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THE FISHES

of COLORADO

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STATE OF COLORADO – DEPARTMENT OF GAME AND FISH

The Fishes of Colorado

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Introduction

FISHING is no longer a chore to provide fresh meat for the table, as it was in the pioneer days. Today fishing is largely a sport enjoyed by people who want to escape the nervous tensions of a new way of life.

Our population is growing rapidly. Today people have more leisure time in which to enjoy themselves, and many of them turn to the outdoors for recreation. With more people fishing, and more people fishing longer, it stands to reason that fishing will get poorer. People, though, do not worry about their fishing when it is good, only when it is bad, and by then it is sometimes too late.

It is the job of the Colorado Game and Fish Department to do all it can to keep the state's fishing good. It is also the department's job to keep the public informed about its game and fish resources and how these resources are being managed and how the license fees which support the department are being spent.

Fishery management needs public understanding and support. It cannot succeed without it. In this little booklet you will become acquainted with the various species of fish found in Colorado. Most important of all, you will learn what the Game and Fish Department is doing to keep the fishing good in Colorado. By lending support to the department's program you can help to keep sport fishing better for you and for generations to come.

It is through working together that all of us can enjoy this relaxing sport in Colorado's wonderful outdoors.

Charles Hjelte, *Editor*
Colorado Outdoors

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Managing Our Fishing Resource

MORE than 400 thousand persons fish in Colorado every year with more being added to that number each new season. Keeping the fishing good for this many fishermen poses some problems because good fishing is related to primitive country and the lack of fishermen.

Primitive back-country fishing areas in Colorado are shrinking fast due to access roads and four-wheel drive vehicles. Our population is booming, and with it, more people are seeking recreation in the form of fishing.

This means that good or "quality" fishing as the fishermen of the "good old days" knew it is on the decline. It is the purpose of the Colorado Game and Fish Department to slow down this decline and provide as many fish as possible for the fisherman's creel.

To do this the department is engaged in:

1. Artificial hatching, rearing and stocking of fish.
2. Applied research.
3. Development of new fishing waters.
4. Creating free access to public fishing waters.
5. Improvement of existing waters.
6. Regulations and education.

All these activities are interrelated in a fishery management program, but let us discuss each one separately.

Artificial Hatching, Rearing and Stocking of Fish: Because of the increased fishing pressure in recent years, many of the more accessible and smaller streams, particularly those on Colorado's Eastern Slope, became fished so much that even the natural trout reproduction could not supply a fraction of the fisherman demand.

Helping the natural trout supply with periodic stocking or planting of hatchery reared fish is the only way to keep fishing fairly good in such waters.

Hatchery reared fish are easily caught by anglers and any one planting of fish on a small stream seldom provides fair fishing for



Rifle Falls is the department's largest unit. Shown are (1) hatchery, (2) nurse ponds, (3) water source, (4) garage, (5) feed storage building, (6) raceways, (7) housing.

more than three weeks. This calls for periodic planting during the main part of the fishing season.

Distribution of hatchery fish in the right amount is as important as raising them. The department's distribution is based on the acreage of water to be stocked, the suitability of the water for fish from biological and physical standpoints and the degree of fishing pressure.

Hatchery reared fish are expensive and the widespread stocking of them should be governed by research findings as to where they will provide the greatest benefit to fishermen. Costs of raising trout in the department's hatcheries and/or rearing units average 70 cents per pound. This means roughly that when you have caught five pounds of trout you have almost repaid the cost of a four dollar fishing license in the cost of putting that many hatchery fish into the stream or lake.

Twenty-two trout stations and one warm water station are now being operated by the department. Two federal fish and wildlife stations also allocate a large share of fish to state waters. Each year approximately 600 tons or 16 million trout of which 6 million are catchable size (8"-10") are planted in public fishing waters. In addition more than 12 million small warm-water fish are planted.

Applied Research: Research means nothing more than fact finding. Fish culture and fish stocking are relatively new innovations to which new facts are constantly being added.

Research is essential in placing a fishery management program on a sound basis. Research in this case is not the popular version of a scientist with a white smock peering through a microscope in an elaborate laboratory.

Fishery biologists tag and check fish, survey streams and lakes for physical, chemical and biological factors which affect fish. They conduct fish feeding habit studies through stomach content analysis. Then, along with other related fact-finding duties, they count fish in waters by means of traps, seines, gillnets and electrical shocking devices. All these activities are aimed at better fishery management and greater rewards for the fisherman.

