

ANNUAL PERFORMANCE REPORT

For

Statewide Fisheries Investigation Project

Part I of III

Subsection I: Fisheries Habitat Branch



Project Leader: *Josh Pennington*, Assistant Director

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Department of Fish and Wildlife Resources
Fisheries Division



STATE: Kentucky

PROJECT NO: F-40-48

GRANT TYPE: Research and Survey

GRANT TITLE: Statewide Fisheries Investigations

SUBSECTION 1 TITLE: Fisheries Habitat Program

PERIOD COVERED: 1 April 2025 – 31 March 2026

RESEARCH AND SURVEY SECTION

Subsection I

Project 1: Largescale Fish Habitat Projects

Project Objective: To coordinate and develop largescale habitat projects that increase the volume of structural habitat for fisheries within Kentucky.

A. ACTIVITY

There was activity on two large scale fish habitat projects during this grant cycle. Projects included those at Green River Lake and Lake Cumberland.

The largescale fish habitat project at Green River Lake was completed in August 2025. During this grant cycle, we created an additional 19 sites. Sites were created using 108 large Cedar Trees, 144 pallets, 26 plastic pallet trees, and 28 hybrid trees. The forward-facing sonar project continued to collect seasonal data to understand fish attractor utilization by fishes.

The largescale fish habitat project at Lake Cumberland continued during this grant cycle. 21 sites were created utilizing 345 cedar trees, and 102 pieces of driftwood.

Staff spent a total of 138 working days on the Green River Lake and Lake Cumberland Largescale Fish Habitat Projects. This time included planning/coordination, habitat mapping, obtaining material, structure construction, habitat deployment, and staging area cleanup.

Activities were coordinated out of the headquarters office of the Kentucky Department of Fish and Wildlife Resources (KDFWR) located at a #1 Sportman's Lane, Frankfort, KY, 40601. Additionally, work was completed out of two regional offices located in Calhoun and Morehead with their respective addresses being 1398 State Route 81 N, Calhoun, KY 42327 and 120 Fish Hatchery Rd. Morehead, 40351.

B. TARGET DATES FOR ACHIEVEMENT AND ACCOMPLISHMENTS

Planned Achievement Date: March 31, 2026

Work Accomplished: March 31, 2026

C. SIGNIFICANT DEVIATIONS

None.

D. REMARKS

The habitat branch was unable to deploy habitat for several months of the year. Historical flooding occurred in late winter and early spring. The reservoirs were utilized for their main intention of flood mitigation. Due to this being a state-wide event, many reservoirs did not reach normal summer pool levels until July. This setback largely slowed the deployment of structures at Green River Lake, which subsequently pushed back work at Lake Cumberland as well.

E. RECOMMENDATIONS

None.

Project 2: Aquatic Habitat Technical Guidance

Project Objective: To improve and create aquatic habitat projects that increase angler opportunities in lake and streams in Kentucky.

A. ACTIVITY

During 1 April 2025 – 31 March 2026, the Habitat Branch assisted each of the seven Fisheries Districts with various phases of habitat project implementation. Project phases included planning/coordination, obtaining material, habitat deployment, and machinery delivery. Staff assisted with staging, deployment, building, and planting across 15 lakes. Staff spent a total of 119 working days on technical guidance projects.

The Christmas tree drop-off program resulted in 6,483 trees from 37 drop-off sites and store donations. Department staff picked up over 1,000 trees that were donated from large retailers/municipalities. Tree donations spiked this year, the average from 2017 through 2024 is 5,214 trees. There has been a continued effort with advertising and marketing to raise public awareness in hopes of increasing public participation with tree donations. The Information and Education Division staff created a Christmas tree recycling news release and social media post to promote the program and increase awareness. The news release was picked up by local news stations across the state and seemed to have far-reaching effects. Fish habitat and regional fisheries staff participated in giving interviews to promote the program. In doing so, 2025 has been the 3rd highest tree count donation year. This has offset the trend of decline since 2019 and might offer insight into communication and media outreach can have. Fish habitat branch staff spent a total of 37 working days related to the Christmas Tree recycling program. Work included planning, interviews, sign posting, tree hauling, and deployment.

