

Vertebrate Zoology Lab

■ On Card

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- ◆ Favorite Vertebrate: *Trachemys scripta elegans*

■ Office Hours

- ◆ My office is CHH 48

Introduction to Ohio Fishes

Some fishes found in
northeastern Ohio

Taxonomic Hierarchy

- Kingdom = Animalia
- Phylum = Chordata
- Subphylum = Vertebrata
- 3 major classes:
 - ◆ Agnatha (hagfish & lamprey)
 - ◆ Chondrichthyes (shark, skates & rays)
 - ◆ Osteichthyes (bony fish)

Class Agnatha

- Order Petromyzontiformes

- ◆ Lampreys: Family Petromyzontidae

- ◆ Eel-like

- ◆ Sucker-disc mouth

- ◆ Parasitic and non-parasitic forms

- ◆ Our collection:

- ◆ *Ichthyomyzon unicuspis* (silver lamprey)

- ◆ *Lampetra aegyptera* (least brook lamprey)

- ◆ *Petromyzon marinus* (sea lamprey)

- ◆ *Myxine* sp. (Hagfish)

Hagfish (not present in Ohio)

Myxine sp.



Silver Lamprey

Ichthyomyzon unicuspis

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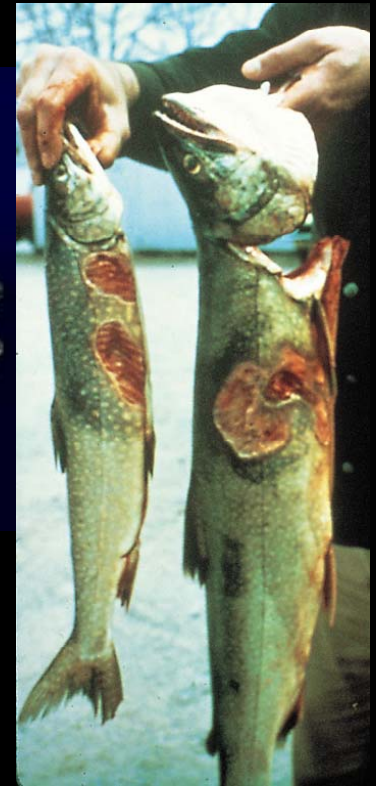
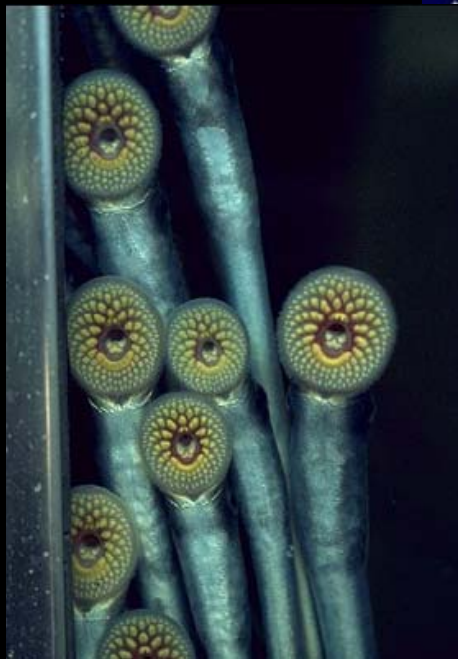
Least Brook Lamprey

Lampetra aepyptera



Petromyzon marinus

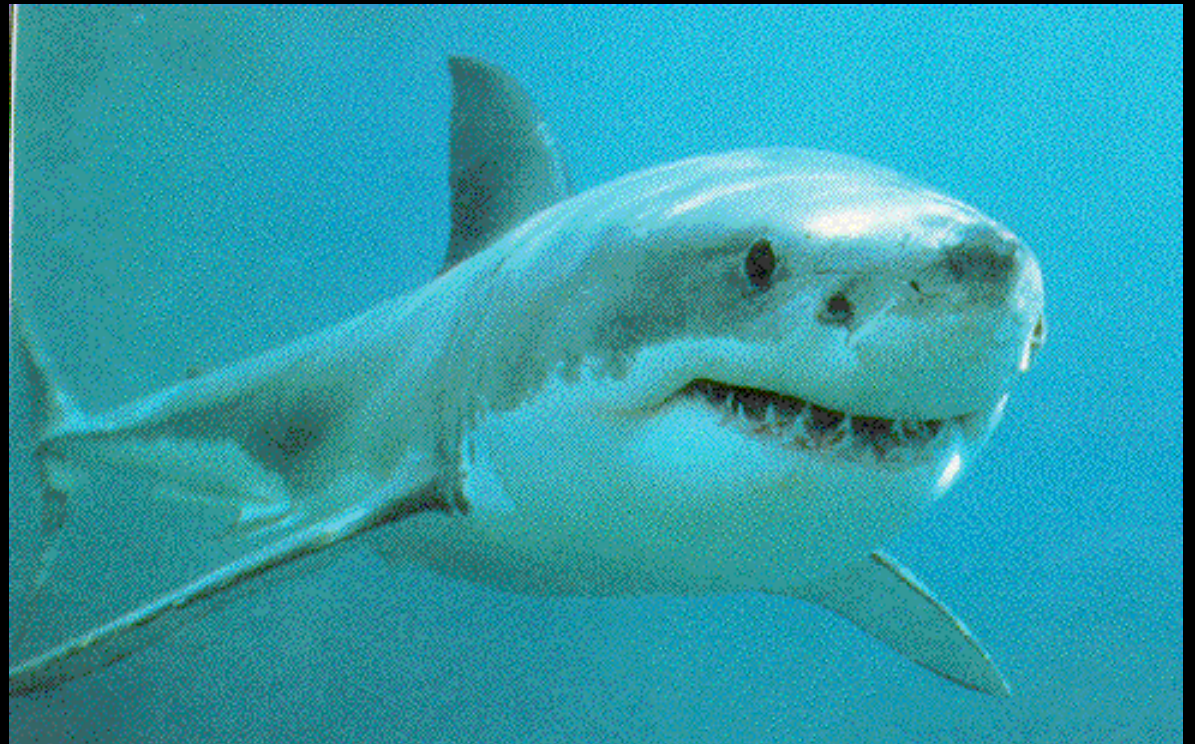
Sea Lamprey



Attached to *Salvelinus namaycush* (lake trout)

