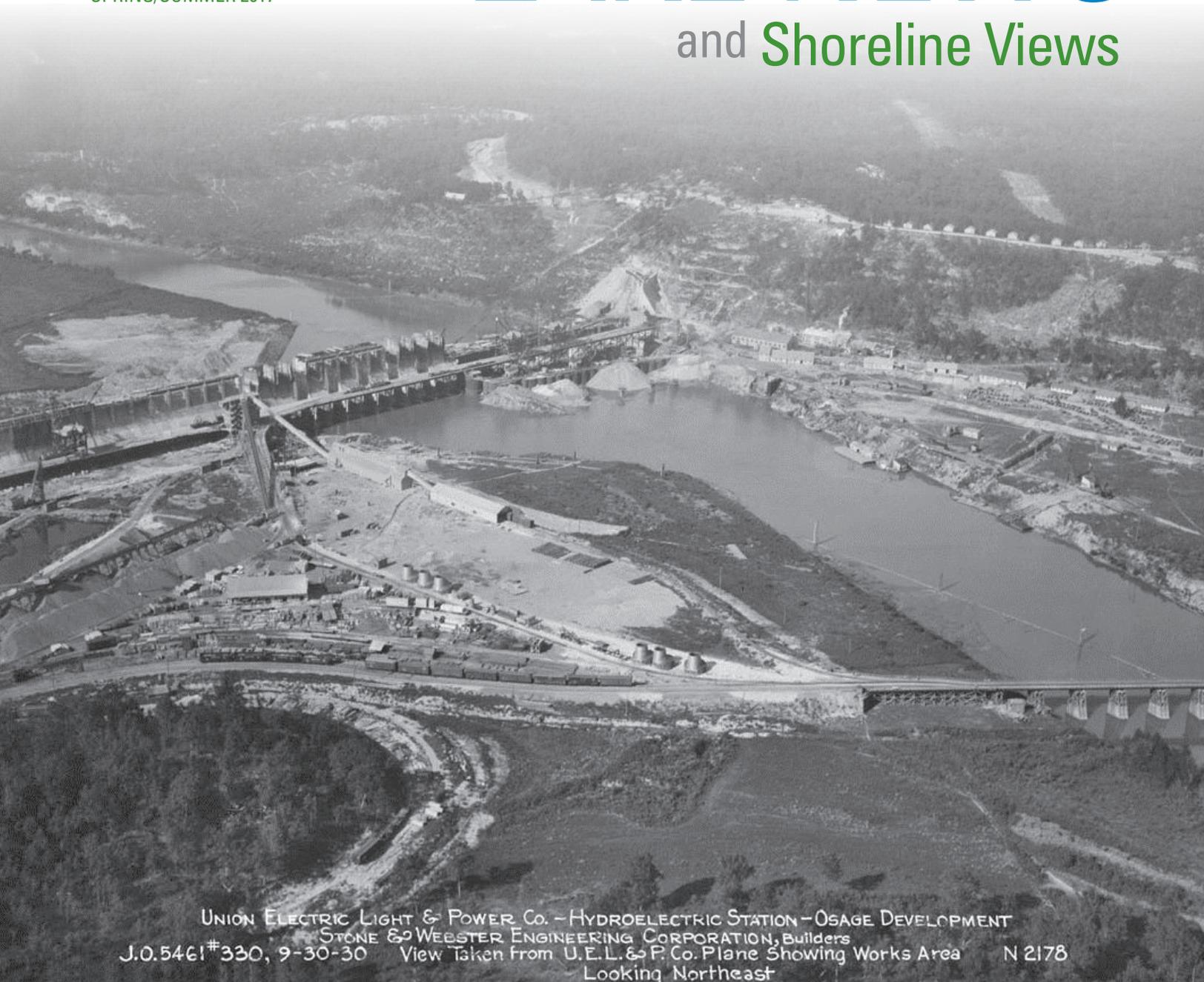


LAKE NEWS

and Shoreline Views

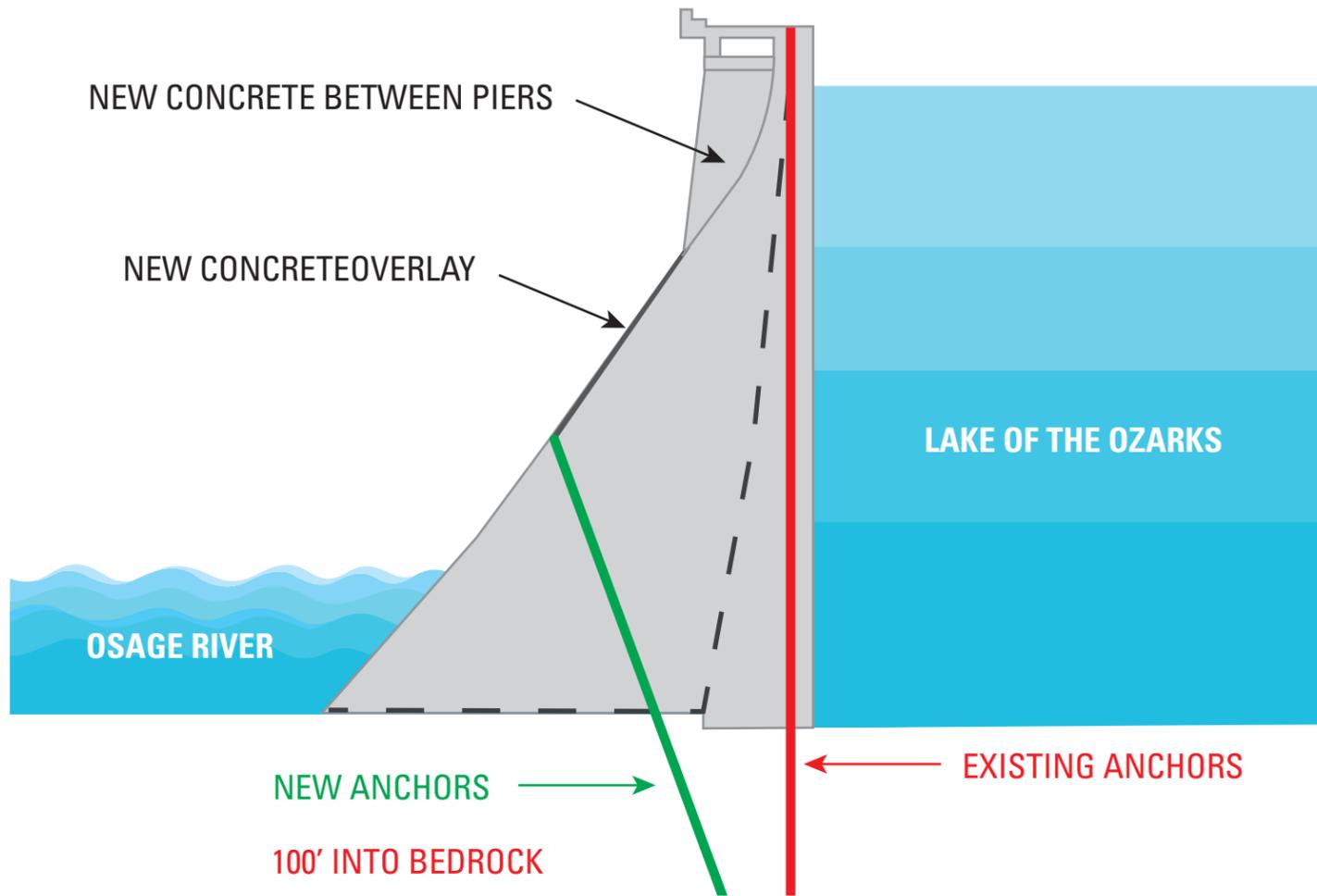


This historic photo from September 1930 shows the construction of Bagnell Dam during the first year. The entire construction project was completed in only 24 months. This shows the commitment and energy the original designers and 1000's of dam builders put into this great project. Now some 85 years later Bagnell Dam will undergo another major construction project securing the facility so we can provide clean, reliable and renewable energy for many generations to come.

As a concrete gravity Dam, Bagnell relies on the sheer weight of the structure to hold back the over 600 billion gallons of water stored in the Lake of the Ozarks. In an effort to make the dam even stronger, 277 post tensioned anchors were installed from the roadway to the bedrock below in the 1980's. This work

continued on next page

WEST AND EAST RETAINING SECTION



continued from page 1

effectively increased the downward force and stability of the dam. These anchors were the best technology at the time and continue to perform very well, ensuring the dam remains structurally sound. As these anchors near the end of their life expectancy, additional measures will begin in 2017 to ensure the continued integrity of the dam. This work will include the installation of 68 diagonally drilled anchors placed along the downstream side of the dam. These anchors will be drilled and anchored 100' into the bedrock below the dam. Worn and cracked concrete on the downstream side of the east and west abutments will be replaced from top to bottom. Additionally, 66 million pounds of new concrete will be added near the top of the dam. All of these improvements add downward force to the dam helping ensure its continued stability far into the future.

