


**Montana Department
of
Fish, Wildlife & Parks**



M E M O R A N D U M

TO: Regional Fisheries Managers DATE: March 7, 1988
FROM: Tim Gallagher 
SUBJECT: George Holton's Field Guide to Montana Fishes

Here, at last, is a nearly-final draft of the fish identification guide that George Holton has been working on. It will feature Glenn West's fish paintings of game and sport fishes that appeared in Montana Outdoors several years ago. The other fishes will be in black and white paintings by Rich Stevenson, a former department fisheries biologist.

George has requested that you look it over and ask other regional personnel--fisheries workers and any one interested--to do the same. Make corrections and suggestions on the draft and return it to me; I will pass them on to George.

George feels the range maps, in particular, need improving and the fish sizes and local names should be checked. Also, advise if any characteristics shown for individual fishes are invalid. George will, of course, welcome additional clues for identifying individual species, and other information that will be helpful to the public.

As for a deadline, we would like your comments by the end of April. If you need more time for whatever reason, please let me know. George has put a tremendous effort in this project. Your assistance at this final stage could help make this Field Guide an especially valuable tool for all biologists and fieldworkers in the future. I am convinced that the Department, the scientific community and the public will all benefit from this work. Any assistance you can provide will be most appreciated.

dr

D R A F T

FIELD GUIDE TO MONTANA FISHES

Compiled by

GEORGE D. HOLTON

Glenn West - Color paintings.

Rich Stevenson - Black and white paintings and line drawings
unless otherwise indicated.

Daniel Stinson - Map graphics.

The Montana Department of Fish Wildlife and Parks funded
preparation of this guide including the artwork.

Dedicated to the memory of Dr. C. J. D. Brown, my mentor and
friend, fisheries professor at Montana State University, and
author of "Fishes of Montana."

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PREFACE

This field guide was written to provide a concise, easily understood handbook for the identification of Montana fishes. All fishes known to be in the state at the time of writing are included. There are 85 species--53 native and 22 introduced. One of the native species, the Cutthroat Trout, has two subspecies. The Northern Redbelly Dace x Finescale Dace, a unique hybrid, is also described.

This book, a compilation of clues used by biologists for identifying fishes in the field, is meant for anglers, fish watchers, and amateur naturalists as well as persons working with fish and wildlife resources, including students, and teachers.

In addition to having been a fisheries biologist for 35 years, (30 in Montana), I have been an avid bird watcher for 20 years. Traditionally, bird guides are based on visual impressions which are easier for the layman to use than the scientific keys to identification found in the typical fish guide. This guide is an adaptation of the very successful identification system pioneered by Roger Tory Peterson for identifying birds. Thus, I fondly refer to it as "Holton's Bird Guide to Montana Fishes."

The information on the characteristics and habitat of each kind of fish was gleaned from many publications and augmented by numerous suggestions from field biologists of Montana Department of Fish, Wildlife and Parks (DFWP) and other agencies. Dr. William R. Gould, of Montana Cooperative Fishery Research Unit, was particularly helpful.

Designation of individual species as native or introduced and descriptions of native ranges are based on information from C.J.D. Brown's "Fishes of Montana" supplemented by other literature. The range maps were prepared using maps in "Fishes of Montana" as a starting point; these were updated with information from field personnel and DFWP's stream and lake databases.

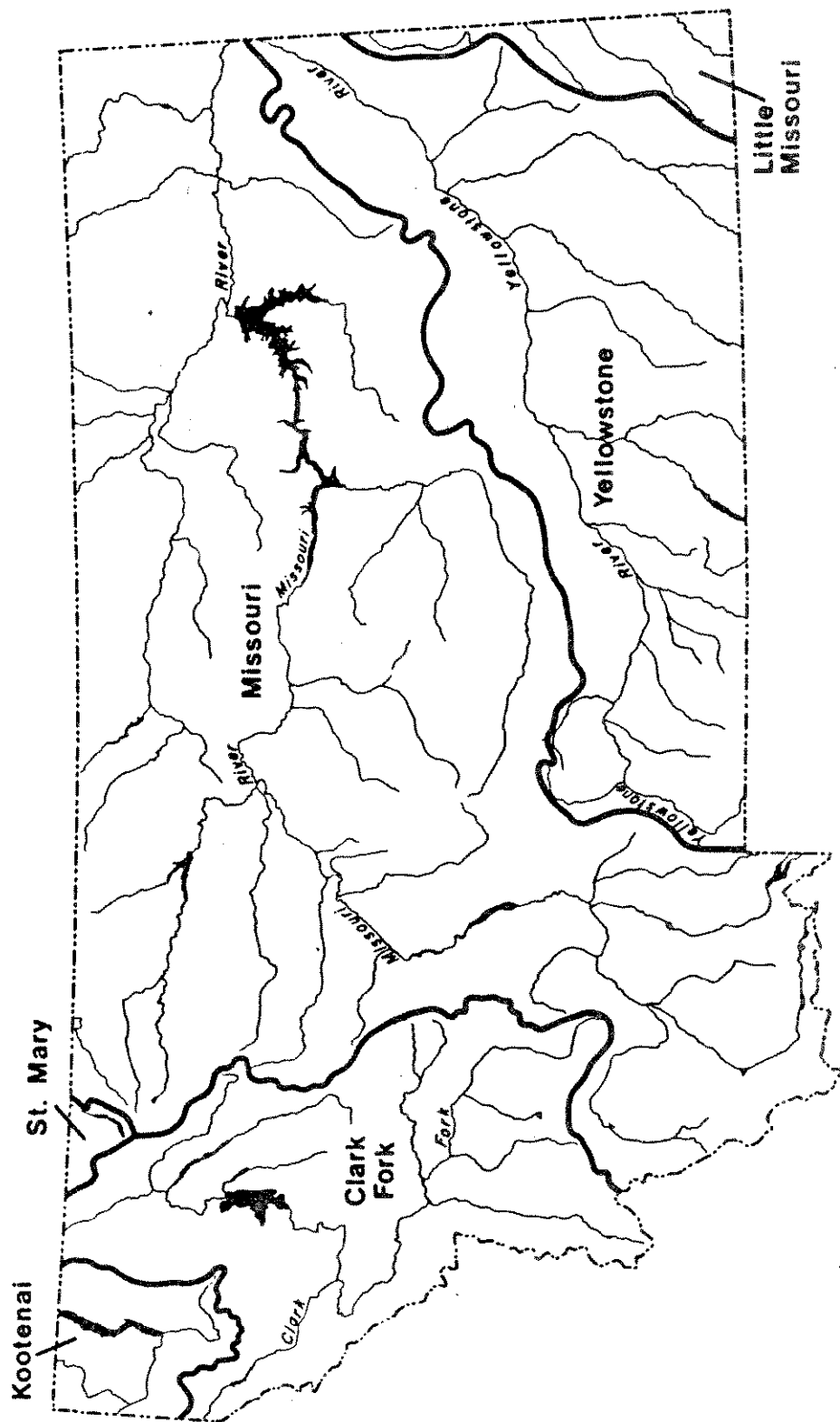
Models for the black and white fish paintings were from a number of publications, however, "Handbook of Fishes of Kansas" by Frank B. Cross and "Fishes of Montana" were primary sources.

I give thanks to the many people who assisted in the preparation this guide. Space limitation prevents individual recognition but I am sincerely grateful.

GDH




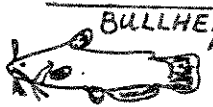
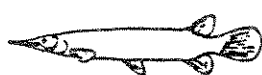

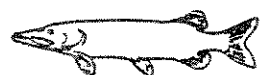
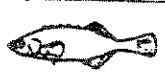
















This map is from DNRC 6/86

MAJOR DRAINAGE BASINS OF MONTANA



ARRANGEMENT OF FISHES IN THIS BOOK
(Family identification at a glance)

This chart shows the arrangement of fishes in this book. Families are aligned according to the type and position of fins on the back. In the text look-alike fishes in a family are grouped.

FAMILY	FAMILY
 STURGEON pages	 TROUT-PERCH page
 PADDFISH page	 BULLHEAD CATFISH (catfish, bullheads) pages
 GAR page	 CODFISH (burbot or ling) page
 PIKE page	 STICKLEBACK page
 MOONEYE (goldeye) page	 TEMPERATE BASS page
 CARP AND MINNOW (minnows, shiners, daces, carp) pages	 SUNFISH (black basses, crappies, sunfishes, rock bass) pages
 SUCKER (suckers, carpsucker, buffalos) pages	 
 KILLIFISH page	 PERCH (walleye, sauger, perch, darter) pages
 LIVEBEARER pages	
  TROUT (salmons, trouts, whitefishes, grayling) pages	 DRUM page
 SMELT page	 SCULPIN pages

HOW TO IDENTIFY A FISH

The chart above can help you recognize Montana fish families. Use it to determine what family or families a fish could be in, then go to pages indicated for detailed descriptions of family members.

The place where the fish was taken should, as a rule, be within the range shown on the distribution map and fit the habitat described.

A few words of caution:

Color alone is seldom reliable in fish identification. For a single species it may vary from one habitat to another, between seasons (many fishes are more colorful at spawning time), and between sexes. Also, color usually changes after death. Illustrations in this book feature the adult male.

There is sometimes variation in body shape between spawning males and females and between immature fish and adults. Then, too, a hybrid (a cross between different species) is sometimes encountered. A hybrid's characteristics are usually intermediate between those of the parental forms.

Identifying fishes is not always easy, but with practice you will become skillful.

The rest of this page and the next four pages contain background information that will help understand the detailed fish descriptions that follow.

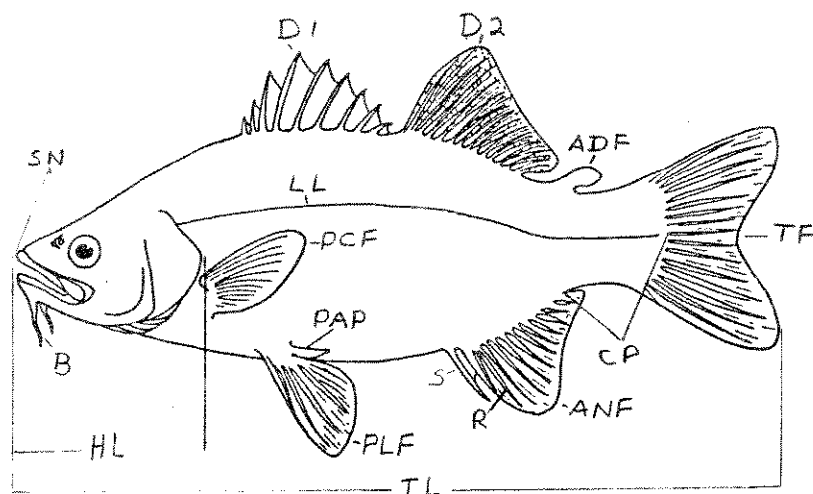
AIDS IN IDENTIFYING FISHES

NAMES - The common and scientific names of fishes are those recommended by the American Fisheries Society. The Cutthroat Trout subspecies names are exceptions as they have not been officially adopted by the society. "Other names" are local names. They are listed so the reader can associate the recommended common name with one that may be more familiar.

LENGTHS - Two lengths are usually given, for example: 12" (24"). The first length, 12" is a typical size for this species. The 24" in parentheses is the usual Montana maximum (measured from the tip of the snout to the end of the tail); not necessarily the record length, but a length seldom exceeded. If only one length is given, it is a typical length.

MAPS - Distribution of a species or subspecies is indicated in color (magenta) on the map. When large areas are indicated, there may be population gaps or sparse populations within them resulting from lack of suitable streams and lakes, or from the fact the species has not reached local areas through natural migration or introduction by man. (Due to the potential damage from ill-advised planting, planting of fish or fish eggs in waters of the state is unlawful unless authorized by Montana Fish and Game Commission).

IMAGINARY FISH SHOWING EXTERNAL FEATURES



ADF - Adipose fin
 ANF - Anal fin
 B - Barbel
 CP - Caudal peduncle
 D1 - First or spinous dorsal fin
 D2 - Second or soft dorsal fin
 HL - Head length
 LL - Lateral line

PAP - Pelvic axillary process
 PCF - Pectoral fin
 PLF - Pelvic Fin
 R - Ray
 S - Spine
 SN - Snout
 TF - Tail fin
 TL - Total length

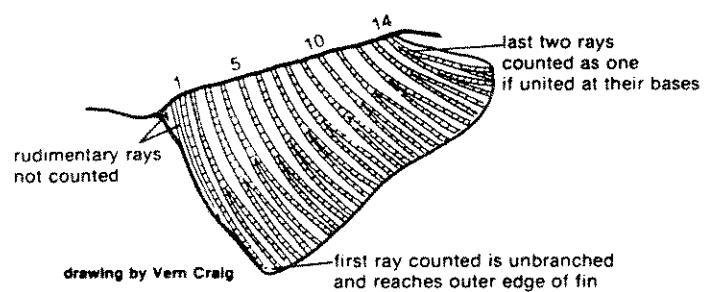
COUNTS USED IN FISH IDENTIFICATION

A. How to count scales on the lateral line -

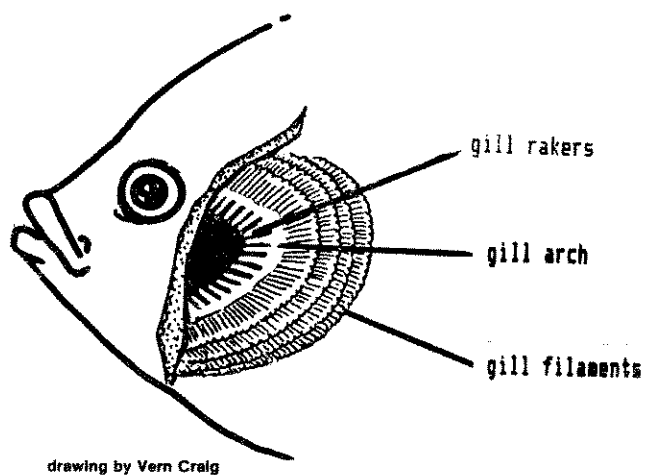
The lateral line (shown in the illustration above) is a series of pores. Count the scales along it (each has a pore) from the gill opening to the base of the tail fin. The base is located at the crease created when the tail is bent sideways. Scales behind the crease are not counted. When the lateral line is missing, count the scales along the side where it would be.

B. How to count fin rays -

B. How to count fin rays -



C. How to count gill rakers -



Count all gill rakers, including rudiments, on the first (outermost) arch.

GLOSSARY

Also, see IMAGINARY FISH SHOWING EXTERNAL FEATURES
and COUNTS USED IN FISH IDENTIFICATION on pages _____

Adipose fin -- A small, rayless, fleshy fin along the midline of the back behind the dorsal fin. Present on members of trout, catfish, smelt and trout-perch families.

Anal fin -- The unpaired fin along the midline of a fish's underside ahead of the tail.

Barbel -- A slender, flexible projection on the mouth or chin used for touch or taste. Barbels may be long and fleshy as in catfishes, flap-like or thread-like as in some minnows.

Canine teeth -- Strong, sharp, cone-shaped teeth, longer than other teeth, as in Walleye.

Caudal peduncle -- The part of a fish's body between the anal fin and the tail fin.

Cutthroat slash -- A red to orange line in the skin folds on each side of the lower jaw of cutthroat trouts. Hence, the name of these fishes.

Dorsal fin(s) -- A fin or two fins along the midline of the back, usually midway between the head and tail, with supporting rays and/or spines.

Fish of special concern -- A native fish with restricted range and in most cases limited numbers in Montana. A fish so designated is not necessarily threatened or endangered but it may require special attention. At this time Montana has no fishes designated as threatened or endangered.

Gill rakers -- Knobby or comb-like projections on the front edge of the gill arch. Some fishes use them to filter small food organisms from the water. They are seen by raising the gill cover.

Gonopodium -- A rod-like extension of the anal fin of male livebearers that serves as a copulatory organ.

Lateral line -- A line of pores along a fish's side (one per scale if the fish has scales) that open into a sensory organ, typically a long canal just under the skin. The lateral line is said to be complete if it extends from the gill cover to just ahead of the tail; incomplete if it does not.

Native -- A species that is natural in a particular area; not there as the result of introduction by man.

Nuptial tubercles -- Small horny structures developing on the

skin of some fishes during breeding season.

Paired fins -- The pectoral and pelvic fins. They occupy somewhat the same position as forelimbs and hindlimbs in higher animals.

Palatine teeth -- The teeth on a pair of bones in the roof of the mouth. They extend outward and rearward on each side.

Parr marks -- Dark vertical blotches on the sides of young members of the trout family which persist in the adult of a few species.

Pelvic Axillary Process -- A fleshy or scaly dagger-shaped projection at the base of each pelvic fin, as on members of trout family.

Prickles -- Small projections from the skin (apparently vestiges of scales) that feel rough to touch, as on sculpins.

Ray -- The supporting structure in fins that are segmented (cross-striated), flexible, and often branched.

Rudiment -- That which is not fully developed; for example, the short unbranched rays in some fins.

Soft-rayed -- A fin without spines or a fish with only soft-rayed fins.

Spine -- Fin rays not branched or segmented (cross-striated) and usually sharp and stiff. Also, similar straight or curved, sharp structures on a bone, as spines on the gill cover of sculpins.

Spiny-rayed fish -- A fish on which the first dorsal fin or the front part of the dorsal fin has spine-type rays. It also has spiny fin rays in the anal fin.

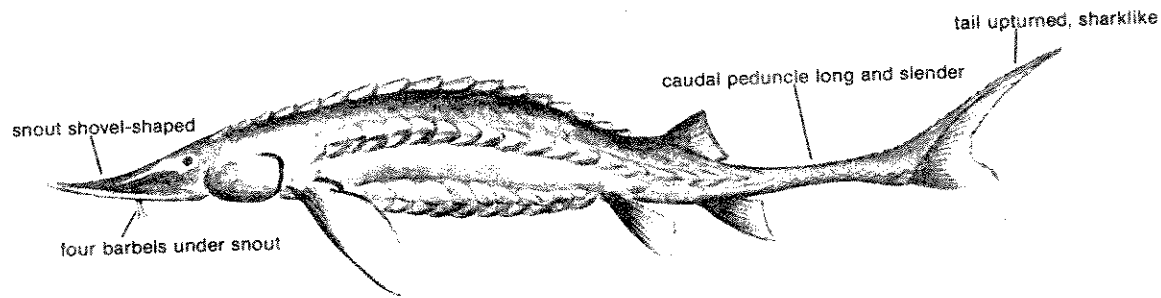
Total length -- The straight line distance from the tip of the nose (with mouth closed) to the tip of the tail.

STURGEON FAMILY Acipenseridae

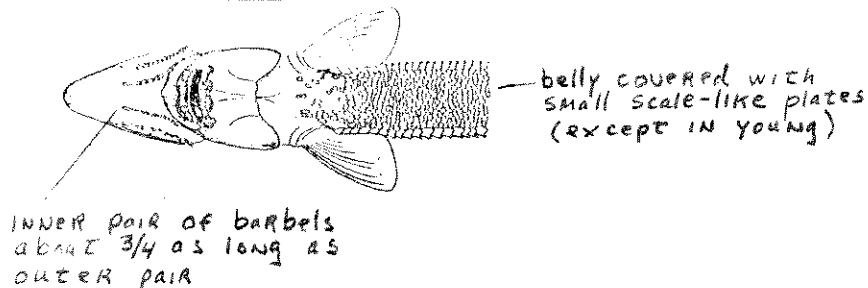
Sturgeons are remnants of ancient life that have retained primitive features. They have a long turned-up snout with the mouth underneath behind four long barbels. The "backbone" extends into the enlarged upper lobe of the tail. Instead of the typical overlapping scales, they have several lengthwise rows of shield-like plates.

SHOVELNOSE STURGEON *Scaphirhynchus platyrhynchus*

OTHER NAME: Hackleback



32" (41")

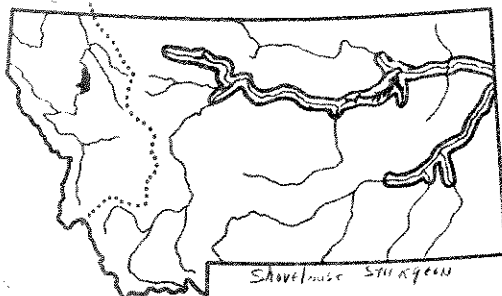


OTHER CHARACTERISTICS: The bases of the two outer barbels are in line with, or slightly ahead, of the bases of the two inner barbels.

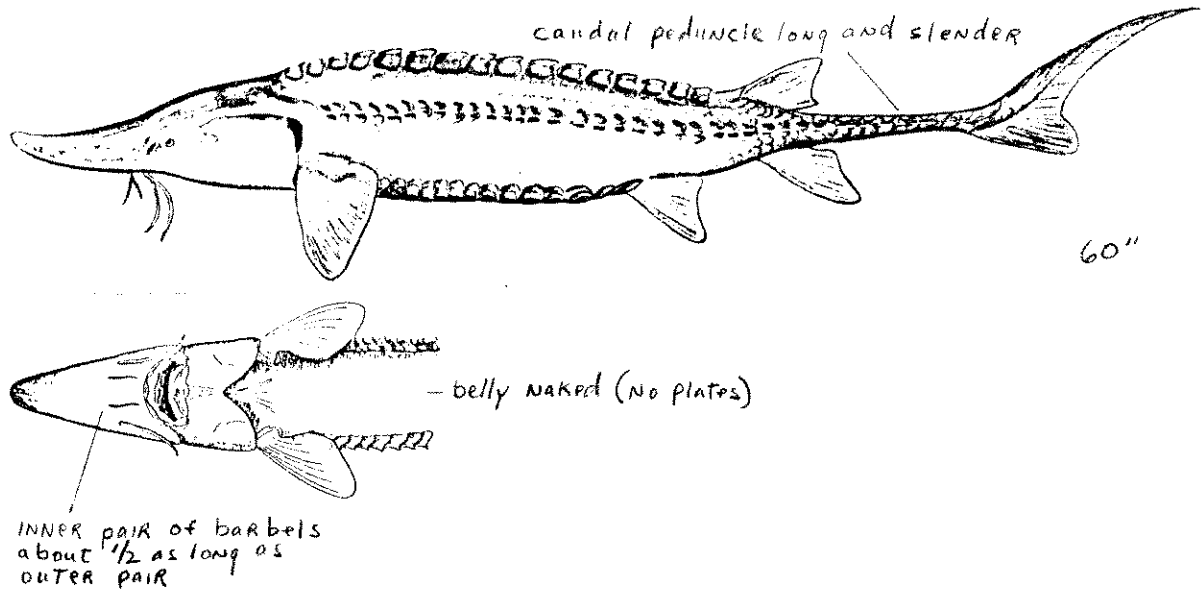
SIMILAR SPECIES: (1) Pallid Sturgeon differs in position and lengths of barbels and belly lacks scale-like plates. See (2) White Sturgeon.

HABITAT: Near bottom of large, turbid rivers over sand or gravel, often in strong current. Also in impoundments of these rivers.

ORIGIN: Native to Montana.



PALLID STURGEON
Scaphirhynchus albus



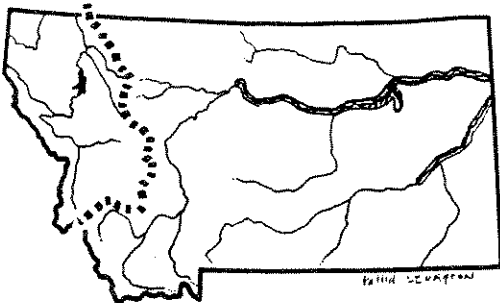
COLOR: Back and sides gray to tan, underside yellow to white.

OTHER CHARACTERISTICS: The bases of the two outer barbels are usually behind the bases of the two inner barbels.

SIMILAR SPECIES: See (1) Shovelnose Sturgeon; (2) White Sturgeon.

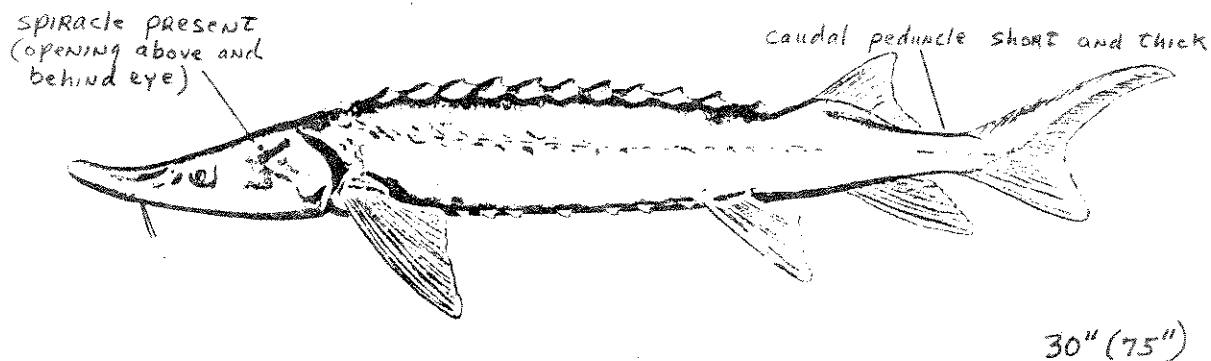
HABITAT: Strong currents of large, turbid rivers over firm sand or gravel bottom; also, impoundments of these rivers.

ORIGIN: Native in Mississippi-Missouri River Drainage including Montana.



COMMENT: A fish of special concern. Seldom seen; it is not known if numbers have diminished or it was always scarce in Montana. Also rare in downstream states.

WHITE STURGEON
Acipenser transmontanus

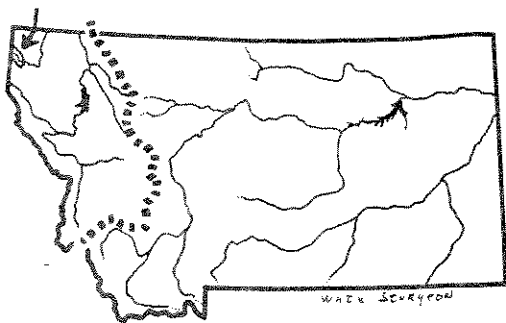


COLOR: Gray.

SIMILAR SPECIES: Other Montana sturgeon have long slender caudal peduncle, have no spiracle, and are found only east of Continental Divide.

HABITAT: Large cool rivers.

ORIGIN: Pacific Coast from mid-California to Alaska where it is anadromous (spending part of its life at sea and ascending rivers to spawn). Also native, but landlocked, in upper Columbia River Drainage including Kootenai River below the falls in Montana.



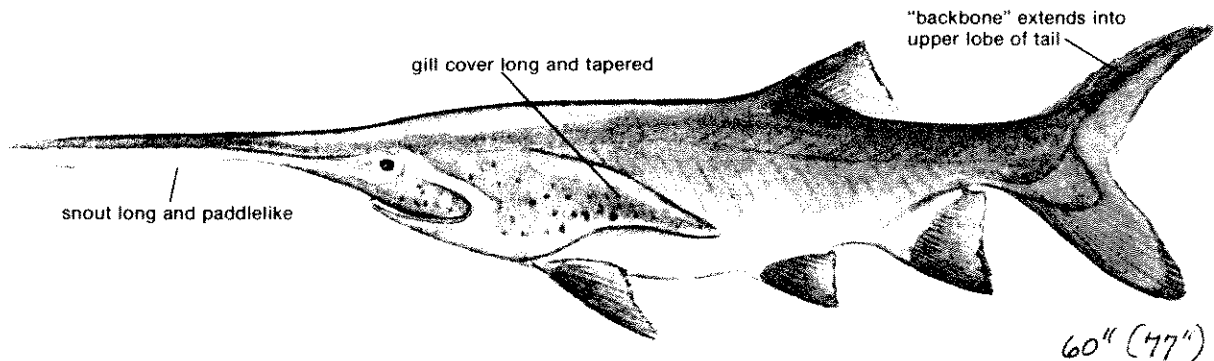
COMMENT: Montana population has plummeted to an extreme low. The Department of Fish, Wildlife and Parks and Montana Audubon Council have recommended that the Legislature designate the White Sturgeon a state endangered species.

PADDLEFISH FAMILY Polyodontidae

Paddlefishes are relics of an ancient and primitive group. They are readily identified by the long paddle-like snout, long tapered gill cover, and the "backbone" bent up into top of tail.

PADDLEFISH *Polyodon spathula*

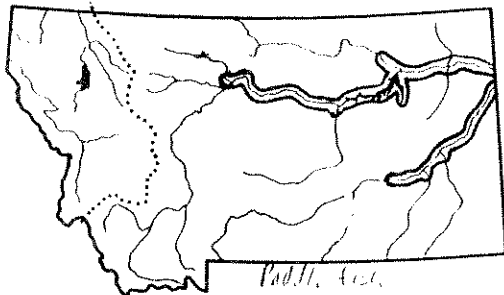
OTHER NAMES: Spoonbill cat.



OTHER CHARACTERISTICS: Body naked except for a few scales on upper lobe of tail.

HABITAT: Slow or quiet waters of large rivers or impoundments. Spawns on gravel bars of large rivers during spring high water.

ORIGIN: Native to Montana. Year-round populations in Fort Peck Reservoir and in dredge cuts below Fort Peck Dam. Spring spawning run from North Dakota up Missouri River into Montana. Part of run branches off into Yellowstone River, while remainder continues up Missouri River to Fort Peck Dam. Also, spawning run from Fort Peck Reservoir upstream into Missouri River.



COMMENT: This is a fish of special concern as there are only six major reproducing populations left in the United States. Two of these are in Montana.

