A Guide to the Common Fishes of the Toledo Area

Orangespotted Sunfish, *Lepomis humilis*

Redfin Shiner, *Lythrurus umbratilus*

Greenside Darter, *Etheostoma blennioides*

Brook Silverside, *Labidesthes sicculus*

Stonecat Madtom, *Noturus flavus*

Northern Pike, *Esox lucius*

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***A Guide to the Common Fishes of the Toledo Area* was assembled with financial support by the National Science Foundation's GK-12 program Graduate Teaching Fellows in STEM High School Education: An Environmental Science Learning Community at the Land-Lake Ecosystem Interface.**

Special thanks to Philip Mathias and Justin Selden for their time and help capturing many of these fish for the photographs featured in this guide.

Special thanks to Brian and Julie Zimmerman for the use of their common shiner, *Luxilus cornutus*, photograph.

Family Cyprinidae – The Minnows

The minnow family is one of the most diverse families of fishes globally, with species that occupy all possible trophic guilds, from small algal and plant grazing species to large, toothy predators. The Cyprinidae are represented by sixteen species native to the Huron Erie Lake Plain, and two exotic species, the common carp and goldfish.

Pictured is the redfin shiner (*Lythrurus umbratilis*), one of our most spectacular Cyprinid species.

Campostoma anomalum – Central stoneroller

Figure 1 – Breeding male with tubercles

Figure 2 – Non-breeding color

Figure 3 – Under slung, U-shaped mouth

Distinctive Features:
A soft-bodied fish with an under slung, U-shaped mouth (Fig. 3). Breeding males have tubercles from head to tail and orange eyes and dorsal fins.

Confused With:
Juveniles are easily confused with the bluntnose minnow (pg 9), creek chub (pg 10), and white sucker (pg 11). All species lack the under slung, U-shaped mouth.

Natural History:
The stoneroller is our one species of fish that primarily grazes on algae. It has an intestinal tract that measures more than twice its body length, an adaptation that facilitates the breakdown of algae and detritus. The common name "stoneroller" is taken from the pit excavation behaviors of breeding males, where small stones are moved with the snout, body, or mouth.

The adult male central stoneroller is one of our most distinctive fishes. When breeding, males develop prominent, spike shaped tubercles on the head and body that facilitate spawning activity. These tubercles provide roughness and sensitivity (acting like fingers), assisting the male in keeping proximity to the female.

Water Quality Tolerance: Tolerant

Carassius auratus - Common goldfish

Figure 1 – Typical wild-type specimen

Figure 2 – Mouth detail lacking barbels

Distinctive Features:
A small, stocky fish with a large dorsal fin, just like "feeder" goldfish found in pet shops and at fairs. Coloration is highly variable; often olive-brown to orange, but predominantly olive-brown in the wild.

Confused With:
Extremely large goldfish could be confused with the common carp (pg 6). However, goldfish lack the prominent barbels of the common carp (pg 6, Fig. 2).

Natural History:
Goldfish are present locally from people releasing their pets into our waterways. The goldfish then becomes invasive in disturbed systems due to their tolerance of pollution. While the dominant color will become the wild type olive-brown (as opposed to orange) within a single generation, in some cases the orange coloration may not be "selected against" by predators due to goldfish overpopulation.

Water Quality Tolerance: Highly Tolerant

Cyprinella spiloptera - Spotfin shiner

Figure 1 – Spawning Male

Figure 2 – Female or non-breeding specimen

Distinctive Features:
An elongate but robust minnow with nearly uniform diamond-shaped scales, a terminal mouth with a slightly overlapping upper lip, and colored webbing in the dorsal fin**.**

Confused With:
Striped shiner juveniles (pg 6). The spotfin may be differentiated from the striped shiner by its uniform diamond-shaped scales and head morphology.

Natural History:
Spotfin shiners are typically found in larger, rocky stream segments such as the mainstem of the Maumee, Portage and lower Sandusky Rivers, and in the open Lake. This tendency usually separates the spotfin shiner from the striped shiner, which occurs in smaller streams.

Adults become tuberculate and develop white fin highlights during breeding, which the males flash at each other in dominance demonstrations.

Water Quality Tolerance: Semi-Tolerant

Cyprinus carpio - Common carp

Figure 1 – Adult specimen, the "mirror" variety

Figure 2 – Regular scale pattern, showing mouth detail and barbels

Distinctive Features:
Elongate dorsal fin with an extendable, down-turned, soft mouth and barbels on the cheeks.

Confused With:
A juvenile carp may be confused with a large adult wild goldfish (pg 5); the goldfish will lack the prominent barbels.

Natural History:
The common carp is perhaps the most viewed species of fish in our waterways, due to its large size and habit of basking in pools. For this reason, many people assume that carp are the only inhabitants of our streams. While true that they are one of the most tolerant species, this does not imply exclusivity.

Tenmile Creek was one of the primary points of introduction of the common carp in the Great Lakes, with a surprising number of unsuccessful attempts before finally succeeding in establishing breeding populations.

Water Quality Tolerance: Highly Tolerant

Luxilus chrysocephalus - Striped shiner

Figure 1 – Breeding male specimen

Figure 2 – Juvenile or non-breeding specimen

Figure 3 – Comparison of nape of *L. chrysocephalus* (left) to *L. cornutus* (right)

Distinctive Features:
Slab-sided, robust cyprinid with irregularly sized diamond-shaped, dark-margined scales. Breeding males are distinctly tuberculate and colorful.

Confused With:
Although rare in our area, you may also encounter an extremely similar species, the common shiner, *Luxlius cornutus*. The common shiner has irregularly sized scales along the back from the head (nape) to the dorsal fin with weakly colored margins, as seen in Fig. 3.

The striped shiner may also be confused with the spotfin shiner (pg 5), which has evenly sized diamond-shaped scales with weak, but linear margins across a series of scales.

Natural History:
The striped shiner is typically a headwater to small stream species that is adept at capturing insects above and on the surface of the water (allocthonus, or "out of system").

Water Quality Tolerance: Semi-Intolerant

Lythrurus umbratilis - Redfin shiner

Figure 1 – Breeding male specimen

Figure 2 – Juvenile or non-breeding specimen

Distinctive Features:
A delicate, fine-scaled, slab-sided cyprinid with a black bar across the dorsal origin in any age class.

Confused With:
A non-breeding male redfin shiner has a distinct likeness to the golden shiner (pg 7), which lacks the black bar across the dorsal origin (Fig. 2).

