LEE CREEK

ANNUAL RESERVOIR/WATERSHED REPORT 2022

Fort Smith Utility
Department of Environmental Quality
Prepared by: Dax Dupire
Watershed Supervisor: Tim Smith
Environmental Quality Manager: Don Clover

TABLE OF CONTENTS

LIST OF FIGURES & TABLES

INTRODUCTION

The Fort Smith Utilities, Environmental Quality section conducts annual fisheries and water quality assessments on both surface water reservoirs and their watersheds. The reservoirs are used to supply raw water to the city's two (2) drinking water treatment facilities. Changes in fish, algae and macro-invertebrate population and community structure can reflect shifts in water quality. Monitoring the overall fisheries and water quality of the two (2) raw water reservoirs is one (1) tool utilized by the Fort Smith Utilities to ensure quality drinking water, in the quantity demanded by the City of Fort Smith and the surrounding communities. Combinations of active and passive sampling techniques are used to evaluate reservoir/stream fish populations, through the generation of specific indices. Aquatic macro-invertebrate populations are evaluated by the generation of specific indices. Indices are evaluated using trend analysis to follow changes in structure, abundance and condition of target fish and macro-invertebrate populations. Algae assessments are done weekly to monitor algal blooms that may affect taste and odor of water produced. The degree of monitoring effort varies annually and is typically a function of weather and water conditions.

SITE SELECTION

Passive Sampling

Due to reservoir's physical characteristics, site selection for passive collection techniques was difficult at best. Lee Creek Reservoir covers approximately 634 acres and has an average depth of eight (8) feet. The 439 square mile watershed delivers extremely high flows to the reservoir during storm events, resulting in large quantities of woody material being washed in and deposited along the reservoir littoral zone. Mats of woody material are often formed after storm events and drift with prevailing winds. The extreme fluctuations in water level, flow and the introduction of woody material hinder the deployment and operation of passive sampling techniques, including trap netting, experimental gill netting and trammel netting. For this reason, a random sampling approach could not be used for site selection. Trap netting sites were selected for their ease of deployment and reduced surface and sub-surface debris that tend to entangle nets and therefore reduce netting efficiency. Two (2) sites are located on the East side and two (2) on the West side of the reservoir. This increases the ability to monitor fish movement during various diel cycles.

One (1) gill and one (1) trammel net site were selected for Lee Creek Reservoir. These two (2) sites are on the West side of the reservoir and were also selected for their ease of deployment and reduced surface and sub-surface debris that tend to entangle nets and therefore reduce netting efficiency. Both nets are set across the primary channel of Lee Creek, thus reducing some bias from their relatively close proximity to one another and their placement only on the West side of the reservoir. Historic data suggests abundant fish movement within the channel, thus ensuring collections that reflect current fishery conditions.

Active Sampling

Boat electro-shocking is conducted over the entire length of the reservoir. Fort Smith Utilities has adopted a random electro-shocking sampling approach, currently being used by the Arkansas Game and Fish Commission (AGFC). This approach will be detailed in the Methods section of this document.

METHODS

Trap Nets

Standard trap nets require a relatively flat, hard substrate for pot placement and a clean bottom for leader/wing deployment. Nets are set perpendicular to the shoreline. The nets are set and contents emptied every 24-hour after deployment. Nets are typically deployed on the Monday of the sampling week, with collections being made on the following days and final net retrieval on Friday. Attempts are made to sample crappie populations early in the season to minimize the effects of post spawn individuals on fish condition indices. Fish are identified to species level, measured, weighed (game fish only) and returned to the water. Some incidental mortality is typically experienced and can be expected while conducting any fisheries study. Catch-per-unit-effort (CPUE), relative weight (Wr) analysis and percent composition indices are calculated from the recorded data. For evaluation purposes, target fish species are grouped into 25-millimeter increments.

Standard trap nets are constructed of two (2) 3X6 foot, 5/16 inch diameter steel frames, with center bracing, set 2.5 feet apart. The second 3x6 foot frame has a slit throat. Netting material consists of ½ inch square, No. 150 knotless netset treated nylon. Four (4) 2.5-foot diameter hoops set 24 inches apart lead to a cod end with a five (5) inch, No. 5 braided drawstring closure. The first hoop has a six (6) inch throat and is set 32 inches from the 3x6 foot frame. The leader is constructed of the same net material, hung 14 meshes per foot on a No. 60 nylon twine and will be 50x3.5 feet. A leader float line is fitted with 2x1.5 inch corks and a sinker line fitted with 1.5-ounce weights. The leader will also be netset treated and connected to the second 3x6 foot frame center base.

Experimental Gill Nets

Experimental gill nets require a relatively flat or gently sloping substrate, and a clean bottom to prevent excessive damage to the monofilament netting. Experimental gill nets are 91.4 meters in length, 2.4 meters in height and have panels of increasing mesh size (¾ to 2 inches). The nets are set perpendicular to the shoreline, stretched taut by boat and anchored to the substrate. Nets are set and the contents are emptied every 24-hours after deployment. Nets are typically deployed on Monday of the sampling week, with collections being made on the following days and final net retrieval on Friday. Fish are identified to species level, measured; weighed (game

fish only) and returned to the water. CPUE, Wr analysis and percent composition of dominant taxa are calculated. For evaluation purposes, target fish species are grouped into 25-millimeter increments.

Trammel Nets

Trammel nets require a relatively flat or gently sloping substrate, and a clean bottom to prevent excessive damage to the monofilament netting. Trammel nets are 91.4 meters in length and have a single mesh size (3 inches). Nets are set perpendicular to the shoreline, stretched taut by boat and anchored to the substrate. Nets are set and the contents are emptied every 24-hours after deployment. Nets are typically deployed on the Monday of the sampling week, with collections being made on the following days and final net retrieval on Friday. Fish are identified to species level, measured; weighed (game fish only) and returned to the water. CPUE, Wr analysis and percent composition of dominant taxa are calculated. For evaluation purposes, target fish species are grouped into 25-millimeter increments.

Boat Electro-shocking

Electro-shocking is conducted through the use of a boat mounted Smith-Root Incorporated®, 5.0 Electro-fishing System, powered by a Honda® GX340, 11.0 horsepower gasoline generator. A single standard anode boom, with a 40-inch diameter array is mounted to the front of the boat. Lighting mounted on the front of the boat, is powered by a Honda® EM650 gasoline generator and converter box combination. Sampling is typically conducted during nighttime conditions. When the unit is operational, fish are stunned and drawn to the electric field at the front of the boat where they are retrieved using long handled dip nets. Upon collection, the fish are placed in two (2) 30-gallon tubs, partially filled with reservoir water. At the end of each collection period, fish are identified to species level, measured (mm) and weighed (g) (game fish only). The fish are then released in an area that will not influence future sampling numbers. Catch-per-unit-effort (CPUE), relative weight analysis, Proportional Stock Density (PSD), and percent composition of dominant taxa are calculated. Relative Stock Density (RSD) is also calculated but has now been changed to PSD-P. For evaluation purposes, target fish species are grouped into 25-millimeter length increments. A random sampling approach has been adopted to better ensure representative fishery collections.

As previously mentioned, a random sampling approach has been adopted to better ensure representative fishery collections. Lee Creek Reservoir is divided into 40, 600-meter sampling sites. A minimum of 14 sites must be electro-shocked, for a period of 10-minutes each, to ensure a random sample. Prior to sampling, sites are selected from a random number generator. Sites not conducive to sampling efforts, due to shallow or extremely deep water, are excluded from the selection and a substitute site is chosen at random. Due to the large number of sites and in case of equipment problems, the 14-sites can be sampled over the course of two

(2) nights. However, sampling must be completed during the same week if possible to reduce the bias of fish movement related to changing water or weather conditions.

