

Survey of Michigan Fishes

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Michigan Natural Features Inventory

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Class Cephalaspidomorphi

Order Petromyzontiformes

Family Petromyzontidae (Lampreys)

- 38 species known (19 NA)
- Primitive, eel-like fish
- Cartilaginous skeleton
- Lack paired fins
- Lack jaws
- No scales
- Single median nostril
- 7 prs. Pore-like gill openings
- Circular mouth with rasping teeth



Sea Lamprey

Petromyzon marinus

- 2 Dorsal fins
- Expanded oral disk wider than head
- Large, sharp teeth
- 66-75 trunk myomeres
- Parasitic as an adult
- Round or spatulate caudal fin
- Prominent black mottling on back
- Black lateral line organs

Photos courtesy of Great Lakes Fishery Commission



American Brook Lamprey

Lampetra appendix

- 2 Dorsal fins
- Expanded oral disk narrower than head
- Teeth usually small and blunt
- 67-73 trunk myomeres
- Unpigmented lateral line organs

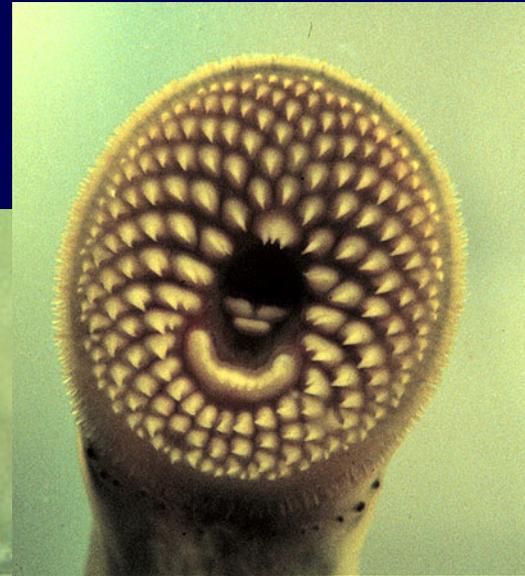
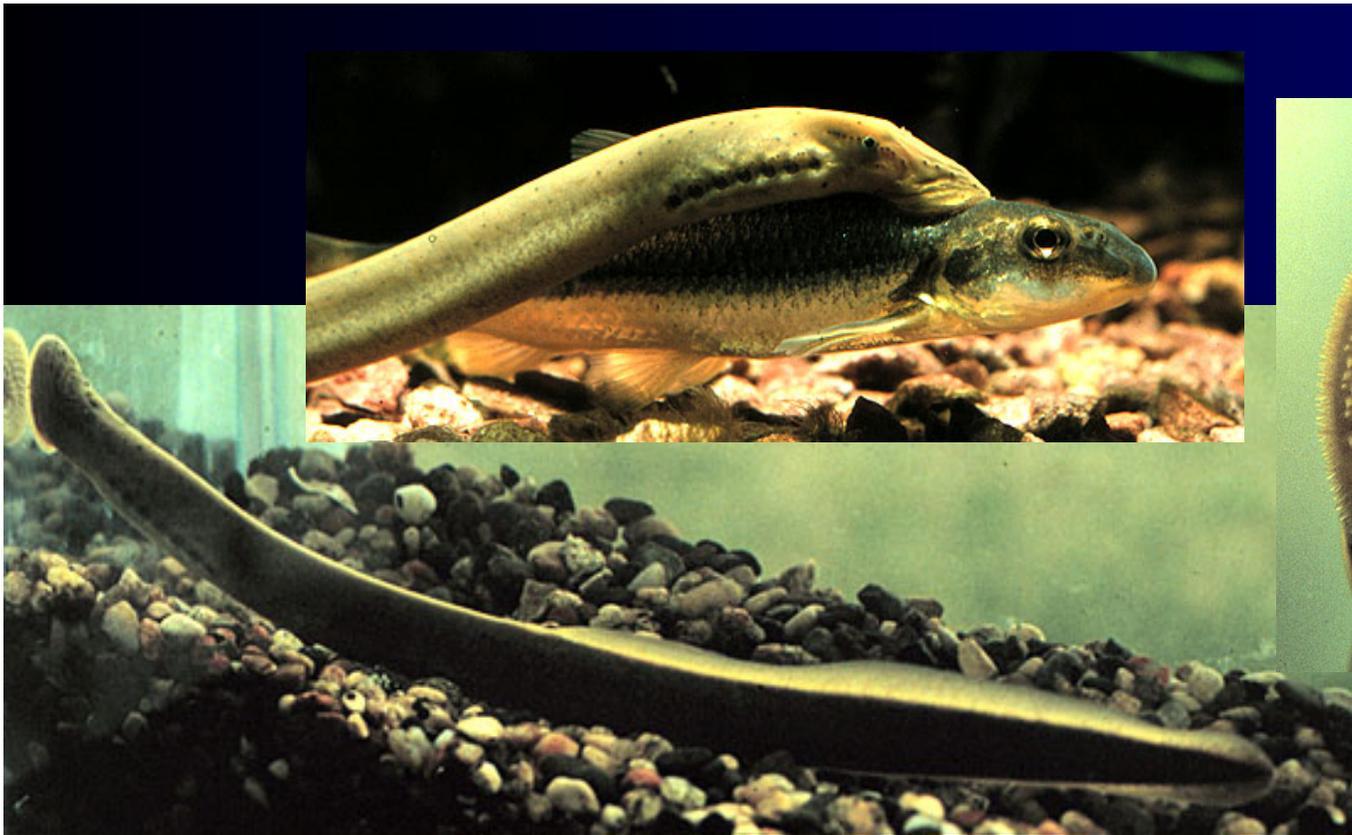
Photos courtesy of Konrad Schmidt



Silver Lamprey

Ichthyomyzon unicuspis

- 1 Slightly notched dorsal fin
- Expanded oral disk as wide or wider than head
- Large, sharp disc teeth
- Parasitic adult
- 49-52 trunk myomeres
- Black lateral line organs
- 1-1-1 or 1-1-1-1 lateral circumoral teeth

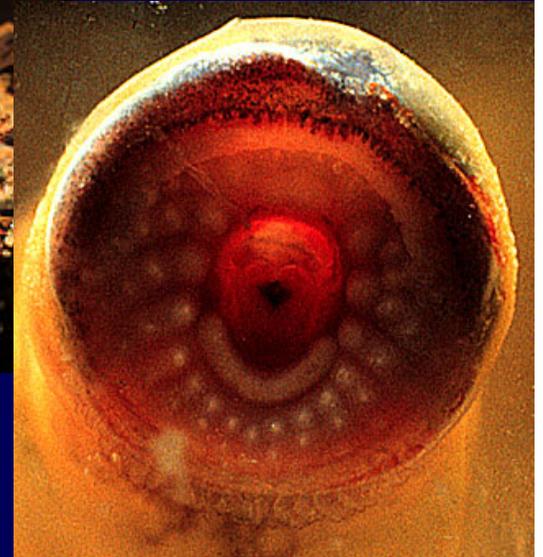


Chestnut Lamprey

Ichthyomyzon castaneus

- 1 slightly notched dorsal fin
- Expanded oral disk as wide or wider than head
- Disc teeth large and sharp
- 51-56 trunk myomeres
- Black lateral line organs
- 2-2-2-2 or 2-2-2-2-2 lateral circumoral teeth

Photos courtesy of Konrad Schmidt



Northern Brook Lamprey

Ichthyomyzon fossor

- 1 slightly notched dorsal fin
- Expanded oral disk narrower than head
- Disc teeth small and blunt
- 50-52 trunk myomeres
- Non-feeding adults
- Lateral line organs not black
- 1-1 or 1-1-1 lateral circumoral teeth

Photos courtesy of Konrad Schmidt

Class Osteichthyes (Bony fishes)

Order Acipenseriformes

Family Acipenseridae (Sturgeons)

- Large, ancient fish
- Cartilaginous skeleton
- Heterocercal tail
- 23 species worldwide
(7 NA)
- Fleshy barbels
- Ventral mouth
- Large bony scutes
- Shovel-shaped snout

Minnesota DNR



Lake Sturgeon
Acipenser fulvescens

Class Osteichthyes

Order Acipenseriformes

Family Polyodontidae (Paddlefish)

- Large, ancient fish
- Cartilaginous skeleton
- Heterocercal tail
- 2 species worldwide



Paddlefish

Polyodon spathula

- Long paddle-shaped snout (1/3 body length)
- Taste buds on snout
- Planktivorous
- Jaws toothless
- Large, fleshy pointed flap on rear edge of gill cover
- Unscaled except for caudal peduncle

Class Osteichthyes

Order Lepisosteiformes

Family Lepisosteidae (Gars)

- Primitive fish
- Long, sharply-toothed jaws
- Abbreviated heterocercal tail
- 7 species worldwide
 - North American
- Lung-like gas bladder
- Ganoid scales
 - diamond-shaped
 - non-overlapping



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Longnose Gar

Lepisosteus osseus

- Long, narrow snout (>2X length of the rest of the head)



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Class Osteichthyes

Order Amiiformes

Family Amiidae (Bowfins)

- Monotypic family
- Primitive fish
- Long, sharply-toothed jaws
- Abbreviated heterocercal tail
- 1 living species only
- Lung-like gas bladder
- Cycloid scales
- Large bony gular plate on underside of head



Bowfin

Amia calva

- Long, nearly cylindrical body
- Large head
- Tubular nostrils
- Long dorsal fin (>1/2 length of back) 42-53 rays
- Large dark spot at base of upper caudal fin rays in young
- Rounded pectoral, pelvic, anal, and caudal fins