Natural History:
The breeding male redfin shiner (Fig. 1) is one of the most spectacular fishes in our region, with its steel blue body and bright red fins. When spawning, dominate males can be seen swimming in circles to "horde" females into breeding sites. These sites may be nests established by *Lepomis* sunfish or areas where the substrate is comprised of silt-free gravel.

The redfin is among the more sensitive local fish species and might be used as an indicator of biological integrity.

Water Quality Tolerance: Semi-Intolerant

Notemigonus crysoleucas - Golden shiner

Figure 1 – Adult specimen

Figure 2 – Juvenile or non-breeding specimen

Distinctive Features:
Slab-sided minnow with a distinctly up-turned mouth, an eye that is large in proportion to the head, golden fins, and black dots at each scale origin.

Confused With:
The golden shiner is often confused with the non-breeding redfin shiner (pg 7). The latter species has a distinctive black bar across the dorsal origin.

Natural History:
The golden shiner is infrequently found in the streams of the Lake Plain, but can represent a large proportion of the biomass in the Lake Erie marshes (second only to wild goldfish and/or carp). Adult fish have bright golden color in the fins, with black “checks” in their scale pattern across the body.

Water Quality Tolerance: Semi-Tolerant

Notropis atherinoides - Emerald shiner

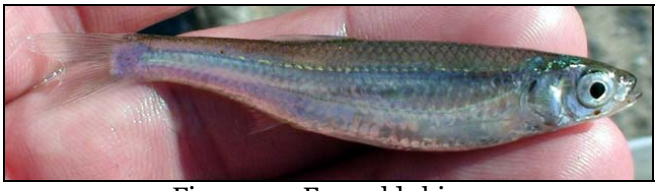

Figure 1 – Emerald shiner

Figure 2 – Dorsal green coloration

Distinctive Features:
A delicate, elongate, silver minnow with a terminal mouth and proportionately large eye. The most distinctive feature is the fact that the scales of this fish peel off when handling them.

Confused With:
The emerald shiner is most easily confused with the spottail shiner (pg 8), as both species frequently co-occur, and scales flake off both species during handling. The spottail shiner, however, has a deeper body and a distinctive black spot at the base of the tail.

Natural History:
The emerald shiner is typically a lake fish that may be locally and seasonally abundant in the low gradient segments of our waterways. Adult nuptial males will have a bright green patch on the back of the head and down the back (hence, the emerald shiner).

Water Quality Tolerance: Semi-Tolerant

Notropis hudsonius - Spottail shiner

Figure 1 – Spottail shiner

Figure 2 – Spot at the caudal peduncle; note the scales that have peeled off the fish

Distinctive Features:
A delicate, but somewhat slab-sided minnow with an under slung, yet terminal mouth, and a distinctive black spot (Fig. 2) at the base of the tail (caudal peduncle). The scales of this fish flake off if handled.

Confused With:
The spottail shiner is most easily confused with the emerald shiner (pg 8), as both species frequently co-occur, and scales flake off both species during handling. The spottail shiner, however, has a deeper body and a distinctive black spot at the base of the tail.

Natural History:
The spottail shiner is typically a lake species found within the in-shore zone of Lake Erie. It may be locally and seasonally abundant in the low gradient segments of our waterways.

Water Quality Tolerance: Semi-Tolerant

Pimephales notatus - Bluntnose minnow

Figure 1 – Breeding male specimen

Figure 2 – Juvenile or non-breeding specimen

Figure 3 – Mouth orientation

Distinctive Features:
A soft-bodied, elongate minnow, with a first dorsal spine that is half the size of the second (Fig. 1). Often with dark hatching along the lateral line and black spots at the base of the tail and on the dorsal fin. However, the most distinctive feature is the subterminal mouth (Fig. 3). Breeding males tuberculate.

Confused With:
The bluntnose minnow is easily confused with the fathead minnow (pg 9), creek chub (pg 10), and possibly the stoneroller (pg 4) if coloration is used as a guide. For this reason, it is suggested to examine the orientation of the mouth first before making assumptions about further specimens.

Natural History:
Nuptial males create a nest below a rock or nearly any object with a flat undersurface. While only one male will occupy a nest, several females may spawn with a single male. Several thousand eggs, often in various stages of development, may be found in any one nest.

Water Quality Tolerance: Highly Tolerant

Pimephales promelas - Fathead minnow

Figure 1 – Breeding male specimen

Figure 2 – Gravid female

Distinctive Features:
A soft-bodied, compressed minnow, with a first dorsal spine that is half the size of the second. Often with dark hatching along the lateral line. Breeding males are distinctly tuberculate.

Confused With:
The fathead minnow is confused with the bluntnose minnow (pg 9) and creek chub (pg 10). The fathead differs from the bluntnose in the orientation of the mouth (see bluntnose) and has finer scales. It differs from the creek chub in the size of the mouth with regard to the size of the head.

Natural History:
A nuptial male fathead is an immaculate specimen that historically would have only been found in the upper portions of pristine prairie streams. However, due to a pairing of compromised water quality and introduction from bait buckets, the fathead minnow has greatly expanded its range and increased in abundance.

Water Quality Tolerance: Highly Tolerant

Semotilus atromaculatus - Creek chub

Figure 1 – Creek chub

Figure 2 – Mouth detail

Figure 3 – Dorsal fin spot

Distinctive Features:
The creek chub is a robust, soft-bodied minnow species with a distinct black spot at the origin of the dorsal fin (Fig. 3). It also has a wide, terminal mouth (Fig. 2). Breeding males are tuberculate.

Confused With:
The creek chub may be confused with the bluntnose (pg 9) and stoneroller (pg 4) minnows. The creek chub differs in the mouth orientation and proportionate size of both other species.

Natural History:
Historically, the creek chub was a headwater species, well adapted to low nutrient environments with its aggressive nature and tolerance of extreme conditions. However, as water quality has degraded since European influence began, this species has greatly expanded its range and increased in abundance.

Water Quality Tolerance: Highly Tolerant

Family Catostomidae – The Suckers

The suckers are a family of fishes found in North America and northern Asia. Catostomids are typically thought of as "bottom feeders", which is true. Their soft mouthparts are evolved to sort through substrates like a vacuum cleaner, while their pharyngeal teeth grind and crush food items such as small mollusks, crustaceans, and aquatic insects.

