IDAHO FALLS POWER

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June 11, 2025

VIA E-FILING

Debbie-Anne A. Reese, Secretary
Federal Energy Regulatory Commission
888 First Street, NE
Washington, DC 20426

Subject: Idaho Falls Hydroelectric Project (FERC Project No. 2842) and Gem State Hydroelectric Project (FERC Project No. 2952) Initial Study Report (ISR)

Dear Secretary Reese:

Idaho Falls Power (IFP or Licensee), the Licensee of the 24.6-megawatt (MW) Idaho Falls Hydroelectric Project (Idaho Falls Project) Federal Energy Regulatory Commission (FERC) No. 2842, and the 22.6 MW Gem State Hydroelectric Project (Gem State Project), FERC No. 2952, herein collectively referred to as the "Projects," electronically files with FERC its Initial Study Report (ISR) for the relicensing of the Projects, in accordance with the requirements of 18 Code of Federal Regulation (CFR) Part 5.

The FERC licenses for both Projects expire on January 31, 2029. Due to the proximity of the Projects to each other, the Licensee has combined the relicensing process and schedule for both projects into a single proceeding, using the Integrated Licensing Process (ILP). With the ISR and planned ISR meeting (scheduled for June 23, 2025), IFP will propose combining the Projects under a single license for the next license term. The Gem State facilities would become a development within the Idaho Falls Project's license number (FERC No. 2842). For the duration of this relicensing process, IFP will continue to file all relicensing materials under both dockets, but the license application and associated exhibits are expected to describe a single project.

On August 2, 2023, IFP filed a Notice of Intent (NOI) and Pre-Application Document (PAD) with FERC, pursuant to 18 CFR § 5.5. Included in the PAD was a list of potential studies under consideration by IFP. On October 2, 2023, FERC issued its Notice of Commencement of Proceeding and Scoping Document 1 (SD1), outlining the potential scope of their environmental analysis to be completed following the submittal of IFP's Final License Application. A site visit and scoping meetings were held in Idaho Falls on October 25 and 26, 2023. Stakeholders were given 30 days following the site visit and scoping meeting to (1)

provide comments on the PAD, (2) provide comments on the studies proposed by IFP, and (3) suggest additional studies that may be necessary to develop a complete environmental analysis for the relicensing of the Projects. That comment period ended on November 30, 2023.

On January 10, 2024, FERC filed Scoping Document 2 (SD2), identifying preliminary issues and alternatives to be addressed during their environmental review process. On January 12, 2024, IFP filed its Proposed Study Plan (PSP). Stakeholders were given 60 days following the filing of the PSP to provide comments, and on February 13, 2024, IFP hosted a virtual study plan meeting pursuant to 18 CFR 5.11(e) to review comments and study requests received and answer questions. The PSP comment period ended on April 13, 2024.

On May 13, 2024, IFP filed its Revised Study Plan (RSP), which incorporated stakeholder comments on the PSP, as appropriate. There were no comments received on the RSP. On June 12, 2024, FERC issued its Study Plan Determination (SPD). In late June 2024, IFP began implementing studies, as described in this ISR.

IFP hereby electronically files a single ISR for the relicensing of both Projects, to be filed under both Project docket numbers. The Cultural Resources (CR-1) and Tribal Resources (TR-1) technical memorandums will be filed as "Privileged" and will not be publicly available to protect the confidentiality of the content. IFP looks forward to working with FERC and other interested parties on the relicensing of the Idaho Falls and Gem State projects. More information about the relicensing process can be found at https://www.ifpower.org/about-us/relicensing. Please contact Richard Malloy, Regulatory Compliance Manager, by phone at 208-612-8248 or via e-mail at rmalloy@ifpower.org with any questions or concerns.

Sincerely,

Richard Malloy
Regulatory Compliance Manager
Idaho Falls Power

Cc: Distribution List
Bear Prairie – Idaho Falls Power
Finlay Anderson, Olivia Smith – Kleinschmidt Associates

Attachments:
Distribution List
Initial Study Report

IDAHO FALLS POWER RELICENSING

IDAHO FALLS PROJECT (P-2952), GEM STATE PROJECT (P-2842) RELICENSING DISTRIBUTION LIST

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INITIAL STUDY REPORT

IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS

FERC PROJECT NOS. 2842 AND 2952

PREPARED FOR:

IDAHO FALLS POWER

IDAHO FALLS POWER
140 S CAPITAL AVE
IDAHO FALLS, ID 83402

PREPARED BY:

Kleinschmidt

KLEINSCHMIDT ASSOCIATES
15301 NE 90TH STREET, SUITE 120
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JUNE 2025

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IDAHO FALLS AND GEM STATE HYDROELECTRIC PROJECTS

(FERC PROJECT NOS. 2842 AND 2952)

INITIAL STUDY REPORT

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1.0 OVERVIEW

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects." The 24.6-megawatt (MW) Idaho Falls Project consists of three developments on the Snake River in Bonneville County, Idaho, including: Upper Plant, located at approximately river mile (RM) 815.2; City Plant (RM 810.4); and Lower Plant (RM 808.7). The 22.6 MW Gem State Project consists of one development located at approximately RM 804.2 on the Snake River in Bonneville and Bingham Counties, Idaho. The Idaho Falls Project is located 1.9 miles upstream of the Gem State Project on the Snake River and extends approximately 11.9 miles north through the city of Idaho Falls. The Idaho Falls and Gem State Project Boundaries are separated by approximately 1.9 miles of free-flowing river from the tailrace of Idaho Falls Lower Plant to the headwaters of the Gem State Project. Land ownership in the Projects is a mix of federal, non-federal, and municipally owned lands. Figure 1-1 below identifies both Projects and their FERC Project Boundaries.

The licenses for both Projects expire on January 31, 2029. As of this filing of the Initial Study Report (ISR) IFP is proposing to combine the Projects under a single license, retaining the Idaho Falls Project FERC No. 2842 for the next license term. IFP will continue to file all relicensing materials under both dockets until license expiration and FERC approval. IFP believes that combining licenses under a single docket will facilitate compliance over the new license term.

This ISR, and the planned ISR Meeting scheduled for June 23, 2025, are intended to update FERC and interested stakeholders on IFPs study implementation and provide an opportunity to discuss any adjustments that are necessary to meet the objectives identified in the Revised Study Plan (RSP).

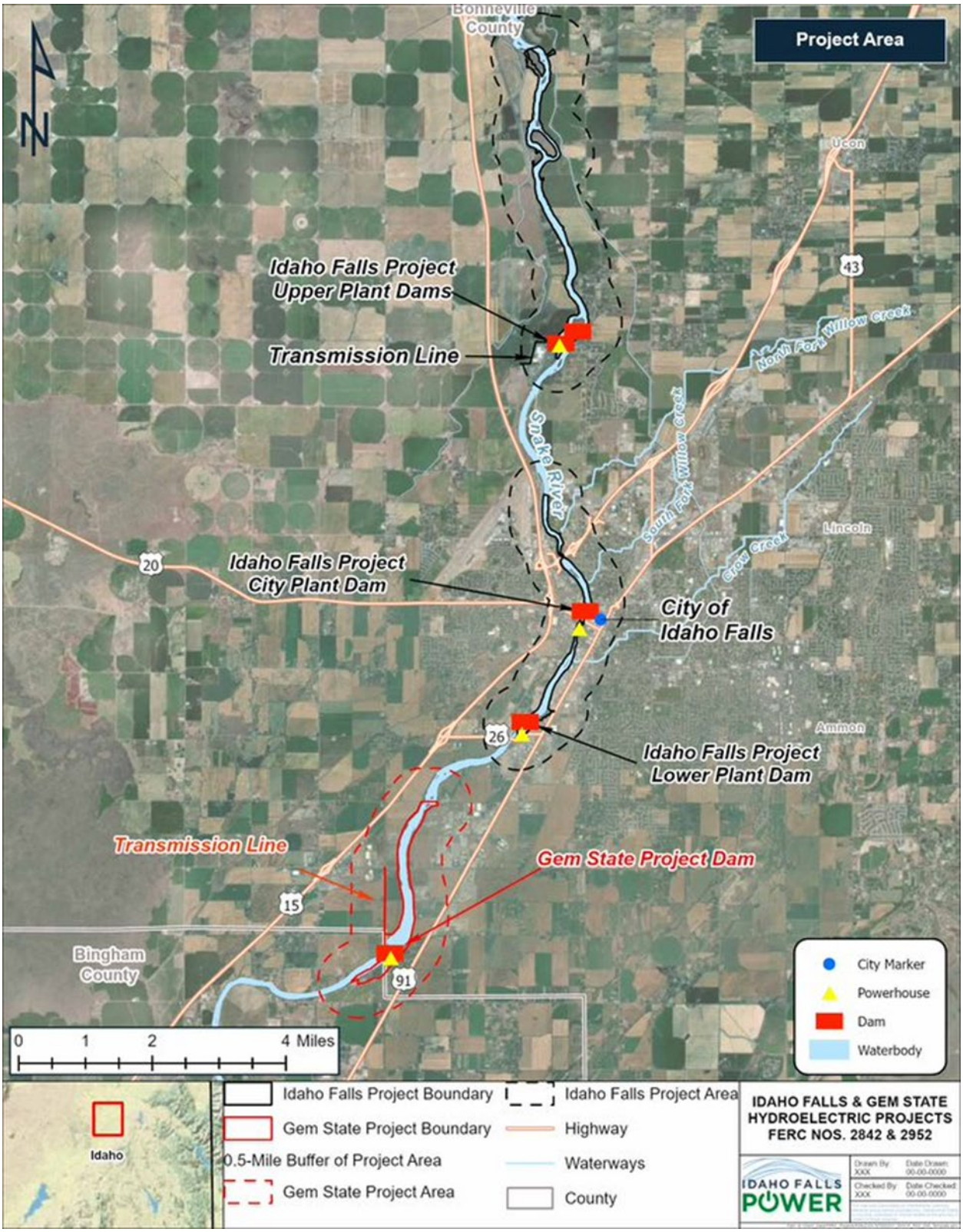


FIGURE 1-1 IDAHO FALLS PROJECT AND GEM STATE PROJECT LOCATIONS

2.0 RELICENSING PROCESS TO DATE

IFP filed a combined Pre-Application Document (PAD) and Notice of Intent (NOI) for the Projects on August 2, 2023, pursuant to Section 15 of the Federal Power Act [United States Code, Title 16, Section 808(b)] and the Code of Federal Regulations (CFR), Title 18, Section 5.5. Included in the PAD was a list of potential studies under consideration by IFP.

On October 2, 2023, FERC issued its Scoping Document 1 (SD1), outlining the potential scope of their National Environmental Policy Act (NEPA) analysis, to be completed following the submittal of IFP's Final License Application. A site visit and scoping meetings were held in Idaho Falls on October 25 and 26, 2023. The initial comment period on the PAD, NOI, and FERC's SD1, and opportunity for study requests ended on November 30, 2023. Scoping Document 2 (SD2) was issued by FERC on January 10, 2024.

On January 12, 2024, IFP filed its Proposed Study Plan (PSP). IFP held a virtual study plan meeting on February 13, 2024, to discuss comments received and answer questions about the PSP [18 CFR § 5.11(e)]. In April 2024, IFP received comments on the PSP from the Bureau of Land Management (BLM), United States Fish and Wildlife Service (USFWS), and the Idaho Governor's Office of Energy and Mineral Resources, which included comments from the Idaho Department of Fish and Game (IDFG) and Idaho Department of Environmental Quality (IDEQ).

IFP incorporated comments received on the PSP, as appropriate, and filed its RSP on May 13, 2024. There were no comments received on the RSP. FERC issued its Study Plan Determination (SPD) on June 5, 2024. Since the SPD, IFP has initiated all its relicensing studies, which are in various stages of completion, as shown in Table 3-1 below.

3.0 PROCESS PLAN AND SCHEDULE

Table 3-1 outlines the status of the study plans proposed in the RSP, in chronological order of proposed start date.

TABLE 3-1 PROJECTS STUDY IMPLEMENTATION STATUS

STUDY	PROPOSED START (RSP)	ACTUAL START DATE	ESTIMATED COMPLETION	DATA COLLECTION PERCENT COMPLETE (APPROX)	VARIANCE (YES/NO)	ESTIMATED DATE FOR REPORTING
Botanical Resources (TERR-1)	May 2024	May 2024	July 2025	75%	Yes	Draft: June 2026 Final: September 2026
Water Quality (WQ-1)	August 2024	August 2024	September 2025	10%	Yes	Draft: June 2026 Final: September 2026
Fish Assemblage (AQ-1)	September 2024	September 2024	October 2025	40%	Yes	Draft: June 2026 Final: September 2026

STUDY	PROPOSED START (RSP)	ACTUAL START DATE	ESTIMATED COMPLETION	DATA COLLECTION PERCENT COMPLETE (APPROX)	VARIANCE (YES/NO)	ESTIMATED DATE FOR REPORTING
Project Lands and Roads (LAND-1)	October 2024	March 2025	April 2025	75%	Yes	Draft: June 2026 Final: September 2026
Tribal Resources (TR-1)	October 2024	November 2024	March 2025	30%	Yes	Draft: June 2026 Final: September 2026
Cultural Resources (CR-1)	November 2024	November 2024	December 2024	95%	Yes	Draft: June 2026 Final: September 2026
Environmental Justice (EJ-1)	Fall 2024	May 2025	May 2025	100%	Yes	Draft: June 2026 Final: September 2026

STUDY	PROPOSED START (RSP)	ACTUAL START DATE	ESTIMATED COMPLETION	DATA COLLECTION PERCENT COMPLETE (APPROX)	VARIANCE (YES/NO)	ESTIMATED DATE FOR REPORTING
Wildlife and Rare, Threatened, and Endangered Species (TERR-2)	May 2025	June 2025	April 2026	10%	Yes	Draft: June 2026 Final September 2026
Recreation Use and Facility Inventory (REC-1)	May 2025	May 2025	October 2025	10%	No	Draft: June 2026 Final: September 2026
Aquatic Habitat & Sediment Characterization (AQ-3)	May 2025	October 2025	November 2025	0%	No	Draft: June 2026 Final: September 2026
Desktop Fish Entrainment Study (AQ-2)	October 2025	October 2025	November 2025	0%	No	Draft: June 2026 Final: September 2026

4.0 CONSULTATION HISTORY

Table 4-1 provides a summary of consultation with interested parties from July 2024 to June 2025. The record of consultation is included in Appendix L.

TABLE 4-1 SUMMARY OF CONSULTATION TO DATE

DATE	AGENCY	SUMMARY
07/03/24	Idaho Department of Fish and Game (IDFG)	Phone call with Brett High at IDFG confirming the Fish Assemblage Study (AQ-1) methodology, and that Brett would join the September 2024 field effort.
07/10/24	U.S. Fish and Wildlife Service (USFWS)	Email correspondence with Lisa Ellis at USFWS confirming locations and timing for Ute-Ladies'-Tresses bloom window and approval to conduct the Botanical Resources (TERR-1) field surveys.
07/10/24	Bonneville County	Email request to Bonneville County for parcel or land ownership data in the form of GIS shapefiles in advance of Botanical Resources Study (TERR-1).
08/02/24	Idaho Department of Environmental Quality (IDEQ)	Email correspondence confirming Alex Bell at IDEQ would join the August 2024 field effort for the Water Quality Study (WQ-1).
9/13/24	IDEQ	Email correspondence with Alex Bell at IDEQ following up on the WQ-1 August 2024 field effort with the Idaho Statewide Quality Assurance Project Plan (QAPP) for mercury tissue in fish.
10/24/24	IDFG	Email correspondence with Brett High at IDFG about improving sturgeon data collection for the AQ-1 study.

DATE	AGENCY	SUMMARY
12/31/24	IDFG	Email from Kendra Winters at IDFW confirming receipt of the AQ-1 Scientific Collection Permit (10016) report from 2024 field work.
12/31/24	FERC	Email correspondence with Amy Chang at FERC confirming the ISR meeting will be held virtually in June 2025.
02/05/25	FERC	Email correspondence with Amy Chang about FERC recommendation for combining Idaho Falls and Gem State licenses under one docket.
03/03/25	IDFG	Phone call with Brett High at IDFG about sampling efficiency and spring flow conditions.
03/25/25	IDFG	Email confirming 2025 sampling itinerary and logistics with Brett High at IDFG.
04/03/25	FERC	Email with FERC adjusting the ISR meeting date from 06/26/25 to 06/23/25 for FERC staff.
04/18/25	FERC	Email confirming FERC staff for IFP relicensing.
04/22/25	IDEQ	Email to Alex Bell at IDEQ notifying them of the upcoming fieldwork schedule including a change from continuous monitoring throughout the season to week-long monitoring every month and adjustments to monitoring locations in relation to safety concerns.
04/28/25	IDEQ	Response from Alex Bell at IDEQ about continuous monitoring throughout the season to week-long monitoring every month and adjustments to monitoring locations in relation to safety concerns.

DATE	AGENCY	SUMMARY
05/13/25	Shoshone-Paiute Tribes	Phone call with Jade Roubideaux at Shoshone-Paiute Tribes of Duck Valley about IFP FERC Relicensing.
05/14/25	IFP	Email to distribution list inviting those interested to join site selection for the Aquatic Habitat and Sediment Characterization Study (AQ-3) on July 23, 2025.
05/14/25	IDEQ	Response from Alex Bell at IDEQ expressing interest in joining the July 23, 2025, AQ-3 site selection field visit.
05/14/25	OEMR	Email with Idaho Office of Energy and Minerals (OEMR) confirming Kenny Huston is on the distribution list and that OEMR staff received the July 23, 2025, site selection invite.
05/29/25	IDFG	Email with Brett High at IDFG about a growth on a Utah sucker fish, July field sampling effort, and using Kokanee as sturgeon bait.

APPENDIX A

WATER QUALITY (WQ-1) TECHNICAL MEMORANDUM

TECHNICAL MEMORANDUM

To:	Idaho Falls Power Relicensing Stakeholders
From:	Idaho Falls Power Relicensing Team
Date:	June 2025
Subject:	Water Quality Study (WQ-1) Technical Memorandum

1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects." The licenses for the Projects expire on January 31, 2029; therefore, IFP plans to relicense the Projects using FERC's Integrated Licensing Process (ILP), pursuant to 18 Code of Federal Regulations (CFR) Part 5. Due to the proximity of the Projects to each other, IFP is conducting the relicensing processes concurrently.

This technical memorandum (tech memo) presents a progress report of characterizing water quality in the Snake River in the Idaho Falls Project area and the Gem State Project area, consistent with the Water Quality (WQ-1) study plan and the requirements for an Initial Study Report (ISR) pursuant to 18 CFR § 5.15. The WQ-1 study plan implements IFP's proposed study goals and objectives, study area, methods, and schedule for the study effort. IFP's Revised Study Plan (RSP) was filed with FERC on May 13, 2024 (IFP 2024) and approved in FERC's Study Plan Determination (SPD) on June 5, 2024 (FERC 2024).

The WQ-1 study is ongoing and complete study results will be provided in the Updated Study Report (USR), scheduled to be filed in June 2026.

2.0 STUDY OBJECTIVES

The WQ-1 study goals and objectives were developed during the preparation of the Proposed Study Plan (PSP). A PSP stakeholder meeting was held on February 13, 2024, and following a 60-day comment period, the PSP was revised to address the comments received. Stakeholders stated that the WQ-1 study would fill a water quality data gap in the two applicable Snake River

assessment units (AUs) and is similar to studies requested for other hydropower projects in the state of Idaho. Stakeholders also confirmed the proposed methodology aligns with state and federal agency and academic research best practices. Stakeholder requests were confirmed in the RSP, which was filed with FERC on May 13, 2024 (IFP 2024).

The goal of the WQ-1 study is to characterize water quality in the Snake River in the Idaho Falls Project area and the Gem State Project area. The objectives of the WQ-1 study are to:

1. Characterize water temperature and dissolved oxygen (DO) upstream and downstream of each diversion in the Projects, specifically at the Upper Plant, City Plant, Lower Plant, and Gem State dams;
2. Collect vertical profiles of water temperature and DO in each impoundment;
3. Analyze fish tissue samples collected downstream of the Gem State dam for mercury; and
4. Assess the ability of the Projects to attain water quality standards based on continued operation.

3.0 STUDY AREA

The WQ-1 study area includes an approximately 17-mile reach of the Snake River from just upstream of the Idaho Falls Project to downstream of the Gem State Project (Figure 3-1 through Figure 3-3).

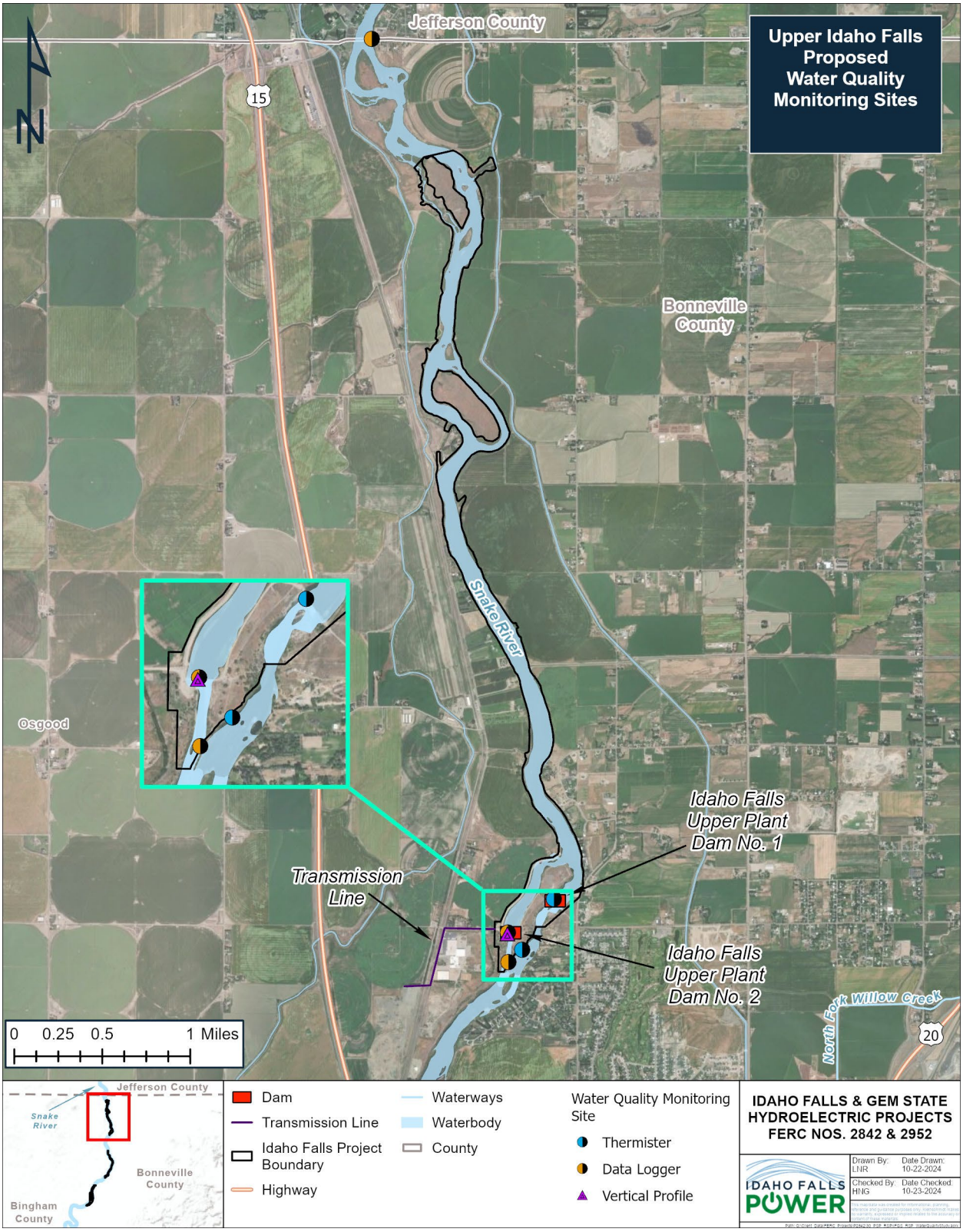


FIGURE 3-1 IDAHO FALLS UPPER PLANT PROPOSED WATER QUALITY MONITORING SITES

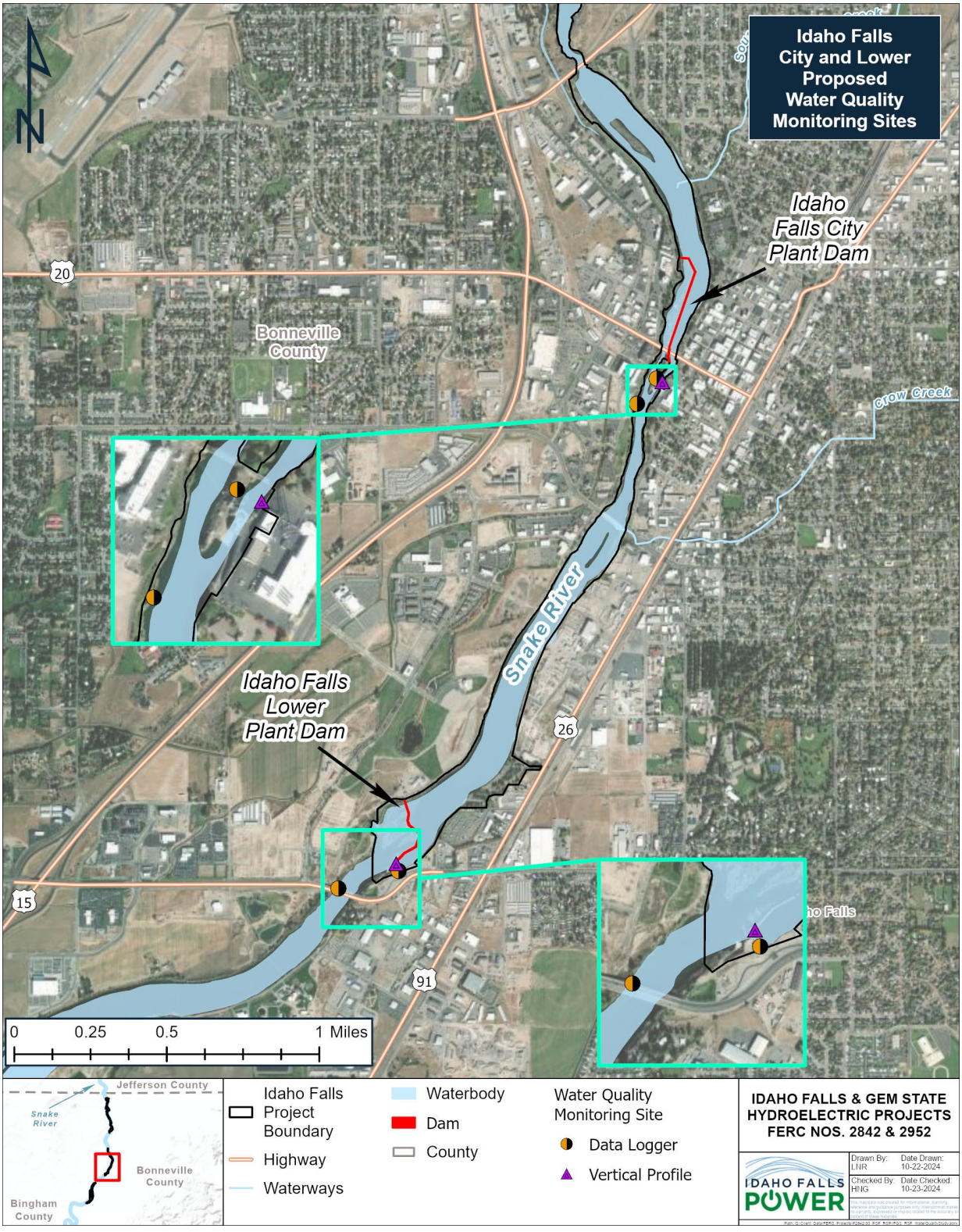


FIGURE 3-2 IDAHO FALLS CITY PLANT AND LOWER PLANT PROPOSED WATER QUALITY MONITORING SITES

FIGURE 3-3 GEM STATE PROPOSED WATER QUALITY MONITORING SITES

4.0 METHODS

Study implementation has followed the methods described in the WQ-1 study plan (IFP 2024) and as approved in FERC's SPD (FERC 2024), with the exception described below.

4.1. 2024 FIELD DATA COLLECTION

Objective 1: Field methods for Objective 1 are planned for 2025; no activities occurred in 2024.

Objective 2: To inform deployment locations for the 2025 monitoring effort, IFP collected vertical profiles of water temperature and DO at safely accessible deep sites in the Upper Plant, City Plant, and Lower Plant impoundments and in the Gem State impoundment (Figure 3-1 through Figure 3-3). Vertical profiles of water temperature and DO at each location were collected on August 14, 2024, when Snake River water temperatures and the potential for vertical stratification are typically highest. The measurements were recorded at 1-meter depth intervals with a calibrated handheld meter (YSI ProDSS).

Objective 3: Field methods for Objective 3 are planned for 2025; no activities occurred in 2024.

Objective 4: Analytical methods for Objective 4 are planned for 2025; no activities occurred in 2024.

4.2. VARIANCE FROM STUDY PLAN AND SCHEDULE

Study implementation for WQ-1 is currently underway and aligns with the schedule provided in the RSP, beginning late spring and concluding in early fall 2025 (IFP 2024).

4.3. MODIFICATIONS TO STUDY METHODS

4.3.1. Data Collection Methods

As described in the RSP, the WQ-1 study methodology specified continuously monitoring water temperature and DO for one season between June and September of 2025, with submersible data loggers installed at each of the proposed monitoring locations (IFP 2024). However, site reconnaissance during the August 2024 visit highlighted an elevated risk of data loss due to high water velocities as well as public access to select monitoring locations, including: the monitoring

site upstream of the Idaho Falls Project at Highway 145; the Upper Plant tailrace; the City Plant tailrace; the Lower Plant tailrace; and the Gem State forebay.

Concerns around safe accessibility, potential tampering with monitoring equipment and biofouling pose challenges to continuous data collection efforts. To minimize this risk, Study Objective 1 was modified to include continuous temperature and DO monitoring for one week per month during the 2025 study season. This modification will maintain the ability to effectively characterize diurnal variation while balancing accessibility and equipment longevity. If data loss occurs during a targeted sampling period, equipment can be replaced to meet the data collection objectives for the month. Loggers will be calibrated at the start and end of the monitoring period, with routine maintenance and data downloads occurring before and after each 7-day monitoring period to ensure quality data collection and minimize loss.

In general, placement of data loggers is planned for well-mixed locations representative of the monitoring site environment, while taking into consideration high public access and thus the potential for tampering, as well as safety issues for monitoring staff due to high velocities in the Snake River. Due to the lack of access to a well-mixed location downstream of the Upper Plant, water quality loggers will be deployed at the Upper Plant forebay and at the Upper Plant tailrace. Additionally, two temperature-only data loggers will be deployed in the spillway forebay and in the spillway tailrace to mitigate the inability to access a well-mixed location. The proposed locations are shown in Figure 3-1.

These changes were discussed with the Idaho Department of Environmental Quality, who participated in the August 2024 field survey (see Consultation Record, Appendix L). Otherwise, the data collection methodology for the WQ-1 study remains the same as outlined in the RSP (IFP 2024).

4.3.2. Analytical Methods

The analytical methodology for the WQ-1 study remains the same as outlined by the RSP (IFP 2024).

5.0 DATA SUMMARY

5.1. IDAHO FALLS PROJECT DATA

The vertical profile data collected at the Upper, City, Lower, and Gem State plants revealed impoundments with well-mixed conditions and no evidence of vertical stratification. Water temperatures showed minimal vertical variation with depth in each impoundment (Figure 5-1 though Figure 5-4). DO levels were also relatively similar across depths, indicating well-oxygenated water throughout the vertical profiles at each location. The vertical profiles reflect well-mixed conditions, confirming that the proposed monitoring locations will provide temperature and DO data representative of water quality conditions in the Project area upstream and downstream of each powerplant.

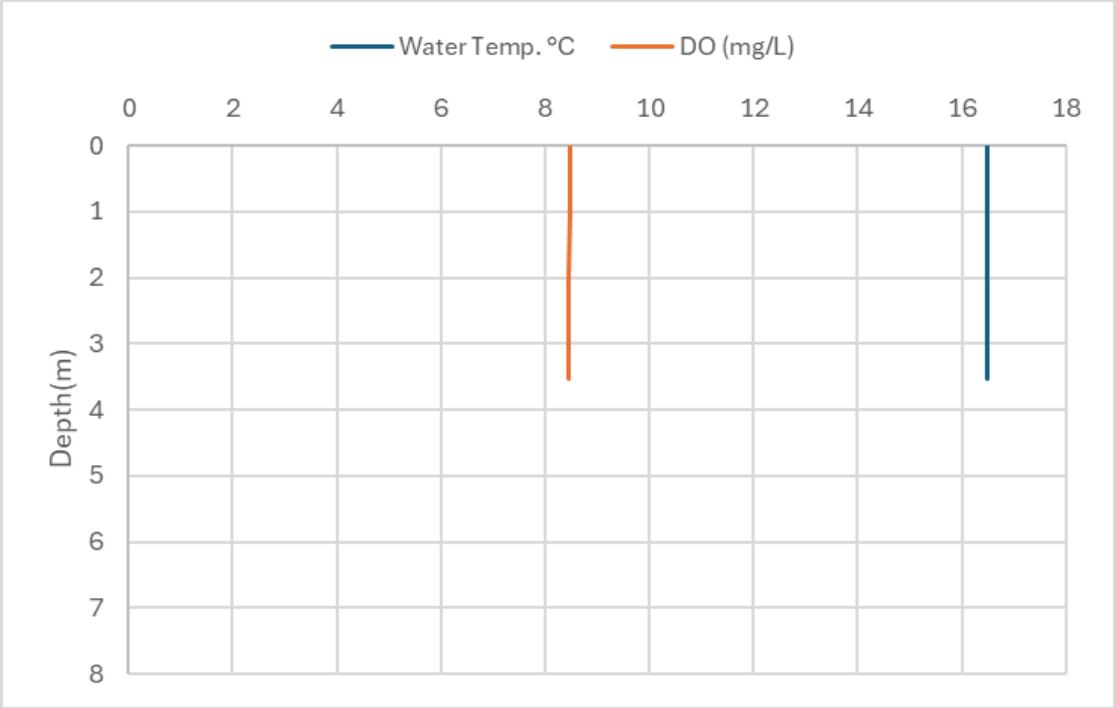


FIGURE 5-1 VERTICAL PROFILES OF TEMPERATURE AND DISSOLVED OXYGEN IN THE UPPER PLANT IMPOUNDMENT (AUGUST 14, 2024)

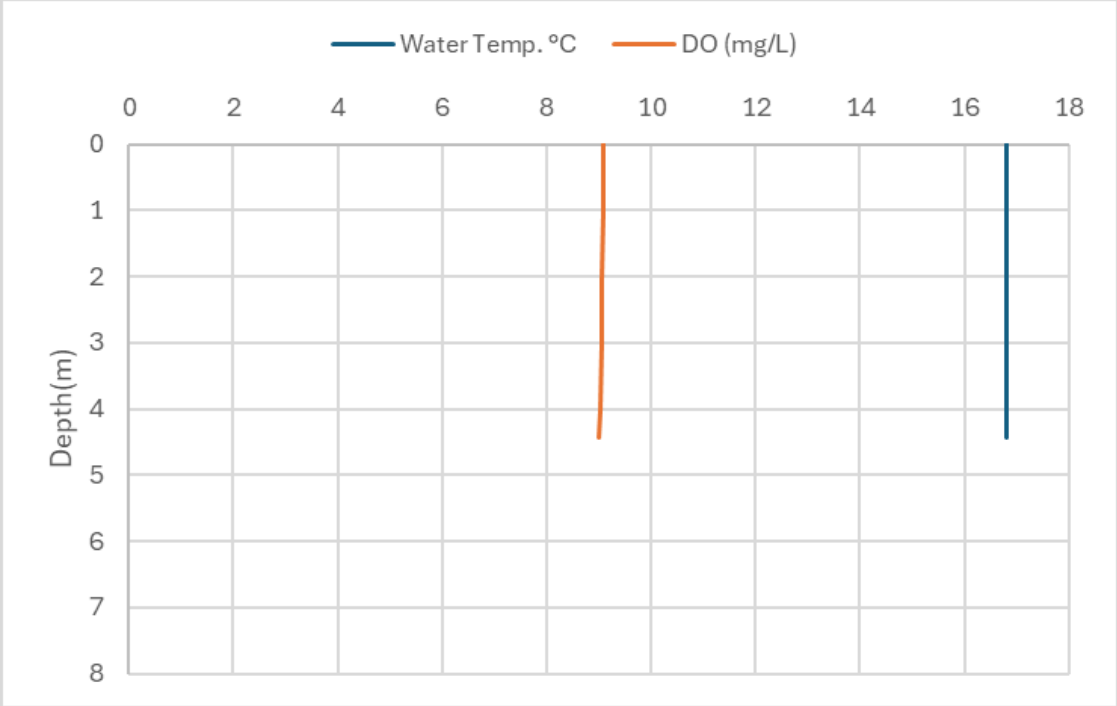


FIGURE 5-2 VERTICAL PROFILES OF TEMPERATURE AND DISSOLVED OXYGEN IN THE CITY PLANT IMPOUNDMENT (AUGUST 14, 2024)

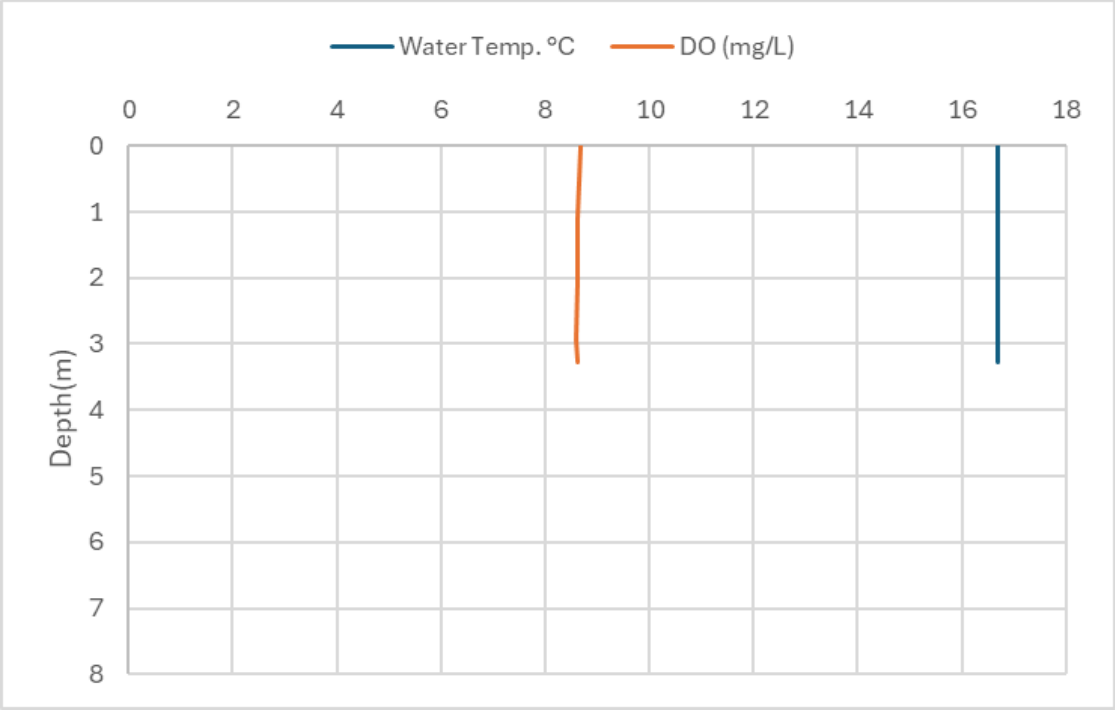


FIGURE 5-3 VERTICAL PROFILES OF TEMPERATURE AND DISSOLVED OXYGEN IN THE LOWER PLANT IMPOUNDMENT (AUGUST 14, 2024)

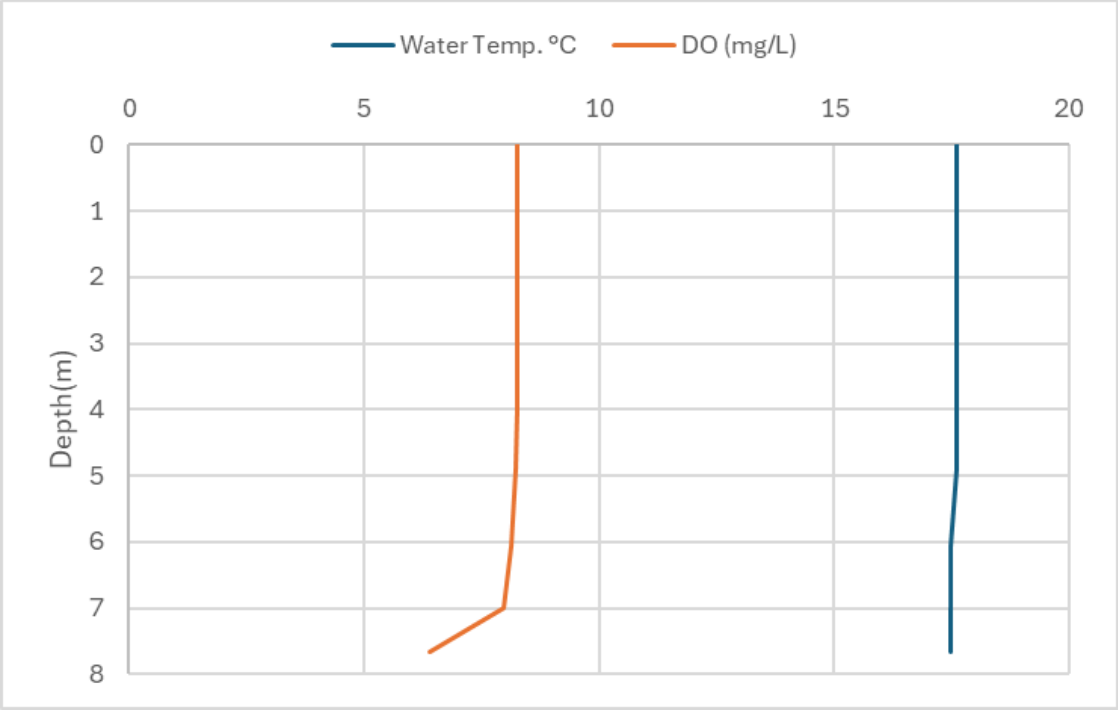


FIGURE 5-4 VERTICAL PROFILES OF TEMPERATURE AND DISSOLVED OXYGEN IN THE GEM STATE IMPOUNDMENT (AUGUST 14, 2024)

6.0 NEXT STEPS

The collection of water quality data is ongoing. The anticipated WQ-1 study plan development and implementation schedule is summarized in Table 6-1. Vertical profiles were collected August 14, 2024, and used to inform monitoring site selection. This tech memo provides initial findings of the WQ-1 study to date as part of the ISR, and a draft study report will be distributed in February 2026 for a 30-day review. The final study report will be included in the Draft License Application (DLA) in September 2026.

TABLE 6-1 WQ-1 WATER QUALITY STUDY SCHEDULE

DATE	ACTIVITY
August 2024	Site selection and impoundment vertical profiles
June 2025	Distribute ISR tech memo and meeting with stakeholders
Summer 2025	Field surveys and data collection
June 2026	File USR and meeting with stakeholders
September 2026	Distribute final study report in DLA
January 2027	File Final License Application

7.0 REFERENCES

Federal Energy Regulatory Commission (FERC). 2024. Study Plan Determination for the Idaho Falls Hydroelectric Project (P-2842) and Gem State Hydroelectric Project (P-2952). June 5, 2024.

Idaho Falls Power (IFP). 2024. Revised Study Plan. Idaho Falls Hydroelectric Project (P-2842) and Gem State Hydroelectric Project (P-2952). May 13, 2024. Idaho Falls, Idaho.

APPENDIX B

FISH ASSEMBLAGE (AQ-1) TECHNICAL MEMORANDUM

TECHNICAL MEMORANDUM

To:	Idaho Falls Power Relicensing Stakeholders
From:	Idaho Falls Power Relicensing Team
Date:	June 2025
Subject:	Fish Assemblage (AQ-1) Study Technical Memorandum

1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects." The licenses for the Projects expire on January 31, 2029; therefore, IFP plans to relicense the Projects using FERC's Integrated Licensing Process (ILP), pursuant to 18 Code of Federal Regulations (CFR) Part 5. Due to the proximity of the Projects to each other, IFP is conducting the relicensing processes concurrently.

This technical memorandum (tech memo) presents a progress report on fishery resource surveys conducted in the fall of 2024 and spring of 2025 within the Project Boundaries of both Projects in Idaho Falls, Idaho, consistent with the Fish Assemblage (AQ-1) study plan and the requirements for an Initial Study Report (ISR) pursuant to 18 CFR § 5.15. The AQ-1 study plan implements IFP's proposed study goals and objectives, study area, methods, and schedule for the study effort. IFP's Revised Study Plan (RSP) was filed with FERC on May 13, 2024 (IFP 2024) and approved through FERC's Study Plan Determination (SPD) on June 5, 2024 (FERC 2024).

The AQ-1 study is ongoing and completed study results will be provided in an Updated Study Report (USR) by June 2026. The initial phase of the AQ-1 study was conducted from September 23-26, 2024 with a follow-up effort conducted from March 24-30, 2025. The September 2024 effort was a pilot study used to test the proposed sampling methods within the Gem State Project. The March 2025 effort expanded the surveys to include sampling within both the Gem State and Idaho Falls Project.

2.0 STUDY OBJECTIVES

The AQ-1 study goals and objectives were developed during the preparation of the Proposed Study Plan (PSP). A PSP stakeholder meeting was held on February 13, 2024, and following a 60-day comment period, the PSP was revised to address the comments received. Stakeholder requests were confirmed in the RSP, which was filed with FERC on May 13, 2024 (IFP 2024).

The goal of the AQ-1 study is to assess fish populations within Project reaches of the upper Snake River. This will be accomplished through the following objectives:

- Determine seasonal changes in the distribution and abundance of native and non-native fish species with a particular focus on sport fish species—White Sturgeon (*Acipenser transmontanus*) and Yellowstone Cutthroat Trout (*O. clarkii bouvieri*)—within Project reservoirs.
- Determine seasonal changes in the distribution and relative abundance of native and non-native fish species with a particular focus on target sport fish species within Project tailrace reaches.
- Obtain general information on habitat-use characteristics of target sport fish species to support identification and validation of high fish use areas within the Project areas.

Additionally, fish captured during this study will inform mercury bioaccumulation analyses under the WQ-1 Water Quality Study.

3.0 STUDY AREA

The AQ-1 study area includes tailrace and reservoir waters associated with the four Projects developments—Gem State, Lower Plant, City Plant, and Upper Plant (Figure 3-1 through Figure 3-3). The four developments are located between river mile (RM) 804.2 and 815.2. The study area has been categorized into two defining macrohabitat types—reservoirs (the area upstream of a dam with a slower velocity) and tailraces (the areas directly downstream of a dam with a higher velocity).

The AQ-1 study area is divided into four sections:

- Gem State Reach – reservoir and tailrace of the Gem State Project

- Lower Plant Reach – reservoir and tailrace of the Lower Plant development of the Idaho Falls Project
- City Plant Reach – reservoir and tailrace of the City Plant development of the Idaho Falls Project
- Upper Plant Reach – reservoir and tailrace of the Upper Plant development of the Idaho Falls Project

Project tailrace areas were divided into ten 500-foot sections and numbered sequentially from upstream to downstream. Project reservoirs were divided into ten 1,000-foot-segments, numbered sequentially from downstream to upstream. Sample locations are referenced by the Project reach, macrohabitat type, and segment number.

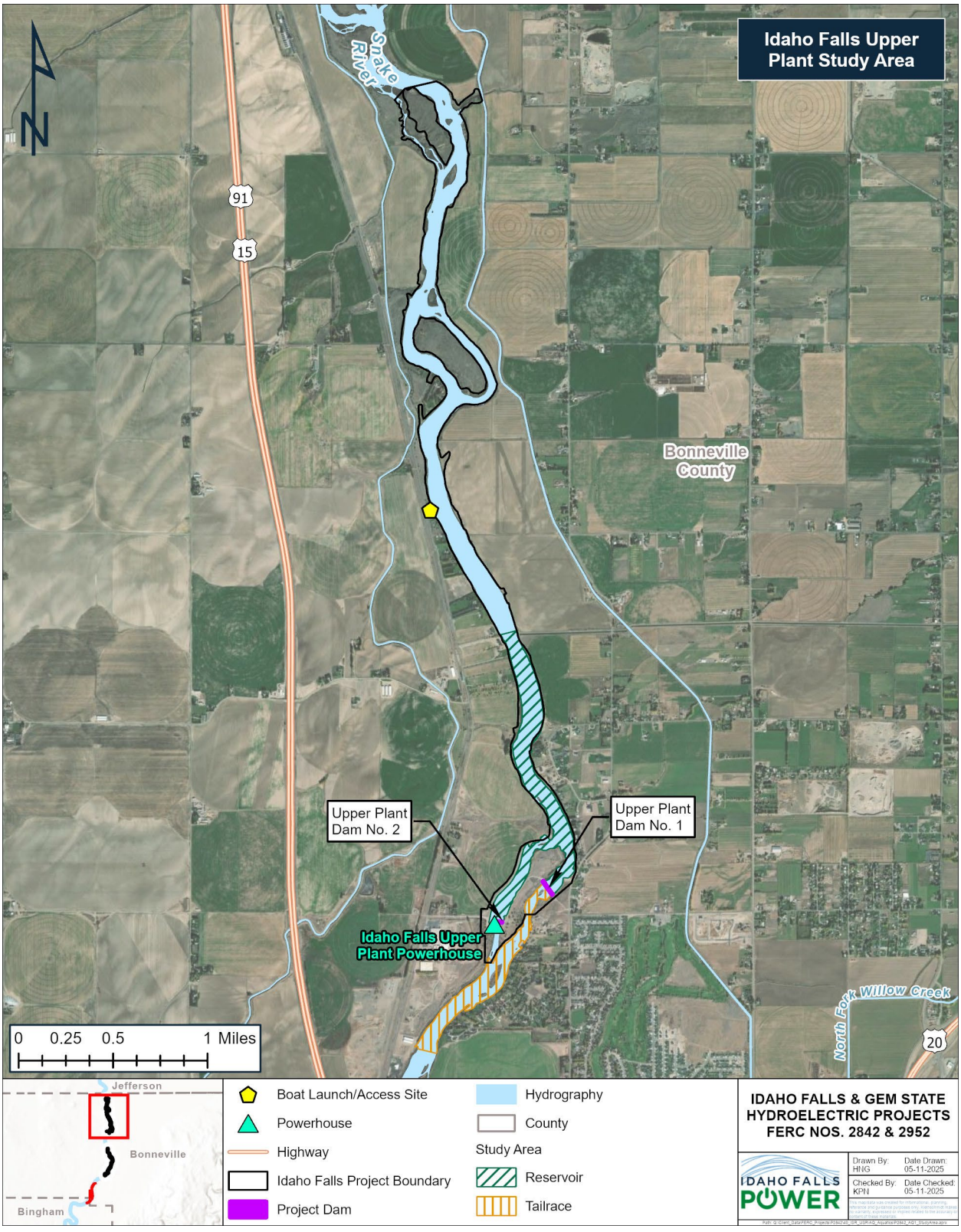


FIGURE 3-1 IDAHO FALLS PROJECT – UPPER PLANT STUDY AREA

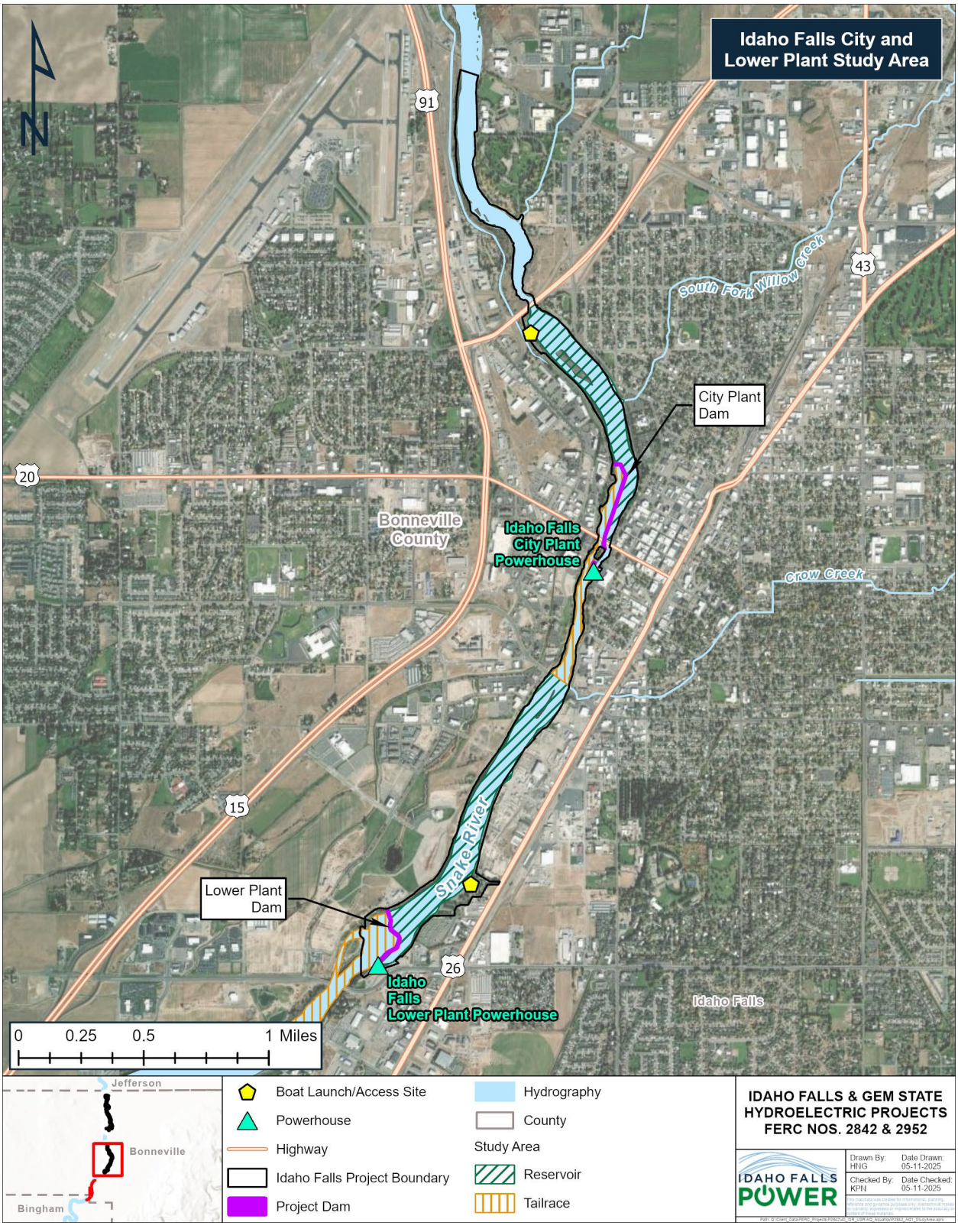


FIGURE 3-2 IDAHO FALLS PROJECT – CITY AND LOWER PLANT STUDY AREA

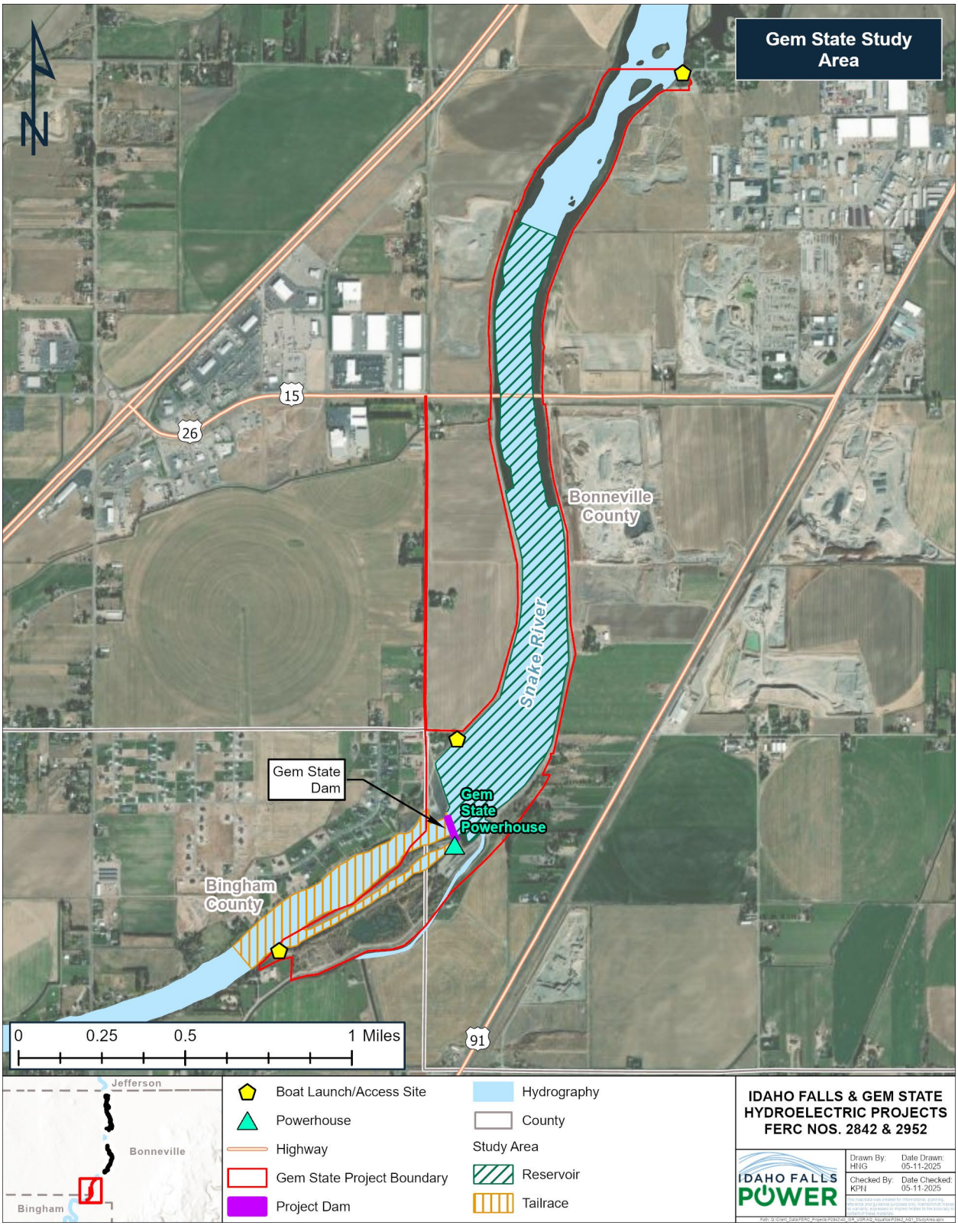


FIGURE 3-3 GEM STATE PROJECT STUDY AREA

4.0 METHODS

Study implementation followed the methods described in the AQ-1 study plan (IFP 2024) and as approved in FERC's SPD (FERC 2024), with the exceptions described below.

