

# KANSAS FISH & GAME



Winter 1966



## Antelope In Kansas

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## Winter Walleye

# Kansas Fish and Game

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## Experiments Pay Off

Fish and Game departments throughout the nation annually spend several million dollars on so-called "experimental" programs.

Such programs, in fact, have provided Kansas with the two things featured in leading articles in this issue of *Kansas Fish and Game*—the pronghorn antelope and the walleye.

The catching of the walleye is now commonplace, of course, and more and more anglers are finding it an excellent game and table fish. Many have become "winter" fishermen, too, as the article stresses, because of this new species.

While there is no hunting, as yet, of the antelope, there's a good possibility of limited seasons on them in the future, if reproduction and future stockings continue to prove successful.

There are other, equally important "experiments" being carried on by the Fish and Game Commission, too. The Northern Pike is doing well in some Kansas waters, and is being stocked in more and more lakes each year. The Commission is trying to establish new types of forage fish, to provide better fishing and more growth among game fishes already here.

The excellent deer seasons Kansas has enjoyed came about from "experiment." The wild turkey is doing well in Kansas, too, and a season may be offered in a few more years.

The list goes on and on. Each new experiment attracts the attention and arouses the curiosity of the sportsman. Some will prove fruitless, of course, while others—like the antelope and walleye—will be successful. Certainly, the successes make them all worthwhile. . . . TS

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# Kansas Antelope Outlook Bright

By **BILL HLAVACHICK**  
*Big Game Biologist*

The pronghorn is a remarkable animal, in more ways than one. He is the only North American big game animal with branching horns, from which the name pronghorn is derived. He is also the only hollow-horned ruminant that sheds its outer horn sheaths each year. These sheaths are composed of hair for the most part, and cover a bony core that grows out of, and is a part of the skull.

The pronghorn is one of the world's fastest mammals and is second only to the cheetah of Africa when it comes to running. There are authenticated records of pronghorns being clocked at over 60 miles per hour; this is an exception however, and not the rule. Some strong individuals can reach these speeds, but can only maintain them over short distances. At speeds from 30 to 40 miles per hour relatively long distances can be travelled with little effort. The pronghorn is built for speed with an extra large windpipe, lungs and heart; and he seems

to relish showing you his feats of speed at every opportunity.

**Historical records of Kansas confirm the fact that pronghorned antelope once roamed throughout the western three-fourths of the state. In the early 1800's the total estimated population of antelope in the United States was between 30,000,000 and 40,000,000 animals with several thousands residing in what is now known as Kansas.**

This abundance was not to last, however. As the western march of civilization was at its highest, the great herds of buffalo and antelope began to decline rapidly with less than

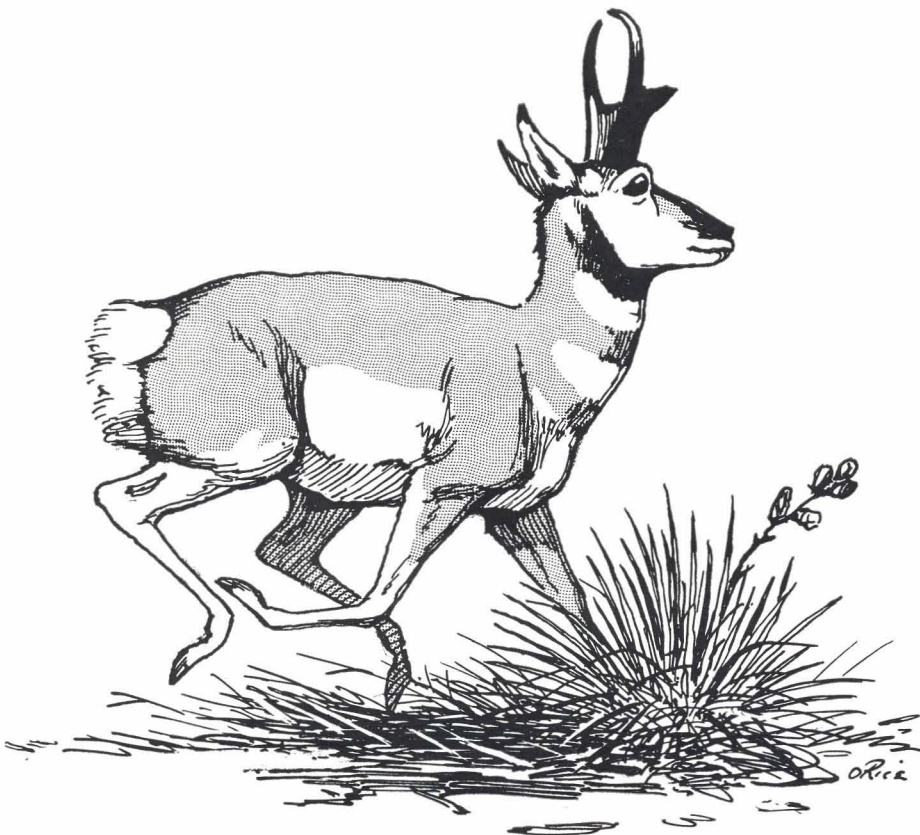
30,000 pronghorns surviving in the 1890's. In 1948 the United States Fish and Wildlife Service conducted a big game census survey and reported an estimated 177,000 antelope in 15 states. This is an almost unbelievable reduction from the 40 million of just a century before. During this time extreme western Kansas was the last stronghold of the pronghorn in the state.

Market hunting, plowing and burning were the main contributors to the decline of the pronghorn throughout its range. There are authenticated reports of antelope carcasses being sold on the Denver market for 25 cents, that being the smallest coin in use at the time. With the advent of statehood and farsighted thinking on the part of early western legislators, the pronghorn came under some protection at a time when it was sorely needed.

Closed seasons and stricter laws concerning wildlife were enacted, with the result that antelope began a recovery from the lows of the late 1800's and early 1900's. Fish and game agencies also began to build up their staffs and enter into intensive trapping and transplanting programs to introduce antelope back into areas of former abundance.

**In 1962 research was begun on the remaining antelope in Kansas to determine distribution, numbers and possible locales for future introductions. The only pronghorns in the state at that time were located in western Kansas in Wallace and Sherman counties.**

During the summer of 1962 aerial and ground counts showed a total of 56 antelope residing in Kansas. There were 12 males, 30 females and 14 fawns. It was felt that these few were in danger of complete extinction if something was not done, so negotiations were initiated with several states



*(Continued on page 18)*

## New Type of Angling Venture

# Walleye--'Frigid' Fish for Kansans

By THAYNE SMITH

A loud roar—the kind made only by cascading water—greeted us as we alighted from the station wagon at the old Burlington city dam on the Neosho river.

It was bitter cold. The temperature was nearing zero, and was compounded by a north breeze which bit at our faces.

Quickly, we donned heavy, laminated-type sweaters, then put large, down-filled coats over them. Next came insulated chest-high waders.

In minutes we were headed toward the nearby rapids, where the fast waters of the big Neosho River tumble over the old river dam downstream from John Redmond Reservoir.

We carried ultra-light, 5½-foot fishing rods paired with light Garcia reels, complete with 4-pound test line. Small boxes of jigs and a couple of plastic floats constituted our tackle supply.

Around my neck was a constant companion on such trips, my 35mm camera.

As we inched our way across some old concrete-slab rip-rap at the base of the old dam, Carl Seal, Topeka, my fishing companion, uttered something about the cold. The roar of the water drowned out his remarks, however, as we approached the stream.

Perhaps it was a stroke of luck that we had the entire area to ourselves, for several reasons.

First, I'm sure that we would have presented a strange and unusual picture to any "average Kansan" who might have ventured upon the scene.

Secondly, even we admitted to ourselves that fishing in such weather might mark us as a "wee bit touched in the head." But, that's what we came for, and we were going to fish despite cold or high water.

The area, or the type of fishing,



**FISHIN' FOR WINTER WALLEYE**—Snow and ice-cold water are no deterrents to hardy anglers who want to try their luck in Kansas waters. Here, three fishermen bounce jigs in rapids of Neosho river near John Redmond Reservoir. (Photos by Thayne Smith.)

wasn't unfamiliar to us, however. We'd been here before, and we claimed to be among a growing group scattered throughout Kansas who are becoming known as "Winter Walleye Fishermen."

Also, I had specifically planned this trip when there was snow on the ground, to give emphasis to the "winter" angle in a story and pictures that I planned for a magazine.

"Try your luck right at the end of that little rock point there," I said, pointing, to Carl, a Topeka fire department captain, avid angler and maker of the fine Sealure jig. "I want to get some pictures before you wade across to your favorite spot."

