

A Balancing Act

Managing Native and Non-Native Fish in Grand Canyon National Park

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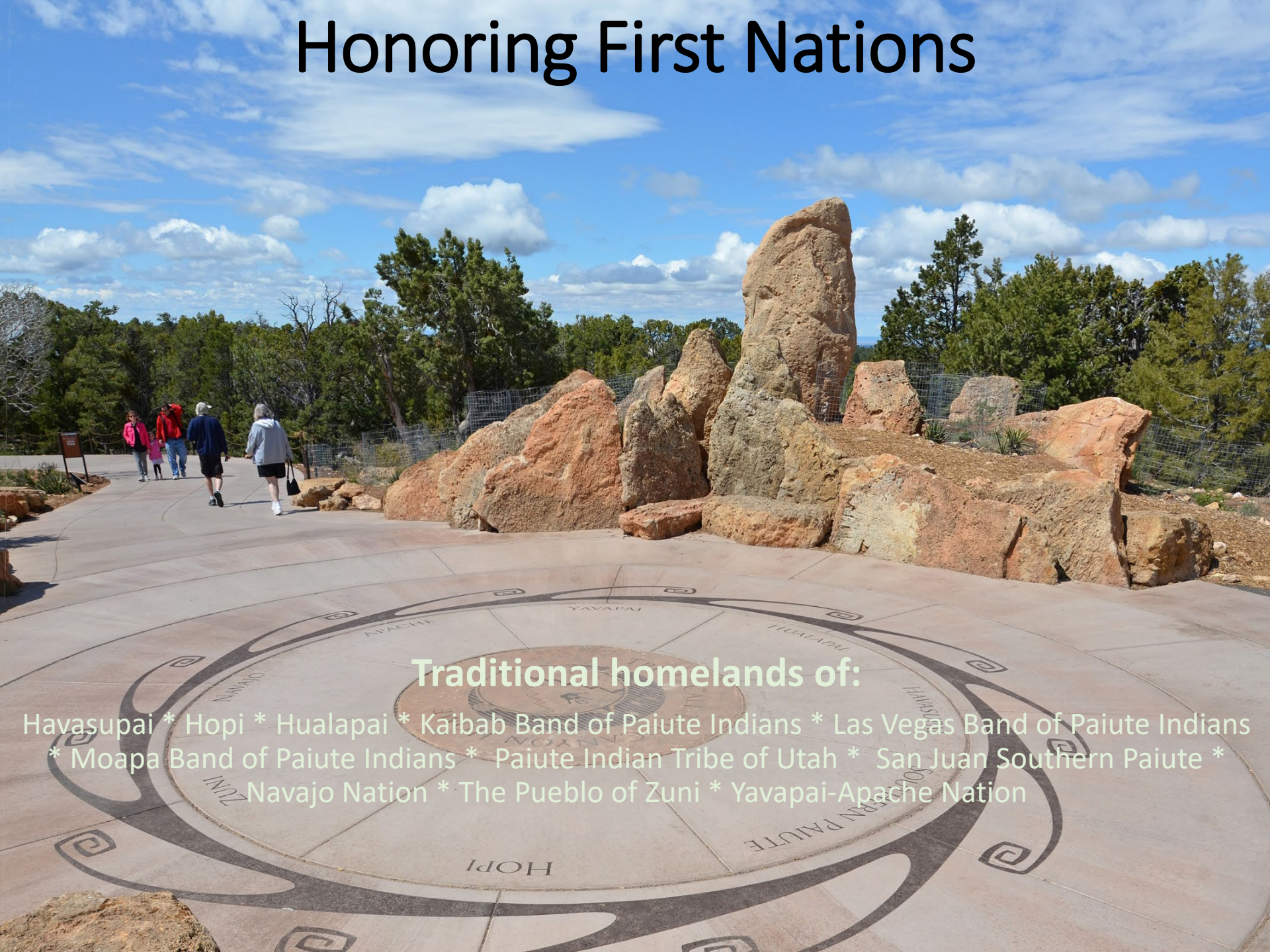
Sarah Haas, Deputy Chief, Science & Resource Management
Grand Canyon National Park

National Conference on Ecosystem Restoration, April 15, 2024, Albuquerque, NM

Regional Plenary, Invasive Species: Proactive and Reactive Approaches to Address Landscape-Scale Threats



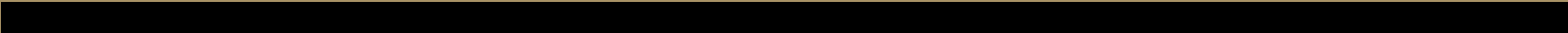
Honoring First Nations



Traditional homelands of:

Havasupai * Hopi * Hualapai * Kaibab Band of Paiute Indians * Las Vegas Band of Paiute Indians * Moapa Band of Paiute Indians * Paiute Indian Tribe of Utah * San Juan Southern Paiute * Navajo Nation * The Pueblo of Zuni * Yavapai-Apache Nation





