

# Initial Study Report Meeting

## Study 10.15 Waterbird Migration, Breeding, and Habitat Use

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Prepared by

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# Study 10.15 Objectives

(ISR Part A – Section 2)

- Document the occurrence, distribution, abundance, habitat use, and seasonal timing of waterbirds **migrating** through the Project area in spring and fall.
- Document the occurrence, distribution, abundance, productivity, and habitat use of waterbirds **breeding** in the Project area.
- Review available information to characterize **food habits and diets of piscivorous waterbirds** documented in the study area as background for Study 5.7 (Mercury Assessment and Potential for Bioaccumulation).

# Study 10.15 Components

## (ISR Part A – Section 4)

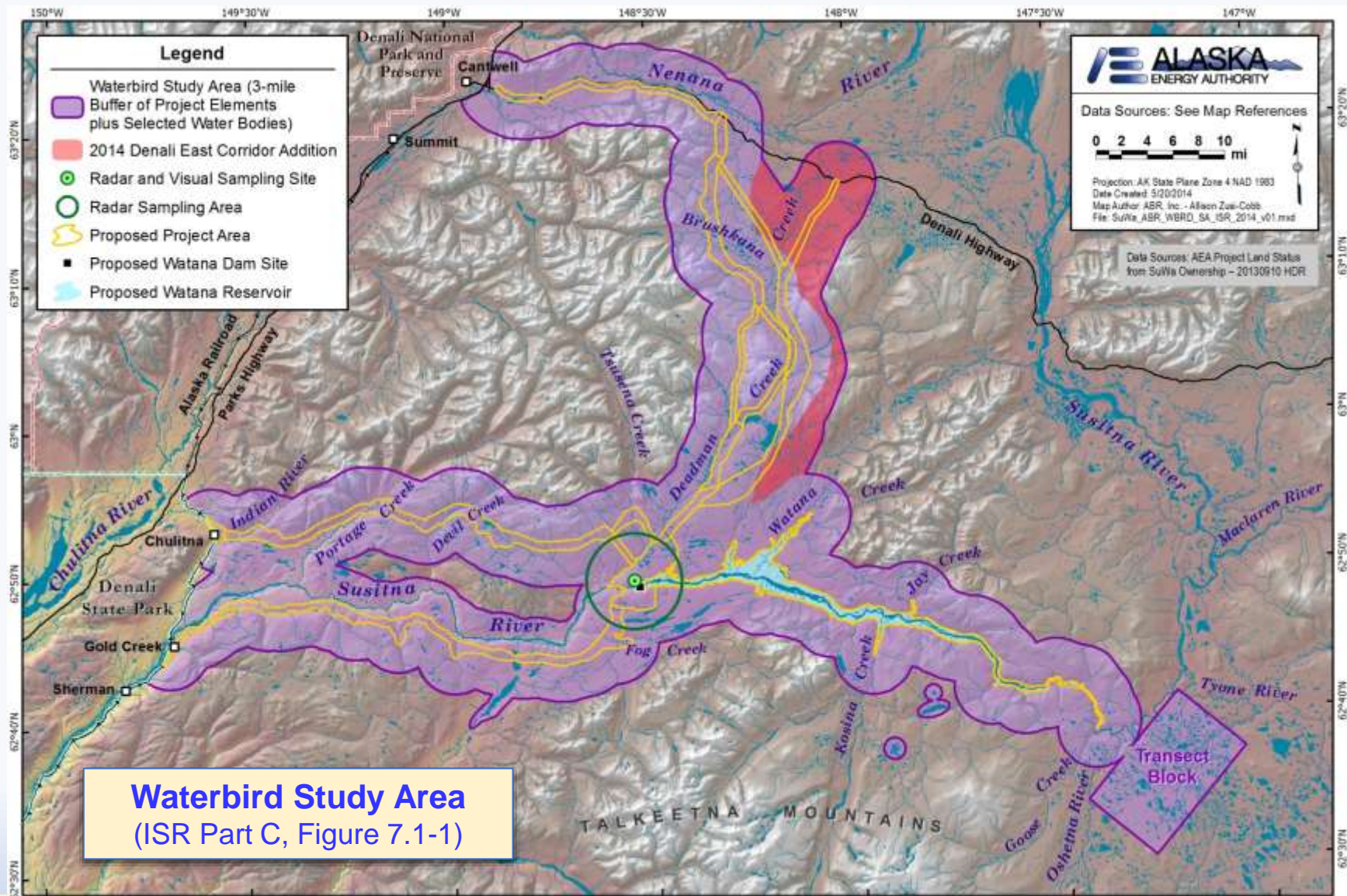
- **Spring and Fall Migration Surveys** (ISR Part A, Section 4.1):
  - Aerial surveys.
  - Ground-based radar and visual surveys (for all bird species, not just waterbirds).
- **Breeding Season** (ISR Part A, Section 4.2):
  - Breeding population surveys.
  - Harlequin Duck surveys (pre-nesting and brood-rearing).
  - Brood surveys.
- **Information for Mercury Study** (ISR Part A, Section 4.3):
  - Literature review on food habits and diets.
  - Locate nests for potential acquisition of samples (feathers, eggs) for lab analysis.

