

YOUR LAKE, YOUR STORY

The Chapman Lakes



LILLY CENTER FOR
**LAKES
& STREAMS**

GRACE
COLLEGE

The Chapman lakes are a gateway to unhurried summer days.

There is nothing quite like returning to the Big and Little Chapman lakes in the summers. When the suitcase-packed car is turning the final corner, skirting the shoreline and finally pulling into the driveway, it is all most parents can do to keep their children from tossing their shoes in the shade and running straight for the water. Sailboats, crayfish, turtles, kayaking and waterskiing await. Summer days stretch into twilight, buoyed by bonfires or board games, volleyball or wake-boarding. The Chapman lakes are a gateway to unhurried, unplanned hours, the coziness of a seasonal or year-round home, and all the food you can eat.



*Postcards from
Chapman Lake's Early Days*



Your Lake, Your Story

Your Lake, Your Story is an original Lilly Center for Lakes & Streams publication. (Learn more about us, starting on page 29!) The Lilly Center conducts research on 14 lakes throughout Kosciusko County, including the Chapman lakes. While ongoing research is invaluable to the health of the lakes, Big and Little Chapman are truly about the people who live around them. You might know the families in this book; you might be about to make new friends. Either way, our hope is that you identify with their stories and learn something new about the Chapman lakes (both their past and present) along the way.

Historical and current data (specifically taken during open water sampling, above the deepest point in your lake) was gathered by the Lilly Center's research team. Additional historical data was collected from government and university sources such as the Indiana University Indiana Clean Lakes Program.

THEIR STORY

Pete Smith

The lake is a conspicuous presence in the summer. Big or little, it serves the needs of whoever comes to visit. Especially in their younger days, Big and Little Chapman lakes were known for their serenity, home to deer and fish and other wildlife. Lake-goers would come to visit, and some, like Pete Smith's uncle, bought their own slices of paradise and stayed.

The gallery wall dates back to 1978. Sun-bleached photos (more white than black) curl against the glass. Further down the hallway-turned-timeline, color slowly seeps into the photographs. There are dozens of pictures

snuggled into the frames, capturing wind-tousled hair and squinty smiles, barefooted kids, canoes and life vests, and half-eaten meals spread over outdoor tables. In almost all of the pictures, you can spot the gleaming

surface of a lake in the background. "You asked why we come back to the lake, year after year, and eventually live here all year," Pete Smith says, and gestures at the gallery. "That's why."



Smith Family
Photos



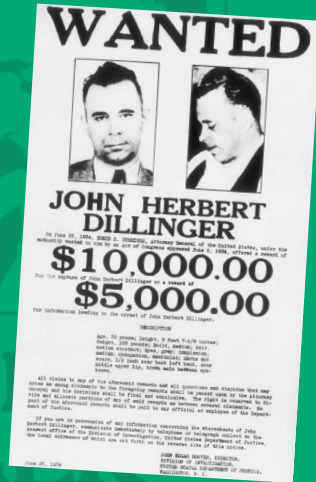


Did you know?

In 1934, John Dillinger is believed to have stayed in a cabin near Big Chapman Lake.

For the apparent lack of anything better to do, he and a fellow gang member

“appeared on the deserted streets of Warsaw” in the early morning. They entered the Kosciusko County Jail, “bound two policemen, and escaped with machine guns and bulletproof vests, with which they have been carrying on their depredations throughout the middle west since,” a reporter from the Chicago Tribune wrote at the time. One of the guards managed to trip Dillinger and made him drop what he was carrying. The “desperadoes” escaped, but barely.



The Top Notch Cottage Legacy

In the mid-1930s, Pete's uncle, Fred Rosnagle, bought the Chapman Lake Farm. It consisted of several undeveloped acres along the north-east and north side of Little Chapman and the south side of Big Chapman. Although he had no background in it, Fred decided he would enter the real estate business. His decision was pivotal for development of that area.

Fred was a remarkable man. At the age of 13, he ran away from home and found work at a



Chapman Lake Farm



Pete Smith, age 4, poses with his family at their home on Chapman Lake.

Pete would take his row boat to the narrow stream that ran between the two lakes and portage to Big Chapman.

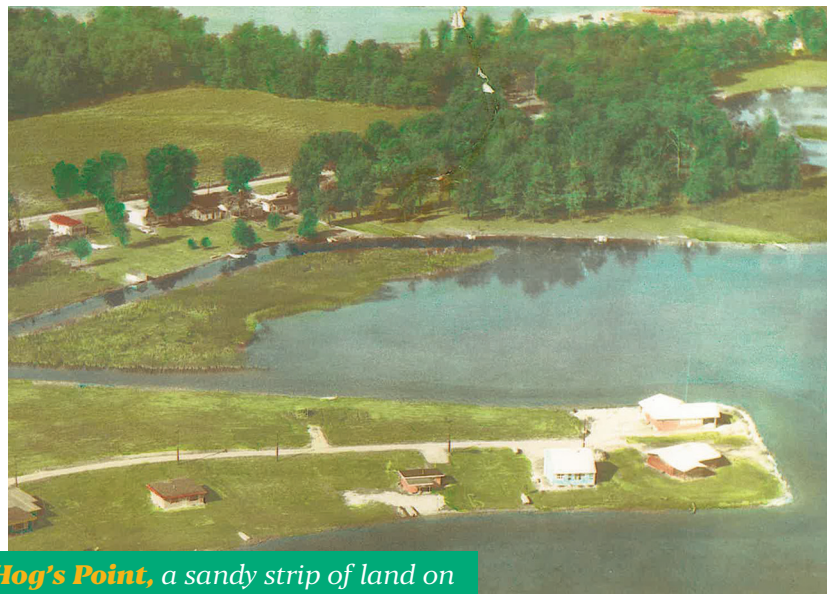
jewelry store in Chicago. A little while later, he joined the Navy and studied at the Naval Radio School at Harvard. He then traveled Indiana selling men's apparel for a number of years. That

work eventually led him to Kosciusko County, where he fell in love with the Chapman lakes. He developed the lakefront property of Chapman Lake Farm, dredged the shoreline and the channel between the lakes, and sold the lots to buyers for a down-payment of 50 dollars and small monthly payments.

