below 2500 cfs during times of drought. This would improve the fish and wildlife as well as make using the river a predictable experience.

The weather in this part of MT is unpredictable and so it would make sense to draw down the reservoir lower in the spring than called for in the draft criteria – to an elevation of about 3,614 feet in April — thereby reducing the need to rapidly evacuate the reservoir should spring storms become a problem. This will secure more water for hydro protection and reduce flooding risk to public campgrounds and marinas on the north side of the reservoir, as well as to Montana landowners along the river. It will also better secure the fishery and fishing in the Bighorn River.

I respectfully request that you consider my recommendations in your future plans for managing the wild and wonderful Bighorn River.

--

**ORACLE**

MARK KEENEY | VP Business Development  
Phone: [+1 7033642558](tel:+17033642558) | Mobile: [+1 7038509040](tel:+17038509040)  
Oracle Public Sector Sales  
1910 Oracle Way | Reston, Virginia 20190



Oracle is committed to developing practices and products that help protect the environment

**From:** John Virgin [<mailto:john@argmt.net>]  
**Sent:** Monday, January 24, 2011 10:14 AM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Bighorn River

Please, balance the reservoir pool with healthy flows in the Bighorn, an objective that helps protect the river fishery, which generates an estimated \$50 million a year to Montana's economy.

- I feel that 3,500 cfs is the optimum flows for a healthy fishery, and that 2,500 cfs is a minimum target to shoot for only during drought years when the higher objective is unobtainable. Also, draw down the reservoir lower in the spring than called for in the draft criteria – to an elevation of about 3,614 feet in April -- thereby reducing the need to rapidly evacuate the reservoir should spring storms become a problem. This will secure more water for hydro protection and reduce flooding risk to public campgrounds and marinas on the north side of the reservoir, as well as to Montana landowners along the river. It will also better secure the fishery and fishing in the Bighorn River.

Thank You

John

John Virgin, Broker/Owner  
American Realty Group  
(406) 761-6700 office  
(866) 408-6727 fax  
(406) 868-1078 cell  
[www.yourgreatfallshome.com](http://www.yourgreatfallshome.com)  
[john@argmt.net](mailto:john@argmt.net)

Building Lifelong Relationships One House at a Time!

**From:** Ron Stellingwerf [<mailto:rwerf@bresnan.net>]  
**Sent:** Tuesday, January 25, 2011 6:56 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Bighorn Reservoir draft operating criteria response

I feel you need to consider a stronger approach to balancing the reservoir pool levels with adequate flows in the river to maintain a healthy fishery and aquatic environment.

While 2500 CFS had been discussed based on several drought years a minimum flow of 3,500 CFS during normal to above average moisture years should be strongly consider. This would also address some of the water user concerns being express by down stream users.

The issue I've heard discussed for maintaining a reservoir level based on the Horseshoe Bend marina and boat launch. The level of the reservoir should be controlled based on annual runoff and not a marina that is rapidly silting in. The majority of the use based on what I've read and observed is from the north end of the reservoir and due to population densities that has the most drawing power no matter what the lake level is on the south end.

Finally I cannot understand how the Bureau can manage a reservoir in a drainage affected by 3 reservoirs and not consider all 3 in making the annual decisions. Boysen and Buffalo Bill reservoir should be part of the overall drainage basin decision made and not managed seperately. This severly ties your hands and limits your options in managing the water resource.

Thank you for considering these comments.

# Bighorn Lake Draft Operating Criteria Comment Sheet

**To:** Lenny Duberstein – USBR MT Area Office

**From:** Friends of Bighorn Lake

**Date:** Jan 25, 2011

FOBHL would like to suggest some adjustments to this document. We will cite the page and paragraph with our info.

Pg 6 para 1 & 4 “Bighorn Lake for **waterfowl, fishery** and flat water recreation.....”we may have missed some more such references so would you please correct them as well.

Pg 10 para 4 .....down to elevation 3580, **following extension of these two ramps in 2003**”

Pg 12 para 2 .....for boating, **fishing and water sports.**

These desired levels and **river flows** were not considered.....

Pg 13 para 1 to facilitate a waterfowl **migration resting area and waterfowl hunting.**

Para 3 The WGF portion of this paragraph is being rewritten by WGF to state their correct information.

Para 5.....separate study **by the ACORE and USBR.**

Pg 15 para 2 dealing with the Heart Mtn canal.....we discussed this with Gordon in Oct by phone and he thought this paragraph could be written more understandable.

Pg 18 – 19 Dealing with river and lake risk.....We are still very uneasy on how this risk is to be handled. We will be watching this closely to get a better understanding and to offer suggestions in the future on this process.

Para 2 4<sup>th</sup> line change gain to **gain2** for clarity

This area is of concern even though gain2/inflows projections are getting better oft times there are still over projections being made. There needs to be “a cushion” so the lake and the river receive an equal hit if actual gains2/inflow end up under the forecast projections. Soil moisture needs to play a greater role in this projection process too. Target lake elevations need to be used and visible as are the river flows.

Overall this document is coming along very well and in the course of the next several years much fine tuning will occur to make it even better. It has promise to be a win-win for all stakeholders involved in this Bighorn River Systems Issues Group. We recommend that this process continue to move forward providing an additional transparent management tool for the USBR. Let’s keep the conference calls on going and a couple meetings a year also! Lake storage must remain a key element in this plan in order for the USBR to service stakeholder’s needs in a balanced way.

We appreciate all the USBR is doing to better educate all of us and improve your own management skills.

Signed: Robert E Croft

President, FOBHL Board of Directors

**From:** John & Susan Lambert [<mailto:jalambert@msn.com>]  
**Sent:** Tuesday, January 25, 2011 3:26 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Big Horn River Water Flows

Lenny .....We are contacting you to voice our concerns about what we have been experiencing in recent years as unacceptable variations in the flows of water being released from the Yellowtail Dam into the Big Horn River. We both are avid fly fishermen and have enjoyed coming over to Ft. Smith, Montana twice a year to spend a 3-4 day fishing trip on the Big Horn River. Initially, our trips to the Big Horn River were rewarded with very pleasant and positive fly fishing experiences. Unfortunately, the last two years we found our experiences to be quite different due to the flows in the river being either extremely low or dangerously high. The water levels have become so unpredictable that on our most recent planned trip in 2010, we would have been cancelled the trip if it were not for the high cancellation fees we would have had to pay the accommodations provided. The result was we ended up making our planned visit only to find extremely strong flows that were to such a point that we were forced, for safety sake, to limit the areas we fished due to what we considered to be dangerously high flows. Also, these conditions greatly reduced our catch and release rate and thus the overall enjoyment we achieved from our more than a thousand dollars in monetary expenditures into the local Ft. Smith economy.

While we are not water flow experts, It seems to us that such large variations in levels of flow is causing great harm to the Big Horn fish habitat and the regeneration of new trout. It seems to us that a more appropriate consistent flow of 3000 to 4000 CFS should be maintained. It seems to us that through the Bureau of Reclamations' better management of water levels in the large reservoir as well as the after bay such conditions should be able to be achieved. We trust that such an important waterway having as strong an impact on Montana and Wyoming economies should have well established and developed flow control criteria levels. It appears, however, that either the flow criteria is not being followed and or such criteria is in need of being modified including a more effective monitoring process.

As the Federal Bureau of Reclamation is the governmental agency having responsibility for overriding special and political interests in the states of Montana and Wyoming, my son and I are most hopeful your agency will resolve the most recent unacceptable variations in water flow for the Big Horn River. Please be assured that if such is not the case, we will be forced to eliminate future plans to spend our time and money visiting what we have previously found to be one of the best fisheries in the World.

Thank you in advance for your assistance in helping resolve the concerns of an aging fly fisherman and his son.....

John and Matt Lambert  
659 Triple Tree Road  
Bozeman, Montana 59715  
(406) 522-0740

# RECLAMATION

## *Managing Water in the West*

### Comment Sheet

#### Bighorn Lake Draft Operating Criteria Comment Sheet

(Please Print Clearly)

Name Keith Grant

Organization and Address Bighorn County  
1400 Rd 11 Lovell, WY 82431

Phone (307) 272-5511 FAX (307) 548-7521 E-mail rimrock@tetwest.net

**Narrative Comments:**

I appreciate the opportunity to comment. I would like to thank Gordon and Tim for the work and time they have spent on this plan and all the staff.

I have a 7 pages attached

Thank You

Keith Grant

**-Attach additional sheets if necessary-**

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment - including your personal identifying information - may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

The information related to the meeting can be found on the Montana Area Office website at [www.usbr.gov/gp/mntao/yellowtail/index.cfm](http://www.usbr.gov/gp/mntao/yellowtail/index.cfm). Please mail comments to Ms. Paula A. Holwegner, Bureau of Reclamation, 2900 4th Avenue North, Suite 501, Billings MT 59107, fax your comments to 406-247-7338, or e-mail your comments to [pholwegner@usbr.gov](mailto:pholwegner@usbr.gov) by January 28, 2011. Thank you.

**Keith Grant**

---

**From:** "Keith Grant" <rimrock@tctwest.net>  
**To:** "Keith Grant" <rimrock@tctwest.net>  
**Sent:** Tuesday, January 25, 2011 10:25 PM  
**Attach:** operating\_criteria\_evaluation.pdf; BOR NPS MOA 1964.pdf  
**Subject:** Fw: Review of Draft Revised Operating Criteria

**Dan Jewell**

**Thank you for the opportunity to comment I have indicated in black the page number and refercance to my comment. My comments are in blue and red.**

## **Reclamation**

### **Draft Bighorn Lake Operating Criteria Evaluation Study and Report.**

**On pg. 2**

**-Incorporation of operational rule curves for April through July.**

**Operational rule curves should be incorporated through October, to make sure that the highest river flow possible for the winter can be maintained while protecting the Bureau's obligation to the National Water Fowl program outlined in the current BOR Standard Operating Plan Chapter IV.**

**On pg. 4**

**3500 cfs -3%**

**We recognize MFWP's desire to raise their maximum recognized fishery river flow to 3500 cfs due to the silt accumulation at the side channel entrances and the encroachment of vegetation in the side channel proper.**

**Bighorn County would like to have lake levels recognized in elevation levels as well as the dates and higher lake levels anticipated, with our requested lake level of 3645 recognized as MFWP's higher river flows are being recognized.**

**On pg. 6**

#### **Intorduction**

**In 2007 the worst drought year of this 8 year drought, using consertative water**

1/25/2011

management the Bureau was able to provide water recreation on the South end of the lake at Horseshoe Bend while never allowing the river flows to go below 1500cfs as it had frequently gone to 1300cfs in the previous 7 years.

The use of the rule curve during spring run off needs to be extended to October to ensure proper water storage for adequate winter river flows.

### Report Purpose

We have neglected to include Lake Fishery, Water Fowl habit, National Water Fowl program Wet lands protection Act and Ice fishing. Bighorn Lake flat water recreation is not the only purpose for lake levels!

On pg. 7.

The Yellowtail Unit was authorized by the Flood Control Act of December 22, 1944.

Bighorn Canyon National Recreation Area was created by an Act of Congress and signed into law by President Johnson October 15, 1966. A MOA between the Bureau and the Park Service was signed by the Secretary of the Interior December 31, 1964. pg3. line 2. " The parties to this agreement acknowledge that as authorized by congress each has an interest in the storage, release, and utilization of the water which is contained by Yellowtail Dam." the Congressional Act creating Bighorn Canyon National Recreation Area Title 16 460t - 2. Administration "(a) Coordination. The Secretary Shall coordinate administration of the recreation area" shall is mandatory, coordination has not been defined by congress, Webster defines coordination as "of equal importance, rank or degree not subordinate" this shows the intent of congress to create a partnership. The Yellowtail Unit project boundry ends at the Afterbay Dam boat launch ramp.

On pg. 8.

### 2000 Bighorn Lake Operating Criteria

#### Operating Criteria

##### -Legal and Contractual operating requirements.

Legal requirements need to recognize the National Park Service. I have not seen any recognition by the BOR of the legal requirements they have to NPS. In the original 1964 MOA pg. 3. " 2. The parties to this agreement acknowledge that as authorized by Congress each has an interest in the storage, release, and utilization of the water which is to be contained by Yellowtail Dam," and " However, to the extent permitted by authorized primary purposes of said project the bureau shall operate the Dam and Reservoir in keeping with the Secretarial policy which provides for full consideration of public recreation and fish and wildlife on reservoir projects undertaken by the Federal government." This indicates a partnership. In 1966 Congress created Bighorn Canyon National Recreation Area and in this act they stated " 460t - 2 Administration (a) Coordination The Secretary shall coordinate" since Congress has never defined coordinate, by law we use the dictionary definition, Webster's New International Dictionary "of equal importance, rank or degree not subordinate" The American

1/25/2011

heritage Dictionary "one that is equal in importance, rank or degree." This again indicates a partnership not just a cooperating relationship.

- Operating objectives for water supply, flood control, power generation, lake recreation, fishery, and the river fishery.

National Water Fowl program should be added, it is currently recognized in SOP Chapter IV. also the Wet Lands Act.

On pg. 9.

### Legal and Contractual Operating Requirements

The mandatory and legal requirements consist of satisfying senior downstream water rights, meeting the existing and future reserved water right obligation for the Crow and Northern Cheyenne Indian tribes, meeting Reclamation's contract commitments for water stored in Bighorn Lake and operating and managing Bighorn Lake and Yellowtail Dam in a manner that is consistent with dam safety requirements.

BOR has said that the operations of Yellowtail Dam are managed in keeping with Congressional and department policy, and the authorized purposes of the Yellowtail Unit, of the 1944 Flood Control Act. The Definite Report Plan 1962, and finally Chapter IV Reservoir Operations 2001 ( current SOP ) and the Interagency Agreement between NPS and BOR, ( MOU ) 1998. As outlined in the 1964 MOA signed by the Secretary of the Interior he indicated that as directed by Congress there is a partnership between BOR and NPS.

Legal requirements need to recognize the National Park Service. I have not seen any recognition by the BOR of the legal requirements they have to NPS. In the original MOA 1964 pg. 3. " 2. The parties to this agreement acknowledge that as authorized by Congress each has an interest in the storage, release, and utilization of the water which is to be contained by Yellowtail Dam," and " However, to the extent permitted by authorized primary purposes of said project the bureau shall operate the Dam and Reservoir in keeping with the Secretarial policy which provides for full consideration of public recreation and fish and wildlife on reservoir projects undertaken by the Federal government." This indicates a partnership. In 1966 Congress created Bighorn Canyon National Recreation Area and in this act they stated " 460t - 2 Administration (a) Coordination The Secretary shall coordinate" since shall is mandatory and since Congress has never defined coordinate, by law we then use the common dictionary definition. Webster's New International Dictionary Coordination "of equal importance, rank or degree not subordinate" The American heritage Dictionary Coordination " one that is equal in importance, rank or degree." This again indicates a partnership not just a cooperating relationship. I believe that the National Park is a legal requirement that seems to have been overlooked. The Organic Act of 1916 the General Authorities Act of 1970 and 1979 amendment to the General Authorities Act of 1970 has come to be known as the "Redwood amendment", these 3 acts have elevated Bighorn Canyon National Recreation Area to the status of National Park and the protections afforded to national parks increasing the importance of this partnership. These actions add significant importance to the BOR and NPS

will cause the least amount of natural mortality, the least possible conflict with agriculture and the maximum amount of public hunting compatible with safeguarding the resources.”

This concept is not being properly addressed in this document or being given the proper consideration that a National Waterfowl program ( Flyway ) that is requires!

### **Pg. 12. Paragraph 2**

The WYGF has made similar recommendations requesting that the reservoir needs to be at or above 3620 and preferably above 3630. To adequately produce the food supply needed to support the sport fishery, the WYGF recommends that the reservoir be at or above elevation 3630 during the growing season. WYGF believes that below elevation 3620 the reservoir fails to provide fishing opportunities in Wyoming and greatly reduces the preferred habit of many fish. These desired levels were not considered when the reservoir level targets were first established as the above recommendations had not been available.

I would also suggest that it raises concerns for the habit of the sensitive species Sauger which may soon be nominated as Endangered.

### **Pg. 13. Paragraph 3**

“ WYGF now agree that a spring draft after the end of March is not a real concern for the existing reservoir fishery.”

WYGF have clearly stated that the reservoir fishery suffers when the lake levels go below the 3620 elevation.

### **Pg. 14. Paragraph 5**

#### **November 30 3630 Eliminate Nov. target**

We should not eliminate the November target because the National Waterfowl program is a very significant obligation as it is part of an international agreement.

### **Pg. 18. Paragraph 2**

“ the forecasted November through March Bighorn Lake gain”

We seem to continually over estimate inflows to maintain higher outflows? It seems that the over estimation of the gains is problematic.

#### **Balancing Risk:**

I do not understand the rational of borrowing 10,000AF when the lake is low and paying back 10,000AF when the lake is full. The only understanding I get from this is the desire to favor the river fishery when the lake is low.

**Pg.19. Second paragraph. 1. - Add 10,000 acre - feet to the forecasted gain and recalculate the November through March release.**

We seem to historically overestimate the gains how is this balancing the risk?

