

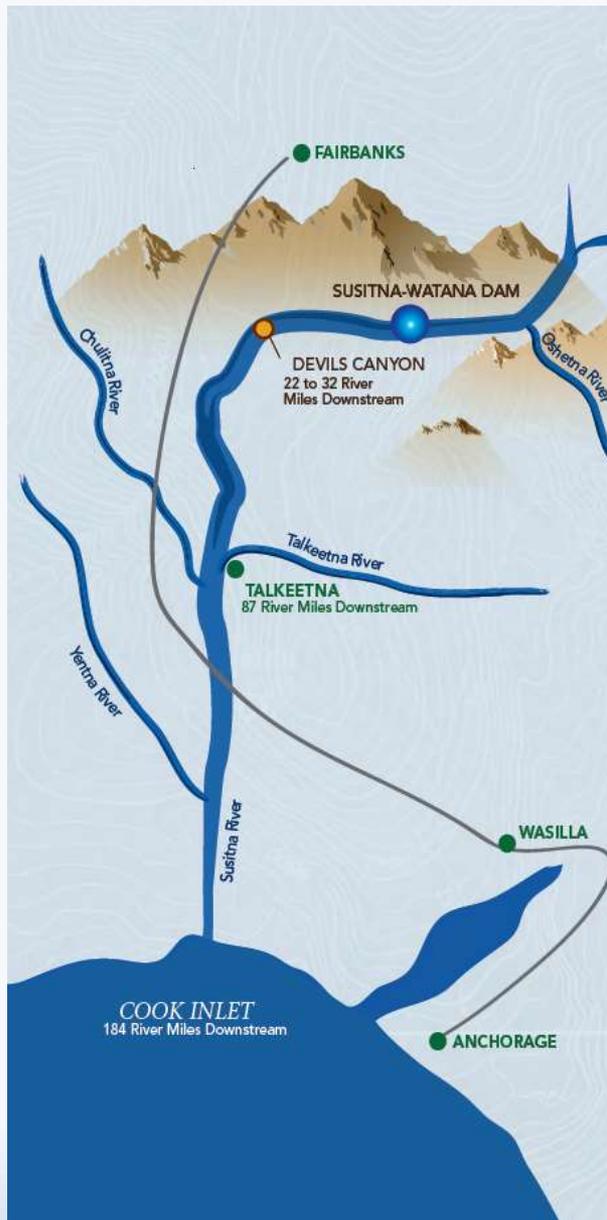
# Initial Study Report Meeting

## Study 10.18 Wood Frog Occupancy and Habitat Use

March 29, 2016

Prepared by

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Services



# Study 10.18 Status

## ISR documents (ISR Part D Overview):

- Initial Study Report: Parts A, B, and C (June 3, 2014)
- Study Completion Report (SCR) (November 4, 2015)

## Status:

- Auditory surveys of wetlands and waterbodies completed during May and June 2013 and 2014.
- Occupancy estimates completed for 2013 and 2014 surveys.
- Acoustic monitors deployed at five sites where frogs were detected on the first visit.
- **The Study Plan objectives have been met and this study has been completed.**

## Study 10.18 Objectives

- **Review existing data** on habitat use and distribution of breeding wood frogs.
- **Estimate the occupancy rate** for breeding wood frogs in suitable habitats in the study area through a combination of field surveys and habitat-occupancy modeling.
- Use information on current habitat occupancy and habitat use to estimate the habitat loss and alteration expected to occur from development of the Project.
- **Sample frogs opportunistically for the presence of the amphibian chytrid fungus**, which has been linked to amphibian population declines elsewhere.