Pete spent almost every summer of his childhood at Top Notch Cottage, the home his uncle had

owned on Little Chapman since 1930, around the time that Fred was developing the Chapman Lake Farm properties. The lake was unassuming but beautiful, surrounded by forests and dotted with small cottages. Pete would take his row boat to the narrow stream that ran between the two lakes and portage to Big Chapman. (At that time, Fred had not yet dug the channel that he later would.) Big Chapman was like another world to Pete. The north side of the lake had only a handful of homes, so most of the shoreline was untamed forest. The water itself was cool and inviting, perfect for





Hog's Point, a sandy strip of land on the northwest side of Big Chapman.

fishing or a leisurely evening paddle. No motorized boats disturbed the surface.

As Pete grew, so did the homes around the lake. Where two cottages had stood, one was built. Even Hog's Point, a sandy, jutting strip of land on the northwest side of

Big Chapman, was eventually turned into real estate. Once, a neighbor

As Pete grew, so did the homes around the lake.

who built his house on Arrowhead Point told Pete that he had an 80-year-old tree in his yard. Pete assured him he did not. "I have pictures of that

point, before any houses were built. There weren't any trees out there!" Pete said. His childhood friends included Bill McDaniel, Jim Manwaring and Bill Saylor.

Pete and his wife and their two kids bought their first cottage on Big Chapman in 1978. Pete worked for Armco Steel Corporation, which transferred him around the Midwest for 30 years. He loved the work but only got to spend weekends at the lake with his family. Shortly after he retired in 1990, the Smith family moved to the lake for good. As of 2020, Pete has spent 81 summers on the Chapman lakes. His family currently owns side-by-side homes with mirrored floor plans. "I have two children and five grandchildren," Pete said. "They can decide who gets which house."

Top Notch Cottage, 1931





Pete Smith's grandchildren enjoy a sunset over Big Chapman Lake.

The Lake, or The People?

One of Pete's goals is to preserve the lakes so more generations of Smiths can enjoy all the water can offer. "We're very concerned about water quality, and maintaining and improving water quality," said Pete. Over the years, Pete and his wife Jane (who passed away in 2015) have been involved in the Chapman Lake Conservation Association and the Chapman Lakes Foundation. They have also financially supported the Lilly

Center's ongoing research on the Chapman lakes.

It is one thing to go on vacation; it is another thing to love your destination so much, you live

His grandkids play yard games on the lawn and swim off the dock, just like past generations.

there several months out of the year, and perhaps stay permanently. But the Smith family has done just that. Between their houses is a strip of grass and patio leading straight to the lake, and that is

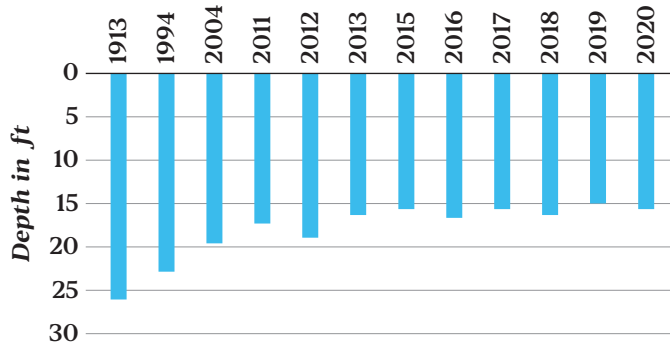
where everyone spends their time in the summer, Pete says. His grandkids play yard games on the lawn and swim off the dock, just like past generations. "We come back to

the lake because of its beauty," said Pete. But it is hard to tell if he means the beauty of the water itself, or of the people who live along the shoreline. Undoubtedly, he means both.

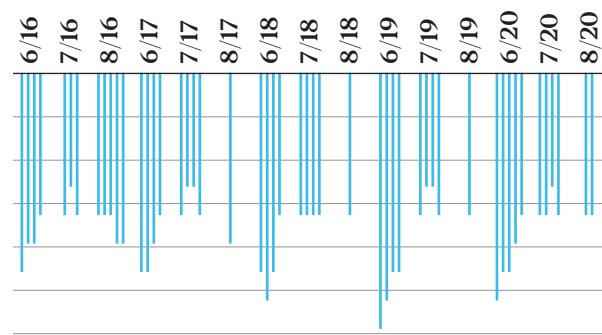
Dissolved Oxygen Layer

Aquatic organisms, like fish, rely on dissolved oxygen to breathe underwater.

Historic Data (1913-2020)



Current Data (2016-2020)



Note: Big Chapmnan Lake has a total water depth of 39 ft

The oxygen layer depth in Big Chapmnan Lake appears to be decreasing over the last 100 years during July and August. This increasingly limits the space in which fish can live and forces them to move to the warmer surface waters. Some fish cannot survive in warmer water such that certain fish may no longer be able to survive in Big Chapmnan Lake though they may have in the past.