Site-specific data collection was conducted by the consultant team staff with a boat and captain provided by IFP. All fish sampling and handling techniques were conducted as described in the AQ-1 study plan and following Idaho Department of Fish and Game Scientific Collection Permit requirements (No. 117245).

The fish assemblage surveys utilized passive and active methods to capture fish and obtain key life history information about the fish that inhabit the Projects. Specific sampling methods utilized within reservoir and tailrace areas depended on access and site conditions, fish species, relative abundance, and component of the habitat area targeted.

Specific sampling methods utilized including boat-mount electrofishing (day and nighttime), backpack electrofishing, gillnetting, fyke netting, and baited setlines. Specific sampling methods utilized within reservoir and tailrace areas during the two previous sampling events are presented in Table 4-1, below. General information recorded for each sampling event included habitat type, site name, gear type, location coordinates, start and end time, habitat characteristics such as cover and substrate, crew member names, and *in situ* water chemistry (i.e., water temperature, dissolved oxygen, and conductivity). Representative photographs were taken to document the specific sampling location and conditions.

All captured fish were identified using reference keys to ensure accurate species identification. The total length of each fish captured was measured (in millimeters) using a measuring board and a subset of the larger fish captured were weighed (to the nearest gram). All relevant data, including sampling method, time, fish species, and length were recorded on field forms. To document fish identification, representative photographs of the different fish species collected captured.

4.1. ANALYSIS

Data analysis is underway and will continue following each subsequent sampling event. Data has been entered into commercially available spreadsheets for reduction, tabulation, quality

assurance/quality control, and summary. Capture data will be summarized by species composition for each Project and macrohabitat type, season (spring, summer, fall), and sampling methods. Length-frequency histograms are being developed for each trout species observed or captured and used to estimate size and age-class distribution. Relative abundance will be determined by calculating catch-per-unit-effort (fish per unit time) by gear type, macrohabitat type, site, and season.

A summary of the total number of fish of each species captured during the two previous sampling events within each Project area (reservoir and tailrace) is provided below in Section 5.

TABLE 4-1 SUMMARY OF FISH ASSEMBLAGE SAMPLING COMPLETED TO DATE FOR THE IDAHO FALLS AND GEM STATE PROJECTS

PROJECT/ DEVELOP-MENT	SAMPLE DATE	MACRO-HABITAT	BOAT-MOUNT ELECTRO-FISHING		BACKPACK ELECTRO-FISHING	GILLNET	FYKE NET	SETLINE
			DAY	NIGHT				
Gem State	10/23/2024	Tailrace	✓		✓		✓	✓
	10/24-25/2024	Reservoir	✓			✓		✓
Gem State	03/24/2025	Tailrace	✓		✓		✓	✓
	03/25/2025	Reservoir		✓		✓		✓
Lower Plant	03/26/2025	Tailrace	✓					✓
	03/27/2025	Reservoir	✓			✓		✓
City Plant	03/28/2025	Tailrace	✓				✓	✓
	03/29/2025	Reservoir	✓			✓		✓
Upper Plant	03/30/2025	Tailrace	✓		✓			✓
	03/31/2025	Reservoir	✓	✓		✓		

4.2. VARIANCE FROM STUDY PLAN AND SCHEDULE

In spring 2025, the AQ-1 study area surveyed was altered in response to field conditions. Specifically, low water levels impeded boat access to a portion of the river downstream of the

Upper Plant. In response, boat-mount electrofishing surveys and setline deployment occurred downstream of the delineated tailrace (see Section 5.2.3).

The field crew accessed the river downstream from the Upper Plant via boat and proceeded to the upstream most point of boat access. Although boat access to the Upper Plant tailrace was limited, boat mount electrofishing and baited setline sampling was completed in riverine habitat downstream of the Upper Plant. During follow-up surveys scheduled for summer and fall 2025, the field crew will once again attempt to access the Upper Plant tailrace area by boat. Additionally, setline sampling focused on areas downstream of the Upper Plant reservoir to reflect the distribution of introduced White Sturgeon to the upper Snake River.

4.3. MODIFICATIONS TO STUDY METHODS

Modification to study methods was made to reduce the potential for fish mortally during gillnet sampling. After extensive fish injury and mortalities were observed during overnight gillnet sets during the fall 2024 pilot study, gillnet deployment has been shifted to daytime sampling with soak times reduced to less than eight (8) hours for each set. No other modifications occurred during study implementation.

5.0 DATA SUMMARY

As previously stated, a variety of sampling methods were utilized to assess the fish community within the Projects' reservoir and tailrace habitats. The level of effort (minutes or hours) for each sampling method is summarized by Project and season in Table 5-1. Although the level of sampling effort between Projects was generally consistent, nighttime electrofishing surveys were conducted during the spring sampling in the Gem State and Upper Plant reservoirs. Areas suitable for backpack electrofishing were limited to the Gem State and Upper Plant tailraces and the use of fyke net sampling was restricted to the Gem State and City Plant tailraces. Boat-mount electrofishing and setline sampling had the highest utilization of all sampling methods. Maps displaying location of fish sampling during the fall 2024 and spring 2025 efforts are presented in Attachment A.

TABLE 5-1 SUMMARY OF THE LEVEL OF EFFORT FOR EACH FISH SAMPLING METHODS UTILIZED WITHIN THE PROJECTS RESERVOIR AND TAILRACE HABITATS DURING THE FALL 2024 AND SPRING 2025 SURVEYS

PROJECT/ DEVELOP-MENT	YEAR	SEASON	SAMPLING METHOD					
			BOAT MOUNT ELECTRO-FISHING (MINUTES)		BACKPACK ELECTRO-FISHING (MINUTES)	GILLNET[1] (HOURS)	FYKE NET (HOURS)	SETLINE (HOURS)
			DAY	NIGHT				
Gem State	2024	Fall						
Tailrace			17.8	N/A	13.4	N/A	36.5	36.0
Reservoir			24.9	N/A	N/A	34.9	N/A	33.8
Gem State	2025	Spring						
Tailrace			54.2	N/A	12.4	5.5	42.8	56.6
Reservoir			N/A	35.3	N/A	2.5	N/A	55.3
Lower Plant	2025	Spring						
Tailrace			45.1	N/A	N/A	N/A	N/A	53.4
Reservoir			43.6	N/A	N/A	9.4	N/A	50.3
City Plant	2025	Spring						
Tailrace			36.8	N/A	N/A	N/A	22.3	55.3
Reservoir			51.3	N/A	N/A	2.9	N/A	52.2
Upper Plant	2025	Spring						
Tailrace			57.2	N/A	24.0	N/A	N/A	39.5
Reservoir			26.0	51.0	N/A	4.3	N/A	N/A

1 Gillnet sets were reduced to daytime only following the fall 2024 sampling.

5.1. GEM STATE PLANT DATA

A total of 564 fish, comprised of 11 species, were captured within the Gem State tailrace and reservoir during the fall 2024 pilot study (Table 5-2). Additionally, crayfish (*Pacifastacus spp.*) were observed in both areas but were not captured or enumerated. Utah Sucker (*Catostomus ardens*), Redside Shiner (*Richardsonius balteatus*), and Smallmouth Bass (*Micopterus dolomieu*) were the most abundant species comprising 32, 24, and 20 percent of the catch, respectively. Although the sampling effort between Gem State reservoir and tailrace habitats were similar, just over twice as many fish were captured within the Gem State reservoir as the tailrace habitat. Along

with bass, additional game fish species of Brown Trout (*Salmo trutta*) and Rainbow Trout (*Oncorhynchus mykiss*) were also captured during the fall 2024 sampling. No White Sturgeon (*Acipenser transmontanus*) were captured during the fall 2024 effort.

TABLE 5-2 NUMBER OF FISH CAPTURED DURING FALL 2024 SAMPLING OF RESERVOIR AND TAILRACE HABITAT OF THE GEM STATE PROJECT

COMMON NAME	SCIENTIFIC NAME	NUMBER CAPTURED	
		TAILRACE	RESERVOIR
Brown Trout	*Salmo trutta*	4	2
Rainbow Trout	*Oncorhynchus mykiss*	0	1
Common Carp	*Cyprinus carpio*	3	20
Largemouth Bass	*Micropterus nigricans*	29	0
Smallmouth Bass	*Micropterus dolomieu*	62	52
Sculpin	*Cottus spp.*	5	56
Mountain Whitefish	*Prosopium williamsoni*	2	0
Redside Shiner	*Richardsonius balteatus*	54	84
Speckled Dace	*Rhinichthys osculus*	5	0
Utah Sucker	*Catostomus ardens*	14	167
Utah Chub	*Gila*	4	0
Total Captured		**182**	**382**

Although a similar number of fish were captured during the spring 2025 sampling of the Gem State Project (n=601), there was an increase in the diversity of the species, and a significant shift in the number of fish captured by species and habitat type (Table 5-3). As a general observation, crayfish were abundant in both reservoir and tailrace habitats during the fall 2024 survey but were generally absent from the spring survey. The capture of Redside Shiner was nearly 2.5 times higher during the spring (n=347) sampling, comprising nearly 60 percent of the catch. Sculpin (*Cottus spp.*) and Utah Sucker were the next most abundant species. In contrast to the fall 2024 sampling, bass were nearly absent from the spring sampling comprising only one percent of the catch. It is also worth noting that the total catch between reservoir and tailrace habitats reversed between the fall 2024 and spring 2025 samplings with 68 percent of the fall catch captured in the Gem State reservoir

and 63 percent of the spring catch captured in the Gem State tailrace. This result is somewhat skewed by the large number of Redside Shiner captured in the tailrace during the spring survey.

Two additional game fish species were captured during the fall sampling including Yellowstone Cutthroat Trout (*Oncorhynchus virginalis bouvieri*) and White Sturgeon (n=4). Both species were captured within the Gem State tailrace.

TABLE 5-3 NUMBER OF FISH CAPTURED DURING SPRING 2025 SAMPLING OF RESERVOIR AND TAILRACE HABITAT OF THE GEM STATE PROJECT

COMMON NAME	SCIENTIFIC NAME	NUMBER CAPTURED	
		TAILRACE	RESERVOIR[1]
Brown Trout	*Salmo trutta*	3	2
Green Sunfish	*Lepomis cyanellus*	0	1
Longnose Dace	*Rhinichthys cataractae*	1	0
Mountain Sucker	*Catostomus platyrhynchus*	2	6
Rainbow Trout	*Oncorhynchus mykiss*	13	6
Redside Shiner	*Richardsonius balteatus*	332	15
Sculpin[2]	*Cottus spp.*	1	101
Smallmouth Bass	*Micropterus dolomieu*	1	8
Speckled Dace	*Rhinichthys osculus*	0	1
Utah Chub	*Gila atraria*	1	0
Utah Sucker	*Catostomus ardens*	17	85
White Sturgeon	*Acipenser transmontanus*	4	0
Yellowstone Cutthroat Trout	*Oncorhynchus virginalis bouvieri*	1	0
Total Captured		**376**	**225**

1 Reservoir count includes day and night sampling efforts.

2 Capture total includes both netted and observed fish.

5.2. IDAHO FALLS PROJECT DATA

The Idaho Falls Project consists of three reservoirs and tailrace combinations—Upper Plant, City Plant, and Lower Plant. Fish sampling within the Idaho Falls Project was initiated in spring 2025 and included sampling methods similar to those used for the Gem State Project (Table 4-1). The

level of effort (minutes or hours) for each sampling method is summarized by plant in Table 5-1. Maps displaying fish sampling locations for the Upper, City, and Lower plants during the spring 2025 effort are presented in Attachment A (A-2, A-3, and A-4).

5.2.1. Lower Plant

Lower Plant fish sampling included the use of daytime boat-mount electrofishing, gillnet, and setline methods. A total of 96 fish, comprised of 9 species, were captured within the Lower Plant tailrace and reservoir during the spring 2025 sampling (Table 5-4). This was the lowest number of fish captured within the four plants that make up the Projects. Of the fish captured, Utah Sucker, sculpin, and Speckled Dace (*Rhinichthys osculus*) were the most abundant species comprising 53, 14, and 8 percent of the catch, respectively. The number of fish captured were nearly evenly split between the Lower Plant reservoir (53 percent) and tailrace (47 percent) habitats. Although the Lower Plant had the lowest number of fish captured, approximately 19 percent (n=18) of the catch consisted of game fish species including Brown, Rainbow, and Yellowstone Cutthroat trout, and White Sturgeon. No bass were captured within the Lower Plant during the spring 2025 survey.

TABLE 5-4 NUMBER OF FISH CAPTURED DURING SPRING 2025 SAMPLING OF RESERVOIR AND TAILRACE HABITAT OF THE IDAHO FALLS PROJECT – LOWER PLANT DEVELOPMENT

COMMON NAME	SCIENTIFIC NAME	NUMBER CAPTURED	
		TAILRACE	RESERVOIR
Brown Trout	*Salmo trutta*	4	2
Longnose Dace	*Rhinichthys cataractae*	2	1
Mottled Sculpin	*Cottus bairdii*	15	1
Rainbow Trout	*Oncorhynchus mykiss*	8	1
Redside Shiner	*Richardsonius balteatus*	1	0
Speckled Dace	*Rhinichthys osculus*	4	4
Utah Sucker	*Catostomus ardens*	11	40
White Sturgeon	*Acipenser transmontanus*	0	2
Yellowstone Cutthroat Trout	*Oncorhynchus virginalis bouvieri*	1	0
Total Captured		**46**	**51**

5.2.2. City Plant

City Plant fish sampling included the use of daytime boat-mount electrofishing, gillnet, fyke net, and setline methods. A total of 108 fish, comprised of nine (9) species, were captured within the City Plant tailrace and reservoir during the spring 2025 sampling (Table 5-5). This was the second lowest number of fish captured within the four plants. Of the fish captured, Utah Sucker, Redside Shiner, and Longnose Dace (*Rhinichthys cataractae*) were the most abundant species comprising 36, 31, and 8 percent of the catch, respectively. The distribution of fish was somewhat higher in reservoir habitat consisting of 56 percent of the total catch. The City and Lower plants had similar compositions of game fish species with Brown, Rainbow, and Yellowstone Cutthroat trout, and White Sturgeon captured. Game fish species comprised approximately 14 percent (n=15) of the total catch. Similar to the Lower Plant, no bass were captured during the spring survey.

TABLE 5-5 NUMBER OF FISH CAPTURED DURING SPRING 2025 SAMPLING OF RESERVOIR AND TAILRACE HABITAT OF THE IDAHO FALLS PROJECT – CITY PLANT DEVELOPMENT

COMMON NAME	SCIENTIFIC NAME	NUMBER CAPTURED	
		TAILRACE	RESERVOIR
Brown Trout	*Salmo trutta*	6	1
Longnose Dace	*Rhinichthys cataractae*	1	8
Mottled Sculpin	*Cottus bairdii*	1	6
Mountain Whitefish	*Prosopium williamsoni*	5	0
Rainbow Trout	*Oncorhynchus mykiss*	3	1
Redside Shiner	*Richardsonius balteatus*	3	30
Utah Sucker	*Catostomus ardens*	28	11
Yellowstone Cutthroat Trout	*Oncorhynchus virginalis bouvieri*	1	0
White Sturgeon	*Acipenser transmontanus*	0	3
Total Captured		**48**	**60**

5.2.3. Upper Plant

Upper Plant fish sampling included the use of day and nighttime, boat-mount electrofishing, gillnet, backpack electrofishing, and setline methods. The daytime, Idaho Department of Fish and Game staff (Regional Biologist, Brett High) assisted boat-mount electrofishing survey of the

Upper Plant tailrace. As previously mentioned, low water conditions restricted boat access to a large portion of the tailrace habitat. The distribution and extent of each sampling method is presented in the habitat maps provided in Attachment A.

A total of 788 fish, comprised of 11 species, were captured within the Upper Plant tailrace and reservoir during the spring 2025 sampling (Table 5-6). This was the largest number of fish captured within the four plants. Of the fish captured, Redside Shiner, Utah Sucker, and Brown Trout were the most abundant species comprising 72, 17, and 3.5 percent of the catch, respectively. The distribution of fish captured was considerable higher in the tailrace (69 percent) than reservoir habitat. This result was skewed by the large catch of Redside Shiner (n=442). The vast majority of these fish were captured while electrofishing near the exit of an underback beaver lodge containing a large number of small sticks which the Redside Shiner were using as cover. Although Mountain Whitefish (*Prosopium williamsoni*) were observed in other habitats, the largest number (n=19) were captured within the Upper Plant reservoir.

The largest number of game fish were captured in the Upper Plant with Brown, Rainbow, and Yellowstone Cutthroat trout, and White Sturgeon all present. Although access restrictions within the Upper Plant tailrace limited the area suitable for setlines deployment, seven White Sturgeon were captured.

TABLE 5-6 NUMBER OF FISH CAPTURED DURING SPRING 2025 SAMPLING OF RESERVOIR AND TAILRACE HABITAT OF THE IDAHO FALLS PROJECT – UPPER PLANT DEVELOPMENT

COMMON NAME	SCIENTIFIC NAME	NUMBER CAPTURED	
		TAILRACE	RESERVOIR[1]
Brown Trout	*Salmo trutta*	8	20
Longnose Dace	*Rhinichthys cataractae*	8	6
Mottled Sculpin	*Cottu bairdii*	12	1
Mountain Whitefish	*Prosopium williamsoni*	5	19
Rainbow Trout	*Oncorhynchus mykiss*	5	3
Redside Shiner	*Richardsonius balteatus*	442	123
Speckled Dace	*Rhinichthys osculus*	18	2
Utah Chub	*Gila atraria*	2	0
Utah Sucker	*Catostomus ardens*	34	69
Yellowstone Cutthroat Trout	*Oncorhynchus virginalis bouvieri*	1	3
White Sturgeon	*Acipenser transmontanus*	7	0
Total Captured		**542**	**246**

1 Reservoir captured fish count includes day and night electrofishing efforts.

6.0 NEXT STEPS

The anticipated AQ-1 study plan development and implementation schedule is summarized in Table 6-1. The collection of fish assemblage data is ongoing with additional field surveys and data collection efforts planned for summer and fall 2025. Analysis of sampling data is ongoing and includes calculation of catch per unit effort analysis, fish length histograms, characterization of habitat use/capture locations, and summary of water quality conditions within each reservoir and tailrace habitat. Study results will be presented in a technical report in spring of 2026.

TABLE 6-1 AQ-1 STUDY SCHEDULE

DATE	ACTIVITY
Summer/Fall 2025	Compile study data and conduct analyses
June 2025	Distribute ISR tech memo and meeting with stakeholders
July 2025	Summer field surveys and data collection
September 2025	Fall field surveys and data collection
Fall/Winter 2025	Resolve comments and prepare draft study report
June 2026	File USR and meeting with stakeholders
September 2026	Distribute final study report in Draft License Application
January 2027	File Final License Application

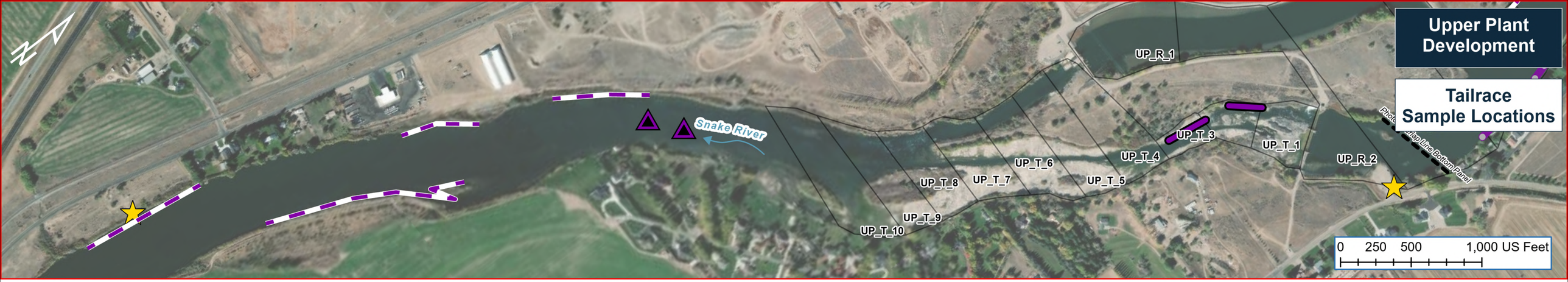
7.0 REFERENCES

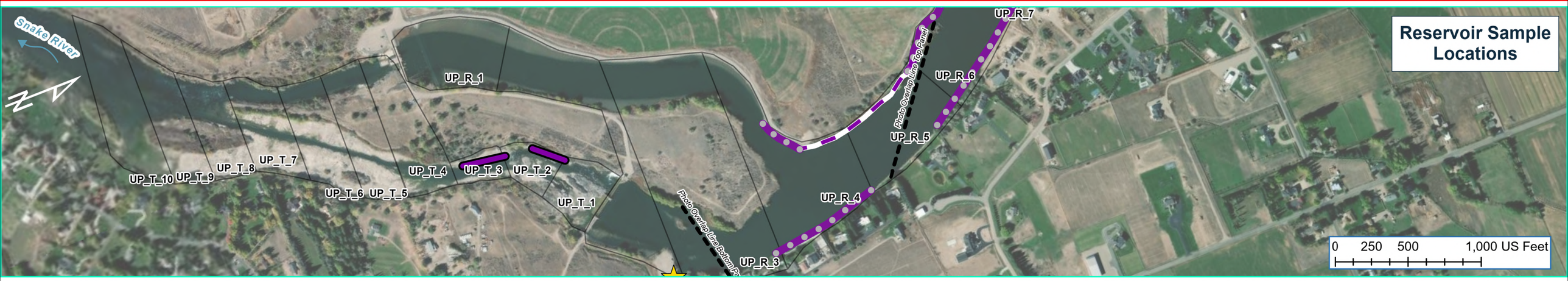
Federal Energy Regulatory Commission (FERC). 2024. Study Plan Determination for the Idaho Falls Hydroelectric Project (P-2842) and Gem State Hydroelectric Project (P-2952). June 5, 2024.

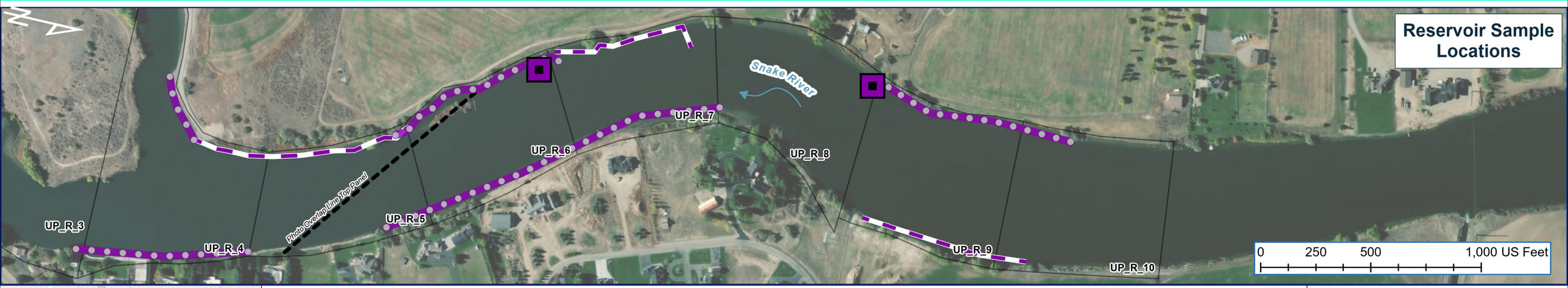
Idaho Falls Power (IFP). 2024. Revised Study Plan. Idaho Falls Hydroelectric Project (P-2842) and Gem State Hydroelectric Project (P-2952), May 13, 2024. Idaho Falls, Idaho.

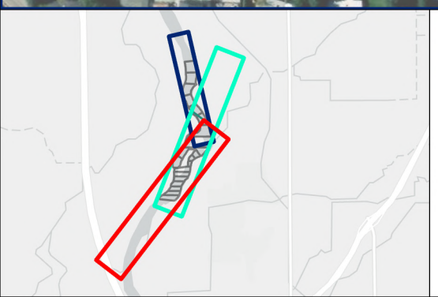
ATTACHMENT A

AQ-1 SAMPLE LOCATIONS









- Boat Ramp
- Photo Overlap Line
- Sampling Section

Sample Season/Year

- Spring 2025

Sampling Method

- Fyke Net
- Gill Net
- Setline
- Boat-mount Electrofishing (Day)
- Boat-mount Electrofishing (Night)
- Backpack Electrofishing

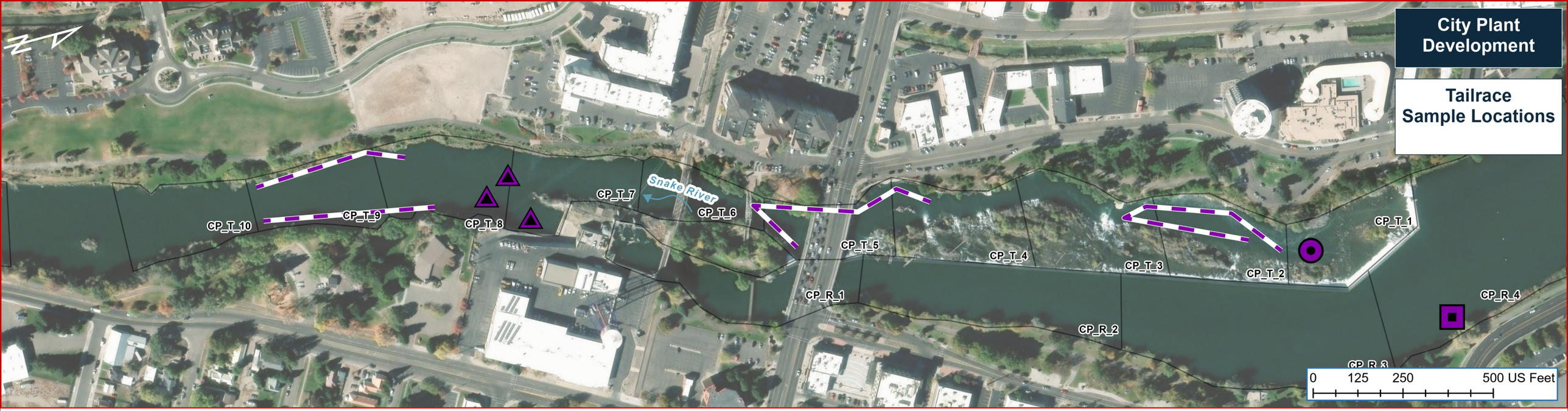
IDAHO FALLS & GEM STATE HYDROELECTRIC PROJECTS FERC NOS. 2842 & 2952

IDAHO FALLS POWER

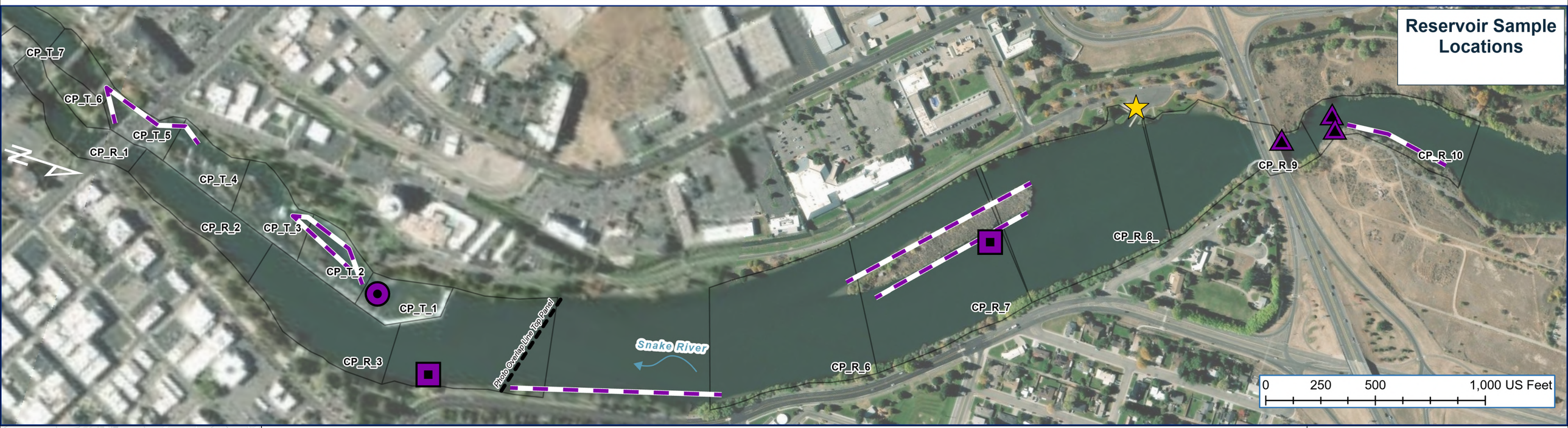
Drawn By:	Date Drawn:
ENM	04-29-2025
Checked By:	Date Checked:
HNG	4-29-2025

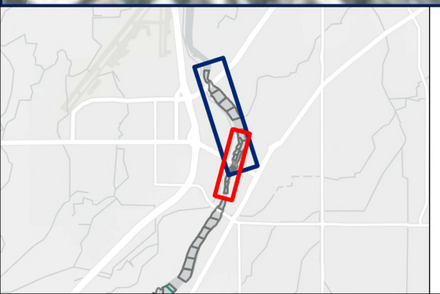
City Plant Development

Tailrace Sample Locations



Reservoir Sample Locations





- Boat Ramp
- Photo Overlap Line
- Sampling Section

Sample Season/Year

- Spring 2025

Sampling Method

- Fyke Net
- Gill Net
- Setline
- Boat-mount Electrofishing (Day)
- Boat-mount Electrofishing (Night)
- Backpack Electrofishing

IDAHO FALLS & GEM STATE HYDROELECTRIC PROJECTS FERC NOS. 2842 & 2952

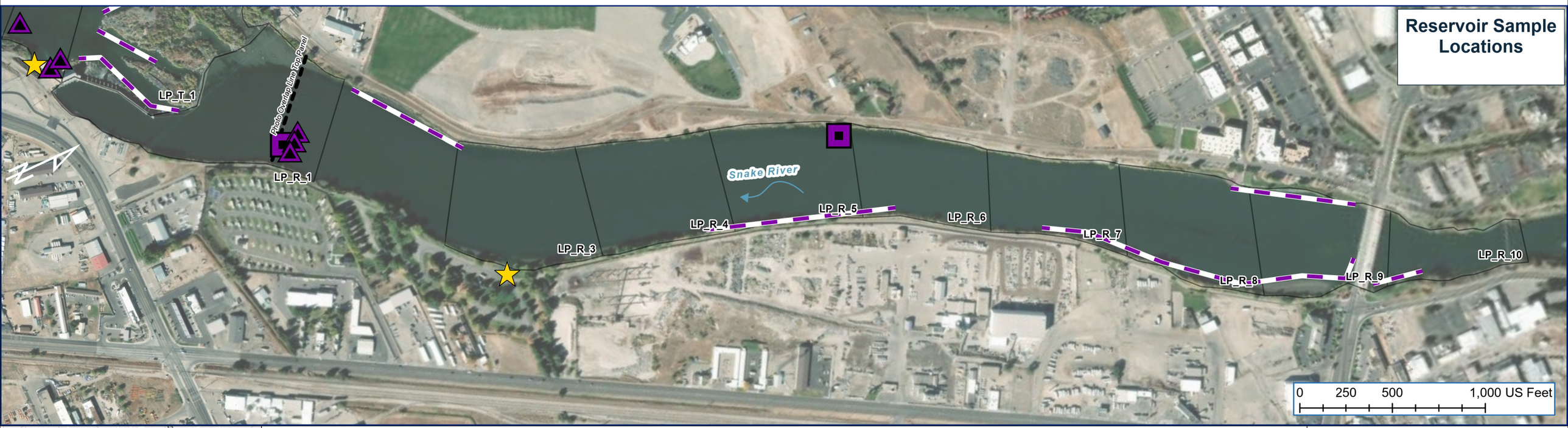
IDAHO FALLS POWER

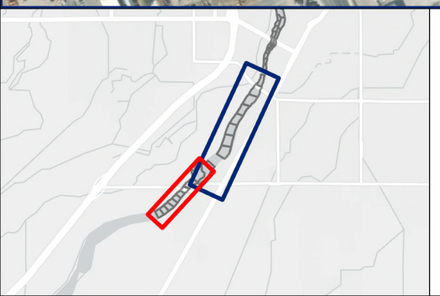
Drawn By:	Date Drawn:
ENM	04-29-2025
Checked By:	Date Checked:
HNG	4-29-2025

Lower Plant Development

Tailrace Sample Locations

Reservoir Sample Locations





- Boat Ramp
- Photo Overlap Line
- Sampling Section

Sample Season/Year

- Spring 2025

Sampling Method

- Fyke Net
- Gill Net
- Setline
- Boat-mount Electrofishing (Day)
- Boat-mount Electrofishing (Night)
- Backpack Electrofishing

IDAHO FALLS & GEM STATE HYDROELECTRIC PROJECTS FERC NOS. 2842 & 2952

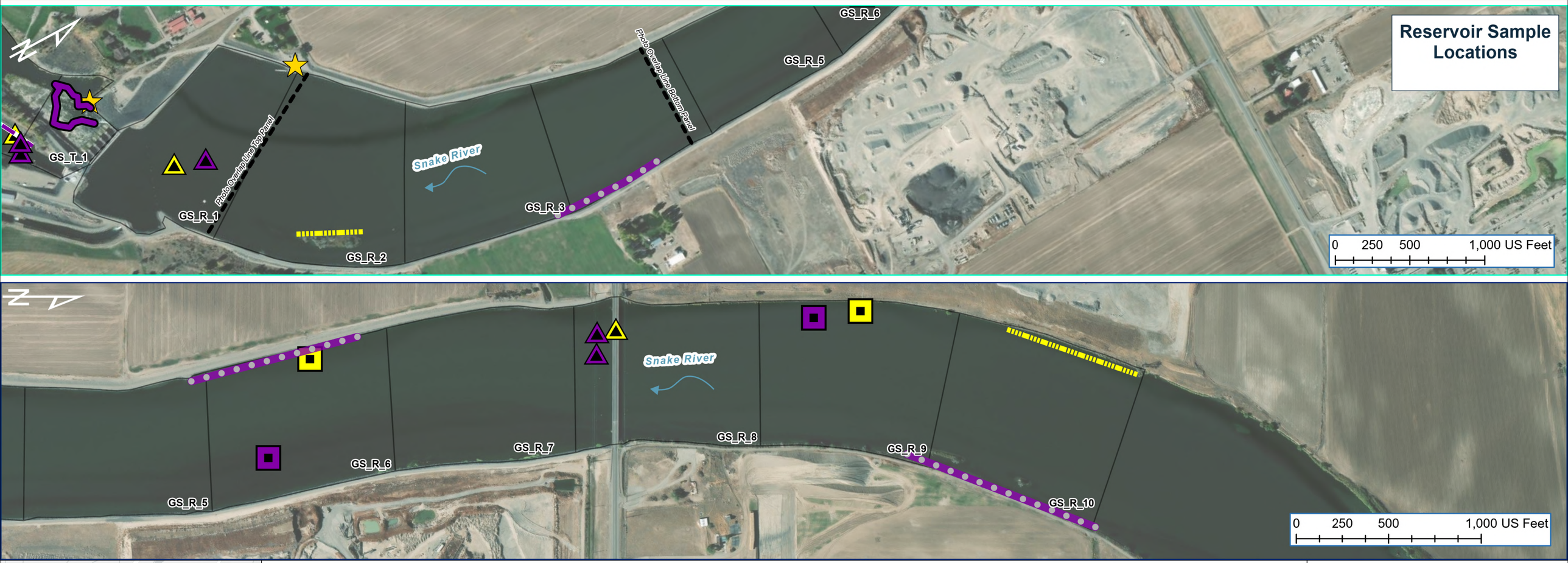
IDAHO FALLS POWER

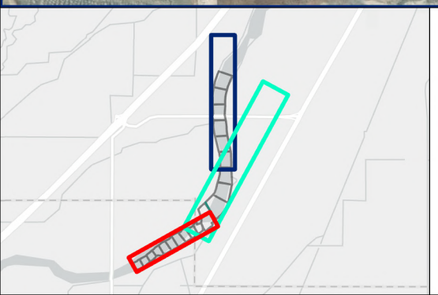
Drawn By:	Date Drawn:
ENM	04-29-2025
Checked By:	Date Checked:
HNG	4-29-2025

Gem State Development

Tailrace Sample Locations

Reservoir Sample Locations





- Boat Ramp
- Photo Overlap Line
- Sampling Section

Sample Season/Year

- Fall 2024
- Spring 2025

Sampling Method

- Fyke Net
- Gill Net
- Setline
- Boat-mount Electrofishing (Day)
- Boat-mount Electrofishing (Night)
- Backpack Electrofishing

IDAHO FALLS & GEM STATE HYDROELECTRIC PROJECTS FERC NOS. 2842 & 2952

Drawn By:	Date Drawn:
ENM	04-29-2025
Checked By:	Date Checked:
HNG	4-29-2025

APPENDIX C

DESKTOP FISH ENTRAINMENT (AQ-2) TECHNICAL MEMORANDUM

TECHNICAL MEMORANDUM

To:	Idaho Falls Power Relicensing Stakeholders
From:	Idaho Falls Power Relicensing Team
Date:	June 2025
Subject:	Desktop Fish Entrainment Study (AQ-2) Technical Memorandum

1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects." The licenses for the Projects expire on January 31, 2029; therefore, IFP plans to relicense the Projects using FERC's Integrated Licensing Process (ILP), pursuant to 18 Code of Federal Regulations (CFR) Part 5. Due to the proximity of the Projects to each other, IFP is conducting the relicensing processes concurrently.

This technical memorandum (tech memo) presents a progress report on the status of fish entrainment in the Snake River through the Project Boundaries of both Projects in Idaho Falls, Idaho, consistent with the Desktop Fish Entrainment (AQ-2) study plan and the requirements for an Initial Study Report (ISR) pursuant to 18 CFR § 5.15. The AQ-2 study plan implements IFP's proposed study goals and objectives, study area, methods, and schedule for the study effort. IFP's Revised Study Plan (RSP) was filed with FERC on May 13, 2024 (IFP 2024) and approved through FERC's Study Plan Determination (SPD) on June 5, 2024 (FERC 2024).

Where appropriate, data and information will be collected and analyzed in tandem with other study plans such as the AQ-1 Fish Assemblage study plan and the AQ-3 Aquatic Habitat and Sediment Characterization study plan. Currently, the AQ-1 Fish Assemblage Study is ongoing, and information will be available for incorporation into this AQ-2 Desktop Fish Entrainment Study by November 2025. Additionally, the AQ-3 Aquatic Habitat and Sediment Characterization Study will be completed in tandem with the fall sampling of the AQ-1 Fish Assemblage Study—thus, data from both studies will be available by November 2025.

2.0 STUDY OBJECTIVES

The AQ-2 study goals and objectives were developed during the preparation of the Proposed Study Plan (PSP). A PSP stakeholder meeting was held on February 13, 2024, and following a 60-day comment period, the PSP was revised to address the comments received. Stakeholders requested modification of the PSP to expand the species list to include Mountain Whitefish *(Prosopium williamsoni*), Brown Trout (*Salmo trutta),* and Smallmouth Bass (*Micropterus dolomieu)* for analysis. Stakeholder requests were confirmed in the RSP, which was filed with FERC on May 13, 2024 (IFP 2024).

The goal of the AQ-2 study is to assess how operations of the Projects may affect the ability to achieve management objectives of resource agencies, with regard to fish specs actively managed in the Projects reservoirs. The objectives of the AQ-2 study are as follows:

1. Identify and describe the features and characteristics of each turbine at each of the Idaho Falls and Gem State developments that may influence entrainment and turbine passage survival of stocked adult White Sturgeon (*Acipenser transmontanus)*, Rainbow Trout (*Onchrhynchus mykiss*), Brown Trout, Yellowstone Cutthroat Trout (*O. clarkii bouvieri*), Mountain Whitefish, and Smallmouth Bass.

2. Review and describe aquatic habitat near intake areas at the Projects to assess the potential for fish inhabiting those areas of the reservoirs.

3. Review and describe the biological and behavioral characteristics of Rainbow Trout, Brown Trout, Yellowstone Cutthroat Trout, Mountain Whitefish, Smallmouth Bass, and adult White Sturgeon.

4. Characterize the potential risk of entrainment for Rainbow Trout, Brown Trout, Yellowstone Cutthroat Trout, Mountain Whitefish, and Smallmouth Bass.

3.0 STUDY AREA

Entrainment risk will be evaluated at the three developments associated with the Idaho Falls Project (Upper Plant Dam, City Plant Dam, and Lower Plant Dam) (Figure 3-1,Figure 3-2) and the Gem State Project development (Figure 3-3).

The AQ-1 Fish Assemblage Study will provide data on species composition during each season that may help assess species interactions with the turbines, supplemented by available literature on each species of interest. Within each Project impoundment, assemblage sampling sites were established to represent a diverse range of available habitats, including some within proximity to the intake ensuring a comprehensive assessment of entrainment risk.

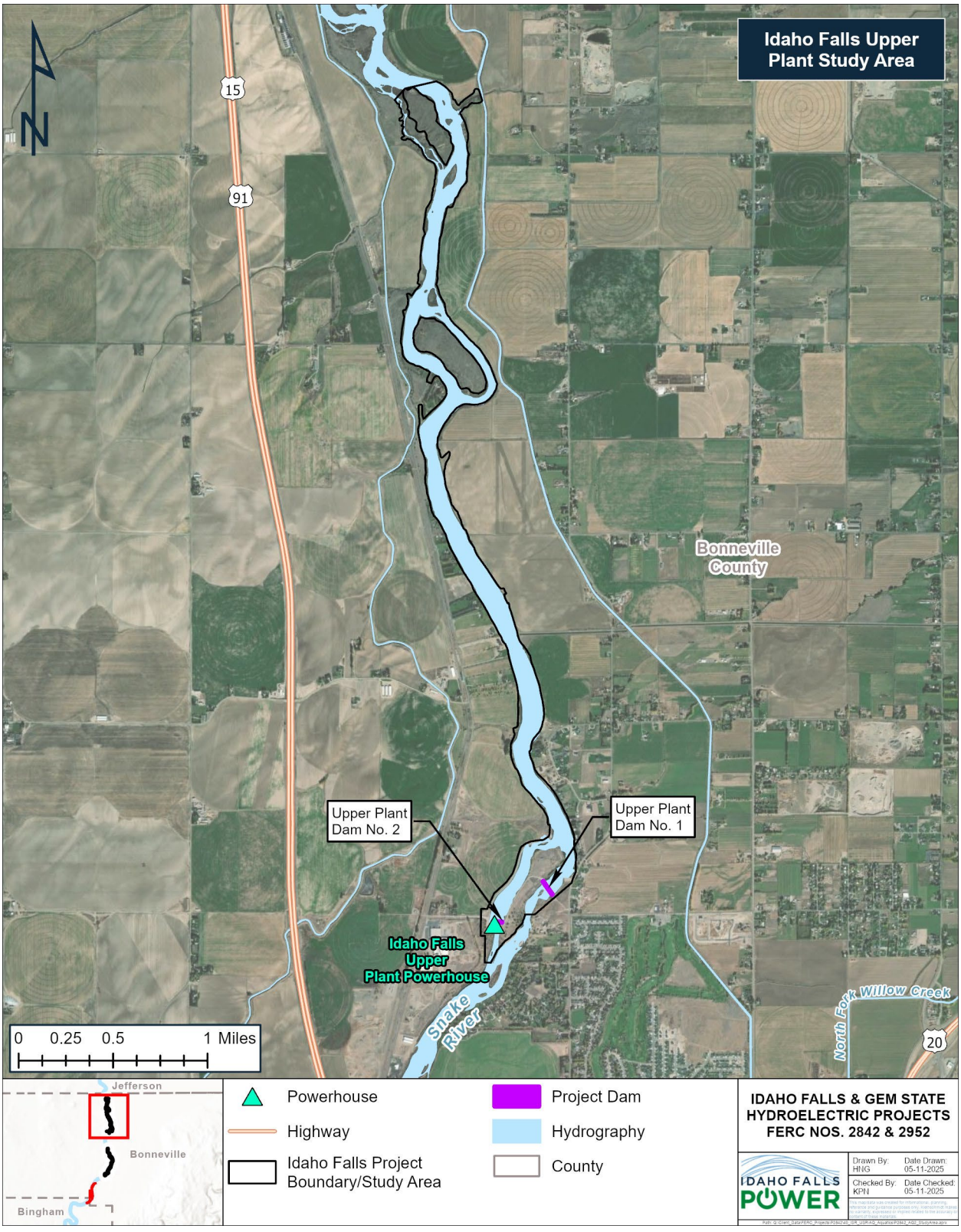


FIGURE 3-1 IDAHO FALLS PROJECT UPPER PLANT STUDY AREA

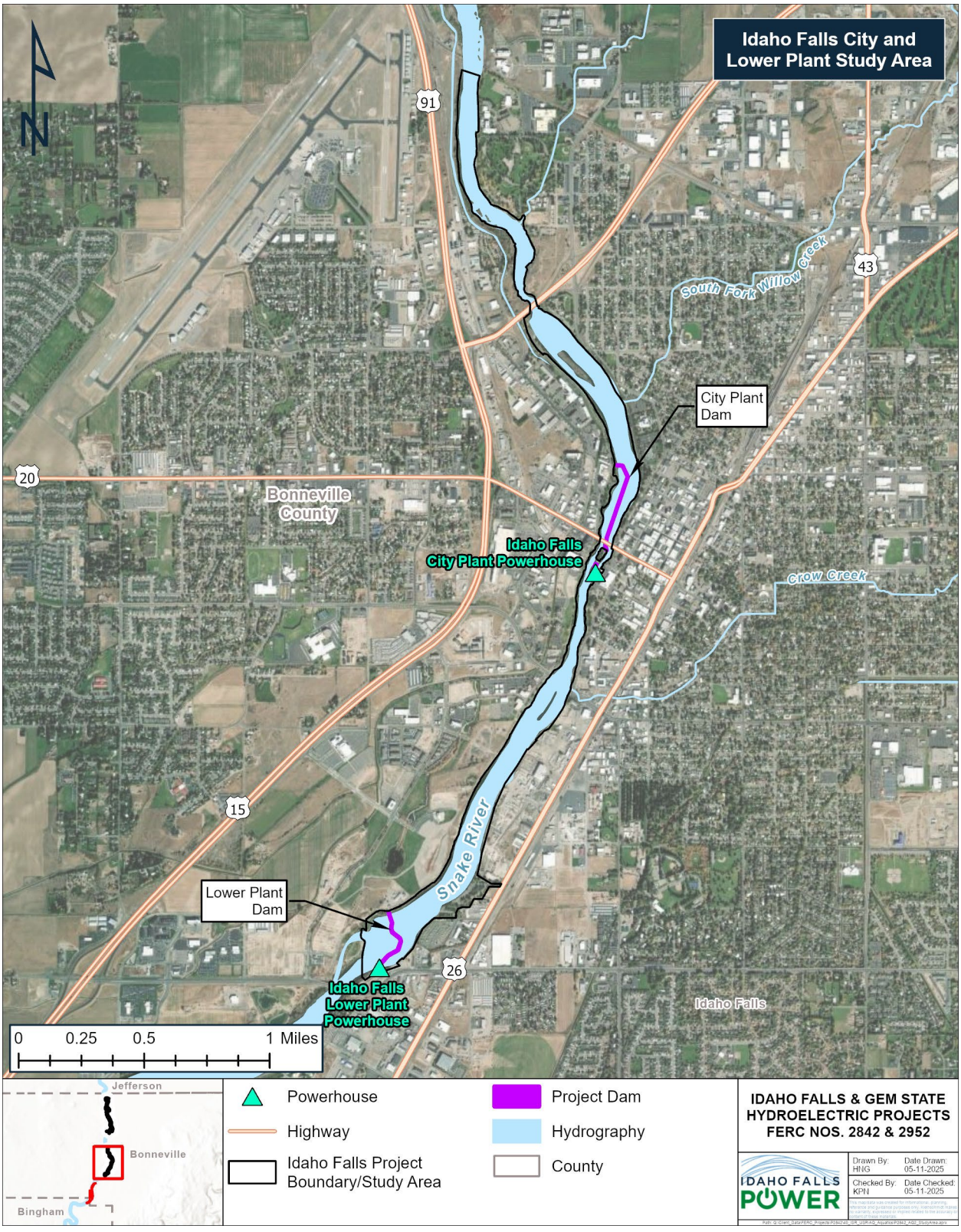


FIGURE 3-2 IDAHO FALLS PROJECT CITY AND LOWER PLANT STUDY AREA

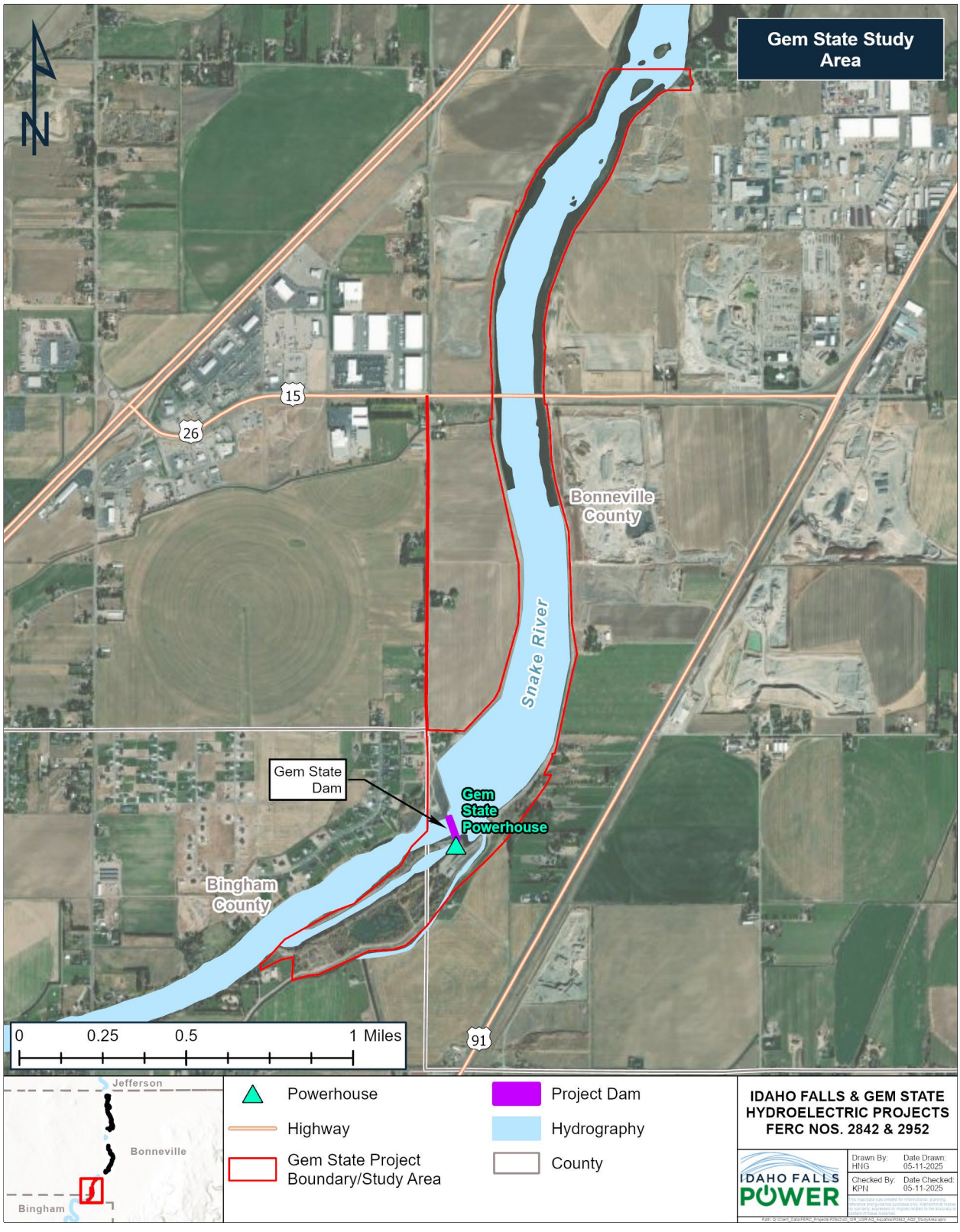


FIGURE 3-3 GEM STATE PROJECT STUDY AREA

4.0 METHODS

Study implementation will follow the methods described in the AQ-2 study plan (IFP 2024) and as approved in FERC's SPD (FERC 2024), with the exception described below.

4.1. VARIANCE FROM STUDY PLAN AND SCHEDULE

The AQ-2 study remains on the schedule outlined in the RSP.

4.2. MODIFICATIONS TO STUDY METHODS

The AQ-2 study methodology remains the same as outlined in the RSP.

4.3. ANALYSIS

Once data collection is complete analysis will be conducted, and results will be summarized in a draft study report in spring of 2026. The methods for analysis remain the same as in the RSP, however in recognition that quantitative data may not be available to the fullest extent, clarification on the scope and extent of the analysis is as follows.

In the event quantitative data is insufficient to execute the Stryke program as intended, the use of qualitative information will be used to assess risk. Facilities with similar characteristics such as turbine design, trash rack configuration, and track rack spacing, among others, would be used to generalize the assessment of risk. The applicability of data from the AQ-3 Aquatic Habitat and Sediment Characterization Study to assess risk of fish entrainment may be limited, as the areas of assessment will be the free-flowing sections of the river in the bypass reach. Habitats of interest for the AQ-2 Desktop Fish Entrainment Study will be primarily surrounding the intake of each dam. The AQ-1 Fish Assemblage Study may have habitat information within proximity to the intakes; however, data collection is still ongoing for that study. The Stryke program relies on data from the EPRI (1997) database, of which some of the species of interest (White Sturgeon, Yellowstone Cutthroat Trout, Mountain Whitefish) are not included. Therefore, species of interest swim speeds and habitat related data will be essential to assess their risk. Qualitative information will be utilized to assess the risk of each species of interest to entrainment, quantitative information will be utilized to assess the survival of those species that could be entrained, when enough information is available with the exception of the details discussed above.