This project will begin in the spring of 2017, at a cost of \$52 million and last approximately 18 months. In consideration of our customers, lake residents, and visitors, construction will be scheduled for weekdays. This should minimize long-term road closures for the area.

The anchoring project will coincide with the maintenance project on the 12 spill gates at Bagnell Dam. During the summer of 2016 six spill gates were refurbished by repairing and painting the metal support structures. The remaining six spill gates will receive the same treatment in 2017. As noticed during the 2016, boating season, lake users should anticipate periods when lake levels will be slightly lower; in the 658.0 range, to allow for the completion of this work.

The 2017 stabilization project and rehabilitation of the spill gates are just the latest important projects in a long list of improvements Ameren Missouri has completed in the last 10 years. They include:

- Installation of a full depth fish barrier net to protect paddlefish and other species from entering the powerhouse
- Installation of new turbines and operational procedures to comply with state water quality standards for the Osage River
- Replacement of large oil filled transformers with gas filled transformers to increase safety and reduce environmental risks to the Osage River.

All of these improvements are Ameren Missouri's continued commitment to being good stewards of the environment by delivering clean, safe and reliable energy from Bagnell Dam.

Leaves and the Lake

Every year the Ameren Shoreline office receives calls from lake area residents who watch their neighbors and landscaping companies blow leaves into the lake. This year, Ameren has partnered with the Lake of the Ozarks chapter of the Missouri Master Naturalist program to develop new educational materials and resources for proper leaf disposal.

Leaves affect water quality

First, thick leaf cover on the surface of the water prevents sunlight from reaching important microbes that process and release nutrients. The nutrients are used by aquatic plants, while the microbes are food for shad and paddlefish.

Second, too many leaves can overload the system. Decomposition of large amounts of leaf litter reduces oxygen in the water. This will cause the release of sulfur dioxide, producing a rotten egg smell.

Third, leaf litter reduces water clarity. Decomposing leaves release nutrients that feed algae, and while some nutrients are good, too many can cause an algae bloom. Nobody wants to swim or boat in water the color of pea soup!

Finally, clean, clear water at the Lake of the Ozarks is vital to our local economy. Millions of tourists visit the lake annually. We can all do our part to keep extra leaves out of the lake and protect our property values, businesses and visitors.

Here are the top 10 reasons to keep your leaves out of the lake...

Keeping leaves out of the lake is good for Fish and Fishermen

1. Decaying leaves release nutrients in the water. These nutrients can increase algae blooms that are harmful for fish, pets and humans.
2. When leaves decay, the process uses oxygen that fish need.
3. Leaves on the water's surface make it harder to fish.
4. Leaves migrate downstream, and eventually get trapped in the fish net at Bagnell dam. It is costly to repair the net.

Keeping leaves out of the lake is good for property values and tourists

5. Decomposition of thousands of leaves uses oxygen. Once the oxygen is used, anaerobic processes start, causing a rotten egg smell. Less leaves in the lake means less smell.
6. It is unpleasant to swim in water full of leaf litter.
7. Leaves collect at the bottom of coves, trapping sediment and make these areas even shallower.
8. Clean water is vital to our local economy.

There are other options to blowing leaves into the water.

9. Chopped up leaves can be used as mulch for your yard.
10. Leaves can be composted for gardens. Don't pay for fertilizer, recycle!

When working with landscape contractors, ask about their leaf disposal policy. It is illegal for commercial businesses to dispose of leaves into the lake. Find a contractor who disposes responsibly and legally. When leaves fall on your property, compost or burn them. Make sure the ash residue will not wash into the lake. Missouri's waterways will be healthier far into the future when you do. See <http://lakeozarkmasternaturalist.com/php/index.php> for more resources.



This properly permitted wooden deck and tram landing were constructed prior to 2007. They may be maintained within the project boundary. However, the owner cannot change the footprint, increase the size or add a roof. These types of structures are no longer allowed to be constructed within the project boundary.