Backpack Electro-shocking

Backpack Electroshocking is conducted in streams in the Lee Creek Watershed. The species of stream fish present are a good indication of water quality depending on the tolerance value assigned to certain species. A Smith-Root Backpack Electro-shocker is used to stun the fish for collection. Two (2) 20-minute runs are done on each stream and the fish are identified to species level after each run. Fish collected are identified and released on site after identification. Data is then analyzed and an Index of Biotic Integrity (IBI) trend analysis is done based on a predetermined set of values for each species. The IBI analysis will give a stream condition number that will help determine stream health.

Surber Net

Aquatic macro-invertebrates are key indicators of stream health. The City of Fort Smith samples twice a year for macro-invertebrates in all the streams in each watershed. Three (3) samples are taken at each site at riffles with enough flow to carry the macro-invertebrates into the surber net. The surber net is 12 inches by 12 inches (1 sq. ft.) and is placed in a spot determined by the sampler to have sufficient cobble and flow. The sampler then rubs each rock to detach the macro-invertebrates clinging to each rock in the one (1) square foot area. After all the rocks are rubbed sufficiently a garden shovel is used to disturb the streambed for any macro-invertebrates that are buried. The net is then emptied into a container and the macroinvertebrates are fixed in 10% formalin for picking at a later date. The macroinvertebrates are then picked, preserved, and sent off to an outside contract laboratory for identification and enumeration. The data received is then compiled and four (4) different metrics are used to obtain a “Stream Condition” factor. Each of the four (4) metrics is on a scale of one (1) to five (5). Five (5) is the best score for each metric and a 20 is the best stream condition factor.

Algal Enumeration

Algae Enumeration is done weekly on both reservoirs. A secchi disk is lowered into the water and used to determine the visible photic zone. This number is then divided by two (2) to obtain the ¼ zone depth, at which the algae sample is taken. Samples are collected in a 2.2L PVC Beta Plus water bottle (Wildco Inc.) that is lowered to a depth determined by the secchi disk. One (1) sample is collected on Lee Creek at the L2 site. The samples are then taken to the lab and 100 mL of the sample is measured out and concentrated down to 20 mL, using a 63-µm nominal pore size Wisconsin Plankton Bucket. A one (1) mL sample is then taken and placed into a Sedgwick-Rafter counting chamber slide. After the algae are counted, the data is entered into a database to obtain phytoplankton units per liter and MIB & Geosmin (Taste and Odor) levels. This helps to better track trends and predict blooms that could affect water quality or taste.

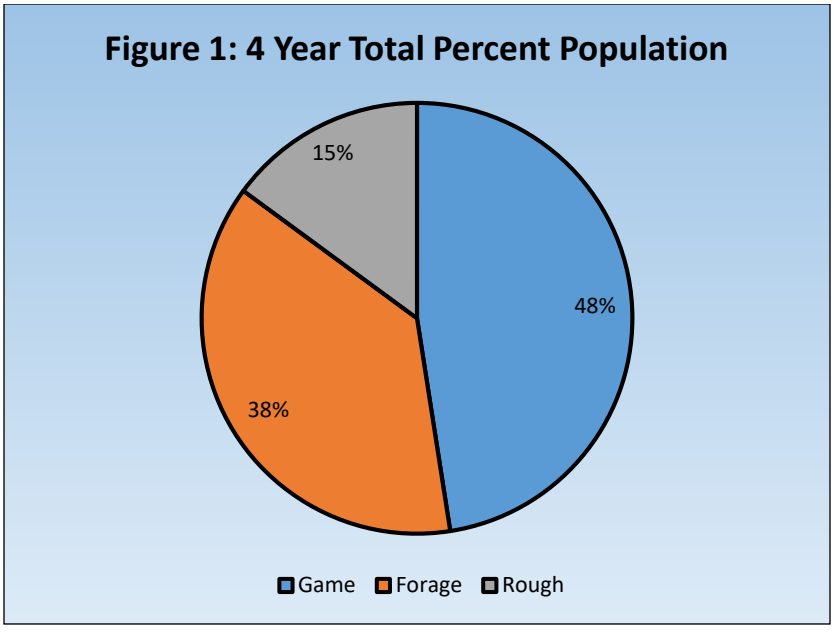
Water Quality

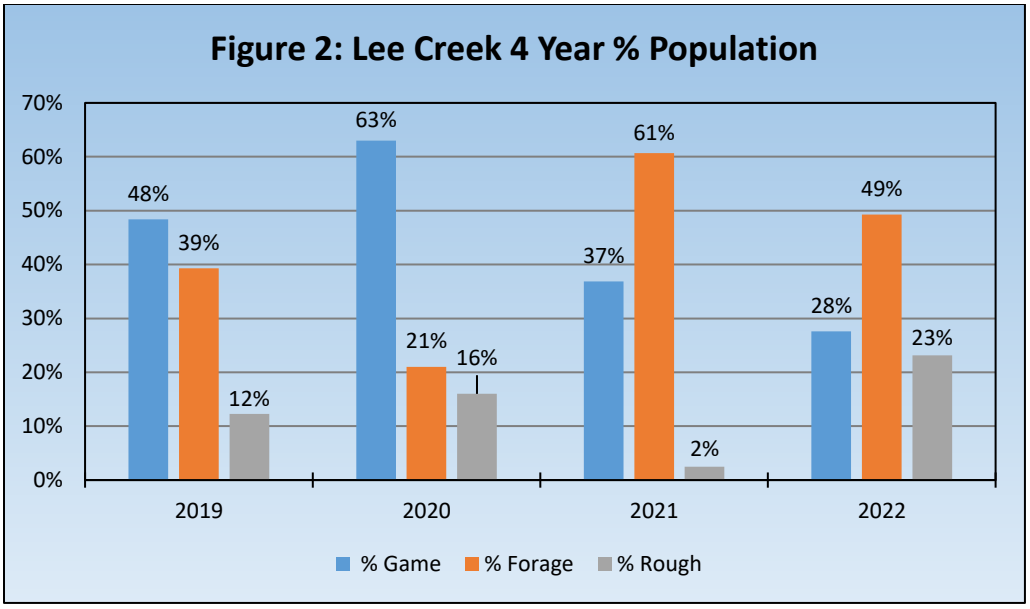
Phosphorous, nitrogen, and chlorophyll-α are three (3) water quality indicators tested by the City of Fort Smith. Phosphorous samples are obtained by a surface grab at five (5) pre-determined sites that extend the length of the reservoir. Nitrogen sampling is done on a monthly basis at two (2) sites on both reservoirs. One sample is taken at the site nearest the intake structure (L2) while the other sample is taken at the site that is at the uppermost part of the reservoir (O). Chlorophyll-α is taken at the site nearest the intake structure and two (2) samples are taken. One (1) sample is determined by the secchi disk depth obtained for the algae sample. The other sample is taken at two (2) meters. Phosphorous and nitrogen samples are an indicator of nutrient loading from the reservoir's watersheds and elevated levels can lead to uncontrollable algae blooms. Chlorophyll-α is used to determine primary productivity and can give you an insight into the reservoirs trophic status.

RESULTS

Total Percent Population

Twenty-three (23) species of fish were collected on Lee Creek Reservoir during the four (4) year sample period. Game fish included three (3) species of bass, two (2) species of crappie and three (3) species of catfish. Game fish made up 48% of the population sampled over the four (4) year period (Figure 1), varying annually from 28% to 63% (Figure 2). Forage fish comprised 38% of the population over four years as seen in Figure 1. The rough fish population averaged 15% over the sample period.





