

TYEE LAKE HYDROELECTRIC PROJECT
FERC No. 3015
PRELIMINARY DRAFT ENVIRONMENTAL ASSESSMENT

**TYEE LAKE HYDROELECTRIC PROJECT
(FERC No. 3015)**

**APPLICATION FOR LICENSE AMENDMENT
FOR MAJOR PROJECT – EXISTING DAM**

PRELIMINARY DRAFT ENVIRONMENTAL ASSESSMENT

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Appendix E	Tyee Lake Reservoir Bathymetric Survey (SEAPA-09-05)

ACRONYMS

A

ac	acre
ACCS	Alaska Center for Conservation Science
ACMP	Alaska Coastal Management Plan
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
ADOT&PF	Alaska Department of Transportation and Public Facilities
Advisory Council	Advisory Council on Historic Preservation
AEA	Alaska Energy Authority
AEIDC	Alaska Environmental Information and Data Center
AKEPIC	Alaska Exotic Plants Information Clearing House
AMHS	Alaska Marine Highway System
APA	Alaska Power Authority
APE	Area of Potential Effect
ASCE	American Society of Civil Engineers
AWC	Anadromous Waters Catalogue

B

BGEPA	Bald and Golden Eagle Protection Act
BMP	best management practices

C

°C	degrees Celsius
CA	Census Area
CEII	Critical Energy Infrastructure Information
cfs	cubic feet per second
Commission	Federal Energy Regulatory Commission
CO	carbon monoxide
cm	centimeter
CWA	Clean Water Act
CZMA	Coastal Zone Management Act

D

DO	dissolved oxygen
DPS	Distinct Population Segment

E

EFH	Essential Fish Habitat
El	elevation
EJ	environmental justice
ENSO	El Nino Southern Oscillation
ESA	Endangered Species Act
EV	electric vehicle

F

°F	degrees Fahrenheit
FERC	Federal Energy Regulatory Commission
FL	fork length
ft	feet or foot
ft/s	feet per second
FPA	Federal Power Act

H

hp	horsepower
HPMP	Historic Properties Management Plan
HUD	U.S. Department of Housing and Urban Development

I

IECO	International Engineering Company, Inc.
IPaC	Information for Planning and Conservation

K

KPU	Ketchikan Public Utility
kVA	kilovolt-ampere
kW	kilowatt

L

LUD	Land Use Designation
-----	----------------------

M

MBTA	Migratory Bird Treaty Act
mg/L	milligrams per liter
mi	mile
mllw	mean low low water
mm	millimeter
MMPA	Marine Mammal Protection Act

MSDS	Material Safety Data Sheet
msl	mean sea level
MVA	megavolt amperes
MW	megawatt
MWh	megawatt per hour

N

NAVD88	North American Vertical Datum of 1988
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanic and Atmospheric Administration
NOx	nitrogen oxide
NRCS	Natural Resource Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetland Inventory

O

OHW	ordinary high water
O&M	operations and maintenance

P

PDEA	Preliminary Draft Environmental Assessment
PDO	Pacific Decadal Oscillation
ppt	parts per thousand
PPT	Petroleum Product Terminal
PM	particulate matter
PME	protection, mitigation and enhancement measure

R

RM	river mile
rpm	revolutions per minute

S

SEAPA	Southeast Alaska Power Agency
SEC	Southeast Conference
SHPO	State Historic Preservation Office
SPCC	Spill Prevention, Control and Countermeasure
sq mi	square mile

T

TDAT Tribal Directory Assessment Tool

U

UAF University of Alaska Fairbanks
U.S. United States
USACE United States Army Corps of Engineers
USDA United States Department of Agriculture
USEPA United States Environmental Protection Agency
USFS United States Forest Service
USFWS United States Fish and Wildlife Service
USGS United States Geological Survey

W

WCA Wetland Conservation Act
WSE water surface elevation

1.0 INTRODUCTION

Southeast Alaska Power Agency (SEAPA), the licensee, owner and operator of the 20-megawatt (MW) Tyee Lake Hydroelectric Project (FERC Project No. 3015) (Tyee Lake Project or Project), is filing a Final Amendment Application with the Federal Energy Regulatory Commission (Commission or FERC) for a Capacity-Related License Amendment to add a third turbine-generator unit to the existing Project that would increase the total installed name-plate capacity by 10 MW. The Tyee Lake Project is located at the head of Bradfield Canal, approximately 40 miles southeast of Wrangell, 70 air miles southeast of Petersburg, and 60 miles northeast of Ketchikan, Alaska (Figure 1.1-1).

The Tyee Lake Project started operation in May 1984 under a license issued by FERC in 1981 which expires July 2031. The Tyee Lake Project originally supplied power to the communities of Wrangell and Petersburg. In 2009, SEAPA completed the 57-mile-long Swan-Tyee Intertie (Intertie) connecting the Tyee Lake Project to SEAPA's Swan Lake Hydroelectric Project (FERC Project No. 2911) and the community of Ketchikan (Figure 1.1-1) Since completion of the Intertie and the Swan Lake Dam raise in 2017, the average annual generation at Tyee Lake has been 105,805 megawatt hours (MWh).

The Project boundary (Figure 1.1-2), including approximately 69 miles of overhead transmission line and 11 miles of submarine line extending from the switchyard near the head of Bradfield Canal to the Petersburg substation, contains 3,094 acres of federal, state, borough, and private lands. The Proposed Action would not affect the transmission line and no work would occur along the transmission line right-of-way. Therefore, this portion of the Project boundary is not analyzed within this application. The Action Area considered in this application consists of the non-transmission portion of the Project boundary and includes Tyee Creek, Hidden Creek, and the marine environment from Wrangell to Bradfield Canal.

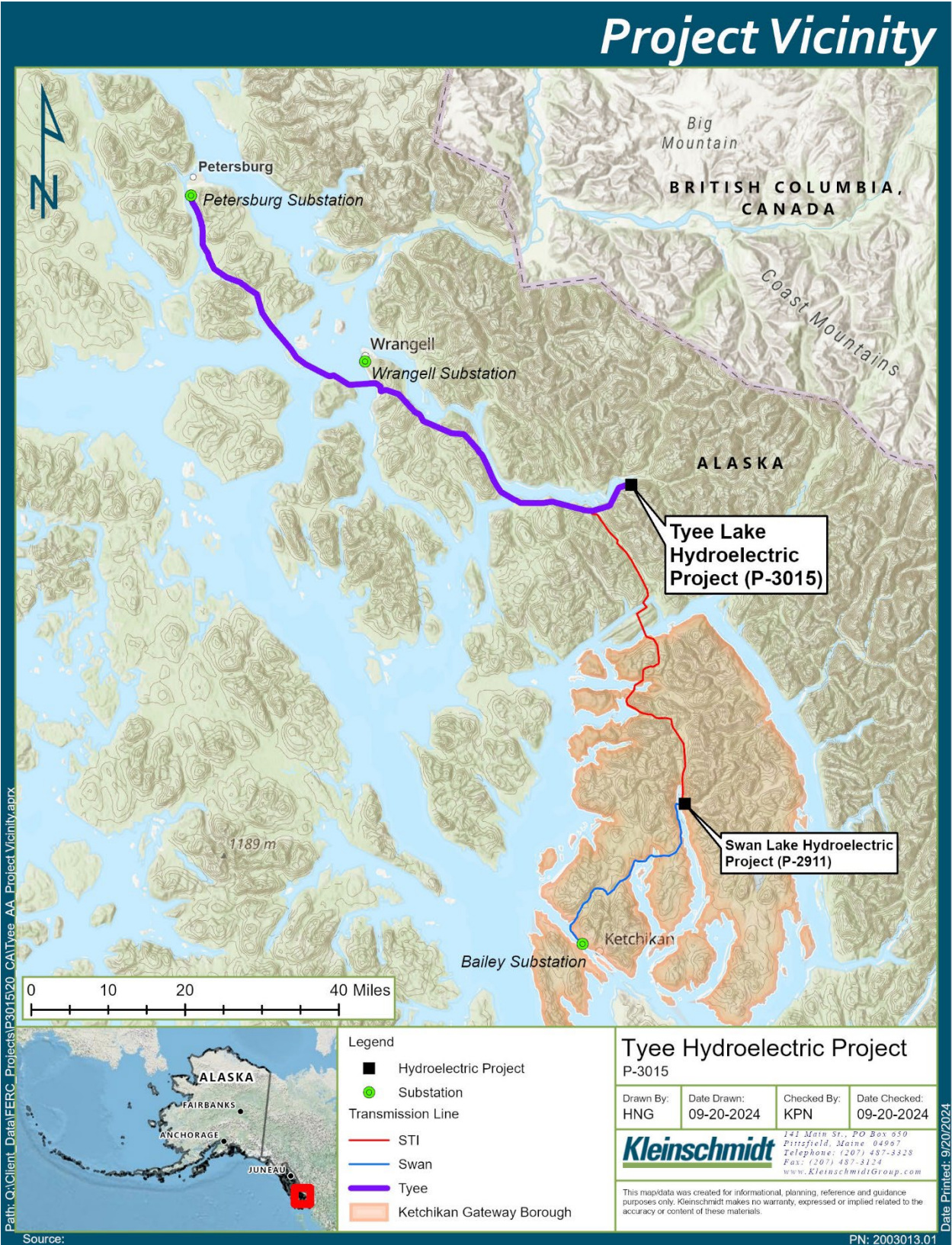


Figure 1.1-1 Project Vicinity.



Figure 1.1-2 Tyee Lake Project Boundary.

1.1 Application

The Final Amendment Application is classified as a Capacity Amendment pursuant to the Commission's regulations at 18 CFR 4.201(b) wherein any application to amend a license that involves additional capacity not previously authorized, and that would increase the total installed name-plate capacity of 2 MW or more, is classified as a Capacity Amendment.

Information presented in the Final Amendment Application is commensurate with the scope of the Proposed Action. The Final Amendment Application contains the following exhibits in accordance with 18 CFR 4.201(b)(5): exhibits A, B, C, D, E, and F. The project boundary is not changing so there is no revised exhibit G. SEAPA is using the Commission's current exhibit nomenclature, rather than the old nomenclature under the existing license (i.e., exhibits J, K, L, M and S), because of the difficulty finding and comparing old versus new exhibits and because the new exhibits will be used as the basis for relicensing the project, which begins in 2026.

- Exhibit A – Project Description. This Exhibit solely discusses proposed modifications to the Project associated with installation of the third unit, as that is the subject of this Amendment Application.
- Exhibit M REDLINE – General Description of the Mechanical and Electrical Equipment, and the Transmission Line. This Exhibit shows redline changes to the Exhibit M from the original license as a result of the proposed modifications of the Project associated with the installation of the third unit.
- Exhibit B – Project Operation. SEAPA would continue to operate the Project to optimize SEAPA's hydro resources, minimize spill and reduce reliance on diesel generation to meet current and projected demand.
- Exhibit C – Project Schedule. SEAPA presents a schedule for the procurement, installation and commissioning of the third unit based on the assumption that FERC issues a license amendment for the Proposed Action by the beginning of 2026. As such, the third unit would be commissioned during the fall of 2027.
- Exhibit D – Costs and Financing. This Exhibit presents: the estimated cost of the new development work; a statement of the estimated annual value of project power; and a statement discussing how the improvements would be financed. A detailed analysis of the costs and benefits of the proposed third unit is also provided in this Preliminary Draft Environmental Assessment (PDEA) Section 5 - Development Analysis.

- Exhibit E – Environmental Report. In place of the Environmental Exhibit E as required at 18 CFR 4.51(f), SEAPA provides herein a PDEA that addresses the requirements of Exhibit E and the Commission’s regulations implementing the requirements of environmental documents pursuant to National Environmental Protection Act (NEPA), 18 CFR 380 et seq.3. SEAPA consulted with resource agencies regarding substitution of the PDEA for the Exhibit E Environmental Report.
- Exhibit F – Design Drawings and Supporting Report (non-public filed separately). This information is filed separately pursuant to the requirements governing Critical Energy Infrastructure Information (CEII). Photos showing the existing powerhouse with the existing empty bay for the third unit and space for the additional transformer in the existing switchyard are provided in this PDEA (Photo 2.1-2 through Photo 2.1-6).
- Exhibit G – Project Boundary. SEAPA is not including this Exhibit because SEAPA does not propose to modify the Project Boundary, nor add any additional structures within the boundary. This PDEA includes a Project Boundary map (Figure 1.1-2), map of Project features (Figure 2.1-1), and an aerial photo with notations showing existing Project features to assist the reviewer (Photo 2.1-1).

1.2 Purpose and Need

1.2.1 Purpose of Action

The Final Amendment Application addresses installation of a third generating unit at the Tyee Lake Project within an existing open bay at the powerhouse and a transformer within the switchyard as provided for during original construction. When constructed, the Tyee Lake Project provided for the near-term load needs of Wrangell and Petersburg but was designed and constructed with provisions to add a third generating unit (third unit) to meet future demands. The Tyee Lake Project at its full capacity was included as part of the Southeast Alaska Integrated Resource Plan (Black & Veatch and HDR 2012). Adding a third turbine would increase the Tyee Lake Project’s installed capacity by 50 percent, for a total of 30 MW, which requires SEAPA to apply for a Capacity-Related License Amendment from FERC.

1.2.2 Need for Power

The electricity demand of the communities of Wrangell, Petersburg, and Ketchikan currently exceeds the capacity of the region’s hydroelectric projects, including SEAPA’s Tyee Lake and Swan Lake projects, during portions of the year. The electricity demand that cannot be met by the hydro projects is provided by the community utilities through

diesel generation. Any outage of one of the Tyee Lake generating units would require additional diesel generation to supply power to the communities; the current demand precludes unit cycling at Tyee Lake, negatively affecting the longevity of the equipment at Tyee. Moreover, as described below, there are several investments underway to support the continuing trend in Southeast Alaska of converting heating oil or electric baseboard to electric heat pumps and expansion of electric vehicles (EVs) that will further increase the demand for electricity within SEAPA's grid during Tyee Lake's current FERC license term. Foreseeable electrification of heating systems and transportation, and potential for shore power at cruise ship berths, would further exceed the capacity of the hydro projects serving these communities.

Addition of the third unit at the Tyee Lake Project would provide added generation to meet current and future demands, reduce the need for and reliance on diesel generation, increase operational flexibility, increase reserves and system reliability, and provide redundancy to the two existing units.

Through a U.S. Environmental Protection Agency Climate Pollution Reduction Grant, Southeast Conference (SEC), the regional economic development organization for Southeast Alaska, is currently investing \$38.6 million in the region to assist more than 6,000 households convert from residential oil-heating systems to energy-efficient heat pumps (SEC 2024b). Alaska Housing Finance Corporation also plans to offer home energy rebates for converting electric resistance heat to energy-efficient heat pumps and replacing older heat pump units (C. Lister pers. comm. September 9, 2024).

In the last five years, the number of EVs registered in Southeast Alaska communities has doubled (Chugach Electric Association 2024). The relatively mild climate, small, isolated road systems, and high fuel costs are conducive to EV use in Southeast but most communities lack public EV charging infrastructure. To support EV adoption, the state is investing in charging infrastructure in the region through multiple programs. Using Volkswagen settlement funds, SEC is currently accepting applications for the Southeast Alaska EV Charging Station Implementation Program to install 6 to 10 publicly available level 2 chargers in Southeast communities where none currently exist (SEC 2024a). As part of the National Electric Vehicle Infrastructure formula program established by the Bipartisan Infrastructure Law, Alaska Energy Authority (AEA) and Alaska Department of Transportation and Public Facilities (ADOT&PF) developed the State of Alaska Electric Vehicle Infrastructure Implementation Plan (AEA and ADOT&PF 2022). Phase 2 of the

state's plan, to be implemented from 2025 through 2027, includes investing approximately \$15 million to install fast chargers in communities served by the Alaska Marine Highway System (AMHS); all three communities within SEAPA's service area are part of the AMHS served by state ferries. In addition, ADOT&PF and SEC were granted \$38.5 million for a pilot study investigating the feasibility of replacing aging AMHS ferry vessels with low emission or electric ferries (ADOT&PF 2022).

Because Tyee Lake was designed and constructed with provisions for a third unit , it is the most cost-effective and the least environmentally damaging alternative for meeting the growing energy demand in the region. As proposed, the addition of the third unit would not require modifying the upper or lower operating range of Tyee Lake, increasing the storage capacity at Tyee Lake, or obtaining additional water rights.

2.0 PROPOSED ACTION AND ALTERNATIVES

2.1 Existing Facilities and Operations

Tyee Lake is a natural lake with a drainage area of approximately 14.4 square miles (sq. mi.). Water from Tyee Lake supplies the hydroelectric project via a lake tap. The Project boundary is 3,094 acres and contains Tyee Lake, spillway weir, intake structure with gatehouse, power tunnel and penstocks, powerhouse, tailrace, switchyard, crew housing, maintenance buildings, airstrip, docks and ramps, bulkhead for barge access, and transmission lines (Figure 2.1-1 and Photo 2.1-1).

Per the FERC License, the normal full pool elevation is 1,396 feet (ft) mean lower low water (mllw)¹ (FERC 1981). The Project is operated between the normal full pool elevation and a minimum surface elevation of 1,250 ft mllw, providing a usable storage capacity of 52,400 acre-feet (ac-ft). At normal full pool, Tyee Lake has a surface area of approximately 481 acres (ac) (TerraSond 2009). A spillway weir was constructed in 2013 at the natural outlet of Tyee Lake to measure outflow into Tyee Creek to comply with License Article 8 (Photo 2.1-7). Based on a U.S. Geological Survey (USGS) survey completed in 2020, the elevation of the weir invert is 1,398.3 ft using the North American Vertical Datum of 1988 (NAVD88) (USGS 2020).

An intake structure, located on the northern shore of Tyee Lake approximately 2,000 ft east of the natural outlet of Tyee Lake at an approximate elevation of 1,228.9 ft NAVD88 (Terrasond 2009), directs water through an unlined power tunnel that extends in a north-northwest direction for 8,300 ft to a 1,350-ft-long steel penstock to the powerhouse located near tidewater at the Bradfield Canal.

The penstock trifurcates within the powerhouse, where the first two portions connect to turbine-generating units 1 and 2. The third leads to a closed valve in the existing empty bay within the powerhouse. The powerhouse contains two horizontal-axis, Pelton-type (impulse) turbines, each operating at 720 revolutions per minute (rpm) with a rated capacity of 16,750 horsepower (hp) and 12,500 kilovolt-ampere under a net effective head

¹ Mean lower low water (mllw) is mean sea level (msl) minus 8 feet and the elevation datum used in the original license order, Accession No. 20010120-0701.

of 1,306 ft. The total installed capacity is 20,000 kilowatts. The units operate at average net heads ranging from 1,163 to 1,384 ft.

The powerhouse discharges water into the tailrace channel (Photo 2.1-4), which extends approximately 1,100 ft from the powerhouse to Airstrip Slough, a small natural intertidal side channel of Hydro Creek, which enters Bradfield Canal a few hundred feet east of where Hidden Creek enters Bradfield Canal. The entire tailrace channel is intertidal. The normal tailwater elevation fluctuates with the tides, and typically ranges from elevation 22 to 24 ft as measured by National Ocean Atmospheric Administration using the National Tidal Datum Epoch in the upper concrete portion of the tailrace under the powerhouse, and a few feet lower near Airstrip Slough downstream of the powerhouse. The tailrace was constructed to accommodate the operation of three turbines operated at full capacity.

Generated power is delivered to a switchyard and substation 200 ft west of the powerhouse (Photo 2.1-2 and Photo 2.1-6). Power is delivered to the north along approximately 68.1 miles of overhead transmission line and 11.4 miles of submarine cables which interconnect to the communities of Wrangell and Petersburg. Power is also delivered in a southerly direction to the community of Ketchikan through the 57-mile-long Swan-Tyee Intertie that was completed in 2009.

The Tyee Lake Project is operated as a conventional hydroelectric plant and, since completion of the Swan-Tyee Intertie, it has been operated in conjunction with the Swan Lake Project. Because of the generational flexibility required in this closed-loop system, water levels in Tyee Lake vary based on loads and inflow to the system. Under current operations of the two turbines, more than 90 percent of the inflow into Tyee Lake is diverted to the powerhouse. When the facility is operated at capacity, Tyee Lake may be drawn down approximately 135 ft to 140 ft below the normal lake surface level, with the lowest levels occurring in spring prior to snowmelt. Under normal water years, the lake refills during the summer months and peaks during late summer or fall but is not expected to spill into the lake's outlet stream except during heavy rainfall events. When inflow causes Tyee Lake elevations to exceed 1,398.3 ft NAVD88, excess water is spilled over the weir at the natural outlet of Tyee Lake into Tyee Creek. Between 2017 and 2023, spill occurred during four years for a total of 2 to 130 days per year. There are no minimum flow requirements into Tyee Creek, however, substantial unmeasured flow enters Tyee

Creek at the natural Tyee Lake outlet underneath and around the weir when lake elevations exceed approximately 1,360 ft.

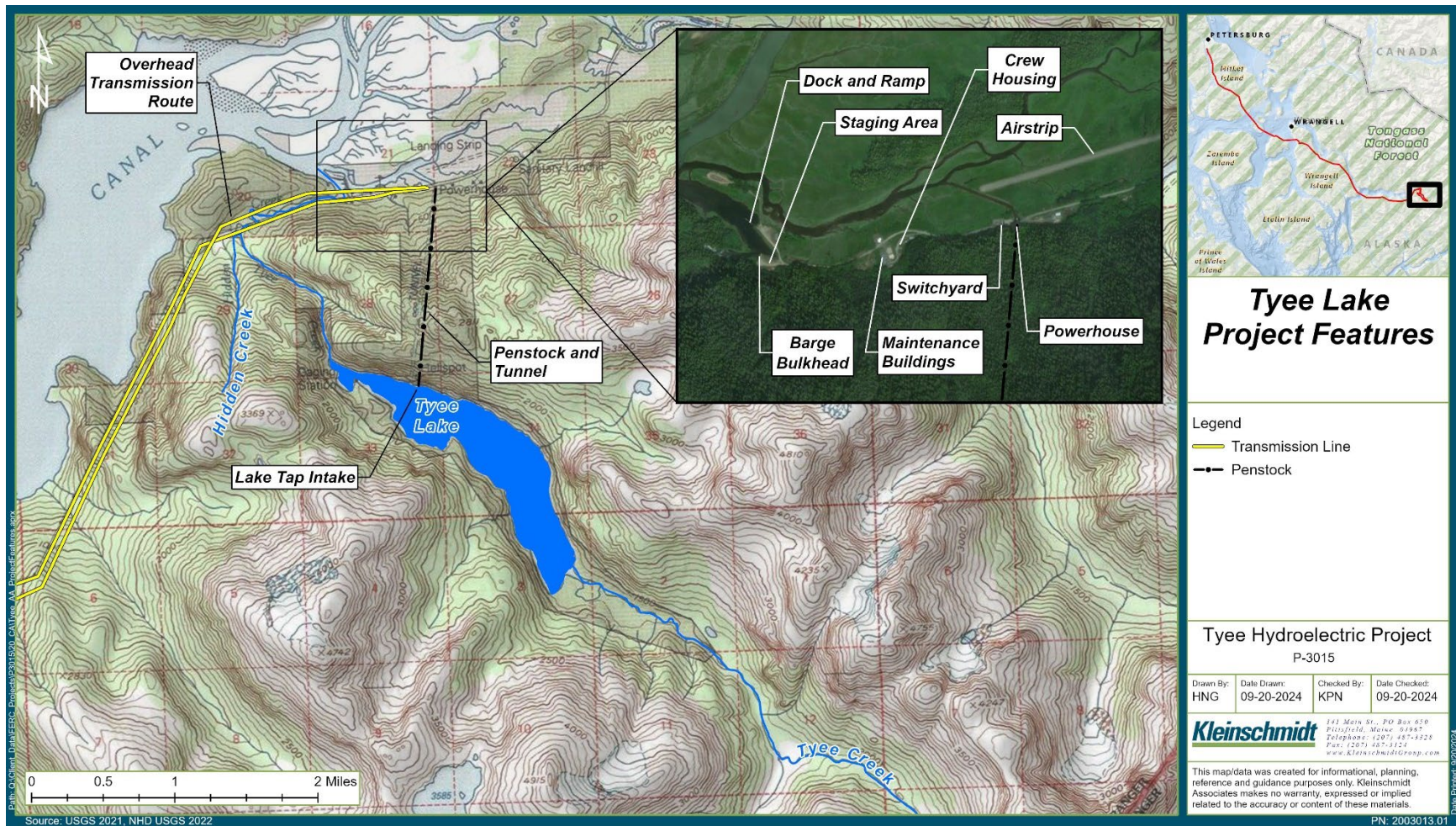


Figure 2.1-1 Tyee Lake Project Features.



Photo 2.1-1 Tyee Lake Hydroelectric Project Development.



Photo 2.1-2 Tyee Lake Powerhouse with Empty Bay on the Left.



Photo 2.1-3 Tailrace looking upstream from Airstrip Slough to the Tyee Lake.



Photo 2.1-4 Existing Turbines in the Tyee Lake Powerhouse.



Photo 2.1-5 Penstock and Concrete Thrust Box for the Third Unit.



Photo 2.1-6 Switchyard Showing Space for Installation of Third Transformer.



Photo 2.1-7 Tyee Lake Spillway Weir.



Photo 2.1-8 Gatehouse at Tyee Lake.

2.2 Proposed Action

2.2.1 Development

SEAPA is proposing to install a third Pelton-style turbine-generating unit (i.e., the third unit) in an existing empty bay at the Tyee Lake powerhouse. The third unit would be rated at 12.5 MVA (megavolt amperes) at 13.8 kV with a 0.9 power factor and a rated discharge of 117 cubic feet per second (cfs), producing 10 MW at 0.90 power factor (12.5 MVA); SEAPA is also proposing to install a new transformer in the existing switchyard. The capacity of the Tyee Lake Project would increase by 50 percent, from 20 MW to 30 MW with the additional unit. SEAPA would operate the third unit to maximize output from SEAPA hydro facilities and optimize water resources and efficiency of the generating units to better manage peak loads, meet growing energy demands, and reduce the need for diesel generation. The Proposed Action would occur within the Project boundary and involve the existing powerhouse, electrical substation, maintenance buildings, access road, staging and laydown areas, airstrip, barge bulkhead, dock and ramp, and contractor housing.

The existing Project was designed and constructed with provisions for the third turbine. There would be no change to Tyee Lake levels, usable storage capacity, power tunnel, penstocks, or tailrace. Construction activities would occur within the existing powerhouse, the footprint of the existing switchyard, and developed areas within the immediate vicinity. Construction activities would not require new ground disturbance, new roads or staging areas, removal of vegetation, or need for placement or discharge of dredged and/or fill material into waters of the U.S. There would be no construction in the tailrace and no work conducted below the ordinary high water (OHW) level of the tailrace or Airstrip Slough.

Equipment and supplies would be barged from Wrangell, Alaska along the east side of Wrangell Island and up the Bradfield Canal to the existing barge bulkhead on site. Transportation up the Bradfield Canal would occur during high tides. It is expected that there would be five to six barge trips from Wrangell in late spring/early summer to complete the Proposed Action. Barges would be off-loaded by forklift or front-end loader already on site. Equipment and materials may be temporarily placed in the existing staging area near the barge bulkhead or transported directly to the powerhouse area using the existing road. No ground-disturbing activities or upgrades to the existing roads or staging areas are anticipated.

Most of the installation work would occur within the existing powerhouse. A small concrete batch plant or mix trucks from Wrangell may be barged in to the site. Concrete work may last up to a total of two weeks depending on the type of turbine installed. Concrete footings for the third transformer would be installed within the existing switchyard footprint.

Up to approximately 15 workers may be on site at one time. Construction workers would be either flown to the airstrip or transported to the dock or barge bulkhead by private ferry. Construction crew and engineers would be housed in SEAPA's existing onsite bunkhouse or at existing U.S. Forest Service (USFS) cabins under SEAPA's Special Use Permit. It is anticipated that commissioning would occur within a year of initiation of construction activities.

SEAPA would continue to operate Tyee Lake within the same lake level elevations as the current license (1,250 ft mllw² to normal full pool) and would coordinate operation of the Tyee Lake and Swan Lake hydroelectric projects to maximize output and optimize water resources. Operation of the third unit would occur in parallel with the two existing units to allow the usable capacity of Tyee Lake to be better used to meet system needs which may occur at different times than current operations without resulting in an increase in annual water used for generation. Operation of three units at Tyee Lake would also allow SEAPA to capture water that would have otherwise been spilled to meet demand, which would increase the volume of Tyee Lake water used for generation. SEAPA currently has water rights permits to use 135,000 ac-ft of Tyee Lake water annually for purposes of hydroelectric power generation at a maximum flow of 254 cfs. Operation of the three units would not exceed SEAPA's existing annual water rights.

Water spills from Tyee Lake over a weir into Tyee Creek when the lake level reaches 1,398.3 ft NAVD88 elevation. Spill does not occur every year. Under current operations (2017-2023), spill has occurred in above-average water years (2020-2022) during precipitation events when the lake was full. Spill did not occur in below-average years (2018-2019) or average year 2017 and occurred on 2 days in 2023 with a minimal amount of water at each occurrence.

² Mean lower low water (mllw) per the original license order, Accession No. 20010120-0701.

2.2.2 Non-development Applicant-proposed Measures

2.2.2.1 Mitigation Measures for Humpback Whales and other Marine Mammals

During informal consultation with National Oceanic and Atmospheric Administration National Marine Fisheries Service (NOAA Fisheries or NMFS) under section 7(a)(2) of the Endangered Species Act (ESA), SEAPA agreed to implement NMFS' recommended mitigation measures to ensure the Proposed Action would not likely adversely affect the humpback whale (*Megaptera novaeangliae*) ESA-listed Mexico Distinct Population Segment (DPS) or other marine mammals. The protection, mitigation, and enhancement (PME) measures that would be implemented as part of the Proposed Action for whales and other marine mammals pertain to notification, Project-related barge and other vessel use during construction, and reporting. The mitigation measures for humpback whales and other marine mammals (Marine Mammal Mitigation Measures) are described below and will be included as requirements in all construction contracts.

General Mitigation Measures:

1. SEAPA will notify NMFS (Table 2.2-1) of impending in-water activities at least one week prior to the onset of those activities;
2. Ensure that trash is disposed of in accordance with state law, including cutting all closed loop items such as rings, packing straps, and bands before disposal; and
3. All ropes, nets, and other marine mammal entanglement hazards will be secured so they cannot enter marine waters.

Mitigation Measures Related to Project-Dedicated Vessels:

1. Vessel operators will, without compromise for vessel and crew safety:
 - a. Always maintain a watch for marine mammals while underway;
 - b. Remain a minimum of 91 meters (100 yards) away from listed marine mammals, except that they will remain at least 460 meters (500 yards) away from endangered North Pacific right whales;
 - c. Maintain a speed of less than 5 knots when within 274 meters (300 yards) of a whale;
 - d. Avoid changes in direction and speed within 274 meters (300 yards) of a whale, unless doing so is necessary for maritime safety;
 - e. Not position vessel(s) in the path of a whale, and now cut in front of a whale in a way or at a distance that causes the whale to change direction of travel or behavior (including breathing or surfacing pattern);

- f. Reduce vessel speed to 10 knots or less when weather conditions reduce visibility to 1.6 kilometers (1 mile) or less; and
- g. Adhere to the Alaska Humpback Whale Approach Regulations³ when vessels are transiting to and from the project site. Specifically, the pilot and crew of the vessel will not:
 - i. Approach, by any means, including by interception (i.e., placing a vessel in the path of an oncoming humpback whale), within 100 yards of any humpback whale;
 - ii. Cause a vessel or other object to approach within 100 yards of any humpback whale; or
 - iii. Disrupt the normal behavior or prior activity of a humpback whale by any other act or omission.
- 2. If a whale's course and speed are such that it will likely cross in front of a vessel that is underway, or approach within 91 meters (100 yards) of the vessel, and if maritime conditions safely allow, the engine will be put in neutral and the whale will be allowed to pass beyond the vessel, except that vessels will remain 460 meters (500 yards) from North Pacific right whales;
- 3. Vessels will not allow lines to remain in the water unless both ends are under tension and affixed to vessels or gear; and
- 4. Project-specific barges will travel at 12 knots or less.

Additionally, SEAPA commits to reporting of any unauthorized take; stranded, injured, sick, or dead listed species (not associated with the project); illegal activities; or extralimital sightings to the NMFS, as well as a final report detailing all in-water activities associated with the proposed action. As related to reporting requirements, SEAPA intends to implement the following measures:

- 1. Unauthorized Take:
 - a. If a listed marine mammal is injured or killed as a direct or indirect result of the proposed action, SEAPA will report the incident to NMFS within one business day. The report will include:
 - i. Digital, queryable documents containing observations and records, and digital, queryable reports;
 - ii. The date, time, and location of each event, including geographic coordinates;
 - iii. A description of the event;

³ 50 CFR §§ 216.18, 223.214 and 224.103(b)

- iv. Number of individuals of each listed marine mammal species affected;
- v. The time the animal(s) was first observed, and, if known, the time the animal was last seen, and the fate of the animal;
- vi. Mitigation measures implemented prior to and after the animal was taken;
- vii. If a vessel struck a listed marine mammal, the contact information for the individual piloting the vessel; and
- viii. Photographs or video footage of the animal(s), if available.

2. Stranded, Injured, Sick, or Dead Listed Species (not associated with the project):

- a. If the individual piloting the vessel observes an injured, sick, or dead marine mammal(s) (i.e., stranded), they will notify the Alaska Marine Mammal Stranding Hotline (Table 2.2-1). If possible, the individual piloting the vessel will provide photos and available data to aid NMFS in determining how to respond to the stranded animal. If possible, data submitted to NMFS in response to stranded marine mammals will include the date and time, location, species, and number of stranded individuals, as well as a description of the stranded marine mammal's condition, event type (e.g., entanglement, dead, floating), and behavior of any live-stranded marine mammals.

3. Illegal Activities:

- a. If the individual piloting the vessel observes listed marine mammals or other marine mammals being disturbed, harassed, harmed, injured, or killed (e.g., feeding or unauthorized harassment), these activities will be reported to NMFS Alaska Region Office of Law Enforcement (Table 2.2-1); and
- b. Data submitted to NMFS will include date and time, location, description of the event, and any photos or videos taken.

4. Extralimital Sightings:

- a. All observations of ESA-listed marine mammal species will be reported to NMFS within 24 hours. Photographs and/or video should be taken if possible to aid in Photo ID of individual animals. Reports will include all applicable information that would be included in a final report.

5. Final Report:

- b. A final report will be submitted to NMFS within 90 calendar days of the completion of the project. The report will summarize all in-water activities associated with the proposed action, including:

- i. Dates, times, and geographic coordinates of listed marine mammals observed by the individual piloting the vessel, including water depth, species, age/size/gender (if determinable), and group sizes; and
- ii. Any photos or videos taken of marine mammals.

In addition to protection for humpback whales, these mitigation measures would provide protection for other marine mammals that are present when humpback whales are encountered. Table 2.2-1 provides a list of appropriate contact information for communication and reporting requirements described in the above mitigation measures.

Table 2.2-1 Summary of Agency Contact Information.

Reason for Contact	Contact Information
Consultation Questions & Unauthorized Take	akr.prd.section7@noaa.gov
Reports & Data Submittal	akr.prd.records@noaa.gov
Stranded, Injured, or Dead Marine Mammals	Stranding Hotline (24/7 coverage): 1-877-925-7773
Oil Spill & Hazardous Materials Response	U.S. Coast Guard National Response Center: 1-800-424-8802 and AKRNMFSspoilResponse@noaa.gov
Illegal Activities (<i>not related to project activities; e.g., feeding, unauthorized harassment, or disturbance to marine mammals</i>)	NMFS Office of Law Enforcement (AK Hotline): 1-800-853-1964
In the event that this contact information becomes obsolete	NMFS Anchorage Main Office: 907-271-5006 or NMFS Juneau Main Office: 907-586-7236

2.2.2.2 Hidden Creek Flow Monitoring Plan

The potential reduction in flow from Tyee Lake to Hidden Creek and its potential effect on Essential Fish Habitat (EFH) in lower Hidden Creek was identified as a concern by NMFS during first stage consultation. The lowermost 460-ft-long intertidal reach of Hidden Creek provides EFH for chum, coho and pink salmon (ADF&G 2024). The Proposed Action would result in less frequent spill from Tyee Lake to Tyee Creek during certain years depending on precipitation. Under current operations, spill has not occurred during dry or average precipitation years; spill has generally occurred in wet years at varying frequency, typically during precipitation events. Tyee Creek, a non-fish bearing stream,

flows from the Tyee Lake outlet into Hidden Creek about 0.6 miles upstream of an anadromous barrier defining the EFH boundary.

As a PME measure for Hidden Creek EFH and the Proposed Action, SEAPA will develop a Hidden Creek Flow Monitoring Plan (Flow Monitoring Plan) with agency consultation. The Flow Monitoring Plan will be implemented for a limited duration after the Project is operational. SEAPA acknowledges that the monitoring may be implemented for multiple seasons to capture flow during low-water, high-water, and average-water years. Through consultation with agencies during development of the monitoring plan, the location, duration, and frequency of monitoring efforts would be determined to ensure there is no effect to salmon or salmon habitat in lower Hidden Creek.

2.2.2.3 Tailrace Scour and Deposition Monitoring Plan

During first stage consultation the U.S. Fish and Wildlife Service (USFWS) identified the need for monitoring of potential scour and downstream deposition of fines upon commissioning of the third unit due to increased flow through the tailrace. Changes in scour rates and deposition of fine suspended sediments (fines) downstream could occur following the installation of the third turbine. The tailrace was originally designed to accommodate three generating units and sediment deposition is expected to be comparable to the sedimentation processes for this intertidal area. The Tailrace Scour and Deposition Monitoring Plan (Tailrace Monitoring Plan) is meant to ensure the environment in the tailrace channel is responding as expected to an increase in flow, which it was designed for during construction of the existing project.

The Tailrace Monitoring Plan will be developed in consultation with the agencies, to identify baseline data, monitoring locations, the type of data to be collected, and operational flows of interest. The Tailrace Monitoring Plan would be ready to implement prior to when the third turbine becomes operational to provide baseline data that can be compared to data collected during or after target operations of all three turbines. Due to variability of inflow, operation of all three turbines may not necessarily exceed the current total cfs output from the two existing turbines. Exceedance of current discharge output would only occur when there is adequate storage and demand, therefore, a threshold for high output operations that would trigger monitoring of the tailrace scour and deposition conditions would be developed during consultation with the agencies. SEAPA intends for the monitoring plan to be time-limited to validate assumptions; upon agency agreement with the results of the findings, monitoring would cease.

2.2.2.4 Best Management Practices

Best Management Practices (BMPs) will be followed by all employees and contractors working on the Tyee Lake Proposed Action. BMPs are put in place to limit the potential impacts the Proposed Action could have on the existing environment. At minimum the following BMPs will be put into place.

Contractor Use of Project Facilities

- Crew quarters, roads, and staging areas are to be used only for activities directly associated with the operation, maintenance, and development of Project facilities.
- All survey monuments, witness corner, reference monument, and bearing trees will be protected from any damage.
- The contractor shall stop work and notify SEAPA immediately if any archaeologically significant materials or sites are discovered during the work.

Equipment and Vehicle Operation on Project Lands

- No motorized wheeled access to any roads on Project Lands other than official use vehicles.
- Equipment and vehicles should be cleaned prior to their delivery on Project Lands to reduce the risk of spreading non-native invasive species.
- No operation of equipment or vehicles below the ordinary high-water mark of the Bradfield Canal.
- No refueling equipment within 100 feet of a body of waters ordinary high-water line.

Fuels and Chemicals

- The Contractor will provide SEAPA a job-specific Spill Prevention, Control and Countermeasure (SPCC) plan that complies with 40 CFR Section 112.
- Any spills must be reported to SEAPA immediately and the Contractor is required to report spills to the Alaska Department of Environmental Conservation (ADEC).
- All diesel fuel, refined oil, gasoline, hydraulic fluids, anti-freeze, lubricants, solvents, rust inhibitors, and used oils must be stored in containers suitable for the product and placed within secondary containment as required by 40 CFR Section 112.
- All hazardous materials coming onto site must be accompanied with a Material Safety Data Sheet (MSDS).

- The Contractor must maintain an accounting and product information system for all hazardous materials and fuels on the Project site.

Disposal of Wastes

- All garbage shall be stored in a closed building or bear proof container prior to being incinerated in accordance with SEAPA policies at the Tyee Project incinerator.
- Outside garbage storage is prohibited.
- Chemical and petroleum products shall be removed and properly disposed of off-site.

Erosion and Sediment Control

- Sediment and erosion control measures must be provided by the contractor.
- Exposed areas should be limited size and time exposed, re-vegetation the disturbed areas must be done as soon as practicable.
- No debris shall be disposed of below any waters ordinary high-water line or in a wetland.
- Stockpiling of soil material is permitted if it will not contaminate a drainage or stream and must be moved prior to the expiration of the contract.

Wildlife and Landscape

- Disturbance to the natural vegetation shall be minimized.
- All eagles and nests shall be protected from disturbance or destruction.
- No beaver dams should be disturbed or destroyed.
- The contractor shall be informed on bear safety and reduce risks of bear encounters.

Protection of Aquatic Resources

- No in-water-work shall be conducted prior to notifying SEAPA.
- If in-water-work is required, the appropriate permits must be obtained and the work may only occur between May 1 through July 31.

2.3 No Action Alternative

Under the No Action Alternative, a third unit would not be installed at the Tyee Lake Project. Operations would continue as currently permitted. Load in excess of SEAPA's

current capacity would continue to be provided via diesel generators. The recent and projected increased demand for electricity would make the use of diesel generators more frequent. If a unit outage occurs at the SEAPA Project, all power would need to be provided by diesel generators. Under the No Action Alternative, resiliency of the grid would be reduced compared to the Proposed action.

Additionally, the No Action Alternative may affect environmental justice (EJ) in communities within areas surrounding the locations of the diesel generators. Increased use of the generators requires additional fossil fuel inputs, further exacerbating climate change, and potentially decreasing the area's climate resiliency and access to electricity going forward if the region were to become dependent on the generators to meet energy demands. Diesel generators also produce emissions that hydropower does not produce, resulting in air quality degradation, including an increase in airborne particulate matter (PM), nitrogen oxides (NOx), and carbon monoxide (CO) (Vital Power n.d.). The increase in concentration of these pollutants would not be temporary and would get worse over time, potentially causing cumulative effects to EJ communities nearby. In addition, energy produced by diesel is more costly than hydropower and the cost of diesel fluctuates with market rates, generally trending upward over the long term. Disadvantaged communities and low-income households would be most impacted by increases in energy rates from additional diesel generation under the No Action Alternative.

The No Action Alternative would not significantly affect resources with exception of EJ resources, as such the No Action Alternative is not discussed for each resource below. The effects of the No Action Alternative on Environmental Justice are discussed in Section 4.10 below.

2.4 References

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0021. Issued May 2, 2022. <https://dot.alaska.gov/comm/pressbox/arch2022/PR22-0021.shtml>. Accessed September 6, 2024.

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U.S. Geological Survey. 2020. Tyee Lake Gage and Power House Survey, 1992-2019. Prepared by R. H. Host and E. H. Moran.

Vital Power. N.d. The Environmental Impact of Diesel Generators. Available online: The Environmental Impact of Diesel Generators | Vital Power. Accessed September 3, 2024.

3.0 CONSULTATION AND COMPLIANCE

3.1 Review and Consultation

SEAPA held initial conference calls to discuss the Proposed Action with several key agencies. Representatives from NMFS, USFWS, and Alaska Department of Fish and Game (ADF&G) attended a call on August 15, 2024. A second meeting was held on September 25, 2024, with a representative of the USFS. At each conference SEAPA provided an overview of the Tyee Lake Project, the Proposed Action, and schedule and presented a proposed expedited license amendment process due to the anticipated minimal potential effects of installing and operating the third unit.

SEAPA prepared an Initial Consultation Document in the format of the Application for Capacity Amendment to License (Draft Amendment Application) and included the FERC engineering exhibits and a draft PDEA. The Draft Amendment Application was provided to participants and filed with the FERC on October 9, 2024. Participants were provided with a 30-day period within which to review SEAPA's proposal prior to the Joint Agency/Public Meeting held in Ketchikan on November 14, 2024. SEAPA published notice of these meetings in the Wrangell Sentinel, Petersburg Pilot, and the Ketchikan Daily News. Copies are provided in Appendix A.

On November 14, 2014, SEAPA held a Joint Agency/Public Meeting, hosting both a morning and evening session. The meeting materials and summaries were filed with FERC on January 14, 2025 and are available on SEAPA's website. SEAPA provided an overview of the proposed Project and expedited amendment process, reviewed baseline conditions and anticipated impacts, and discussed SEAPA's request to FERC to waive requirements of second stage consultation and grant SEAPA's request to substitute this PDEA for the Exhibit E.

The public review period was open for 60 days following submittal of the Draft Amendment Application and the Joint Agency / Public Meeting. During this period SEAPA engaged in conversations with federal and state resource agencies regarding its proposal. A record of these conversations and written exchanges are provided in Appendix B. In response to the comments from the federal and state resource agencies, SEAPA developed a memorandum committing to the PMEs requested by the agencies (Appendix C), as described in Section 2.2.2, and amended its Fish Habitat Permit FH10-I-0160 to operate the third unit (Appendix D).

Table 3.1-1 Summary Table of Consultation Correspondence

Date	Correspondence
August 1, 2024	Email request for meeting to discuss the proposed Project and process with attached project description sent to: ADF&G, Alaska Department of Environmental Conservation, SHPO, U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS)
August 15, 2024	Meeting with ADF&G, USFWS, and NMFS to review proposed Project and process
September 19, 2024	Email to U.S. Forest Service (USFS) providing Project description and presentation
September 25, 2024	Meeting with USFS to review proposed Project and process
September 26, 2024	Email exchange with USFWS re Tongass National Forest Stream Lines data
October 9, 2024	SEAPA submitted Draft Amendment Application in lieu of ICD
October 16 and October 30, 2024	Wrangell Sentinel and Ketchikan Daily News newspapers notices of November 14, 2024 Joint Agency/Public Meeting (JAM)
October 17 and October 31, 2024	Petersburg Piper newspaper notices of November 14, 2024 JAM
October 17, 2024	Email notice of JAM with attached Draft Amendment Application filing cover letter to: Agencies, Tribes and other stakeholders list
October 17, 2024	Email from SHPO requesting Project information be forwarded to OHA mailbox
October 30, 2024	Email notice of JAM with attached Draft Amendment Application filing cover letter to: OHA, USACE
November 1, 2024	FERC issues letter designating SEAPA as non-federal representative for consultation under the National Historic Preservation Act (NHPA), Magnuson-Stevens Fishery Conservation and Management Act for Essential Fish Habitat (EFH) and Endangered Species Act (ESA)
November 7, 2024	Email notice of JAM with attached meeting agenda and presentation to: Agencies, Tribes and other stakeholders list
November 8, 2024	Email with attached letter to USFWS requesting initiation of ESA Consultation
November 8, 2024	Email with attached letter to SHPO/OHA requesting initiation of NHPA Section 106 Consultation
November 13, 2024	Email from SHPO/OHA logging request for NHPA Section 106 Consultation
November 14, 2024	Email from USFWS re ESA consultation process
November 14, 2024	Joint Agency Meeting; Attendees: ADF&G, NMFS, ADNR
November 20, 2024	Email to ADF&G as follow-up to JAM and requesting support for SEAPA's motion to FERC to waive second stage consultation
November 20, 2024	Phone call with NMFS to clarify Project information and process

Date	Correspondence
November 21, 2024	Email with attached letter to NMFS requesting initiation of EFH and ESA Consultation
November 26, 2024	Emails with attached letter requesting initiation of NHPA Section 106 Consultation to Ketchikan Indian Community, Organized Village of Saxman, Petersburg Indian Association, Wrangell Cooperative Association, Metlakatla Indian Community, Hydaburg Cooperative Association, Organized Village of Kake, Craig Tribal Association, Cape Fox Corporation, Sealaska Corporation, Kake Tribal Corporation
November 26, 2024	Email from ADF&G Habitat Division re Fish Habitat Permit
November 26, 2024	Email from Sealaska Corporation
November 26, 2024	Email from Metlakatla Indian Community
December 2, 2024	Email to Sealaska Corporation offering to meet to discuss the Project
December 2, 2024	Email from Metlakatla Indian Community offering to meet to discuss the Project
December 3, 2024	Email to ADF&G seeking clarification re Habitat Division comment
December 3, 2024	Phone call with ADF&G Habitat Division re Fish Habitat Permit and timing window for plant shutdown for routine maintenance
December 3, 2024	Email from ADF&G Habitat Division as follow-up from phone call
December 4, 2024	Comment letter from NMFS
December 4, 2024	Phone call with NMFS clarifying Hidden Creek Flow Monitoring Plan
December 6, 2024	Email communications with NMFS clarifying Project information and SEAPA's agreement to implement mitigation measures to protect ESA-listed humpback whales
December 9, 2024	Comment letter from USFWS
December 9, 2024	Phone call with ADF&G clarifying the process; Comment letter from ADF&G
December 13, 2024	Letter of concurrence from NMFS and completion of ESA consultation
December 13, 2024	Comment email from SHPO/OHA
December 18, 2024	Email to Alaska Department of Natural Resources (ADNR) seeking documentation of current water rights permit
December 18, 2024	Email to ADF&G Habitat Division requesting Fish Habitat Permit FH10-I-0160 be amended for proposed Project
January 21, 2025	Letter from ADNR confirming water rights
January 21, 2025	ADF&G provides amended Fish Habitat Permit FH10-I-0160 for the proposed Project
January 24, 2025	Memo to agencies agreeing to requested protection, mitigation and enhancement measures.

3.2 Regulatory Compliance

3.2.1 Water Rights

SEAPA currently has two water rights permits from the Alaska Department of Natural Resources (ADNR; permit #'s: ADL100887 and LAS 27045) for the use of 135,000 ac-ft of Tyee Lake water annually for purposes of hydroelectric power generation and a maximum flow of 254 cfs. SEAPA's existing water rights are sufficient to make installation of the third unit viable. Following approval of this amendment application, SEAPA will work with the ADNR to finalize the details of its water rights to ensure continued compliance.

3.2.2 Clean Water Act (CWA)

Under section 401(a)(1) of the Clean Water Act, 33 U.S.C. § 1341(a)(1), a license applicant must obtain either a water quality certification (certification) from the appropriate state pollution control agency verifying that any discharge from a project would comply with applicable provisions of the Clean Water Act, or a waiver of the certification by the appropriate state agency. The failure to act on a request for certification within a reasonable period of time, not to exceed one year after receipt of the request, constitutes a waiver.

For the existing Tyee Lake Project, the ADEC found no evidence of significant adverse effects on waters of the U.S. from construction and operation of the original Project and therefore decided not to act on the water quality certificate application (FERC 1981). Since then, on August 10, 1999, ADEC filed a letter with FERC waiving all water quality certifications for FERC jurisdictional hydroelectric projects in Alaska. Pursuant to State law, the State of Alaska does not issue 401 certifications for hydropower projects.

3.2.3 Coastal Zone Management Act

Under section 307(c)(3)(A) of the Coastal Zone Management Act (CZMA), 16 U.S.C. §1456(3)(A), the Commission cannot issue a license for a hydropower project within or affecting a state's coastal zone unless the state's coastal zone management agency concurs with the license applicant's certification of consistency with the state's CZMA program, or the agency's concurrence is conclusively presumed by its failure to act within 6 months of its receipt of the applicant's certification.

The federally approved Alaska Coastal Management Program (ACMP) expired on July 1, 2011, resulting in Alaska's withdrawal from the CZMA's National Coastal Management

Program. On July 7, 2011, NOAA issued a notice regarding the ACMP withdrawal from the CZMA program. There is no state department in effect to apply for a determination of consistency and section 307 of the CZMA does not currently apply in Alaska.

3.2.4 Section 18 Fishway Prescription

Section 18 of the FPA, 16 U.S.C. § 811, states that the Commission is to require a licensee to construct, operate, and maintain fishways as may be prescribed by the Secretaries of the U.S. Department of Commerce for anadromous salmon species or the U.S. Department of the Interior for non-salmon fish species.

Tyee Lake is a naturally formed lake. The Tyee Lake Project does not impede anadromous fish migration because it is several miles upstream of an anadromous fish passage barrier located approximately 460 ft from the mouth of Hidden Creek that prevents upstream fish passage (ADF&G 2018).

While resident fish species have been documented in Hidden Creek above the falls, Tyee Creek from its confluence with Hidden Creek upstream to Tyee Lake is categorized as a Class 3 non-fish-bearing stream by the USFS (USFS 2024). Arctic grayling (*Thymallus arcticus*) eggs and fry were stocked in Tyee Lake by ADF&G in the 1960s (ADF&G 2018). No other fish species were known to occur in the lake (FERC 1981). Prior to constructing the original Project, it was proposed to move the grayling to another lake. However, these plans were abandoned when the fish were sampled in 1982 and found to have bacterial kidney disease and enteric red mouth (ADF&G 2018). Opportunistic sampling of the lake by ADF&G in 2015 documented the presence of Arctic grayling in the lake (ADF&G 2018). Fish and aquatic resources are discussed further in Section 4.4.

No fishway prescriptions or reservations of authority to prescribe fishways have been made for the Proposed Action.

3.2.5 Section 10(j) Recommendations

Under section 10(j) of the FPA, 16 U.S.C. § 803(j), each hydroelectric license issued by the Commission must include conditions based on recommendations provided by federal and state fish and wildlife agencies for the protection, mitigation, or enhancement of fish and wildlife resources affected by the project. The Commission is required to include these conditions unless it determines that they are inconsistent with the purposes and requirements of the FPA or other applicable law.

No section 10(j) recommendations have been made for the Proposed Action.

3.2.6 Endangered Species Act

Section 7 of the ESA, 16 U.S.C. § 1536, requires federal agencies to ensure that their actions are not likely to jeopardize the continued existence of any endangered or threatened species or result in the destruction or adverse modification of the critical habitat of such species. NMFS has jurisdiction over ESA-listed species in the marine environment and anadromous fish species while USFWS has jurisdiction over terrestrial and freshwater species. ESA-listed species are discussed in Section 4.6.

No ESA-listed threatened, endangered, or candidate species occur within the freshwater or terrestrial portions of the Project area. According to the USFWS Information for Planning and Conservation's (IPaC) official species list for the Tyee Lake Project Area, the only ESA-listed species under USFWS jurisdiction with a potential range in the area is the short-tailed albatross (*Phoebastria albatrus*), a seabird listed as endangered under the ESA in 2000 (USFWS 2024a). There is no critical habitat designated for this species (ADF&G 2024b). The short-tailed albatross is a pelagic species that spends most of its time at sea, is very rare, and has only a few active breeding colonies remaining, none of which occur in the state of Alaska. It is unlikely to occur within the Action Area (ADF&G 2024c, USFWS 2024b) and the Proposed Action would have no effect.

The Mexico DPS of the humpback whale, listed as threatened under the ESA (81 FR 62259, September 2016), occurs in the marine waters of Southeast Alaska (NMFS 2021, ADF&G 2024b). Humpback whales are common in Southeast Alaska; the probability of an encountered humpback whale being from the Mexico DPS is 2 percent (NMFS 2021). ESA-listed whales have a low likelihood of being present between Wrangell and Bradfield Canal and are not likely present in the very shallow intertidal areas at the head of the canal.

On November 1, 2024, FERC designated SEAPA as its non-federal representative for the purpose of conducting informal consultation with NMFS and USFWS pursuant to the regulations at 50 C.F.R. § 402.08 implementing section 7(a)(2) of the ESA. SEAPA requested initiation of informal ESA consultation with NMFS on November 20, 2024. NMFS requested and received additional information on December 6, 2024 and initiated consultation. NMFS completed informal consultation and issued a letter to SEAPA on December 13, 2024.

NMFS requested mitigation measures to incorporate into the Proposed Action to minimize the risk to listed marine mammals and concurred with the determination that the Proposed Action may affect, but not likely adversely affect the listed species (Appendix B). These measures have been incorporated into the Proposed Action and are described in more detail in Section 2.2.2.1.

3.2.7 Marine Mammal Protection Act of 1972

This act protects all marine mammals, prohibiting “take” in U.S. waters and by U.S. citizens on the high seas, and import of marine mammals and marine mammal products into the U.S.

Marine mammals are common in Southeast Alaska. Information on the species potentially present in the vicinity of Bradfield Canal is provided in Section 4.5. The Proposed Action is expected to have minimal effects on marine mammals.

3.2.8 Magnuson-Stevens Fishery Conservation and Management Act

The Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act) mandates consultation with NMFS for any activities that “may adversely impact” EFH for federally managed marine, estuarine, and anadromous fish species. Water bodies used by salmon, historically or currently, are included as EFH. The ADF&G’s Anadromous Waters Catalog (AWC) designates EFH for salmonids in Alaska. A stream, river, or lake are included in the AWC because they “*are important to anadromous fish species and therefore afforded protection under the [Anadromous Fish Act] AS 16.05.871*” (ADF&G 2024a). AS 16.05.871 requires ADF&G to “specify,” or list, “*the various rivers, lakes, and streams or parts of them that are important for the spawning, rearing, or migration of anadromous fish.*” It also requires anyone wanting to construct a hydraulic project; use, divert, obstruct, pollute, or change the natural flow or bed of a specified water body; or operate a vehicle in these specified water bodies to contact ADF&G for written approval before beginning the construction, activity, or use.

Bradfield Canal has been designated EFH for various life stages of Chinook (*Oncorhynchus tshawytscha*), chum (*O. keta*), coho (*O. kisutch*), pink (*O. gorbuscha*), and sockeye salmon (*O. nerka*). The Alaska AWC lists the lower approximately 460 ft of Hidden Creek (AWC Stream No. 107-40-10538) as providing habitat for chum, coho, and pink salmon (ADF&G 2024a). The tailrace (Tailrace Creek AWC Stream No. 107-40-10537-2008) and Hydro

Creek (AWC Stream No. 107-40-10537) are listed for presence of chum and pink salmon and rearing coho salmon (ADF&G 2024a). EFH is discussed further in Section 4.4.1.2.

The Proposed Action is not anticipated to affect EFH in the Bradfield Canal or the listed anadromous waters. SEAPA was granted to be FERC's Designated Non-Federal Representative pursuant to the Magnuson-Stevens Act to consult with NMFS regarding EFH. Following consultation, NMFS requested a monitoring plan be developed with their consultation to monitor the lower 460 feet of Hidden Creek after the turbine is operational to ensure that the reduction in spill does not affect salmon or salmon habitat (Appendix B). SEAPA has included the development and implementation of the Hidden Creek Flow Monitoring Plan as part of the Proposed Action as discussed in Section 2.2.2.2.

3.2.9 National Historic Preservation Act

Section 106 of the National Historic Preservation Act (NHPA), 54 U.S.C. § 306108, requires that a federal agency consider how its undertakings could affect historic properties. Historic properties are districts, sites, buildings, structures, traditional cultural properties, and objects significant in American history, architecture, engineering, and culture that are eligible for inclusion in the National Register of Historic Places (National Register or NRHP).

On November 1, 2024, FERC designated SEAPA as its non-federal representative for the purpose of conducting NHPA section 106 consultation. SEAPA requested initiation of section 106 consultation with SHPO on November 8, 2024 and the following parties on November 26, 2024:

- Ketchikan Indian Community
- Organized Village of Saxman
- Petersburg Indian Association
- Wrangell Cooperative Association
- Metlakatla Indian Community, Annette Island Reserve
- Hydaburg Cooperative Association
- Organized Village of Kake
- Cape Fox Corporation
- Sealaska Corporation
- Kake Tribal Corporation

SHPO responded on December 13, 2024 indicating that they did not have any objection with the level of effort to identify historic properties and they recommended defining the area of potential effects (APE) with a 100 ft buffer around the proposed use areas and recommend outreach to the Central Council of the Tlingit and Haida Indian Tribes of Alaska and the Sealaska Heritage Institute as potential consulting parties (Appendix B). No additional information was received regarding any concerns for cultural or historic resources.

3.3 References

- Alaska Department of Fish and Game (ADF&G). 2018. Pink Salmon Use of the Tyee Lake Hydro Tailrace. Technical Report No. 17-01. Prepared by K.M. Kanouse and J. Timothy. December 2018. Available Online: ADF&G.alaska.gov/static/home/library/pdfs/habitat/17_01.pdf. Access Date: July 2024.
- ADF&G. 2024a. Anadromous Waters Catalog: Nomination Guidelines. Available Online: Nomination Guidelines – Anadromous Waters Catalog – Sport Fish (alaska.gov). Access Date: July 16 2024 Alaska Department of Fish and Game (ADF&G). 2024. Anadromous Waters Catalog. Available Online: Overview – Anadromous Waters Catalog – Sport Fish (alaska.gov). Access Date: July 16 2024.
- ADF&G. 2024b. State of Alaska Special Status Species. Alaska Department of Fish and Game. Access Date: July 2024. State of Alaska Special Status Listing: Endangered Species, Alaska Department of Fish and Game.
- ADF&G. 2024c. Species Profiles. Accessed August 2024. Retrieved from: <https://www.ADF&G.alaska.gov/index.cfm?ADF&G=animals.main>.
- Federal Energy Regulatory Commission (FERC). 1981. Final Environmental Impact Statement for the Tyee Lake Project FERC No. 3015 – Alaska. June 1981.
- National Marine Fisheries Service (NMFS). 2021. Occurrence of Endangered Species Act (ESA) Listed Humpback Whales off Alaska. Revised August 6, 2021.
- U.S. Fish and Wildlife Service (USFWS). 2024a. Information for Planning and Consultation (IPaC). Accessed August 2024. Retrieved from: <https://ipac.ecosphere.fws.gov/>.
- USFWS. 2024b. Short-tailed Albatross. Accessed August 2024. Retrieved from: <https://www.fws.gov/species/short-tailed-albatross-phoebastria-albatrus>.

U.S. Forest Service (USFS). 2024. Tongass National Forest Stream Lines. Last updated February 2, 2024. Tongass National Forest Stream Lines | State of Alaska Geoportal. Accessed September 24, 2024.

4.0 ENVIRONMENTAL ANALYSIS

4.1 General Description of the River Basin

4.1.1 Major Land and Water Uses

The Tyee Lake Project is located on the mainland in a remote area of Southeast Alaska, approximately 40 mi southeast of Wrangell. The non-transmission portion of the Project occupies state land and the transmission line transverses primarily Tongass National Forest and state lands, with a short section occupying City of Wrangell and Cook Inlet Regional Corporation-owned lands. The major land use within the FERC project boundary is electric generation from the Tyee Lake Project and transmission to Wrangell, Petersburg, and Ketchikan.

The state land is surrounded by Tongass National Forest which is managed under the guidance of the 2016 Tongass Land and Resource Management Plan (Tongass Plan) and the delineated Land Use Designations (LUDs; USFS 2016). The Tongass Plan includes specific guidelines and goals for each of the LUDs, for transmission line and energy projects, and vegetation and wildlife management approaches. The adjacent USFS land surrounding Tyee Lake is classified as Remote Recreation. Tyee and Hidden creeks flow through the Semi-Remote Recreation LUD. The management objective of these LUDs is to provide for recreation in remote or natural-appearing settings where opportunities for solitude and self-reliance are high or moderate to high, respectively (USFS 2016). The USFS land to the east of the Project Area is managed for Timber Production.

4.1.2 Climate

Tyee Lake is located in a maritime climate zone (UAF 2024). Weather conditions vary in this area due to the complex mountainous terrain. Summers are usually cool and cloudy with moderate temperatures ranging from an average of 47 to 64 °F between June and September (UAF 2024, U.S. Climate Data 2024) Winter temperatures range from an average 30 to 44 °F between November and March. Precipitation is highest between the months of September to January and the average annual precipitation is 141 inches (U.S. Climate Data 2024). Heavy snowfall occurs along the coasts, including the Tyee Lake drainage area, due to the moisture rich air being lifted over the coastal mountains. Winds are strongly affected by the local landscape features, ocean temperature contrast and pressure systems moving across the area. High winds are more common in the fall and winter compared to the spring and summer (UAF 2024).

4.1.3 References

University of Alaska Fairbanks. (UAF). 2024. Alaska Climate Research Center: Alaska Climate. Access Date: June 2024. Available Online: <https://akclimate.org/climate/>.

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https://www.fs.usda.gov/Internet/FSE_DOCUMENTS/fseprd527907.pdf.

4.2 Geological and Soil Resources

4.2.1 Affected Environment

The Tyee Lake Project is located within the Bradfield Canal in the southwestern portion of the Coast Mountains. The Project is sited in rugged mountainous terrain, altered by glaciation. The area has steep mountains with deep U-shaped valleys and fjords. Features tend to align northwestward, parallel to gneissic banding in bedrock (Callahan and Wanek 1969 as cited in FERC 1981).

Tyee Lake is a naturally formed lake that sits in a glacially scoured bedrock basin about 1,400 ft above the Bradfield Canal (APA 1979). The shorelines are steep, rising at 50-to-70-degree angles to an average elevation of 3,500 ft with several nearby peaks reaching just under 5,000 ft (FERC 1981). Tyee Lake drains from the north end through the deep and narrow gorge of Tyee Creek.

The Tyee Lake Project is within the Tracy Arm terrane, a batholithic complex in Southeast Alaska's Coast Range Mountains (APA 1979). When the granitic rocks were intruded, they were granitized and magmatized, fractured and injected, faulted and folded, and highly regionally metamorphosed (APA 1979). Because of the high metamorphism, the igneous and metamorphic geology is difficult to differentiate near Tyee Lake (APA 1979). Most of the rocks at Tyee Lake likely have the chemical and mineralogical composition of a quartz diorite, though the texture and appearance are highly variable (APA 1979).

The bedrock at the Tyee Lake Project is dense, impermeable igneous and metamorphic rock. The igneous rocks, part of the Coast Range batholith, includes quartz diorite, granodiorite, and hornblendite; and the metamorphic rocks are a composite gneiss (FERC 1981). The 1979 field investigations conducted for the License Application further divided the quartz diorite into two categories: massive homogeneous quartz diorite with little to no foliation and distinctly foliated and/or lightly banded quartz diorite (APA 1979). Rocks considered gneiss were heavily banded, with alternating layers of light schistose and dark crystalline mineralization, of both igneous and metamorphic origin (APA 1979). The hornblendite, less resistant to erosion than other rock types at the Project, is a coarse-grained rock composed of 75 to 100 percent euhedral black hornblende with up to 25 percent interstitial plagioclase (APA 1979).

Sediments at the surface at the Tyee Lake area include alluvial and glaciofluvial sediments, rock and landslide debris, talus, fanglomerate, colluvium, organics and some man-made

fill (APA 1979). Glacial deposition in the alluvial valley at the head of Tyee Lake is primarily sandy gravels and perhaps coarser deposits at depths (APA 1979). The margins of Tyee Lake and the valley of Bradfield Canal include numerous rockslide and landslide deposits carrying talus deposits and large rubble (APA 1979).

Soils are relatively young and of shallow depth in the Tyee Lake area; 1 to 3 ft of organic material is present in typical soil profiles and directly overlies bedrock or talus and rubble (APA 1979). The organic layer of material develops down to a dark moist peat, overlaying a poorly developed A-horizon, which is only present where there are fine-grained soils (APA 1979). Alluvial valley fills, such as the Tyee Lake inlet area, have a more natural soil profile and consist of sandy gravels, are well drained, and support more vegetation (APA 1979).

U.S. Department of Agriculture Natural Resource Conservation Service (USDA NRCS) soil types mapped near the Project are listed in Table 4.2-1 below. Soils near the powerhouse and tailrace are NRCS type "80 – Cryaquents-Cryaquepts complex, 0 to 3 percent slopes" (USDA NRCS 2024). Cryaquents and Cryaquepts soil types occur in deltas and depressions, in concave areas, and have alluvium parent material; their composition is typically silt loam or loam and they are poorly drained (USDA NRCS 2024). Soil types 11D and 36B occur on the hillside adjacent to the powerhouse area, rather than the flat lowlands the Powerhouse is sited on (Table 4.2-1).

Table 4.2-1 USDS NRCS Soil Types near the Project.

Location	NRCS Soil Type	
Lowlands Near Powerhouse	80	Cryaquents-Cryaquepts complex, 0 to 3% slopes
	11D	Kupreanof-Tolstoi association, 35 to 75% slopes
	36B	Kupreanof silt loam, 5 to 35% slopes
Surrounding Tyee Lake	410X	Lithic Cryosaprists-Lithic Humicryods association, 15 to 120% slopes, alpine
	411X	Typic Cryumbrepts, loamy-skeletal, 15 to 75% slopes
	415X	Cryofluvent and Typic Cryaquent soils, 0 to 15% slopes, alpine
	422X	Lithic Cryaquods-Lithic Cryosaprists association, 35 to 120% slopes
	425X	Typic Humicryods-Typic Cryumbrepts, loamy-skeletal complex, 15 to 75% slopes
	436X	Lithic Humicryods, 75 to 120% slopes
	437X	Cryaquods-Lithic Humicryods complex, 5 to 35% slope

Source: USDA NRCS 2024

Landslides and other forms of soil mass movement are common throughout the area, as slopes have been over-steepened by glacial erosion and other geologic influences and are often steeper than the stable angle for the slope materials (FERC 1981). Mass movement typically occurs during or after periods of heavy rainfall or during snowmelt when soils are saturated (FERC 1981).

Alaska is the most seismically active state in the U.S. so earthquakes at the Tyee Lake Project are possible. However, the Wrangell area has a relatively low chance of having a damaging earthquake in the next 100 years (USGS 2024a). A magnitude 7.1 to 7.6 earthquake occurred in 1972 near Sitka, about 175 miles from the Tyee Lake Project (APA 1979). None of the geologic faults near the Project are considered active (FERC 1981). A ground motion of 0.1 gravitational acceleration is estimated for an earthquake event that has a 2 percent probability of exceedance in 50 years (approximate return period of 2,475 years) (ASCE 2024). The mean earthquake magnitude associated with this return period is magnitude 6.9 (USGS 2024b).

The 370-mile-long Coast Range lineament is the closest recognized major fault structure near the Tyee Lake Project, traversing the whole length of the Southeast Alaska panhandle (APA 1979). There is no evidence of recent movements along the lineament (APA 1979). The Coast Range lineament runs west of Tyee Lake through the Eagle River valley and delineates the boundary between the Taku and Tracy Arm terranes (APA 1979).

4.2.2 Environmental Analysis

4.2.2.1 Construction

The Proposed Action would have no effect on geology or soil resources at the Tyee Lake Project, as no new ground disturbing activities would occur. All construction activities would occur on existing laydown areas and roads, or within the existing powerhouse footprint. Barge activity would have no effect on geological and soil resources.

4.2.2.2 Project Operations

Operation of the Tyee Lake Project as proposed would have no effect on geology and soil resources around Tyee Lake. Tyee Lake drawdown rates may be more rapid at times with the operation of all three turbines, but the Project would continue to be operated between the existing full pool elevation and the minimum allowable surface elevation of 1,250 ft

mllw⁴ as has occurred since operations began in 1984. The intertidal tailrace was designed and constructed to accommodate the discharge from the operation of all three turbines at full capacity. Operation of all three turbines would not cause erosion along the side slopes of the tailrace or overflow to the adjacent areas.

4.2.3 Applicant-Proposed Measures

No applicant-proposed measures for geological or soil resources are anticipated for this proposed capacity amendment.

4.2.4 References

Alaska Power Authority (APA). 1979. Tyee Lake Hydroelectric Project – Petersburg and Wrangell, Alaska, Application for License, Volume 2 – Exhibit W. December 1979.

American Society of Civil Engineers (ASCE). 2024. ASCE Hazard Tool. Accessed August 2024. Retrieved from: <https://ascehazardtool.org/>

Callahan, J.E. and A.A, Wanek. 1969. Geologic reconnaissance of possible power sites at Tyee, Eagle, and Spur Mountain Lakes, Southeastern Alaska. U.S. Geol. Survey Bulletin 1211-B. 34 pp.

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⁴ Mean lower low water (mllw) per the original license order, Accession No. 20010120-0701.

4.3 Water Quality and Quantity

4.3.1 Affected Environment

4.3.1.1 Overview

Tyee Lake is part of the 16.1 sq mi Hidden Creek watershed (USGS 2016). Tyee Lake is a natural lake that drains a 14.4-sq mi area (USGS 2016) that ranges in elevation from approximately 1,250 to 5,005 ft msl. The watershed, primarily covered by dense coniferous forest below the alpine, feeds water into Tyee Lake. The lake is located at the lower end of a northwest-trending glacial valley which extends approximately 6 miles above the lake outlet (IECO 1979).

A spillway weir was constructed in 2013 at the natural outlet of Tyee Lake (Photo 2.1-2) to measure outflow into Tyee Creek to comply with License Article 8. The elevation of the weir invert is 1398.3 ft NAVD88 (USGS 2020). Based on a Tyee Lake bathymetry survey completed in 2009, Tyee Lake has a surface area of approximately 481 ac and a gross storage of 86,660 ac-ft at normal full pool (TerraSond 2009).

From the Tyee Lake outlet, Tyee Creek extends approximately 1.2 mi through a steep-gradient canyon until its confluence with Hidden Creek, which flows northeast about 1 mi before entering a slough of the Bradfield Canal (ADF&G 2018).

The intake structure is located on the northern shore of Tyee Lake, approximately 2,000 ft east of the natural outlet of Tyee Lake, at an elevation of approximately 1,228.9 ft NAVD88. Water from Tyee Lake is diverted through the intake structure into a drop shaft, and through an unlined power tunnel extending 8,300 ft to a 1,350-ft-long steel penstock to the powerhouse. The powerhouse discharges water into the tailrace, which extends approximately 1,100 ft to Airstrip Slough, a small natural intertidal side channel of Hydro Creek that flows into Bradfield Canal about 0.5 mi east of where Hidden Creek enters Bradfield Canal (FERC 1981).

Bradfield Canal is a tidally influenced inlet that extends approximately 19 mi west from the Bradfield River to Earnest Sound, approximately 30 mi southeast of Wrangell. Depths in Bradfield Canal reach over 200 ft but are very shallow in the vicinity of the Project (NOAA 2011). The area's hydrology is influenced by significant semi-diurnal tidal fluctuations in Bradfield Canal.

4.3.1.2 Water Quantity

4.3.1.2.1 Inflow to Tyee Lake

There are currently no gages that record the inflow into Tyee Lake or the amount of water available for generation. There was a USGS gage (USGS Gage No. 15020100) that operated August 1, 1963, to September 29, 1969, at the mouth of Hidden Creek near Bradfield Canal, downstream from Tyee Lake and Tyee Creek's confluence with Hidden Creek representing a drainage area of 16.1 square miles. Through correlation with concurrent records available for the Harding River USGS Gage (located about 5 mi west of the mouth of Tyee Creek), records for flow at the mouth of Hidden Creek were expanded to cover water years 1952 through 1978 and inflow from Tyee Lake was then synthesized from drainage area proportioning and adjusted for elevation and runoff differences between the upper and lower portions of the basin (IECO 1982). The estimated mean monthly and daily discharge from Tyee Lake across the period of record is presented in Table 4.3-1.

Runoff from spring snowmelt and seasonal precipitation is the primary water source for Tyee Lake, as no glaciers are present within the watershed. Approximately 70 percent of the runoff in the Tyee Lake basin occurs from June through October (IECO 1982). Historical mean monthly flows peaked in June, July, September, and October, and were lowest in February and March, highlighting the seasonal variability in water availability. The runoff pattern shows a high volume of flow occurring during June and July, the magnitude and duration of which depend on the depth of the snow in the basin, the temperatures during the melting season, and the occurrence of rain. Extremely high flows also occur in September and October, and to a lesser extent August, resulting from heavy rain events.

Table 4.3-1 Synthesized Average Monthly and Daily Discharge at Tyee Lake Outlet (1952-1978).

Month	Average Monthly Discharge (cfs)	Average Daily Discharge (cfs)
January	47	5.8
February	36	1.0
March	28	0.1
April	53	2.2
May	193	66.9
June	350	199.1
July	293	159.4

Month	Average Monthly Discharge (cfs)	Average Daily Discharge (cfs)
August	238	98.7
September	218	154.0
October	275	143.1
November	113	40.9
December	76	12.8
Annual	161	73.8

Source: IECO 1982.

Exceedance flows (Table 4.3-2) and an annual flow duration curve (Figure 4.3-1) were derived from the 7-year (1963 to 1969) daily flow record from USGS Gage 15020100 (USGS 2024b) at the mouth of Hidden Creek near Bradfield Canal. The hydrograph pattern at the mouth of Hidden Creek would be slightly different from the Tyee Lake outlet. The winter flow recorded at the mouth of Hidden Creek would primarily represent melting snow pack below Tyee Lake where the temperatures are lower and there would be less snowpack in the lower basin unlike the significant snowmelt runoff that occurs in June and July from the upper watershed above the Tyee Lake outlet (IECO 1982).

Table 4.3-2 Estimated Exceedance Flows at the Mouth of Hidden Creek Based on Data from USGS Gage 15020100 (August 1963 to September 1969).

Percent of Time Flow is Equaled or Exceeded	Daily Average Discharge (cfs)
5%	523
10%	433
20%	300
30%	226
40%	161
50%	112
60%	72
70%	48
80%	32
90%	21
95%	15

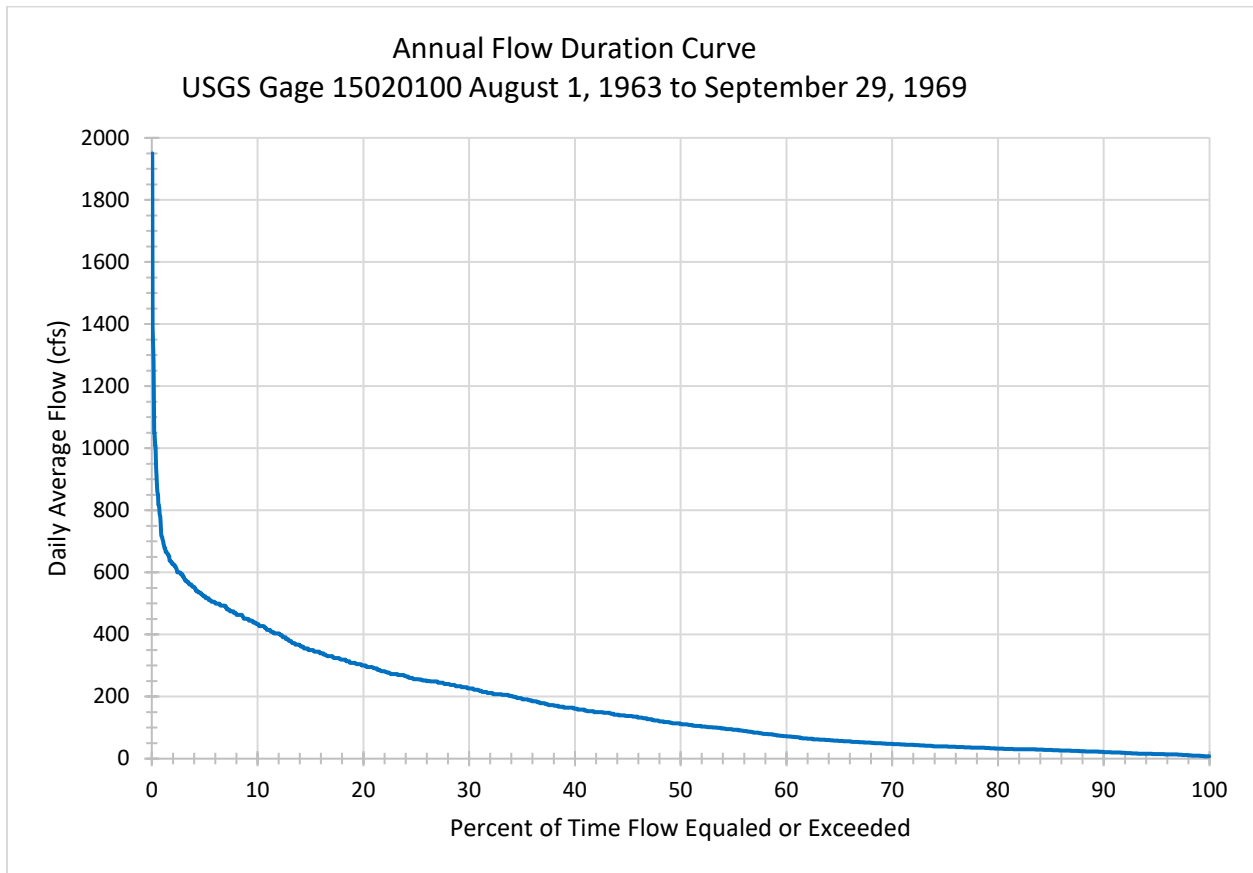


Figure 4.3-1 Annual Flow Duration Curve at Mouth of Hidden Creek from USGS Gage 15020100 (August 1, 1963, to September 29, 1969).

4.3.1.2.2 Outflow from Tyee Lake

Lake levels at the Tyee Lake Project range between 1,250 ft and the full pool at spillway weir invert elevation of 1,398.3 ft NAVD88 (USGS 2020) to store runoff during the summer and fall (mid-May through October) and release flows for power generation year-round. SEAPA has water rights permits to use 135,000 ac-ft of Tyee Lake water for hydroelectric power generation annually and a maximum flow of 254 cfs.

4.3.1.2.2.1 Tyee Lake Powerhouse

Water generation data, including the monthly minimum, mean and maximum discharge are provided in Table 4.3-3 from 2017 through 2023. The average monthly discharge ranged from 74 cfs (4,419 ac-ft) in June to 162 cfs (9,921 ac-ft) in December. Over the period of record, an average of 90,609 ac-ft of water was used for power generation annually.

Table 4.3-3 Monthly Discharge through Tye Lake Powerhouse (2017 to 2023).

Month	Min(cfs)	Mean (cfs)	Max (cfs)	Mean (ac-ft)
January	47	159	226	9,765
February	47	160	212	8,944
March	20	147	214	9,047
April	41	143	216	8,493
May	35	100	176	6,152
June	0	74	158	4,419
July	0	119	188	7,336
August	0	119	196	7,309
September	0	89	184	5,295
October	0	97	165	5,985
November	78	133	196	7,941
December	82	162	222	9,921
Annual	-	125	-	90,609

4.3.1.2.2 Spillway Weir

A spillway weir was constructed in 2013 at the Tye Lake outlet to comply with License Article 8 to measure Tye Lake outflow. The weir was further modified in 2015 in an effort to reduce the amount of unquantified flow leaking under and around the weir to Tye Creek. However, an unquantified flow to Tye Creek continues to leak from underneath the weir or around the large boulders at the outlet when Tye Lake elevations exceed approximately 1,360 ft.