Recently, Big Chapmnan Lake's oxygen layer was often thinnest in the middle of the summer, squeezing fish into a smaller space and forcing them into warmer water.

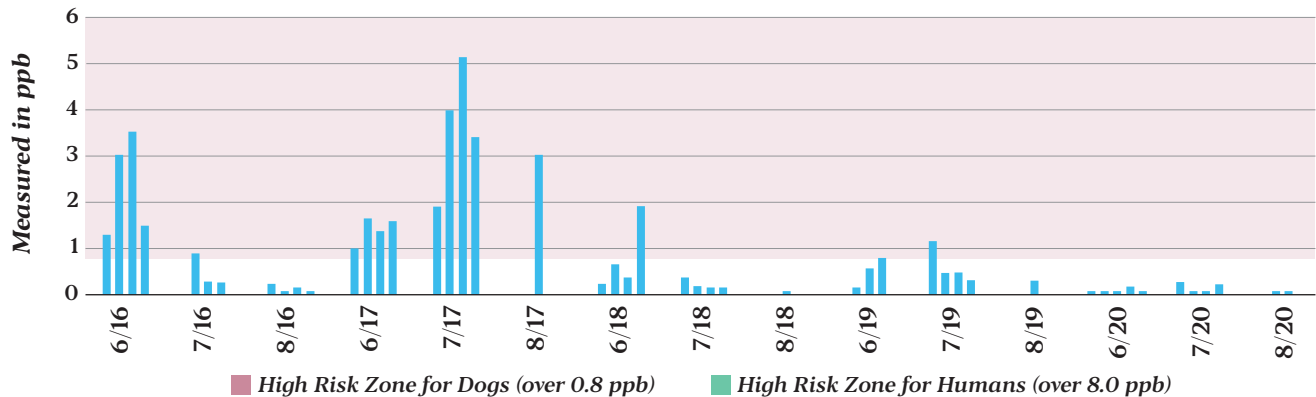
How You Can Help:

Dissolved oxygen is essential for underwater life. By limiting the amount of material decomposing at the bottom of your lake, you can slow the use of dissolved oxygen and help make a better habitat for fish and other aquatic critters! Make sure to properly dispose of lawn waste, and reach out to the aquatic weed experts before applying chemicals to your lake.

Microcystin Toxins

Microcystin is a toxin produced by blue-green algae. It is particularly harmful to pets, but can cause skin, eye and throat irritation (and even liver damage) in humans, as well.

Current Data (2016-2020)



While Big Chapman Lake microcystin toxin levels were highly variable over the last five years, levels were often above the dog exposure threshold but never above the human exposure threshold. Despite this good news, there is still potential risk for high microcystin levels under the right conditions in the future. The Lilly Center will continue to monitor the toxin to help keep you and your family safe.

How You Can Help:

Spot a blue-green algae bloom? It could contain microcystin, a toxin that is harmful to people and pets, so keep people and animals away from the water. We encourage you to let the Lilly Center know about the bloom by sending a picture, and the date, time and location to lakes@grace.edu.

Joel & Heather Wihebrink

There are many ways in which a lake adds value to its community. Perhaps chief among them is the youthfulness it prompts in those who enjoy the water, whether the person is eight or eighty-eight. There is always a reason to pull out the kayak, or the fishing pole, or the waterskis. Lakes can restore what humankind is made for: connection. Not just with nature, but with other people.

Joel Wihebrink grew up on Big Chapman Lake. It was his parents' lake-of-choice and his grandparents' home. Even though he did not live there year-round during his childhood, he spent most of his summers on the water, learning all the responsibilities that come with lake life. Delaney and Ian, Joel and Heather's children, are the fourth generation of Wihebrinks on Chapman Lake. They have

grown up under the same kind of watchful care as Joel. The parents of Joel's childhood friends still live in their homes along the same stretch of shoreline as the Wihebrinks. "My kids have not only their grandparents, they have three other sets of grandparents on our road. We all get along, and we do a lot together," Joel said.

Although their home is not a generational home,

the Wihebrinks were handpicked by the previous owners to buy the property (their house has changed hands only five times since it was built; it has never been put on the market.) In many ways, the home is still in the family – a family whose common space is the laid-back, inviting water of the Chapman lakes. Heather added, "It's family. Our whole road; it's like one family."





Did you know there is a right way to drive your boat around Big Chapman Lake?

Clockwise, not counter-clockwise, is the direction of choice for Chapman lake-goers



Chapman Lake Health



During the summer of 2018, Lilly Center researchers conducted a study to learn the impact of boating on the bottom of a lake. Suspended nutrients are a common culprit in excessive weed and algae growth, and although nutrients enter lakes through all kinds of sources (both natural and human-caused), resuspension of existing particles can be limited by simply adhering to boating best-practices.

That does not mean your family should avoid boating, though! Here are three ways to minimize resuspension while still enjoying all your lake offers:

- Participate in no-wake zones, which can protect beneficial plants and help reduce nutrient resuspension in those particularly shallow areas.
- Save “near-plane/plowing” activities for water greater than 10 ft deep and keep ballasts empty in shallower water.
- More info on pages 29-32!