In many trips to the same area in previous weeks, Carl's prowess as a winter walleye fisherman had been proven time and again off the end of

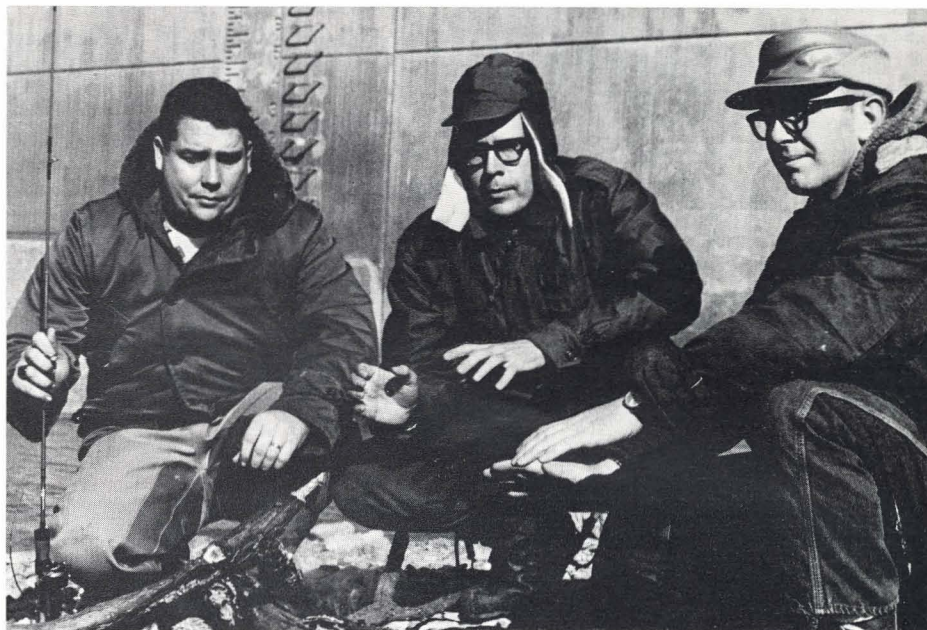
a small island midway across the swift stream. I knew he would head straight for it if I didn't detain him.

"You know," I said jokingly, "it would be just like you to catch your limit while I'm trying to take pictures, and before I could even get a line in the water."

Carl soon had a purple jig, one-sixteenth ounce size, tied on the end of the light line. Purple, for some undetermined reason, has a particular fascination to walleye, and many other game fish, in cold weather. About 18 inches above the jig, he tied a plastic bobber, about one inch in diameter.

We'd found on previous trips to this particular spot that the rapid water below the old dam was filled with jagged rocks, and that you could lose a lot of jigs in a short time if you fished on the bottom. One time, someone thought of floating the jig above the rocks by using a float. They soon had a limit of nice walleye. In fact, it seemed generally to work better than bottom fishing.

We discovered, also, that the weight of the float provided a big advantage in casting to reach the edge of the fast water out in the stream, where the larger walleye seemed to congregate.



**FIRE FOR FRIGID HANDS**—Topeka anglers (from left) Carl Pape, B. D. Ehler and Carl Seal find small fire a welcome break from walleye fishing during December outing at Fall River Reservoir outlet.

Most of the time, we could—through weight of float and jig combined—reach the best spots without wading in deep water, and when the temperature is near zero, you don't wade any more than necessary, believe me.

With little effort, Carl tossed the

jig-float to a swirling eddy, about 30 yards into the stream, and immediately my prediction began to come true.

I hardly had the camera uncased when he shouted that he had a strike. In a matter of minutes, while my shutter clicked, he was slowly and expertly playing a 2½-pound, shining silver-and-gray walleye up to the shallows before him.

"Okay, toss him back and catch another," I joked. He didn't toss it back, because Carl knows as well as anyone that these northern natives, introduced successfully into Kansas waters in 1957, are mighty fine table fare. In fact, a two-pound walleye, less than two years old, is hard to beat when it comes to eating, or catching on light tackle.

He took me literally on the second part of my statement. He was soon playing another fish up to the bank. This time, I tried to cool him off by making him pose with the fish, letting me snap several pictures, but it was to no avail.

While I tied on a jig and fastened a float, he landed two more nice walleye, along with a smaller one which he tossed back. Of course, he was razzing me all the while—really rubbing it in.

"I'm going to have a limit before



**LIMIT OF WALLEYE**—Five nice walleye—averaging over two pounds—contrast with boot marks in snow at Burlington dam. Walleye has given Kansas a "big boost" in winter fishing popularity.

you even get started," he bragged, flinging his lure to the eddy again.

"You wouldn't even have a fish," I chided him back, "if I hadn't told you where to catch 'em."

I tossed my bait near his floating bobber, and the cork disappeared almost immediately, moving downstream in a rapid arc, then coming swiftly toward me as I took up slack. Moments later I "beached" a 2½-pounder, and started a stringer of my own.

"Better watch me, or I'll get my five before you get another one," I told Carl.

This time I was right—almost. In a matter of minutes, I caught four more walleye, but three of them were small, and I turned them loose. Carl hadn't, in the meantime, had a nibble. Then he scored, but it was a small one, too.

Moments later, I hauled in my third keeper, but as I did "Old Lucky" set the hook on Number Five, played it until the fight was gone and proudly proclaimed that he had his limit and was going to enjoy a slug of hot coffee from our Coleman jug.

I didn't mind, however, and didn't

even notice the cold, because the fishing was the way the angler likes it best—fast and furious. In that one spot, you could toss the jig-bobber combination to a certain spot, let it drift and bounce on the swift current, and you'd get a strike with each cast.

In a matter of 10 more minutes, I had caught four more fish—two small ones and two more keepers. This particular outing had ended, with a full stringer, and with the temperature seeming to be going lower, we were ready to head for home.

This was just one—but probably the coldest—of many winter walleye fishing trips I've enjoyed in Kansas in recent years. The scene we created that day has been repeated, with even bigger fish, at such places as Rocky Ford below Tuttle Creek Lake, at Manhattan; at the outlets of Fall River Reservoir and Pomona Lake; at Kanopolis, Lovewell, Kirwin, Webster and Cedar Bluff Reservoirs, when water is being released.

At times, fishing the still pools in winter's cold temperatures has produced good strings of walleye at Lovewell outlet and the River Pond area below Tuttle Creek.

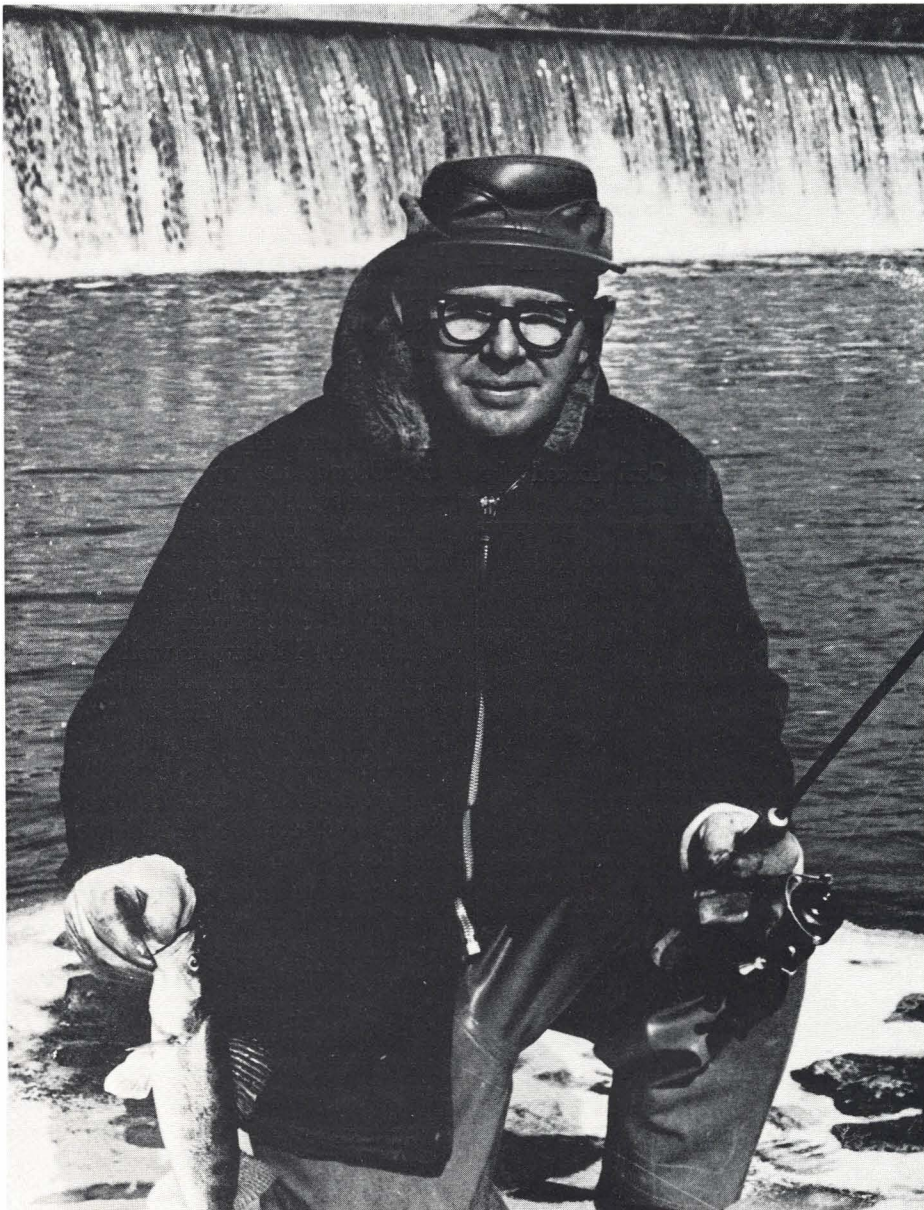
The walleye, being a native of northern waters, seems to thrive on cold. At least, it seems to me that it hits harder in winter, and fights even better than in the spring and autumn months when the big walleye "runs" are on.