USGS Gage 15019990 has measured Tye Lake water surface elevations since 1979 (USGS 2024a). When Tye Lake elevations exceed the spillway weir invert at 1,398.3 ft NAVD88 (USGS 2020), excess water is spilled over the weir into Tye Creek. Spill typically occurs in response to precipitation events, the frequency and intensity of which are influenced by the El Nino Southern Oscillation (ENSO) and the Pacific Decadal Oscillation (PDO), as is the air temperature and demand for power. Spill does not occur during low-water years and may or may not occur during average water years.

Monthly minimum, mean, and spill data are provided in Table 4.3-4. Figure 4.3-2 shows the daily Tye Lake surface elevations over a period of seven years (2017 to 2023) representing current operations. Over the period of record, no spill occurred in 2017 (average year) or 2018–2019 (dry years). During above average water years (2020–2022),

spill over the weir occurred from June through November. In 2023 (average year), spill occurred one day in October and another day in November. The monthly mean spill ranged from 6 cfs in November to 69 cfs in August. Monthly maximum spill flows ranged from 350 cfs in November to 637 cfs in August.

Table 4.3-4 Monthly Discharge Spilled over Weir at Tyee Lake Outlet (2017 to 2023).

Month	Min (cfs)	Mean (cfs)	Max (cfs)	Average # Days of Spill
January	0	0	0	0
February	0	0	0	0
March	0	0	0	0
April	0	0	0	0
May	0	0	0	0
June	0	20	514	2
July	0	36	357	7
August	0	69	637	10
September	0	64	571	9
October	0	50	600	10
November	0	6	350	2
December	0	0	0	0

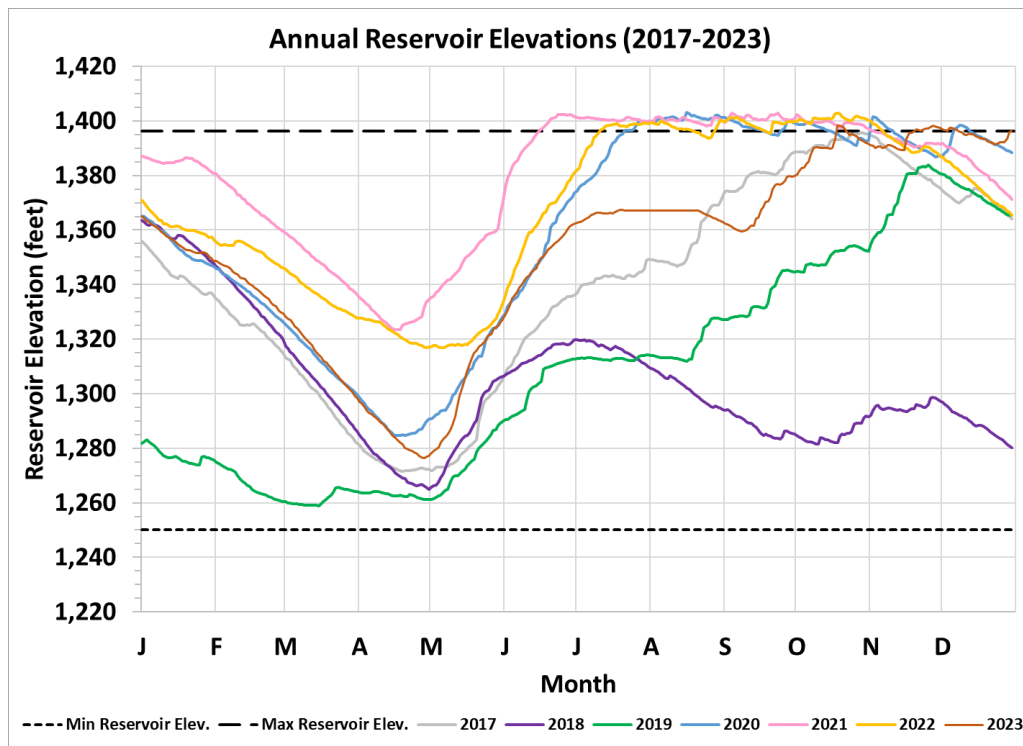


Figure 4.3-2 Tyee Lake Elevations 2017 through 2023.

4.3.1.2.2.3 Unquantified Outflow to Tyee Creek

Water from Tyee Lake flows to Tyee Creek from underneath the weir and around the boulders at the lake outlet, as shown in Photo 4.3-1 and Photo 4.3-2. This typically occurs during the summer and fall when Tyee Lake elevations exceed approximately 1,360 ft.



Photo 4.3-1 Tyee Creek at Tyee Lake Outlet Weir Looking Downstream when no Water is Flowing from Tyee Lake over the Weir.



Photo 4.3-2 Tyee Creek at Tyee Lake Outlet Weir looking Upstream when no Water is Flowing from Tyee Lake over the Weir.

4.3.1.3 Water Quality

4.3.1.3.1 Tyee Lake

Tyee Lake is a cold, near neutral system (AEIDC 1980). Historically, Tyee Lake had a pH that varied from neutral to slightly acidic (6.2 to 7.0), with little variation and low values (≤ 10 micromhos/cm) of specific conductance, low dissolved solids, and low suspended solids (≤ 1.4 mg/L) (AEIDC 1980). Surface water temperature varied from 4.5 degrees Celsius ($^{\circ}\text{C}$) in May to 13 $^{\circ}\text{C}$ in July at Tyee Lake and dissolved oxygen (DO) saturation was 100 percent (AEIDC 1980).

Currently, neither the U.S. Environmental Protection Agency (USEPA) nor ADEC have listed Tyee Lake for any impairments (ADEC 2022). USGS began recording water temperature data at Gage 15019990 at the Tyee Lake outlet August 24, 2023. Since then, instantaneous surface water temperature measured at the gage ranged from a low of 3.6 $^{\circ}\text{C}$ in May of 2024 to 7.8 $^{\circ}\text{C}$ in November of 2023.

4.3.1.3.2 Hidden Creek

Historical sampling found little difference in the water quality between the Tyee Lake outlet, Tyee Creek, and Hidden Creek (FERC 1981). The lowermost reach of Hidden Creek below the falls is tidally influenced. In April 2010, ADF&G collected a single measurement of DO and temperature in a pool directly below the falls during low tide when water was not flowing from the Tyee Lake outlet; the DO was 13.54 mg/L and the temperature was 4.4 $^{\circ}\text{C}$ (ADF&G 2010). Water quality in the lowermost intertidal reach is expected to be similar to the tailrace.

4.3.1.3.3 Tailrace

ADF&G monitored the intertidal tailrace surface water quality in 2010-2011 (ADF&G 2010) and 2015-2016 and found that the data were similar to the 1980s monitoring showing characteristics of colder freshwater during low tide and warmer brackish water during high tide with seasonal variation (ADF&G 2018). In April 2016, ADF&G collected water temperature, DO, salinity, conductivity, and pH data from the Project tailrace at five transect locations during a +19.0 ft tide (ADF&G 2018). The tailrace water temperature ranged from 3.5 to 8.3 $^{\circ}\text{C}$ and was lowest during low tides (ADF&G 2018). DO concentrations ranged from 8.8 to 17.0 mg/L with the greatest DO concentrations occurring at the surface for all tide stages and the lowest during high tide near the channel bottom (ADF&G 2018). The salinity of the tailrace ranged from 0 to 17 parts per thousand

and conductivity varied from 1 to 19,000 microsiemens/cm; both generally increased downgradient during high tide with the greatest concentrations occurring along the channel bottom. The pH of the tailrace ranged from 6.0 to 7.6. Freshwater from Tyee Lake and saline water from the tidal influence are thought to be fully mixed before reaching Airstrip Slough. These data fall within the natural range of variability (ADF&G 2018).

4.3.2 Environmental Analysis

4.3.2.1 Water Quantity

4.3.2.1.1 Construction

Construction activities would have no effect on the quantity of water flowing out of Tyee Lake into Tyee and Hidden creeks or Bradfield Canal. Construction activities would be limited to the transport and installation of the Pelton-style turbine generating unit at the powerhouse and transformer and associated equipment at the switchyard. The existing units may be shut down for up to 7-10 days during the installation, which is similar to the annual shutdown that occurs each year to perform routine maintenance. Water not used for purposes of generation during that time would be stored in Tyee Lake for later use.

Water may be withdrawn from the powerhouse outflow for purposes of mixing concrete on site. A temporary water use permit would be obtained from ADNR and a Fish Habitat Permit would be obtained from ADF&G's Division of Habitat for the water withdrawal. Because the powerhouse was constructed with provisions for the third unit, the amount of concrete needed would be minimal and all concrete work is anticipated to be completed in less than a total of 2 weeks. Water withdrawal during construction would be minimal in both volume and duration and is anticipated to not have any effect on the water quantity in the tailrace or Airstrip Slough.

4.3.2.1.2 Project Operations

SEAPA would continue to coordinate operation of the Tyee Lake and Swan Lake hydroelectric projects to maximize output, optimize water resources and efficiency of the generating units, and minimize the need for diesel generation. The Tyee Lake Project would continue to operate between the normal full pool elevation and a lower draft limit of 1,250 ft and the usable storage capacity would not change with the Proposed Action. When all three units are generating, the reservoir water surface elevation may be drawn down at a faster rate than under existing conditions.

The amount of water that would be used to generate power with three turbines would depend on the amount and timing of snowmelt/rainfall, Tyee Lake levels, and demand. The annual volume of water used for generation may increase in above average-water years and some average water years because the Project would be able to generate with inflow that would have otherwise spilled during high runoff periods when Tyee Lake was full and only two units were operating. From 2017 through 2023, SEAPA has used an average of 90,609 ac-ft annually to generate power, ranging from approximately 69,000 ac-ft to 109,000 ac-ft each year, with spill occurring during three years (2020-2022) and for 2 days in 2023. Spill typically occurs during years with high snowpack (June and July) or rain events (August-November). At times, SEAPA would be able to capture water that would otherwise have been spilled and remain well within their existing Tyee Lake permitted water rights.

The frequency or magnitude of spill into Tyee Creek may be reduced in some years with the additional generating capacity of three turbines but this is not anticipated to have significant effects on water quantity. There is no instream flow reservation into Tyee Creek under the current license. Under current operations, spill does not occur every year. It has historically happened during above-average water years typically during precipitation events that occur when the lake is full or near full. Leakage into Tyee Creek underneath the weir at lake elevations at or exceeding approximately 1,360 ft would continue under the Proposed Action.

The Project tailrace was designed to accommodate the flows corresponding to three turbine units running simultaneously at maximum output. The tailrace flow would increase from a maximum output of 234 cfs to 351 cfs (117 cfs per turbine) if all three turbines were operating simultaneously at full capacity.

4.3.2.2 Water Quality

4.3.2.2.1 Construction

Installation of the third unit would not require any ground-disturbing activities and there is no proposed in-water construction. The presence and operation of construction equipment and barge operations could increase the potential for fuel and hazardous substance spills. However, Best Management Plans (BMPs) to protect water quality would be implemented (e.g., erosion and sediment control plan, spill prevention and control plan, no refueling adjacent to the waterbodies, etc.). With implementation of BMPs, the effects on water quality are expected to be negligible during construction activities.

4.3.2.2.2 Project Operations

As no significant operational changes in Tyee Lake are proposed, it is unlikely that water quality would be affected. Changes in tailrace water quality are anticipated to be minimal. The introduction of more freshwater into the tailrace could result in minor changes to water temperature and salinity, while DO levels may increase slightly due to the typically higher oxygen content in freshwater compared to brackish or saline water. It is expected that full mixing of the freshwater with the saline water would continue to occur before reaching Airstrip Slough.

For construction of the original Tyee Lake Project, ADEC had found no evidence of significant adverse effects on waters of the U.S. from construction or operation and therefore decided not to act on the water quality certificate application (FERC 1981). ADF&G monitoring of the intertidal tailrace has shown characteristics of colder freshwater during low tide and warmer brackish water during high tide with seasonal variation and has concluded that these conditions fall within the natural range of variability and have not been found to have any deleterious effects on the fish using the tailrace, Airstrip Slough or Hydro Creek (ADF&G 2018). Freshwater from Tyee Lake and saline water from the tidal influence are thought to be fully mixed before reaching Airstrip Slough. Because additional generation from the third unit would have less of an incremental effect on the existing baseline water quality of Airport Slough compared to the original Project, water quality is not anticipated to be an issue.

Over time, more fines have been deposited in the tailrace from the tidal influence, with higher levels in a downgradient direction towards Airstrip Slough. While no scour is anticipated in Airstrip Slough, higher flow velocities that may occur in the tailrace at times when all three units would be operating may result in some minor scouring of the tailrace channel bed, temporarily increasing suspended sediment and exposing more suitable spawning gravel in the tailrace. The mobilized fines would be transported downstream and deposited at the lower end of the tailrace or to Airstrip Slough. The deposition of these fines in the intertidal area at the lower tailrace would mirror the natural sedimentation processes typical of that intertidal area.

4.3.3 Applicant-Proposed Measures

Following the installation of the third turbine, SEAPA proposes to monitor the tailrace for changes in scour rates and deposition of fine suspended sediments (fines) downstream. The tailrace was originally designed to accommodate three generating units and sediment

deposition is expected to be comparable to the sedimentation processes for this intertidal area. The Tailrace Monitoring Plan should provide sufficient evidence that the tailrace and downstream environment are responding to the flow changes as anticipated. Details of the Tailrace Monitoring Plan are available in Section 2.2.2.3 of this application.

The addition on the third unit could potentially result in decreased spill over the weir and decreased flow from lower Tyee Creek into Hidden Creek. To demonstrate that year-round flow continues into Hidden Creek without spill from Tyee Lake, SEAPA proposes to implement the Flow Monitoring Plan, details about the Flow Monitoring Plan are available in Section 2.2.2.2 of this application.

4.3.4 References

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4.4 Fish and Aquatic Resources

4.4.1 Affected Environment

4.4.1.1 Aquatic Habitat

Aquatic habitat within the Action Area includes Bradfield Canal, the Hidden Creek basin and the Hydro Creek basin.

4.4.1.1.1 Bradfield Canal

Bradfield Canal is a tidally influenced inlet in southeast Alaska that extends approximately 19 miles west from the Bradfield River to Earnest Sound, approximately 30 miles southeast of Wrangell. Depths in Bradfield Canal reach over 200 ft but are much shallower in the vicinity of the Project (NOAA 2011). Bradfield Canal habitat varies as it contains numerous tributaries and backwater sloughs, offering a diverse array of habitat types that support various aquatic species. Hidden Creek and Hydro Creek enter the head of Bradfield Canal within 0.5 mi of each other (Photo 4.4-1).



Photo 4.4-1 Head of Bradfield Canal. Bradfield River (left) and Tyee Lake Hydroelectric Project Tailrace, Airstrip Slough, and Hydro Creek (right). Source: ADF&G 2018.

4.4.1.1.2 Tyee Lake

Tyee Lake is a naturally occurring freshwater lake that is used as a storage reservoir (SEAPA 2024). Lake levels are dependent on runoff stored and drawdowns to support powerhouse operations. The lake is approximately 2.5 miles long and about 0.5 miles wide. It is a steep sided lake with depths of about 300 feet at full pool. The head of the lake where upper

Tyee Creek enters has a lower gradient than the steep north and south shorelines. The Tyee Lake bathymetry is provided in Appendix E.

The shoreline contains alluvial deposits of gravels, cobbles, and larger boulders (Photo 4.4-2). The substrate in the deeper portions of the lake is generally comprised of fine-grained sediments with particle size decreasing from the inlet of Tyee Lake to the outlet, as the heavier particles tend to settle out closer to the inlet. Fine sandy silt is present at the upper end of the lake, and silt, silty clay, and clayey soil with some organic content is present near the outlet of the lake (TerraSond 2009).



Photo 4.4-2 Tyee Lake Shoreline. Source: TerraSond 2009.

4.4.1.1.3 Tyee Creek

Tyee Creek, located on the northwest side of Tyee Lake, serves as the natural outlet extending approximately 1.2 mi through a steep narrow gorge composed of a series of waterfalls and cascades until its confluence with Hidden Creek. Figure 4.4-1 shows the

profile of Tyee Lake, Tyee Creek and Hidden Creek. During the low flow period when Tyee Lake levels are low, water may not flow from the Tyee Lake outlet. Minor tributaries contribute flow to Tyee Creek between the lake outlet and Hidden Creek. The average gradient of Tyee Creek exceeds 17 percent.

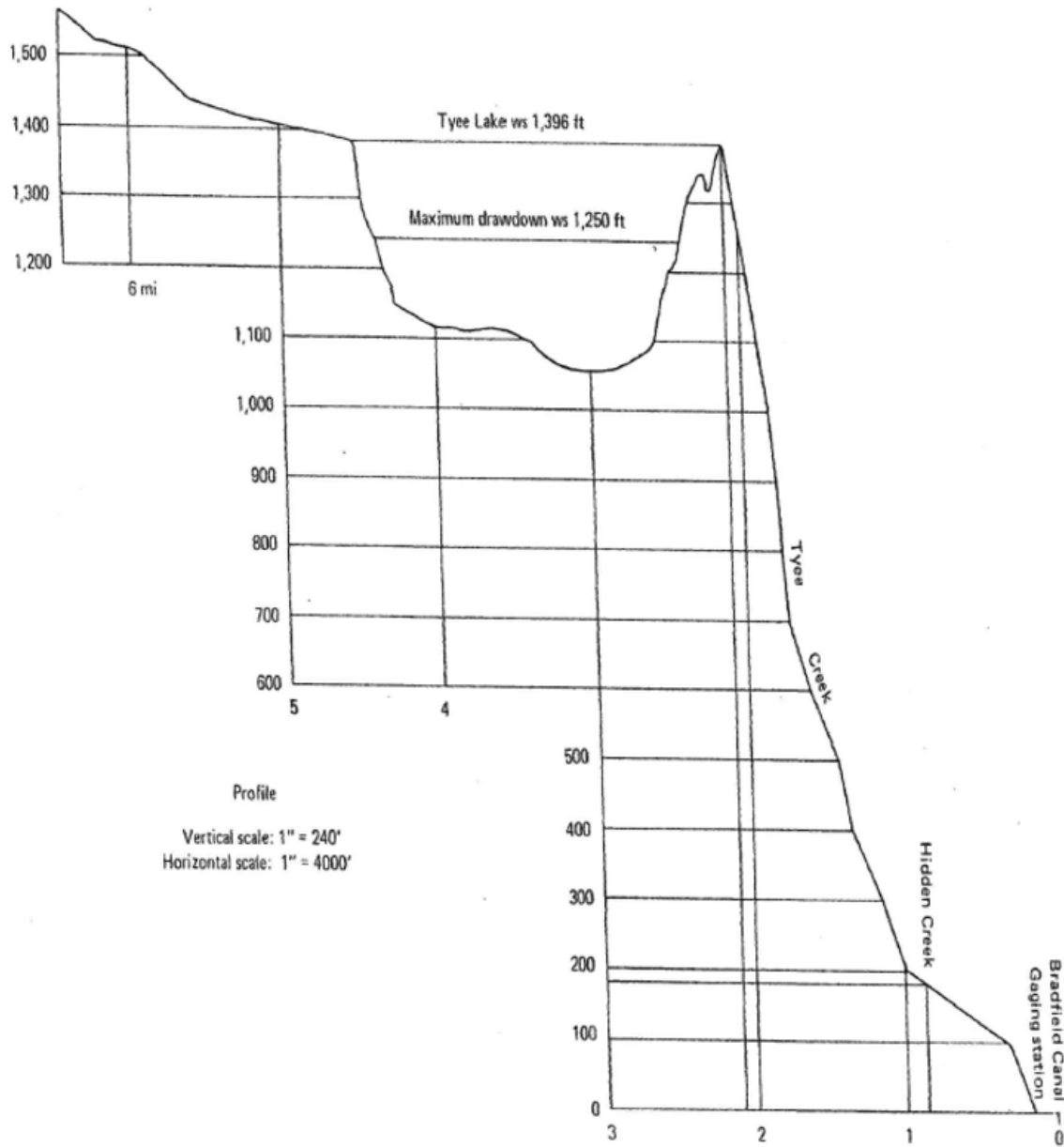


Figure 4.4-1 Tyee Lake Profile and Tyee Creek and Hidden Creek Slope. Source: USGS 1963 as cited in ADF&G 2010.

4.4.1.1.4 Hidden Creek

From its confluence with Tyee Creek, Hidden Creek flows northeast approximately 1 mi before entering a slough at the head of the Bradfield Canal (ADF&G 2018). There is a 30-ft-high waterfall about 460 ft upstream of the mouth that prevents upstream fish passage (Photo 4.4-3). Upstream of the waterfall barrier, the average gradient is moderate at about 4 percent. The habitat consists of cascades over boulders and pockets of pools with gravel substrate.

Downstream of the waterfall, Hidden Creek is a low-gradient intertidal stream with widths varying from 50 to 108 ft. Photo 4.4-4 and Photo 4.4-5 show Hidden Creek looking upstream at the waterfall barrier during low and mid-tide. The substrate near the waterfall is primarily bedrock and boulders, while near the stream's mouth, it consists of cobble, gravel, sand, and mud (ADF&G 2018; Photo 4.4-8).

When the Project was constructed, there was concern that diversion of Tyee Lake water for hydropower generation would result in the loss of anadromous fish habitat in Hidden Creek. However, Hidden Creek has continued to flow year-round since Tyee Lake Project began operations in 1984. After 40 years of operation, ADF&G (2018) concluded that the Project has had *de minimis* impact on anadromous fish habitat and fish populations and that fisheries mitigation for the Project was not necessary.



Photo 4.4-3 Waterfall at Hidden Creek Creating Barrier to Upstream Fish Passage. Source: ADF&G 2018.



Photo 4.4-4 Hidden Creek at Low Tide, Looking Upstream at the Waterfall.
Source: ADF&G.

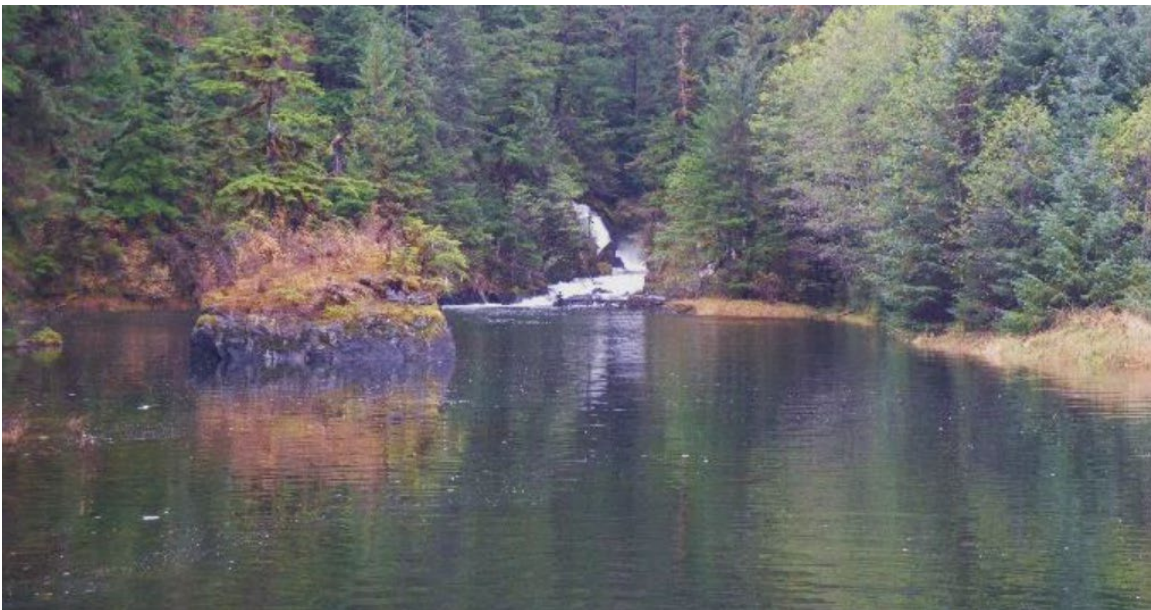


Photo 4.4-5 Hidden Creek at Mid-tide, Looking Upstream at the Waterfall.
Source: ADF&G 2018.



Photo 4.4-6 Hidden Creek at Low Tide, Downstream View of the Mouth. Source: ADF&G 2018.

4.4.1.1.5 Tailrace and Airstrip Slough

Water from Tyee Lake flows into the tailrace after passing through the powerhouse units. This man-made channel, carved into a tidal wetland, extends approximately 1,100 ft from the powerhouse to Airstrip Slough, a tidally influenced side channel to Hydro Creek (ADF&G 2018; Photo 4.4-7). The tailrace channel has a bed gradient of less than 1 percent and a bottom width of approximately 30 ft with 2:1 sloped sides. As described in Section 4.3.1.3, the tailrace is tidally influenced and exhibits characteristics of colder freshwater during low tide and warmer brackish water during high tide with seasonal variation (ADF&G 2018). Photo 4.4-8 and Photo 4.4-9 show views of the tailrace from the powerhouse at -1.5 ft tide and +18.5 ft tide, respectively.

As required fisheries mitigation for the potential loss of salmon spawning habitat in Hidden Creek from operation of the existing Tyee Lake Project, gravel was added to the tailrace channel to provide suitable pink salmon spawning habitat (ADF&G 2018). ADF&G has periodically monitored the experimental spawning channel collecting data between August 2010 and May 2011, August 2015 and May 2016, and in August 2018. Over time the tailrace bed has deepened and developed shallow riffles and scour pools (ADF&G 2018). During low tide, water depths generally ranged from 0.5 to 2.5 ft. Water velocities measured at low tide in April 2016 ranged from 1.43 to 4.40 ft/s and were lowest at riffles

near the channel margins, providing suitable pink salmon spawning habitat (ADF&G 2018). The percent of fines in the channel substrate has increased, with samples consisting of <10 percent fines near the powerhouse increasing to 17 percent fines closer to Airstrip Slough.

ADF&G concluded that without a continual source for gravel recruitment, the spawning habitat quality would degrade over time. However, ADF&G also concluded that creation of the tailrace experimental spawning channel was not necessary since Hidden Creek has continued to provide anadromous spawning habitat since the Project began operations in 1984. Therefore, no fisheries mitigation was needed at the Project following construction in 1984 (ADF&G 2018).



Photo 4.4-7 Tyee Lake Project Tailrace, Looking Upstream towards the Powerhouse. Source: ADF&G 2018.



Photo 4.4-8 Tyee Lake Project Tailrace at -1.5 ft tide, Looking Downstream from the Powerhouse. Source: ADF&G 2018.



Photo 4.4-9 Tyee Lake Project Tailrace at +18.5 ft tide, Looking Downstream from the Powerhouse. Source: ADF&G 2018.

4.4.1.2 Essential Fish Habitat

Bradfield Canal has been designated EFH for various life stages of Chinook, sockeye, coho, chum, and pink salmon (Table 4.4-1) (NOAA 2024).

Table 4.4-1 Essential Fish Habitat by Species and Life Stage for Bradfield Canal.

Species	Life Stage(s) Found
Chinook Salmon	Marine Immature Adult Marine Mature Adult
Sockeye Salmon	Marine Immature Adult Marine Juvenile Marine Mature Adult
Coho Salmon	Marine Juvenile Marine Mature Adult
Chum Salmon	Marine Immature Adult Marine Juvenile Marine Mature Adult
Pink Salmon	Marine Juvenile Marine Mature Adult

The tailrace (referred to as Tailrace Creek) and Hidden Creek are listed in the Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes – Southeast Region, Effective June 2024 (ADF&G 2024). Waterbodies that fall into this category also fall under the jurisdiction of AS 16.05.871. The Alaska AWC lists the lower approximately 460 ft of Hidden Creek (AWC Stream No. 107-40-10538) as providing habitat for chum, coho, and pink salmon (ADF&G 2024a). The tailrace (Tailrace Creek AWC Stream No. 107-40-10537-2008) and Hydro Creek (AWC Stream No. 107-40-10537) are listed for presence of chum and pink salmon and rearing coho salmon (ADF&G 2024a). Figure 4.4-1 and 4.4-2 show the stream reaches that support anadromous fish in the Hidden Creek and Hydro Creek basins, respectively.

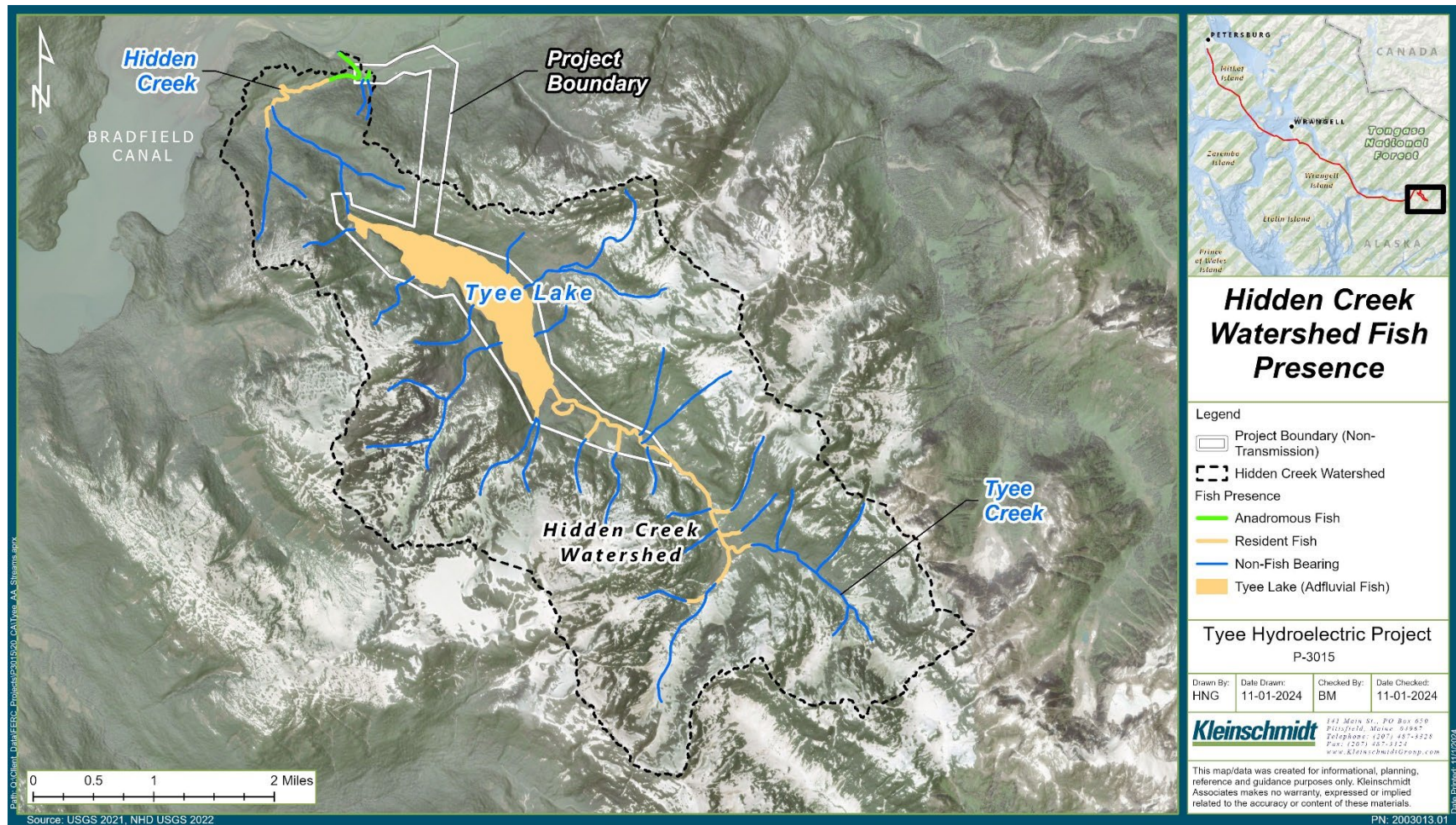


Figure 4.4-2 Fish Presence in the Hidden Creek Basin.

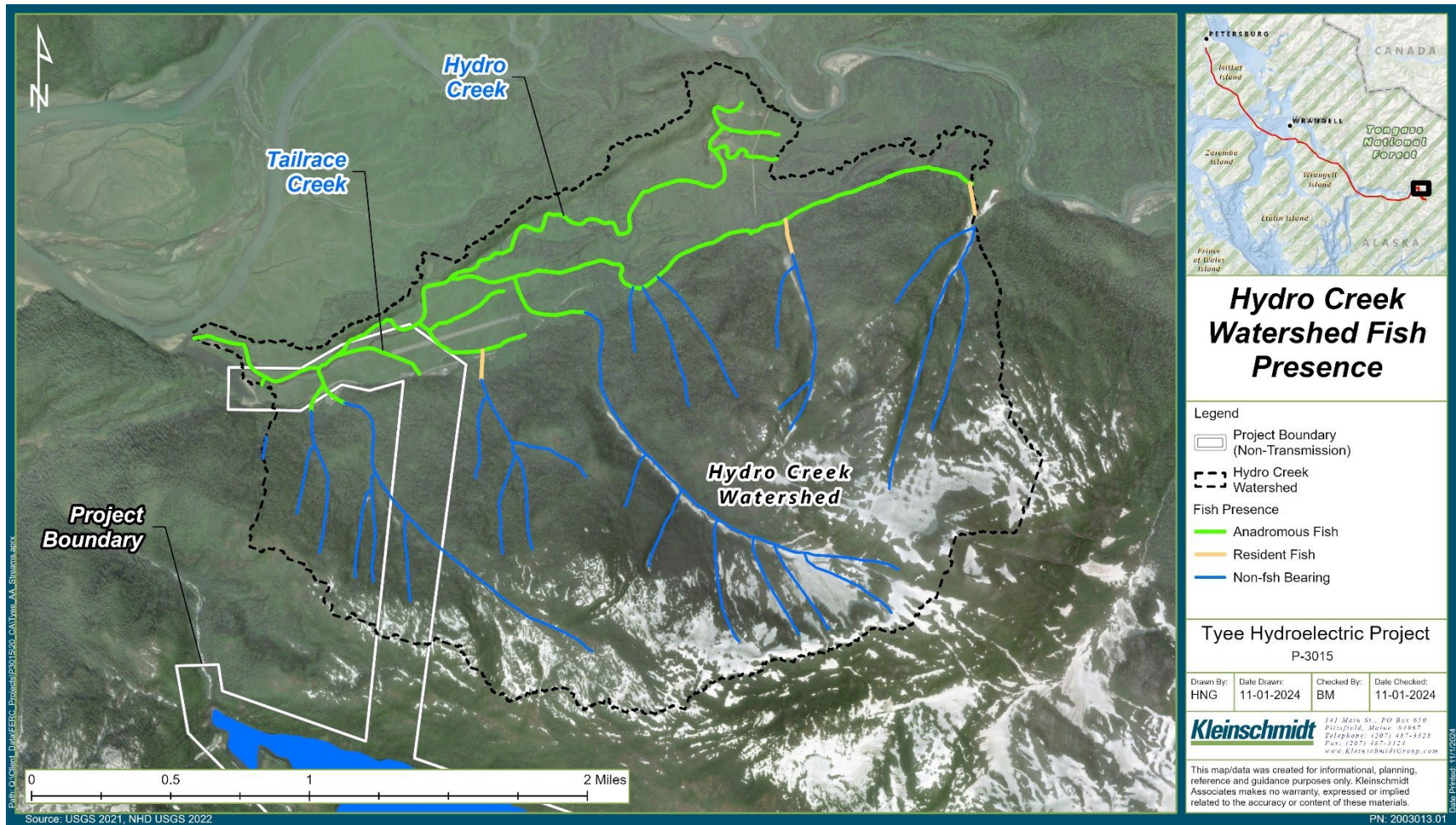


Figure 4.-2 Fish Presence in the Hydro Creek Basin.

4.4.1.3 Aquatic Species

4.4.1.3.1 Tyee Lake

Surveys conducted in 1980, documented an Arctic grayling (grayling) population of approximately 5,000 fish in Tyee Lake. No other fish species were known to occur in the lake (FERC 1981). ADF&G planted Arctic grayling eggs in the main inlet of Tyee Lake in 1962 and 20,000 grayling fry were stocked in the lake in 1967 and 1968 (FERC 1981).

During licensing studies for the existing Project, biologists identified primary spawning habitats in several inlet streams at the head of the lake and documented spawning activity and fry development. Adults spawned in the major lake tributaries (Figure 4.4-1) mid-May to mid-June with young-of-year observed in the tributaries by mid-July. Both adults and fry dispersed into the shallow littoral zones of the lake during the summer (FERC 1981). For the original Project, it was thought that the Arctic grayling population would be affected by limited access between lake and tributary habitats from operations and changes to lake levels. Prior to constructing the original Project, it was proposed to move the grayling to another lake. However, these plans were abandoned when the fish were sampled in 1982 and found to have bacterial kidney disease and enteric red mouth (ADF&G 2018). In 2015, ADF&G opportunistically sampled Tyee Lake and documented the continued presence of Arctic grayling in the lake (ADF&G 2018).

4.4.1.3.2 Tyee Creek

While resident fish species have been documented in Hidden Creek above the falls, Tyee Creek from its confluence with Hidden Creek upstream to Tyee Lake is categorized as a Class 3 non-fish-bearing stream by the USFS (USFS 2024).

4.4.1.3.3 Hidden Creek

The natural waterfall in Hidden Creek acts as a barrier, preventing anadromous fish species from migrating upstream. Above the Hidden Creek waterfall, fishery biologists documented rainbow trout (*O. mykiss*) less than 130 mm FL during Project planning and licensing studies conducted in the early 1980s.

During the same investigations, biologists documented spawning chum (~600 fish) and pink (~250 fish) salmon downstream of the waterfall in early August 1980 and early September 1980, respectively (Dwight 1980). Dolly Varden (*Salvelinus malma*), cutthroat trout (*O. clarkii*), and sculpin (*Cottidae spp.*) were also observed (Dwight 1980).

ADF&G conducted surveys for adult pink and chum salmon during low tides in Hidden Creek in 2010 and 2018. In 2010, three pink salmon were observed near the mouth of Hidden Creek, but not within the creek itself. In August 2018, three surveys were performed, revealing no evidence of adult salmon presence or spawning activity. However, a school of juvenile coho salmon and a few sculpin were observed near the mouth (ADF&G 2018). A single rainbow trout (130 mm FL) was captured by ADF&G in 2010 downstream of the waterfall (ADF&G 2010). In 2018, ADF&G reported that Hidden Creek substrates were generally unsuitable for chum and pink salmon spawning (ADF&G 2018).

Pink salmon in Southeast Alaska predominantly spawn in small rivers and estuaries near river mouths, rarely traveling more than 40-miles upstream (ADF&G undated). Spawning in Southeast Alaska, such as in the Tyee Lake area, primarily occurs in July and August (Groot and Margolis 1991). In Alaska, up to 70% of pink salmon populations spawn in intertidal areas (Tait and Kirkwood 1962; Helle et al. 1964). Survival rates of eggs in these zones are often equal to or greater than those observed in freshwater spawning areas (Groot 1989). Pink salmon have been observed spawning at salinities ranging from freshwater to 28 ppt (Raleigh and Nelson 1985). Pink salmon spawn in current velocities ranging from 1 to 3.3 ft/s, occasionally reaching (4.6 ft/s) (Groot and Margolis 1991). The optimal range for spawning is (1.3 to 2.3 ft/s) (Raleigh and Nelson 1985).

Pink salmon eggs undergo a 5 to 8-month period of embryonic development within the gravel. Eggs, alevins, and pre-emergent fry must be protected from environmental stressors such as freezing, desiccation, streambed scouring, and predation to survive (Groot and Margolis 1991). After hatching, alevins remain in the gravel, subsisting on their yolk sacs until emerging as fry (ADF&G undated). In Southeast Alaska, fry migration peaks between mid-April and mid-May, with juveniles moving quickly downstream to estuaries (Groot and Margolis 1991).

In Southeast Alaska, chum salmon exhibit distinct seasonal runs based on migration timing. Summer-run chum salmon peak in abundance from mid-July to mid-August, with spawning primarily occurring in August. Fall-run chum salmon peak later, in September or beyond, with spawning continuing into late fall or early winter in some systems (ADF&G undated).

Chum salmon primarily spawn in freshwater environments, such as rivers and streams. However, they also utilize intertidal zones, where eggs may be exposed to varying salinity

levels due to tidal influences. Unlike pink salmon, chum salmon rarely spawn in lower intertidal areas, where survival of eggs and alevins decreases compared to upper intertidal zones (Groot and Margolis 1991). Salinity has a significant impact on egg development, with research showing that fertilized chum salmon eggs are highly sensitive to salinity variations, which influence ontogeny and hatching (Ban et al. 2022). Experimental studies at salinities of 1, 3, and 5 ppt demonstrated that survival rates of eggs less than one day old decrease significantly at salinities of 3 ppt or higher, with complete mortality observed at 5 ppt (Park et al. 2024). Eggs at the eyed stage exhibit higher tolerance to salinity, with successful hatching occurring even at elevated levels (Park et al. 2024). These findings suggest that early-stage chum salmon eggs are highly vulnerable to increased salinity, but their tolerance improves as they develop.

Chum salmon spawning has been observed at water velocities ranging from 0 to 5.5 ft/s. In a study of over a thousand redds in Washington State, Johnson et al. (1971) noted that 80% of chum salmon spawned in velocities between 0.7 to 2.7 fps, with a mean of 1.7 fps. Despite being the second largest Pacific salmon species, chum salmon have adapted to spawning in shallower depths and lower velocities than pink salmon (Groot and Margolis 1991).

Chum salmon eggs incubate in redds during the winter months. Incubation duration varies with water temperature, with colder conditions prolonging development. Typically, embryos hatch from eggs after 3 to 4 months (ADF&G undated). After hatching, chum salmon alevins remain in the gravel, absorbing their yolk sacs for an additional 60 to 90 days before emerging as fry. They begin their migration to the sea within days or weeks of emergence (ADF&G undated).

4.4.1.3.4 Tailrace

Article 43 of the original FERC project license required a plan to mitigate potential effects of Project operations on fishery resources, including the reduction of water entering Hidden Creek. In 1983, a Revised Fisheries Mitigation Plan was approved by FERC that resulted in the tailrace being used as an experimental spawning channel to mitigate potential spawning impacts to chum and pink salmon. After tailrace construction, biologists captured juvenile coho salmon, Dolly Varden, and sculpin in the tailrace and observed spawning chum and pink salmon (Kelly 1987). Spawning habitat quality has decreased over the years, which has been attributed to an increasing proportion of sand transported by tide from the Bradfield River delta (Kelly 1987). ADF&G and the 1987 Kelly

report that the best spawning habitat is in the upper half of the tailrace, which is less often influenced by salt water.

In 2010, a study was conducted to determine if any negative effects to pink salmon spawning occurred following the increased flow in the tailrace from Project operations (ADF&G 2018). ADF&G biologists found that the creek had low quality spawning habitat without a continual source of gravel. Spawning habitat quality was degraded due to sand dispersion from tidal movements (Kelly 1987). The study found that manual input of gravel substrate or increased scouring could expose intertidal flat gravel, ultimately improving spawning habitat. ADF&G concluded that the tailrace would not benefit from additional artificial spawning habitat and stated that tailrace discharge could expose tidal flat gravel suitable for spawning (ADF&G 2018).

4.4.2 Environmental Analysis

4.4.2.1 Construction

Because the Tyee Lake Project was originally designed for a third unit, there would be limited impacts on fish and aquatic resources resulting from construction. All proposed construction activities are within the powerhouse or switchyard outside of the OHW. The Proposed Action would not affect fishery resources or aquatic habitat in Tyee Lake, Tyee Creek, Hidden Creek. During installation of the third unit, the facility may be temporarily shut down for up to 5 to 10 days, similar to what occurs annually during routine maintenance activities.

No in-water or new ground-disturbing work would occur that would impact fish and aquatic resources. Use of equipment and storage of fuel, lubricants, or other hazardous substances below the OHW is not proposed; however, the presence and operation of construction equipment and barge operations could increase the potential for fuel and hazardous substance spills. BMPs to protect water quality (and subsequently fish and aquatic resources) would be implemented (e.g., erosion and sediment control plan, spill prevention and control plan, no refueling adjacent to the waterbodies, etc.). There would be no effects of construction on the tailrace with implementation of BMPs.

There is no work expected to occur below the OHW. In the event that unexpected work below OHW would need to occur, SEAPA would consult with ADF&G, and would limit any unexpected work required below the OHW to within the “fish window” (May 15 to July 15) to avoid any potential effects on salmonids.

4.4.2.2 Project Operations

Habitat conditions in the tailrace are heavily influenced by the daily tide changes and current operations. The addition of the third unit could cause scouring from the increased flow in the tailrace, which could improve spawning habitat by removing sand and sediment that may be covering spawning gravel (ADF&G 2018). The potential for increased flow resulting from the Proposed Action could improve pink salmon spawning habitat quality, resulting in a permanent net beneficial change. However, increased velocities could affect spawning suitability.

Proposed Tyee Lake operations would not change from existing conditions. While Tyee Lake may experience a more rapid drawdown during operations, this is not likely to affect Arctic grayling inhabiting the lake as they have been successfully reproducing with the current lake drawdown.

Frequency or magnitude of spill into Tyee Creek may be reduced with the additional generating capacity during above average runoff years and some average runoff years. Spill typically occurs during significant snowmelt (June to July) or rainfall events (August through November) when Tyee Lake is full or near full. It is not likely that a reduction in the amount or frequency of spill in average to above-average water years would affect resident trout or sculpin in Hidden Creek or salmon downstream of the waterfall. When the lake elevation exceeds approximately 1,360 ft, a significant amount of water enters Tyee Creek from the lake outlet underneath and around the spillway weir. While fish are not known to be present in Tyee Creek, its water provides habitat for fish downstream in Hidden Creek. Spill typically occurs when flows in the contributing tributaries to both Tyee Creek and Hidden Creek are also high, attenuating any potential effect in a downstream direction. Effects on salmon are anticipated to be negligible in the tidally-influenced reach of Hidden Creek downstream of the waterfall barrier.

4.4.3 Applicant-Proposed Measures

Following installation of the third unit, there could be a reduction of flow from Tyee Lake to Hidden Creek, especially during low precipitation years. This could potentially impact EFH and salmonid species. As such, SEAPA is proposing to implement a Flow Monitoring Plan to evaluate the impacts of the third unit on Hidden Creek. Details of the Flow Monitoring Plan can be found in Section 2.2.2.2.

Following the installation of the third turbine, SEAPA proposes to monitor the tailrace for changes in scour rates and deposition of fine suspended sediments (fines) downstream. The tailrace was originally designed to accommodate three generating units and sediment deposition is expected to be comparable to the sedimentation processes for this intertidal area. The Tailrace Monitoring Plan should provide sufficient evidence that the tailrace and downstream environment are responding to the flow changes as anticipated. Details of the Tailrace Monitoring Plan are available in Section 2.2.2.3 of this application.

4.4.4 References

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4.5 Wildlife, Botanical, and Wetland Resources

4.5.1 Affected Environment

4.5.1.1 Wildlife Resources

4.5.1.1.1 Terrestrial Wildlife

A wide variety of terrestrial wildlife can be found within the Project Area and surrounding vicinity, with most species native to Southeast Alaska represented. Big game animals include brown bear (*Ursus arctos*), black bear (*Ursus americanus*), moose (*Alces alces*), mountain goat (*Oreamnos americanus*), Alexander Archipelago grey wolf (*Canis lupus ligoni*), wolverine (*Gulo gulo*), and Sitka black-tailed deer (*Odocoileus hemionus sitkensis*) (APA 1979, ADF&G 2024). Furbearers are generally common area-wide and include beaver (*Castor canadensis*), American marten (*Martes americana*), mink (*Neovision vision*), ermine (*Mustela erminea*), river otter (*Lutra canadensis*), and red fox (*Vulpes vulpes*) (APA 1979, ADF&G 2024). Small mammals are also well represented (APA 1979, ADF&G 2024).

4.5.1.1.1.1 Big Game

The brown bear is one of the largest land carnivores in the world. The brown bear range includes throughout Alaska except for the Aleutian Islands beyond Unimak Island, the islands of the Bering Sea, and the islands south of Frederick Sound (ADF&G 2024). The population of brown bear in the Bradfield Canal area appears to be stable to increasing. Based on a study involving DNA mark-recapture techniques, ADF&G estimates that the Bradfield Canal and Unuk River brown bear population is approximately 50 bears (ADF&G 2009). During late summer and fall, brown bears occur frequently near salmon spawning streams (ADF&G 2024).

Black bears are smaller than brown bears but are more abundant in Southeast Alaska and within the Project Area (APA 1979). Preferred habitats include forests, meadows, riparian areas, alpine areas, and coastal beaches (ADF&G 2024). Black bears are opportunistic omnivores and, depending on the season, will primarily eat grasses, carcasses, moose calves, salmon, berries, ants, and grubs (ADF&G 2024). Black bears usually enter dens located in rock cavities, hollow tree, self-made excavations, or on the ground in the fall or winter for hibernation (ADF&G 2024). In southern ranges, like near the Project Area, sometimes the bears will emerge from their dens during the winters, otherwise they emerge when food becomes available again in the spring (ADF&G 2024).

Moose are uncommon in Southeast Alaska but could occur within the Project Area since suitable moose habitat is available (APA 1979). Moose are generally abundant on timberline plateaus, along major rivers, and recently burned areas that have dense stands of aspen, willow, and/or birch shrubs (ADF&G 2024). In spring and summer, moose forage on wetland vegetation, grasses, sedges, forbs, and leaves of hardwoods, primarily birch, willow, and aspen (ADF&G 2024). During the fall and winter, they primarily eat twigs, branches, and bark from willow, birch, and aspen (ADF&G 2024).

Mountain goat populations are relatively low and usually occur in remote and rugged alpine country, generally isolated from human activity (APA 1979). During the summer period, they inhabit high alpine meadows and talus slopes around Tyee Lake but in winter move to lower elevations, usually at or near tree line (APA 1979). Mountain goats forage on numerous species of grasses, forbs, and low growing shrubs which occur in the high alpine meadows (ADF&G 2024). In winter, goats diet consists of more browse species and lichen, as well as dried grasses (ADF&G 2024).

The grey wolf range includes most of Alaska, including the Southeast and within the Project Area (ADF&G 2024). Grey wolves are very adaptable. Although little information is available on their movements or habitat requirements within the Project Area, they are most abundant in regions with high prey densities, especially deer (APA 1979). In Southeast Alaska, Sitka black-tailed deer, mountain goats, and beaver are important sources of food for grey wolves (ADF&G 2024).

The wolverine is the largest North American land member of the weasel family (Mustelidae) and occurs throughout Alaska, including within the Project Area (APA 1979). Wolverines are illusive and relatively shy of humans, making them difficult to observe. Wolverines are opportunistic scavengers and hunters that eat almost anything, including small mammals, birds, and carrion (ADF&G 2024). The wolverine is listed as threatened under the ESA in the contiguous United States, but populations in Alaska are not threatened (USFWS 2023).

Sitka black-tailed deer are found throughout Southeast Alaska (ADF&G 2024). Their populations go through severe fluctuations associated with harsh winter weather, but they are nevertheless the most abundant species of big game in Southeast Alaska (ADF&G 2024). Sitka black-tailed deer utilize a variety of habitats but are most often associated with the coastal temperate rainforest (ADF&G 2024). During winter and early spring, most Sitka black-tailed deer are concentrated near sea level along the forest edge and upper

beach zone; as spring progresses and snow recedes, Sitka black-tailed deer movements increase; and as summer approaches, they begin their ascent toward the productive alpine zone (APA 1979).

4.5.1.1.1.2 Furbearers

Beavers are found in most of the forested portions of Alaska, preferring riparian and wetland areas, and may be found in the Project Area (ADF&G 2024). Beavers eat bark, aquatic plants, roots, and grasses and will move their colony to a new location after exhausting food resources in an area (ADF&G 2024). Beavers require 2 to 3 ft of water year-round as a refuge from predators and to float heavy objects like logs for food or shelter. If water levels are not adequate, beavers will construct dams (ADF&G 2024).

The American marten, mink, and ermine are three species of weasel that occur throughout Southeast Alaska (APA 1979). They are all predators, which consume a variety of small mammals, birds, fish, eggs, and crustaceans (ADF&G 2024). Marten prefer forests, mink prefer to be near water, and ermine are adapted to a wide variety of habitats including forests and riparian areas (ADF&G 2024). All three species could be present within the Project Area.

River otter habitat includes rivers, tidal lagoons, and the coastline. River otters occur throughout Southeastern Alaska including within the Project Area (ADF&G 2024). Otters feed primarily on freshwater and marine fish and invertebrates, and to a limited extent are predatory on small mammals and birds (ADF&G 2024). Tidal lagoons with connecting streams containing significant salmon runs, such as the Bradfield Canal, are favored habitats of river otters and often dens will be located near these areas (APA 1979). Otters are moderately tolerant of human activity and are relatively abundant throughout the Project area (APA 1979).

Red foxes are common throughout Northern American and Alaska, but populations are sparse within Southeastern Alaska (ADF&G 2024). However, red foxes have been seen within the Stikine River Valley, located near Wrangell, and therefore could be found within the Project Area (ADF&G 2024). Red fox are curious of humans, adaptable to a wide range of habitats, and generally prefer open expanses, lowland marshes, and crisscrossed hills and draws (ADF&G 2024).

4.5.1.1.1.3 Small Mammals

A number of small mammals could occur within in the Project Area. Muskrat (*Ondatra zibethicus*) are associated with wetlands and streams and are found most regularly where beaver are present (APA 1979, ADF&G 2024). Hoary marmots (*Marmota caligata*) occur throughout suitable alpine habitat (APA 1979, ADF&G 2024). Red squirrels (*Tamiasciurus hudsonicus*) occur throughout the spruce-hemlock forests (APA 1979, ADF&G 2024). Several species of Northern flying squirrel (*Glaucomys sabrinus* spp.) occur throughout forested areas of Southeast Alaska (ADF&G 2024). Snowshoe hare (*Lepus americanus*) occur in mixed spruce forests, wooded swamps, and brushy areas (ADF&G 2024). North American porcupine (*Erethizon dorsatum*) occur in forested areas (ADF&G 2024). Several species of mice are likely also present.

4.5.1.1.1.4 Bats

Two species of bat have been observed near the Project Area, in limited numbers (ADF&G 2024). Little brown bat (*Myotis lucifugus*) has been found in a variety of habitats including temperate forests, spruce-birch forests, and treeless shrub-dominated communities, and migrates out of Alaska in the winter (ADF&G 2024). Silver-haired bat (*Lasionycteris noctivagans*) is thought to occur in temperate rainforests, roosting in forested areas adjacent to water bodies, and may migrate to Southeast Alaska in winter (ADF&G 2024).

4.5.1.1.2 Avian Species

Avian species that may occur within the vicinity of the Project Area are listed in Table 4.5-1. Nearly all of Alaska's birds, including those within the Project vicinity, are protected under provisions of the Migratory Bird Treaty Act⁵ (MBTA).

4.5.1.1.2.1 Waterfowl

Waterfowl are present within the Tyee Lake Project Area year-round. Large numbers of diving ducks, mallards (*Anas platyrhynchos*), mergansers (*Mergus* spp.), and Vancouver Canada geese (*Branta canadensis fulva*) winter in the estuaries of the area (APA 1979). The Project Area is within the Pacific flyway, so many migrants pass through to rest and eat. Southeast Alaska accommodates most of the Vancouver Canada geese of the world and substantial numbers of mallards, mergansers and other ducks (APA 1979). Nesting waterfowl occur throughout the heads of most Southeast Alaska bays and fjords, in the

⁵ Migratory Birds Treaty Act of 1918 (MBTA) (16 U.S.C. 703-12)

numerous lakes, muskegs, and along streams (APA 1979). There are only a few areas of extensive habitat, but there are many smaller pockets of habitat, making the total overall amount of waterfowl habitat considerable (APA 1979).

4.5.1.1.2.2 Raptors

Raptors are predatory birds such as eagles, hawks, and owls. Many species of raptors potentially breed in or migrate through the Project area (Table 4.5-1). All of these species are protected under the MBTA and eagles are further protected under the Bald and Golden Eagle Protection Act⁶ (BGEPA). In addition, the Queen Charlotte goshawk (*Accipiter gentilis laingi*) is listed as a USFS Alaska Region Sensitive Species (USFS 2009).

Golden eagles have a limited and scattered distribution in Southeast Alaska but may be encountered in the Project Area (ADF&G 2024). Golden eagles nest on cliffs and prefer open habitat such as prairie, tundra, open wooded country, and barren areas, in particularly hilly or mountainous regions (ADF&G 2024).

Bald eagles are very common in Southeast Alaska (ADF&G 2024) and the Project Area supports a large population of residents (APA 1979). Bald eagles nest in large trees located in old-growth timber along the salt-water shoreline and larger mainland rivers (ADF&G 2024). Though nests are generally situated in the shoreline trees, they have been occasionally found 500 yards inland and prefer clear flight paths from the nest to the shoreline and open water (APA 1979). Nesting sites can be reused for multiple years. USFWS has identified and mapped several bald eagle nests on the south shore of Bradfield Canal (APA 1979). High concentrations of bald eagles can be seen feeding on the spring smelt runs in the Stikine River near Wrangell (APA 1979).

4.5.1.1.2.3 Seabirds

Seabirds have adapted to live most of their lives at sea; some species only come ashore to breed. They are strong fliers, and some are also strong swimmers. Relatively little is known about seabirds in Southeast Alaska as they are difficult to research due to inaccessibility of their sites and the birds' behavior (APA 1979). Rookeries are often located on steep rocky headlands, small rocky islands, or islets that provide refuge from mammalian predators and easy access to the sea (APA 1979). Breeding populations of the storm petrels, auklets, and puffins present in the Project area are seldom enumerated

⁶ Bald and Golden Eagle Protection Act of 1940 (BGEPA) (16 U.S.C. 668-668d)

because these birds nest in burrows or under vegetation and some are nocturnal (APA 1979). Marbled murrelets are a federally listed as threatened in Washington and Oregon and endangered in California, but are not listed in Alaska (ADF&G 2024). Marbled murrelets are known to nest along the coast from Southeast Alaska to northern California in old growth trees (ADF&G 2014). Short-tailed albatross may range within the near shore areas of the outer coast of the Tongass National Forest (USFWS 2024) and are discussed in the Rare, Threatened, and Endangered Species Section.

4.5.1.1.2.4 Shorebirds

Shorebirds occupy essentially the same habitat as waterfowl, commonly found along shorelines and mudflats. They tend to have long beaks and long legs that help them wade and catch insects or crustaceans in shallow waters.

4.5.1.1.2.5 Passerines

Passerines are perching birds and songbirds often found in forested habitats (APA 1979). Species that would be found within Sitka spruce-hemlock forests and may occur in the Project Area are identified Table 4.5-1.

Table 4.5-1 Avian Species that May Occur in the Vicinity of the Tyee Lake Project Area.

Common Name	Scientific Name	Presence in Project Area	Occurrence	Status
Waterfowl				
American wigeon	<i>Mareca americana</i>	Migrant; occasional wintering and/or breeding	C	
Arctic loon	<i>Gavia arctica</i>	Migrant; occasional wintering and/or breeding	C	
Barrow's goldeneye	<i>Bucephala islandica</i>	Winter; Rarely breeding	C	
Black brant	<i>Branta bernicla</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Black scoters	<i>Melanitta americana</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Blue-winged teal	<i>Spatula discors</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Buffleheads	<i>Bucephala albeola</i>	Winter; Rarely breeding	C	
Cackling geese	<i>Branta hutchinsii</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Canvasback	<i>Aythya valisineria</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Common eider	<i>Somateria mollissima</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Common goldeneye	<i>Bucephala clangula</i>	Winter; Rarely breeding	C	
Common loon	<i>Gavia immer</i>	Resident	C	
Common mergansers	<i>Mergus merganser</i>	Winter; Rarely breeding	C	
Eared Grebes	<i>Podiceps nigricollis</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Gadwalls	<i>Mareca strepera</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Greater scaup	<i>Aythya marila</i>	Winter; Rarely breeding	C	
Greater white-fronted geese	<i>Anser albifrons</i>	Migrant; occasional wintering and/or breeding	C	
Green-winged teal	<i>Anas crecca</i>	Migrant; occasional wintering and/or breeding	C	
Harlequin ducks	<i>Histrionicus histrionicus</i>	Resident	C	
Hooded mergansers	<i>Lophodytes cucullatus</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Horned grebes	<i>Podiceps auritus</i>	Migrant; occasional wintering and/or breeding	C	
King eider	<i>Somateria spectabilis</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Lesser scaup	<i>Aythya affinis</i>	Migrant; occasional wintering and/or breeding	C	
Long-tailed duck	<i>Clangula hyemalis</i>	Winter; Rarely breeding	C	
Mallards	<i>Anas platyrhynchos</i>	Resident	C	
Northern pintails	<i>Anas acuta</i>	Migrant; occasional wintering and/or breeding	C	
Northern shovellers	<i>Spatula clypeata</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Pelagic cormorants	<i>Urile pelagicus</i>	Winter; Rarely breeding	C	
Pied-billed grebes	<i>Podilymbus podiceps</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Red-breasted merganser	<i>Mergus serrator</i>	Resident	C	

Common Name	Scientific Name	Presence in Project Area	Occurrence	Status
Redhead	<i>Aythya americana</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Red-necked grebes	<i>Podiceps grisegena</i>	Winter; Rarely breeding	C	
Red-throated loon	<i>Gavia stellata</i>	Migrant; occasional wintering and/or breeding	C	
Ring-necked ducks	<i>Aythya collaris</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Ruddy ducks	<i>Oxyura jamaicensis</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Snow geese	<i>Anser caerulescens</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Surf scoters	<i>Melanitta perspicillata</i>	Winter; Rarely breeding	C	
Tundra swans	<i>Cygnus columbianus</i>	Migrant; occasional wintering and/or breeding	C	
Vancouver Canada geese	<i>Branta canadensis fulva</i>	Resident	C	
White-winged scoters	<i>Melanitta deglandi</i>	Winter; Rarely breeding	C	
Wood ducks	<i>Aix sponsa</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Yellow-billed loons	<i>Gavia adamsii</i>	Migrant; occasional wintering and/or breeding	UC to VR	
Raptors				
American kestrel	<i>Falco sparverius</i>	Migrant; occasional breeding	C	
Bald eagle	<i>Haliaeetus leucocephalus</i>	Resident	C	
Barred owl	<i>Strix varia</i>	Resident	UC to R	
Boreal owl	<i>Aegolius funereus</i>	Resident	UC to R	
Golden eagle	<i>Aquila chrysaetos</i>	May be present	UC to R	
Great gray owls	<i>Strix nebulosa</i>	Occasional breeders	UC	
Great horned owl	<i>Bubo virginianus</i>	Migrant	C	
Gyr Falcon	<i>Falco rusticolus</i>	Nonbreeders	UC to R	
Merlin	<i>Falco columbarius</i>	Occasional breeders	UC	
Northern harrier	<i>Circus hudsonius</i>	Migrant	C	
Northern hawk owl	<i>Surnia ulula</i>	Resident	UC to R	
Northern pygmy owl	<i>Glaucidium gnoma</i>	Occasional breeders	UC	
Northern saw-whet owl	<i>Aegolius acadicus</i>	Occasional breeders	UC	
Osprey	<i>Pandion haliaetus</i>	Occasional breeders	UC	
Peregrine falcon	<i>Falco peregrinus</i>	Resident	C	
Queen Charlotte Goshawk	<i>Accipiter gentiles laingi</i>	Resident, Breeder	UC	S
Red-tailed hawk	<i>Buteo jamaicensis</i>	Occasional breeders	UC	
Rough-legged hawk	<i>Buteo lagopus</i>	Nonbreeders	UC to R	
Sharp-shinned hawk	<i>Accipiter striatus</i>	Migrant; occasional breeding	C	
Short-eared owl	<i>Asio flammeus</i>	Migrant	C	

Common Name	Scientific Name	Presence in Project Area	Occurrence	Status
Snowy owl	<i>Bubo scandiacus</i>	Nonbreeders	UC to R	
Swainson's hawks	<i>Buteo swainsoni</i>	Occasional breeders	UC to R	
Western screech owl	<i>Megascops kennicottii</i>	Occasional breeders	UC	
Seabirds				
Ancient murrelet	<i>Synthliboramphus antiquus</i>	Nonbreeder	UC to R	
Cassin's auklet	<i>Ptychoramphus aleuticus</i>	Residents	UC	
Fork-tailed storm petrel	<i>Hydrobates furcatus</i>	Nonbreeders	C	
Horned puffin	<i>Fratercula corniculata</i>	Nonbreeders	UC to R	
Marbled murrelet	<i>Brachyramphus marmoratus</i>	Residents and breeders	UC	
Rhinoceros auklet	<i>Cerorhinca monocerata</i>	Breeders	C	
Short-tailed albatross	<i>Phoebastria albatrus</i>	Occasional breeders	R	E
Tufted puffins	<i>Fratercula cirrhata</i>	Breeders	R	
American coots	<i>Fulica americana</i>	Migrant	UC to VR	
Shorebirds				
American golden plovers	<i>Pluvialis dominica</i>	Migrant	UC to VR	
Black oystercatchers	<i>Haematopus bachmani</i>	Migrant	UC to VR	S
Black turnstones	<i>Arenaria melanocephala</i>	Breeding	C	
Black-bellied plovers	<i>Pluvialis squatarola</i>	Migrant	UC to VR	
Dunlin	<i>Calidris alpina</i>	Migrant	C	
Greater yellowlegs	<i>Tringa melanoleuca</i>	Breeding	C	
Hudsonian godwit	<i>Limosa haemastica</i>	Migrant	UC to VR	
Killdeer	<i>Charadrius vociferus</i>	Migrant	C	
Least sandpiper	<i>Calidris minutilla</i>	Migrant	C	
Lesser yellowlegs	<i>Tringa flavipes</i>	Migrant	C	
Long-billed dowitcher	<i>Limnodromus scolopaceus</i>	Migrant	UC to VR	
Red phalarope	<i>Phalaropus fulicarius</i>	Migrant	UC to VR	
Red-necked phalarope	<i>Phalaropus lobatus</i>	Migrant	C	
Rock sandpiper	<i>Calidris ptilocnemis</i>	Migrant	C	
Ruddy turnstone	<i>Arenaria interpres</i>	Migrant	UC to VR	
Sanderling	<i>Calidris alba</i>	Migrant	UC to VR	
Sandhill crane	<i>Antigone canadensis</i>	Migrant	UC to VR	
Semipalmated plover	<i>Charadrius semipalmatus</i>	Breeding	C	
Semi-palmated sandpiper	<i>Calidris pusilla</i>	Migrant	UC to VR	

Common Name	Scientific Name	Presence in Project Area	Occurrence	Status
Sharp-tailed sandpiper	<i>Calidris acuminata</i>	Migrant	UC to VR	
Short-billed dowitcher	<i>Limnodromus griseus</i>	Migrant	C	
Sora rail	<i>Porzana carolina</i>	Migrant	UC to VR	
Spotted sandpiper	<i>Actitis macularius</i>	Breeding	C	
Stilt sandpiper	<i>Calidris himantopus</i>	Migrant	UC to VR	
Surfbird	<i>Calidris virgata</i>	Migrant	UC to VR	
Wandering tattler	<i>Tringa incana</i>	Migrant	UC to VR	
Western sandpiper	<i>Calidris mauri</i>	Migrant	C	
Whimbrel	<i>Numenius phaeopus</i>	Migrant	UC to VR	
Wilson's snipe	<i>Gallinago delicata</i>	Breeding	C	
Passerines				
American crow	<i>Corvus brachyrhynchos</i>	Breeding	C	
American dipper	<i>Cinclus mexicanus</i>	Breeding	C	
American robin	<i>Turdus migratorius</i>	Breeding	C	
American tree sparrow	<i>Spizelloides arborea</i>	Migrant; Non-breeding	C	
Barn swallow	<i>Hirundo rustica</i>	Breeding	C	
Belted kingfisher	<i>Megasceryle alcyon</i>	Breeding	C	
Bohemian waxwing	<i>Bombycilla garrulus</i>	Migrant; Non-breeding	C	
Chestnut-backed chickadee	<i>Poecile rufescens</i>	Breeding	C	
Common raven	<i>Corvus corax</i>	Breeding	C	
Common redpoll	<i>Acanthis flammea</i>	Migrant; Non-breeding	C	
Dark-eyed junco	<i>Junco hyemalis</i>	Breeding	C	
Fox sparrows	<i>Passerella iliaca</i>	Breeding	C	
Golden-crowned kinglet	<i>Regulus satrapa</i>	Breeding	C	
Lincoln's sparrows	<i>Melospiza lincolnii</i>	Breeding	C	
Pine grosbeak	<i>Pinicola enucleator</i>	Migrant; Non-breeding	C	
Red crossbill	<i>Loxia curvirostra</i>	Breeding	C	
Ruby-crowned kinglet	<i>Corthylio calendula</i>	Breeding	C	
Rufous hummingbird	<i>Selasphorus rufus</i>	Breeding	C	
Rusty blackbird	<i>Euphagus carolinus</i>	Migrant; Non-breeding	C	
Thrushes	<i>Turdidae family</i>	Breeding	C	
Tree swallow	<i>Tachycineta bicolor</i>	Breeding	C	
Violet-green swallow	<i>Tachycineta thalassina</i>	Migrant; Non-breeding	C	

Common Name	Scientific Name	Presence in Project Area	Occurrence	Status
Warblers	<i>Parulidae family</i>	Breeding	C	
Western flycatcher	<i>Empidonax difficilis</i>	Breeding	C	

Notes: C – common, UC – Uncommon, R – Rare, VR – Very Rare, E – Endangered, S – Sensitive

Sources: APA 1979, Cornell University 2024, USFS 2016

4.5.1.1.3 Marine Mammals

Several marine mammals occur in Southeast Alaska and may occur in Bradfield Canal. All marine mammals are protected by the Marine Mammal Protection Act (MMPA) of 1972. Rare, Threatened, and Endangered marine mammals are discussed below in Section 4.6. Species statuses and descriptions, unless otherwise noted, have been summarized from species profiles available on NOAA's website (NOAA 2024).

Northern sea otter (*Enhydra lutris kenyoni*) are the smallest marine mammals and in the weasel family. They are social species and tend to form colonies in a suitable habitat. Sea otters frequent coastal areas, including the Bradfield Canal, where sea urchins and other food sources are present. The sea otter population in Southeast Alaska does not have any additional protection other than the MMPA (the Southwest Alaska population is federally threatened [USFWS 2024]). The Southeast Alaska stock of sea otters was decimated by commercial harvest in the 1700s; translocation efforts in the 1960s helped to bring the species back to Southeast Alaska. In 2022, the total population of the Southeast Alaska stock of sea otters was estimated at 22,359 individuals (Schuette et al. 2023).

Harbor seals (*Phoca vitulina*) frequent most marine habitat and coastlines in Southeast Alaska, including Bradfield Canal. Harbor seals have no additional protections other than the MMPA. Seals are relatively small and agile marine mammals, often well-adapted to human presence and boat traffic. They can be frequently found in boat harbors and marinas. The Steller sea lion (*Eumetopias jubatus*) Eastern DPS occurs in marine waters of Southeast Alaska and haulout areas. The Steller sea lion Eastern DPS is not ESA-listed but is include on the USFS Alaska Region Sensitive Species list (USFS 2009). Sea lions are relatively small and agile marine mammals, often well-adapted to human presence and boat traffic. They can be found frequently in boat harbors and marinas. No major haul outs or rookeries are known to occur in the Bradfield Canal or the Wrangell area.

Eleven species of whales, dolphins, and porpoises may occur in the Wrangell and Bradfield Canal areas; however, only two are likely to be observed there: humpback whale and minke whale (*Balaenoptera acutorostrata*). There are two DPSs of humpback whales present in Southeast Alaska – the non-listed Hawaii DPS and the threatened Mexico DPS (ADF&G 2024). The probability of encountering a humpback whale in Southeast Alaska from the Hawaii DPS is 98 percent and 2 percent for a whale from the threatened Mexico DPS (NMFS 2021). Humpback whales can be seen in Southeast Alaska at any time of the year but are migratory. Humpbacks whales migrate to tropical and sub-tropical waters for

mating and calving. Humpbacks typically then migrate to the Alaska area in the spring where food is abundant. Humpback whales are further discussed under Section 4.6. Minke whales are often observed on whale-watching tours in Southeast Alaska. Other whale, dolphin, or porpoise species that range throughout the Gulf of Alaska may infrequently travel in the Southeast Alaska panhandle, but would not likely enter Bradfield Canal include: blue whale (*Balaenoptera musculus*), sperm whale (*Physeter macrocephalus*), sei whale (*Balaenoptera borealis*), North Pacific right whale (*Eubalaena japonica*), fin whale (*Balaenoptera physalus*), gray whale (*Eschrichtius robustus*), Dall's porpoise (*Phocoenoides dalli*), orca (*Orcinus orca*), and false killer whale (*Pseudorca crassidens*).

4.5.1.2 Botanical Resources

The Tyee Lake Project is in the coastal temperate rainforest, which occurs in western Oregon, Washington, British Columbia, and along the Southeastern coast of Alaska. Coastal temperate rainforest is dominated by Western hemlock (*Tsuga heterophylla*) and Sitka spruce (*Picea sitchensis*) with small portions of Western red cedar (*Thuja plicata*) and yellow cedar (*Callitropsis nootkatensis*) (APA 1979). In the usual mixed stand, hemlock with some cedar forms a dense stand overtopped by the more light-demanding spruce, which occurs individually or in small groups (APA 1979). Small bushy saplings of shade-resistant hemlock and cedars, various species of blueberry (*Vaccinium* spp.), devil's club (*Oplopanax horridus*), and other shrubs species form a dense understory (APA 1979). The forest has a surplus downed trees which decay slowly due to saturation from an abundant rainfall (APA 1979). A carpet of moss often 6 inches or more in thickness covers the decaying logs and forest floor (APA 1979).

Forest vegetation near the Project is dominated by dense stands of Sitka spruce, western hemlock, and mountain hemlock, where shrub and forb flora are frequently shaded out by the dense coniferous canopy (APA 1979). A mosaic of muskeg (bogs), where drainage is restricted, are interspersed in the low elevation areas (APA 1979). The wetter sites are composed of more open stands of spruce-hemlock interspersed with yellow cedar. Groundcover is very dense (APA 1979).

Alpine areas near the Project support sedges (Cyperaceae family), grasses (Poaceae family), heather (Ericaceae family), prostrate shrubs, and lichens (APA 1979). The estuarine meadows support a multitude of grasses, sedges, and forbs (APA 1979).

The shoreline of Tyee Lake and Tyee Creek consist of some areas covered with closely packed mosses. Alder (*Alnus* spp.) 6 to 7 ft in height and willow (*Salix* spp.) 3 to 4 ft in height form dense thickets beyond the southeastern end of the lake and tributary streams (APA 1979). The coniferous forest adjacent to Tyee Creek is dominated by Sitka spruce which provides a 60 to 70 percent canopy cover (APA 1979). The understory consists of thick layers of moss, blueberry, devil's club, skunk cabbage (*Lysichiton americanus*), ferns and other herbaceous vegetation (APA 1979). Portions of the north shoreline at the creek mouth are vegetated by American dune grass (*Elymus mollis*) (APA 1979).

The west and east shorelines of Tyee Lake are steep, having a 60 to 70 percent slopes up to snow-capped peaks (APA 1979). The forested mountain sides are vegetated predominantly by Sitka spruce (APA 1979). The understory of the forested areas are dominated by blueberry, devil's club, and intermixing of skunk cabbage, salmonberry (*Rubus spectabilis*), and ferns (APA 1979). Several avalanche or slide areas occur along both the west and east side of the lake; these areas are vegetated by shorter growths of willow and alder (APA 1979).

There are no known non-native plant species in the Project Area. Alaska Exotic Plants Information Clearinghouse (AKEPIC) does not have any non-native (invasive) plant occurrences mapped in or near the Project Area (ACCS 2023). The nearest mapped non-native species is an observation of reed canarygrass (*Phalaris arundinacea*) at the mouth of Bradfield Canal.

4.5.1.3 Wetlands

Wetlands and waterbodies occupy a significant portion of the Tyee Lake Project. The USFWS (1986) National Wetland Inventory (NWI) mapping indicates several wetland and water types occur in the Project Boundary, as listed in Table 4.5-2. NWI-mapped wetlands within and surrounding the Project Boundary are shown on Figure 4.5-1.

Tyee Lake itself is the largest water feature in the Project Boundary accounting for 423.14 acres of lacustrine wetland (66 percent Table 4.5-2). A mosaic of forested, scrub-shrub, and emergent wetlands occur adjacent to Tyee Lake near the mouths of large tributaries and in valleys between mountain ridges in the area. Estuarine wetlands surrounding the powerhouse, maintenance buildings, access roads, and staging area encompass another large portion of the Project Area and total to 67.45 acres (10.5 percent).

Table 4.5-2 NWI Wetland Types Mapped within Tye Lake Project Boundary (Non-Transmission).

Wetland ID	Wetland Type	Description	Acres
E1UBL	Estuarine and Marine Deepwater	Estuarine, Subtidal, Unconsolidated Bottom, Subtidal	9.26
E2EM1P	Estuarine and Marine Wetland	Estuarine, Intertidal, Emergent, Persistent, Irregularly Flooded	58.20
L1UBH	Lake	Lacustrine, Limnetic, Unconsolidated Bottom, Permanently Flooded	423.14
PEM1C	Freshwater Emergent Wetland	Palustrine, Emergent, Persistent, Seasonally Flooded	11.74
PFO4/EM1B	Freshwater Forested/Shrub Wetland	Palustrine, Forested, Needle-Leaved Evergreen / Emergent, Persistent, Seasonally Saturated	12.29
PFO4B	Freshwater Forested/Shrub Wetland	Palustrine, Forested, Needle-Leaved Evergreen, Seasonally Saturated	30.40
PSS1/EM1B	Freshwater Forested/Shrub Wetland	Palustrine, Scrub-Shrub, Broad-Leaved Deciduous / Emergent, Persistent, Seasonally Saturated	4.07
PSS1A	Freshwater Forested/Shrub Wetland	Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Temporarily Flooded	1.48
PSS1B	Freshwater Forested/Shrub Wetland	Palustrine, Scrub-Shrub, Broad-Leaved Deciduous, Seasonally Saturated	43.32
PSS4/EM1B	Freshwater Forested/Shrub Wetland	Palustrine, Scrub-Shrub, Needle-Leaved Evergreen / Emergent, Persistent, Seasonally Saturated	35.13
R3UBH	Riverine	Riverine, Upper Perennial, Unconsolidated Bottom, Permanently Flooded	5.41
R4SBC	Riverine	Riverine, Intermittent, Streambed, Seasonally Flooded	0.22
R5UBH	Riverine	Riverine, Unknown Perennial, Unconsolidated Bottom, Permanently Flooded	6.82
Upland	Upland	Upland	520.2

* Does not include the transmission lines, see Figure 4-3 below for the Project Boundary (non-transmission)

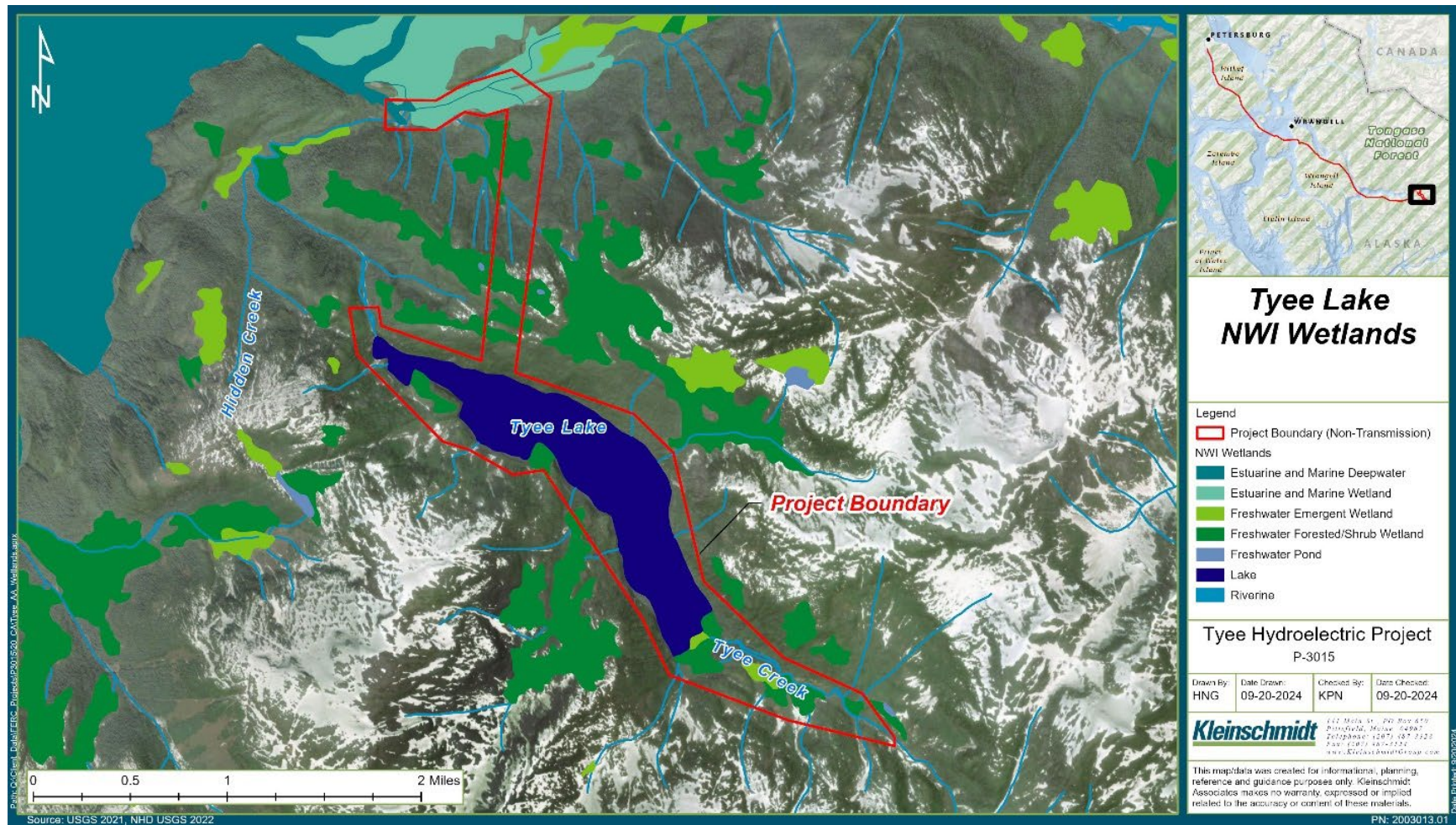


Figure 4.5-1 NWI-Mapped Wetlands within and Surrounding the Project Boundary.