Youthfulness At Any Age

Growing up on a lake adds a certain richness to childhood. It brings a balance of responsibility and youth. Milestones like getting a driver’s license are a little less monumental, for instance, because most lake kids have already been operating boats for years; such is the case for Delaney and Ian.

The Wihebrink kids have experienced Big Chapman for their whole lives. Lakes have inherent dangers, like boat engines and deep water, so growing up on a lake brings a level of awareness that others might lack. In fact, as Joel describes it, the lake is actually an enormous front yard. “If you’re curious, there are count-



less things to explore out there,” said Joel. Lake-goers learn how to enjoy it safely from a young age.

Not only does the lake bring youthfulness, it brings youth together: Six-year-olds can bond with their 12th-grade neighbors and siblings. Joel described how their now college-aged daughter will still go turtle-hunting with friends. And, Heather added, kids do not feel as compelled to hang out exclusively with their peers. Kids of all ages can enjoy being around each other when they are on the lake. “Moms of kids who don’t live on the lake love for their kids to come out here,” Heather said. “Because when they’re here, they don’t grab their phones, they don’t sit and play videogames. They want to be them-



Kids of all ages (like Delaney and her younger cousin) can enjoy the lake together.

Kids want to be themselves—and on the lake, they can be.

selves—and on the lake, they can be.” As a mom, Heather has loved watching her kids (and the kids of her friends) indulge in innocent fun and earn

greater responsibility, two elements of adulthood that start at the lake and spread into other parts of their lives.

*Turtles Found
By Delaney*





*On the Chapman Lakes,
sunset*s are always worth watching.

Enhancing the Future

The lakes are clearly an invaluable resource; they have a weighty impact on the future, too. “The orthopedic industry can move from Warsaw,” Joel described. “But the lakes can’t pack up and go anywhere.” The Wihebrinks know what members of every other lake community in the county know: The water has a direct impact on the people, and the impact is reciprocated. As one of the top three economic

drivers in the county (along with orthopedics and agriculture) the lakes are worth the effort it takes to monitor and protect them.

The water has a direct impact on the people and the impact is reciprocated.

The economic impact of the lakes is one reason the Wihebrinks choose to support the Lilly Center. “Kosciusko County is moving forward, and it’s because of these

bodies of water,” Joel said. The health of the lakes is critical, he added. “Healthy lakes will help protect this community from economic recession.” And someone has to monitor the lakes for that purpose. “On a larger scale, it’s going to protect these resources for my great-grandkids and beyond,” Joel concluded. Four generations of Wihebrinks have fallen in love with the Chapman lakes, and with the support and attentive care from organizations like the Lilly Center, Joel and Heather hope that continues long into the future.



Economic Impact Study

The economic impact study, conducted by the Lilly Center in 2016, conservatively estimated the total value of Kosciusko County lakes to be approximately **\$313 million annually**.

That number can be broken down into three categories:

- *Lake-specific businesses generate approximately **\$150,722,000** annually*
- *Lake-related businesses generate approximately **\$147,661,000** annually*
- *Property tax revenues generate **\$15 million** annually*

The Lilly Center estimates that an improvement in lake quality could increase the economic value of local lakes by as much as five percent, or approximately \$10.5 million annually. On the other hand, a decline in lake quality could result in an economic decline of 40 percent, or approximately \$84 million annually in Kosciusko County.

\$300 M

\$200 M

\$100 M



*Annual impact
of Kosciusko
County lakes*

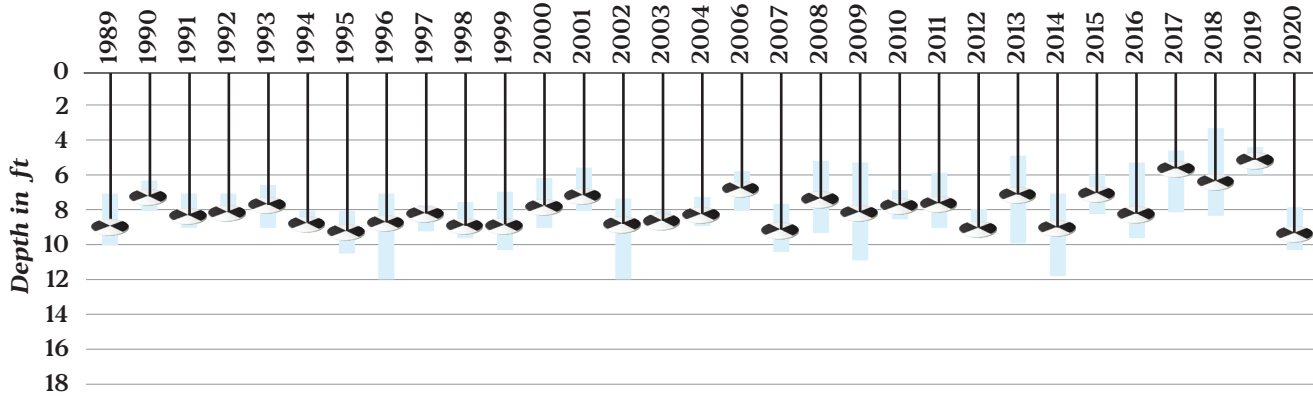
Delaney worked at the Lilly Center during her senior year of high school. She took charge of a terrestrial project: identifying, counting and digitally cataloging all trees on Grace College's campus. The digital field guide she started will be used in a variety of ways, including K-12 field trips and future tree planting.



Water Clarity

These data show how far down light reaches through the water in your lake.

