South Carolina WILDLIFE

PUBLISHED QUARTERLY BY S. C. WILDLIFE RESOURCES DEPARTMENT SPRING 1966

King-Size Crappie

Although these Santee-Cooper crappie are much smaller than the world record black crappie of five pounds caught in Lake Moultrie they're a nice size—and the crappie are biting well on both lakes. (Photo by Brown.)

SOUTH CAROLINA
Wildlife

Vol. 13, No. 2 Spring Issue, 1966

Published quarterly by
SOUTH CAROLINA WILDLIFE RESOURCES DEPARTMENT
COLUMBIA, S. C.

DEDICATED TO THE
Conservation, Protection and Restoration of Our Game and Fish and to the Education of Our People to the Value of Our Natural Resources

SOUTH CAROLINA WILDLIFE is published quarterly by the SOUTH CAROLINA WILDLIFE RESOURCES DEPARTMENT, 1015 Main Street, Columbia, S. C. All subscriptions, change of address, notices and inquiries should be sent to Box 360, Columbia, S. C.
Entered as second class matter at the Post Office at Columbia, South Carolina, under the act of August 24, 1912.

It's Big Business

Most of us think of hunting and fishing as an enjoyable and fairly expensive recreation, although some of us claim it's healthful. I know men who'll come in all worn out from following a couple of sorry bird dogs all day; or sniffing and sneezing after a cold morning in a wet duck blind; or reeling and rocking after hanging around the dove field too long after the doves have stopped flying—and they'll tell their wives the only reason they go hunting is because it's so healthful. And the next day they'll drag around the office until noon and then go home to bed, or maybe not even make it to the office.

Of course, some sportsmen claim they save money on the meat bills by hunting and fishing but from my personal experience that is the most expensive way every devised for feeding a family.

But besides being enjoyable, and possibly healthful, hunting and fishing is a big business, in South Carolina and all over the nation. Several national surveys have been made in recent years but there has been a wide variation in their estimates of spending, which range from three to six billion dollars annually. We believe that around $100,000,000 is spent in South Carolina every year by sportsmen. This includes cost of guns and shells, fishing tackle, live bait, buying and keeping of hunting dogs, transportation, clubs dues, lodging and meals, and boats used primarily for hunting and fishing and liquid refreshments consumed incidental to hunting and fishing.

That's a big business—a big business that is naturally dependent upon a continuing supply of game and fish—and a continuing supply of game and fish is largely dependent upon proper management of the resources. It is our goal—and our obligation—to provide the license buyers with the best possible hunting and fishing without endangering the future supply. To achieve this we have a four-point program based upon law enforcement, research, management and information-education, all interlocking and all important.

E. F.

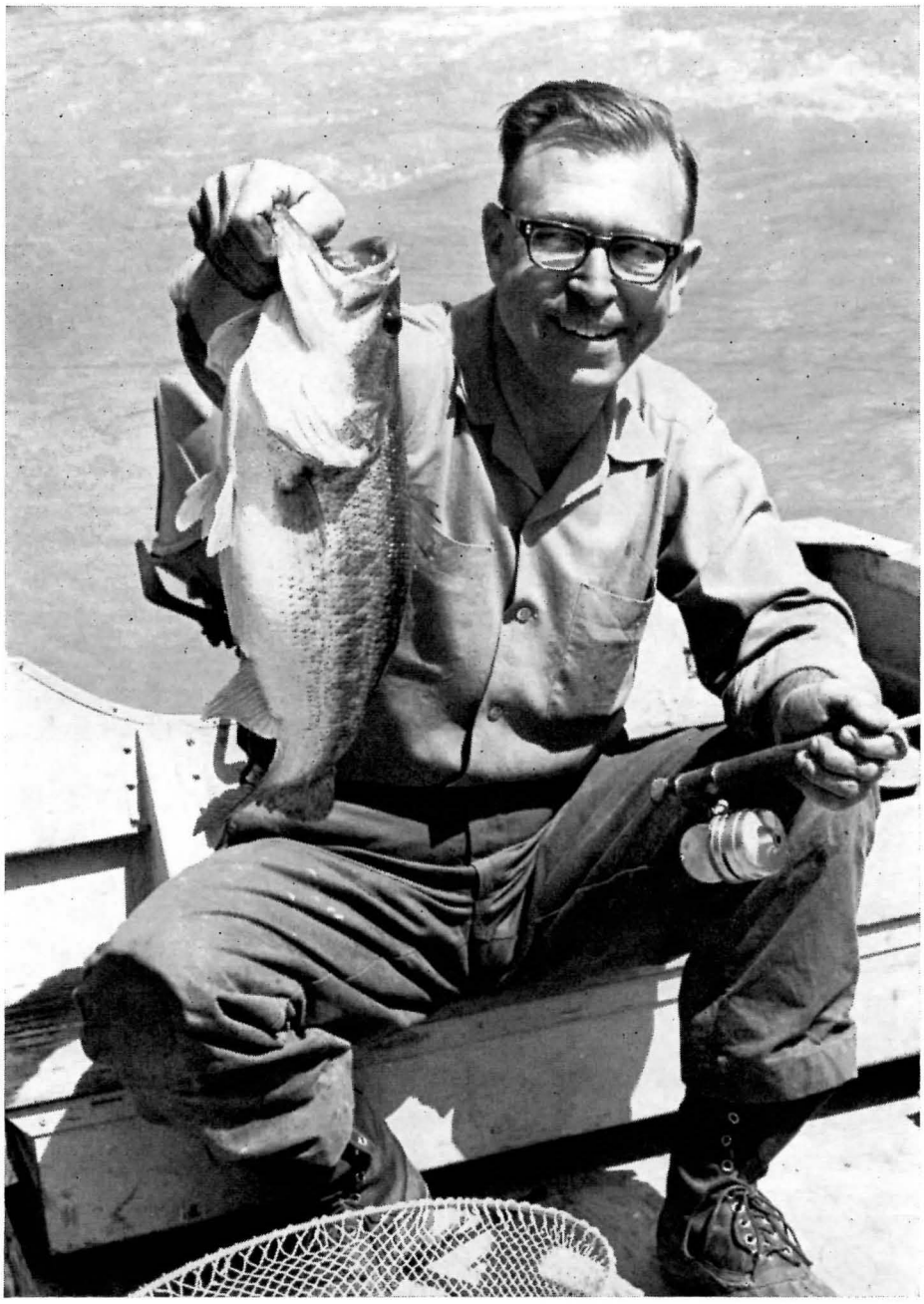
THE COVER

A toad waits patiently under a mushroom for an unwary fly or other insect to come in range. Or maybe he's singing—for although it's not generally known—the toad has a pretty little song.

(Photo by Leonard Lee Rue III)

Experts Give Pointers On Bass Fishing

By JEFFERSON C. FULLER, JR.
Chief of Fisheries



Jeff Fuller, author of the accompanying article, exhibits evidence that he knows what he is talking about.

For many years the Wildlife Resources Department has conducted surveys on the major reservoirs within the state. These surveys—called creel censuses—have provided much needed information on what kind of fish are being caught, how much they weigh, when and how caught and related data.

One obvious fact obtained through these surveys is that a lot of people know very little about catching fish. Some of the fishermen are consistently successful, most are able to catch at least a few fish during the spring peak, but some rarely ever catch enough fish for a "mess".

It is known that many more fish could be harvested from our reservoirs without ill effects; in fact, if more fishes were removed fishing success would improve in numbers and weight. Since it would be advantageous to harvest more game fish from our reservoirs and since the fishermen would enjoy their sport more if they caught more fish, it was decided to present some pointers on how to catch fish.

In order to obtain the best information for presenting to the sport fishermen, a plan was devised whereby known successful fishermen provided their "know-how". These fishermen were selected as being among the best within the state. The selections were made by Department personnel (fisheries biologists and wardens) who are constantly in contact with the sport fishing public. This particular article applies only to large-mouth bass fishing in reservoirs and lakes. Similar data were collected for different species and different types of water and future articles will be concerned with these.

In collecting data for this project, a questionnaire and interview approach was used. The results are presented below, mostly in "percent form". That is, a certain percentage of the experts would prefer spinning tackle, or would prefer monofilament line, etc.

The findings represent 255 years of largemouth bass fishing experience. The information is applicable only to reservoirs and lakes in South Carolina during the period from March 1 through June 30 and only for artificial tackle. Here are the findings, with fractions omitted from the percentages:

1. *Preferred Fishing Time:* 57% preferred sunup, 28% preferred sundown, 14% preferred midday. This indicates the correctness of the old belief that

early morning and late afternoon are the best periods for catching bass with early morning being the best.

2. *Preferred Fishing Depth:* 25% preferred surface fishing and 74% preferred fishing from the surface to a depth of four feet. This indicates your fishing should be done at depths not exceeding four feet. (Remember, this is for spring fishing and in very hot or very cold weather you should fish deeper.)

