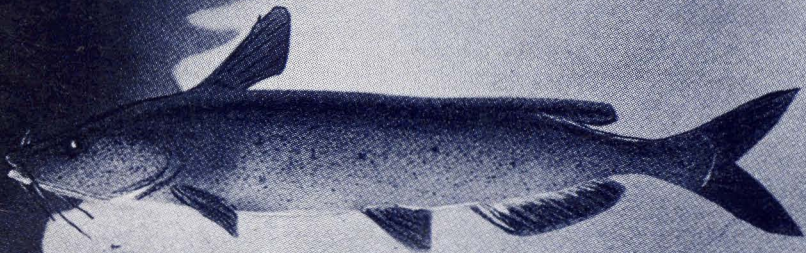
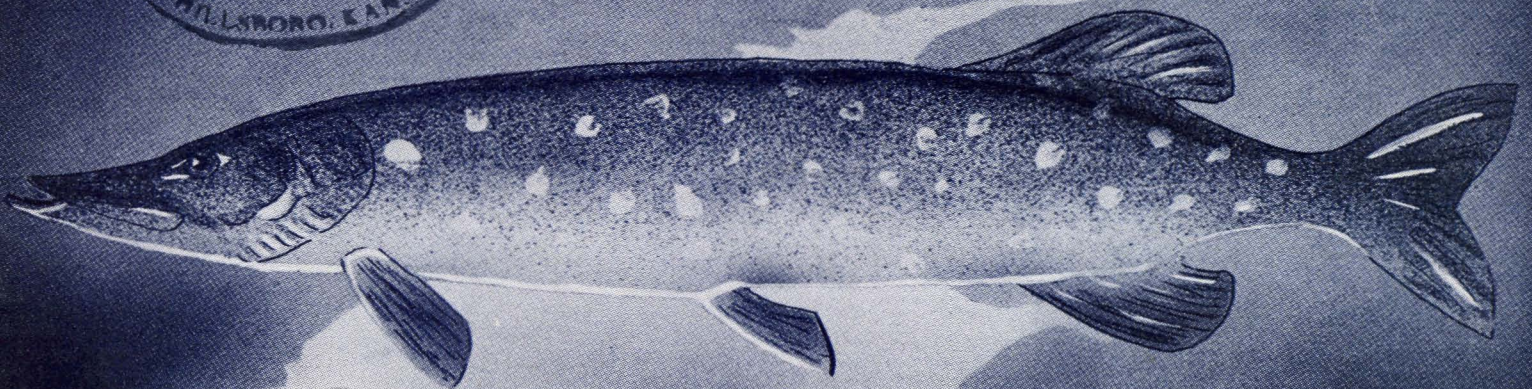
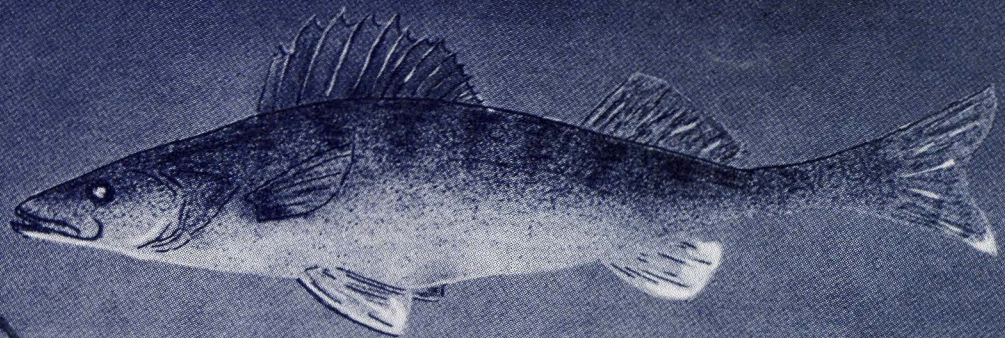
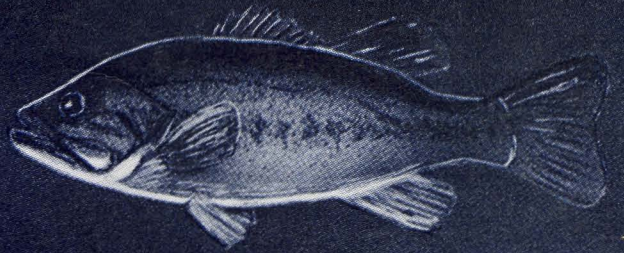


KANSAS FISH & GAME



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Spring

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The Misuse of Firearms

The Constitution of the United States confers certain powers upon the national government but reserves to the people large areas of freedom which cannot be invaded. These rights which the people kept for themselves became the first 10 Amendments to the Constitution and are known as the Bill of Rights. Each of these rights has a reciprocal responsibility.

The Second Amendment asserts that the right of the people to keep and bear arms shall not be infringed. The ownership and lawful use of firearms by individual citizens has become, over the years, one of the historic traditions of America. It represents a freedom won by our forefathers which is enjoyed by the people of few other nations. It is an essential part of our priceless heritage which must be cherished and encouraged if it is to be maintained.

It is the misuse of firearms that produces tragic accidents and crimes of violence.

The reaction of many people to crimes involving a firearm is that the crime happens because the laws are too lax. They fail to realize that crimes cannot be prevented by regulating firearms in the hands of law-abiding citizens and that you cannot make an unsound law work by making it more severe. The objectionable feature of most proposed firearms legislation is the wrong emphasis. It tends to disarm the law-abiding citizen, while it fails miserably in its avowed purpose of disarming the criminal.

Intelligent Americans will agree that under today's conditions, guidelines must be established for the control of firearms in some areas. Nevertheless, this control must be based on reason and understanding, not on emotional reaction or on misinformation. Existing laws should be strictly enforced with severe punishment for people who use firearms for illegal purposes. The lawless few must not be allowed to jeopardize a constitutional right of many. Any proposed legislation should not be directed at firearms or the right to keep and bear arms, but at the *misuse of firearms*.—Reprinted in part from *The American Rifleman*, Washington, D. C., March, 1964, issue.

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New Reservoirs—New Fish Species

Northern Pike Season—June 1

By JOHN POLSON

Reservoir names such as Fall River, Toronto, Kanopolis, Kirwin, Webster, Lovewell, Cedar Bluff and Tuttle Creek are quite familiar to most Kansas fishermen, but there are new names which will be appearing more and more often in the next few years as construction is begun and completed on reservoirs such as Cheney, Pomona, John Redmond, Wilson, Milford, Norton, Council Grove, Elk City, Perry, Marion and Glen Elder. Eleven new federal reservoirs are now "under construction" in Kansas.

When completed there will be better than 130,000 surface acres of water in federal reservoirs in Kansas. In addition there are nine reservoirs proposed, four in pre-construction planning and seven authorized. Thirty nine state lakes and thousands of ponds with the prospect of more in the future mean that the fishing and other water recreation activities will change swiftly in years to come.

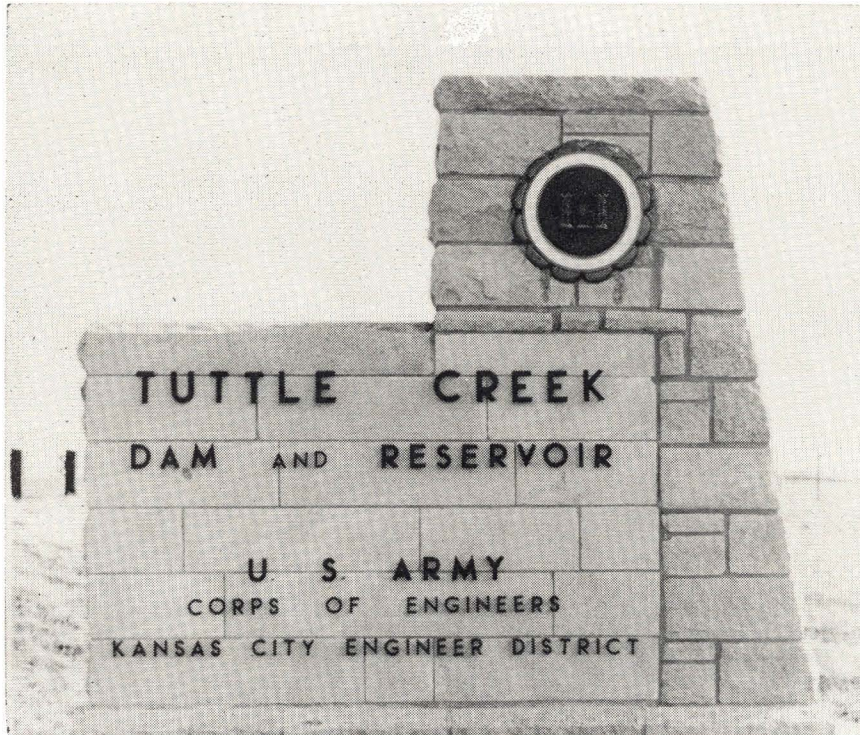
Northern Pike Experiment— Open Season June 1

As far as fishing is concerned in

this state some changes have occurred over the past ten years. White bass were first stocked in our reservoirs in 1950. They are now an established species of game fish. Commission personnel have increased the walleye population with the annual operation of taking eggs from adult fish, hatching them and restocking large reservoirs. Another experiment is now underway.

Two years ago the Kansas Forestry, Fish and Game Commission

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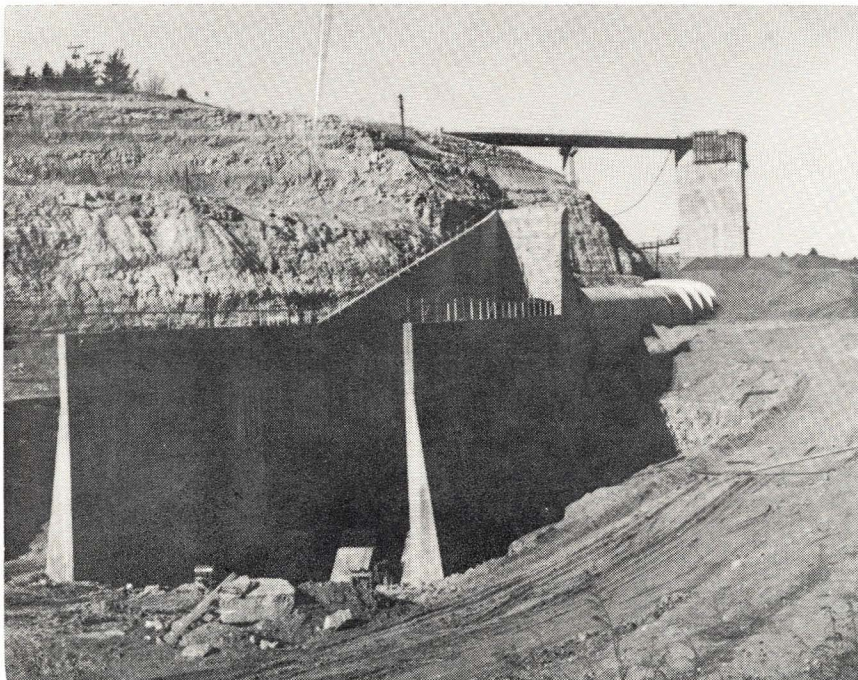


Sight which greets visitor at the largest reservoir in Kansas.

began an experiment with a game fish considered new to Kansas waters — Northern Pike. Another step in this experimental program is the open season June 1. There is much speculation about whether or not it will be successful for anglers.

