

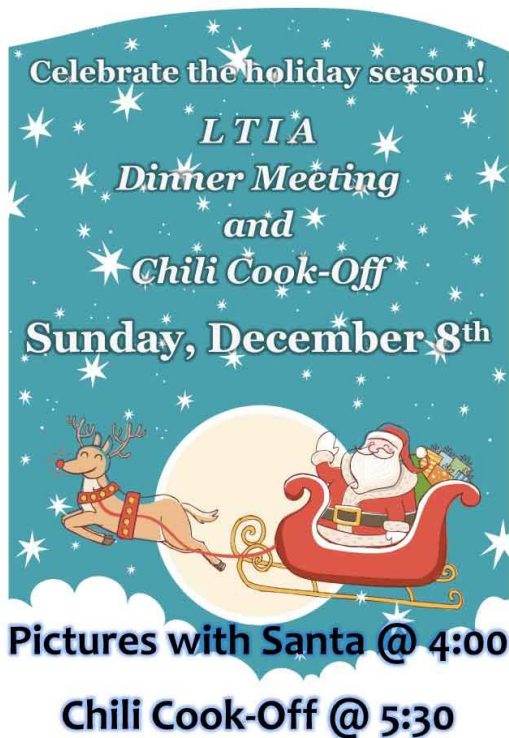
## Inside

- ❖ Contacts.....2
- ❖ Classifieds .....2
- ❖ Lakeside Gardeners.....3
- ❖ Sewer Report.....4
- ❖ LTPOA Minutes – September .....5
- ❖ LTPOA Minutes – October .....6
- ❖ NatureNews .....7
- ❖ LTIA Membership Form .....9

## Lakeview

**Janet Quillman, LTIA President**

Hello and happy holidays from the LTIA! As the temperature starts to go down, we are trying to find ways to heat things up. Warm your heart with a visit from Santa; warm your belly with a great bowl of chili. For our December meeting on Sunday the 8<sup>th</sup> we have received notification from the North Pole that Santa will arrive at the Lake Tishomingo Clubhouse for pictures; immediately following we will host the annual chili cook-off. Word has it the competing chefs are ready to rumble. All members are welcome to cook up their best pot of chili for entry. Up for grabs are the coveted winner’s apron and bragging rights for the year.



\*Parents have the option to bring a gift for your child that Santa will pass out. We ask that the price be under \$10.

*Lakeview continues in next column, after calendar*

Calendar			
Dec. 8	Sun.	4:00pm 5:30pm	Pictures with Santa LTIA Dinner: Chili Cook-Off
Dec. 10	Tues.	7:00pm	LTPOA Board Mtg.
Jan. 12	Sun.	5:30pm	LTIA Dinner: Soups, Salads, Sliders
Jan. 14	Tues.	7:00pm	LTPOA Board Mtg.
Feb. 9	Sun.	5:30pm	LTIA Dinner
Feb. 11	Tues.	7:00pm	LTPOA Board Mtg.

*Lakeview continues from previous column*

As a special bonus, all members who have paid their dues for 2020 at or before the December meeting will have a chance to win the “fabulous prize package.”

In January we will host our monthly dinner meeting on Sunday the 12<sup>th</sup>. Comfort is on the menu; bring your favorite salad, soup or slider to share.

On behalf of the LTIA we would like to thank everyone who joined for 2019 and helped us throughout the year. Have a safe and happy holiday season.



## LTPOA News

**Steve Blaha, LTPOA President**

Now that the weather is a bit nicer than the frigid Veteran's Day cold spell, we can get back to raking and blowing leaves. PLEASE do not blow or place leaves into OUR Lake. Also, please make sure that your culvert and ditch are clear of leaves and debris to insure an unobstructed flow.

After multiple phone calls and a minor accident, the FedEx delivery truck has been driving a bit slower. We are concerned about the speeding autos, trucks, side by sides, 4 wheelers, and golf carts that travel our roads. PLEASE SLOW DOWN. This problem has a long history at the lake and needs to stop before someone is seriously hurt.

This is a bit of an advance notice to all who are interested in doing a construction project at their lakefront. In October of 2020, the siphon will be started. This will lower the lake about two inches a day. The current plan is to lower the lake forty-eight inches. Please prepare your blueprints, complete the LTPOA Building permit form, and contact Doug Leeker for a site approval. (The building permit form is available at <http://laketishomingo.com/forms/buildingpermit.pdf>.) All of the Lake benefits from making our existing homes and property better.