**Pg. 21. Spring Operational Rule Curves;**

I believe the rule curve should run through October - November to insure a higher lake level to accommodate the lake fishery and the National Waterfowl program as well as being able to accommodate a higher winter river flow. It would allow the BOR to more quickly react to existing conditions.

**Pg. 22. 2<sup>nd</sup> paragraph "to provide minimum service levels for lake recreation and fishery"**

Add National Water Fowl Program!

**Pg.24. Paragraph 1**

**"sufficient storage to provide minimum service levels for lake recreation and fishery."**

Add and National Water Fowl Program!!

The Bureau has a informal Agreement with Montana Fish Wildlife and Parks or- letters of correspondence

**"1. Optimum Target level 2500cfs can be met 4 to 5 years out of 10**

**2. Standard Target 2000cfs can be met 7 to 8 years out of 10**

**3. Minimum Target 1500cfs can be met 9 years out of 10**

Normally the only time it will be necessary to drop release below this level will be when two or more unusually dry years occur back to back."

In 2007 BOR proved that even after 7 years of drought and one of the worst years yet, that they could manage the river flows at 1500cfs and provide adequate lake levels with proper management.

I thought that using the rule curve that lake levels and river flows were to be equitably administered! I think if river flows are to be spelled out then lake levels must be taken into consideration also!

**Pg. 26. Paragraph 1**

The 3500 cfs is a recent addition to MFWP's requested flow targets.

If we are to recognize MFWP's desire to raise their maximum recognized fishery river flow to 3500 cfs then we need to recognize the requested need for higher Lake levels of 3645 elevation due to silt retention. We see from the report on the side channel study report, that no down cutting is occurring and it would be quite simple to do mechanical

fix's on many of the river side channels. While fixing the silt problem in the lake is complex and expensive.

I would like to thank Dan Jewell and his staff for the great work they have accomplished over the past three and a half years, the Bighorn River System Long Term Issues Group is folks made up of government and local citizens working for a balance to best meet the needs of all the stake holders. It has been a long and sometimes contentious process, but it has been well worth it. I believe that if there is a genuine commitment to these operation plans and if politics allow the Bureau to follow this operation plan that It will serve all parties well. The Bureau has done a good job of working through this issue.

A handwritten signature in black ink, appearing to read "Keith Hart". The signature is written in a cursive style with a large initial "K".

**MIDWAY CONSTRUCTION & DIRT WORK, INC**

1775 Hwy 310, Lovell, WY 82431

(307) 548-7522

fax (307) 548-7521

**FAX**

TO: Paula A. Holwegner -

FROM: KEITH GRANT

PAGES TO FOLLOW: 8

COMMENTS: This comments on Big Horn Lake  
draft operating criteria

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

# RECLAMATION

## Managing Water in the West

### Comment Sheet

Bighorn Lake Draft Operating Criteria Informational Meeting  
January 4, 2011

JAN 26 2011

(Please Print Clearly)

Name Thomas J. Canape SR.

Organization and Address MT. PIKEMASTERS  
2979 Lampman DR.  
Billings, MT 59102

Phone (406) 652-0957 FAX ( )                      E-mail                     

#### Narrative Comments:

One of my biggest concerns on Bighorn Lake is the amount of floating debris mainly logs throughout the entire lake. Being a fisherman I like to skip from one spot to another and get there as fast as possible. Many times I encounter dangerous situations with the floating wood. Also many times my fishing area is covered by this mess of logs and such. I'm not sure what can be done to ease this situation but I think stabilizing the water level in the lake might help.

-Attach additional sheets if necessary-

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment - including your personal identifying information - may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

The information related to the meeting can be found on the Montana Area Office website at [www.usbr.gov/gp/mtao/yellowtail/index.cfm](http://www.usbr.gov/gp/mtao/yellowtail/index.cfm). Please mail comments to Ms. Paula A. Holwegner, Bureau of Reclamation, 2900 4th Avenue North, Suite 501, Billings MT 59107, fax your comments to 406-247-7338, or e-mail your comments to [pholwegner@usbr.gov](mailto:pholwegner@usbr.gov) by January 28, 2011. Thank you.

# RECLAMATION

*Managing Water in the West*

## Comment Sheet

### Bighorn Lake Draft Operating Criteria Comment Sheet

(Please Print Clearly)

Name Scott Campbell

Organization and Address Town of Lovell  
336 Nevada Ave.  
Lovell, WY 82431

Phone ( ) 307-548-6551 FAX ( ) \_\_\_\_\_ E-mail scampbell@tctwest.net

#### Narrative Comments:

It is too easy to think in absolute terms and the objective I believe  
can be defined in smaller increments to improve equability.

There does not have to be an either/or situation or win/lose scenario.  
More accurately it needs to be and/also situation plus a shared  
sacrifice mentality. All players must be willing to accept fair  
and honest operations that enable them to realize their opportunities  
without it being at the loss of the other players.

It appears to me that elevations need to be in increments of five feet  
and the flows could to be 100 or even 200 cfs per catagory and still  
meet the fishery requirements. i.e. 1400, 2400

**-Attach additional sheets if necessary-**

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*Managing Water in the West*

## Comment Sheet

### Bighorn Lake Draft Operating Criteria Comment Sheet

(Please Print Clearly)

Name Scott Campbell

Organization and Address Town of Lovell  
336 Nevada Ave.  
Lovell, WY 82431

Phone ( ) 307-548-6551 FAX ( ) \_\_\_\_\_ E-mail scampbell@tctwest.net

#### Narrative Comments:

Access and convenience are issues relative to users and seem to be  
affecting operational decisions. i.e. 2500 cfs stream flow insures  
a float time of 2hrs. provides a water edge close to the boat  
launch site. Elevation 3620 insures horseshoe bend boat launching.  
Perhaps both can be addressed by the construction of multiple  
ingress/egress points along the river to accommodate slower water  
and the boat ramp could be built longer to accommodate lower water.

**-Attach additional sheets if necessary-**

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*Managing Water in the West*

## Comment Sheet

### Bighorn Lake Draft Operating Criteria Comment Sheet

(Please Print Clearly)

Name Scott Campbell

Organization and Address Town of Lovell  
336 Nevada Ave.  
Lovell, WY 82431

Phone ( ) 307-548-6551 FAX ( ) \_\_\_\_\_ E-mail scampbell@tctwest.net

#### Narrative Comments:

I am concerned that there is a bias built into the rules curve which adversely affects, unnecessarily, the lake and there should be an effort to equalize the impacts of operational decisions and natural events.

For example, the lake level is being purposefully drawn down to 3605 as a means of limiting the release of greater than 12,000 cfs. but there is a practice of trying to limit the outflow to under 8,000 cfs which means that there is 4,000 cfs margin built in which results in an unnecessary lowering of the lake during average conditions and may actually result in the lake not reaching capacity in some years. There is a practice of augmenting stream flow beyond the natural in-flow of the lake to the detriment of the lake.

**-Attach additional sheets if necessary-**

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# RECLAMATION

*Managing Water in the West*

## Comment Sheet

### Bighorn Lake Draft Operating Criteria Comment Sheet

(Please Print Clearly)

Name Scott Campbell

Organization and Address Town of Lovell  
336 Nevada Ave.  
Lovell, WY 82431

Phone ( ) 307-548-6551 FAX ( ) \_\_\_\_\_ E-mail scampbell@tctwest.net

#### Narrative Comments:

Considering the increased capacity of the lake when water is stored  
at the south end it makes good economic sense for power generation,  
at the same time it benefits tourism, and recreation purposes.

My comment is that the criteria needs to be weighted in favor of  
keeping the lake levels as high as possible for the longest amount  
time.

This changes the operating philosophy from river centered to lake  
centered meaning river levels are slightly more variable than are  
currently practiced and minimums lowered by a foot or two when  
possible and Maximums are increased slightly when necessary.

**-Attach additional sheets if necessary-**

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# RECLAMATION

*Managing Water in the West*

## Comment Sheet

### Bighorn Lake Draft Operating Criteria Comment Sheet

(Please Print Clearly)

Name Scott Campbell

Organization and Address Town of Lovell

336 Nevada Ave.

Lovell, WY 82431

Phone ( ) 307-548-6551 FAX ( ) \_\_\_\_\_ E-mail scampbell@tctwest.net

#### Narrative Comments:

It is my opinion that Gordon and Lenny have accomplished a difficult and complicated task in a commendable way. It appears to me that Dan is sincerely interested in operating the dam in a responsible and equitable fashion based on the criteria and goals he is given. I believe that they are working toward the objective of satisfying both the river and lake users as well as the competing interests and in the face of opposing objectives.

It is my hope that they will be allowed to continue to develop and administer the operational rules without any outside political wrangling to miss-align their efforts to fairly and equitably share the water so that none of interests are unnecessarily advantaged or disadvantaged.

**-Attach additional sheets if necessary-**

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Phone ( ) 307-548-6551 FAX ( ) \_\_\_\_\_ E-mail scampbell@tctwest.net

#### Narrative Comments:

There are two issues of encroachment one natural and the other  
human. The side channels are being choked off because of natural  
immigration of rocks, sediment, and plants. That can be taken care  
of mechanically removing them and hydraulically flushing them as  
water levels allow.

The second encroachment is people building structures in the flood  
plane and then reacting negatively when their property is threatened  
or flooded. That can be taken care of by enacting or enforcing  
a building code. The other is to not indemnify or modify operations  
in response to flood plain violations.

**-Attach additional sheets if necessary-**

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Phone ( ) 307-548-6551 FAX ( ) \_\_\_\_\_ E-mail scampbell@tctwest.net

#### Narrative Comments:

The rules curve design criteria appears to be based on the expectation  
of high runoff and the lowest lake level needed to not exceed the  
maximum river flow limits as the lake fills.

My question is what percent of the time would that occur. If it is  
less than 50% of the time should the criteria be based on the  
average expectation of runoff knowing that the rules curves would  
not be followed as was the case in 2010 on the unusual occurrence.

this change would insure that the lake would normally fill rather  
than gamble on the chance that it might not fill.

**-Attach additional sheets if necessary-**

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# RECLAMATION

*Managing Water in the West*

## Comment Sheet

### Bighorn Lake Draft Operating Criteria Comment Sheet

(Please Print Clearly)

Name Scott Campbell

Organization and Address Town of Lovell  
336 Nevada Ave.  
Lovell, WY 82431

Phone ( ) 307-548-6551 FAX ( ) \_\_\_\_\_ E-mail scampbell@tctwest.net

#### Narrative Comments:

I suggest that an economic study be undertaken to determine the actual value of the operations of the dam. The political efforts currently being exerted are based on economic development issues. The value of stream fishing and the need for a robust fishery as opposed to the value of a healthy lake and the opportunities for fishing, boating, waterfowl, and recreation. This study could then be used as a factor in determining the weight of the various elements i.e. power generation, flood control, industry, agriculture, economic development, recreation, and tourism etc.

Once the value could be assigned the determination of lake level would be based on value rather than political pressure or bias.

**-Attach additional sheets if necessary-**

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*Managing Water in the West*

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(Please Print Clearly)

Name Scott Campbell

Organization and Address Town of Lovell  
336 Nevada Ave.  
Lovell, WY 82431

Phone ( ) 307-548-6551 FAX ( ) \_\_\_\_\_ E-mail scampbell@tctwest.net

#### Narrative Comments:

For millennium fish have spawned in low dirty water. With the advent of the dam it is an opportunity to provide the optimum except for the need to be equitable above and below the dam.

My comment is that the criteria and goals need to be reviewed and evaluated based on the equality of outcome with no preference given for either side.

The expectation is that the normally limited amount of water must be shared with equal sacrifice both in optimal flow and elevation the challenge is to prescribe equal measures and allowable negative impacts or an agreed upon trade-off i.e. alternating years.

**-Attach additional sheets if necessary-**

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1/26/2011

Re: Comments for 2011 Bighorn Lake Draft Operating Criteria

To whom it may concern:

Thank you for taking the time to come to Lovell and sharing this plan with us. I appreciate your efforts in managing this system in a fair manner for all interests. Everything presented seemed fair to me and I can tell you are doing your best to make this work for everyone.

There was only one real concern I had. It was mentioned that when the dam was designed, the down stream flow could be as high as 20,000 cfs without causing flood damage, and now people have encroached on the flood plane and developed areas that will get damaged with flows over 10,000 cfs. My concern is that as more people take the gamble to build in the flood plane, that they will then get a seat at the table as a party of interest and this will effect the management of the drain down of the lake each year so that the spring releases won't flood them out on the "flood" plane.

I would think a gamble is a gamble, and should not constitute a change in the management of a National Recreation area.

I feel that the criteria for drain down of the reservoir should be to keep releases below the original 20,000 cfs. Managing for 10,000cfs maximum release only causes excessive drain down of the reservoir below the minimum lake level of 3620 ft (Minimum request by WGF and NPS). It also inhibits silt management by allowing excessive silt to build in the Horseshoe Bend area, and hurts the Sauger population.

Please reconsider your reasons for managing releases for a maximum of 10,000 cfs release, this will only open a can of worms as more people take the gamble and build on the flood plane. Any development on the flood plane should not change management criteria of a National Recreation Area.

Thank You for your consideration,

Ken Grant,  
Friends of Bighorn Lake  
Midway Auto and Marine  
Lovell, WY

**From:** chad.yatch@us.schneider-electric.com  
**Sent:** Thursday, January 27, 2011 4:31 PM  
**To:** Holwegner, Paula  
**Subject:** Bighorn River Comment

Paula,

I just wanted to voice my concern about the current operating criteria for Yellowtail Dam. I don't understand the low flows on the Bighorn River in the winter and then opening the flood gates in June. Why can't there be more even flows through out the year? I fished the Bighorn River three times last year, once in May, June and July. I have to tell you the high flows at 10,000 were dangerous for fishermen and you could see the erosion on the banks. For the sake of safety even the flows throughout the year.

Thanks,

---

**Chad Yatch** | Sales Executive | Square D by Schneider Electric  
1925 Grand Ave, Suite 132 | Billings, MT 59102 |  Office 406 252 5587 |  Cell 406 861 7090  
 e-mail [chad.yatch@us.schneider-electric.com](mailto:chad.yatch@us.schneider-electric.com) | Think Safety First



THE STATE

OF WYOMING

MATHEW H. MEAD  
GOVERNOR

PATRICK T. TYRRELL  
STATE ENGINEER

## State Engineer's Office

January 27, 2011

Ms. Paula Holwegner  
Bureau of Reclamation  
2900 4<sup>th</sup> Ave. North, Ste. 501  
Billings, MT 59107

RE: Wyoming State Engineer's Office comments in regards to the Draft Bighorn Lake Draft Operating Criteria Evaluation Study and Report  
Submitted electronically to: [pholwegner@usbr.gov](mailto:pholwegner@usbr.gov)

Dear Ms. Holwegner:

Thank you for the opportunity to provide comments on the draft operating criteria. The results of the evaluation study and report are presented in a very readable, user-friendly fashion. From this agency's point of view, we commend Reclamation for taking into account many of the issues raised by this agency as well as other Wyoming agencies and citizens in the drafting of the changes to the operating criteria. The increase in target reservoir elevations of as much as twelve feet is a substantial change and will go a long way toward addressing Wyoming's concerns of keeping Horseshoe Bend usable for more of the recreation season. The web tools you have developed are a nice supplement to the written report for playing "what-if" scenarios to better understand the elasticity of the various inputs that determine estimated flows or target elevations.

One major concern of our agency is related to the estimated volume and impact of the winter month gains. As the volume of the station gains are the same order of magnitude as Boysen and Buffalo Bill releases, accurate estimation of these gains is critical to the winter operations of Yellowtail reservoir. Reclamation is to be commended for the statistical analysis completed that determined the overall trend has stabilized since the early 1990's. However, with an  $R^2$  of 0.59, there will still be many events not predicted by the equation. As operations move through the water year and if the November-March inflows realized are substantially different than those predicted at the beginning of the water year, we encourage Reclamation to make mid-course corrections based upon the actual station gains. On page 21 (second full paragraph), you describe the flexibility that will be afforded in meeting the March 31 target elevation based upon runoff forecasts. We suggest that that same flexibility be built in throughout the winter months relative to station gains, which unlike forecasts, can be measured.

We all share a goal of estimating the November to March station gains as accurately as possible. As you were completing the statistical analyses which are described starting on page 15, we are curious if you also examined the relationship between November-March gains with the previous July-October gains. By decreasing the time frame from April back to July, this might take into account years where the conditions turn dry in the later

summer months, much like happened in 2010, influencing fall inflows into Yellowtail. We would appreciate hearing from Reclamation as to whether this relationship was examined, or perhaps this could be a continuing study area for the Long Term Issues Group.

We question the legitimacy of the "Balancing Risk" section which begins on page 18. While we appreciate the desire to not have releases manipulated more often than necessary, we do not understand the logic of what appears to be merely "manufacturing" 10,000 acre feet of water and using it as part of the forecasted gains when there is no scientific basis for adding that amount.

