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June 21, 2013

AlaskaDispatch
News and voices from the Last Frontier

Eklutna, Snettisham hydro projects still haven't redressed fish and wildlife damages

The Eklutna River's upper dam was rebuilt in 1966 in its present location, several hundred yards downstream from the lake's outlet.

Loren Holmes photo

ANCHORAGE -- In "Through the Looking Glass", the White Queen chastised Alice, "It's a poor sort of memory that only works backwards." I'm plagued by just that sort of memory.

I have been wondering, for instance, whatever happened to the agreement – dated Aug. 7, 1991 – to mitigate the effects of the Eklutna and Snettisham hydroelectric projects on local fish and wildlife populations.

Salmon runs, and wildlife that depended on salmon, were never rehabilitated after dams were built on the Eklutna River to supply electricity in the early years of Anchorage. A multi-agency working group has been unable to restore the river, much less the fish. Electric utilities, which own all rights to the water, are unwilling to share it with fish. Few people remember the original agreement. More than two decades after the agreement was signed, Alaskans are still searching for a solution.

Eklutna Lake and the two lakes that generate Snettisham hydropower are deep, glacier-carved lakes surrounded by mountains. The Snettisham project is located in rugged, mountainous terrain southeast of Juneau. Eklutna Lake lies between the Matanuska-Susitna Valley and Anchorage, within 50 miles of most of the state's population. The Snettisham and Eklutna hydro projects are among the largest in Alaska; only Bradley Lake, on the Kenai Peninsula, has a larger installed capacity.

These Alaska projects were among many hydroelectric developments, like the Tennessee Valley Authority, built by governments to foster regional development. Many now question government involvement in the business of producing and marketing energy and favor deregulation and downsizing government. By divesting itself of the Eklutna and Snettisham projects the federal agency that managed them, the Alaska Power Authority (APA), put itself out of business.

The 1991 agreement was left in its wake. Ultimately the agreement will broker a trade-off between the human demand for energy and water and an equal and opposite human desire to maintain populations of Alaska's fish and wildlife.

A sweet deal

When the APA transferred the Eklutna and Snettisham hydroelectric facilities into private, municipal, and state hands, those entities were not required to obtain a Federal Energy Regulatory Commission (FERC) license prior to operation. The Eklutna project was sold to Anchorage Municipal Light and Power, Chugach Electric Association, and Matanuska Electric Association. The Snettisham sale was negotiated by the Alaska Energy Authority but purchased by the Alaska Industrial Development and Export Authority, and the state contracted with Alaska Electric Light & Power Company, in Juneau, to operate the project.

The price of the two projects was not the market value but the present value of the outstanding debt of the APA. It was a good deal.

The Eklutna project sold for nearly $6 million in 1997, having brought in more than $1.3 million on the wholesale energy market that year. Snettisham sold for nearly $82 million in 1998, having brought in nearly $8.7 million the previous year.

A 30-year hiatus

Not everyone was satisfied, however. In discussions leading up to the divestiture, several federal and state agencies raised the concern that skipping the normal FERC licensing procedure would provide no opportunity to determine the extent of fish and wildlife impacts or to develop a plan to "protect, mitigate damages to, and enhance fish and wildlife (including related spawning grounds and habitat)."

To grease the skids, the electric utilities and the Alaska Energy Authority agreed to fund studies "to examine, and quantify if possible, the impacts from both projects." The studies would also examine and develop proposals to restore fish and wildlife populations affected by the hydroelectric developments. Finally, the purchasers pledged to consider how these measures would affect "electric rate payers, municipal water utilities, recreational users and adjacent land use, as well as available means to mitigate these impacts."

But none of this was going to happen anytime soon. The consultation process for the study plans was to be initiated no later than 25 years after the transaction dates for each hydro project. All provisions of the fish and wildlife mitigation plans for Eklutna Valley were to be initiated no later than 30 years and be completed within 35 years after the transaction date. The Alaska Energy Authority (AEA) was given an additional five years to initiate and complete its fish and wildlife mitigation for the Snettisham project.

In retrospect, it seems like a sweet deal. For the electric utilities. Rather than redressing fish and wildlife impacts from the beginning, they didn't have to conduct any mitigation for 30 years. In its environmental assessment, the Alaska Power Authority stated, "The approach for fish and wildlife measures is novel."

By the terms of the agreement, the clock started when the project was transferred from federal management to the purchasers. The Eklutna hydroelectric project was transferred on Oct. 2, 1997, six years after the agreement was signed. The Snettisham hydroelectric project was transferred to the Alaska Energy Authority in August 1998. Anyone concerned about restoring affected fish and wildlife populations was just going to have to take a number and wait patiently until 2027 for something to be done about it.

Terms of the agreement

When the time is up, some state or federal biologist – who probably hasn't even graduated from college yet – will have to blow the dust off the fish and wildlife agreement and bone up on the terms.

