

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

**River Productivity Study
Study Plan Section 9.8**

**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.

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November 2015

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1. INTRODUCTION

Section 1 (Part A) of the ISR for this River Productivity Study (Study Plan 9.8) 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 timeframe for completing the Commission-approved Study Plan. However, AEA has made meaningful progress with this Study 9.8 since the filing of the ISR in June 2014. As detailed below, AEA's recent activities for Study 9.8 have consisted of the following:

- Completion of the *2013 Initial River Productivity Results Technical Memorandum*, filed in September 2014;
- Completion of the *2014 Field Season River Productivity Progress Report Technical Memorandum*, filed in September 2014;
- Completion of 2014 field sampling activities during three sampling events in the Lower and Middle Susitna River, which included drift and plankton tow sampling, stable isotope sampling, fish diet sampling;
- Completion of July 2014 field sampling activities in the Middle and Upper Susitna River basins in nine tributaries and three lakes, which included benthic sampling, drift sampling, plankton tow sampling, and water quality sampling;
- On October 15, 2014, AEA held an ISR meeting for the Fish and Aquatics Program, which included a presentation and discussion of the 2013 River Productivity Study.
- Completion of the *Fish Diet Sample Size Sufficiency Analysis Technical Memorandum*, filed in December 2014; and
- Completion of the *2014 – 2015 Study Implementation Report for the River Productivity Study (9.8)*, filed in November 2015.

The primary purpose of this Part D Supplemental Information to the ISR is to report on the implementation of the Study Plan from the filing of the ISR in June 2014, through the end of calendar year 2014. In light of this additional implementation, this Part D also identifies AEA's plans for completing Study 9.8 in a manner that meets the objectives of the Commission-approved Study Plan.

2. BACKGROUND

2.1. Purpose of Study

The study objectives were established in the Study Plan (RSP Section 9.8.1). The overarching goal of this study is to collect baseline data to assist in evaluating the effects of Project-induced

changes in flow and the interrelated environmental factors (temperature, substrate, water quality) upon the benthic macroinvertebrate and algal communities in the Middle and Lower Susitna River. Individual objectives that will accomplish this are listed below in Section 2.2.

2.2. Study Components

- Synthesize existing literature on the impacts of hydropower development and operations (including temperature and turbidity) on benthic macroinvertebrate and algal communities.
- Characterize the pre-Project benthic macroinvertebrate and algal communities with regard to species composition and abundance in the Middle and Lower Susitna River.
- Estimate drift of benthic macroinvertebrates in selected habitats within the Middle and Lower Susitna River to assess food availability to juvenile and resident fishes.
- Conduct a feasibility study in 2013 to evaluate the suitability of using reference sites on the Talkeetna River to monitor long-term Project-related change in benthic productivity.
- Conduct a trophic analysis to describe the food web relationships within the current riverine community within the Middle and Lower Susitna River.
- Develop habitat suitability criteria for Susitna benthic macroinvertebrate and algal habitats to predict potential change in these habitats downstream of the proposed dam site.
- Characterize the invertebrate compositions in the diets of representative fish species in relationship to their source (benthic or drift component).
- Characterize organic matter resources (e.g., available for macroinvertebrate consumers) including coarse particulate organic matter, fine particulate organic matter, and suspended organic matter in the Middle and Lower Susitna River.
- Estimate benthic macroinvertebrate colonization rates in the Middle Susitna Segment under pre-Project baseline conditions to assist in evaluating future post-Project changes to productivity in the Middle Susitna River.

3. STATUS, HIGHLIGHTED RESULTS, AND ACHIEVEMENTS

The following tasks were completed in 2013 and reported in Part A of the ISR for Study 9.8:

- Literature review on the impacts of hydropower development and operations on benthic macroinvertebrate and algal communities (ISR Part A, Appendix A).
- Benthic samples collected during the three sampling events in 2013 were comprised of 301 Hess samples, 155 LWD (snag) samples, 85 petite Ponar grab samples, 45 adult emergence traps, and 105 Hester-Dendy samples. These samples were successfully

transported to the contracted taxonomic laboratory in 2013, and results were pending upon completion of processing at the time of the ISR filing in June 2014.

