



SPRING/SUMMER 2024

LAKE NEWS

and Shoreline Views

Meet some of the lesser-known aquatic animals who contribute to the biodiversity of Lake of the Ozarks.



Permitting and Dock Labeling

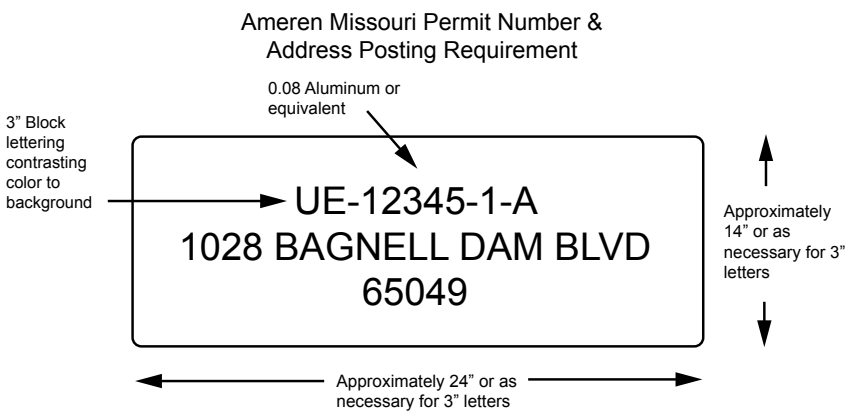
All structures within the project boundary must be authorized in accordance with our FERC license. This authorization has been a requirement since 1931 and is accomplished by the issuance of a permit. Permit review and approval was originally handled by the Corps of Engineers and is now administered by Ameren Missouri. Each individual structure that has been or will be installed within the project boundary must have its own permit, with an identifying number that is issued to the current owner of the structure. **Permit numbers are unique to a parcel of land, much like a 911 address.** They do not move with a facility such as a boat dock. Permits simply authorize structures within the Ameren Property Boundary. No property rights are conveyed by issuance of a permit.

TRANSFERRING PERMITS: If you buy a lakeside property, it is your responsibility to transfer all the permits associated with that property into your name. This can be done with a single transfer request, which will cover all existing permits (dock, pump, seawall, etc.) on your new property. In order to initiate a permit transfer, you will need to:

- **Provide a copy of your property deed.**
- **Provide an approved electrical inspection (dated within the past 12 months) if you're located within one of the following fire districts: Lake Ozark, Rocky Mount, Mid-County, Osage Beach, Sunrise Beach, or Northwest.**
- **Pay a one-time \$100 processing fee.**

To apply and pay for new permits, apply for permit transfers, and make sure your lakeside improvements are properly permitted, go to our new online permitting system at AmerenMissouri.com/Lake. You can obtain copies of your permits as well. If you have questions, email lake@ameren.com.