Activities were coordinated out of the headquarters office of the Kentucky Department of Fish and Wildlife Resources (KDFWR) located at #1 Sportman's Lane, Frankfort, KY, 40601. Additionally, work was completed out of two regional offices located in Calhoun and Morehead with their

respective addresses being 1398 State Route 81 N, Calhoun, KY 42327 and 120 Fish Hatchery Rd. Morehead, 40351.

B. TARGET DATES FOR ACHIEVEMENT AND ACCOMPLISHMENTS

Planned Achievement Date: March 31, 2026

Work Accomplished: March 31, 2026

C. SIGNIFICANT DEVIATIONS

None.

D. REMARKS

None.

E. RECOMMENDATIONS

None.

Project 1: Largescale Fish Habitat Projects

Green River Lake

The final phase of the Green River Lake Largescale Fish Habitat Project was completed in July and August 2025. Work included a total of 19 sites around the Southeastern part of the lake. These 19 sites varied in type from Cedar Tree brush piles, pallet-triangle structures, plastic pallet trees, and hybrid tree structures. We again attempted to vary sites not only by spreading out their locations, but also by size, bathymetric features, and type. Sites spanned a far-reaching area in hopes of giving anglers the chance to spread out and not feel crowded when attempting to fish heavy structures that we have deployed. Fish habitat work was delayed due to state-wide historical flooding, which raised the water level 25 feet of elevation above summer pool (675ft). The flooding persisted until early July, when work on the project resumed.

Staff spent more time on Green River Lake to record forward-facing sonar videos to understand how fish utilize the fish habitat structures that we have placed within the lake. The depth of many structures prevents effective electrofishing from occurring. The flooding prevented staff from collecting data in late winter until mid-summer 2025. We hope to fill those seasonal gaps during the next grant cycle, while also making the forward-facing sonar transducer and chartplotter mobile, so that it is easier to send out on various boats and to utilize in various manners as well.

We have spent some time during this and the previous grant cycle to investigate developing a deepwater shocking. This system would utilize our pre-existing DC electrofishing setups to allow us to sample deepwater (12+ feet) brush piles more effectively. To date, we have seen a working example with Dr. Timothy Spier at Murray State University that we will base our design from. Dr. Spier's prototype when paired with FFS proved successful for collecting sportfish such as Largemouth Bass, Bluegill, Yellow Bass, and even a 20+lbs Blue Catfish from 15-20ft depths. The fish habitat branch manager seeks to work further with Dr. Timothy Spier on developing a better working prototype that could sample a larger area to obtain a better capture of the large fish habitat structures that we create.

With the Green River Lake largescale project concluded, we seek to expand our fish habitat work on Lake Cumberland during the next grant cycle.

Lake Cumberland Largescale Fish Habitat Project

This grant cycle allowed us to implement phase 2 of the Lake Cumberland Largescale Fish Habitat Project. We created 21 very large fish habitat sites, created using 345 Cedar Trees, and 102 pieces of driftwood. Work was completed in November and December 2025. 17 sites were created in the back of Beaver Creek, near Monticello. These sites utilized Cedar Trees removed from Meadow Creek Wildlife Management area and were transported to Beaver Creek. Previously, many brush piles were created by securing 8-inch concrete block to the trees. The fish habitat branch staff have sought other means of anchoring materials, especially when working on the dry lakebeds during water drawdown periods. For our work in Beaver Creek, this

meant utilizing donated precast concrete structures that varied in size and shape. These structures are estimated to weigh between 1500-4000 pounds, depending upon the size and shape. Additionally, we did our initial testing of concrete “bin blocks” here as well, which is discussed later when detailing the work at the main lake tate ramp work area. Staff used stainless cables and clamps to secure the cedar trees to these structures. It is our hope that this will allow us to easily refurbish the structures in the future once the Cedar Trees degrade. We will monitor the success of these structures during the next drawdown in late 2026.