One thing is sure. The coming of the walleye, and its successful stocking in large Kansas lakes by the Forestry, Fish and Game Commission, has changed the complexion of fishing in Kansas during winter months.

For the sportsman who isn't content to sit by the fire, spend all his time hunting, or who doesn't want to wait until next spring for a good fish fry, "winter walleye" fishing is the answer.

It requires a stout heart, a lot of warm clothes, some good insulated boots or waders, a big stock of purple (or sometimes white or blue or brown or red and white) jigs, sound light tackle (if you really want to enjoy the fight of the fish), a fun-loving companion, and perhaps one thing more.

It helps to be just a "wee bit touched in the head."



**COOL CATCH**—Carl Seal, Topeka fire department captain, ardent angler and maker of the Sealure jig, displays nice two-pound walleye caught on jig-bobber rig at old Neosho river (City) dam at Burlington.

# Time and the Outdoors

By JOHN MADSON

We've been taken to task for a recent comment that "time is the most important item in outdoor recreation." The most critical item, a friend writes, is outdoor quality.

Maybe so. But what he really means is quality outdoors that people have time to reach. Good outdoors we got plenty of. It's time that's in short supply.

There are vast sweeps of quality open space that go begging because they're so far away. Sportsmen could probably afford to drive there, even if they felt they couldn't afford to fly and take the equipment they needed. But who can drive from Ohio to Alaska and back during a two-week vacation?

**Of course, there are always guys who buck the system.**

A couple of local riflemen regularly drive from St. Louis to north-central Kansas for a weekend of prairie dog shooting. They're back in St. Louis Sunday evening, 1,200 miles later, with red eyes and hot rifle barrels. We respect them, but we sure don't envy them.

Three of our friends used to drive nonstop for a week of spring steelhead fishing in western Oregon. They drove in shifts for 40 hours, two men awake and one man sleeping, and claimed that the fishing was worth it.

Anyone who wants to punish himself can find quality outdoor recreation without too much expense. However, most men would rather miss

some faraway hunting and fishing than a weekend's sleep.

This is the reason that good outdoor recreation is so badly needed near cities. A sportsman in Newark has more public, high-quality outdoor recreation than he can ever use. Trouble is, it's in Kansas and Colorado. He may go there in July for two weeks, but where can he go on an October weekend after the kids are in school?

This is the biggest single advantage of good shooting preserves. They provide quality shooting within easy driving distance of large cities, in densely-settled countrysides where other public shooting is almost nil. You don't buy just sport on a shooting preserve. You buy time. A pheasant preserve near Newark, N. J., doesn't offer a thing that you can't find in Kansas—but it offers it near Newark.

It has been said that the modern American man has more leisure time than ever before. It may have been a sociologist who said that, but it sure wasn't a sportsman. Just because a man is paid for a 40-hour week doesn't mean that he spends much of the other 128 hours hunting and fishing. Not as much as he'd like to, by a long shot. There are many drains on our time supply—social life, church work, kids, house, civic stuff. Not to mention TV. Most sportsmen must budget their time, or even steal time, for the outdoors. The nearer that outdoors is to his home, and the less

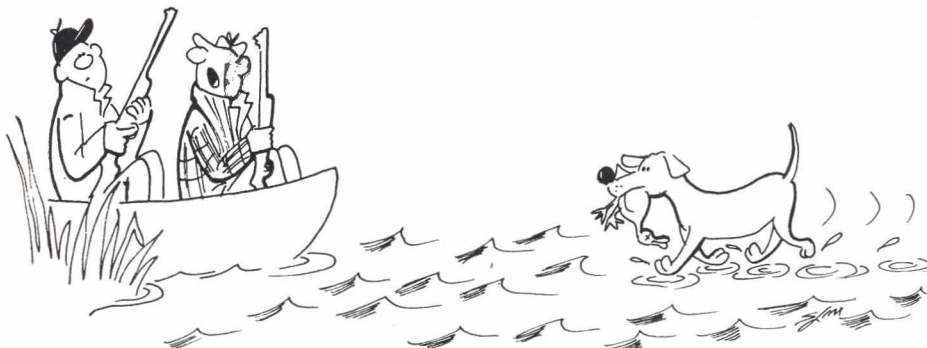
travel time it costs, the happier the sportsman.

One of the biggest jobs of conservation agencies is to provide good outdoor recreation where it is most needed. Such agencies are actually buying time for the sportsman—time in the form of recreation areas nearer his home.

But there's a limit to what the sportsman can expect, and to what



the agencies should try to provide for him. There is a breaking point at which the conservation agency must stop buying time, and the sportsman must begin to spend more time. For his future sport will depend not only on spending more money on fish and game resources, but on the amount of time that he's willing to spend to enjoy them.



"Hey, your dog can't swim, can he?"

## Magnum

Webster says that *magnum* is derived from the Latin, *Magnus*, meaning "great." A magnum cartridge is one that produces power, speed and pressures at a higher level than a standard cartridge. Hence a magnum rifle or shotgun is a firearm especially designed to withstand the strong characteristics built into a magnum cartridge.

# Three New Kansas Fish Records

The fish record books of the Kansas Forestry, Fish and Game Commission have been enriched by three new record specimens for the year 1966.

To top it off, one of the new Kansas records is a candidate for honors as a world record.

Henry A. Baker of Wichita went fishing on May 4 at Toronto Reservoir. While fishing in the tailwaters below the dam, he hooked a monstrous white bass which refused to be landed until he had played it for 35 minutes. When Baker finally got it to shore, it drew considerable attention from other passing anglers.

After several minutes, during which Baker continued to fish, he decided that the white bass should be weighed before it died. The weighing was done at the R and B Bait Shop near the dam and the state inspected scales

at this location registered five pounds, four ounces. The two witnesses to the weighing were C. K. Price of Wichita, Baker's fishing companion and Bessie Bollinger, operator of the bait station.

Baker used a spin-casting rod and reel with a jig lure to land his record white bass. It has now been entered in the annual *Field & Stream* fishing contest and, if recognized there, it will become the new world record for this species. The current record of five pounds, two ounces was taken on July 9, 1960 at Grenada Dam, Mississippi.

## Wichitan's Whopper White Bass Candidate for New World Mark

The next record-buster, a 28-pound gar, was caught on June 17 at the Chetopa Dam on the Neosho River. Seventeen-year-old Mike Carter of Chetopa was fishing with a small jig for crappie when the gar took his lure. It measured an even five feet in length. The weighing of the fish was at the Riverside Bait Shop in Chetopa.

Last but not least was the August 24 catch of Ray Wiechert of Brazilton, Kansas. On that date the flathead catfish record for Kansas was once again returned to the Neosho River.

Wiechert was running his trotline which was set in the river adjacent to the Neosho Waterfowl Management Area near St. Paul. It was about 8:30 in the evening when he became aware of the fact there was an exceptionally large fish on his line. After a twenty-minute battle, he was able to boat the fish and, as soon as he had it ashore, transport it to the waterfowl area headquarters. Dean Smith, manager of the area, contacted Jack Rodabaugh of the Town and Country Market in St. Paul who agreed to open the store so that the flathead could be weighed on state inspected scales. The weight was a whopping 86 pounds, 3 ounces. In addition to Smith and several other persons from the area, Tommie Crispino, state game protector from Parsons, witnessed the weighing.

The three latest recognized records bring the 1966 total to four



**HEAVY, BY GAR!**—Seventeen-year-old Mike Carter, Chetopa, displays his new state record gar—a hefty 28-pounder, caught at the Chetopa Dam.



new records for the year. Earlier, Kim Bergsten of Clay Center won official recognition for his 14 pound, 8 ounce northern pike taken from Tuttle Creek Reservoir.

Unofficially, it is reported that several fish were taken the past summer which would have established new records had the proper steps been taken to get them documented. Therefore, we are once again setting forth the rules for certification. If you catch a fish which you believe may be large enough to make the record books, have it weighed as soon as possible on state inspected scales legal for trade. Speed is important since fish do lose weight rapidly when removed from the water. Weighing must be made in the presence of at least two witnesses. Next, measure the total length of the fish and also its girth. Then have a clear, sharp photo taken of you and the fish. This photo must be submitted with the application blank for certification. The last step is to contact the Kansas Forestry, Fish and



**NEW WORLD RECORD**—A first world record for Kansas, but not certified as yet, is this 5-pound, 4-ounce white bass caught at the Toronto Reservoir outlet by Henry A. Baker, Wichita.



