

Eklutna Hydroelectric Project

Proposed Final Fish and Wildlife Program



April 2024

This page intentionally left blank.

Table of Contents

- 1.0 Introduction..... 1**
- 2.0 Protection, Mitigation, and Enhancement Measures 4**
 - 2.1 Year-Round Instream Flows 4
 - 2.1.1 Eklutna River Release Facility..... 4
 - 2.1.2 Default Year-Round Instream Flow Regime..... 6
 - 2.2 Channel Maintenance Flows 7
 - 2.2.1 Existing Outlet Gate..... 7
 - 2.2.2 Channel Maintenance Flow Regime..... 8
 - 2.3 Flow Monitoring..... 10
 - 2.4 AWWU Bridges..... 10
 - 2.5 Recreation..... 11
 - 2.5.1 Lakeside Trail Repairs 11
 - 2.5.2 Annual Powerhouse Maintenance 11
 - 2.5.3 Public Access to the Eklutna River..... 11
- 3.0 Monitoring and Adaptive Management Plan..... 12**
 - 3.1 Committee 12
 - 3.2 Monitoring..... 12
 - 3.3 Adaptive Management 13
 - 3.3.1 Water Budget..... 13
 - 3.3.2 Water Banking..... 13
 - 3.3.3 Allocation of Additional Inflow 13
 - 3.3.4 Water Accounting Report..... 14
 - 3.3.5 Requests to Modify the Flow Regime..... 14
 - 3.3.6 Physical Habitat Enhancement 14
 - 3.4 Annual Meeting..... 15
- 4.0 Limited Reopeners..... 16**
 - 4.1 Fixed Wheel Gate..... 16
 - 4.2 Fish Passage 17
- 5.0 Funding Commitments and Inflation Adjustment..... 20**

List of Tables

Table 2-1. Default Year-Round Instream Flow Regime..... 6

Table 2-2. Default Channel Maintenance Flow Releases..... 8

List of Figures

Figure 1-1. Existing and Proposed Infrastructure..... 3

Figure 2-1. Default Year-Round Instream Flow Regime..... 7

Figure 2-2. Default Channel Maintenance Flow Releases. 9

Terms, Acronyms, and Abbreviations

1991 Agreement	1991 Fish and Wildlife Agreement
ADEC	Alaska Department of Environmental Conservation
ADFG	Alaska Department of Fish and Game
ADNR	Alaska Department of Natural Resources
AEA	Alaska Energy Authority
AWWU	Anchorage Water and Wastewater Utility
cfs	cubic feet per second
Draft Program	Draft Fish and Wildlife Program
fish and wildlife measures	PME measures for fish and wildlife
Final Program	Final Fish and Wildlife Program
Governor	Governor of Alaska
mgd	million gallons per day
MW	megawatt
NMFS	National Marine Fisheries Service
NVE	Native Village of Eklutna
Parties	Chugach, MEA, MOA, NMFS, USFWS, and the State of Alaska
PME measures	protection, mitigation, and enhancement measures
Project	Eklutna Hydroelectric Project
Project Owners	Chugach, MEA, and MOA
Proposed Final Program	Proposed Final Fish and Wildlife Program
USFWS	U.S. Fish and Wildlife Service

1.0 Introduction

The Eklutna Hydroelectric Project (Project) is located in Southcentral Alaska, approximately 30 miles northeast of downtown Anchorage near the Native Village of Eklutna (NVE). The federal government completed construction of the Project in 1955. Decades later, Chugach Electric Association, Matanuska Electric Association, and the Municipality of Anchorage (collectively the “Project Owners”) agreed to purchase the Project and entered into a Purchase Agreement with the federal government in 1989. Shortly thereafter, concerns were raised about the Project’s potential impacts on fish and wildlife. This led to the execution of a binding agreement in 1991 (referred to as the “1991 Agreement”) amongst the Project Owners, National Marine Fisheries Service (NMFS), U.S. Fish and Wildlife Service (USFWS), and the State of Alaska (collectively the “Parties”) that requires the Project Owners to (1) study the Project’s impacts to fish and wildlife, (2) develop proposals for the protection, mitigation, and enhancement of fish and wildlife affected by the development of the Project, (3) consider the impact of fish and wildlife measures on electric rate payers, municipal water utilities, recreational users and adjacent land use, and (4) identify available means to mitigate these impacts. The Project Owners must repeat this process every 35 years and it replaces regulation by the Federal Energy Regulatory Commission. The sale of the Project was authorized by U.S. Congress in 1995, and the Project was sold to the Project Owners in October 1997.

Per the 1991 Agreement, the Project Owners were required to initiate this process no later than 25 years after the sale of the Project. Since the Project was sold in October 1997, the Project Owners were not required to initiate this process until October 2022. However, in order to allow adequate time for a comprehensive analysis, the Project Owners initiated the process in March 2019, more than three years early. After several years of study and consultation with all interested stakeholders detailed in the Supporting Information Document, the Project Owners issued a Draft Fish and Wildlife Program (Draft Program) as required in the 1991 Agreement in October 2023. The Project Owners met with the Parties and the Native Village of Eklutna several times from December 2023 through March 2024 to attempt to resolve differences. They also held six public meetings in January 2024 to solicit public comments. After considering all comments received, and giving due weight to the recommendations and expertise of the Parties and the Native Village of Eklutna, the Project Owners have developed this Proposed Final Fish and Wildlife Program (Proposed Final Program) for submittal to the Governor.