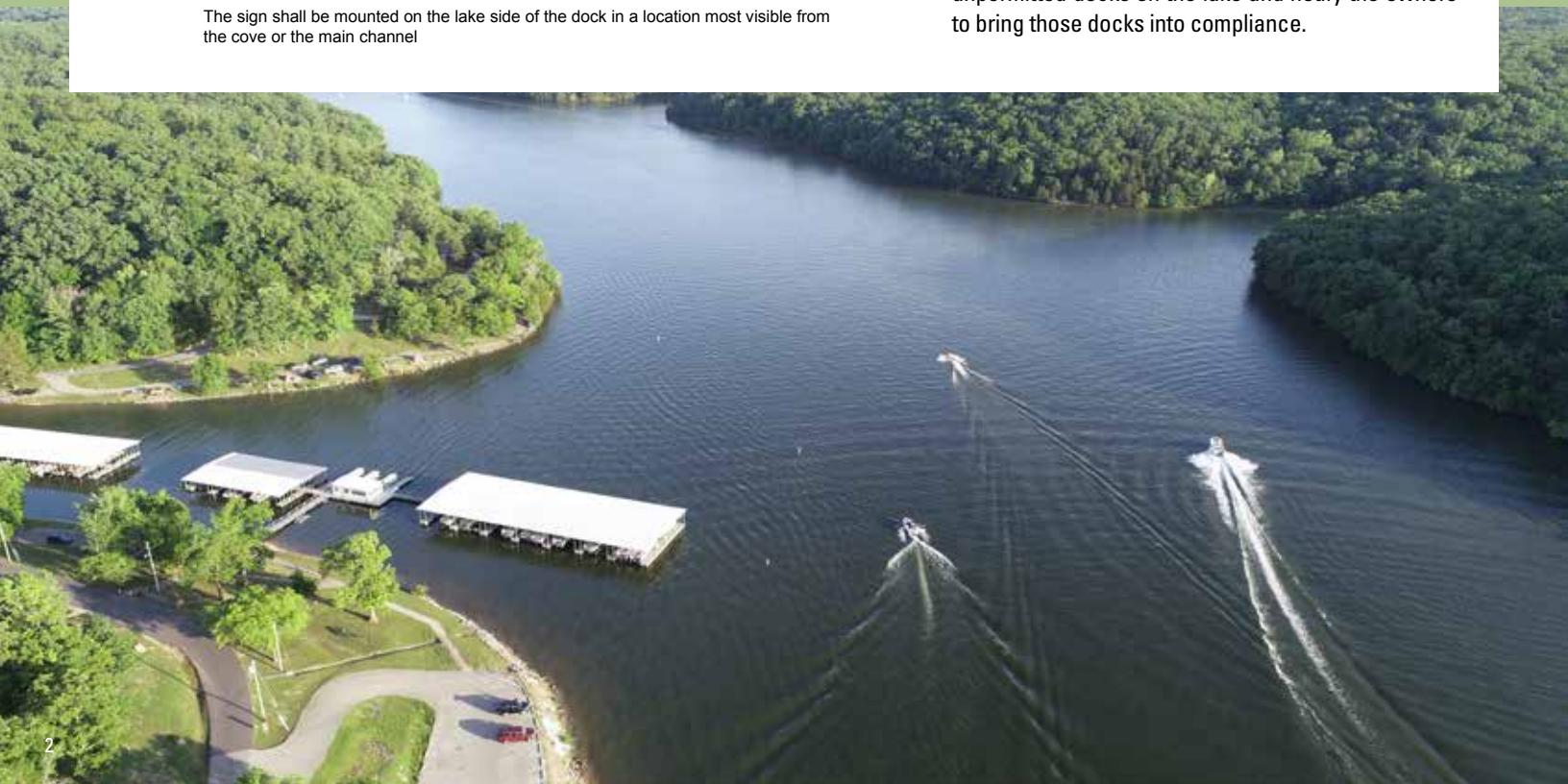
Dock Labeling



The sign shall be mounted on the lake side of the dock in a location most visible from the cove or the main channel

Missouri State law requires all docks located at the Lake of the Ozarks to display their permit number and the nearest land-based 911 address, including the zip code. In addition to being a Missouri state law, there are practical reasons to properly post your dock. It allows water patrol and fire department personnel to rapidly locate your property in the event of an emergency. On that same note, work you may have scheduled for your dock or shoreline could be delayed if contractors have difficulty locating your property.

Beginning in 2023, Ameren will be making a concerted effort to identify all the improperly posted and unpermitted docks on the lake and notify the owners to bring those docks into compliance.





