



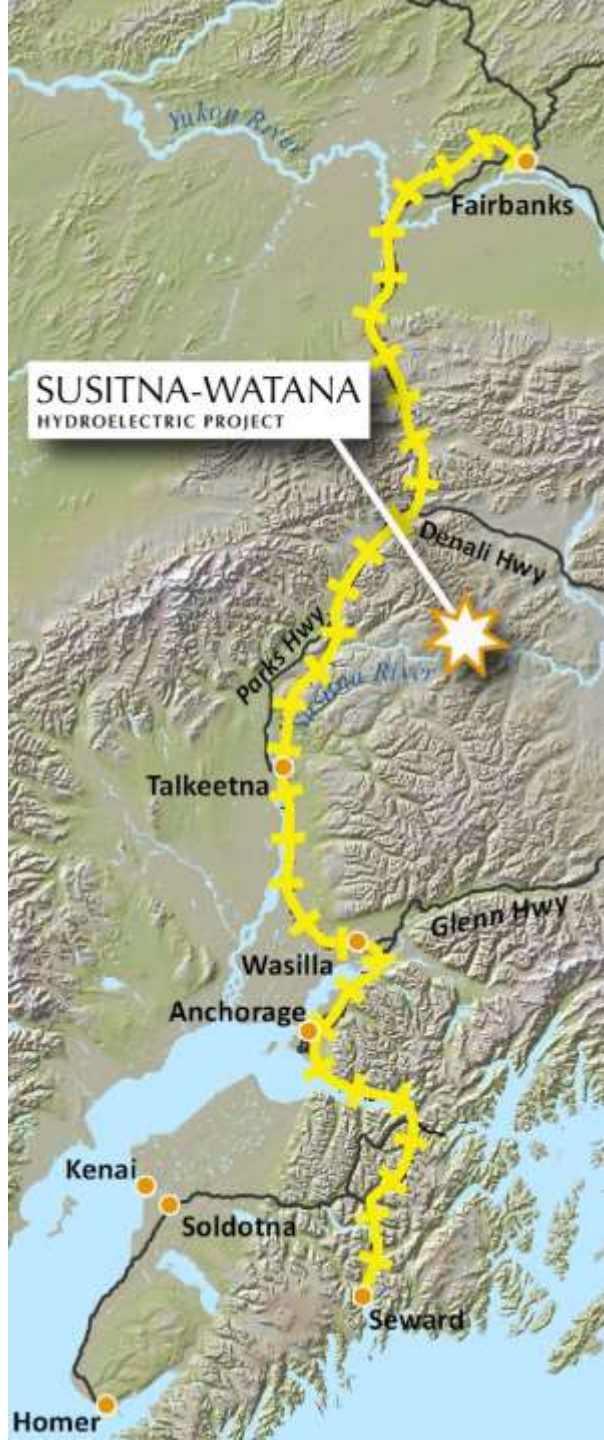
SUSITNA-WATANA HYDROELECTRIC PROJECT

Terrestrial Resources Wildlife Program

Agency Consultation Meeting on Mercury Sampling Strategies

March 7, 2014

Prepared by ABR, Inc. —
Environmental Research & Services



Background

- Many studies have documented increased mercury concentrations in fish and wildlife following the flooding of terrestrial areas to create hydroelectric reservoirs.
- Resource agencies expressed concern about mercury during study planning and filed a study request to address the issue for this project.
- RSP Section 5.7, Mercury Assessment and Potential for Bioaccumulation, was developed accordingly (being conducted by URS and Tetra Tech).
- Wildlife studies (10.11, 10.14, 10.15, 10.16) were engaged to help obtain dietary information and tissue samples from piscivorous wildlife for mercury analysis under Study 5.7.