5.0 DATA SUMMARY

Species-related data and habitat data are being collected through fall 2025. Literature review and project specific data collection are currently in progress. Current Project-related data is provided in Table 5-1.

TABLE 5-1 IDAHO FALLS PROJECT AND GEM STATE PROJECT RELATED INFORMATION

PROJECT	TURBINE TYPE	NUMBER OF TURBINES	UNIT EFFIC. (%)	BAR SPACING (TRASH RACK)	RATED CAPACITY (MW)	RATED HEAD (FT)	RATED RUNNER SPEED (RPM)	MAX. NET HEAD (FT)	MIN. NET HEAD (FT)	RUNNER DIAMETER (FT)	MAX INTAKE FLOW (CFS)
Idaho Falls Project Upper Plant	Axial-flow, horizontal bulb, Kaplan runner and adjustable wicket gates	1	93	6 in	8.3	18	94.7	20.1	13.3	15.91	6,000
Idaho Falls Project City Plant	Axial-flow, horizontal bulb, Kaplan runner and adjustable wicket gates	1	93	6 in	8.3	18	94.7	20.1	13.3	15.91	6,000
Idaho Falls Project Lower	Axial-flow, horizontal bulb, Kaplan runner and adjustable wicket gates	1	93	6 in	8.3	18	94.7	20.1	13.3	15.91	6,000
Idaho Falls Project Lower Historic	Standby Morgan Smith turbines with axial-flow	2	93	6 in	1.5	18	138.5	20.1	13.3	10	1,200*
Gem State	Single Kaplan Vertical with adjustable-blade runner with wicket gates.	1	95	6 in	22.3	42	100	46.9	32.5	18.37	7,000

* = calculated.

6.0 NEXT STEPS

The anticipated AQ-2 study plan development and implementation schedule is summarized in Table 6-1. Analysis of Project information and data from the AQ-1 Fish Assemblage Study is ongoing. Additionally, the AQ-3 Aquatic Habitat and Sediment Characterization Study has not been completed and is slated for fall 2025. Once data collection is complete analysis will be conducted, and results will be summarized in a draft study report in spring of 2026. The final study report will be included in the Draft License Application (DLA) in September 2026.

TABLE 6-1 AQ-2 DESKTOP FISH ENTRAINMENT STUDY SCHEDULE

DATE	ACTIVITY
Fall 2025	Data collection
November 2025	Data from AQ-1 and AQ-2 studies available
June 2026	File USR and meeting with stakeholders
September 2026	Distribute final report in DLA
January 2027	File Final License Application

7.0 REFERENCES

Electric Power Research Institute (EPRI). 1997. Turbine Entrainment and Survival Database Field Tests. Prepared by Alden Research Laboratory, Inc. EPRI Report No. 10863.

Federal Energy Regulatory Commission (FERC). 2024. Study Plan Determination for the Idaho Falls Hydroelectric Project (P-2842) and Gem State Hydroelectric Project (P-2952). June 5, 2024.

Idaho Falls Power (IFP). 2024. Revised Study Plan. Idaho Falls Hydroelectric Project (P-2842) and Gem State Hydroelectric Project (P-2952), May 13, 2024. Idaho Falls, Idaho.

APPENDIX D

AQUATIC HABITAT AND SEDIMENT CHARACTERIZATION (AQ-3) TECHNICAL MEMORANDUM

TECHNICAL MEMORANDUM

To:	Idaho Falls Power Relicensing Stakeholders
From:	Idaho Falls Power Relicensing Team
Date:	June 2025
Subject:	Aquatic Habitat and Sediment Characterization (AQ-3) Technical Memorandum

1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects." The licenses for the Projects expire on January 31, 2029; therefore, IFP plans to relicense the Projects using FERC's Integrated Licensing Process (ILP), pursuant to 18 Code of Federal Regulations (CFR) Part 5. Due to the proximity of the Projects to each other, IFP is conducting the relicensing processes concurrently.

This technical memorandum (tech memo) presents a progress report of aquatic habitat and sediment characterization in the Snake River through the Project Boundaries of both Projects in Idaho Falls, Idaho, consistent with the AQ-3 Aquatic Habitat and Sediment Characterization (AQ-3) study plan and the requirements for an Initial Study Report (ISR) pursuant to 18 CFR § 5.15. The AQ-3 study plan implements IFP's proposed study goals and objectives, study area, methods, and schedule for the study effort. IFP's Revised Study Plan (RSP) was filed with FERC on May 13, 2024 (IFP 2024) and approved in FERC's Study Plan Determination (SPD) on June 5, 2024 (FERC 2024).

2.0 STUDY OBJECTIVES

The AQ-3 study goals and objectives were developed during the preparation of the Proposed Study Plan (PSP). A PSP stakeholder meeting was held on February 13, 2024, and following a 60-day comment period, the PSP was revised to address the comments received. Stakeholder requests were confirmed in the RSP, which was filed with FERC on May 13, 2024 (IFP 2024).

The AQ-3 study goals are to inventory free-flowing aquatic habitats within the Idaho Falls Project and Gem State Project Boundaries and determine how operations at each Project interact with existing aquatic habitats. The objectives of the AQ-3 study are to:

- Characterize and map aquatic habitat within the free-flowing sections of the Snake River located within the Project areas, and
- Identify potential spawning habitat for salmonids and characterize substrate and definitive features (e.g., water velocity, substrates) within those areas.

3.0 STUDY AREA

The AQ-3 study area is below the three Idaho Falls Projects (Upper Plant Dam, City Plant Dam, and Lower Plant Dam) and below the Gem State Project; specifically, a 0.5-mile-long reach downstream of Upper Plant Dam (Figure 3-1), a 0.3-mile-long reach downstream of City Plant Dam (Figure 3-2), a 0.2-mile-long reach downstream Lower Plant Dam (Figure 3-2), and a 0.5-mile-long reach downstream of Gem State Dam (Figure 3-3). As outlined in the RSP, agencies are invited to attend a site selection and reconnaissance trip on July 23, 2025, prior to implementation of the AQ-3 study. The purpose of this site visit is to assess what is and is not viable for sampling as well as identifying any areas of interest.

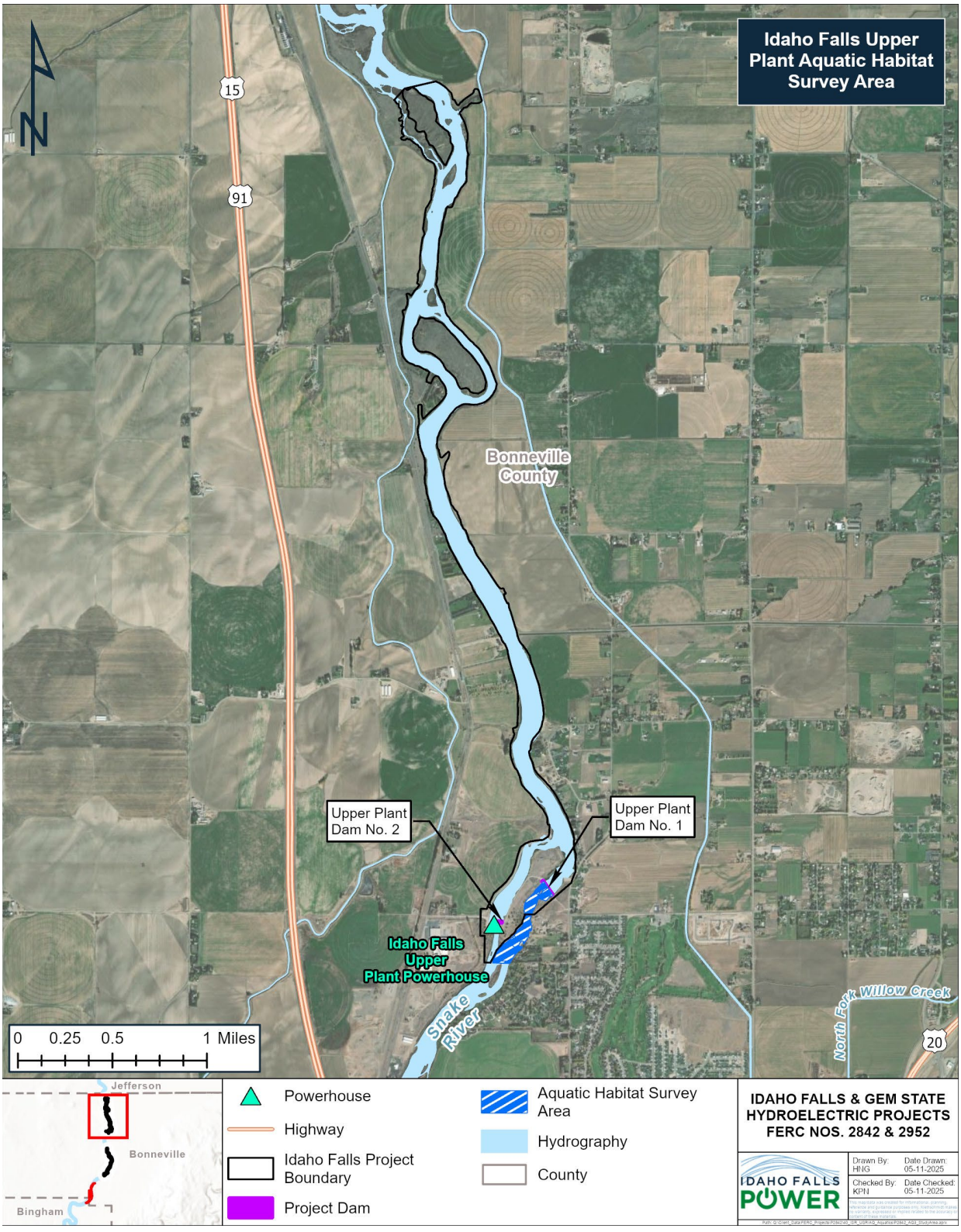


FIGURE 3-1 IDAHO FALLS PROJECT UPPER PLANT AQUATIC HABITAT SURVEY AREA

FIGURE 3-2 IDAHO FALLS PROJECT CITY PLANT AND LOWER PLANT AQUATIC HABITAT SURVEY AREA

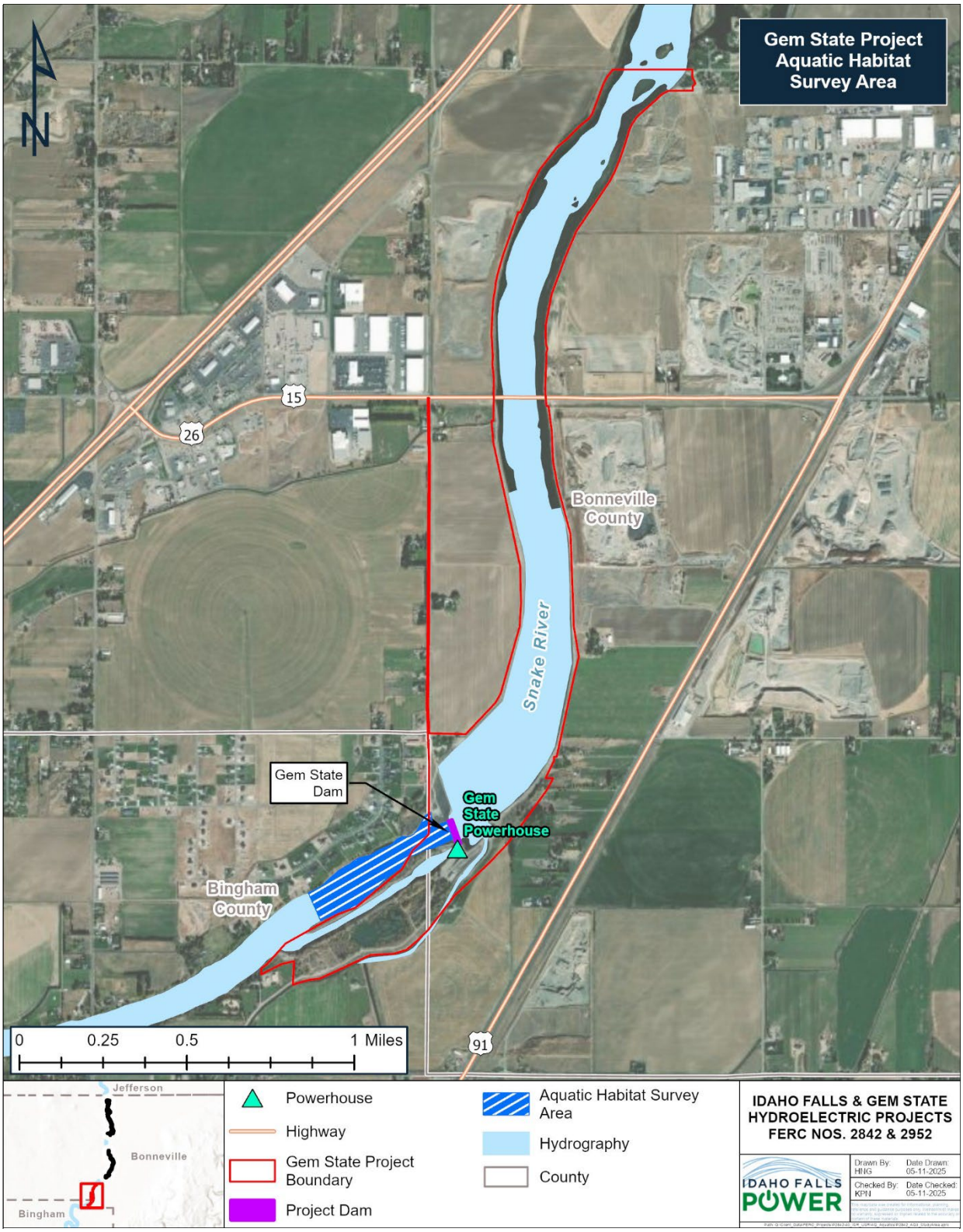


FIGURE 3-3 GEM STATE PROJECT AQUATIC HABITAT SURVEY AREA

4.0 METHODS

Study implementation has followed the methods described in the AQ-3 study plan (IFP 2024) and as approved in FERC's SPD (FERC 2024), with the exception described below.

4.1. VARIANCE FROM STUDY PLAN AND SCHEDULE

The AQ-3 study was scheduled to be conducted in late summer to early fall 2025. The AQ-3 study will now be completed in tandem with the fall sampling of the AQ-1 Fish Assemblage Study in late September or early October 2025. A site visit will be conducted on July 23, 2025, following the ISR. The filing date noted in the RSP for the draft AQ-3 study report has been shifted from April 2026 to June 2026 to align with the Updated Study Report (USR).

4.2. MODIFICATIONS TO STUDY METHODS

The AQ-3 study will follow the methods outlined in the RSP. However, adjustments to sampling locations may be made following the site visit with agencies and discussion of any areas of interest. Spawning habitat requirements have been identified and are provided in Table 5-1. Any spawning habitat that meets the criteria outlined will be noted and documented during field study. Current literature does not describe a depth or velocity preference for Mountain Whitefish (*Prosopium williamsoni*); therefore, their spawning habitat requirement will be evaluated based on the presence or absence of pool type habitats. Water depth and velocity measurements will be taken opportunistically within wadable areas and with emphasis on areas potentially suitable to spawning. Water temperature and dissolved oxygen will not be measured during this study, as water chemistry data will be collected under the AQ-1 Fish Assemblage Study, which covers the same survey areas.

4.3. ANALYSIS

The AQ-3 study analysis will follow the methodology outlined in the RSP.

5.0 DATA SUMMARY

Literature review and data collection is currently ongoing. Data analysis pertaining to the field activity of this study has not begun given the study is slated for fall 2025. Data from the AQ-1

study is currently incomplete and not viable for inclusion in this study. Table 5-1 outlines the spawning habitat requirements for each species of interest collected from available literature.

The three trout species have very similar spawning habitat requirements regarding mesohabitat type and substrate. However spawning season, depth and velocity varies among them. Mountain Whitefish differ from trout in that they are known to be broadcast spawners with no preference to substrate types (Pierce et al. 2012).

TABLE 5-1 SPECIES OF INTEREST SPAWNING HABITAT REQUIREMENTS

SPECIES	SPAWNING SEASON	MESOHABITAT TYPE	SUBSTRATE TYPE	DEPTH (CM)	VELOCITY (M/S)
Brown Trout (*Salmo trutta*)	October/November	Head of riffle, tail of pool	Gravel	>15	0.6 - 7.6
Rainbow Trout (*Onchrhynchus mykiss*)	April/May	Head of riffle, tail of pool	Gravel	>18	0.6 - 5.2
Yellowstone Cutthroat Trout (*O. clarkii bouvieri*)	May/June	Head of riffle, tail of pool	Gravel	>6	0.6 - 10.2
Mountain Whitefish	November/December	Pools/Glides	Various	N/A	N/A

6.0 NEXT STEPS

The anticipated AQ-3 study plan development and implementation schedule is summarized in Table 6-1. Analysis of spawning habitat requirements is ongoing and will be necessary to complete the field portion of this study. Following the reconnaissance trip and consultation with agencies for potential areas of interest, the field portion of this study will be completed in tandem with the AQ-1 study. Study results will be summarized in a technical report in spring of 2026.

TABLE 6-1 AQ-3 AQUATIC HABITAT AND SEDIMENT CHARACTERIZATION STUDY SCHEDULE

DATE	ACTIVITY
Spring 2025	Literature review- species spawning habitat requirements
Summer 2025	Reconnaissance/site selection meeting – July 23, 2025
Fall 2025	Field work completion
June 2026	Draft study report; file USR and meeting with stakeholders
July 2026	Comments on draft study report
September 2026	Distribute final study report in Draft License Application
January 2027	File Final License Application

7.0 REFERENCES

Federal Energy Regulatory Commission (FERC). 2024. Study Plan Determination for the Idaho Falls Hydroelectric Project (P-2842) and Gem State Hydroelectric Project (P-2952). June 5, 2024.

Idaho Falls Power (IFP). 2024. Revised Study Plan. Idaho Falls Hydroelectric Project (P-2842) and Gem State Hydroelectric Project (P-2952). May 13, 2024. Idaho Falls, Idaho.

Pierce, R., M. Davidson, and C. Podner. 2012. Spawning behavior of Mountain Whitefish and co-occurrence of *Myxobolus cerebralis* in the Blackfoot River basin, Montana. Transactions of the American Fisheries Society, 141(3), 720-730.

APPENDIX E

BOTANICAL RESOURCES (TERR-1) TECHNICAL MEMORANDUM

TECHNICAL MEMORANDUM

To:	Idaho Falls Power Relicensing Stakeholders
From:	Idaho Falls Power Relicensing Team
Date:	June 2025
Subject:	Botanical Resources (TERR-1) Technical Memorandum

1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects." The licenses for the Projects expire on January 31, 2029; therefore, IFP plans to relicense the Projects using FERC's Integrated Licensing Process (ILP), pursuant to 18 Code of Federal Regulations (CFR) Part 5. Due to the proximity of the Projects to each other, IFP is conducting the relicensing processes concurrently.

This technical memorandum (tech memo) presents a progress report of the botanical resources survey conducted in August 2024 within the Project Boundaries of both Projects, consistent with the Botanical Resources (TERR-1) study plan and the requirements for an Initial Study Report (ISR) pursuant to 18 CFR § 5.15. The TERR-1 study plan implements IFP's proposed study goals and objectives, study area, methods, and schedule for the study effort. IFP's Revised Study Plan (RSP) was filed with FERC on May 13, 2024 (IFP 2024) and approved in FERC's Study Plan Determination (SPD) on June 5, 2024 (FERC 2024).

The initial habitat assessment for the TERR-1 study was conducted from August 12 to August 16, 2024. Surveyors used an "intuitive-controlled" approach, [1] walking areas of high potential suitable habitat within the study area (defined below) to verify habitat suitability and assess distribution

[1] Intuitive-controlled walking surveys allow the general area to be examined while focusing the majority of field time on any high-potential habitat. The surveyor traverses through the area enough to see a representative cross-section of all major habitats and topographic features, looking for the target species while en-route between different areas. When the surveyor arrives at an area of high potential habitat, a complete survey is made. Complete surveys are defined as a 100 percent visual exam of the project area (USFS 1998).

and extent of special status and Endangered Species Act (ESA)-listed plants, as well as cottonwood (*Populus angustifollia*) and willow (*Salix exigua*) wetland habitats. Additionally, surveyors documented the presence of any invasive plant species and mapped their distribution and extent.

As discussed in the TERR-1 study plan, Ute ladies'-tresses (ULT) (*Spiranthes diluvialis)* is the only ESA-listed species (Threatened) that may occur in the study area.[2] While no occurrences of ULT were observed during the initial habitat assessment, potential suitable habitat was identified. According to the TERR-1 study plan, areas of potential suitable habitat require a follow-up survey to confirm species absence or presence, and if present, mapping of species distribution. Thus, sampling under the TERR-1 study is ongoing.

2.0 STUDY OBJECTIVES

The TERR-1 study goals and objectives were developed during the preparation of the Proposed Study Plan (PSP). A PSP stakeholder meeting was held on February 13, 2024, and following a 60-day comment period, the PSP was revised to address the comments received. Stakeholder requests were confirmed in the RSP, which was filed with FERC on May 13, 2024 (IFP 2024).

The goal of the TERR-1 study is to assess botanical resources, including special status and ESA-listed plant species, cottonwood and willow wetland habitats, and invasive plant species within the Idaho Falls Project and Gem State Project Boundaries. The objective of this study is to gather sufficient data to fill any gaps in the existing information.

3.0 STUDY AREA

The TERR-1 study area includes lands and Project features within the Project Boundaries, excluding the 1.9 miles of free-flowing river between the two Project Boundaries. The study area also includes a 100-foot buffer from all Project features where disturbance is expected to occur. Privately owned land is excluded from the study area (Figure 3-1 through Figure 3-3).

[2] As of January 6, 2025, the ULT is currently proposed for delisting by the United States Fish and Wildlife Service (USFWS); see 90 Fed. Reg. 1054, Jan 7, 2025.

The desktop analysis identified areas with high potential suitable habitat for ULT. Areas where such habitat was deemed unlikely were excluded from the initial habitat assessment survey. The initial habitat assessment was conducted in areas of high potential ULT habitat located throughout the Project Boundaries, including the three segments of the Idaho Falls Project (Upper Plant Dam, City Plant Dam, and Lower Plant Dam) and the Gem State Project.

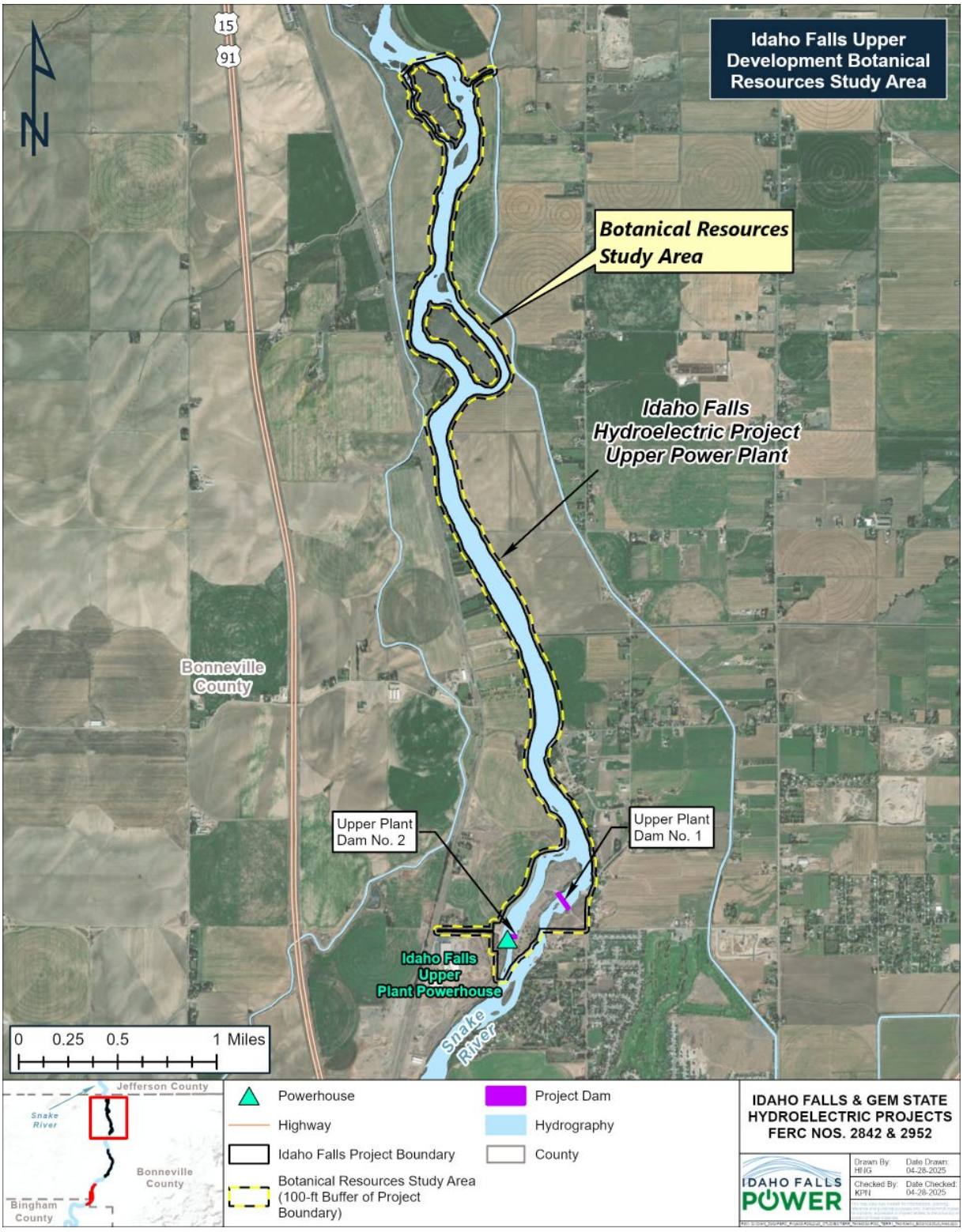


FIGURE 3-1 IDAHO FALLS UPPER DEVELOPMENT BOTANICAL RESOURCES STUDY AREA

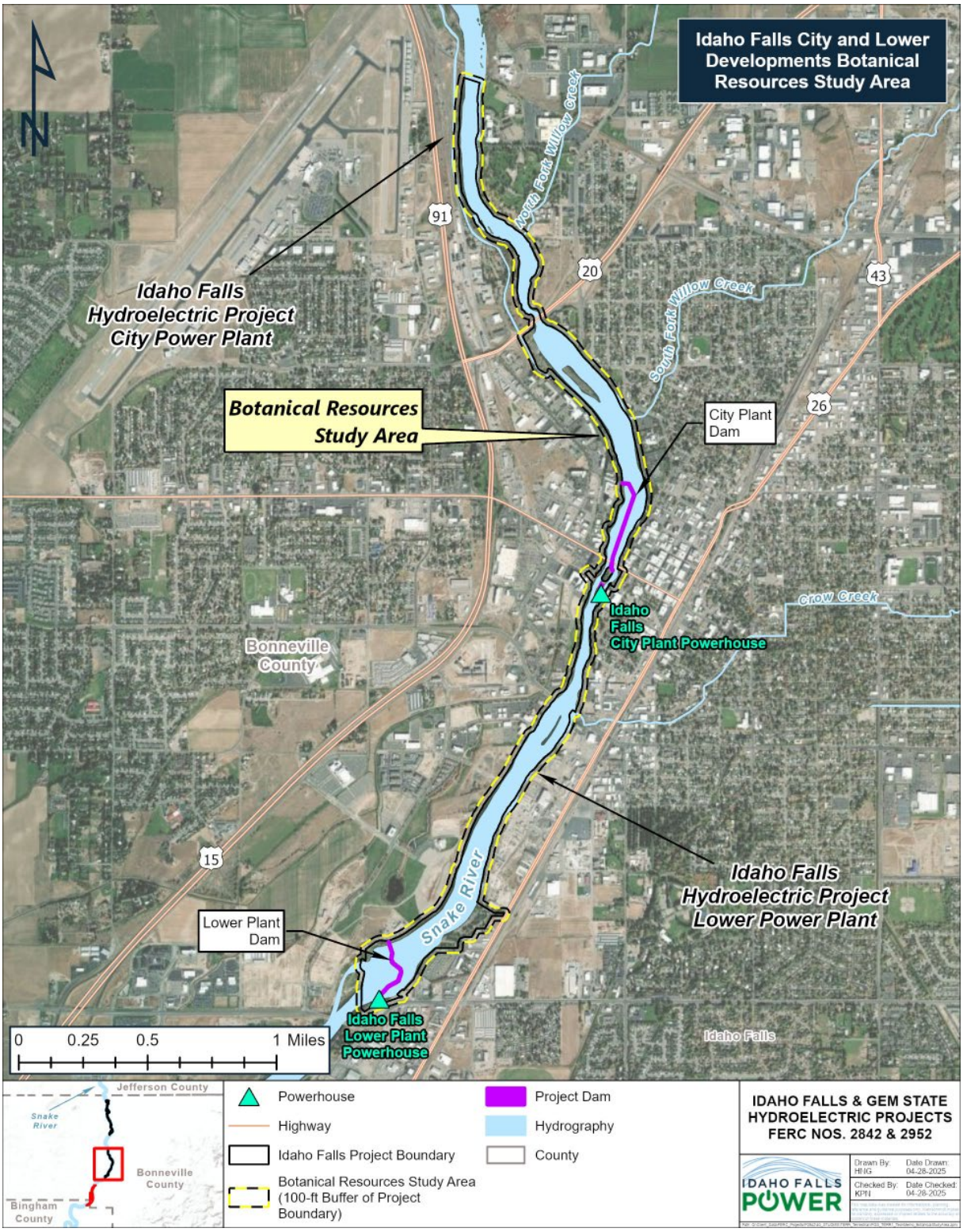


FIGURE 3-2 IDAHO FALLS CITY AND LOWER DEVELOPMENTS BOTANICAL RESOURCES STUDY AREA

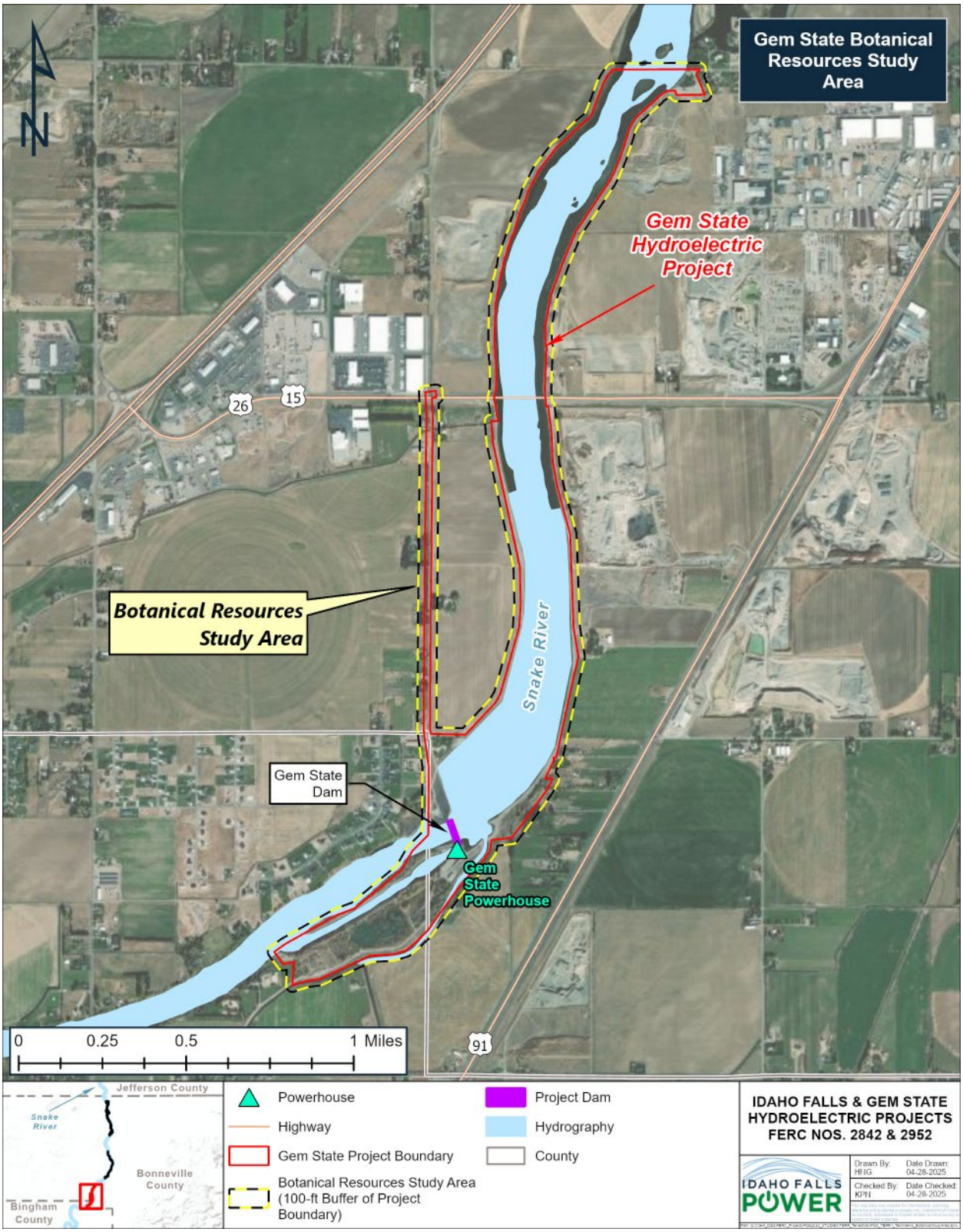


FIGURE 3-3 GEM STATE BOTANICAL RESOURCES STUDY AREA

4.0 METHODS

Study implementation has followed the methods described in the TERR-1 study plan (IFP 2024) and as approved in FERC's SPD (FERC 2024), with the exceptions described below.

A desktop review of existing data and target species was conducted prior to the initial habitat assessment. Databases and reports were reviewed, including the Idaho Fish and Wildlife Information System Plant Conservation Database, pertinent United States Fish and Wildlife Service (USFWS) Rare Plant Observation Reports, state noxious weed data, and aerial imagery. Field maps were prepared with suitable imagery necessary for field navigation and data collection. Based on the results of the desktop review, areas of high potential suitable habitat for ULT were mapped. Proximity to water, soil type, and dominant vegetation cover were considered when evaluating areas of high potential habitat.

ULT Field Survey Guidelines (USFWS 2013) were utilized during the initial habitat assessment. Prior to the survey, and consistent with USFWS protocols, the field crew visited a ULT reference site to assist with visual identification during the field survey, and to familiarize themselves with the target species' associated habitat and natural community.

A primary objective of the initial habitat assessment was to ground-truth desktop observations. The field crew conducted an initial habitat assessment of the study area to verify the presence or absence of suitable habitat for ESA-listed and special status plant species, concurrently assessing cottonwood and willow wetland habitat extent in accordance with Idaho Bureau of Land Management (BLM) survey protocols. In addition, invasive plant species occurrence and distribution data were gathered. To assist BLM with their efforts to remove and prevent the spread of saltcedar (*Tamarix* spp.), field observations were captured in the invasive species inventory. Survey protocols for linear- and polygon-shaped projects were implemented following regional BLM guidance. The field crew walked meandering transects along the riverbanks within the study area. For larger polygon-shaped sections of the study area, crews performed an "intuitive-controlled" walking survey. This method allowed the greatest area to be surveyed while prioritizing high-potential habitat. Field data collection was consistent with the methods outlined in the TERR-1 study plan (IFP 2024).

Although the focus of the initial habitat assessment was to conduct "intuitive-controlled" walking surveys in areas of high potential suitable habitat, in the portions of study area that were not identified as high potential habitat, the field crew field-verified those desktop observations (i.e., no suitable habitat). They followed a similar meandering approach while moving to areas of high potential habitat. Thus, areas of high potential habitat and no suitable habitat were field-verified.

Data gathered during the initial habitat assessment were shared with the TERR-2 Wildlife and Rare, Threatened, and Endangered Species Study to inform an evaluation of associated wildlife habitat.

4.1. VARIANCE FROM STUDY PLAN AND SCHEDULE

The scope of the study area surveyed during the initial habitat assessment was changed in response to field conditions. Specifically, the northernmost portion of the Upper Plant segment was determined to be inaccessible by foot due to a combination of factors. Access to private land parcels surrounding the Project Boundaries in the northernmost area was not available to the field crew at the time of the survey. In response, the field crew accessed the northernmost extent via boat, where they then conducted visual surveys of the riverbanks. However, additional obstructions, such as a dense vegetative understory adjacent the riverbank and low water levels, prohibited access to various islands in the northernmost extent of the Upper Plant segment. Given the density of the understory, disembarking from the boat was determined to be a safety issue. Additionally, visual surveys were not able to penetrate past the understory. Furthermore, low water levels impeded access to the most northern extent of the Upper Plant segment. During the follow-up survey scheduled for 2025, the field crew will attempt to access the northernmost extent by foot.

4.2. MODIFICATIONS TO STUDY METHODS

No modifications to methods were made during the initial habitat assessment, nor are any anticipated for the follow-up survey.

4.3. ANALYSIS

Field data were collected in a manner that promotes high-quality results and were subject to appropriate quality assurance/quality control procedures, including spot checks of transcription,

comparison of Geographic Information System (GIS) maps with field notes to verify locations of sensitive habitats and species, and research of species' geographic extent and range.

5.0 DATA SUMMARY

The desktop assessment identified approximately 378 acres of high potential suitable habitat within the study area. Areas identified as potential suitable habitat during the desktop analysis were ground-truthed by the field crew, wherein either habitat presence and extent were either confirmed, adjusted, eliminated based on lack of supporting field observations. Although no occurrences of ULT were found within the study area, approximately 0.76 acres of suitable habitat was mapped during the initial habitat assessment. Additionally, within the study area, approximately 34.35 acres of cottonwood and willow habitat and 57.97 acres of flowering or budding noxious or invasive plant species were mapped.

Table 5-1 provides a list of special status species identified in the study area, including pertinent global and Idaho state plant ranking information. Table 5-2 provides a list of noxious weeds found within the study area, with statewide containment list status and global and Idaho state plant ranking information.

TABLE 5-1 SPECIAL STATUS PLANT SPECIES IDENTIFIED IN THE STUDY AREA

U.S. DEPARTMENT OF AGRICULTURE PLANT CODE	SCIENTIFIC NAME	COMMON NAME	STATUS
ACNE2	*Acer negundo*	boxelder	SNR, G5
ACSA2	*Acer saccharinum*	silver maple	G5
AGCR	*Agropyron cristatum*	crested wheatgrass	SNA, G5
ASSP	*Asclepias speciosa*	showy milkweed	SNR, G5
BRIN2	*Bromus inermis*	smooth brome or awnless brome	SNR, G5
BRTE	*Bromus tectorum*	cheatgrass	SNA, GNR
CAREX	*Carex* sp.	sedge	--
ELAN	*Elaeagnus angustifolia*	Russian olive	SNA, GNR
EPCA3	*Epilobium canum*	hummingbird trumpet	SNR, G5
EQHY	*Equisetum hyemale*	scouringrush horsetail or rough horsetail	SNR, G5

U.S. DEPARTMENT OF AGRICULTURE PLANT CODE	SCIENTIFIC NAME	COMMON NAME	STATUS
FRVE2	*Fraxinus velutina*	velvet ash	--
MEOF	*Melilotus officinalis*	sweetclover	SNA, GNR
MESA	*Medicago sativa*	alfalfa	SNA, GNR
POAN3	*Populus angustifolia*	narrowleaf cottonwood	SNR, G5
SAEX	*Salix exigua*	narrowleaf willow	SNR, G5
SCAC	*Schoenoplectus acutus*	hardstem bulrush	SNR, G5
TAVU	*Tanacetum vulgare*	common tansy	SNA, GNR
TYLA	*Typha latifolia*	broadleaf cattail	SNR, G5
ULMUS	*Ulmus* sp.	elm	--

Source: IDFG (2025).
G = Global rank indicator; denotes rank based on range-wide status.
T = Trinomial rank indicator; denotes the global status of infraspecific taxa.
S = State rank indicator; denotes rank based on status within Idaho.
GNR = Unranked. Global rank not yet assessed.
SNA = Not Applicable. Aa conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., long distance aerial and aquatic migrants, hybrids without conservation value, and non-native species or ecosystems).
SNR = Unranked. National or subnational conservation status not yet assessed.
5 = Demonstrably widespread, abundant, and secure.

TABLE 5-2 NOXIOUS WEEDS IDENTIFIED IN THE STUDY AREA

U.S. DEPARTMENT OF AGRICULTURE PLANT CODE	SCIENTIFIC NAME	COMMON NAME	STATUS
ACRE3	*Acroptilon repens*	Russian knapweed or hardheads	SNA, GNR, Statewide Control List[1]
CANU4	*Carduus nutans*	nodding plumeless thistle or musk thistle	SNA, GNR, Statewide Control List[1]
CEST8	*Centaurea stoebe*	spotted knapweed	GNR, Statewide Containment List[2]
COAR4	*Convolvulus arvensis*	field bindweed	SNA, GNR, Statewide Containment List[2]

Source: ISDA (2022).
1 Control– Concentration of weeds where control and/or eradication may be possible.
2 Containment– Reduce or eliminate new or expanding weed populations.
Source: IDFG (2025).
GNR = Unranked. Global rank not yet assessed.
SNA = Not Applicable. Aa conservation status rank is not applicable because the species or ecosystem is not a suitable target for conservation activities (e.g., long distance aerial and aquatic migrants, hybrids without conservation value, and non-native species or ecosystems).

While not federally listed, showy milkweed (*Asclepias speciosa*) provides critical breeding habitat for the monarch butterfly (*Danaus plexippus*), a candidate species under the ESA (USFWS 2025). However, IFP is conducting surveys for monarch butterfly as part of the TERR-2 study.

In addition, a variety of wildlife species were incidentally observed, including Bald eagle (*Haliaeetus leucocephalus*), coyote (*Canis latrans*), raven (*Corvus corax*), seagull (*Larinae* sp.), marmot (*Marmota* sp.), pelican (*Pelecanus* sp.), and great blue heron (*Ardea Herodias*).

The following subsections describe the results of the initial habitat assessment specific to the Projects.

5.1. IDAHO FALLS PROJECT DATA

Twelve discrete locations were determined to comprise suitable habitat for ULT within the Idaho Falls Project Boundary. Locations were assessed based on soil composition, proximity to and availability of water, and the presence of indicator species. The Upper Plant consisted of approximately 0.57 acres, the City Plant of 0.15 acres, and the Lower Plant of 0.03 acres, totaling 0.76 acres. No ULT plant occurrences were found. Additionally, approximately 13.66 acres of cottonwood and willow habitat were mapped within the Idaho Falls Project Boundary.

Approximately 1.12 acres of flowering or budding noxious or invasive plant species were mapped within the Idaho Falls Project Boundary. Species included spotted knapweed (*Centaurea stoebe*) and musk thistle (*Carduus nutans*). No incidental observations of saltcedar were noted during the initial habitat assessment.

5.2. GEM STATE PROJECT DATA

Approximately 20.69 acres of cottonwood and willow habitat were mapped within the Gem State Project Boundary, whereas no suitable habitat for ULT was found nor were any ULT plant occurrences observed.

Approximately 56.85 acres of flowering or budding noxious or invasive plant species were mapped within the Gem State Project Boundary. Species included spotted knapweed, musk thistle, and field bindweed (*Convolvulus arvensis*). No incidental observations of saltcedar were found.

6.0 NEXT STEPS

The anticipated TERR-1 study plan development and implementation schedule is summarized in Table 6-1. A follow-up survey will be conducted to verify the presence or absence of ULT occurrences within the study area and to determine the extent of species distribution. The follow-up survey will occur during the blooming period for ULT, a four-to-six-week period from July to August 2025, which also coincides with other special status species' blooming periods.

Consistent with methods used in the initial habitat assessment, ULT Field Survey Guidelines (USFWS 2013) will be utilized. Additionally, the protocols of the USFWS *Guidelines for Conducting and Reporting Botanical Inventories and Monitoring of Federally Listed, Proposed, and Candidate Plants* (USFWS 2011) and the BLM Idaho state office *Special Status Plant Project Survey and Clearance Protocol* (BLM 2017) will be employed.

Prior to surveys, the field crew will visit reference sites, if available, to assist with recognition of target species during their specific bloom periods. The follow-up survey study area will only include locations where suitable habitat was identified and ground-truthed during the initial habitat assessment. During the follow-up survey, the field crew will note the type, number, and location of any individual special status species or ESA-listed plant species, as well as any incidental observations of noxious weed infestations or wildlife species. Study results from the follow-up survey will be summarized in the Updated Study Report (USR).

TABLE 6-1 TERR-1 STUDY SCHEDULE

DATE	ACTIVITY
June 2025	Distribute ISR tech memo and meeting with stakeholders
Summer 2025	Conduct follow-up field surveys
Fall/Winter 2025	Resolve comments received on the ISR tech memo and prepare study report
June 2026	File USR and meeting with stakeholders
September 2026	Distribute final study report in Draft License Application
January 2027	File Final License Application

7.0 REFERENCES

Bureau of Land Management (BLM). 2017. Special Status Plant Project Survey and Clearance Protocol. Available online: https://www.blm.gov/sites/default/files/policies/IDIM2017-011a1.pdf. Accessed March 2025.

Federal Energy Regulatory Commission (FERC). 2024. Study Plan Determination for the Idaho Falls Hydroelectric Project (P-2842) and Gem State Hydroelectric Project (P-2952). June 5, 2024.

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_____. 2013. Species Profile for Ute Ladie's-tresses (Spiranthes diluvialis). Available online: https://ecos.fws.gov/ecp/species/2159. Accessed March 2025.

_____. 2025. Monarch. Available online: https://www.fws.gov/species/monarch-danaus-plexippus. Accessed April 2025.

United States Forest Service (USFS). 1998. Survey Protocols for Survey & Manage Strategy 2 for Vascular Plants. https://www.fs.usda.gov/r6/reo/survey-and-manage/downloads/vascular/sp-va-v2-att1-1998.pdf.

APPENDIX F

WILDLIFE AND RARE, THREATENED, AND ENDANGERED SPECIES (TERR-2) TECHNICAL MEMORANDUM

TECHNICAL MEMORANDUM

To:	Idaho Falls Power Relicensing Stakeholders
From:	Idaho Falls Power Relicensing Team
Date:	June 2025
Subject:	Wildlife and Rare, Threatened, and Endangered Species (TERR-2) Technical Memorandum

1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects." The licenses for the Projects expire on January 31, 2029; therefore, IFP plans to relicense the Projects using FERC's Integrated Licensing Process (ILP), pursuant to 18 Code of Federal Regulations (CFR) Part 5. Due to the proximity of the Projects to each other, IFP is conducting the relicensing processes concurrently.

This technical memorandum (tech memo) presents a progress report of the Wildlife and Rare, Threatened, and Endangered (RTE) Species Study (TERR-2) for the Projects, consistent with the TERR-2 study plan and the requirements for an Initial Study Report (ISR) pursuant to 18 CFR § 5.15. The TERR-2 study plan implements IFP's proposed study goals and objectives, study area, methods, and schedule for the study effort. IFP's Revised Study Plan (RSP) was filed with FERC on May 13, 2024 (IFP 2024) and approved in FERC's Study Plan Determination (SPD) on June 5, 2024 (FERC 2024).

A literature review was conducted by reviewing existing records, available literature and data that provide relevant information about the Project areas, as well as habitat requirements and the likelihood of special-status species occurring in or near the Project areas. Field surveys are expected to begin June 2025 and continue through April 2026.

2.0 STUDY OBJECTIVES

The TERR-2 study goals and objectives were developed during the preparation of the Proposed Study Plan (PSP). A PSP stakeholder meeting was held on February 13, 2024, and following a 60-day comment period, the PSP was revised to address the comments received. Stakeholder requests were confirmed in the RSP, which was filed with FERC on May 13, 2024 (IFP 2024).

The goal of the TERR-2 study is to document existing wildlife and RTE species and to identify potential Project effects on these resources. The following objectives are necessary to achieve this goal:

1. Assess the abundance and general distribution of wildlife species in the Project areas;
2. Determine the potential presence of special-status wildlife during the breeding season;
3. Assess the potential impact of the Projects on special-status species determined to be present or with high presence potential;
4. Identify the potential effects of the Project's continued operations on habitats and associated wildlife within the Project areas; and
5. Evaluate bird mortality from the Projects' primary transmission lines.

3.0 STUDY AREA

The TERR-2 study area includes the land and the features within the Project Boundaries. The study area also includes a 500-foot buffer from all Projects features to include a diversity of habitats, including uplands, riparian, and wetlands (Figure 3-1).

General and RTE species surveys will be conducted throughout the entire study area. Avian carcass surveys will be conducted exclusively within a 500-foot-wide corridor below the Projects' primary transmission lines.

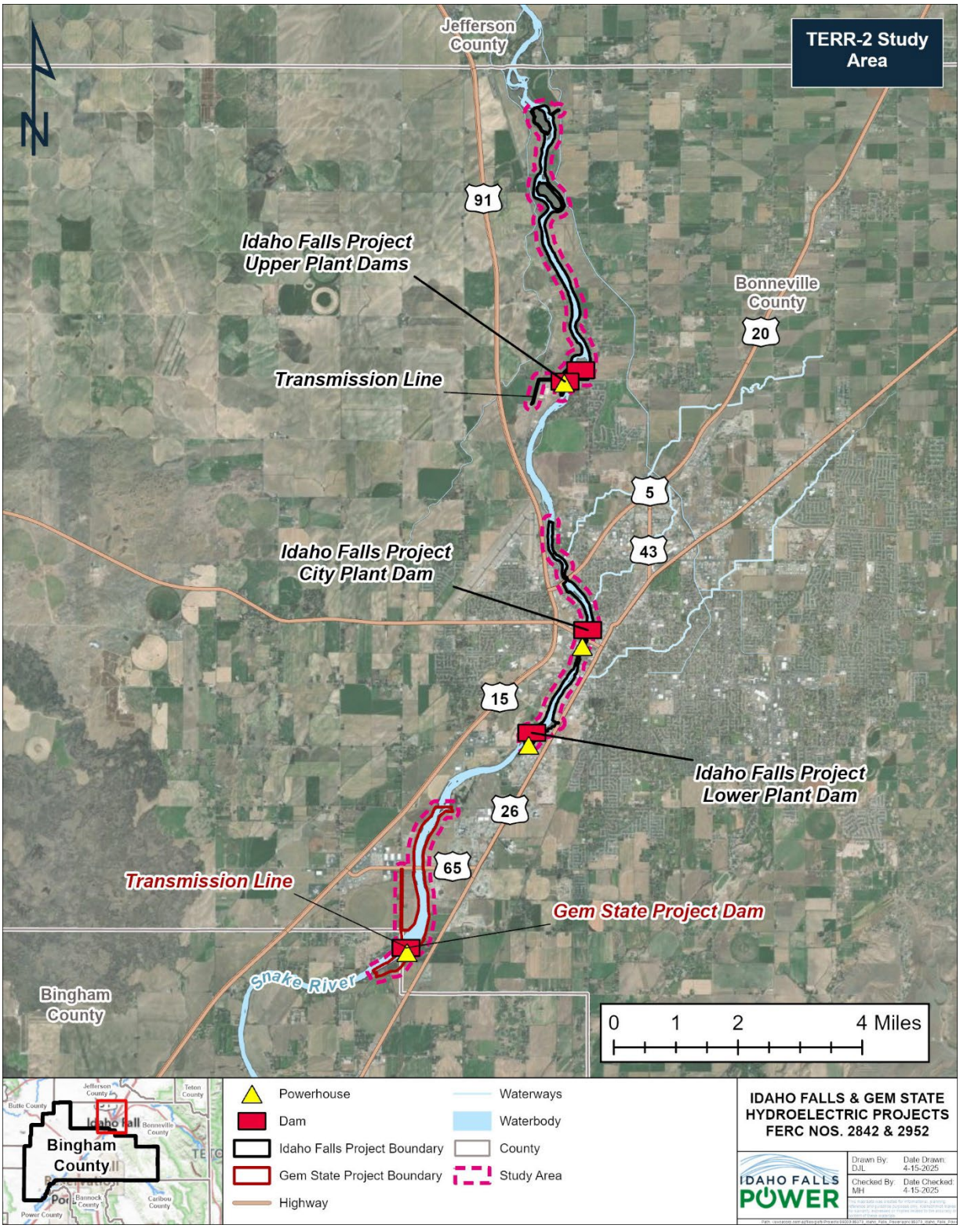

FIGURE 3-1 TERR-2 STUDY AREA

4.0 METHODS

Study implementation has followed the methods described in the TERR-2 study plan (IFP 2024) and as approved in FERC's SPD (FERC 2024), with the exceptions described below.

The purpose of the desktop analysis was to develop an updated list of special-status species with the potential to occur in the study area. Various resources were utilized to develop this list, including the Idaho State Wildlife Action Plan 2023 (IDFG 2024), which identifies Species of Greatest Conservation Need (SGCN). The study area falls within the Intermountain Semidesert Province, and all species with a documented distribution within this ecological province were included in this progress report.

Additionally, the United States Fish and Wildlife Service (USFWS) Information for Planning and Consultation (IPaC) tool was used to obtain an official list of Endangered Species Act (ESA) threatened, endangered, proposed, and candidate species with the potential to occur in the study area (USFWS 2025*).* Furthermore, the Bureau of Land Management (BLM) Special Status Species Animal List 2022 was used to compile a list of sensitive species (BLM 2022).

FP reviewed existing records, literature, and data to assess habitat conditions within the study area and evaluate the habitat requirements of special-status species. Only species that were determined to have the potential to occur within the study area based on this habitat analysis were included in this progress report.

The following data sources were reviewed to determine whether a nexus exists between special-status species potentially occurring in the study area and their known associated habitats:

- NatureServe Explorer and Idaho Fish and Game Species Catalog for species and habitat range information on state and federally listed species.
- Cornell Lab of Ornithology and eBird for avian species' habitat ranges and observation data.

4.1. VARIANCE FROM STUDY PLAN AND SCHEDULE

The avian carcass surveys were delayed due to several factors. These surveys were originally scheduled to begin in fall 2024 and were postponed following additional analysis of primary Projects' roads, trails, and transmission lines within the FERC Project Boundaries. This analysis revealed that boundary adjustments were necessary, which delayed the startup of TERR-2 study activities.

All primary transmission lines of the Projects require avian carcass surveys, including those intersecting private property. As a component of this analysis, IFP is determining which private parcels require land easements and advanced access coordination. Therefore, to ensure efficient and effective survey implementation, IFP postponed the initiation of avian carcass surveys.

The avian carcass surveys are now scheduled to be conducted starting fall 2025, following the refinement of primary Projects' transmission lines in the study area and completion of easement coordination.

4.2. MODIFICATIONS TO STUDY METHODS

No modifications to methods were made during the initial habitat assessment, nor are any anticipated for the upcoming field surveys.

4.3. ANALYSIS

The desktop analysis was conducted to promote high-quality results and was subject to appropriate quality assurance/quality control (QA/QC) procedures, including review from additional subject matter experts. When conducted, field surveys will also follow QA/QC procedures, including spot checks of data transcription, comparison of geographic information system (GIS) maps with field notes to verify locations of sensitive habitats and species, and validation of species' geographic extent and range through further research.

5.0 DATA SUMMARY

The desktop analysis identified the following species: one federally listed endangered species (Snake River physa [*Physella natricina*]), one proposed threatened species (monarch butterfly [*Danaus plexippus*]), one proposed endangered species (Suckley's cuckoo bumble bee [*Bombus suckleyi*]), and four species under review, including Little brown myotis (*Myotis lucifugus*), pinyon jay (*Gymnorhinus cyanocephalus*), western bumble bee (*Bombus occidentalis*), and western ridged mussel (*Gonidea angulata*). The Suckley's cuckoo bumble bee, Snake River physa, and all four species under review are new RTE species not previously noted in the TERR-2 study plan. Table 5-1 provides a list of RTE species with potential to occur in the study area, along with their ESA status information.

As described in the TERR-2 study plan, all aquatic species noted in Table 5-1 will be recorded as incidental observations during fieldwork if they are found within the study area. These species are covered in the AQ-1 Fish Assemblage Study surveys and are not a focus of TERR-2 survey efforts.

In addition to the listed federal species discussed above, the Idaho Fish and Game Species Catalog (IDFG 2025), the Idaho State Wildlife Action Plan 2024 (IDFG 2024), and the BLM list (BLM 2022) identify other SGCN and sensitive species that have the potential to occur within the study area (Table 5-2). Some of the species previously discussed in the TERR-2 study plan are not included in Table 5-2 below due to the lack of suitable habitat within the study area.