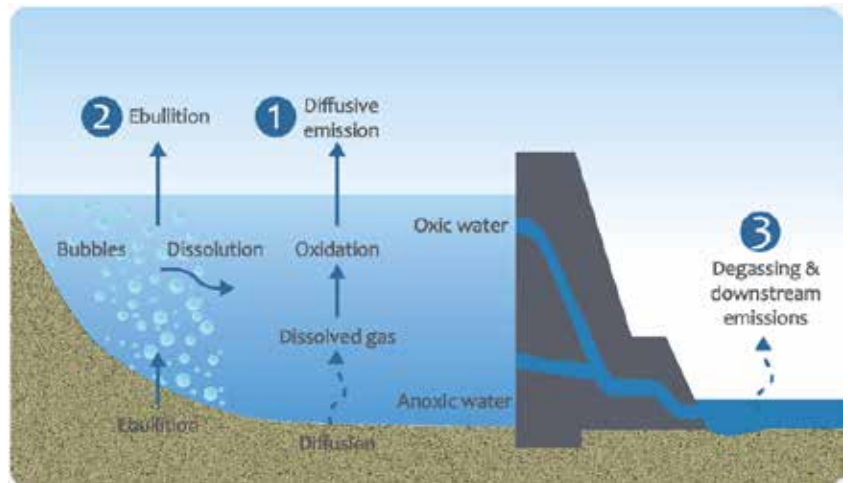
Methane, the other Greenhouse Gas

(Provided Courtesy of Lakes of Missouri Volunteer Program)

In discussions of climate change, carbon dioxide from burning fossil fuels is usually at the top of the list of culprits. However, carbon dioxide isn't the only greenhouse gas.

Pound for pound, methane is vastly more potent as a greenhouse gas than carbon dioxide. Fortunately for us, much less methane than carbon dioxide is released to the atmosphere each year. When corrected for "global warming potential," carbon dioxide accounted for 79% of U.S. greenhouse gas emissions in 2020 while methane accounted for 11%.

It is estimated half of global methane emissions come from aquatic ecosystems, with the bulk of that (97%) coming from freshwater systems. Methane is produced as organic matter decomposes, typically within bottom sediments, in the absence of oxygen. As methane builds up, it will enter the atmosphere by various pathways (see image below).



In general, the more productive a lake is, more organic matter is available for decomposition. Primary production is driven by nutrient availability, so it is not surprising that methane production in aquatic systems also correlates with nutrients. The phenomenon of increasing primary production through excessive nutrient input is called eutrophication.

Methane emissions from lakes are expected to increase by 30-90% in the next century due to human population increases and weather/climate changes. In essence, with more people on the planet there will be more nutrient-rich sewage to manage and a need to increase agricultural intensity. It will be hard on our lakes. On a positive note, if we do a good job of managing nutrients in our lakes, we can likely decrease methane production and reduce our lakes' impact on climate change. As a bonus, our lakes will also be clearer and healthier.

ELECTRICAL SAFETY RULES:

All docks need continual inspections by their owners. Water movement can cause wear on your dock's electrical equipment. Monthly ground fault circuit interrupter (GFCI) testing of electrical equipment and bonding wires is recommended.

During the winter, wires and electrical outlets can deteriorate due to freezing and thawing. Electrical equipment that worked well the prior season will need to be inspected before using the dock again.

Have both the dock and the power supply to the dock regularly inspected by a qualified electrician. Electrical problems in or near the house and lines feeding the dock can cause life-threatening problems, even with docks that meet code and have been inspected.

Never swim around a dock where breakers or GFCIs are tripping. HEED THE WARNING SIGNS! If in doubt, swim away from the dock and get out! If a breaker or GFCI trips, something is wrong and the dock should be considered unsafe until a qualified electrician inspects and fixes the problem.

Never attempt to energize or re-energize, engage a breaker, or reset a GFCI while someone is swimming near the dock. Get the dock inspected and fixed before using or swimming nearby.

Do not touch any part of the dock or adjacent docks if a tingle or shock is felt. Swim or get away from the dock, cables and attachments. Exit the water away from the source of the shock. If possible, swim to the shoreline and exit there.

For additional information on dock electrical safety, visit your local fire district website or SafeAtTheLake.com.

Little Known Fish of Lake of the Ozarks



- The **Gizzard Shad** is a member of the Herring family, species of which are found throughout the worlds' oceans. From the sport fishery aspect, they are arguably the most important fish in the lake. All the gamefish in the lake rely heavily on shad as a source of food. Massive schools of juvenile shad can be observed at the surface feeding on plankton on calm evenings by mid-summer.