Class Chondrichthyes

- No fish in collection (do not occur in Ohio)
- Sharks, skates, and rays



Class Osteichthyes (bony fishes)

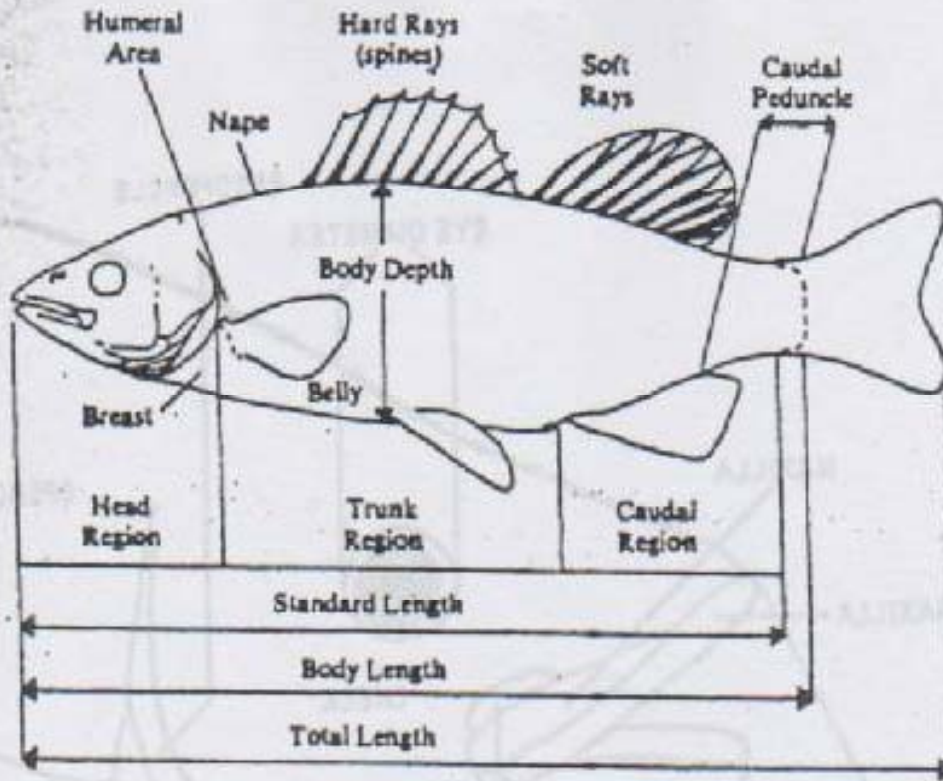


Figure 1.

- Mouth Position
- Fin types and locations
- Spines and rays
- Operculum
- Lateral line