**WHOPPER CAT**—Ray Wiechert, Brazilton, displays new state record 86-pound, 3-ounce flathead catfish he caught on Neosho river near St. Paul.

Game Commission for an official record blank. This should be filled out and returned along with the picture to the headquarters of the Commission at Pratt.

Although not a part of the requirements, here are a few tips which will help. If possible, get a field man of the Fish and Game Commission to witness the weighing and measuring of the fish. Preserve the fish whole by freezing; if it is a new record, you may wish to have it mounted.

Of course this last bit of advice would not apply in the case of large

fish such as a flathead catfish. However, you may wish to preserve the head of such a fish since they do make interesting mounts.

One other note about the pictures—since they are used to identify the species, it is wise to take several photos in order that you may be sure to get one with sufficient detail so that the fish can be identified. In the case of a fish large enough for a new record, your local newspaper will probably assist you in taking pictures so that they will have one for publicity purposes.

# A "Way" With

By CLELLAND COLE

For more than 40 years the Kansas Forestry, Fish and Game Commission, in charge of the state fish hatchery, has had a Way with channel catfish.

An eminently successful, pioneering way.

Seth Way.

Thanks to his ingenuity, his inquisitive mind, and long years of devotion to the job, Kansas was probably the first among the states to establish a highly successful annual program of hatching channel catfish in volume under controlled conditions, in man-made "incubators," and in building the production into millions, year after year.

**Seth Way of Kansas remains today an acknowledged authority on successful artificial propagation of *Ictalurus Punctatus*, a highly sophisticated biological title for old silversides with the forked tail—bewhiskered Kansas Channel Cat himself.**

Seth Way was raised on a farm near Murdock, Kansas, about 40 miles east of Pratt, home base of the Kansas Forestry, Fish and Game Commission, and location of the State Fish Hatchery. The commission headquarters and the hatchery itself are located close by the south fork of the Ninnescah, an eager little stream, as beautiful as the lilting syllables of its name. The farm on which Seth Way was raised is also located near the Ninnescah.

"If I couldn't be found anywhere else, I would always be down along the creek somewhere," explains Seth, who could very well offer up that same accurate report of his whereabouts during many of his mature years, even as he tells it of his boyhood.

If he can't be found anywhere else, he is apt to be somewhere along the Ninnescah, on some errand in the interest of his charges, the millions of fish which are produced by the hatchery each year.

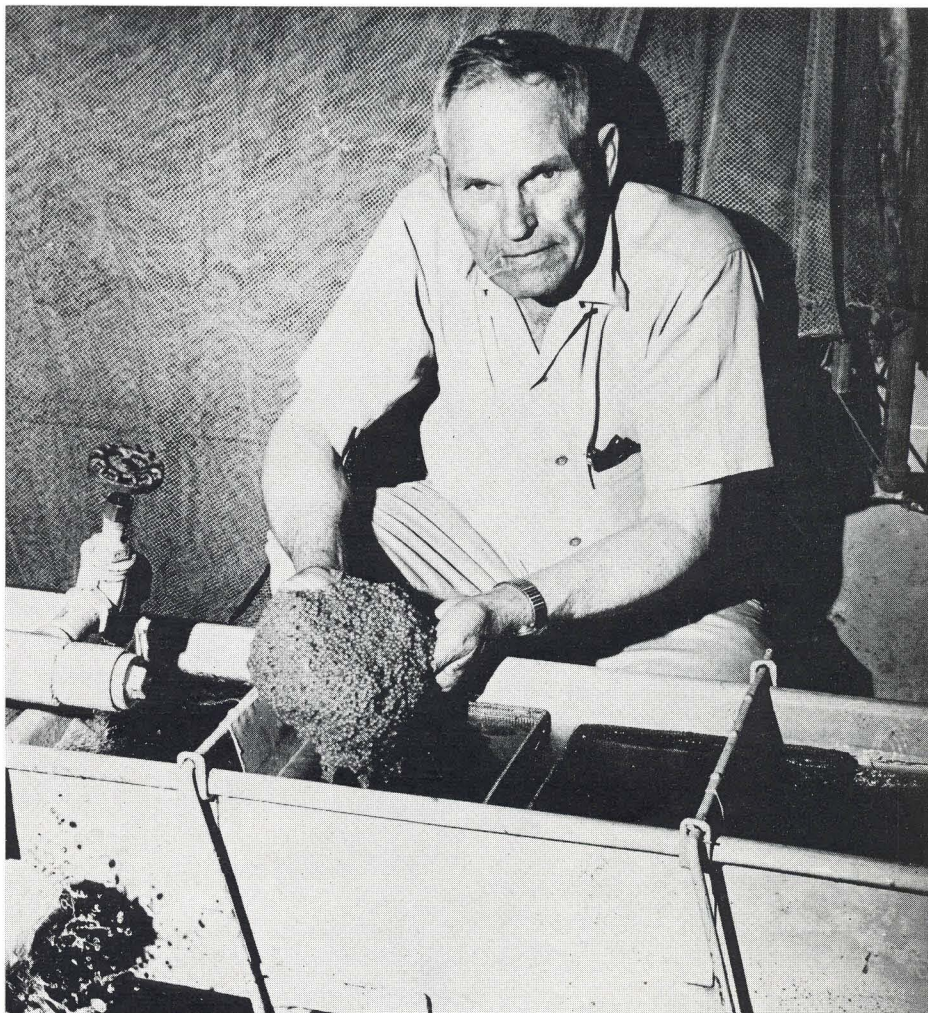
When John "Catfish" Murphy, who became hatchery superintendent in 1919, hired the young fellow who moved upstream from Murdock to get

ple of years and when Murphy returned to Oklahoma in 1925, the young fellow from Murdock was named Superintendent.

"It wasn't exactly easy at times," advised Seth as this scribe visited with him. "I was just a young fellow. Some of those other fellows were not only a lot older than I was, but they had been working there longer. So in order to get along, I had to be a superintendent who would lead the way—show the way, and I didn't ask any of my

a job, he probably had not the remotest idea that he was hiring a chap who was to become an absolute authority on artificial propagation of the channel catfish, accepted nationally as such.

Seth worked under Murphy a cou-



**PROVEN METHOD**—Relatively few channel catfish eggs fail to hatch under the Way system. Mortality among fry is practically nil.

# Channel Cat

Reprinted From the Kansas City Star

men to do anything I wouldn't do myself."

He has never entirely outgrown or abandoned the habit of showing the way.

When a couple of reporters asked to see the spawn of channel cats removed from nests in large cans, Seth Way pulled on boots, waded out to the cans, as he has done for many, many years, and commented, "Soon learn to walk in mud with boots on around here," as he approached the first large can, a cream can.

Of course he supervises and directs more, and relegates more of the muscle work to such men as young Don Patton, right hand man to the superintendent. All the same he still shows the way much of the time.

When Seth Way started working at the state fish hatchery, annual production was probably about 200,000 fish in all, with about 75,000 channel catfish included in the total.

Today—this year—as has been the case for many years, about three million little channel cats will be hatched, started successfully, and sent out to brighten the lives of myriad fishermen in many states. Many will go to federal forces, for use in reservoirs. Many will be used in the successful trade program which Kansas has developed with other states, under which, on a fish-for-fish basis, Minnesota, Nebraska, and Oklahoma receive channel cats while Kansas, in return, receives Great Northern Pike, Walleyes or White Bass to place in the huge reser-

voirs which have become part of the Kansas scene in the past several years. Seth Way has made it possible to do mutually beneficial horse trading with fish.