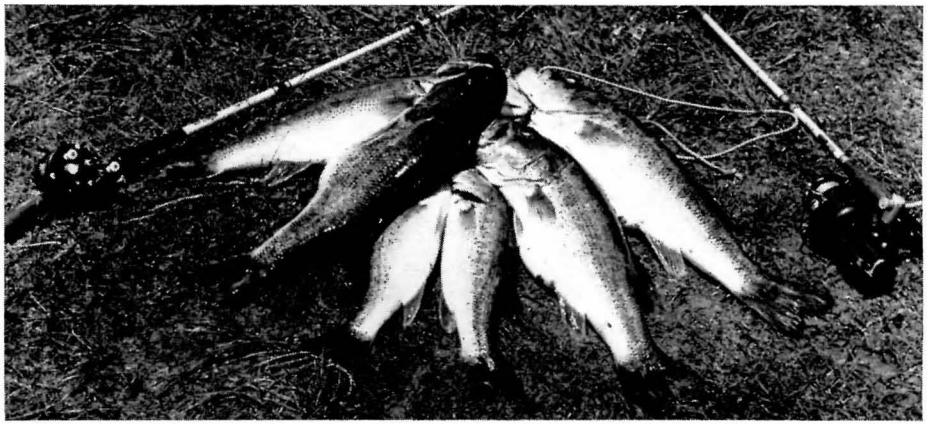
3. *Preferred Rod Type:* 57% preferred casting rods, 28% preferred spinning rods, and 14% preferred a fly rod. Spinning and casting are quite similar but it was believed greater accuracy was possible with a casting rod.

4. *Preferred Line Type:* 57% preferred monofilament, 28% preferred braided line and 14% preferred fly lines. Of course, the fly rod users would be restricted to using a fly line. However, all spinning rod tackle requires monofilament and it also works with some casting tackle. This indicates that choice of line is restricted by the type of reel used, although monofilament is preferred.

5. *Preferred Lure:* Favorite lures listed included: Dalton Special, popping bug (green or white with feather tail), Silver Flash, Darter (frog colored), Lucky 13, 1-M Mirrolure (to be trolled until bass are located and then any standard top water lure used), Deeper-Doodle and middle-size Sonic. Only the Dalton Special was mentioned more than once. It appears that choice of a specific lure varies but the top water or surface type lures are most desirable.

6. *Preferred Fishing Speed of Lure:* 57% preferred fishing the lure slowly, 28% preferred fishing it fast and 14% preferred a medium or varying speed. The lure should be fished slowly but vary the action if the slow speed isn't productive.

7. *Preference for Use of Snap and/or Swivel:* 71% preferred not using snaps and/or swivels while 28% preferred snaps and and/or swivels. It appears that better results are obtained by not using snaps and swivels.



Whether you use a casting or spinning outfit makes little difference so long as you put the bait where the fish is and present it in an attractive manner.

8. *Preferred Fishing Method:* Everyone of those questioned preferred fishing from a boat over shore-fishing or wading.

9. *Preferred Fishing Spots:* Most stated they had certain spots or locations they preferred to fish due to past success. In general, points were considered best with the back end of small coves being second. One preferred a bar that angled about 45 degrees downward.

10. *Preferred Length of Time to Fish One Area if Unsuccessful:* 57% moved after 15 minutes if not successful, 14% used 30 minutes, 14% used an hour and 14% used two hours. This indicates that not over 30 minutes should be spent at one spot and generally 15 minutes is enough time at one spot if not successful.

11. *Is the Moon a Factor?:* 71% indicated they considered the moon a factor in fishing success while 28% said no.

12. *Preferred Moon Phase:* 80% indicated a full or "growing" moon was most desirable while 20% preferred any time except a new moon or full moon. A full moon is the most desired.

13. *Is Atmospheric Pressure A Factor?:* 71% stated the barometer was considered in their fishing plans whereas 28% thought it had no effect.

14. *Atmospheric Pressure Preference:* 60% preferred a rising barometer and 40% preferred a steady barometer.

15. *Is Wind a Factor?:* 66% stated wind was a factor to be considered whereas 33% did not deem it important. (This naturally applies to moderate winds.)

16. *Wind Direction Preference:* 100% indicated that a west or southwest wind was the most desirable.

In summarizing this article, there are 16 points to be considered and it is believed attention to these points will result in improving your sport fishing success. The points are summarized as follows:

a. Early morning fishing is the best.

b. The best fishing depth is from the surface to four feet deep.

c. Casting rods are preferred due to better accuracy.

d. Monofilament line is mostly preferered.

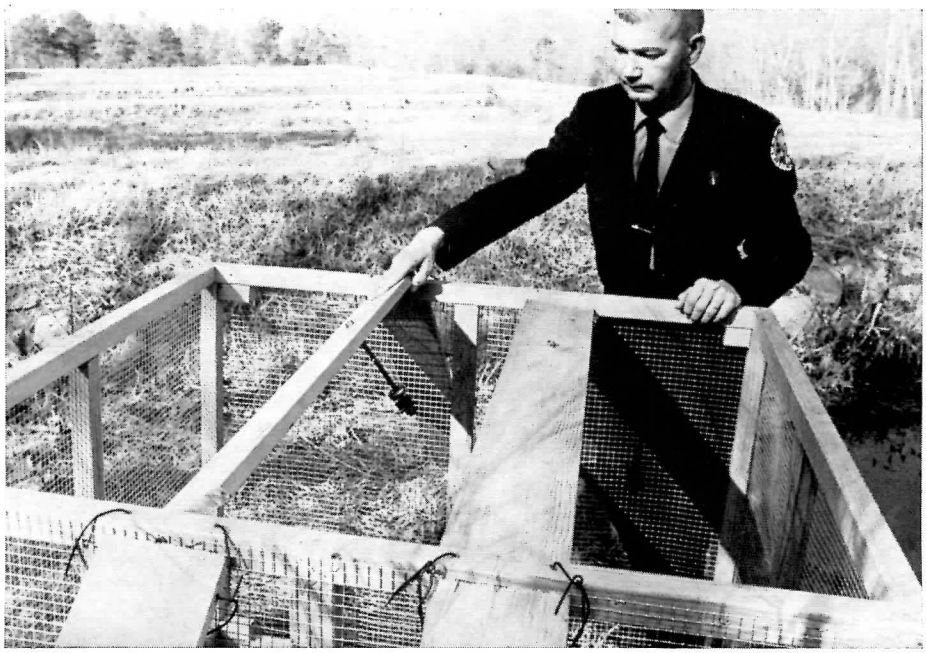
e. Top water or surface type lures are the most desired.

f. Lures should mostly be fished slowly but vary the action if the slow speed isn't productive.

(Continued on page 16)

Turtle Traps Can Take Out Harmful Kinds

By JOE LOGAN
Fisheries Biologist



At top is Joe Logan and one of the tiltboard traps while in the lower picture he shows the tiltboard with an iron bolt and a weight attached.

Will turtles harm my fish pond? How can I rid my pond of turtles?

These are two of the questions most often asked by fish pond owners today.

Although it is common knowledge that turtles are proficient in the art of stealing bait and otherwise are a general nuisance, many fishermen believe that they actually decrease the yield of fish in ponds by consuming large numbers of fish eggs, as well as young fish. Actually there is no scientific information to bear out this belief and research studies conducted at the Agricultural Experiment Station, Auburn, Alabama, indicated that the food of the slider turtle consisted of approximately 80 percent vegetable matter and only 20 per cent animal matter. Fish made up less than three per cent of the total diet. It is probable that this three per cent included fish fatally injured by being hooked or that had died due to old age or disease.

We here in South Carolina are lucky in the fact that most turtles in our fish ponds are of the harmless variety ("cooters and sliders") rather than the harmful predator types.

A few turtles in a pond or lake may be beneficial in that they act as scavengers, keeping fish and other dead animals cleaned out of a pond. However, when turtles become so numerous that they interfere with fishing, their number must be reduced.

Unfortunately, most of us are prone to condemn the entire turtle family for the sins of a comparative few.

The members of the undesirable clan are listed below in order of viciousness and destructiveness:

(1) Soft Shelled Turtle—They can be distinguished by their soft shell and slippery and streamlined body. Their daily menu consists of ducks, frogs, baby alligators and fish if they can catch them. They are frequently found in ponds in both the Piedmont and Coastal Regions, having been identified in 14 counties.

(2) Musk Turtles and Mud Turtles—They are known for their bait stealing tendencies. Because of their musky odors, they are often nicknamed "stink turtles". Their diet includes snails, dead fish, any minnows they can catch and meat. They are found in both the Piedmont and

Coastal Regions, having been identified in 35 counties.

(3) Alligator Snapper—This is the largest of the fresh water turtles attaining a maximum weight of over 100 pounds. Catfish and bream are high on their menu card. Fortunately they are seldom found in the farm ponds.

(4) Common Snapper—These turtles are occasionally found in ponds in South Carolina. They eat ducks, crayfish, frogs, snakes and any fish that they can catch.

The "cooters" and "sliders" enjoy long sunning periods and because of this habit are easy to capture by using surface traps.

The underwater traps are used to catch the snapper or soft shell turtle. Figure 1 is a tiltboard trap and works best in ponds where there are few stumps and logs. They should be placed in isolated areas of a pond. Build a wooden frame (4′ X 4′ X 4′) covered with poultry wire or hardware cloth with lumber in the frame being 2″ X 2″.

