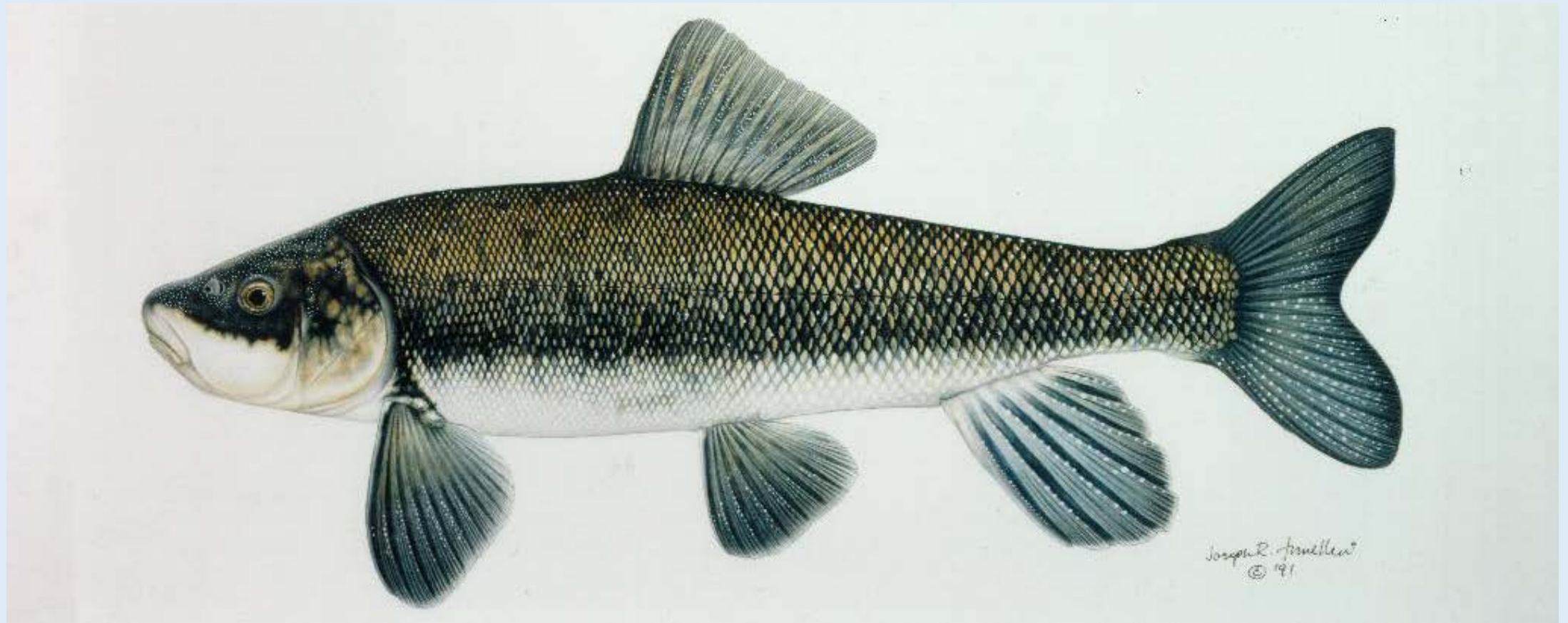


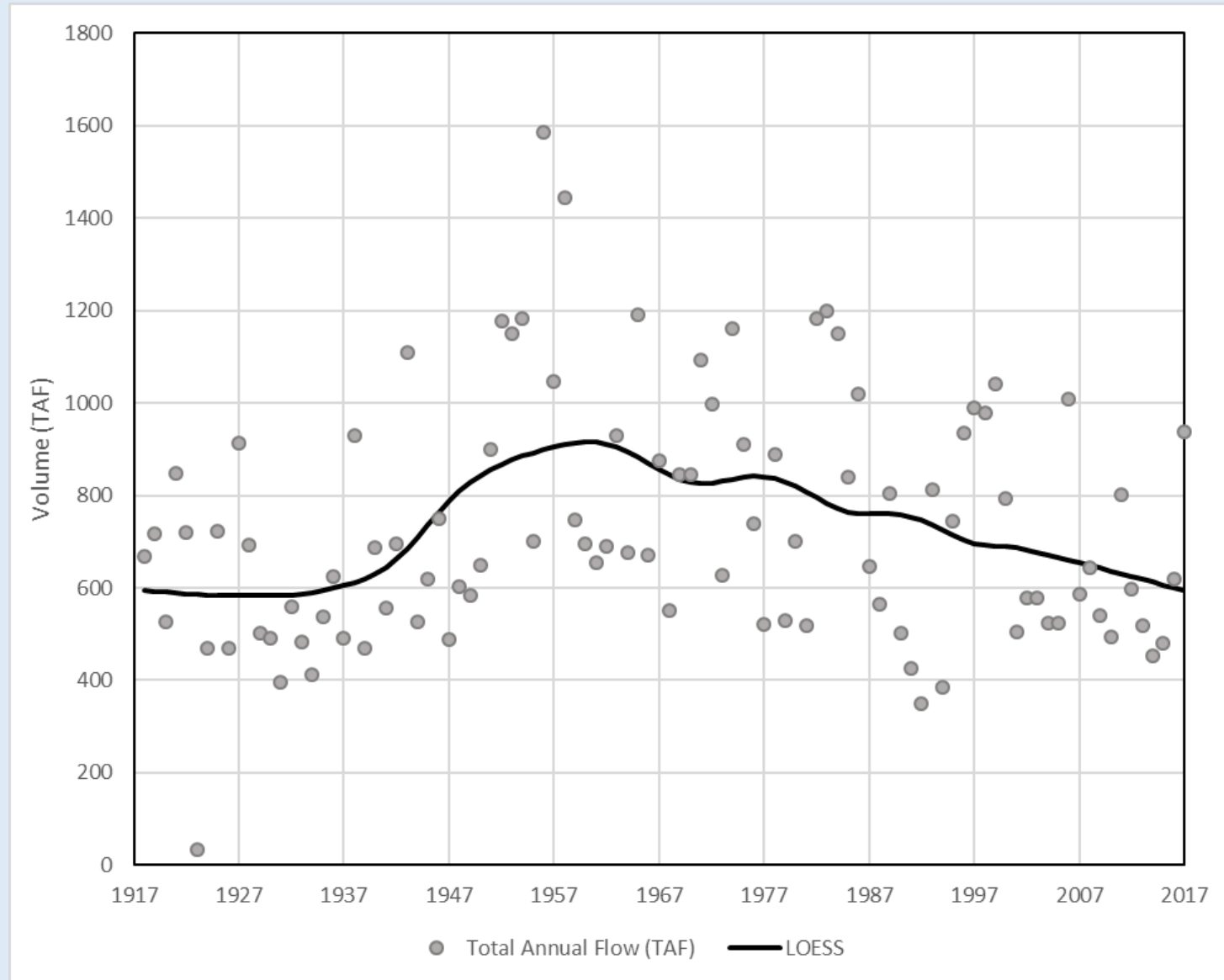
Klamath Project 2019 Biological Opinion for Lost River and Shortnose Suckers



Status of the Species

- Adults only reside in Klamath Project reservoirs
- No recruitment since 1990s
 - Declining and aging population in Upper Klamath Lake
 - Adults nearing life expectancy
- Numerous threats
 - Habitat loss
 - Lack of habitat availability
 - Water quality
 - Predation
 - Disease