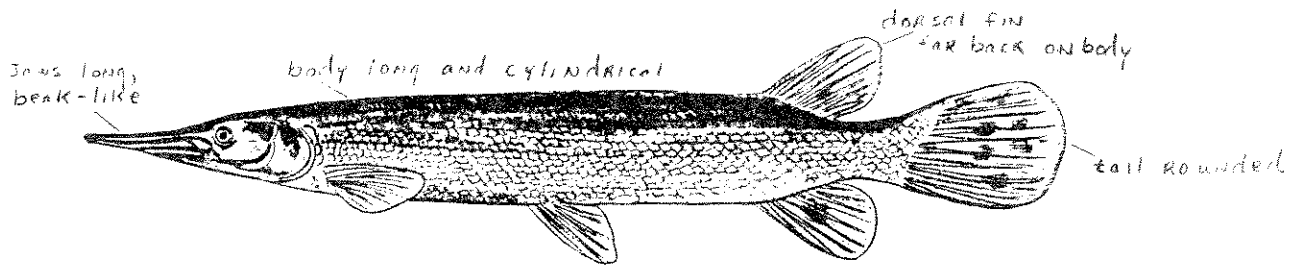
Swims with its mouth open and seines plankton (microscopic plants and animals that drift or swim weakly) from the water with its comb-like gill rakers.

Function of paddle-like snout not known for sure. It may be a sensory organ for locating concentrations of food, and/or even a stabilizer to prevent the nose-diving that might otherwise result from the drag created by water entering its gaping mouth.

GAR FAMILY Lepisosteidae

Gars are ancient fishes, little changed over millions of years. Montana's only representative, the Shortnose Gar, is a typical member of the family.

SHORTNOSE GAR
Lepisosteus platostomus



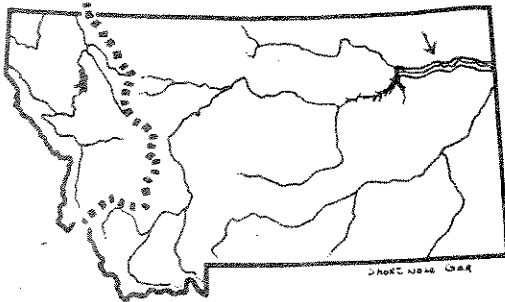
25" (29")

COLOR: Olive-green to brown, grading to white below.

OTHER CHARACTERISTICS: Body covered with thick, non-overlapping, diamond-shaped scales. Jaws armed with numerous strong, sharp teeth.

HABITAT: Large rivers, their backwaters, and impoundments.

ORIGIN: Native in Mississippi and Missouri river drainages upstream to Fort Peck Dam in Montana.



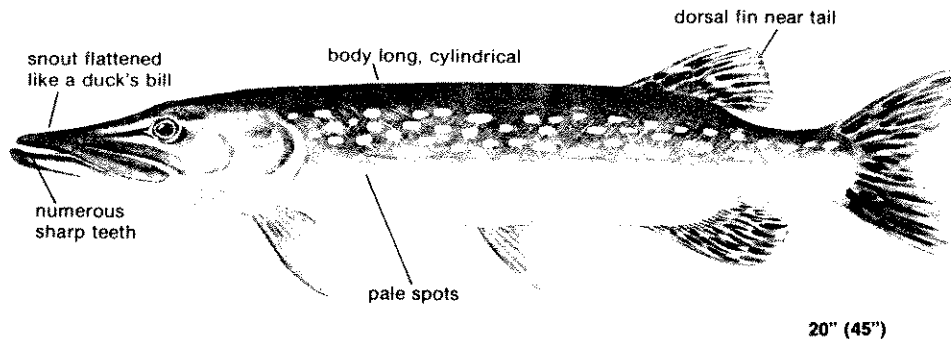
COMMENT: Rare in Montana and designated a fish of special concern. Gar eggs are poisonous to humans.

PIKE FAMILY Esocidae

The Northern Pike, Montana's only family member, typifies the pike family. The "walleye pike" is not true pike but a member of the perch family (page ____).

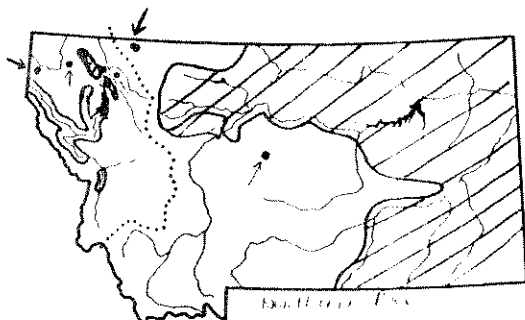
NORTHERN PIKE *Esox lucius*

OTHER NAME: Pike, northern, pickerel, jack, hammer-handle, slimer.



HABITAT: Lakes, reservoirs and large streams; avoids strong currents. Spawns in areas with dense vegetation.

ORIGIN: Natural distribution is circumpolar, that is, across northern Eurasia and northern North America. Native in Montana in the Saint Mary River Drainage.

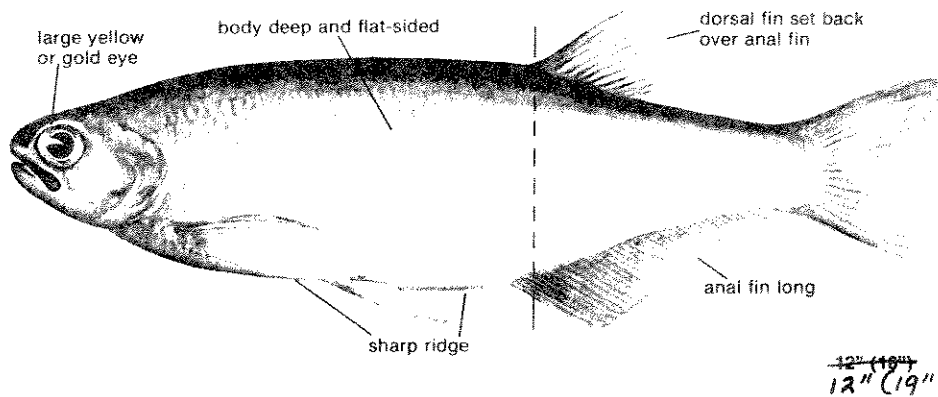


MOONEYE FAMILY Hiodontidae

Members of this family are moderate sized fishes with deep, slab-sided bodies covered by large silvery scales. The dorsal fin is set back over the long anal fin. Montana has one species.

GOLDEYE
Hiodon alosoides

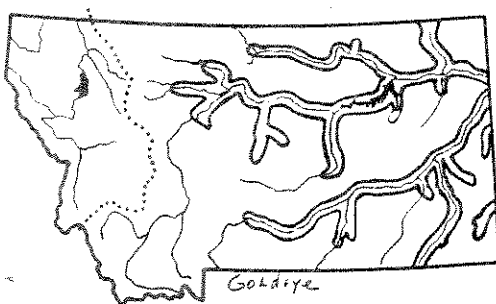
OTHER NAME: Skipjack, shiner, shad.



OTHER CHARACTERISTICS: Large scales

HABITAT: Large rivers, their tributaries, reservoirs. Adapted to turbid water.

ORIGIN: Native to Montana.



CARP AND MINNOW FAMILY Cyprinidae

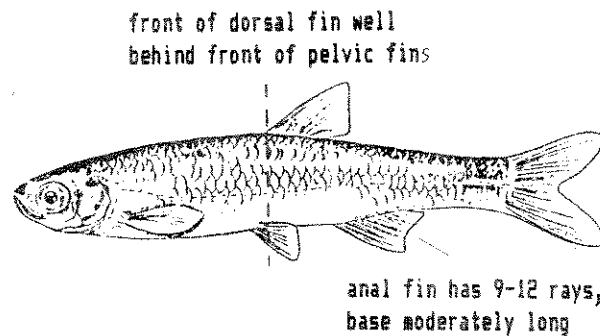
The term minnow is often misapplied to include all young or small fishes. Properly it is applied only to members of the minnow family. Most minnows are small, less than 6 inches; however, some become large. Eighteen-inch long Northern Squawfish are not rare.

Family members have a toothless mouth and soft-rayed fins (except for a spine in the dorsal and anal fins of Carp and Goldfish). Some have barbels. In spring, males and to a lesser extent females, typically develop nuptial tubercles (small horny projections) on the head, fins and sometimes on the body.

Adult specimens of most minnows can be identified from the pictures, descriptions, and comparisons in this guide. Information in the table on page 41 will help with "look-alikes" and the distribution maps will give valuable hints.

The bulk of a typical minnow population, however, is comprised of fingerlings and juveniles. Some are distinctive and identifiable even when immature, but many immature minnows are so similar and their key characters, such as barbels, so hard to find that they cannot be positively identified in the field.

EMERALD SHINER
Notropis atherinoides



Emerald Shiner

3" (4")

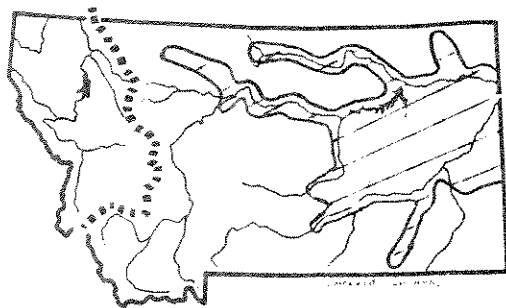
COLOR: Overall silvery with light green back and narrow, iridescent green, mid-side stripe. Sides somewhat translucent.

OTHER CHARACTERISTICS: Body slender, fragile-looking. Scales moderate-sized and easily rubbed off. Eye large.

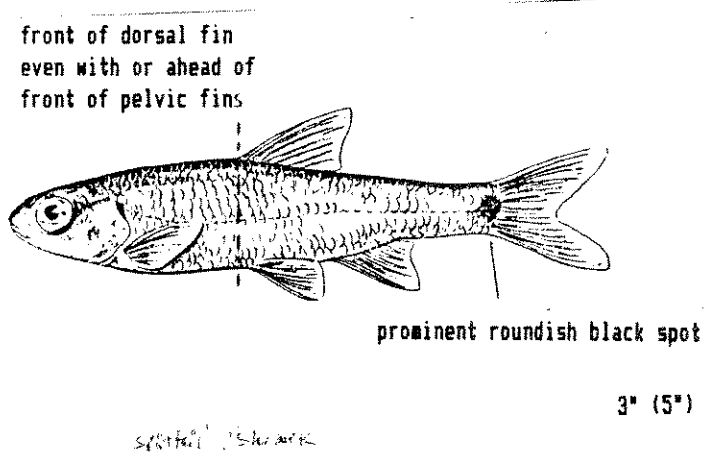
SIMILAR SPECIES: (1) Sand Shiner has paired spots on each lateral line scale. (2) On Plains, Western and Brassy minnows front of dorsal fin is ahead of front of pelvic fins. (3) See Spottail Shiner.

HABITAT: Open water of large lakes, large reservoirs, and large rivers.

ORIGIN: Native to Montana.



SPOTTAIL SHINER
Notropis hudsonius



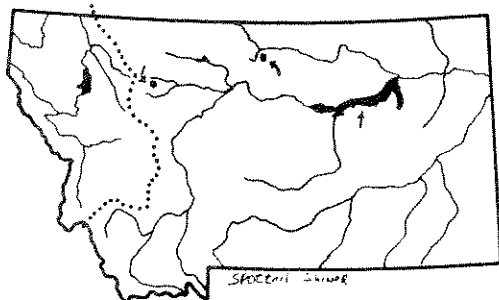
COLOR: Silvery with yellow overtones and light-green to olive back. Prominent spot at base of tail tends to become faint in large adults.

OTHER CHARACTERISTICS: Body stout, moderately flat-sided, eye large, snout slightly overhangs mouth.

SIMILAR SPECIES: (1) The Creek Chub, a larger minnow, also has a spot at base of tail but, in addition, has one at front of dorsal fin base. It usually has barbels (the Spottail has none). Individuals that are Spottail Shiner size have a dark mid-side band which may extend to tip of snout. (2) The Emerald Shiner appears more delicate, and lacks the tail spot, and the front of its dorsal fin is well behind front of pelvic fins. (3) See Sand Shiner.

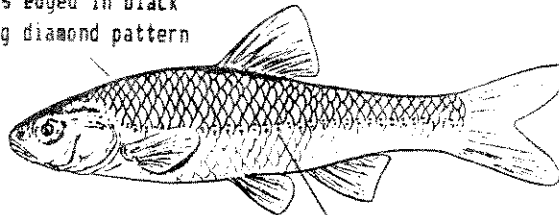
HABITAT: Large clear rivers and lakes over firm bottom of sand, gravel and rubble where vegetation is scanty or lacking. Avoids strong currents.

ORIGIN: Native range across much of Canada dipping into central United States and down eastern seaboard. Introduced into Montana as forage for game fishes starting in 1982.



SAND SHINER
Notropis stramineus

scales edged in black
giving diamond pattern



Sand shiner

paired black dashes
(railroad tracks) on
lateral line scales

2" (2-1/2")

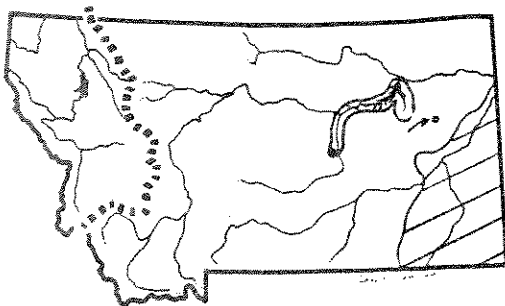
COLOR: Back light-olive, side silver with bluish-purple sheen, underside white. Narrow but distinct black stripe along midline of back that expands into a wedge at front of dorsal fin. Sometimes a thin dark vertical bar at base of tail fin. Black dashes on lateral line scales may be faint on fish from turbid water.

OTHER CHARACTERISTICS: Body somewhat flat-sided but not deep. Mouth nearly horizontal.

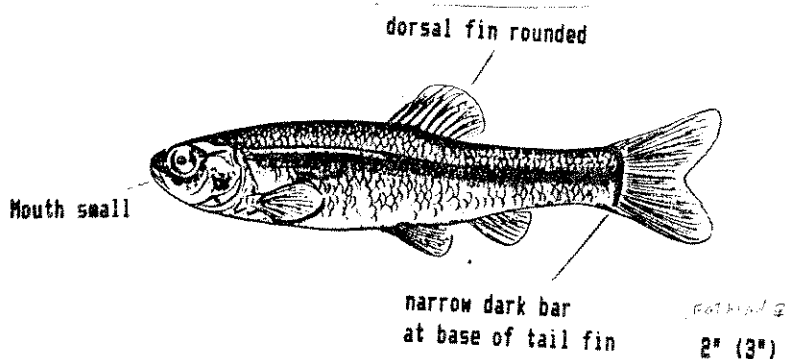
SIMILAR SPECIES: Paired dashes on lateral line scales distinguishes Sand Shiner from other Montana minnows.

HABITAT: Mainly streams with sand or gravel bottoms, also sandy shallows of lakes.

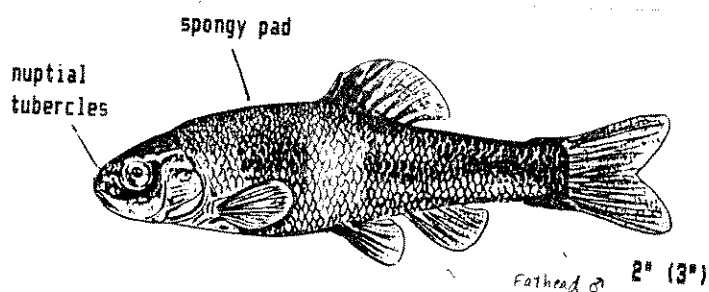
ORIGIN: Native to Montana.



FATHEAD MINNOW
Pimephales promelas



Adult (other than breeding male)



Breeding male

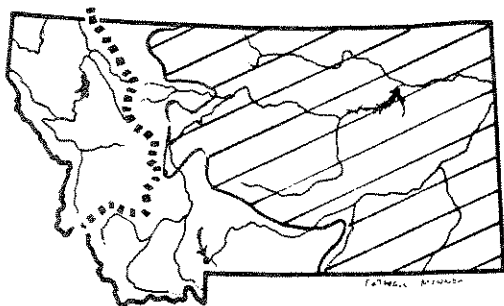
COLOR: Yellowish-olive to pale brown. Breeding males nearly black with two light blotches.

OTHER CHARACTERISTICS: Body of adult is chubby. Lateral line usually incomplete. Scales ahead of dorsal fin on back are small and crowded. First ray of dorsal fin is short, thick and blunt--not easily seen on females and young.

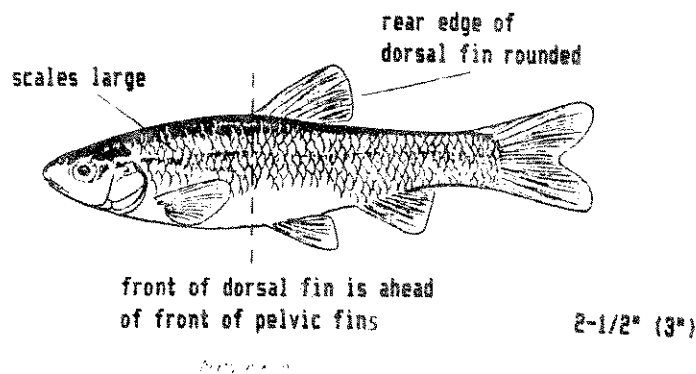
SIMILAR SPECIES: Immature fathead minnow may be confused with small individuals of other minnow species; see: (1) Creek Chub, (2) Sand Shiner, (3) Brassy Minnow, (4) Utah Chub.

HABITAT: Ponds, shallow lakes, slow-flowing streams.

ORIGIN: Native to Montana.



BRASSY MINNOW
Hybognathus hankinsoni



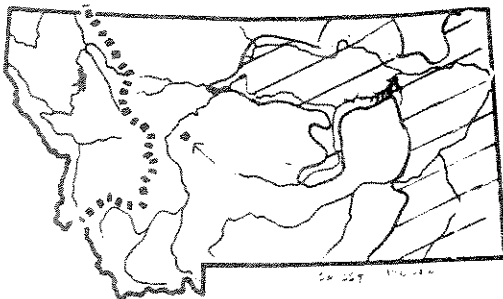
COLOR: Side and fins typically brassy-yellow hence the name "brassy minnow"; back olive-green to brown, underside white. Faint dark mid-side stripe usually present. May have thin, dark vertical line on caudal peduncle just ahead of tail.

OTHER CHARACTERISTIC: When dorsal fin is depressed, its rear edge reaches a point directly over or slightly behind front edge of anal fin.

SIMILAR SPECIES: (1) Plains and Western Silvery minnows are silvery, the dorsal fin is not rounded and, when depressed, its rear edge does not reach a point directly over the anal fin. (2) Fathead minnow is darker and has an incomplete lateral line. (3) Sand Shiner has paired spots on each lateral line scale. (4) See Emerald Shiner.

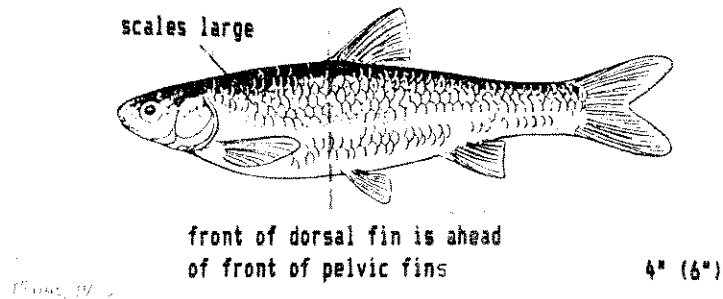
HABITAT: Typically occurs in small, moderately clear prairie streams with sandy or gravelly bottom. Sometimes found in turbid rivers and lakes.

ORIGIN: Native to Montana.



PLAINS MINNOW
Hybognathus placitus

and WESTERN SILVERY MINNOW
Hybognathus argyritis



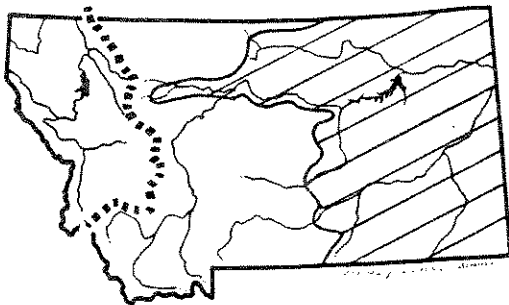
COLOR: Overall silvery; back dusky or yellowish-olive, underside white, sometimes has an indistinct dusky mid-side stripe.

OTHER CHARACTERISTICS: The Western Silvery minnow and Plains minnow are so similar that there is no sure method for telling them apart when alive. A dead specimen can be identified by inspecting a bone at the base of the skull and the muscles attached to it. These features are illustrated in W.L. Pflieger's *The Fishes of Missouri* (Missouri Department of Conservation, 1975 pp. 107-108).

SIMILAR SPECIES: (1) Sand Shiner has paired dashes on each lateral line scale. See (2) Brassy Minnow and (3) Emerald Shiner.

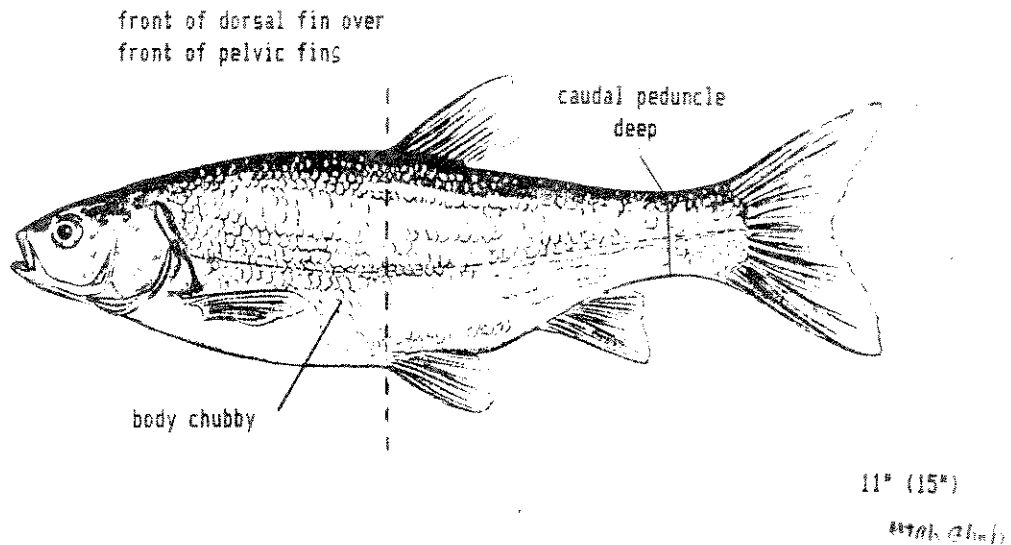
HABITAT: Generally found in slower portions of medium- to large-size streams; sometimes in creeks and impoundments.

ORIGIN: Native to Montana.



Montana distribution of Plains Minnow and W. Silvery Minnow

UTAH CHUB
Gila atraria

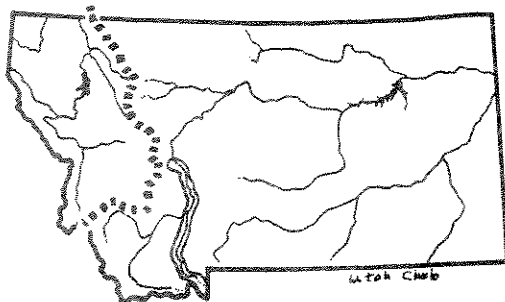


COLOR: Sides usually brassy but sometimes silvery; back, olive-brown to nearly black, occasionally bluish. Underside yellow, becoming orange in spawning males.

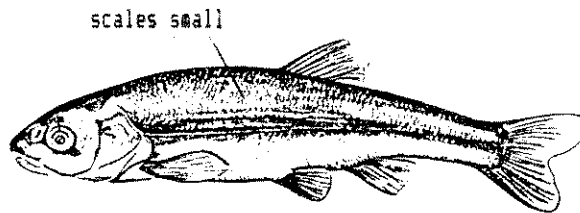
SIMILAR SPECIES: (1) Other "chubs" have barbels, a shallower caudal peduncle, and adult size is smaller. (2) Immature fathead minnow can be distinguished from small Utah Chub by rounded dorsal fin and dark vertical bar at base of tail fin.

HABITAT: Lakes and streams, prefers slow moving or still water.

ORIGIN: Native range is waters of ancient Lake Bonneville in Utah, Idaho, Wyoming, and Nevada, and Snake River Drainage above Shoshone Falls. Apparently introduced into Hebgen Lake, Montana in early 1930s from a fisherman's bait bucket. Has since dispersed downstream.



LAKE CHUB
Couesius plumbeus



4" (6")

Lake Chub

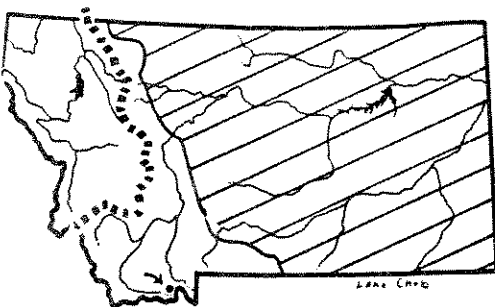
COLOR: Bluish-silver overall, dusky above with lighter underside. Young have a prominent dark mid-side stripe that extends through eye; often indistinct on adults. Breeding males are tinged with orangish-red on the sides.

OTHER CHARACTERISTICS: Body long and somewhat stout. Fins rounded; dorsal fin, when pressed flat against body, extends to front of anal fin. Thread-like barbel above each corner of mouth, may be absent from one or both sides.

SIMILAR SPECIES: See (1) Creek Chub, (2) Pearl Dace, and (3) Peamouth.

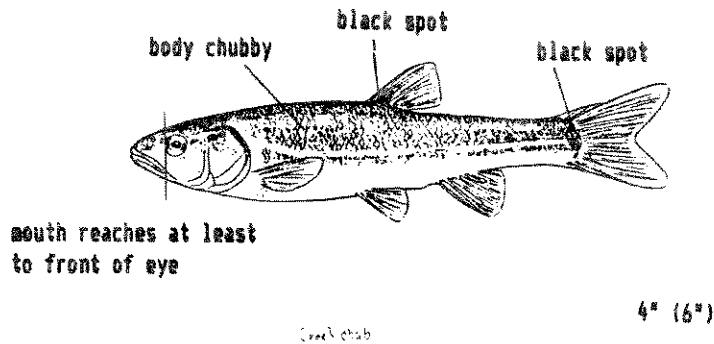
HABITAT: In Montana, small streams at lower elevations and, to a lesser extent, lakes.

ORIGIN: Native to Montana.



CREEK CHUB
Semotilus atromaculatus

OTHER NAME: Horned dace



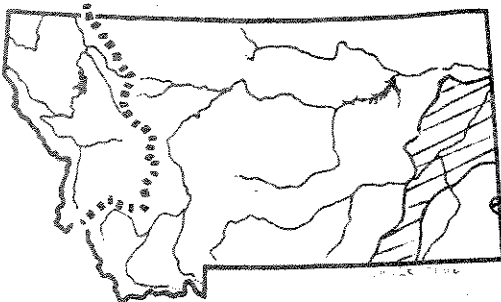
COLOR: Overall dusky-olive; sides lighter with steel blue or silvery overcast; underside creamy. Black spot on dorsal fin indistinct in young. Young, and often older fish, have prominent dark mid-side band which may extend forward to tip of snout. Breeding males usually have reddish to purplish cast.

OTHER CHARACTERISTICS: A small, flattened barbel in groove above upper lip just ahead of each corner of mouth. Usually present if only a ridge. Breeding males have well developed nuptial tubercles (small horny projections) on head and pectoral fins.

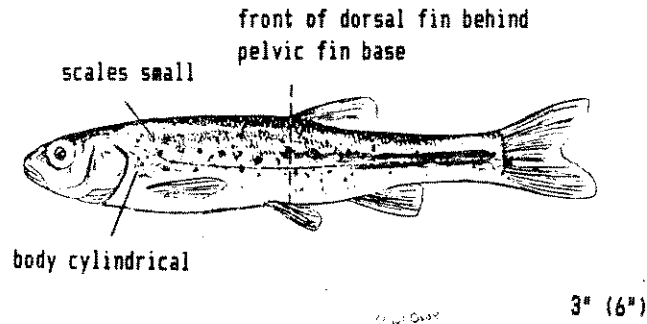
SIMILAR SPECIES: (1) No other Montana minnow has a distinct black spot on dorsal fin, (2) Pearl Dace has a smaller mouth, (3) Lake Chub has smaller mouth and generally a larger eye. (4) Fathead Minnow suggests a small Creek Chub but has a smaller mouth and a dark vertical line at base of tail fin. (5) See Spottail Shiner.

HABITAT: Prefers creeks, is less common in shallows of lakes and rivers. Avoids strong currents.

ORIGIN: Native to Montana.



PEARL DACE
Semotilus margarita



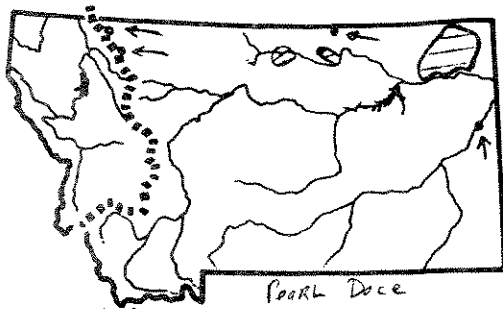
COLOR: Back dark, sides dusky silvery, underside white. Usually has a faint dark midline stripe; stripe prominent on young. Breeding males have a pink or red band below lateral line.

OTHER CHARACTERISTICS: A small, flattened barbel in groove of upper lip on each side just above corner of mouth. May be absent from one or both sides.

SIMILAR SPECIES: (1) Especially difficult to distinguish from Lake Chub. Relative position of Lake Chub's dorsal and pelvic fins vary, but in Montana collections the front of dorsal fin has not been found to be behind the base attaching the pelvic fin to the body as on Pearl Dace pictured above. (2) Fathead Minnow, which also has rounded fins, has blunt first dorsal fin ray (not easily seen on young fish), incomplete lateral line, and narrow vertical line at base of tail. See (3) Creek Chub and (4) Peamouth.

