



Aquatic Invasive Species Management: Summary of Texas Statewide Efforts FY 2024-2025

Aquatic Invasive Species: A Problem for All Texans

The Texas Parks and Wildlife Department (TPWD) manages freshwater fisheries and other aquatic resources in Texas' rivers and lakes, providing arguably the best freshwater fishing in the nation. Freshwater fishing is clearly important to our state's economy, and quality fisheries as well as other fish and wildlife are dependent upon healthy habitats in our creeks, streams, rivers, and lakes. However, there are numerous issues degrading our waterways, with one of the most significant being the introduction and spread of non-native aquatic invasive species (AIS).

The Economic, Environmental and Recreational Impacts of Aquatic Invasive Species

It is estimated that the annual economic impact of invasive species in the U.S. has reached approximately \$219 billion, with global impacts estimated at more than \$4 trillion. In Texas, AIS negatively affect fish and wildlife, fishing, boating, hunting, and other recreational opportunities, water infrastructure, and even waterfront property values. This is a critical problem that must continue to be addressed long-term. It is estimated that highly effective management of AIS in Texas would require an annual investment of ~\$45 million.

Texas Taking Significant Action to Manage Aquatic Invasive Species

Since state fiscal year 2016, the Texas Legislature has allocated approximately \$3.2 million annually to address these issues. Bolstered by this unprecedented investment of resources, TPWD and our partners have intensified efforts to combat AIS, increasing the annual acreage of AIS plants treated nearly five-fold, increasing rapid response and eradication efforts for giant salvinia, enhancing early detection for zebra mussels and aquatic plants, implementing strategies to control invasive riparian plants along rivers and streams, and supporting critical research to inform monitoring and management efforts. For Texas to keep pace with the constant and ever-evolving problems associated with AIS, it is critically important that we continue to invest in targeted control, prevention, monitoring, and research efforts.

The TPWD has an established AIS Working Group that coordinates agency and cooperative efforts with river authorities, water utilities, municipalities, private landowners, and other local partners to prevent the further spread of AIS and manage those that are already present. Specific actions include public outreach and prevention, early detection monitoring and rapid response, on-the-ground management including use of containment booms, herbicides, and biological controls, and research on potential introduction pathways, population dynamics, and enhancing control methods.

This report highlights significant accomplishments in AIS management in fiscal years 2024 – 2025 (September 1, 2023 – August 31, 2025).



Engaging Texans in Prevention Efforts

Prevention is widely seen as the most effective frontline strategy for managing invasive species as it can help avoid the long-term, costly management required once an invasive species becomes established in a new waterbody. A multi-faceted public outreach campaign led by TPWD and supported by a coalition of partners seeks to increase awareness and participation in efforts to prevent the spread of highly problematic zebra mussels and giant salvinia by boaters. The campaign employs diverse advertising strategies including billboards, gas station advertising, digital advertising, online radio ads, social media, emails, and ads and editorials in magazines and newsletters. The current campaign messaging – “Protect the Lakes You Love.” – was informed by consumer research, including focus groups and online surveys of registered



Outreach billboards remind boaters to take action to prevent the spread of aquatic invasive species.



boaters. A 2024 survey of registered boaters confirmed that the campaign is effectively reaching the target audience as 89% of active freshwater boaters had heard or seen the campaign call-to-action – “clean, drain and dry.” The “Never Dump Your Tank” campaign was also implemented with digital advertising to educate the public about the impacts of aquarium releases. Additionally, geo-targeted angler emails were used to increase invasive carp spread prevention awareness.