- Benthic algae samples collected during the three sampling events in 2013 were comprised of 309 composite algae samples. Results were summarized, and generally indicated that algae were lower in mainstem macrohabitats than off-channel habitats (side sloughs, upland sloughs).
- Drift samples collected during the three sampling events in 2013 were comprised of 104 drift samples and 95 plankton tows. These samples were successfully transported to the contracted taxonomic laboratory in 2013, and were being processed at the time of the ISR filing in June 2014.
- The Talkeetna River was sampled for 30 Hess samples, 45 composite algae samples, 15 petite Ponar grabs, 12 drift samples, and 10 plankton tows during the three index events in 2013, to assess the feasibility of the Talkeetna as a reference site for the Middle Susitna River. These samples were successfully transported to the contracted taxonomic laboratory in 2013, and were being processed at the time of the ISR filing in June 2014.
- A total of 1,242 sample components were collected in 2013 for Stable Isotope Analyses, which included collection of stomach contents from 261 Chinook salmon, coho salmon, and rainbow trout. These samples were successfully transported to UAF laboratory in 2013 for ongoing analyses at the time of the ISR filing in June 2014.
- A total of 105 Hester-Dendy multiplate samplers were collected at 4 sites reflecting different temperature/turbidity combinations over an 8-week colonization period. These samples were successfully transported to the contracted taxonomic laboratory in 2013, and were being processed at the time of the ISR filing in June 2014.

The study team has completed the following activities for Study 9.8 since the June 2014 filing of the ISR:

- Sample analysis was completed for several 2013 data sets, including benthic macroinvertebrate and algae sampling, drift and plankton tow sampling, stable isotope analysis components, fish stomach contents, and benthic macroinvertebrate colonization sampling. Results were summarized and discussed in the *2013 Initial River Productivity Results Technical Memorandum*, submitted in September 2014.
- 2013 stomach content data were analyzed using cumulative prey curves to determine whether the 2013 sample size targets and the actual sample sizes were sufficient to meet the objectives. The cumulative prey curve analysis indicated the sample size target of $n = 8$ was likely sufficient to adequately quantify diet composition in this study. Methods and results were presented in the *Fish Diet Sample Size Sufficiency Analysis Technical Memorandum*, submitted in December 2014.
- Sample analysis was completed for remaining 2013 data sets not addressed in the *2013 Initial River Productivity Results Technical Memorandum*, including benthic macroinvertebrates on large woody debris, emergence trap sampling, and organic matter

content for benthic and seston samples. Results were summarized and discussed in the *2014 Study Implementation Report for the River Productivity Study (9.8)*.

- Drift samples collected during the three sampling events in 2014 were comprised of 108 drift samples and 105 plankton tows. These samples were successfully transported to and processed by the contracted taxonomic laboratory. Results are presented in the *2014 Study Implementation Report for the River Productivity Study (9.8)*.
- A total of 1,557 sample components were collected in 2014 for Stable Isotope Analyses, which included collection of stomach contents from 449 Chinook Salmon, Coho Salmon, Arctic Grayling, and Rainbow Trout for use in Fish Diet Analysis and Trophic Modeling objectives. These samples were successfully transported to and analyzed by the UAF laboratory. Results are presented in the *2014 Study Implementation Report for the River Productivity Study (9.8)*.
- Macroinvertebrate and algae samples were collected during July 2014 from nine selected tributaries located above Devils Canyon within the Middle and Upper Susitna River basin. Efforts collected a total of 45 Hess samples, 45 composited algae samples, and 18 drift samples, along with water quality grab samples at each site. These samples were successfully transported to and processed by the contracted taxonomic laboratory. Results are presented in the *2014 Study Implementation Report for the River Productivity Study (9.8)*.
- Invertebrate samples were collected during July 2014 from three lakes within the Tyone River drainage basin in the Upper Susitna River basin. Efforts collected a total of 45 petite Ponar grab samples, nine D-net composite sweep samples, and 45 plankton tows, along with 21 water quality grab samples. These samples were successfully transported to and processed by the contracted taxonomic laboratory. Results are presented in the *2014 Study Implementation Report for the River Productivity Study (9.8)*.