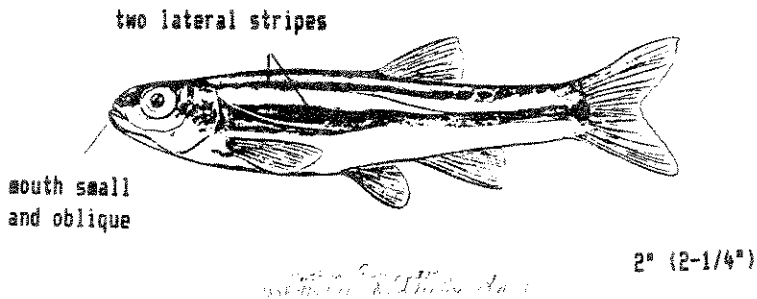
HABITAT: Prefers cool streams also found in some large rivers and lakes.

ORIGIN: Native to Montana.



COMMENT: Found in few Montana waters and, therefore, a fish of special concern.

NORTHERN REDBELLY DACE
Phoxinus eos



COLOR: Back olive-brown to almost black; sides and below yellow or silvery except on adult males during summer when red. Two lengthwise dusky stripes, the upper one often breaks into spots toward tail. Lower stripe broader and extends from snout to tail. These two lateral stripes may be connected by a thin diagonal stripe. Young may have dark spot at base of tail.

OTHER CHARACTERISTICS: Eye large, body nearly round in cross section. Front of dorsal fin is behind front of pelvic fin. Scales very small, lateral line not distinct and incomplete.

SIMILAR SPECIES: (1) The Northern Redbelly Dace-Finescale Dace Hybrid, which is rare in Montana, has characteristics that are intermediate between those of the parental stocks.

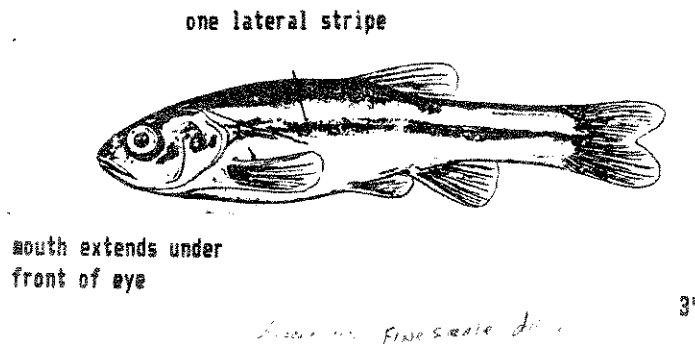


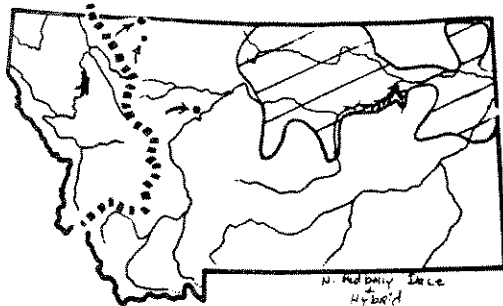
Illustration of Finescale Dace for
 comparison with Northern Redbelly Dace above.

The hybrid differs chiefly from the Northern Redbelly Dace in that its mouth is larger (but not as large as the Finescale's) . It has only the mid-side stripe plus a faint beginning of the upper stripe. In practice, however, there is no sure, simple field technique for telling the hybrid from the Northern Redbelly

Dace. (2) Northern Redbelly Dace is distinguished from other small minnows by having two lateral stripes and the smallest scales (see table on page).

HABITAT: Clear, slow-flowing creeks and lakes, both with vegetation.

ORIGIN: Native to Montana.



Montana distribution of Northern Redbelly Dace and hybrid

COMMENT: Although Northern the Redbelly Dace is fairly common in Montana, the Finescale Dace, *Phoxinus neogaeus*, has never been recorded for the state. The hybrid persists due to a unique reproductive strategy. Hybrid females breed with Redbelly Dace males but the male's genetic material is discarded after egg development is stimulated or after one generation. The offspring are all female and clones of the mother. Unisexuality is not common among vertebrates but has been found in amphibians and reptiles as well as in fishes. Due to its rarity, the Northern Redbelly Dace - Finescale Dace Hybrid is a fish of special concern in Montana.

FLATHEAD CHUB
Hybopsis gracilis

head wedge-shaped,
flattened on top

barbel

pectoral fin long,
sickle-shaped, sharply-pointed

5" (7")

Flathead chub

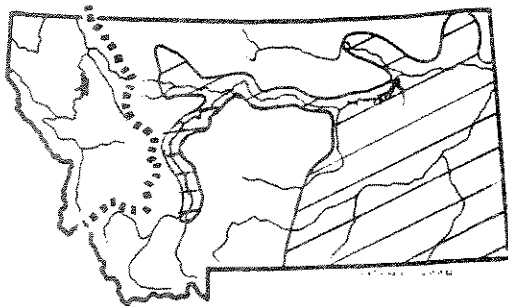
COLOR: Mostly silvery shading to brown or dusky on back.

OTHER CHARACTERISTICS: Snout extends only slightly beyond upper lip. Tip of pectoral fin sometimes reaches base of pelvic fin. Dorsal and anal fins sickle-shaped.

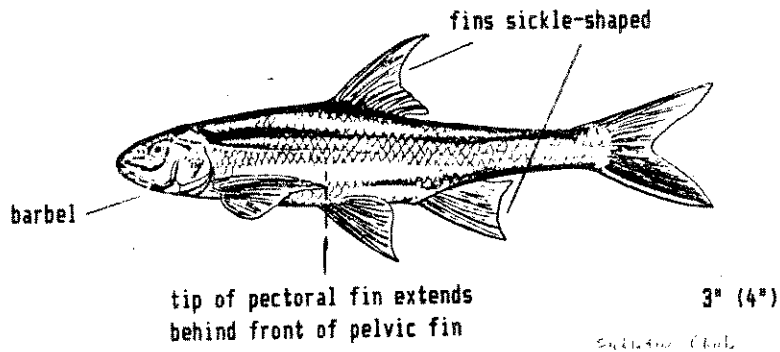
SIMILAR SPECIES: See (1) Sicklefin Chub, (2) Sturgeon Chub, (3) Northern Squawfish.

HABITAT: Found mostly in turbid rivers and streams; to a lesser extent in reservoirs and lakes.

ORIGIN: Native to Montana.



SICKLEFIN CHUB
Hybopsis meeki



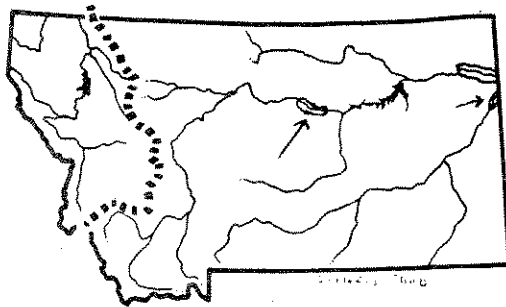
COLOR: Light-brown on back and upper sides; silvery-white below.

OTHER CHARACTERISTICS: Snout rounded, extends only slightly beyond upper lip.

SIMILAR SPECIES: (1) Could be mistaken for a small Flathead Chub. Flathead can be told by wedge-shaped head profile and pointed snout. (2) Sturgeon Chub has keeled scales above lateral line, snout projects far beyond upper lip.

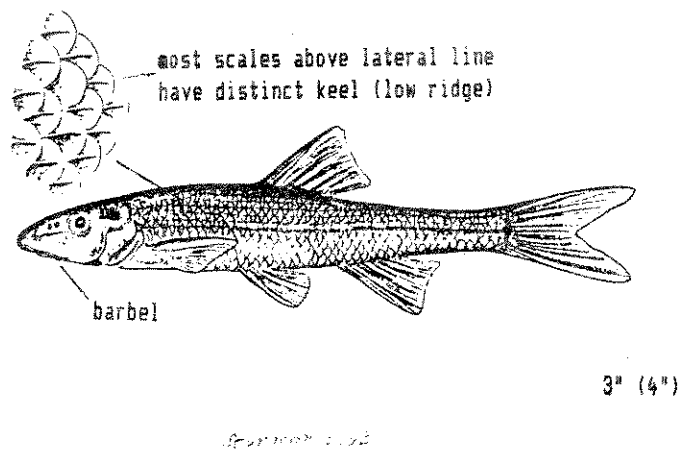
HABITAT: Fast water of turbid rivers over sand or gravel bottom.

ORIGIN: Native to Montana.



COMMENT: A fish of special concern due to its limited distribution in the state.

STURGEON CHUB
Hybopsis gelida



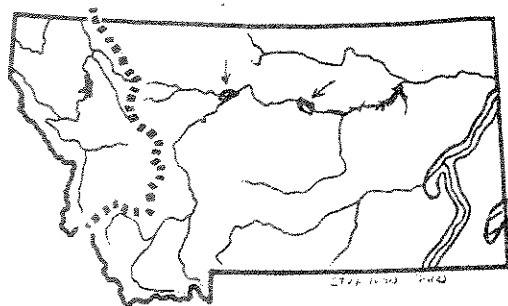
COLOR: Back brown, sides and underparts silvery to white.

OTHER CHARACTERISTICS: Head sturgeon-like, snout extends far beyond upper lip.

SIMILAR SPECIES: (1) Could be mistaken for small Flathead Chub but can be recognized by smaller, horizontal mouth and keeled scales above lateral line. See (2) Sicklefin Chub, (3) Longnose Dace.

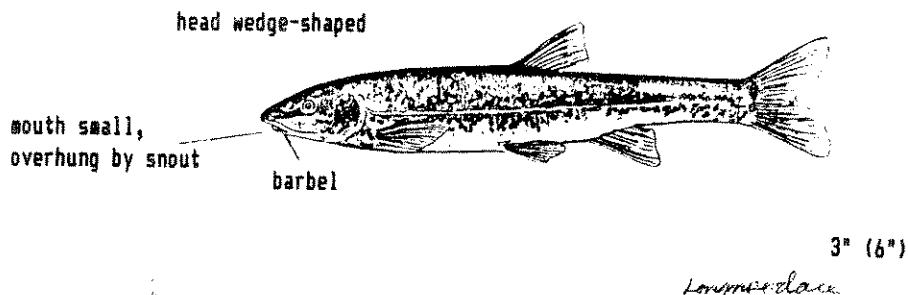
HABITAT: Currents of turbid streams over coarse sand, gravel or rocks.

ORIGIN: Native to Montana.



COMMENT: Uncommon to rare in Montana and, therefore, a fish of special concern.

LONGNOSE DACE
Rhinichthys cataractae

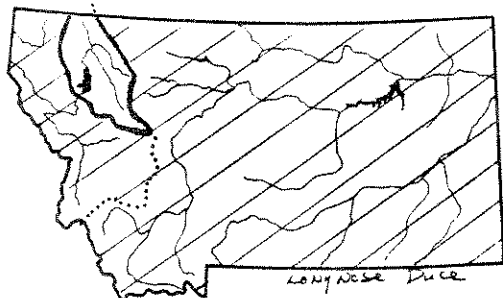


COLOR: Back olive to black, shading to white or yellow underneath. Sides may have dark blotches. Breeding males have red or orange on head, body and fins. Juveniles usually have wide black mid-side stripe that runs from the base of the tail to the tip of the snout and a dark spot at base of tail.

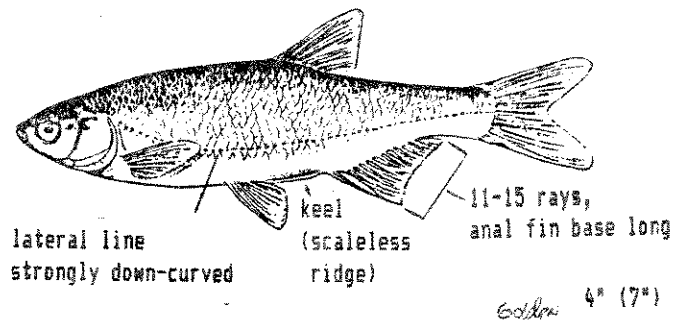
SIMILAR SPECIES: (1) Could be confused with small suckers from which it is distinguished by having barbels and by the more forward placement of anal fin (see sketch on page). (2) Sturgeon Chub has silvery color and smaller scales many of which have keels.

HABITAT: Prefers riffle areas of streams and rivers; lives to a lesser extent in lakes.

ORIGIN: Native to Montana.



GOLDEN SHINER
Notemigonus crysoleucas



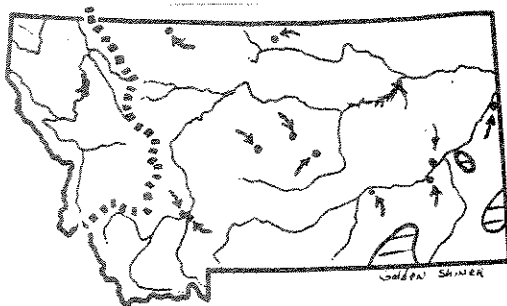
COLOR: Adults golden, color fades rapidly when removed from water. Young silvery with dusky midside band.

OTHER CHARACTERISTICS: Body deep and flatsided. Head small and triangular, mouth small.

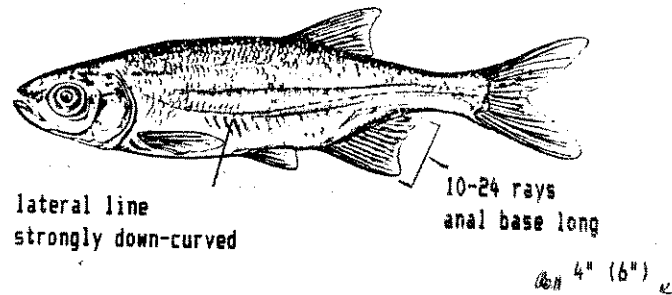
SIMILAR SPECIES: See Redside Shiner.

HABITAT: Clear, weedy, quiet waters of ponds, lakes, and to a lesser extent, streams.

ORIGIN: Original range includes most of central and eastern United States north into southern Canada. May be native in eastern Montana.



REDSIDE SHINER
Richardsonius balteatus



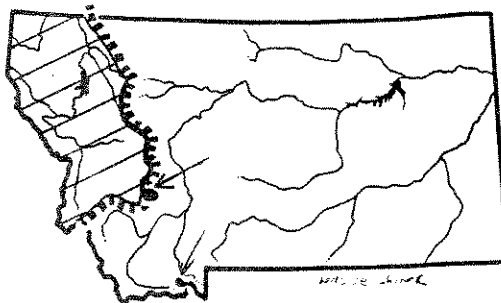
COLOR: Dark-olive to dark-brown on back; dark mid-side band from snout to tail with a light stripe above it; lower side silver with a reddish wash; underside white. Breeding fish highly colored: male has brilliant yellow and red on sides and belly, female is less striking.

OTHER CHARACTERISTICS: Body deep and flat-sided; dorsal fin set back--it's front edge is closer to base of tail than to tip of snout

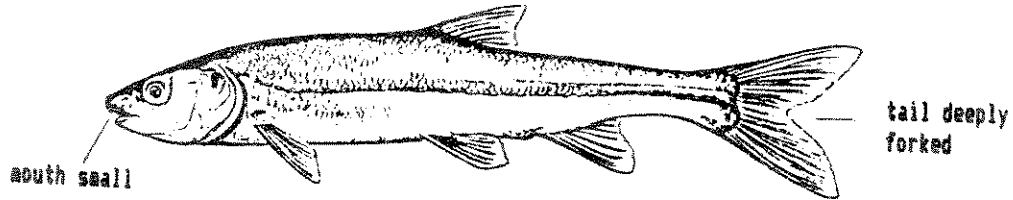
SIMILAR SPECIES: Golden Shiner has smaller head, a keel on belly, and golden coloration. In addition, the Golden's range is east of Continental Divide: the Redside's, almost exclusively west of the Divide

HABITAT: Lakes, ponds, moderately fast rivers.

ORIGIN: Native to Montana.



PEAMOUTH
Mylocheilus caurinus



8" (14")

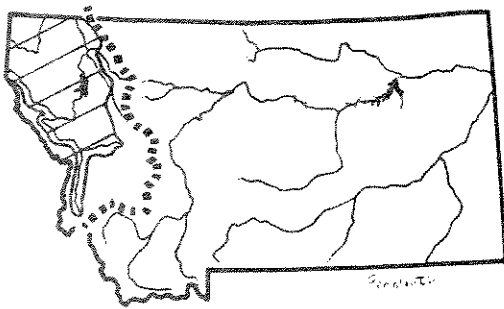
COLOR: Dark on back and silvery below, two dusky stripes along side, reddish at corners of mouth. Breeding fish have red mid-side stripe.

OTHER CHARACTERISTICS: Dorsal fin, when pressed flat against body, does not extend to front of anal fin. Small barbel at each corner of mouth.

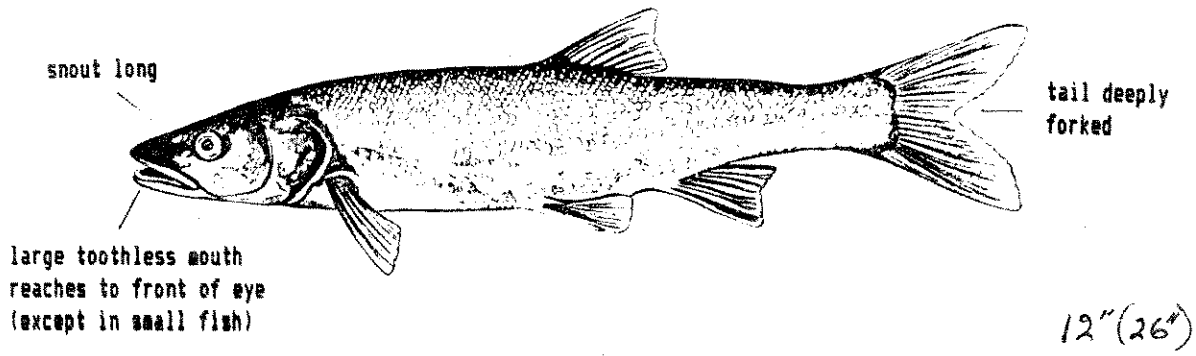
SIMILAR SPECIES: (1) Lake Chub and (2) Pearl Dace are much smaller when adults, the dorsal fin, when depressed, extends over anal fin; also not found in same drainages as Peamouth. (3) See Northern Squawfish.

HABITAT: Lakes and streams, particularly weedy areas.

ORIGIN: Native to Montana.



NORTHERN SQUAWFISH
Ptychocheilus oregonensis



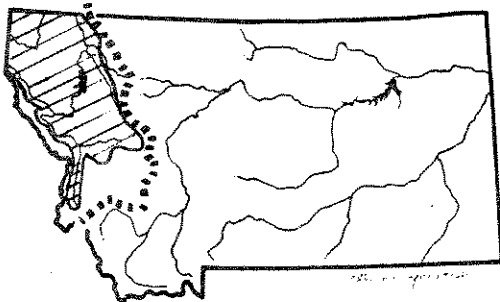
COLOR: Dark green back, silvery below. Young have prominent dark spot at base of tail fin.

OTHER CHARACTERISTICS: Upper lip projects beyond snout and lower lip.

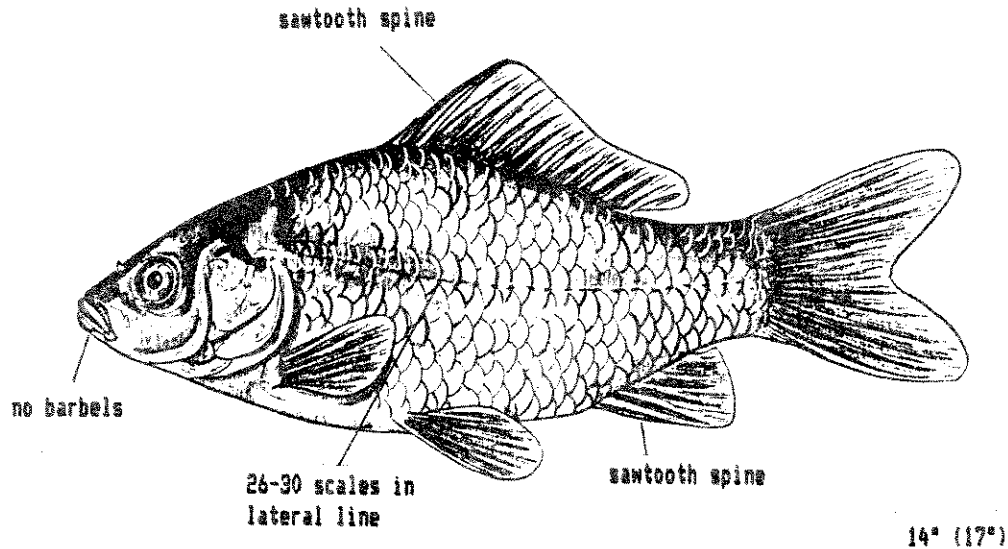
SIMILAR SPECIES: (1) Flathead Chub has barbels and longer, more pointed pectoral fins; it is not found in the same drainages as Northern Squawfish. (2) Peamouth has a small mouth. (3) Squawfish might be mistaken for a trout, but trouts have an adipose fin and teeth in the mouth.

HABITAT: Typically lakes, but also found in slower currents of rivers and streams.

ORIGIN: Native to Montana.



GOLDFISH
Carassius auratus

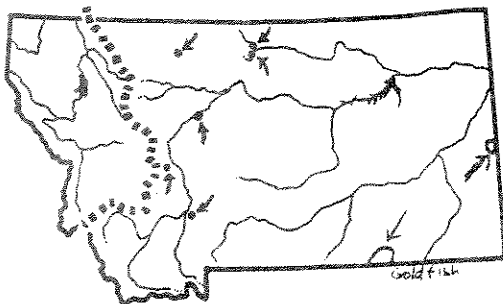


COLOR: Varies. Ranges from combinations of red, orange, black, and/or white in cultured varieties to olive-brown of individuals that have reverted to the wild.

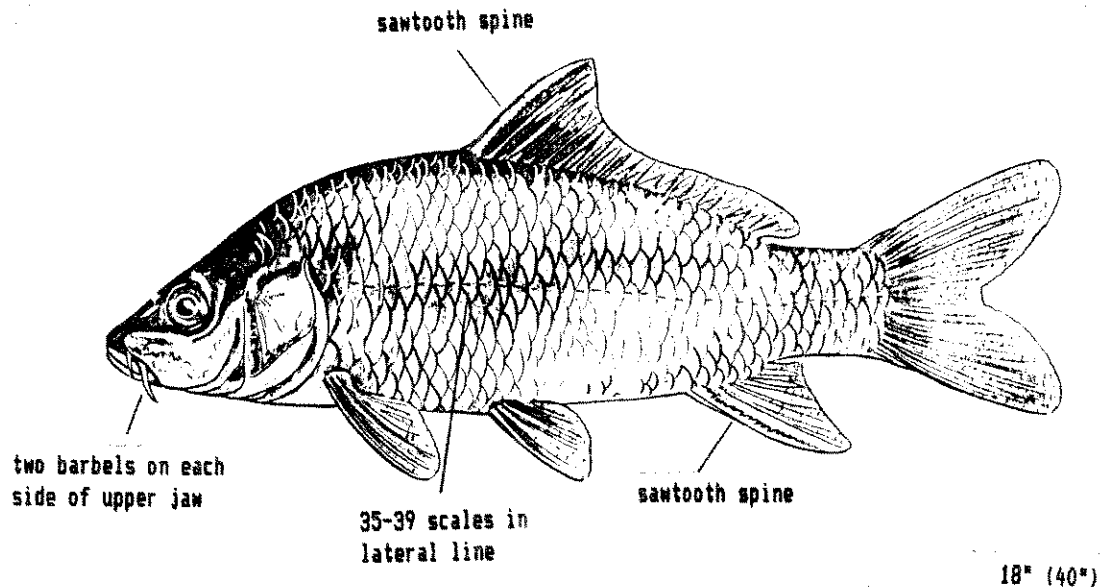
SIMILAR SPECIES: See Carp.

HABITAT: Lakes and ponds that are somewhat warm in summer. Tolerant of enriched or polluted water.

ORIGIN: Native to eastern Asia. Montana populations are the result of unauthorized releases of pets into state waters.



COMMON CARP
Cyprinus carpio



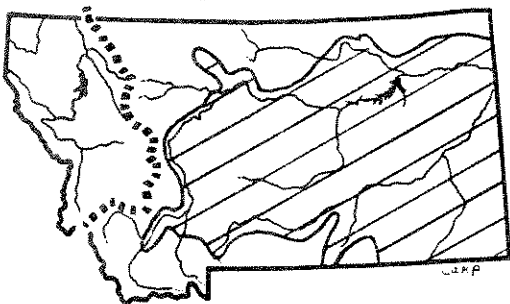
COLOR: Overall bronze with a dark brown to olive-green back and yellowish underside.

OTHER CHARACTERISTICS: Some individuals, called mirror carp, have patches without scales and scales that are present are extra large. Leather carp are scaleless.

SIMILAR SPECIES: Goldfish have no barbels and fewer scales on the lateral line. Common Carp and Goldfish are told from suckers and all other minnows by the sawtooth spine in dorsal and anal fins, also suckers do not have barbels.

HABITAT: Lakes and reservoirs where it seeks moderately warm water and shallows. In rivers, pools and backwaters are preferred. Congregates in areas of organic enrichment, such as sewage out-falls. Tolerates turbidity and low dissolved oxygen; avoids cold water and swift rocky streams and is therefore usually not found in trout streams.

ORIGIN: A native of temperate portions of Eurasia. Earliest record of carp in Montana is an 1885 introduction of "German" carp into a pond in Helena valley.



CARP AND MINNOW LATERAL LINE SCALE COUNTS AND BARBEL CHARACTERISTICS

<u>Species</u>	<u>Lateral Line scale count</u> ^{1/}	<u>Barbels</u>
Goldfish	26-30	None
Brassy Minnow	32-39	None
Sand Shiner	32-39	None
Carp	35-39	Two on each side of upper jaw, conspicuous.
Plains Minnow	33-41	None
Western Silvery Minnow	34-41	None
Emerald Shiner	35-41	None
Spottail Shiner	36-42	None
Sturgeon Chub	37-46	One at each corner of mouth, conspicuous.
Fathead Minnow	40-50 ^{2/}	None
Sicklefin Chub	43-50	One at each corner of mouth, conspicuous.
Golden Shiner	44-54	None
Flathead Chub	42-59	One at each corner of mouth, conspicuous.
Utah Chub	45-65	None
Redside Shiner	52-67	None
Creek Chub	55-65	One small, flap-like (leaf- like) in groove of upper lip just ahead of corner of mouth. Usually present if only as a ridge.
Lake Chub	54-70	One slightly above each corner of mouth, round and thread-like. May be absent from one or both sides.
Longnose Dace	58-73	One at each corner of mouth in fold of skin, small.
Pearl Dace	60-78	Same as Creek Chub (above) except may be absent from one or both sides.
Northern Squawfish	65-77	None
Peamouth	68-79	One at each corner of mouth, small.
Northern Redbelly Dace	75-90 ^{2/}	None

^{1/}When identifying minnows a quick count of the lateral line scales will often narrow the field of candidates. For counting procedure see Lateral Line Scale Count on pg. ____.

^{2/}Scale count along mid-side as lateral line is incomplete.

SUCKER FAMILY Catostomidae

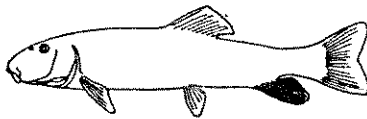
A typical sucker has its mouth on the underside of the head with extensible lips adapted for sucking food from the bottom. The mouth is always toothless.

Males of most species develop nuptial tubercles (small horny projections) on their fins during the breeding season. Some also have them on the head and body. Tubercles are poorly developed or lacking in females.

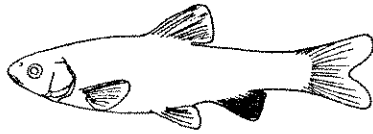
Suckers differ from ^{carp and} minnows in usually having a "sucker mouth" and in never having barbels. The anal fin is set farther back on the body than it is on minnows.

Position of Anal Fin

Sucker

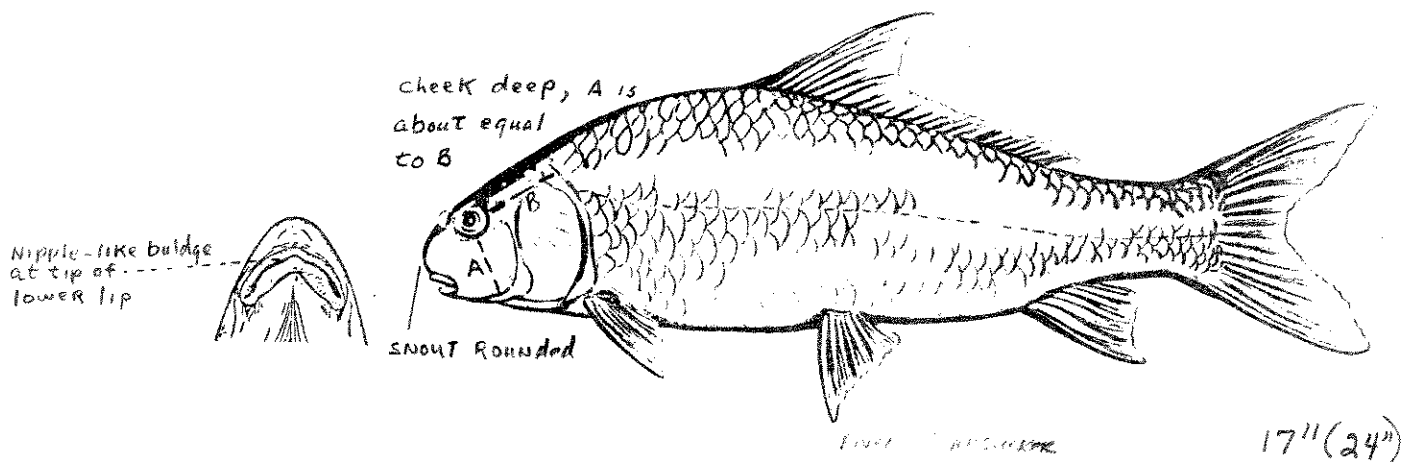


Minnow



RIVER CARPSUCKER
Carpoides carpio

OTHER NAME: White Carp, silver Carp

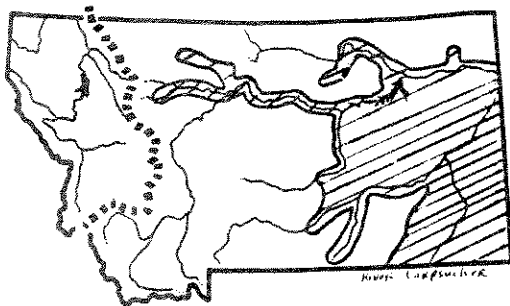


COLOR: Sides silvery, back brown to olive, underside white. Lower fins whitish.