Accordingly, the Project Owners are excited for the next phase of the Project. Details of the Proposed Final Program are described in subsequent sections and include the following:

- Construction of the Eklutna River Release Facility and establishment of year-round instream flows in the Eklutna River;
- Automation of the existing outlet gate at the dam to provide periodic channel maintenance flows in the Eklutna River;
- Construction of eight new bridges along the Anchorage Water and Wastewater Utility (AWWU) access road to enable AWWU's access to critical infrastructure year-round following the establishment of instream flows;
- Payment to Chugach State Park for lakeside trail repairs;
- Establishment of a Committee to oversee implementation of the Monitoring and Adaptive Management Plan;
- Funding to conduct monitoring studies in the Eklutna River throughout the 35-year program;
- Funding for physical habitat enhancement in the Eklutna River based on the monitoring results;
- Procedures for the Committee to adaptively manage the flow regime in the Eklutna River based on the monitoring results;
- Provisions for banking water in Eklutna Lake and potentially increasing the water budget for instream flows in the future;
- Potential installation of a fixed wheel gate to accommodate higher inflows in the future and/or allow higher channel maintenance flows if needed; and
- Potential installation of upstream and downstream fish passage facilities that meet specific criteria.

Approval of the Proposed Final Program will enable the Project Owners to implement these significant fish and wildlife measures at the Project, while simultaneously protecting the municipal water supply and continuing to provide low cost, renewable energy to Southcentral Alaska. The Project Owners anticipate the Governor's issuance of a Final Fish and Wildlife Program by October 2024.

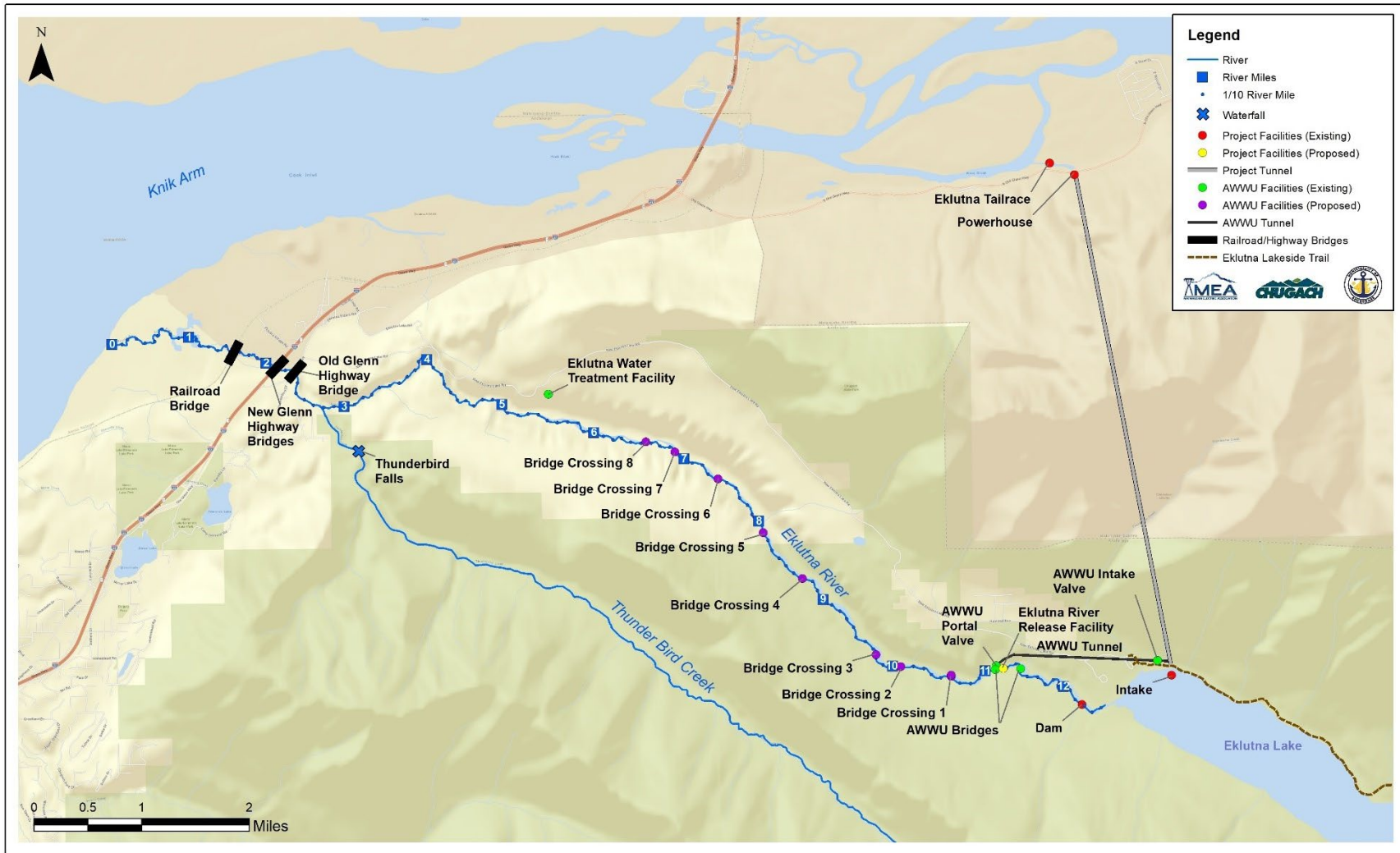


Figure 1-1. Existing and Proposed Infrastructure.

2.0 Protection, Mitigation, and Enhancement Measures

The Project Owners will continue to operate the Project in a manner consistent with the current operating procedures. In addition, The Project Owners will implement the following protection, mitigation, and enhancement (PME) measures for fish and wildlife habitat, the municipal water supply, and recreational facilities.

