

# Eklutna Fish & Wildlife Program Public Meetings

January 2024



# The **Eklutna watershed** provides a variety of benefits to the community:



Eklutna Lake provides 90% Anchorage's public water supply.



Eklutna Lake functions as a battery, storing spring and summer runoff to provide power during winter.



Eklutna Lake, located within Chugach State Park, is a popular spot for a variety of recreational opportunities.

# Eklutna Hydroelectric Project

Owned and operated by Chugach Electric, Matanuska Electric, and the Municipality of Anchorage.

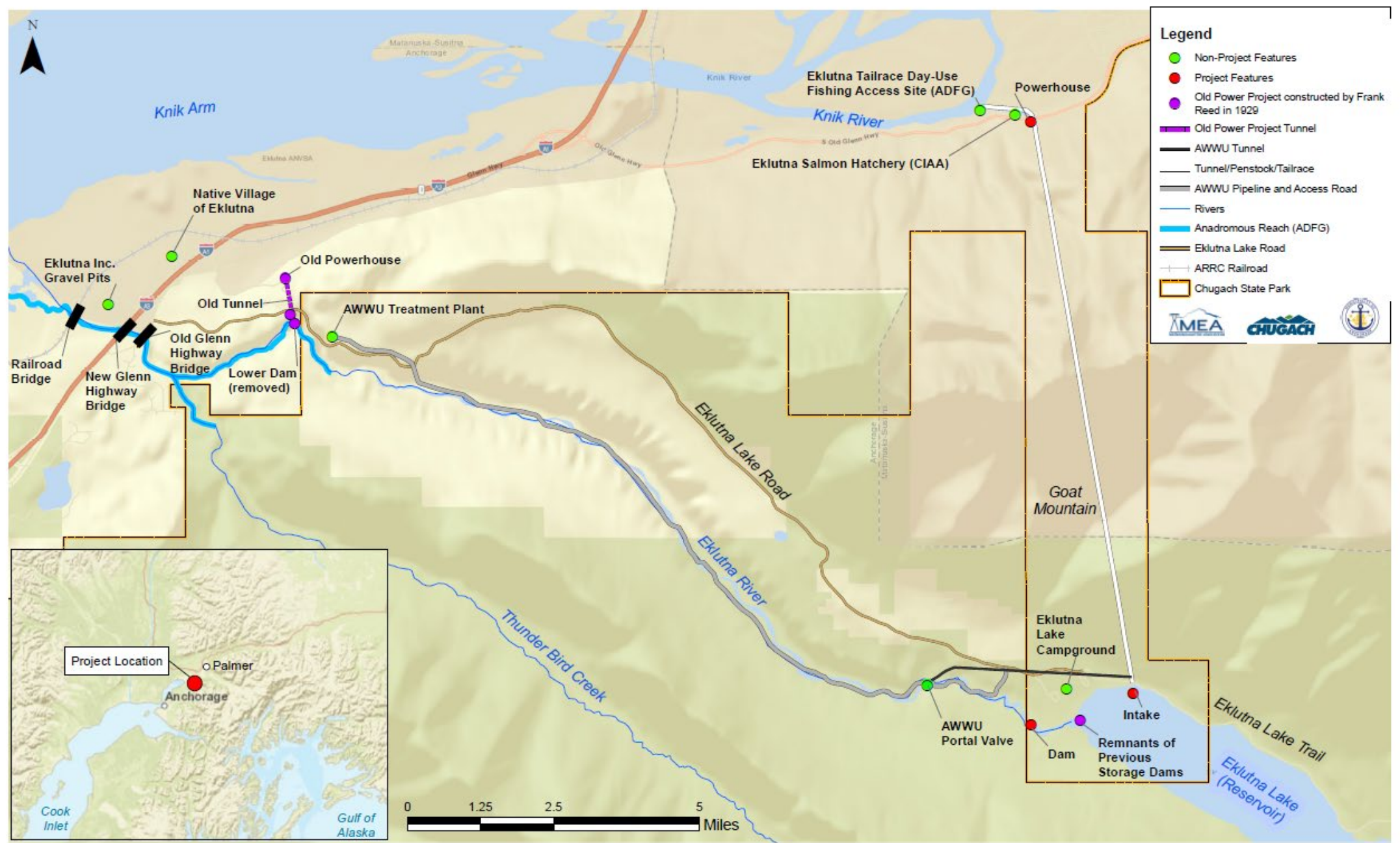
Provides 24% of Chugach's renewable energy, and 45% of MEA's renewable energy.

Offsets approximately 86,000 tons of carbon each year.

Lowest-cost energy in Southcentral Alaska.

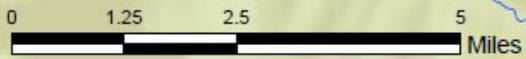
Could be used to regulate other future renewables like wind and solar.





### Legend

- Non-Project Features
- Project Features
- Old Power Project constructed by Frank Reed in 1929
- Old Power Project Tunnel
- AWWU Tunnel
- Tunnel/Penstock/Tailrace
- AWWU Pipeline and Access Road
- Rivers
- Anadromous Reach (ADFG)
- Eklutna Lake Road
- ARRC Railroad
- Chugach State Park



# Reservoir Operations

Relatively consistent power generation year-round.

