Sporting MONTANA

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Official Publication of
The Montana Fish and Game Department

STATE OF MONTANA

John W. Bonner, Governor

MONTANA FISH AND GAME COMMISSION

The Commissioner's Message

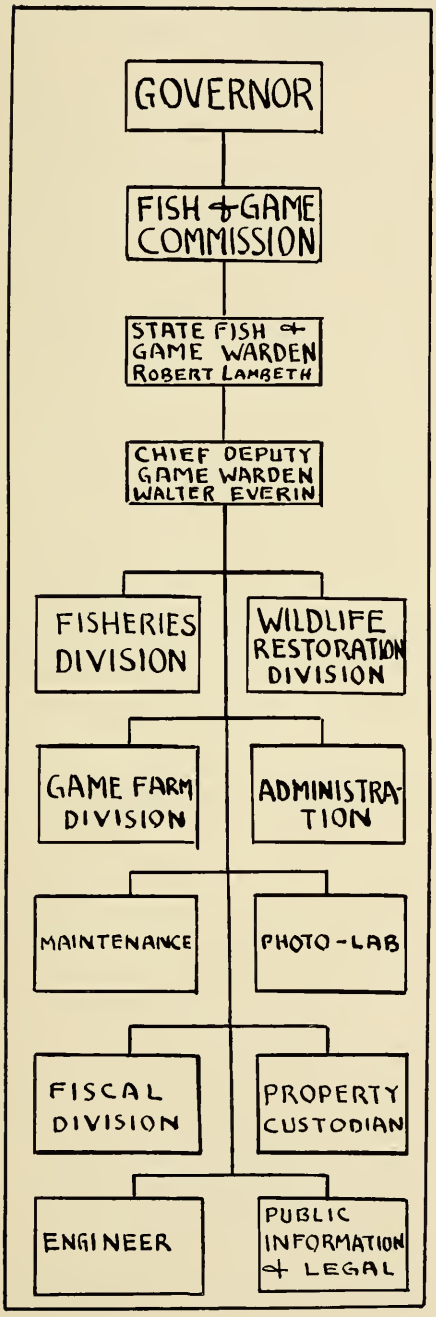
The Fish and Game Commission bulletin, "Sporting Montana," has been exceedingly well received. Encouraged by the success of this move better to acquaint the citizens of Montana with its work, the Commission established a Department of Public Information and Education. The work of this department is to use all possible means to disseminate to the interested public information concerning the activities and programs of the Commission.

This is being done through the mediums of the press, motion pictures, personal contacts, radio, and special publications. In addition, the public relations department is to investigate the possibilities of future work in conservation education field as it affects the work of the Commission.

The Commission realizes that the success of all programs of fish and game management are dependent to a great extent upon the cooperation of the Public. The Commission also feels that the only way to secure this cooperation is to keep the public completely informed as to the various activities and the reasons for them. This is the work of the new department.

William Carpenter

Your Department's Structure



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Sporting Montana

VOL. I — No. 3

Editor

LORRAINE KURFISS REMINGTON

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COVER PICTURE

Featured on the cover and as "Boy-Fishin' model is Jeff Bartsch, 8, of 10 Chaucer street, Helena. He is a second-grader at Emerson school, and is the son of Mr. and Mrs. Don Bartsch.

Editorial - USE WISELY

You can't take it with you. That's why Conservation doesn't mean "to save." If Montana saved all the game and fish in the state, there would be no sport for the sportsman, and game animals and fish would be fighting a battle of "survival of the fittest." The floors of over-grazed forests would be the deathbeds of the unattended wild. Waste would be the victor.

Rather, we choose to call "Conservation" as is practiced in present day game management, "Using Wisely"—the reason we can have our game and eat it too.

"Use Wisely" must become key words in conservation education in order to explain game management to those who believe our sportsmen are taking too many deer, or, conversely, to those who kick about closed or short seasons. For instance, wise use, as we see it, does not mean for anyone to kill a game animal whenever he runs out of food, but to kill game animals when they run out of food, due to overpopulation of the species, and overgrazing of the forests. Again, wise usage is helping nature make a balance by transferring elk, for example, from an overstocked area to a territory where they are lacking. Again, a sportsman who utilizes every bit of game meat is practicing conservation—in contrast to one who takes only the choice hind quarters, and leaves the rest of the animal to decay.

The Montana Fish and Game Department is attempting to use wisely its knowledge by making public its findings in game animal, bird, and fish research through the medium of Montana's newspapers and radio stations, through the local sportsmen's clubs and associations, and through the many conservation films which are sent upon request to any organization or individual in the state. Conservation not only must be practiced, but it must be taught.

To use wisely is to throw back the "little fish" and let him grow into a meal size catch. To use wisely is to abide by the regulations which are constructed to protect and to maintain the status of the present wildlife in Montana, the happiest hunting ground in the West.

Editorial - PUBLIC INFORMATION

Conservation has a multitude of meanings. Originally it meant total saving, but as this concept developed it was found that often total saving was not the entire answer in many cases. In fact it was noticed that unless some use was made of many of the natural resources, the objectives of conservation often failed. So we find conservation changing to mean a wise use of our natural resources.

However, in a rapidly changing modern world, many changes in our resource supply, particularly fish and game, occur almost overnight. These developments can be detected by an alert fish and game department properly staffed with field technicians.

Obviously game and fish administrators must move in step with other changes if this valuable wildlife resource is to find its proper place in the world today. This may mean new methods of management and often departure from old practices. This brings up a major problem, that of bringing before the public these conditions and reasons for changes.

The proper medium for this informative activity is conservation education through news releases, magazine articles, movies and lectures. An informal public and sportsmen's group is a powerful agency for backing the wise use and perpetuation of the resources which mean so must to our state.

The job of making available timely and accurate information is the responsibility placed upon the Division of Public Information and Education.

This division acting through the Fish and Game Commission and the Department's nearby 200 employees must keep the public atuned to progress and change in the current status of wildlife.

However, information for adults only is not enough, as a very important group of potential hunters and fishermen is growing each day. Upon these youngsters much of the future of outdoor sports is dependent, and a program of conservation education is well justified so that they too may know the problems and needs of wildlife.

The attempt to keep Montana's hunters and fishermen informed and to establish a youth educational program will be the primary objective of the Division of Public Information and Education.