Class Osteichthyes

Order Anguilliformes

Family Anguillidae (Freshwater Eels)

- ≈ 15 species
- Lack pelvic fins
- Scales very, very small
- Catadromous
- Leaf-like leptocephalus larva
- “Glass eel” and elver stages before adult
- Females migrate far upstream
- Males in brackish and coastal streams
- All continents but Antarctica



American Eel

Anguilla rostrata

- Slender, snake-like body
- Small, pointed head
- Long dorsal fin (>1/2 body) cont. to caudal and anal fins
- Lower jaw projects farther forward than upper

Class Osteichthyes

Order Gadiformes

Family Gadidae (Cods)

- ≈60 species
- All marine except burbot
- Elongate body
- Small, embedded cycloid scales
- Large head
- Long barbel at tip of chin
- Spineless fins
- Thoracic pelvic fins



Burbot

Lota lota

- 2 dorsal fins, 1st short (8-16 rays) 2nd very long (60-80 rays)
- Long, slender body, highly compressed posteriorly
- Long anal fin
- Short pelvic fins in front of pectoral fins

Class Osteichthyes

Order Clupeiformes

Family Clupeidae (Herrings/Shads)

- \approx 215 species
- Most are marine
- Strongly compressed body
- No lateral line
- No scales on the head
- Cycloid scales
- Keeled bellies
- Teeth usually absent
- 1 dorsal fin
- Adipose eyelid
- Abdominal pelvic fins
- No adipose fin
- No fin spines
- Diverticulum connects swim bladder and inner ear for superior sense of hearing
- Planktivorous



Gizzard Shad

Dorosoma cepedianum

- Long, whip-like last dorsal ray
- Distinctly subterminal mouth
- Deep notch @ center of upper jaw
- Dorsal fin origin behind pelvic fin origin
- Large dark spot near upper edge of operculum in young
- Snout thick, lower jaw does not project beyond tip of snout



Alewife

Alosa pseudoharengus

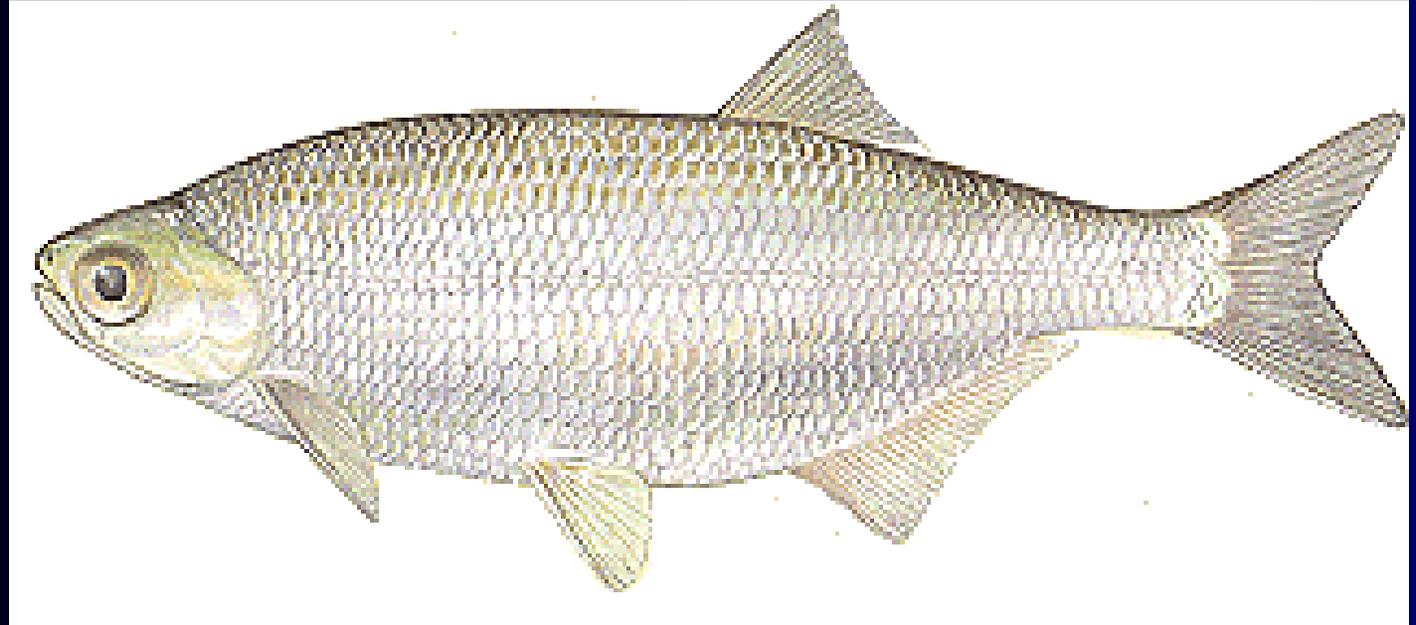
- Strongly oblique mouth ($\approx 45^\circ$ to horizontal)
- Lower jaw projects past tip of snout
- Snout pointed
- Last ray of dorsal fin shortest ray

Class Osteichthyes

Order Osteoglossiformes

Family Hiodontidae (Mooneyes)

- 2 species (both NA)
- Strongly compressed
- Large eyes
- Lack head scales
- Lateral line present
- Have untoothed belly keel
- Cycloid scales
- No fin spines
- 1 dorsal fin
- Adipose eyelid
- Abdominal pelvic fins
- Insectivorous and piscivorous



Mooneye

Hiodon tergisus

- Fleshy keel on belly
- Dorsal fin origin before anal fin origin

Class Osteichthyes

Order Percopsiformes

Family Aphredoderidae (Pirate Perches)

- Monotypic family
- Large mouth
- 1 dorsal fin (spines and rays)
- Thoracic pelvic fins
- Ctenoid scales
- No adipose fin
- Anus and urogenital openings between gill membranes



Class Osteichthyes

Order Percopsiformes

Family Percopsidae (Trout Perch)

- 2 species (both NA)
- Large, unscaled head
- Both cycloid and ctenoid scales
- Adipose fin present
- 1 large dorsal fin
- Spines in dorsal, anal, and pelvic fins



Class Osteichthyes

Order Gasterosteiformes

Family Gasterosteidae (Sticklebacks)

- 7 presently recognized sp.
- Scaleless
- 3-16 isolated dorsal spines
- Small thoracic or subthoracic pelvic fin
- Extremely narrow caudal peduncle



Ninespine Stickleback

Pungitius pungitius

- 7-12, usually 9 short dorsal spines
- Slender, compressed body
- Gill membrane joined but free of isthmus
- Usually well developed keel on caudal peduncle



Brook Stickleback

Culaea inconstans

- 4-6 short dorsal spines
- Deep, compressed body
- No keel on short caudal peduncle
- Gill membrane joined but free of isthmus



Threespine Stickleback

Gasterosteus aculeatus

- 3 (rarely 2 or 4) short dorsal spines, last very short
- Keel present on caudal peduncle
- Pelvic fin with 1 spine and 1 ray
- Gill membranes broadly united to isthmus

Class Osteichthyes

Order Siluriformes

Family Ictaluridae (Catfish, Bullheads and Madtoms)

- Largest family of freshwater fish endemic to NA north of Mexico
- 40 species in US/Canada
- Scaleless
- 4 pairs of barbels
- Adipose fin present
- Stout pectoral and dorsal spines at fin origins
- Abdominal pelvic fins



Channel Catfish

Ictalurus punctatus

- Deeply forked caudal fin
- Short adipose fin base
- Adipose fin far from caudal fin
- Rounded anal fin with 24-29 rays
- Body sprinkled with dark spots



Brown Bullhead

Ameiurus nebulosus

- Caudal fin slightly notched
- Dusky or black barbels
- Small adipose fin
- Adipose fin far from caudal fin
- 5-8 large saw-like teeth on rear of pectoral fin spine
- Brown or black mottling on body
- No black membranes on caudal and anal fins

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Black Bullhead

Ameiurus melas

- Caudal fin slightly notched
- Dusky or black barbels
- Small adipose fin
- Adipose fin far from caudal fin
- No strong/sawlike teeth on rear of pectoral fin spine
- No mottling on body
- Black membranes on caudal and anal fins

Yellow Bullhead (*Ameiurus natalis*)



Yellow Bullhead
Ameiurus natalis

- Caudal fin rounded or nearly straight
- White or yellow chin barbels
- Mod. Long anal fin, straight in outline
- 5-8 large sawlike teeth on rear of pectoral fin spines



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Stonecat

Noturus flavus

- Long, low adipose fin joined to, or slightly separated from caudal fin
- Long, slender body
- Light blotch on nape
- Light spot at rear of dorsal fin base
- No or weak teeth on pectoral spine
- Edge of caudal fin straight or with slightly rounded corners



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Tadpole Madtom

Noturus gyrinus

- Long, low adipose fin joined to, or slightly separated from caudal fin
- Cubby body
- Terminal mouth with equal jaws
- No sawlike teeth on pectoral spine
- Edge of caudal fin rounded

Yellow Bullhead (*Ameiurus natalis*)



Yellow Bullhead
Ameiurus natalis

- Caudal fin rounded or nearly straight
- White or yellow chin barbels
- Mod. Long anal fin, straight in outline
- 5-8 large sawlike teeth on rear of pectoral fin spines

Order Salmoniformes

Family Salmonidae

(Trouts, Salmon, Chars, and Whitefishes)