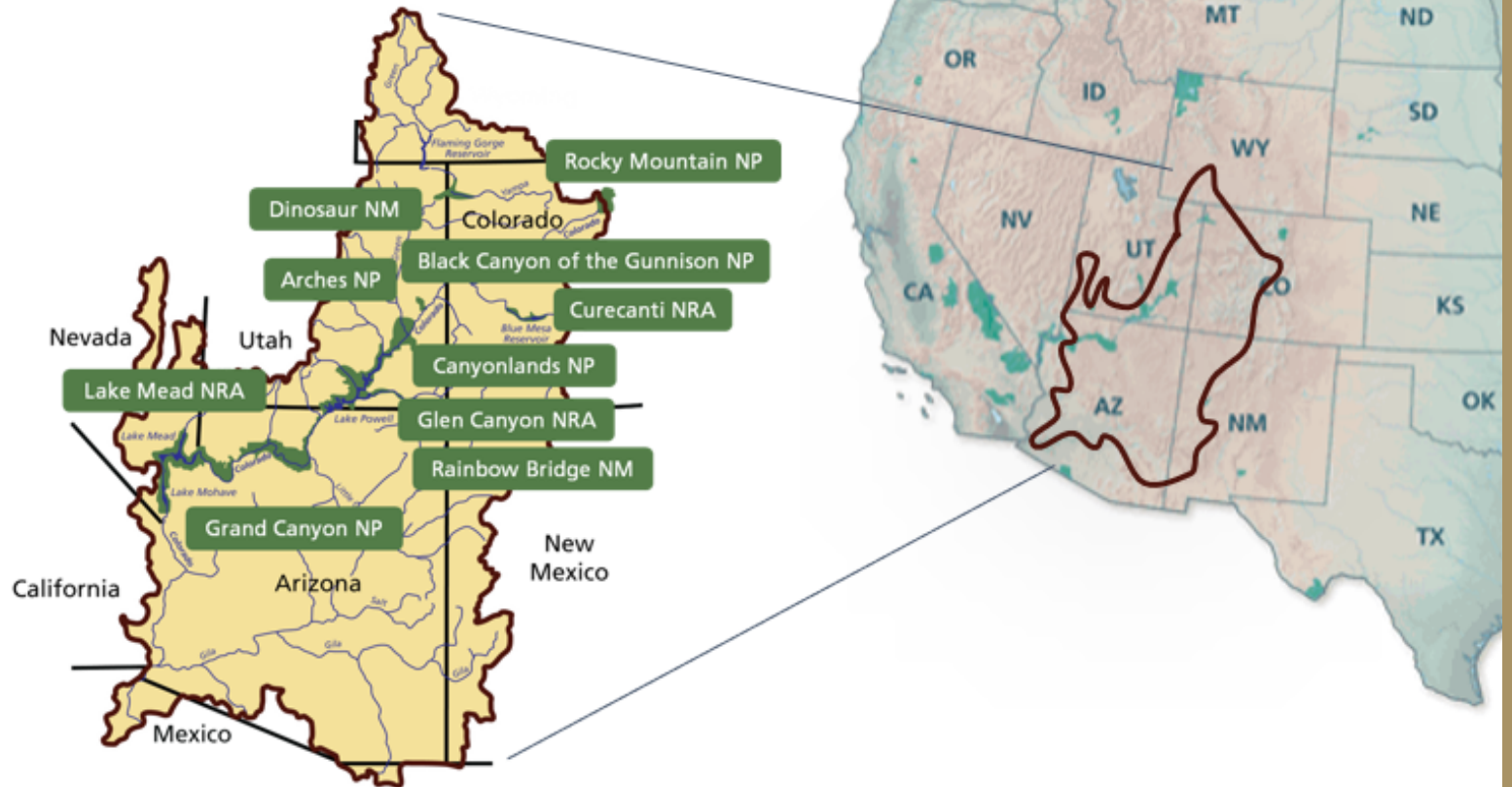


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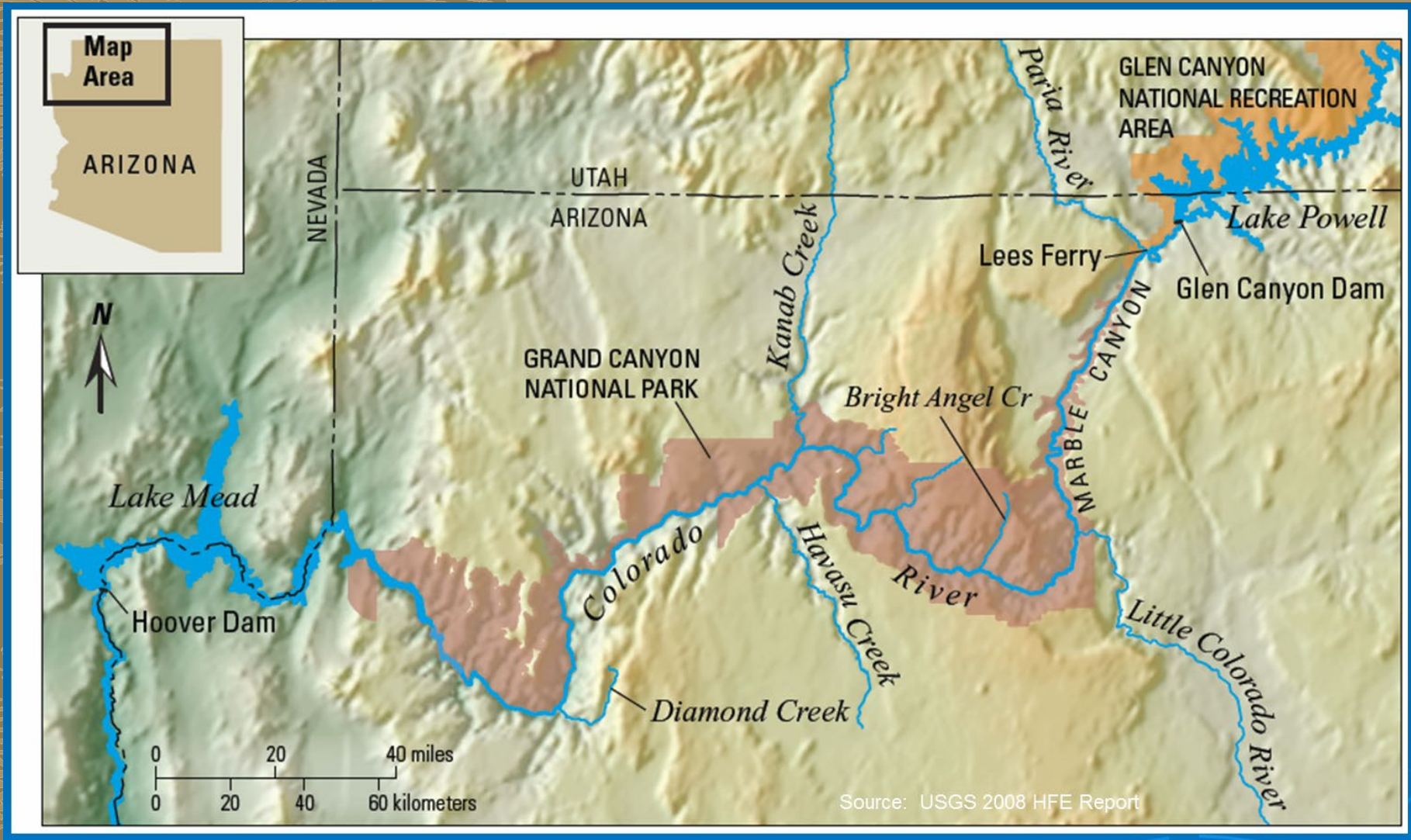