One component of the Draft Criteria that needs to be set out better and hopefully clearer is the rule curves discussed beginning on page 21. The development work that has gone on behind the scenes by the Bureau is commended. The brief discussion of the application of the rule curves is straight forward enough, but it is movement between curves that occurs as the season progresses that is essentially missing from the discussion. It has been presented that as new updated forecasts for the April – July runoff become available the Bureau will move from one curve to the next. This can result in a release adjustment that appears from the graphs to be significant in change of flow rate. We would recommend that intermediate curves be developed to minimize the effects of the jump from one curve to the next through the progression of the season. As the annual operation of Yellowtail is dependent upon the volume of water received during the run-off period, we encourage Reclamation to review their forecasting methods for further refinement. We understand that precipitation conditions can vary widely from April to June, but we must strive to make the spring forecast volumes as accurate as possible. Again, this may be a continuing agenda item for the Long Term Issues Group.

During years when flood releases will be necessary, it appears that reservoir levels will be drawn down to levels such that Horseshoe Bend Marina will not be usable at the Memorial Day weekend (Figure 8, page 23). If additional information could be provided from the modeling efforts estimating how often this scenario might occur, that would be helpful for understanding the risk. We appreciate the language in the second full paragraph of page 23 which states that flexibility and judgment will be exercised in applying these rule curves. We trust that the participants of the Long Term Issues Group will be kept fully informed during these upper decile or upper quartile years.

It should also be recommended that a set of simple rule curves could be developed that would map out the release program from the late July peak period to the October 31 target. Once the formula for the curves are developed and implemented users will quickly adapt to and rely upon the curves as they look into the future. It is that ability to look into the future and plan that makes these operating criteria most attractive.

The steps taken by the Bureau and the Long term Issues Group who have worked diligently toward this draft product have been substantial. Much progress has been made to date and many of the initial issues are now behind these groups. But their work is not yet complete. We encourage Reclamation to continue to organize meetings of this group with an agenda of further refinement of the operating criteria. One area that we believe

merits further research and examination by the Group is the concept of basing reservoir releases on downstream river elevation. Full recognition and accounting of the Big Horn Canal flows as a component of the total releases from the reservoir is also desirable. Also, further analysis of the impacts of the negative shifts at the St. Xavier gage may show that reservoir releases can be decreased and still result in adequate fishery flows.

Our overall impression of the draft criteria is very good. But new criteria are but half of the equation. Without the full implementation and execution of the new criteria, we are no further along the road to improved operations. We look forward to working with Reclamation as these new criteria are put into practice and stand prepared to provide input as appropriate as Reclamation exercises flexibility and good judgment when Mother Nature is unpredictable and doesn't follow the plan.

With best regards,



Patrick T. Tyrrell  
Wyoming State Engineer

Cc: Office of Governor Matt Mead

# **Response and thoughts on the, Montana Area Office of the Bureau of Reclamation's draft for the Bighorn Lake Operating Criteria Evaluation Study and Report**

From:

**Hale Harris and Steve Hilbers,**

Owners and operators of the Bighorn Trout Shop located in Fort Smith Montana.

Box 7477

Fort Smith, MT 59035

[btsshop@nemontel.net](mailto:btsshop@nemontel.net)

By introduction, we have been in business since 1985; our operation consists of a retail fly shop, lodging facility and fly fishing guide service on the Bighorn River below Yellowtail Dam. Through the years we have seen many different conditions affecting lake levels and flow levels for this system and granted we are well aware that it is subject to the whims of "Mother Nature" it is also a fact that with a reservoir controlled system, by definition, measures can be taken to alleviate extremes one way or the other. In studying this report and observing the results from the last few years of new management policies in place we have a few questions for the BOR and the NPS.

-First and foremost. Why is the recommended minimum flow of 2500 cfs now considered the "OPTIMUM FISHERY FLOW", the minimum flow of 2000 cfs now considered the "STANDARD FISHERY FLOW" and the absolute minimum flow of 1500 cfs now the "MINIMUM FISHERY FLOW"?

-Why does there continue to be such an emphasis on reaching and maintaining higher lake levels in order to facilitate a minimal use recreation site (Horse Shoe Bend) to the detriment of the other much higher use recreational sites (Black Canyon camp ground, Ok-A- Bey marina and the trout fishery below Yellowtail Dam)?

-Why is there such an emphasis on filling the lake by Memorial Day weekend when historically there is little or no use due to weather conditions and air temperatures?

-Why has the NPS put so much time and money into Horse Shoe Bend recreation area when, by their own admission, this area will be unusable in the near future due to siltation?

-Why would the NPS, knowing that this region is prone to drought conditions, spend tens of thousands of dollars to extend the boat ramps at Barry's Landing and Ok-A-Bey marina and haul in tons of sand to create a swimming beach at the Ok-A-Bey area then change their policies and now insist upon lake levels that not only flood these areas but also flood the Black Canyon camp ground which has historically had much more recreational use than Barry's Landing and Horse Shoe Bend facilities combined?

We think it is time for the BOR, NPS and "The Friends of Bighorn Lake" be honest with themselves, even if there are perfect conditions and perfect lake levels, the Horse Shoe Bend Recreation Area would never be a big destination site. The past three years are proof of this. With the improvements to the camping facilities, boat ramp and picnic area there are still only a few local residents that actually utilize the area. There is no draw nationally to the area and it has added very little to the local economy, as some would like to have you believe. Add to the fact that the life expectancy of the boat ramp is being shortened even more by high lake levels, dumping more tax dollars and user fee dollars into the area can be likened to buying deck furniture for the Titanic after it has struck the iceberg. There is no denying the economic dynamics that already exist with the other areas on the Bighorn system, so why is this not more heavily considered when the different agencies are formulating their operation plans?

**From:** [Bradharlan@aol.com](mailto:Bradharlan@aol.com) [<mailto:Bradharlan@aol.com>]

**Sent:** Thursday, January 27, 2011 12:14 PM

**To:** Duberstein, Leonard (Lenny) B

**Subject:** Comments on Draft Operating Criteria for Yellowtail Dam on the Bighorn River

Dear Mr. Duberstein,

I am writing to comment about the Draft Operating Criteria for Yellowtail Dam on the Bighorn River. I am retired and am an avid recreational fly fisherman. I also help several fly fishing businesses in Montana, including two on the Bighorn River, so I bring a number of perspectives to this issue. I have read the Draft.

I support the following points:

1. There needs to be a better balance in the management of the reservoir pool, so that the very important natural resource of the fishery is maintained at a healthy level.
2. 3,500 cfs is the desirable flow for a healthy fishery, with flows as low as 2,500 cfs only accepted in severe drought years.
3. The reservoir should be drawn down lower in the spring--to around 3,615 feet--so that there is room to manage spring storms. This will better prevent flooding and manage the fishery better.

Sincerely,

Bradley J. Harlan, M.D.

**From:** David Taylor [<mailto:dtaylor@cityofwhitefish.org>]  
**Sent:** Thursday, January 27, 2011 9:57 AM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Yellowtail Dam Comments

Lenny,

I have some comments on the Bighorn River Fishery and the Yellowtail Dam operating criteria. I believe your primary objective should be to protect a healthy trout fishery in the Bighorn River, which I hear generates 50 million a year to Montana's economy. Science says 3,500 cubic feet per second is the ideal flow for a healthy fishery, and I believe that is what the average flow should be, being reduced to a minimum of 2500 cfs in draught years only.

If you draw the reservoir down lower in the spring, say to 3600 feet by April, it will reduce the need to rapidly empty the reservoir should spring storms provide too much water. This will reduce flooding risks and still provide power for the hydro electric operation.

Maintaining a healthy fishery to continue to bring visitors to the river to fish should be a high priority. Fisherman like me travel across the state to fish the river, not the reservoir. Without healthy fish in the Bighorn River, we will go somewhere else.

Dave

David Taylor, AICP  
Director, Planning & Building  
City of Whitefish  
510 Railway Street  
PO Box 158  
Whitefish, MT 59937  
(406)863-2416

 | *Please consider the environment before printing this e-mail.*

-----Original Message-----

From: Jeanne Olson [<mailto:jeaolson@cyberport.net>]

Sent: Thursday, January 27, 2011 10:09 AM

To: Duberstein, Leonard (Lenny) B

Subject: Draft operating Yellowtail Dam

I've fished the Bighorn River in Montana for many years. 2500 cfs is an inadequate flow except in extreme drought years. We'd urge you to establish 3500 cfs as the optimum flow.

We'd urge the Bureau of Reclamation to pattern their operating flow plan on that used at many other reservoirs: Flathead lake, Kootenai Reservoir, and Hungry Horse Reservoir for example, where they draw down the spring reservoir, lower than your current draft plan. This both reduces the flooding risk, and puts more water in the river to benefit the fishery.

Thank you.

Dan and Jeanne Olson  
160 West Valley Acres  
Kalispell, MT 59901

# COMMENTS ON DRAFT BIGHORN LAKE OPERATING CRITERIA

Western Area Power Administration

Rocky Mountain Region, Loveland, Colorado

Upper Great Plains Region, Billings, Montana

Energy Management and Marketing Office, Montrose, Colorado

The Western Area Power Administration (Western) appreciates the opportunity to comment on the Draft Bighorn Lake Operating Criteria (Draft Criteria). Western believes that the Bureau of Reclamation (Reclamation) is making a good faith effort to balance the multiple uses of the Yellowtail Unit of the Pick-Sloan Missouri Basin Program. Western has comments on the Draft Criteria as well as suggested additions to the Evaluation Study and Report (Report).

## Comments on Draft Criteria

The Draft Criteria are principally implemented through Bighorn Lake water surface elevation targets with the intent of maintaining the Lake at higher elevations throughout the year compared to the existing operating criteria. The advantage to power production is that the Yellowtail Powerplant would operate at higher average heads (water pressure) and higher turbine efficiencies. There are, however, several disadvantages to energy generation. While the average annual Yellowtail Powerplant generation is modestly increased as shown by Reclamation's operational modeling, the increased generation would occur in months of historically lighter electrical loads and lower power prices. The modeling also shows that the generation would decrease in months of historically heavier electrical loads and higher power prices.

An impact to power that is not readily apparent from Reclamation's monthly time step operations modeling is the effect on the regulating capability of the Yellowtail Powerplant. The Yellowtail Powerplant is operated to follow changing electrical loads over the course of a day because the Yellowtail Afterbay elevation can fluctuate with changing generation levels and turbine flows while the release to the Bighorn River from the Yellowtail Afterbay Dam remains constant. This regulating capability is compromised when the Bighorn Lake release is either so low as to approach the minimum generating level of the Yellowtail Powerplant generating units or so high as to approach or exceed the capacity of the turbines. Western believes that the modified Bighorn Lake elevation targets of the Draft Criteria may more often compromise the regulating capability of the Yellowtail Powerplant. The operating rule curve called for in the Draft Criteria may mitigate any increased risk of turbine bypasses but may not mitigate the reduction of regulating capability.

Another impact to power is the loss of reserve capacity caused by the Draft Criteria. Reserve capacity is the amount of unloaded generating capacity that can be called for instantaneously (spinning reserves) or on short notice (operating reserves) in response to electrical system emergencies. Every

electrical utility is required to hold in reserve a minimum amount of generating capacity based on that utility's total installed generating capacity. Utilities must purchase reserves from other utilities to satisfy unmet reserve requirements in order to maintain electrical system reliability and to avoid substantial financial penalties. Higher releases from Bighorn Lake reduce the reserve capacity of the Yellowtail Powerplant much in the same way that regulating capability is compromised. Western believes the Draft Criteria may reduce the overall reserve capacity of the Yellowtail Powerplant.

To be more specific, the higher Bighorn Lake end of October elevation called for by the Draft Criteria reduces Bighorn Lake releases and associated Yellowtail Powerplant generation during the heaviest summer electrical loads in July and August. The higher end of March elevation reduces generation during the heaviest winter electrical loads in December and January. The higher March elevation may also increase the average spring and early summer Bighorn Lake release along with the related risk of compromised power plant regulating capability and reduced reserve capacity.

Western believes that, on balance, the modest increase to annual Yellowtail Powerplant generation attributable to the Draft Criteria will not offset the financial impact of shifting Yellowtail generation from higher electrical load months to months of lower electrical loads. With the possible compromise of Yellowtail regulating capability and the possible loss of Yellowtail reserve capacity, the overall impact to the firm electric power customers is likely to be negative. Continued experience operating Bighorn Lake under the draft criteria or reservoir operations modeling on a daily/hourly time step will be required to more conclusively determine the impact on Yellowtail Powerplant regulating capability and reserve capacity.

#### Suggested Additions to the Evaluation Study & Report

Western suggests adding a short paragraph to the Background section of the Report explaining the repayment obligations for the Yellowtail Unit with a table or pie charts breaking down reimbursable versus non-reimbursable costs and percentages of both construction and O&M costs allocated to the different authorized purposes.

Western also suggests adding the Yellowtail gross generation marketed by Western to the table in Figure 14 and adding the monthly marketed generation to the graph also in Figure 14. Western marketed the average Yellowtail generation from the Corps of Engineers (Corps) 1975 Yellowstone Level B Depletion Study. The monthly marketed Yellowtail gross generation in gigawatt-hours (GWh) is as follows...

November	78.6 GWh	May	70.0
December	77.7	June	93.2
January	72.8	July	96.1
February	71.7	August	66.2
March	70.9	September	64.0
April	72.8	October	63.8

The obvious discrepancy between the marketed Yellowtail generation and Reclamation's modeled generation is mostly due to Bighorn Lake inflows. The Corps 1975 study shows an average annual (1939-1975) Bighorn Lake inflow of 2,322.3 thousand acre-feet (KAF) after the estimated evaporation is subtracted while Reclamation's modeling indicates an average annual inflow of only 1,992.6 KAF for the period (1988-2008). The lower inflows of the period 1988-2008 are due to some combination of generally drier conditions and increased depletions in the Bighorn Basin upstream of Bighorn Lake since the Corps study was done in 1975. A smaller portion of the generation discrepancy is because the Corps study did not take into account the average 70 cubic foot per second of seepage from Bighorn Lake through the Yellowtail Dam.

**From:** [mark.campanelli@gmail.com](mailto:mark.campanelli@gmail.com) [<mailto:mark.campanelli@gmail.com>] **On Behalf Of** Mark Campanelli  
**Sent:** Friday, January 28, 2011 5:03 AM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Big Horn Reservoir Management

Dear BLM representative,

I am writing to let you know that I am concerned about the fair and responsible management of the Big Horn Reservoir, and that I agree with the management recommendations listed below:

- Better balance the reservoir pool with healthy flows in the Bighorn, an objective that helps protect the river fishery, which generates an estimated \$50 million a year to Montana's economy.
- Acknowledge that 3,500 cfs is the optimum flows for a healthy fishery, and that 2,500 cfs is a minimum target to shoot for only during drought years when the higher objective is unobtainable.
- Draw down the reservoir lower in the spring than called for in the draft criteria – to an elevation of about 3,614 feet in April -- thereby reducing the need to rapidly evacuate the reservoir should spring storms become a problem. This will secure more water for hydro protection and reduce flooding risk to public campgrounds and marinas on the north side of the reservoir, as well as to Montana landowners along the river. It will also better secure the fishery and fishing in the Bighorn River.

Thank you for your consideration,

Mark Campanelli

## Bighorn Lake Draft Operating Criteria Comments

Attention: Ms. Paula A. Holwegner

Respectfully Submitted by Kip Dean, Professional Fishing Guide with Bighorn Trout Shop and member of Bighorn River Alliance, my phone number is (406)623-5172, e-mail [kipdean@hotmail.com](mailto:kipdean@hotmail.com)

Comments:

Please manage river flows to eliminate the sub-minimal long term flow, draft the reservoir sufficiently to easily manage the spring runoff and thus avoiding the damaging and dangerously high flows that we've experienced in recent years.

I make my living on the Bighorn River, I live in Ft. Smith, and have guided for the Trout Shop since 1990. My income has been adversely affected by lack of business during the long periods of high flows. Also, I have experience loss of business due to poor water quality for fishing in the fall, due to the higher than normal water temperatures and the algae bloom from the Afterbay Dam.

There are many downsides of higher lake elevations that I am sure the Army Corps of Engineers can attest to.

When lowering the river after a period of high water, to eliminate excessive river bank erosion, please lower the river incrementally and not as quickly as has been done lately.

It has been shown that high flows on the river (not exceeding 8,000cfs) do the river and the fishery good. The period of time that the river is high (above 8,000cfs) has been too long (exceeding 4-6 weeks) and this could have been managed by a quicker response to the facts of high snow pack conditions and letting water out ahead of the high water surge from the snow melt.

I am aware of how hard it is to manage all of the human interests for the Yellowtail Reservoir water system and the water shed as well as trying to come up with a long term plan that takes what nature gives and adjusting it to suit our needs. The Rule Curve needs to be broadened to allow more real time adjustments that are influenced by environmental changes (water events, high snow pack, etc.) In other words, allow the Rule Curve some leeway in adjusting to changing water conditions.

