Mississippi River Basin Panel on Aquatic Invasive Species

Panel Coordination Meeting in
Bismarck, North Dakota

MISSISSIPPI RIVER BASIN PANEL
ON AQUATIC INVASIVE SPECIES

Compiled Member Reports

October 20-22, 2026

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State of Alabama, Division of Wildlife and Freshwater Fisheries

Submitted by Adrian Stanfill, ANS Coordinator

Invasive Carp Surveillance:

- Continued collaborative duties associated with the Tennessee and Cumberland Rivers (TNCR) invasive carp sub-basin partnership; the Invasive Carp Advisory Committee (ICAC) and its Data Analysis (DAW) and Sample Approach (SAW) Workgroups under MICRA; and the U.S. Army Corps of Engineers WRDA 2020, Sec. 509, invasive carp control pilot program.
- Continued evaluation of invasive carp relative abundance on Pickwick reservoir. For the Fall 2025 monitoring effort, a grid-based sampling design paired with standard boat electrofishing was implemented, allowing for an expanded number of sampling sites and improved coverage across diverse areas and habitat types within the established Meaningful Management Unit (MMU).
- Continued dozer-trawl monitoring for juvenile invasive carp presence and to assess impacts on ecologically sensitive species (e.g., Gizzard Shad, Bigmouth Buffalo).
- Continued surveillance for population expansion beyond the invasion front during early spring. Multi-boat electrofishing events were conducted to herd invasive carp within habitats likely to support their presence (e.g., closed-end coves, creeks, and backwaters) on Wilson, Wheeler, and Guntersville reservoirs.
- Continued early detection tailwater boat electrofishing surveillance for invasive carp using boat electrofishing below three Tennessee River dams—Wilson, Wheeler, and Guntersville. These tailwaters correspond to the upstream ends of Pickwick, Wilson, and Wheeler reservoirs, respectively.
- Continued collaborative monitoring of invasive carp movement with USGS, TWRA, and Tennessee Tech by offloading receiver data and maintaining receivers within Alabama's portion of the TNCR acoustic telemetry array.

Aquatic Nuisance Species (ANS) state grant activities:

- ADCNR staff secured a fourth consecutive year of funding through the USFWS invasive species grant to support statewide ANS efforts.
- Continued development of educational materials (e.g., brochures, pamphlets, posters, and ANS fact sheets) to engage the public by aiding in the identification of ANS species, providing contacts and resources for reporting ANS encounters, informing stakeholders about methods to prevent the spread of ANS, and offering updates on how the Alabama ANS Program is addressing issues statewide.
- Partnered with Alabama State Parks and the U.S. Fish and Wildlife Service to design access-point signage that addresses invasive species threatening native crayfish and the pathways through which they are introduced.
- Continued developing content for the Alabama ANS Program outreach campaign, including a slogan and program logo, which were identified as effective tools for promoting awareness and conveying ANS messaging to stakeholders.

- Continued collaborations with Samford University (Birmingham, AL), the U.S. Army Corps of Engineers (USACE), and the Alabama Department of Environmental Management (ADEM) to identify data parameter needs for developing zebra mussel risk-management models and standardized monitoring protocols for Alabama's public waters.
- Continued assisting Samford University with standardized zebra mussel veliger sampling on five reservoirs within the Black Warrior and Tennessee River systems to improve understanding of zebra mussel expansion and support efforts to control or eradicate populations from Alabama waterways.
- Compiled an updated list of ANS not currently covered under the existing regulation that prohibits the possession, sale, importation, and release of certain animals, plants, and fish. Modifications to the regulation were approved, resulting in the addition of 10 individual ANS species (one fish, one clam, one mussel, two crayfish, and five plants), along with two genera, to the existing regulation, thereby prohibiting their importation into Alabama.
- Provided recommendations to support changes to existing regulations that would end the sale, importation, and stocking of diploid grass carp in Alabama waterways. No regulatory changes have been implemented at this time.
- Continued coordination with Auburn University Extension staff and intra-agency collaborators to develop a prohibited aquaculture and aquarium species list, as well as a wetlands extension guideline for public use.

State of Colorado, Colorado Parks and Wildlife

Submitted by Jennifer Murray, Invasive Species Specialist

Sampling/Monitoring



CPW has sampled 724 “at-risk” waters for aquatic invasive species since inception. While CPW ANS staff has historically monitored the state’s public waters for numerous invasive plants and animal species, and cataloged native species along the way, the focus of sampling is on the early detection of invasive mussels.

The state follows a three-tier sampling protocol targeting the three life cycles of the zebra, quagga, and golden mussel: (1) conducting plankton tows to find the veligers, (2) deploying CPW sampling staff performing a plankton tow as part of the early detection monitoring program and checking substrates to find the juvenile “settlers” or attached adult mussels and (3) conducting surveys along the shoreline and existing structures for settled juveniles or attached adults.

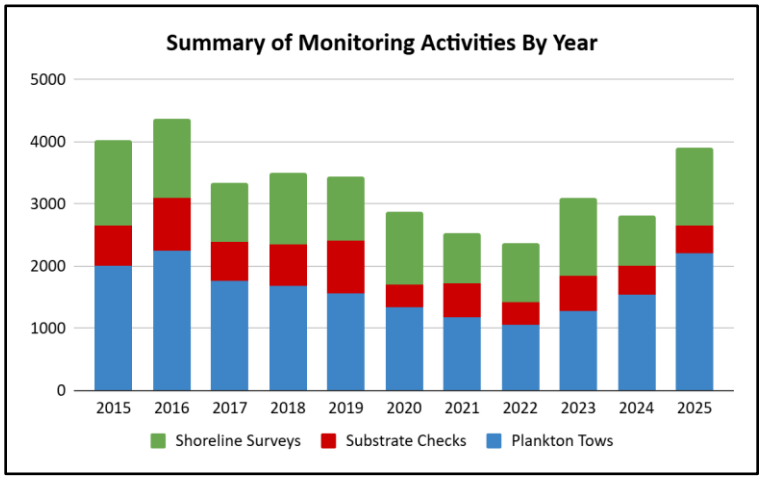
The state requires three steps to identify, verify, and confirm a detection of invasive mussel veligers: (1) visual analysis of plankton tows using a cross-polarized light microscope (2) DNA verification utilizing polymerase chain reaction [PCR], and (3) DNA confirmation utilizing gene sequencing.

Partner Organization	Samples Contributed
Wyoming Game and Fish Department	85
Tahoe Regional Planning Agency	65
River Science	47
Curecanti NRA (National Park Service)	34
Aquatic Animal Health Lab	25
Utah Division of Wildlife Resources	4

The sampling teams conduct early detection sampling for invasive mussels on public lakes and reservoirs. CPW has met the western regional minimum standards for invasive mussel monitoring.

In 2025, crews sampled 227 standing and 41 flowing waters statewide. 94 of these waters had never been sampled for ANS. These sampling efforts produced 2,207 plankton samples, all of which were processed by CPW’s own ANS Laboratory. In addition to CPW’s ANS crew, 260 plankton samples were also received from partner organizations. As one of the only ANS laboratories in the Western United States, CPW processes these partners' samples to ensure the most timely information of ANS presence in these high-priority waters. Their contributions can be seen in the table to the left.

The graph on the right provides a summary of the annual sampling work performed.



New Positions

In 2025, CPW was able to create and hire four new positions for the ANS Program. These included a full-time Program Assistant position, a new Specialist position for the Colorado Headwaters, and two Criminal Investigators, one for the East Slope and one for the West Slope.



ANS Program Full Time Employee (FTE) Team Pic 2026

Zebra Mussels

The detection of zebra mussels (*Dreissena polymorpha*) in Highline Lake in September 2022 represented the first confirmed presence of adult mussels in Colorado waters, necessitating an immediate and evolving containment strategy. An initial March 2023 treatment with the molluscicide EarthTec QZ failed to achieve eradication, as evidenced by further adult detections in late 2023. In response, CPW suspended motorized boating in 2024 to facilitate a total reservoir drainage during the winter of 2024–2025. To prevent downstream contamination during this drawdown, a secondary chemical treatment was applied in the fall of 2024 to neutralize any remaining veligers.



In July 2024, veligers were identified for the first time in the Government Highline Canal, and subsequent monitoring confirmed their presence in the Colorado River from DeBeque to Grand Junction. In response, CPW partnered with the Bureau of Reclamation, U.S. Fish and Wildlife Service, and U.S. Geological Survey to expand river sampling and deploy environmental DNA (eDNA) technology for enhanced detection probability. Although sampling of connected water bodies remained negative for the remainder of 2024, outreach personnel were deployed to implement containment protocols and educate the non-motorized boating community on the risks of accidental transport.

To address the escalating regional threat, a specialized Western Slope sampling and monitoring crew was established in 2025 to provide robust surveillance of the Colorado River corridor. These efforts led to the discovery of adult zebra mussels in a private Eagle County water body, which was subsequently isolated and treated in cooperation with the owner. Furthermore, adult populations were confirmed at Mack Mesa Lake, Red Rocks Lake, and the East and West Lakes of the James M. Robb State Wildlife Area. A multi-agency survey in late October 2025 documented adult mussels within the main stem of the Colorado River, specifically in Glenwood Canyon and near Rifle. Based on these findings, the Colorado River is now officially classified as infested from its confluence with the Eagle River to the Utah state line.

Golden Mussels



In October 2024, the golden mussel (*Limnoperna fortunei*) was detected in California's Port of Stockton — the first recorded occurrence of the species in the United States. Though new to North America, the golden mussel is well-established globally and is known to cause ecological and infrastructure impacts comparable to, or exceeding, those of zebra and quagga mussels. Since its discovery, the species has spread to additional California locations, specifically within the State Water Project infrastructure. In response, Colorado Parks and Wildlife (CPW) updated its regulations to include the golden mussel on the CPW Parks Chapter 8 ANS prohibited species list. To date, the species has not been detected in Colorado through Watercraft Inspection and Decontamination (WID) stations or routine sampling and monitoring.

Other ANS

Rusty Crayfish

First discovered in Colorado in 2009 in a main-stem impoundment of the Yampa River and at two river locations between Stagecoach Reservoir and Steamboat Springs, the invasive rusty crayfish has since expanded its presence in Colorado to include Sanchez Reservoir (2010), Stagecoach State Park (2011), Lake Granby (2023), and most recently, the West Fork Little Thompson River (2025). Native to the Ohio River Basin, these aggressive crustaceans outcompete native species by better avoiding predation and preying directly on native fish eggs and young. Their grazing habits also devastate aquatic plant populations, stripping away essential food and habitat for fish and waterfowl.

To mitigate this spread, CPW regulations mandate that any crayfish caught west of the Continental Divide, or at Sanchez Reservoir, must be immediately killed or returned to the water of origin. This is particularly vital on the Western Slope, where no crayfish species are native.

New Zealand Mudsnail (NZMS)

This tiny invasive snail was first found in Colorado in 2004 in Boulder Creek, the South Platte River below Eleven Mile dam, and the Green River in Dinosaur National Monument.



These animals are accidentally transported and moved primarily by anglers. They hide in the mud on the bottom of boots and equipment. There is no viable method for control of these very small, asexual animals. CPW places a strong emphasis on angler education, providing wader brushes and instructional rack cards to anglers. The only way to stop the spread of these invaders is through educating anglers to clean their waders and gear in between each and every use.

In 2025, NZMS were confirmed in four new locations – St. Vrain Creek in Lyons, a small fishing pond in Dotsero, the Colorado River in Glenwood Canyon and near Glenwood Springs, and the Roaring Fork River near the confluence with the Colorado River also near Glenwood Springs.

In 2026, NZMS were also confirmed in two new locations- Carter Lake in Larimer County, and in the Blue River near Kremmling, Colorado.

Eurasian Watermilfoil (EWM)

The Invasive Species Program has coordinated EWM management statewide since 2005. The Colorado Department of Agriculture lists EWM as a List B Noxious Weed and has a statewide management plan documented in rule.

CPW is concerned about the fisheries and ecological impacts from this noxious weed. Public safety is also a serious concern when this plant invades because it poses a significant hazard to swimmers and recreationists due to its dense structure that can cause people to be tangled and even result in drownings. It creates dense mats that provide ideal habitat for mosquitoes that may carry West Nile Virus. EWM stops and slows the flow of water for agricultural and industrial use and clogs hydroelectric facilities. Finally, EWM changes the water chemistry causing taste and odor problems for drinking water.

In 2025, EWM was confirmed in two new locations - Rocky Mountain Lake in Denver and Salt Creek in Pueblo near St. Charles Reservoirs.

Watercraft Inspection and Decontamination (WID)

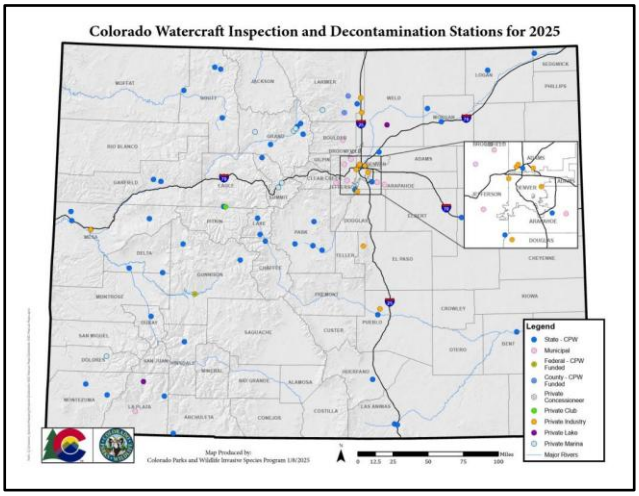
CPW coordinates a vast network of WID stations operated by CPW, the National Park Service, Larimer County, several municipalities, and numerous private industry locations, including businesses, concessioners, marinas, clubs and private lakes. In total, as of the end of 2025, the state has collectively performed 7.9 million inspections and 295,000 decontaminations since 2008.

Per the state ANS Regulations, trailered watercraft must submit to an inspection and decontamination if needed, prior to entrance in Colorado's waters following boating out of state or boating on a positive or suspect water. Boaters are also required to submit to an inspection prior to entering a water body

where inspections are required by the managing agency. All persons performing inspections and/or decontaminations must be certified by CPW.

CPW taught 34 WID certification courses in 2025, in addition to maintaining an online recertification program for experienced inspectors and decontaminators. CPW certified 811 individuals in 2025, bringing the total number of certified inspectors and decontaminators to over **12,200** since the program's inception in 2008.

In 2025, CPW authorized 79 locations to perform watercraft inspection and decontamination. Three new WIDs were also created in 2026. These were roadside inspections at Limon, and Fort Morgan, as well as doing inspections at Tarryall Reservoir, which has not had inspectors present since 2016. Twelve locations operated as containment for other ANS. The focus of the containment program is to inspect watercraft leaving the lakes/reservoirs to prevent boats from moving ANS overland into currently uninfested areas, while maintaining prevention activities upon entrance to the reservoir.



Sixty-seven locations operated as prevention locations. Prevention locations are those that are negative for all ANS or are not located at a waterbody (e.g. offices or marine dealers).

Four more WIDS were created in 2026, mostly on the Western Slope. These include Roadside inspections at Cortez, and Grand Mesa, as well as inspections at Kenney, and on the East Slope, Windsor Lake, which started requiring inspections in 2026.

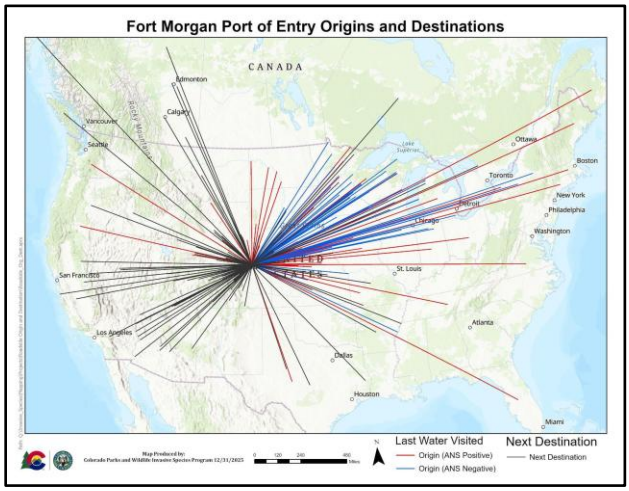


Colorado conducted a total of 438,272 inspections and 30,039 decontaminations in 2025. Decontamination numbers have remained high in recent years as a direct result of CPW adapting to mitigate new threats. Increased invasions in the Colorado River Basin, from Lake Powell in Utah and Arizona downstream, as well as new infestations in states to our east, continue to increase the need for diligent prevention at home in Colorado.

HB21-1226

Authorized by the More Robust Aquatic Nuisance Species Check Stations Act (HB21-1226), CPW continues to expand its roadside efforts following a successful pilot phase in 2022 and 2023, which provided valuable insight into how watercraft travel through the state, and reinforced the importance of further developing this program.

In 2024, a partnership with CDOT and the Colorado State Patrol Port of Entry (POE) staff allowed for the establishment of semi-permanent stations at Loma and Trinidad, while "roving" teams monitored high-risk corridors in Fort Morgan, Fort Collins, Limon, Lamar, and Cortez.



In 2025, the roadside inspection program transitioned to four semi-permanent stations located at Loma, Trinidad, Fort Morgan, and Limon, operating from mid-March through October. The year's results underscored the program's necessity, particularly at the Loma Port of Entry, which maintained the highest volume of traffic and intercepts due to its proximity to mussel-infested waters such as Lakes Powell, Mead, and Havasu. Statewide, these four stations combined to inspect over 5,000 conveyances and conduct 1,302 decontaminations.

Despite the program's operational success, a significant challenge remains: a high number of boaters knowingly or unknowingly bypassing these mandatory check stations. To ensure compliance and safeguard Colorado's water infrastructure, CPW's Invasive Species Program has appointed its first Criminal Investigator, a full-time, POST-certified law enforcement officer empowered to pursue and return boaters who bypass inspections. A second investigator is expected to join the team in late 2026 once they complete CPW LE Training. These officers provide the necessary enforcement authority to mitigate the risks identified during roadside operations, effectively closing gaps in the state's prevention network and deterring future violations.