Two of the major contributions from this research in recent years are (1) the higher returns to the creel for less money spent in planting



PHOTOS BY GEORGE D. ANDREWS

Creel census provides fish managers with facts which help in setting the seasons.

fish (two-inch fish rather than catchable size are now being planted in certain productive mountain lakes because research has proved that the smaller fish provide even better fishing) and (2) the introduction of kokanee salmon into fluctuating mountain reservoirs to provide more fishing.

Development of New Fishing Waters: Many of Colorado's finer fishing waters are on private land not open to the public, so the department has started a program of constructing new fishing waters. These are really small reservoirs for fishing purposes only. Construction of these reservoirs is a continuing program with one to three being built every year. Up to the summer of 1960, 35 of these lakes had been constructed.

Creating Access to Public Fishing Waters: The department builds roads to fishing waters on public land where these access roads may not exist or where they may be blocked by private land. Rights-of-way must be purchased where they cross privately held land.

Improvement of Existing Waters: Because erosion control and stream improvement are becoming more important all the time, several projects are now underway on an experimental basis.



Construction of new waters — such as Williams Creek Reservoir near Pagosa Springs — to provide fishing, is an important part of the department's fishery management program.



Lakes are sometimes seined or poisoned to rid waters of "rough fish" (carp or suckers).

Creation of spawning areas and building of fishways for spawning trout over natural stream barriers have been done in local areas.

Brush harbors have been placed in many warm water fish lakes to keep the fish more or less in one place and to provide protection for young fish from predaceous adult life.

Sometimes lakes are poisoned by the use of chemicals to rid the waters of rough fish (usually carp and suckers) so that game fish can be reestablished without rough fish competition.

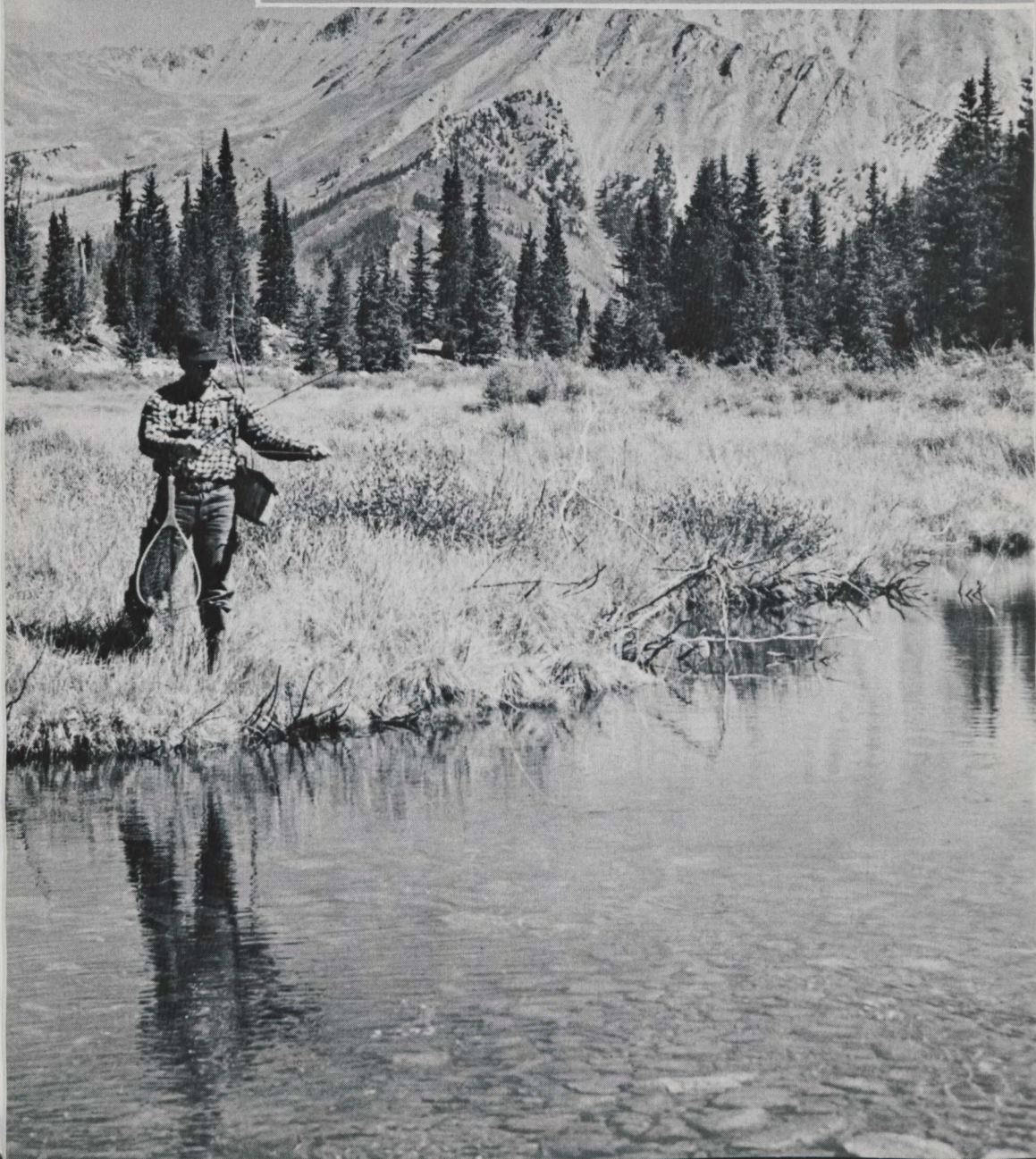
Regulations and Education: Regulations are designed to protect the fish and not to hinder fishermen. The protection of spawning trout is necessary. Bag limits are set so everyone has an equal chance in fishing.