Many things must be taken into consideration, both from the fishermen's standpoint and from a management standpoint. Fishermen will be concerned with the weather and baits. Biologists want to know how many of the "fry" stocked in

Outlet gate at Milford Reservoir (under construction).



Tuttle Creek Reservoir survived. Both ask, "Did they spawn and where are they now in this 15,800 surface acres of water."

The experimental stocking of northern pike is an effort to determine whether or not this fish can be established as another game species for Kansas fishermen. The two years they have been in only one body of water in this state is just a beginning part of the program. It will take a number of years to determine whether this will result in northern pike becoming as common-place as the white bass which was introduced in Kansas.



Largest Northern Pike taken in test at Tuttle Creek. Length 33½ inches, weight 9¾ pounds, age 2 years.

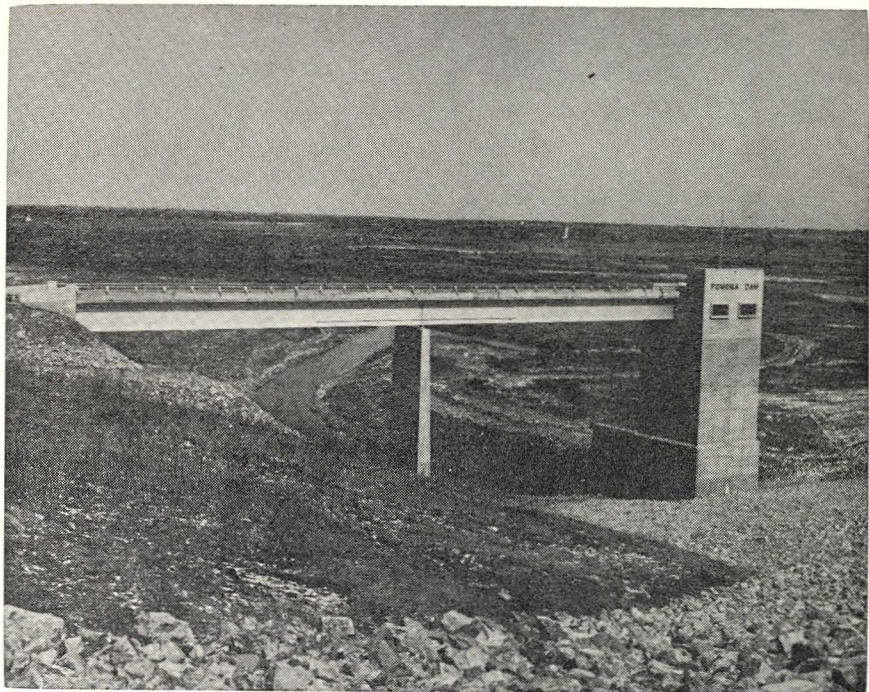
Northern pike of a respectable size have been taken by fishermen while fishing for channel catfish, bass, crappie and walleye, but they were returned to the water because the season was not yet open. The first stocking of northern pike should have spawned this spring prior to the opening of the northern season. If the northern spawn naturally or the commission's personnel are able to obtain the eggs in the same manner in which eggs are taken from walleye, the experiment will be close to success, but reproduction is one of the deciding factors.

Stocking on a put-and-take basis would be impractical from a management standpoint. Attempting to obtain northern eggs or fry from another state for annual stocking would be extremely difficult since other states are reluctant to part with northern eggs or fry. For this experiment to reach a successful conclusion we must take enough eggs from our own fish to permit restocking in Tuttle Creek and other reservoirs.

Fishing for Northern

Northern pike have been taken from Tuttle Creek Reservoir that weighed from 6 to better than 9 pounds. Commission personnel took one female of this species that measured 33½ inches in length and weighed 9¾ pounds. Reports of this kind are enough to cause fishermen to plan special "northern" trips to the reservoir. That kind of a trip may or may not be successful. If it includes dreams of taking daily limits of 8 and 9 pound northern, chances are many will be disappointed. Fishermen who plan a "fishing trip" with the expectation of fishing for "what's biting" will probably be pleased with their results, especially if a northern is added to the creel while fishing for the many other species. Tuttle Creek is well stocked and reports thus far this year on channel catfish, bass, crappie and walleye fishing have been above average.

Those who are successful in taking Kansas northern pike will have to work and work hard for them. Fifteen-thousand-plus surface acres of water is a lot of area and even though more than 5,000,000 north-erns were stocked the survival count is unknown. There is still a lot of lake for the millions of fish inhabiting it. The habits of northern in Kansas are unknown. They could vary from those of the same species living in waters in the northern United States. Normally, the best bet for catching one will probably be to work the edges of weed patches or other submerged



Control tower at Pomona Reservoir.

vegetation, and there is plenty of that kind of habitat at Tuttle Creek Reservoir.

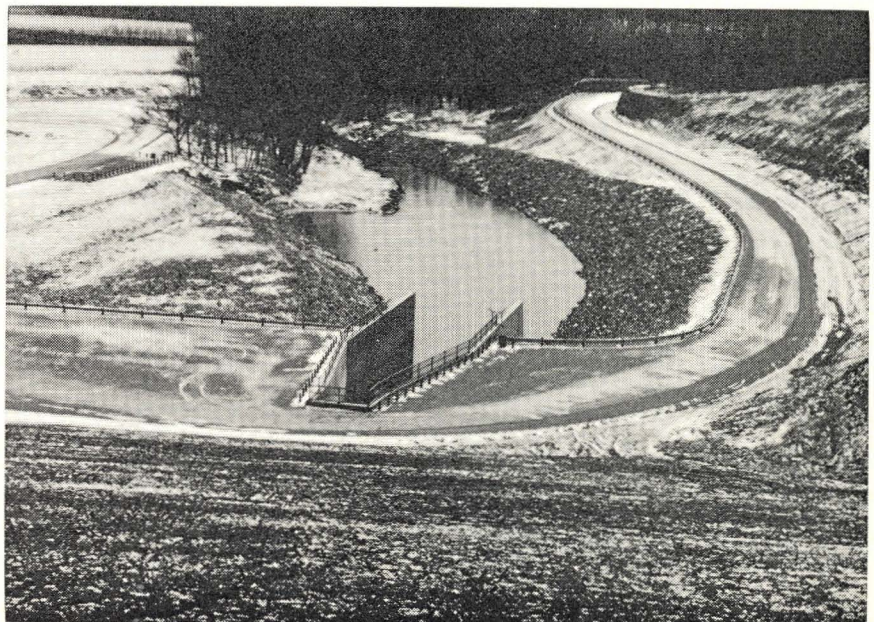
Artificial lures, including surface plugs, are effective. Large minnows will also take northern. You might prefer heavy equipment. A relative newcomer to fishing will have trouble with light equipment since

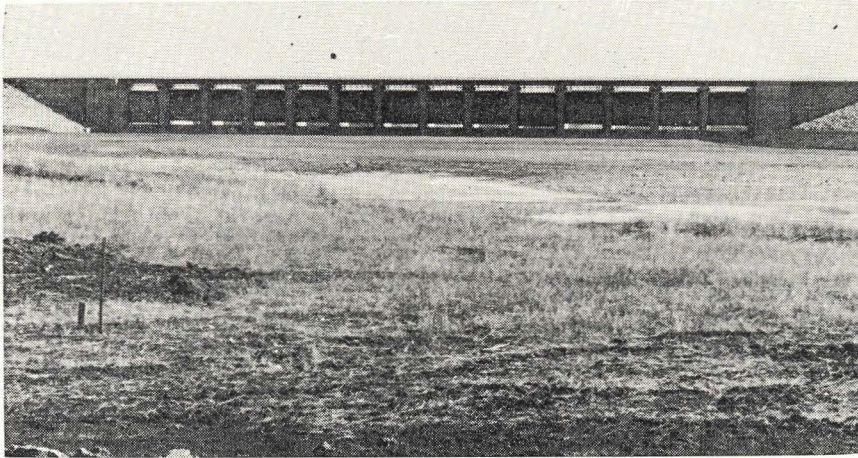
northern are hard fighters and well known as tackle-busters.

Records of Fish Stocking

The following records of fish stocking in Tuttle Creek Reservoir (1962-1963) were compiled by Roy Schoonover, chief of the Fisheries Division:

Downstream from Pomona Dam.





Spillway gates at John Redmond.

1962

Northern Pike—April 13, 1962, 2,250,000 fry; April 28, 1962, 1,500,000 fry.

Walleye—May 11 and 14, 1962, 2,400,000 fry.

Largemouth Bass—May 17 and 24, 1962, 402,000 small fingerlings (supplied by Fish and Wildlife Service).

Bluegill—Some were stocked by Federal Hatchery, but no information is available.

1963

Northern Pike—April 1963, 2,000,000 fry.

Walleye—April 22, 1963, 1,500,000 fry; April 23, 1963, 1,300,000 fry; April 24, 1963, 2,200,000 fry.

Largemouth Bass—June 28, 1963, 65,000 fingerlings; June 19 and July 5, 1963, 165 adult brood bass (all supplied by

Fish and Wildlife Service).

Bluegill—May 3, 1963, 57,280 fingerlings and 671 adult brood bluegill; July 19, 1963, 120,000 fingerlings.

Black Crappie—March 7, 1963, 20,000 fingerlings.

Other Reservoirs Coming

If this experiment with northern pike in Tuttle Creek is successful, additional stockings in other reservoirs can be anticipated. Of course, it will be in addition to the many other species stocked in the thousands of new acres of water to be added over the next several years. There will be much re-

search and experimentation accompanying these water recreation areas.

Cheney Reservoir on the Ninnescah River, Pomona Reservoir on 110-Mile Creek, Council Grove Reservoir on the Neosho River and John Redmond on the Neosho are, for all intents and purposes, complete. Others are nearing completion of the construction stage. Fishing will begin in many of them before they are listed as "complete."

Following is a list of federal reservoirs in Kansas (other than existing), both completed and under construction, the streams they effect and the surface acreage at conservation pool level:

Pomona, 110-Mile Creek	4,000
Wilson, Saline	9,000
Milford, Republican	15,600
Council Grove, Neosho	3,280
John Redmond, Neosho	9,400
Elk City, Elk	4,400
Perry, Delaware	12,200
Marion, Cottonwood	6,160
Norton, Prairie Dog	2,230
Cheney, Ninnescah	9,552
Glen Elder, Solomon	12,586

Kansas has much to offer the sportsmen at the present time. The future holds even more. The addition of new reservoirs will improve already good fishing and hunting. The state's economy will benefit from the many recreations related to water. Research and experimentation will show us the way to full enjoyment of the many potentials for the sportsmen and outdoor recreationist.