## Study 10.15 Variances

- The **number of aerial surveys flown during migration** (RSP Section 10.15.4.1.1) **was reduced** by 3 surveys in spring and 2 surveys in fall to maintain a 5-day interval between surveys, each of which typically required more than one day to complete.
- The “breeding-pair survey” proposed in RSP Section 10.15.4.2.1 was replaced with “breeding population survey,” a more inclusive survey method.
- **Harlequin Duck surveys** (RSP Section 10.15.4.2.2) **were restricted to 10 river miles beyond the study area buffer** due to logistical constraints.
- After further clarification of the ground-based visual and radar methodologies proposed in the Study Plan, the USFWS dropped its recommendation (which was accepted by FERC in the February 1 Study Plan Determination) to use 4 observers for visual surveys during migration studies, so **visual surveys were conducted using a single observer, as originally proposed** in RSP Section 10.15.4.1.2.
- The Study Plan objective to **acquire tissue samples of piscivorous waterbirds for laboratory analysis of mercury levels**, based on opportunistically finding nests during breeding aerial surveys and visiting those nests to collect feather samples (RSP Section 10.15.4.3), **was not met during the 2013 study season** because fewer nests of piscivorous waterbirds were found than anticipated in 2013.

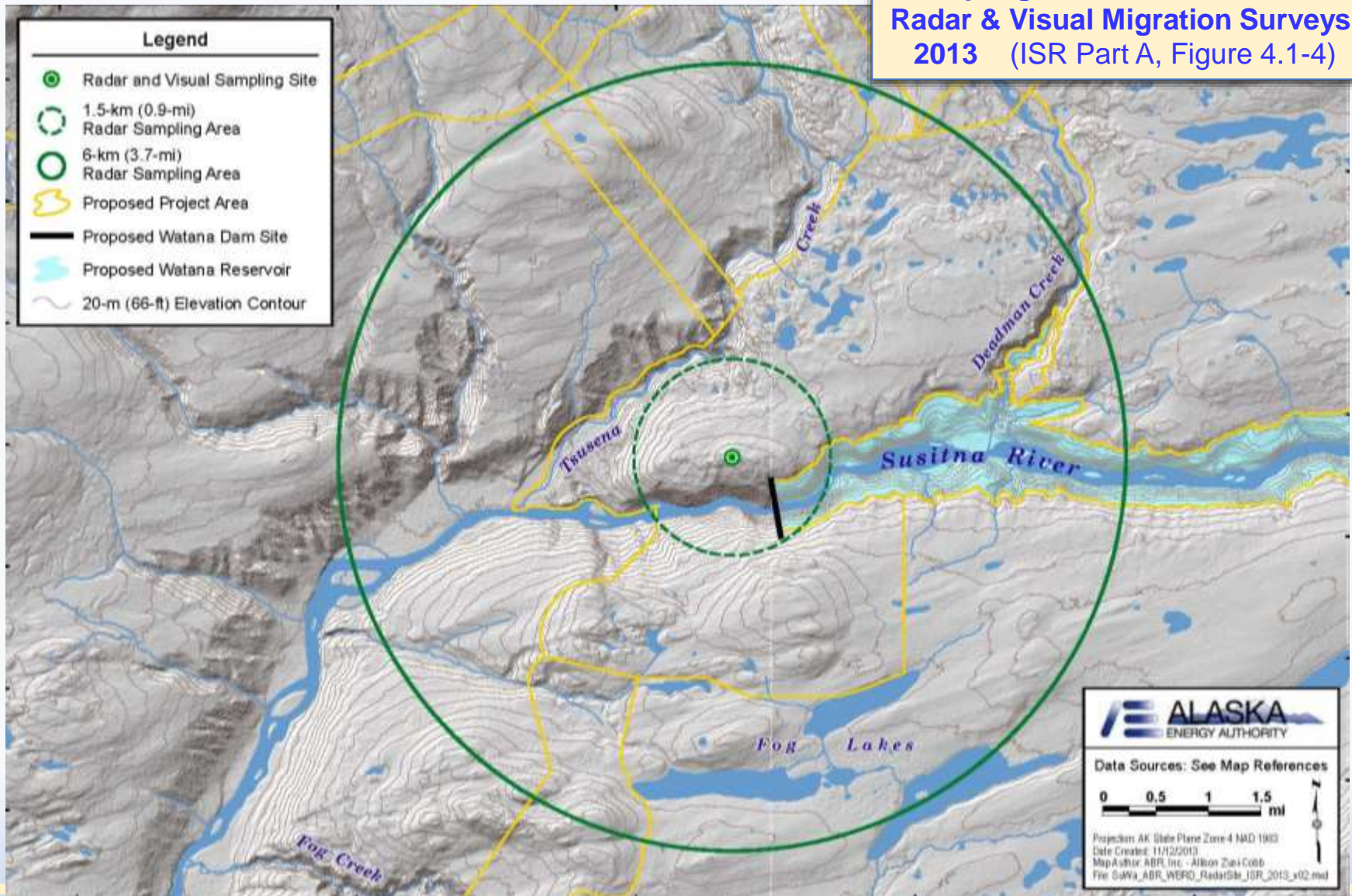