4.5.2 Environmental Analysis

4.5.2.1 Wildlife Resources

4.5.2.1.1 Construction

The construction of the third unit would not affect wildlife resources. Since the Project was designed for a third unit, there would be limited effects resulting from construction. Effectively, the Project will continue with the status quo, or current baseline. No in-water or ground disturbing work would occur. The presence and operation of construction equipment and barge operations could increase the potential for fuel and hazardous substance spills. However, BMPs to protect water quality would be implemented (e.g., erosion and sediment control plan, spill prevention and control plan, no refueling adjacent to the waterbodies, etc.). Noise levels would increase slightly during the construction period and could cause temporary disturbance to birds and mammals from noise. Therefore, SEAPA would implement PME's to protect sensitive species, like minimize duration of noise disturbing activities and timing restrictions. Construction is not expected to create any adverse impacts to wildlife resources.

4.5.2.1.2 Project Operations

Operation of the Tyee Lake Project would have no effect on wildlife in the Project Area. The Project is operated between the natural full pool elevation and the minimum surface elevation; no operational changes in water withdrawals are proposed. The existing tailrace was built for the capacity of the proposed third turbine, no wildlife impacts would occur from its operation.

4.5.2.2 Botanical Resources

4.5.2.2.1 Construction

Construction under the Proposed Action would have no effect on botanical resources within the Project Boundary, as no new ground disturbing activities would occur. No new infrastructure is proposed outside of the existing disturbed area at the Powerhouse, access roads, maintenance buildings, and staging area. All construction activities would occur within the existing powerhouse footprint.

4.5.2.2.2 Project Operations

Operation of the Tyee Lake Project would have no effect on botanical resources of the Project Area. The Project would continue to be operated between the natural full pool

elevation and the minimum surface elevation; no operational changes in water withdrawals are proposed.

4.5.2.3 Wetlands

4.5.2.3.1 Construction

Construction under the Proposed Action would have no effect on wetlands within the Project Boundary, as no new ground disturbing activities would occur. No new infrastructure is proposed outside of the existing disturbed area at the powerhouse, switchyard, access roads, maintenance buildings, or staging area.

4.5.2.3.2 Project Operations

Operation of the Tyee Lake Project would have no effect on wetlands in the Project Boundary. The Project is operated between the natural full pool elevation and the minimum surface elevation; no operational changes in water withdrawals are proposed. The existing tailrace was built for the capacity of the proposed third turbine, no wetland impacts would occur from its operation.

4.5.2.4 Marine Mammals

4.5.2.4.1 Construction

Construction activity will require an estimated 5-6 barge round trips from Wrangell to the Project site to transport materials. Given the shallow nature of the bay, the barges would likely dock during high tide only. The minimal increase in vessel traffic is not anticipated to affect marine mammals from vessel strikes or disturbance. Seals and Stellar sea lions would not be affected because they are adapted to the presence of boat traffic and no major sea lion haul outs or rookeries are known to occur in the Bradfield Canal or the Wrangell areas.

4.5.2.4.2 Project Operations

Operation of the Tyee Lake Project would have no effect on marine mammals.

4.5.3 Applicant-Proposed Measures

No applicant-proposed measures for wildlife, botanical, or wetland resources are anticipated for this proposed capacity amendment other than the BMPs outlined above

in Section 2.2.2.4 intended to protect habitat, minimize disturbance, and reduce potential bear interactions.

4.5.4 References

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4.6 Rare, Threatened, and Endangered Species

4.6.1 Affected Environment

4.6.1.1 Federally Listed Species

The ESA provides a program for the conservation of threatened and endangered plants and animals and their habitats. The USFWS and NMFS are the lead federal agencies that implement the ESA. The law requires federal agencies, in consultation with the USFWS (terrestrial and freshwater species) or NMFS (marine species), to ensure that actions they authorize, fund, or carry out are not likely to jeopardize the continued existence of any listed species or result in the destruction or adverse modification of designated critical habitat of such species. The law prohibits any action that causes “taking” of any listed species of endangered fish or wildlife. There are two ESA-listed species that occur in Southeast Alaska that could potentially occur in the vicinity of the Tyee Lake Project area – the short-tailed albatross and the humpback whale (Mexico DPS).

4.6.1.1.1 Short-tailed Albatross

According to the USFWS’ IPaC official species list for the Tyee Lake Project Area, the only federally-listed species under USFWS jurisdiction with a potential range in the area is the short-tailed albatross (USFWS 2024a, 2024b). The short-tailed albatross was listed as endangered under the ESA in July 2000 with a recovery plan published in September 2008. It is also listed as endangered by the State of Alaska (ADF&G 2024). This species is widely distributed across its historical range, with the population estimated to be 1,200 birds, 600 of which are of breeding age. Currently, most of the world’s breeding nests are on Torishima Island, Japan. Nesting sites are typically on steep sites on soils with loose volcanic ash, usually with grasses that stabilize the soils and provide nesting materials. They breed on remote islands of the Pacific and the only known nesting in the United States is in Hawaii (USFWS 2024c). However, the marine range of short-tailed albatross extends into the open ocean of the Gulf of Alaska, Aleutian Islands, and the North Pacific Ocean (USFWS 2012) where they feed along the shelf, from 0 to 200 meters in depth, and in shelf break areas (USFWS 2008). Juveniles and younger sub-adults (up to 2 years old) use the wider geographic range that encompasses Alaska compared to the adults (O’Connor et al. 2013). This species is unlikely to occur within the Project Area because it spends most of its time at sea, is very rare, and has only a few active breeding colonies remaining, none of which are near the Project Area (ADF&G 2024, USFWS 2024c). There is no critical habitat designated for this species (ADF&G 2024).

4.6.1.1.2 Humpback Whale Mexico DPS

There are 14 DPSs of humpback whales (81 FR 62259, September 2016); the threatened Mexico DPS is the only ESA-listed DPS that could be encountered off the coast of Southeast Alaska (NMFS 2021). The stock of Mexico DPS that occur in Southeast Alaska belong to the Mexico-North Pacific stock. These whales winter off the coast of Mexico and the Revillagigedo Archipelago and summer primarily in Alaska waters, from Southeast Alaska and the Gulf of Alaska to the Aleutian Islands and Bering Sea (Young et al. 2023). Humpback whales are common in Southeast Alaska; the probability of an encountered humpback whale being from the Mexico DPS is 2 percent (NMFS 2021). The abundance estimate of the Mexico-North Pacific stock in its Alaska summer feeding areas combined is 918 animals (Young et al. 2023). It is unknown if this population is increasing; there have been recent declines in abundance and calf production rates of mixed stocks observed in the western Gulf of Alaska, Prince William Sound, Glacier Bay, and Icy Strait (Young et al. 2023).

Potential threats most likely to cause direct human-caused mortality or serious injury include vessel strikes and entanglement in fishing gear and marine debris. The minimum estimated mean annual level of human-caused mortality and serious injury of this stock in U.S. waters in Southeast Alaska between 2016 and 2020 is 0.11 whales, caused by commercial, recreational or subsistence fisheries gear entanglements (0.04 whales), marine debris entanglements (0.02 whales), and vessel strikes (0.041 whales) (Young et al. 2023). There is no estimate for the undocumented fraction of human-caused injuries or death to humpback whales in Alaska. Vessel strikes may be underreported in Alaska; a comparison of observed versus estimated annual vessel strikes along the U.S. West Coast indicates approximately 10 percent of vessel strikes are documented.

4.6.1.2 Federally Designated Critical Habitat and Habitat Use

There is no federally designated critical habitat within the vicinity of the Tyee Lake Project Area (USFWS 2024a, 2024b).

4.6.1.3 Federally Protected Species Under the Bald and Golden Eagle Protection Act and Migratory Bird Treaty Act

As discussed in Section 4.5.1.1.2, Avian Species, nearly all of Alaska's birds are protected under provisions of the MBTA and eagles are further protected under the BGEPA.

4.6.1.4 USFS Alaska Region Sensitive Species

The USFS Alaska Region Sensitive Species List was last updated in 2009 (USFS 2009) and is included in the 2016 Land and Resource Management Plan for the Tongass National Forest (USFS 2016). In addition to the ESA-listed species noted above, three USFS Alaska Region Sensitive Species may occur in the vicinity of the Project: Queen Charlotte goshawk subspecies of the Northern goshawk, Black oystercatcher (*Haematopus bachmani*), and Stellar sea lions of the Eastern DPS. Sea lions were previously discussed in Section 4.5.1.11.3.

The Northern goshawk is a medium-sized raptor found throughout Alaska, including Southeastern Alaska and may occur in the Project Area (ADF&G 2024). The Queen Charlotte goshawk subspecies is a comparatively small, dark subspecies that occurs only in Southeast Alaska and British Columbia (USFWS 2024d). Goshawks are predators that can eat prey as large as snowshoe hare, grouse, ptarmigan, and ducks (ADF&G 2024). They prefer to nest in mixed stands of coniferous and deciduous trees and they will occasionally reuse an old nest (ADF&G 2024). The Queen Charlotte goshawk DPS of the northern goshawk is not listed under the ESA (USFWS 2024d).

The black oystercatcher is a seabird that occurs along rocky shorelines of the North American Pacific coast from Baja California to the Aleutian Islands (USFS 2016). They feed exclusively on intertidal macroinvertebrates. During the breeding season, breeding pairs are widely distributed and form small winter flocks in ice-free tidal flats or rocky islets with dense mussel beds (USFS 2016). Half of the global population occurs in the Prince William Sound and the Kodiak Archipelago. There have been 57 incidental sightings between Baranof Island and the Canadian border, most of which were at the Forrester Island group along the outer coast.

4.6.1.5 State Listed Species

ADF&G is responsible for determining and maintaining a list of endangered species in Alaska under AS 16.20.190. A species or subspecies of fish or wildlife is considered endangered when the Commissioner of ADF&G determines that its numbers have decreased to such an extent as to indicate that its continued existence is threatened. The State Endangered Species List currently includes the ESA-listed species mentioned above – the short-tailed albatross and the humpback whale Mexico DPS.

4.6.1.6 Botanical

Nawrocki et al. (2013) published a field guide documenting known sightings of Alaska's rare plants. Of the 80 rare plants documented in the guide, 8 have been sighted in Southeast Alaska within the same general ecoregion as the proposed Project; however, the sightings were not near the Project. The nearest Nawrocki et al. (2013) record of a rare plant is Calder's licorice-root (*Ligusticum calderi*), mapped on the southwest side of Prince of Wales Island, approximately 90 miles from the Project Boundary.

4.6.2 Environmental Analysis

4.6.2.1 Construction

The construction of the third unit would not likely adversely affect rare, threatened, or endangered wildlife or botanical resources. No in-water work, ground disturbing work, or tree removal would occur.

The presence and operation of construction equipment and barge operations could increase the potential for fuel and hazardous substance spills. However, BMPs to protect water quality would be implemented (e.g., erosion and sediment control plan, spill prevention and control plan, no refueling adjacent to the waterbodies, etc.) as described in Section 2.2.2.4. Most of the construction activities would occur within the powerhouse. Noise levels associated with those activities as well as transporting materials and equipment from the barge area to the powerhouse area are not anticipated to be above ambient noise levels currently experienced at the Tyee Lake facility. Noise levels may temporarily increase for a short duration during concrete mixing activities but are not anticipated to significantly disturb wildlife.

Humpback whales can be injured or killed from inadvertent vessel strikes. SEAPA has included mitigation measures as part of the Proposed Action (Section 2.2.2.1), as requested by NMFS during ESA consultation. NMFS concurred that the Proposed Action may affect, but not likely adversely affect ESA-listed humpback whales given the limited increase in barge traffic (about 5 to 6 round trips between Wrangell and the Project) and the low probability (2 percent) of humpback whales potentially present being from the ESA-listed Mexico DPS.

The short-tailed albatross would be unlikely to occur within the Project Area since this species spends most of its time at sea and there are no known breeding colonies within

Alaska (ADF&G 2024, USFWS 2024c). There would be no effect on the short-tailed albatross from the construction and operation of the Proposed Action.

4.6.2.2 Project Operations

Operation of the Tyee Lake Project would not affect rare, threatened, or endangered wildlife in the Project Area. The Project would be operated between the natural full pool elevation and the current minimum surface elevation of 1,250 ft; no operational changes to the usable lake storage area are proposed. The existing tailrace was designed and constructed to accommodate the maximum output from three turbines operating concurrently.

Continued Project operations at the Tyee Lake Project would have no effects on rare, threatened, or endangered marine mammals in the Project Area and Bradfield Canal.

4.6.3 Applicant-Proposed Measures

To ensure the safety of listed marine mammals during construction activities, SEAPA intends to implement Marine Mammal Mitigation Measures as described in Section 2.2.2.1. These mitigation measures include notifications before in-water activities, debris management, vessel operation guidelines, reporting of any unauthorized take (stranded, injured, sick, or dead listed species), reporting any illegal activities, reporting of extralimital sightings, and providing a formal report to NMFS within 90 calendar days of the completion of the project. Contact information for NMFS is provided in Table 2.2-1. In addition, standard BMPs outlined above in Section 2.2.2.4 intended to protect habitat and minimize disturbance would be implemented.

4.6.4 References

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4.7 Recreation, Land Use, and Aesthetics

4.7.1 Affected Environment

The Tyee Lake Project is located in a remote area of Southeast Alaska along a narrow bench of land between the tidal estuary of the Bradfield River and a steep mountainside and is accessible only by air or boat (SEAPA 2024). The non-transmission portion of the Project occupies state lands that are surrounded by the Tongass National Forest, which is managed by the USFS. The Tongass National Forest is the nation's largest national forest and covers most of Southeast Alaska (USFS 2024b).

The Tyee Lake Hydroelectric Project has no developed recreation facilities associated with it, and due to its remote location, supports little to no recreation use. As part of the original license agreement for project mitigation, the State of Alaska provided the USFS with funds that were used to develop a recreation site at Blind Slough on Mitkof Island over 100 miles from the Tyee Lake Project. However, this site is completely owned and managed by the USFS (Alaska Energy Authority 1997).

The adjacent USFS land surrounding Tyee Lake is classified as Remote Recreation (USFS 2024b). Tyee and Hidden creeks flow through the Semi-Remote Recreation LUD. The management objective of these LUDs is to provide for recreation in remote or natural-appearing settings where opportunities for solitude and self-reliance are high or moderate to high, respectively (USFS 2016). Recreation in these areas includes, but is not limited to, hiking, hunting, fishing, camping, photograph, skiing, snowmachining, exploring forest roads, wildlife viewing, using recreational cabins, beachcombing, kayaking, canoeing, and enjoying the marine environment adjacent to forest lands (USFS 2016). The USFS land to the east of the Project Area is managed for Timber Production.

There are opportunities for recreation in the surrounding area with guided and self-guided tours (USFS 2024a). Two Nature viewing sites are located at the confluence of Bradfield Canal and Ernest Sound: the Anan Creek Wildlife Viewing Site and Anan Wildlife Observatory Site (USFS 2024a). Additionally, Alaska Winter Cruises uses the Bradfield Canal for tours during the daytime hours (Sea Venture 2024). The Bradfield Canal is home to marine mammals and fishes. The Bradfield Canal and adjacent waters can be used for recreational, subsistence, and commercial fishing. Especially in Bradfield Canal, pink salmon abundance is high (Thynes et. al 2022). Recreational users can also utilize the

Harding River Cabin on the Bradfield Canal, which supports wildlife viewing, fishing, hunting, camping, and boating in the area (Recreation.gov 2024).

The surrounding area of the Tongass National Forest also offers opportunities for dispersed recreation. Dispersed recreation refers to activities that occur in an area of a national forest with limited or no amenities provided for recreational users. In the Tongass National Forest, dispersed recreation includes activities such as camping outside of established campgrounds, fishing, and exploring undeveloped coastal areas (USFS 2024c)

The Tyee Lake Project is approximately 40 miles southeast of Wrangell. The community of Wrangell developed a Sustainable Outdoor Recreation Plan in 2012 to guide continued growth of outdoor recreation opportunities in the area, with the goal to improve the community's outdoor recreation opportunities to help support economic expansion in the area. There are extensive existing outdoor recreation opportunities available in the community of Wrangell, including trail systems, lake access, docks that support on-the-water activities, parks, and kayak routes and facilities (Wrangell 2012). The community of Wrangell offers extensive outdoor recreation opportunities in the vicinity of the Project.

4.7.2 Environmental Analysis

4.7.2.1 Construction

Proposed construction could have minor, temporary effects on recreation, land use, and aesthetic resources within the Project Boundary. Construction activities are largely limited to the transport and installation of the Pelton-style turbine generating unit, which would result in an increased presence and operation of construction equipment and barges in the Project area. The presence of construction equipment could have short term impacts to recreation and aesthetics in the construction area. Noise levels would increase slightly during the construction period and could cause temporary disturbance to any recreational users in the immediate vicinity of the Project. However, the remote nature of the Project and limited recreational use in the Project vicinity would limit these effects. These effects would be limited to the immediate area of construction and during the time of construction, as construction activities would not require ground-disturbance, new roads or staging areas, the removal of vegetation, or the need for placement or discharge of dredged or fill material into waters.

4.7.2.2 Project Operations

Operation of the Tyee Lake Project under the Proposed Action would have no effect on recreation, land use, and aesthetic resources within the Project Boundary. The Project would continue to be operated between the natural full pool elevation and the minimum surface elevation of the Project, with no changes in water withdrawals proposed. The existing tailrace was built for the capacity of the proposed third turbine, no effects on recreation, land use, or aesthetics would occur from operation.

4.7.3 Applicant-Proposed Measures

No applicant-proposed measures are known or anticipated for this proposed capacity amendment.

4.7.4 References

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4.8 Cultural and Tribal Resources

4.8.1 Affected Environment

Due to the rugged and remote geography of southeastern Alaska, there is limited information about the early human settlement of the region. Archeologists have long debated the peopling of the North American continent, with some furthering the Bering Land Bridge Theory that people walked down an inland corridor between large glaciers of western Canada around 13,500 years ago, and others arguing that sea travel is likely to have occurred much earlier, based on earlier dates of human occupation in other parts of North and South America. In the last 20 years, studies are accumulating that suggest the latter, although direct evidence has still been hard to find.

New research dating rocks and animal bones suggests that southeastern Alaska was largely ice-free and full of plant and animal life as early as 17,000 years ago (Wade 2018). Genetic evidence supports a theory that the ancestors of contemporary indigenous people in the area lived for 15,000 years on the Bering Land Bridge until the last ice age ended (Elias 2014). A recent underwater discovery of a submerged stone fish weir on the west side of Prince of Wales Island reveals that people have lived in what is now southeastern Alaska for at least 11,000 years (Archaeology Magazine 2022).

The project area is within the traditional territory of the Stikine Tlingit, or *Kaachxana aakw* (People of the Bitter Water) (Goldschmidt and Haas 1998, Wrangell Cooperative Association n.d.). Historically, the Stikine Tlingit lived, hunted, fished, and trapped in the lower Stikine River basin and throughout the islands of the Alexander Archipelago. Traditional Native use of the area for subsistence activities prompted settlement along shorelines and stream banks. The earliest known settlements date to 8,000 years ago, and descendants believe that they migrated from the Canadian interior along the Stikine River, traveling beneath glaciers to escape the great floods of the last Ice Age (Alaska Natives without Land 2024). After settling in the Wrangell area, the Stikine Tlingit established trading networks extending into the interior of Canada and up the Copper River (Alaska Natives without Land 2024).

In the mid to late 1700s, the Alexander Archipelago was visited, explored, mapped, and colonized by the Russians, Spanish, and British. It soon became the center of the Maritime Fur Trade, in which the Stikine were active participants. As early as 1775, the effects of Spanish colonization were felt by the local indigenous populations with the introduction

of smallpox (Andrews 1980). Gold was discovered on the upper Stikine River in 1861, and the following year prospectors arrived at the Native village in Wrangell. With the Alaska Purchase of 1867, the United States gained control of the region from Russia and prospecting increased. Today, tourism, fishing, and logging are the main industries in the area.

4.8.1.1 Previous Research in the Project Vicinity

There have been few systematic and comprehensive archaeological surveys in the region. Most of the known archaeological sites in the vicinity are associated with traditional use and occupation of the area by the Stikine Tlingit, their ancestors, and possible earlier indigenous populations (Andrews 1980, Grieser 2013). These include prehistoric sites, petroglyph sites, and post-contact sites such as winter villages, other seasonal settlements, forest/outposts, burials, fishing traps and weirs, canoes, a cedar source, and a garden (Andrews 1980). The Coffman Cove site (PET-067), located on Prince of Wales Island, was found to contain multiple human burials. Archaeological excavations at this site in the 1970s yielded radiocarbon dates of 1685 B.C. with diagnostic slate projectile points dating to 2500 to 800 B.C. (Andrews 1980). Historic sites in the region include multiple canneries, forts dating to 1834-1877 in the Wrangell area, educational institutions, fur farms, a goat and cattle ranch, and a marble mining site on Blake Island (Andrews 1980).

Interviews with two Stikine Tlingit men in 1946 indicated that the upper end of Bradfield Canal belonged to the *Naanyaa.aayi* clan, although at least one other clan also made claim to streams in the area. Both men indicated that historically, two white men lived at the mouth of the Harding River and controlled access to the area. While there is evidence of Native American seasonal use along Bradfield Canal, there is no indication of sites in the vicinity of Tyee Lake (Andrews 1980, Goldschmidt and Hass 1998). No Native burial or cemetery sites were identified in the Tyee Lake area in Sealaska's 1975 report, *Native Cemetery and Historic Sites of Southeast Alaska* (Sealaska 1975, Gieser 2013).

The Tyee Lake area has been subjected to a few previous archaeological investigations associated with the development of the Tyee Lake Hydroelectric project (Arndt 1979, Andrews 1980, Roberts 1981, 1988, Greiser 2013). In 1979, Katherine Arndt prepared a background study for the Tyee Power Project (Arndt 1979). Arndt reported there were no known cultural resource sites on or near Tyee Lake and indicated that most sites could be

expected to be located near the coast. However, she did recommend some archaeological survey in areas of lower archaeological potential near Tyee Lake.

In 1980, the Arctic Environmental Information and Data Center sponsored a cultural resource survey that inspected 47 localities along the proposed routes of the Tyee Lake Power Project, including some areas around Lake Tyee (Andrews 1980). The survey did not locate any cultural resources around Tyee Lake (Andrews 1980).

The 1981 and 1988 reports (Roberts 1981, 1988) were for the Campbell Study Area, Bradfield Canal and the Bradford Hydroelectric Line. These studies did not identify any resources in the Tyee Lake area.

In 2013, T. Weber Geiser prepared a background research report for the Tyee Lake Hydroelectric facility (Geiser 2013). The study was a review of existing research and resources and evaluated the likelihood of encountering cultural resources in the area. No confirmed or unconfirmed sites were identified in or near the area. No evidence of historic structures or features, such as cabins or mines, were found during review of public land records (Geiser 2013). Geiser concluded that based on the rugged topography and elevation at 1,300 to 1,400 ft, the project area is within the low sensitivity zone for probability of encountering cultural resources, as defined in the *Third Amended Programmatic Agreement Among the USDA Forest Service, Alaska Region, the Advisory Council on Historic Preservation, and the Alaska State Historic Preservation Officer Regarding Heritage Resource Management on National Forests in the State of Alaska*. programmatic agreement (Programmatic Agreement 2010). The Alaska SHPO determined that no pedestrian survey would be required and that there would be *no historic properties affected* as a result of the lake tap intake project (File No. 3130-IRFERC).

The hydroelectric facility's buildings and components were constructed in 1978, less than 50 years ago, and do not qualify as potential historic properties.

4.8.2 Area of Potential Effects

The area of potential effects (APE) for archaeological resources is typically defined as the extent of ground disturbance associated with the proposed project, plus a 100-foot buffer. There is no new ground disturbance associated with the Proposed Action.

The APE for historic built environment resources, including historic buildings, objects, districts, landscapes, and linear features, is typically defined as a half mile from the

Proposed Action where visual, auditory, vibratory, or atmospheric effects may impact historic properties.

4.8.3 Tribal Consultation

On November 1, 2024, FERC designated SEAPA as its non-federal representative for the purpose of conducting NHPA section 106 consultation. SEAPA requested initiation of section 106 consultation with SHPO on November 8, 2024 and the following Tribes and Alaska Native Claims Settlement Act corporations on November 26, 2024 requesting information regarding any tribal cultural resources in the vicinity that may be impacted by the Proposed Action:

- Ketchikan Indian Community
- Organized Village of Saxman
- Petersburg Indian Association
- Wrangell Cooperative Association
- Metlakatla Indian Community, Annette Island Reserve
- Hydaburg Cooperative Association
- Organized Village of Kake
- Cape Fox Corporation
- Sealaska Corporation
- Kake Tribal Corporation

4.8.4 Environmental Analysis

4.8.4.1 Construction

No archaeological sites have been identified in the vicinity of the Project and the area has a low probability of containing archaeological resources. Installation of a third turbine would take place within the existing powerhouse and there would be no ground-disturbing activities associated with transport, staging, or construction. Therefore, it is likely that there would be no effect on archaeological resources from Project construction.

Construction may include temporary impacts to the visual, auditory, vibratory, and atmospheric environment. However, no historic environment resources have been identified in the vicinity of the Project. Therefore, it is likely that there would be no effect on historic built environment resources from the Project.

No tribal resources have been identified in the vicinity of the Proposed Action APE from previous cultural investigations or from the original development of the Tyee Hydroelectric Project. It is unlikely that the installation of a third turbine in an existing facility would affect tribal cultural resources.

4.8.4.2 Project Operations

There are no known archaeological or historic environment resources in the project APE. Tribal cultural resources are not anticipated in the vicinity of the Project, but tribes were provided with a notification of the Draft Amendment Application. With the addition of the third turbine, the facility would have a similar appearance and would continue to operate in a similar fashion. It is likely that project operations would have no effect on historic properties or tribal cultural resources.

4.8.5 Applicant-Proposed Measures

As a BMP, SEAPA would include in its construction contracts an inadvertent discovery provision whereby the contractor shall stop work and notify SEAPA immediately if any archaeologically significant materials or sites are discovered during the work.

4.8.6 References

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4.9 Socioeconomics

4.9.1 Affected Environment

4.9.1.1 Population Patterns

The Tyee Lake Project is located at the head of Bradfield Canal within the City and Borough of Wrangell, approximately 40 miles southeast of downtown Wrangell, Alaska. The Project started operation in 1984 and supplies power to the communities of Wrangell and Petersburg. Following completion of the Swan-Tyee Intertie in 2009, the Tyee Lake Project is also connected to SEAPA's Swan Lake hydro project and the community of Ketchikan.

Southeast Alaska is divided into four boroughs, three consolidated cities and boroughs, one municipality, and two Census Areas (CAs). Boroughs in Alaska correspond with the county governments found elsewhere in the United States, but unlike counties in other states, the boroughs in Alaska do not cover the entire state. The remaining unorganized areas are allocated to CAs, which are statistical units that are generally recognized as county equivalents from a data reporting standpoint. The cities of Ketchikan and Petersburg are located in Ketchikan Gateway Borough and Petersburg Borough, respectively. The City and Borough of Wrangell is a consolidated city/borough government.

The City and Borough of Wrangell had a total estimated population of 2,039 in 2023 (Table 4.9-1). The cities of Ketchikan and Petersburg had estimated populations of 7,083 and 3,023 in 2023, respectively. The population is estimated to have decreased in all three communities from 2020 to 2023. The population also decreased in City and Borough of Wrangell and the City of Petersburg from 2010 to 2020 (Table 4.9-1).

Table 4.9-1 Population, 2010, 2020, and 2023.

Geographic Area	2010	2020	2023	2010 to 2020		2020 to 2023	
				Net Change	Percent Change	Net Change	Percent Change
Ketchikan Gateway Borough	13,477	13,948	13,475	471	3.5%	-473	-3.4%
City of Ketchikan	8,050	8,192	7,803	142	1.8%	-389	-4.7%

Geographic Area	2010	2020	2023	2010 to 2020		2020 to 2023	
				Net Change	Percent Change	Net Change	Percent Change
Petersburg Borough	3,815	3,398	3,367	-417	-10.9%	-31	-0.9%
City of Petersburg	2,948	3,043	3,023	95	3.2%	-20	-0.7%
City and Borough of Wrangell	2,369	2,127	2,039	-242	-10.2%	-88	-4.1%
Alaska	710,231	733,391	736,812	23,160	3.3%	3,421	0.5%

Note: 1/ Data for 2010 and 2020 are decennial census counts. Data for 2023 are estimates.

Source: U.S. Census Bureau 2010, Alaska Department of Labor and Workforce Services 2024a

There are no communities located near the Tyee Lake Project. Review of population data provided via the USEPA's Environmental Justice Screening and Mapping Tool (EJScreen) identified no population within 10 miles of the Project.

4.9.1.2 Employment Resources in the Vicinity of the Project

An estimated 1,190 people were employed in the City and Borough of Wrangell in 2022 (Table 4.9-2). Government and retail trade were the largest sectors by employment accounting for 18 percent and 12 percent of total jobs, respectively. An estimated 9,674 and 2,394 people were employed in the Ketchikan Gateway and Petersburg boroughs, respectively. Government and retail trade were also the largest employers in these boroughs. Health care and social assistance was also important in Ketchikan Gateway Borough (Table 4.9-2).

Table 4.9-2 Employment in the City and Borough of Wrangell in 2022.

Economic Sector	Alaska	Ketchikan Gateway Borough	Petersburg Borough	Wrangell City and Borough
Total employment (number of jobs)	457,687	9,674	2,394	1,190
Percent of Total				
Agriculture	0%	0%	0%	0%
Forestry, fishing, and related	2%	(D)	(D)	(D)
Mining	3%	(D)	(D)	2%
Utilities	1%	(D)	0%	0%
Construction	5%	5%	4%	(D)

Economic Sector	Alaska	Ketchikan Gateway Borough	Petersburg Borough	Wrangell City and Borough
Manufacturing	3%	4%	9%	5%
Wholesale Trade	2%	(D)	(D)	1%
Retail Trade	9%	11%	10%	12%
Transportation and Warehousing	7%	8%	(D)	5%
Information	1%	1%	2%	2%
Finance and Insurance	3%	3%	1%	1%
Real estate and Rental and Leasing	4%	6%	3%	2%
Professional, Scientific, and Technical Services	5%	3%	(D)	(D)
Management of Companies	1%	1%	0%	0%
Administrative and Waste Services	4%	3%	(D)	(D)
Educational Services	1%	1%	(D)	(D)
Health care and Social Assistance	12%	11%	(D)	(D)
Arts, Entertainment, and Recreation	2%	3%	2%	1%
Accommodation and Food Services	8%	9%	6%	6%
Other Services	5%	3%	5%	6%
Government	22%	22%	22%	18%

Notes:

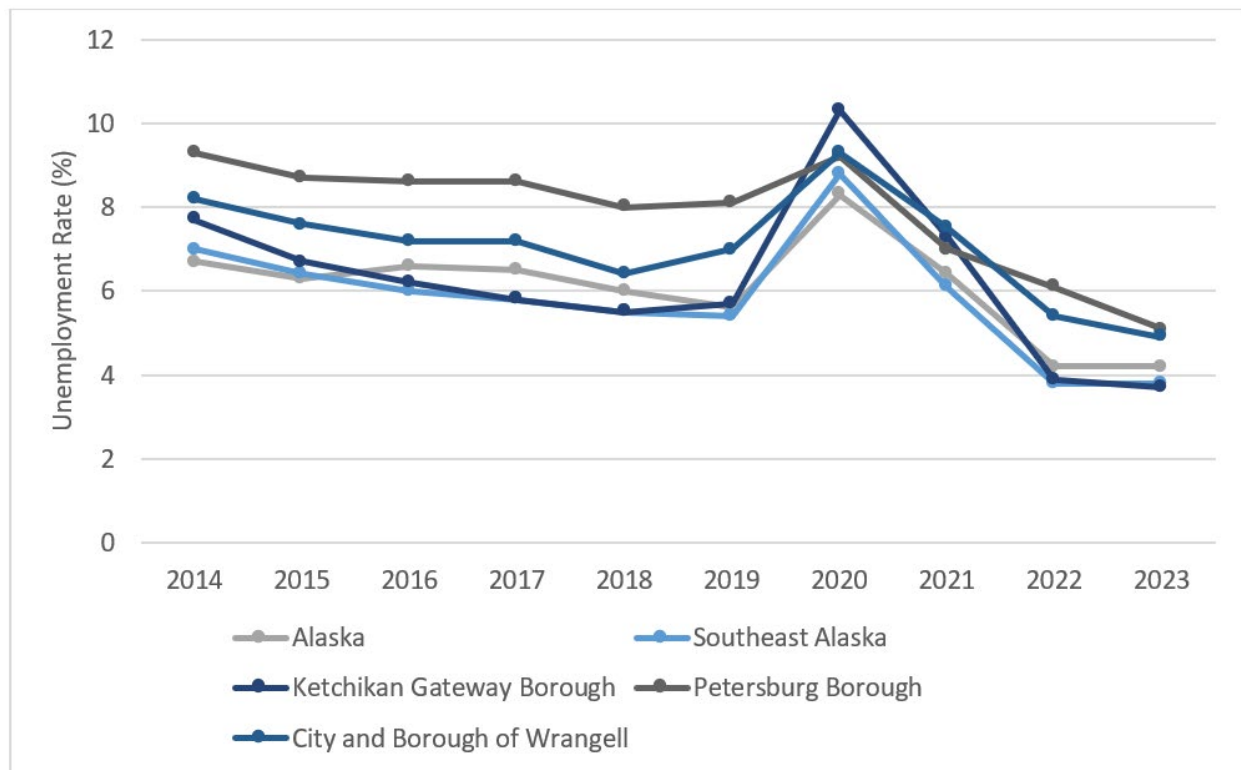
(D) Not shown to avoid disclosure of confidential information; estimates for this item are, however, included in the totals.

1/ Employment estimates include self-employed individuals. Employment data are by place of work, not place of residence, and, therefore, include people who work in the area but do not live there. Employment is measured as the average annual number of jobs, both full- and part-time, with each job counted at full weight.

2/ Percentages for Ketchikan Gateway and Petersburg boroughs and the City and Borough of Wrangell do not sum to 100 because employment counts are not provided for some sectors to avoid disclosing confidential information (identified by [D] in the table).

Source: U.S. Bureau of Economic Analysis 2023

Annual average unemployment rates for Alaska, Southeast Alaska, Ketchikan Gateway and Petersburg boroughs, and the City and Borough of Wrangell are presented from 2014 to 2023 in Figure 4.9-1. Unemployment rates in all five areas peaked in 2020 as a result of the COVID-19 pandemic and have since trended downward. Unemployment rates were lower than pre-pandemic levels in 2023 in all five areas, ranging from 3.7 percent in Ketchikan Gateway Borough to 5.1 percent in Petersburg. The annual average unemployment rate in the City and Borough of Wrangell in 2023 was 4.9 percent (Figure 4.9-1).

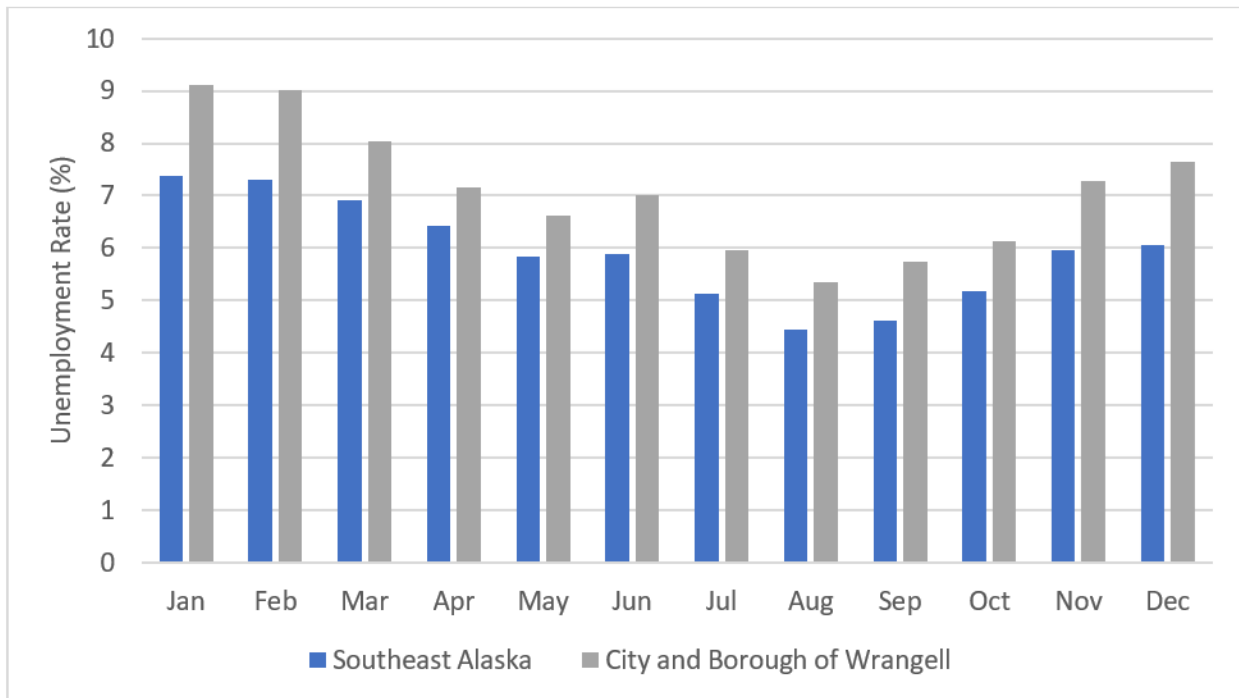


Note: 1/ Data are not seasonally adjusted.

Source: Alaska Department of Labor and Workforce Services 2024b

Figure 4.9-1 Average Annual Unemployment Rates, 2014 to 2023.

Southeast Alaska's economy is highly seasonal. Average monthly unemployment rates from 2014 to 2023 ranged from 4.5 percent in August to 7.4 percent in January (Figure 4.9-2). Monthly unemployment rates were higher in the City and Borough of Wrangell, ranging from 5.4 percent in August to 9.1 percent in January, with a larger range between low and high values, 3.8 percent compared to 2.9 percent (Figure 4.9-2).



Note: 1/ Data are not seasonally adjusted.

Source: Alaska Department of Labor and Workforce Services 2024b

Figure 4.9-2 Average Monthly Unemployment Rates, 2014 to 2023.

4.9.2 Environmental Analysis

4.9.2.1 Construction

Construction crew members and engineers would be housed at SEAPA's existing bunkhouse or existing USFS cabins under SEAPA's Special Use Permit and would either be flown to the airstrip or transported to the dock or barge bulkhead by private ferry. Equipment and supplies would be barged up the Bradfield Canal to an existing barge bulkhead on site. Construction activities associated with SEAPA's Proposed Action is expected to employ 10-15 individuals over the course of 8 months.

4.9.2.2 Project Operations

Operation of the project will not directly affect socioeconomics but may lower energy costs for the three member utilities (the cities of Ketchikan, Petersburg, and Wrangell) by increasing the share of electricity demand that can be met by hydroelectric power and reducing the need for diesel generation.

Two diesel generating stations, located in Wrangell and Petersburg, are currently used in combination with the Tyee Lake Project to meet electricity demand. Potential reductions in the use of these stations would result in reduced air quality-related impacts for residents of the surrounding communities. This potential effect is discussed further with respect to environmental justice in Section 4.10.3.2.

Increased hydroelectric capacity would also support economic development and ongoing trends in energy use including conversion from oil heat to electric heat pumps or baseboard heat and the increased use of electric vehicles.

4.9.3 Applicant-Proposed Measures

No applicant-proposed measures are known or anticipated for this proposed capacity amendment.

4.9.4 References

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U.S. Census Bureau. 2010. P1 Total Population. 2010: DEC Redistricting Data (PL 94-171). Available online at: <https://data.census.gov>.

4.10 Environmental Justice

Consistent with NEPA Phase 2 Rule, effective July 1, 2024,⁷ the licensee provides the following Environmental Justice (EJ) analysis for the Proposed Action. This overview is meant to provide an understanding of the number of EJ communities present within the Tyee Lake Project (EJ Project Area) area, and potential effects to them from the proposed work at the Project, including socioeconomic and/or sociocultural impacts.

Identification of Environmental Justice Communities

The geographic scope of analysis for this environmental justice overview is a 5-mile zone around the existing project boundary. Consistent with FERC recommendations in recent relicensing efforts, the methods outlined in the USEPA Promising Practices for EJ Methodologies in NEPA Reviews (USEPA 2016) have been applied to the geographic scope to identify EJ communities near the Tyee Lake Project.

The thresholds used for populations meeting EJ status are as follows:

- The “meaningfully greater analysis” and the “50 percent” methods were used to determine EJ status based on race:
 - To meet EJ criteria using the “meaningfully greater analysis,” a block group qualifies as having EJ communities if the total minority population for a block group is at least 10 percent greater than that of the county population as follows:
$$(\text{County minority population}) \times (1.10) = \text{threshold above which a block group minority population must be for inclusion as an environmental justice community.}$$
 - To meet EJ criteria using the “50 percent” method, the total minority population must be greater than 50 percent to qualify as an EJ community.
- The “low-income threshold criteria” was used to identify environmental justice communities based on income level, where the block group must have a higher percentage of low-income households than the county.

⁷ 89 FR 35442 (<https://www.federalregister.gov/d/2024-08792>)

4.10.1 Affected Environment

Within a 5-mile zone around the Project boundary there is one census block group that could potentially be affected by construction operations. The single block group within the EJ Project Area does not include EJ communities related to race or poverty level (Table 4.10-1) (Figure 4.10-1), and there are no sensitive receptor locations within the geographic scope.

As a measure to ensure the public can be fully engaged in the NEPA process, non-English-speaking populations, regardless of their location within or outside of EJ block groups are also identified. Within the Tyee Lake EJ Project Area there are no such populations (Table 4.10-1).

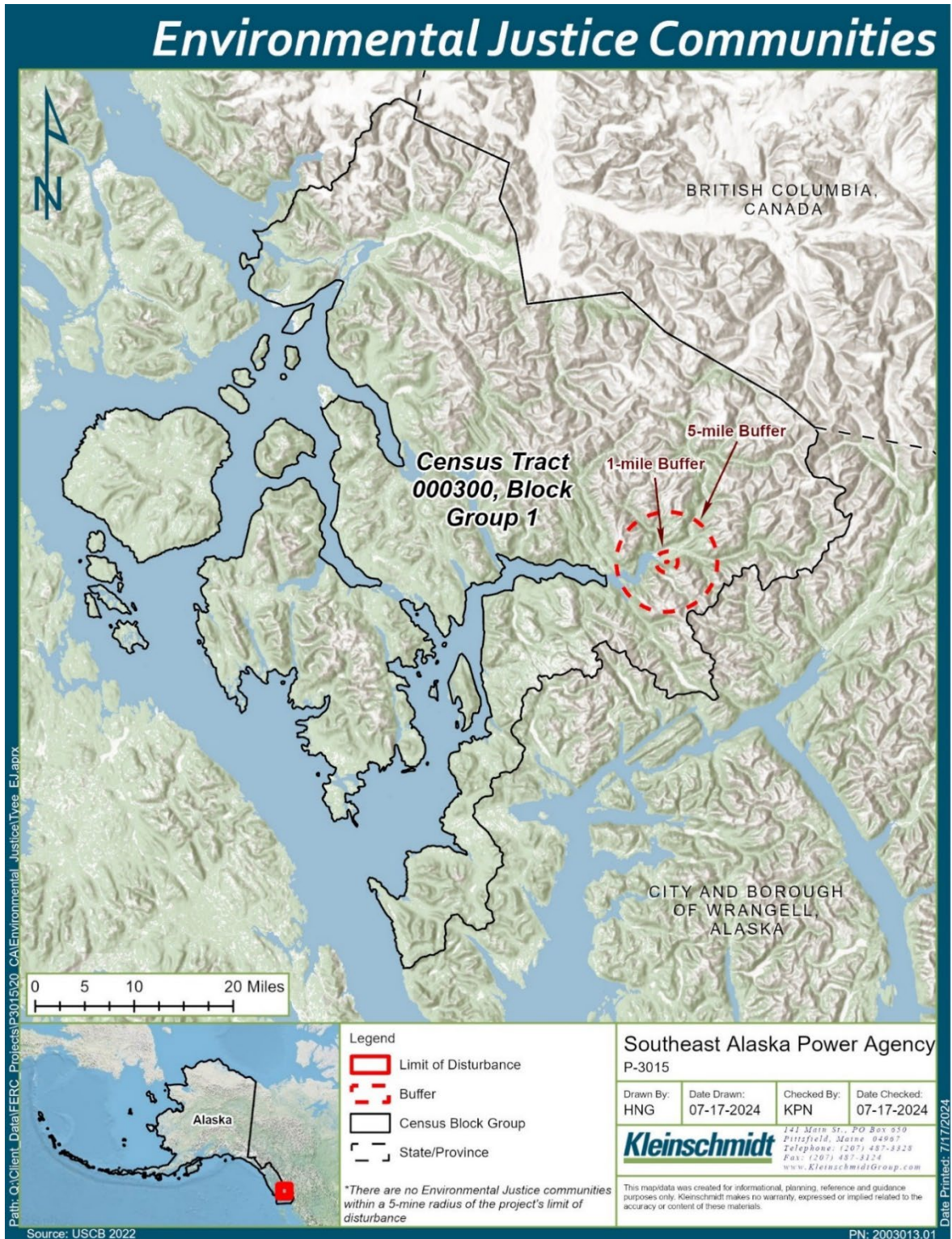


Figure 4.10-1 Census Tracts and Block Groups within a 5-mile Buffer Around the Tyee Lake Project Area.

Table 4.10-1 Environmental Justice Data within a 5-mile Radius around the Project Boundary.

Geographic Area	Race And Ethnicity Data										Low-Income Data	Language Data
	Total Population (count)	White Alone, not Hispanic (count)	African American/ Black (count)	Native American/ Alaska Native (count)	Asian (count)	Native Hawaiian & Other Pacific Islander (count)	Some Other Race (count)	Two or More Races (count)	Hispanic or Latino (count)	Total Minority Population (%)	Below Poverty Data (%)	Non-English Speaking Persons Aged 5 Years and Greater (%)
Alaska	734,821	428,802	22,400	102,445	46,507	10,940	3,808	65,029	54,890	42%	10%	0%
City and Borough of Wrangell	2,134	1,187	1	465	18	46	0	294	123	44%	5%	0%
Census Tract 000300, Block Group 1	406	304	0	23	0	0	0	79	0	25%	1%	0%

Source: U.S. Census 2022

4.10.2 Environmental Analysis

Environmental justice communities are not present within the EJ Project Area, therefore no further environmental analysis related to EJ is warranted.

4.10.3 Distribution of Effects

4.10.3.1 Proposed Action

There are no EJ communities present within 5 miles of the Tyee Lake Project, therefore, the Proposed Action would not disproportionately affect EJ communities in the Project Area. No further analysis related to EJ at the Tyee Lake Project is necessary.

4.10.3.2 No Action Alternative

The No Action Alternative may increase effects to EJ communities within areas surrounding the locations of the diesel generators. Increased use of the generators requires additional fossil fuel inputs, further exacerbating climate change, and potentially decreasing the area's climate resiliency and access to electricity going forward if the region were to become dependent on the generators to meet energy demands. Diesel generators also produce emissions that hydropower does not produce, resulting in a decrease to air quality, and an increase in airborne particulate matter (PM), nitrogen oxides (NOx), and carbon monoxide (CO) (Vital Power n.d.). The increase in concentration of these pollutants would not be temporary, as the proposed construction would be, and would get worse over time, potentially causing cumulative effects to EJ communities nearby.

The two diesel generating stations potentially used in lieu of Tyee Lake's hydropower, or in combination with Tyee Lake to meet increased demand, are located in Wrangell and Petersburg, Alaska. Each generating station is supplied by a Petroleum Product Terminal (PPT), requiring transportation of fuel between the terminals and the generators. If the Proposed Action does not move forward, potentially resulting in an increased demand on the diesel generating units, there would be three EJ communities (1 low income, and 2 minority) within 5 miles of the Petersburg generating station (Figure 4.10-2; Table 4.10-2), and two EJ communities (1 low income, and 1 minority) within 5 miles of the Wrangell generating station (Figure 4.10-3; Table 4.10-3) that may be affected by an increase in air pollutants, traffic between the supply and generating stations, and decreased grid resiliency.

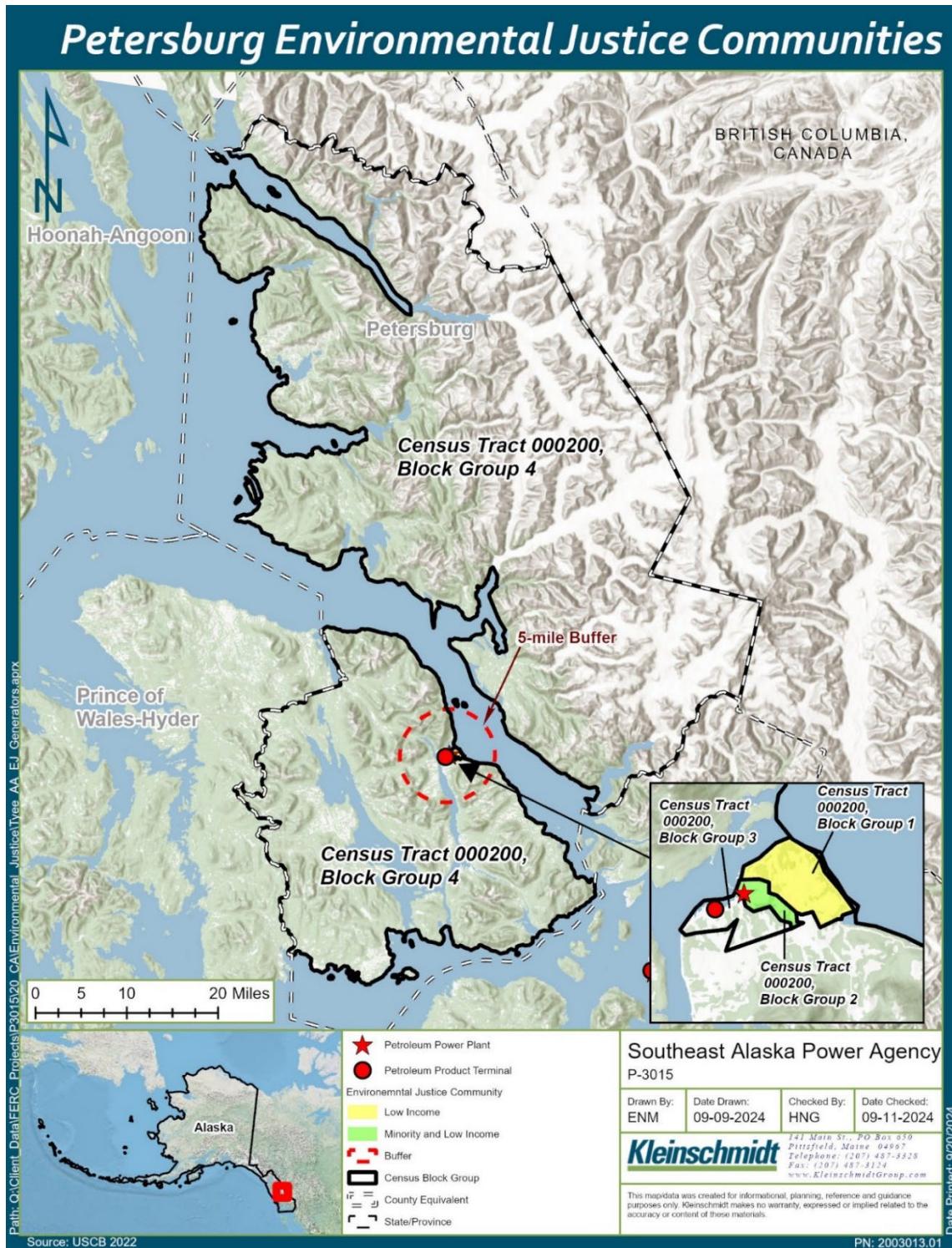


Figure 4.10-2 EJ Communities within 5 Miles of the Petersburg, Alaska Diesel Generating Station and Petroleum Product Terminal (PPT).

Table 4.10-2 EJ Communities within 5 Miles of the Petersburg Generating Station and PPT.

Geographic Area	Race and Ethnicity Data										Low-Income Data	Language Data
	Total Population (count)	White Alone, not Hispanic (count)	African American/ Black (count)	Native American/ Alaska Native (count)	Asian (count)	Native Hawaiian & Other Pacific Islander (count)	Some Other Race (count)	Two or More Races (count)	Hispanic or Latino (count)	Total Minority Population (%)	Below Poverty Data (%)	Non-English Speaking Persons Aged 5 Years and Greater (%)
Alaska	734,821	428,802	22,400	102,445	46,507	10,940	3,808	65,029	54,890	42%	10%	0%
Petersburg Borough[a] [e]	3,374	1842	39	224	602	16	11	334	306	45%	5%	0%
Census Tract 000200, Block Group 3	887	457	1	32	215	4	11	114	53	48%	4%	0%
Census Tract 000200, Block Group 4	650	402	0	62	3	0	0	58	125	38%	1%	0%

Geographic Area	Race and Ethnicity Data										Low-Income Data	Language Data
	Total Population (count)	White Alone, not Hispanic (count)	African American/ Black (count)	Native American/ Alaska Native (count)	Asian (count)	Native Hawaiian & Other Pacific Islander (count)	Some Other Race (count)	Two or More Races (count)	Hispanic or Latino (count)	Total Minority Population (%)	Below Poverty Data (%)	Non-English Speaking Persons Aged 5 Years and Greater (%)
Census Tract 000200, Block Group 1	946	590	24	49	116	7	0	77	83	38%	6%	0%
Census Tract 000200, Block Group 2	891	393	14	81	268	5	0	85	45	56%	7%	1%

Source: U.S. Census 2022

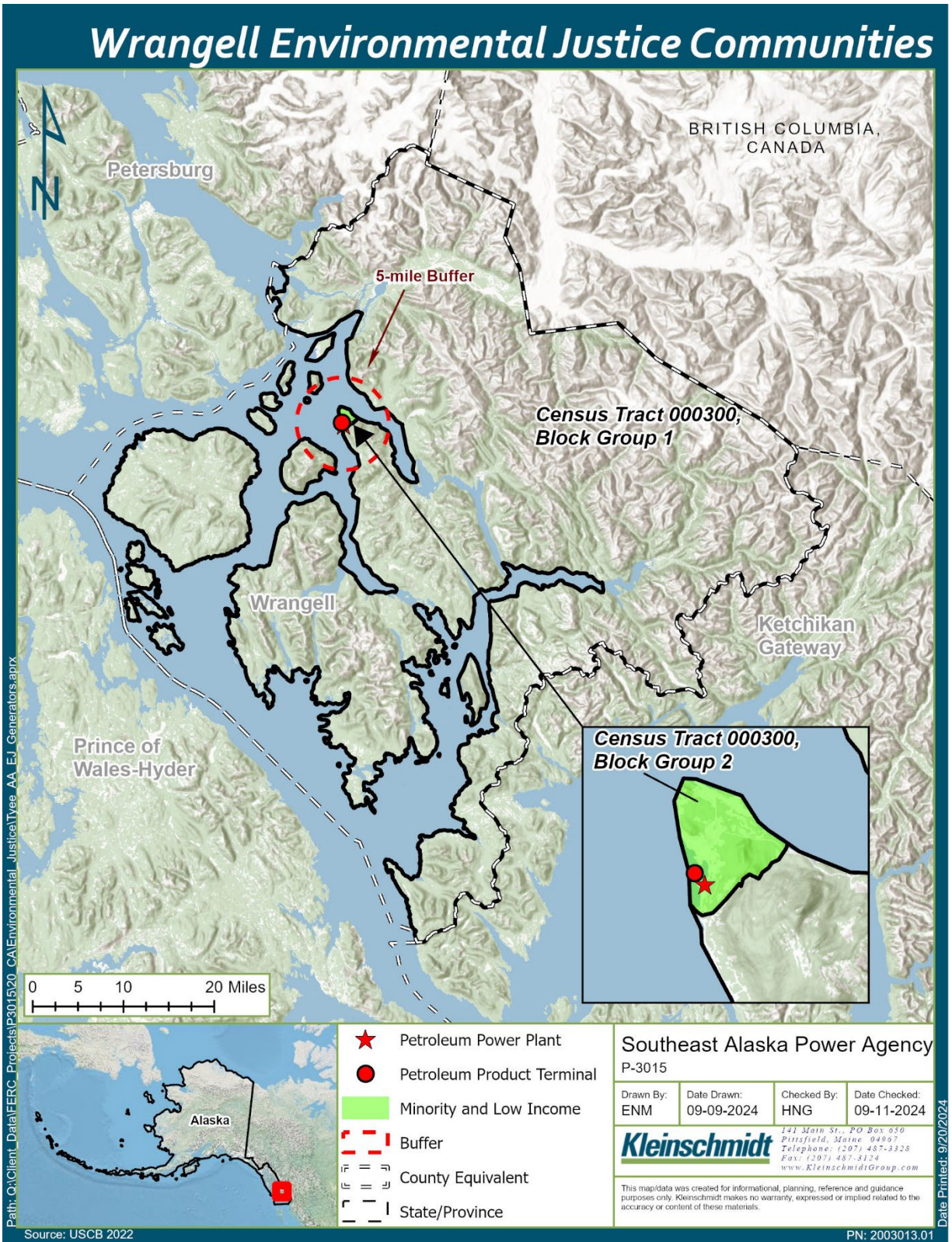


Figure 4.10-3 EJ Communities within 5 Miles of the Wrangell, Alaska Diesel Generating Station and PPT.

Table 4.10-3 EJ Communities within 5 Miles of the Wrangell Generating Station and PPT.

Geographic Area	Race and Ethnicity Data										Low-income Data	Language Data
	Total Population (count)	White Alone, not Hispanic (count)	African American/ Black (count)	Native American/ Alaska Native (count)	Asian (count)	Native Hawaiian & Other Pacific Islander (count)	Some Other Race (count)	Two or More Races (count)	Hispanic or Latino (count)	Total Minority Population (%)	Below Poverty Data (%)	Non-English Speaking Persons Aged 5 Years and Greater (%)
Alaska	734,821	428,802	22,400	102,445	46,507	10,940	3,808	65,029	54,890	42%	10%	0%
City and Borough of Wrangell	2134	1187	1	465	18	46	0	294	123	44%	5%	0%
Census Tract 000300, Block Group 1	406	304	0	23	0	0	0	79	0	25%	1%	0%
Census Tract 000300, Block Group 2	1728	883	1	442	18	46	0	215	123	49%	6%	0%

Source: U.S. Census 2022

4.10.4 Applicant-Proposed Measures

No applicant-proposed measures are known or anticipated for this proposed capacity amendment.

4.10.5 References

U.S. Census Bureau (U.S. Census). 2022. American Community Survey 5-Year data. Available online: https://www2.census.gov/programs-surveys/acs/summary_file/2022/table-based-SF/data/5YRData/. Accessed March 1, 2024.

U.S. Environmental Protection Agency (USEPA). 2016. Promising Practices for EJ Methodologies in NEPA Reviews. Online [URL]: https://www.epa.gov/sites/default/files/2016-08/documents/nepa_promising_practices_document_2016.pdf. Accessed July 19, 2024.

Vital Power. N.d. The Environmental Impact of Diesel Generators. Available online: The Environmental Impact of Diesel Generators | Vital Power. Accessed September 3, 2024.

5.0 DEVELOPMENTAL ANALYSIS

5.1 Power and Economic Benefits of the Project

The long-term benefit of the Proposed Action is that it increases the Tyee Lake Project's installed capacity by 50 percent, for a total of 30 MW, allowing SEAPA to manage peak loads and meet the projected increase in demand. Additionally, adding the third unit would provide redundancy if one unit has an outage.

The electricity demand of the communities of Wrangell, Petersburg, and Ketchikan currently exceeds the capacity of the region's hydroelectric projects, including SEAPA's Tyee Lake and Swan Lake projects, during portions of the year. The electricity demand that cannot be met by the hydro projects is provided by the community utilities through diesel generation. Any outage of one of the Tyee Lake generating units would require additional diesel generation to supply power to the communities; the current demand precludes unit cycling at Tyee Lake, negatively affecting the longevity of the equipment at Tyee. Moreover, as described in Section 1.2, there are several investments underway to support the continuing trend in Southeast Alaska of converting oil heat to electric heat pumps or electric baseboard heat and expansion of electric vehicles that will further increase the demand for electricity within SEAPA's grid during Tyee Lake's current FERC license term. Foreseeable electrification of heating systems and transportation, and potential for shoreline power, would exceed the capacity of the hydro projects serving these communities.

5.1.1 Proposed Action

The communities of Wrangell, Petersburg, and Ketchikan will derive an economic benefit from additional generation from the project. This benefit is from the avoided cost of serving load with diesel generation because the increased Tyee Lake generating capacity will capture spill events that otherwise would have occurred. An annual increase in hydro production of 30,000 MWh is predicted, although actual production will be dependent on the water year, Swan Lake generation, and demand.

The total project cost including all license amendment, permitting, engineering and construction costs is forecasted to be \$22.5 million. When annual cost of capital and O&M costs are combined, the annual cost of the project is \$1.3 million. The total annual cost is

anticipated to increase by about \$350,000 for the operation and maintenance of the proposed third unit.

This additional hydropower generation is anticipated to replace 2.4 million gallons of diesel fuel that would otherwise be needed to meet demand, assuming 0.08 gallons of diesel fuel per kWh. At a cost of \$4.70 per gallon, this represents an annual savings of \$11.28 million in diesel fuel costs.

5.1.2 No Action Alternative

The No Action Alternative would not enable additional generation to capture future spill events. The No Action alternative increases the future carbon footprint of Southeast Alaska, compared to the Proposed Action.

5.2 Cost of Environmental Measures

Mitigation measures for humpback whales and other marine mammals is not expected to significantly contribute to the cost of the project.

SEAPA estimates that the Hidden Creek Flow Monitoring Plan would cost approximately \$20,000 to develop, and approximately \$100,000 to implement. These estimates are preliminary and are dependent on the outcome of consultation with agencies.

SEAPA estimates that the Tailrace Scour and Deposition Monitoring Plan would also cost approximately \$20,000 to develop, and approximately \$100,000 to implement. These estimates are preliminary and are dependent on the outcome of consultation with agencies.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Comparison of Alternatives

This section summarizes the effects on the developmental and non-developmental resources for the Proposed Action and No Action/alternatives. Developmental values include the impacts associated with operating the project, while non-developmental values include the impacts on fish and wildlife, recreational opportunities, and other environmental aspects.

Table 6.1-1 Comparison of Alternatives

Resource	No-Action Alternative	Proposed Action
Generation	100,000 MWh annually (based on average generation from 2019-2023)	130,000 MWh annually (based on average generation and potential generation from 2019-2023)
Environmental Justice	No change	Reduced reliance on diesel generators, and thus reduced fossil fuel inputs, reduced emissions; and reduced energy costs
Grid Resiliency	No change	Improved grid resiliency
Tailrace Sediment Deposition	No change to water quantity of sediment deposition patterns in the tailrace	Increased powerhouse discharge may affect sediment transport and deposition in the tailrace; SEPA proposes to develop an agency-recommended plan to monitor tailrace scour and deposition.
Hidden Creek Flows and Fish Habitat	No change to Hidden Creek flows or fish habitat	Potential to reduce flows to Tyee Creek, and to potentially fish-bearing portions of Hidden Creek. SEAPA proposes to develop an agency-recommended Hidden Creek Flow Monitoring Plan.

6.2 Comprehensive Development and Recommended Alternative

FERC is required to consider all uses of the waterway on which the project is located according to Sections 4(e) and 10(a)(1) of the FPA. This includes the fish and wildlife, recreational, and other non-developmental resources. All resources are considered

equally with the hydroelectric project's electric energy or other developmental values. FERC must weigh various economic and environmental considerations involved in approving or rejecting the Proposed Action.

The following section provide SEAPA's summary and rational for recommendations to FERC for the approval of this project.

6.2.1 Recommended Alternative

Based on the review and evaluation of the Proposed Action and the No Action alternative, SEAPA selected the Proposed Action as the preferred and recommended alternative.

The Proposed Action alternative was selected because it is likely the most cost-effective and least environmentally damaging alternative for meeting the growing energy demand in the region. As proposed, the addition of the Third Unit would not require modifying the upper or lower operating range of Tyee Lake, increasing the storage capacity at Tyee Lake, or obtaining additional water rights. Incorporation of agency-recommended monitoring plans (Tailrace Plan, and Hidden Creek Flow Monitoring Plan), and mitigation measures for potential impacts to listed marine mammals minimizes environmental impacts.

6.3 Cumulative Effects

According to the Council on Environmental Quality's regulations for implementing NEPA (40 CFR §1508.7), an action may cause a cumulative effect if its effects overlap in space and/or time with effects of other past, present, and reasonably foreseeable future actions. Cumulative effects can result from individually minor, but collectively significant actions taking place over a period of time, including hydropower and other land and water development activities.

The licensee did not identify adverse cumulative impacts on any of the resources resulting from the Proposed Action. However, there would be beneficial cumulative impacts on air quality, climate change, socioeconomics, and EJ communities resulting from the Proposed Project. These beneficial impacts would be a result of reduced reliance on diesel generators and providing the local populations with more affordable renewable energy compared to diesel. This would have direct beneficial cumulative impacts on air quality, contribute to a reduction in fossil fuels which benefits climate change, and benefit the local communities by improving air quality and providing more affordable energy.

6.4 Unavoidable Adverse Effects

The licensee did not identify any unavoidable adverse effects related to the Proposed Action.

6.5 Fish and Wildlife Agency Recommendations

The following recommendations have been recommended by agencies; all recommendations have been incorporated into the proposed action:

Table 6.5-1 Fish and Wildlife Agency Recommendations

Recommendation	Agency	Cost	Adopted?
Develop and implement a Tailrace Scour and Deposition Monitoring Plan	USFWS	\$150,000	Adopted
Develop and implement a Hidden Creek Flow Monitoring Plan	NMFS	\$150,000	Adopted
Incorporate mitigation measures for the protection of listed marine mammals	NMFS	\$0 or Minimal Cost	Adopted

6.6 Consistency with Comprehensive Plans

Section 10(a)(2)(A) of the FPA, 16 U.S.C. § 803(a)(2)(A), requires the Commission to consider the extent to which a project is consistent with federal or state comprehensive plans for improving, developing, or conserving a waterway or waterways affected by the project. The following list names the comprehensive plans that are applicable to the Project. No inconsistencies were found.

1. Alaska Administrative Code. 2012. 5 AAC § 39.222 Policy for the management of sustainable salmon fisheries. Juneau, Alaska.
2. Alaska Administrative Code. 2003. 5 AAC § 75.222 Policy for the Management of Sustainable Wild Trout Fisheries. Juneau, Alaska.
3. Alaska Department of Fish and Game. 2011. Alaska Anadromous Waters Catalog – Southeastern Region. Anchorage, Alaska. Updated: June 1, 2024.
4. Alaska Department of Fish and Game. U.S. Fish and Wildlife Service. 2007. Black Oystercatcher (*Haematopus bachmani*) Conservation Action Plan. Anchorage, Alaska. April 2007.
5. Alaska Department of Natural Resources. Alaska’s Outdoor Legacy: Statewide Comprehensive Outdoor Recreation Plan (SCORP): 2009-2014. Anchorage, Alaska. Updated: 2015.

6. Alaska Department of Natural Resources. 2000. Central/Southern Southeast Area Plan. Anchorage, Alaska. November 2000.
7. Forest Service. 2016. Tongass National Forest Land and Resource Management Plan. Department of Agriculture, Ketchikan, Alaska. December 2016.
8. National Marine Fisheries Service. 1991. Final Recovery Plan for the Humpback Whale. Silver Spring, Maryland. November 1991.
9. National Marine Fisheries Service. 2008. Recovery Plan for the Steller Sea Lion: Eastern and Western Distinct Population Segments (*Eumetopias jubatus*). National Marine Fisheries Service, Juneau, Alaska. March 2008.
10. Southeast Alaska Fish Habitat Partnership. 2017. Conservation Action Plan 2017-2021. Juneau, AK. 2017.
11. U.S. Fish and Wildlife Service. n.d. Fisheries USA: the recreational fisheries policy of the U.S. Fish and Wildlife Service. Washington, D.C.
12. U.S. Fish and Wildlife Service. 1994. Conservation Plan for the Sea Otter in Alaska. Anchorage, Alaska. June 1994.
13. U.S. Fish and Wildlife Service. 2005. Regional Seabird Conservation Plan. Pacific Region, Portland, Oregon. January 2005.
14. U.S. Fish and Wildlife Service. 2009. Alaska Seabird Conservation Plan. Anchorage, Alaska. 2009.
15. U.S. Fish and Wildlife Service, et al. 2008. Alaska Shorebird Conservation Plan. Version II. Anchorage, Alaska. 2008. Updated: April 2019.

7.0 FINDING OF NO SIGNIFICANT IMPACT

SEAPA's proposal to install a third unit, with the proposed PME measures, will have no land-disturbing or land-clearing activities. The proposed action will have no impact on water quality. Potential minor impacts to flows in Hidden Creek and in the project tailrace will be monitored following operation of the third unit. Measures will be put into place to minimize risk to listed marine mammals. The project will have a net benefit to grid resiliency and energy costs to consumers in the region.

SEAPA recommends that the issuance of a license amendment for the project, as proposed, would not constitute a major federal action significantly affecting the quality of the human environment.

APPENDIX A

NEWSPAPER NOTICE OF JOINT AGENCY/PUBLIC MEETING AND DRAFT AMENDMENT APPLICATION

PUBLISHER'S AFFIDAVIT

UNITED STATE OF AMERICA)

STATE OF ALASKA)

:SS.

FIRST JUDICIAL DISTRICT)

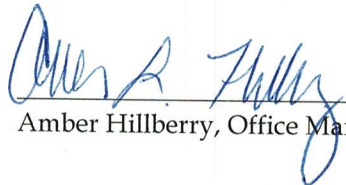
Before me, the undersigned, a notary public
this day personally appeared Amber L Hillberry
who, being first duly sworn, according to law,
says that she is the Office Manager of the
Wrangell Sentinel published at Wrangell in said
First Judicial District and State of Alaska and

That the advertisement, of which the annexed is
true copy, was published in said publication on

The 16 day of October, 2024,

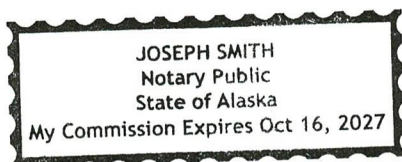
And thereafter for 2 week/s, the last day of
publication appearing on the 30 day of
October 2024.

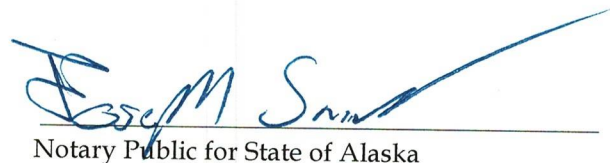
See Attached


Amber Hillberry, Office Manager

Subscribed and sworn to before me

This 31st day of October 2024




Notary Public for State of Alaska

Notice of Joint Agency and Public Meeting Tyee Lake Project (FERC Project No. 3015)

Southeast Alaska Power Agency (SEAPA), licensee for the Tyee Lake Hydroelectric Project (FERC No. 3015), proposes to file an Application for a Capacity-Related Amendment to License (Amendment Application) with the Federal Energy Regulatory Commission (FERC) to enable SEAPA to install an additional 10 megawatt (MW) hydroelectric Pelton-style turbine-generator (Proposed Project) in the existing empty bay in the powerhouse. On October 8, 2024, SEAPA filed an Initial Consultation Document in the form of the Draft Amendment Application (DAA) pursuant to the content requirements of the Code of Federal Regulations (CFR), Title 18 Section § 4.38.

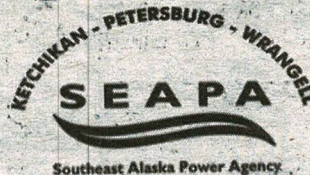
NOTICE is hereby given that SEAPA is hosting a joint agency and public meeting in accordance with the FERC requirements at 18 CFR § 4.38(b)(3). Two sessions will be held on November 14, 2024, both of which are open to the public. A morning agency session will be held virtually from 9:30 a.m. to approximately 11:30 a.m. The evening public session will be held from 5:30 p.m. to 7:30 p.m. and may be attended virtually or in-person. The evening session will be held at the SEAPA office located at:

55 Don Finney Lane
Ketchikan, Alaska 99901

The purpose of the meeting is to review the Proposed Project plans, discuss the FERC regulatory process, address questions on the DAA, and receive stakeholder feedback. The final meeting agenda, developed in consultation with meeting participants, will be available November 7, 2024 on SEAPA's website at: <https://www.seapahydro.org/tyee-license>. Please notify SEAPA by November 1, 2024 if you plan on attending the meeting virtually by contacting Betsy McGregor, Senior Scientist and Regulatory Consultant to SEAPA, at Betsy.McGregor@KleinschmidtGroup.com or by telephone at 907-885-3418.

The DAA is available online on the FERC E-Library website (<https://elibrary.ferc.gov/eLibrary/search>) under Project No. P-3015 or on SEAPA's website. SEAPA respectfully requests written comments on the DAA be submitted within 60 days, or by December 9, 2024.

Publish: October 16 and 30, 2024



AFFIDAVIT OF PUBLICATION

Legal No. 18037

STATE OF ALASKA,)
) SS:
Gateway Borough)

Kathy Williams, being duly sworn says:
That she is a representative of the
Ketchikan Daily News, a daily newspaper
published at Ketchikan, in said Borough
and State, and that the publication of
which the annexed is a printed and true
copy, was published in said newspaper at
least once per week for two consecutive
weeks, commencing on the 16th day of
October 2024 and ending on the 30th
day of October 2024.

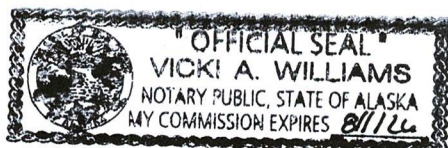
Kathy Williams

Subscribed and sworn to before me this

30th, day of
October, 2024

Vicki A. Williams

Notary Public for Alaska
My Commission Expires 8/1/26



Notice of Joint Agency and Public Meeting Tyee Lake Project (FERC Project No. 3015)

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NOTICE is hereby given that SEAPA is hosting a joint agency and public meeting in accordance with the FERC requirements at 18 CFR § 4.38(b)(3). Two sessions will be held on November 14, 2024, both of which are open to the public. A morning agency session will be held virtually

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No. 18037

PUBLISHER'S AFFIDAVIT

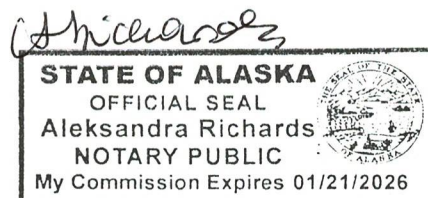
UNITED STATES OF AMERICA)
STATE OF ALASKA)
: SS.
FIRST JUDICIAL DISTRICT)

Before me, the undersigned, a notary public this day personally appeared Orin Pierson who, being first duly sworn, according to law, says that he is the publisher of Petersburg Pilot published at Petersburg in said Division First Judicial and State of Alaska and that the advertisement, of which the annexed is a true copy, was published in said publication on the 17 day of October, 2024 and thereafter for 2 weeks, the last publication appearing on the 31 day of October, 2024, and that the rate charged thereon is not in excess of the rate charged private individuals.


Orin Pierson, Publisher

Subscribed and sworn to before me

This 1 day of November, 2024



Read the

Public Notices

• BE AN INFORMED CITIZEN • PARTICIPATE IN DEMOCRACY
• EXERCISE YOUR RIGHT TO KNOW

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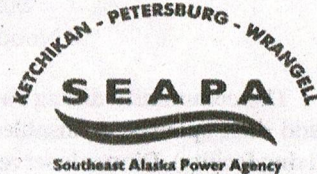
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55 Don Finney Lane
Ketchikan, Alaska 99901

The purpose of the meeting is to review the Proposed Project plans, discuss the FERC regulatory process, address questions on the DAA, and receive stakeholder feedback. The final meeting agenda, developed in consultation with meeting participants, will be available November 7, 2024 on SEAPA's website at: <https://www.seapahydro.org/tyee-license>. Please notify SEAPA by November 1, 2024 if you plan on attending the meeting virtually by contacting Betsy McGregor, Senior Scientist and Regulatory Consultant to SEAPA, at Betsy.McGregor@KleinschmidtGroup.com or by telephone at 907-885-3418.

The DAA is available online on the FERC E-Library website (<https://elibrary.ferc.gov/eLibrary/search>) under Project No. P-3015 or on SEAPA's website. SEAPA respectfully requests written comments on the DAA be submitted within 60 days, or by December 9, 2024.

Published: October 17 and 31, 2024



APPENDIX B

CONSULTATION RECORD

Summary of Consultation for the Proposed Tyee Lake Hydroelectric Project Amendment to Add a Third Turbine-Generator Unit.

Date	Correspondence
August 1, 2024	Email request for meeting to discuss the proposed Project and process with attached project description sent to: ADF&G, Alaska Department of Environmental Conservation, SHPO, U.S. Fish and Wildlife Service (USFWS), and National Marine Fisheries Service (NMFS)
August 15, 2024	Meeting with ADF&G, USFWS, and NMFS to review proposed Project and process
September 19, 2024	Email to U.S. Forest Service (USFS) providing Project description and presentation
September 25, 2024	Meeting with USFS to review proposed Project and process.
September 26, 2024	Email exchange with USFWS re Tongass National Forest Stream Lines data
October 9, 2024	SEAPA submitted Draft Amendment Application in lieu of ICD.
October 16 and October 30, 2024	Wrangell Sentinel and Ketchikan Daily News newspapers notices of November 14, 2024 Joint Agency/Public Meeting (JAM)
October 17 and October 31, 2024	Petersburg Piper newspaper notices of November 14, 2024 JAM
October 17, 2024	Email notice of JAM with attached Draft Amendment Application filing cover letter to: Agencies, Tribes and other stakeholders list
October 17, 2024	Email from SHPO requesting Project information be forwarded to OHA mailbox
October 30, 2024	Email notice of JAM with attached Draft Amendment Application filing cover letter to: OHA, USACE
November 1, 2024	FERC issues letter designating SEAPA as non-federal representative for consultation under the National Historic Preservation Act (NHPA), Magnuson-Stevens Fishery Conservation and Management Act for Essential Fish Habitat (EFH) and Endangered Species Act (ESA)
November 7, 2024	Email notice of JAM with attached meeting agenda and presentation to: Agencies, Tribes and other stakeholders list
November 8, 2024	Email with attached letter to USFWS requesting initiation of ESA Consultation
November 8, 2024	Email with attached letter to SHPO/OHA requesting initiation of NHPA Section 106 Consultation
November 13, 2024	Email from SHPO/OHA logging request for NHPA Section 106 Consultation
November 14, 2024	Email from USFWS re ESA consultation process
November 14, 2024	Joint Agency Meeting; Attendees: ADF&G, NMFS, ADNR

Date	Correspondence
November 20, 2024	Email to ADF&G as follow-up to JAM and requesting support for SEAPA's motion to FERC to waive second stage consultation
November 20, 2024	Phone call with NMFS to clarify Project information and process
November 21, 2024	Email with attached letter to NMFS requesting initiation of EFH and ESA Consultation
November 26, 2024	Emails with attached letter requesting initiation of NHPA Section 106 Consultation to Ketchikan Indian Community, Organized Village of Saxman, Petersburg Indian Association, Wrangell Cooperative Association, Metlakatla Indian Community, Hydaburg Cooperative Association, Organized Village of Kake, Craig Tribal Association, Cape Fox Corporation, Sealaska Corporation, Kake Tribal Corporation
November 26, 2024	Email from ADF&G Habitat Division re Fish Habitat Permit
November 26, 2024	Email from Sealaska Corporation
November 26, 2024	Email from Metlakatla Indian Community
December 2, 2024	Email to Sealaska Corporation offering to meet to discuss the Project
December 2, 2024	Email from Metlakatla Indian Community offering to meet to discuss the Project
December 3, 2024	Email to ADF&G seeking clarification re Habitat Division comment
December 3, 2024	Phone call with ADF&G Habitat Division re Fish Habitat Permit and timing window for plant shutdown for routine maintenance
December 3, 2024	Email from ADF&G Habitat Division as follow-up from phone call
December 4, 2024	Comment letter from NMFS
December 4, 2024	Phone call with NMFS clarifying Hidden Creek Flow Monitoring Plan
December 6, 2024	Email communications with NMFS clarifying Project information and SEAPA's agreement to implement mitigation measures to protect ESA-listed humpback whales
December 9, 2024	Comment letter from USFWS
December 9, 2024	Phone call with ADF&G clarifying the process; Comment letter from ADF&G
December 13, 2024	Letter of concurrence from NMFS and completion of ESA consultation
December 13, 2024	Comment email from SHPO/OHA
December 18, 2024	Email to Alaska Department of Natural Resources (ADNR) seeking documentation of current water rights permit
December 18, 2024	Email to ADF&G Habitat Division requesting Fish Habitat Permit FH10-I-0160 be amended for proposed Project
January 21, 2025	Letter from ADNR confirming water rights
January 21, 2025	ADF&G provides amended Fish Habitat Permit FH10-I-0160 for the proposed Project
January 24, 2025	Memo to agencies agreeing to requested protection, mitigation and enhancement measures.

From: [Betsy McGregor](#)
To: jon.wendel@alaska.gov
Subject: Tyee Lake Hydroelectric Project
Date: Thursday, August 1, 2024 2:34:00 PM
Attachments: [TyeeLakeAmendment](#) [ProjectDescription.pdf](#)

Dear Jon,

On behalf of Southeast Alaska Power Agency (SEAPA), we are hoping to schedule a discussion about a project that SEAPA is considering at the existing Tyee Lake Hydroelectric facility located about 40 miles southeast of Wrangell, Alaska. The existing Tyee Lake facility operates under a license from the Federal Energy Regulatory Commission (FERC) and provides power to the communities of Petersburg, Wrangell, and Ketchikan.

In order to meet growing electrical demand, SEAPA is considering increasing the generating capacity of the Tyee Lake facility by adding a third turbine-generating unit within the footprint of the existing powerhouse. Environmental impacts of installation and operation of a third unit are anticipated to be limited, therefore, SEAPA is evaluating the possibility of using an expedited regulatory process to obtain FERC approval. An expedited regulatory process would involve seeking (and receiving) “waivers” from agencies for what would traditionally be considered “second stage” consultation (i.e., studies).