America has been built upon a policy of free exchange of facts and ideas. A wise fish and game department can do no better than adhere to these ideals.

Why Montana Ruled Out Carp

Perhaps it's not a remedy nor a cure, but Montana's minnow regulation may at least prevent further ruination of our trout waters.

The last ten years have seen some of Montana's best fishing waters turn from excellent, to mediocre, to poor because of an influx into their waters of small non-game fish.

Too late to remedy present conditions caused by the introduction of carp, for example, into trout streams, the Montana Fish and Game Commissioners decided to do something this year to stop the malady from spreading to other Treasure State fishing havens.

So they passed on a regulation prohibiting the use of carp and goldfish minnows for bait in all the state's waters except some where these fish are presently found. It means that, except for the Missouri and its main stem impoundments from the North Dakota line to Three Forks, the Milk river from Chinook to the Missouri, Musselshell river from Roundup to Fort Peck, and the Yellowstone river from Laurel, and its tributaries from Forsyth to the North Dakota, fishing with carp and goldfish minnows is a thing of the past, at least for the time being.

But why take it out on the fishermen?

comes the light

For a long time, game wardens and fisheries biologists have been working on streams census-taking and have noticed the almost miraculous appearance of fish hitherto foreign to certain waters, not only in the streams, but lakes, also. Then, gradually, they realized that the phenomenon had been taking place right before their eyes, every time they regarded a minnow fisherman unloading his bait pail into the water after he had caught his limit of game fish.

So that was it. Unwittingly, the anglers had contributed markedly to the decline of Montana's trout fishing.

Many lakes and streams have already been ruined, but luckily many of the best are still free of carp and goldfish and can be saved for the sportsmen. The minnow law is hitting the nail on the head by putting to use the adage that "an ounce of prevention is worth a pound of cure." Sportsmen who understand what carp are doing to the fishing waters are vigorously endorsing the new regulation. Those who do not understand such a drastic measure by the Commission demand to know why, and rightly so.

deciding factors

The action prohibiting the use of the minnows was not decided upon by the Commission alone. It acted upon the recommendations of deputy game wardens, district warden supervisors, fisheries biologists, and in-

dividuals who were disheartened to see their favorite trout streams and lakes diminishing at the hand of the unwise fisherman.

The line of reasoning which led to the minnow regulation is based on population of game fish versus rough fish. The carp is a vegetarian basically, whereas the trout diet is over fifty per cent plants and insect larvae. The balance of nature is disrupted each year by the fishermen who take only the game fish, and leave rough fish to reproduce undisturbed. Carp, if let live, grow to be mammoth fish, eating themselves out of all natural stream vegetation until the trout are forced out of existence.

carrying capacity

The main argument against rough fish is the fact that any stream or lake can hold just so many pounds of fish as its "carrying capacity." If the majority of this population is allowed to be rough fish, then the game fish, in their struggle against nature and the fisherman will lose out in favor of the undesirable species. The trout must vie with the carp not only for insects and vegetation, but for space.

The general rule cannot be applied to all Montana waters, since good trout waters are not necessarily good carp waters. The carp must spawn in warmer temperatures, whereas the trout can live in the warmer waters of the ponds, rivers, and lakes, but must go upstream into the fresh waters to spawn. Therefore, if trout are to remain in the lakes and rivers where they now may be fished, a possible competitor must be kept out, and fishermen must stop emptying left-over minnows into these "virgin" waters.

hebgen's chubs

One of the most serious upsets caused by increasing rough fish in Montana is in Hebgen lake. At present the trout population is not seriously depleted, but a few years will show a changing picture where rapidly reproducing Utah chubs have replaced the trout which were taken during fishing season. The reason that Hebgen and other waters like it which already contain certain rough fish are closed to minnow fishing is to prevent other species of these non-game fish from being introduced.

Were it not for the minnow regulation, what would prevent fishermen from seining squaw-fish minnows from Henry's lake and using them, and consequently, dumping them in Hebgen?

By setting the minnow regulation, the fish and game department was not trying to spoil the fishing sport for any of the anglers; it merely prohibited the use of the carp and goldfish minnows as bait in certain waters of the state, and of all small fish for bait in others.

But without the cooperation of the sportsmen, no regulation is worth the paper on which it is written. In the end, it is up to each individual person who has sporting blood. It is for his recreation in one of the greatest game states in the country that this fish and game department exists.

DEPARTMENT PERSONALITIES

—*Introducing Ann*

The fisherman pictured below is Ann Holshue, known to may of her correspondents as Mr. Holshue, or just plain "A.F."

She can't help it if out-of-staters for whom she plans fishing excursions and hunting trips think she's a gentleman. Perhaps those who write for information to the Fish and Game Department just naturally think only a man would know so much about planning a Montana outing, and could give such accurate information. Nine times out of ten, when these thankful sportsmen get back home, they write to the department and thank the kind "Mr. Holshue" for directing them to just the right places.

Well, Ann's main job is being the main-office secretary where she does various and sundry jobs besides acting as corresponding guide for hunting parties. She types, files, sells shipping permits, trapper's permits; fishing and hunting licenses, answers telephone, and knows by memory practically all fish and game laws and regulations.

white collar angler

There are probably a few sportsmen who would resent having their fishing trips planned for them by a secretary, especially female, but any objections in this case would be unfounded, for Ann, though a white collar worker on week days, is an angler from 'way back on Sundays and after work. She can fish right alongside the best of them, and do as well at landing a three-pound rainbow as any fellow can. And, like a true sportsman, she loves it.

Ann has a sparkling personality, and if you should ever drop into the fish and game department, she is the first person you will meet. If you should desire some information about fishing, she can tell you how the fishing is, what to use for bait, whether to use wet or dry flies, what lakes or streams are offering the best fishing, and what time of year would be best for you to take your vacation if you have a fishing trip in mind.

Long Live Our Grayling

By FRED BEAL
Foreman, Anaconda Fish Hatchery

The whole picture of the fight for survival of Montana's fightingest and most delicate fish.

As we now realize, Mother Nature was extremely gracious and generous in her bequests upon the land now known as Montana and one of her outstanding contributions was the fish Thymallus Montanus—Montana Grayling.

