State of Alaska
Department of Fish and Game
Sportfish Division

Nomination Form
Anadromous Waters Catalog

Region: Southcentral

USGS Quad(s): ANCHORAGE C-6 SE

Anadromous Waters Catalog Number of Water Body: 247-50-10220-2060

Name of Water Body: ☐ USGS Name ☐ Local Name

☑ Addition ☐ Deletion ☐ Correction ☐ Backup Information

For Office Use

Nomination #: 25-646

Revision Year: 2026

Revision to: ☑ Atlas ☑ Catalog

Revision Code: B-1

Fisheries Scientist	Sept 5 2025
Habitat Operations Manager	9/5/25
AWC Project Biologist	12 Aug 2025
GIS Analyst	9/22/2025

OBSERVATION INFORMATION

Species	Date(s) Observed	Spawning	Rearing	Present	Anadromous
sockeye salmon	06/25/2025		✓		✓
sockeye salmon	06/25/2025		✓		✓
Dolly Varden	06/25/2025		✓		
Dolly Varden	06/25/2025		✓		

~ADD new species SOCKEYE salmon REARING to existing AWC Stream #247-50-10220-2060.

Comments:

Fished a small channel draining through Butte into the Matanuska River with an LR20B backpack electrofisher. Total shock time was 111 seconds set to a voltage of 150V, 15% duty cycle and 30Hz. Species observed included (2) sockeye salmon, (4) Dolly Varden. Unsure if sockeye I.D. is correct. Matanuska was running high and flooding portions of town nearest the river.

Permit# - sf2025-114

Coordinates (Lat,Long): Upper(61.601667,-149.049752) Lower(61.601600,-149.049763)

Name of Observer (please print): Dustin Merrigan

Signature: 10.231.39.10 (Web Nomination) Date: 07/01/2025

Agency:

Address: 3211 Providence Dr BMH Room 110

Anchorage, AK 99508

This certifies that in my best professional judgment and belief the above information is evidence that this waterbody should be included in or deleted from the Anadromous Waters Catalog.

Signature of Area Biologist: _____ Date: _____

Name of Area Biologist (please print):

Revision 3/16

Project Title: Anadromous Waters Prioritization for the Matanuska-Susitna Basin

Entity Undertaking Project

University of Alaska Anchorage
Alaska Center for Conservation Science, UAA
Point of Contact: Erin Larson
E-mail: elarson15@alaska.edu
Phone Number: 907-786-6392

Statement of Need:

Streams that support anadromous fishes are afforded special protections under Alaska law and identifying these habitats across the Mat-Su Basin is an important data gap for conservation of salmon and other anadromous fishes. The AWC lists streams, rivers, and lakes that support anadromous fishes and a Fish Habitat Permit, issued by the Alaska Department of Fish and Game, is required prior to any construction or activity that might impact these waterbodies. Streams are nominated for inclusion in the AWC through field documentation of anadromous fish, but because so much of Alaska is roadless, only a fraction of the total anadromous stream habitat is documented. The Mat-Su Borough is one of the fastest growing regions in the state and there are several proposed projects to expand access with roads and pipelines on the west-side of the Susitna River, which is currently roadless. Additional information is needed to prioritize surveys for nominating additional anadromous streams to the AWC.

The Mat-Su Basin has 7,366 km of anadromous streams and 47,977 km of streams under 1,000 meters. The difference between these two indicates the potential to include additional streams for nomination to the Anadromous Waters Catalog, which provides protections for anadromous fish habitat from construction and other activities. This project will increase our understanding of suitable habitat requirements for juvenile salmon by increasing protections for anadromous streams across the Mat-Su Basin.

