



# Shanker's Bend

## Dam on the Similkameen could provide power, benefits downriver

By Dean Boyer

**T**he Similkameen River, named for one of the 12 tribes of the Okanogan people, arises in Manning Provincial Park in the Cascade Mountains of southern British Columbia.

Near the end of its meandering 120-mile course, it enters Okanogan County at Nighthawk, once a raucous mining town during the gold rush days of the mid-1800s, but now marked by a few weathered and deserted buildings.

Not far from Nighthawk, the river makes a horseshoe loop north, then south again, before spilling into the Okanogan River at Oroville, some five miles away.

This loop is known as Shanker's Bend, and it's here that Okanogan County PUD is exploring whether to build a new hydroelectric dam to produce as much as 74 megawatts of power.

"Nothing has been decided," stresses Okanogan PUD General Manager John Grubich, "but there are a lot of potential benefits for the people of Okanogan County and communities downriver. We hope people keep an open mind as we take a look at the possibilities."

Shanker's Bend has been viewed as a potential site for a hydroelectric dam since the 1920s, when the Army Corps of Engineers conducted a survey of the Columbia

River and its tributaries that eventually led to the construction of Bonneville and Grand Coulee dams as public works projects during the Great Depression.

By the late 1940s, the Corps had conducted both geological and seismic studies at the site and was including preliminary designs for a "high" dam at Shanker's Bend in its annual report to Congress.

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A follow-up study in 1955 conducted by the International Columbia River Engineering Board for the International Joint Commission of the United States and Canada, which regulates bodies of water shared by the two countries, also looked at a "low" dam scenario, but ultimately it also concluded that a high dam made more sense.

Nothing else was done for more than two decades.

Then in the early 1980s, Okanogan PUD and the Oroville-Tonasket Irrigation District asked the Corps to evaluate the

Similkameen River as the site for a multi-purpose dam project.

In January 1983, the PUD filed a preliminary application with the Federal Energy Regulatory Commission that included two potential configurations – a low dam and a "run-of-the-river" power operation. In a run-of-the-river system, the force of the current is used to power the turbines, instead of impounding water behind a dam that is released as needed to generate electricity.

FERC approved the preliminary application, but the PUD shelved the project in 1988 after determining that the cost of power – then estimated at 3.5-cents to 5.3-cents per kilowatt-hour – was too high to make the project feasible.

Instead, the PUD began looking at the possibility of relicensing Enloe Dam, a much smaller hydroelectric facility lower on the Similkameen River, between Shanker's Bend and Oroville, which had been decommissioned in 1959.

That project also made little headway until 2005 when the National Marine Fisheries Service reconsidered a long-standing requirement that the PUD install fish ladders as a prerequisite for relicensing the dam.

Significantly, British Columbia and the Okanogan First Nations had long opposed

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fish passage at the dam, arguing that Coyote Falls, just below Enloe Dam, was a natural barrier to salmon migration and that opening the river to salmon would threaten indigenous Canadian species on a provincial conservation list, as well as a thriving recreational fishery for rainbow trout.

With NOAA Fisheries' revised position on fish passage, Okanogan PUD filed its final application to relicense Enloe Dam in August 2008.

The PUD is continuing to investigate the Enloe project, which entails refurbishing the existing dams and building a new powerhouse to generate about nine megawatts of electricity. Project manager Dan Boettger said recently the PUD expects an environmental impact statement to be completed next fall, and if the project stays on schedule, Enloe could once again be producing power by 2014.

Meanwhile, in 2006 the state Legislature adopted a Columbia River water management plan that, in part, directed the Department of Ecology to explore new water-storage projects for the basin. Okanogan PUD sought, and received, a \$325,000 grant to look specifically at the water storage benefits of a dam at Shanker's

Bend. The Similkameen River Appraisal Level Study, released earlier this year, concluded that Shanker's Bend "is the most suitable location for a water storage, flood control, and hydroelectric project on the Similkameen River."