4. SUMMARY OF STUDY 9.8 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
9.8 River Productivity 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 for river productivity investigations.	RSP for Study 9.8
Draft River Productivity Implementation Plan	1/31/2013	Draft implementation plan for River Productivity Study.	2013 IP for Study 9.8

Title	Date	Description	Link
River Productivity Implementation Plan	3/1/2013	Final implementation plan for River Productivity Study which included (1) a summary of relevant macroinvertebrate and algal studies in the Susitna River, (2) an overview of the life-histories of the target fish species in the Susitna River that were selected for the trophic analysis, (3) a review of the preliminary results of habitat characterization and mapping efforts (4) a description of site selection protocols, (5) a description of sampling protocols, (6) a description of sample processing protocols, (7) a discussion of data analysis methods, (8) development of field data collection forms, and (9) development of database templates that comply with 2012 AEA QA/QC procedures. In addition, the plan included protocol documents, specific sampling station locations, details about the choice and use of sampling techniques and apparatuses, and a list of field equipment needed.	2013 IP for Study 9.8
FERC Study Plan Determination for Study 9.8	4/1/2013	This document presents FERC approval of Study 9.8, which approved AEA's Revised Study Plan with recommended adjustments.	FERC SPD for Study 9.8
Draft Initial Study Report for Study 9.8	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 9.8. This draft ISR was later republished as Part A of the final ISR.	Draft ISR Part A for Study 9.8 (File 1) Draft ISR Part A for Study 9.8 (File 2)
Initial Study Report for Study 9.8	6/3/2014	This document is the Initial Study Report (Parts A, B and C) for Study 9.8. 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 9.8 (File 1) ISR Part A for Study 9.8 (File 2) ISR Part B for Study 9.8 ISR Part C for Study 9.8

Title	Date	Description	Link
Review of the Effects of Hydropower on Factors Controlling Benthic Communities	6/3/2014	This document is included in the ISR Part A as Appendix A. The white paper provides a literature review summarizing relevant literature on macroinvertebrate and algal community information in Alaska, including 1980s Susitna River data; reviews and summarizes literature on general influences of changes in flow, temperature, substrate, nutrients, organic matter, turbidity, light penetration, and riparian habitat on benthic communities; and reviews and summarizes the potential effects of dams and hydropower operations, including flushing flows and load-following, on benthic communities and their habitats.	June 2014 TM for Study 9.8
Analysis of Potentially Dewatered River Productivity Sampling Sites in 2013	6/3/2014	This document is included in the ISR Part A as Appendix C. This technical memorandum provides detail on the approach taken to provide an estimate of how many Hess samples taken during 2013 on the Susitna River were potentially dewatered during the 30 days prior to being collected, and provides an estimate of the proportion of samples subject to dewatering.	June 2014 TM for Study 9.8
2013 Initial River Productivity Results Technical Memorandum	9/26/14	This technical memorandum provides a preliminary review and summary of 2013 River Productivity Study sample results based on laboratory data received after the ISR submittal in June 2014.	Sept. 2014 TM for Study 9.8
2014 Field Season River Productivity Progress Report Technical Memorandum	9/26/2014	This technical memorandum presents an update on activities conducted during the Spring field sampling event in June 2014, which was focused on data collection to support the needs of the trophic modeling and stable isotope analysis objectives of the River Productivity Study.	Sept. 2014 TM for Study 9.8
Initial Study Report Meetings, October 15, 2014	11/14/2014	Transcripts and AEA's agenda and PowerPoint presentations for the ISR meeting for Fish and Aquatic Studies	Transcripts from ISR Meeting Materials from ISR Meeting
Initial Study Report, Errata to Appendix A	11/26/14	Errata to the whitepaper "Review of the Effects of Hydropower on Factors Controlling Benthic Communities" properly crediting the source of some of the content used in the review.	Nov. 2014 TM for Study 9.8