For those folks putting your home or lot up for sale, don't forget about the First Right of Refusal Letters (FRR) that need to be sent out once you have a contract. For more information on the FRR, check out pages 4–5 of the Sept/Oct 2018 Newsletter, which can be found on our website at [http://laketishomingo.com/tishnews/tn\\_sep2018.pdf](http://laketishomingo.com/tishnews/tn_sep2018.pdf).



LAKE TISHOMINGO PROPERTY OWNERS ASSOCIATION

**LTPOA**

President	Steve Blaha	314-808-4757	rsblaha@yahoo.com
Vice President	Mike Steeno	314-803-4785	msteeno@millersteeno.com
Treasurer	Shelby Reneski	314-920-5421	shelbyreneski@charter.net
Secretary	Jon Riche	314-774-7234	jwriche@gmail.com
Buildings	Doug Leeker	314-265-7827	dougleeker@att.net
Maintenance	Ken Stojeba	314-660-4101	kstojeba@gmail.com
Security	Mark Stubits	314-479-7101	mstubits@gmail.com

**Committees**

Boat Patrol	Steve Blaha	314-808-4757	rsblaha@yahoo.com
Dam	Clarue Holland	314-623-5869	Clarue-Martin@att.net
Stickers & Gate Cards	Ken Jost	636-274-0453	kbkjos@aol.com
Water Quality Test	Clarue Holland	314-623-5869	Clarue-Martin@att.net
Website	Janet Hirsch		jhirsch@catenary.com
Newsletter	Carol Kohnen	314-365-1991	tishnewsletter@gmail.com
Gate Directory/Entry Codes	<a href="http://www.laketishomingo.com">www.laketishomingo.com</a>		gate@laketish.com

Allow 7-10 days lead time

LAKE TISHOMINGO IMPROVEMENT ASSOCIATION

**LTIA**

President	Janet Quillman	636-748-2030	janetquillman@gmail.com
Vice President	Shelby Reneski	314-920-5421	shelbyreneski@charter.net
Treasurer	Julie Johnston	636-274-1486	julie.johnston@charter.net
Maintenance	John Johnston	636-274-1486	jrjston@charter.net
Chef	Rick Quillman	636-748-2030	djquill@charter.net

PUBLIC WATER SUPPLY DISTRICT #13 (Sewer District)

**PWSD#13**

President	Marilyn Meyer	636-274-1812	marilynmeyer@charter.net
Billing Questions	voice mail	636-285-1778	pwsd13@charter.net
Sewer Emergency	Operator office	636-257-3976	

**Classified Advertising Rates**

LTIA members, non-commercial listing	no charge
Non-LTIA members, each listing	\$5.00

**Display Advertising Rates**

Business Card	\$10 per issue	\$60 per year
¼ page	\$15 per issue	\$90 per year
½ page	\$25 per issue	\$150 per year
Full page	\$50 per issue	\$300 per year

**Contributions to Newsletter**

Submit photos, articles and ads to [tishnewsletter@gmail.com](mailto:tishnewsletter@gmail.com). **Note the new email address.**

**Next Newsletter Deadline is January 20, 2020.**

**Happy Holidays!**



*Decorations by Rosie Ferrell and Chyree De Roode.  
Photo by Rich Hirsch.*

*Classified Ads*

▪ Lots for sale. N32 & N33. Extra-large, pie-shaped lots. Total acreage approx. 1.5A. Total assessment \$400. Rick or Marilyn 636-274-1385.

**Website**

[www.laketishomingo.com](http://www.laketishomingo.com)

View this and past newsletters since 2003 at the website.

**Email**

Receive "This Week at Lake Tish" announcements and the electronic version of this newsletter by email. Send your email address to [news@laketish.com](mailto:news@laketish.com).

## Lakeside Gardeners

Rena Rockwell

### Honeysuckle Removal Update—November 9, 2019

The Lakeside Gardeners met on October 13 after the LTIA dinner and meeting. We discussed the high priority areas for removal of the invasive plants along the road easement. When you cannot move over to allow a big truck or someone hauling a boat to pass without scratching your car because of the honeysuckle bush branches, it becomes an issue. North Lakeshore Drive was identified as needing the most work,



primarily around the curves of the road; our first priority was the area between 7640 and 7661. This area had multiple problems: tree branches and wild grape vines that would hit a tall truck, and honeysuckle that was growing on the edge of the roadway.