This fish, living among other native species at the headwaters of the Missouri river above the Great Falls was found here by the Lewis and Clark expedition. Through the efforts of the Montana Fish and Game Department, which started in 1908, we still have them residing in most of those places plus many lakes west of the continental divide. It has only been due to man's efforts in changing the face of the earth that we have lost the grayling in some areas by building dams, plowing land, over-cutting the timber, polluting water, and planting foreign species of fish. He has destroyed something that was essential for food, or that was necessary to produce it for the tiny fry as he emerged from the fine gravel or sand where the eggs had been deposited. But aside from this, we still do have many fine grayling waters in the state that provide good returns and many hours of good fishing for the Montana angler.

georgetown plant

As stated above, the Montana Fish and Game Department started to work on grayling propagation almost at its inception and grayling eggs were secured from one of our streams on the eastern slope and planted in Georgetown lake. It was a very

(Continued on next page)

Fred Beal nets a grayling from the traps on Georgetown lake and holds him up to be photographed.

fortunate act inasmuch as the original stocking has provided Montana and other states in the nation with millions of eggs. Fortunate, because before this time the United States was importing carp and other species of fish from Europe and had someone gotten the idea that they should have been planted in the lake, Lord only knows what the present picture would be.

We have been able through the years to make plantings in other waters. Of course this has been on a trial and error basis and in many waters tried, they did not flourish, while on the other hand we have made plants that today provide excellent fishing. As we continue our work in this field we may be able someday to test the water for the food required or the biological and chemical conditions necessary for those tiny fry to get started. We have already made some steps in this direction. In 1934 or thereabouts, C. Fuqua, then Superintendent of the Fish and Wildlife Station at Bozeman, Montana, perfected a system of feeding fry by grinding horse hearts through a 5/64 grinder plate 30 times and applying this to the troughs by screening it through a 40-mesh-to-the-inch screen. This artificial feeding program was carried on at the Great Falls station where the temperature was 52 degrees F. which is the same as at Bozeman, while the temperature at Anaconda is 49 degrees. We found that this would not work at Anaconda, because of water temperature. So it became necessary to revert to a natural food. We have found here that by getting a culture of daphne started in a tank 100 ft. 10 ft. with an average depth of 3 ft., and food consisting of well rotted sheep maneur mixed ½ with black oil and by cutting down the inflow of water, we are able to get this into the 52 to 60 degree temperature range by sunlight. After the water is warm enough we then introduce our daphne and let them reproduce at least 2 weeks before we stock with grayling. When they became 1 inch long we were able to hold 10,000 grayling until the spring and they are now 4 to 6 inches long.

experimental work

While this method of propagation has proven itself and we have made grayling plants of this size in questionable water, it has not proven to be good management. After the original fish were caught this was the end of the fishing, for there had been

no reproduction. So future plantings of fingerling grayling should be made in proven waters and the experimental work done with fry.

When one views our present day fish cultural program it is easy to see why many states do not care to handle grayling. We are now operating on a cost per pound production basis, and it takes many many grayling fry to make a pound. Stacked up against the myriad hours of labor put on a grayling battery, especially if the eggs come into the hatchery under much less than perfect condition, it is an expensive and troublesome operation.

We have found in our work at the traps at Flint creek that the adult grayling will not stand as much handling as trout. It seems that they are more susceptible to the attack of fungus where scales are scraped from the fish in the tail area. Because of this, one has to be very careful not to overcrowd the grayling pens if they are too green for spawning and it appears that they will have to be held for some time. Another activity that has to be handled very carefully is the actual spawning operation. As stated above in order to get a good hatch, the eggs must be almost 100 per cent fertile. If a female is spawned and there is a broken egg in the pan you have to throw them away and start all over.

egg breakage

Egg breakage can be readily seen because it is very much like the

These grayling are one year old, and are thriving in the rearing pond at Anaconda. Rainbow trout, the same age, are larger.

'Eating time for the Rainbow brood stock at the Anaconda hatchery. Lookit those babies jump!

white of a chicken egg broken in water. If a tiny particle of this mass covers the minute opening in the egg, it is impossible for the sperm to enter and if there are quite a number of these eggs in the take, while they do not turn white immediately, they will do so later on and attract the fungi spoors in the water. The spores will in turn attack the good eggs by wrapping their growing tentacles around them, smothering them, and forming what we call fungus clusters. When the clusters come to the surface of the jars they can be removed by a suction bulb or syphon hose but once they start to form, losses become heavy.

Our greatest stocking policy is to plant from three to four million fry each year in the waters where they are known to flourish and to get as many in the high mountain virgin lakes as possible. Montana is still fortunate that it has these lakes where falls and other obstructions have prevented migrating fish from entering them. These lakes provide sanctuaries for future egg supplies and fishing for the hardy angler who is willing to put a pack on his back to get them. This policy has already proven itself. Heavy fishing pressure during the depression days and a winter kill in 1936 and 1937 almost knocked our egg supply from Georgetown lake out of the picture. It was necessary to turn to other sources. Lake Agnes on the Big

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Pond Fishing

By
JOHN COOK and JACK NICOLAY,
Glendive and Miles City Wardens

Perhaps the first fish the anglers' thoughts turn to in the early spring is the bullhead. This is a recommended cure for that well known malady "spring fever." Bullheads are successfully caught with several varieties of earthworms or with cut bait fished on the bottom. Inasmuch as the bullhead is a slow biter, the angler, while basking in the sunlight, will absorb the sun's healthful rays. To be really enjoyed, the bullhead should first be skinned and placed in a brine solution overnight. Then, dipped in milk and cornmeal and fried or broiled, it will thoroughly be enjoyed after a long winter's wait for fresh fish.

The gentleman with the fish and the big grin is John Cook, deputy warden at Glendive. With the sport of fishing over, he's thinking of home, and how his fish are going to look on the table.

crappie fishing

The fly fisherman is now looking longingly toward the shining mountains, and the fish he can practice his art on is the crappie. It is not necessary to spend the whole day in the pursuit of this fine pan fish. The worker can start out at the end of his day's toil whether it be in an office or the field, as the crappie usually starts feeding in the late hours of the afternoon and continues until darkness falls. Crappies will take a dry fly; however, they are more readily taken with a streamer fished deep and retrieved to the surface with short jerks. Care must be taken

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Fisheries Pioneer Retires

In the year 1913, an organized fisheries program was only a gleam in the eyes of a handful of men in the Montana Fish and Game Department. These men were real conservation pioneers, whose work was so hard and unending that they never had time to sit down and plan a better way of doing it. In fact, one of these "pioneers" didn't get around to taking a good rest until January of this year, when he retired after working in state fish hatcheries for 38 years.

