

CECO Rod & Gun Club

2024 Lake Assessment

Intro:

Last June, Herman Brothers Lake Management – the fisheries biologists who we’ve hired to help us manage the fish populations in the Big Lake and Shawnee – conducted an electrofishing survey and assessment. They’ve provided recommendations for managing our lakes for the next five years. The following describes in detail the results of that assessment and those recommendations, and our plans for managing the lakes for the next five years.

The text of the findings and recommendations from Herman Brothers are provided at the bottom of this write-up. As you’ll see, those findings and recommendations are just a summary. Nate Herman provided an enormous amount of detailed information verbally as we inspected the fish that we sampled. The purpose of this write-up is to capture and share those details.



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History:

We first engaged Herman Brothers in 2019, when they conducted an initial electrofishing survey and assessment. The key finding then for the Big Lake was that it suffered from a weak food chain, which makes it difficult for fish spawned in the lake to grow to their full size and weight. Two other key findings were that Walleye appear to be doing well in the Big Lake, and that Common Carp are a significant problem for the overall fish population.

The key finding for Shawnee in 2019 was that Largemouth Bass were overpopulated with too many small (under 14 inches) and underfed fish. Another key finding was that the Bluegill population was not large enough to support the Largemouth Bass population, and there were too many Bluegill/Redear hybrids.

Based on those findings we established a five-year plan to:

- Introduce year-old adult Largemouth Bass in the Big Lake
- Increase the Walleye population in the Big Lake
- Increase the Bluegill populations in the Big Lake and Shawnee
- Reduce the number of small Largemouth Bass in Shawnee
- Reduce the Common Carp population in the Big Lake.

At that time we changed the daily catch limits (posted at launching ramps on both lakes), and restructured our fish stocking program to support those goals. We set the following annual stocking targets:

Big Lake

- 1000 Largemouth Bass
- 1000 Walleye
- 2500 Bluegill (reduced from recommendation due to budget)

Shawnee

- 2500 Bluegill

Kid's Pond

- 100 lbs Channel Catfish (for Kid's Derby)

Over the five years since the 2019 assessment we've mostly hit these stocking targets (we've sometimes come up short due to budget constraints); and we've removed a good number of small Largemouth Bass from Shawnee, but probably not the 1500 fish per year that was recommended. Unfortunately, we have not reduced the number of Common Carp in the Big Lake.

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2024 Highlights:

The results of this year's assessment were very positive for Shawnee, not as positive for the Big Lake.

Shawnee is doing great. The size distribution and health of Largemouth Bass, and the Bluegill population, have both improved significantly. The increased Northern Pike population is likely helping.

There's still a lot of work to do for the Big Lake. The weak food chain continues to be a challenge, there are still too few Bluegill surviving their first year of life, most of the Largemouth Bass we sampled were underfed, and there are still too many Common Carp. But the Walleye continue to do very well.

The Crappie populations in both lakes appear to have decreased, but that may not be a concern (see details below).

Following are the details for each species in the Big Lake and in Shawnee. These details include the findings and recommendations from Herman Brothers, what we've heard from our members about their fishing results, and what we're planning over the next five years.

2024 Details:

Big Lake

The Big Lake continues to be a challenge because the low end of the food chain (microorganisms, tiny insects, etc.) is lacking. But there are good populations of Largemouth Bass, Bluegill, Walleye, Crappie and (probably) Perch. The Zebra Mussel infestation appears to have run its course – mussels are still present but not in the large numbers from several years ago. The lake has enormous potential, but we will need to continue stocking it with the right fish, likely for many years to come.

The weakness in the food chain makes it difficult for fish that are spawned in the lake to grow to their full size and weight. Without other options, fish that are too small to feed on other fish are forced to rely on fry as a main source of food. That's not ideal because fry are only abundant for a time after spawn (primarily in the spring). And of course, the more fish feed on fry, the fewer fry grow to become fish.

Unfortunately, there aren't good options for building up the low end of the food chain. Instead, we need to stock fish in a way that will overcome that weakness. Our best option is to stock only adult-size fish. These fish have already "gotten over the hump" by growing to adult size in one or two years at the fish farm, and are ready to start spawning. And we also need to stock fish that can provide the forage that the food chain cannot – i.e., Bluegill and Perch. It's still important though that we help the annual spawn provide

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as much food (fry) as possible, so we need to stock adult-size Bluegill and Perch. Bluegill especially are a big key to that aspect of our stocking program (stock for forage).