FY 2024-2025 Outreach and Prevention Accomplishments

Protect the Lakes You Love Campaign

- Annual AIS outreach campaign from Memorial Day through Labor Day each year
- Partially supported by funding from a coalition of 12 partners in FY24, and 11 partners in FY25
- Billboards, gas station advertising (FY24) on key routes
- Prominent signage at 340 boat ramps
- Paid ad campaign on key digital media platforms
- Over 68 million paid “impressions” generated in FY24 and nearly 79 million in FY25
- Communication with over 433K registered boaters in FY24 and over 212K in FY25 via boating registration notice emails, and over 2.2 million anglers via the TPWD *Fish Texas* e-newsletter that is sent out quarterly
- Inclusion of messaging in organic TPWD channels like social media, press releases, and a new podcast, *Better Outside*

Never Dump Your Tank Campaign

- Campaign ran from March through May in FY24 and April through June in FY25 and targeted aquarium enthusiasts in most major metro areas (Austin, San Antonio, Houston, Corpus Christi, Dallas-Ft. Worth, Harlingen-Weslaco-Brownsville-McAllen, Beaumont-Port Arthur, and Victoria Digital Marketing Areas)
- Paid digital ad campaign on Facebook generated 2.6 million impressions in FY24, and a campaign on YouTube generated 2.1 million impressions and 1.4 million completed video views in FY25
- 4,382 clicks to the web landing page providing alternatives to release of potentially invasive aquarium life in FY24, and 1,931 clicks in FY25

Invasive Carp Prevention Outreach Efforts

- Outreach efforts were conducted in Summer 2024 and 2025
- Targeted email outreach to 100,436 licensed anglers in high-risk areas in 2024 and 76,392 anglers in 2025, with a high open rate of over 50% in 2024 and nearly 60% in 2025, well above the industry average.
- Targeted social media outreach highlighting ongoing research efforts and encouraging anglers to not transport live bait in high-risk areas and to target and report invasive carp

Media and Communications Strategy

The Texas Parks and Wildlife Department utilizes a multifaceted communications approach to educate and inform the media and public about AIS. Press releases are issued for new zebra mussel and giant salvinia infestations as well as for other important topics such as invasive carp. In addition, timely

releases encouraging boaters to “clean, drain, and dry” are distributed during peak and strategic times in the boating and hunting seasons and to promote events such as National Invasive Species Awareness Week. TPWD utilizes multiple social media channels and pages—including Facebook, Twitter, and Instagram—across the agency to share press releases and content specifically crafted for social media.

FY 2024-2025 Media and Communications Accomplishments

- A total of 12 press releases on AIS issues were distributed
- Approximately 204 articles on media outlets contained information about AIS; the reach number for these articles was 1,214,211,523
- Facebook and Instagram posts produced 3,554,457 combined impressions across agency pages
- Twitter posts produced 60,733,473 impressions from the @TPWDnews account

Invasive Mussel Early Detection Monitoring

Invasive zebra and quagga mussels are highly problematic species native to Eurasia that clog and damage the infrastructure of facilities using raw surface water as well as private water intakes, damages boats and marinas, can impact drinking water quality, and litters shorelines with hazardous, sharp shells. Zebra mussels were first introduced into the U.S. in the late 1980s by oceangoing vessels and rapidly spread, reaching Texas in 2009 via overland movement of boats. Since 2009, zebra mussels have invaded 39 lakes in Texas across seven river basins primarily via movement on boats, although some new introductions were the inevitable result of downstream dispersal in linked river-reservoir systems. Except in extremely rare instances, such as the success at Lake Waco, eradication or even management of zebra mussels after introduction is not possible. Therefore, TPWD efforts focus on preventing introductions into the many uninfested lakes in the state and monitoring for early detection to provide infrastructure operators with an advance warning to implement mitigation strategies and thereby reduce economic impacts.

FY 2024-2025 Invasive Mussel Early Detection Accomplishments

- Coalition of 14 partner agencies work together to monitor nearly 50 lakes for early detection of invasive mussels’ DNA, larvae, or settled adults
 - Partners monitoring existing populations in nearly 20 water bodies
 - Although there were no new detections of invasive mussels in boatable waters in FY24, zebra mussels were detected in the City of Early Town Center Pond—a 6.5 acre Community Fishing Lake which receives water from infested Lake Brownwood.
 - In FY25, an established zebra mussel infestation was detected in Lake Nasworthy. Additionally, a single adult mussel and two larvae were detected in a single general area on Fort Phantom Hill Lake, which was designated “positive” and monitoring will continue.
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Aquatic Invasive Plant Management Promotes Boater Access

Aquatic invasive plants are among the most problematic species in Texas. Numerous species such as giant salvinia form dense, impenetrable mats that impede access for boating, fishing, waterfowl hunting, and other recreation and impact water conveyance and infrastructure. Management of these species in Texas employs a multi-pronged Integrated Pest Management strategy and focuses on maintaining boater access and early detection and containment and eradication to reduce long-term costs. Currently, aquatic invasive plant infestations are being managed on nearly 70 water bodies around the state.