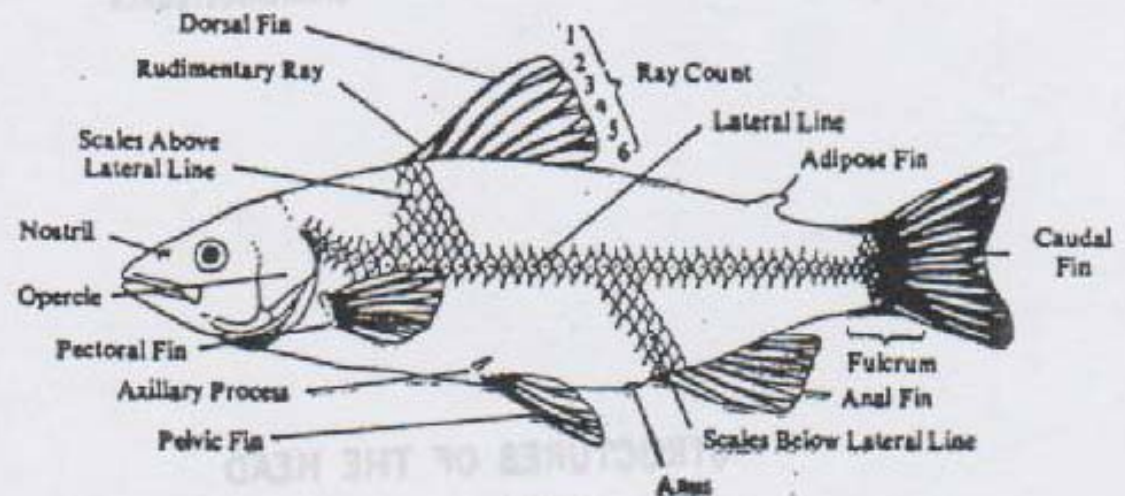
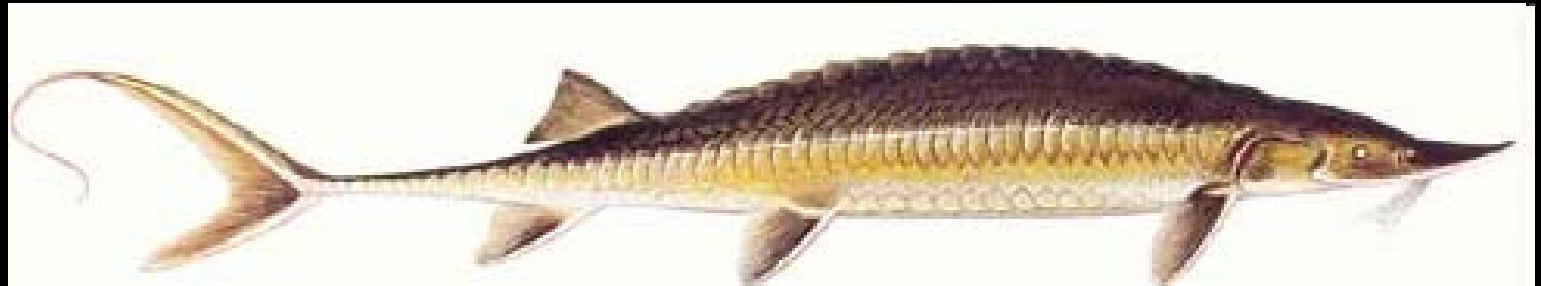
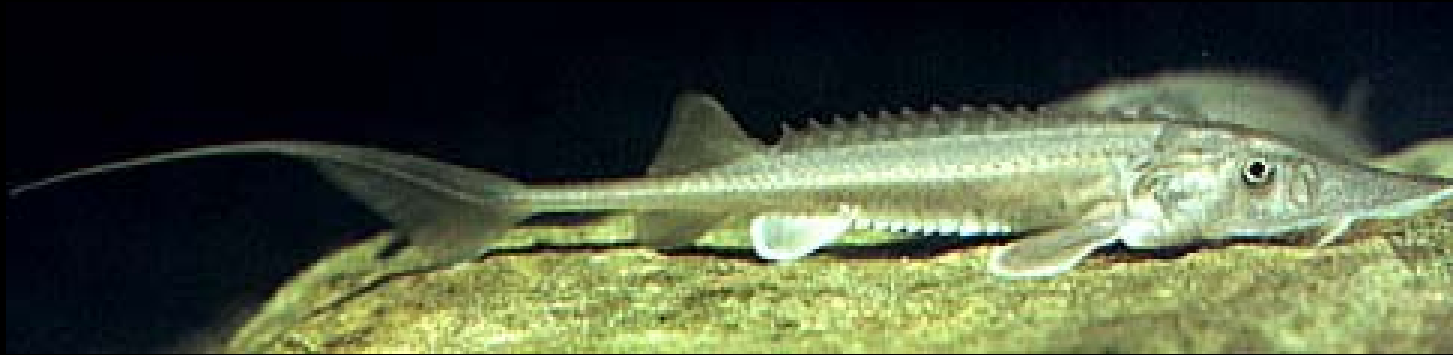


Figure 2.

Order Acipenseriformes
Family Acipenseridae

Scaphirhynchus platyrhynchus
(shovelnose sturgeon)



Acipenser fulvescens
(lake sturgeon) not in collection



Family Polyodontidae
Polyodon spathula
(paddlefish) (not in collection)



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Order Amiiformes

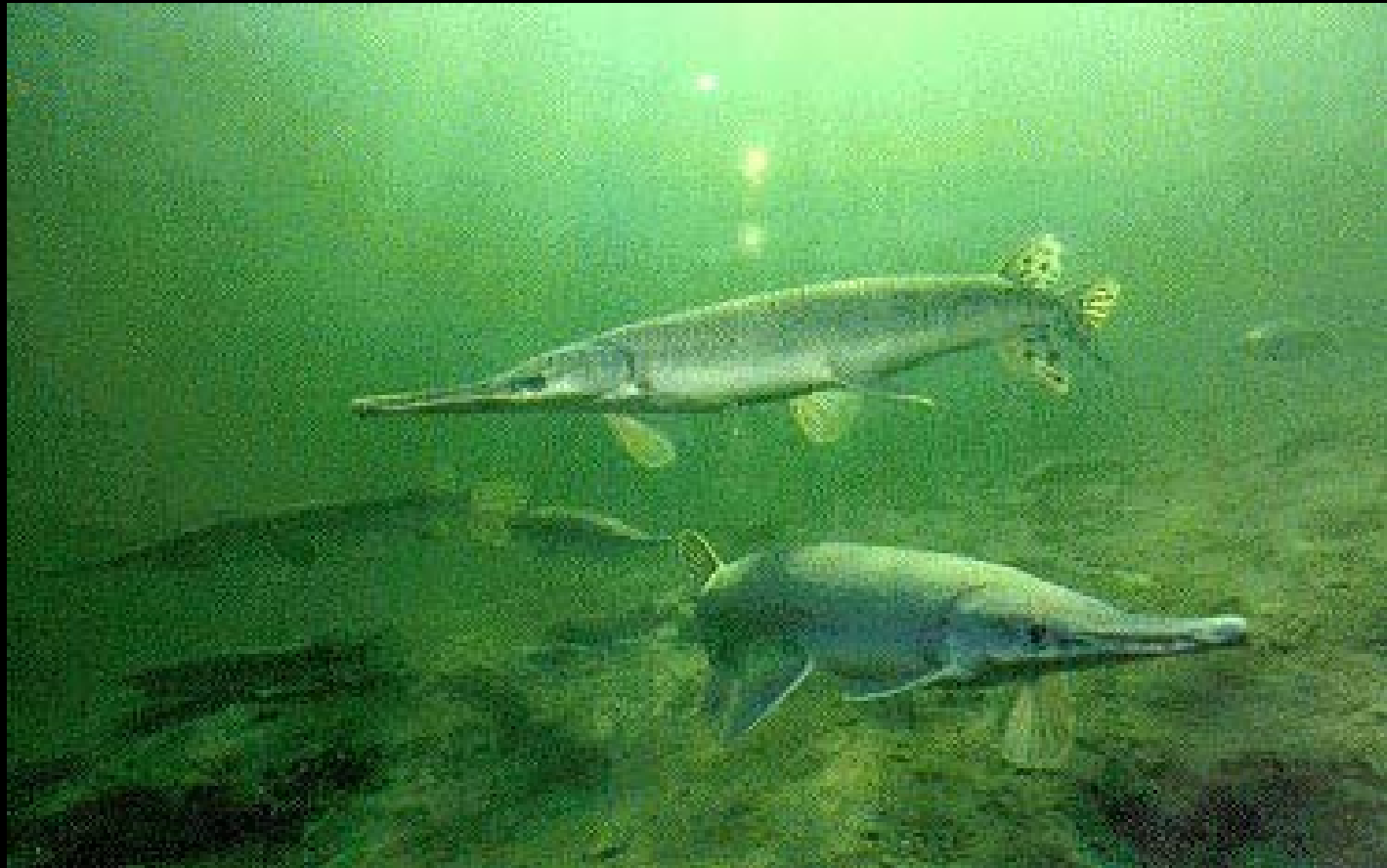
- Family Amiidae
- *Amia calva* (bowfin)—do not have in collection



