



2018

**Tennessee's Roadmap to Securing the
Future of Our Water Resources
Water-Based Recreation and Tourism**

Tennessee's Water-Based Recreation and Tourism

Executive Summary

The importance of water-based recreation and tourism to Tennessee cannot be underestimated. According to the Tennessee 2020 report, the 60,417 miles of rivers, streams and creeks are the largest and most widely available class of publicly owned recreation resources in the state. (TDEC, 2009, p. 88). There is tremendous potential for continued growth of water-related outdoor recreation and tourism in Tennessee, but there are also associated thresholds for impacts related to the health and sustainability of the natural resources that sustain them. Responsibly accessing and enjoying Tennessee's rivers, streams, lakes and reservoirs need not deplete them. The more we protect and invest in public land and water infrastructure, the greater and longer-lasting the dividends. Economically, water-based recreation and tourism contributes substantially to the state and local economies, especially those in rural areas, like Dayton and Polk County, Tennessee. In urban centers like Chattanooga, the redeveloped 13-mile riverfront, gets a huge economic boost from the Head of the Hooch, the world's largest rowing regatta, bringing in more than 2,100 boats and an annual economic impact of more than \$5.5 million for the city. (Outdoor Industry Association, 2017, p. 13)

Tennessee's water-based assets are mainstays to the state's economy, but also provide for a high-quality outdoor recreation-oriented lifestyle that is enjoyed by hundreds of thousands of residents and visitors alike. Preserving the integrity of and access to these resources is of paramount importance. The Tennessee Water Quality Control Act defines these waters as "property of the state...held in public trust for the use of the people of the state." In addition, along with fish and aquatic life, the state recognizes that recreation is one of the main designated uses that Tennessee waters should support. (State of Tennessee, 2010)

In April 2018, a Recreation and Tourism Focus Group was held as part of the Natural Resources and Recreation and Tourism Working Group of the TN H2O Initiative with participation from members of Tennessee's state agencies, tourism and economic development, and the conservation, outdoor recreation business, and boating/paddling and angling community. While there were a number of identified challenges and opportunities, it became clear that the water-based recreation users do not represent a homogeneous community and that there are increasing incidents of user conflicts on Tennessee's water resources that need to be addressed. Still, the need to maintain high quality waters in enough quantity to meet multiple competing uses for fish/aquatic life and recreation was a common theme. What people are generally seeing when they are recreating on the water (trash, four wheel riding, gravel dredging, cows in the creek,

non-flow aligned bridge piers, railroad maintenance, and sedimentation from agricultural areas and development), were reported as factors that could negatively influence users' experiences. Public perception about the quality of the water and whether or not it is safe for human contact was also identified as an issue affecting use.

Challenges and Opportunities:

- Not enough access in places/too much access in others
- Capacity issues, including underutilized resources, over-crowded segments
- Need for identification of rivers that are under extreme pressure from overuse
- Positive reservoir recreation and economic growth - reservoirs valued at about \$1M per shoreline mile
- Need for better recognition of the importance of good fisheries management
- Water quality issues (clean marinas, siltation from the watershed)
- Lack of funds to support amenities, facilities and accesses on waterways
- Lack of recreational water user education and conservation-minded stewardship

In addition, several key limiting factors to increasing the recreation potential of TN waters were identified. These include the following (refer to the Future State section for details):

- Lack of funds to support existing and growing user base
- Limited resources for law enforcement and jurisdictional challenges
- Lack of paddler education with new and more users creating impacts
- Problems/increased management challenges associated with casual users and a lack of stewardship ethic
- Lack of a non-motorized boat study and implementation plan for Tennessee

The Status of Water-Based Recreation and Tourism in Tennessee (Current State/Projected Future State)

Across the state, the outdoor recreation industry is booming. In Chattanooga, for example, there is a reverse migration of people from the suburbs back into the town that is affecting access to the river. In 2019, for the first time in its 49 year history, the Bassmaster Classic will be held on the Tennessee River in Knoxville. (Bassmaster, 2018). Increasingly, positive cases like these emphasize the positive lifestyle and economic benefits afforded by the state's high quality waters. In certain heavily trafficked locations, this increased use is also leading to rising numbers of user conflicts on the resources. The Tennessee 2020 Vision for Parks, People and Landscapes

pointed out the need of communities for more opportunities to enjoy and protect their local rivers, streams and creeks. (TDEC, 2009, p. 52). Several years later, this need still rings true, however, there is also a need for an integrated management approach that holistically acknowledges and addresses all of the relevant economic, environmental and recreational use considerations.

Greater Water Recreation Resources Role in Health and Quality of Life for All Tennesseans

The equity of access to public lakes and waterways for recreation is a great equalizer in supporting the quality of life for Tennesseans who may not be able to afford living in a gated community with a private lake. The dangers of a sedentary lifestyle have been shown to be particularly prevalent in lower income communities. According to the 2017 America's Health Rankings study, Tennessee ranked 40th in physical activity nationwide. (America's Health Rankings Annual Report, 2017) Assuring outdoor activity opportunities and proactive encouragement to engage in those activities is a key community health value of water resources.

Growth Opportunities in Water-based Recreational Sports

High quality water resources in Tennessee support the direct economic impact of fishing, boating, sailing, skiing, rafting, canoeing and kayaking as evidenced by the sporting goods retail, boat making, guiding and tourism sectors. Looking ahead, it's worth noting the ongoing innovation of outdoor recreation to see that the sky's the limit as to the next new thing we may see on the water, and thus the growing enticement for more people to play (paddle board yoga, wake surfing, kayak fishing). Relatively new ideas continue to meet Tennesseans' and our visitors' demand for fun on the water. The Tennessee Valley Water Trails interactive website is a great example of web based outreach to promote the enjoyment of Tennessee's streams, rivers, and reservoirs. Promoting water trails can strengthen ecotourism and increase environmental awareness by showcasing Tennessee's beauty and recreational opportunities. TNValleyWaterTrails.org is positive example of a hub for water trails that has been put in place to help accommodate the growing need.