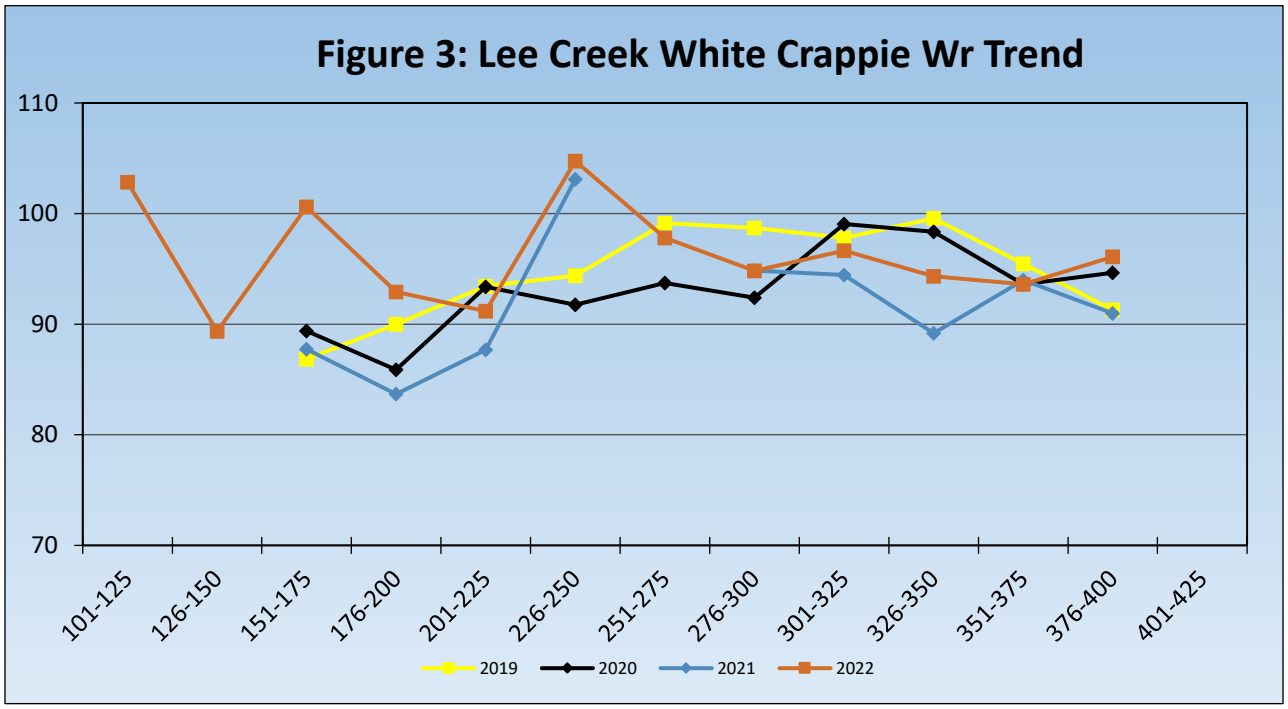
Trap Nets

Trap net sampling was conducted from March 16, 2022 to May 18, 2022 to determine white crappie (*Pomoxis annularis*) population dynamics. Black crappie (*Pomoxis nigromaculatus*) were collected, but only three (3) individuals were caught. That data was omitted due to number (N) of individuals being too low to perform any meaningful statistical analysis. Table 1 includes four (4) years of sample data for white crappie.

Wr values range from 89.35 to 104.75 between length classes. The average Wr of white crappie for 2022 was 95.73. Figure 3 summarizes Wr's for four (4) years of spring sampling.

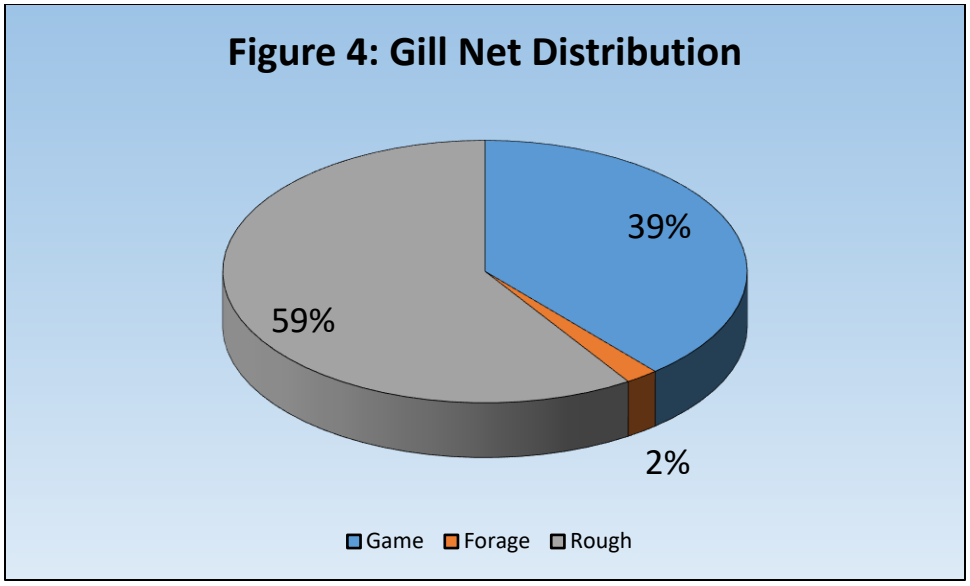
PSD-Q and PSD-P values were calculated for the white crappie population. PSD-Q, formerly PSD, was at 80.95 while PSD-P, formerly RSD_{10}, was at 74.29. Recommended PSD-Q for white crappie is 30-60. 2022 values are above what is recommended due to a lack of smaller fish (<203mm) and an overabundance of fish >203 mm. Recommended PSD-P values are >10. The 2022 PSD-P calculation is high due to most of the fish netted being larger individuals. The high PSD numbers could be due to a dominant age class commonly seen in crappie populations.

Table 1. Lee Creek Trap Net Data				
	2019	2020	2021	2022
Net Nights	22	15	21	39
N	138	120	82	115
Mean L (mm)	294	277	315	275
Mean W (g)	408	349	501	389
Mean Wr	97.1	93.9	91.7	95.7
CPUE	0.261	0.330	0.163	0.123
PSD	94.0	82.5	92.7	80.9
PSD-P	80.4	73.3	81.7	74.3