- \approx 70 species worldwide (38 NA)
- Many small cycloid scales
- Lateral line present
- 1 dorsal fin
- Adipose fin present
- Abdominal pelvic fins
- No fin spines
- Forked caudal fin
- Many pyloric ceca
- Many branchiostegal rays
- Axillary process @ base of pelvic fins
- Cool to cold streams and lakes of Europe, North America, and northern Asia

3 Subfamilies

Salmoninae (Salmon and Trout)

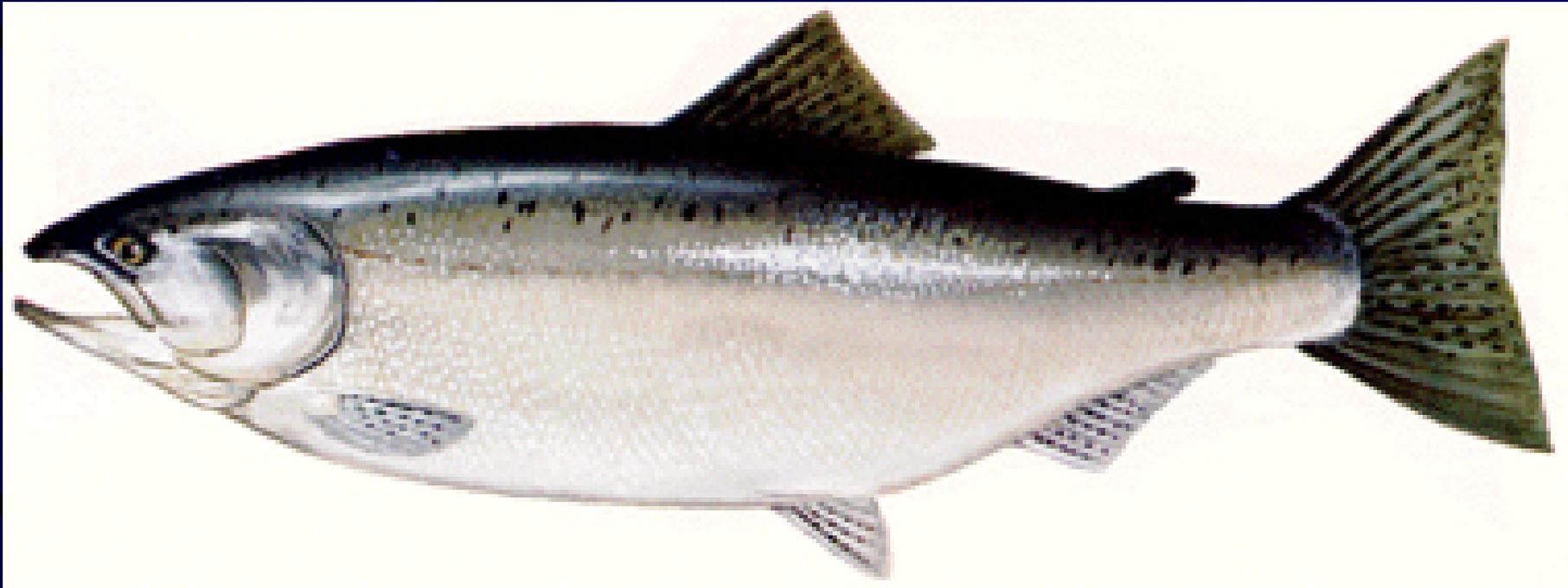
Small scales, short dorsal fin, teeth on maxillary bone

Coregoninae (Whitefish)

Coarse scales, short dorsal fin, no teeth on maxillary bone

Thymallinae (Graylings)

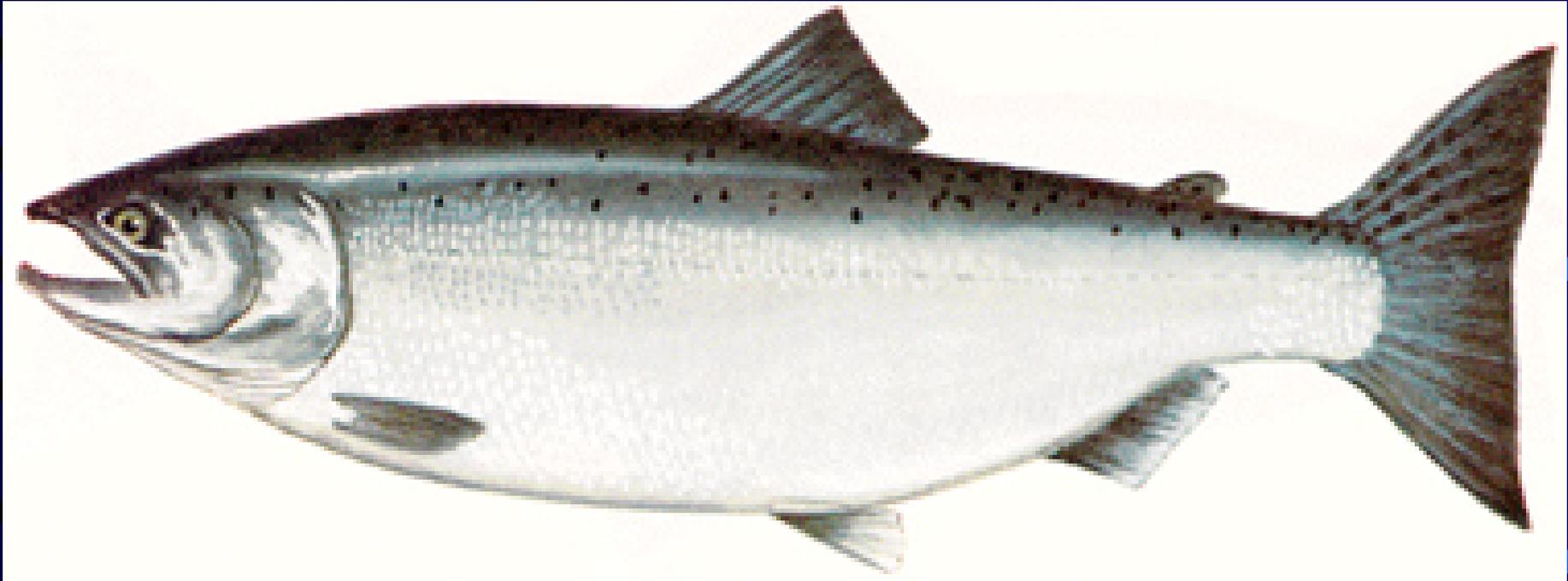
Coarse scales, long, sail-like dorsal fin, teeth on the maxillary bone



Chinook Salmon

Oncorhynchus tshawytscha

- 13-19 anal fin rays
- Irregular black spots on back, both caudal fin lobes, dorsal fin, and adipose fin
- Flesh @ base of teeth on lower jaw black



Coho (Silver) Salmon
Oncorhynchus kisutch

- 14-16 anal fin rays
- Irregular black spots, when present on caudal fin, on upper lobe only
- Flesh @ base of teeth on lower jaw pale



Arctic Grayling
Thymallus arcticus

- Large, sail-like dorsal fin (>17 rays)
- Dorsal fin base equal to or longer than head
- <100 lateral line scales
- Small mouth
- Teeth weakly developed

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Brown Trout
Salmo trutta

- 7-12 anal fin rays
- Caudal fin usually unspotted, but when present never in regular rows
- Many spots on operculum
- No white edge on pelvic or anal fins
- Caudal fin with nearly straight edge
- Upper jaw reaches to middle or well-beyond eye



Rainbow Trout
(Steelhead)

Onchorhynchus mykiss

- 8-12 anal fin rays
- Small, irregular dark spots on back and most fins
- Distinct radiating rows of black spots on caudal fin
- Often with black edge on adipose fin



Lake Trout

Salvelinus namaycush

- 7-12 anal fin rays, 8-12 dorsal rays
- Light spots on body and head (bean shaped)
- Very small scales
- Caudal fin deeply forked
- White leading edge on lower fins
- Scales along lateral line smaller than surrounding scales

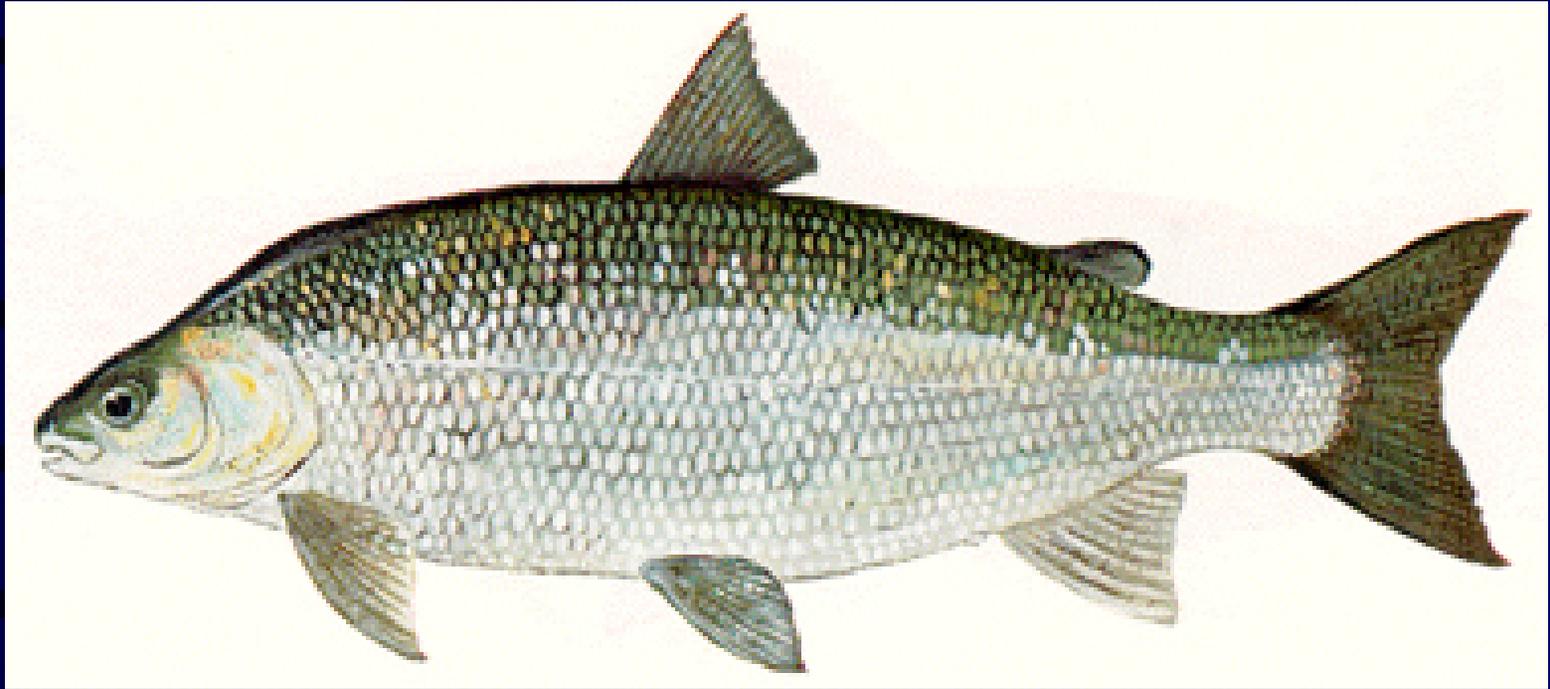
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Brook Trout