## Study 10.18 Components

- **Auditory Field Surveys** (SCR Section 4.1, pg 7)
- **Occupancy Modeling and Habitat Associations** (SCR Section 4.2, pg 9)
- **Acoustic Monitoring** (SCR Section 4.3, pg 10)
- **Chytrid Fungus Bioassay** (SCR Section 4.4, pg 11)

## Study 10.18 Variances

- The methodology for selecting sample locations (RSP Section 10.18.4.1) was adjusted for several reasons:
  - 2013 & 2014: Habitat mapping and fish presence data were not available for the study area.
  - 2013: Access to sampling sites on Cook Inlet Regional Working Group (CIRWG) lands was not permitted, so the Gold Creek Corridor and western portion of the proposed reservoir inundation zone could not be sampled until 2014.
  - 2013 & 2014: Diurnal timing of field surveys was adjusted slightly due to logistical challenges.

## Study 10.18 Variances

- **Removed the Chulitna Corridor** from the study area (ISR Part D Overview, Section 1.3) and **added Denali East Corridor Option** to the study area (ISR Part C, Section 7.1.2).
- **Dropped opportunistic sampling of amphibian chytrid fungus** (RSP Section 10.18.4.2):
  - Based on the small sample of adult frogs captured in 2013 ( $n = 7$ ), this approach was judged unlikely to provide meaningful results for evaluating the presence/absence of chytrid fungus.
  - Discussed and agreed to at technical meeting on March 6, 2014.



# Study 10.18: Summary of Results

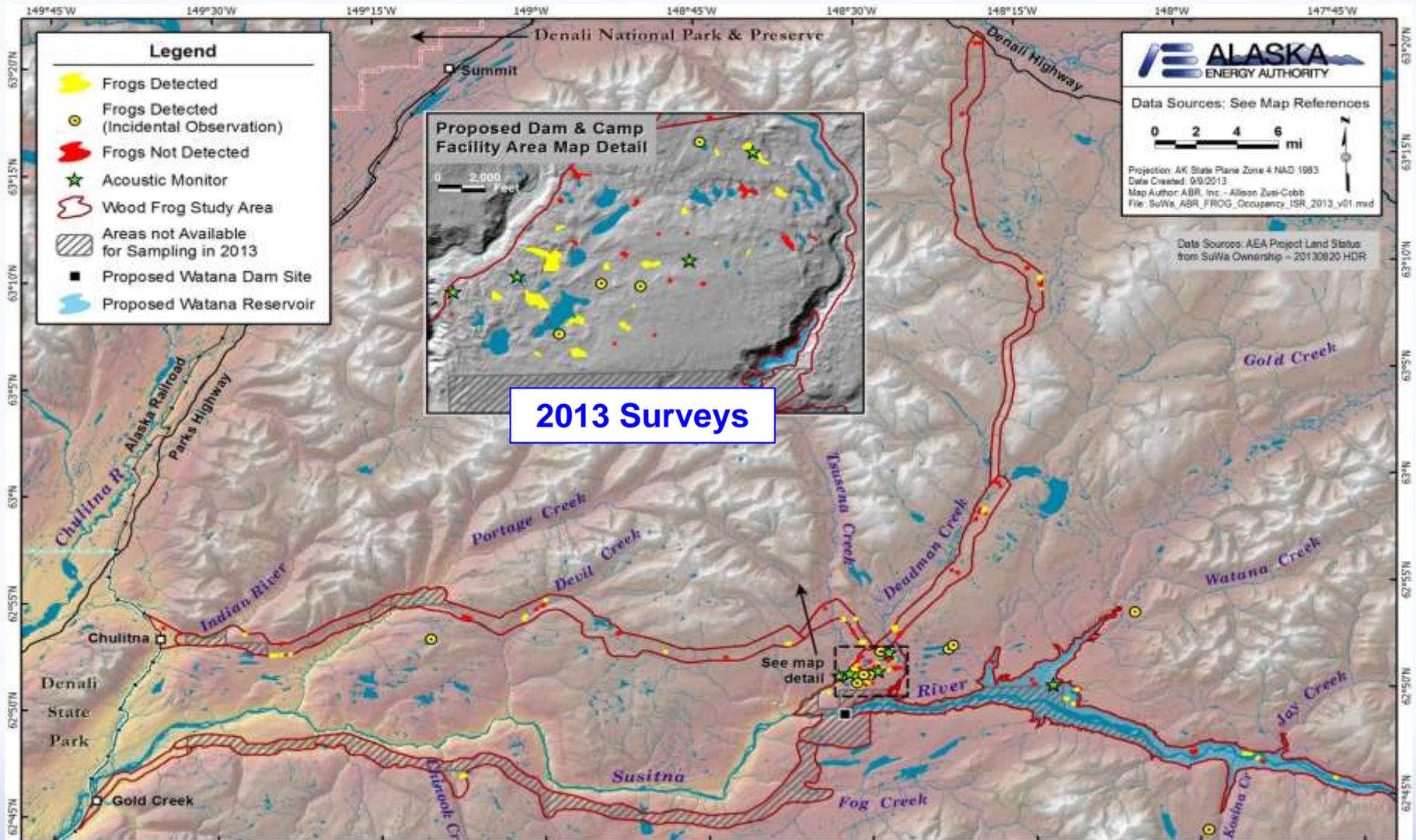
(ISR Part A, Section 5, and SCR Section 5)

