



**Nuyakuk River Hydroelectric Project (FERC No. 14873)**  
**Project Kickoff Meeting**  
**Monday, November 18, 2019**  
**9:00am to 4:00 pm**  
**Homewood Suites**  
**101 W. 48<sup>th</sup> Ave**  
**Anchorage, AK 99503**

**9:00 am – Introductions and Meeting Logistics**

Cory Warnock (McMillen Jacobs Associates) provided a brief overview of meeting logistics. Meeting participants introduced themselves (Table 1). Mr. Warnock provided a brief overview of primary meeting topics, associated intent and schedule.

**Table 1. Nuyakuk River Hydroelectric Project Kickoff Meeting Attendees.**

<b>Name</b>	<b>Agency/Organization</b>	<b>In-Person Attendance</b>	<b>Remote Attendance</b>
James Rypkema	Alaska Department of Environmental Conservation (ADEC)		x
Jordan Head	Alaska Department of Fish and Game (ADFG)/Commercial Fisheries	x	
Joe Klein	ADFG/SF	x	
Kevin Keith	ADFG/RTS	x	
Scott Graziano	ADFG/Habitat	x	
Tim Sands	ADFG		x
Bronwyn Jones	ADFG		x
Sylvia Kreel	Alaska Department of Natural Resources (ADNR)	x	
Monica Alvarez	ADNR/DMLW	x	
Ben Corwin	ADNR/Alaska State Parks	x	
Ricky Gease	ADNR/DPOR		x
Matt Wedeking	ADNR/DPOR	x	
Alison Eskelin	ADNR/DPOR		x
Judy Bittner	ADNR/SHPO		x
Sarah Meitl	ADNR/SHPO		x
Jason Dye	ADNR		x
Carl Reese	ADNR		x
Bryan Carey	Alaska Energy Authority (AEA)	x	
Tim Troll	Bristol Bay Heritage Land Trust (BBHLT)	x	
Susan Flensburg	Bristol Bay Native Association (BBNA)		x
Cody Larson	BBNA		x
Mischa Ellanna	Bristol Bay Native Corporation (BBNC)	x	
Dan Cheyette	BBNC	x	
Cameron Poindexter	Choggiung	x	
Warren Downs	Choggiung		x

Kay Andrews	City of Aleknagik		x
Richard King	Ekwok Village Council		x
Betsy McCracken	Environmental Protection Agency (EPA)		x
Julia Kolberg	Federal Energy Regulatory Commission (FERC)		x
Suzanne Novak	FERC		x
Cory Warnock	McMillen Jacobs Associates	x	
Kevin Jensen	McMillen Jacobs Associates	x	
Chuck Sauvageau	McMillen Jacobs Associates	x	
Laura Johnson	McMillen Jacobs Associates	x	
Sean Eagan	National Marine Fisheries Service (NMFS)	x	
Sean McDermott	NMFS	x	
Alisha Falberg	NFMS/Office of General Counsel		x
Robert Himschoot	Nushagak Cooperative	x	
Bobby Armstrong	Nushagak Cooperative		x
Pat Vermilion	Royal Coachmen Lodge		x
Bud Hodson	Tikchik Narrows Lodge	x	
Libby Benolkin	United States Fish and Wildlife Service (USFWS)	x	
Jennifer Spegon	USFWS	x	
Lindsay Layland	United Tribes of Bristol Bay (UTBB)	x	

### 9:15 am – 10:30 am – Project Overview Presentation

Mr. Robert Himschoot (Nushagak Cooperative) gave an overview of Nushagak Cooperative (Cooperative) and the services they provide to the rural communities surrounding Dillingham. Mr. Himschoot described the service that would be provided by the proposed Nuyakuk River Hydroelectric Project (Project) and the benefits expected for the local economy. He stated that the temporal flow dynamics at the site very closely match the seasonal electricity needs of the region. The Cooperative has looked at several potential resources in the area for power generation in recent years but believes that this Project is the most economically viable and environmentally sensitive option for the communities while providing the needed power generation for the area. Mr. Himschoot described the limitations to broadband service in rural Alaska, and how this Project would enable broadband internet service to reach the communities served by the Project. Mr. Himschoot then presented the Project development history, an overview of the Project area, and a history of the legislative process that provides for a Project feasibility assessment as shown in the Project Kickoff Meeting presentation (Appendix A). The presentation contained a video flyover of the Project location. Mr. Himschoot described the site-specific location advantages of the proposed Project.

Mr. Bud Hodson (Tikchik Narrows Lodge) asked what the elevation drop at the site is, and Kevin Jensen (McMillen Jacobs Associates) responded that the elevation change is 26 feet. Mr. Jensen stated that this is relatively small for a hydropower project but because the river flow is relatively high, power generation potential exists.

Ms. Kay Andrews (City of Aleknagik) asked whether there was support from all of the local communities. Mr. Himschoot responded that each community has provided support in different

ways. Aleknagik and Koliganek have both provided memos/statements of support. Choggiung and Dillingham have also provided resolutions of support.<sup>1</sup>

Mr. Mischa Ellanna (BBNC) asked if there was any formal opposition to the Project. Mr. Himschoot responded that United Tribes of Bristol Bay (UTBB) opposed the Project. Some organizations have been concerned about the ability of another entity to step in and develop the site if Nushagak was unable to do so and that the Cooperative had no intent of developing the Project if they would not be the ones to operate it. Ms. Lindsay Layland (UTBB) clarified that the opposition of the UTBB was with the wording of Senate Bill 91 (SB 91) not the Project itself.

Mr. Kevin Keith (ADFG) asked for clarification about the nature of the 30% flow restriction in SB 91 and Mr. Himschoot responded that SB 91 referred to 30% instantaneous flow. Mr. Warnock stated that the specifics of the bill may be amendable depending on what feasibility studies over the next few years show.

Mr. Jensen provided an overview of the proposed Project's conceptual layout and specifications. Mr. Jensen emphasized that specific Project layout details are currently unknown and will be designed following site feasibility studies, including geotechnical and bathymetric surveys.

Mr. Bryan Carey (AEA) asked if there were any roads to the proposed Project. Mr. Jensen responded that there were not.