UKL Historical Hydrology



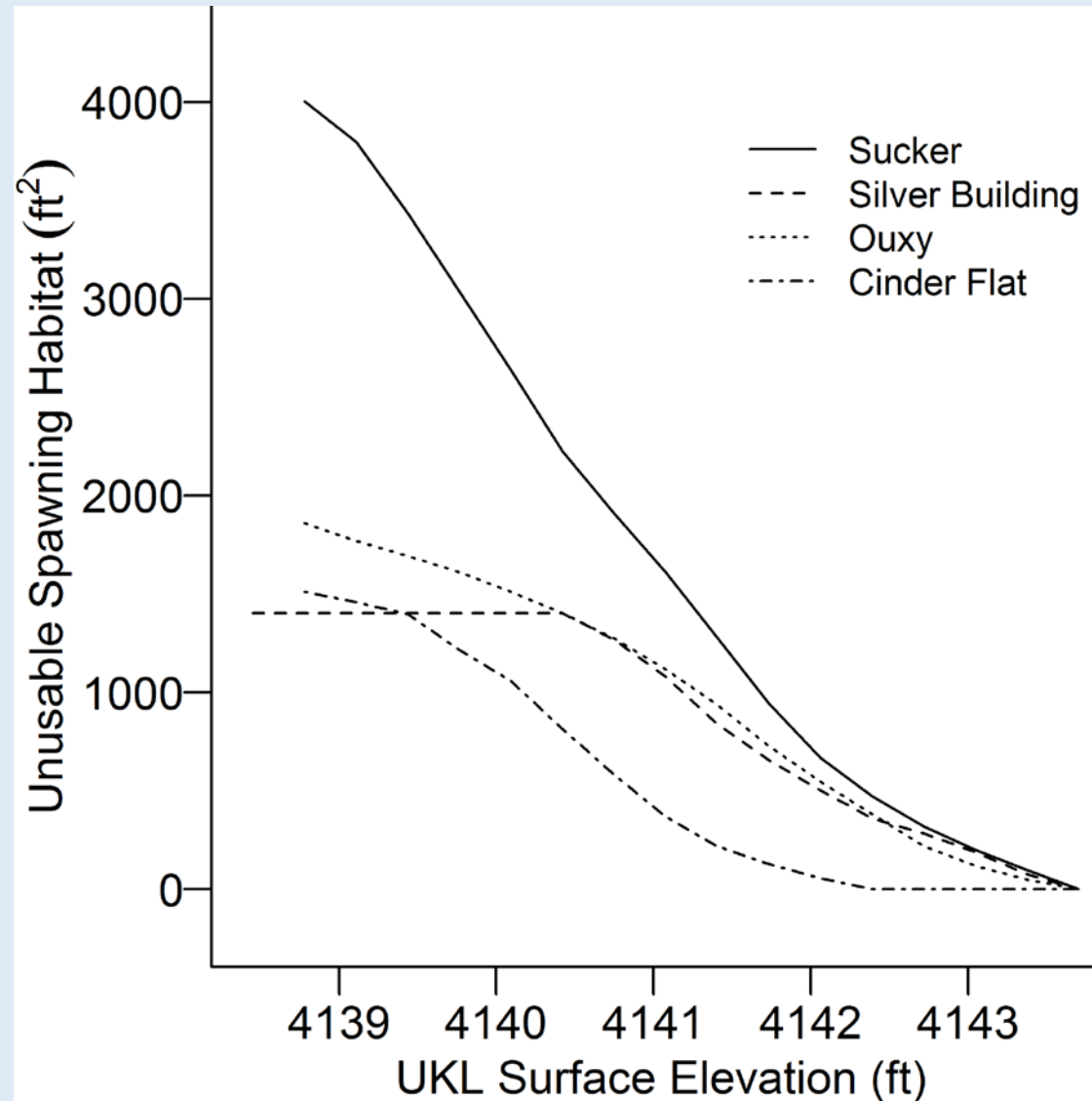
Improvements in 2019 Proposed Action over Previous Management

- More realistic models
 - Improved data sets
 - Built-in operational constraints
- In-season adjustment of UKL elevation
 - UKL Control Logic
 - UKL Credit
- Higher lake elevations
 - Aggressive winter UKL refill
 - Higher end of September targets