Roadside Inspection Effort Summary				
	Inspected	**Decontaminated**	**Bypassed**	**ANS Found**
2022	95	60	13	26
2023	21	10	42	2
2024	3370	859	1719	39
2025	5379	1302	2564	60
2026	4,167	1,016	1,294	85
Total	**13,032**	**3,247**	**5,632**	**212**

**2026 data is as of 9/12/2026*

Mussel Boat Interceptions

In 2025, 136 mussel fouled watercraft were intercepted in the state. All of these watercraft were fully decontaminated prior to being allowed into Colorado's waters. Since 2009, a total of 1,074 boats with adult zebra or quagga mussels have been intercepted coming into Colorado.

The majority of the intercepted vessels were coming from Arizona, Lake Powell, the Great Lakes, or the Mississippi River states. All boats were fully decontaminated to ensure all mussels were dead, and no mussels were visibly attached to the vessel.

Information and Outreach

CPW and partner agencies implemented a comprehensive public education campaign to prevent the spread of ANS across diverse recreational user groups. The CPW Invasive Species Program conducted outreach efforts addressing aquatic plants, such as Eurasian watermilfoil, and aquatic animals, including invasive mussels. Efforts included distributing tens of thousands of printed rack cards, brochures, handouts, posters, and signs at offices, boat ramps, and other water-access points, supported by press releases and web-based, radio, print, and television interviews. CPW staff also delivered outreach presentations to boating and angling groups, marine dealers, HOAs, watershed groups, basin roundtables, ditch companies, municipal water managers and providers, and schools. In 2025, CPW expanded public messaging through the “Oh, SHELL No” campaign to broad audiences, sharing posters and messaging with the general public and businesses that could be directly affected by invasive mussels, including farms and breweries.

Increased Focus on Non-Motorized Users

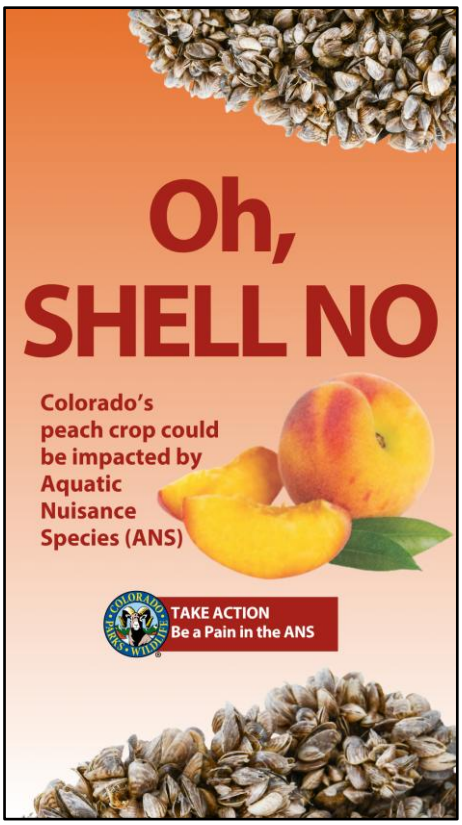
In 2025, CPW continued to prioritize a multifaceted approach to educating non-motorized recreationists on Clean, Drain, Dry practices and providing the tools needed to comply, particularly in areas of elevated risk. Emphasis on the Colorado River remained a priority given documented zebra mussel populations within the system.

Focused Education & User Surveys

In 2025, CPW technicians and ANS staff expanded outreach by engaging diverse audiences at 38 events, expos, festivals, and targeted educational sessions. Beyond these events, technicians focused education efforts on the Colorado, Arkansas, South Platte, and Gunnison basins, providing face-to-face education, cleaning tools, and audience-specific outreach materials to non-motorized users at high-traffic launch sites. During these interactions, staff recorded over 7,000 surveys to document cleaning habits and ANS awareness, data that will refine future prevention strategies.



To help ensure consistent messaging reaches the target audience, CPW developed a series of user group-specific rack cards and instructional videos. Technicians distributed this newly created content and information to 72 river outfitter businesses, empowering commercial partners to reinforce "Clean, Drain, Dry" practices during rentals and guided outings.



Education Campaign: Be a PAIN in the ANS

The 'Be a PAIN in the ANS" campaign targets different water user groups through short video clips posted on CPW's website and social media. These videos relate the Clean, Drain, Dry message to each water user visually. Target audiences include anglers, kayakers, paddleboarders, rafters, and waterfowl hunters.

Non-Motorized Cleaning Stations

To help non-motorized boaters combat the spread of invasive species, CPW installed X CD3 (Clean, Drain, Dry, Dispose) stations at key water access points. These waterless cleaning stations address a Western Regional Panel study finding that non-motorized users often lack the necessary tools at launch sites to Clean, Drain and Dry their gear.



State of Kansas, Department of Wildlife and Parks

Submitted by Chris Steffen, AIS Coordinator

The Kansas Aquatic Nuisance Species Management Plan was approved by the ANSTF in May 2005. The goals of the plan are to prevent new introductions of ANS to Kansas, prevent dispersal of established populations of ANS, eradicate or control to minimize the adverse ecological, economic, social, and public health effects of ANS, educate all aquatic users of ANS risks, and to support ANS research in Kansas. The coordinated efforts contained within the plan are designed to protect residents of Kansas and the state's aquatic resources from the multitude of potential losses associated with ANS plants and animals.

The KDWP Aquatic Invasive Species Program staff consists of 1 full-time AIS Coordinator/Supervisor; 1 full-time AIS Biologist focused on watercraft inspection and decontamination and vegetation management; 1 full-time AIS Biologist focused on commercial bait permitting and inspection and outreach and education; 1 full-time Invasive Carp Biologist; and 1 full-time Invasive Carp Technician.

- **Invasive carp snagging now allowed in Kansas.**
  In 2026 KDWP opened a new opportunity for anglers to snag invasive carp in the Kansas River downstream of the WaterOne Weir to the confluence with the Missouri River. This new opportunity requires no additional permits beyond a fishing license and allows anglers to capture snag silver and bigheadcarp year-round without a creel or possession limit. Invasive carp may be harvested or returned to the water from which they were captured. Invasive carp returned to the water may be dead or alive.

- **Conducted WID at high-use, zebra mussel infested waters in NE Kansas –** Funding through USFWS via QZAP provided KDWP the ability to conduct WID related activities at 4 waters in Northeast Kansas in 2025 and 2026:
  - Milford Reservoir – zebra mussel infested
  - Perry Reservoir – zebra mussel infested
  - Clinton Reservoir – zebra mussel infested
  - Hillsdale Reservoir – zebra mussel infested

  KDWP plans to expand WID efforts to other parts of the state in future years as funding and staffing allows.

- **Continued removal of invasive carps from the Kansas River below the Bowersock dam.**
  Since initiation in 2022, approximately 125,000 pounds of invasive carps have been removed from the Kansas River downstream of the Bowersock Dam to prevent upstream range expansion and to benefit native species and river users below this barrier. KDWP conducted these agency staff removal efforts using a variety of gear including traditional and dozer trawl electrofishing boats and gill nets. Comparisons of demographic data between the areas being targeted for removal and unfished locations continue to show encouraging results and the program is planned to continue.

- **Continued bighead carp telemetry project on Neosho River - Grand Lake system to inform removal**

  In collaboration with Oklahoma Department of Wildlife Conservation and South Dakota State University, invasive carp are being targeted for capture throughout the Neosho River Grand Lake system. All invasive carp captured are implanted with ultrasonic transmitters (Vemco V16-5H; 69kHz). Once fishes are fitted with transmitters, movement and passage will be documented throughout the life of the transmitters (up to 5 years). We are utilizing a monitoring array that is a combination of stationary receivers and manual tracking. The stationary receiver array will extend throughout Grand Lake, Neosho River, and Spring River. Manual tracking is also being conducted at regular intervals and concentrated during seasons with high movement (e.g., spawning movement) throughout the study to garner more fine scale habitat information (e.g., spawning locations) and "hot spots" (e.g., areas of high Asian carp concentration). The receivers will provide enough spatial coverage to detect longitudinal movement throughout the system. Receivers place above and below low head dams will inform passage across these structures.

- **Conducted bait shop inspections across the state.**
  Inspections were conducted at bait shops statewide; no invasive species were found in commercial bait tanks during the inspection process. Bait identification posters and AIS literature were distributed to the bait shops during inspections.

- Education and outreach efforts were continued through a variety of media outlets including internet ads, press releases, and direct mailings. We contracted a marketing firm to revamp our education and outreach materials. Additionally, the firm ran a social media campaign across Meta, YouTube, and Google Ads resulting in 8 million impressions.
- AIS literature and outreach materials were distributed to all KDWP offices, state parks, nature centers, baitshops, marinas and at educational events.

- AIS signage was maintained at AIS infested waters and prevention and awareness signs were placed at uninfested lakes.

- Kansas continues to participate in the *Don't Let it Loose* campaign. The program has been well received and is very popular with pet shop owners. We are supplying additional bags as pet shops request them. We plan to continue purchasing bags in the future and revisiting the locations.

- 105 waterbodies not known to contain zebra mussels were sampled for zebra mussel veligers in 2025 and 2026 (all 150 are planned to be sampled in future years as well).

- Zebra mussels were detected in one new waterbody in 2025 and 2026: Leavenworth State Fishing Lake.

  Previously, zebra mussels were discovered in El Dorado Reservoir in 2003; Winfield City Lake in December 2006; Cheney Reservoir, and Perry Reservoir in 2007; Marion Reservoir and Lake Afton in 2008; Milford and Wilson Reservoirs in 2009; Council Grove City Lake and John Redmond Reservoir in 2010; Council Grove, Melvern, and Kanopolis Reservoirs and Jeffery Energy Center Lakes (2) in 2011; Coffey County-Wolf Creek Lake and Chase County State Fishing Lake in 2012; lakes Shawnee and Wabaunsee and Clinton and Glen Elder (Waconda Lake) Reservoirs in 2013; Pomona Reservoir in 2014; Paola City Lake (Miola Lake) in 2015; Wellington City Lake in 2015; Hillsdale and Cedar Bluff Reservoirs in 2016; Osage State Fishing Lake, Tuttle Creek Reservoir, and Geary State Fishing Lake in 2017; Lyon State Fishing Lake in 2019; Linn Valley Lakes - Main Lake and Emerald Bay in 2020; Lebo City Lake in 2021; Gardner City Lake in 2023; and Carbondale East Lake, Great Bend – Stone Lake, and Shawnee State Fishing Lake in 2024.

State of Kentucky, Department of Fish and Wildlife Resources

Submitted by Jeff Herod, ANS Coordinator

Aquatic Invasive Species Surveillance, Containment, and Suppression

AIS Plant Treatment and Monitoring

KDFWR Fisheries Division continues its efforts to detect, treat, and monitor aquatic invasive plant species in high-priority management areas. The two (2) highest priority species are Eurasian watermilfoil and hydrilla.

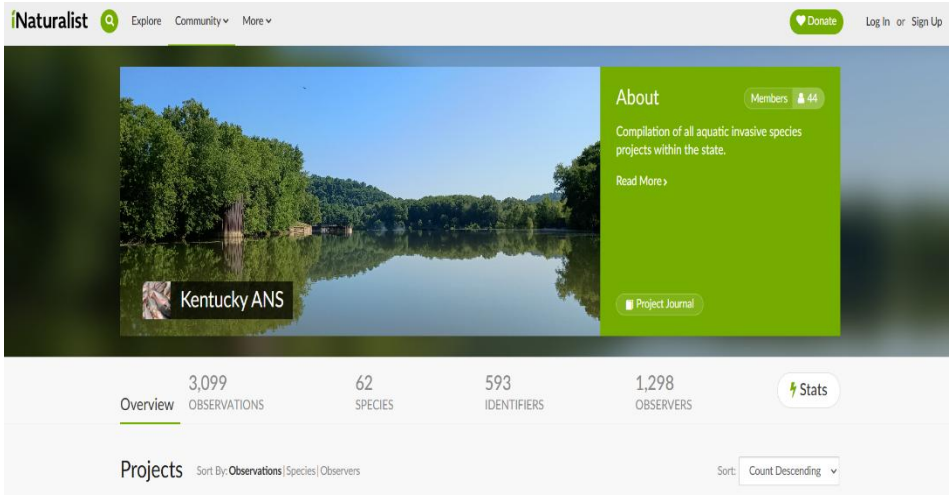
- A winter drawdown was implemented at Cedar Creek Lake to reduce nuisance levels of Eurasian watermilfoil and Brazilian Elodea that covered a large portion of the lake. The water drawdown began on 12 November 2025 and reached a maximum drawdown of 8.9 feet on 18 December 2025. The drawdown was maintained at a level of 8.0 feet through mid-January 2026. Several weeks of below freezing temperatures in January and February should help reduce the abundance of vegetation in the shallow water areas. Vegetation levels will be monitored in 2026 to evaluate the effectiveness of the drawdown.
- At Cave Run Lake, staff treated 23 acres of Hydrilla with herbicides across 4 heavily utilized boat ramps. Treatments were successful in eradicating hydrilla completely within the treatment areas. Additionally, informational signage has been maintained at boating access areas at Cave Run Lake to increase awareness of hydrilla and recommend Clean Drain Dry practices.



- Hydrilla populations at Greenbo Lake continue to be monitored after stocking triploid Grass Carp. Initial assessments are showing mixed results with biological treatment. If this trend continues, future plans to address the hydrilla populations will include herbicide treatments at boating access facilities and bank fishing access locations.
- Hydrilla has returned to Dewey Lake. Kentucky Fish and Wildlife and the U.S. Army Corps of Engineers recently partnered to treat affected areas before the infestation becomes more widespread. Hydrilla was first found at Dewey Lake in the early 2000s and eventually disappeared, but over the past four years it has returned and expanded into shallow areas of the lake. During treatment, some people noticed bright-colored water. The color came from a harmless tracer dye used to track

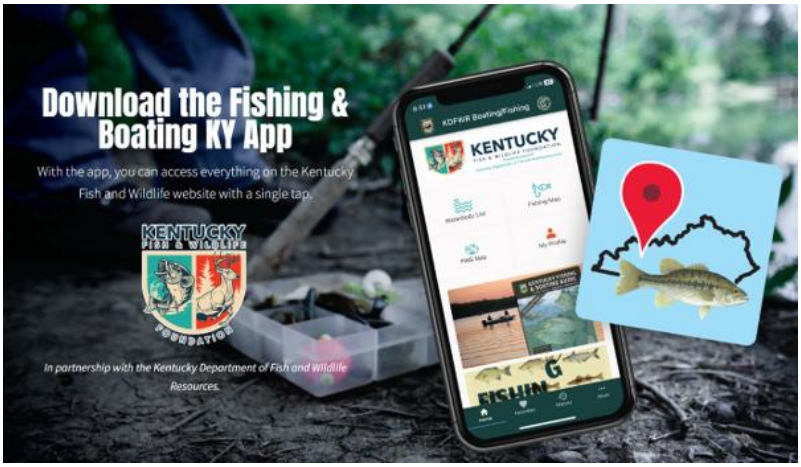
water movement and measure treatment effectiveness—it was not the herbicide. All herbicides used are EPA-approved. Treatments focused on boat ramps to help keep public access open and reduce the risk of hydrilla spreading to other lakes on boats and trailers. Additional areas with heavy growth were also treated. Treatment is now complete, and crews will continue monitoring the lake (photo credit to Jenny Wiley State Resort Park Facebook post August 6, 2026).

- KDFWR started its first aquatic invasive plant survey throughout the state looking to update species distributional data. This project will populate Kentucky's first AIS database, inform control and containment projects, and be used to assist partners with project development.



Kentucky has n=31 AIS plant species, but we have a poor understanding of the distribution and abundance across the state. The survey undertaken in 2026 covered 20 sites in 17 counties. We reviewed 2, 353 records representing 22 plant families in Kentucky. Our survey was informed by selecting a subset of AIS Plant records to test our methods. Our records search included the following databases: USGS NAS, Tennessee-Kentucky Plant Atlas, and iNaturalist. We reviewed a total of 238 records in USGS, 587 records in KY-TN plant atlas, and 1, 528 records in iNaturalist (i.e., "Kentucky ANS" project). We considered species origin and introduction timelines. The region with the highest AIS plant donor rate is Eurasia with 47% of the plant species, while 14% are believed to originate in Asia, and 13% from South America. Some species such as single-vein sweetflag (established 1938) and water-cress (established 1944) have been present in Kentucky for a long time, whereas giant salvinia was detected in December 2025. Single-Vein sweetflag has n=27 (22%) county records which are the most records of any species reviewed. Additionally, there were n=10 species with just n=1 record (i.e., frogbite; southern cattail; narrow-leaved cattail; saltmeadow rush; water mint; gingermint; forget-me-not; waterlily; giant salvinia; common reed; and keek). Trigg county had the most species of AIS plants with nine (9) different species.

- Our approach was to search areas within a site near a boat ramp or access point using two people that each made observations for over 30 minutes identifying any aquatic invasive plants found and taking notes and photographs. The observations were added to iNaturalist in the "Kentucky ANS project". Currently, we are targeting sites that have boating access, are publicly accessible, and identified in our KDFWR Fishing and Boating App. In the future we hope to add *Clean Drain Dry* and AIS information to these locations to raise awareness and assist the public in preventing the spread of AIS plants.



- Staff conducted AIS plant surveys for four days on Barkley and Kentucky reservoirs in July 2026 and conducted a system wide survey at Lake Beshear to follow up on reports of Eurasian watermilfoil by a member of the public.


KDFWR Picture. Giant Salvinia Dec 2025

Other Aquatic Invasive Species Efforts

KDFWR Fisheries Division is working on several AIS issues that involve multiple partners. The current reporting period included efforts to prevent and manage zebra mussels, prioritize AIS for eDNA, monitor for Round Goby, work with partners on Alabama Bass outreach, and participation in Watercraft Inspection and Decontamination (WID) training.

