

Initial Study Report Meeting

Study 9.16 Eulachon Run Timing, Distribution, and Spawning in the Susitna River

October 15, 2014

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Study 9.16 Objectives

- 1) Determine eulachon run timing and duration in the Susitna River in 2013 and 2014
- 2) Identify and map eulachon spawning sites in the Susitna River
- 3) Characterize eulachon spawning habitats
- 4) Describe population characteristics of eulachon returning in 2013 and 2014

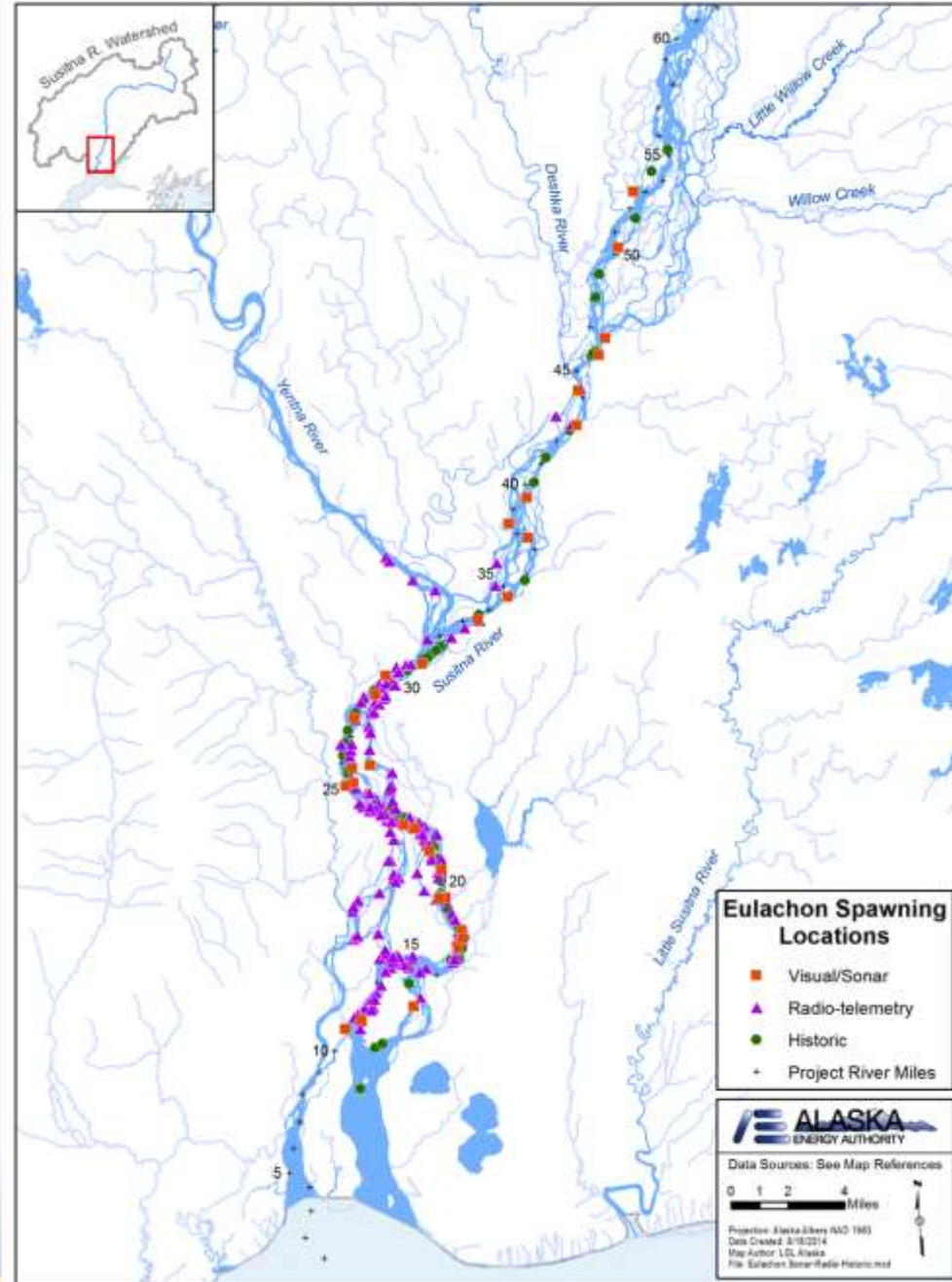
Study 9.16 Components

- Determine Eulachon Run Timing and Duration in the Susitna River (ISR Part A, Section 4.1; pg 2)
- Identification and Mapping of Potential Eulachon Spawning Sites (ISR Part A, Section 4.2; pg 7)
- Eulachon Spawning Habitat Characteristics (ISR Part A, Section 4.3; pg 12)
- Eulachon Population Characteristics (ISR Part A, Section 4.4; pg 14)

Study 9.16 Variances

- RSP Section 9.16.4.1.1: The blocking weir was removed due to flood conditions and because turbulence from the weir impeded sonar data collection
- RSP Section 9.16.4.1.3: Water velocity data were not collected at the sonar station because the data were not needed to estimate eulachon run timing
- RSP Section 9.16.4.1.2: **Fish sampling was conducted at other locations along the river**, in addition to the sonar site, to more effectively estimate catch per unit effort (CPUE) and run timing
- RSP Section 9.16.4.1.1: Sonar data collection ended on June 15 when fewer than 2 fish per minute were observed
- RSP Section 9.16.4.2.2: **Visual surveys were also used to identify spawning sites**
- RSP Section 9.16.4.3.2: Visual surveys were the primary method to characterize substrate
- RSP Section 9.16.4.3.3: A grid sampling design was not used to collect water quality information; instead, a randomized approach was used