TABLE 5-1 RTE SPECIES WITH POTENTIAL TO OCCUR IN THE STUDY AREA

SPECIES	STATUS	HABITAT DESCRIPTION	POTENTIAL TO OCCUR WITHIN THE STUDY AREA
Little brown myotis (*Myotis lucifugus*)	UR	This species uses a wide range of habitats and often roosts in human-made structures for resting and maternity sites. In winter, it typically roosts in caves and mines. During summer, it may be found in trees, artificial structures, bat houses, under rocks, and in wood piles. Foraging occurs primarily over streams and other bodies of water, along lake and stream margins, or in woodlands near water. Winter hibernation sites—such as caves, tunnels, and abandoned mines—generally maintain stable temperatures between 36°F and 54°F.	**Low**. Although this species is known to occur throughout Idaho and could use the Snake River for foraging, the study area does not provide roosting habitat.
Pinyon jay (*Gymnorhinus cyanocephalus*)	UR	This species occupies pinyon-juniper woodlands, sagebrush, scrub oak, chaparral, and ponderosa pine forests year-round. It nests in ponderosa pine (*Pinus ponderosa*), pinyon pine (*Pinus edulis*), and Utah juniper (*Juniperus osteosperma*) anywhere from 3 to 115 feet above the ground.	**Low**. Suitable habitat is not known to occur within the study area. The most recent observation of the species near the Project area was in 2013 (eBird 2025).
Monarch butterfly (*Danaus plexippus*)	PT	Monarch butterflies occupy a variety of habitat types, including forests and grasslands. Breeding is strongly associated with milkweed (*Asclepias* spp.).	**High**. There is potential suitable habitat within the study area and the Project area is within the known range of the species.
Snake River physa (*Physella natricina*)	E	The habitat consists of swift currents of the mainstem Snake River on the undersides of gravel and boulder substrates in well-oxygenated waters.	**Low**. There is potential suitable habitat within the study area; however, the Project area is outside the species known range.
Suckley's cuckoo bumble bee (*Bombus suckleyi*)	PE	This species is typically found in mountainous alpine, and subalpine habitats. It prefers open flowering meadows and scrublands at higher elevations where it can access a variety of pollen sources.	**High**. There is potential suitable habitat within the study area. The Project area is within the known range of the species.
Western bumble bee (*Bombus occidentalis)*	UR	This species is found in a range of habitats, including mixed woodlands, farmlands, urban areas, montane meadows, and into the western edge of the prairie grasslands.	**High**. There is potential suitable habitat within the study area. The Project area is within the known range of the species.

SPECIES	STATUS	HABITAT DESCRIPTION	POTENTIAL TO OCCUR WITHIN THE STUDY AREA
Western ridged mussel (*Gonidea angulata*)	UR	The habitat consists of creeks and rivers of all sizes and can be found on substrates varying from firm mud to coarse particles. This species is rarely found in lakes or reservoirs.	**Low**. There is potential suitable habitat within the study area; however, the study area is outside the species known range.
White sturgeon (*Acipenser transmontanus*)	E	The habitat consists of large cool rivers or streams and spawning occurs either over deep gravel riffles or in deep holes with swift currents and rock bottoms.	**High**. Idaho Department of Fish and Game stocks this species in rivers and reservoirs including areas near John's Hole Bridge in Idaho Falls.

Sources: eBird (2025); Idaho Fish and Game (2024, 2025); USFWS (2025); and NatureServe (2025)
ESA status codes: E – listed as endangered under ESA; UR – under review in the candidate or petition process; PT – proposed threatened under ESA; PE – proposed endangered under ESA.

TABLE 5-2 STATE-LISTED SPECIES AND SPECIES WITH OTHER CONSERVATION STATUS THAT MAY OCCUR IN THE STUDY AREA

SPECIES	CONSERVATION STATUS	HABITAT DESCRIPTION	POTENTIAL TO OCCUR WITHIN THE STUDY AREA
FISH			
Bluehead sucker (*Catostomus discobolus*)	BLM-S	This species occupies a variety of habitats, from headwater streams to large rivers. It is almost always found in moderate- to fast-flowing water above a rubble-rock substrate. However, younger fish prefer quiet, shallow areas near the shoreline.	**Low**. This species is native to the Snake River; however, it has not been documented near Idaho Falls.
Mountain whitefish (*Prosopium williamsoni*)	SGCN	This species inhabits cold mountain lakes and fast streams with large pools. Spawning occurs in tributaries in riffles over gravels and small rubble.	**High**. This species is present throughout rivers and lakes in Idaho, including in high abundance in the Snake River.
Northern leatherside chub (*Lepidomeda copei*)	SGCN	The habitat consists of sluggish pools and backwaters, usually over mud or sand, of creeks and small to medium rivers.	**High**. This species is native to the Snake River.
White sturgeon (*Acipenser transmontanus*)	SGCN	The habitat consists of large cool rivers or streams. Spawning occurs either over deep gravel riffles or in deep holes with swift currents and rock bottoms.	**High**. Idaho Department of Fish and Game stocks this species in rivers and reservoirs including areas near John's Hole Bridge in Idaho Falls.
Yellowstone cutthroat trout (*Oncorhynchus clarkii bouvieri*)	SGCN, BLM-S	This species inhabits relatively clear, cold streams, rivers, and lakes. Optimal temperatures have been reported to be from 39 to 59°F, with occupied waters ranging from 32°F to 80°F.	**High**. This species is native to the Snake River and is known to occur near Idaho Falls.
AMPHIBIANS			
Western toad (*Anaxyrus boreas*)	SGCN, BLM-S	This species occurs in a wide variety of habitats ranging from desert springs to mountain wetlands. The toad requires cool, moist conditions for breeding and development, thriving in areas with stable, cold temperatures and abundant aquatic vegetation. After breeding, the toad moves to moist terrestrial habitats, including grassy meadows and forested undergrowth, where it finds shelter and food.	**High**. This species is known to occur throughout Idaho and the Snake River.
Northern leopard frog (*Lithobates pipiens*)	SGCN, BLM-S	This species typically inhabits elevations ranging from near sea level up to about 7,000 feet in elevation. It is often found at lower elevations where suitable wetland habitats such as ponds, lakes, and marshes are common. In mountainous regions, this species may occur at higher elevations if there are appropriate wetland habitats available.	**High**. Northern leopard frogs are found throughout southern Idaho along the Snake River Plain and in some areas in the northern panhandle.
MAMMALS			
Big brown bat (*Eptesicus fuscus*)	BLM-S	The habitat ranges from high mountains to low deserts with roosts generally in buildings, bridges, hollow trees, spaces behind exfoliating bark, rock crevices, tunnels, or cliff swallow nests.	**Low**. This species is known to occur throughout Idaho and could use the Snake River for foraging habitat; however, the study area does not provide roosting habitat.
Hoary bat (*Lasiurus cinereus*)	SGCN, BLM-S	This species prefers habitats that include forests, woodlands, and open areas such as meadows, grasslands, and agricultural fields. It is a tree dweller that seeks shelter in dense foliage of trees, using them for roosting during the day. During the breeding season, the bat may roost in coniferous trees, and during migration, it can be found in more open landscapes.	**Low**. This species is known to occur throughout Idaho and could use the Snake River for foraging habitat; however, the study area does not provide roosting habitat.
Long-eared myotis (*Myotis evotis*)	BLM-S	Habitat ranges from lowland, montane, and subalpine woodlands, forests, shrublands, and meadows, wooded stream courses, and areas over water bodies. Roosting occurs in mines, caves, hollow trees, rock crevices, and buildings.	**Low**. This species is known to occur throughout Idaho and could use the Snake River for foraging habitat; however, the study area does not provide roosting habitat.
Long-legged myotis (*Myotis volans*)	BLM-S	Habitat consists primarily of mountainous areas wooded with coniferous trees but also may be found in riparian and desert habitat. Old buildings, rock crevices, and hollow trees are used for daytime roosting and winter hibernation.	**Low**. This species is known to occur throughout Idaho and could use the Snake River for foraging habitat; however, the study area does not provide roosting habitat.

SPECIES	CONSERVATION STATUS	HABITAT DESCRIPTION	POTENTIAL TO OCCUR WITHIN THE STUDY AREA
Pallid bat (*Antrozous pallidus*)	BLM-S	The habitat consists of mountainous areas, intermontane basins, lowland desert scrub, arid deserts, and grasslands often near rocky outcrops and water. In some areas, this species also inhabits open coniferous forest and woodland. Roosting occurs in rock crevices, caves, old buildings, and hollow trees during the day and hibernation occurs in caves and mines during the cold winter months.	**Low**. This species is known to occur throughout Idaho and could use the Snake River for foraging habitat; however, the study area does not provide roosting habitat.
Pronghorn (*Antilocapra americana*)	SGCN	This species distribution is common in the western United States occurring in deserts, grasslands, sagebrush plains, and foothills.	**Low**. While this species is a generalist and is found throughout Idaho, the study area is near populated areas and human disturbance.
Silver-haired bat (*Lasionycteris noctivagans*)	SGCN	The habitat is primarily forested (frequently coniferous) areas adjacent to lakes, ponds, or streams, including areas that have been altered by humans. During migration, these bats sometimes occur in xeric areas. Summer roosts and nursery sites are in coniferous or deciduous tree foliage, cavities, or under loose bark, sometimes in buildings.	**Low**. This species is known to occur throughout Idaho and could use the Snake River for foraging habitat; however, the study area does not provide roosting habitat.
Spotted bat (*Euderma maculatum*)	BLM-S	The habitat ranges from desert to montane coniferous stands, including open ponderosa pine, pinyon-juniper woodland, canyon bottoms, riparian and river corridors, meadows, open pasture, and hayfields. The species roosts and hibernates in caves and rock crevices.	**Low**. This species is known to occur throughout Idaho and could use the Snake River for foraging habitat; however, the study area does not provide roosting habitat.
Townsend's big-eared bat (*Corynorhinus townsendii*)	SGCN	This species is found regularly in forested regions and buildings, and in areas with a mosaic of woodland, grassland, and/or shrubland. It is also known to inhabit limestone caves, lava tubes, and human-made structures in coastal lowlands, cultivated valleys, and nearby hills covered with mixed vegetation.	**Low**. This species is known to occur throughout Idaho and could use the Snake River for foraging habitat; however, the study area does not provide roosting habitat.
Western small-footed myotis (*Myotis ciliolabrum*)	SGCN	This species generally inhabits deserts, badlands, and semiarid habitats; more mesic habitats in the southern part of the range; woodlands and dry open forests, riparian zones, and areas near cliffs and outcrops.	**Low**. This species is known to occur throughout Idaho and could use the Snake River for foraging habitat; however, the study area does not provide roosting habitat.
Yuma myotis (*Myotis yumanensis*)	SGCN	This species is more closely associated with water than most other North American bats. It is found in a wide variety of upland and lowland habitats, including riparian, desert scrub, moist woodlands, and forests, usually near open water. Foraging occurs over water or in open spaces over land. Warm-season roosts are in caves, cliff crevices, bridges, buildings, and tunnels, as well as abandoned cliff swallow nests and cavities and nooks in large live trees near water.	**Low**. This species is known to occur throughout Idaho and could use the Snake River for foraging habitat; however, the study area does not provide roosting habitat.
REPTILES			
Common gartersnake (*Thamnophis sirtalis*)	SGCN	This species inhabits a very wide range of aquatic, wetland, and upland habitats.	**Moderate**. This species is known to occur throughout Idaho and could use the land surrounding the Snake River for foraging and hibernating habitat.
BIRDS			
Bald eagle (*Haliaeetus leucocephalus*)	BLM-S	Prefers habitat with large trees near rivers, lakes, marshes, and other large bodies of water where fish are abundant.	**High**. Suitable perching and nesting habitats are present along the banks of the Snake River in large trees, as well as hunting fish in the Snake River. There are multiple observations of the species within the study area (eBird 2025).
Black rosy-finch (*Leucosticte atrata*)	SGCN	This species occupies barren, rocky, or grassy areas and cliffs among glaciers or beyond timberline. During migration and winter, it occurs in open situations, fields, cultivated lands, brushy areas, and around human habitation. Many individuals roost in mine shaft or similar protected sites. This species usually nests in rock crevices or holes in cliffs above snow fields or in abandoned buildings.	**Moderate**. Suitable agricultural fields are present within the study area. There are no observations of the species within the study area, but it was observed north near Rigby, Idaho, in 2019 (eBird 2025).

SPECIES	CONSERVATION STATUS	HABITAT DESCRIPTION	POTENTIAL TO OCCUR WITHIN THE STUDY AREA
Black tern (*Chlidonias niger*)	SGCN	This species nests in large freshwater wetlands, usually in dense marshes on the edges of shallow lakes of the open prairies or northern forests.	**High**. There is potential suitable habitat within the study area and multiple observations of the species near the Gem Lake Dam and recreation area (eBird 2025).
Bobolink (*Dolichonyx oryzivorus*)	SGCN	This species generally selects habitat with moderate to tall vegetation, moderate to dense vegetation, and moderately deep litter. It is found in native and tame grasslands, haylands, lightly to moderately grazed pastures, no-till cropland, small-grain fields, old fields, wet meadows, and planted cover.	**Low**. Suitable habitat is not known to occur within the study area, and there are no observations of the species within the study area. However, there have been several observations near the study area (eBird 2025).
Brewer's sparrow (*Spizella breweri*)	SGCN	This species depends almost exclusively on the sagebrush ecosystem for breeding, but it can also be found to a lesser extent in mountain mahogany, rabbit brush, bunchgrass grasslands with shrubs, bitterbrush, ceonothus, manzanita, and large openings in pinyon-juniper. In migration and winter, it uses low, arid vegetation including desert scrub communities, consisting of sagebrush (*Artemisia* spp.) and creosote bush (*Larrea tridentata*).	**High**. There is suitable habitat within the study area, and multiple observation of the species have been recorded throughout the study area, including at Gem Lake Dam and the surrounding recreation area (eBird 2025).
California gull (*Larus californicus*)	SGCN	This species is found in seacoasts, bays, estuaries, mudflats, marshes, irrigated fields, lakes, ponds, dumps, cities, and agricultural lands. It nests inland in open sandy or gravelly areas on islands or along the shores of lakes and ponds, generally with scattered grasses. It also nests on the ground and prefers fairly open areas with irregular terrain near island shores.	**High**. There is potential suitable agricultural and grassland habitat within the study area, and multiple observations of the species have been recorded throughout the study area (eBird 2025).
Caspian tern (*Hydroprogne caspia*)	SGCN	Primary habitats include seacoasts, bays, estuaries, lakes, marshes, and rivers. It nests on sandy or gravelly beaches and shell banks along coasts or large inland lakes, sometimes alongside other water birds. Pacific coast populations, which formerly nested mainly in inland marshes, now mainly use human-created habitats (e.g., salt pond dikes and levees) along the coast, as well as dredge-spoil islands.	**High**. There is potential suitable river habitat within the study area, and multiple observations of the species have been recorded throughout the study area (eBird 2025).
Cassin's finch (*Haemorhous cassinii*)	SGCN	This species prefers open coniferous forest. During migration and winter, it can be found in deciduous woodland, second-growth forests, scrub, brushy areas, partly open habitats with scattered trees, and suburban areas near mountains. It usually nests in conifers but may also use deciduous trees or shrubs.	**Moderate**. There is no known suitable conifer habitat within the study area; however, shrub coverage is present. Multiple observations of the species have been recorded in the study area (eBird 2025).
Cinnamon teal (*Spatula cyanoptera*)	SGCN	This species occupies shallow lake margins, reed beds, ponds, lagoons, sluggish streams, and marshes, primarily in freshwater environments. It builds nests on the ground near the edges of lakes, pools, or swamps and are usually well-concealed in vegetation.	**High**. There is suitable habitat within the study area, and multiple observation of the species have been made throughout the study area, including near Gem Lake Dam and the surrounding recreation area (eBird 2025).
Clark's grebe (*Aechmophorus clarkii*)	SGCN	This species nests on the edges of large freshwater lakes and marshes that have edges with emergent vegetation, such as reeds and rushes.	**High**. There is potential suitable river habitat within the study area, and multiple observations of the species have been reported throughout the study area and surrounding habitat (eBird 2025).
Clark's nutcracker (*Nucifraga columbiana*)	SGCN	This species inhabits open coniferous forests, forest edges and clearings, primarily in mountainous regions, but it may wander into various habitats. In winter, it is also found in lowlands. It usually nests at elevations between 5,900 and 8,200 feet above mean sea level, placing nests at the outer end of conifer branches.	**Low**. Suitable habitat is not known to occur within the study area. There have been no observations of the species within the study area, although a few observations have been made nearby (eBird 2025).
Common loon (*Gavia immer*)	SGCN	This species breeds on quiet, remote freshwater lakes in the northern United States and Canada, and it is sensitive to human disturbance. In winter and during migration, it can be found on lakes, rivers, estuaries, and coastlines.	**High**. There is potential suitable river habitat within the study area. Multiple observations of the species have been recorded throughout the study area and surrounding habitat (eBird 2025).
Common nighthawk (*Chordeiles minor*)	SGCN	This species is most visible while foraging on the wing or over open areas near woods or wetlands. It nests on the ground in open areas such as gravel bars, forest clearings, coastal sand dunes, or sparsely vegetated grasslands.	**High**. There is potential suitable river habitat within the study area. Multiple observations of the species have been reported throughout the study area and surrounding habitat (eBird 2025).

SPECIES	CONSERVATION STATUS	HABITAT DESCRIPTION	POTENTIAL TO OCCUR WITHIN THE STUDY AREA
Eared grebe (*Podiceps nigricollis*)	SGCN	This species occurs in marshes, ponds, and lakes; in migration and winter also salt lakes, bays, estuaries, and seacoasts. It nests over water in shallow wetlands in areas with seasonal to permanent water, such as marshes, marshy section of lakes, sewage ponds, fishponds, newly flooded areas, reservoirs, and river backwaters.	**High**. There is potential suitable river habitat within the study area. There have been multiple observations multiple observations of the species throughout the study area and the surrounding habitat (eBird 2025).
Ferruginous hawk (*Buteo regalis*)	SGCN, BLM-S	This species nests in trees and large shrubs along the edge of forests and wooded areas that are adjacent to open areas. Ground nests tend to be on slopes, knolls, and crests of ridges, often on or lodged between boulders.	**Moderate**. There is limited suitable habitat within the study area; however, there have been multiple observations of the species within the study area and the surrounding habitat (eBird 2025).
Franklin's gull (*Leucophaeus pipixcan*)	SGCN	This species nests in freshwater marshes with abundant emergent vegetation and patches of open water. The gulls form large colonies of hundreds or thousands of birds, often nesting less than 2 feet from neighbors. After nesting, Franklin's gulls wander widely in the Intermountain West of North America and in the prairies, where they may be abundant locally, especially where insect prey is emerging in swarms.	**High**. There is potential suitable river habitat within the study area. There have been multiple observations of the species throughout the study area and the surrounding habitat (eBird 2025).
Golden eagle (*Aquila chrysaetos*)	SGCN, BLM-S	This species builds nests on cliffs or in the largest trees of forested stands that often afford an unobstructed view of the surrounding habitat.	**High**. There is suitable foraging habitat within the study area. There have been multiple observations of the species throughout the study area and the surrounding habitat (eBird 2025).
Grasshopper sparrow (*Ammodramus savannarum*)	SGCN, BLM-S	This species occurs in grasslands, prairies, hayfields, and open pastures with little to no scrub cover and often with some bare ground. Birds in the western part of the range can tolerate some brushy habitat but avoid areas that are too overgrown. Grasshopper sparrows winter primarily in grass-dominated fields.	**Low**. There is limited suitable habitat with low to no scrub cover and bare ground. There has not been an observation of this species in the study area since 2018 (eBird 2025).
Green -tailed towhee (*Pipilo chlorurus*)	BLM-S	The habitat is typically low shrubs, sometimes interspersed with trees; avoids typical forests other than open pinyon-juniper woodlands. This species prefers ecotones between sagebrush and other shrubby habitats, especially mountain mahogany.	**Low**. Suitable habitat is not abundant within the study area; however, there was an observation of the species in the study area near the Gem Lake Recreation Area in 2024 (eBird 2025).
Lewis's woodpecker (*Melanerpes lewis*)	SGCN, BLM-S	This species frequently breeds in open ponderosa pine forests and burned forests with a high density of standing dead trees. It also breeds in woodlands near streams, oak woodlands, orchards, and pinyon-juniper woodlands. During the nonbreeding season, it moves in nomadic fashion stopping off in cottonwoods near streams, orchards, and oak woodlands with plentiful resources.	**Moderate**. There is suitable habitat for nonbreeding seasonal occupation in trees along the river, and there have been multiple observations of the species near the study area (eBird 2025).
Loggerhead shrike (*Lanius ludovicianus*)	SGCN, BLM-S	This species inhabits open country with short vegetation and well-spaced shrubs or low trees, particularly those with spines or thorns. It frequents agricultural fields, pastures, old orchards, riparian areas, desert scrublands, savannas, prairies, golf courses, and cemeteries. The loggerhead shrike is often seen along mowed roadsides with access to fence lines and utility poles.	**High**. There is suitable habitat within the study area, and there have been multiple observations of the species throughout the study area and the surrounding habitat (eBird 2025).
Long-billed curlew (*Numenius americanus*)	SGCN, BLM-S	This species spends the summers in areas of western North America with sparse, short grass, including short grass and mixed-grass prairies and agricultural fields. After the young leave the nest, it may move to areas with taller, denser grasses. En route to its wintering grounds along the coast and interior Mexico, it uses shortgrass prairies, alkali lakes, wet pastures, tidal mudflats, and agricultural fields.	**High**. There is suitable habitat within the study area, and there have been multiple observations of the species throughout the study area and the surrounding habitat (eBird 2025).
Northern goshawk (*Accipiter gentilis*)	BLM-S	This species prefers a variety of forested habitats, typically montane conifer-aspen forest where thick stands of conifers and aspen groves near permanent water are favored nesting sites, but it occasionally nests in narrow-leaf cottonwoods along streams in lower valleys as low as about 5,600 feet elevation.	**Moderate**. There is suitable cottonwood habitat along the Snake River, which the species is occasionally known to occupy when near streams or rivers.

SPECIES	CONSERVATION STATUS	HABITAT DESCRIPTION	POTENTIAL TO OCCUR WITHIN THE STUDY AREA
Northern pintail (*Anas acuta*)	SGCN	This species breeds This species reed near lakes, river, marshes, and ponds in grasslands, barrens, dry tundra, open boreal forest or cultivated fields.	**High**. There is suitable habitat within the study area, and there have been multiple observations of the species throughout the study area and the surrounding habitat (eBird 2025).
Olive-sided flycatcher (*Contopus cooperi*)	SGCN, BLM-S	Olive-sided flycatchers are found in forest and woodland habitats: taiga, subalpine coniferous forest, mixed coniferous-deciduous forest, burned-over forest, spruce or tamarack bogs and other forested wetlands, and along the forested edges of lakes, ponds, and streams. Most nesting sites contain dead standing trees, which are used as singing and feeding perches. Nests are placed most often in conifers on horizontal limbs.	**Low**. There is limited suitable habitat along the Snake River. There have only been two observations of the species within and near the study area in the last 5 years (eBird 2025).
Pinyon jay (*Gymnorhinus cyanocephalus*)	SGCN, BLM-S	This species occupies pinyon-juniper woodlands, sagebrush, scrub oak, chaparral, and ponderosa pine forests year-round. It nests in ponderosa pine, pinyon pine, and junipers anywhere from 3 to 115 feet above the ground.	**Low**. Suitable habitat is not known to occur within the study area. The last observation of the species near the study area was in 2013 (eBird 2025).
Ring-billed gull (*Larus delawarensis*)	SGCN	This species is often found in and around urban, suburban, and agricultural areas. In winter, it is common around docks, wharves, and harbors. The ring-billed gull is more commonly seen inland than most other gull species. It can be found in reservoirs, lakes, ponds, streams, landfills, parking lots, and shopping malls.	**High**. There is suitable habitat within the study area and there have been multiple observations of the species throughout the study area and the surrounding habitat (eBird 2025).
Sage thrasher (*Oreoscoptes montanus*)	SGCN, BLM-S	This species breeds exclusively in shrubsteppe habitats—the vast, open landscapes of the interior West. These areas tend to be so dry that trees do not grow, and the ground is dominated by big sagebrush (*Artemisia tridentata*) and other sagebrush species. It requires relatively dense ground cover for concealment, but also some bare ground for foraging and for getting around on their feet, which it often does in preference to flying.	**Low**. Suitable habitat is not known to occur within the study area. The last observation of the species in the study area was in 2017 (eBird 2025).
Sagebrush sparrow (*Artemisiospiza nevadensis*)	SGCN, BLM-S	This species breeds in shrubsteppe habitats consisting of shrubs up to about 6 feet tall (especially big sagebrush), as well as saltbush, rabbitbrush, shadscale, and bitterbrush. It is mostly found below about 5,600 feet elevation. It also nests in mixed sagebrush-juniper habitat that borders open sagebrush steppe.	**Low**. Suitable habitat is not known to occur within the study area. The last observation of the species in the study area was in 2018 (eBird 2025).
Sandhill crane (*Antigone canadensis*)	SGCN	This species breeds in open wetland habitats surrounded by shrubs or trees. It nests in marshes, bogs, wet meadows, prairies, burned-over aspen stands, and other moist habitats, preferring those with standing water. Breeders gravitate toward the edges between wetland and upland habitats, while nonbreeders may prefer open, grassy sites.	**Moderate**. There is limited potential suitable habitat within the study area; however, there have been multiple observations of the species throughout the study area and in the surrounding habitat (eBird 2025).
Short-eared owl (*Asio flammeus*)	SGCN	This species nests in grasslands and open areas, where it perches in low trees or on the ground.	**Low**. Suitable habitat is not known to occur within the study area. The last observation of the species in the study area was in 2020 (eBird 2025).
Trumpeter swan (*Cygnus buccinator*)	SGCN, BLM-S	This species seeks relatively shallow (less than 6 feet deep), undisturbed bodies of freshwater with abundant aquatic plants. These heavy-bodied birds also need at least 100 yards of open water for their running take-offs, and muskrat or beaver dens or small islands on which to nest.	**High**. There is suitable habitat within the study area. There have been multiple observations of the species throughout the study area and in the surrounding habitat (eBird 2025).
Western grebe (*Aechmophorus occidentalis*)	SGCN	This species nests on large freshwater lakes and marshes edged with reeds and rushes, and less frequently along rivers. Nesting in tidal areas is unusual. On very large lakes, colonies may number in the hundreds of pairs. After the breeding season, many move first to lakes where they molt their wing feathers, becoming flightless during that period.	**High**. There is suitable habitat within the study area. There have been multiple observations of the species throughout the study area and in the surrounding habitat (eBird 2025).

SPECIES	CONSERVATION STATUS	HABITAT DESCRIPTION	POTENTIAL TO OCCUR WITHIN THE STUDY AREA
White-faced ibis (*Plegadis chihi*)	SGCN	This species forages in shallow wetlands, usually among short plants such as sedges, spikerush, glasswort, saltgrass, and greasewood. Salt, brackish, and freshwater marshes all provide foraging habitat. It also frequents wet agricultural fields with low plant cover, including alfalfa, barley, wheat, oats, and rice, along with livestock pastures and hayfields. For nesting, it selects shallow marshes with scattered areas of taller emergent vegetation such as cattails (*Thypa* spp.), bur-reed (*Sparganium americanum*), or bulrush (*Scirpoides* spp.).	**High**. There is suitable habitat within the study area. There have been multiple observations of the species throughout the study area and in the surrounding habitat (eBird 2025).
Willow flycatcher (*Empidonax trailii*)	BLM-S	The habitat consists of brushy areas of willow and similar shrubs. The species is found in thickets, open second growth with brush, swamps, wetlands, streamside, and open woodland. It is common in mountain meadows, along streams, and in brushy upland pastures and orchards.	**High**. There is suitable habitat within the study area. There have been multiple observations of the species throughout the study area and in the surrounding habitat (eBird 2025).
Wilson's warbler (*Cardellina pusilla*)	SGCN	This species occupies semi-open areas in moist woodlands, bogs with scattered trees, willow and alder thickets, and areas with similar vegetation structure. Winter habitats include semi-open or lightly wooded areas, such as the canopy, openings, and edges of forests, second growth, coffee plantations, brushy fields, and yards.	**High**. There is suitable habitat within the study area. There have been multiple observations of the species throughout the study area and in the surrounding habitat (eBird 2025).
INVERTEBRATES			
Ashy pebblesnail (*Fluminicola fuscus*)	BLM-S	This species is restricted to small to large rivers, in swift current on stable gravel to boulder substrate in cold, unpolluted, highly oxygenated water.	**High**. There is suitable habitat within the study area. The study area is within the species' known range.
Desert valvata (*Valvata utahensis*)	SGCN	This species has generally been observed in deep waters (6.5–26 feet) with silt substrates, although it is also known from shallow waters (< 6.5 feet) in free-flowing reaches of the Snake River on larger-diameter substrates. It is known from a greater number of habitat types including mainstem, springs, channels, reservoirs, and tributaries in variable substrates, depths (3–46 feet, ideally 18 feet) and temperature (37.4°–75.2°F, ideally 63°F). It is known to be discontinuously distributed in at least 255 miles of the Snake River in Idaho and some associated tributary streams.	**High**. There is potential suitable habitat within the study area. The study area is within the known range of the species.
Idaho dunes tiger beetle (*Cicindela arenicola*)	SGCN	This species is restricted to inland sand dune systems. It is distributed along the Snake River Plain in central Idaho and is also found in the Centennial Valley of southwestern Montana.	**Low**. Suitable habitat is not known to occur within the study area; however, the study area is within the species' known range.
Monarch butterfly* (*Danaus plexippus*)	SGCN, BLM-S	This species occupies a variety of habitat types, including forests and grasslands. Breeding is strongly associated with milkweed (*Asclepias* spp.).	**High**. There is potential suitable habitat within the study area. The study area is within the known range of the species.
Morrison bumble bee (*Bombus morrisoni*)	SGCN, BLM-S	This species is typically found in mountainous and subalpine habitats. This species prefers flowering meadows, grasslands, and wooded edges at higher elevations often in regions with cooler temperatures.	**High**. There is potential suitable habitat within the study area. The study area is within the known range of the species.
Pilose crayfish (*Pacifastacus connectens*)	SGCN	This species is found in rapidly moving freshwater habitats and is known from streams in unpopulated areas of Idaho and Oregon.	**Low**. There is potential suitable habitat within the study area; however, the study area is outside the species' known range.
Shortface lanx (*Fisherola nuttalli*)	SGCN	This species is known to occur in perennial streams and rivers with well-oxygenated water and gravel, cobble, and boulder substrate.	**Low**. There is potential suitable habitat within the study area; however, the study area is outside the species' known range.
Suckley's cuckoo bumble bee* (*Bombus suckleyi*)	BLM-S	This species is typically found in mountainous alpine, and subalpine habitats. It prefers open flowering meadows and scrublands at higher elevations where it can access a variety of pollen sources.	**High**. There is potential suitable habitat within the study area. The study area is within the known range of the species.

SPECIES	CONSERVATION STATUS	HABITAT DESCRIPTION	POTENTIAL TO OCCUR WITHIN THE STUDY AREA
Western pearlshell (*Margaritifera falcata*)	SGCN	This species prefers cold clean creeks and rivers that support salmonid populations. It can inhabit headwater streams less than a few feet wide, but it is more common in larger rivers. Large boulders help create stable environments by anchoring the substrate and creating a refuge from strong currents on the downstream side. The best developed communities in central Idaho are found in areas with large stable cobble and boulder channel gravels.	**Low**. There is potential suitable habitat within the study area; however, the study area is outside the species' known range.
Yellow bumble bee (*Bombus fervidus*)	SGCN	This species typical habitats include open farmland and fields, urban parks, and gardens.	**High**. There is potential suitable habitat within the study area. The study area is within the known range of the species.
PLANTS			
Ute ladies'-tresses** (*Spiranthes diluvialis*)	SGCN	This plant is a perennial, terrestrial orchid that occurs along riparian edges, gravel bars, old oxbows, high-flow channels, and moist to wet meadows along perennial streams or stable wetland and seep areas.	**High**. There is suitable habitat within the study area. The study area is within the known range of the species.

Sources: BLM (2022); eBird (2025); Idaho Fish and Game (2025); NatureServe (2025).
Note: BLM-S = BLM sensitive species; * U.S. Fish and Wildlife Service threatened, endangered, or proposed species; ** Proposed for delisting.

5.1. IDAHO FALLS PROJECT DATA

5.1.1. Upper Plant

The Upper Plant area is characterized by open water, shrub/scrub, wetlands, and croplands, with minimal developed areas. Many of the species with moderate or high likelihood from Table 5-1 and Table 5-2 may be present in this part of the study area.

5.1.2. City Plant

The City Plant area is an urban environment, characterized by open water, high-traffic recreational areas, roads, parking lots, and some small areas of cropland and wetlands. Wildlife species that have adapted to human-altered habitats are more likely to occur in this area.

5.1.3. Lower Plant

The Lower Plant area consists largely of cropland and open water, with some shrub/scrub habitat and minimal development. Many of the species with moderate or high likelihood from Table 5-1 and Table 5-2 may be present in this part of the study area.

5.2. GEM STATE PROJECT DATA

The Gem State Project area is adjacent to a large recreation area and is characterized by open water, cropland, and shrub/scrub land with small, developed areas. Many of the species with moderate or high likelihood from Table 5-1 and Table 5-2 may occur in this part of the study area.

6.0 NEXT STEPS

The anticipated TERR-2 study plan development and implementation schedule is summarized in Table 6-1. General and special-status species pedestrian surveys will be conducted between June 16-30, 2025, to determine the extent of occurrence and distribution of general wildlife and RTE species within the study area.[1] This survey period coincides with the yellow-billed cuckoo

[1] During the desktop analysis, it was determined that no yellow-billed cuckoo (YBCU) suitable habitat is present within the study area. To corroborate this finding, IFP informally consulted with USFWS. On April 16, 2025, USFWS provided concurrence that no suitable habitat for YBCU is present in the study area. As such, presence/absence surveys for YBCU are not required due to a lack of suitable habitat. Regardless, IFP will still conduct a single round of YBCU suitable habitat surveys in conjunction with special-status/general wildlife surveys to field-truth the determination.

(*Coccyzus americanus*) breeding period, to maximize probability of detecting any individuals occupying suitable habitat, although occupancy is considered unlikely based on the desktop analysis.

Avian carcass surveys will be conducted during key seasonal windows to maximize observation opportunities, specifically in October 2025 (fall migration), January 2026 (overwintering), and late March or early April 2026 (spring migration). Prior to field surveys, aerial imagery of each facility will be prepared using ArcGIS Online at a scale of 1-inch = 200 feet to assist with mapping existing features and documenting wildlife occurrences and areas of potentially suitable habitat for special-status species.

All field surveys will follow guidelines and procedures specified in the TERR-2 study plan. Results from 2025-2026 field surveys will be summarized in the Update Study Report (USR) and included in the Draft License Application (DLA).

TABLE 6-1 TERR-2 STUDY SCHEDULE

DATE	ACTIVITY
April 2025	Literature review
June 2025	Distribute ISR technical memorandum and meeting with stakeholders; conduct general wildlife and RTE species field surveys
Fall 2025–Spring 2026	Avian carcass surveys
June 2026	File USR and meeting with stakeholders
September 2026	Distribute final study report in DLA
January 2027	File Final License Application

7.0 REFERENCES

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APPENDIX G

PROJECT LANDS AND ROADS (LAND-1) TECHNICAL MEMORANDUM

TECHNICAL MEMORANDUM

To:	Idaho Falls Power Relicensing Stakeholders
From:	Idaho Falls Power Relicensing Team
Date:	June 2025
Subject:	Project Lands and Roads (LAND-1) Study Technical Memorandum

1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects." The licenses for the Projects expire on January 31, 2029; therefore, IFP plans to relicense the Projects using FERC's Integrated Licensing Process (ILP), pursuant to 18 Code of Federal Regulations (CFR) Part 5. Due to the proximity of the Projects to each other, IFP is conducting the relicensing processes concurrently.

This technical memorandum (tech memo) presents a progress report on data collection of the existing lands and roads within the Project Boundaries for both Projects in Bonneville and Bingham Counties, Idaho, consistent with the LAND-1 Project Lands and Roads study plan and the requirements for an Initial Study Report (ISR) pursuant to 18 CFR § 5.15. The LAND-1 study plan implements IFP's proposed study goals and objectives, study area, methods, and schedule for the study effort. IFP's Revised Study Plan (RSP) was filed with FERC on May 13, 2024 (IFP 2024) and approved in FERC's Study Plan Determination (SPD) on June 5, 2024 (FERC 2024).

According to FERC requirements at 18 CFR § 4.41, the Project Boundary must encompass all lands necessary for Project purposes, including the operations and maintenance (O&M) of the Project over the term of the FERC license. In 18 CFR § 11.2, FERC further requires that a licensee recompense the United States for the use, occupancy, and enjoyment of its lands or its property. The annual charge for such use of government lands is calculated, in part, based on the amount of federal acreage within the Project Boundary, and therefore a distinction must be made between

federal and non-federal lands when filing a Project Boundary and associated data. Therefore, the LAND-1 study aims to ensure that both Project Boundary and land classification (for both Projects) are accurately represented in the Final License Application (FLA). The process of identifying potential issues with or changes to the Project Boundaries and lands is an ongoing process that will continue until the submission of the FLA.

2.0 STUDY OBJECTIVES

The LAND-1 study goals and objectives were developed during the preparation of the Proposed Study Plan (PSP). A PSP stakeholder meeting was held on February 13, 2024, and following a 60-day comment period, the PSP was revised to address the comments received. Stakeholder requests were confirmed in the RSP, which was filed with FERC on May 13, 2024 (IFP 2024).

The goal of this LAND-1 study is to gather current information on existing lands and roads within the current Project Boundaries and assess their current usage and functionality. This information will inform any potential modifications to the Project Boundaries to account for future O&M of the Projects. This study goal will be accomplished by completing the following objectives:

1. Assess the current Idaho Falls Project and Gem State Project Boundaries for accuracy, incorporating changes as warranted by new mapping techniques and technology.
2. Confirm base ownership of Project lands in terms of title, easements, and other jurisdictional overlays.
3. Assess parcel(s) of United States Bureau of Land Management (BLM) land that may be encumbered by the Projects and for which a withdrawal for power purposes was never completed to determine the appropriate next steps to account for Project use.
4. Assess the Idaho Falls Project and Gem State Project areas for roads used predominantly for project purposes.
5. Assess the Idaho Falls Project and Gem State Project areas for ancillary and unintended uses arising from authorized Project activities.

6. Determine if certain Project facilities (including roads) will be removed or abandoned under the term of the next license and how they will be treated.
7. Identify areas outside the current Idaho Falls Project and Gem State Project Boundaries that may need to be included as Project lands in the new license terms.
8. Coordinate with other studies which may be impacted by the findings of this study. These may include, but are not limited to:
    - The REC-1 Recreational Use and Facility Inventory study to update recreation areas and Exhibit R, if necessary.
    - The CR-1 Cultural Resources or TR-1 Tribal Resources studies as they may pertain to Traditional Cultural Properties, Indian Trust Assets, or treaty rights.

3.0 STUDY AREA

The proposed LAND-1 study area includes lands within the current Project Boundaries, or those lands identified throughout the relicensing process as the having potential to be added or removed from the Project Boundaries (Figure 3-1 – Figure 3-3).

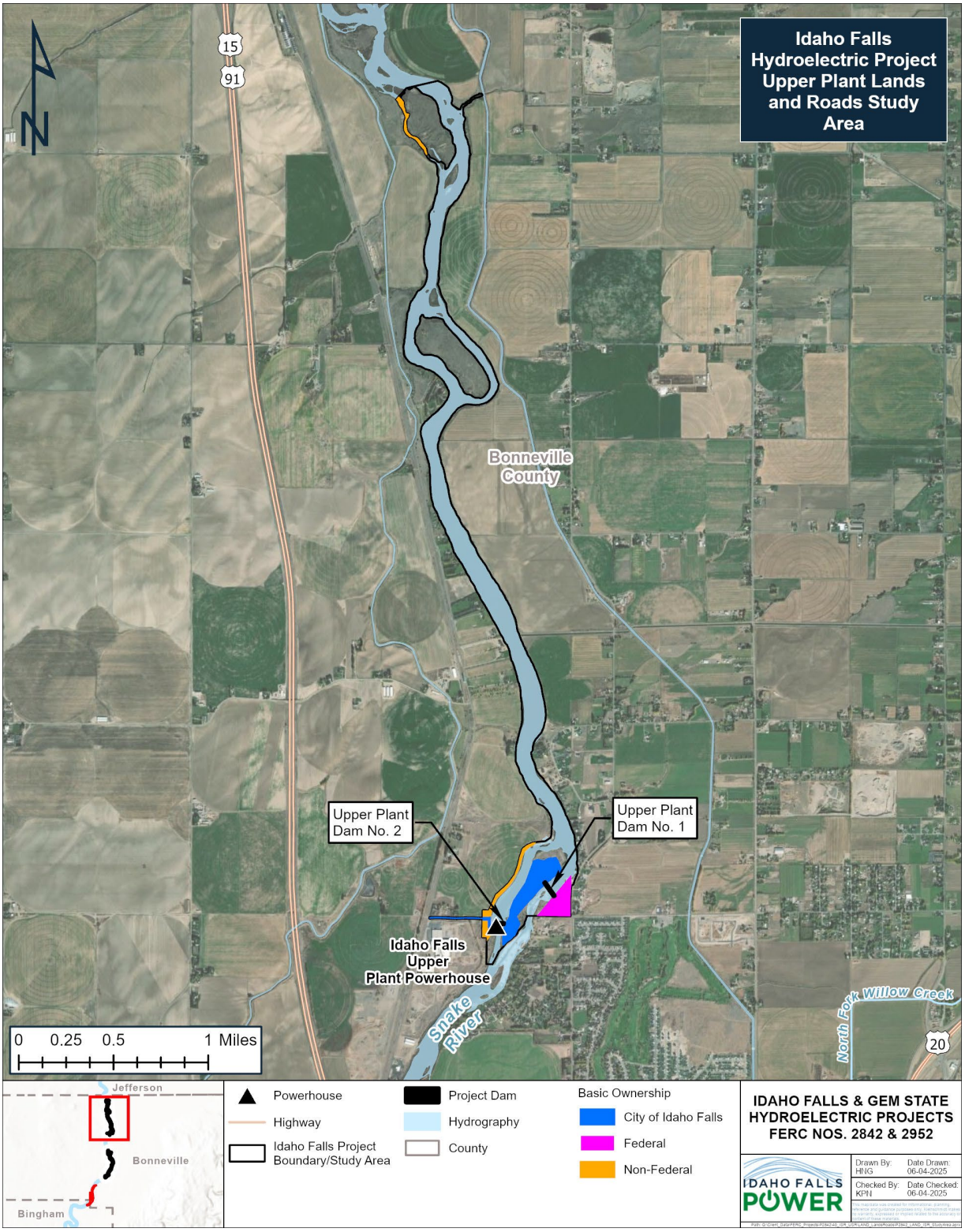


FIGURE 3-1 IDAHO FALLS PROJECT LANDS AND ROADS STUDY AREA: UPPER PLANT

FIGURE 3-2 IDAHO FALLS PROJECT LANDS AND ROADS STUDY AREA: CITY PLANT AND LOWER PLANT

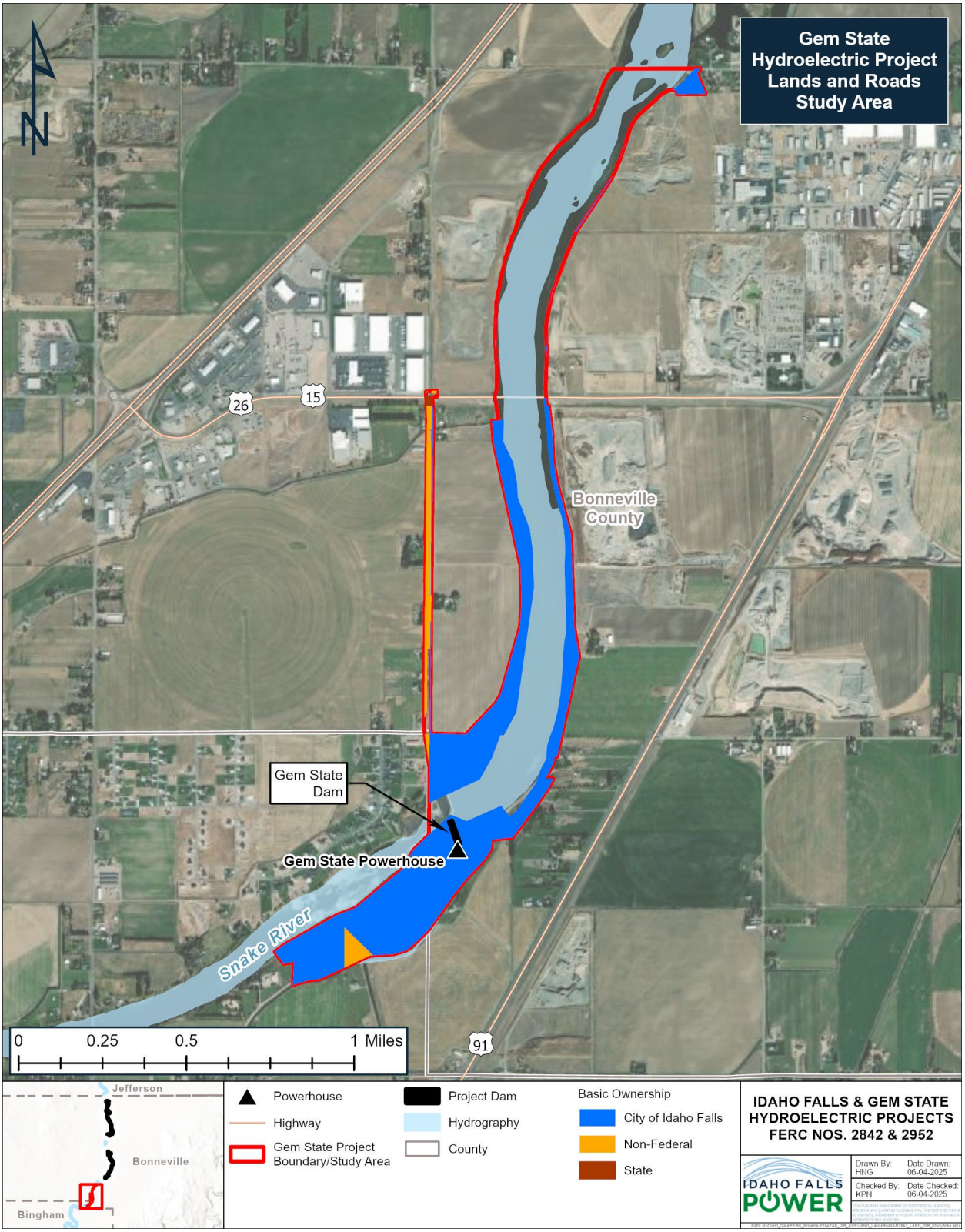


FIGURE 3-3 GEM STATE PROJECT LANDS AND ROADS STUDY AREA

4.0 METHODS

To ensure that the Project Boundaries conform with the requirements of 18 CFR § 4.41 (Exhibit G), the following methods were implemented:

1. **Assess the current Project Boundaries for accuracy.**
    a. IFP has begun compiling currently filed and approved Project Boundary geographic information system (GIS) data and Exhibit G drawings. IFP is continuing to analyze current Project Boundaries and adjacent lands within GIS software to determine any mapping errors, omissions, or potential removal or addition of lands to the future Project Boundary.
2. **Assess current Project lands ownership information.**
    a. IFP is continuing to gather accurate land ownership data for all lands currently within, or with the possibility of being added to, the Project Boundaries. This will help IFP ensure that Project lands are correctly distinguished between federal and non-federal lands within applicable GIS layers. IFP will then assess federal lands and parcels to determine the administrative approach for management (e.g., administrative withdrawal).
3. **Assess Project areas to identify roads currently or proposed to be used primarily for Project purposes.**
    a. IFP has obtained the most recent GIS data for the Idaho Falls Department of Parks and Recreation roads. IFP is using this data to identify roads currently or proposed to be used predominately for Project purposes, such as O&M or access within the Project Boundaries for recreation.

The results of other studies may influence potential modifications to the Project Boundaries. As relevant LAND-1 study results and analyses are completed, IFP and will continue consulting with the Idaho Falls Department of Parks and Recreation, BLM, and other landowners to determine if other Project-related resource areas should be removed or included in the future Project Boundary.

4.1 VARIANCE FROM STUDY PLAN AND SCHEDULE

The LAND-1 study schedule was delayed from spring 2024 to spring 2025 due to budgetary and internal discussions around recreation sites and their potential impact on the Project Boundaries (IFP 2024).

4.2 MODIFICATIONS TO STUDY METHODS

At the time of the SPD, no decision had been made by IFP about combining the two Project licenses into a single license. IFP will be proposing to consolidate the two licenses in a single license with a single Project Boundary. This will not result in changes to the LAND-1 study plan methods but could impact how changes to the Project Boundaries for both Projects will be reflected and described.

4.3 ANALYSIS

To ensure both Project Boundaries conform with the requirements of 18 CFR § 4.41 (Exhibit G), the following existing information and data sources were reviewed through a desktop exercise:

- Approved FERC Project Boundary GIS data;
- Approved Exhibit G drawings for the Projects;
- Bonneville County tax parcel GIS data;
- Bingham County tax parcel GIS data;
- Federal land ownership GIS data;
- Aerial imagery; and
- Idaho Falls Department of Parks and Recreation roads GIS database.

5.0 DATA SUMMARY

Based on a review of available data and conversations with IFP staff to date, a comprehensive list of proposed changes to the current Project Boundaries have been developed (Table 5-1). In general, both Project Boundaries have been tightened to follow the shoreline, noting changes in elevation

from 4,738 to 4,737 mean sea level (msl) from upstream to downstream, with a 40-foot buffer. The current Project Boundaries were drawn without consideration for easements for ice jams, which was a concern in the 1980s. The Licensee purchased properties that were potentially impacted and have since converted that property into a boat launch and conveyed to the County.

These proposed changes are primarily related to ensuring that all current Project operations and facilities, as well as roads and trails, are accurately represented and included in the proposed boundary. Minor changes to the Project Boundaries due to mapping corrections based on improved accuracy of available data can be expected but are not discussed in this tech memo. Examples of mapping corrections include improved centerlines and buffers for roads, flowlines, creeks, or transmission lines that are contemplated in the Project Boundaries but not accurately represented in the GIS data. A comprehensive list of mapping corrections will be included with the Updated Study Report (USR).

This tech memo instead focuses on those proposed changes to Project lands for features that are either not currently identified in the Project license (addition) or no longer needed for Project purposes (removal). Each proposed Project Boundary change currently under consideration by IFP is listed below in Table 5-1 – Table 5-3. For each proposed change, a unique ID (which corresponds to the title of a map in Attachment A), short description, suggested action, and reason for the proposed change to the Project Boundary (if applicable) is provided.

It is important to note that there is a Project Roads Inventory associated with the Project description. Where the proposed change includes “adding the road to the roads inventory” in Table 5-2 below, it simply means that road is used primarily for Project-related activities and will be described thusly in the Project description. These roads are often already in the Project Boundary, and for those outside the Project Boundary, it has been noted. Each table should be reviewed in conjunction with its corresponding map figure in Attachment A.

TABLE 5-1 PROPOSED PROJECT BOUNDARY CHANGES RELATED TO OPERATIONS AND FACILITIES

ID	DESCRIPTION	PROPOSED ACTION	REASON FOR PROPOSED BOUNDARY CHANGE
Operations/ Facilities - 1	Idaho Falls Project – Upper Plant Site 1- E River Road access east side of river ¼ mile south of boat launch – gated (see Table 5-2). Improved small parking lot with walk-in river access and improved boat launch.	Add	Not mentioned in the current Exhibit R but has dispersed use for fishing access and controls a Project road. Therefore, this parcel has a Project nexus. This parcel is owned by the BLM and is consistent with Objective 3 for this study. In 1993, this parcel was included as "Project lands" for purposes of setting annual charges; Exhibit K was never revised to reflect the change as this was not requested in the order.[1] As a correction to the Project Boundary, these lands that were already incorporated into the licenses' annual charges are being added to the Project Boundary and will be reflected in the FLA and submittal of Form 587 with the Exhibit G maps. This segment of the FERC Project Boundary also includes a short primary transmission line on the east side of the river.
Operations/ Facilities – 2	Idaho Falls Project – City Plant Keefer's Island. Accessible by boat only, it remains an unimproved island.	Remove	Not currently developed and not readily accessible as there is no trail system. These lands are not necessary for Project purposes and not suitable for recreation. This location would be an attractive nuisance were it improved without a bridge. A recent drowning has occurred with an attempt to swim to the island.

[1] FERC Accession Number 19930202-0035.

ID	DESCRIPTION	PROPOSED ACTION	REASON FOR PROPOSED BOUNDARY CHANGE
Operations/ Facilities - 3	Idaho Falls Project – City Plant Pederson's Sportsman's Park Walking path and bridge that cross the river, fishing access to the river, Friendship Garden. The bridge from Eagle Rock Park is a narrow 36" wide. Questionable ADA compliance.	Remove*	Currently included in existing Exhibit R but included not in the Project Boundary. After review IFP does not see a Project nexus and proposes to remove the lands on the island including the Japanese Friendship Garden and the trail on west side from the Project Boundary. This facility is (and will continue to be) maintained by the City Parks and Recreation Department in partnership with other civic and private groups Eagle Rock Park (also known as Eagle Rock Plaza) and the bridge to the island from the east side of the river would remain in the Project Boundary as noted in Table 5-3.
Operations/ Facilities - 4	Idaho Falls Project – City Plant Russell Freeman Park Three baseball diamonds (one is lighted) with bleachers, and parking areas; four picnic shelters, picnic tables, fireplaces; two restroom facilities, shelters, a band shelter, disc golf course, a war memorial; several pieces of playground equipment; large parking area; nature trail designed for use by elderly and people with disabilities as well as others and informational and educational signage along the trail.	Add	Park included in existing Exhibit R but was never included in the FERC approved Project Boundary. Proposed Project Boundary to include Russell Freeman Park.
Operations/ Facilities - 5	Idaho Falls Project – South Capital Park Parking area, picnic shelter with tables, playground, ADA restroom facilities, and trail access to the Greenbelt.	Remove	The current uses have minimal Project nexus. This location does not have any improved river access for recreation. The park will continue to be maintained by the City Parks and Recreation Department.

ID	DESCRIPTION	PROPOSED ACTION	REASON FOR PROPOSED BOUNDARY CHANGE
Operations/ Facilities - 6	Idaho Falls Project – Lower Plant BLM parcel (1.8 acres)	No change	Proposing to clarify with BLM that the portion of this parcel in the FERC Project Boundary should be administratively withdrawn through submittal of Form 587 to the BLM at the time of FLA submittal.
Operations/ Facilities - 7	Idaho Falls Project - Transmission Line at City Plant	Add	Primary transmission line not previously included in the FERC approved Project Boundary; proposing to add.
Operations/ Facilities – 8	Idaho Falls Project - Transmission Line at Lower Plant	Add	Primary transmission line not previously included in the FERC approved Project Boundary; proposing to add.
Operations/ Facilities - 9	Gem State Project - Transmission Line at Gem State	Add	Primary transmission line not previously included in the FERC approved Project Boundary; proposing to add. This transmission line is within the Bonneville County road ROW.

* Erroneously excluded from current Project Boundary.

TABLE 5-2 PROPOSED PROJECT BOUNDARY CHANGES RELATED TO PROJECT ROADS AND/OR THE PROJECT ROADS INVENTORY

ID	DESCRIPTION	PROPOSED ACTION	REASON FOR PROPOSED BOUNDARY CHANGE
Road - 1	Gated road across 9-acre BLM parcel at Upper Plant	Add	Utilized by project operations and not accessible to public vehicles
Road - 2	Road on west side of Upper Plant	Add	Utilized by project operations and not accessible to public vehicles

TABLE 5-3 PROPOSED PROJECT BOUNDARY CHANGES RELATED TO PROJECT TRAILS

ID	DESCRIPTION	PROPOSED ACTION	REASON FOR PROPOSED BOUNDARY CHANGE
Trail - 1	Eagle Rock Crossing to Pederson Sportsman's Park	Add	Trail on east side of river is included in current Exhibit R but was not part of the FERC approved Project Boundary. Need to designate as Project trail in proposed license.

6.0 NEXT STEPS

The updated LAND-1 study schedule is summarized in Table 6-1. The proposed changes discussed in this tech memo are a result of initial review of Project lands, features, O&M activity, and underlying land ownership. As intended, this LAND-1 study is an ongoing process that will continue until a proposed Project Boundary and inventory is submitted with IFP's Draft License Application (DLA) in September 2026.