- KDFWR continues efforts to prevent the spread of zebra mussels. Jeff Herod (KDFWR Aquatic Nuisance Species Coordinator) and the Central Fisheries District staff are working with KDFWR malacologist Dr. Monte McGregor of the Center for Mollusk Conservation to monitor zebra mussels in Williamstown Lake, KY. The plate samplers in 2025 were out for four months compared to two months in 2023, thus showing the size differences and weight differences (McGregor credit for photo). Williamstown Lake is basically, still infested at high densities. Densities were not as high in 2025, but samples from several locations in the lake still range between 3,000 to 24,000/ m2, which is still

a major infestation. Based on size, there are many adults that are reproducing in the lake. Multiple meetings over the past few years covered treatment options, potential funding sources, USGS expert opinion, outreach material has been offered as well as information for the lake owners to take free training (i.e., WID).

- KDFWR has developed a priority list of species for eDNA collaboration. This effort is led by the KDFWR Fisheries Division's AIS Management Team. The priority species list for eDNA includes zebra mussels, Round Goby, Alabama Bass, Northern Snakehead, Silver Carp, and several other species. This list was generated by engaging individuals within the Fisheries Division to develop a list and have them provide a ranking. The list was shared with interested partners to aid collaboration on primer development, sampling design, and inform EDRR plans. KDFWR plans to use eDNA as another tool for the surveillance of native and invasive species. Future work with partnerships may include hybrid analysis, validating dPCR, and metabarcoding. Currently, the focus has been on fishes, but furture work includes crayfishes, mussels, snails, and plants.



Zebra mussel monitoring plates before (left) and after 2 months (middle and right) in 2023

- Again this year, KDFWR staff completed Aquatic Invasive Species Watercraft Inspection and Decontamination Training (WID). The classes included an overview of education and outreach, AIS biology and impacts, watercraft anatomy and function, inspection procedures, decontamination standards, and strategies for implementation. KDFWR continues to build its capacity.
- KDFWR is an active participant in the Alabama Bass Working Group chaired by Thomas Miles, Tennessee Cooperative Fishery Research Unit, Tennessee Tech. This group has a MSTeams page and holds coordinated calls. The group's purpose is to share and discuss new detections, photos, research proposals, management actions (i.e., regulation changes), relevant literature, etc. The first detection of Alabama Bass in Kentucky was confirmed in 2026.
- KDFWR conducted Round Goby monitoring on the Mississippi river in the winter of 2025 and spring of 2026 (n=270 trap nights). No Round Gobies were caught.

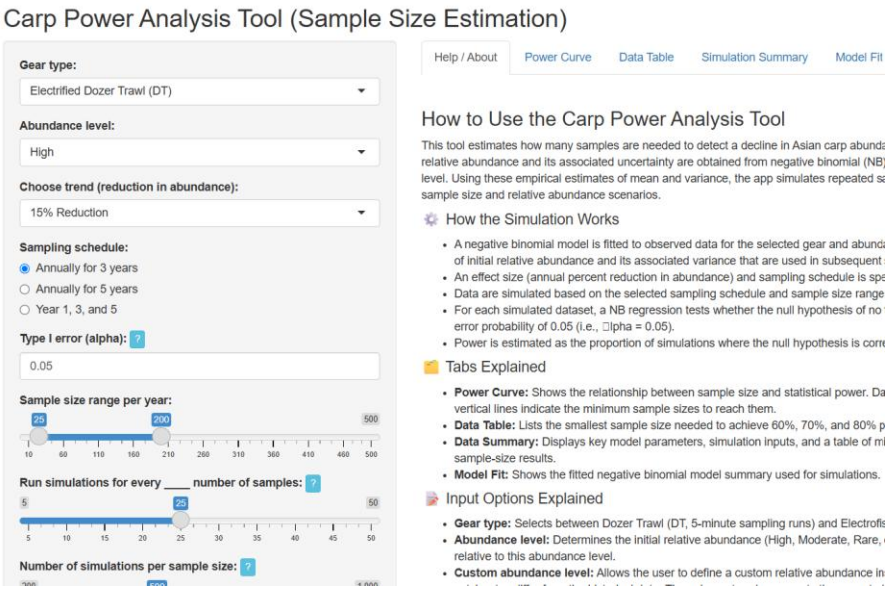


Invasive Carp

KDFWR Fisheries Division continues a myriad of efforts to detect, track the movements, control/ harvest, and contain Invasive Carps. KDFWR is active in both the Tennessee-Cumberland River Basin and the Ohio River Basin. In addition to harvest, KDFWR works on early life stage projects, occupancy sampling, community assessments, age and growth, and telemetry. Its annual activities are in coordination and collaboration among many other partners working in these subbasins. These project accomplishments are linked to national and subbasin priorities.

- KDFWR continues its efforts as a partner working on Invasive Carp issues in the Ohio River Basin. KDFWR is involved in the Early Life Stages project, Telemetry project, Control and Containment project, and leads the Early Detection and Evaluation project. KDFWR implements projects in J.T. Myers pool to Meldahl pool. These projects collect Invasive Carp data and analyze it for year-over-years trends as well as for intra-annual changes. Data collected includes species, individual counts, lengths, weights, sex, location, and movement. The partnership looks to detect, define, and measure the impact that harvest has on Invasive Carp populations (i.e., agency and commercial fishers).
- KDFWR is working with U.S. Fish and Wildlife Service Region 3 (USFWS) to sample Invasive Carp using eDNA. Two locations were sampled in October 2024 and four locations in 2026. In 2026, at the time of the reporting only Rough River Lake and Green River Lake were sampled. This is part of KDFWR Early Detection Rapid Response (EDRR) efforts to address threats to high priority inland fisheries and develop response plans. The first surveys are focused on Invasive Carp with future surveys including additional aquatic invasive species. Future KDFWR work was discussed with USFWS Region 3 and Region 4 on an eDNA coordination call in December.
- KDFWR, West Virginia University (WVU), Indiana Department of Natural Resources (INDNR), and U.S. Fish and Wildlife Service (USFWS) are coordinating on the final steps in the development of an occupancy model using Invasive Carp. WVU Drs. Bayer, Rota, and Murry developed the tool that was built using data from partners in the Ohio River Basin. This model resulted in a tool that provides a power analysis to inform sampling effort to detect Invasive Carp. The tool has a Shiny App for Invasive Carp Power Analysis

(i.e., sample size estimation). It can be found at the following link



(https://invasivecarp.shinyapps.io/CarpAbundanceOverTime/).

- Completed YOY Black Carp sampling on the LMR, Lower Ohio, Tennessee, and Cumberland rivers. Low numbers of YOY Black Carp continue to be collected across sites in Western Kentucky.
- KDFWR collected no YOY Invasive Carp in Barkley or Kentucky reservoirs in 2025.
- Hoop nets were fished to monitor Adult Black Carp in Western Kentucky. ~192 nets nights in 2025 and ~134 net nights in 2026. No adult Black Carp were collected through this effort since 2024

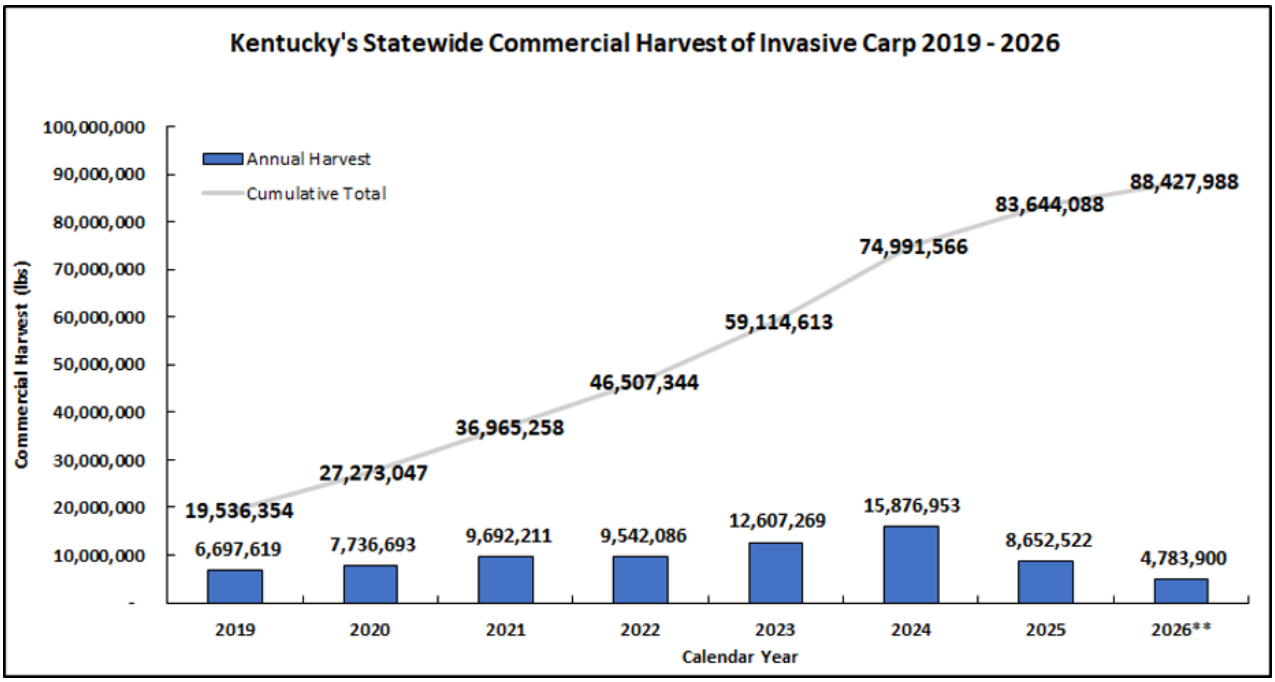


- KDFWR staff completed 175 ride alongs with commercial fishers in the Invasive Carp harvest program in February 2025 –August 2026.
- KDFWR continued our experimental gear and methods program with three Tier 1 and one Tier 2 participants in 2026. Less than 10 days of field work occurred with participants in 2025. However, sufficient data was collected from the Tier 2 participant and gear to recommend a regulation change to allow seine with specific limitations as an option under the Invasive Carp harvest program.
- KDFWR helped develop and host detailed field and office training of commercial fishing gears and regulations with law enforcement recruit classes in 2025 and 2026 (n=4). This

provided recruits with hands-on experience with common fishing gears and methods on the water.



- KDFWR completed ramp surveys of boaters on Barkley and Kentucky reservoirs in 2026, to assess public perception of carp populations and safety concerns of carp boat strikes and live bait use.
- KDFWR assisted TWRA with tagging 2000 Silver Carp in the Tennessee and Cumberland Rivers (TNCR) for an exploitation study in 2025 & 2026.
- The Barkley and Kentucky reservoirs account for >80% of Kentucky's statewide Invasive Carp harvest that exceed 88 million pounds harvested from 2013 to 2026.



Invasive Carp Deterrents and Planning

- KDFWR assisted with the decommissioning of the HTI telemetry array at Barkley lock associated with the end of the Bio-Acoustic Fish Fence (BAFF) assessment study.
- KDFWR continued to maintain an extensive telemetry array within the TNCR, with over 70 Vemco receivers being maintained by the Murray carp staff. Data was offloaded quarterly and shared with partners to inform several projects within and across subbasins.

- The BAFF has operated continuously *ON* since 2024. KDFWR has been working through the WRDA process to act as the non-federal sponsor to transfer ownership and operation of the BAFF at Barkley L&D from USFWS to USACE.
- KDFWR presented a proposal to determine the feasibility of using a low-voltage fish fence to harvest Invasive Carp in the Salt River (i.e., a tributary to the Ohio River that is within Cannelton Pool which is the Intensive Management Zone) and deter Invasive Carp from moving into certain areas of the Salt River. Since providing the proposal, West Point was selected as the most feasible location to test the LVFF which is near the confluence of the Salt River and Ohio River. A new partner, US Army Installation Ft Knox, has joined the team and is offering assistance with logistics and support for the project. The pilot project has multiple phases, and each phase has metrics that assess the feasibility of the project prior to proceeding to the next phase. Silver Carp are a potential threat during on water training where military personnel might encounter jumping individuals and potentially be struck.
- Ohio River Sub-basin Invasive Carp Partnership is engaging with USACE (Dr. Bertarnd Lemasson and others with Engineer Research & Development Center (ERDC)) on potential locations and approaches for the deployment of deterrents in the Ohio River Basin. In 2026 there have been two coordination calls and site visits to review conditions at several different locations.

<u>Education and Outreach</u>

- KDFWR Fisheries Division continues to engage the public with updates on species and best methods they can use to prevent the spread of aquatic invasive species. KDFWR focused on engaging different groups of people at venues ranging from 20 to 200 people

  about Invasive Carp and KDFWR management efforts. These events were held in western Kentucky (Calloway, McCracken, and Graves Counties) mainly but also included the Kentucky State Fair and The Taste of Bluegrass event in Louisville, KY. The Taste of Bluegrass event was a partnership with UK Extension staff, at which the Copi Salad recipe won People's Choice Award. The event consisted of a tasting, filleting demo, and/or presentation on Invasive Carp biology and ecology.



- Other events of note were
  - Land Between the Lakes presenter series
  - West KY Boat Show
  - Elk Fest Numerous school career days
  - Murray State University Earthday

KDFWR Fisheries Division updated the AIS section of the Fishing and Boating Guide. General AIS information was added in highlighting the number of aquatic invasive plant species, the newest species of plant found, and pathways that spread these species. KDFWR continues to incorporate the national brands of *Clean Drain Dry* and *SAH*.

CLEAN DRAIN DRY™ INITIATIVE



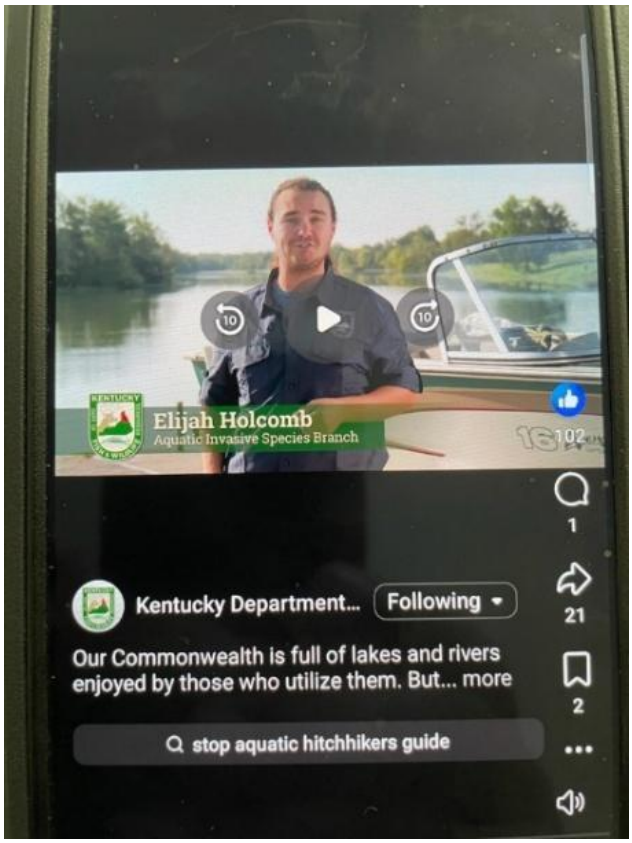
- KDFWR Fisheries division has created multiple Facebook posts educating the public on AIS plants for National Invasive Species Awareness Week. The first post was depicting a different species in each Region of Kentucky highlighting the most common AIS plants. These included parrot feather in the Purchase Region, purple loosestrife in the Green

River Region, curly-leaf pondweed in the Bluegrass Region, brittle naiad in the Southeast Region, and hydrilla in the Northeast Region.

- There was a post updating the public about Alabama Bass found at Lake Linville and their danger to the native ecosystem asking to not transport aquatic species between waterways.



- KDFWR Fisheries division created 74 *Clean Drain Dry* signs to be distributed throughout the state. So far Western Fisheries Division put up 10 signs, Northwest Fisheries Division put up 10 signs, Eastern Fisheries Division put up 20 signs, and Central Fisheries Division put up 15 signs. Along with the *Clean Drain Dry* signs, Alabama Bass signs were distributed at Lake Linville, Wood Creek, Dale Hollow, Laurel River Lake, Lake Cumberland, and a couple of bait and tackle stores.
- The most recent post was of a *Clean Drain Dry* video created to educate the public on what the Clean Drain Dry initiative is and why it is important.



State of Louisiana, Department of Wildlife and Fisheries

Submitted by Rob Bourgeois, AIS Coordinator

New Reported ANS:
No new ANS species were reported.

Updates to ANS species:

Tilapia:
Nile or Blue Tilapia (or hybrids) have been confirmed in the drainage canals in Jefferson Parish and in Lake Pontchartrain. In late 2025, LDWF also sampled the existing population in Plaquemine Parish. That population has returned to the previous population level observed in 2009 before the control
operation.

Rio Grande Cichlids:
Rio Grande Cichlids are being found consistently by fishermen in the Houma area. In 2025, Rio Grande Cichlids were reported in the Baton Rouge area, but we have received no new reports in 2026.

Apple Snail:
In early 2026, we have confirmed the Apple Snails in Shreveport have survived the 2025/2026 winter. We will continue to check these populations over the next few years. We expect that this recent range expansions may indicate that the entire state may be a suitable habitat for Apple Snails.

LA Invasive Carp Management Program (LICM):
LDWF started the LICM Program in 2020. Below is a list of the projects and key findings.