Next install tilt boards six to ten inches wide in such a way that they tilt or revolve freely. This is accomplished by drilling a small hole in the center of each end of the tilt board. Twenty-penny nails are then driven through the frame and fitted into the hole in the tilt board. It is then necessary to attach an iron bolt ten inches long and a small weight to the center portion of each tilt board (Figure 2) heavy enough to swing the tilt board back into a horizontal position after dumping a turtle into the trap. The "lead-in" boards are then attached to the top sides of the trap with stiff wire at about a 45-degree angle. The "lead-in" boards must be steep enough to prevent the turtles from sunning on them rather than the "tilt-board." Weights of 10 to 20 pounds are attached to the underside of each "lead-in" board (Figure 3) so that they will remain at the proper angle when placed into the water. The trap should be set so that its top extends 10 to 12 inches above the water level.

The "leadin" boards have weights attached to the underside so that they will remain at the proper angle, as shown in top picture. Bottom picture shows an underwater wire trap.

The underwater trap is a wire basket (Figure 4) four feet in length constructed of heavy gauge wire. (1″ X 2″ mesh turkey wire for this costs approximately $2.00). The funnel is oval in shape and a door should be constructed on one end to facilitate the removal of turtles. Small vertical openings may be cut in the sides of the trap to allow the escape of trapped fish.

The trap itself should be oval in shape to prevent it from rolling and losing its position. The trap can be located by tying a line to a float. It should be placed in water three to eight feet in depth.

(Continued on page 17)

Banding Work Of DU Helps Duck Hunters

Each year thousands of ducks and geese receive a special "gift" from DU —a small but important metal band. By carefully recording data about each bird and band valuable information can be obtained to help answer the mysteries of migration.

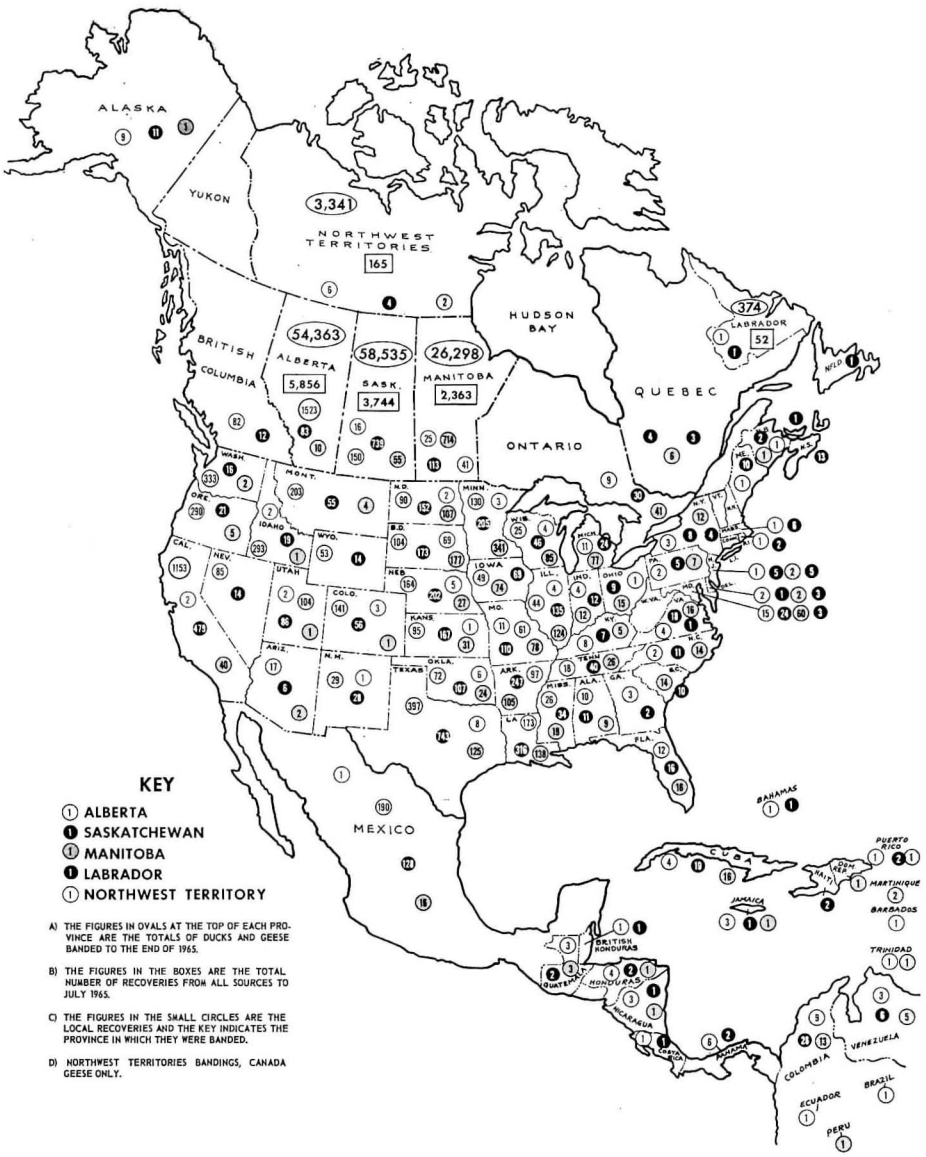
Since this DU banding program began, over 140 thousand waterfowl have participated in the research. Birds banded in the Canadian prairie provinces, plus Labrador and the Northwest Territories have been recovered in 45 states, all over Canada, across Central America and as far south as Brazil and Peru.

When our crews round up the ducks and slip that important band of metal around the leg of each, they have no idea where the band may be recovered —but each tells an unusual story. All sportsmen are urged to help supply the end of the story by sending all recovered bands to the proper agency, along with complete information on where the bird was taken.

Here, presented for the first time, is the brand new DU Banding Data Map, which proves positively that the Ducks Unlimited programs of building and restoring prime waterfowl breeding habitat in Canada are sound and productive.

The key to the map will aid you in seeing just where the ducks in your area come from. Also worth noting on the map, the initial statistics from the special goose banding project in the frigid Northwest Territories. You'll notice that less than half as many ducks have been banded in Manitoba as in the other two prairie provinces, so recoveries in any specific state may be expected to lag accordingly.

—From Ducks Unlimited.



DU Approves Record Budget For This Year

The Trustees of Ducks Unlimited, Inc., the continent's pioneering waterfowl conservation organization, have approved a record-breaking 1966 project construction budget of $700,000. At the group's annual convention, in San Diego, Calif., the DU Trustees unanimously approved the allocation of the $700,000 to the organization's Canadian affiliate, Ducks Unlimited (Canada), for expenditure in the construction and rehabilitation of prime duck breeding areas of the Dominion. The $700,000 surpasses the previous record allocation of $650,000 in 1965 by $50,000.

Since its founding in 1937, the sportsman's organization has spent almost 11-million dollars in building the waterfowl conservation projects, with a total of 800 completed, totaling over 1,022,000 acres of high-production habitat. By the end of the year, over $11,200,000 will have been expended to conserve North America's waterfowl resources.

Also at the annual convention, the DU Board of Trustees set its sights on the highest income goal ever—over $1,000,000. Contributions to Ducks Unlimited come almost entirely from

(Continued on page 17)

30,000 Boat Registrations Coming Up

By BOBBY BUCHANAN

The motorboat registration system in South Carolina became six years old last December. The "birthday" was celebrated by the Division of Boating with the mailing of over 10,000 notices to motorboat owners throughout the state. This Spring and Summer will be the heaviest renewal period within the three-year registration system, and from December through this year more than 30,000 registrations will come up for renewal.

By this time, most boaters have become familiar with the brightly colored decals or stickers that appear on each side of many motorboats after the registration number. Occasionally, an individual becomes concerned, and wants to know why his boat does not have the stickers, or why the Boating Division failed to send them with his registration materials. Here is the answer.

The decals, or stickers, are not issued with new registrations, but are furnished to a boat owner when he renews his registration. They indicate that a particular registration number has expired after a period of three years from the date it was assigned, and has been renewed by the owner for another three-year period.

South Carolina's motorboat registration system was set up on a three-year basis. The expiration date changes each month, thereby creating thirty-six renewal periods in the three years. Under state regulation, a registration number is issued for a full three-year period. This distributes the work load of the office staff over the entire period with a continuous process of registering new boats, transferring registrations, and renewing those numbers which have expired.

When a number is assigned to your boat, it is valid for a period of three years—that is unless the boat is destroyed, abandoned, or re-registered in another state. In that case, you notify the Division, and the number is terminated.

When your registration comes up for renewal, the Boating Division automatically sends you a notice to renew it for another three years. Unfortunately, many boat owners fail to notify the Division of a change in their address. The luckless individual may not get his notice, and failing to check his papers, ventures out one warm afternoon only to be stopped for a costly little chat.

After you have received your notice, and checked the information on the card with the number on your boat to make sure that everything is in order, return the notice with the $5 renewal fee to the Division. You will then shortly receive a new registration card and two decals that extend the validity of your number for an additional three years.

Here are some suggestions that might prove helpful to you in fulfilling your responsibilities:

1. When you move or otherwise change your address, notify the Division of Boating at once—or you might let it slip by. The Post Office maintains a forwarding service for a time, but even they can't be expected to remember your new location after three years. It is not difficult to forget these things, but a slip like this could eventually see you operating an outboard with an invalid registration, or you might continue to pay personal property taxes in two areas at the same time.

2. When you sell a boat, or trade it in on a newer or bigger model, don't forget to inform the Boating Division. The new owner might also shirk his responsibility by failing to transfer immediately, and two wrongs don't make a right. You could be left holding the bag come tax time or should the boat become involved in an accident. On several occasions individuals have spent valuable time attempting to straighten out some confusion that resulted because they still had a boat in their name—after they had sold it several years ago.