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- Description of the proposed action and scope of environmental effects
- Overview of expedited regulatory process
- Discussion/Questions

For your reference in the meantime, we are attaching a draft description of the existing facility and the proposed activities.

At your convenience, please let us know days/times that would work for you to have a call in the next week or two to discuss the Tyee Lake project.

We appreciate your consideration and look forward to hearing from you.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: [Betsy McGregor](#)
To: [Ellis, Leah M \(DFG\)](#)
Subject: Tyee Lake Hydroelectric Project
Date: Thursday, August 1, 2024 2:33:00 PM
Attachments: [TyeeLakeAmendment](#) [ProjectDescription.pdf](#)

Dear Leah,

On behalf of Southeast Alaska Power Agency (SEAPA), we are hoping to schedule a discussion about a project that SEAPA is considering at the existing Tyee Lake Hydroelectric facility located about 40 miles southeast of Wrangell, Alaska. The existing Tyee Lake facility operates under a license from the Federal Energy Regulatory Commission (FERC) and provides power to the communities of Petersburg, Wrangell, and Ketchikan.

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Regards,

Betsy

Betsy McGregor
Senior Scientist

Kleinschmidt

O: 907-885-3418

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Existing Facilities and Operations

The Tyee Lake Hydroelectric Facility (Tyee Facility or Project), owned and operated by Southeast Alaska Power Agency (SEAPA), is located at the head of Bradfield Canal, approximately 40 miles southeast of the city of Wrangell, Alaska. Tyee Lake is a natural lake which feeds the powerhouse via a lake tap; there is no dam. The Tyee Facility operates under a license issued by the Federal Energy Regulatory Commission (FERC Project No. 3015) in 1981 which expires July 2031. The project has been in continuous operation since completion in May 1984.

Tyee Lake has a surface area of 434 acres (ac), a usable storage capacity of 52,400 acre-feet (ac-ft), and 15 square miles (sq mi) of drainage area. The Project is operated between the natural full pool elevation of 1,396 feet (ft) mean lower low water (mllw) and a minimum surface elevation of 1,230 ft mllw. An intake structure is located on the northern shore of Tyee Lake, approximately 2,000 ft east of the natural outlet of Tyee Lake, that directs water through an unlined power tunnel and steel penstock to the powerhouse. The powerhouse is located near sea level at the end of the Bradfield Canal and contains two turbines, each connected to a 10,000-kW generator. The 1,100-ft-long tailrace channel discharges into Airstrip Slough before entering Bradfield Canal.

Generated power is delivered to a switchyard/substation adjacent to the powerhouse. Power is delivered to the north along approximately 70 miles of overhead transmission line and 11 miles of submarine cables which interconnect the Project to the communities of Wrangell and Petersburg. Power is also delivered in a southerly direction to the community of Ketchikan through the Swan-Tyee Intertie that was constructed in 2009.

Proposed Action

SEAPA is proposing to install and operate a third Pelton-style turbine-generating unit (third unit) at the Project in order to better manage peak loads and meet growing energy demands in a cost-effective manner while minimizing the overall environmental impact of the increased capacity. At some times of year, the current electricity demand exceeds SEAPA's existing generation capacity. The continuing trend in Southeast Alaska of converting oil heat to electric heat pumps or electric baseboard heat, electrification of docks for use by ferries, cruise ships or other marine vessels, and an increase in electric vehicles are expected to increase the demand for electricity within SEAPA's grid at varying times of year.

When constructed, the Tyee Facility provided for the near-term load needs of Wrangell and Petersburg but was designed and constructed with provisions to add a third generating unit to meet future demands. Adding a third turbine to the Tyee Lake Hydro Project would increase the Project's installed capacity by 50 percent, allowing SEAPA to meet the current peak loads and projected increase in demand.

Because the Tyee Facility was designed and constructed with provisions for a third unit, it is likely the most cost-effective alternative for meeting the growing energy demand in the region and it was included as part of the Southeast Alaska Integrated Resource Plan (Black & Veatch and HDR 2012). Adding the third unit as proposed would allow SEAPA to manage peak loads and would not require modifying the upper or lower operating range of Tyee Lake, increasing the storage capacity at Tyee Lake, or obtaining additional water rights, although the permit will be updated to reflect the increased hydraulic capacity of the powerhouse.

Anticipated Scope of Project Effects Analysis

Construction activities are largely limited to the transport and installation of the turbine generating unit and would not result in any new ground-disturbing activity. Because provisions for a third unit already exist within the powerhouse, installation of the third unit would occur within the footprint of the existing powerhouse and switchyard/substation.

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From: [Betsy McGregor](#)
To: ["julianne.rosset@noaa.gov"](mailto:julianne.rosset@noaa.gov)
Subject: Tyee Lake Hydroelectric Project
Date: Thursday, August 1, 2024 2:32:00 PM
Attachments: [TyeeLakeAmendment](#) [ProjectDescription.pdf](#)

Dear Julianne,

On behalf of Southeast Alaska Power Agency (SEAPA), we are hoping to schedule a discussion about a project that SEAPA is considering at the existing Tyee Lake Hydroelectric facility located about 40 miles southeast of Wrangell, Alaska. The existing Tyee Lake facility operates under a license from the Federal Energy Regulatory Commission (FERC) and provides power to the communities of Petersburg, Wrangell, and Ketchikan.

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We appreciate your consideration and look forward to hearing from you.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: [Betsy McGregor](#)
To: sarah.meitl@alaska.gov
Subject: Tyee Lake Hydroelectric Project
Date: Thursday, August 1, 2024 2:34:00 PM
Attachments: [TyeeLakeAmendment](#) [ProjectDescription.pdf](#)

Dear Sarah,

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Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: [Betsy McGregor](#)
To: mary_swenarton@fws.gov
Bcc: [Finlay Anderson](#); mhilson@seapa.com
Subject: Tyee Lake Hydroelectric Project
Date: Thursday, August 1, 2024 2:30:00 PM
Attachments: [TyeeLakeAmendment_ProjectDescription.pdf](#)

Dear Mary Kate,

On behalf of Southeast Alaska Power Agency (SEAPA), we are hoping to schedule a discussion about a project that SEAPA is considering at the existing Tyee Lake Hydroelectric facility located about 40 miles southeast of Wrangell, Alaska. The existing Tyee Lake facility operates under a license from the Federal Energy Regulatory Commission (FERC) and provides power to the communities of Petersburg, Wrangell, and Ketchikan.

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Senior Scientist



O: 907-885-3418

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Tyee Lake

P-3015

Hydroelectric Facility

Proposed Capacity-Related
License Amendment Discussion

September 2024

Goals

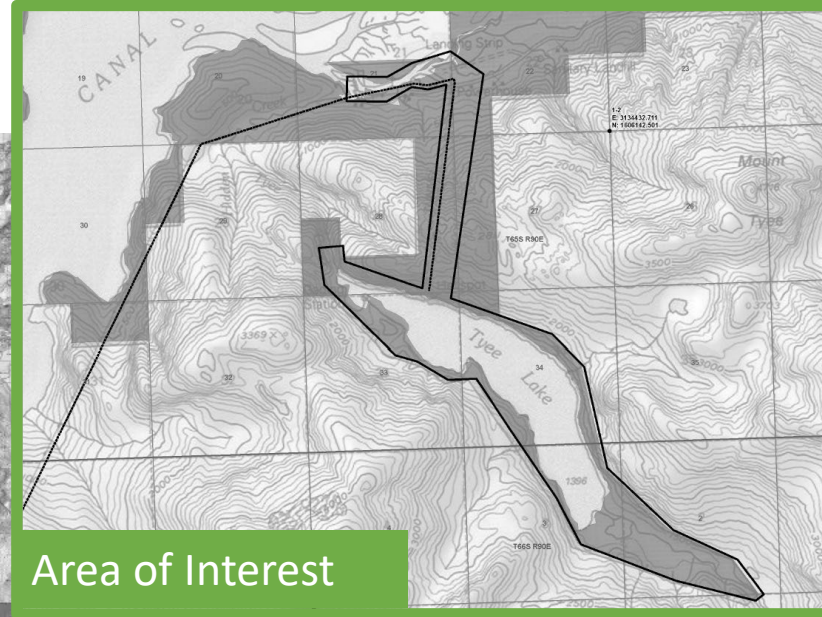
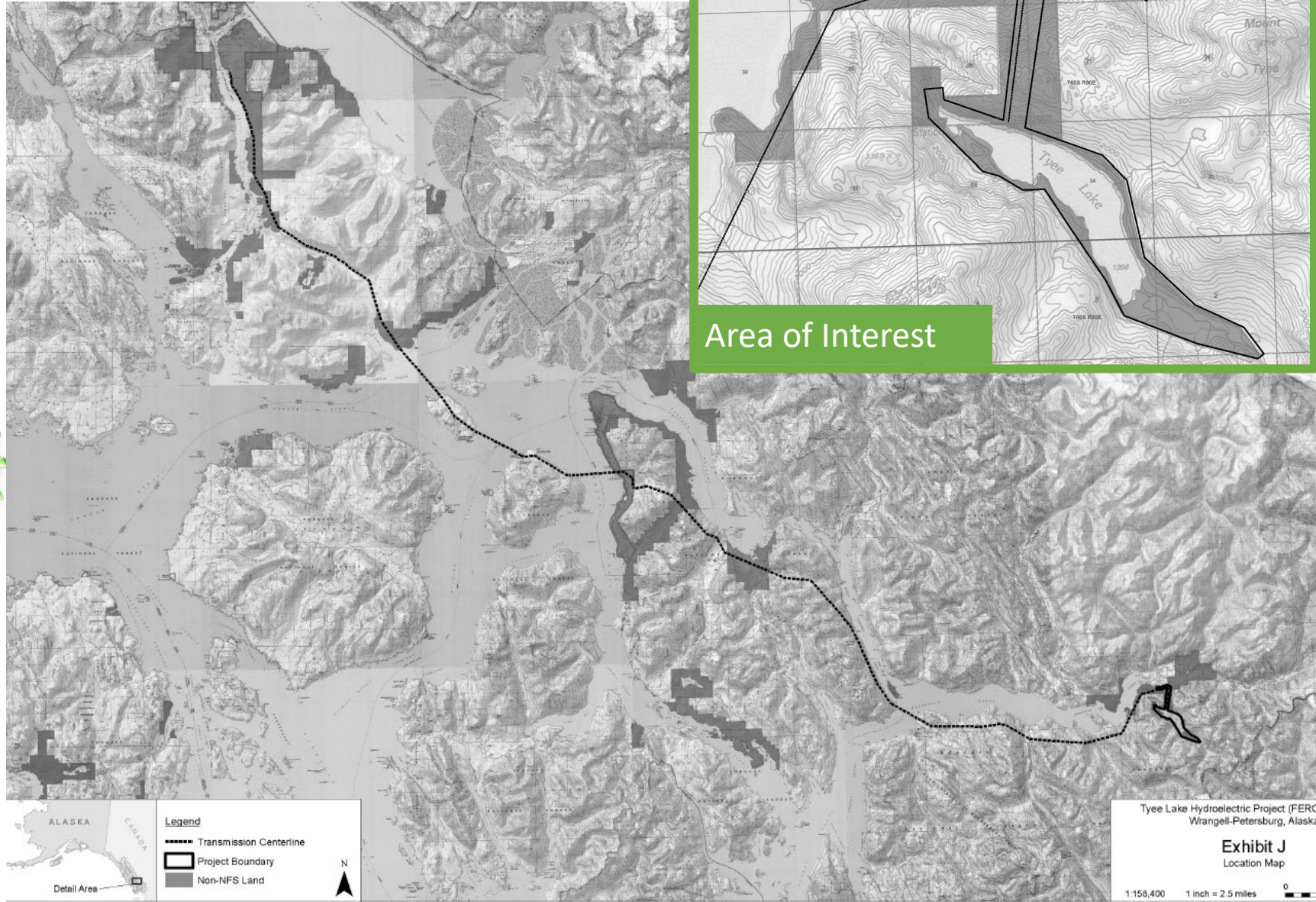
- Introductions
- Provide Tyee Lake Facility overview
- Describe Proposed Action
 - Purpose and Need
 - Construction and Operations
- Summarize anticipated potential effects
- Present proposed amendment process and schedule
- Discussion

Southeast Alaska Power Agency

- Joint Action Agency (AS 42.45.310).
- Governance is through a Board of Directors appointed by member utilities.
- Tyee Lake Hydro Project - 1984
 - originally serviced Petersburg and Wrangell
- Swan Lake Hydro Project - 1984
 - originally serviced Ketchikan
- Swan-Tyee Intertie (STI) - 2009
 - interconnected SEAPA grid and all three communities



Existing Project



Tyee Lake Tap
~1,225 ft el.

Power Tunnel
8,300 ft long
10 ft diameter

Penstock
1,350 ft long

**Powerhouse
Switchyard**

Transmission Line
~80 mi

Existing Project

- Trifurcated penstock, powerhouse, switchyard, and tailrace designed and constructed with provisions for three generating units
- Two 10-MW Pelton-type (impulse) turbines currently installed and operated



Powerhouse
Provisions for 3 units

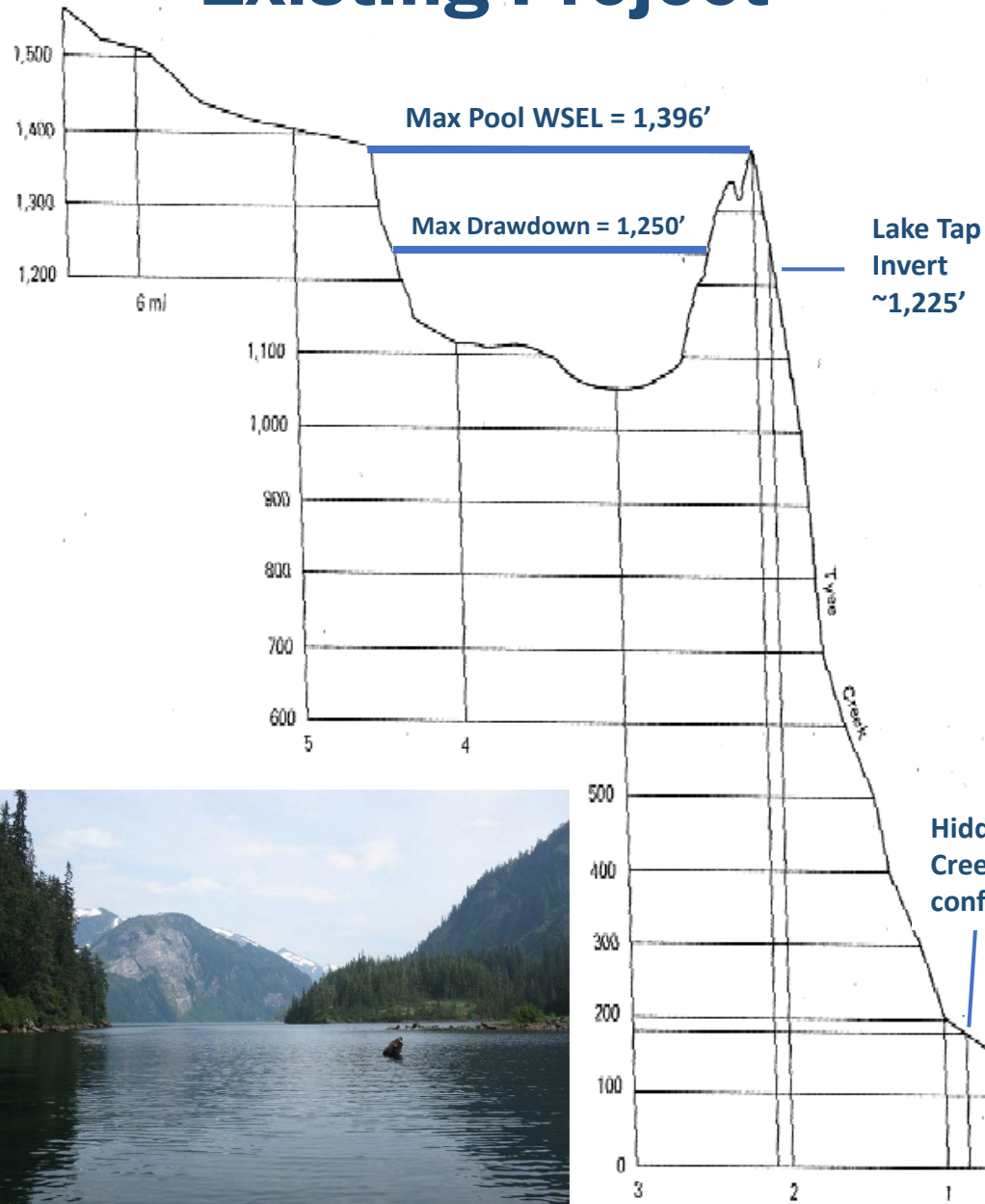
Powerhouse
Two 10-MW units
installed

**FERC Licensed
Capacity**
20 MW

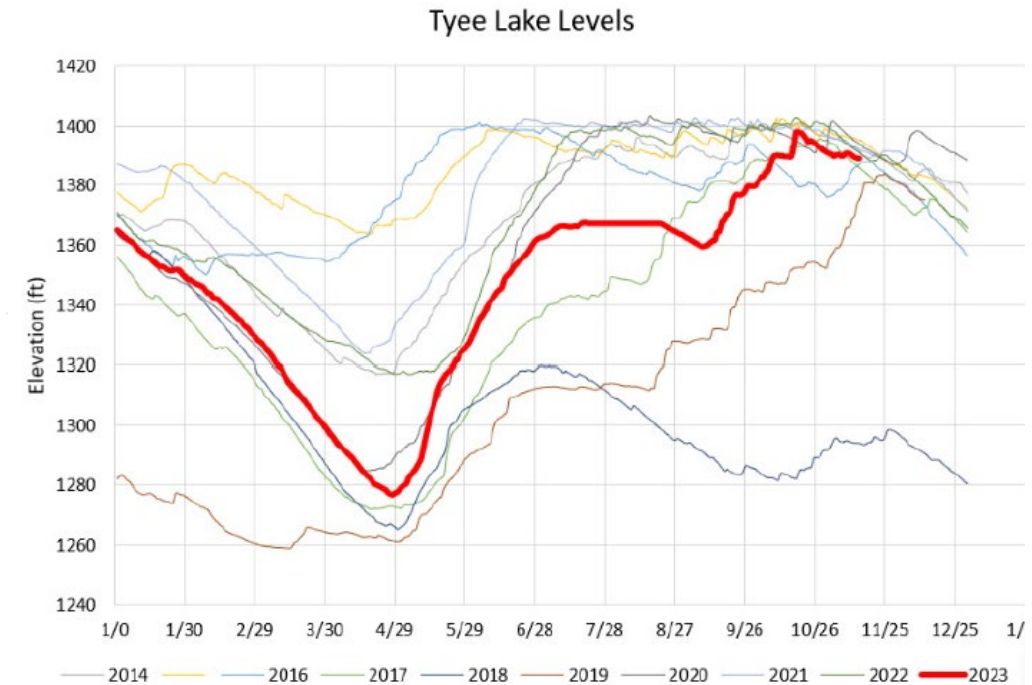
Switchyard
Footprint anticipated
expansion for 3
turbines

Tailrace
1,110 ft-long
Intertidal

Existing Project



- Normal pool elevation: 1,250 – 1,396 ft
- Surface area: 300 – 434 ac
- Usable storage capacity: 55,260 ac-ft
- Water rights: 135,000 ac-ft/yr
- No minimum flow requirement to Tyee Creek
- Weir at natural lake outlet
- Spill infrequent and does not occur every year



Proposed Action

- **Increase the Project's installed capacity by 50 percent**
 - Install third Pelton-style turbine-generating unit within existing powerhouse
 - Install third transformer within footprint of existing switchyard
 - Operate third unit within existing permitted water rights of 135,000 ac-ft annually





Purpose and Need

Communities have been transitioning to more electric heat and power sources, increasing the demand within SEAPA's grid at varying times of the year.

- Current energy demand is greater than SEAPA's total installed 48-MW capacity
- 2030 demand is projected to increase from current levels (without potential dockside electrification)

Reduce need for and reliance on diesel generation

Increase resiliency

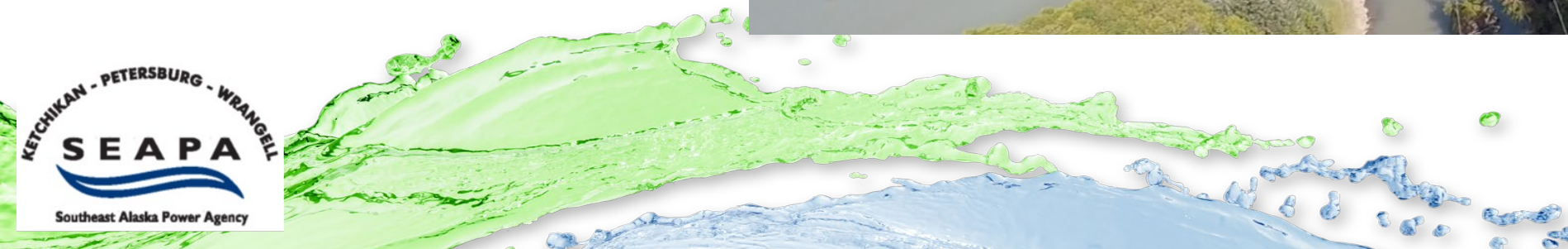
Increase operational flexibility

Proposed Action (Construction)

Equipment and materials would be brought in by barge from Wrangell (~5 trips)

Workers (up to ~15 at one time) flown in by plane or transported via local ferry and housed onsite in bunkhouse or USFS cabins

No new ground-disturbing activity is anticipated



Proposed Action (Construction)

Project designed and constructed with provisions for third turbine.

Concrete work <2 weeks

Installation of third transformer within existing switchyard footprint

Most installation work would occur inside of powerhouse



Proposed Action (Operations at Tyee Lake)

No change to existing water rights

135,000 ac-ft annually

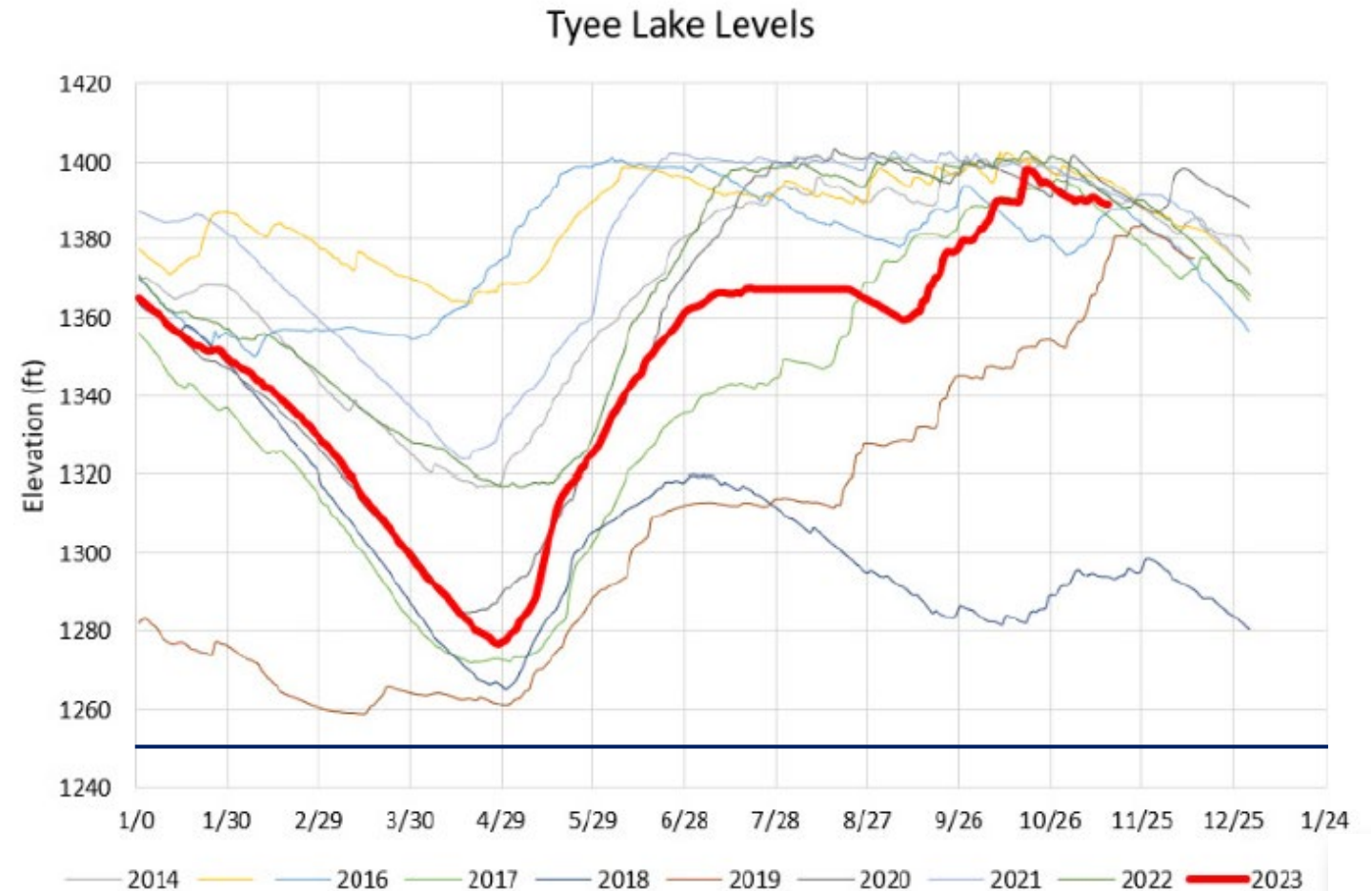
No change to minimum and maximum normal pool elevations

1,250 – 1,396 ft

No change to storage capacity

Increase in rate of WSEL fluctuations

Potentially less frequent spill to Tyee Creek



Proposed Action (Operations at Tailrace)

Tailrace designed and constructed for operation of three turbines.

At maximum output, each turbine would contribute 117 cfs of Tyee Lake water to the tidally-influenced tailrace (50% increase)



Aquatic Resources

Tyee Lake

- Drainage area: ~ 15 sq mi
- ~2.5 mi long and <0.5 mi wide
- Lowest bottom elevation: 1,070 ft
- Steep rock cliffs on east and west side
- Main tributary inlet enters from southeast
- Natural outlet to Tyee Creek at northwest end
- **Arctic grayling**
 - Stocked in 1960s
 - 1980s pre-project estimated ~5,000 fish
 - Primary spawning habitats in the main inlet streams at the head of the lake, which would be affected by drawdown
 - Proposed mitigation to transport the stock to another suitable lake.
 - Fish found to be infected with BKD and ERM
- **2015 angling documented Arctic grayling presence**
- **2018 ADFG concluded Tyee Lake continues to support resident fish**



Aquatic Resources

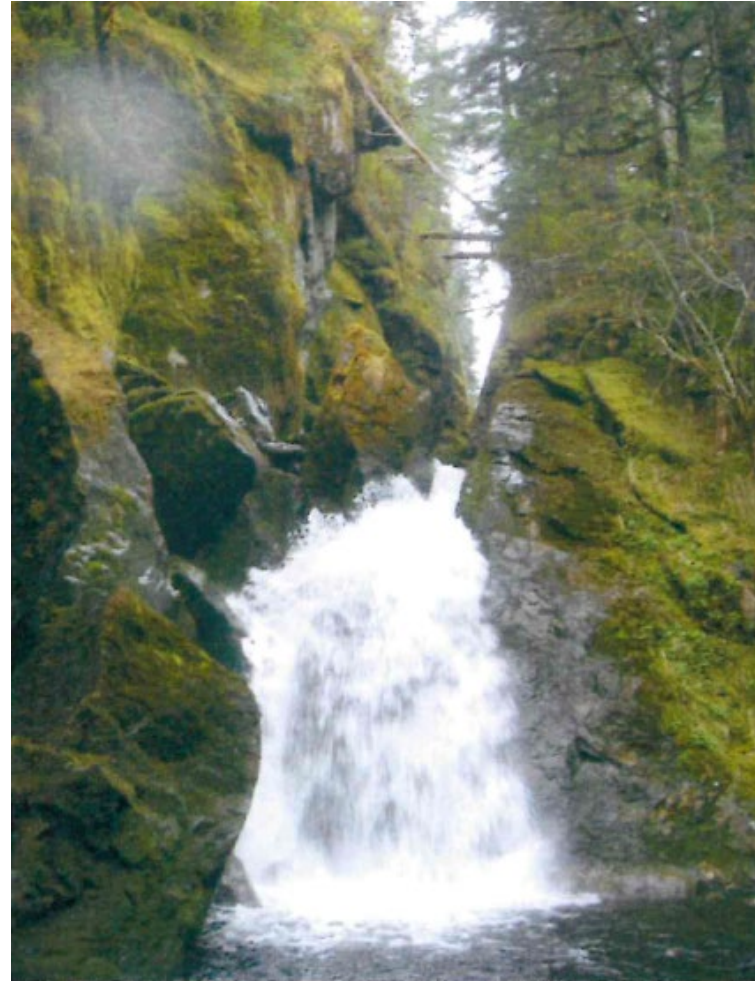
Tyee Creek (~1.1 mi)

- High gradient (>20%) narrow gorge, series of cascades and waterfalls

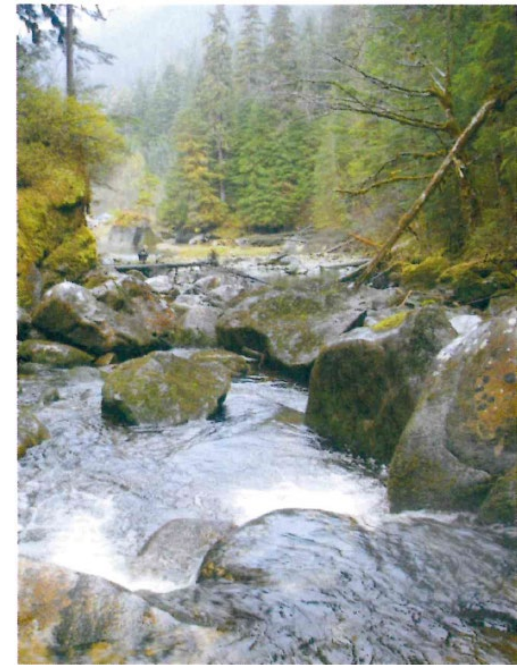
Hidden Creek (~0.6 mi)

- **Anadromous fish barrier ~RM 0.1**
- **Above barrier:**
 - Moderate gradient (~4% average)
 - Cascades over boulders with pockets of pools and gravel substrate
 - rainbow trout
- **Below barrier:**
 - Low gradient, intertidal
 - Cobble, gravel, sand and mud
 - **provides low quality spawning habitat for anadromous fish**
 - Pink, chum, and coho salmon
 - Dolly Varden, cutthroat trout, rainbow trout
 - Sculpin

Hidden Creek has continued to flow year-round since Tyee Lake began operations.



Hidden Creek 30' waterfall barrier ~600 ft upstream of Bradfield Canal



Upper Hidden Creek looking downstream



Lower Hidden Creek at low tide

Aquatic Resources – Tailrace Creek

~1,100 ft long

Entirely within intertidal zone

upper portions not intertidal on semi-diurnal frequency

Water quality, depth, and velocity influenced by tidal stage and operations
e.g., at low tide, operation 9.5-20.2 MW:

Bed width = ~40 ft

Bankfull width = ~68 ft

Water depth = 0.6 – 2.4 ft

Mean channel slope = 0.5%

Velocity = 0.2 - 5.6 ft/s

Discharge = 79 – 146 cfs)

Substrate

Dominated by gravels > 0.75 in; sand < 10%

Greatest amount of sand found closest to

Airstrip Creek in most tidally-influenced areas

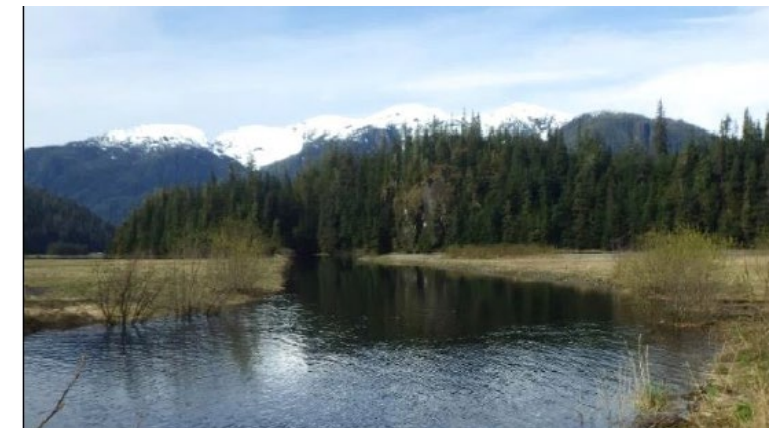
Designed as experimental pink salmon spawning channel for mitigation

ADFG monitoring concluded:

- Provides low-quality intertidal spawning habitat for a few pink salmon, mostly in the upper half of the channel less often influenced by salt water.
- Will not continue to provide spawning habitat because no source of gravel.
- **Mitigation was not necessary because Hidden Creek has continued to flow year-round since Tyee Project became operational**



-1.5 ft tide view from powerhouse



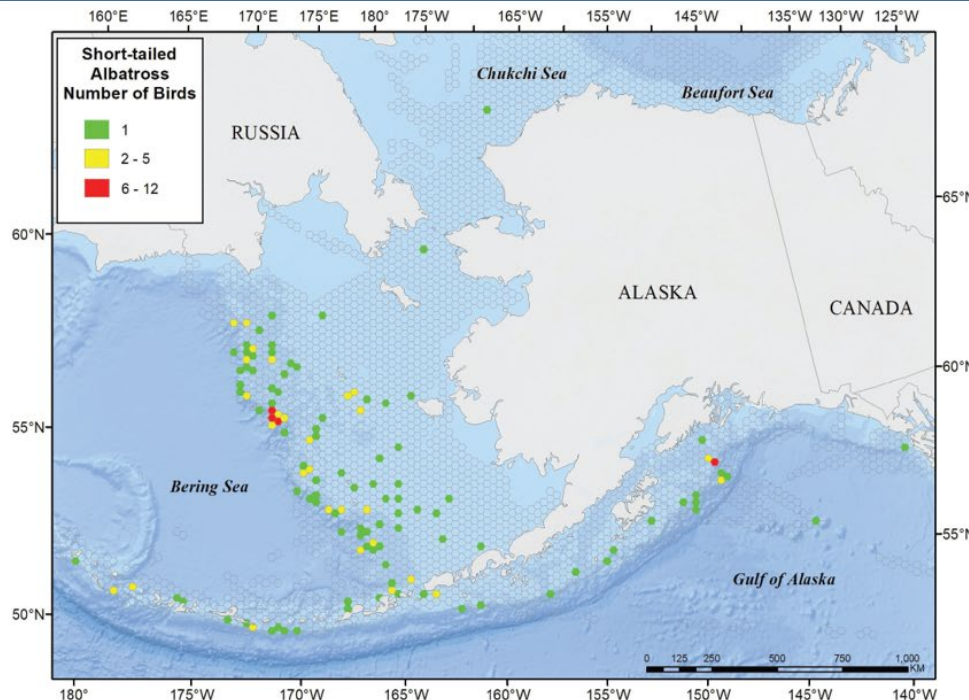
+18.5 ft tide view from powerhouse

AWC: chum (p), pink (p), and coho (r)
**Other species: Dolly Varden, sculpin,
3-spine stickleback, shrimp**

Rare, Threatened and Endangered Species

- No USFS sensitive, state-listed, or federally-listed terrestrial wildlife species likely occur within the Project Boundary
- Several marine mammals occur in Southeast Alaska and may occur in Bradfield Canal

Short-tailed Albatross (*Phoebastria albatrus*)



ESA-listed:
Endangered 2009

Not found along Southeast
Alaska shorelines

Source:
USFWS 2020 5-Year
Review: Summary and
Evaluation

Expected Potential Effects

Installation

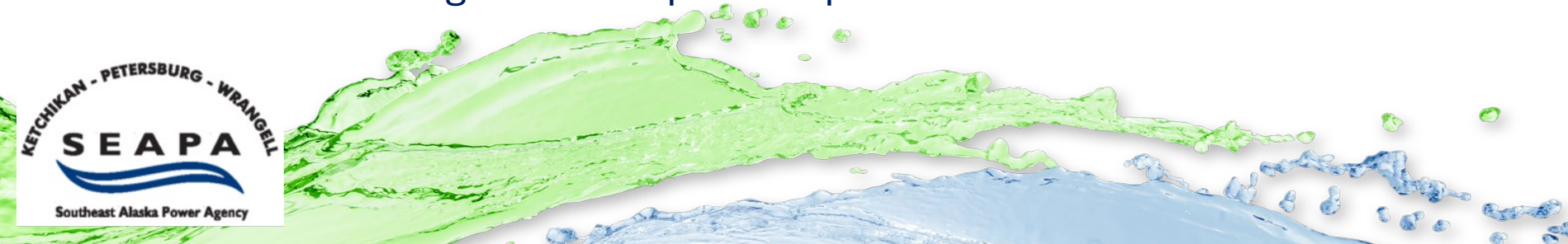
- No major construction, no ground-disturbing activities
- No significant environmental impacts from installation

Lake Water Surface Elevation

- Increase in rate of WSEL fluctuations
(within range of minimum and maximum normal pool elevations under current license)
- No additional impacts expected to Tyee Lake grayling population

Downstream Flows to Tyee Creek and Hidden Creek

- Use of water within existing water rights of 135,000 ac-ft/yr
- Potential reduced occurrence of spill to Tyee Creek
(spill currently does not occur annually)
- No significant impacts expected to Hidden Creek resident or anadromous fish populations



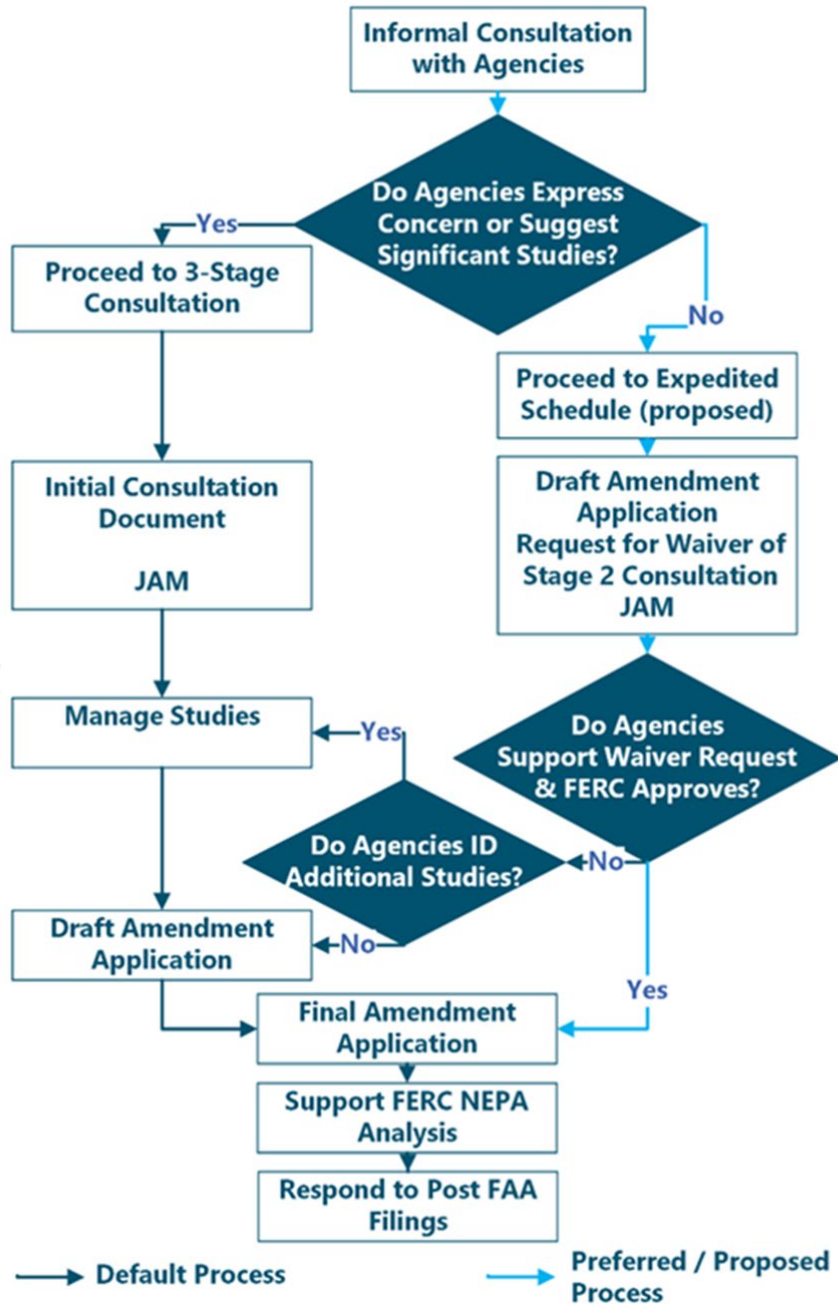
Expected Potential Effects

Downstream Flows to Tailrace and Airstrip Slough

- Increase flow to tailrace, Airstrip Slough and on to Bradfield Canal by 117 cfs with operation of three units at peak capacity
- Potential for local and temporary changes in water quality in areas least influenced by semidiurnal tides
- No impacts expected on salmon populations



Proposed Regulatory Path



Early Consultation

- Address agency questions and concerns
- Discuss proposed schedule and process

Draft Amendment Application – in lieu of ICD

- Continue Informal Consultation
- Propose Expedited Schedule and Process
- Request for Waiver of Stage 2 Consultation
- Joint Agency Meeting

Final Amendment Application

Proposed Amendment Schedule

Early Consultation – August 2024

Draft Amendment Application – September 2024

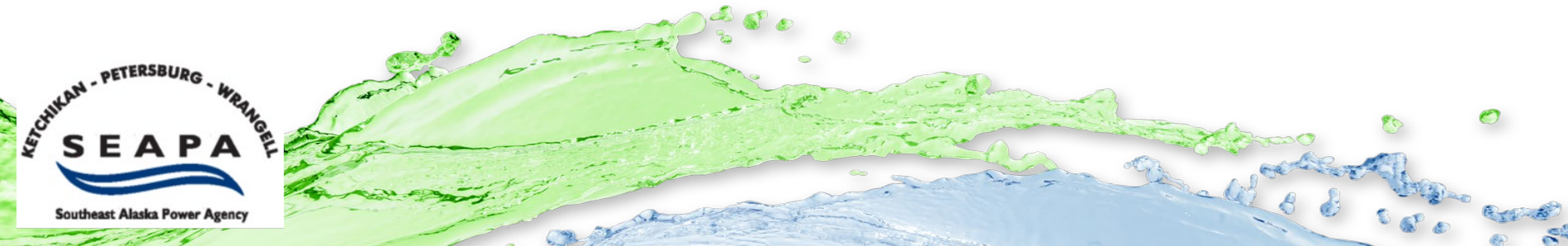
- Propose Expedited Schedule and Process
- Request for Waiver of Stage 2 Consultation

Joint Agency Meeting – October 2024 (30 days from DAA filing)

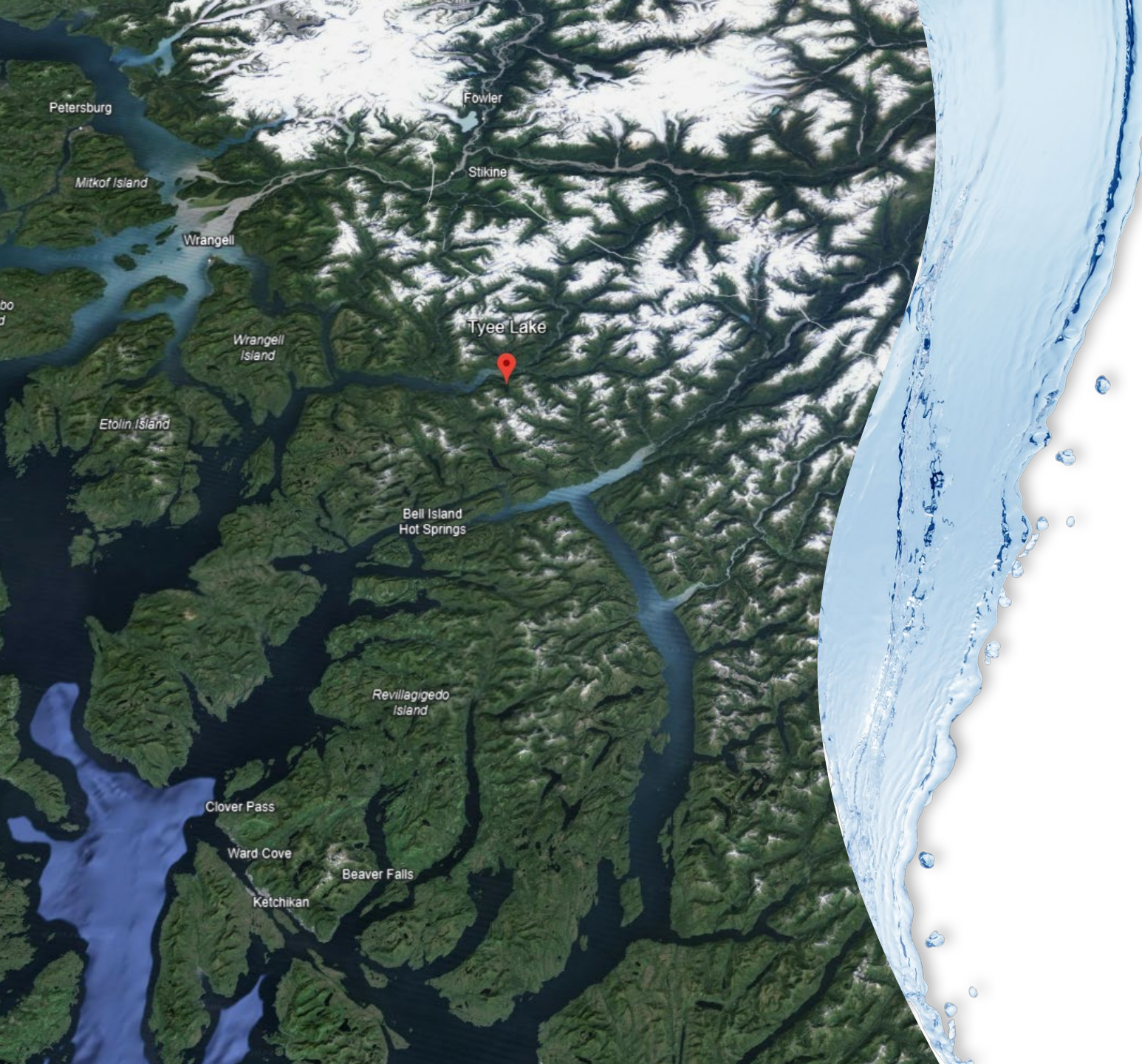
Continue Informal Consultation – October - December 2024

Agencies comments/waiver – December 2024 (60 days from JAM)

Final Amendment Application – January 2025 (if Stage 2 waived)



Discussion



To: Dinsmore, Melissa - FS, AK <melissa.dinsmore@usda.gov>

Subject: [External Email]RE: Tyee Lake Hydroelectric Project

You don't often get email from betsy.mcgregor@kleinschmidtgroup.com. [Learn why this is important](#)

[External Email]

If this message comes from an **unexpected sender** or references a **vague/unexpected topic**;

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Please send any concerns or suspicious messages to: Spam.Abuse@usda.gov

Hi Melissa.

I am following up on this email.

We would like to introduce the Tyee Lake capacity amendment and to discuss the viability from your perspective of an expedited process before we submit the draft application to FERC. Our proposed agenda would include:

- Introduction to the Tyee Lake Project
- Description of the proposed action and scope of environmental effects
- Overview of expedited regulatory process
- Discussion/Questions

At your convenience, please let us know days/times that would work for you to have a call within the next week to discuss the Tyee Lake project.

We appreciate your consideration and look forward to hearing from you.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: Betsy McGregor

Sent: Monday, August 26, 2024 2:09 PM

To: 'melissa.dinsmore@usda.gov' <melissa.dinsmore@usda.gov>

Subject: Tyee Lake Hydroelectric Project

Dear Melissa,

On behalf of Southeast Alaska Power Agency (SEAPA), we are hoping to schedule a discussion about a project that SEAPA is considering at the existing Tyee Lake Hydroelectric facility located about 40 miles southeast of Wrangell, Alaska. The existing Tyee Lake facility operates under a license from the Federal Energy Regulatory Commission (FERC) and provides power to the communities of Petersburg, Wrangell, and Ketchikan.

In order to meet growing electrical demand, SEAPA is considering increasing the generating capacity of the Tyee Lake facility by adding a third turbine-generating unit within the footprint of the existing powerhouse. Environmental impacts of installation and operation of a third unit are anticipated to be limited, therefore, SEAPA is evaluating the possibility of using an expedited regulatory process to obtain FERC approval. An expedited regulatory process would involve seeking (and receiving) “waivers” from agencies for what would traditionally be considered “second stage” consultation (i.e., studies).

We would appreciate an opportunity to introduce the project and to discuss the viability from your perspective of an expedited process. Our proposed agenda would include:

- Introduction to the Tyee Lake Project
- Description of the proposed action and scope of environmental effects
- Overview of expedited regulatory process
- Discussion/Questions

For your reference in the meantime, we are attaching a draft description of the existing facility and the proposed activities.

At your convenience, please let us know days/times that would work for you to have a call in the next week or two to discuss the Tyee Lake project.

We appreciate your consideration and look forward to hearing from you.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: [Mahara, Carol J](#)
To: [Betsy McGregor](#)
Subject: RE: [EXTERNAL] USFS Stream Type Maps
Date: Thursday, September 26, 2024 9:47:24 AM
Attachments: [TongassStreamLN_Attributes.docx](#)

Hi Betsy,

You can access the [Tongass National Forest Stream Lines](#) data at that link, but I have a local copy I can share if you run into trouble with it.

I also attached a document that explains what some of the attributes mean. It is old and things have probably changed, but some of it might still be applicable.

Please let me know if you have any issues or questions with the data. Thanks!

Carol

Carol Mahara

Fish and Wildlife Biologist
Ecological Services
US Fish and Wildlife Service
4700 BLM Road
Anchorage, AK 99507
carol_mahara@fws.gov
Cell: 907-280-9751

From: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Sent: Thursday, September 26, 2024 7:33 AM
To: Mahara, Carol J <carol_mahara@fws.gov>
Subject: [EXTERNAL] USFS Stream Type Maps

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Hi Carol.

I hope this email finds you well.

I am interested in the map image (attached) that you had provided to us during our August meeting about the Tyee Lake Hydro Project and would like the underlying stream type data.

Do you have a link to a web viewer that shows that data or for downloading the associated GIS data?

Your help is much appreciated!

Thanks!

Best,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: [Meitl, Sarah J \(DNR\)](#)
To: [Betsy McGregor](#)
Subject: Automatic reply: Tyee Lake Hydroelectric Project Draft Amendment Application to add Third Turbine - Notice and Invitation To Joint Agency and Public Meeting
Date: Thursday, October 17, 2024 4:33:49 PM

Thank you for contacting the Office of History and Archaeology/Alaska State Historic Preservation Office. A response to your email may be delayed as our office is receiving a high volume of requests for technical assistance and submissions for review pursuant to Section 106 or the Alaska Historic Preservation Act.

We look forward to working with you and greatly appreciate your patience as we facilitate the delivery of thousands of projects that are in process or planned across the state.

If you are submitting a project for review, please forward the information to oha.revcomp@alaska.gov.

If you have questions about Section 106 or the Alaska Historic Preservation Act, you may find answers to your questions on our webpage (<https://dnr.alaska.gov/parks/oha/shpo/sec106.htm>).

From: [Betsy McGregor](#)
To: [Betsy McGregor](#)
Bcc: [Tsunami Van Winkle](#); [Lauren.Townson@ferc.gov](#); [roberta.k.budnik@usace.army.mil](#); [julianne.rosset@noaa.gov](#); [carol_mahara@fws.gov](#); [Melissa.dinsmore@usda.gov](#); [Leah M Ellis \(DFG\) \(leah.ellis@alaska.gov\)](#); [joe.klein@alaska.gov](#); [sarah.meitl@alaska.gov](#); [carol.hasburgh@alaska.gov](#); [carl.reese@alaska.gov](#); [clint.gundelfinger@alaska.gov](#); [jon.wendel@alaska.gov](#); [bcarey@akenergyauthority.org](#); [managersoffice@kgbak.us](#); [cityclerksaxman@kpunet.net](#); [tgallegos@kictribe.org](#); [saxmanira@kpunet.net](#); [wcatribe@gmail.com](#); [tribaladmin@piatribal.org](#); [judi@metlakatla.com](#); [corpsec@sealaska.com](#); [communications@capefoxss.com](#); [cblair@capefoxcorp.com](#); [jobereeves@yahoo.com](#); [lhbarlow@aol.com](#); [boxofdaylite@yahoo.com](#); [info@kaketribalcorp.com](#); [jeremyb1@city.ketchikan.ak.us](#); [wmlp@gci.net](#); [khagerman@petersburgak.gov](#); [robert@seconference.org](#); [info@seconference.org](#); [metpowerandlight@gmail.com](#); [info@wrangellchamber.com](#); [admin@ssraa.org](#); [info@ketchikanchamber.com](#); [Kathy@seafa.org](#); [CMFink@Blueplanetlaw.com](#); [BerneMosley@yahoo.com](#)
Subject: Tyee Lake Hydroelectric Project Draft Amendment Application to add Third Turbine - Notice and Invitation To Joint Agency and Public Meeting
Date: Thursday, October 17, 2024 4:32:00 PM
Attachments: [TyeeLakeHydroProject_DraftCapacityAmendmentApplication_FERC_CoverLetter.pdf](#)

Notice of Joint Agency and Public Meeting Tyee Lake Project (FERC Project No. 3015)

Southeast Alaska Power Agency (SEAPA), licensee for the Tyee Lake Hydroelectric Project (FERC No. 3015), proposes to file an Application for a Capacity-Related Amendment to License (Amendment Application) with the Federal Energy Regulatory Commission (FERC) to enable SEAPA to install an additional 10 megawatt (MW) hydroelectric Pelton-style turbine-generator (Proposed Project) in the existing empty bay in the powerhouse. On October 8, 2024, SEAPA filed an Initial Consultation Document in the form of the Draft Amendment Application (DAA) pursuant to the content requirements of the Code of Federal Regulations (CFR), Title 18 Section § 4.38 (cover letter attached).

NOTICE is hereby given that SEAPA is hosting a joint agency and public meeting in accordance with the FERC requirements at 18 CFR § 4.38(b)(3). Two sessions will be held on November 14, 2024, both of which are open to the public. A morning agency session will be held virtually from 9:30 a.m. to approximately 11:30 a.m. The evening public session will be held from 5:30 p.m. to 7:30 p.m. and may be attended virtually or in-person. The evening session will be held at the SEAPA office located at:

55 Don Finney Lane
Ketchikan, Alaska 99901

The purpose of the meeting is to review the Proposed Project plans, discuss the FERC regulatory process, address questions on the DAA, and receive stakeholder feedback. The final meeting agenda, developed in consultation with meeting participants, will be available November 7, 2024 on SEAPA's website at: <https://www.seapahydro.org/tyee-license>. Please notify SEAPA by November 1, 2024 if you plan on attending the meeting virtually by contacting Betsy McGregor, Senior Scientist and Regulatory Consultant to SEAPA, at Betsy.McGregor@KleinschmidtGroup.com or by telephone at 907-885-3418.

The DAA is available online on the FERC E-Library website (<https://elibrary.ferc.gov/eLibrary/search>)

under Project No. P-3015 or on SEAPA's website. SEAPA respectfully requests written comments on the DAA be submitted within 60 days, or by December 9, 2024.

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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October 8, 2024

Ms. Debbie-Anne A. Reese, Acting Secretary
Office of the Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

Re: Tyee Lake Hydroelectric Project, FERC No. 3015
Draft Application for Capacity Amendment to License, Preliminary Draft
Environmental Assessment for the installation of Third Unit in Existing Bay at
Powerhouse

Invitation to Joint Agency/Public Meetings to be held on November 14, 2024
Request to Submit Agenda Topics for Joint Agency/Public Meetings
Request to be Designated Non-Federal Representative

Dear Secretary Reese:

On behalf of Southeast Alaska Power Agency (SEAPA), licensee for the Tyee Lake Hydroelectric Project, FERC No. 3015 (Project), Kleinschmidt proposes to file an Application for Capacity Amendment to License (Amendment Application) with the Federal Energy Regulatory Commission (Commission or FERC) to enable SEAPA to install an additional 10-megawatt (MW) hydroelectric Pelton-style turbine-generator (Third Unit) in the existing empty bay in the powerhouse. Because of the minimal impacts from the Proposed Action and the desire for timely action, SEAPA proposes to expedite this amendment application by seeking waivers of compliance with a portion of consultation requirements from resource agencies and Alaska Native tribes.

The Tyee Lake Project was designed and constructed with two 10-MW units and an empty bay for a third unit under a license issued by FERC in 1981. The 20-MW Project, located at the head of Bradfield Canal, approximately 40 miles southeast of the city of Wrangell, Alaska, began operations in May 1984. When constructed, the Tyee Lake Project provided for the near-term load needs of Wrangell and Petersburg but was designed and constructed with provisions to add a third generating unit to meet future demands. In 2009, SEAPA completed the 57-mile-long Swan-Tyee Intertie connecting the Tyee Lake Hydroelectric Project to SEAPA's Swan Lake Hydroelectric Project (FERC Project No. 2911) and the community of Ketchikan. SEAPA coordinates the operation of its Tyee Lake and Swan Lake hydroelectric projects to maximize output and optimize water resources to provide power to the three communities.

The electricity demand of the communities of Wrangell, Petersburg, and Ketchikan currently exceeds the capacity of the region's hydroelectric projects, including SEAPA's total installed capacity of 48-MW at the Tyee Lake and Swan Lake projects, during portions of the year. The electricity demand that cannot be met by the hydro projects is provided by the community utilities through diesel generation. There has been an ongoing trend of converting heating oil to electric heat pumps and significant investments to continue are underway. The 2028 energy demand projection exceeds the sources of generation and growing electrification of transportation and potential installation of shore power at cruise ship berths would further increase energy demands.

Addition of the third unit would provide added generation to meet current and future demands and reduce the need for and reliance on diesel generation, and would also increase operational flexibility, increase reserves and system reliability, and provide redundancy to the two existing units.

Since the Tyee Lake Project was designed and constructed with provisions for a third unit, it is cost-effective and the least environmentally damaging alternative for meeting the growing energy demand in the region. As proposed, the addition of the third unit would not require modifying the upper or lower operating range of Tyee Lake, increasing the storage capacity at Tyee Lake, or obtaining additional water rights.

Document Distribution

In accordance with FERC regulations and the requirements of the National Environmental Policy Act (NEPA), the first step in the FERC pre-filing consultation process is for SEAPA to provide an Initial Consultation Document for review and comment. This Initial Consultation Document consists of SEAPA's Draft Amendment Application for Capacity Amendment to its existing license. This document includes an Exhibit E in the form of a Preliminary Draft Environmental Assessment (PDEA) to provide information pertinent to the Project and the proposed installation of the third unit to FERC, federal and state resource agencies, local governments, Alaska Native tribes, Alaska Native Claims Settlement Act (ANCSA) corporations, non-governmental organizations, SEAPA's cooperative membership, and other interested persons and organizations in the proceeding, as set forth on the attached distribution list. A copy of this draft amendment is being distributed to stakeholders concurrently with this FERC filing.

All materials related to this Draft Amendment Application and PDEA are also available on SEAPA's website ([Southeast Alaska Power Agency | SEAPA \(seapahydro.org\)](https://seapahydro.org)). Notice of this filing will be published in the local newspaper no later than October 18, 2024. The electronic files can also be downloaded through FERC's e-Library by searching under the Project's docket P-3015.

Invitation to Participate in the Joint Agency/Public Meetings on November 14, 2024

SEAPA invites interested parties and FERC to attend and participate in the Joint Agency/Public Meetings to be held on November 14, 2024. The purpose of these meetings will be to discuss the proposed addition of the third unit with regulatory agencies and the public pursuant to requirements of the FERC regulations governing the consultation process, and requirements for a capacity amendment. SEAPA will also be discussing their request for waivers of the balance of second-stage consultation under 18 CFR 4.38(e).

The agency daytime meeting will be held from 9:30 to 11:30 and will be virtual only. The evening public meeting will be held that evening from 5:30 p.m. to 7:30 p.m. and will be a hybrid of in-person and virtual. The meeting will be held at SEAPA's office at 55 Don Finney Lane, Ketchikan, Alaska.

Both meetings are open to all interested persons, and SEAPA welcomes any questions or comments regarding the Third Unit proposal. A transcript and/or recording will be prepared from both of these meetings, and SEAPA will notify participants when the transcripts and/or recordings are available. Copies of the transcripts and/or recordings will be filed with FERC, and SEAPA can provide a copy to interested parties by request.

The FERC regulations require that the Agenda for the Joint Agency/Public Meetings be developed in consultation with agencies and other interested participants. SEAPA's draft proposed Agenda includes:

- Proposed Project Description
- Anticipated Environmental Effects
- Regulatory Process
- Discussion

Please send any Joint Agency/Public Meetings RSVP and Agenda comments by October 18, 2024 to Betsy McGregor, Senior Scientist and Regulatory Consultant to SEAPA, at Betsy.McGregor@KleinschmidtGroup.com, TEL: 907-885-3418. Consultation with all interested parties throughout the FERC license amendment process, especially with development of the Joint Agency/Public Meeting Agenda, is encouraged.

By October 22, SEAPA will issue the final Public Notice of the Joint Agency/Public Meetings, including the final Agenda developed in consultation with meeting participants.

Non-Federal Representative

Pursuant to 18 CFR § 5.5(e), SEAPA requests to be designated as the Commission's non-federal representative in relicensing the Project for purposes of consultation under: (1) Section 7 of the Endangered Species Act (ESA), 16 USC § 1536, and the joint agency ESA implementing regulations at 50 CFR Part 402; (2) Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR 600.920; and (3) Section 106 of the National Historic Preservation Act (NHPA), 54 USC § 306108, and the NHPA implementing regulations at 36 CFR Part 800.

SEAPA would like to commence this consultation in advance of the November 14, 2024 Joint Agency/Public Meetings, and we would greatly appreciate your response to this request for an expedited response at your earliest convenience.

Public Comments on Draft Amendment Application

Public comments in response to the issues discussed during the November 14, 2024 Joint Agency/Public Meetings and/or the Draft Amendment Application are due within 90 days of this filing, or by January 6, 2025. However, because SEAPA is pursuing an expedited schedule and the end of year holidays, SEAPA respectfully requests that comments be provided within 60 days, or by December 9, 2024.

Comments are to be provided to:

Betsy McGregor
Senior Scientist and Regulatory Consultant
907-885-3418
Betsy.McGregor@KleinschmidtGroup.com

Ms. Debbie-Anne A. Reese
October 8, 2024

5.

If you have any questions regarding the Project, the third unit installation proposal, or the FERC license amendment proceeding, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Sincerely,

KLEINSCHMIDT ASSOCIATES

Betsy McGregor
Senior Scientist and Regulatory Consultant

BM:TMJ

Enc: Distribution List
Draft Amendment Application

cc: Mark Hilson P.E. and Sharon Thompson, SEAPA
Finally Anderson and Laura Cowen, Kleinschmidt Associates

Tyee Lake – FERC No. 2911**Capacity Related License Amendment Application Stakeholder List**

Federal Agencies	
<p>Lauren Townson Environmental Protection Specialist Federal Energy Regulatory Commission (FERC) 888 1st St. NE Washington, DC 20426 Lauren.Townson@ferc.gov</p>	
<p>Roberta Budnik Project Manager U.S. Army Corps of Engineers 101 Army Pentagon Washington, DC 204226 roberta.k.budnik@usace.army.mil</p>	<p>Julianne Rosset Anchorage Office Supervisor National Oceanic and Atmospheric Administration (NOAA) Habitat Conservation Division Alaska Region julianne.rosset@noaa.gov</p>
<p>Carol Mahara Ecological Services – Biologist (FWS) 4700 BLM Road Anchorage, AK 99507 carol_mahara@fws.gov</p>	<p>Melissa Dinsmore Lands Special Uses Specialist and Energy Program Coordinator Tongass National Forest 2108 Halibut Point Road Sitka, AK 99835 907-747-4201 Melissa.dinsmore@usda.gov</p>
State Agencies	
<p>Leah Ellis FERC Hydropower Coordinator Alaska Department of Fish And Game 333 Raspberry Road Anchorage, AK 99518 leah.ellis@alaska.gov</p>	
<p>Sarah Meitl Review and Compliance Coordinator Alaska State Historic Preservation Office Alaska Department of Natural Resources 550 West 7th Avenue, Suite 1310 Anchorage, AK 99501 sarah.meitl@alaska.gov</p>	

Carol Hasburgh Natural Resource Coordinator Alaska Department of Natural Resources P.O. Box 111020 Juneau, AK 99811 carol.hasburgh@alaska.gov	Carl Reese Statewide Hydroelectric Coordinator Alaska Department of Natural Resources P.O. Box 111020 Juneau, AK 99811 carl.reese@alaska.gov
Clint Gundelfinger Natural Resource Manager II Alaska Department of Natural Resources Water Management Unit 550 W. 7 th Ave. Suite 1360 Anchorage, AK 99501 clint.gundelfinger@alaska.gov	
Jon Wendel Program Manager Alaska Department of Environmental Conservation Division of Water – Compliance Program 410 Willoughby Avenue – Suite 105 Juneau, AK 99801-1795 907-465-5364 jon.wendel@alaska.gov	
Bryan Carey Director of Owned Assets, Statewide Hydroelectric Coordinator Alaska Energy Authority 813 W Northern Lights Blvd. Anchorage, AK 99503 bcarey@akenergyauthority.org	
Local Government	
Ruben Duran, Borough Manager Ketchikan Gateway Borough 1900 First Avenue, Suite 210 Ketchikan, AK 99901 907-228-6625 907-228-6684 fax managersoffice@kgbak.us	Delilah Walsh City Manager/KPU General Manager City of Ketchikan 334 Front Street Ketchikan, AK 99901 907-225-3111

<p>Lorraine Richmond, City Administrator City of Saxman Route 2 Box 1 2841 S Tongass Hwy Ketchikan, AK 99901 907-225-4166 907-225-6450 fax cityclerksaxman@kpunet.net</p>	<p>Jeff Good, Borough Manager Kim Lane, MMC, Borough Clerk City and Borough of Wrangell P.O. Box 531 Wrangell, AK 99929 907-874-2381</p>
<p>Steve Giesbrecht, Borough Manager Debra Thompson, Borough Clerk City and Borough of Petersburg PO Box 329 12 South Nordic Drive, Petersburg, AK 99833 907-772-5402 (Manager) 907-772-5405 (Clerk) 907-772-3759 (fax)</p>	
Tribes	
<p>Tony Gallegos, Cultural Resources Director Ketchikan Indian Community 429 Deermount St. Ketchikan, Alaska, 99901 907-228-9381 main 907-228-9445 direct tgallegos@kictribe.org</p>	<p>Organized Village of Saxman Winona Wallace, Tribal Administrator 2706 S Tongass Highway Route 2 Box 2 Saxman, AK 99901 907-247-2502 saxmanira@kpunet.net</p>
<p>Esther Reese, Tribal Administrator Wrangell Cooperative Association P.O. Box 2021 1002 Zimovia Highway Wrangell, AK 99929 907-874-4304 wcatrbe@gmail.com</p>	<p>Chad Wright, Tribal Administrator Petersburg Indian Association P.O. Box 1410 15 North 12th St Petersburg, AK 99833 907-772-3636 x 108 907-772-3637 fax tribaladmin@piatribal.org</p>
<p>Metlakatla Indian Community Annette Islands Reserve P.O. Box 8 Metlakatla, AK 99926 907-886-4441 judi@metlakatla.com</p>	<p>Organized Village of Kake P.O. Box 316 Kake, AK 99830 907-785-6471</p>

ANSCA Corporations	
<p>Sealaska Corporation 1 Sealaska Plaza, Suite 400 Juneau, AK 99801 907-586-1512 907-586-2304 corpsec@sealaska.com</p>	<p>Cape Fox Corporation 2851 S Tongass Highway P.O. Box 8558 Ketchikan, AK 99901 907-225-5163 907-225-3137 communications@capefoxss.com cblair@capefoxcorp.com</p>
<p>Joseph Reeves III Ketchikan ANCSA Landless Representative P.O. Box 8034 Ketchikan, AK 99901 907.617.8850 jobereeves@yahoo.com</p>	<p>Leo Barlow Wrangell ANCSA Landless Representative 907-240-6950 lhbarlow@aol.com</p>
<p>Brenda Louise Petersburg ANCSA Landless Representative 206 S. Dickens St Petersburg, AK 99833 907-772-2615 boxofdaylite@yahoo.com</p>	<p>Kake Tribal Corporation P.O. Box 263 Kake, AK 99830 907-785-3221 info@kaketribalcorp.com</p>
Utilities – SEAPA Power Purchasers	
<p>Jeremy Bynum Acting Electric Division Manager Ketchikan Public Utilities 334 Front Street Ketchikan, AK 99901 907-228-1847 jeremyb1@city.ketchikan.ak.us</p>	<p>Rod Rhoades, Superintendent Wrangell Municipal Light & Power 1064 Case Ave Wrangell, AK 99929 907-874-3602 (phone) 907-874-3614 (fax) wmlp@gci.net</p>
<p>Karl Hagerman, Utility Director Petersburg Municipal Power & Light 11 South Nordic Drive PO Box 329 Petersburg, Alaska 99833 907-772-5403 khagerman@petersburgak.gov</p>	

Other Interested Parties	
Alaska Power & Telephone P.O. Box 3222 193 Otto Street Port Townsend, WA 98368 800-982-0136	Robert Venables Southeast Conference P.O. Box 21989 9360 Glacier Highway, #201 Juneau, AK 99801 907-586-4360 robert@seconference.org info@seconference.org
John Cameron, Director Metlakatla Power and Light P.O. Box 359 3.5 Airport Rd Metlakatla, AK 99926 907-886-4451 metpowerandlight@gmail.com	Wrangell Chamber of Commerce P.O. Box 49 107 Stikine Ave Wrangell, AK 99929 907-874-3901 info@wrangellchamber.com
Alaska Power Association 703 West Tudor Road, Suite 200 Anchorage, AK 99503 907-771-5700	Petersburg Chamber of Commerce P.O. Box 649 19 Fram Street Petersburg, AK 99833 907-772-4636
Southern Southeast Regional Aquaculture Association 14 Borch Street Ketchikan, AK 99901 907-225-9605 admin@ssraa.org	Greater Ketchikan Chamber of Commerce 2417 Tongass Ave, #223A Ketchikan, AK 99901 907-225-3184 info@ketchikanchamber.com
Southeast Alaska Fishermen's Alliance (SEAFA) 1008 Fish Creek Rd Juneau, AK 99801 907-465-7666 Kathy@seafa.org	Carl Fink Blue Planet Energy Law, LLC Suite 200, 628 SW Chestnut Street Portland, OR 97219 971.266.8940 CMFink@Blueplanetlaw.com
Berne Mosley Energy Projects Consulting, LLC 1124 NW 40th St Oklahoma City, OK 73118 703-850-8779 BerneMosley@yahoo.com	

From: [Betsy McGregor](#)
To: [Betsy McGregor](#)
Bcc: [Tsunami Van Winkle](#); [Lauren.Townson@ferc.gov](#); [roberta.k.budnik@usace.army.mil](#); [julianne.rosset@noaa.gov](#); [carol_mahara@fws.gov](#); [Melissa.dinsmore@usda.gov](#); [Leah M Ellis \(DFG\) \(leah.ellis@alaska.gov\)](#); [joe.klein@alaska.gov](#); [sarah.meitl@alaska.gov](#); [carol.hasburgh@alaska.gov](#); [carl.reese@alaska.gov](#); [clint.gundelfinger@alaska.gov](#); [jon.wendel@alaska.gov](#); [bcarey@akenergyauthority.org](#); [managersoffice@kgbak.us](#); [cityclerksaxman@kpunet.net](#); [tgallegos@kictribe.org](#); [saxmanira@kpunet.net](#); [wcatribe@gmail.com](#); [tribaladmin@piatribal.org](#); [judi@metlakatla.com](#); [corpsec@sealaska.com](#); [communications@capefoxss.com](#); [cblair@capefoxcorp.com](#); [jobereeves@yahoo.com](#); [lhbarlow@aol.com](#); [boxofdaylite@yahoo.com](#); [info@kaketribalcorp.com](#); [jeremyb1@city.ketchikan.ak.us](#); [wmlp@gci.net](#); [khagerman@petersburgak.gov](#); [robert@seconference.org](#); [info@seconference.org](#); [metpowerandlight@gmail.com](#); [info@wrangellchamber.com](#); [admin@ssraa.org](#); [info@ketchikanchamber.com](#); [Kathy@seafa.org](#); [CMFink@Blueplanetlaw.com](#); [BerneMosley@yahoo.com](#)
Subject: Tyee Lake Hydroelectric Project Draft Amendment Application to add Third Turbine - Notice and Invitation To Joint Agency and Public Meeting
Date: Thursday, October 17, 2024 4:32:00 PM
Attachments: [TyeeLakeHydroProject_DraftCapacityAmendmentApplication_FERC_CoverLetter.pdf](#)

Notice of Joint Agency and Public Meeting Tyee Lake Project (FERC Project No. 3015)

Southeast Alaska Power Agency (SEAPA), licensee for the Tyee Lake Hydroelectric Project (FERC No. 3015), proposes to file an Application for a Capacity-Related Amendment to License (Amendment Application) with the Federal Energy Regulatory Commission (FERC) to enable SEAPA to install an additional 10 megawatt (MW) hydroelectric Pelton-style turbine-generator (Proposed Project) in the existing empty bay in the powerhouse. On October 8, 2024, SEAPA filed an Initial Consultation Document in the form of the Draft Amendment Application (DAA) pursuant to the content requirements of the Code of Federal Regulations (CFR), Title 18 Section § 4.38 (cover letter attached).

NOTICE is hereby given that SEAPA is hosting a joint agency and public meeting in accordance with the FERC requirements at 18 CFR § 4.38(b)(3). Two sessions will be held on November 14, 2024, both of which are open to the public. A morning agency session will be held virtually from 9:30 a.m. to approximately 11:30 a.m. The evening public session will be held from 5:30 p.m. to 7:30 p.m. and may be attended virtually or in-person. The evening session will be held at the SEAPA office located at:

55 Don Finney Lane
Ketchikan, Alaska 99901

The purpose of the meeting is to review the Proposed Project plans, discuss the FERC regulatory process, address questions on the DAA, and receive stakeholder feedback. The final meeting agenda, developed in consultation with meeting participants, will be available November 7, 2024 on SEAPA's website at: <https://www.seapahydro.org/tyee-license>. Please notify SEAPA by November 1, 2024 if you plan on attending the meeting virtually by contacting Betsy McGregor, Senior Scientist and Regulatory Consultant to SEAPA, at Betsy.McGregor@KleinschmidtGroup.com or by telephone at 907-885-3418.

The DAA is available online on the FERC E-Library website (<https://elibrary.ferc.gov/eLibrary/search>)

under Project No. P-3015 or on SEAPA's website. SEAPA respectfully requests written comments on the DAA be submitted within 60 days, or by December 9, 2024.

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: [Betsy McGregor](#)
To: oha.revcomp@alaska.gov
Subject: Tyee Lake Hydroelectric Project Draft Amendment Application to add Third Turbine - Notice and Invitation To Joint Agency and Public Meeting
Date: Wednesday, October 30, 2024 1:54:56 PM
Attachments: [TyeeLakeHydroProject_DraftCapacityAmendmentApplication_FERC_CoverLetter.pdf](#)

Notice of Joint Agency and Public Meeting Tyee Lake Project (FERC Project No. 3015)

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Betsy McGregor
Senior Scientist



O: 907-885-3418

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From: [Betsy McGregor](#)
To: <mailto:regpagemaster@usace.army.mil>
Subject: Tyee Lake Hydroelectric Project Draft Amendment Application to add Third Turbine - Notice and Invitation To Joint Agency and Public Meeting
Date: Wednesday, October 30, 2024 1:59:00 PM
Attachments: [TyeeLakeHydroProject_DraftCapacityAmendmentApplication_FERC_CoverLetter.pdf](#)

Notice of Joint Agency and Public Meeting Tyee Lake Project (FERC Project No. 3015)

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NOTICE is hereby given that SEAPA is hosting a joint agency and public meeting in accordance with the FERC requirements at 18 CFR § 4.38(b)(3). Two sessions will be held on November 14, 2024, both of which are open to the public. A morning agency session will be held virtually from 9:30 a.m. to approximately 11:30 a.m. The evening public session will be held from 5:30 p.m. to 7:30 p.m. and may be attended virtually or in-person. The evening session will be held at the SEAPA office located at:

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The DAA is available online on the FERC E-Library website (<https://elibrary.ferc.gov/eLibrary/search>) under Project No. P-3015 or on SEAPA's website. SEAPA respectfully requests written comments on the DAA be submitted within 60 days, or by December 9, 2024.

Betsy McGregor
Senior Scientist



O: 907-885-3418

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October 8, 2024

Ms. Debbie-Anne A. Reese, Acting Secretary
Office of the Secretary
Federal Energy Regulatory Commission
888 First Street NE
Washington, DC 20426

Re: Tyee Lake Hydroelectric Project, FERC No. 3015
Draft Application for Capacity Amendment to License, Preliminary Draft
Environmental Assessment for the installation of Third Unit in Existing Bay at
Powerhouse

Invitation to Joint Agency/Public Meetings to be held on November 14, 2024
Request to Submit Agenda Topics for Joint Agency/Public Meetings
Request to be Designated Non-Federal Representative

Dear Secretary Reese:

On behalf of Southeast Alaska Power Agency (SEAPA), licensee for the Tyee Lake Hydroelectric Project, FERC No. 3015 (Project), Kleinschmidt proposes to file an Application for Capacity Amendment to License (Amendment Application) with the Federal Energy Regulatory Commission (Commission or FERC) to enable SEAPA to install an additional 10-megawatt (MW) hydroelectric Pelton-style turbine-generator (Third Unit) in the existing empty bay in the powerhouse. Because of the minimal impacts from the Proposed Action and the desire for timely action, SEAPA proposes to expedite this amendment application by seeking waivers of compliance with a portion of consultation requirements from resource agencies and Alaska Native tribes.

The Tyee Lake Project was designed and constructed with two 10-MW units and an empty bay for a third unit under a license issued by FERC in 1981. The 20-MW Project, located at the head of Bradfield Canal, approximately 40 miles southeast of the city of Wrangell, Alaska, began operations in May 1984. When constructed, the Tyee Lake Project provided for the near-term load needs of Wrangell and Petersburg but was designed and constructed with provisions to add a third generating unit to meet future demands. In 2009, SEAPA completed the 57-mile-long Swan-Tyee Intertie connecting the Tyee Lake Hydroelectric Project to SEAPA's Swan Lake Hydroelectric Project (FERC Project No. 2911) and the community of Ketchikan. SEAPA coordinates the operation of its Tyee Lake and Swan Lake hydroelectric projects to maximize output and optimize water resources to provide power to the three communities.

The electricity demand of the communities of Wrangell, Petersburg, and Ketchikan currently exceeds the capacity of the region's hydroelectric projects, including SEAPA's total installed capacity of 48-MW at the Tyee Lake and Swan Lake projects, during portions of the year. The electricity demand that cannot be met by the hydro projects is provided by the community utilities through diesel generation. There has been an ongoing trend of converting heating oil to electric heat pumps and significant investments to continue are underway. The 2028 energy demand projection exceeds the sources of generation and growing electrification of transportation and potential installation of shore power at cruise ship berths would further increase energy demands.

Addition of the third unit would provide added generation to meet current and future demands and reduce the need for and reliance on diesel generation, and would also increase operational flexibility, increase reserves and system reliability, and provide redundancy to the two existing units.

Since the Tyee Lake Project was designed and constructed with provisions for a third unit, it is cost-effective and the least environmentally damaging alternative for meeting the growing energy demand in the region. As proposed, the addition of the third unit would not require modifying the upper or lower operating range of Tyee Lake, increasing the storage capacity at Tyee Lake, or obtaining additional water rights.

Document Distribution

In accordance with FERC regulations and the requirements of the National Environmental Policy Act (NEPA), the first step in the FERC pre-filing consultation process is for SEAPA to provide an Initial Consultation Document for review and comment. This Initial Consultation Document consists of SEAPA's Draft Amendment Application for Capacity Amendment to its existing license. This document includes an Exhibit E in the form of a Preliminary Draft Environmental Assessment (PDEA) to provide information pertinent to the Project and the proposed installation of the third unit to FERC, federal and state resource agencies, local governments, Alaska Native tribes, Alaska Native Claims Settlement Act (ANCSA) corporations, non-governmental organizations, SEAPA's cooperative membership, and other interested persons and organizations in the proceeding, as set forth on the attached distribution list. A copy of this draft amendment is being distributed to stakeholders concurrently with this FERC filing.

All materials related to this Draft Amendment Application and PDEA are also available on SEAPA's website ([Southeast Alaska Power Agency | SEAPA \(seapahydro.org\)](https://seapahydro.org)). Notice of this filing will be published in the local newspaper no later than October 18, 2024. The electronic files can also be downloaded through FERC's e-Library by searching under the Project's docket P-3015.

Invitation to Participate in the Joint Agency/Public Meetings on November 14, 2024

SEAPA invites interested parties and FERC to attend and participate in the Joint Agency/Public Meetings to be held on November 14, 2024. The purpose of these meetings will be to discuss the proposed addition of the third unit with regulatory agencies and the public pursuant to requirements of the FERC regulations governing the consultation process, and requirements for a capacity amendment. SEAPA will also be discussing their request for waivers of the balance of second-stage consultation under 18 CFR 4.38(e).

The agency daytime meeting will be held from 9:30 to 11:30 and will be virtual only. The evening public meeting will be held that evening from 5:30 p.m. to 7:30 p.m. and will be a hybrid of in-person and virtual. The meeting will be held at SEAPA's office at 55 Don Finney Lane, Ketchikan, Alaska.

Both meetings are open to all interested persons, and SEAPA welcomes any questions or comments regarding the Third Unit proposal. A transcript and/or recording will be prepared from both of these meetings, and SEAPA will notify participants when the transcripts and/or recordings are available. Copies of the transcripts and/or recordings will be filed with FERC, and SEAPA can provide a copy to interested parties by request.