On November 9, volunteers Robin McKinnon, Rena Rockwell, Joann Ross, and Steve Kottemann cleared this area.

*Photo of restored road by Rena Rockwell*

#### What you should know about removing honeysuckle.

The best way to remove honeysuckle is to pull it up, roots and all, when it is young. The weak surface-rooted plant can be easily removed when it is less than 2 feet high. If it is more established, you should cut the branches off 1–2 feet from the ground and treat the fresh cuts with herbicide. Do not just cut back this plant. If you don't remove the roots or treat the cut with herbicide, the honeysuckle will grow to 3-6 times its size in one season after you have cut it. You will be making the problem worse!

**Why you should be concerned.** We realize we will not eradicate invasive species like honeysuckle from our beautiful neighborhood completely. However, if we learn how to treat it properly on our own property and tackle it a little bit at a time on our roadways, we will eventually see a big difference.



#### Honeysuckle

*Photo by MDC Staff, courtesy Missouri Department of Conservation*

Honeysuckle and other invasive plants compete with Missouri native plants for water and nutrients in the soil; this reduces the number and variety of understory plants and trees that can grow.

As you notice when you drive in or out of our subdivision, you cannot see between the trees. We have a large amount of honeysuckle and poison ivy in the area from the stop sign to our gate. Our roadways are also being consumed by honeysuckle and other invasive plants. The picture below is of a state park that has been managing invasive plants, where you can hike and see the beauty of the rolling fields, natural rock areas, and ridge lines.



*Photo by Rena Rockwell*

#### Find out more.

From the Missouri Department of Conservation (MDC) <https://mdc.mo.gov/newsroom/mdc-says-invasive-bush-honeysuckle-vulnerable-now>

#### Curse of the Bush Honeysuckle (MDC)

<https://mdc.mo.gov/sites/default/files/downloads/CurseBushHoneysuckle.pdf>

Invasive honeysuckle increase risk of tick-borne disease  
*Science Daily*

<https://www.sciencedaily.com/releases/2010/10/101011173245.htm>

#### What you can do.

We hope that you will volunteer just two hours on December 14, 2019, from 9-11 a.m. to help out. Meet at the flagpole.



## Loon on the Lake!

*Photo taken on November 8, 2019, by Rich Hirsch.*

## Lake Tishomingo Treatment Facility

On Saturday morning November 9, Rich Hirsch led a small group of sewer board members and other residents on an informative tour of the Treatment Plant. Handouts from the tour, including the one featured on this page, can be downloaded at <http://www.laketishomingo.com/pwsd13/forms.html>. Or you can drill down . . .

[www.laketishomingo.com](http://www.laketishomingo.com)