Study 9.16 Summary of Results in ISR (ISR Study 9.16, Part A – Section 5)



AEA Proposed Modifications to Study 9.16 in ISR (ISR Study 9.16, Part C – Section 7.1.2)

- No blocking weir will be used around the sonar transducer, instead of using a blocking weir (RSP Section 9.16.4.1.1)
- **Sonar data will be collected until at least June 10** and until less than 2 fish per minute are observed, instead of monitoring until no eulachon were observed for 5 consecutive days after June 10 (RSP Section 9.16.4.1.1)
- Run timing and **population characteristics data will be collected at up to five sites**, instead of near and downstream of the fixed sonar site (RSP Section 9.16.4.1.2)
- No water velocity data will be collected at the sonar site because it is not needed to determine run timing (RSP Section 9.16.4.1.3)
- **Visual observation will be used again to collect data on substrate composition**, instead of supplementing using side scan sonar (RSP Section 9.16.4.3.2)
- Three randomized locations at each site will be measured for water velocity because grid collection is not suitable for conditions (RSP Section 9.16.4.3.3)

Study 9.16 Summary of Results Since ISR

No field activities or analyses were conducted in 2014.

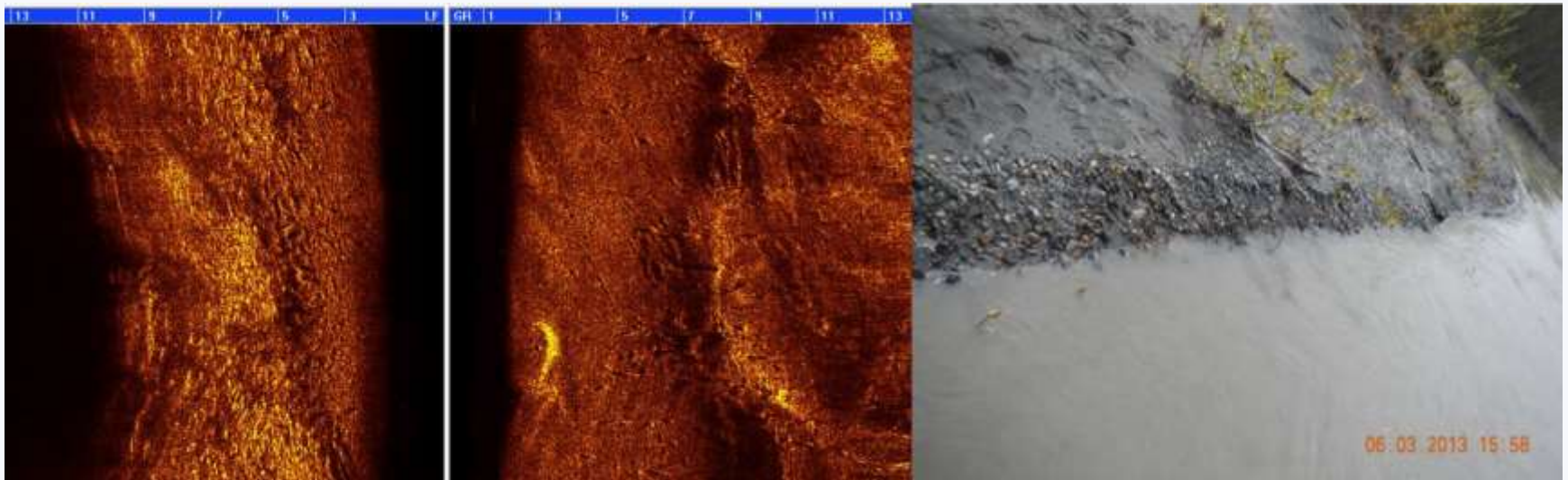
New Modifications to Study 9.16 since ISR

To inform the pre- and post-Project assessments on eulachon, and indirectly CIBW:

- Eliminate radio-telemetry as it does not provide additional information beyond that already known.
- Expand visual and sonar surveys downstream of PRM 10.5 to identify the downstream extent of spawning relative to tidal fluctuation.
- Add a flow-habitat assessment using Wetted-Perimeter modeling method (9.17 CIBW Study Implementation TM, filed September 26, 2014).

Decision Points from Study Plan

RSP indicated the study would determine the feasibility of using side-scan sonar to identify substrate composition at eulachon spawning sites.



Current Status and Steps to Complete Study 9.16 (ISR Study 9.16, Part C – Section 7.1)

- Year 1 data collection is complete.
- Year 2 of data collection in 2015 as per the RSP with modifications.
 - 1) Sonar and active sampling will be used to evaluate eulachon run timing and identify potential eulachon spawning sites.
 - 2) Visual surveys will be used to characterize eulachon spawning habitat.
 - 3) Active sampling will be used to describe eulachon population characteristics including length, weight, age and sex ratios.

Current Status and Steps to Complete Study 9.16 (ISR Study 9.16, Part C – Section 7.1)

4. Spawning Habitat Flow Model will expand on 1980's model to quantify relationship between flow, stage and eulachon spawning habitat.
 - Establish 4 transects at known spawning locations
 - Collect data on wetted perimeter transect lengths, depths discharge, surficial substrate
 - Data collect over a range of flows (high, medium, low)
 - Develop wetted perimeter-discharge relationship
 - Extrapolate flow routing results to transect location
 - Pressure transducers
 - Stage data from Susitna Station – USGS 15294350

Licensing Participants Proposed Modifications to Study 9.16?

- Agencies
- CIRWG members and Ahtna
- Public