The FERC regulations require that the Agenda for the Joint Agency/Public Meetings be developed in consultation with agencies and other interested participants. SEAPA's draft proposed Agenda includes:

- Proposed Project Description
- Anticipated Environmental Effects
- Regulatory Process
- Discussion

Please send any Joint Agency/Public Meetings RSVP and Agenda comments by October 18, 2024 to Betsy McGregor, Senior Scientist and Regulatory Consultant to SEAPA, at Betsy.McGregor@KleinschmidtGroup.com, TEL: 907-885-3418. Consultation with all interested parties throughout the FERC license amendment process, especially with development of the Joint Agency/Public Meeting Agenda, is encouraged.

By October 22, SEAPA will issue the final Public Notice of the Joint Agency/Public Meetings, including the final Agenda developed in consultation with meeting participants.

Non-Federal Representative

Pursuant to 18 CFR § 5.5(e), SEAPA requests to be designated as the Commission's non-federal representative in relicensing the Project for purposes of consultation under: (1) Section 7 of the Endangered Species Act (ESA), 16 USC § 1536, and the joint agency ESA implementing regulations at 50 CFR Part 402; (2) Section 305(b) of the Magnuson-Stevens Fishery Conservation and Management Act and implementing regulations at 50 CFR 600.920; and (3) Section 106 of the National Historic Preservation Act (NHPA), 54 USC § 306108, and the NHPA implementing regulations at 36 CFR Part 800.

SEAPA would like to commence this consultation in advance of the November 14, 2024 Joint Agency/Public Meetings, and we would greatly appreciate your response to this request for an expedited response at your earliest convenience.

Public Comments on Draft Amendment Application

Public comments in response to the issues discussed during the November 14, 2024 Joint Agency/Public Meetings and/or the Draft Amendment Application are due within 90 days of this filing, or by January 6, 2025. However, because SEAPA is pursuing an expedited schedule and the end of year holidays, SEAPA respectfully requests that comments be provided within 60 days, or by December 9, 2024.

Comments are to be provided to:

Betsy McGregor
Senior Scientist and Regulatory Consultant
907-885-3418
Betsy.McGregor@KleinschmidtGroup.com

Ms. Debbie-Anne A. Reese
October 8, 2024

5.

If you have any questions regarding the Project, the third unit installation proposal, or the FERC license amendment proceeding, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Sincerely,

KLEINSCHMIDT ASSOCIATES

Betsy McGregor
Senior Scientist and Regulatory Consultant

BM:TMJ

Enc: Distribution List
Draft Amendment Application

cc: Mark Hilson P.E. and Sharon Thompson, SEAPA
Finally Anderson and Laura Cowen, Kleinschmidt Associates

Tyee Lake – FERC No. 2911**Capacity Related License Amendment Application Stakeholder List**

Federal Agencies	
<p>Lauren Townson Environmental Protection Specialist Federal Energy Regulatory Commission (FERC) 888 1st St. NE Washington, DC 20426 Lauren.Townson@ferc.gov</p>	
<p>Roberta Budnik Project Manager U.S. Army Corps of Engineers 101 Army Pentagon Washington, DC 204226 roberta.k.budnik@usace.army.mil</p>	<p>Julianne Rosset Anchorage Office Supervisor National Oceanic and Atmospheric Administration (NOAA) Habitat Conservation Division Alaska Region julianne.rosset@noaa.gov</p>
<p>Carol Mahara Ecological Services – Biologist (FWS) 4700 BLM Road Anchorage, AK 99507 carol_mahara@fws.gov</p>	<p>Melissa Dinsmore Lands Special Uses Specialist and Energy Program Coordinator Tongass National Forest 2108 Halibut Point Road Sitka, AK 99835 907-747-4201 Melissa.dinsmore@usda.gov</p>
State Agencies	
<p>Leah Ellis FERC Hydropower Coordinator Alaska Department of Fish And Game 333 Raspberry Road Anchorage, AK 99518 leah.ellis@alaska.gov</p>	
<p>Sarah Meitl Review and Compliance Coordinator Alaska State Historic Preservation Office Alaska Department of Natural Resources 550 West 7th Avenue, Suite 1310 Anchorage, AK 99501 sarah.meitl@alaska.gov</p>	

Carol Hasburgh Natural Resource Coordinator Alaska Department of Natural Resources P.O. Box 111020 Juneau, AK 99811 carol.hasburgh@alaska.gov	Carl Reese Statewide Hydroelectric Coordinator Alaska Department of Natural Resources P.O. Box 111020 Juneau, AK 99811 carl.reese@alaska.gov
Clint Gundelfinger Natural Resource Manager II Alaska Department of Natural Resources Water Management Unit 550 W. 7 th Ave. Suite 1360 Anchorage, AK 99501 clint.gundelfinger@alaska.gov	
Jon Wendel Program Manager Alaska Department of Environmental Conservation Division of Water – Compliance Program 410 Willoughby Avenue – Suite 105 Juneau, AK 99801-1795 907-465-5364 jon.wendel@alaska.gov	
Bryan Carey Director of Owned Assets, Statewide Hydroelectric Coordinator Alaska Energy Authority 813 W Northern Lights Blvd. Anchorage, AK 99503 bcarey@akenergyauthority.org	
Local Government	
Ruben Duran, Borough Manager Ketchikan Gateway Borough 1900 First Avenue, Suite 210 Ketchikan, AK 99901 907-228-6625 907-228-6684 fax managersoffice@kgbak.us	Delilah Walsh City Manager/KPU General Manager City of Ketchikan 334 Front Street Ketchikan, AK 99901 907-225-3111

<p>Lorraine Richmond, City Administrator City of Saxman Route 2 Box 1 2841 S Tongass Hwy Ketchikan, AK 99901 907-225-4166 907-225-6450 fax cityclerksaxman@kpunet.net</p>	<p>Jeff Good, Borough Manager Kim Lane, MMC, Borough Clerk City and Borough of Wrangell P.O. Box 531 Wrangell, AK 99929 907-874-2381</p>
<p>Steve Giesbrecht, Borough Manager Debra Thompson, Borough Clerk City and Borough of Petersburg PO Box 329 12 South Nordic Drive, Petersburg, AK 99833 907-772-5402 (Manager) 907-772-5405 (Clerk) 907-772-3759 (fax)</p>	
Tribes	
<p>Tony Gallegos, Cultural Resources Director Ketchikan Indian Community 429 Deermount St. Ketchikan, Alaska, 99901 907-228-9381 main 907-228-9445 direct tgallegos@kictribe.org</p>	<p>Organized Village of Saxman Winona Wallace, Tribal Administrator 2706 S Tongass Highway Route 2 Box 2 Saxman, AK 99901 907-247-2502 saxmanira@kpunet.net</p>
<p>Esther Reese, Tribal Administrator Wrangell Cooperative Association P.O. Box 2021 1002 Zimovia Highway Wrangell, AK 99929 907-874-4304 wcatrbe@gmail.com</p>	<p>Chad Wright, Tribal Administrator Petersburg Indian Association P.O. Box 1410 15 North 12th St Petersburg, AK 99833 907-772-3636 x 108 907-772-3637 fax tribaladmin@piatribal.org</p>
<p>Metlakatla Indian Community Annette Islands Reserve P.O. Box 8 Metlakatla, AK 99926 907-886-4441 judi@metlakatla.com</p>	<p>Organized Village of Kake P.O. Box 316 Kake, AK 99830 907-785-6471</p>

ANSCA Corporations	
<p>Sealaska Corporation 1 Sealaska Plaza, Suite 400 Juneau, AK 99801 907-586-1512 907-586-2304 corpsec@sealaska.com</p>	<p>Cape Fox Corporation 2851 S Tongass Highway P.O. Box 8558 Ketchikan, AK 99901 907-225-5163 907-225-3137 communications@capefoxss.com cblair@capefoxcorp.com</p>
<p>Joseph Reeves III Ketchikan ANCSA Landless Representative P.O. Box 8034 Ketchikan, AK 99901 907.617.8850 jobereeves@yahoo.com</p>	<p>Leo Barlow Wrangell ANCSA Landless Representative 907-240-6950 lhbarlow@aol.com</p>
<p>Brenda Louise Petersburg ANCSA Landless Representative 206 S. Dickens St Petersburg, AK 99833 907-772-2615 boxofdaylite@yahoo.com</p>	<p>Kake Tribal Corporation P.O. Box 263 Kake, AK 99830 907-785-3221 info@kaketribalcorp.com</p>
Utilities – SEAPA Power Purchasers	
<p>Jeremy Bynum Acting Electric Division Manager Ketchikan Public Utilities 334 Front Street Ketchikan, AK 99901 907-228-1847 jeremyb1@city.ketchikan.ak.us</p>	<p>Rod Rhoades, Superintendent Wrangell Municipal Light & Power 1064 Case Ave Wrangell, AK 99929 907-874-3602 (phone) 907-874-3614 (fax) wmlp@gci.net</p>
<p>Karl Hagerman, Utility Director Petersburg Municipal Power & Light 11 South Nordic Drive PO Box 329 Petersburg, Alaska 99833 907-772-5403 khagerman@petersburgak.gov</p>	

Other Interested Parties	
Alaska Power & Telephone P.O. Box 3222 193 Otto Street Port Townsend, WA 98368 800-982-0136	Robert Venables Southeast Conference P.O. Box 21989 9360 Glacier Highway, #201 Juneau, AK 99801 907-586-4360 robert@seconference.org info@seconference.org
John Cameron, Director Metlakatla Power and Light P.O. Box 359 3.5 Airport Rd Metlakatla, AK 99926 907-886-4451 metpowerandlight@gmail.com	Wrangell Chamber of Commerce P.O. Box 49 107 Stikine Ave Wrangell, AK 99929 907-874-3901 info@wrangellchamber.com
Alaska Power Association 703 West Tudor Road, Suite 200 Anchorage, AK 99503 907-771-5700	Petersburg Chamber of Commerce P.O. Box 649 19 Fram Street Petersburg, AK 99833 907-772-4636
Southern Southeast Regional Aquaculture Association 14 Borch Street Ketchikan, AK 99901 907-225-9605 admin@ssraa.org	Greater Ketchikan Chamber of Commerce 2417 Tongass Ave, #223A Ketchikan, AK 99901 907-225-3184 info@ketchikanchamber.com
Southeast Alaska Fishermen's Alliance (SEAFA) 1008 Fish Creek Rd Juneau, AK 99801 907-465-7666 Kathy@seafa.org	Carl Fink Blue Planet Energy Law, LLC Suite 200, 628 SW Chestnut Street Portland, OR 97219 971.266.8940 CMFink@Blueplanetlaw.com
Berne Mosley Energy Projects Consulting, LLC 1124 NW 40th St Oklahoma City, OK 73118 703-850-8779 BerneMosley@yahoo.com	

From: [Betsy McGregor](#)
To: [Meitl, Sarah J \(DNR\)](#)
Subject: RE: Tyee Lake Hydroelectric Project Draft Amendment Application to add Third Turbine - Notice and Invitation To Joint Agency and Public Meeting
Date: Wednesday, November 6, 2024 7:26:00 AM

Hi Sarah.

We will send out an email with the link to the meeting agenda and materials tomorrow.

We appreciate your participation!

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: Meitl, Sarah J (DNR) <sarah.meitl@alaska.gov>
Sent: Tuesday, November 5, 2024 2:14 PM
To: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Subject: RE: Tyee Lake Hydroelectric Project Draft Amendment Application to add Third Turbine - Notice and Invitation To Joint Agency and Public Meeting

Hi Betsy,

Could you add me to the virtual attendance list for the morning session on November 14?

Best,

Sarah

Sarah Meitl

Review and Compliance Coordinator

Alaska State Historic Preservation Office

Office of History and Archaeology

907-269-8720

sarah.meitl@alaska.gov

From: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>

Sent: Wednesday, October 30, 2024 1:55 PM

To: DNR, Parks OHA Review Compliance (DNR sponsored) <oha.revcomp@alaska.gov>

Subject: Tyee Lake Hydroelectric Project Draft Amendment Application to add Third Turbine - Notice and Invitation To Joint Agency and Public Meeting

You don't often get email from betsy.mcgregor@kleinschmidtgroup.com. [Learn why this is important](#)

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Notice of Joint Agency and Public Meeting
Tyee Lake Project (FERC Project No. 3015)

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55 Don Finney Lane
Ketchikan, Alaska 99901

The purpose of the meeting is to review the Proposed Project plans, discuss the FERC regulatory process, address questions on the DAA, and receive stakeholder feedback. The final meeting agenda, developed in consultation with meeting participants, will be available November 7, 2024 on SEAPA's website at: <https://www.seapahydro.org/tyee-license>. Please notify SEAPA by November 1, 2024 if you plan on attending the meeting virtually by contacting Betsy McGregor, Senior Scientist and Regulatory Consultant to SEAPA, at Betsy.McGregor@KleinschmidtGroup.com or by telephone at 907-885-3418.

The DAA is available online on the FERC E-Library website (<https://elibrary.ferc.gov/eLibrary/search>) under Project No. P-3015 or on SEAPA's website. SEAPA respectfully requests written comments on the DAA be submitted within 60 days, or by December 9, 2024.

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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*We provide practical **solutions** for renewable energy, water and environmental projects!*



SOUTHEAST ALASKA POWER AGENCY

Tyee Lake Hydroelectric Project, FERC License No. 3015



Draft Application for Capacity Amendment to License Joint Agency/Public Meetings

AGENDA

Thursday, November 14, 2024

Physical Meeting Location

SEAPA Headquarters
55 Don Finney Lane
Ketchikan, Alaska

Morning Session 9:30 am – 11:30 am (Virtual Only)

Microsoft Teams [Join the meeting now](#)
Meeting ID: 236 214 963 690
Passcode: QHwpbJ

Dial in by phone

[+1 207-248-8024,,611774431#](tel:+12072488024611774431)
Phone conference ID: 611 774 431#

Evening Session 5:30 pm – 7:30 pm (Virtual or In-Person)

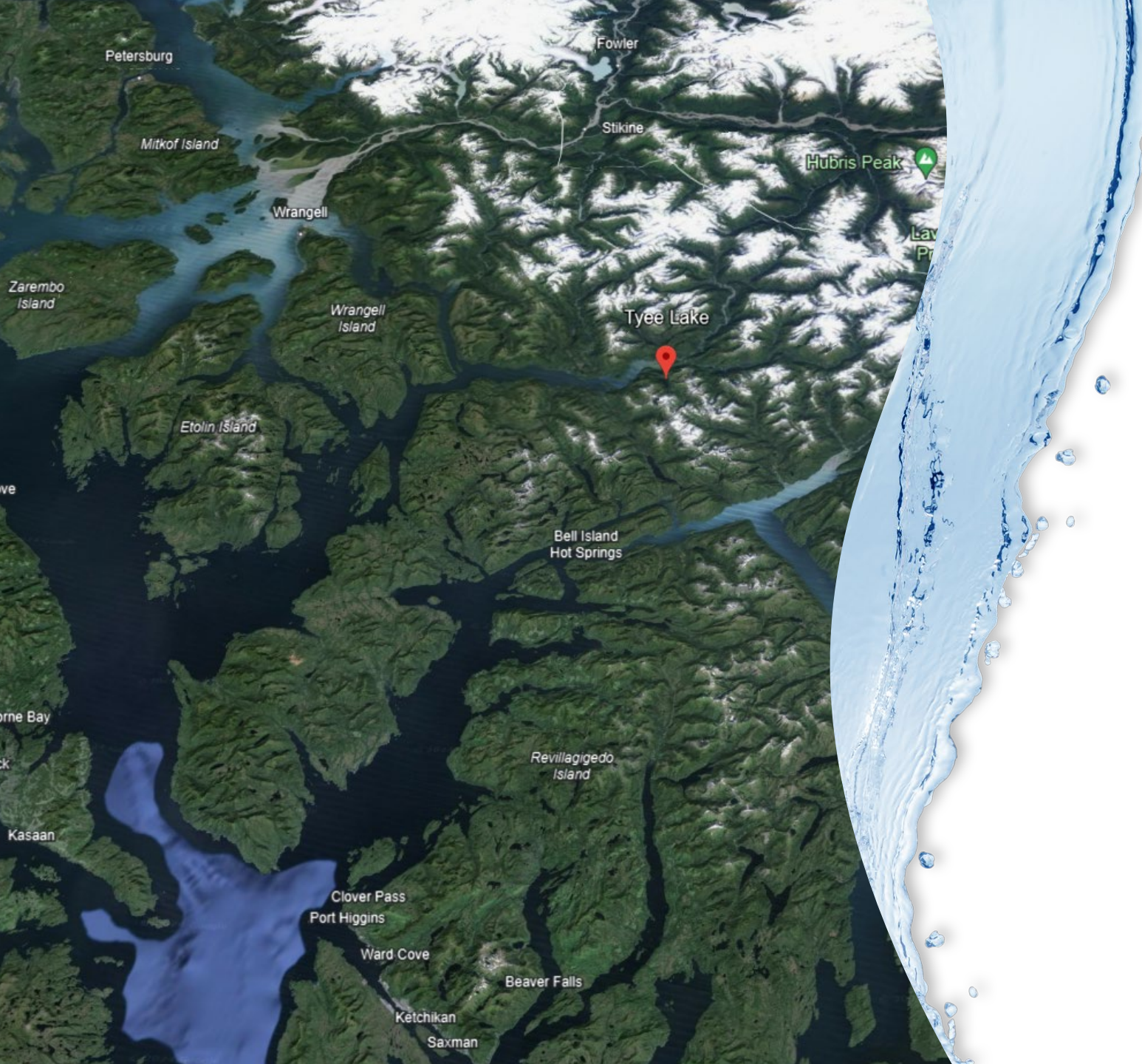
Microsoft Teams [Join the meeting now](#)
Meeting ID: 271 830 760 991
Passcode: W4FhAf

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[+1 207-248-8024,,411734631#](tel:+12072488024411734631)
Phone conference ID: 411 734 631#

For connection issues, contact Meeting Coordinator: Tsunami Van Winkle Tsunami.VanWinkle@KleinschmidtGroup.com

- 1) **Introductions**
- 2) **Protocol for Meeting**
- 3) **Meeting Overview**
- 4) **SEAPA Service Area and Generation System**
- 5) **Value of Tyee Lake Third Unit Installation**
- 6) **Existing Project and Proposed Installation of Third Unit**
- 7) **Break**
- 8) **Draft Amendment Application Engineering Exhibits**
- 9) **Draft Amendment Application Environmental Analysis**
- 10) **FERC Capacity Amendment Process**
- 11) **Proposed Request for Waiver of Second Stage Consultation**
- 12) **Next Steps**
- 13) **Adjourn**



Kleinschmidt

Tyee Lake Hydro Project

P-3015

Proposed Capacity-Related
License Amendment

Joint Agency and Public Meeting
November 14, 2024



Meeting Purpose

- **October 8, 2024 - SEAPA filed Draft Amendment Application**
- **Initiated Formal Consultation Process per FERC Regulations**
- **NEPA – Scoping & Public comment on the Application, PDEA, process**



Meeting Overview

- Introductions
- SEAPA Service Area and Generation System
- Overview of Existing Project & Proposed Installation of the Third Unit
- Questions
- Break (5 minutes)
- Draft Amendment Application
 - Engineering Exhibits
 - Preliminary Draft Environmental Assessment
- FERC Process
 - Proposed Request of Waiver of Second Stage
- Questions
- Next Steps



Meeting Protocol

- **Sign-in (Sheet or Teams Chat)**
 - Name, organization and contact information
- **Meeting is recorded**
 - Recording and/or transcript will be made available
- **When you speak, please state name and affiliation**
- **Please do not put phone line on hold**



Introductions



SEAPA Service Area and Generation System



Service Area and Generation System



- SEAPA is a Joint Action Agency (AS 42.45.310)
- Governance is through a Board of Directors appointed by member utilities
- **Tyee Lake Hydro Project – 20 MW**
 - 1984
 - Petersburg and Wrangell
- **Swan Lake Hydro Project – 22 MW**
 - 1984
 - Ketchikan
- **Swan-Tyee Intertie (STI) - 2009**
 - interconnected SEAPA projects and all three communities

A stylized map of Southeast Alaska is positioned on the left side of the slide. The landmasses are colored in a light green, while the surrounding water is a light blue. The map shows the coastline of the region, including the Gulf of Alaska and the Inside Passage.

Need for Additional Generation

Communities are experiencing load growth.

- Current energy demand is greater than SEAPA's total licensed capacity of 42-MW
- 2030 demand is projected to increase due to beneficial electrification
- >\$54 million federal and state grants for heat pump conversions and EV charging stations (2024 – 2027)
- Potential future shore power at cruise ship berths and for Alaska Marine Highway System ferries



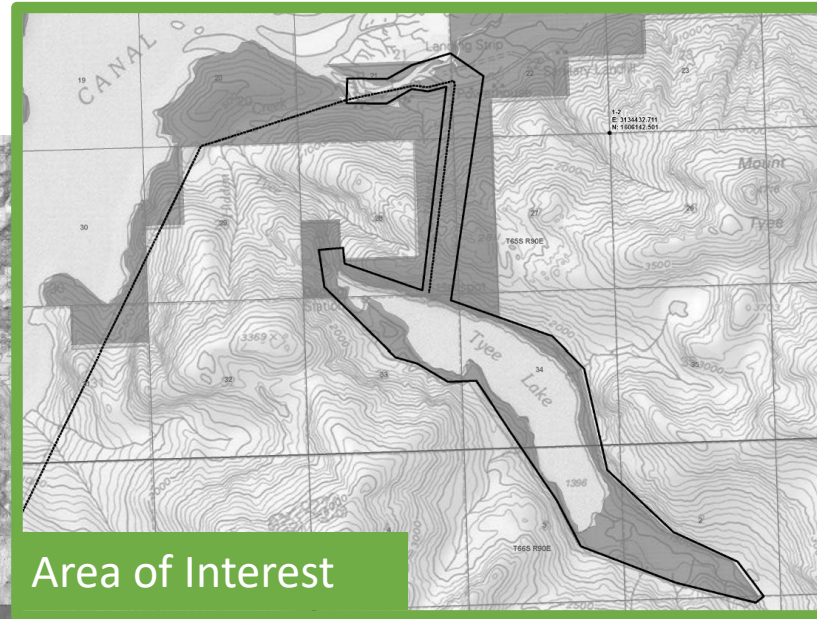
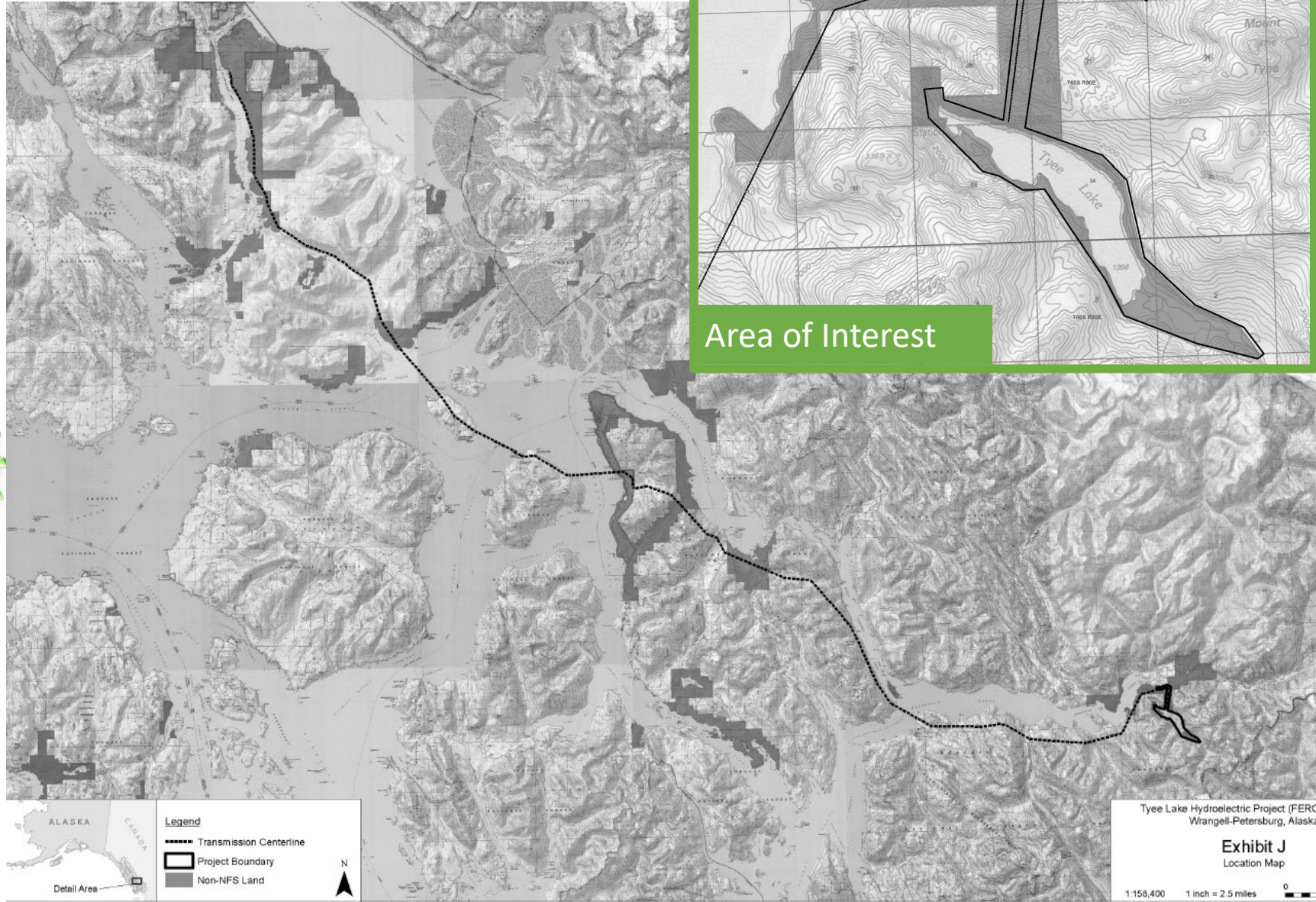
Value of Third Unit at Tyee

- Additional hydro generation to meet current and future demand
- Increased operational flexibility to optimize hydro resources
- Redundancy to existing units during maintenance
- Reduced dependence on diesel generation
 - Stabilized cost of energy
 - Reduced emissions
- Increased resiliency and system reliability
- Minimal potential environmental impact



Overview of Existing Project and Proposed Installation of the Third Unit

Existing Project



Tyee Lake Tap
~1,225 ft el.

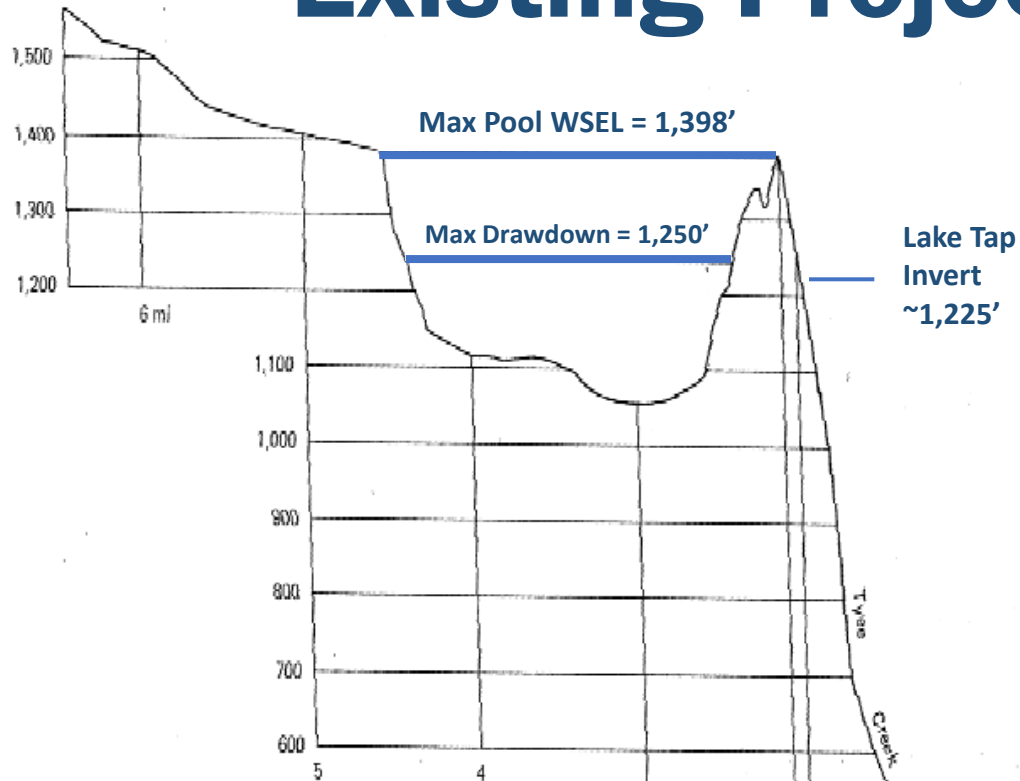
Power Tunnel
8,300 ft long
10 ft diameter

Penstock
1,350 ft long

**Powerhouse
Switchyard**

Transmission Line
~80 mi

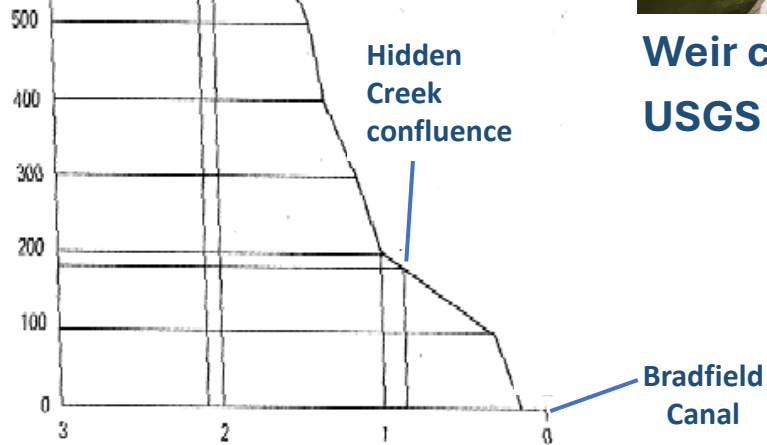
Existing Project



- Natural lake with a lake tap at ~1,225 ft EL.
- Normal pool elevation:
 - 1,250 – 1,398 ft (weir invert)
- Usable storage capacity: 52,400 ac-ft



Weir constructed in 2013 at lake outlet
USGS Gage 15019990 measures lake WSEL



Existing Project

- Lake tap intake structure directs water through an unlined 8,300-ft-long power tunnel to a 1,350-ft-long steel penstock to the powerhouse



Intake Structure

Gatehouse

Coarse Trashrack
at lake intake

Gate Shaft
Trashrack
60 spaces @ 1 3/8"

Power Tunnel and
Penstock

Existing Project

- Trifurcated penstock, powerhouse, switchyard, and tailrace designed and constructed with provisions for three generating units
- Two 10-MW Pelton-type (impulse) turbines currently installed and operated



Powerhouse
Provisions for 3 units

Powerhouse
Two 10-MW units
installed

**FERC Licensed
Capacity**
20 MW

Switchyard
Footprint anticipated
expansion for 3
turbines

Tailrace
1,100 ft-long
Intertidal

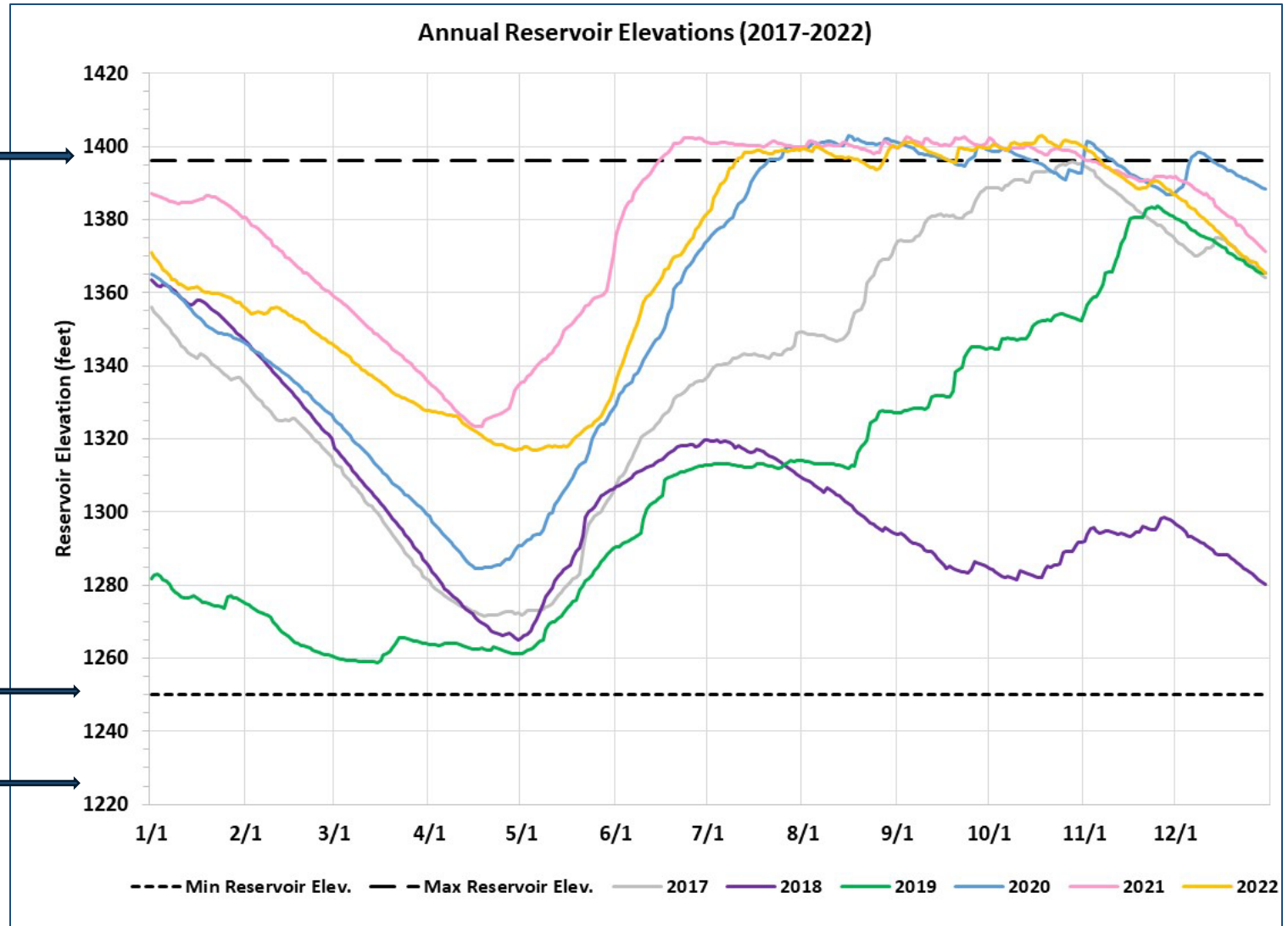
Existing Project

- **Water rights permit**
 - **135,000 ac-ft/yr**
- **No minimum flow requirement to Tyee Creek**
- **Spill to Tyee Creek occurs at lake WSEL 1,398 ft**
 - Typically occurs in response to precipitation events (2020-2022)
 - Does not occur every year (2017-2019)

1,398'
Weir
Invert

1,250'
Draft
Limit

1,225'
Intake



Proposed Action

- **Increase the Project's installed capacity by 50 percent**
 - Install third Pelton-style turbine-generating unit within existing powerhouse
 - Install third transformer within footprint of existing switchyard
 - Operate third unit within existing licensed lake levels and permitted water rights of 135,000 ac-ft annually

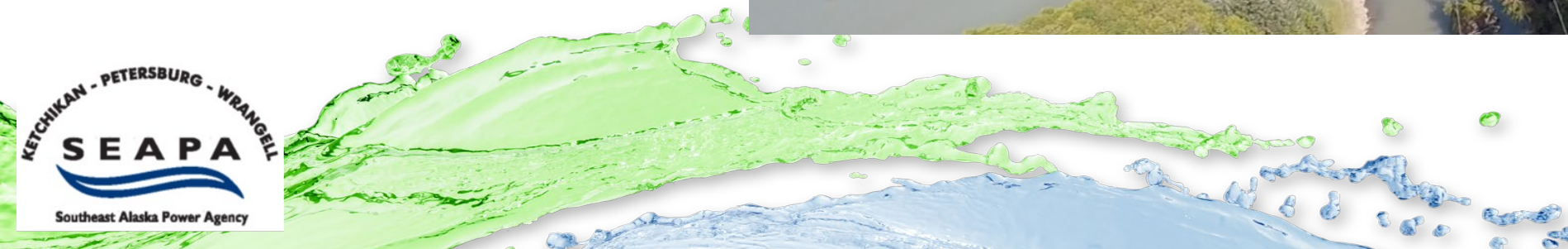
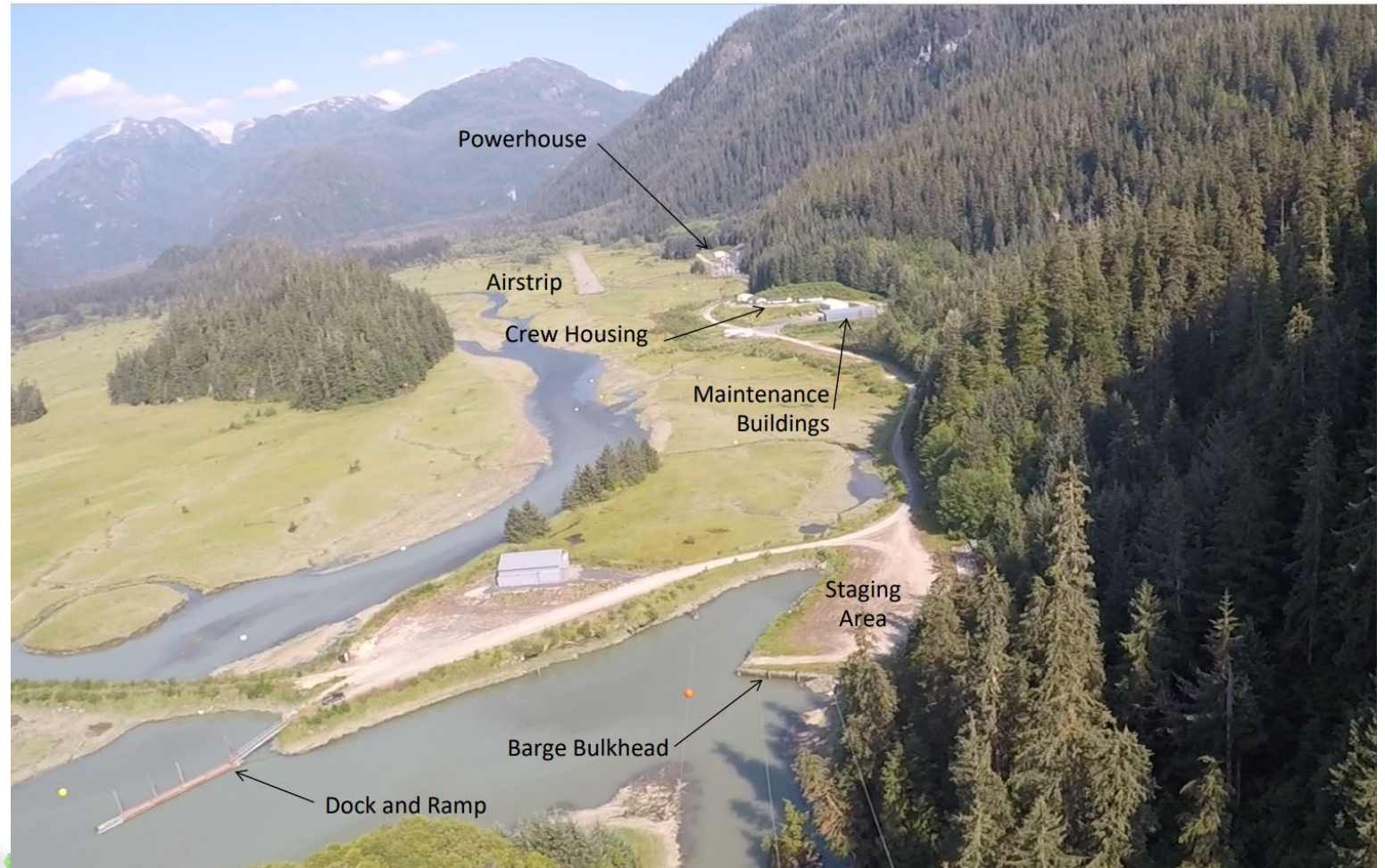


Proposed Action - Construction

Equipment and materials would be brought in by barge from Wrangell (~5 trips)

Workers (up to ~15 at one time) flown in by plane or transported via local ferry and housed onsite in bunkhouse or USFS cabins

No new ground-disturbing activity is anticipated



Proposed Action - Construction

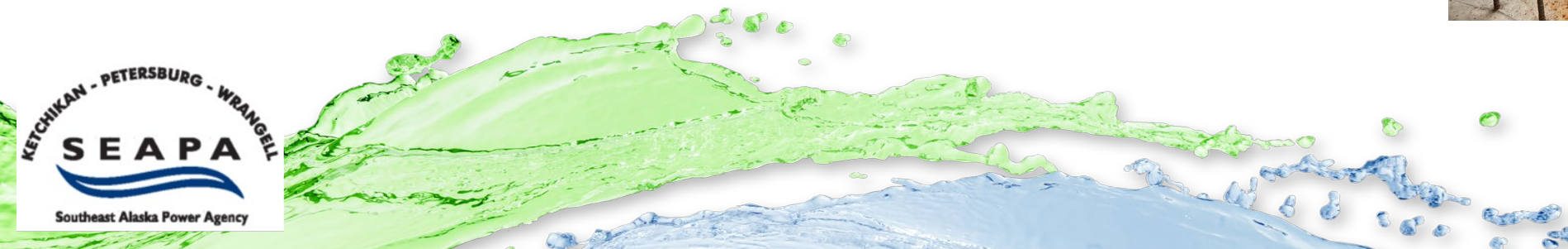
Project designed and constructed with provisions for third turbine.

Concrete work <2 weeks

Installation of third transformer within existing switchyard footprint

Most installation work would occur inside of powerhouse

No in-water work

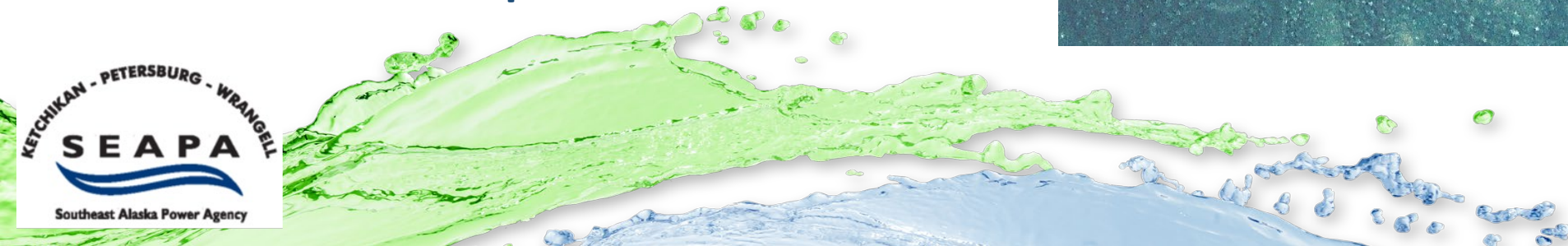


Kleinschmidt

Proposed Action - Construction

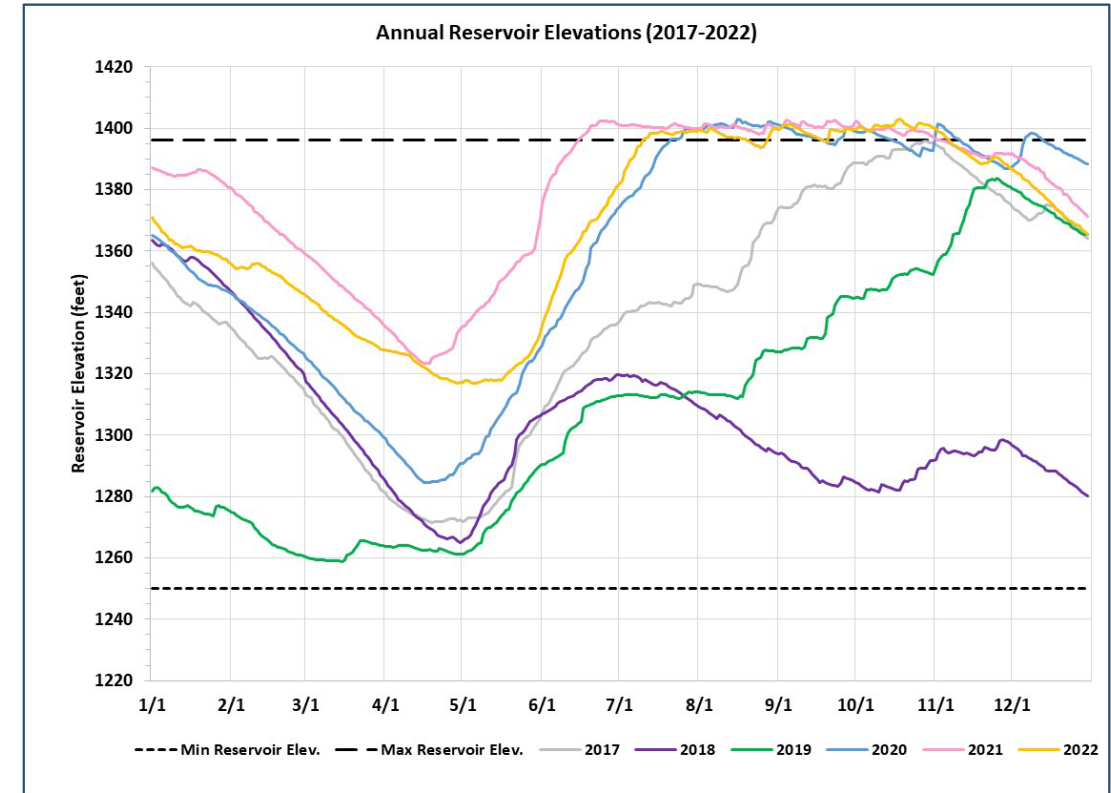
Implementation of Standard BMPs

- Contractor use of project facilities
- Equipment/vehicle operation on Project lands
- Fuel and chemicals
- Disposal of waste
- Erosion and sediment control
- Protection of aquatic resources



Proposed Action - Operations at Tyee Lake

- **No change to existing water rights**
 - 135,000 ac-ft annually
- **No change to min and maximum lake elevations**
 - 1,250 – 1,398 ft
- **No change to usable storage capacity**
- **Continue to optimize water resources**
 - Dedicated output to Wrangell & Petersburg
 - Additional output to Ketchikan as available
- **May increase rate of reservoir drawdown**
- **Continue to minimize spill; potentially less frequent spill to Tyee Creek in some years**



Proposed Action - Operations at Tailrace

Tailrace designed and constructed for operation of three turbines.

At maximum output, each turbine would contribute up to 117 cfs of Tyee Lake water to the tidally-influenced tailrace and velocities would increase.





Questions



Break



Draft Amendment Application

A map of Southeast Alaska is positioned on the left side of the slide. The landmasses are colored in a light green, while the surrounding water bodies are in a light blue. The map shows the intricate coastline of the region, including the Ketchikan, Petersburg, and Wrangell areas.

Engineering Exhibits

(Crosswalk to Historic Exhibit Labels)

- **Exhibit A – Project Description (Exhibit M)**
- **Exhibit B – Project Operations (Exhibit H)**
- **Exhibit C – Project Schedule (Exhibits O and Q)**
- **Exhibit D – Project Economics (Exhibit N)**
- **Exhibit F – General Design Drawings & Supporting Design Report (Exhibit L)**
 - To be filed separately under Critical Energy Infrastructure Information as part of the Final Application

Exhibit E – Environmental Report

- Preliminary Draft Environmental Assessment format (Historic Exhibits D, S, V, W)
 - Purpose and Need
 - Proposed Action and Alternatives
 - Consultation and Compliance
 - Environmental Analysis by Resource Area
 - Affected Environment
 - Potential Effects
 - Proposed Measures
 - Developmental Analysis
 - Conclusions and Recommendations
 - Finding of No Significant Impact (to completed in the Final Application)

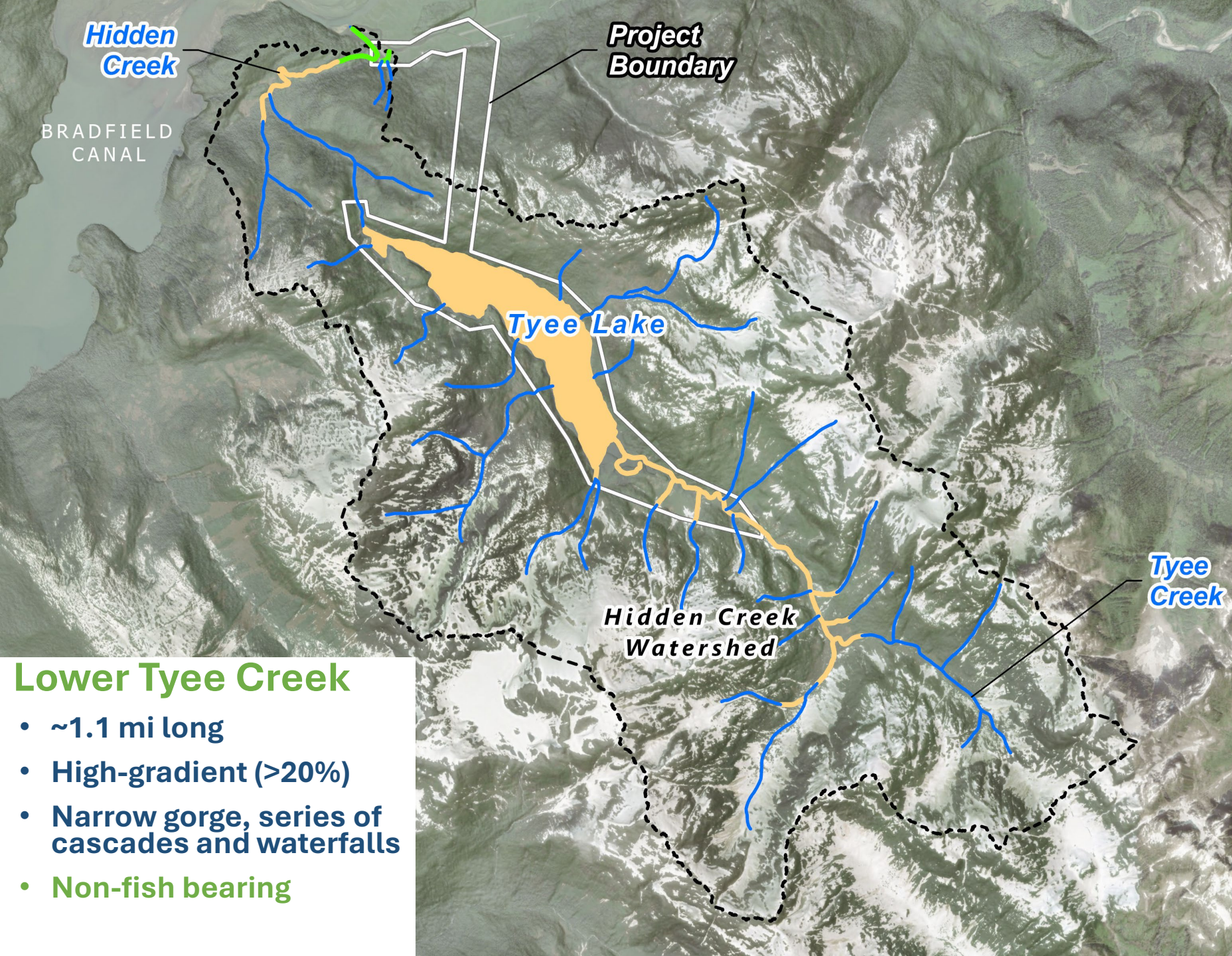


A map of the Ketchikan-Petersburg-Wrangell area in Southeast Alaska. The map shows the coastline with various islands and water bodies. Labels include Dry Island, Farm Island, Songlet Island, Umanak Island, Lincroft Island, Five Mile Island, Hat Island, Whangell Island, Turn Island, Eklia Island, Round Island, and Blanche Rock. The map is partially obscured by the text on the right.

Exhibit E – Environmental Report

- **Resource Areas**

- **Geology and Soils**
- **Water Quantity and Quality***
- **Fish and Aquatic Resources***
- **Wildlife, Botanical and Wetlands**
- **Rare, Threatened, and Endangered Species***
- **Recreation, Land Use, and Aesthetics**
- **Cultural and Tribal Resources**
- **Socioeconomics**
- **Environmental Justice**



Aquatic Resources

Tyee Lake

- 14.4 sq mi drainage
- 2.5 mi x 0.5 mi
- 300 – 480 ac
- Steep-sided
- Deep: ~300 ft at full pool
- Temp: 0 - 13 °C
- DO: 100%
- pH: 6.2 - 7.0
- Low specific conductance, dissolved solids, and suspended solids
- **Arctic Grayling (adfluvial)**
 - ADFG stocked in 1960s
 - 1980s found infected with BKD and ERM
 - 2018 presence

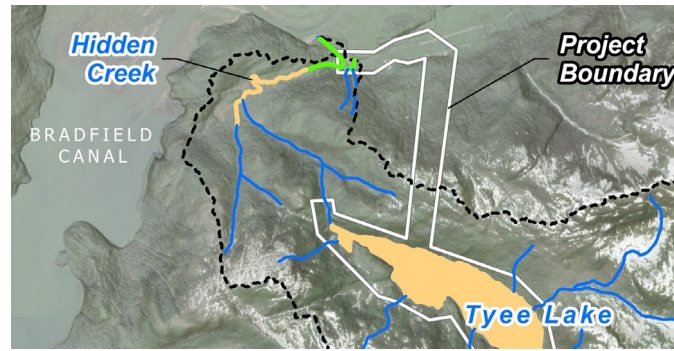
Lower Tyee Creek

- ~1.1 mi long
- High-gradient (>20%)
- Narrow gorge, series of cascades and waterfalls
- **Non-fish bearing**

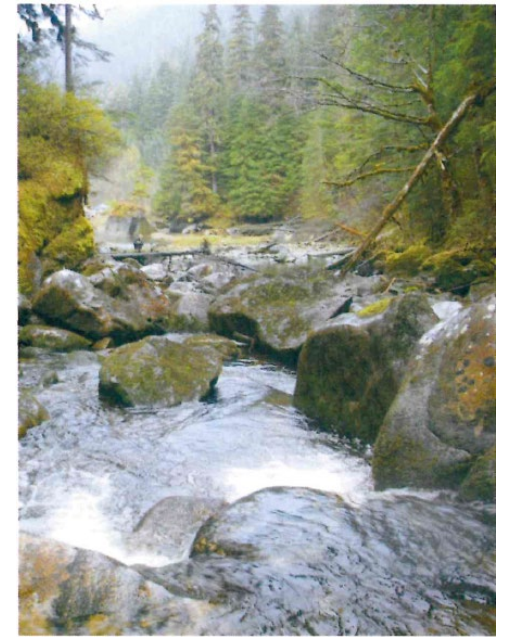
Aquatic Resources

Hidden Creek (~0.6 mi)

- Flows year-round
- Anadromous fish barrier ~RM 0.1
 - Hidden Creek 30-ft waterfall



- **Above barrier (RM 0.1-0.6)**
 - Moderate gradient (~4% average)
 - Cascades over boulders with pockets of pools and gravel substrate
 - Temperature: 0 – 12.5 °C
 - **Rainbow trout**
- **Below barrier (RM 0-0.1)**
 - Low gradient, intertidal
 - Cobble, gravel, sand and mud
 - Provides low quality spawning habitat for anadromous fish
 - **Pink, chum, and coho salmon; Dolly Varden, cutthroat trout, rainbow trout; sculpin**



Upper Hidden Creek looking downstream



Lower Hidden Creek at low tide

Aquatic Resources – Tailrace Creek

~1,100 ft long

Bed width = ~40 ft

Bankfull width = ~68 ft

Mean channel slope = 0.5%

Intertidal

Depth, velocity influenced by tidal stage and operations

e.g., at low tide:

Water depth = 0.5 – 2.5 ft

Velocity = 1.4 – 4.4 ft/s

Discharge = 79 (@11.4 MW) – 146 cfs (@19.8 MW)

Water quality heavily influenced by tidal stage, season

e.g., April 2016 low to higher tide:

Temperature = 3.5 to 8.3 °C

DO = 17.0 to 8.8 mg/L

pH = 6.0 to 7.6

Salinity = 0 to 17 ppt

Conductivity = 1 to 19,000 µs/cm

Substrate

Dominated by gravels > 0.75 in;

Sand < 10% at PH to 17% near Airstrip Slough

Greatest amount of sand found closest to

Airstrip Slough in most tidally-influenced areas



-1.5 ft tide view from powerhouse



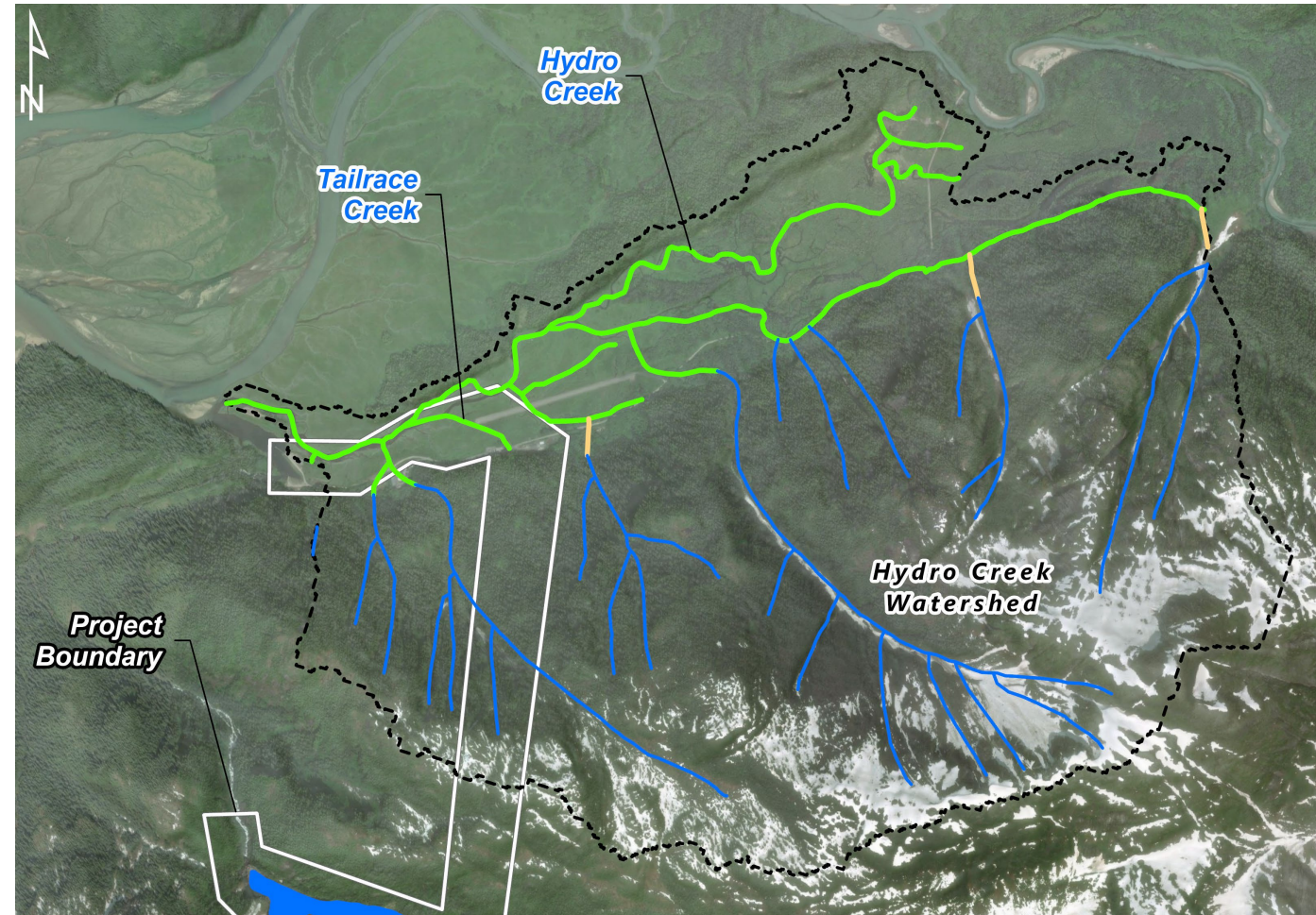
+18.5 ft tide view from powerhouse

Aquatic Resources – Tailrace, Airstrip Slough, Hydro Creek

Tailrace designed as experimental pink salmon spawning channel for mitigation for Hidden Creek anadromous habitat

ADFG monitoring concluded:

- Provides low-quality intertidal spawning habitat for a few pink salmon, mostly in the upper half of the channel less influenced by salt water.
- Channel will not continue to provide spawning habitat because no source of gravel.
- **Mitigation was not necessary because Hidden Creek has continued to flow year-round regardless of Tyee Lake discharges**

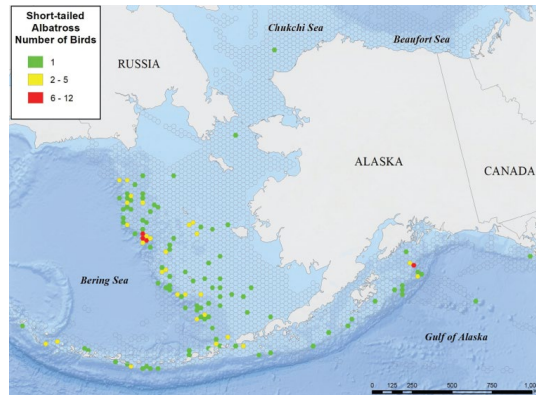


Tailrace and Hydro Creek: chum (p), pink (p), and coho (r)
Other species: Dolly Varden, sculpin, 3-spine stickleback, shrimp

Rare, Threatened and Endangered Species

- **ESA-listed species**

- Short-tailed Albatross (*Phoebastria albatrus*) – Endangered

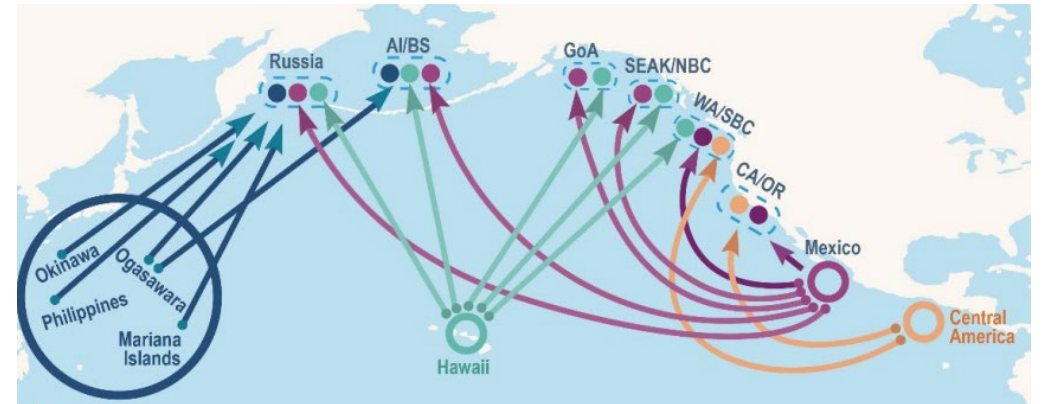


- **USFS Sensitive**

- Queen Charlotte Goshawk (*Accipiter gentiles laingi*)
- Black Oystercatcher (*Haematopus bachmani*)
- Stellar Sea Lion Eastern DPS (*Eumetopias jubatus*)

- **Marine mammals occur between Wrangell and Bradfield Canal**

- Humpback Whale Mexico DPS (*Megaptera novaeangliae*) - Threatened



Mexico-North Pacific Stock (light purple) feed in Southeast AK in summer. Annual human-caused mortality or serious injury to stock in SE AK is 0.101 whales from: fishing gear entanglement (0.04), marine debris entanglement (0.02), and vessel strikes (0.041).

Expected Potential Effects

Installation

- ~5 barges from Wrangell, potential water taxi to transport workers to site
 - Low potential for pollution to marine waters
 - Very low potential for vessel strike of humpback whales
- Use of existing facilities for transportation
- No major construction, no new ground-disturbing activities
- Implementation of BMPs
- No significant environmental impacts from installation

Tye Lake Water Surface Elevation

- Increase in drawdown rate but no change to minimum and maximum normal pool elevations
- Use of water within existing permitted water rights of 135,000 ac-ft/yr
- No impacts expected to water quality or Tye Lake Arctic grayling population

Expected Potential Effects

Downstream Flows to Tyee Creek and Upper Hidden Creek

- Use of water within existing permitted water rights of 135,000 ac-ft/yr
- Potential reduced occurrence of spill to Tyee Creek in wet years (spill currently does not occur annually)
- No significant impacts expected to Tyee Creek water quality
- Upper Hidden Creek anticipated to continue to flow year-round; no significant impacts expected to water quality or resident fish population

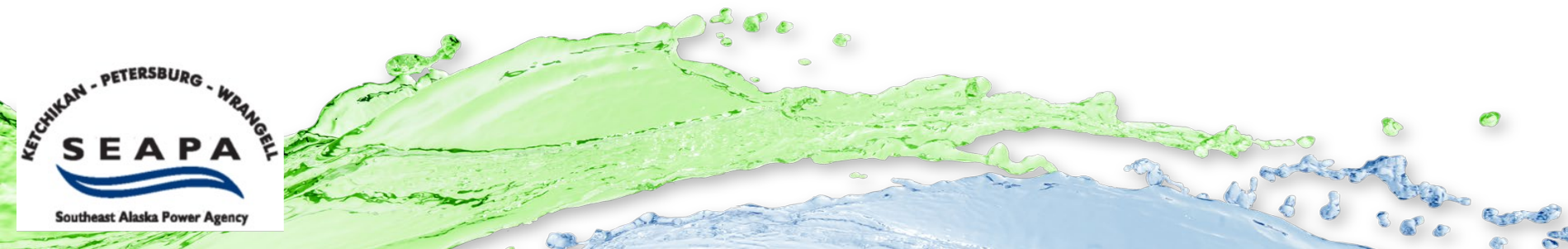
Downstream Flows to Lower Hidden Creek

- Lower Hidden Creek will continue to flow year-round and is intertidal; no significant impacts expected to water quality or resident or anadromous fish populations

Expected Potential Effects

Downstream Flows to Tailrace and Airstrip Slough

- Temporary increase of flow to Tailrace, Airstrip Slough and Hydro Creek by up to 117 cfs with operation of all three units at peak capacity
- Potential for local and temporary changes in water quality in areas least influenced by semi-diurnal tides during peak operations of all three units during low tides
- Potential improvement of available spawning gravel in Tailrace
- No significant impacts expected to water quality or salmon populations using the Tailrace, Airstrip Slough or Hydro Creek



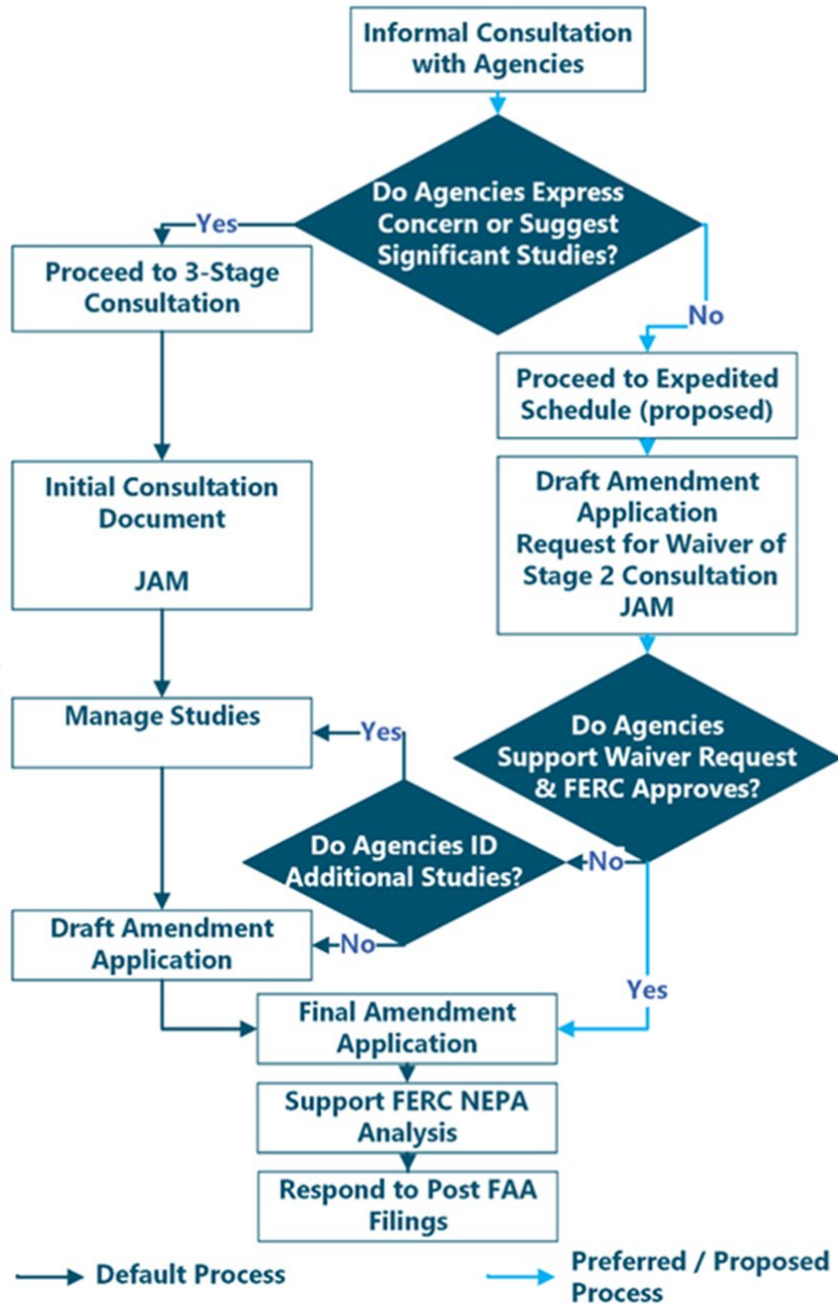


Questions



FERC Process

Proposed Regulatory Path



Early Consultation

- Address agency questions and concerns
- Discuss proposed schedule and process

Draft Amendment Application (in lieu of ICD)

- Continue Informal Consultation
- Propose Expedited Schedule and Process
- Request for Waiver of Stage 2 Consultation
- Joint Agency Meeting

Final Amendment Application

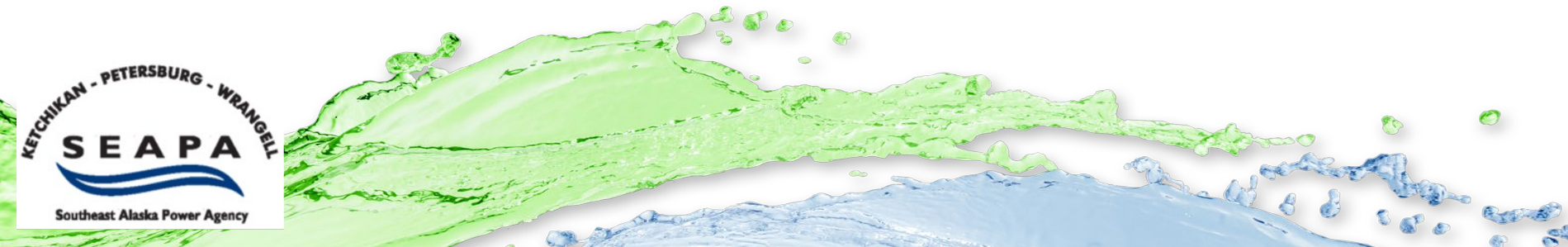
Request for Waiver of Stage 2 Consultation

Seeking agency/stakeholder support and concurrence that:

- 1) Studies are not needed to assess resource impacts from installation and operation of a third unit
- 2) Agency/stakeholder supports a waiver of the second stage of consultation so that SEAPA can proceed directly to a Final Amendment Application. This would expedite installation of the third unit.
- 3) Agency/stakeholder supports use of the PDEA in lieu of the Exhibit E in the Final Amendment Application. This may also expedite approval of the amendment.

Proposed Amendment Schedule

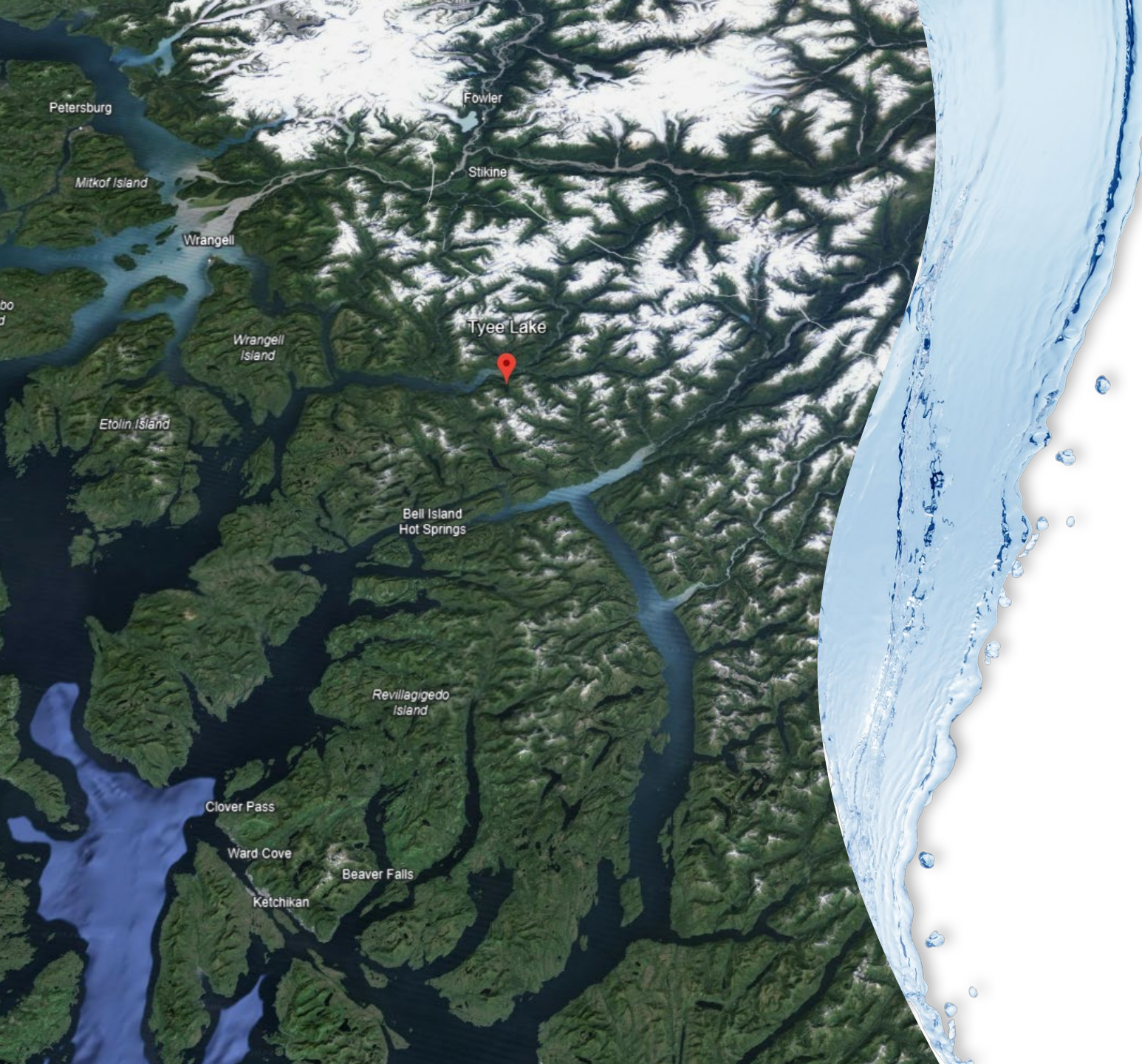
- **Early Consultation – Aug/Sept 2024**
- **Draft Amendment Application – Oct 8, 2024**
 - Propose Expedited Schedule and Waiver of Stage 2 Consultation
- **Joint Agency & Public Meeting – Nov 14, 2024**
- **Continue Informal Consultation – Oct - Dec 2024**
- **Agencies comments/letters of support – Dec 9, 2024** (60 days from DAA)
- **Request to FERC for Waiver of Stage 2 Consultation**
- **Final Amendment Application – Jan 2025** (if Stage 2 waived)





Questions

Thank you



From: [Betsy McGregor](#)
To: [Betsy McGregor](#)
Bcc: ["Lauren.Townson@ferc.gov"; "diana.shannon@ferc.gov"; "regpagemaster@usace.army.mil"; "julianne.rosset@noaa.gov"; "carol_mahara@fws.gov"; "Melissa.dinsmore@usda.gov"; "joe.klein@alaska.gov"; "jarrod.sowa@alaska.gov"; "oha.revcomp@alaska.gov"; "sarah.meitl@alaska.gov"; "carol.hasburgh@alaska.gov"; "carl.reese@alaska.gov"; "clint.gundelfinger@alaska.gov"; "jon.wendel@alaska.gov"; "bcarey@akenergyauthority.org"; "managersoffice@kqbak.us"; "cityclerksaxman@kcpunet.net"; "tgalleghos@kictribe.org"; "saxmanira@kcpunet.net"; "wcatribe@gmail.com"; "tribaladmin@piatribal.org"; "judi@metlakatla.com"; "president@kake-nsn.gov"; "tribalpresident@hcatribe.org"; "tribal.admin@craigtribe.org"; "corpsec@sealaska.com"; "communications@capefoxss.com"; "cblair@capefoxcorp.com"; "lhbarlow@aol.com"; "boxofdaylite@yahoo.com"; "info@kakatribalcorp.com"; "jeremyb1@city.ketchikan.ak.us"; "wmlp@gci.net"; "khagerman@petersburgak.gov"; "robert@seconference.org"; "info@seconference.org"; "metpowerandlight@gmail.com"; "info@wrangellchamber.com"; "admin@ssraa.org"; "info@ketchikanchamber.com"; "Kathy@seafa.org"; "CMFink@Blueplanetlaw.com"; "BerneMosley@yahoo.com"; Tsunami Van Winkle; "sthompson@seapahydro.org"; "mhlson@seapahydro.org"; Betsy McGregor; "jot.splenda@ferc.gov"](#)
Subject: RE: Tyee Lake Hydroelectric Project Draft Amendment Application to add Third Turbine - Notice and Invitation To Joint Agency and Public Meeting
Date: Thursday, November 7, 2024 4:35:00 PM
Attachments: [TyeeLakeHydro_JointAgencyPublic_Mtg_20241114.pdf](#)
[TyeeLakeHydro_JointAgencyPublicMtg_Agenda_20241114.pdf](#)

Notice of Joint Agency and Public Meeting Tyee Lake Project (FERC Project No. 3015)

Southeast Alaska Power Agency (SEAPA), licensee for the Tyee Lake Hydroelectric Project (FERC No. 3015), proposes to file an Application for a Capacity-Related Amendment to License (Amendment Application) with the Federal Energy Regulatory Commission (FERC) to enable SEAPA to install an additional 10 megawatt (MW) hydroelectric Pelton-style turbine-generator (Proposed Project) in the existing empty bay in the powerhouse. On October 8, 2024, SEAPA filed an Initial Consultation Document in the form of the Draft Amendment Application (DAA) pursuant to the content requirements of the Code of Federal Regulations (CFR), Title 18 Section § 4.38. The DAA is available online on the FERC E-Library website (<https://elibrary.ferc.gov/eLibrary/search>) under Project No. P-3015 and on SEAPA's website (<https://www.seapahydro.org/tyee-license>).

Notice was provided that SEAPA is hosting a joint agency and public meeting in accordance with the FERC requirements at 18 CFR § 4.38(b)(3). The purpose of the meeting is to review the Proposed Project plans, discuss the FERC regulatory process, address questions on the DAA, and receive stakeholder feedback. Two sessions will be held on November 14, 2024, both of which are open to the public. A morning agency session will be held virtually from 9:30 a.m. to approximately 11:30 a.m. The evening public session will be held from 5:30 p.m. to 7:30 p.m. and may be attended virtually or in-person. The evening session will be held at the SEAPA office located at:

55 Don Finney Lane
Ketchikan, Alaska 99901

The final meeting agenda and presentation are attached to this email and will be available on SEAPA's website. The agenda contains the necessary information to attend the meetings virtually. If you have not yet responded, please notify SEAPA if you plan on attending the meeting virtually by contacting Betsy McGregor, Senior Scientist and Regulatory Consultant to SEAPA, at Betsy.McGregor@KleinschmidtGroup.com or by telephone at 907-885-3418.

Respectfully,

Betsy McGregor

Senior Scientist and Regulatory Consultant

Kleinschmidt

O: 907-885-3418

Follow us on [LinkedIn](#)

*We provide practical **solutions** for renewable energy, water and environmental projects!*

Electronically Submitted November 8, 2024

Ms. Judith Bittner
State Historic Preservation Officer
Office of History and Archaeology
Alaska Department of Natural Resources
550 West 7th Avenue, Suite 1310
Anchorage, AK 99501

Re: Initiation of NHPA Section 106 Consultation
Tyee Lake Capacity-Related License Amendment to Install Third Generating Unit
Tyee Lake Hydroelectric Project (FERC No. P-3015)

Dear Ms. Bittner:

Southeast Alaska Power Agency (SEAPA) is pursuing a Federal Energy Regulatory Commission (FERC) capacity-related license amendment associated with its existing 20-megawatt (MW) Tyee Lake Hydroelectric Project (Tyee Lake Project, FERC No. P-3015), located at the head of Bradfield Canal, approximately 40 miles southeast of the city of Wrangell, Alaska. The purpose of the proposed amendment is to gain authorization to install and operate a third turbine-generating unit (Third Unit) in the empty bay at the existing Tyee Lake powerhouse to meet the growing energy demand of SEAPA's service area.

The Tyee Lake Project was designed and constructed with two 10-MW units and provisions to add a third unit to meet future energy demands. Under a license issued by FERC in 1981, the 20-MW Project began operations in May 1984 servicing the communities of Wrangell and Petersburg. Since SEAPA completed its 57-mile-long Swan-Tyee Intertie in 2009, the Tyee Lake Project has been connected to SEAPA's Swan Lake Hydroelectric Project (FERC No. P-2911) and the community of Ketchikan. SEAPA coordinates the operation of its Tyee Lake and Swan Lake hydroelectric projects to maximize output and optimize water resources to provide power to the three communities.

