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Fall River/Toronto Fisheries District Newsletter

New Fish Habitat Cubes

Many anglers are familiar with fish habitat made from cedar trees commonly called brush piles. I have also used hedge trees at Lyon State Fishing Lake when the lake was empty for renovation. Hedge trees are too heavy to be place with a boat. I placed the hedge trees in Lyon SFL by dragging them in place with a tractor. Both hedge and large cedar trees last a long time, more than 20 years, under water. Anglers with live scopes reported to me that cedar tree brush piles attract lots of fish of all sizes.

Typical cedar tree brush pile tree

Cedar tree brush piles are difficult and messy to install. In order to last a long time, it is necessary to use the largest tree you can drag on the boat. Smaller Christmas size trees rot down in short time leaving only the main trunk. Large trees and concrete block weights scratch the paint off the boat and sometimes leave dents. Cedar trees needles and broken stems make a mess on the boat floor, not to mention the sticky sap everywhere. No one with a nice boat or clean cloths would want to install cedar tree brush piles.

PVC fish habitat cubes provide an easy and clean solution. I can make one in about 90 minutes once the materials are on site. You can watch a video of me building one on the KDWPT web page for Lyon SFL. These PVC cubes don't leave a mess or damage the boat. The sand filled pipe frame doesn't dent or scratch the boat like concrete blocks. The PVC will last a long time under water. Anglers with live scopes reported to me that PVC habitat cubes hold large fish, but not as many small fish. It would take three or four habitat cubes placed next to each other to provide the same square footage area as a large cedar tree. Anglers love the PVC cubes because they seldom loose a lure on one, unlike cedar tree brush piles which can be quite costly to the tackle box.

PVC fish habitat cubes installation

PVC fish habitat cubes make great service projects. In 2020, Northern Heights High School (North Lyon County) shop class students constructed six habitat cubes for Lyon SFL. Olpe High School shop class built 12 cubes for Olpe City Lake. Additionally, Olpe Eagle Scout Daven Wolf constructed three cubes for Olpe Lake. KDWPT supplied the materials and instructions.

Northern Heights High School cubes for Lyon SFL

The locations of the cubes can be found on the KDWPT web page for each lake. It should be very gratifying for a student to catch a fish from a habitat cube they constructed. Furthermore, they can say to anglers that tell them they caught fish from the habitat cubes, "I helped build those cubes." Those students will leave a legacy for many generations to improve fishing at their home-town lake. When a person works to construct fish habitat, they should be more likely to come back to the lake and fish there and be more protective of the resource.

Eagle Scout habitat cubes at Olpe Lake

Live Scope, Aquavue, and Side Scan Sonare

Kansas fisheries research biologists in Emporia recently presented a new study that reveled fish population genetics may be altered in as little as five generations. This means five years for fish that spawn annually or faster for multiple spawners like bluegill. Darwin's theory of evolution said that genetic change took 1000's of generations. Darwinian evolutionary model was very slow. After careful consideration, it appears that the new research makes sense.