- Colorado River parks make up over **25% of all NPS lands** in the lower 48 states



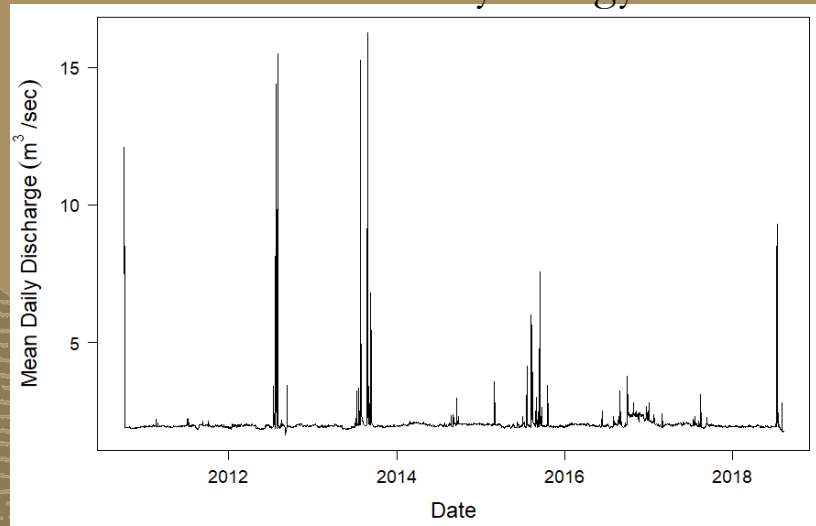
Colorado River in Grand Canyon



Havasasu Creek Hydrology

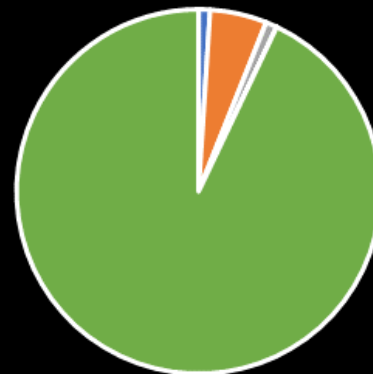
Desert fishes

- Evolved in disturbance-prone environments
- Long-lived
- Migratory
- Unique morphology



More than 90% of all
Humpback Chub
live in Grand Canyon

Percent of Known Humpback Chub Population

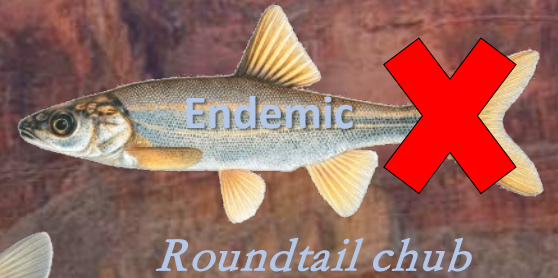


- Black Rocks
- Desolation/Gray canyons
- Dinosaur National Monument
- Westwater Canyon
- Cataract Canyon
- Grand Canyon

Data from Daniel Leavitt, USFWS



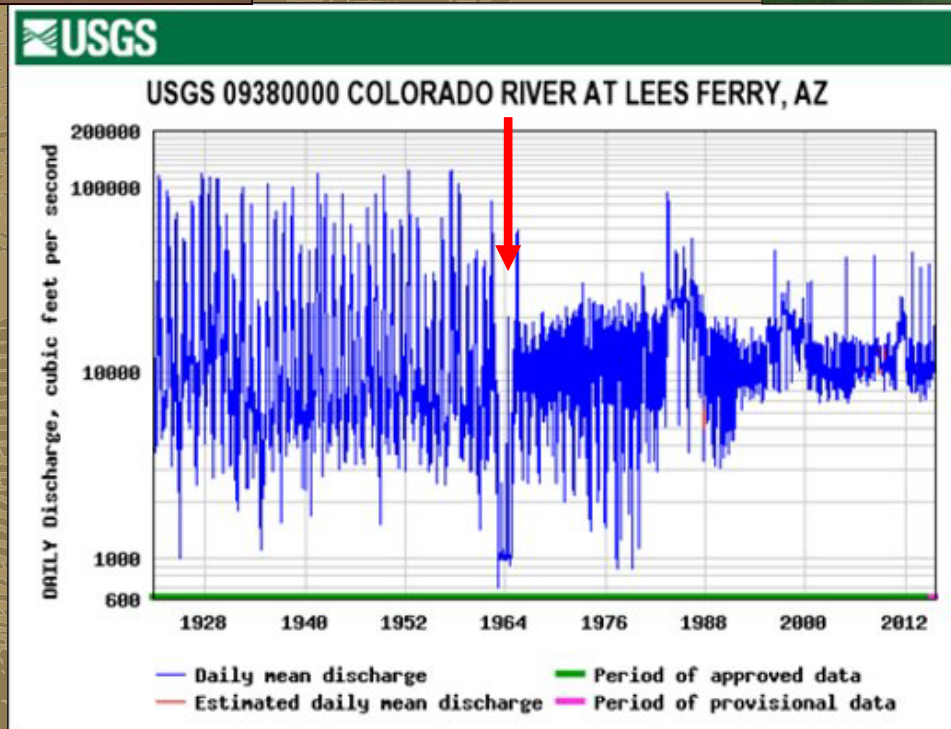
75% Endemic, 50% Endangered or Threatened and 3 Extirpated



Why the decline?