Mr. Tim Troll (BBHLT) asked if a gravel source had been identified for the access road and airstrip. Mr. Jensen responded that a source had not yet been located.

Ms. Andrews asked about the debris flow barrier and whether it would capture ice flow. Mr. Jensen responded that it would.

Mr. Ellanna asked if there was a dock landing at the site. Mr. Warnock stated that no dock was planned at the present time. Mr. Warnock and Mr. Jensen described the current portage trail that exists, and that depending on the location of the debris boom, the portage trail may be modified to emerge outside of the debris boom for access purposes.

Mr. Sean Eagan (NMFS) asked how heavy equipment will be mobilized to the site. Mr. Jensen stated that it was unknown at this time but that some may be able to be mobilized via the river. Mr. Himschoot stated that he recently spoke with the turbine manufacturer about potential transport options.

Mr. Hodson stated that there is a rapid below the falls that is navigable with an 18-ft boat but would not be passable by a larger barge.

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<sup>1</sup> Mr. Himschoot revised this information later in the meeting after reviewing the resolutions on file. Page 7 of these meeting minutes documents Mr. Himschoot's statement that Aleknagik, Dillingham, Koliganek, and Bristol Bay Native Association (BBNA) have all provided resolutions of support for the Project.

Mr. Jordan Head (ADFG) asked about bank stabilization at the upper end of the site. Mr. Jensen responded that it is currently unknown.

Mr. Joe Klein (ADFG) asked if the majority of the flow would go through the Project intake. Kevin responded that during low flow, there would be a smaller proportion of water bypassed, and at high flows there would be a larger proportion.

Ms. Jennie Spegon (USFWS) asked if there would be any surface ground disturbance due to the drilling. Mr. Jensen responded that the only visible disturbance from tunnel development would be at the entry and exist areas of the tunnel. All other development activities would take place underground.

Mr. Hodson asked about the elevation of the tunnel relative to the head at the site. Mr. Jensen provided clarification about tunnel centerline elevations.

Ms. Alison Eskelin (ADNR) asked about the use of the airstrip. A 600-foot airstrip is currently shown on the conceptual site layout. Mr. Himschoot responded that the length of the airstrip is unknown. There was also an inquiry about the use of the airstrip by the local community. Mr. Himschoot responded that airstrip use will be discussed during the Project development process. Mr. Warnock added that airstrip use will in part, be determined by public sentiment and preference.

Mr. Ellanna asked if Wood Tikchik Park protects the portage path. Mr. Warnock stated that it was a good question and that the path would be evaluated during cultural resources studies and if appropriate, addressed in the Project's Historic Properties Management Plan (HPMP).

Mr. Hodson asked if the Project would be manned year-round and Mr. Himschoot responded that currently, the plan was to have an operator onsite year-round.

Mr. Jensen continued the Project presentation, describing Project hydrology, hydraulics, and proposed power generation (Appendix A). Mr. Warnock provided additional detail about initial studies, including bathymetric and topographic surveys, that the Cooperative would like to conduct in 2020.

Mr. Hodson asked whether tunneling would be problematic if bedrock is not encountered. Mr. Jensen responded that tunneling in gravel would not be as cost-effective and that support for soft-ground tunneling would be needed.

Mr. Eagan asked about the record of the USGS gage and winter data availability. Mr. Chuck Sauvageau (McMillen Jacobs Associates) responded that there is a complete 56-year hydrologic record for the USGS gage. Mr. Eagan asked how the Project design would account for changing climate conditions and hydrology. Mr. Jensen responded that there is a need to evaluate the hydrology for stationarity, and that the U.S. Army Corps of Engineers (USACE) has developed a

statistical tool called the Non-Stationarity Analysis Tool to help evaluate the statistical stationarity of the dataset.

Mr. Carey added that climate change may generally benefit hydropower projects by flattening the hydrograph, which is advantageous for power production. Mr. Himschoot added that the watershed is so large that it may help moderate flow since it covers a large area.

Mr. Eagan added that the USACE models/tools are generally developed for the lower 48 states. Mr. Jensen responded that the tool he referenced is purely statistical, and not specific to a geographical area. Mr. Warnock added that the Cooperative appreciates local insight/knowledge and collaboration during the licensing process.

Mr. McDermott added that fish timing and life stages will need to be evaluated, and the Cooperative agreed.

Ms. Sue Flensburg (BBNA) asked about the flow reservation and instream flows needed for the river, and whether ADNR would be updating their flow reservation for the Nuyakuk River. Mr. Warnock responded that ADNR and water rights/reservations would be discussed later in the day.

#### **10:30 am – 10:40 am – Break**

#### **10:40 am – 12:00 pm – Project Overview Presentation, continued**

Mr. Warnock provided an overview of the Project's proposed natural resources study program, including focus areas for natural resources studies and general timeframes for conducting studies (Appendix A).

Mr. Sauvageau provided a description of the proposed water resources study program, including both water quantity and water quality/temperature (Appendix A).

Ms. Flensburg mentioned that there are some additional sources of water quality data collection that are available for the proposed Project vicinity. Mr. Sauvageau responded that he'd follow up to obtain the data she mentioned.

Mr. Warnock stated the proposed transmission line routes are designed to avoid wetland areas by running along ridgelines.

Mr. Warnock described the study planning process and stated that technical subconsultants will be retained to undertake the various natural resource studies, as needed (Appendix A).

Ms. Layland asked for clarification on the timeline for the FERC scoping process. Ms. Julia Kolberg (FERC) stated that typically FERC holds only one scoping meeting and then issues Scoping Document 2 (SD2). Any further discussion regarding scoping would occur at the study planning meeting rather holding than an additional scoping meeting. Ms. Kolberg stated that

there will be two FERC scoping meetings on December 11, 2019. Ms. Layland followed up with a question about the process for local communities to communicate with FERC during the scoping process. Julia said there are two ways to receive feedback from the communities during the scoping process: (1) a conference call/webinar access during the FERC scoping meetings, and (2) the opportunity to file written comments via FERC e-library. Ms. Layland described the challenges within rural Alaska relative to internet and phone connectivity. Mr. Warnock stated that there may be an opportunity to hold a study planning meeting in Dillingham in addition to one in Anchorage in order to provide the local communities a chance to attend a meeting in person without requiring travel to Anchorage.