The electricity demand of the communities of Wrangell, Petersburg, and Ketchikan currently exceeds the capacity of the region's hydroelectric projects, including SEAPA's total installed capacity. Addition of the Third Unit would provide added generation to meet current and future demands and reduce the need for and reliance on diesel generation; and would also increase operational flexibility, increase reserves and system reliability, and provide redundancy to the two existing units.

On October 8, 2024, SEAPA filed its Draft Amendment Application and Preliminary Draft Environmental Assessment with FERC, in lieu of an Initial Consultation Document, and noticed your office of its availability and requested participation in the Joint Agency Public Meeting to be held November 14, 2024. In a letter to your office on November 1, 2024, FERC designated SEAPA as its non-federal representative for purpose of conducting consultation with the Alaska SHPO, appropriate Alaska Native tribes, and other interested parties, pursuant to 36 CFR 800.29(c)(4) implementing section 106 of the National Historic Preservation Act (section 106). The purpose of this letter is to:

- initiate SEAPA's consultation with your office under section 106 (NHPA; 54 USC 306108);
- provide your office with a description of the Proposed Action;
- seek your input on SEAPA's preliminary area of potential effects (APE) for direct and indirect effects;
- seek comments on SEAPA's Preliminary Draft Environmental Assessment; and
- provide your office with a list of proposed consulting parties, including Alaska Native tribes and other entities which may have an interest in the Proposed Action.

Proposed Action Description

The project description provided below summarizes the Proposed Action. Greater detail regarding the proposed FERC license amendment schedule and process, detailed descriptions of the proposed facilities and components associated with the proposed project, preliminary description of the existing environments by resource area, and initial identification of potential project effects can be found in the Draft Amendment Application including the Preliminary Draft Environmental Assessment filed with FERC October 8, 2024. The document can be found on the FERC elibrary or SEAPA's website (<https://www.seapahydro.org/>).

Tyee Lake is a natural lake with a drainage area of approximately 14.4 square miles (sq. mi.). Water from Tyee Lake supplies the hydroelectric project via a lake tap. When constructed, the Tyee Lake Project provided for the near-term load needs of Wrangell and Petersburg with the installation of two turbine-generator units but was designed and constructed with provisions to add a third generating unit to meet future demands of the region. With completion of the Swan-Tyee Intertie, the Project now provides power to Wrangell and Petersburg, as well as Ketchikan. The current regional demand exceeds the existing hydropower resources and is projected to grow over the next few years. SEAPA is proposing to install a third 10-MW Pelton-style turbine-generating unit (i.e., the Third Unit) in the existing empty bay at the Tyee Lake powerhouse and a new transformer in

the existing switchyard. The installed capacity of the Tyee Lake Project would increase by 50 percent, from 20 MW to 30 MW with the additional unit.

Construction activities would occur within the licensed Project boundary on state land and would involve the following existing Project facilities: powerhouse, electrical substation, maintenance buildings, access road, staging and laydown areas, airstrip, barge bulkhead, dock and ramp, and contractor housing. There would be no changes to the Tyee Lake outlet weir, intake structure, gate house, power tunnel, or penstocks. Construction activities would not require new ground disturbance, new roads or staging areas, removal of vegetation, or need for placement or discharge of dredged and/or fill material into waters of the U.S. There would be no modifications of the tailrace and no work conducted below the ordinary high water (OHW) level of any waterbody.

Equipment and supplies would be barged from Wrangell and up the Bradfield Canal to the existing barge bulkhead on site. Transportation up the Bradfield Canal would likely occur during high tides. It is expected that there would be five to six barge trips from Wrangell in late spring/early summer to complete the Proposed Action. Barges would be off-loaded by forklift or front-end loader already present on site. Equipment and materials may be temporarily placed in the existing staging area near the barge bulkhead or transported directly to the powerhouse area using the existing road. No ground-disturbing activities or upgrades to the existing roads or staging areas are anticipated.

Most of the installation work would occur within the existing powerhouse. A small concrete batch plant or mix trucks from Wrangell may be barged to the site. Concrete work may last up to a total of two weeks depending on the type of turbine installed. Concrete footings for the third transformer would be installed within the existing switchyard footprint.

Up to approximately 15 workers may be on site at one time. Construction workers would be either flown to the airstrip or transported to the dock or barge bulkhead by private ferry. Construction crew and engineers would be housed in SEAPA's existing onsite bunkhouse or at existing U.S. Forest Service cabins under SEAPA's Special Use Permit. It is anticipated that commissioning would occur within a year of initiation of construction activities.

SEAPA would continue to operate Tyee Lake within the same lake level elevations as the current license (1,250 ft to normal full pool) to maximize output from SEAPA hydro facilities, and to optimize water resources and efficiency of the generating units to better manage peak loads, meet growing energy demands, and reduce the need for diesel generation. There would be no change to the usable storage capacity and SEAPA would

operate within its existing permitted Tyee Lake water rights of 135,000 ac-ft of water annually.

Preliminary Area of Potential Effects (APE)

The direct area of potential effects (APE) for archaeological resources is typically defined as the extent of ground disturbance associated with a proposed project, plus a 50- or 100-foot buffer. There is no new ground disturbance associated with the Proposed Action. The APE for indirect effects or historic built environment resources, including historic buildings, objects, districts, landscapes, and linear features, is typically defined as a half mile from a proposed project where visual, auditory, vibratory, or atmospheric effects may impact historic properties. However, there are no known historic properties in the vicinity of the Proposed Action and most of the construction will occur inside the powerhouse.

Preliminary Draft Environmental Assessment

SEAPA filed its Draft Amendment Application for the Proposed Action, including the Preliminary Draft Environmental Assessment describing the existing information known about archeological and historic resources within the Project area. To date, there have been no historic or archeological sites identified within the area affected by the Proposed Action. Installation of the Third Unit would take place within the existing powerhouse, and there would be no new ground-disturbing activities associated with staging, transport, or construction. The hydroelectric facility's buildings were built during or after 1981, less than 50 years ago, and do not currently qualify as potential historic properties. Given the overall de minimis disturbance from the Proposed Action and unlikely presence of archeological or historic resources within the Project area, SEAPA is not proposing any inventory or eligibility determination studies.

Proposed List of Consulting Parties

In addition to your office, and consistent with 36 CFR 800.2(c), SEAPA proposes to include Alaska Native Tribes, Alaska Native Claims Settlement Act (ANCSA) regional and village corporations, and local governments as consulting parties for the Proposed Action. Table 1 lists the proposed consulting parties by type. Please let us know if your office believes that additional parties should be included in section 106 consultation process for the proposed project.

Table 1: List of Consulting Parties

Consulting Party Name	Consulting Party Type
Craig Tribal Association	Alaska Native Tribe
Hydaburg Cooperative Association	Alaska Native Tribe
Ketchikan Indian Community	Alaska Native Tribe
Klawock Cooperative Association	Alaska Native Tribe
Metlakatla Indian Community, Annette Island Reserve	Alaska Native Tribe
Organized Village of Kake	Alaska Native Tribe
Organized Village of Saxman	Alaska Native Tribe
Petersburg Indian Association	Alaska Native Tribe
Wrangell Cooperative Association	Alaska Native Tribe
Cape Fox Corporation	ANCSA Corporation
Kake Tribal Corporation	ANCSA Corporation
Sealaska Corporation	ANCSA Corporation

We look forward to receiving your comments, and working with your office as SEAPA moves forward with its goal of meeting current energy demands for the region. If you have any questions regarding the Project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Sincerely,

KLEINSCHMIDT ASSOCIATES



Betsy McGregor
Senior Scientist and Regulatory Consultant

cc: oha.revcomp@alaska.gov
Mark Hilson, P.E., SEAPA
Sharon Thompson, SEAPA

From: [Betsy McGregor](#)
To: judith.bittner@alaska.gov
Cc: Oha.revcomp@alaska.gov; [Meitl, Sarah J \(DNR\)](#); [Mark Hilson](#); [Sharon Thompson](#)
Subject: SEAPA Tyee Lake Hydro Project (FERC P-3015) Amendment - Request for Consultation under Section 106 of NHPA
Date: Friday, November 8, 2024 4:21:00 PM
Attachments: [TyeeLakeHydro3015 NHPA Section106 Consultation Letter SHPO-ib 20241108.pdf](#)

Ms. Bittner,

On behalf of SEAPA, please find the attached letter requesting consultation with the Alaska SHPO pursuant to 36 CFR 800.29(c)(4) implementing section 106 of the National Historic Preservation Act, associated with SEAPA's proposed capacity-related amendment to add a third turbine-generating unit to an empty bay in its Tyee Lake Hydroelectric Project, located about 40 miles southeast from Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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November 8, 2024

Carol Mahara, Biologist
United States Fish and Wildlife Service
Ecological Services
4700 BLM Road
Anchorage, AK 99507

Re: Tyee Lake Hydroelectric Project, FERC No. 3015
Draft Application for Capacity Amendment to License
Installation of Third Unit in Existing Bay at Powerhouse
Request for Informal Consultation

Dear Ms. Mahara:

Southeast Alaska Power Agency (SEAPA) and its prime contractor for the project, Kleinschmidt Associates (KA), are working to gather environmental information for a capacity-related license amendment for SEAPA's existing Tyee Lake Hydroelectric Project (FERC No. 3015). Located approximately 40 miles southeast of Wrangell, Alaska. SEAPA is proposing an amendment to the Tyee Lake license to add an additional hydro turbine-generator unit (Third Unit) to an existing empty bay in the powerhouse (Proposed Action), which would increase the total installed capacity from 20 megawatts (MW) to 30 MW.

SEAPA filed its Draft Amendment Application for the Proposed Action, including a Preliminary Draft Environmental Assessment, with the Federal Energy Regulatory Commission (FERC) on October 8, 2024, describing the existing information known about species listed under the Endangered Species Act (ESA). On November 1, 2024, FERC designated SEAPA as its non-federal representative for the purpose of conducting informal consultation with the U.S. Fish and Wildlife Service (USFWS) pursuant to the regulations at 50 C.F.R. § 402.08 implementing section 7 of the ESA.

Using the USFWS Information for Planning and Consultation (IPaC) tool, a preliminary list of ESA-listed species under the jurisdiction of the USFWS was developed that indicated the endangered short-tailed albatross (*Phoebastria albatrus*) may be present in the project vicinity (IPaC Project Code: 2025-0016881); no critical habitat has been designated for this species. We herein request informal consultation on this species, as well as any plant and animal species of concern that are known or suspected to occur in the project area, and as appropriate, mapped locations of known occurrences of these species in the region of this project.

If you have any questions regarding the Project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com. Thank you for your help with this request.

Sincerely,

KLEINSCHMIDT ASSOCIATES

A handwritten signature in blue ink, appearing to read 'Betsy McGregor', is positioned above the printed name.

Betsy McGregor
Senior Scientist and Regulatory Consultant

cc: Mark Hilson, P.E. and Sharon Thompson, SEAPA

From: [Betsy McGregor](#)
To: [carol_mahara](#)
Cc: [Mark Hilson](#); [Sharon Thompson](#)
Subject: SEAPA Tyee Lake Hydro Project (FERC P-3015) Amendment - Request for Informal Consultation under Section 7 of ESA
Date: Friday, November 8, 2024 11:25:00 AM
Attachments: [TyeeLakeHydro3015 ESA Consultation Letter USFWS 20211108.pdf](#)

Hi Carol.

On behalf of SEAPA, please find the attached letter requesting informal consultation with the U.S. Fish and Wildlife Service, pursuant to the regulations at 50 C.F.R. § 402.08 implementing section 7 of the Endangered Species Act, related to SEAPA's proposed capacity-related amendment to add a third turbine-generating unit to an empty bay in its Tyee Lake Hydroelectric Project.

If you have any questions regarding the Project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: [DNR, Parks OHA Review Compliance \(DNR sponsored\)](#)
To: [Betsy McGregor](#)
Cc: [Meitl, Sarah J \(DNR\)](#)
Subject: FW: SEAPA Tyee Lake Hydro Project (FERC P-3015) Amendment - Request for Consultation under Section 106 of NHPA
Date: Wednesday, November 13, 2024 2:09:09 PM
Attachments: [TyeeLakeHydro3015 NHPA Section106 Consultation Letter SHPO-ib 20241108.pdf](#)

Good afternoon,

The Office of History and Archaeology/Alaska State Historic Preservation Office received your documentation, and its review has been logged in with me under 2024-01087. Our office has 30 calendar days after receipt to complete our review and may contact you if we require additional information. Please contact me by email if you have any questions or concerns.

Best,
Sarah

Sarah Meitl

Review and Compliance Coordinator
Alaska State Historic Preservation Office
Office of History and Archaeology
sarah.meitl@alaska.gov

From: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Sent: Friday, November 8, 2024 4:21 PM
To: Bittner, Judith E (DNR) <judy.bittner@alaska.gov>
Cc: DNR, Parks OHA Review Compliance (DNR sponsored) <oha.revcomp@alaska.gov>; Meitl, Sarah J (DNR) <sarah.meitl@alaska.gov>; Mark Hilson <mhilson@seapahydro.org>; Sharon Thompson <sthompson@seapahydro.org>
Subject: SEAPA Tyee Lake Hydro Project (FERC P-3015) Amendment - Request for Consultation under Section 106 of NHPA

Some people who received this message don't often get email from betsy.mcgregor@kleinschmidtgroup.com. [Learn why this is important](#)

CAUTION: This email originated from outside the State of Alaska mail system. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Ms. Bittner,

On behalf of SEAPA, please find the attached letter requesting consultation with the Alaska SHPO pursuant to 36 CFR 800.29(c)(4) implementing section 106 of the National Historic Preservation Act, associated with SEAPA's proposed capacity-related amendment to add a third turbine-generating unit to an empty bay in its Tyee Lake Hydroelectric Project, located about 40 miles southeast from

Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: [Mahara, Carol J](#)
To: [Betsy McGregor](#)
Cc: [Mark Hilson](#); [Sharon Thompson](#)
Subject: RE: [EXTERNAL] SEAPA Tyee Lake Hydro Project (FERC P-3015) Amendment - Request for Informal Consultation under Section 7 of ESA
Date: Thursday, November 14, 2024 10:02:16 AM

Hi Betsy,

Thank you for reaching out about initiating informal consultation under the Endangered Species Act (ESA) for the Tyee Lake Hydroelectric Project and the draft application for a capacity amendment to the license.

The Information for Planning and Consultation (IPaC) tool indicated the endangered short-tailed albatross (*Phoebastria albatrus*) may be present in the project vicinity (IPaC Project Code: 2025-0016881), which causes you to make one of three impacts determinations described below:

- No effect - the proposed action would have no consequences to ESA-listed species or critical habitat. The ESA does not require consultation if the proposed action will result in "no effect" to listed species or critical habitat. The federal action agency should document a "no effect" finding for their internal records.
- May affect but not likely to adversely affect (NLAA) - the proposed action may affect listed species or critical habitat, but all effects are beneficial, insignificant, or discountable. An NLAA effect triggers informal consultation.
- Likely to adversely affect (LAA) - the proposed action may affect listed species or critical habitat, and the effects are not beneficial, insignificant, or discountable. A LAA finding triggers formal consultation.

The range maps used in the IPaC tool, as well as other information about listed species, can be found on the [ECOS website](#). These range maps are conservative and cover areas where listed species could be, however, short-tailed albatrosses are generally associated with shelf break and slope regions of the northwestern Pacific Ocean and the Bering Sea.

What kinds of effects do you anticipate for short-tailed albatross? If it is determined that there will be no effects to short-tailed albatross within the action area, then no additional ESA consultation with the Service would be needed. If it is determined that there may be effects, then please provide an explanation of potential effects and why those effects are not expected to be adverse.

I hope this is helpful. Please let me know if you have more questions.

Carol

Carol Mahara

Fish and Wildlife Biologist
Ecological Services
US Fish and Wildlife Service
4700 BLM Road
Anchorage, AK 99507
carol_mahara@fws.gov
Cell: 907-280-9751

From: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Sent: Friday, November 8, 2024 11:25 AM
To: Mahara, Carol J <carol_mahara@fws.gov>
Cc: Mark Hilson <mhilson@seapahydro.org>; Sharon Thompson <sthompson@seapahydro.org>
Subject: [EXTERNAL] SEAPA Tyee Lake Hydro Project (FERC P-3015) Amendment - Request for Informal Consultation under Section 7 of ESA

This email has been received from outside of DOI - Use caution before clicking on links, opening attachments, or responding.

Hi Carol.

On behalf of SEAPA, please find the attached letter requesting informal consultation with the U.S. Fish and Wildlife Service, pursuant to the regulations at 50 C.F.R. § 402.08 implementing section 7 of the Endangered Species Act, related to SEAPA's proposed capacity-related amendment to add a third turbine-generating unit to an empty bay in its Tyee Lake Hydroelectric Project.

If you have any questions regarding the Project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: [Betsy McGregor](#)
To: [Sowa, Jarrod J \(DFG\)](#)
Cc: joe.klein@alaska.gov
Subject: Tyee Lake Amendment - follow-up to Joint Agency Meeting
Date: Wednesday, November 20, 2024 9:14:00 AM

Hi Jarrod.

Thank you for attending the Tyee Lake Capacity Amendment Joint Agency Meeting last week. I am following up with you to see if you have any questions about the proposed amendment or the information presented in the Draft Amendment Application or the Preliminary Draft Environmental Assessment.

Because the Tyee Lake Project was constructed with provisions for a third turbine-generator unit and the potential environmental effects are anticipated to be de minimis, the Southeast Alaska Power Agency (SEAPA) intends to file a motion with FERC to waive second stage consultation (e.g., new studies) pursuant to Rule 212 of FERC's Rules of Practice and Procedure [18 CFR 385.212]. SEAPA will be seeking support from the regulatory agencies for its motion. If ADF&G requires additional information on any of the resources or has any concerns, we would like to set up a meeting to discuss further.

Thank you for your participation in this process. We look forward to hearing from you.

Best,
Betsy

Betsy McGregor

Senior Scientist

The logo for Kleinschmidt, featuring the word "Kleinschmidt" in a bold, sans-serif font. The "K" is large and stylized, with a green horizontal bar underneath the letters "leinschmidt".

O: 907-885-3418

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From: [Betsy McGregor](#)
To: [Julianne Rosset - NOAA Federal](#)
Subject: RE: Tyee Lake Hydro Project Capacity Amendment - EFH and ESA Consultation
Date: Wednesday, November 20, 2024 11:07:00 AM

Hi Julianne.

Thanks for meeting with me today and letting me know that you have the report.
There is no minimum flow requirement into Tyee Creek or Hidden Creek.

Please reach out any time if you have any additional questions.

Best,
Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: Julianne Rosset - NOAA Federal <julianne.rosset@noaa.gov>
Sent: Wednesday, November 20, 2024 11:01 AM
To: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Subject: Re: Tyee Lake Hydro Project Capacity Amendment - EFH and ESA Consultation

Hi Betsy,

Thanks for chatting this morning. One additional question I forgot to ask, is there currently a minimum flow requirement into Hidden Creek? I assume the answer is no, but wanted to double check quickly. Also, Jarrod (from the state) sent me the 2018 report just now so I have it on hand.

Thank you!
Julianne

On Tue, Nov 19, 2024 at 11:18 AM Betsy McGregor
<Betsy.McGregor@kleinschmidtgroup.com> wrote:

Thank you!

From: Julianne Rosset - NOAA Federal <julianne.rosset@noaa.gov>
Sent: Tuesday, November 19, 2024 10:25 AM
To: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Subject: Re: Tyee Lake Hydro Project Capacity Amendment - EFH and ESA Consultation

Hi Betsy,

Sounds good. I sent out a meeting invite for 30 minutes tomorrow at 10am.

Kind regards,
Julianne

On Tue, Nov 19, 2024 at 8:59 AM Betsy McGregor
<Betsy.McGregor@kleinschmidtgroup.com> wrote:

Hi Julianne.
That's great! How about 10 am Wednesday Nov 20?
Regards,
Betsy

Betsy McGregor
Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: Julianne Rosset - NOAA Federal <julianne.rosset@noaa.gov>
Sent: Friday, November 15, 2024 1:02 PM
To: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Subject: Re: Tyee Lake Hydro Project Capacity Amendment - EFH and ESA Consultation

Hi Betsy,

Yes, of course. Tuesday (11/19) afternoon works for me and the morning of Wednesday 11/20 works as well.

Kind regards,
Julianne

Julianne Rosset (she/her)

Hydropower Program Coordinator | Alaska Region
NOAA Fisheries | U.S. Department of Commerce
Office: 907-271-3654 ***please note this is a new number***
[Alaska Region Hydropower Projects](#)



On Thu, Nov 14, 2024 at 2:29 PM Betsy McGregor
<Betsy.McGregor@kleinschmidtgroup.com> wrote:

Hi Julianne.

Thank you for the information below.

Would it be possible to set up a call next week and talk through process and any follow-up to today's agency meeting?

My schedule is fairly open all week.

Best,
Betsy

Betsy McGregor
Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: Julianne Rosset - NOAA Federal <julianne.rosset@noaa.gov>

Sent: Thursday, November 14, 2024 11:49 AM

To: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>

Subject: Re: Tyee Lake Hydro Project Capacity Amendment - EFH and ESA Consultation

Hi Betsy,

I am the correct contact for EFH related matters as they pertain to hydropower projects. The contact for Section 7 matters is actually a general inbox (akr.prd.section7@noaa.gov). Email is preferred but if you need to send a hard copy, please let me know and I'll provide the appropriate physical address.

Kind regards,
Julianne

Julianne Rosset (she/her)

Hydropower Program Coordinator | Alaska Region

NOAA Fisheries | U.S. Department of Commerce

Office: 907-271-3654 ***please note this is a new number***

[Alaska Region Hydropower Projects](#)



On Wed, Nov 13, 2024 at 4:12 PM Betsy McGregor

<Betsy.McGregor@kleinschmidtgroup.com> wrote:

Hi Julianne.

We would like to send a letter to NOAA Fisheries requesting informal consultation pursuant to Section 7 of the ESA and on EFH under the Magnusen-Stevens Act for the Tyee Lake capacity amendment. Are you the appropriate person to send that letter to? If so, can you please send me your physical address?

Thank you!

Best,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: [Betsy McGregor](#)
To: [Mark Hilson](#)
Cc: [Finlay Anderson](#); [Laura Cowan](#)
Subject: RE: Tyee Lake Amendment - barges from Wrangell
Date: Wednesday, November 20, 2024 10:44:00 AM

Hi.

I had a great meeting with Julianne at NMFS.

During the meeting, we pulled up some maps from the DAA and the JAM presentation to clarify a couple of questions. And I provided her with information regarding the evening meeting as she had previously requested. At this point, Julianne does not see NMFS requesting new studies before installing and operating the turbine or slowing down the proposed process. NMFS's interest is in monitoring the flows of Hidden Creek post-installation. She also indicated that it would be fine to monitor the flows as part of the relicensing process. But, Julianne caveated that she is not a supervisor and that her recommendations have to be approved by others. She also indicated that NMFS has been coordinating with ADF&G and USFWS to ensure that the agencies do not provide conflicting direction.

Julianne confirmed that she is the appropriate contact for EFH consultation, but not ESA. But I will send a letter requesting informal consultation on both EFH and ESA to her with a cc to the general ESA mailbox. She has already alerted the appropriate NMFS ESA staff that it would be forthcoming and she will follow-up internally so we know if we will need to prepare a BA for Mexico DPS of humpback whales.

Best,
Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: Mark Hilson <mhilson@seapahydro.org>
Sent: Wednesday, November 20, 2024 9:58 AM
To: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Subject: RE: Tyee Lake Amendment - barges from Wrangell

Sounds good Betsy, let me know how it goes! And the Wrangell barges always use the eastern passage.

Thanks,

Mark

From: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>

Sent: Wednesday, November 20, 2024 9:34 AM

To: Mark Hilson <mhilson@seapahydro.org>

Subject: Tyee Lake Amendment - barges from Wrangell

Hi Mark.

As a follow up to the JAM meetings, I have a meeting with NMFS at 10 today to address any of Julianne's questions and ask if we need to prepare a BA for humpback whales. I reached out to ADFG to request a meeting to discuss any concern or questions they may have. Carol of USFWS is out of the office until November 25. SHPO is next on my list to reach out to.

I have a question about the barges. Do you know the route barges generally travel between Wrangell and the Bradfield Canal barge bulkhead - along the east side of Wrangell Island or the west side of the island?

Thanks!

Best,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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November 20, 2024

Julianne Rosset
Hydropower Program Coordinator, Alaska Region
NOAA Fisheries, U.S. Department of Commerce

Re: Tyee Lake Hydroelectric Project, FERC No. 3015
Draft Application for Capacity Amendment to License
Installation of Third Unit in Existing Bay at Powerhouse
Request for Informal Consultation pursuant to the Endangered Species Act and
Magnuson-Stevens Fishery Conservation and Management Act

Dear Ms. Rosset:

Southeast Alaska Power Agency (SEAPA) and its prime contractor for the project, Kleinschmidt Associates (KA), are working to gather environmental information for a capacity-related license amendment for SEAPA's existing Tyee Lake Hydroelectric Project (FERC No. 3015), located approximately 40 miles southeast of Wrangell, Alaska. SEAPA is proposing an amendment to the Tyee Lake license to add an additional hydro turbine-generator unit (Third Unit) to an existing empty bay in the powerhouse (Proposed Action), which would increase the total installed capacity from 20 megawatts (MW) to 30 MW.

SEAPA filed its Draft Amendment Application for the Proposed Action, including a Preliminary Draft Environmental Assessment, with the Federal Energy Regulatory Commission (FERC) on October 8, 2024, describing the existing information known about species listed under the Endangered Species Act (ESA) and Essential Fish Habitat (EFH) in the vicinity of the Proposed Action. On November 1, 2024, FERC designated SEAPA as its non-federal representative for the purpose of conducting informal consultation with the National Oceanic and Atmospheric Administration (NOAA) pursuant to the regulations at 50 C.F.R. § 402.08 implementing section 7 of the ESA and on EFH consultation pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA). The purpose of this letter is to:

- provide a summary of the Proposed Action;
- initiate informal consultation pursuant to section 7 of the ESA (50 C.F.R. § 402.08); and
- initiate informal consultation on EFH pursuant to MSA

Proposed Action Description

The Proposed Action is summarized below. Greater detail regarding the proposed FERC license amendment schedule and process, facilities and components associated with the proposed project, preliminary description of the existing environments by resource area, and initial identification of potential project effects can be found in the Draft Amendment Application including the Preliminary Draft Environmental Assessment filed with FERC October 8, 2024. The document can be found on the FERC elibrary or SEAPA's website (<https://www.seapahydro.org/>).

Tyee Lake is a natural lake with a drainage area of approximately 14.4 square miles (sq. mi.). Water from Tyee Lake supplies the hydroelectric project via a lake tap. When constructed, the Tyee Lake Project provided for the near-term load needs of Wrangell and Petersburg with the installation of two turbine-generator units but was designed and constructed with provisions to add a third generating unit to meet future demands of the region. With completion of the Swan-Tyee Intertie in 2009, the Project now provides power to Ketchikan, as well as Wrangell and Petersburg. The current regional demand exceeds the existing hydropower resources and is projected to grow over the next few years. SEAPA is proposing to install a third 10-MW Pelton-style turbine-generating unit (i.e., the Third Unit) in the existing empty bay at the Tyee Lake powerhouse and a new transformer in the existing switchyard. The installed capacity of the Tyee Lake Project would increase by 50 percent, from 20 MW to 30 MW with the additional unit.

Construction activities would occur within the licensed Project boundary on state land and would involve the following existing Project facilities: powerhouse, electrical substation, maintenance buildings, access road, staging and laydown areas, airstrip, barge bulkhead, dock and ramp, and contractor housing. There would be no changes to the Tyee Lake outlet weir, intake structure, gate house, power tunnel, or penstocks. Construction activities would not require new ground disturbance, new roads or staging areas, removal of vegetation, or need for placement or discharge of dredged and/or fill material into waters of the U.S. There would be no modifications of the tailrace and no work conducted below the ordinary high water level of any waterbody.

Equipment and supplies would be transported via barge from Wrangell along the east side of Wrangell Island to the head of Bradfield Canal and the existing barge bulkhead on site. Transportation up the Bradfield Canal would likely occur during high tides. It is expected that there would be five to six barge trips from Wrangell in late spring/early summer to complete the Proposed Action. Barges would be off-loaded by forklift or front-end loader already present on site. Equipment and materials may be temporarily placed in the existing staging area near the barge bulkhead or transported directly to the

powerhouse area using the existing road. No ground-disturbing activities or upgrades to the existing roads or staging areas are anticipated.

Most of the installation work would occur within the existing powerhouse. A small concrete batch plant or mix trucks may be barged to the site from Wrangell. Concrete work may last up to a total of two weeks depending on the type of turbine installed. Concrete footings for the third transformer would be installed within the existing switchyard footprint.

Up to approximately 15 workers may be on site at one time. Construction workers would be either flown to the airstrip or transported to the dock or barge bulkhead by private ferry. Construction crew and engineers would be housed in SEAPA's existing onsite bunkhouse or at existing U.S. Forest Service cabins under SEAPA's Special Use Permit. It is anticipated that commissioning would occur within a year of initiation of construction activities.

SEAPA would continue to operate Tyee Lake within the same lake level elevations as allowed under its current license (1,250 ft to 1,398 ft) to maximize output from SEAPA hydro facilities, and to optimize water resources and efficiency of the generating units to better manage peak loads, meet growing energy demands, and reduce the need for diesel generation. There would be no change to the usable storage capacity and SEAPA would operate within its existing permitted Tyee Lake water rights of 135,000 ac-ft of water annually.

Endangered Species Act

A preliminary list of ESA-listed species under the jurisdiction of NOAA was developed that indicated the Mexico-North Pacific stock of the Mexico Distinct Population Segment (DPS) of the humpback whale (*Megaptera novaeangliae*), listed as threatened under the ESA (81 FR 62259, September 2016), may be present in the waters between Wrangell and the project site during the summer; no critical habitat has been designated for this species. These whales winter off the coast of Mexico and the Revillagigedo Archipelago and summer primarily in Alaska waters, from Southeast Alaska and the Gulf of Alaska to the Aleutian Islands and Bering Sea (Young et al. 2023). There is no abundance estimate for this stock of humpback whale in Southeast Alaska. Humpback whales are common in Southeast Alaska; the probability of an encountered humpback whale being from the Mexico DPS is 2 percent (NMFS 2021).

Potential threats most likely to cause direct human-caused mortality or serious injury to the Mexico-North Pacific stock of the Mexico DPS include vessel strikes and entanglement in fishing gear and marine debris. The minimum estimated mean annual level of human-

caused mortality and serious injury of this stock in U.S. waters in Southeast Alaska between 2016 and 2020 is 0.101 whales, caused by commercial, recreational or subsistence fisheries gear entanglements (0.04 whales), marine debris entanglements (0.02 whales), and documented vessel strikes (0.041 whales) (Young et al. 2023).

The Proposed Action would include five to six barge trips from Wrangell to the project barge bulkhead at the head of Bradfield Canal to transport the necessary equipment and materials to the Tyee Lake powerhouse area. In addition, workers may be transported to the site via private ferry. The limited number of barge or ferry trips between Wrangell and Bradfield Canal is not anticipated to adversely affect humpback whales of the Mexico DPS.

We herein request informal consultation on the Mexico DPS of the humpback whale, as well as any other ESA-listed species or species of concern that are known or suspected to occur in the project area. We would like to know if a Biological Assessment needs to be prepared for any species.

Essential Fish Habitat

The Tyee Lake Project consists of a lake tap that diverts water from Tyee Lake at approximately 1,225 ft elevation to a powerhouse located at tidewater at the head of Bradfield Canal. From Tyee Lake, water flows about 1.2 miles through a steep canyon to Hidden Creek and another mile before entering Bradfield Canal. There is an anadromous fish passage barrier in Hidden Creek located approximately 460 ft upstream from Bradfield Canal. The head of Bradfield Canal has been designated EFH for various life stages of Chinook (*Oncorhynchus tshawytscha*), chum (*O. keta*), coho (*O. kisutch*), pink (*O. gorbuscha*), and sockeye salmon (*O. nerka*). The 2024 Alaska Department of Fish and Game (ADF&G) Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes – Southeast Region, also known as the Anadromous Waters Catalogue (AWC), lists the lower 460 ft of Hidden Creek (AWC Stream No. 107-40-10538) as providing habitat for chum, coho, and pink salmon.

Water diverted from Tyee Lake for power generation flows through the powerhouse into the 1,100-ft long tailrace before entering Airstrip Slough, a side channel of Hydro Creek. Hydro Creek enters Bradfield Canal less than one half mile from Hidden Creek. The tailrace (Tailrace Creek AWC Stream No. 107-40-10537-2008) and Hydro Creek (AWC Stream No. 107-40-10537) are listed for presence of chum and pink salmon and rearing coho salmon (ADF&G 2024).

All areas of EFH noted above, including Hidden Creek, the tailrace and Hydro Creek, are intertidal. The Proposed Action is not anticipated to affect EFH in Bradfield Canal or the listed anadromous waters.

If you have any questions regarding the Project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com. Thank you for your help with this request.

Sincerely,

KLEINSCHMIDT ASSOCIATES

A handwritten signature in blue ink, appearing to read 'Betsy McGregor', is positioned above the printed name.

Betsy McGregor
Senior Scientist and Regulatory Consultant

BM:TMJ

Enc: References

cc: akr.prd.section7@noaa.gov
Mark Hilson P.E. and Sharon Thompson, SEAPA

References

- ADF&G. 2024. Catalog of Waters Important for Spawning, Rearing, or Migration of Anadromous Fishes – Southeast Region, Effective June 2024. Available online at <https://www.adfg.alaska.gov/sf/SARR/AWC/>. Access Date August 12, 2024.
- National Marine Fisheries Service, Alaska Region. 2021. Occurrence of Endangered Species Act (ESA) Listed Humpback Whales off Alaska. Revised August 6, 2021.
- Young, N.C., A.A. Brower, M.M. Muto, J.C. Freed, R.P. Angliss, N.A. Friday, P.L. Boveng, B.M. Brost, M.F. Cameron, J.L. Crance, S.P. Dahle, B.S. Fadely, M.C. Ferguson, K.T. Goetz, J.M. London, E.M. Oleson, R.R. Ream, E.L. Richmond, K.E.W. Sheldon, K.L. Sweeney, R.G. Towell, P.R. Wade, J.M. Waite, and A.N. Zerbini. 2023. Alaska Marine Mammal Stock Assessments, 2022. NOAA Technical Memorandum NOAA-TM-AFSC-474. Available online at: https://repository.library.noaa.gov/view/noaa/52074/noaa_52074_DS1.pdf.

From: [Betsy McGregor](#)
To: [Julianne Rosset - NOAA Federal](#)
Cc: akr.prd.section7@noaa.gov
Subject: SEAPA Tyee Lake Hydro Project No. 3015 Capacity Amendment - EFH and ESA Consultation
Date: Thursday, November 21, 2024 4:42:00 PM
Attachments: [SEAPA TyeeLake3015 NMFS ESA EFH Consultation Request.pdf](#)

Hi Julianne.

The Southeast Alaska Power Agency (SEAPA) is pursuing a capacity amendment for its Tyee Lake Hydroelectric Project (FERC No. P-3015) to add a third turbine. On November 1, 2024, FERC designated SEAPA as its non-federal representative for the purpose of conducting informal consultation with the National Oceanic and Atmospheric Administration (NOAA) pursuant to the regulations at 50 C.F.R. § 402.08 implementing section 7 of the ESA and on EFH consultation pursuant to the Magnuson-Stevens Fishery Conservation and Management Act (MSA). On behalf of SEAPA, please find the attached letter requesting initiation of informal consultation, as applicable.

Please contact me if you have any questions.

Thank you.

Regards,
Betsy

Betsy McGregor
Senior Scientist and Regulatory Consultant

Kleinschmidt

O: 907-885-3418

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From: [Judith Eaton](#)
To: [Betsy McGregor](#)
Cc: [Albert Smith](#); [Keolani Booth](#)
Subject: Re: [EXTERNAL]SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit
Date: Tuesday, November 26, 2024 3:30:38 PM

Good afternoon, Ms. McGregor

I have cc'd our Mayor, Albert Smith and Keolani Booth, Chair of our Metlakatla Power & Light Board. They may have some input.

Judith



Judith A. Eaton,
Executive Tribal Secretary
Metlakatla Indian Community
P.O. Box 8 | 8th & Milton Street
Metlakatla, Alaska 99926
(907) 886-4441 ext. 2223
(907) 617-9982

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From: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Sent: Tuesday, November 26, 2024 12:12 PM
To: Judith Eaton <Judi@metlakatla.com>
Subject: [EXTERNAL]SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit

You don't often get email from betsy.mcgregor@kleinschmidtgroup.com. [Learn why this is important](#)

Dear Ms. Eaton,

On behalf of SEAPA, please find the attached letter requesting consultation with the Metlakatla

Indian Community – Annette Islands Reserve pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act, associated with SEAPA's proposed capacity-related amendment to add a third turbine-generator unit to the empty bay at the Tyee Lake Hydroelectric Project, located about 40 miles southeast from Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: [Nicole Anderson](#)
To: [Betsy McGregor](#)
Cc: [Joseph Nelson](#)
Subject: Re: SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit
Date: Tuesday, November 26, 2024 2:04:31 PM
Attachments: [Outlook-Logo Desc.png](#)

You don't often get email from nicole.anderson@sealaska.com. [Learn why this is important](#)

Hello Betsy,

Thank you for the invitation. We greatly appreciate the opportunity and have received the information you provided. I have also included our Interim President, Joe Nelson, in this correspondence for his awareness.

Looking forward to the collaboration.

Gunalchéesh,

NICOLE ANDERSON | *Chooshdatlâa (she/her/hers)*
Corporate Secretary | Sealaska
One Sealaska Plaza, Ste. 400 Juneau, AK 99801
sealaska.com | mysealaska.com



From: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Sent: Tuesday, November 26, 2024 11:50 AM
To: corpsec <corpsec@sealaska.com>
Subject: SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit

EXTERNAL EMAIL: Please use caution and only open attachments from a trusted source.

To Whom it May Concern,

On behalf of Southeast Alaska Power Agency (SEAPA), please find the attached letter requesting consultation with Sealaska Corporation regarding SEAPA's proposed capacity-related amendment to add a third turbine-generator unit to the empty bay at the Tyee Lake Hydroelectric Project, located about 40 miles southeast from Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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November 25, 2024

Via Email: cblair@capefoxcorp.com

Clifford Blair, Board of Directors
Cape Fox Corporation
2851 S Tongass Highway
P.O. Box 8558
Ketchikan, AK 99901

Re: Initiation of National Historic Preservation Act Section 106 Consultation

Tyee Lake Capacity-Related License Amendment to Install Third Generating Unit
Tyee Lake Hydroelectric Project (FERC No. P-3015)

Dear Mr. Clifford Blair:

Southeast Alaska Power Agency (SEAPA) is the licensee for the 20-megawatt (MW) Tyee Lake Hydroelectric Project (Project; FERC No. P-3015), located at the head of Bradfield Canal approximately 40 miles southeast of Wrangell, Alaska. SEAPA is proposing a capacity-related amendment to its Federal Energy Regulatory Commission (FERC) license and Kleinschmidt Associates is supporting them through the process. The purpose of the proposed amendment is to gain authorization to install and operate a third turbine-generating unit (Third Unit) in the existing empty bay at the Tyee Lake powerhouse to meet the growing energy demand of SEAPA's service area. FERC has designated SEAPA as its non-federal representative for the purpose of conducting consultation with the Alaska State Historic Preservation Office, appropriate Alaska Native Tribes, and other interested parties pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act (NHPA) for the proposed license amendment. This letter provides an overview of SEAPA's proposed project and consultation approach.

The Project was designed and constructed with two installed 10-MW Pelton-style turbine generator units and provisions to add the Third Unit to meet future energy demands. Under a license issued by FERC in 1981, the 20-MW Project began operations in May 1984 servicing the communities of Wrangell and Petersburg. Since SEAPA completed its 57-mile-long Swan-Tyee Intertie in 2009, the Project has been connected to SEAPA's Swan Lake Hydroelectric Project (FERC No. P-2911) and the community of Ketchikan. SEAPA coordinates the operation of the Project and the Swan Lake Hydroelectric Project to

maximize output and optimize water resources to provide power to Wrangell, Petersburg, and Ketchikan.

The electricity demand of the three communities currently exceeds the capacity of the region's hydroelectric projects, including SEAPA's total installed capacity. SEAPA is proposing to install an additional 10-MW Pelton-style turbine generator in the empty bay within the powerhouse and a third transformer within the footprint of the existing switchyard. Construction would occur wholly within the built environment; no new ground-disturbing activities are proposed. The proposed project would be operated within the same Tyee Lake levels currently licensed and within SEAPA's existing water rights permits. The addition of the Third Unit would provide added generation to meet current and future demands and reduce the need for and reliance on diesel generation. The Third Unit would also increase operational flexibility, increase reserves and system reliability, and provide redundancy to the two existing units.

On October 8, 2024, SEAPA filed its Draft Amendment Application and Preliminary Draft Environmental Assessment with FERC, noticed its availability, and requested participation in the Joint Agency Public Meeting sessions that were held November 14, 2024 in Ketchikan. The Draft Amendment Application describing the proposed project and potential effects from the proposed project as well as the November 14, 2024 meeting presentation can be found on SEAPA's website at [Southeast Alaska Power Agency | SEAPA](#). SEAPA is requesting comments to the Draft Amendment Application and the proposed project by December 9, 2024.

Because the proposed project is anticipated to have minimal environmental impact, SEAPA has not proposed any new studies which would typically occur during the second stage of consultation for a FERC license amendment. SEAPA intends to file with FERC a Motion for Waiver (waiver) of Second Stage Consultation (18 CFR 4.38(a)(9)) and Request to Substitute the Preliminary Draft Environmental Assessment (PDEA) pursuant to the FERC regulations for the Exhibit E (18 CFR 4.51(f)) and the requirements of the National Environmental Policy Act, and respectfully requests your support. It is important to note that the proposed waiver does not eliminate or change any processes or requirements to consult with you under Section 106 of the NHPA; it only recognizes that the nature of the activity does not warrant resource-specific studies.

We would like to meet with you to introduce ourselves and the proposed project and discuss any concerns regarding the proposed project or SEAPA's proposed license amendment process. SEAPA is requesting this meeting in recognition of the vital knowledge that Indigenous Tribal communities hold. SEAPA operates on principles of transparency, diversity, and honesty in every aspect of our business. We are firmly

committed to fostering an environment of open communication and mutual respect with Tribal nations, where Tribal input is central to responsible energy development.

We look forward to receiving your comments and working with you as SEAPA moves forward with its goal of meeting the region's current energy demands. We will follow up to discuss meeting availability and preferences. If you have any questions regarding the proposed project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com. Thank you for your consideration and support of this proposed action.

Sincerely,

KLEINSCHMIDT ASSOCIATES

A handwritten signature in blue ink, appearing to read 'Betsy McGregor', is written over a light blue horizontal line.

Betsy McGregor
Senior Scientist and Regulatory Consultant

cc: oha.revcomp@alaska.gov
Mark Hilson, P.E., SEAPA
Sharon Thompson, SEAPA

From: [Betsy McGregor](#)
To: cblair@capefoxcorp.com
Subject: SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit
Date: Tuesday, November 26, 2024 11:48:00 AM
Attachments: [TyeeLakeHydro3015 NHPA Section106 Consultation Letter Cape Fox Corporation 20241125.pdf](#)

Mr. Blair,

On behalf of Southeast Alaska Power Agency (SEAPA), please find the attached letter requesting consultation with Cape Fox Corporation regarding SEAPA's proposed capacity-related amendment to add a third turbine-generator unit to the empty bay at the Tyee Lake Hydroelectric Project, located about 40 miles southeast from Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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November 25, 2024

Via Email: tribal.admin@craigtribe.org

Justna Cook , Administrator
Craig Tribal Association
505 Front Street
P.O. Box 828
Craig, Alaska 99921

Re: Initiation of National Historic Preservation Act Section 106 Consultation
Tyee Lake Capacity-Related License Amendment to Install Third Generating Unit
Tyee Lake Hydroelectric Project (FERC No. P-3015)

Dear Ms. Justna Cook:

Southeast Alaska Power Agency (SEAPA) is the licensee for the 20-megawatt (MW) Tyee Lake Hydroelectric Project (Project; FERC No. P-3015), located at the head of Bradfield Canal approximately 40 miles southeast of Wrangell, Alaska. SEAPA is proposing a capacity-related amendment to its Federal Energy Regulatory Commission (FERC) license and Kleinschmidt Associates is supporting them through the process. The purpose of the proposed amendment is to gain authorization to install and operate a third turbine-generating unit (Third Unit) in the existing empty bay at the Tyee Lake powerhouse to meet the growing energy demand of SEAPA's service area. FERC has designated SEAPA as its non-federal representative for the purpose of conducting consultation with the Alaska State Historic Preservation Office, appropriate Alaska Native Tribes, and other interested parties pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act (NHPA) for the proposed license amendment. This letter provides an overview of SEAPA's proposed project and consultation approach.

The Project was designed and constructed with two installed 10-MW Pelton-style turbine generator units and provisions to add the Third Unit to meet future energy demands. Under a license issued by FERC in 1981, the 20-MW Project began operations in May 1984 servicing the communities of Wrangell and Petersburg. Since SEAPA completed its 57-mile-long Swan-Tyee Intertie in 2009, the Project has been connected to SEAPA's Swan Lake Hydroelectric Project (FERC No. P-2911) and the community of Ketchikan. SEAPA coordinates the operation of the Project and the Swan Lake Hydroelectric Project to

maximize output and optimize water resources to provide power to Wrangell, Petersburg, and Ketchikan.

The electricity demand of the three communities currently exceeds the capacity of the region's hydroelectric projects, including SEAPA's total installed capacity. SEAPA is proposing to install an additional 10-MW Pelton-style turbine generator in the empty bay within the powerhouse and a third transformer within the footprint of the existing switchyard. Construction would occur wholly within the built environment; no new ground-disturbing activities are proposed. The proposed project would be operated within the same Tyee Lake levels currently licensed and within SEAPA's existing water rights permits. The addition of the Third Unit would provide added generation to meet current and future demands and reduce the need for and reliance on diesel generation. The Third Unit would also increase operational flexibility, increase reserves and system reliability, and provide redundancy to the two existing units.

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Because the proposed project is anticipated to have minimal environmental impact, SEAPA has not proposed any new studies which would typically occur during the second stage of consultation for a FERC license amendment. SEAPA intends to file with FERC a Motion for Waiver (waiver) of Second Stage Consultation (18 CFR 4.38(a)(9)) and Request to Substitute the Preliminary Draft Environmental Assessment (PDEA) pursuant to the FERC regulations for the Exhibit E (18 CFR 4.51(f)) and the requirements of the National Environmental Policy Act, and respectfully requests your support. It is important to note that the proposed waiver does not eliminate or change any processes or requirements to consult with you under Section 106 of the NHPA; it only recognizes that the nature of the activity does not warrant resource-specific studies.

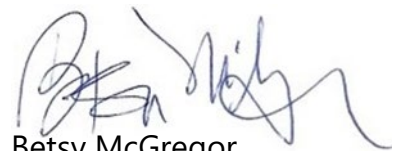
We would like to meet with you to introduce ourselves and the proposed project and discuss any concerns regarding the proposed project or SEAPA's proposed license amendment process. SEAPA is requesting this meeting in recognition of the vital knowledge that Indigenous Tribal communities hold. SEAPA operates on principles of transparency, diversity, and honesty in every aspect of our business. We are firmly

committed to fostering an environment of open communication and mutual respect with Tribal nations, where Tribal input is central to responsible energy development.

We look forward to receiving your comments and working with you as SEAPA moves forward with its goal of meeting the region's current energy demands. We will follow up to discuss meeting availability and preferences. If you have any questions regarding the proposed project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com. Thank you for your consideration and support of this proposed action.

Sincerely,

KLEINSCHMIDT ASSOCIATES

A handwritten signature in blue ink, appearing to read 'Betsy McGregor', is written over a light blue circular stamp that contains the text 'KLEINSCHMIDT ASSOCIATES'.

Betsy McGregor
Senior Scientist and Regulatory Consultant

cc: oha.revcomp@alaska.gov
Mark Hilson, P.E., SEAPA
Sharon Thompson, SEAPA

November 25, 2024

Via Email: tribalpresident@hcatrIBE.org

Sidney Edenshaw, President
Hydaburg Cooperative Association
PO Box 349
Hydaburg, AK 99922

Re: Initiation of National Historic Preservation Act Section 106 Consultation
Tyee Lake Capacity-Related License Amendment to Install Third Generating Unit
Tyee Lake Hydroelectric Project (FERC No. P-3015)

Dear Sidney Edenshaw:

Southeast Alaska Power Agency (SEAPA) is the licensee for the 20-megawatt (MW) Tyee Lake Hydroelectric Project (Project; FERC No. P-3015), located at the head of Bradfield Canal approximately 40 miles southeast of Wrangell, Alaska. SEAPA is proposing a capacity-related amendment to its Federal Energy Regulatory Commission (FERC) license and Kleinschmidt Associates is supporting them through the process. The purpose of the proposed amendment is to gain authorization to install and operate a third turbine-generating unit (Third Unit) in the existing empty bay at the Tyee Lake powerhouse to meet the growing energy demand of SEAPA's service area. FERC has designated SEAPA as its non-federal representative for the purpose of conducting consultation with the Alaska State Historic Preservation Office, appropriate Alaska Native Tribes, and other interested parties pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act (NHPA) for the proposed license amendment. This letter provides an overview of SEAPA's proposed project and consultation approach.

The Project was designed and constructed with two installed 10-MW Pelton-style turbine generator units and provisions to add the Third Unit to meet future energy demands. Under a license issued by FERC in 1981, the 20-MW Project began operations in May 1984 servicing the communities of Wrangell and Petersburg. Since SEAPA completed its 57-mile-long Swan-Tyee Intertie in 2009, the Project has been connected to SEAPA's Swan Lake Hydroelectric Project (FERC No. P-2911) and the community of Ketchikan. SEAPA coordinates the operation of the Project and the Swan Lake Hydroelectric Project to maximize output and optimize water resources to provide power to Wrangell, Petersburg, and Ketchikan.

The electricity demand of the three communities currently exceeds the capacity of the region's hydroelectric projects, including SEAPA's total installed capacity. SEAPA is proposing to install an additional 10-MW Pelton-style turbine generator in the empty bay within the powerhouse and a third transformer within the footprint of the existing switchyard. Construction would occur wholly within the built environment; no new ground-disturbing activities are proposed. The proposed project would be operated within the same Tyee Lake levels currently licensed and within SEAPA's existing water rights permits. The addition of the Third Unit would provide added generation to meet current and future demands and reduce the need for and reliance on diesel generation. The Third Unit would also increase operational flexibility, increase reserves and system reliability, and provide redundancy to the two existing units.

On October 8, 2024, SEAPA filed its Draft Amendment Application and Preliminary Draft Environmental Assessment with FERC, noticed its availability, and requested participation in the Joint Agency Public Meeting sessions that were held November 14, 2024 in Ketchikan. The Draft Amendment Application describing the proposed project and potential effects from the proposed project as well as the November 14, 2024 meeting presentation can be found on SEAPA's website at [Southeast Alaska Power Agency | SEAPA](#). SEAPA is requesting comments to the Draft Amendment Application and the proposed project by December 9, 2024.

Because the proposed project is anticipated to have minimal environmental impact, SEAPA has not proposed any new studies which would typically occur during the second stage of consultation for a FERC license amendment. SEAPA intends to file with FERC a Motion for Waiver (waiver) of Second Stage Consultation (18 CFR 4.38(a)(9)) and Request to Substitute the Preliminary Draft Environmental Assessment (PDEA) pursuant to the FERC regulations for the Exhibit E (18 CFR 4.51(f)) and the requirements of the National Environmental Policy Act, and respectfully requests your support. It is important to note that the proposed waiver does not eliminate or change any processes or requirements to consult with you under Section 106 of the NHPA; it only recognizes that the nature of the activity does not warrant resource-specific studies.

We would like to meet with you to introduce ourselves and the proposed project and discuss any concerns regarding the proposed project or SEAPA's proposed license amendment process. SEAPA is requesting this meeting in recognition of the vital knowledge that Indigenous Tribal communities hold. SEAPA operates on principles of transparency, diversity, and honesty in every aspect of our business. We are firmly committed to fostering an environment of open communication and mutual respect with Tribal nations, where Tribal input is central to responsible energy development.

We look forward to receiving your comments and working with you as SEAPA moves forward with its goal of meeting the region's current energy demands. We will follow up to discuss meeting availability and preferences. If you have any questions regarding the proposed project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com. Thank you for your consideration and support of this proposed action.

Sincerely,

KLEINSCHMIDT ASSOCIATES

A handwritten signature in blue ink, appearing to read 'Betsy McGregor', is written over a light blue horizontal line.

Betsy McGregor
Senior Scientist and Regulatory Consultant

cc: oha.revcomp@alaska.gov
Mark Hilson, P.E., SEAPA
Sharon Thompson, SEAPA

From: [Betsy McGregor](#)
To: ["mailto:tribalpresident@hcatribes.org"](mailto:tribalpresident@hcatribes.org)
Subject: SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit
Date: Tuesday, November 26, 2024 12:07:00 PM
Attachments: [TyeeLakeHydro3015 NHPA Section106 Consultation Letter Hydaburg Cooperative Association 20241125.pdf](#)

Dear Sidney Edenshaw,

On behalf of SEAPA, please find the attached letter requesting consultation with the Hydaburg Cooperative Association pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act, associated with SEAPA's proposed capacity-related amendment to add a third turbine-generator unit to the empty bay at the Tyee Lake Hydroelectric Project, located about 40 miles southeast from Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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November 25, 2024

Via Email: info@kaketribalcorp.com

Kake Tribal Corporation
P.O. Box 263
Kake, AK 99830

Re: Initiation of National Historic Preservation Act Section 106 Consultation
Tyee Lake Capacity-Related License Amendment to Install Third Generating Unit
Tyee Lake Hydroelectric Project (FERC No. P-3015)

Dear Kake Tribal Corporation:

Southeast Alaska Power Agency (SEAPA) is the licensee for the 20-megawatt (MW) Tyee Lake Hydroelectric Project (Project; FERC No. P-3015), located at the head of Bradfield Canal approximately 40 miles southeast of Wrangell, Alaska. SEAPA is proposing a capacity-related amendment to its Federal Energy Regulatory Commission (FERC) license and Kleinschmidt Associates is supporting them through the process. The purpose of the proposed amendment is to gain authorization to install and operate a third turbine-generating unit (Third Unit) in the existing empty bay at the Tyee Lake powerhouse to meet the growing energy demand of SEAPA's service area. FERC has designated SEAPA as its non-federal representative for the purpose of conducting consultation with the Alaska State Historic Preservation Office, appropriate Alaska Native Tribes, and other interested parties pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act (NHPA) for the proposed license amendment. This letter provides an overview of SEAPA's proposed project and consultation approach.

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We look forward to receiving your comments and working with you as SEAPA moves forward with its goal of meeting the region's current energy demands. We will follow up to discuss meeting availability and preferences. If you have any questions regarding the proposed project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com. Thank you for your consideration and support of this proposed action.

Sincerely,

KLEINSCHMIDT ASSOCIATES

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Betsy McGregor
Senior Scientist and Regulatory Consultant

cc: oha.revcomp@alaska.gov
Mark Hilson, P.E., SEAPA
Sharon Thompson, SEAPA

From: [Betsy McGregor](#)
To: info@kaketribalcorp.com
Subject: SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit
Date: Tuesday, November 26, 2024 11:51:00 AM
Attachments: [TyeeLakeHydro3015 NHPA Section106 Consultation Letter Kake Tribal Corporation 20251125.pdf](#)

To Whom it May Concern,

On behalf of Southeast Alaska Power Agency (SEAPA), please find the attached letter requesting consultation with Kake Tribal Corporation regarding SEAPA's proposed capacity-related amendment to add a third turbine-generator unit to the empty bay at the Tyee Lake Hydroelectric Project, located about 40 miles southeast from Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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November 25, 2024

Via Email: president@kake-nsn.gov

Joel M. Jackson, IRA Council President
Organized Village of Kake
P.O. Box 316
Kake, AK 99830

Re: Initiation of National Historic Preservation Act Section 106 Consultation
Tyee Lake Capacity-Related License Amendment to Install Third Generating Unit
Tyee Lake Hydroelectric Project (FERC No. P-3015)

Dear Mr. Joel M. Jackson:

Southeast Alaska Power Agency (SEAPA) is the licensee for the 20-megawatt (MW) Tyee Lake Hydroelectric Project (Project; FERC No. P-3015), located at the head of Bradfield Canal approximately 40 miles southeast of Wrangell, Alaska. SEAPA is proposing a capacity-related amendment to its Federal Energy Regulatory Commission (FERC) license and Kleinschmidt Associates is supporting them through the process. The purpose of the proposed amendment is to gain authorization to install and operate a third turbine-generating unit (Third Unit) in the existing empty bay at the Tyee Lake powerhouse to meet the growing energy demand of SEAPA's service area. FERC has designated SEAPA as its non-federal representative for the purpose of conducting consultation with the Alaska State Historic Preservation Office, appropriate Alaska Native Tribes, and other interested parties pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act (NHPA) for the proposed license amendment. This letter provides an overview of SEAPA's proposed project and consultation approach.

The Project was designed and constructed with two installed 10-MW Pelton-style turbine generator units and provisions to add the Third Unit to meet future energy demands. Under a license issued by FERC in 1981, the 20-MW Project began operations in May 1984 servicing the communities of Wrangell and Petersburg. Since SEAPA completed its 57-mile-long Swan-Tyee Intertie in 2009, the Project has been connected to SEAPA's Swan Lake Hydroelectric Project (FERC No. P-2911) and the community of Ketchikan. SEAPA coordinates the operation of the Project and the Swan Lake Hydroelectric Project to maximize output and optimize water resources to provide power to Wrangell, Petersburg, and Ketchikan.

The electricity demand of the three communities currently exceeds the capacity of the region's hydroelectric projects, including SEAPA's total installed capacity. SEAPA is proposing to install an additional 10-MW Pelton-style turbine generator in the empty bay within the powerhouse and a third transformer within the footprint of the existing switchyard. Construction would occur wholly within the built environment; no new ground-disturbing activities are proposed. The proposed project would be operated within the same Tyee Lake levels currently licensed and within SEAPA's existing water rights permits. The addition of the Third Unit would provide added generation to meet current and future demands and reduce the need for and reliance on diesel generation. The Third Unit would also increase operational flexibility, increase reserves and system reliability, and provide redundancy to the two existing units.

On October 8, 2024, SEAPA filed its Draft Amendment Application and Preliminary Draft Environmental Assessment with FERC, noticed its availability, and requested participation in the Joint Agency Public Meeting sessions that were held November 14, 2024 in Ketchikan. The Draft Amendment Application describing the proposed project and potential effects from the proposed project as well as the November 14, 2024 meeting presentation can be found on SEAPA's website at [Southeast Alaska Power Agency | SEAPA](#). SEAPA is requesting comments to the Draft Amendment Application and the proposed project by December 9, 2024.

Because the proposed project is anticipated to have minimal environmental impact, SEAPA has not proposed any new studies which would typically occur during the second stage of consultation for a FERC license amendment. SEAPA intends to file with FERC a Motion for Waiver (waiver) of Second Stage Consultation (18 CFR 4.38(a)(9)) and Request to Substitute the Preliminary Draft Environmental Assessment (PDEA) pursuant to the FERC regulations for the Exhibit E (18 CFR 4.51(f)) and the requirements of the National Environmental Policy Act, and respectfully requests your support. It is important to note that the proposed waiver does not eliminate or change any processes or requirements to consult with you under Section 106 of the NHPA; it only recognizes that the nature of the activity does not warrant resource-specific studies.

We would like to meet with you to introduce ourselves and the proposed project and discuss any concerns regarding the proposed project or SEAPA's proposed license amendment process. SEAPA is requesting this meeting in recognition of the vital knowledge that Indigenous Tribal communities hold. SEAPA operates on principles of transparency, diversity, and honesty in every aspect of our business. We are firmly committed to fostering an environment of open communication and mutual respect with Tribal nations, where Tribal input is central to responsible energy development.

We look forward to receiving your comments and working with you as SEAPA moves forward with its goal of meeting the region's current energy demands. We will follow up to discuss meeting availability and preferences. If you have any questions regarding the proposed project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com. Thank you for your consideration and support of this proposed action.

Sincerely,

KLEINSCHMIDT ASSOCIATES

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Betsy McGregor
Senior Scientist and Regulatory Consultant

cc: oha.revcomp@alaska.gov
Mark Hilson, P.E., SEAPA
Sharon Thompson, SEAPA

From: [Betsy McGregor](#)
To: <mailto:president@kake-nsn.gov>
Subject: SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit
Date: Tuesday, November 26, 2024 12:13:00 PM
Attachments: [TyeeLakeHydro3015 NHPA Section106 Consultation Letter Organized Village of Kake 20241125.pdf](#)

Dear Mr. Jackson,

On behalf of SEAPA, please find the attached letter requesting consultation with the Organized Village of Kake pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act, associated with SEAPA's proposed capacity-related amendment to add a third turbine-generator unit to the empty bay at the Tyee Lake Hydroelectric Project, located about 40 miles southeast from Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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November 25, 2024

Via Email: tgallegos@kictribe.org

Tony Gallegos, Cultural Resources Director
Ketchikan Indian Community
429 Deermount St.
Ketchikan, Alaska, 99901

Re: Initiation of National Historic Preservation Act Section 106 Consultation
Tyee Lake Capacity-Related License Amendment to Install Third Generating Unit
Tyee Lake Hydroelectric Project (FERC No. P-3015)

Dear Mr. Tony Gallegos

Southeast Alaska Power Agency (SEAPA) is the licensee for the 20-megawatt (MW) Tyee Lake Hydroelectric Project (Project; FERC No. P-3015), located at the head of Bradfield Canal approximately 40 miles southeast of Wrangell, Alaska. SEAPA is proposing a capacity-related amendment to its Federal Energy Regulatory Commission (FERC) license and Kleinschmidt Associates is supporting them through the process. The purpose of the proposed amendment is to gain authorization to install and operate a third turbine-generating unit (Third Unit) in the existing empty bay at the Tyee Lake powerhouse to meet the growing energy demand of SEAPA's service area. FERC has designated SEAPA as its non-federal representative for the purpose of conducting consultation with the Alaska State Historic Preservation Office, appropriate Alaska Native Tribes, and other interested parties pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act (NHPA) for the proposed license amendment. This letter provides an overview of SEAPA's proposed project and consultation approach.

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committed to fostering an environment of open communication and mutual respect with Tribal nations, where Tribal input is central to responsible energy development.

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Sincerely,

KLEINSCHMIDT ASSOCIATES

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Betsy McGregor

Senior Scientist and Regulatory Consultant

cc: oha.revcomp@alaska.gov
Mark Hilson, P.E., SEAPA
Sharon Thompson, SEAPA

From: [Betsy McGregor](#)
To: ["tgalegos@kictribe.org"](mailto:tgalegos@kictribe.org)
Subject: SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit
Date: Tuesday, November 26, 2024 12:09:00 PM
Attachments: [TyeeLakeHydro3015 NHPA Section106 Consultation Letter Ketchikan Indian Community 20241125.pdf](#)

Dear Mr. Gallegos,

On behalf of SEAPA, please find the attached letter requesting consultation with the Ketchikan Indian Community pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act, associated with SEAPA's proposed capacity-related amendment to add a third turbine-generator unit to the empty bay at the Tyee Lake Hydroelectric Project, located about 40 miles southeast from Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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November 25, 2024

Via Email: judi@metlakatla.com

Judith Eaton, Secretary of Metlakatla
Metlakatla Indian Community
Annette Islands Reserve
P.O. Box 8
Metlakatla, AK 99926

Re: Initiation of National Historic Preservation Act Section 106 Consultation
Tyee Lake Capacity-Related License Amendment to Install Third Generating Unit
Tyee Lake Hydroelectric Project (FERC No. P-3015)

Dear Ms. Judith Eaton:

Southeast Alaska Power Agency (SEAPA) is the licensee for the 20-megawatt (MW) Tyee Lake Hydroelectric Project (Project; FERC No. P-3015), located at the head of Bradfield Canal approximately 40 miles southeast of Wrangell, Alaska. SEAPA is proposing a capacity-related amendment to its Federal Energy Regulatory Commission (FERC) license and Kleinschmidt Associates is supporting them through the process. The purpose of the proposed amendment is to gain authorization to install and operate a third turbine-generating unit (Third Unit) in the existing empty bay at the Tyee Lake powerhouse to meet the growing energy demand of SEAPA's service area. FERC has designated SEAPA as its non-federal representative for the purpose of conducting consultation with the Alaska State Historic Preservation Office, appropriate Alaska Native Tribes, and other interested parties pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act (NHPA) for the proposed license amendment. This letter provides an overview of SEAPA's proposed project and consultation approach.

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Sincerely,

KLEINSCHMIDT ASSOCIATES

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Betsy McGregor
Senior Scientist and Regulatory Consultant

cc: oha.revcomp@alaska.gov
Mark Hilson, P.E., SEAPA
Sharon Thompson, SEAPA

From: [Betsy McGregor](#)
To: ["judi@metlakatla.com"](mailto:judi@metlakatla.com)
Subject: SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit
Date: Tuesday, November 26, 2024 12:12:00 PM
Attachments: [TyeeLakeHydro3015_NHPA_Section106_Consultation_Letter_Metlakatla_Indian_Community_Annette_Island_Reserve_20241125.pdf](#)

Dear Ms. Eaton,

On behalf of SEAPA, please find the attached letter requesting consultation with the Metlakatla Indian Community – Annette Islands Reserve pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act, associated with SEAPA's proposed capacity-related amendment to add a third turbine-generator unit to the empty bay at the Tyee Lake Hydroelectric Project, located about 40 miles southeast from Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist



O: 907-885-3418

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November 25, 2024

Via Email: tribaladmin@piatribal.org

Chad Wright, Tribal Administrator
Petersburg Indian Association
P.O. Box 1410
15 North 12th St
Petersburg, AK 99833

Re: Initiation of National Historic Preservation Act Section 106 Consultation
Tyee Lake Capacity-Related License Amendment to Install Third Generating Unit
Tyee Lake Hydroelectric Project (FERC No. P-3015)

Dear Mr. Chad Wright:

Southeast Alaska Power Agency (SEAPA) is the licensee for the 20-megawatt (MW) Tyee Lake Hydroelectric Project (Project; FERC No. P-3015), located at the head of Bradfield Canal approximately 40 miles southeast of Wrangell, Alaska. SEAPA is proposing a capacity-related amendment to its Federal Energy Regulatory Commission (FERC) license and Kleinschmidt Associates is supporting them through the process. The purpose of the proposed amendment is to gain authorization to install and operate a third turbine-generating unit (Third Unit) in the existing empty bay at the Tyee Lake powerhouse to meet the growing energy demand of SEAPA's service area. FERC has designated SEAPA as its non-federal representative for the purpose of conducting consultation with the Alaska State Historic Preservation Office, appropriate Alaska Native Tribes, and other interested parties pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act (NHPA) for the proposed license amendment. This letter provides an overview of SEAPA's proposed project and consultation approach.

The Project was designed and constructed with two installed 10-MW Pelton-style turbine generator units and provisions to add the Third Unit to meet future energy demands. Under a license issued by FERC in 1981, the 20-MW Project began operations in May 1984 servicing the communities of Wrangell and Petersburg. Since SEAPA completed its 57-mile-long Swan-Tyee Intertie in 2009, the Project has been connected to SEAPA's Swan Lake Hydroelectric Project (FERC No. P-2911) and the community of Ketchikan. SEAPA coordinates the operation of the Project and the Swan Lake Hydroelectric Project to

maximize output and optimize water resources to provide power to Wrangell, Petersburg, and Ketchikan.

The electricity demand of the three communities currently exceeds the capacity of the region's hydroelectric projects, including SEAPA's total installed capacity. SEAPA is proposing to install an additional 10-MW Pelton-style turbine generator in the empty bay within the powerhouse and a third transformer within the footprint of the existing switchyard. Construction would occur wholly within the built environment; no new ground-disturbing activities are proposed. The proposed project would be operated within the same Tyee Lake levels currently licensed and within SEAPA's existing water rights permits. The addition of the Third Unit would provide added generation to meet current and future demands and reduce the need for and reliance on diesel generation. The Third Unit would also increase operational flexibility, increase reserves and system reliability, and provide redundancy to the two existing units.

On October 8, 2024, SEAPA filed its Draft Amendment Application and Preliminary Draft Environmental Assessment with FERC, noticed its availability, and requested participation in the Joint Agency Public Meeting sessions that were held November 14, 2024 in Ketchikan. The Draft Amendment Application describing the proposed project and potential effects from the proposed project as well as the November 14, 2024 meeting presentation can be found on SEAPA's website at [Southeast Alaska Power Agency | SEAPA](#). SEAPA is requesting comments to the Draft Amendment Application and the proposed project by December 9, 2024.

Because the proposed project is anticipated to have minimal environmental impact, SEAPA has not proposed any new studies which would typically occur during the second stage of consultation for a FERC license amendment. SEAPA intends to file with FERC a Motion for Waiver (waiver) of Second Stage Consultation (18 CFR 4.38(a)(9)) and Request to Substitute the Preliminary Draft Environmental Assessment (PDEA) pursuant to the FERC regulations for the Exhibit E (18 CFR 4.51(f)) and the requirements of the National Environmental Policy Act, and respectfully requests your support. It is important to note that the proposed waiver does not eliminate or change any processes or requirements to consult with you under Section 106 of the NHPA; it only recognizes that the nature of the activity does not warrant resource-specific studies.

We would like to meet with you to introduce ourselves and the proposed project and discuss any concerns regarding the proposed project or SEAPA's proposed license amendment process. SEAPA is requesting this meeting in recognition of the vital knowledge that Indigenous Tribal communities hold. SEAPA operates on principles of transparency, diversity, and honesty in every aspect of our business. We are firmly

committed to fostering an environment of open communication and mutual respect with Tribal nations, where Tribal input is central to responsible energy development.

We look forward to receiving your comments and working with you as SEAPA moves forward with its goal of meeting the region's current energy demands. We will follow up to discuss meeting availability and preferences. If you have any questions regarding the proposed project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com. Thank you for your consideration and support of this proposed action.

Sincerely,

KLEINSCHMIDT ASSOCIATES

A handwritten signature in blue ink, appearing to read 'Betsy McGregor', is written over a faint, larger signature.

Betsy McGregor
Senior Scientist and Regulatory Consultant

cc: oha.revcomp@alaska.gov
Mark Hilson, P.E., SEAPA
Sharon Thompson, SEAPA

From: [Betsy McGregor](#)
To: tribaladmin@piatribal.org
Subject: SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit
Date: Tuesday, November 26, 2024 12:15:00 PM
Attachments: [TyeeLakeHydro3015 NHPA Section106 Consultation Letter Petersburg Indian Association 20241125.pdf](#)

Dear Mr. Wright,

On behalf of SEAPA, please find the attached letter requesting consultation with the Petersburg Indian Association pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act, associated with SEAPA's proposed capacity-related amendment to add a third turbine-generator unit to the empty bay at the Tyee Lake Hydroelectric Project, located about 40 miles southeast from Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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November 25, 2024

Via Email: saxmanira@kpunet.net

Winona Wallace, Tribal Administrator
Organized Village of Saxman
2706 S Tongass Highway
Route 2 Box 2
Saxman, AK 99901

Re: Initiation of National Historic Preservation Act Section 106 Consultation
Tyee Lake Capacity -Related License Amendment to Install Third Generating
Unit Tyee Lake Hydroelectric Project (FERC No. P-3015)

Dear Ms. Winona Wallace:

Southeast Alaska Power Agency (SEAPA) is the licensee for the 20-megawatt (MW) Tyee Lake Hydroelectric Project (Project; FERC No. P-3015), located at the head of Bradfield Canal approximately 40 miles southeast of Wrangell, Alaska. SEAPA is proposing a capacity-related amendment to its Federal Energy Regulatory Commission (FERC) license and Kleinschmidt Associates is supporting them through the process. The purpose of the proposed amendment is to gain authorization to install and operate a third turbine-generating unit (Third Unit) in the existing empty bay at the Tyee Lake powerhouse to meet the growing energy demand of SEAPA's service area. FERC has designated SEAPA as its non-federal representative for the purpose of conducting consultation with the Alaska State Historic Preservation Office, appropriate Alaska Native Tribes, and other interested parties pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act (NHPA) for the proposed license amendment. This letter provides an overview of SEAPA's proposed project and consultation approach.

The Project was designed and constructed with two installed 10-MW Pelton-style turbine generator units and provisions to add the Third Unit to meet future energy demands. Under a license issued by FERC in 1981, the 20-MW Project began operations in May 1984 servicing the communities of Wrangell and Petersburg. Since SEAPA completed its 57-mile-long Swan-Tyee Intertie in 2009, the Project has been connected to SEAPA's Swan Lake Hydroelectric Project (FERC No. P-2911) and the community of Ketchikan. SEAPA coordinates the operation of the Project and the Swan Lake Hydroelectric Project to

maximize output and optimize water resources to provide power to Wrangell, Petersburg, and Ketchikan.

The electricity demand of the three communities currently exceeds the capacity of the region's hydroelectric projects, including SEAPA's total installed capacity. SEAPA is proposing to install an additional 10-MW Pelton-style turbine generator in the empty bay within the powerhouse and a third transformer within the footprint of the existing switchyard. Construction would occur wholly within the built environment; no new ground-disturbing activities are proposed. The proposed project would be operated within the same Tyee Lake levels currently licensed and within SEAPA's existing water rights permits. The addition of the Third Unit would provide added generation to meet current and future demands and reduce the need for and reliance on diesel generation. The Third Unit would also increase operational flexibility, increase reserves and system reliability, and provide redundancy to the two existing units.

On October 8, 2024, SEAPA filed its Draft Amendment Application and Preliminary Draft Environmental Assessment with FERC, noticed its availability, and requested participation in the Joint Agency Public Meeting sessions that were held November 14, 2024 in Ketchikan. The Draft Amendment Application describing the proposed project and potential effects from the proposed project as well as the November 14, 2024 meeting presentation can be found on SEAPA's website at [Southeast Alaska Power Agency | SEAPA](#). SEAPA is requesting comments to the Draft Amendment Application and the proposed project by December 9, 2024.

Because the proposed project is anticipated to have minimal environmental impact, SEAPA has not proposed any new studies which would typically occur during the second stage of consultation for a FERC license amendment. SEAPA intends to file with FERC a Motion for Waiver (waiver) of Second Stage Consultation (18 CFR 4.38(a)(9)) and Request to Substitute the Preliminary Draft Environmental Assessment (PDEA) pursuant to the FERC regulations for the Exhibit E (18 CFR 4.51(f)) and the requirements of the National Environmental Policy Act, and respectfully requests your support. It is important to note that the proposed waiver does not eliminate or change any processes or requirements to consult with you under Section 106 of the NHPA; it only recognizes that the nature of the activity does not warrant resource-specific studies.

We would like to meet with you to introduce ourselves and the proposed project and discuss any concerns regarding the proposed project or SEAPA's proposed license amendment process. SEAPA is requesting this meeting in recognition of the vital knowledge that Indigenous Tribal communities hold. SEAPA operates on principles of transparency, diversity, and honesty in every aspect of our business. We are firmly

committed to fostering an environment of open communication and mutual respect with Tribal nations, where Tribal input is central to responsible energy development.

We look forward to receiving your comments and working with you as SEAPA moves forward with its goal of meeting the region's current energy demands. We will follow up to discuss meeting availability and preferences. If you have any questions regarding the proposed project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com. Thank you for your consideration and support of this proposed action.

Sincerely,

KLEINSCHMIDT ASSOCIATES

A handwritten signature in blue ink, appearing to read 'Betsy McGregor', is written over a faint, larger signature.

Betsy McGregor

Senior Scientist and Regulatory Consultant

cc: oha.revcomp@alaska.gov
Mark Hilson, P.E., SEAPA
Sharon Thompson, SEAPA

From: [Betsy McGregor](#)
To: saxmanira@kpunet.net
Subject: SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit
Date: Tuesday, November 26, 2024 12:01:00 PM
Attachments: [TyeeLakeHydro3015 NHPA Section106 Consultation Letter Organized Village of Saxman 20241125.pdf](#)

Ms. Wallace,

On behalf of SEAPA, please find the attached letter requesting consultation with the Organized Village of Saxman pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act, associated with SEAPA's proposed capacity-related amendment to add a third turbine-generator unit to the empty bay at the Tyee Lake Hydroelectric Project, located about 40 miles southeast from Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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November 25, 2024

Via Email: corpsec@sealaska.com

Sealaska Corporation
1 Sealaska Plaza, Suite 400
Juneau, AK 99801

Re: Initiation of National Historic Preservation Act Section 106 Consultation

Tyee Lake Capacity-Related License Amendment to Install Third Generating Unit
Tyee Lake Hydroelectric Project (FERC No. P-3015)

Dear Sealaska Corporation:

Southeast Alaska Power Agency (SEAPA) is the licensee for the 20-megawatt (MW) Tyee Lake Hydroelectric Project (Project; FERC No. P-3015), located at the head of Bradfield Canal approximately 40 miles southeast of Wrangell, Alaska. SEAPA is proposing a capacity-related amendment to its Federal Energy Regulatory Commission (FERC) license and Kleinschmidt Associates is supporting them through the process. The purpose of the proposed amendment is to gain authorization to install and operate a third turbine-generating unit (Third Unit) in the existing empty bay at the Tyee Lake powerhouse to meet the growing energy demand of SEAPA's service area. FERC has designated SEAPA as its non-federal representative for the purpose of conducting consultation with the Alaska State Historic Preservation Office, appropriate Alaska Native Tribes, and other interested parties pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act (NHPA) for the proposed license amendment. This letter provides an overview of SEAPA's proposed project and consultation approach.

The Project was designed and constructed with two installed 10-MW Pelton-style turbine generator units and provisions to add the Third Unit to meet future energy demands. Under a license issued by FERC in 1981, the 20-MW Project began operations in May 1984 servicing the communities of Wrangell and Petersburg. Since SEAPA completed its 57-mile-long Swan-Tyee Intertie in 2009, the Project has been connected to SEAPA's Swan Lake Hydroelectric Project (FERC No. P-2911) and the community of Ketchikan. SEAPA coordinates the operation of the Project and the Swan Lake Hydroelectric Project to maximize output and optimize water resources to provide power to Wrangell, Petersburg, and Ketchikan.

The electricity demand of the three communities currently exceeds the capacity of the region's hydroelectric projects, including SEAPA's total installed capacity. SEAPA is proposing to install an additional 10-MW Pelton-style turbine generator in the empty bay within the powerhouse and a third transformer within the footprint of the existing switchyard. Construction would occur wholly within the built environment; no new ground-disturbing activities are proposed. The proposed project would be operated within the same Tyee Lake levels currently licensed and within SEAPA's existing water rights permits. The addition of the Third Unit would provide added generation to meet current and future demands and reduce the need for and reliance on diesel generation. The Third Unit would also increase operational flexibility, increase reserves and system reliability, and provide redundancy to the two existing units.

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Because the proposed project is anticipated to have minimal environmental impact, SEAPA has not proposed any new studies which would typically occur during the second stage of consultation for a FERC license amendment. SEAPA intends to file with FERC a Motion for Waiver (waiver) of Second Stage Consultation (18 CFR 4.38(a)(9)) and Request to Substitute the Preliminary Draft Environmental Assessment (PDEA) pursuant to the FERC regulations for the Exhibit E (18 CFR 4.51(f)) and the requirements of the National Environmental Policy Act, and respectfully requests your support. It is important to note that the proposed waiver does not eliminate or change any processes or requirements to consult with you under Section 106 of the NHPA; it only recognizes that the nature of the activity does not warrant resource-specific studies.

We would like to meet with you to introduce ourselves and the proposed project and discuss any concerns regarding the proposed project or SEAPA's proposed license amendment process. SEAPA is requesting this meeting in recognition of the vital knowledge that Indigenous Tribal communities hold. SEAPA operates on principles of transparency, diversity, and honesty in every aspect of our business. We are firmly committed to fostering an environment of open communication and mutual respect with Tribal nations, where Tribal input is central to responsible energy development.

We look forward to receiving your comments and working with you as SEAPA moves forward with its goal of meeting the region's current energy demands. We will follow up to discuss meeting availability and preferences. If you have any questions regarding the proposed project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com. Thank you for your consideration and support of this proposed action.

Sincerely,

KLEINSCHMIDT ASSOCIATES

A handwritten signature in blue ink, appearing to read 'Betsy McGregor', is written over a faint, larger signature.

Betsy McGregor
Senior Scientist and Regulatory Consultant

cc: oha.revcomp@alaska.gov
Mark Hilson, P.E., SEAPA
Sharon Thompson, SEAPA

From: [Betsy McGregor](#)
To: ["corpsec@sealaska.com"](mailto:corpsec@sealaska.com)
Subject: SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit
Date: Tuesday, November 26, 2024 11:50:00 AM
Attachments: [TyeeLakeHydro3015 NHPA Section106 Consultation Letter Sealaska Corporation 20241125.pdf](#)

To Whom it May Concern,

On behalf of Southeast Alaska Power Agency (SEAPA), please find the attached letter requesting consultation with Sealaska Corporation regarding SEAPA's proposed capacity-related amendment to add a third turbine-generator unit to the empty bay at the Tyee Lake Hydroelectric Project, located about 40 miles southeast from Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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November 25, 2024

Via Email: wcatrube@gmail.com

Esther Reese, Tribal Administrator
Wrangell Cooperative Association
P.O. Box 2021
1002 Zimovia Highway
Wrangell, AK 99929

Re: Initiation of National Historic Preservation Act Section 106 Consultation

Tyee Lake Capacity-Related License Amendment to Install Third Generating Unit
Tyee Lake Hydroelectric Project (FERC No. P-3015)

Dear Ms. Esther Reese

Southeast Alaska Power Agency (SEAPA) is the licensee for the 20-megawatt (MW) Tyee Lake Hydroelectric Project (Project; FERC No. P-3015), located at the head of Bradfield Canal approximately 40 miles southeast of Wrangell, Alaska. SEAPA is proposing a capacity-related amendment to its Federal Energy Regulatory Commission (FERC) license and Kleinschmidt Associates is supporting them through the process. The purpose of the proposed amendment is to gain authorization to install and operate a third turbine-generating unit (Third Unit) in the existing empty bay at the Tyee Lake powerhouse to meet the growing energy demand of SEAPA's service area. FERC has designated SEAPA as its non-federal representative for the purpose of conducting consultation with the Alaska State Historic Preservation Office, appropriate Alaska Native Tribes, and other interested parties pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act (NHPA) for the proposed license amendment. This letter provides an overview of SEAPA's proposed project and consultation approach.