3. Check all information on the notice with the registration on your boat, otherwise you could wind up paying for a registration that you no longer use. People are such trusting souls—they will sign and return anything, complete with requested fee. It could be that you have sold or destroyed your boat and failed to notify the Division. They have no way of knowing what you have done until you advise them. If you have not done so earlier, furnish the Boating Division with the correct information when you return the notice. This gives you one more opportunity to make certain that all records are correct.

4. When you receive your renewal notice, respond promptly. Don't wait until the last minute. Renewal notices are mailed out thirty days prior to the expiration date shown on your registration card. This gives you plenty of time to get everything together, mail it in, and get a reply. Remember, you can't use your boat unless it is properly registered, and this means having a valid registration aboard. The service is generally good, but during a peak period, the processing time may take at least a week. Don't expect to send your application in and get it back the same day. Uncle Sam's Postal Service isn't *that* fast.

———SCWRC———

The crappie is found from Vermont and New York westward through the Great Lakes region and Mississippi Valley to the Dakotas and south to Texas.

Biologist Says Murray Has Good Fishing

By OTHO D. MAY, JR.
Fisheries Biologist

What is good or poor fishing? If you were asked, "How is the fishing in Lake Murray?", what would you reply? Most of you would give varying answers—based, most likely, on the fishing success you have had on the lake or if first-hand experience was not available, answers based on information or "tales" related to you by other fishermen. Your answer, however, is valid only as related to the standards you or your informants have set for determining good or poor fishing. Since the terms "good" and "poor" are relative, your answer could refer to a wide range of fishing success. Success one fisherman might consider good would be considered poor by the more skilled fisherman, or as excellent by a less skilled fisherman.

There are many factors that influence fishing success on Lake Murray or any other body of water, but I shall discuss only those two that I consider most important. These two factors are: the biological condition of the lake and You—the fisherman who fishes the lake.

What is meant by biological condition? It means the total of all the life processes taking place simultaneously in the lake. In this article, however, discussion of the biological condition of the lake will be limited to the species of fishes present and to their interrelationships.

Since fishing success is directly related to the biological condition of the lake, we must define those conditions which constitute good or poor biological conditions. The terms used to denote favorable or unfavorable biological conditions in respect to species composition and total productiveness of a body of water are "balanced" and "unbalanced" populations. A balanced population is one that will, year after year, produce a satisfactory crop of harvestable size fish when the basic fertility of the body of water containing the population is considered. An unbalanced population is one which will not produce a satisfactory crop of harvestable size fish under the above conditions.

The fish population of Lake Murray can be broken down into two basic groups—carnivorous species and forage species. The carnivorous, "C", species are those that feed principally on other fishes and cannot grow to normal, average size without such food. Examples of "C" species

Otho May holds a fine mesh seine used in collecting striped bass eggs floating down the Congaree River.

are: largemouth bass, white bass, striped bass, gar, etc. Forage, "F", species are those that feed chiefly on plants, plankton, crustacea, and insects, although, they may occasionally feed on smaller fish. This group constitutes the bulk of the food for the carnivorous species. Examples of "F" species are: the bream, carp, gizzard shad, minnows, etc.

The species composition of a body of water is never a static one; it is constantly changing due to harvest, predation, natural mortality, etc. How then can we evaluate the biological condition of a fish population that is constantly undergoing change? Through years of experimentation it has been learned that certain fundamental relationships exist between the various species and between the basic groups in the population. The relationships used to determine the state of balance, or biological condition, of a fish population can be defined as follows:

F/C ratio: This is a weight ratio of the total pounds of forage species to the total pounds of carnivorous species. If a population contains 50 pounds of "F" species and 10 pounds of "C" species, the F/C ratio is 50/10 = 5.0 or 5.0 : 1.0. This means that for each pound of "C" species in the population there are five pounds of "F" species. The range of F/C ratios, or values, in balanced populations is from 1.4 to 10.0; however, the most desirable range is from 3.0 to 6.0.

Y/C ratio: This is a ratio of the total weight of the small "F" species in the population to the total weight of the "C" species in the population. This ratio is most useful for indicating the state of balance in the population, and it is also useful for determining the amount of food available for the average size adult of the "C" group. The Y/C range in balanced populations is 0.5 to 5.0 with the most desirable range being from 1.0 to 3.0. Y/C values less than 0.5 may indicate a population that is in a temporary state of balance; however, in most cases the forage species are disappearing under predation. All population having Y/C ratios greater than

5.0 are unbalanced due to overcrowded "F" species.

^{A}T, ^{A}H and ^{A}N: These are values in which you, the fishermen, are most concerned. The ^{A}T value represents the percentage of the total weight of a population composed of fish that are of harvestable size. The ^{A}H values represents that portion of ^{A}T that is normally harvested by the fisherman and the ^{A}N value is that portion of ^{A}T that is normally unharvested—such as gizzard shad, minnows, etc. In other words, $^{A}T = {}^{A}H + {}^{A}N$. The ^{A}T range in balanced populations is from 33.0 to 90.0 with the optimum range being from 60.0 to 85.0.

How do we obtain the information necessary for calculating these ratios? Each year the South Carolina Wildlife Resources Department conducts a series of population studies on the lake. This annual series of studies takes in four to six sample areas widely scattered around the lake. In selecting the study sites, effort is made to select as many diverse habitats as possible. The sample areas vary in size from one to two acres. All fish are removed from these areas by the use of rotenone and are separated by species, with each species separated into size groups. The total number and total weight of each size group is determined. The data from all of these studies are combined to obtain average values for the entire lake. It should be pointed out, however, that the data obtained from these studies are representative of the lake only to the degree that the sample areas are representative of the lake. Further, the values obtained are not static since the fish population itself is not static. As species composition undergoes change due to harvest, predation, natural mortality, reproduction, etc., the values for these ratios also change.

What is the biological condition of Lake Murray? The following table depicts the biological condition of Lake Murray during the past four years.

The fine fishing in Santee-Cooper, of which these stripers are evidence, indicates the good biological balance that prevails in most South Carolina waters.

Population Dynamics of Lake Murray for the Years 1962 through 1965

	1962	*1963*	*1694*	*1965*
F/C	6.8	11.1	10.2	4.6
Y/C	2.0	1.2	1.7	0.8
^{A}T	45.6	49.6	60.2	67.8
^{A}N	16.8	23.2	35.6	25.6
^{A}H	28.8	26.4	24.6	42.2

Biologically, Lake Murray appears to be in a satisfactory state of balance. Although, some of the values in the table do not fall within the optimum range for balanced populations, it should be remembered that these values change throughout the year. For example: you would expect a higher F/C value shortly after the spring spawning season than you would late in the fall or winter after the current years' spawn has been preyed upon for a period of several months. Theoretically, highest F/C and Y/C values will occur shortly after or during spring spawning and will be at their lowest point just before the spring spawn. Likewise, ^{A}T values will be at their lowest point just after the spring spawn and will increase during the year to their highest point just before or during the spring spawn.

What does all of this mean to you the fisherman. It means that Lake Murray has a healthy fish population, one that is fairly stable biologically and one that will furnish good to excellent fishing throughout most of the year.

Creel data collected during 1965 indicate that the average Lake Murray fisherman's catch per hour of fishing was 1.8 fish weighing 1.12 pounds. The length of the average Lake Murray fishing trip was 2.5 hours during 1965 which meant that the average fisherman carried home 4.5 fish which had a total weight of 2.8 pounds. At first glance, this does not seem too impressive; however when considered that it reflects the catch of the poor fisherman as well as the good fisherman, it must be concluded that the fishing in Lake Murray is "pretty darned good". Data collected during the past year indicate that approximately 25 to 42 pounds of each 100

(Continued on page 14)