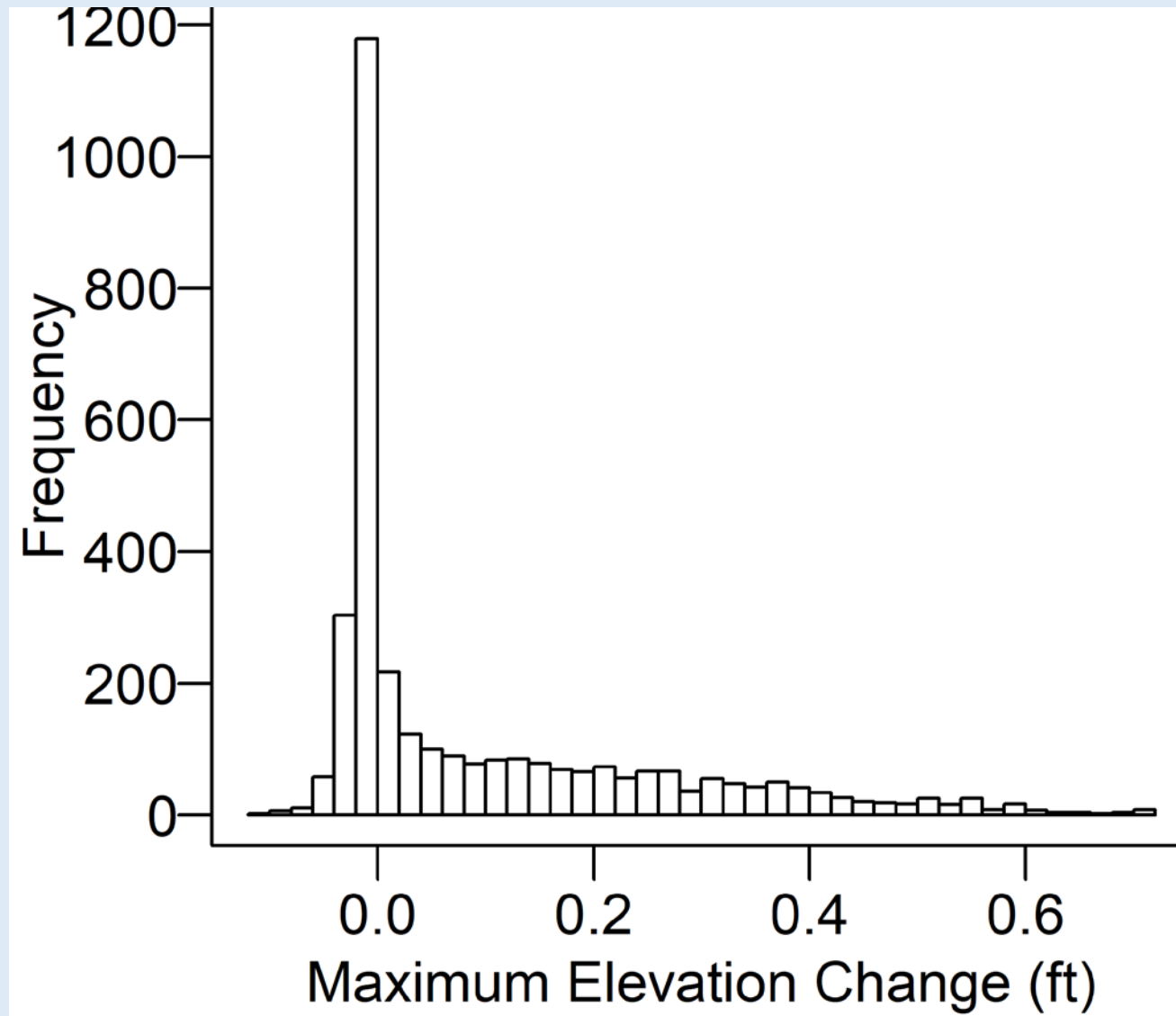
Effects Analysis

- Spawning: inundation of shoreline springs
- Eggs: dewatering
- Larvae: wetland inundation
- Juveniles: diverse habitats
- Adults: preferred depths and water quality refuge access