What's typically overlooked are the ecosystem services provided by Catostomid behaviors, which 1) aerate and redistribute stagnant and silted sediment and 2) link benthic and pelagic food webs by liberating food items from the streambed that would otherwise be unavailable to pelagic species. While snorkeling clear North American streams, these behaviors and interactions might be observed by the fortunate onlooker. For example, schools of minnows or the occasional sunfish might be seen feeding in the "plume" following a small group of northern hog or white suckers. Many minnow species also use the scours from sucker spawns as nests for their own breeding activities, as they provide clean, silt-free substrates for spawning.

Pictured is a spotted sucker (*Minytrema melanops*), an elegant species of sucker.

Carpoides cyprinus - Quillback carpsucker

Figure 1 – Quillback carpsucker

Figure 2 - Lip detail

Distinctive Features:
No other sucker will have the elongate "quill-like" dorsal fin (Fig. 1).

Confused With:
Potentially confused with suckers belonging to genus *Ictiobus*, known as the buffalo fish, which co-occur and are found in the lower Maumee and Lake, but have been left out of this guide. Quillback differ by having an elongate "quill-like" dorsal fin.

Natural History:
The quillback is typically the largest sucker species commonly found in small streams such as the Ottawa River, Portage River, and Swan Creek. A full-sized adult will approach 10 lbs in weight. In many of the Lake Erie marshes, the quillback can represent a significant portion of the biomass, and seems to occupy a generalist niche similar to that of the exotic common carp. Perhaps for this reason, where quillback are largely present, carp are curiously absent.

Water Quality Tolerance: Tolerant

Catostomus commersonii - White sucker

Figure 1 – Spawning adult white sucker

Figure 2 – Juvenile white sucker

Figure 3 - Lip detail

Distinctive Features:
The only species of round-bodied sucker with dorsal scales that increase in size from head to tail. The nodules of the lips are also distinctive on larger specimens (Fig. 3).

Confused With:
Other round-bodied suckers, which do not have scales that increase in size. Juvenile specimens may also be confused with some minnow species, such as the central stoneroller (pg 4), bluntnose minnow (pg 9), and creek chub (pg 10).

Natural History:
The white sucker is the most tolerant and correspondingly abundant sucker species in Lake Plain streams. While only seasonally found in the mainstem of the Maumee, it is widespread in local tributary streams, including extreme headwaters.

The white sucker is also a species of Lake Erie and large migrations of lake-run adults (Fig. 1) occur each spring into tributary streams. These fishes can readily been seen in their activity below bridges on the Ottawa River at Upton, Secor, and Bancroft during the end of April and early May.

Water Quality Tolerance: Tolerant

Hypentelium nigricans - Northern hogsucker

Figure 1 – Northern hogsucker

Figure 2 - Lip detail

Distinctive Features:
The hogsucker's most distinctive feature is the dorsally flattened head with elevated eyes and sucker "snout" (Fig. 1).

Confused With:
Nothing else. This is perhaps our most distinctive species of fish.

Natural History:
The northern hogsucker historically inhabited nearly all of our waterways with the exception of the most extreme headwaters. Its presence has been significantly reduced due to siltation and eutrophication. Currently, it can only be found where streams segments still possess sand and gravel substrates with high abundances of benthic invertebrates. As such, this fish is rarely found in the Lake Plain but is abundant in other areas of Ohio, such as the Corn Belt Till Plains where the conveyance of gravel is greater and hogsucker habitat forms more readily.

Water Quality Tolerance: Semi-Intolerant

Minytrema melanops - Spotted sucker

Figure 1 – Spotted sucker

Figure 2 - Lip detail

Distinctive Features:
The spotted sucker is a silvery, round-bodied sucker with characteristically thin lips (Fig. 2) and a black dot at nearly all scale bases.

Confused With:
The spotted sucker is confused only with other round-bodied suckers, which will have different lip arrangements and lack the dot at most scale bases.

Natural History:
The spotted sucker is a low gradient species that was once prevalent in the streams of the Lake Plain and bays of Lake Erie. However, similar to the plight of the northern hogsucker, the spotted sucker's even greater intolerance to siltation and eutrophication has significantly reduced its presence in Ohio. Catches of spotted sucker are infrequent across most of its former range in our state, save a few higher quality streams.

Water Quality Tolerance: Intolerant

Moxostoma sp.- Redhorse suckers

Figure 1 – Golden redhorse sucker

Figure 2 –Lip detail of shorthead redhorse sucker

Figure 3 – Juvenile golden redhorse sucker

Distinctive Features:
Evenly sized, golden scales with large fleshy lips that are proportionate to body size (Fig. 2). Distinctive characteristics among the redhorse suckers are extremely nuanced and will not be covered in this guide.

Confused With:
Other round bodied suckers. See the white sucker (pg 11) and spotted sucker (pg 12) accounts for differences.

Natural History:
The redhorse suckers make up a significant percentage (if not the majority) of the biomass in the lower Maumee River, mainly represented by the golden (*M. erythrurum*) and shorthead *(M. macrolepidotum*) redhorse suckers.

As mentioned in the introduction of the Catostomidae, these fishes play a significant ecological role in local streams. They function as both a mechanism to free up food sources otherwise unavailable to other fishes, and provide aerated, silt-free spawning habitats for a host of other fish species.

Water Quality Tolerance: Semi-Intolerant

Family Ictaluridae – The Catfishes

Catfishes are found worldwide in a variety of habitats and possess some of the wildest adaptations imaginable. While not the most ornate of the catfishes globally, North American species are not without distinction, with their elongate barbels and scaleless bodies. Catfish are also well-known for the ability to "sting", which may occur during handling if stabbed by the venomous pectoral or dorsal fin spines.

Like the sucker family, the North American catfishes are often considered a “bottom-feeding” family. The truth is quite the opposite: the North American catfishes may be, in fact, our premier aquatic predators.

Pictured is a stonecat madtom (*Noturus flavus)*, a diminutive, yet equally predatory member of the catfish family.

Ameiurus sp.- Bullhead Catfishes

Figure 1 – Yellow bullhead

Figure 2 – Yellow bullhead barbel detail

Distinctive Features:
A catfish species with an extremely broad head in proportion to its body, a rounded tail, and a tiny, fleshy fin between the dorsal and caudal fins, called the adipose fin.