Order Lepisosteiformes

- Family Lepisosteidae (gars)

- ◆ *Lepisosteus osseus* (longnose gar)



Order Clupeiformes

- Family Clupeidae (shad, herrings & sardines)
 - ◆ *Dorosoma cepedianum* (gizzard shad)



Order Salmoniformes

Family Salmonidae



Salmo gairdneri
(rainbow trout)
-- in collection

Crimson on opercle
and down body



Salmo trutta
(brown trout)
-- not in collection

Large, dark spots



Salvelinus fontinalis
(brook trout)
-- in collection
Dark body, light spots,
vermiculated dorsum

Family Umbridae

Umbra limi (mudminnow)



Family Esocidae

Esox americanus (Grass Pickerel)



Order Cypriniformes

- Family Cyprinidae (minnows)
- Family Catostomidae (suckers & redhorses)
- Family Ictaluridae (catfish/bullheads)

Family Cyprinidae

- Dorsal fin lacks spines or has only one specialized spine
- No adipose fin
- Dorsal fin generally has 8 rays

Campostoma anomalum (central stoneroller)



Carassius auratus (goldfish)



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Cyprinus carpio
(Common carp)



Daces



Clinostomus elongatus
(redside dace)

Large supraterritorial
mouth—no barbels

Phoxinus erythrogaster
(redbelly dace)

Small terminal
mouth—no barbels

Rhinichthys atratulus
(western blacknose
dace)

Small subterminal
mouth with small
barbels and upper lip
fused to snout -
mustache

Pimephales notatus (bluntnose minnow)

Scales crowded
& irregular on
nape



Ericymba biccatus (silverjaw minnow)



Nocomis micropogon
(river chub)



Semotilus atromaculatus (creek chub)



Shiners



Luxilus cornutus
(common shiner)
no barbels, upper
sides with
horizontal lines
that do not
converge



*Notemigonus
crysoleucas*
(golden shiner)
Scale-less keel
behind pelvic
fins, strongly
curved lateral line

Family Catostomidae

- Sucker-shaped, subterminal mouth
- No dorsal spines
- Collection has 4 species
 - ◆ *Catostomus commersoni* (white sucker)
 - ◆ *Hypentelium nigricans* (northern hogsucker)
 - ◆ *Minytrema melanops* (spotted sucker)
 - ◆ *Moxostoma erythrurum* (golden redhorse)

Catostomus commersoni
(white sucker)



Hypentelium nigricans
(northern hogsucker)



Minytrema melanops
(spotted sucker)



Family Ictaluridae

- No scales on body
- Well developed barbels (“whiskers”) on mouth
- Pectoral and dorsal fins with single stiff spine
- Adipose fine present

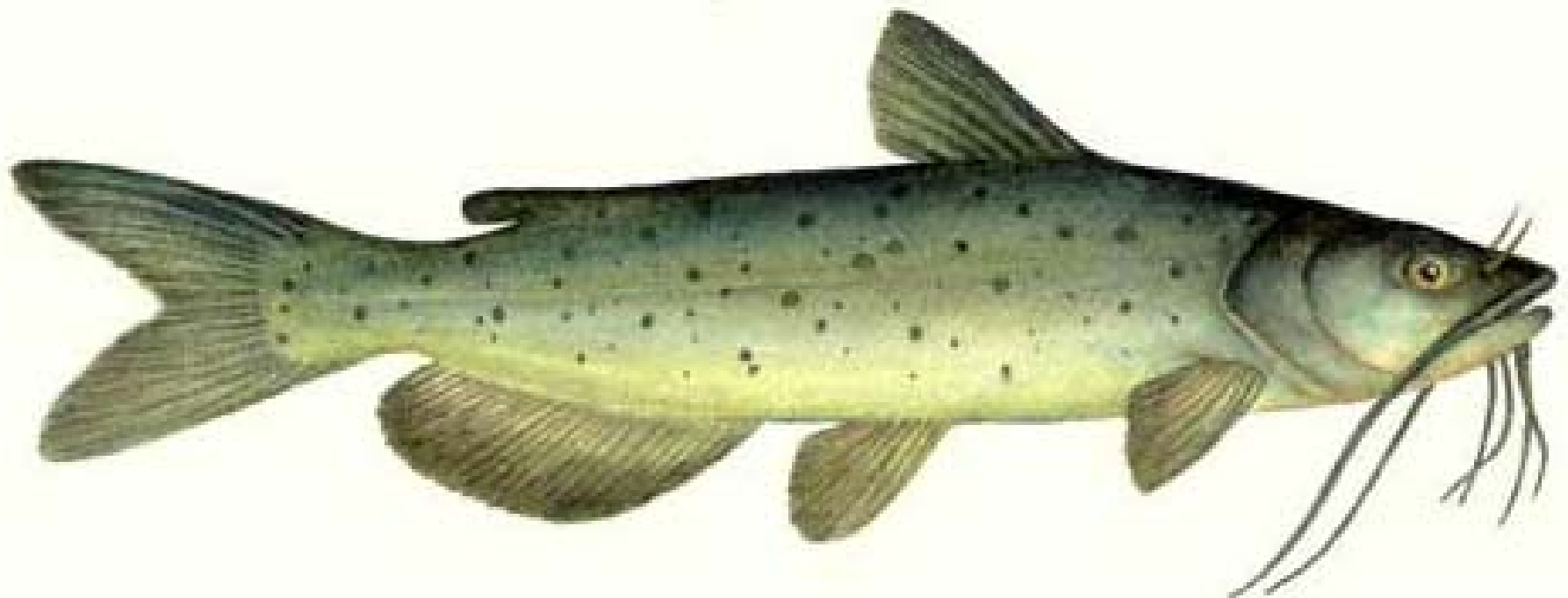
Ameiurus natalis
(yellow bullhead)