→PWSD13

--→ Docs

----→ Wastewater Treatment Plant Tour

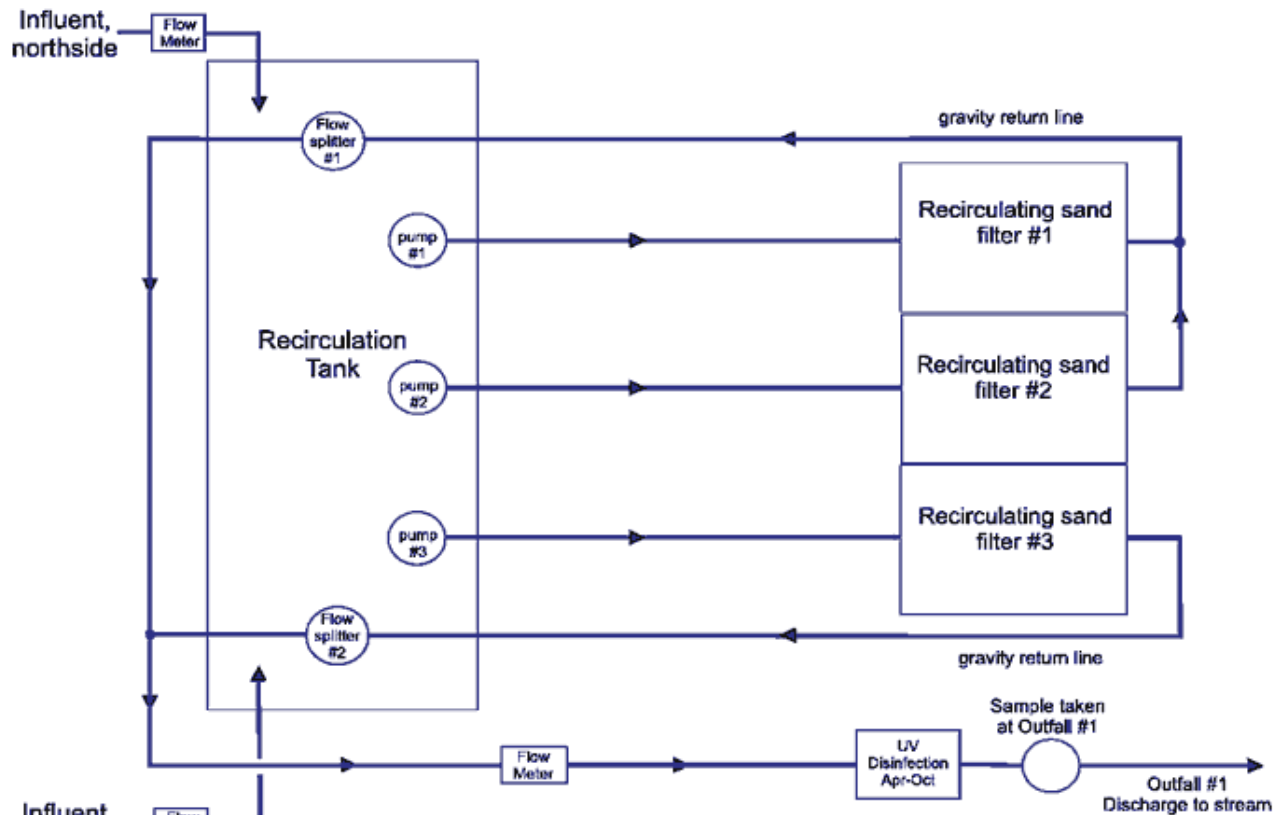
This is a **Septic Tank Effluent Pump (STEP)** system serving 241 homes in the Lake Tishomingo subdivision. Approximately 152 homes are occupied full time. The plant went online in December 2011.

### Process Flow Diagram

STEP tanks with a capacity of 1,000 gallons are located at each residence. Effluent from the STEP tanks is fed through two main pipes into the 75,000-gallon recirculation tank at the treatment plant.

Recirculation tank effluent is pumped into three sand filters. The effluent trickles through the sand filters and is returned by gravity to splitters in the recirculation tank. Depending on the liquid level in the recirculation tank, a portion of the effluent is returned to the recirculation tank; the rest is discharged. During the months of April through October, UV disinfection is applied to the effluent prior to discharge.

Design capacity	75,000 gal/day	
2019 Average daily flow	YTD	19,519 gal/day
2019 Maximum daily flow	May	24,812
2019 Minimum daily flow	Sept	15,379
Maximum daily flow	May 2017	30,923



# LTPOA Meeting Minutes

## Lake Tishomingo Property Owners Association

### LTPOA Minutes September 10, 2019

Board members present: Steve Blaha, Jon Riche, Doug Leeker, Ken Stojeba, Mike Steeno, Mark Stubits, Shelby Reneski.

At 7:05 pm, President Steve Blaha called the meeting to order. There were 14 residents in attendance.

#### President's Report

Steve asked the board members if they read the August minutes and if they had any additions, corrections or deletions. It was noted that Shelby was incorrectly listed as being in attendance. No other changes to the minutes were discussed; Ken made a motion to approve the minutes and it was seconded by Doug. MOTION PASSED.

#### Treasurer's Report

Shelby read the financial report for September 2019. August had a cash inflow total of \$58,682.52 which included \$50 from an insurance dividend, \$58,602.36 from assessments and \$30.16 from interest. The cash outflow for August totaled \$7,773.73 and included: GCI Security for July (\$2,332), Happy Grass for cutting and trimming (\$1,050), Ameren (\$120.85), Charter (\$59.99) and Phone.com (\$19.17), Salt Industries for salt (\$3,816.72) and Clarue Holland for water testing (\$375). The checking account balance was \$258,614.35 as of 08/31/2019. Interest accrued in the Major Projects Fund account in the amount of \$59.58, resulting in a balance of \$116,986.09 as of 08/31/2019. Doug made a motion to approve the treasurer's report and it was seconded by Jon. MOTION PASSED.

