

**Susitna-Watana Hydroelectric Project
(FERC No. 14241)**

**The Future Watana Reservoir Fish Community and
Risk of Entrainment Study
Study Plan Section 9.10**

**Part D: Supplemental Information to
June 2014 Initial Study Report**

Prepared for

Alaska Energy Authority



SUSITNA-WATANA HYDRO

Clean, reliable energy for the next 100 years.

Prepared by

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TABLE OF CONTENTS

1. Introduction.....	1
2. Background	1
2.1. Purpose of Study	1
3. Status, Highlighted Results, and Achievements.....	2
4. Summary of Study 9.10 Documents	2
5. New Study Documentation Supplementing the ISR.....	3
6. Variances	3
6.1. 2013 Study Season	3
6.2. 2014 Study Season	3
7. Study Plan Modifications	4
7.1. Modifications Identified in ISR.....	4
7.2. Modifications Identified since the June 2014 ISR	4
8. Steps to Complete the Study	4

1. INTRODUCTION

Section 1 (Part A) of the June 2014 ISR for this Future Watana Reservoir Fish Community and Risk of Entrainment Study (Study Plan 9.10) details the development of this study from the Revised Study Plan (RSP) in 2012, through the end of the 2013 study season. Section 7 of the ISR (Part C), filed in June 2014, sets forth AEA's plan and schedule, at that time, for completing this study and meeting the objectives of the RSP.

As detailed in Section 2.2 of the ISR Part D Overview, various circumstances have required AEA to extend the original timeframe for completing the Commission-approved Study Plan. As explained in the June 2014 ISR, this Study 10.12 was not implemented in the 2013 study season. Since that time, this study continues to be deferred.

The primary purpose of this Part D Supplemental Information to the ISR for Study 9.10 is to identify all documents associated with this study, provide a summary of variances and modifications presented in the ISR (Parts A and C), and identify AEA's plans for completing Study 9.10 in a manner that meets the objectives of the Commission-approved Study Plan.

2. BACKGROUND

2.1. Purpose of Study

The goal of this study is to predict the fish community that will develop in the Project reservoir based on the existing species and the habitat that will be created in the inundation zone, and to characterize the potential loss from entrainment. The study objectives established in RSP Section 9.10.1 consist of the following:

- Develop scenarios for anticipated daily and seasonal changes in reservoir habitat characteristics based on predicted reservoir operations, size, temperatures, and water quality and depth profiles.
- Develop scenarios for future reservoir fish communities based on current fish species composition upstream of the proposed dam site and enhancement potential for select salmon species incorporating anticipated daily and seasonal changes in reservoir habitat characteristics.
- Characterize potential management options including recreational, commercial, and subsistence uses of the reservoir fishery.
- Conduct a qualitative desktop analysis on the potential for entrainment of fish species inhabiting the proposed reservoir upstream of Watana Dam.

2.2 Study Components

The study components are:

- Development of scenarios for anticipated daily and seasonal changes in reservoir habitat characteristics, based on the alternative Project operating scenarios developed by Project engineers.
- Development of alternative potential fish community structure.
- Development of alternative fisheries management scenarios.
- A desktop potential fish entrainment analysis.

3. STATUS, HIGHLIGHTED RESULTS, AND ACHIEVEMENTS

Section 7 of ISR 9.10 (Part C), filed in June 2014, described that the implementation of this study was deferred. Since that time, AEA has not completed any additional work on this study. Therefore, there are no results or updates to report for this study.

4. SUMMARY OF STUDY 9.10 DOCUMENTS

Since filing of the RSP in 2012, AEA and FERC have prepared several documents pertaining to this study. To aid review by FERC staff and licensing participants, each of these documents is listed below. Each of these documents is accessible on AEA's Project licensing website (<http://www.susitna-watanahydro.org/type/documents/>) by clicking on the entry in the "Link" column in the table. In addition, these documents are available on FERC's eLibrary system (<http://www.ferc.gov/docs-filing/elibrary.asp>), in Docket No. P-14241.