Ameiurus nebulosus
(brown bullhead)



Ictalurus punctatus (channel catfish)



Order Cyprinodontiformes

- Family Gasterosteidae

- ◆ *Culaea inconstans* (brook stickleback)



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Order Perciformes

- Family Moronidae (temperate basses)
- Family Centrarchidae (sunfish)
- Family Percidae (perches—including darters)
- Family Gobiidae (gobies)

Family Centrarchidae

- Dorsal fin with spines and rays, usually not separate
- Anal fin with 3 or more spines
- Edge of opercle smooth (not serrated)
- Collection has 11 species in 4 genera
 - ◆ *Ambloplites* (rock bass)
 - ◆ *Lepomis* (sunfish, bluegill)
 - ◆ *Micropterus* (bass)
 - ◆ *Pomoxis* (crappie)

Ambloplites rupestris
(rock bass)



Genus *Lepomis*

- Deep body (body depth goes into standard length less than 3 times)
- Collection has 5 *Lepomis* species
 - ◆ *Lepomis cyanellus* (green sunfish)
 - ◆ *Lepomis gibbosus* (pumpkinseed sunfish)
 - ◆ *Lepomis gulosus* (warmouth)
 - ◆ *Lepomis macrochirus* (bluegill)
 - ◆ *Lepoimis microlophus* (redeer sunfish)
 - ◆ *Lepomis megalotis* (longear sunfish)

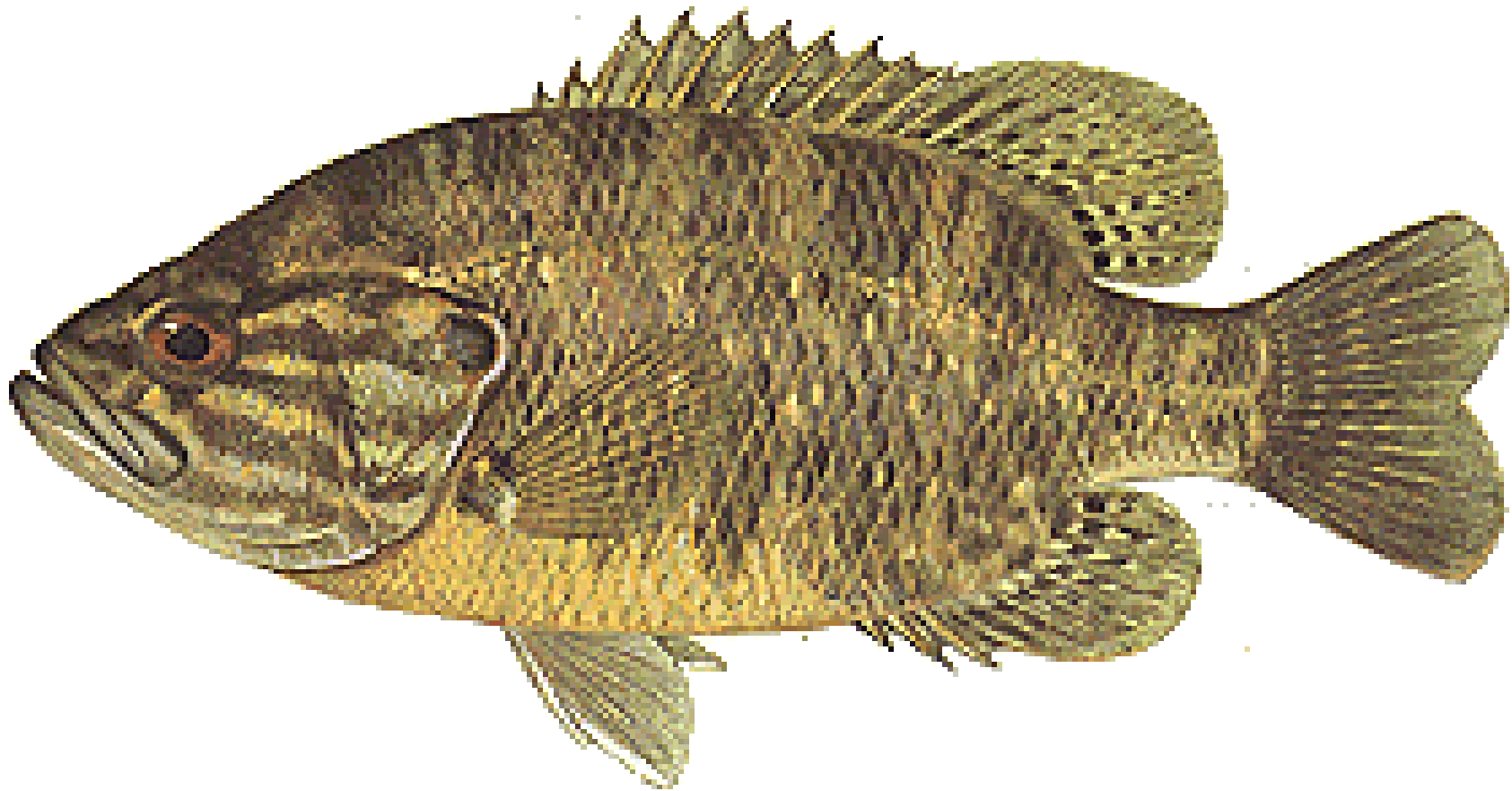
Lepomis cyanellus
(green sunfish)



