# comprehensive Data delivery README FILE

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| **Study Section** | Study 9.7: Salmon Escapement  |
| **Study Component** | Radio Telemetry Tracking in the Lower, Middle, and Upper Susitna River Hydrologic Segments |
| **Field Date Range** | May 25, 2012 ─ October 30, 2014 |

**Introduction:** The overall goal of Study 9.7 is to characterize the distribution, abundance, habitat use, and migratory behavior of all species of adult anadromous salmon (*Oncorhynchus* spp.) across mainstem river habitats and select tributaries above the Three Rivers Confluence (i.e., confluence of the Susitna, Chulitna, and Talkeetna rivers). Study 9.7 is focused on spawning salmon with the potential to be affected by construction and operation of the proposed Susitna-Watana Hydroelectric Project (Project) in Alaska.

Eight specific objectives have been developed for Study 9.7, a few of which include multiple tasks. Radio tracking survey data collected as part of Objectives 1 and 2 will be used to provide a baseline characterization of salmon spawning locations, migratory behavior, and timing. These data will support the identification and evaluation of potential Project-induced effects on fish assemblages, and inform development of any necessary protection, mitigation, and enhancement measures.

**Data Summary:** This multi-year study was implemented from 2012 through 2014. Radio tags were applied to salmon collected at Lower and Middle River fishwheel locations and fish were tracked spatially and temporally. Coded-radio signals from tags implanted in fish were recorded by fixed-station or mobile positioning with each signal receiving a time/date stamp. Mobile surveys were flown at least every 5 days in the Middle River and less frequently in the Lower River. To aid study design and analysis the study area was divided up into unique mobile and stationary monitoring zones. These data, in conjunction with habitat descriptions, allowed characterization of migratory behavior and final destinations for salmon in mainstem habitats (main channel, slough, side channel, and tributary mouths) and tributaries. Spawning or final locations of tagged fish were used to determine the number and proportion of the tagged fish of each species using mainstem habitats.

The Radio Tracking data file contains information on the individual fish that were tagged (species, tag code, frequency), plus information on tagging locations, mobile and stationary monitoring zones, and an operational summary table. The operational summary table is a condensed version of raw radio receiver detections and includes tag information, location, a detection time span, number of detections, channel, code, power, and mortality signal. Additional details regarding telemetry data filtering are provided in the October, 2015 Study Completion Report and March, 2013 Study Report. All three years and all hydrologic river segments are stored in this single data file.

Data were collected in accordance with the methods outlined in the Final Study Plan for 9.7 with the exception of the variances identified in the ISR Part D (November 2015). Data management followed the QA/QC protocol described in the Implementation Plan ultimately resulting in a relational database of radio tracking data collected for the Susitna-Watana Project.

Data have undergone 5 levels of data quality control (QC), named QC1 to QC5. The QC levels, briefly, are as follows:

* QC1–Field Review: Review of field forms before leaving the field, or the QC level of raw data collected via field equipment such as thermistors, cameras, GPS units, etc.
* QC2–Data Entry: Data from paper forms are entered into an electronic format and verified.
* QC3–Senior Review: Final review by senior professional before submitting field data to AEA, or the QC level of raw data cleaned up for delivery to AEA.
* QC4–Database Validation: Tabular data files are verified to meet Project database standards.
* QC5–Technical Review: Data revision or qualification by senior professionals when analyzing data for reports.

**Data Organization:**  The Radio Telemetry Tracking data are delivered as an MS Excel workbook, and includes data for Lower, Middle, and Upper Susitna River Segments. The data file is accompanied by data dictionaries for information such as table and attribute descriptions and relationship keys.

**Software Considerations:** MS Excel or compatible software is needed for the Tracking database.

**Online Data Link:** Folder Radio\_Telemetry at <http://gis.suhydro.org/SuWa/09-FISH/9.07-ESCAPE/>

and File 9\_FAQ\_Database\_Data\_Dictionary\_20170630.pdf at <http://gis.suhydro.org/SuWa/09-FISH/00/FAQ_Data_Documentation/>

**Online Report Link:** AEA has prepared several documents with data pertaining to this study component. However, because database QC is an ongoing process, the most recent version of the data found through the hyperlink above may supersede the results reported in study documents. Copies of the datasets used for analysis in the ISR and SIR are available through the hyperlink found at the beginning of the results section (Section 5). To aid review, study documents using this study component are listed below. Each of these documents is accessible on AEA’s Project licensing website (<http://www.susitna-watanahydro.org/type/documents/>) or through FERC’s eLibrary system (<http://www.ferc.gov/docs-filing/elibrary.asp>), in Docket No. P-14241.