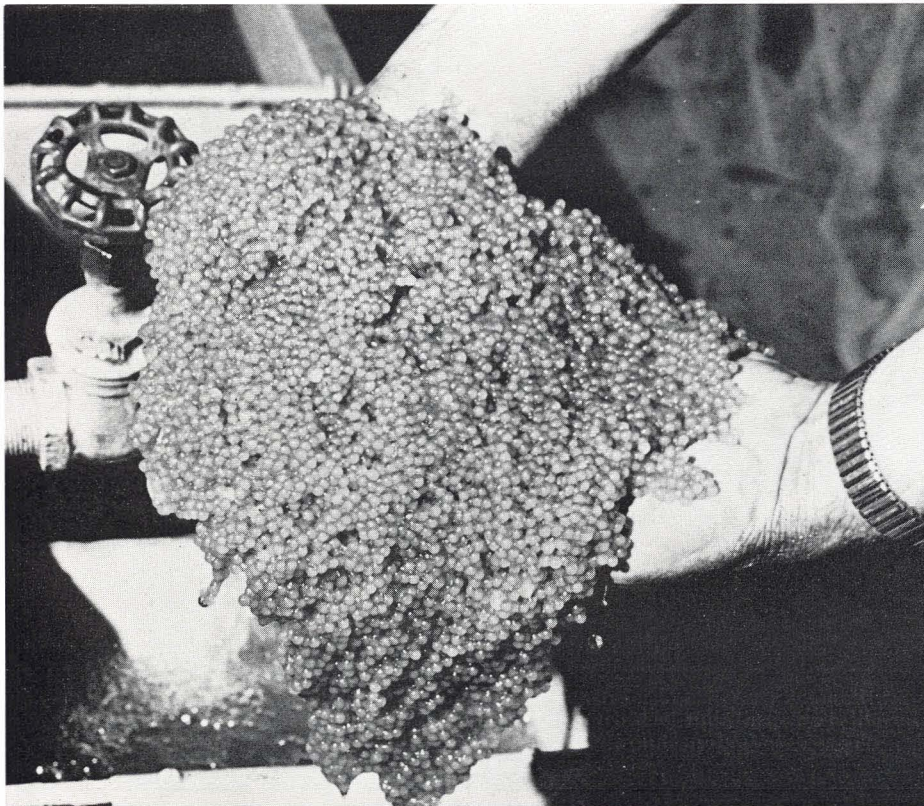
**A million or so little channels will remain for distribution across Kansas in the fall of the year, being transported in the special trucks of the hatchery, as the weather begins to cool.**

In 1904 and 1905, the first hatching-rearing ponds were constructed along the south side of the Ninnescah. In 1913 more ponds were built. Today, 86 such ponds, with a surface area of about 75 acres, lie, like a series of nests, along a two-mile stretch of the Ninnescah. Each pond has its individual inlet and outlet so that any one can be filled and drained, independently of the others. Screens are arranged to prevent the "drifting" of fish large or small from one pond to the other since control would be lost immediately if fish could not be contained with certainty within specific enclosures.

In 1926 a program of artificial hatching of channel catfish was begun, after years of letting nature and the brood fish hatch their progeny in several ponds, leaving them in those ponds until autumn, then draining the ponds and harvesting the crop.

It is characteristic of Seth Way that if he wants a thing well made, he'll make it himself. Said another Way, if he wants a thing, well, he'll make it himself. And so it was that he envisioned long, trough-like pans, through which water would flow with screen mesh baskets for holding masses of spawn, as an improvised incubator for channel cat eggs.

"I knew I had to keep that water agitated over the eggs, and all I could think of was a motor to run a pump to do the job," said Seth. "But the Commission didn't seem to have money for me to buy a



**EGGS GALORE**—Mass of channel eggs goes into mesh basket directly beneath it. As channels hatch, they drift out of mesh basket into trough, then are later placed in ponds to grow to fingerling size before being stocked in ponds and lakes.

motor and Jim Clark, chief clerk, asked me, 'Why don't you use water power?'"

"I don't know why I hadn't thought of that, but that was sure the answer," explains the channel cat chief.

Accordingly, he soon installed a series of pipes and valves and long metal troughs with screen mesh baskets to fit therein, with water flowing the length of the troughs and on out. An ingenious water wheel, also powered by gravity flow of water, operates long wooden rods which, like pitmans, move back and forth as the wheel turns. These rods activate flaps or vanes in the troughs. Back and forth move the vanes, washing the water across the spawn in the mesh baskets in surges, so that it does not move in a continuous, steady current.

Seth had observed that fish fanning a nest, would, at intervals, increase the tempo of their fanning, and go into brief, furious spells of stirring the water, evidently protecting against any "dead" pockets developing. The vanes which move back and forth accomplish the same result in the incubators.

Thus, without need of a motor, the simple, highly efficient water power operation runs smoothly, simulates closely the conditions of nature's plan, runs at virtually no cost, and hatches three million little channel catfish a year.

Since the water which provides the power, and which washes over the eggs, comes directly from a pond in which brood fish are located, there is no need to worry about its temperature, or its quality. If fish live and do well in the ponds, they certainly should do well as they are hatched—same temperature, same water. There's not even any change in temperature for the freshly gathered spawn as it is moved from pond to incubator. Outflow from the incubator returns to the Ninnescah.

The spawning season is determined in large measure by the springtime water temperature, and generally gets under way when the temperature holds at about 60 degrees. When it reaches 78 degrees the spawn will hatch in about seven days. Longer incubation time is required when the water is cooler; if

it heats up a bit more, time can be cut to about five days. "I like it at about 78, and seven days time gives us a good hatch of normal fish," said Seth.

About 15 ponds are used solely for receiving the baby channel cats which are transferred about a week after they have hatched, drifted on out of the hatching baskets, and into the steady flow of water in the troughs. At the end of a week, they have absorbed the egg yolk, and go onto their diet of powder and pellets which, by autumn, will have fetched them along to fingerling length.

Asked about the oft-repeated assertion that channel catfish will not spawn in ponds without benefit of running water, Seth, who answers from absolute knowledge and definite experience, answered quickly: "Certainly they'll spawn in ponds. They are naturally a stream fish and probably prefer running water, but they'll spawn in ponds." He explained, then, why it is that some ponds do not produce little channel cats although mature fish are in it.

"In a pond which contains channel cats, crappie, bluegills, sunfish or bass, the other fish will all spawn before the channels. By the time the little channels have hatched and are tiny little wigglers, the newly-hatched as well as the mature fish of the other species will gobble up the little channels—to the very last fish, generally."

Spawn from a normal channel cat will average about 12,000 eggs to a pound, and a healthy be-whiskered matron will supply as much as two pounds of spawn—a golden, gelatinous mass. Size of the spawn mass and size of the individual eggs vary from fish to fish, larger channels usually producing more and larger eggs.

Thirty-five females and 30 males, ranging in age from three to perhaps eight years, are placed in a pond, after first having been checked carefully for removal of leeches, and to be sure they are in prime health. The ponds, after use the previous summer, are drained, cleaned, dried, then refilled. Cream cans or similar containers are staked in water about two or two and



**WILDLIFE CONSERVATIONIST**—Seth Way proudly displays his trophy after being named Wildlife Conservationist of 1966 by the Kansas Wildlife Federation. Way's award came for his accomplishments in the development of the first practical means for artificially hatching and raising channel catfish.

a half feet deep, about 10 such cans to a pond.

As the spawning time nears, a close check is kept on these cans, and as production nears its peak, the cans are visited at intervals of about three days—should a spawn be laid the day after the nest is visited, it would hardly have time to hatch before the next visit.

The male channel catfish seems to be one to get the real urge to start housekeeping. With the approach of spawning season, the male turns darker bluish-grey, he develops a bulldog type head, and he is impatient on fins. He'll move into the nursery, fan out the silt and other accumulations, and when it is clean and ready, so is he. If his lady love dilly dallies around, he will bite her, shove her, rough her up, and herd her into that subterranean cottage to get with the egg-laying. Dad stays close by, doing his chores diligently and efficiently.

**The spawn deposited, the matron moves out and the male stays there to fan and to guard the eggs. Many times, as Seth or his men lift the cream cans to check they will find not only a huge mass of eggs clinging to the walls, but an ill tempered male, right there in the can, on guard. After a couple of spawning seasons channel cats lose their spots.**

This loss of spots and dark coloration, plus the bulldog appearance of the males, has given rise to another myth among Kansas fishermen, who will report catching "blue cats," when they have done no such thing. Blue cats are to be found in the Missouri river, perhaps a few in the Kaw and the Marais des Cygnes, but not in streams or ponds across the state. The word comes from the man whose authority cannot be questioned in the matter.

Shape, color, spots or lack of them cannot be used to identify a fish as a blue or a channel cat. The blue cat is definitely a big river fish, with a most perfect V-fork in his tail, and with 30 to 35 rays or spines in his straight-edged anal fin.

The channel cat's tail has a rounded lower lobe, with 24 to 29 rays or spines in his anal fin, which has a rounded edge. He can be as pot bellied as a tadpole, dark blue-grey in color, with

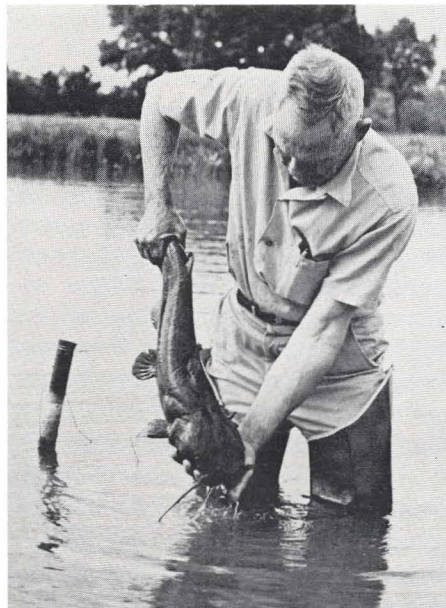
thick head—and still be nothing but a channel cat.