Another challenge in the Big Lake is the presence of “rough species” – Common Carp, Grass Pickerel, and Bullhead. Two Grass Pickerel were sampled in 2024, and one Bullhead was sampled in 2019, so those two species don’t appear to be a big problem. But many Common Carp were sampled in 2019 and in 2024, and they are a significant concern.



Following are species details for the Big Lake:

Bluegill

Bluegill are unique among the Sunfish family in that they will spawn more than once a year. In many lakes they will spawn each month (generally around the full moon) once water temperatures are warm enough. This makes Bluegill (pure Bluegill, not hybrids) the best choice for stocking as forage in the Big Lake.

A number of large Bluegill were sampled in 2024, but very few small Bluegill were sampled. That’s upside-down (we should expect to see the opposite), and it illustrates the point about the food chain – the fish that make it to full size do OK, it’s getting to full size that’s the challenge.

Just based on fishing catch results, it may seem there are plenty of Bluegill in the Big Lake because there are large fish to be caught. But more Bluegill are still needed in order to produce enough spawn to support other gamefish, especially Largemouth Bass. Ideally, the Bluegill should produce more than enough spawn with many fry surviving their first year of life (see Bluegill in Shawnee below).

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The recommendation from the 2019 assessment was to stock 3000 to 5000 Bluegill in the Big Lake each year. Due to budget constraints, we scaled that back and have been stocking 2500. We need to consider increasing the number of Bluegill stocked into the Big Lake (see Budget below).

Also, unlike the other fish which we stock in the fall (to get a better survival rate), we stock Bluegill in the spring. Because we're stocking only adult-size fish, we will likely get one or more spawns out of those Bluegill when they're stocked in the spring.

Largemouth Bass

Largemouth Bass are ambushers; they'll roam and hunt if they're forced to, but they prefer to sit in their hidey-hole and surge out to grab any unsuspecting prey that swim too close. And it's only swimming fish that they focus on; they're not "scroungers." That feeding behavior is more selective than other species, and works to the disadvantage of Largemouth Bass in a lake like our Big Lake, given the food chain challenge.

A Largemouth Bass' favorite meal is a panfish, and especially a Bluegill. About 80% of the Largemouth Bass we sampled in the Big Lake were underfed – skinny. That fact, combined with the low number of small Bluegill we sampled, tells a story. The small Largemouth Bass in the Big Lake are eating through their preferred food source before the summer season ends and are going hungry (not growing) until the next spring. Those small bass will eat young-of-the-year Bluegill (fish that have grown enough to no longer be fry) if they're available. But once those young-of-the-year Bluegill have all been eaten, those smaller Largemouth Bass resort to feeding on fry.

The recommendation is to start removing Largemouth Bass under 14 inches from the Big Lake, like we've been doing in Shawnee. We also will stop stocking Largemouth Bass in the Big Lake – at least for now.

Walleye

Walleye are definitely the good news story for the Big Lake. We sampled several in 2024, and we continue to hear from our members, of fish being caught. Nice fish - all well fed (growing) and healthy! Clearly, the Walleye are finding food that the Largemouth Bass are not.

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The conditions needed for Walleye to reproduce (according to the textbooks) are not present in CECO lakes, and we have not seen or heard from our members any evidence of Walleye spawning. But our stocking program is not solely about stocking for forage. The fish and the lake are telling us something, and we're listening. We will continue to stock 1000 Walleyes a year for the next five years.



Perch

A number of years ago – before 2019 – we stocked Perch at CECO. But that was stopped because we didn't see or hear from our members any evidence that a population was establishing. A couple years ago we saw and heard some evidence of a Perch population, so we spoke with Herman Brothers about that. They agreed that Perch would be a good fit for the Big Lake given their spawning behavior (earlier and deeper).

We didn't sample any Perch in 2024, but we continue to feel that they make sense with our "stock for forage" strategy. We'll continue to stock Perch in the Big Lake for now (see Budget).

Crappie

We've heard from our members that Crappie numbers were down in 2023 and continue to be down in 2024. The last time we stocked Crappie at CECO was 2018. We did sample some Crappie in the Big Lake in 2024, and they appeared to be pretty good size and well fed.

We talked with Nate Herman about this when he was at CECO for the lake assessment. He explained that Crappie often tend to go through cycles of increasing or decreasing populations, and this might not be a concern. But if we don't see the population

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rebound, or if we start seeing underfed or stunted fish, we can consider adding Crappie back to our stocking program (see Budget below).