Sincerely,

Kip Dean

**From:** Doug Gouge [<mailto:doug@DouglasOilandGas.com>]  
**Sent:** Friday, January 28, 2011 10:27 AM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Comment: Draft Big Horn Lake Operating Criteria Evaluation Study

**Dear Lenny,**

**First, let me say thank you very much for the work you do in preserving our natural resources. I can only imagine how difficult your job is--trying to balance the interests of Lake Recreation, River recreation, Ranchers and Dam/Hydor management.**

**I am a long time angler on the Big Horn River and until recently paid little attention to the "politics" of how the river was managed. Threee years ago I bought a small place in Fort Smith and have been spending two months in the spring and two months in the fall--with plans of increasing my time there. But the river management over the last has caused me to re-evaluate my plans. Rather than invest in property on the River and build a second home I have pulled back to take a look at how the river is going to be managed. Over the last three years the river has fluctuated wildly--either too high-- flowing at essentially unfishable flood like rates after Mid-May to too low through the summer into the fall.**

**Looking into this further I discover that the river is essentially being managed for the perceived benefits of the Lake users while virtually ignoring the interests of River recreation. And as I read the Study it seems that the plan is to continue to serve the interests of Lake recreation while virtually ignoring the River recreation. I feel this plan is seriously flawed and should be revised with a commitment to improve the quality of the River recreation.**

**The Big Horn river is a truly unique natural resource, as is the Big Horn Lake--it would be a shame to sacrifice one or the both. Both interests must be served. i urge you to reconsider the plan and to do whatever is necessary to provide better river management.**

**Thanks again for the work that you do.**

**Sincerely,**

**Doug Gouge**

In mid-November, the Montana Area Office of the Bureau of Reclamation emailed a draft of the Bighorn Lake Operating Criteria Evaluation Study and Report to stakeholders and a number of governmental agencies, asking for written public comments by January 28, 2011. The report is 35 pages in length, and in addition to text commentary, contains a number of graphs, pictures and tabular data. Its purpose is spelled out in the report: "Based on input provided from all of the various interests attending the issue group meetings, the Bighorn Lake operating criteria was

reviewed and studies were prepared to determine if modifications could be made to these criteria which would improve the overall operations and enhance the benefits derived from the Yellowtail Unit.” In essence, the modified operating criteria calls for lake levels at least 8 feet higher than in years past, and sets a minimum target lake elevation just 22 feet below the top of the conservation pool which is 13 feet higher than average. The draft document extolls the many “benefits” of higher lake elevations, but curiously ignores or, at the very least, overlooks any downside.

If you live, work or recreate on the Bighorn River, you’ll have noticed some these “benefits” during the last three years while this modified operating criteria has been implemented. Minimal to sub-minimal flows reminiscent of several of the drought years during the winter, and recording setting and/or sustained high volume river releases during runoff in the spring are just two of the river “benefits” of the modified criteria, which calls for keeping lake levels 8 feet higher than average or higher. Lake users have been enjoying the “benefits” of inundated and unusable campgrounds, unusable floating docks and restrooms, and driftwood obstructions. The good news is anyone who cared to water ski in near freezing temperatures during the past few Memorial Days at Horseshoe Bend at the south end of the lake could have done so under the new operating criteria, but only a handful did.

If you’re like me, when you read this document, you’re left wondering just what interests are being served by higher lake levels? The report shows a huge boost to lake levels, so clearly the new criteria is great for lake recreation. The river, however, didn’t fare as well. It only showed small percentage increases in “improvements in percent of time [specific releases are] provided”. Power generation didn’t get much help either, showing small gains overall, but negatives during key seasons such as December through February and July through August. As far as flood control, well, just ask anyone who ranches along the river and has seen their property wash away, or has used Grant March Fishing Access Site before it was lost to flooding in 2008 (flooding which occurred in essentially a normal water year).

Its time we speak our minds about Reclamation’s water management policy. Fire up your email and let them know we won’t tolerate them favoring lake recreation over river recreation any longer. We’re sick and tired of our friends and clients cancelling trips because of high water. We’re fed up with losing age classes of fish because the eggs are being stranded and/or the side-channels getting dewatered. Ask Reclamation to draft the reservoir sufficiently to easily manage spring runoff. Remind them that all stakeholder’s interests can be satisfied with lake elevations at or below full pool and not a half dozen feet in to the flood pool. Send them pictures of you, your friends *and* your clients to remind them an important economy flourishes on the river; an economy not destined to be buried under silt in the coming years, but one that can continue to grow with a fair and equitable management approach.

A copy of the draft operating criteria can be obtained at the Reclamation website at:

[http://bighornriver.org/uploads/operating\\_criteria\\_evaluation.pdf](http://bighornriver.org/uploads/operating_criteria_evaluation.pdf)

Send your comments to Lenny Duberstein at [lduberstein@usbr.gov](mailto:lduberstein@usbr.gov) by January 28, 2011 or call Lenny at (406) 247-7331.

Lenny & Paula -

This is my comment on the Draft Operating Criteria for Bighorn Lake.

I have been a fishing guide on the Bighorn River for the last twenty five years. I have watched the quality of the fishing experience deteriorate since the early 1990s when extreme high flows began to erode the river bottom and close off the flows through the side channels. Many of the prime fishing spots were the structure of the islands and shelves in the river. The last two years of extreme high spring flows has completely eroded away whole islands and smoothed out the bottom of the river. The Bighorn River of today has lost the side channels that used to provide great habitat for trout and waterfowl as proven by the Geomorphic Study released by the Bureau of Reclamation last year.

I have guided fishermen from every walk of life that have come from all over the world. I have been fortunate enough to share the experience of fishing the structure of the famous Bighorn River for the greater part of my life. It is heartbreaking and a tragedy to watch these national treasures just wash away and disappear forever.

I appreciate how difficult it is to manage the unpredictable flows though the entire Bighorn drainage. The river flows above 7500 cfs must be avoided to stop downstream resource damage. I suggest that the Bureau of Reclamation schedule higher river flows earlier in the year so the destructive extreme high river flows never happen again.

Thanks,

Dennis Fischer

DEPARTMENT OF NATURAL RESOURCES  
AND CONSERVATION



BRIAN SCHWEITZER, GOVERNOR

1625 ELEVENTH AVENUE

STATE OF MONTANA

DIRECTOR'S OFFICE (406) 444-2074  
FAX: (406) 444-2684

PO BOX 201601  
HELENA, MONTANA 59620-1601

January 28, 2011

Mr. Dan Jewell, Area Manager  
U.S. Department of Interior  
Bureau of Reclamation, Great Plains Region  
Montana Area Office  
P.O. Box 3017  
Billings, Montana 59107-0137

Dear Mr. Jewell:

Please find attached comments on the "Draft Bighorn Lake Operating Criteria Evaluation Study and Report" you provided November 16, 2010. Recent studies by the Bureau of Reclamation (BOR) have provided useful information on Bighorn Reservoir operations and the many uses that compete for water--especially in low-water years: power generation, irrigation water supply, and recreational uses above, within, and below the reservoir. In addition, the recent study by the U.S. Army Corps of Engineers (Yellowtail Dam Reallocation Study, USACE Omaha District, April 1, 2010) examines the merit and risk in reducing the flood control pool to provide for more carry-over storage – especially in a series of low-water years. This option has potential to improve water levels in the reservoir for recreation and allow reservoir releases that would help maintain the excellent fishery downstream from the dam, while meeting hydropower and irrigation demands.

Trial implementation of proposed revised operating criteria in 2010 indicates that fine-tuning is necessary to meet downstream recreational goals. Water year 2010 was a challenging year for Bighorn reservoir management. The March forecast for spring runoff was 50% of normal, but as the season progressed, forecasts were revised upwards on a monthly basis due to late season precipitation—with the actual runoff amounting to 135% of normal. Consequently, implementation of the revised operating criteria resulted in an extended period of high flows (~10,000 cfs), in late May through early July, that interfered with spawning and recreational use of the river below the dam. We suggest modifications need to be considered that will improve BOR's ability to meet downstream fishery goals when unusual conditions occur.

The Bighorn River has three large BOR storage projects. Releases from Boysen (892,000 af) and Buffalo Bill Reservoirs (646,000 af) in Wyoming control about 70% of the runoff into Bighorn Reservoir (1,100,000 af). Accordingly, there needs to be effective system-wide coordination and communication in reservoir operations to effectively implement revised operating criteria proposed in the draft BOR report. This is a daunting task given the size of the projects and hydrologic complexity of the Bighorn basin, the challenge of forecasting snowmelt runoff (and the possibility of unusual weather events), and the need to balance competing uses on each reservoir and between reservoirs. The BOR Montana Area Office has made a sincere and significant effort to make the process of Bighorn Reservoir operations a transparent and understandable process.

We suggest that Bighorn Reservoir operations could benefit from increased transparency, regarding how Boysen and Buffalo Bill reservoir operations affect Bighorn Reservoir inflow, outflow and reservoir levels. The primary coordination which takes place between the three reservoirs relies on the sharing of operating plans which give estimated outflows from the Wyoming projects. There appears to be little actual system-wide integration of operations. We suggest that all aspects of reservoir operations - flood control, recreation, power generation, and priority of water rights - be coordinated between the three reservoirs.

The Department appreciates the sincere effort BOR has made in developing revised operating criteria that attempt to balance competing uses during water-short conditions. Please contact me (406-444-1948) or my staff (Chuck Dalby: 406-444-6644 or Jim Robinson 406-444-4247) if you have questions or wish to discuss the comments.

Sincerely,



Mary Sexton, Director  
Montana Department of Natural Resources and Conservation  
1625 11<sup>th</sup> Avenue  
P.O. Box 201601  
Helena, Montana 59620-1601

cc. attachment

Joe Maurier, Director  
Montana Fish, Wildlife, and Parks  
Helena, Montana

Tim Davis, Division Administrator  
Water Resources Division  
Montana Department of Natural Resources and Conservation  
Helena, Montana

Chuck Dalby, Hydrologist  
Water Resources Division  
Montana Department of Natural Resources and Conservation  
Helena, Montana

Jim Robinson, Planner  
Water Resources Division  
Montana Department of Natural Resources and Conservation  
Helena, Montana

Kim Overcast, Regional Office Manager,  
Water Resources Division  
Montana Department of Natural Resources and Conservation  
Billings, Montana

Jennifer Anders, Assistant Attorney General  
Montana Department of Justice  
Helena, Montana

Montana Department of Natural Resources and Conservation  
Comments on U.S. Bureau of Reclamation  
*Draft Bighorn Lake Operating Criteria  
Evaluation Study and Report  
September 12, 2010*

Page 3

*Improved levels of flood control will be provided by utilizing reservoir operation rule curves during the April-July runoff season to draft the reservoir sufficiently to handle higher runoff during years with above-normal mountain snowpack.*

This statement suggests that the ability to provide flood control will be improved under draft criteria. How is this possible when the flood-pool storage will be reduced? Further, relying on reservoir drawdown during the April-July runoff season to handle runoff during years with above normal snowpack will likely generate elevated runoff in the Bighorn River that interferes with downstream recreational uses. We suggest modifications need to be considered that will improve BOR's ability to meet downstream fishery goals when unusual conditions occur.

Page 15

*November through March Gain Forecast: Before evaluating methods for forecasting the gain, a correction was needed to the formula for calculating the gain. In the past, the gain was calculated as the Bighorn Lake inflow less the release from Boysen Dam and the release to the river from Buffalo Bill Dam. This method of determining the gain did not include the water released directly from Buffalo Bill Dam to the Heart Mountain Canal. This method of calculating the gain was initiated shortly after Yellowtail Dam was constructed and it is unclear why only the river release was used rather than the total release. Although the Heart Mountain Canal diverts directly from Buffalo Bill Dam rather than from the river below the dam, its impact on the downstream river flow is essentially the same as other canals that divert directly from the river. Water diverted for irrigation is only partially consumed as nearly 50 percent of these diversions return to the river as return flow. The method used to calculate the gain should consistently treat all of the canals the same. Either all of the canals diversion should be subtracted from the reservoir releases or none of them should be subtracted. The least complicated and consistent method to account for the gain is to calculate it as the inflow to Bighorn Lake less the total releases from Boysen and Buffalo Bill Dams.*

It is not clear from this statement, which method was used? Are the "total" releases referred to, the dam outflows plus canal flows or returns from canal flows? Canal diversions from the Bighorn River downstream from Boysen and Buffalo Bill Dams, represent losses (to Bighorn Reservoir inflow) and the only gain is the estimated return flow.

The first evaluation made was to determine if there has been any change over time to the November through March gain. The November through March gain was plotted for each water year from 1968 through 2007. Since water year 1967 was a record high year and 2001-2007 were extreme drought years these years were excluded from the plot so that these extreme events would not overly influence the trend line.

The following graph (Figure 2) shows the gains from 1968 through 2000 along with the calculated trend line. The trend line was statistically determined by an Excel spreadsheet routine. As shown on the graph, there is a strong downward trend to this data even with the late 1990s being higher runoff years. It is not totally clear why the gains have significantly declined but some of the factors that have likely contributed to this are as follows: (1) changes in irrigation practices from gravity systems to sprinkler; (2) a major rehabilitation betterment program on the Shoshone Irrigation Project during the 1980s that replaced many of the open lateral irrigation delivery canals with closed pipelines reducing groundwater recharge; (2) and increased groundwater use in the basin.

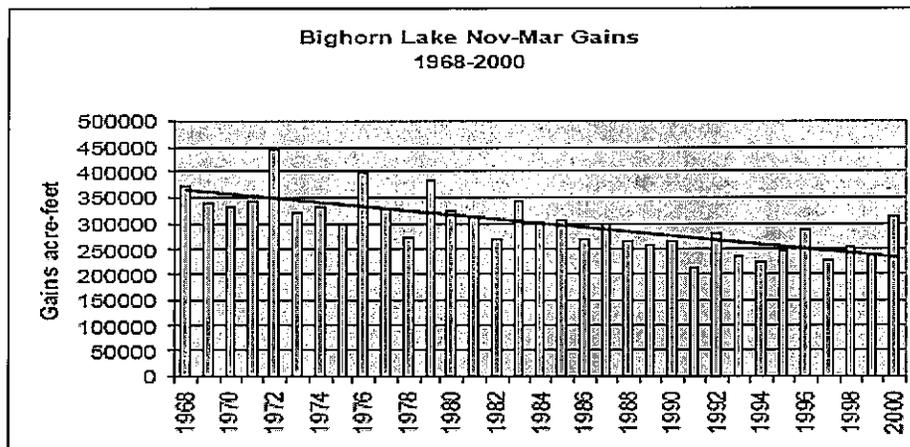


Figure 2

Figure 2 shows that estimated gains range from 450,000 af to ~220,000 af over the years 1968 to 2000 and the trendline suggests a decline of about 130,000 af between 1968 and 2000. It is interesting to note that beginning in 1990 the trend appears to level off.

Years that were excluded from Figure 2, should be included on the graph for comparison. A trend line for just the years 1968 to 2000 can be calculated, and a separate trend line can be calculated for the years 2001 to 2007. Excluding these latter drought years seems problematic, since it is the water-supply conditions of the 2000's that have prompted revision of operating criteria. For example, during the period 2001 to 2007, do the gains in inflow to the reservoir, decline at a much steeper rate? If so what is the cause?

### USACE Reallocation Analysis

The report does not adequately address conclusions of the Yellowtail Dam Reallocation Study by the U.S. Army Corps of Engineers (USACE). The USACE concluded that:

1. For the inflow design flood, the reallocated condition reaches a peak pool elevation that is only 1.1 ft from the top of Yellowtail Dam.
2. For the project design flood, the reservoir outflow is 1,150 cfs over the capacity of the Yellowtail Afterbay Dam.
3. For the 1923 event, the reservoir outflow is 8,050 cfs over the capacity of the Yellowtail Afterbay Dam.

How do the above conditions, under the proposed revised operating criteria, affect dam safety and potential downstream flood damage?

The USACE study concludes that maintaining the Bighorn Reservoir pool elevation five to eight feet higher, going into the spring runoff season, will have a very modest effect on downstream (Dam to N.Dak. border) flood damages. Channel Reaches for assessing flood damages were defined in the USACE report: Reach 1-Miles City; Reach 2-Miles City (??); Reach 3-Sidney; Reach 5- Hardin; Reach 6-Bighorn. The USACE concludes:

*Reach 5 and reach 6 did not show any change in flood damages as a result of the reallocation. Reach 3 did have some modest changes in flood damages. However, the reaches displaying the most impact from the reallocation were reaches 1 and 2—with reach 1 being the most affected overall. Studying the period of record, reaches 1 and 2 yielded decreases in flood damages while reach 3 had an increase in flood damages.*  
(USACE Reallocation Study, page 76.)

Reductions and increases referred to above are based on the average of 1967 to 2006 annual differences between the baseline (existing operating criteria) and reallocation operating criteria. USACE estimates are as follows: Reach 1-1.8% reduction; Reach 2-0.3% reduction; Reach 3-0.3% increase; (is there a Reach 4?); Reach 5-no change; Reach 6-no change. How is it that a reduction in flood storage can result in a reduction in downstream flood damages in any of the channel reaches?

The USACE analysis uses discharge/damage curves that were developed in 1974 and then adjusted for inflation. However, adjustment for inflation does not compensate for the amount of increased development that has occurred along the Bighorn and Yellowstone River over the past 37 years. A more accurate estimate of potential flood damage costs requires updating of the discharge/cost curves to reflect current conditions.

