



Joint Agency/Public Meeting Transcript (Edited for Clarity)

November 14, 2024, 9:30 am to 11:30 am

Draft Application for Capacity Amendment to License for the Tyee Lake Hydroelectric Project, FERC License No. 3015

ATTENDEES

Mark Hilson, P.E., SEAPA Tyee Lake Project Manager

Robert Seidman, P.E., SEAPA Chief Executive Officer

Sharon Thompson, SEAPA Executive Assistant and Contracts Administrator

Kris Womack, P.E., SEAPA Electrical Controls Engineer overseeing third turbine design

Bob Sivertsen, SEAPA Board Chair, Mayor of Ketchikan

Karl Hagerman, SEAPA Board Member, Petersburg Power and Light Utility Director

Dick Coose – City of Ketchikan Council Member

Lallete Kistler – City of Ketchikan Council Member

Peter Amylon – Incoming SEAPA Board Member, Ketchikan Gateway Borough

Economic Development Coordinator

Clint Gundelfinger, ADNR lead for state of Alaska for hydropower water resource use

Juliette Rosset, NOAA Fisheries (NMFS) Hydropower Program Coordinator for the Alaska Region

Jarrod Sowa, ADF&G Habitat Biologist 3, Acting Statewide FERC Hydropower Coordinator for Southeast Alaska

Betsy McGregor, Senior Scientist and Regulatory Consultant, Kleinschmidt Associates

Laura Cowan, Senior Regulatory Consultant, Kleinschmidt Associates

Finlay Anderson, Principal Consultant, Kleinschmidt Associates

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Steve Negri, Technical Advisor, Tetra Tech

INTRODUCTIONS, PROTOCOL FOR MEETING, AND OVERVIEW

Finlay Anderson

Welcome everybody. I'm with Kleinschmidt Associates helping Southeast Alaska Power Agency (SEAPA) with this public meeting. We will get to introductions in a moment, but for the time being, I just wanted to confirm that we're all here to talk about a capacity upgrade to the Tyee Lake Hydro Project. The intent of the project is to pursue an amendment to the FERC license to add a third generating unit to the existing Tyee Lake Hydroelectric Project to meet the current energy demands of the communities of Petersburg, Wrangell, and Ketchikan, as well as future projected energy demands. Today's meeting is intended to introduce the project to the regulatory agencies and to members of the public. There will be another public meeting tonight for folks who could not meet during the day. SEAPA would like to understand any potential concerns or issues that you may have and would like to address those in the course of the meeting.

There are a few things we want to accomplish today. We would like to introduce the Tyee Lake Project and the SEAPA team that's managing it as well as their consulting team. We would like to provide an overview of the Tyee Lake facility and to familiarize the agencies with the project. We'll talk about the proposed amendment and the process that we're undertaking to get authorization to install the third generating unit and schedule. Throughout the day, we'll have opportunities for discussion and questions.

I'd like to talk through introductions. We'll introduce those who are in the room and then I'll identify people from the phone and ask them to introduce themselves so that we don't have people talking over themselves.

I also want to mention that the meeting is being recorded. That helps us fulfill a FERC requirement and also will help us ensure we capture adequate notes. If you wouldn't mind, in the course of this conversation, please indicate your name and your affiliation.

<Introductions of the list of attendees above>

Finlay Anderson

Thank you. Our agenda for today. We'll talk about the service area and the generation system. This will be just an introduction to how SEAPA operates for the three communities. We'll talk about the existing project and the proposed installation of the third unit. We'll talk at length about the draft amendment application that has been filed with FERC. We'll describe the different exhibits that will accompany the application. We'll talk about the preliminary draft environmental assessment and the

thought process behind that. We'll get into the FERC process, how you would normally pursue an amendment of this nature, and how we're hoping to manage that process a little differently. Then throughout we'll take the time to answer questions.

So just in terms of meeting protocol, this is a small group, we have a sign in sheet and a list of the folks who are on chat for the transcript. We will be filing a record of this meeting and the notes from this meeting as part of our amendment application consultation record. So again, when you speak, if you could please state your name and affiliation. Just an awareness, and I think we've all been working in the in the virtual world long enough, to know that if you remember to call your dentist in the middle of a call and you put us on hold to make that outgoing call, we may get overwhelmed with your agency's hold music. So please don't put us on hold. But, you know, feel free to mute your mic if you're not talking. And with that, I think we have taken care of the introduction. So Mark, if you wouldn't mind giving us the overview of the SEAPA service area and generation system.

SEAPA SERVICE AREA AND GENERATION SYSTEM

Mark Hilson

Sure, I'd be happy to, thank you.

So what is SEAPA? SEAPA is a not-for-profit state Joint Action Agency. It was created to manage hydropower assets of Tyee Lake, Swan Lake, and the Swan-Tyee Intertie and in general, our transmission lines. On our little map that you should see on your screen going from north at the top you see Petersburg and then the transmission line in blue, down to our Tyee Lake hydroelectric facility. That facility was constructed in 1984 to serve the power needs of Wrangell and Petersburg. The Swan Lake Hydro project was constructed in a similar time frame to serve the needs of Ketchikan. In 2009, both projects were connected through the Swan to Tyee Intertie. That's a big deal for SEAPA, because it allows us to better manage our hydro resources and our water resources. SEAPA is a power wholesaler with exactly 3 customers: Petersburg, Wrangell, and Ketchikan. We have a separate and independent legal existence from the public utilities that both appoint our board members and purchase power from the three projects.

Need for Additional Generation

Mark Hilson

So why are we here? Well, we've recognized that our member municipalities are three communities experiencing load growth. How do we know that? Well, we know that from a load growth study that was completed in 2023. And also because in December

of 2022, our grid consumption was very high with 65 megawatts. And the communities, not to sound alarmist, were relying on diesel generation for peak loads, and we're really one diesel failure away from not being able to meet the power demands of the communities. Here in Southeast Alaska, our energy demand is directly proportional to temperature, and it's worth noting that December of 2022 was not the coldest December on record. There was no record set that December.