Smallmouth Bass

Smallmouth Bass feeding behavior is distinctly different from Largemouth Bass; they are more bottom-oriented and are “scroungers.” They feed more like Walleye than like Largemouth Bass. The recommendation from Herman Brothers is that Smallmouth Bass would be better suited to the Big Lake than Largemouth Bass, and we could establish a population by stocking 500 fish a year for five years.

Anyone who has experienced Smallmouth Bass fishing would likely agree, we’d love to see a smallie population in the Big Lake. There was an effort to stock Smallmouth Bass at CECO many years ago; but best recollection is that effort was not in the numbers that were recommended in 2024 (500/yr for 5 years). That was probably due to cost – Smallmouth Bass are expensive. If there’s enough interest among our members we can consider adding Smallmouth Bass to our stocking program (see Budget below).

Rainbow Trout

Rainbow Trout are also a wonderful gamefish and have been successfully stocked at CECO before. Like Walleye, they won’t reproduce in the Big Lake; but there’s enough depth that they can survive a summer. Like Smallmouth Bass, trout are expensive. If there’s enough interest among our members we can consider adding Rainbow Trout to our stocking program (see Budget below).

Tiger Musky

Because we’ve heard some interest from our members, we asked Herman Brother about stocking Tiger Musky in the Big Lake. The very strong recommendation was that because of the food chain problem we should NOT stock Tiger Musky in the Big Lake.

Channel Catfish

Because we’ve heard concern from our members that Channel Catfish populations are decreased in the Big Lake, we asked Herman Brothers about that. The strong recommendation is that we should NOT stock catfish in the big lake, and if there’s enough interest in fishing for catfish, we should choose a different pond.

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Common Carp

The Common Carp in the Big Lake are a problem for the other fish populations in the lake, especially given the challenge with the food chain. They compete with the other fish for the same forage base, they're big, and there are a lot of them. As noted above, we sampled quite a few in 2024 (we killed all the Common Carp that we sampled).

The recommendation in 2024 is the same as it was in 2019; we should remove as many of the Common Carp from the Big Lake as we can. The best way to do that is to catch them. Discussions about an organized effort to catch and remove Common Carp are ongoing. In the meantime, we would encourage anyone who wants to fish for Common Carp to do so.

Shawnee

Shawnee is really a very different body of water than the Big Lake – no expansive depths or crystal clear water; instead there are lots of nooks and crannies, bumps and islands. So unlike the Big Lake, Shawnee conditions are ideal for Largemouth Bass.

The assessment from 2019 was that there were too many small Largemouth Bass and too few Bluegill (pure Bluegill, not Hybrids). The recommendation was that by removing small Largemouth Bass and stocking Bluegill, the size and health of the Largemouth Bass would improve.

The assessment from 2024 is that improvement has definitely occurred! We sampled lots of Largemouth Bass, a variety of sizes, and I don't think we saw even one underfed fish. And we sampled quite a few 1-1/2 to 2 inch Bluegill (see more about this below).

There's no doubt the Northern Pike population has increased in Shawnee. Surprisingly, we did not sample a single Northern Pike in 2024, but we saw several bass with bite marks.

Following are species details for Shawnee:

Largemouth Bass

The recommendation from the 2019 assessment was to remove 1500 small (under 14 inch) Largemouth Bass each year for five years. We know our members have been removing small fish. It's hard for us to know how many small fish are being removed, but we're pretty sure we're coming up short of that 1500 fish goal (but we might be getting some help with this – see Northern Pike below).

Regardless, there was a definite improvement in the fish we sampled in 2024. We didn't sample any real lunkers, but there was a good size range – not all twelve-inchers.

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And there was a clear improvement in the overall health of the Largemouth Bass we sampled. I don't think we saw a single underfed fish.

The 2024 recommendation for Largemouth Bass is somewhat complex. We need to continue removing small (under 14 inch) fish for the next two years – 2024 and 2025. Then we need to stock 500 Largemouth Bass in Shawnee in fall of 2025 to introduce some genetic diversity, and then NOT harvest small fish in 2026. Then we need to resume harvesting small Largemouth Bass from Shawnee starting in 2027.

Bluegill

Based on the recommendation from the 2019 assessment, we've been stocking 2500 Bluegill in Shawnee each year since then (stocked in the spring).

In 2019 we sampled more Bluegill/Redear hybrids than we did pure Bluegills. In 2024, the results were the opposite – many more pure Bluegills than hybrids.