## Auditory Surveys:

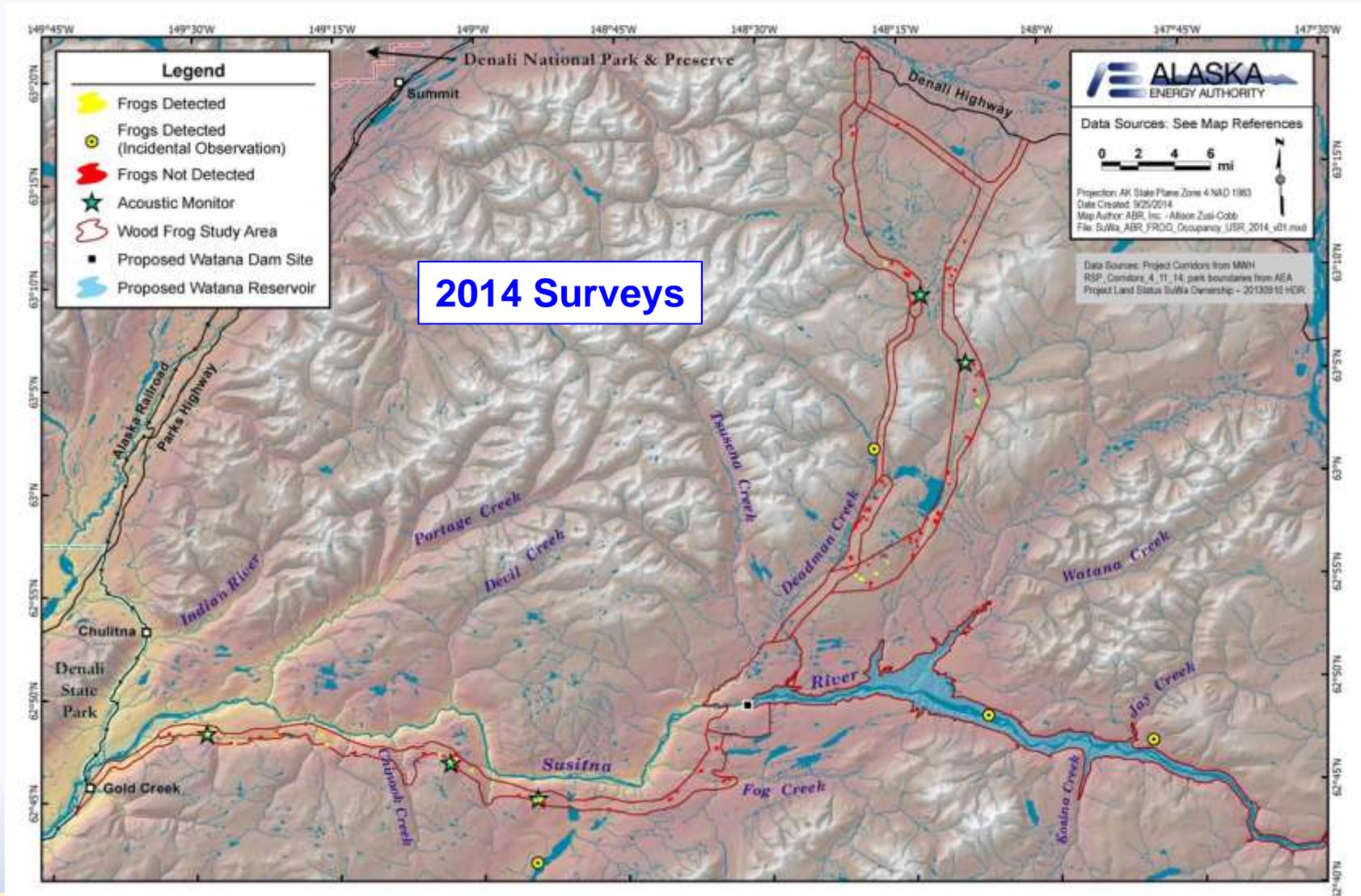
- In 2013, 90 randomly selected wetlands and waterbodies were sampled during May 30–June 8 in the proposed reservoir inundation zone, dam/camp infrastructure area, and the Chulitna and Denali West access-road corridors.
- In 2014, 104 randomly selected wetlands and waterbodies were sampled during May 20–29 in the Gold Creek, Denali West (elevations >2,500 ft asl), and Denali East access-road corridors.
- Frogs were distributed widely, from tundra to forested wetlands.
- Frogs were detected at
  - 31.0% of shallow-water (depth  $\leq 1.5$  m) locations in 2013.
  - 8.6% of shallow-water (depth  $\leq 1.5$  m) locations in 2014.
  - 70.8% of deep-water (depth  $> 1.5$  m) locations in 2013.
  - 34.7% of deep-water (depth  $> 1.5$  m) locations in 2014.
- Naïve (uncorrected) estimate of frog occupancy was 52.2% in 2013 and 20.2% in 2014.