TABLE 6-1 PROJECT LANDS AND ROADS STUDY SCHEDULE

DATE	ACTIVITY
March 2024	Compile study data and begin analyses
June 2025	File ISR tech memo and meeting with stakeholders
Fall/Winter 2025	Resolve comments and prepare draft study report
June 2026	File USR and meeting with stakeholders
September 2026	Distribute final study report in DLA
January 2027	File FLA

Part of the ongoing process will be to coordinate this initial proposal with the REC-1 Recreation Use and Facility Inventory study plan, where results from ongoing recreation-related studies can be analyzed relative to the current Project Boundaries. Methods may also include outside consultation with BLM, and/or other landowners, as needed, to determine if other Project-related resource areas should be removed or included in the future Project Boundary.

While all public GIS data related to land ownership have been obtained, IFP is currently further documenting areas that require more detailed research to determine whether lands are correctly distinguished between federal and non-federal, relevant to the GIS data to be filed with FERC as part of Exhibit G. IFP is in the initial stages of inventorying potential Project roads and trails, which will be further defined based on many of the proposed additions to Project lands above.

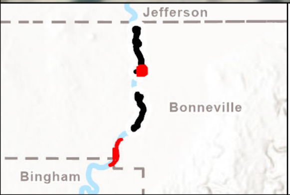
7.0 REFERENCES

Federal Energy Regulatory Commission (FERC). 2024. Study Plan Determination for the Idaho Falls Hydroelectric Project (P-2842) and Gem State Hydroelectric Project (P-2952). June 5, 2024.

Idaho Falls Power (IFP). 2024. Revised Study Plan. Idaho Falls Hydroelectric Project (P-2842) and Gem State Hydroelectric Project (P-2952), May 13, 2024. Idaho Falls, Idaho.

ATTACHMENT A

PROPOSED PROJECT BOUNDARY CHANGES, PROJECT ROADS, AND TRAILS



Idaho Falls Project Boundary

Road

Project Transmission Line

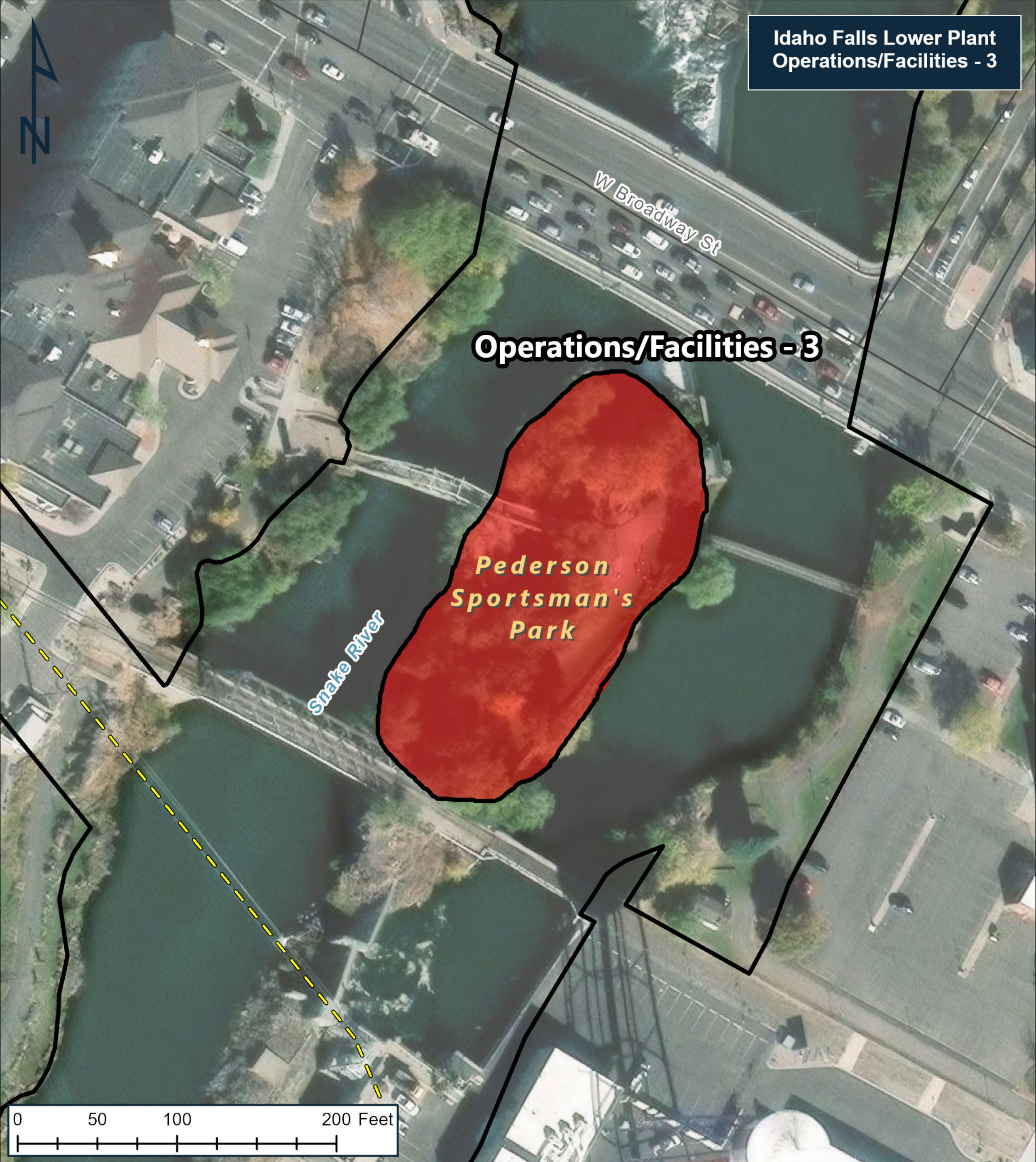
Proposed Project Boundary Changes

Add

IDAHO FALLS & GEM STATE HYDROELECTRIC PROJECTS FERC NOS. 2842 & 2952

Drawn By: HNG	Date Drawn: 05-21-2025
Checked By: KPN	Date Checked: 05-21-2025


Idaho Falls City Plant Operations/Facilities - 2
N
Operations/Facilities - 2
Keefer's Island
Snake River
Riverside Dr
River Pkwy
0 100 200 400 Feet
Jefferson
Bonneville
Bingham
Idaho Falls Project Boundary
Road
Project Transmission Line
Proposed Project Boundary Changes
Remove
IDAHO FALLS & GEM STATE HYDROELECTRIC PROJECTS FERC NOS. 2842 & 2952
IDAHO FALLS POWER
Drawn By: HNG
Date Drawn: 05-21-2025
Checked By: KPN
Date Checked: 05-21-2025



Idaho Falls Project Boundary

Road

Project Transmission Line

Proposed Project Boundary Changes

Remove

IDAHO FALLS & GEM STATE HYDROELECTRIC PROJECTS FERC NOS. 2842 & 2952

IDAHO FALLS POWER

Drawn By: HNG	Date Drawn: 05-21-2025
Checked By: KPN	Date Checked: 05-21-2025

Idaho Falls Project Boundary

Road

Project Transmission Line

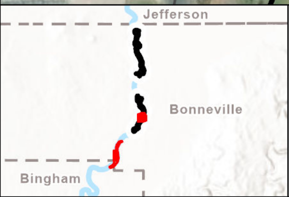
Proposed Project Boundary Changes

Add

IDAHO FALLS & GEM STATE HYDROELECTRIC PROJECTS FERC NOS. 2842 & 2952

IDAHO FALLS POWER

Drawn By: HNG	Date Drawn: 05-21-2025
Checked By: KPN	Date Checked: 05-21-2025



Idaho Falls Project Boundary

Road

Project Transmission Line

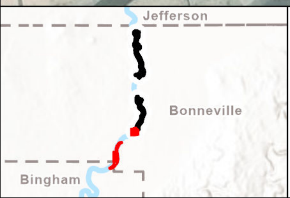
Proposed Project Boundary Changes

Remove

IDAHO FALLS & GEM STATE HYDROELECTRIC PROJECTS FERC NOS. 2842 & 2952

IDAHO FALLS POWER

Drawn By: HNG	Date Drawn: 05-21-2025
Checked By: KPN	Date Checked: 05-21-2025



Idaho Falls Project Boundary

Road

Project Transmission Line

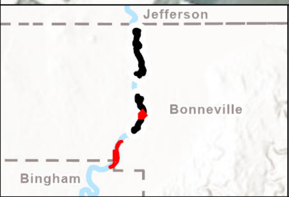
Proposed Project Boundary Changes

No Change

IDAHO FALLS & GEM STATE HYDROELECTRIC PROJECTS FERC NOS. 2842 & 2952

IDAHO FALLS POWER

Drawn By: HNG	Date Drawn: 05-21-2025
Checked By: KPN	Date Checked: 05-21-2025



Idaho Falls Project Boundary

Road

Project Transmission Line

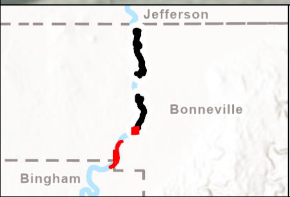
Proposed Project Boundary Changes

Add

IDAHO FALLS & GEM STATE HYDROELECTRIC PROJECTS FERC NOS. 2842 & 2952

IDAHO FALLS POWER

Drawn By: HNG	Date Drawn: 05-21-2025
Checked By: KPN	Date Checked: 05-21-2025



Idaho Falls Project Boundary

Road

Project Transmission Line

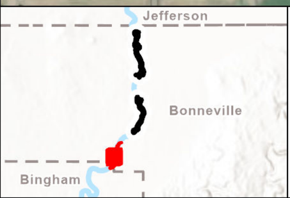
Proposed Project Boundary Changes

Add

IDAHO FALLS & GEM STATE HYDROELECTRIC PROJECTS
FERC NOS. 2842 & 2952

IDAHO FALLS POWER

Drawn By: HNG	Date Drawn: 05-21-2025
Checked By: KPN	Date Checked: 05-21-2025



Gem State Project Boundary

Road

Project Transmission Line

Proposed Project Boundary Changes

Add

IDAHO FALLS & GEM STATE HYDROELECTRIC PROJECTS FERC NOS. 2842 & 2952

IDAHO FALLS POWER

Drawn By: HNG	Date Drawn: 05-21-2025
Checked By: KPN	Date Checked: 05-21-2025

Gem State Project Boundary

Road

Project Transmission Line

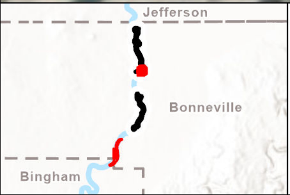
Proposed Project Boundary Changes

Add

IDAHO FALLS & GEM STATE HYDROELECTRIC PROJECTS FERC NOS. 2842 & 2952

IDAHO FALLS POWER

Drawn By: HNG	Date Drawn: 05-21-2025
Checked By: KPN	Date Checked: 05-21-2025



Idaho Falls Project Boundary

Road

Project Transmission Line

Project Road

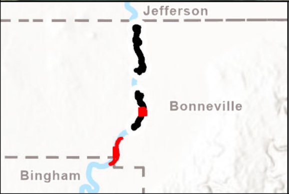
Add

IDAHO FALLS & GEM STATE HYDROELECTRIC PROJECTS FERC NOS. 2842 & 2952

IDAHO FALLS POWER

Drawn By: HNG	Date Drawn: 05-21-2025
Checked By: KPN	Date Checked: 05-21-2025


Idaho Falls Upper Plant
Road - 2
N
N River Rd
W 65th N
Road-2
0
100
300
600 Feet
Jefferson
Bonneville
Bingham
Idaho Falls Project Boundary
Road
Project Transmission Line
Project Road
Add
Proposed Project Boundary Changes
Add
IDAHO FALLS & GEM STATE
HYDROELECTRIC PROJECTS
FERC NOS. 2842 & 2952
IDAHO FALLS POWER
Drawn By: HNG
Date Drawn: 05-21-2025
Checked By: KPN
Date Checked: 05-21-2025



Idaho Falls Project Boundary

Road

Project Transmission Line

Project Trail

Add

Remove

IDAHO FALLS & GEM STATE HYDROELECTRIC PROJECTS FERC NOS. 2842 & 2952

IDAHO FALLS POWER

Drawn By: HNG	Date Drawn: 05-21-2025
Checked By: KPN	Date Checked: 05-21-2025

APPENDIX H

RECREATION USE AND FACILITY INVENTORY (REC-1) TECHNICAL MEMORANDUM

TECHNICAL MEMORANDUM

To:	Idaho Falls Power Relicensing Stakeholders
From:	Idaho Falls Power Relicensing Team
Date:	June 2025
Subject:	Recreation Use and Facility Inventory Study (REC-1) Technical Memorandum

1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects." The licenses for the Projects expire on January 31, 2029; therefore, IFP plans to relicense the Projects using FERC's Integrated Licensing Process (ILP), pursuant to 18 Code of Federal Regulations (CFR) Part 5. Due to the proximity of the Projects to each other, IFP is conducting the relicensing processes concurrently.

This technical memorandum (tech memo) presents a progress report of the Recreation Use and Facility Inventory Study (REC-1) for the Projects, consistent with the REC-1 study plan and the requirements for an Initial Study Report (ISR) pursuant to 18 CFR § 5.15. The REC-1 Recreation Use and Facility Inventory study plan implements IFP's proposed study goals and objectives, study area, methods, and schedule for the study effort. IFP's Revised Study Plan (RSP) was filed with FERC on May 13, 2024 (IFP 2024) and approved in FERC's Study Plan Determination (SPD) on June 5, 2024 (FERC 2024).

2.0 STUDY OBJECTIVES

The REC-1 study goals and objectives were developed during the preparation of the Proposed Study Plan (PSP). A PSP stakeholder meeting was held on February 13, 2024, and following a 60-day comment period, the PSP was revised to address the comments received. Stakeholder requests were confirmed in the RSP, which was filed with FERC on May 13, 2024 (IFP 2024).

The goal of this REC-1 study is to gather current information on recreation facilities, recreational use, and the Projects' potential effects to determine existing and future recreation use and capacity at the Projects. Study goals will be accomplished by completing the following six objectives:

1. Inventory and identify the condition of the recreation facilities and associated amenities at FERC-approved Idaho Falls Project and Gem State Project recreation sites identified in Table 3-1.[1]
2. Identify who owns, operates, and maintains each of the Idaho Falls Project and Gem State Project recreation sites and facilities.
3. Describe each Idaho Falls Project and Gem State Project recreation sites and facilities in relation to their associated Project Boundaries.
4. Evaluate recreation use at the FERC-approved Idaho Falls and Gem State Project recreation sites, including an assessment of the amount of use at each site (including percentage of capacity) and the recreation activities that occur at the site.
5. Collect visitor feedback regarding their perception and experience at recreation facilities within the Idaho Falls and Gem State Project Boundaries.
6. Determine the adequacy of the FERC-approved Idaho Falls Project and Gem State Project recreation sites and if modifications to the sites would be needed to meet current or future recreation needs.

3.0 STUDY AREA

The IFP Pre-Application Document (PAD), Section 5.7, Recreation and Land Use, provides background information about recreational opportunities at the Projects and describes existing FERC-approved recreation sites (IFP 2023). During review of the REC-1 study plan and in preparation for field work, minor changes to the list and naming conventions of FERC-approved recreation sites occurred. These sites are listed in Table 3-1 below, along with a summary of

[1] As discussed in more detail below, the list of recreation sites and amenities has slightly changed to more accurately reflect the status of FERC-approved sites at the Projects.

changes made to the list since the REC-1 study plan. Recreation site overview locations are depicted in Figure 3-1 and Figure 3-2.

TABLE 3-1 EXISTING FERC-APPROVED RECREATION SITES

SITE NO.	DEVELOPMENT	SITE NAME	NOTES
1	Idaho Falls Project Upper Plant	Upper Plant Fishing Access	In the study plan, this site was noted as two distinct sites ("Site 1" and "Site 2"); this recreation opportunity is more accurately represented as a single recreation site providing parking and fishing access
2	Idaho Falls Project Upper Plant	Upper Plant Marina	This site has been renamed from "Site 3" to "Upper Plant Marina"
3	Idaho Falls Project City Plant	Eagle Rock Park	This site has been renamed from "Eagle Rock Crossing" to "Eagle Rock Park" to more accurately reflect its reference in Exhibit R
4	Idaho Falls Project City Plant	John's Hole Forebay Park	No change
5	Idaho Falls Project City Plant	Keefer's Island	No change
6	Idaho Falls Project City Plant	Pederson's Sportsman's Park	No change
7	Idaho Falls Project City Plant	Russell Freeman Park	No change
8	Idaho Falls Project City Plant	South Capital Park	No change
9	Idaho Falls Project Lower Plant	South Tourist Park	No change
10	Gem State Project	Upper Marina	No change
11	Gem State Project	Lower Marina	No change
12	Gem State Project	Tailrace Fishing Access	No change
13	Gem State Project	Fishing Pond	This site has been renamed from "Fishing Pond (south of powerhouse)" to "Fishing Pond"
14	Gem State Project	Tailrace Boat Launch	The Tailrace Boat Launch was errantly excluded from the list of FERC-approved recreation sites in the study plan and has since been incorporated into the study

FIGURE 3-1 IDAHO FALLS PROJECT RECREATION SITES

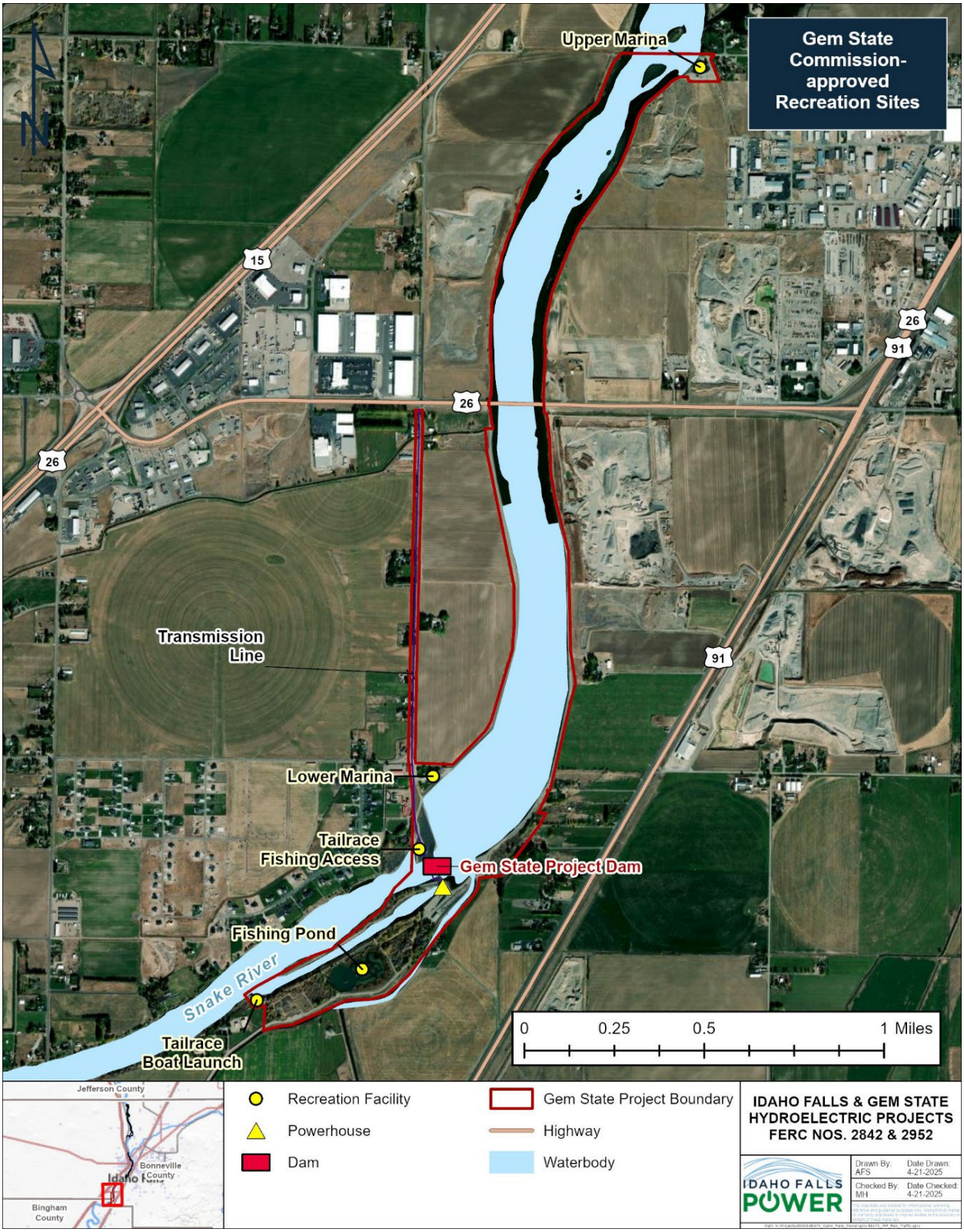


FIGURE 3-2 GEM STATE PROJECT RECREATION SITES

4.0 METHODS

Study implementation will adhere to the methods described in the REC-1 study plan (IFP 2024) and as approved in FERC's SPD (FERC 2024). Field surveys will consist of two major components: a Recreation Facility Inventory and Condition Assessment and Recreation Use Assessments.

4.1. VARIANCE FROM STUDY PLAN AND SCHEDULE

No variances to the REC-1 study plan or schedule were made, nor are any anticipated for the field surveys.

4.2. MODIFICATIONS TO STUDY METHODS

Minor modifications to the REC-1 study methods as described in the study plan have occurred. Specifically, minor changes to wording and content have been made in the Recreation Facility Inventory Form (Appendix A to the REC-1 study plan), Recreation Use Spot Count Form (Appendix B to the REC-1 study plan), and Recreation Use Survey Form (Appendix C to the REC-1 study plan). Modifications made included updating the recreation site naming conventions and adding recreation activities as user choices with the option to take photo evidence. Other minor edits included rearranging user questions. Additionally, two FERC-approved recreation sites were deemed not feasible for the TRAFx counter installation. Instead, vehicle and foot traffic at these sites will be quantified using spot counts, as discussed in more detail in Table 5-1, below.

4.3. ANALYSIS

The REC-1 study will be conducted in a manner that promotes high-quality results and will be subject to appropriate quality assurance/quality control procedures, including review from additional subject matter experts. Field surveys, when conducted, will also be subject to quality assurance/quality control procedures, including spot checks of forms and comparison of geographic information system maps.

5.0 DATA SUMMARY

A desktop analysis was conducted to determine the most appropriate type of, and location for, TRAFx counter installations for the purposes of collecting recreation use data at the FERC-approved recreation sites listed in Table 3-1, above. TRAFx counters are compact counting system devices that monitor traffic on trails, paths, roads, and other areas. These systems were the preferred equipment as they are designed to track the number of people, vehicles, and off-highway vehicles passing through specific locations, providing data for recreation, land use, and visitor studies.

Each site was examined using aerial imagery and on-the-ground knowledge of the sites to determine whether a vehicle counter or trail counter would be most appropriate. For all but three FERC-approved recreation sites, at least one vehicle counter location was established; for some sites, multiple counters were needed to accommodate multiple entry/exit points. Vehicle counter locations were chosen at the most bottlenecked entry/exit point(s) to each recreation site so that the maximum number of users may be accounted for.

For one FERC-approved recreation site (Pederson's Sportsman's Park), trail counters were deemed most appropriate as there are a wealth of nearby parking opportunities located at the city center that provide access to this location (as well as other adjacent parks). Accordingly, two trail counter locations were chosen to collect pedestrian access across each of the two bridges leading to the island park.

For the remaining two FERC-approved recreation sites (Keefer's Island and Eagle Rock Park), spot counts were deemed the only reasonable form of data collection for the reasons described in Table 5-1 below, which provides a summary of TRAFx counters to be used as part of this study. Vehicle and pedestrian TRAFx counters will record data to gather existing information on recreation facilities, recreational use, and the Projects' potential effects to help quantify existing recreation use and capacity at the Projects and estimate future use and capacity. Figure 5-1 through Figure 5-9 illustrate chosen TRAFx vehicle and pedestrian counter locations in the study area.

TABLE 5-1 TRAFX COUNTER LOCATIONS

SITE NO.	DEVELOPMENT	SITE NAME	TRAFX COUNTER NOTES
1	Idaho Falls Project Upper Plant	Upper Plant Fishing Access	One (1) vehicle counter
2	Idaho Falls Project Upper Plant	Upper Plant Marina	One (1) vehicle counter
3	Idaho Falls Project City Plant	Eagle Rock Park	Due to the open location of Eagle Rock Park, in city center with public parking available at multiple locations and no true funnel point for entrance to or exit from the park, Eagle Rock Park recreation use will be determined based solely on spot counts
4	Idaho Falls Project City Plant	John's Hole Forebay Park	One (1) vehicle counter
5	Idaho Falls Project City Plant	Keefer's Island	As Keefer's Island is only accessible by boat and has never been formally developed as contemplated in the current Recreation Plan, recreation use at Keefer's Island will be determined through spot count observations made from John's Hole Forebay Park
6	Idaho Falls Project City Plant	Pederson's Sportsman's Park	Two (2) trail counters; much like Eagle Rock Park, vehicle use, and parking are difficult to parse out at the city center location, so trail counters will quantify pedestrian access to the park from each of two bridge access points
7	Idaho Falls Project City Plant	Russell Freeman Park	Three (3) vehicle counters
8	Idaho Falls Project City Plant	South Capital Park	Two (2) vehicle counters
9	Idaho Falls Project Lower Plant	South Tourist Park	One (1) vehicle counter
10	Gem State Project	Upper Marina	One (1) vehicle counter
11	Gem State Project	Lower Marina	One (1) vehicle counter
12	Gem State Project	Tailrace Fishing Access	One (1) vehicle counter
13	Gem State Project	Fishing Pond	One (1) vehicle counter
14	Gem State Project	Tailrace Boat Launch	One (1) vehicle counter

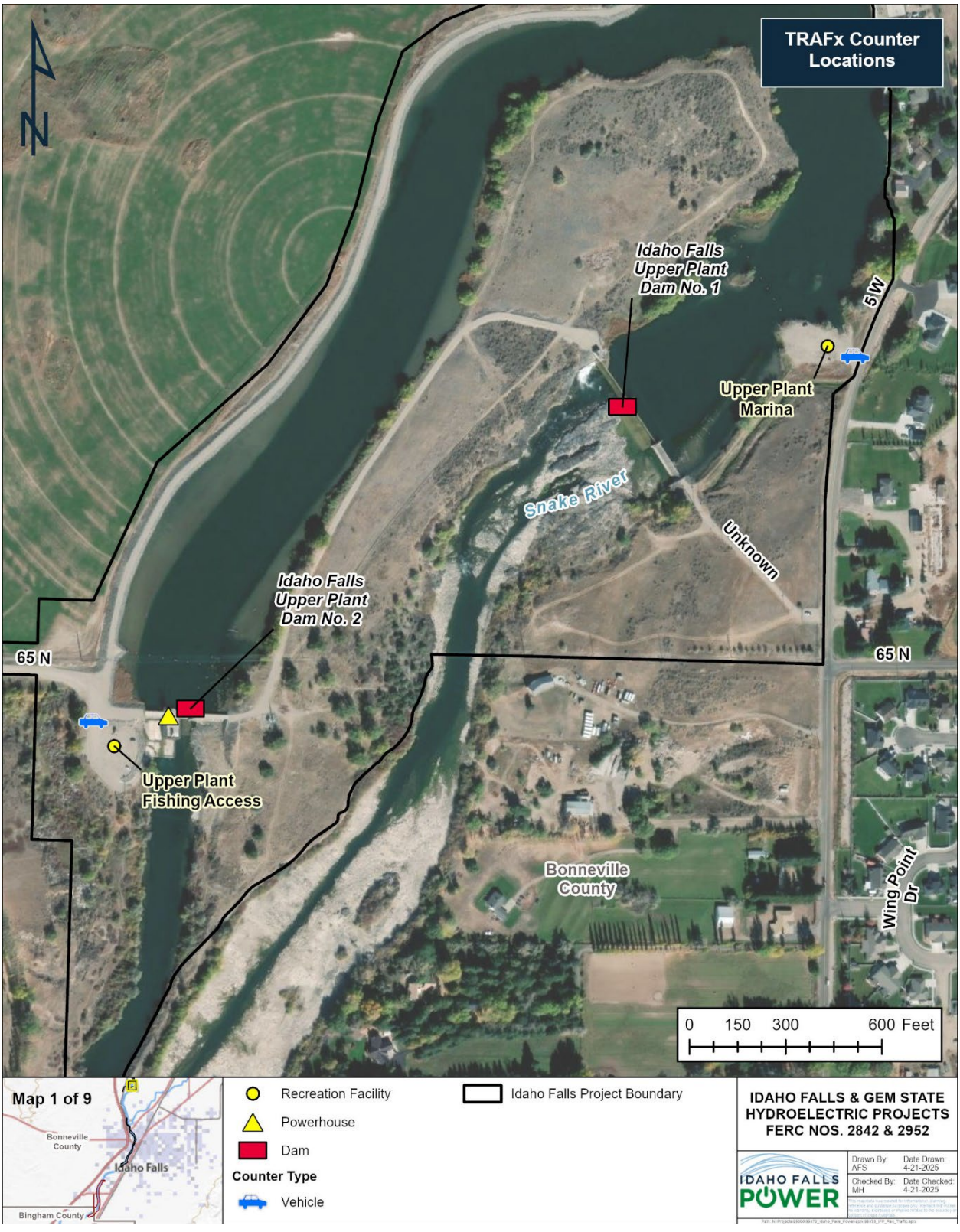


FIGURE 5-1 IDAHO FALLS AND GEM STATE PROJECT TRAFX LOCATIONS (MAP 1 OF 9)

FIGURE 5-2 IDAHO FALLS AND GEM STATE PROJECT TRAFX LOCATIONS (MAP 2 OF 9)

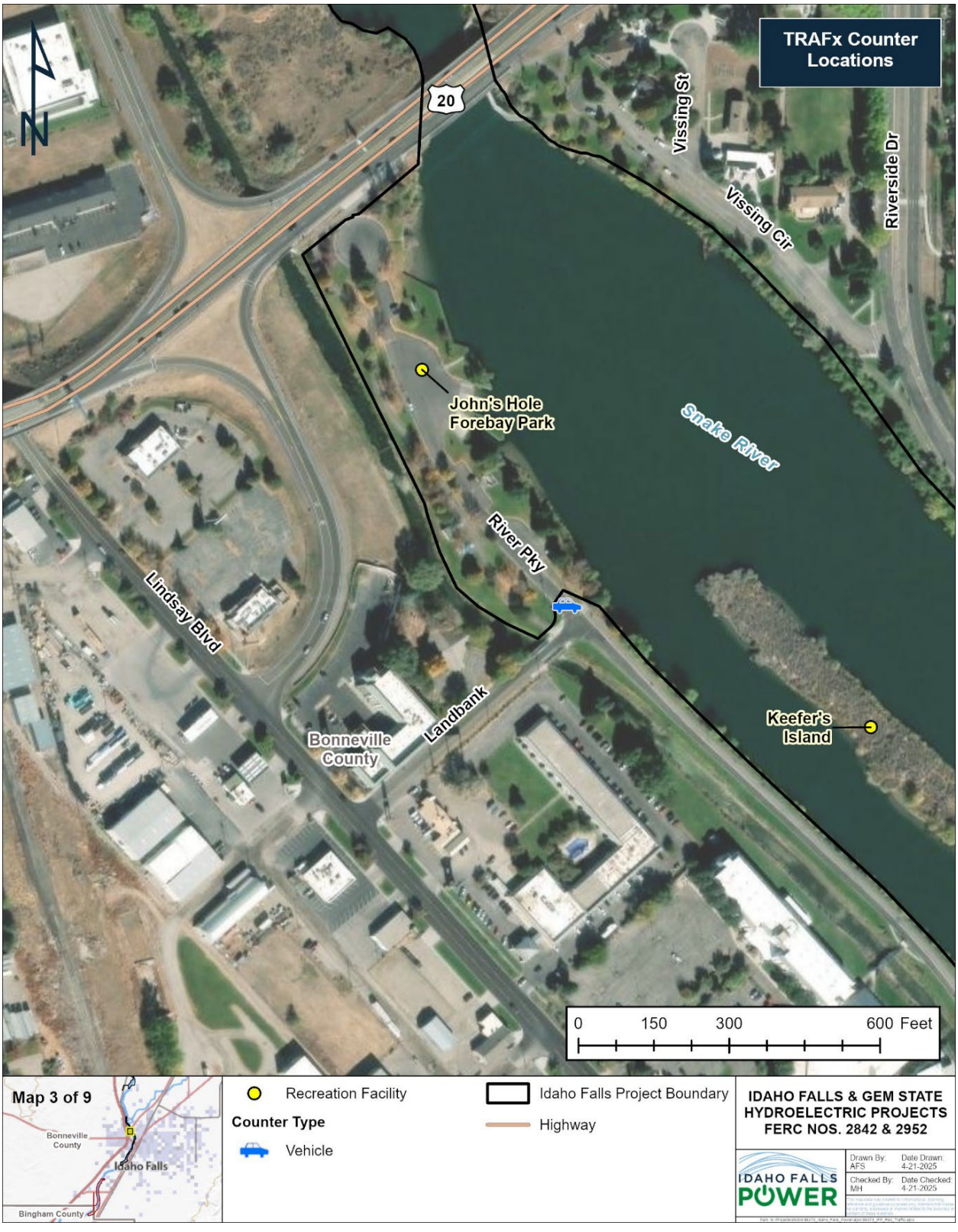


FIGURE 5-3 IDAHO FALLS AND GEM STATE PROJECT TRAFX LOCATIONS (MAP 3 OF 9)

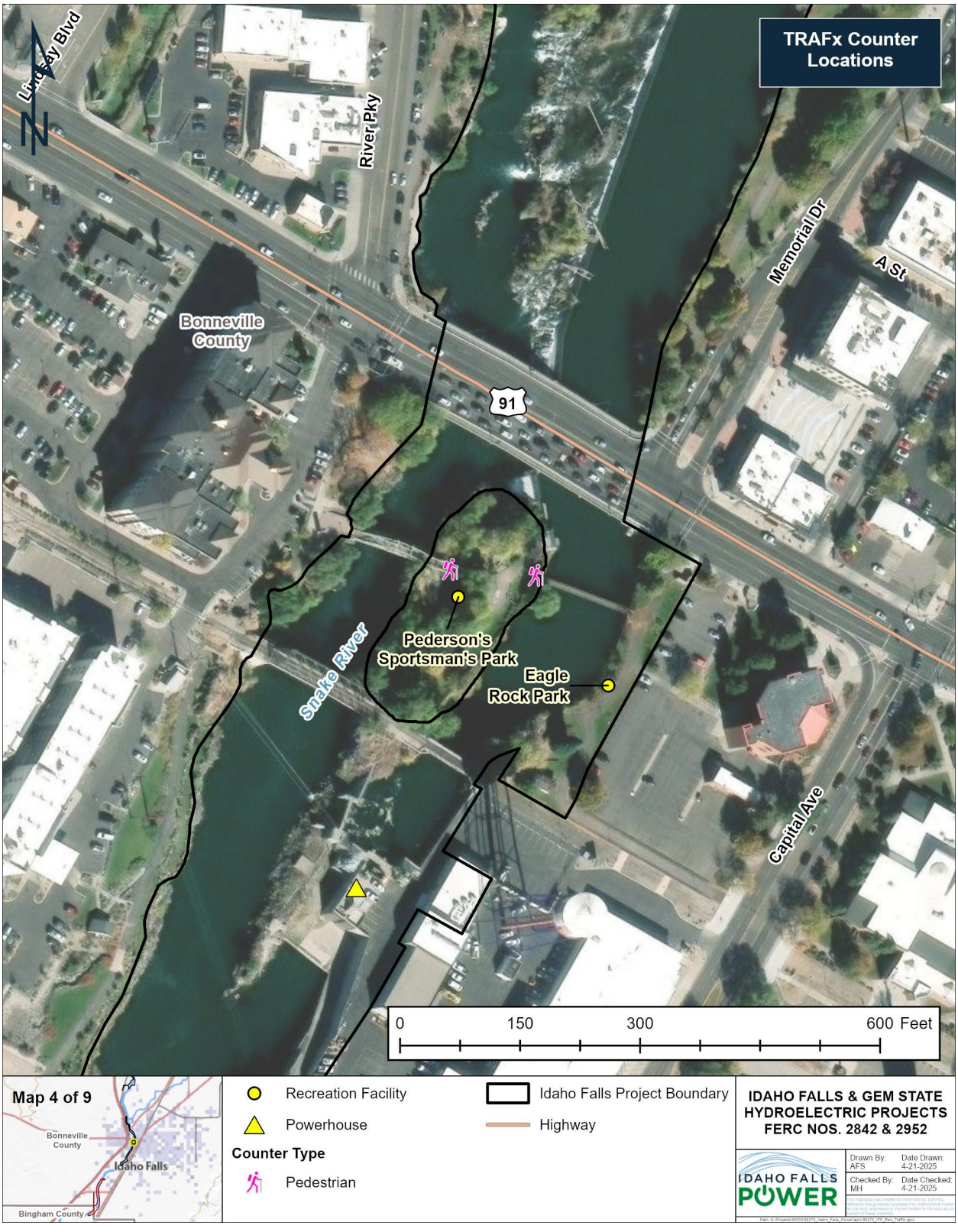


FIGURE 5-4 IDAHO FALLS AND GEM STATE PROJECT TRAFX LOCATIONS (MAP 4 OF 9)

FIGURE 5-5 IDAHO FALLS AND GEM STATE PROJECT TRAFX LOCATIONS (MAP 5 OF 9)

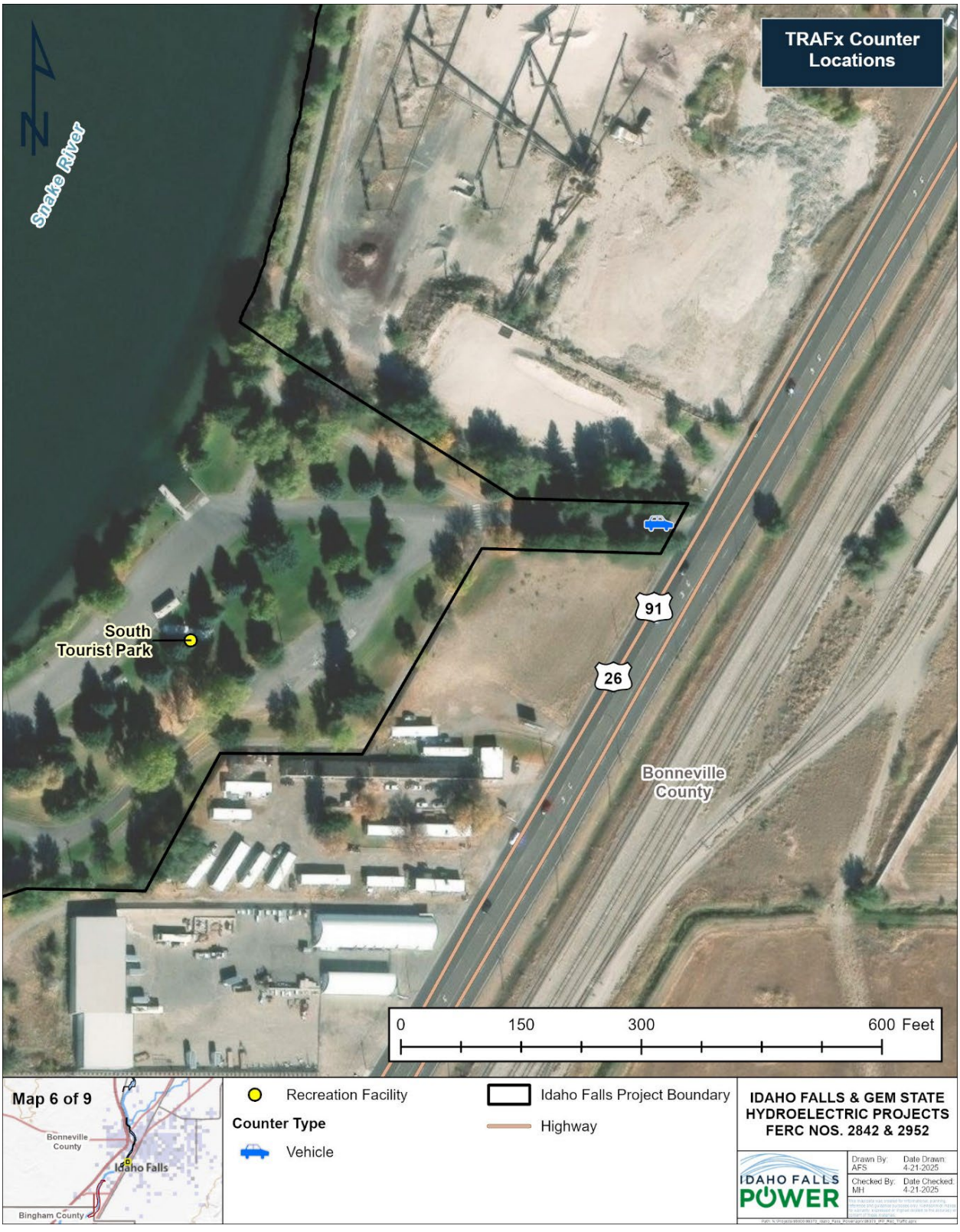


FIGURE 5-6 IDAHO FALLS AND GEM STATE PROJECT TRAFX LOCATIONS (MAP 6 OF 9)

FIGURE 5-7 IDAHO FALLS AND GEM STATE PROJECT TRAFX LOCATIONS (MAP 7 OF 9)

FIGURE 5-8 IDAHO FALLS AND GEM STATE PROJECT TRAFX LOCATIONS (MAP 8 OF 9)

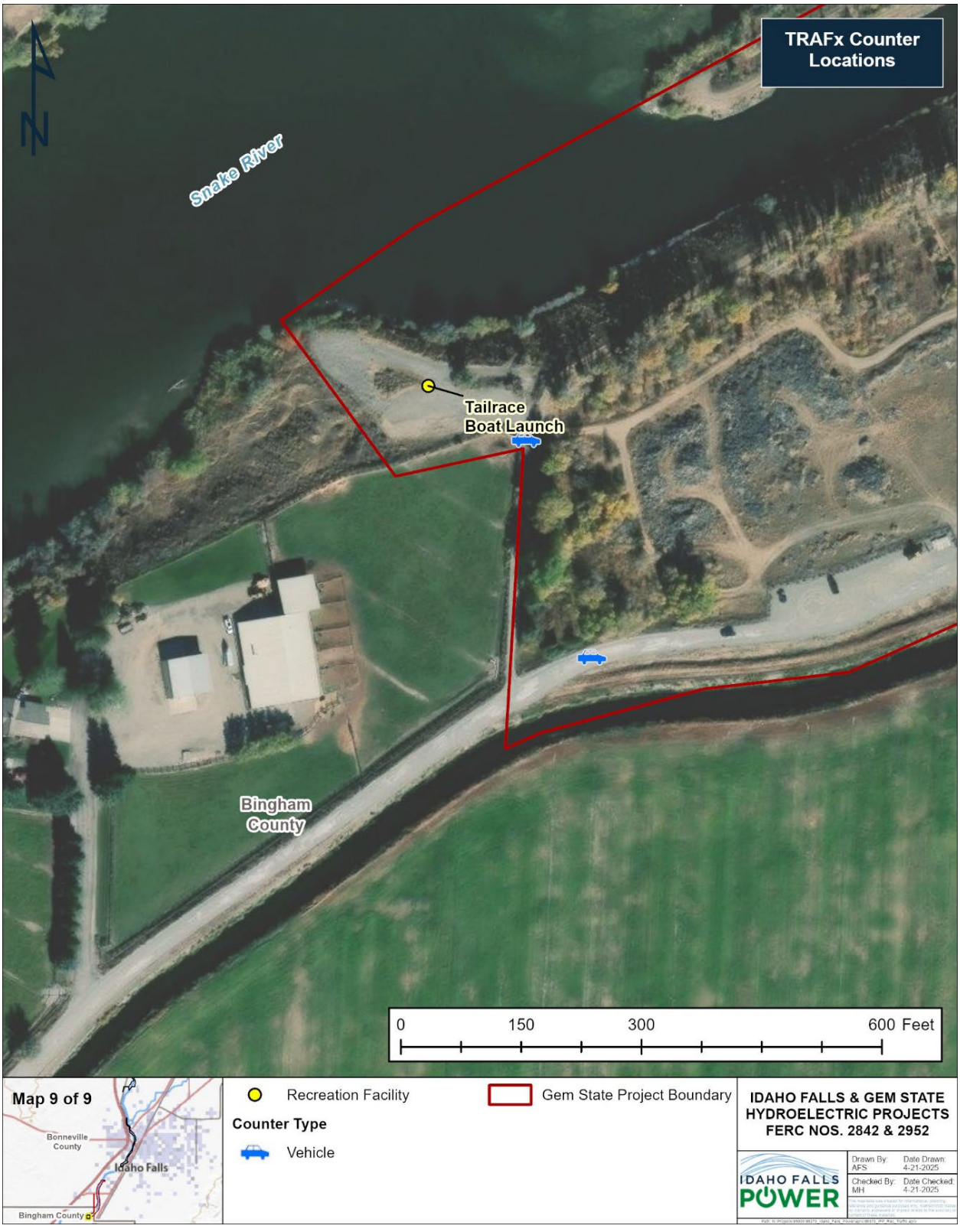


FIGURE 5-9 IDAHO FALLS AND GEM STATE PROJECT TRAFX LOCATIONS (MAP 9 OF 9)

6.0 NEXT STEPS

The anticipated REC-1 study plan development and implementation schedule is summarized in Table 6-1. Over Memorial Day weekend (2025) the following field components occurred: (1) a comprehensive facility inventory and condition assessment survey to determine what recreation infrastructure is present and its current condition status; (2) TRAFx counter installation, including all vehicle and pedestrian counter types; and (3) spot counts and intercept use surveys at all recreation sites to assess recreational use. Data is undergoing quality assurance/quality control procedures. The results of the Memorial Day weekend survey will be provided in the Updated Study Report (USR).

Spot count and intercept use surveys will occur on the Fourth of July (July 4, 2025) and Labor Day (September 1, 2025). Additionally, spot count and intercept use surveys will take place during two randomized weekdays and two weekend days in June 2025; two randomized weekdays and one weekend day in July 2025; and two randomized weekdays and one weekend day in August 2025. All field surveys will follow guidelines and procedures specified in the REC-1 study plan. Study results from the 2025 field surveys will be summarized in the USR and included in the Draft License Application (DLA).

TABLE 6-1 REC-1 STUDY SCHEDULE

DATE	ACTIVITY
April 2025	Compile existing study data and prepare for fieldwork activities
May 2025	Conduct Recreation Facility Inventory and Condition Assessment and Recreation Use Assessment / mobilize TRAFx counters
June 2025	Distribute Initial Study Report technical memorandum and meeting with stakeholders
Summer 2025	Conduct Recreation Use Assessments / demobilize TRAFx counters
June 2026	File USR and meeting with stakeholders
September 2026	Distribute final study report in DLA
January 2027	File Final License Application

7.0 REFERENCES

Federal Energy Regulatory Commission (FERC). 2024. Study Plan Determination for the Idaho Falls Hydroelectric Project (P-2842) and Gem State Hydroelectric Project (P-2952). June 5, 2024.

Idaho Falls Power (IFP). 2023. Preliminary Application Document. Idaho Falls Hydroelectric Project (P-2842) and Gem State Hydroelectric Project (P-2952). August 2, 2023. Idaho Falls, Idaho.

_____. 2024. Revised Study Plan. Idaho Falls Hydroelectric Project (P-2842) and Gem State Hydroelectric Project (P-2952), May 13, 2024. Idaho Falls, Idaho.

APPENDIX I

CULTURAL RESOURCES (CR-1) TECHNICAL MEMORANDUM

(FILED AS PRIVILEGED)

APPENDIX J

TRIBAL RESOURCES (TR-1) TECHNICAL MEMORANDUM

(FILED AS PRIVILEGED)

APPENDIX K

ENVIRONMENTAL JUSTICE (EJ-1) TECHNICAL MEMORANDUM

TECHNICAL MEMORANDUM

To:	Idaho Falls Power Relicensing Stakeholders
From:	Idaho Falls Power Relicensing Team
Date:	June 2025
Subject:	Environmental Justice Study (EJ-1) Technical Memorandum

1.0 INTRODUCTION

Idaho Falls Power (IFP) is the current licensee, owner, and operator of the Idaho Falls Hydroelectric Project (Idaho Falls Project), Federal Energy Regulatory Commission (FERC) Project No. 2842, and the Gem State Hydroelectric Project (Gem State Project), FERC Project No. 2952, herein collectively referred to as the "Projects." The licenses for the Projects expire on January 31, 2029; therefore, IFP plans to relicense the Projects using FERC's Integrated Licensing Process (ILP), pursuant to 18 Code of Federal Regulations (CFR) Part 5. Due to the proximity of the Projects to each other, IFP is conducting the relicensing processes concurrently.

This technical memorandum (tech memo) presents a progress report of the Environmental Justice (EJ) Study (EJ-1) for the Projects, consistent with the EJ-1 study plan and the requirements for an Initial Study Report (ISR) pursuant to 18 CFR § 5.15. The EJ-1 study plan implements IFP's proposed study goals and objectives, study area, methods, and schedule for the study effort. IFP's Revised Study Plan (RSP) was filed with FERC on May 13, 2024 (IFP 2024) and approved in FERC's Study Plan Determination (SPD) on June 5, 2024 (FERC 2024).

2.0 STUDY OBJECTIVES

The EJ-1 study goals and objectives were developed during the preparation of the Proposed Study Plan (PSP). A PSP stakeholder meeting was held on February 13, 2024, and following a 60-day comment period, the PSP was revised to address the comments received. Stakeholder requests were confirmed in the RSP, which was filed with FERC on May 13, 2024 (IFP 2024).

The goal of the EJ-1 study is to identify the number and locations of EJ communities and non-English-speaking populations within the study area and conduct public outreach to engage EJ communities and non-English-speaking populations in the relicensing process.

3.0 STUDY AREA

The EJ-1 study area encompasses a mix of federal, municipal, and non-federal lands, with the Bureau of Land Management managing 25.7 acres within the Idaho Falls Project Boundary and 5.8 acres within the Gem State Project Boundary. This scope includes all developments associated with both Projects. The study area encompasses all census block groups that intersect within a one (1) mile radius of the existing FERC Project Boundaries (Figure 3-1). However, because census block groups are the smallest geographic unit available from the U.S. Census, any block group that intersects the study area was included in the analysis in its entirety, even if portions of a block group fell outside the study area.

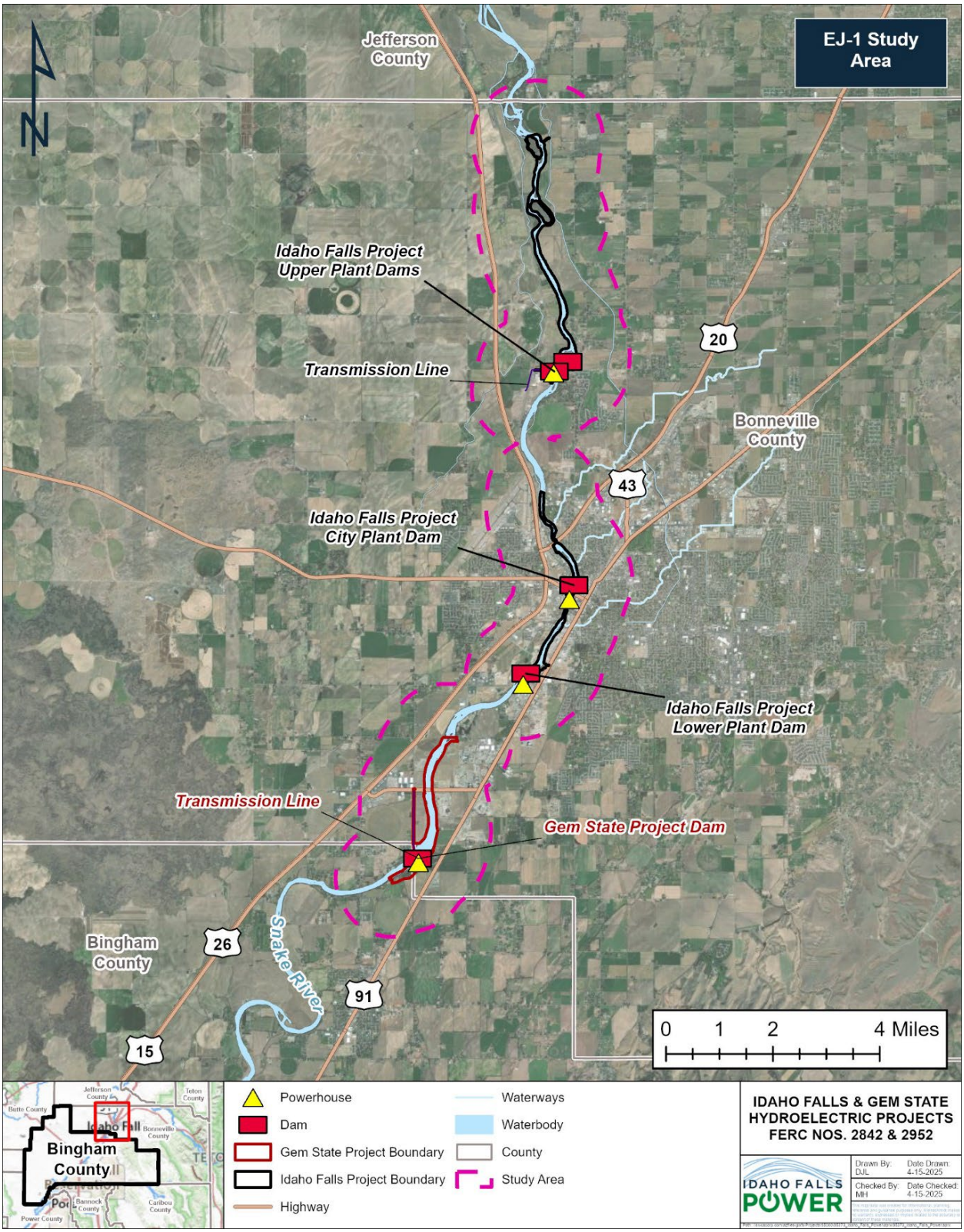


FIGURE 3-1 EJ-1 ENVIRONMENTAL JUSTICE STUDY AREA

4.0 METHODS

The EJ-1 study used information from the U.S. Census Bureau and Environmental Protection Agency's (EPA) NEPAssist tool for the Project area, defined as census tract block groups[1] within a 1-mile radius around the study area. Three criteria points were used to identify EJ communities:

A. A census block group's population self-identifying as something other than "White-alone not Hispanic" (referred to as minority) exceeds 50 percent, or the percentage is 10 percent greater than the same measure in the county.

B. The percentage of a block group's residents whose income is less than two times (200 percent) the poverty level exceeds the same measure in the county.

Minority populations, as defined in this context, encompass American Indian or Alaska Native, Asian, Native Hawaiian or other Pacific Islander, Black or African American, individuals identifying as a race other than one of the identified options (other than White), a combination of two or more races, or Hispanic. Excluding White non-Hispanics, all other racial and ethnic groups are considered minorities. The total minority population of an area is calculated by subtracting the White non-Hispanic population from the total population.

In this analysis, minority population percentages were determined using Census Table B03002 (U.S. Census 2023a). In accordance with Criterion A above, a minority population is considered significant for EJ purposes if it exceeds 50 percent of the general population or is "meaningfully greater" than the minority population percentage of the county, which serves as the reference population. Low-income populations were identified using Census Table C17002 (U.S Census 2023b), whereas non-English-speaking populations were identified using Census Table B16004, which provides detailed language proficiency statistics. (U.S Census 2023c). Additionally, IFP followed the guidelines outlined in the EPA's 2016 *Technical Guidance for Assessing*

[1] A census tract is a small, relatively permanent statistical subdivision of a county, designed to provide a stable set of geographic units for the presentation of decennial census data. A census block group is a cluster of census blocks within a census tract, representing the smallest geographic unit for which the U.S. Census Bureau publishes sample data.

Environmental Justice in Regulatory Analysis guidance document to conduct this assessment (EPA 2016).

The analysis compared census tract block groups to the county average, and if a block group exceeded the county average, it was classified as having a high population of non-English speakers. This approach ensures that language access needs are considered in the study, even if the population is not otherwise classified as an EJ community.