Angling

The importance of quality fisheries and facilities to Tennessee can't be underestimated. According to a 2011 Census Bureau and U.S. Fish and Wildlife Service study, 826 thousand state residents and nonresidents 16 years old and older fished in Tennessee. Of this total, 709 thousand anglers (86 percent) were state residents and 117 thousand anglers (14 percent) were nonresidents. Anglers fished a total of 17.0 million days in

Tennessee—an average of 21 days per angler. State residents fished 16.0 million days—95 percent of all fishing days in Tennessee. Nonresidents fished 916 thousand days in Tennessee—5 percent of all fishing days in the state.

A large majority of Tennessee residents who fished anywhere in the United States did so in their resident state. There were 833 thousand Tennessee residents 16 years old and older who fished in the United States in 2011 for a total of 17.8 million days. An estimated 85 percent of all Tennessee residents who fished did so in their home state. Of all fishing days by Tennessee residents, 90 percent or 16.0 million were in their home state. (Census Bureau and the U.S. Fish and Wildlife Service, 2011, p. 7)

All fishing-related expenditures in Tennessee totaled \$1.1 billion in 2011. Trip-related expenditures, including food and lodging, transportation, and other expenses totaled \$283 million—25 percent of all fishing expenditures. Expenditures for food and lodging were \$78 million and transportation expenditures were \$112 million. Other trip expenses, such as equipment rental, bait, and cooking fuel, totaled \$92 million. Each angler spent an average of \$343 on trip-related costs during 2011.

Anglers spent \$803 million on equipment in Tennessee in 2011, 71 percent of all fishing expenditures. Fishing equipment (rods, reels, lines, etc.) spending totaled \$210 million—26 percent of the equipment total. Auxiliary equipment expenditures (tents, special fishing clothing, etc.) and special equipment expenditures (boats, vans, etc.) amounted to \$593 million—74 percent of the equipment total. Expenditures classified as special and auxiliary equipment are on items that were purchased for fishing but could be used in activities other than fishing.

The purchase of other items, such as magazines, membership dues, licenses, permits, stamps, and land leasing and ownership, amounted to \$51 million—4 percent of all fishing expenditures. For more details about fishing expenditures in Tennessee, see Tables 19 and 21 through 23. (Census Bureau and the U.S. Fish and Wildlife Service, 2011, p. 8)

According to the June 17, 2017 Commercial Appeal article, “Bass Fishing on a Kayak a Rapidly Growing Sport”, ‘Kayak fishing has really exploded in the past six or seven years. I’m not what sure what spawned this explosion, but it’s got to be the thrill of silently working your way through the water without the sound of a big motor.’ ‘You have multiple states that have multiple fishing trails,’ Jay Wallen said. ‘I know Tennessee has three or four kayak fishing trails. The sport continues to grow and I don’t see it slowing down. Everywhere you look people are buying kayaks. It’s just a cheap way to get on

the water, and you can access water that power boats can't get to. It's a sport that is really diverse in what it allows you to do.' (Rea, 2017)

Recreational Boating, Reservoirs and Marinas

A popular pastime, each year Americans spend more on water sports gear (\$14 billion) than on movie tickets (\$11 billion). (Outdoor Industry Association, 2017, p. 16)

According to the National Marine Manufacturers Association (NMMA) Recreational Boating Statistical Abstract, in 2016 there were 254,091 registered boats in Tennessee, including powerboats (89%), personal watercraft (10%), sailboats (.4%), and other (1%). Recreational boating is also a major economic engine in the state, with the top three most popular boating activities in Tennessee being fishing, swimming and entertaining. Tennessee's recreational boating industry has an annual economic impact of more than \$3 billion (including direct, indirect and induced spending). At the time of the study, this was supporting 15,817 direct and indirect American jobs and 595 businesses. Annual retail sales of new boats, engines, and marine accessories generated \$421.9 million in annual retail sales in Tennessee. (National Marine Manufacturers Association, 2016)

A recent University of Tennessee Study noted that hundreds of thousands of people raft the Ocoee each year, making it the most visited rafting venue in the U.S. It is also a playground for kayakers, hosted the 1996 Olympic games, and is the biggest economic driver for the towns and county along its banks, having an economic impact of \$43.8 million in the area, and providing more than 600 jobs. (Pace, 2017)

National parks, national wildlife refuges, national monuments and other public lands and waters account for \$45 billion in economic output and about 396,000 jobs nationwide. These public areas provide significant economic benefits, particularly for nearby rural communities. Public lands and waters are the outdoor industry's basic infrastructure, and without them the industry cannot survive. Preserving access is paramount. (Outdoor Industry Association, 2017, p. 14)

Reservoir recreation in Tennessee is associated with strong economic growth. A 2017 study found that recreational visitors to the TVA reservoir system generate an average annual economic impact of \$11.9 billion as well as more than 130,000 local jobs, \$4.45 billion in labor income and \$916 million in state and local taxes (these figures don't take every economic impact into consideration). (TVA Newsroom, 2017)

TVA Recreation

Background/overview:

TVA is entrusted to manage its land and reservoir resources to provide multiple benefits to the people of the Tennessee Valley and serve as a responsible steward of the Tennessee River System. These resources include approximately 650,000 acres of reservoir surface water, 11,000 miles of shoreline and 293,000 acres of land available for recreation and other purposes. TVA has a duty to manage these highly valued resources wisely for present and future generations. From its creation in 1933, TVA's earliest leaders understood that as the lands around these reservoirs were developed in the Tennessee Valley, recreation would be a direct link to the social and economic advancement of the surrounding areas. This was explicitly recognized in a 1936 board report to Congress which states: "*The Tennessee River possesses a great variety of scenery. If this beauty is preserved, the river system will become one of the favorite recreation areas in the United States*". TVA was directed by Franklin D. Roosevelt (FDR) in his 1940 Speech to Congress to engage in "Recreation Development of the Tennessee River System" resulting in experiments and demonstration projects. "Recreation in its broad sense is a definite factor in the improvement of the bodies and minds of our future citizens," he further stated.