Among the bullhead species present in our streams, yellow bullhead (*A. natalis*) have yellow or white barbels on the chin (Fig. 2), while the black (*A. melas*) and brown (*A. nebulosus*) bullhead have black barbels. To distinguish between the black and brown bullhead, one should run the nail of their finger along the pectoral spine. If deeply serrated, it's a brown bullhead, if mostly smooth, it's a black bullhead.

Confused With:
Juvenile bullhead are often confused with the tadpole madtom (pg 15). The tadpole madtom will have an adipose fin that is fused with the caudal fin, while any bullhead will have a separate and distinct adipose fin.

Natural History:
Bullhead catfish are found primarily in low gradient, silty, hyper-productive areas of streams and lakes. They may be encountered in the Maumee mainstem, Lake Erie, and the upper most portions of ditches. In severely disturbed systems, bullhead catfish are often found along with common carp, *Pimephales* minnows, and green sunfish as the only surviving species.

Water Quality Tolerance: Highly Tolerant

Ictalurus punctatus - Channel catfish

Figure 1 – Juvenile channel catfish

Figure 2 – Detail of mouth and barbels

Distinctive Features:
A catfish species with a deeply forked tail (Fig. 1) and an upper jaw that extends over the lower jaw (Fig. 2). Specimens less than twenty inches typically have spots down the side of the body.

Confused With:
Other catfish species. No other catfish species native to the Lake Plain has such a deeply forked tail.

Natural History:
The channel catfish has a wide range of habitats where it can be found, but typically prefers open, large bodies of water where it hunts in a frantic "S" or "Figure 8" fashion, sensing everything throughout the water column.

The channel catfish is also sought after by fisherman, behind only the black basses and walleye in popularity among North American anglers.

Water Quality Tolerance: Tolerant

Noturus flavus - Stonecat madtom

Figure 1 – Stonecat madtom

Figure 2 – Stonecat madtom

Distinctive Features:
A catfish species with an elongate body and weakly developed adipose fin. The fins are typically yellow with darkened rays in the dorsal fin.

Confused With:
Other catfish species. See other catfish species accounts for differences, as the stonecat is the least distinctive among the group.

Natural History:
The stonecat madtom is an inhabitant of riffle complexes, living under rocks and hunting at night. It is rarely found under wood or other debris.

In spite of significant decreases in abundances historically due to siltation, the stonecat is readily found in the lower Maumee in any of the large riffles between Defiance and Maumee/Perrysburg, and corresponding habitat in the Portage River. It is also present but infrequently found in Swan Creek in Monclova Township, but is curiously absent from similar habitat in the Ottawa River in Sylvania.

Water Quality Tolerance: Semi-Intolerant

Noturus gyrinus - Tadpole madtom

Figure 1 – Tadpole madtom

Figure 2 – Adipose fin detail

Distinctive Features:
A catfish species with a fused adipose and caudal fin complex (Fig. 2).

Confused With:
The tadpole madtom is easily confused with juvenile bullhead catfish (pg 14). The tadpole madtom differs in having a fused adipose and caudal fin, while the bullhead catfish have a distinct, fleshy adipose fin.

Natural History:
Much like the bullhead catfish, tadpole madtoms are found in hyper-productive areas of streams and lakes, but are much less tolerant of siltation and pollution. They build nests in just about any material, with a preference for plant material locked together by roots (living) or depositional forces (decaying), but have found discarded bottles and cans as a suitable place for homemaking. Like the stonecat madtom, the tadpole madtom has decreased drastically across its historical range in Ohio.

Water Quality Tolerance: Semi-Intolerant

Family Esocidae – The Pikes

The pikes are a family of elongate predatory fishes occurring across the northern hemisphere (Holarctic). The most distinctive feature is their many rows of needle sharp teeth. We have three species native to the Lake Plain - two are still fairly present and described here; a third, the muskellunge (*E. masquinongy*), has been extirpated from our region but may return as water conditions and clarity improves.

Esox americanus vermiculatus - Grass pickerel

Figure 1 – Grass pickerel

Figure 2 – Cheek detail

Distinctive Features:
A small pike species that has scales over the whole of the cheek and gill plate (Fig 2).

Confused With:
Juvenile northern pike, which will only have scales on the upper most portion of the cheek and gill plate (see northern pike, Fig. 2).

Natural History:
The grass pickerel is a headwater predator species found in vegetated, low gradient systems. It was one of the dominant species found in the wet prairies of Lucas, Ottawa, and Sandusky counties prior to their draining.

The grass pickerel feeds on all manner of organisms, from small insect larvae, to larger prey like crayfish and other fish species (including small grass pickerel!). The growth rate of this fish from juvenile to adult is surprising, as it can happen in a series of months under the right conditions.

Water Quality Tolerance: Semi-Intolerant

Esox lucius - Northern pike

Figure 1 – Northern pike

Figure 2 – Cheek detail

Distinctive Features:
A large pike species with a predominantly scale-free cheek and gill plate (Fig. 2). The northern pike also has distinctive yellow spots once out of the juvenile stage.

Confused With:
Grass pickerel, which has scales over the whole of the cheek and gill plate (see grass pickerel, Fig 2).

Natural History:
The northern pike utilizes the smallest waterbody segment it can find for spawning. Due to this requirement, the northern pike has dramatically declined due to damming, habitat homogenization, and turbidity. Surprisingly, the advent of the exotic zebra mussel and consequent clearing of Lake Erie has marked a great increase in the abundance of this sight predator.

Water Quality Tolerance: Semi-Intolerant

Family Umbridae – The Mudminnows

The mudminnows are a small family, composed of six species globally and represented by one species in our area. They are all insectivorous fishes that live in hyper-productive habitats.

Umbra limi - Central mudminnow

Figure 1 – Central mudminnow

Figure 2 – Central mudminnow

Distinctive Features:
A brown pike-like fish, with a rounded caudal fin and short snout.

Confused With:
Possibly confused with a juvenile pike, although unmistakable once trained on the profile of this fish.

Natural History:
The central mudminnow is perhaps our most tolerant species with regard to brutal environmental conditions, so long as the system remains silt and relatively toxin free. In drying wetlands, the mudminnow is known to seek refuge in crayfish burrows until wet conditions return.

Water Quality Tolerance: Tolerant

Family Fundulidae – The Killifish

The killifish are globally represented by many different species in hyper-productive habitats of fresh and marine systems, typically where mosquito larvae occur. They are represented by two species in Ohio.

