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Submitted by
NVE Technical Workgroup(s) Members

Overall, the study plans and reports are impressive and should be instrumental in informing Eklutna River system habitat improvement.

“1.2.8 Revised Information Matrix”

“Table 1-2 – Wildlife”

There is no mention of shorebird or other migratory bird survey. The areas between the beaver ponds and the delta are used by migratory birds, shorebirds, as well as waterfowl for breeding. Since many of the migratory birds are protected, we think that surveying for more than waterfowl is warranted.

Just Moose and Bear are listed as wildlife species to be surveyed. From ecological knowledge and observation, we know that more large wildlife species use the Eklutna River area as a travel corridor. Are these species going to be surveyed as well?

“1.2.12 Ongoing Study Efforts by Others”

NVE is conducting year two of a salmon spawners survey as part of our USFWS Tribal Wildlife Grant.

“2.2.2 Water Usage, Energy Generation, Cost of Power, and Carbon Offset”

Carbon offset is a laudable goal. However, it should not be accomplished at the expense of healthy ecosystems and salmon populations. Greenhouse gases would be decreased with improved habitat, including increased wetlands and riparian zone productivity associated with increased river flows, and increased lacustrine health and eco-productivity that should be associated with decreasing Eklutna Lake level fluctuations.

“3.1 Geomorphology Study”

Wouldn't two years of data be better than one now that the initial debris have been flushed? Wouldn't a second year of data help narrow the margin of error that would be present for any field study? Would a second flow release sequence replicate closer to the conditions that would be present if water were released on a regular basis or consistently from the upper dam, again now that the initial debris have been flushed?

NVE is interested in viewing the Lidar that is obtained for the Eklutna River Watershed

“3.2 Instream Flow”

Same question as for 3.1

Habitat Suitability Criteria – what is being looked at for this study, the write up seems vague. Is this a repeat of the NVE Habitat Characterization Study or would the data be in addition to what is being surveyed?

“3.3 Eklutna River Fish Species Composition and Distribution Study”

Are the classification systems consistent with ADF&G, USGS, and USFWS for substrate and mesohabitat units – so will the data be comparable with everyone else's?

NVE is continuing with our year two of spawner surveys. 2022 is now adding collecting samples for genetics as well.

“3.4 Lake Aquatic Habitat and Fish Utilization Study”

What is the choke point on the East Fork that is mentioned? NVE did not observe a choke point during our survey of the East Fork.

“3.7 Engineering Feasibility and Cost Assessment Study

“3.7.1 Background” (Proposed protection, Mitigation and enhancement (PME) measures suggested by stakeholders)

- Create the opportunity for sockeye salmon to travel into/out of Eklutna Lake.”

NVE has requested and requests creation of the opportunity for all Eklutna River watershed salmon, particularly Chinook, coho, and sockeye to travel into and out of Eklutna Lake. Also, restoring Eklutna Lake salmon habitat might be added to this measure, as justified below.

Sockeye are primarily lake salmon. Recent ADFG genetic analysis indicates the kokanee in Eklutna Lake are probably native as the lake was never stocked. These would likely grow to more normal sockeye size if allowed to mature in the ocean. The Eklutna Hydro Lake Aquatic Habitat and Fish Utilization Study (Y1 Interim Report Draft, 2022, 3.1.1 and 3.1.2) identified 331 spawned out 4.5 to 6.5 inch kokanee around Eklutna Lake, groundwater seepage in the Lake (steeply fluctuating) varial zone, and numerous potential shoreline spawning habitat areas around the lake. (Figure 3.1-1) Groundwater upwellings in lakes can provide extraordinarily productive sockeye spawning areas. These factors and substrate characterization indicate that, with fish passage at the lake outlet and supportive lake level management, **Eklutna Lake could provide rich spawning habitat for a prolific sockeye population that would offer the most productive Eklutna River watershed fishery.** Additionally, recent and ongoing NVE habitat assessment is

documenting plentiful good salmon spawning habitat for preferred salmon species in the river tributaries to Eklutna Lake.

- “Improve fish habitat in the lower Eklutna River, in accordance with the recommended alternatives provided by USACE (USACE, 2011).”