4.1. VARIANCE FROM STUDY PLAN AND SCHEDULE

The EJ-1 study schedule was delayed due to several factors. Originally, initial outreach was planned for fall 2024. However, following additional analysis of primary Project roads, trails, and transmission lines within the FERC Project Boundaries, it was determined that boundary adjustments were necessary. This critical analysis and process of adjusting the FERC Project Boundaries delayed the EJ-1 study start up time. As part of this study, it was necessary to ensure that all relevant block groups were accounted for in the desktop analysis and public outreach. In addition, issuance of Executive Order (EO) 14148 *Initial Rescissions of Harmful Executive Orders and Actions*[2] and shifting agency guidance for conducting environmental justice analyses delayed IFP's efforts to begin the outreach component of this study. IFP re-examined the approach for the EJ-1 study and determined that while the EO may affect how FERC analyzes the results, the FERC Study Plan Determination as still applicable, and implementation of the study as proposed in the RSP was appropriate. Following the resolution of these administrative items, IFP initiated stakeholder outreach in May 2025. Public outreach is expected to be completed by summer 2025. However, with a series of public engagement mechanisms in place, it is expected that the public will continue to engage past the completion of this study.

4.2. MODIFICATIONS TO STUDY METHODS

As outlined in the study plan, IFP proposed to follow EOs 12898 *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*,[3] 14008 *Tackling the*

[2] Executive Order No. 14148, 3 CFR 8237 (2025).
[3] Executive Order No. 12898, 3 CFR 7629 (1994).

Climate Crisis at Home and Abroad,[4] and 14096 *Revitalizing Our Nation's Commitment to Environmental Justice for All*.[5] However, as mentioned above, EO 14148 *Initial Rescissions of Harmful Executive Orders and Actions* altered the availability of the original sources IFP had proposed reviewing in its RFP; as of January 20, 2025, the EPA EJScreen tool, authorized under EO 12898, is no longer available.

Additionally, IFP initially proposed following the Council on Environmental Quality's proposed National Environmental Policy Act (NEPA) Phase 2 Regulations as a guideline for this assessment. However, an interim final rule removed the Council on Environmental Quality regulations implementing NEPA from the CFRs, impacting their applicability.

Due to the rescinding of EOs 12898, 14008, and 14096, IFP modified study methods to use U.S. Census Bureau data and EPA's NEPAssist tool.

One modification in the desktop analysis involved the assessment of poverty status within the study area. The approved EJ-1 study plan originally designated Census Table B17017 (*Poverty Status by Age*) as the basis for identifying low-income populations. However, Census Table C17002 (*Ratio of Income to Poverty*) was selected over Census Table B17017 to ensure a more accurate assessment of the population earning less than 200 percent of the federal poverty level.

Although Census Table B17017 and C17002 produce comparable estimates, a one (1) percent to six (6) percent difference exists, which falls within the margin of statistical error or natural variability expected at the block group level but nevertheless provides two levels of detail. Census Table B17017 reports poverty status in a binary format, either being above or below the poverty line, and includes age-specific breakdowns. It does not distinguish income-to-poverty ratios beyond the poverty threshold, and thus, does not capture populations that can be considered "near-poor."

In contrast, Census Table C17002 categorizes income data into multiple categories based on the federal poverty level, including a distinct count of individuals earning between 100 percent and

[4] Executive Order No. 14008, 3 CFR 7619 (2021).
[5] Executive Order No. 14096, 3 CFR 25251 (2023).

200 percent of the poverty threshold. This level of detail allows for a more refined estimate of socioeconomic vulnerability, capturing households that may not fall below the poverty line, but still face considerable economic hardship. Using Census Table C17002 enabled IFP to identify and include this broader segment of the population in the analysis, supporting a more inclusive evaluation of low-income communities within the study area.

4.3. ANALYSIS

To identify EJ communities, U.S. Census data was used to determine how each block group meets EJ thresholds using the following criteria: (A) the percentage of the population identifying as a racial or ethnic minority exceeded 50 percent, or was at least 10 percent higher than the county average; and (B) the percentage of residents with incomes below 200 percent of the federal poverty level exceeded the county average. For language vulnerability, block groups with a higher proportion of non-English speakers than the county average were also flagged. The analysis compared each block group's data to relevant county benchmarks to determine if it met one or more of these thresholds. Based on these findings, IFP targeted its outreach efforts toward Spanish-speaking populations, distributing postcards in low-income neighborhoods to facilitate informed community engagement. See Table 5-1 below for a more detailed breakdown.

5.0 DATA SUMMARY

In total, 36 census block groups intersect the study area; of these, 24 block groups were identified as EJ communities. See Table 5-1 below.

TABLE 5-1 ENVIRONMENTAL JUSTICE COMMUNITIES IN THE STUDY AREA

PROJECT COMPONENT/ GEOGRAPHY	TOTAL POPULATION	WHITE-ALONE NOT HISPANIC (%)	BLACK OR AFRICAN AMERICAN (%)	AMERICAN INDIAN AND ALASKA NATIVE (%)	ASIAN (%)	NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER (%)	SOME OTHER RACE (%)	TWO OR MORE RACES (%)	HISPANIC OR LATINO (%)	TOTAL MINORITY (%)	PERCENTAGE BELOW 200% OF THE POVERTY LINE	NON-ENGLISH-SPEAKING POPULATION (%)	EJ COMMUNITY ? (YES/NO)
Idaho	1,893,296	79.3	0.6	0.7	1.2	0.1	0.5	3.8	13.3	20.7	29.6	1.4	N/A
Bonneville County	127,056	80.7	0.3	0.3	0.8	0.1	0.3	3.0	14.1	18.9	29.8	0.9	N/A
Block Group 1, Census Tract 9703	2,068	96.7	0	0	0	0	0	2.0	1.2	3.2	31.7	0	Yes
Block Group 1, Census Tract 9704.01	2,540	89.7	0	0	1.6	0	0.4	1.1	7.0	9.4	8.1	0	No
Block Group 2, Census Tract 9704.01	768	72.0	0	0	1.0	0	0	9.5	17.4	27.9	60.3	5.7	Yes
Block Group 1, Census Tract 9707	1,590	79.7	0	0	0	7.9	0	0	21.2	20.1	18.7	2.8	No
Block Group 2, Census Tract 9707	2,312	63.7	0.5	0.4	0.3	0	0	3.5	31.4	36.1	48.8	3.6	Yes
Block Group 1, Census Tract 9710	1,246	61.1	0	0	0	0	0	3.6	35.2	38.8	49.5	7.3	Yes
Block Group 2, Census Tract 9710	645	91.6	0	0	0	0	0	1.3	6.9	8.2	29.7	0	No
Block Group 3, Census Tract 9710	569	90.6	0	0	0	0	0	0	9.3	9.3	24.4	0	No
Block Group 4, Census Tract 9710	609	90.6	0	0	0	0	0	4.4	4.9	9.3	36.2	3.3	Yes
Block Group 5, Census Tract 9710	1,173	87.9	0	0	0.6	0	0	5.0	6.3	11.9	9.9	0	No
Block Group 6, Census Tract 9710	715	78.4	3.0	0	1.8	0	0	6.5	10.0	21.3	34.5	0	Yes
Block Group 1, Census Tract 9711	1,062	67.3	2.0	0	0	0	0	13.8	16.7	32.5	38.3	0	Yes
Block Group 2, Census Tract 9711	674	75.3	3.2	0.8	0	0	0	1.1	19.2	23.3	54.0	3.8	Yes
Block Group 3, Census Tract 9711	606	77.5	0	0	0	0	1.6	4.1	16.6	22.3	54.9	0	Yes
Block Group 4, Census Tract 9711	877	91.4	0	0	0	0	2.0	2.1	4.3	8.4	46.7	0.1	Yes
Block Group 1, Census Tract 9712	966	57.4	0	0	0	0	0	2.4	40.0	42.4	54.3	2.5	Yes
Block Group 2, Census Tract 9712	807	77.8	0	0	0	0	0	4.3	17.8	22.1	67.1	1.7	Yes
Block Group 3, Census Tract 9712	1,867	90.5	1.7	0	0	0	0.6	1.9	4.9	9.1	56.1	0	Yes

PROJECT COMPONENT/ GEOGRAPHY	TOTAL POPULATION	WHITE-ALONE NOT HISPANIC (%)	BLACK OR AFRICAN AMERICAN (%)	AMERICAN INDIAN AND ALASKA NATIVE (%)	ASIAN (%)	NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER (%)	SOME OTHER RACE (%)	TWO OR MORE RACES (%)	HISPANIC OR LATINO (%)	TOTAL MINORITY (%)	PERCENTAGE BELOW 200% OF THE POVERTY LINE	NON-ENGLISH-SPEAKING POPULATION (%)	EJ COMMUNITY ? (YES/NO)
Block Group 4, Census Tract 9712	1,040	82.9	0	2.0	0	0	0	0	15.0	17.0	67.1	0	Yes
Block Group 1, Census Tract 9713.01	1,267	69.6	0	0	0	0	0	15.9	14.3	30.2	24.4	3.5	Yes
Block Group 2, Census Tract 9713.01	2,095	60.1	0	0	2.7	0	0	2.0	35.0	39.7	28.4	2.1	Yes
Block Group 3, Census Tract 9713.01	1,643	55.0	0.7	0	0	0	0	10.4	33.7	44.8	26.0	0.9	Yes
Block Group 4, Census Tract 9713.01	1,095	68.7	0	0	0	0	0	23.1	8.12	31.2	31.6	0	Yes
Block Group 1, Census Tract 9713.02	1,003	74.4	0	0.4	0	0	4.1	5.6	15.1	25.2	10.7	0	No
Block Group 2, Census Tract 9713.02	678	66.2	0	0	0	0	0	0	33.7	33.7	67.4	0	Yes
Block Group 3, Census Tract 9713.02	1,884	88.6	0	0.3	0.7	0	0	3.5	6.6	11.1	31.8	0	Yes
Block Group 1, Census Tract 9714.01	1,781	66.3	0	0	1.1	0	0	0.6	31.7	33.4	40.3	0	Yes
Block Group 2, Census Tract 9714.01	2,754	80.3	0	0.5	0.5	0	0	0.8	17.7	19.5	29.1	0	No
Block Group 2, Census Tract 9714.02	1,905	78.6	0	0	5.7	0	0	1.4	14.1	21.2	12.4	0	No
Block Group 1, Census Tract 9715	739	66.5	0	0	18.6	0	0	0	14.7	33.3	23.2	0.7	Yes
Jefferson County	32,234	86.0	0	0.5	0	0	0.1	2.2	10.8	13.6	30.7	1.8	N/A
Block Group 1, Census Tract 9601	1,549	73.9	0	0	0	0	0	1.8	24.2	26.0	41.7	6.6	Yes
Block Group 3, Census Tract 9602	1,856	80.8	0.5	0	0	0	0.3	5.6	12.5	18.9	33.4	5.9	Yes
Bingham County	48,993	74.1	0.2	4.8	0.4	0	0.1	2.5	17.5	25.5	32.7	2.4	N/A
Block Group 1, Census Tract 9501.01	2,172	92.5	0	0	0	0	0	0.6	6.7	7.3	25.6	0	No
Block Group 2, Census Tract 9501.01	1,746	80.7	0	0	0.5	0	0	11.1	7.5	19.1	20.6	0	No
Block Group 1, Census Tract 9501.02	1,984	87.6	0	0	0	0	0	0.7	11.6	12.3	23.7	4.3	No
Block Group 2, Census Tract 9501.02	1,774	85.1	0	0	0	0	1.4	0	13.4	14.8	13.1	3.4	No

Source: U.S. Census (2023a, 2023b, 2023c) (Census Tables B03002, C17002, and B16004).
N/A = not applicable, as EJ status is not determined for states or counties.

5.1. IDENTIFICATION OF ENVIRONMENTAL JUSTICE COMMUNITIES BASED ON MINORITY POPULATIONS

As shown in Table 5-1 above, EJ communities were identified in the following areas:

- Census Tract 9707, Block Group 2
- Census Tract 9710, Block Group 1
- Census Tract 9711, Block Group 1
- Census Tract 9713.01, Block Groups 1, 2, 3, and 4
- Census Tract 9712, Block Group 1
- Census Tract 9715, Block Group 1
- Census Tract 9714.01, Block Group 1
- Census Tract 9713.02, Block Group 2
- Census Tract 9601, Block Group 1

A review of U.S. Census data identified block groups within the study area that meet minority EJ thresholds. These areas represent a mix of rural, suburban, and urban development patterns, reflecting varied community conditions. In the northern portion of the study area, Tract 9601 includes environmental and recreational resources, such as the Market Lake Wildlife Management Area and the Snake River, alongside agricultural operations, residential neighborhoods, and local businesses in the Town of Roberts. In Tracts 9707 and 9711, land uses include construction and industrial facilities, public schools, older suburban housing, public parks, and small commercial centers. Tract 9710, located in a more urbanized area, contains older suburban development with a range of community-serving features including churches, local businesses, restaurants, a day care center, and public greenspace. Key community assets include a YMCA facility, the Community Food Bank, and the Gustafson Lateral canal. Tautphaus Park, located in Block Group 6 of Tract 9710, is a notable nearby recreational resource. The area is also traversed by rail infrastructure and includes a mix of motel accommodations and light industrial uses, indicating a diverse land use profile within a compact urban setting.

The broader urban footprint of Idaho Falls is reflected in Tract 9712, which includes civic facilities, commercial corridors, high-density housing, the Greenbelt trail system, and the Idaho Falls Temple. The 9713 block groups include urban-suburban housing, public parks, high schools, and some remaining agricultural land, indicating residential living with limited open space. Tract 9714.01 is characterized by agricultural fields interspersed with suburban homes, a fire station,

and an Amazon warehouse. Tract 9715, located farther west, is predominantly rural with low-density housing, farming operations, and small communities such as Payne and Osgood. Overall, these EJ block groups encompass diverse community settings with varying degrees of development, infrastructure, and proximity to environmental and industrial features.

5.2. IDENTIFICATION OF ENVIRONMENTAL JUSTICE COMMUNITIES BASED ON LOW-INCOME POPULATIONS

As shown in Table 5-1 above, EJ communities were identified in the following areas:

- Census Tract 9703, Block Group 1
- Census Tract 9704.01, Block Group 2
- Census Tract 9707, Block Group 2
- Census Tract 9710, Block Groups 1, 4, and 6
- Census Tract 9711, Block Groups 1, 2, 3, and 4
- Census Tract 9602, Block Group 3
- Census Tract 9712, Block Groups 1, 2, 3, and 4
- Census Tract 9713.01, Block Group 4
- Census Tract 9713.02, Block Groups 2 and 3
- Census Tract 9714.01, Block Group 1
- Census Tract 9601, Block Group 1

A review of U.S. Census data identified block groups within the study area that meet low-income EJ thresholds. These areas span a range of development types, from rural agricultural zones to dense urban neighborhoods, reflecting diverse community characteristics. In the northern part of the study area, Census Tract 9601, Block Group 1 includes the Town of Roberts and surrounding areas, with land uses that feature residential housing, local businesses like BJ's Bayou, agricultural operations, Roberts Elementary School, and recreational resources such as Roberts Slough Lake and Roberts Gravel Pond.

Nearby, Census Tract 9602, Block Group 3 is characterized by extensive rural farmland, residential development along the Snake River, the Ashby Farm, and the Country Line Landfill. It also contains unincorporated residential communities like the Barlow neighborhood and other Census Designated Places (CDP). Census Tract 9703, Block Group 1 also represents a predominantly rural area, containing agricultural lands, Snake River access, churches, and equipment retailers. In Census Tract 9704.01, Block Group 2, mostly consists of a rural or peri-urban mix given its proximity to other agricultural tracts. Tract 9707, Block Group 2 features older

suburban development, parks, local schools, construction-related facilities, industrial areas, and local restaurants.

In the urban core of Idaho Falls, Census Tract 9710, Block Groups 1, 4, and 6 contain older suburban neighborhoods with diverse land uses including churches, day care centers, local restaurants, small businesses, and rail corridors. These areas also house several community resources such as the YMCA, the Community Food Bank, the Gustafson Lateral canal, Rose Hill Cemetery, Kate Curley Park, and Tautphaus Park (notably within Block Group 6). Nearby, Census Tract 9711, Block Groups 1 through 4 reflect similar characteristics, with older residential areas, mixed commercial and industrial development, and access to green spaces.

Census Tract 9712, Block Groups 1 through 4 encompass a broad urban area that includes Russel Freeman Park, the Idaho National Laboratory, the Idaho Falls Temple, Civitan Park, and commercial areas such as Walmart, hotels, restaurants, and small businesses. This tract is also bisected by the Snake River and includes segments of the Greenbelt trail and RV parks, offering both recreational and residential amenities within a high-density setting. In adjacent Census Tract 9713.01, Block Group 4, and Census Tract 9713.02, Block Groups 2 and 3, land uses include suburban housing, public parks, and remaining agricultural areas.

Finally, Census Tract 9714.01, Block Group 1 features a combination of rural agricultural lands, suburban housing, a fire station, parks, and industrial logistics facilities such as an Amazon warehouse. Overall, these EJ block groups encompass diverse community settings with varying degrees of development, infrastructure, and proximity to environmental, rural landscapes, and industrial features.

5.3. IDENTIFICATION OF CENSUS TRACT BLOCK GROUPS BASED ON NON-ENGLISH SPEAKING POPULATIONS

As shown in Table 5-1 above, communities were identified in the following areas:

Census Tract 9704.01, Block Group 2	Census Tract 9712, Block Group 1 and 2
Census Tract 9707, Block Group 1 and 2	Census Tract 9713.01, Block Group 1 and 2
Census Tract 9710, Block Group 1 and 4	Census Tract 9602, Block Group 1
Census Tract 9711, Block Groups 2	Census Tract 9501.02, Block Group 1 and 2

Census data analysis identified several block groups in the study area where the proportion of the population speaks a language other than English at home and may have limited English proficiency. Although there is overlap with areas previously identified under minority and low-income criteria, this section specifically highlights potential barriers to effective communication and public participation stemming from language differences. These communities span a range of land uses, including urban development, public facilities, and rural agricultural landscapes.

Census Tract 9501.02, Block Groups 1 and 2, are located in a predominantly rural area characterized by agricultural land, scattered residential development, manufactured homes, and community institutions such as Riverview and Hazel Stuart Elementary Schools. Additional features include North Bingham Park, small-scale equipment stores, and proximity to the Snake River, all of which serve local residents. Similarly, Census Tract 9602, Block Group 1, includes extensive agricultural areas and housing situated near the Snake River, along with key infrastructure such as the County Line Landfill and Ashby Farms. Census Tract 9704.01, Block Group 2, also consists of rural residential development and active agricultural use, reflecting a land-use pattern common across the study area.

Census Tract 9707, Block Groups 1 and 2, and Census Tract 9710, Block Groups 1 and 4, encompass older suburban areas characterized by a diverse mix of land uses. These include parks, schools, restaurants, day care centers, industrial and construction facilities, rail infrastructure, motels, and community-oriented services such as the YMCA and the Idaho Falls Community Food

Bank. Nearby, Census Tract 9711, Block Group 2 also reflects the built environment typical of established suburban neighborhoods, with a blend of residential and commercial uses.

In the more urban core of Idaho Falls, Census Tract 9712, Block Groups 1 and 2 include high-use public and civic features such as Russell Freeman Park, the Snake River Greenbelt trail, Melaleuca Baseball Field, and clusters of small businesses and mixed housing types that support a diverse population.

Finally, further south, Census Tract 9713.01, Block Groups 1 and 2 feature a combination of suburban residential areas, agricultural lands, and key regional infrastructure, including the Idaho Falls Regional Airport and institutional facilities like the Department of Environmental Quality and the Center for Space and Nuclear Research. Overall, these block groups encompass diverse community settings with varying degrees of development, infrastructure, rural landscapes, and proximity to industrial features.

Figure 5-1 through Figure 5-3 illustrate census block group locations that intersect the study area at Upper Plant, City and Lower Plant, and Gem State Project, respectively.

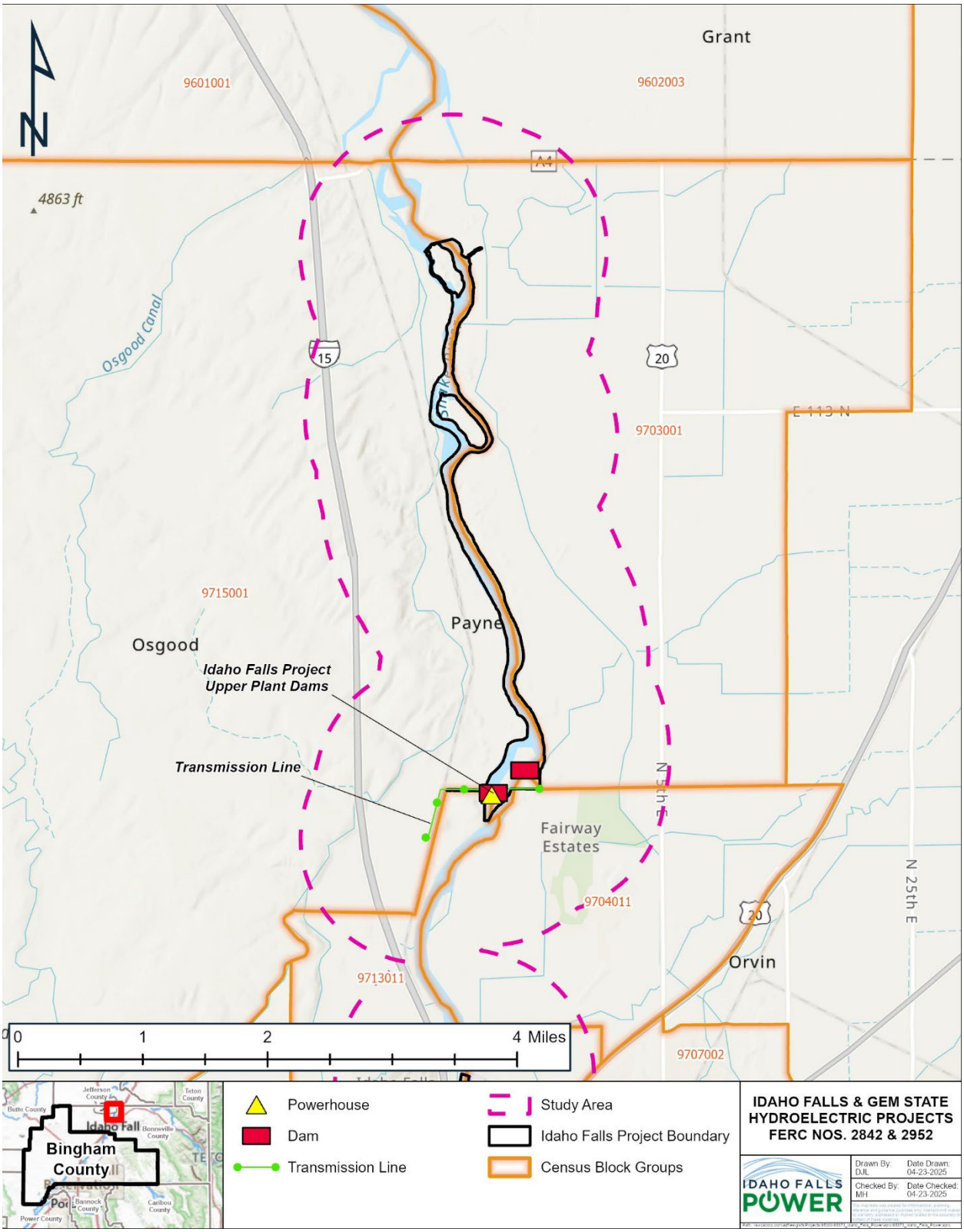


FIGURE 5-1 IDAHO FALLS PROJECT UPPER PLANT CENSUS BLOCK GROUP LOCATIONS

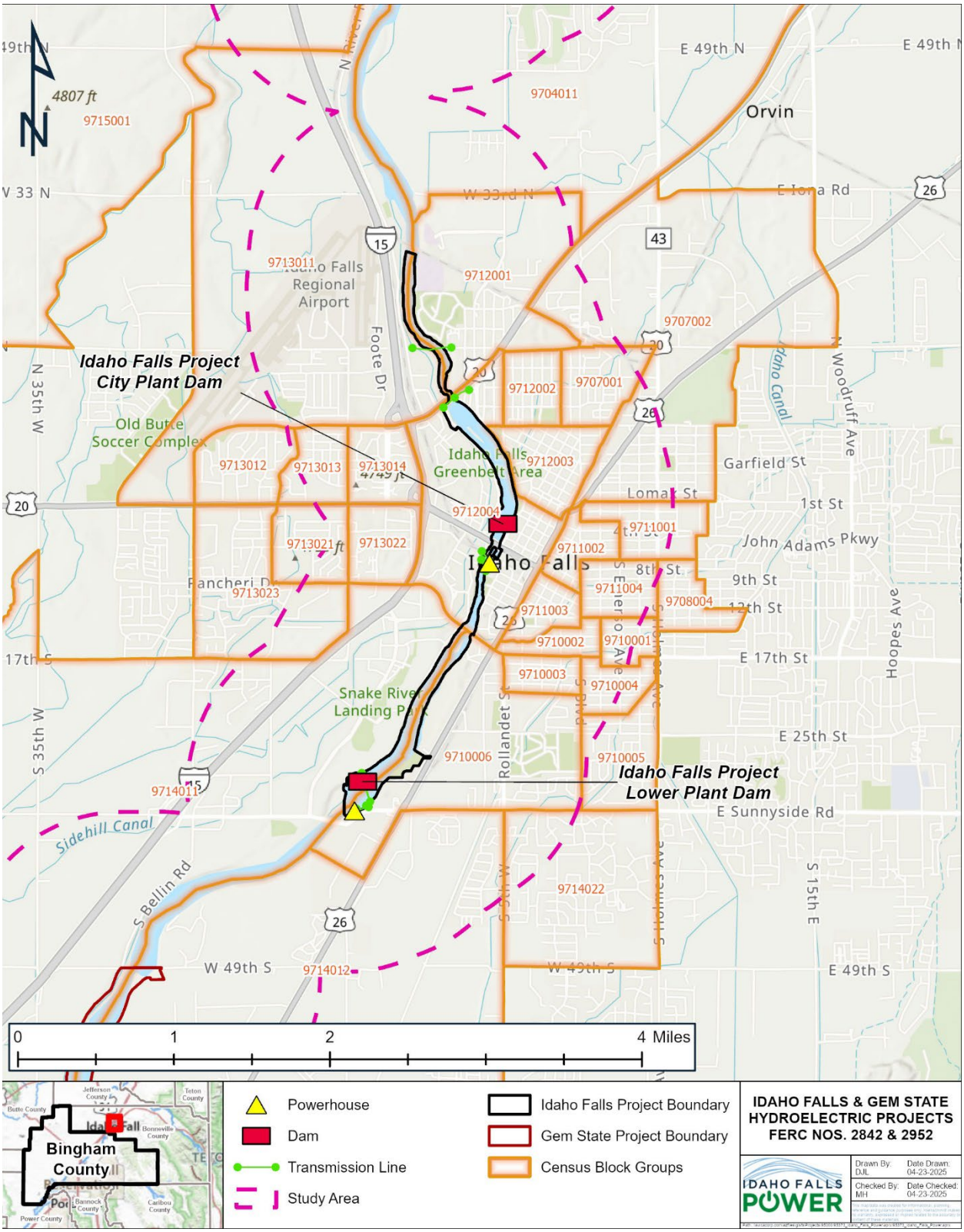


FIGURE 5-2 IDAHO FALLS PROJECT CITY AND LOWER PLANT CENSUS BLOCK GROUP LOCATIONS

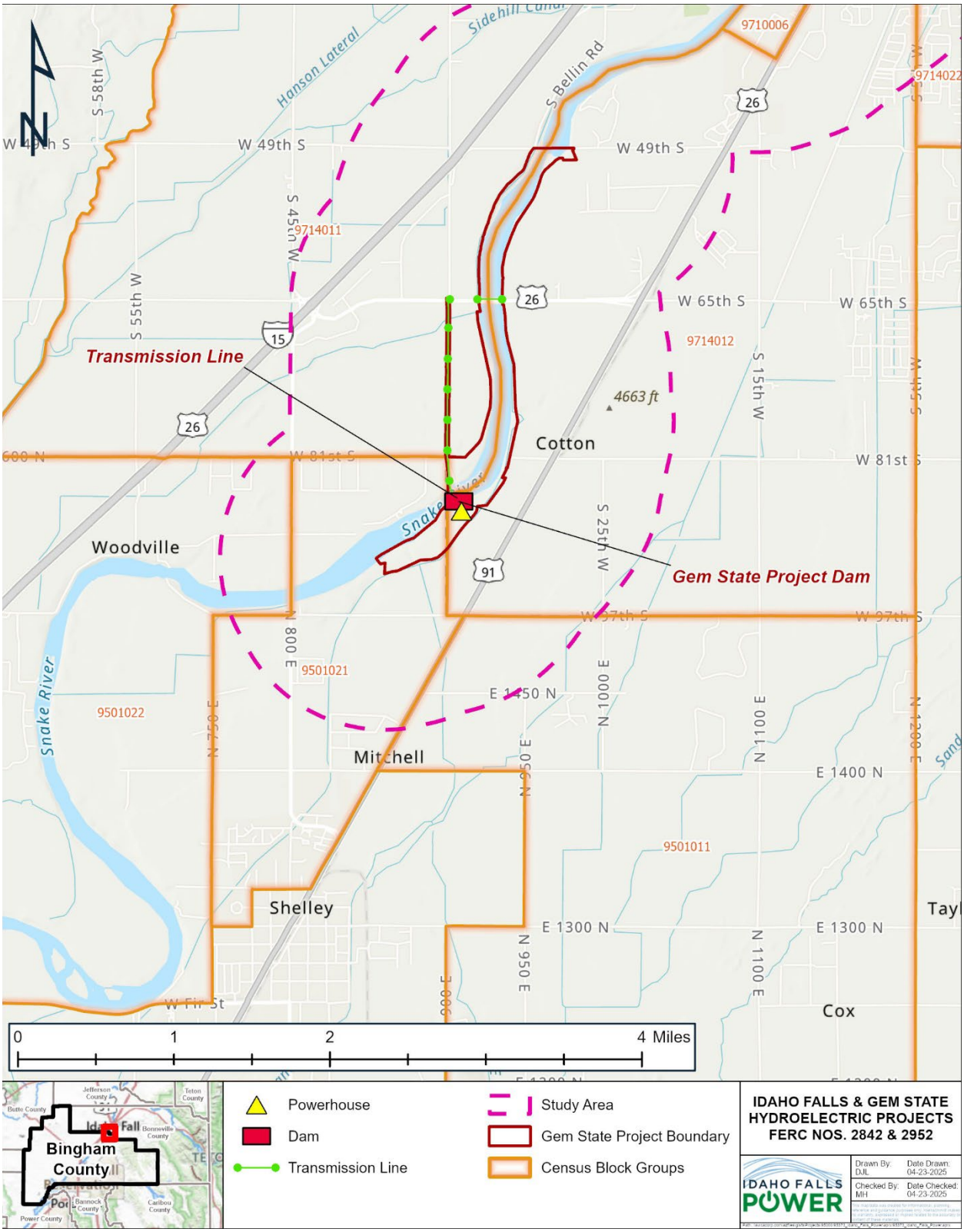


FIGURE 5-3 GEM STATE PROJECT CENSUS BLOCK GROUP LOCATIONS

5.4. IDAHO FALLS PROJECT DATA

5.4.1. Upper Plant

Six census tract block groups are present intersecting the Upper Plant (see Figure 5-1). The identified block groups are: [6]

Census Tract 9703, Block Group 1
Census Tract 9704.01, Block Group 1
Census Tract 9704.01, Block Group 2
Census Tract 9715, Block Group 1
Census Tract 9602, Block Group 3
Census Tract 9601, Block Group 1

5.4.2. City Plant

In total, 21 census tract block groups intersect the City Plant (see Figure 5-2). The identified block groups are:

Census Tract 9710, Block Group 1
Census Tract 9710, Block Group 2
Census Tract 9710, Block Group 3
Census Tract 9710, Block Group 4
Census Tract 9710, Block Group 5
Census Tract 9710, Block Group 6
Census Tract 9713.01, Block Group 1
Census Tract 9713.01, Block Group 2
Census Tract 9713.01, Block Group 3
Census Tract 9713.01, Block Group 4
Census Tract 9707, Block Group 1
Census Tract 9707, Block Group 2
Census Tract 9713.02, Block Group 1
Census Tract 9713.02, Block Group 2
Census Tract 9713.02, Block Group 3
Census Tract 9712, Block Group 1
Census Tract 9712, Block Group 2
Census Tract 9712, Block Group 3
Census Tract 9712, Block Group 4
Census Tract 9711, Block Group 1
Census Tract 9711, Block Group 2
Census Tract 9711, Block Group 3
Census Tract 9711, Block Group 4

[6] Bold font indicates that an identified EJ community is present in the census tract/block group.

5.4.3. Lower Plant

Five census tract block groups intersect the Lower Plant (see Figure 5-2). The identified block groups are:

Census Tract 9714.01, Block Group 1	**Census Tract 9710, Block Group 6**
Census Tract 9714.01, Block Group 2	Census Tract 9710, Block Group 5
Census Tract 9714.02, Block Group 2	

5.5. GEM STATE PROJECT DATA

Six census tract block groups intersect the Gem State Project (see Figure 5-3). The identified block groups are:

Census Tract 9714.01, Block Group 1	Census Tract, 9501.01, Block Group 2
Census Tract 9714.01, Block Group 2	Census Tract 9501.02, Block Group 1
Census Tract 9501.01, Block Group 1	Census Tract 9501.02, Block Group 2

5.6. OUTREACH EFFORTS

To support the study objectives of identifying the number and location of EJ communities and non-English-speaking populations within the study area, IFP developed a targeted outreach strategy to facilitate meaningful engagement and ensure equitable access to information about the Projects and the relicensing process. As part of this effort, IFP completed a desktop analysis to identify the locations of EJ communities within the study area. Based on the findings, IFP prepared bilingual informational materials including postcards, flyers, and website content, providing an overview of the Projects, the relicensing process, and opportunities for public participation. These materials were made available in both English and Spanish.

To support focused outreach within identified EJ communities, IFP compiled a list of prominent local institutions such as churches, community centers, educational and public facilities, and high-traffic local businesses. Bilingual postcards and flyers were distributed to these locations, either

by mail or direct delivery. In coordination with the REC-1 Recreation Use and Facility Inventory Study team's mobilization, over Memorial Day weekend, flyers were posted at designated locations within the study area. In accordance with the EJ-1 study plan, IFP also identified and initiated outreach to local advocacy and faith-based organizations that serve underrepresented populations. Organizations such as the Idaho Falls African American Alliance, the American Civil Liberties Union of Idaho, the First Presbyterian Church, and St. John's Lutheran Church were identified as trusted community partners that may assist in disseminating information about the Projects and opportunities for public engagement.

On going outreach efforts will transpire throughout the relicensing process to ensure meaningful engagement with local communities, including those identified as EJ communities. As part of these efforts, on May 15, 2025, IFP mailed 17 bilingual postcards to local organizations located within the study area. The recipient list was developed using Google Earth to identify local business, organizations, and institutions that could meaningfully engage with individuals residing in one of the identified EJ communities. The recipient list includes local business, organizations, and institutions that directly intersect with relevant block groups identified as EJ communities.

The postcards provided information on the Projects and the relicensing process, explained how to participate in the relicensing process, and included links to relevant resources, such as instructions for filing public comments on the FERC e-Library. To broaden the effectiveness of the outreach effort, recipients were encouraged to share the information with others in their communities.

6.0 NEXT STEPS

The EJ-1 study plan development and implementation schedule is summarized in Table 6-1. The EJ-1 study will be complete by summer 2025. However, if following the completion of the study, public comments are received that can be correlated to the study, a progress summary and key findings will be included in the Updated Study Report (USR).

TABLE 6-1 EJ-1 STUDY SCHEDULE

DATE	ACTIVITY
Winter 2024	Compile EJ-1 study data and conduct analyses
June 2025	Distribute ISR technical memorandum and meeting with stakeholders
Fall/Winter 2025	Resolve comments and prepare study report
June 2026	File USR and meeting with stakeholders
September 2026	Distribute final study report in Draft License Application
January 2027	File Final License Application

7.0 REFERENCES

Environmental Protection Agency (EPA). 2016. Technical Guidance for Assessing Environmental Justice in Regulatory Analysis. Available at: https://www.epa.gov/sites/default/files/2016-06/documents/ejtg_5_6_16_v5.1.pdf. Accessed March 2025.

Federal Energy Regulatory Commission (FERC). 2024. Study Plan Determination for the Idaho Falls Hydroelectric Project (P-2842) and Gem State Hydroelectric Project (P-2952). June 5, 2024.

Idaho Falls Power (IFP). 2024. Revised Study Plan. Idaho Falls Hydroelectric Project (P-2842) and Gem State Hydroelectric Project (P-2952), May 13, 2024. Idaho Falls, Idaho.

U.S. Census Bureau. 2023a. Table B03002 Hispanic or Latino Origin by Race. Available at: U.S Census Bureau Table B03002 Hispanic or Latino Origin by Race. Accessed February 24, 2025.

_____. 2023b. Table C17002 Ratio of Income to Poverty Level in the Past 12 Months. Available at: U.S Census Bureau Table C17002 Ratio of Income to Poverty Level in the Past 12 Months. Accessed February 24, 2025.

———. 2023c. Table B16004 Age by Language Spoken at Home by Ability to Speak English for the Population 5 Years and Over. Available at: U.S Census Bureau Table B16004 Age by Language Spoken at Home by Ability to Speak English. Accessed February 28, 2025.

APPENDIX L

CONSULTATION RECORD

From: Mike Gagner
To: Shannon Luoma; Finlay Anderson
Cc: Olivia Smith
Subject: IFP - Scientific Collection Permit Application
Date: Wednesday, July 3, 2024 12:53:54 PM

Report of Contact:
Brett High – Idaho Department of Fish and Game
Contact Date – 07/03/2024
Contact Number – 208/525-7290

In preparation for submittal of our scientific collection permit application to IDF&G, I reached out to Brett High (telephone conversation on 07/03/2024) to see if he had any concerns, special instructions, or limitations that he would like to see included in our application. Brett responded that he felt our study plan was sufficient as written and had no recommendations for modifications or constraints that should be included in the permit application. I offered to notify him in advance of our sampling effort (late-September) and welcomed him to join us in the field. He responded that he would like to do that and offered to send me a description of their White Sturgeon tagging protocol so we could note that information for any we happen to capture.
Once we get a good handle on our sampling dates, I'll share that information with Brett and see if we can coordinate a site visit.

Olivia – do we have a form I should be using to document coversations with the agencies?

Michael R. Gagner
Aquatic Scientist – Project Manager
Kleinschmidt
C: 425.749.9516

From:	John Schwarz
Cc:	Finlay Anderson; Shannon Luoma; Olivia Smith; Richard Malloy
Subject:	FW: Bonneville County Parcel Ownership Data
Date:	Monday, July 15, 2024 7:39:16 AM
Attachments:	image001.png

From: John Schwarz
Sent: Wednesday, July 10, 2024 2:35 PM
To: 'tvanwagner@co.bonneville.id.us' <tvanwagner@co.bonneville.id.us>; 'BCMapping@co.bonneville.id.us' <BCMapping@co.bonneville.id.us>
Cc: Indya Messier <Indya.Messier@swca.com>; Emily Waters <emily.waters@swca.com>
Subject: Bonneville County Parcel Ownership Data

Hi Trich,

I'm an Assistant Planner with SWCA Environmental Consultants. On behalf of Idaho Falls Power, and in collaboration with Kleinschmidt, SWCA Environmental Consultants will be conducting botanical resources surveys this summer within and near the City of Idaho Falls. In advance of those surveys, we wanted to reach out to you for information. Specifically, we are looking to obtain Parcel or Land Ownership data in the form of GIS shapefiles. We would like to be able to combine this data as a layer on field maps being used by our crews while performing surveys.

Would you be willing to provide us with this data?

Your help is greatly appreciated.

Best regards,

John Schwarz | he, him, his
Assistant Environmental Planner

SWCA Environmental Consultants
257 E 200 S
Salt Lake City, Utah, 84111
P 000.000.0000 | C 801.891.0945
John.Schwarz@swca.com

From: Ellis, Lisa A
To: John Schwarz; Berglund, Laura G
Cc: Indya Messier; Emily Waters; Finlay Anderson; Olivia Smith; Shannon Luoma; Richard Malloy
Subject: Re: [EXTERNAL] Ute Ladies"-Tresses Bloom Window/Greenlight to Conduct Surveys
Date: Wednesday, July 10, 2024 12:50:19 PM
Attachments: image001.png

> You don't often get email from lisa_ellis@fws.gov. Learn why this is important

Hi John,

I've added Laura Berglund from our Chubbuck office who can help you with this request - in fact, think she may already be working with someone else on the request.

Thanks,
Lisa

Lisa A. Ellis (she/her)
State Supervisor
US Fish and Wildlife Service
Idaho Fish and Wildlife Office
1387 South Vinnell Way
Boise, Idaho 83709
208-510-5476
986-217-2683 (cell)

From: John Schwarz <John.Schwarz@swca.com>
Sent: Wednesday, July 10, 2024 12:09:52 PM
To: Ellis, Lisa A <Lisa_Ellis@fws.gov>
Cc: Indya Messier <Indya.Messier@swca.com>; Emily Waters <emily.waters@swca.com>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>; Shannon Luoma <Shannon.Luoma@Kleinschmidtgroup.com>; Richard Malloy <rmalloy@ifpower.org>
Subject: [EXTERNAL] Ute Ladies'-Tresses Bloom Window/Greenlight to Conduct Surveys

Hi Lisa,

I'm an Assistant Planner with SWCA Environmental Consultants and was recently forwarded

your contact information from Rita Reisor. On behalf of Idaho Falls Power, and in collaboration with Kleinschmidt, SWCA Environmental Consultants will be conducting botanical resources surveys this summer within and near the City of Idaho Falls, with a focus on assessing the distribution and extent of Ute Ladies'-Tresses habitat. In advance of those surveys, we wanted to reach out to you for information. Specifically, the location of local ULT reference site populations and the local bloom window. Currently, we have our field survey scheduled for the second week of August - as that's our best approximation of coinciding with ULT's bloom window. If we find ULT out in the field, we want to be sure that we are within the appropriate window to conduct protocol level surveys according to USFWS.

Would you be willing to provide us with the location data of reference site populations for our field staff to visit prior to surveys? Also, would you be able to provide us with the local bloom window or add us to an email notification list for when that window opens up?

Your help is greatly appreciated.

Best regards,

John Schwarz | he, him, his
Assistant Environmental Planner

SWCA Environmental Consultants
257 E 200 S
Salt Lake City, Utah, 84111
P 000.000.0000 | C 801.891.0945
John.Schwarz@swca.com

From: Olivia Smith
To: "Alex Bell"
Subject: RE: Idaho Falls & Gem State Relicensing: WQ-1 Study Fieldwork
Date: Friday, August 2, 2024 10:23:00 AM

Thanks Alex!

From: Alex Bell <Alex.Bell@deq.idaho.gov>
Sent: Friday, August 2, 2024 9:59 AM
To: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Cc: Shannon Luoma <Shannon.Luoma@Kleinschmidtgroup.com>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Kai Steimle <Kai.Steimle@kleinschmidtgroup.com>
Subject: RE: Idaho Falls & Gem State Relicensing: WQ-1 Study Fieldwork

Oliva,

Sounds good. My cell is 208-530-8917.

Thanks,

Alex Bell | Water Quality Manager
Idaho Department of Environmental Quality
900 Skyline Dr #B, Idaho Falls, ID, 83402
Office: (208) 528-2679
http://www.deq.idaho.gov/

From: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Sent: Friday, August 2, 2024 10:44 AM
To: Alex Bell <Alex.Bell@deq.idaho.gov>
Cc: Shannon Luoma <Shannon.Luoma@Kleinschmidtgroup.com>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Kai Steimle <Kai.Steimle@kleinschmidtgroup.com>
Subject: RE: Idaho Falls & Gem State Relicensing: WQ-1 Study Fieldwork

---

Hi Alex,

Great. I will let the team know you will be there. Everyone will plan to meet at the Idaho Falls Power office at 9am on Wednesday August 14 (140 S Capital).

Could you please send me your cell #? I am creating a contact info. sheet for day of coordination with

IFP (Richard, Jason, and Rob) and KA staff (Kai and Lauren).

Thanks,
Olivia

From: Alex Bell <Alex.Bell@deq.idaho.gov>
Sent: Thursday, August 1, 2024 3:45 PM
To: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Cc: Shannon Luoma <Shannon.Luoma@Kleinschmidtgroup.com>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Kai Steimle <Kai.Steimle@kleinschmidtgroup.com>
Subject: RE: Idaho Falls & Gem State Relicensing: WQ-1 Study Fieldwork

Oliva,

I will be busy on the 15th but my calendar is currently open on the 14th. I would be happy to join on the 14th.

Thanks,

Alex Bell | Water Quality Manager
Idaho Department of Environmental Quality
900 Skyline Dr #B, Idaho Falls, ID, 83402
Office: (208) 528-2679
http://www.deq.idaho.gov/

From: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Sent: Thursday, August 1, 2024 4:09 PM
To: Alex Bell <Alex.Bell@deq.idaho.gov>
Cc: Shannon Luoma <Shannon.Luoma@Kleinschmidtgroup.com>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Kai Steimle <Kai.Steimle@kleinschmidtgroup.com>
Subject: Idaho Falls & Gem State Relicensing: WQ-1 Study Fieldwork

---

Hi Alex,

We are reaching out to see if you would be interested in joining two of our field staff on Wednesday August 14 and Thursday August 15 to scout permanent deployment sites for the data loggers in four impoundments as part of the Idaho Falls and Gem State Relicensing Water Quality (WQ-1) Study.

We are still finalizing logistics in terms of timing with the boat and access points but wanted to see if this was something you would be interested in joining.

Please let me know if you have any questions and need further information.

Thank you,

Olivia Smith
Licensing Coordinator
Kleinschmidt
O: 425-243-5663
Follow us on LinkedIn
We provide practical **solutions** *for renewable energy, water and environmental projects!*

From:	Alex Bell
To:	Lauren Rosenkranz
Cc:	Olivia Smith; Shannon Luoma; Finlay Anderson; Kai Steimle
Subject:	RE: Idaho Falls & Gem State Relicensing: WQ-1 Study Fieldwork
Date:	Friday, September 13, 2024 10:33:24 AM
Attachments:	Mercury in Fish Tissue –A Statewide Asse~rsQuality Assurance Project Plan (QAPP)Summer 2008Version 1.2, October 28, 2008.PDF

Hi Lauren,

I was nice meting you as well. Here is that QAPP—given the age of this document, I would anticipate much of this material would be out-of-date.

Thanks,

Alex Bell | Water Quality Manager
Idaho Department of Environmental Quality
900 Skyline Dr #B, Idaho Falls, ID, 83402
Office: (208) 528-2679
http://www.deq.idaho.gov/

From: Lauren Rosenkranz <Lauren.Rosenkranz@KleinschmidtGroup.com>
Sent: Thursday, September 12, 2024 7:31 PM
To: Alex Bell <Alex.Bell@deq.idaho.gov>
Cc: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>; Shannon Luoma <Shannon.Luoma@Kleinschmidtgroup.com>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Kai Steimle <Kai.Steimle@kleinschmidtgroup.com>
Subject: Re: Idaho Falls & Gem State Relicensing: WQ-1 Study Fieldwork

---

Hi Alex!

It was a pleasure to meet you out in the field back in August.

Question for you – our fish team is getting ready to head out into the field this month. Would it be possible to provide them with a copy of the following document? Essig, D and MA Kosterman. 2007. **Mercury in Fish Tissue – A Statewide Assessment of Lakes and Reservoirs, Quality Assurance Project Plan (QAPP), Version 1.2 July 13, 2007**. Idaho Department of Environmental Quality, State Office. Boise, Idaho. 42 p.

Please let me know if that's something you can assist us with. Thanks either way!

Lauren Rosenkranz M.S. (she/her)

Licensing and Permitting Coordinator

O: 971-369-4235

I am working a flexible schedule and am available Monday-Thursday.

From: Olivia Smith
Sent: Friday, August 2, 2024 9:44 AM
To: Alex Bell <Alex.Bell@deq.idaho.gov>
Cc: Shannon Luoma <Shannon.Luoma@KleinschmidtGroup.com>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Kai Steimle <Kai.Steimle@KleinschmidtGroup.com>
Subject: RE: Idaho Falls & Gem State Relicensing: WQ-1 Study Fieldwork

Hi Alex,

Great. I will let the team know you will be there. Everyone will plan to meet at the Idaho Falls Power office at 9am on Wednesday August 14 (140 S Capital).

Could you please send me your cell #? I am creating a contact info. sheet for day of coordination with IFP (Richard, Jason, and Rob) and KA staff (Kai and Lauren).

Thanks,

Olivia

From: Alex Bell <Alex.Bell@deq.idaho.gov>
Sent: Thursday, August 1, 2024 3:45 PM
To: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Cc: Shannon Luoma <Shannon.Luoma@Kleinschmidtgroup.com>; Finlay Anderson

<finlay.anderson@kleinschmidtgroup.com>; Kai Steimle <Kai.Steimle@kleinschmidtgroup.com>
Subject: RE: Idaho Falls & Gem State Relicensing: WQ-1 Study Fieldwork

Oliva,

I will be busy on the 15th but my calendar is currently open on the 14th. I would be happy to join on the 14th.

Thanks,

Alex Bell | Water Quality Manager

Idaho Department of Environmental Quality

900 Skyline Dr #B, Idaho Falls, ID, 83402

Office: (208) 528-2679

http://www.deq.idaho.gov/

From: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Sent: Thursday, August 1, 2024 4:09 PM
To: Alex Bell <Alex.Bell@deq.idaho.gov>
Cc: Shannon Luoma <Shannon.Luoma@Kleinschmidtgroup.com>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Kai Steimle <Kai.Steimle@kleinschmidtgroup.com>
Subject: Idaho Falls & Gem State Relicensing: WQ-1 Study Fieldwork

Hi Alex,

We are reaching out to see if you would be interested in joining two of our field staff on Wednesday August 14 and Thursday August 15 to scout permanent deployment sites for the data loggers in four impoundments as part of the Idaho Falls and Gem State Relicensing Water Quality (WQ-1) Study.

We are still finalizing logistics in terms of timing with the boat and access points but wanted to see if this was something you would be interested in joining.

Please let me know if you have any questions and need further information.

Thank you,

Olivia Smith

Licensing Coordinator

Kleinschmidt

O: 425-243-5663

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Mercury in Fish Tissue –
A Statewide Assessment of Rivers

Quality Assurance Project Plan (QAPP)
Version 1.2, October 28, 2008

Summer 2008

Prepared by Don A. Essig and Jason Pappani, IDEQ

Acknowledgements

This document is the product of many hands and minds other than the primary authors. The quality assurance project plans for Brownlee Reservoir, written by Hawk Stone, and Lake Lowell, written by Lauri Monnot, provided the template and foundation for this plan. Without their earlier efforts we would have wasted considerable time "reinventing the wheel". Tony Olsen of EPA's Corvallis Lab generated the random selection of rivers sites for this project, and we could not have proceeded without his help. Finally, several people reviewed various earlier versions of this QAPP, including Mary Anne Kosterman, Richard Lee, Amanda Fawley, Michael McIntyre, and Don Bledose. Without their help the imperfections would be more numerous and obvious. Thank you all for your kind help.

This document follows the guidelines and format recommended by *Guidance for Quality Assurance Project Plans* (USEPA 2002a). Much of the text here is taken directly from that publication. It also borrows from EPA's *Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories* (USEPA 2000), Idaho DEQ's *Implementation Guidance for the Idaho Mercury Water Quality Criteria* (DEQ 2005a), and the Idaho Fish Consumption Advisory Program's *Protocol* (IDHW 2006).

GROUP A: PROJECT MANAGEMENT

A1 – Approval Sheet

Don A. Essig
Project Manager
Idaho Department of Environmental Quality
State Office

Don A. Essig 10-28-08

Michael McIntyre
Surface Water Quality Manager
Idaho Department of Environmental Quality
State Office

10/28/08

Donald Bledsoe
Quality Director
Idaho Department of Environmental Quality
State Administration Office

28 OCT 08

A2 - Table of Contents

This plan covers the entire project from design, through implementation, to assessment. These elements are presented in that order and have been arranged into four general groups:

A3. Distribution List

Don Bledsoe, Quality Director, DEQ Administration

Marti Bridges, TMDL Program Manager, DEQ Surface Water Program

Barry Burnell, Water Quality Division Administrator

Amanda Fawley, Brooks Rand LLC

Xin Dai, Statistician, DEQ Technical Services Division

Michael Edmondson, 303(D) and 305(B) Program Manager, DEQ Surface Water Program

Don Essig, Water Quality Standards Coordinator, DEQ Surface Water Program

Jeffery Fromm, Environmental Toxicologist, DEQ Technical Services Division

Richard Lee, DEQ Technical Services Division

Michael McIntyre, DEQ Surface Water Manager, DEQ Surface Water Program

Jason Pappani, Monitoring and Assessment Coordinator, DEQ Surface Water Program

Jim Vannoy, Environmental Education and Assessment Manager, IDHW

Wally Baker, Idaho Bureau of Laboratories, IDHW

Shanda McGraw, EcoAnalysts, Inc.

A4. Project/Task Organization

DEQ's Surface Water Program will oversee the project. The Surface Water Program is responsible for: 1) hiring, training and supervising a DEQ seasonal crew on field procedures including collection of fish, macroinvertebrates, and waters samples and proper labeling, preservation and shipping; 2) coordinating with Brooks Rand LLC on sample shipping and reporting of analytical results; and 3) compilation and final reporting of field and laboratory results.

Michael McIntyre is Manager of DEQ's Surface Water Programs and is responsible for overall direction of this project.

Brooks Rand LLC is the contract laboratory for mercury, arsenic, and selenium analysis of water and fish tissue. They will: 1) process and prepare fish tissue for analysis; 2) perform chemical analysis fish and water samples, including field quality control samples; and 3) report results, including associated laboratory QC summaries, to the DEQ project manager.

The Idaho Bureau of Laboratories will provide sample processing and analysis of surface water samples for nutrients, total suspended solids, specific conductance, suspended sediment, and chlorophyll-a.

EcoAnalysts, Inc is the contract laboratory for macroinvertebrate sample processing, sorting, and identification. They will be responsible for following DEQ's QC protocols for macroinvertebrate identification and reporting results to DEQ.

Don Essig of DEQ is the writer of this plan and overall project manager. He will ensure day-to-day coordination with contract laboratories, DEQ technical services staff working on the project, and will produce the final report on fish contaminant levels and associated water chemistry.

Jason Pappani of DEQ is manager of field operations and will ensure sampling is conducted according to this plan and following established DEQ protocols, and will produce the final report on biological sampling and associated water chemistry.

Richard Lee of DEQ's Technical Services will provide technical support for sample tracking and maintaining records field data, shipping, and chain-of-custody paperwork.

Xin Dai will be the project quality assurance officer and will be responsible for reviewing data against the data quality objectives in this QAPP and reporting her findings to the project manager.

Don Bledsoe is DEQ's quality assurance director, and is responsible for review of this plan. He will contribute a quality assurance summary to the final report.

A5. Problem Definition/Background

Interest in mercury contamination of Idaho fish has been rising since 2003 when DEQ was petitioned to adopt a methylmercury fish tissue criterion. In April 2005 Idaho adopted a fish tissue methylmercury criterion to protect individuals that may eat fish from Idaho surface waters (IDAPA 58.0102.210). This criterion of 0.3 milligrams methylmercury per kilogram (300 ng/g) of fresh weight fish is based on protecting a person weighing 70 kilograms (155lbs) who eats on average of 17.5 grams of fish per day—about one 8-ounce meal every other week over their lifetime.

Methylmercury is a very toxic form of mercury that readily biomagnifies, increasing greatly in concentration in aquatic food chains. This often culminates with mercury in varieties of fish sought for sport in concentrations that pose a human health concern. Presently there are eight lakes and reservoirs and two streams across the state of Idaho with fish consumption advisories for mercury – advice to the public, typically young children and pregnant women, to limit their number of meals of caught fish so as to protect their health. There have also been two Total Maximum Daily Loads (TMDLs) prepared in Idaho addressing mercury contamination – Jordan Creek and Salmon Falls Reservoir.

In 2006 DEQ undertook probabilistic sampling of rivers across the state. That effort resulted in biological, habitat and water quality data from 25 sites, and fish tissue data from15 sites. The work completed in 2006 was the first step in a two-phase sample design with the goal of

providing a statewide assessment of Idaho's major rivers, with the second phase to be completed in 2008 (see Appendix A).