Habitat Modification



Project Locations

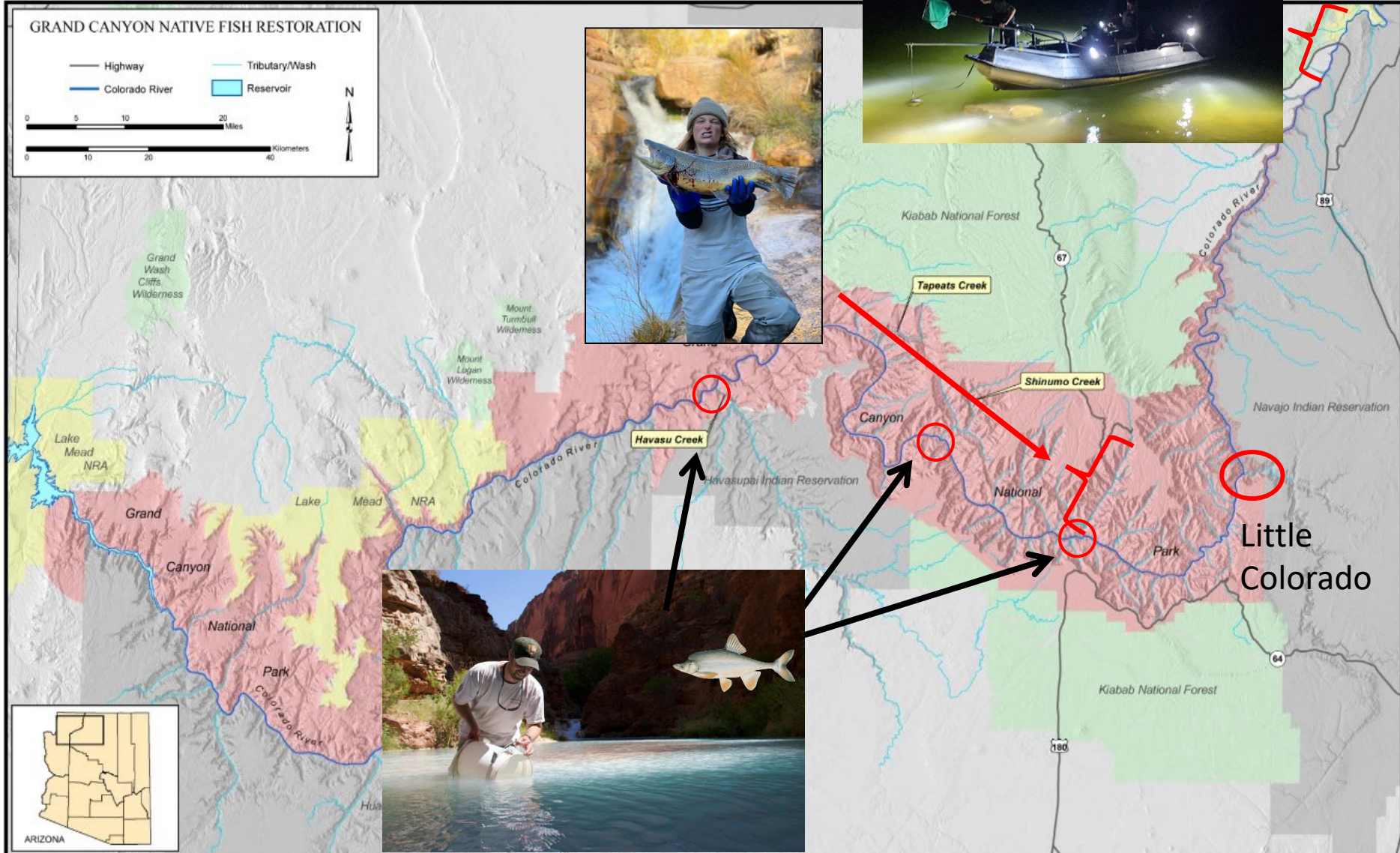


Figure 1. General location of the project area.

Why Tributaries?