2.1 Year-Round Instream Flows

2.1.1 Eklutna River Release Facility

In order to provide year-round instream flows to the Eklutna River for fish and wildlife habitat, the Project Owners will construct a new valve and release structure located adjacent to the existing Anchorage Water and Wastewater Utility (AWWU) portal valve approximately one mile downstream of Eklutna Dam. The proposed infrastructure, referred to as the Eklutna River Release Facility, will consist of a tee off the existing 54-inch pipeline that conveys water from Eklutna Lake as part of AWWU's Eklutna Water Project and new control valves to bypass water into the Eklutna River. The 30% design drawings for the Eklutna River Release Facility are provided in the Supporting Information Document. The infrastructure included as part of the 30% level of design for the Eklutna River Release Facility is as follows:

- Construction of a new isolation gate structure immediately upstream of the AWWU portal valve shaft;
- Replacement of approximately 25-ft of existing pipeline with a newly fabricated steel 54-inch x 42-inch tee;
- Installation of a 54-inch gate valve on the main segment of pipe intended to provide dual means of isolation for AWWU's pipeline segment P-4;
- Installation of a 42-inch gate valve on the branch segment intended to provide isolation to the river release structure;
- Installation of a draining and filling system around each isolation valve;
- Installation of a pressure monitoring system and flow meter to provide dual redundancy to AWWU's portal release valve facility;
- Construction of a new river release structure approximately 30-ft downstream of the isolation gate structure;

- Installation of a 30-inch sleeve valve or alternative energy dissipation valve to control flow into the Eklutna River;
- Installation of a flow monitoring system to monitor flow releases into the Eklutna River;
- Construction of a bypass channel from the river release structure to the Eklutna River; and
- Upgrades to communication infrastructure to provide direct communication between the Eklutna River Release Facility, AWWU portal valve shaft, AWWU intake valve shaft, Eklutna Water Treatment Facility, and the Eklutna Power Plant.

The addition of this release facility on the existing Eklutna Water Project will not reduce or impact flow available for water supply purposes, as required by state law. Flow releases through the facility will be limited to a maximum of 80 cfs to protect the AWWU valves and pipeline. The closure rate of the proposed river release valve will be set to keep transient pressures within the rating of the lake diversion tunnel and AWWU pipeline. Additional instrumentation including new flow meters and pressure transducers will be installed to monitor the new facility and protect AWWU infrastructure in the event of an emergency.

The current design allows the AWWU pipeline to be dewatered for maintenance, and in the event of a pipeline rupture, it allows for emergency closure at the AWWU portal valve, in both cases allowing continued operation of the Eklutna River Release Facility. Any maintenance activities that may be required to replace the intake valve shaft will be planned for the fall when the lake level is high and instream flows can be released through the existing outlet gate at the dam.

The Project Owners have closely coordinated with AWWU throughout the preliminary design of the Eklutna River Release Facility and will obtain AWWU approval on all final designs related to AWWU infrastructure. The Project Owners and AWWU have also discussed the water transportation services, compensation, and water rights issues that need to be resolved in order to utilize AWWU infrastructure for providing instream flows to the Eklutna River. A summary of proposed arrangements with AWWU is set forth in the Supporting Information Document. Upon the Governor's approval, the Project Owners will enter into long-term agreements with AWWU following, and subject to, all necessary approvals. If such approvals are delayed or are not able to be obtained, the Project Owners will continue with the other PME measures outlined in this program to the degree possible.

2.1.2 Default Year-Round Instream Flow Regime

Once construction is complete, the Project Owners will utilize the existing Project intake, excess capacity in the AWWU tunnel, and new Eklutna River Release Facility to provide year-round instream flows to approximately 11 out of 12 miles of the Eklutna River. The default year-round instream flow regime, shown in Table 2-1 and Figure 2-1, varies seasonally and was developed based on field studies and modeling.

Table 2-1. Default Year-Round Instream Flow Regime.

Month	Flow (cfs)	Volume (acre-feet)
January	27	1,660
February	27	1,500
March	27	1,660
April	27	1,607
May	34	2,060
June	40	2,380
July	40	2,460
August	40	2,460
September	40	2,380
October	40	2,460
November	34	1,993
December	27	1,660
Total	-	24,280

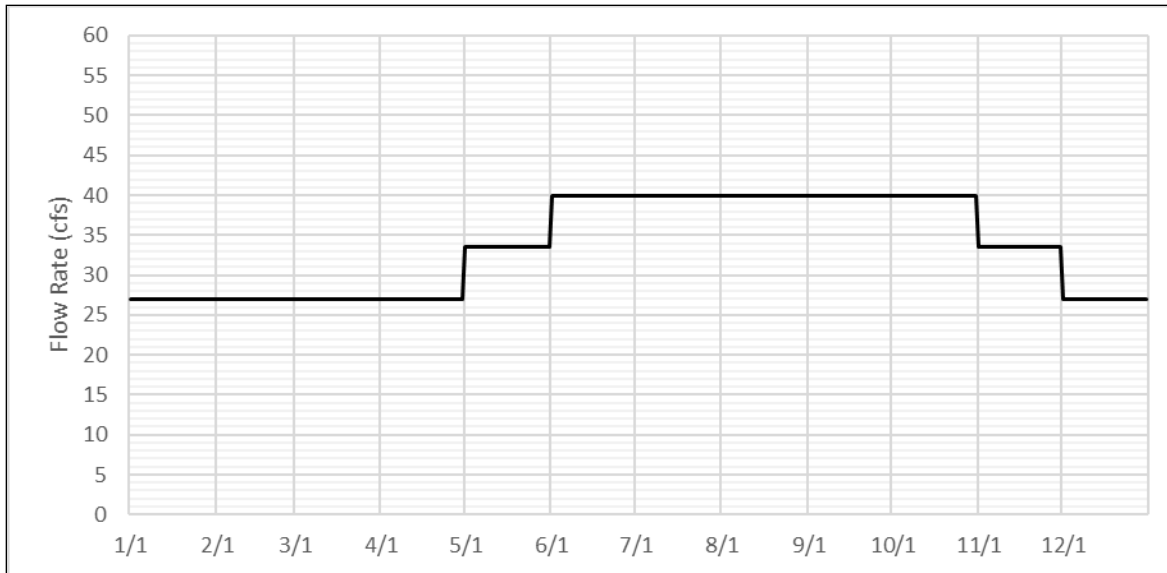


Figure 2-1. Default Year-Round Instream Flow Regime.