Education is necessary to inform the public of the purposes behind regulation and management procedure. Through its educational division, the Game and Fish Department makes this information available to the public and strives for its general acceptance.

With sound management and public support, the Colorado Game and Fish Department will do all it can to manage fishery resources to provide the best possible fishing for this and future generations.

Fish of The High Country

FISH THAT GENERALLY LIVE IN COOL,
CLEAR WATERS OF HIGH ELEVATIONS.





NATIVE TROUT

NATIVE trout, commonly called "cutthroat" because of the blood-red marking on the lower jaw, were the only trout found in Colorado when the white man arrived.

Liking clear and cool waters, the native is being crowded out of its range by the effects of civilization on the waters, and by other species of trout that have been introduced into its home waters. With proper management, though, the native can still produce excellent fishing, especially in lakes.

Native trout spawn in the spring and summer, from April into August, depending on water temperature. Laid in nests, the eggs are covered with a few inches of gravel.

Natives are little known except in the West which has been their home for so long. Every effort should be made to preserve it for fishing in future years. It's an excellent game fish.

RAINBOW TROUT

ONCE known only on the West Coast, the rainbow has been introduced into many states. The steelhead, which many people say is a different trout, is a true rainbow that lives part of its life in the ocean.

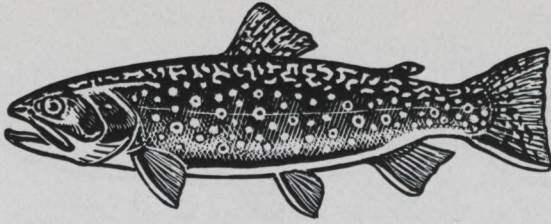
More than half the trout caught in Colorado are rainbow. Its fighting ability makes it popular with the anglers.

Its name comes from the brilliant reddish "rainbow" streak found on the sides of this trout. This streak of color varies according to the season and the water in which rainbows live.

Fortunately the rainbow is easy to raise in hatcheries and is easily caught. More rainbow are raised and planted in Colorado waters than any other trout.

Rainbow spawn in the spring in Colorado, the exact time depending on altitude and on the water temperature.





BROOK TROUT

NORTHWESTERN United States, the Great Lakes and parts of Canada were the original home of the brook trout.

Now small mountain streams of Colorado abound with brook trout. This fish makes up about 25 per cent of the state trout catch from streams.

In many small, cold streams the brook trout does not grow very large. Often the small fish are mature adults. Removal of the size limit on trout may help reduce their numbers in these waters, and allow the remaining fish to reach a larger size.

Depending on water conditions, brook trout spawn from September to December. Their eggs hatch in the spring.

White edging followed by a black line on the leading edge of the lower fins is a common mark of the brook trout.

BROWN TROUT

EUROPE is the home of the brown trout. It was imported in 1883 and is now scattered over much of the United States. It is well known in Colorado and throughout the West where the brown is also known as the "Loch Leven."