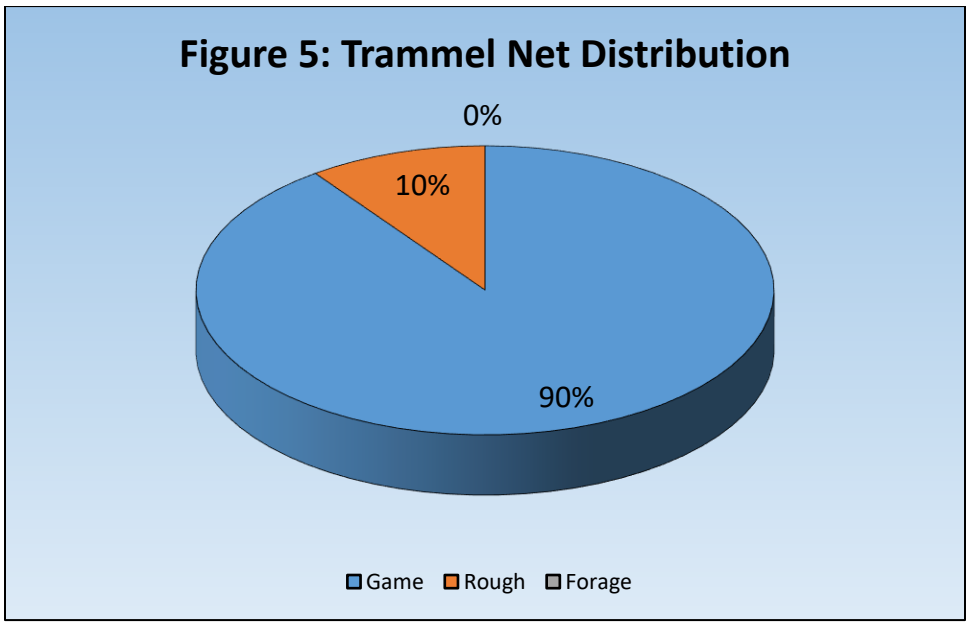
Gill Nets

A gill net was set out for three (3) net nights, March 2, 2022 to March 4, 2022. Game fish sampled were six (6) white crappie and thirteen (13) channel catfish (*Ictalurus punctatus*). One (1) gizzard shad (*Dorosoma cepedianum*) was the only forage fish captured. Rough fish consisted of 28 spotted suckers (*Minytrema melanops*) and one (1) spotted gar (*Lepisosteus oculatus*).



Trammel Nets

A trammel net was deployed for four (4) nights, February 15, 2022 and March 2, 2022 to March 4, 2022. Game fish netted included two (2) flathead catfish (*Pylodicitis olivaris*), six (6) channel catfish, and one (1) blue catfish (*Ictalurus furcatus*). The only rough fish netted was a river carpsucker (*Carpiodes carpio*).

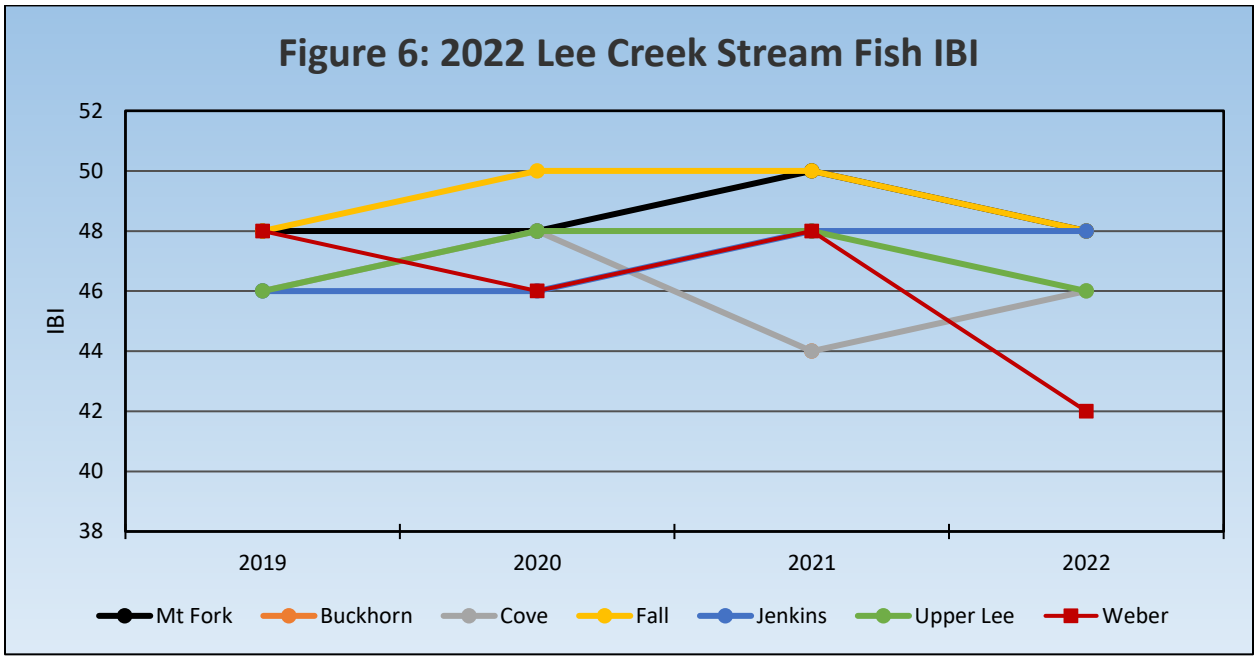


Boat Electro-shocking

No Boat Electro-shocking was conducted for 2022 due to drought conditions making reservoir inaccessible by boat.

Backpack Electro-shocking

Backpack electro-shocking was conducted from July 15, 2022 to August 11, 2022. Six (6) sites were sampled this year to obtain IBI scores to gauge the "health" of each stream. Buckhorn was not sampled this year due to no water. The number of taxa ranged from 15 at Fall and Jenkins to 23 at Weber. Weber saw a decrease in IBI score going from 48 to 42. Three (3) creeks, Mt. Fork (50 to 48), Fall (50 to 48), Upper Lee (48 to 46) all saw 2 point drops in IBI scores. Cove was the only creek to see an increase in IBI score going from 44 to 46. Jenkins stayed the same at 48 this year. Figure 6 shows the IBI trend over the last four (4) years.



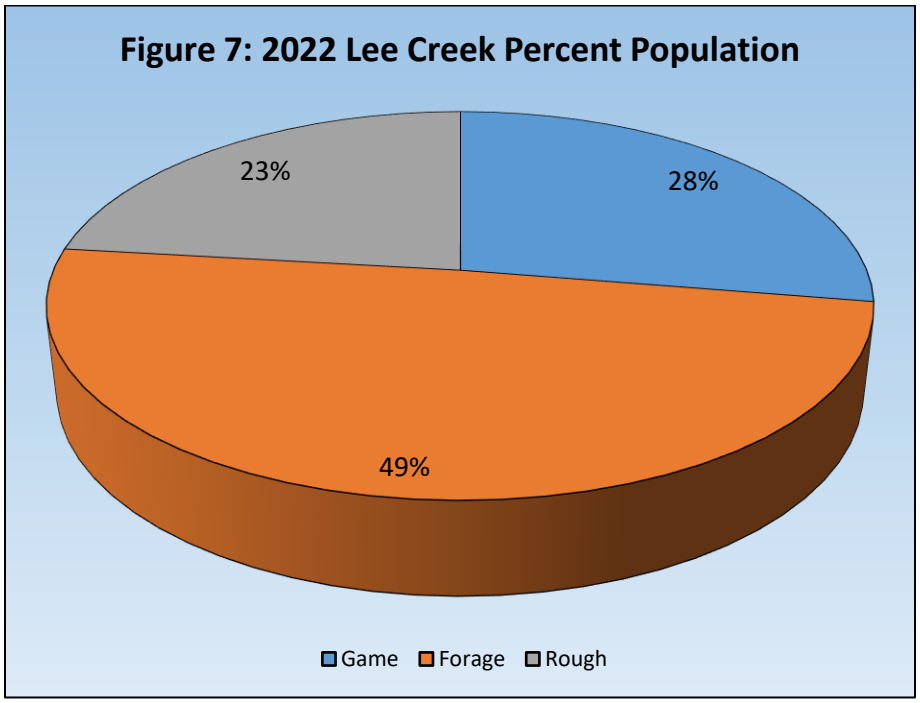
Surber Nets

Macroinvertebrate samples were collected during the first quarter of 2022 from February 9 to March 29. Three streams sampled scored a 20, Buckhorn, Upper Lee and Mt. Fork, which is the highest score on the index (Table 2). Three streams: Cove, Weber, and Little Lee scored a 16. Jenkins creek scored the lowest at a 14 on the IBI index dropping from a 20 the previous year. Taxa richness dropped by at least 10 species in all creeks with Buckhorn and Little Lee only slightly dropping. EPT (*Ephemeroptera*, *Plecoptera*, and *Trichoptera*) taxa went down in all creeks excluding Little Lee, which saw an increase of 15 to 16 species. Cove, Mt. Fork, and Weber experienced significant negative changes in taxa and EPT taxa richness.