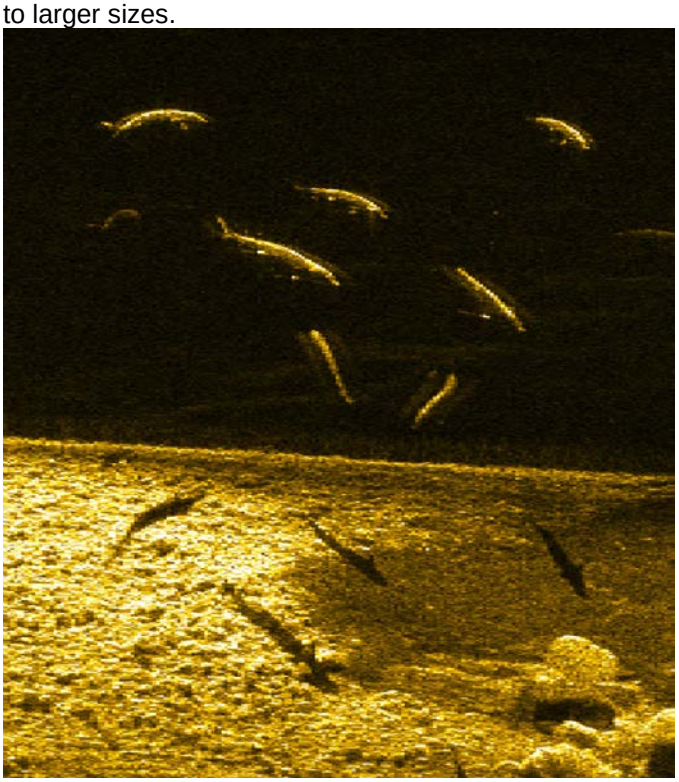
Consider how scientists routinely make genetic improvements in hybrid seeds and selective breeding in livestock. As a kid, I didn't particularly like spitting out the seeds in grapes and oranges. Through genetic manipulation, today's children probably have never eaten fruit with seeds that needed to be removed. Seth Way was the Pratt Fish Hatchery manager in the 1920's. He pioneered genetic breeding of channel catfish for the purpose of improved growth and ease of fish culture. His genetic propagation methods resulted in a Kansas strain of channel catfish that is desired by other state conservation agencies and private hatcheries. Our fish culture section still makes advantageous trades using our Kansas strain for other fish species that are hard to culture in Kansas like northern pike, walleye, rainbow trout, and striped bass.

After generations of selective breeding, Kansas channel catfish are the best. Like hatchery managers, new research showed that some anglers may be genetically manipulating fish populations by removing the largest and fastest growing individuals from the breeding population. Their use of new technology such as live scope, aquavue, and side scan sonar have allowed them to see the largest fish and where they are hiding. With live scope they can even watch the fish's reaction to the lure. If it doesn't bite, change lure and try again. Once the biggest fish are caught from a brush pile, anglers quickly move on to the next. When schools of fish move, the sonar shows where they go. Anglers are able to stay on the big fish. Smaller, slower growing, less aggressive fish are left behind to spawn and carry on the population.

Yes, some of these small fish left behind were progeny from the trophies and may also grow to lunkers. However, there are many more small fish left behind to spawn compared to the reduced number of big fish left to pass on their lunker genes. If we want large fast-growing fish, then anglers should not kill the largest brood fish. Even if anglers release a big brood fish, research showed that five-percent die of hooking mortality after release. The hooking mortality was shown to exceed 33-percent when water temps exceed 77 degrees. New technology allows anglers to target the biggest fish.

Restricting technology may seem like an easy solution to prevent the harvest of the most desirable brood fish. It's not the technology that's bad, but how we use it. We still have the ability to manage population using length and creel limit regulations if we determine that a negative impact is occurring to our populations. A common problem in the Fall River Fisheries District is lack of harvest of small fish, especially crappie and bass. Too few anglers are willing to harvest one-pound bass or crappie less than 10 inches. When reproduction is prolific, there are too many of these size fish. There's not enough food of the right size to feed them, and they don't grow. Sometimes they die of old age before reaching quality or preferred sizes. Their growth is stunted. If anglers were willing to use new technology to harvest sufficient numbers of small fish then the

remaining ones would have enough food to grow quickly to larger sizes.



Sonar image of fish school

New information about the rapid effects of culling the biggest, fastest growing fish in a population and how the use of new technology may facilitate this could result in genetically altered smaller and slower growing fish populations. Conversely, this process and technology could also be used to improve fish populations by targeting large numbers of small fish for consumption. Fewer small fish in a population with sufficient prey supply results in memorable and trophy size fish.

Limnology for Crappie Fishing

Cold fronts, fall turnover, and summer stratification have profound influence on crappie populations and fish catchability. In the hot dog days of summer, you would think that crappie would seek out cooler water on deep channels. This may be true in lakes that do not stratify. However, most lakes in the Fall River Fisheries District do stratify every summer.