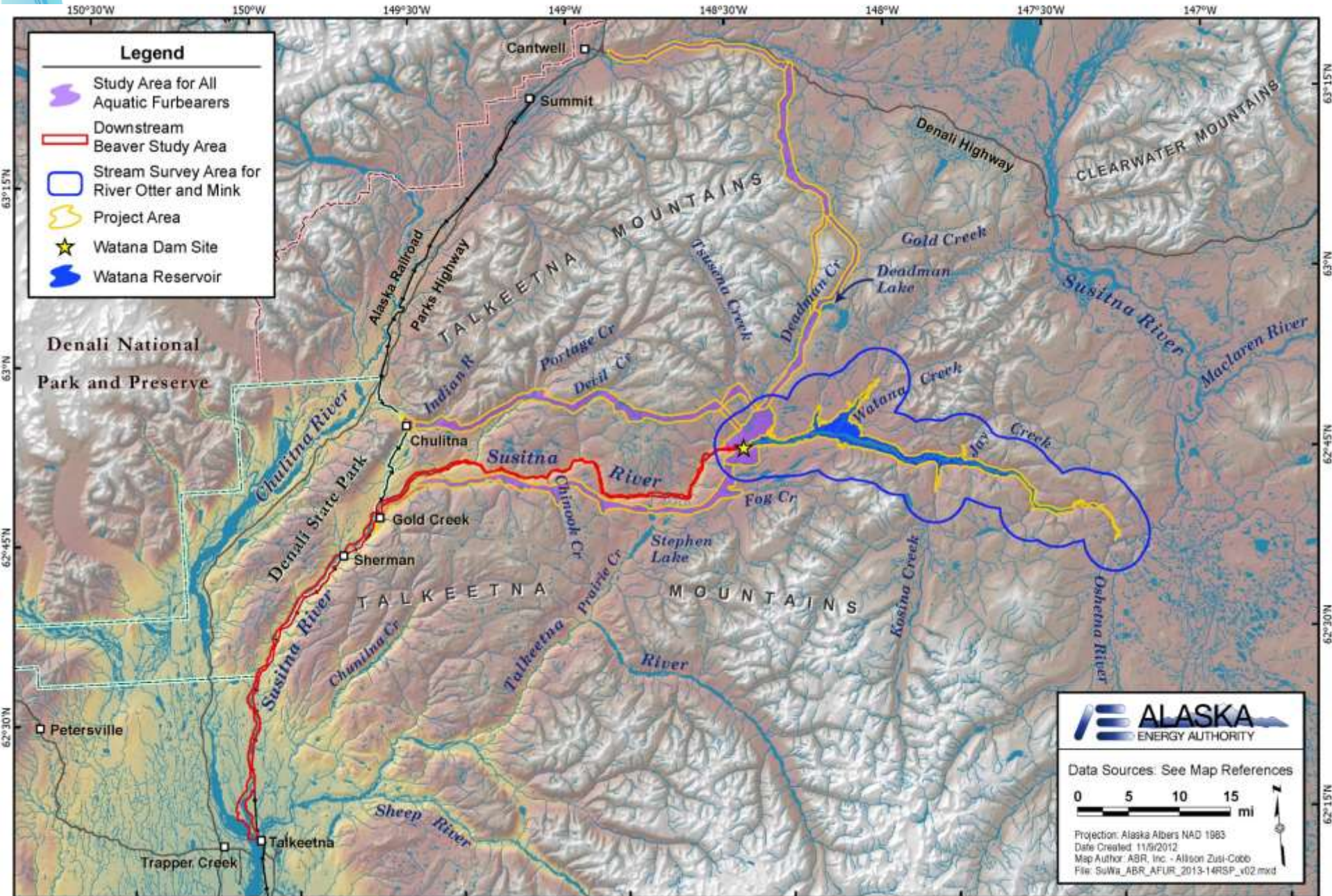


Study 10.11 — Aquatic Furbearers

- Objectives regarding mercury (RSP Section 10.11.1):
 - Review available information on food habits and diets of piscivorous furbearers (river otter and mink) for Study 5.7, Mercury Assessment and Potential for Bioaccumulation.
 - Collect hair samples from river otters and mink to characterize baseline tissue levels of mercury for the Mercury Assessment and Potential for Bioaccumulation study.
- Literature review undertaken to support mercury exposure pathways analysis, focusing on food habits and diets of river otters and mink.
- Hair-sampling methods proposed in the RSP (Sections 10.11.4.2 & 10.11.4.3):
 - *Primary*: Obtain samples from otters presented to ADF&G for sealing, as well as mink carcasses from local trappers or from marten hair-snag traps (Study 10.10, Terrestrial Furbearers).
 - *Secondary*: Obtain samples from hair-snag traps set in activity areas identified on winter track surveys by helicopter (February–April 2014).



