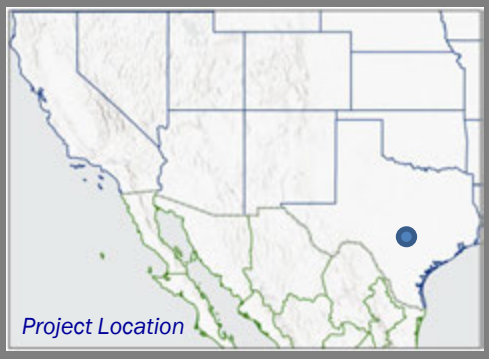
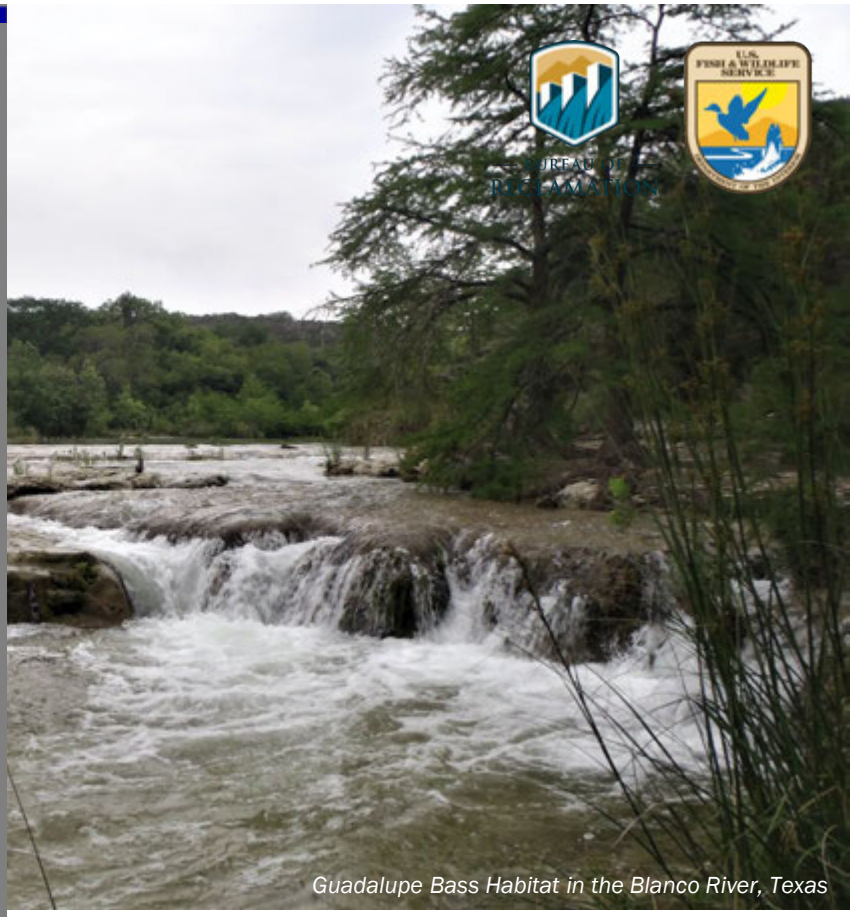
RESTORATION

Guadalupe Bass Repatriation in Central Texas

TEXAS PARKS & WILDLIFE

Guadalupe Bass (*Micropterus treculii*), the official state fish of Texas and a Species of Greatest Conservation Need (SGCN), historically inhabited streams in Central Texas. Populations of Guadalupe Bass became locally extirpated due to habitat degradation, reduced water availability, and hybridization with non-native Smallmouth Bass (*Micropterus dolomieu*). In 2010, the National Fish and Wildlife Foundation (NFWF), Texas Parks and Wildlife Department (TPWD), The Nature Conservancy (TNC), and riparian landowners collaborated to fund, research, and enact reintroduction of genetically pure fishable populations of Guadalupe Bass to the Blanco River. Collaborators initiated an isolation strategy to establish a self-sustaining population of pure Guadalupe Bass by removing Smallmouth Bass and hybrids, and restocking Guadalupe Bass.





