Study Request 2: Instream Flow

Goals and Objectives

§5.9(b)(1) — Describe the goals and objectives of each study proposal and the information to be obtained.

Goals

The goal of this instream flow study is to determine the effects of the Ketchikan Lakes Hydroelectric Project and proposed changes on fish and habitat in order to recommend mitigation needed to conserve fish populations.

Objectives

1. Study the potential timing, magnitude, duration, and frequency for up-ramping pulses using existing information and anticipated future flows for Southeast Alaska.
2. Using best available information, approximate the size and frequency of previous spill events, and estimate how much less flow would have been in the bypass reaches had the low-level outlet been in place.
3. Integrate results from this study and the stream habitat mapping study to assess the temporal and spatial relationships between instream flow and riverine and biologic functions.

Relevant Resource Management Goals

§5.9(b)(2) — If applicable, explain the relevant resource management goals of the agencies or Indian tribes with jurisdiction over the resource to be studied.
§5.9(b)(3) — If the requester is not a resource agency, explain any relevant public interest considerations in regard to the proposed study.

The overarching resource management goal of the Service is described in our mission:

> To conserve, protect, and enhance fish, wildlife, plants, and their habitats for the continuing benefit of the American people.

The U.S. Fish and Wildlife Service (Service) has authority to request fish and wildlife resource studies related to this project in accordance with provisions in the Federal Power Act (FPA, 16 U.S.C. § 791 et seq.), Fish and Wildlife Coordination Act (FWCA, 48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), Clean Water Act (CWA, 33 U.S.C. 1344), National Environmental Policy Act of 1969 (NEPA, 83 Stat. 852; 42 U.S.C. 4321 et seq.), Bald and Golden Eagle Protection Act (BGEPA, 54 Stat. 250, as amended, 16 U.S.C. 668a-d), and Migratory Bird Treaty Act (MBTA, 40 Stat. 755, as amended; 16 U.S.C. 703 et seq.).

Under Section 18 of the FPA, the Service has authority to issue mandatory fishway prescriptions for safe, timely, and effective fish passage. Under Section 10(j) of the FPA, the Service is

authorized to recommend license conditions necessary to adequately and equitably protect, mitigate damages to, and enhance, fish and wildlife (including related spawning grounds and habitat) affected by the development, operation, and management of hydropower projects. Section 10(a)(1) of the FPA requires the Federal Energy Regulatory Commission (FERC) to condition hydropower licenses to best improve or develop a waterway or waterways for the adequate protection, mitigation, and enhancement of fish and wildlife (including related spawning grounds and habitat) based on Service recommendations and plans for affected waterways. Specific management goals are the protection of anadromous, trust fish species, and their habitats.

Consistent with our mission and with the legal authorities described above, our resource goal in this matter is to conserve existing fish and wildlife resources and their habitats in Ketchikan Lakes Watershed (Hydrologic Unit Code (HUC) 19010102040201) and Granite Basin Creek Watershed (HUC 19010102040202).

Background and Existing Information

§5.9(b)(4) — Describe existing information concerning the subject of the study proposal, and the need for additional information.

The Pre-Application Document (PAD, Ketchikan Public Utilities 2025) provides information on inflows and power plant flows, and on the bypass reach flows. For the bypass reach flows, the PAD explains that flows are influenced by Ketchikan Lakes Dam seepage, Granite Creek, Scout Creek, and spill events, and provides a table that shows the mean, minimum, and maximum flows in the bypass reach from 2005-2009 (PAD, page 60). The exact contribution of spills to the creek are not described other than that they occur intermittently, typically about two to three times per year (PAD, page 78). Information on what up-ramping pulses might have occurred if not for the license requirements were not described.

In addition, it is important to consider how characterizations of spill and up-ramping may change given that projections for Southeast Alaska indicate annual precipitation will continue to increase. It is likely the increases in annual precipitation will be driven by precipitation events of greater intensity (Lader et al. 2022).

Project Nexus

§5.9(b)(5) — Explain any nexus between project operations and effects (direct, indirect, and/or cumulative) on the resource to be studied, and how the study results would inform the development of license requirements.

Fish habitat above the powerhouse may be impacted by reduced spill events should a low-level outlet be added to the project. Fish habitat below the powerhouse may be impacted by changes in ramping rates. Understanding the timing, magnitude, duration, and frequency of spill events that have occurred, how spill events may change in the future with projected precipitation levels, estimating the proportion of flow that the past and future spill flows contribute to bypass reach,

and understanding the potential ranges for timing, magnitude, duration, and frequency of up-ramping pulses will for allow accurate impact analysis and discussions.

Proposed Methodology

§5.8(b)(6) — Explain how any proposed study methodology (including any preferred data collection and analysis techniques, or objectively quantified information, and a schedule including appropriate field seasons(s) and the duration) is consistent with generally accepted practice in the scientific community or, as appropriate, considers relevant tribal values and knowledge.

Approximate past spill contributions to instream flow using existing data and project observations. Use available information on projected precipitation levels for Southeast Alaska to determine how spill events, and their contribution to the channel, may change moving forward.

Use existing information and observations to approximate the range of timing, magnitude, duration, and frequency of up-ramping events that would have occurred if not for the license restrictions.

Level of Effort and Cost

§5.9(b)(7) — Describe considerations of level of effort and cost, as applicable, and why any proposed alternative studies would not be sufficient to meet the stated information needs.

The level of effort and cost will be refined as the study plan is finalized, but the cost would be commensurate with a project the size of Ketchikan Lakes Hydroelectric Project and the likely license term.

Literature Cited

Ketchikan Public Utilities. 2025. Pre-Application Document Volume 1 – Public; Ketchikan Lakes Hydroelectric Project FERC NO. 420. 190pp.

Lader, R., U. S. Bhatt, J. E. Walsh, and P. A. Bieniek. 2022. Projections of hydroclimatic extremes in Southeast Alaska under the RCP8.5 Scenario. Earth Interactions, 26, 180-194. 1-32.