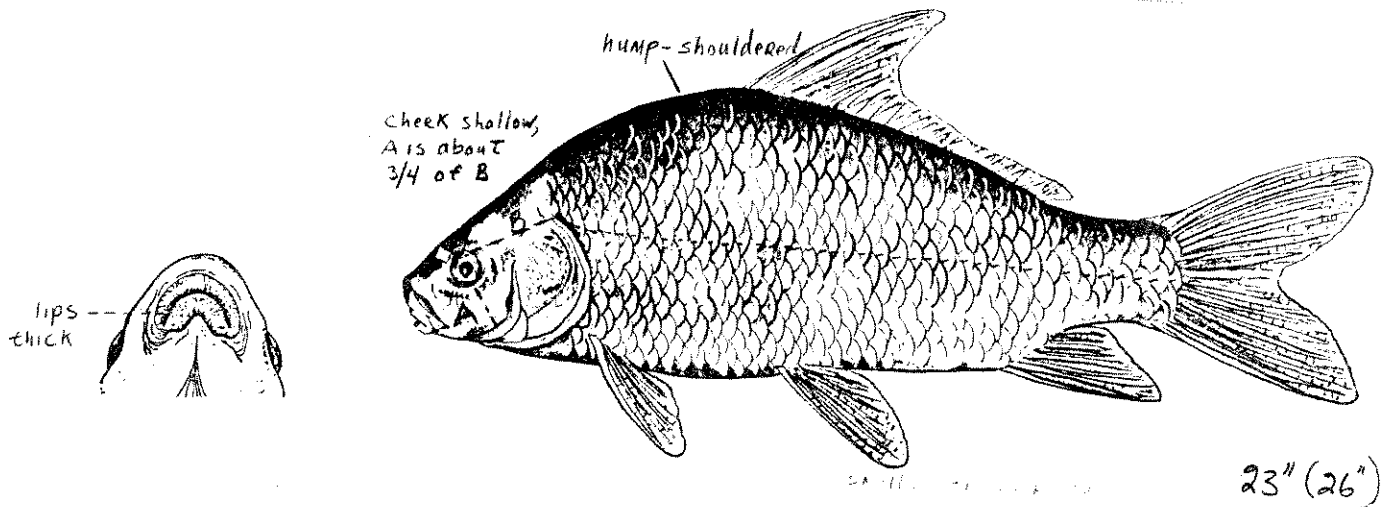
SIMILAR SPECIES: (1) Buffalos are darker colored including darker lower fins, do not have nipple-like bulge at tip of lower lip, cheek is shallower. (2) See Carp.

HABITAT: Rivers where it prefers backwaters, also reservoirs.

ORIGIN: Native to Montana.



SMALLMOUTH BUFFALO
Ictiobus bubalus



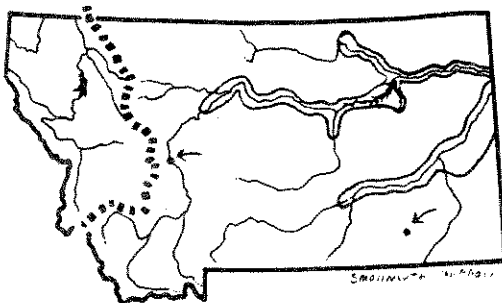
COLOR: Bronze to slate or olive on back and sides, lighter below. Fins dark.

OTHER CHARACTERISTICS: Top of upper lip is well below lower margin of eye. Usually has sharp ridge on back in front of dorsal fin.

SIMILAR SPECIES: See (1) Bigmouth Buffalo, (2) River Carpsucker, (3) Carp.

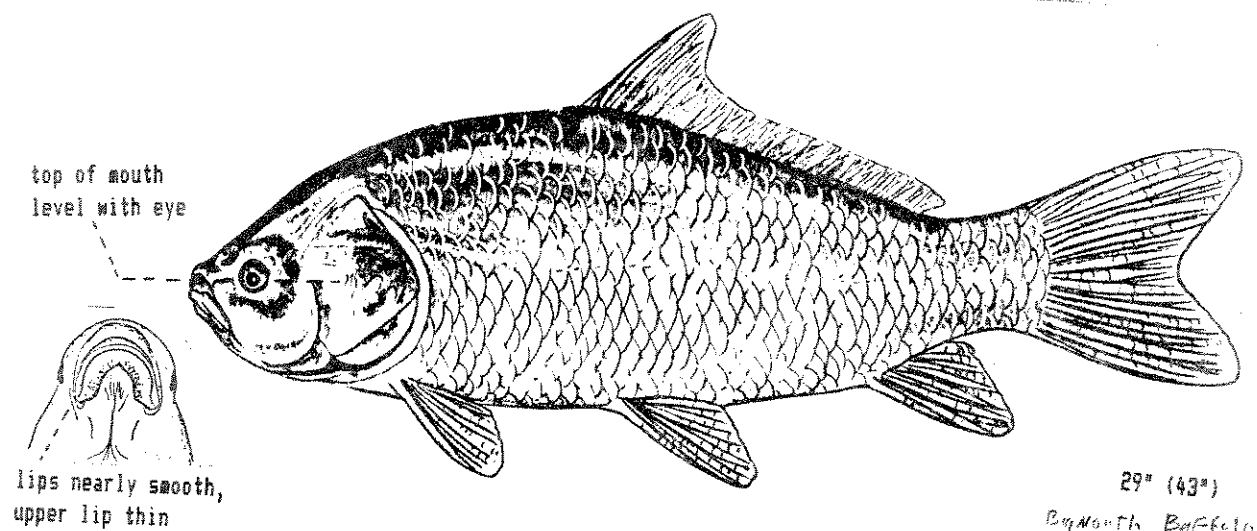
HABITAT: Reservoirs and quiet areas of rivers.

ORIGIN: Native to Montana.



COMMENT: The most valuable species in Montana's limited commercial fishery.

BIGMOUTH BUFFALO
Ictiobus cyprinellus

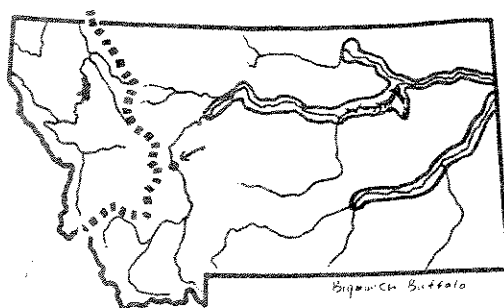


COLOR: Dark coppery-brown to slate on back and sides fading to pale yellow or white on underside. Fins dark.

SIMILAR SPECIES: (1) Smallmouth Buffalo's color is generally lighter, top of mouth is well below lower margin of eye, lips are thicker and more deeply grooved. See (2) River Carpsucker, (3) Carp.

HABITAT: Large rivers and reservoirs.

ORIGIN: Native to Montana.

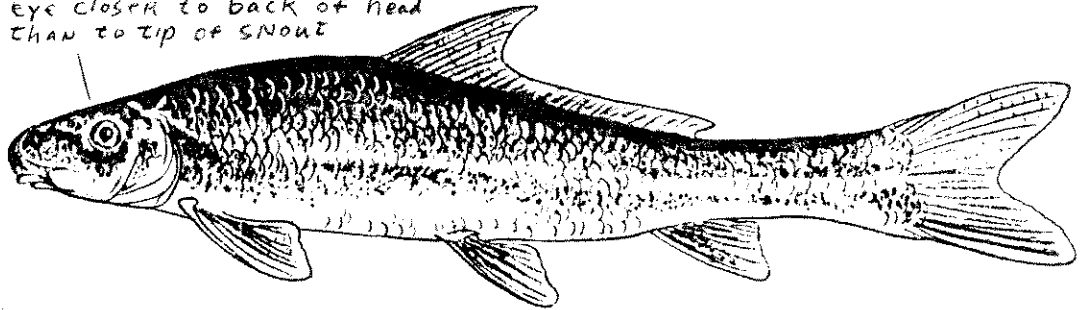


COMMENT: A commercial species.

BLUE SUCKER
Cycleptus elongatus



eye closer to back of head
than to tip of snout

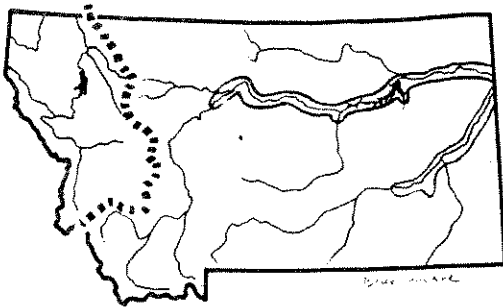


28" (36")

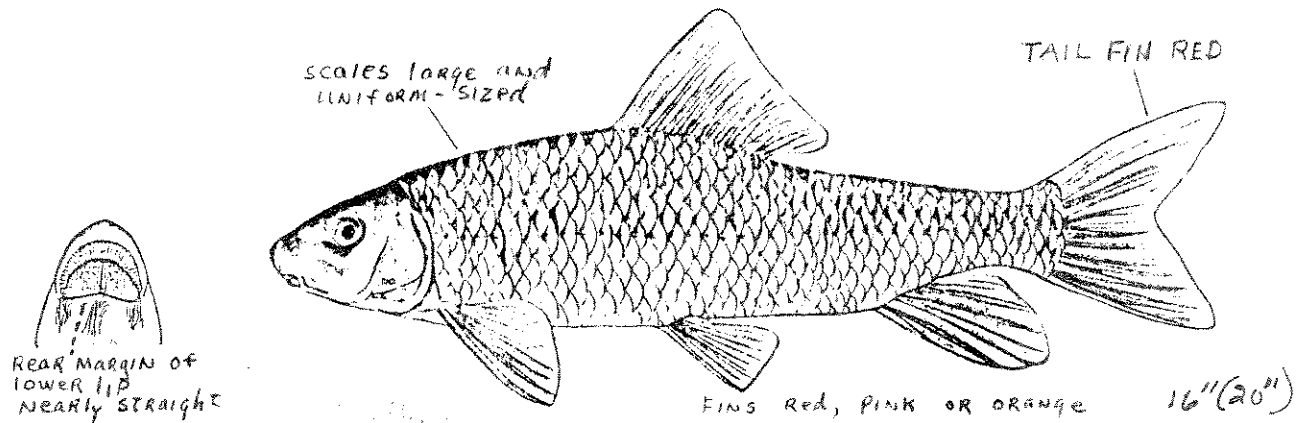
COLOR: Back and sides dark bluish to olive blue, underside white.

HABITAT: Deep water of large rivers and reservoirs. Prefers swift currents.

ORIGIN: Native to Montana.



SHORthead REDHORSE
Moxostoma macrolepidotum

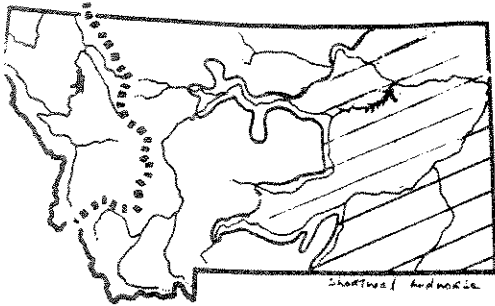


COLOR: Sides golden or silvery, back brown to greenish, belly yellow to white. Tail fin is bright red, other fins are red, pink, or orange. On young fish bright color limited to tips of fins and may be faint.

SIMILAR SPECIES: No other Montana sucker has bright red fins or scales proportionally as large.

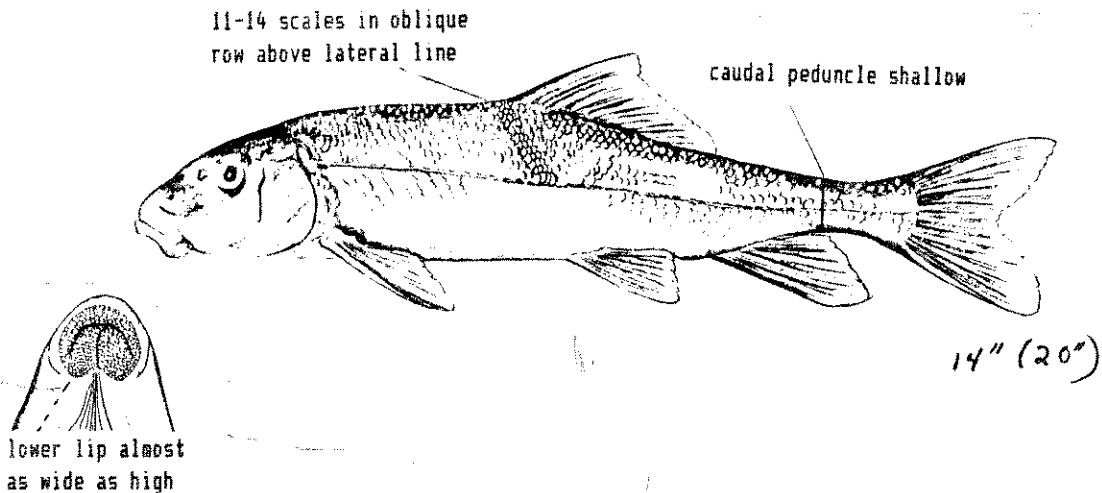
HABITAT: Streams with gravel or boulder bottom. Prefers medium-size to large rivers with intermediate temperatures and strong current.

ORIGIN: Native to Montana.



LARGESCALE SUCKER
Catostomus macrocheilus

OTHER NAME: Coarsescale sucker



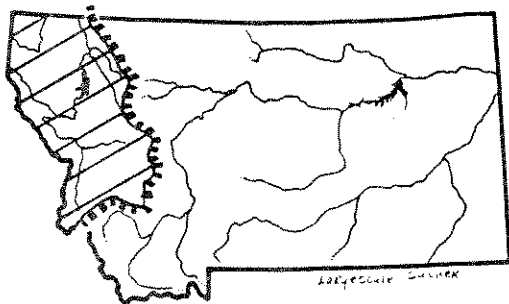
COLOR: Back and sides dark olive-gray with dark band below lateral line from tip of snout to base of tail; underside white or yellowish.

OTHER CHARACTERISTICS: Dorsal fin has 13 to 15 rays (rarely 12, 16 or 17), and is longer than high. Scales are medium-sized, 62-80 in lateral line.

SIMILAR SPECIES: White Sucker has 8 to 10 scales above lateral line, a deeper caudal peduncle, a shorter dorsal fin, and its lower lip is much wider than high. It is not found west of Continental Divide (Largescale Sucker is only west of Divide).

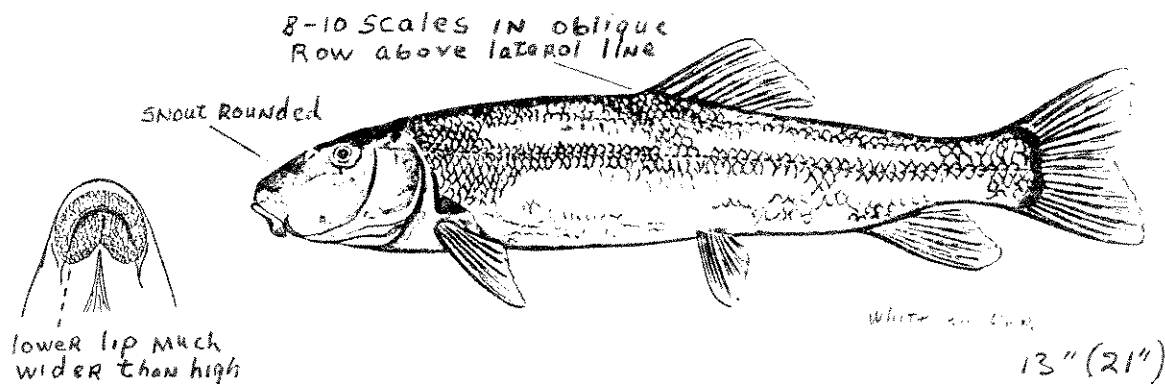
HABITAT: Lakes and rivers.

ORIGIN: Native to Montana.



WHITE SUCKER
Catostomus commersoni

OTHER NAME: Common sucker, coarse-scaled sucker



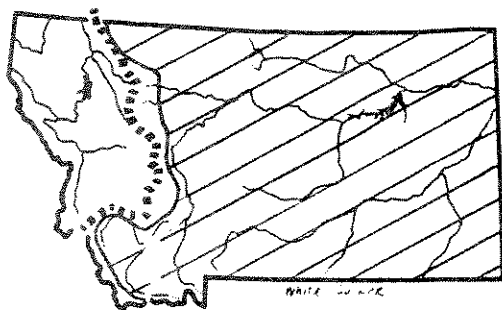
COLOR: Dusky on back and upper sides shading to cream or white below. Young usually have three dark blotches on sides.

OTHER CHARACTERISTICS: Scales are medium-sized, 60-75 in lateral line. Dorsal fin has 10 to 13 rays.

SIMILAR SPECIES: See (1) Largescale Sucker, (2) Longnose Sucker.

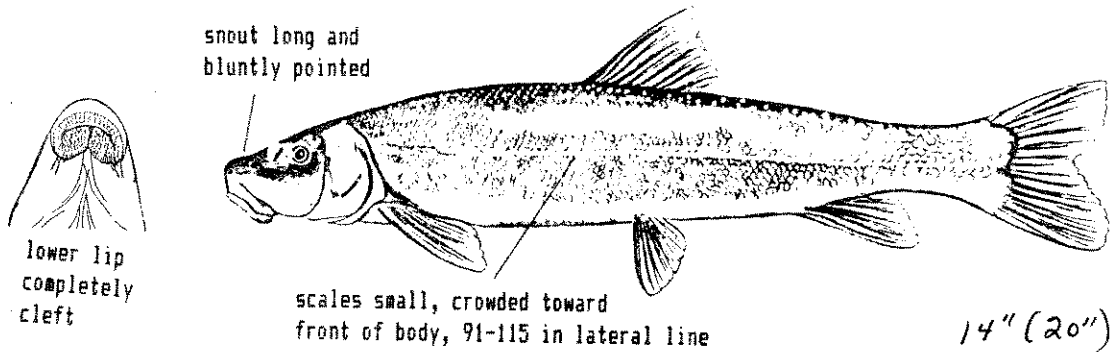
HABITAT: Found in all kinds of lakes and streams except high mountain streams—very adaptable.

ORIGIN: Native to Montana.



LONGNOSE SUCKER
Catostomus catostomus

OTHER NAME: Finescale sucker



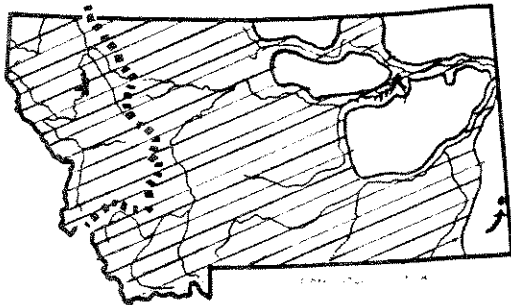
COLOR: Back olive to slate, sides lighter, belly white or yellow. During breeding season males are nearly jet black on upper half of head and body and may have red mid-side band.

OTHER CHARACTERISTIC: More than 15 scales above lateral line (see illustration for either White Sucker or Largescale Sucker).

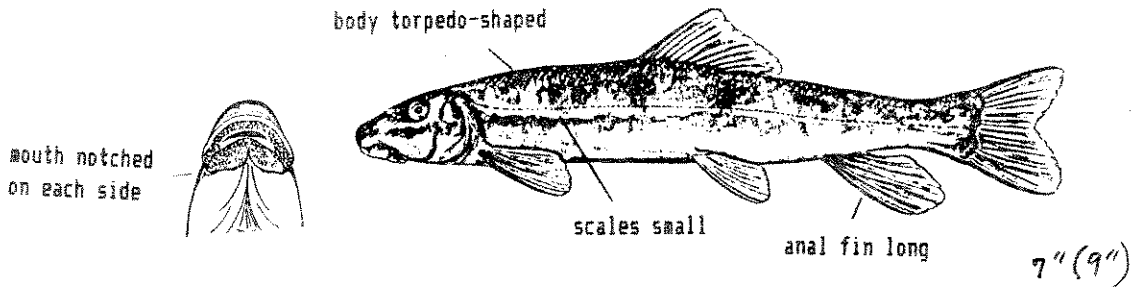
SIMILAR SPECIES: White Sucker and Largescale Sucker have larger scales and shorter snouts.

HABITAT: Most abundant in clear, cold streams and lakes, but also found in moderately warm waters and turbid waters.

ORIGIN: Native to Montana.



MOUNTAIN SUCKER
Catostomus platyrhynchus



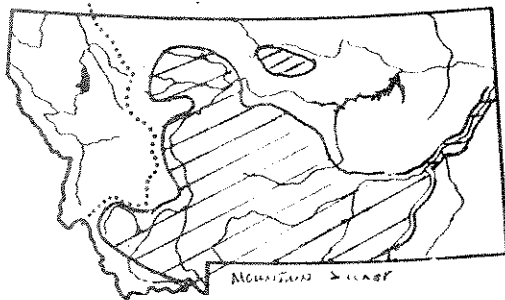
COLOR: Back and sides dusky or dark green, several dark blotches may straddle back and upper sides; belly whitish. Both sexes have a reddish-orange band along sides during breeding season. It is brighter, longer and wider in males.

OTHER CHARACTERISTICS: The mouth is so long it sometimes exceeds head width.

SIMILAR SPECIES: No other Montana sucker has notches in corners of mouth.

HABITAT: Prefers cold streams with rocky, gravelly or sandy bottom and abundant algae. Sometimes occurs in turbid streams, but seldom in lakes.

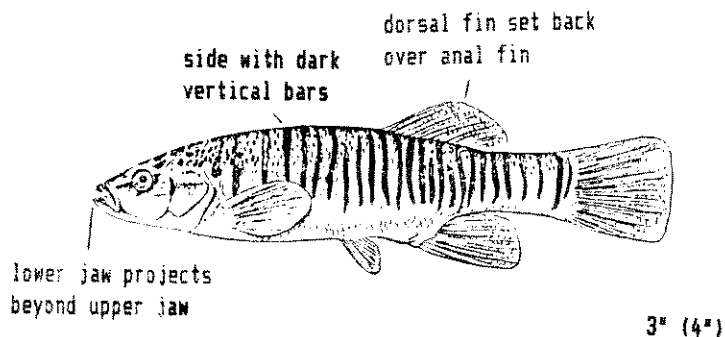
ORIGIN: Native to Montana.



KILLIFISH FAMILY Cyprinodontidae

Killifishes are small fishes with a turned-up mouth and projecting lower lip adapted for surface feeding. Dorsal fin set back over anal fin; tail is slightly rounded or squarish. The one Montana species is boldly marked with vertical bars.

PLAINS KILLIFISH *Fundulus zebrinus*



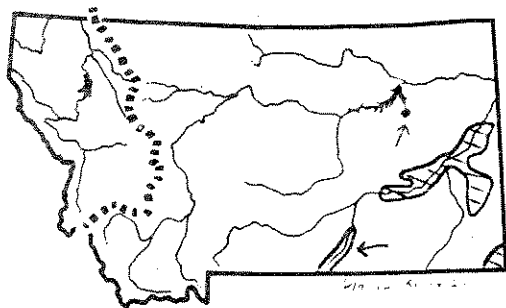
COLOR: Olive-brown on back, fading to pale yellow or white below. Side with 12 to 28 dark vertical bars (bars on female are narrower and more numerous as on illustration above),

OTHER CHARACTERISTICS: Head broad and flat, numerous teeth in the jaws, lateral line absent.

SIMILAR SPECIES: (1) Montana livebearers (Mosquitofish, Variable Platy, Green Swordtail and mollies), and (2) minnows do not have vertical bars on the side.

HABITAT: Normally inhabits shallow streams with sand or gravel bottom, comparatively high alkalinity or salinity, and few other fish.

ORIGIN: Native in Great Plains from Nebraska to Texas. Its widespread distribution in Montana indicates it is native here also (see Montana Outdoors May/June 1980, p. 25).

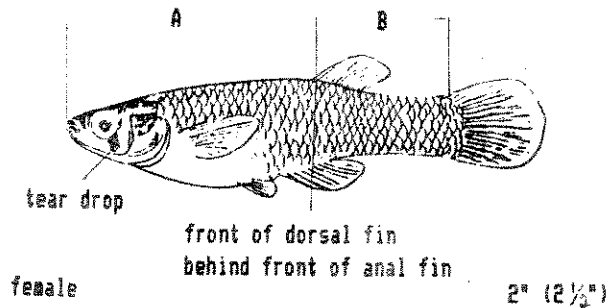


LIVEBEARER FAMILY Poeciliidae

These are small fishes with mouth upturned for surface feeding. Male's anal fin placed forward and modified into a gonopodium, a slender structure for transferring sperm to female. Eggs hatch internally and young are born alive.

MOSQUITOFISH
Gambusia affinis

B = about 1/2 of A

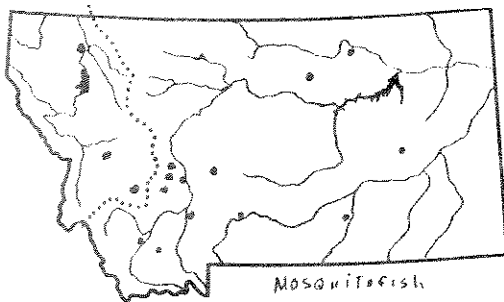


COLOR: Light olive to dull silver.

SIMILAR SPECIES: Other livebearers in Montana waters are more colorful, do not have teardrop marking, dorsal fin is not set as far back on body (on female front of dorsal fin is ahead of front of anal fin).

HABITAT: Widely stocked in shallow waters each year for mosquito control. Avidly eats mosquito larvae which live just below water surface. Can survive winter only in the ponds or runs from thermal springs.

ORIGIN: Not native to Montana. Occurs naturally in south Atlantic states and Gulf states of the United States and in Mexico.

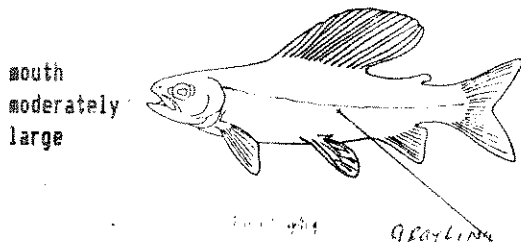


TROUT FAMILY Salmonidae

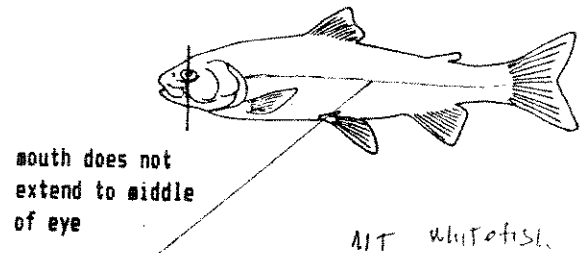
Montana members of this family are Pacific salmon, trouts (including chars) whitefishes and Arctic Grayling. All have an adipose fin and pelvic axillary processes; The young have parr marks. Colors vary with habitat, season and sex. Individuals living in turbid water or under ice acquire a silvery iridescence that covers spots and other colors making identification difficult. The snout of breeding male salmon becomes elongated, hooked, and turned up into what is called a kype. This occurs to lesser degree in trouts.

Comparison of Arctic grayling, whitefishes, Pacific salmon and trouts

ARCTIC GRAYLING

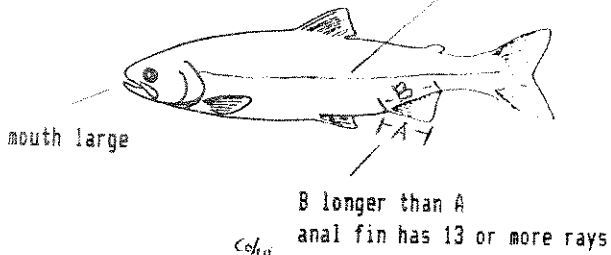


WHITEFISHES

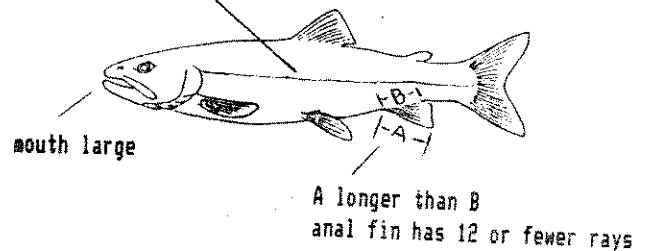


Scales larger, 99 or fewer scales in lateral line

Scales smaller, 100 or more scales in lateral line



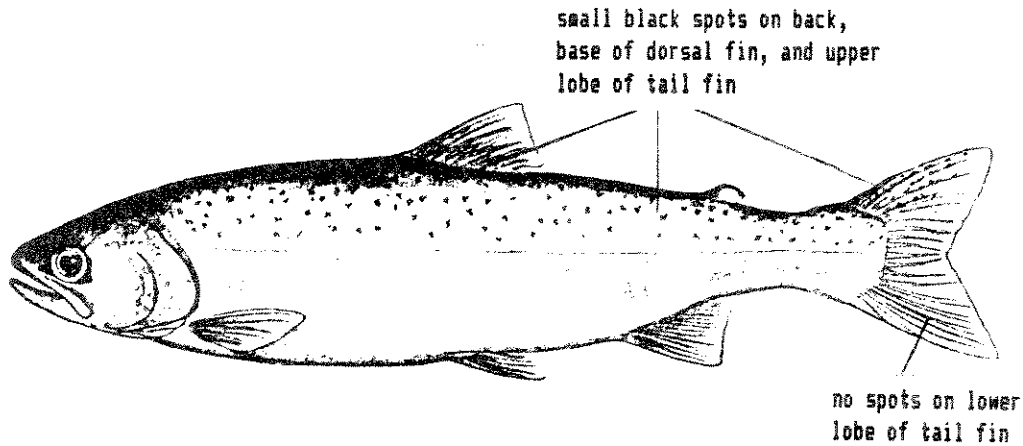
PACIFIC SALMONS



TROUTS

COHO SALMON
Oncorhynchus Kisutch

OTHER NAME: Silver salmon



Oncorhynchus

13" (25")

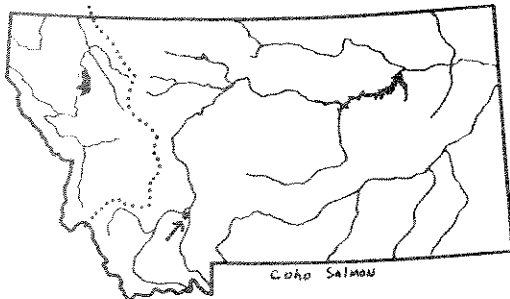
COLOR: Bright silvery with steel-blue back. Spawning fish become darker.