Guadalupe Bass Habitat in the Blanco River, Texas

KEY ISSUES ADDRESSED

Anthropogenic alteration of freshwater systems has reduced quality habitat for Guadalupe Bass by reducing flows. Additionally, pure Guadalupe Bass populations have declined from interbreeding with Smallmouth Bass, resulting in hybridization of the two species. River managers could stock genetically pure Guadalupe Bass to boost numbers; however, it would remain an ineffective repatriation approach in the absence of Smallmouth Bass removal. Further, repatriation efforts are difficult because most riparian land adjacent to potential Guadalupe Bass habitat is privately owned, and there are no incentives for landowners to promote restoration efforts. Thus, for the reintroduction of Guadalupe Bass to be successful, TPWD needed to acquire funding and garner landowner support.

PROJECT GOALS

- Secure funding for conservation and implement large-scale habitat improvements for freshwater fishes in Central Texas
- Inform and enact effective riparian landowner incentive programs to aid in restoration
- Remove Smallmouth Bass and restock genetically pure Guadalupe Bass

HELP FROM DROUGHT

Record low stream flows during the 2011 drought in Texas created conditions that offered an opportunity for targeted removal of Smallmouth Bass and hybrids seeking refuge in enduring pools.

Biologists Electrofishing to Remove Non-Native Fish

PROJECT HIGHLIGHTS

Smallmouth Bass Removal: River managers used backpack electrofishing and seining to remove non-native fish during drought conditions in 2011. The drought reduced the Blanco River to smaller pools where fish were forced to aggregate, creating an opportunity for targeted removal of non-native species.

Restocking: TPWD A.E Wood State Fish Hatchery stocked genetically pure Guadalupe Bass starting in 2012. They stocked 102,616 in 2012, 113,817 in 2013, 23,805 in 2015, and 55,778 in 2016. Managers skipped stocking in 2014 to spend this time genetically monitoring natural reproduction from 2012 and 2013 stockings.

Habitat Improvement Funding: TPWD received over $1 million from NFWF dedicated to conservation of Guadalupe Bass in Central Texas rivers. Managers used this funding to create incentivization contracts for and connect with riparian landowners.

Landowner Incentive Programs: Incentive programs for landowners provided cost-share funding to implement fish and wildlife habitat restoration on private lands. Funding also allowed partners to provide education and workshops for local communities to engage in conservation efforts.

Collaborators

- Texas Parks and Wildlife Department
- The Nature Conservancy of Texas
- The National Fish and Wildlife Foundation
- Texas State University

CCAST Author: Nilisha Patel, Johns Hopkins University, April 2022.
Photos courtesy of TPWD.
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LESSONS LEARNED

Post-stocking monitoring confirmed successful removal of Smallmouth Bass. This was best exemplified by a major flooding event in the Blanco River in May of 2015, where Smallmouth Bass did not move upstream of a gorge, which confirmed the gorge served as an effective barrier to upstream movement of Smallmouth Bass and hybrids because only native basses were found.

Landowners who implemented pilot projects were key in making river restoration happen because their work allowed for the restoration of a significant area. Additionally, TNC and TPWD worked with early adopters who implemented pilot riparian restoration projects to host workshops and demonstration days for other potentially interested riparian landowners. This helped early adopters build trust with others in the community.

Local donors cared about their hometown, local areas, and their water, and they expressed interest in leaving a legacy in the community to which they are connected. The charisma of Guadalupe Bass helped create collaborative interest for river conservation, allowing for local donors to fulfill their goals and make a lasting impact in their community.

NEXT STEPS

- Continue periodic genetic monitoring to determine if spawning will create a natural annual stocking event
- Conduct population status assessments in the Blanco River and other rivers and streams
- Continue public education for anglers and riparian landowners

For more information on this project, contact Timothy Birdsong: Timothy.Birdsong@tpwd.texas.gov

Guadalupe Bass from the Blanco River, Texas