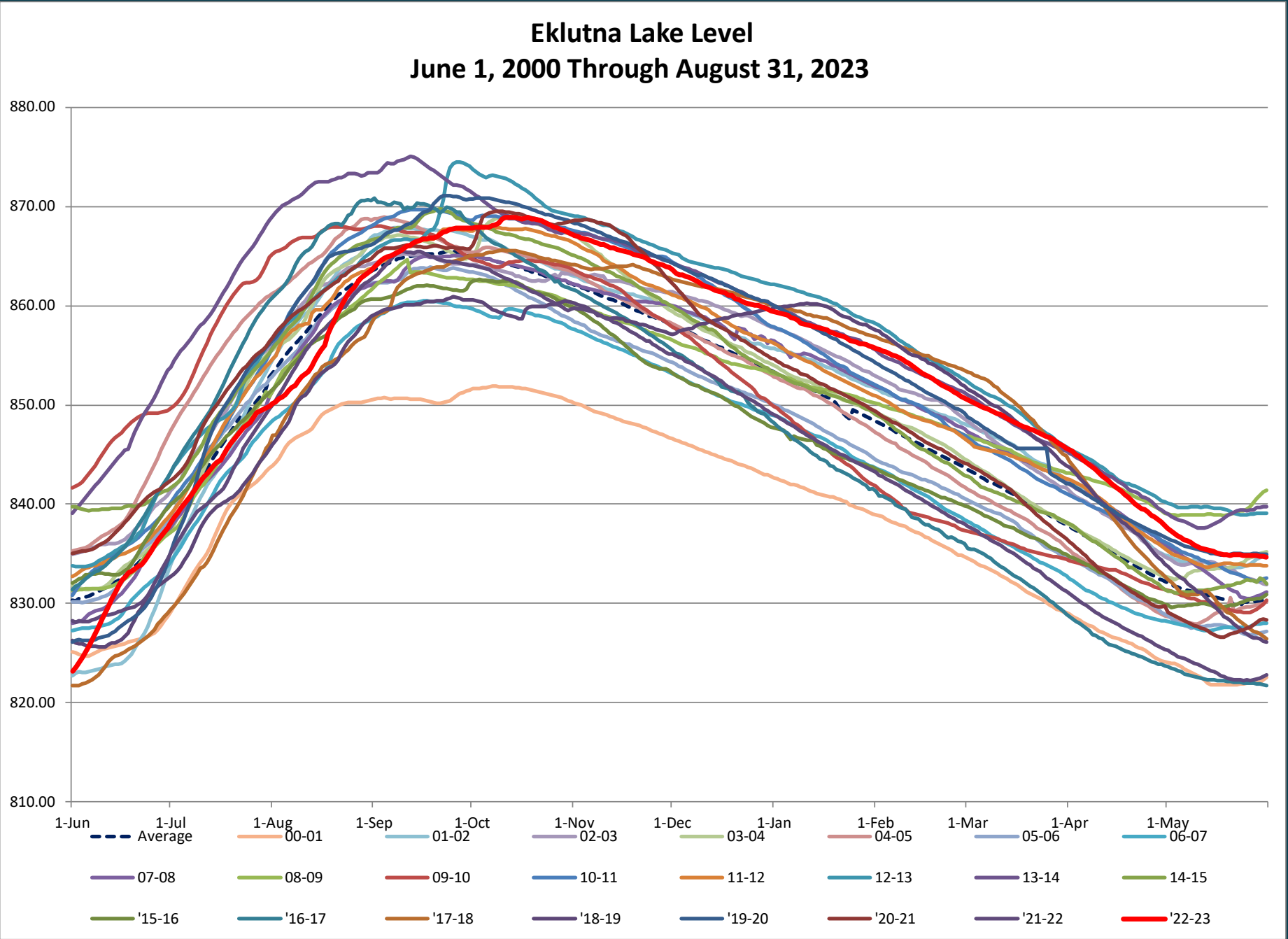
In the spring and summer, the glacier is melting, and inflows exceed outflows, so the lake level increases.

In the fall and winter, the glacier stops melting, and outflows exceed inflows, so the lake level decreases.

The intake is at El. 793 feet

The minimum regulated lake level is El. 814 feet

The spillway crest is at El. 871 feet



# Low Lake Levels

The outlet of Eklutna Lake is at El. 860 feet

The lake is below this elevation for approximately 9 months every year (winter, spring, and summer).

During that time, the lake is hydraulically disconnected from the dam, and a pond forms between the dam and the lake.



# Development in the Eklutna Watershed

Year	Event
1914	U.S. Congress authorized construction of the Alaska Railroad
1929	Private company constructed first hydroelectric project on the Eklutna River.
1935	Palmer Highway constructed
1955	Federal government finished constructing the Eklutna Hydroelectric Project
1961	U.S. Army started construction of a road along Eklutna Lake (now the lakeside trail)
1965	Eklutna Dam replaced after earthquake
1970	Chugach State Park established and Railroad begins gravel mining
1975	New Glenn Highway constructed
1988	Eklutna Water Project constructed
1989	Purchase Agreement signed
1991	Fish and Wildlife Agreement signed
1995	U.S. Congress authorized sale of the Eklutna Hydroelectric Project
1997	Finalized sale of the Project to the three local utilities (Transaction Date)
1998	ADFG started stocking the Eklutna Tailrace
2016	Old Glenn Highway bridge was replaced
2018	Lower dam removed by The Conservation Fund, Eklutna, Inc, and the Native Village of Eklutna