Purpose:

The Matanuska-Susitna (Mat-Su) Fish Habitat Partnership has identified the prioritization of streams for nomination to the Anadromous Waters Catalog (AWC) an important data gap for the protection and conservation of fish habitat. We propose to build an ensemble model of juvenile salmon habitat for the Mat-Su basin that can be used to prioritize stream surveys for making nominations to the AWC. Data inputs to the model will include the newly developed NHDPlus for the Mat-Su and juvenile salmon occurrence locations from the Alaska Department of Fish and Game's Alaska Freshwater Fish Inventory. Topographic and climatic variables will be used as variables to model suitable habitats for juvenile salmon. We will develop a suite of species distribution models and combine model predictions in an ensemble to increase prediction accuracy. After model development, stream surveys will be used to assess model performance and adapt the model to include additional data. Final model predictions will be provided as searchable map products accessible on ArcGIS online to increase their availability and use for stream surveys. Our final report will include a prioritization of watersheds for stream surveys (using 8-digit USGS Hydrologic Unit Codes).

This project directly links to the Mat-Su Salmon Habitat Partnership's Priority Data Gap for FY22 to prioritize streams under 1,000 meters that remain to be nominated in the AWC. It also addresses Objective 1.1. in the 2019 Strategic Plan to increase miles of streams in the AWC.

Objectives:

The project will include several objectives:

1. Create a database of topographic and climatic attributes for all stream reaches in the NHDPlus for the Mat-Su basin.
2. Build a suite of species distribution models for juvenile salmonids across the Mat-Su basin.
3. Map predicted probabilities of suitable habitat for juvenile salmonids using an ensemble of species distribution models and create publicly accessible map products on ArcGIS Online.
4. Validate predicted habitats in summer 2023 using a road-based field survey.
5. Document all methods and results in a final report that that includes a prioritization of basins for stream surveys to increase nominations in the Anadromous Waters Catalog across the Mat-Su basin.

Methods/Approach:

We will develop a suite of species distribution models to map suitable habitat for juvenile salmon in the Mat-Su Basin using both regression and machine learning techniques. Ensemble models include predictions from several models to increase model accuracy. The Alaska Freshwater Fish Inventory contains over 1,800 survey points in the Mat-Su basin documenting salmon presence/absence that will be used to develop models for juvenile salmon. The NHDPlus is a new hydrography product that integrates the landscape with the stream network and can be used to generate variables for modeling species distributions. The combination of high-quality hydrography data and a high density of fish survey data makes the Mat-Su Basin an ideal region for developing distribution models for juvenile salmon habitat that can be used to prioritize watersheds for anadromous stream surveys.