Fundulus notatus – Blackstripe topminnow

Figure 1 – Blackstripe topminnow male

Figure 2 – Blackstripe topminnow female

Distinctive Features:
The blackstripe topminnow has a dorsally flattened head, an upturned terminal mouth, and dark lateral stripe.

Confused With:
Possibly overlooked where *Pimephales* minnows (pg 9) are hyper-abundant, or confused with the central mudminnow (pg 17). No other species of fish will have such a dorsally flattened head.

Natural History:
The blackstripe topminnow lives at the surface of the water in hyper-productive environments such as prairie streams. This small fish feeds primarily on emerging dipteran larvae. It can be easily spotted near the water surface by a white spot on the back of the head.

Water Quality Tolerance: Tolerant

Family Poecilidae – The Livebearers

The livebearers are a New World family of fishes that fertilize internally and deliver their young after they've transformed from the larval phase. North American Poecilids typically occur in productive environs rich with mosquito larvae, while some Central American species are found in pristine mountain streams.

Gambusia affinis – Mosquitofish

Figure 1 – Male mosquitofish

Figure 2 – Female mosquitofish

Distinctive Features:
A small, clear fish with an iridescent patch on the cheek. Males will have a spear-like anal fin (Fig. 1).

Confused With:
Possibly confused with the blackstripe topminnow (pg 17); differs in size, the modified anal fin of the males (known as the gonipodium), and the iridescent patch.

Natural History:
Gambusia, or the mosquitofish, is a species that was introduced to our region for the control of mosquitoes. While the effort was appreciable, the mosquitofish is an aggressive species that is a highly successful parent bearing live young, and is often blamed for the extirpation and extinction of numerous endemic killifishes and pupfishes in North America. The cold winters are believed to keep them in check in our region.

Water Quality Tolerance: Highly Tolerant

Family Atherinopsidae – The New World Silversides

The silversides are predominantly a marine family, but are represented by a few inland species in North America. Only one species occurs in Ohio.

Labidesthes sicculus – Brook silverside

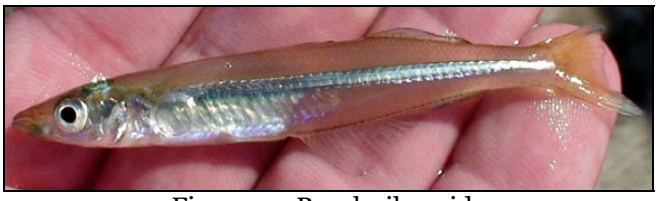

Figure 1 – Brook silverside

Figure 2 – Head detail

Distinctive Features:
A translucent, fragile fish with large eyes, beak-like mouth (Fig. 2), and distinctive fin arrangement.

Confused With:
Possibly confused with various minnows but differs greatly in body shape and profile.

Natural History:
While found in many stream segments of the area, the brook silverside reaches its greatest abundance in the open water of Lake Erie. This was not true historically; the brook silverside was once one of the most abundant species in the flooded river mouths of the lower Maumee and Portage rivers, but has been displaced due to siltation.

Water Quality Tolerance: Semi-Intolerant

Family Centrarchidae – The Sunfishes

The sunfish are strictly a North American family, and contain some of our most familiar and sought-after sport species, such as the largemouth and smallmouth bass. The sunfish are deep-bodied, slab-sided fishes that typically live in non-flowing (lentic) environs.

Three of the four genera occurring in Ohio practice parental care, where males build nests and guard young into early life stages. The males of the genus *Lepomis* are some of the most spectacularly colored fishes on our continent (sexually dichromatic from the females), exhibiting sharp blues and orange as part of their dominance display. There has also been documentation within *Lepomis* of subordinate, female-looking males (known as "sneaker males") that jet into the spawning ritual to fertilize eggs before the dominant males.

The species pictured is the orangespotted sunfish, *Lepomis humilus*, the smallest Ohio species of the family, but perhaps the most radiantly colored.

Ambloplites rupestris - Rock bass

Figure 1 – Rock bass

Figure 2 – Head detail

Distinctive Features:
A stout, brown to olive sunfish with a jaw that extends past the middle of its extremely large eyes (Fig. 2).

Confused With:
Possibly confused with the smallmouth bass (pg 22). The smallmouth bass is much more elongate and streamlined than the rock bass.

Natural History:
The rock bass is a secretive fish living among branches and rocks and cluttered places. In these environs, it blends itself with its amazing, chameleon-like ability to change coloration and pattern nearly instantaneously. Many times once caught, the fish will be learned by new samplers, placed back into the seine or into a bucket, only to have those folks ask minutes later the identity of this "new fish". Year-one juveniles will hide among fallen leaves in pools, blending in perfectly.

This species is particularly abundant in Swan Creek through Monclova Township where pools may yield a half dozen or more during a single seine sweep.

Water Quality Tolerance: Semi-Tolerant

Lepomis cyanellus - Green sunfish

Figure 1 – Adult green sunfish

Figure 2 – Juvenile green sunfish

Distinctive Features:
A brightly colored (in all life stages), stout, laterally compressed bodied fish with a sloping head and proportionately large mouth (in comparison to other sunfishes). The operculum (ear flap) is black with a purple-white band around the outside edge (Figs 1 & 2).

Confused With:
Other *Lepomis* sunfish species. No other sunfish species will have the combination of a proportionately large mouth and purple-white banded operculum.

Natural History:
The green sunfish is highly tolerant of extreme environmental conditions, and is proportionately more abundant in disturbed systems due to its tolerance.

Water Quality Tolerance: Highly Tolerant

Lepomis gibbosus - Pumpkinseed sunfish

Figure 1 – Adult pumpkinseed sunfish

Figure 2 – Juvenile pumpkinseed sunfish

Distinctive Features:
The pumpkinseed sunfish is a slab-sided, laterally compressed species with a bright red patch on the tip of the operculum (Figs. 1 & 2).

Confused With:
Other *Lepomis* sunfish species. No other species of sunfish will have the bright red patch on the tip of the operculum. This trait is less apparent in juveniles, but present at a very early age.

Natural History:
A more northern distributed species, the pumpkinseed is extremely abundant in the vegetated glacial lakes and streams of Michigan. These habitats may serve as a model of how Western Lake Erie and the lower portions of its tributary streams once appeared.

