

FY2025

Fisheries Habitat

Restoration

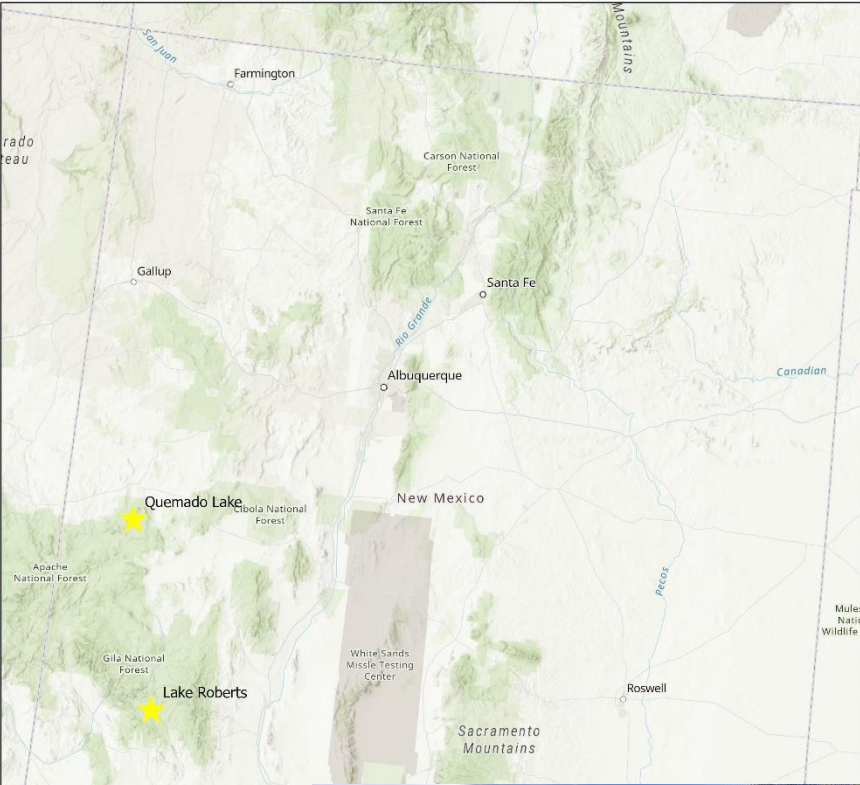
Project Opportunity

Solarbee Purchase

Purchase Solarbees

Background Information

- Solarbees increase lateral mixing which improves dissolved oxygen, prevents and controls algae blooms, and reduces invasive aquatic weeds
- Solarbees are currently installed in Quemado Lake and Lake Roberts. Prior to the installation these lakes experience seasonal fish kills
- The Solarbees in these two lakes are past the useful life and need to be replaced
- Quemado is one of two lakes in New Mexico that have tiger muskellunge (tiger muskie). The tiger muskies were stocked in Quemado to control the Goldfish population. Due to the malfunction of the current Solarbees, there have been multiple fish kills. Unfortunately, only sportfish (e.g., tiger muskies and rainbow trout) are affected by the malfunction of the Solarbee and Goldfish are thriving
- Lake Roberts has Channel Catfish, Gila Trout, Largemouth Bass, Crappie, Bluegill, and Rainbow Trout. The Solarbees are important for all fish. No fish kills have been reported since the Solarbees were installed



Project Contacts

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Proposed Management Action

- Purchase and install new Solarbees for Quemado Lake and Lake Roberts
- **Estimated Budget: \$320,000**

Project Name:

Project relation to CAC advice or priorities:

Project Specific Details:

Historical Data:

Itemized Use of Funds:

Comprehensive Project Analysis:

Monitoring Plan/ Strategy:

Project Emphasis Species:



Solarbee Purchase

Quemado Lake and Lake Roberts, Gila National Forest



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Solarbee

SolarBee set for Epilimnetic Circulation Intake Set Above the Thermocline

The warm, less dense water brought up by SolarBee does not "fall". Instead, it travels long distances causing strong, direct circulation of the epilimnion.

Circulation of the epilimnion prevents blue-green algae, most likely through a combination of mechanisms.

SolarBee increases nighttime lateral mixing of the littoral zone, allowing circulation to reach near-shore areas and reduce nuisance aquatic weed growth.

Warm, Less Dense Epilimnion

Thermocline

Cool, Dense Hypolimnion

Controlling blue-green algae at the top of the lake stops the precipitation of dead or dying blue-green algae cells onto the bottom sediment. The result is lower oxygen demand at the bottom of the lake.

Anoxic Water

- Helps prevent and control algae blooms
- Improves dissolved oxygen and pH levels
- Reduces invasive aquatic weeds and filamentous Algae

Quemado Lake



- Purchased in 2006
- Stocked with Tiger Muskellunge (tiger muskie) for goldfish control
- Not functioning properly, major tiger muskie and Rainbow Trout die off
- Goldfish are thriving

Lake Roberts



- Purchased in 2009
- Important for Largemouth Bass, Channel Catfish, Gila Trout, and Rainbow Trout



Project Summary-\$320,000

- Past useful life
- The solarbees need to be replaced to sustain healthy fisheries
- Purchase new solarbees (2 per lake)
- Approximately \$75,000/ each plus installation.