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Because the proposed project is anticipated to have minimal environmental impact, SEAPA has not proposed any new studies which would typically occur during the second stage of consultation for a FERC license amendment. SEAPA intends to file with FERC a Motion for Waiver (waiver) of Second Stage Consultation (18 CFR 4.38(a)(9)) and Request to Substitute the Preliminary Draft Environmental Assessment (PDEA) pursuant to the FERC regulations for the Exhibit E (18 CFR 4.51(f)) and the requirements of the National Environmental Policy Act, and respectfully requests your support. It is important to note that the proposed waiver does not eliminate or change any processes or requirements to consult with you under Section 106 of the NHPA; it only recognizes that the nature of the activity does not warrant resource-specific studies.

We would like to meet with you to introduce ourselves and the proposed project and discuss any concerns regarding the proposed project or SEAPA's proposed license amendment process. SEAPA is requesting this meeting in recognition of the vital knowledge that Indigenous Tribal communities hold. SEAPA operates on principles of transparency, diversity, and honesty in every aspect of our business. We are firmly

committed to fostering an environment of open communication and mutual respect with Tribal nations, where Tribal input is central to responsible energy development.

We look forward to receiving your comments and working with you as SEAPA moves forward with its goal of meeting the region's current energy demands. We will follow up to discuss meeting availability and preferences. If you have any questions regarding the proposed project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com. Thank you for your consideration and support of this proposed action.

Sincerely,

KLEINSCHMIDT ASSOCIATES

A handwritten signature in blue ink, appearing to read 'Betsy McGregor', is written over a faint, larger signature.

Betsy McGregor
Senior Scientist and Regulatory Consultant

cc: oha.revcomp@alaska.gov
Mark Hilson, P.E., SEAPA
Sharon Thompson, SEAPA

From: [Betsy McGregor](#)
To: wcatribegmail.com
Subject: SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit
Date: Tuesday, November 26, 2024 12:05:00 PM
Attachments: [TyeeLakeHydro3015 NHPA Section106 Consultation Letter Wrangell Cooperative Association 20241125.pdf](#)

Ms. Reese,

On behalf of SEAPA, please find the attached letter requesting consultation with the Wrangell Cooperative Association pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act, associated with SEAPA's proposed capacity-related amendment to add a third turbine-generator unit to the empty bay at the Tyee Lake Hydroelectric Project, located about 40 miles southeast from Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: [Betsy McGregor](#)
To: [Judith Eaton](#)
Cc: [Albert Smith](#); [Keolani Booth](#); [Mark Hilson](#)
Subject: RE: [EXTERNAL]SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit
Date: Monday, December 2, 2024 3:51:00 PM

Hello.

Thank you, Judith for extending this information to Mayor Smith and Mr. Booth. We would be happy to set up a virtual meeting later this week to provide an overview of the proposed project and FERC regulatory process and answer any questions about the project. Please let us know if there is interest in holding a meeting or any questions that you may have.

We look forward to hearing from you.

Regards,
Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: Judith Eaton <Judi@metlakatla.com>
Sent: Tuesday, November 26, 2024 3:30 PM
To: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Cc: Albert Smith <ASmith@metlakatla.com>; Keolani Booth <keoboath@gmail.com>
Subject: Re: [EXTERNAL]SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit

Good afternoon, Ms. McGregor

I have cc'd our Mayor, Albert Smith and Keolani Booth, Chair of our Metlakatla Power & Light Board. They may have some input.

Judith



Judith A. Eaton,
Executive Tribal Secretary
Metlakatla Indian Community
P.O. Box 8 | 8th & Milton Street
Metlakatla, Alaska 99926
(907) 886-4441 ext. 2223
(907) 617-9982

Confidentiality Statement

This message is intended only for the use of the individuals to which this e-mail is addressed, and may contain information that is privileged, confidential and exempt from disclosure under applicable laws. If you are not the intended recipient of this e-mail, you are hereby notified that any dissemination, distribution or copying of this communication is strictly prohibited. If you have received this e-mail in error, please notify the sender immediately and delete this e-mail from both your "mailbox" and your "trash." Thank you.

From: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>

Sent: Tuesday, November 26, 2024 12:12 PM

To: Judith Eaton <Judi@metlakatla.com>

Subject: [EXTERNAL]SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit

You don't often get email from betsy.mcgregor@kleinschmidtgroup.com. [Learn why this is important](#)

Dear Ms. Eaton,

On behalf of SEAPA, please find the attached letter requesting consultation with the Metlakatla Indian Community – Annette Islands Reserve pursuant to 36 CFR 800.29(c)(4) implementing Section 106 of the National Historic Preservation Act, associated with SEAPA's proposed capacity-related amendment to add a third turbine-generator unit to the empty bay at the Tyee Lake Hydroelectric Project, located about 40 miles southeast from Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: [Betsy McGregor](#)
To: [Nicole Anderson](#)
Cc: [Joseph Nelson](#); [Mark Hilson](#)
Subject: RE: SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit
Date: Monday, December 2, 2024 3:53:00 PM
Attachments: [image002.png](#)

Hello.

Thank you, Nicole for extending this information to Mr. Nelson. We would be happy to set up a virtual meeting later this week to provide an overview of the proposed project and FERC regulatory process and answer any questions about the project. Please let us know if there is interest in holding a meeting or any questions that you may have.

We look forward to hearing from you.

Regards,
Betsy

Betsy McGregor

Senior Scientist



O: 907-885-3418

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From: Nicole Anderson <nicole.anderson@sealaska.com>
Sent: Tuesday, November 26, 2024 2:04 PM
To: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Cc: Joseph Nelson <joe.nelson@sealaska.com>
Subject: Re: SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit

You don't often get email from nicole.anderson@sealaska.com. [Learn why this is important](#)

Hello Betsy,

Thank you for the invitation. We greatly appreciate the opportunity and have received the information you provided. I have also included our Interim President, Joe Nelson, in this correspondence for his awareness.

Looking forward to the collaboration.

Gunalchéesh,

NICOLE ANDERSON | *Chooshdatlâa* (she/her/hers)

Corporate Secretary | Sealaska

One Sealaska Plaza, Ste. 400 Juneau, AK 99801

sealaska.com | mysealaska.com



From: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>

Sent: Tuesday, November 26, 2024 11:50 AM

To: corpsec <corpsec@sealaska.com>

Subject: SEAPA Tyee Lake Hydroelectric Project FERC No. P-3015 - Capacity Amendment to add Third Turbine-Generator Unit

EXTERNAL EMAIL: Please use caution and only open attachments from a trusted source.

To Whom it May Concern,

On behalf of Southeast Alaska Power Agency (SEAPA), please find the attached letter requesting consultation with Sealaska Corporation regarding SEAPA's proposed capacity-related amendment to add a third turbine-generator unit to the empty bay at the Tyee Lake Hydroelectric Project, located about 40 miles southeast from Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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THE STATE
of **ALASKA**
GOVERNOR SEAN PARNELL

Department of Fish and Game

DIVISION OF HABITAT
Southeast Region Office

802 3rd Street
Douglas, AK 99824-5412
P.O. Box 110024
Juneau, Alaska 99811-0024
Main: 907.465.4105
Fax: 907.465.4759

FISH HABITAT PERMIT FH14-I-0107

ISSUED: September 5, 2014

Southeast Alaska Power Agency
ATTN: Steve Henson
1900 First Avenue, Suite 318
Ketchikan, AK 99901

RE: Tyee Lake Hydro Utility Line
Crossing 1 – Stream No. 107-40-10537-2008-3005 (trench and backfill);
Sec 22, T 65 S, R 90 E, CRM (BRA A5 Quad)
Location: 56.2172 N, 131.488 W
Crossing 2 – Stream No. 107-40-10537-2010 (attached to culvert)

Dear Mr. Henson:

Pursuant to AS 16.05.871(b), the Alaska Department of Fish and Game (ADF&G), Division of Habitat has reviewed your proposal to install a satellite dish at the Lake Tyee Hydro Facility.

Project Description

You will install about 1400 feet of utility line between the existing powerhouse and a proposed satellite dish location. A tracked trencher will dig a 6 inch wide by 4 foot deep trench and material will be backfilled. The utility will cross two cataloged streams. You will dig a trench in Stream No. 107-40-10537-2008-3005 and backfill material at low tide. The utility line will be attached to the inside of a culvert crossing under the airstrip at a second location and no trenching will occur in Stream No. 107-40-10537-2010.

Anadromous Fish Act

These unnamed streams have been specified as being important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). Stream No. 107-40-10537-2008-3005 and 107-40-10537-2010 provide habitat for coho salmon.

In accordance with AS 16.05.871(d), project approval is hereby given subject to the project description above and the terms of this permit.

You are responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved project. For any activity that significantly deviates from the approved plan, you shall notify the Division of Habitat and obtain written approval in the form of a permit amendment before beginning the activity. Any action that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any stipulation contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of the Division of Habitat. Therefore, it is recommended you consult the Division of Habitat immediately when a deviation from the approved plan is being considered.

For the purpose of inspecting or monitoring compliance with any condition of this permit, you shall give an authorized representative of the state free and unobstructed access, at safe and reasonable times, to the permit site. You shall furnish whatever assistance and information as the authorized representative reasonably requires for monitoring and inspection purposes.

This letter constitutes a permit issued under the authority of AS 16.05.871 and must be retained on site during project activities. Please be advised that this determination applies only to activities regulated by the Division of Habitat; other agencies also may have jurisdiction under their respective authorities. This determination does not relieve you of your responsibility to secure other permits; state, federal, or local. You are still required to comply with all other applicable laws.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. The department reserves the right to require mitigation measures to correct disruption to fish and game created by the project and which was a direct result of the failure to comply with this permit or any applicable law.

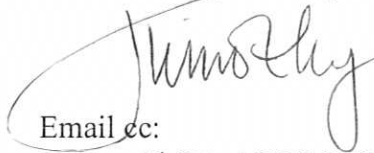
You shall indemnify, save harmless, and defend the department, its agents, and its employees from any and all claims, actions, or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or your performance under this permit. However, this provision has no effect if, and only if, the sole proximate cause of the injury is the department's negligence.

This permit decision may be appealed in accordance with the provisions of AS 44.62.330-630.

Any questions or concerns about this permit may be directed to Habitat Biologist Johnny Zutz at (907) 209-0275 or emailed to johnny.zutz@alaska.gov.

Sincerely,
Cora Campbell
Commissioner

By Jackie Timothy
Southeast Regional Supervisor

A handwritten signature in cursive script, appearing to read "Timothy".

Email cc:

Al Ott, ADF&G Habitat, Fairbanks
All, ADF&G Habitat, Juneau
Patrick Fowler, ADF&G/SF, Juneau
Troy Thynes, ADF&G/CF, Juneau
Scott Ayers, ADF&G/SF, Anchorage
Steve Brockmann, USFWS, Juneau
Randy Vigil, USACE, Juneau
NMFS-HCD, Juneau

From: [Kanouse, Kate M \(DFG\)](#)
To: [Betsy McGregor](#)
Subject: Re: Tyee Lake Amendment - follow-up to Joint Agency Meeting
Date: Tuesday, December 3, 2024 11:47:40 AM
Attachments: [FH14-I-0107 Tyee Utility Line SEAPA.pdf](#)
[FH10-I-0160 Tyee Lake water use.pdf](#)

You don't often get email from kate.kanouse@alaska.gov. [Learn why this is important](#)

[Pink Salmon Use of the Tyee Lake Hydro Tailrace](#)

From: Sowa, Jarrod J (DFG) <jarrod.sowa@alaska.gov>
Sent: Friday, November 29, 2024 2:08 PM
To: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Cc: Kanouse, Kate M (DFG) <kate.kanouse@alaska.gov>; Larquier, Ann M (DFG) <ann.larquier@alaska.gov>
Subject: RE: Tyee Lake Amendment - follow-up to Joint Agency Meeting

Hi Betsy-

Kate Kanouse with ADF&G Habitat Division provided the following comment after reviewing the Draft Amendment Application. "I have one comment needing follow-up:
Page B-3 states the hydro is shutdown up to 10 days each year for maintenance during which time they divert 3 cfs to the tailrace—I did not see supporting information for determining the diversion volume, which could interfere with fish, fish passage, and fish resources depending on timing. Habitat has not issued a Fish Habitat Permit for such activities, which may require a timing window to limit impacts to fishery resources, except under emergency situations. We need more information to determine if a permit is necessary; can you please request info about their usual maintenance timing and why 3 cfs is the minimum release?"

Draft Amendment Application Page B-3

1.2 Project Operation and Operation During Maintenance Activities

Tyee Lake is a naturally formed lake that is dependent on inflows from snowmelt and seasonal precipitation. The single lake tap intake can only discharge within the limits of the turbines. If a maintenance activity requires a Tyee Lake drawdown, SEAPA may control reservoir levels by limiting summer refill from runoff and otherwise coordinating with Swan Lake operations to lower Tyee Lake levels. The Project is typically shut down for 10 days each year during summer to perform routine maintenance activities. During this time, 3 cfs is diverted to supply station service at 100 kW.

Can you please help us address Kate's comment?

Thanks,

Jarrod

From: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>

Sent: Wednesday, November 20, 2024 9:14 AM

To: Sowa, Jarrod J (DFG) <jarrod.sowa@alaska.gov>

Cc: Klein, Joseph P (DFG) <joe.klein@alaska.gov>

Subject: Tyee Lake Amendment - follow-up to Joint Agency Meeting

CAUTION: This email originated from outside the State of Alaska mail system. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Jarrod.

Thank you for attending the Tyee Lake Capacity Amendment Joint Agency Meeting last week. I am following up with you to see if you have any questions about the proposed amendment or the information presented in the Draft Amendment Application or the Preliminary Draft Environmental Assessment.

Because the Tyee Lake Project was constructed with provisions for a third turbine-generator unit and the potential environmental effects are anticipated to be de minimis, the Southeast Alaska Power Agency (SEAPA) intends to file a motion with FERC to waive second stage consultation (e.g., new studies) pursuant to Rule 212 of FERC's Rules of Practice and Procedure [18 CFR 385.212]. SEAPA will be seeking support from the regulatory agencies for its motion. If ADF&G requires additional information on any of the resources or has any concerns, we would like to set up a meeting to discuss further.

Thank you for your participation in this process. We look forward to hearing from you.

Best,
Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: [Betsy McGregor](#)
To: ["Sowa, Jarrod J \(DFG\)"; Mark Hilson](#)
Cc: [Larquier, Ann M \(DFG\)](#)
Subject: RE: Tyee Lake Amendment - follow-up to Joint Agency Meeting
Date: Tuesday, December 3, 2024 10:28:00 AM

Hi Jarrod.

Thank you for reaching out. I left a voicemail with Kate yesterday seeking some clarification on her comment, but we have not yet connected. We were seeking clarification if Kate's question pertained to fish resources and fish passage within the tailrace.

To clarify, there would be no change to the maintenance operations from the proposed amendment of adding a third turbine. The project has ceased operations annually for about 4 to 10 days to complete necessary routine maintenance since the facility was brought online in the early 1980s. The project also ceases operation if the Tyee Lake level approaches the lower allowable draft limit. The estimated discharge of 3 cfs from the lake through the powerhouse and tailrace was based on the amount of water needed to service the station at about 100 kW while required maintenance activities occur.

There is currently no minimum flow requirement to the tailrace. The tailrace is a 1,100-foot-long constructed channel that leads from the powerhouse to Airstrip Slough/Hydro Creek, with a gradient of about 0.5%. The tailrace, as well as Airstrip Slough/Hydro Creek, are tidally influenced. The tailrace channel had been developed as an experimental artificial spawning channel for pink salmon, which was periodically monitored by ADF&G, to mitigate for anticipated loss of salmon spawning habitat in lower Hidden Creek from project operations. In ADF&G's most recent report, the agency concluded that the tailrace channel provides low quality spawning habitat that has and will continue to further degrade over time because there is no continual source of appropriate spawning gravel. The ADF&G report also concluded that because year-round flows have been maintained in Hidden Creek since the project began operations in 1984, mitigation for the potential loss of salmon spawning habitat was not needed.

We are happy to meet to discuss this further to better understand the question raised. Mark and I are both available this week.

Regards,
Betsy

Betsy McGregor
Senior Scientist

The logo for Kleinschmidt, featuring the company name in a bold, italicized, sans-serif font with a green underline.

O: 907-885-3418

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Out of Office: December 16; December 20 - 27

From: Sowa, Jarrod J (DFG) <jarrod.sowa@alaska.gov>
Sent: Tuesday, December 3, 2024 9:44 AM
To: Mark Hilson <mhilson@seapahydro.org>
Cc: Larquier, Ann M (DFG) <ann.larquier@alaska.gov>; Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Subject: FW: Tyee Lake Amendment - follow-up to Joint Agency Meeting

Hi Mark,

F&G is working to complete our comments regarding the Tyee Lake Amendment before the upcoming deadline on December 9. Can you help us address the question below from Kate Kanouse?

Thanks,

Jarrod

From: Sowa, Jarrod J (DFG)
Sent: Friday, November 29, 2024 2:09 PM
To: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Cc: Kanouse, Kate M (DFG) <kate.kanouse@alaska.gov>; Larquier, Ann M (DFG) <ann.larquier@alaska.gov>
Subject: RE: Tyee Lake Amendment - follow-up to Joint Agency Meeting

Hi Betsy-

Kate Kanouse with ADF&G Habitat Division provided the following comment after reviewing the Draft Amendment Application. "I have one comment needing follow-up:
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Draft Amendment Application Page B-3

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Tyee Lake is a naturally formed lake that is dependent on inflows from snowmelt and seasonal

precipitation. The single lake tap intake can only discharge within the limits of the turbines. If a maintenance activity requires a Tyee Lake drawdown, SEAPA may control reservoir levels by limiting summer refill from runoff and otherwise coordinating with Swan Lake operations to lower Tyee Lake levels. The Project is typically shut down for 10 days each year during summer to perform routine maintenance activities. During this time, 3 cfs is diverted to supply station service at 100 kW.

Can you please help us address Kate's comment?

Thanks,

Jarrold

From: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>

Sent: Wednesday, November 20, 2024 9:14 AM

To: Sowa, Jarrod J (DFG) <jarrod.sowa@alaska.gov>

Cc: Klein, Joseph P (DFG) <joe.klein@alaska.gov>

Subject: Tyee Lake Amendment - follow-up to Joint Agency Meeting

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Because the Tyee Lake Project was constructed with provisions for a third turbine-generator unit and the potential environmental effects are anticipated to be de minimis, the Southeast Alaska Power Agency (SEAPA) intends to file a motion with FERC to waive second stage consultation (e.g., new studies) pursuant to Rule 212 of FERC's Rules of Practice and Procedure [18 CFR 385.212]. SEAPA will be seeking support from the regulatory agencies for its motion. If ADF&G requires additional information on any of the resources or has any concerns, we would like to set up a meeting to discuss further.

Thank you for your participation in this process. We look forward to hearing from you.

Best,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

DIVISION OF HABITAT

SEAN PARNELL, GOVERNOR

Douglas Island Center Building
802 W. 3rd Street, Douglas
P.O. BOX 110024
JUNEAU, AK 99811-0024
PHONE: (907) 465-4105
FAX: (907) 465-4759

FISH HABITAT PERMIT FH10-I-0160

ISSUED: October 28, 2010

Southeast Alaska Power Agency
ATTN: Dave Carlson, CEO
PO Box 110987
Anchorage, AK 99511

RE: **Tyee Lake Water Use**
Tyee Lake and Hidden Creek (Stream No. 107-40-10538)
T 65 S, R 90 E, Sec 28, CRM, USGS Quad Bradfield Canal A-5
Intake Location: N 56.1967 W 131.4939

Dear Mr. Carlson:

Pursuant to Alaska Statutes (AS) 16.05.841 and 16.05.871(b), the Alaska Department of Fish and Game (ADF&G) Division of Habitat reviewed your proposal to withdraw 135,000 acre feet of water per year from your existing intake in Tyee Lake to generate hydropower at the Tyee Lake Hydroelectric facility. The project has operated since 1983 under capacity due to low electrical demand, however demand will increase when the intertie to Ketchikan is complete. The proposed water use would allow the project to operate at capacity, generating up to 26MW.

Fish Resources and Anadromous Fish Act

Tyee Lake supports Arctic grayling and the outlet stream supports rainbow trout upstream of the anadromous fish barrier in Hidden Creek. Your project as proposed has the potential to obstruct the efficient passage and movement of fish in Tyee Lake and Hidden Creek.

Downstream of the anadromous fish barrier, Hidden Creek (Stream No. 107-40-10538) is specified as important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). The creek provides habitat for chum, coho, and pink salmon. Dolly Varden char and cutthroat trout have also been observed in the creek.

Determination and Coastal Consistency Requirements

The proposed water use from Tyee Lake will impact the aquatic ecosystem in both the lake and Hidden Creek. Peak lake draw-down will occur in early-spring when grayling will be searching for stream spawning habitat. Historical bathymetry data for Tyee Lake suggest that fish access to spawning streams will be restricted at capacity operations during spring due to the steep-gradient

shore, if not prevented altogether. Therefore, the proposed water use may eradicate the grayling if successful reproduction necessary to sustain the population does not occur.

The proposed water use is expected to reduce flow in Hidden Creek up to 92%. The resident rainbow population upstream of the anadromous migration barrier in Hidden Creek has not been studied, therefore we do not know to what extent that population will be impacted. Downstream of the barrier, pink and chum spawning habitat and juvenile salmonid rearing habitat will be abandoned due to significantly reduced water flow.

During FERC licensing the original project owner, Alaska Power Authority (APA), evaluated several options to mitigate adverse impacts to resident and anadromous fish populations in Tyee Lake and Hidden Creek. Among the options considered were altering project design, transplanting grayling to a nearby lake, and constructing a fish hatchery in Bradfield Canal, however these options proved impractical during feasibility studies. In 1983, federal and state agencies approved APA's final proposed fisheries mitigation plan, which included 1) funding construction of public recreation facilities and a trail to Long Lake on Wrangell Island, and 2) constructing and monitoring an experimental spawning channel in the project tailrace.

AS 16.05.851 provides ways to compensate for impacts to fish passage. ADF&G biologists stocked Tyee Lake with eyed grayling eggs and fry on several occasions during the 1960s to provide a sport fishery, however few anglers fish Tyee Lake due to the lake's remote location and difficult terrain. The Long Lake recreational mitigation provides accommodations and angler access to rainbow trout that were previously underutilized. Though this mitigation does not meet the specific requirements of AS 16.05.851, the Division of Habitat determined APA thoroughly investigated transplant and hatchery feasibility, and concurs that the Long Lake mitigation substitutes for lost recreational fishing opportunity at Tyee Lake. Therefore, the Long Lake mitigation meets the intent of AS 16.05.851 and no additional mitigation is required.

Construction of the tailrace spawning channel was complete in 1983. Contract biologists studied the channel four years (1983 – 1987) during operating loads of 4-6MW, but not during full project operations as required in the approved monitoring plan as electrical demand was low at the time. The current project owner, Southeast Alaska Power Agency, has agreed to partially fund ADF&G Habitat biologists three years to complete the monitoring program and study salmonid productivity in the spawning channel. This agreement satisfies and completes the anadromous fish mitigation requirements for AS 16.05.871.

This project is consistent with the Alaska Coastal Management Program (State ID AK1008-14J).

In accordance with AS 16.05.841 and 16.05.871(d), project approval is hereby given subject to the project description above.

You are responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved project. For any activity that significantly deviates from the approved plan, you shall notify the Division of Habitat and obtain written approval in the form of a permit amendment before beginning the activity. Any action that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any stipulation contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of the Division

of Habitat. Therefore, it is recommended you consult the Division of Habitat immediately when a deviation from the approved plan is being considered.

For the purpose of inspecting or monitoring compliance with any condition of this permit, you shall give an authorized representative of the state free and unobstructed access, at safe and reasonable times, to the permit site. You shall furnish whatever assistance and information as the authorized representative reasonably requires for monitoring and inspection purposes.

This letter constitutes a permit issued under the authority of AS 16.05.841 and 16.05.871 and must be retained on site during project activities. Please be advised that this determination applies only to activities regulated by the Division of Habitat; other agencies also may have jurisdiction under their respective authorities. This determination does not relieve you of your responsibility to secure other permits; state, federal, or local. You are still required to comply with all other applicable laws.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. The department reserves the right to require mitigation measures to correct disruption to fish and game created by the project and which was a direct result of the failure to comply with this permit or any applicable law.

You shall indemnify, save harmless, and defend the department, its agents, and its employees from any and all claims, actions, or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or your performance under this permit. However, this provision has no effect if, and only if, the sole proximate cause of the injury is the department's negligence.

The AS 16.05.871 permit decision may be appealed in accordance with the provisions of AS 44.62.330-630.

If you have any questions regarding this permit, please contact Habitat biologist Kate Kanouse at (907) 465-4290 or email kate.kanouse@alaska.gov.

Sincerely,



Denby S. Lloyd, Commissioner

By: Jackie Timothy
Regional Supervisor
Division of Habitat

Email cc:

Al Ott, ADF&G Habitat, Fairbanks
Troy Thynes, ADF&G Comm Fish, Petersburg
Doug Fleming, ADF&G Sport Fish, Petersburg
Shawn Johnson, ADF&G Sport Fish, Douglas
Robert Piorkowski, ADF&G Sport Fish, Juneau

Ted Deats, ADNR DMLW, Juneau
William Groom, ADNR DCOM, Juneau
Dennis Reed, USFS, Wrangell
David Rak, USFS, Wrangell



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, AK 99802-1668

December 4, 2024

Betsy McGregor
Kleinschmidt Senior Scientist
55 Don Finney Lane
Ketchikan, Alaska 99901

Re: Tyee Lake Hydroelectric Project (FERC No. 3015) Draft Application for Capacity
Amendment to License and Preliminary Draft Environmental Assessment

Betsy:

The National Marine Fisheries Service has reviewed the Southeast Alaska Power Agency's (SEAPA or Licensee) draft Application for a capacity amendment to the Tyee Lake Hydroelectric Project (Project) license, as submitted to the Federal Energy Regulatory Commission on October 9, 2024.¹ On November 14, 2024, Kleinschmidt Associates, on behalf of SEAPA, hosted a meeting to discuss the process and seek agency and stakeholder support that:

1. Studies are not needed to assess resource impacts from installation and operation of a third unit.
2. The second stage of consultations can be waived and SEAPA can proceed directly to a Final Amendment Application to expedite installation.
3. Use of the Preliminary Draft Environmental Assessment (PDEA) in lieu of the Exhibit E in the Final Amendment Application is acceptable as it may expedite approval of the amendment.

Additionally, on November 20, 2024, Kleinschmidt Associates submitted a Request for Informal Consultation. That request is specific to the Endangered Species Act. The equivalent for consultation under Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act is an abbreviated consultation. After reviewing the amendment application, attending the November meeting, and reviewing the documents provided, we support the use of an abbreviated EFH consultation and offer the following comments.

Background

Tyee Lake receives between 250 and 350 feet of water from precipitation and runoff, which is diverted to the Project's powerhouse via a lake tap. The normal operating pool ranges in elevation from 1,250 feet to full pool. At 1,398.3 feet elevation, water spills over a weir at the

¹ Accession No. 20241009-5017



natural lake outlet to Tyee Creek, which joins Hidden Creek before flowing into Bradfield Canal about one half mile from the tailrace. As noted in the amendment application, Bradfield Canal is designated EFH for various life stages of Chinook (*Oncorhynchus tshawytscha*), chum (*O. keta*), coho (*O. kisutch*), pink (*O. gorbuscha*), and sockeye salmon (*O. nerka*). Additionally, the Alaska Department of Fish & Game's Anadromous Waters Catalog lists the lower 460 feet of Hidden Creek (AWC Stream No. 107-40-10538) as habitat for chum, coho, and pink salmon.

During the November meeting, the Licensee indicated stakeholders were concerned that the diversion of Tyee Lake water would result in the loss of anadromous fish habitat in Hidden Creek when the Project was constructed. However, according to SEAPA, Hidden Creek has continued to flow year-round since the Project began operating in 1984. The Licensee does not anticipate a reduction in the amount, or frequency, of spill in average to above-average water years will affect salmon in Hidden Creek after installation and operation of the third unit.

Comments

We do not object to the installation of the third turbine at the Project. However, it will be important to monitor the lower 460 feet of Hidden Creek after the turbine is operational to ensure that the reduction in spill does not affect salmon or salmon habitat. If SEAPA agrees to this monitoring, we can agree that second stage of consultations can be waived and use of the PDEA in lieu of the Exhibit E in the Final Amendment Application is acceptable. A monitoring plan should be established in consultation with us. Please note, this does not waive our ability to revisit the operation of the third turbine or its impacts to fish and their associated habitat in the upcoming relicensing process that begins in 2025.

Questions regarding our comments should be directed to Julianne Rosset at 907-271-3654 or julianne.rosset@noaa.gov.

Sincerely,



Catherine Coon
Assistant Regional Administrator
Habitat Conservation

Cc: Mark Hilson, SEAPA, mhilson@seapahydro.org
Carol Mahara, USFWS, carol_mahara@fws.gov
Anne Marie Larquier, ADF&G, ann.larquier@alaska.gov
Jarrod Sowa, ADF&G, jarrod.sowa@alaska.gov

From: [Meggie Stogner - NOAA Federal](#)
To: [Betsy McGregor](#); [Mark Hilson](#); [Mahara, Carol J](#); [Larquier, Ann M \(DFG\)](#); jarrod.sowa@alaska.gov
Cc: julianne.rosset; [Sean McDermott - NOAA Federal](#); [Cathy Coon - NOAA Federal](#)
Subject: re: Tyee Lake Hydroelectric project
Date: Wednesday, December 4, 2024 10:31:19 AM
Attachments: [20241204 Tyee Lake Amendment Comment Letter.pdf](#)

You don't often get email from meggie.stogner@noaa.gov. [Learn why this is important](#)

Hello,

Please see the attached letter regarding the Tyee Lake Hydroelectric project.

Let us know if you have any questions.

Thank you,
Meggie

--
--

[I respectfully acknowledge that I live and work on Tlingit Aani- Tlingit Land.](#)

Gunalcheesh / Quayana / Thank you

Meggie Stogner (she/her)

Office Administrative Assistant, PRD and HCD

NOAA Fisheries | U.S. Department of Commerce

Office: (907) 586-7236

www.fisheries.noaa.gov

NOAA Fisheries Alaska Regional Office's work is conducted in the waters and along the coastlines of Alaska, which include the traditional home lands and waters of the Inupiat, Yupiit, Siberian Yupiit, Unangax, Alutiiq/Sugpiaq, Eyak, Dena'ina Athabascan, Tlingit, Haida, and Tsimshian who have stewarded their lands and waters since time immemorial. Thank you for your patience as we learn.



From: [Betsy McGregor](#)
To: [Mark Hilson](#)
Cc: [Finlay Anderson](#); [Laura Cowan](#)
Subject: FW: Tyee Lake Hydroelectric project
Date: Wednesday, December 4, 2024 4:01:00 PM
Attachments: [20241204 Tyee Lake Amendment Comment Letter.pdf](#)

Good afternoon.

I just spoke with Julianne at NMFS.

She clarified that NMFS is interested in monitoring flow and not fish resources to demonstrate that year-round flows are maintained without spill. She acknowledged that the location of that measurement may be upstream from the anadromous reach of Hidden Creek given the channel dimensions and other considerations.

NMFS is not requesting a full monitoring plan be developed for the FAA. They would like a commitment from SEAPA to develop the monitoring plan in consultation with NMFS prior to installation of the third turbine (e.g., during 2025) that is ready to be implemented prior to or once the turbine is installed (2026 or 2027). She would like some idea of a timeline included in the commitment for completing the monitoring plan through consultation and beginning implementation.

We could make this commitment by providing a response letter to NMFS that we file with FERC and also include monitoring flow as a PME in the FAA. As to duration, she is interested in capturing flow data to reflect conditions during different water years (low water versus above average water year).

Mark, we can talk later this week when you are available about what SEAPA is willing to commit to. Then we can incorporate that into a letter and the FAA.

Thanks!

Best,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

Follow us on [LinkedIn](#)

*We provide practical **solutions** for renewable energy, water and environmental projects!*

Out of Office: December 16; December 20 - 27

From: Meggie Stogner - NOAA Federal <meggie.stogner@noaa.gov>
Sent: Wednesday, December 4, 2024 10:30 AM
To: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>; Mark Hilson <mhilson@seapahydro.org>; Mahara, Carol J <carol_mahara@fws.gov>; Larquier, Ann M (DFG) <ann.larquier@alaska.gov>; jarrod.sowa@alaska.gov
Cc: julianne.rosset <julianne.rosset@noaa.gov>; Sean McDermott - NOAA Federal <sean.mcdermott@noaa.gov>; Cathy Coon - NOAA Federal <cathy.coon@noaa.gov>
Subject: re: Tyee Lake Hydroelectric project

You don't often get email from meggie.stogner@noaa.gov. [Learn why this is important](#)

Hello,

Please see the attached letter regarding the Tyee Lake Hydroelectric project.

Let us know if you have any questions.

Thank you,
Meggie

--
--

I respectfully acknowledge that I live and work on Tlingit Aani- Tlingit Land.

Gunalcheesh / Quayana / Thank you

Meggie Stogner (she/her)

Office Administrative Assistant, PRD and HCD

NOAA Fisheries | U.S. Department of Commerce

Office: (907) 586-7236

www.fisheries.noaa.gov

NOAA Fisheries Alaska Regional Office's work is conducted in the waters and along the coastlines of Alaska, which include the traditional home lands and waters of the Inupiat, Yupiit, Siberian Yupiit, Unangax, Alutiiq/Sugpiaq, Eyak, Dena'ina Athabascan, Tlingit, Haida, and Tsimshian who have stewarded their lands and waters since time immemorial. Thank you for your patience as we learn.

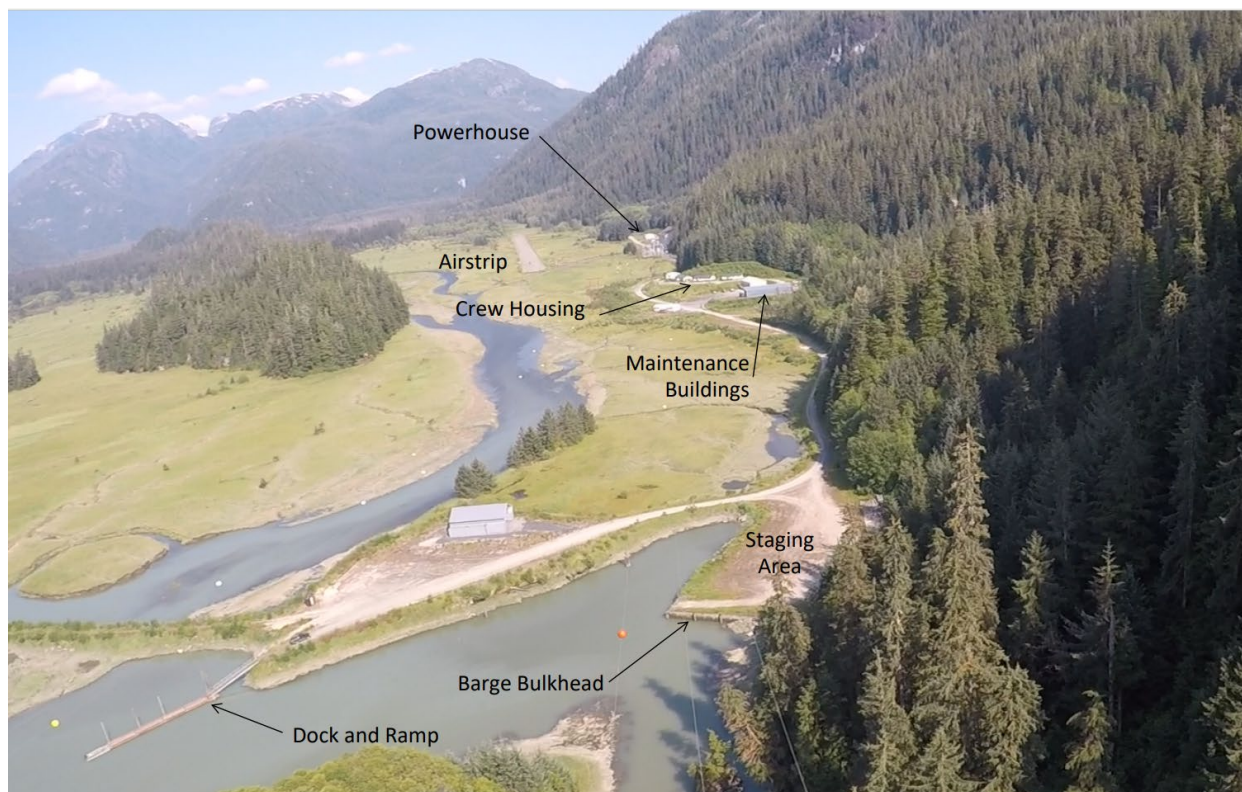


From: [Betsy McGregor](#)
To: [Kim Raum-Suryan - NOAA Federal](#)
Cc: [Mark Hilson](#)
Subject: RE: Questions re: Tyee Lake Hydroelectric Project (FERC No. P-3015)
Date: Friday, December 6, 2024 11:13:00 AM
Attachments: [image001.png](#)

Hello Kim.

Thank you for reaching out for clarification about the Tyee Lake proposed amendment. Please see responses to your questions and comments below.

1. The airstrip is part of the project area. Below is a picture of the area showing the various existing project features.
2. No. The airstrip is used to transport staff and contractors via plane. This would be the means of transporting workers or private ferry rather than float planes.
3. If FERC DHAC processes the amendment application within a year of submittal, barges associated with the proposed action would be travelling during the spring/summer of 2026.
4. Here is a link to the Draft Amendment Application https://www.seapahydro.org/documents/Draft_Amendment_Application.pdf. And here is a link to the Joint Agency and Public Meeting presentation https://www.seapahydro.org/documents/TyeeLakeHydro_JointAgencyPublic_Mtg_20241114.pdf



Please let me know if you have any additional questions.

Best,
Betsy

Betsy McGregor

Senior Scientist and Regulatory Consultant



O: 907-885-3418

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We provide practical **solutions** for renewable energy, water and environmental projects!

Out of Office: December 16; December 20 - 27

From: Kim Raum-Suryan - NOAA Federal <kim.raum-suryan@noaa.gov>

Sent: Friday, December 6, 2024 9:16 AM

To: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>

Subject: Questons re: Tyee Lake Hydroelectric Project (FERC No. P-3015)

You don't often get email from kim.raum-suryan@noaa.gov. [Learn why this is important](#)

Dear Ms. mcGregor,

My name is Kim Raum-Suryan and I am working on the Section 7 consultation for the Tyee lake Hydroelectric Project. I have just a few questions below to help me get the information I need to complete our consultation.

1. Just to verify, is the airstrip you refer to in your letter at the Tyee Lake Project site?
2. Would there ever be a need for a float plane to land in Bradfield Canal as part of this project?
3. Again, to verify - will the five to six barge trips from Wrangell to complete the proposed action, be completed in the spring/summer of **2025? Will the work be completed in 2025?**
4. I had trouble finding the preliminary draft environmental assessment filed with FERC Oct. 8, 2024 with the link provided in the letter. Can you please send me a copy if possible? Thank you.

Thank you for your help.

Take care,

Kim

--

Kim

Raum-Suryan

Marine

Mammal Specialist, PRD, Alaska Region

NOAA

Fisheries | U.S. Department of Commerce

Office:

(907) 586-7424

www.fisheries.noaa.gov/region/alaska



From: [Kim Raum-Suryan - NOAA Federal](#)
To: [Betsy McGregor](#)
Cc: [Mark Hilson](#)
Subject: Re: Request: mitigation measures for Tyee Lake Hydro Project (FERC 3015)
Date: Friday, December 6, 2024 11:35:56 AM

Hi Betsy,

Thank you very much. I appreciate the prompt reply and the agreement with the mitigation measures.

Take care,

Kim

On Fri, Dec 6, 2024 at 11:34 AM Betsy McGregor
<Betsy.McGregor@kleinschmidtgroup.com> wrote:

Hello Kim.

SEAPA will commit to following the mitigation measures below by including them as requirements in their construction contracts. We can add these as protection, mitigation and enhancement measures in the Final Amendment Application to be filed with FERC.

Please let me know if that will be adequate.

Thank you.

Regards,

Betsy

Betsy McGregor

Senior Scientist and Regulatory Consultant

Kleinschmidt

O: 907-885-3418

Follow us on [LinkedIn](#)

*We provide practical **solutions** for renewable energy, water and environmental projects!*

Out of Office: December 16; December 20 - 27

From: Kim Raum-Suryan - NOAA Federal <kim.raum-suryan@noaa.gov>
Sent: Friday, December 6, 2024 10:42 AM
To: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Subject: Request: mitigation measures for Tyee Lake Hydro Project (FERC 3015)

You don't often get email from kim.raum-suryan@noaa.gov. [Learn why this is important](#)
Dear Ms. McGregor,

Because the letter for the Tyee Lake Hydro Project (FERC No. 3015) did not include what mitigation measures the proposed action would incorporate to ensure the safety of listed marine mammals, could you please review the mitigation measures below and let me know if the following mitigation measures will be followed?

Thank you, Kim

Mitigation Measures

General Mitigation Measures

1. The project proponent will inform NMFS of impending in-water activities a minimum of one week prior to the onset of those activities (email information to akr.prd.records@noaa.gov).
2. Consistent with AS 46.06.080, trash will be disposed of in accordance with state law. The project proponent will ensure that all closed loops (e.g., packing straps, rings, bands, etc.) will be cut prior to disposal. In addition, the project proponent will secure all ropes, nets, and other marine mammal entanglement hazards so they cannot enter marine waters.

Project-Dedicated Vessels (vessel and crew safety should never be compromised)

3. Vessel operators will:

- a. maintain a watch for marine mammals at all times while underway;
- b. stay at least 91 meters (100 yards) away from listed marine mammals, except that they will remain at least 460 meters (500 yards) away from endangered North Pacific right whales;
- c. travel at less than 5 knots when within 274 meters (300 yards) of a whale;
- d. avoid changes in direction and speed within 274 meters (300 yards) of a whale, unless doing so is necessary for maritime safety;
- e. not position vessel(s) in the path of a whale, and will not cut in front of a whale in a way or at a distance that causes the whale to change direction of travel or behavior (including breathing/surfacing pattern);
- f. reduce vessel speed to 10 knots or less when weather conditions reduce visibility to 1.6 kilometers (1 mile) or less.
- g. adhere to the Alaska Humpback Whale Approach Regulations when vessels are transiting to and from the project site: (see 50 CFR §§ 216.18, 223.214, and 224.103(b); these regulations apply to all humpback whales). Specifically, pilot and crew will not:
 - i. approach, by any means, including by interception (i.e., placing a vessel in the path of an oncoming humpback whale), within 100 yards of any humpback whale;
 - ii. cause a vessel or other object to approach within 100 yards of any humpback whale; or
 - iii. disrupt the normal behavior or prior activity of a humpback whale by any other act or omission.

4. If a whale's course and speed are such that it will likely cross in front of a vessel that is underway, or approach within 91 meters (100 yards) of the vessel, and if maritime conditions safely allow, the engine will be put in neutral and the whale will be allowed to pass beyond the vessel, except that vessels will remain 460 meters (500 yards) from North Pacific right whales.

5. Vessels will not allow lines to remain in the water unless both ends are under tension and affixed to vessels or gear.

6. Project-specific barges will travel at 12 knots or less.

Reporting

Unauthorized Take

7. If a listed marine mammal is injured or killed as a direct or indirect result of the action), KA will report the incident to NMFS within one business day, with

information submitted to akr.prd.records@noaa.gov. These records will include:

- a. digital, queryable documents containing observations and records, and digital, queryable reports.
- b. the date, time, and location of each event (provide geographic coordinates);
- c. description of the event;
- d. number of individuals of each listed marine mammal species affected;
- e. the time the animal(s) was first observed, and, if known, the time the animal was last seen, and the fate of the animal;
- f. mitigation measures implemented prior to and after the animal was taken;
- g. if a vessel struck a listed marine mammal, the contact information for individual piloting the vessel; and
- h. photographs or video footage of the animal(s), if available.

Stranded, Injured, Sick or Dead Listed Species (not associated with the project)

8. If the individual piloting the vessel observes an injured, sick, or dead marine mammals (i.e., stranded), they will notify the Alaska Marine Mammal Stranding Hotline at 877-925-7773 (Table 2). If possible, the individual piloting the vessel will submit photos and available data to aid NMFS in determining how to respond to the stranded animal. If possible, data submitted to NMFS in response to stranded marine mammals will include date/time, location of stranded marine mammal, species and number of stranded individuals, description of the stranded marine mammal's condition, event type (e.g., entanglement, dead, floating), and behavior of live-stranded marine mammals.

Illegal Activities

9. If the individual piloting the vessel observes listed marine mammals or other marine mammals being disturbed, harassed, harmed, injured, or killed (e.g., feeding or unauthorized harassment), these activities will be reported to NMFS Alaska Region Office of Law Enforcement (Table 2; 1-800-853-1964).

10. Data submitted to NMFS will include date/time, location, description of the event, and any photos or videos taken.

Extralimital Sightings

11. All observations of ESA-listed marine mammal species not considered in this consultation will be reported to NMFS within 24 hours. Photographs and/or video should be taken if possible to aid in Photo ID of individual animals. Reports will include all applicable information that would be included in a final report.

Final Report

12. A final report will be submitted to NMFS within 90 calendar days of the completion of the project summarizing the data recorded by emailing it to akr.prd.records@noaa.gov. The report will summarize all in-water activities associated with the proposed action.

13. The final report for projects will include:

- a. Dates, times, and geographic coordinates of listed marine mammals observed by the individual piloting the vessel, including water depth, species, age/size/gender (if determinable), and group sizes.
- b. any photos or videos taken of marine mammals.

Table 2. Summary of Agency Contact Information

Reason for Contact	Contact Information
Consultation Questions & Unauthorized Take	akr.prd.section7@noaa.gov
Reports & Data Submittal	akr.prd.records@noaa.gov
Stranded, Injured, or Dead Marine Mammals	Stranding Hotline (24/7 coverage) 1-877-925-7773
Oil Spill & Hazardous Materials Response	U.S. Coast Guard National Response Center: 1-800-424-8802 and AKRNMFSspillResponse@noaa.gov
Illegal Activities (<i>not related to project activities; e.g., feeding, unauthorized harassment, or disturbance to marine mammals</i>)	NMFS Office of Law Enforcement (AK Hotline): 1-800-853-1964
In the event that this contact information becomes obsolete	NMFS Anchorage Main Office: 907-271-5006 or NMFS Juneau Main Office: 907-586-7236

Kim

Raum-Suryan

Marine

Mammal Specialist, PRD, Alaska Region

NOAA

Fisheries | U.S. Department of Commerce

Office:

(907) 586-7424

www.fisheries.noaa.gov/region/alaska





THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

Department of Fish and Game

Division of Sport Fish
Research & Technical Services

333 Raspberry Road
Anchorage, Alaska 99518-1565
Main: 907.267.2100

November 27, 2024

Betsy McGregor
Senior Scientist and Regulatory Consultant, Kleinschmidt
555 Don Finney Lane
Ketchikan, Alaska 99901

Subject: Tyee Lake Hydroelectric Project (P-3015)
Comments on Draft Application for Capacity Amendment to License, Preliminary
Draft Environmental Assessment for the installation of Third Unit in Existing Bay
At Powerhouse

Dear Ms. McGregor:

On October 9, 2024, the Southeast Alaska Power Agency filed a Draft Application for Capacity Amendment License with the Federal Energy Regulatory Commission for the Tyee Lake Hydroelectric Project (P-3015) and solicited stakeholder comments for the Project's Draft Amendment Application.

Alaska Department of Fish and Game (ADF&G) staff have reviewed the Draft Amendment Application. ADF&G supports SEAPA's request to waive second-stage consultation per 18 CFR 4.38(e). ADF&G also supports use of the PDEA in lieu of the Exhibit E in the Final Amendment Application.

The requested action will require an amendment to Fish Habitat Permit FH10-I-0160 issued by the Habitat Section of ADF&G. This permit amendment is required for annual maintenance and emergency shut-downs and increasing the tailrace discharge by way of adding the third turbine. For this action, please contact Claire Delbecq, Habitat Biologist 2 in Juneau at claire.delbecq@alaska.gov.

If you have any questions, please contact me at ann.larquier@alaska.gov or (907) 267-2311.
Thank you for your consideration.

Sincerely,

A handwritten signature in cursive script that reads "Ann Marie Larquier".

Ann Marie Larquier
FERC Hydropower Coordinator
Alaska Department of Fish and Game
(907) 267-2311

Cc: J. Klein, ADF&G
J. Sowa, ADF&G
J. Rice, ADF&G

K. Kanouse, ADF&G
C. Delbecq, ADF&G
M. Hilson, SEAPA

L. Townson, FERC
J. Rosset, NMFS
C. Mahara, USFWS

From: [Larquier, Ann M \(DFG\)](#)
To: [Betsy McGregor](#)
Cc: [Klein, Joseph P \(DFG\)](#); [Sowa, Jarrod J \(DFG\)](#); [Rice, Jeffrey R \(DFG\)](#); [Kanouse, Kate M \(DFG\)](#); [Delbecq, Claire E \(DFG\)](#); [Mark Hilson](#); Lauren.Townson@ferc.gov; [julianne.rosset](#); [Mahara, Carol J](#)
Subject: Tyee Lake Draft Application for Capacity Amendment to License - ADF&G comment letter
Date: Monday, December 9, 2024 4:32:39 PM
Attachments: [ADF&G comments TyeeLake CapacityAmendment.pdf](#)

Hello,

ADF&G has reviewed the Tyee Lake Draft Application for Capacity Amendment to License, Preliminary Draft Environmental Assessment for the installation of Third Unit in Existing Bay at Powerhouse. Please see attached comment letter.

Let me know if you have any questions.

Thank you,

Ann Marie Larquier
Habitat Biologist, Statewide FERC Hydropower Coordinator
Alaska Department of Fish & Game

907-267-2311
ann.larquier@alaska.gov



United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
Southern Alaska Fish and Wildlife Field Office
Anchorage Fish and Wildlife Conservation Office
4700 BLM Road
Anchorage, Alaska 99507



In Reply Refer to:
FWS/R7/SAFWFO

Betsy McGregor
Senior Scientist and Regulatory Consultant
Kleinschmidt
55 Don Finney Lane
Ketchikan, Alaska 99901

Subject: Tyee Lake Hydroelectric Project (Federal Energy Regulatory Commission Project Number P-3015) Initial Consultation Document, Draft Application for Capacity Amendment to License, and Preliminary Draft Environmental Assessment (Service file number 2025-0028192)

Dear Betsy McGregor:

Thank you for providing the Initial Consultation Document (ICD) for the Draft Application for Capacity Amendment to License (Draft Amendment Application) for the Tyee Lake Hydroelectric Project (Project; Federal Energy Regulatory Commission Project [FERC] Number P-3015) on October 8, 2024. On behalf of Southeast Alaska Power Agency (SEAPA), licensee for the Project, Kleinschmidt is proposing a license amendment to enable the installation of an additional 10-megawatt hydroelectric Pelton-style turbine generator to an existing empty bay at the powerhouse. The ICD consists of the Draft Amendment Application, as well as an Exhibit E in the form of a Preliminary Draft Environment Assessment (PDEA).

With minimal impacts anticipated, SEAPA proposes to expedite the amendment application by seeking waivers of compliance with a portion of consultation requirements from resource agencies and Alaska Native Tribes. Specifically, SEAPA is seeking agency support that:

1. studies are not needed to assess resource impacts from installation and operation of a third unit
2. the second stage of consultation can be waived so that SEAPA can proceed directly to a Final Amendment Application
3. using the PDEA in lieu of Exhibit E in the Final Amendment Application is acceptable.

The U.S. Fish and Wildlife Service (Service) has reviewed the ICD and offers the following response to these requests.

Studies

The Service requests scour and deposition monitoring at the tailrace where changes in flows are anticipated but does not require a full study to assess resource impacts.

The proposed license amendment would not change water rights or minimum/maximum pool elevations at the lake, but if all three turbines were running simultaneously, the reservoir water surface elevation may be drawn down at a faster rate compared to existing conditions, and the maximum output at the tailrace could increase from 234 cubic feet per second (cfs) to 351 cfs. Some minor scouring of the tailrace channel bed may occur, and the mobilized fines would likely be deposited at either the lower end of the tailrace or Airstrip Slough. Because the Project tailrace was designed to accommodate simultaneous maximum output flows from three turbine units (ICD, page E-36), and because it is anticipated that the deposition of fines would be comparable to natural sedimentation processes for that intertidal area (ICD, page E-37), the Service does not require a full study to assess resource impacts, but requests monitoring that shows the tailrace and downstream environment are responding to the changes in flow regimes as expected.

Waiver of compliance with consultation requirements 18 CFR 4.38(e)

A second stage of consultation under 18 CFR 4.38(c) allows for more discussion and information gathering in order for FERC to make an informed decision regarding the merits of an application. Since the Service is not requesting an initial round of studies for this Draft Amendment Application, we do not need a second stage of consultation and waive that second stage consultation requirement under 18 CFR 4.38(e).

Exhibit E in the Final Amendment Application

An Exhibit E (Environmental Report) is part of a typical license application, but an applicant using alternative procedures may use an environmental review document under the National Environmental Policy Act instead of Exhibit E (18 CFR 4.34(i)).

Exhibit E of the Project ICD includes the PDEA (ICD, pages E-20 – E-111). The Service approves of using the PDEA in lieu of Exhibit E in the final amendment application.

Thank you for the opportunity to review and comment on the ICD and the Draft Amendment Application for the Project. The Service understands that relicensing procedures will commence in 2025 where the Project as a whole will be reviewed, and we look forward to working with SEAPA for that process. For more information or if you have any questions, please contact Senior Fish and Wildlife Biologist Ecological Services, Ms. Carol Mahara at (907) 280-9751 or via email carol_mahara@fws.gov and reference Service file number 2025-0028192.

Sincerely,

Acting For:
Douglass M. Cooper
Branch Chief, Ecological Services

From: [Mahara, Carol J](#)
To: [Betsy McGregor](#); [Mark Hilson](#)
Cc: [julianne.rosset](#); [Cooper, Douglass](#); [Larquier, Ann M \(DFG\)](#); [Sowa, Jarrod J \(DFG\)](#)
Subject: Tyee Lake Hydroelectric Project P-3015
Date: Monday, December 9, 2024 9:32:09 AM
Attachments: [2025-0028192_TyeeAmendment_USFWSComments.pdf](#)

Dear Betsy McGregor:

Thank you for the opportunity to provide comments on the Initial Consultation Document, Draft Application for Capacity Amendment to License, and Preliminary Draft Environmental Assessment for the Tyee Lake Hydroelectric Project (P-3015). The U.S. Fish and Wildlife Service has reviewed the ICD and filed comments (FERC Submission ID: 1575517). Please see the attached letter and let me know if you have any questions.

Sincerely,

Carol Mahara

Carol Mahara

Fish and Wildlife Biologist
Ecological Services
US Fish and Wildlife Service
4700 BLM Road
Anchorage, AK 99507
carol_mahara@fws.gov
Cell: 907-280-9751



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, AK 99802-1668

December 13, 2024

Betsy McGregor
Kleinschmidt Senior Scientist
55 Don Finney Lane
Ketchikan, Alaska 99901

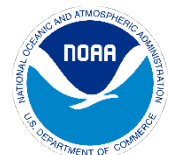
Re: Tyee Lake Hydroelectric Project (FERC No. 3015) Letter of Concurrence, AKRO-2024-03054

Dear Ms. McGregor:

The National Marine Fisheries Service (NMFS) has completed informal consultation under section 7(a)(2) of the Endangered Species Act (ESA) regarding the proposed Tyee Lake Hydroelectric Project (FERC No. 3015) located approximately 40 miles southeast of Wrangell, Alaska. Southeast Alaska Power Agency (SEAPA) and its contractor for the project, Kleinschmidt Associates (KA), non-Federal designee, requested, on behalf of the Federal Energy Regulatory Commission (FERC), written concurrence that the proposed action may affect, but is not likely to adversely affect, the Mexico distinct population segment (DPS) humpback whale (*Megaptera novaeangliae*). Based on our analysis of the information you provided to us, and additional literature cited below, NMFS concurs with your determination.

Updates to the regulations governing interagency consultation (50 CFR part 402) were effective on May 6, 2024 (89 FR 24268). We are applying the updated regulations to this consultation. The 2024 regulatory changes, like those from 2019, were intended to improve and clarify the consultation process, and, with one exception from 2024 (offsetting reasonable and prudent measures), were not intended to result in changes to NMFS' existing practice in implementing section 7(a)(2) of the ESA (84 FR at 45015; 89 FR at 24268). We have considered the prior rules and affirm that the substantive analysis and conclusions articulated in this letter of concurrence would not have been any different under the 2019 regulations or pre-2019 regulations.

This letter underwent pre-dissemination review in compliance with applicable Data Quality Act guidelines. A complete administrative record of this consultation is on file in this office.



Consultation History

NMFS received your request for consultation on November 21, 2024, and your correspondence identifying SEAPA and contractor KA as your non-Federal representative for this project as of November 1, 2024. On December 6, 2024, NMFS requested and received more information about the project from KA. NMFS initiated consultation on December 6, 2024.

Description of the Proposed Action

“Action” means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. 50 C.F.R. §402.02.

On behalf of FERC, SEAPA is proposing an amendment to the Tyee Lake license to install a third 10 megawatt (MW) Pelton-style turbine-generating unit in the existing empty bay at the Tyee Lake powerhouse and a new transformer in the existing switchyard, which would increase the total installed capacity from 20 MW to 30 MW. Tyee Lake is a natural lake with a drainage area of approximately 14.4 square miles. Water from Tyee Lake supplies the hydroelectric project via a lake tap. The current regional demand exceeds the existing hydropower resources and is projected to grow over the next few years.

Construction activities would occur within the licensed project boundary on state land and would involve the following existing project facilities: powerhouse, electrical substation, maintenance buildings, access road, staging and laydown areas, airstrip, barge bulkhead, dock and ramp, and contractor housing (Figure 1). There would be no changes to the Tyee Lake outlet weir, intake structure, gate house, power tunnel, or penstocks. Construction activities would not require new ground disturbance, new roads or staging areas, removal of vegetation, or need for placement or discharge of dredged and/or fill material into waters of the U.S. There would be no modifications of the tailrace and no work conducted below the ordinary high water level of any waterbody.

Equipment and supplies would be transported during high tide via barge from Wrangell along the east side of Wrangell Island to the head of Bradfield Canal (Figure 2) and the existing barge bulkhead on site. It is expected that there would be five to six barge trips from Wrangell to the project site in late spring/early summer of 2026 to complete the Proposed Action. Barges would be off-loaded by forklift or front-end loader already present on site. Equipment and materials may be temporarily placed in the existing staging area near the barge bulkhead or transported directly to the powerhouse area using the existing road. No ground-disturbing activities or upgrades to the existing roads or staging areas are anticipated.

Up to approximately 15 workers may be on site at one time. Construction workers would be either flown to the Tyee Lake airstrip (Figure 1) or transported to the dock or barge bulkhead by private ferry. Construction crew and engineers would be housed in SEAPA’s existing onsite bunkhouse or at existing U.S. Forest Service cabins under SEAPA’s Special Use Permit. It is anticipated that commissioning would occur within a year of initiation of construction activities.



Figure 1. Tyee Lake hydroelectric project area.



Figure 2. Proposed Action Area for the Tyee Hydroelectric Project.

Action Area

The action area is defined in the ESA regulations (50 CFR § 402.02) all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. The action area is distinct from and larger than the project footprint because some elements of the project may affect listed species some distance from the project footprint. The action area, therefore, extends out to a point where no measurable effects from the project are expected to occur.

The action area includes the waters from Wrangell south and east through Bradfield Canal to the base of the Tyee Lake project site (Figure 2).

Mitigation Measures

KA informed NMFS via email correspondence on Dec. 6, 2024 that the proposed action will incorporate the following mitigation measures:

For all reporting that results from implementation of these mitigation measures, NMFS will be contacted using the contact information specified in Table 2. In all cases, notification will reference the NMFS consultation tracking number (e.g., AKRO-2024-03054).

General Mitigation Measures

1. The project proponent will inform NMFS of impending in-water activities a minimum of one week prior to the onset of those activities (email information to akr.prd.records@noaa.gov).
2. Consistent with AS 46.06.080, trash will be disposed of in accordance with state law. The project proponent will ensure that all closed loops (e.g., packing straps, rings, bands, etc.) will be cut prior to disposal. In addition, the project proponent will secure all ropes, nets, and other marine mammal entanglement hazards so they cannot enter marine waters.

Project-Dedicated Vessels (vessel and crew safety should never be compromised)

3. Vessel operators will:
 - a. maintain a watch for marine mammals at all times while underway;
 - b. stay at least 91 meters (100 yards) away from listed marine mammals, except that they will remain at least 460 meters (500 yards) away from endangered North Pacific right whales;
 - c. travel at less than 5 knots when within 274 meters (300 yards) of a whale;
 - d. avoid changes in direction and speed within 274 meters (300 yards) of a whale, unless doing so is necessary for maritime safety;

- e. not position vessel(s) in the path of a whale, and will not cut in front of a whale in a way or at a distance that causes the whale to change direction of travel or behavior (including breathing/surfacing pattern);
- f. reduce vessel speed to 10 knots or less when weather conditions reduce visibility to 1.6 kilometers (1 mile) or less; and
- g. adhere to the Alaska Humpback Whale Approach Regulations when vessels are transiting to and from the project site: (see 50 CFR §§ 216.18, 223.214, and 224.103(b); these regulations apply to all humpback whales). Specifically, pilot and crew will not:
 - i. approach, by any means, including by interception (i.e., placing a vessel in the path of an oncoming humpback whale), within 100 yards of any humpback whale;
 - ii. cause a vessel or other object to approach within 100 yards of any humpback whale; or
 - iii. disrupt the normal behavior or prior activity of a humpback whale by any other act or omission.
- 4. If a whale's course and speed are such that it will likely cross in front of a vessel that is underway, or approach within 91 meters (100 yards) of the vessel, and if maritime conditions safely allow, the engine will be put in neutral and the whale will be allowed to pass beyond the vessel, except that vessels will remain 460 meters (500 yards) from North Pacific right whales.
- 5. Vessels will not allow lines to remain in the water unless both ends are under tension and affixed to vessels or gear.
- 6. Project-specific barges will travel at 12 knots or less.

Reporting

Unauthorized Take

- 7. If a listed marine mammal is injured or killed as a direct or indirect result of the action), KA will report the incident to NMFS within one business day, with information submitted to akr.prd.records@noaa.gov. These records will include:
 - a. digital, queryable documents containing observations and records, and digital, queryable reports;
 - b. the date, time, and location of each event (provide geographic coordinates);
 - c. description of the event;

- d. number of individuals of each listed marine mammal species affected;
- e. the time the animal(s) was first observed, and, if known, the time the animal was last seen, and the fate of the animal;
- f. mitigation measures implemented prior to and after the animal was taken;
- g. if a vessel struck a listed marine mammal, the contact information for individual piloting the vessel; and
- h. photographs or video footage of the animal(s), if available.

Stranded, Injured, Sick or Dead Listed Species (not associated with the project)

- 8. If the individual piloting the vessel observes an injured, sick, or dead marine mammals (i.e., stranded), they will notify the Alaska Marine Mammal Stranding Hotline at 877-925-7773 (Table 2). If possible, the individual piloting the vessel will submit photos and available data to aid NMFS in determining how to respond to the stranded animal. If possible, data submitted to NMFS in response to stranded marine mammals will include date/time, location of stranded marine mammal, species and number of stranded individuals, description of the stranded marine mammal's condition, event type (e.g., entanglement, dead, floating), and behavior of live-stranded marine mammals.

Illegal Activities

- 9. If the individual piloting the vessel observes listed marine mammals or other marine mammals being disturbed, harassed, harmed, injured, or killed (e.g., feeding or unauthorized harassment), these activities will be reported to NMFS Alaska Region Office of Law Enforcement (Table 2; 1-800-853-1964).
- 10. Data submitted to NMFS will include date/time, location, description of the event, and any photos or videos taken.

Extralimital Sightings

- 11. All observations of ESA-listed marine mammal species not considered in this consultation will be reported to NMFS within 24 hours. Photographs and/or video should be taken if possible to aid in Photo ID of individual animals. Reports will include all applicable information that would be included in a final report.

Final Report

- 12. A final report will be submitted to NMFS within 90 calendar days of the completion of the project summarizing the data recorded by emailing it to akr.prd.records@noaa.gov. The report will summarize all in-water activities associated with the proposed action.

13. The final report for projects will include:

- a. dates, times, and geographic coordinates of listed marine mammals observed by the individual piloting the vessel, including water depth, species, age/size/gender (if determinable), and group sizes; and;
- b. any photos or videos taken of marine mammals.

Table 1. Summary of Agency Contact Information

Reason for Contact	Contact Information
Consultation Questions & Unauthorized Take	akr.prd.section7@noaa.gov
Reports & Data Submittal	akr.prd.records@noaa.gov
Stranded, Injured, or Dead Marine Mammals	Stranding Hotline (24/7 coverage) 1-877-925-7773
Oil Spill & Hazardous Materials Response	U.S. Coast Guard National Response Center: 1-800-424-8802 and AKRNMFSspoilResponse@noaa.gov
Illegal Activities (<i>not related to project activities; e.g., feeding, unauthorized harassment, or disturbance to marine mammals</i>)	NMFS Office of Law Enforcement (AK Hotline): 1-800-853-1964
In the event that this contact information becomes obsolete	NMFS Anchorage Main Office: 907-271-5006 or NMFS Juneau Main Office: 907-586-7236

Listed Species

Humpback Whale

The humpback whale (*Megaptera novaeangliae*) was listed as endangered under the ESCA in 1970 (35 FR 8491, June 2, 1970 (baleen whales listing); 35 FR 18319, December 2, 1970 (humpback whale listing)). Congress replaced the ESCA with the ESA in 1973, and humpback

whales continued to be listed as endangered. NMFS conducted a global status review that led to changing the status of humpback whales under the ESA and dividing the species into 14 DPSs (81 FR 62259, September 8, 2016). Of these 14 DPSs, NMFS listed four as endangered, one as threatened, and delisted the remaining nine. Three DPSs occur in waters of Alaska. The Western North Pacific DPS is listed as endangered; the Mexico DPS is listed as threatened; and the Hawaii DPS is not listed (81 FR 62259, September 8, 2016).

The Hawaii DPS population is estimated to be 11,540 animals (CV=0.04) with an annual growth rate between 5.5 and 6.0 percent. The Mexico DPS is comprised of approximately 2,913 animals (CV=0.7; Wade 2021) with an unknown, but likely declining, population trend (81 FR 62259; September 8, 2016). Approximately 1,084 animals (CV=0.09) comprise the Western North Pacific DPS (Wade 2021). Humpback whales in the Western North Pacific remain rare in some parts of their former range, such as the coastal waters of Korea, and have shown little sign of recovery in those locations.

Whales from these three DPSs overlap on feeding grounds off Alaska, and are visually indistinguishable unless individuals have been photo-identified on breeding grounds and again on feeding grounds. All waters off the coast of Alaska may contain ESA-listed humpbacks.

Humpback whales produce a variety of vocalizations ranging from 20 Hz to 10 kHz (Silber 1986; Richardson et al. 1995; Au 2000; Erbe 2002; Au et al. 2006; Vu et al. 2012). NMFS categorizes humpback whales in the low-frequency cetacean functional hearing group, with an applied frequency range between 7 Hz and 35 kHz (NMFS 2018).

Southeast Alaska

Relatively high densities of humpback whales occur throughout much of Southeast Alaska and northern British Columbia, particularly during the summer months. The abundance estimate for humpback whales in Southeast Alaska is estimated to be 5,890 (CV= 0.08) animals, which includes whales from the unlisted Hawaii DPS (98 percent) and threatened Mexico DPS (2 percent; Wade 2021; Table 3). Although migration timing varies among individuals, most whales depart for Hawaii or Mexico in fall or winter and begin returning to Southeast Alaska in spring, with continued returns through the summer and a peak occurrence in Southeast Alaska during late summer to early fall. However, there are significant overlaps in departures and returns (Baker et al. 1985; Straley 1990).

Table 2. Percent probability of encountering humpback whales from each DPS in the North Pacific Ocean (columns) in various feeding areas (on left; Wade 2021).

Summer Feeding Areas	North Pacific Distinct Population Segments (DPS) (percent)			
	Western North Pacific (endangered)	Hawaii (not listed)	Mexico (threatened)	Central America (endangered)
Kamchatka	91	9	0	0
Aleutian I / Bering / Chukchi Seas	2	91	7	0
Gulf of Alaska	1	89	11	0
Southeast Alaska / Northern BC	0	98	2	0
Southern BC / WA	0	69	25	6
OR/CA	0	0	58	42
Note that in the past iteration of this guidance, upper confidence intervals were used for endangered DPSs. However, the revised estimates do not have associated coefficients of variation to cite. Therefore, the point estimate is being used for each probability of occurrence.				

Additional information on humpback whale biology and natural history is available at:

[Humpback Whale Species Description](#)

[Marine Mammal Stock Assessment Reports: Cetaceans-Large Whales](#)

[Humpback Whale Critical Habitat](#)

[Occurrence of Listed Humpback Whales off Alaska](#)

Humpback whales in the action area

Given their widespread range, relative abundance, their opportunistic foraging strategies, and frequent near-shore occurrence, Mexico DPS humpback whales may occur in the vicinity of the project covered in this consultation. The closest Mexico DPS humpback whale critical habitat is in the Prince William Sound area, more than 500 miles from the closest action area (Wrangell) in Southeast Alaska, therefore Mexico DPS humpback critical habitat will not be discussed any further.

Effects of the Action

“Effects of the action” are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR § 402.02). The applicable standard to find that a proposed action may affect but is “not likely to adversely affect” listed species or critical habitat is that all of the effects of the action are expected to be insignificant, extremely unlikely to occur, or completely beneficial. “Insignificant effects” relate to the magnitude of the impact and are those that one would not be able to meaningfully measure, detect, or evaluate; insignificant effects should never reach the scale where take occurs.

While the ESA does not define “harass,” NMFS issued guidance interpreting the term “harass” under the ESA as to: “create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering” (Wieting 2016). NMFS considers the following steps to assess whether proposed activities are likely to harass.

1. Whether an animal is likely to be exposed to a stressor or disturbance (i.e., an annoyance);
2. The nature of that exposure in term of magnitude, frequency, duration, etc. Included in this may be type and scale as well as considerations of the geographic area of exposures (e.g., is the annoyance within a biologically important location for the species, such as a foraging area, spawning/breeding area, or nursery area).
3. The expected response of the exposed animal to a stressors or disturbance (e.g., startle, flight, alteration [including abandonment] of important behaviors); and;
4. Whether the nature and duration or intensity of that response is a significant disruption of those behavior patterns which include, but are not limited to, breeding, feeding, sheltering, resting, or migrating.

The potential effects of the proposed action on listed species include vessel noise, vessel strike, and entanglement in vessel lines and marine debris.

Vessel Noise

Vessel noise associated with the proposed action will include vessels transiting between Wrangell and the Tyee Lake project site. Barges will be used to deliver materials to the project site, and workers may be transported via private ferry.

Smaller vessels like the tugs associated with the proposed action have higher speed engines and propellers than larger fueling vessels or barges. The smaller vessel noise spectra peak around 300 Hz with a source level ranging from 145-170 dB re 1 μ Pa depending on if the tug is pulling an empty or loaded barge. Depending on the type of engines on the fueling vessels, the overall

source level of 175 dB re 1 μ Pa is expected (Richardson et al. 1995). This noise is expected to attenuate quickly due to reduced low frequency propagation in shallow water.

Vessels associated with the proposed action will have a transitory and short-term presence within the action area; the potential overlap with listed marine mammals is relatively small for the project period. However, even during peak occurrence in the summer, only a fraction (~ 6%) of humpback whales present in Southeast Alaska are listed Mexico DPS humpback whales. Moreover, Mexico DPS humpback whales routinely encounter vessels and may be habituated to associated noise of transiting vessels. We do not expect that the effects from vessel noise could be meaningfully measured or detected, and therefore we consider such effects to be insignificant.

Vessel Strike

Vessels transiting the marine environment have the potential to collide with, or strike, marine mammals (Laist et al. 2001; Jensen and Silber 2004). The probability of strike events depends on the frequency, speed, and route of the marine vessels, as well as distribution of marine mammals in the area. Humpback whales are especially susceptible to ship strike injury and mortality in narrow bottleneck passages (Williams and O'Hara 2010). Laist et al. (2001) found that while all sizes and types of vessel can strike a whale, ships greater than 80 meters and those going faster than 14 knots were most likely to cause severe or fatal injuries.

The number of barge and ferry vessels associated with operations of the proposed action will be small. The overlap of humpback whales in the action area will be limited. Implementation of mitigation measures make the probability of vessel strike very low, therefore, we conclude that the potential risk for vessel strikes to humpback whales is extremely unlikely to occur.

Entanglement

The project has the potential to increase risk of entanglement of humpback whales by use of lines to secure the vessel and potential marine debris resulting from materials being barged to the project site. Humpback whales are known to entangle in net and lines within the water column and are particularly susceptible when gear co-occurs with foraging opportunities. In 2018 there was 76 confirmed humpback whale entanglements nationwide (NMFS 2020). However, the limited number of barge and ferry vessels transiting to the project site and the implementation of the mitigation measures for this project will reduce the potential for entanglement to occur, making entanglement of Mexico DPS humpback whales extremely unlikely to occur.

Conclusion

Based on this analysis, NMFS concurs with your determination that the proposed action may affect, but is not likely to adversely affect the ESA-listed Mexico DPS humpback whale. Reinitiation of consultation is required where discretionary federal involvement or control over the action has been retained or is authorized by law and if (1) take of listed species occurs, (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered, (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this

concurrence letter, or (4) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR § 402.16).

Please direct any questions regarding this letter to Kim Raum-Suryan at kim.raum-suryan@noaa.gov, 907.586.7424 and to akr.prd.section7@noaa.gov.

Sincerely,

A handwritten signature in black ink that reads "Anne Marie Eich". The script is cursive and fluid.

Anne Marie Eich, Ph.D.
Assistant Regional Administrator
for Protected Resources

cc: Betsy McGregor Betsy.McGregor@KleinschmidtGroup.com

Mark Hilson mhilson@seapahydro.org

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From: [Meggie Stogner - NOAA Federal](#)
To: [Betsy McGregor](#); [Mark Hilson](#)
Cc: [Kim Raum-Suryan - NOAA Federal](#); [NMFS AKR PRD Section 7](#)
Subject: re: AKRO-2024-03054 Tyee Lake Hydro Project LOC
Date: Friday, December 13, 2024 4:02:11 PM
Attachments: [AKRO-2024-03054 Tyee Lake Hydro Project signed508.pdf](#)

You don't often get email from meggie.stogner@noaa.gov. [Learn why this is important](#)

Hello,

Please see the attached letter of concurrence regarding the Tyee Lake Hydro Project (AKRO-2024-03054).

Let us know if you have any questions.

Thank you,
Meggie

--
--

I respectfully acknowledge that I live and work on Tlingit Aani- Tlingit Land.

Gunalcheesh / Quayana / Thank you

Meggie Stogner (she/her)

Office Administrative Assistant, PRD and HCD

NOAA Fisheries | U.S. Department of Commerce

Office: (907) 586-7236

www.fisheries.noaa.gov

NOAA Fisheries Alaska Regional Office's work is conducted in the waters and along the coastlines of Alaska, which include the traditional home lands and waters of the Inupiat, Yupiit, Siberian Yupiit, Unangax, Alutiiq/Sugpiaq, Eyak, Dena'ina Athabascan, Tlingit, Haida, and Tsimshian who have stewarded their lands and waters since time immemorial. Thank you for your patience as we learn.



From: [Meitl, Sarah J \(DNR\)](#)
To: [Betsy McGregor](#)
Cc: [Meitl, Sarah J \(DNR\)](#)
Subject: RE: SEAPA Tyee Lake Hydro Project (FERC P-3015) Amendment - Request for Consultation under Section 106 of NHPA
Date: Friday, December 13, 2024 4:54:57 PM

3130-1R FERC / 2024-01087

Good afternoon,

The Alaska State Historic Preservation Office received your correspondence (dated November 8, 2024) on November 13, 2024. Following our review of the documentation provided in the initiation letter, we recommend defining the area of potential effects (APE) with a 100 ft buffer around the proposed use areas. We have no objections to the level of effort to identify historic properties at this time. We recommend outreach to the Central Council of the Tlingit and Haida Indian Tribes of Alaska and the Sealaska Heritage Institute as potential consulting parties.

Our office may need to re-evaluate our comments if changes are made to the project's scope or design, or comments are received from other consulting parties. Thank you for sending a Section 106 consultation initiation letter to our office. Please let me know if we can be of further assistance.

Best,
Sarah

Sarah Meitl

Review and Compliance Coordinator
Alaska State Historic Preservation Office
Office of History and Archaeology
907-269-8720

From: DNR, Parks OHA Review Compliance (DNR sponsored) <oha.revcomp@alaska.gov>
Sent: Wednesday, November 13, 2024 2:06 PM
To: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Cc: Meitl, Sarah J (DNR) <sarah.meitl@alaska.gov>
Subject: FW: SEAPA Tyee Lake Hydro Project (FERC P-3015) Amendment - Request for Consultation under Section 106 of NHPA

Good afternoon,

The Office of History and Archaeology/Alaska State Historic Preservation Office received your documentation, and its review has been logged in with me under 2024-01087. Our office has 30 calendar days after receipt to complete our review and may contact you if we require additional information. Please contact me by email if you have any questions or concerns.

Best,
Sarah

Sarah Meitl

Review and Compliance Coordinator
Alaska State Historic Preservation Office
Office of History and Archaeology
sarah.meitl@alaska.gov

From: Betsy McGregor <Betsy.McGregor@KleinschmidtGroup.com>
Sent: Friday, November 8, 2024 4:21 PM
To: Bittner, Judith E (DNR) <judy.bittner@alaska.gov>
Cc: DNR, Parks OHA Review Compliance (DNR sponsored) <oha.revcomp@alaska.gov>; Meitl, Sarah J (DNR) <sarah.meitl@alaska.gov>; Mark Hilson <mhilson@seapahydro.org>; Sharon Thompson <sthompson@seapahydro.org>
Subject: SEAPA Tyee Lake Hydro Project (FERC P-3015) Amendment - Request for Consultation under Section 106 of NHPA

Some people who received this message don't often get email from betsy.mcgregor@kleinschmidtgroup.com. [Learn why this is important](#)

CAUTION: This email originated from outside the State of Alaska mail system. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Ms. Bittner,

On behalf of SEAPA, please find the attached letter requesting consultation with the Alaska SHPO pursuant to 36 CFR 800.29(c)(4) implementing section 106 of the National Historic Preservation Act, associated with SEAPA's proposed capacity-related amendment to add a third turbine-generating unit to an empty bay in its Tyee Lake Hydroelectric Project, located about 40 miles southeast from Wrangell, Alaska.

If you have any questions regarding the project, please feel free to contact me at 907-885-3418 or by e-mail at Betsy.McGregor@KleinschmidtGroup.com.

Thank you for your assistance with this request.

Regards,

Betsy

Betsy McGregor

Senior Scientist

Kleinschmidt

O: 907-885-3418

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From: [Betsy McGregor](#)
To: claire.delbecq@alaska.gov
Cc: [Mark Hilson](#); [Larguier, Ann M \(DFG\)](#); [Kanouse, Kate M \(DFG\)](#)
Subject: SEAPA Tyee Lake Hydroelectric Project (FERC No. P-3015) Fish Habitat Permit FH10-I-0160 - Request for Amendment
Date: Wednesday, December 18, 2024 11:19:00 AM

Hi Claire.

I am sending this email on behalf of the Southeast Alaska Power Agency (SEAPA) regarding Fish Habitat Permit FH10-I-0160 issued by the Habitat Section of ADF&G.

On October 9, 2024, SEAPA filed a Draft Application for Capacity Amendment License with the Federal Energy Regulatory Commission (FERC) for the Tyee Lake Hydroelectric Project (FERC No. P-3015) to add a third turbine-generator unit to the existing powerhouse. With installation of the third unit, the project would continue to be operated within SEAPA's existing Tyee Lake water appropriation authorization of 135,000 acre-feet per year. The maximum discharge through the powerhouse and tailrace would increase from 234 cfs with operation of the two existing turbines to up to 351 cfs if the facility is operated at full capacity. The tailrace is listed in the Anadromous Waters Catalogue as Tailrace Creek (AWC Stream No. 107-40-10537-2008) for the presence of chum and pink salmon and rearing coho salmon.

SEAPA is requesting an amendment to its Fish Habitat Permit FH10-I-0160 to allow for changes to the tailrace discharge as follows:

- Shutdown of the plant if necessary for up to two weeks for the installation of the third unit to be conducted between May 1 and July 31 when pink salmon are not anticipated to be present in the tailrace;
- Increasing the tailrace discharge during operations up to the maximum output of all three turbines operating concurrently at full capacity;
- Shutdown of all 3 turbines annually during routine maintenance to be conducted between May 1 and July 31 (historical duration of maintenance activities has been 10 days or less annually); and
- Shutdown of all 3 turbines for emergency purposes.

Please contact me if you have any questions or need additional information to support this permit amendment request.

Thank you for your assistance in this matter.

Regards,
Betsy

Betsy McGregor
Senior Scientist and Regulatory Consultant



O: 907-885-3418

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From: [Betsy McGregor](#)
To: [Gundelfinger, Clint E \(DNR\)](#)
Cc: [Mark Hilson](#)
Subject: SEAPA Tyee Lake LAS 27405 Permit Extension Application
Date: Wednesday, December 18, 2024 10:33:47 AM

Hi Clint.

I am sending this email on behalf of the Southeast Alaska Power Agency (SEAPA) regarding the Tyee Lake LAS 27405 Permit to Appropriate Water. The referenced permit authorizes SEAPA to use 135,000 acre-feet of water from Tyee Lake per year for the purpose of hydroelectric power generation at the Tyee Lake Project (FERC No. P-3015), located about 40 miles southeast of Wrangell, AK.

SEAPA is in the process of preparing a Final Amendment Application to file with the Federal Energy Regulatory Commission (FERC) to add a third turbine-generator unit to the existing hydroelectric facility. With installation of the third unit, the project would continue to be operated within SEAPA's existing water appropriation authorization.

