



**Native Village of Eklutna**

April 24, 2020

**Comments on Eklutna Hydro Initial Information Package**

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Ms. Samantha Owen, Eklutna Hydro Technical Working Group Coordinator  
1011 Western Ave., Suite 706  
Seattle, WA, 98104

Dear Ms. Owen:

Thank you for opportunity for Native Village of Eklutna (NVE) to comment on the draft *Initial Information Package* (IIP) for the Eklutna Hydroelectric Project. The IIP is a good compilation of information, relevant to the project, for implementing the *1991 Fish and Wildlife Agreement (1991 Agreement)* terms. Because the IIP is an extensive document, NVE cannot be presumed to fully address issues relevant to it in these comments. NVE requests to reserve the right to add additional comments before the final draft is finalized.

Here are NVE's suggestions for the IIP, with references to the section numbers therein:

Section 1.1.1: The Conservation Fund (TCF) wrote:

“It should be inserted that the sale from APA to the Eklutna Purchasers included 'any and all property and facilities acquired or used in connection with Eklutna'. See the Eklutna Purchase Agreement. This will need expansion and reiteration at 3.5.2 to clarify that the Eklutna Purchasers assumed ownership of, and liability for, all infrastructure related to the 1929 Lower Diversion Dam.”

NVE is intrigued by this comment, as in this light, it seems the removal of the lower dam by TCF, Eklutna, Inc. (EI) and partners were services to the fish and wildlife mitigation goals of the 1991 Agreement. It facilitates restoration of salmon habitat in Eklutna River above Thunderbird Creek, provided sufficient flow can be restored. Certainly, there are now ongoing impacts to Eklutna River salmon habitat there from dewatering in need of study and mitigation.

Section 1.1.3: This section should include the following from page 10 of the *Environmental Assessment Report* section of the *Divestiture Report* specific to the loss of sockeye salmon:

“During initial reviews of the legislative proposal, one significant problem was identified: namely, loss of a Sockeye salmon run that once spawned in Eklutna Lake.”

NVE believes this definitive statement should be emphasized in discussion of whether a sockeye salmon run spawned in Eklutna Lake. The sockeye statement in the *Divestiture Report* is the best evidence, along with Traditional Ecological Knowledge.

A 1931-1934 study by Cornelius Osgood, published in 1976 by Yale University reported that:

Dena'ina (*Tanaina*) of Upper (*Cook*) Inlet caught and ate <sup>(1)</sup> Humpback salmon, Dog salmon, Silver salmon, Red salmon, King salmon, and Candlefish locally (Pg. 27). One of the primary informants who Osgood worked with was an Eklutna person. And, the Eklutna Village word for the month of June means “King Salmon Run” (Pg. 16).



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<sup>(1)</sup> Reference: Humpback = Pink, Dog = Chum, Silver = Coho, Red = Sockeye, King = Chinook.

A study by the Alaska Department of Fish and Game, Division of Subsistence, *Technical Paper Number 25* by James A. Fall, published in 1981 states:

“Five species of salmon spawn in the drainage systems of Knik Arm.”

“Salmon have historically spawned in many drainage systems of Knik Arm, including those of the Eagle River, Eklutna River, Knik River, Matanuska River, Wasilla Creek, Cottonwood Creek, and Fish Creek.”

Section 1.2.2: NVE agrees with TCF that:

“Schedule Requirements, language from the Environmental Assessment section of the Divestiture Report should be included wherein concerns are raised about the lengthy timeframe for study and mitigation.” “The time frames within the agreement for assessing damages to the fish resources were judged to be too far in the future and not realistic. It was felt that by the time program implementation was initiated, loss to the salmon resources could not be adequately mitigated for.”

This seems obvious. Baseline studies on Eklutna salmon should have been done before the 1929 lower dam.

Section 3.1: Much more information about the Eklutna Dena’ina exists. In the definitive book, *Shem Pete’s Alaska* (Kari and Fall, 2003). It includes two highly valued quotes from former elders that:

“Eklutna is an old, old village. Nobody knows when they first moved there.” And,

“Eklutna was always an old village.”

*Shem Pete’s Alaska* also describes the profusion of Dena’ina place names around the Eklutna Lake and the Eklutna Valley.