Salvelinus fontinalis

- 7-12 anal fin rays, 8-12 dorsal rays
- Light spots on body
- Very small scales
- White leading edge on lower fins
- Dorsal and caudal fins with distinct, dark wavy lines or blotches
- Scales along lateral line smaller than surrounding scales
- Caudal fin square or nearly so
- Back usually with wavy lines (vermiculations)



Lake Whitefish

Coregonus clupeaformis

- Comparatively larger scales
- <100 Lateral line scales
- No teeth present
- Inferior mouth overhung by snout
- 2 small flaps of skin between nostrils
- Caudal fin forked
- Compressed body



Lake Herring
Coregonus artedii

- Comparatively larger scales
- <100 Lateral line scales
- No teeth present
- Lower jaw equal to or projects slightly beyond upper jaw
- 2 small flaps of skin between nostrils
- Caudal fin forked
- Symphyseal knob @ tip of lower jaw
- Pelvic fins far back on body

Order Salmoniformes

Family Osmeridae

(Smelts)

- 13 species worldwide
(7 NA)
- Small, slender fish
- Freshwater and marine
- Cycloid scales
- Large mouth
- Adipose fin present
- Abdominal pelvic fins
- Lateral line present
- 1 dorsal fin
- No pelvic axillary process
- No fin spines



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Rainbow Smelt
Osmerus mordax

- Very large mouth
- Upper jaw meets middle of eye or beyond
- 2 Large canine teeth in roof of mouth
- Large teeth on tongue
- Dorsal fin origin above or in front of pelvic fin origin

Order Esociformes

Family Umbridae

(Mudminnows)

- 5 species worldwide
(4 NA)
- Long, slender body
- Cylindrical anteriorly
- Compressed posteriorly
- Cycloid scales
- 1 dorsal fin
- No fin spines
- Dorsal and anal fins far back
- Small abdominal pelvic fins

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Central Mudminnow

Umbra limi

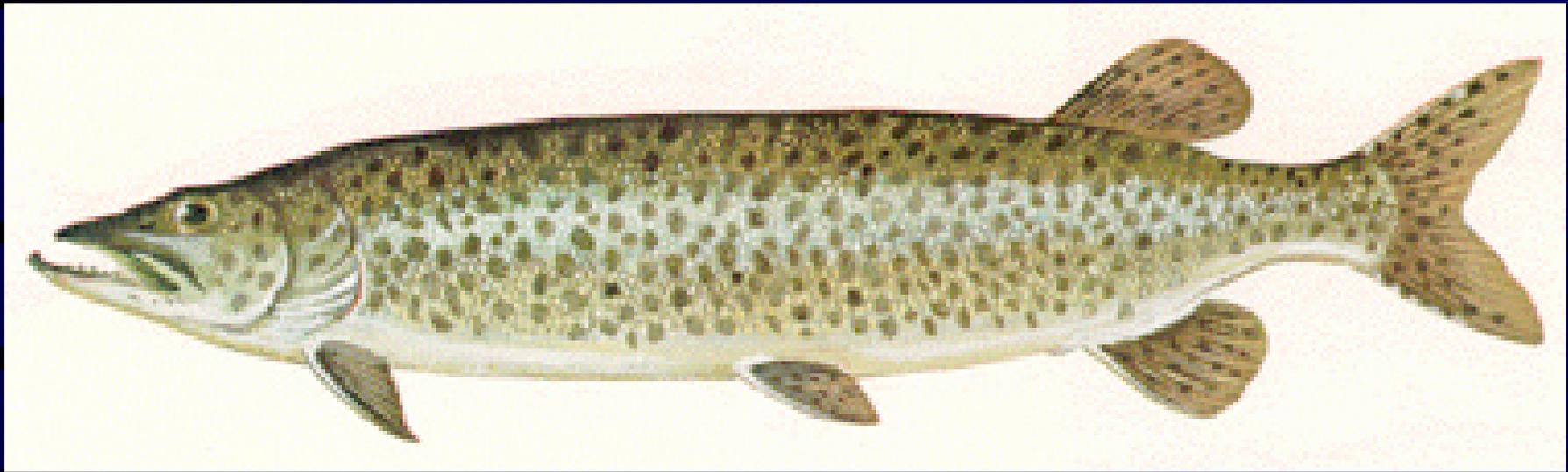
- Black bar on caudal fin base
- Dorsal fin origin far in front of anal fin origin
- Anal fin base $\frac{1}{2}$ length of dorsal fin base
- No lateral line
- Rounded caudal fin

Order Esociformes

Family Esocidae

(Pikes and Pickerels)

- 5 species worldwide (4 NA)
- Large, duckbill-like snout
- Many small cycloid scales
- Forked caudal fin
- Long, cylindrical body
- One dorsal fin
- Dorsal and anal fins far back on body
- Abdominal pelvic fins



Muskellunge
Esox masquinongy

- Partly scaled cheek and opercle
- Dark spots, blotches, or bars on back
- No suborbital bar
- 16-19 branchiostegal rays
- 6-10 submandibular pores



Northern Pike

Esox lucius

- Fully scaled cheek and partly scaled opercle
- Light bean-shaped spots on back (adult) or wavy bars in young
- No suborbital bar
- 13-16 branchiostegal rays
- 5-6 submandibular pores



Grass Pickerel (Redfin)

Esox americanus

- Fully scaled cheek and opercle
- Dark wavy bars along side
- Black suborbital bar slanted to rear
- 11-13 branchiostegal rays
- 4 submandibular pores

Order Cypriniformes

Family Catostomidae

(Suckers, Redhorses, Jumprocks)

- 68 species worldwide (63 NA)
- Large, thick lips
- Protrusible premaxillae
- No fin spines
- No teeth on the jaws
- Numerous comb-like or molar-like teeth on each pharyngeal arch
- One dorsal fin
- Anal fin far back on body
- Abdominal pelvic fins
- Cycloid scales
- No scales on head

Quillback (*Carpiodes cyprinus*)

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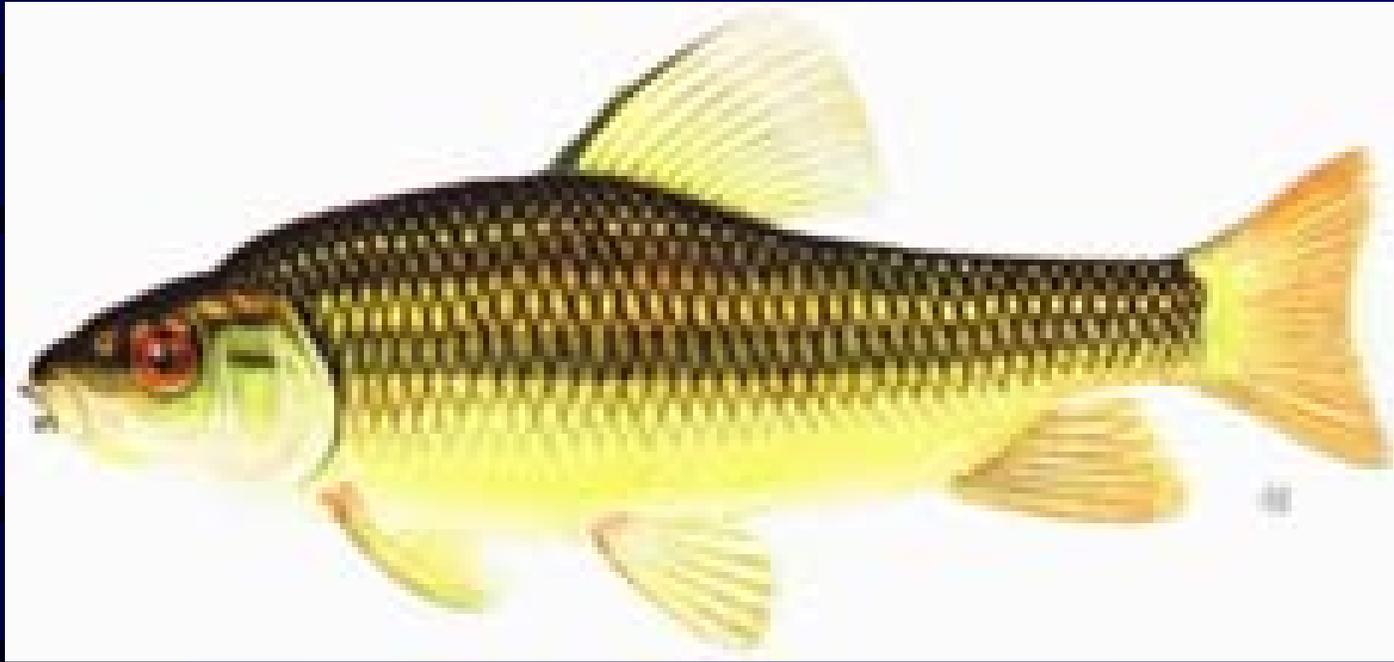
Quillback Carpsucker
Carpiodes cyprinus