Shelby asked for approval to pay September bills totaling \$13,785.30, which included: GCI Security for August (\$2,520), Happy Grass for cutting and trimming (\$400), Ameren (\$108.73), Charter (\$59.99) and Phone.com (\$19.17), Wegmann Law Firm for legal fees (\$1,165), Red Oak Landscaping for dam mowing on 07/1/2019 and 08/09/2019 (\$2,200), Trapper Joe for ground hog removal (\$795), Janet Hirsch for a new computer at the guard shack (\$767.41), CEG to repair patched areas on roads (\$5,730) and Clarue Holland for a courier fee in relation to water testing (\$20). Jon made a motion to approve the treasurer's report and it was seconded by Doug. MOTION PASSED.

#### Building

Doug reported on an application from the McKinnons (lot O8) to install a new boat lift. Jon made a motion to approve the application and it was seconded by Ken. MOTION PASSED.

Doug reported on an application for Tom Wiley (lots D60, 61 and 62) to expand his deck with a roof and wrap existing dock in composite decking. Ken made a motion to approve the application and it was seconded by Jon. MOTION PASSED.

Doug also reported on an application for Jim Marler (lot K40) to replace an existing carport with a garage. Jon made a motion to approve the application and it was seconded by Ken. MOTION PASSED.

#### Security

Mark reported that there have been several cars, trailers and boats being left overnight in the community parking lot. There was a discussion about notifying the individuals. A resident stated that the tether ball pole had been bent over. Security footage taken from the clubhouse was viewed during the meeting in attempt to identify how this occurred.

#### Gate

Rich Hirsch noted that JC Transit, a company that offers transportation to those with disabilities, was utilizing their code 3.8 times per day. Often times the code was used by non-JC Transit vehicles. They will be contacted and the code will be changed.

A new computer was installed in the guard shack. This computer is used for security cameras at our entrance.

#### Maintenance

Salt was delivered for the upcoming winter season. The plow truck is in need of a battery, which Ken will obtain.

There was a discussion about the plan to add sand to the beach area and volleyball court. It was decided to hold off until early spring due to the current time of year.

#### Website

Carol Kohnen is now assembling our newsletter.

#### TAA

Kevin from the TAA asked for a donation to stock the lake with fish. They currently have \$1,000 and are asking for \$600 from the LTPOA to order a total of \$1,600 worth of walleye. Steve discussed the need for the TAA to help with spraying the water willow around the lake for those who want it treated in front of their lots. The trouble has been volunteers and timing, as it can only be sprayed at certain times. Kevin and Brian stated they would spray and Mark Stubits volunteered as well. Spraying will occur in a few weeks. Given the commitment to spray the water willow, Ken made a motion to approve the \$600 donation to the TAA and it was seconded by Mike. MOTION PASSED.

#### Old Business

Mark discussed new aluminum signage for the boat ramp area. Three smaller signs and one larger sign would be required and the cost is approximately \$1,000 for materials and installation. Ken made a motion for Mark to move forward with the new signage and it was seconded by Doug. MOTION PASSED.

Mike filed the annual registration for the LTPOA and the registered agent was updated to Mike Steeno.

#### New Business

Carol had to purchase Microsoft Office in order to take over the newsletter. The cost was \$129.99. Jon made a motion to reimburse Carol and it was seconded by Doug. MOTION PASSED.

#### Adjourn

Ken made a motion to adjourn and it was seconded by Jon. The meeting adjourned at 8:38 pm.



## LTPOA Minutes October 08, 2019

Board members present: Steve Blaha, Jon Riche, Doug Leeker, Ken Stojeba, Mike Steeno, Mark Stubits.

At 7:06 pm, President Steve Blaha called the meeting to order. There were 6 residents in attendance.

### Treasurer's Report

Jon read the financial report for October 2019. September had a cash inflow total of \$26,665.56 which included \$26,516.76 from assessments and \$33.80 from interest. The cash outflow for September totaled \$12,240.79 and included: Recorder of Deeds for 10 liens filed (\$245.50), Happy Grass for cutting and trimming (\$400), Ameren (\$108.73), Charter (\$59.99) and Phone.com (\$19.17), Wegmann Law Firm for legal fees (\$1,165), Red Oak Landscaping for dam mowing on 07/1/2019 and 08/09/2019 (\$2,200), Trapper Joe for ground hog removal (\$795), Janet Hirsch for a new computer at the guard shack (\$767.41), CEG to repair patched areas on roads (\$5,730), Clarue Holland for a courier fee in relation to water testing (\$20) and Carol Kohlen for a copy of Microsoft Office for newsletter (\$129.99). The checking account balance was \$280,223.36 as of 09/30/2019. Interest accrued in the Major Projects Fund account in the amount of \$57.69, resulting in a balance of \$117,043.78 as of 09/30/2019. Doug made a motion to approve the treasurer's report and it was seconded by Ken. MOTION PASSED.

