



# Aquatic Invasive Species Management in Texas

## **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 important to our state's economy, and quality fisheries 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, and hunting 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 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 treatment including use of containment booms, herbicides, and biological controls, and research on potential introduction pathways, population dynamics, and novel control methods.

**[This briefing summarizes current AIS issues in Texas and provides a five-year summary of statewide accomplishments.](#)**



### **Engaging Texans in Prevention Efforts**

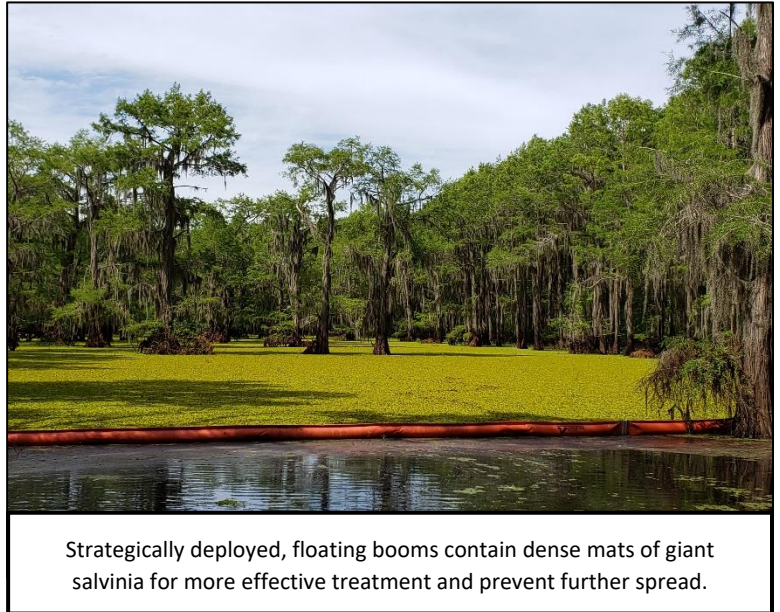
Prevention is widely seen as the most effective, frontline strategy for managing invasive species as it can help avoid the long-term, costly management required once an invasive species becomes established in a new waterbody. A multi-faceted public outreach campaign led by TPWD and supported by a coalition 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 boaters. In fiscal year 2020 alone, the campaign made over 121 million outreach “impressions.” A survey of registered boaters confirmed that the campaign is effectively reaching the target audience as 91% had heard or seen the campaign call-to-action—“clean, drain and dry.”

### **Zebra Mussel Early Detection Monitoring**

Zebra mussels are a highly problematic species that clogs and damages 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 from Eurasia and rapidly spread, reaching Texas in 2009 via overland movement of boats. Since 2009, zebra mussels have invaded 31 lakes in Texas across five river basins primarily via movement on boats, although many new introductions inevitably result in downstream dispersal. Except in extremely rare instances, such as the success recently reported for Lake Waco, eradication or even management of zebra mussels after introduction is not possible. Therefore, TPWD and partner efforts focus on preventing introductions into the many uninfested lakes in the state and monitoring more than 40 lakes for early detection to provide infrastructure operators with an advance warning to implement mitigation strategies and thereby reduce economic impacts.

## **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 more than 50 water bodies around the state.



## **Restoring Texas 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, 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 and benefits over 400 private landowners in the state.

## **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—in fiscal years 2020-2021, four projects were funded, focusing on zebra mussel risks and impacts, enhancing aquatic plant management, and invasive fishes and the live bait introduction pathway.

**More information on ongoing AIS efforts in Texas can be found at:**  
[www.tpwd.texas.gov/aquatic-invasives](http://www.tpwd.texas.gov/aquatic-invasives)



## 5 Years of Aquatic Invasive Species Management Accomplishments (Fiscal Years 2016 - 2020)

### Aquatic Invasive Plant Management

- Over 50 water bodies being actively managed
- Intensive early detection and rapid response
- More than 60,000 acres of giant salvinia treated
- Nearly 1.5 million giant salvinia weevils introduced as biological controls
- More than 6,000 acres of water hyacinth treated
- Nearly 1,000 acres of other species treated



### Increasing Public Awareness to Slow the Spread

- Annual aquatic invasive species outreach campaign from Memorial Day through Labor Day
- Nearly 800 million “impressions” generated
- Supported by funding from a coalition of 13 partners
- Billboards, gas station advertising on key routes
- Prominent signage at 275+ boat ramps
- Digital and social media advertising
- Communication with 575K+ registered boaters
- 91% of boaters surveyed have heard or seen “Clean, Drain and Dry” message

### Restoring Texas Streamsidess

- Watershed-scale control of river and creekside invasive plants at no cost to landowners
- Over 325 landowners participating in Arundo control across five Hill Country river basins
- Over 15,000 acres of saltcedar treated on over 100 properties on the Brazos River
- Elephant ear control on more than 50 miles of the Llano River



### Invasive Mussel Early Detection

- Coalition of 15 partner entities work together to monitor more than 40 lakes for early detection of invasive mussels’ DNA, larvae, or settled adults
- Partners monitoring existing populations in over 20 water bodies
- Zebra mussels successfully eradicated from Lake Waco as a result of very early detection and coordinated, interagency rapid response