Section 15.21 includes the following helpful information:

“**Idlughet** (Dena’ina); **Zdlaaygha** (Ahtna), ‘By the Objects’; Eklutna village, ‘Old Knik,’ ‘Knik Village’ (AHRs ANC-00008). The earliest recording of this name is ‘Ixliueskoe’ in the *Wrangell collection notes* from the 1830s (Arndt 1985), based on the lower Cook Inlet Dena’ina pronunciation, **Ezdlughet**, for **Idlughet**; *skoe* is a Russian suffix ‘village’. This name is recorded as ‘Zdluiat’ and is mislocated several miles to the south on the 1884 Petroff map. The Mendenhall and Meiklejohn maps of 1900 label Eklutna as ‘Knik Village.’ *Chandonnet (1979:11)* and *Fall (1981:396)* trace the recordings of the names ‘Knik’ and ‘Old Knik’ for the village now known as Eklutna.”

Steve Braund and Associates studied Eklutna Village for Wells Fargo and reported evidence of a much older existence than the 1887 Old Russian Orthodox Church. It was so much so that Wells Fargo ended up gifting the land back to Eklutna in 2014 through our non-profit, Ikluat, Inc.



Section 3.1.1.1: NVE disagrees with the interpretation of *Chandonnet (1979 and 1991)* that Eklutna Village “was used only in winter” in early times.

NVE suspects that Euro-American culture and world views taint the interpretation. Much of the misguided assumptions can be avoided with respectful tribal consultations and inclusion of Traditional Knowledge, whether ecological, environmental, social, or historical.

It is NVE’s understanding that ancient Eklutna Dena’ina did consider themselves a village people. During the summer months they would disperse to fish and hunt at various locations up and down the Inlet, and inland, as to Eklutna Lake, up the Knik River, and further afield. However, some would have remained at Eklutna Village to hunt and harvest salmon there, including from Eklutna River, and lay in food supplies for overwintering at Eklutna from both local and dispersed sources. Villages were selected to have access to all needed resources, which prominently included salmon.

As per *Loso et al., 2017*, quoted at 5.4.1.2:

“villages were traditionally ‘located along productive salmon streams ...”

Eklutna was one of these villages. Excess preserved subsistence foods would also have been traded to others travelling between interior Alaska and farther down the Inlet, as Eklutna lay on a well-used trade route.

Winter Camp is more of the “Hunker Down” place to survive the harsh environment, and Eklutna is strategically located to watch up and down the Knik for invaders, hunt or trap in the mountains or nearby forests, and to fish, one of the most important food sources that continues to exist today. Simple logic dictates that in any strategic thinking, one would not leave the home-base unguarded, and not everyone was able to or cut out to go fishing, they did other things.

To give some insight in this philosophy of living, see the book written by Alberta Stephan of Eklutna, *The First Athabascans of Alaska: Strawberries*:

“Each person had a job to do. Some women were good at tanning skins, some were good at sewing. The elder women did the cooking and took care of the young children. The men were good hunters or runners or scouts who would find animals to hunt. Men who were too old to hunt anymore cut wood for the home fires.” ... “History was passed to the younger generations by stories.”

Note that oral traditions continue to be an important part of Eklutna’s culture.

Alberta continues with,

“Most families migrated to the rivers and wherever there was fish in the summertime. In the fall, it was time to hunt for sheep and goat up in the mountains.” ... “With all these preparations for winter, when the food ran out, they had to rely on rabbits and porcupine. Please read the first word again, Most.



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To live where there is access to good water and food is a characteristic of societies all around the world. It is no less true for Eklutna people. In an interview with George Ondola, conducted by Bonnie Morris and Maria Coleman for the Anchorage Port project, George stated,

“that he only claimed the amount of land he needed for his Birchwood allotment. There were rabbits all over the place, that was all he needed (if food ran low).”

Maria Coleman, current NVE Tribal Council *Vice President* listened to the elders in the early ‘70s, when she was in her 20s. Six elders, now deceased, told her that the Eklutna River used to be “overflowing” with “abundant” fish before the dams. They said that “now” there are (relatively) barely any fish there, and they can’t use that river anymore (Traditional Knowledge of Eklutna Fish Resources, Native Village of Eklutna). Eklutna people would like to catch more salmon from the Eklutna River today, but the salmon populations are too small to support more than a very limited take in the lower River.