Ms. Kolberg requested that anyone who would like to receive information regarding the scoping meeting should contact her and she will provide them with the details.

Mr. Warnock described the Cooperative's collaborative approach to the proposed Project and intent to engage with licensing participants. Mr. Warnock described the FERC Integrated Licensing Process (ILP) and associated timelines (Appendix A).

Mr. Cody Larson (BBNA) inquired about the timing of tribal consultation within the ILP schedule. Ms. Kolberg responded that a letter was issued to potential tribal interests on November 6<sup>th</sup> and FERC has not yet received any responses but is open to tribal consultation at any point during the licensing process. Mr. Larson asked for a list of tribes that have been contacted, and Ms. Kolberg stated that all tribal letters are posted on e-library for public viewing.

Mr. Klein asked if there will be a Project website. Mr. Warnock stated that the Cooperative may launch a Project-specific page on their existing website, but that will be determined soon.

Mr. Warnock presented key Project contacts (Appendix A).

Mr. Eagan suggested installing a stage recorder at the both Project intake and discharge location. Mr. Sauvageau responded that he was unsure about the feasibility of anchoring a stage recorder in a protected location on the downstream side but he'd look into it.

Mr. Ellanna asked if any other villages have reached out about acquiring power from the Project. Mr. Himschoot replied that Manokotak had reached out but no others had at this point. Mr. Ellanna asked whether Bethel was under consideration for receiving Project power. Mr. Himschoot replied that transmission from Manokotak to Levelock is feasible, but Bethel is not at this time.

Mr. Sean McDermott (NMFS) stated that the Project can be designed to protective measures for fish, which are so important to the region, since it's a new Project undergoing design and development. Mr. Jensen confirmed that fish passage and modifications to the debris boom and concrete groin are elements that will be considered up front during Project design.

Mr. Ellanna asked if there was a weir upstream. Mr. Head stated that there used to be a tower up until the mid-2000s, but there is not currently.

Ms. Andrews provided some corrected information for Project contacts that should be included in Project communication. Ms. Laura Johnson (McMillen Jacobs Associates) will follow up with Ms. Andrews to obtain the updated contact information.

Ms. Andrews inquired about the amount of annual generation. Mr. Warnock responded that it is 23,000 megawatt hours (mwh) and the 70,000 mwh number that was in the PAD has been revised downward (Appendix A).

Ms. Andrews asked which communities have provided resolutions of support. Mr. Cameron Poindexter (Choiggiung) commented that Choiggiung had not provided a support resolution. Mr. Himschoot reviewed his files and responded that Dillingham, Aleknagik, Koliganek and BBNA have provided resolutions thus far.

Ms. Andrews asked how the Cooperative plans to obtain right of way for transmission lines. Mr. Warnock responded that we've done some initial GIS work to document land ownership within the Project transmission corridors and that the Cooperative would seek to obtain easements for transmission line right-of-ways (ROW). Ms. Andrews asked who would be responsible for maintaining ROWs, and Mr. Warnock stated it would be the Cooperative's responsibility. Ms. Andrews asked whether roads would be constructed in the ROWs, and Mr. Himschoot responded that the Cooperative intends to have a small footprint and does not intend to build roads. Ms. Andrews stated that the Cooperative should seek to own the ROW land, and Mr. Himschoot stated that it is not the Cooperative's practice to obtain land for the purposes of providing service.

Ms. Andrews stated that she agrees with Ms. Layland regarding holding meetings locally to include those that are unable to travel to Anchorage. She stated that internet and mail service is limited and she emphasized the need for communication with stakeholders relative to Project licensing deadlines.

Ms. Andrews asked about funding that has been provided for the Project to date. Mr. Himschoot responded that so far, only the Cooperative has provided funding, but that moving forward, the Cooperative would be seeking funding from outside sources.

Ms. Andrews asked about the difference between today's Project kickoff meeting and the upcoming FERC scoping meetings. Mr. Warnock provided clarification regarding the Project kickoff meeting and the FERC scoping meeting. Ms. Kolberg stated that a court reporter will be documenting the scoping meetings on December 11<sup>th</sup>, so that is an opportunity to make comments on the record.

Mr. Pat Vermilion (Royal Coachmen Lodge) asked a question about funding. Mr. Himschoot stated that the Cooperative has the finances in place to get through study planning development but will need to secure additional funding for conducting field studies.

Mr. Vermilion asked if there was a lower limit for flow where the project would be operational. Mr. Jensen stated that it depends on which turbines are in use, the number of turbines. Mr. Jensen stated that he estimated approximately 1,000 cfs to be the lower limit for operations. Historically, about low flow occurs in March and April and is approximately 2,100 cfs. During this time, 1,100 cfs would be flowing through the tunnel. Mr. Vermilion asked for clarification because that is approximately 50% of the river flow which is greater than the 30% specified in SB 91. Mr. Warnock stated that the number in SB 91 may be able to be amended as a result of field studies, and Mr. Jensen said that engineering configuration can be modified based on field studies in order to meet Project regulatory requirements. Mr. Himschoot stated that the Cooperative is interested in displacing as much diesel fuel generation as possible, but that studies will provide more information about Project feasibility and design specifics. Mr. Warnock stated that instream flow requirements may be adjusted by month or week based on the results of field studies.

Mr. Vermilion asked about adaptive management and monitoring that will occur in the future. Mr. Warnock responded that monitoring plans will be developed during the licensing process and the results of monitoring will be discussed with agencies. This applies to both Project construction and operation.

#### **12:00 pm – 1:15 pm – Lunch**

#### **1:15 pm – 2:00 pm – Collaborative Discussion of Potential Studies**

Mr. Warnock asked if the group had any thoughts regarding potential studies. Mr. McDermott asked if there were any plans to study ice and frazzle ice and mentioned that ice may affect fish passage. Mr. Himschoot pointed out that due to the topography and associated flow characteristics near the Project site, ice doesn't form at the intake location and/or the area immediately above the falls. Mr. McDermott suggested that Project design may need to account for ice formation, rather than having natural resource studies specific to ice.