Frank G. Marcoe started his service at the Somers fish hatchery in 1913 and ended it there as foreman.

Frank Marcoe received acclaim for his many years of service from State Game Warden, R. H. Lambeth at Fish and Game Christmas party.

Through that time, Frank has seen fisheries work change and improve.

distribution was tough

In those days when man first began handling and controlling fish, one of the toughest problems they ran up against was fish distribution. Frank Marcoe used a Model-T truck to haul cans of fish over roads which were at times impassable, then after he reached the planting waters, he had to dump all the fish in one spot, because the rugged roads only took him to limited areas. At times, during fish distribution, a farmer was kind enough to lend a team of horses and a wagon to haul the load of fish to the more remote areas.

Says Frank, you really appreciate the improvements that have been made when you compare them with those hardships. Nowadays, the fish are hauled in specially built tanks which have aeration pumps attached so that the fish will have oxygen during the journey. The roads are good now, too, and even when a good planting spot can't be reached by truck, they're taken as far as possible in that manner, then the Forest Service takes over, supplying men and necessary equipment to pack them further. Frank likes these plants in the remote, "hard-to-get-at" places, because, he says, the fish get a chance to grow to a fair size before they come into contact with some eager angler's hook.

"Another thing—now, when a load of fish is hauled to a lake or stream, it isn't just unloaded in one place. The fish are scattered from along the shores of the lake or stream in small amounts. This gives them a better chance to find food and to find hiding places."

one tight spot

Frank likes to tell about one tight spot that he got out of by using common sense and by taking advantage of the good graces of lady luck.

"I was hauling about 250 pounds of two-year-old natives from the Creston hatchery to Ashley lake one time, and the pump on the aeration tank wasn't giving the fish enough oxygen. There was only one thing to do, and that was to let my daughter drive while I rode in the back of the truck and aerated them with a bucket.

"Things weren't going badly enough as they were, for two miles further down the road the truck gave a dying cough and stopped dead. That meant that the pump could not be used at all, since it had to run off the battery, and we were about eight miles from the lake. The big question was—what was going to happen to the fish? I found that the fuel pump had broken, so while I was trying to fix it, my daughter took over the job of supplying oxygen to the fish with a bucket. To add to our misery, it was Memorial day, so we knew that the logging trucks which usually went over that road would not be working. Neither were there any nearby houses nor telephones.

"After a short while we did hear a truck coming. The driver was kind enough to pull us the eight miles to the lake, and I planted the fish without losing a one."

Taking spawn in the "early days" was another hazardous operation. It was hard enough, Frank remembers, to get to the back country where spawn had to be taken, but if he was lucky enough to get there and take some spawn, it was doubly hard to bring the eggs out because of the almost impossible spring roads.

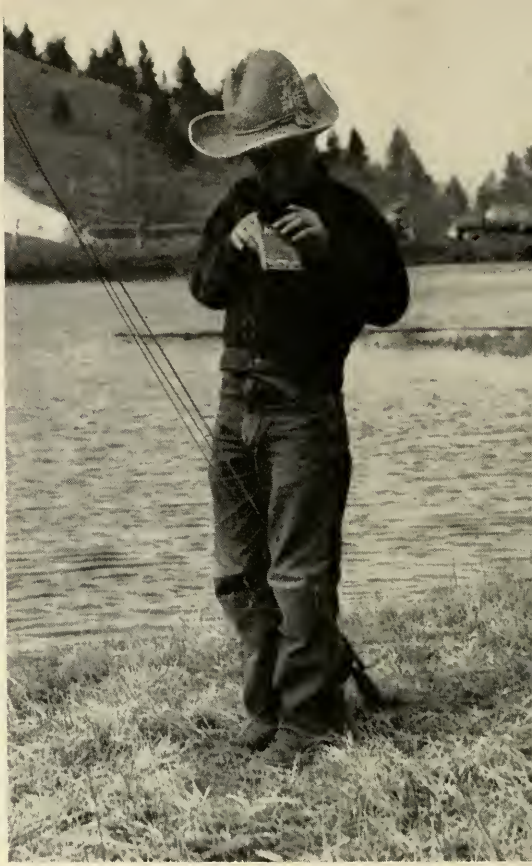
through the years

Now, Frank Marcoe, retired hatchery foreman, takes a great deal of pride in looking back over the years of fisheries development. He has seen many streams and lakes built up to good fishing waters. New types of fish, such as bass, sockeye salmon, and rainbow have been introduced into foreign waters. A planting system has been developed which takes into consideration type of water, amount of natural feed, and amount of fish taken by anglers. Refrigeration plants have been installed in the hatcheries where food may be kept cold.

Frank Marcoe can't be pinned down to say what part of his job of nursing fish which he liked most, because:

"I can say that I have enjoyed it all. I feel that if a man is really interested in his work, he must enjoy it all. I have derived a great deal of pleasure from watching a good "take" of spawn grow into fingerlings and then from watching them be planted in waters well suited to them."

Gee, what a peachy fishing pond. Bet I c'n get some whoppers in here.

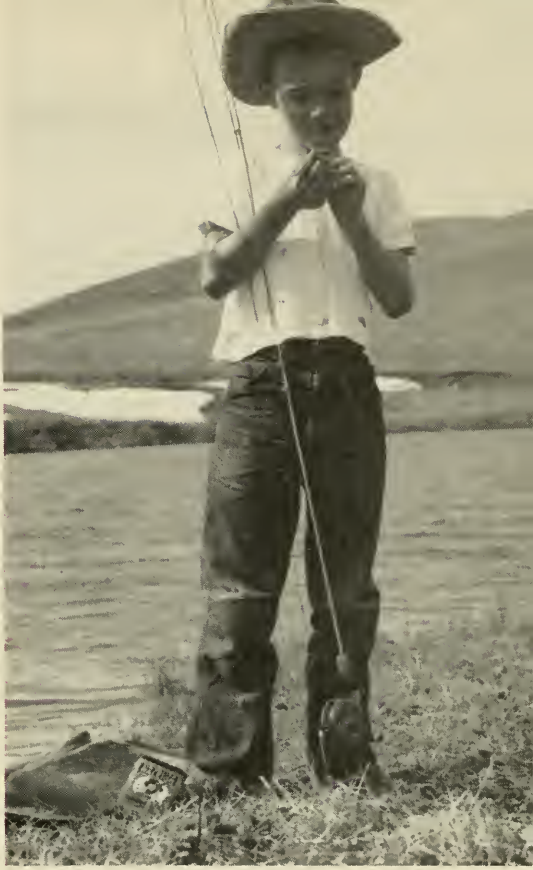


I'll start out with a little worm, 'n work up to the best ones.

