



# State Wildlife Action Plan 2015 Update

Sacramento Hydrologic Unit

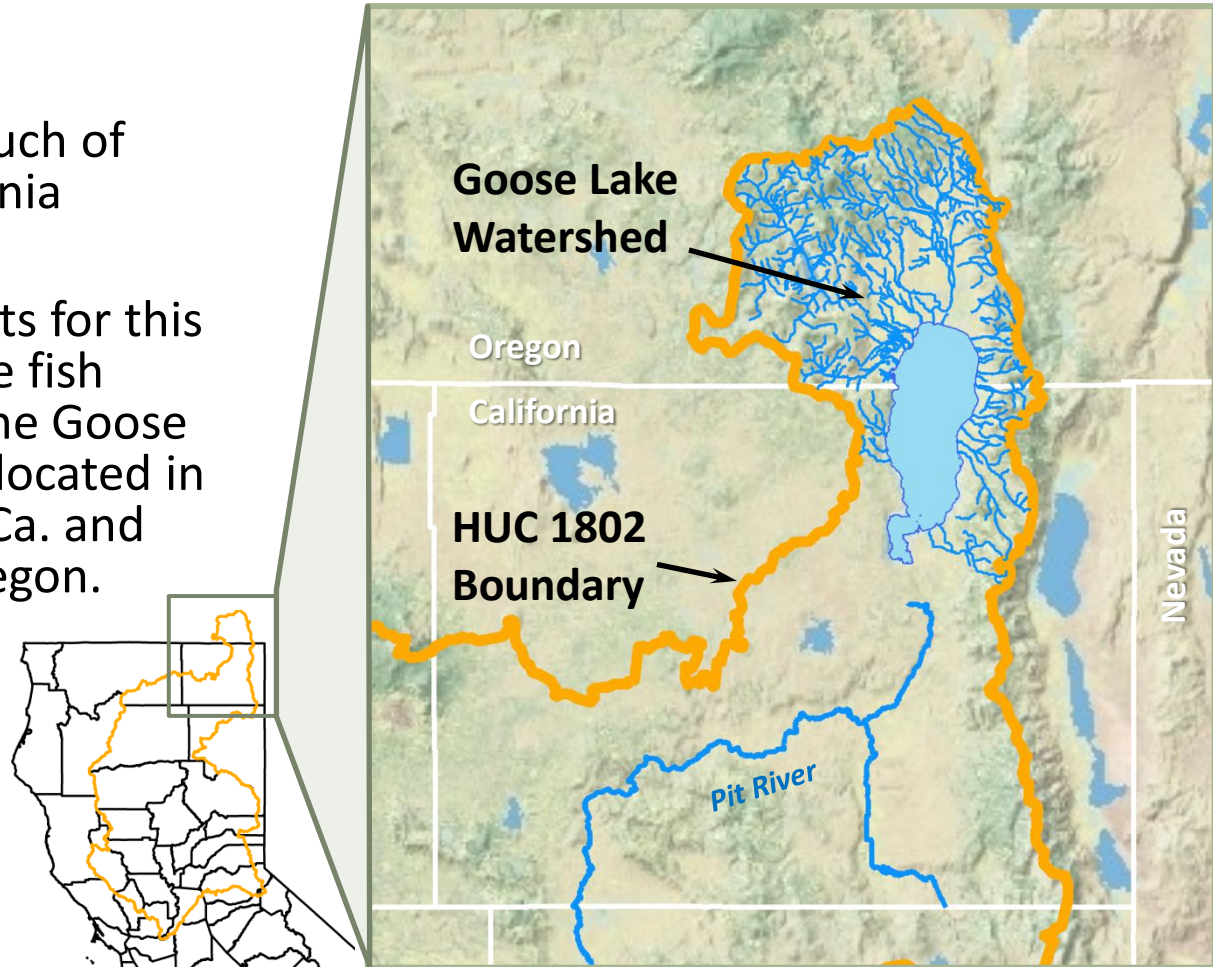
Goose Lake Native Fish Assemblage

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November 12, 2013

# Sacramento HUC 1802, Goose Lake Watershed

- The Sacramento Hydrologic Unit encompasses much of Northern California
- One of the targets for this HUC is the native fish assemblage of the Goose Lake watershed located in Modoc County, Ca. and Lake County, Oregon.



# Goose Lake Watershed

## General habitat:

- Lake habitat
  - Large, shallow, alkaline water having high pH and warm summer water temperatures
  - Semi-Closed basin
- Stream habitat
  - Majority is in Oregon
  - Major California streams originate in the Warner Mountains
  - High gradient mountain streams entering low gradient meadows and grasslands/agricultural lands



# About the Target

## Goose Lake Native Fish Assemblage

- Four endemic species unique to Goose Lake Watershed
- Highly dependent upon stream habitat as refugia during drought
- Resilient to adverse water conditions
- Why was this target chosen? Inclusion of the Goose Lake Native Fish Assemblage into SWAP will complement long standing conservation efforts and provide support to existing conservations strategies.





# Species of Concern

- Why these species were chosen:
  - Endemic species
  - All are California Species of Special Concern (CSSC)
  - Stresses exist limiting health of the fish community



Goose Lake redband trout



Goose Lake lamprey



Goose Lake sucker



Goose Lake tui chub

# Species of Concern (cont.)

- Other fish species of the Goose Lake watershed
  - Pit roach (CSSC)
  - Speckled dace
  - Pit sculpin
  - Pit/Klamath brook lamprey



# Environmental Stresses

- Prolonged droughts
  - Lake desiccation
  - Diminished stream flow
  - Lack of stream and lake connectivity
- Competition and predation by non-native species
  - Brown trout
  - Fathead minnow



Photo Credit: Dave (Gio) Giordano



# Human-caused Impacts

- Inefficient water uses
  - Diminished stream flow
  - Lack of stream and lake connectivity
- Fish passage barriers
  - Restricting fish movement to refugial and spawning habitats
- Impacts from past and present land management resulting in:
  - Stream bank erosion
  - Sedimentation
  - Loss of riparian habitat





# Strategies

- Manage dams and barriers
  - Implement water conservation practices to improve stream flow
  - Improve fish passage
  - Improve connectivity of habitats
- Manage non-native fish species
  - Develop plan for removal of brown trout from streams
  - Reduce impacts from non-native fish
  - Improve native fish community structure



# Strategies (cont.)

- Reduce livestock impacts to streams and riparian zones
  - Construct exclusionary fencing
  - Provide off-stream water
  - Restore riparian habitat
  - Improve stream bank stability
- Improve management practices
  - Work with agencies and landowners to develop better management practices within riparian zones



# Funding

Potential funding that has either been used in the past, is currently being used, or has been identified as potential funding source:

- California Fisheries Preservation Fund
- USFWS, Sport Fish Restoration Act
- USFWS, State Wildlife Grant
- National Fish and Wildlife Foundation
- Trout Unlimited
- Desert Fish Habitat Partnership
- California Farm Bureau
- California Cattleman's Association
- DWR, Integrated Regional Watershed Management Grant

Funding for various projects may be sought individually or collaboratively by many of our Partners of the Goose Lake Fishes Working Group.



Thank you.