Movement and Telemetry Projects
LSU – Telemetry: East/West ICWW movement
LSU – Telemetry: Atchafalaya Basin
LSU – Telemetry: 3 Rivers area
LSU – Telemetry: Red River to TX (funded in 2024, in progress)
LSU – Telemetry: Ouachita/Tensas Rivers (funded 2026, in progress)
LSU – Telemetry: Red River lock transit rates (proposed 2027)

Key Findings
• SilverCarp use low salinity water to move between basins
• Migration to the larger rivers starts in March
• Some individuals appear to have site fidelity and migrate to the same location to spawn
• Some of our South LA Carp have left Atchafalaya Basin and well found into the Yazoo River System

Impacts to Natives/Behavior Studies

LSU AgCenter - Stable isotopes and body condition of natives (Coastal lakes)
LSU AgCenter - Stable isotopes and body condition of natives (Atchafalaya Basin)
USACE-ERDC - Mescosm direct competition study
ULL – Changes in zooplankton composition
LDWF - Livescope behavior study (in progress)
LSU AgCenter - Predator evaluation (funded 2026, in progress)
ULL - Larval monitoring- Continuation of previous studies (proposed 2027)
LSU AgCenter - Adult carp population monitoring (proposed 2027)

Key Findings

• Silver Carp show dietary overlap with shad and buffalo
• Changes in Bigmouth Buffalo condition index show that carp may be impacting them
• Mesocosm studies with Paddlefish show that carp directly impact Paddlefish condition and survival

Population Monitoring Studies

Nicholls - State wide larval study (2 yr study)
Nicholls - Larval study - Atchafalaya Basin
ULL - Plankton classifier (funded 2024, in progress)
ULL - Use of AI to identify all 4 carp species larvae (proposed 2027)

Key Findings

• Carp larvae did increase over time
• Carp larvae are only found in high flow locations
• Carp larvae were not found in the same locations or time as centrachid larvae
• Automated larval classification will increase speed of identification (96% accuracy)

Market Development/Commercial Harvest Studies

Nicholls - Fertilizer study
LUMCON/Aquareach - Catfish feed study
LDWF - Commercial market survey
LUMCON/Aquareach - Rainbow trout feed study
LDWF - Commercial gear study (in progress)
LDWF - Outreach (funded 2025, in progress)
ULL - Crawfish bait (funded in 2024, in progress)
LDWF - Age characterization of the commercial fishery (funded 2026, in progress)
LDWF - Commercial engagement and outreach (funded 2026, in progress)
Nicholls - Net selectivity (funded 2026, in progress)
LDWF - Outreach and coordination (proposed 2027)
ULL - Protein percentage in crawfish bait(proposed 2027)
Nicholls - Crab bait suitability (proposed 2027)

Key Findings

- Silver Carp are a viable substitute for catfish and Rainbow Trout feed
- Commercial industry removes up to half a million pounds a year with the majority used as crawfish bait
- Biggest obstacle is frozen bait storage during off season
- Early results indicate carp based prepared bait(shelf stable) is a viable option

Status of established ANS:

Blue Land Crab:

No reports in 2026. Historically, Blue Land Crabs were reported on Grand Isle. LDWF has anecdotal reports of these crabs occurring periodically on Grand Isle "back to the 1950s after a winter without a Freeze."

Chinese Mitten Crab:

No reports in 2026. LDWF requested sightings from the public in Feb 2025 but has not received any more reports. Another, request for sightings and information flyers will be sent out to crab dealers in the winter of 2026.

Northern Snakehead:

No reports in 2026. No new snakeheads have been reported to LDWF since the original report in 2023. LDWF continues to monitor the Mississippi River backwaters for snakeheads during regular sampling tasks.

Asian Swamp Eels:

No reports in 2026. Asian swamp eels (Monopterus cuchia) were found in Bayou St John, New Orleans, in June 2019. LDWF and a local university professor continue to monitor and sample the population. It is believed that this is a population with very low numbers at this time.

Invasive Aquatic Vegetation Control

LDWF finished a research study on the control of Cuban Bulrush in late 2025. Currently, another study on the control of Cuban Bulrush under various shade and salinity regimes will take place in 2027.

The table below shows the amount of acres sprayed as part of LDWF Aquatic Plant Control program.

Year	Vegetation	Sources	Acres Sprayed
2026	Alligatorweed	LDWF	8.20
2026	American Lotus	Contract	1,000.00
2026	Buttonbush	LDWF	47.00
2026	Crested Floating Heart	LDWF	15.00
2026	Paragrass	LDWF	9.33
2026	Pennywort	LDWF	3.33

2026 Primrose LDWF 3.33

2026	Salvinia, Common	LDWF	34.33
2026	Salvinia, Giant	Contract	2,571.50
2026	Salvinia, Giant	LDWF	1,355.29
2026	Southern Naiad	LDWF	1.80
2026	Water Hyacinth	Contract	40.00
2026	Water Hyacinth	LDWF	94.33
2026	Yellow Floating Heart	LDWF	56.00

Louisiana Sea Grant

Submitted by Micah Patout, Extension Specialist

Programs and Activities:

- Gyotaku on the Bayou, St. Mary Parish (October 1-3, 2026): 8 students, 15 adults Baton Rouge's Bluebonnet Swamp, Invasive Species Signage update (2026) OC Metrics (October 28, 2025): 1,628 students, 296 adults
- Wetland Day for Hammond (October 21, 2025): 44 students, 4 adults Wetland Day for Livingston Schools (September 16, 2025): 67 students, 7 adults Wetland Day for West Feliciana (September 3, 2025): 60 students, 4 adults Marsh Dawgs (May 27-29, 2025): 16 students
- Wetland Day for St. Amant (May 16, 2025): 24 students, 2 adults
- Wetland Day for St. Bernard (April 14-15, 2025): 185 students, 12 adults Wetland Day for Boothville-Venice (February 25, 2025): 24 students, 14 adults Wetland Day for St. Lilians (February 21, 2025): 40 students, 10 adults Wetland Day for Roseland (February 7, 2025): 35 students, 4 adults
- Newman STEM Day (February 1, 2025): 150 students, 200 adults

Through classroom programs, public workshops, STEM events, and community outreach, Louisiana Sea Grant provided hands-on educational experiences that connected participants with Louisiana's coastal, wetland, and fisheries resources. Programs emphasized environmental stewardship, conservation, invasive species education, and an increased understanding of aquatic ecosystems and natural resource management. These efforts helped foster awareness of the interconnected waterways, habitats, and living resources of the Mississippi River Basin while encouraging informed stewardship among students and community members.

State of Minnesota, Department of Natural Resources

Submitted by Adam Doll, Assistant Regional Manager – Central Region, Ecological and Water Resources

Watercraft Inspection and Enforcement

In 2025, Minnesota DNR and local government watercraft inspection partners completed 451,349 inspections on watercraft arriving and leaving water accesses within Minnesota. The DNR employed 40 Level 1 (inspection) and 31 Level 2 (inspection and decontamination) inspectors in 2025 with an additional 760 inspectors hired by tribal or local units of government. The DNR trains all watercraft inspectors through a hybrid learning system consisting of online and in-person training. In addition to the DNR staff who received in person training in 2025, three DNR Trainers also trained tribal or local government inspectors at 56 in-person Level 1 training and 27 in-person Level 2 training. DNR conservation officers provided 11,263 hours of AIS enforcement and education. Three new K9 Teams completed training and joined the Enforcement Division in 2025. Conservation officers worked in partnership with watercraft inspectors to conduct 13 roadside check stations to inspect watercraft and equipment transported within Minnesota.

Invasive Carp

The Minnesota Legislature appropriated $12 million, as recommended by the Lessard-Sams Outdoor Heritage Council, to the DNR to design, construct, and begin operating and maintaining a deterrent for invasive carp at Lock and Dam No. 5 on the Mississippi River to protect Minnesota's aquatic habitat through an adaptive management approach. The DNR partnered with agencies with relevant expertise and jurisdiction to begin scoping this project in 2024. DNR has entered into an agreement with the U.S. Army Corps of Engineers to complete the engineering design for a selective lock deterrent, to be completed no later than June 30, 2027.

The deterrent will be installed no later than June 30, 2029. The project also includes other components to improve the function of the lock deterrent such as a trap-and-sort system to remove invasive carp and developing deterrents for use at the tainter and roller gates. In spring 2026, the DNR, U.S. Fish and Wildlife Service, and Wisconsin DNR partnered to tag 262 native fish and 50 invasive carp, to assess movement of these species through Lock and Dam 5 before and after deterrent installation. Scoping and assessment are also proceeding for the trap-and-sort and dam gate deterrents.

DNR continues to monitor, tag and track, and remove invasive carp, and partners with other agencies to continually refine and expand these activities, as outlined in the 2024 Invasive Carp Action Plan. In 2025, 60 invasive carp were captured in Minnesota and border waters, and 26 of those were tagged and returned to the river for use in targeting schools of invasive carp for removal. Algae pellet bait was tested by USGS-CERC, Minnesota DNR, and Wisconsin DNR in late summer 2025, in an effort to lure invasive carp into netting sites for removal. However,

baiting did not result in increased captures. In 2026, a grant from the U.S. Fish and Wildlife Service enabled the DNR to add an additional 30 acoustic telemetry receivers to Mississippi River Pools 5A-8 to help monitor movements of tagged invasive carp. The DNR is also partnering with the U.S. Fish and Wildlife Service on active, boat-based tracking of tagged carp. Active tracking of invasive carp has already paid dividends, locating several new sites for invasive carp capture near La Crosse, WI and alerting DNR to seasonal aggregations of invasive carp. A grant from the Environment and Natural Resources Trust Fund, as recommended by the Legislative-Citizen Commission on Minnesota Resources, is currently being used to complete a watershed breach study to identify potential pathways for invasive carp to move between watersheds in the state.

Regulation

The Minnesota legislature voted to increase the state's aquatic invasive species surcharge during the 2025 legislative session. The AIS surcharge last increased in 2019, the first increase in 25 years, from $5 to $10.60 for a three-year watercraft registration. The new increase raises the surcharge on a sliding scale from $14.00 up to $62.00 depending on watercraft size. This increase will support Minnesota's ability to prevent and manage aquatic invasive species by:

1) Increasing the budget for grants available to lake associations, Tribal Nations, and LGUs for invasive aquatic plant management, including pilot projects with local partners
2) In the last two years, the DNR awarded about $400,000 each year for invasive aquatic plant management (IAPM) grants. The AIS surcharge increase allowed the DNR to increase that allocation by $660,000, for a total of over $1 million in IAPM grants annually.
3) Increasing staffing (by 4 FTE) to improve the DNR's responsiveness to new and existing AIS populations and introduction pathways, technical assistance for long-term lake vegetation management plans and permitting, and AIS grant management support.

County AIS Prevention Aid

2026 - The Minnesota DNR provides support to local government staff leading their county's AIS prevention programs by facilitating regional workshops and providing technical support. In March 2026, the DNR hosted a series of three online workshops and two in-person collaboration meetings. Online workshops included topics of interest including: Prevention Within and Across Borders, Successes and Cuts to AIS Prevention Funding: A Compelling Story of AIS Prevention in Minnesota and Partnerships. Online workshops attracted 70-90 attendees each. In April, two in-person collaboration meetings attracted 39 and 24 stakeholders, respectively, who support development and implementation of local AIS programs. Attendees included but were not limited to local and tribal government staff overseeing prevention AIS programs, watercraft inspection staff, regional and statewide partners, non-government organizations, and representatives from academia and private businesses.

2025 - The Minnesota DNR provides support to local government staff leading their county's AIS prevention programs by facilitating regional workshops and providing technical support. In February and March 2025, the DNR hosted a series of four online workshops and two in-person collaboration meetings. Online workshops included topics of interest including: New Approaches, Partnerships, "learn from experts" segments, and Public Engagement. Meetings began with a few short presentations, primarily from local programs, which were followed by facilitated discussions. Online workshops attracted 70-90 attendees each. In April, two in-person collaboration meetings attracted more than 40 staff and stakeholders involved in development and implementation of local AIS programs. Attendees included but were not limited to local and tribal government staff overseeing prevention AIS programs, watercraft inspection staff, regional and statewide partners, non-government organizations, and representatives from academia and private businesses.

Early Detection (signal crayfish)

In September 2023, the DNR confirmed the presence of nonnative signal crayfish in Lake Winona, Douglas County. This was the first confirmation of signal crayfish in Minnesota waters, and the first confirmation of signal crayfish in the Midwest. The Minnesota DNR partnered with Douglas County and the Minnesota Aquatic Invasive Species Research Center (MAISRC) to coordinate multiple trapping efforts on Lake Winona and seven nearby lakes in 2024. No signal crayfish have been captured, however there were four eDNA detections from water samples in Lake Winona.

Based on the locations of the four eDNA detections, we focused 2025 delineation trapping in Lake Winona, Lake Agnes, Henry, and Carlos in Douglas County. Trapping efforts were conducted in June, August, and October with no signal crayfish captured. During all three 2025 trapping periods, native crayfish species of both sexes and a variety of age classes were caught and released, indicating that the baited funnel traps deployed and sites selected were well suited for crayfish surveillance. There were no signal crayfish eDNA detections from 19 samples collected in August 2025 in Lakes Winona, Agnes, Henry, and Carlos.

Invasive Aquatic Plant Management Grants

In 2025 and 2026, the Minnesota DNR Invasive Species Program issued 482 and 427 permits (respectively) to control invasive aquatic plants. Through our grant program, $400,000 (2025) and $1,060,000 (2026) was made available to local partners such as lake associations, watershed districts, and lake improvement districts. This money was distributed to 64 (2025) and 57 (2026)projects to treat Eurasian watermilfoil, curly-leaf pondweed, flowering rush, and starry stonewort.

Invasive Aquatic Plant Management (nonnative *Phragmites*)

The DNR continued to work with partners throughout the state to implement a coordinated response to nonnative Phragmites (*Phragmites australis* subsp. *australis*) in Minnesota, which is known to have been present at only 2,855 locations over the last 11 years. In 2026, DNR contractors evaluated populations at 561 sites prior to the 2026 treatment season. Nonnative Phragmites was not detected at 156 of those sites, with 21% of sites treated in 2025 being not detected in 2026.

State of Nebraska, Game and Parks Commission

Submitted by Kristopher Stahr, AIS Program Manager



2026 marked arguably the most successful season in Nebraska AIS history. The program conducted 8,084 watercraft inspections in the 2026 field season, second most in Program history. The high number of inspections was accomplished despite being down 2 staff members. Nebraska continues to utilize a roving inspection system that maximizes the number of boaters contacts with limited staff at areas with the highest use (and highest risk) in Nebraska.

The Nebraska AIS Program collected and processed over 200 early detection veligers samples taken statewide. Sampling occurs monthly at over 50 waterbodies and are subsequently analyzed in-house by NGPC AIS staff. No other program with comparable resources and staff conducts this level of veliger sampling and analysis in-house. The quick sampling and analysis turnaround allows the NGPC AIS Program to rapidly respond to any new Dressenid mussel infestations. Nebraska remains the last State in the Eastern Great Plains without widespread Dressenid Mussel invasion. The complementary approach with roving inspections and early detection sampling is critical to maintaining that fact.

Nebraska also remains a regional leader in managing invasive aquatic plants. In the 2026 season 42 waterbodies were comprehensively sampled for invasive aquatic plants. Aquatic plant surveys are conducted on a rotating basis to catch new infestations early resulting in a higher likelihood of control and possible eradication. Fourteen whole-waterbody herbicide treatments were also conducted on Curlyleaf Pondweed, Eurasian Watermilfoil, and Hybrid Watermilfoil across the State. The NGPC AIS Program has confirmed eradication in 7 waterbodies with Hybrid Watermilfoil that were treated in 2025.

With only 2 permanent staff and limited funding resources, education and outreach remain crucial to Nebraska's success. The NGPC AIS Program participated in or hosted over 30 in-person events across the state. An estimated 20,000 promotional AIS awareness items were distributed to the public from these events and watercraft inspections. Nebraska also recently received funding from the Bureau of Reclamation to acquire a dedicated AIS outreach/education trailer to help further program efforts. Additionally all NGPC State hatcheries were personally inspected by the AIS Program Manager with no invasive species detections at any location.

State of North Dakota, Game and Fish Department

Submitted by Ben Holen, ANS Coordinator

Outreach

NDGFD continues to implement a comprehensive ANS education/outreach program. NDGFD utilizes print materials, radio, television, social media, digital marketing, and personal contacts to raise ANS awareness at a regional level. Some examples include:

- In 2026, we contracted work with InForum, a regional TV/internet and media provider, to develop and disseminate ANS commercials/content. InForum has played weekly ANS commercials during the nightly news in North Dakota.
- Partnered with US Forst Service and other to install large “Protect our Lake” signs at major boat ramps on Lake Sakakawea.
- Partnered with USACE and ISAN to hold outreach events at major marinas around Lake Sakakawea.
- Miscellaneous- ice box wraps, posters, swag, magazine articles, podcasts, billboards, window clings, targeted emails, press releases, pet store bags, etc
- Radio advertising throughout much of the state.

Monitoring

Zebra mussel

NDGFD collects 2500+ plankton tow net samples from ~170 waters every year. These efforts led to the detection of a new zebra mussel population at Smishek Lake (2025) and Horseshoe Lake (2026). In addition to plankton tows, NDGFD uses substrate deployment/searches, eDNA, and snorkeling to look for new ANS populations.

Invasive carp

Silver carp continued to be documented in the James River in low abundance. With low water conditions in 2026, there were no public reports of silver carp and NDGFD observed only one fish during annual monitoring efforts.

Nuisance vegetation

Eurasian watermilfoil continues to establish slowly on the upper end of Lake Sakakawea. Curly leaf pondweed was detected by the Department at Horseshoe Lake (2025) and Lake Tschida (2026). Flowering rush was confirmed by the Department in the Souris River (2026).

WID/ Prevention

NDGFD hires 17- 22 seasonal employees that conduct watercraft inspections at 20+ different waterbodies. Since 2025, the Department has inspected 20,000+ watercraft. Boater compliance

with ANS regulations remains relatively high. Large commercial equipment, including barges and tugboats, remains one of the highest risk vectors for spreading zebra mussels. Since 2025, NDGFD has inspected over 200 pieces of large industrial equipment. Commercial equipment inspections led to the finding of 20+ pieces of zebra mussel fouled equipment.