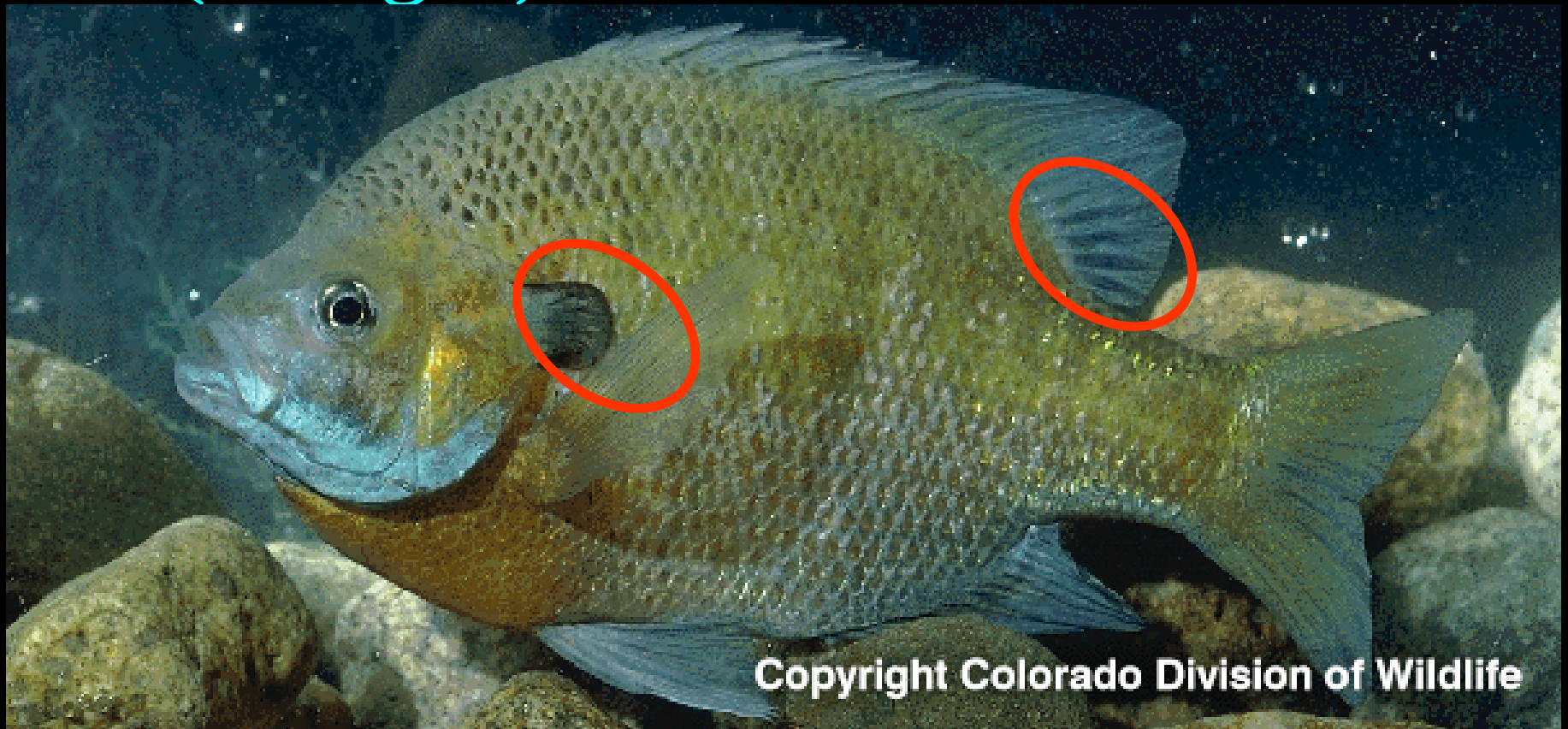
Lepomis gibbosus
(pumpkinseed sunfish)



Lepomis gulosus
(warmouth)



Lepomis macrochirus
(bluegill)



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Micropterus dolomieu
(smallmouth bass)



Micropterus salmoides
(largemouth bass)



Genus *Pomoxis*

- ≤ 4 anal fin spines
- 4-9 dorsal fin spines
- Large mouth
- Collection has 2 species
 - ◆ *Pomoxis nigromaculatus* (black crappie)
 - ◆ *Pomoxis annularis* (white crappie)

Pomoxis nigromaculatus
(black crappie)



Pomoxis annularis
(white crappie)



Family Percidae

- Separated soft and spinous dorsal fins
- 1 or 2 anal fin spines
- Collection has 8 species
 - ◆ *Etheostoma blennioides* (greenside darter)
 - ◆ *Etheostoma caeruleum* (rainbow darter)
 - ◆ *Etheostoma flabellare* (fantail darter)
 - ◆ *Etheostoma nigrum* (johnny darter)
 - ◆ *Perca flavescens* (yellow perch)
 - ◆ *Percina caprodes* (logperch)
 - ◆ *Percina maculata* (blackside darter)
 - ◆ *Stizostedion vitreum* (walleye)