NVE agrees that it should not be implied in the IIP (e.g. 5.4) that the Eklutna was never a significant salmon river. The continued presence of all five species of salmon in the lower Eklutna where it is supplemented by Thunderbird Creek is evidence alone that salmon have long used the Eklutna and that the Eklutna Dena’ina took advantage of this food source close to their village. Please see related references under 1.1.3.

Section 3.1.2: Reference should be made to the extensive Palmer Land Claims made by William Ezi in 1953, well before ANCSA. (See Kari and Fall, 2003 above.)

Section 3.3: Information should be provided about the hydrologic design flow that was assumed for the construction of the Old and New Glenn Highway bridge. The New Glenn bridge has not suffered from large emergency flow releases. Also, there are plans to reconstruct it to accommodate more lanes in each direction, and it could be designed to accommodate increased flows.

Section 3.5.2: More detail should be provided on the disposition of assets of the old project subsequent to the sale from the city to the USBR. It appears that these assets were transferred to the Eklutna Purchasers subject to the sale of the Eklutna Project.

Section 3.5.3: There is no mention of the stream that was diverted to flow into the ‘pond’ between the glacier moraine and the Lake Dam. Without the man-made diversion, this stream would flow into the river channel below the dam. This should be mentioned in flow related PMEs as well.

Section 3.9: It is worth noting that the recommended alternative would have taken water from the tailrace. This is still an option, as the water discharged at the tailrace is perfectly potable yet it is lost to the Knik River.



Section 5.2.5: The statement from the *2011 USACE report*:

“that removing the lower dam and releasing this accumulated sediment...”

The statement is taken out of context, as this report preceded the actual dam removal by six years. This statement seems to be included to suggest that the removal of the lower dam caused more biological harm than good because of the absence of flushing flows. There is no evidence that has turned out to be the case, despite the fact that the proponents of the lower dam removal have repeatedly requested that the Eklutna Purchasers provide flushing flows. USACE permitted the lower dam removal and was satisfied that doing so in the absence of flushing flows would ultimately be beneficial, not detrimental, to the biology and hydrology of the Eklutna River. NVE agrees that this sentence taken from the 2011 USACE report be deleted here.

Section 5.2.5: EI should be asked to provide for inclusion here the results of the monitoring of the Glenn Hwy bridges that to date show no significant accumulation of sediment at the bridges nor scour of the bridge abutments.

Section 5.2.6: It would be useful to have information about the volume of water contributed by Thunderbird Creek. This can be found in the *NVE Application for Reservation of Water, Thunderbird Creek*.

Section 5.3: It would be useful to have more discussion of water rights as they relate to the Native Village of Eklutna, the timing of ANCSA and the federal recognition of NVE as a tribe.

How is it that the people who have been living in Eklutna for thousands of years, and who own nearly all the land along the Eklutna River and around Eklutna Lake, were not consulted or considered when water rights were granted?

Section 5.4: NVE agrees that it should not be implied in the IIP that the Eklutna was never a significant salmon river.

Traditional Ecological Knowledge, sometimes called Traditional Environmental Knowledge (“Oral Histories” or “Stories”) from Eklutna Elders and Cultural Bearers provide the best available evidence besides the *Divestiture Report* on this question, and state that salmon were abundant in the River before the dams. The continued presence of all five species of salmon in the lower Eklutna where it is supplemented by Thunderbird Creek is evidence alone that salmon have long been used by the Eklutna and the Eklutna Dena’ina would certainly have taken advantage of this food source close to their village.

This might be the section in which to include discussion of impacts from Eklutna hydro project development as contributive to the cumulative impacts on the population of now endangered Cook Inlet Beluga whales. Knik Arm is CI Beluga critical habitat, and with decreasing salmon runs in the area, restoring Eklutna runs would boost CI beluga recovery efforts.



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Section 5.4.1: The story in *Shem Pete's Alaska* about how Eklutna got its name is important to include here. This story recounts a giant fish in Eklutna Lake that came out of the depths and swam down the river.