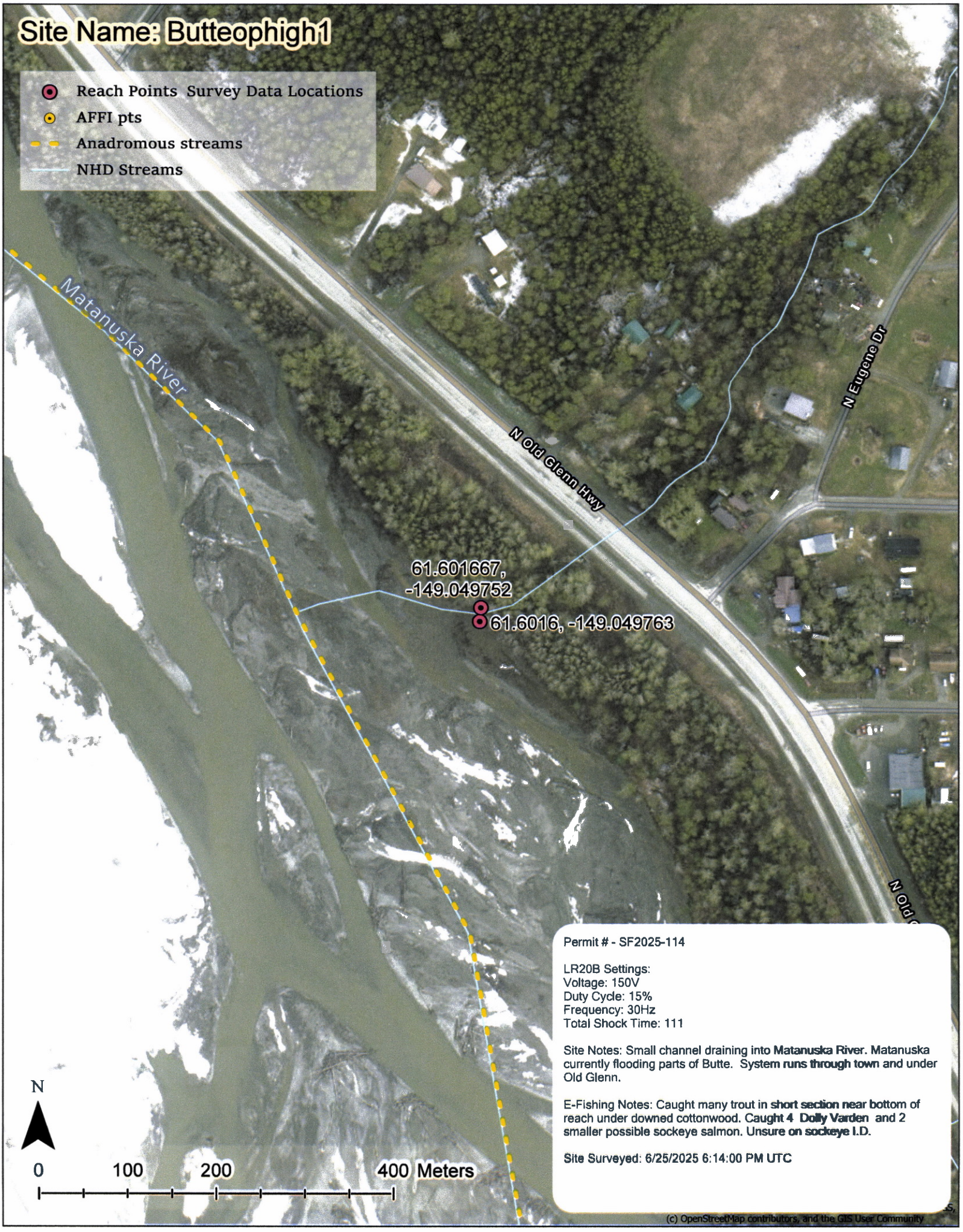
The project will result in maps of suitable juvenile salmon habitat across the Mat-Su Basin. Predicted suitable habitats not currently included in the AWC will be used to prioritize locations for stream surveys. The AWC is an important tool for protecting and conserving salmon habitat in Alaska and the goal of this project is to increase the efficiency and accuracy of stream surveys in roadless areas of the Mat-Su Basin for nominations to the AWC.