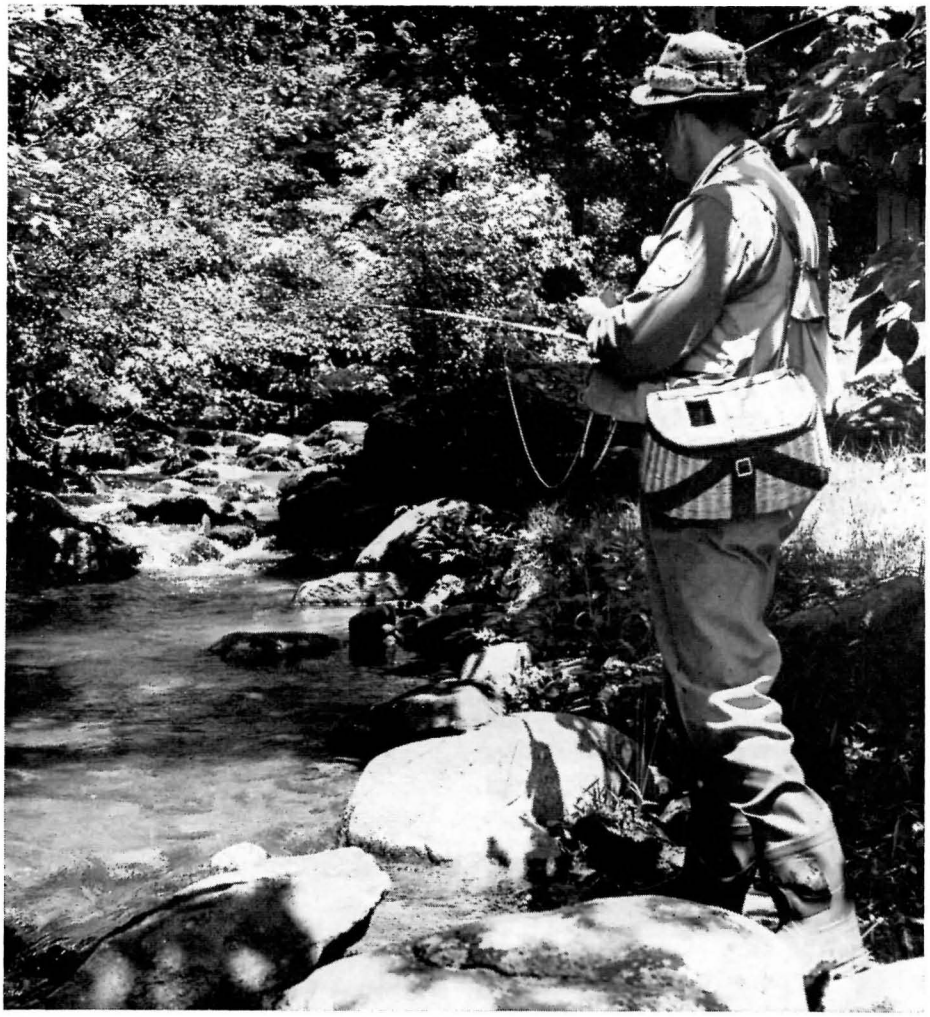
Put-and-Take Necessary for Trout Fishing

Steadily increasing pressure on the States 250 miles of trout water in the mountain counties of Zone One—Greenville, Oconee and Pickens—has led to many steps being taken to maintain the good fishing, according to Jefferson C. Fuller, Jr., Chief of Fisheries.

These steps include an increased amount of stocking; studies of stream improvement and of access roads; creel censuses and population studies; and a tagging program.

Studies have shown that survival of the stocked trout is light and also that there is practically no natural reproduction; and therefore the fishing is light and also that there is practically no natural reproduction; and therefore the fishing is largely a "put-and-take" proposition. This year a total of 164,150 catchable size rainbow, brown and brook trout will be released, all grown in the hatcheries of the U. S. Fish and Wildlife Service. (A Department hatchery in Greenville county was abandoned several years ago when it was found the fish could be produced more cheaply in the federal hatchery and also that the warming water—brought about by timbering operations above the hatchery—made production difficult.)

A nice creel of trout from an Oconee County stream.



Here's one of South Carolina mountain streams that provides good fishing for rainbow and brown trout, and some brook trout.

Despite the 250 miles of mountain trout streams their total acreage is less than 700 acres—one acre for every 230 on Santee-Cooper—and the planned construction of small dams will form pools, which increase the amount of suitable water.

Some of the access roads and bridges are in need of repair and the opening up of new roads to presently inaccessible stretches of stream is also being considered.

Under the tagging program, which is designed to learn more about the survival and movement of the stocked fish, around 2,200 have already been tagged and released. Persons catching the tagged trout are asked to return the tags to the Wildlife Resources Department, telling where and when the trout was caught. This information will be of great value in drawing up future stocking and management plans.

Under the stocking program the trout waters of Zone One are closed for the last seven days of March, April and May to allow the trout to scatter and become accustomed to their new homes.

The tailrace waters below Hartwell and Lake Murray will also be stocked. The drawoff water from the bottom of the lakes is cool enough for the trout to survive, although it is doubtful if there will be any natural reproduction.

The Department has suggested establishment of a trout stamp, costing around $1, with all proceeds from it devoted to improving and maintaining the trout fish.

Foxes and Fox Hunting Are Defended

By GASTON GAGE

By a conservative estimate there are between 50 and 100 fox hunters in each county in the state. Each of these hunters keeps from four to twenty fox hounds.

Many deer hunters go hunting only once or twice a year and not a great number go that often in the Piedmont. The turkey hunters have even less opportunity to hunt. Much time and money is spent in the restocking of these game varieties in the upper part of the state. I venture to say more fox hunters go hunting every week in South Carolina than go turkey hunting all year.

The fox hunter does not destroy his game. The sport is a contest between the fox and the pack of hounds. The hunter is purely a spectator. His pleasure is in hearing his pack of hounds try to outwit the fox. The fox runs about 250 yards in front of the hounds most of the time. I have seen a fox cross a field running before the dogs and stop and listen. When you see him do that he has the situation well in hand.

Why is the fox considered a criminal to be shot on sight? Much of his reputation comes from Aesop's Fables that children learn. And they are fables. It is a little like wrestling, the "good guy" and the "bad guy." The fox has been cast in the role of the "bad guy."

In the area where we hunted, down the river from Clemson, a pair of red foxes raised two cubs in a sawdust pile. This pile was about 200 yards from a dirt road. We used to drive out in the late afternoons and sit in the car and watch the fox cubs play. We used binoculars. While we watched the foxes we would often see a pair of bob white with a brood of young cross the pasture between us and the den as they went about their feeding. Two other broods of bob white were raised in the immediate area. On Thanksgiving day a warden checked three hunters who had killed their limits in this area.

I have a theory about why so many foxes are seen on the highways at night. If the fox is half as smart as he gets credit for being he has long since learned that the easiest way to make a living is to patrol the highways and pick up birds and rabbits killed by cars. When he finds a rabbit his hunting problems are solved for another day. All early morning travelers have seen crows cleaning up the dead rabbits that the foxes do not find at night.

I also have a theory about the changing characteristics of the bob white. Birds that will sit to the point and when flushed fly only fifty yards and light are killed on the rise or as singles. Birds that will run in front of the dogs and when they rise fly a half mile and light in a swamp make up the next year's breeding stock. The hunters are doing a fine job of unintentional selective breeding.

Go to a good library and make a study of scientific papers written on the food habits of the fox. I have done this at the Clemson Library. I fail to find a single paper that recommends a bounty or any other control measure except in rare cases of an individual animal. These papers are in agreement that the fox does not effect the volume of the prey species. He does do away with the sick, the crippled and the infirm. In the hunting season he harvests the cripples and dead left by hunters.

For the last four years the National Fox Hunters Association has held its annual bench show and field trials in Camden. This attracts people from all over the United States. In the futurity and all age field trials about 600 dogs are cast. At a conservative estimate this is over $100,000 worth of hounds, but there is little mention in the press.

There is nothing quite like hearing a pack of good fox hounds run a red fox like he should be run. And the fox will live to run another race. A fox hunter does not have to bring home a dead fox for the hunt to be a success. Of course, he is a little proud when his pack can manage to catch a fox, and possibly a little sad.

Results Of Teal Season Studied

An experimental early teal hunting season on the Central and Mississippi Flyways during September resulted in the bag of 448,000 ducks by the 201,972 permit holders. Free teal-hunting permits were issued in 20 participating states.

About half those receiving permits did not go hunting and the active hunters averaged slightly over four ducks each, the kill consisting of 405,000 blue-winged and 40,000 green-winged teal.

A companion study indicated an illegal kill during the short season of 13,000 wood ducks, 7,000 mallards and 14,000 ducks of miscellaneous species.

The blue-winged teal migrates before the opening of the regular season and last fall's experiment was designed to see how effective it would be in harvesting some of these ducks that otherwise would be wasted—at least as far as the hunters are concerned.

———SCWRC———

Over 75 turkeys were killed in the 1966 spring gobbling season.

WITH THE WARDENS

Wardens who had joined the Department during the past year are shown above during a training course. Left to right, first row—Karl Bankhead, Olin Driggers, K. W. Lominac, Assistant Director Pat Ryan, Otis Sandifer, James Mitchum; second row—Joe L. White, Guy Williams, R. C. Borders, C. R. Walker, C. R. Murray; third row—W. B. Johnson, P. B. Wagers, Monroe Sikes, George Harter; fourth row—Jerry Sanders, Tom Rogers, Guerry Hill and R. H. Poole.

Hunters Urged Not To Shoot American Emblem—The Bald Eagle

Hunters have again been urged to control their trigger fingers and not shoot at eagles or any other large hawk-like birds (which usually prove to be eagles and not hawks). The bald eagle, national emblem of the United States, is becoming increasingly rare and studies by the Department of the Interior's Bureau of Sport Fisheries and Wildlife indicate that indiscriminate shooting is still a factor in the population decline of these birds.

Allan T. Studholme, Chief of the Bureau's Division of Management and Enforcement, said that inexperienced hunters are sometimes frustrated at their inability to find game and "occasionally take potshots at hawks or other living targets." Many of these birds turn out to be eagles, Studholme said, and furthermore, the larger hawks themselves are protected by law in most states.

Both bald and golden eagles—the two native species—are completely protected by Federal law. The bald eagle, so-called because of its white head, has been protected since 1940 while the golden eagles were given Federal protection in October, 1962. The only exception is that the Secretary of the Interior may authorize the taking of golden eagles without a permit to seasonally protect livestock.

Hipps Is Given Red Cross Award

The National American Red Cross award for humanity (see below) has been presented to Game Warden Wallace Hipps of the South Carolina Wildlife Resources Department, a resident of Greenville.