Study 10.11 – Aquatic Furbearers

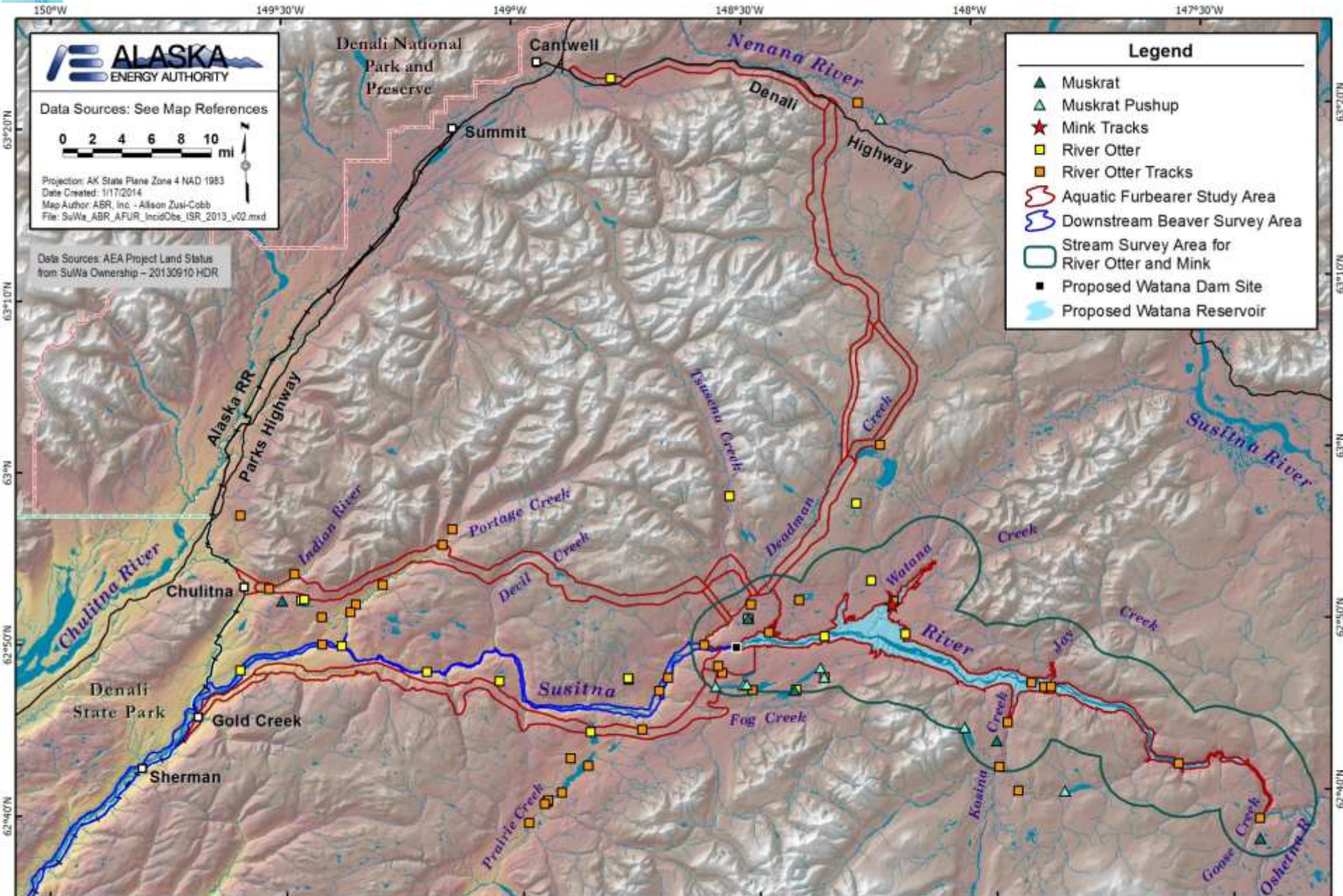


Study 10.11 — Aquatic Furbearers

- No fur samples were obtained for mercury sampling in winter 2013 because no otter carcasses were presented for sealing from the study area, no mink are known to have been taken in the area, and no fur samples of mink were obtained from marten traps in Study 10.10, Terrestrial Furbearers.
- Annual harvests of otters over 8 years (2003–2010), from ADF&G records:
 - 1–19 (mean 7.0) in Game Management Unit 13E (18,965 km²)
 - 0–9 (mean 4.3) in aggregated major units (14,643 km²)
 - 0–1 (mean 0.1) in 13 aggregated UCUs (4,477 km²), encompassing most of the Project area
- Pelts of one otter and two mink have just been purchased for analysis.
- Helicopter transect surveys of aquatic furbearers were not conducted in winter 2013, but tracks and incidental sightings of small numbers of otters and a single mink were recorded during surveys for terrestrial furbearers, raptors, and waterbirds in the study area and nearby vicinity.
- Track surveys are being undertaken in winter 2014.



Incidental Sightings of Aquatic Furbearers, 2013



Bird Studies

- 10.14 – Eagles & Other Raptors; 10.15 – Waterbirds; 10.16 – Landbirds & Shorebirds: Relevant surveys conducted in 2013, respectively—
 - Nest occupancy & productivity surveys of eagles & other raptors.
 - Migration, breeding, and brood surveys of waterbirds.
 - Point counts & riverine/lacustrine survey transects for landbirds & shorebirds, plus swallow colony survey.
- Compiled information on distribution, abundance, food habits, and diet of fish-eating birds for exposure pathways analysis in the Mercury Assessment and Potential for Bioaccumulation study.
- Planned to visit nests of piscivorous birds found in the study area to salvage feathers for mercury analysis (after breeding). To supplement collection of feathers from nests, feathers also would be sought from prey remains at nest sites of Peregrine Falcons.
- Federal & state permits are needed for feather collection — ABR currently holds a federal salvage permit & an application (as subpermittee to USFWS) for an eagle salvage permit application is in preparation.
- Other methods, such as live captures or lethal sampling, need to be considered for 2014 in because the 2013 effort did not produce usable results.



Avian Target Species from Literature Review

Raptors

- Bald Eagle — Good prospect for sampling.
- Osprey — No nests found, very few birds seen (mainly in migration).