# Study 10.15 Summary of Results in ISR

## (ISR Part A – Section 5)



# Study 10.15 Summary of Results in ISR

Sampling Site for Ground-based Radar & Visual Migration Surveys, 2013 (ISR Part A, Figure 4.1-4)



# Study 10.15 Summary of Results in ISR

## Spring and Fall Migration 2013 (from ISR Part B – Appendix T, Table 1)

	Survey Type			
	Waterbird Aerial Surveys	Ground-based Visual Surveys	Diurnal Radar Surveys	Nocturnal Radar Surveys
Spring Survey Period (days / hours)	Apr 23–May 29 (7 / na)	Apr 20–Jun 3 (45 / 651)	Apr 20–Jun 3 (42 / 88)	Apr 20–Jun 3 (42 / 184)
Fall Survey Period (days / hours)	Aug 14–Oct 18 (11 / na)	Aug 16–Oct 15 (61 / 652)	Aug 16–Oct 15 (53 / 94)	Aug 16–Oct 15 (59 / 367)
Survey Area	Water bodies within 3-mi (5-km) buffer of Project area	Within 10 km of proposed dam site	Within 6 km of proposed dam site	Within 6 km of proposed dam site
Number of Survey Points	na	1	1	1
Species Recorded	Waterbirds	All	All (undifferentiated)	All (undifferentiated)
Key Results	Abundance, species composition, distribution, seasonal variation, relative importance of waterbodies	Abundance, species composition, movement rates, flight altitude, flight behavior, flight direction, seasonal and daily variation	Passage rates, flight altitude, flight direction, seasonal and daily variation, landscape patterns	Passage rates, flight altitude, flight direction, seasonal and daily variation, landscape patterns