It's also worth noting here that Eklutna River King Salmon are the largest found in any area streams or rivers. We are not aware that this has been researched quantitatively, but village sport salmon fishers who fish other southcentral Alaska streams are very clear on this point. NVE Land and Environment Director measured a 56" dead king by the lower Eklutna River ponds in 2002. Dustin Lorah, *Trustee* on the NVE Village Council, can attest to this statement as he has measured a 52" fish caught and released and reported seeing another King Salmon caught (released) that was, "even bigger". He also reports, that the only other King Salmon this large could have come from very large and faster moving rivers like the Susitna, Kenai and Copper Rivers. These statements indicate that the Eklutna King Salmon are from a genetically distinct stock of larger fish, that hold on in the Eklutna River from a time before the River was diverted and had an order of magnitude greater discharge. A large Eklutna River King Salmon fishery would be a very desirable mitigation outcome, given the upper Cook Inlet dwindling King runs and fisheries' demand for these.

Regarding the Red Salmon (sockeye) and the statement:

"...whether or not there was once a sockeye salmon run into Eklutna Lake..."

This statement could be interpreted as to cast doubt on the presence of a sockeye run in Eklutna Lake. There is no reason to doubt the statements made at the time of the sale, nor is there an alternate explanation for the continued presence of landlocked sockeye salmon (aka kokanee). Prior to the 1929 dam, there were no barriers to sockeye reaching the lake. Despite lack of access to the lake, sockeye salmon still return to the Eklutna River. The preponderance of evidence should be interpreted to support the historic presence of sockeye, rather than their absence. And, current operations of the Eklutna Project are responsible for preventing sockeye, and any of the other four species of salmon, upriver beyond the former lower dam site.

Section 5.4.1.1: With regards to the sensitivity test, for how many salmon could have historically left nitrogen isotopes in the lake sediments that were missed, up to 1,000 per year and potentially as many as 15,000 per year are two different statements, and the first number is superseded.

One of the authors of the study wrote:

"Employing a simple sensitivity test, Finney found that Eklutna Lake could have hosted as many as 15,000 spawning sockeye salmon without being detected by the isotopic analysis, which has a margin of error of plus/minus 0.2 percent. Our results do not demonstrate that such runs existed, but neither can our results be construed as evidence that they did not." - Rick Sinnott, Anchorage Daily News, 12/3/2017.

The *USACE 2011 Report* speculation about the limitations of the Eklutna River drainage for sockeye spawning should not be cited as a recent study. Opportunities for spawning in the littoral zone of the Lake should be investigated. The potential for successful spawning in the Eklutna River and its forks that feed Eklutna Lake also requires further investigation.



Around 2001, an ADFG salmon Biologist looked at the turbid Eklutna River above Thunderbird Creek (where discharge under 10 cfs is the norm) and said no salmonids could survive in it. However, NVE salmon count surveys found chum spawn there in profusion and coho also spawn there. Salmon adapt to conditions in these Alaska rivers.

Current primary productivity in Eklutna Lake could be inhibited by extreme lake level fluctuations to optimize the power generation schedule. Allowing water to flow more naturally through the lake and into the river might also decrease lake turbidity by allowing lighter suspended solids to flow through while heavier ones settle. However, Eklutna water at the tailrace and in the Lake appear pretty clear, as opposed to excessively turbid, so NVE questions whether this issue precludes a sockeye run to Eklutna Lake. Certainly, impacts to fish and wildlife from the lake level fluctuations should be studied, and mitigated if possible. AWWU operators say they often find salmonids, including kokanee in the water coming from the lake, and these existing populations are probably being impacted.

Section 5.4.1.2: “Oral Histories” Replace with: “Traditional Ecological Knowledge”

Traditional Ecological Knowledge is recognized in US cultural resources protection law as equally valid with western science derived information. Traditional Ecological Knowledge (“Oral Histories”) from Eklutna Elders and Cultural Bearers provides the best available information, besides the Divestiture Report on the abundance of salmon in the Eklutna River before the dams.