The 2028 energy demand projection exceeds sources of generation, and those sources of generation include not only SEAPA's two dams, but also Ketchikan Public Utilities sources for generation, and Petersburg has some hydro generation as well. So, in all, our energy demand projection exceeds all of our hydro sources in total as a community. It's really being driven by converting heating fuel to electric, so beneficial electrification. There has been about \$54,000,000 in federal and state grants allocated for heat pump conversions, as well as electric vehicle charging stations.

So those are starting to come online. As far as heat pumps go, \$38 million was specifically allocated for residential heat pump conversions in coastal Alaska, so that would take people from diesel and fuel oil boilers in their homes to heat pumps.

We also have potential for shore power at cruise ship berths. As many people know, Southeast Alaska is a very popular cruise ship destination, but we do not have the ability to plug in cruise ships at berths, nor do we currently have the ability to plug in Alaska Marine Highway System ferries. So those are potential future sources of additional electrical demand.

Value of Third Unit at Tyee

Mark Hilson

So what's the value of the third unit at Tyee? Of course it's additional hydrogeneration to meet current future demand; we definitely need the power. We would increase our operational flexibility that would optimize our water resources. This year, spring and summer 2024, was a really good example of not being able to balance the lakes with Swan hovering around 50% full and despite our best efforts to lean hard on Tyee, Tyee was staying 80 to 90% full. We just couldn't get the water out of Tyee. A third turbine would allow us to optimize our hydro resources. It will improve water management via lake balancing. Then it's important to note, too, that the Tyee equipment, as is true for most hydro equipment, was designed to rotate offline at periods of time so that we could do maintenance. Currently that's difficult due to loads. Our Tyee crew does a great job maintaining those units, but with Tyee in a lead position and due to our

loads, it's very hard to rotate one of only two units offline, especially since Tyee leads our system.

This would reduce dependence on diesel generation, so that would help stabilize our cost of energy. If we have to fire up big diesel generators, that's not something you could just fire up and turn on for a few hours, while things are peaking and then turn them off. Once they're on, they're on for a while and that's paid for through a diesel surcharge. They are expensive, not that it's all about the money, but some data we recently got is that diesels run in Southeast Alaska are about 10 times the cost of hydropower. So it's a significant economic impact to run diesels for any length of time. They're also less reliable, being more mechanical and more prone to breakdown. Of course, the emissions, some would say they're dirtier, although our member municipalities do a great job trying to manage that, but they're inherently riskier.

Another advantage to adding a third turbine is we have increased resiliency in system reliability. So we have frequency and voltage support. We have additional spinning inertia that increases our reserves and our system reliability. This project would also facilitate servicing of summer interruptible loads, that I mentioned before. So shore power in the summer time with an interruptible power sales agreement that captured energy that would otherwise have been lost to spill. Our hope is that as we go through the presentation, we will be able to demonstrate on the whole that that there will be minimal, if any, environmental impact due to adding a third turbine inside the existing powerhouse.

OVERVIEW OF EXISTING PROJECT AND PROPOSED INSTALLATION OF THE THIRD UNIT

Existing Project

Mark Hilson

So an overview of the existing project and the installation of a third unit. What we've teed up here for you is an aerial map. It's only black and white, an old one but a good one. The areas in green are the things that we're going to cover this morning. While the transmission line that is shown going from Tyee up to Wrangell then onto Petersburg is a part of the FERC license, it's not part of our discussion today because there's no change proposed; there's no impact to that, it's just going to continue to perform its function.

In that inset map, you see Tyee Lake and the little appendage that comes out of the top of that is actually where the lake tap occurs and the power tunnel, penstock, and the facilities down there at the end of Bradfield Canal. Tyee Lake is a remote existing

natural lake, located at the head of Bradfield Canal, about 40 miles southeast of the city of Wrangell. The drainage area is about approximately 14 square miles and the facility withdraws water using a lake tap intake. I'll talk a little bit more about that in a bit, but that's at approximately 1,225 feet above the Bradfield Canal. It's not very far away, so the slopes are very steep in there; we'll look at those on the next slide. The bottom of the lake was actually surveyed in 2009, and it was about elevation 1,080 ft, so our lake tap is significantly higher than the bottom, about 145 feet up. Water for power is conveyed via 8,300-foot-long power tunnel. We'll see some pictures of that later. It's 10 foot in diameter and connects to a 1,300 foot-long penstock that trifurcates and then goes into the powerhouse. And again that's located right at the tidewater on the south side of the Bradfield River delta. The transmission line that you see there that goes on north to Wrangell and Petersburg. That's 80 miles long, hard to believe when you see it on one screen, but it is. We even have about 11.5 miles of subsea cable which is you know, very interesting from the perspective of how we cross the channels.

The area of interest for this amendment, as I mentioned, is Tye Creek, the powerhouse, the switchyard, and Hidden Creek as well. Tye Creek flows into Hidden Creek and then flows into the Bradfield. Again there's no changes to the transmission line and therefore it's not included in this analysis.

Here's that next slide I mentioned. I think this is pretty cool because that old graph, that profile drawing of the lake, that's an oldie that was submitted, I believe, with the original FERC license application. We modified it to show our max pool water surface elevation, as determined by USGS, is 1,398 ft. They report spill over that amount. Our max drawdown is 1,250 elevation and our lake tap invert is about 1,225. We have a gatehouse tunnel there, that's the two lines close together. See if I can get my pointer on your screen. Yeah, so here is our gatehouse tunnel and it comes down to Bradfield Canal elevation. Well, actually that comes down to a power tunnel elevation, but anyway the big take away from this graph is the steepness of Tye Creek. Kind of hard to read there, but this profile shows Tye Creek which, for the most part I would call it a cascading creek and there's the Hidden Creek confluence. The picture on the right is a weir that was constructed I think in 2013 in order to comply with our FERC license Article 8 to measure flow at the Tye Lake outlet, which is that flow measurement done by USGS. The picture in the bottom left is of Tye Lake.