Etheostoma blennioides
(greenside darter)



Etheostoma nigrum (johnny darter)

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Etheostoma caeruleum
(rainbow darter)



Etheostoma flabellare
(fantail darter)

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Percina caprodes
(logperch)



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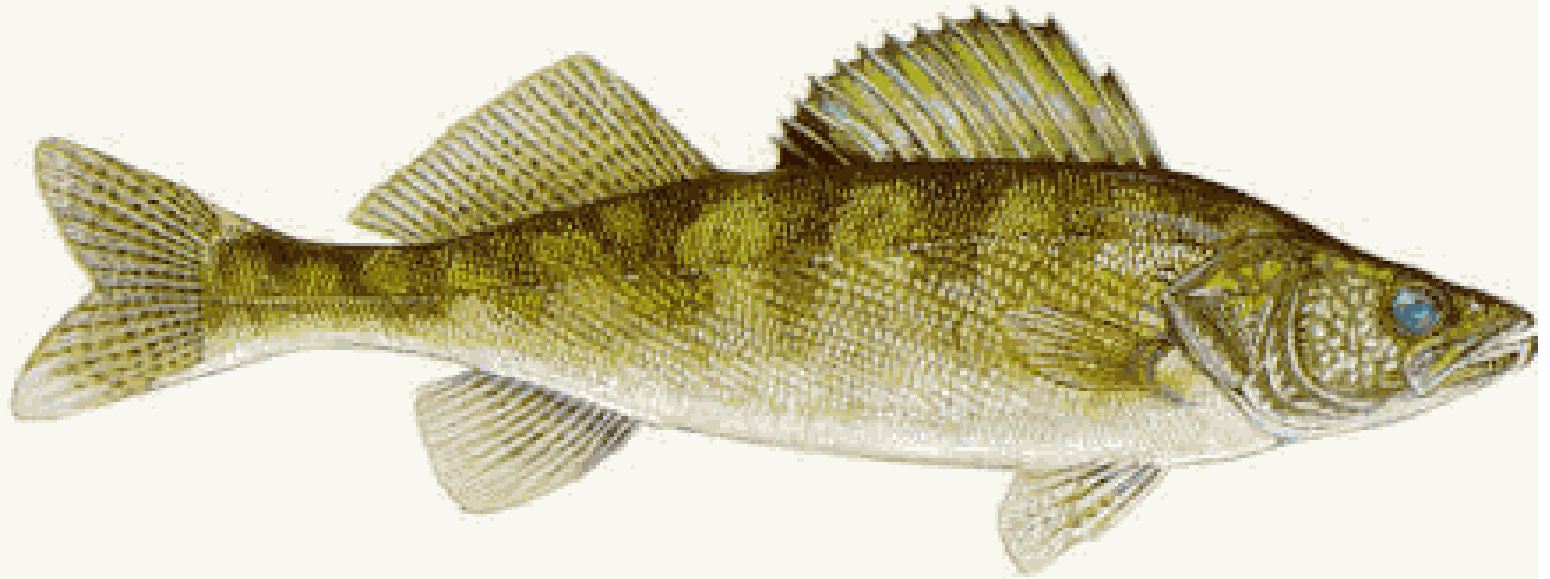
Percina maculata
(blackside darter)



Perca flavescens
(yellow perch)



Stizostedion vitreum (Walleye)



Family Cottidae
Cottus bairdi
(Central mottled sculpin)



Family Atherinidae

Labidesthes sicculus

(Brook Silversides)



Tips and care of specimen

- Lay out similar groups in one tray
 - ◆ i.e., by Family
- Use the Fishes Key – available in front of room
- Supplement with:
 - ◆ Flashcards
 - ◆ Drawings
 - ◆ Photographs
- Use allotted lab time
- Use dissecting tray with moist paper towel
- Clean tables afterwards
- Replace fish TAIL FIRST

Acknowledgements

- www.cnr.colostate.edu/~brett/fw300/flashcard
- www.seagrant.wisc.edu/greatlakes/fish/framefish.html
- Ibs.uel.ac.uk/sp2000/fishbase/
- Shedd Aquarium (Chicago)
- Konrad P. Schmidt's site
- Colorado Division of Wildlife
- Lots of others...

Family Cyprinodontidae
Fundulus notatus
(Black stripe topminnow)



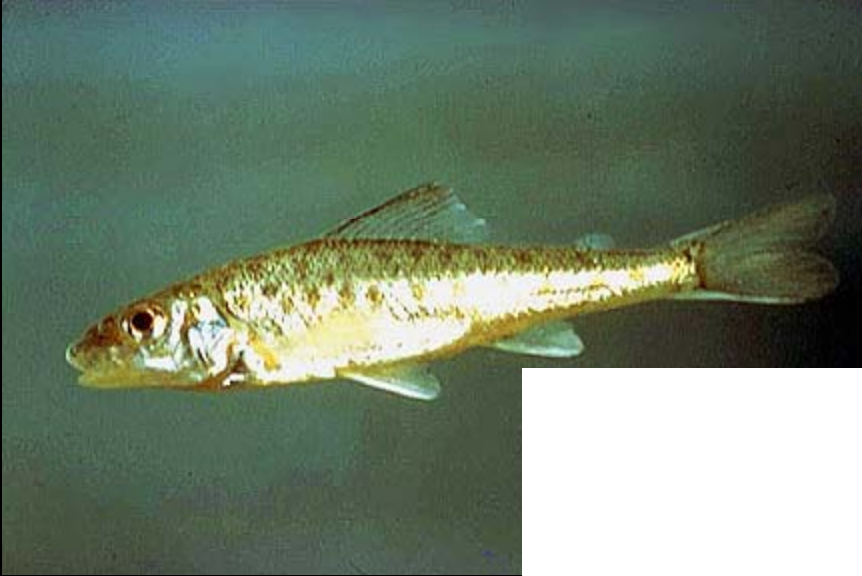
- Flattened head and nape
- Posteriorly placed dorsal fin