In addition to inspection efforts, NDGFD supports ANS prevention devices, CD3s, ILIDS (virtual inspection cameras), and free-to-use boat wash stations. The purpose of these devices is to raise awareness of ANS and increase compliance with ANS regulations. In total, NDGFD supports 15 ANS prevention devices across the state. Thousands of boaters interact with these devices every season.

Smishek Lake

Zebra mussels were documented in Smishek Lake (Burke County), last October. Since water from Smishek Lake eventually flows into Lake Sakakawea, control and eradication of this population has been a priority. In 2026, NDGF administered applications of an EPA registered molluscicide EarthTecQZ. The initial treatment occurred between May 19 and June 2. As a result, Cu concentrations were sustained above 200ppb on the lower end of the lake for ~22 days. However, sustaining the desired Cu levels in the north/middle sections of the lake was difficult. The middle and north sections are shallow, so Cu levels were likely lower because it was binding to suspended sediment and was metabolized by high densities of aquatic vegetation in those sections.

A follow-up snorkeling survey was conducted on July 7th to review the lake perimeter in 3-5 feet of water to evaluate for live adult mussels. We found no mussels on the north side of the lake. Unfortunately, there were several hot spots with live mussels. Given we killed mussels in other locations and had favorable water temperatures, we treated those hotspots once again on July 14th.

Following this application, the hot spots were reevaluated. Some mussels died rapidly following this treatment. However, many mussels seemed to flee and left attached byssal threads, others seem to be alive but still may experience delayed mortality. The NDGF plans to evaluate follow up actions after we better understand the level of delayed mortality in those remaining mussels. In summary, it appears we may have achieved good control but didn't reach the gold standard of eradication. NDGF is currently evaluating further treatment/control options this winter.

Facility Inspections

NDGFD inspects many different facilities on an annual basis for ANS; this includes bait vendors, pet stores, and federal/private fish hatcheries.

State of Ohio, Department of Natural Resources

Submitted by John Navarro, Aquatic Stewardship Program Administrator

- Continue control efforts of *Hydrilla* at several inland impoundments in the Ohio River basins, including Mosquito Creek Lake and Alum Creek. Seneca Lake had a recent *Hydrilla* discovery, and the Muskingum Watershed Conservancy District implemented control actions.
- Continue to monitor Bighead Carp and Silver Carp in the Ohio and Muskingum Rivers using telemetry and eDNA. Silver Carp eDNA has been detected to Stockport Dam which is a progression past the last detection at Luke Chute Lock and Dam. This river is monitored because of its connection to the two-medium risk GLMRIS project areas.
- Continue to get reports of Bighead Carp in pay lakes, these fish are most likely the result of fish stockings originating from infested areas. All reports resulted in an action to remove the fish.
- Continue to work on closing the GLMRIS connections at Little Killbuck Creek. Phase I was completed in 2025, and planning is underway for subsequent phases.
- Continuing the surveillance of Ohio's bait supply chain and pet stores to determine if high-risk AIS are being transported through these pathways. No high-risk AIS found to date in the bait trade, but the pet trade had discoveries of invasive crayfish (redswamp) and New Zealand Mud Snails; these detections are being addressed.
- Completed the second edition of the *Ohio Aquatic Invasive Species* guide developed through Ohio Sea Grant, The Ohio State University, Ohio DNR, and Cleveland Metroparks.
- Participated in the following groups: Great Lakes Panel, Mississippi River Basin Panel, Ohio Aquatic Invasive Species Committee, and Asian Carp Regional Coordinating Committee.

State of Oklahoma, Department of Wildlife Conservation

Submitted by Erika Sarvela, Invasive Carp Biologist

Oklahoma's ANS activities have recently included invasive carp sampling and specimen collections, zebra mussel veliger sampling, hydrilla mapping, triploid grass carp certification documentation from the US Fish and Wildlife Service, approval or denial of aquatic import/export permits, participating in the Invasive Species Action Network's Don't Let It Loose program, updating signage, working with our Communication and Education division on outreach efforts, and other miscellaneous activities.

Invasive Carp

In 2025 and 2026, ODWC ANS personnel conducted multiple targeted sampling efforts for Bighead Carp in both the Grand Lake system and the Arkansas River. Targeted sampling efforts included setting two to three gill nets across the width of a river section and using electrofishing boats to herd carp into the nets, as well as targeted snagging using live imaging sonar (LIS). No invasive carp were collected using targeted gill netting in 2025 or 2026. Two Bighead Carp were captured out of the Elk River (Grand Lake system) by ODWC ANS personnel using LIS and targeted snagging in 2026.

In summer 2026, we began ichthyoplankton sampling efforts in the Grand Lake system to confirm Bighead Carp reproduction within the system. We are still waiting on the results of our larval sampling efforts from 2026. Based on these results, we plan to further refine our sampling protocols and continue larval sampling efforts in 2027.

ANS staff continued environmental DNA collections on the Arkansas River below Robert S. Kerr Reservoir to the Arkansas border in summer 2025 and summer 2026. One sample returned a positive detection of Silver Carp in the Arkansas River in 2025. We are still awaiting eDNA results from 2026. In fall 2025, ANS staff conducted standardized fall trap netting and gill netting in the Arkansas River to try to capture invasive carp, as well as to obtain baseline fish community data prior to any major invasive carp invasion. No invasive carp were collected during these sampling efforts. We have plans to conduct further standardized gill netting and trap netting sampling in fall of 2026.

South Dakota State University is continuing telemetry work on the Grand Lake system, including Neosho and Spring rivers, in cooperation with Kansas Department of Wildlife and Parks, collaborating with ODWC and US Fish and Wildlife Services. Fourteen Bighead Carp and six Grass Carp have been tagged in the system thus far.

The ODWC ANS team also continues to collaborate with local Paddlefish guides to capture Bighead Carp using live imaging sonar and targeted snagging techniques. In 2025, five Bighead Carp were snagged by Paddlefish guides and reported to ODWC personnel. To date in 2026, 32 Bighead Carp have been removed from the Grand Lake system and reported to ODWC. Samples from donated individuals were taken for aging, population dynamics, and genetic analysis.

Zebra Mussels

Zebra Mussel veliger sampling was conducted in June 2025 and April 2026. In 2025, 47 historically clean reservoirs were sampled throughout the state and 23 were sampled in 2026. Samples were sent to the Bureau of Reclamation EcoLab in Denver, Colorado for analysis. No Zebra Mussel veligers were detected in any of the samples collected during either year. Beginning in 2027, ODWC plans to modify its sampling protocol to increase the frequency and season coverage of veliger monitoring. Previously, each waterbody was sampled once during the spring. Under the revised protocol, sampling will occur during both the spring and fall, coinciding with periods of peak spawning temperatures for Zebra Mussels. Reservoirs identified as having high recreational value will be sampled multiple times during both seasons, while smaller reservoirs will be sampled at least once in each season.

Hydrilla

In 2024, ODWC was notified of the presence of hydrilla in Robert S. Kerr Reservoir. Following confirmation of the infestation, ODWC staff mapped the visible extent of hydrilla throughout the reservoir. Hydrilla was observed throughout most of the reservoir in substantial quantities, especially along shorelines. In 2025, ODWC staff used the same methodology to map the visible extent of hydrilla. Comparisons between the 2024 and 2025 surveys indicated no significant change in abundance or distribution of hydrilla within Robert S. Kerr Reservoir.

Future Directions

Plans for the future include continuing to assist universities in the field with ongoing and upcoming invasive carp projects, continuing our internal invasive carp projects on the Grand Lake system and Arkansas River, updating our Zebra Mussel veliger sampling protocol and conducting veliger sampling in both the spring and fall, cooperating and collaborating with various agencies and municipalities on other statewide ANS issues, updating and performing ANS signage checks around public waters, performing shoreline observations, attending annual meetings, when feasible, and writing interim/final reports for grants.

State of Pennsylvania, Fish and Boat Commission

Submitted by Sean *Hartzell, AIS Coordinator*

- The Pennsylvania Fish and Boat Commission (PFBC) has formed an AIS Workgroup to provide recommendations and review assessments for species proposed for listing as prohibited within 58 Pa. Code Chapter 71a.11. The Workgroup recently proposed that the PFBC consider listing the Golden Mussel (*Limnoperna fortunei*) and members of the Asian Swamp Eel complex (family Synobranchidae) as prohibited in Pennsylvania. These species are to be presented to the PFBC's board of Commissioners as a voting item for a proposed listing package at the October 2026 Commission meeting. If accepted by Commissioner vote, this will be published as a proposed rulemaking for a public comment period in the *Pennsylvania Bulletin.* The Workgroup will also continue to identify and recommend addition species for future listing packages.

- In August 2025, PFBC staff documented the first known established population of the invasive Red Swamp Crayfish (*Procambarus clarkii*) in the Susquehanna River basin. Red Swamp Crayfish were collected in a small public fishing pond in northcentral Pennsylvania. This find was published as a brief communication in the journal *Northeastern Naturalist*, with the following citation:

  Hartzell, S.M. and Lieb, D.A. 2025. Occurrence of invasive Red Swamp Crayfish (*Procambarus clarkii*) in the Susquehanna River Basin. *Northeastern Naturalist.* 32:N89-N92.

- During 2025-2026, the PFBC and its sister agency, the Pennsylvania Game Commission (PGC) have been collaborating to update the Commonwealth's Wildlife Action Plan (WAP) for 2025-2035. The updated WAP includes a chapter summary on the impacts of aquatic and terrestrial invasive species towards Species of Greatest Conservation Need and their habitats. A draft of the WAP had been released for public review and comment: https://www.pa.gov/wildlife-action-plan

- In 2025 and 2026 PFBC's AIS Coordinator and staff from the agency's Bureau of Outreach, Education, and Marketing, and Bureau of Law Enforcement collaborated to produce several brief educational videos on AIS, including a video on cleaning boats, Rusty Crayfish, Hydrilla, and Golden Clams (*Corbicula sp*.). These can be viewed at the links below:

  - https://www.youtube.com/watch?v=k_Y-tSAPbXw

- https://www.youtube.com/watch?v=Uxicu8Vtshw&source_ve_path=OTY3MTQ&embeds_referring_euri=https%3A%2F%2Fwww.pa.gov%2F
- https://www.youtube.com/watch?v=buGa-RWwuZI
- https://www.youtube.com/watch?v=EcQ_Uv6eE3M

- In September 2026, Pennsylvania hosted its first Keystone Invasive Species Forum, a one-day conference held in central Pennsylvania for invasive species professionals and stakeholders in the Commonwealth to coordinate, share insights, research, and discuss issues regarding terrestrial and aquatic invasive species. This event was coordinated by Penn State University, Penn State Extension, Pennsylvania Sea Grant, and the Pennsylvania Governor's Invasive Species Council (PGISC). The event also embedded the PGISC Fall Meeting to expand interest and attendance. The event was well received and, subject to funding and capacity, may be held in subsequent years.

- The invasive Northern Snakehead (*Channa argus*) continues to expand its range withing the Susquehanna River basin in central Pennsylvania. Although to date (September 2026) established populations are only known from the Susquehanna River's Conowingo Poll and several impoundments in south-central Pennsylvania, during Summer 2026 Northern Snakehead were captured by anglers in two fishing ponds located near the city of Harrisburg, a major range expansion for this invasive species. Electrofishing efforts by PFBC staff failed to detect additional specimens, suggesting recent illicit translations by anglers into these sites.

- In 2026, a paper was published in the Journal of the Pennsylvania Academy of Science presenting data on surveys for AIS at risk for transport on boats within 14 reservoirs across Pennsylvania that are managed by the PFBC. Surveys were done in 2023 with GLRI grant support, with a focus on species at risk for introduction into the Great Lakes basin. Prior to this, no such survey had been conduced in Pennsylvania. 13 of the 14 reservoirs surveyed had at least one AIS present. However, the species composition varied among waterbodies sampled, suggesting efforts to prevent spread are highly warranted. The full citation for the paper, published in 2026 but in a 2023 backdated issue, is as follows:

  Hartzell, S.M. 2023. A survey of Pennsvylania reservoirs for aquatic invasive species at risk of spread by boating activities. *Journal of the Pennsylvania Academy of Science.* 97(1-2):92-102.

- In 2025, PFBC staff published a paper documenting the first collection of the invasive New Zealand Mudsnail (*Potamopyrgus antipodarum*) in the Ohio river basin. These were collected in Peters Creek and Turtle Creek in Allegheny County, Pennsylvania, during targeted surveys in 2023 for this species. The full citation is:

  Hartzell, S.M., Depew, M.A., Byington, D., Hartman, L., and Pletcher, R. 2025. Collections of the invasive New Zealand Mudsnail, *Potamopyrgus antipodarum* (J.E. Gray, 1843), in the Ohio River Basin. *Freshwater Mollusk Conservation and Biology*. 28:22-25.

State of South Dakota, Game, Fish and Parks

Submitted by Tanner Davis, ANS Coordinator

Watercraft Inspection and Decontamination (WID)

In 2025, SDGFP conducted 18,873 watercraft inspections and in 2026, 16,990 inspections occurred. Ten access-based inspection stations occurred on Shadehill, Belle Fourche, Pactola, Sheridan and Angostura reservoirs in western South Dakota and a hybrid approach utilizing roving and access-based WID inspection crews inspected boats in central and eastern South Dakota. Through a partnership with conservation districts, Pennington and Perkins County Conservation Districts were able to employ 33 watercraft inspectors in 2025. The department also utilized 21 seasonals/interns in central and eastern South Dakota to conduct roadside and access-based inspections on major highways and interstate corridors and focused on high pressured lakes/ramps to maximize interactions with recreators. In 2026, Conservation districts were able to employ 35 contracted inspectors through Pennington and Perkins County, with an additional seasonal hired through the department as the Watercraft Inspection and Decontamination WID Supervisor for both seasons. An additional 25 seasonal/interns in 2026 conducted roadside and access-based WID inspections. It is worth noting, severe drought impacted watercraft use on western reservoirs in 2026.

GFP law enforcement officers assisted with compliance during inspections, when available in 2025/2026. Law enforcement has also conducted their own AIS compliance checks when time allowed.

Monitoring

Invasive Carp

Monitoring continues in South Dakota and within the entire Missouri River Basin through projects South Dakota Game, Fish and Parks collaborates on with South Dakota State University. Current projects include: population monitoring in the James River, basin wide microchemistry looking at natal origins of silver carp, outreach and education project looking at where anglers get their invasive carp information and human-mediated spread, interactions between silver carp and paddlefish and their movement below Gavins Point Dam, risk of invasive carp spread to the Red River and Minnesota River basins during flood events, and several telemetry projects looking at barriers and environmental movements in the Big Sioux and James River as well as an engineering assessment to provide project costs and options for altering the emergency spillway to prevent further spread of invasive carp. Invasive carp funding through USFWS will also allow for commercial harvest of invasive carp in the James River in 2027.

Zebra Mussels

Fall dock inspections occur on all state-owned boat ramps across the state. AIS surveys consisting of vegetative rake throws and shoreline sampling are incorporated into the department's summer lake survey. The state also follows up on any suspect reports that come in from the public. In 2025, Campbell Slough (Day County), Mina Lake, Lake Oliver, Horseshoe Lake, and Sheridan Lake were all deemed positive for zebra mussels. In 2026, to date, Bitter Lake, Goose Lake (Codington County), and Lake Traverse have all been deemed positive for zebra mussels as well.

Invasive Vegetation

The department conducts AIS surveys in conjunction with lake surveys where vegetative rake throws occur on all sampled lakes and visual inspection for new populations of invasive plants takes place. Aquatics staff found Brittle Naiad for the first time on Lake Francis Case near Pease Creek in 2026.

For more information on AIS in South Dakota, please visit https://sdleastwanted.sd.gov/.

Outreach and Education

SDGFP continues to use education and outreach efforts to educate boaters and water users on best management practices, specifically focusing on 'clean, drain, dry' messaging. For a fifth year in a row, utilizing Lawrence and Schiller for our marketing campaign, GFP conducted gas station television at 43 gas stations across South Dakota. Individuals who encountered these gas stations or utilized infested waterbodies received digital and/or social media advertisements following up on these messages as well. GFP incorporated an AIS Awareness week again this year which occurred the week leading up to Memorial Day. The department also partnered with Jason Mitchell, known fisherman and influencer for the Midwest, to spread the word on AIS prevention in 2026.



The Outdoor Campuses incorporate AIS Awareness in their fishing classes and offer an AIS Curriculum for junior high students. The Sioux Falls Campus also held an event called "Conservation in the City" in 2025 where they focused on ways to promote conservation within downtown Sioux Falls and focused on aquatic invasive species education and prevention.

The department also reaches out to over 30 lake associations in the springtime on ways to partner on AIS and offers AIS Tool Kits for social media

outreach. This fall, a high school student is learning how to inspect boat docks to increase monitoring for zebra mussels in their community.

STATE AGENCY PARTNERSHIPS

- Transportation- use of DOT field locations for watercraft inspections and include a provision in construction contracts stating contractors must obey AIS regulations.
    - Also helped install Zebra Mussel Infested Water signs and Preventative AIS signage as part of SDGFP rapid response plan.
- Public Safety use of motor vehicle carrier weigh station locations for watercraft inspections.
- Agriculture and Natural Resources - distribution of information to irrigators, municipalities, and businesses with surface water withdrawals.
- Revenue - distribution of rack cards on "clean, drain, dry" to county treasurers for inclusion in registration renewal mailings.
- Sioux Wahpeton Oyate Tribe – Partnered with SD Parks on placement of CD3 units placed at Pickerel.
- ND Game and Fish – Partnering on zebra mussel monitoring on Lake Oahe.

FEDERAL AGENCY PARTNERSHIPS

- Bureau of Reclamation - Coordination with prevention efforts and mussel veliger sampling at BOR reservoirs, assisted with funding and implementing a permanent side at Belle Fourche regarding the access-based WID station, and funding through the AIS Spend Plan.
- US Forest Service - Use of USFS boat ramps for watercraft inspection locations and storage of equipment as well as placement of education signage at water access points and funding for future efforts related to WID in Pennington County.
- US Corp of Engineers - Allowed signage at their public boat ramps and partnered through the reimbursement program through WRDA funding.
- US Fish and Wildlife Service – funding for invasive carp work in the state and watercraft inspections stations through QZAP.