I mentioned the gatehouse, lower left, there's no really easily accessible way to get there. Some hydro facilities, you could drive up to the lake or facility or to the gatehouse; you cannot do that here. Access is by helicopter, which is what you see in

that lower left picture. And then you can see the gate shaft intake gate just to familiarize yourselves a little bit with what our facilities are up there. There's two trash racks for water to pass through. There's a coarse trashrack at the lake intake, and then there's another one at the bottom of the gate shaft. That's a picture of the tunneling that occurred for the gate shaft. I can't imagine being inside these tunnels and drilling and shooting and removing that rock all the way up to the very face of the lake, and then putting in one last charge to blow the entrance open and immediately allow that water to rush in. That just is mind boggling to me. And then I'd be remiss if I didn't mention there is a power tunnel bulkhead. So as you come down through our tunnels you eventually go into the penstock and it transitions from a rock power tunnel to a steel penstock.

Here is some drone footage, an aerial that has actually a lot of information on it. You can see our powerhouse. It looks like half a building, like they kind of forgot to build the other half but actually that was by design. Back when this was done, that rock face was blasted to create a vertical surface and the building was tied in with a just a shed roof there to that rock surface and that's exactly where that penstock comes out. In this picture you can see 2 units running by the whitewater discharge to the tailrace and then you kind of can see that there's a little calm area to the left and that would be where upon project completion, you would see water coming out of the powerhouse. You can see we have a view of our switchyard here too. Improvements to the switchyard would be made within the existing disturbed areas. It's gravel now, it'll remain gravel, but you would see another transformer to the right of the two that you can see there. And then we have of course our 1,100-foot-long tailrace and that is intertidal. We'll talk about that a little bit more as well. That tailrace goes down and joins in the Bradfield Canal.

So existing project. We have existing water rights permits for 135,000 acre-feet per year. There's no change proposed for that. Essentially like most hydro facilities, Tyee Lake is cyclical, where the water fills, it peaks in a rainy season, even right now, and then in certain years it spills. In El Nino, it's typically spilling as a general rule and in a strong La Nina, it's a bit drier, it could be a drought condition and it doesn't spill. So in this graph you have multiple years plotted. The years above that dashed line represents that 1,398 ft weir invert that spill occurred to Tyee Creek. There are some other years, you know where we had quite a drought, which show water not spilling. In particular, 2018 was an exceptionally dry year and so no spill occurred. Generally speaking, this chart shows the lake is at its lowest in the late spring prior to snowmelt, and lake levels increased starting late spring into the summer. We try to operate the project to minimize spill, but when we have a lot of precipitation, we could actually

spill out several feet to five feet over the weir, which also I would love to see, but getting up there is difficult with the helicopter at that time of year. The windows to go up there are very, very slim, but I can't imagine what that would look like.

Proposed Action

Mark Hilson

So, what's our proposed action?

Well, we want to increase the project's capacity by 50% by adding a third Pelton style turbine generating unit within the existing powerhouse. That's going to allow us to manage our peak loads, and meet our growing energy demands. It's a very cost-effective way to meet those objectives, and because it's all inside the existing powerhouse, it minimizes the overall environmental impact of getting additional increased capacity for our communities.

The Pelton style turbines have a greater range of generation, and they're much more resilient to system disturbances compared to Francis turbines. They're typically used in high pressure situations, high head situations, that we have here. We're taking advantage of that 1,300-foot elevation difference and Pelton style turbines, they're just so responsive, it's kind of like a fancy sports car engine. Although they're simple machines, they have the responsiveness more like a Ferrari, where other types of generators might be more like just your average car or average Chevy.

Proposed Action – Construction

Mark Hilson

Equipment and materials would be brought in by barge from Wrangell. You could see in the aerial photo to the right, taken if you were coming in a helicopter or plane and following our Swan to Tyee Intertie (STI). As you come up over the hill, you'd look down and this is what you'd see. It really is a little slice of heaven. We have a dock and ramp for small boats, existing gravel roads and existing storage area or staging area. We have a barge bulkhead, then right behind that barge bulkhead, where that gravel is, that's an existing ramp. So if we bring in a barge that has a drop front, for a big turbine or big trucks, you can drop that front drive right off onto that. Other types of barges may lay up on the barge bulkhead. Then proceeding up the road, basically you get to our existing maintenance buildings. We have existing crew housing up there and there's several Forest Service cabins. We didn't label those because they're just behind the trees to the right of our maintenance buildings. You can see the airstrip in the distance. Bradfield Canal shoals out really bad, so access by boat is limited based on

tides and the timing of those tides. Then in the background you can see our powerhouse.

We're expecting about 5 additional barges to build this project. Typically, we'd have a barge every year coming out here anyway, maybe two in certain years, but we'd expect about five additional trips. Workers would be transported by plane or water taxi. The plan is to house them on site, there's not going to be new crew quarters built or anything like that. We're expecting about maximum around 15 workers on the site. Equipment materials could be temporarily placed in the existing staging area that I mentioned, near the barge bulkhead, or transported directly up to the powerhouse area. There's area around that for staging as well. It's important to note there's no new ground-disturbing activities or upgrades to the existing roads or staging areas anticipated. So everything that would be disturbed for this would have already been disturbed. That would basically mean outside the powerhouse and in our switchyard.

Project Designed and Constructed with Provisions for Third Turbine

Mark Hilson

Some of the more impactful construction or concrete pours, we think we can minimize that to about two weeks. The powerhouse has been designed and constructed for provisions for a third unit. You can see in that lower right picture there, that's actually the rebar that's in place; you can see the orange caps on the top for safety. We have the penstock that comes in and this white box is a concrete thrust block. That penstock comes in and it drops straight through the floor and goes through an energy dissipator that then can go into the tailrace. That was all built and completed in 1984. This is where the new unit would sit and in relation inside the powerhouse, see these green things, those are the two existing units and the third one would just be in line towards the back of that photo. Close up of the switchyard, that gravel area there is where we would be installing another transformer. Important to note, no in-water work is needed to do any of this.