Title	Date	Description	Link
Fish Diet Sample Size Sufficiency Analysis Technical Memorandum	12/17/2014	This technical memorandum describes an analysis of stomach contents samples conducted after field sampling was completed to determine whether the sample size targets and the actual sample sizes were sufficient to meet the Study Plan objectives.	Dec. 2014 TM for Study 9.8
2014 Study Implementation Report for the River Productivity Study (9.8)	11/4/2015	This report presents the methods and preliminary results of all data collected for the 2014 River Productivity Study, along with variances to study methods, as well as the remainder of results the 2013 River Productivity Study not included in the "2013 Initial River Productivity Results Technical Memorandum" (benthic macroinvertebrates on LWD, emergence trap samples, organic matter contents), and a discussion of results.	2014 SIR for Study 9.8 (File 1) 2014 SIR for Study 9.8 (File 2)

5. NEW STUDY DOCUMENTATION SUPPLEMENTING THE ISR

The following table identifies and describes additional reports and other documents that update, refine, or otherwise supplement certain sections of the ISR pertaining to this Study 9.8, during AEA's continued implementation of the Study Plan through calendar year 2014.

ISR Reference	Description
Part A, Section 4	This Section is supplemented by: 2014 Field Season River Productivity Progress Report Technical Memorandum, Section 2: Methods; and 2014 Study Implementation Report for the River Productivity Study (9.8), Section 4. This Section, specifically Table 4.4-3, is superseded by 2014 Study Implementation Report for the River Productivity Study (9.8), Section 4: Methods, Table 4.3-1.
Part A, Section 5	This Section is updated by: 2013 Initial River Productivity Results Technical Memorandum, Section 3: Results. This Section is supplemented by: 2014 Field Season River Productivity Progress Report Technical Memorandum, Section 2.2: Results; Fish Diet Sample Size Sufficiency Analysis Technical Memorandum; and 2014 Study Implementation Report for the River Productivity Study (9.8), Section 5: Results.
Part A, Section 6	This Section is updated by: 2013 Initial River Productivity Results Technical Memorandum, Section 4: Discussion. This Section is supplemented by: 2014 Field Season River Productivity Progress Report Technical Memorandum, Section 3: Discussion; Fish Diet Sample Size Sufficiency Analysis Technical Memorandum; and 2014 Study Implementation Report for the River Productivity Study (9.8), Section 6: Discussion.
Part A, Section 7	This section is updated by ISR Study 9.8 Part D, Section 8: Steps to Complete the Study; and 2014 Study Implementation Report for the River Productivity Study (9.8), Section 7: Conclusions.
Part A, Appendix B	This appendix is supplemented by 2014 Study Implementation Report for the River Productivity Study (9.8), Appendix B].

6. VARIANCES

6.1. 2013 Study Season

In 2013, AEA implemented the methods as described in the Study Plan with the exception of the following variances, which are reported and discussed within the ISR Part A, Section 4 and ISR Part C, Section 7.

- Lower River site was moved from Trapper Creek to Montana Creek (IP Section 2.1.3). See ISR Part A, Section 4.2.4.1.
- Sampling at the FA-173 (Stephan Lake Complex) upland slough replaced by small unnamed tributary mouth (FERC SPD, B-181). See ISR Part A, Section 4.2.4.2.
- Storm event sampling at side slough at FA-173 (Stephan Lake Complex) instead of FA-144 (Slough 21); upper and lower end sites not established (RSP Section 9.8.4.3; IP Section 2.1.2). See ISR Part A, Sections 4.2.4.3 and 4.4.3.2.
- Frequent and rapid river stage changes limited sampling sites available with 30-day periods of continuous inundation (RSP Section 9.8.4.3; IP Section 2.2.1). See ISR Part A, Section 4.4.3.1.
- Number of depth and velocity measures intended to evaluate shoreline bathymetry reduced for each Hess sample (RSP Section 9.8.4.3; IP Section 2.2.1). See ISR Part A, Section 4.4.3.1.
- Algae samples were taken from stones and woody debris as opposed to fine sediment in grab samples (FERC SPD, B-187). See ISR Part A, Section 4.4.3.3.
- Plankton tows were conducted at 5 still water sites instead the potential total of 11 recommended by FERC (FERC SPD, B-188). See ISR Part A, Section 4.5.1.1.
- Dry weights for macroinvertebrate taxa will be estimated using length-weight relationship data from UAF (RSP Section 9.8.4.3; IP Section 2.2.2.). See ISR Part A, Section 4.4.3.4.
- The Talkeetna reference station features a side channel, side slough, and upland slough, and does not include a main channel macrohabitat type (IP Section 2.1.4). See ISR Part A, Section 4.6.1.
- Stable isotope site selection was increased from the original two stations (3 sites each) to four stations, sampling 16 sites total (IP Section 2.11.1; FERC SPD, B-201). See ISR Part A, Section 4.7.3.1.
- Macrohabitat-specific subcutaneous dye marking was not used to track movements of juvenile chinook, coho or rainbow trout less than 60 mm long (FERC SPD, B-199). See ISR Part A, Section 4.7.3.2.
- Fish stomach content samples were not assessed in the field as to whether the stomach was empty or not (IP Section 2.8.1.). See ISR Part A, Section 4.9.1.1.