Table 2. Lee Creek 1st QTR Stream Condition										
	2013	**2014**	**2015**	**2016**	**2017**	**2018**	**2019**	**2020**	**2021**	**2022**
Buckhorn	14	14	18	18	**	18	18	**	20	20
Cove	16	16	20	20	**	16	20	**	20	16
Jenkins	20	20	20	20	**	20	20	**	20	14
Upper Lee	20	12	20	20	**	20	20	**	**	20
Mt. Fork	20	18	18	20	**	20	20	**	20	20
Weber	***	**	18	20	**	18	20	**	20	16
Little Lee	**	**	**	20	**	20	20	**	20	16
**no samples available for analysis										

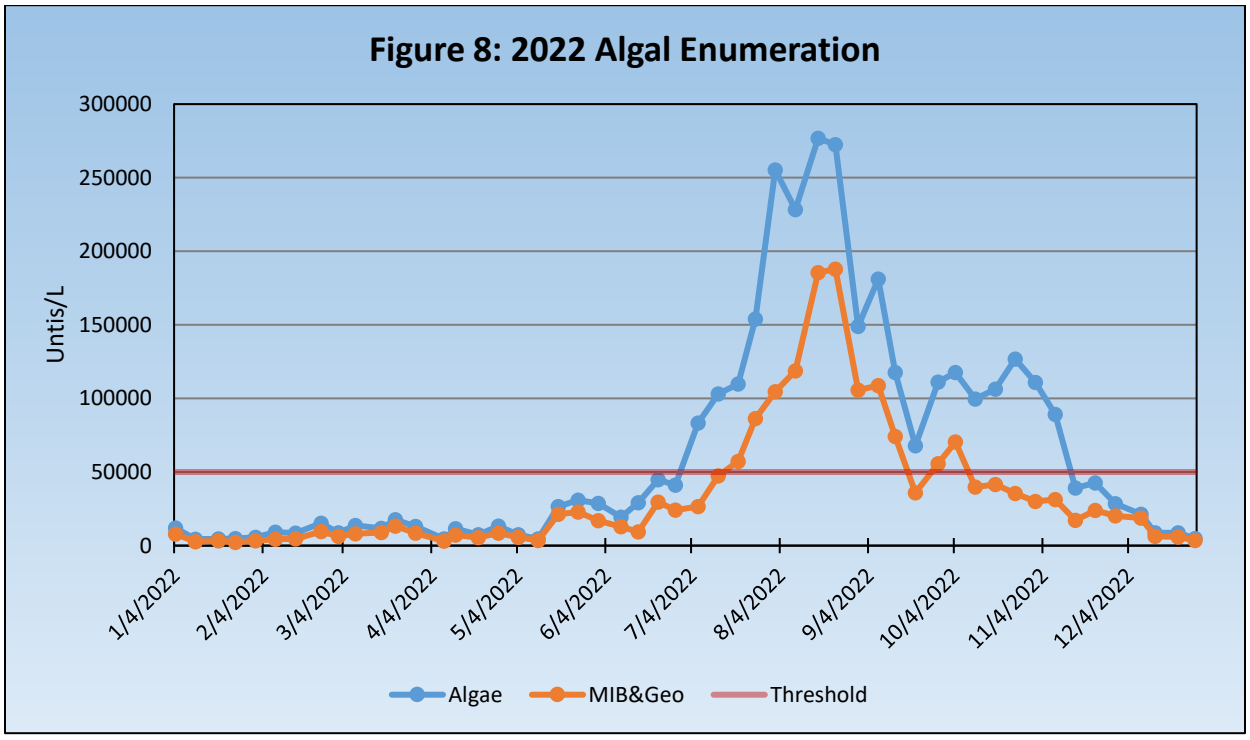
Reservoir Population Distribution

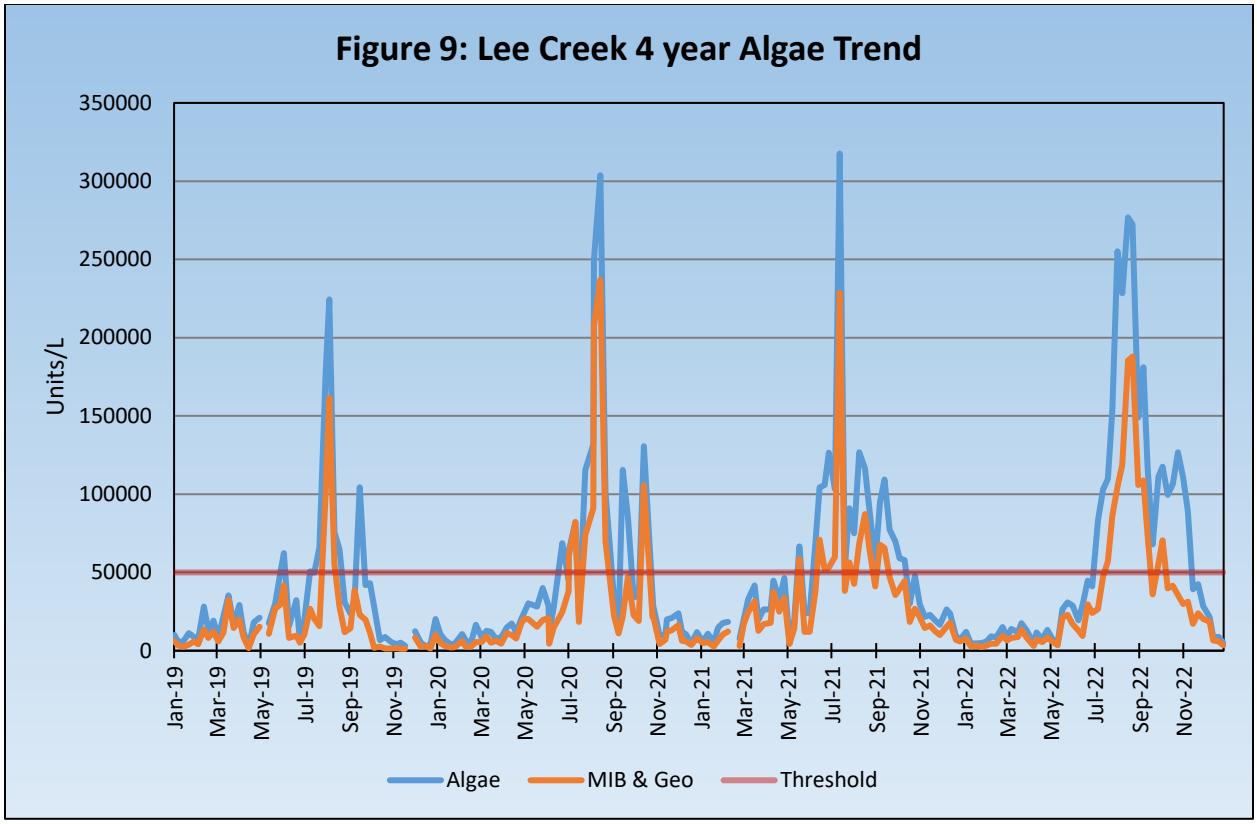
The reservoir population distribution is divided into three (3) groups: Game, Forage, and Rough fish (Figure 7). The game fish are most of the predators sought after by anglers e.g. crappie, bass, and catfish. This group made up 28% of the population sampled this year. Forage fish are at the bottom of the food chain and predated upon by the game fish and other predators. Forage fish made up 49% of the fish sampled this year. Rough fish are the last group not actively sought after by anglers. This group is typically the suckers, gar, carp, etc. and accounted for 23% of the population.