Implementation of standard BMPs

Mark Hilson

While the construction is either inside an existing building or on existing approved areas, SEAPA's terms and conditions for our construction contract would include BMPs for spill control, erosion control, fuel and chemicals. It would have limitations on what areas are accessible. It would have protocols for control of waste. We have an existing incinerator on site. You know, household waste and that sort of thing would be kept indoors or inside that building. I would say too that we'd like to work with SHPO to

develop inadvertent discoveries plan, which would then be part of the contract for the project.

Proposed Action – Operations at Tyee Lake

Mark Hilson

Operations at Tyee Lake. How does this proposed project change our operation? Well, the third unit would be operated within SEAPA's existing water rights of 135,000 acre-feet per year and within the current range of normal pool elevations under the current FERC license. The third turbine would allow increased flexibility to manage our peak loads and reduce our need for diesel generation at the other facilities managed by Petersburg, Wrangell, or Ketchikan Public Utilities.

The proposed action would result in, or could result in, more rapid changes to the lake water surface elevation. Of course, within the normal pool operations and you can see on this graph, the drawdown rate is represented by the slope of these lines here in the winter. So that would be January, February, March, maybe through April sometimes. The slope of these would increase with the ability to draw down water at a little bit of a faster rate. So there would be less likelihood for spill to Tyee Creek but that doesn't happen every year under current operations anyway. We continue to optimize our water resources. Our output is dedicated from Tyee to Wrangell and Petersburg, and our additional output is dedicated to Ketchikan, as available according to our power sales agreement. We would continue to minimize spill and as I mentioned, there would be less frequent spill at Tyee Creek in some years.

Proposed Action – Operations at Tailrace

Mark Hilson

So, here's a little aerial of the tailrace. At maximum output, each turbine contributes about 117 cfs of Tyee Lake water to the tidally-influenced tailrace. And of course, all of you who live here in Alaska or are familiar with Alaska, you know that tidally influenced means a lot here. We can have tidal swings of 24 feet, which compared to areas closer to the equator is very substantial. Our discharge to the tailrace would represent a 50% increase at maximum, which doesn't happen very often, but at maximum they could discharge 117 cfs each. The third turbine would be matched up to that and it would hydraulically perform essentially the same as the other two. We would need to balance that hydraulically in order to just make the water flow through our tunnels and the trifurcation and all of that operates smoothly.

Questions

Mark Hilson

That's the end of our proposed action, but I'd be happy to answer any questions should there be any.

Finlay Anderson

Any questions from folks on the phone? Presumably you've had a chance to read some of the material that was distributed in advance but happy to talk about the proposal or we can then move on to the next phase of this. We could also take a break, as we sort of have that planned to depend on how folks feel.

Jarrold Sowa

Yeah, it's Jarrod with Alaska Department of Fish and Game. Did you say a 50% increase in flows with that third turbine?

Mark Hilson

Yeah, that's exactly right. So each unit produces about 117 cfs [at maximum output]. So you have a total right now today of 234 cfs coming out of our powerhouse and the third unit would match the other two units individually, so it would add 117 CFS, which is a 50% increase.

Finlay Anderson

Maybe more accurate to say up to 50 percent. There may be different times when you're operating at different flows and different power outputs.

Mark Hilson

Up to, yeah.

Jarrold Sowa

Okay, thank you.

Finlay Anderson

You're welcome. Good question, anything else? Folks want to take a break, or do we want to just kind of continue on?

<Discussion of desire for break>

Finlay Anderson

Alright, let's take 5 minutes and let's come back at 10:25. That's almost 10 minutes. We're going to put you on mute so you don't listen to our chatter, but we're still available in chat if you have any questions.

And Mr. Coose, welcome. Thank you. My name is Finlay Anderson, so you understand, we've got your name, we're going to be taking notes, and attendance and including that for the record. So welcome. Any other questions?

Dick Coose

No. I'm new to the [SEAPA] board.

BREAK

Finlay Anderson

Alright, welcome back everybody. We'll get going, but I'll just take a pause in case anybody had questions that occurred to you during break. Feel free to let us know. 321, OK.

DRAFT AMENDMENT APPLICATION

Finlay Anderson

Betsy's going to talk a little bit about the application that you all have access to that we filed with FERC; it's in draft form. Before she gets going, I just want to sort of back up and clarify or sort of remind folks that authorization for an approval for SEAPA's proposed action is managed by FERC, which is the federal agency that regulates this hydroelectric facility. They're proposing to amend the operating license and to do so we have we go through a process that's governed by federal regulations around consultation. The consultation process, which we'll talk about in more detail, typically involves a number of steps. So, today's meeting is prescribed and required by FERC as a key step in that process for amending the license. You all have access to the amendment, but Betsy is going to just talk through what each of the exhibits mean, what they cover, and then from there we can move into the environmental analysis.

Betsy McGregor

Typically to start a capacity amendment in initial consultation document would have been filed, but because the project was designed and constructed with provisions for the third turbine and the environmental impacts are anticipated to be minimal, SEAPA went ahead and filed a draft amendment application. There's several Exhibits to an amendment application.

Engineering Exhibits

Betsy McGregor

There's several engineering exhibits, and then there's an environmental report exhibit. We filed these with the current exhibit nomenclature, which is to the left, the ABCD, but the existing license and historic exhibit labels are different, and those are shown

in parentheses on the right. So just be aware, when we file the final amendment application, we may be using the historic exhibit labels rather than the modern FERC labels, but the content will meet FERC requirements. Exhibit A and B pretty much cover the project description, description of the facilities, and the operations. Exhibit C is the construction schedule for the proposed installation of the third turbine. Exhibit D covers the economics of the project and includes a description of the financing. We did not file an Exhibit F with the draft amendment application; it will be filed in the final application under critical energy infrastructure information (CEII), which is privileged. That was formally Exhibit L, and is now Exhibit F, and that will be filed with FERC directly under CEII.