Historic Data (1989–2020)

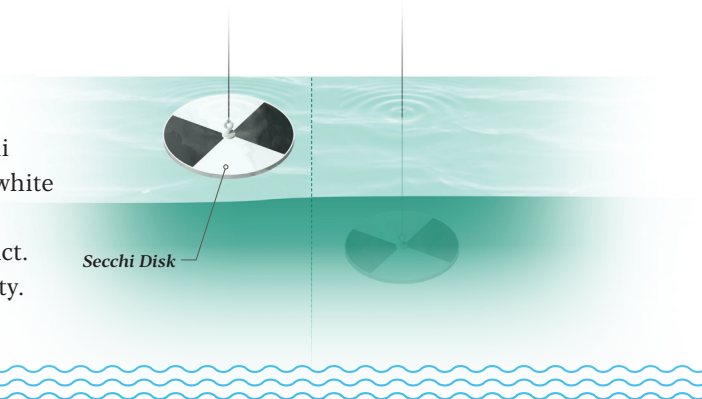


Water clarity for July and August in Big Chapman Lake shows much variability over the last 30 years but may be slightly decreasing overall. Lower water

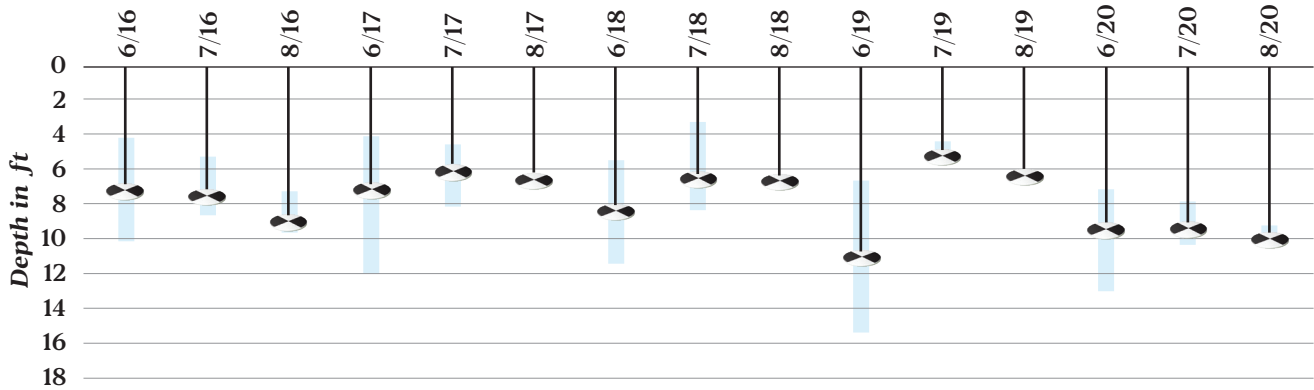
clarity during certain years could be due to more algae growth as a result of higher nutrient (phosphorus and nitrogen) levels.

How water clarity is measured:

Water clarity is measured with a tool called a Secchi disk. A Secchi disk is a frisbee-sized metal disk that is painted with a black and white pattern. The disk is attached to a string and lowered into the lake water until the black and white pattern is no longer visually distinct. The depth of the disk is recorded as a measure of the water’s clarity.



Current Data (2016–2020)



Big Chapman Lake’s water clarity was often lowest in July before improving towards the end of the summer. The highest recorded water clarity in the last five years during the summer months was in early June of 2019.

How You Can Help:

From past research, we know that boating can have an impact on the health of local lakes. When boating, use parts of the lake that are at least 10 feet deep for any boating activities that create a wake and stir up nutrient-rich sediment. That helps limit nutrients which would otherwise become available for algae and weeds!

Tony & Cathy Miller

The Millers' one-story cottage in Island Park had large lake-facing windows and no hot water. It faced the sunrise and a forested eastern shore; Tony remembers very few homes illuminating their nighttime view. Eventually, as the years went on, the lights got closer together until they met in the middle. However, in the early 1950's, there were only a handful of cottages. Unlike other lakes in Kosciusko County, Big and Little Chapman and their inhabitants were content to idle-speed into the late 1900s.

Although the family's permanent home was in Muncie, Ind., Tony Miller and his parents and siblings spent most summer weekends at their Chapman Lake cottage. Summers on the lake were an ideal time to be a kid. When workers began to dig the channels for the Lake Forest Addition, Tony remembers joining his brothers in nighttime quests.

"We climbed up the mast of the dragline crane and leapt off, into the lake,"

Summers on the lake were an ideal time to be a kid.

Tony described. On hot afternoons, they would take their metal fishing boat to the grocery store on Little Chapman to get orange push-ups.

(It was a half-a-day excursion, at least.) Needless to say, Big Chapman Lake made an impression on Tony. He knew he would never leave its shores for very long.



The Miller family cottage



Fishing was a favorite activity for Tony Miller and his family.

Tony and Cathy met working together at People's Studio in Muncie while Cathy was a freshman at Ball State University, but their relationship truly developed at Big Chapman Lake. During her freshman year, Cathy worked at Quaker Haven Camp on Dewart Lake. "So I rode up with him one weekend, over Memorial Day," Cathy said. Tony picked up the camp's staff and brought

them to Chapman Lake for dinner and waterskiing. The more time Tony and Cathy spent together, the better they liked each other.