The presentation was made at the annual meeting of the Greenville County chapter of the Red Cross, February 25, for 500 hours of volunteer instruction in standard and advanced first aid during a five-year period.

The front of the award is inscribed "For Humanity," and the back reads, "For five years volunteer first aid and life saving service—American National Red Cross."

Season On Doe Deer Is Called For By Numbers

By T. A. BECKETT III

It is indeed a bright day for the hunter when a complete reversal of the hunters' teachings must take p l a c e—from an overabundance of deer. I, for one, never thought that I would live to see this come about in the South Carolina Low Country.

As a boy, the last instructions were always, "watch for horns". What has brought about this sudden change—and in a section of our nation that has the longest deer season of any state? Is it due to a greater food supply? Are the does more successful in rearing young?

I would credit four main reasons for the gradual build-up in numbers that we find today.

First, I would credit the control of the screw worm fly by our nation's Department of Entomology. The writer can well remember the sordid sight of one-eyed deer, does and fawns doomed to slow death with great open sores, bucks in velvet doomed to a walking death from brain penetration of the larvae of the screw worm fly. Only a merciful charge from a gun could change the picture of a slow living death. Today the screw worm is no more in our state.

Second, I would give great credit to the decrease in night hunting, brought about by a more rigid enforcement of our laws. Any law can be no stronger than the court that enforces it. The days of a $10.00 fine and suspended sentence are gone. The man who night hunts has no regard for the sex of the deer whose eyes he shines—be it a doe with suckling fawns or a doe carrying fawns to be born on the morrow. Today the killer has trouble securing the $25.00 which each deer usually brought when sold. The market for the illegal meat has at least partially ceased to exist due to a better educated public.

Third, I would credit the population increase to changes taking place in farming sections of the low country and the increase in better management of more numerous hunting clubs. Today we know that the deer is mainly a browser. Low browse and mast are a necessity. The proper use of fire plays its part in controlling p a r a s i t e s and formation of low browse, making the fallen acorns available and a reduction of predation by wildcats on fawns. Wild, uncontrolled fires are the most deadly enemy of all nature.

Fourth, I like to think that today's hunter is more a true sportsman. By this I mean that the hunters themselves frown on the doe killer because he has been told it is wrong, not because of fear of the law. It remains to be seen if we can now convince these same hunters that it is right, and for the good of the deer, that a doe harvest is needed. I do not doubt that many of the old timers will find it hard to pull the trigger when some gray, bony, old doe that has long since ceased to fawn runs by his stand. It is "hard to teach an old dog new tricks", but he can at least be made to understand why this harvest is necessary if we are to have healthy, prolific herds. It is far better for the game, to harvest all the needed surplus, that the remaining may be healthy and not destroy their future food supply; that parasites may be kept within bounds. A given acreage can support only a definite number of units of game and it is desirable that these units be productive and healthy.

I am not so sure that the future in some ways is going to hold up and support an increase in the deer population. I say this because today there are thousands of acres of newly planted pinelands—"tree farms" are the right words—that will cease to allow the development of browse in the future.

I have proved to my own satisfaction, that pine tree deserts do not support higher forms of wildlife and that the ringing of hardwoods is poor game management, which, in the end, will help destroy the one crop—pines—that has been planted to utilize the land.

What of the future? The age of game management is young and holds much for the future. Politics, and political plums, are gradually fading from the picture. Today professional game managers can foresee certain trends before they culminate in disaster. If they are heeded, many disasters can be headed off before a serious debilitating climax is reached. Let us learn to accept their verdicts, feeling that their goals are our goals. A maximum harvest of game which the land can produce is their goal and the hunter's reward.

———SCWRC———

Booklet Gives Dope On Poison Snakes Of South

POISONOUS SNAKES OF THE EASTERN UNITED STATES WITH FIRST AID GUIDE by Harry T. Davis is an attractive and authoritative booklet put out by the N. C. State Museum, Box 2281, Raleigh, N. C., cost 25 cents with discounts for quantity purchases. It has 20 pages and numerous drawings and photographs.

The booklet takes up the eight poisonous snakes of the Southeast—the coral snake, cottonmouth, copperhead and five species of rattlesnakes. There are descriptions of the poisonous snakes and discussion of their habits, along with the two recognized methods of treating snake bites.

This is a most valuable and well-prepared little book.

Lake Murray

(Continued from page 9)

pounds of fish present in the lake are available to you, the fisherman. Your portion of these available fish depends on you—which brings us to the second most important factor affecting the degree of fishing success in the lake.

It is my opinion that the fisherman, either directly or indirectly, has a greater influence on the lake in regards to its fish producing reputation than any other factor. Regardless of the biological condition of the lake, if you, the fisherman, do not catch fish from the lake, the lake will carry a reputation as a poor lake for fishing. If this is true; then, why is it true?

Let us look at the fishermen. Fishermen come in assorted shapes and sizes; they come equipped with all sorts of devices and secret "formulas" for catching fish; they are endowed with varying degrees of ambition and "know how"; and most are convinced that they are experts on fishing. How does a lake gain its reputation? Chiefly by word-of-mouth based on the success, sometimes slightly exaggerated, of the fishermen using the lake.

If fisherman No. 1 is "eat-up" with ambition but short on "know how", fishes Lake Murray and catches no fish, his ego, in most cases, tells him that "since I am a good fisherman and since I caught no fish, this is a poor lake for fishing". If this same fisherman, by skill or by chance, has an excellent catch on Lake Murray—already convinced that he is an expert fisherman—he is ready to swear that Lake Murray is one of the best lakes in the country. If fisherman No. 1 tells fisherman No. 2, who has little or no knowledge of the lake, that fishing in Lake Murray is poor, fisherman No. 2 is immediately discouraged and will perhaps, cancel the fishing trip he had planned. If No. 1 tells No. 2 that fishing in the lake is excellent and No. 2 goes fishing but has poor results, he then calls No. 1 a "liar" and tells fisherman No. 3 that fishing is poor in Lake Murray. This goes on like a "chain reaction"—each passed word being based on fishing experienced and on the opinion the passer has of himself as a fisherman—until the lake acquires a "reputation".

You and I know, that the poor fisherman mentioned above refers to only the other fisherman—although we may have occasional bad days due to the wind blowing too hard or not hard enough or some other equally valid excuse—and that we could not possibly fit into his category. We are certain that we possess the following qualities that makes us successful fishermen.

1. We have a reasonable knowledge of the feeding habits and habitat preferences of the various species at different times of the year.
2. We know the lake—where the sunken islands, rocky points, submerged trees, etc., are located and the species likely to be "hanging out" around each.
3. We own, or can borrow, the proper equipment for catching a given species of fish and know that we have the skill to use this equipment properly.
4. We know that the best time to go fishing is the time we can get off, and since we possess all the above qualities, we know that we have a better than average chance of catching a good "string" of fish.

Seriously speaking, we who live within fishing distance of Lake Murray are fortunate. Lake Murray abounds with largemouth bass, white bass, crappie, "bream" and a limited number, at present, of striped bass. Plans are now underway to make experimental stockings of walleye in the lake which, if successful, will add greatly to the stature of the lake. For the fisherman who has the knowledge and skill or if he is willing to go to a little trouble to acquire them, or if he can arrange to go fishing with someone who already has them, there are few better places to spend the afternoon fishing.

How is the fishing in Lake Murray? Excellent! If you get an answer other than this from another fisherman—weigh carefully his answer. Consider: his skill, his knowledge of the lake, his knowledge of the habits of the various species and the fact that he, like yourself, is also a fisherman. Remember that his answer is more or less influenced by the fishing success he has had on Lake Murray and that his fishing success, in turn, was influenced by his attributes as a fisherman. If he gives an answer other than "very good" or "excellent", then it is apparent that he does not fit into the same class of fishermen that you and I think we do.

———SCWRC———

Trapping is one of the oldest occupations of man. It is older than agriculture and even preceded the pursuit of hunting and fishing.

Probably the earliest known metal spring traps were those employed for the catching of human beings in about 1750 or earlier.

John Buck of Charleston above is, as far as we know, the first South Carolina archer to kill a wild turkey with a bow since the days of the Indians. He got this big gobbler, which weighed 21 pounds dressed, on the Francis Marion area.

Berkeley County Is Top Fishing Area

By ROBERT E. STEVENS
Fisheries Biologist

District Five includes Berkeley, Charleston, Beaufort, Jasper, Colleton, Dorchester, Hampton, Allendale, Bamberg, Orangeburg and Barnwell counties.

If any area of comparable size offers as good year-round fresh water fishing as Berkeley county, I don't know about it. Within Berkeley lie Lake Moultrie and the lower portion of Lake Marion, which offer the only big population of landlocked striped bass in existence and as good striped bass fishing, landlocked or not, as there is to be found anywhere. The past year has been the best since 1959 for striped bass and the strong existing stock indicates a continuation of the same for at least the next several years. Lake Moultrie holds world records for channel catfish and black crappie and, in season, offers excellent bream, jack, largemouth bass and white bass fishing.

Also within Berkeley county is the Cooper river which is fed by waters of Lake Moultrie. The same productivity exists in Cooper river and excellent bream, crappie, largemouth bass and catfish fishing can be had most of the year and, in season, good catches of striped bass and yellow perch are the rule.

In addition, the annual spring run of herring, white shad and hickory shad provide added sport for fishermen.