Mr. Eagan asked if the Cooperative would post the University of Washington Fisheries Research Institute (FRI) studies. Mr. Warnock provided detail regarding the meeting with FRI in November 2018. The Cooperative has requested FRI's data multiple times since that meeting, but the Cooperative has not yet received any data from FRI. Mr. Warnock confirmed that the Cooperative would post and share that data once received.

Ms. Betsy McCracken (EPA) inquired as to whether downstream river ice and sediment transport would be considered for natural resource studies. Mr. Warnock stated that specific studies weren't planned but those items would likely be evaluated.

Ms. Spagon asked whether fish habitat would be studied over the entirety of the river through the Project area, and Mr. Warnock confirmed that the current plan was to evaluate the entire Project area.

Mr. McDermott stated that NMFS will provide their study requests at the upcoming scoping meeting.

### **2:00 pm – 2:30 pm – Permitting Requirements and Available Data**

Mr. Warnock inquired about which meeting attendees are points of contact for acquiring permits.

Mr. Keith is the lead on FERC for ADFG, and Mr. Graziano issues habitat permits.

Ms. Spegon stated that there would be a need for eagle nest surveys and eagle nest permits. She stated that timing would need to be considered for ground-nesting migratory birds. She stated that she could assist with forms and the permit forms would be sent to the migratory bird specialist.

Mr. Matt Wedeking (ADNR) said he'd be the contact for the Department of Parks and Outdoor Recreation for now. Ms. Sylvia Kreel (ADNR) said for that ADNR would need to find the correct person to be the point of contact for water resources.

Ms. Monica Alvarez (ADNR) stated that there may be other permits required from ADNR offices.

Mr. Larson said that the Wood-Tikchik State Park Plan has a permitting planning matrix that should be used for this purpose. Mr. Warnock confirmed that the matrix would be used as part of the permitting process.

Mr. Keith said that ADFG has an instream flow reservation for the Nuyakuk River and that instream flow reservations are on a 10-year review cycle; this one is up for review soon and may be reviewed sooner. Mr. Ellanna asked if the water reservation is for a particular flow, and Mr. Keith confirmed that there are various cfs flow amounts throughout the year specified in the reservation of water.

Mr. Klein added that on other projects, ADFG works with the applicants directly to assess the needed instream flow and will conduct a review and may possibly amend the instream flow reservation based on study results.

Mr. Troll asked if the burden is on the Cooperative to prove that adequate water can be taken for the Project and still protect fish. Mr. Warnock confirmed Mr. Troll's statement.

Ms. Flensburg asked if ADNR would consider using climate simulation modeling or the USACE stationarity tool to evaluate instream flow reservations. Mr. Jensen clarified that the USACE tool is not a climate modeling tool but rather a statistical evaluation of the data for long-term trends. Ms. Kreel stated that Mr. Carl Reese (ADNR) is probably the most knowledgeable about how ADNR uses climate data in evaluating water rights.

Ms. Eskelin asked if any fatal flaws specific to the Project have been identified, and Mr. Warnock stated that study results will inform any decisions about fatal flaws. He stated that once studies have been conducted, the licensing participants would be consulted regarding Project feasibility.

Mr. Warnock asked at what point in time should ADNR be integrated into conversations with ADFG. Joe Klein stated that coordination between ADFG, ADNR and the Cooperative related to water rights and reservations would be an iterative process during the licensing effort and would generally parallel that effort temporally.

Mr. Keith asked what documentation FERC needs regarding water rights for the Project. Mr. Warnock stated that the Cooperative will need to have an application for water rights submitted to ADNR to provide to FERC with the Project license application, but they would not need to have the water right adjudicated at that time. Ms. Kolberg confirmed that FERC would need a water quality certification or waiver from the state of Alaska and a water right application. Ms. Novak confirmed that licensees have 2 years to provide documentation.

### **2:30 pm – 2:45 pm – Meeting Planning**

Mr. Larson asked about the schedule for tribal consultation. Ms. Novak confirmed that FERC is responsible for tribal consultation, which is government to government consultation. Ms. Novak stated that FERC is open to tribes reaching out to FERC as well. Ms. Novak arranged to talk with Mr. Larson to arrange a meeting. Mr. Himschoot stated that the Cooperative has tried to work with tribes and offered to arrange future meetings with tribes as needed.

Mr. Ellanna asked to remind FERC that ANSCA requires that tribal corporations in addition to federally recognized tribes be consulted during tribal consultation.

Mr. Troll asked at what point the Cooperative needs to gain land access. Mr. Warnock stated that after license issuance, the licensee has 2 years to obtain necessary land-use permits and easements.

Mr. Troll asked about the open pit mine that was proposed for the area and whether the electricity from the proposed Project would potentially bring that mining project back to life. Mr. Himschoot stated that the electricity from the Project is already planned for use and there aren't any plans to sell electricity to the mining corporation.

Mr. Eagan suggested that fish would not use the falls equally from a habitat perspective and that he was interested in a potential study that would look at habitat utilization within the Project area. The Cooperative agreed with his statement.

Mr. Tim Sands (ADFG) said that fish are spawning and rearing above Nuyakuk Falls. He estimated that it was most likely 300,000 fish or less. Mr. Keith said the long term dataset from the tower on the Nuyakuk River could be provided to the Cooperative.

Mr. Vermilion stated that almost every creek above Nuyakuk Falls, Tikchik Lake, and Nuyakuk Lake contains spawning sockeye salmon. Smolt migrate through the waterfall which affects predation as they navigate the rapids. He stated that grayling migrate in the spring and that there are king and pink salmon spawning beds on the right side of the river near the proposed Project intake. Mr. Vermilion would like to see a study of oxygenation of the river down to the Nushagak River as a result of the rapids and how they'd change due to Project intake flows. Mr. Warnock encouraged Mr. Vermilion to voice study requests at the FERC scoping meeting. Ms. Kolberg stated that comments regarding studies can be voiced to FERC either at the FERC scoping meeting or in writing to FERC.

It was asked if the meeting minutes from this meeting would be sent to FERC for the scoping. Mr. Warnock stated that these meeting minutes are being produced outside of the scoping process and ILP requirements but would be distributed to Project licensing participants.