Again: NVE disagrees with the implication that all Eklutna Residents spent summers away from the village, although some have reported that they did. Historically, Eklutna Dena’ina did consider themselves a village people and still do no matter where they live at what time of year. During the summer months they would disperse to fish and hunt at various locations up and down the Inlet, and inland, as to Eklutna Lake and up the Knik River. However, some would have remained at Eklutna Village to hunt and harvest salmon there, including from Eklutna River, and lay in food supplies for overwintering at Eklutna from both local and dispersed sources. Villages were selected to have access to all needed resources, which prominently included salmon as a staple.

*Loso et al., 2017* quoted at 5.4.1.2:

“villages were traditionally “located along productive salmon streams ...”

Eklutna was one of these villages. Excess preserved subsistence foods would also have been traded to others travelling between interior Alaska and farther down the Inlet, as Eklutna lay on a well-used trade route.

Throughout the last 50 years, several villagers have stated at one time or another that their parents would send them to the river to get dinner. It is cultural, it is self-sufficiency in action.

NVE would appreciate replacement of the first sentence below Figure 5-12:

“Eklutna village elders ‘claim’ that all five species of Alaska salmon were once abundant in the Eklutna River.” with:



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“Maria Coleman, current NVE Tribal Council Vice President listened to the elders in the early ‘70s, when she was in her 20s. Six elders, now deceased, told her that the Eklutna River used to be “overflowing” with “abundant” fish before the dams. They said that “now” there are (relatively) barely any fish there, and they can’t use that river anymore,” (Traditional Knowledge of Eklutna Fish Resources, Native Village of Eklutna)”

NVE would also like to point out a 1978 publication, *The Heritage of Eklutna, Mike Alex 1908-1977*, in which James Kari wrote:

“Mike was also well known to many Alaska natives who attended the BIA Eklutna Vocational School in the 20’s and 30’s as Mike was regularly involved with the school’s projects. In addition to all his jobs and chores, Mike always put up lots of fish and hunted moose and kept a garden for his large family. He sometimes talked of hunting trip in 1933, when he and his father killed 18 sheep at Eklutna Lake and distributed the meat throughout the village.”

Please note, that Mike’s work at the church and school, as well as working in the garden would have required his presence at Eklutna Village during the non-winter months.

Daniel Alex, son of Mike Alex, wrote the following while he was *Tribal Administrator* for NVE:

“At peak flow, the water level in the canyon portion was canyon wall to wall at where the old Eklutna Bridge is presently. At the same time in the lower part of the river, it was bank to bank and even overflowing the banks. The over flow provided water to the wetland area down near the mouth and south of the river, which was habitat for salmon fry. Salmon and trout did migrate up to Eklutna Lake. My late brother, Herbert Alex once told me that as a boy, he was fishing at the old upper dam and was almost pulled into the water by a large rainbow trout. The regular flow of water cleaned out any vegetation that would try to grow in the stream bed.

There was a clear water spring below the railroad tracks to the North of where the river was, that had a large flow of clear water, enough to make a stream that was at least 25 feet wide and at least 24 inches in depth. It was habitat for pink and chum salmon. The village used to get salmon for food until the salmon deteriorated. My mother would tell us that we needed salmon for dinner, and we would go to the stream and toss fish up onto the bank and pick a good one. The ones not acceptable were thrown back into the stream. That stream was a spawning area for the pink and chum salmon. Sockeye and Coho and king salmon did migrate up Thunderbird Creek. Where rainbow and other trout species are means that salmon are present. Different trout species feed on salmon eggs and likely salmon fry. The fact that trout migrated to the lake meant there was food present for them. A conclusion that salmon run was destroyed by the dams is a logical conclusion.”

With reference to the IIP paragraph beginning:

“Regarding the time period after the diversion dam was built in 1929 and before the Federal hydropower project was constructed in 1955...”





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Please add the following relevant quote from the NVE paper, *Traditional Knowledge of Eklutna Fish Resources*:

“Max Alex, a recent Eklutna elder, noted that there were plentiful salmon in the Eklutna and all the streams in the area. He says all species of salmon ran in the Eklutna River before the dams. Eklutna elders note that in the 1940s, before that, and in the early ‘50s salmon of all species were abundant in Eklutna River. Relocation to villages elsewhere is partially responsible for a gap in first-hand accounts about Eklutna salmon before then. Just above the confluence with Thunderbird Creek there was a large beaver dam. (The ends of this dam are still present, now on dry land.) Here people used pews to pitch to land as many fish of all species as they needed, including Red and King Salmon. One Elder, Jim Ezi, recalls taking king salmon in the Eklutna above Thunderbird Creek and below the old dam in the 1940’s. The King Salmon no longer run here because the water level is too low with the 100% flow diversions from Eklutna Lake.”