OTHER CHARACTERISTICS: Mouth is pale to grey with no black pigment along bases of teeth. Usually has 13 or more anal fin rays and 18 to 25 gill rakers. During spawning season the male develops a distinct hook in the upper jaw.

SIMILAR SPECIES: (1) Trout have different spotting patterns than Coho Salmon and 12 or fewer rays in the anal fin; Coho usually have 13 or more anal fin rays. See (2) Kokanee and (3) Chinook Salmon.

HABITAT: Lakes and reservoirs where planted.

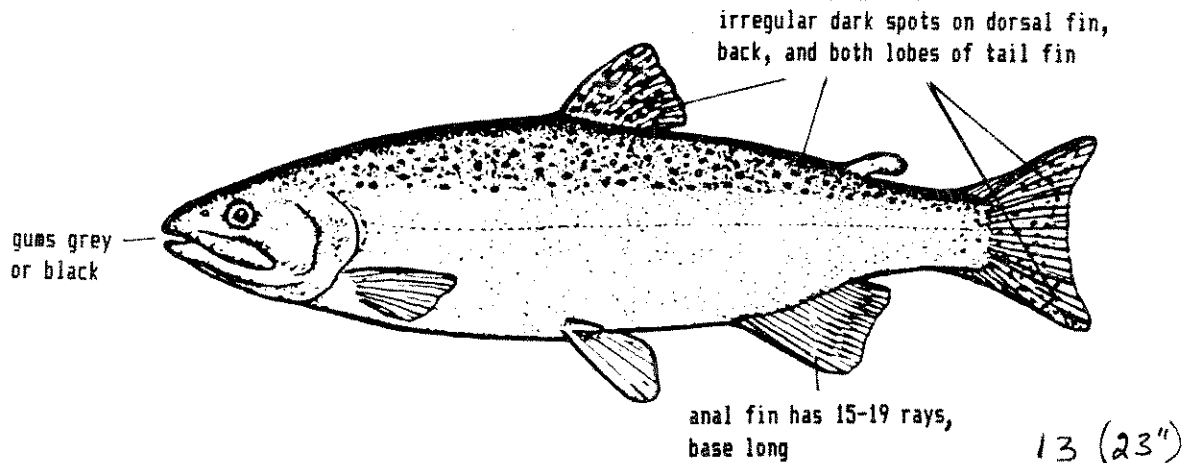
ORIGIN: Introduced into Montana. Natural range is Pacific Ocean with spawning streams in western North America and northeastern Asia.



COMMENT: In the past a considerable number of lakes and reservoirs have been planted with Coho Salmon with varying success. As was expected, reproducing populations did not develop and the plants have died out. At time of this writing this species is planted only sporadically.

CHINOOK SALMON
Oncorhynchus tshawytscha

OTHER NAMES: King salmon

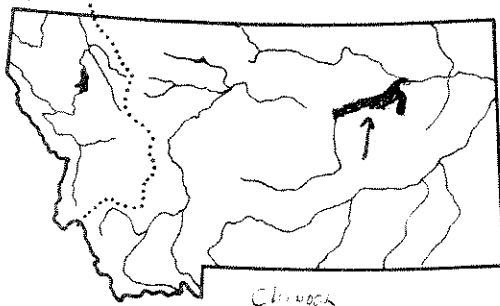


OTHER CHARACTERISTICS: Inside of mouth is gray or black with black at base of teeth in lower jaw. Gill rakers on first arch 16 to 29. Spawning males show deformity of head, snout, mouth, and teeth, but to a lesser extent than in kokanee. Breeding fish darken in color.

SIMILAR SPECIES: (1) Trouts have 12 or fewer rays in anal fin (it is taller than long). (2) Coho Salmon has no spots on lower half of tail and no black pigment along bases of teeth. (3) See Kokanee.

HABITAT: Landlocked Chinook Salmon live in large deep lakes and spawn in tributary streams. The young may stay in the stream for a year or two before migrating downstream to the lake.

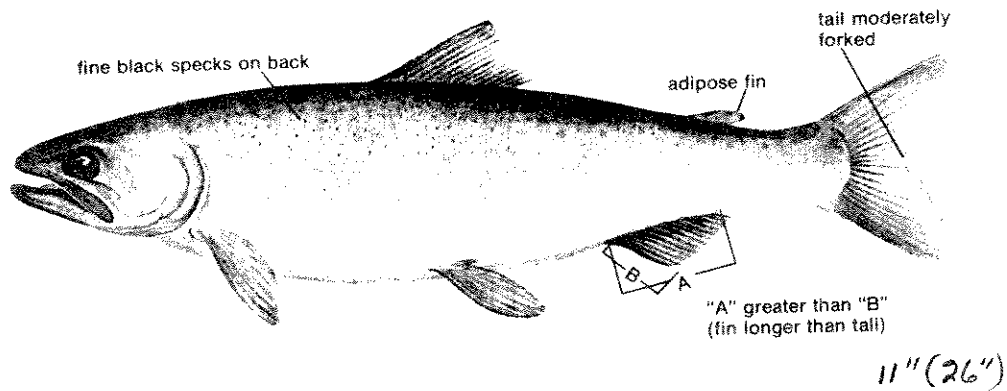
ORIGIN: Introduced into Montana. Natural range is Pacific Ocean. Ascends streams of western North America and northeastern Asia to spawn.



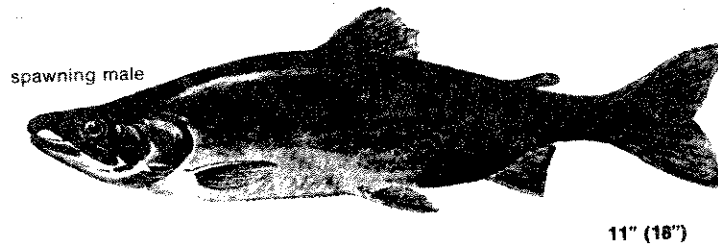
COMMENT: In recent years Chinook Salmon, bred in Michigan to spend their entire lives in fresh water, have been stocked in Fort Peck Reservoir and the Missouri River downstream. It is hoped the river plant will result in a reproducing population that can be an egg source for future planting.

KOKANEE
Oncorhynchus nerka

OTHER NAMES: Kokanee salmon, blueback, silver

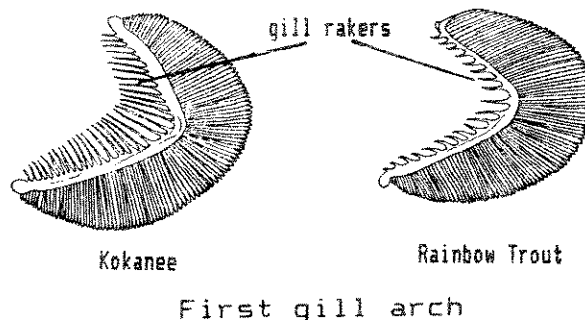


The fish below is a spawning male. When younger, he looked like the one above. In maturing he developed elongated jaws, a hooked snout, enlarged teeth, and a humped back. His body became more compressed, the skin thickened, and scales disappeared. A female changes less dramatically. Her body color, when mature, varies from dark grey-red to dark green.



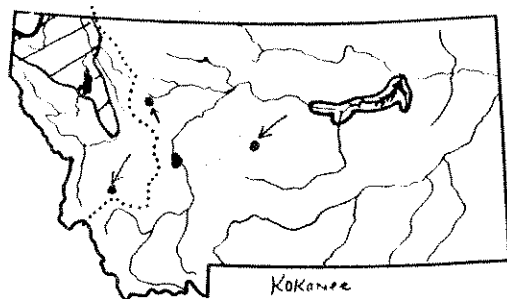
OTHER CHARACTERISTICS: Mouth pale except for presence of light-gray areas in spawners of both sexes.

SIMILAR SPECIES: (1) Silver-colored Rainbow Trout are often mis-called Kokanee. Trout have 12 or fewer rays in anal fin (fin is taller than it is long); Kokanee has 13 or more. Trout have 26 or fewer gill rakers, including rudiments, on the first arch; the Kokanee has 30 or more and these are slender and crowded (see diagrams below). (2) Chinook Salmon and (3) Coho Salmon have black spots on fins and back, both have fewer than 29 gill rakers, and these are stouter and wider spaced than the Kokanee's.



HABITAT: Cold clear lakes and reservoirs. Generally ascend streams to spawn, also spawn in suitable gravel areas in lakes.

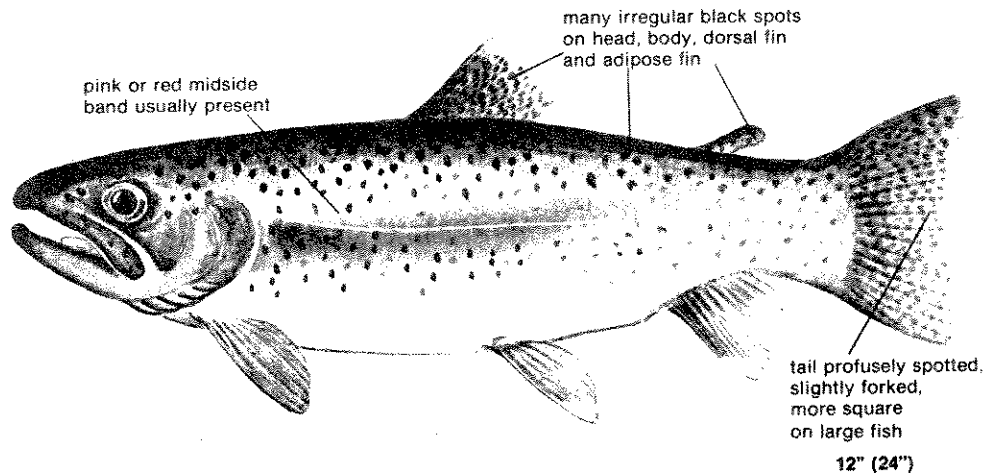
ORIGIN: Introduced into Montana. The Kokanee occurs naturally in lakes on the Pacific slope in Alaska, Yukon Territory, British Columbia, Washington, Idaho and Oregon. It is also native to lakes in the Pacific Drainage of northeastern Asia.



COMMENT: The Kokanee is a landlocked sockeye salmon--a Pacific salmon. Both sexes die after spawning. Eggs are collected annually from wild Montana populations for stocking, where appropriate, to maintain sport fishing.

RAINBOW TROUT
Salmo gairdneri

OTHER NAMES: Silver (a Rainbow Trout with silvery iridescence is often miscalled a silver salmon). Kamloops and steelhead are strains of Rainbow Trout.

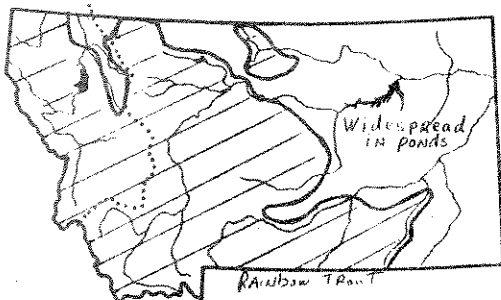


OTHER CHARACTERISTICS: Sometimes have faint pink or orange cutthroat slashes under jaw.

SIMILAR SPECIES: (1) Westslope Cutthroat Trout and (2) Yellowstone Cutthroat Trout have vivid cutthroat slashes, fewer spots than the Rainbow Trout and the spots concentrated toward rear of body. They usually have tiny teeth behind the "tongue" and lack the rainbow's pink or red midside band. Distinguishing Westslope Cutthroat from Rainbow Trout is particularly difficult since both are silvery with irregularly-shaped spots. Crosses between the cutthroat subspecies and Rainbow Trout are common. Biochemical testing is required for positive identification. See (3) Golden Trout, (4) Brown Trout, and (5) Kokanee.

HABITAT: Cool, clean streams and lakes.

ORIGIN: The native range is western North America extending barely into northwestern Montana where there are still a few native populations. Except for these, all rainbow trout populations in the state originated from hatchery fish.

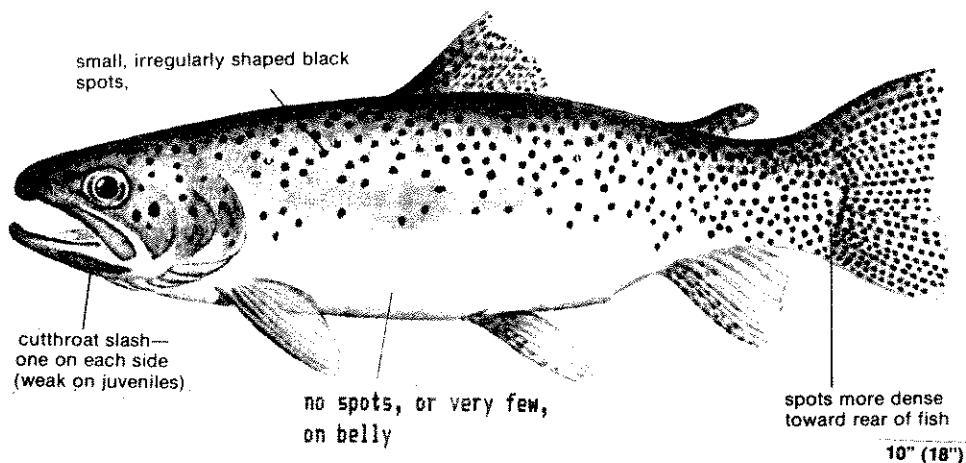


COMMENT: Rainbow trout are the most numerous fish caught by Montana sport fishermen, making up about one-third of their catch.

WESTSLOPE CUTTHROAT TROUT
Salmo clarki lewisi

MONTANA STATE FISH (shares this title with Yellowstone Cutthroat Trout)

OTHER NAMES: Flat, native, blackspotted cutthroat trout, red-belly, Upper Missouri Cutthroat Trout.

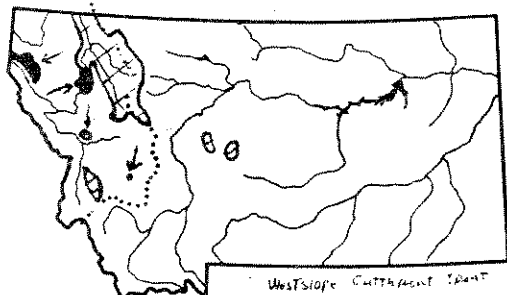


OTHER CHARACTERISTICS: Tiny teeth usually present on floor of mouth behind "tongue." These are embedded in tissue and difficult to see but may be felt if brushed with the side of a needle. Typically does not have spots on lower fins. Lower side red during spawning season.

SIMILAR SPECIES: (1) Yellowstone Cutthroat Trout has yellow-brown hues whereas Westslope Cutthroat is basically silvery with greenish tints on back and whitish underside. Yellowstone has fewer, larger and rounder black spots. Crosses of Westslope and Yellowstone Cutthroat trout are common and difficult to identify except by biochemical testing. See (2) Rainbow Trout, (3) Golden Trout, and (4) Brown Trout

HABITAT: Cool, clear streams and lakes.

ORIGIN: Native to Montana west of the Continental Divide, and in some drainages east of the divide where it is referred to as Upper Missouri Cutthroat Trout.

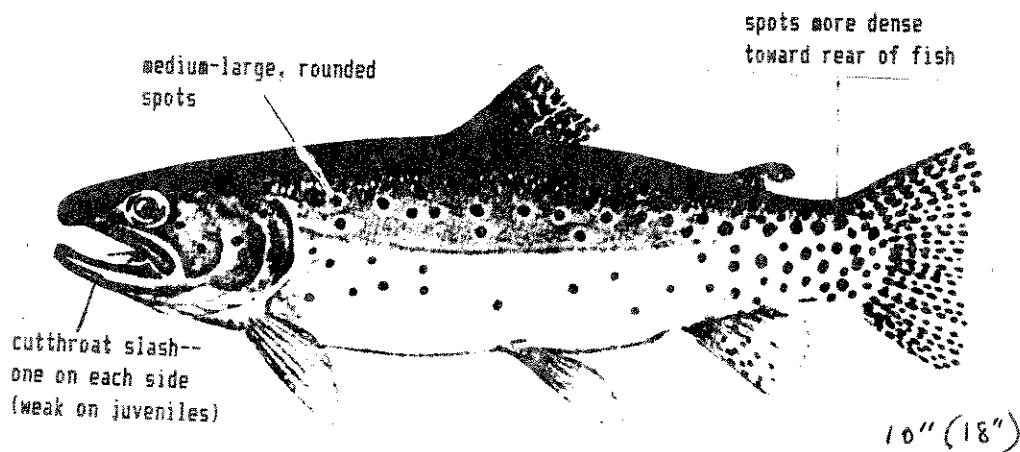


COMMENT: Gone from much of original range and designated a fish of special concern. Montana Department of Fish, Wildlife and Parks maintains a brood stock for lake planting.

YELLOWSTONE CUTTHROAT TROUT
Salmo clarki bouvieri

MONTANA STATE FISH (shares this title with Westslope Cutthroat Trout)

OTHER NAMES: Blackspotted cutthroat trout, blackspotted trout, native.

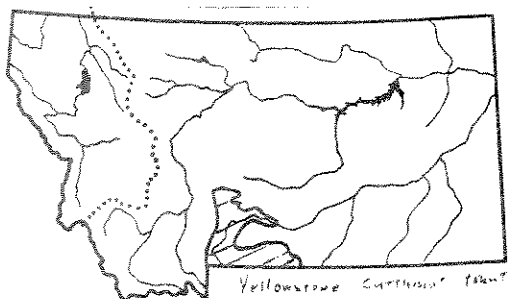


OTHER CHARACTERISTICS: Tiny teeth usually present on floor of mouth behind "tongue." These are embedded in tissue and difficult to see but may be felt if brushed with the side of a needle. Typically does not have spots on lower fins. Red on side of head and gill cover becomes intense on spawning male.

SIMILAR SPECIES: See (1) Westslope Cutthroat Trout, (2) Rainbow Trout, (3) Golden Trout and (4) Brown Trout.

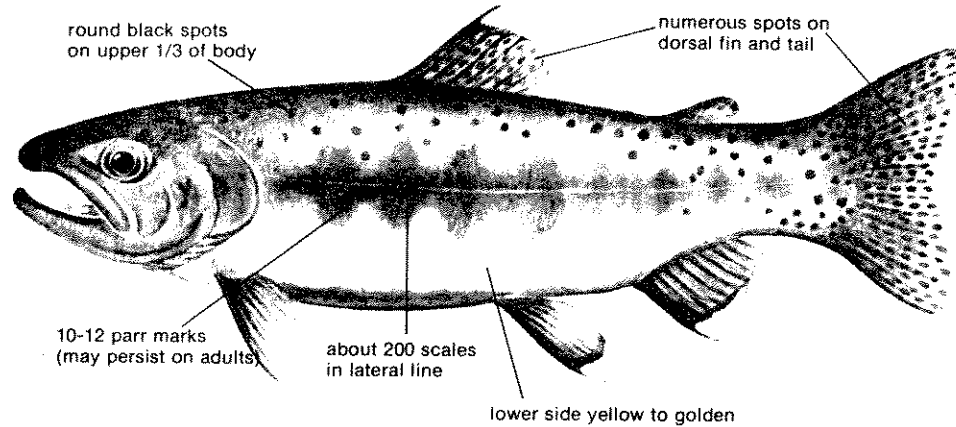
HABITAT: Does particularly well in mountain lakes, also found in streams.

ORIGIN: Native to Montana in Yellowstone River Drainage from Tongue River upstream.



COMMENT: As its present distribution is quite restricted, the Yellowstone Cutthroat Trout is designated a fish of special concern. Montana Department of Fish, Wildlife and Parks maintains a brood stock for lake planting.

GOLDEN TROUT
Salmo aguabonita

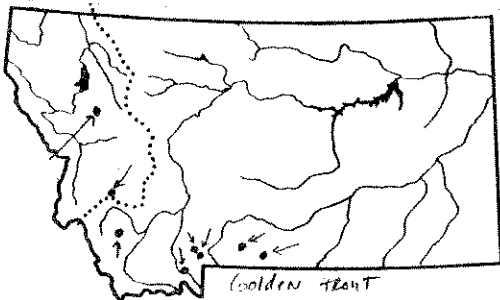


10" (18")
10" (20")

SIMILAR SPECIES: (1) Rainbow trout is densely covered with irregularly shaped dark spots and has 160 or fewer scales in lateral line, (2) Cutthroat Trout has cutthroat slashes; usually has a few small teeth on base of tongue; pelvic and anal fins do not have white tips. (3) Hybrid golden trout (Golden Trout crossed with Rainbow Trout or Cutthroat Trout) are found in a number of mountain lakes. Positive identification can be made only by biochemical testing.

HABITAT: Does well in harsh conditions of alpine lakes and streams. Also successful in clear, cold lakes at lower elevations.

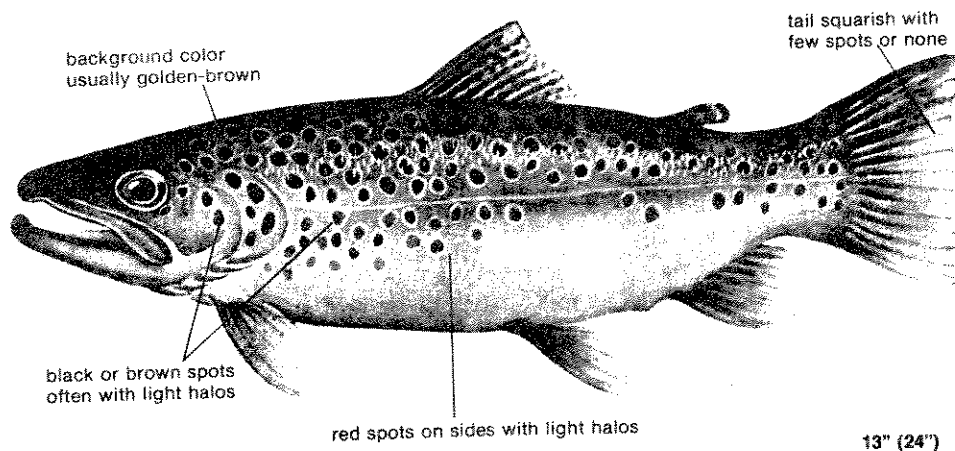
ORIGIN: Introduced into Montana. Golden trout are native to California.



COMMENT: Pure-strain Golden Trout are present in 10 mountain lakes or mountain lake chains in western and south-central Montana.

BROWN TROUT
Salmo trutta

OTHER NAMES: Loch Leven trout, German brown (Von Behr) trout.

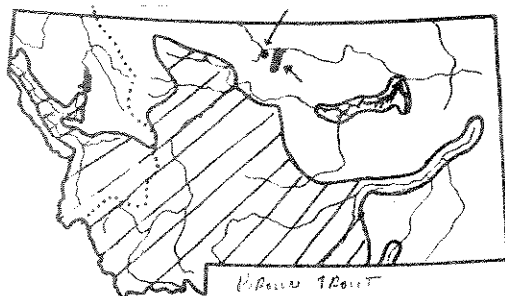


OTHER CHARACTERISTICS: May lack red spots. Black (or brown) spots may be irregularly shaped or rounded. Fish living in turbid water or under the ice acquire a silvery iridescence that covers spots and other colors. Spots with halos on gill cover are a clue (if present) that a trout is a Brown Trout.

SIMILAR SPECIES: (1) Brook Trout has wavy lines on back and intense white edge on anal fin and paired fins. (2) Rainbow Trout and (3) Cutthroat trout have many spots in rows on tail, do not have red spots or halos around spots. Cutthroats have cutthroat slashes under jaw.

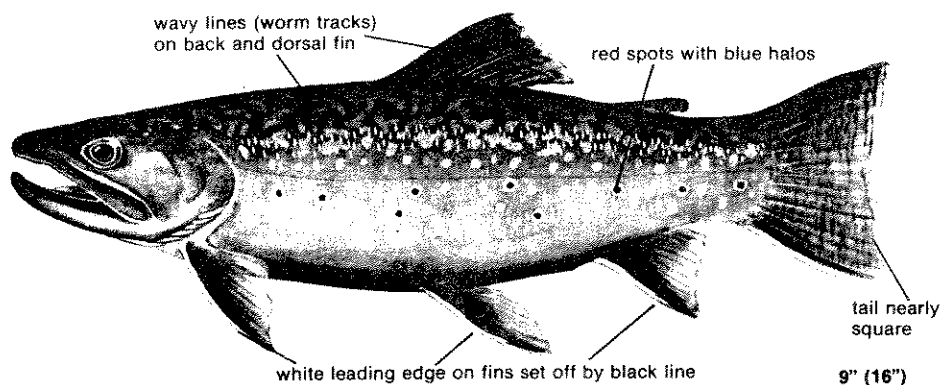
HABITAT: Valley streams and rivers, also lakes and reservoirs with suitable spawning tributaries.

ORIGIN: Native to Eurasia and North Africa; introduced into Montana. The Von Behr and Loch Leven were the original varieties of Brown Trout brought from Germany and Scotland, respectively. They are now irretrievably mixed.



BROOK TROUT
Salvelinus fontinalis

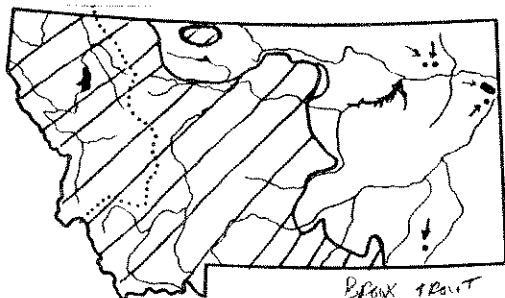
OTHER NAME: Eastern brook trout.



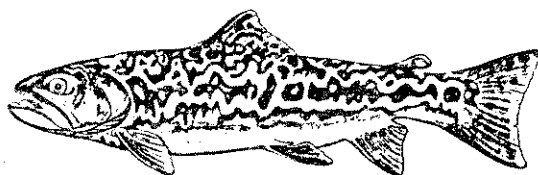
SIMILAR SPECIES: See (1) Bull Trout, (2) Lake Trout, (3) Brown Trout.

HABITAT: Prefers small spring-fed streams and ponds. Has become widespread in clear, cold lakes and streams where it often overpopulates and is too small to attract fishermen.

ORIGIN: Introduced into Montana. Native in eastern North America as far west as Minnesota.



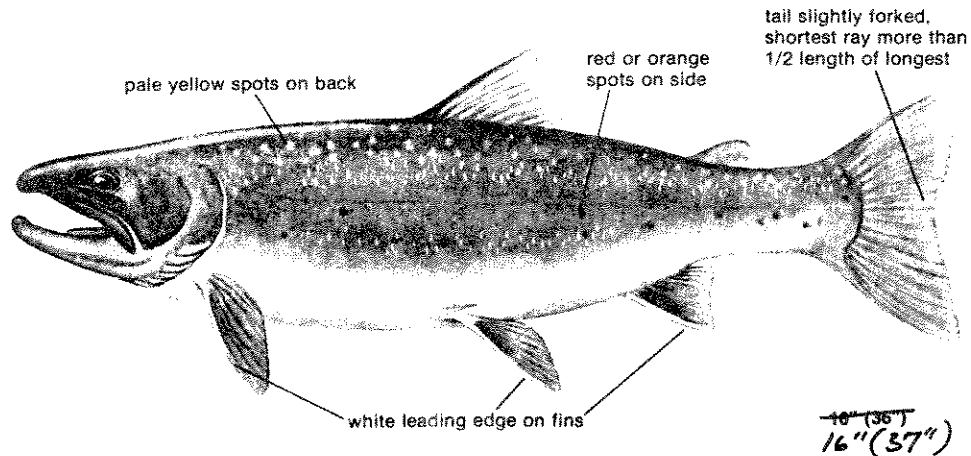
COMMENT: Brook Trout occasionally hybridize with Brown Trout. The offspring are called tiger trout, an appropriate name due to their tiger-like markings. They are very rare. Mortality of the eggs and newly-hatched fish is high and hybrids reaching adulthood are usually sterile.



Tiger Trout

BULL TROUT
Salvelinus confluentus

OTHER NAMES: In 1978, the species formerly called Dolly Varden was split into two species. The primarily inland form (including those in Montana) was named bull trout, while the one adjacent to the sea retained the name Dolly Varden.

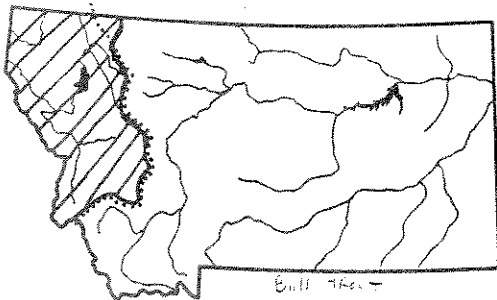


OTHER CHARACTERISTICS: Dorsal fin and tail sometimes have a few pale spots.

SIMILAR SPECIES: (1) Brook Trout has wavy lines on back, spots with blue halos, and white on leading edge of lower fins is set off by black line. (2) See Lake Trout.

HABITAT: Does best in large cold-water streams and lakes, but also found in smaller waters. Lake dwellers ascend streams to spawn.