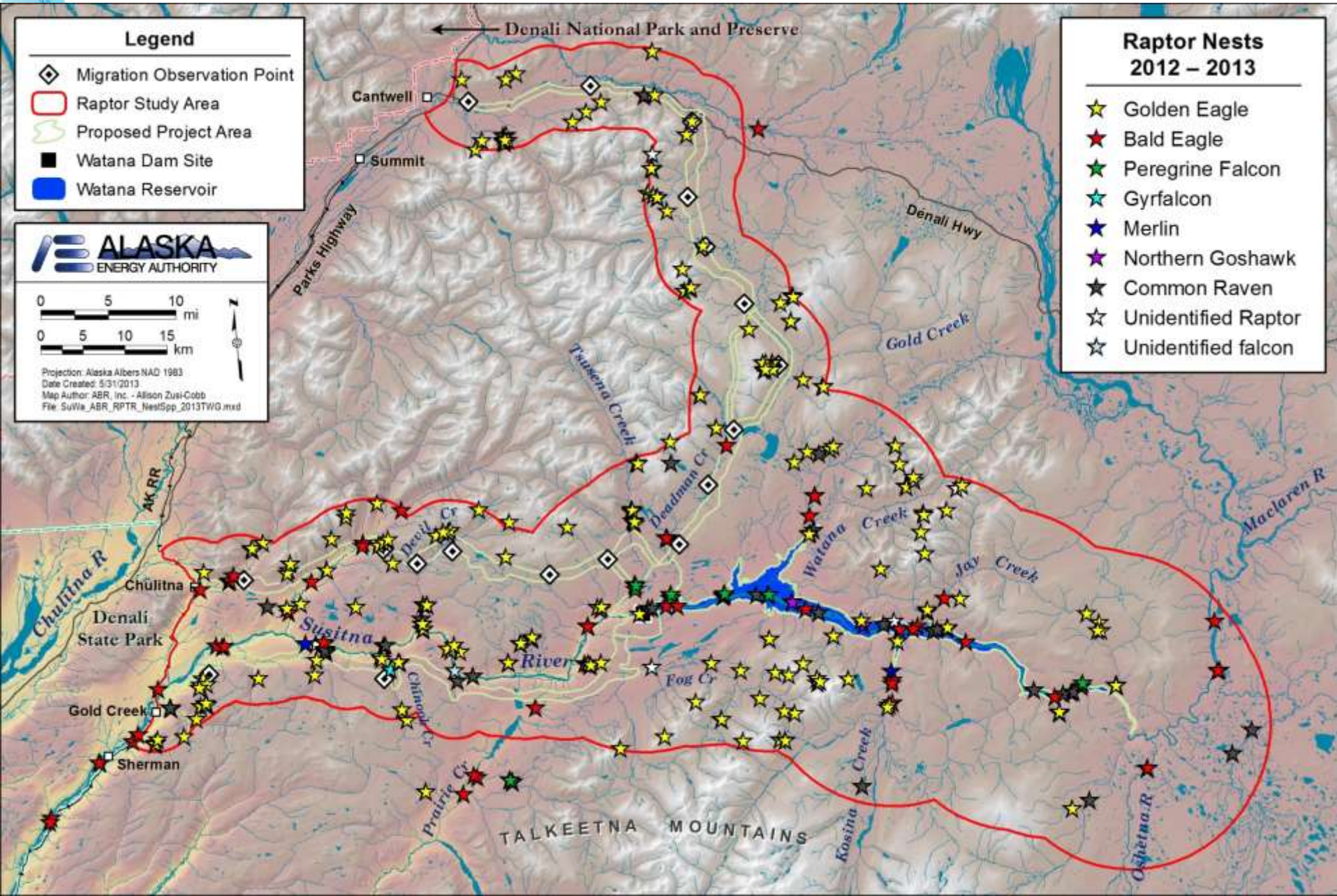
Waterbirds

- Common Loon, Red-throated Loon — Present in small numbers; one nest found.
- Common Merganser, Red-breasted Merganser — Present in small numbers; no nests found.
- Red-necked Grebe — Present in small numbers; no nests found.
- Arctic Tern — Very few present; some questions about diet.
- Bonaparte's Gull — Few present; some questions about diet.