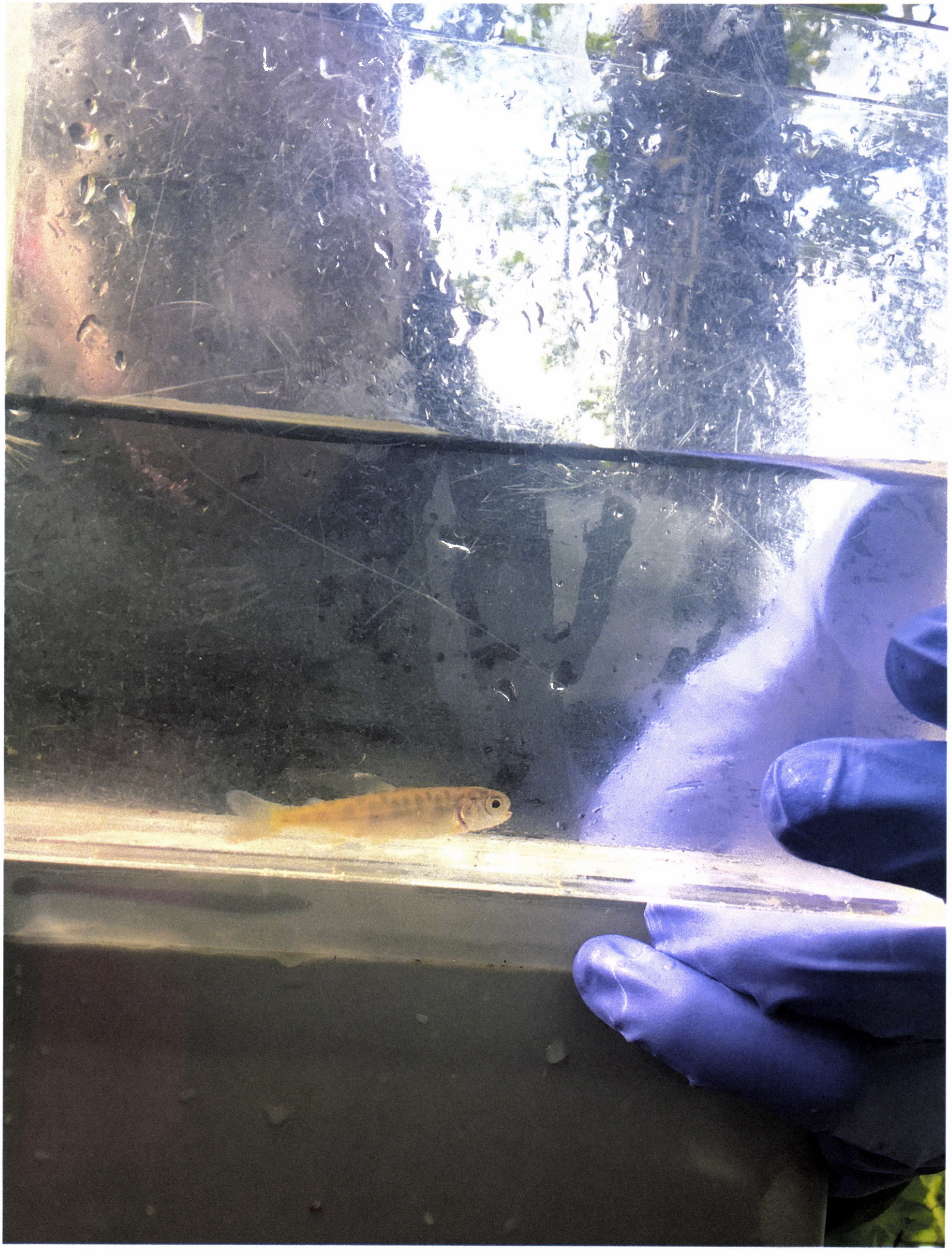
Project outreach will include developing map products published to ArcGIS Online where field biologists can locate and plan stream surveys to increase nominations to the Anadromous Waters Catalog. All data used for modeling and final model outputs (spatial datasets) will be published to the ACCS Data Catalog: accscatalog.uaa.alaska.edu. All project results will be presented at the Mat-Su Science Symposium (Fall 2025).

We will validate predicted suitable habitats that are road-accessible in 2023 and use the validation results to assess model accuracy and adapt the model to include additional data.