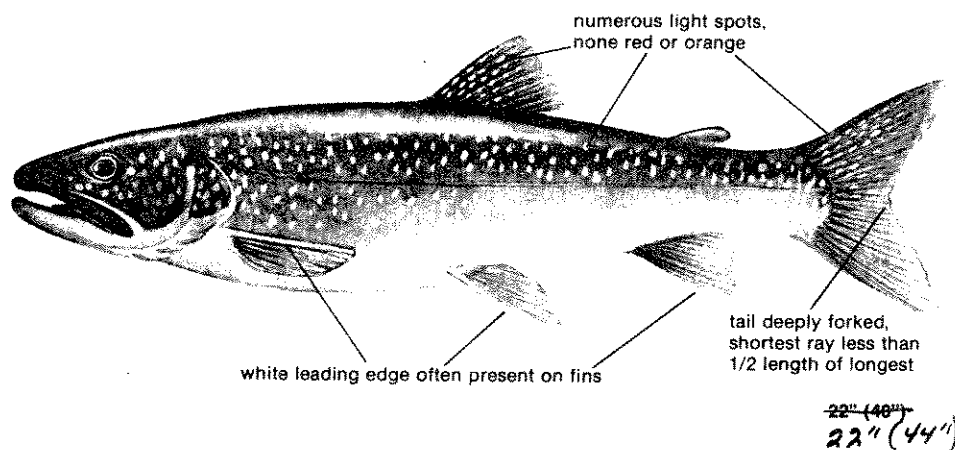
ORIGIN: Native to Montana.



COMMENT: Bull Trout hybridize with Brook Trout and almost all the hybrids are sterile. About 40% of our Bull Trout streams also have Brook Trout, and the Brook Trout are often the dominant species. In this situation the brook trout is investing proportionately less in sterile mating than the Bull Trout is. Through time, due to this factor alone, it is possible for the Brook Trout to replace the Bull Trout. This hybridization may be an important cause of the decline of Bull Trout in Montana. It is now a fish of special concern.

LAKE TROUT
Salvelinus namaycush

OTHER NAME: Mackinaw trout.

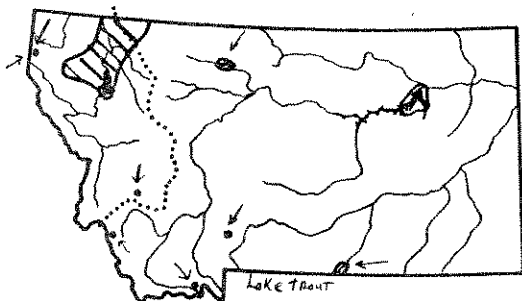


OTHER CHARACTERISTICS: May have wavy lines on back. Fins may have traces of orange.

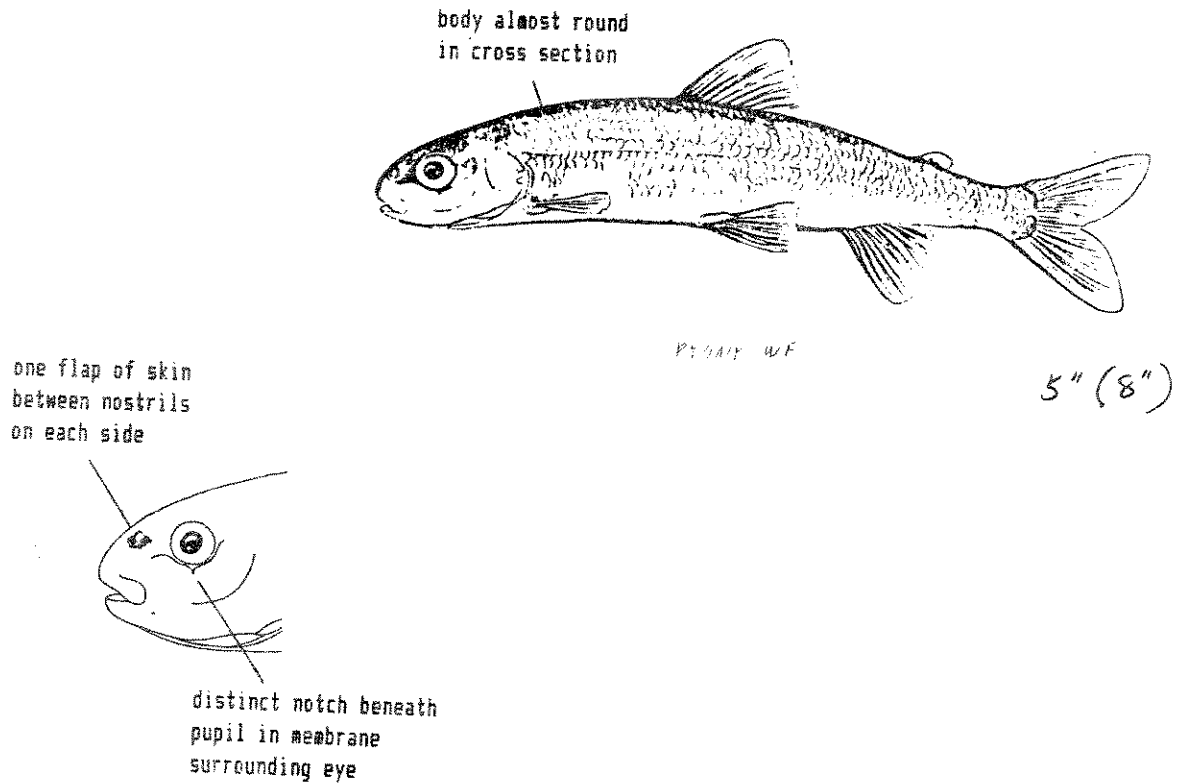
SIMILAR SPECIES: (1) Bull Trout has fewer spots and some that are orange or red, tail not as deeply forked; dark background color does not extend as far down side. (2) Brook Trout has nearly square tail, and red spots with blue halos.

HABITAT: Deep cold lakes and reservoirs.

ORIGIN: Original range is in parts of Alaska, most of Canada, and northernmost United States from Montana to the East Coast. Native to Montana in Elk, Twin, Saint Mary and Waterton lakes.



PYGMY WHITEFISH
Prosopium coulteri



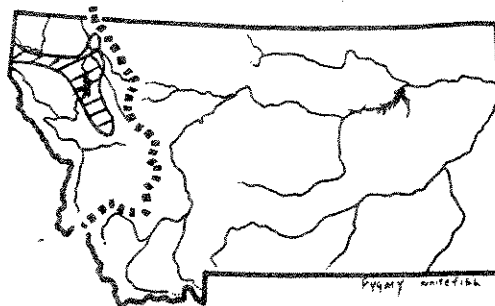
COLOR: Silvery except for olive-brown back.

OTHER CHARACTERISTICS: Snout overhangs mouth; teeth small and only on tongue.

SIMILAR SPECIES: Four- to five-inch individuals of other whitefish species are generally immatures with parr marks. The lack of parr marks on an individual this size, or smaller, is a field clue indicating a Pygmy Whitefish. See (1) Mountain Whitefish; (2) Lake Whitefish.

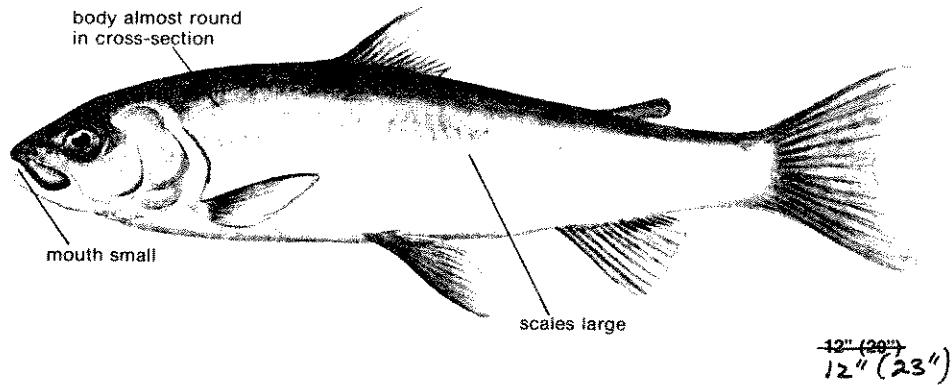
HABITAT: Deep, cold lakes and cold streams.

ORIGIN: Native to Montana.



MOUNTAIN WHITEFISH
Prosopium williamsoni

OTHER NAME: Rocky Mountain whitefish.

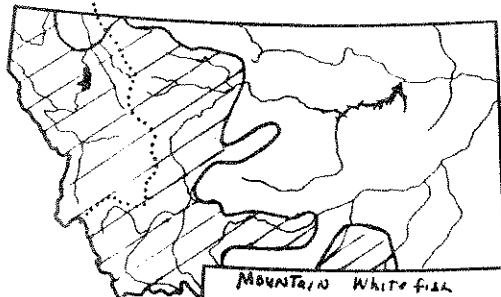


OTHER CHARACTERISTICS: Snout overhangs mouth. Teeth small and only on tongue, or absent. One flap of skin between nostrils on each side.

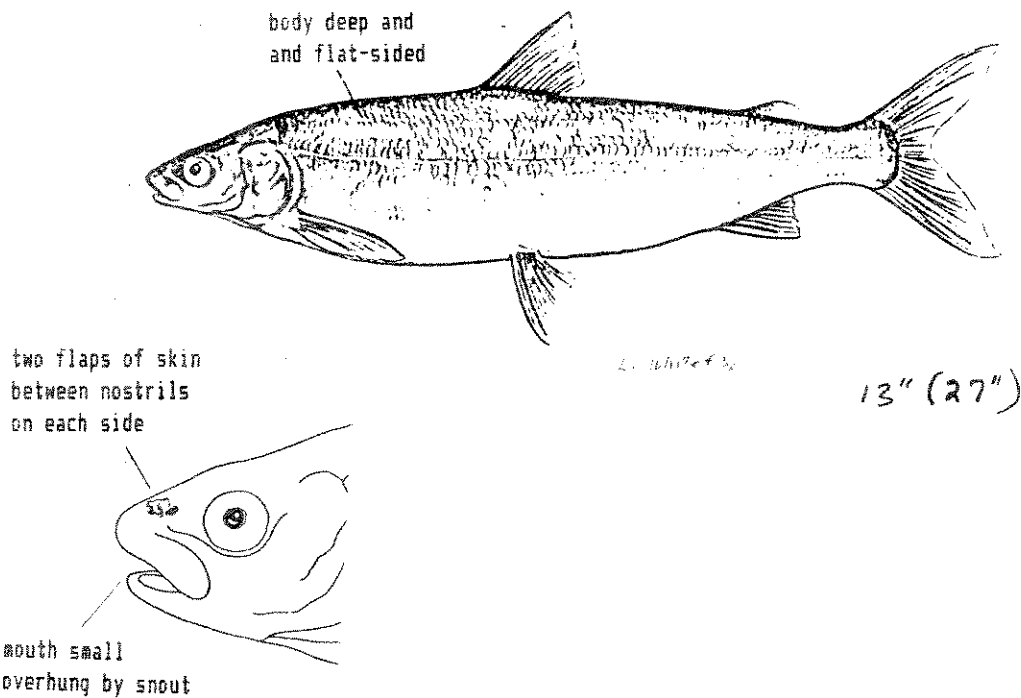
SIMILAR SPECIES: (1) Pygmy Whitefish has a more rounded snout, fewer scales in lateral line, and the largest is only about 8 inches total length. (2) Trouts and (3) Salmon have larger mouth and smaller scales. See (4) Lake Whitefish and (5) Arctic Grayling.

HABITAT: Common in medium-sized and large, clear, cold rivers. Also found in some lakes and reservoirs.

ORIGIN: Native to Montana.



LAKE WHITEFISH
Coregonus clupeaformis



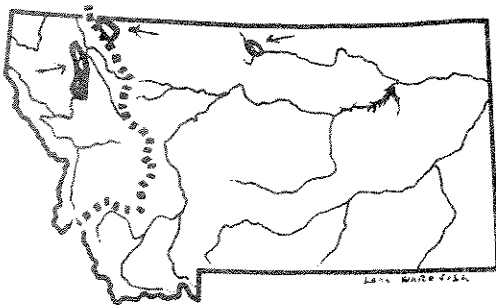
COLOR: Silvery, with olive to light-brown back.

OTHER CHARACTERISTICS: Weak teeth, membrane surrounding eye does not have a notch below pupil.

SIMILAR SPECIES: (1) Mountain Whitefish and (2) Pygmy Whitefish have nearly round bodies, have notch below pupil in membrane surrounding eye, and have only one flap between nostrils. (3) See Cisco.

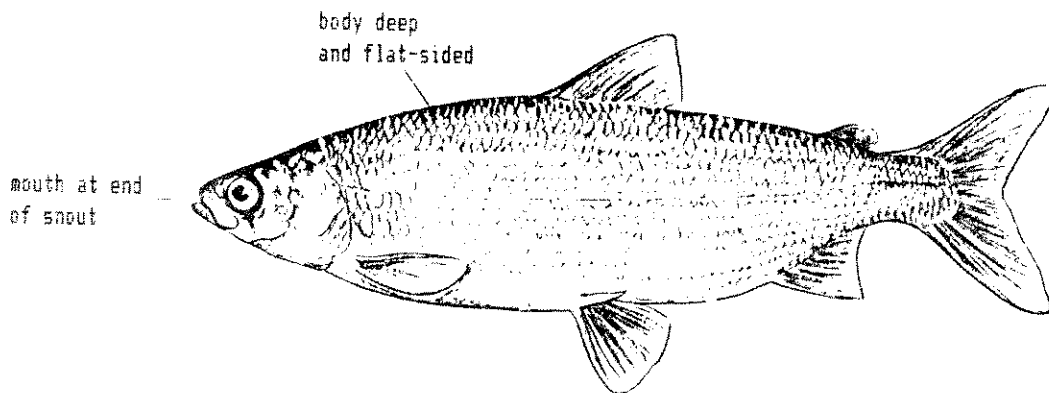
HABITAT: Deep, clear, cold lakes where it is found mostly at depths of 50 to 90 feet. Comes into shallower water to spawn, sometimes ascends tributary streams.

ORIGIN: Original distribution was in the Great Lakes, in some New England Lakes, and in lakes all across Canada and Alaska. May be native to Saint Mary Lake in Glacier National Park.



CISCO
Coregonus artedii

OTHER NAMES: Lake herring, tullibee.



Need:
Typical Length _____
Usual Maximum
Length _____

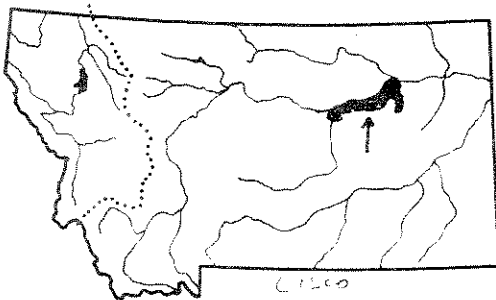
COLOR: Silvery shading to dark blue or olive on back.

OTHER CHARACTERISTICS: Lower jaw often protrudes slightly with mouth closed, but jaws may be equal or upper may be slightly longer. Two flaps of skin between nostrils. Membrane surrounding eye has distinct notch below pupil. Thirty-eight or more gill rakers.

SIMILAR SPECIES: Other whitefishes have a less sharp snout that overhangs mouth, and less than 34 gill rakers.

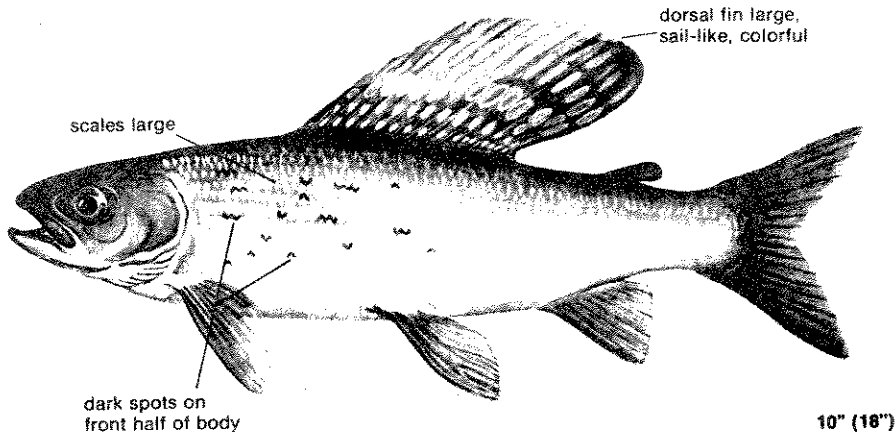
HABITAT: Large cold, clear lakes.

ORIGIN: Occurs naturally in North Central and northeastern United States and in most of Canada. A reproducing population has become established in Fort Peck Reservoir, Montana as the result of heavy plants from 1984 to 1986. It was introduced as forage for sport fishes.



ARCTIC GRAYLING
Thymallus arcticus

OTHER NAME: Montana grayling

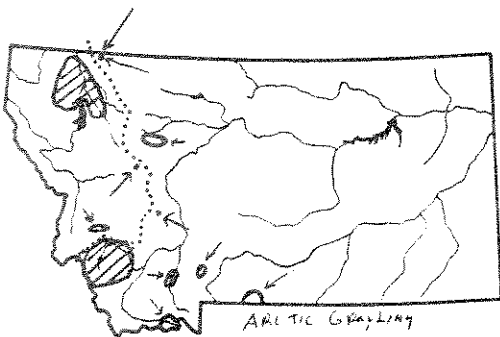


SIMILAR SPECIES: (1) Whitefishes, (2) trouts, and (3) Salmons do not have sail-like dorsal fin.

HABITAT: Prefers slow-moving, cool, spring-fed streams with sand and gravel bottom. Thrives in small, clear lakes with tributaries suitable for spawning. Does not co-exist well with other fishes except Cutthroat Trout and others with which it evolved.

ORIGIN: Native range is from northwestern Canada across Alaska to Siberia. Isolated populations survived the last glaciation south of the ice sheet in Michigan, where they became extinct in the 1930's, and in Montana.

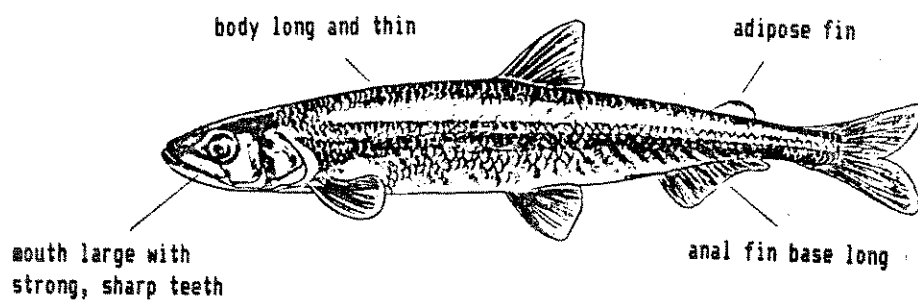
COMMENT: Historically a stream fish in Missouri River Drainage upstream from Great Falls. Its range has been reduced until it is now a fish of special concern. About 30 lakes have fishable populations. Few stream populations remain, most are in the Big Hole River Drainage.



SMELT FAMILY Osmeridae

Smelts are small, slender, silvery fishes with an adipose fin and no pelvic axillary process. There is only one species in Montana.

RAINBOW SMELT *Osmerus mordax*



Rainbow Smelt

7"

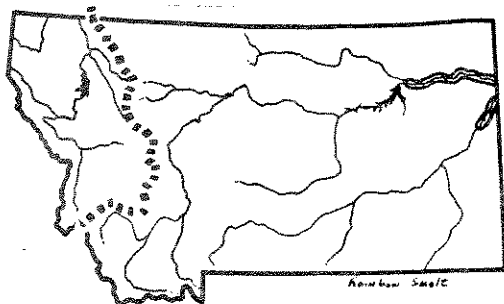
COLOR: Silvery with pink and purple iridescence, greenish on back.

OTHER CHARACTERISTIC: Scales thin and easily rubbed off. Spawning males feel like sandpaper due to numerous small nuptial tubercles on head, body and fins.

SIMILAR SPECIES: (1) Members of trout family have pelvic axillary processes. (2) See Trout-perch.

HABITAT: Landlocked rainbow smelt prefer large cold water lakes; ascend streams to spawn.

ORIGIN: Original range is off Atlantic coast, running into streams to spawn. Was naturally landlocked in many inland waters in northeastern North America. Has come upstream into Montana from Lake Sakakawea, North Dakota where they were introduced.

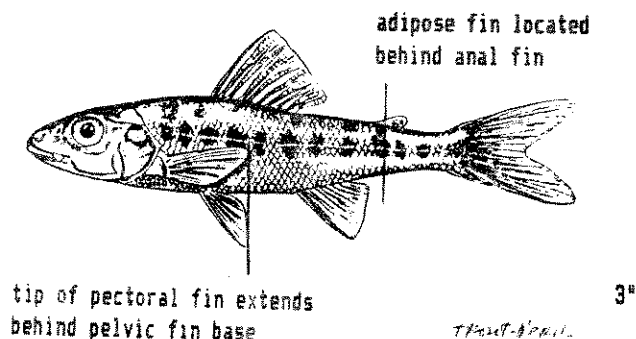


COMMENT: Often has odor of freshly-cut cucumbers. This may account for its name.

TROUT-PERCHES Percopsidae

Trout-perches have characteristics of both soft-rayed and spiny-rayed fishes. They have an adipose fin like the trouts, yet, look like members of the perch family. One species occurs in Montana.

TROUT-PERCH *Percopsis omiscomaycus*



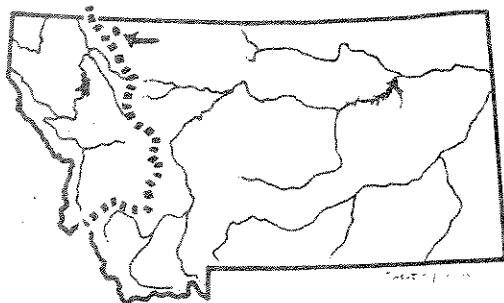
COLOR: Overall silvery with translucent effect, dark spots in rows along lateral line, upper sides and back.

OTHER CHARACTERISTICS: Teeth small and in brush-like bands.

SIMILAR SPECIES: (1) Members of perch family lack an adipose fin. (2) Rainbow Smelt and (3) members of trout family have an adipose fin but it is located over the anal fin, and tip of pectoral fin does not extend behind front of pelvic fin.

HABITAT: Typically lakes but also shallow, sometimes turbid, streams.

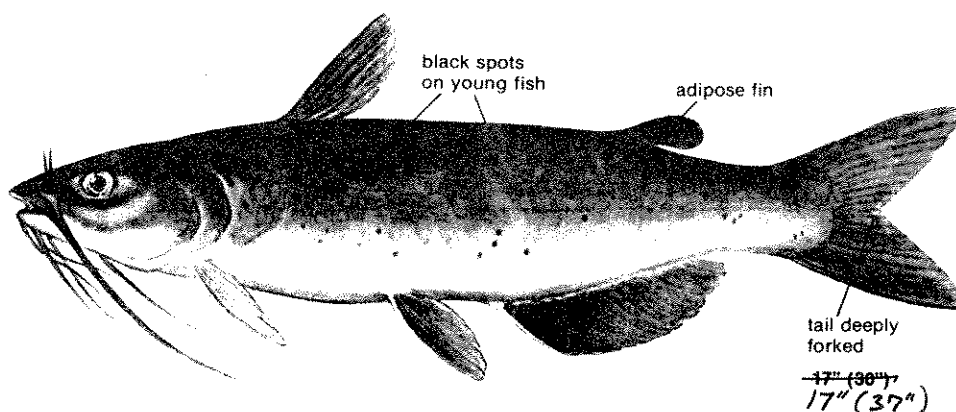
ORIGIN: Native in Montana and in a broad band extending southeastward from Alaska across much of Canada to Kansas and West Virginia. Presently the only Montana records are for Lower Saint Mary Lake and therefore it is a fish of special concern. It is anticipated more will be found in the Saskatchewan River Drainage.



BULLHEAD CATFISH FAMILY Ictaluridae

This family is characterized by scaleless fishes with long "cat's whiskers" (barbels) and an adipose fin.

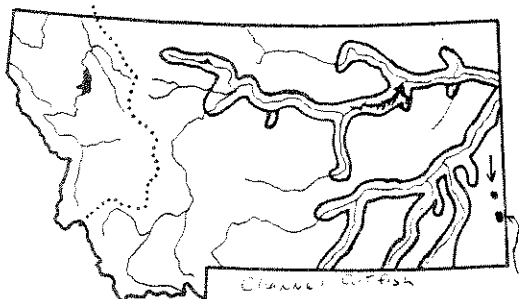
CHANNEL CATFISH *Ictalurus punctatus*



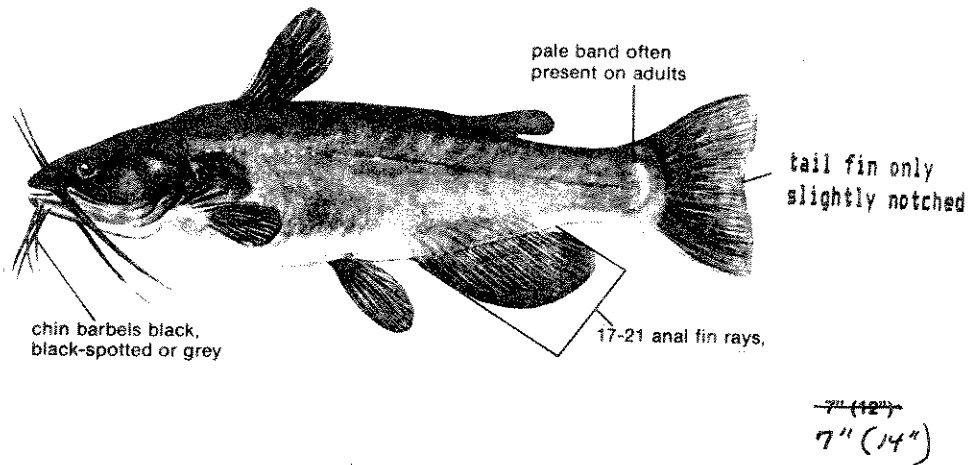
SIMILAR SPECIES: (1) Other Montana members of the catfish family do not have a deeply forked tail. (2) See Burbot.

HABITAT: Prefers large rivers and lowland lakes. Tolerates turbid water.

ORIGIN: Native to Montana.



BLACK BULLHEAD
Ictalurus melas

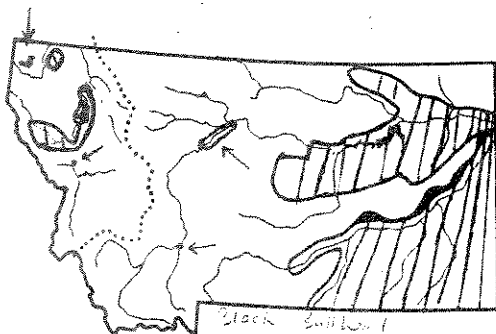


OTHER CHARACTERISTICS: Membranes between fin rays much darker than rays. Spine on pectoral fin smooth, or nearly so.

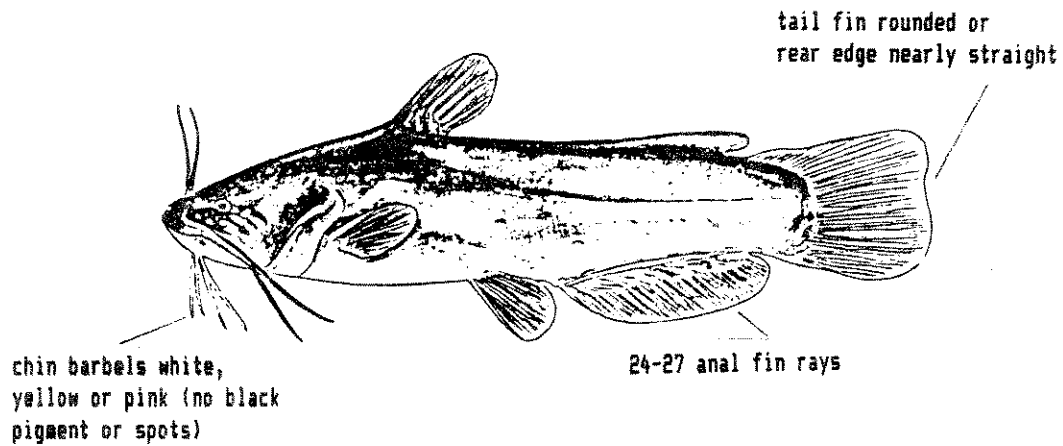
SIMILAR SPECIES: (1) Yellow Bullhead has white, yellow or pink chin barbels (no black pigment) and 24 or more rays in anal fin. See (2) Stonecat, (3) Channel Catfish, and (4) Burbot.

HABITAT: Mud-bottomed lakes and ponds; pools and backwaters of streams. Tolerates turbidity, warm temperatures, and low levels of dissolved oxygen.

ORIGIN: Native range includes most of eastern and central North America from Southern Canada to Mexico. Probably not native to Montana.



YELLOW BULLHEAD
Ictalurus natalis



Yellow Bullhead

7" (13")

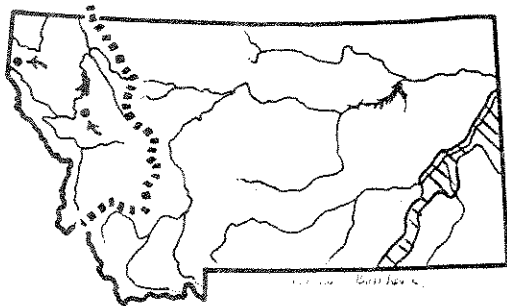
COLOR: Back and upper sides olive or brown (sometimes black) shading to yellow on lower sides and white below. Young are brown or black with white underside and lower barbels.

OTHER CHARACTERISTICS: Pectoral fin spine has fine saw-like teeth on rear edge.