Lake Cumberland has historically had issues with driftwood accumulation within the lake. The water volume, watershed topography, and high sinuosity of the main basin are all factors that lead to high annual accumulations of driftwood. For a lake with many recreational boaters, this often presents continuous hazards on the water. USACE spends a large amount of time and effort on driftwood removal. During the winter water drawdown period, USACE piles together and burns driftwood where high accumulations occur. The Fish Habitat Branch, along with the Southeastern Regional Fishery District, sought to use this issue as an opportunity to create habitat out of what is essentially deemed as trash. Learning from the site creation at the back of Beaver Creek, we again used heavy precast concrete structures and stainless cable. 2x2x3 foot “bin blocks” were utilized for these sites. Offering a fantastic amount of weight (~2500 lbs) for the price (\$35). The bin blocks allowed us to put the brunt of the physical labor onto our heavy equipment, rather than having to lift anchoring material by hand. We chose Tate ramp to complete the work due to the ease of access, bathymetry, and availability of driftwood at this area. We created five experimental sites, using a total of 102 pieces of driftwood that varied in size. Staff sought to select driftwood that was structurally sound to prevent the structure from prematurely breaking apart. During the next grant cycle we seek to have staff record livescope footage of the structures to see fish utilization, and also sample by electrofishing the sites as the water draws down in later summer, as conditions allow. If successful, we hope to continue work like this on other parts of the lake that experience high accumulations of drift.

Table 1. Habitat material summary for the Green River Lake Largescale Fish Habitat Project.

Phase	Location	Year	# of Sites	Cedar Trees	Pallet Structures	Plastic Pallet Trees	Hybrid Trees	Total
1	Goat Island & Holmes Bend	2023	19	209	60	0	0	269
2	Site One	2024	22	146	35	0	0	181
3	Holmes Bend	2025	19	108	48	26	28	229
Totals			60	463	143	26	28	679



Figure 1. Examples of plastic pallet tree structures. Leaflet layers are put together with UV resistant zip-ties. Leaflets float upon deployment, with PVC cap to keep containment on the column.



Figure 2. Example of Hybrid Tree Structures created and deployed at Green River Lake. Small Cedar Trees are placed into a piece of HDPE pipe anchored in concrete. The heavy concrete base keeps the structures upright once deployed.