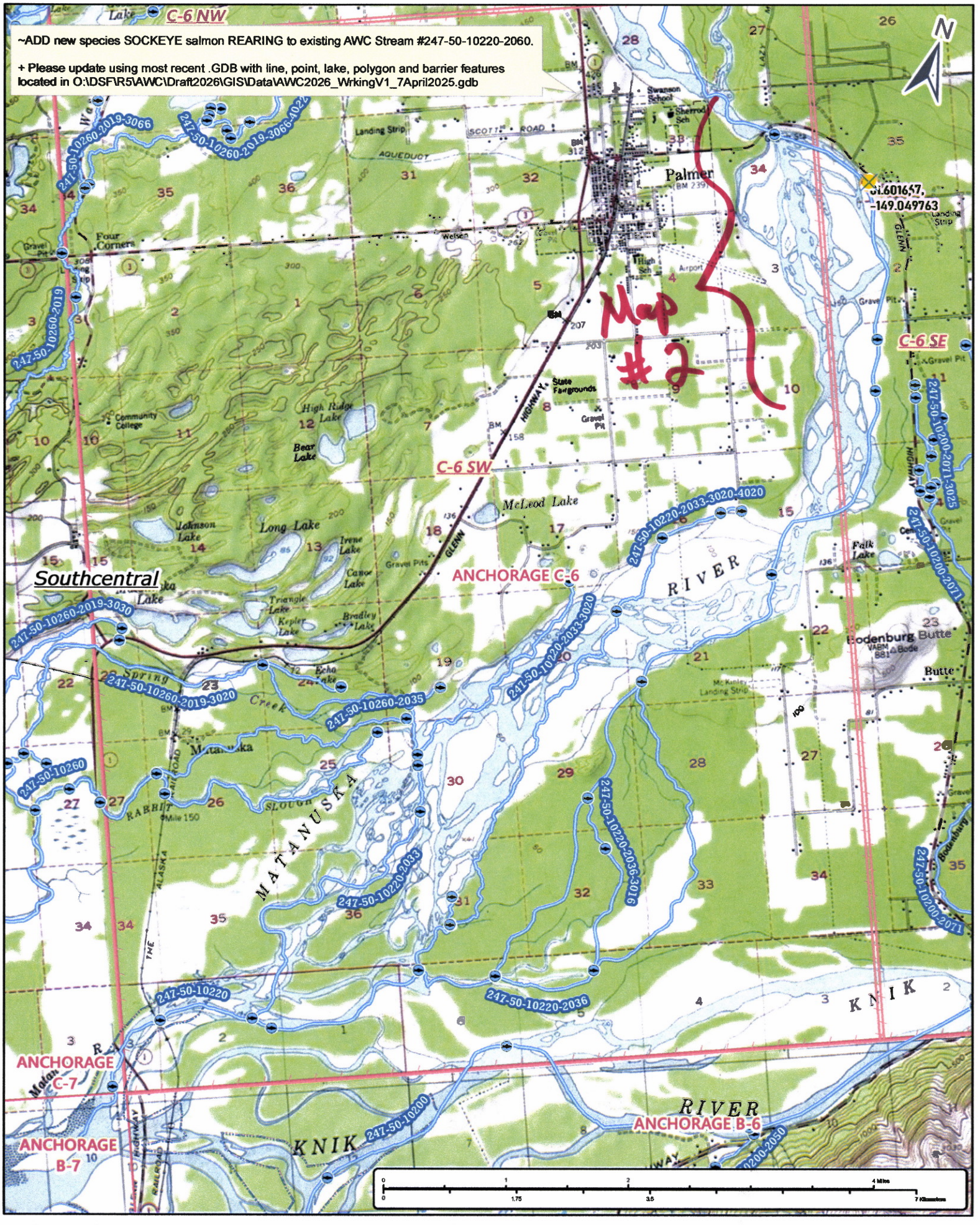
Project Location:

The project will include potential habitat for anadromous species across the entire Matanuska-Susitna (Mat-Su) basin, a total watershed area of 62,000 km^2. Fieldwork to validate the model will occur at road-accessible streams in the Mat-Su Borough


Site Name: Butteophigh1
Reach Points Survey Data Locations
AFFI pts
Anadromous streams
NHD Streams
Matanuska River
N Old Glenn Hwy
N Eugene Dr
61.601667,
-149.049752
61.6016, -149.049763
N
0
100
200
400 Meters
Permit # - SF2025-114
LR20B Settings:
Voltage: 150V
Duty Cycle: 15%
Frequency: 30Hz
Total Shock Time: 111
Site Notes: Small channel draining into Matanuska River. Matanuska currently flooding parts of Butte. System runs through town and under Old Glenn.
E-Fishing Notes: Caught many trout in short section near bottom of reach under downed cottonwood. Caught 4 Dolly Varden and 2 smaller possible sockeye salmon. Unsure on sockeye I.D.
Site Surveyed: 6/25/2025 6:14:00 PM UTC
(c) OpenStreetMap contributors, and the GIS User Community