Waterways, shorelines and adjacent public lands and have long provided a platform in support of the recreation and tourism industry. In the post war era, TVA's Valley recreation programs included developing and supporting commercial and public recreation along the reservoir and stream corridors. TVA continues to build on this early work by supporting and expanding sustainable recreational opportunities throughout the region through agency and community partnerships, and recreational agreements with commercial and public entities. From a stream access sites to a fully developed commercial marina TVA strives to balance resources needs under its care while providing a diverse array of recreational opportunities. These recreational opportunities support the economic impact of the travel and tourism industry in the Tennessee Valley.

TVA provides recreation assets available for public use on most of its dam reservations. This includes 46 dam reservations located throughout the valley and at 1 pumped storage hydroelectric facility. These assets are either operated by TVA or through agreement with a partner such as a concessionaire, city, county or state. These dam reservation areas encompass approximately 3,000 acres and support around 1 million visitors annually. TVA collaborates to enhance recreational opportunities and accessibility on public lands by partnering with local, state, and federal agencies to enhance and improve public recreation facilities. TVA also provides technical assistance and fosters partnerships to enhance recreational opportunities on TVA and other public lands in the Tennessee Valley. Additionally federal, state and local entities partner to provide launching ramps and stream access sites that are not associated with dam properties.

In 2016, TVA engaged the University of Tennessee to examine the level of economic impacts associated with visitation to the TVA reservoir system. Study data shows annual visitation of around 65 million recreation user days with an estimated economic impact of \$11.9 billion. Annualized recreation metric estimates extrapolated to individual TVA reservoirs per shoreline mile show 6,113 Visitor Days, \$1.1M Total Industrial/economic output, \$85,500 state and local taxes generated which does not include property taxes. Potential future studies could include: TVA's Stream Access Sites Visitation and Associated Economic Impact, TVA's Backcountry and Dispersed Recreation Visitation and Associated Economic Impact and TVA Reservoir with USFS Contiguous Lands Visitation and Associated Economic Impact.

TVA reservoirs are nationally known and provide popular venues for anglers to pursue a variety of sport fish including bass, crappie, walleye, trout and catfish. Of these species, bass has been one of the most sought after species of the sport bringing anglers from all over the United States to fish the Tennessee River Valley reservoirs. The Bass Angler Sportsman Society (B.A.S.S.), one of the most recognized bass tournament organizations, identifies six of TVA reservoirs (South Holston, Watauga, Chickamauga, Guntersville, Pickwick and Kentucky) as the top 25 reservoirs to bass fish in the Southeast US. The popularity in tournament fishing is a boost to the local economies and is why many Tennessee cities and counties are working to recruit national and regional tournament trails. The Fishing League Worldwide (FLW), another professional bass fishing organization, estimates that just one of its tournaments is sufficient to bring an estimated \$1.6 million to the local economy. The Morristown Marine Trail is a regional tournament trail that hosts tournaments in east Tennessee and estimates that its eight tournament series brings in approximately \$1 million dollars to local economies.

Recognizing an economic opportunity in these events, the City of Dayton and Rhea County, Tennessee, have been recruiting many of these tournaments to Chickamauga Reservoir. Chickamauga has had considerable recognition in recent years for producing trophy bass. In 2014, the City of Dayton hosted 34 fishing tournaments, which altogether drew an estimated 10,000 competitive anglers and many more fans to the city. During the popular months for fishing tournaments, the county and city sale taxes see an increase of \$100,000 per month, with 51% going to the county and 49% to the city.

Tennessee's dewatering areas provide another unique water-based recreational opportunity. Originally built to control malaria vector's reproduction cycle through the creation of levees and pumping stations during dam construction, dewatering areas are nationally recognized for overwintering waterfowl habitat located on wildlife management areas and refuges. The large amounts of wetland habitat, seasonally exposed shoreline and lowland croplands in close proximity to the river and migratory pathway provide great habitat for waterfowl and shorebirds. The habitat is further

enhanced by the ability to pump water out of the wildlife area and refuges. A long-term partnership between Tennessee Wildlife Resources Agency and TVA was established in 1956 to manage three units on Kentucky (Big Sandy, West Sandy, and Camden). The other two dewatering units on Kentucky (Duck and Busseltown) are managed by the U.S. Fish and Wildlife Service (USFWS) as Tennessee National Wildlife Refuges (TNWR).

The Ocoee River, a tributary to the Hiwassee and Tennessee Rivers in Polk County in the southeast corner of Tennessee, is one of the most popular rivers in the eastern United States for whitewater boating and rafting. Two sections of the river, commonly known as the upper Ocoee River and the middle Ocoee River, are used for whitewater recreation. Whitewater recreation on both of these river sections is dependent on the release of water from TVA dams into the river channels instead of diverting it for generating electricity. Diversion of water in these two sections of the river provides for minimal flow for aquatics and leaves little in the channel for recreational opportunities. Alternatively, TVA must forego generation of electricity in order to provide recreational whitewater flow in these stretches of river.

