# comprehensive Data delivery README FILE

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| **Study Section** | Study 9.7: Salmon Escapement |
| **Study Component** | Aerial Spawner Surveys |
| **Field Date Range** | July 24, 2012-August 19, 2014 |

**Introduction:** The overall goal of Study 9.7 is to characterize the distribution, abundance, habitat use, and migratory behavior of fives 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); however, secondary goals focus on the distribution, abundance, and migration of adult Chinook Salmon throughout the entire Susitna River and the Coho Salmon distribution and abundance in the Susitna River upstream of the Yentna River. The component of Study 9.7 related to this data set was focused on Chinook Salmon. Study 9.7 in general focuses on the potential of spawning anadromous salmon 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. Aerial survey data were collected as part of Objectives 3and 6 and will be used to provide a baseline characterization of Chinook Salmon spawning locations, migratory behavior, and run timing within and upstream of Devils Canyon. These data will support the identification and evaluation of potential Project-induced effects on spawning salmon, and inform development of any necessary protection, mitigation, and enhancement measures.

**Data Summary:** This multi-year study was implemented during the Chinook Salmon spawning season (July and August) 2012 through 2014. Aerial spawner surveys (by visual observation via low-flying helicopter) to determine the distribution and relative abundance of adult Chinook Salmon were conducted in Indian River and select Susitna River tributaries within and above Devils Canyon, upstream to and including the Oshetna River. In 2012 and 2013 Indian River was surveyed for observer calibration purposes. Following loss of the Indian River weir in 2014, aerial Chinook Salmon spawner surveys were conducted every third day during the spawning period (15 total) in support of Objective 6 to generate escapement estimate for Indian River and establish a mark rate that could be used to generate counts of Chinook Salmon that pass into the Upper River.

In each study year, a total of 18 streams were surveyed for spawning Chinook Salmon within and upstream of Devils Canyon; 12 tributaries to the Susitna River and six secondary tributaries. All streams were repeatedly surveyed from their confluence up to 3,000 ft in elevation, to a predetermined barrier to anadromous fish passage, or to the stream’s headwater origin, whichever came first. In 2014, two lakes in the Tsisi Creek drainage were included to the area surveyed to evaluate whether spawning salmon were present. The data collected from each survey year is stored in a separate database. The data structure consists of detailed information about survey events (date, locations surveyed, survey time, weather), and fish observations (location, species, counts).

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 aerial salmon data collected for the Susitna-Watana Project.

Data have undergone 3 levels of data quality control (QC), named QC1 to QC3. 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.

**Data Organization:**  There are three (3) separate MS Access databases of aerial survey data, one for each year. Each is accompanied by a data dictionary of table and attribute descriptions.

**Software Considerations:** MS Access 2003 or newer is needed for the aerial survey database files.

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

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.

| **Title** | **Date Filed** | **Description** | **Links** |
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| 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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