The default winter flow releases (27 cfs) when combined with natural accretion in the Eklutna River should promote favorable ice conditions to protect redds during incubation and provide overwintering habitat for juvenile salmon in the Eklutna River.

The default summer flow releases (40 cfs) when combined with natural accretion in the Eklutna River should (1) significantly increase the available spawning habitat for Chinook, coho, pink, and chum salmon, (2) provide sufficient flows for migrating adult salmon to navigate the potential upstream passage barriers identified in the confined canyon reach, and 3) provide additional rearing habitat for salmon.

The default November flow releases (34 cfs) reflect a downramping rate of less than 1 to 2 inches per hour to reduce the risk of any fish stranding downstream when transitioning from summer flows to winter flows.

The total volume of water to be released annually from Eklutna Lake into the Eklutna River for year-round base flows is 24,280 acre-ft/yr, equivalent to approximately 10% of the average annual inflow to the lake.

2.2 Channel Maintenance Flows

2.2.1 Existing Outlet Gate

In order to provide periodic channel maintenance flows to the Eklutna River, the Project Owners will automate the existing outlet gate within the base of the spillway at Eklutna Dam so that it can be controlled remotely. The 30% design drawings for automating the gate are

provided in the Supporting Documentation Document. The infrastructure included as part of the 30% level of design for automating the existing outlet gate is as follows:

- Replacement of existing manual actuator for the dam outlet gate with electric motor actuator with position sensing;
- Construction of new access platform and stilling well with level transducer to measure water surface elevation in Eklutna Lake; and
- Installation of 0.5 miles of new buried power line from Eklutna Lake Road to the dam.

The 30-inch by 30-inch outlet gate has a maximum capacity of approximately 190 cfs at the normal maximum water surface elevation of El 871.0 ft.

2.2.2 Channel Maintenance Flow Regime

Once year-round instream flows have been established in the Eklutna River and the existing outlet gate has been automated, the Project Owners will use both the Eklutna River Release Facility and the automated outlet gate to provide periodic channel maintenance flows to the Eklutna River. The default channel maintenance flow, shown in Table 2-2 and Figure 2-2, was developed based on field studies, modeling, and peak flow statistics in similar unmanaged Alaskan rivers and is shaped to resemble a natural peak flow hydrograph.

Table 2-2. Default Channel Maintenance Flow Releases.

Steps	Duration (hours)	Total Flow (cfs)	Base Flow (cfs)	Additional Flow (cfs)	Additional Volume (acre-feet)
1	3	150	40	110	27
2	3	200	40	160	40
3	36	220	40	180	535
4	12	200	40	160	159
5	6	160	40	120	59
6	6	140	40	100	50
7	6	110	40	70	35
8	6	90	40	50	25
9	6	80	40	40	20
10	6	70	40	30	15
11	4	60	40	20	7
Total for 1 flow	94	-	-	-	971
Total for 3 flows	282	-	-	-	2,913