Won't Mom be glad when I take her a 10-pounder to bake for dinner?

Boy-Fishin'

Meet Jeff. He likes marbles, frogs, chocolate malteds, haunted houses, and fishin'. Mostly fishin'. 'Sides, it's spring, 'n nice t'get away from things—'n people.



Jist hold still a second, worm. This is hurtin' me worse'n it is you.

Gee, I'd settle for jist a bite—if only a fish would come along 'n take my worm.

Golly, 'hope Mom went ahead and cooked something else for dinner anyway. I'm kinda' hungry and tired. 'Kinda makes a feller a little weary, jist a'settin' on a log, soakin' in all that sunshine. 'Think I'll try out a big worm tomorrow.

Our Wardens Take Tests

By WALTER J. EVERIN
Chief Deputy Game Warden

On February 14, 1951, the Montana Fish and Game Commission adopted a resolution providing competitive examinations for applicants to fill deputy game warden positions. This method is designed to provide the best men available to fill this important position.

The action will be hailed by sportsmen throughout the state as being a step forward in building a better conservation organization. The warden force, since the creation of the game department has been a very important part of the fish and game organization, and the higher the quality of the warden in the field, the greater is the possibility of conducting a successful conservation program.

In scanning back through the fifty-year history of the Montana Fish and Game Department, it is evident that during much of this time, the warden force served at the whim of the political party in control. From 1901 until 1921 deputy game warden appointments were made directly by the state game warden who was appointed by the Governor for a definite term. With each change of administration, there was a great turnover of deputy game wardens. Under such a system, it was impossible to build up a staff of trained enforcement officers.

removal for cause

In 1917 the Legislature enacted laws which greatly improved the tenure of office of deputy game wardens by providing for their removal only for cause. Since this date, the regular appointed deputy game warden has been protected from political changes of administration by having the opportunity to answer charges filed against him for removal, before the Fish and Game Commission.

At the same time in 1921 that the legislature enacted laws to prevent removal of deputy game wardens except for cause, the legislature prohibited political activity of deputy game wardens by enacting into law the following provisions:

"While retaining the right to vote as he may please, and to express his opinion on all political questions, no fish and game warden or deputy

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CLOWN OF THE

By GENE H. SHERMAN
District Warden Supervisor

The river otter belongs to the weasel family. Its body is typical, lithe and long. It reaches a length of about 40-50 inches and weighs from 18-25 pounds. (Anthony, 1928) An adult female found dead in December, 1950, on the Missouri River in Broadwater County measured as follows: Total length 49¾ inches, tail 19 inches and hind foot 5½ inches. The tail tapers posteriorly. The feet are short, heavy and partially webbed with five toes. The head is rather broad and flat with small ears and eyes of moderate size. The upper lips are large and support a mustache of stiff vibrissae. The pelage is composed of dense, thick underfur and long shiny guard hairs. The color is chocolate brown.

native habitat

My interest in the river otter arose when I had the opportunity to observe a family of otters in their native habitat. In April of 1939, I was trudging along on snowshoes over seven feet of snow, along a small tributary of the lower Yukon river,

INLAND WATERS

when a brown, bewhiskered head peered curiously over a snowbank. It gave me a thrill indeed to meet this stranger in a land that had appeared desolate and void of life. A closer inspection revealed three otters as I looked down on the creek. They appeared curious at first, but soon disappeared under the bank. As I traveled on down the stream, I noticed many slides and an occasional pile of fish remains and blood stains on the snow, evidence of their frolicking behavior and their ability as fishermen.

Since that time I have acquired a keen interest in this uncommon but interesting clown of the inland waters. Its diminishing numbers bespeaks its incompatibility with civilization, unless protected. Its present status makes it a wildlife management problem. Furthermore, a thorough knowledge of all basic facts pertinent to its life history should be the first approach to its management. The otter has been the victim of condemnation from time to time by many irate and frequently uninformed fishermen, but—let's take a look at the otter. Some work has been done to uncover and bring to light its peculiar characteristics, food habits, et cetra. These facts are worth revealing.

characteristics

This animal is specialized for acquatic life. Most of its activities are confined to the close proximity of rivers, streams, and lakes. This aquatic characteristic allows it to exist in several life zones, in both freshwater and marine habitats (Dalquest, 1948). Otters are extremely powerful swimmers and it is reported that they are fast enough to catch trout or salmon in open chase. Another more common method reportedly employed is to plunge into a deep pool, scare the fish into crevices and behind rocks, then methodically pull them out of their hiding places.

Despite the ease with which an otter propels through the water, it often emerges and follows along the shore on land for many miles. In some instances, otters have been known to travel over land from one body of water to another.