Regulatory:

TVA implements Section 26a of the TVA Act (U.S. Congress, 1933, as amended) through its Shoreline Management Policy (SMP) and Section 26a regulations. The SMP became effective on November 1, 1999, and is based on the Shoreline Management Initiative (SMI) that began in 1994. TVA began SMI to address growing public concern about how increases in residential shoreline development would affect the shoreline resources and uses. In 1999, the TVA Board of Directors adopted the alternative that allows environmentally responsible development of shoreline where residential access rights already exist and preserves public benefits along shorelines where residential access rights do not exist. Under the SMP, TVA sought to balance residential shoreline development, recreation use and resource conservation needs in a way that maintains the quality of life and other important values provided by its reservoir system. In 2003, the Section 26a Regulations were updated to incorporate the SMP. These regulations include the standards of TVA's SMP as well as the permitting requirements for other non-residential uses.

Section 26a of the TVA Act requires that TVA approval be obtained prior to construction, operation, or maintenance of any dam, pertinent works, or other obstruction affecting navigation, flood control, public lands, or reservations across, along, or in the Tennessee River or its tributaries. Obstructions may include such things as boat docks, piers, boathouses, rafts, buoys, floats, boat launching ramps, fills as well as other structures. This section of the TVA Act ensures that construction along the shoreline and in the waters of the Tennessee River system does not adversely impact

or compromise TVA's capability for managing the river system. TVA's Section 26a authority covers approximately 11,000 miles of reservoir shoreline and thousands of miles of off-reservoir tributaries.

Recreation-related Outreach:

Increasing the public's awareness and value of Tennessee's water resources and associated recreational opportunities can be buttressed by outreach and engagement. Outreach efforts targeting participants and attendees of professional fishing tournaments on TVA reservoirs help promote sustainable recreation and water resource protection. Over the past three years TVA has exhibited a booth and mobile aquarium at 10 tournaments across the Valley reservoirs including Guntersville, Kentucky, Pickwick, and Chickamauga. A variety of information has been provided on TVA managed lands, water quality projects, aquatic plant management, recreation, and fisheries information for the local reservoirs. The aquarium displayed native fish which the visitors could view different species and in some cases hold fish they had never seen before. It is estimated that over 20,000 people visited the events where TVA staff answered questions and provided information.

In addition to the fishing tournament outreach, TVA integrates public outreach into its annual Reservoir Fish Assemblage Index surveys. The RFAI takes into account species richness, trophic composition, and fish health. The survey information is shared with agencies and the public to help protect and improve water resources. These outreach efforts focus on up to four TVA reservoirs every year. In the past, they have included: Kentucky, Guntersville, Chickamauga, and Douglas.

TVA Water Resources Improvement Efforts:

TVA has been actively involved in water resources management and river system integration since 1933, when Congress charged the agency with managing and serving as the steward of the Tennessee River and its tributaries.

Many of TVA's programs supported the construction and improvement of its dams and reservoirs and their operation. As decades have passed, TVA's unique role and value to the region have evolved, and its programs have evolved to address the demands placed on the river system.

Examples of historic activities include:

- Addressing erosion and suspended sediment in the Tennessee River watershed
- Studying TVA reservoir freshwater ecosystems
- Monitoring and improving water quality in reservoirs, rivers and tailwaters to maintain and enhance reservoir aquatic habitats for fisheries

- Documenting and studying stream biology, hydrology and water quality impacts of land uses
- Developing partnerships with stakeholders to reduce impacts of land practices in the Tennessee River watershed and sub-watersheds
- Collecting and utilizing water resource information to plan, site, construct and operate TVA fossil and nuclear electric generation stations

The Aquatic Ecology Management program focuses on the enhancement of aquatic biological communities in streams, reservoirs and tailwaters of the Tennessee River watershed. This may include activities such as habitat improvement, biological monitoring, and pollution reduction. TVA partners with local, state and federal organizations to identify and protect exceptionally diverse aquatic biological communities living in the Clinch, Powell, Duck, Little Tennessee River, and other watersheds. One successful example is the Elk River Buffer Partnership. Through their efforts, riparian buffers have been installed on tributaries and the main stem of the Elk River to reduce sedimentation, runoff and provide streamside access to the waterways.

TVA, TDEC, TWRA and others use physical, chemical and biological monitoring to assess ecological conditions of streams throughout the Tennessee River watershed. TVA focuses primarily on biological and physical monitoring through its stream and reservoir monitoring programs that help maintain an in-depth knowledge of the changing conditions in water quality throughout the Valley and is used to identify water quality protection and improvement opportunities. Monitoring data is shared with stakeholders to benefit resource improvement efforts. The Sentinel Monitoring program is implemented as a partnership effort to foster a better understanding of climatic impacts on water resources in the Tennessee River Watershed. TVA partners with state resource and environmental agencies from Alabama, Georgia, Kentucky, North Carolina, South Carolina, and Tennessee to conduct long-term monitoring of temperature, flow, aquatic life and other parameters. Federal agencies including the Environmental Protection Agency, National Park Service, U.S. Forest Service, and U.S. Geological Survey are collaborating with TVA data collection efforts. Protocols and selection of monitoring stations were based upon studies performed by the Northeast Climate Change Monitoring Group.

The Tennessee Valley Clean Marina Program is a voluntary program that promotes environmentally-responsible marina and boating practices and links commercial recreation infrastructure to TVA's Section 26a permitting and Land Use programs and helps marina owners and operators protect water quality. Marina operators choosing to participate in the program implement best management practices to addresses issues such as oil and gas control, sewage management, marina siting and erosion prevention to reduce water pollution and erosion in the Tennessee River watershed. Certified

marinas that are in compliance with pollution-control standards are allowed to use the Clean Marina logo and flag. (TVA) Each year, the program recognizes marinas, like the Boone Lake Marina in Piney Flats Tennessee (2015, 2016, 2017, 2018) (Boone Lake Marina), that go a step further to protect the water resources and ensure clean water is available to future generations.