The agreement specified that the purchasers are responsible for mitigation. However, they are required to consult with the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and the Alaska departments of Fish and Game, Environmental Conservation, and Natural Resources. These agencies will also be allowed to comment on draft reports and plans. The final draft mitigation plan will then go through a public review process. The governor is required to review and finalize the Eklutna and Snettisham plans at least three years prior to their implementation.

The provisions of the agreement, including the decisions of the governor and the conditions of the fish and wildlife implementation plan, are reviewable and enforceable in the U.S. District Court for the District of Alaska. Any party seeking review or enforcement of the agreement must send written notice to all parties and hold a meeting to attempt informal resolution.

A redundant dam

Hydroelectric development didn't begin affecting fish and wildlife populations in the Eklutna River drainage in 1997 when the federal government sold the project to the purchasers. A cascade of environmental impacts began nearly 70 years earlier.

In the early 1920s a local businessman, Frank Reed, investigated the potential for hydropower on the river. After claiming a right to the water and obtaining a permit from the Federal Power Commission for constructing and operating a power plant on federal land, Reed constructed two dams on the river in 1929. An earthen storage dam, located at the outflow of the lake, raised the water level several feet. A much more substantial diversion dam was built in the canyon

about 1.5 miles upstream from the Old Glenn Highway. This dam was built of reinforced concrete and stood 61 feet high. Water from the diversion dam was piped through an underground tunnel to turn the turbines in the powerhouse. Reed sold badly needed electricity to Anchorage, and later the Matanuska Valley, until 1943, when the fast-growing city bought the power plant.

Not long after, the federal Bureau of Reclamation had a better idea: bore a 4.5-mile-long tunnel completely under the Twin Peaks, from the lake to the Knik River. This project, completed in 1955, rendered the diversion dam on the lower river redundant. The federal government bought the power plant – including, presumably, both dams – from Anchorage and built a much larger powerhouse near the Knik River.

The obsolete diversion dam has a sluice gate through the bottom which allowed gravel and debris deposits to be released downstream. Studies conducted in 1948 estimated, on average, 300,000 cubic yards of sediment were flushed from behind the dam every year. After the dam was mothballed, routine maintenance ended and the dam soon filled with sediment.

Selling more than electricity

As with other, much larger, dams in the American West, the Bureau of Reclamation was selling more than electricity. In its 1948 plan describing the new and improved Eklutna hydroelectric project, the agency justified the public expense by hyping the "highly desirable" recreational potential of the lake.

In 1948, fewer than 35,000 people lived in Anchorage, about an eighth of the current population. The Seward Highway, which opened the recreational potential of the Kenai Peninsula to Anchorage residents, had not yet been built. Most Anchorage residents looked north for recreation and, despite its primitive access road, Eklutna Lake attracted many weekend warriors. The National Park Service, noting that 25 percent of Alaska's population lived nearby, reported "as many as 400 persons have visited the area on a weekend day" and "the usual daily weekend visitation is more than 200 persons." It planned to provide a lodge equipped with guest rooms, a lounge, and a coffee shop.

Attractions included the scenery, boating, hiking and fishing, although the agencies proffered mixed messages about the lake's fish. The National Park Service believed "the lake contains no fish of consequence due to the colloidal silt content of the water." The U.S. Fish and Wildlife Service supported the project because "no salmon or game fish are involved." However, the plan cited an editorial in the Anchorage Times that claimed "Fishermen work the mouths of the streams on the lake shore." It is likely that the lake held Dolly Varden char and kokanee, a landlocked sockeye salmon. The rainbow trout found in the lake today were probably not native, but released in the lake sometime later by the Alaska Department of Fish and Game.

Where were the salmon?

If Eklutna Lake had supported a significant run of salmon in the late 1940s, serious objections might have been raised about the proposed federal hydro project. Where were the salmon?

The Eklutna River has no natural barriers to fish migration. However, it had two unnatural barriers, the private dams built two decades earlier. When Reed proposed building the original dams, no promoters, big-city boosters, or their clientele batted an eye about eradicating salmon runs in the river. Only one community was greatly affected by Reed's business venture: Eklutna Village, located near the mouth of the river. And it's unlikely that anyone consulted the Dena'ina people living in the village.

There is evidence that the river and lake supported many salmon prior to 1929. In 2002, Eklutna Village elder Lee Stephan, who was born in 1954, recollected, "In my youth, the fish were so thick you could walk across them." In another interview Stephan recalled times when the lower river was filled with pink salmon. That's not the only salmon species that was affected. The Alaska Power Administration, in its 1992 divestiture report and environmental assessment for the sale of the hydroelectric projects, found that during initial reviews "one significant problem was identified -- namely, loss of a sockeye salmon run that once spawned in Eklutna Lake." It also identified the cause: the private dams constructed in 1929. Chinook, chum, pink and coho salmon still reside in much reduced numbers in the lower river, below the diversion dam.