More importantly, we sampled quite a few young 1-1/2 to 2 inch Bluegills. This is significant because those fish are too small to have been stocked, and they're too big to have been spawned in 2024 – they had to have been spawned in 2023 and survived to 2024. That means the Bluegill population in Shawnee is producing more than enough spawn to support the Largemouth Bass population. That's huge!

The recommendation from 2024 is to continue stocking Bluegill for another two years (2025 and 2026) to add more genetic diversity.

Northern Pike

The recommendation from the 2019 assessment was that a small number of Northern Pike or Musky would benefit Shawnee and that we should eliminate the daily catch regulation that those fish should not be returned to the lake. And that regulation was eliminated when we updated the daily catch limits. Since 2019, the Northern Pike population has clearly increased, which we discussed with Nate Herman during the 2024 assessment.

We did not sample any Northern Pike in 2024, which was a surprise since so many of our members have reported catching Northern Pike in Shawnee. Nate stated he was not surprised, saying he guessed that the number of pike in Shawnee was likely not as high as we think – that pike can often seem more numerous than they actually are because of how extremely aggressive they can be.

Although we didn't sample any Northern Pike, we did sample other fish – mostly Largemouth Bass – that displayed bite marks. This prompted Nate to comment that it's likely the Northern Pike are helping us reduce the number of small Largemouth Bass.

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The recommendation for 2024 is to monitor the Northern Pike population, but there is no need to reinstate the regulation that pike and musky should not be returned to the lake.

Tiger Musky

When we discussed Tiger Musky and Nate Herman recommended we not stock those fish in the Big Lake, he suggested that we might want to stock them in Shawnee. And he included in his 2024 recommendations that we stock 25 Tiger Muskies in Shawnee. The Rod & Gun Club Board discussed this recommendation and our feeling is that as long as we're monitoring the Northern Pike population, we do not want to add Tiger Muskies.

Crappie

We did not sample any Crappie in Shawnee in 2024. But the recommendation for Shawnee is the same as for the Big Lake – we will monitor Crappie for now, but if we don't see the population rebound, or if we start seeing underfed or stunted fish, we can consider adding Crappie back to our stocking program (see Budget below).

Walleye

We're aware there are Walleye in Shawnee, but we don't feel there's a concern and have no plan to manage Walleye in Shawnee at this time.

Perch

We're aware there are Perch in Shawnee, but we don't feel there's a concern and have no plan to manage Perch in Shawnee at this time.

Grass Carp

There have been Grass Carp in Shawnee for a very long time, and we have not stocked Grass Carp in Shawnee for a very long time. Also for a very long time it has been illegal to sell or import fertile (diploid) Grass Carp in Illinois. While it's possible that the Grass Carp in Shawnee were purchased before the current state law, we've seen no evidence the Grass Carp are reproducing over all these years. So it's more likely the Grass Carp in Shawnee are infertile (triploid), in which case we should expect to see them dying off in the coming years.

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In any event, the Grass Carp in Shawnee – unlike the Common Carp in the Big Lake – do not pose a problem for the other fish populations. There are no plans to manage Grass Carp in Shawnee at this time.

Daily Catch Limits:

The current daily catch limits for the Big Lake are:

Walleye	14” Minimum	2 Per Day
Bass	14” Minimum	Release All
Bass	Under 14”	3 Per Day
Crappie	No Size Limit	10 Per Day
Bluegill / Redear		10 Per Day
Green Sunfish		

The current daily catch limits for Shawnee are:

Walleye	14” Minimum	2 Per Day
Bass	14” Minimum	Release All
Bass	Under 14”	No Limit
Crappie	No Size Limit	10 Per Day
Bluegill / Redear		10 Per Day
Green Sunfish		

These limits are posted with signs at each of the launching sites; two on the Big Lake and one on Shawnee.

There are no plans to revise the daily catch limits for 2024 or 2025. But as we make changes to our stocking program in 2026 and beyond, it may be necessary to make changes to those limits. If so, the signs at the launching sites will be revised (altered or replaced) to reflect any revisions to the daily catch limits.

Budget:

Each January the Rod & Gun Club board plans for and establishes a budget for all the club activities planned for the year, including the fish stocking program. The budget is based on experience from past-year fundraising activities (memberships, raffles, apparel sales, etc.).

Our target numbers for the fish we plan to stock are based mostly on the recommendations from our fisheries biologists (Herman Brothers), and the total costs for those target numbers are always higher than the amount we initially budgeted for fish stocking. In some years, we’ve needed to purchase less than our target numbers to stay within the budget; and in some years generous donations over and above our fundraising activities have allowed us to purchase our full target numbers.