We have heard this suggestion, and there is some value to it. However, it should be remembered that the USACE recommendations were developed without consideration of the additional flow that are now likely to be released from Eklutna Lake as a result of the 1991 Agreement process. Additionally, NRCS stream Hydro-geologists and others have evaluated the USACE recommendations and determined that the lower river reaches in question have reverted to a condition natural for southcentral Alaska rivers with similar parameters. These recommendations should be reassessed considering Eklutna Hydro and NVE habitat study results before implementation is considered.

If funding becomes an issue, we would prioritize support for flow release from Eklutna Lake and salmon passage at the lake dam. And, NVE is investigating supplemental grant funding for this.

“3.7.2 & 3.7.3”

It would help us if Eklutna Hydro presented a list of potential new engineering options that they consider feasible to provide a flow regime into the Eklutna River for salmon habitat and create fish passage to and from Eklutna Lake. For examples, NVE has proposed consideration of pumped storage hydro which could more than replace existing power generation and completely restore the pre-dams flow regime for salmon habitat. However, I don't know whether Eklutna Hydro considers this a viable option. A fish ladder is probably the standard solution for fish passage around a dam. Some re-engineering of the channel out of the lake (deepening) and the existing dam, and reduction in lake level fluctuation could facilitate continuous controllable flow downriver, fish passage, and hydropower. It is likely that this is the situation for which the new engineering should be designed. The simplest solution might be to remove the spillway and dam entirely, releasing flow according to the natural hydrograph. This seems best for salmon, but might not be as good for hydropower due to less control of lake water storage. NVE would pursue supplemental funding for mutually agreeable new lake outlet engineering, The Conservation Fund has pledged the full cost for spillway removal. We appreciate consideration and consultation on these difficult engineering issues.

“3.8 Hydropower Valuation”

Will this be completed by third party company?

What parameters are going to be looked at for this valuation?

Is there going to be a study on how to make power generation more efficient from existing structures without as much water going through the pipe to allow the lake levels to be at a level to release water down the river?

3.10 Terrestrial Wildlife Studies, 3.10.4.2 Opportunistic Observations and Camera Trap Deployment

Cameras need to be checked more frequently for a camera trap survey. Are the cameras being used the model with the solar battery chargers and the wifi? Are the animals caught on camera going to be identified as individuals to observe if the animal is a resident or a pass through?

Is there a reason time-lapse setting is being used over video shorts? In my experience using camera trapping, the video settings capture more detail than the time-lapse, although it does drain batteries faster. Behavior is important to observe to see if the animals are resident or passing through. From local ecological knowledge, we know that this area is a corridor for wildlife passage.

Are the observation forms going to be distributed to everyone working in the river this summer to complete?

“3.10.4.3 Beaver Pond Mapping and Beaver Survey”

Beaver Study – so only lodges are being counted and not population? Estimating population on lodge size and number is not an accurate method of population abundance.

“3.10.4.5 Migratory Waterfowl and Shorebird”

Why are flight surveys being used instead of flushing and walking surveys? Flight surveys are not as accurate as identification of the birds is harder in flight and a portion of the birds will hunker down and not flush.

“3.10.4.6 Raptor Nesting Surveys

Are the methods used following the internationally accepted methods for raptor nest surveys and the ADFG methods to reduce hazing of birds on the nest?

Overall, the wildlife surveys are being done very quickly with methods that are not as accurate. For one year of data, the surveys should be more in-depth and not rushed. One year also does not give a good representation of what wildlife is in the area and if the population are residents or are just using the corridor to passage, especially in the lower area by the beaver ponds. Drones would have less negative effects on the population with greater detail for identification than flight surveys. Footage could be captured for analysis by multiple people which would reduce error and provide more accurate results.