# Study 10.15 Summary of Results in ISR

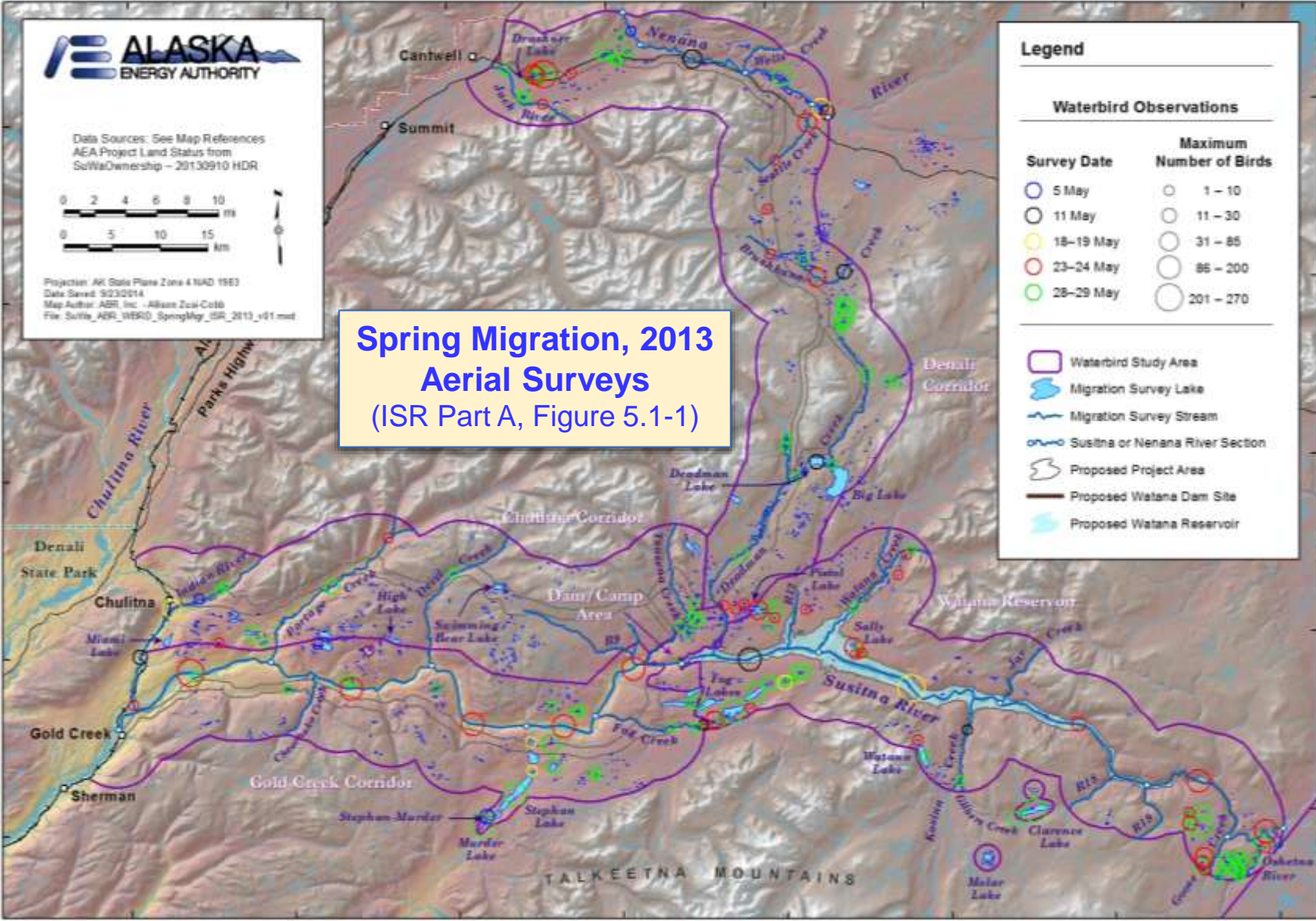
## Ground-based Visual Migration Surveys

(from ISR Part B – Appendix T, Tables 2 and 3)