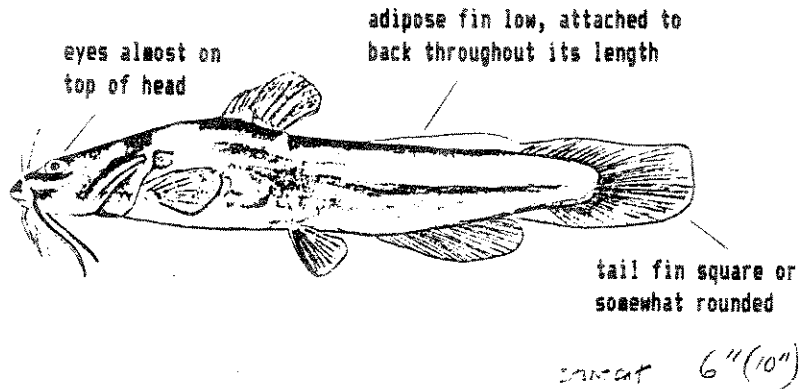
SIMILAR SPECIES: See (1) Black Bullhead, (2) Stonecat, (3) Channel Catfish.

HABITAT: Weedy areas of clear-water lakes or slow-moving streams.

ORIGIN: Introduced into Montana. Native throughout eastern and central United States, west to North Dakota, and extending northward barely into Canada.



STONECAT
Noturus flavus

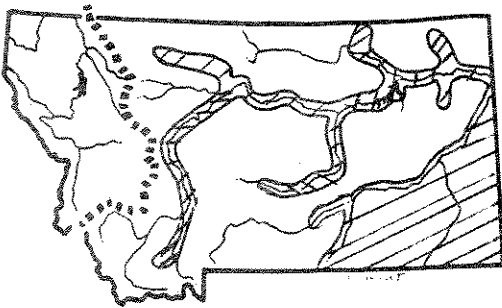


COLOR: Back and sides yellowish-brown, belly light yellow to white.

SIMILAR SPECIES: Other members of Catfish family have flap-like adipose fin and head is more rounded; Channel Catfish has forked tail.

HABITAT: Swift-water streams among rocks or under logs; lakes over sand and gravel areas where there is wave action.

ORIGIN: Native to Montana.



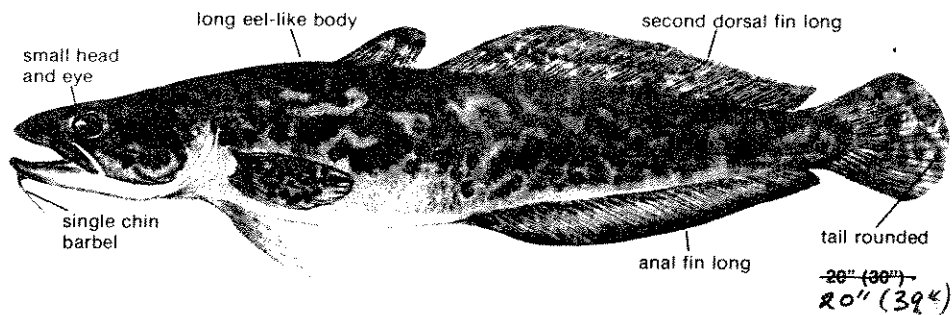
COMMENT: Handle Stonecats carefully for the pectoral spine has a well developed poison gland. A bee-like sting results if the spine punctures a person's skin. Ordinarily this is not dangerous unless there is a secondary infection.

CODFISH FAMILY Gadidae

Codfishes have long bodies and long dorsal and anal fins. The pelvic fins are small and located under the throat. The Burbot is the only freshwater member of this family.

BURBOT *Lota lota*

OTHER NAME: Ling.

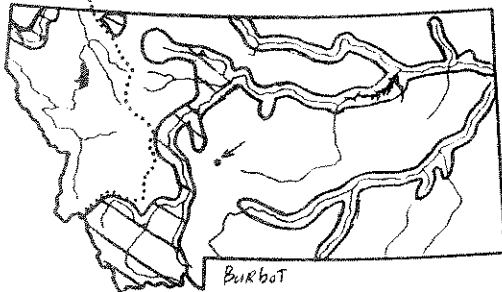


OTHER CHARACTERISTICS: Skin appears smooth, but tiny embedded scales are present.

SIMILAR SPECIES: Told from (1) catfish and (2) bullheads by single chin barbel and very long dorsal and anal fins.

HABITAT: Large rivers; cold, deep lakes and reservoirs.

ORIGIN: Native to Montana.



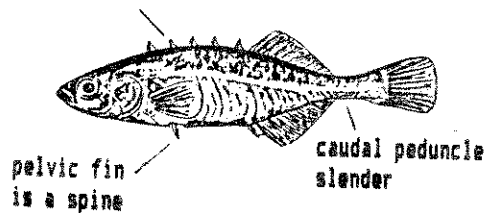
STICKLEBACK FAMILY Gasterosteidae

Sticklebacks are small fishes with several separate spines on back in front of a soft-rayed dorsal fin. There is one representative of this family in Montana waters.

BROOK STICKLEBACK

Culaea inconstans

5 spines (rarely 4 or 6) on back

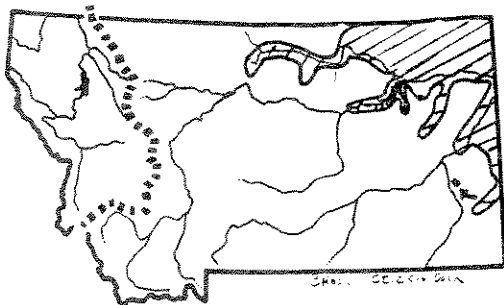


COLOR: Olive-green with mottling or light spots on sides; belly light yellow to silver. During breeding season males black with tinges of red; females may be dusky.

OTHER CHARACTERISTICS: Body smooth, without scales, but with minute plates about the pores on the lateral line.

HABITAT: Associated with dense vegetation in slow, clear, streams and shallow lakes.

ORIGIN: Native to Montana.

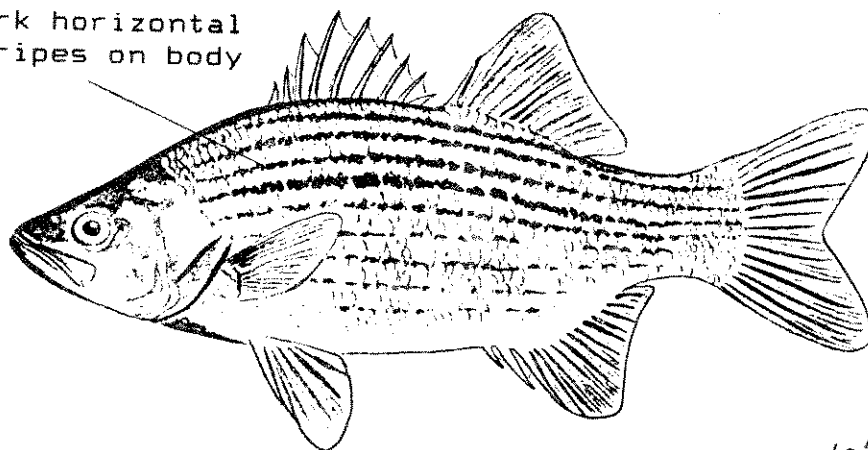


TEMPERATE BASS FAMILY Percichthyidae

These are slab-sided, moderately deep bodied, spiny-rayed fishes with numerous teeth in strong jaws. They have 3 spines in the anal fin. The only Montana representative is distinguished from other spiny-rayed fishes by prominent horizontal dark stripes on its sides.

WHITE BASS *Morone chrysops*

dark horizontal
stripes on body



White Bass

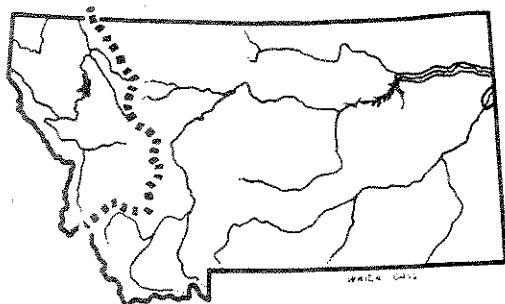
10" (12")

COLOR: Silvery with 5 to 7 dark horizontal stripes on side. Eye tinted with yellow.

SIMILAR SPECIES: No other spiny-rayed fish found in Montana has horizontal stripes on its side.

HABITAT: Deep pools in rivers and open water of large, clear lakes and reservoirs.

ORIGIN: Introduced to Montana. Native range extends from St. Lawrence River in eastern Canada through the Great Lakes and Mississippi River Drainage south to Alabama and Texas.



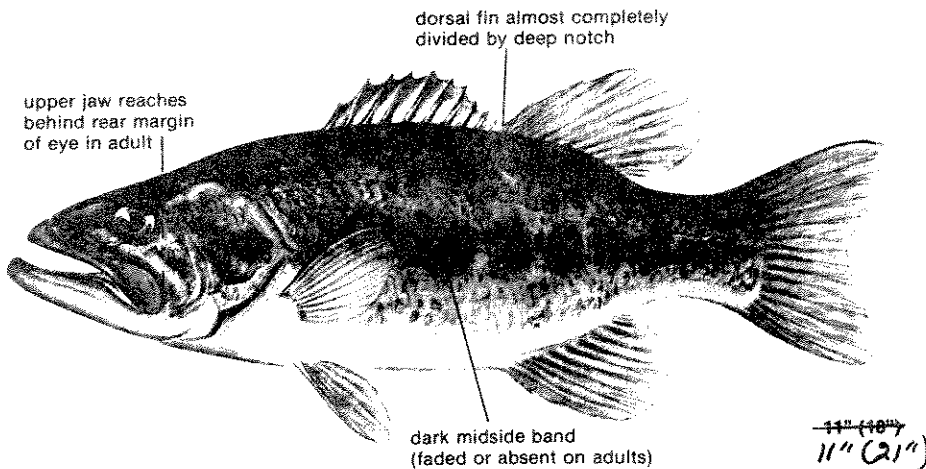
COMMENT: The few White Bass recorded for Montana apparently came upstream from Lake Sakakawea, North Dakota where this species has been planted.

SUNFISH FAMILY Centrarchidae

This family contains not only the sunfishes, but also the crappies and black basses (they are not actually black). The dorsal fin has a spiny front portion and a soft-rayed rear portion which are broadly (or, in the black basses, narrowly) joined into a single fin. The paired fins are nearly one above the other.

LARGEMOUTH BASS *Micropterus salmoides*

OTHER NAME: Largemouth black bass.

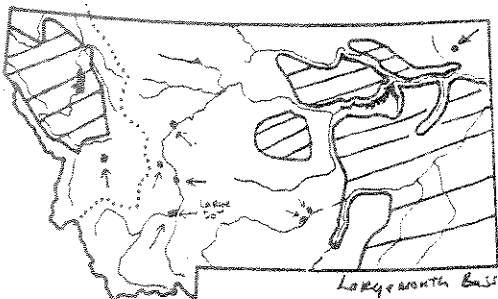


OTHER CHARACTERISTICS: Length of longest dorsal spine at least twice the length of shortest dorsal spine at notch.

SIMILAR SPECIES: Smallmouth Bass has smaller mouth, broader connection between spiny and soft-rayed portion of dorsal fin, is more streamlined, tends to brownish hue (Largemouth to blackish) has prominent stripes on cheek and lacks dark midside band that is so prominent on young Largemouth.

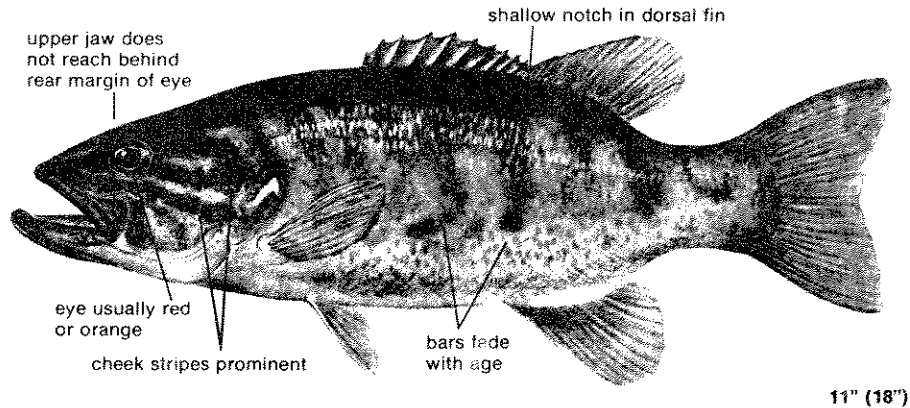
HABITAT: Clear, mud-bottomed lakes and stream backwaters. Seeks areas with comparatively warm summer water temperatures and ample aquatic vegetation.

ORIGIN: Introduced to Montana. Native in eastern North America from Southern Canada to northeastern Mexico.



SMALLMOUTH BASS
Micropterus dolomieu

OTHER NAMES: Northern smallmouth bass, smallmouth black bass, bronze-back.

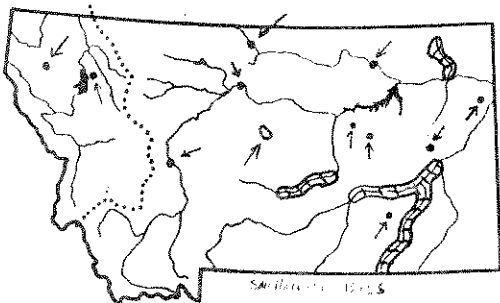


OTHER CHARACTERISTICS: Length of longest dorsal spine is less than twice the length of shortest dorsal spine at notch. Young have tri-colored tail with yellow or orange base, dark vertical bar in center and white outer edge.

SIMILAR SPECIES: See Largemouth Bass.

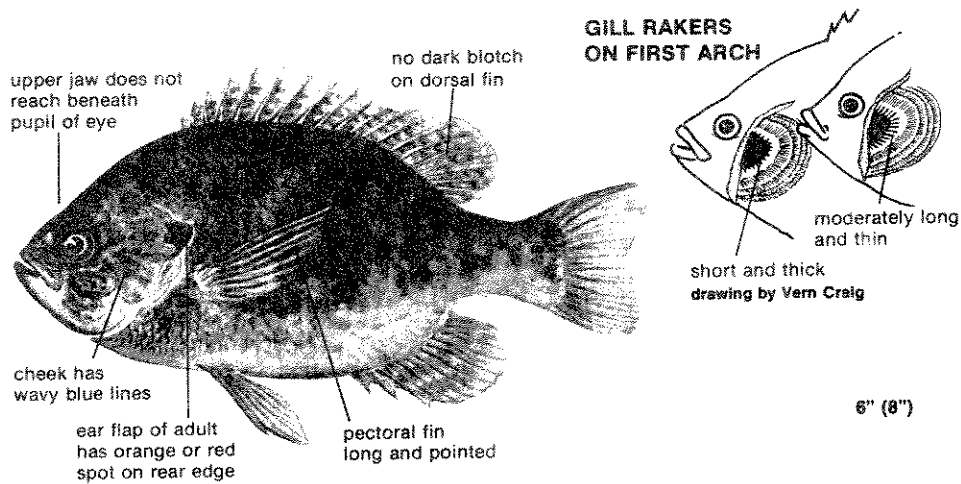
HABITAT: Over boulders and to lesser extent over gravel in cool, clear lakes and streams.

ORIGIN: Introduced to Montana. Native to much of the eastern half of North America from southern Canada to southern United States.



PUMPKINSEED
Lepomis gibbosus

OTHER NAME: Common sunfish.

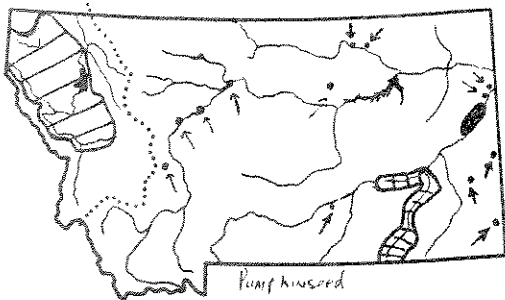


OTHER CHARACTERISTICS: Gill rakers short and thick (see diagram).

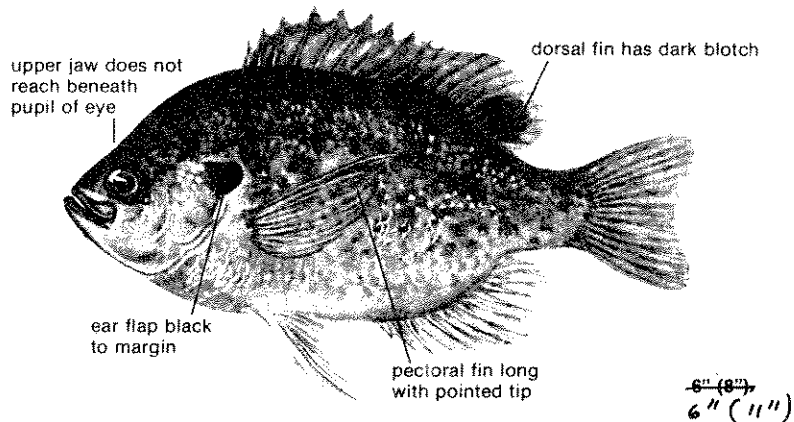
SIMILAR SPECIES: (1) Bluegill has completely black ear flap, longer gill rakers and black blotch on rear of dorsal fin. See (2) Green Sunfish and (3) Rock Bass.

HABITAT: Ponds, small lakes, margins of large lakes and slow streams. Prefers areas with aquatic vegetation and submerged brush.

ORIGIN: Introduced into Montana. Native range is north-central and eastern North America.



BLUEGILL
Lepomis macrochirus



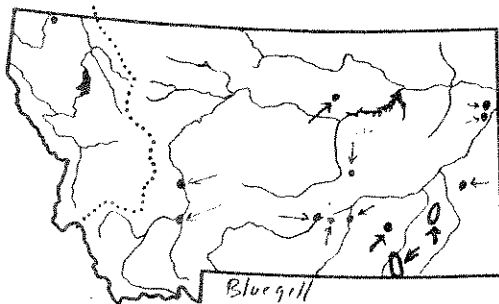
OTHER CHARACTERISTICS: Gill rakers moderately long and slender (see Pumpkinseed for diagram). Ear flap smaller on females and young males than on adult males. Young have dark vertical bars on sides.

SIMILAR SPECIES: See (1) Pumpkinseed, (2) Green Sunfish and (3) Rock Bass.

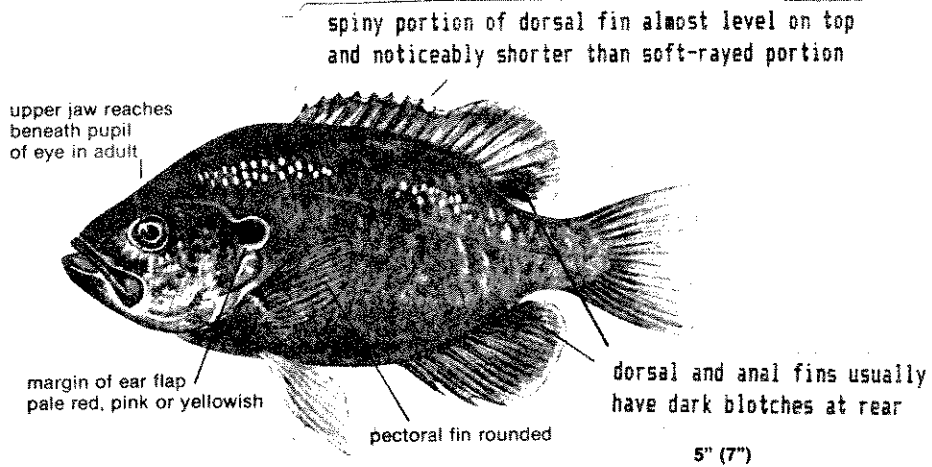
HABITAT: Areas of aquatic vegetation in comparatively warm ponds and lakes; slow, weedy streams.

ORIGIN: Introduced into Montana. Original range includes most of central and eastern United States up into southern Canada.

COMMENT: The name bluegill comes from the bluish color on the lower part of the gill cover.



GREEN SUNFISH
Lepomis cyanellus

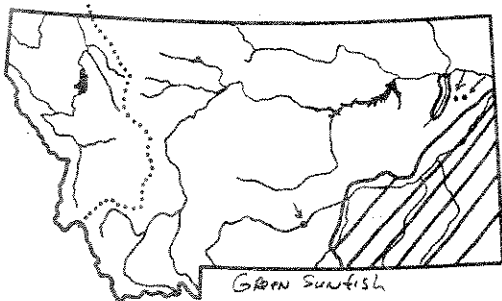


OTHER CHARACTERISTICS: Comparatively thick-bodied. Gill rakers long and slender (see Pumpkinseed for diagram). Breeding males have light-colored fringe on dorsal, anal and tail fins as in picture.

SIMILAR SPECIES: (1) Bluegill and (2) Pumpkinseed have smaller mouth and pointed, usually longer, pectoral fins. Bluegill has completely black ear flap; Pumpkinseed has short, thick gill rakers; both are usually deeper-bodied than the Green Sunfish. (3) See Rock Bass.

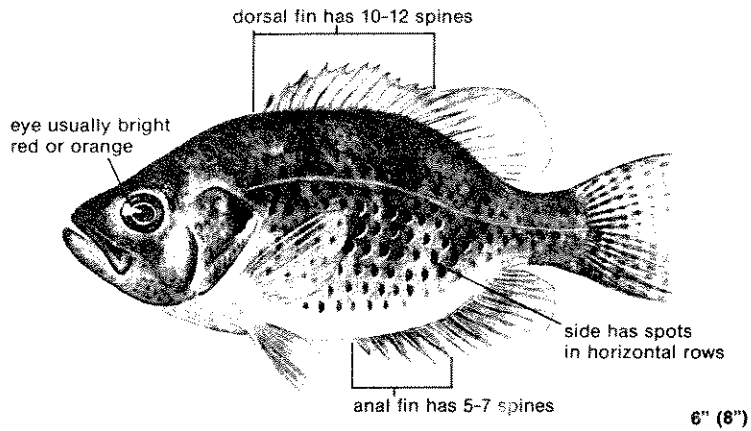
HABITAT: Slow-moving streams at lower elevations and shallows of lakes. Tolerance of high turbidity, low levels of dissolved oxygen and a wide range of temperatures allow it to survive in isolated pools of streams which cease to flow in dry weather.

ORIGIN: Introduced into Montana. Original range includes much of central and eastern North America from southern Canada to Mexico.



ROCK BASS
Ambloplites rupestris

OTHER NAMES: Redeye, goggle eye.

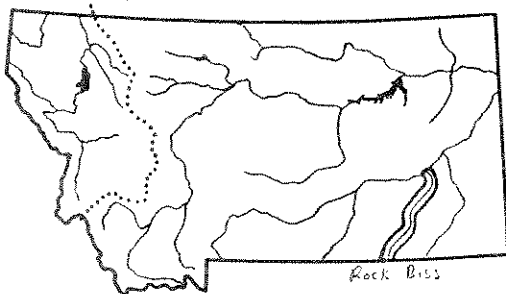


OTHER CHARACTERISTICS: Body robust.

SIMILAR SPECIES: (1) Pumpkinseed, (2) Bluegill and (3) Green Sunfish lack the red eye and rows of spots on the side, and have only 3 spines in the anal fin.

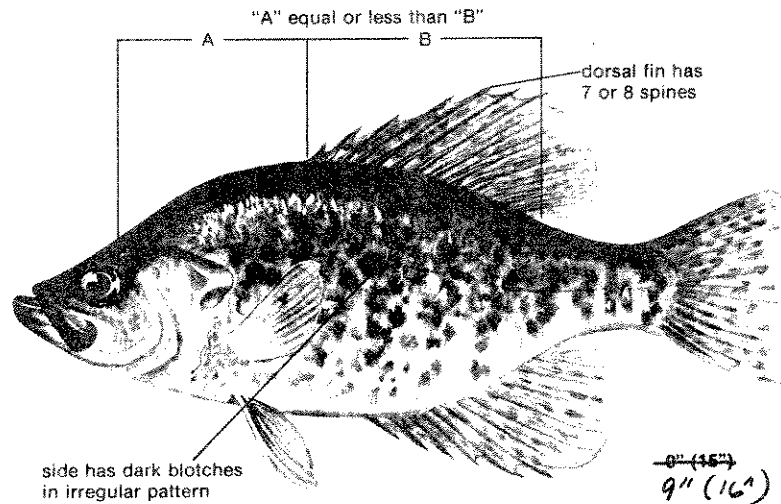
HABITAT: Clear, rocky-bottomed comparatively slow, warm streams; shallows of lakes. In Montana found only in Tongue River.

ORIGIN: Native range is from southern Canada through the midwest to the gulf states. Moved downstream into the Montana portion of Tongue River from an introduction in Wyoming.



BLACK CRAPPIE
Pomoxis nigromaculatus

OTHER NAME: Calico bass

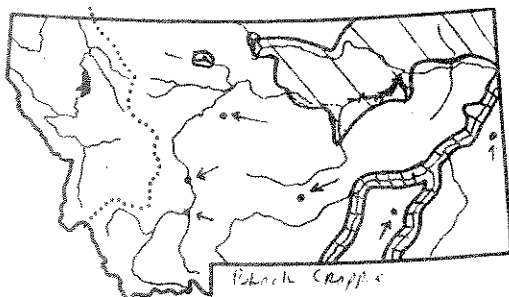


OTHER CHARACTERISTICS: Anal fin base about as long as dorsal fin base. Fish from turbid water may be lighter colored.

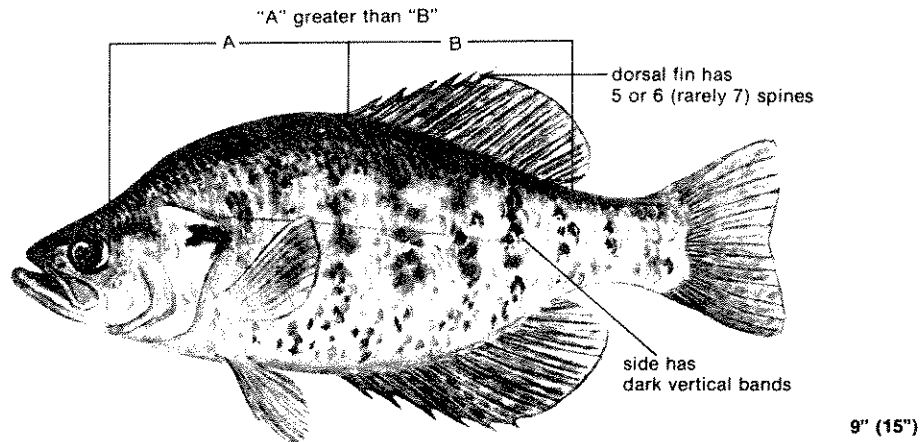
SIMILAR SPECIES: White Crappie's dorsal fin is shorter, set farther back and has 5 or 6 spines (rarely 7), compared with the Black Crappie's 7 or 8. White Crappie has vertical bars on side.

HABITAT: Lakes, reservoirs, and slow portions of streams in areas with sandy to mucky bottoms. Prefers clear water and abundant cover such as submerged timber or aquatic vegetation.

ORIGIN: Introduced into Montana. Original range includes most of central and eastern United States up into southern Canada.



WHITE CRAPPIE
Pomoxis annularis

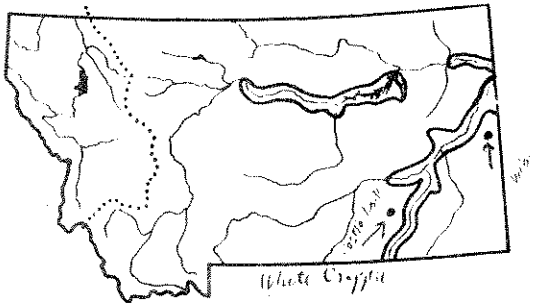


OTHER CHARACTERISTIC: Anal fin base usually longer than dorsal fin base.

SIMILAR SPECIES: See Black Crappie.

HABITAT: Lakes and reservoirs and slow portions of streams. Seeks logs and other cover. More tolerant of turbidity than Black Crappie.

ORIGIN: Original range was in central and eastern United States reaching barely into southern Canada.

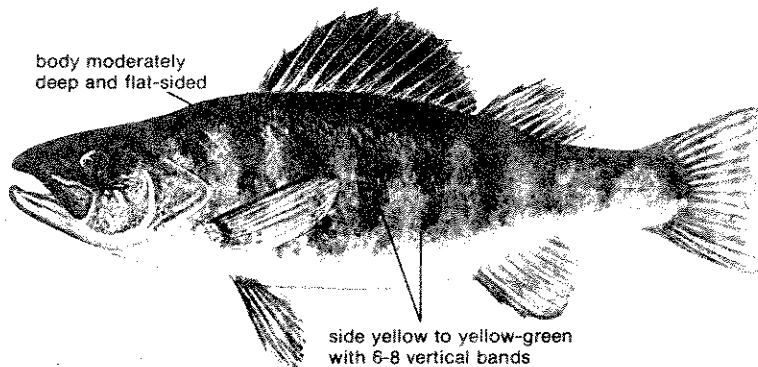


PERCH FAMILY Percidae

These spiny-rayed fishes have two separate dorsal fins--the front one with spines, the rear one with all or mostly soft rays. The paired fins are nearly one above the other.

YELLOW PERCH
Perca flavescens

OTHER NAME: Perch.



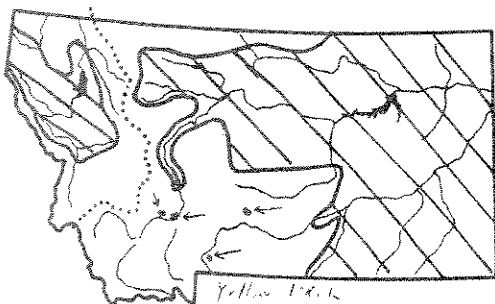
~~8" (12")~~
8" (15")

OTHER CHARACTERISTICS: Many small teeth but no canine teeth. Anal fin with 2 spines and 6-8 soft rays.

SIMILAR SPECIES: (1) Small Yellow Perch might be mistaken for young Walleye or Sauger. The latter two have large canine or tearing teeth, and 11-14 soft rays in the anal fin. See (2) Iowa Darter.