Ms. Layland asked what the FERC comment period that ends in February pertains to. FERC staff responded that the February comment period applies to study requests, and comments on both FERC's Scoping Document 1 and the Pre-Application Document (PAD).

Mr. McDermott stated that FERC has 7 criteria for study requests and recommended that licensing participants review them prior to submitting their requests, to ensure that FERC accepts their requests.

Mr. Ellanna asked whether an Environmental Impact Statement (EIS) is going to be developed for the Project. Mr. Warnock stated that the FERC Scoping Document states that and Environmental Assessment (EA) will be developed for this Project. He added that the EA would be developed by FERC after the license application was submitted to FERC by the Cooperative.

Mr. Warnock emphasized that there are many opportunities for the public to comment throughout the licensing process.

Ms. Spegon added that the collaborative nature of the process is important and that the agencies appreciate hearing from the locals who have firsthand knowledge of the area.

Ms. Andrews asked about the contact list and whether all of the appropriate contacts for the municipalities had been included. Mr. Himschoot responded that he'd have to review the contact list to see if any additions should be made. Ms. Andrews inquired about FERC's site visit waiver during the scoping process and plans to instead use a Project flyover video. Ms. Kolberg responded that the Cooperative would need to show that they can access the site year-round but that for scoping purposes it wasn't feasible to bring everyone to the site in the winter season.

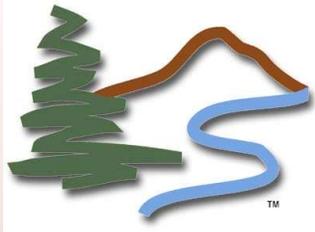
Mr. McDermott asked what species of fish that have been observed in the Project area. Mr. Vermilion said that a relatively high number of pink salmon spawn between the Nuyakuk Falls and the Royal Coachmen lodge. Very few chum are present there. A good number of coho salmon make it above Nuyakuk Falls to the lodge. Whitefish are in the system but aren't caught much by Royal Coachmen staff and guests.

Ms. Spegon asked if there were caribou in the Project vicinity and Mr. Troll stated that herds migrate though there. Mr. Himschoot stated that calving areas change over the years and that natural resource studies would evaluate the presence of caribou in the area.

**2:45 pm – Meeting Adjourned**

**Nuyakuk River Hydroelectric Project (FERC No. 14873)  
Project Kickoff Meeting  
Monday, November 18, 2019**

**Appendix A  
Project Overview Presentation**



# Nuyakuk Hydroelectric

Hydropower for Bristol Bay



# WHO IS THE NUSHAGAK ELECTRIC AND TELEPHONE COOPERATIVE

Nushagak Electric & Telephone Cooperative, Inc. is a member owned and operated Cooperative that provides electric, telephone, cable TV and Internet services.

Located in Dillingham Alaska

27 employees

Electric Service in Dillingham and Aleknagik

Telephone and Internet Service in Dillingham Aleknagik, Manokotak, and Clarks Point

Cable Service in Dillingham

Nushagak Electric Cooperative was formed in 1964. The Telephone Cooperative was formed in 1972. The two merged to form Nushagak Electric & Telephone Cooperative in 2001.

# NETC HYDROPOWER INTEREST/VALUE

Current reliance on fossil fuel generation

Seeking a renewable option that can fully provide for Dillingham and outlying villages

Cannery demand

Long-term reliability and rate reduction

Many options internally evaluated

Nuyakuk Falls = the most environmentally sensitive option with the best location and return from a power production perspective

Fiber and broadband access will be included

# PROJECT DEVELOPMENT HISTORY

NETC has held over 80 meetings with:

- State and Federal representatives
- Tribal and city councils
- State and Federal agencies
- Local research institutes
- Seafood processing associations

Overwhelming conceptual support from local communities

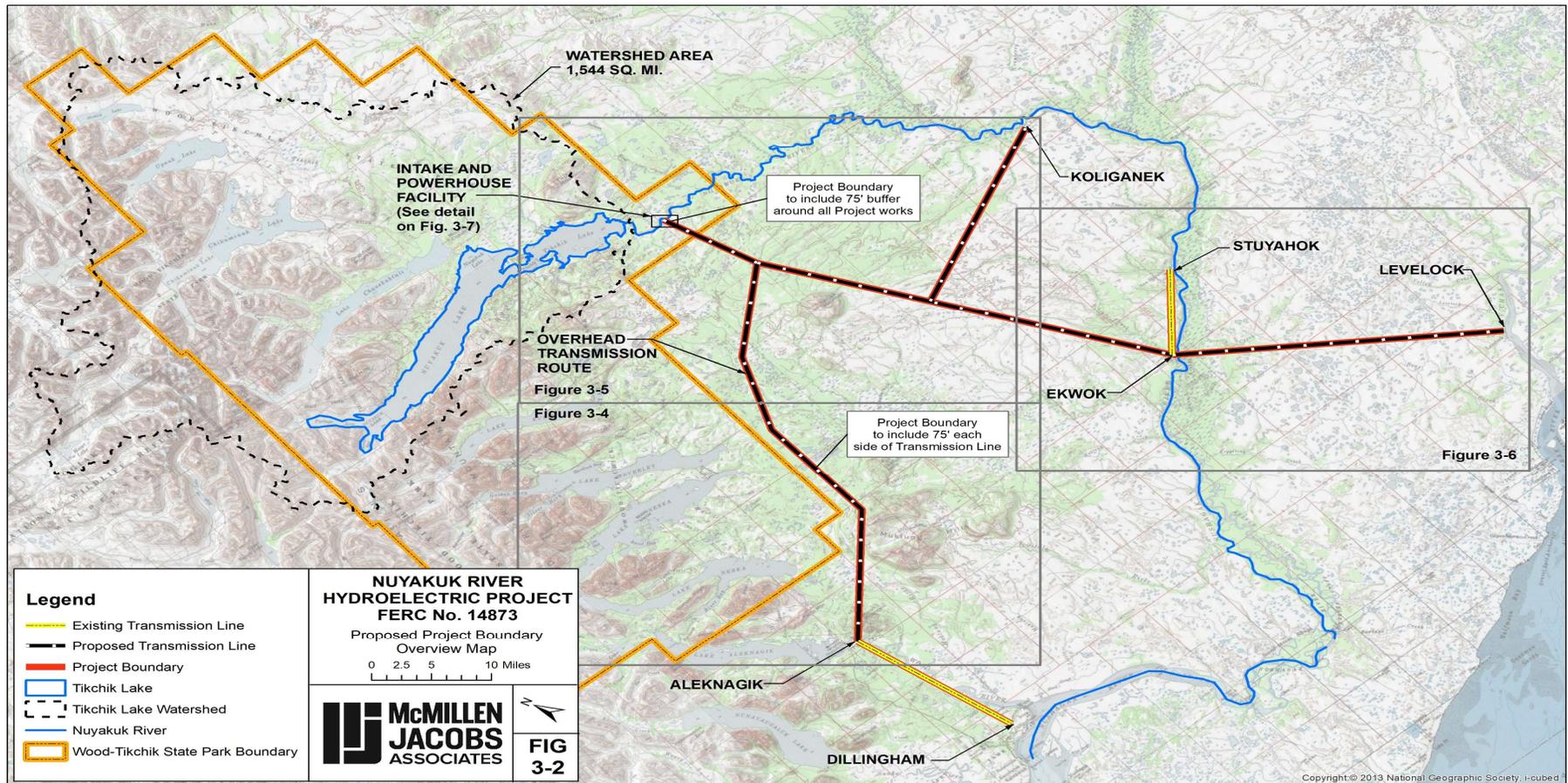
FERC Preliminary Permit approved – (6/11/18)