## Need for BOR and Inter-Agency Coordination

The Bighorn River has three large BOR storage projects. Releases from Boysen (892,000 af) and Buffalo Bill Reservoirs (646,000 af) in Wyoming control about 70% of the runoff into Bighorn Reservoir (1,100,000 af). Accordingly, there needs to be effective system-wide coordination and communication in reservoir operations to effectively implement revised operating criteria proposed in the draft BOR report. This is a daunting task given the size of the projects and hydrologic complexity of the Bighorn basin, the challenge of forecasting snowmelt runoff (and the possibility of unusual weather events), and the need to balance competing uses on each reservoir and between reservoirs. The BOR Montana Area Office has made a sincere and significant effort to make the process of Bighorn Reservoir operations a transparent and understandable process.

We suggest that Bighorn Reservoir operations could benefit from increased transparency, regarding how Boysen and Buffalo Bill reservoir operations affect Bighorn Reservoir inflow, outflow and reservoir levels. The primary coordination which takes place between the three reservoirs relies on the sharing of operating plans which give estimated outflows from the Wyoming projects. There appears too little actual system-wide integration of operations. We suggest that all aspects of reservoir operations - flood control, recreation, power generation, and priority of water rights - be coordinated between the three reservoirs.

JON TESTER  
MONTANA

COMMITTEES

APPROPRIATIONS  
BANKING  
INDIAN AFFAIRS  
VETERANS' AFFAIRS  
HOMELAND SECURITY AND  
GOVERNMENTAL AFFAIRS

# United States Senate

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1-800-554-4403

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January 28, 2011

The Honorable Ken Salazar  
Secretary of the Interior  
Department of the Interior  
1849 C Street, N.W.  
Washington, D.C. 20240

Dear Secretary Salazar:

I am writing to comment on the Bureau of Reclamation's draft operating criteria for Bighorn Lake, and urge you to ensure all users--upstream and downstream--are accounted for in this process.

As with every multi-use water project, operating the Bighorn Lake and Yellowtail Dam requires a host of difficult decisions. The Bureau must consider a multitude of competing factors and find the delicate path to address them all to the maximum extent possible. This water system is authorized for flood control, hydropower, irrigation, recreation, fish and wildlife, and sediment storage. An equitable management of the resource is a complicated issue, but a very important one.

The Bighorn Canyon National Recreation Area in Wyoming is an important cultural and recreational resource. But the operation of the lake must be accomplished in a way that also gives proper weight to the many important downstream uses of the water. Water must not only maintain the lake and the recreation area, but must also be released in proper quantities and with proper consistency to maintain the 50 million dollar annual downstream tourism economy that depends on it. The Bighorn River is the lifeblood of southeastern Montana, and if flows come too high and fast, or too low and slow, my constituents pay a real price to their economy and quality of life.

In the past, decisions have been made that appear to provide relatively minor benefit to the National Recreation Area at significant expense to the blue ribbon fishery, power generation, recreation at the north end of the lake, and the downstream communities. Rather than providing stable and predictable flows and lake levels for all users, the lake has been brought to a very full level early in the season, at the expense of downstream river flows. Once the lake is filled to this high target, the Bureau is left without the flexibility to effectively achieve the flood control purposes of the project while still producing power for the region.

BOZEMAN  
(406) 596-4450

BUTTE  
(406) 723-3277

GLENDALE  
(406) 365-2391

GREAT FALLS  
(406) 452-9585

HELENA  
(406) 449-5401

KALISPELL  
(406) 257-3360

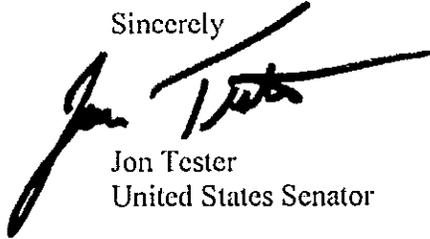
BILLINGS  
(406) 252-0550

MISSOULA  
(406) 728-3003

When the lake is filled to an unnecessarily high capacity, late season rains can necessitate large, rapid water releases on an emergency basis. These releases reduce hydropower generation, damage downstream infrastructure, and stress an important Montana blue ribbon fishery. I encourage you to work to craft an operating plan that maintains a more predictable and stable flow, makes volatile releases less necessary, and makes judicious use of the flood pool. I also encourage you to incorporate all of the river system's dams into the plan, so that water flows can work in concert, rather than opposition.

I applaud the Bureau for engaging in an open and transparent process, and working to engage stakeholders throughout the area. Particularly with water issues, with such an important and immediate economic impact, working together could not be more critical. I look forward to working with you to achieve a fair solution.

Sincerely

A handwritten signature in black ink, appearing to read "Jon Tester", with a long horizontal flourish extending to the right.

Jon Tester  
United States Senator

**From:** [Jeremy J. Gilbertson](#)  
**To:** [Holwegner, Paula](#);  
**Subject:** Operaton Plan Comments  
**Date:** Friday, January 28, 2011 2:49:30 PM

---

Paula,

Thanks for taking our comments. I've already put my input on the comments sent to you by the Friends of the Bighorn, but just wanted to take one more opportunity to voice my opinion.

Many of us looking at the issue like what we see in the operation plan. Lake Management that is thoughtful enough to make room for runoff, and maintain the resources to generate power all year without wasting water, will be beneficial to the river interests. We're not at all trying to say that the lake doesn't matter. We recognize it's uniqueness, and value to the region.

Most sportsmen are smart enough to know that you can't guarantee specific river flows all the time any more than you can be held hostage by lake elevation requirements that don't address the forthcoming water situation at hand.

We just don't want to see another attempt to fill the lake before the runoff begins, and the unsafe flow, and wasted resources that result.

Seems simple to me (and probably many of you as well), so thanks again for this opportunity to voice my opinion.

Sincerely,  
Jeremy J. Gilbertson

--

Jeremy J. Gilbertson Owner/Outfitter of Big Sky Fly Fishers

## **Draft Operating Criteria for Bighorn Lake Montana Fish Wildlife and Parks comments**

The U.S. Bureau of Reclamation's Draft Operating Criteria for Bighorn Lake has made some major progress toward establishing a more-transparent plan for managing water in the Bighorn system. Thank-you for seriously evaluating a rule curve approach to managing Yellowtail Reservoir. The bureau's review of its efforts does a good job of pointing out some of the potential benefits of operating under the proposed criteria. But it ignores potential negative consequences, including those which water users already have experienced during the past two years of trying to manage the reservoir in a window that is narrower than historic levels.

MFWP believes that a comprehensive review should include an evaluation of both the positive and negative consequences of using the proposed criteria, and should provide an evaluation of how often problems are expected to occur under the new operating criteria compared to historic operations. For instance:

- Recreation at the upper end of Bighorn Lake is the only entity to benefit from the draft operating criteria. Recreation on the majority of the lake has suffered as high lake levels flooded beaches and campgrounds and floated debris that made boating dangerous – if not impossible – through a good part of the recreation seasons.
- The bureau's need to spill excess water past the dam power plant each spring – because of insufficient flood storage under the new criteria – has resulted in reduced power generation during peak demand periods (late summer and winter), resulting in economic losses to Western Area Power Administration.
- Continually rising flows in the Bighorn River below Yellowtail Dam – made necessary as the lake level approached the exclusive flood pool – interrupted rainbow trout spawning, pushing spawning redds further and further up the bank. As a result, the rainbow trout spawn was delayed by a month, which meant smaller fish going into winter and likely affected overwinter survival.
- High flows made for difficult – and often dangerous – fishing in the river for a significant part of the spring and summer. Outfitters reported that numerous clients cancelled trips because of the high flows.
- High flows continue to exacerbate the problem of side channel loss in the Bighorn River, which could ultimately lead to requirements for higher minimum flows to maintain the fishery.
- High water levels caused property damage and resulted in physical damage as well as direct economic losses to businesses, concessioners, outfitters and landowners at the north end of the lake and downstream from the dam.

### **Concerns and Recommended Changes**

#### Need for a system-wide plan

The draft criteria present a water management plan only for Bighorn Lake and the river downstream. Approximately 70 percent of the water that enters Bighorn Lake is released from Boysen and Buffalo Bill reservoirs. The equations presented in the draft operating criteria use releases from these upstream reservoirs in their calculations, yet there are no plans or rules for how these reservoirs will be managed under different conditions. The criteria appear incomplete without a discussion of established, transparent rules for how water will be managed in the entire Bighorn system, based on available snowpack and water availability conditions.

### Preferred river fisheries flows

As discussed at the recent meeting on the draft criteria, the Desired River Fisheries Flows on page 10 are mislabeled. A Bighorn River flow of 2,500 cfs is not an optimum fishery flow; it is the preferred minimum fishery flow that Montana Fish, Wildlife and Parks would like to see under normal water conditions. This represents the inflection point below which side channel habitat is lost at an accelerating rate. FWP believes 2,000 cfs is the minimum river flow under drought conditions and 1,500 cfs is the absolute minimum river flows under extreme drought conditions. If conditions require dropping river flows to 1,500 cfs, there should be an equal balance between losses in the river and in reservoir levels.

The flow of 3,500 cfs presented on page 26 as a recent FWP requested target flow has never been presented as a formal flow request to the BOR. This flow was first presented at one of the early long-term working group meetings when the BOR asked for optimum fisheries flows for the Bighorn River. FWP stated that optimum flows were probably 3,500 cfs or greater. Montana FWP always has said that flow levels are the single greatest factor controlling fish numbers in the Bighorn River. The higher the flows, the more fish biomass the river will support. Under ideal conditions it would be nice to see river flows maintained at 3,500 cfs or higher, but we realize this is not a reasonable request under normal conditions.

### Flood control

According to the Bureau of Reclamation review, the draft operating criteria would improve levels of flood control (page 3). Montana FWP questions that conclusion. Data collected by the Corps of Engineers during its recent study to evaluate the potential of reducing the size of the flood pool at Yellowtail Dam showed that a reduction in the size of the flood pool is not a likely possibility because of the increased risk of flooding downstream.

Based on recent experiences, there is an increased chance the reservoir will have to be operated in the exclusive flood pool under the proposed criteria. Based on the Corps study, this will mean a reduced level of flood control. Also, plans to go into the fall period with the lake at full pool seem to ignore the fact that several of the extreme precipitation events that have hit this system have occurred in the fall. The draft operating plan should address whether the exclusive flood pool alone could handle this type of event.

### Recreational losses on a majority of Bighorn Lake

Operating the reservoir at a higher level has resulted in a net loss of recreational boating use on Bighorn Lake. Flooding has occurred at both boat-in campgrounds and most of the usable beach areas in the lower two-thirds of the reservoir during a majority of the recreation season. High water in the lake has greatly increased the volume of floating debris, making it dangerous to run a boat.

The bureau's review indicates that the narrow, steep canyon conditions in Bighorn Lake makes the Horseshoe Bend area important to recreational boaters (P 12). These same steep canyon conditions also make the boat-in campgrounds and other limited beach areas in the rest of the reservoir very important to boaters launching at Ok-a-Beh and Barry's Landing. It appears these recreational users are being ignored in the evaluation of the draft criteria.

These draft criteria are built around providing launching capabilities at the silted-in boat ramp at Horseshoe Bend on Memorial Day weekend, when it is usually cold and few people are out boating. Yet, these same criteria have resulted in a major loss of recreational opportunities on a majority of Bighorn Lake over the Fourth of July weekend, which is a much more important boating weekend. If recreational use on Bighorn Lake is a driving force behind these new draft criteria then they should include plans to

ensure lake levels are at 3,640 ft or lower prior to the Fourth of July weekend to allow the Park Service time to get facilities ready for boaters that want to use the lake during this important holiday.

After reviewing the numbers, Montana FWP has several suggested changes to the draft operating criteria that we feel could solve several problems without hurting recreational opportunities on the upper end of the reservoir.

The spring target level for Bighorn Lake should be shifted from 3,618 ft at the end of March, with plans to continue drafting the reservoir for spring storage, to a target of 3,614 ft by the end of April with plans to begin refilling the reservoir unless water conditions indicate additional storage is necessary. This plan would have several benefits. An elevation of 3,614 ft is still at the top of the former spring target window (3,605-3,614 ft) that the BOR has used to successfully manage most water conditions in the Bighorn drainage in the past. It would be better to have a bottom target level to shoot for in the spring with plans to start increasing water levels rather than an end of March target with plans to draft from that target.

An end-of-April target would give dam operators a much better picture of spring water conditions on which to base remaining spring operation plans. That should improve chances of filling the reservoir during dry years and still provide time to evacuate additional storage in wet years. A lower elevation with better forecast data at the end of April should reduce chances of having to increase spring river releases above 8,000 cfs to evacuate unexpected inflows. Under most water conditions, the reservoir elevation at the end of March should still be around 3,618 ft or higher, but with a better plan to control spring river releases.

Along with this minimum target, the operations plan should establish a maximum July 1 target level of 3,635 ft for Bighorn Lake. As indicated in the draft criteria (P 12) it takes an elevation of about 3,530 ft for the upper end of the reservoir to spread out, forming a good flat-water recreation lake. It was mentioned again at the recent meeting in Wyoming that an elevation of 3,535 ft provided full recreation on Bighorn Lake and no one disagreed. Both the National Park Service and Wyoming Game and Fish have requested a lake elevation above 3,630 ft for the summer recreation season (P 12). During the recent conference call the NPS said that, once lake elevations exceed 3,640 ft, recreational opportunities for boaters are being lost on a majority of the reservoir. An elevation of 3,535 ft on July 1 would meet all the requests listed above, but still provide five feet of storage to work with in an effort to keep reservoir levels out of the exclusive flood pool and maintain recreational opportunities throughout the lake. The July 31 target elevation of 3,640 ft could be maintained, but this target could be achieved by increasing lake elevations up to this point rather than pushing lake elevations well into the exclusive flood pool and then dropping back down to this target.

#### Waterfowl hunting and waterfowl impacts

Managing reservoir levels for waterfowl hunters was brought up for the first time at the water management meeting last fall. If waterfowl hunting is added as another management criterion for the Bighorn system, these criteria must look at waterfowl hunting on both the lake and the river.

Waterfowl hunting is a very important activity on the Bighorn River downstream of Yellowtail Dam. Warmer water coming from the bottom withdrawal at Yellowtail Dam helps maintain ice-free conditions on the Bighorn River downstream from the dam, and these conditions extend almost to the Yellowstone River during most winters. This open water results in large numbers of ducks and geese concentrating on the Afterbay Reservoir and the river downstream throughout the waterfowl season.

These conditions make the Bighorn River and entire Bighorn valley a very popular waterfowl hunting area. Several outfitters who work on the Bighorn River during the summer extend their business by guiding waterfowl hunters during the fall and early winter, and many local hunters depend

on the Bighorn River to extend their waterfowl season. Waterfowl hunting provides a major economic benefit to the Bighorn valley downstream of Yellowtail Dam.

The new draft operating criteria shows that flows in the Bighorn River will be lower than historic levels during the October-through-January time frame when waterfowl hunters are on the river (Figure 10). This would be detrimental from a riverine waterfowl hunting perspective. Much of the waterfowl hunting on the Bighorn River occurs on the side channels of the river, so it is important that side channel flows be maintained through the fall for waterfowl hunters. Based on past fisheries work, it is well established that once river flows start to drop below 2,500 cfs side channel habitat is lost at an accelerated rate. If waterfowl hunting is to be added as another management consideration in these draft management criteria, the modified criteria should be designed to maintain river flows of at least 2,500 cfs through the end of goose season in mid-January.

Because of the ice-free conditions, waterfowl hunters are launching jet boats on the lower Bighorn River into January. Several complained this year that, after the moss disappeared and the stage dropped, it was difficult to launch a jet boat at any of the boat ramps downstream of Hardin with a release of 2,370 cfs from the dam.

Spring water operations under the draft criteria have the potential to negatively impact waterfowl production in the Bighorn valley. A large amount of waterfowl nesting occurs along the Bighorn River below Yellowtail Dam, and much of this nesting, especially for Canada geese, takes place on the islands along the river. Most geese start nesting in early April with peak hatch times occurring in mid-May. Under the new draft criteria, plans are to maintain high reservoir levels through the winter and then after the March water forecasts are available start dumping water to make room for spring inflows if necessary. Under normal to above-normal snowpack conditions the Bighorn River will be subject to significant increases in flow during this spring nesting period which has the potential of flooding out many of the waterfowl nests along the river downstream of the dam.

#### Reservoir fisheries concerns

As indicated in the draft criteria (P 13), fisheries management efforts on Bighorn Lake are shifting away from walleye spawn management as part of an effort to establish a native sauger fishery in the lake. Montana FWP and Wyoming Game and Fish are currently working on a joint effort to collect wild sauger eggs in the Big Horn River upstream of Bighorn Lake, raise them in Montana's Miles City Fish Hatchery, and restock them into Bighorn Lake to enhance the current sauger fishery. In the short term, higher reservoir levels in the spring will likely benefit this effort by providing good rearing conditions for the young sauger stocked into the lake. Long-term plans however, are to establish a self-sustaining sauger population in the lake so annual egg takes are not necessary. It is likely the water management scheme for Bighorn Lake proposed in the draft criteria will be detrimental to this long-term fisheries effort.