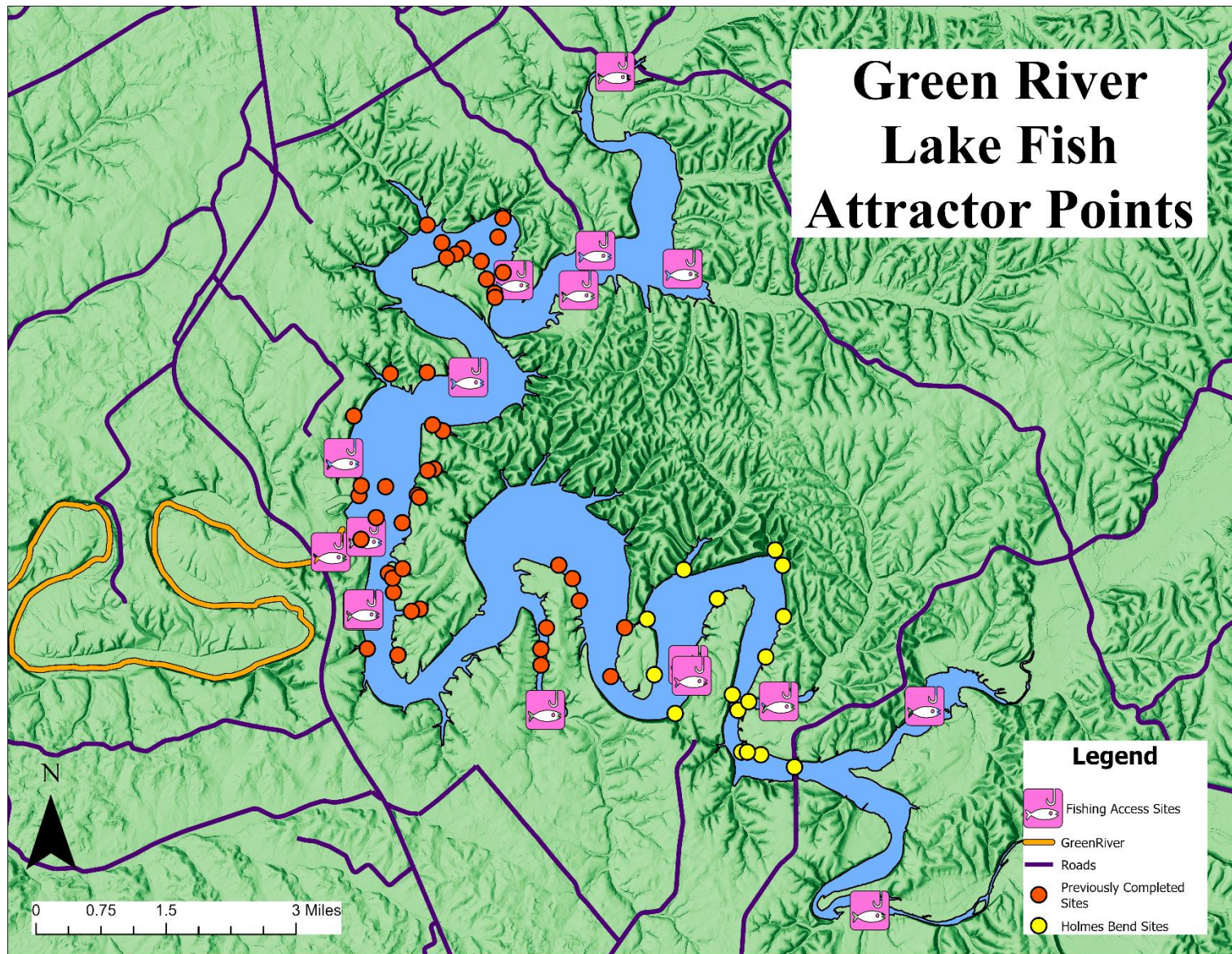


Figure 3. Fish attractor map of green river lake showing sites created during the 2025-2026 grant cycle (Yellow), along with sites created previously as part of the largescale fish habitat project.

Table 2. Habitat material summary for the Lake Cumberland largescale fish habitat project.

Phase	Location	Year	# of Sites	Cedar Trees	PVC Structures	Driftwood	Total Structures
1	Fishing Creek	2024	72	651	41	0	692
2	Beaver Creek	2025	21	345	0	0	345
2	Tate Ramp	2025	5	0	0	102	102
Totals			98	996	41	102	1139