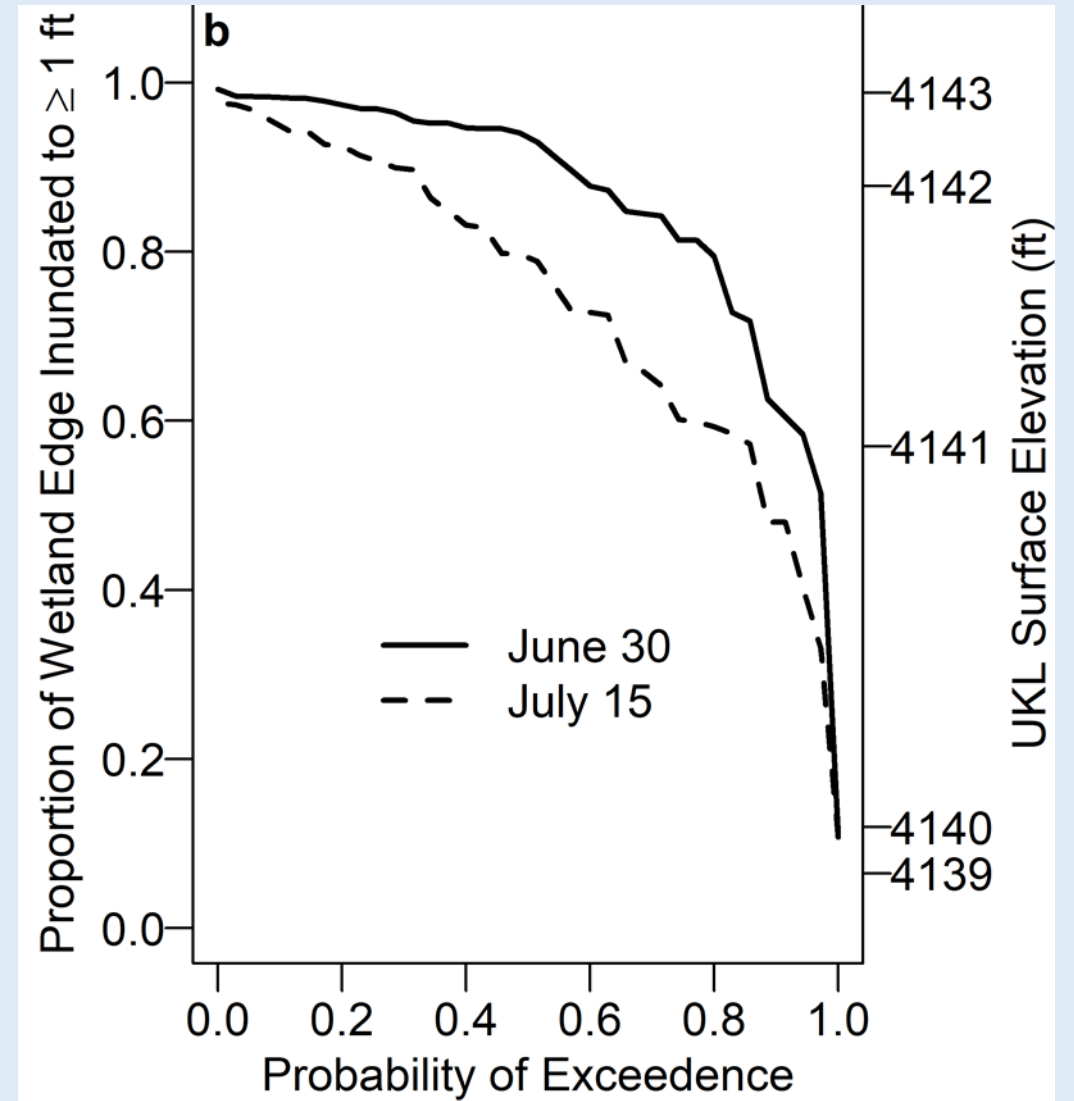