The good sauger fishery that currently exists in Bighorn Lake is based on a very strong year class produced in 2004 when the reservoir level was at around 3,583 ft in the spring when the sauger were migrating out of the reservoir and spawning. Wyoming's fisheries studies have identified a section of the sauger population in the Big Horn River upstream of the reservoir that spends a majority of its life in Bighorn Lake. They found these sauger move a short distance up the river to spawn in the spring, and then return immediately to the lake. During low reservoir conditions, such as in the spring of 2004, river conditions extend down to the Horseshoe Bend area or below, providing considerably more river habitat for sauger spawning close to the reservoir. These same low reservoir conditions provide a single main river channel through the large sediment delta built up around Horseshoe Bend and may actually provide better passage conditions for sauger migrating upstream out of the reservoir. It is likely the additional sauger spawning habitat available in 2004 due to the low water conditions played a major

role in the production of the strong 2004 year class that is currently carrying the reservoir sauger fishery. These low water conditions in 2004 were immediately followed by a good water year in 2005 that filled the reservoir and flooded much of the shoreline vegetation that had grown along the reservoir while water levels were low, and provided excellent rearing conditions for the sauger produced in 2004.

By operating the Bighorn system under the proposed draft criteria, the potential no longer exists to occasionally draw the reservoir down in the spring if necessary to provide good sauger spawning conditions at the upper end of the reservoir. Without this potential it may not be possible to develop and maintain a viable sauger fishery in Bighorn Lake without an ongoing intense sauger spawning program.

In order to allow fisheries managers the opportunity to develop a reliable self-sustaining sauger fishery in Bighorn Lake, the draft criteria should evaluate conditions that would allow lake levels to be drawn down and held low during the spring on a periodic basis to enhance natural sauger spawning. Additional fisheries studies will be needed to determine if a single year of low water is enough to provide good spawning conditions. The successful sauger spawn in 2004 occurred after several years of low water where most of the sediment was pushed downstream past Horseshoe Bend cleaning up the river channel through the upper end of the reservoir. These conditions were immediately followed by a good water year that filled the reservoir providing good rearing conditions for young sauger.

#### Lack of rules for high and low water conditions

A major concern with these criteria is that they exclude the extremely high and low water years. These are the years when we would like to see established rules that govern how the interests of both the lake and the river users will be balanced so that both share the impacts of these extreme conditions. The discussion on page 24 that addresses years with forecasted inflows of less than 28 percent, talks about the need to balance between the needs for a minimum level for river fishery flows and sufficient storage to provide minimum service levels for lake recreation. With two of the three boat ramps on the lake usable down to an elevation of 3,580 ft, this should be considered the “minimum service level for lake recreation.” Yet the discussion in this same paragraph defaults back to a minimum lake level of 3,618 ft for determining when river flows will be dropped below 2,000 cfs. River users realize that, under some drought conditions, it will be necessary to reduce river flows down to the absolute minimum of 1,500 cfs. FWP believes that low river flows should be recommended, however, only if there is some trade-off with lower reservoir levels under these extreme conditions.

Between 1981 and 2001, prior to the recent extended drought, river flows dropped down to the 1,500 cfs level only six times, and most of those were for fairly short time periods. The longest period of 1,500 cfs flows was in 1994 when flows remained at 1,500 cfs for 141 continuous days. We would like to see calculations run to determine how often river flows would have dropped to 1,500 cfs between 1981 and 2001 if the system was being managed under these draft criteria with an established minimum reservoir level of 3,618 ft.

#### High spring releases in the Bighorn River, and loss of power generation

Historically Bighorn River releases have been managed to maintain maximum river releases below the maximum turbine capacity of 8,000 cfs. With less reservoir storage available in the spring as proposed in the draft criteria, it appears spring river releases above 8,000 cfs would become a more regular occurrence. Figure 14, designed to show a 2 percent increase in annual power generation using the new criteria, is based on the 1988 to 2008 time period. This includes the extended drought period in the mid-1990s when power generation was depressed due to low water conditions. It also excludes the last two years when large volumes of water were spilled down river causing a loss in power generation. These criteria should include calculations and charts that show how often spring flows will exceed 8,000 cfs operating under the new criteria, compared to historic operations using the entire time period the

generation capacity of Yellowtail Dam has been at its current level. Power generation lost due to increased spillage of water under the draft criteria should then be used when calculating changes in total power generation while operating under the new criteria (p 27).

#### Downstream property damage due to river fluctuation

As indicated at the recent meeting in Billings, a number of downstream landowners along the Bighorn River experienced considerable property damage during and following the high spring river flows the past two years. As one example, at Grant Marsh Fishing Access Site downstream from Hardin, Montana FWP lost more than 30 feet of public land along a straight section of what should have been a fairly stable bank, during the past two spring high water releases. These losses included a newly constructed road and three camp sites along the river, and forced Montana FWP to move a latrine that was installed in 2006. The cost of moving the latrine and rebuilding the road approached \$7,000, not counting the loss of valuable public land and the fact that the entire site was closed to all recreational use during the month of July 2010 during the peak of the summer recreation season. Additionally, landowners living on the Yellowstone River have expressed concern with dam operations that may result in the exacerbation of flooding during high water years such as those that occurred in 1996/1997.

Much of the bank loss along the lower Bighorn River occurred when river releases were rapidly decreased following extended periods of high flows. These high flows saturated the sandy banks along the river. When flows were rapidly reduced, large chunks of these saturated banks sloughed off with falling water levels. To reduce this problem the Bureau of Reclamation should improve coordination with upstream water managers in Wyoming so they can better anticipate decreases in inflows at the end of spring runoff. This would allow the bureau to start gradually reducing river releases earlier in the summer and extend these reductions over a longer period of time. With better coordination and planning, the bureau should be able to conserve the same amount of water in the upstream reservoirs, while reducing downstream erosion.

**From:** Nic Jovanovich [<mailto:nicjovanovich@gmail.com>]  
**Sent:** Tuesday, February 01, 2011 12:08 PM  
**To:** Duberstein, Leonard (Lenny) B  
**Subject:** Big Horn River

Mr. Duberstein, and to all others concerned,

I have received word of the gathering of public opinion regarding Yellowtail Dam management a little later than others. I do realize that January 28th was the last day for public weigh in but still wanted to voice my personal opinion. I wish to urge you and the Bureau of Rec to pay more mind to the flows of the Big Horn River below the dam in protection of wild trout. The beautiful Big Horn is quite probably the finest trout fishery in the lower 48 states and it is our duty to protect that claim and ensure its future. I understand that water conservation is always the issue at hand, and many are continually pushing for holding more water back throughout the year. I truly believe a better balance can be found between high running spring flows and trickling late year flows.

As a professional guide on the Big Horn (and Beaverhead and Big Hole Rivers), I spend quite a bit of time on the water itself. I know that flows under 3,000 cfs are not choice for healthy trout populations on our Big Horn. A healthy river is not only vital to my survival, but for a healthy portion of state income, and for the ecosystem in general. I understand that overabundant water in the spring is problematic for the reservoir but I believe that better pre-spring management can compensate for this, and therefore alleviate the need for spring flushing and then, later in the year, the need to reduce flows in to the river.

Thank you for your time.

Sincerely,

Nicolas N Jovanovich, MT guide #13182

# United States Senate

WASHINGTON, DC 20510-2602

INTERNET:  
<http://baucus.senate.gov>

February 1, 2011

The Honorable Ken Salazar  
Secretary of the Interior  
1849 C Street NW  
Washington, DC 20240-0002

Dear Secretary Salazar:

I am writing to you today regarding the Bighorn River in southeastern Montana. This River system is an iconic water system, home to one of the state's most robust blue ribbon fisheries. The Department of Interior plays an enormous role in the health of this river and its ecosystem. Flows are managed by the Bureau of Reclamation through its work at Boysen and Buffalo Bill reservoirs and the Yellowtail Dam and the National Park Service and its management of the Bighorn Canyon Recreation Area. I am very concerned that the Bighorn River is suffering due to a failure to fully recognize the multi-purpose nature of the Yellowtail Dam driven by a set of misplaced and outdated priorities of the National Park Service at the Bighorn Canyon Recreation Area. On October 18, 2010, I met with senior Department of Interior officials as well as the Director of the National Park Service and the Commissioner of the Bureau of Reclamation to discuss opportunities to improve the management of this valuable resource. Today I am writing to follow-up on that meeting and request a progress report on each of the items discussed.

The Bighorn River is an iconic water system in Montana's southeastern corner, home to one of the state's most robust blue ribbon fisheries. The fishing industry in Montana generates about \$3 billion per year, statewide. Anglers spend between 70,000 to 90,000 days per year fishing on the Bighorn River, contributing about \$30 million per year to the local economy. The Bighorn River, like most western waterways, is also home to conflict between upstream and downstream users.

Flows in the Bighorn River are controlled by the Bureau of Reclamation. The most direct impact stems from the Bureau's operation of Yellowtail Dam, a multi-purpose project that supports hydropower, irrigation, and flood control, as well as recreation and conservation. I am very concerned that the Bureau's management of these features fails to recognize the multi-purpose nature of the project and does not optimize the use of the water resources available. Part of this situation appears to be driven by misplaced priorities of the National Park Service at the Bighorn Canyon Recreation Area. I urge you to conduct a full review of the management of this system.

I am concerned about the excessive focus on recreation at certain locations within the boundaries of the Bighorn Canyon Recreation Area, and the failure to consider the impact of that focus on the downstream fishery. To address this, the Bureau of Reclamation should review its

management of Yellowtail Dam and ensure that it is taking a balanced approach, and the National Park Service should re-evaluate its priorities on the River. The Bureau of Reclamation's development of interim operating criteria is a step in the right direction, and I am pleased steps are being taken to incorporate the views of Montanans into that decision-making process. I continue to believe that maximum opportunity for public review and comment should be provided, particularly on a document of this importance. The Bureau should also ensure that its management of the river is optimized by consolidating the management of Boysen and Buffalo Bill reservoirs and the Yellowtail Dam under one individual. Using this approach, water management decisions in each location can be optimized.

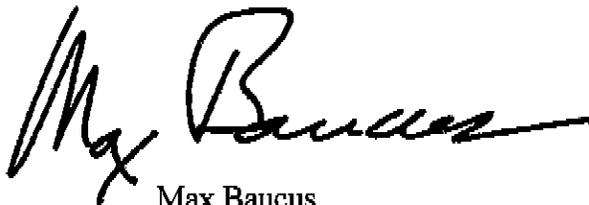
In addition, the National Park Service should update its 1996 Water Resources Management Plan which fails to address the downstream fishery. Additionally, the National Park Service should re-evaluate its prioritization of recreational opportunities at the Horseshoe Bend site, which has already been identified as unsustainable into the future due to sedimentation issues. Continued prioritization of recreation at this site commands resource and water management decisions that impact recreation and cause damage at other sites within the boundaries of the Recreation Area and at the downstream fishery.

A lack of current, accurate information about use and economic value is also impeding appropriate prioritization and decision-making on the Bighorn River. The National Park Service and the Bureau of Reclamation should conduct an updated study, using accurate counting methods, current data, and modern analysis to quantify the economic impact of recreation both upstream and downstream of the Yellowtail Dam.

During our meeting, I requested that the National Park Service update its 1996 Water Resource Management Plan to reflect the downstream fishery resources that are part of the aquatic ecosystem on the Bighorn and to evaluate the appropriateness of the management priorities in that plan. In addition, I requested that the Department develop the economic analysis described above. I am writing to request an update on your progress on these two items.

The Bureau of Reclamation and the National Park Service have a difficult job to balance upstream and downstream uses, and the Department has a difficult job to ensure that the two agencies are cooperating for the good of the entire ecosystem. I trust that the Department can find a way to balance the priorities of all of the water users who care about recreation, flood control, and power generation on the Bighorn to ensure that adversity and prosperity are equally shared. I look forward to hearing from you soon.

Sincerely,

A handwritten signature in black ink, appearing to read "Max Baucus". The signature is fluid and cursive, with a long horizontal stroke at the end.

Max Baucus

**From:** Blanche Chapman [<mailto:bmchap@midrivers.com>]  
**Sent:** Tuesday, February 08, 2011 8:31 AM  
**To:** Duberstein, Leonard (Lenny) B  
**Cc:** [bruce@montanatu.org](mailto:bruce@montanatu.org)  
**Subject:** Big Horn River flows

Lenny,

Allow me to encourage you to take full recognition of the Montana FWP research that says 3500 cfs is the optimum flow for a healthy fishery. At no time should the flow be sacrificed to the desire for a full reservoir, except in times of severe drought when every attempt should be made to maintain 2500 cfs. It would also seem advisable to make a spring drawdown as indicated by weather conditions and snowpack to avoid forced evacuation of the reservoir, as has happened in the last two years. It is my belief that enhancement and, at the very least, protection of the fishery is primary. Our presence on the land has threatened its very existence, and we must do anything and everything to mitigate the effects we have imposed on this remarkable resource.

Mike Chapman, Lewistown

# RECLAMATION

## Managing Water in the West

### Comment Sheet

#### Bighorn Lake Draft Operating Criteria Comment Sheet

(Please Print Clearly)

Name Rick Harrison

Organization and Address 797 Hwy 14 Powell WY 82435

Phone (307) 754 3993 FAX ( )                      E-mail rck.harrison@gmail.com

#### Narrative Comments:

I feel anytime the lake levels go below 3620 a fishery is destroyed in WY. The meetings I have attended the Bureau presented all kind of information on how to maintain a fishery below the Dam but nothing on the harmful affects of a lake that goes dry 3 months every year and doing this without any contractual obligations what so ever.

How ~~convenient~~ convenient it is to manage this res. for a river species of fish calling it a pure strain of Sauger. All your studies are based on reasons to release water Your first priority should be based on filling ~~res~~ ~~not~~ Your long term history has proven the other.

-Attach additional sheets if necessary-

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment - including your personal identifying information - may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

The information related to the meeting can be found on the Montana Area Office website at [www.usbr.gov/gp/mtao/yellowtail/index.cfm](http://www.usbr.gov/gp/mtao/yellowtail/index.cfm). Please mail comments to Ms. Paula A. Holwegner, Bureau of Reclamation, 2900 4th Avenue North, Suite 501, Billings MT 59107, fax your comments to 406-247-7338, or e-mail your comments to [pholwegner@usbr.gov](mailto:pholwegner@usbr.gov) by January 28, 2011. Thank you.

# RECLAMATION

## Managing Water in the West

### Comment Sheet

Bighorn Lake Draft Operating Criteria Informational Meeting  
January 4, 2011

(Please Print Clearly)

Name JOHN E. MAY  
 Organization and Address BIGHORN RIVER LODGE  
P.O. Box 7744  
FT. SMITH, MT 59035

Phone (406) 666-2368 FAX (406) 666-9109 E-mail contactus@bighornriverlodge.com

**Narrative Comments:**

*I thought the presentations were organized, thorough and well done. I left the meeting knowing significantly more than when I arrived - both about the plan for the Lake, the reasoning and risks.*

*Thank You.*

*John May*

**-Attach additional sheets if necessary-**

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, be advised that your entire comment - including your personal identifying information - may be made publicly available at any time. While you can ask us in your comment to withhold from public review your personal identifying information, we cannot guarantee that we will be able to do so.

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**From:** Eagle Nest Lodge [<mailto:flyfishmt@sbcglobal.net>]

**Sent:** Friday, February 25, 2011 10:02 AM

**To:** Duberstein, Leonard (Lenny) B

**Subject:** Bighorn River flows

Lenny, my name is John Shirley and I manage Eagle Nest Lodge south of Hardin, MT..

The flows on the Bighorn River in 2008 and 2009 flooded my commercial bird farm pens. We raise Pheasant for shooting preserves in our area. We have had the pens located in the same place since 1999 and never have had any flooding until 2008.

Having a full lake in the spring sounds like a recipe for disastrous flooding in the future.

Those of us that live and work on the Bighorn River are very concerned that the lake level and river flow management practices are putting us in danger.

Thanks for listening, John Shirley.

January 18, 2011

To: Lenny [Duberstein/ duberstein@usbr.gov](mailto:duberstein@usbr.gov)  
From: Zoe and Dave [Opie / absaraka@bhwi.net](mailto:Opie / absaraka@bhwi.net)  
Absaraka Cabins, Fort Smith, MT.

Mr. Duberstein,

I have carefully reviewed the draft outlining proposed operating criteria for Bighorn Lake. In addition I have participated in the meeting to discuss the operating draft held January 4, 2011 in Billings. The proposed lake management plan continues, at the least, to service the needs of the south end of the lake at Horseshoe Bend and does not begin to address the issues that the poor planning and management of Bighorn Lake has created downstream on the Bighorn River.

The new lake plan calls for minimum reservoir levels significantly higher than previous years. This not only affects the winter river flows, but insures spring runoff flooding. One of the reservoir's primary purposes is flood control. The current "full lake" policy has not allowed enough lake storage space to handle normal year's runoff. The current lake management draft call for lake levels a full 8 feet higher than last year, a target elevation only 22 feet below the top of the conservation pool and 13 feet higher than average. With even higher lake levels, spring runoff cannot be stored in the lake, as intended, and the amount of high water downstream flooding will only be exasperated. The last two years, of normal snowpack and precipitation, have shown sustained river flows of 10,000+CFS. These water flows have significantly altered the structure of the river, washed away entire islands and eroded river banks, and watered noxious weeds. The high water results were almost as dramatic on the lake with floating debris, lack of recreational opportunities, flooded camp grounds, and lowering hydro electric production. In addition high spring river flow result in higher river temperatures in the fall, resulting in high grass and algae growth.