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Additionally, inflation is making it increasingly difficult to afford our full target numbers. Our 2019 target numbers were 1000 Largemouth Bass, 1000 Walleye, 5500 Bluegill, and 100 lbs of Catfish. The total cost for that order in 2019 would have been slightly more than \$10,000. We only had \$8,000 in the budget, so we had to order less than our target numbers. The cost of that same order in 2024 has gone up to almost \$15,000, but our budget has only gone up to \$10,000.

Our target numbers for 2024 have changed as a result of the recommendations from the June assessment. The following order will put us about \$2,000 over budget:

Big Lake:

- 1000 Walleye
- 2500 Bluegill
- 500 Perch

Shawnee:

- 2500 Bluegill

Kid's Pond:

- 100 lbs Channel Catfish (for Kid's Derby)

Because of generous donations, we're able to afford this full order. But 2025 will be an even bigger challenge. We project our "stock for forage" strategy (Bluegill and Perch) and the Channel Catfish for Kid's Fishing Derby will cost just under \$10,000. If we want to continue stocking Walleye, increase the number of Bluegill stocked in the Big Lake, or stock the recommended Largemouth Bass in Shawnee (we want to do all three of those) we will need to find additional funding.

If we find that Crappie populations continue to decline and want to add them back to our stocking program, or if there's enough interest and we want to stock some Rainbow Trout in the Big Lake, we will need find additional funding for those. And if we want to try to establish a Smallmouth Bass population in the Big Lake, we will need to find a way to fund an additional \$5,000 (plus inflation) each year for five years.

Clearly, our current fundraising activities are not likely to provide the kind of additional funding needed to purchase all the fish we would like to stock, or even all the fish we believe we need to stock. We need to explore additional ways to fund our stocking program at CECO.

Yours in fishing;

CECO Rod & Gun Club Board

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Herman Brothers Recommendations:

Following are the recommendations as provided by Herman Brothers following this year's electrofishing survey and assessment:

Big Lake -

The walleye population appears to be doing very well in this lake. The walleye are healthy, fat and actively growing! I would recommend continuing the stocking program of 10 walleye per acre every year for the next 5 years.

The largemouth appear to have eaten most of their forage in the lake before the 2024 spawning season...there will be plenty of forage again starting in July, but that will run out early again 2025... there are two things you can do to help get 12 months of forage for your bass:

1. Add significantly more woody, leafy, brushy habitat along the shorelines ASAP... add fresh trees and bushes every year to help create better habitat for younger fish to survive longer so they can become a substantial meal...
2. Continue to thin back the bass population of bass under 14" long. The bass 9-13" just eat so much fry before it can become a good meal... every bass you get out saves thousands of minnows for the rest of the population...

The crappie population appears lower than usual. This is an ok cycle to go through and if catch rates continue to decline for 2024 than you can do a black nose crappie stocking in spring 2025 to boost those numbers and get some new genetics in the lake. These fish are also easy to identify by their dark black nose that extends to their top dorsal fin.

Carp population still needs reduced creatively... a feeder with corn would chum them to an area and make them easier to fish for...

I would not recommend catfish stockings in this lake as they would not help any of the other species of fish... they are much better suited for a smaller body of water where you can stock 30-40 fish per acre each year...

If budget allows you could introduce smallmouth bass at 5 fish per acre each year for a fun bonus fishery. They will do better than largemouth in this lake in terms of growing well!

You can always continue to stock pure bluegill as they are the backbone to the food chain! Getting them established and boosting their numbers helps all the species of fish.

For Muskies at CECO I would recommend putting Tiger Muskies into the smaller bodies of water with stunted bass populations at 1 per acre. I would not recommend them for big lake.

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Shawnee Lake-

Shawnee lake is really doing well in terms of forage holding strong all year. The bluegill population is really growing!

There are still too many largemouth bass, but the bass overall are on the right trajectory with much better relative weights than last time we shocked!

I would continue to remove largemouth under 14" for the next 2 years and you will notice many more bass over 16" being caught!

I do recommend putting Tiger Muskies (hybrid mix between pike and muskie) at 1 fish per 2 acres of water into Shawnee Lake...

Also fall of 2025 plan to stock 300-500 largemouth bass 5-8" for new genetics and don't harvest bass under 14" for 2026! But you should continue to harvest in 2027 and 2028...

For the Kids Pond- Catfish and Hybrid Bluegill stocked a few different times per year really increases catch rates and is a great place to put catfish in for people to shore fish and catch...