# 1991 Fish and Wildlife Agreement



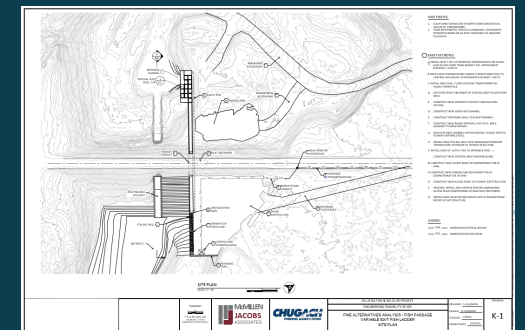
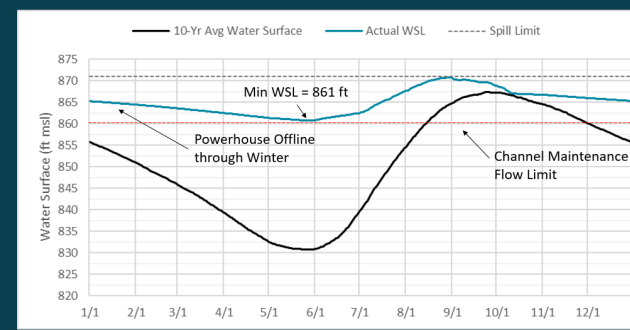
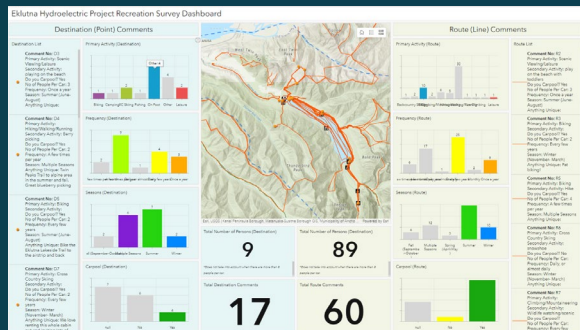
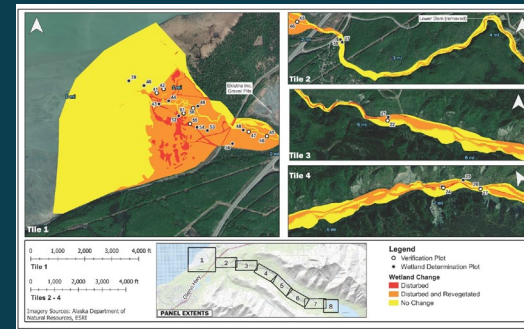
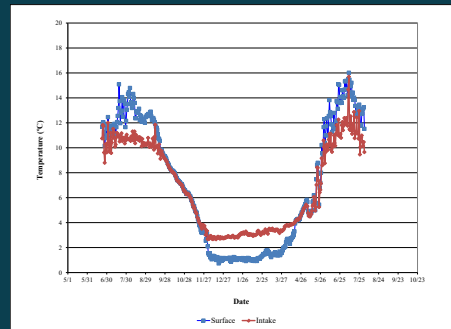
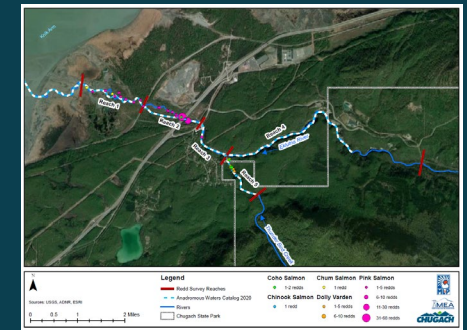
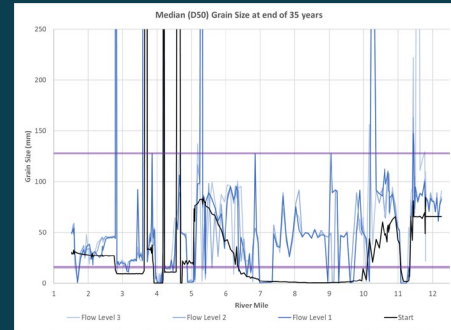
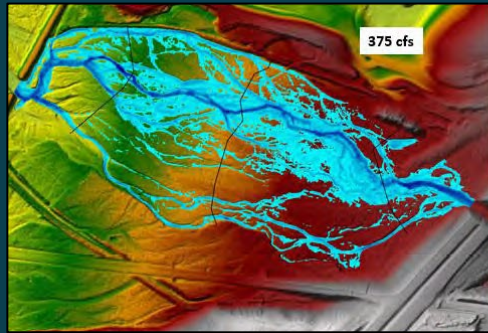
## Study program must:

1. Examine and quantify, if possible, the impacts to fish and wildlife from the federal Eklutna project.
2. Examine and develop proposals for the protection, mitigation, and enhancement of fish and wildlife affected by the project.
3. Consider the impact of fish and wildlife measures on electric rate payers, municipal water utilities, recreational users, and adjacent land use...
4. As well as available means to mitigate these impacts

# Governor must give equal consideration to:

1. Purposes of efficient and economical power production
2. Energy conservation
3. Protection, mitigation of damage to, and enhancement of fish and wildlife
4. Protection of recreation opportunities
5. Municipal water supplies
6. Preservation of other aspects of environmental quality
7. Other beneficial public uses
8. Requirements of State law