Not only does this unnecessary high water impact environmental concerns, it dramatically affects the recreational opportunities on the river. The Bighorn River is one of the most prolific fisheries in the United States. Thousands of people each year come to the Bighorn to experience world class fly fishing. A conservative income number to Montana and Bighorn County was \$30,000,000

several years ago. River flows above 6500 CFS make much of the river un-wade able and drastically reduces the amount of fishable water. We own and operate the Absaraka Cabins near the three mile fishing access. In 2009, the first year of high flows we experienced a 24% decrease in June business over the prior year. In 2010 we experienced a 36% decrease versus 2009 and a 51% decrease from 2008. I ask you, would you take a 51% pay cut in two years? The high water flows causing the “fishable river” to deteriorate are unnecessary and are a direct result of poor water management by the Bighorn Lake Management.

Additionally, the section on page ten of the draft, defines water flow levels for the river. It states:

Optimum Flows: 2500CFS  
Standard Flows: 2000CFS  
Minimum Flows: 1500 CFS  
Absolute Minimum Flows: 1000CFS

It has been previously determined by biologists from Montana Fish, Wildlife, and Parks that a MINIMUM water flow for the Bighorn River is 2500 CFS. An optimum water flow is 3500-4000 CFS. Below 2500 CFS we lose habitat, spawning areas, and fish numbers. In drought years, it is obvious that all individuals must share the water resource and cooperate with reduced water levels. Why is it in normal water years the river continues to be kept at minimum water levels and assured to be flooded with excessive releases in the spring?

Mr. Duberstein, I ask you to take a close look at the Bighorn Lake operating draft. The planned is seriously flawed and has the potential to cause irreversible damage to the lake, the river and the economy.

Zoe and Dave Opie  
Absaraka Cabins  
27138 S. Warman Loop  
Fort Smith, MT. 59035  
406-666-2304

## COMMENTS:

### Draft Bighorn Lake Operating Criteria evaluation Study & Report

From:  
Big Horn River Alliance  
P. O. Box 7884  
Fort Smith, Montana 59035

To  
Mr. Lenny Duberstein  
Montana Area Office  
Bureau of Reclamation  
P. O. Box 30137  
Billings, MT 59107-0137



Or To: Lenny Duberstein, email [lduberstein@usbr.gov](mailto:lduberstein@usbr.gov)

Comment deadline: January 28, 2011

Gentlemen,

The Big Horn River Alliance is an organization consisting of over 450 dues paying members. The Alliance was formed in 1995 and is headquartered in Fort Smith Montana. The Statement of Purpose of the Alliance is as follows: "Understanding that the Bighorn River is potentially the finest trout fishery in America, it is our purpose to preserve, protect and enhance the quality of this fishery. In this understanding it is incumbent upon us, the users of the Bighorn to address the following issues and related concerns: Water Flows, Bag Limits, Angler Access, Trout Populations, Tackle Restrictions, Water Quality, Recreational Easements and Education, and General Aquatic Biology."

Under the mandate of our Purpose we are commenting here today.

We speak for those people who make their living here in Big Horn County and those thousands of visitors who enjoy this unique and wonderful recreation opportunity the river provides.

This Draft Criteria Document is disturbing in that it codifies the flow management that has been going on for the past three years. We have experienced sub-minimal fall, winter and spring flows and extremely high late spring and early summer flows.

**In essence, the modified operating criteria calls for lake levels at least 8 feet higher than in years past, and sets a minimum target lake elevation just 22 feet below the top of the conservation pool which is 13 feet higher than average. The draft document extols the many “benefits” of higher lake elevations, but curiously ignores or, at the very least, overlooks any downside**

It is our studied opinion that this new operating criteria study and report and the resulting river flow changes will degrade the quality of angling experience available. It will disrupt spawning opportunities for the trout, shorten the season, reduce economic opportunity, create continued and excessive stream bank erosion, and reduce waterfowl hunting opportunity. And, in our opinion, these operating criteria will open the door for more extreme and dangerous bank erosion and even flooding. Specifically, it is difficult, if not impossible, to find an up-side to this plan as far as the people of Big Horn County, Montana are concerned.

The Big Horn River below Yellowtail Dam is recognized by America’s angling community as one of the finest trout fishing rivers in America. Some would argue that it is the best trout fishing river in America or the world.

The river below Yellowtail dam is, based on surface area, the most heavily fished water in Montana. This tough, resilient river provides angling opportunities for not only local anglers but anglers from across America and the World. As many as 100,000 angler days are spent on the river. Fall waterfowl hunting is also a source of recreation and income in the area.

In Big Horn County, Montana **hundreds** of people rely on this angling industry for all or part of their income. Motels, lodges, restaurants, bars, fishing guides and outfitters, shuttle car drivers, maids, tackle shops, grocery stores and many other businesses would not exist without the visiting anglers.

Montana State economists estimated (a number of years ago) that the economic value of the Big Horn River fishery to be in excess of \$ 50,000,000 (fifty million) per year.

The season is short on the Big Horn and anything that happens to the river to disrupt the flow of anglers is damaging to the economy of the area.

The background and reason for this management change is a result of the fact that Horseshoe Bend Marina at the south end of Big Horn Reservoir is becoming silted-in and as time passes the lake level must be increased in order to launch boats at that location. Since the construction of the dam the launch elevation at Horseshoe Bend has increased about 30 feet. This is no surprise to anyone. The fact that this would happen has been known for many years. Studies have been done over the years and during the 1990’s a study was done indicating that the site would lose its viability as a boat launch site. More recently the Corps of Engineers stated the same thing. During the past year the Area Manager for the Bureau of Reclamation made a statement that “Horseshoe Bend’s days are limited.”

In spite of these facts, the National Park Service (or someone) continues to pressure the Bureau of Reclamation to increase lake levels to accommodate boat launching in that area.

Eighteen miles down the lake is Barry’s Landing launch site. Boats can launch at a lake elevation some 37 feet lower (same minimum elevation as Ok-A-Beh Marina) than at Horeshoe bend. This launch site is being ignored by the Park Service as an alternative to Horseshoe Bend. The Park Service continues spending large amounts of money upgrading and developing Horsehoe Bend knowing full well that they are “beating a dead dog”.

### **Downsides of the proposed criteria:**

**Lake Recreation:** Continued high lake levels over the past few years have caused much debris to accumulate on the lake surface. As a result recreation facilities have been either closed or damaged. Boats are damaged by the floating debris. Water boarding, skiing, and use of personal water craft is “at your own risk”. Areas of the lake have been blocked off in an effort to ‘corral’ the debris. It would be interesting to know how much money the NPS has spent clearing debris over the past few years.

**Power generation** didn’t get much help either, showing small gains overall, but negatives during key seasons such as December through February and July through August.

**Flood Control:** Maintaining a full lake may seem like a nice idea, but it hinders Bureau of Reclamation’s ability to react to situations where the Wind River/Bighorn River drainage receives large amounts of moisture in a short time. We’ve already experienced this scenario several times, and Bureau of Reclamation has been forced to spike river levels in a hurried attempt to prevent the lake from becoming too full. These high flows make it very difficult to fish the river, plus they erode river banks and channelize the stream-bed. This “full-lake policy” is puzzling in light of the original purpose for Yellowtail. When Yellowtail Dam was completed in 1966, projections were that the lake would take three years to fill; yet, early-fall storm systems filled the lake in just three months! Inflows into the lake reached 44,000 cfs. Should we pretend that this could never happen again? What would happen should those inflows occur again when the lake is full?

**Stream Bank Erosion:** All along the river between Ft. Smith and Hardin the river banks have been eroded by these high flows. The Bureau, in its efforts to keep the lake full drop the flow levels so dramatically and quickly that the banks do not have an opportunity to dry. The result is that the saturated banks slough off at dramatic rates. This is not just an isolated anomaly. There are many banks that are being eroded.

### **Recreation**

**Low flows:** Montana Department of Fish Wildlife and Parks has, thru their studies, concluded that flows of 2500cfs are the **minimum** acceptable flow for the well being of the fishery. Bureau of Reclamation continues to characterize 2500cfs as **Optimum** flows for fishery. This is not the case according to Ken Frazer who has stated as much at user group meetings. Again, this mis-stating of what is said further characterizes the Bureau of Reclamation personnel as hearing only what they want to hear.

At such times as the river flows below the minimum 2500cfs the fishery is being degraded. Flow to side channels is reduced and therefore spawning and rearing habitat is dramatically reduced. Aside from the biological impacts of these low flows that have occurred during the past number of years social factors come into play. At sub minimum flows spawning trout become much more available to anglers as the fish crowd the shorelines in their efforts to spawn and are disturbed and the trout are more vulnerable to angling pressure.

Low flows in fall and early winter also degrade the quality and opportunity for waterfowl hunting on the river. Again loss of side channel habitat eliminates areas of refuge for the birds. The side channels are where the birds rest and are hunted. Low flows limit that recreation opportunity. At low flows (below 2500cfs) it is more difficult to maneuver power boats on the river.

**High lake levels:** Of course, the visible downsides are easy to see and evaluate. The damage to NPS facilities on the lake caused by high water levels and debris is apparent. Damage to the FWP River Access site Grant's Marsh where the road was severely damaged and the rest room was ruined and had to be moved and the stream bank erosion that occurred there are very apparent.

The lack of recreational opportunity these closed facilities causes is not so apparent but does exist. It would be interesting to know how much money the NPS has spent on debris removal and control over the past several years. The unusable floating docks and restrooms. And of course the loss of business and income to the concessionaire at Ok-A-Beh Marina. Loss of income to those businesses who service the needs of the boaters who would like to come to Big Horn Reservoir.

**High River Levels:** The season for recreation on the Big Horn River is short. Those times when the river is extremely high dramatically reduces the numbers of anglers using the river. It is generally accepted that at flow rates of 6000cfs and above the use of the river by anglers is dramatically reduced. The accessible shore angling locations become no longer viable and floating becomes dangerous for all except the most experienced boatmen.

Some boat rental businesses feel it necessary to not rent boats during the excessive high water. The concern is for the well being of the public. Whenever these high flows occur there are boating accidents on the river. Near fatalities have come about during such times.

Flows in 2009 exceeded 6000cfs from June 8<sup>th</sup> thru July 17<sup>th</sup>. That is over five weeks. Five weeks is a long time in the life of a guide or outfitter who is getting cancellation calls every day or a private campground operator or motel operator or lodge operator or any of the people who rely upon the river for their income.

This Draft criteria will insure that we will have sub minimal flows thru the fall and winter and extreme high flows in the late spring and early summer. Those losses of recreational opportunity and business losses will continue under this management plan. This criteria needs to be re-evaluated and changes made.

So we now have an inversion of majority rule and minority rights. The interests of a small group of people on the south end of the lake are being served, to the exclusion of the majority.

The solution is for the Bureau of Reclamation to manage the river flows to eliminate the sub-minimal long term flows, draft the reservoir sufficiently to easily manage the spring runoff and thus avoiding the damaging and dangerously high flows that we've experienced in recent years

## **RECOMMENDATIONS:**

These recommendations are included after working together with Friends of Big Horn River, Montana Department of Fish Wildlife and Parks, Big Horn County Montana Commissioners, Trout Unlimited, and Magic City Fly Fishers. We also drew from the many years of experience and knowledge of the river that the Big Horn River Alliance Board of Directors and membership possess. We concur and recommend the following management adjustments to the draft management criteria being considered.

Maintain lake elevations at or below 3640 ft. prior to and throughout the July Fourth weekend. The exclusive flood pool should be used as intended. Resulting benefits to lake users and reduction of damage to recreational facilities on the lake, and hopefully, reduction of debris

Move the spring minimum target lake elevation and its concomitant decision point from 3,618ft in March to 3,614ft in April. The benefits to this would include:

- Reclamation will have an additional month of data and forecast information;
- Reclamation sets a lower lake elevation from where it can begin to fill, but;
- Lake elevations will continue to pass through the old March target dates, but will hold at the April target, thus *not requiring further drafting* of the reservoir;
- Provides Reclamation with a better view of water conditions, which will help prevent lake elevations reaching into the flood pool;
- Provides more time to evaluate all stakeholders needs;
- Completely supportive of southern lake recreation deadlines.

With the implementation of the above, remove the calculation of Adjustments to the November through March release for Calculated Release Below 2,000cfs or above 2,500cfs as they will no longer be needed.

Recognize 2,500cfs is not an optimal river fishery flow but a MINIMUM fishery flow.

Mitigate stream bank erosion caused by drawdowns of river releases after periods of sustained high releases.

Please recognize that there are downsides related to the implementation of this Draft Operating Criteria. We would request that you recognize, and document potential or realized adverse consequences of the Draft Operating Criteria in the next draft.

Lastly, please recognize that in addition to stakeholders related to authorized purposes and the Recreation Area, adjacent private, public, state, and tribal landowners, as well as outfitters, guides, lodge owners, river recreationists and the flora and fauna, along with lake recreationists at both ends of the lake, are all stakeholders in the Yellowtail project.

Thank you for your consideration,

Board of Directors, Big Horn River Alliance Board of Directors

Steve Hilbers  
Zoe Opie  
Roger Hile  
Matt McMeans  
John Sindland  
Shawn Paul Williams  
Hale Harris  
Dennis Fischer

Advisory Board members Frank F. Johnson  
Doug Haacke

## Comments regarding Draft Management Criteria for Big Horn Lake

Submitted by: Frank F. Johnson  
11 Spring Creek Lane  
SHERIDAN, WYOMING 82801

To: Bureau of Reclamation  
Montana Area Office  
Billings, Montana

Attention:

Lenny Duberstein  
[lduberstein@usbr.gov](mailto:lduberstein@usbr.gov)

Dear Lenny,

Please accept the following as my personal comments regarding the Draft Management Criteria now being considered.

I would like to echo and enthusiastically endorse the comments presented by:

Doug Haacke, Friends of Big Horn River  
Big Horn River Alliance  
Big Horn County Commissioners  
Bob Krumm.

I thank the scientists at Montana Department of Fish Wildlife and Parks for their council as all these comments have been prepared.

I also thank the Bureau of Reclamation for giving us the opportunity to comment on this management criteria, and for your help in allowing us to understand and evaluate these criteria from our unique viewpoints. I would hope that your thoughtful consideration be given to all the comments. All of these comments and suggestions are made in the best interest of all resource users.

My comments are not scientific, nor are they economically motivated. My comments are meant to be a reflection of the feelings of many thousands of anglers who visit the Bighorn River.

I am lucky to say that I have recreated on Big Horn Lake, the Afterbay, and on the River since the dam was constructed. I and many others have forged careers and businesses guiding anglers, or providing other services to those anglers who come to the river.

It is easy to focus on such issues as boat launching at Horseshoe Bend Marina and the inundated camp grounds at Black Canyon and Grant Marsh Fishing Access. Stream bank erosion and side channel occlusion are very evident. Fish biology issues are apparent. Debris accumulation is an issue. Economic impact and public safety are to be considered. Waterfowl hunting is an issue for all members of the Issues Group. All of these issues are important for your consideration.

Let me address a piece of the puzzle that is important to me and perhaps taken lightly or ignored in these deliberations. That puzzle piece is: THE PEOPLE WHO RECREATE ON THE BIGHORN RIVER. We, in our discussion of the Draft Criteria, seem to be leaving them out of the equation. They are, along with other more obvious reasons, why we are having this discussion.

At the Jan 4<sup>th</sup> meeting in Billings it was stated by the BOR staff that NO downside to the Draft Operating Criteria had been recognized or was considered when formulating the plan. I'm sure that by now you've received many comments pointing out the numerous downsides to the Draft Criteria. There are, in fact, numerous downsides that affect the recreational users of the river downstream from Yellowtail Dam as well as down sides for the people who use the north end of the lake for recreation.

Very little real discussion and understanding of the river anglers has been expressed. I hope to do my best to help you understand the people and the angling opportunity that exists on the River.

Each year nearly 100,000 angler-days are spent fishing primarily the first 13 miles below the dam. That section of the river is the most heavily fished area in the entire State of Montana. Those anglers generate a huge amount of economic impact for Big Horn County and Montana (\$50,000,000 annually is not to be ignored) Below Big Horn Access the fishing is often effected by poor water conditions due to irrigation returns, turbidity from tributaries and accumulations of aquatic vegetation and therefore not as heavily used as the first 13 miles. When water conditions are right, however, anglers stream (pardon the pun) to those downstream areas.

Nearly 200 people make all or part of their living as a part of the fly fishing industry that has developed beginning nearly 40 years ago. These people have worked hard to make their business successful. They have done it, however, and they do exist. These people aren't looking into the sky for some future happening. It has happened! I, very simply, ask that you recognize this and ask that this economy and recreational opportunity not be degraded.

