

BETTER FOR BULLS Bull trout hold in the pool of a tributary of the South Fork Flathead River, in the Bob Marshall Wilderness Area upstream from Hungry Horse Dam. Water release and retention improvements at Libby Dam and Hungry Horse Dam (right) have decreased disruptions to the federally threatened species and helped other native salmonid fish populations up- and downstream from the two federal hydropower facilities.

FWP biologists have found a way to balance the needs of northwestern Montana's native species with hydropower generation, flood control, and even downstream salmon and steelhead populations.

BY BRIAN MAROTZ

THE FISH AND THE TURBINES

I didn't realize it at the time, but the Northwest Power Act (NPA) of 1980 changed my life. If you live in the Pacific Northwest, including northwestern Montana, it likely changed yours, too. In fact, it just might be one of the best things you didn't know happened to you.

The NPA is a federal law intended to ensure low-cost electricity from federal dams in the Columbia River Basin. My relationship with the act began in 1985, when my wife and I packed a U-Haul truck with our worldly goods and two sedated house cats. With our little car on a tow dolly and a canoe on top, we left Louisiana State University in Baton Rouge and headed north to Libby, Montana. Montana Fish, Wildlife & Parks had hired me as an entry-level biologist on a 13-month contract to help keep water flowing in 10 spawning streams in Montana's slice of the Kootenai River Basin. My temporary job was part of a fish and wildlife program developed by the Northwest Power and Conservation Council (NPCC) and funded by the Bonneville Power Administration (BPA)—all part of the NPA. Yes, there have been a lot of acronyms in my life.

As I floored the truck's gas pedal and crept over the last climb into Libby, the Cabinet Mountains rose into view, and I thought I'd died and gone to heaven. During that first field season, I had to keep pinching myself. I was actually being paid to explore trout streams, measure water flows, and use electrofishing gear to estimate trout populations.

LEFT TO RIGHT: PAT CLANTON/ENGETSON UNDERWATER PHOTOGRAPHY; JEREMIE HOLLMAN

Columbia River Basin and Dams



BACK ON THE MAP The Columbia River Basin is one of the nation's largest watersheds, covering more than 260,000 square miles and providing drainage for hundreds of rivers, creeks, and streams. In 1980, Congress passed the Northwest Power Act to ensure low-cost electricity to Northwest ratepayers from federal dams in the basin. Under the legislation, the Northwest Power and Conservation Council manages fish and wildlife mitigation projects in the basin. For years, the council ignored the basin's two federal dams in Montana (circled in red) and the dams in British Columbia.

STATES CLASH

Montana's dams are just a small part of the mighty Columbia River hydropower system, which includes another 14 federal dams (and dozens of private dams) in Idaho, Washington, and Oregon. Fisheries in those states sometimes take precedence over those in Montana. For instance, federal regulations under the Endangered Species Act (ESA) required that Montana's dams release water to help recover salmon in the lower Columbia. Operations at our dams had to mesh with those of the other dams throughout the basin.

Not surprisingly, states began to fight over the needs of resident fish and wildlife in the headwaters versus those of salmon and steelhead, protected under the ESA, downstream in the Columbia River. Montana was at a distinct disadvantage at first, because we weren't even on the salmon-recovery maps at the time, which ended abruptly at the Idaho border. That's because Montana hasn't had sea-run fish like salmon

and steelhead since at least the Wisconsin Ice Age some 12,000 years ago.

But the landlocked descendants of several sea-run species do live here. When the glaciers receded, Kootenai white sturgeon were isolated in Kootenay Lake, British Columbia. A white sturgeon population, listed as endangered under the ESA in 1994, still lives upstream into Montana as far as Kootenai Falls, between the cities of Libby and Troy. Steelhead that became trapped in the Kootenai headwaters shrank over millennia and are now called redband trout, the only native rainbow in Montana. They still share the river with burbot, a landlocked freshwater cod whose habitat also was split by Libby Dam. Landlocked sockeye salmon, known as kokanee, are also native to the Kootenai River drainage where it flows west into Idaho.

What's more, in recent decades the Kootenai, Clark Fork, and Flathead Basins of western Montana have become westslope cutthroat and bull trout strongholds. Bull trout were ESA-listed as threatened in 1999.

BIOLOGICAL MODELS

About a year later, my supervisor, FWP fisheries biologist John Fraley, found out that I had written computer programs back in Louisiana for managing dams in that state's estuaries. He asked me to develop biological models for reservoirs above Hungry Horse and Libby Dams and use the models to develop rules for operating the dams in ways that balanced flood management and hydropower with the needs of fish and wildlife.

Soon after, I transferred to Kalispell to take a full-time FWP position funded by the BPA (see sidebar "BPA boosts fisheries and wildlife work in northwestern Montana" on page 35). My job was to supervise a talented fisheries crew to "mitigate impacts"—in other words, find ways to compensate for the harm to fisheries—caused by Hungry Horse and Libby Dams and continue working on biological models for the reservoirs.

Biological models are computer programs that track the effects of seasonal water levels on aquatic life, from tiny plankton to fish. In this case, our models showed how to ensure that the fisheries in Hungry Horse and Kootenai (Libby Dam) Reservoirs were protected in all conditions, from drought to flooding.