# Study Results



# Alternatives Analysis

# Stakeholder Engagement



THE  
CONSERVATION FUND



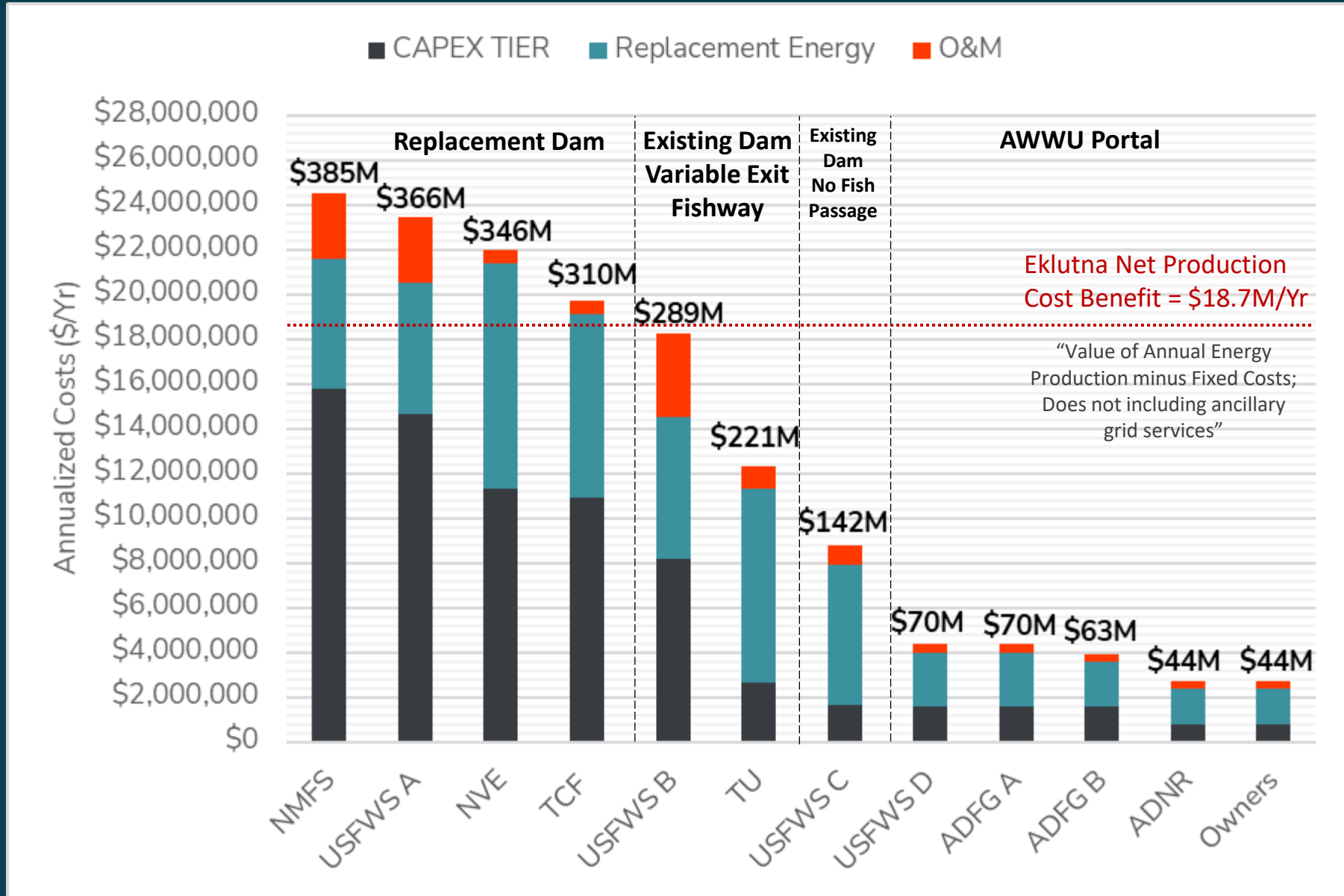
NATIVE VILLAGE OF EKLUTNA

# Alternatives Analysis

- Series of 5 Meetings
- April through August 2023
- Iterative Process
  - Participants submitted comprehensive alternatives
  - Each alternative was evaluated using the models developed
  - Participants had multiple opportunities to revise alternatives based on modeling results
  - Revised alternatives were reevaluated



# Costs of Everyone's Final Preferred Alternatives



# Benefits of Everyone's Final Preferred Alternatives

Stakeholder	Habitat Gains (Acres)				
	Chinook Spawning	Coho Spawning	Sockeye Spawning	Chinook Rearing	Coho Rearing
Project Owners	1.5	1.6	1.2	6.3	9.9
ADNR	1.5	1.6	1.2	6.3	9.9
ADFG Alt B	1.5	1.6	1.2	7.7	11.6
ADFG Alt A	1.6	1.6	1.2	8.7	12.7
USFWS Alt D	1.5	1.2	0.5	12.6	18.5
USFWS Alt C	2.0	2.1	1.1	19.1	28.2
TU	4.7	5.0	4.2	18.2	27.1
USFWS Alt B	4.9	5.0	4.0	19.1	28.2
TCF	3.8	3.9	2.7	19.0	28.1
NVE	3.1	3.6	2.5	21.0	31.0
USFWS Alt A	3.9	4.0	3.0	15.5	22.8
NMFS	3.9	4.0	3.0	15.5	22.8