Exhibit E – Environmental Report

Betsy McGregor

Typically, there's an Exhibit E which represents the environmental report. Again, because we felt that the potential effects of this project are minimal, we went forward to expedite the process and filed the preliminary draft environmental assessment (PDEA) in lieu of an Exhibit E. Basically, an Exhibit E includes a project description and baseline conditions. The PDEA includes not only a description of the proposed action, it compares it to the no action alternative, and includes both a description of the baseline conditions as well as the potential effects and any proposed measures to reduce or minimize those potential effects.

Exhibit E, or PDEA in this case, covers all the environmental resource areas that are listed here on the screen. I will go a little bit further into the ones that have asterisks there in green because that is where there's the potential for minimal effects associated with the proposed action. So, the water quantity and quality, fish and aquatics resources, and rare, threatened, and endangered species I'll talk about in a little bit further detail in the next few slides.

Aquatic Resources – Tyee Lake

Betsy McGregor

There's basically two basins associated with the Tyee Lake project. There's the Tyee Lake basin where the water is diverted from and there's the Hydro Creek basin where the tailrace contributes the water that's diverted from the Tyee Lake basin. Tyee Creek is the headwater creek to Tyee Lake. It has about a 14 1/2 square mile drainage, as Mark had mentioned, with about a 2 1/2-mile-long lake. Depending on the pool elevation of the lake, it can range from 300 to 480 acres at full pool. It's a very steep sided and deep lake that you can see from the profile that Mark had showed previously. At full pool in the deepest part of the lake, it's about a 300 feet deep.

Temperatures range seasonally, they can go anywhere from zero in the winter time to about 13°C during the summer. The DO [dissolved oxygen] is very high, data that was recorded measured the DO at 100% saturation and pH had ranged from 6.2 to 7. As typical for this type of lake, it has low specific conductance, low dissolved solids, and low suspended solids.

This map shows segments in bright green, those are anadromous waters; the segments in tan are resident fish bearing; and the stream segments noted in blue are classified as non-fish bearing streams. There is an Arctic Grayling population in Tye Lake. It was stocked in the 1960s by Fish and Game. In the 1980s, there were studies done on the population to estimate size and potentially transfer the Grayling to another lake basin. At that time, they found the fish were infected with bacterial kidney disease and enteric redmouth, so the transfer did not occur. In 2018, Fish and Game did some opportunistic sampling and found the Arctic Grayling population is still present in the lake.

Lower Tye Creek, which feeds from the natural lake outlet down to Hidden Creek for about a mile, is considered non-fish bearing. It's very steep; it flows through a deep, narrow gorge and mostly consists of cascades and waterfalls, as Mark had mentioned.

Aquatic Resources – Hidden Creek

Betsy McGregor

From the confluence of Tye Creek down to Bradfield Canal, Hidden Creek flows about half a mile or so. It does flow year-round and has been documented flowing year-round throughout the operations of Tye Lake Project since it started in the 1980s. There's an anadromous fish barrier located on Hidden Creek about 460 feet upriver from its mouth. Above the barrier, the gradient is more moderate than Tye Creek. It consists of cascades and boulders with pockets of pools and gravel substrate. There are resident fish in this portion of Hidden Creek and rainbow trout have been documented there. The temperature of Hidden Creek above its intertidal influence is very similar to that of Tye Creek and the lake. Below the barrier, the gradient drops substantially. This area of Hidden Creek is intertidal, you can see the picture at the lower right it is mostly cobble and gravel, and there's sand and mud, especially as you get closer to Bradfield Canal. Basically, it provides low quality spawning habitat for anadromous fish. Pink chum and coho salmon are present, pink and chum spawning has been documented there over the years. Dolly Varden, cutthroat trout, rainbow trout, and sculpin are also present in the basin. There on the left, you can see the picture of the anadromous barrier; that's about a 30-foot-tall waterfall.

Aquatic Resources – Tailrace Creek

Betsy McGregor

In the Hydro Creek basin, we have the tailrace which in the anadromous waters catalog is noted as Tailrace Creek. It's about 1,100 feet long, as Mark had mentioned, it is completely intertidal. So the depth, the velocity, the water quality is all heavily influenced by the tidal stage and season, as well as operations at the Project. The two photos on the right are taken from the bridge at the powerhouse, looking downstream at the tailrace. As you can see, the top picture is low tide at a negative 1 1/2 foot tide and the bottom picture is a high tide photo of the same location at an 18 1/2 foot plus tide.

Just to show examples of how variable the water quality in the tailrace is and quantity based on the outside influences: at low tide, at varying operations, the water depth within the tailrace can range from 1/2 foot to about 2 1/2 feet. The velocity ranges within the tailrace even at a given operational level, between about 1 1/2 and 4 1/2 feet per second, which is still suitable for spawning habitat for pink salmon. As an example, the discharge can range from 79 to 146 cfs when operating the Project between about 11 megawatts to about 19.8 megawatts. So, there's a range in there from operations. And then to see the tidal influence as an example, just a snapshot in time in April of 2016 ranging from low tide to high tide: the temperature in the tailrace ranges from 3 1/2 to 8 1/2 degrees. The DO ranges from 17 to 8.8 mg/l, pH 6 to 7.6 and obviously the salinity increased as the tide came in from zero to 17 parts per thousand, and the conductivity went up as well.

Aquatic Resources – Tailrace, Airstrip Slough, Hydro Creek

Betsy McGregor

This is a picture on the right of the Hydro Creek sub basin. Again, everything in bright green is an anadromous water; the three short reaches there in tan represent resident fish-bearing streams; and everything in blue is classified as non-fish bearing streams. The tailrace you can see is in green over on the left. The tailrace was initially designed as an experimental pink salmon spawning channel. When the project was first constructed, it was anticipated that the anadromous spawning habitat in Hidden Creek below the barrier could potentially be affected by the water withdrawal from Tyee Lake. So, as mitigation for that, SEAPA was required to construct this experimental spawning channel within the tailrace. They added gravel to the tailrace, and right now actually it's pretty variable. You have riffle-pool kind of habitat within that range of the 1/2 to 2 1/2 foot depth during low tide. It does provide low quality intertidal spawning habitat for a few pink salmon. Pink salmon spawning in there has decreased over time.