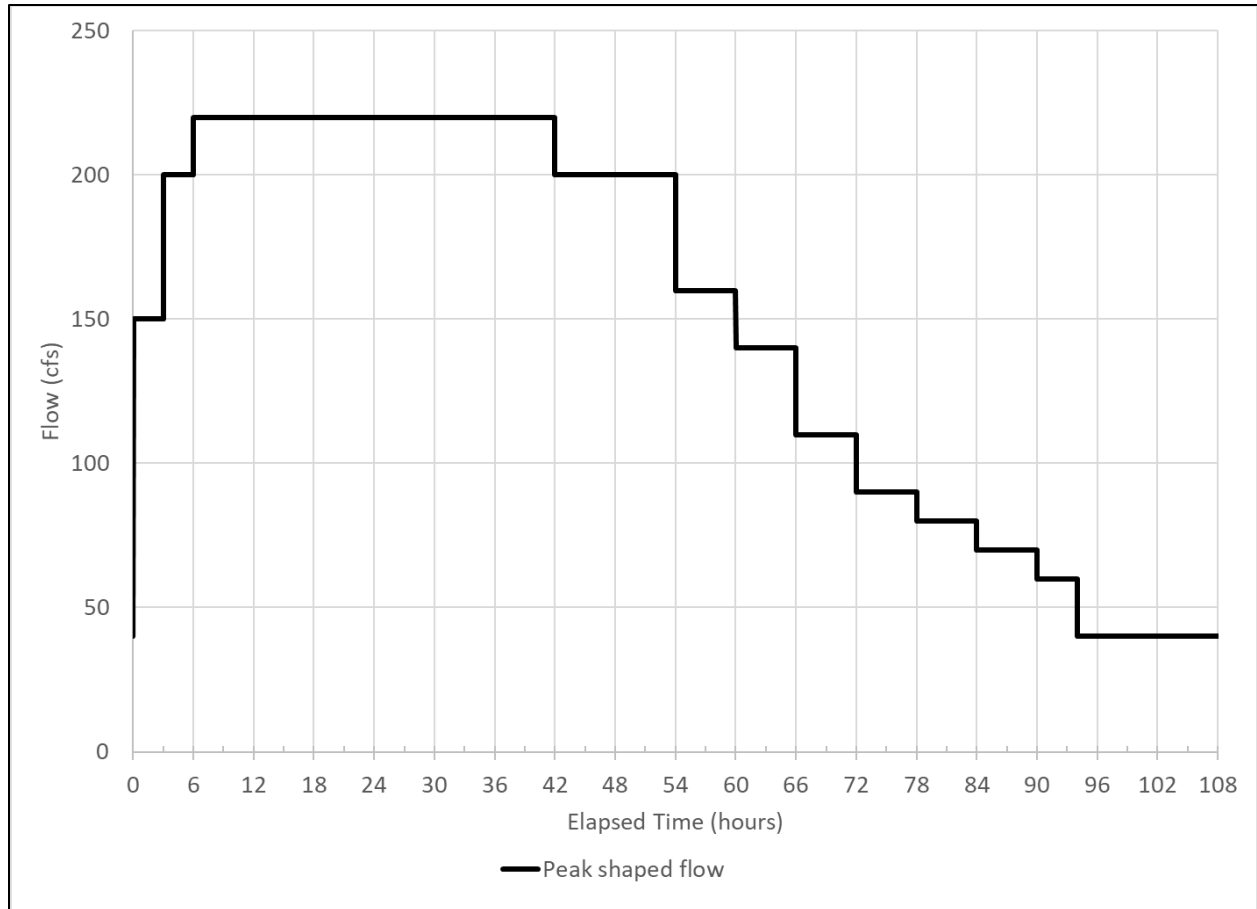


Figure 2-2. Default Channel Maintenance Flow Releases.

The default channel maintenance flow (peaking at 220 cfs for 36 hours) should complement the base flow regime and help create and maintain channel dimensions and substrate characteristics to support physical fish habitat over the long term.

The default downramping schedule (steps 4-11 in Table 2-2) reflects a downramping rate of less than 1 to 2 inches per hour to reduce the risk of any fish stranding downstream when transitioning back to base flows.

Channel maintenance flows will be conducted in the fall when the lake level is highest. The default schedule calls for the Project Owners to conduct a channel maintenance flow in years 2, 5, and 8 of each 10-year period. The first 10-year period will start with the first full calendar year after year-round instream flows are established. The total volume of water to be released in a 10-year period from Eklutna Lake into the Eklutna River for channel maintenance flows is 2,913 acre-ft. Any spill event that exceeds 220 cfs for 36 hours will count as one of the required channel maintenance flows for the current 10-year period.

The intent of providing flexibility in scheduling channel maintenance flows is to allow the Project Owners to take advantage of wet water years. If a planned channel maintenance flow coincides with a dry water year, the Project Owners may choose to postpone the channel maintenance flow to a subsequent year in the current 10-year period. However, if it is already the final year in the current 10-year period, then to the extent possible the Project Owners will curtail generation in order to raise the lake level high enough to achieve the desired flow rate. If due to unforeseen circumstances the Project Owners are unable to provide all three channel maintenance flows in any given 10-year period, then the Project Owners will provide the missed channel maintenance flows in the subsequent 10-year period.

2.3 Flow Monitoring

In order to monitor the year-round flow releases into the Eklutna River, the Project Owners will install a flow meter on the river release pipeline within the Eklutna River Release Facility. The accuracy of this meter is anticipated to utilize the ultrasonic transit time method and have an accuracy of $\pm 1\%$.

In order to monitor channel maintenance flow releases into the Eklutna River, the Project Owners will utilize the rating curve for the existing outlet gate to calculate flow as a function of gate position and water surface elevation in the reservoir. The gate position will be monitored remotely via a new position feedback sensor within the electric motor operator of the gate. To monitor the water surface elevation of the reservoir, a new stilling well and pressure transducer will be located upstream of the gate within the entrance to the Eklutna Dam spillway channel. The addition of this transducer will avoid any potential inaccuracies with the existing USGS gauge measuring water surface elevation near the Project intake. The flow measurement at the gate is anticipated to have an accuracy of $\pm 2\%$.

2.4 AWWU Bridges

Providing year-round instream flows to the Eklutna River will likely make all of the existing ford crossings along the AWWU access road impassable for most of the year. To mitigate these potential impacts, the Project Owners will construct eight new bridges, one at each of the existing ford crossings to allow AWWU year-round access to the AWWU pipeline for maintenance. The new bridges will be designed to pass the same flows as the two existing AWWU bridges. The existing ford crossings will be removed to prevent anyone from attempting to drive through the riverbed in the future. The 15% design drawings for the new AWWU bridges are provided in the Supporting Information Document. The Project Owners will obtain AWWU approval on all final designs related to AWWU infrastructure and will work with AWWU to obtain all necessary permits and easements as may be necessary.

2.5 Recreation

2.5.1 Lakeside Trail Repairs

The Project Owners operate the Project to not spill any water. However, due to various circumstances, spill events have occurred in the past. During past spill events, high lake levels have caused erosion along discrete segments of the lakeside trail. Chugach State Park has received \$234,000 in funding for general lakeside trail repairs. Within 120 days of the Governor's approval or by January 31, 2025, whichever comes later, the Project Owners will provide a one-time payment of \$234,000 to Chugach State Park (or another entity as directed by Chugach State Park) for lakeside trail repairs that address erosion impacts. This funding match brings the total budget for lakeside trail repairs to \$468,000. State Parks will be responsible for seeking and obtaining approval from Eklutna, Inc. if needed. The Project Owners will not be responsible for funding the repair of any future erosion impacts to the lakeside trail that may result from continued Project operations.