In 2007 DEQ conducted probabilistic sampling of lakes and reservoirs over 50 acres in size across Idaho, obtaining fish tissue contaminant information from 50 lakes and 89 fish tissue composite samples (Essig and Kosterman 2008).

A6. Project Purpose/Task Description

The present project plan is to complete the second phase of the Idaho Major River Survey sample design (see Appendix A), This will require obtaining biological, habitat, water chemistry, and fish tissue data from 25 randomly selected sites, and only fish tissue and water from 10 additional sites (35 total fish tissue and water collections to complement the 2006 effort), giving us a total of 50 probabilistic sites from which to base statistical estimates of the condition of Idaho's major rivers, and the proportion of Idaho's major rivers that meet or exceed certain criteria

Biological, water chemistry, and habitat data will provide DEQ with the necessary data for assessing the ecological condition of Idaho's major rivers (appendix A). Using the probabilistic survey design, DEQ will be able to estimate statistically the condition of Idaho's major rivers. In addition, fish tissue data will allow DEQ to make a statement about the percentage of rivers in Idaho with methylmercury concentrations in the flesh of commonly fished species greater than Idaho's methylmercury fish tissue criterion.

Although this criterion is for methylmercury fish tissue samples will be analyzed for total mercury since it has been established that the majority of total mercury in fish tissue is in the form of methylmercury (90% or more, EPA 2001a; Larosa and Allen Gil 1995); thus it is conservative to assume that all mercury in fish tissue is methylmercury. Therefore, results for total mercury concentrations will be used for comparison to Idaho's methylmercury criterion. This will provide an overall picture of risk to the fishing public from mercury contamination in Idaho's rivers. It will not however provide site-specific information about all rivers, or risks due to consumption of species not sampled.

Because much effort is involved in obtaining fish, in addition to mercury fish tissue samples will also be analyzed for total selenium, total arsenic, and inorganic arsenic. This will provide a more robust assessment of human health risks from fish tissue consumption. We will also collect water samples for analysis of arsenic (total & inorganic), total mercury, and selenium. This will help answer question about bioaccumulation of these contaminants. In addition the total mercury water data along with fish tissue data will add to the growing set of data testing Idaho's assertion that its fish tissue criterion is more protective of aquatic life (requires lower ambient mercury concentrations) than EPA's 1994 total mercury criterion for aquatic life protection.

Field operations will begin in late June 2008 and conclude by October 2008. Laboratory analysis will occur concurrently, but with a two week to one month delay before results are available. We will attempt to collect two game species from each waterbody but expect some waters to support

only one species in sufficient numbers and size to be harvestable. Fish tissue will be sub-sampled using plugs from one fillet from each fish, composited by species for analysis. Thus, aside from field duplicates, there will be one result for each analyte per species per water body. Water samples will be grab samples from a well mixed (turbulent) portion of the stream flow. Clean hands / dirty hands procedures will be used for collection of water samples to be analyzed for total mercury.

A final report summarizing field activities and results will be completed by March 2009.

A7. Quality Objectives and Criteria

DEQ believes that consistency between monitoring plans is important, therefore quality objectives closely follow the methods and criteria used in the 2007 Mercury in Fish Tissue – A Statewide Assessment of Lakes and Reservoirs QAPP (Essig and Kosterman 2007), and the Beneficial Use Reconnaissance Program Field Manual for Rivers (DEQ 2006), the Beneficial Use Reconnaissance Program Field Manual for Streams (DEQ 2007) and the 2005 Quality Assurance Project Plan: Beneficial Use Reconnaissance Program (DEQ 2005b).

The following sections describe particular goals for data quality.

A7.1 Precision/Duplicate Samples

Precision refers to the measure of agreement among repeated measurements of the same sample under similar or identical conditions. It gives information about the reproducibility of results and is determined by the generation and analysis of duplicate samples. Precision is expressed as the Relative Percent Difference (RPD) between duplicate samples or analyses and will be calculated using the following equation:

$$RPD = \frac{2\,|(C_s - C_d)|}{C_s + C_d} \times 100\%$$

Where:
C_s = the sample result, and
C_d = the duplicate sample result

There will be three kinds of duplicate used in this study: field, composite, and analytical. Composite duplicates apply only to fish samples and so for water samples there will be only field and analytical duplicates. A field duplicate is collection of a second sample from the same location at the same time. For fish this means the same site (reach of river) on the same day. Fish tissue composite duplicates consist of a second set of subsamples from a set of fillets, ground into a composite puree. Analytical duplicates are a repeated analysis of the same water or fish tissue composite by the laboratory. For tissue samples this involves a duplicate digestion. Each duplicate type provides information on reproducibility of results at different stages in the sampling, processing and analysis sequence.

Field duplicates will be collected at the rate of at least ten percent but not less than once a week for water samples. Fish duplicates will be driven by the availability of fish and the ten percent rate may not be attained. Fish tissue composite duplicates will be created at the rate of ten percent of the number of field sample delivered to the laboratory for analysis. Finally, the laboratory will analyze in duplicate ten percent of the samples they run. This may include samples from other projects as is appropriate to batching of samples for analysis.

Variability in results can increase at each step in handling of samples and is cumulative in the chain from analysis to sample collection. Our precision goals reflect this. The laboratory precision objective is an RPD no more than 30% between duplicate analyses for fish tissue and 25% for water samples. Duplicate laboratory analyses exceeding this objective will trigger an assessment of quality control and re-analysis of the samples in question. The composite precision objective is an RPD no more than 40%. If this goal is not met sample results will be flagged and considered for re-compositing from archived samples. Field duplicate precision will be reported as information on data quality to be considered in interpreting results. Table 1 summarizes these objectives for water and fish tissue.

Table 1: Summary of Precision Data Quality Objectives for Chemical Analysis of Water and Fish Tissue

Duplicate Type	Sample Matrix	Precision Goal
Analytical	Water	RPD <25%
	Fish tissue	RPD <30%
Processing	Water	not applicable
	Fish tissue	RPD <40%
Field	Water & Fish tissue	report as information

Precision of macroinvertebrate and habitat field data is achieved through extensive crew training and oversight, and through strict adherence to established DEQ protocols (see DEQ 2006 and DEQ 2007). There will be no field duplicates for macroinvertebrates or habitat.

Taxonomic precision for macroinvertebrate identification is provided by the contract laboratory. These measures include verification of sub-sampling and sorting precision. The contractor will perform QA/QC on the subsampling of at least 10% of all samples. Samples are to be combined in the Caton tray and the appropriate number of grid squares selected at random in order to obtain a minimum of 500 individuals for identification. Following this, another qualified employee of the contractor must examine all the material from the selected squares and check for invertebrates that were missed. At least 95% of all the invertebrates in the selected squares must have been removed for identification. If less than 95% of the sample has been picked, the sample and all the material from the grid squares not selected must be placed back into the Caton tray and redistributed for a new random subsample to be taken. The new subsample must be

rechecked before identifications can occur on the macroinvertebrates that were selected.

A7.2 Accuracy

For chemical measurements, accuracy is measured by analyzing materials of known concentration and tells us how true a result an analytical method gives. The ratio of the measured concentration to the actual or true value is expressed as percent recovery (measured/true x 100 = % Rcv). Recovery can be less than 100% (low bias) or greater than 100% (high bias). With samples, like fish tissue, that involve digestion in preparation for analysis, accuracy is determined by sample preparation as well as the analytical technique.

Accuracy of water sample analysis is usually determined from analysis of spiked samples, where a known quantity of analyte is added to an actual field sample. This is known as a matrix spike. For matrices other than water accuracy is usually determined from the analysis of standard or certified reference materials (SRM or CRM). Reference materials are samples of a matrix (e.g., animal tissue) similar to that being analyzed and of a known or, through round-robin analysis, agreed upon true concentration. A CRM is available for fish tissue (DORM-2 dogfish muscle), for total arsenic (As), total selenium (Se), and total mercury (Hg). No CRM value is available for inorganic arsenic; matrix spikes will be used.

While a CRM provides a check on loss of analyte in laboratory sample preparation and digestion of samples, often a critical step in overall analyte recovery, it cannot account loss or gain in analyte that may occur elsewhere in the sample handling chain. For this reason, overall method accuracy can not be measured in this study.

The laboratory will employ CRM digests to assess recovery of analytes in the laboratory. Recovery goals vary by analyte and matrix (Table 2). For samples batches in which recovery objectives are not met, the laboratory will contact the project manger promptly and discuss whether the results can be flagged and accepted or the samples rerun (re-digested and/or re-analyzed).

Table 2: Summary of Accuracy Data Quality Objectives

Matrix	Analyte	CRM/Spike	% Recovery
Fish Tissue	Total Mercury	CRM	75 to 125%
	Total Arsenic	CRM	75 to 125%
	Inorganic Arsenic	Spike	75 to 125%
	Total Selenium	CRM	70 to 130%
Water	Total Mercury	Spike	75-125%
	Total Arsenic	Spike	75-125%
	Inorganic Arsenic	Spike	65-135%
	Total Selenium	Spike	75-125%

The inadvertent addition of analyte to a sample through handling is known as contamination and causes a high bias in the samples. Contamination may come from sample contact with collection equipment, containers, exposure to the atmosphere, e.g. dust, fumes, even mercury vapor in the breath of the person conducting the sampling. Ease and degree of contamination depends on how little analyte is already present in the sample. Mercury is extremely low in most water samples. Contamination of fish tissue is difficult, but also hard to ascertain. Care in handling to avoid contamination of all samples is prudent.

Blanks will be used to check on the possible contamination (analyte gain) in sample collection and processing. For water a blank is a sample of deionized water carried to the field and handled as an ambient sample. For tissue samples a blank is a sample of deionized water processed as a fish tissue sample after the processing equipment has been cleaned. All blanks are of a water matrix.

Table 3: Summary of Blank Contamination Data Quality Objectives

Matrix	Analyte/Method	Blank Type	Acceptable Level[a]
Water	Mercury	Processing (fish) Field (water)	< 200 ng/L (< 0.2 ng/g) < 5 ng/L
	Total Arsenic	Processing (fish) Field (water)	< 200 μg/L (< 0.2 μg/g) < 0.3 μg/L
	Inorganic Arsenic	Processing (fish) Field (water)	< 10 μg/L (< 0.01 μg/g) < 0.05 μg/L
	Selenium	Processing (fish) Field (water)	< 100 μg/L (< 0.1 μg/g) < 1.0 μg/L

[a] Values in () expressed as equivalent tissue concentrations. Note change in units.

Accuracy of macroinvertebrate data is achieved by ensuring accurate identification of macroinvertebrates. The contractor will perform QA/QC on the identification of at least 10% of all samples. Once a taxonomist has completed the identification and enumeration of all the macroinvertebrates in a subsample, the subsample must be repackaged, and then another qualified taxonomist employed by the contractor will re-identify and re-enumerate the subsample independently of the first taxonomist. Once this has been completed for a site, the contractor must perform a percent similarity calculation. The percent similarity must be 95% or greater. Before further samples are processed, the taxonomists must confer to reconcile any discrepancies. For any specimens that are unknown or in question, the results will be reported at the next higher taxonomic level for that group, and the specimen will be sent to an expert in that taxonomic group for identification at the expense of the contractor.

A7.3 Data Representativeness

Representativeness expresses how accurately the sample results represent a characteristic of the population. It is best achieved by careful selection of sampling locations, following sample collection procedures, and obtaining a sufficient number of samples. Thorough documentation of sample site selection will allow an assessment of representativeness after field operations have ended.

Water samples will be collected from a well mixed portion of the river flow (e.g. riffle) in or near the thalweg.

For fish, DEQ's implementation guidance and EPA protocol prescribe that a minimum of 10 fish from the highest trophic level should be sampled per water body. We will aim to meet this minimum but may be unable to due to scarcity of fish. A sample of fish for analysis will consist of a composite of up to ten fish of a species from one site. Use of composite tissue samples averages out fish to fish variation in contaminant levels and provides an estimate of the exposure likely to result from consumption of a particular fish species caught from that site over time.

A7.4 Data Comparability

Comparability is a measure of the confidence with which one data set can be compared to another.

Water samples will be preserved and analyzed using standard methods. Clean hands / dirty hands procedures will be implemented for collection of samples to be analyzed for their total mercury content.

Species and age (size) of fish are known to greatly affect mercury bioaccumulation. Therefore the target species and size of fish will be restricted to reduce this variability, see section B1.3. Furthermore, lengths and weights of each fish will be recorded.

Fish tissue and water samples will be analyzed using EPA standard methodology. All practical safeguards will be implemented to avoid mercury contamination during sample collection and processing. These precautions are detailed in sections B.2 and B.3.

A7.5 Data Completeness

Completeness is the difference between the quantity of data obtained and the quantity expected. With careful adherence to the project plan, it is expected that all data collected will be usable. However, due to unforeseen circumstances some results may be lost due to equipment failure, environmental conditions or logistical constraints.

For this study a complete data set is initially defined as 100% of the target number of sites sampled, 100 % of the sites sampled for water chemistry and 75% of the target number of fish samples. The latter allows for the possible rejection of individual samples in tissue processing (see B2.4), and the expectation that we will not be able collect the planned two species of fish from all sites.

Since laboratory analysis requires only a small fraction of the tissue collected, the remaining tissue homogenate will be archived one year in the event repeat analysis is needed. In addition, only one fillet per fish will be homogenized. The second fillet from each fish will also be archived for one year. With these safeguards we expect to eventually get useable analytical results for all fish samples collected.

With the randomized sampling and summer-long sampling season, sampling will continue until 35 rivers (25 for biomonitoring & fish, plus 10 more for fish tissue only) are monitored. To reach the data completeness objective of 75 % of the target number of samples for fish, we need to collect 53 fish samples (ten fish each). This works out to two species per site from 18 rivers and one from the other 17 sites.

If the analytical data completeness objective is not met, the project manager and project personnel will confer to consider whether repeat analysis must occur or the data quality objective for completeness can be relaxed. Any deviations from protocol will be carefully documented to enable the project manager to decide whether data will be discarded. All deviations from the plan and procedures will be noted in field notebooks, sample collection field sheets, processing logs, or laboratory logs as appropriate. Each note of deviation will be initialed and dated by the person making the entry. In addition the QAO will be notified and will address the consequence of these deviations in their final QA/QC project summary.

A8. Special Training/Certification

At least one person on the fish collection crew shall receive instruction on fish handling and identification (Section B2.2). The individual in charge of fish handling samples should be familiar with fish filleting and will take precautions such as cleaning the filleting surface and tools between species. Similarly, at least two persons shall be trained in clean hands / dirty hands procedure for water sample collection. All crew members will be trained in proper execution of DEQ's field methods (DEQ 2006, DEQ 2007).

All field participants shall be familiar with boating safety, and will have attended training seminars and field exercises. Electro-fishing from a boat is a hazardous activity, and all

participants shall be fully briefed on proper procedure. Additional safety and operation training will be provided, should funds be available.

Records of training certificates and professional qualifications will be examined prior to assignment of project tasks. Copies of training records shall be retained with other project records generated as a result of implementation of this QAPP.

A9. QAPP Revision, Documents and Records

This QAPP may be revised upon approval of the project management team identified in the Approval Sheet (section A1). Revisions may be made to improve or address QA/QC problems that arise over the course of the study or otherwise improve or further project objectives based on knowledge gain during project execution.

The most current version of the QAPP will be distributed to project personnel as soon as it is available. Before any action is taken under this plan, it will be confirmed that all personnel have read the plan. Where possible, this document will be distributed electronically. New versions will replace prior versions.

All paperwork created during this project will be collated into a 'project file'. This paperwork could include:

- Completed field forms (see Appendix A),
- Sample processing logs (see Appendix C),
- Field notebook with all deviations from protocol and other pertinent information noted,
- Calibration logs for any equipment used, and
- Site photographs (electronic photos will be included on compact disc).

A final report will be prepared by Don A. Essig and made available to all on the distribution list. It will summarize the field activities, provide results, and evaluate the overall success of monitoring. The report will be available by March 2009.

The laboratory will report results to Don A. Essig, in electronic format. This will include both a PDF of laboratory data reports, and an Excel spreadsheet summarizing analytical results.

Compact discs will be used to store all electronic information associated with this project. The project file will be kept at DEQ's State Office for at least five (5) years.

GROUP B: DATA GENERATION AND ACQUISITION

The elements in this group address all aspects of project design and implementation. Implementation of these elements ensure that appropriate methods for sampling, measurement and analysis, data collection or generation, data handling, and QC activities are employed and are properly documented.

B1. Sampling Process Design (Experimental Design)

This element describes the project's data collection or research experimental design.

B1.1 Sampling Locations

A random probability design is employed in this study (See Appendix A). The chosen target population is Idaho's Major Rivers, as defined by DEQ (see Appendix A). Tony Olsen of EPA's Corvallis Laboratory provided a draw of 50 waters from this sampling frame as the primary set of waters to be sampled, with 25 to be sampled in 2006, and an additional 25 to be sampled in 2008.

We have already screened this list in the office and know that not all the primary waters are suitable for sampling due to being impounded or inaccessible. Replacement sites were taken from an 'over-sample' of 200%, or 100 additional rivers randomly drawn with the primary sites (See Figure 1). As primary sites are eliminated as unsuitable, replacement sites from the overdraw list are taken in the order given so as to maintain a statistically valid random sample.

A river sample reach is defined as 40 times the general wetted width with a minimum reach length of 500 m and maximum reach length of 1000 m. The site coordinates are located in the middle of the sample reach and this point is known as the "x-site". The sample reach is comprised of 6 equidistant cross-channel transects for habitat and biological sampling. Electrofishing will occur throughout the sample reach.

In the event electrofishing the reach does not yield ten fish per species (up to 2 species) electrofishing will continue downstream until the takeout or 10 fish per species. Fishing beyond the bottom of the reach is only for purpose of obtaining fish for tissue analysis and not for fish community description. The location and time at which electrofishing is ended will be recorded. See the Beneficial Use Reconnaissance Program Field Manual for Rivers for detailed description of field methods (DEQ 2006)

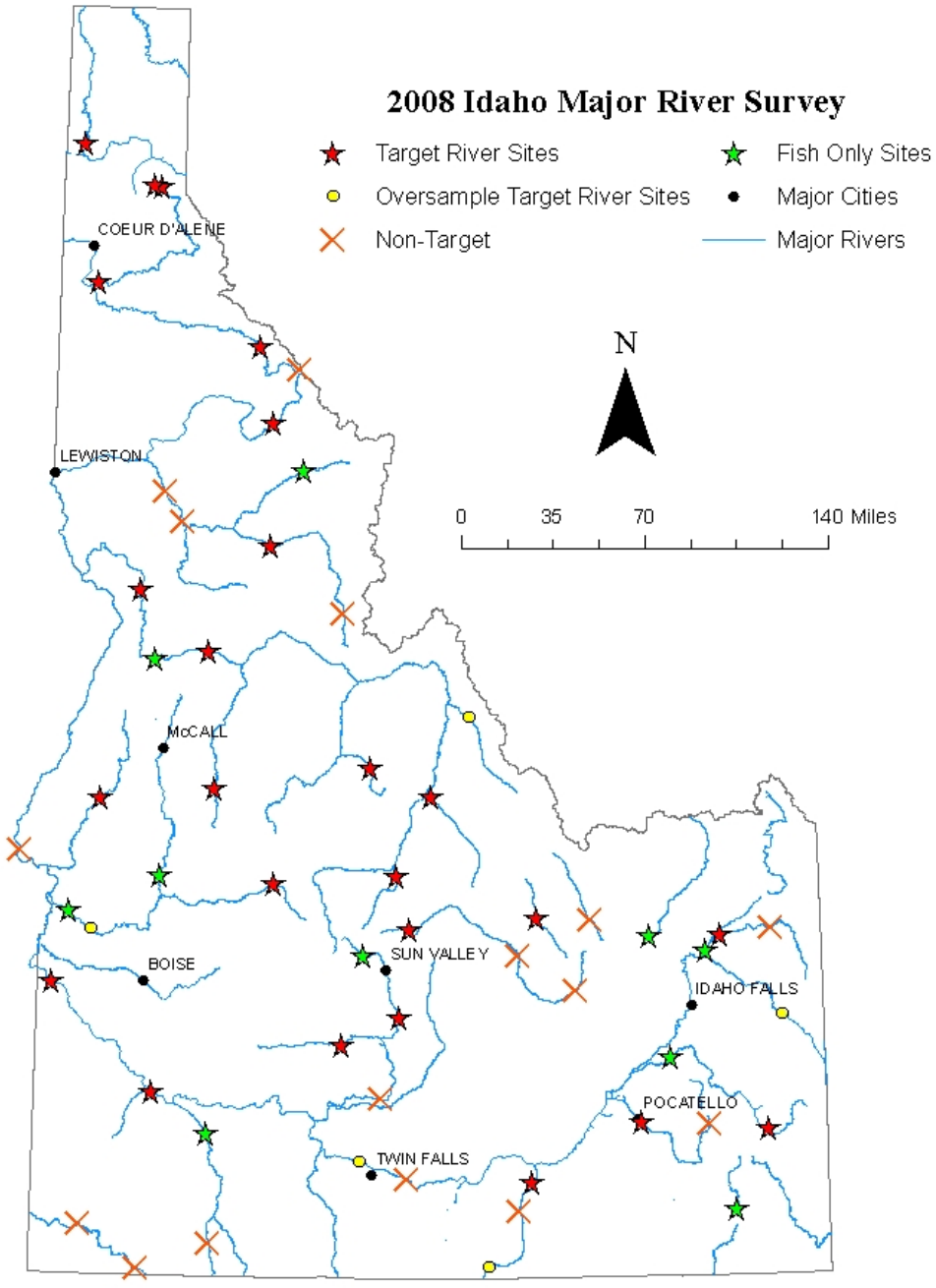
The name of the water body and exact location (latitude and longitude) are provided with the site coordinates, also known as the "x-site".. Because capture of fish will involve moving around the water body, GPS coordinates will be obtained at the beginning and end of the reach fished. Water samples will be obtained at the end of the reach to minimize time between collection and shipment.

B1.2 Sampling Times

The time of day sampling of water and biological communities occurs is not critical but will be recorded. Likewise, although fishing success may vary throughout the day, the exact time of collection is not critical to this study.

Overall sampling is planned for July through October of 2008. Because of Idaho's snowmelt dominated hydrographs and semiarid climate water levels in rivers can vary greatly from spring through summer. We will not begin sampling until flows have subsided enough that conditions are safe for floating and waters have cleared of typical spring turbidity. Biological monitoring protocols dictate that base flow is the best time to sample macroinvertebrate populations. Availability of seasonal help also constrains us to summer sampling. EPA's Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories, Volume 1 (Section 6.1.1.5, EPA 2000) recommends that the most desirable sampling time is from late summer to early fall. To minimize the limitations to sampling water level changes may present, sampling in this study will like start early in summer in drier southern portions of Idaho and progress north and into higher elevations.

Figure 1: Idaho Major River Survey sites for the 2008 field season, including oversample and non-target sites.



B1.3 Target Fish Species and Size Class

EPA (2000) recommends that when choosing the target species, the primary selection criteria should be that the fish is commonly consumed locally and bioaccumulates high concentrations of mercury. Additionally, the species should be abundant and easy to capture and identify.

The target species for this study in order of preference are: **rainbow trout, brown trout, smallmouth bass, mountain whitefish, catfish, and largescale sucker.** We would like two species from each site and need two species from at least 18 sites to meet our target of 53 fish samples. If preferred species are absent other species will be caught at the crew's discretion. Game fish are preferred.

Size of fish collected for analysis will vary based on species but all fish collected should be of legally kept size. Idaho Fish Consumption Advisory Program (IFCAP protocol, IFCAP 2004) specifies that individual fish must be a minimum of 10 inches in length, since larger fish generally bioaccumulate the most methylmercury. It is known the larger (older) individuals within a population are generally the most contaminated (EPA 1995). So to avoid the variance in mercury levels due to fish size, the largest fish of a species at a site should be no more than 150 percent of the length of the smallest individual for the species at that site. So if the smallest fish is 10 inches, the largest should be no more than 15 inches long. The length and weight of each fish caught will be measured and recorded.

B1.4 Target Analytes

For this study the primary analyte of concern in fish and water is mercury. Although the fish tissue water quality criterion is expressed in terms of mg of methylmercury per Kg of fresh weight tissue, analysis will be of total mercury. This is justified because 1) it is has been established that the vast majority of the total mercury in fish tissue is in the form of methylmercury (90% or more, EPA 2001a; Larosa and Allen-Gil 1995); 2) analysis of total mercury is easier and less costly than analysis of methylmercury; and 3) assuming the methylmercury concentration is the same as total mercury concentration thus provides a conservative bias for comparison to the criterion.

When composite samples are analyzed, most of the cost in fish tissue monitoring is in the obtaining of the fish tissue, rather than analytical costs. Adding additional analytes greatly enhances the information gained from this effort for relatively minor added cost, and with no further sacrifice of fish. Secondary analytes are total selenium, total arsenic, and inorganic arsenic.

Selenium is a known issue in southeastern Idaho's phosphate mining patch, but selenium release is also known to be associated with coal combustion and, like mercury, some kinds of metal smelting (Lemly 2002). Selenium is also used as a nutritional supplement for livestock and has been associated with feedlot runoff. Therefore investigation on a statewide basis is prudent. Arsenic is of interest because Idaho has an outdated human health criterion and efforts to update it in 2005 failed in part because of lack of information about arsenic bioaccumulation specific to species inhabiting Idaho waters. Part of the issue is the form of arsenic (inorganic or organic)

that bioaccumulates. Data on arsenic levels in fish tissue and water from this study should be useful to informing bioaccumulation rates pertinent to Idaho and application of or revision of current arsenic criteria in addition to providing a statewide picture of the extent of arsenic contamination in fish from Idaho's rivers.

B1.5 Sample Type

Water samples will be surface grabs from well mixed flow. Because of the multiple analytes and different sample container materials and preservatives each water sample will be split into three bottles.

For fish this study will define 'fresh weight fish' as the skinless, boneless fillet, which is the portion most likely to be consumed by anglers.

Most consumers in the general angling population do not eat the skin of the fish, justifying its removal for analysis. In addition methylmercury is concentrated in muscle tissue, therefore analysis of skinless fillets provide a more protective result than analysis of whole fish or fillets with skin attached. To maintain consistency, simplify sampling, and because the focus is human health and possible fish consumption advisories, selenium and arsenic analysis will use the same samples as total mercury.

Boneless skin on fillets will be prepared from each fish in the field. One fillet from each fish will be sent to the laboratory for analysis. The other fillet will be sent to the DEQ state office for archiving (Attn: **Don Essig, DEQ, 1410 N. Hilton, Boise ID, 83706 ph: 208-373-0119**). The laboratory will remove the flesh or portion of flesh from the skin for compositing. Leaving the skin on until preparation for analysis minimizes handling and thus contamination in the field.

In the field care will be taken to avoid exposure of fish to exhaust fumes and dust and contact with metal surfaces once filleting begins. Polyethylene cutting boards or other portable surface will be provided to each crew. In addition the same type of knife will be supplied to each crew for use in filleting only.

B1.6 Number of Fish per Sample

IFCAP protocol and DEQ Implementation Guidance for the Idaho Mercury Water Quality Criteria (Idaho DEQ 2005a) recommends a minimum of 10 fish from each species at each site. This number provides an adequate sample to provide statistical significance and strikes a balance between a high level of precision, good representation, and analytical costs. However, if ten individuals of the same species can not be obtained with reasonable fishing effort (1-2 hours), composites based on a smaller number of individual fish will be used.

Individual fish in a sample must all be of the same species and from the same waterbody, should be of similar size, and should all be collected within a 24-hour period.

B1.7 Fish Sample Compositing

For this project subsampling of fillets for compositing will occur at the contract laboratory.

Subsamples (nominally 10 grams) from one fillet from each individual fish (up to 10) for a species at a site will be ground together to form one composite sample for that species / site. Composite samples are a cost-effective method for estimating average tissue concentrations of analytes in target species populations to assess chronic human health risks (EPA 2000). To have a legitimate composite sample the fillets subsampled must be from different fish and this is why each fish (two fillets) is individually numbered.

This procedure is different from that which the USGS uses for the monitoring they conduct under the Statewide Trend Monitoring Coop under a joint funding agreement with DEQ. The USGS subsamples the fish in the field, cutting out an approximately 1 inch chunk of muscle from the side of the fish, removing the skin from this chunk while still attached to the fish, and placing the chunk in a plastic baggie with similar chunks of skinless flesh from other fish that make up a composite sample. This is all done with gloved hands, and a new scalpel for each fish. The USGS method lessens handling and thus opportunity for contamination. The degree of subsampling is the same under the USGS procedure as the procedures described herein, so we feel they are comparable.

A limitation of using composite samples is that information on extreme levels of chemical contamination in individual fish is lost. Individual fish data also allows calculation of statistical confidence limits to be placed around mean values. In order to preserve the opportunity for individual fish analysis at a later date should funds permit, the spare fillets not used in composite sample preparation will be saved and kept in frozen archive.

Sample composites will be prepared as follows:

1. Fillets should come from the field double bagged. Each individual fillet in its own Ziploc bag indentified by Sample ID (see section B2.3), with a set of fillets all from one species together in a second outer bag. Nominally there should be ten fillets, but some samples may consist of less than ten fillets.
2. The fillets will be inspected for integrity and allowed to thaw before processing. Compromised samples (e.g. broken Ziploc bags, unlabelled samples) will be discarded. Experience has shown that partially thawed fillets, with a few remaining ice crystals are easiest to work with. Fillets may be allowed to thaw for up 16 hours before processing, so long as spoilage is avoided.
3. A new disposable scalpel will be used for preparing each composite sample (set of ten fillets from one species / site). Used scalpels will be disposed of in a medical sharps container.
4. Each fillet will be rinsed with de-ionized water before proceeding with subsampling (next step).
5. Then a ~10 gram plug (subsample) is taken from the meatiest (thickest) section of the fillet using a clean scalpel. The plug is weighed on a tarred piece of aluminum foil. The weight should be recorded in the processing log to the nearest gram if not ~10 grams.
6. This plug will be placed in a stainless steel and glass grinder along with the other fish flesh plugs for that species and site. Repeat steps 4-6 until all ten fillets have been subsampled

7. The ten plugs will then be ground until blended into a consistent paste. Typically this will take at least 120 seconds of grinding.
8. Approximately 100g (½ cup) of blended flesh will result. A sterile scoop will be used to transfer the blended flesh to a mercury-free sample container.
9. Composite samples will be indentified by Site # + Species Code, and date processed. Field duplicates (Fish #'s 11-20 for a sample) will be identified by appending FD to the composite sample ID, and processing duplicates by appending a P suffix. A laboratory ID number may also be assigned.
10. Composite samples should be refrozen if not to be digested the same day.

Duplicate processing composites will be prepared identically, from a second set of ten gram plugs from the same set of fillets as the original sample. The remainder of the unused fillets will be discarded.

Between each sample, the blender will be cleaned with hot water and detergent, sterilized in 0.1% hydrochloric acid, and triple rinsed with de-ionized water. A new disposable scalpel and piece of aluminum foil for weighing will be used for each sample (set of up to ten fillets from one species and site). The scoop used for transferring the homogenate to its storage container may be reused with cleaning between composites.

A sample processing log will be maintained to record the time and date each set of fillets are taken from the freezer, subsample weights, and the time and date the composite is completed and returned to the freezer. On this log will also be recorded any discrepancies in field samples (samples not double bagged, or more than one species or site per cooler, apparently missing specimens, e.g. gap in numbering). The project manager will be notified of these discrepancies.

Composite tissue sample not used by the laboratory for analysis will be shipped back to DEQ within 30 days, or once no longer needed by the laboratory. These samples will be retained by DEQ for at least one year from time of sample collection.

B1.8 Sampling Quality Control

Field blanks will be generated for water samples. There are no field blanks for fish. We will test the possibility of contamination that the fish tissue compositing procedure may introduce through the use of processing blanks generated at the laboratory when the compositing takes place.

Field duplicates will be used for both water and fish. See section B5 Quality Control for details.

B2. Fish Sampling Methods

This section briefly discusses the three main methods that will be used to collect fish. A general discussion on sampling procedures then follows, and is applicable to all collection methods.

B2.1 Collecting Fish

A raft-mounted electrofisher will be generally used to collect fish. A backpack electrofisher may be used in smaller streams or near the shoreline. This will be operated by trained DEQ personnel. Electrofishing is the preferred method of capture, as it involves minimal handling of fish. However it is not effective in deep water, or for larger fish. Hook and line sampling may be used to augment electrofishing, or in the event electrofishing is not possible or effective.

Upon capture fish will be identified for eligibility to be kept as part of the sample. For this study, 'eligible' means fish of a target species and appropriate length. The length is defined as the distance from the anterior-most part of the fish (lips) to the tip of the longest caudal fin ray.

Additional eligibility guidelines:

- Dead specimens other than those killed in the process of collection will be discarded.
- Specimens with lacerations will be discarded.
- Specimens with sores or lesions will be discarded.

It is desired to avoid hatchery planted fish. This can usually be discerned in the field by fin abrasion that results from early life in a concrete runway. If fish are abundant obvious hatchery fish should be discarded. If fish are not abundant, hatchery fish should be kept but noted on the field form (Appendix B). The only species for which hatchery fish may be found are rainbow trout. It is highly recommended that the local fish and game office be contacted as to recent fish stocking and species likely to be encountered at each site.

Retained fish will be kept in a live well until fishing is done at a site. Filleting of fish will take place on-shore at the end of fish collection for the site. Each fish will be weighed (grams) and length measured (cm). This information will be recorded on the field form (Appendix B). Copies of these forms should be made and originals sent to DEQ (see section B2.4). Length of time spent fishing and general weather and water conditions should also be recorded. Weighing and measuring of each fish may be done either as fish are caught (desirable from standpoint of limiting size range) or on-shore before filleting. All sample containers will be protected in an ice chest that will be kept closed.

B2.2 Handling Fish and Labeling Samples

Clean Hands/ Dirty Hands techniques (EPA method 1669) are required in this study for collection of water samples for mercury analysis. These procedures are not necessary for collection of fish. Mercury levels in fish tissue are thousands of times higher than in water and thus the samples are much less subject to contamination, therefore allowing a less stringent sampling protocol. It is desirable that one person is dedicated to filleting fish. Other elements of EPA method 1669 to be used are:

- Fish will be rinsed with ambient water immediately prior to filleting to remove any mud. It is recommended to then wipe each fish with a rag to remove slime and ease handling. The cutting board should also be rinsed and wiped clean.
- In all cases, the person handling fish will avoid touching the sample flesh with bare hands. The crew member will be dedicated to filleting and will wear nitrile gloves while filleting the fish. There will be no contact of bare hands with the fillet. This

might take two people; one to pick up and clean the outside of the fish, and another to only touch the fish while it is filleted.
- Gloves will be discarded if they contact any environmental surface, especially metal surfaces, such as the raft frame.
- Each fillet will be placed in its own plastic zip-lock bag. It is also desired to combine bagged fillets of the same species from each site into one larger bag (e.g. kitchen garbage bag) or cooler.
- Between species and at the end of each day the fillet knife and cutting board will be cleaned. The cutting board should be scrubbed with a brush and washed down with a dilute soap solution, then rinsed—preferably with de-ionized water, but clear fresh stream water is acceptable. The fillet knife should be similarly cleaned, and also after any time that it is sharpened. Equipment should be stored dry.

Fish should be filleted as quickly as possible after removal from the live well. Each fillet should be carefully placed into a Ziploc bag. The full sample ID and date MUST be written in permanent marker on the outside of each bag with a waterproof marker. Pre-labeling of bags is recommended to expedite this process and usually results in more legible information. It is strongly recommended that one person hold the bag open, taking care not to touch the inside with ungloved hands, while the filleter with their gloved hands places the fillet in the bag. Bagged fillets will be promptly put in a cooler on ice. Samples should be frozen or placed on dry ice within 24 hours. Frozen samples may be held for up to a week for shipping. A daily record should be kept documenting that fish samples remain frozen.

Each site will have two designated fish coolers—one for fish to be sent to the lab, one for fish to be retained for archive purposes. It is desirable that fish from different sites not be packaged in the same cooler, but this is acceptable if all the fillets from each sample (ten fish per species at a site) are kept together in separate larger bags. A third cooler will be needed for water samples. Water samples must be kept cold but not frozen, i.e. on wet ice. The fillets must be kept on ice or frozen until processing for analysis. If fillets will be held more than twenty-four hours before shipping they should be frozen. Dry ice is needed for holding and shipping fish fillets.

All sample coolers will be brought back to the DEQ state office for handling and shipping, see section B2.4.

B2.3 Sample Identification Numbers

Each bagged fillet will be identified with a Sample ID number that consists of a Site # + Species Code + Fish #. Site #'s take the form of a 3-digit number (001, 024, 078, etc.) that identifies the waterbody from the site list in Appendix A. Species codes are 3-digit codes as follows:

Species code	Common name	Scientific name
008	kokanee	*Oncorhynchus nerka*
009	chinook salmon	*Oncorhynchus tshawytscha*
010	**rainbow trout**	***Oncorhynchus mykiss***
011	cutthroat trout	*Oncorhynchus clarki*

016	**mountain whitefish**	***Prosopium williamsoni***
019	**brown trout**	***Salmo trutta***
021	brook trout	*Salvelinus fontinalis*
022	bull trout	*Salvelinus confluentus*
024	Arctic grayling	*Thymallus arcticus*
027	chiselmouth	*Acrocheilus alutaceus*
030	common carp	*Cyprinus carpio*
042	Utah sucker	*Catostomus ardens*
043	longnose sucker	*Catostomus catostomus*
044	bridgelip sucker	*Catostomus columbianus*
045	bluehead sucker	*Catostomus discobolus*
046	**largescale sucker**	***Catostomus macrocheilus***
047	mountain sucker	*Catostomus platyrhynchus*
048	black bullhead	*Ameiurus melas*
049	brown bullhead	*Ameiurus nebulosus*
050	**channel catfish**	***Ictalurus punctatus***
052	flathead catfish	*Pylodictis olivaris*
061	**smallmouth bass**	***Micropterus dolomieui***
062	largemouth bass	*Micropterus salmoides*
065	yellow perch	*Perca flavescens*
077	whitefish	*Coregonus sp.*
078	Pacific salmon/trout (Oncorhynchus sp.)	*Oncorhynchus sp.*
079	whitefish	*Prosopium sp.*
080	Atlantic salmon/trout (Salmo sp.)	*Salmo sp.*
084	chub (Couesius sp.)	*Couesius sp.*
085	chub (Gila sp.)	*Gila sp.*
086	squawfish	*Ptychocheilus sp.*
089	sucker	*Catostomus sp.*
090	catfish	*Ictalurus sp.*
091	trout-perch	*Percopsis sp.*
093	bass	*Micropterus sp.*
095	perch	*Perca sp.*
116	yellow bullhead	*Ameiurus natalis*

Target species are indicated with bold text. The more common of these species codes are included on the field form in Appendix B. The project manger will be contacted before additional species codes are used to ensure all codes are unique and consistent through the project.

Fish #'s take the form of a 2-digit sequential number (01, 02, 03 etc.) for each individual fish of a species from a site. For example: 008-010-03 would be the sample code for the third rainbow

trout collected from the eighth river site on the sample list. This number is the same for both fillets from this fish.

If a fillet is too large to fit in a single quart-sized bag it is permissible to cut out and keep for further processing only a central (thickest) portion of the fillet. This portion should be as large as will fit in a quart sized bag. If such field sub-sampling occurs it will be noted on the field form.

Note: the Specimen ID is dropped from the Sample ID once a sample is composited. If necessary, Sample IDs will be reconciled with a laboratory-assigned sample number at a later stage.

Further field precautions:

- Filleting of fish will occur away from dust
- Sterile coolers will be used (wiped or rinsed with bleach solution, then three rinses with tap water).
- Regular ice is preferred to 'Blue' ice packs. Loose ice is to be avoided. Milk jugs filled with water and frozen have been found to work well. If this is not possible loose ice will be contained in large zipped bags, such that meltwater does not escape and contact the sample containers or fish.
- Sampling equipment obviously dirty will not be used.
- Measuring devices will be washed before each sampling day, and rinsed with ambient water between each species/sampling event.

Water and other samples will be identified by a site ID only. All samples will be identified with date of collection and names or initials of samplers as well.

B2.4 Field Materials

Site map
Electro-fishing boat
Nets
Satellite telephone
GPS unit
Digital camera
Case for equipment
Safety equipment
Bucket or container for rinse water (non-metallic)
Bleach (dilute 1:10 for rinsing)
Disposable towels
Nitrile gloves (100 pairs)
Fillet knives (2)
Knife sharpener
Cutting Board
Scrub brush (plastic)
13 gallon plastic garbage bags (120)
1 gallon zipped bags (120)
1 quart zipped plastic bags (1200)
Sample bottles
Milk jugs to contain ice for shipping
Packing tape
Dry Ice
Blank water
Permanent markers
Pencils
Field book(s)
Field forms (on waterproof paper)
Chain of custody/ analysis forms
Chain of custody seals
Cooler labels (on waterproof paper)
Coolers (20)
Butcher paper

B2.5 Handling and Shipping Samples

All samples will be brought back to the DEQ state office for handling and shipping. Frozen fish samples will be stored at DEQ until sufficient samples can be batch for shipping to Brooks Rand or taken to Boise Cold Storage for archiving. Water samples will be kept in a refrigerator and also batched for shipping and analysis. The shortest holding time, from time of filed collection, is 28 days for total mercury. This will be the limiting factor in holding water samples and therefore water samples should be sent so that they arrive at the lab at least one week prior to expiration of this holding time for the oldest sample in the batch.

Samples for analysis of As, Hg and Se in fish and water will be shipped to:
Attn: Amanda Fawley
Brooks Rand LLC
3958 6th Ave NW
Seattle, WA 98107
Ph: 206-632-6206

Water samples for nutrients and common ions will be hand delivered to:
Attn: Wally Baker
Idaho Bureau of Laboratories
2220 Old Penitentiary Road
Boise, ID 83712
Ph: 208-334-2235

Dry ice is a must for shipping fish. Water samples should be shipped on wet ice. Experience has shown even frozen fish on dry ice will not stay frozen more than a day during Idaho's hot summers. Thus all shipped samples will be sent via overnight shipping. Nine lbs of dry ice is usually enough to keep a cooler of fish frozen and is usually the maximum accepted by shippers. It is recommended that the ice be placed on top of the samples and excess space filled with packing material (air pillows, crumpled news paper, etc.). Analytical results from fish samples received unfrozen or waters samples received above 4°C will be flagged as a departure from protocol.

Each cooler will have a waterproof label that specifies the site and species ID, collection date and time, and shipping date and time, as well as the contact details of the project manager (see Appendix C). The project manager will notify the laboratory of each shipment, and retain a copy of the chain of custody form.

B3. Sample Handling and Custody

A chain-of-custody form / laboratory analysis-request form detailing the samples identities and specifying analyses to be performed must be completed and included with each cooler shipped or delivered to the laboratory. The laboratory will be responsible for maintaining integrity of samples until analysis is complete and results are accepted by DEQ.

Upon arrival at the laboratory the coolers of samples will be placed in the restricted-access clean room, and their arrival date and time noted in a log. Fish samples to be processed within twenty-four hours will have ample ice to keep the samples cool until processing. If composite preparation cannot take place within twenty-four hours they must be placed in a freezer and kept frozen until not more than 16 hours prior to processing. Fillets kept frozen may be held for up to 30 days before processing in order to facilitate processing in batches.

Water and blank samples will be kept refrigerated at the laboratory until analysis is complete and passes lab QA.

B4. Analytical Methods & Data Reporting

Copies of all field forms should accompany samples brought to DEQ. It is suggested these be placed in a Ziploc bag with the frozen fillets or water samples rather than delivered separately. The project manager or his designee will accumulate field data sheets for entry into a database.

Fish tissue concentrations will be reported on a wet (fresh) weight basis, in units of ng/g (ppb) for Hg and µg/g or mg/Kg (ppm) for As and Se. Processing blank results will be analyzed and reported as if fish tissue, i.e. in units of mass/mass. Concentrations in water will be reported in units of ng/L for Hg and µg/L for As and Se. The laboratory will apply blank corrections per laboratory SOP and note if this in done in their reports.

EPA Method 1631 Appendix A (USEPA 2001) will be used to prepare fish tissue samples.

EPA method 1631, Cold Vapor Atomic Flouresence (USEPA 2002b) will be used to analyze the fish tissue digests and water samples, including blanks, for total mercury. The typical working range for this method is 0.5 - 100 ng/L and the instrumental detection limit is 0.15 ng/L total mercury. The required method detection limit (MDL) for this project is 0.04 ng/g in fish tissue and 0.15 ng/L in water (blanks).

EPA Method 1632, As species, will be used for analysis of inorganic arsenic in fish tissue digests and water samples. The required MDL for inorganic As is 0.003 µg/g in fish tissue and 0.01 ug/L in water (blanks).

EPA Method 1638, Inductively Coupled Plasma – Mass Spectrophotometer will be used for analysis of total arsenic and total selenium in fish tissue digests and water samples. The required MDL for these analytes in fish tissue is 0.05 µg/g for total As and 0.1 µg/g for total Se. In water (blanks) the required MDLs are 0.1 µg/L for total As and 0.2 µg/L for total Se.

In addition to the above chemical analyses, the percent moisture content of each composite fish tissue sample will be determined by the laboratory so that reported wet weight concentrations may be converted to a dry weight basis.

Standard Method 10200H will be used for chlorophyll-a analysis. Samples will be filtered in the field, wrapped in foil, and frozen on dry ice until shipped to the contract laboratory.

EPA Method 353.2, Nitrate-Nitrite Nitrogen by Colorimetry, and EPA Method 365.2, Phosphorus by Colorimetry, will be used for nutrient analysis. Samples will be preserved with sulfuric acid and will remain on wet ice until shipment or delivery to the contract laboratory.

EPA Method 160.1, Filterable Residue by Drying Oven, EPA Method 120.1, Conductance by Conductivity Meter, and EPA Method 180.1, Turbidity by Turbidimeter, will be used to determine physical properties of the water sample. All samples will be placed immediately on wet ice until shipment or delivery to the contract laboratory.

B5. Quality Control Samples

FISH DUPLICATE SAMPLES: There will be three levels of duplicates employed in this project for fish – field, processing and laboratory. Each will be done at the rate of ten percent, based on the number of samples (sites x species) collected. Since the target number of samples is 53 this is nominally six duplicates of each type, and 18 total.

Field duplicates will consist of an additional set of ten fish collected and filleted as if an original sample from a site. We want ten percent duplication of fish samples collected, not sites, a sample being a set of ten fish of a species from a site. Since 53 such samples are planned this means 6 duplicate samples over the course of field sampling need to be obtained. Because availability of fish is unpredictable, field duplicates will be driven by plentitude of fish rather than pre-selection of duplication prior to field work. There will be no more than one duplicate for any one sample.

Processing duplicates will consist of a second set of 10g subsamples taken from the same fillets as the original set. Samples for processing duplicates will be randomly selected and may therefore by chance occur with a field duplicate.

Laboratory duplicates will be done according to the laboratory's standard operating procedures.

FISH BLANKS: A true blank for fish tissue is not possible. We will check for possible tissue sample contamination by use of a processing blank. These blanks will be generated at the rate of one for every ten fish samples (a set of ten fish), but not less than one for each day of fish tissue processing.

Processing blanks will be generated from a volume of de-ionized water equal to the final digest volume for fish tissue samples. This blank will be shaken once then opened and placed in the clean room during processing. At the end of processing one sample (ten fillets) a sterile scalpel will be stirred in the water. The blank will then be poured into a blender that has been cleaned and is ready for processing a fish tissue composite sample. The water will be blended for one minute, and then poured back into the bottle. This will then be prepared for analysis as a fish tissue sample. This blank serves as a check on the cleanliness of the equipment and room used in tissue composite processing.

Acceptable levels of blank quality are specified in Table 2 section A7.2. Any value above this level will trigger a review of sample processing procedures and appropriate flagging of results for samples processed that day as possibly biased high (See D1).

FISH SAMPLE SPLITS: Some samples may be split and sent to the State of Idaho Laboratory for analysis. Samples will be split after compositing.

WATER DUPLICATE SAMPLES: There will be two levels of duplicates employed in this project for water – field and laboratory. Each will be done at the rate of at least ten percent, based on the number of samples, but not less than one field duplicate per field trip. Since the target number of sites is 35 this is nominally 4 duplicates minimum of each type. Because sampling will take place over a three-four month summer field season, there likely will be several more field duplicates, as many as 12.

Field duplicates will consist of an additional sample of water taken immediately after the primary sample from the exact same location. Water duplicates will be labeled with the Site # + Dup (in place of species code) and the date.

Laboratory duplicates will be done according to the laboratory's standard operating procedures.

WATER BLANKS: There will be two levels of duplicates employed in this project for water – field and laboratory. Each will be done at the rate of at least ten percent, based on the number of samples, but not less than one field blank per field trip. Since the target number of sites is 35 this

is nominally 4 blanks minimum of each type. Because sampling will take place over three month summer field season, there likely will be several more field blanks, as many as 12.

Field blanks will be generated in the field from a bottle of de-ionized "blank" water taken to the field and used to fill a set of sample containers in the field. Sufficient volume of blank water is needed to fill the three samples containers that one water sample. One liter per sample should be enough for each blank. For the mercury sample container the same clean hands / dirty hands procedures will be used as for the ambient river sample. Water blanks will be labeled with the Site # + Blank (in place of species code) and the date. These blank samples will otherwise be treated in the same manner as ambient river samples.

Laboratory blanks will be done according to the laboratory's standard operating procedures.

Acceptable levels of blank quality are specified in Table 2 section A7.2. Any value above this level will trigger a review of sample processing procedures and appropriate flagging of results for samples processed that day as possibly biased high (See D1).

The analyzing laboratory conducts calibration of their equipment and also runs quality control samples to verify analytical methods are performing within specifications. They will provide a summary of their internal QA/QC with reporting on analytical results. All quality control results will be listed in the final report.

Quality control measures will be undertaken throughout the sampling effort, and are listed in their respective sections (especially section B2.2, 'Fish Handling').

B6. Instrument/Equipment Testing, Inspection, and Maintenance Requirements

The sampling equipment used in this study will be maintained by DEQ personnel. This includes all field equipment, fishing and filleting equipment, materials for measuring fish length and weight, and packaging samples for shipment.

B7. Instrument/Equipment Calibration and Frequency

DEQ's field crew will calibrate their electrofisher. The only criterion affecting quality is that sufficient fish are caught. This will be the responsibility of DEQ.

B8. Inspection/Acceptance of Supplies and Consumables

Water sample containers and de-ionized water for field blanks shall be provided by the contract laboratory.

Zipped plastic bags for fish samples shall be obtained from a local grocery store. It has been shown that these bags contain negligible levels of mercury (Frontier Geosciences, DEQ training presentation 2005).

B9. Data Management

Field data and paperwork will be kept in a dedicated folder, to be retained at DEQ's State Office for at least five years. Laboratory analysis data will be transmitted electronically via email to the project manager. Electronic data will be backed up onto a CD, which will be stored in the dedicated folder. Working copies of the data will be kept on the computer of the project manager.

Each receipt of data from the laboratory will receive a visual inspection. At this time analytical data will be rectified with field locations/IDs as necessary. Any questions that arise as to reported values or sample identity will result in the project manager consulting with laboratory staff and /or field crew until the question is resolved. Location information (latitude, longitude, and depth) will be added to the data, along with the number of fish in the composite.

Data will be available to the general public upon request. Copies of all data may be obtained by contacting the project manager. Fish tissue and associated water chemistry data will be reported by March 2009. A separate report on habitat and biological monitoring results will follow, after macroinvertebrate identification is complete.

No specialized software will be used in the handling and transmittal of the data. It is expected that Microsoft Excel will be the preferred format of near-term data transmittal. All data will be entered into a database by project's end.

GROUP C: ASSESSMENT AND OVERSIGHT

The elements in this group address the activities for assessing the effectiveness of project implementation and associated QA and QC activities. The purpose of assessment is to ensure that this plan is implemented as prescribed.

C1. Assessment and Response Actions

The project quality assurance officer (QAO) will have the lead role in assessing the QA and QC measures employed in this study, e.g. review of procedures and training and will have the lead role in data quality review. The QAO will work with the project manager to assure overall project objectives are met.

The QAO shall have access to and is responsible for inspecting field supplies and equipment so as to make sure they are adequate to deliver the quality of results specified in this QAPP.

As quality control data becomes available from the lab the QAO will review these results for compliance with the data quality objectives specified in section A.7. Any departure from quality objectives will be brought to the attention of the project manager and options for corrective action discussed. The QAO will document any such conversation via e-mail or a memo to file to become part of the project record. The QAO will compile all his/her observations into a review of the quality assurance measures used, to be included in the final report.

All project personnel are instructed to bring any serious quality control problems to the immediate attention of the project manager. Details of the incident will be included in the final report, along with any corrective action that was taken.

C2. Reports to Management

A final report will be prepared by the project manager and available in March 2009 to include:

- A summary of the field work conducted
- The results of the laboratory analyses, including QC results
- A QA and QC summary prepared by the QAO

This report will be provided to all contacts on the distribution list. No specific action will be required by any recipient of the report.

GROUP D: DATA VALIDATION AND USABILITY

The elements in this group address the QA activities that occur after the data collection phase of the project is completed. Implementation of these elements determines whether or not the data conform to the specified criteria, thus satisfying the project objectives.

D1. Data Verification

Data verification will consist of checking that the planned number of sites and locations, quality control samples, field data sheets and sample logs are completed according to this QAPP.

Upon receipt from the laboratory, sample analysis results will immediately be checked by the QAO for completeness, in order to assure that all the requested analyses were performed along with the correct methodologies and detection limit. If errors or omissions are noted during this step, then the laboratory will be notified immediately and the data will not be considered usable or reportable until those errors have been corrected and new reports issued from the laboratory.

Data will be subject to visual inspection and any questions as to values or sample identity will be resolved via line-by-line confirmation with the analyzing laboratory.

Data will also be checked to assure that the specified frequency of quality control samples specified in section B5 is obtained and that all data can be unequivocally associated with a site and species.

D2. Data Review, Validation, and Use

Data will be validated by comparison to the quality assurance criteria in section A.

The data will be rejected as unusable when serious deficiencies in meeting quality control criteria occur. Two possible deficiencies are:

1) When RPD exceeds 50% for processing duplicates in which analyte levels are greater than the practical quantification limit (PQL). In this case all results in the associated batch will be rejected.
2) When quantified blank results (> PQL) are more than 20% of sample results. Then those sample results less than 5 times the blank result will be rejected.

Unless otherwise defined by the laboratory, the PQL will be taken to be five times the method detection limit (MDL). Data rejection is at the discretion of the QAO. Rejected data will not be entered into the database, count toward meeting the data completeness objective, or otherwise be used.

All other data will be useable but may be flagged as described below.

Data Quality Flags

As a result of the data evaluation procedure, data qualifier flags may be applied to individual analytical results if qualification for project data usability is appropriate. Definitions of the flags are as follows:

Flag	Definition
B	Analyte confirmed present but the reported value is an estimated quantity. Used when the result is above the MDL, but less than the PQL.
H	Holding time exceeded or samples storage conditions not met.
J	Analyte confirmed, but the reported value is an estimated quantity. The associated numerical value is the approximate concentration of the analyte in the sample. Used when duplicate RPD is greater than specified QC limits.
J+	The reported value is an estimated quantity, and may be biased high. Used when associated blank value is above QC limit but less than 10% of sample result, or spike recovery is high, above upper QC limit.
J-	The reported value is an estimated quantity, and the result may be biased low. Used when matrix spike recovery is below the lower QC limit.
U	Analyte not confirmed present at or above the MDL.

Flagged data will be accepted and count toward meeting the data completeness objective. Flags may affect interpretation of results.

Unflagged data means the result meets all sample specific data quality objectives, i.e. accuracy and precision are within control limits, and there is no significant contamination in blanks. Additional data qualifiers may be developed at the discretion of the quality assurance officer.

D3. Reconciliation with User Requirements

Upon validation the data will be entered in an Excel spreadsheet. Data quality flags specified in section D2 will be associated with each analytical result as appropriate. If data are manually entered they should be double entered and the two versions electronically compared for any discrepancies. Once all discrepancies are resolved duplicate entries will be discarded. Data will remain on file at the DEQ State Office indefinitely, but for a minimum of five years.

Data will be geo-located, and an ArcGIS compatible shapefile will be provided with them.

Fish contaminant will be reduced such that each site is characterized by a single result for each analyte. Duplicate results for the same species will be combined as a simple average. Where more than one species is obtained from a site, the results from multiple species will be averaged. For comparison to methylmercury fish tissue criterion, the mercury average will be trophic level weighted as specified in Idaho's water quality rules (IDAPA 58.0102.210 footnote p).