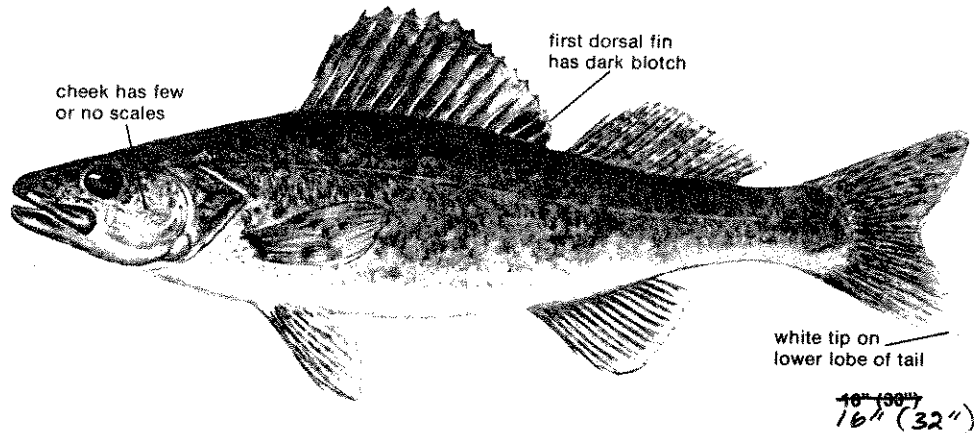
HABITAT: Warm to cool, clear lakes with moderate amount of vegetation and, to a lesser extent, slow, weedy streams.

ORIGIN: Introduced into Montana. Native distribution: southern portions of west-central and eastern Canada, north-central and northeastern United States, Atlantic slope to South Carolina.



WALLEYE
Stizostedion vitreum

OTHER NAMES: Wall-eyed pike, yellow pike-perch.

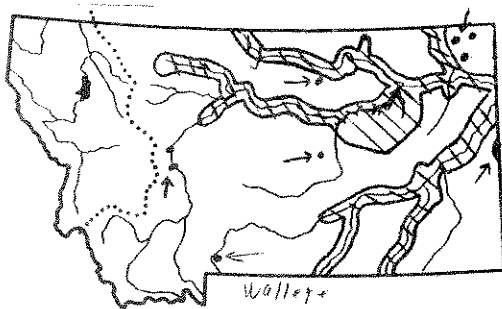


OTHER CHARACTERISTICS: Often has golden hue. Jaws and roof of mouth have large canine teeth. Anal fin with 2 spines and 11-14 soft rays.

SIMILAR SPECIES: See (1) Sauger, (2) Yellow Perch and (3) Iowa Darter.

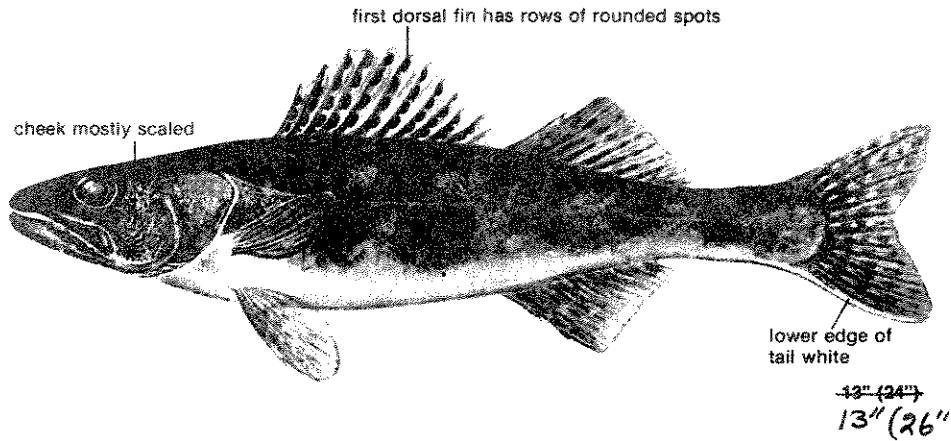
HABITAT: Primarily large lakes and reservoirs; to a lesser extent, rivers.

ORIGIN: Introduced to Montana. Natural range covered much of Canada and eastern United States.



SAUGER
Stizostedion canadense

OTHER NAME: Sand pike.

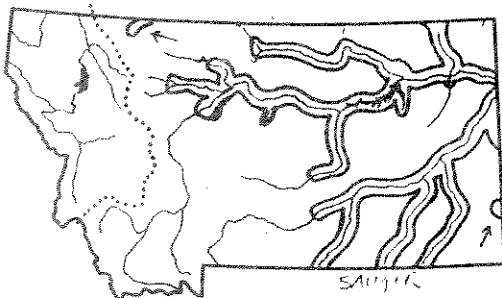


OTHER CHARACTERISTICS: Often has grayish hue with dark blotches. Jaws and roof of mouth have large canine teeth. Body almost round. Anal fin with 2 spines and 11-14 soft rays.

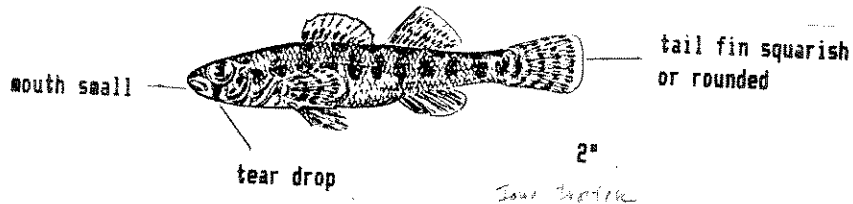
SIMILAR SPECIES: (1) Walleye has large, dark spot at rear of first dorsal fin; lower lobe of tail is white; cheeks have few scales if any. See (2) Yellow Perch and (3) Iowa Darter.

HABITAT: Rivers, shallows of lakes and reservoirs. Prefers turbid water.

ORIGIN: Native to Montana.



IOWA DARTER
Etheostoma exile



COLOR: Overall greenish or brownish, about 8 saddle bands across back, dark blotches on side, underside light. Breeding males colorful: 9-12 dark blue blotches on side alternating with rust red, underside has orange wash; first dorsal has blue band along base, a reddish band above this, and a narrow blue band along outer edge.

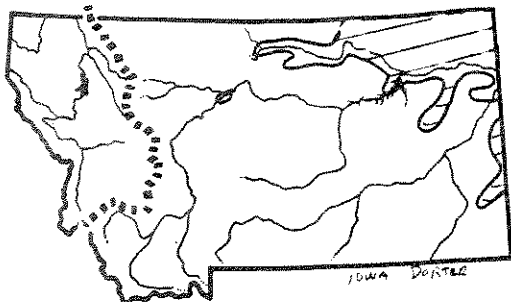
OTHER CHARACTERISTICS: Body slender, eye large, upper jaw does not reach behind front margin of pupil, lateral line incomplete.

SIMILAR SPECIES: Could be mistaken for young Yellow Perch, Walleye, or Sauger; however, these have large mouth, complete lateral line and forked tail--well forked on Walleye and Sauger, slightly forked on Yellow Perch.

HABITAT: Clear slow-moving streams or lakes with aquatic vegetation and bottom of organic debris or sand.

ORIGIN: Native to Montana.

COMMENT: This, our smallest native fish, is a bottom-dweller. It moves by short, quick dashes, hence its name "darter."

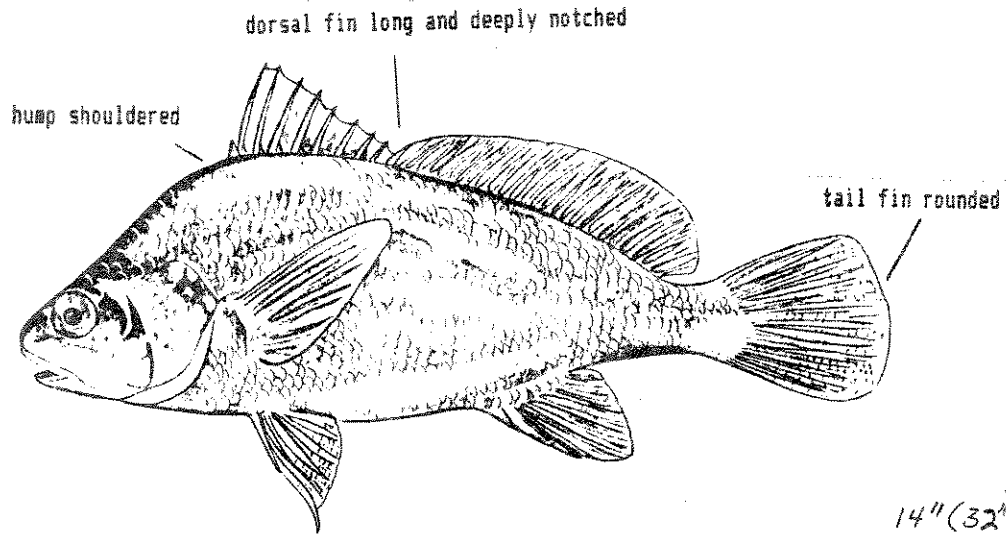


DRUM FAMILY Scianidae

Drums are bass-like, spiny-rayed fishes that are unique in having the lateral line cross the tail fin. Montana has one representative of this family.

FRESHWATER DRUM
Aplodinotus grunniens

OTHER NAMES: Sheepshead, Rock bass.



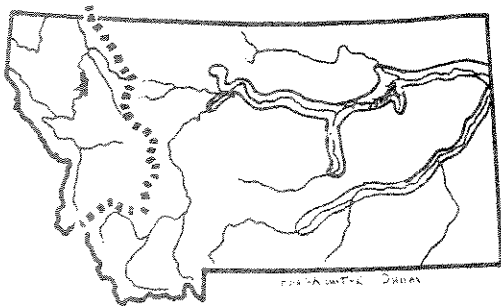
COLOR: Silvery with a pearl-gray back.

OTHER CHARACTERISTICS: Lateral line goes to the rear edge of tail fin.

SIMILAR SPECIES: Basses, sunfishes, and Yellow Perch have at least a shallow fork in the tail fin and lateral line does not extend onto tail fin.

HABITAT: Large streams, large lakes and reservoirs.

ORIGIN: Native to Montana.

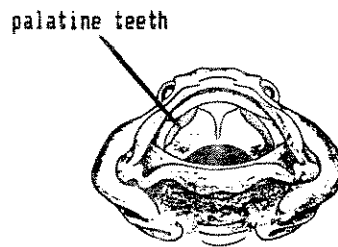


COMMENT: Has unusually large otoliths (ear bones). Being ivory-like, they are prized as "lucky bones." This fish is named for the drumming sound, heard mostly during the summer, produced by special muscles acting on the air bladder.

SCULPIN FAMILY Cottidae

Sculpins are small, bottom dwelling, spiny-rayed (most spines are weak), fishes, with broad flat heads and large fan-like pectoral fins. They do not have scales but most have prickles behind the pectoral fin and some have them over most of the body.

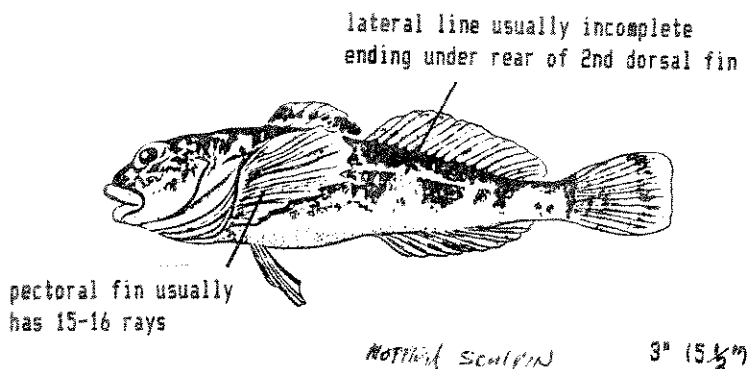
These fishes are variable in structure and color often making identification perplexing even for fisheries biologists. The development of palatine teeth is useful in separating some species. They are on a pair of bones on the front of the roof of the mouth that extend outward and backward as shown on the following illustration.



The presence of palatine teeth may be determined by carefully brushing the area where they should occur with the side of a needle. Care should be taken not to mistake other teeth on the roof of the mouth for the palatines.

MOTTLED SCULPIN
Cottus bairdi

OTHER NAMES: Bullhead, Muddler



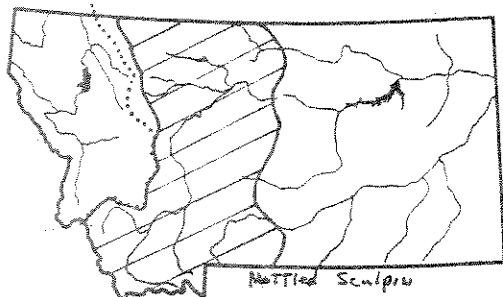
COLOR: Back and sides slaty to brown with mottling and dark blotches. May have two or three dark saddles under second dorsal fin. Underside whitish. First dorsal fin fringed with orange or red on spawning males.

OTHER CHARACTERISTICS: Palatine teeth present.

SIMILAR SPECIES: Shorthead Sculpin usually has 13-14 pectoral fin rays compared to Mottled's usual 15-16, and in Montana it is in the Columbia River Drainage whereas the Mottled is in the Missouri and Saint Mary River drainages.

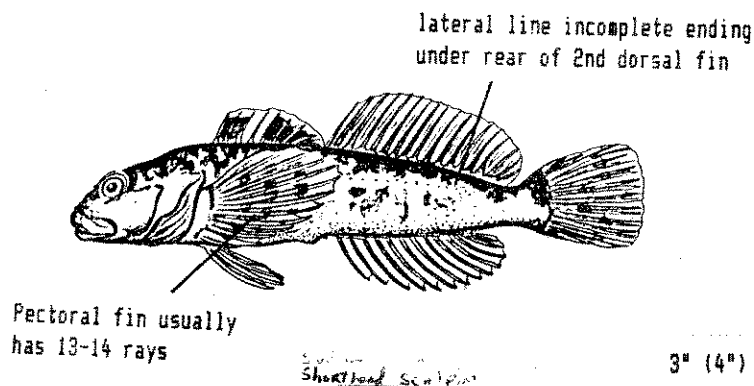
HABITAT: Cold streams; to a lesser extent on rocky shorelines of lakes.

ORIGIN: Native to Montana.



SHORthead SCULPIN
Cottus confusus

OTHER NAME: Bullhead.



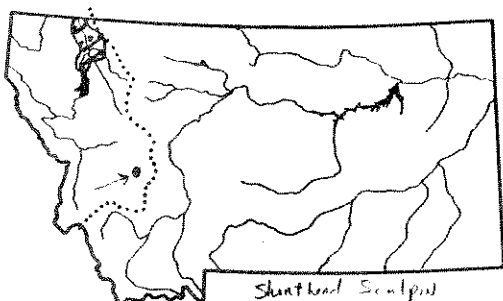
COLOR: Overall brownish to dusky, mottled. Underside light with fine speckles.

OTHER CHARACTERISTICS: Palatine teeth weakly developed.

SIMILAR SPECIES: See Mottled Sculpin.

HABITAT: Prefers riffles of small, cold, clear streams; sometimes found in large streams.

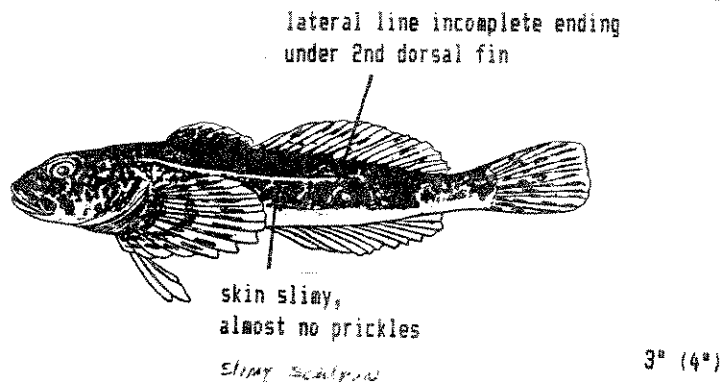
ORIGIN: Native to Montana. Naturally occurs in suitable habitat throughout Puget Sound and Columbia River drainages.



COMMENT: Reported from only a few Montana streams and designated a fish of special concern.

SLIMY SCULPIN
Cottus cognatus

OTHER NAME: Bullhead



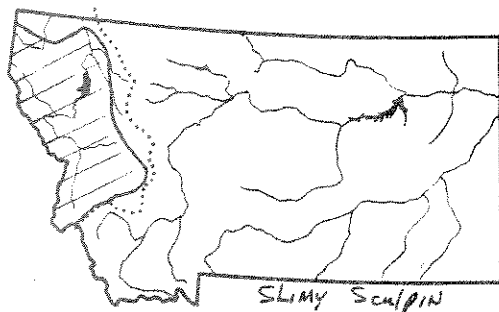
COLOR: Back and sides brown to black with mottling. Dark bands often present. Underside white. First dorsal fringed with orange on spawning males.

OTHER CHARACTERISTICS: No palatine teeth. Pelvic fin with 3 or 4 soft rays (in sculpins one pelvic ray is always associated with a spine). If a fourth (inner) ray present, it is usually short--less than two-thirds the length of the longest.

SIMILAR SPECIES: Other Montana sculpins have four fully developed soft rays in pelvic fin.

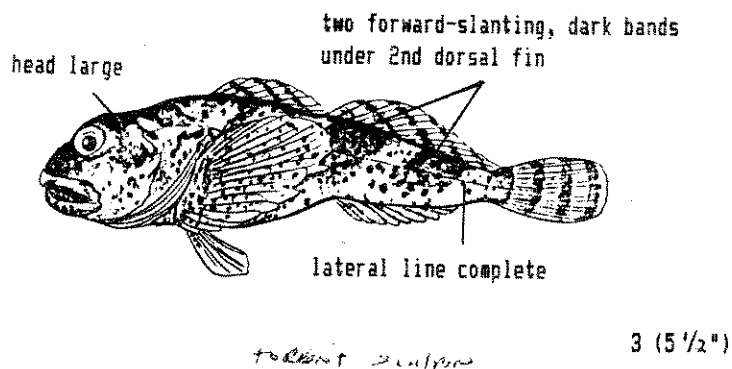
HABITAT: Rocky riffles of cold, clear streams; also, clear lakes with stony shallows for spawning.

ORIGIN: Native to Montana.



TORRENT SCULPIN
Cottus rhotheus

OTHER NAME: Bullhead



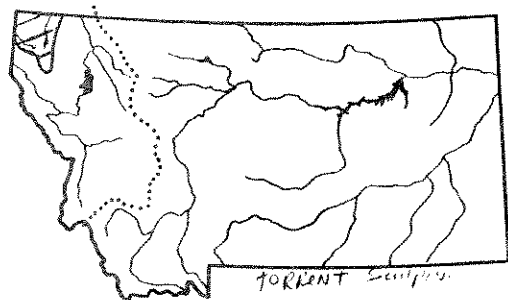
COLOR: Grey-brown with black speckling, normally two forward-slanting dark bands under second dorsal fin. Underside light, chin strongly mottled. First dorsal fin fringed with orange on spawning male.

OTHER CHARACTERISTICS: Body robust, usually coarse prickles on head, back, sides, and sometimes on caudal peduncle. Palatine teeth present.

SIMILAR SPECIES: Torrent Sculpin is told from other Montana sculpins by its large head, strongly mottled chin, and the distinctly forward-slanting, dark bands on its side.

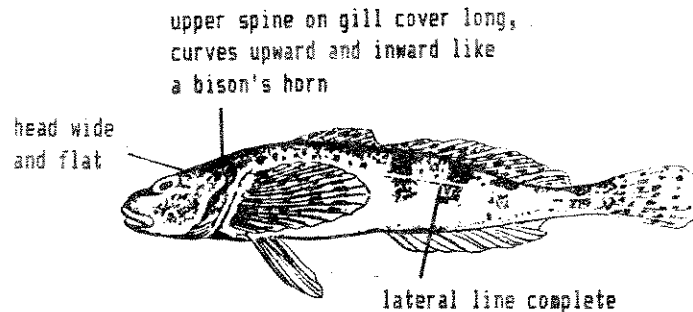
HABITAT: Riffles of cold, clear streams; to a lesser extent, the rocky shoals of large lakes.

ORIGIN: Native to Montana.



SPoonHEAD SCULPIN
Cottus ricei

OTHER NAME: Bullhead.



3" (4")

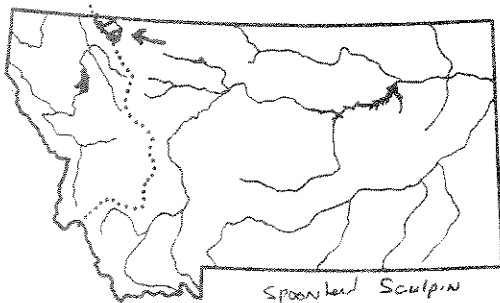
COLOR: Overall brownish to dusky with 2-4 saddles under second dorsal fin that reach to lateral line. Underside whitish.

OTHER CHARACTERISTICS: Body slender. No palatine teeth. One pore on midline under tip of chin. Prickles often dense, may cover entire body; sometimes sparse or absent.

SIMILAR SPECIES: No other Montana sculpin has the "bison horn" spine on gill cover, and the others have two pores on midline under tip of chin.

HABITAT: Small swift streams to larger rivers and deep lakes.

ORIGIN: Naturally distributed from northwestern Canada to Great Lakes region. In Montana known only from Glacier National Park until 1986 when one was removed from the stomach of a lake trout caught in Lower Saint Mary Lake just outside the eastern park boundary.



COMMENT: Designated a fish of special concern due to its limited distribution in Montana.

FISHING RECORDS SUMMARY

From May/June 1988 issue of MONTANA OUTDOORS
Published by Montana Department of Fish, Wildlife and Parks

Species	Weight		Angler	Year	Location
	lbs.	ozs.			
Arctic grayling*	2	10½	Steve Houser	1986	Hyalite Reservoir
Bigmouth buffalo	32	6	Gary Lundman	1979	Missouri River (Slippery Ann Game Station)
Black bullhead	1	11	Mike Mitchell	1977	Horse Creek (McCone Co.)
Black crappie	3	2	Al Elser	1973	Tongue River Reservoir
Blue sucker*	7	4	Dudley L. Thiel	1986	Yellowstone River (near Sidney)
Bluegill	2.64		Brent Fladmo	1983	Peterson's Stock Dam
Brook trout	9	1	John R. Cook	1940	Lower Two Medicine Lake
Brown trout	29	0	E.H. "Peck" Bacon	1966	Wade Lake
Bull trout	25	10	James Hyer	1916	unknown
Burbot (ling)	13	4	Paul Keller, Ernie Schutt	1980	Missouri River (below Fort Peck Dam)
Carp*	38	8	Don Bagley	1986	Eyraud Lakes
Channel catfish	25.89		Gordon Wentworth	1984	Fort Peck Reservoir
Coho salmon	4	14	Irvn Stohl	1973	Fort Peck Reservoir
Cutthroat trout	16				Red Eagle Lake
Freshwater drum	17.55				Fort Peck Reservoir
Golden trout	3.14				Inlet, Lake At Falls
Goldeye	2				Nelson Reservoir
King salmon (chinook)	4				Missouri River
Kokanee (salmon)	5				Pishkun Reservoir
Lake trout	42				Flathead Lake (east shore)
Lake whitefish*	10				Lower St. Mary Lake
Largemouth bass	8				Milnor Lake
Longnose sucker**	1.21				Milk River
Mountain whitefish	4				Blackfoot River
Northern pike	37				Tongue River Reservoir
Northern squawfish	7.09				Lower Clark Fork River
Paddlefish	142	0	Gene Sattler	1979	Missouri River
Pallid sturgeon	60	0	Tim Colver	1985	Yellowstone River
Pumpkinseed	0.95		Orlin Iverson	1982	Milnor Lake
Pygmy whitefish	0	.16	C.J. Brohaugh	1952	Ashley Lake
Rainbow trout	20	0	Pat Kelly	1982	Cliff Lake
Rainbow-cutthroat hybrid	30	4	Raymond V. Johnston	1975	Ashley Lake
Sauger	7	2	Ray Quigley	1985	Tongue River Reservoir
Shorthead redhorse sucker	4.68		John Johnson	1977	Marias River near Loma
Shortnose gar	3	1	Sidney Storm	1986	Fort Peck dredge cuts
Shovelnose sturgeon*	13.72		Bob Higson	1975	Missouri River
Smallmouth bass	4	11½	Mac McKinney	1977	Horseshoe Lake
Smallmouth buffalo	9	4	Robert M. Garwood	1985	Hauser Lake (west side)
Stonecat	0.42		M. Steve Kovatch	1986	Milk River at Havre
Utah chub**	1.43		Neil Berg	1974	Canyon Ferry Reservoir
Walleye	14	0	Ludwig Dubbe	1986	Nelson Reservoir
White bass**	1	2	Drew Jackson	1978	Fort Peck dredge cuts
White crappie	2	2	Herb Stout	1968	Tongue River Reservoir
White sturgeon	96	0	Fred Perry	1983	Kootenai River
White sucker	5	5½	Gerald Pottratz	1974	Nelson Reservoir
Yellow perch	2	0			Nelson Reservoir

*To be replaced with
1988 fishing records
from May/June
Issue*

*New Montana record for 1986

**New to Montana's record list

PROCEDURE FOR HAVING A FISH DECLARED A STATE RECORD

The Montana Department of Fish, Wildlife and Parks administers the record fish program. It requires that you (1) harvest the fish legally, (2) weigh it on an inspected scale (most grocery store scales are inspected), and (3) have the fish positively identified. Whenever possible, that means verification by department personnel. If you can't find a department employee, you must present a photograph from which the fish can be identified; with some species, this is difficult. If you don't have a department employee weigh the fish, you must present documentation from the store where it was weighed. Give the required information to a department employee, send it to a regional department headquarters or send it to Conservation Education Division, Montana Department of Fish, Wildlife and Parks, 1420 E. Sixth Avenue, Helena, MT 59620

ANSWERS TO COMMONLY ASKED QUESTIONS

QUESTION: Did Migrating Sea-run Salmon or Steelhead Trout Ever Reach Montana?

ANSWER: No. Fisheries scientists have scoured published and unpublished records of the historical spawning areas of Pacific salmon and steelhead trout (rainbow trout that go to sea when young and return to fresh water to spawn), and there is no evidence that these fishes reached Montana. Their migrations were evidently blocked by falls.

QUESTION: Why do some trout have pink flesh; others, white flesh?

ANSWER: Flesh color is related to a trout's diet. Trouts, along with salmons and some other fishes, can extract carotenoid pigmented oils from food and incorporate these oils into their flesh. Crustaceans (for example, water fleas, scuds and crayfishes) are rich in pigmented oils. Trout with a diet high in crustaceans have pink flesh and salmon-colored eggs; those eating insects and other foods with little or no pigmented oils have white flesh and cream-colored eggs.

QUESTION: What are cold-, cool-, and warmwater fishes?

ANSWER: Fish are cold-blooded, that is, their temperature is about the same as the water surrounding them. This greatly influences their biology and, in turn, their distribution. Members of the trout family are adapted to live in water temperatures lower than 65F. and are examples of coldwater fishes. Sunfishes are known as warmwater fishes. To thrive they must have summer water temperatures 75 and higher. Northern Pike, Walleye, and Yellow Perch prefer summer temperatures in the mid-range, 65 to 75 and have come to be known as coolwater fishes.

QUESTION: When do Montana fishes spawn?

ANSWER: Both water temperature and light are important in controlling the reproductive rhythm of seasonal spawners. Cold water fishes spawn in the fall, winter, or spring; most other Montana species, from spring to mid-summer. Typical spawning seasons for abundant fishes are:

Spring	Late spring or Summer	Fall	Winter
Rainbow Trout	Largemouth Bass	Brown Trout	Burbot
Cutthroat Trout	Smallmouth Bass	Brook Trout	
Golden Trout	Minnows	Bull Trout	
(summer at high elevations)	Suckers	Lake Trout	
Arctic Grayling	Sturgeons	Kokanee*	
Northern Pike	Sunfishes	Chinook Salmon*	
Walleye	Paddlefish	Coho Salmon*	
Sauger	Catfishes & bullheads	Whitefishes (including Cisco)	
Yellow Perch	Crappies		
Goldeye	Sculpins		
	Stickleback		
	Freshwater Drum		

*Pacific Salmon,
die after spawning.

QUESTION: What is a char?

ANSWER: Char (also charr) is a name often given to fishes in genus *Salvelinus* which in Montana are brook, bull and lake trout. They have no black spots but red, blue, and/or pale spots most of which are lighter than the background color. The black-spotted or true trouts are in genus *Salmo*. They have black spots on a lighter background. Brown trout, a European *Salmo*, have red as well as black spots and its spots usually have pale halos.

ADDITIONAL SOURCES OF INFORMATION ON MONTANA FISHES

Many readers will desire additional information on Montana fishes. From the many excellent publications available, the following are recommended as particularly pertinent.

The first two books contain information on identification, distribution, breeding habits, feeding habits, and history of fish collections and introductions in Montana. In addition, Brown presents age and growth data for each species.

Brown, C. J. D., "Fishes of Montana." Big Sky Books, Montana State University, Bozeman, 1971. 207 p.

Weisel, G.F., "Fish Guide for Intermountain Montana." Montana State University Press, Missoula, 1957. 88 p. Out-of-print, but held by Montana State Library, Helena and can be borrowed from a local library through inter-library loan.

Next is a revised scientific key to the identification of Montana fishes. It serves to update "Fishes of Montana:"

Gould, W. R., "Key to the Fishes of Montana." Big Sky Books, Montana State University, Bozeman, 1980 (revised 1987). 22 p.

The following three books were written for areas other than Montana, but between them they contain in-depth information on all fishes found in Montana waters except tropical aquarium species.

Baxter, G. T. and James R. Simon, "Wyoming Fishes." Bulletin No. 4, Wyoming Game and Fish Commission, 1946 (revised 1970). 168 p. An update has been prepared and should be printed in 1988.

Pfleiger, W. L., "The Fishes of Missouri." Missouri Department of Conservation, 1975. Has unsurpassed illustrated keys. 343 p.

Scott, W. B. and E. J. Crossman, "Freshwater Fishes of Canada." Bulletin 184, Fisheries Research Board of Canada. 966 p. A tremendous source book--extremely detailed descriptions of individual species plus extensive life-history accounts. Includes over 80 percent of the fishes found in Montana.