Conceptual engineering/operational analysis – (Fall 2018- Spring 2019)

Legislative action (Summer 2019)

Nuyakuk River Hydroelectric Project Pre-Application Document Filed – (10/8/19)

# PROJECT AREA



# PROJECT SITE



# PROJECT SITE





# PROJECT SITE

Placeholder for video

# SB91

Allows for a feasibility assessment and conceptual design of the Project within the Wood-Tikchick State Park Boundaries

- Project will be consistent with the State Park Plan assuming a series of design and temporal requirements
- Is licensed by FERC on or before July 1, 2024

Unanimous support and approval from the Alaska State Legislature

Signed into law by the Governor; effective August 17, 2019

# SITE-SPECIFIC LOCATION ADVANTAGES

Elevation drop (head) achieved in short distance

Minimal flow impact area over a falls

Diminishing of flow during migratory period may create a better passage environment that naturally exists

- Velocity barrier at times

Limited to no fish rearing and spawning habitat in bypass area

Small and simple overall infrastructural footprint

- Less than 1/2 mile of river impacted
- Short tunnel/penstock
- Small powerhouse
- Limited visibility

# CONCEPTUAL LAYOUT

## Concrete intake/diversion

Approx. 750ft. long tunnel through the “bluff”

## Powerhouse

- 50ft. X 100ft. X 30ft. high

## Generation

- 2 Kaplan-style turbines
- Low head (26ft.)
- Approx. 6000 cfs withdrawal design