The pumpkinseed's preferred habitat is quiet, vegetated waterways where they can make easy prey of their favorite food item - snails. However, much of that habitat is gone, with remnant pieces found in areas like East Harbor State Park (Ottawa County). Still, the pumpkinseed is generally present in the lower reaches of the Maumee and its low gradient tributaries.

Water Quality Tolerance: Semi-Tolerant

Lepomis humilus - Orangespotted sunfish

Figure 1 – Breeding male orangespotted sunfish

Figure 2 – Female orangespotted sunfish

Distinctive Features:
A small, deep-bodied sunfish with black or orange spots laterally (even at an early age) and a solid white band around a black centered operculum (Figs. 1 & 2).

Confused With:
Other *Lepomis* sunfish species. No other species will have black or orange spots laterally or the white band completely around the edge of the operculum.

Natural History:
The breeding male orangespotted sunfish is perhaps our most spectacularly colored species, casting metallic blues and fiery oranges while guarding its nest.

This species is not native to the Great Lakes drainages, having gained access via the canal system connecting the Maumee and Wabash Rivers. In fact, some question remains if the orangespotted sunfish is even historically native to most of Indiana (the eastern most historical distribution) besides the extreme southwest portion of the state. It is believed that deforestation and siltation led to a great expansion in the range of this small sunfish.

Water Quality Tolerance: Tolerant

Lepomis macrochirus - Bluegill sunfish

Figure 1 – Adult bluegill sunfish

Figure 2 – Juvenile bluegill sunfish

Distinctive Features:
A deep-bodied sunfish with a solid black operculum that lacks any color on the margin. Juveniles have a barred appearance laterally (Fig. 2)

Confused With:
Other *Lepomis* sunfish species. No other species will have a solid operculum.

Natural History:
Bluegill sunfish are a prolific species found in most waterways of our area in fairly high abundances. They will breed at a stunted size (only producing small clutches), which is usually the result of high population densities.

While native and known historically from Lake Erie and many of its tributary streams, the bluegill sunfish has been introduced to Ohio from many sources due to commercial and sport interests. As such, paired with disturbance, it's difficult to retrace the historic distribution of the bluegill throughout Ohio.

Water Quality Tolerance: Tolerant

Micropterus dolomieu - Smallmouth bass

Figure 1 – Smallmouth bass

Figure 2 – Head detail of the smallmouth bass

Distinctive Features:
The smallmouth bass is an elongate, sometimes large, usually brownish sunfish with a jaw hinge that does not extend past the eye (Fig. 2).

Confused With:
The smallmouth can be confused with the largemouth bass. The jaw hinge of the smallmouth bass will not extend past the eye (see largemouth bass account).

Natural History:
The smallmouth bass is typically an inhabitant of rocky places, both in lakes and streams. It is an aggressive feeder, and may diverge from the typical habits of other sunfish species, hunting its prey within fast riffles and runs.

The smallmouth bass was incredibly abundant across the state in both the Lake and streams until about 1900. Since then, the smallmouth has suffered a tremendous decline due to over-fishing, stream pollution, and habitat destruction.

Water Quality Tolerance: Semi-Tolerant

Micropterus salmoides - Largemouth bass

Figure 1 – Adult largemouth bass

Figure 2 – Head detail

Distinctive Features:
The largemouth bass is an elongate, sometimes large, olive-green sunfish with a jaw hinge that extends past the eye (Fig. 2).

Confused With:
The largemouth bass may be confused with the smallmouth bass. The jaw hinge of the smallmouth bass does not extend past the eye (see smallmouth bass account).

Natural History:
The largemouth bass is the most sought after sport fish in North America. It is typically found in quiet, weedy waters, or around logjams and rocks in lentic (non-flowing) stream segments. It is found in the lower reaches of the Maumee River and its tributary streams. Like the bluegill sunfish, as ponds are stocked and overflow into the upper reaches of tributary streams, the largemouth bass is becoming more common in smaller stream segments. It also exhibits unnatural abundances in impoundments due to stocking and management techniques.

Water Quality Tolerance: Tolerant

Pomoxis sp. – The Crappies

Figure 1 – Black crappie

Figure 2 – White crappie

Distinctive Features:
A slab-sided, laterally compressed sunfish with large dorsal and anal fins. The jaw hinge extends to the back of the eye.

Confused With:
Crappie may be confused with the rock bass (pg 19). However, the rock bass is more robust and has a dorsal fin that extends down a great proportion of the back.

The black crappie (*P. nigromaculatus*) is most often confused with its close relative, the white crappie (*P. annularis*). The dorsal fin of the black crappie typically has 7 dorsal spines while the white crappie usually has 5 (compare Fig. 1 with Fig. 2).

If in color, black crappie have dense mottles along the side, while the white crappie has bar-like mottling.

Natural History:
The greatest abundances of crappie will be found around vegetation, woody debris, and rock interfaces with deeper water. However, they will shoal up in open water, particularly during spawning season. They are found primarily in lakes, but can make up a significant portion of the biomass in large pools of streams and rivers where adequate cover is present.

Water Quality Tolerance: Semi-Tolerant

Family Percidae – The Perches

The perch are a family that occurs across the northern hemisphere (Holarctic). They are well known across their range, as two genera (*Perca* and *Sander*) are comprised of species that are popular food fish in both North America (yellow perch and walleye) and Eurasia (European perch and zander).

However, the bulk of the species in this family are wholly North American (Nearctic), a group of small, but immaculately colored fishes known as the darters. The darters are of particular concern as they are a key indicator group among fishes due to their sensitivities to pollution and siltation. The darters are also famous for one of their members, the snail darter (*Percina tanasi*), a Tennessee species that landed in the Supreme Court over a species protection dispute during the late 1970's.

Pictured is a male greenside darter, *Etheostoma blennioides*, the most spectacularly colored of the darters on the Lake Plain. Their nuptial coloration has been referred to as "Burn-Your-Eyes-Out-Green".

Etheostoma blennioides - Greenside darter

Figure 1 – Breeding male greenside darter

Figure 2 – Juvenile or female greenside darter

Distinctive Features:
An elongate yet stout darter species, with olive green base coloration and dull red "v" or "w" markings across the back, somewhat associated with the lateral line. Nuptial males are unmistakable.

Confused With:
Juvenile greenside darter are confused with johnny darter (pg 25) which lack any hint of green or red and are slender and less robust. Unfortunately, the johnny darter also has "w" or "x" markings, but they are less associated with the lateral line.

May also be confused with the round goby (pg 29), which will have a fused pelvic fin.