Jon asked for approval to pay October bills totaling \$5,185.86, which included: Revised bill for GCI (\$2,328), MO Employers Mutual Workers Comp policy (\$981), Ameren (\$100.75), Charter (\$59.99), Phone.com (\$19.17), Happy grass for mowing in September (\$320), USPS Presort fee (\$235), Red Oak Landscaping dam mowing on 09/21/2019 and Steve Blaha for spot light and certified mail cost (\$41.95). Ken made a motion to approve the treasurer's report and it was seconded by Doug. MOTION PASSED.

### Building

Doug reported on an application from the Kittels (lot M40A) to install a new deck with roof. Jon made a motion to approve the structure and it was seconded by Ken. MOTION PASSED.

### Security

Mark reported on the following security items. Jefferson County Sheriff's Department has been issued an updated code for access. The tether pole culprits were identified and the offenders fully removed the pole and the hole was filled. Mom and Dad took care of any further disciplinary action. There was a report of someone doing donuts in the community parking lot and the security video will be reviewed.

### Maintenance

Some of the rope in the fencing around the parking lot will be replaced with new rope, saved from a few years ago. Landscape rocks were discussed in lieu of any fencing where the rope cannot be replaced.

### Newsletter

The board members commented on the excellent job Carol did on the newsletter. There will be hard copies of the newsletters sent out twice a year. The plan is to send out hard copies in the early spring and fall.

### Old Business

CEG has completed this year's road work and they will be returning soon to sweep the remaining chip and seal.

Doug addressed discussed the matter of traffic control and placing some barriers on the road to control speeders. Speed bumps, speed dips, barriers and other options were all weighed. Speeding is an issue and while the aesthetics of these options aren't great, safety is a primary concern. It was agreed to purchase 4 rubber speed bumps (\$80 each) and place them in a few locations as a trial measure. Ken made a motion to approve purchasing the bumps and it was seconded by Jon. MOTION PASSED.

### New Business

Steve spoke with Ken Jost and we are in need of ordering more gate cards. Doug made a motion to have Rich order more gate cards and it was seconded by Ken. MOTION PASSED.

Steve discussed an amendment to the water rules as previously discussed. The verbiage will be updated to include prohibiting the parking of overnight parking of boats, vehicle and trailers on community property. Jon made a motion to approve this change and it was seconded by Mark. MOTION PASSED. Please refer to the website for the updated verbiage of this rule.

Ken brought up the fact that we don't assess any penalties for those not paying their yearly assessments, or not paying them on time. Mike stated he would put something together on the matter and run it past our attorney.

### Adjourn

Ken made a motion to adjourn and it was seconded by Jon. The meeting adjourned at 8:24 pm.

Established 1989

**JLS MARINE, Inc.**  
5416 N. Cotton Hill Rd., Springfield, IL 62703

*Jeffery L. Smith*  
Phone (217) 241-1976 Cell (217) 341-1730

**HEWITT BOAT LIFTS & DOCKS**  
**EZ DOCK PWC LIFTS**

jeff@jlsmarine.com www.jlsmarine.com  
www.theboatshowinspringfield.com

Boat Lifts  
Boat Docks  
Dock Rental  
Accessories  
Portable Crane  
Barge Service  
Commercial Docks

**Boat Lifts and Docks**

### THE ITSY-BITSY GARDEN SPIDER

Text from an MDC blog

Photo by our own Al Ferrell

It's a shame that little Miss Muffett was too frightened to meet the spider that sat down beside her. She would have discovered that spiders are exceptional creatures.

Black-and-yellow garden spiders are easy to find. They are common in gardens, fields and urban backyards. A black-and-yellow garden spider is adorned with yellow-orange markings on its black body. This spider is large, with fully-grown females reaching an inch or more in length. Males resemble females but are only half as large.

Perhaps the most interesting thing about a garden spider is its beautiful web. Webs are circular and often more than two feet in diameter. Silken threads run spirally from the center of the web, where the spider weaves a zigzag band. The spider rests, head down, in the center of the web and waits for unsuspecting prey. Garden spiders eat a variety of insects, including grasshoppers and katydids.