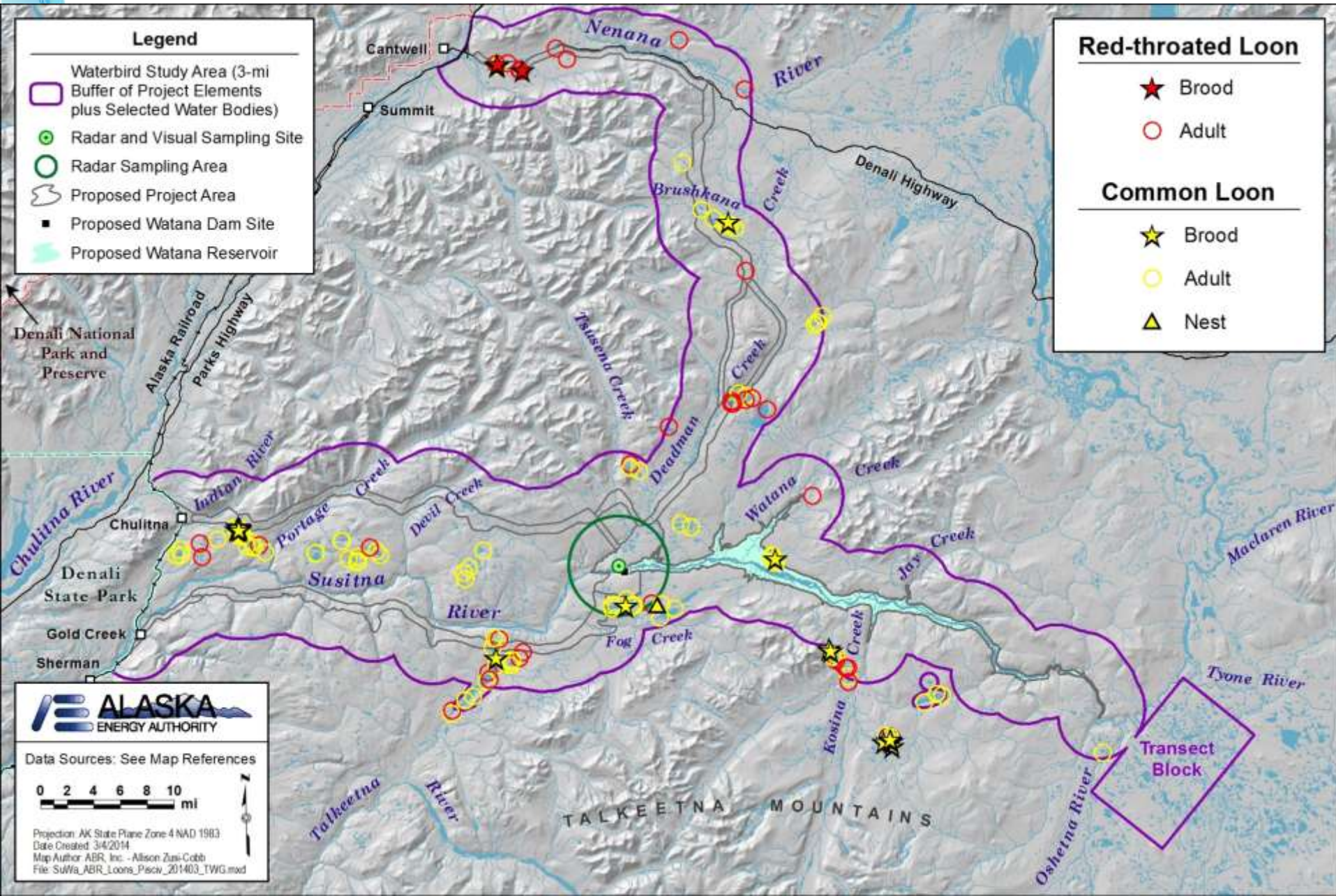
Landbirds/Shorebirds

- Belted Kingfisher — Present in small numbers; no nests found.
- American Dipper — Not a good candidate on basis of diet.
- Spotted Sandpiper — Not a good candidate on basis of diet.