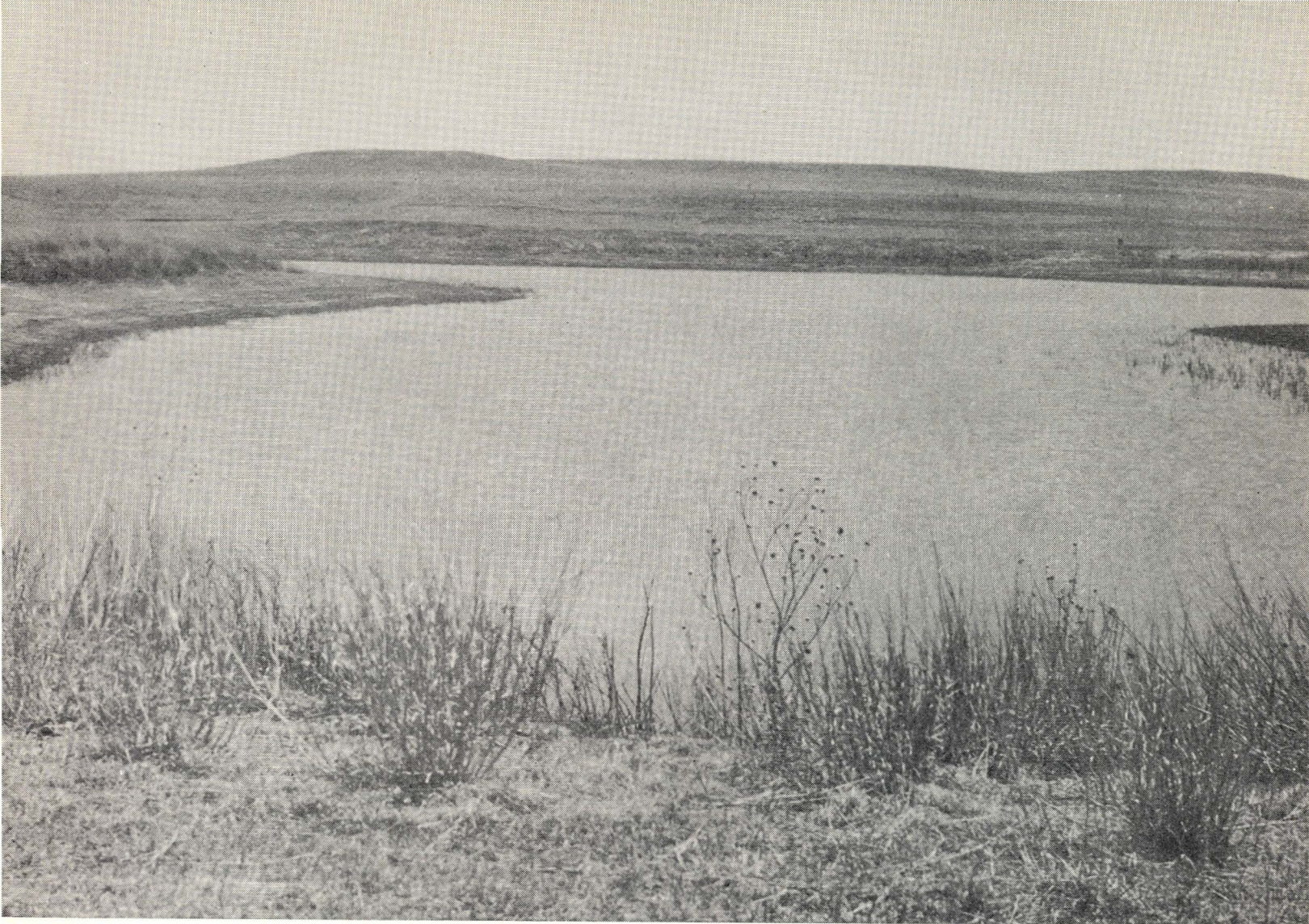
USE FENDERS TO PROTECT BOAT

To protect your boat's hull while it is tied up at a pier or to other boats, the Evinrude News Service suggests the use of two or more fenders. Boat fenders are inexpensive and their use will help keep your rig looking new.

GET PERMISSION
from Landowner
To HUNT or FISH



Boat ramp under construction at John Redmond Reservoir.



A view of Hodgeman County State Lake looking from the northwest to the southeast.

Hodgeman County State Lake

22nd of a Series on the State Lakes of Kansas

By **GEORGE VALYER**

If you like the wide open spaces for your fishing, Hodgeman County State Lake will fill the bill. If you like a spot away from the crowds, this lake will provide the solitude you seek.

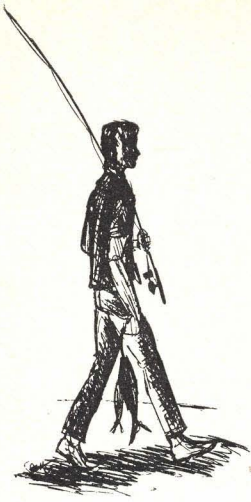
Hodgeman County State Lake has many attributes and it also has some aspects which are not desirable. One of the major problems

concerns water supply. The last runoff of any proportion in the watershed was nearly two years ago. Naturally, the lake is low at this writing and the appearance is not as good as it might be. Nevertheless, it is producing some fishing for channel catfish and bullheads.

Even considering the drawbacks,

this is an interesting lake area and has some fascinating points to recommend it for those who enjoy wildlife of the western plains. The population of ground squirrels is good and these small animals are relatively tame. I came across one at the west end of the dam which stood next to its hole and scolded

(Continued on page 16)



Kansas

Fish and Game Resources

values and problems

By **GEORGE C. MOORE**, *Director*

Modern game and fish management is the youngest of the natural sciences. For thousands of years it was practiced as an art by ancient kings and gamekeepers. It has been only during the last few years that it has taken its place among the objective sciences. As was the case in all progress regardless of whether it was medicine, law, education, agriculture or wildlife, the acceptance of game and fish management as a science has been an uphill fight. It has been necessary to force acceptance of dynamic practices on the public just as modern medicine had to be forced on the people as a substitute for witchcraft.

Since the science of fish and game management is so young, the modern concept of wildlife management is not universally accepted, nor can we expect it to be fully recognized for many years. Actually, bias and ignorance are still the accepted practices by many individuals in almost all phases of our society, even after many years of education and often legally enforced rules against unwise practices. I am sure all of you can cite numerous benefits in all aspects of life that had to be forced "down the throats" of society. Fortunately most of these beneficial practices are not questioned today, yet in days past, feeling was so strong against certain progressive techniques that blood was shed over the enforcement of practices that were highly beneficial to the recipient.

This is a brief outline of the values of fishing and hunting in our outdoor recreation program in Kansas and some of the problems facing us as fish and game managers. Even though most of you do not deal directly in wildlife management, a great number of you participate directly in the sport and none of you can escape the indirect part you play in its overall values to our economy. Even though you may not hunt or fish, your daily actions, thoughts, and attitudes can have a tremendous impact on future wildlife recreation in Kansas.

For the benefit of those who are not familiar with the Kansas Forestry, Fish and Game Commission, I want to emphasize one important fact; that is, the financial status of this department of our State Government. The Commission is self-supporting and we are proud to say that only those who participate and benefit from the sport pay for its support. In other words we get no money from any general taxes of the State. The bulk of our monies comes from hunting and fishing licenses. We think this is as it should be.

Contribution to Economy

Modern wildlife management is a science and must be improved and expanded or we will lose not only one of our major sources of recreation but one of Kansas' major industries. Even though it is more difficult to place a dollar value on a fish or pheasant than a bushel of wheat or corn, nevertheless the fish

and pheasant has a real value to those who fish and hunt and to those who deal in hunting and fishing equipment.

In 1960 in the United States, 25,323,000 fishermen spent an average of \$106.26 or a total of \$2,690,872,000 in the pursuit of this sport. Also 14,637,000 hunters spent \$79.34 or a total of \$1,161,242,000 in an attempt to bag their favorite game animals. A breakdown of the cost shows that auxiliary equipment amounts to 28 percent, direct equipment 22 percent, privileges 20 percent, and travel 17 percent, the fourth highest item. Most of you directly or indirectly influence this item.

We do not know exactly how Kansas stands in the national average but we do know that 264,320 persons bought a fishing license and 223,520 bought a hunting license in 1960, plus several thousand individuals who do not have to have a license to hunt or fish. If we assume that Kansas sportsmen are average fishermen and hunters, they spent \$45,818,076 in 1960 in the pursuit of their favorite sport. We do not know what percent of the above money is spent in the State, but since 26.5 billion miles were traveled by fishermen and hunters in 1960 and about one-third was less than 100 miles and about three-fourths less than 500 miles, it is obvious that a great part was left near home. Furthermore, Kansas draws many sportsmen from other States—for example in 1962, 18,472 nonresidents bought hunt-

ing licenses. Regardless of how you analyze the monies spent by residents, and nonresidents, this 46.5 + million dollars is big business. In addition the indirect business values associated with outdoor recreation are unlimited.

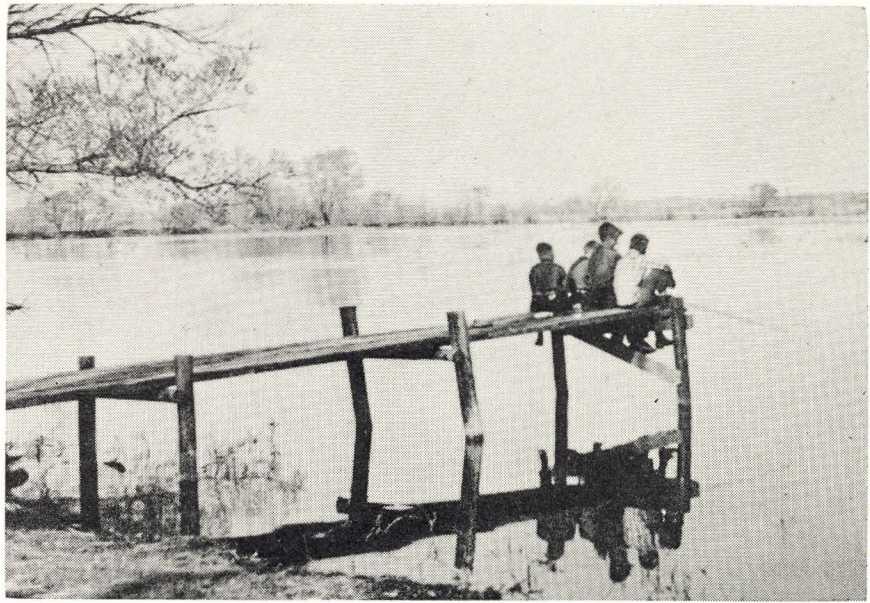
The monetary values are real but there are other less tangible values that are just as important to our State and society. The aesthetic values of a quiet walk through the woods; the serene feeling one develops while watching a bubbling brook; the relaxed attitude one experiences while sitting in the shade of a towering cottonwood, holding a fishing pole; or the excitement of children inspecting every hole, crevice, rock, track and plant, are unlimited. Money cannot buy these values yet they are relatively free to Kansans.