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The Great Alaska Earthquake of 1964 destroyed the upper dam. It was rebuilt in 1966 in its present location, several hundred yards downstream from the lake's outlet. Once again, no provisions were made for fish passage. Salmon runs were still blocked by the lower dam, which survived the earthquake intact. Once again the problem was passed on for a future generation to solve.

Part one of two. *Rick Sinnott is a former Alaska Department of Fish and Game wildlife biologist. The views expressed here are the writer's own and are not necessarily endorsed by Alaska Dispatch. Contact him at* rickjsinnott@gmail.com

Will Eklutna hydropower restore salmon runs any time soon?

The water of Eklutna Lake is pretty much all spoken for -- never mind the fish. *Loren Holmes photo* *Last of two parts.*

The federal government once owned two hydroelectric facilities in Alaska. Eklutna was transferred to a consortium of municipal and private electric utilities in 1997. Snettisham was transferred to state ownership a year later. A 1991 agreement among the various parties allowed the purchasers to postpone fixing adverse impacts to fish and wildlife for up to 30 years.

The Snettisham project didn't create many serious problems with fish and wildlife. However, hydroelectric development in the Eklutna Valley, beginning in 1929, destroyed several salmon runs and significantly affected other fish and wildlife.

'Novel' agreement

The Alaska Power Administration (APA) called the 1991 agreement "novel" because purchasers were usually required to address fish-and-wildlife concerns before a federal license or permit was issued to operate a hydroelectric facility. The provision that riled fish-and-wildlife agencies most was the 30-year delay. Agency officials believed the time frames for assessing damages to fish resources were too distant and unrealistic.

The Alaska Department of Fish and Game requested that the time frame be shortened to allow studies to begin in three years. While acknowledging concerns of the U.S. Fish and Wildlife Service, National Marine Fisheries Service, and Alaska Department of Fish and Game – particularly with regard to restoring salmon runs in the river and lake – the APA argued that the 1991 agreement was a blessing in disguise.

According to the divestiture report, existing legislation and regulations didn't require the APA to do anything to restore fish and wildlife populations damaged by the initial project in 1929. Selling the hydroelectric projects triggered a re-examination of previous impacts.

Even the 30-year delay was justified, the APA argued, because "it was expected that financial institutions would not provide financing if issues were outstanding and lacked resolution. By developing a binding and protective agreement, and putting off implementation dates, financing is an achievable goal."

Attempting to assuage the concerns of state and federal biologists, the APA noted that the agreement "provides for an earlier start [for mitigation] if the parties find that to be desirable." And it concluded that the 1991 agreement "affords fish and wildlife interests a stronger

voice in project management than would be available under continued Federal ownership."

Water is fuel

Hydropower has trumped all negotiations to date. According to the purchasers' water rights certificate, “any and all” of the water flowing into the lake is legally reserved for hydropower. In practical terms, this means 78 feet of water -- the difference between the lake's maximum surface elevation and the drainpipe, or 230,521 acre feet -- belongs to the purchasers.

Yet another demand for Eklutna Lake’s pristine waters developed in the mid-1980s. In addition to providing hydropower and recreation, Eklutna Lake became Anchorage’s water supply. The water reservation for hydropower was amended in 1986 to allow the municipality to drain an average 41 million gallons per day -- not to exceed 72 million gallons per day -- in the opposite direction, into the city’s water distribution system. However, according to Gary Prokosch, chief of the water resources section in the Alaska Department of Natural Resources, the municipality must compensate the purchasers for any loss of power.

Approximately 15 percent of the lake’s water is used for public water supply and 85 percent is used to generate electricity. With such high demand, water seldom spills out of the lake, over the upper dam constructed in 1966.

In 2002, Mike Dillon, supervisor of the Eklutna Power Plant said, “We don’t like to spill water. For us, water is fuel.” Consequently, very little water flows in the portion of the Eklutna River between the upper dam and its confluence with Thunder Bird Creek. Most of the water in the upper river comes from several small tributaries.

Eklutna River Watershed Council

Families living in Eklutna Village weren’t consulted about the hydroelectric projects built in their backyard in 1929 and 1955. They also haven’t forgotten the once-abundant runs of salmon. In fact, they want them back.

In 2002 the Native Village of Eklutna created the Eklutna River Watershed Council. The council included representatives from at least 11 state and federal resource and regulatory agencies, local communities, Alaska Railroad, University of Alaska Fairbanks Cooperative Extension, Trout Unlimited, Sierra Club, and Eklutna, Inc. Grants from the Environmental Protection Agency, Fish and Wildlife Service, Bureau of Indian Affairs, and other agencies were used to kick-start stream research and planning.