Bright Angel Creek Trout Suppression

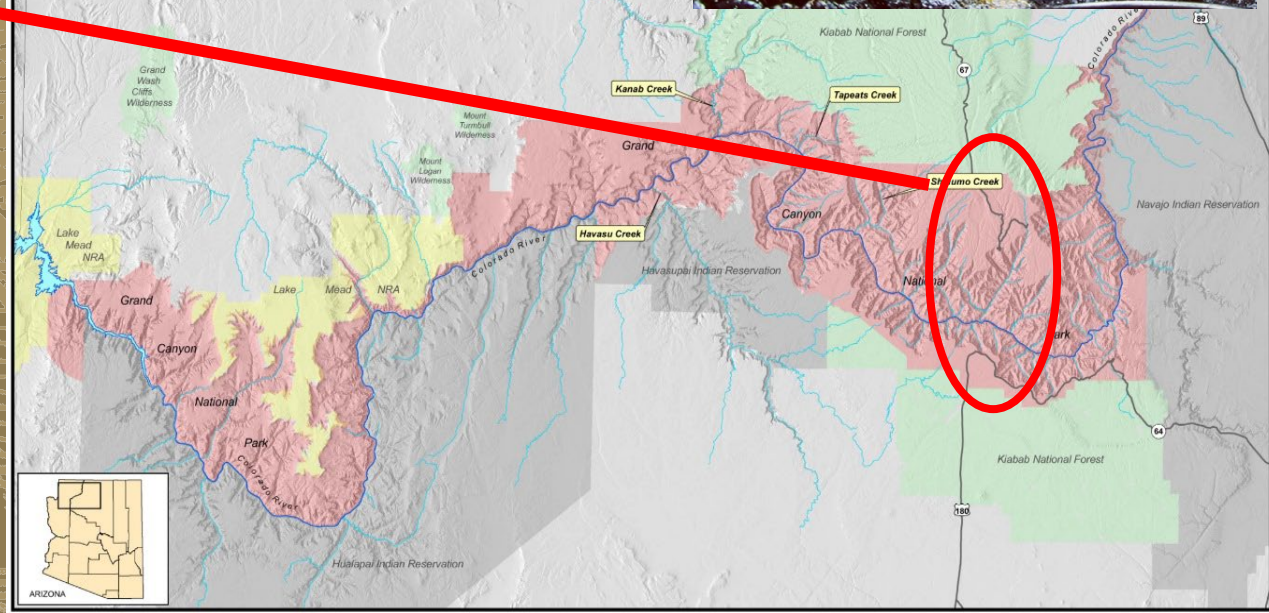
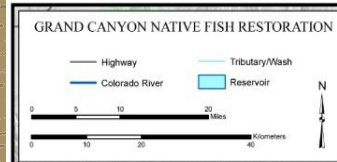
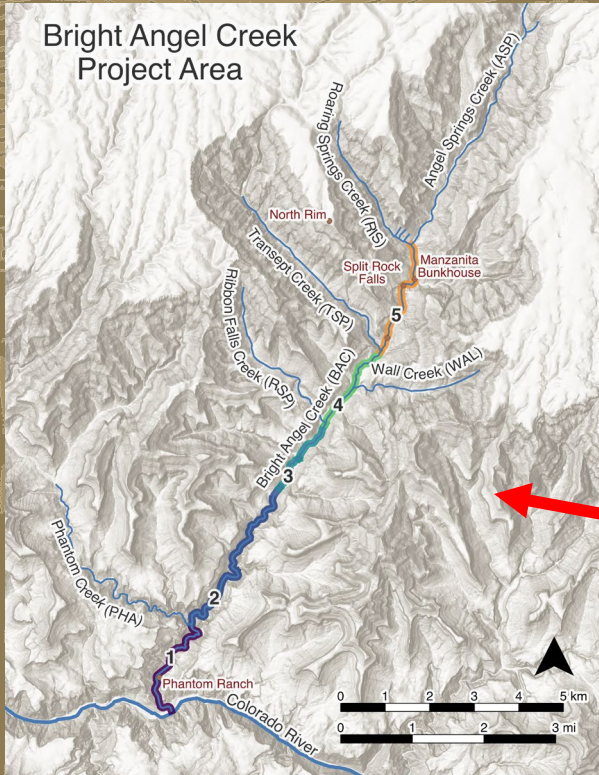