- Long dorsal fin (23-30 dorsal rays)
- Deep body
- Long 1st dorsal ray not reaching rear of dorsal fin base
- Subtriangular subopercle



Spotted Sucker
Minytrema melanops

- 8-12 parallel rows of dark spots on
- back and side
- No lateral line
- Small, horizontal mouth with thin plicate lips



Lake Chubsucker

Erimyzon sucetta

- Deeper body than creek chubsucker
- 34-39 lateral scales
- Lacks dark blotches along side



Creek Chubsucker

Erimyzon oblongus

- Small, slightly oblique, nearly terminal mouth
- Plicate lips
- No lateral line
- 40-45 lateral scales
- 5-8 confluent dark blotches on side



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Northern Hogsucker
Hypentelium nigricans

- Large, triangular head
- Head concave (adults) or broadly flat (juv) between eyes
- 3-6 dusky brown saddles
- Many large papillae on lips
- Large, fleshy lips on horizontal mouth

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Golden Redhorse

Moxostoma erythrurum

- Fairly stout caudal peduncle
- Dorsal fin usually concave
- 39-42 lateral line scales
- Plicate lips
- V- or U-shaped rear edge on lower lip
- Forked caudal fin with equal, pointed lobes

Silver Redhorse (*Moxostoma anisurum*)



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Silver Redhorse
Moxostoma anisurum

- Straight or slightly convex dorsal fin
- Acutely V-shaped rear edge on deeply divided lower lip
- Many small papillae on upper and lower lips
- Equal, usually pointed lobes on forked caudal fin



David Stagliano

Shorthead Redhorse
Moxostoma macrolepidotum

- Short head, approx. 20% of standard length
- Plicate lips with large papillae on lower lip
- Nearly straight rear edge on lower lip



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White Sucker

Catostomus commersoni

- Nearly cylindrical body
- Deep median lower lip notch
- Lower lip about 2X thickness of upper
- Caudal peduncle depth $>1/2$ dorsal fin base
- 55-70 lateral line scales

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Longnose Sucker
Catostomus catostomus

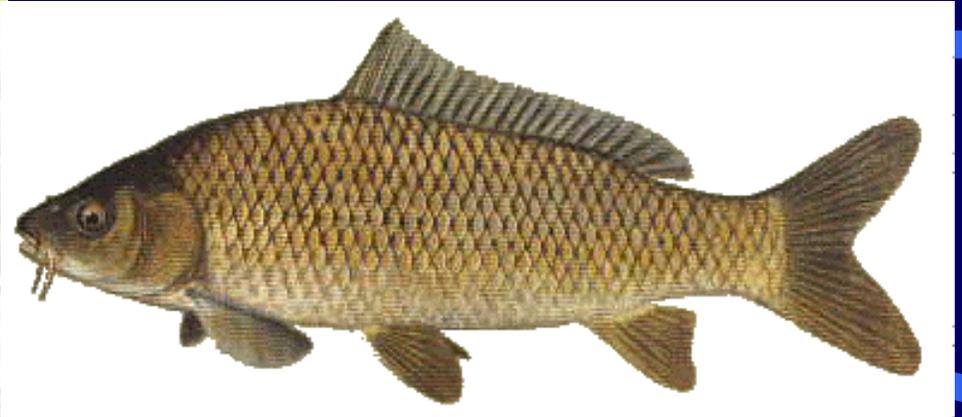
- Nearly cylindrical body
- Long snout
- Very deep median lower lip notch
- 2 rows of papillae on upper lip
- >90 lateral line scales

Order Cypriniformes

Family Cyprinidae

(Shiners, Minnows, Dace, and Chubs)

- $\approx 2,100$ species, 231 NA
- Many small cycloid scales
- Lateral line present, rarely absent
- 1 dorsal fin
- No teeth in the mouth
- No adipose fin present
- Abdominal pelvic fins
- No fin spines



Common Carp
Cyprinus carpio

- Long dorsal fin, 17-21 rays
- Dorsal and anal fins with strong, serrated spine
- 2 pairs of barbels on each side of upper jaw, rear barbel much larger
- Large scales
- >32 lateral line scales
- Subterminal mouth

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Goldfish

Carrasius auratus

- Long dorsal fin base, >11 soft rays
- Dorsal and anal fins with strong, serrated spine
- No barbels
- <32 lateral line scales

Photo by Konrad Schmidt



Photo by Konrad Schmidt



Central Stoneroller
Campostoma anomalum

- Subterminal mouth
- 46-55 lateral scales
- Prominent cartilaginous ridge on lower jaw
- Long intestine (herbivorous)
- Irregular brown to black blotches on and side



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Redside Dace

Clinostomus elongatus

- Protractile premaxillaries
- No barbel on maxillary
- 59-75 lateral scales
- Body with single dusky band
- Pale peritoneum
- Complete lateral line
- Narrow head, sharp snout, large gape
- Upper jaw extends back to eye



Photo by Konrad Schmidt

Blacknose Dace

Rhinichthys atratulus

- Non-protractile premaxillaries (no groove across snout in midline)
- Prominent lateral band
- Subterminal mouth
- Snout barely projects beyond mouth
- Barbel in corner of mouth
- 53-70 lateral scales



Photo by Konrad Schmidt

Longnose Dace
Rhinichthys cataractae

- Non-protractile premaxillaries (no groove across snout in midline)
- Lateral band indistinct or absent
- Subterminal mouth
- Snout long, and projects far beyond mouth
- Barbel in corner of mouth



Photo by Konrad Schmidt

Creek Chub

Semotilus atromaculatus

- Protractile premaxillaries (groove across snout)
- Maxillary with barbel
- Large terminal mouth
- Barbel in front of posterior end of upper jaw, often hidden in groove
- Black spot at anterior base of dorsal fin
- 52-62 lateral scales
- Upper jaw extends to vertical through front of eye



Photo by Konrad Schmidt

Pearl Dace

Margariscus margarita

- Protractile premaxillaries (groove across snout)
- Maxillary with barbel
- Small mouth
- Barbel in front of posterior end of upper jaw, often hidden in groove
- No black spot at anterior base of dorsal fin
- 49-78 lateral scales
- Upper jaw does not extend to a vertical through front of eye

Photo by Konrad Schmidt



Hornyhead Chub

Nocomis biguttatus

- Protractile premaxillaries, maxillary with barbel
- Slender, terminal barbel
- 38-45 (large) lateral scales
- Snout projects slightly over subterminal mouth
- Large dusky spot at base of caudal fin
- Distinct mid-dorsal line and lateral band

Photo by Konrad Schmidt



Silver Chub

Macrhybopsis storeriana

- Protractile premaxillaries, maxillary with barbel
- Slender, terminal barbel
- 35-48 lateral scales
- Large eye on upper half of head
- Snout projects considerably over subterminal mouth
- Stripe along midside indistinct or absent



Photo by Konrad Schmidt

Northern Redbelly Dace

Phoxinus eos

- Very small scales
- Protractile premaxillaries
- No barbel on maxillary
- Lateral line ending at middle of body
- 70-90 lateral scales
- Body with 2 black lateral bands
- Strongly oblique, curved mouth
- Upper jaw length $< 1/4$ head length



Golden Shiner

Notemigonus crysoleucas

- Extremely compressed body
- Strongly decurved lateral line
- Scaleless keel along belly from pelvic to anal fin
- Small, upturned mouth; pointed snout
- 44-54 lateral scales



Photo by Konrad Schmidt

Fathead Minnow
Pimephales promelas

- Much smaller scales on nape than rest of body
- Head short and flat on top
- Herringbone lines on upper side
- Terminal, slanted mouth
- Round eye on side of head



Bluntnose Minnow
Pimephales notatus

- Much smaller scales on nape than rest of body
- Blunt snout overhanging small, sub-terminal, horizontal mouth
- Top of head and nape flattened
- Dorsal fin origin slightly behind pectoral fin origin
- Dusky to black stripe around snout
- Black spot on caudal fin base



Photo by Konrad Schmidt

Suckermouth Minnow
Phenacobius mirabilis

- Large, fleshy lips on subterminal mouth
- Intense black spot on caudal fin base
- Thin dark stripe along side of body
- Thin dark stripe along back
- Small eyes



Silverjaw Minnow
Notropis buccatus

- Large silver-white chambers on cheek
- Flattened on underside of head
- Upwardly directed eyes high on head
- Long snout; subterminal mouth
- 31-36 lateral scales