Thermal stratification begins early in July. It occurs when the sun heats up the surface water. As we know, heat rises. The cooler water can't rise and mix with the warmer surface water because of thermal dynamics. Leaves, vegetation, algae, dead fish, and other organic material on the bottom are constantly being decomposed by bacteria. The bacteria need oxygen. Due to thermal stratification, the warm oxygen rich surface water can't mix with the cooler bottom water. Once bacteria use up all the available oxygen for decomposition, there is not enough left for fish.

Fish can't live in deep cool water once the oxygen has been depleted. They're forced to live near the surface even though it is very hot. Remember fish are the same temperature as the water. Their metabolism is very high when the water is hot. They have to eat a lot of food to maintain themselves during these periods of high metabolism. Some cool water species like walleye can't eat enough to keep up with their metabolism during periods of high temperature. They evolved to have high metabolism in cool water. In hot water, their bodies waste away to generate enough energy to survive. They reach their thermal limit in hot water. That is why we don't have good walleye populations in southern Kansas where the water gets too warm.

Sometimes, usually in late summer, we get intense heating combined with no wind. Remember that green algae and phytoplankton produce oxygen through photosynthesis during the day. The oxygen rich surface water doesn't mix very deep without the power of the wind driven waves. As the bacteria continue to decompose organic matter, they use up all the oxygen until there's not enough left for fish. This is called summer kill. There is very little that can be done to control summer kill in organic rich lakes. Lakes without too much aquatic vegetation or leaves on the bottom don't summer kill. Spring upwellings and aeration bubblers can break the stratification.

Olpe Jones Park Pond windmill aerator

Fall turnover occurs when cool nights in autumn begin to reduce surface temperature. Eventually, the bottom water is warmer than the surface. The warm water rises to the top and the cool surface water sinks. The entire water column gets mixed up. Everything is oxygenated. Bacteria can begin to decompose organic matter in deep water again. Food that was once trapped

on the oxygen depleted bottom becomes available. Fish are free to feed from the surface to the bottom. Plankton thrive on the newly released nutrients. Gizzard shad and other small fish feast on the plankton pulse.

After fall turnover is a great time to catch crappie. Since there is food everywhere, crappie can be caught everywhere. They are freely moving about. Crappie can be caught on windy shorelines when high winds blow up plankton and bait fish. They seek shelter and feed on small fish around brush piles and standing timber. They form schools on channel breaks then move onto the mud flats in evening to feed on gizzard shad. Fall turnover is second only to spawning season for ease of catching crappie.

16" white crappie from Toronto Reservoir

The fall feeding frenzy continues until a cold front and drop in barometric pressure stops it for 24-36 hours. The more powerful the cold front the longer it takes the fish to resume feeding. As the cold fronts become more frequent, and the warm days in between shorter, a winter-feeding pattern emerges. This usually occurs when surface temperatures drop below 60 degrees.

Crappie fishing can still be quite good during the early winter-feeding pattern. However, finding fish is harder because they are schooled up and aren't widely distributed throughout the lake. In cool water, smaller schools of crappie join up making larger ones. They congregate on channel breaks. It's hard for shore anglers to catch them. Large schools of crappie may move near shore to feed one night then disappear the next. This is quite frustrating to shore anglers. One day the crappie here and the next they're gone. Boat anglers with good sonar technology have the advantage to locate and follow the schools.

Water temperature probe for fishing

Knowing and understanding a lakes limnology pattern will greatly help anglers catch fish. You don't need an expensive oxygen meter probe to find the depleted zone. A simple thermometer probe will indicate a rapid temperature drop in a few feet at the thermal cline. A good sonar with the sensitivity turned up will often show the denser cooler water below the thermal cline layer. The thermal cline in a lake is not always at the same depth. It may be deeper near the dam and shallower toward the upper end. Knowing this science will help you catch more fish.

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