The young couple was married in February of 1977. After Cathy graduated, they moved to the cottage Tony had grown up in while they searched for a more permanent home on the lake. They

stayed on Big Chapman for nearly a decade. Always ready for a change of pace, though, the family eventually decided they wanted to own land. They moved off the lake and into the country, where they built a house and spent 15 years enjoying what Cathy calls "a grandkids' paradise:" a large yard, the Tippecanoe River and two small ponds.

Returning to Big Chapman

In 2013, Tony and Cathy's priorities shifted. They were ready to move back to Big Chapman. While they were waiting to buy a house, the Millers rented on Wawasee, and for the time being, living on the larger lake was a good expe-

rience. "But it made us realize we didn't want to be that far from Warsaw," said Cathy. Returning to Chapman was like returning home. They knew they wanted to move back to Big Chapman partially because of Instrumedical Technologies (Instru-med), a tool and die machining company located

in Warsaw and started by the Millers in 1982. Tony is a third-generation machinist and he passed his work ethic and skillset on to his children; his sons chose to start careers at Instru-med, too. "I get to hang out with them on their schedule," Tony added, "I enjoy it."

Tippecanoe River Map

River Habitats

River habitats vary slightly from lake habitats, but there are many similarities – and many reasons why one relies on the other. The Tippecanoe River is 182 miles long. It stretches from Big Lake in Noble County to the Wabash River.

Due to the large number of lakes in its path, including many in Kosciusko County, the Tippecanoe is sometimes called "the river of lakes." Many local lakes and wetlands rely on the river for their health by way of either inflowing or outflowing water. The Lilly Center uses a stream sensor to monitor one portion of the Tippecanoe River near Oswego Lake, noting changes in depth, flow and other parameters, all of which have an impact on nearby lakes.





The Miller family has always enjoyed tubing on Big Chapman Lake.

The Millers bought a cozy, permanent residence near the channel to Little Chapman in early 2014. “One reason we moved back was because I want the grandkids to come to our house,” said Cathy. She wanted a place where her three kids and 12 grandkids could still gather. Their new home on Big Chapman has everything their water-loving grandchildren could

hope for, including a “lake loft” complete with bunk beds. To their delight,

Tubing is a favorite activity, as is visiting the sandbar to see the lily pads.

Tony and Cathy’s family live close enough to visit almost every weekend in

the summer. Tubing is a favorite activity, as is visiting the sandbar to see the lily pads. The Miller family also has a tradition of boating to the dam. The water washing over the top creates a natural waterfall that is shallow enough to sit under. “There aren’t many people who know where the dam is at,” Tony said. “But I think it’s beautiful. Every year, I take the grandkids to go look at it.”



Chapman Lake Health



Fish require a concentration of at least 2.0 mg/L of oxygen in the water to survive, with many species requiring at least 3.0 mg/L. In Big Chapman, around 20 feet of depth is available for fish habitats, similar to Center, Winona, Tippecanoe and Syracuse lakes. Fishers can catch bluegill, catfish, crappie, largemouth bass, longear sunfish, northern pike, redear sunfish, walleye and yellow perch.



With the arrival of pontoons, a slew of new activities have opened up to lake-goers. But some things have not changed, including the good fishing. When Tony was a kid, the first people out on the lake each morning were fishermen. They went out every morning and evening on the weekends. "There would be the same group of old guys out there," Tony said. "They would go out to the middle of the lake, 10 or 12 boats, and would congregate and fish."

The rest of the lake residents had an unspoken rule regarding the fishermen: They would not start boating or skiing until after the men had reeled in their last catch of the morning and started for shore – usually around 10 a.m.

Chapman Lake is still known for its excellent fishing. The Miller boys catch an ample amount of good-sized fish when they visit... most of which are turned into dinner. "We always have a fish fry," said Cathy, "Maybe one

or two over a summer." They use the same pan Tony used when he was a kid to cook the fish, and

They use the same pan Tony used when he was a kid to cook the fish, and the same recipe.

the same recipe. "The water makes you hungry," Cathy said. "The kids play, and then they become bottomless pits."



Grandpa Herman Miller's **Fish Fry Recipe**

INGREDIENTS

1 cup milk,
plus more to soak
fish ahead of time

Cracker meal or
saltines finely crushed

3 eggs

Oil (enough to
submerge fish)

INSTRUCTIONS

Heat oil in deep fryer to 350 or
maybe 400 degrees.

Place fish in a bowl of milk to soak.

Put flour and cracker meal on individual plates.

Mix 3 eggs with 1 cup of milk and place in a
bowl for dipping. There is no magic to this...just
needs to look yellowish and be on the thick side.

In this sequence, dip each piece of fish in milk,
flour, egg mixture and cracker meal.

Place breaded fish in heated fryer without
overlapping the pieces.

Cook for 3 minutes, turn and cook for another
couple of minutes until golden.

Drain and place in pan lined with paper towel.
Place in oven to keep warm. Salt to taste.
(But we never used salt because of Daddy's
high blood pressure.)







The Millers go for a boat ride on Big Chapman Lake.

Mesmerized by Water

Four generations of Millers have devoted many hours of their free time to Big Chapman Lake. “At some point, I think our kids will end up on a lake,” said Tony, “Even though it might not be this lake.” Family is at the core of what draws them back, but so is an effect similar to the mesmerizing appearance of fire. “We stare at the lake the way we’d stare at a fire,” said Tony. Cathy agreed, “There’s something so tranquil about it.”

Tony and Cathy’s appreciation of the Chapman lakes has, if possible, grown over the years.

Four generations of Millers have devoted many hours of their free time to Big Chapman Lake.