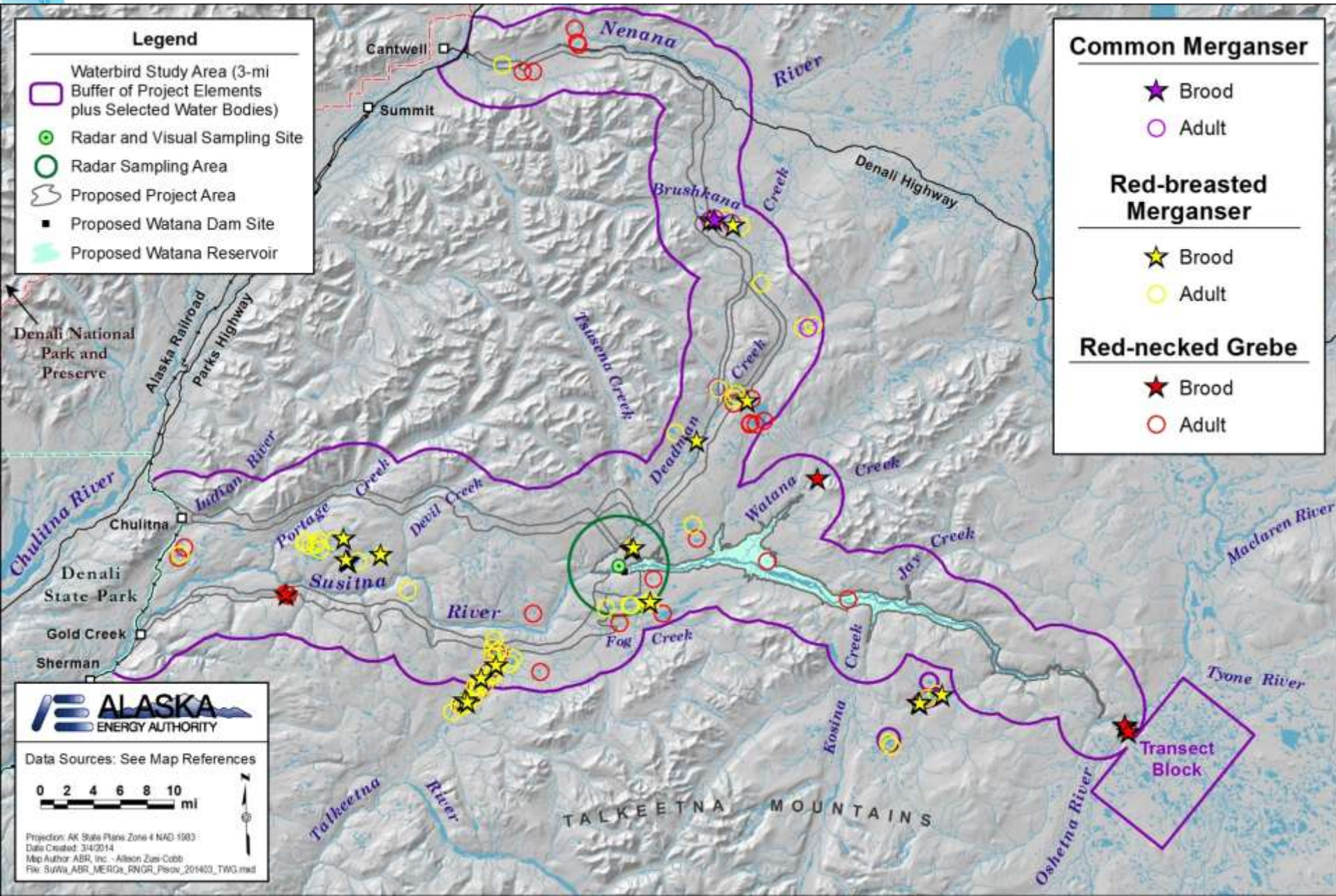
Study 10.14 – Eagles & Other Raptors



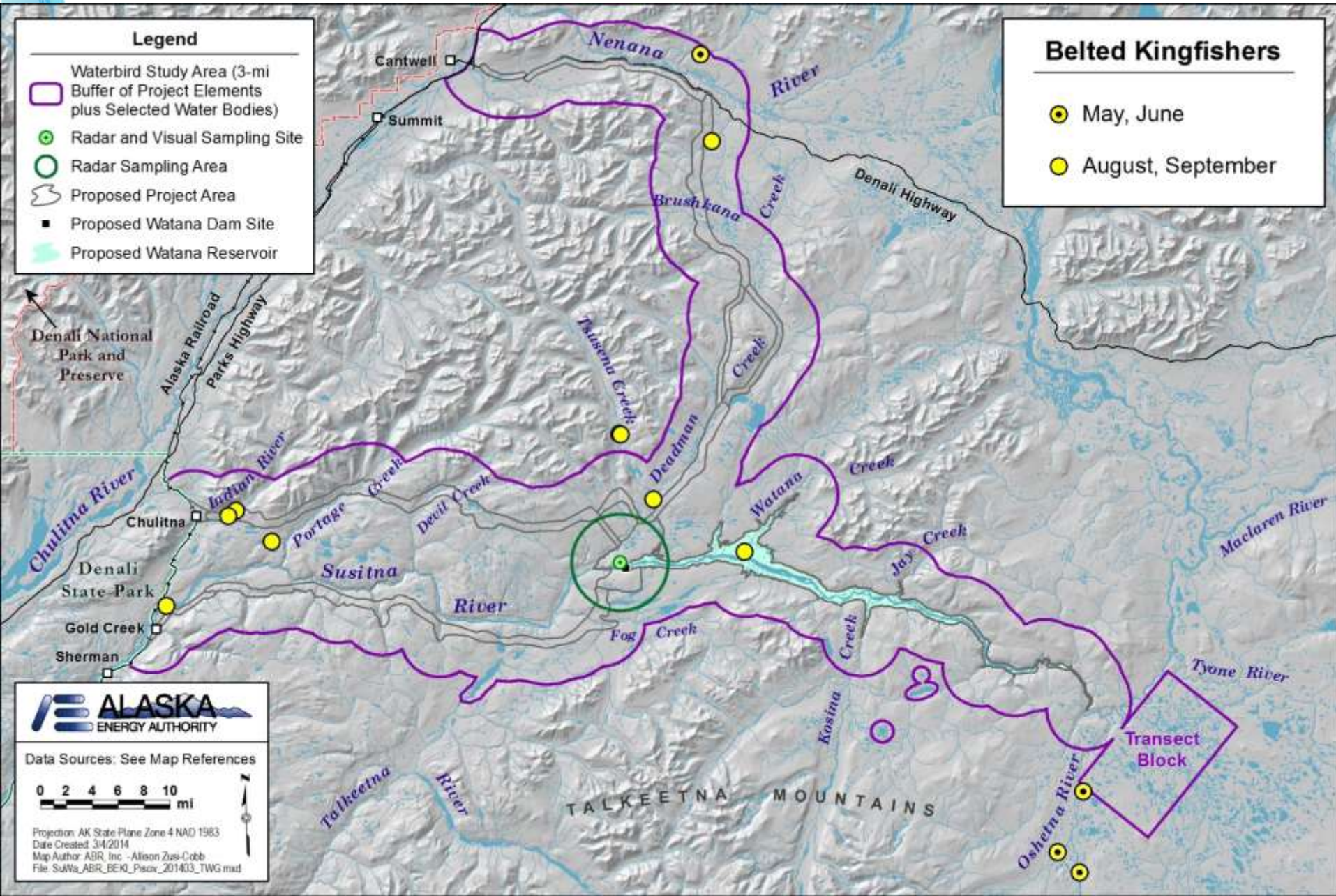
Common & Red-throated Loons



Mergansers & Red-necked Grebe



Belted Kingfisher



Possible Sampling Modifications

- Abandon feather salvage collection for species for which usable samples are not likely to be obtained.
- Reduce the number of target species to focus on those with the greatest proportion of fish in diets.
- Consider live capture and sampling of blood in lieu of, or in addition to, feathers.
- Consider lethal collection to obtain samples.
- Adequacy of sample sizes, permitting issues, and land access requirements need to be resolved.



—Break —



*River otters near Portage Creek mouth, 3 December 2013
[photo by LGL].*



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