FY 2024-2025 Aquatic Vegetation Management Accomplishments

- Nearly 70 water bodies being actively managed
- Intensive early detection and rapid response efforts
- Nearly 24,500 acres of giant salvinia treated
- Nearly 342,000 giant salvinia weevils introduced as biological controls
- Nearly 21,250 acres of water hyacinth treated
- Nearly 250 acres of other aquatic invasive/nuisance species treated
- Mechanical containment implemented to supplement and support other control methods
- Continued over-winter survival of self-sustaining weevil populations



Integrated Pest Management Strategies for aquatic invasive plant management include strategic management of hydrilla to augment fish habitat at some sites, while targeted control ensures recreational access at key sites such as Buescher State Park, shown above before (upper) and after (lower) successful treatment restored access for bank angling.

Restoring Texas Rivers and Streamsides

Riparian invasive plants—those infesting areas alongside rivers and creeks—can cause significant problems, impeding access and stormwater conveyance, degrading fish and wildlife habitat, increasing the risk of flooding and erosion, and even posing a fire hazard. Efforts to manage these species in the state focus on improving access and fish and wildlife habitat in areas with significant infestations, particularly in Native Fish Conservation Areas where management of these species can have the greatest benefit for imperiled native fishes. Riparian invasive plant treatment occurs in partnership with private landowners, government agencies, river authorities, universities, nonprofit organizations, and volunteers and has benefited nearly 900 private landowners in the state.



Control of invasive *Arundo* along rivers and streams promotes natural restoration of critical riparian habitats once choked by this invader. Standing dead canes protect young native plants and decay gradually over time.

FY 2024-2025 Riparian Invasive Plant Management Accomplishments

- More than 400 landowners participating in the Healthy Creeks Initiative to manage *Arundo*, and more recently also elephant ear, across five Hill Country river basins in 8 counties, encompassing 300 river miles. Approximately 52 miles of the Guadalupe River in Kendall County were added in FY2025.
 - Over 130 landowners participating in the Pull.Kill.Plant *Arundo* control initiative over 115 miles of rivers in the Nueces River Basin
 - More than 35 landowners participating in an extension of the Pull.Kill.Plant *Arundo* control initiative along 7 miles of San Felipe Creek in Del Rio
 - Over 4,000 acres of saltcedar treated on properties in the Upper Brazos River Basin; over 200 landowners have participated in this project to date
 - Elephant ear control on 19 miles of the South Llano River
 - Numerous riparian restoration, outreach, and recruitment workshops were held to promote streamside Best Management Practices, including riparian invasive species management, as well as site visits for guidance and a native tree giveaway that distributed 250 trees to Pedernales River watershed riparian landowners. Additionally, educational YouTube videos were produced to provide information and guidance on management of riparian invasive plants.
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Aquatic Invasive Species Research

Research plays an important role in informing and enhancing efforts to monitor and manage AIS and has been shown, in some cases, to aid in reducing management costs. Each biennium, TPWD supports several research projects through an AIS small grants program.

FY 2024-2025 Aquatic Invasive Species Research Accomplishments

- Supported four research projects focusing on technological advances in invasive mussel early detection, variation in zebra mussel population dynamics, suckermouth armored catfish assessment to augment population control efforts, and remote sensing of Arundo in Native Fish Conservation Areas to guide TPWD management efforts
- Successfully implemented a Request for Proposals to identify key research for funding for FY2026-2027, with three projects selected for funding focusing on enhancing herbicide effectiveness for giant salvinia control, enhancing suckermouth armored catfish control efforts, and better understanding potential harmful impacts of suckermouth armored catfish on native fishes.

More information on ongoing AIS efforts in Texas can be found at:

www.tpwd.texas.gov/aquatic-invasives