All of this economic success and recreational opportunity is very simply a result of the magic of the Bighorn River. Thanks to Mother Nature (a term BOR fully understands) and the construction of the dam the elements have come together to create what is probably the finest trout fishing river in America, and perhaps the world. If the Bighorn River were a golf course it would be compared to Augusta or St. Andrews. If the Bighorn River were an art museum it would rank up there with the Metropolitan Museum of Modern Art or the Louvre. I give you these examples in order that you might understand and appreciate the treasure that we are trying to maintain. People from all over America and the World think of the Bighorn as the Valhalla of Fly Fishing.

Books have been written about the Bighorn and its fabulous fly fishing. Every outdoor magazine in America has published many articles about the river. Look at nearly any fly fishing blog or chat room on the internet and you will find threads talking about the Bighorn River. Almost without exception the context of these chats is that the Big Horn is the place to be. Call nearly any fly shop in Western Montana and you will be lead away from the Bighorn – They know that if a visiting angler comes to the Bighorn he will be stuck there.

The Bighorn River is not a place where just the locals come and stick a pole in the mud along the bank and hope to get a bite. The Bighorn is a river used and loved by anglers from all across the country and the world. They come here to stand in awe of this fantastic place. Over the years as a guide I have heard comments such as the following thousands of times: "This is the best day of fly fishing I've ever had" "I've fished in Montana for 30 years and that's the best trout I've ever taken." "Today I took both the best Rainbow and the best Brown trout I've ever seen." "This is a beautiful river." The anglers I have guided have released every fish caught. They released it back into the river to be enjoyed again and again by other anglers. Perhaps a quick photograph, then the release of the fish and they say: "I hope to see you next year because I will be back!"

Any long term Outfitter or Guide on the river will tell you the same stories and that they have clients who return to the river year after year, many for 20 years or 25 years or more. Anglers from all across Montana and surrounding areas grow up on this river. Why? Because they can't find a better place to be.

Anglers who have the opportunity and means to travel the world to fish return to the Bighorn River time after time. Why? "Because it is the best place to be!" One of the early Crow Chiefs, when referring to the Crow homeland, coined this phrase: "The last best place." His reference was to the Bighorn River area and I and many others echo his words in describing the Big Horn River.

Please, in your planning and management of the flows of the river, do not disregard the aesthetic value of the recreational opportunity so many anglers enjoy while fishing this river.

Respectfully Submitted,

Frank F. Johnson  
11 Spring Creek Lane  
SHERIDAN, WYOMING 82801  
[bighornjohnsons@gmail.com](mailto:bighornjohnsons@gmail.com)



## WYOMING GAME AND FISH DEPARTMENT

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January 28, 2011

WER 12193  
U.S. Department of the Interior  
Bureau of Reclamation Great Plains Region  
Reclamation Managing Water in the West  
Draft Bighorn Lake Operating Criteria Evaluation Study and  
Report September 14, 2010

Leonard Duberstein  
Bureau of Reclamation  
Great Plains Region  
Montana Area Office  
PO Box 30137  
Billings, MT 59107-0137

Dear Mr. Deberstein:

The staff of the Wyoming Game and Fish Department has reviewed the Draft Bighorn Lake Operating Criteria Evaluation Study and Report September 14, 2010. We offer the following comments for your consideration

### **Terrestrial Considerations:**

The Wyoming Game & Fish Department generally supports increasing the level of Big Horn Lake as prescribed in the draft operating evaluation. On Page 14, we suggest moving the old target elevation of 3635 ft from October 15<sup>th</sup> to October 1<sup>st</sup>. This should ensure that lake levels are appropriate for migrating waterfowl during crucial times. We support the addition of an October 31 elevation range of 3638 to 3640 ft. Although there will be some lost wetland and terrestrial habitat at higher lake levels there will be a net gain of open and shallow-water habitat. We urge Bureau of Reclamation personnel to actively participate (funding and personnel) with the Department and the National Park Service to establish vegetation (e.g., bulrush, cattail, and other submergent vegetation species) in these newly formed shallow waters to provide habitats for waterfowl, shorebirds and other wildlife species. We list potential positive and negative issues to terrestrial wildlife related to this new operating criteria:

#### Positive impacts

- Higher lake levels in the winter will increase the probability of ice jams and flooding on the Shoshone River. While late spring/early summer flood events are more beneficial to the floodplain in terms of cottonwood regeneration and other riparian ecological

processes, winter flooding does increase soil moisture and recharge ground water that sustains riparian vegetation.

- Higher and more static water levels would decrease the amount of lakebed that has an opportunity to support growth of salt cedar and Russian olive. Even though these plants are generally killed at some point when lake levels remain high, their persistence during low levels provides a source of seed.
- The old target reservoir level for October 15 (elev. 3635) results in an area of inundation of 10,986 acres. The old target for November 30 (elev. 3630) results in 9,131 acres. The new October 31 target (elev. average 3639) results in 12,273 acres of inundation. This represents a net increase of 1,287 to 3,142 acres in open water habitats that would be available for waterfowl in the fall. Most of this increase would occur in Wyoming, as the Montana side of the reservoir is largely confined by vertical canyon walls. An elevation of 3640 will provide 130 more acres of shallow water (less than one foot) habitat that benefits dabbling waterfowl than the old target elevation of 3630.
- Ideally for waterfowl, lake levels would be drawn down shortly after spring flows in order to allow vegetation to grow on the exposed lakebed during the growing season (for at least a month), then slowly raised to the maximum fall level to inundate vegetation. This would provide the best scenario to create shallow water habitat with high food value.

#### Negative Impacts

- Wetlands constructed and maintained by the Department will be inundated in the southern portion of the lake.
- If the operating criteria changes and lake levels are managed for lower levels, wetlands constructed by the Department will need to be reconstructed when funds are available.
- Some terrestrial (pheasant, small mammal, etc.) habitat will be inundated and lost.
- Increased winter flooding would make it more difficult to conduct Russian olive and salt cedar mechanical removal treatments on the Shoshone floodplain as these must be done during the winter.

#### **Aquatic Considerations:**

We applaud the Bureau of Reclamation (BOR) for reviewing their historic operating criteria for Big Horn Lake and attempting to find workable modifications that provide higher lake elevations while still providing for the needs of other water users.

Regarding the Draft Bighorn Lake Operating Criteria Evaluation Study and Report, we offer the following comments and suggestions:

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The format of the document created some confusion for us and others. The document as we read it is a report on what BOR has done to modify operations in recent years with little indication as to what this means for future operating plans. The document is not written as a "plan" and maybe this is BOR's intent. However, in communication with BOR and other groups regarding this document, indications have been that this "report" will be a guiding document for the future. If this is true, and BOR intends to use this report to guide future operations, the document needs to more clearly state this as an objective and provide a summary to be used as a clear road map for how BOR plans to use the information in the report to operate the dam in the immediate future. If BOR doesn't intend to use this as a "operating plan" or guiding document it would be in the BOR's best interest to better communicate this to user groups.

Page 2, second paragraph-In the Executive Summary under specific modifications studied, the reservoir targets that were revised should be mentioned briefly, i.e., October 31 (Waterfowl Hunting), March 31 (lowest spring draft of reservoir) as well the new procedure for establishing a Fall/Winter river release should also be explained briefly.

All figures/tables in this document should be numbered, fall into order as they are mentioned in the text and have good titles/labels that explain the content. This will greatly improve the readability of the report.

Page 2; paragraph 4; "The proposed modification allows the reservoir to operate 3 to 8 feet higher on average than historic operations mostly during late winter and early spring"... A better explanation is needed here as to how this was determined i.e., modeling of historic operations from 1988 to 2008 using proposed criteria modifications.

In the graph titled "Bighorn Lake Rule Curves" what does UQ and UD stand for? A legend label would help.

Page 3, second paragraph-"The trout fishery will benefit by an increased percent of time the fishery flow targets are met..." It would help if you could specify when you are talking about the tail-water or river fishery and when you are talking about the reservoir fishery. Referring to the river as the "fishery" or "trout fishery" isn't only confusing but it gives the appearance of discounting the reservoir "fishery".

Page 6, second paragraph-"Based on input provided from all of the various interests attending the issue group meetings, the Bighorn Lake operating criteria was reviewed and studies were prepared to determine if modifications could be made to these criteria which would improve the overall operations and enhance the benefits derived from the Yellowtail Unit." Even though the BOR briefly explains the 2000 Bighorn Lake Operating Criteria on pages 8 through 11, the specific document that contains the Bighorn Lake operating criteria needs to be referenced here

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as well so the reader can go to that document that details how the reservoir has been operated in the past.

Page 10, second paragraph—"The desired river releases for the river fishery were based on studies prepared initially by the U. S. Fish and Wildlife Service in the 1970s and then additional studies prepared by the Montana Fish, Wildlife and Parks (MTFWP) in the 1980s." Is there a reference available for these documents?

Page 10, third paragraph-General reader may not know what SOP stands for. Need to spell out this abbreviation the first time used in the document.

Page 12, second paragraph—"WYGF believes that below elevation 3620 the reservoir fails to provide fishing opportunities in Wyoming and greatly reduces the preferred habitat of many fish." Add words "and survival" after the word habitat.

Page 13, third paragraph—"Both the MTFWP and the WYGF now agree that a spring draft after the end of March is not a real concern for the existing reservoir fishery." The two agencies agree that such a draft is no longer a concern for walleye spawning. However substantial drafting of the reservoir during the late spring period will result in "real concern" and real biological consequences for the reservoir fishery. We understand that substantial late spring drafting will at times be necessary when space is needed for large forecasted inflows but we urge BOR to avoid such drafting whenever possible.

Page 14, in the second and third paragraph-reference is made to normal snowpack and high mountain snowpack. What is considered normal snowpack—100% of average snow water equivalents and high snowpack greater than 120%? An explanation is need here.

Page 15, second paragraph- it is stated "The least complicated and consistent method to account for the gain is to calculate it as the inflow to Bighorn Lake less the total releases from Boysen and Buffalo Bill Dams." The WGFD supports the least complicated and most consistent method for accounting for gains and feel it is imperative that this method be fine tuned so the best November to March gain forecast will lead to a March 31 water storage level that ranges from elevation 3617 ft to 3621 ft. An explanation of how inflows to Big Horn Lake are actually calculated here would help the reader better understand this important component of setting a winter period flow discharge.

Page 18, first paragraph-indicates that the gains forecast method did an acceptable job in estimating the November through March gains over the last 19 years of record. What is considered acceptable; a  $\pm 5\%$  of actual gains? Acceptable is a very subjective measure of perfection.

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Page 18, second paragraph Within the “Determining the November through March release rate:” section- we would suggest that the operating criteria stress the importance of setting the winter release flow rate as closely to the October 31<sup>st</sup> target date as possible when the most current information regarding reservoir storage level, forecasted gains and anticipated winter releases for Buffalo Bill and Boysen are available to determine a winter release rate that will most probably achieve a March 31<sup>st</sup> reservoir storage elevation of 3618 ft.

Page 18, third paragraph-in this discussion of Balancing Risk, the WGFD suggests that the BOR should be able to more accurately manage water levels than using 500 cfs increments. The methods described appear to diminish the value of the forecasts and computations by overly large buffering of the discharge. We are not suggesting an absolute adherence to the formula but a 100 cfs buffer seems more appropriate. In the statement; “A couple of other limits are also included in this procedure. These are: (1) If the river release is calculated to be less than 1,500 cfs then the river release is set at 1,500 cfs;” WGFD disagree with operating the reservoir with any absolute minimum or maximum reservoir elevations or discharges that aren't legally mandated or physical/safety constraints. We don't believe it is equitable to other user groups to establish minimum discharges when there are not (nor should there be) minimum storage levels.

Page 20, second paragraph-what is high flood flows-please provide a range or standard i.e., flows equal to or exceeding 25 year flood flows.

Page 21, first paragraph-“In wetter years this percentage is much higher and in dry years, much lower.” It would be more informative to give the recorded range and average rather than telling us wet years are wetter and dry years are drier.

Page 21, first paragraph-“Until our ability to predict the weather improves significantly, there will remain a large amount of uncertainty in the spring runoff forecasts.” We understand and appreciate BOR efforts to predict spring runoff and feel that using the best modeling techniques presently available is of paramount importance.

Page 22, second paragraph-“In most of these years the reservoir will fill to a level less than the normal full level of at elevation 3640.” Delete the word “at” in this sentence.

Page 22, Figure 7 needs a title that better explains what it depicts and what LD, LQ, UQ and UD mean.

Page 23, Figure 8 same comments as for Figure 7.

Page 23, second paragraph-“Normally, adjustments to the reservoir releases should be based on looking at least a week ahead to allow time for the reservoir level to come back on track with the rule curve.” Does this statement suggest that we can expect a weekly evaluation/adjustment? This is just a little foggy to interpret.

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Page 23, third paragraph-“The rule curves show that for low snowpack years the reservoir should be allowed to begin filling in early April, and for high snowpack years the reservoir should be drafted to an elevation as low as 3605 by near the end of May.” WGFD submits two comments here. Earlier in document it was indicated that the rule curves don’t work well in low snowpack year. Is this true or false? Operating the rules curves as suggested here is not much different than in the past with the problem for Wyoming concerns happening when the reservoir is drafted to a low elevation of 3605 ft but inflows aren’t forecasted close enough and the reservoir does not fill. The new operating criteria should provide examples/scenarios with step wise procedures that will be followed when low or high snow packs are forecasted and should include impact analyses to lake recreation and lake fisheries for a range of these scenarios if enacted.

Page 24, first paragraph-“The goal, in these low runoff years, should initially be that of holding a river release of no less than 2,000 cfs through the end of the following March if this will allow the reservoir to end up near elevation 3618 by the end of March.” WGFD believe the goal should be to conserve storage to balance all user needs. Maybe this is what BOR was trying to say but it appears that the focus is on maintaining 2,000 cfs.

Page 24, first paragraph-“Reducing the river release below 1,500 cfs would be considered when needed to prevent full depletion of the active conservation pool.” Depletion to anywhere close to the bottom of the Active Conservation Pool (El. 3547 ft) would be unacceptable to WGFD and destructive to the reservoir fishery.

Page 24, first paragraph-“ Decisions to reduce releases below 2,000 cfs and especially 1,500 cfs are not decisions that can or should be spelled out in this report.” In WGFD opinion BOR should at least attempt in this report to identify the primary factors to be considered in making these determinations. The focus on river release in describing these criteria suggests that preservation of the river fishery is a very big factor in the determination but other user interests are left "not spelled out".

Page 24, second paragraph-“Because the drought years are the most difficult to manage for the competing interests, it was desirable to include these years in the study period.” While WGFD agree that drought years are very difficult on competing interests, from the perspective of the reservoir fishery, large drafts of the reservoir that would result from predicted and possibly delayed melt of large snow packs could be the most biologically devastating on reservoir fish. In other words, the reservoir fishery is more likely to be damaged in years when big fluctuations of the reservoir elevation occur over a several month period. During drought years we would expect the BOR would manage the reservoir somewhat lower than average but with small fluctuation resulting in a less severe impact on the fishery.

Page 25, reference to Figures 8 and 9 on this page is incorrect and should be Figures 9 and 10.

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Page 26, first paragraph-“ Each of the months of operations were examined to determine the percent of time the river flow met or exceeded the fishery flow targets of 1500 cfs, 2000 cfs, 2500 cfs and 3500 cfs.” WGFD respectfully disagree with entertaining 3,500 cfs as a tailwater fishery flow in the operating criteria. We don't disagree that it might create a great tailwater fishery, but clearly it is beyond the normal natural capacity of the system. This analysis confirms this belief, and WGFD believes even including the analysis suggests consideration of an unrealistic discharge. WGFD would suggest that this would be a more balanced approach if a similar analysis, as conducted for river fishery discharge targets, were completed for targets of lake recreation, waterfowl and the reservoir fishery. WGFD suspects that had a similar analysis been completed on targeted reservoir elevations, the inverse would be seen, for example, for the number of times lake elevations of 3618 were met on March 31<sup>st</sup>.

Page 26, third paragraph-Figure 14 should be renumbered to Figure 12 to keep a chronological order to the figures as they appear in the document.

Page 29, fourth paragraph-“This indicated that the spring operation should not be based on filling the reservoir following a rule curve but rather on managing the limited water supply to conserve stored water in a manner that would allow maintaining a release near 2,000 cfs through the coming year.” Here again, this language suggests favoring the river fishery over other water use considerations.

Page 34, first paragraph- Conclusions: “Modification of the Bighorn Lake operating criteria and operating tools to include revised reservoir level targets, a revised method for calculating the gains, a new procedure for establishing a November through March river release rate and the incorporation of operational rule curves for the April through July period will provide significant benefits for the lake recreation and fishery, while still providing river fishery flows equal to or better than provided in the past.” WGFD agree with this conclusion and applaud BOR for making the effort to re-evaluate their normal operating plan.

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Thank you for the opportunity to comment. If you have any questions or concerns, please contact Steve Yekel, Cody Region Fisheries Supervisor, at 307-527-7125 Ext. \*816.

Sincerely,



for John Emmerich  
Deputy Director

JE/mf/gb

cc: USFWS  
Steve Yekel, Cody Region  
Tim Woolley, Cody Region  
Tom Easterly, Cody Region