The other counties of District Five are without any large lakes or reservoirs but share to a greater or lesser extent the several excellent rivers which enter the ocean at various points between Charleston and Savannah. Besides the Cooper river, the area contains the Ashley, Edisto, Ashepoo, Combahee, Coosawhatchie, Salkehatchie, New and Savannah rivers. The most popular gamefish found in these rivers is the redbreast which, after several years of scarcity, produced excellent fishing in 1965. Other gamefish include largemouth bass, bluegill, jack and in the case of the Edisto, striped bass, white shad and hickory shad. The Savannah is also noted for the large channel catfish which are occasionally taken.

These rivers are affected greatly by fluctuations in water levels which result from alternating periods of drought and heavy rainfall. In recent years, alligator weed, along with fallen trees, has served to reduce fishing along many miles of productive streams. Steps are underway to clean the streams of these obstructions as well as to build access areas in order that these waters may be more fully utilized by sport fishermen.

Eastern Rivers Give Good Fishing

By EARL W. HARRIS
Fisheries Biologist

District Four is a relatively new district which includes 14 counties in the eastern part of the state. It is bordered on the west by the Wateree river and extends eastward to the coast. Beginning at the North and South Carolina state line, it continues southward to include Georgetown county. Within these fourteen counties lie the Catawba-Wateree reservoir, Lake Wylie, Lake Wallace, Lake Robinson, several state park lakes, several excellent streams (many of which are "black water streams"), and many farm ponds which provide plenty of good fishing for the sportmen of this area.

It is our objective to determine the existing biological conditions in these streams and reservoirs. To do this we will carry out population studies, age-growth studies, food habit studies, life history studies and other such studies as they are recognized and needed. Management techniques will be based upon the findings from these studies and future work will be toward the production and maintenance of good fishing in this district.

Population studies, age-growth studies, and food habit studies have been conducted on some of these waters. *All* of the data have not been processed but, from fishermen's reports and this data, the streams of this district appear to be in good condition. In addition to the striped bass (*Roccus saxatilis*), which was stocked in Lake Wyle and the Catawba-Wateree reservoir prior to the creation of this district, one may catch the largemouth bass (*Micropterus salmoides*), crappie—both black (*Pomoxis annularis*) and white (*Pomoxis nigromaculatus*), redbreast (*Lepomis auritus*), other bream (*Lepomis sp.*), Yellow perch (*Perca flavescens*), Catfish (*Ictalurus* sp.) which is becoming more popular, and others in the streams and reservoirs of this district.

As just mentioned, the catfish is becoming a very popular fish in this area. Many sportsman are traveling several miles to fish for the cat in the Greater Pee Dee river and other streams. It has become so popular that many people have expressed the desire for this fish to be declared a game fish.

It is only natural that some streams are more productive than others. As a result, some will require more work to make them good fishing streams; however, efforts are and will be made to increase the productivity of all streams with emphasis on those that appear to be providing little sport fishing.

Bass Tips

(Continued from page 3)

g. Better results are obtained by not using snaps and/or swivels.

h. Best results are obtained by fishing from a boat.

i. The best fishing spots are the points.

j. Fifteen minutes is enough time at one fishing spot if not successful.

k. The phase of the moon should be considered.

l. A full moon is the most desired.

m. Atmospheric pressure should be considered.

n. A rising barometer is preferred with a steady barometer being a close second.

Strings of bass like these come—but not always—to the angler who puts his brain into thinking, and doesn't just sit in a boat throwing out plugs.

o. Wind direction should be considered.

p. A west or southwest wind is most desirable.

The author wishes to again state this article is based on questionnaires and interviews and is not presented as a "cure all" for all bass fishermen. It is not his intention to promote or downgrade any particular type of fishing equipment but to present the data in as factual a manner as possible. Also, bass can be caught by many methods using varying types of equipment. The above suggestions should be of value to the novice but will possibly give some old-time bass fisherman a new idea or two.

Tribute Is Paid Late Justice Taylor

The passing of Chief Justice Claude A. Taylor was a great loss to the State and to those sportsmen who had come to know him in the woods, fields and waters. The following is part of a tribute to Judge Taylor by Station WSPA in Spartanburg, his home for many years:

"Claude Taylor loved the great outdoors. He was a keen competitor in any sport or recreation in which he became engaged. Before being forced to give up golf because of a back injury, he enjoyed sinking a long putt and winning a golf match as any man who ever walked the fairways. Yet those who knew him best recognized that hunting was his first love. He could shoot with the best whether hunting geese at Mattamuskett, shooting ducks on Santee or hunting birds. Next to his family and his friends he loved his dogs. One of his friends enjoys telling a story to illustrate his accuracy with a gun. They were riding back from a hunt when a large hawk flew across the road. Judge Taylor quickly rolled down the window of the car, loaded his gun, and as the hawk flew by the moving car a good distance away 'Claude Taylor brought him down dead with one shot.'

"Hunting friends of Judge Taylor have their own favorite stories, but none perhaps better illustrates his competitive spirit and determination than one he enjoyed telling on himself. He was a man's man and a son's father. He enjoyed hunting with his sons. He and Claude, Jr., were invited to hunt in the lower part of the state. Claude, Jr., visualized a rough hunting place or abode which Judge Taylor enjoyed but not to the liking of the younger generation. Judge Taylor told Mrs. Taylor, who was his understanding and devoted companion throughout life, that he was not going to insist on Claude, Jr., going with him and he was not going to tell him the place which they had been invited was as luxurious as a Miami Beach hotel. Finally Claude, Jr., on his own accord, decided to go with his father. When they arrived at the plush hunting lodge, the father enjoyed seeing the surprised expression on his son's face as they were escorted to their rooms. The next morning Claude, Jr., bagged a 20-pound wild turkey which was the envy of the other hunters including Judge Taylor. Late that afternoon some concern was manifested because Chief Justice had not returned from the woods. Claude, Jr., allayed all fear by saying, 'Don't worry. Dad won't be back until he has a turkey larger than mine if he has to stay out there the rest of the week.'

"After dark Judge Taylor returned. He laid on the game table a beautiful gobbler. He beamed with satisfaction as it weighed a couple of pounds more than the one killed by his son who remarked—'I told you so.'

"Claude Taylor has gone to his happy hunting ground. He believed in God and a hereafter, and those who had the great fortune to enjoy his friendship and companionship on earth knew there was a special niche waiting for this great and good South Carolinian."

———SCWRC———

Cottontail rabbits are born blind, deaf and without fur, but by the time they're ten days old, they are fully furred and able to see well and hop about freely outside their nest.

Turtle Traps

(Continued from page 5)

The trap should be baited with fish, chicken entrails or soybean cake placed in one-half gallon perforated pail. This permits the flavor to escape and prevents the bait from being eaten.

The dead turtles should be removed every day or so.

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Cuthbert, Edmund R., Jr. 1960. Distribution Records of Amphibis and Reptiles in South Carolina—Biology U. S. C.

—SCWRC—

The weight of the average bull bison is about 1,800 pounds, but a number of wild bulls have been weighed, after being killed, that tipped the scales at more than a ton.

Glenmore Shirey, superintendent of the Newberry hatchery, shows a big snapping turtle trapped in one of the hatchery ponds.

Spanish Moss Attractive Plant Of The Low Country

By JOHN SPINKS
Information Assistant

Did you know that a relative of the pineapple grows wild in South Carolina?

This is Spanish moss, which belongs to the pineapple family, Bromeliaceae, and is known scientifically as *Tillandsia usneoides*. It differs from true mosses in that it reproduces by seeds instead of spores. Its extremely small greenish-yellow flowers, which are especially fragrant at night, bloom in the spring and early summer. The interesting seeds have hairy sails, which allow them to catch the faintest breeze and be blown to distant trees to begin new colonies of moss.

Since Spanish moss does not harm the tree in which it lives, where does it get its food?

Unlike parasites, which live on food manufactured by their host or on the host itself, Spanish moss is an "epiphyte." This means a plant that manufactures its own food and depends on other plants only for support in a favorable place to receive light.

Spanish moss "absorbs rainwater and dew through minute scales which cover the leaves and the greatly elongated slender stems. It obtains its essential elements from dust and rainwater. Most epiphytes obtain their nutrients from decaying organic matter which collects around their roots," according to *Botany*, by Wilson and Loomis.

Oaks, pines, cypress, and even power poles serve as homes for Spanish moss. As with other epiphytes, Spanish moss is usually found in wet or damp areas, since it depends greatly on rainfall as a food source. In South Carolina it is confined to the lower part of the State.

Although a member of the pineapple family, Spanish moss is not eaten. However, there are some who remember harder times when pillows were stuffed with it. It is still used occasionally as packing material.

Since Spanish moss is not harmful and possesses no great economic value, we can only enjoy it for the beauty and grace it imparts to our low country scenery.

—SCWRC—

Record Budget

(Continued from page 6)

conservation-minded sportsmen and organizations, in both the U. S. and Canada.

Re-elected as regional vice-presidents of DU at the meeting were: William P. Elser of San Diego; J. Roger Crowe of Stuttgart, Arkansas; Norman H. Ott of Milwaukee; John H. Ewing of Peapack, New Jersey; and Eugene duPont, III of Beaufort, South Carolina. Newly elected as a regional vice-president is Archie D. Walker, Jr. of Minneapolis, who also serves as Minnesota state chairman.