This illustrates the vestiges of once abundant Eklutna salmon runs still holding on in sufficient numbers for village use after the lower dam blocked passage farther upriver, but before flows were completely discontinued from Eklutna Lake. Today, tribal members do not deploy the NVE educational fish net in the Eklutna River because salmon populations are too low to sustainably harvest subsistence quantities.

Section 5.4.3: This research should be cited and explicated: USACE. *Habitat Assessment of the Lower Eklutna River. United States Army Corps of Engineers Report. Haines: Prince of Wales Tribal Enterprise Consortium, 2007.*

Native Village of Eklutna is nearly finished writing up a 2019 study: *Eklutna River Salmon Habitat Assessment and Collaboration to Recommend Restoration Flows*. This uses similar methods to the 2007 USACE Report cited above, re-assessing habitat in lower reaches and extending the habitat analysis of the River to the Eklutna Lake dam.

Section 5.4.3.3: *Ward’s Thesis (2010)* should be cited and results presented here as the author studied juvenile coho relative abundance and habitat at four creek off-channel restoration locations in southcentral Alaska. She wrote:

“The lower Eklutna River pond was the most productive habitat evaluated, and it supported a large summer coho salmon population of 3,490 coho salmon larger than 60 mm fork length, with coho salmon densities of 57/ 100 m<sup>2</sup>.” (from her Abstract)

An ADFG fish Biologist, Dan Bosch also trapped and measured minnows here prior to 2010 and told us some of the juvenile coho were the largest he has measured in this area.

It might also be noted that beaver dams have now altered the configuration of the lower River ponds.

Section 5.8.3: The list of prehistoric sites in Table 5-7 does not include many of these cultural resources of which NVE is aware.



Regarding ANC-02859, ANC-02878, and ANC-02879, the referenced sites appear to derive from reported sites documented in an *NVE survey report*, authored by Dan Stone:

“Taking the Trail Home”. There were many more features found at this complex of sites “near the Knik River Bridge”. (This report is currently confidential, and documented information on this archeological district is not for public distribution to the extent of the IIP.)

In contrast to the 11 house pits and 26 cache pits noted in the IIP table, Dan Stone’s 2008 Report, *Taking the Trail Home* (confidential, may be available for review) describes at least 42 house pits and 210 cache pits. It is our understanding that these findings were entered to the AHRS database.

NVE is aware of at least 5 house pits that remain on either side of the railroad tracks through Eklutna Village. Around 20 years ago ARRC covered over about 10 house pits to expand the tracks. They should have a survey report on this. And, there were likely more such cultural resources covered over with the initial installation of the railroad tracks. The tracks footprint is now quite wide, with curve straightening, side tracks and a former station house, grounds and facilities where an ancient village was likely to have been located. NVE knows of a larger number of cache pits, some of them unusually large, still remaining around Eklutna Village.

The inclusion of much of this information in a public document is inappropriate.

Section 6.1: Project Effects, this would be an appropriate place for additional citation from the *2011 USACE Report*, to wit:

“Permanent loss of 90 percent of the natural hydrograph due to upstream dam construction and diversion of 100 percent of Eklutna River flows, impacts to the river resulting from highway and railroad bridge construction, and other anthropogenic effects have degraded channel morphology and salmonid habitat functionality in some river reaches...The over-riding limitation is the inability to restore the natural hydrograph.. ... True restoration of the Eklutna River ecosystem would require removal of both dams...”

Section 6.1: Change the tense of the statement:

“the overall effect of the federal hydropower development ~~was~~ thus to diminish significantly the amount and timing of water...”

Here “was” should be changed to “has been”, to clarify that the impacts of the Eklutna Project are on-going and are not limited to the mere “footprint” impacts at the time of construction.

The next sentence:

“However, with respect to effects on the anadromous fish of interest...”

This part of the sentence needs to be deleted since, with the removal of the lower dam, the flow impacts now encompass the entire river.