“3.11.4.2.4 NVE Survey”

NVE does not own land around the lower river, nor does it permit or authorize uses there, although it is NVE core area traditional land. Eklutna, Inc. (EI) owns land adjacent to the lower river. EI shareholders and NVE members may gather traditional resources on EI lands. Permits for others to access fishing

Eklutna River are generally not granted by EI. (Please check this with EI.) Regarding 'It is not the goal of this study to quantify non-permitted recreation in the lower river...': This is important information, if difficult to obtain. The "anecdotal evidence of nonpermitted" fishing there is from our unquantified observations, usually associated with attempts to discourage such activity. This trespass fishing has apparently decreased in recent years, likely because the river salmon populations have greatly declined, and the unpermitted fishing may have been a contributing factor. Maximum NVE 2021 adult salmon counts of the preferred species were; 8 coho, 6 Chinook and 0 sockeye, quite a decrease from the 2002 and 2003 counts. ADFG is still allowing salmon harvest there, and documentation of unpermitted harvest would help inform fishery management, as in emergency closure which seems to be needed. It is doubtful that trespass fishers will be likely to contribute to an online survey "Close coordination with NVE and Eklutna Inc. will occur to determine appropriate and reasonable methods for quantifying existing recreational activities in the lower river" is a good idea.

"3.12 Fish Straying Assessment"

There may be "...no previous studies (fish straying studies) that would mimic the unique situation at the Eklutna Hydroelectric Project." However, consideration is advisable of potential strategies to address this likely problem for the likely indigenous Eklutna River stocks, which have recently been counted with adult numbers like 8 per species, too low to compete with stocked stocks. Components of the situation have been studied, like salmon homing in on the smell of the fresh water that they were born and reared in as juveniles, in this case Tailrace water from Eklutna Lake. There should be much to glean from the literature about olfactory and other cues that the returning salmon use to find their watershed to spawn. Educated predictions could be made about what is likely to happen with various manipulations like changing the river flow composition to a majority from Eklutna Lake. So, it seems that a literature research and theoretical analysis project would still be worthwhile.

NVE is applying for a grant to collect samples for genetic analysis of Eklutna River salmon by ADFG. Stocking the tailrace with the most genetically similar juveniles possible, in case they stray to the river, is one strategy that might be recommended. There are not enough salmon in Eklutna River now to stock both the tailrace and the river with their, hopefully, native juveniles or mist incubated eyed eggs. Another option, predictably very unpopular with area fisher-people, would be to discontinue stocking the tailrace for a time, until the native Eklutna River stocks can be recovered sufficiently contribute to tailrace stocking.

In addition to tailrace stocked fish straying back to the river, salmon laid in the river before lake flow releases could become confused upon return to a river with a new majority of water coming out of Eklutna Lake. These considerations might advocate for gradually increasing the flow from Eklutna Lake downriver while building up the native river runs. Again, these issues should be researched for optimal management of native Eklutna River salmon. This research is important for understanding the impacts of the Eklutna Hydro project on the salmon.

“3.13 Cultural Resources Study”

We appreciate ongoing “consultations with Tribal governments and organizations...” and that NVE representatives on the Cultural TWG will meet to agree on the APE, and our involvement in the “...resource-specific cultural resources meeting to reach an agreement on cultural resource survey locations and associated methods to be used.” These comments are preliminary to planned discussions. We do not know of any ancient Dena’ina archeological sites that are within the proposed Cultural Resources Study APE; “... the shoreline of the Eklutna River corridor to the downstream bridges”. Such sites are farther from the river channel and the closest ones are below the highway bridges. These would not be impacted by restoring flows, as they were made when Eklutna River discharge sometimes reached 3,000 cfs. However, their occupants would have used Eklutna River salmon, so their evaluation is relevant to impacts to traditional salmon, uses and their habitat over the history of the Eklutna Hydro Project.

“Eklutna is an old, old village. Nobody knows when they first moved there.” (Billy Pete, from Kari and Fall 2003) Carbon-14 dating on some of the few remaining ancient Dena’ina semi-subterranean facilities could shed light on this question. Analysis of faunal remains should be worthwhile to further illustrate ancient Eklutna salmon use. Research of records of archeological studies from around y 2000, associated with railroad track expansion should provide more relevant information. We know of one remaining well defined semi-subterranean dwelling from around this old site that has been mostly destroyed, but was probably the closest ancient village site to Eklutna River. Further investigation of two other known ancient village sites and a number of very large probable cache pits around Eklutna Village might be conducted with agreement on locations, methods, confidentiality, etc.