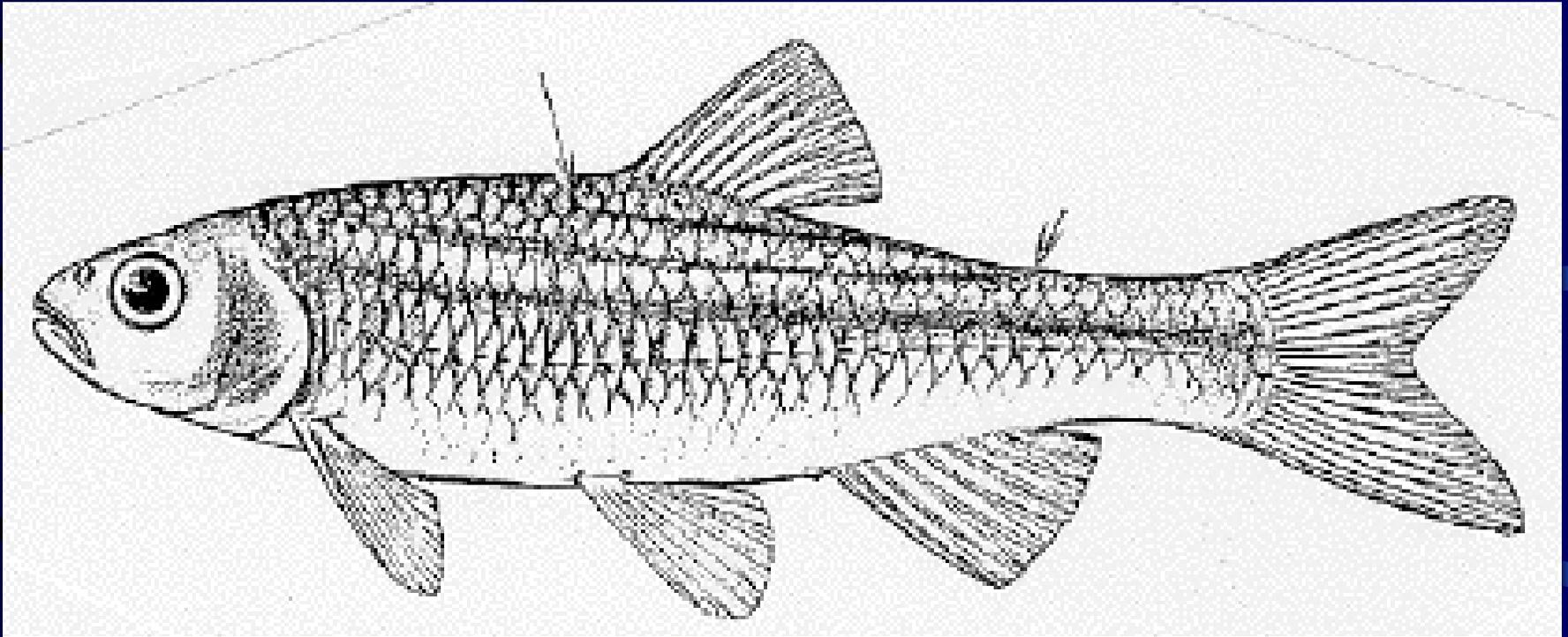
Photo by Konrad Schmidt



Common Shiner

Luxilus cornutus

- Large scales, much deeper than wide on front half side of body
- Deep, strongly compressed body
- Dusky to black bar along body behind operculum
- Large, oblique, terminal mouth
- 1-2 dark stripes on upper side parallel to stripe along back



Striped Shiner

Luxilus chrysocephalus

- Large scales, much deeper than wide on front half side of body
- Deep, strongly compressed body
- Dusky to black bar along body behind operculum
- Large, oblique, terminal mouth
- Dark stripes on upper side meet those on other side to form large Vs



Photo by Konrad Schmidt

Emerald Shiner

Notropis atherinoides

- 8 dorsal rays; no barbel
- Scales on front half of side not much taller than wide
- Scales on nape about the same as on the side
- Slender, compressed body
- Large, terminal, slanted mouth, reaching back to eye
- Dorsal fin origin behind pelvic fin origin



Rosyface Shiner
Notropis rubellus

- 8 dorsal rays; no barbel
- Scales on front half of side not much taller than wide
- Scales on nape about the same as on the side
- Sharp, pointed snout longer than eye diameter
- Slender, compressed body
- Dorsal fin origin well behind pelvic fin origin
- Black streak along side



Photo by Konrad Schmidt

Sand Shiner

Notropis ludibundus

- 8 dorsal rays; no barbel
- Scales on front half of side not much taller than wide
- Scales on nape about the same as on the side
- Complete, decurved lateral line
- Dusky stripe along back expanded to dark wedge at dorsal fin origin
- Rounded snout; small, slightly subterminal mouth

Photo by Konrad Schmidt



Spottail Shiner

Notropis hudsonius

- 8 dorsal rays; no barbel
- Scales on front half of side not much taller than wide
- Scales on nape about the same as on the side
- Large eye; short, rounded snout; subterminal mouth
- Large black caudal spot
- Dorsal fin origin over or slightly in front of pelvic fin origin

Photo by Konrad Schmidt



Spotfin Shiner
Cyprinella spiloptera

- Scales on side diamond shaped
- Dusky to black bar on chin
- White edges on fins of large males
- Strongly compressed
- Black blotch on rear half of dorsal fin
- Pointed snout and terminal mouth

Order Atheriniformes

Family Atherinidae

(Silversides)

- 160 species, 3 NA
- Mostly marine
- Small, silvery, compressed
- Scales on the head
- Terminal mouth
- Long snout
- Long, sickle-shaped anal fin
- Abdominal pelvic fins
- 2 widely separated dorsal fins, 1st small with spines
- No lateral line



Photo by Konrad Schmidt

Brook Silverside
Labidesthes sicculus

- Long, beak-line snout, about 1.5X eye
- 2 widely separated dorsal fins, 1st with spines
- Long, sickle-shaped anal fin

Order Atheriniformes

Family Fundulidae

(Topminnows and Killifish)

- 40 total sp., 24 NA sp.
- Flattened head and back
- Uprturned mouth
- Large eyes
- Spineless fins
- 1 dorsal fin far back on body
- No lateral line
- Abdominal pelvic fins
- North and Middle America
- Fresh, brackish, and salt water



Photo by Konrad Schmidt

Banded Killifish
Fundulus diaphanus

- 10-20 green-brown bars along side
- Males with wider and more bars
- Long, slender body
- Dorsal fin origin before anal fin origin
- No lateral line
- 40-49 lateral scales

Order Atheriniformes

Family Poeciliidae

(Livebearers)

- 150 total sp., 19 NA sp.
- Males with front rays of anal fin elongated and modified into gonopodium
- Internal fertilization
- Top of head flattened
- Strongly upturned mouth
- No lateral line
- 1 dorsal fin
- Abdominal pelvic fins
- Mostly tropical in fresh and brackish waters
- Give birth to live young
- Differ from killifish in that the 3d anal ray is unbranched



Western Mosquitofish
Gambusia affinis

- Upper 4-6 pectoral fin rays of males thickened and usually curved upward
- Dark scale outlines give x-hatched appearance
- Females much larger than males
- Large dusky to black teardrop
- 1-3 rows of black spots on dorsal and caudal fins
- Black anal spot on pregnant females

Order Cypriniformes

Family Cobitidae

(Loaches)

- >175 sp. known
- Native to fresh waters of Eurasia, Morocco, & Ethiopia
- Wormlike to fusiform body
- Subterminal mouth
- 3-6 pairs of barbels
- Tiny or no scales
- Rounded to deeply forked caudal fin
- Some with adipose fin



Photo by Konrad Schmidt

Oriental Weatherfish

Misgurnus anguillicaudatus

- Long, cylindrical body
- 10-12 barbels around mouth
- Rounded caudal fin
- Stout spine on pectoral fin
- Tiny scales
- Usually dark spots on dorsal and caudal fins

Order Scorpaeniformes

Family Cottidae

(Sculpins)

- >300 species, most marine
- 27 NA species
- Suborbital stay, bony connection of bones under eye with front of gill cover
- Large mouth
- 1-4 preopercular spines
- Large, fan-like pectorals
- Thoracic pelvic fins
- No or few ctenoid scales
- 2 dorsal fins, 1st with spines, 2nd longer with rays
- Long anal fin, no spines

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Deepwater Sculpin

Myoxocephalus thompsoni

- Large gap between dorsal fins
- Extremely wide, flat head
- Bony plates along lateral line
- Mouth extends to beneath eye
- Large, disc-like scales on back and side above lateral line
- Long body, wide at front, tapered to extremely slender caudal peduncle
- Complete to nearly complete lat line
- 4 preopercular spines, upper 2 large and directed upward and appearing as 1 spine, lower 2 directed downward
- Dark brown to green mottling
- 4-7 green saddles
- 3 pelvic fin rays

Photo by Konrad Schmidt



Mottled Sculpin

Cottus bairdi

- Large head
- Incomplete lateral line, 18-36 pores
- Dorsal fins joined at base
- Dark brown to black mottling on back and side
- 2-3 dark brown to black bars on side
- Uniformly speckled chin
- Large black spots on front and rear of 1st dorsal fin
- 3 preopercular spines
- 4 pelvic fin rays
- 6-9 dorsal spines, 15-18 dorsal rays
- Usually 2 pores at tip of chin

Slimy Sculpin

Cottus cognatus

- Long, fairly slender body
- Prickles often on head and behind pectoral fin base
- Dorsal fins separate at base
- Usually incomplete lateral line, 12-26 pores
- Dark gray mottling on back and upper side
- Usually 3 pelvic fin rays
- Often 2 dark saddles under 2nd dorsal fin
- Large black spots on front and rear of 1st dorsal fin, sometimes joined
- 2-3 preopercular spines (uppermost large)
- 2 pores at tip of chin
- 7-9 dorsal spines, 10-11 anal rays