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The tense of the last sentence:

“Resident fish impacts...”

This needs to reflect the fact that the effects of the federal project have extended over 65 years, continue to the present and are likely to extend into the foreseeable future. This sentence should read:

“Resident fish impacts from the change in flow regime are occurring along the entire length of the river.”

The Eklutna Purchasers are not absolved from effects on anadromous fish either above or below the lower diversion dam. Because the chain of custody of the lower dam passed through the city (which is still one of the Eklutna Purchasers) to the USBR, which built the federal project, and apparently passed to the Eklutna Purchasers with the sale, the Eklutna Purchasers are fully responsible for all impacts to the hydrology and fisheries of the Eklutna River stretching back to 1928. Especially now that the lower dam has been removed, the absence of salmon upstream of the lower dam site, and their inability to reach Eklutna Lake, rests entirely with the Eklutna Purchasers.

### Section 6.1: Project Effects:

The Conservation Fund is one of the top providers of wetlands mitigation in the nation. Since 1998 they have operated a statewide wetlands mitigation program in Alaska. One of the central concerns of wetlands mitigation is “temporal loss” which is the lag between the time of impact and the time that mitigation is implemented. Nowadays, wetlands mitigation typically must occur before the impact to wetlands happens, to avoid any temporal loss of wetlands function. If a project proponent sought to dewater a salmon river, they would need to replace or restore an equivalent amount (and equivalent type) of riparian habitat before their project would be permitted to advance.

In this case we are looking at 65 years of temporal loss associated with the complete dewatering of the Eklutna River. So, not only are the Eklutna Purchasers responsible for the “footprint” impact of the project, they are responsible for 65 years of loss of services and functions of an anadromous river.

Additionally, because of the inter-related nature of the Lower Dam and the Eklutna Project, we believe that the Eklutna Purchasers are responsible for all impacts to the Eklutna River that have resulted from hydropower development.

### Section 6.2.1: Flow Related:

NVE is very pleased that flow restoration mitigation is being considered for study planning as the foremost mitigation alternative.

The *2019 USFWS Study* (cited below) recommending discharge and flushing flow release levels and schedules for salmon habitat in Eklutna River below the lake dam is most relevant here. We trust USFWS will provide it and recommend its inclusion and interpretation here. The flow release levels recommended by this study should provide salmon habitat in the River below the Lake. However,



they will not fully restore what was lost. (*Upper Eklutna River Survey, Preliminary Fish Habitat Flow Assessment. Field Report. Anchorage: USFWS, 2019*)

NVE agrees with the IIP that:

“If it is determined that the drainage outlet as it currently exists could not be used to release either regulated instream or flushing flows, then the ability to provide instream flows at the dam (either year-round instream flows or short-term flushing flows) would require the design, installation and operation of appropriate water release mechanisms.”

And, NVE believes such measures should be taken. NVE questions whether the drainage outlet is large enough to convey sufficient water for optimal sustained and larger flushing flows recommended by USFWS.

Allowing the reservoir to fill and allowing the spillway to overflow is a viable alternative. It might actually be the simplest and easiest method of flow restoration. Doing so could result in reduced power production, and less capacity to control the schedule of that production. However, it is a viable alternative that should be considered if a better release mechanism is not devised, although by itself it does not address salmon access to the lake.

Section 6.2.1:

Discussion is warranted here on the idea of Eklutna pumped hydro battery. In its simplest iteration, the water discharged at the tailrace could be recaptured, and pumped back up to Eklutna Lake, using Fire Island wind and other sources at times of excess wind capacity. This would allow for the “firming up” of additional wind capacity at Fire Island, allow Eklutna Lake to function like a battery, and keep Eklutna Lake levels full and spilling into Eklutna River. Kerry Williams has developed this idea in a number of articles and presentations. Energy storage capacity could be increased by creating additional reservoirs in high elevation valleys above and around Eklutna Lake, including upper Thunderbird Creek. Knik River water could be pumped to fill these and essentially bypass Eklutna Lake for hydro power flows delivery. With existing renewable production this could supply 100% of Railbelt energy needs at substantial savings relative to current generation and proposed Watana hydropower (Williams, Smith and Higman, 2020). The “pumped hydro Eklutna battery” is a win-win solution that could allow fully restored Eklutna River flows for salmon habitat, reduce costs to electric rate payers and not impact municipal water utilities.