2.5.2 Annual Powerhouse Maintenance

The Project Owners conduct annual maintenance activities that require Project shutdown for approximately two weeks every year. In order to avoid having multiple generation assets offline at the same time, the Project Owners coordinate with the other Railbelt utilities when scheduling the annual maintenance shutdown for the Project. In some previous years, this annual maintenance shutdown has coincided with peak fishing times and has had a negative impact on the tailrace fishery. The Project Owners will endeavor to avoid peak fishing times when scheduling the annual maintenance shutdown and any other maintenance activities that would require Project shutdown, taking into consideration the overall system maintenance needs.

2.5.3 Public Access to the Eklutna River

There is currently no free, un-permitted public access to most of the Eklutna River. The land under and surrounding the Eklutna River is largely owned by Eklutna, Inc., which requires permits for access to the Eklutna River. The Project Owners are therefore requesting that Eklutna, Inc. provide free, non-permitted public access to the Eklutna River once the ADFG Board of Fisheries has determined that the Eklutna River fishery for Chinook, coho, or sockeye salmon is sustainable and can be opened for recreational fishing.

3.0 Monitoring and Adaptive Management Plan

The PME measures described in the previous sections are based on the results of field studies, modeling, and extensive consultation. However, the Project Owners recognize there is some inherent uncertainty in modeling and physical habitat conditions in the Eklutna River will evolve over time. Therefore, the following Monitoring and Adaptive Management Plan will be implemented. This approach allows for flexibility and adjustments to PME measures, if needed.

3.1 Committee

Upon the Governor's issuance of the Final Fish and Wildlife Program, a Monitoring and Adaptive Management Committee (Committee) will be established to execute the Monitoring and Adaptive Management Plan. The Committee will consist of one voting representative from each of the following entities: ADFG, ADNR, NMFS, USFWS, and NVE. The Committee will make decisions through consensus, and the Committee chair will be selected by the members of the Committee. One or more representatives from the Project Owners will serve as non-voting participants on the Committee to provide technical expertise about Project operations. All voting and non-voting representatives named to serve on the Committee should possess the technical expertise necessary to carry out the responsibilities of the Committee and should ideally be local to the Project area. Each entity shall bear all costs for its representative to participate on the Committee.

Once the Committee is established, it will develop appropriate evaluation criteria for the Fish and Wildlife Program. These evaluation criteria will help inform monitoring efforts and adaptive management decisions. Decisions made by the Committee shall not be imputed to the Project Owners; implementation of actions pursuant to guidance provided by the Committee shall not create liability to the Project Owners.

3.2 Monitoring

The Project Owners will provide a total of \$450,000 in April 2024 U.S. dollars (see Section 5.0) to ADFG over the length of the Program to fund additional monitoring efforts in the Eklutna River. The Committee will develop a plan to monitor aquatic habitat conditions and fish utilization in the Eklutna River and the straying rate of hatchery fish from the Eklutna Tailrace to the Eklutna River. The Committee may pursue other funding sources to supplement the monitoring budget if desired. ADFG will implement the monitoring plan based on direction from the Committee and must request funds from the Project Owners by July 1 each year based on the planned monitoring efforts for the subsequent year. The Project Owners will then budget accordingly and submit payment to ADFG by January 31 of the subsequent year.

Reports that summarize the various monitoring results will be prepared by ADFG and provided to the Committee by February 1 each year. The Committee will review and provide a composite report to the Project Owners by March 1 each year. The Committee shall maintain a database/archive for all monitoring results and reports.

3.3 Adaptive Management

3.3.1 Water Budget

The total volume of water available for release into the Eklutna River in the first water year (June 1 to May 31) following completion of the Eklutna River Release Facility is 24,280 acre-feet. This is based on the default year-round instream flow regime. An additional 24,280 acre-feet will become available at the beginning of each subsequent water year. An additional 2,913 acre-feet of water will become available at the beginning of each 10-year period, starting the first water year after instream flows are initiated. This is based on the default channel maintenance flow being released three times in each 10-year period.

3.3.2 Water Banking

If the entire annual water budget (24,280 acre-feet) is not released into the Eklutna River in a given water year, either intentionally or unintentionally, then that “banked water” can be released in subsequent water years with the following limitations: (1) water can only be banked for up to 5 years, (2) no more than 50% of the total annual water budget can be banked at any given time; and (3) in the event of any unplanned spill event at the Project, banked water is spilled first.

The additional water budget for each 10-year period (2,913 acre-feet) must be used within that period and cannot be carried over to the following 10-year period. However, as described in Section 2.2.2, if due to unforeseen circumstances the Project Owners are unable to provide all of the planned channel maintenance flows in any given 10-year period, then the Project Owners will provide the missed channel maintenance flows in the subsequent 10-year period.

3.3.3 Allocation of Additional Inflow

Climate change is anticipated to cause increased glacial melt in the coming decades. Increased glacial melt would likely result in more inflow to Eklutna Lake, and therefore more water available for both hydropower generation and instream flows. Because of this, the Project Owners will calculate the inflows to Eklutna Lake each year using the available lake level and flow monitoring data. Then 10 years after instream flows are established, the Project Owners will compare the average annual inflows to Eklutna Lake for the last 10 years to the previous 10-year period. Any increase in average annual inflows will be split 50/50 between

hydropower and the annual water budget for instream flows. If there is a decrease in average annual inflows, the annual water budget for instream flows will not be decreased. The Project Owners will repeat this process every 10 years.

3.3.4 Water Accounting Report

The Project Owners will prepare an annual report that summarizes (1) the inflows to Eklutna Lake, (2) instream flow releases, and (3) channel maintenance flow releases for all prior water years as well as the available water budget for the upcoming water year and provide it to the Committee by March 1 each year.