**(Besides the blue cat is scientifically *Ictalurus Furcatus* and anybody should be able to distinguish such a fish from *Ictalurua Punctatus*, which is the channel cat.)**

The channel cat, originally a stream fish, will require about four years, and sometimes six years, to attain a length of 12 inches in a normal Kansas stream. At the Pratt hatchery, he will attain 15 inches in 18 months. He can survive in water as warm as 90 degrees fahrenheit, but such water, usually unclear, is far from ideal for him. The fact that channel cats seek out holes or shelters for spawning and then deposit their eggs in big masses makes artificial or hatchery incubation practical. Other fish common to Kansas either scatter their eggs or cannot be decoyed into cans or other containers, so that they are left to spawn and hatch their eggs in the rearing ponds.

At the close of the summer the ponds at the hatchery at Pratt are drained, and the harvest of fish therefrom is a prelude to the hauling of little fish (bass, crappie, bluegills) to many parts of the state, to stock fishing waters.

Many of the states in warm water



**BIG DADDY**—Way removes big Papa channel cat from nest in cream can at rearing pond in Pratt, to extract eggs for removal to "artificial" hatchery. About 30-35 brood cats of each sex are kept in each pond.

zones raise channel catfish in hatcheries today. Many of them learned how from Seth Way of Kansas. Others, having decided upon changes to improve the techniques developed by Seth and his men, have tried their changes, only to adopt the principles used so long so successfully at the Pratt hatchery. Among fisheries men from coast to coast, Seth Way is admittedly the leader in the field. His title is Hatchery Superintendent. He is listed officially as a fish culturist.

Carp present no serious problem at the hatchery since the many ponds are under such effective control. Seth feels that the carp in Kansas is simply an opportunist, that as Kansans have destroyed cover and muddied streams more and more, they created ideal conditions for the carp. "If our streams were all as clear as they were 50 years ago, I just doubt if we would have as many carp—and we would probably have more stream fish," he said. Carp do not affect spawning efforts of game fish by eating the spawn—they may possibly eat some—but do their greatest damage by stirring silt and muddying the water with their continual rooting.

**Brood channel cats are carried from season to season in some of the hatchery ponds, and are selected carefully early in the spring. Age of channel cats can be determined by microscopic examination and counting of the rings in a cross section of the dorsal fin. "Just like telling the age of a tree by counting the rings," Seth pointed out.**

What does a man who has devoted so much of his life to fish, their welfare, and their propagation, do on vacation?

He goes fishing, that's what he does. Oddly enough, not for channel cats, but for fish in the Gulf of Mexico, near Port Aransas.

In about two and a half years, Seth will reach the time of retirement, and he intends to move out of the job to which he has given so much of his lifetime.

Asked what he plans then, Seth replied: "Raise channel cats for myself and go fishing."

He'll be doing something he understands, you can bet.

# "Pot One"—A Little Jewel

By GEORGE VALYER

## *Twenty-eighth of a Series on the State Lakes of Kansas*

State Highway K-99 in Pottawatomie county is a good road. Although it traverses rolling hills, the grades are not steep and one can roll right along at the legal limit. Traffic ordinarily moves rapidly along the highway but there is one spot where you can expect almost everyone to slow down for a better look, even if they can't take time to stop.

The place is Pottawatomie County State Lake No. 1.

**You can't fail to see it if you drive north out of Westmoreland or south from Blaine. It's right on the highway. In fact, the highway fill, as it crosses the valley, forms the dam for the lake—and a pretty lake it is.**

Pottawatomie County State Lake No. 1 is not a large lake but it is located in one of the more scenic areas of Kansas. The upper Flint Hills are beautiful in the fall of the year with the bright yellows, pale reds and greens of the vegetation lending a festive touch to the valleys and hills. The lake itself is like a blue-green jewel with its clear waters and tree-studded shoreline. Well-graveled roads lead to the boat ramp and several picnic and camping areas.

The lake is roughly "L" shaped with the upright or leg portion extending west from the dam. The base of the "L" extends to the north and it is around this north arm where the most of the facilities have been constructed. A boat launching ramp is located adjacent to the main entrance on the northeast and a well with excellent drinking water is provided at this site. Sanitary facilities are located at the camping areas to the west.

As might be expected, the lake is clear most of the time. The watershed above the dam is composed almost entirely of pastureland and the result is a lake which is relatively unsilted despite its age of 32 years. In 1932, the

Kansas Forestry, Fish and Game Commission purchased the lake site after working out the plan with the State Highway Commission. The highway group built the dam as part of the highway fill with the Fish and Game Commission providing \$15,000 for the water control structure and the rip-rap along the face of the dam.

**Completion of the dam was accomplished in 1934 but the drought of the '30s delayed filling of the lake. By 1937 enough water was present to allow stocking of the waters.**

Fishing was fine at Pottawatomie County State Lake for a number of years but, as time went by, it slowly became overpopulated with undesirable species. The out-of-balance condition had become pronounced by 1963 when the decision was made to rehabilitate the lake. Removal of the existing fish population was accomplished in September of that year by the application of fish toxicant to the waters. Restocking with largemouth bass, bluegill and channel catfish was completed in the spring of 1964.

Reopening to fishing occurred on March 5 of this year after two years of good fish growth. The spring fishing this year was considered exceptional by most local anglers although the coming of hot weather in July caused a drop in the lake. By late September, the bass were again on the prowl for food and good catches were reported on shallow running lures. Bluegill fishing has been good all season with the average size better than normal. The flyrod fisherman should not overlook this lake — it

seems to be ideal for the taking of pan-sized bluegill.

The good growth rate of the fish in this lake may be the result of a development project by the fishery division of the Fish and Game Commission. As a part of its regular management practice, commercial fertilizer was applied to the waters in an effort to increase the amount of natural food available to the fish. This program began shortly after the restocking and is continuing as a Federal Aid project. Two other lakes, McPherson and Leavenworth County State Lakes, are also receiving fertilizer and an evaluation of the effort will be made to determine the results as far as fish growth is concerned. Bill Cole, north-east area fishery biologist, is in charge of the program.

**When I last visited the 24-acre lake, a south wind was rippling the water and clouds were moving in from the northwest. A cool front was on its way in and fishing was relatively slow. A boat containing two fishermen was slowly working its way along the shore of the west arm. Occasionally it was possible to see a rod arched in the sunlight as a bluegill struck at a feathered offering.**

On the highway, a car slowed and braked to a stop in the shade of a tree and a fisherman got out to study the water. After a brief inspection, he unlimbered his rod and cast a plug carefully along the shoreline. Within five minutes he was playing a bass of respectable measurements and soon had it gripped firmly by the lower jaw. After placing it in the ice chest which he carried in the car trunk, he was right back after another one. It was certainly a temptation to join him but I was a long way from home and



**SCENIC SETTING**—North arm of Pottawatomie County State Lake No. 1, north of Westmoreland on K-99, is site of boat launching ramp, popular picnic and camping area.

the sun was getting lower in the west. Right then and there, I made a resolve to come back to this lake when there was more time to sample its fish population.

There is plenty of room for lots of fishermen at Pottawatomie County

### **Jewell County State Lake Is Restocked**

MANKATO — Bass, bluegill and channel catfish fingerlings have been restocked in Jewell County State Lake, the Kansas Forestry, Fish and Game Commission has reported.

Due to unbalanced fish populations, the lake was rehabilitated by use of fish toxicants during early autumn.

The lake will remain closed for fishing during the growth period of approximately two summers.

State Lake No. 1. Although it is popular locally, very few fishermen from outside the immediate area ever visit it. Perhaps the reason is the ready accessibility of other fishing waters. Just a few miles to the west lies Tuttle Creek Reservoir, a very popular spot for anglers from all over northeast Kansas and southeast Nebraska. Also near at hand is the larger Pottawatomie No. 2 lake just northeast of Manhattan. So, if you are looking for a fishing spot which is relatively uncrowded, number one lake may be just the place. If you like to take the family along on your trips, there is plenty of exploring room for the youngsters and Mom will like the well-shaded picnic areas.

All in all, this lake has a lot to offer the average fisherman. Give it a try. You may come up with a stringer full

of fish and I'm sure you'll enjoy a day in a beautiful area.

### **Cover Photo:**

Not exactly a familiar scene in Kansas—but one that is greeting more and more persons each year—is the pronghorn antelope.

As you'll note from Bill Hlavachick's fine article on page 3, antelope aren't new to Kansas, and they're making a fine comeback through the Kansas Fish and Game's stocking and management program.

The cover photo shows five of a large herd of pronghorns secured from Colorado last year and released on a large ranch in the famous Gyp Hills country of Barber County, in South-Central Kansas. (Photo by Thayne Smith.)

# CAP Program . . .

## Boon to Kansas Sportsmen

By **BILL HANZLICK**  
*Northwest Regional Game Manager*

The Kansas Forestry, Fish and Game Commission and the U. S. Department of Agriculture have initiated a program that may prove to be a boon to the sportsmen of Kansas.