Algal Enumeration

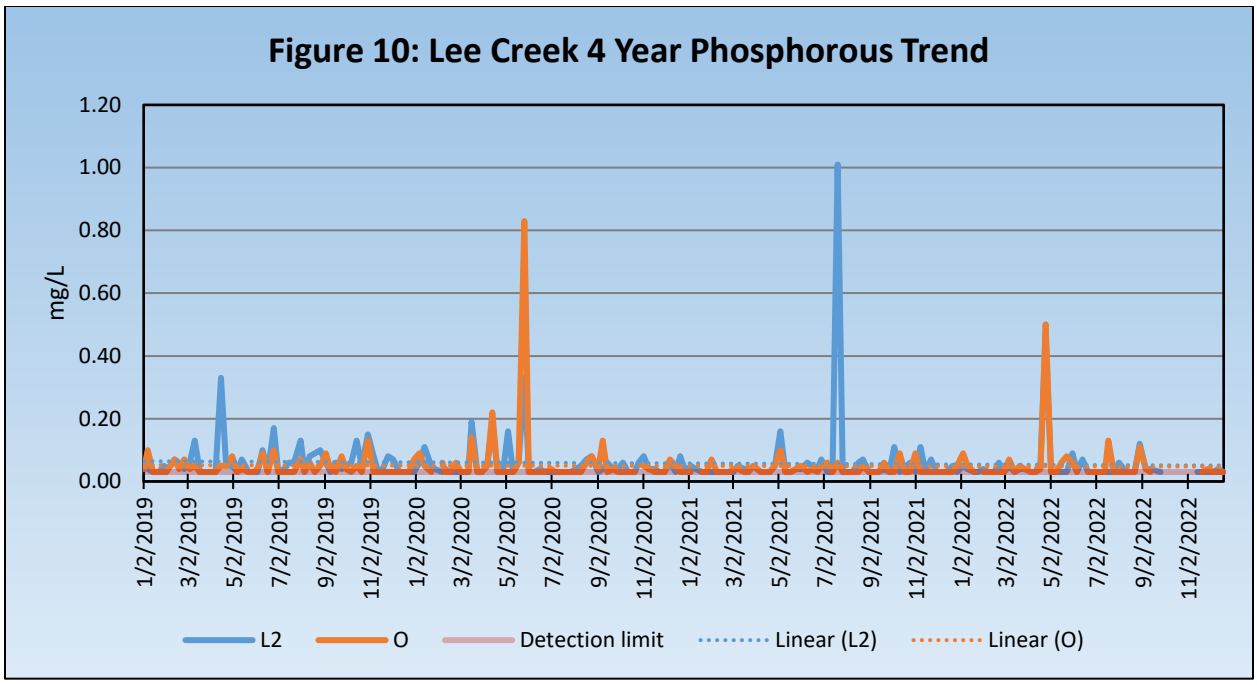
Algae counts are conducted on samples collected weekly (Figure 8). Enumerations are conducted to determine the percent composition of MIB & Geosmin producing algae, which affect drinking waters taste and odor. The counts are also used to monitor phytoplankton growth especially blue-green algae, which are becoming more of a concern in drinking water reservoirs worldwide. August thru September, the blue-green *Cylindrospermopsis spp.* and diatom *Fragilaria spp*. were prevalent in samples on Lee Creek. July through October was the peak growing season for algae this year, starting predominately with Chlorophyte's (green) and Dinophytes (dinoflagellates) as the dominant algae. Chrysophytes (golden-brown) took over for a short time with Bacillariophyta (diatoms) and Cyanobacteria (blue-green) taking over as the dominant algae for the rest of the year. The most common MIB & Geosmin producing algae seen in 2022 were *Fragilaria spp.* and *Cylindrospermopsis spp.* A four (4) year trend analysis is summarized in Figure 9.

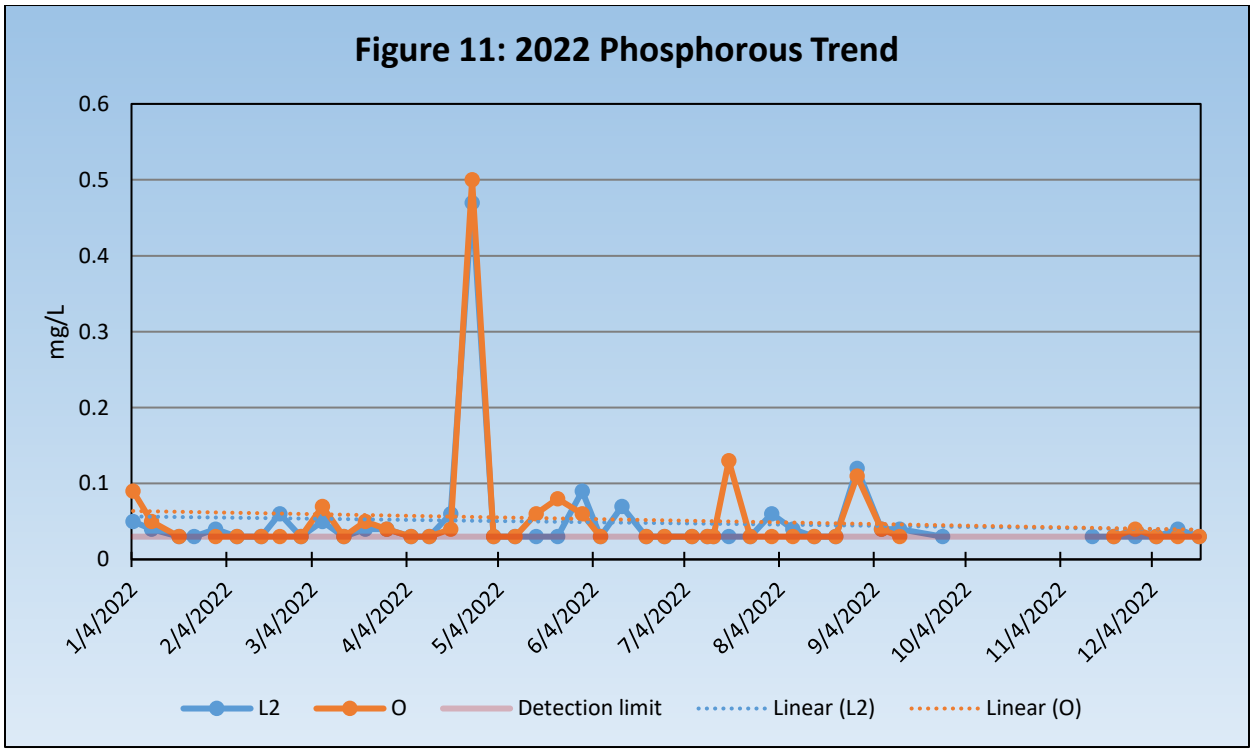




Water Quality

Total phosphorous (TP) levels at sites “L2” and “O” indicate a slight decrease to no change in the trend line over the 4-year sample period (Figure 10). The large spike seen at the end of April beginning of July coincides to large rain events introducing nutrients into the reservoir (Figure 9). The two smaller peaks also coincide with rain events. Soil erosion from creek banks due to large rain events with heavy water flow tends to be the main source of TP introduction into Lee Creek.