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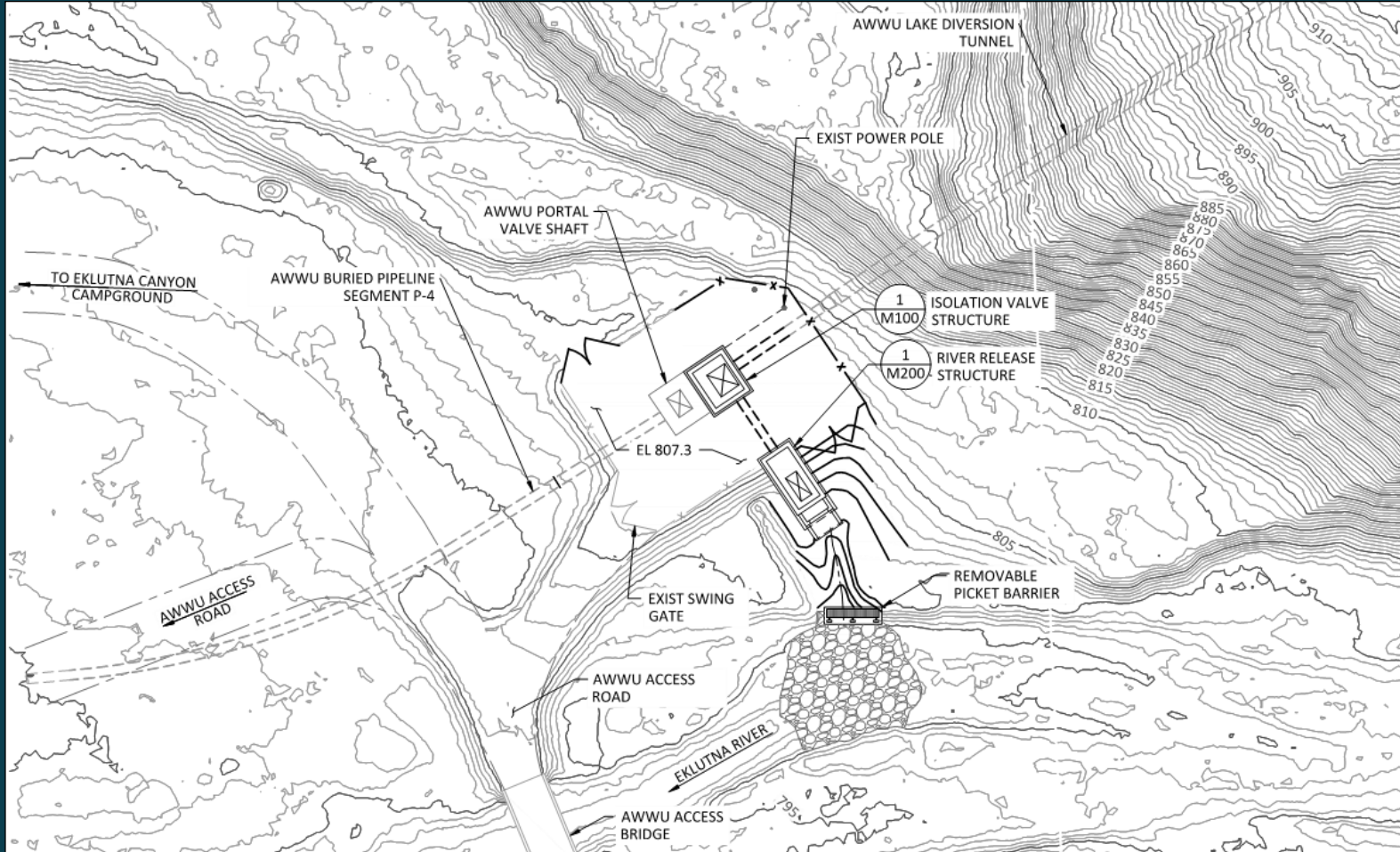
# Draft Fish and Wildlife Program

# ||| | What's Included in the Draft Program?

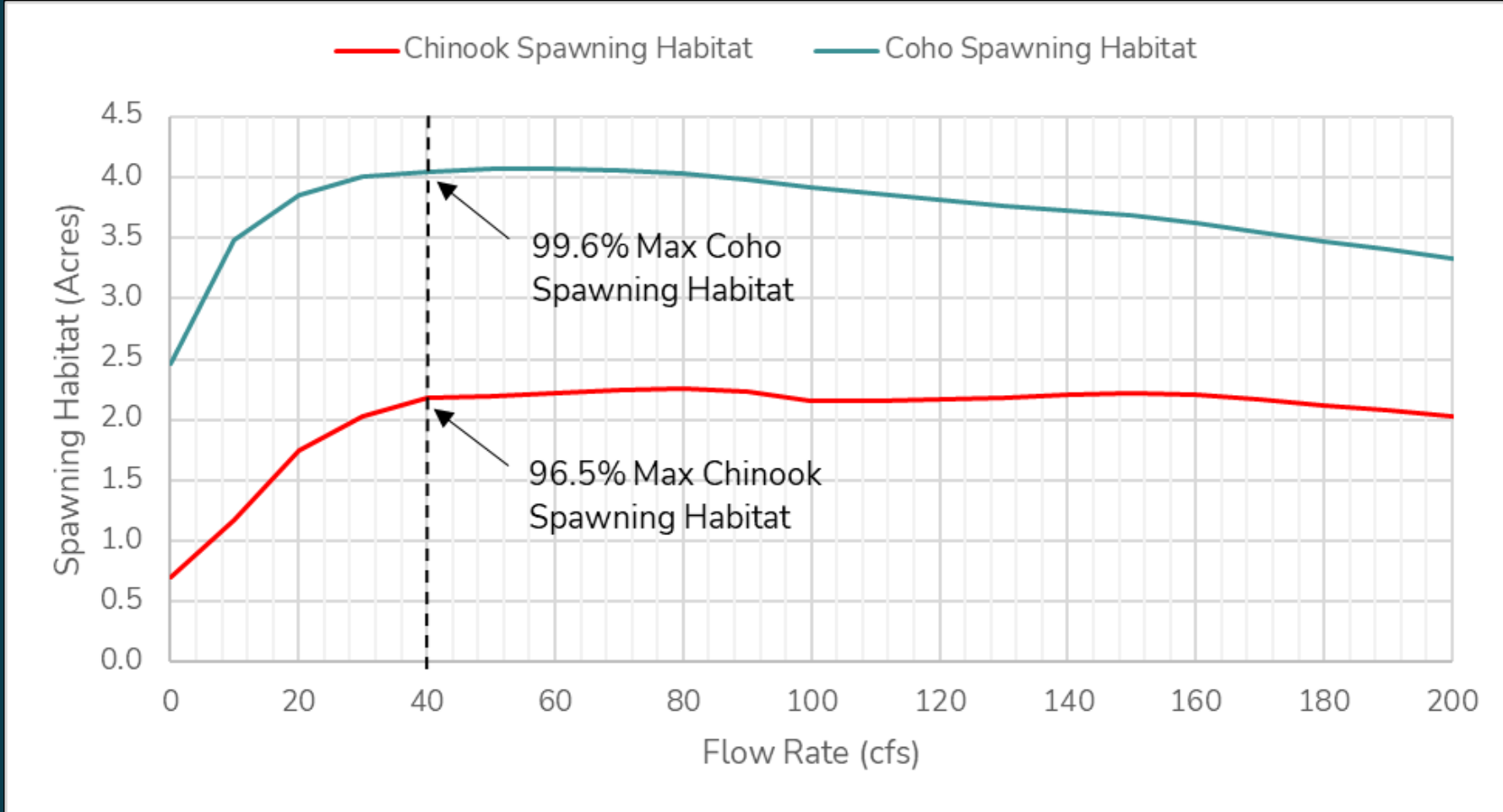
- Year-Round Base Flows
- Periodic Channel Maintenance Flows
- New AWWU Bridges
- Monitoring and Adaptive Management Plan