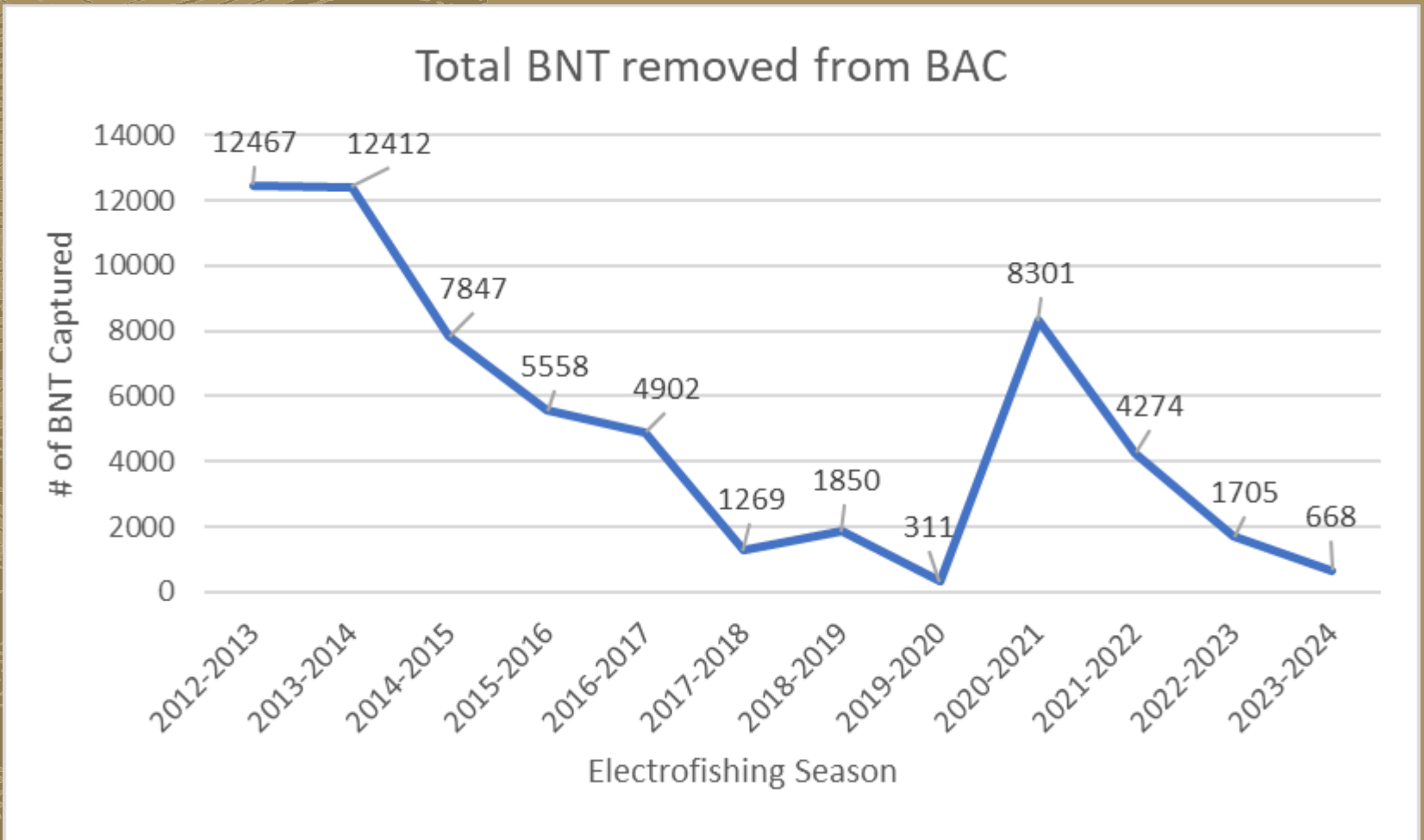
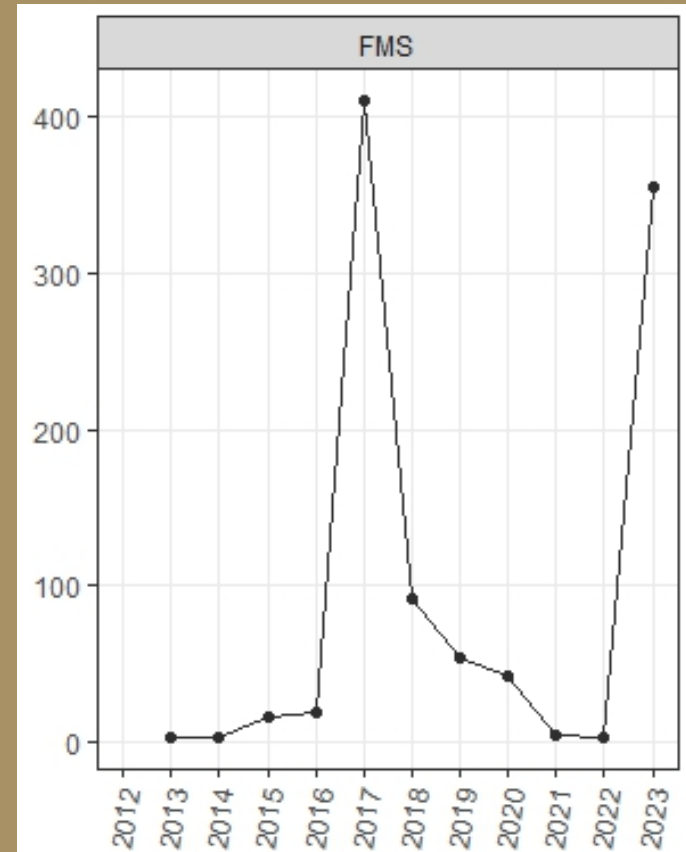
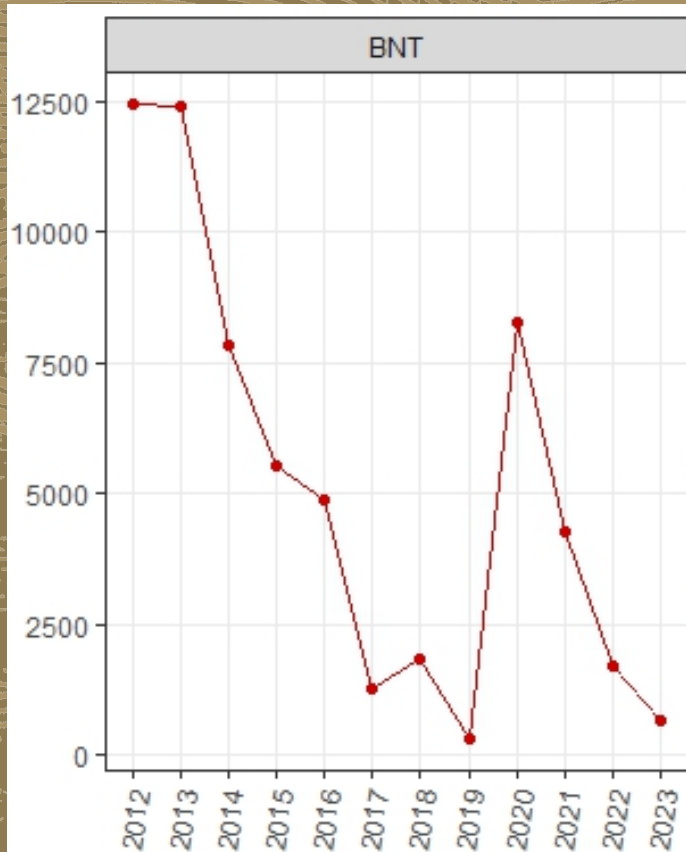