Nitrogen data for 2022 exhibits an increase at both the “L2” “O” sites when 2022 is isolated from the four (4) year trend (Figure 12). When included with the four (4) year chart, the trend line shows a rise in N at the “L2” site and a very marginal increase at “O”. The data is sparse this year and only “L2” data for August through October is available due to low lake levels only allowing for sampling at the intake structure.

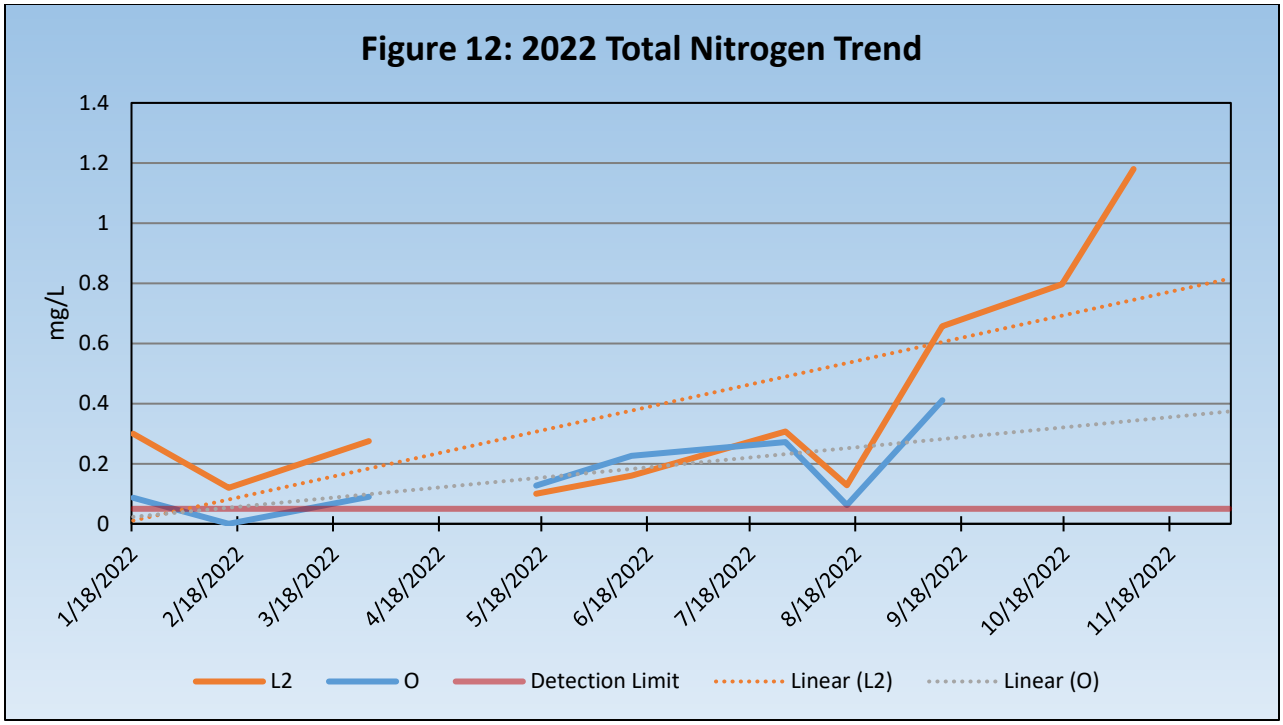


Figure 12: 2022 Total Nitrogen Trend
mg/L
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1/18/2022
2/18/2022
3/18/2022
4/18/2022
5/18/2022
6/18/2022
7/18/2022
8/18/2022
9/18/2022
10/18/2022
11/18/2022
L2
O
Detection Limit
Linear (L2)
Linear (O)

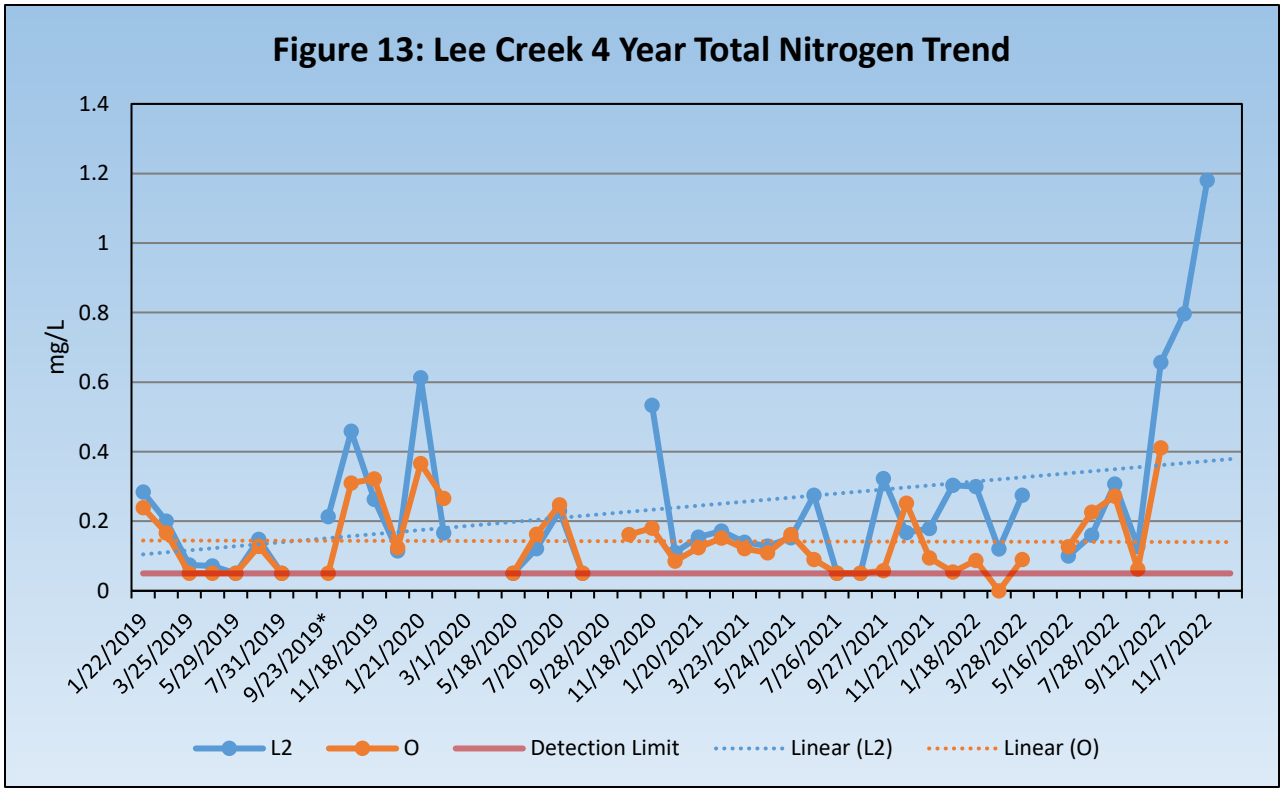


Figure 13: Lee Creek 4 Year Total Nitrogen Trend
mg/L
1.4
1.2
1
0.8
0.6
0.4
0.2
0
1/22/2019
3/25/2019
5/29/2019
7/31/2019
9/23/2019*
11/18/2019
1/21/2020
3/1/2020
5/18/2020
7/20/2020
9/28/2020
11/18/2020
1/20/2021
3/23/2021
5/24/2021
7/26/2021
9/27/2021
11/22/2021
1/18/2022
3/28/2022
5/16/2022
7/28/2022
9/12/2022
11/7/2022
L2
O
Detection Limit
Linear (L2)
Linear (O)

CONCLUSION

2022 fisheries data is absent many game fish, mainly bass, due to no boat electroshocking. Rough fish saw a higher number in the population distribution due to this lack of data. Forage numbers stayed consistent from 2021.