- Dry weights for prey items in stomach contents will be estimated using length-weight relationship data from UAF (IP Section 2.8.2.). See ISR Part A, Section 4.9.1.2.
- Hester-Dendy Samplers were not pre-conditioned before deployment (IP Section 2.9.1). See ISR Part A, Section 4.11.1.

6.2. 2014 Study Season

In 2014, AEA implemented the methods as described in the Study Plan with the exception of the following variances continued from 2013, which are reported and discussed within the ISR Part A, Section 4 and ISR Part C, Section 7.

- Lower River site was moved from Trapper Creek to Montana Creek (IP Section 2.1.3). See ISR Part A, Section 4.2.4.1.
- Sampling at the FA-173 (Stephan Lake Complex) upland slough replaced by small unnamed tributary mouth (FERC SPD, B-181). Lack of permission to access Cook Inlet Regional Working Group (CIRWG) land in 2013 prevented sampling at the upland slough site. However, in 2014, land access for CIRWG lands was permitted, and this upland slough site was sampled (RP-173-5) while the unnamed tributary mouth was retained (RP-173-1). See ISR Part A, Section 4.2.4.2.
- Plankton tows were conducted at 5 still water sites instead the potential total of 11 recommended by FERC (FERC SPD, B-188). See ISR Part A, Section 4.5.1.1.
- Dry weights for macroinvertebrate taxa will be estimated using length-weight relationship data from UAF (RSP Section 9.8.4.3; IP Section 2.2.2.). See ISR Part A, Section 4.4.3.4.
- Stable isotope site selection was increased from the original two stations (3 sites each) to four stations, sampling 16 sites total (IP Section 2.11.1; FERC SPD, B-201). See ISR Part A, Section 4.7.3.1.
- Macrohabitat-specific subcutaneous dye marking was not used to track movements of juvenile chinook, coho or rainbow trout less than 60 mm long (FERC SPD, B-199). See ISR Part A, Section 4.7.3.2.
- Fish stomach content samples were not assessed in the field as to whether the stomach was empty or not (IP Section 2.8.1.). See ISR Part A, Section 4.9.1.1.
- Dry weights for prey items in stomach contents will be estimated using length-weight relationship data from UAF (IP Section 2.8.2.). See ISR Part A, Section 4.9.1.2.

In 2014, AEA also implemented several modifications as described in the ISR Part C, Section 7. Because a Study Plan Determination regarding the proposed modifications detailed in the ISR was delayed, the implementation of the following modifications are described here as variances to the approved Study Plan:

- Arctic Grayling juveniles and adults were added as target species/lifestages as part of the 2014 field collection efforts for the trophic modeling and stable isotope analysis objectives in accordance with the modification proposed in the ISR Part C, Section 7.1.2.4.
- Arctic Grayling juveniles and adults were added as target species/lifestages as part of the 2014 field collection efforts for the Fish Diet Analysis objective in accordance with the modification proposed in the ISR Part C, Section 7.1.2.5.
- Nine Susitna River tributaries and three lake systems were sampled as part of the 2014 field collection efforts *“to characterize the pre-Project benthic macroinvertebrate communities, with regard to species composition and abundance, and algal production in selected Susitna River tributaries and lake systems located above Devils Canyon,”* as was proposed as a modification in the ISR Part C, Section 7.1.2.7.