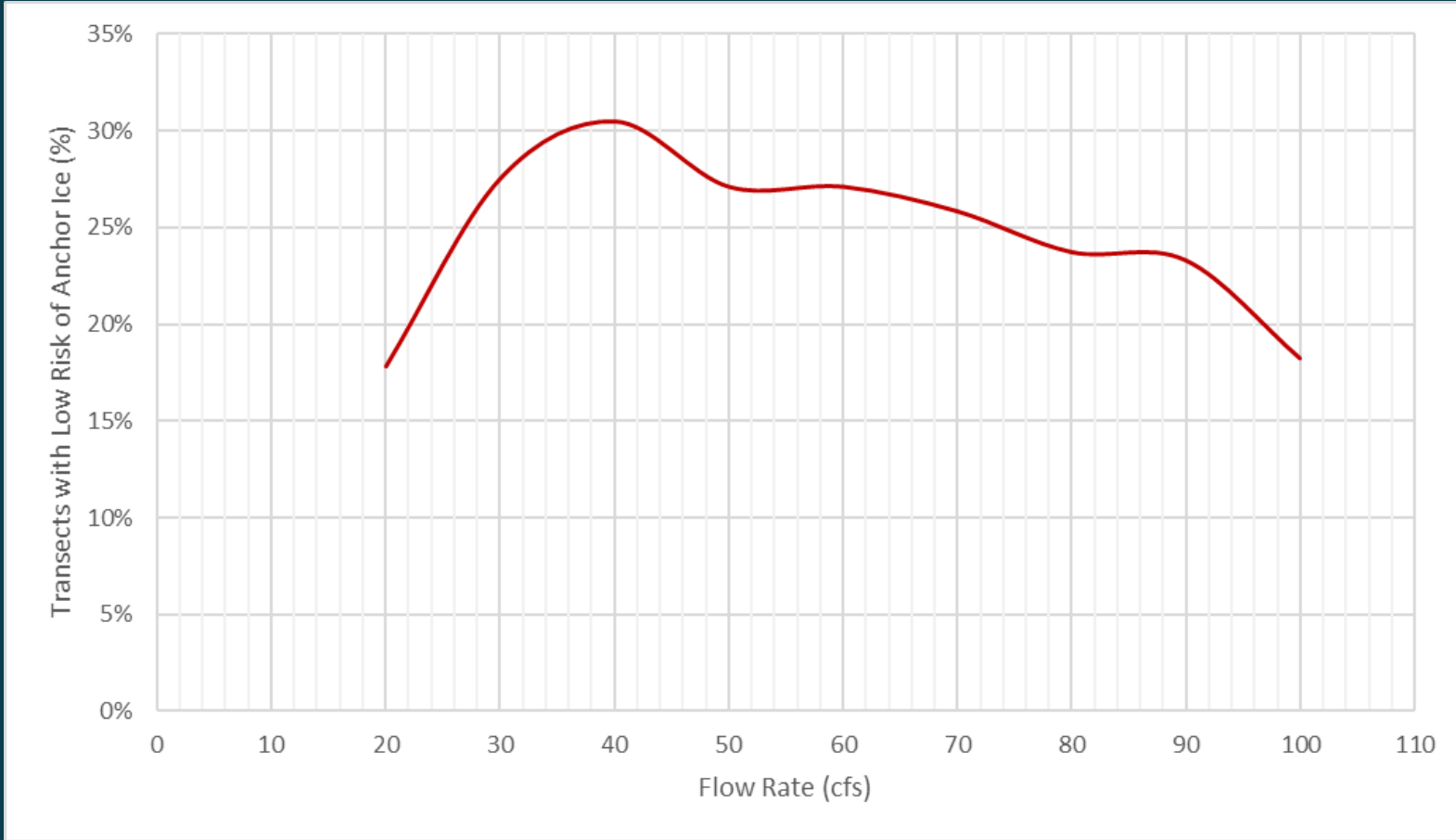
# Utilizes Existing AWWU Infrastructure to Provide Habitat in 11 out of 12 miles of the Eklutna River