Order Perciformes

Family Moronidae

(Temperate Basses)

- 4 North American species
- Compressed, deep-bodied
- 2 dorsal fins, 1st with 9 spines and 2nd with 1 spine and 11-14 rays
- 3 anal spines
- Large mouth
- Ctenoid scales
- Thoracic pelvic fins
- Complete lateral line
- Large spine on operculum
- Pseudobranch on underside of operculum
- Strongly sawtoothed preopercle



White Bass

Morone chrysops

- 4-7 dark gray stripes on silver-white side
- Deep body, strongly arched behind head deepest between dorsal fins
- Clear to gray dorsal and caudal fins
- Clear to white paired fins
- 2nd anal spine distinctly shorter than 3rd
- 11-13 anal rays
- 1-2 patches of teeth on rear of tongue



White Perch

Morone americana

- No dark gray stripes on side
- Body deepest under 1st dorsal fin
- Dusky fins
- 2nd anal spine about same length as 3rd ; 9-10 anal rays
- No teeth on tongue

Order Perciformes

Family Centrachidae

(Sunfishes and Black Basses)

- 30 North American sp.
- All are NA and freshwater
- Laterally compressed
- 2 dorsal fins, 1st with spines, 2nd with rays
- Dorsal fins broadly joined
- 3-8 anal spines
- Ctenoid scales
- Thoracic pelvic fins
- Complete lateral line
- No spine on operculum

Photo by Konrad Schmidt



Largemouth Bass

Micropterus salmoides

- 1st dorsal fin highest at middle
- 1st and 2nd dorsal fins nearly separate
- Very large mouth, extending well past eye
- Broad black stripe/series of blotches on side and onto snout
- 60-72 lateral scales
- 13-14 dorsal rays, 14-15 pectoral rays, 11-12 anal rays



Smallmouth Bass

Micropterus dolomieu

- Bronze specks, often as 8-16 bars on side
- Large mouth with jaw extending under eye
- 69-77 lateral scales
- 13-14 dorsal rays
- 11 anal rays
- Usually no patch of teeth on tongue

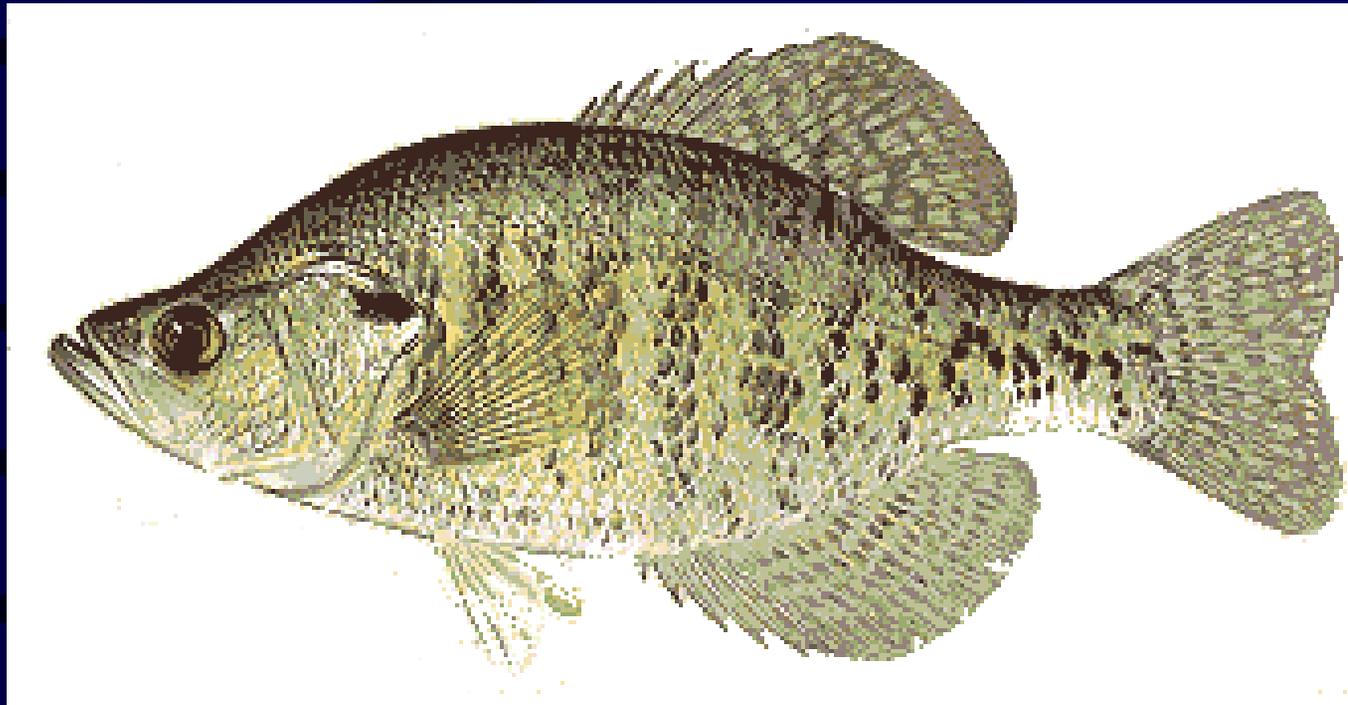
Photo by Konrad Schmidt



Black Crappie

Pomoxis nigromaculatus

- Deep, very compressed body
- Long predorsal region with sharp dip over eye
- 7-8 dorsal spines, 1st much shorter than last
- Dorsal fin base as long as distance from eye to dorsal fin origin
- Wavy black lines/blotches on side
- Many wavy black bands/spots on dorsal, caudal, and anal fins
- 15-16 dorsal rays
- 6 anal spines and 17-19 rays
- Large mouth with upper jaw extending below eye



White Crappie

Pomoxis annularis

- Long predorsal region with sharp dip over eye
- 6 dorsal spines, 1st much shorter than last
- Large mouth with upper jaw extending below eye
- Wavy black lines/blotches on side
- Many wavy black bands/spots on dorsal, caudal, and anal fins
- 15-16 dorsal rays
- 6 anal spines and 17-19 rays



Warmouth

Lepomis gulosus

- Deep, strongly compressed body
- Shallowly forked caudal fin
- Dark red-brown lines radiating back from eye
- Dark mottling on back and upper side
- Large mouth, upper jaw extending under or beyond eye pupil
- 3 anal spines and 9-10 rays
- Patch of teeth on tongue
- Short, rounded pectoral fins, usually not reaching past eye when bent forward
- Short ear flap; stiff rear edge on opercle
- 36-44 lateral scales, 14 pectoral rays



Photo by Konrad Schmidt

Rock Bass

Ambloplites rupestris

- Rows of brown-black spots on side, largest below lateral line
- About 5 dark saddles over back & down to midside
- Adult dorsal, caudal, & anal fins with black edges
- 7-8 scales above lateral line
- 6 anal spines and 10-11 rays
- 21-25 scale rows across breast from pectoral fin to pectoral fin
- 11-13 dorsal spines
- 36-47 lateral scales



Green Sunfish

Lepomis cyanellus

- Fairly long snout
- Upper jaw extending back to pupil
- Fairly slender, thick body
- Adult with large black spot at rear of 2nd dorsal and anal fin bases
- 41-53 lateral scales, 13-14 pectoral rays, 3 anal spines & 9 anal rays
- Green wavy lines on cheek and opercle
- White to yellow edge on black opercular flap
- Short, rounded pectoral fin usually doesn't reach past eye when bent forward
- Stiff rear edge of operculum
- Complete lateral line



Photo by Konrad Schmidt

Longear Sunfish

Lepomis megalotis

- Wavy blue lines on cheek and opercle
- Short and rounded pectoral fins not reaching to eye when bent forward
- Fairly large mouth, upper jaw extends under eye pupil
- Opercle with thin, flexible rear edge
- Very long opercular flap with white edge on rear
- Unspotted fins
- Body marbled blue on dark red to orange background
- Complete lateral line
- 33-46 lateral scales, 13-14 pectoral rays, 3 anal spines, 9-10 anal rays, 5-7 scale rows on cheek



Bluegill Sunfish

Lepomis macrochirus

- Large black spot at rear of dorsal fin
- Dark vertical bars along side
- Deep, very compressed body
- Long, pointed pectoral fin, extends past eye when bent forward
- Opercle with thin, flexible rear edge
- Fairly long black opercular flap
- Small mouth does not extend back to eye pupil
- Complete lateral line
- 38-48 lateral scales
- 13 pectoral rays
- 3 anal spines & 11 anal rays



Photo by Konrad Schmidt

Pumpkinseed

Lepomis gibbosus

- Bold brown wavy lines or orange spots on 2nd dorsal, caudal, & anal fins
- Deep, very compressed body
- Long, pointed pectoral fin, extends past eye when bent forward
- Opercle with stiff rear edge
- Small black opercular flap with orange spot & light rear edge
- Small mouth does not extend back to eye pupil
- Wavy blue lines on cheek/opercle
- Complete lateral line
- 35-47 lateral scales
- 12-13 pectoral rays
- 3 anal spines & 10 anal rays

Order Perciformes

Family Percidae

(Darters, Perches, Walleye, Sauger)

- 153 North American sp.
- Laterally compressed
- 2 dorsal fins, 1st with spines, 2nd with rays
- Dorsal fins broadly joined
- 2 anal spines
- Ctenoid scales
- Thoracic pelvic fins with 1 spine and 5 rays
- Complete lateral line