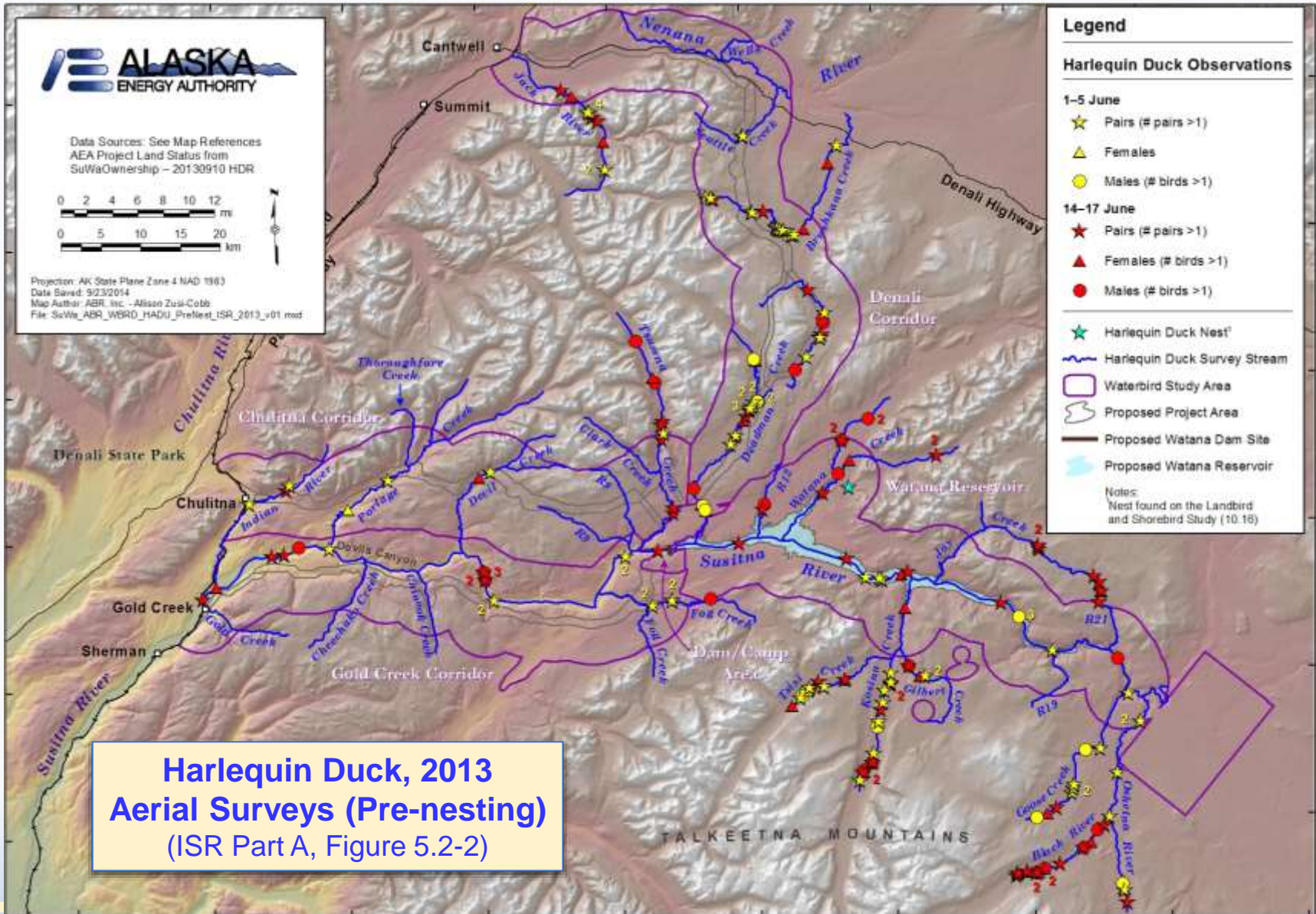
Species Group	Spring 2013		Fall 2013	
	Relative Abundance	Peak Occurrence	Relative Abundance	Peak Occurrence
Waterfowl	2,658	May 5	372	Sep 23
Swans	1,086	May 5	301	Sep 30
Geese	308	May 7	19	Oct 2
Ducks	1,136	May 28	3	Sep 28
Raptors	468	May 21	173	Sep 28
Eagles	215	May 21	52	Sep 28
Other raptors	218	May 9	108	Sep 28
Cranes	23	May 9	1,754	Sep 24
Shorebirds	1,181	May 17	0	–
Passerines	3,369	May 17	3,913	Sep 12