Trap net data shows the crappie population with a mean length of 275 mm and mean weight of 389 grams. Average relative weight (Wr) was 95.73 with PSD being 80.95 and PSD-P being 74.29. Both the PSD numbers indicate a population skewed towards larger fish.

The IBI scores at all the creeks sampled using the backpack electro-shocking technique stayed around the same. Weber was the only creek to see a notable change dropping from an IBI of 48 to 42 this year. All other creeks only saw minute changes in IBI scores compared to the previous year.

Macroinvertebrate data for most of the streams sampled dropped this year on the stream condition index. This is due mostly to large rain events not allowing much colonization. The data is only from first quarter samples, a second quarter sample was unobtainable due to weather.

Algae numbers were normal for Lee Creek in a given year. The year started with a majority mix of green algae and dinoflagellates slowly switching to golden brown then finally ending with diatom and blue-green dominant samples. The blue-green *Cylindrospermopsis spp.* and *Fragilaria spp*. took over for a good part of the end of the year during the drought. *Fragilaria spp.* was the dominant alga seen over 2022 as a whole.

Phosphorous is still trending downward for 2022 and for the past four years as well. This year saw an increase in Nitrogen at both “L2” and “O” sites but the “O” site should be omitted due to absent data for a good portion of the year.

Appendix A.

Lee Creek Stream Fish Species List							
Family	**Genus**	**Species**	**Common Name**	**2019**	**2020**	**2021**	**2022**
Atherinidae	Labidesthes	sicculus	Brook Silverside				✓
Catostomidae	Moxostoma	erythrurum	Golden Redhorse	✓	✓	✓	✓
Catostomidae	Hypentelium	nigricans	Northern Hog Sucker	✓	✓	✓	✓
Catostomidae	Erimyzon	oblongus	Creek Chubsucker			✓	
Centrarchidae	Lepomis	cyanellus	Green Sunfish	✓	✓	✓	✓
Centrarchidae	Lepomis	macrochirus	Bluegill	✓	✓	✓	✓
Centrarchidae	Lepomis	megalotis	Longear Sunfish	✓	✓	✓	✓
Centrarchidae	Micropterus	dolomieu	Smallmouth Bass	✓	✓	✓	✓
Centrarchidae	Micropterus	punctulatus	Spotted bass	✓		✓	✓
Centrarchidae	Micropterus	samloides	Largemouth Bass				✓
Centrarchidae	Lepomis	gulosus	Warmouth				
Cyprinidae	Notropis	greenei	Wedgespot	✓	✓	✓	
Cyprinidae	Campostoma	spadiceum	Highland Stoneroller	✓	✓	✓	✓
Cyprinidae	Luxilus	cardinalis	Cardinal Shiner	✓	✓	✓	✓
Cyprinidae	Pimephales	notatus	Bluntnose Minnow	✓	✓	✓	✓
Cyprinidae	Notropis	atherinoides	Emerald Shiner				
Cyprinidae	Notropis	boops	Bigeye Shiner	✓	✓	✓	✓
Cyprinidae	Semotilus	atromaculatus	Creek Chub	✓	✓	✓	✓
Cyprinidae	Nocomis	asper	Redspot Chub	✓	✓	✓	✓
Cyprinidae	Notropis	whipplei	Steelcolor Shiner	✓	✓	✓	✓
Cyprinidae	Notropis	nubilus	Ozark Minnow	✓	✓	✓	✓
Fundulidae	Fundulus	catenatus	Northern Studfish	✓	✓	✓	✓
Fundulidae	Fundulus	notatus	Blackstriped Topminnow	✓	✓	✓	✓
Ictaluridae	Noturus	exilis	Slender Madtom	✓	✓	✓	✓
Ictaluridae	Ameiurus	natalis	Yellow Bullhead	✓	✓	✓	✓
Ictaluridae	Ameiurus	melas	Black Bullhead	✓			
Percidae	Etheostoma	blennioides	Greenside Darter	✓	✓	✓	✓
Percidae	Etheostoma	flabellare	Fantail Darter	✓	✓	✓	✓
Percidae	Etheostoma	spectabile	Orangethroat Darter	✓	✓	✓	✓
Percidae	Etheostoma	punctulatum	Stippled/Sunburst Darter	✓	✓	✓	✓
Percidae	Etheostoma	whipplei	Redfin Darter	✓	✓	✓	✓
Percidae	Etheostoma	zonale	Banded Darter	✓	✓	✓	✓
Percidae	Percina	caprodes	Logperch	✓	✓	✓	✓
Poeciliidae	Gambusia	affinis	Mosquitofish				✓
Ictaluridae	Pylodictis	olivaris	Flathead Catfish				✓
Ictaluridae	Ictalurus	punctatus	Channel Catfish	✓	✓		

Appendix B.

Lee Creek Reservoir Fish Species List							
Family	**Genus**	**Species**	**Common Name**	**2019**	**2020**	**2021**	**2022**
Catostomidae	Carpiodes	carpio	River Carpsucker				✓
Catostomidae	Minytrema	melanops	Spotted Sucker	✓	✓	✓	✓
Catostomidae	Moxostoma	erythrurum	Golden Redhorse	✓	✓		✓
Catostomidae	Moxostoma	carinatum	River Redhorse	✓	✓		
Centrarchidae	Micropterus	salmoides	Largemouth Bass	✓	✓	✓	
Centrarchidae	Micropterus	punctulatus	Spotted Bass	✓	✓		
Centrarchidae	Micropterus	dolomieu	Smallmouth Bass			✓	
Centrarchidae	Lepomis	macrochirus	Bluegill	✓	✓	✓	✓
Centrarchidae	Lepomis	microlophus	Redear Sunfish	✓	✓	✓	✓
Centrarchidae	Lepomis	cyanellus	Green Sunfish	✓	✓	✓	✓
Centrarchidae	Lepomis	gulosus	Warmouth	✓	✓	✓	✓
Centrarchidae	Lepomis	megalotis	Longear Sunfish	✓	✓	✓	✓
Centrarchidae	Pomoxis	annularis	White Crappie	✓	✓	✓	✓
Centrarchidae	Pomoxis	nigromaculatus	Black Crappie	✓	✓	✓	✓
Clupeidae	Dorosoma	cepedianum	Gizzard Shad	✓	✓	✓	✓
Cyprinidae	Cyprinus	carpio	Common Carp		✓		
Cyprinidae	Notemigonus	crysoleucas	Golden Shiner				
Ictaluridae	Ameiurus	natalis	Yellow Bullhead	✓			✓
Ictaluridae	Ictalurus	punctatus	Channel Catfish	✓	✓	✓	✓
Ictaluridae	Ictalurus	furcatus	Blue Catfish		✓		✓
Ictaluridae	Pylodictis	olivaris	Flathead Catfish		✓		✓
Lepisosteidae	Lepisosteus	oculatus	Spotted Gar	✓	✓	✓	✓
Lepisosteidae	Lepisosteus	osseus	Longnose Gar				✓
Petromyzontidae	Ichthyomyzon	castaneus	Chestnut Lamprey	✓	✓		