## Tailrace

- Open channel
- Approximately 450ft. long

## Transmission

- Approximately 60 miles to Dillingham
- Another 75 miles to outlying villages

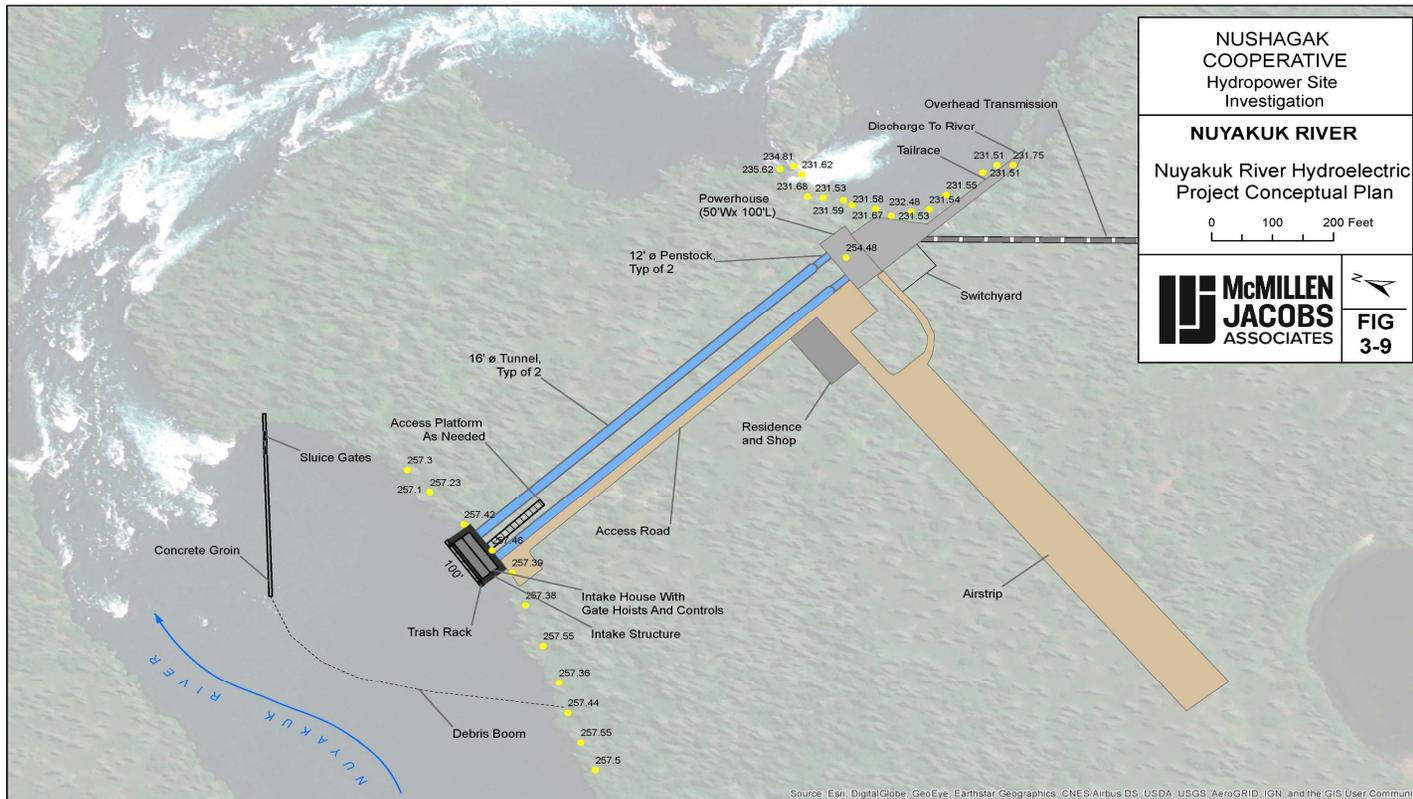


# CONCEPTUAL LAYOUT

## Other key infrastructure:

- On-site airstrip and localized access road
- On-site housing and storage facilities

# CONCEPTUAL LAYOUT



# CONCEPTUAL POWER AND ENERGY

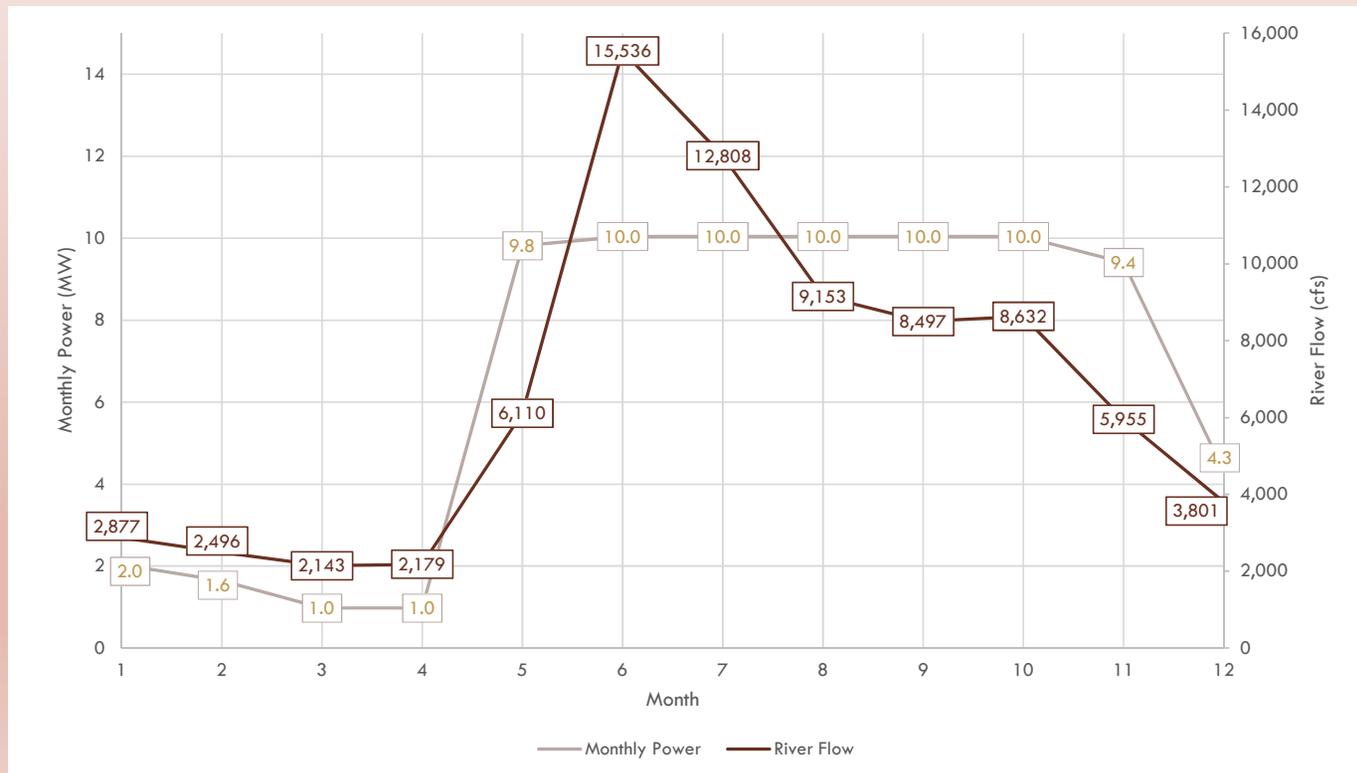
Max generation estimated at 10 to 12 MW at this point

- Additional analysis and agency collaboration will ultimately refine this number

Average annual energy – 58,200 MWh

- Based on historical hydrology
- Equivalent of approximately 7,500 households
- Current annual energy demand (outlying villages) – 23,000 MWh
- Current annual energy demand (Dillingham) – 19,000 MWh

# CONCEPTUAL MONTHLY GENERATION



# CONCEPTUAL ANNUAL OPERATION

## Run-of river

- Inflow managed with outflow

## Maximize generation during high flow months

- June – September

## Ensure unit efficiency during lower flow months

## Manage so that reliance on diesel is eliminated for a majority of the year

- Six villages serviced included

# CONCEPTUAL ANNUAL OPERATION

Current operations scheme based on existing hydrology and conceptual layout

Additional assessment will greatly refine design and operational plan

- Geotech
- Bathymetry
- Surveying
- Additional hydrologic and hydraulic modeling/analysis
- Review of existing and pending natural resource studies

# KEY AREAS OF DESIGN/ENGINEERING STUDY DURING LICENSING PROCESS

## Geotechnical

- Borings and Geophysical Explorations
- Regional geology and seismicity
- Rock and soil units; discontinuities and in-situ stresses
- Groundwater conditions

## Surveying

- Bathymetric: ADCP or “Green” LiDAR
- Topographic: RTK DGPS tied to Alaska Network
- Provide an integrated surface for hydraulic modeling and CAD design

# KEY AREAS OF DESIGN/ENGINEERING STUDY DURING LICENSING PROCESS

## Hydrologic Modeling

- Analysis of stream gage data to develop hydrologic design criteria
  - Fish passage flows
  - Peak flows for structural stability
  - Design flows for hydropower operations