- The **Brook Silverside** is a very common, but easily overlooked fish. Nearly transparent and seldom exceeding 4 inches in length, they are most easily observed under dock lights on calm evenings. They have an upturned mouth which makes them well adapted for feeding on invertebrates near or on the water surface. They are unusual in that their life span rarely exceeds 17 months.



- **Darters** are a unique group of fish native to North America east of the Rockies. They are members of the Perch family and related to Walleye. Darters have oversized pectoral fins and lack air bladders, the organ which gives other fish buoyancy, allowing them to suspend in open water. These are adaptations for living in fast moving water. Some of the species known to exist in the lake include **Fantail**, **Orange throat**, and **Rainbow Darters**, and the **Ozark Logperch** which is our largest Missouri darter @ 7+ inches and one of the few species that does well in reservoirs. During spawning season, the males of many darter species develop brilliant coloration.



- The **Longear Sunfish** is one of our most brightly colored fish. As a sunfish, they are closely related to bass, crappie, and bluegill. They are the most common and widely distributed sunfish in the south half of Missouri. Although seldom exceeding 7 inches in length, they will readily bite on small baits cast along rocky shorelines.

Lake of the Ozarks is known nationally for its quality sport fishery. There are approximately 13 species of fish in the lake that are actively pursued by anglers. Bass, crappie, catfish and walleye are just some of the fish everyone knows and loves.

In addition to the gamefish, there have been at least 68 species of fish observed in Lake of the Ozarks over the years. Although some like Muskie, Lake Sturgeon, Rainbow Trout and Brook Trout are escapees from local hatcheries, most are native to the area and were in the Osage River basin long before Bagnell Dam was built. We owe this high species diversity to the high-quality Ozark streams, such as the Grand Glaize Creek and Little Niangua River, which flow into the lake.



- The **Warmouth** was formerly restricted to the lowlands of southeast Missouri before a northward range expansion in the mid 1900's. They are present in low numbers in the lake but are occasionally caught by anglers on crappie jigs or minnows.



- **Sculpins** look like a fish you would pull from the ocean depths, which is where most members of this family are found. Sculpins are common in most of the streams which flow into the lake. They can rapidly modify their coloration to match their surroundings, a handy trait which allows them to both avoid predation and to ambush their prey. Like darters, they have large pectoral fins and no air bladders which are adaptations for navigating in fast moving water. We have 3 species of sculpin in the lake which are difficult to tell apart, even for the experts.



- Not all catfish get large enough for the frying pan. The **Slender Madtom** is one of 9 species of madtom catfish native to Missouri, most of which attain a maximum length of 4 to 8 inches. Madtoms are secretive, generally hiding in the rocks and seldom emerging during the daytime. All madtoms produce a venom associated with their dorsal and pectoral spines which is non-lethal, but can be quite painful if you happen to get stuck by one.



- The **Chestnut Lamprey** belongs to a very primitive group of fish collectively known as the "Jawless" fishes. Instead of "jaws", lampreys have an oral disc (harmless to us) which they use to attach to and prey on other fish. Lampreys, which have been relatively unchanged for about 350 million years, have a skeleton made of cartilage instead of bone. Chestnut Lampreys have two life stages, a filter feeding larval stage and a parasitic adult stage. Although they occasionally prey on gamefish, they usually attach to carp or other so-called "rough" fish. Unlike the infamous Atlantic Sea Lamprey which entered the Great Lakes through man-made shipping canals in the 1830's and had severe impacts on the native trout populations, our native lampreys are relatively uncommon and pose no threat to our sport fisheries.

For more information, the 3rd edition of "Fishes of Missouri" will be available soon from the Missouri Department of Conservation.