Playfulness is an outstanding characteristic. When traveling across snow and ice, its method is one of intermittent running and sliding. Its most noted antic is that of making slides from either high mud or snow banks. The old and young alike amuse themselves for considerable lengths of time on these slides. By the use of its voice the otter is able to express itself in a variety of sounds. (Liers, 1951) has described the sounds as a shrill chirp, a soft chuckle and a scream. Like other members of the weasel family they

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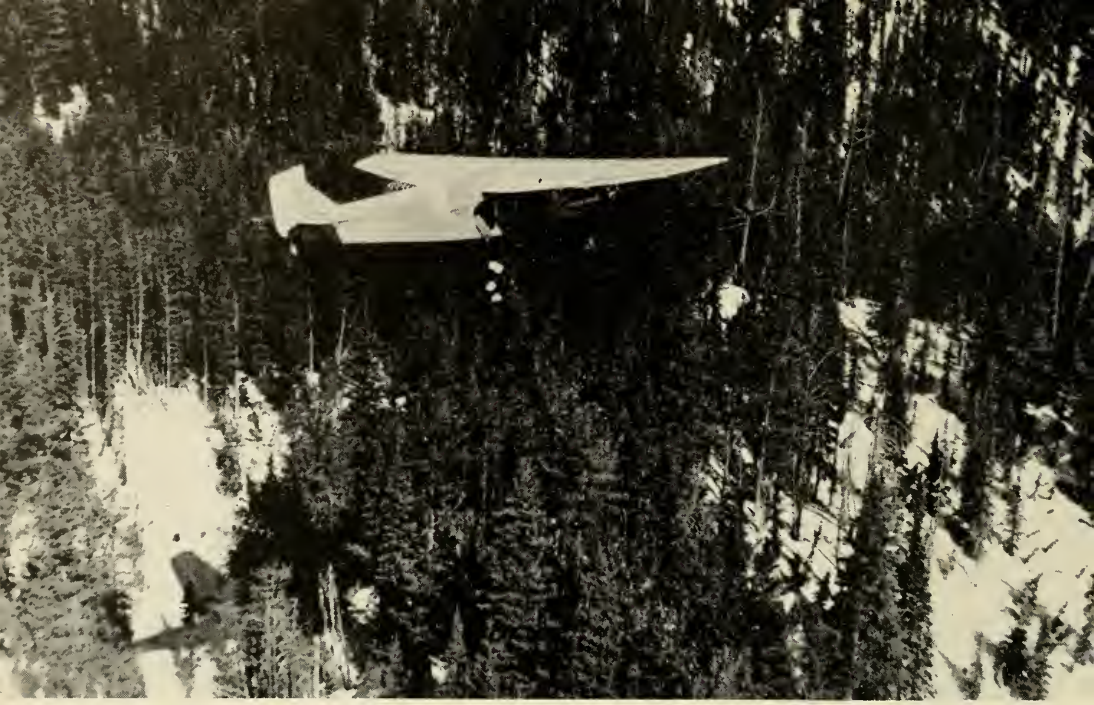

Salting Montana's Big Game

By Bob Cooney, Director Wildlife Restoration

The motors were idling and the big plane was losing elevation fast. I watched the trees and the rocks coming up toward us. Our objective now was dead ahead — a ridge leading down from the Continental Divide. The map which I held in my lap showed a red mark on that ridge —a mark indicating a salt drop.

I glanced back across the glistening blocks of salt to where our "bombardier" knelt gingerly in front of the plane's open door. Four fifty-pound blocks were nicely balanced on the trip board. He was watching the pilot for a signal.

A glance ahead again showed the ridge rushing toward us. The pilot dropped his hand which had been poised for a moment. The board was raised and the salt was tumbling through space.

The three props of the big ship again bit hungrily into the early morning air. The salt for a moment seemed to be suspended, following along under us. The ridge was a little way ahead. Would it reach the target or fall short and go bounding down the steep side hill into the canyon below? We had seen it happen so many times before, that we weren't surprised when the salt blocks hit squarely on the ridge top. They rolled a little way and then came to a stop.—Four small white specks in the beargrass, as we sped on to our next drop.

Fifteen times the motors idled, and then roared again while we threaded our way among the mountain peaks to hit the series of drops worked out on our map.

Back to the field,—and still so early in the morning that no one was about. Another load and then another, and the year's salt supply for 3,000 Sun River elk has distributed before the afternoon thunderheads had rolled up along the divide.

It was spring. Many of the higher trails were still impassable to pack stock. Even if they had been open, it would have taken over a month of the hardest kind of ground travel to have done the job that was completed that morning.

How about the cost? It has been found that it costs no more to put out salt by plane in the remote back country than by pack stock. Either way it varies between three and seven cents per pound with an average of five.

spring salting

In the late spring and early summer elk and deer often linger on their critical winter range when they should be moving up into the high country. Natural licks on many of these winter ranges have helped retard this drift onto the summer ranges. The grass is far too valuable for the coming winter to be consumed at this time of the year. It has been found that salt if properly placed, will draw elk and deer to their high summer pastures early in the season. This has been particularly well shown in the Sun River country. A number of years ago elk lingered around the natural licks on their winter range well into July. Grass in this vicinity was injured by heavy use. Raw earth and annual weeds were showing up on these concentration spots.

In 1939 a complete salt plan was prepared and carried out. In 1942

(Continued on next page)

Inside the salting plane, four salt blocks are in the doorway ready to be dropped as soon as the desired salting area is located.

The truck backs up to load the aerial cargo, and the heavy work begins.

for the first time, the distribution was made by airplane and has been put out in that way ever since.

The elk reacted quickly to this carefully placed mineral supply. The undesirable spring and summer concentrations about the licks has been greatly reduced. Badly needed forage has been reserved for the critical winter months.

Similar results have been gained on other mountain ranges.

type of salt used

Regular white block stock salt is being used for game throughout the state. Experimental work is being carried out on several mountain sheep ranges regarding possible mineral deficiencies. Here supplemental minerals are being supplied in salt block form.

Sulphur salt was used a few years ago as a possible aid in the control of ticks. Present information has indicated, however, that the amount of sulphur obtained through licking salt is apparently negligible and would have little if any effect upon ticks.

nation-wide use of salt

It is interesting to see that well over half of the states are now using salt in their game management programs. All of the eleven western states are participating. A list of the first six states in regard to volume of salt placed on game ranges indicates that Montana is third.

1. Idaho ..... 200 tons per year
2. Oregon .. 100-125 tons per year
3. Montana ..... 80 tons per year
4. California ..... 75 tons per year
5. Utah ..... 75 tons per year
6. Pennsylvania ..... 60-70 tons per year

means of placement

The airplane is playing an increasingly important part in getting salt out on the ranges of the west. Nine of the eleven states in this area report air distribution programs.

The pack string should not be forgotten. Through the years the Forest Service, guides, packers, dude ranchers, as well as the Fish and Game Department have moved many tons of salt via the trusty mule and horse.

The pick-up truck is also important in areas near roads. By combining all of these methods, salt is now gotten out into the mountains where it is needed, at the time of the year when it is most useful.