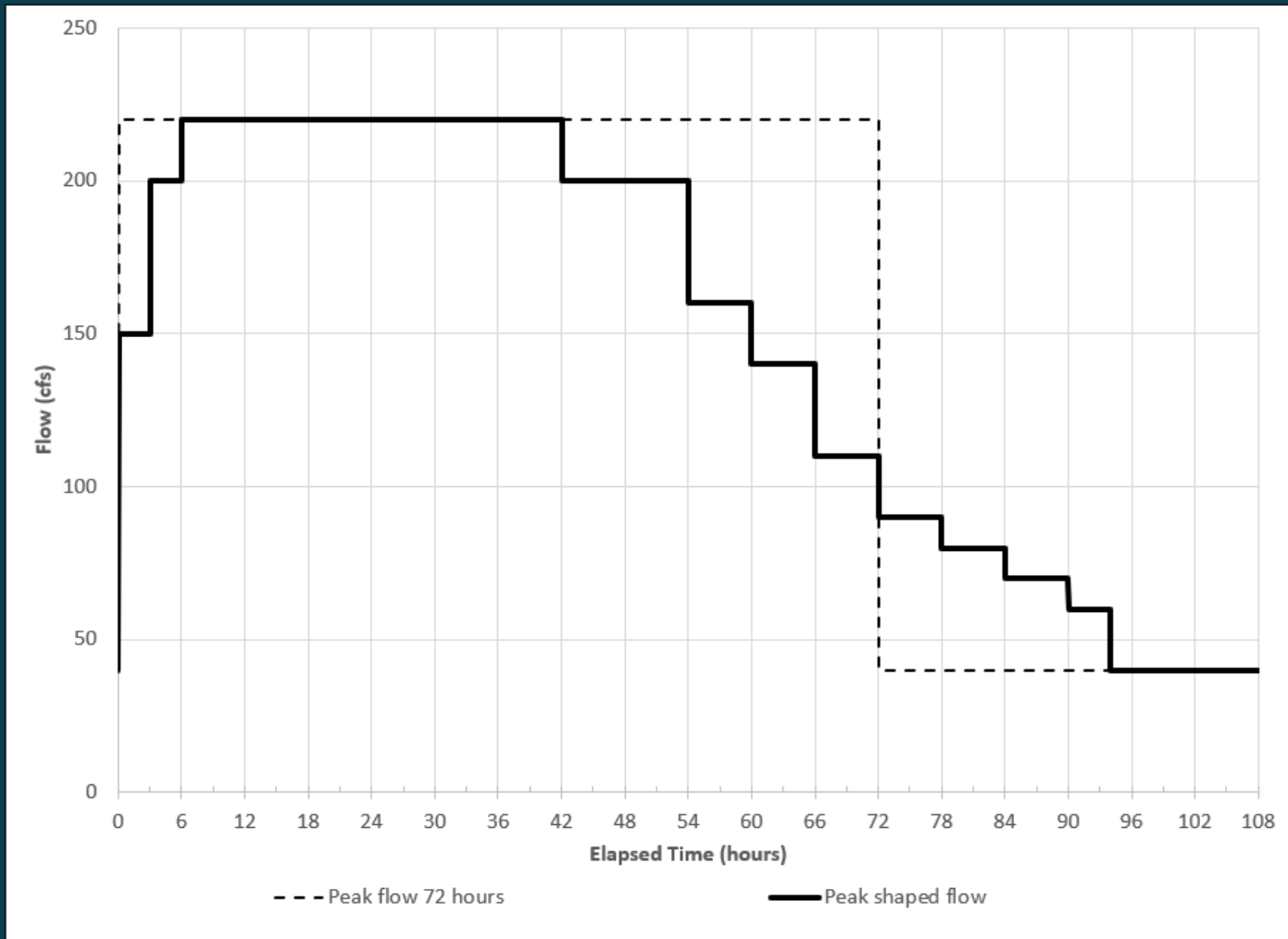
# Summer flows (40 cfs) benefit all 4 Species of Salmon Currently Spawning in the Eklutna River



# Winter flows (27 cfs) promote favorable ice conditions for winter rearing habitat



# Periodic Channel Maintenance Flows will Maintain Spawning Habitat over Time



- Automate the existing drainage outlet gate
- 220 cfs in 3 out of 10 years
- Will occur in the fall when the lake is high
- Shaped to prevent any fish stranding during downramping

# Allows for Adaptive Management to Improve Habitat Over Time

- Committee includes Parties to the 1991 Agreement and NVE
- Water Budgets
  - Instream Flows – 24,280 AF ± Banked Water
  - Channel Maintenance Flows – 2,913 AF for each 10-Year Period
- Monitoring
  - Flow Meters
  - Funding Commitment for Other Monitoring Efforts
    - Conduct Adult Salmon Surveys
    - Record Winter Water Temperatures in Rearing Reaches
    - Measure Sediment Grain Size in Spawning Reaches
    - Assess Straying Rate from the Tailrace to the River
- Adaptive Management
  - Based on Monitoring Results
  - Committee can Request Alternative Flows within Water Budgets