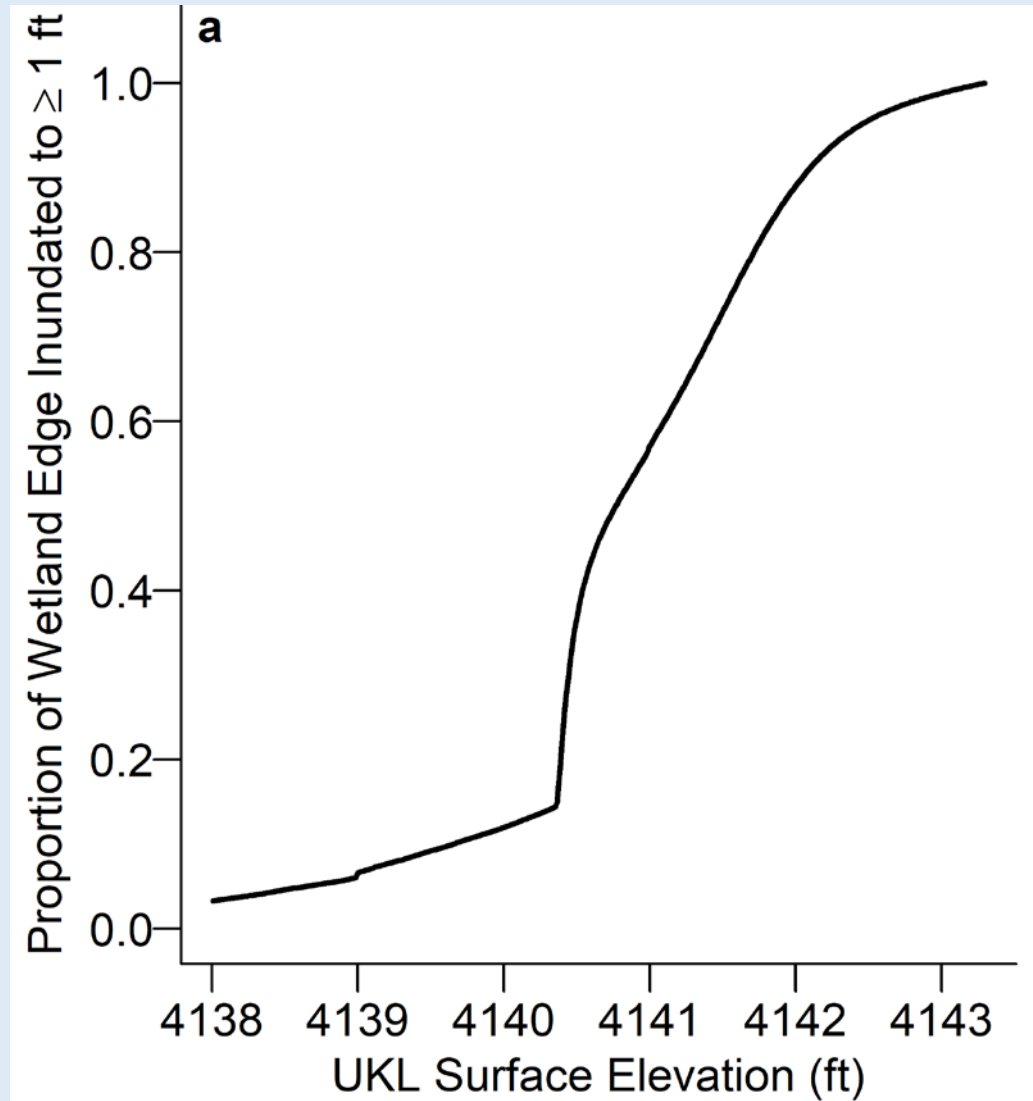
Shoreline Spawning