Figure 1. General location of the project area.

Removal Efforts



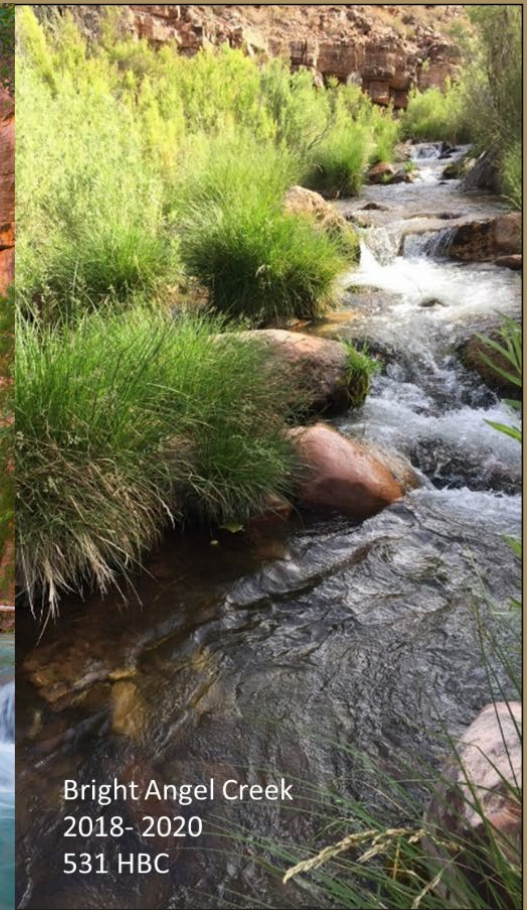
Bright Angel Creek Trends



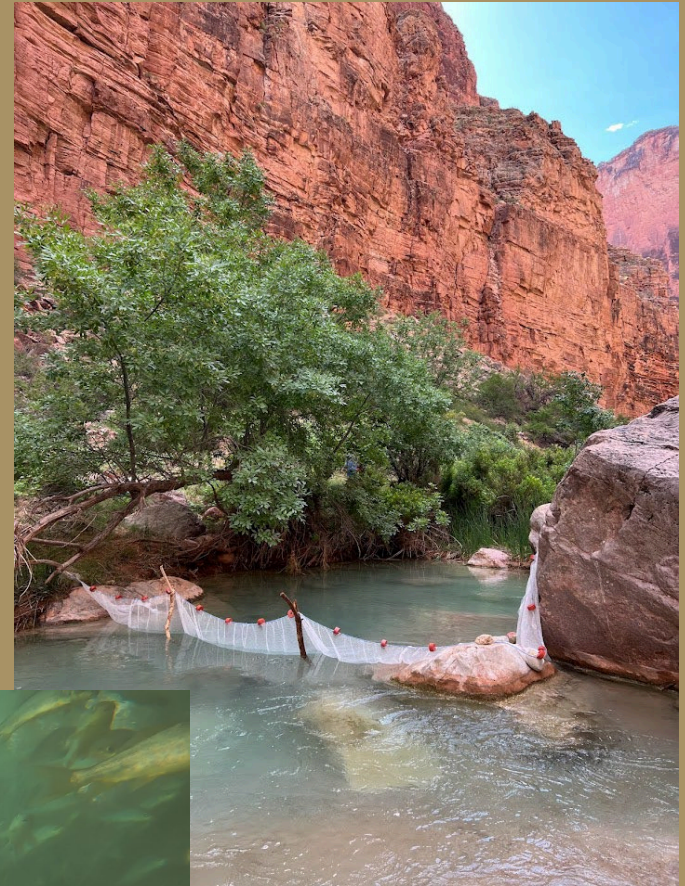
Beneficial Use



Translocations in Tributaries



Razorback Sucker Augmentation



Emerging Threats

Green Sunfish



Northern Pike



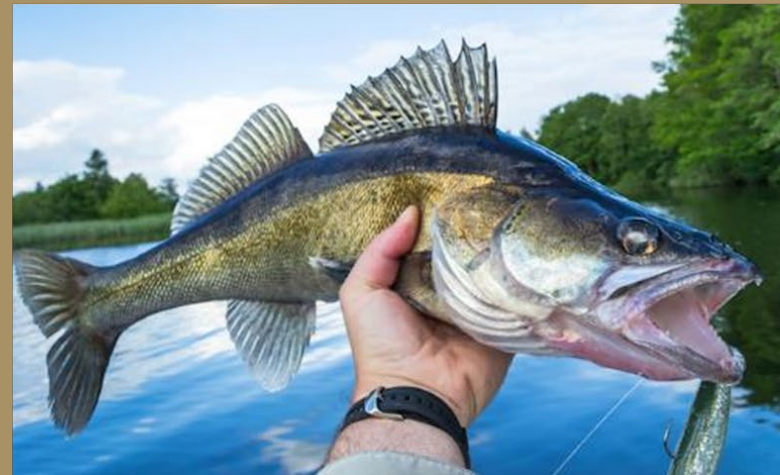
Burbot



Smallmouth Bass



Walleye



Smallmouth Bass



J. Arnold/NPS

2 juvenile smallmouth bass discovered in Glen Canyon National Recreation Area, July 1, 2022



UH
OH

Smallmouth Bass Captures below Glen Canyon Dam since 2022



Glen Canyon Dam

Lake Powell

Lees Ferry

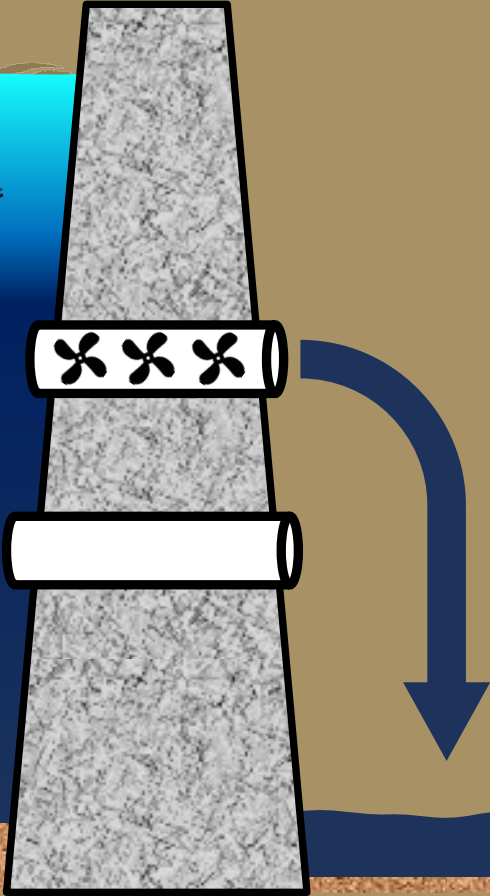
Warmer Water

Colder Water

3470 ft: Penstocks

3370 ft: Bypass Jet Tubes

Colder



Slide Credit: Drew Eppehimer



Glen Canyon Dam

Lake Powell

Lees Ferry

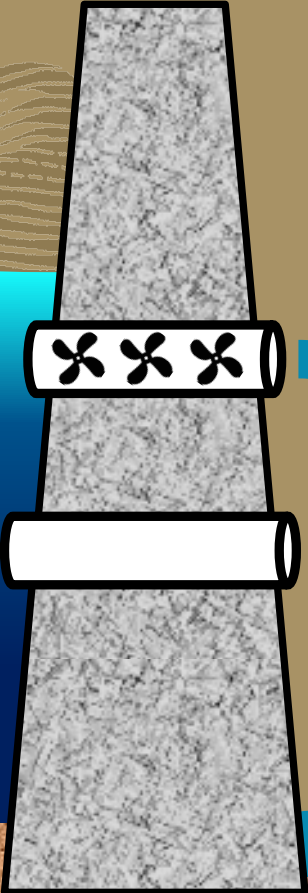
Warmer Water

Colder Water

3470 ft: Penstocks

3370 ft: Bypass Jet Tubes

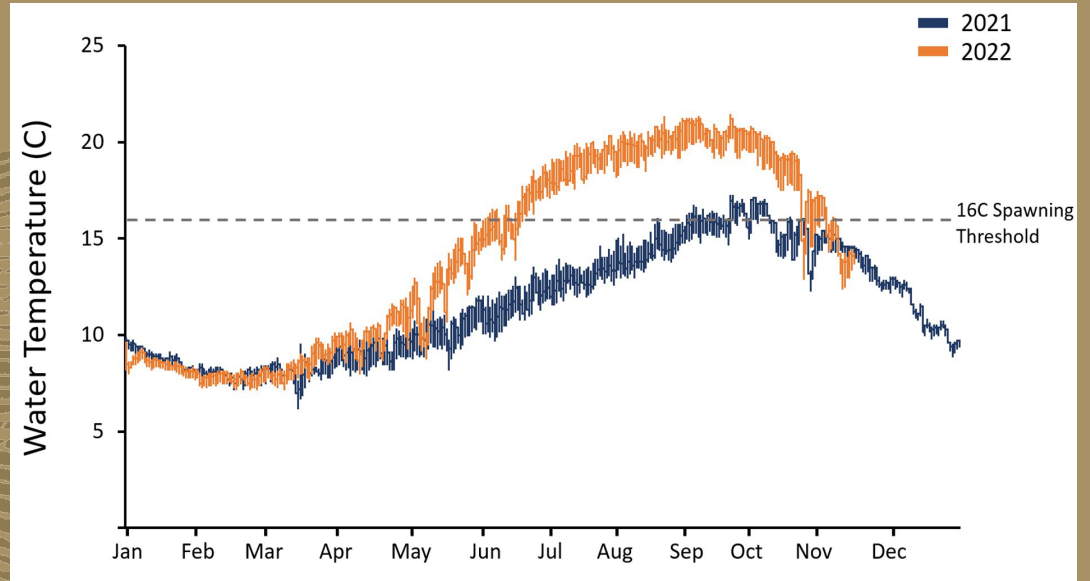
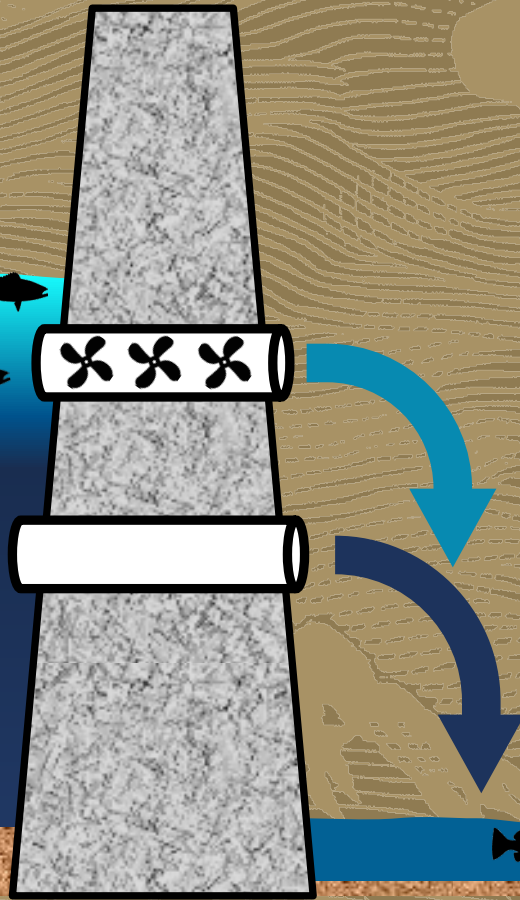
Warmer



