Efforts to save the Cheat River chart clearer course forward

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The Cheat River flows pale green and slate gray, glistening in the sunshine as it gathers speed, turns to whitewater and drops between rocks on the way toward the Monongahela River. From there it makes its way to the Ohio River and the drinking water of millions of people.

As West Virginia pushes toward an uncertain economic future, a river that once flowed bright orange charts a course out of mining's toxic legacies.

The state recently joined conservationists to protect the Cheat's eight-mile whitewater canyon, collectively buying 3,800 acres from timber investors for $7 million. A new $8 million water treatment plant next year should help alleviate ongoing acid drainage from an abandoned underground coal mine that blew out in 1994, spewing acid and metals.

"In the East, it's a rare opportunity where you get to protect eight river miles along an area that not only has tremendous biodiversity but also has a lot of recreational opportunities available," said the Nature Conservancy's Keith Fisher, a biologist.

Even with President-elect Donald Trump promising a coal industry comeback, most West Virginians have adapted to a world in which other economic engines are needed to revive one of the nation's poorest states. The two-decade effort to reclaim the Cheat River and its tributaries fits into a broader push to grow tourism in West Virginia, where visitors already spend about $4.5 billion annually.

"Our tourism possibilities in this state are limitless," Governor-elect Jim Justice said during the campaign. An outdoorsman and mine owner, he told The Associated Press after winning that he wants to protect the state's air, water and natural beauty, saying it can co-exist with coal.

The Cheat also has a more tangible connection to West Virginia's coal legacy. Like many waterways in coal-producing states, it remains threatened by mine drainage that turns water acidic.

The state Department of Environmental Protection calls the acidification of waterways coal's "biggest environmental problem," affecting hundreds of miles of West Virginia rivers and streams, usually from abandoned mines where those who caused it are long gone. The agency says the Monongahela, Tug Fork, North Branch of the Potomac and several other rivers have all been affected.

The Cheat is clear to the bottom and shallow in November, unlike the spring surge that rises above boulders and draws peak-season rafters and kayakers down the canyon. Its steep walls are lined with hardwoods, oaks, hickories and maples still dropping amber leaves. The water remains high enough to carry small boats.

Part of the 330-mile Allegheny Trail runs parallel for eight miles, high on the river's east rim. The narrow, grassy former logging tract was once designated for a rail line. Now it's reopened to hikers, fishermen and hunters and closed to all-terrain vehicles. Commercial rafters never stopped using their rights to a navigable waterway, though they lost business after the blowout.

"Cheat River is so much better than it used to be," said Doug Wood, a retired state biologist. "As a drinking water source it's much better than it was before."

Downstream drinking water systems all have to treat their intake from the rivers for bacteria and other contaminants, some more extensively.

Its acidity was toxic to virtually all aquatic life after the 1994 mine blowout released massive drainage outflows into a tributary, Muddy Creek.

"The Cheat was already a pretty severely polluted river," said Randy Robinson, then a rafting guide who was on it shortly after the blowout and remembers the nasty, sulfurous smell. "It was like orange paint had been dumped in the river in a way."

The orange coating on the rocks from iron hydroxide, which persisted for years, has disappeared. The acid levels have been sharply reduced through dozens of water-treatment projects, proven by both testing and the abundance of freshwater fish in Cheat Lake, a downstream river impoundment that has attracted an enclave of upscale homes and townhouses outside Morgantown.

According to Wood, acid drainage is a fairly predictable matter of coal geology, where the nearby rock also contains iron disulfide. With mining, it will produce iron hydroxide and sulfuric acid when combined with oxygen and water that eventually finds a path down and out.

"The problems with the Cheat should have educated our permitting agencies, a long time ago, to prevent them from issuing permits that are going to result in perpetual acid mine drainage," Wood said. He said that hasn't happened. Restoring an affected waterway afterward requires costly, active treatment, he said.

The state permitting agency said it does consider geology among many factors. Permits aren't approved unless an operation is deemed to meet all federal and state legal requirements, spokeswoman Kelley

Gillenwater said.

Amanda Pitzer, executive director of Friends of the Cheat, volunteers who monitor and work on its restoration, said the pH level, which is neutral at 7, dropped to toxic 3 and 4 after the blowout.

The Muddy Creek tributary looks milky green now, still showing effects of drainage that also includes aluminum. The creek, though improved, still has no fish.

David McCoy, a state engineer, said 3.4 miles of Muddy Creek still usually test acidic, and the Cheat itself now tests neutral. The new filtration system will use two 80-foot clarifiers, a 100-ton silo and hydrated lime to counter the acidity and capture the sludge of metals that settle out. That sludge will be piped to an injection well underground at a higher elevation.

The Nature Conservancy emphasizes a "pragmatic" approach, working with businesses to promote best practices for limiting environmental impact. The economics of the transition from West Virginia's post-mining economy can't be ignored, said Fisher, the state chapter's director of conservation, and should include recreation and land and water restoration.

All of that brings him back to the big question he and others are trying to answer. Standing on the trail, high above the softly rumbling river, he said it's about the transition from a coal-dependent economy to something else: "How do you make conservation and economic diversity work together?"

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