Garden spiders are harmless and fun to watch. They are superb architects and play an important part in controlling insect populations.

So, the next time you see a spider, don't be frightened away. Instead, we recommend that *you* sit down beside *it*.

What a tangled web it weaves!

[“The Itsy-Bitsy Garden Spider”](#) by Jenna Todoroff was first published on August 29, 2016, on the Missouri Department of Conservation *Discover Nature Notes* blog, and it appears here courtesy of the Missouri Department of Conservation.

*Photo by Al Ferrell*



---

The itsy-bitsy spider / Climbed up the waterspout;  
Down came the rain / And washed the spider out;  
Out came the sun / And dried up all the rain;  
And the itsy-bitsy spider / Climbed up the spout again.

---





A beautiful picture of the lake.

Can you find the deer?

(Answer on next page.)

*Photo taken on November 14, 2019,  
by Rich Hirsch*

## Lake Turnover

### Missouri Department of Conservation

*(This article was previously published in the November 2006 issue of Tishomingo News.)*

#### What is it?

Turnover is the gentle, natural mixing of pond and lake waters. It is caused by changing temperatures in surface waters brought on by the progression of the seasons. In Missouri's continental-temperate climate, most ponds and lakes turn over in both the fall and the spring. Turnover occurs in the fall when surface waters cool, and in the spring when they warm up again.

#### Water

The density and weight of water change with its temperature. Like most other liquids and gasses, cold water is both heavier and denser than warm water. Water has one unique property, however. It is most dense and heavy at 39°F (4°C). As water cools and approaches 32°F (0°C), its molecules actually expand and form the crystalline structure of ice. Ice floats because it is both lighter and less dense than the warmer 39°F (4°C) water beneath it. It is this unique property which makes it possible for aquatic life, including fish, to over-winter in streams and rivers, ponds and lakes. If water's weight and density were greatest at 32°F (0°), ponds, lakes, streams and rivers would become solid ice!

#### Annual Cycle of Ponds

Your pond has four stages that parallel the four seasons of the year. They are: Summer stratification, Fall turnover, Winter stratification, Spring turnover.

**Summer stratification:** During the summer, ponds "stratify" into three layers of water with differing temperatures, densities, and levels of dissolved oxygen. Because of these differing physical properties, they do not readily mix. Of the three, temperature is the most readily measured parameter and for this reason this summer process is often known as "thermal stratification."

The uppermost level, known as the epilimnion, is composed of warm, lighter water. This zone is well oxygenated because of its constant contact with the atmosphere (wind action) and because of oxygen produced by the aquatic plants found there. The temperature of water in this layer increases throughout the summer. The depth to which the epilimnion reaches depends on

the clarity of the pond's waters and the terrain in which it is located. As summer progresses, however, the epilimnion typically shrinks in size. Regardless, almost all fish are found in this top layer of your pond.

The middle layer of water is known as the thermocline. It is a transitional layer where the water temperature drops at least 0.5°F for each foot of increasing depth. Swimmers in ponds with established thermoclines often note this layer of rapidly changing water temperature. The thermocline also is a transitional layer for dissolved oxygen levels. It is deeper and further removed from the atmospheric oxygen than the uppermost epilimnion. Also, because of the depth, light penetration is limited and plant growth is restricted which in turn limits photosynthetic production of oxygen. Fish may use this zone to escape the higher temperatures of the epilimnion, but the reduced oxygen levels mean that they return rather quickly to the oxygenated upper layer.

The lowest layer of pond water during summer is referred to as the hypolimnion. Its waters are the coolest and densest of the three zones. In fact, water temperatures in this layer typically range from 54°F to 59°F (12°–15°C) even during the hottest summer months. The epilimnion and thermocline, however, seal the hypolimnion from any contact with the atmosphere. Since it is the deepest layer of water in the pond, little light penetrates to it and plants which produce oxygen cannot live here. Decomposition of plants and animals which sink to this depth and the decay of organic material which washes into the pond rapidly use all the dissolved oxygen found in the hypolimnion. By mid-July this layer may be completely devoid of oxygen. Fish cannot survive in the hypolimnion so there is little point in fishing the bottom of the pond in the summer.