# Study 10.15 Summary of Results in ISR



# Study 10.15 Summary of Results in ISR



# AEA Proposed Modifications to Study 10.15 in ISR

## (ISR Part C – Section 7.1.2)

- **AEA added the Denali East Option** (access road and transmission corridor) to the study area.
- The aerial survey effort in 2014 incorporated the variances from 2013 (described in Sections 4.1.1.1, 4.2.1.1, and 4.2.2.1).
- **AEA will not conduct a second year of the ground-based migration monitoring effort in 2014 or 2015**, based on the results of the radar and visual migration surveys (RSP Section 10.15.4.1.2) conducted in 2013 and reported in Part A and in Part B, Appendix T of this ISR.
- **The objectives and methods in this study related to mercury analysis**, including the literature review of food habits and diets of piscivorous waterbirds and collection of feather samples, **have been consolidated under Study 5.7** (Mercury Assessment and Potential for Bioaccumulation).

## New Modifications to Study 10.15 since ISR

The Chulitna Corridor has been dropped from the study area.

# Study 10.15 Summary of Results since ISR

	Aerial Surveys 2014					
	Spring Migration	Breeding Population	Harlequin Duck (Pre-nesting)	Waterbird Broods	Harlequin Duck (Broods)	Fall Migration
Status	Complete	Complete	Complete	Complete	Complete	Complete
Survey Period (# Surveys)	Apr 23–May 18 (5)	May 24–Jun 6 (2)	May 24–Jun 6 (2)	Jul 9–Aug 6 (3)	Aug 1–19 (2)	Aug 24–Oct 19 (10)
Survey Area	Waterbodies within 3-mi (5-km) buffer of Project area	Waterbodies within 3-mi (5-km) buffer of Project area	Rivers up to 10 mi (16 km) outside of Project area	Waterbodies within 1-mi (1.6-km) buffer of Project area	Rivers up to 10 mi (16 km) outside of Project area	Waterbodies within 3-mi (5-km) buffer of Project area
Species Recorded	Waterbirds	Waterbirds	Harlequin Ducks	Waterbird broods	Harlequin Ducks	Waterbirds
Key Results	Abundance, species composition, distribution, seasonal variation, relative importance of waterbodies	Abundance, species composition, distribution, seasonal variation	Abundance, distribution, seasonal variation	Abundance, species composition, distribution, brood size and age, nest initiation, seasonal variation	Abundance, distribution, brood size and age, nest initiation, seasonal variation	Abundance, species composition, distribution, seasonal variation, relative importance of waterbodies

# Decision Points from Study Plan

- The Study Plan (RSP Section 10.15.6) stated that the decision to continue the ground-based radar and visual migration surveys would be based on evaluation of the results obtained in 2013, the first year of study. Further discussion with USFWS, ADF&G, and other licensing participants began in technical meetings on March 6, 2014 and will continue during the ISR meeting and comment process to assess the adequacy of the 2013 radar/visual migration surveys in fulfilling the Study Plan objectives and providing sufficient data to address potential protection, mitigation, and enhancement measures regarding migrating birds in the Project area.
- AEA considers the data obtained in 2013 to have met the objective stated in the RSP to “document the occurrence, distribution, abundance, habitat use, and seasonal timing of waterbirds migrating through the Project area in spring and fall.” The radar and visual surveys of bird movements in 2013 in the vicinity of the proposed Watana Dam site were the most comprehensive migration surveys conducted for the upper Susitna River Basin to date and the results have been compared with those of other comparable studies in interior and Southcentral Alaska in ISR Part B, Appendix T.

# Steps to Complete Study 10.15

(ISR Part C – Section 7.1)

- The Study Plan required two seasons of data collection for the aerial survey component, which was completed in 2014. Aerial surveys of waterbirds in 2014 began in mid-May and were completed in mid-October.
- Data analyses will be completed in winter 2014–2015 and the results will be combined and synthesized with those from 2013 for inclusion in the USR.

## Licensing Participants' Proposed Modifications to Study 10.15?

- Agencies
- CIRWG members and Ahtna
- Public