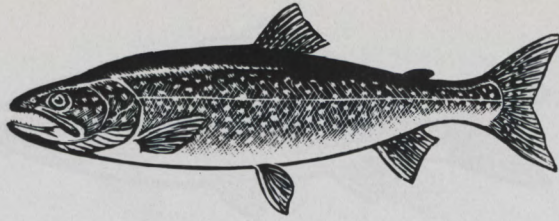
Creel census studies show that the brown trout makes up about eight per cent of the total trout catch each year.

Brown trout thrive under modern stream conditions, which include warm and slightly muddy waters. Usually hard to catch, browns prefer lower stretches of larger streams.

Fall or winter is the usual spawning time and the eggs hatch in the spring.

Browns sometimes have a few spots on the upper edge of their tails, where other trout are spotted all over the tail. On brook trout the spots are rather faint.





LAKE TROUT

MACKINAW is another name for lake trout, Colorado's largest trout. It prefers lower depths of lakes 30 to 150 feet deep, which limits its range in Colorado waters.

Catches up to 32 pounds have been taken from Twin Lakes near Leadville. In Canada a 63 pounder was taken on rod and reel, while the commercial fisherman record is 106 pounds.

Mackinaw spawn in the late fall in lake shoal areas where it may be taken with light tackle in the spring and fall. Deep trolling must be done for it in the summer.

Dusky gray color, darker above than below, is the mark of the mackinaw. Sides are mottled with gray spots. Leading edges of the pectoral, ventral and anal fins are whitish, but have no black minor borders as do the brook trout. Usually there are no spots on the tail.

KOKANEE SALMON

KOKANEE, the little redbird, a newcomer to Colorado waters, is a fresh-water relative of ocean-going sockeye or red salmon. It is similar to red salmon, but smaller.

Kokanee adapted themselves quickly to Granby, Green Mountain and Skaguay reservoirs where they were released in 1951. They are now present (1961) in 17 lakes and reservoirs in Colorado. Because they live on plankton—small plants and animals that float around in still water—kokanee thrive in the changing water levels of reservoirs better than the insect feeding trout species.

Usually kokanee spawn in the autumn of their fourth year, then die like salmon of the West Coast. During spawning season, when they turn from a silver to a brilliant red color, some western states permit snagging kokanee as does Colorado. At other times these tasty fish, which do not rate high as fighters, can be taken on trolling gear or small spinners.



(Spawning)



GRAYLING

TRIBUTARIES of the Missouri river in Montana are the original home of grayling. Grayling have been reared in hatcheries in several western states and released into likely waters. In Colorado the introduction of grayling has been generally unsuccessful.

Grayling are best recognized by the large, bright-colored back fin. This fin is larger than on other similar fish.

Lakes or streams with clear cool water and gravel bottoms support grayling and they do well in waters containing native trout. If brown, rainbow or brook are present they gradually disappear, because they eat the same food as trout.

Having small mouths and being very agile, grayling are more difficult to catch than trout. They provide exciting sport and enjoyable eating.

MOUNTAIN WHITEFISH

NORTHWESTERN Colorado's White, Elk and Yampa rivers are the home of mountain whitefish. This fish cannot be mistaken for a trout, but is sometimes called Grayling—a different fish.

As with trout, the whitefish lives in fast clear waters. It will take bait or flies but is not easy to catch due to its small mouth. Although slightly more bony than trout, the flesh of whitefish is very good to eat.

The whitefish spawns in the fall. It lays more but smaller eggs than a trout of the same size. By laying more eggs, more fish are hatched and whitefish can survive fairly heavy fishing without artificial rearing and planting.

Whitefish may be caught during the winter in Colorado. Winter fishing for whitefish is becoming more popular each year and is a welcome diversion when there are few other sports.





SUCKERS

SUCKERS usually have bad reputations among trout fishermen. Many persons think that suckers eat large numbers of trout eggs, but it is known that young suckers provide food for trout.

Under certain conditions, usually in lakes, suckers may become so numerous as to compete with trout for food, which lowers the trout-producing capacity of that lake.

On the Eastern Slope the western white sucker is common while the flannel-mouth sucker, bluehead mountain sucker and perhaps other varieties are found in the Colorado River Basin.

Suckers and other rough fish are often called "forage fish" because they provide food for game fish. Minnows and chubs are two other types of forage fish found in the high country. These fish are discussed in greater detail below.