TVA uses implements its Aquatic Plant Management Program to reduce the impacts of nuisance and invasive aquatic plants through a stakeholder driven approach with the intent to balance the multiple uses of TVA Reservoirs. Much focus is on the management of pioneer (newly introduced) invasive species and established populations of nuisance aquatic plants employing the use of chemical (e.g. aquatic labeled herbicides), mechanical (e.g. harvesting), biological, and other approved control methods in an integrated and environmentally sound manner. TVA uses targeted education and outreach programming and collaborative partnerships with local, state, federal and academic entities to identify new threats and slow or halt the spread of newly introduced plants within the region. TVA offers expertise regarding aquatic plant management for stakeholders.

Water Resource Related Outreach:

Fostering appreciation and awareness of natural resources, including the waterways of Tennessee is crucial for long-term water resource protection. Working with local, state and federal partners along with NGOs TVA implements environmental education programming to schools and communities in support of Science, Technology, Engineering, Arts, and Math (STEAM) and to promote the importance of water resources central to the quality of life in the Tennessee Valley. These outreach efforts focus on (1) promoting sustainable land use practices that protects stream and reservoir water quality; (2) sharing information with stakeholders about water resources at events such as bass tournaments, boat shows, and other events; and (3) communicating emerging resource concerns (e.g., loss of aquatic diversity, nutrient and sediment reductions). One example is through the TVA Science Kids World Water Monitoring Program. TVA engages children in science by providing water monitoring kits to selected schools and delivering in-class water educational programs. In the summer months, TVA implements this program through partnerships with State Parks, Scouting groups and other community organizations. We also encourage teachers and participants to enhance their experience by using the program's online resources where they can log their classroom data and see how other children are using the program from around the world.

Tennessee Recreation and Tourism Success Story: Fish Dayton

The City of Dayton and Rhea County are located in Southeast Tennessee on beautiful Chickamauga Lake. This reservoir stretches more than 59 miles in length from its dam in Chattanooga to Watts Bar Dam in Spring City and offers abundant fishing and water sports assets that serve as the primary tourism amenity for the community. In 2000, the Tennessee Wildlife Resource Agency (TWRA) decided to stock Chickamauga Lake with Florida largemouth bass as a test case to build on the lake's habitat assets. The TWRA largemouth bass stocking program was very successful. By 2011, bass anglers began reporting astounding catches weighing in five bass over 30 pounds to win tournaments. Dayton leaders saw an opportunity to create a new marketing program and construct new tournament amenities to leverage their lake assets.

In 2011, the Dayton City Council appointed experienced local leaders to explore strategies from other communities to boost tourism through the creation of bass fishing destinations. They also agreed to move forward with recruiting fishing tournaments to explore how they could use the lake as an economic driver. At that time, Rhea County was a Tier 4 Federally Distressed County with limited resources and opportunities. Since its creation in 1940, Lake Chickamauga had not been viewed as an economic engine for the community. Dayton leaders knew that bass tournaments and lake tourism worked in other communities and that they could leverage their assets to create the best fishing destination in the U.S. with the right plan.

In 2012, community leaders created the "Fish Dayton" brand and began to promote Dayton as a bass fishing destination to stimulate the local economy. Chickamauga made the bass fishing news when a limit of five bass weighed in at a tournament almost exceeded 45 pounds that same year. This was an average of nearly 9 pounds per fish and the news spread fast on the bass tournament circuit.

In 2013, Dayton hosted the Walmart FLW Tour on Chickamauga Lake as their first trial run to prove that they could host professional events. The tournament winner caught a 4 day total of 103.3 pounds of bass which was the 2nd largest bag ever caught in FLW Tour history. This event was televised and the stage was set for the Fish Dayton bass fishing destination strategy to fully develop. Since that time, Fish Dayton branding, marketing and tournaments have put Rhea County, Dayton and Chickamauga Lake on the map as one of the premier largemouth fishing destinations in the country.

Dayton leaders also knew that they needed infrastructure to support anglers and tournaments. They began the process to develop a new vision and plan for their Dayton Boat Dock facility that was built in the 1950s. They toured facilities on Lake Gunterville and developed a vision for their facility in Dayton. In 2012, city leaders approved a

\$175,000 plan to upgrade the Dayton Boat Dock facility and worked with TVA to gain approval for the improvements. Leaders reached out to TWRA and TVA in search of grants to assist with infrastructure upgrades at the facility including new ramp construction and parking lot improvements to accommodate the influx of new visitors. With assistance from TWRA and TVA, the largest boat ramp on Lake Chickamauga with the capacity to launch eight boats simultaneously and a new parking for over 400 vehicles was constructed. Very few facilities in the nation can accommodate this capacity. Additional facility improvements are in process with the next phase being a harbor dredge and shoreline and ramp improvements scheduled to begin in the fall of 2018 through Appalachian Regional Commission (ARC) tourism enhancement economic development funding.

Economic and Community Impact

FISH Dayton branding, tourism marketing and infrastructure investments have positioned the community to capitalize on tourism economic development. In July of 2018, [Bassmaster](#) ranked Chickamauga Lake #2 in the nation and #1 in the Southeast Region for the 100 Best Bass Lakes in the country. New tournament revenues, lodging, restaurants and tournament suppliers have produced many new jobs and a dramatic increase in sales and occupancy tax revenues. Quality of life for residents has also been improved and Dayton's unique sense of community has been sustained through the project. Businesses in the Dayton Main Street downtown business district and the entire city have benefitted from the thousands of new customers that visit the community for tournaments and lake recreation.