Decks, Patios, Sidewalks and Gazebos

In 2007, Ameren Missouri received a new license for the Osage Hydro Electric Project that includes the Lake of the Ozarks. This license, and the Shoreline Management Plan that was subsequently approved, does not allow for the installation of new Lakeside accessory structures such as decks, patios, sidewalks and gazebos. Prior to our 2007 license these structures were allowed, provided a permit was issued before installation. Unfortunately, before 2007 many of these structures had been installed without authorization or the issuance of a permit. Knowing the importance of these facilities to lake front property owners, Ameren Missouri developed a plan to retroactively permit the facilities that were installed prior to 2007 and began

notifying Lake front owners in 2012. This work was completed and a summary report of the permitted facilities was submitted to the Federal Energy Regulatory Commission in September of 2016. It is important to remember that the permit authorizing the deck or feature does not allow for the expansion or modification of the structure. It must stay in the same shape, size and configuration as outlined in the approved permit conditions. Additionally, it should be reiterated that **no new decks, patios, sidewalks or gazebos can be authorized** within the project boundary

If you have questions or need additional information about the project boundary or allowable constructions along the Lake's shoreline, please contact the Ameren Missouri shoreline representative that manages your Lake mile. You will find their contact information on the back page of this newsletter.

Courteous Boating Continues to be a Hot Topic

by Captain Matthew C. Walz, Missouri State Highway Patrol Director, Water Patrol Division

Courteous boating, including wake courtesy, will remain a focus on Lake of the Ozarks as the popularity of the lake continues to grow. Regulation or laws will not solve every problem on a lake as busy as Lake of the Ozarks, so doing your part as a courteous boater will help with the overall safety and enjoyment of the lake:

Be aware of your wake: Operating a boat involves not only keeping a proper look out ahead, but also being aware of every aspect of your boat's performance, including the wake you create.

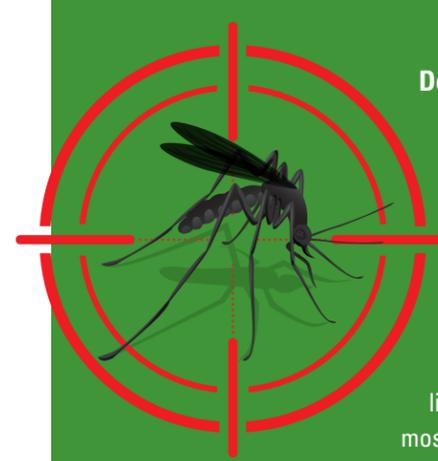
Travel at a speed which does not endanger other boaters or property: Operating at a "plowing speed" should be avoided unless necessary to navigate through hazardous water conditions. Ideally, plowing should be limited to the time it takes your vessel to transition from idle speed to "on plane."

Know your surroundings: Creating a large wake which a smaller watercraft may have difficulty navigating, should be an important consideration for a boat operator. Likewise, when operating your vessel near docks, your wake should be minimized. Docks are used to access the many shoreline amenities we have available on Lake of the Ozarks, so protecting our docks is important. This is particularly true in cove locations, which typically contain numerous docks.

Be a patient boater: Maintain a safe distance from other boats. This will give you more reaction time to avoid unexpected maneuvers by other boat operators. Don't travel too fast for the conditions! As we all know; Lake of the Ozarks can become very rough at times. Navigate large wakes in a manner which will prevent injuries to your passengers on your own vessel. Making your passengers aware of upcoming large wakes, combined with cautious navigation across those wakes, will reduce many of the injuries we see on the lake.

Obey traditional navigational rules: When approaching another vessel, stay to the right. Give less maneuverable vessels the right-of-way.

Bring back the great tradition in boating: Boat courteously!



Does Ameren still spray mosquitoes at Lake of the Ozarks?

Yes. Each summer Ameren Missouri undertakes an extensive vector control program by targeting standing and stagnant water for mosquitos. Ameren Missouri crews work from pontoon boats to target and spray about 200 miles of shoreline. The crews target the areas most likely to contain favorable conditions for mosquitos. They treat these areas every 10 days between Memorial Day and Labor Day.

What type of chemical is used to kill the mosquitoes?

The spray, called Aquabac, kills the mosquito larvae. It is a registered with the U.S. Environmental Protection Agency and is safe and effective. It leaves no residue and does not affect fish, waterfowl or humans.

Does this prevent all mosquitoes at the lake?