The study also found that the dam could have substantial benefits for central Washington, including water for agricultural, commercial and municipal use, as far down river as the Tri-Cities. The stored water could also be used to enhance flows for fish, at levels "above the natural hydrological regime," 90 percent of the time.

More specifically, the study found: "The environmental benefits of the project include the ability to provide minimum instream flows of cool, clear water with higher concentrations of dissolved oxygen at appropriate times which could improve survival of all salmonid life stages, and increase the carrying capacity of other resident species ... [I]t would increase kokanee spawning habitat by

63% ... and cool existing water temperatures in the Similkameen and upper Okanogan by as much as 2° C."

While the water-storage study was underway, Okanogan also applied to FERC for a preliminary permit to conduct a feasibility study of adding hydroelectric generation at Shanker's Bend. That permit, issued in December 2008, gives the PUD three years to explore the project in more depth, but does not authorize any construction.

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configurations for a dam at Shanker's Bend, including a 260-foot "high dam" proposal that would generate up to 74 megawatts of electricity. Other options are for a 160-foot dam that would produce up to 23 megawatts and a 120-foot "low dam" or run-of-the-river option that would produce up to 20 megawatts.

It's the "high dam" proposal that has drawn the most opposition, especially from Canadian interests.



PHOTO: BRENDAN BIELE

A 260-foot-high dam at Shanker's Bend would create an 18,000-acre reservoir that extends well into Canada. In a filing with the Federal Energy Regulatory Commission in March 2009, B.C. Environment Minister Barry Penner noted the dam would flood more than 9,000 acres of provincial, First Nations, and private lands and affect two protected areas that are home to several at-risk species. (On the U.S. side, the dam would flood mostly federal Bureau of Land Management property, although private property in the Palmer Lake and Nighthawk areas would also be affected.)

In a news release, the Ministry of Environment said the B.C. government "supports the responsible use and development of hydropower when such projects are appropriately sited and designed to avoid unacceptable environmental impacts." However, the statement said the province opposes the high-dam option.

FERC denied the province's effort to intervene in the preliminary permitting, saying that the request this spring came too late in the process. The B.C. chapter of the Canadian Parks and Wilderness Society was granted intervenor status.

Boettger, director of regulatory and

environmental affairs for Okanogan PUD, noted the high dam was included in the preliminary application with FERC so the PUD could explore the full range of options. The PUD has also been meeting regularly with U.S. and First Nations tribes.

"Until the water-storage study for the state was completed, we really didn't have a lot of specifics," Boettger said. "If we decide to go forward – on whichever option – we'll look more closely at the environmental and cultural issues. We're leaving the door open to ideas."

This fall, the Similkameen River International Steering Committee – consisting of five members appointed by the Similkameen Valley Planning Society in British Columbia and five appointed by the Okanogan County Commission – also released its own watershed study that recommended a dam on the river north of Princeton, B.C.

George Hanson, a board member for the District of Okanogan-Similkameen, told the Canadian media the proposed B.C. dam would "complement the two best options (medium or low dam) at Shanker's Bend from Canada's point of view."

If the high dam is selected, the Okanogan PUD proposal calls for enlarging an existing

1,700-foot railroad tunnel to carry water from behind a dam at Shanker's Bend to a surge tank that would direct the flow into a penstock and from there into the powerhouse. The flow would power a pair of 12-foot diameter turbines before the water is returned to the Similkameen River.

A high dam would also make 1.3 million acre-feet of water available downriver for cities, irrigation and fish. A 160-foot dam would impound about 168,000 acre-feet, greatly reducing the water-storage benefits, while the low-dam option would create a temporary pool of about 50,000 acre-feet during the spring runoff. All three would provide some flood control.

"When we got into this it was because the state was interested in more water storage," Boettger said. "Now we need to do some number crunching to see if hydro pencils out especially if we go with a mid- or low-dam option that gives us less storage and obviously fewer benefits downriver."

Okanogan PUD could decide later this year whether to proceed with a feasibility study. ■