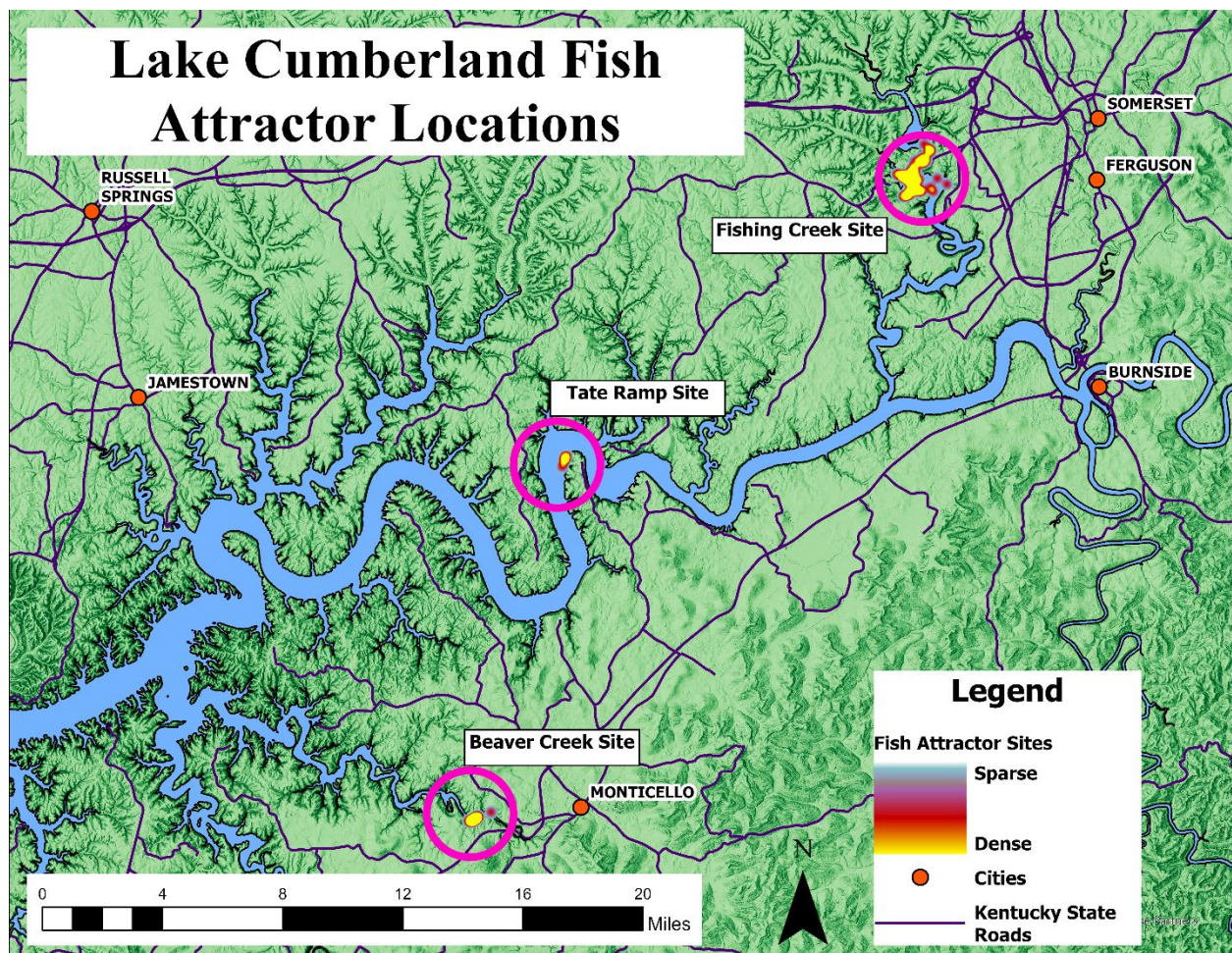


Figure 4. Heatmap showing areas where fish attractor sites have been placed on Lake Cumberland.



Figure 5. Example of site created within Beaver Creek. Cedar Trees were anchored to large concrete structures using stainless steel cable and clamps.



Figure 6. Example of experimental driftwood structure at the Tate Ramp site on Lake Cumberland. Large pieces of driftwood were spanned between two bin blocks, then secured with stainless cable. Smaller pieces were tied with rope and stapled to the large spanner pieces.

Project II: Aquatic Habitat Technical Guidance

FINDINGS

During 1 April 2025 – 31 March 2026, the Habitat Branch assisted each of the seven Fisheries Districts with various phases of habitat project implementation. Project phases included planning/coordination, obtaining material, habitat deployment, and machinery delivery. Staff assisted with staging, deployment, building, and planting across 15 lakes. Staff spent a total of 119 working days on technical guidance projects.

The Christmas tree drop-off program resulted in 6483 trees from 37 drop-off sites and store donations. Department staff picked up over 1000 trees that were donated from large retailers/municipalities. Tree donations spiked this year, the average from 2017 through 2024 is 5214 trees. There has been a continued effort with advertising and marketing to raise public awareness in hopes of increasing public participation with tree donations. The Information and Education Division staff created a Christmas tree recycling news release and social media post to promote the program and increase awareness. The news release was picked up by local news stations across the state and seemed to have far-reaching effects. Fish habitat and regional fisheries staff participated in giving interviews to promote the program. In doing so, 2025 has been the 3rd highest tree count donation year. This has offset the trend of decline since 2019 and might offer insight communication and media outreach can have. Fish habitat branch staff spent a total of 37 working days related to the Christmas Tree recycling program. Work included planning, interviews, sign posting, tree hauling, and deployment.

Table 1. Summary of Christmas Tree donations by Fisheries District.

Fisheries District	2017	2018	2019	2020	2021	2022	2023	2024	2025
Western	411	350	709	0	306	220	195	365	326
Northwestern	30	60	110	650	688	372	236	453	350
Southwestern	729	510	834	1000	700	315	222	322	350
Central	1189	1507	4101	3314	2321	3166	2950	2557	3354
Southeastern	290	177	989	697	395	216	232	246	393
Northeastern	80	375	690	650	375	900	875	880	915
Eastern	330	150	750	495	523	341	100	65	795
Total	3059	3129	8183	6806	5308	5530	4810	4888	6483