Fish Dayton has resulted in \$15 Million in new private investments and hundreds of construction jobs for the community. Since 2015, a total of 2 new hotels and 5 restaurants have been constructed or upgraded to meet the lodging and dining needs of tournament anglers and lake tourism visitors. Over 200 construction jobs were created in completion of these new facilities and Dayton's lodging tax collections have grown 34.5% since 2014. (Approximately 17,435 more lodging room nights were used in 2017 than in 2013 when they first began) A 3rd new hotel is scheduled to break ground in August of 2018.

Dayton has created 107+ new full time jobs linked to the new lodging and restaurants. Annual property tax collections on the new construction projects is more than \$160,000 and the city's sales tax collections reflect more than \$33 Million new grow sales dollars entered the local economy in 2017 vs 2013. The new Blue Water Lodge that was recently completed significantly added to the private investment totals and is providing

new lakeside lodging and amenities that enhance Dayton’s lake tourism destination brand and amenities. Project results include:

| | |
|--|--------|
| 2014 – 2018 Tournaments | 122 |
| (4 Professional, 92 Amateur and 17 High School Tournaments, 11 College Competitions) | |
| 2014 – 2018 Participants | 25,981 |
| (all registered events) | |
| 2014 – 2018 Event Staff | 368 |
| 2014 – 2018 Full Time Jobs | 107+ |
| 2014 – 2018 Construction Jobs | 200 |

PROJECT LEADERSHIP and PARTNERS

Rhea County Economic and Tourism Council – Executive Director – Project Contact
City of Dayton

Rhea County

Tennessee Department of Economic and Community Development

Tennessee Department of Tourist Development

Tennessee Wildlife Resource Agency

Tennessee Valley Authority

Appalachian Regional Commission

Local Corporate Sponsors - Bluewater Lodge, Holiday Inn, Sleep Inn, Bunch Marine, Dayton Boat Dock & Grill

Bryan College

Rhea County High School Eagle Anglers

Rhea County Sheriff Department and Homeland Security Team

City of Dayton Police and Fire Departments

OTHERS - Chattanooga Bass Association, CATCH Ministry, Bass Pro Shops Chattanooga

Areas of Concern

There are a number of key challenges and opportunities associated with water-based recreation and tourism in Tennessee. The ability to optimize recreational experiences to the fullest may be impacted by such factors as access to the water, overuse/overcrowding (leading to user conflicts), competing uses of the water (both in terms of types of recreation, but also relative to other uses), and a lack of amenities near or on the water. Recreation is also greatly affected by the overall quality (pollution, trash and debris) and quantity of the water (water levels, flow conditions). Similarly, high-impact forms of water-based recreation can cause resource issues, affecting water quality (boater bathroom issues) and degrading conditions (streambank erosion, litter, etc.).

In Tennessee, there are several agencies (Tennessee Wildlife Resources Agency, Tennessee Department of Environment and Conservation, Tennessee Valley Authority, U.S. Army Corps of Engineers, and Tennessee Department of Tourism) that are responsible for aspects of the management, regulation and enhancement of water-based recreation and promotion of tourism, but there is not one single entity in a coordinating role. Some states, like Maryland which passed the Waterway Access bill to promote safe and reasonable canoe, kayak and fishing access along bridges and roadways (Chesapeake Conservancy), have created water-based recreation and tourism programs and identified administrative responsibility for oversight in enabling legislation.

I. Access challenges

Access to and on Tennessee waters continues to be an ongoing and increasingly common and complex issue. Tennessee's public lands, waters, and blueways (water trails) offer safe and rewarding, many of the state's rivers and streams run through private lands where access is a limiting factor. This emphasizes the need for both respect for private lands and increased cooperation from landowners. Similarly, quality and types of access are issues and popular rivers may be experiencing excessive recreational use, pushing the limits of capacity to fully support both recreation and aquatic health. For example, bass tournaments have now become a big business (some with 200-300 boats, mega-ramps and parking for spectators needed). Not all areas are suitable for these types of uses and there are underutilized resources statewide. While these may offer new, revenue-generating opportunities, there needs to be a better way to determine what rivers are under the most pressure and where opportunities for enhancement exist.

Properly citing boat ramps and access points is especially important. Improper design and citing can lead to issues with streambanks and sediment in the water. Just having a paddle sport launch ramp separate from a boat ramp is not a complete solution, as following entry, users will still end up in the same place in the river. It becomes a capacity issue. There is a need to identify predominant uses at certain locations. The City of Manchester addresses capacity by posting fishing tournament schedules. For recreational use, there ideally should be a list based on whether you are going to fish or go boating, that would show the waters, the access points and associated uses. In an effort to help kayakers and canoe enthusiasts find more places to put in on Tennessee's rivers, the Tennessee Wildlife Resources Agency (TWRA), Tennessee Department of Transportation (TDOT), and the Tennessee Scenic Rivers Association (TSRA) created the Park and Float Program. Accesses are put in place when TDOT repairs bridges over streams, leaving behind construction roads so boaters can easily reach the water. (Gonzalez, 2015)

II. Lack of amenities and impacts

While there are a number of accesses and marinas in the state that offer safe and reliable access to Tennessee's waters, there are those that are in need of maintenance, unsafe, and generally unattractive to users. High quality facilities are needed statewide to help foster consistently positive user experiences. There is also a lack of facilities, leading to boater bathroom problems (waste and pathogens in the waterways), increased foot traffic on private lands with rivers and streams that run through them leading to conflicts, increased risk of bank destabilization due to people putting personal paddlecraft in the river at undesignated spots, and increased threats to personal safety.

Resident boaters and tourists that have negative experiences at poorly maintained or dangerous facilities or access points may affect their pursuit of these experiences in the state and curtail their associated economic benefits.