One can not overlook the value of fish and game as food, however, other values must be considered otherwise it is cheaper to buy your meat from the corner butcher. The amount of meat harvested by the hunter and fisherman annually is astronomical. For example, the estimated 900,000 pheasants harvested in Kansas in 1962 would dress out about 1.5 million pounds of useable meat.

Effect on Youth

An additional value that deserves attention is one that I like to refer to as a moral value. I do not believe there are many really bad boys or girls—just bored boys and girls. Consequently, fishing and hunting gives them a good way to expend their energies. The more urban the community becomes the greater the problem. I am sure that most scouts, ball clubs, youth organizations, etc., are planned to give young people something to do. We feel that outdoor recreation is one of the best forms of activities for young people. I know of none who gets into serious trouble if they hunt or fish or like to tramp through the woods and fields.

This type of activity is relatively cheap and simple yet if cities were forced to furnish similar outdoor



Few young people get into trouble if they hunt, fish or enjoy tramping through the woods and fields.

education and recreation in the form of parks and zoos the cost would be prohibitive. There is no way for the city boy or girl to get as much good and wholesome outdoor recreation at any price as their country cousins have by merely taking advantage of it by going hunting and fishing.

It is obvious that Kansas has an attractive and valuable resource that is being utilized to a great extent. We believe it should be made as attractive as possible and utilized to the fullest extent commensurate to good wildlife practices. As is the case with any change of long established practices, we face many problems.

A major problem facing all Kansans, who are interested in utilizing all of our resources to the fullest extent for the entire economy, is selling to the people the fact that wildlife resources have a very high economic value. This resource should be considered in the same light as other renewable products of the land and managed accordingly. Fish and game are crops of the land and can be managed in the same manner as other agricultural crops. Sometimes they may be more lucrative than some agricultural crops,

Research Will Provide Answers

Another major problem that must be resolved is to eliminate false, misguided and prejudiced ideas about game management that have been handed down from past generations. At the same time we must get the public thinking about wildlife management as a science and the need for adequately trained personnel to be responsible for its direction and management. Only by recognizing the technical nature of fish and game management and demanding proper and adequate personnel will we make progress in this science as we have in agricultural sciences.

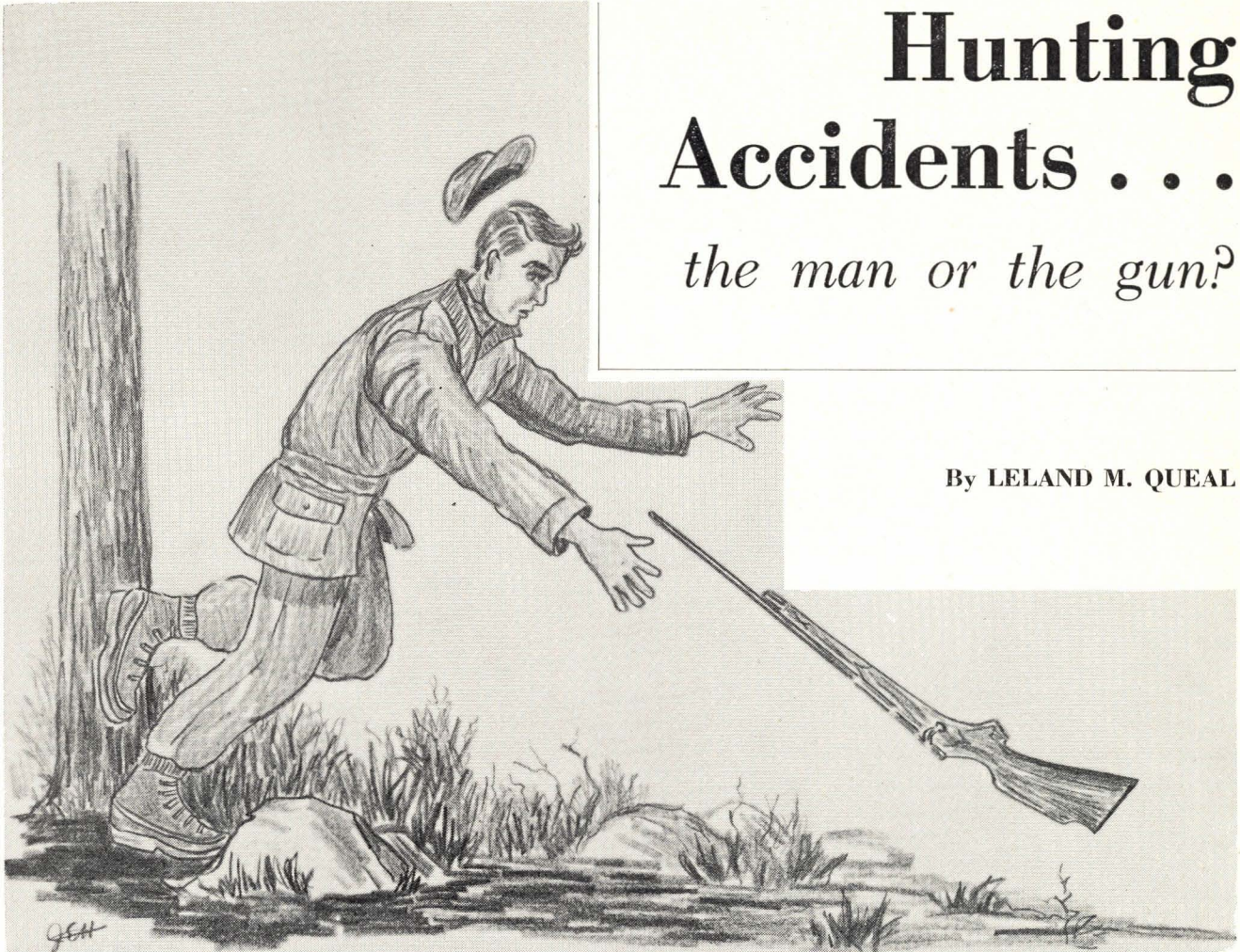
Recognizing the economic value and the needs for proper management is not going to produce more game or fish. We must also recognize that the fish and game animals are a renewable crop and must be harvested annually. The only way that this can be done, yet assure an adequate brood stock, is to know what is available at all times, the annual production, and factors that effect populations each year. By having answers to the above facts, regulations can be formulated that will assure an adequate seed stock yet permit a maximum har-

(Continued on page 17)

Hunting Accidents . . .

the man or the gun?

By LELAND M. QUEAL



As the controlled permit deer season currently being considered for the fall of 1965 continues to raise interest among Kansas landowners and sportsmen, one of the subjects that frequently gets into the conversation concerns what type of firearm will be legally permissible to use for hunting deer. Will it be shotguns with rifled slugs, high-powered center-fire rifles, or both?

At a recent meeting of a sportsmen's club, a stockman was heard to say, "I don't mind having a deer season, in fact, I'll welcome it, but I'll be darned if I will allow the use of high-powered rifles on my place. I have too many cattle, and besides, there are too many people in the area." When asked if he permitted coyote hunters to hunt on his ranch

with large caliber weapons, he replied, "Yes, but they're a different type of hunter, they know what they're doing."

This type of reaction to the use of large caliber rifles is not unusual, but a closer look at what the rancher said will reveal what the problem really is. The big-game rifle was condemned, if it was to be used by a future deer hunter, for fear of injury to livestock or to humans; however, the rancher currently allows coyote hunters to use the same type of rifle and says, "They're a different type of hunter, they know what they're doing." The rancher had unconsciously laid the blame for whatever fear that the big-game rifle elicits where it rightfully belongs—on the hunter, not the gun.

Any firearm, whether it be shotgun, handgun, or rifle, is absolutely harmless, until it is placed in the hands of a careless or irresponsible person; for this reason, the blame for hunting accidents should be placed on the careless hunter, and not on the type of gun he is permitted to use. A recent review of deer hunting accidents has indicated that this is true, and that the high-powered big-game rifle is not as dangerous as commonly believed.

The National Rifle Association (NRA) has compiled and published hunting casualty statistics for the United States and Canada for the 10-year period from 1951-1960. During this period, there were 2,642 reported hunting casualties which occurred when the shooter

THE MISUSE OF FIREARMS

CIRCUMSTANCE	Deer-hunting firearm used		
	Rifle	Shotgun	Handgun
Victim out of sight of shooter.....	16%	16%	3%
Victim covered by shooter swinging on game.....	5%	7%	1%
Victim mistaken for game.....	30%	22%	6%
Victim moved into line of fire.....	6%	8%	1%
Unintentional discharge: stumbled and fell; trigger caught on brush; loading or unloading firearm; placing firearm in car, etc.....	43%	47%	81%

was hunting deer. Of these, 2,003 or 75.8 percent were inflicted by hunters using rifles, 498 or 18.8 percent were inflicted by shotguns, and the remaining 141 or 5.4 percent were inflicted by handguns. Although it is estimated that almost 95 percent of the several millions of persons who hunted deer during this ten year period used big-game rifles, less than 76 percent of the casualties were inflicted by rifles.

Hunting accident causes usually fall into specific categories, and these also have been compiled by the NRA and are shown in the accompanying table.

Of all deer hunting accidents, 21 percent of those involving rifles were self-inflicted. Twenty-nine percent of deer hunting accidents involving shotguns, and 72 percent of those involving handguns, were also self-inflicted.

What is the Number 1 deer hunting accident cause in the United States and Canada? Without a doubt, CARELESSNESS. DO NOT BLAME THE GUN.

With Kansas on the verge of joining the Nation in having a firearm deer season, there is undoubtedly some interest in what sort of hunting accident records the surrounding states with similar deer habitat have.

Missouri, with a human population density of 63 persons per square mile (1960 Census), has deer hunting seasons which encompass the entire state. Either shotguns with rifled slugs or center-fire rifles propelling a projectile weighing not less than 60 grains are legal deer weapons. About 80 percent of the deer hunters use rifles; the remainder choose shotguns as their weapon.

During the past five seasons, (1959-1963), 452,974 hunters have gone after deer in Missouri. There have been 34 deer hunting accidents during this period, and 10 of these were self-inflicted. Twenty-eight of the casualties were inflicted by hunters using rifles and six by those using shotguns—almost

the same ratio as the four-to-one use of the respective weapons by the hunters. The principal causes of the accidents were (1) victim mistaken for game, and (2) unintentional discharge. Over 95 percent of the deer hunting accidents in Missouri over the past five years have occurred within 100 yards of the shooter. At this range, the rifled slug from a shotgun is just as dangerous as the projectile from a high-powered rifle. Again, the principal problem is CARELESSNESS.

