# comprehensive Data delivery README FILE

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| **Study Section** | Study 9.7: Salmon Escapement |
| **Study Component** | Sonar |
| **Field Date Range** | July 24, 2012 ─ September 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 adult anadromous 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. Sonar survey data were collected as part of Objectives 1, 3, and 4 and will be used to provide information on fishwheel effectiveness, estimates of adult Chinook salmon passing the proposed Watana Dam site, and documentation of salmon spawning locations in turbid waters. 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:** The use of the sonar study component for 9.7 was implemented from 2012-2014 at Curry to study fishwheel effectiveness and test the assumption that radio tags were deployed at the fishwheels in proportion to abundance for each species. In 2014, AEA implemented a study during the Chinook Salmon spawning migration to enumerate adults passing upstream at the proposed WA tana Dam site from July 6 to August 22. Additionally, in 2014, sonar was used to investigate salmon spawning in turbid water at suspected salmon spawning sites based on radio telemetry survey data. Data are separated into five datasets: three for fishweel observations at Curry in 2012-2014, one for observations at Watana Dam in 2014, and one for the turbid water spawning study in 2014. The data structure consists of detailed information about the deployment site (location), sonar operations (date/time, sampling window, orientation), and data review (file name, timestamps, fish lengths, direction of travel, behavior).

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 relational databases of sonar 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 five (5) separate MS Excel workbooks of Sonar data, each accompanied by a data dictionary of table and attribute descriptions.

**Software Considerations:** MS Excel or compatible software is needed for the Sonar data files.

**Online Data Link:** Folder Sonar 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) |
| 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) |
| 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) |
| 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)**

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