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| **Title** | **Date** | **Description** | **Link** |
| Adult Salmon Distribution and Habitat Utilization Study | 3/4/2013 | This report describes the methods and results of the 2012 study implementation for the Salmon Escapement Study. | [Mar. 2013 TM for Study 9.7](http://www.susitna-watanahydro.org/wp-content/uploads/2013/02/2012-Adult-Salmon-Distribution-and-Habitat-Utilization-Study1.pdf) |
| Distribution of Spawning Susitna River Chinook *Oncorhynchus tshawytscha* and Pink salmon *O. gorbuscha*, 2012 | 6/20/2013 | This attachment includes ADF&G’s report on the results of Chinook and Pink salmon radio telemetry in the Susitna River in 2012. | [June 2013 TM for Study 9.7](http://www.susitna-watanahydro.org/wp-content/uploads/2013/05/AEA_2012_SusitnaChinookPinkSalmonDistrib_2013_0513.pdf) |
| Draft Initial Study Report for Study 9.7 | 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 9.7. This draft ISR was later republished as Part A of the final ISR. | [Draft ISR Part A for Study 9.7](http://www.susitna-watanahydro.org/wp-content/uploads/2014/01/09.07_ESCAPE_ISR_Draft.pdf) |
| Initial Study Report for Study 9.7 | 6/3/2014 | This document is the Initial Study Report (Parts A, B and C) for Study 9.7. 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 9.7](http://www.susitna-watanahydro.org/wp-content/uploads/2014/05/09.07_ESCAPE_ISR_PartA.pdf)[ISR Part B for Study 9.7](http://www.susitna-watanahydro.org/wp-content/uploads/2014/06/09.07_ESCAPE_ISR_PartB.pdf)[ISR Part C for Study 9.7](http://www.susitna-watanahydro.org/wp-content/uploads/2014/06/09.07_ESCAPE_ISR_PartC.pdf) |
| Salmon Escapement Study (Study 9.7), 2014 Implementation and Preliminary Results Technical Memorandum | 9/30/2014 | This attachment includes a report describing the methods and variances related to 2014 implementation of the Salmon Escapement Study, and preliminary results. | [Sept. 2014 TM for Study 9.7](http://www.susitna-watanahydro.org/wp-content/uploads/2014/09/09.07_ESCAPE_TM_Short-Version_new.pdf) |
| Initial Study Report –Part D for Study 9.7 | 11/6/2015 | The purpose of Part D to the Initial Study Report for Study 9.7 is to report on any additional implantation of the Study Plan from June 2014 to the end of the 2014 calendar year. | [ISR Part D for Study 9.7](http://www.susitna-watanahydro.org/wp-content/uploads/2015/11/09.07_ESCAPE_ISR_PartD.pdf) |
| Salmon Escapement Study, Study Plan 9.7, Study Completion Report | 11/6/2015 | This report described methods, variances and results for 2014 study year, along with synthesis of findings from the full 3 years of implementation (2012-2014) for salmon escapement study. | [SCR for Study 9.7](http://www.susitna-watanahydro.org/wp-content/uploads/2015/11/09.07_ESCAPE_SCR.pdf) |
| Salmon Escapement Study, Study Plan 9.7, Errata to Study Completion Report  | 2/23/2016 | This is a supplementary document to the SCR with updated results, tables, and figures to address inconsistencies found in the 2014 Study Completion Report and the Study 9.7 QC3 database | [Errata to SCR for Study 9.7](http://www.susitna-watanahydro.org/wp-content/uploads/2016/02/09.07_ESCAPE_SCR_Errata_20160223.pdf) |
| Response to Comments on the Initial Study Report, Study 9.7, Section 2.6.3 | 10/24/2016 | This document contains AEA’s responses to agency’s comments and study modification requests in regards to their review of the ISR.  | [AEA ISR Comment Response for Study 9.7, Section 2.6.3](http://www.susitna-watanahydro.org/wp-content/uploads/2016/11/ISR_Response_OCT_2016.pdf) |

**[[1]](#endnote-1)**

1. **Data Distributor Contact Information:**

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