## Hydraulic Modeling

- Two-dimensional numerical modeling of the river and proposed facility intended to:
  - Refine understanding of flow split
  - Optimize dimensions and orientation of concrete barb
  - Optimize tunnel diameter and turbine/generator size

## Integration of Natural Resource Study Results and Conclusions

# NATURAL RESOURCE STUDY PROGRAM

NETC plans on carrying out a site-specific, robust and comprehensive natural resource study program in an effort to:

- Define the existing natural conditions of the Project area
- Identify potential impacts (positive and negative) of Project construction and operations
- Determine feasibility of Project development and potentially refine Project design based on study results to minimize potential negative impact

NETC will work collaboratively to design a mutually acceptable study program over the course of 2020

- Baseline investigation in 2020
  - Aerial video of transmission line
  - Water temperature
- 2021 and 2022 comprehensive study years based on collaboratively developed study plans

# NATURAL RESOURCE STUDY DISCIPLINE AREAS

## Aquatics/Fisheries

- Anadromous and resident priority species
- Habitat
- Connectivity

## Water Resources

- Water quantity
- Water quality

## Terrestrial Resources

- Wildlife
- Botanical
- Wetlands

## Cultural Resources

- Tribal resources
- Historically significant resources

## Recreation/Aesthetic Resources

- Recreational use
- Recreation and Visual impacts

# KEY FOCUS AREAS (NATURAL RESOURCES)

Site-specific evaluation by NTEC has led to the identification of initial focus areas for each study discipline

Upon collaboration with stakeholders, these focus areas will be refined and studies will be developed to assess both existing condition and potential impacts related to Project construction and operations

- A series of discrete studies may be needed to address certain focus areas

Study development schedule discussed below; 2020 will have some fundamental assessments and data collection efforts

# AQUATICS/FISHERIES FOCUS AREAS

## Key anadromous and resident species in Project area

- Collaborative identification of key species
- Presence/abundance
  - Life stage-specific (where appropriate)
- Habitat availability
- Small area given the footprint

## Passage/Connectivity

- Falls are the focus
- Potential partial velocity barrier at certain high flow conditions that may limit upstream migration of some anadromous species
- Assess appropriate flow volumes to maintain connectivity and migratory corridors through the falls (bypass reach)

# WATER RESOURCES

## Water Quantity

- Utilize the existing USGS gage site upstream of the falls and site-specific stage recorders to further confirm historical hydrology and assess hydraulic conditions (i.e. stage changes) throughout the year.
- Data will be used for multiple modeling exercises related to operational parameters and hydraulic impacts to fish species.

## Water Quality/Temperature

- Baseline assessment of the *in-situ* water quality parameters to confirm water quality is as pristine as earlier studies downstream indicate.
- Project construction and operations are not anticipated to have long-term negative impacts to water quality/temperature

# TERRESTRIAL RESOURCES

## Assessment of wildlife species

- Confirmation of species presence in Project areas
- Surveys for key species in areas near Project infrastructure or areas of impact
  - Presence
  - Migration corridors (transmission)
  - Potential for impact to areas of high presence and/or high quality habitat

## Assessment of botanical species

- Confirmation of species presence in Project areas
  - Natives and invasives
  - Rare plants
- Surveys for key species in areas near Project infrastructure or areas of impact
  - Presence
  - Potential for invasive introduction/proliferation
  - Potential for impact to areas of high presence and/or high quality habitat

# TERRESTRIAL RESOURCES

## Wetlands

- Delineation and impact assessment of wetland types in the Project-affected area
- Baseline assessment of other unique or key wetland habitat types in the Project-affected area that may lend themselves to the biological diversity in the region

## Threatened and Endangered Species Assessment

- Per the November 4, 2019 USFWS filing with FERC, “No threatened, endangered or candidate species and no designated critical habitats are known to occur within the proposed Nuyakuk River Project boundary or be affected by the Project.”
- NETC will stay apprised of any federal updates to their list and will collaborate with the state regarding any species listing in the Project area they may have.

# CULTURAL RESOURCES

## Section 106 Process

- Confidential with requisite agencies and intervenors
- Area of Potential Effect to be defined associated with Project development
- Desktop and field studies to identify and classify all historical properties in the Project area
- Will ultimately result in the development of a Historical Properties Management Plan (HPMP)

Tribal interests, artifacts and impacts will be a key focus of these assessments

# RECREATION AND VISUAL RESOURCES

Desktop and field assessment (as necessary) to determine the type of recreational activity in the Project area:

- Timing
- Amount
- Potential impacts

Desktop and field assessment (as necessary) to determine the visual impacts of the Project (if any) to the local landscape and those who use it.

- Renderings
- Overhead
- On the ground

# STUDY PLANNING

Internal Planning/Presentation Development

Collaborate/Study Planning Meeting

Proposed Study Plan Filed

Technical Subconsultants

Permits

- Proactive discussion necessary

PSP/RSP

Implement Studies

Data Analysis/Reporting

# PROPOSED STUDY PLANNING SCHEDULE

Kick-off Meeting – (11/19)

FERC Scoping Meeting – (12/11/19)

Internal Study Planning – (11/19 – 2/20)

Study Requests Due – (2/20)

Collaborative Study Planning Meeting – (3/20)

Proposed Study Plan – (3/20)

Comments Due – (5/20)

Revised Study Plan – (7/20)

FERC issues Study Plan Determination – (9/20)

# NETC COMMITMENTS

## Collaborative with licensing participants

- Develop a study plan that realistically addresses potential impacts associated with Project development.

## Transparent

- No hidden agenda. Genuine interest in developing and environmentally responsible Project with long-term value.

## Proactive

- Identify key deliverables and issues early and address.

## Comprehensive

- Make every attempt to adequately address topics the first time.

## Adhere to ILP schedule



# SHORT-TERM NEXT STEPS

FERC Scoping Meeting

Internally Refine Study Proposal

Agree on baseline studies for 2020

Schedule Study Planning Meeting

Development of PSP

Begin permitting discussions

Retain appropriate technical subconsultants



# QUESTIONS/DISCUSSION

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# KEY NETC CONTACTS

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