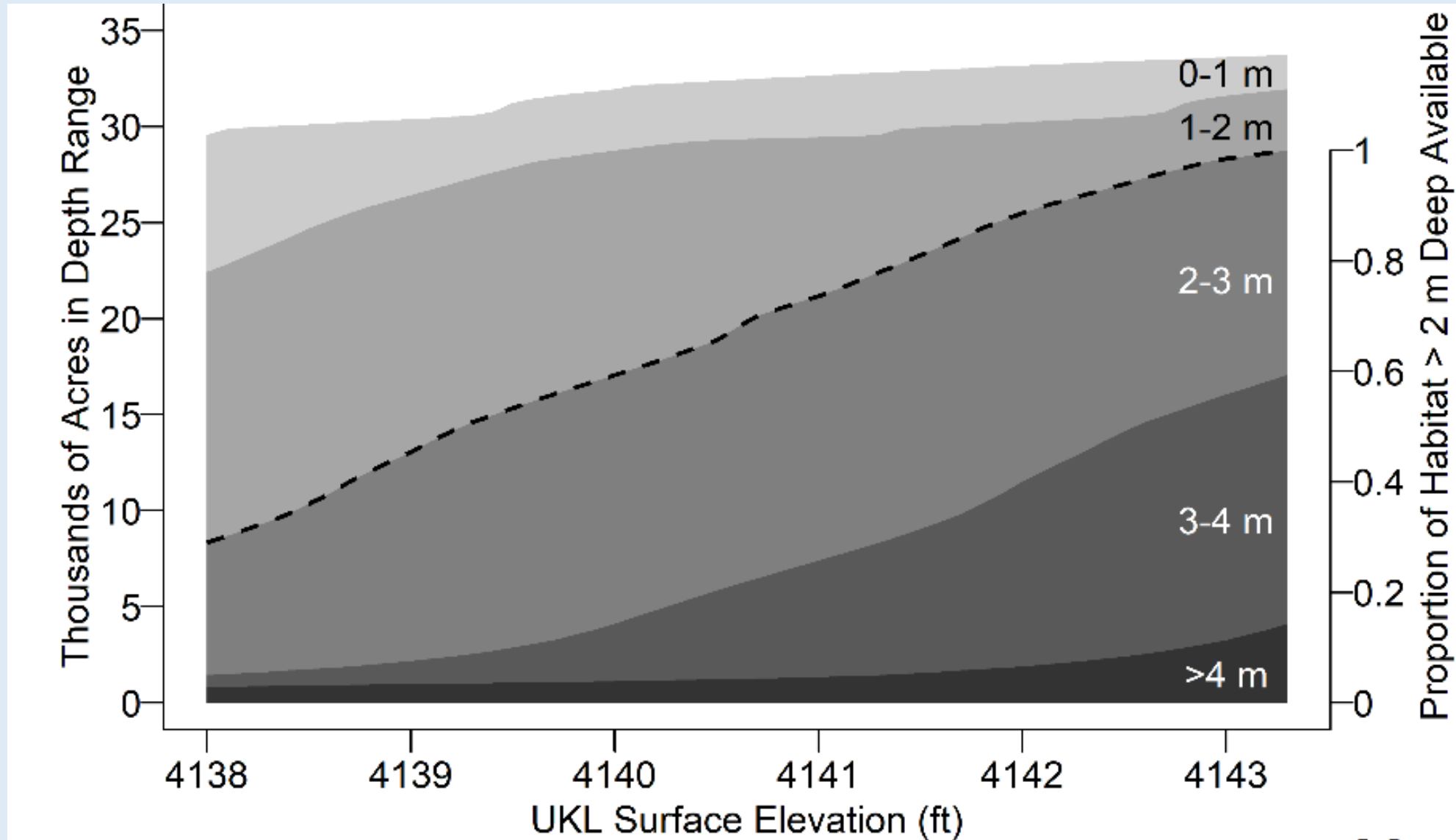
Shoreline Spawning: Eggs



Wetland Inundation



Adult Habitat





Sign in

Rocky Point

Volcanic Legacy Scenic Byway

140



Map

Google



3D

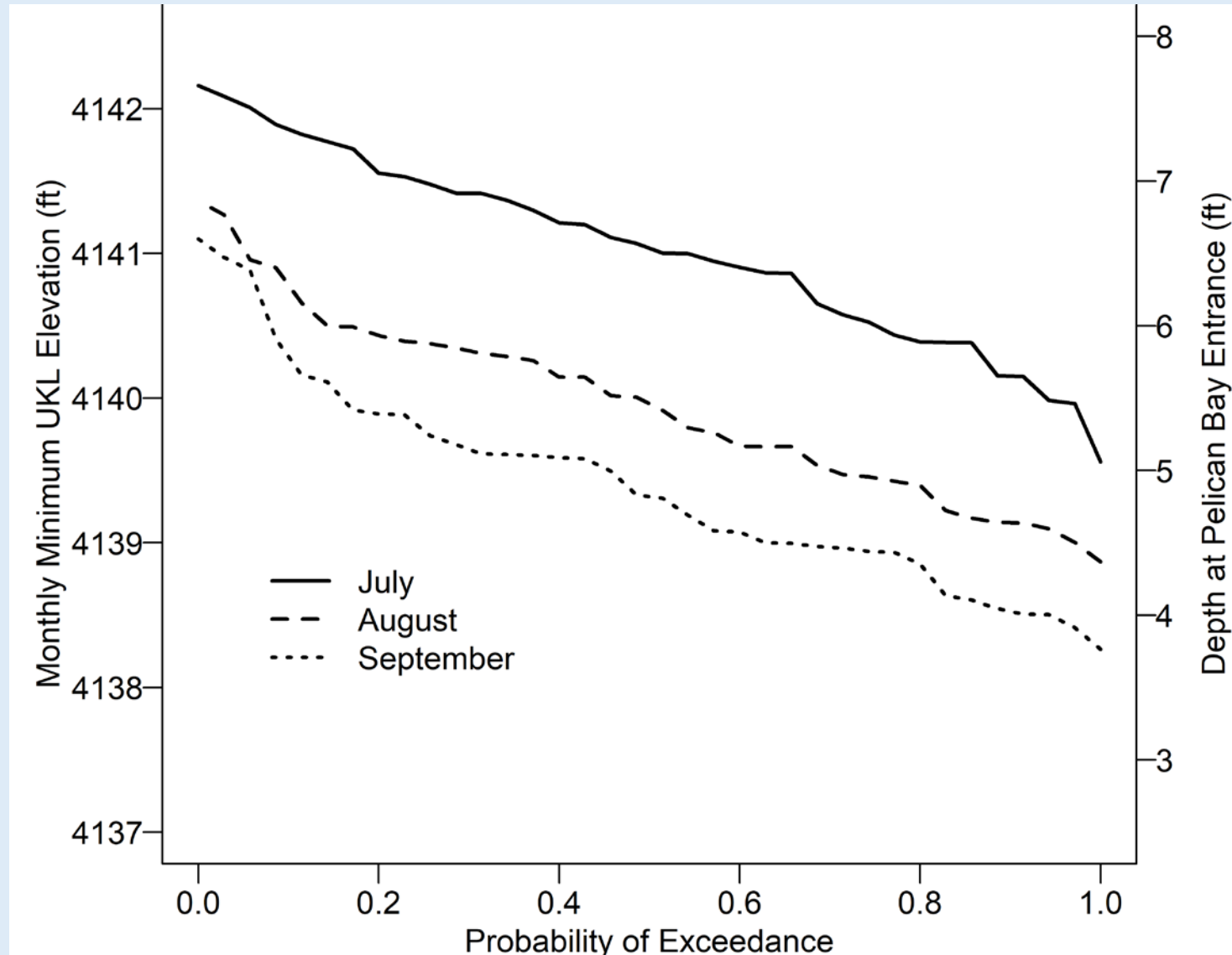


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Pelican Bay Access



Conservation Actions

- Financial support for captive rearing of endangered suckers
- Financial support of the sucker recovery program
- Salvage of suckers from canals

Incidental Take Statement

- Entrainment estimates based on sucker densities and flow at Link River Dam and A Canal
- Define take of eggs for shoreline spawning
- Define limit of wetland dewatering that is considered take
- Did not find evidence of habitat-related take for juveniles and adults

Reinitiation Triggers

- Violating Terms and Conditions
- Change to status of the species that increases population effects
- Exceeding incidental take
- New information
- Modification of action
- Listing of new species or designation of critical habitat

Thank You

Questions or comments?