This channel has been monitored by Fish and Game periodically. They concluded because there isn't a continual source of gravel, over time this spawning area will continue to degrade and dissipate. The quality of the spawning gravel is actually better closer to the powerhouse, where the flow coming from the tailrace clears some of the fines off of the spawning gravel. There is a continuum of more fines as you get closer to Airstrip Slough at the mouth of the tailrace, where it's more heavily influenced by the tides. Fish and Game also concluded, however, that while this channel may not continue to support pink salmon spawning habitat into perpetuity, it was intended for mitigation of Hidden Creek, but Hidden Creek actually has been flowing year-round and is still used by salmon for spawning. So, the mitigation that was requested, in hindsight after 40 years of operation, was found to not be necessary because Hidden Creek is still providing the habitat.

The tailrace and Hydro Creek are both in the anadromous waters catalog. They are listed for Chum and Pink salmon as being present, and coho salmon juveniles rearing. There has been pink salmon spawning documented in the tailrace; other species that are found in these waters include Dolly Varden, sculpin, 3 spine stickleback, and some marine estuary species such as shrimp.

Rare, Threatened and Endangered Species

Betsy McGregor

As far as rare threatened and endangered species go, we consulted with the IPAC to identify species under the Fish and Wildlife Service jurisdiction. Short-tailed albatross does show up as being potentially in the vicinity of this project. Based on information of its presence, its needs, where this bird feeds, and where it nests, we consider this project to have no effect on the short-tailed albatross.

The humpback whale Mexico DPS occurs in the waters of Southeast Alaska. The Mexico North Pacific stock basically winters in Mexico and it feeds in several areas of Alaska from Southeast to Southcentral to out the Aleutian chain and even over into Russia. Humpback whales are pretty common in Southeast Alaska. NOAA has estimated about 2% of the whales encountered in Southeast Alaska may come from the Mexico DPS of the humpback whale. The human caused threats of mortality and serious injury for this particular stock in Southeast is basically attributed to entanglement with fishing gear, marine debris, and vessel strikes. As you can see on the screen, they're fairly low. In all of Southeast Alaska, the annual estimate for human caused mortality or serious injury to this particular stock is about 0.1 whales from all potential sources, and those attributed to vessel strikes are 0.041 whales annually.

There are three US Forest Service sensitive species potentially occurring in the Project Vicinity, including the Queen Charlotte Goshawk, the Black Oystercatcher, and the Stellar Sea Lion, Eastern DPS of the Stellar Sea Lion, which is not a listed stock. We do anticipate marine mammals would be present in the area between Wrangell and Bradfield Canal, which would potentially be encountered during transportation of equipment or workers to the project site from Wrangell.

Expected Potential Effects

Betsy McGregor

So, as I said, we anticipate the potential effects from this Project to be minimal. Effects potentially associated with installation include the barges coming from Wrangell or the ferries transporting workers from Wrangell to the site. There's a very low potential for pollution to marine waters, as would be typical of any vessels operating on the water, as well as potential for vessel strike of humpback whales.

All of the transportation that would be occurring, whether it's by boat or air, will use existing facilities. There's no major construction, as Mark had described, no new ground-disturbing activities, and SEAPA intends to implement standard BMPs to avoid and minimize any of these potential impacts to the environment. So we do not anticipate any significant environmental impacts associated with the installation of the third turbine.

As far as operations go, there will be changes to the Tyee Lake water surface elevation. But there will be no change to the minimum or maximum normal pool elevation, and as Mark described, there may be an increase in the drawdown rate in the spring before the snowmelt occurs. SEAPA does not intend to operate outside of their existing permitted water rights of 135,000 acre-feet per year. We do not anticipate any impacts to the water quality or the Tyee Lake Arctic Grayling population from the proposed operations of the Project.

Downstream flows to Lower Tyee Creek and Upper Hidden Creek could change by capturing spill. Again, the amount of water that would be withdrawn will still be within the existing permitted water rights. There is a potential to reduce the occurrence of spill to Tyee Creek, which would predominantly occur during wet years because spill does not occur annually, and as Mark showed, it does not occur during drought, low water or even in some average water years. So we do not expect any significant impact associated with the water quality in Tyee Creek.

Hidden Creek is anticipated to continue to flow year-round as it has throughout Tyee Lake operations and therefore we don't anticipate any significant impacts to the water

quality or resident fish population that is in Hidden Creek above the anadromous barrier. Below the anadromous barrier we do not anticipate any significant impacts to water quality or the fish populations there. This portion of the of Hidden Creek will continue to flow year-round and is intertidal; any potential impacts would be even further reduced or moderated by the significant tidal changes that occur twice a day.

In the Hydro Creek Basin, there will be flow increases to the tailrace at times, which then enters Airstrip Slough, a side channel of Hydro Creek, and on into Hydro Creek. At maximum capacity, with all three units operating, it could increase the flow into the Creek by 117 cfs. This is not likely to occur on a regular basis and would be for a limited amount of time given the constraints of still continuing to operate within the existing water rights. There is potential for local and temporary changes in the water quality during low tide, closer to the powerhouse, and this again would be completely moderated twice a day by tidal changes. This could actually potentially improve the availability of spawning gravel in the tailrace, especially closer to the powerhouse where the fines that have accumulated over time because of the tidal influence would be flushed further down the tailrace and clean that gravel for potential spawning. Overall, though, we do not anticipate any significant impacts associated with the water quality or the salmon populations using the tailrace, Airstrip Slough, or Hydro Creek.

Does anybody have any questions related to either the draft amendment application or the environmental baseline conditions or potential impacts associated with the installation operation.