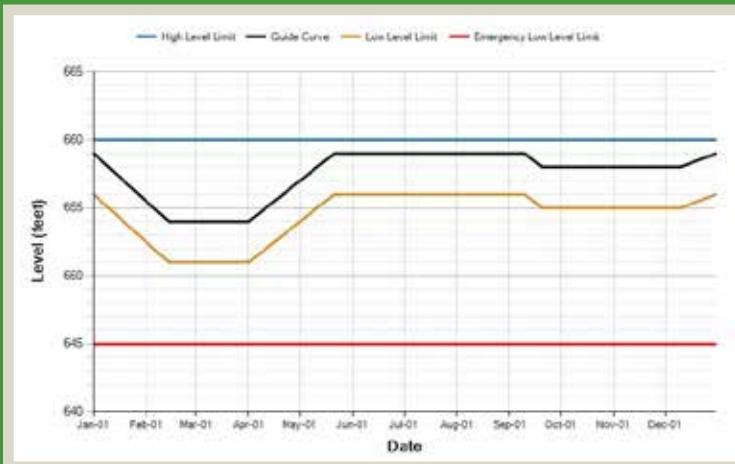
Photo Credits: Lance Merry, courtesy of the Missouri Department of Conservation

May 1943 - Osage River Tailwater of Bagnell Dam



The Importance of Truman Dam to Lake of the Ozarks:

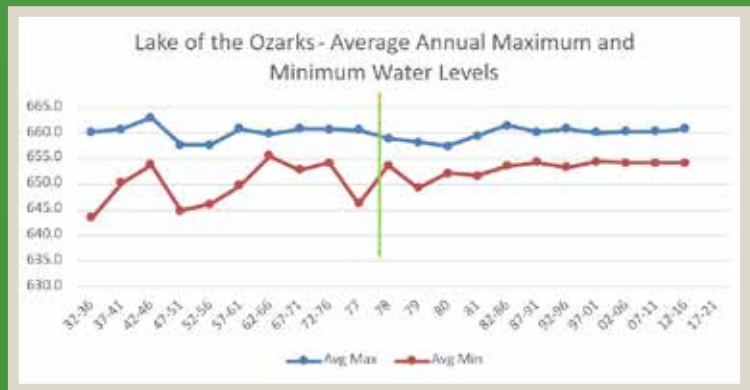
If you've lived at the lake for more than a year, you realize that the water level fluctuates annually. These fluctuations are dictated by a Guide Curve which is part of the Bagnell Dam operating license. The intent is to lower the lake in the spring to be able to capture spring rainfall and keep it high during the recreation season. Although managers at Bagnell Dam make every attempt to follow this Guide Curve, extenuating circumstances such as excessive flooding, drought, and extended periods of unusually hot or cold weather can require deviations from the target elevations.



Between 2000 and 2020, our lake's average annual fluctuation was 6.2 feet with an average high of 660.4 feet and an average low of 654.2 feet above sea level. But this has not always been the case. Since the construction of Bagnell Dam, annual fluctuations of 10 feet or more have been relatively common, having occurred 26

times in its 92-year history. The maximum fluctuation, 23.1 feet, occurred in 1948. Since 1979 we have only experienced two years with fluctuations over 10 feet - 1986 and 2015. During both years, exceptionally heavy rainfall put the lake elevation briefly near 664.0.

Bagnell Dam was constructed with power generation as the primary



purpose and flood control as a secondary concern. Over the years, the ability to draw the lake down significantly to retain flood water has been further reduced by increasing shoreline development.

An important development in October 1979 was the completion of Truman Dam, 92 miles upstream of Bagnell Dam on the Osage Arm. Unlike Lake of the Ozarks, the primary purpose for the construction of Truman Dam was flood control, with power generation secondary. Truman has an extensive flood pool which allows them to hold water from their normal operating elevation of 706.0' up to 739.6'. This represents a volume of 4 million acre-feet of water (1 acre-foot is a

volume of water needed to cover an acre of land to a depth of 1 foot). In comparison, the annual fluctuation at Lake of the Ozarks accounts for roughly 1/12th of this volume. At the top of the flood pool, Truman Reservoir swells to approximately 200,000 acres, nearly 4 times the surface area of Lake of the Ozarks. The value of having the means to retain such a large volume of water following a heavy rainfall is that it allows for a slow release over an extended period of time, minimizing or preventing downstream flooding.