The program, called the Cropland Adjustment Program, provides payments to farmers who will retire land from crop production and reseed the cropland to native grass. Additional incentive payments can be obtained by the farmer if he plants and maintains wildlife food and cover and opens the retired land to free public hunting. In time, the C. A. P. program may open to the hunter many acres of good quality wildlife land.

The basic intent of the C. A. P. program is to provide the farmer with a program similar to the old "Soil Bank" or "Conservation Reserve" programs, whereby cropland is retired from production and reseeded to grass for periods up to 10 years.

However, unlike the old Soil Bank program, emphasis is placed on use, rather than nonuse, of lands under C. A. P. and efforts are being made to see that the general public benefits directly and tangibly through greater opportunity for outdoor recreation, better watershed protection, etc. The Public Access supplement was initiated to provide for public use.

**A farmer who has entered the C. A. P. program will have agreed to retire from production and reseed a portion or all of his cropland. He is paid on a per-acre basis, with rates averaging \$8-\$15 per acre for retired land.**

The farmer is eligible to take ad-

vantage of the Public Access Supplement to C. A. P. and may enter into one of three levels of participation. The first level involves purchasing of public hunting signs and erecting the signs at 300-foot intervals along the boundary of his C. A. P. tract. The farmer receives \$1 per acre, and must maintain the signs through the life of the contract, which may be five or ten years.

To participate in the second level of participation, worth \$2 an acre, the farmer must devote approximately 2.5 percent of his C. A. P. acreage to wildlife food and cover plantings and mow about 10 percent of the C. A. P. acreage for flushing lanes. In all levels of participation the erection and maintenance of public hunting signs is mandatory.

**The farmer, to qualify for the third level of participation, must devote five percent of his C. A. P. acreage to wildlife habitat developments and mow approximately 25 percent of the acreage for flushing lanes. Also, he must open for free public hunting an additional acreage equal to this C. A. P. acreage. Payment to the farmer for this is \$3 per acre.**

The Kansas Forestry, Fish and Game Commission involvement in the Public Access aspect of the C. A. P. program centers around the development of wildlife food and cover on the lands, but, Commission personnel discuss with each applicant the various opportunities and obligations of the program. If the farmer desires wildlife developments, the C. A. P.

tract is field inspected and a wildlife plan is developed by a commission biologist. Basic developments generally include tree sites and food plots strategically placed for utilization by wildlife. A system of flushing lanes is also developed whereby strips of grass approximately 50-60 feet in width are to be mowed in a checkerboard fashion to aid the hunter in flushing the birds. Any hunter who has attempted to flush pheasants from a large field of heavy cover will readily see the desirability of this mowing.

All wildlife habitat developments and mowing on C. A. P. acreages are undertaken by the farmer, and he is responsible for planting and maintaining the developments through the term of his C. A. P. contract. Federal cost sharing is available for purchase of tree stock and seed, and for planting of the food plots and tree sites.

The C. A. P. program was initiated during 1966 and the Public Access portion of the program was developed during the summer, so the success or failure of this venture will not likely be known for another year to two.

Preliminary reports indicate over 10,000 acres of C. A. P. lands are open to free public hunting at present. This figure is modest compared with the 125,000-plus acres of public hunting lands managed by the Commission, but as the C. A. P. program receives better publicity and when more eligible farmers are signed, the effects of the program will become significant to both wildlife populations and to hunters. A map showing the location

*(Continued on page 18)*



# More Fish With Fertilizer

By W. D. COLE  
*Fisheries Biologist*

With the increasingly large number of fishermen in Kansas it is becoming necessary to intensively manage lakes for maximum fish production.

Many areas in Kansas have a large number of fishermen with very few local places to fish. As fishing water is limited in these areas it is becoming more and more important to obtain the maximum yield to the fisherman that the lakes are capable of producing.

Maintaining good fishing in some of the newer lakes is much easier than in the older lakes that have combinations of overpopulated carp, crappie, and bullheads. When these are present in quantity it is usually necessary to rehabilitate the lake in order to improve fishing to any great extent.

**Increased quantities of fish can be made available to the fisherman through lake fertilization. Fertilizer can increase the yield of fish when properly used in lakes just as it will to corn or other field crops.**

An experimental lake fertilization project was started in Kansas in 1964, with Pottawatomie County State Lake No. 1 and McPherson County State Lake being chosen as the "guinea pigs." These lakes are both small and were thus well-suited for an experimental program of this type. The information and results obtained from these lakes was good, so it was decided to try the same type of project on a larger lake.

Leavenworth County State Lake, a 175-acre lake located near Kansas City, was chosen because of its low basic fertility and the fact that it is one of the heavily fished lakes in the northeast. The water and drainage area of this lake is rather infertile, and it was felt that it would be a good test to see what could be obtained from a lake of this size.

The fertilization project was started in May, 1966, and it was expected that it would take a year or two before full results and improved fishing would occur. Fishing was improved almost overnight and remained good for most of the summer. Several more years will be necessary to pass final judgment on this project, but the re-

sults obtained so far are very encouraging.

**Most of the ponds and lakes in the "Flint Hill" area and in eastern Kansas are relatively infertile and good results can be obtained with small actual cost per surface acre of water. Actual fertilizer cost will vary some from year to year due to the amount of rainfall, but should average less than \$10 per surface acre of water per year.**

Some of these lakes will be lacking in nitrogen, but the lack of phosphate is definitely limiting the quantity of fish produced. Application of the fertilizer is simple—it is just added a sack at a time in the shallow water areas. It is not necessary to scatter the fertilizer over large areas or in deeper water as the type of fertilizer used is water soluble and will dissolve in the water within a short time.

The addition of the fertilizer encourages the growth of tiny microscopic plants and animals called "plankton." These are the basic users of the fertilizer and these provide the basic food supply of smaller fish. Plankton will become much more abundant than normal and the measurement of this abundance determines when more fertilizer should be added.

The distance that a white object lowered into the water can be observed is the "key" to maintaining the desired plankton "bloom." The white object should be visible for no more than twenty (20) inches and should be visible in at least eighteen (18) inches of water. If the object can be seen in more than twenty (20) inches of water it is time to add more fertilizer. Lakes in eastern Kansas will probably need about eight (8) or ten (10) applications of phosphate and one application of nitrate per year.

Fertilizer may be used in some ponds and lakes for another reason. When used properly it can give very good control of underwater vegetation. Chemicals can be used for small areas, but are too expensive and do not provide control unless used several times during the summer.

Lakes that have excessive quantities of underwater vegetation usually have most of the fertility tied up in the growth. The increased available fertility from the fertilizer enables the small free floating plants and animals to become much more abundant than what the normal available fertility would allow. These act as "shade" and the underwater vegetation dies from lack of sunlight. Too much "shade" will result in a large fish kill and too little will result in an increased amount of vegetation.

**Do not add fertilizer without proper instructions.**

Good fishing is created, it doesn't just happen. Many good lakes never have really good fishing. This can be traced back to either poor water quality, improper stocking, or improper fishing. All of these affect fishing to varying degrees. Muddy water and water with excessive clarity is poor water for fish production and will not produce many fish because of the lack of basic fish food production.

Improper stocking ruins fishing in many ponds through introduction of undesirable pond and lake species and the introduction of larger-sized fish. Never stock a new pond or lake with fish other than those obtained from a fish hatchery. The correct stocking rate in lakes is probably the most important thing in having good fishing over an extended time period. Sufficient numbers of fish to stock the water area can be obtained from one of the fish hatcheries upon request.

These fish should reach keeper size within a two-year period. Large-mouth bass and channel catfish should

both be over a pound in size within this time. Stocking excessive numbers of these or undesirable species will reduce the growth rate to such an extent that it may take three or more years for these to reach a pound in size.

**Fertilized lakes will produce pound size bass within one year after stocking. Increased availability of food and proper stocking will increase the growth rate of bass by fifty (50) percent and increase the potential yield to the fishermen by three or four hundred percent.**

Every fisherman enjoys catching fish, particularly "large ones." This liking is a good one, but it is just as important to catch and keep some of the smaller bluegill as it is enjoyable to catch the larger bass and channel catfish. About two or three pounds of bluegill should be kept for every pound of bass.

#### **Directions for the application of fertilizer:**

If the pond or lake has excessive water going over the spillway much of the time it will be difficult to obtain the desired results. A fertilization project will work the best in clear water ponds and lakes. Application of the fertilizer should start about April 15 to May 1. Sacks of the proper kind of fertilizer can be cut open and the fertilizer placed in water less than two (2) feet in depth. Applications to be made at five (5) day intervals.

#### *Fertilizer Used:*

1. Ammonium Nitrate 33.5-0-0.
2. Triple-Superphosphate 0-46-0 to 0-52-0.

#### *Application Rates:*

Each application consists of twenty (20) pounds of fertilizer for each surface acre of water. A five-acre lake would require 100 pounds for each application.

#### *Suggested Application Schedule:*

May 1—One (1) application of Triple-Superphosphate.