Oklahoma has a human population density of about 34 persons per square mile (1960 census) and currently allows deer hunting in all but three counties. The firearm regulations are variable in different regions of the state, some counties being open to rifles only, others to shotguns only, and in some counties both types of firearms are legal weapons. The hunters' choice is about two rifles for every shotgun used.

During the past six years (1958-1963), in excess of 160,000 sportsmen have hunted deer in Oklahoma. During the same time, at least nine deer hunting accidents have occurred (1959 data not available); four were inflicted by hunters using rifles, three by those using shotguns, and two unknown. At least six of the nine accidents were caused by unintentional discharges—CARELESSNESS.

Nebraska, whose deer habitat in

the eastern and southern portions of the state most closely resembles that of Kansas, has a deer hunting accident record of which the hunters, landowners, and the Nebraska Game, Forestation and Parks Commission can be justly proud. Nebraska has been having deer seasons for the past 15 consecutive years, and 16 years in all. A total 116,024 hunters have gone to the field in quest of deer; in all 16 seasons, there have been no deer hunting fatalities, and there has been only one injury, which was self-inflicted. A truly remarkable record.

Nebraska, with a human population density of about 20 persons per square mile (1960 Census), permits only the use of rifles delivering at least 900 foot pounds of energy at 100 yards, or muzzle-loading rifles of .40 caliber or larger. The Nebraska hunting accident record is the result of CAREFULNESS.

Kansas, with a human population density of 27 persons per square mile, is not too thickly populated nor does it have too much livestock to permit the use of big-game rifles in addition to shotguns. However, it is too thickly populated to risk hunter carelessness. Be careful with your firearm, whether it is a shotgun, handgun, or a rifle; and remember, when the time comes to hunt deer in Kansas, it is not the gun, but rather the man behind the gun that really matters.

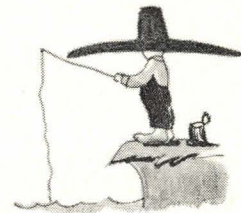
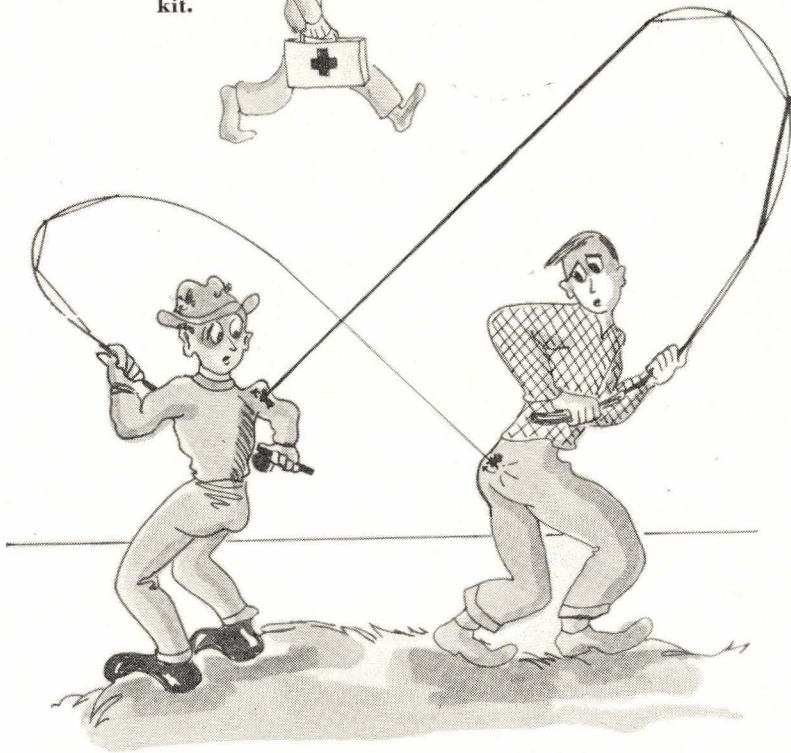
VOID ANGLING ACCIDENTS

Every year 30 million people fish, 36 million boat, and 6 million water ski, yet the American Red Cross estimates that half the U. S. population can't swim well enough to cope with an emergency. In 1962, 6,250 persons died by drownings—2,300 of them school age children. Also many people are needlessly injured while near the water. Heed the following water safety hints. They will help you have a happier, safer summer.

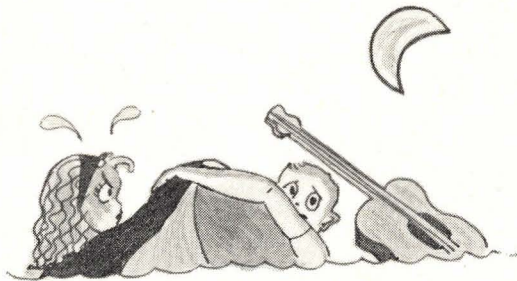
Statistics are obtained from: Kuhli, Ralph, "In the Swim," *Safety Education Magazine*, Vol. XLII, No. 8, April, 1963, P. 24 (Published by the National Safety Council.)



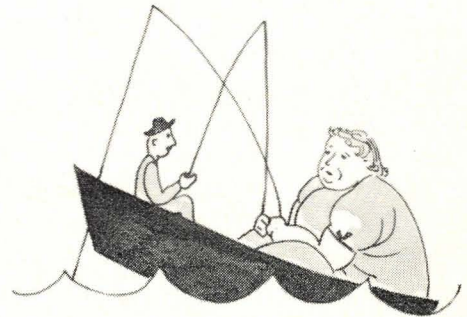
Carry an emergency first-aid kit.



Look behind you before you cast. Wear a wide-brimmed hat to partially protect you from careless casters in the more crowded fishing areas.



Don't panic if your boat capsizes. Stay with it—it floats. (At least you are holding hands!)



Distribute weight evenly in your boat. Also, remember that the number of seats does not necessarily indicate safe capacity.



Separate areas for speedboating, fishing and swimming should be maintained. Always be courteous to others. (A good rule anytime, anywhere.)



The Kansas Boating Act requires that you have on board one U. S. C. G. approved life preserver for each person in the boat.

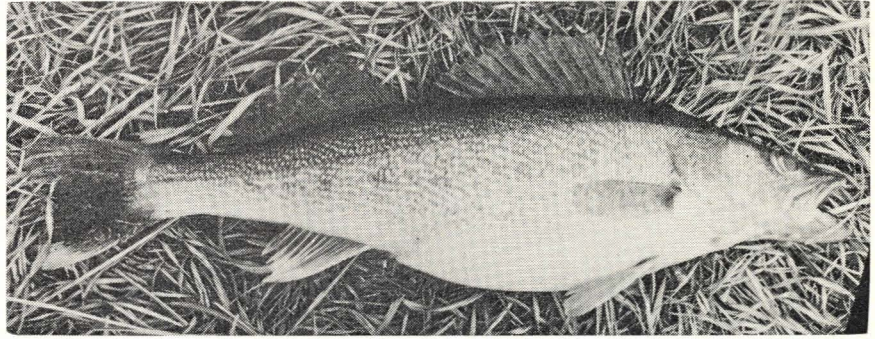


Never overestimate your swimming ability — swim parallel to the shore, not away from it — and never swim alone.



Know how to swim before being around water. Be familiar with the bottom and currents of any lake or stream you fish. Use caution when wearing heavy boots or waders — (65% of drowning victims are clothed) — know how to disrobe in the water.

The Walleye



The walleye (*Stizostedion Vitrem, Mitchell*) derives its name from its opaque eyes.

All Federal Reservoirs in Kansas, which are completed, have been stocked with walleye by the Kansas Forestry, Fish and Game Commission. The walleye is sometimes called the walleyed pike, but this is a misnomer. The walleye is actually a member of the perch family.

The first stocking of walleye to take place in Kansas was in 1949 and 1950 at the Clark County State Lake. The results were not favorable. This was due to a lack of suitable habitat and the fact that it was not the proper sized lake.

Identification

The walleye is the largest member of the perch family (*Percides*). The body is slender and slightly compressed; while from the side they appear long and straight. The length of the body is generally about six times the depth (where the width is about three-fourths of the depth). The adult is covered with sand-paper like scales which measure about one-fourth inch in diameter. The second dorsal and anal fins are almost directly opposite. The tail of the walleye is moderately forked. The eyes are large and opaque. Generally, the color ranges from a dark silver to a golden or dark olive brown mottled with brassy spots.

The largest walleye on record in

the world, at the present time, is a specimen weighing 25 pounds. In order for an angler to set a new Kansas record, it would mean taking a walleye of 10½ pounds or better.

Distribution

The boundaries of the distribution of this species in North America are Great Slave Lake in the northwest to Labrador in the northeast, south to northern Alabama and northern Arkansas and west to Nebraska. This dispersion evidently came about through the main glacial dispersal routes. This species has recently been introduced into several Kansas lakes. The walleye not only gives the anglers of Kansas another game fish, but because it feeds largely on other small fish, it will aid in preventing the over-population of small pan fish which are often the cause of poor fishing.

Habits and Habitat

Walleye thrive in moderately fertile waters. Lakes with rocky shorelines or incoming streams provide the necessary spawning grounds. Most lakes of this type are more than 200 acres. Walleye return to the deeper, dark waters during the day time. In the evening, they migrate to the bars and shoals to feed among the rocks or on the edges of weed beds.

The spawning begins when the water reaches between 45 and 50 degrees Fahrenheit. This usually occurs between March 25th and

April 15th. Spawning usually takes place in streams of gently flowing water or along the lake shores where the action of the waves keeps the water in motion. However, most spawning in Kansas takes place in the lakes along the rocky rip-rap of the dam.

Walleye are random spawners and do not build nests as do the members of the sunfish family. Under normal conditions, the hatching takes from 7 to 21 days depending upon the water temperature. The mature female will produce about 13,000 to 150,000 eggs. This depends upon the size of the fish. Growth of the walleye is rapid, but the females grow faster and become larger than the male. The females do not reach maturity until they are about 4 years old, where the male does so in 2 or 3 years.

Artificial Propagation of Walleye

For several years, the Forestry, Fish and Game Commission has been trapping adult walleye. These fish are taken at the Federal Reservoirs during the months of March and April, the period when walleye spawn. The females are stripped of "ripe" eggs by applying gentle pressure to the abdomen. The milt is taken from the male by the same method, then the fish are returned to the water.