**Fall turnover:** As temperatures drop toward 50°F in the fall, the epilimnion cools and becomes both more dense and heavier. This cooler, more dense water sinks and fall winds stir the epilimnion which gradually erodes the thermocline. Eventually, the pond waters become uniform in density and temperature. This leads to a complete mixing of the water column which is known as "fall turnover." This mixing can happen literally overnight and sometimes leads to noticeable changes in the color, taste, and odor of the water. These changes are due to the pond-wide circulation of decaying particles of organic material and gasses which accumulated in the hypolimnion all summer. Over time, the freely circulating water becomes thoroughly oxygenated from the surface to the deepest part of the pond. Fall turnover opens the entire pond's volume to fish and they may be found throughout the water column.

*continues on next page*



**Winter stratification:** As winter approaches, water in the pond reaches its point of maximum density at 39°F. A layer of colder, less dense water soon forms on top of the deeper 39°F water. Eventually, this colder water reaches 32°F and a layer of ice forms on the top of the pond. This gradual separation results in a pond which has colder water on top of warmer water. This process is sometimes known as “inverse stratification.” Early in the winter you may expect to find fish in the warmer water on the pond’s bottom. As the winter goes on, the water at the bottom of the pond becomes depleted of oxygen from the decay of organic material just as it does in the summer. Fish move higher in the water column as the winter progresses. A “winter kill” of fish may result if heavy snowfalls block light penetration through the ice and oxygen levels are depleted. Clearing snow from the pond to permit light penetration may help avoid a “winter kill.”

**Spring turnover:** Each spring the ice melts and the sun and seasonal breezes warm the top layer of cold, less dense water. Eventually, this upper layer of water reaches 39°F, becomes heavier, and sinks. Soon the pond achieves a uniform temperature and density throughout the water column and it becomes well mixed. This second period of mixing in the annual temperature cycle is known as “spring turnover.” The entire pond has good levels of dissolved oxygen and fish can be found at all depths.

**Factors Affecting Pond’s Cycles**

Obviously, no two ponds are exactly alike. Some ponds stratify strongly during the summer and some remain well-mixed from top to bottom. Others never, or seldom, have an ice cover and don’t experience winter stratification.

*Continues in next column*

**Management Implications**

Turnover, as we’ve seen, is a complex, but natural, process affecting all ponds to some degree. Some of the management implications of turnover include the following.

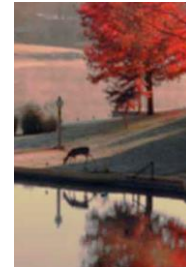
**Fish:** As discussed previously, fish can be found at different levels in your pond at various times of the year. Summer stratification restricts fish to the epilimnion and thermocline. During fall and spring turnover, fish are found throughout the water column. In winter, fish initially are found near the warmer bottom waters. As the winter progresses, and oxygen levels in the deepest waters are depleted, fish move up in the water column. Knowing where fish are, and are not, can help increase the success of your fishing trips.

**Fish habitat:** Adding artificial habitat like cedar trees or Christmas trees to ponds that lack natural habitat is a good practice. Your efforts will be rewarded if your knowledge of the annual cycle of ponds, and where fish are located, leads to the installation of the habitat in areas where it can be used. Brush piles placed in deep water will only be useful for brief periods following fall and spring turnover. Habitat placed in shallow 4–6 foot water depths, on the other hand, will be available to fish year-round. Habitat placed at a variety of depths is a good strategy for successful fishing throughout the year.



Where is the deer?

Here!



**Scott Schatzman, Attorney**  
REAL ESTATE BUSINESS CONTRACTS ESTATE PLANNING  
(314) 480-5599  
SCOTTSS@SASATTY.COM  
WWW.SASATTY.COM

**Did you notice?**

The Lake Tishomingo sign (on the right side of Tishomingo Road just past Hillsboro-House Springs Road, as you enter) is back! It was refinished by lake resident Joel Critchlow.



**Join LTIA today!!**

**LTIA Membership - 2020**

Yes, here is my membership to LTIA. This will help to support the Lake Tishomingo Improvement Association projects and maintain the Community House.

Membership includes a free classified ads in the Tishomingo News, attendance at LTIA dinners and children's holiday parties.

Please enclose your check for \$40 payable to "LTIA" and send to:

LTIA Treasurer  
5698 Lake Tishomingo Rd  
Hillsboro MO 63050

NAME \_\_\_\_\_  
ADDRESS \_\_\_\_\_  
PHONE \_\_\_\_\_  
EMAIL \_\_\_\_\_