Natural History:
The greenside darter inhabits riffles in all sizes of streams, from headwater ditches to the Maumee mainstem. It was also present in the wave zone of Lake Erie until the introduction of the round goby. The greenside is an important host species for freshwater mussels.

Water Quality Tolerance: Semi-Tolerant

Etheostoma microperca - Least darter (*Species of Special Concern*)

Figure 1 – Adult least darter

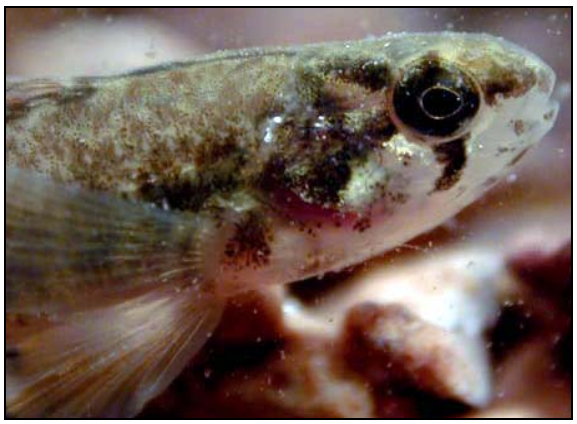

Figure 2 – Head detail of the least darter

Distinctive Features:
The least darter is a tiny species of fish with a rounded head that has an arrow-like marking through the eye. The coloration is typically brown in a series of dots checkered across the whole of the fish, including the fins. Nuptial males will show orange in their fins, especially the anal fin.

Confused With:
Least darters are often confused with juvenile orangethroat darters (pg 25, Fig. 2). The orangethroat will have a more sharply pointed head and will have larger, less distinct patches of brown.

Natural History:
The least darter is the sole state listed species possible at our collection sites, mostly due to historic reasons of zoogeography, as Ohio is the eastern edge of its range. However, this listing is also due to its preference for prairie streams in Ohio, which have been severely altered for agriculture in ways unfavorable to the least darter. In spite of this, where the least darter still occurs, it can be extremely abundant, such as the upper reaches of the Ottawa River watershed in Fulton County.

Water Quality Tolerance: Semi-Tolerant

Etheostoma nigrum - Johnny darter

Figure 1 – Johnny darter

Figure 2 – Breeding male johnny darter

Distinctive Features:
The johnny darter is a slender, elongate, monochromatic darter with a sharply rounded head and blunt snout. There are also indistinct black to brown "x" and "w" markings along the back.

Confused With:
Greenside darter (pg 24) which will be more robust and have shades of green and red, whereas the johnny darter will only have a palette of black, brown, and white.

Natural History:
The johnny darter is our most tolerant darter species, as it feeds on chironomid larvae that live in fine silt and sand. It is found in all Ohio streams and is often most common in degraded habitats. In less impacted streams, it can be found in quiet, shallow areas next to riffles and sand outwash downstream of submerged logs.

Water Quality Tolerance: Tolerant

Etheostoma spectabile - Orangethroat darter

Figure 1 – Male orangethroat darter

Figure 2 – Juvenile or female orangethroat darter

Distinctive Features:
A small but stout darter species with a pointed head, prominent "teardrop" below the eye, and a blue band in the upper webbing of the dorsal fin. Males are unmistakable with their orange and blue coloration that is present year round.

Confused With:
In the Lake Plain, juvenile orangethroat darters may be confused with least darters (pg 24). The confusion usually favors the orangethroat and overlooks the least darter. See the least darter account for differences.

Natural History:
The orangethroat is typically a riffle dwelling species and is the most abundant species in Tenmile Creek through Sylvania. However, the definition of "riffle" can be challenged in the upper reaches of headwater ditches where the orangethroat seems perfectly adept at using runs of gravel as habitat.

Water Quality Tolerance: Semi-Tolerant

Perca flavescens - Yellow perch

Figure 1 – Yellow perch

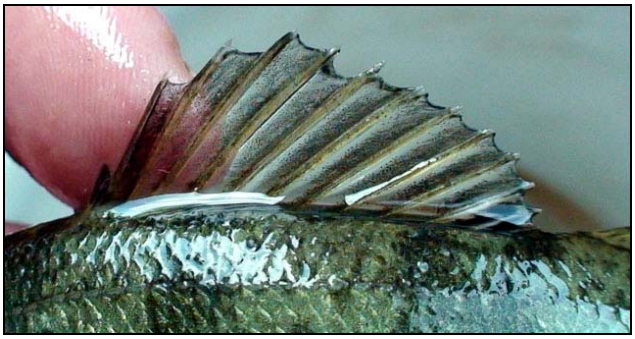

Figure 2 - Dorsal fin of the yellow perch

Distinctive Features:
The yellow perch is an elongate yet robust fish that possesses 6-9 distinctive black saddles and a short first dorsal spine. The fish will also feel somewhat crinkly and dry while handling it.

Confused With:
Juvenile yellow perch are similar to young walleye (pg 27) but lack the distinctive teeth. Perch may also be confused with the logperch darter (pg 26), but lack the rubbery, elongated rostrum.

Natural History:
The yellow perch is most abundant in the open water of Lake Erie and lower gradient portions of local creeks and rivers. During extreme flood events, small numbers of perch may make their way into headwaters.

The yellow perch is one of the most important commercial and recreational species in the state of Ohio due to their flakey sweet meat. It is the only species for which commercial licenses remain.

Water Quality Tolerance: Semi-Tolerant

Percina caprodes - Logperch darter

Figure 1 – Logperch darter

Figure 2 – Logperch darter

Distinctive Features:
An olive-green, elongate, robust darter species with a spongy rostrum ("nose") and multiple lateral stripes.

Confused With:
The logperch darter may be confused with juvenile walleye (pg 27). However, it is far more likely to capture a logperch in a seine than a walleye. The logperch lacks the distinctive large teeth of the walleye.

Natural History:
In the Great Lakes watershed, the logperch is found in a wide variety of habitats in both rivers and lakes. They may be found in the riffles and runs of medium to large rivers, vegetated lakes and bays with firm substrates, as well as the wave zone of Lake Erie.

The most interesting thing about the logperch darter is its habit of flipping stones with its rostrum to find prey items such as insect larvae. This habit has been exploited by a genus of freshwater mussels, which literally snatch the darter as it tries to flip the mussel. See http://www.farmertodd.com/musselguide for additional information about this relationship.