Questions

Jarrold Sowa

Jarrold, with Fish and Game, I just had a couple questions. Do we have any indication if people are able to access Tyee lake and fish the Grayling population?

Betsy McGregor

Tyee Lake is fairly inaccessible, which is partly why for the original license they had proposed maybe moving that Grayling population to another similar lake basin that would receive more recreational use. As far as I know, the only sampling that has occurred in Tyee Lake since probably the 80s was by Fish and Game and it was just opportunistic hook-and-line and they caught a Grayling. I think that area in general has very little use by recreationalists and it is a hefty hike. So, it would be somebody that wants to put in that effort to go into some steep train with a lot of downed wood.

Jarrold Sowa

OK. And then the increased drawdown rate in the spring, do we have any indication how much that would potentially increase?

Mark Hilson

So, the potential would be, that the curve would get steeper. Maximum drawdown at 117 cfs per unit, which would mirror that 50% increase that we talked about earlier. I think we'd go from a maximum of 234 to 351 cfs. I don't have the slope of that curve, I don't know that number, but I could certainly get that for you. The water coming through the powerhouse is what's steepening that curve.

Jarrold Sowa

OK. I was just curious because I was thinking about the Grayling, and if they're spawning in some of those little inlet tributaries that come into the lake. Then I was just wondering about the potential for effects if they're trying to spawn in the spring, how fast would that drawdown happen.

Robert Siedman

Hey, Mark, if possible, could we show the lake level curves again?

Mark Hilson

Yeah, certainly. I'm looking for those, just give me a second here.

Robert Siedman

I think that our lake levels typically are below, by February even, any tributary water line. They're pretty much in the bowl, if you will, of the lake in early January, late January and early February.

Betsy McGregor

I would agree with that. It's a very steep sided lake. We can make sure that in the final application we include the 2009 survey of the with imagery and that would really show you where that spawning habitat would be affected at the higher elevations of the lake and not at these lower elevations.

Jarrold Sowa

OK. Alright, thank you.

FERC PROCESS

Proposed Regulatory Path

Finlay Anderson

Other questions? If not, Mark, maybe go back to the to the first process step.

As I mentioned earlier, authorization for this proposed modification, addition to the facility, is managed by the FERC regulatory process. Anytime you go through an amendment with FERC, you are going one of two paths. If it's a minor amendment, you write FERC a letter, maybe you do a quick environmental analysis in case anybody has any issues, and then they're going to make a ruling.

This is what's known as a capacity amendment and because it's a capacity amendment, it goes through what we call three-stage consultation. The first stage of three-stage consultation is the applicant educating you about the project and the proposed action. The first stage consultation concludes with all sorts of questions that might come in from stakeholders and interested parties about potential effects and things that may need to be studied or analyzed. Then second stage consultation would be where the applicant goes out and collects data, conducts studies and ultimately develops a license application or an amendment application. And then the third stage, that's sort of FERC's environmental analysis and process. So, in the third stage consultation FERC receives the application, conducts its consultation and its environmental analysis, and then makes a determination.

Where we're at today is towards the end of the first stage consultation. We're educating you about the process, but we're also proposing that because of the nature of this amendment, because this is a relatively low impact procedure, there's a process within the regulations that allow us to bypass second stage consultation if we get concurrence and agreement from the agencies. That's the process that SEAPA is proposing. Kodiak Electric Association went through a similar process with Terror Lake. Almost the exact same situation, they had installed a third unit for a project that had anticipated a third unit with construction in the 1980s. Similar to this analysis and discussion today, they met with agencies and agreed that the potential effects were minimal and negligible, and they received agreement from the agencies to basically waive the second stage of consultation and proceed directly to the third stage of consultation. So, our goal here today is to talk through this process with you, instead of starting with an initial consultation document, we've given you a complete draft amendment application. I would like to give some time for you to continue to review that application. We'll try to address any questions you have, but ultimately, we'll be asking for concurrence with the request to waive second stage consultation.

The flow chart on the left, you can see right under draft amendment application the joint agency meeting; that's where we are today. I should say we started off this process with some kind of informal outreach to some of the agencies to make sure that we weren't completely off base in proposing this. So we met with agencies a couple of

months ago, talked through the concept, based on that conversation, you know, we felt confident that we could at least get this far and propose this process to you all. The next steps really are to seek your concurrence with our proposal to basically not complete any additional studies and do a final license application. In the course of doing that, of course, we'd like to answer any questions you have. We feel like we've got a decent amount of available information and a good understanding of the proposed operation. So, for example, I think we can definitely in the final license application answer questions about the drawdown rate and the relative elevation of spawning habitat of the of the Arctic Grayling relative to the pool.

With your concurrence, we proceed probably the January to February timeframe with the final license amendment application to FERC and let FERC begin their process. Changes to the final amendment application from the draft amendment application would be, in addition to the consultation record, correspondence with any of the agency's documentation of your concurrence with the process as well as you know, demonstrating that we've responded to your questions. And then there's some additional engineering information that we will be submitting as well. From there, FERC would begin its NEPA process. They would conduct formal consultation, confirm with the Fish and Wildlife Service, National Marine Fisheries Service, and Alaska SHPO that the applicable statutes for Section 106 and ESA have been addressed, and then they would issue an environmental assessment and ultimately a license determination. That's the proposed process. We believe that with this we'll be able to expedite a considerable amount of time from the process and get this unit installed in a timely manner to impact the energy picture.

Request for Waiver of Stage 2 Consultation

Finlay Anderson

What you could expect following this meeting would be a letter from SEAPA asking agencies to waive second stage consultation. We would like to receive that concurrence ideally 30 days from now, by mid-December. In the meantime, we're happy to meet with you and resolve any questions or receive/provide any additional information. We'd also take any input you have on the use of a preliminary draft environmental assessment. Including any input on rare, threatened, or endangered species that may be necessary.