Although these efforts are effective, it does not control all mosquitos around the Lake. Mosquitos breed and reproduce by laying eggs in stagnant water. The eggs hatch into a larva that lives in the water and comes to the surface to breathe. The larva then develops into a pupa and finally develops into an adult mosquito. This process is very similar to a caterpillar turning into a butterfly but the outcome is much less desirable. The common factor in all stages of a mosquito is the presence of calm stagnate water. That is why we concentrate our efforts on major mosquito breeding sites with shallow water, areas of woody debris and heavy vegetation. Lake property owners can help our efforts by ensuring there are no places where water can collect in stagnant pools. Likely candidates are clogged gutters, old tires, planters, cans or buckets. By eliminating standing water mosquitos cannot lay their eggs and complete their life cycle.

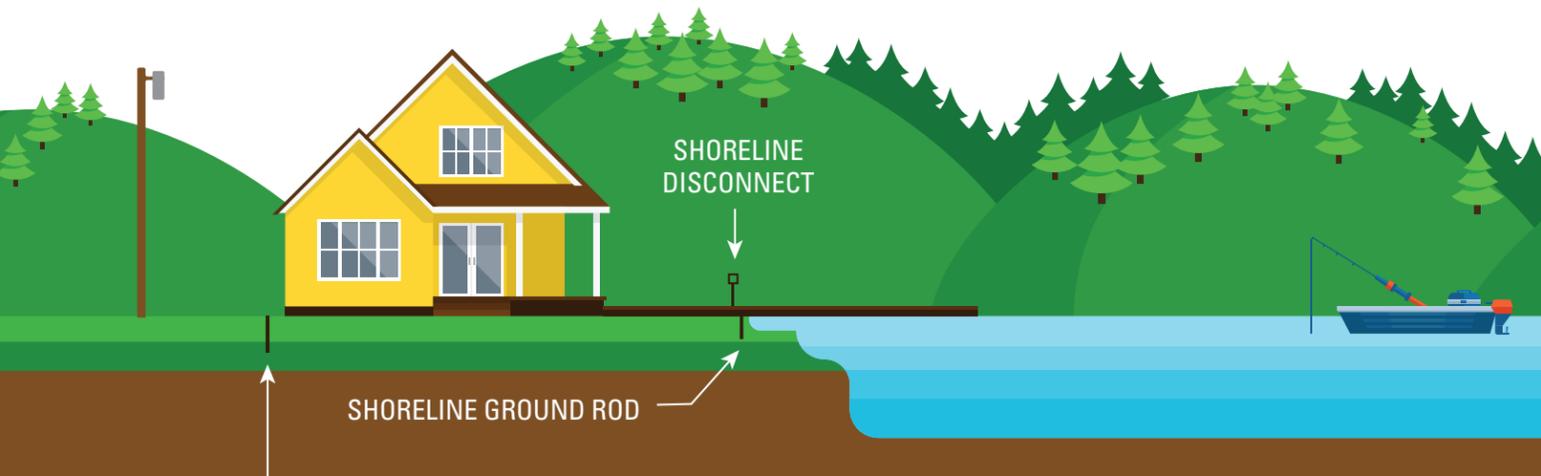


Dock Electrical Safety

In order to ensure the electrical safety of your boat dock there are many items such as proper grounding, bonding and ground fault circuit interrupters (GFCI) that must be properly installed and maintained in good working condition. Proper grounding includes ensuring the grounding system is installed back to the power source at the utility transformer. Many dock owners assume that the ground rod installed near their shoreline disconnect provides for proper grounding. While this ground rod is an important safety feature it does not provide for grounding to the utility transformer which must be present for your circuit breakers to properly function. In order to establish proper grounding, a low resistance electrical path must be maintained back to the utility transformer.

This is completed by ensuring there is a continuous ground wire connecting the dock to the panel box at the house. If there is a break in this connection, at any location, the grounding of your dock is not complete. Ameren Missouri strongly recommends having your grounding system tested by a qualified electrician to ensure you dock does not present a hazard to you, your family or to other lake users.

If you have questions about your docks electrical system you are strongly encouraged to have it inspected by a qualified electrician.



In order for your docks electrical system to function in a safe manner, the grounding system must be connected all the way back to the utility transformer. This is accomplished by testing the grounding system between the dock and the house panel box, not to the ground rod or shoreline disconnect near the seawall. This test should show that there is less than 1 Ohms resistance on the grounding system.

Adopt • the • Shoreline

In 1991 two concerned lake area residents, Dan Jarvis of Union Electric, and Bob Heckle, Manager of Modern Sanitation, determined that after 60 years of heavy use, the lake's shoreline was in need of a major cleanup effort. So the first Shoreline Beautification Cleanup was organized and held in 1992.