One of the council’s first goals became removing an illegal dump in the river, just upstream from the diversion dam, where decades of numbskulls had pushed or driven vehicles and other items over a sheer, 250-foot cliff. A large crane lifted 45 vehicles, five bicycles, 10 barrels, five laundry machines, two refrigerators, two ovens, two computers, eight newspaper dispensers, and a golf club, among other paraphernalia, from the bottom of the gorge. At least one pickup truck has been launched into the gorge since then. Due to the complexity of the issue and the number of organizations involved, the council spent too much time organizing, made little progress, and stopped meeting for several years.

The watershed council was reconstituted in 2009 as the U.S. Army Corps of Engineers began developing a plan to restore the lower river. In the first meeting, council members expressed a desire to create oxbows or tidal ponds in the river to make it more suitable for salmon spawning and rearing. They also discussed developing a fish hatchery using waste heat generated by a Matanuska Electric Association power plant to be built on the site of the old hydroelectric plant. Eklutna, Inc., said it planned to create fish habitat following commercial gravel extraction along the lower river. Nothing’s come of these plans to date, and the watershed council hasn’t met in a year.

Other solutions

The U.S. Army Corps of Engineers seems to have invested more time and money than most in trying to devise one or more solutions. In its Eklutna River Aquatic Ecosystem Restoration Technical Report, published in 2011, the Corps wrestled with a number of possible ways to renovate the river.

An obvious solution appears to be removing the lower dam. Some have even suggested blowing up the dam. But tons of sediment

stored behind the dam could clog the river for years if released too quickly.

Simply removing the lower dam won't increase water flow. The costly removal of the lower dam would provide little benefit to fish unless an adequate amount of water is released from the upper dam. Neither the private electric utilities nor the Municipality of Anchorage want to share their water with fish. If some water can be released into the river, a fish ladder could be installed to allow salmon to bypass the upper dam into Eklutna Lake. But do we want a recreational fishery and rotting fish carcasses in the city's pristine water supply?

Because these knotty issues were outside its control, the Corps' technical report didn't address the recovery of fish in most of Eklutna River and the lake. Instead, it recommended ways to increase fish habitat in the lower river. Even in the lower river, below the diversion dam, opportunities are limited by development. Extensive gravel mining by the Alaska Railroad and others has shifted the mouth of the river several times. The Alaska Railroad and Glenn Highway have restricted flows, and subsequent dumps of tons of sediment have resulted in shallow, shifting channels that do not provide good fish habitat. The report recommended constructing a single defined channel between the highway and railroad bridges, installing large woody debris and boulders to create fish habitat, and deepening gravel pits in the floodplain to provide better wintering habitat for salmon fry.

You break it, you fix it

In the past decade the watershed council and such agencies as the U.S. Army Corps of Engineers have spent hundreds of thousands of dollars -- tax dollars -- without getting to the bottom of the problem. The Corps technical report concluded it didn't have enough money to fix the real problem -- restoring fish in the upper river and lake -- because the two dams and the use of all the water in the lake for power and municipal water supply were intractable hurdles for a single agency.

The Corps report didn't mention the 1991 fish and wildlife agreement. This is not surprising given the number of years since the contract was signed and the number of years before it is scheduled to take effect. Perusing the list of signatories, you get a sense of how long it's been. Signing for the State of Alaska: the late Gov. Wally Hickel. Signing for the Municipality of Anchorage: former Mayor Tom Fink.

To the best of my knowledge, only one person working for the Alaska Department of Fish and Game remembers the 1991 agreement. About 20 years ago, a retiring biologist handed Ed Weiss a file on Eklutna hydro. Weiss recalled the outgoing biologist telling him he might have to deal with this issue before he retired. Weiss isn't likely to last another 15 years. Marc Lamoreaux, the natural resources manager with Eklutna Village, also knows about the agreement. He said he's reminded electric utility executives about the agreement. But Lamoreaux isn't likely to last another 15 years either.

What kind of a contract gives one side everything it wants right now, but makes the other side wait 30 years to find out if it's going to get anything at all?

Hey mister, can you spare a dime?

State and federal governments, universities, private non-profit organizations, and Eklutna Village shouldn't spend money trying to fix a problem that the purchasers have already agreed to deal with. The electric utilities were allowed to take up to 30 years to begin mitigating adverse impacts because that's how long it was anticipated they would need to pay off the loans. However, the agreement also stipulated that mitigation could begin earlier.

Thirty years is a long time to wait. But this problem has been percolating in the Eklutna watershed much longer – since the dams were built in 1929, drying up most of the water in the river and destroying several salmon runs. But if the electric utilities aren't willing to cooperate, nothing will be done to address the problem until 2027.

Alaska's fish and wildlife shouldn't have to wait a century for a dam day of reckoning.

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