Eighty percent of the Lake of the Ozarks' 14,000 square mile watershed lies above Truman Dam which is operated by the U.S. Army Corps of Engineers (COE) and the Southwest Power Administration. Although Ameren does not operate Truman Dam, COE and Ameren personnel work together closely to coordinate water level management within the Osage basin. Sometimes it's difficult to appreciate the value of Truman Dam to those of us at Lake of the Ozarks, especially if you have only been a lake resident for a short period. The last severe flood we had was in October of 1986, which we will come back to.

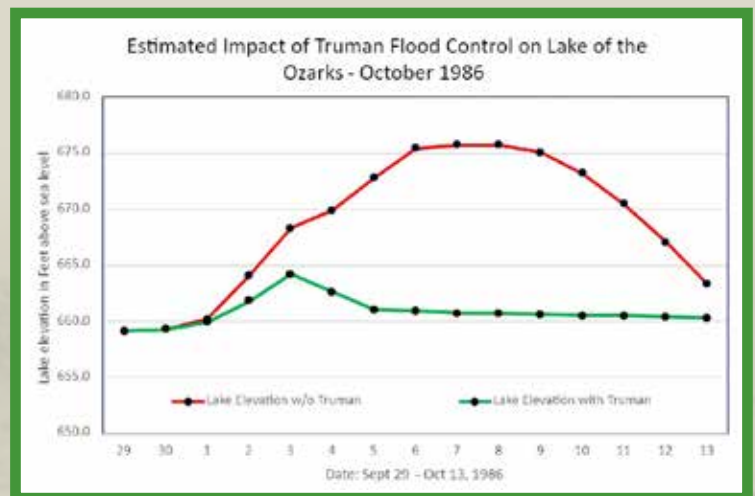
The best example of a severe pre-Truman flood occurred in May of 1943. Eleven inches of rain over several days resulted in record-setting inflows to the lake of 227,000 cubic feet per second, exceeding the combined release capacity of Bagnell's spillways and turbines. The elevation of the lake rose to 665.45 which is still the highest ever recorded.

Although the structure of the dam was never in jeopardy, the rising levels of the Osage River downstream became troubling. Water releases through the dam, combined with a flooding Missouri River, had caused the Osage River channel to fill to the point where sections of Hwy 54 downstream were under 8 feet of water. Of greater concern was that the river was threatening to overtop the downstream powerhouse section of the dam which could have potentially flooded the generators. Remember that this was in the midst of WWII, and the electricity produced at Bagnell was essential to supporting the war industry in St. Louis. As a result, 500 soldiers from Fort Wood and civilians constructed and maintained a dike composed of 25,000 sandbags which successfully kept the river from flooding the generators.

As a result of the 1943 flood, specific rules were developed to govern discharge from Bagnell Dam during flood events. These rules go into effect when a rising lake elevation reaches 660. The goal of these rules is to estimate a discharge flow that simulates what would happen if Bagnell Dam were not there. These rules produce a balance between rising lake levels with rising river flows. These rules work well during minor storm events, but when an epic rainfall event occurs, outside help is more than welcome.



The 1986 flood could have potentially been much worse than the 1943 event had Truman Dam, with its capacity for flood control, not been in place. We know that inflows to our lake would have greatly exceeded those seen in 1943, well beyond Bagnell's capacity to release through the spillways and generators. Estimates based upon these inflows indicate that our lake likely would have risen to a record elevation of 675 and stayed there for multiple days. To put this in perspective, at this time the eastern corner of Bagnell Dam would have overtopped at elevation 669.



Truman cannot shield us from all flood events. A good example is the December 2015 flood when heavy localized flooding in the Niangua Arm resulted in a 70,000 cubic feet discharge in the river and localized flooding in the lake. But when we experience heavy rainfall in the majority of our watershed, Truman is there.

SAFETY MESSAGE FROM THE MISSOURI STATE WATER PATROL

Children under 7 must wear a life jacket while on board any watercraft unless they are in a fully enclosed part of the watercraft. Life jackets are required for each person on board a watercraft and must be readily accessible.

The leading probable contributing factors in Missouri boat crashes are failure to keep a proper lookout and the water conditions. Be a sober, vigilant captain who operates in a careful and prudent manner and at a rate of speed so as not to endanger any person or property.