III. User Conflicts

There is a lack of communication and integration among the various interests involving water and there are growing numbers of cases on Tennessee waters where one person's recreation negatively impacts, and sometimes prevents, someone else's. This is often seen when commercial operators rent non-motorized boats--paddle craft such as kayaks and canoes--to large groups. This can effectively eliminate fishing opportunities along stretches of public waterways as well as prevent others' from using public boat ramps.

In 2018, legislation Sharing Recreational Waters (SB 1335, HB 0785) was passed to address growing concerns about conflicts of use on recreational waters in Tennessee. Public lands and waters are required to support many types of use, and one group dominating a natural resource isn't in the spirit of lands and waters being held in the public trust. This legislation gives the Tennessee Fish and Wildlife Commission the authority to create rules to guide commercial operations that lease paddlecraft to the public. Similarly, there are reported problems and increased management challenges associated with growing numbers of casual users ethic and engage in water-based recreation without being adequately educated about stewardship considerations, including minimizing their impacts to the natural resources, and etiquette on waterways where there are various competing forms of activities all occurring in a given area.

IV. Resource Education and Stewardship

There is a continued need for effective water resource education and stewardship among Tennessee's recreational community. As the primary users of the state's rivers, lakes and reservoirs, there is tremendous opportunity to identify existing tools and programs, like the TVA Clean Marinas Program and others, and to implement new strategies focused on reducing water quality impacts, litter, and user conflicts. According to polling data referenced in the Tennessee Water Blueprint, 96% of Tennesseans were concerned about water pollution. A small survey of marina owners and operators polled by the Tennessee Wildlife Federation showed that addressing litter on the water and maintaining and improving water quality were listed as critically important. As of 2016, 15 states and one U.S. territory had paddler education programs in place. (Oregon State Marine Board, 2016, p. 11) Education and stewardship campaigns that directly and proactively address major impacts, like anti-littering education and etiquette on the waterways, can provide long-lasting benefits for years to come.

III. Aquatic Nuisance Species – Asian Carp, Aquatic Vegetation Management

Asian Carp

Asian carp in Tennessee have the capacity to deplete and alter the current food web of the reservoirs that support natural resources, including highly-valued recreational and commercial fisheries. Silver and bighead carp are both filter feeders that feed on microscopic plankton. This plankton is vital food for some species of fish, and young fish of all species. By outcompeting native fish for a limited resource, the silver and bighead carp have the ability to reduce growth rates of native fish or displace them almost completely. The black carp pose a risk to Tennessee's diverse and already threatened mussel fauna. In addition to their disruption of the food chain, when a large school of

Asian carp move into an area, they will displace many of the native species in that area. Although the native fish will return when the Asian carp move from the area, fishing patterns will be disrupted while the Asian carp are present.

Due to the exponential growth these fish display, both in number and size, the speed at which Asian carp may impact and damage the native food chain in our reservoirs, and our lake recreation and tourism is thought to become astonishing.

While there is still much concern about large schools of carp in Kentucky and Barkley reservoirs, Tennessee Wildlife Resources Agency biologists report that for the time being the abundance of native fish (crappie, shad, bass, etc.) are still within the normal range of natural fluctuations. Officials in Kentucky have concerns that carp are beginning to negatively impact crappie fisheries in the portion of Kentucky Lake located within the state of Kentucky.

The most immediate concern is for the safety of recreational boaters and anglers. Silver carp are known to jump when disturbed by boats. A jumping carp that collides with a passenger in a moving boat can cause serious injury. This scenario is most common in shallower waters and boaters should slowly retreat from areas with jumping carp to avoid impact.

Additionally, concern is building among elected officials and the public regarding the impact these fish are having on tourism and outdoor recreation which both fuel a significant economic benefit for the counties where these reservoirs are located.

Fisheries officials in both Tennessee and Kentucky agree that we appear to have a limited window of time to act aggressively against Asian carp in Kentucky and Barkley Reservoirs if we are to be able to impact them before they increase in number to the point where they will functionally overrun any efforts to try and control their impacts.

The following are primary efforts to control Asian carp in the state:

- Creation of and Membership in the Asian Carp Task Force – In 2017, Legislation was passed that created the Asian Carp Task Force. The task force identified a short-term need for helping improve commercial fishing infrastructure to aid in getting Asian carp to market. As a result funding was provided to Henry County and Paris city governments to purchase items to enhance the handling infrastructure for Asian carp in order to make it easier for commercial fishermen to bring these fish to market.
- Limited Funding for Public Waters – Funding from taxes generated via the sale of fuel at marinas in Tennessee waters was secured and is available to TWRA to

help implement Asian carp control measures on Kentucky, Barkley, Old Hickory and Percy Priest reservoirs, and other public waters.

- Working Towards Significant Federal Funding – Officials in Kentucky have begun working to secure federal funding at a significant enough level to impact the Asian carp problem throughout the Tennessee and Cumberland River systems. At this time, approximately \$10 million dollars is annually appropriated through the Water Resources Development Act to address Asian carp in the Illinois River in an effort to prevent them from entering the Great Lakes. Kentucky and Tennessee officials and TWRA are coming together to form a coalition that can work jointly to secure this federal funding so that we may implement a number of strategies aimed at halting the migration of Asian carp and removing them from our waters via commercial and other means of harvest. (TWRA), (USFWS), (TNWF, 2015)

Aquatic Vegetation Management

Aquatic plants are at the base of the aquatic food web and provide critical habitat for fish and other aquatic species in Tennessee rivers, lakes and reservoirs. In many areas around the state, rapidly growing invasive species, like hydrilla, milfoil and a variety of other non-native plants have the potential to outcompete native vegetation. Hydrilla thrives in reservoirs, but is also starting to spread to other areas. For example, in North Carolina it is invading bay lakes and estuaries. In Tennessee, there is already hydrilla in the French Broad and Ocoee Rivers. While there is a need for management in order to keep the plants from overtaking fisheries and blocking access to waterways, to what extent and how this should be done is a source of contention between stakeholders (homeowners/property owners, anglers) and management authorities.