Palmettoes are a prominent part of the scenery along the South Carolina coast.

Palmetto Picturesque Tree Of South Carolina Coast

By MARIE B. MELLINGER

The cabbage palmetto, *Sabal palmetto,* has been the state tree of South Carolina since 1939. This tree grows further north than any other palm, and is found along the coast to North Carolina.

It is one of the oldest types of trees, having existed in an almost unchanged form with the Tyranosaurus and other dinosaurs. One can imagine those fearsome creatures, plucking the fruit from the top of an original palmetto tree.

The palmetto grows wild on coastal islands and along beaches and waterways, but is not nearly as abundant in the wild as it should be. Eroding beaches and the draining of lands and bulldozing and building of subdivisions have destroyed many palm trees. They have been planted in cities as ornamental street trees, but somehow never seem quite as beautiful as when seen against a wild background of sand and sea. The sea breezes rustling through the palm fronds make a music that goes with moonlight over the ocean and the haunting cries of sea birds.

Often the palmetto grows on the coastal islands in association with yaupon, *Ilex vomitoria,* sparkleberry, *Vaccinium arboreum,* wax myrtle, *Myrica cerifera,* red cedar, *Juniperus virginiana,* and the dune live oak, *Quercus virginiana var. maritima.* Sometimes the cabbage palmettoes grow short and scrubby, but they can be very tall, proud trees, to eighty feet high, with a very straight trunk topped by an umbrella-shaped dome of fronds. The trunks are ringed by the scars of fallen leafstalks. They have no cambium layer and do not show annual growth rings as do most trees. Sometimes the old fronds hang on the trees and make them look as if they were wearing grass skirts.

The evergreen leaves, or fronds, are up to five feet long, fan shaped and deeply cleft and divided with thread-like fibres hanging between the clefts. Fronds are often gathered and sent north to supply churches for Palm Sunday. Fibers from the leaf stalks make brushes and whisk brooms. The fronds are also used for making hats, baskets, mats, and for thatch.

The flowers appear in spring, on two-foot long, branched and drooping panicles of small perfect white blooms. They have an oddly sweet, almost medicinal odor. They are a good source of honey. Fruits are black, lustrous, one-seeded berries. These fruits are eaten by raccoons, opossums, armadillos, and wild turkeys. Such birds as fish crows, mockingbirds, blue jays, boat-tailed grackles, pileated woodpeckers, and wintering robins also feed on the berries. There are several recorded instances of their use by ring-billed and herring gulls, among the very little vegetable matter consumed by these birds.

The cabbage palmetto, or cabbage tree, is so called because the edible heart of the palm is eaten as people eat cabbage. Unfortunately a tree has to be sacrificed to get the heart. The cabbage heart is supposed to taste something like artichoke. The Indians used them extensively for food. The cabbage palmetto is the Seminole tree of life. They ate the palm hearts and berries and used the trunks for pilings and to make their open houses called "chickees." An infusion of the berries was used for medicine. During the annual ceremony of the new year, when the medicine man put samples of all the medicine plants to be used for the coming year in one pot to make a religious brew, an offering to the medicine spirits, the berries of the cabbage palmetto were always added.

Early colonists used palmetto trunks for stockades and wharf pilings as the wood resists salt water and sea worms. It is said it also resisted the guns of the British army. On June 28, 1776, a Carolinian force behind a stockade wall of palmetto trunks withstood the British cannonballs fired from nearby warships. This victory is shown on the South Carolina State seal, with an erect palm tree representing the fort, and a fallen oak to represent the vanquished British fleet. This historic event took place on Sullivan's Island, in Charleston Harbor.

South Carolina can well be proud of her state tree, for its beauty is unquestioned, and it adds a distinctive touch to the southern landscape. When visitors from the north see their first palmetto tree, they know they are truly in the southland.

Major Prizes Are Offered In Striper Derby

The second annual Striped Bass Derby on Santee-Cooper will be held this year May 16 through June 15 with anglers competing for over $10,000 worth of prizes during the 32 days of competition.

Law Enforcement Supervisor A. M. Flood, Jr., of Moncks Corner is again serving as chairman.

The Derby will cover the 160,000 acres of the two lakes and is being sponsored by Berkely, Clarendon and Orangeburg counties with the cooperation of the State Development Board and the Wildlife Resources Department.

Prizes will be awarded weekly for the largest catch in each of the Derby's four divisions—striped bass, crappie, bluegill bream and black bass—with the grand prize going to the angler catching the largest striped bass during the event.

It will take a much bigger striper than this to take the top prize in the Striped Bass Derby during May and June but anyway it's a nice fish.

Last year's winner was S. T. Dees of Sumter who took in over $7,000 in prizes for catching both the first and second place stripers.

The Santee-Cooper record for striped bass is 55 pounds and officials are hoping this mark will be equalled or exceeded during the derby.

The presentation of prizes and awards will be held at the Manning High School stadium the night of June 15.

Governor Robert McNair and Director James W. Webb are shown with one of the Wildlife Week posters.

State Is Given Federal Funds For Recreation

South Carolina has been apportioned $1,299,491 for the fiscal year 1965-66, having established its eligibility for matching federal grants from the Land and Water Conservation Fund for acquisition and development of state and local outdoor recreation areas.

To qualify for grants from the Fund, it was necessary for the State to develop a statewide outdoor recreation plan and planning program and for the Bureau of Outdoor Recreation to find these adequate for initial qualification for the 25-year program.

Bureau Director Edward C. Crafts said the State may now apply for grants for 50 per cent of the cost of State, county and city land acquisition and development projects designed to meet priority public outdoor recreation needs identified in the State plan.

Director James W. Webb of the Wildlife Resources Department is liaison officer for the cooperative state-federal program in South Carolina and South Carolina's plan was prepared by the Department.

Gar Fish Studied In Florida

TALLAHASSEE, FLORIDA—The gar fish may win a prize as the ugliest fresh water fish in Florida and is accused of destroying game fish by many fishermen who have little or no information on the gar's normal feeding habits. In an effort to learn more about the gar fish and its role in Florida's fresh waters, the Game and Fresh Water Fish Commission has launched a study of the gar to determine the advantages or disadvantages of this prehistoric member of the fish family.

The study of the gar fish is more than a study of the fish itself and includes a study of the fish under changing conditions. In charge of the gar fish research study is Mike Diana, fisheries biologist assigned to the Commission's fishery research laboratory at Leesburg.

Diana says that with the gar, despite its 50-million year existence, you have to start from scratch to determine what this living fossil eats, as very few scientific studies have ever been made on the food habits of this primitive fish. The big question faced by Diana and his associates is, what changes in diet occur during a lake improvement program which includes seining and chemical treatment as management tools?

O. B. Edmunds of McCormick was one of the successful hunters on the spring turkey hunts on game management areas. This 19½ pound gobbler was killed on the Parsons Mountain area.

The Florida Game and Fresh Water Fish Commission recognized an opportunity at Lake Griffin in Lake County in which the food preferences of these fish could be studied before, during and after the application of rotenone, this selective chemical being applied in a one-shot effort to rid the lake of small shad which were slipping through the mesh of the seines.

Diana has examined the stomachs of 1,297 randomly selected longnose gars taken from 15 seine hauls at ten different locations on Lake Griffin. This study was conducted from October through November and included the time of the rotenone chemical operation.

Maybe Diana discovered why gars are so disagreeable. Of the total of 1,297 gars, 914 of these fish were swimming around on empty stomachs. A few fish, like vultures, will "throw up" when captured, but gars lack this delightful habit. So that isn't the explanation. It is possible that these primitive fish, handicapped by their heavy armor, lack the speed and ability to be efficient predators.

With the study, some interesting information on the eating habits of the 383 gars with full stomachs was uncovered. It was found that gar fish living in a lake heavily populated with shad and other rough fish preferred to dine on shad. Second choice was the black crappie with the third choice being sunfish.

After applications of the rotenone chemicals the gar gorged themselves on the dying shad and nearly all gars collected during the chemical treatment had full stomachs, suggesting that these fish will take advantage of a situation in which they don't have to expend too much energy.

An electric shocking machine is worked by a fisheries biologist in an effort to locate trout in one of the streams coming into the Congaree below Lake Murray.

When the favored food (shad) diminished, it was found that the gars exerted more pressure on game fish. Sunfish and black crappie were high in the gars' gastronomic gatherings, along with a variety of other fish. For the first time bass (a total of two) showed up in the 271 stomachs examined in this post-chemical sampling. About two out of three gar stomachs were empty.

Information gathered during the study indicated that female gars, by virtue of their larger size, preferred larger food items and in general had a sweet tooth for game fish, while the males ate smaller fish and more rough fish.

Conclusions reached are that gars have trouble catching their prey, as evidenced by the great number of empty stomachs, and that when they do successfully feed, their favored food is the shad. When shad are poisoned out gars will turn to a variety of fish, sunfish and black crappies being at the top of the list.

While the research project has answered many questions, there remains considerable study before the role of the gar as a necessary or unnecessary predator in Florida waters can be fully evaluated. But after 50 million years, the first step is a big one.

Farm Pond Bream

Strings of fine-eating bream like these are coming from farm ponds all over the state. (Photo by Brown.)

Brought To Net

The number of trout anglers increases year by year and heavier stocking is necessary to provide trout like this rainbow for the streams of the mountain counties. (Photo by Brown.)