7. STUDY PLAN MODIFICATIONS

7.1. Modifications Identified in ISR

Section 7 of the ISR (Part C) details modifications for this study following the 2013 study season. These modifications are generally summarized as follows:

- Carrying forward all 2013 variances reported and discussed within the ISR Part A, Section 4 and ISR Part C, Section 7.1.2. (and summarized above in Section 6.1). This modification was partially implemented in 2014, with the variances stated in Section 6.2.
- A redesign of the adult insect emergence traps to provide increased floatation and to improve anchoring and deployment methodology, thus minimizing losses and improving AEA’s ability to evaluate insect emergence, as proposed in the ISR Part C, Section 7.1.2.1.
- The addition of Arctic grayling juveniles and adults as target species/lifestages to the Study Plan to aid in the development of bioenergetics models by providing new fish growth and foraging information for the models and stable isotope analysis efforts that lacked adequate samples in 2013, as proposed in the ISR Part C, Section 7.1.2.4. This modification was implemented as a variance in 2014, as stated in Section 6.2.
- The addition of Arctic grayling as a target species to address the lack of fish diet samples collected from target fish species at FA-173 (Stephan Lake Complex) and FA-184 (Watana Dam), as proposed in the ISR Part C, Section 7.1.2.5. This modification was implemented as a variance in 2014, as stated in Section 6.2.
- Change colonization sampling to investigate the overall differences in colonization rates and compositions among the five macrohabitat types within River Productivity sites, instead of by turbidity and temperature conditions. This would establish a main channel site, a side channel site, a side slough site, an upland slough site, and a tributary

mouth/clearwater plume site, essentially adding one upland slough site to 2013 sampling efforts. This modification was proposed in the ISR Part C, Section 7.1.2.6.

- Add an extra collection of six Hester-Dendy sampler sets at a main channel site at increasing depth increments to record the effects of stage changes and exposures along the main channel's fluctuating shoreline. This collection of samplers would be deployed for 4-6 week periods, resulting in a potential of two or three collections over the open water period. This modification was proposed in the ISR Part C, Section 7.1.2.6.
- AEA will collect benthic macroinvertebrate and algal samples once during the summer period in riffle habitats within nine selected tributaries located above Devils Canyon in the Middle and Upper Susitna River basin, based on Barrick et al. (1983; APA Doc. 522), in order to characterize the productivity of these habitats within these tributaries under their current, baseline condition, with the stated objective to characterize the pre-Project benthic macroinvertebrate communities, with regard to species composition and abundance, and algal production in selected Susitna River tributaries and lake systems located above Devils Canyon. This modification was proposed in the ISR Part C, Section 7.1.2.7. This modification was implemented as a variance in 2014, as stated in Section 6.2.

7.2. Modifications Identified since the June 2014 ISR

As detailed in the Study Implementation Report, AEA plans no modifications of the methods for this study.

8. STEPS TO COMPLETE THE STUDY

In light of the variances and modifications described above, the steps necessary for AEA complete this study are summarized below. As necessary and appropriate, these steps have been updated from those appearing in the ISR Part C, Section 7.

AEA plans to complete all remaining data collection and analysis for this study for the following activities:

- Characterize the pre-Project benthic macroinvertebrate and algal communities with regard to species composition and abundance in the Middle and Lower Susitna River (RSP Sections 9.8.4.2, 9.8.4.3, and 9.8.4.4) as modified in ISR Part C, Section 7.1.2.1.
- Evaluate the suitability of using reference sites on the Talkeetna River (RSP 9.8.4.6), pursuant to a decision point based on 2013 results, as described in ISR Part C, Section 7.1.1. Should the decision be made to continue with an additional season of collections from the Talkeetna Station sites, the methods for sampling will be employed as described in the Study Plan, with modifications incorporating variances described in ISR Part A, Section 4.6.1. See ISR Part C, Section 7.1.2.3.
- Develop habitat suitability criteria for Susitna benthic macroinvertebrate and algal habitats (RSP Section 9.8.4.10), with no modifications.

- Characterize organic matter resources in the Middle and Lower Susitna River (RSP Section 9.8.4.12), with no modifications.
- Estimate benthic macroinvertebrate colonization rates in the Middle Susitna River Segment under pre-Project baseline conditions (RSP Section 9.8.4.13) as modified in ISR Part C, Section 7.1.2.6.