Family Poeciliidae

Gambusia affinis (Mosquitofish)



Percopsidae



Percopsis omiscomaycus
(Trout-Perch)



Adipose fin with rough (ctenoid) scales

Esocids not in collection



Esox lucius
(northern Pike)



Esox masquinongy
(muskellunge)

Other *Pimephales* species not in collection



Pimephales promelas
(fathead minnow)



Pimephales vigilax
(bullhead minnow)

Notropis rubellus (rosyface
shiner)

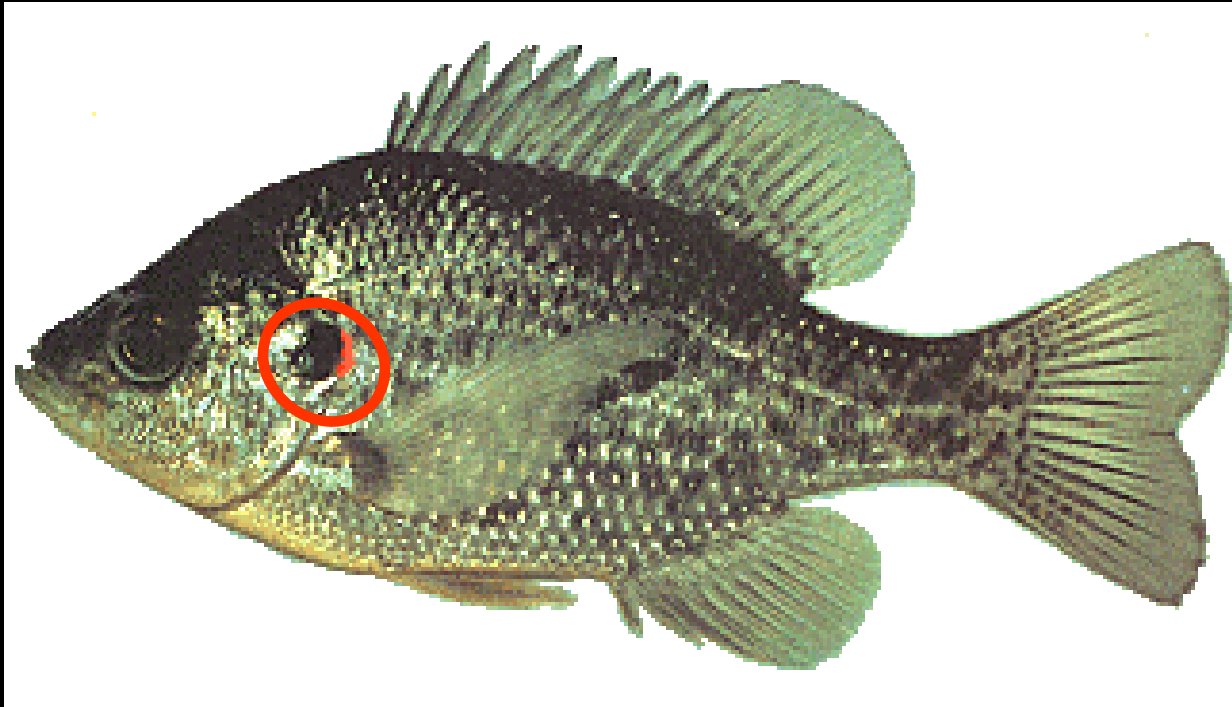


Noturus flavus (stonecat madtom)



Adipose fin fused with caudal peduncle, square caudal fin

Lepomis microlophus
(redear sunfish)



Pointed
pectoral fin,
no speckling
in dorsal or
anal fin, ear
flap with red
margin

Lepomis megalotis
(longear sunfish)



Small mouth,
rounded
pectoral fin, no
spot on dorsal
fin base, large
flexible earflap
may have red
margin

Neogobius melanostomus (Round goby)



Fused pelvic fin

Family Cyprinidae

- *Campostoma anomalum* (central stoneroller)
- *Carp*
 - *Carassius auratus* (goldfish)
 - *Cyprinus carpio* (common carp)
- *Daces*
 - ◆ *Clinostomus elongatus* (redside dace)
 - ◆ *Phoxinus erythrogaster* (redbelly dace)
 - ◆ *Rhinichthys atratulus* (western blacknose dace)
- *Minnows and shiners*
 - *Pimephales notatus* (bluntnose minnow)
 - *Pimephales promelas* (fathead minnow)

Family Cyprinidae continued

■ Shiners:

- ◆ *Luxilus cornutus* (common shiner)
- ◆ *Notemigonus crysoleucas* (golden shiner)
- ◆ *Notropis rubellus* (rosyface shiner)
- ◆ *Notropis hudsonius* (spottail shiner)
- ◆ *Notropis buccatus* (silverjaw minnow)

■ Chub

- ◆ *Nocomis micropogon* (river chub)
- ◆ *Semotilus atromaculatus* (creek chub)

Notropis hudsonius
(spottail shiner)



Moxostoma erythrurum (Golden Redhorse)



Ameiurus melas
(black bullhead)



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Family Moroniidae

- Dorsal fin with separate spine and ray portions
- Sharp spine on back of opercle
- 3 or more spines on anal fins
- Collection has 2 species
 - ◆ *Morone saxatilis* (striped bass)

Morone saxatilis (striped bass)



Striped bass - *Morone saxatilis*
averages 18-55 inches

2 parallel patches of teeth on tongue, shallow bodied,
6-9 stripes on side