Water Quality Tolerance: Semi-Tolerant

Percina maculata - Blackside darter

Figure 1 – Blackside darter

Figure 2 – Blackside darter with less saturated color

Distinctive Features:
An elongate darter with a white belly, black patches along the lateral line, and distinct "teardrop" below the eye.

Confused With:
Although fairly distinctive, the blackside darter is potentially confused with the logperch darter (pg 26). The blackside lacks the spongy rostrum. The blackside darter may also be confused with the round goby (pg 29), which has a fused pelvic fin.

Natural History:
Like all members of the genus *Percina*, the blackside darter has a less rudimentary (among darter species) swim bladder providing neutral buoyancy in the water column. For this reason, the blackside darter may be found in quiet pool habitats, as well as within flowing habitats, such as riffles and runs.

Water Quality Tolerance: Semi-Tolerant

Sander vitreus - Walleye

Figure 1 – Walleye

Figure 2 – Walleye mouth detail

Distinctive Features:
A large "walleyed" eye that appears silver in certain angles of light. The walleye also has large teeth and a white spot on the lower lobe of the tail.

Confused With:
There are very few species in our area to confuse with the walleye. Logperch darters (pg 26) are sometimes thought to be juvenile walleye, but are distinctive in their spongy rostrum and lack the impressive teeth of the walleye.

Natural History:
The walleye is a prized sport species of fish due to its flakey white, sweet meat. Each spring, hundreds of fishermen greet walleye moving up the Maumee River to spawn in the large rock riffles and gravel runs between Maumee and Perrysburg.

Like the smallmouth bass, walleye were once far more abundant than current stocks. Soldiers stationed at Ft. Meigs during the War of 1812 reported numbers of walleye and sturgeon so thick that thousands could be harvested in a day with a spear or simple fishing pole. Many grist mill dam owners on tributary streams found good fortune harvesting walleye at their newly installed mill dams until local populations crashed.

Water Quality Tolerance: Semi-Tolerant

Family Sciaenidae – The Drum

The drum family is primarily marine, but some species in North America use estuarine areas. The Sciaenidae are represented in our area by a single species that exclusively inhabits freshwater. The name "drum" comes from the grunting / croaking sounds created by their swim bladders.

Aplodinotus grunniens – Freshwater drum

Figure 1 – Freshwater drum

Figure 2 – Mouth detail

Distinctive Features:
A deep-bodied fish with an extremely long and soft dorsal fin (Fig. 1). The snout is blunt and strongly sloping; mouth subterminal. The jaws are projecting and thrust forward a surprising distance (Fig. 2).

Confused With:
The freshwater drum is distinctive and will not be easily confused with any other species of fish in this guide. It could be confused with the Temperate Basses. However, those species lack the projecting jaws.

Natural History:
The freshwater drum inhabits the open Lake and the lower Maumee River, often making movements into tributary streams. It possesses one of the longest latitudinal distributions in North America, stretching from Canada to Guatemala.

While other members of the drum family are highly prized by fisherman (including freshwater drum of the Ohio River system!), the drum (or "sheephead") of the Great Lakes have earned a distinction of disdain among fisherman.

Like the logperch darter, the freshwater drum is another important host for the freshwater mussels of North America (see logperch account pg 26).

Water Quality Tolerance: Tolerant

Family Gobidae – The Gobies

The gobies are a very large family of fishes globally, represented by many marine, estuarine, and freshwater taxa. Most of the species are benthic oriented. However, that orientation takes some interesting turns in space for many species, which may lie upside down in a large coral head in Micronesia, up the side of a waterfall in Hawaii, or on the underside of a cinderblock chamber in Swan Creek or the Ottawa River.

Pictured is a breeding-color male round goby, *Apollonia melanostoma*.

Apollonia melanostoma - Round goby

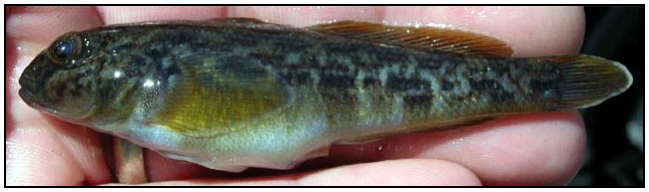

Figure 1 – Round goby

Figure 2 – Pelvic fin detail

Distinctive Features:
A squat, robust fish with a rounded head, large mouth, forward eyes, and a fused, single pelvic fin (Fig. 2). Coloration is normally earthy brown with some red and olive. Spawning males are jet black, as seen in the introduction to the Gobidae.

Confused With:
The round goby is typically confused with the greenside darter (pg 24). No other species of fish will have a fused pelvic fin.

Natural History:
The round goby is native to the Ponto-Caspian Region of Eurasia (Black and Caspian Seas). First discovered in Lake St. Clair, it was introduced via ballast water by shipping vessels. It has now spread throughout the Great Lakes system, either by its own natural radiation through spawning and dispersal, or by reintroduction from port to port by shipping vessels. There are also known populations that have occurred by "bucket biology" where fishermen are believed to have moved them from site to site.

While the round goby has been hyper-abundant in the Lake, it is only now beginning to show migration up the Ottawa River and Swan Creek.

Water Quality Tolerance: Tolerant

References and Further Reading

For more detailed examination of Ohio Fishes:

The Fishes of Ohio - Trautman, M.B. 1981. Ohio State University Press. 782 pp.

Fishes of the Central United States - Eberle, M.E. and J.R. Tomelleri. 1990. University Press of Kansas. 226 pp plus 52 color plates.

Fishes of the Great Lakes Region - Hubbs, C.L. and K.F. Lagler (revised and updated by G.R Smith). 2004. University of Michigan Press. 6 x 9. 332 pgs. 52 drawings, 210 color and B&W photographs, 4 tables, 213 maps.

Applicable Regional Guides:

Fishes of Arkansas - Robison, H.W., and T.M. Buchanan.1988. The University of Arkansas Press. 536 pp.

Fishes of Wisconsin - Becker, G. C. 1983. University of Wisconsin Press, Madison.
(Online at http://www.seagrant.wisc.edu/greatlakesfish!)

The Fishes of Missouri - Pflieger, W. L. 1991 (2nd ed). Missouri Department of Conservation. 342 pp.

The Fishes of Tennessee - Etnier, D.A. and W.C. Starnes. 1993. University of Tennessee Press. 681 pp.