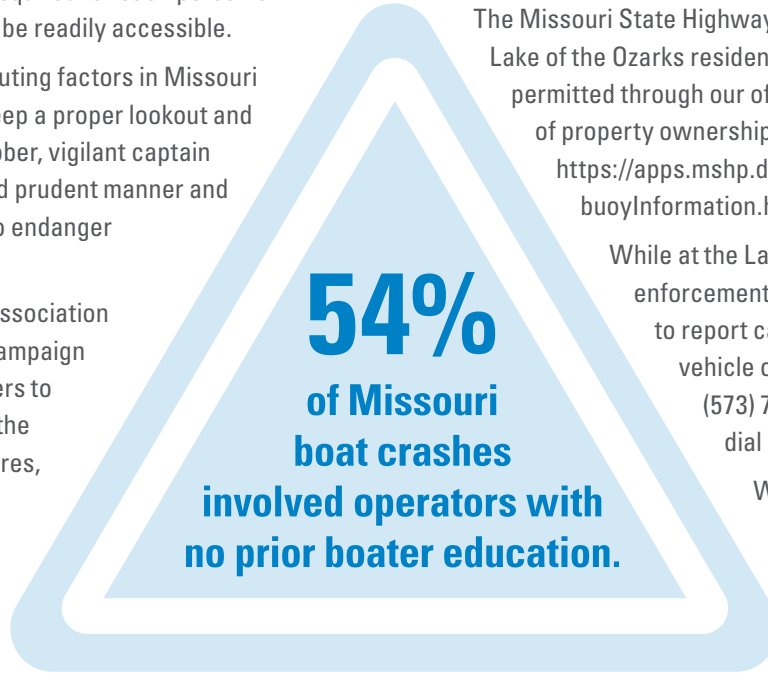
The Water Sports Industry Association (WSIA) Wake Responsibly Campaign recommends water sport users to stay at least 200' away from the shoreline, docks, and structures, keep music at a reasonable level, and to minimize repetitive passes in any one portion of the lake.

Anyone born after January 1, 1984, who operates a motorized boat on Missouri lakes, must have a NASBLA approved boater safety card in their possession while operating a boat. To obtain your certification card, free Officer taught classes and online options are available at: <https://www.mshp.dps.missouri.gov/WP02Web/app/safetyEdClasses> or call our office at (573) 751-5071.

The Missouri State Highway Patrol, Water Patrol Division, reminds Lake of the Ozarks residents that no-wake buoys must be permitted through our office and do not transfer upon change of property ownership. See additional on our website: <https://apps.mshp.dps.mo.gov/MSHPWeb/WaterPatrol/buoyInformation.html> or call us at (573) 751-5071.

While at the Lake of the Ozarks, if you need law enforcement assistance on the water/road or to report careless and imprudent boat/vehicle operations, please call Troop F at (573) 751-1000, option 9. If an emergency, dial *55 on your cell phone or 911.

We encourage everyone to have fun, be safe, and courteous to everyone at the lake.



3 Willmore Lane
Lake Ozark, MO 65049

Website:
AmerenMissouri.com/lake

Important Phone Numbers:

Lake Protection Hotline
573.365.9203

Lake Level
573.365.9205

Adopt-the-Shoreline
573.365.9206

Water Patrol Division (Buoy)
573.751.5071

Benton County (Emergency Management)
660.438.8412

Camden County (Planning & Zoning)
573.346.4440

Miller County (County Commission)
573.369.1900

Morgan County (County Commission)
573.378.4643

Shoreline Management Staff is here to assist you with your next lakeside project and to help answer your questions about Ameren Missouri's role at the lake:

Call: **573.365.9203**
Email: lake@ameren.com



EVERY STRUCTURE ALONG THE LAKE SHORELINE MUST BE COVERED BY A VALID PERMIT. DO YOU HAVE COPIES OF YOURS?

To obtain copies of your permits, you will be asked to submit a permit request form. The permit request form can be downloaded from our website, AmerenMissouri.com/lake