May 5—One (1) application of Triple-Superphosphate.

May 10—One (1) application of Triple-Superphosphate; one (1) application of Ammonium Nitrate.

May 15—One (1) application of Triple-Superphosphate.

Thereafter—As Needed—One (1) application of Triple-Superphosphate. Do not add fertilizer if a white object can not be seen in at least eighteen (18) inches of water.

## **Kansas Antelope Outlook**

*(Continued from page 3)*

to obtain transplant stock. After several delays and abortive trapping attempts, 72 pronghorns were received from the National Bison Range in Northwest Montana. These antelope were released at two sites in Wallace

### **C. A. P. Program**

*(Continued from page 16)*

of Public Hunting C. A. P. tracts is being prepared on a county basis, and will be distributed as early as possible.

**Sportsmen's clubs or wildlife groups are urged to become acquainted with the Public Access portion of the C. A. P. program and to contact farmers or land owners in their vicinity, soliciting participation in the program.**

Information concerning the program may be obtained at county Agricultural Stabilization and Conservation Service offices throughout the state or by contacting the Kansas Forestry, Fish and Game Commission, Box 1028, Pratt, Kansas.

In the meantime, while looking for a place to hunt this fall, keep your eyes peeled for blue-lettered public hunting signs, denoting C. A. P. acreages.

### **Three Game Managers Named by Commission**

Three former employees of the Kansas Forestry, Fish and Game Commission have been named area game managers by the Commission.

Mike Baugh, formerly employed at the Marais des Cygnes Waterfowl Management Area, has assumed new duties as area game manager at Fall River and Toronto reservoirs.

Raymond Parish, formerly lake superintendent at Chase and Lyon County State Lakes, is the new area game manager for Council Grove and Marion reservoirs.

Jerry McCormick, formerly located at Fall River reservoir, became area game manager for Elk City reservoir.

and Sherman counties on November 24, 1964. Subsequent observations and counts seem to indicate that these animals are doing well and the summer counts of 1966 revealed the best production of young fawns recorded since the survey began.

During the winter of 1966, sixty-one pronghorned antelope were received from the Colorado Game, Fish and Parks Department and released at two sites in Barber County. Follow-up observations during the summer of 1966 indicated that, for the most part, these transplants were making the most of their new homes and moderate reproduction was noted during the summer of 1966. It is hoped that permanent, self-supporting herds can be built up in these two areas to provide our own stock for transplanting.

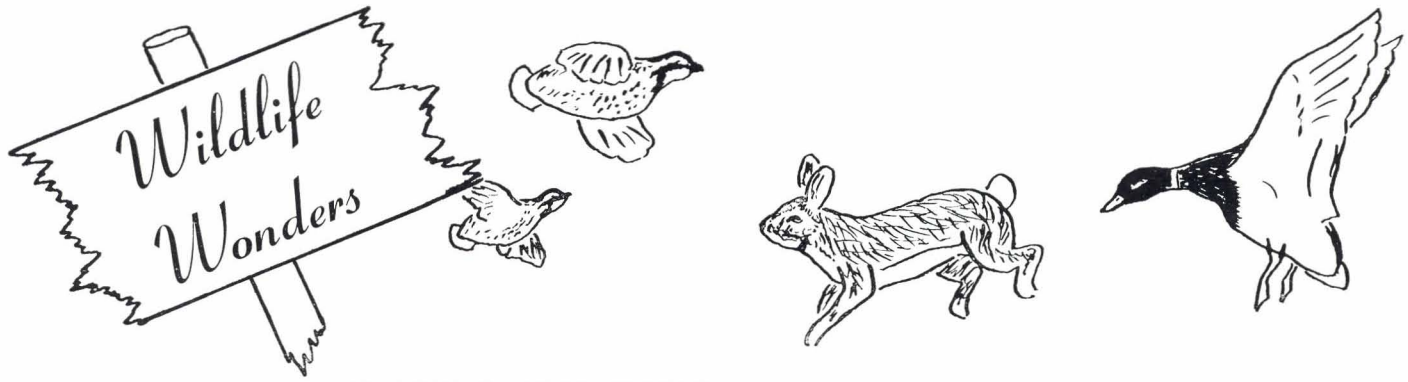
**What of the future of pronghorns in Kansas? Do they have a chance? Right now the future of antelope in Kansas has never been brighter. With two releases already made and negotiations in the works for two more during the winter of 1966-67, things are looking up for this unique speedster of the plains. Once the transplanting program has been completed all we can do is keep a check on herd productivity and distribution, and hope for the best.**

With several areas in the state having large expanses of natural grasslands, the future of the pronghorn is certainly bright if the transplants take hold and reproduce in large enough numbers to warrant trapping and transplanting within the state.

Of course, the end objective to the antelope program is the initiation of a limited permit hunting season. To some this is highly improbable, but who knows; only time will tell!

### **FLY TETHER**

A section of a small-diameter drinking straw, when slipped over the hackles of a newly tied fly, enables the tier to make a neatly wound head. Lacquer this head, taking care not to glue the fibers together.



By MARVIN SCHWILLING

Winter is here . . . The thousands and thousands of birds of the less winter hardy species have gone, marking the coming and going of Fall.

First the heavy flights of doves that linger only until the night temperatures drop below the mid-sixties. About this time hordes of colorful and confusing warblers, all 20 to 25 species of them, honor us with their short, twice yearly, visit.

The blue-winged teal, first of the ducks to migrate, trickle in, reaching their migration peak about September 10. Then pintails, widgeons and shovellers follow and from mid-November to the first of December we find literally thousands of ducks—15 to 20 kinds—in our midst.

The divers on the deep water—aquatic weed infested—lakes. The dabblers remain on the shallow water sloughs and marshes that have smartweed, wild millet and other emergent plants that provide food and cover.

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I opened the late duck season at our man-made waterfowl marsh in Southeast Kansas—The Neosho Waterfowl Management Area.

Here on the flood plain of the Neosho River we have created a dabbling duck marsh par-excellence. The area is managed by draining the hunting pools and seeding to duck food producing crops—Japanese millet, maize and corn.

As the crops near maturity these pools are flooded with shallow water—just ahead of the fall duck flights. The ducks don't have to be told about the marsh—they find it. Blue-wings, pintails, widgeon, shovellers, wood ducks, gadwalls, green-wings, mal-

lards and black ducks. Even the divers, redheads, canvasbacks, scaup, ring-necks and buffleheads and ruddy ducks have been here during the fall migration. Now most have departed for more southern climes.

There are nearly a half-million mallards in the state now—and we expect them to spend the winter in Kansas. Nearly every big reservoir harbours a large wintering flock. Only a few years ago Kansas wintered only a handful of mallards. What has caused this change? Surely there are not more mallards. We are told they are in short supply and thus the two bird limit. The waterfowl manager explains it this way:

We have for many years had an abundant supply of food, waste corn and maize that could have been utilized by mallards, and our winters are seldom severe enough to drive the birds out of the state. The missing link was that mallards must have open water and sanctuary from harassment. The deep water reservoirs have provided this sanctuary and water so deep that the flocks of mallards can keep them from freezing over. Thus Kansas now is wintering tremendous flocks of mallards—even more than Texas. Once in these wintering flocks the birds are difficult to hunt. They raft up on the reservoirs and loaf during the day, leaving the reservoir in large feeding flocks morning and evening. Most hunting must be done in the feed fields—early and late—or along the few open streams near the reservoirs.

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I spent an hour and a half in the blind by the wildlife feeding station

on a recent afternoon before the cold sent me back to the house for a cup of hot coffee to help take the chill out of my bones. We have maintained the feeding station—year around—for the past three years.

Black-chinned weaver finches (plain old English sparrows) made a perfect nuisance of themselves, as usual. Chickadees and nuthatches were on the suet slabs above my head most of the time. They were off the suet only when temporarily startled or when "Magie," the lone red-bellied woodpecker, came in and took over. Magie has been a regular customer all three years. At least we think its the same bird. We finally trapped and banded her last February 20 so now instead of "Magie" she's number 702-30601. Must even friends become numbers?

Have you ever wondered how the nimble little chickadees keep their tiny legs and toes from freezing in this frigid weather? They flit around just as playful as they did last summer while my much heavier fingers, covered with gloves no less, grew stiff and less useful from the cold.

A covey of quail came in. I heard their group conversation before they crossed the ditch some fifty feet away. Anyone who thinks the only voice a quail has is the well known "bob-white" whistle from atop a fence post should spend some time near a group of feeding quail and listen to their varied jibbering.

There were nineteen birds still in this covey, certainly more than needed for seed, despite the efforts of my two boys and I—as well as several other hunters—to reduce the number further during the hunting season.



**HANDLE CAREFULLY**—In appearance, they resemble a pair of tame kittens. In reality, they're pretty mean at times. This pair of bobcat kits was caught on the Oscar Blont ranch near Medicine Lodge recently, and turned over to Game Protector Gene Hitt of Pratt.