MINNOWS

ALL small fish are often, and incorrectly, called "minnows." Actually, there is a family (*Cyprinidae* is its Latin name) which numbers among its members chubs, dace, shiners, squawfish, carp and several species commonly known as minnows, including the fat-head minnow illustrated below.

Most of these fish are small even as adults, but the Colorado River squawfish may reach a weight of 80 pounds!

Minnows are important. Although they eat food used by other fish, they themselves are excellent food for game fish, helping our waters support larger numbers of game fish.

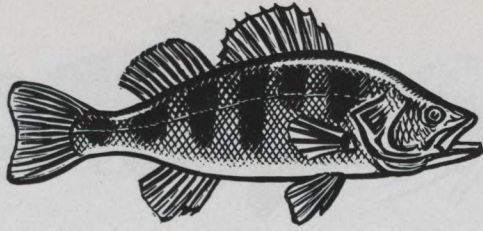
Minnows live in both cold water and warm, from weedy lakes to swift streams, all over the state. Their food varies according to the water in which they live. Minnows spawn in the spring and summer.



Warm Water Fish

FISH THAT GENERALLY LIVE IN LOW ELEVATION WATERS,
PREFERRING WATER TEMPERATURES OF 60-70 DEGREES.





YELLOW PERCH

WIDELY distributed throughout the country, the yellow perch is found in many Colorado waters. It does best in lakes of the middle and lower altitudes, spawning a large number of eggs in the spring.

It is a very productive fish, often becoming so numerous in certain lakes that breeding adults are only between four and six inches long. Under good conditions, perch may measure 12 inches and weigh one pound.

Minnows are a good bait to use for taking this easily-caught fish. Unlike many warm water fish, the perch is hungry all winter and is often the main catch through ice. Although it has spiny fins and gill covers and it is difficult to clean, the flesh is sweet and delicious.

SUNFISH

MOST popular of the sunfishes is the bluegill because of its fair size and good flavor, and it offers year around fishing. Essentially a lake fish, the bluegill is usually found in shoals near beds of vegetation in shallow water. It has a dark, almost black "earflap" on the gill cover. Females lay eggs in nests which are found in colonies.

Not usually so large as the bluegill is its relative the pumpkin-seed sunfish with the bright red "earflap." It is a popular fish with children because it is easily caught on inexpensive equipment. It has a strong tendency to overpopulate resulting in large numbers of fish too small to interest anglers. Sunfish, crappies and perch are sometimes called "pan fish."





CHANNEL CATFISH

EASILY identified by its forked tail, the channel catfish also has irregular-shaped small black spots scattered over its body. The channel "cat" is usually of a yellow-green color and may weigh as much as 20 to 25 pounds. Four to eight pounders are often caught.

This catfish is more active than its near relatives and lives in clearer, swifter waters. Many fishermen say it tops all other catfish as a fighter and a table delicacy.

Anything in the animal or vegetable line is considered good food by channel catfish and fishermen use baits with strong sour smells to take it.

Another common catfish in Colorado is the black bullhead. It is smaller than the channel cat and has a square tail.

CRAPPIE

THERE are two kinds of crappies in Colorado waters. The black crappie usually has seven or eight spines in the large fin on the back, while the white crappie has about six.

In properly balanced and productive lakes, crappie 12 inches long are common. They are gamey when hooked and are a good table fish. They take lures and flies readily from near the surface of the water at certain times.

Crappie eat small fish, insect larvae and plankton. Spring spawners, they build nests in the gravel or sand bottoms in the shallower areas of lakes.

Mainly because it is large enough to furnish sport and food, the crappie is one of the most popular of warm-water fish.





BLACK BASS

PROPERLY called the largemouth bass, this fish has been introduced into Colorado from its native waters in the East and South. Although it looks like a trout, the bass is a member of the sunfish family. It prefers sluggish weed bordered waters.

This is a game fish in every sense of the word. It will hit a lure viciously and put up a thrilling battle to the very end. Like many other fish, older bass are difficult to catch.

Bass are often placed in waters to reduce populations of pan fish so the latter will not become stunted because of a lack of food. Actually bass prefer insects and crustaceans to fish.

Spawning in the spring, a single female may have as many as 10,000 eggs.

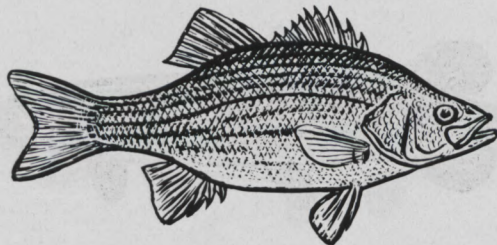
WHITE BASS

FIRST planted in Colorado in 1948 in John Martin Reservoir, the white bass is now found in Adobe Creek Reservoir, Bonny Reservoir, Loveland Lake and others.