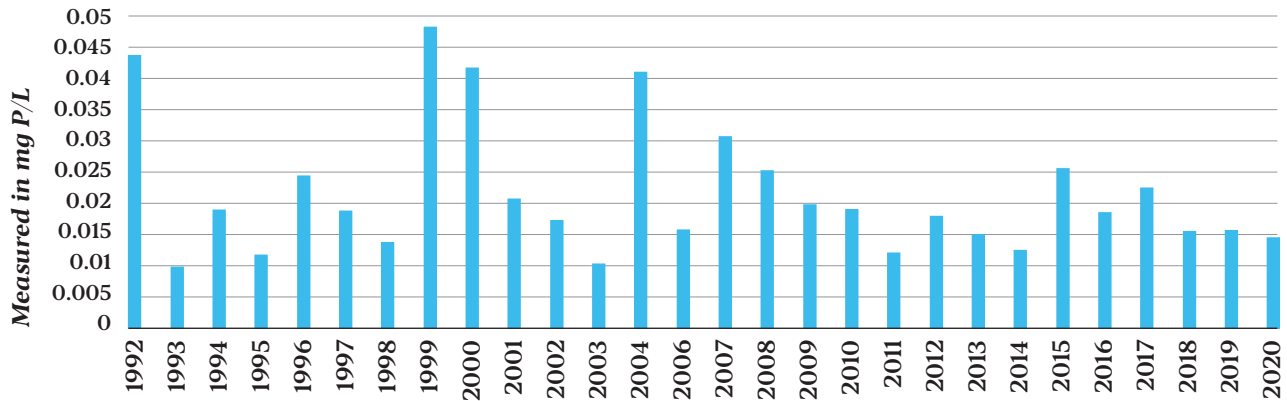
Although always respectful of the water and the life in and around it, Tony and Cathy have lived out their desire to maintain and improve the lakes, too. Frequently aided by Tony, Cathy serves on

the board of the Chapman Lakes Conservation Association. They became connected to the Lilly Center several years ago and continue to support the center’s research on Big and Little Chapman. Lake-focused education is of primary importance for lake house owners, Cathy pointed out. And education (whether through articles or Ecotours) is a meaningful way the Lilly Center helps protect the Chapman lakes.

Nutrients

Aquatic plants, like weeds and algae, rely on these essential minerals to grow.

Historic Total Phosphorus (1992–2020)

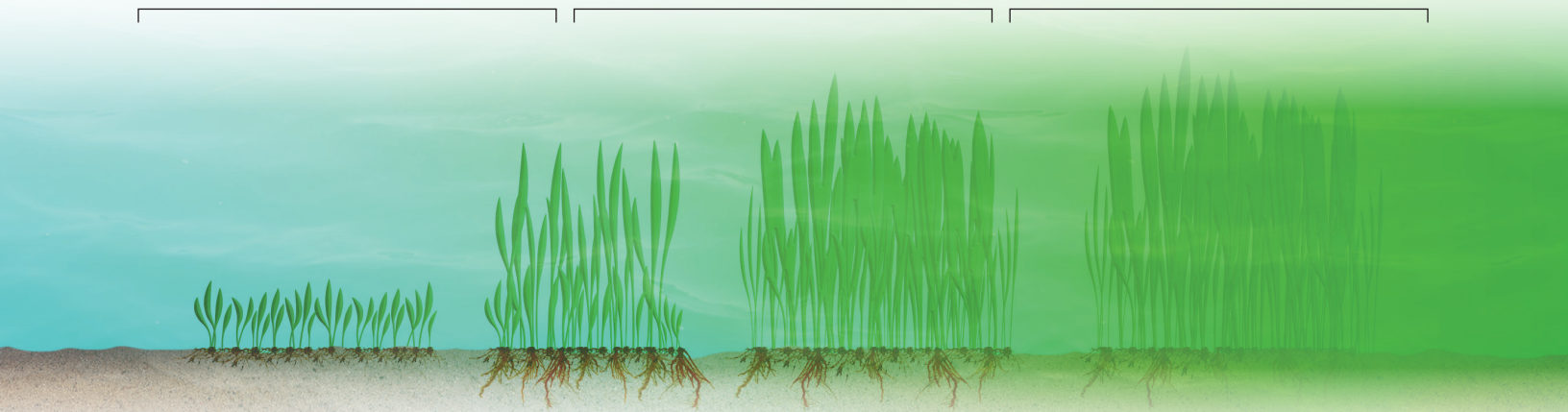


Nutrients, Plants & Algae: This figure below illustrates how nutrients affect a lake’s plant life.