By 1994 it was determined that a core group of volunteers would be needed to keep the lake's shoreline clean. The Adopt-the-Shoreline program was organized that year. Modeled after the "Adopt a Highway" program, it offered interested businesses and individuals the chance to "adopt" sections of the Lake's shoreline for trash and litter control. Additionally, a Mission statement was created and reads:

"The mission of the Adopt-the-Shoreline program is to assume a leadership role in creating and maintaining a shoreline clean of debris and litter, thus enhancing the quality of life at the Lake of the Ozarks and increasing public awareness of the importance of keeping the lake clean."

Over the years the goals of the ATS program have evolved, and today we strive to:

- Encourage the adoption of shoreline by businesses, organizations, and individuals.
- Coordinate the annual Spring and Fall cleanup projects.
- Recognize volunteers for their dedication of time and energy.
- Create a better understanding and appreciation of the importance of a clean shoreline among residents and visitors.

In the first year of the program, nine civic organizations adopted 89 miles of shoreline. Two of those charter members, The Osage Community Elks Lodge #2705 and Ozark Coast Kiwanis are still active in the program today. Now they are joined by 89 other groups that have adopted a total of 700 miles of shoreline, covering approximately 60% of the Lake.

Thanks to the vision of two concerned Lake residents the success of the program cannot be understated when you consider the many accomplishment of this great volunteer effort. They include:

- Over 5.4 million pounds of trash removed
- 13,000+ volunteers
- Driving force on the ban on non-encapsulated flotation
- Development of current dock construction standards

Ameren Missouri is proud to coordinate and fund this program. Thanks to the many volunteers that make this program a success each year. If you would like to get involved in the program please visit our webpage at www.amerenmissouri.com/ats. If you have questions or need additional information about the shoreline cleanup, please contact Bryan Vance at **573.365.9252**.

We want your comments on our newsletter, please email us at lake@ameren.com to tell us what you think. If there are any other topics you wish we would include in our next issue, we would like your ideas.

Historic Photos

The historic photo on the cover of this year's newsletter was taken by the Ford Tri-Motor aircraft employed by Union Electric to document the construction of Bagnell Dam. Many of these photos are prominently displayed around the Lake of the Ozarks. Union Electric gave 845 construction photographs to the Missouri State Archives. You can view the collection by visiting the Achieves webpage at <https://www.sos.mo.gov/archives> and search using the words Bagnell Dam.

Union Electric sold the Tri-Motor in the middle 1930's and it has had a couple of different owners through the years. Presently the plane resides at the National Naval Aviation Museum in Pensacola Florida. The original UE markings are long gone, as the plane has been painted to reflect Naval Air Station (NAS) Pensacola. (right)





P.O. Box 993
Lake Ozark, MO 65049

**MAJOR
CONSTRUCTION
PROJECT AT
BAGNELL DAM
DETAILS INSIDE**

Website:
AmerenMissouri.com/Lake

Important Phone Numbers:

Lake Protection Hotline
1.573.365.9203

Lake Level
1.573.365.9205

Adopt-the-Shoreline
1.573.365.9252

Water Patrol Division (Non-Emergency)
1.573.751.3313

Benton County (Emergency Management)
1.660.438.8412

Camden County (Planning & Zoning)
1.573.346.4440

Miller County (County Commission)
1.573.369.1900

Morgan County (County Commission)
1.573.378.4643

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:

Osage Arm – Bagnell Dam to 16-mile marker and Gravois Arm

Josh Friedrich 1.573.365.9247
Chris Korsmeyer 1.573.365.9209

Osage Arm – 16-mile marker to 32-mile marker, and the Niangua Arms

Chuck Van Bebber 1.573.365.9215

Osage Arm – 26-mile marker to Truman Dam

Joe Daly 1.573.365.9207

Commercial docks, docks larger than 3,000 square feet, 16 to 26 mile marker Osage Arm and Glaize Arm

Heidi Shewmaker 1.573.365.9216

Dredging, wetlands, shoreline vegetation or other environmental questions

Bryan Vance 1.573.365.9252
Georganne Bowman 1.573.365.9217



EVERY STRUCTURE ALONG THE LAKE SHORELINE MUST BE COVERED BY A VALID PERMIT. Do you have copies of yours? The shoreline management office can help you get copies if you need them. Permit records are cataloged by name and county parcel identification numbers (PID) rather than street addresses. Contact our office with name and county parcel information and we will help you.