3.3.5 Requests to Modify the Flow Regime

Based on the results of the monitoring program, the Committee may request modifications to the default year-round instream flow regime and/or the magnitude, duration, frequency, or shape of the scheduled channel maintenance flow releases, as long as (1) the requested flows do not exceed the operational limitations of the Project infrastructure, and (2) the ramping rates conform to fisheries ramping rate requirements. If the total volume of water to be released exceeds the available water budget (which includes any banked water that may be available), then that deficit will be carried over into the next water year.

The Committee must provide a 60-day notice to the Project Owners for any requests to modify the default year-round instream flow regime or the default channel maintenance flow schedule. If the requested flows exceed the operational limitations of the Project infrastructure, the available water budget, or the approved ramping rates, then the Project Owners may reject the requested flow modifications. If the Project Owners reject the requested flow modifications, then they must notify the Committee so that the Committee may request alternative flows if desired. The Committee may request modifications to flows within 60 days; however, the Project Owners are not required to meet the request if it is not operationally feasible.

3.3.6 Physical Habitat Enhancement

The Project Owners will provide a total of \$350,000 in April 2024 U.S. dollars (see Section 5.0) to ADFG during the Program to fund physical habitat enhancement and vegetation management efforts in the Eklutna River. The Committee will develop a plan to implement physical habitat enhancement and vegetation management efforts in the Eklutna River. These efforts will focus on enhancing rearing habitat in the Eklutna River. All physical habitat enhancement and vegetation management efforts must occur downstream of the Eklutna River Release Facility. The Committee may pursue other funding sources to supplement the physical habitat enhancement and vegetation management budget if desired. ADFG will implement the

plan based on direction from the Committee and must request funds from the Project Owners by July 1 each year based on the planned physical habitat enhancement and vegetation management efforts for the subsequent year. The Project Owners will then budget accordingly and submit payment to ADFG by January 31 of the subsequent year.

Reports that summarize the various physical habitat enhancement and vegetation management efforts will be prepared by ADFG and provided to the Committee by February 1 each year. The Committee will review and provide a composite report to the Project Owners by March 1 each year. The Committee shall maintain a database/archive for all physical habitat enhancement and vegetation management reports.

The Project Owners are not responsible for responding to natural processes that result in undesirable conditions in the river such as debris flow associated with precipitation or earthquakes, beaver activity, large wood build-up, etc.

3.4 Annual Meeting

The Committee will meet annually in April of each year to (1) review the results of the monitoring efforts conducted in the previous calendar year, (2) review the available water budget for the upcoming water year, (3) discuss any potential adaptive management actions for the upcoming water year, and (4) determine what monitoring efforts and/or physical habitat enhancement should be conducted in the subsequent calendar year. The Committee must notify the Project Owners of any planned monitoring efforts and/or physical habitat enhancement activities for the subsequent calendar year by July 1 so that the Project Owners can budget accordingly.

4.0 Limited Reopeners

Per the 1991 Agreement, the Project Owners are required to repeat this process every 35 years and must initiate the next process by October 2057. In addition, the Project Owners are required to repeat this process before making any major structural or operational modification to the Project that would substantially affect water usage or fish and wildlife. The following two limited reopeners are intended to enable consideration and potential execution of the specified structural and operational modifications during the period between processes without triggering the need to repeat this entire process outlined in the 1991 Agreement.

As set forth below, the two limited reopeners may occur no sooner than 10 years following completion of the Eklutna River Release Facility (Section 2.1.1) and establishment of year-round instream flows (Section 2.1.2). If the Eklutna River Release Facility and instream flows are delayed due to any reason such as litigation or appeals of the Final Fish and Wildlife Program or a failure to complete permitting or gain necessary approvals, the 10-year timeframe leading to the reopeners will be delayed until such time as the Eklutna River Release Facility is completed and the instream flows established.

4.1 Fixed Wheel Gate

During the consultation process, several stakeholders requested that the existing overflow spillway be replaced with a fixed wheel gate because either (1) climate change may cause inflows to the reservoir to increase significantly, which may increase the likelihood of future spill events, and a fixed wheel gate will allow the Project Owners to better manage those future spill events, or (2) while modeling results show that the default channel maintenance flow regime will maintain spawning gravels in the wetted reach of the Eklutna River, future monitoring may show that a higher magnitude channel maintenance flow that exceeds the combined hydraulic capacity of the existing outlet gate and the Eklutna River Release Facility may be warranted. Replacement of the existing overflow spillway with a new fixed wheel gate was evaluated during the study program and alternatives analysis and the Project Owners determined that it was not warranted at this time due to significant dam safety concerns, and the need for future monitoring. Recognizing that the fixed wheel gate might be warranted in the future, however, the Project Owners will continue to investigate the fixed wheel gate as described below and will construct it if certain criteria are met.

Within three years of the Governor's issuance of the Final Fish and Wildlife Program, the Project Owners will conduct a more detailed feasibility study of the fixed wheel gate (including a stability analysis and Class 3 cost estimate). The Project Owners will report the results of that analysis to the Committee.

If the fixed wheel gate is considered feasible and cost effective, then on the 10th anniversary after initiating instream flows, the Project Owners will confer with the Committee to reevaluate the need for the fixed wheel gate. If the monitoring efforts during that 10-year period indicate that (1) average annual inflows to the lake have increased by 20,000 acre-feet, or (2) the Committee determines that higher channel maintenance flows are warranted to maintain spawning gravels, then the Project Owners will commit up to \$10M in April 2024 U.S. dollars (see Section 5.0) to demolish the existing overflow spillway and construct a new fixed wheel gate.