References

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USEPA 2001a - Water Quality Criterion for the Protection of Human Health: Methylmercury. EPA-823-R-01-001. January 2001. Office of Water. Washington, DC

USEPA 2001b – Appendix to Method 1631: Total Mercury in Tissue, Sludge, Sediment, and Soil by Acid Digestion and BrCl Oxidation, EPA 821-R-02-019.

USEPA 2002a – Guidance for Quality Assurance Project Plans, EPA QA/G-5

USEPA 2002b – Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry, EPA Method 1631, Revision E.

Appendix A

Site Selection

Idaho Major River
Survey Design 2006-2008

Contact:

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Description of Sample Design

Target population: Major rivers in Idaho, as identified by Idaho.

Sample Frame: To identify the target population streams, Mary Anne Nelson provided the GIS stream coverage. It is based on NHD with only major rivers included. Note that it appears that run-of-the-river reservoirs were included in the GIS coverage. They were included in the design.

Survey Design: A Generalized Random Tessellation Stratified (GRTS) survey design for a linear resource was used. The GRTS design includes reverse hierarchical ordering of the selected sites.

Multi-density categories: None

Stratification: None.

Panels: Two panels to be visited in two different years: Panel_2006 and Panel_2008.

Expected sample size: Expected sample size 25 sites per panel.

Over sample: 200% (100 sites).

Site Use: Within State, the base design has 50 sites. Sites are listed in SiteID order and must be used in that order. All sites that occur prior to the last site used must have been evaluated for use and then either sampled or reason documented why that site was not used. As an example, if 50 sites are to be sampled and it required that 80 sites be evaluated in order to locate 50

sampleable stream sites, then the first 80 sites in SiteID order would be used.

If the design is implemented over two years, then use the sites in siteID order within year and then continue with the next siteID in the next year. If want to identify revisit sites, use the first 5 sites in siteID order that were actually sampled in the field each year.

Sample Frame Summary

Total stream length (in km) in the sample frame is 7384.939 km.

Site Selection Summary

Number of sites in sample

mdcaty	OverSamp	Panel_2006	Panel_2008	Sum
Equal	50	25	25	100
Sum	50	25	25	100

Description of Sample Design Output:

The dbf file for the shapefile ("ID Major Rivers 2006-08 Sites") has the following variable definitions:

Variable Name	Description
SiteID	Unique site identification (character)
x	x-coordinate from map projection (see below)
y	y-coordinate from map projection (see below)
mdcaty	Multi-density categories used for unequal probability selection
weight	Weight (in km), inverse of inclusion probability, to be used in statistical analyses
stratum	Strata used in the survey design
panel	Identifies base sample by panel name and Oversample by OverSamp
EvalStatus	Site evaluation decision for site: TS: target and sampled, LD: landowner denied access, etc (see below)
EvalReason	Site evaluation text comment
auxiliary variables	Remaining columns are from the sample frame provided

Projection Information

PROJCS["IDTM83",
GEOGCS["GCS_North_American_1983",
DATUM["D_North_American_1983",
SPHEROID["GRS_1980",6378137.0,298.257222101]],
PRIMEM["Greenwich",0.0],UNIT["Degree",0.0174532925199433]],
PROJECTION["Transverse_Mercator"],
PARAMETER["False_Easting",2500000.0],
PARAMETER["False_Northing",1200000.0],

PARAMETER["Central_Meridian",-114.0],
PARAMETER["Scale_Factor",0.9996],
PARAMETER["Latitude_Of_Origin",42.0],
UNIT["Meter",1.0]]

Evaluation Process

The survey design weights that are given in the design file assume that the survey design is implemented as designed. Typically, users prefer to replace sites that can not be sampled with other sites to achieve the sample size planned. The site replacement process is described above. When sites are replaced, the survey design weights are no longer correct and must be adjusted. The weight adjustment requires knowing what happened to each site in the base design and the over sample sites. EvalStatus is initially set to "NotEval" to indicate that the site has yet to be evaluated for sampling. When a site is evaluated for sampling, then the EvalStatus for the site must be changed. Recommended codes are:

EvalStatus Code	Name	Meaning
TS	Target Sampled	site is a member of the target population and was sampled
LD	Landowner Denial	landowner denied access to the site
PB	Physical Barrier	physical barrier prevented access to the site
NT	Non-Target	site is not a member of the target population
NN	Not Needed	site is a member of the over sample and was not evaluated for sampling
Other codes		Many times useful to have other codes. For example, rather than use NT, may use specific codes indicating why the site was non-target.

Statistical Analysis

Any statistical analysis of data must incorporate information about the monitoring survey design. In particular, when estimates of characteristics for the entire target population are computed, the statistical analysis must account for any stratification or unequal probability selection in the design. Procedures for doing this are available from the Aquatic Resource Monitoring web page given in the bibliography. A statistical analysis library of functions is available from the web page to do common population estimates in the statistical software environment R.

For further information, contact

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Web Page: http://www.epa.gov/nheerl/arm

Table 2: Randomly Selected River sites for the 2008 field season. "Panel 2006" in the panel column refers to sites that were sampled in 2006 and were electrofished again in 2008. "Panel_2008" in the panel column refers to primary sites and "OverSample" refers to Over-sample Sites. A total of 46 sites were initially evaluated prior to field season to determine target status.

	ID	Site_ID	FEAT_NAME	Latitude	Longitude	Panel	EvalStatus	EVALCOMMENTS
*	005	IDR06615-005	Blackfoot River	43 12 29.64	-112 12 14.48	Panel_2006	MONITOR	INACCESSIBLE
*	011	IDR06615-011	Big Wood River	43 46 50.84	-114 32 32.02	Panel_2006	MONITOR	
*	012	IDR06615-012	Salmon River	45 24 24.35	-116 11 30.71	Panel_2006	MONITOR	DONE
*	017	IDR06615-017	Bear River	42 21 37.33	-111 44 11.78	Panel_2006	MONITOR	DONE
	026	IDR06615-026	North Fork Clearwater River	46 43 12.73	-115 17 30.34	Panel_2008	MONITOR	
	027	IDR06615-027	North Fork Big Lost River	43 55 37.76	-114 11 16.07	Panel_2008	MONITOR	
	028	IDR06615-028	Salmon River	45 47 22.75	-116 19 12.21	Panel_2008	MONITOR	
	029	IDR06615-029	Teton River	43 52 54.25	-111 48 40.36	Panel_2008	MONITOR	
	030	IDR06615-030	Coeur d'Alene River	47 28 42.3	-116 44 8.72	Panel_2008	MONITOR	
	031	IDR06615-031	Weiser River	44 37 45.08	-116 35 9.18	Panel_2008	MONITOR	
	037	IDR06615-037	Blackfoot River	42 48 4.03	-111 29 6.54	Panel_2008	MONITOR	
	038	IDR06615-038	Coeur d'Alene River	48 0 47.07	-116 14 5.85	Panel_2008	MONITOR	
	040	IDR06615-040	Salmon River	45 27 18.08	-115 46 20.41	Panel_2008	MONITOR	
	043	IDR06615-043	East Fork Salmon River	44 13 20.75	-114 17 3.92	Panel_2008	MONITOR	
	044	IDR06615-044	Pahsimeroi River	44 39 31.9	-114 1 25.82	Panel_2008	MONITOR	
	046	IDR06615-046	Camas Creek	43 17 17.85	-114 42 13.81	Panel_2008	MONITOR	
	047	IDR06615-047	Snake River	43 36 23.55	-116 54 39.16	Panel_2008	MONITOR	
	050	IDR06615-050	Priest River	48 14 31.27	-116 53 1.92	Panel_2008	MONITOR	
*	051	IDR06615-051	Bruneau River	42 47 22.47	-115 43 3.6	OverSamp	MONITOR	
	054	IDR06615-054	Coeur d'Alene River	48 1 20.89	-116 17 35.23	OverSamp	MONITOR	
*	055	IDR06615-055	NF Payette River	44 12 49.08	-116 6 23.63	OverSamp	MONITOR	DONE
	057	IDR06615-057	Little Lost River	43 59 9.08	-113 12 40.51	OverSamp	MONITOR	
*	061	IDR06615-061	Camas Creek	43 52 54.36	-112 21 5.86	OverSamp	MONITOR	DONE
*	063	IDR06615-063	Payette River	44 0 12.85	-116 48 12.48	OverSamp	MONITOR	DONE
	068	IDR06615-068	Camas Creek	44 49 3.3	-114 29 33.64	OverSamp	MONITOR	
*	074	IDR06615-074	Lochsa River	46 27 31.49	-115 2 25.34	OverSamp	MONITOR	DONE
*	077	IDR06615-077	Henry's Fork	43 47 49.49	-111 55 37.7	OverSamp	MONITOR	DONE
	083	IDR06615-083	Snake River	43 0 52.52	-116 7 54.48	OverSamp	MONITOR	
	084	IDR06615-084	South Fork Salmon River	44 41 42.04	-115 42 5.63	OverSamp	MONITOR	
	085	IDR06615-085	Portneuf River	42 51 2.5	-112 26 30.37	OverSamp	MONITOR	RAINEY PARK, JUST ABOVE POCATELLO
	086	IDR06615-086	Saint Joe River	47 8 23.09	-115 24 29.02	OverSamp	MONITOR	

087	IDR06615-087	South Fork Payette River	44 10 17.03	-115 14 4.57	OverSamp	MONITOR
088	IDR06615-088	Selway River	46 2 44.38	-115 17 47.04	OverSamp	MONITOR
089	IDR06615-089	Raft River	42 31 39.55	-113 15 40.79	OverSamp	MONITOR
091	IDR06615-091	Big Wood River	43 26 3.52	-114 15 44.92	OverSamp	MONITOR
093	IDR06615-093	Raft River	42 3 28.79	-113 35 19.24	OverSamp	MONITOR
094	IDR06615-094	Lemhi River	45 6 1.9	-113 43 36.48	OverSamp	MONITOR
095	IDR06615-095	Snake River	42 38 7.66	-114 33 28.82	OverSamp	MONITOR
097	IDR06615-097	Snake River	43 26 8.74	-111 21 27.49	OverSamp	MONITOR
099	IDR06615-099	Payette River	43 54 2.98	-116 37 59.82	OverSamp	MONITOR

*INDICATES RE-FISH SITES FROM 2006

Appendix B

Fish Field Form

Idaho Fish Tissue Mercury Sampling Field Form

Site Information

Latitude: _____° _____' _____" Longitude: _____° _____' _____"
Datum: _____ Site #: _____ Site Name: _____
Site Description: _____
Reach Length (est in m) : _____

Collection Information

Date: ____ / ____ / 2008 Water Sample ☐ Duplicate ☐ Blank ☐
Weather Conditions (circle): Equipment (circle): *Electrofisher / Hook & Line / Other*
Windy / Sunny / Raining Fishing Start Time : _____ End Time : _____
Equipment Notes / Location Fishing Ended: _____
Field Crew: _____, _____, _____

Sample Information

Fish #	Species Code[1]	Length (cm)	Weight (g)	Comments (e.g. abraded fins, field duplicate)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				

[1] Species code: **019 = brown trout**, 021 = brook trout, 049 = brown bullhead, **050 = channel catfish**, 052 = flathead catfish, 062 = largemouth bass, **046 = largescale sucker, 016 = Mountain whitefish**, **010 = rainbow trout**, **061 = smallmouth bass**, 011 = cutthroat trout, 065 = yellow perch. The field manger should be contacted if additional codes are needed. Standard DEQ Taxa codes must be used

Site notes/comments:

Appendix C
Cooler Label

Site ID: _____ Species Codes: _____

Cooler _____ of _____ (for this site)

Collection date and time: _____

Shipping date and time: _____

This cooler contains frozen fish samples. These samples are to be analyzed for arsenic, mercury, and selenium contamination, and are time sensitive. Please do not disturb the contents.

For more information, please contact:
Don Essig of DEQ at 208-373-0119.

Appendix D

Processing Log

Fish Processing Log

Site ID: _____ **Species** _____

Time and Date fillets removed from freezer:
Date _____ **Start Time**: _____

Processed By: _____

Time and date composite tissue homogenate returned to freezer
Date _____ **End Time**: _____

Fish #	**Sample Integrity** Note if compromised, ✓ if good	**Sub-Sample weight (g)***

* ✓= nominal 10 grams, otherwise record weight to nearest gram

Composite Sample ID:

_____

Duplicate Processing Sample ID (if prepared)**:**

_____

Notes:

From:	Mike Gagner
To:	Finlay Anderson; Shannon Luoma
Cc:	Olivia Smith
Subject:	FW: Gem State Hydro Sturgeon Sampling
Date:	Thursday, October 24, 2024 11:22:53 AM

I'd appreciate a meeting to discuss the status of this project.

From: Richard Malloy <rmalloy@ifpower.org>
Sent: Thursday, October 24, 2024 11:16 AM
To: Tillotson,Nathan <Nathan.Tillotson@idfg.idaho.gov>; Maude,Donavan <Donavan.Maude@idfg.idaho.gov>
Cc: Stephen Boorman <sboorman@ifpower.org>; jcooper@ifpower.org; Bear Prairie <bprairie@ifpower.org>; Mike Gagner <Mike.Gagner@kleinschmidtgroup.com>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>
Subject: Gem State Hydro Sturgeon Sampling

Good afternoon Maude and Nathan,

I am Richard Malloy and I am the lead for Idaho Falls Power in our relicensing efforts for the Gem State Project and the Idaho Falls Project in Idaho Falls. Part of the relicensing efforts are fish studies, which we began this summer. Our consultants from Kleinschmidt (copied in this email), are involved in a fish assemblage study and during the sample collection efforts this summer, had difficulties in catching sturgeon for the study. I reached out to Brett High as to local experts who may be able to offer advice for a more productive season in our efforts next year. Would you two have some time to discuss methods and locations ect. with our consultant?

Thank you,

IDAHO FALLS POWER

Richard Malloy | *Engineering & Compliance Manager*

140 So. Capital
Idaho Falls, Idaho 83402
Work: (208) 612-8428
Cell: (208) 221-8781
Fax: (208) 612-8435
rmalloy@ifpower.org

RP3

From: High,Brett <brett.high@idfg.idaho.gov>
Sent: Thursday, October 24, 2024 11:39 AM
To: Richard Malloy <rmalloy@ifpower.org>
Cc: Stephen Boorman <sboorman@ifpower.org>; Jason Cooper <jcooper@ifpower.org>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Tillotson,Nathan <Nathan.Tillotson@idfg.idaho.gov>; Maude,Donavan <Donavan.Maude@idfg.idaho.gov>
Subject: RE: Gem State Hydro

Richard,

Those sturgeon can be hard to sample. It took our department years to figure out how to capture enough fish to compile data to get worthwhile analyses completed. Fortunately, we have two great biologists working for us now who helped us in this regard. They both worked on the IDFG sturgeon project which included field sampling efforts around Gem Lake and the tailrace. They are Nathan Tillotson, who lead a sturgeon sampling crew for a year and Donavan Maude who did his Master's Thesis on sturgeon in the area. I've included these two biologists on this e-mail and would recommend that your consultants visit with Nathan and Donavan to gain insight into how best to collect white sturgeon during Kleinschmidt's field sampling efforts.

Hope this helps.

Brett

Brett High
Regional Fisheries Manager
Upper Snake Region
4279 Commerce Circle
Idaho Falls, ID 83402
(208) 525-7290

From: Richard Malloy <rmalloy@ifpower.org>
Sent: Tuesday, October 15, 2024 9:53 AM
To: High,Brett <brett.high@idfg.idaho.gov>
Cc: Stephen Boorman <sboorman@ifpower.org>; Jason Cooper <jcooper@ifpower.org>; Finlay

Anderson <finlay.anderson@kleinschmidtgroup.com>
Subject: RE: Gem State Hydro Mitigation - 2024

Brett,

On our fish assemblage study, our consultants came up empty handed with the sturgeon. If you have a consultant that you know of that can help them, or have someone with extensive knowledge to help, please feel free to let me know. We want to get you the information you guys are looking for in these fish studies.

Regards,

IDAHO FALLS POWER

Richard Malloy | *Engineering & Compliance Manager*

140 So. Capital
Idaho Falls, Idaho 83402
Work: (208) 612-8428
Cell: (208) 221-8781
Fax: (208) 612-8435
rmalloy@ifpower.org

RP3

From: Mike Gagner
To: Olivia Smith
Cc: Lynette Gardner
Subject: FW: SCP 100116
Date: Tuesday, December 31, 2024 2:03:10 PM
Attachments: image001.png

See email below from IDFG regarding the receipt of our permit reporting information.
This fulfills our obligations as specified in our 2024 SCP.

From: Scientific Collecting Permits <fishscp@idfg.idaho.gov>
Sent: Tuesday, December 31, 2024 11:28 AM
To: Mike Gagner <Mike.Gagner@kleinschmidtgroup.com>
Subject: SCP 100116

> You don't often get email from fishscp@idfg.idaho.gov. Learn why this is important

This is to confirm the receipt of your reporting information for your Scientific Collection Permit #100116.
Thank you for your efforts to submit your report before year end. We appreciate it!

Cheers,

Kendra Winters
Technical Records Specialist I
IDFG Headquarters Office
P.O. Box 25
600 South Walnut
Boise, Idaho 83707
(208) 287-2786

From:	Amy Chang
To:	Richard Malloy
Cc:	Shannon Luoma; Olivia Smith; Finlay Anderson
Subject:	RE: P-2842 and P-2952 (Idaho Falls and Gem State) - scheduling question regarding June 2025 Initial Study Report Meeting
Date:	Tuesday, December 31, 2024 5:45:36 AM

Ok -- thank you for letting me know.

Amy

Amy Chang| Wildlife Biologist
Federal Energy Regulatory Commission
Office of Energy Projects | Division of Hydropower Licensing
888 First Street, NE | Washington, DC 20426 | 202.502.6154

From: Richard Malloy <rmalloy@ifpower.org>
Sent: Tuesday, December 31, 2024 8:42 AM
To: Amy Chang <Amy.Chang@ferc.gov>
Cc: Shannon.Luoma@Kleinschmidtgroup.com; Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>
Subject: RE: P-2842 and P-2952 (Idaho Falls and Gem State) - scheduling question regarding June 2025 Initial Study Report Meeting

Hi Amy,

We're planning on a virtual meeting in June.

Thank you,

Richard Malloy | *Engineering & Compliance Manager*

140 So. Capital
Idaho Falls, Idaho 83402
Work: (208) 612-8428
Cell: (208) 221-8781
Fax: (208) 612-8435
rmalloy@ifpower.org

From: Amy Chang <Amy.Chang@ferc.gov>
Sent: Monday, December 30, 2024 8:44 AM
To: Richard Malloy <rmalloy@ifpower.org>
Cc: Shannon.Luoma@Kleinschmidtgroup.com
Subject: P-2842 and P-2952 (Idaho Falls and Gem State) - scheduling question regarding June 2025 Initial Study Report Meeting

Good morning,

I am working on FERC staff travel projections for 2025. The Idaho Falls and Gem State Initial Study Report (ISR) Meeting is scheduled for late June. At this time, do you anticipate the ISR meeting will be held in-person, virtually, or a combination of the two?

Any information you can provide is greatly appreciated.

Thank you,
Amy

Amy Chang| Wildlife Biologist
Federal Energy Regulatory Commission
Office of Energy Projects | Division of Hydropower Licensing
888 First Street, NE | Washington, DC 20426 | 202.502.6154

From:	Richard Malloy
To:	Amy Chang; Olivia Smith; Finlay Anderson; Steve Hocking
Subject:	RE: FERC: IFP Relicensing (P-2842 & P-2952) Questions
Date:	Wednesday, February 5, 2025 11:26:41 AM

Amy,

Thank you for confirming our filing path forward.

Regards,

Richard Malloy | *Engineering & Compliance Manager*

140 So. Capital
Idaho Falls, Idaho 83402
Work: (208) 612-8428
Cell: (208) 221-8781
Fax: (208) 612-8435
rmalloy@ifpower.org

From: Amy Chang <Amy.Chang@ferc.gov>
Sent: Wednesday, February 5, 2025 11:08 AM
To: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>; finlay.anderson@kleinschmidtgroup.com; Steve Hocking <Steve.Hocking@KleinschmidtGroup.com>; Richard Malloy <rmalloy@ifpower.org>
Subject: RE: FERC: IFP Relicensing (P-2842 & P-2952) Questions

I checked with a couple of folks regarding the question of how to properly label and file the Exhibit F & G drawings for the upcoming license application for the Idaho Falls Project, since it is your intention to request combining the existing Idaho Falls and Gem State Projects into a single project for the next license term.

- I confirmed that you should plan to file duplicate information to both dockets for the duration of the relicensing process, including new Exhibit F & G drawings.
- Specific to the new Exhibit F & G drawings, you can go ahead and label them (i.e., file names,

title blocks) to be consistent with your proposal for the next license, so that they identify the proposed continuing project number and development names, as appropriate.

Please let me know if you have any further questions I can answer.

Thank you,
Amy Chang

Amy Chang| Wildlife Biologist
Federal Energy Regulatory Commission
Office of Energy Projects | Division of Hydropower Licensing
888 First Street, NE | Washington, DC 20426 | 202.502.6154

From: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Sent: Wednesday, January 29, 2025 2:58 PM
To: Amy Chang <Amy.Chang@ferc.gov>
Cc: Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>
Subject: RE: FERC: IFP Relicensing (P-2842 & P-2952) Questions

Hi Amy,

Attaching an outline of what we would like to cover with you tomorrow.

Olivia

From: Amy Chang <Amy.Chang@ferc.gov>
Sent: Wednesday, January 29, 2025 6:36 AM
To: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Subject: RE: FERC: IFP Relicensing (P-2842 & P-2952) Questions

Hi Olivia,

I wanted to check in about this meeting for tomorrow. Could you please send me the additional information today, so that I have a chance to review this information before the meeting?

Thank you,
Amy Chang

Amy Chang| Wildlife Biologist
Federal Energy Regulatory Commission
Office of Energy Projects | Division of Hydropower Licensing

888 First Street, NE | Washington, DC 20426 | 202.502.6154

-----Original Appointment-----
From: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Sent: Monday, January 13, 2025 3:12 PM
To: Olivia Smith; Finlay Anderson; Steve Hocking; Richard Malloy; Amy Chang
Subject: FERC: IFP Relicensing (P-2842 & P-2952) Questions
When: Thursday, January 30, 2025 11:00 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: Microsoft Teams Meeting

Hi Amy,

Thanks for meeting with us. Please hold this time to discuss two process-related questions related to combining the Idaho Falls & Gem State licenses and an anticipated study modification. We will provide Idaho Falls Power's proposal in advance of this call.

Please let us know if we need to shift this time.

Olivia

Microsoft Teams Need help?

Join the meeting now

Meeting ID: 213 945 719 962
Passcode: qU2Bu9xX

Dial in by phone

+1 207-248-8024,,967676793# United States, Augusta
Find a local number
Phone conference ID: 967 676 793#

For organizers: Meeting options | Reset dial-in PIN

From: Mike Gagner
To: Olivia Smith; Finlay Anderson
Cc: Emma Royce; Steve Rogers; Lynette Gardner
Subject: Idaho Falls AQ1 Sampling Timing
Date: Monday, March 3, 2025 12:49:01 PM

I just spoke with Brett High (IDFG Regional Biologist) and he agreed that if we could delay our sampling until mid-April it should increase our sampling efficiency. I also relayed our concerns about the potential for high flow conditions during the mid-April period and he recommended we reach out to BOR to see if we can get an idea of their plans. He did mention that he participated in a meeting last week with regional water managers and from that discussion feels confident that flows should still be conducive to sampling.
It seems like the next step is for us to contact Richard to see if he has any issues with delaying the trip (new dates April 17-26). Hopefully, he can also direct us to who we should speak with at BOR.
Thanks!

Michael R. Gagner
Aquatic Scientist – Project Manager
Kleinschmidt
C: 425.749.9516

From: High,Brett
To: Mike Gagner
Cc: Olivia Smith; Emma Royce; Finlay Anderson
Subject: RE: Upper Snake River - 2025 Sampling Itinerary (Permit #117245)
Date: Friday, March 21, 2025 8:45:44 AM

> You don't often get email from brett.high@idfg.idaho.gov. Learn why this is important

That sounds great Mike. I'll plan on the 30th and wait to hear from you next week for more details about when/where.

Have a great weekend.

Brett

Brett High
Regional Fisheries Manager
Upper Snake Region
4279 Commerce Circle
Idaho Falls, ID 83402
(208) 525-7290

From: Mike Gagner <Mike.Gagner@kleinschmidtgroup.com>
Sent: Friday, March 21, 2025 9:32 AM
To: High,Brett <brett.high@idfg.idaho.gov>
Cc: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>; Emma Royce <Emma.Royce@KleinschmidtGroup.com>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>
Subject: RE: Upper Snake River - 2025 Sampling Itinerary (Permit #117245)

Hey Brett,
Thanks much for the offer to help out! I like the idea of using your boat and captain for the night surveys, but I need to get clearance from our corporate folks that it's cool for us to work off your boat.
Although the joint night e-fishing might have to wait until our next trip, I'm sure we can get you out with us on the Upper Project tailrace. How about we plan for you to join us for a few hours on the afternoon of the 30th. We can work out the meeting time and location later next week.

Fingers crossed it all goes as planned!

Mike
425/749-9516

From: High,Brett <brett.high@idfg.idaho.gov>
Sent: Thursday, March 20, 2025 10:34 AM
To: Mike Gagner <Mike.Gagner@kleinschmidtgroup.com>
Cc: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>; Richard Malloy <rmalloy@ifpower.org>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>
Subject: RE: Upper Snake River - 2025 Sampling Itinerary (Permit #117245)

Mike,

Thank you for sending on the itinerary. It looks like you are going to have a busy and productive week! I'd like to join and help if I wouldn't be in your way. If you're all set and don't the help, I totally understand. If you could use help, I could bring an IDFG electrofishing boat that will accommodate four people, including the driver, to help with the night shocking March 25th and 31st. I would also like to be a part of the Upper Project tailrace electrofishing the afternoon of March 30th if possible.

Let me know what you think, and no worries if I'm not needed. Safe travels!

Brett

Brett High
Regional Fisheries Manager
Upper Snake Region
4279 Commerce Circle
Idaho Falls, ID 83402
(208) 525-7290

From: Mike Gagner <Mike.Gagner@kleinschmidtgroup.com>
Sent: Thursday, March 20, 2025 10:38 AM
To: High,Brett <brett.high@idfg.idaho.gov>
Cc: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>; Richard Malloy <rmalloy@ifpower.org>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>
Subject: Upper Snake River - 2025 Sampling Itinerary (Permit #117245)

Hi Brett,

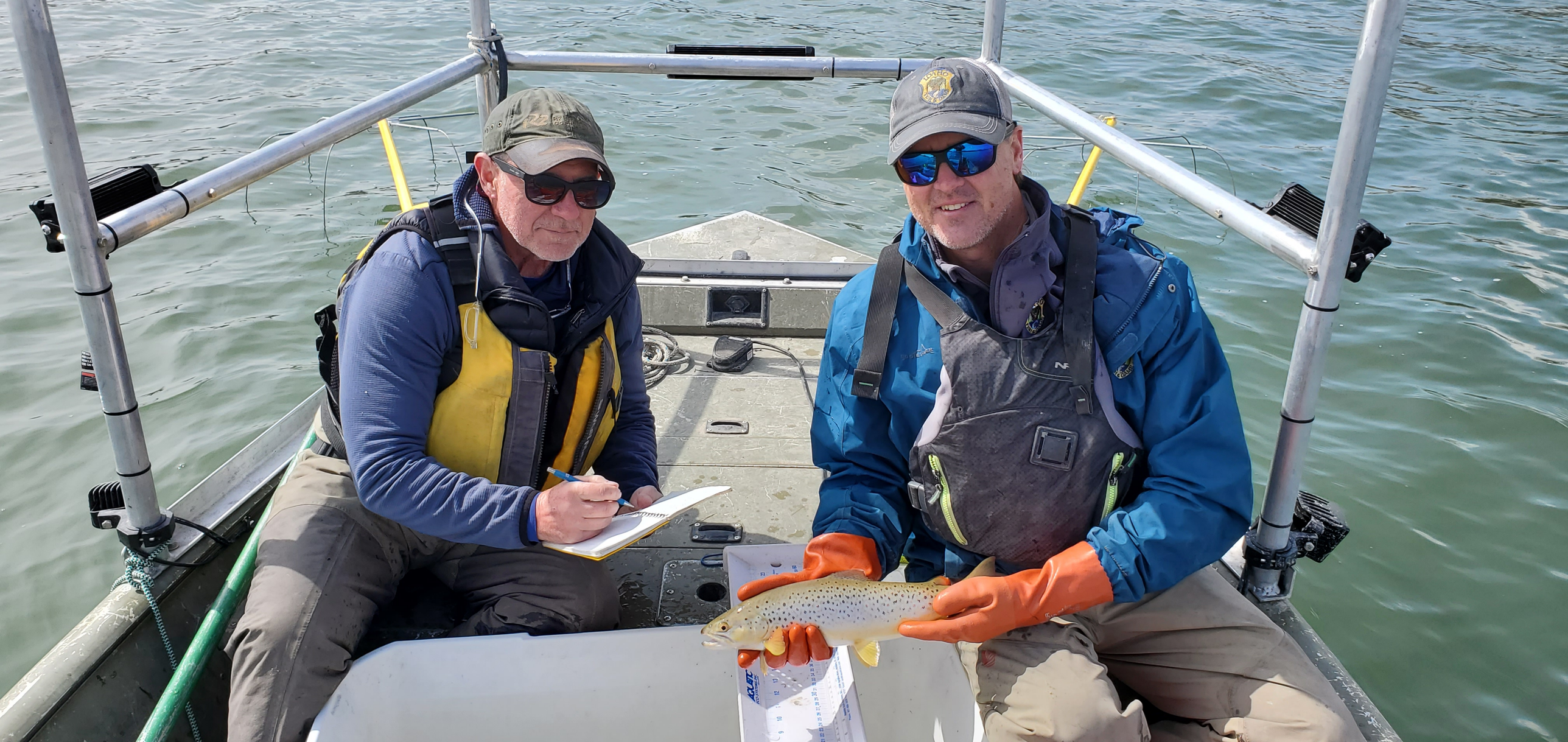
We seem to keep missing each other by phone, but I wanted to make sure you knew that we'll be initiating our spring sampling effort on March 24. If all goes as planned, we should have things wrapped up by April 1st. I've attached a copy of our sampling itinerary that lays out where we plan to be each day and the type of sampling we have planned.

Unfortunately, our boat is too small to accommodate another person, but we'd be happy to meet with you before or after any of our sampling events.

Please don't hesitate to reach out if you have any questions.

Thanks.

Michael R. Gagner
Aquatic Scientist – Project Manager
Kleinschmidt
C: 425.749.9516



From: Olivia Smith
To: "Amy Chang"; Richard Malloy
Cc: Finlay Anderson
Subject: RE: IFP Relicensing (P-2842 & P-2952) Initial Study Report schedule
Date: Thursday, April 3, 2025 2:39:00 PM

Hi Amy,

No problem, we checked with our team and moved the hold to 6/23. Glad we found a date for FERC staff before we invited the full distribution list.

Thank you,
Olivia

From: Amy Chang <Amy.Chang@ferc.gov>
Sent: Thursday, April 3, 2025 9:00 AM
To: Richard Malloy <rmalloy@ifpower.org>
Cc: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>
Subject: RE: IFP Relicensing (P-2842 & P-2952) Initial Study Report schedule

Thanks, Richard. I have touched base with my Team and there are several folks that will be out of the office on June 26. Do you think it would be possible to move the meeting to Monday, June 23? I certainly understand if that doesn't work with your folks and you decide to keep it as is. But, if it's doable, it would be nice if more of the FERC staff was able to participate in the ISR meeting instead of relying solely on the meeting summary.

Thanks, Amy

From: Richard Malloy <rmalloy@ifpower.org>
Sent: Wednesday, April 2, 2025 11:25 AM
To: Amy Chang <Amy.Chang@ferc.gov>
Cc: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>; Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>
Subject: RE: IFP Relicensing (P-2842 & P-2952) Initial Study Report schedule

Amy,

We are still on schedule with a 6/12 filing date and have 6/ 26 held for the ISR meeting. Our consultant is planning to send the meeting invite out to the distribution list soon.

Regards,

Richard Malloy | *Compliance Manager*

140 So. Capital
Idaho Falls, Idaho 83402
Work: (208) 612-8428
Cell: (208) 221-8781
Fax: (208) 612-8435
rmalloy@ifpower.org

From: Amy Chang <Amy.Chang@ferc.gov>
Sent: Wednesday, April 2, 2025 7:29 AM
To: Richard Malloy <rmalloy@ifpower.org>
Subject: IFP Relicensing (P-2842 & P-2952) Initial Study Report schedule

Good morning,

When we last spoke, you indicated that Idaho Falls Power may file its Initial Study Report (ISR) for P-2842 & P-2952 about 1 week ahead of the required deadline of June 12, 2025.

Is it still your intention to file the ISR the week of June 2, and hold a meeting the week of June 15? I am working to schedule a couple of other meetings during the second half of June, and was hoping to confirm your proposed schedule.

Thank you,
Amy Chang

Amy Chang| Wildlife Biologist
Federal Energy Regulatory Commission
Office of Energy Projects | Division of Hydropower Licensing
888 First Street, NE | Washington, DC 20426 | 202.502.6154

From: Richard Malloy <rmalloy@ifpower.org>
Sent: Wednesday, February 5, 2025 2:27 PM
To: Amy Chang <Amy.Chang@ferc.gov>; Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>; finlay.anderson@kleinschmidtgroup.com; Steve Hocking <Steve.Hocking@KleinschmidtGroup.com>
Subject: RE: FERC: IFP Relicensing (P-2842 & P-2952) Questions

Amy,

Thank you for confirming our filing path forward.

Regards,

Richard Malloy | *Engineering & Compliance Manager*

140 So. Capital
Idaho Falls, Idaho 83402
Work: (208) 612-8428
Cell: (208) 221-8781
Fax: (208) 612-8435
rmalloy@ifpower.org

From: Amy Chang <Amy.Chang@ferc.gov>
Sent: Wednesday, February 5, 2025 11:08 AM
To: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>; finlay.anderson@kleinschmidtgroup.com; Steve Hocking <Steve.Hocking@KleinschmidtGroup.com>; Richard Malloy <rmalloy@ifpower.org>
Subject: RE: FERC: IFP Relicensing (P-2842 & P-2952) Questions

I checked with a couple of folks regarding the question of how to properly label and file the Exhibit F & G drawings for the upcoming license application for the Idaho Falls Project, since it is your intention to request combining the existing Idaho Falls and Gem State Projects into a single project for the next license term.

- I confirmed that you should plan to file duplicate information to both dockets for the duration

of the relicensing process, including new Exhibit F & G drawings.

- Specific to the new Exhibit F & G drawings, you can go ahead and label them (i.e., file names, title blocks) to be consistent with your proposal for the next license, so that they identify the proposed continuing project number and development names, as appropriate.

Please let me know if you have any further questions I can answer.

Thank you,
Amy Chang

Amy Chang| Wildlife Biologist
Federal Energy Regulatory Commission
Office of Energy Projects | Division of Hydropower Licensing
888 First Street, NE | Washington, DC 20426 | 202.502.6154

From: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Sent: Wednesday, January 29, 2025 2:58 PM
To: Amy Chang <Amy.Chang@ferc.gov>
Cc: Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>
Subject: RE: FERC: IFP Relicensing (P-2842 & P-2952) Questions

Hi Amy,

Attaching an outline of what we would like to cover with you tomorrow.

Olivia

From: Amy Chang <Amy.Chang@ferc.gov>
Sent: Wednesday, January 29, 2025 6:36 AM
To: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Subject: RE: FERC: IFP Relicensing (P-2842 & P-2952) Questions

Hi Olivia,

I wanted to check in about this meeting for tomorrow. Could you please send me the additional information today, so that I have a chance to review this information before the meeting?

Thank you,
Amy Chang

Amy Chang| Wildlife Biologist
Federal Energy Regulatory Commission
Office of Energy Projects | Division of Hydropower Licensing
888 First Street, NE | Washington, DC 20426 | 202.502.6154

-----Original Appointment-----
From: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Sent: Monday, January 13, 2025 3:12 PM
To: Olivia Smith; Finlay Anderson; Steve Hocking; Richard Malloy; Amy Chang
Subject: FERC: IFP Relicensing (P-2842 & P-2952) Questions
When: Thursday, January 30, 2025 11:00 AM-12:00 PM (UTC-08:00) Pacific Time (US & Canada).
Where: Microsoft Teams Meeting

Hi Amy,

Thanks for meeting with us. Please hold this time to discuss two process-related questions related to combining the Idaho Falls & Gem State licenses and an anticipated study modification. We will provide Idaho Falls Power's proposal in advance of this call.

Please let us know if we need to shift this time.

Olivia

Microsoft Teams Need help?

Join the meeting now

Meeting ID: 213 945 719 962
Passcode: qU2Bu9xX

Dial in by phone

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Find a local number
Phone conference ID: 967 676 793#

For organizers: Meeting options | Reset dial-in PIN

From: Kai Steimle
To: Alex Bell
Cc: Olivia Smith; Lauren Rosenkranz
Subject: Idaho Falls and Gem State projects Water Quality Study (WQ-1)
Date: Tuesday, April 22, 2025 11:34:48 AM

Hi Alex,

We're gearing up for our field efforts for the Idaho Falls and Gem State projects and I wanted to provide a quick update on adjustments to our monitoring methods since our site visit in August 2024. As we discussed on site, we are proposing two modifications to the RSP, 1) adjustments to monitoring locations and 2) adjustments to the continuous monitoring schedule.

Locations

For monitoring locations, data loggers will be placed in well-mixed, representative locations, while considering public access (and potential tampering) as well as safety concerns for monitoring staff due to potentially high velocities on the Snake River during the monitoring period. A well-mixed location immediately downstream of the Upper Plant impoundment is inaccessible. To address this, DO/temperature loggers will be deployed at the Upper Plant forebay and tailrace, while two temperature-only loggers will be placed at the spillway forebay and spillway tailrace.

Schedule

In general, the risk of data loss remains a challenge due to high velocities, public access, and potential biofouling. As discussed, we are proposing to mitigate this risk by collecting continuous hourly data one week per month rather than throughout the season. This approach will still effectively capture diurnal variation while balancing accessibility and equipment longevity. Requiring one week of data will allow us to redeploy any damaged or lost equipment for a second week to achieve data collection goals. Loggers will be calibrated at the start and end of the week-long monitoring period each month, with routine maintenance and data downloads occurring every month to ensure quality data collection.

Let me know if you have any questions or if further discussion would be helpful.

Kai Steimle
Aquatic Ecologist
Kleinschmidt
O: 971.369.4220 C: 503.998.5011
Upcoming out-of-office dates: April 25, May 20-23, June 2-6

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From: Alex Bell
To: Kai Steimle
Cc: Olivia Smith; Lauren Rosenkranz
Subject: RE: Idaho Falls and Gem State projects Water Quality Study (WQ-1)
Date: Monday, April 28, 2025 3:29:28 PM

Hi Kai,

Thanks for checking in. For the upper plant, the forebay and tailrace should be okay for DO/temp, but if we see any issues with DO we may need to collect follow up data in a more mixed downstream location to determine compliance (see IDAPA 58.01.02.276.05).

The one week per month deployment for DO seems appropriate to me.

Thanks,

Alex

From: Kai Steimle <Kai.Steimle@kleinschmidtgroup.com>
Sent: Tuesday, April 22, 2025 12:35 PM
To: Alex Bell <Alex.Bell@deq.idaho.gov>
Cc: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>; Lauren Rosenkranz <Lauren.Rosenkranz@KleinschmidtGroup.com>
Subject: Idaho Falls and Gem State projects Water Quality Study (WQ-1)

Hi Alex,

We're gearing up for our field efforts for the Idaho Falls and Gem State projects and I wanted to provide a quick update on adjustments to our monitoring methods since our site visit in August 2024. As we discussed on site, we are proposing two modifications to the RSP, 1) adjustments to monitoring locations and 2) adjustments to the continuous monitoring schedule.

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Let me know if you have any questions or if further discussion would be helpful.

Kai Steimle
Aquatic Ecologist
Kleinschmidt
O: 971.369.4220 C: 503.998.5011
Upcoming out-of-office dates: April 25, May 20-23, June 2-6

From: Kelly Beck
To: Richard Malloy; Finlay Anderson
Cc: Olivia Smith; Emily Waters; Indya Messier
Subject: FW: Idaho Falls Power - FERC Relicensing
Date: Tuesday, May 13, 2025 3:40:30 PM

Hi Richard and Finlay,

Just wanted to let you know that I spoke on the phone yesterday with Jade Roubideaux from the Shoshoni-Paiute tribe. She called to ask if it was too late for the tribe to request that they participate with interviews for the Project. She indicated that the Tribe's preference would be for us to schedule some time with them at their tribal office. I'll be working with her over the next few weeks to coordinate this visit. Don't hesitate to get in touch with me if you have any questions.

Best,
Kelly

From: Jade Roubideaux <roubideaux.jade@shopai.org>
Sent: Monday, May 12, 2025 11:17 AM
To: Kelly Beck <kbeck@swca.com>
Subject: Idaho Falls Power - FERC Relicensing

Dear Kelly Beck,

Thank you for taking my phone call and easing my worries. We are interested in working with you on this tribal resources study project for the Gem State and Idaho Falls hydroelectric projects and want to be included. It is very important to have these opportunities to share our stories.

Please let me know how we can coordinate this, and I look forward to hearing from you and your team.

Sincerely,

Jade Roubideaux
Cultural Preservation Director
Shoshone-Paiute Tribes
Ph: (208) 759-3100 ext. 1243
(They/Them/Any)
"Let us put our minds together and see what life we can make for our children"

From: Kenny Huston
To: Olivia Smith
Subject: Re: Idaho Falls & Gem State: Relicensing: 07/23/25 AQ-3 Site Selection Invite
Date: Thursday, May 15, 2025 2:16:26 PM
Attachments: image002.png
Outlook-Idaho Offi.png

Confirmation that I am on the contact list. I don't plan to attend the site visit, but I have ensured the appropriate state agency staff in the region got the invitation.

Thanks again,
Kenny

Kenneth Huston
Policy Analyst: Baseload Energy, Fuels, Energy Security
ESF-12 Transportation Fuels Primary
Idaho Governor's Office of Energy and Mineral Resources
304 N 8th Street, Suite 250, Boise, ID 83720
(208) 332-1665 | oemr.idaho.gov

From: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Sent: Thursday, May 15, 2025 2:57 PM
To: Kenny Huston <kenny.huston@oer.idaho.gov>
Subject: RE: Idaho Falls & Gem State: Relicensing: 07/23/25 AQ-3 Site Selection Invite

---

Is this an RSVP for the 7/23/25 site selection visit or just confirming being on our contact list?

From: Kenny Huston <kenny.huston@oer.idaho.gov>
Sent: Thursday, May 15, 2025 1:56 PM
To: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>; Kristina Fugate <kristina.fugate@oer.idaho.gov>
Cc: Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Steve Rogers <Steve.Rogers@KleinschmidtGroup.com>; Mike Gagner <Mike.Gagner@kleinschmidtgroup.com>; Richard Malloy <rmalloy@ifpower.org>
Subject: Re: Idaho Falls & Gem State: Relicensing: 07/23/25 AQ-3 Site Selection Invite

Thank you!

Kenny

Kenneth Huston
Policy Analyst: Baseload Energy, Fuels, Energy Security

ESF-12 Transportation Fuels Primary
Idaho Governor's Office of Energy and Mineral Resources
304 N 8th Street, Suite 250, Boise, ID 83720
(208) 332-1665 | oemr.idaho.gov

From: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Sent: Thursday, May 15, 2025 2:54 PM
To: Kristina Fugate <kristina.fugate@oer.idaho.gov>
Cc: Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Steve Rogers <Steve.Rogers@KleinschmidtGroup.com>; Mike Gagner <Mike.Gagner@kleinschmidtgroup.com>; Richard Malloy <rmalloy@ifpower.org>; Kenny Huston <kenny.huston@oer.idaho.gov>
Subject: RE: Idaho Falls & Gem State: Relicensing: 07/23/25 AQ-3 Site Selection Invite

---

Yes I have added Kenny's email to our distribution list thank you for letting me know.

Olivia

From: Kristina Fugate <kristina.fugate@oer.idaho.gov>
Sent: Wednesday, May 14, 2025 4:09 PM
To: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Cc: Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Steve Rogers <Steve.Rogers@KleinschmidtGroup.com>; Mike Gagner <Mike.Gagner@kleinschmidtgroup.com>; Richard Malloy <rmalloy@ifpower.org>; Kenny Huston <kenny.huston@oer.idaho.gov>
Subject: RE: Idaho Falls & Gem State: Relicensing: 07/23/25 AQ-3 Site Selection Invite

Hi Oliva –

Can you please also include Kenny Huston on all future communications for the Idaho Falls / Gem State relicensings? My understanding is that Kenny did not receive this e-mail. He is OEMR's policy analyst for hydropower projects, so we would really appreciate you adding him.

Kenny's e-mail is kenny.huston@oer.idaho.gov

Thank you!

Kristina Fugate
Legal Counsel

Idaho Governor's Office of Energy and Mineral Resources
304 N 8th Street | Suite 250 | Boise, ID 83720
Phone: (208) 332-1679 | Email: kristina.fugate@oer.idaho.gov

From: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Sent: Wednesday, May 14, 2025 10:05 AM
Cc: Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Steve Rogers <Steve.Rogers@KleinschmidtGroup.com>; Mike Gagner <Mike.Gagner@kleinschmidtgroup.com>; Richard Malloy <rmalloy@ifpower.org>
Subject: Idaho Falls & Gem State: Relicensing: 07/23/25 AQ-3 Site Selection Invite

---

Hello Idaho Falls and Gem State FERC Relicensing Participants,

To prepare for upcoming field efforts for the Aquatic Habitat & Sediment Characterization Study (AQ-3), Idaho Falls Power accompanied by Kleinschmidt fisheries biologists, will be visiting the FERC Project Boundaries from **9:00am-4:00pm (MST)** on **Wednesday July 23, 2025,** to:

- Identify suitable sampling locations
- Review site accessibility (shoreline, boat launches, wading access, etc.) and safety issues
- Note channel structure, instream habitat, and riparian conditions,
- Photograph and map suggested sampling sites, and
- Assess any special concerns (e.g., landowner access, steep banks, debris)

If you are interested in participating in this site selection process, please respond directly to this email and we will ensure you are included in any planning communications. An announcement will also be made at the upcoming Initial Study Report (ISR) Meeting on Monday June 23, 2025, from 10:00am-2:00pm (MST). Please reach out if you are interested in attending that meeting and did not receive the teams meeting link.

Please reach out if you have any questions.

Thank you,

Idaho Falls Power and Gem State Relicensing Team

Olivia Smith
Licensing Coordinator
Kleinschmidt
O: 425-243-5663

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

Approximate work hours are ***8:30am-1:30pm (PST)*** *Monday through Friday*.

From: Olivia Smith
Cc: Finlay Anderson; Steve Rogers; Mike Gagner; Richard Malloy
Bcc: Maryam Zavareh; okeefe@americanwhitewater.org; rchristensen@co.bonneville.id.us; shulse@co.bonneville.id.us; kimozena@bpa.gov; burgesscanal@yahoo.com; Calla.hagle@burnspaiute-nsn.gov; Diane.teeman@burnspaiute-nsn.gov; maustin@cityofammon.us; scoletti@cityofammon.us; gdb@vnf.com; IFClerk@idahofallsidaho.gov; mayor@idahofallsidaho.gov; stacypascoe@cityofshelley.org; info@warmsprings.com; jwagner@cdatribe-nsn.gov; LDalley@binghamid.gov; peckhardt@co.bingham.id.us; pmanning@co.bonneville.id.us; Marsan Lawyer; Kathy Rinaldi; Phoebe Wallace; Frymire, Kim; Carla Thinnes; Rachel Edwards; david christensen; Finn, Jennifer M; Kendrick Owyhee; Taylor, Robert G; Steve Hocking; jstclair@easternshoshone.org; Amy.Chang@ferc.gov; David.Froelich@ferc.org; lauren.townson@ferc.gov; matt.cutlip@ferc.gov; emma.filesteel@ftbelknap.org; duane.masters@fmpst.org; Tildon.Smart@fmpst.org; maxine.redstar@fmpst.org; amichalski@greateryellowstone.org; cdrimal@greateryellowstone.org; gyc@greateryellowstone.org; krindaldi@greateryellowstone.org; schristensen@greateryellowstone.org; byronandmarylin@juno.com; whart@icua.coop; alex.bell@deq.idaho.gov; Jennifer.Cornell@deq.idaho.gov; tambra.phares@deq.idaho.gov; Troy.saffle@deq.idaho.gov; clile@idl.idaho.gov; dmiller@idl.idaho.gov; gbillman@idl.idaho.gov; rwoodland@idl.idaho.gov; david.claycomb@idpr.idaho.gov; garth.taylor@idpr.idaho.gov; susan.buxton@idpr.idaho.gov; jmiller@postregister.com; bprairie@ifpower.org; rmalloy@ifpower.org; bjensen@idahofb.org; brett.high@idfg.idaho.gov; eric.anderson@idfg.idaho.gov; matt.pieron@idfg.idaho.gov; kristina.fugate@oer.idaho.gov; richard.stover@oer.idaho.gov; mike.edmondson@osc.idaho.gov; idahowatermap@gmail.com; daniel.estes@ag.idaho.gov; governor@gov.idaho.gov; secretary@puc.idaho.gov; stephen.goodson@puc.idaho.gov; admin@idahorivers.org; nic@idahorivers.org; nkunath@idahorivers.org; tess@idahorivers.org; Delwyne.Trefz@swc.idaho.gov; erik.olson@swc.idaho.gov; norman.wright@swc.idaho.gov; info@isda.idaho.gov; Lindsay.Johansson@ishs.idaho.gov; tricia.canaday@ishs.idaho.gov; janet.gallimore@ishs.idaho.gov; patricia.hoffman@ishs.idaho.gov; stephw@idahosec.org; iwua@iwua.org; contact@idahowhitewater.net; Finlay Anderson; Kai Steimle; Mike Gagner; Steve Rogers; genhoyle@kootenai.org; jenniffer@kootenai.org; info@lovethewild.org; kailsheppard@gmail.com; stuartd.nsid@gmail.com; keithb@nezperce.org; nptec@nezperce.org; waterresources@nezperce.org; dalex@nwbshoshone.com; ggover@nwbshoshone.com; office@progressiveirrigationdistrict.com; ccolter@sbtribes.com; ccutler@sbtribes.com; publicaffairs@sbtribes.com; dthompson@sbtribes.com; ltyler@sbtribes.com; roubideaux.jade@shopai.org; hicks.shanina@shopai.org; Thomas.brian@shopai.org; snapp.marissa@shopai.org; snakeriveraudinfo@gmail.com; srvid1@gmail.com; srvid1@hotmail.com; emily.waters@swca.com; lacey.wilder@swca.com; Matthew.Harper@swca.com; Indya.Messier@swca.com; snakerivercutthroats@gmail.com; Sarah.V.Windham@usace.army.mil; adclark@usbr.gov; BLM_ID_UpperSnakeOffice@blm.gov; dchild@usbr.org; dteel@blm.gov; jdalling@usbr.gov; jfrye@blm.gov; jjohnsen@blm.gov; mclarkson@blm.gov; mzimmerman@blm.gov; rwhitworth@blm.gov; Mpaquin@usbr.gov; pninfo@usbr.gov; Ally_turner@fws.gov; Chris_swanson@fws.gov; erin_kenison@fws.gov; rcbarth@usgs.gov; tony.olenichak@idwr.idaho.gov; rumseyranch@gmail.com; ryan@wattenbargerfarms.com; fishvik@aol.com; kbeck
Subject: Idaho Falls & Gem State: Relicensing: 07/23/25 AQ-3 Site Selection Invite
Date: Wednesday, May 14, 2025 9:04:00 AM

Hello Idaho Falls and Gem State FERC Relicensing Participants,

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Please reach out if you have any questions.

Thank you,

Idaho Falls Power and Gem State Relicensing Team

Olivia Smith
Licensing Coordinator
Kleinschmidt
O: 425-243-5663
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We provide practical solutions *for renewable energy, water and environmental projects!*
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From: Olivia Smith
To: Alex Bell
Subject: RE: Idaho Falls & Gem State: Relicensing: 07/23/25 AQ-3 Site Selection Invite
Date: Wednesday, May 14, 2025 11:05:00 AM

Hi Alex,

Sounds great. We will be sure to include you on any communications.

Olivia

From: Alex Bell <Alex.Bell@deq.idaho.gov>
Sent: Wednesday, May 14, 2025 9:19 AM
To: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Subject: RE: Idaho Falls & Gem State: Relicensing: 07/23/25 AQ-3 Site Selection Invite

Hi Oliva,

Please put me on the list for the site selection process.

Thanks,

Alex Bell | Water Quality Manager
Idaho Department of Environmental Quality
900 Skyline Dr #B, Idaho Falls, ID, 83402
Office: (208) 528-2679
http://www.deq.idaho.gov/

From: Olivia Smith <Olivia.Smith@KleinschmidtGroup.com>
Sent: Wednesday, May 14, 2025 10:05 AM
Cc: Finlay Anderson <finlay.anderson@kleinschmidtgroup.com>; Steve Rogers <Steve.Rogers@KleinschmidtGroup.com>; Mike Gagner <Mike.Gagner@kleinschmidtgroup.com>; Richard Malloy <rmalloy@ifpower.org>
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Please reach out if you have any questions.

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Idaho Falls Power and Gem State Relicensing Team

Olivia Smith
Licensing Coordinator
Kleinschmidt
O: 425-243-5663
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From: Mike Gagner
To: High,Brett
Cc: Olivia Smith
Subject: RE: Utah Sucker
Date: Thursday, May 29, 2025 11:47:30 AM
Attachments: image002.png

Hey Brett,
Thanks for following up with them. By the way, we have scheduled our summer sampling to begin the week of July 21. Same general drill as the spring sampling, with a couple of nights of e-fishing on the Lower and City plant reservoirs.
I'll provide a detailed agenda as we get closer to our start date.
Thanks again, and I hope your summer sampling goes well!
Mike
425/749-9516

From: High,Brett <brett.high@idfg.idaho.gov>
Sent: Thursday, May 29, 2025 9:36 AM
To: Mike Gagner <Mike.Gagner@kleinschmidtgroup.com>
Subject: RE: Utah Sucker

Mike,

I haven't heard back from the lab about that sucker. I'll reach back out and see what I can get from them.

We'll try to hold some kokanee for you if we get out sampling for them before your next trip over.

Hope things are going well.

Brett

Brett High
Regional Fisheries Manager
Upper Snake Region
4279 Commerce Circle
Idaho Falls, ID 83402
(208) 525-7290

From: Mike Gagner <Mike.Gagner@kleinschmidtgroup.com>
Sent: Wednesday, May 28, 2025 12:00 PM
To: High,Brett <brett.high@idfg.idaho.gov>
Subject: RE: Utah Sucker

Hey Brett,
Did you ever hear back from your fish health lab on those white, nodule growths on that Utah Sucker? Additionally, if you happen to catch a few extra kokanee, we'd love to have some to use as sturgeon bait.
Thanks much!

Mike Gagner
Kleinschmidt Associates
425/749-9516

From: High,Brett <brett.high@idfg.idaho.gov>
Sent: Monday, March 31, 2025 7:17 AM
To: Taro,Brandon <brandon.taro@idfg.idaho.gov>
Cc: Mike Gagner <Mike.Gagner@kleinschmidtgroup.com>
Subject: FW: Utah Sucker

Brandon,

Mike Gagner is doing some fish surveys in the Snake River at Idaho Falls for Idaho Falls Power and came across this Utah Sucker a few days ago with some odd growths on its pectoral fin. We were curious if you could help us identify what it could possibly be. Have you seen things like this before?

Thanks,

Brett

Brett High
Regional Fisheries Manager
Upper Snake Region
4279 Commerce Circle
Idaho Falls, ID 83402
(208) 525-7290

From: Mike Gagner <Mike.Gagner@kleinschmidtgroup.com>
Sent: Monday, March 31, 2025 6:56 AM
To: High,Brett <brett.high@idfg.idaho.gov>
Subject: Utah Sucker

Hi Brett,
I wanted to share a picture of the odd growth we observed on a Utah Sucker we shocked in the City Plant reservoir. Not sure what it is, but a quick internet search led me to Lymphocystis. The fish appeared to be in good health and otherwise unaffected by it.
Thanks again for your help yesterday and I'll let you know how we do with our setlines below the Upper Project.
Mike

Michael R. Gagner
Aquatic Scientist – Project Manager
Kleinschmidt
C: 425.749.9516