Although I missed the wilds of Kootenai country and the mellow Libby lifestyle, my wife was delighted to move to the "big city" of Kalispell. I soon adapted to living near Glacier National Park and the Bob Marshall Wilderness—more examples of heaven.

Once we began to understand how to manage reservoirs, our team realized we also needed to learn how dams affect downstream fisheries. At this point I began leading fisheries teams that examined how habitats in the Kootenai and Flathead Rivers change as dam discharges fluctuate throughout the year. We also documented the ways that deep reservoir drawdowns affect fish populations.

By 1995, FWP could confidently recommend how the two hydropower dams could best operate to protect fish populations both upstream in the reservoirs and downstream in the rivers.

Brian Marotz recently retired from his position as FWP's hydropower mitigation coordinator.

The westslope cutthroat, which remains in less than 10 percent of its historic range, has been petitioned for federal listing. It turns out that the largest intact stronghold of this species in the entire Rocky Mountain West is isolated upstream from Hungry Horse Dam.

Salmon and steelhead are important, but Montana has plenty of its own important and vulnerable native fish species to fight for.

To make that point during a presentation years ago to northwestern fish managers in Portland, Oregon, I added several large spigots representing the major rivers in Montana and British Columbia to the map they had been using, which was also blank north of the U.S.-Canada border. I joked to the audience that I was from that "other 'little-known country' known as Montana." They got the message. As you can see on the facing page, the map we're all now using shows the entire Columbia Basin.

BIPARTISAN SUPPORT

It took more than maps to protect Montana's fisheries interests. Our state successfully waged several battles in federal courts, supported by both Democratic and Republican officials, to keep our reservoirs and rivers from being sacrificed for downstream interests.

But Montana is a reasonable neighbor. So my team and I designed a water storage and release operating plan for Libby and Hungry Horse Dams that considered fish and wild-



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life, as well as flooding, throughout the entire Columbia River basin. By making some minor tweaks to the rules governing water operations at the Montana dams, we made sure that water released to benefit our resident fish species continues downstream to help recover anadromous fish in the lower Columbia, but not so much as to cause floods.

When the dust settled, the courts, independent scientists, and the NPCC supported our operating plan for Montana's two Columbia Basin dams. What became known as the Montana Operation was adopted by the federal government and began guiding dam operations at Libby and Hungry Horse in 2009. Other FWP officials and I have heard from other states and British Colum-

bia that Montana's operating strategy might eventually be applied to some of their hydropower dams.

And that's how the Northwest Power Act influenced my life and the lives of my colleagues and everyone else living in northwestern Montana. FWP fisheries professionals have used provisions in the federal legislation to protect and enhance Montana's fisheries resources. And the state of Montana, working with the federal government through various associations and councils, has found a way to ensure power generation, protect communities from flooding, keep rates low, and efficiently use mitigation funding to protect and restore the state's fish and wildlife habitat.

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FWP continues to fight for Montana's native fish as the United States renegotiates the Columbia River Treaty with Canada. Montana recommended using the Montana Operation for dam operations examined by the Columbia River System Operation Environmental Impact Statement (EIS) process completed earlier this year. "The Montana Operation was sustained and improved in the EIS's Preferred Alternative, which increases the odds that the next Columbia River Treaty will continue to keep northwestern Montana's reservoirs, rivers, and fisheries in good shape," Marotz says.

LEFT TO RIGHT: U.S. ARMY CORPS OF ENGINEERS; PORTLAND DISTRICT VISUAL INFORMATION; JEREMIE HOLLMAN

BPA boosts fisheries and wildlife work in northwestern Montana

A significant number of the FWP fisheries positions in Montana's northwestern region are funded by the Bonneville Power Administration (BPA). This federal agency based in Portland, Oregon, was created by Congress to manage the sale of electricity from 31 hydropower dams on the Columbia River system. It's also responsible for building and maintaining electrical transmission lines throughout the region—and this is where FWP comes in—protecting fish and wildlife affected by hydropower operations.

Payment for the 25 FWP fisheries and 3 FWP wildlife positions comes from utility customers and from legal settlements requiring utilities to "mitigate"—compensate for—harm done to fish and wildlife populations and habitat from the construction and operation of hydropower dams. Avista Utilities and NorthWestern Energy also fund a few FWP fisheries positions in northwestern Montana.

"Our utilities-funded biologists, technicians, and hatchery crew are essential for the fish and wildlife work we do in this region," says Jim Williams, FWP regional supervisor in Kalispell. "This creates an incredible public-private-tribal partnership among our agency, the power utilities, Idaho Fish and Game, the Confederated Salish and Kootenai Tribes, and the Kootenai Tribe of Idaho, who are also recipients of BPA mitigation funding."

In addition to funding the positions, BPA, Avista, and NorthWestern Energy have helped pay for large portions of landscape-scale habitat projects that conserve nearly one-quarter million acres of fish and wildlife habitat and guaranteed future public access in projects like the Thompson-Fisher Conservation Easement and Osprey View Fisheries Conservation Areas in the North Fork, Swan, and Flathead Valleys, Williams says.