NGO PARTNERSHIPS

- Wildlife Forever - GFP utilized Clean. Drain. Dry hats purchased through Wildlife Forever.
- Glacial Lakes and Prairies Tourism Association - Placed rack cards at Redlin Art Center in Watertown for more public outreach and used AIS racks cards at sport shows in the Midwest.

State of Tennessee, Wildlife Resources Agency

Submitted by Cole Harty, ANS Coordinator

- Participated in and developed numerous ANS outreach actions including webinars, press releases, expos, news interviews, radio interviews, newspaper interviews, pamphlets, signs, etc.
- Participated in invasive carp sub-basin partnerships (Tennessee/Cumberland and Lower Mississippi River sub-basins), Invasive Carp Advisory Committee of MICRA, AIS Committee of MICRA, and MRBP.
- Hired three interns from University of Tennessee – Knoxville to do statewide ANS outreach during summer 2025 and 2026. Interns assisted with regional ANS sampling, improved and replaced signage at access points, and developed draft ANS outreach material and media posts.
- Conducted invasive carp monitoring to evaluate reproductive success of carp in Kentucky and Barkley Lakes using larval light traps, larval tows, mini-fyke nets, and electrified dozer trawls.
- Continued assessment of spatial variation in relative abundance of invasive carp in Kentucky, Pickwick, Barkley, Cheatham, and Old Hickory reservoirs.
- Monitored invasive carp movement and lock and dam passage in the Tennessee and Cumberland rivers (2025 and 2026). Implanted acoustic tags in Silver Carp at Cheatham and Pickwick reservoirs (2026).
- TWRA has continued surveillance and outreach for invasive carp in response to an angler reported Silver Carp in Chickamauga Lake from January 2020. Extensive search efforts in East Tennessee reservoirs and tailwaters have found no additional Silver Carp.
- In 2026, TWRA and KDFWR completed the final tagging year of a multi-year exploitation study using high-reward tags. The intent of this project is to increase our understanding of the impact commercial removal has on invasive carp populations and to augment information related to invasive carp movement in the Tennessee/Cumberland system. The project, which began in spring of 2024, has resulted in 5,669 Silver Carp being tagged. Tag reports will continue to be collected until spring of 2028. To date, over 550 tag reports have been received.
- TWRA Tennessee Carp Harvest Incentive Program (TCHIP) supports commercial fishers and wholesale buyers with monetary incentives applied to harvested invasive carp. As of 10/1/2026, the program has resulted in the harvest of more than 43 million lbs. of invasive carp since its inception in September 2018. The program includes waters of the Tennessee/Cumberland sub-basin and was expanded in 2024 to include waters of the Lower Mississippi River sub-basin.
- TWRA has been actively engaged in discussions and structured decision-making processes with partners regarding the implementation of deterrents on lock and dam

sites on the Tennessee and Cumberland rivers. WRDA 2020, Sec. 509, authorized the US Army Corps of Engineers (USACE) to implement an invasive carp control pilot program – TWRA has worked with state and federal partners to provide information to USACE and to prioritize deterrent site locations. These efforts remain ongoing.

- Staff examined Black Carp collected by commercial fishers working on the Mississippi River and intend to provide this data to the USGS Black Carp team.
- In 2025 and 2026, staff across the state collected genetic samples from Black Bass to evaluate the baseline genetic makeup of populations in major reservoirs and rivers, and to determine the level of Alabama Bass introgression present. Approximately 3,500 individuals have been sampled. Analyses are ongoing. In waters where Alabama Bass have been documented, they are hybridizing with native bass species and causing identification issues with anglers, biologists, and LE – in response to these concerns, new regulations were implemented on several impacted waters.

State of Texas, Parks and Wildlife Department

Submitted by Monica McGarrity, Senior Scientist for Aquatic Invasive Species

Regulations Changes

Effective June 29, 2026, in response to a petition from a company culturing native common duckweed (*Lemna minor*) to produce a protein supplement, rules adopted by the Texas Parks and Wildlife Commission after a year of consideration will authorize the issuance of permits for the possession, cultivation, sale, and transport of dotted duckweed (*Landoltia punctata*) under specific conditions. Dotted duckweed is designated a prohibited harmful or potentially harmful exotic aquatic plant by TPWD and as a noxious plant by the Texas Department of Agriculture. The petition for rulemaking requested the alteration of current rules to create an exception allowing the commercial cultivation of dotted duckweed under the existing commercial aquaculture permit. After comprehensive analysis of all significant parameters, the department determined that dotted duckweed can be safely cultivated, provided all culture and handling occurs in fully enclosed facilities under appropriate biosecurity standards. Dotted duckweed is a small, floating exotic aquatic plant native to Australia and Southeast Asia that is distributed easily via multiple transport pathways, has a high growth and propagation rate, and is known to outcompete some native plant species. Climate match analysis indicates it could survive and become established in public waters throughout most of Texas should it escape culture, and it is deemed likely to have potential to become particularly problematic in smaller water bodies where conditions are most conducive to formation of dense mats capable of suppressing native plants and potentially degrading sportfish habitat and impeding recreational or agricultural access. It has been documented in Texas in the past but has not become problematic in public waters where its current status is uncertain; it is sometimes reported as a problem species in private ponds (<10 verified reports to AgriLife Extension each year). Dotted duckweed can be easily transported to new water bodies by waterfowl, watercraft, and aquarium dumping, presenting a high spread potential should it escape. Notwithstanding, based on careful consideration of biosecurity risks associated with the proposed activity and escapement risk mitigation feasibility, staff has determined that under appropriate biosecurity and monitoring provisions as well as restrictions on facility locations, there is an acceptably minimal, though not zero, risk of escape. The TPWD currently anticipates only the petitioner will apply for a permit in the near future.

Zebra/Quagga Mussels

2025-2026 Updates

New Infestation Detected at Lake Nasworthy

In April 2025, the TPWD publicly designated Lake Nasworthy, near San Angelo, as “infested” with invasive zebra mussels. This designation signifies there is an established reproducing population present in the lake.

TPWD confirmed the presence of zebra mussel larvae (veligers) in mid-March 2025 from plankton samples that were collected in Nov. 2024 during the mussels' fall spawning period. Zebra mussel larvae were detected in samples collected at two sites on the lake, near the Knickerbocker Road bridge and near the dam. TPWD fisheries biologists subsequently searched the shoreline and substrate at numerous sites around the lake. The biologists found a single settled adult zebra mussel along the shoreline near the bridge. The detection of larvae at multiple sites and the presence of an adult mussel indicates the presence of an established, reproducing population.

Unfortunately, the zebra mussel infestation of Lake Nasworthy is part of a trend in recent years of spread of this highly invasive species to lakes in the western part of the state. Plankton samples were also taken in the fall at the nearby Twin Buttes Reservoir and, fortunately, neither zebra mussel larvae nor eDNA were detected. These results suggest that Twin Buttes remains free of this invasive mussel at the present time. However, TPWD will continue to monitor Twin Buttes Reservoir and collect additional plankton samples this spring.

Lake Nasworthy 'Infested' with Invasive Zebra Mussels (April 3, 2025 Press Release)

New Infestation Detected at Lake Meredith

As of June 2026, TPWD has designated Lake Meredith, managed by the National Park Service (NPS) as a National Recreation Area near Amarillo in the Texas panhandle, as fully "infested" with invasive zebra mussels. This designation signifies that an established, reproducing population of these invasive mussels is present in the lake.

In late May 2026, detection of potential microscopic zebra mussel larvae in routine samples from three locations in the lake was reported to TPWD by partners with the U.S. Geological Survey Zebra Mussel Monitoring Program. The TPWD Analytical Services lab quickly confirmed these specimens as zebra mussels with genetic analysis.

In addition, partners with the Canadian River Municipal Water Authority (CRMWA) reported the detection of multiple settled zebra mussels on a camp chair retrieved from the lake by informed anglers. The anglers took action and reported the invasive species to the National Park Service only days before the larvae were collected. These mussels were of multiple size classes, suggesting the mussels may have been reproducing in the lake the previous fall, as well as this spring.
The TPWD Amarillo Fisheries District staff rapidly conducted surveys of shoreline rocks at multiple sites on the lake and detected settled mussels of different sizes at all surveyed locations. This confirms the presence of a well-established, reproducing population that is likely dispersed throughout the reservoir.

Unfortunately, detection of zebra mussels at Lake Meredith is a continuation of a trend in recent years of westward spread of this highly invasive species to new Texas lakes and this new

infestation in a new river basin in the Panhandle provides a particularly concerning steppingstone for further spread to uninvaded western states. The TPWD is coordinating with NPS to provide signage and outreach materials and coordinating with—and facilitating NPS coordination with— other western state AIS coordinators (particularly NM, CO).

TPWD Confirms Established Population of Invasive Zebra Mussels in Lake Meredith (June 25, 2026 Press Release)

Fort Phantom Hill Lake Upgraded to Fully 'Infested'

As of September 2025, TPWD has designated Lake Fort Phantom Hill, near Abilene in the western part of the state, as fully "infested" with invasive zebra mussels. This designation signifies that an established, reproducing population of these invasive mussels is present in the lake.

In late August 2025, TPWD received a report of a single settled zebra mussel attached to a dock at Lake Fort Phantom Hill. Subsequently, spring 2025 plankton samples were processed, and two veliger larvae were found in a single plankton sample collected near the location of the settled mussel; all other samples were negative for veligers or eDNA. Extensive shoreline and substrate searches at numerous sites around the lake found no additional settled mussels. The lake was designated at that time as 'positive' for zebra mussels (following WRP standards). However, fall 2025 samples were processed and neither veligers nor eDNA were detected in any samples; consistent with a population still in the early stages of development.

In July of 2026, zebra mussel larvae were found in plankton samples collected from multiple sites around the lake in the spring and verified with DNA lab analysis. Upon detection of suspect zebra mussel larvae, TPWD staff immediately conducted a lake wide search at multiped shoreline, boat ramp and other infrastructure locations for settled juvenile and adult mussels. Staff discovered zebra mussels in multiple size classes which confirmed that an established reproducing population has developed. The lake has now been designated as fully 'infested.'

Fort Phantom Hill Lake 'Positive' for Zebra Mussels (Sept. 22, 2025 Press Release) Fort

Phantom Hill Lake Zebra Mussel Status Elevated to 'Infested' (Sept. 1, 2026 Press Release)

Quagga Mussel Status

The quagga mussel situation at Lake Amistad continues to be uncertain, due to lack of recent samples submitted to TPWD by the NPS since 2024, and the most recent detections in 2022. Quagga mussel larvae (and eDNA) were detected in very low numbers in spring/summer 2021 and spring/summer 2022. There have been no quagga detections since 2022 and settled quagga mussels have not been found on settlement samplers or in shoreline searches; however, although monitoring was expected to continue for at least five years from the last quagga mussel detection (i.e., through 2027) to assess status, NPS staffing capacity has led to

inability to collect plankton samples since 2025. At last report, settled zebra mussels continued to be detected and were increasing in abundance and no settled quagga (or suspect quagga) mussels had been detected.

General Early Detection

Analysis of spring 2026 plankton samples is complete, with no new detections of zebra/quagga mussels beyond those noted above in Texas since the last MRBP meeting. Bi-annual early detection interagency partnership monitoring continues on approximately 50 high risk water bodies around the state in conjunction with multiple partner agencies.

The receipt of the state ANS management plan grant and extension into state fiscal year 2027 will ensure TPWD can continue to support early detection monitoring for many lakes of priority from a statewide perspective, as well as to provide student workers to provide interim support laboratory analysis with the recent retirement of the TPWD Analytical Services Lab analyst who led sample processing for TPWD as well as a number of partners at the end of August.

Invasive Carp

TPWD, in coordination with Oklahoma Department of Wildlife Conservation, Arkansas Game and Fish Commission, Auburn University, and Texas Tech University worked to oversee and complete the assessment of the population status of invasive bigheaded carp in the Lower Red River Basin across the tri-state area. As previously reported to MRBP, from 2021-2023, 312 Silver Carp and 108 Bighead Carp were found in the Red River upstream to Denison Dam below Lake Texoma and in all monitored tributaries (including the Sulphur River).

No juvenile bigheaded carp or individuals under the age of three were collected during the project, although females of both Bighead and Silver carp were observed with ovaries occupying much of the body cavity and containing developed eggs. The average monthly GSI was highest in May for Bighead Carp and in June for Silver Carp. A number of Silver Carp and Bighead Carp sampled in May 2024 contained post-ovulatory follicles indicating at least one spawning event had occurred relatively recently prior to capture. These data reflect spawning occurring within the basin.

Bighead and Silver Carp growth were positively associated with warmer air temperatures and negatively associated with discharge variability. However, Silver Carp growth was also positively related to high discharge conditions and the variability of air temperature. Silver Carp annual mortality was relatively low and recruitment into the population appeared steady. It
appears that bigheaded carp are likely coming from another catchment, have only limited or periodic successful reproduction in the study area, or spawn downriver in Louisiana.

Researchers used data associated with the entire catchment to model the occupancy of adult and juvenile fishes including both bigheaded carp species. Bigheaded carp tended to occupy reaches with the presence of slackwater habitat that were deeper and narrower (lower

habitat complexity), with higher discharge conditions, and Silver Carp were positively associated with chlorophyll-a concentrations.

Researchers tagged 25 Bighead Carp and 25 Silver Carp at multiple locations within the lower Red River catchment with acoustic transmitters and conducted passive and active tracking. They detected 41 of the 50 tagged fish on 221 occasions using active tracking and 1,413 detections via the SUR array; the greatest number of detections came from the SURs located in oxbows and tributaries. Some of the tagged fish have made extensive movements (e.g., 336.5 km), whereas others spend long periods of time in the same general reach. Bighead Carp had a mean movement distance of 2.37 km (SD: 18.05, range: 0-336.57) and mean movement rate of 0.46 km/d (SD: 1.8, range: 0-37.89). Silver Carp had a mean movement distance of 1.01 km (SD: 9.61, range: 0-206.99) and mean movement rate of 0.36 km/d (SD: .95, range: 0-18.02). Both species moved at greater distances at higher CV of discharge values. There was an interactive effect between water temperature variability and mean discharge that showed varying effects of discharge at different water temperatures variability. During low and medium discharge conditions, water temperatures variability had a minimal effect on movement distances. During high discharges, movement distances increased at greater water temperature variability values.

Although collaborative efforts between TPWD, Oklahoma Department of Wildlife Conservation, and Arkansas Game and Fish Commission, to utilize information on abundance "hot spots" to conduct agency targeted removal were discussed, such efforts have not yet implemented with no recent discussion.

Currently, TPWD efforts focus on outreach and awareness using occasional earned media (i.e., agency social media accounts) outreach and geotargeted angler email outreach to encourage reporting and harvest and prevent spread.

There was significant interest in 2025 in the Keep.Cool.Call Black Carp bounty program which expanded to include Texas waters of the Red River in 2025. However, while there was a somewhat recent detection of a black carp in a tributary of the Red River in Arkansas near the Texas-Oklahoma borders, this species has not yet been detected in Texas waters, nor in the Red River along the border. TPWD has worked to increase awareness on the role of this program in Texas as a community science opportunity (versus a potential profitable endeavor for anglers in Texas).

Australian Redclaw Crayfish

Research conducted on the Australian Redclaw Crayfish (*Cherax quadricarinatus*), documented as present in recent years, with a 2013 iNaturalist record suggesting this as the first wild
population in the US, has been completed to delineate the range and assess dispersal risks. More details are below under AIS Research.

Aquatic Invasive Plants

Giant salvinia continues to be the most problematic aquatic invasive plant in Texas and is present in 30 reservoirs and 7 river systems. Early detection and rapid response efforts are ongoing and have resulted in giant salvinia being extirpated from three public water bodies. Biological control using giant salvinia weevils continues to show success and the weevils are being used as part of our IPM strategy on 15 water bodies. Between TPWD and the Caddo Biocontrol Alliance, approximately 50,793 adult giant salvinia weevils and 39,336 larvae were released in Texas public waters in 2025 and approximately 271,969 adult giant salvinia weevils and larvae were released in fiscal year 2026. Fewer giant salvinia weevils were produced in 2025 as a result of unexplained giant salvinia crashes in the green houses. Self-sustaining weevil populations are now present at J.D. Murphree WMA bayous, Toledo Bend Reservoir, Sheldon Lake, Lake Naconiche, Lake Nacogdoches, Lake Murvaul, Caddo Lake, and Lake Raven and recent weevil sampling surveys have shown survival over the 2025-2026 winter.

Herbicide treatments are also used to control giant salvinia, water hyacinth, hydrilla, Eurasian watermilfoil, coontail, water primrose, and water meal on 75 water bodies, with approximately 13,300 acres treated in fiscal year 2026. Note that all spray cards have not been submitted from TPWD's contractors or vegetation control partners at this time. TPWD opted to continue winter treatments of diquat on the cold weather damaged plants in early 2026 to prevent giant salvinia recovery from cold weather events. Surveys conducted in March 2026 showed continued herbicide treatments were beneficial at reducing giant salvinia as well as increasing open water for beneficial plants begin occupying the open niche. However, spring rains provided nutrient inflows and all aquatic vegetation flourished, both native and non-native.

Crested floating heart is currently found in 4 water bodies and yellow floating heart in 2 water bodies, as well as the latter being present on the Louisiana side of Toledo Bend Reservoir on the state border. Treatment using ProcellaCOR has been highly effective on yellow floating heart and small crested floating heart infestation. Crested floating heart continues to spread throughout Caddo Lake but is not problematic at this time. Much of this spread is attributed to fragments created by the numerous mudboats on the lake.