# Study 10.18: Summary of Results

## (ISR Part A, Section 5)



# Study 10.18: Summary of Results (SCR Section 5)



# Study 10.18: Summary of Results

## (ISR Part A, Section 5 and SCR Section 5)

- **Diurnal pattern of calling activity** recorded by acoustic monitors peaked around 1:00 – 2:00 A.M., declined sharply by 5:00 A.M., then increased throughout day.
- **Estimated detectability:**
  - 2013 (best model of occupancy):
    - 60.6% in 1 visit, 84.5% in 2 visits, and 93.9% in 3 visits.
  - 2014 (best model of occupancy):
    - 56.6% (Gold Creek Corridor), 16.0% (Denali Corridor) in 1 visit.
    - 81.2% (Gold Creek Corridor), 29.4% (Denali Corridor) in 2 visits.
    - 91.8% (Gold Creek Corridor), 40.7% (Denali Corridor) in 3 visits.
- **Estimated occupancy:**
  - 2013:
    - 36.8% for shallow-water habitats (depth  $\leq 1.5$  m).
    - 81.8% for deep-water habitats (depth  $> 1.5$  m).
    - **63.4% overall.**
  - 2014 (best model with different detectability):
    - 17.9% for shallow-water habitats (depth  $\leq 1.5$  m).
    - 71.9% for deep-water habitats (depth  $> 1.5$  m).
    - **39.3% overall.**

## AEA's Proposed Modifications to Study 10.18

**AEA plans no modifications of the methods for this study,  
as this study is now complete.**

## Steps to Complete Study 10.18

**The field work, data collection, data analysis, and reporting for this study successfully met all study objectives in the FERC-approved Study Plan.**

**AEA has completed this study.**

# Licensing Participants' Comments and Proposed Modifications to Study 10.18?



- Agencies
- CIRWG members and Ahtna
- Public