Yellow Perch

Perca flavescens

- Fairly deep, compressed body
- Forked caudal fin
- 6-9 green-brown saddles extend down yellow side
- Black blotch at rear of dusky 1st dorsal fin
- Yellow to red paired fins
- Large mouth extends to mid eye
- No canine teeth
- 12-14 dorsal rays, 6-8 anal rays
- Complete lateral line

Photo by Konrad Schmidt



Walleye

Sander vitreus

- Long, slender body
- Huge mouth extends beyond middle of eye; long pointed snout
- Large canine teeth
- Opaque, silver eye
- Large black spot on rear of 1st dorsal fin
- Forked caudal fin
- 5-12 dusky saddles extend to side as bars
- Wavy brown bands on yellow fins
- 19-22 dorsal rays, 12-14 anal rays
- Complete lateral line



Logperch

Percina caprodes

- Bulbous snout extends well beyond upper jaw
- Wide, flat area between eyes
- Many alternating long & short bars along side extend over back to join those on other side
- Black spot on caudal fin base
- Scutes on breast
- Bars uniform, not constricted @ middle
- Dusky teardrop present
- Gas bladder present
- 2 anal spines
- No scales on top of head, usually none in area in front of pectoral fin



Blackside Darter

Percina maculata

- Gas bladder present
- 2 anal spines
- Complete lateral line
- No interruptions in head canals
- Scutes on the breast
- Distinct medial black caudal spot
- Prominent tear drop
- 8-9 dark saddles
- 6-9 large oval black blotches on side
- 1st dorsal fin dusky, black at front & along base
- Fully scaled opercle



Photo by Konrad Schmidt

Johnny Darter

Etheostoma nigrum

- No gas bladder, no scutes on breast
- Dark brown X's & W's on side
- Wavy brown lines on upper side
- 6 dark brown saddles
- Black teardrop
- No premaxillary frenum
- Black spot @ front of 1st dorsal fin
- Often with white knobs on tips of anal spine
- Interrupted infraorbital supra-temporal canals
- Narrowly joined branchiostegal membranes
- Moderately blunt snout
- Slender caudal peduncle
- Complete lateral line

Photo by Konrad Schmidt



Rainbow Darter

Etheostoma caeruleum

- No gas bladder, no scutes on breast
- Deep body, deepest under middle first dorsal fin
- Dark bars on side
- 6-10 dark saddles, 2-3 prominent
- Unscaled cheek and breast
- Black spot @ front of 1st dorsal fin
- Dorsal, caudal, and anal fins red w/blue edge
- Uninterrupted infraorbital canals
- Orange branchiostegal membranes
- Incomplete lateral line

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Iowa Darter

Etheostoma exile

- No gas bladder, no scutes on breast
- Slender body; long, narrow caudal peduncle
- Dark brown mottling, often short bars on side
- Black teardrop
- 1st dorsal fin with blue edge & base, red in middle
- 8 infraorbital canal pores
- Incomplete lateral line, 19-34 pores

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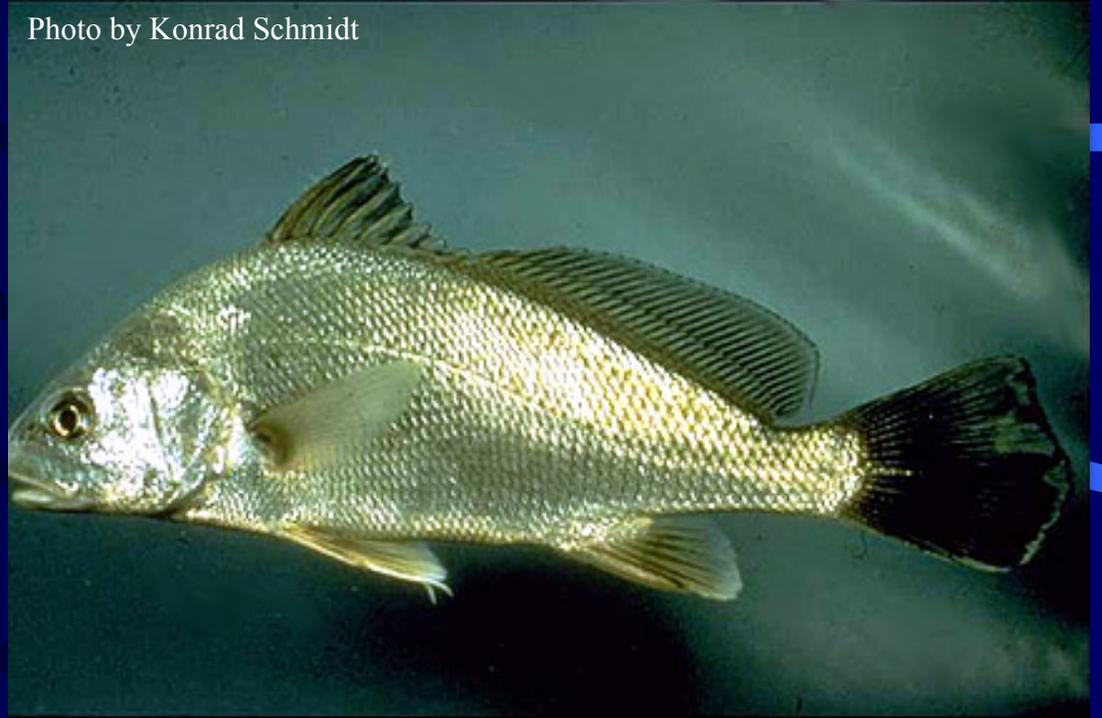
Fantail Darter

Etheostoma flabellare

- No gas bladder, no scutes on breast
- Unscaled nape
- Teardrop narrow or absent
- Infraorbital canal widely interrupted
- 4 front pores, 2 rear pores
- Black bands on 2nd dorsal and caudal fins
- Gold knobs on tips of dorsal spines in adult
- Broadly joined branchiostegal membranes
- Protruding lower jaw; pointed snout
- Incomplete lateral line

Family Sciaenidae

Photo by Konrad Schmidt



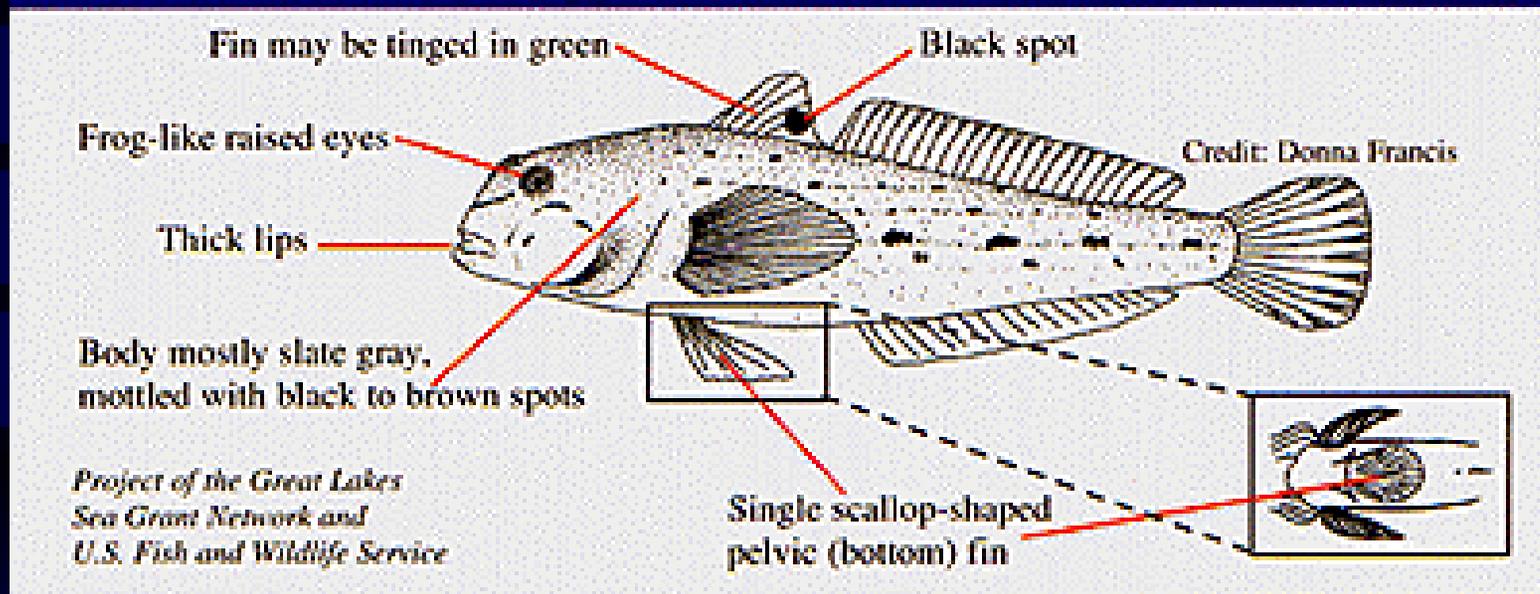
Freshwater Drum

Aplodinotus grunniens

- Strongly arched body
- Subterminal mouth
- Dusky fins, except white pelvic fins
- Pointed caudal fin
- Outer pelvic ray a long filament
- 2nd dorsal fin about 2X length of 1st ; 10 dorsal spines

Family Gobiidae (Gobies)

How to Identify a Round Goby (adult shown)



General Characteristics

- No other native fish in the Great Lakes has the single pelvic fin
- Young are solid slate gray
- Usually 3-6 inches (7.6 - 15.2 cm) long; may be up to 10 inches (25.4 cm)