Because hydrilla in many cases provides much needed fish habitat in those aging reservoirs in Texas with minimal littoral zones, treatments of this species are limited to addressing access issues at swimming areas, campsites, along shorelines where it has become problematic for public access, boat ramps, and boat lanes. Homeowners are allowed to treat in front of their property with an approved aquatic vegetation treatment proposal. The hydrilla treatments on Lake Hawkins, Lake Raven, and Lake Timpson as well as on Lake Pinkston in fall 2026 are for decreasing total coverage as hydrilla was having negative impacts on the largemouth bass fisheries. Control strategies include herbicides and triploid grass carp. In fiscal year 2026, nearly 100 acres of hydrilla were treated across 8 water bodies.

Riparian Invasive Plants

Giant reed (*Arundo donax*) control is ongoing in Central Texas to reduce impacts and improve river and stream habitat across the Pedernales, Blanco, Guadalupe, Medina,

Nueces, and Llano river watersheds and San Felipe Creek. Control is implemented on hundreds of private and public properties across these basins in collaboration with the landowners.

Saltcedar control on the Upper Brazos River in critical habitat for smalleye and sharpnose shiners in collaboration with the USFWS continues to be a priority. To date, nearly 26,000 acres have been treated across approximately 200 primarily private properties. In 2025, 1,375 acres were treated and in 2026, 1,610 acres were treated.

Watershed-scale elephant ear control on the Llano River continues, with over 50 river miles in monitoring or active management status. At least one survey and treatment event is conducted each summer.

Coastal Invasive Species

Lionfish

A multi-collaboration study is currently underway on lionfish (*Pterois volitans* and *P. miles*) at the Flower Gardens National Marine Sanctuary (FGB). In general, the objectives look at genetic and larval connectivity, species verification through genetic identification, ciguatera testing and stomach content analysis, and eDNA monitoring for lionfish. Results from the species verification found that there's only *P. volitans* present at the FGB.

In addition to this research, TPWD is supporting the Lionfish Invitational, which includes efforts to monitor and remove lionfish from TPWD's offshore artificial reef sites and contributes to the ongoing monitoring and removal initiatives at the FGB. In July 2026, 71 lionfish were harvested from the lionfish invitational cruise.

Regal Demoiselle

The non-native regal demoiselle (*Neopomacentrus cyanomos*) is rapidly expanding in Gulf coral reef habitats, becoming one of the most abundant fish on artificial reefs and decommissioned oil rigs since first being recorded off Mexico in 2013. Its ecological impacts on native damselfish remain unclear. A multi-collaboration study with University of Texas Marine Science Institute, Penn State University, NOAA, and TPWD looking at life history, stable isotope, gut content metabarcoding and population genetics at the Flower Garden Banks and nearby rigs and shipwrecks. In 2025, a pilot sampling was done, and 283 regal demoiselle fish were collected. Additionally, regal demoiselle occurred at all depths, were observed spawning, and showed opportunistic egg predation—sometimes consuming eggs of native species—suggesting potential negative impacts on local reproductive success.

During the July 2026 lionfish invitational cruise, all six reef sites sampled had regal demoiselle fish. Although none were collected during the surveys, divers noted that for the most part, abundance levels were ≥1000 and overall average lengths range from 3-7cm and approximately
17,000 individuals were estimated to be present at these six sites. From a September 2026

event, an estimated 17,000 regal demoiselle were reported from two additional reef sites. These records are in process of being submitted to USGS-NAS.

Australian Spotted Jellyfish

The Australian spotted jellyfish (*Phyllorhiza punctata*) was first observed in Texas in 2000; however, prior to 2026, USGS-NAS only had 4 records for Texas (North Padre Island and West Bay) dating to 2006. Recently (2026), this species has been spotted increasingly along the lower coast of Texas during routine sampling or partner beach combing; it is uncertain if this represents an increase in abundance or simply a fluctuation. A total of 39 new records have been collected and reported to USGS-NAS, with two additional reports in process of being submitted.

American Flagfish

On July 1st 2026, the American Flagfish (*Jordanella floridae*) was discovered in a new Texas location during routine TPWD sampling in Port Bay (part of the Aransas Bay system). A total of 15 individuals were caught with a total of 3 being genetically identified at TPWD's Perry R. Bass Marine Fisheries Station. The flagfish is a species of Cyprinodontidae endemic to Florida. Normally, it inhabits freshwater streams and ponds but will enter brackish water. A small, established population has been reported from Harrison County, Mississippi (Ellwanger et al. 2023), and it has been previously reported from the tributaries of Port Bay (USGS-NAS). This record was submitted to the USGS-NAS database.

Coastal Invasive Species Monitoring Enhancements

The TPWD field teams are tasked with identifying and documenting not only lionfish but also other non-native species in coastal areas. These teams are trained to retain species such as the Asian tiger shrimp (*Penaeus monodon*) as well as any other newly discovered species. In cases where invasive species are caught, they are collected, placed on ice, and transported to the field stations for further examination and data collection. All identified invasive specimens are then reported to the USGS-NAS database. Additionally, development of clear AIS reporting protocols for coastal AIS is being explored.

Aquatic Invasive Species Outreach

Outreach and prevention remains a high priority in Texas. However, static appropriations levels have necessitated a decrease in state funds allocated for outreach and partner funds have decreased somewhat in recent years. Prioritization will be required to maximize future campaign effectiveness, though we are working to seek additional funding via grants for future years.

Protect the Lakes You Love – Stop Invasive Species - Clean, Drain, Dry

The TPWD, with support from 11 partners (as of 2026), implements an annual 'Protect the

Lakes You Love' clean, drain, dry campaign targeting watercraft owners/operators during peak boating season. The campaign includes billboards advertising as well as a variety of paid targeted digital media including digital radio, YouTube and pre-roll online video. In fiscal year 2025, over 73 million "impressions" were generated by the campaign along with communication with 295 thousand registered boaters and signage being maintained at 314 boat ramps. The 2026 fiscal year campaign wrapped up on August 31st and generated over 8.5 million "impressions" in our digital campaign, and another 17 million with our billboard placements, for a total of 25.5 million impressions from our paid campaign efforts.

Never Dump Your Tank – Don't Let Your Pets Become Pests

When funding permits, the TPWD also implements the 'Never Dump Your Tank' outreach campaign using paid digital media strategies to encourage aquarium owners to seek alternatives to release of aquarium life. In 2025, the campaign generated 2.1 million "impressions" from YouTube pre-roll video with 1.4 million completed video views and nearly 2,000 click throughs to the informational website; unfortunately, due to funding limitations, a paid media campaign could not be implemented, but in-house outreach on owned social media, through boater registration notices, and periodic banners in Fish Texas newsletters were used to continue outreach presence.

Invasive Carp Prevention Outreach

Additionally, geo-targeted email outreach to over 76,000 licensed anglers in 2025 and over 131,000 in 2026 was used to spread the word about invasive carp spread prevention and reporting in key target areas; these emails achieved a high open rate (54% - 2025, ~60% - 2026).

Aquatic Invasive Species Research

FY24-25

The TPWD funded three AIS research projects completed in fiscal year 2025, as described below. Reports for previously funded projects can be obtained by emailing monica.mcgarrity@tpwd.texas.gov.

Developing spawning protocols and identifying the sex determining regions in suckermouth armored catfish to facilitate the production of neofemales and YY males for use in population control

Texas A&M University

Genetic biocontrol approaches offer promising tools for managing invasive species. For example, production and repeated introduction of YY "supermales" can progressively skew the population-level sex ratio towards a male bias and ultimately lead to local extinction. However, the success of these approaches depends on species identity, demographic history, and the genomic architecture of sex determination, which remain poorly resolved for many taxa—including suckermouth armored catfishes. This study used whole-genome DNA sequencing to

characterize their genetics. These data allowed us to confirm species identity, describe population structure and long-term breeding population size (effective population size), assess inbreeding, and search the genome for markers associated with sex determination. Genetic analysis of fishes from the San Marcos and Comal rivers and San Felipe Creek identified distinct lineages from at least two genera (Hypostomus and Pterygoplichthys) exhibiting strong drainage-level genetic differentiation. Effective population size estimates were exceptionally low, consistent with founder effects and moderate inbreeding. Further, genome-wide association analyses detected no large-effect loci for sex in either genus, suggesting that sex determination is polygenic and/or environmentally influenced. As a result, the study determined that the YY male method of genetic biocontrol is not a feasible option for management of these two genera of suckermouth armored catfishes. Although this genetic biocontrol method was determined to not have the hoped-for potential to contribute to ongoing control efforts in Texas, such efforts remain of high importance for reducing the ecological impacts of these invasive fish. It is tantamount that maintaining momentum toward implementing and enhancing control efforts, to include exploring new technologies, remains a priority into the future.

Assessing seasonal variation in thermal refugia use and drivers of angler participation in removal efforts of suckermouth armored catfish in San Felipe Creek, Val Verde County

University of Texas at San Antonio

Suckermouth armored catfishes (SAC) are native to the neotropics but have established invasive populations, particularly in spring-fed streams that provide thermal refuge during the winter. Suppression of invasive populations is a common management action, but effectiveness depends on identifying the habitats in which individuals are most abundant and the seasonal timing of when SAC gather. One management tool that has proven effective for removing invasive fish species is recreational angling including participation in angling tournaments. Yet it is critical to understand timing, motivations, constraints, and influences experienced by potential participants to aid in enhancing removal efficacy. This study used seasonal snorkel count surveys and modeling methods to quantify variation over space and time in the detection, occurrence, and abundance of a SAC, Hypostomus plecostomus, in San Felipe Creek near Del Rio. Occurrence was high in both channel margin and midchannel transects across seasons but was significantly lower in midchannel transects in March—a shift in habitat use potentially associated with burrow spawning behavior during the spring season. The final model indicated abundance increases with water temperature and coarse/bedrock substrates and decreases with fine substrates and vegetation. The second objective was to use an online survey to investigate past and likely future participation in recreational angling efforts for SAC, explore the motivations and constraints to fishing for SAC, and investigate influence of knowledge about, and perceptions of the species. Reported past participation in SAC fishing was low and mostly in spring/summer and likelihood of future participation was also low. Motivations for participating in angling for SAC were generally associated with recreation and not with catching fish for consumption. The strongest barrier to participation was a lack of interest and financial and transportation limitations were not strong barriers.

Respondents who were more knowledgeable about SAC and perceived them less favorably were more likely to have fished for SAC previously and were more likely to fish for SAC in the future. This study provided key recommendations for enhancing management of SAC in San Felipe Creek as well as in strategically promoting recreational angling for SAC.

Distribution of the Australian redclaw crayfish in Texas

University of Texas at Tyler

Invasive Australian Redclaw Crayfish have become established in the Brownsville area in South Texas relatively recently, but little was known of their distribution. This study evaluated distribution of this species in Texas, sampling 43 sites across 21 water bodies in and around the Brownsville area. Over 300 Redclaws were collected during the study period, from six sites across two water bodies. Males, females, and intersex individuals were detected, with males significant larger than females (length, weight). Occupancy modeling found that presence of Red Swamp Crayfish (native to Texas but not originally native to this area) was a positive predictor of Redclaw occupancy, as was temperature and dissolved oxygen, whereas there was a negative association with conductivity. Invasion modeling predicted that Redclaws will remain localized to the Brownsville area unless there are additional introductions in suitable nearby areas to the north. Given their current distribution and this prediction, at present they do not pose a threat to native crayfish species. This work is an important step toward better understanding this invasion and its potential impacts. A manuscript on this study was recently submitted to *Knowledge and Management of Aquatic Ecosystems.*

FY26-27

The TPWD is funding three new AIS research projects for FY26-27, as described below. In addition, reports for FY24-25 projects listed in previous reports are available upon request to monica.mcgarrity@tpwd.texas.gov. Synopses of results of past projects are posted online on our past research webpage; posting of reports is no longer possible due to accessibility requirements. Note that this grants program is freshwater focused and a similar dedicated funding source for coastal invasives research does not exist.

Evaluation of the effectiveness of herbicide mixtures for Wintertime and Summertime treatments of Giant Salvinia

Texas A&M AgriLife Extension Service

This project seeks to experimentally evaluate the comparative effectiveness of many different aquatic-approved herbicide mixtures for use to control highly invasive giant salvinia in winter and summer seasons. The ultimate goal of this research is to identify herbicide mixtures that will be most effective, which could potentially reduce labor, cost, and amount or frequency of herbicide application needed. Managing giant salvinia as effectively as possible strongly supports efforts to minimize the impacts of this aquatic invasive plant on outdoor recreation, and aquatic life and habitats.

Controlling invasive armored catfish: growth, reproduction, and spearfishing

efficacy *Texas State University*

This project seeks to augment current knowledge on invasive suckermouth armored catfish growth and reproduction in the highly invaded San Marcos River as well as expand on previous suppression models that evaluate the efficacy of spearfishing methods currently used for population control. This project will optimize models while also considering effects of different management strategies. The ultimate goal of this project is to provide recommendations for further improved management practices as well as enhance knowledge that will contribute to enhancing monitoring and success. While this study will directly support ongoing efforts to control these species in the San Marcos River to reduce their harmful impacts on aquatic life and infrastructure, the recommendations are anticipated to benefit control efforts elsewhere in the state as well.

Using snorkel surveys and removal experiments to identify ecological overlaps and competitive exclusion between three native darters and invasive suckermouth armored catfish

The University of Texas at San Antonio

This study will seek to assess habitat use and overlap between invasive suckermouth armored catfish and three darter Species of Greatest Conservation need to determine whether the invasive fish affect abundance and habitat use of the native species that could have negative effects. The study will also compare efficacy and body size bias of three different armored catfish removal methods as well as various aspects of timing. Ultimately, the project seeks to develop a decision support tool that will enhance ongoing control efforts by providing guidance for population suppression and habitat management with a focus on locations where harmful impacts may be greatest.

Other/In-House Research

The TPWD is also conducting or collaborating on a number of other ongoing research projects relating to AIS, including continued assessment of Australian Redclaw Crayfish and assessing variation in Redear Sunfish populations between Texas lakes and Lake Havasu as well as between zebra mussel invaded and uninvaded lakes in Texas.

State of West Virginia, DNR Wildlife Resources

Submitted by Katie Zipfel, Ohio River Fisheries Biologist/AIS State Representative

Invasive Carp Monitoring

WVDNR currently collaborates with numerous state and federal partners on invasive carp related issues within the Ohio River sub-basin. WVDNR is a participating agency on the Early Detection and Monitoring, Control and Containment, Telemetry and Early Life Stages Projects within the Ohio River Basin Framework.

Monitoring & Early Detection

WVDNR collaborated with USFWS to complete annual monitoring boat electrofishing surveys on the R.C. Byrd and Greenup pools of the Ohio River in Spring 2026. One adult Silver Carp was removed from Little Sandy Creek in Kentucky (Greenup Pool). Throughout April 2026, WVDNR deployed gill nets (2,700 feet) in the R.C. Byrd and Greenup pools of the Ohio River. One adult Bighead carp was captured and removed from Raccoon Creek. In Fall 2025, the WVDNR deployed gillnets (2,700 feet) in the R.C. Byrd Greenup pools. No invasive carp were captured. In addition, WVDNR also collected fish community data (via boat electrofishing and boat ramp seine hauls) for use in a community size-spectra analysis.

Control and Containment

In 2025 and to date in 2026, WVDNR conducted a total of fourteen gill nets surveys targeted at removing fish from the Racine and R.C. Byrd pools of the Ohio River. Seven adult Bighead and one adult silver carp were captured and removed. A total effort of 900ft of gill nets were deployed for these efforts. Additionally, one adult Bighead and one adult silver carp were caught and removed. These fish were captured in Mill Creek (Racine Pool), Raccoon Creek (R.C. Byrd Pool) and in the decommissioned lock chambers at R.C. Byrd Dam (R.C. Byrd Pool), at which invasive carp are captured regularly.

Early Life Stages

In 2025 and to date in 2026, WVDNR conducted four sets of ichthyoplankton tows for invasive carp eggs and larvae in the mainstem river and Raccoon Creek and the Kanawha River, both tributaries of the Ohio River in the R.C. Byrd Pool. Protocols state sampling should occur when water temperatures are between 65°F-80°F targeting a river rise event, but in 2025 no significant river rises were observed after the month of May. All larval fishes that were collected in 2025 were identified in the lab and any suspicious samples were sent to INDNR for species conformation. Samples from 2026 have not been sorted. No suspect eggs or larvae have been collected to date. WVDNR is collaborating with INDNR,

KDFWR and USFWS on increasing juvenile fish sampling in Ohio River tributaries further upstream in the Ohio River sub-basin.

Telemetry

The WVDNR continues to maintain an array of stationary VEMCO VR-2 receivers in the R.C. Byrd pool that were previously installed for a catfish movement study. Receivers are offloaded every two months and data is shared with USFWS and Kentucky DFWR. Data shows three tagged Silver Carp (one from Markland Pool and one from Meldahl Pool) are currently inhabiting the R.C. Byrd Pool of the Ohio River. In November 2025, WVDNR and USFWS attempted to tag additional fish in the R.C. Byrd Pool to increase tracking data. Gill nets were deployed within the decomissioned lock chambers at R.C. Byrd Dam and the mouth of Raccoon Creek. One Bighead carp was captured but not implanted with a transmitter due to poor condition.

Hydrilla

WVDNR continues to communicate with ORSANCO in monitoring
Hydrilla in the mainstem Ohio River. River conditions in 2025 resulted in an increased presence of hydrilla throughout occupied pools but was minimal in 2026. WVDNR is also collaborating with USACE and local marinas to assist with herbicide control to improve boater access in Cheat and Beech Fork Lakes

Northern Snakehead

While not in the Mississippi River basin, in June 2026, WVDNR staff documented the first official confirmed live Northern Snakeheads in the eastern panhandle of West Virginia. WVDNR biologists received an angler report of a Northern Snakehead in the Shenandoah Canal, an old shipping canal adjacent to the Shenandoah River (Potomac drainage) in Harpers Ferry, WV. This waterbody is mostly disconnected to the mainstem river except during high water. This report was confirmed via photo by WVDNR staff. The site was subsequently visited and sampled by WVDNR staff from which two adult Northern Snakeheads, one 8” sub-adult and approximately 300 fingerlings were removed. This sight will be monitored in the future. (Will get that uploaded to NAS database as soon as I receive GPS points and photos.)