The "ripe" eggs are fertilized by placing the eggs and the milt in a pan and mixing them for 1 to 2 minutes to insure proper fertilization. The walleye's eggs are covered with an adhesive which is used

to stabilize the eggs when they are deposited in a body of water. In order to handle these eggs in the hatching process, the adhesive quality must be removed. This is done by placing them in water containing a high concentration of clay. This will remove the adhesive quality. The eggs are then placed in hatching jars and these are then put into the hatching battery. Water circulates through the hatching jars and supplies oxygen to the eggs. The eggs are left in these jars until they hatch, which takes from 10 to 16 days depending on the water temperature. Immediately after hatching, the young fry swim to the top of the jars and are caught and placed in a holding tank. The young fry are stocked in the large reservoirs when they are 2 to 3 days old.

In 1963, approximately 21 million eggs were collected by the Forestry, Fish and Game Commission. From these about 10½ million young fry were hatched.

Catching the Walleye

Walleyes are a highly prized sport fish and a great experience to the angler. Many anglers consider the walleye to be one of the best tasting freshwater fish. Several methods have been successful in landing very nice catches. Some of these are: still fishing, fishing from a boat with live bait, trolling or drifting with the wind or current, using spinners, night crawlers, worms, minnows, frogs or artificial lures for bait. Most walleye are taken in the late evening or shortly after dark. They are slow, deliberate biters and with live bait, it is best to let them swallow the bait.

WHAT TO CARRY IN OUTBOARD TOOL KIT

It's a good idea to carry a few basic tools and extra parts in your outboard boat, say the Evinrude engineers. They suggest pliers, screwdriver, spark plug wrench, drive pins, cotter pins, extra spark plugs and a spare propeller.

New White Crappie Record

Kansas now boasts a new fish record in the white crappie division and Frank Miller of Eureka has chalked up his second record for the books. Miller, current holder of the bullhead record for the state, caught a 4 pound, ¼ ounce white crappie on March 30, 1964, while fishing a farm pond just a mile and one-half from Eureka.

The new record tops the previous white crappie by 12¼ ounces. The former record holder was Ronald Plouvier of Frontenac who took his fish from the strip pits.

Mr. Miller states that he was fishing for bluegill at the time and that he had baited another rod with a silver shiner and cast it out in the center of the pond. All at once, he noticed that his bobber on the second line had disappeared so he proceeded to set the hook. He knew that he had hooked a big fish so he played him carefully. The crappie didn't put up a great deal of fight until Miller had him close to the bank. Then he kicked up quite a fuss before being slid out on the shore.



Miller and new state record white crappie.

The weighing of the white crappie was on state inspected grocery store scales and was witnessed by Jack McNally, State Game Protector and Glen Shearer, both of Eureka. Incidentally, Frank Miller is the first person to hold two state records at the same time.

SHOT STRING

The lengthwise dispersion of a charge of shot after it leaves the muzzle of a shotgun is called the *shot string*. At moderate ranges, the shooter need only be concerned with the shot's pattern and penetration.

At longer ranges, however, length of shot string is very important because with ordinary shot, velocity and penetration is greatly reduced—the shot is strung out so far that the pellets' effectiveness suffers. For example, it may be hard to hit a mallard at 45 yards even though timing, swing and hold are perfect.

When the shot string is too long, pellets arrive too soon or too late, passing in front of and behind the bird. Only those shot shells

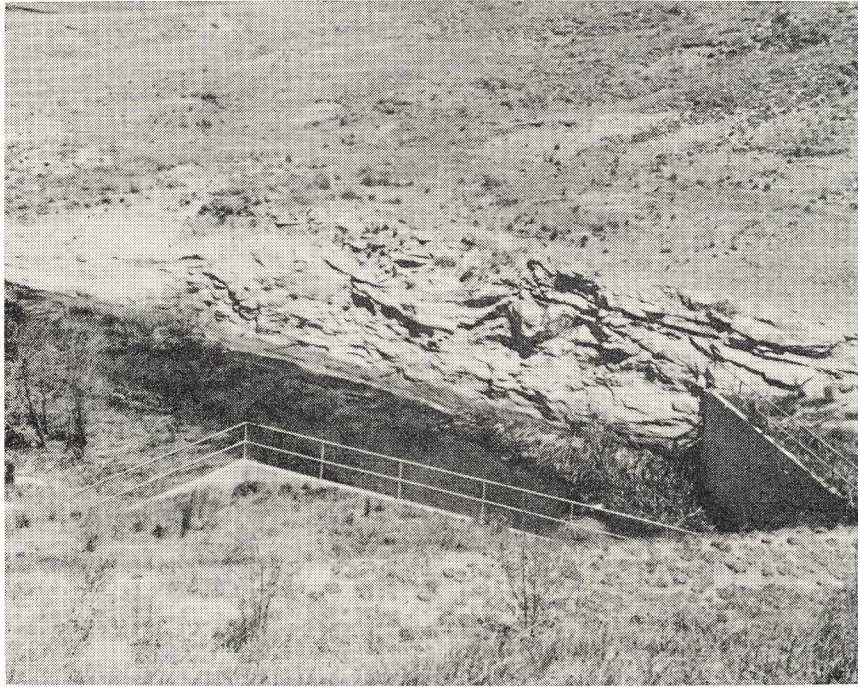
that combine short shot string with high pattern percentage maintain a concentration of shot dense enough to produce long range, clean kills.

CANNELURE

You won't find it in every dictionary, but a *cannelure* is a groove around the circumference of a bullet or case, such as the lubrication groove of a lead bullet. Or it is: a groove into which the edge of a cartridge case is crimped; the a groove into which the edge of of a projectile, which helps to lessen the resistance offered to the rifling; the expansion groove of an open point expanding bullet; the extractor groove around the head of a rimless cartridge case.

Hodgeman County State Lake

(Continued from page 7)



The outlet tunnel below the dam showing the sandstone ledge.

me severely. Only when I approached to within a few feet did it disappear into its burrow. Along the lake shore, I found the tracks of several animals including those of the raccoon and coyote.

On the downstream side of the dam, several interesting observations were made. The outlet tunnel is apparently being used by a large number of swallows. At times, the air seemed full of these graceful birds as they swooped and wheeled around the entrance. Apparently they are using the tunnel as a nesting site although I didn't enter it to find out. The creek below contains considerable water although it did not seem to be running. Apparently the source of supply is from springs and seeps from the sandstone cliffs which form the eastern bank of the stream. Local residents say that the fishing is good in the pools below the dam. Some of them ignore the lake to fish these waters.

The aforementioned sandstone

ledge has figured considerably in the history of Hodgeman County State Lake. This ledge forms the east end of the lake and was apparently the cause of considerable seepage immediately after it was filled for the first time. The dam was completed in 1956 and the lake filled with water in 1957. In October of '57, the first stocking of fish was made with the introduction of channel catfish, bass and bluegill. However, the lake level dropped continually until it was down to a few acres in the fall of 1959.

After an inspection in the spring of 1960, it was decided that the sandstone ledge was responsible for the water loss. During the fall and winter of that year, the valve was opened, the fish removed and taken to other lakes and repairs were instigated. A masonry sealer was applied to the ledge and tons of clay material were compressed on the area to provide an additional water barrier. This effort was apparently

successful and rains in 1961 provided enough water for the restocking of fish. Once again bass, channels and bluegill were placed in the lake.

Although the leak has apparently been sealed, the lack of rainfall in the area plus the normal loss due to evaporation has resulted in the present low level of the water. The only remedy for this situation is a good rain in the watershed.

Hodgeman County State Lake was opened to fishing on October 19, 1963. Although the temperature was in the 60's, gusty southwest winds were whipping the lake at the time of opening. The bulk of the catch on the first day was bullheads averaging about a half pound each. Some channels were also caught measuring in length between 11 and 17 inches. Although the lake contains bass, none were taken on opening day.

Although the watershed above the lake is mostly grassland, the waters are turbid most of the time. The nature of the soil in the area and the wind action on the lake tend to keep the sediment in suspension in the water. Due to this murkiness, the channel catfish and bullheads will probably provide the bulk of the fishing in the future. Turbid waters are not the best for the growth of sight-feeding fish such as largemouth bass.

The lake is equipped with the usual facilities such as picnic tables, grills and sanitary facilities. The favored area for picnicking and camping is at the east end of the dam on a hill overlooking the lake. There is virtually no shade available but the area is pleasant, even in the heat of summer, during the morning and evening.

The location of Hodgeman County State Lake is somewhat off the beaten path. To get there, you travel east of Jetmore for a mile, turn south for two miles and then east about two miles to the lake entrance. Except for periods immediately after rainfall, the roads are good. Be sure to take a supply

(Concluded on next page)

of drinking water with you since none is available on the area.

A western Kansas sunset is something to behold. It is particularly enjoyable when fleecy cumulous clouds seem to focus the sun's rays into ever changing patterns. One of the most beautiful sunsets I have ever seen was while looking out across this lake from the high hills on the east shore. The reds and golds on the western horizon seemed to climax a good day.

VALUES AND PROBLEMS

(Continued from page 9)

vest over as long a period as possible for the greatest number of Kansans.

Another major problem we face in our fish and game program is developing ways to assure an adequate distribution and harvest of our natural resources. A major factor that limits an adequate harvest is unnecessary and antiquated restrictions placed on the harvest of wildlife. Often times these restrictions resulted from demand by uninformed but good-intentioned sportsmen. This philosophy is the result of attempts by sportsmen as well as fish and game administrators to maintain and increase animal numbers without understanding population dynamics. This usually developed into more and more restrictions that had no biological value and often produced results directly contrary to good fish and game management. Many restrictions have become a part of our social life and will be extremely difficult to eliminate. In other words, laws that do not give all hunters an even break or if they sap our wildlife "capital," are not sound laws. Poor laws usually result when pressure groups or private interests promote legislation that is ill advised or has selfish intent.

There are few clear-cut and distinct problems that are not related to ignorance, selfishness, social or economical desires. Education can overcome certain problems but

those who try to promote selfish interest above all others must be controlled. Furthermore social and economical problems must be faced head-on and an attempt be made to resolve them so each person can be assured of a reasonable amount of sport yet not materially effect the well being and income of others.

A problem, we who are connected with any public agency must always face, is financing. I am a strong believer in the philosophy that those who benefit from services should be the ones who pay. Fortunately the Fish and Game Commission is financially sound and those who benefit foot the bill. Just how long this envious situation will last depends upon needs in future years and the services demanded by the people.

In the future we will be offered many programs directed toward outdoor recreation. Programs which will feature many advantages at costs that must be only partly financed by local monies. Unfortunately, we will not be getting "something for nothing." Improvements must be maintained and after spending only a small amount for the improvement, the taxpayer will be called upon to spend a great deal of money for maintenance. It is extremely important that we formulate plans for maintaining facilities developed by matching federal funds before they are accepted. It is better, for those who must pay, to know at the time a request for funds is made what the cost of maintaining such facilities will be, rather than waiting until repairs are needed. At the same time, it can be more easily administered by those who must handle such funds.

What You Can Do

In conclusion you probably wonder what you, as an individual, can do to help make better hunting and fishing in Kansas. To answer this question I must review a few facts presented earlier.