Title	Date	Description	Link
9.10 The Future Watana Reservoir Fish Community and Risk of Entrainment Study (Revised Study Plan)	12/14/2012	This document presents the plan for this study, including goals, objectives, the study area, and proposed study methods relevant to the aquatic resource in the future Watana Reservoir.	RSP for Study 9.10
FERC Study Plan Determination for Study 9.10	2/1/2013	This document presents FERC approval of Study 9.10, which approved AEA's Revised Study Plan with recommended adjustments.	FERC SPD for Study 9.10
Draft Initial Study Report for Study 9.10	2/3/2014	This draft of the ISR summarized the study methods and variances during the 2013 study season, and presented preliminary data collected for Study 9.10. This draft ISR was later	Draft ISR for Study 9.10

		republished as Part A of the final ISR.	
Initial Study Report for Study 9.10	6/3/2014	This document is the Initial Study Report (Parts A, B and C) for Study 9.10. Part A republishes the Draft ISR. Part B identifies supplemental information and errata in Part A. Part C presents study modifications and plans for completing the study.	ISR Part A for Study 9.10 ISR Part B for Study 9.10 ISR Part C for Study 9.10
Initial Study Report Meetings, October 15, 2014 (Parts A and B)	11/14/2014	Transcripts and AEA's agenda and PowerPoint presentations for the ISR meeting concerning the Project fish and aquatic studies filed by AEA.	Transcripts from ISR Meeting Materials from ISR Meeting

5. NEW STUDY DOCUMENTATION SUPPLEMENTING THE ISR

Because this study has been deferred, no additional reports or documents are available to supplement the ISR for this Study 9.10.

6. VARIANCES

6.1. 2013 Study Season

The following variance is reported in the June 2014 ISR:

- As explained in the Study Plan (RSP Section 9.10), this study is highly interrelated to ongoing operations modeling work, and several other studies in AEA's licensing program provide necessary input information for the initiation of this study. These other studies, which include the Water Quality Modeling Study (Study 5.6), Study of Fish Distribution and Abundance in the Upper Susitna River (Study 9.5), Study of Fish Passage Feasibility at Watana Dam (Study 9.11), and Recreation Resources Study (Study 12.5), were ongoing at the time of the June 2014 ISR. As a result, a variance occurred in this study because AEA did not initiate this study in late 2013 as contemplated in the Study Plan (RSP Section 9.10.6).

6.2. 2014 Study Season

Because this study has been deferred, no variances were encountered during the 2014 study season.

7. STUDY PLAN MODIFICATIONS

7.1. Modifications Identified in ISR

As detailed in Section 7 of the ISR (Part C), AEA plans no modifications of the methods for this study.

7.2. Modifications Identified since the June 2014 ISR

Since the June 2014 ISR, AEA has identified no modifications of the methods for this study.

8. STEPS TO COMPLETE THE STUDY

As noted in the Study Plan, this study is largely a desktop analysis that is to be completed as information from other studies becomes available. These other studies are continuing, and AEA will meet study objectives by completing this study as described in the Study Plan. The steps necessary for AEA complete this study remain the same as described in the Study Plan (RSP Section 9.10) and are summarized below:

- Develop scenarios of anticipated daily and seasonal changes in reservoir habitat characteristics corresponding to alternative Project operating scenarios through evaluation of lacustrine zones, water temperature and turbidity. (RSP Section 9.10.4.1).
- Develop scenarios for future reservoir fish communities based on current fish species composition upstream of the proposed dam site, anticipated reservoir habitat characteristics, and management practices acceptable to ADF&G through defining the existing fish community, identifying potential use of lacustrine habitat, identifying potential invasive species and identifying the potential for an anadromous versus land-locked salmon-based community. (RSP Section 9.10.4.2).
- Characterize potential management options for a future reservoir fishery. (RSP Section 9.10.4.3).
- Conduct a desktop analysis of the potential for entrainment and impingement of fish species inhabiting the proposed reservoir, through understanding alternative Project designs and operating scenarios, conducting a literature review focusing on deep water intakes and cold water reservoirs, and synthesizing the information to analyze the potential vulnerability of target species. (RSP Section 9.10.4.4).