Few Nutrients

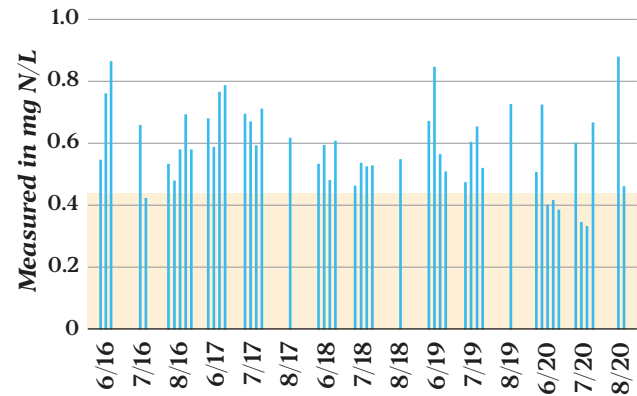
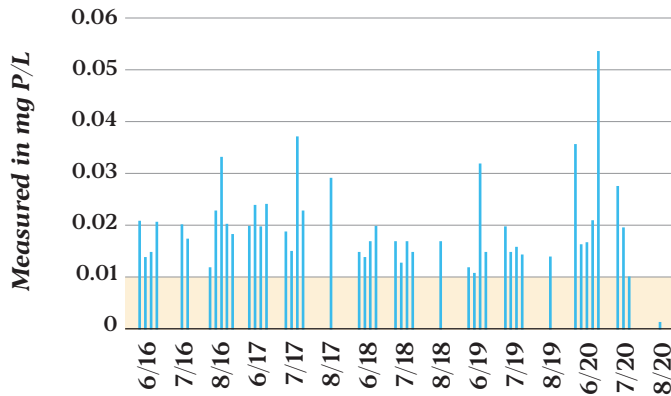
Optimum Nutrient Levels

Nutrient Overload



Current Total Phosphorus (2016–2020)

Current Total Nitrogen (2016–2020)



■ Within recommended EPA guidelines

Big Chapman Lake total phosphorus levels in July and August suggest a potential decreasing trend over the past 30 years. This finding does not appear to fit the water clarity decreases over the same time, indicating more research is needed. Over this time period, surface water phosphorus levels vary from 0.002 to 0.063 mg/L; most of these levels are above the Environmental Protection Agency recommended guidelines.

Both phosphorus and nitrogen levels in Big Chapman Lake also varied widely in the past five years. The highest phosphorus and nitrogen levels were typically near the beginning or the end of summer.

How You Can Help:

Manage your property with your lake in mind. This can include using native plants in your landscaping, applying minimal amounts of fertilizer to your lawn, and avoiding feeding geese and other waterfowl. These actions help keep nutrients like phosphorus and nitrogen at the right levels!

Meet the Lilly Center

The Lilly Center for Lakes & Streams conducts research, provides resources, engages and educates residents, and collaborates with local organizations to make the freshwater lakes and streams of Kosciusko County clean, healthy, safe and beautiful.

We are a team of lake-science and outdoor-education enthusiasts, and we consistently craft standard-exceeding, data-rooted scientific studies and community experiences.

Due to the Lilly Center's diligent, strategic work, the lakes and streams in Kosciusko County are some of the best-studied in the state of Indiana. We have over a decade of valuable data that shows patterns and trends in the health of our lakes, which, in turn, reveal specific action steps. The center also contributes science-based curricula to many local schools. Planned activities and in-house field trips give students and teachers a memorable, tangible way to positively impact the amazing waterways around us. Through community-wide events, we also connect with families and individ-

uals from every corner of the county. The Lilly Center serves, inspires and educates, and creates generational pathways to leadership and environmental stewardship.

The Lilly Center serves, inspires and educates, and creates generational pathways to leadership and environmental stewardship.

Relentlessly on mission to protect local lakes and streams, we collaborate with many businesses, lake associations and individuals to develop timeless resources. Our partners allow us to connect with a broader audience and unleash innovative solutions throughout the county.





3 Take-Aways

1

The **fundamental problem** behind less water clarity, more microcystin and poor fish habitats is too many nutrients. Nutrients ultimately lead to a negative impact on your family's future lake story.

2

But, we know that **variability gives hope**. Water quality measurements change repeatedly for the better and for the worse. We are confident that better water quality is possible for your lake!

3

That means we are looking for **increased quality over time**. The water quality of your lake is critical to your family's story. The good news is that your actions can directly influence the health of the lake long into the future.

What We'll Be Doing



Quality Brings Value

Improved water quality brings better lake property values. We are applying new research to your lake to predict how much your property value could change based on improvements in your lake's water clarity.



Safe & Healthy

At all times, we are working to keep your family safe and healthy: ongoing research; weekly algae toxin updates during the summer; monthly e-newsletters that curate the most

up-to-date lake news; and a series of community and K-12 programs and events. You can join our volunteer list or attend an event, too! Start today: lakes.grace.edu/ylys.



Counting Calories

We know your lake has too many nutrients, so we are quantifying the sources (like counting calories when dieting) of the nutrients to learn how to limit them!

Continuous stream sampling is essential to this goal. We sample 12 inflowing and outflowing streams bi-weekly year-round. We also use stream sensors, which allow us to monitor the highly variable

flow rates of water in the streams every hour.

In partnership with Grace College's new Center for Sustainable Agriculture and others, the Lilly Center is helping develop an agriculture certification program. The certification encourages best-practices that support farmers' hard work and prevent nutrients from entering the lakes.



Fishy History

Aided by the Indiana Department of Natural Resources, our team is exploring past trends in fish populations as indicators of lake health to develop an even better plan for the future of our lakes.



What You Can Do

Immediate Actions:

Scan this **QR code** to take a simple survey that will help us determine how nutrients (which help algae and weeds grow) are entering your lake.

Financially support a specific Lilly Center project that aligns with your vision for the lake, like research, K-12 education or community events.

Sign up for Lilly Center communications to stay informed:

lakes.grace.edu/ylys



*Scan code
for survey*



Or visit lakes.grace.edu/ylys



LILLY CENTER FOR
LAKES
& **STREAMS**

GRACE
COLLEGE

1 Lancer Way | Winona Lake, IN 46590

574-372-5100, ext. 6445

lakes.grace.edu