Salt has also been found useful in holding game animals back in the more remote areas away from agricultural crops, particularly in the spring.

Another use has been as bait in the trapping of bighorn sheep and the mountain goats as well as deer and elk for transplanting purposes. On ranges where these game animals have been recently introduced, salt is also used in holding them on these new ranges.

Thus salt—whether it be dropped from a low-flying aircraft or unloaded from the back of a sweaty mule far back in the mountains—is playing a vital role in today's game management program.

OUR WARDENS TAKE TESTS

(Continued from page 17)

shall take an active part in political management or political campaigns, nor shall he use his official authority or influence for the purpose of interfering with an election, or affecting the results thereof, or for the purpose of coercing or influencing the political actions of any person or body."

It is clear that it was the intent of the legislature to provide a tenure of office for deputy game wardens in return for the assurance that there would be no participation in political activities by the holders of warden appointments.

In its order of February 19, the Commission has set the qualifications for all applicants for the position of deputy game warden as follows:

1. Age: Applicant must be between the ages of 21 and 40.
2. Residence: Applicant must be a resident citizen for at least one year prior to application.
3. Education: Applicant must be a graduate of an accredited high school.
4. Physical Fitness: Applicant must be free of any disease or abnormality which tends to impair usefulness.

When the first announcement of the examinations was publicized, the department received over 100 applications to take the examinations. Of these, 87 were qualified to take the written portion of the test.

Melvin Martinson of the State Merit System Council and L. G. Lansing of the State Unemployment Commission contributed a great deal in setting up the form of examination.

Sixty-six applicants appeared on hand to take the exam.

After all the papers were graded, 36 applicants were notified that the department would further eliminate applicants by conducting an oral test. The oral portion of the examination will be conducted by a board of review who will grade each applicant on appearance, voice and speech, tact and friendliness, poise and bearing, ability to present ideas and judgment.

Those who successfully pass the oral portion of the examination will be placed on an eligible list from which replacements will be made for vacancies in the warden service.

CLOWN OF THE INLAND WATERS

(Continued from page 19)

can give forth musk from their scent glands. They characteristically travel in groups. It has been reported that these groups may range as high as 14, but observations indicate that the group usually consist of a pair or the pair and their young of the year. The otter is active during the entire year. It travels mostly at night but occasionally in the daytime. If taken when they are young they make friendly pets. Except for man, these animals have few or no enemies. They are able to elude nearly all other animals powerful enough to be of concern to them. The dens are mostly underground burrows with an underwater opening and an air hole on the surface. In some cases the burrows are in hollow logs and trees along the shore of a lake or stream.

The otter population was probably never abundant. It is estimated that the primitive population over its range was an average of one otter per eight square miles (Seton, 1926). The cruising range of an otter family may extend as much as 50 miles or more.

food habits

The river otter is highly pisciverous (fish eater). Records show that the largest percentage of their food is forage fish. Other items of food are taken in lesser quantities. They have been reported to feed on ducks, muskrats, small beavers and poultry. Small mammals and birds are con-

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LONG LIVE OUR GRAYLING

(Continued from page 7)

Hole watershed was found to have a good run of grayling in its inlet. In order to make a thorough check on the situation we went in there during the run, built a temporary trap, and secured five gallons of eggs. These were packed out by man pack and were found to be of good quality. The next year pack horses were used and a tent for the caretaker was put up and permanent wooden traps were installed. Because of the rainy weather in high altitudes during May and June, and the heavy infestation of wood ticks in that area, it was necessary for us to build a cabin. We used this source of supply for a few years until we could get the Georgetown stock rebuilt.

competition

Roger's lake in the Kalispell area is also well stocked with grayling and has been used for an egg supply. There are some things that we have definitely learned where grayling are concerned, and one of these is that they cannot stand too great a competition from other trout. When our fisheries program was initiated years ago, the Eastern Brook trout was one of the main fish used in cultural operations and they were imported into the state from the east. The resulting fry were pretty generally distributed and as a result of their affinity for our waters, they have almost driven the grayling and cutthroat trout from their natural habitat. In order to resecure these areas for grayling again it will be

necessary to take some vital steps to remove the Brook from them.

One action that has been considered is the lifting of the present creel limit on Brook in definite waters from the present 15 fish per day to 40 to 50 per day and then supplement this action with heavy planting of our native species.

While arguments against such actions might arise in conservation circles it is the only logical way we can recapture these waters for our native species which I think is so important that we make every effort to maintain.

by Old Silver Tip

Just as humans become embarrassed by unusual happenings, it appears that wild animals also experience the same feelings at times.

I recall such an instance when a coyote got in an embarrassing position but covered up with dignity and poise. We were driving along the road in the car when we saw a coyote in the borrow pit, just a few feet off the shoulder of the road. He was not the least bit alarmed at our approach, so I coasted up to him, set the brake and jumped out at him. He had moved away from the road a few feet by the time I stopped, so I jumped out and "woofed" at him.

He bared his teeth and trotted away from us, much disturbed by the intrusion. As he bounded off, he kept looking back over his shoulder, paying no attention to where he was going. He had gone maybe 50 feet when he tripped and fell headlong over a sage brush. Instead of getting up alarmed and running away, he got to his feet, looked at us, looked around to see if anyone had seen him, and then started digging at the foot of the sagebrush as much as to say, "that's what I figured to do anyway—methinks there's a mouse hereabouts."

He would dig for a few seconds, look at us, dig some more, and finally after a few minutes, he trotted on his way, saying (in animal language):

"Imbarrassed—I thought I'd die!"