Slide Credit: Drew Eppheimer



Potential Response: Temperature Control



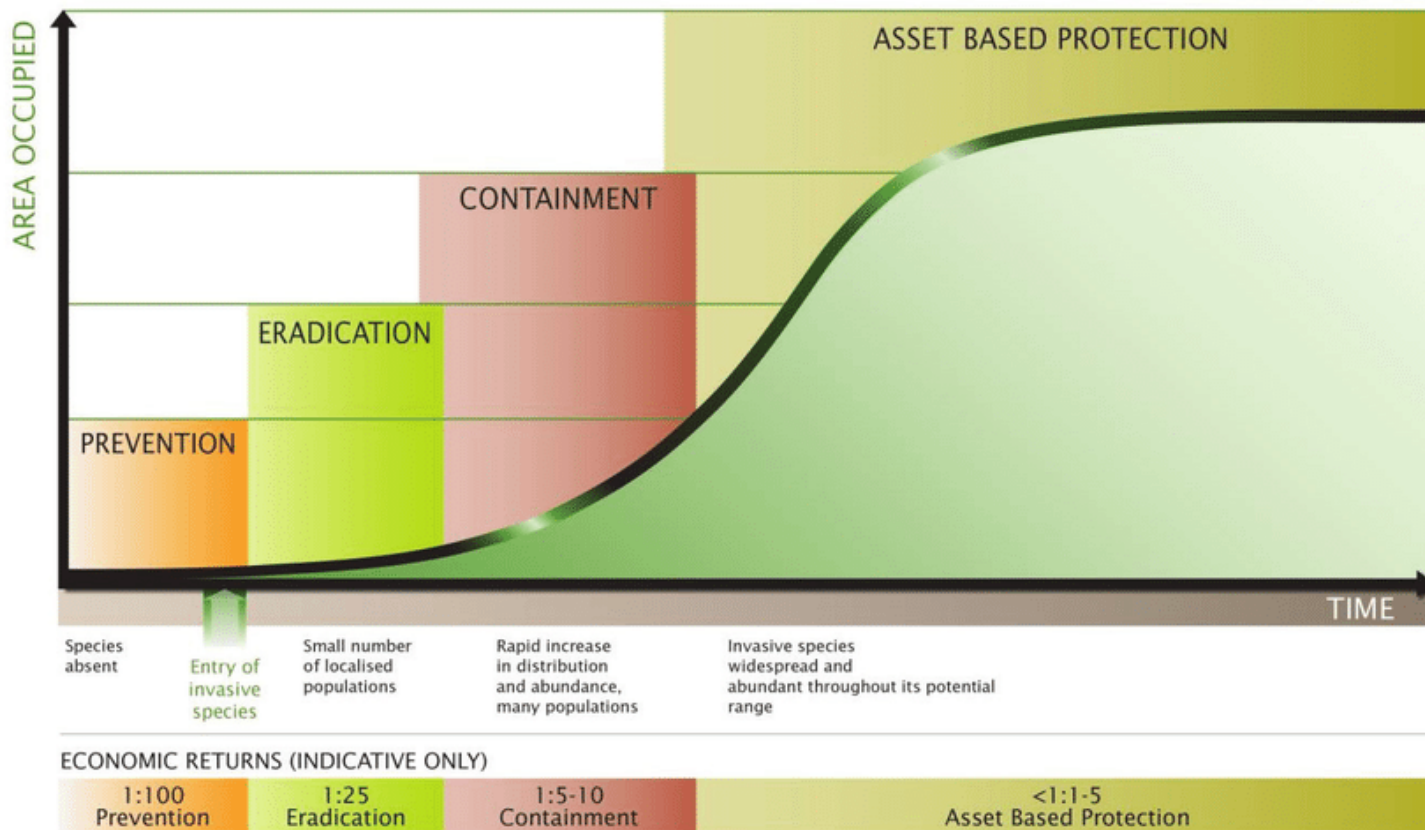
Why Worry?



Rapid Response is crucial

GENERALISED INVASION CURVE SHOWING ACTIONS APPROPRIATE TO EACH STAGE

Version 2.0: 24 JUL 2013



Rapid Response: Mechanical Removal



Fish Management Strategy

Hold the
Line

Work with
Partners

Anticipate
& Adapt

Respond
Rapidly



GRAND CANYON • NATIVE FISH
ECOLOGY AND CONSERVATION



Native Fish Ecology & Conservation Team: Emily Omana Smith, Laura Tennant, Kurt Shollenberger, Rebecca Koller, Susan Wood, Ryan Green + many more!

Thank you!



GRAND CANYON
CONSERVANCY



— BUREAU OF —
RECLAMATION

**Native flannelmouth
suckers spawning at
the mouth of Havasu
Creek**