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
<b>Total</b>	-	<b>24,280</b>

# Includes Engineering Measures to Protect the Public Water Supply



- Close coordination with AWWU during design
- Will not impact AWWU's water rights
- Construction of 8 new bridges
- New Isolation Valve Structure
- Replacement of Outdated Communication System
- New Redundant Flow Meters
- These improvements total \$7.3M



# Minimizes Costs to Ratepayers and Taxpayers

Cost Description	Value
Capital Cost (\$)¹	\$15,433,800
O&M Cost (\$/Yr)	\$315,900
Replacement Energy Cost (\$/Yr)	\$1,365,600
Monitoring Program Cost (\$)	\$270,000
Annualized Cost (\$/Yr)	\$3,485,000
Present Value of Annualized Costs (\$)	\$57,100,000
CEA Rate Impact (%)	+ 0.67%
MEA Rate Impact (%)	+ 0.87%
MOA Tax Impact (\$/100k)	\$0.54

¹ Capital costs at this level of design have an expected accuracy range of -30% to +50%.

# What's Not Included in the Draft Program?

- Higher Year-Round Flow Releases from the AWWU Portal Valve (at river mile 11)
  - Incremental gains in habitat are minor when compared to increased costs
- Year-Round Flow Releases from the AWWU Pipeline (at river mile 5.5)
  - Significantly reduced habitat gains for almost the same cost as the AWWU Portal Valve alternative
- Year-Round Flow Releases from a New Bypass Tunnel (at river mile 11.5)
  - Significantly increased costs for almost the same habitat gains as the AWWU Portal Valve alternative
- Year-Round Flow Releases from Eklutna Dam (at river mile 12)
  - Requires the power plant to be shut down through the winter to keep the reservoir high
- Replacement Dam (at river mile 12)
  - Cost prohibitive and decreases reservoir storage capacity by 40%
- Fish Passage
  - Concerns regarding viability, feasibility, costs, and/or impacts

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# Summary

- Benefits all 4 species of salmon currently spawning in the Eklutna River
  - Provides habitat in 11 out of 12 miles of the river
  - Achieves 96.5% of max spawning habitat for Chinook below the AWWU Portal Valve (99.6% for coho)
  - Allows for adaptive management to improve habitat over time
- Maintains Eklutna hydro as a year-round resource
- Protects the public water supply
- Indirectly benefits wildlife
- Avoids impacts to recreation
- Minimizes costs to rate payers and taxpayers
- Minimizes increases in carbon emissions
- Achieves an equitable balance of costs, benefits, and impacts

# Comments on the Draft Program

- The Project Owners submitted the Draft Program to the Signatories to the 1991 Agreement and the Native Village of Eklutna on October 27, 2023 for review and comment
- All comment letters are available on the Project website ([www.eklutnahydro.com](http://www.eklutnahydro.com))
- The Project Owners met with the Signatories to the 1991 Agreement and the Native Village of Eklutna in December 2023 to attempt to resolve differences
- Discussions centered around...
  - Flow Release Location
  - Flow Regime and Water Budget
  - Water Banking
  - Physical Habitat Manipulation
  - Fixed Wheel Gate
  - Fish Passage
  - Climate Change
  - Lakeside Trail Repairs
  - Monitoring Efforts
  - Success Criteria
  - Adaptive Management Committee
  - Dam Removal

# Dam Removal

*The Native Village of Eklutna has proposed to remove the dam/project in 10 years after replacing it with another renewable energy source*

- Wind, solar, and run-of-river hydro are NOT firm energy sources
- Storage hydro is a firm energy source, however... identifying, studying, licensing, designing, and constructing new hydro project(s) of the equivalent size will likely...
  - Take more than 10 years
  - Have new environmental impacts
  - Be very expensive
- This would also set back the long-term timeline for reaching the utilities overall renewable energy goals

## Dam Removal (*cont.*)

- Without the dam or hydro project, flows in the Eklutna River would be...
  - 1200 cfs every July/August
  - 2000 cfs every few years
  - 4000 cfs every 10 years
- AWWU's pipeline is buried for 6 miles under/adjacent to the Eklutna riverbed
  - Significant scour impacts to the water supply pipeline would be likely
  - Hydro project owners legally cannot negatively impact the public water supply
- Significant impacts to the downstream railroad and highway bridges would also be likely
- The Project Owners are conducting a more detailed assessment of dam removal which will be included in the Proposed Final Program

# We want to hear from you!

*Members of our project team are available to answer your questions*

- Station 1 – Hydro Project Operations and Engineering
- Station 2 – Aquatics (Fish, Instream Flows, Geomorphology, Water Quality)
- Station 3 – Terrestrial (Wetlands, Mammals, Birds)
- Station 4 – Recreation and Historic Resources

*There are several different ways for you to submit comments*

- Comment forms are available at every station
  - Submit completed forms at the comment table
  - Mail completed forms to the address on the back
- Email written comments to [info@eklutnahydro.com](mailto:info@eklutnahydro.com)
- Submit written comments via the Contact Us page on the project website (QR code)
- Record verbal comments on the iPad at the comment table

# Next Steps

- **February 19, 2024** – Public comment deadline
- **April 2024** – Submit Proposed Final Fish and Wildlife Program to the Governor
  - 60 days for Parties to review and submit comments to the Governor (May/June)
  - 30 days for Project Owners to submit responses to the Governor (July)
  - Additional 2 months for Governor to consider (Aug/Sep)
- **October 2, 2024** – Deadline for Governor to issue Final Fish and Wildlife Program