Aquatic nuisance plants are a nationwide problem and according to research done by Dr. Brett Hartis of Tennessee Valley Authority (TVA), hydrilla, are becoming internationally invasive. Other than Siberia and Northern China, there aren't many places where it can't grow worldwide. In order to stop hydrilla before it is fully established, one has to catch it during its very first year of growth, which is nearly impossible. Its tubers (what it comes back from each year) can stay dormant once grown for up to a decade and each square meter of plants produces up to 900 tubers per year. Since the 1970s, Florida has spent between \$18 and \$30M annually on control of the plants. In Tennessee, TVA notes that it is the most costly plant to manage in the TVA system and with a growth rate of one to four inches per stem per day, it can quickly impede fishing and other recreational access (TVA Angler's Aquatic Plant ID). Research has shown that bass do best in lakes with about 20 to 40 percent total surface area cover. Lakes with greater than 40 percent coverage mean much more area for

food to hide, which makes it hard for a bass to feed effectively (Bassmaster, Q & A Grass and Bass on Gunter'sville, April 7, 2015).

In Tennessee, there are some key challenges associated with understanding all of the requirements for aquatic pesticide/herbicide applicators to comply with the necessary regulations, especially at the state NPDES permitting level. There are also angler perception issues, homeowner/property owner needs, and public health needs and considerations.

Angler Perceptions:

While both plants are aquatic invasive species, hydrilla provides lower quality habitat for fish, than milfoil. Citizen/angler education is a critical, needed piece. There are approximately 20 other ANS plant species in Tennessee, thus further adding to the identification challenge and confusion.

TVA maintains an electronic angler's plant i.d. site that was developed by fishermen for fisherman to help with the identification process and how to fish the aquatic plants to improve their catch

<https://www.tva.gov/Environment/Environmental-Stewardship/Anglers-Aquatic-Plant-ID>.

Homeowner/Property Owner Needs:

There is a pressing and ongoing need for individuals and communities (homeowner associations) with private, residential property along lakes, reservoirs and waterways to manage aquatic nuisance plants on their properties around docks, etc. While individuals can purchase herbicides, they must follow the laws that restrict application of these chemicals to licensed applicators when they discharge to and affect waters of the state. This means that homeowners/property owners must hire licensed contractors (this list is available through the Tennessee Department of Agriculture and TVA recommends this to homeowners that they are contacted by) and pay for these services out of pocket on a recurrent basis. Given these costs, TVA receives requests to treat residential docks at its reservoirs, however, they do not have the funding to do this outside of Gunter'sville Lake.

Public Health Concerns:

Despite the need for management of plants that are blocking access to waterways, there are still concerns from homeowners, anglers and recreationalists alike about the efficacy and safety of the herbicides used for treatment and misunderstanding of

application methods and any required no swim, no contact postings that would alert people to areas that had been recently treated and with what chemicals. In reviewing the State of Tennessee's General NPDES permit, there is no mention of a signage requirement, though according to TDEC, this was a requirement that was previously included in the old, state operating permits that are no longer issued.

Pesticide/herbicide applicators are not currently required to notify the public about when and where they are spraying, including in public waters. This has led to conflicts among pesticide/herbicide applicators, anglers, homeowners, and others who are using these waters--particularly when that use occurs shortly after application. To address this, a bill has been introduced that would require that individuals and businesses who hold the necessary permits to apply pesticides/herbicides post a public notice at swimming areas, boat launches, and boat docks when applying herbicides to Tennessee waters. These notices will inform outdoor enthusiasts of possible exposure and allow them to avoid potentially harmful chemicals. (Gardner, 2017)

Recommendations

There are many ways to beneficially leverage Tennessee's outstanding natural water resources and the outstanding recreation and tourism opportunities that they afford, while protecting, conserving and in some cases, enhancing and restoring the state's high-quality natural assets. Recommendations were developed by the Natural Resources Working Group with input from the Recreation and Tourism focus group participants.

- 1) Recommendation: Identify dedicated funding to promote and manage high quality experiences on Tennessee waters. Currently, services provided by state agencies critical to the public receiving high-quality experiences are underfunded and lacking resulting in negative experiences on some of Tennessee's most scenic waters. Providing these agencies with the financial resources they need will allow for enhanced access, law enforcement and better results for tourism.
- 2) Recommendation: Establish a multi-agency approach around improved access to Tennessee's waters, to include a needs assessment of access to Tennessee's waters to improve and enhance recreational access opportunities. Access is a fundamental and limiting factor when considering the expansion of water-based recreation and tourism. Smart planning for where access should be expanded is critical to the proper future allocation of resources to produce growth in tourism and outdoor recreation.
- 3) Recommendation: Develop a strategic and coordinated approach to accessing grants (through Tennessee Department of Tourism Asset Enhancement Grants and others) to benefit recreational water access and resources.
- 4) Recommendation: Inform the Tennessee executive branch agencies and governor's staff on the threat and impact Asian carp are having in the Mississippi, Tennessee and Cumberland river systems, and produce a collaborative approach between all parties to secure significant federal funding capable of allowing a multi-state (i.e., TN, KY, AL and MS) solution.
- 5) Recommendation: Initiate an interagency development (Tennessee Tourism Department, U.S. Army Corps of Engineers and TVA) of marina facility standards to create a common set of guidelines for high-quality (safe and well-maintained) marinas, addressing levels of services and facilities, statewide.

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