We also have confirmed (via photo) an angler catch of a Northern Snakehead below Millville Dam on the Shenandoah River just upstream of Harper’s Ferry.

Alabama Bass

WVDNR is collaborating with WVU in screening Smallmouth and Spotted bass populations for the presence of Alabama Bass genes in the southern portion of the state, particularly in the New River

drainage. Virginia Department of Game and Inland Fisheries has reported several bass with Alabama Bass genes in their portion of the New River.

Regulatory Actions

Harvest regulations for black bass have been relaxed in the New River in an effort to increase removal of fish to help slow the advancement of Alabama bass genes into West Virginia.

Other

Myself, along with additional biologists working on invasive species within the diversity unit have proposed the development of an app/survey which will allow for easier avenues for the public to report sightings of invasive species throughout the state.

State of Wyoming, Game and Fish Department

Submitted by Josh Leonard, AIS Coordinator

AIS Program Activities

1. In 2026, the Wyoming Game and Fish Department's (WGFD) AIS program pursued new regulatory updates to add golden mussels to the list of AIS species. Additionally, other regulation changes included bolstering language in preparation for a response and containment scenario, as our regulations were heavily focused on prevention status. The Department also increased the motorized decal fees for both residents and non-residents to increase revenue for the program. These new regulations are set to be in place for November 1, 2026.
2. Through August 2026, the Wyoming Game and Fish Department AIS program has conducted 53,745 inspections, which is significantly less (20% decrease) than this point in 2025. Of these, 4,269 were high risk watercraft and 851 were decontaminated for water onboard or suspect AIS. A total of thirty-four boats have been intercepted with mussels attached or in compartments.
3. The AIS program is in the final stages of completing check station modernization upgrades at our Cheyenne, Glendo Reservoir and Keyhole Reservoir check stations, which includes power, water and on-demand decontamination units inside new office buildings.
4. The AIS program restructured a bit in 2026, which included the repurposing of an existing position into an AIS Monitoring and Response Coordinator role to help alleviate workloads and parse out work duties. The position is based in Cody, WY and will be WGFD's main point of contact for all monitoring and rapid response work moving forward.

Priorities for future

5. The WGFD AIS program will prioritize updating training and outreach materials to align with the new regulations passed in 2026, which includes some exemptions for watercraft historically required to be inspected.
6. The program will work on bolstering the monitoring and response portion of our program with the new position created in 2026.
7. The program will continue to upgrade check stations as funds become available, including drilling a well at Keyhole Reservoir in preparation for the potential for a containment scenario.

U.S. Army Corps of Engineers

Submitted by Mark Cornish, Biologist - Senior Technical Specialist

Introduction

The U.S. Army Corps of Engineers is the steward of 12 million acres of public lands and waters at hundreds of water resources projects nationwide. In the ongoing efforts to conserve, protect, and restore these critical natural resources, proactive management and containment of invasive species remain an agency imperative. Through its Civil Works missions, the Corps of Engineers has designed, constructed, and operated infrastructure across virtually every major river basin and coastline in the nation. While these assets fulfill vital flood risk management, navigation, hydropower, water supply, and coastal storm protection mandates, they directly interface with sensitive aquatic ecosystems and native species.

The Corps of Engineers generally undertakes efforts to prevent or reduce the introduction and establishment of invasive species and the proliferation of Harmful Algal Blooms (HABs) at its projects, pursuant to its project and programmatic authorizations (some of which authorize specific activities), nationwide Invasive Species Policy Guidance, and engineering regulations. The Corps of Engineers typically funds nuisance species work for individual projects through project funding lines in the Operation and Maintenance (O&M) account; project planning documents address the nature of work at the project level. As part of its regulatory responsibilities, the Corps of Engineers also may require permit applicants to consider nuisance species control.

In the area covered by the Mississippi River Basin Panel (MRBP), the Corps of Engineers has five Divisions that generally fall along watershed boundaries, including the Mississippi Valley Division (Mississippi River), Great Lakes & Ohio River Division (Ohio River), Northwest Division (Missouri River), Southwest Division (Red River), and the South Atlantic Division. Within each Division are Districts that oversee the management of the Corps of Engineers' activities within their respective areas of responsibility. Example activities include both terrestrial and aquatic nuisance species management through authorized projects, Ecosystem Restoration programs and the Environmental Stewardship programs. The Corps of Engineers also has a research facility based in Vicksburg, MS, the Army Engineer Research and Development Center, that oversees the Aquatic Plant Control Research Program and the Aquatic Nuisance Species Research Program. This summary highlights both authorized projects and research activities relating to invasive carp and is not intended to be comprehensive. There are numerous other aquatic nuisance species activities that involve plant, insect, and animal control that are not included in this summary.

Electric Dispersal Barrier System (EDBS) – Operation and Maintenance – Chicago Sanitary and Ship Canal, Romeoville, IL

The Corps of Engineers has operated electric barriers in the Chicago Sanitary and Ship Canal since 2002. Congress funded the Corps of Engineers' construction and operation of an underwater electric dispersal barrier system in the Chicago Sanitary and Ship Canal, a hydrologic link between the Great Lakes and the Mississippi River, to help prevent the spread of invasive species. The Electric Dispersal Barrier System is in the Chicago Sanitary and Ship Canal, a man-made waterway creating the only continuous connection between Lake Michigan and the Mississippi River Basin. The multi-barrier array continuously delivers an uninterrupted, tightly calibrated electrical gradient into the water column. The electric field causes physiological discomfort in fish that increases as they attempt to swim upstream toward Lake Michigan, forcing them to turn back downstream. Continuous operational and procedural enhancements have ensured 24/7/365 electrical delivery, backup power redundancy, and optimized field strength.

In support of barrier efforts the interagency Monitoring and Response Workgroup, including the Corps of Engineers, tracks and monitors fish throughout the Chicago area waterway system to monitor the upstream passage of large fishes, assess the risk of Bighead Carp and Silver Carp presence, identify lock operations and vessel characteristics that may contribute to the passage of fish through navigation locks in the Chicago area waterway system, and evaluating temporal and spatial patterns of habitat use at the leading edge of the invasion front.

In 2026, the Corps of Engineers continued to operate and maintain the barriers and monitor fish movement in the upper Illinois Waterway including the Chicago Area Waterway System. Program Manager Jeff Zuercher jeffrey.k.zuercher@usace.army.mil.

Brandon Road Lock and Dam Aquatic Nuisance Species Barrier Project – Construction phase – Des Plaines River, Joliet, IL

The Water Resources Development Act of 2020 authorized the Brandon Road Project. The project includes a layered system of structural controls and non-structural measures. The new structural control point at Brandon Road Lock and Dam will include: an Underwater Acoustic Deterrent System (uADS), a bubble deterrent, an engineered channel, an electric dispersal deterrent, a flushing lock, automated barge clearing, and boat ramps. Construction of the project began in 2025 with tree clearing and excavation of the lower approach channel and in 2026 the construction contract was for Increment IA was awarded.

The project includes managing the waterway below Brandon Road Lock and Dam as a "population reduction zone" where monitoring and overfishing would occur. Construction Increments II and III will start after the completion of Construction Increment IA and IB. Program Manager Jason Smith Jason.T.Smith2@usace.army.mil.

Pilot study of underwater Acoustic Deterrent System (uADS) (Year 6) - Lock and Dam 19 –

Mississippi River, Keokuk, IA

Researchers from the Engineer Research and Development Center (ERDC) with the U.S. Geological Survey (USGS) continue to test and operate the Underwater Acoustic Deterrent System (uADS) to deter invasive carps at Lock 19 on the Mississippi River, near Keokuk, Iowa.

For this large-scale deployment, underwater sound equipment was installed at a "pinch point" in the river system where carp are only able to swim upstream through a lock chamber because the head height of the dam structure is impassable. In addition to field-testing uADS, research efforts in the lab
will continue to refine and optimize sound frequencies, sound pressure levels, and speaker designs to repel invasive carp while limiting or eliminating undesirable effects on native species.

2026 activities included maintenance of the uADS and evaluation of data to date. If a sponsor is not identified the Underwater Acoustic Deterrent System will be dismantled in April 2028. Principal Investigators Christa Woodley christa.m.woodley@usace.army.mil (USACE), and Marybeth Brey mbrey@usgs.gov (USGS).

Invasive carp Deterrent Development Project - Lock and Dam 5 – Mississippi River, Minnesota City, MN

The Corps of Engineers is working with the State of Minnesota through the Section 408 process to identify potential control techniques at Lock and Dam 5 of the Upper Mississippi River. The project's objective is to install an invasive carp deterrent and combine implementation of complementary actions to reduce the upstream passage of invasive carp. In 2025 and 2026, the Corps of Engineers worked with the Minnesota Department of Natural Resources work on the completion of technical reviews and environmental clearances; and finalization of engineering designs and execution of formal agreements for installation of chosen deterrent systems at Lock and Dam 5. Corps of Engineers Project Manager LeeAnn Glomski LeeAnn.M.Glomski@usace.army.mil, Minnesota Department of Natural Resources Project Coordinator Carli Wagner carli.wagner@state.mn.us.

Invasive Carp Pilot Program - Invasive Carp Management Plan - Tennessee and Cumberland Rivers and the Tennessee-Tombigbee Waterway - TN, AL, KY, MS

The Water Resources Development Act of 2020 authorized the Corps of Engineers to implement an Invasive Carp Prevention and Control Pilot Program in conjunction with the Tennessee Valley Authority and other relevant Federal Agencies to carry out projects to manage and prevent the spread of invasive carp using innovative technologies, methods, and measures in the Tennessee, and Cumberland River basins, and the Tombigbee Waterway. The program is a 75/25 percent federal/non-federal cost share program for multi-year pilot projects

to better understand invasive carp deterrents. Each project will generate an efficiency report, which will be removed at the end of the pilot project if a non-federal sponsor is not identified.

In 2026 the Corps of Engineers are working with State and Federal agencies in the execution of the finalized Management Plan; selection of initial pilot demonstration sites from the MICRA first-start list (e.g., Kentucky Lake, Pickwick Lake, Wilson, Barkley Lake); initiation of site-specific engineering designs and pilot deterrent deployments; preparation of preliminary deterrent efficiency reports. Corps of Engineers Project Managers Julie Duck julie.duck@usace.army.mil and Chip Hall charles.w.hall@usace.army.mil

Watercraft Inspection Station Program – West and Central U.S.

Section 104 of the River and Harbor Act of 1958, as amended (33 U.S.C. §610), authorizes the Aquatic Plant Control Program, a program for the prevention, control, and progressive eradication of noxious aquatic plant growths and aquatic invasive species in U.S. waters. The program supports research and development of management solutions for invasive aquatic plants that affect the Corps of Engineers missions. The Water Resources Reform and Development Act of 2014 (P.L. 113-121) amended this authority to also allow for the Corps of Engineers to establish watercraft inspections stations in selected river basins to prevent the spread of aquatic invasive species, including plants and animals (such as quagga and zebra mussels) at Corps of Engineers managed reservoirs. These watercraft inspection stations are to be constructed, operated, and maintained with a 50% federal cost share. The Watercraft Inspection Station Program includes the Columbia River Basin (including WY and NV), the Upper Missouri River Basin, the Upper Colorado; South Platte; and Arkansas River Basins, and the Russian River Basin (CA).

In 2026, the Corps of Engineers worked on implementation of the program to the Canadian border states. Corps of Engineers Program Manager, Jonas Grundman Jonas.Grundman@usace.army.mil

Upper Midwest Watercraft Inspection Station Program – Minnesota, Wisconsin, Ohio, Michigan

WRDA of 2020 authorized the Corps of Engineers to expand the geographic scope of the Watercraft Inspection Station program to basins and watersheds that adjoin an international border between the United States and Canada including the northern tier of States in the Upper Midwest. The cost for the development of the Upper Midwest Watercraft Inspection Station program Letter Report with integrated Environmental Assessment is 100% Federal for Planning and 50/50 cost share for Operations of the check stations paid by the project sponsor.

In 2026, the Corps of Engineers paused work on the Letter Report with integrated Environmental Assessment due to shortfalls in program funding.

Removal of Aquatic Growth Program - Operation and Management – Louisiana, Mississippi

The Removal of Aquatic Growth (RAG) Program is a navigation O&M authority as provided in several public laws to control nuisance plants that are negatively impacting Corps of Engineers navigation projects in Gulf Coast states, Georgia, and South Carolina. Since 1899, Congress has provided funding to the Corps of Engineers to remove aquatic growth in Louisiana and Florida at federal expense. In 2026, the RAG program in the New Orleans District operated at reduced capacity due to funding cuts. Corps of Engineers contact Michael Saucier Michael.H.Saucier@usace.army.mil.

US National Park Service - Midwest Region

Submitted by Lily Thompson, Postdoctoral Fellow for Aquatic Invasive Species

The Midwest region of the National Park Service (NPS) encompasses sites across a diverse physiographic range from the Ozarks in the Interior Highlands, to the Great Plains, and the Great Lakes, and spans the spectrum of current aquatic invasion status as well as current levels of programs for prevention, detection, and management.

In September and December 2025, my colleagues and I conducted an online survey of NPS natural resource managers of properties with aquatic resources within their boundaries to understand current practices and challenges related to aquatic invasive species (AIS) in the Midwest region of the NPS. Our objective was to identify and compare known levels of AIS presence, perceived AIS risk, current plans for AIS prevention, detection, and management, and challenges related AIS prevention and implementation of AIS best practices. We used these responses to identify gaps between perceived risk and current AIS invasion ranges as well as opportunities for collaborations among parks with similar AIS concerns but different levels of response preparedness. For example, many parks identified insufficient staffing and time as barriers for AIS early detection and rapid response efforts, and collaborations among parks could reduce these barriers. An additional persistent challenge highlighted by the survey responses is the complexity of jurisdiction over aquatic resources in many Midwest parks, where outside agencies either share responsibility for or are wholly responsible for water resources within the park boundaries and surrounding watersheds. Our results demonstrate the wide variation in current AIS planning and management among Midwest NPS properties and highlight opportunities for important prevention actions in areas currently without AIS establishment.

My position provides ongoing support and guidance to NPS properties in the Midwest. I send a monthly AIS newsletter to parks across the region highlighting key takeaways from panel meetings and conferences, continuing education opportunities, webinars, funding opportunities, events, news briefs, and an annotated bibliography of recently published (usually that month) scientific literature.

Additional work to highlight from 2025-2026:

- NPS staff working on zebra and quagga mussel issues in the Midwest meet regularly (originally monthly, now quarterly) to provide updates on their AIS programs and discuss potential challenges and opportunities.
- Independent AIS plans are being developed in Voyageurs National Park, Buffalo National River, Hot Springs National Park, and Mississippi National River and Recreation Area.
- NPS is revising and broadening its current Dreissenid mussel strategic plan for Western parks to encompass AIS generally for all parks. Contact John Wullschleger (john_wullschleger@nps.gov) for more information.

Submissions from Midwest NPS entities

- *Pictured Rocks National Lakeshore (Munising, Michigan) – Tony Vitale, Aquatics Lead Biological Technician*
    - This year Pictured Rocks National Lakeshore continued its early detection monitoring program in earnest as well as lending AIS aid to partner agencies. Within PIRO we continue to monitor six inland lakes with passive samplers and by collecting veliger samples. We also maintain passive samplers outside the park at Munising Marina, Munising Boat Launch (aka Brown's Addition), Grand Marais Marina, and the state-run boat launch at Kingston Lake. We work closely with Forest Service biologists to monitor around Grand Island and the surrounding shipwrecks – their divers place passive samplers and we process the samples. Similarly, we processed mussel samples from Isle Royale and are happy to work with other parks/agencies to process mussel and veliger samples over the winter. We began a new aquatic invasive plant monitoring program this season as well. Finally, we deployed our mobile boat wash station for the second season in a row as part of a collaboration between Forest Service, Park Service, and colleagues at the CISMA.
- *Effigy Mounds National Monument (Harpers Ferry, Iowa) – Alexandra Palas, Biological Technician*
    - At Effigy Mounds National Monument, we have been mapping the spread of flowering rush (*Butomus umbellatus*) into our wetlands from the Mississippi river floods (2025 and 2026). In July 2026 we dug up a small patch along the Mississippi near the mouth of the Yellow river and bagged the rhizomes and seedheads.
        - P.S. If you have any tips on control, we would love to hear it! We were thinking of trying to chemically treat (Diquat has been recommended) the flowering rush via kayaks next year, but the water level has to cooperate with us.

USDA Forest Service, Southern Region

Submitted by Amy Commens-Carson, Regional Fisheries Program Manager

1. **eDNA** - Z. Barnett is assessing the use of eDNA as an early detection method for AIS throughout the southeastern US to develop an early detection monitoring protocol for land managers.
    - Virginia—invasive species detected
        - Electrofishing
            - Redline Darter, Tennessee Snubnose Darter, Common Carp, Pumpkinseed Sunfish, Green Sunfish, Saffron Shiner, Roanoke Darter, Telescope Shiner, Striped Shiner, Crescent Shiner, Spottail Shiner, Rainbow Trout, Brown Trout, and Rainbow Darter and Smallmouth Bass
        - eDNA has not been processed.

2. **Invasive bivalve lowers survival of native mussels -** A recent study by Research Fisheries Biologist Wendell Haag shows that the presence of an invasive bivalve (Corbicula fluminea) lowered survival of 1-day-old juvenile native mussels by 50–70%. This bivalve, however, had no effect on 60-day-old native mussel survival. The strong negative effects of Corbicula on 1-day-old juveniles suggest that it may be an important factor in mussel declines. For more information contact wendell.haag@usda.gov.



MISSISSIPPI RIVER BASIN PANEL ON AQUATIC INVASIVE SPECIES

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