CLOWN OF THE INLAND WATERS
(Continued from page 24)
sidered a rare diet and taken only in emergencies, but frogs, crayfish, and freshwater clams form part of their normal diet in certain areas. In some studies crayfish have headed the list of foods. (Dalquest, 1948) reports that otter feces found in low land of western Washington contained as high as 80 per cent crayfish remains. (Lagler, 1942) lists the food of 95 Michigan otters as revealed by stomach analysis. They contained 25.5 per cent amphibians, 22.7 per cent pan fish, 35.9 per cent forage fish, 7.4 per cent crayfish, 4.5 per cent miscellaneous vertebrates, 3.9 per cent fish remains, and 0.4 per cent insects. Another Michigan study (Anon., 1937) revealed 25.0 per cent pan and game fish, 50 per forage fish, and 25 per cent crayfish, frogs and insects as indicated by the analysis of 229 otter stomachs. (Maclay, 1937) lists the food of the Idaho otter to consist largely of aquatic insect larvae and crayfish. Otter feces examined by the writer in the Gallatin river in Montana consisted almost entirely of Rocky Mountain Whitefish remains. A summary of the above indicates that the food of the otter consists largely of forage fishes and crayfishes.

breeding habits

The mating season is in winter (usually January to February). The gestation period is from 9 months 18 days to 12 months 15 days (Liers, 1951). The number of young is from 1 to 5 and there is but one litter a year. At birth the young have their eyes closed, which remain this way for about 35 days.

commercial value

Since the days of the early trappers and fur traders, the otter pelt has been a valuable item in the fur industry. This fur is dense and beautiful; considered to be one of the most durable furs. Records from the Hudson Bay Company show that during an 85 year period, from 1821 to 1905, they purchased 890,901 otter skins, and recently the otter take in Michigan was about 10 otter for every 500 miles of stream (Jenkins, 1951).

present status

The otter population over its entire range is very low. Continual persecution by man has reduced the otter population to the extent that most States have afforded the otter rigid protection. In Montana the season has been closed periodically. An open season was allowed during the winter of 1949-1950 but the catch was negligible, which suggests a low population. My observations over the State during the past few years indicate this to be true.

It seems advisable that a law requiring the tagging of otter pelts be enacted in Montana, prior to future open seasons so that population and management data may be obtained. It is doubtful if the present population here will warrant an open season for several years, but with rigid protection and an open minded attitude on the part of the sportsmen this fur-bearer may make a comeback in the more primitive areas of the state.

Jack Nicolay, Miles City Warden, displays an example of what warm water fishing has to offer.

POND FISHING

(Continued from page 11)

when setting the hook, as the mouth of the crappie is very tender and the hook can easily be born from it without the angler's noticing it.

As a golfer keeps his eye on the ball, so must the angler keep his eye on the fly as it is worked toward the surface. It is of the utmost importance that he sees the fish take the lure, and at that precise moment sets the hook. If he is late in doing so, the fish, sensing that the lure is artificial, will spit out the hook before the angler realizes that he has had a strike. Of all the flesh of the various warm water species, none is more acclaimed than the crappie. It is particularly enjoyable when it is fried or broiled to a crispy brown. Eaten with potato chips or french fries, it is a dish that will tantalize the palate of the most demanding epicurean.

In the early hours of the morning the northern pike is on the prowl seeking victims to relieve his voracious appetite. It is at this hour that this battleship of the warm water species is mostly readily taken. This late-comer to the eastern Montana waters, introduced primarily as a control fish, has attracted a wide following in his short time here. That is because of his savage, slashing, attack; his unpredictable acrobatics both above and below the surface and the readiness with which he takes both natural and artificial lures thereby pleasing not only the purists, but the bait fishermen as well. Anglers travel great distances in quest of this great battler not only for his white meat, baked and stuffed with mushroom dressing, and garnished with parsley. On the other hand it gives a taxidermist pride in preserving a trophy that no one need be ashamed of.

big black bass

As the water temperature rises aquatic life becomes more abundant and the small fish feed, temporarily forgetful of the danger lurking in the form of large mouth black bass. In the early morning and late evening this temperamental fish is most easily caught. The angler must be

(Continued on next page)

cautious and approach bass waters with great care, being careful not to be seen by the bass. Should artificial lures be used, they should be presented in as lifelike a manner as possible. While bass are often taken with weird lures we shouldn't forget there are times when, in order to take him, we must use as nearly precise an imitation as possible and be far more careful in our technique than for other fish.

Care must be taken when the bass is first hooked that he is not allowed to get into deep water and tangle the line in the weeds. This is particularly true when one uses light tackle. As the bass is brought in the angler must not be fooled when he plays possum as many a sadder and wiser one can tell you he lost a fine fish in a last unexpected burst of power.

Rod and Gun Fun . . . .

Yearly the Glendive Rod and Gun Club sponsors a fish derby at Johnson's reservoir. This event has grown in popularity with each year.

It is staged like an old fashioned picnic and holds a great attraction for young and old. There is a sports program for all ages and both sexes.

The derby itself begins at 6 o'clock in the morning and continues until noon. All fish must be registered no later than 12:15 if they are to be eligible for prizes. There are prizes for all ages and all sexes, and it is a sight to gladden any heart when some of the youngest "Izzac Waltons" come forward to claim their prizes. The prizes range from fishing articles of lasting values for the youngsters to cash prizes for the oldsters.

At noon everyone eats the picnic lunch they brought and this is augmented by free pop and ice cream for all. If the derby should happen to fall on a cool day weiners, hot dogs and coffee are provided by the club.

After lunch the sports programs are run off with races for all, a rolling pin and nail pounding contest for the ladies. The winners of the Derby are then announced and given their prizes.

A fly and bait casting contest follows and more take part each year.

The day's events wind up with boat races for all classes of motors.

The theme of the event is to bring about a closer feeling of comradeship as ranchers, farmers, and city folks realize that regardless of the walk of life all true lovers of nature are united as sportsmen.

When carefully scaled and cleaned, the bass is excellent stuffed with dressing and baked. A good tarter sauce will add zest to the juicy meat. Skinned and cut in pieces, then dipped in a batter of salt, milk, egg, and cornmeal and fried in deep fat, its flavor is delicious. All this combined with his elusiveness is what prompts the sportsman to return again and again to his haunts to match wits with this great fish.

colorful blue gill

As the day grows older and the sun rises high, the blue gill comes to the surface and this is the time that young and old can enjoy fishing for this colorful fish, perhaps the best known of the warm water fish. This little beauty readily takes a variety of live bait such as: grasshoppers, grubs, worms; and when taken with light tackle and dry flies, is ounce for ounce the scrappiest of all fish, Fried in butter, the sweet firm flesh defies description.

It must be stated that no lure or lures can be named which will produce results in all ponds. Each pond is a separate challenge to the angler. It is a proven fact that the feeding habits of these fish vary with localities in which they are found. Various pet theories must be tried and retried until at last they become factual in catching fish.

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