We are requesting documentation of SEAPA's current authorization to appropriate 135,000 acre-feet of water from Tyee Lake under LAS 27405 to submit to FERC as part of SEAPA's license amendment application.

Please contact me if you have any questions or need additional information.

Thank you for your assistance with this request.

Regards,
Betsy

Betsy McGregor
Senior Scientist and Regulatory Consultant

Kleinschmidt

O: 907-885-3418

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**FISH HABITAT PERMIT FH10-I-0160
AMENDMENT #1**

ISSUED: January 21, 2025
EXPIRES: Life of Project

Southeast Alaska Power Agency
ATTN: Robert Siedman
55 Don Finney Lane
Ketchikan, Alaska 99901

RE: Tyee Lake Water Use, Turbine Addition
Tyee Lake and Hidden Creek (Stream Number 107-40-10538)
Tailrace Creek (Stream Number 107-40-10537-2008)
Section 21, T 65 S, R 090 E, CRM (Bradfield Canal A-5)
Location: 56.217662 N, 131.4905191 W (WGS 84)

Dear Robert Siedman:

Pursuant to the Anadromous Fish Act at AS 16.05.871(b) and the Fishway Act at AS 16.05.841, the Alaska Department of Fish and Game (ADF&G) Habitat Section reviewed your proposal to install a third turbine at the Tyee Lake Hydroelectric facility to withdraw up to your allotted 135,000 acre feet of water per year from your existing lake-tap intake in Tyee Lake. The proposed updates to the facility, which was built in 1983, will provide more hydroelectric power to Southeast. Please refer to the original permit FH10-I-0160 for additional information on the project.

Project Description

The addition of a third turbine would increase the maximum discharge through the powerhouse into Tailrace Creek from 234 ft³/s to 351 ft³/s, when all three turbines are running. The increase in streamflow is likely to change channel morphology in Tailrace Creek. However, impacts to fish habitat and fish use of the creek are expected to be minimal given the low fish use of the area. Kanouse and Timothy (2018) found low adult and juvenile fish use of the creek due to salinity concentrations from tidal influence, studies which fulfilled the monitoring program described in the original permit FH10-I-0160^a.

^a Kanouse, K.M. and J. Timothy. 2018. Pink salmon use of the Tyee Lake hydro tailrace. Alaska Department of Fish and Game. Technical Report No. 17-01, Douglas, AK.

To install the third unit, you will shut down the plant for approximately two weeks which will stop streamflow from the powerhouse to Tailrace Creek. This work is planned between May 1 and July 31 when adult and young-of-year pink salmon will not be present in Tailrace Creek. Additionally, you will shut down the plant for annual routine maintenance between May 1 and July 31 each year (historical duration of maintenance activities has been 10 days or less annually).

Anadromous Fish Act

Tailrace Creek (Stream Number 107-40-10537-2008) has been specified as being important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). The water body provides habitat for rearing coho, and a few spawning pink and chum salmon.

Downstream of the anadromous fish barrier, Hidden Creek (Stream No. 107-40-10538) is specified as important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). The creek provides habitat for chum, coho, and pink salmon. Dolly Varden char and cutthroat and rainbow trout have also been observed in the creek.

Fishway Act

Tyee Lake supports Arctic grayling and the outlet stream supports rainbow trout upstream of the anadromous fish barrier in Hidden Creek.

In accordance with AS 16.05.871(d) and 16.05.841, your request to increase streamflow in Tailrace Creek is approved subject to the project description, permit terms, terms of the original permit FH10-I-0160, and the following stipulation:

1. You will complete shutdown maintenance activities May 1–July 31.

Permit Terms

This letter constitutes a permit issued under the authority of AS 16.05.871 and AS 16.05.841 and must be retained on site during project activities. Please be advised that this determination applies only to Habitat Section regulated activities; other agencies also may have jurisdiction under their respective authorities. This determination does not relieve you of your responsibility to secure other state, federal, or local permits. You are still required to comply with all other applicable laws.

You are responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved project. Prior to engaging in any activity that significantly deviates from the approved plan, you shall notify the Habitat Section and obtain written approval in the form of a permit amendment. Any action that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any provision contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is a Habitat Section responsibility. Therefore, it is recommended the Habitat Section be consulted immediately when a deviation from the approved plan is being considered.

You shall give an authorized representative of the state free and unobstructed access to the permit site, at safe and reasonable times, for the purpose of inspecting or monitoring compliance

with any provision of this permit. You shall furnish whatever assistance and information the authorized representative reasonably requires for monitoring and inspection purposes.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. You shall mitigate any adverse effect upon fish or wildlife, their habitats, or any restriction or interference with public use that the commissioner determines was a direct result of your failure to comply with this permit or any applicable law.

You shall indemnify, save harmless, and defend the department, its agents, and its employees from any and all claims, actions, or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or your performance under this permit. However, this provision has no effect if, and only if, the sole proximate cause of the injury is the department's negligence.

You may appeal this permit decision relating to AS 16.05.871 in accordance with the provisions of AS 44.62.330-630.

Please direct questions about this permit to Habitat Biologist Claire Delbecq at (907) 465-4275 or claire.delbecq@alaska.gov.

Sincerely,
Doug Vincent-Lang
Commissioner



By: Kate Kanouse
Regional Supervisor

Enclosure: Fish Habitat Permit FH10-I-0160

Email cc:

Al Ott, ADF&G Habitat, Fairbanks
ADF&G Habitat Staff, Douglas
Ann Larquier, ADF&G SF, Anchorage
Kelly Reppert, ADF&G SF, Ketchikan
Scott Walker, ADF&G CF, Ketchikan
Frank Robbins, ADF&G WC, Petersburg
Jeff Rice, ADF&G SF, Petersburg
Kathryn Taylor, ADF&G CF, Petersburg
Mike Salyer, USACE, Soldotna
Andy Stevens, USFWS, Anchorage
Habitat Conservation Division, NMFS, Juneau
Betsy McGregor, Kleinschmidt
Tory Houser, USFS, Wrangell
Melissa Dinsmore, USFS

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

DIVISION OF HABITAT

SEAN PARNELL, GOVERNOR

Douglas Island Center Building
802 W. 3rd Street, Douglas
P.O. BOX 110024
JUNEAU, AK 99811-0024
PHONE: (907) 465-4105
FAX: (907) 465-4759

FISH HABITAT PERMIT FH10-I-0160

ISSUED: October 28, 2010

Southeast Alaska Power Agency
ATTN: Dave Carlson, CEO
PO Box 110987
Anchorage, AK 99511

RE: **Tyee Lake Water Use**
Tyee Lake and Hidden Creek (Stream No. 107-40-10538)
T 65 S, R 90 E, Sec 28, CRM, USGS Quad Bradfield Canal A-5
Intake Location: N 56.1967 W 131.4939

Dear Mr. Carlson:

Pursuant to Alaska Statutes (AS) 16.05.841 and 16.05.871(b), the Alaska Department of Fish and Game (ADF&G) Division of Habitat reviewed your proposal to withdraw 135,000 acre feet of water per year from your existing intake in Tyee Lake to generate hydropower at the Tyee Lake Hydroelectric facility. The project has operated since 1983 under capacity due to low electrical demand, however demand will increase when the intertie to Ketchikan is complete. The proposed water use would allow the project to operate at capacity, generating up to 26MW.

Fish Resources and Anadromous Fish Act

Tyee Lake supports Arctic grayling and the outlet stream supports rainbow trout upstream of the anadromous fish barrier in Hidden Creek. Your project as proposed has the potential to obstruct the efficient passage and movement of fish in Tyee Lake and Hidden Creek.

Downstream of the anadromous fish barrier, Hidden Creek (Stream No. 107-40-10538) is specified as important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). The creek provides habitat for chum, coho, and pink salmon. Dolly Varden char and cutthroat trout have also been observed in the creek.

Determination and Coastal Consistency Requirements

The proposed water use from Tyee Lake will impact the aquatic ecosystem in both the lake and Hidden Creek. Peak lake draw-down will occur in early-spring when grayling will be searching for stream spawning habitat. Historical bathymetry data for Tyee Lake suggest that fish access to spawning streams will be restricted at capacity operations during spring due to the steep-gradient

shore, if not prevented altogether. Therefore, the proposed water use may eradicate the grayling if successful reproduction necessary to sustain the population does not occur.

The proposed water use is expected to reduce flow in Hidden Creek up to 92%. The resident rainbow population upstream of the anadromous migration barrier in Hidden Creek has not been studied, therefore we do not know to what extent that population will be impacted. Downstream of the barrier, pink and chum spawning habitat and juvenile salmonid rearing habitat will be abandoned due to significantly reduced water flow.

During FERC licensing the original project owner, Alaska Power Authority (APA), evaluated several options to mitigate adverse impacts to resident and anadromous fish populations in Tyee Lake and Hidden Creek. Among the options considered were altering project design, transplanting grayling to a nearby lake, and constructing a fish hatchery in Bradfield Canal, however these options proved impractical during feasibility studies. In 1983, federal and state agencies approved APA's final proposed fisheries mitigation plan, which included 1) funding construction of public recreation facilities and a trail to Long Lake on Wrangell Island, and 2) constructing and monitoring an experimental spawning channel in the project tailrace.

AS 16.05.851 provides ways to compensate for impacts to fish passage. ADF&G biologists stocked Tyee Lake with eyed grayling eggs and fry on several occasions during the 1960s to provide a sport fishery, however few anglers fish Tyee Lake due to the lake's remote location and difficult terrain. The Long Lake recreational mitigation provides accommodations and angler access to rainbow trout that were previously underutilized. Though this mitigation does not meet the specific requirements of AS 16.05.851, the Division of Habitat determined APA thoroughly investigated transplant and hatchery feasibility, and concurs that the Long Lake mitigation substitutes for lost recreational fishing opportunity at Tyee Lake. Therefore, the Long Lake mitigation meets the intent of AS 16.05.851 and no additional mitigation is required.

Construction of the tailrace spawning channel was complete in 1983. Contract biologists studied the channel four years (1983 – 1987) during operating loads of 4-6MW, but not during full project operations as required in the approved monitoring plan as electrical demand was low at the time. The current project owner, Southeast Alaska Power Agency, has agreed to partially fund ADF&G Habitat biologists three years to complete the monitoring program and study salmonid productivity in the spawning channel. This agreement satisfies and completes the anadromous fish mitigation requirements for AS 16.05.871.

This project is consistent with the Alaska Coastal Management Program (State ID AK1008-14J).

In accordance with AS 16.05.841 and 16.05.871(d), project approval is hereby given subject to the project description above.

You are responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved project. For any activity that significantly deviates from the approved plan, you shall notify the Division of Habitat and obtain written approval in the form of a permit amendment before beginning the activity. Any action that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any stipulation contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of the Division

of Habitat. Therefore, it is recommended you consult the Division of Habitat immediately when a deviation from the approved plan is being considered.

For the purpose of inspecting or monitoring compliance with any condition of this permit, you shall give an authorized representative of the state free and unobstructed access, at safe and reasonable times, to the permit site. You shall furnish whatever assistance and information as the authorized representative reasonably requires for monitoring and inspection purposes.

This letter constitutes a permit issued under the authority of AS 16.05.841 and 16.05.871 and must be retained on site during project activities. Please be advised that this determination applies only to activities regulated by the Division of Habitat; other agencies also may have jurisdiction under their respective authorities. This determination does not relieve you of your responsibility to secure other permits; state, federal, or local. You are still required to comply with all other applicable laws.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. The department reserves the right to require mitigation measures to correct disruption to fish and game created by the project and which was a direct result of the failure to comply with this permit or any applicable law.

You shall indemnify, save harmless, and defend the department, its agents, and its employees from any and all claims, actions, or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or your performance under this permit. However, this provision has no effect if, and only if, the sole proximate cause of the injury is the department's negligence.

The AS 16.05.871 permit decision may be appealed in accordance with the provisions of AS 44.62.330-630.

If you have any questions regarding this permit, please contact Habitat biologist Kate Kanouse at (907) 465-4290 or email kate.kanouse@alaska.gov.

Sincerely,



Denby S. Lloyd, Commissioner

By: Jackie Timothy
Regional Supervisor
Division of Habitat

Email cc:

Al Ott, ADF&G Habitat, Fairbanks
Troy Thynes, ADF&G Comm Fish, Petersburg
Doug Fleming, ADF&G Sport Fish, Petersburg
Shawn Johnson, ADF&G Sport Fish, Douglas
Robert Piorkowski, ADF&G Sport Fish, Juneau

Ted Deats, ADNR DMLW, Juneau
William Groom, ADNR DCOM, Juneau
Dennis Reed, USFS, Wrangell
David Rak, USFS, Wrangell

From: [Delbecq, Claire E \(DFG\)](#)
To: rsiedman@seapahydro.org
Cc: [Ott, Alvin G \(DFG\)](#); [DFG - HAB Douglas Staff](#); [Larquier, Ann M \(DFG\)](#); [Reppert, Kelly S \(DFG\)](#); [Robbins, Frank F \(DFG\)](#); [Rice, Jeffrey R \(DFG\)](#); [Taylor, Katie A \(DFG\)](#); michael.salver@usace.army.mil; andrew_stevens@fws.gov; nmfs.akr.habitat@noaa.gov; [Betsy McGregor](#); [Houser, Victoria - FS, AK](#); melissa.dinsmore@usda.gov
Subject: FH10-I-0160-A1 Tyee Lake Water Use Turbine Addition
Date: Tuesday, January 21, 2025 2:19:07 PM
Attachments: [FH10-I-0160-A1 Tyee Lake Water Use Turbine Addition.pdf](#)

Hello Robert,

I've attached your Fish Habitat Permit amendment to install a third turbine at the Tyee Lake Hydroelectric facility.

Thank you,

Claire Delbecq
Habitat Biologist
Alaska Dept. of Fish and Game
Habitat Section Region I
Douglas, AK
(907) 465 4275



THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

Department of Natural Resources

DIVISION OF MINING, LAND & WATER
Water Resources Section
Southeastern Office

P. O. Box 111020
Juneau, Alaska 99811-1020
Main: 907.465.3400
TTY: 711 or 800-770-8973
Fax: 907.465.3886

January 21, 2025

Southeast Alaska Power Agency (SEAPA)
55 Don Finny Lane
Ketchikan, AK 99901

Re: SEAPA Tyee Lake Hydroelectric Project (P-3015) Water Rights

To Whom It May Concern:

The Alaska Department of Natural Resources (ADNR) Water Resources Section has reviewed our water rights casefile database for water rights associated with the Tyee Lake Hydroelectric Project (P-3015).

There are two water rights casefiles issued for this project: ADL 100887 and LAS 27405 which are currently held by Southeast Alaska Power Agency and in good standing.

ADL 100887 and LAS 27405 authorize a cumulative water use of 135,000 acre-feet per year at a maximum diversion rate of 254 cubic-feet per second sourced from Tyee Lake.

If you have any questions, please contact me at (907) 465-6363 or clint.gundelfinger@alaska.gov and refer to the casefiles referenced above.

Best regards,

A handwritten signature in cursive script that reads "Clint Gundelfinger".

Clint Gundelfinger
Lead, Statewide Hydropower Water Resources
Alaska Department of Natural Resources

APPENDIX C

SEAPA PROPOSED MEASURES FOR TYEE CAPACITY AMENDMENT

MEMORANDUM

To: Douglas M Cooper (US Fish and Wildlife Service); Catherine Coon (National Marine Fisheries Service); Anne Marie Eich (National Marine Fisheries Service) Ann Marie Larquier (Alaska Department of Fish and Game),

From: Betsy McGregor (Kleinschmidt Associates)

Cc: Carol Mahara (US Fish and Wildlife Service); Julianne Rosset (National Marine Fisheries Service); Kim Raum-Suryan (National Marine Fisheries Service); Jarrod Sowa (Alaska Department of Fish and Game); Mark Hilson (SEAPA); Diana Shannon (Federal Energy Regulatory Commission)

Date: January 24, 2025

Re: SEAPA Proposed Measures for Tyee Capacity Amendment

The Southeast Alaska Power Agency (SEAPA) is the licensee of the Tyee Lake Hydroelectric Project (P-3015, "Project") located 40 miles southeast of Wrangell, Alaska. SEAPA is proposing a license amendment to enable the installation of an additional 10-megawatt hydroelectric Pelton-style turbine generator to an existing empty bay at the powerhouse.

On October 9, 2024 SEAPA provided a Draft Application for License Amendment (Draft Application) to FERC and interested stakeholders and a Joint Agency/Public Meeting (JAM) was held on November 14, 2024 to review the proposed Project and process and discuss any concerns regarding potential impacts. SEAPA has proposed to expedite the amendment application by seeking a waiver of second stage consultation [18 CFR 4.38(a)(9)] and substituting the Preliminary Draft Environmental Assessment (PDEA) pursuant to the FERC regulations for the Exhibit E [18 CFR 4.51(f)] and the requirements of the National Environmental Policy Act (NEPA).

To date the U.S. Fish and Wildlife Service (USFWS), the National Marine Fisheries Service (NMFS) and the Alaska Department of Fish and Game (ADF&G) have supported the waiver and the proposed use of a PDEA, but have indicated actions that would be necessary for the agencies to fulfill their responsibilities (Attachment A). SEAPA is addressing these requests as follows:

Request: The USFWS, by letter dated December 9, 2024, identified the need for monitoring of potential scour and downstream deposition of fines upon commissioning of the third unit due to increased flow through the tailrace.

Response: In 2025, SEAPA will develop a Tailrace Scour and Deposition Monitoring Plan (Tailrace Monitoring Plan) to be developed in consultation with the agencies,

to identify baseline data, monitoring locations, the type of data to be collected, and operational flows of interest. The Tailrace Monitoring Plan would be ready to implement prior to when the third turbine becomes operational to provide baseline data that can be compared to data collected during or after target operations of all three turbines. SEAPA has included the development and implementation of the Tailrace Monitoring Plan as part of the Proposed Action in the Final Amendment Application and proposes that the amended license require submission of the completed plan including an updated consultation record.

SEAPA intends for the monitoring plan to be time-limited to validate assumptions; upon Agency agreement with the results of the findings, monitoring would cease.

Request: NMFS, by letter dated December 4, 2024 indicated that because the operation of the third unit has the potential to reduce Tyee Creek flows to Hidden Creek, it will be important to monitor the lower 460 feet of Hidden Creek after the turbine is operational to ensure that the reduction in spill does not affect salmon or salmon habitat. NMFS therefore requested a monitoring plan be established in consultation with the agency.

Response: In 2025, SEAPA will develop a Hidden Creek Flow Monitoring Plan (Flow Monitoring Plan) with agency consultation. The Flow Monitoring Plan will be implemented for a limited duration after the Project is operational. SEAPA acknowledges that the monitoring may be implemented for multiple seasons to capture flow during low-water, high-water, and average-water years. Through consultation with agencies during development of the monitoring plan, the location, duration, and frequency of monitoring efforts would be determined to ensure there is no effect to salmon or salmon habitat in lower Hidden Creek. SEAPA has included the development and implementation of the Flow Monitoring Plan as part of the Proposed Action in the Final Amendment Application and proposes that the amended license require submission of the completed plan including an updated consultation record.

As with the proposed Tailrace Monitoring Plan, SEAPA intends for the Hidden Creek Flow Monitoring Plan to be time-limited to validate assumptions; upon Agency agreement with the results of the findings, monitoring would cease.

Request: NMFS, by letter dated December 13, 2024, provided a list of mitigation measures to ensure protection of the Mexico distinct population segment (DPS) humpback whale (*Megaptera novaeangliae*), listed as threatened under the Endangered Species Act, and a may affect, but not likely to adversely affect determination for the proposed Project.

Response: SEAPA has included implementation of the mitigation measures as part of the Proposed Action in the Final Amendment Application and intends to include them as requirements in all construction contracts.

Request: ADF&G, by letter dated November 27, 2024, indicated that the requested action would require an amendment to Fish Habitat Permit FH10-I-0160 issued by the Habitat Section of ADF&G. This permit amendment is required for annual maintenance and emergency shut-downs and increasing the tailrace discharge by way of adding the third turbine.

Response: By letter dated December 18, 2024, SEAPA requested an amendment to its Fish Habitat Permit FH10-I-0160 to allow for changes to the tailrace discharge as follows:

- Shutdown of the plant if necessary for up to two weeks for the installation of the third unit to be conducted between May 1 and July 31 when pink salmon are not anticipated to be present in the tailrace;
- Increasing the tailrace discharge during operations up to the maximum output of all three turbines operating concurrently at full capacity;
- Shutdown of all 3 turbines annually during routine maintenance to be conducted between May 1 and July 31 (historical duration of maintenance activities has been 10 days or less annually); and
- Shutdown of all 3 turbines for emergency purposes.

On January 21, 2025, ADF&G issued SEAPA Amendment #1 to its Fish Habitat Permit FH10-I-0160 as requested (Attachment A).

ATTACHMENT A

AGENCY COMMENTS AND PERMIT



United States Department of the Interior

U.S. FISH AND WILDLIFE SERVICE
Southern Alaska Fish and Wildlife Field Office
Anchorage Fish and Wildlife Conservation Office
4700 BLM Road
Anchorage, Alaska 99507



In Reply Refer to:
FWS/R7/SAFWFO

Betsy McGregor
Senior Scientist and Regulatory Consultant
Kleinschmidt
55 Don Finney Lane
Ketchikan, Alaska 99901

Subject: Tyee Lake Hydroelectric Project (Federal Energy Regulatory Commission Project Number P-3015) Initial Consultation Document, Draft Application for Capacity Amendment to License, and Preliminary Draft Environmental Assessment (Service file number 2025-0028192)

Dear Betsy McGregor:

Thank you for providing the Initial Consultation Document (ICD) for the Draft Application for Capacity Amendment to License (Draft Amendment Application) for the Tyee Lake Hydroelectric Project (Project; Federal Energy Regulatory Commission Project [FERC] Number P-3015) on October 8, 2024. On behalf of Southeast Alaska Power Agency (SEAPA), licensee for the Project, Kleinschmidt is proposing a license amendment to enable the installation of an additional 10-megawatt hydroelectric Pelton-style turbine generator to an existing empty bay at the powerhouse. The ICD consists of the Draft Amendment Application, as well as an Exhibit E in the form of a Preliminary Draft Environment Assessment (PDEA).

With minimal impacts anticipated, SEAPA proposes to expedite the amendment application by seeking waivers of compliance with a portion of consultation requirements from resource agencies and Alaska Native Tribes. Specifically, SEAPA is seeking agency support that:

1. studies are not needed to assess resource impacts from installation and operation of a third unit
2. the second stage of consultation can be waived so that SEAPA can proceed directly to a Final Amendment Application
3. using the PDEA in lieu of Exhibit E in the Final Amendment Application is acceptable.

The U.S. Fish and Wildlife Service (Service) has reviewed the ICD and offers the following response to these requests.

Studies

The Service requests scour and deposition monitoring at the tailrace where changes in flows are anticipated but does not require a full study to assess resource impacts.

The proposed license amendment would not change water rights or minimum/maximum pool elevations at the lake, but if all three turbines were running simultaneously, the reservoir water surface elevation may be drawn down at a faster rate compared to existing conditions, and the maximum output at the tailrace could increase from 234 cubic feet per second (cfs) to 351 cfs. Some minor scouring of the tailrace channel bed may occur, and the mobilized fines would likely be deposited at either the lower end of the tailrace or Airstrip Slough. Because the Project tailrace was designed to accommodate simultaneous maximum output flows from three turbine units (ICD, page E-36), and because it is anticipated that the deposition of fines would be comparable to natural sedimentation processes for that intertidal area (ICD, page E-37), the Service does not require a full study to assess resource impacts, but requests monitoring that shows the tailrace and downstream environment are responding to the changes in flow regimes as expected.

Waiver of compliance with consultation requirements 18 CFR 4.38(e)

A second stage of consultation under 18 CFR 4.38(c) allows for more discussion and information gathering in order for FERC to make an informed decision regarding the merits of an application. Since the Service is not requesting an initial round of studies for this Draft Amendment Application, we do not need a second stage of consultation and waive that second stage consultation requirement under 18 CFR 4.38(e).

Exhibit E in the Final Amendment Application

An Exhibit E (Environmental Report) is part of a typical license application, but an applicant using alternative procedures may use an environmental review document under the National Environmental Policy Act instead of Exhibit E (18 CFR 4.34(i)).

Exhibit E of the Project ICD includes the PDEA (ICD, pages E-20 – E-111). The Service approves of using the PDEA in lieu of Exhibit E in the final amendment application.

Thank you for the opportunity to review and comment on the ICD and the Draft Amendment Application for the Project. The Service understands that relicensing procedures will commence in 2025 where the Project as a whole will be reviewed, and we look forward to working with SEAPA for that process. For more information or if you have any questions, please contact Senior Fish and Wildlife Biologist Ecological Services, Ms. Carol Mahara at (907) 280-9751 or via email carol_mahara@fws.gov and reference Service file number 2025-0028192.

Sincerely,

Acting For:
Douglass M. Cooper
Branch Chief, Ecological Services



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, AK 99802-1668

December 4, 2024

Betsy McGregor
Kleinschmidt Senior Scientist
55 Don Finney Lane
Ketchikan, Alaska 99901

Re: Tyee Lake Hydroelectric Project (FERC No. 3015) Draft Application for Capacity
Amendment to License and Preliminary Draft Environmental Assessment

Betsy:

The National Marine Fisheries Service has reviewed the Southeast Alaska Power Agency's (SEAPA or Licensee) draft Application for a capacity amendment to the Tyee Lake Hydroelectric Project (Project) license, as submitted to the Federal Energy Regulatory Commission on October 9, 2024.¹ On November 14, 2024, Kleinschmidt Associates, on behalf of SEAPA, hosted a meeting to discuss the process and seek agency and stakeholder support that:

1. Studies are not needed to assess resource impacts from installation and operation of a third unit.
2. The second stage of consultations can be waived and SEAPA can proceed directly to a Final Amendment Application to expedite installation.
3. Use of the Preliminary Draft Environmental Assessment (PDEA) in lieu of the Exhibit E in the Final Amendment Application is acceptable as it may expedite approval of the amendment.

Additionally, on November 20, 2024, Kleinschmidt Associates submitted a Request for Informal Consultation. That request is specific to the Endangered Species Act. The equivalent for consultation under Essential Fish Habitat (EFH) provisions of the Magnuson-Stevens Fishery Conservation and Management Act is an abbreviated consultation. After reviewing the amendment application, attending the November meeting, and reviewing the documents provided, we support the use of an abbreviated EFH consultation and offer the following comments.

Background

Tyee Lake receives between 250 and 350 feet of water from precipitation and runoff, which is diverted to the Project's powerhouse via a lake tap. The normal operating pool ranges in elevation from 1,250 feet to full pool. At 1,398.3 feet elevation, water spills over a weir at the

¹ Accession No. 20241009-5017



natural lake outlet to Tyee Creek, which joins Hidden Creek before flowing into Bradfield Canal about one half mile from the tailrace. As noted in the amendment application, Bradfield Canal is designated EFH for various life stages of Chinook (*Oncorhynchus tshawytscha*), chum (*O. keta*), coho (*O. kisutch*), pink (*O. gorbuscha*), and sockeye salmon (*O. nerka*). Additionally, the Alaska Department of Fish & Game's Anadromous Waters Catalog lists the lower 460 feet of Hidden Creek (AWC Stream No. 107-40-10538) as habitat for chum, coho, and pink salmon.

During the November meeting, the Licensee indicated stakeholders were concerned that the diversion of Tyee Lake water would result in the loss of anadromous fish habitat in Hidden Creek when the Project was constructed. However, according to SEAPA, Hidden Creek has continued to flow year-round since the Project began operating in 1984. The Licensee does not anticipate a reduction in the amount, or frequency, of spill in average to above-average water years will affect salmon in Hidden Creek after installation and operation of the third unit.

Comments

We do not object to the installation of the third turbine at the Project. However, it will be important to monitor the lower 460 feet of Hidden Creek after the turbine is operational to ensure that the reduction in spill does not affect salmon or salmon habitat. If SEAPA agrees to this monitoring, we can agree that second stage of consultations can be waived and use of the PDEA in lieu of the Exhibit E in the Final Amendment Application is acceptable. A monitoring plan should be established in consultation with us. Please note, this does not waive our ability to revisit the operation of the third turbine or its impacts to fish and their associated habitat in the upcoming relicensing process that begins in 2025.

Questions regarding our comments should be directed to Julianne Rosset at 907-271-3654 or julianne.rosset@noaa.gov.

Sincerely,



Catherine Coon
Assistant Regional Administrator
Habitat Conservation

Cc: Mark Hilson, SEAPA, mhilson@seapahydro.org
Carol Mahara, USFWS, carol_mahara@fws.gov
Anne Marie Larquier, ADF&G, ann.larquier@alaska.gov
Jarrod Sowa, ADF&G, jarrod.sowa@alaska.gov



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, AK 99802-1668

December 13, 2024

Betsy McGregor
Kleinschmidt Senior Scientist
55 Don Finney Lane
Ketchikan, Alaska 99901

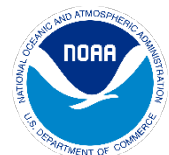
Re: Tyee Lake Hydroelectric Project (FERC No. 3015) Letter of Concurrence, AKRO-2024-03054

Dear Ms. McGregor:

The National Marine Fisheries Service (NMFS) has completed informal consultation under section 7(a)(2) of the Endangered Species Act (ESA) regarding the proposed Tyee Lake Hydroelectric Project (FERC No. 3015) located approximately 40 miles southeast of Wrangell, Alaska. Southeast Alaska Power Agency (SEAPA) and its contractor for the project, Kleinschmidt Associates (KA), non-Federal designee, requested, on behalf of the Federal Energy Regulatory Commission (FERC), written concurrence that the proposed action may affect, but is not likely to adversely affect, the Mexico distinct population segment (DPS) humpback whale (*Megaptera novaeangliae*). Based on our analysis of the information you provided to us, and additional literature cited below, NMFS concurs with your determination.

Updates to the regulations governing interagency consultation (50 CFR part 402) were effective on May 6, 2024 (89 FR 24268). We are applying the updated regulations to this consultation. The 2024 regulatory changes, like those from 2019, were intended to improve and clarify the consultation process, and, with one exception from 2024 (offsetting reasonable and prudent measures), were not intended to result in changes to NMFS' existing practice in implementing section 7(a)(2) of the ESA (84 FR at 45015; 89 FR at 24268). We have considered the prior rules and affirm that the substantive analysis and conclusions articulated in this letter of concurrence would not have been any different under the 2019 regulations or pre-2019 regulations.

This letter underwent pre-dissemination review in compliance with applicable Data Quality Act guidelines. A complete administrative record of this consultation is on file in this office.



Consultation History

NMFS received your request for consultation on November 21, 2024, and your correspondence identifying SEAPA and contractor KA as your non-Federal representative for this project as of November 1, 2024. On December 6, 2024, NMFS requested and received more information about the project from KA. NMFS initiated consultation on December 6, 2024.

Description of the Proposed Action

“Action” means all activities or programs of any kind authorized, funded, or carried out, in whole or in part, by Federal agencies in the United States or upon the high seas. 50 C.F.R. §402.02.

On behalf of FERC, SEAPA is proposing an amendment to the Tyee Lake license to install a third 10 megawatt (MW) Pelton-style turbine-generating unit in the existing empty bay at the Tyee Lake powerhouse and a new transformer in the existing switchyard, which would increase the total installed capacity from 20 MW to 30 MW. Tyee Lake is a natural lake with a drainage area of approximately 14.4 square miles. Water from Tyee Lake supplies the hydroelectric project via a lake tap. The current regional demand exceeds the existing hydropower resources and is projected to grow over the next few years.

Construction activities would occur within the licensed project boundary on state land and would involve the following existing project facilities: powerhouse, electrical substation, maintenance buildings, access road, staging and laydown areas, airstrip, barge bulkhead, dock and ramp, and contractor housing (Figure 1). There would be no changes to the Tyee Lake outlet weir, intake structure, gate house, power tunnel, or penstocks. Construction activities would not require new ground disturbance, new roads or staging areas, removal of vegetation, or need for placement or discharge of dredged and/or fill material into waters of the U.S. There would be no modifications of the tailrace and no work conducted below the ordinary high water level of any waterbody.

Equipment and supplies would be transported during high tide via barge from Wrangell along the east side of Wrangell Island to the head of Bradfield Canal (Figure 2) and the existing barge bulkhead on site. It is expected that there would be five to six barge trips from Wrangell to the project site in late spring/early summer of 2026 to complete the Proposed Action. Barges would be off-loaded by forklift or front-end loader already present on site. Equipment and materials may be temporarily placed in the existing staging area near the barge bulkhead or transported directly to the powerhouse area using the existing road. No ground-disturbing activities or upgrades to the existing roads or staging areas are anticipated.

Up to approximately 15 workers may be on site at one time. Construction workers would be either flown to the Tyee Lake airstrip (Figure 1) or transported to the dock or barge bulkhead by private ferry. Construction crew and engineers would be housed in SEAPA’s existing onsite bunkhouse or at existing U.S. Forest Service cabins under SEAPA’s Special Use Permit. It is anticipated that commissioning would occur within a year of initiation of construction activities.



Figure 1. Tyee Lake hydroelectric project area.



Figure 2. Proposed Action Area for the Tyee Hydroelectric Project.

Action Area

The action area is defined in the ESA regulations (50 CFR § 402.02) all areas to be affected directly or indirectly by the Federal action and not merely the immediate area involved in the action. The action area is distinct from and larger than the project footprint because some elements of the project may affect listed species some distance from the project footprint. The action area, therefore, extends out to a point where no measurable effects from the project are expected to occur.

The action area includes the waters from Wrangell south and east through Bradfield Canal to the base of the Tyee Lake project site (Figure 2).

Mitigation Measures

KA informed NMFS via email correspondence on Dec. 6, 2024 that the proposed action will incorporate the following mitigation measures:

For all reporting that results from implementation of these mitigation measures, NMFS will be contacted using the contact information specified in Table 2. In all cases, notification will reference the NMFS consultation tracking number (e.g., AKRO-2024-03054).

General Mitigation Measures

1. The project proponent will inform NMFS of impending in-water activities a minimum of one week prior to the onset of those activities (email information to akr.prd.records@noaa.gov).
2. Consistent with AS 46.06.080, trash will be disposed of in accordance with state law. The project proponent will ensure that all closed loops (e.g., packing straps, rings, bands, etc.) will be cut prior to disposal. In addition, the project proponent will secure all ropes, nets, and other marine mammal entanglement hazards so they cannot enter marine waters.

Project-Dedicated Vessels (vessel and crew safety should never be compromised)

3. Vessel operators will:
 - a. maintain a watch for marine mammals at all times while underway;
 - b. stay at least 91 meters (100 yards) away from listed marine mammals, except that they will remain at least 460 meters (500 yards) away from endangered North Pacific right whales;
 - c. travel at less than 5 knots when within 274 meters (300 yards) of a whale;
 - d. avoid changes in direction and speed within 274 meters (300 yards) of a whale, unless doing so is necessary for maritime safety;

- e. not position vessel(s) in the path of a whale, and will not cut in front of a whale in a way or at a distance that causes the whale to change direction of travel or behavior (including breathing/surfacing pattern);
 - f. reduce vessel speed to 10 knots or less when weather conditions reduce visibility to 1.6 kilometers (1 mile) or less; and
 - g. adhere to the Alaska Humpback Whale Approach Regulations when vessels are transiting to and from the project site: (see 50 CFR §§ 216.18, 223.214, and 224.103(b); these regulations apply to all humpback whales). Specifically, pilot and crew will not:
 - i. approach, by any means, including by interception (i.e., placing a vessel in the path of an oncoming humpback whale), within 100 yards of any humpback whale;
 - ii. cause a vessel or other object to approach within 100 yards of any humpback whale; or
 - iii. disrupt the normal behavior or prior activity of a humpback whale by any other act or omission.
4. If a whale's course and speed are such that it will likely cross in front of a vessel that is underway, or approach within 91 meters (100 yards) of the vessel, and if maritime conditions safely allow, the engine will be put in neutral and the whale will be allowed to pass beyond the vessel, except that vessels will remain 460 meters (500 yards) from North Pacific right whales.
 5. Vessels will not allow lines to remain in the water unless both ends are under tension and affixed to vessels or gear.
 6. Project-specific barges will travel at 12 knots or less.

Reporting

Unauthorized Take

7. If a listed marine mammal is injured or killed as a direct or indirect result of the action), KA will report the incident to NMFS within one business day, with information submitted to akr.prd.records@noaa.gov. These records will include:
 - a. digital, queryable documents containing observations and records, and digital, queryable reports;
 - b. the date, time, and location of each event (provide geographic coordinates);
 - c. description of the event;

- d. number of individuals of each listed marine mammal species affected;
- e. the time the animal(s) was first observed, and, if known, the time the animal was last seen, and the fate of the animal;
- f. mitigation measures implemented prior to and after the animal was taken;
- g. if a vessel struck a listed marine mammal, the contact information for individual piloting the vessel; and
- h. photographs or video footage of the animal(s), if available.

Stranded, Injured, Sick or Dead Listed Species (not associated with the project)

- 8. If the individual piloting the vessel observes an injured, sick, or dead marine mammals (i.e., stranded), they will notify the Alaska Marine Mammal Stranding Hotline at 877-925-7773 (Table 2). If possible, the individual piloting the vessel will submit photos and available data to aid NMFS in determining how to respond to the stranded animal. If possible, data submitted to NMFS in response to stranded marine mammals will include date/time, location of stranded marine mammal, species and number of stranded individuals, description of the stranded marine mammal's condition, event type (e.g., entanglement, dead, floating), and behavior of live-stranded marine mammals.

Illegal Activities

- 9. If the individual piloting the vessel observes listed marine mammals or other marine mammals being disturbed, harassed, harmed, injured, or killed (e.g., feeding or unauthorized harassment), these activities will be reported to NMFS Alaska Region Office of Law Enforcement (Table 2; 1-800-853-1964).
- 10. Data submitted to NMFS will include date/time, location, description of the event, and any photos or videos taken.

Extralimital Sightings

- 11. All observations of ESA-listed marine mammal species not considered in this consultation will be reported to NMFS within 24 hours. Photographs and/or video should be taken if possible to aid in Photo ID of individual animals. Reports will include all applicable information that would be included in a final report.

Final Report

- 12. A final report will be submitted to NMFS within 90 calendar days of the completion of the project summarizing the data recorded by emailing it to akr.prd.records@noaa.gov. The report will summarize all in-water activities associated with the proposed action.

13. The final report for projects will include:

- a. dates, times, and geographic coordinates of listed marine mammals observed by the individual piloting the vessel, including water depth, species, age/size/gender (if determinable), and group sizes; and;
- b. any photos or videos taken of marine mammals.

Table 1. Summary of Agency Contact Information

Reason for Contact	Contact Information
Consultation Questions & Unauthorized Take	akr.prd.section7@noaa.gov
Reports & Data Submittal	akr.prd.records@noaa.gov
Stranded, Injured, or Dead Marine Mammals	Stranding Hotline (24/7 coverage) 1-877-925-7773
Oil Spill & Hazardous Materials Response	U.S. Coast Guard National Response Center: 1-800-424-8802 and AKRNMFSspoilResponse@noaa.gov
Illegal Activities (<i>not related to project activities; e.g., feeding, unauthorized harassment, or disturbance to marine mammals</i>)	NMFS Office of Law Enforcement (AK Hotline): 1-800-853-1964
In the event that this contact information becomes obsolete	NMFS Anchorage Main Office: 907-271-5006 or NMFS Juneau Main Office: 907-586-7236

Listed Species

Humpback Whale

The humpback whale (*Megaptera novaeangliae*) was listed as endangered under the ESCA in 1970 (35 FR 8491, June 2, 1970 (baleen whales listing); 35 FR 18319, December 2, 1970 (humpback whale listing)). Congress replaced the ESCA with the ESA in 1973, and humpback

whales continued to be listed as endangered. NMFS conducted a global status review that led to changing the status of humpback whales under the ESA and dividing the species into 14 DPSs (81 FR 62259, September 8, 2016). Of these 14 DPSs, NMFS listed four as endangered, one as threatened, and delisted the remaining nine. Three DPSs occur in waters of Alaska. The Western North Pacific DPS is listed as endangered; the Mexico DPS is listed as threatened; and the Hawaii DPS is not listed (81 FR 62259, September 8, 2016).

The Hawaii DPS population is estimated to be 11,540 animals (CV=0.04) with an annual growth rate between 5.5 and 6.0 percent. The Mexico DPS is comprised of approximately 2,913 animals (CV=0.7; Wade 2021) with an unknown, but likely declining, population trend (81 FR 62259; September 8, 2016). Approximately 1,084 animals (CV=0.09) comprise the Western North Pacific DPS (Wade 2021). Humpback whales in the Western North Pacific remain rare in some parts of their former range, such as the coastal waters of Korea, and have shown little sign of recovery in those locations.

Whales from these three DPSs overlap on feeding grounds off Alaska, and are visually indistinguishable unless individuals have been photo-identified on breeding grounds and again on feeding grounds. All waters off the coast of Alaska may contain ESA-listed humpbacks.

Humpback whales produce a variety of vocalizations ranging from 20 Hz to 10 kHz (Silber 1986; Richardson et al. 1995; Au 2000; Erbe 2002; Au et al. 2006; Vu et al. 2012). NMFS categorizes humpback whales in the low-frequency cetacean functional hearing group, with an applied frequency range between 7 Hz and 35 kHz (NMFS 2018).

Southeast Alaska

Relatively high densities of humpback whales occur throughout much of Southeast Alaska and northern British Columbia, particularly during the summer months. The abundance estimate for humpback whales in Southeast Alaska is estimated to be 5,890 (CV= 0.08) animals, which includes whales from the unlisted Hawaii DPS (98 percent) and threatened Mexico DPS (2 percent; Wade 2021; Table 3). Although migration timing varies among individuals, most whales depart for Hawaii or Mexico in fall or winter and begin returning to Southeast Alaska in spring, with continued returns through the summer and a peak occurrence in Southeast Alaska during late summer to early fall. However, there are significant overlaps in departures and returns (Baker et al. 1985; Straley 1990).

Table 2. Percent probability of encountering humpback whales from each DPS in the North Pacific Ocean (columns) in various feeding areas (on left; Wade 2021).

Summer Feeding Areas	North Pacific Distinct Population Segments (DPS) (percent)			
	Western North Pacific (endangered)	Hawaii (not listed)	Mexico (threatened)	Central America (endangered)
Kamchatka	91	9	0	0
Aleutian I / Bering / Chukchi Seas	2	91	7	0
Gulf of Alaska	1	89	11	0
Southeast Alaska / Northern BC	0	98	2	0
Southern BC / WA	0	69	25	6
OR/CA	0	0	58	42
Note that in the past iteration of this guidance, upper confidence intervals were used for endangered DPSs. However, the revised estimates do not have associated coefficients of variation to cite. Therefore, the point estimate is being used for each probability of occurrence.				

Additional information on humpback whale biology and natural history is available at:

[Humpback Whale Species Description](#)

[Marine Mammal Stock Assessment Reports: Cetaceans-Large Whales](#)

[Humpback Whale Critical Habitat](#)

[Occurrence of Listed Humpback Whales off Alaska](#)

Humpback whales in the action area

Given their widespread range, relative abundance, their opportunistic foraging strategies, and frequent near-shore occurrence, Mexico DPS humpback whales may occur in the vicinity of the project covered in this consultation. The closest Mexico DPS humpback whale critical habitat is in the Prince William Sound area, more than 500 miles from the closest action area (Wrangell) in Southeast Alaska, therefore Mexico DPS humpback critical habitat will not be discussed any further.

Effects of the Action

“Effects of the action” are all consequences to listed species or critical habitat that are caused by the proposed action, including the consequences of other activities that are caused by the proposed action. A consequence is caused by the proposed action if it would not occur but for the proposed action and it is reasonably certain to occur. Effects of the action may occur later in time and may include consequences occurring outside the immediate area involved in the action (50 CFR § 402.02). The applicable standard to find that a proposed action may affect but is “not likely to adversely affect” listed species or critical habitat is that all of the effects of the action are expected to be insignificant, extremely unlikely to occur, or completely beneficial. “Insignificant effects” relate to the magnitude of the impact and are those that one would not be able to meaningfully measure, detect, or evaluate; insignificant effects should never reach the scale where take occurs.

While the ESA does not define “harass,” NMFS issued guidance interpreting the term “harass” under the ESA as to: “create the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering” (Wieting 2016). NMFS considers the following steps to assess whether proposed activities are likely to harass.

1. Whether an animal is likely to be exposed to a stressor or disturbance (i.e., an annoyance);
2. The nature of that exposure in term of magnitude, frequency, duration, etc. Included in this may be type and scale as well as considerations of the geographic area of exposures (e.g., is the annoyance within a biologically important location for the species, such as a foraging area, spawning/breeding area, or nursery area).
3. The expected response of the exposed animal to a stressors or disturbance (e.g., startle, flight, alteration [including abandonment] of important behaviors); and;
4. Whether the nature and duration or intensity of that response is a significant disruption of those behavior patterns which include, but are not limited to, breeding, feeding, sheltering, resting, or migrating.

The potential effects of the proposed action on listed species include vessel noise, vessel strike, and entanglement in vessel lines and marine debris.

Vessel Noise

Vessel noise associated with the proposed action will include vessels transiting between Wrangell and the Tyee Lake project site. Barges will be used to deliver materials to the project site, and workers may be transported via private ferry.

Smaller vessels like the tugs associated with the proposed action have higher speed engines and propellers than larger fueling vessels or barges. The smaller vessel noise spectra peak around 300 Hz with a source level ranging from 145-170 dB re 1 μ Pa depending on if the tug is pulling an empty or loaded barge. Depending on the type of engines on the fueling vessels, the overall

source level of 175 dB re 1 μ Pa is expected (Richardson et al. 1995). This noise is expected to attenuate quickly due to reduced low frequency propagation in shallow water.

Vessels associated with the proposed action will have a transitory and short-term presence within the action area; the potential overlap with listed marine mammals is relatively small for the project period. However, even during peak occurrence in the summer, only a fraction (~ 6%) of humpback whales present in Southeast Alaska are listed Mexico DPS humpback whales. Moreover, Mexico DPS humpback whales routinely encounter vessels and may be habituated to associated noise of transiting vessels. We do not expect that the effects from vessel noise could be meaningfully measured or detected, and therefore we consider such effects to be insignificant.

Vessel Strike

Vessels transiting the marine environment have the potential to collide with, or strike, marine mammals (Laist et al. 2001; Jensen and Silber 2004). The probability of strike events depends on the frequency, speed, and route of the marine vessels, as well as distribution of marine mammals in the area. Humpback whales are especially susceptible to ship strike injury and mortality in narrow bottleneck passages (Williams and O'Hara 2010). Laist et al. (2001) found that while all sizes and types of vessel can strike a whale, ships greater than 80 meters and those going faster than 14 knots were most likely to cause severe or fatal injuries.

The number of barge and ferry vessels associated with operations of the proposed action will be small. The overlap of humpback whales in the action area will be limited. Implementation of mitigation measures make the probability of vessel strike very low, therefore, we conclude that the potential risk for vessel strikes to humpback whales is extremely unlikely to occur.

Entanglement

The project has the potential to increase risk of entanglement of humpback whales by use of lines to secure the vessel and potential marine debris resulting from materials being barged to the project site. Humpback whales are known to entangle in net and lines within the water column and are particularly susceptible when gear co-occurs with foraging opportunities. In 2018 there was 76 confirmed humpback whale entanglements nationwide (NMFS 2020). However, the limited number of barge and ferry vessels transiting to the project site and the implementation of the mitigation measures for this project will reduce the potential for entanglement to occur, making entanglement of Mexico DPS humpback whales extremely unlikely to occur.

Conclusion

Based on this analysis, NMFS concurs with your determination that the proposed action may affect, but is not likely to adversely affect the ESA-listed Mexico DPS humpback whale. Reinitiation of consultation is required where discretionary federal involvement or control over the action has been retained or is authorized by law and if (1) take of listed species occurs, (2) new information reveals effects of the action that may affect listed species or critical habitat in a manner or to an extent not previously considered, (3) the action is subsequently modified in a manner that causes an effect to the listed species or critical habitat that was not considered in this

concurrence letter, or (4) a new species is listed or critical habitat designated that may be affected by the identified action (50 CFR § 402.16).

Please direct any questions regarding this letter to Kim Raum-Suryan at kim.raum-suryan@noaa.gov, 907.586.7424 and to akr.prd.section7@noaa.gov.

Sincerely,

A handwritten signature in black ink that reads "Anne Marie Eich". The script is cursive and fluid.

Anne Marie Eich, Ph.D.
Assistant Regional Administrator
for Protected Resources

cc: Betsy McGregor Betsy.McGregor@KleinschmidtGroup.com

Mark Hilson mhilson@seapahydro.org

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THE STATE
of **ALASKA**
GOVERNOR MIKE DUNLEAVY

Department of Fish and Game

Division of Sport Fish
Research & Technical Services

333 Raspberry Road
Anchorage, Alaska 99518-1565
Main: 907.267.2100

November 27, 2024

Betsy McGregor
Senior Scientist and Regulatory Consultant, Kleinschmidt
555 Don Finney Lane
Ketchikan, Alaska 99901

Subject: Tyee Lake Hydroelectric Project (P-3015)
Comments on Draft Application for Capacity Amendment to License, Preliminary
Draft Environmental Assessment for the installation of Third Unit in Existing Bay
At Powerhouse

Dear Ms. McGregor:

On October 9, 2024, the Southeast Alaska Power Agency filed a Draft Application for Capacity Amendment License with the Federal Energy Regulatory Commission for the Tyee Lake Hydroelectric Project (P-3015) and solicited stakeholder comments for the Project's Draft Amendment Application.

Alaska Department of Fish and Game (ADF&G) staff have reviewed the Draft Amendment Application. ADF&G supports SEAPA's request to waive second-stage consultation per 18 CFR 4.38(e). ADF&G also supports use of the PDEA in lieu of the Exhibit E in the Final Amendment Application.

The requested action will require an amendment to Fish Habitat Permit FH10-I-0160 issued by the Habitat Section of ADF&G. This permit amendment is required for annual maintenance and emergency shut-downs and increasing the tailrace discharge by way of adding the third turbine. For this action, please contact Claire Delbecq, Habitat Biologist 2 in Juneau at claire.delbecq@alaska.gov.

If you have any questions, please contact me at ann.larquier@alaska.gov or (907) 267-2311.
Thank you for your consideration.

Sincerely,

A handwritten signature in cursive script that reads "Ann Marie Larquier".

Ann Marie Larquier
FERC Hydropower Coordinator
Alaska Department of Fish and Game
(907) 267-2311

Cc: J. Klein, ADF&G
J. Sowa, ADF&G
J. Rice, ADF&G

K. Kanouse, ADF&G
C. Delbecq, ADF&G
M. Hilson, SEAPA

L. Townson, FERC
J. Rosset, NMFS
C. Mahara, USFWS



**FISH HABITAT PERMIT FH10-I-0160
AMENDMENT #1**

ISSUED: January 21, 2025
EXPIRES: Life of Project

Southeast Alaska Power Agency
ATTN: Robert Siedman
55 Don Finney Lane
Ketchikan, Alaska 99901

RE: Tyee Lake Water Use, Turbine Addition
Tyee Lake and Hidden Creek (Stream Number 107-40-10538)
Tailrace Creek (Stream Number 107-40-10537-2008)
Section 21, T 65 S, R 090 E, CRM (Bradfield Canal A-5)
Location: 56.217662 N, 131.4905191 W (WGS 84)

Dear Robert Siedman:

Pursuant to the Anadromous Fish Act at AS 16.05.871(b) and the Fishway Act at AS 16.05.841, the Alaska Department of Fish and Game (ADF&G) Habitat Section reviewed your proposal to install a third turbine at the Tyee Lake Hydroelectric facility to withdraw up to your allotted 135,000 acre feet of water per year from your existing lake-tap intake in Tyee Lake. The proposed updates to the facility, which was built in 1983, will provide more hydroelectric power to Southeast. Please refer to the original permit FH10-I-0160 for additional information on the project.

Project Description

The addition of a third turbine would increase the maximum discharge through the powerhouse into Tailrace Creek from 234 ft³/s to 351 ft³/s, when all three turbines are running. The increase in streamflow is likely to change channel morphology in Tailrace Creek. However, impacts to fish habitat and fish use of the creek are expected to be minimal given the low fish use of the area. Kanouse and Timothy (2018) found low adult and juvenile fish use of the creek due to salinity concentrations from tidal influence, studies which fulfilled the monitoring program described in the original permit FH10-I-0160^a.

^a Kanouse, K.M. and J. Timothy. 2018. Pink salmon use of the Tyee Lake hydro tailrace. Alaska Department of Fish and Game. Technical Report No. 17-01, Douglas, AK.

To install the third unit, you will shut down the plant for approximately two weeks which will stop streamflow from the powerhouse to Tailrace Creek. This work is planned between May 1 and July 31 when adult and young-of-year pink salmon will not be present in Tailrace Creek. Additionally, you will shut down the plant for annual routine maintenance between May 1 and July 31 each year (historical duration of maintenance activities has been 10 days or less annually).

Anadromous Fish Act

Tailrace Creek (Stream Number 107-40-10537-2008) has been specified as being important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). The water body provides habitat for rearing coho, and a few spawning pink and chum salmon.

Downstream of the anadromous fish barrier, Hidden Creek (Stream No. 107-40-10538) is specified as important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). The creek provides habitat for chum, coho, and pink salmon. Dolly Varden char and cutthroat and rainbow trout have also been observed in the creek.

Fishway Act

Tyee Lake supports Arctic grayling and the outlet stream supports rainbow trout upstream of the anadromous fish barrier in Hidden Creek.

In accordance with AS 16.05.871(d) and 16.05.841, your request to increase streamflow in Tailrace Creek is approved subject to the project description, permit terms, terms of the original permit FH10-I-0160, and the following stipulation:

1. You will complete shutdown maintenance activities May 1–July 31.

Permit Terms

This letter constitutes a permit issued under the authority of AS 16.05.871 and AS 16.05.841 and must be retained on site during project activities. Please be advised that this determination applies only to Habitat Section regulated activities; other agencies also may have jurisdiction under their respective authorities. This determination does not relieve you of your responsibility to secure other state, federal, or local permits. You are still required to comply with all other applicable laws.

You are responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved project. Prior to engaging in any activity that significantly deviates from the approved plan, you shall notify the Habitat Section and obtain written approval in the form of a permit amendment. Any action that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any provision contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is a Habitat Section responsibility. Therefore, it is recommended the Habitat Section be consulted immediately when a deviation from the approved plan is being considered.

You shall give an authorized representative of the state free and unobstructed access to the permit site, at safe and reasonable times, for the purpose of inspecting or monitoring compliance

with any provision of this permit. You shall furnish whatever assistance and information the authorized representative reasonably requires for monitoring and inspection purposes.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. You shall mitigate any adverse effect upon fish or wildlife, their habitats, or any restriction or interference with public use that the commissioner determines was a direct result of your failure to comply with this permit or any applicable law.

You shall indemnify, save harmless, and defend the department, its agents, and its employees from any and all claims, actions, or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or your performance under this permit. However, this provision has no effect if, and only if, the sole proximate cause of the injury is the department's negligence.

You may appeal this permit decision relating to AS 16.05.871 in accordance with the provisions of AS 44.62.330-630.

Please direct questions about this permit to Habitat Biologist Claire Delbecq at (907) 465-4275 or claire.delbecq@alaska.gov.

Sincerely,
Doug Vincent-Lang
Commissioner



By: Kate Kanouse
Regional Supervisor

Enclosure: Fish Habitat Permit FH10-I-0160

Email cc:

Al Ott, ADF&G Habitat, Fairbanks
ADF&G Habitat Staff, Douglas
Ann Larquier, ADF&G SF, Anchorage
Kelly Reppert, ADF&G SF, Ketchikan
Scott Walker, ADF&G CF, Ketchikan
Frank Robbins, ADF&G WC, Petersburg
Jeff Rice, ADF&G SF, Petersburg
Kathryn Taylor, ADF&G CF, Petersburg
Mike Salyer, USACE, Soldotna
Andy Stevens, USFWS, Anchorage
Habitat Conservation Division, NMFS, Juneau
Betsy McGregor, Kleinschmidt
Tory Houser, USFS, Wrangell
Melissa Dinsmore, USFS

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

DIVISION OF HABITAT

SEAN PARNELL, GOVERNOR

Douglas Island Center Building
802 W. 3rd Street, Douglas
P.O. BOX 110024
JUNEAU, AK 99811-0024
PHONE: (907) 465-4105
FAX: (907) 465-4759

FISH HABITAT PERMIT FH10-I-0160

ISSUED: October 28, 2010

Southeast Alaska Power Agency
ATTN: Dave Carlson, CEO
PO Box 110987
Anchorage, AK 99511

RE: **Tyee Lake Water Use**
Tyee Lake and Hidden Creek (Stream No. 107-40-10538)
T 65 S, R 90 E, Sec 28, CRM, USGS Quad Bradfield Canal A-5
Intake Location: N 56.1967 W 131.4939

Dear Mr. Carlson:

Pursuant to Alaska Statutes (AS) 16.05.841 and 16.05.871(b), the Alaska Department of Fish and Game (ADF&G) Division of Habitat reviewed your proposal to withdraw 135,000 acre feet of water per year from your existing intake in Tyee Lake to generate hydropower at the Tyee Lake Hydroelectric facility. The project has operated since 1983 under capacity due to low electrical demand, however demand will increase when the intertie to Ketchikan is complete. The proposed water use would allow the project to operate at capacity, generating up to 26MW.

Fish Resources and Anadromous Fish Act

Tyee Lake supports Arctic grayling and the outlet stream supports rainbow trout upstream of the anadromous fish barrier in Hidden Creek. Your project as proposed has the potential to obstruct the efficient passage and movement of fish in Tyee Lake and Hidden Creek.

Downstream of the anadromous fish barrier, Hidden Creek (Stream No. 107-40-10538) is specified as important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). The creek provides habitat for chum, coho, and pink salmon. Dolly Varden char and cutthroat trout have also been observed in the creek.

Determination and Coastal Consistency Requirements

The proposed water use from Tyee Lake will impact the aquatic ecosystem in both the lake and Hidden Creek. Peak lake draw-down will occur in early-spring when grayling will be searching for stream spawning habitat. Historical bathymetry data for Tyee Lake suggest that fish access to spawning streams will be restricted at capacity operations during spring due to the steep-gradient

shore, if not prevented altogether. Therefore, the proposed water use may eradicate the grayling if successful reproduction necessary to sustain the population does not occur.

The proposed water use is expected to reduce flow in Hidden Creek up to 92%. The resident rainbow population upstream of the anadromous migration barrier in Hidden Creek has not been studied, therefore we do not know to what extent that population will be impacted. Downstream of the barrier, pink and chum spawning habitat and juvenile salmonid rearing habitat will be abandoned due to significantly reduced water flow.

During FERC licensing the original project owner, Alaska Power Authority (APA), evaluated several options to mitigate adverse impacts to resident and anadromous fish populations in Tyee Lake and Hidden Creek. Among the options considered were altering project design, transplanting grayling to a nearby lake, and constructing a fish hatchery in Bradfield Canal, however these options proved impractical during feasibility studies. In 1983, federal and state agencies approved APA's final proposed fisheries mitigation plan, which included 1) funding construction of public recreation facilities and a trail to Long Lake on Wrangell Island, and 2) constructing and monitoring an experimental spawning channel in the project tailrace.

AS 16.05.851 provides ways to compensate for impacts to fish passage. ADF&G biologists stocked Tyee Lake with eyed grayling eggs and fry on several occasions during the 1960s to provide a sport fishery, however few anglers fish Tyee Lake due to the lake's remote location and difficult terrain. The Long Lake recreational mitigation provides accommodations and angler access to rainbow trout that were previously underutilized. Though this mitigation does not meet the specific requirements of AS 16.05.851, the Division of Habitat determined APA thoroughly investigated transplant and hatchery feasibility, and concurs that the Long Lake mitigation substitutes for lost recreational fishing opportunity at Tyee Lake. Therefore, the Long Lake mitigation meets the intent of AS 16.05.851 and no additional mitigation is required.

Construction of the tailrace spawning channel was complete in 1983. Contract biologists studied the channel four years (1983 – 1987) during operating loads of 4-6MW, but not during full project operations as required in the approved monitoring plan as electrical demand was low at the time. The current project owner, Southeast Alaska Power Agency, has agreed to partially fund ADF&G Habitat biologists three years to complete the monitoring program and study salmonid productivity in the spawning channel. This agreement satisfies and completes the anadromous fish mitigation requirements for AS 16.05.871.

This project is consistent with the Alaska Coastal Management Program (State ID AK1008-14J).

In accordance with AS 16.05.841 and 16.05.871(d), project approval is hereby given subject to the project description above.

You are responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved project. For any activity that significantly deviates from the approved plan, you shall notify the Division of Habitat and obtain written approval in the form of a permit amendment before beginning the activity. Any action that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any stipulation contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is the responsibility of the Division

of Habitat. Therefore, it is recommended you consult the Division of Habitat immediately when a deviation from the approved plan is being considered.

For the purpose of inspecting or monitoring compliance with any condition of this permit, you shall give an authorized representative of the state free and unobstructed access, at safe and reasonable times, to the permit site. You shall furnish whatever assistance and information as the authorized representative reasonably requires for monitoring and inspection purposes.

This letter constitutes a permit issued under the authority of AS 16.05.841 and 16.05.871 and must be retained on site during project activities. Please be advised that this determination applies only to activities regulated by the Division of Habitat; other agencies also may have jurisdiction under their respective authorities. This determination does not relieve you of your responsibility to secure other permits; state, federal, or local. You are still required to comply with all other applicable laws.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. The department reserves the right to require mitigation measures to correct disruption to fish and game created by the project and which was a direct result of the failure to comply with this permit or any applicable law.

You shall indemnify, save harmless, and defend the department, its agents, and its employees from any and all claims, actions, or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or your performance under this permit. However, this provision has no effect if, and only if, the sole proximate cause of the injury is the department's negligence.

The AS 16.05.871 permit decision may be appealed in accordance with the provisions of AS 44.62.330-630.

If you have any questions regarding this permit, please contact Habitat biologist Kate Kanouse at (907) 465-4290 or email kate.kanouse@alaska.gov.

Sincerely,



Denby S. Lloyd, Commissioner

By: Jackie Timothy
Regional Supervisor
Division of Habitat

Email cc:

Al Ott, ADF&G Habitat, Fairbanks
Troy Thynes, ADF&G Comm Fish, Petersburg
Doug Fleming, ADF&G Sport Fish, Petersburg
Shawn Johnson, ADF&G Sport Fish, Douglas
Robert Piorkowski, ADF&G Sport Fish, Juneau

Ted Deats, ADNR DMLW, Juneau
William Groom, ADNR DCOM, Juneau
Dennis Reed, USFS, Wrangell
David Rak, USFS, Wrangell

APPENDIX D

ADF&G FISH HABITAT PERMIT FH10-I-0160 AMENDMENT #1



**FISH HABITAT PERMIT FH10-I-0160
AMENDMENT #1**

ISSUED: January 21, 2025
EXPIRES: Life of Project

Southeast Alaska Power Agency
ATTN: Robert Siedman
55 Don Finney Lane
Ketchikan, Alaska 99901

RE: Tyee Lake Water Use, Turbine Addition
Tyee Lake and Hidden Creek (Stream Number 107-40-10538)
Tailrace Creek (Stream Number 107-40-10537-2008)
Section 21, T 65 S, R 090 E, CRM (Bradfield Canal A-5)
Location: 56.217662 N, 131.4905191 W (WGS 84)

Dear Robert Siedman:

Pursuant to the Anadromous Fish Act at AS 16.05.871(b) and the Fishway Act at AS 16.05.841, the Alaska Department of Fish and Game (ADF&G) Habitat Section reviewed your proposal to install a third turbine at the Tyee Lake Hydroelectric facility to withdraw up to your allotted 135,000 acre feet of water per year from your existing lake-tap intake in Tyee Lake. The proposed updates to the facility, which was built in 1983, will provide more hydroelectric power to Southeast. Please refer to the original permit FH10-I-0160 for additional information on the project.

Project Description

The addition of a third turbine would increase the maximum discharge through the powerhouse into Tailrace Creek from 234 ft³/s to 351 ft³/s, when all three turbines are running. The increase in streamflow is likely to change channel morphology in Tailrace Creek. However, impacts to fish habitat and fish use of the creek are expected to be minimal given the low fish use of the area. Kanouse and Timothy (2018) found low adult and juvenile fish use of the creek due to salinity concentrations from tidal influence, studies which fulfilled the monitoring program described in the original permit FH10-I-0160^a.

^a Kanouse, K.M. and J. Timothy. 2018. Pink salmon use of the Tyee Lake hydro tailrace. Alaska Department of Fish and Game. Technical Report No. 17-01, Douglas, AK.

To install the third unit, you will shut down the plant for approximately two weeks which will stop streamflow from the powerhouse to Tailrace Creek. This work is planned between May 1 and July 31 when adult and young-of-year pink salmon will not be present in Tailrace Creek. Additionally, you will shut down the plant for annual routine maintenance between May 1 and July 31 each year (historical duration of maintenance activities has been 10 days or less annually).

Anadromous Fish Act

Tailrace Creek (Stream Number 107-40-10537-2008) has been specified as being important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). The water body provides habitat for rearing coho, and a few spawning pink and chum salmon.

Downstream of the anadromous fish barrier, Hidden Creek (Stream No. 107-40-10538) is specified as important for the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a). The creek provides habitat for chum, coho, and pink salmon. Dolly Varden char and cutthroat and rainbow trout have also been observed in the creek.

Fishway Act

Tyee Lake supports Arctic grayling and the outlet stream supports rainbow trout upstream of the anadromous fish barrier in Hidden Creek.

In accordance with AS 16.05.871(d) and 16.05.841, your request to increase streamflow in Tailrace Creek is approved subject to the project description, permit terms, terms of the original permit FH10-I-0160, and the following stipulation:

1. You will complete shutdown maintenance activities May 1–July 31.

Permit Terms

This letter constitutes a permit issued under the authority of AS 16.05.871 and AS 16.05.841 and must be retained on site during project activities. Please be advised that this determination applies only to Habitat Section regulated activities; other agencies also may have jurisdiction under their respective authorities. This determination does not relieve you of your responsibility to secure other state, federal, or local permits. You are still required to comply with all other applicable laws.

You are responsible for the actions of contractors, agents, or other persons who perform work to accomplish the approved project. Prior to engaging in any activity that significantly deviates from the approved plan, you shall notify the Habitat Section and obtain written approval in the form of a permit amendment. Any action that increases the project's overall scope or that negates, alters, or minimizes the intent or effectiveness of any provision contained in this permit will be deemed a significant deviation from the approved plan. The final determination as to the significance of any deviation and the need for a permit amendment is a Habitat Section responsibility. Therefore, it is recommended the Habitat Section be consulted immediately when a deviation from the approved plan is being considered.

You shall give an authorized representative of the state free and unobstructed access to the permit site, at safe and reasonable times, for the purpose of inspecting or monitoring compliance

with any provision of this permit. You shall furnish whatever assistance and information the authorized representative reasonably requires for monitoring and inspection purposes.

In addition to the penalties provided by law, this permit may be terminated or revoked for failure to comply with its provisions or failure to comply with applicable statutes and regulations. You shall mitigate any adverse effect upon fish or wildlife, their habitats, or any restriction or interference with public use that the commissioner determines was a direct result of your failure to comply with this permit or any applicable law.

You shall indemnify, save harmless, and defend the department, its agents, and its employees from any and all claims, actions, or liabilities for injuries or damages sustained by any person or property arising directly or indirectly from permitted activities or your performance under this permit. However, this provision has no effect if, and only if, the sole proximate cause of the injury is the department's negligence.

You may appeal this permit decision relating to AS 16.05.871 in accordance with the provisions of AS 44.62.330-630.

Please direct questions about this permit to Habitat Biologist Claire Delbecq at (907) 465-4275 or claire.delbecq@alaska.gov.

Sincerely,
Doug Vincent-Lang
Commissioner



By: Kate Kanouse
Regional Supervisor

Enclosure: Fish Habitat Permit FH10-I-0160

Email cc:

Al Ott, ADF&G Habitat, Fairbanks
ADF&G Habitat Staff, Douglas
Ann Larquier, ADF&G SF, Anchorage
Kelly Reppert, ADF&G SF, Ketchikan
Scott Walker, ADF&G CF, Ketchikan
Frank Robbins, ADF&G WC, Petersburg
Jeff Rice, ADF&G SF, Petersburg
Kathryn Taylor, ADF&G CF, Petersburg
Mike Salyer, USACE, Soldotna
Andy Stevens, USFWS, Anchorage
Habitat Conservation Division, NMFS, Juneau
Betsy McGregor, Kleinschmidt
Tory Houser, USFS, Wrangell
Melissa Dinsmore, USFS

STATE OF ALASKA

DEPARTMENT OF FISH AND GAME

DIVISION OF HABITAT

SEAN PARNELL, GOVERNOR

Douglas Island Center Building
802 W. 3rd Street, Douglas
P.O. BOX 110024
JUNEAU, AK 99811-0024
PHONE: (907) 465-4105
FAX: (907) 465-4759

FISH HABITAT PERMIT FH10-I-0160

ISSUED: October 28, 2010

Southeast Alaska Power Agency
ATTN: Dave Carlson, CEO
PO Box 110987
Anchorage, AK 99511

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The AS 16.05.871 permit decision may be appealed in accordance with the provisions of AS 44.62.330-630.

If you have any questions regarding this permit, please contact Habitat biologist Kate Kanouse at (907) 465-4290 or email kate.kanouse@alaska.gov.

Sincerely,



Denby S. Lloyd, Commissioner

By: Jackie Timothy
Regional Supervisor
Division of Habitat

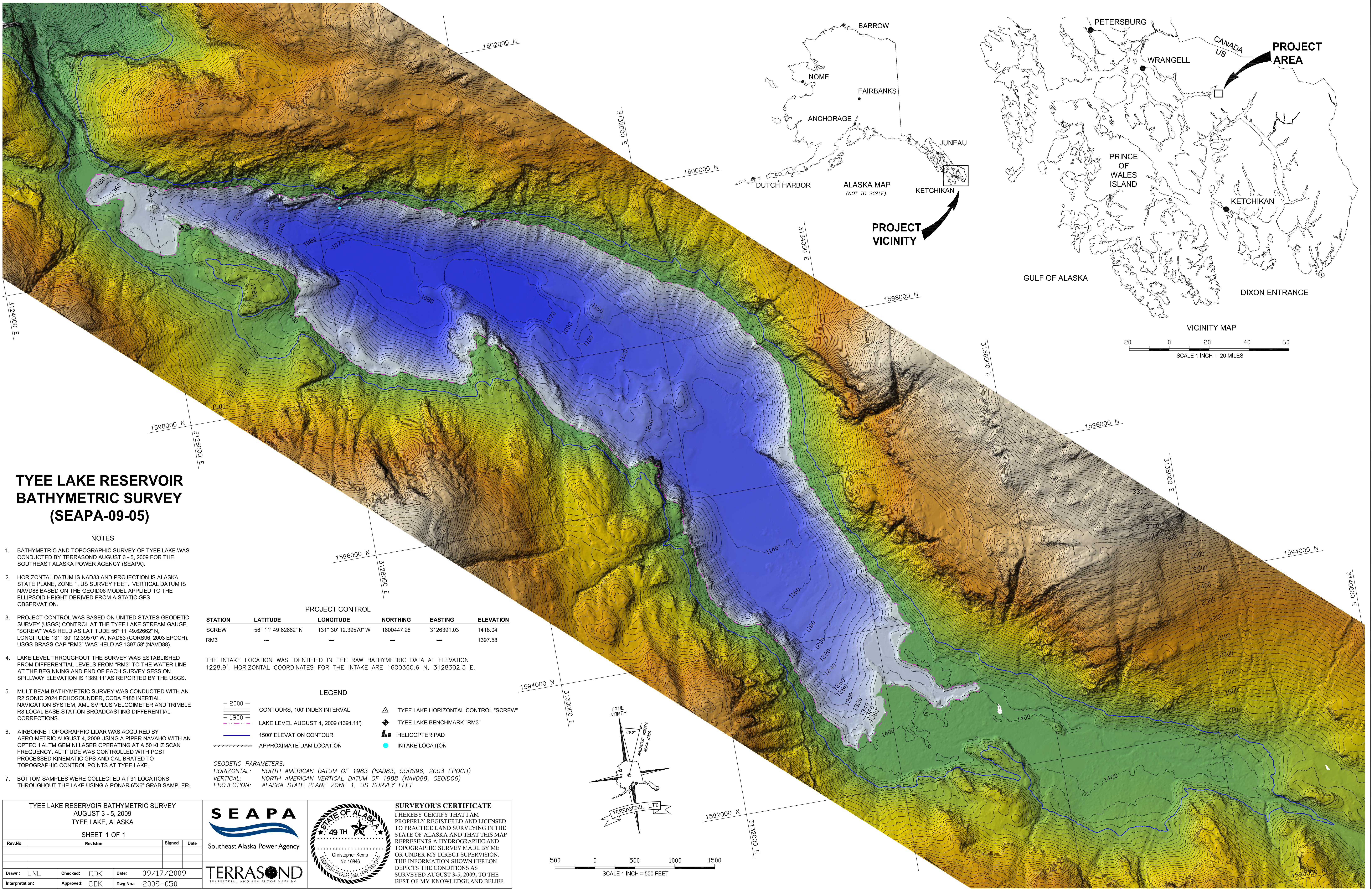
Email cc:

Al Ott, ADF&G Habitat, Fairbanks
Troy Thynes, ADF&G Comm Fish, Petersburg
Doug Fleming, ADF&G Sport Fish, Petersburg
Shawn Johnson, ADF&G Sport Fish, Douglas
Robert Piorkowski, ADF&G Sport Fish, Juneau

Ted Deats, ADNR DMLW, Juneau
William Groom, ADNR DCOM, Juneau
Dennis Reed, USFS, Wrangell
David Rak, USFS, Wrangell

APPENDIX E

TYEE LAKE RESERVOIR BATHYMETRIC SURVEY (SEAPA-09-05)











**TYEE LAKE RESERVOIR
BATHYMETRIC SURVEY
(SEAPA-09-05)**

NOTES

- BATHYMETRIC AND TOPOGRAPHIC SURVEY OF TYEE LAKE WAS CONDUCTED BY TERRASOND AUGUST 3 - 5, 2009 FOR THE SOUTHEAST ALASKA POWER AGENCY (SEAPA).
- HORIZONTAL DATUM IS NAD83 AND PROJECTION IS ALASKA STATE PLANE, ZONE 1, US SURVEY FEET. VERTICAL DATUM IS NAVD88 BASED ON THE GEOID06 MODEL APPLIED TO THE ELLIPSOID HEIGHT DERIVED FROM A STATIC GPS OBSERVATION.
- PROJECT CONTROL WAS BASED ON UNITED STATES GEODETIC SURVEY (USGS) CONTROL AT THE TYEE LAKE STREAM GAUGE. "SCREW" WAS HELD AS LATITUDE 56° 11' 49.62662" N, LONGITUDE 131° 30' 12.39570" W, NAD83 (CORS96, 2003 EPOCH). USGS BRASS CAP "RM3" WAS HELD AS 1397.58' (NAVD88).
- LAKE LEVEL THROUGHOUT THE SURVEY WAS ESTABLISHED FROM DIFFERENTIAL LEVELS FROM "RM3" TO THE WATER LINE AT THE BEGINNING AND END OF EACH SURVEY SESSION. SPILLWAY ELEVATION IS 1389.11' AS REPORTED BY THE USGS.
- MULTIBEAM BATHYMETRIC SURVEY WAS CONDUCTED WITH AN R2 SONIC 2024 ECHOSOUNDER, CODE F185 INERTIAL NAVIGATION SYSTEM, AML SVPLUS VELOCITYMETER AND TRIMBLE R8 LOCAL BASE STATION BROADCASTING DIFFERENTIAL CORRECTIONS.
- AIRBORNE TOPOGRAPHIC LIDAR WAS ACQUIRED BY AERO-METRIC AUGUST 4, 2009 USING A PIPER NAVAHO WITH AN OPTECH ALTM GEMINI LASER OPERATING AT A 50 KHZ SCAN FREQUENCY. ALTITUDE WAS CONTROLLED WITH POST PROCESSED KINEMATIC GPS AND CALIBRATED TO TOPOGRAPHIC CONTROL POINTS AT TYEE LAKE.
- BOTTOM SAMPLES WERE COLLECTED AT 31 LOCATIONS THROUGHOUT THE LAKE USING A PONAR 6"X6" GRAB SAMPLER.

PROJECT CONTROL					
STATION	LATITUDE	LONGITUDE	NORTHING	EASTING	ELEVATION
SCREW	56° 11' 49.62662" N	131° 30' 12.39570" W	1600447.26	3126391.03	1418.04
RM3	—	—	—	—	1397.58

THE INTAKE LOCATION WAS IDENTIFIED IN THE RAW BATHYMETRIC DATA AT ELEVATION 1228.9'. HORIZONTAL COORDINATES FOR THE INTAKE ARE 1600360.6 N, 3128302.3 E.

LEGEND			
	CONTOURS, 100' INDEX INTERVAL		TYEE LAKE HORIZONTAL CONTROL "SCREW"
	LAKE LEVEL AUGUST 4, 2009 (1394.11')		TYEE LAKE BENCHMARK "RM3"
	1500' ELEVATION CONTOUR		HELICOPTER PAD
	APPROXIMATE DAM LOCATION		INTAKE LOCATION

GEODETIC PARAMETERS:
HORIZONTAL: NORTH AMERICAN DATUM OF 1983 (NAD83, CORS96, 2003 EPOCH)
VERTICAL: NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88, GEOID06)
PROJECTION: ALASKA STATE PLANE ZONE 1, US SURVEY FEET

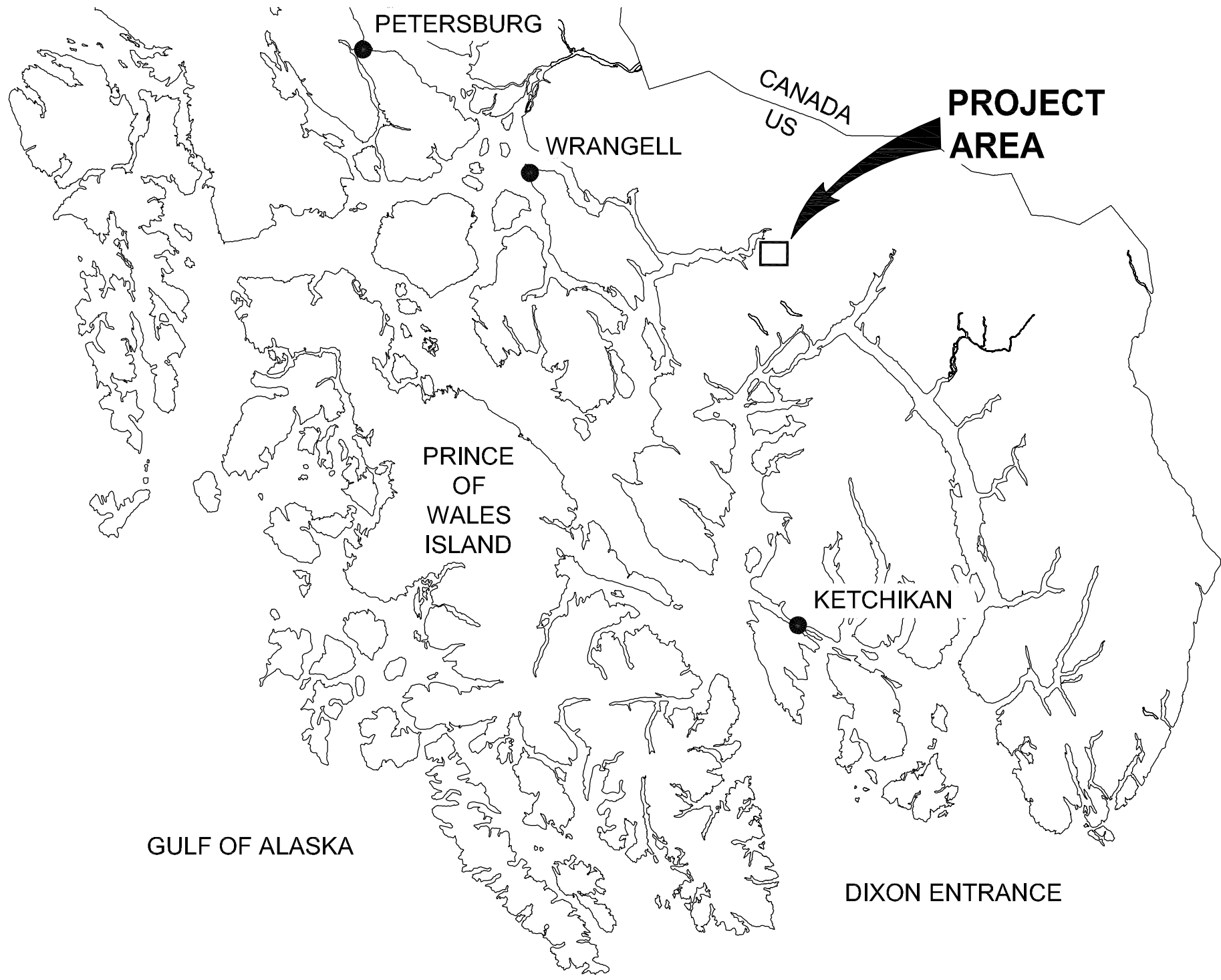
TYEE LAKE RESERVOIR BATHYMETRIC SURVEY AUGUST 3 - 5, 2009 TYEE LAKE, ALASKA			
SHEET 1 OF 1			
Rev.No.	Revision	Signed	Date
Drawn: LNL	Checked: CDK	Date: 09/17/2009	
Interpretation:	Approved: CDK	Dwg No.: 2009-050	



SURVEYOR'S CERTIFICATE
I HEREBY CERTIFY THAT I AM PROPERLY REGISTERED AND LICENSED TO PRACTICE LAND SURVEYING IN THE STATE OF ALASKA AND THAT THIS MAP REPRESENTS A HYDROGRAPHIC AND TOPOGRAPHIC SURVEY MADE BY ME OR UNDER MY DIRECT SUPERVISION. THE INFORMATION SHOWN HEREON DEPICTS THE CONDITIONS AS SURVEYED AUGUST 3-5, 2009, TO THE BEST OF MY KNOWLEDGE AND BELIEF.



PROJECT VICINITY



SCALE 1 INCH = 20 MILES

