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TOP STORY

Water, fish and the Bighorn River: Biologist talks about famed fishery

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Afterbay Dam, seen here discharging a flow of about 11,000 cubic feet per second, adds a lot of nitrogen to the the Bighorn River, a famed trout fishery. Dealing with the gas, as well as sometimes wildly fluctuating flows, mak managing the river's fishery more difficult for Montana Fish, Wildlife and Parks.

BRETT FRENCH, GAZETTE STAFF

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FORT SMITH — If Mike Ruggles had a magic wand and could make the Bighorn River flow perfect for rainbow and brown trout, he would keep it at 2,500 to 3,500 cubic feet per second.

Ruggles is a Montana Fish, Wildlife and Parks fisheries biologist who oversees the Bighorn. According to his figures the Bureau of Reclamation, which manages water flows into the Bighorn River from Yellowtail Dam, has hit his ideal target range about 39 percent of the time since 2009. That's when the Bureau drafted new operating criteria.

“What we really run into is the times over 8,000 cfs, which is 17 percent of the time,” Ruggles said while addressing the Bighorn River Alliance, a river and angler advocacy group, last Wednesday in Fort Smith.

At those flows, fewer people are coming to the small community of Fort Smith to fish, rent boats and stay in lodges — a money generator that has been estimated to dump roughly \$40 million to \$45 million a year into the local economy.

“This little part of the world gets tremendous fishing pressure,” Ruggles said.

FWP has estimated the river records about 180,000 angler days a year, a number comparable to rivers like the popular Madison or Missouri, but those rivers can spread anglers out much farther than the 12 miles of water that is the most heavily fished on the Bighorn — between the Afterbay Dam and Bighorn fishing access sites.

“It's not all bad,” Ruggles told the crowd of about 75 people.

The higher flows tend to favor brown trout, which spawn in the fall. At the last count in 2016, the four miles of river below Three-Mile fishing access contained 2,500 brown and rainbow trout over 8 inches. Between 1992 and 2015 that same stretch of water averaged about 4,200 trout per mile.

Looking back for comparison, populations reached a high of about 2,300 rainbow trout per mile in 1997, and more than 8,800 brown trout per mile in 1998.

In response to a question, Ruggles said the water can only support so much biomass of fish — either a lot of smaller fish or a fewer number of bigger fish. Right now that biomass is “trending about the same,” Ruggles said, meaning the fewer fish are fairly fat.

“Those fish we caught last fall were hogs,” he said. “Thick, stocky fish.”

The next stretch upriver is where Ruggles has documented problems with retaining rainbow trout. High water flows mean more nitrogen in the water below Afterbay Dam. High levels of nitrogen can kill small rainbows that may be running upriver seeking a place where there are fewer fish, and therefore fewer predators.

“We do have a nitrogen problem, especially below Afterbay,” said Anne Marie Emery, executive director of the Bighorn River Alliance. “It’s a big puzzle, and the river is responding in ways we don’t understand.”

To complicate matters, in 2014 the river dropped in the spring leaving rainbow eggs high and dry right when they were about to hatch. Later that same season, the Bureau of Reclamation bounced flows upward again after heavy spring rains increased runoff.

“For me as a fish manager it was very frustrating,” Ruggles said.

Since then, Ruggles has lobbied the Bureau of Reclamation to be more considerate of the rainbow trout hatch. He said he’s hoping the agencies can work it out, given a few more attempts. Right now, though, things are tough for the nonnative fish that live in a manmade river environment.

“It’s kind of a perfect storm for rainbows on the Bighorn,” Ruggles said.

A numbers game

Go to a meeting about the Bighorn River and Bighorn Reservoir and there are a lot of numbers that get tossed around. Here’s a few of the digits with some definitions to help put things in perspective.

3,640 feet – The highest elevation the Bureau of Reclamation would like to see at Yellowtail Dam.

3,641 to 3,657 feet – The elevation at which the Army Corps of Engineers takes over operation of Yellowtail Dam out of concern about flooding downstream. The BuRec wants to avoid these elevations.

3,590 to 3,640 feet – The 50 feet in which the Bureau of Reclamation likes to operate the dam. It can go lower in extreme weather events.

3,617 feet – The end of March target elevation that the Bureau would like to hit. That could be revised to 3,614 to allow more winter flows into the Bighorn River. An elevation of 3,617 is, not coincidentally, also the minimum level at which boats can launch at Horseshoe Bend Marina, on the southern end of the reservoir.

3,606 feet – Lake elevation as of April 23.

3,602 feet – Elevation the Bureau would like to hit by the end of April.

3,597 feet – Low point the Bureau hopes to hit in May to make room for what could be record runoff of 2.8 million acre feet but is more likely to tie 2011's 2.2 maf.

3,630 to 3,640 feet – End of October Bighorn Reservoir elevation target. Could be revised to 3,635 to 3,640 to narrow the water window.

3,580 feet – The minimum water elevation at which Ok-A-Beh Marina's boat ramp, located at the north end of the reservoir, can be used. That's also the minimum for Barry's Landing boat ramp, 14 miles north of Horseshoe Bend.


11,500 cubic feet per second – Current water releases out of Yellowtail Dam which correlates to the flow in the Bighorn River below the dam.

12,000 to 13,500 cfs – May and June releases could range between these two figures, depending on the speed of runoff and the severity of spring rain and snow storms.

1,500 cfs – Absolute bare minimum Bighorn River flows during drought to ensure fish survival.

500 cfs – Every 500 cubic feet per second of water that is released equates to about a 3-inch rise in the river's level.



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