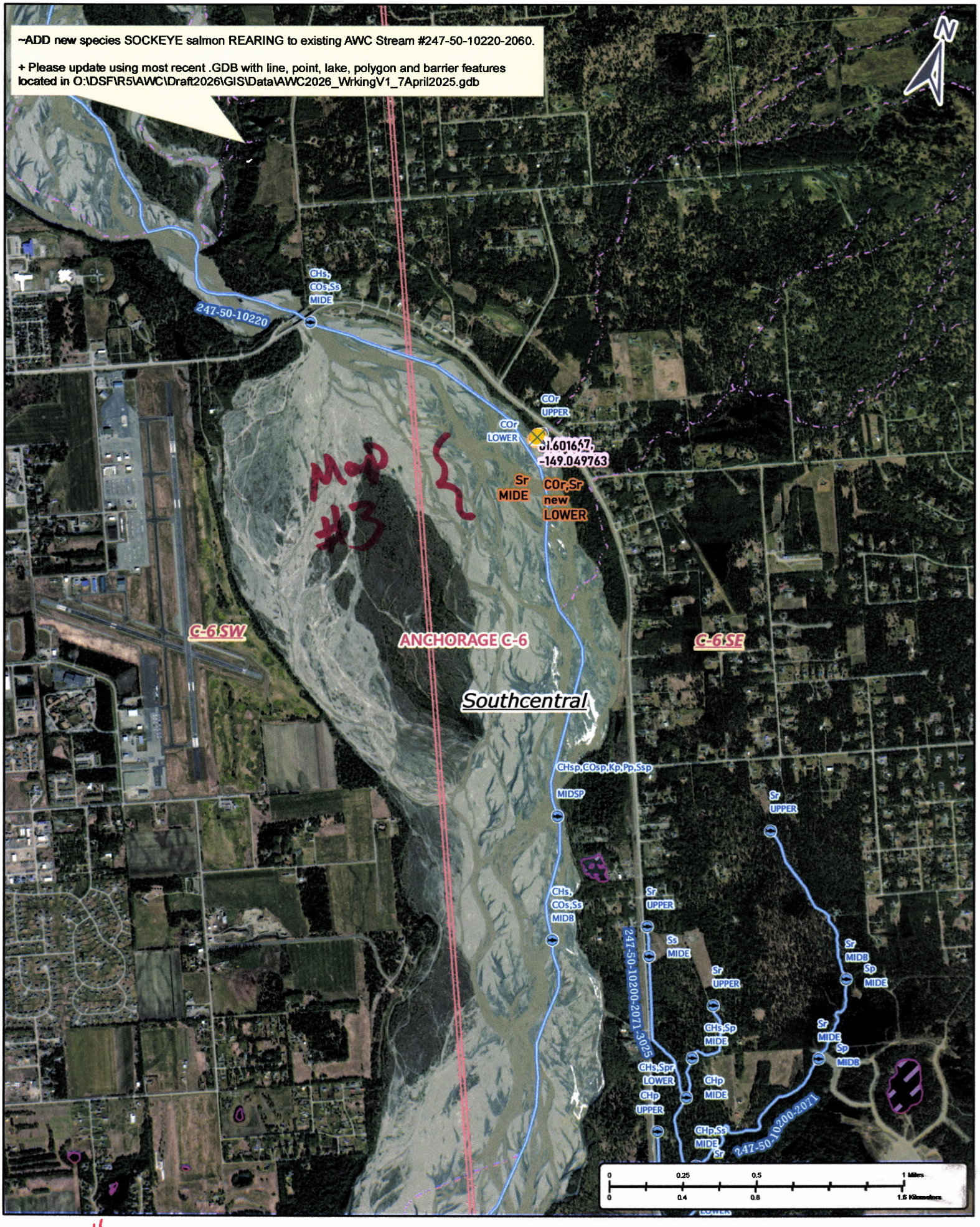



OBSC



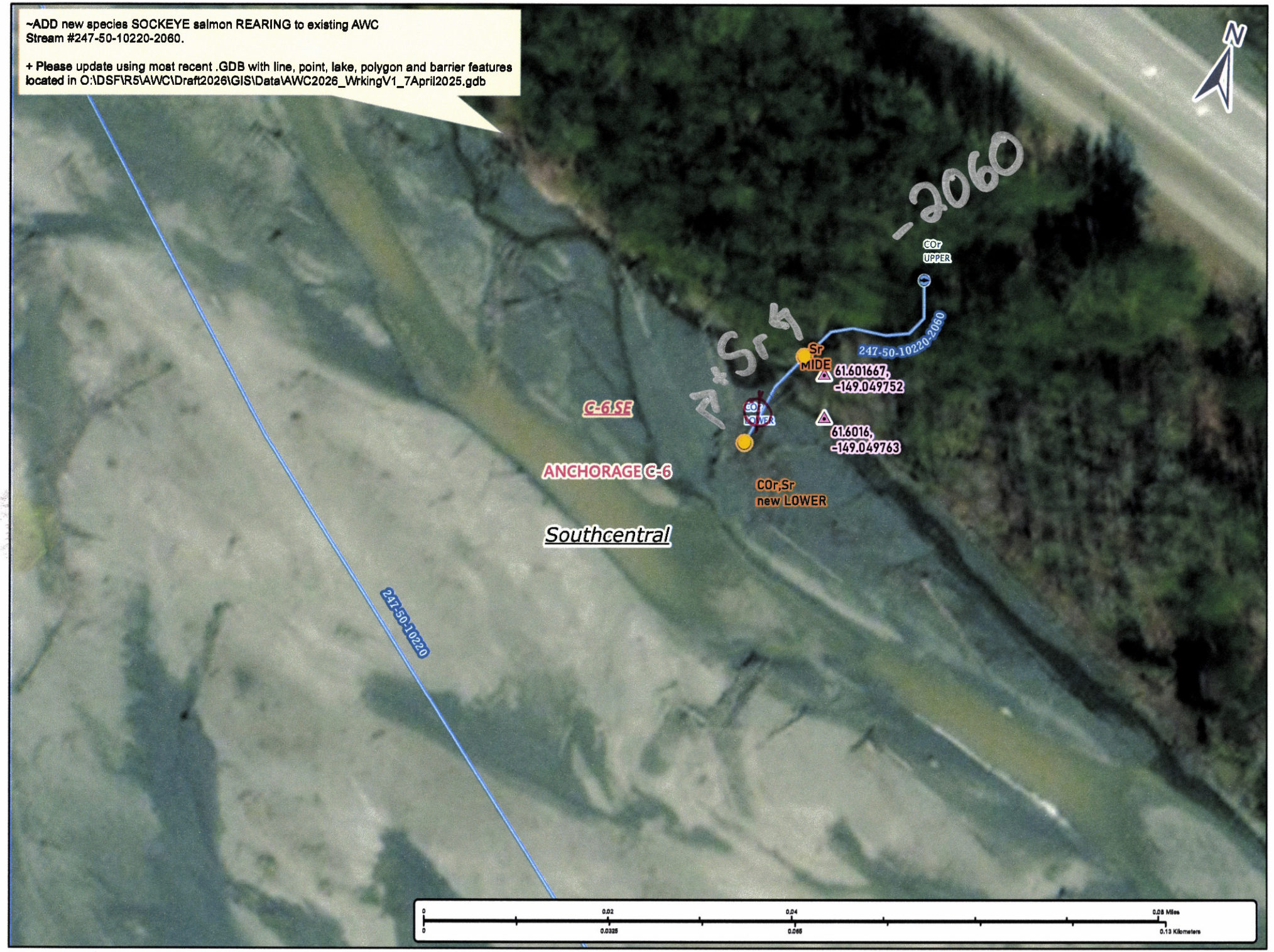
Nom # 25-646

Map #1



Nom #25-646

Map #2



Nom #25-646

Map #3