A fine game fish, the white bass is caught on minnow-like artificial lures, as well as on Colorado and airplane spinners. Fishermen have real sport with this fish which may reach a weight of four pounds. It is excellent eating.

General color of the white bass is silvery with yellowish underparts. The sides are streaked with regular rows of narrow, dusky lines.

If this fish can become established successfully, it will soon be familiar to many eastern Colorado fishermen. It is a fine fish and deserves every effort toward increasing its numbers.





WALLEYED PIKE

A NOTHER recent import to Colorado, the walleyed pike is a member of the perch family. It looks something like the yellow perch in body shape but is much larger. Occasionally a walleyed pike is caught at weights up to 25 pounds. It is famed for its delicious flavor.

Clean, hard-bottomed lakes are favored by this fish. In some areas it will live in streams but Colorado has few likely streams. Fish make up the bulk of the diet of larger walleyes and it is often used to reduce fish overpopulation in lakes.

An excellent game fish, the walleye responds well to both artificial and natural baits. Still-fishing with minnows, on the bottom or trolling artificial lures give the best results in Colorado. Good catches are now being made in eastern Colorado.

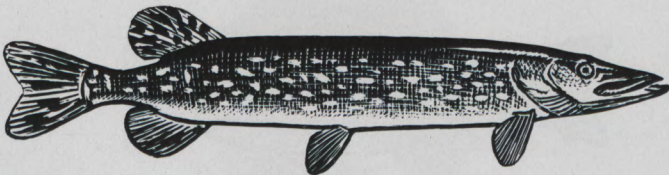
GREAT NORTHERN PIKE

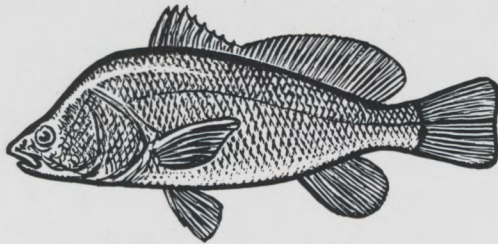
THE great northern pike has been introduced into two Colorado reservoirs — Bonny and North Sterling. Both of these waters provide suitable conditions needed for the pike for survival and reproduction.

This fish may reach a weight of from 20 to 30 pounds. The pike grow rapidly and some reach a length of 12 inches by the end of their first summer. Nine- or ten-year-old fish are often more than 36 inches in length.

The pike prefer warm, muddy waters of shallow, weedy lakes. But they do equally well in rather cold, clear waters over rocky or sandy bottoms.

Though somewhat bony, northern pike, especially the smaller ones are excellent food fishes. Due to its large size and fighting qualities when hooked, the northern pike ranks high as a game fish.





FRESHWATER DRUM

BONNY RESERVOIR was the first Colorado home of the freshwater drum, a large, coarse fish that looks very much like a carp. It is generally a silver color, ranging from very dark to light. It has a long fin on the back extending over most of the body length.

Freshwater drum spawns about mid-June when it is 15 inches or longer, a size it reaches within two or three years. The drum may reach a length of more than two feet and weights of 60 pounds have been recorded.

Drummer, croaker, bubbler and thunder-pumper are other names for the freshwater drum because of its ability to produce a peculiar grunting sound. In certain areas it is a favorite among fishermen.

CARP

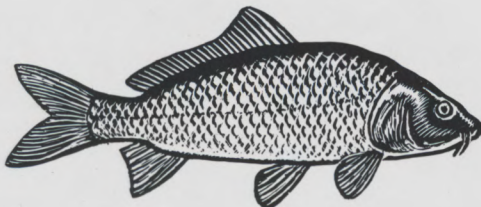
WARM water is preferred by the carp, but it is found in both lakes and streams in much of Colorado.

For more than 4000 years the carp has been highly cultivated in China and for hundreds of years in Europe. It was introduced into the United States in the 19th century.

Thriving under adverse conditions and producing a great many young, carp are difficult to remove from waters where more desirable fish are wanted.

Carp grow to a fair size and they do have some value as food for humans and for mink raised on fur farms.

Occasionally carp reach a weight of fifty pounds.



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