If the demolition/construction costs are estimated to be less than \$10M in April 2024 U.S. dollars, then the Project Owners will obtain necessary permits, demolish the existing overflow spillway, and construct a new fixed wheel gate. If the demolition/construction costs are estimated to be greater than \$10M in April 2024 U.S. dollars, then the Committee may seek supplemental funding payable to the Project Owners from other sources. If the supplemental funding is federal funding and triggers additional NEPA requirements, then the Committee will be responsible for ensuring that outside funding is available and payable to the Project Owners in order to meet those requirements. Upon receipt of such supplemental funding, the Project Owners will obtain necessary permits, demolish the existing overflow spillway, and construct a new fixed wheel gate.

This is a limited reopener and will not reopen any other components of the Fish and Wildlife Program or trigger the process requirements outlined in the 1991 Agreement. Governor approval of the decision to replace the fixed wheel gate will not be required.

4.2 Fish Passage

During the consultation process, several stakeholders requested that upstream fish passage of adult salmon into Eklutna Lake and downstream fish passage of juvenile salmon out of Eklutna Lake be evaluated. All fish passage measures proposed by the Project Owners and other stakeholders were evaluated during the study program and alternatives analysis. See alternatives analysis in Supplemental Information Document. All of the volitional upstream fish passage measures that were evaluated either (1) would have significant impacts to the hydropower project (i.e., would reduce the storage capacity of the reservoir by approximately 40% or would require the Project to be shutdown throughout the winter when energy is needed most), or (2) are cost prohibitive (the estimated present worth for the stakeholders' preferred alternatives that included volitional fish passage ranged from \$221M to \$385M including capex, operations and maintenance, and replacement energy). In addition, there are still significant concerns regarding the effectiveness of all the downstream fish passage facilities studied (i.e., low attraction flow velocities and/or the inability to operate the

downstream fish passage facilities while the lake is frozen over). Therefore, fish passage measures are not proposed at this time.

Nonetheless, the Project Owners recognize that fish passage may become feasible in the future and fish passage is important to NVE, the federal and state agencies, and others who have commented on the Draft Program. If a new, proven methodology or technology becomes available, then the Committee may reevaluate the potential for the construction and operation of fish passage facilities both into and out of Eklutna Lake on its own initiative or at the request of any of the resource agencies or NVE. Any fish passage measures must meet the following criteria:

1. Fish passage facilities must be safe and effective for human health, the environment, and operations of the Project, the Eklutna River Release Facility, and AWWU's Eklutna Water Project and its water supply;
2. Fish passage facilities must address both upstream and downstream fish passage for anadromous fish (i.e., no effective upstream passage without effective downstream passage);
3. Fish passage facilities cannot affect reservoir operations in a manner that would cause AWWU operation shutdown for any amount of time or Project shutdown for more than two weeks annually (except during construction);
4. Fish passage facilities cannot result in more than 10% loss of storage capacity in the reservoir (i.e., the active storage capacity in the reservoir cannot be reduced by more than 17,480 acre-feet);
5. Fish passage facilities must operate within the available water budget administered by the Committee.

Because fish passage into the lake has the potential to impact recreational use or facilities within Chugach State Park and/or the water quality of the municipal water supply, both of these potential impacts must be evaluated by the Committee. The Committee must also consult with the State Park and AWWU regarding any such impacts and the appropriate mitigation for those impacts. The Committee must ultimately obtain written consent or approval from both the State Park and AWWU for any proposed fish passage measures, including the construction schedule.

The cost of any fish passage measures (including scientific studies, engineering, construction, operation, maintenance, and mitigation for any impacts to recreational use or facilities and/or

the municipal water supply, etc.) must be completely funded by parties other than the Project Owners.

At any time more than 10 years after initiating instream flows, if (1) the Committee has identified fish passage measures that meet all of the listed criteria, (2) the Committee has obtained written consent or approval from both the State Park and AWWU, (3) the Committee has obtained the necessary funding for all fish passage measures, and (4) the Anadromous Waters Catalog maintained by ADFG has been updated to reflect that migrating or spawning adult sockeye salmon have been documented within 1 mile of the Eklutna River Release Facility, then the Committee may propose those fish passage measures to the Project Owners with supporting information. As long as all of the above criteria and prerequisites are met, then the Project Owners will support the development and operation of the proposed fish passage facilities. The Project Owners may choose to waive criteria numbers 3, 4, and/or 5 upon unanimous decision, provided that AWWU must independently consent or approve fish passage measures affecting its facilities or its water supply.

Upon receiving a statement of support from the Project Owners, the Committee and the Project Owners will coordinate and cooperate to obtain the Governor's approval of the proposed fish passage measures. Governor approval of the decision to add the fish passage facilities will be required.

If the Governor approves the proposed fish passage measures, then the 35-year timeframe requirement to repeat the consultation process required by the 1991 Agreement will restart from the date the Governor's approval.

The construction schedule must minimize impacts to Project operations. The Project Owners will oversee all construction activities and will support the development and operation of the fish passage facilities. However, the Project Owners will not operate the fish passage facilities and will be held harmless from the development and operation of such facilities.

This is a limited reopener and will not reopen any other components of the Fish and Wildlife Program.

5.0 Funding Commitments and Inflation Adjustment

All monetary amounts in this Proposed Final Program are in 2024 U.S. dollars, unless otherwise stated. All monetary amounts will be adjusted annually for inflation using a 15-year rolling average reflected in the Bureau of Labor Statistics' Urban Alaska Consumer Price Index (CPI-U) (as currently reported by State of Alaska Department of Labor and Workforce Development at <https://live.laborstats.alaska.gov/cpi/table>).