You must be convinced that this type of recreation has real and

tangible values to the people. You must familiarize yourself with the Commission, their facilities and personnel and you should support them. You should recognize that fish and game management is a science and must have well trained and permanent personnel. It is only by using the knowledge that must be obtained through research by highly skilled persons that has made this country great. We cannot go only half way in the use of our talents and skills. We must apply them to all phases of our society.

You as individuals must insist that laws regulating fish and game be fair and equitable. You must insist that your department resist pressure and special groups who usually promote legislation for useless stocking projects, refuge schemes, bounty payments, game farms, pork barrel lakes or other ill advised work. You should insist that seasons, bags, creels and other restrictions be based on biological facts that are up-to-date and accurate. You should get your information from those who serve you.

You can assist the Commission in developing methods of assuring that as much land as possible remains available for public hunting. It may be necessary for all of us to change our thinking regarding free public hunting. Maybe one solution would be to encourage landowners to make a nominal charge for the use of their land. The landowners should be willing to offer some incentive to the hunter if he considers a charge for using his land.

There is no question in anyone's mind that hunting and fishing has a tremendous impact on our economy. We must understand this resource and manage it for maximum values. We must work together if we expect to resolve the problems facing us.

You as citizens have a lot at stake. Complacency is dangerous.

Land Management

key to better public hunting

By GRAYDON W. CLARK

Kansas is offering some of the best hunting and fishing on public lands in history. To date there are about 66,973 acres of public hunting and fishing areas on state lakes and 64,954 acres on the nine completed federal reservoirs in Kansas. This makes a total of 131,927 acres of land and water under the management of the Kansas Forestry, Fish and Game Commission that is open to public use. During the next three years as more reservoirs are completed this figure is expected to increase to an estimated total of 178,492 acres. In other words nearly 388 square miles of land and water will be open to the public for their use and enjoyment.

The fish and game commission owned lands were primarily purchased for the construction of state lakes. The funds for the purchase of these lands and the construction thereon came from the sale of hunting and fishing licenses as does almost all other revenue that is necessary to operate the fish and game commission.

In order to have some idea of how the Kansas Forestry, Fish and Game Commission acquires land at the federal reservoirs we should understand that many years of work are connected with a project. The fish and game commission's efforts to obtain lands for management at these reservoirs are initiated at an early date, often years ahead of the reservoir construction. The commission, in co-operation with the Bureau of Sport Fisheries and Wildlife, conducts a reconnaissance survey of the fish and wildlife resources within the reservoir area. The extent and the degree of losses to existing habitat and game populations caused by the proposed water impoundment



An open invitation to all sportsmen.

is determined at this time. Both wildlife agencies then determine the needs relative to mitigating fish and wildlife losses and formulate a wildlife plan outlining measures to mitigate these damages as well as to provide for the enhancement of the fish and wildlife resources on the project. This proposal is then forwarded to the construction agency and incorporated in the reservoir plans.

Numerous meetings are then held with the construction agency and various state and federal agencies to negotiate certain aspects of reservoir construction that would affect proposed lands for management by the commission.

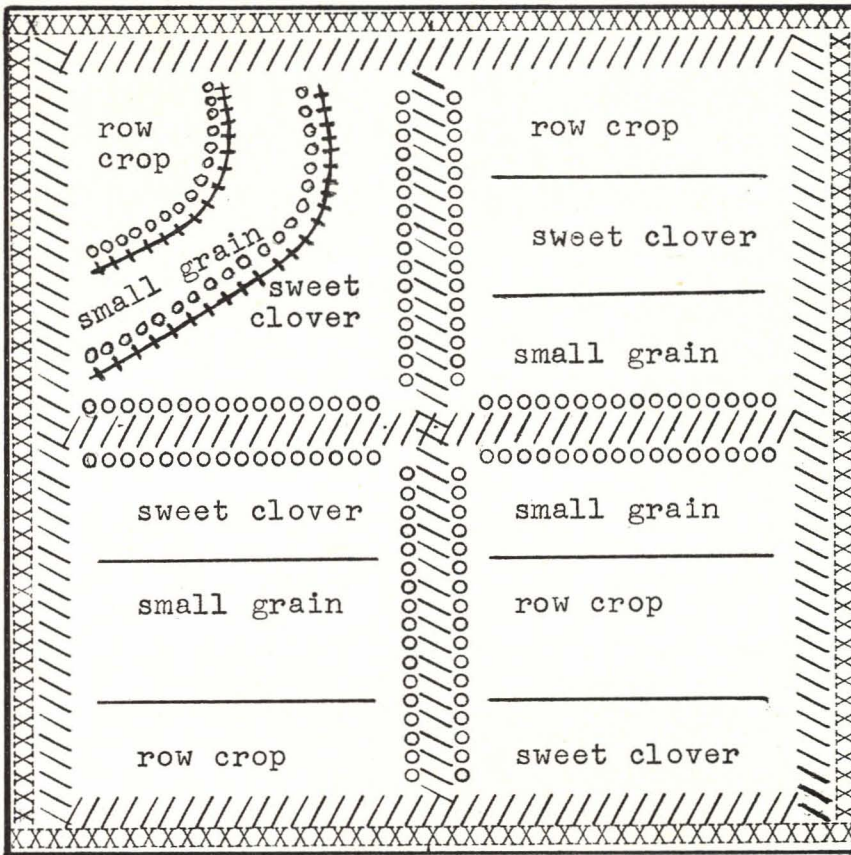
As the reservoir nears completion and the project lands are purchased, final plans are completed for assumption of management of the reservoir lands. Legal documents are then drawn up establishing the specific area to be controlled by the commission, and

determining general criteria under which the land will be managed. Following the execution of these documents, the lands then officially become a wildlife area and management by the commission is initiated.

The drawing illustrates how good game management practices are being incorporated in farming wildlife management lands on federal reservoirs licensed to the Kansas Forestry, Fish and Game Commission. Many of these practices can be used by the individual farmer on his land to increase the wildlife habitat value without interfering with his farming program.

The multiple row woody habitat planting surrounding the field is a benefit to the farmer in deterring wind erosion and protecting crops in addition to affording a large amount of heavy cover for upland game species.

The field border planting consisting of a grass-legume mixture



- x x x — Multiple row habitat planting.
- /// — Border and buffer strips—grass—grass and legume—legume.
- o o o — Single row shrub planting.
- +++ — Terrace seeded to grass, grass-legume mixture, or legume.

and moisture control are being constructed on those areas needing this practice. By seeding the terraces and waterways to a grass, grass-legume mixture, or a legume, the requirements for upland game species can be greatly enhanced. These practices congregate wild species and results in a greater harvest, in addition to greatly reducing the necessity of expending large amounts of money for the maintenance of terraces. These same practices can apply to the individual landowner.

A complete farm crop rotation system is formulated where feasible for each individual tract of crop land. Of course, the rotation system varies according to the needs of the area in which the reservoir is located. The fish and game commission's one-third share of the crops, produced through the use of tenant farming, is usually left in the field in strips for a winter food supply for the upland game species.

It should be pointed out that the illustration is a hypothetical situation showing some of the various game management practices that

(Continued on next page)

serves to alleviate field edge erosion and may also provide a turn row for farm equipment. The field border planting also provides edge effect, nesting sights, travel lanes and a small amount of food.

In an effort to create edge, diversity of habitat and crop manipulation, the large tracts of land at federal reservoirs are divided into small plots through the establishment of field dividers. These plantings may consist of two single rows of shrubs spaced approximately 30 feet apart with a grass, grass-legume mixture or a legume being seeded between them. In addition to the increased edge created through the use of this practice, nesting areas, travel lanes, escape cover and huntability of the fields is provided.

Terraces and waterways for soil



Recently established wildlife habitat planting, consisting of multiflora rose, red cedar, and Russian olive trees affording excellent wildlife food and cover.



Unmowed native grass bordered adjacent to timber or brush.



Small food plot, consisting of grain sorghum, situated in heavy grass near timber. Provides food for upland game and waterfowl.

can be incorporated on a farm to provide wildlife habitat. In many instances some of the practices are not required due to the fact that the needs of the wildlife species being managed are furnished by the surrounding land use pattern.

As a result of the growth of the population in Kansas there is an ever growing number of hunters. Due partly to the increase in the number of hunters some cannot

find a place to hunt or don't have the opportunity to contact the land owner to gain permission.

The Kansas Forestry, Fish and Game Commission is continually working to acquire lands that are available on the reservoirs in the state. These will be managed in a way that will provide the public with an area in which they may hunt where there is a huntable population of game.

OUTBOARD BOATING CAPACITY PLATES

Purchasers of new boats will benefit from improved methods of determining small craft weight capacity, according to the Outboard Boating Club of America.

Developed by OBC engineering committees, the methods will show up in variations of the familiar OBC capacity plate found on many outboard and inboard-outboard boats.

Major addition to the plates will be a guide to the number of persons the rated craft can safely carry, depending upon their individual weights. A statement of weight capacity in pounds will continue to appear, as will the horsepower capacity recommendation.

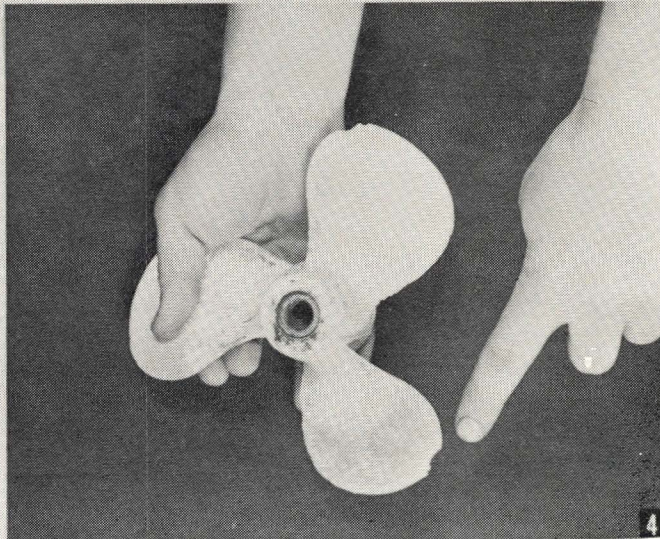
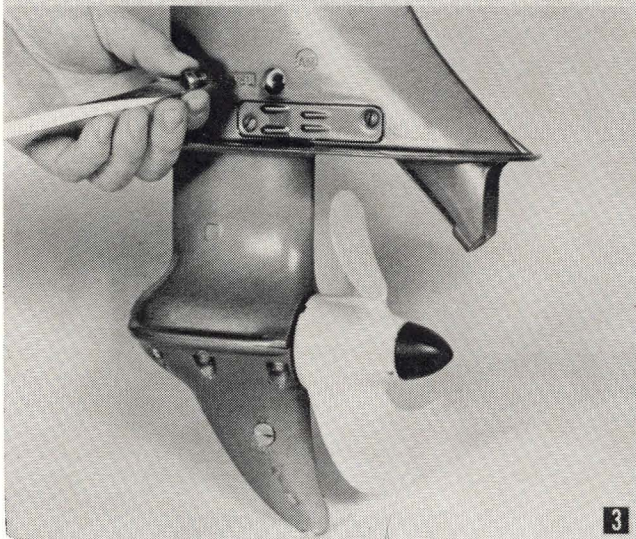
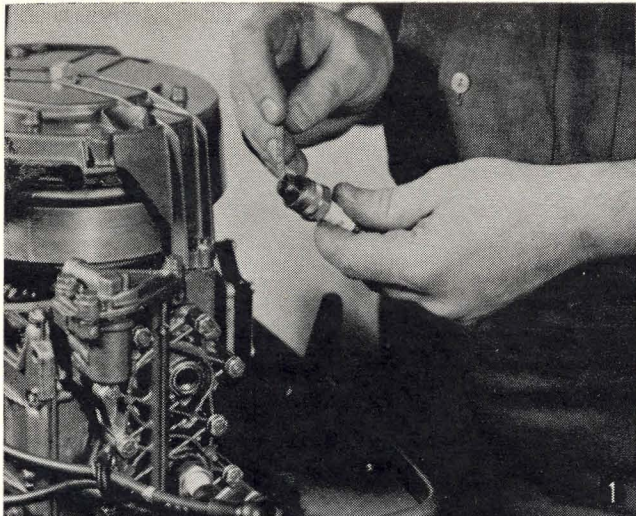
The plates vary with the type of boat—inboard or inboard-outboard, outboard and outboard with flotation.