Maintaining Eklutna Lake at bankful and overflowing into the Eklutna River is another achievable, and in some ways desirable option that would restore some of the natural functioning of an anadromous river that has been degraded by hydropower for 92 years. This would not return the river to a condition that may have existed in 1928 or 1954. It would not allow access for adult salmon returning to the lake without fish ladders, water cannons, etc. And, it could impact the most profitable power production schedule. However, it could provide relatively natural conditions so that the Eklutna River below the lake can function and evolve without manipulation or intervention.

Section 6.2.2: It is mentioned here that:

“Non-flow related measures discussed at the 2018 workshop included:...2) fish passage at the upper Eklutna dam to allow migration into and out of the lake...”



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## Comments on Eklutna Hydro Initial Information Package

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However, NVE sees little development of this restoration/mitigation option, which could restore a sockeye run to Eklutna Lake, potentially the largest fishery of the Eklutna system. (see comments on 1.1.3 and 5.4.1.1) Ideally, this would be a flow-related analysis. Engineering solutions should be investigated that would allow continuous discharge from the lake to the river. This analysis should be conducted anyway, since current strategies and mechanisms to release flow all have limitations. Fish ladders and water cannons to get salmon around the upper dam are possible secondary options to consider.

The USACE recommendations for improving fish habitat in the lower river are detailed. It should be noted that these alternatives were not developed as mitigation for the hydropower project impacts and should be re-examined for feasibility and cost-benefit potential with restored flows from Eklutna Lake. They do not restore what was lost, but substitute for it. Also, NVE worked with USDA NRCS to assess potential support for implementing some USACE habitat improvement measures. NRCS concluded that the stream morphology that has developed between the New Glenn and the railroad tracks is its natural configuration for a southcentral Alaska stream, given the geo-hydrological conditions present.

Section 6.3: The initial concern of parties of:

“Straying fish impacts to tailrace fishery”

Should be:

“Impacts of straying fish from tailrace fishery to Eklutna River with restored flow”



**Native Village of Eklutna**

April 24, 2020

**Comments on Eklutna Hydro Initial Information Package**

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Our elders tell us that Eklutna is an old, old Village located by the Eklutna River, which was once an abundant salmon system. The Eklutna River has provided nutritional and cultural benefit to Eklutna Dena'ina throughout time immemorial, but its productivity has been degraded in recent years. Eklutna's wish to restore the Eklutna River for fish and wildlife habitat, traditional subsistence uses, and sustainable natural resources development.

Sufficient water is required for salmon habitat to support abundant populations. The pattern of flow, and its interaction with other variables are also important and complex. Adequate flows must be staged taking into account the life stages of the fish, from egg through smolt and returning adult. Periodic flushing flows are needed to clean the gravels of fine sediments that occlude oxygenation of spawning beds. Connectivity to the lake would be necessary to restore a sockeye run that could be the largest Eklutna system fishery.

It is apparent that these salmon habitat variables have been impacted by the Eklutna Project, so studies and proposals to mitigate these impacts are central to the *1991 Agreement*. NVE is very pleased that flow restoration mitigation is being considered for study planning as the foremost mitigation alternative. The "Eklutna pumped hydro battery" is one win-win solution that could allow fully restored Eklutna River flows for salmon habitat, reduce costs to electric rate payers, and maintain supply to municipal water utilities. Increased flow to Eklutna River for the salmon would accommodate both social justice and true mitigation.

The Fish and Wildlife Service has two relatively easy to understand resources about Traditional Knowledge and Tribal Consultations, which could help in the process to better communication and result in mutually gratifying benefit for all the stakeholders. They are on line and are called: FWS Tribal\_Consultation\_Handbook\_2013.pdf and FWWS TEK-fact-sheet.pdf

Thank you for considering our comments and incorporating them into the Draft IIP.  
Łiq'a nagh qinqtudeł - We are hopeful the salmon will return to us.

Sincerely,

NATIVE VILLAGE OF EKLUTNA

  
Aaron Leggett, *President*