Proposed Amendment Schedule

Finlay Anderson

So, moving on to the schedule, we started early consultation in August, September. That incidentally also included receiving FERC's authorization to act as their informal

representative for consultation for Endangered Species Act, and Section 106, as well as the Magnuson Stevens Fisheries Act consultation for Essential Fish Habitat. The draft application was filed on October 8th. We're here today at the joint agency meeting. I apologize, I said a month from now; ideally we would love to receive comment letters and letters of support by December 9th. And then we would request that FERC wave second stage consultation and would file the final amendment application in January 2025. So that's a brief overview of the process and happy to answer questions or talk about any alternatives that you might have in terms of process.

QUESTIONS

Julianne Rosset, NOAA

Julianne Rosset, NOAA. I just wanted to ask about the timeline for the relicensing, which I think is kicking off relatively soon. And then if you could talk a little bit about when you anticipate the turbine being installed, that would be really helpful.

Finlay Anderson

Relicensing for this for this project will kick off in approximately a year and a half from now. I don't have the precise schedule in front of me, but there will be a separate process kicking off the beginning of the relicensing. I'll mention that we talked early on about folding this amendment process into the relicensing, but the concern with that was the length of time that it would take to go through that process. The new license would not be issued well into 2032 [sic] and SEAPA was really anxious to get their capacity concerns addressed beforehand. So we talked with FERC and have agreed with them that we would stage this so that the amendment application would precede the relicensing. Hopefully, but it may not be completely done by the time we kick off relicensing, but we would like to keep the issues associated with this third unit installation distinct from the relicensing. I can't remember the other part to your question.

Julianne Rosset, NOAA

Yeah, I appreciate that. Do you have an anticipated install date for the new turbine? Would it be shortly after relicensing kicks off? The reason I ask is that you're asking the agencies to provide support to waive studies, but if the timing is correct, then the agencies could do that, but then also ask for studies if they have any requests in the relicensing process. So I'm just trying to get a handle on the timelines that are sort of similar but not. You know what I'm trying to say? They're overlapping to some degree potentially.

Finlay Anderson

Right. I think it's reasonable to assume that questions that are unanswered around this process could get folded into relicensing. Assuming that there's an appropriate project nexus that we can demonstrate, and that's always a criteria that we try to apply for any relicensing in question. But I think SEAPA recognizes that there's going to be some overlap in the processes in that we have a little bit of an ability to address information needs during relicensing that don't necessarily need to hold up this process now. Mark, you want to speak to a little bit more to the schedule.

Mark Hilson

Yeah, I'd be happy to. We're currently in design for the turbine and the generator; that's going to be wrapping up here shortly. We're going to go into procurement and then we anticipate the construction occurring in 2026. So, it's pretty quick. It will follow the license amendment hopefully, fingers crossed, quite expeditiously.

Julianne Rosset, NOAA

That's helpful. I don't mean to confuse things. I think I was mostly considering the change in flows that was being discussed and some of the language around it saying that it is "not anticipated," verbiage like that. If we can have the turbine installed and then ask for studies that make sure that what was anticipated is actually what's happening in real time, that would be helpful. So that's where my line of questioning was coming from. I don't mean to be cryptic or confuse the processes. I just wanted to in my own mind figure out if that's kind of how things were flowing and it seems like they are, especially if the turbine is going to be installed 2026. So thank you very much.

Mark Hilson

Thank you.

Finlay Anderson

I was just looking at the six month window for filing a preliminary application document.

Betsy McGregor

It's going to be February to July of 2026.

Finlay Anderson

Correct. So, there will definitely be some overlap. We don't know how long it will take for FERC to process this amendment. These days it's a little bit of a guessing game. SEAPA's desire to install the third unit is something that is independent of how they are proposing to operate the project in the future. You have a need for this project

today, so however the project is operated in the future doesn't really bear on the need today for power.

Mark Hilson

Correct.

Betsy McGregor

I just wanted to follow up on Jarrod's question about the Grayling. Mark, If you could back up to the slide that shows the Tyee Lake Basin streams and fish distribution. Jarrod, you can see that Tyee Creek is the only tributary supporting spawning Grayling, at least this is what has been documented in the past. The sides are so steep that there really isn't spawning habitat in the tributaries on the east or west sides of the lake. Based on studies in the 1980s, they found that the Grayling spawn between mid-May and mid-June with young of year emerging, or at least found in the streams by mid-July. In the graph of the reservoir levels, the drawdown that would occur before snowmelt is what may increase, the slope of that or the rate of that drawdown may increase. But then the storage of water in the lake, which would occur when the Grayling would be spawning or young-of-year emerging, is really driven by the snowmelt/snowpack, rather than the project operations at that time of year. Mark, please correct me if I'm wrong. I don't believe SEAPA is proposing significant changes to operations during that period of time.

Mark Hilson

Correct.

Jarrod Sowa

OK. Thank you for that. That's helpful.

Mark Hilson

Another question. Go ahead.

Julianne Rosset, NOAA

Hey, this is Julianne Rosset from NOAA again. For the evening call, I know that you said that there would be a recording of it, just like there is for this call. Are there going to be notes or concerns outlined in some type of document that will be shared either on the E library or with all of the entities so I can hear what folks said this evening?

Finlay Anderson

Absolutely. Yeah, I don't know if we will be publishing the entire transcript, which we sometimes do, but definitely we will take notes and summarize any issues. So all that being said, don't feel obliged to join the evening meeting. Certainly if anything comes

up, we'll circulate the results of this evening and let you all know what comments were received by the public or any other agencies attending.

Julianne Rosset, NOAA

Thank you.

Finlay Anderson

That's pretty much all the material that we've prepared. Happy to just have any discussion or answer any questions. Love to get any feedback, if agencies are prepared to share, about your any concerns you might have about a waiver, or if we need to set up any follow up process. We can do that as well.

Alright. Well, with that being said, Mark, any closing comments?

Mark Hilson

No, I just wanted to take a minute and thank everybody for their participation. We had some great questions and I felt that everybody was engaged and I very much appreciate your time and attention to this really critical project for Southeast Alaska. So thank you very much

Adjourned.