The OBC engineering committees are staffed by member manufacturers. Their recommended practices represent the combined technical thinking of the boating industry.

CONDITION OF BOAT BOTTOM IMPORTANT

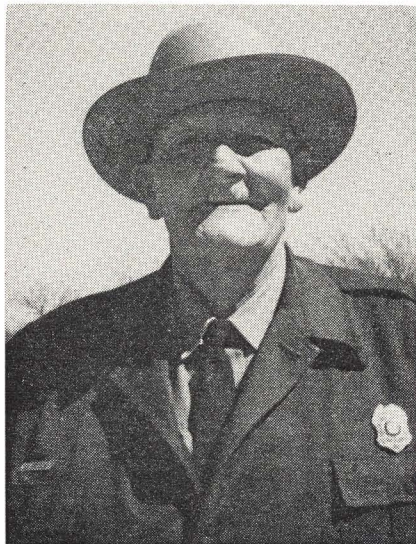
A speed loss of over 50 percent can occur when a boat is left in the water for as little as 30 days and marine growth is allowed to accumulate on the hull. In a series of tests, Evinrude engineers found that marine growth builds up faster on boats left in salt water but that boats moored in fresh water are also effected. To insure top performance, they recommend boats be removed from the water and thoroughly cleaned at least once every three weeks.

REQUIRED
Life-preserving equipment
of type approved
by Coast Guard
for each person on board



The four most important things to check when readying an outboard motor are ignition system, fuel system, lower unit and propeller. (1) Inspect spark plugs carefully. Even if new ones are used the gap should be checked before they are installed. (2) Don't forget the fuel tank. If gum or varnish deposits have formed inside, the tank should be thoroughly cleaned before using. (3) Check the level of the lower unit lubricant. If it was not changed last fall, it should be changed now. (4) Badly nicked or bent propellers should be replaced or repaired.

With both passengers sitting toward the same side (top photo), the boat leans to starboard. This reduces handling ease and cuts down on performance. When the load is more evenly distributed (bottom photo), the boat is trimmed and full performance is restored.



Floyd "Jim" Andrew To Retire

October 15, 1939, Floyd "Jim" Andrew began his career as a Game Protector with the Kansas Forestry, Fish and Game Commission. July 1 he will retire after 25 years of service. Jim, as he prefers to be called, has been the fish and game commission's law enforcement representative in Harper and Barber counties recently, making his home in Anthony. He is well known throughout the state since his first years with the commission were spent on a state-wide basis. The respect of sportsmen and other employees was well-earned. Anyone talking with Jim will certainly identify him by his size, hearty laugh and sense of humor.

Taking part in all forms of hunting and fishing since he was a boy, Jim accomplished many things during his 25 years. One to be long remembered occurred in June, 1941, where Jim won the state singles championship at the ATA traps shoot held in Wichita. He went on from there to the National Trap Shoot at Vandalia, Ohio where he won, as Jim says, "enough money to pay my expenses."

Unusual things happen, too, which stand out in memories. One such occurrence was on a hunting trip southwest of Garden City. Jim

said he had been left in camp. He noticed two lesser Prairie Chickens flying toward him from a cornfield. A shotgun was handy and put to use. "Hitting one bird with the first shot, Jim said, "I whirled around to take a shot at the second bird as it passed over me and the one I had hit, still falling struck me in the back of the head."

To list all of the contributions of any one man in 25 years would be impossible, since they are considered everyday duties to a game protector. Jim Andrew has done his job well and has earned a chance to take it easy hunting and fishing. It will take a good man to replace him.

YAW . . .

Yaw, an expression to which millions of Americans were introduced during our astronauts' journeys into outer space, has long been part of the rifleman's vocabulary. In much the same manner as a space capsule yaws or turns slightly sideways

in its orbital path, a bullet sometimes experiences yaw on its way to the target. Evidence of bullet yaw can frequently be seen by examination of its point of impact on a paper target. Instead of a clean round hole, an uneven or slightly elongated horizontal puncture may result.

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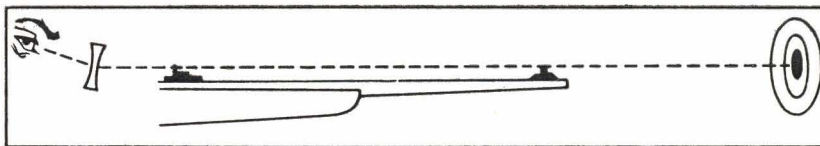
I certify that the statements made by me above are correct and complete.

JOHN D. POLSON.

SIGHTING AND GLASSES

The apparent displacement of the target seen through the sights of a rifle or shotgun by the shooter wearing eyeglasses is not, in reality, a sighting error, states the National Rifle Association.

The diagram shows what actually takes place. The direction of the gun is determined by the alignment of the sights with the target. The eye sees the alignment after it has taken place.



Some shooters who wear eyeglasses cannot look squarely into the sights in a regular shooting position, and often find it necessary to hold the eyeglasses a few inches away from the rear sight and view the aiming point at an angle.

Even if a mirror or prism were behind the sights, so that the sight picture could be viewed from entirely around the corner, it would make no difference in the correctness of the sight picture.

DAMASCUS BARREL

A Damascus barrel is an old type of gun barrel that was once made by a special process that laminated or welded alternate strips of iron and steel together (sometimes called "twisted steel barrels"). The strips of iron and steel (or a combination of both) were forged around an iron core to form a solid tube. While this type of barrel was able to withstand the pressures of old black powder loads, it NEVER was intended for use with modern smokeless powder loads. Using old guns that have Damascus barrels with modern smokeless powder loads will prove extremely hazardous. Damascus barrels definitely CANNOT withstand the pressures of these modern loads.

Corvus Brachyrhynchus

Berated by farmers, maligned by bird-watchers, disparaged by ornithologists and despised by every fellow member of the bird kingdom, *Corvus brachyrhynchus*—the common crow—might be described as a creature without a friend in the world. He might be, that is, except for the respect heaped upon him—almost in equal measure with chilled shot—by the nation's sporting fraternity.

Praised to the skies on the one hand and shot out of them on the other by the American sportsman, the raucous rapsallion, whose reputation is as black as his plumage, provides year-round wingshooting sport of a quality rarely experienced with non-game species. One of the cagiest of birds, the crow has learned to exist side by side with his mortal and feral enemies, not barely surviving, mind you, but virtually living on the fat of the land while successfully foiling all efforts to dispossess him.

Blessed with a high degree of intelligence, both native and acquired, *Corvus* seems almost to

revel in the daily contest aimed at his extermination. What has taken man many years of study and experimentation to learn about ballistics, the crow seems to know instinctively.

His estimate, almost to micrometer exactitude, of the effective range of the full gamut of shotguns is proof positive. Though he occasionally errs in judging the reach of a center-fire rifle, probably mistaking it for a scattergun, his overall average at ballistics calculation is awesomely high. His powers of communication, too, are of high order, perhaps more limited than those ascribed to the dolphin, but ample enough to establish danger, distress, fighting and chow calls between members of his clan. A

.30-30 AND .30-'06

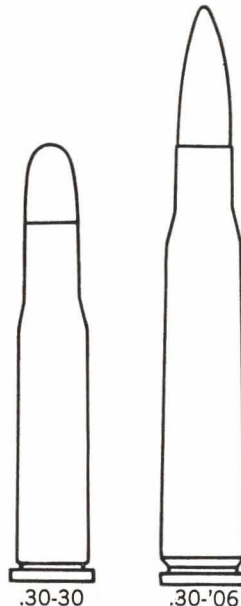
The confusion between the .30-30 and the .30-'06 and their use as military cartridges dies hard, states the National Rifle Association.

The .30-30 is a sporting cartridge brought out in 1895 by the

Winchester Repeating Arms Co. Its rimmed case is about 2" long. This cartridge has been extremely popular for sporting purposes in North America, but it has never been our military cartridge nor had any important military use.

The U. S. military rifle cartridge during both World Wars was the cal. .30 M1906, often abbreviated .30-'06. It was adopted in 1903 and changed to its present basic form in 1906. Its rimless cartridge case is about 2.5" long. Since World War I it has also been widely manufactured as a sporting cartridge. The .30-'06 remains a standard U. S. military cartridge.

The designation .30-30 was derived from the diameter of the rifle bore and the charge of 30 grs. weight of the smokeless powder used when the cartridge was brought out. As can be seen in the illustration, the only likeness between the two cartridges is in the diameter of their bullets.



large bird, the crow measures about 20 inches long, weighs approximately one pound and flies at an average speed of 20 to 30 miles per hour.

Partially migratory, *Corvus* breeds in the spring, roosts and nests in trees. His insatiable appetite leads him on an almost constant search for nourishment, which he takes in a wide variety of forms encompassing practically anything edible.

Essentials for successful hunting of *Corvus* include a call, either manual or electronic variety; good concealment, a shotgun, preferably 12-gauge; high brass 6's (though some experts advocate 4's and others, 7½'s), and, as the song puts it, just a little bit of luck.



Conservation Pledge

I GIVE MY
PLEDGE AS AN AMERICAN
TO SAVE AND FAITHFULLY TO
DEFEND FROM WASTE THE
NATURAL RESOURCES OF
MY COUNTRY - ITS SOIL
AND MINERALS, ITS
FORESTS, WATERS,
AND WILDLIFE

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