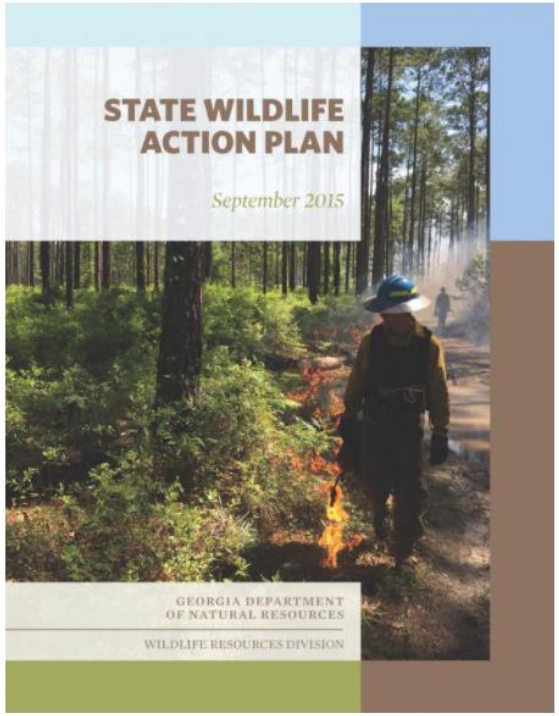
GEORGIA
DEPARTMENT OF NATURAL RESOURCES
WILDLIFE RESOURCES DIVISION

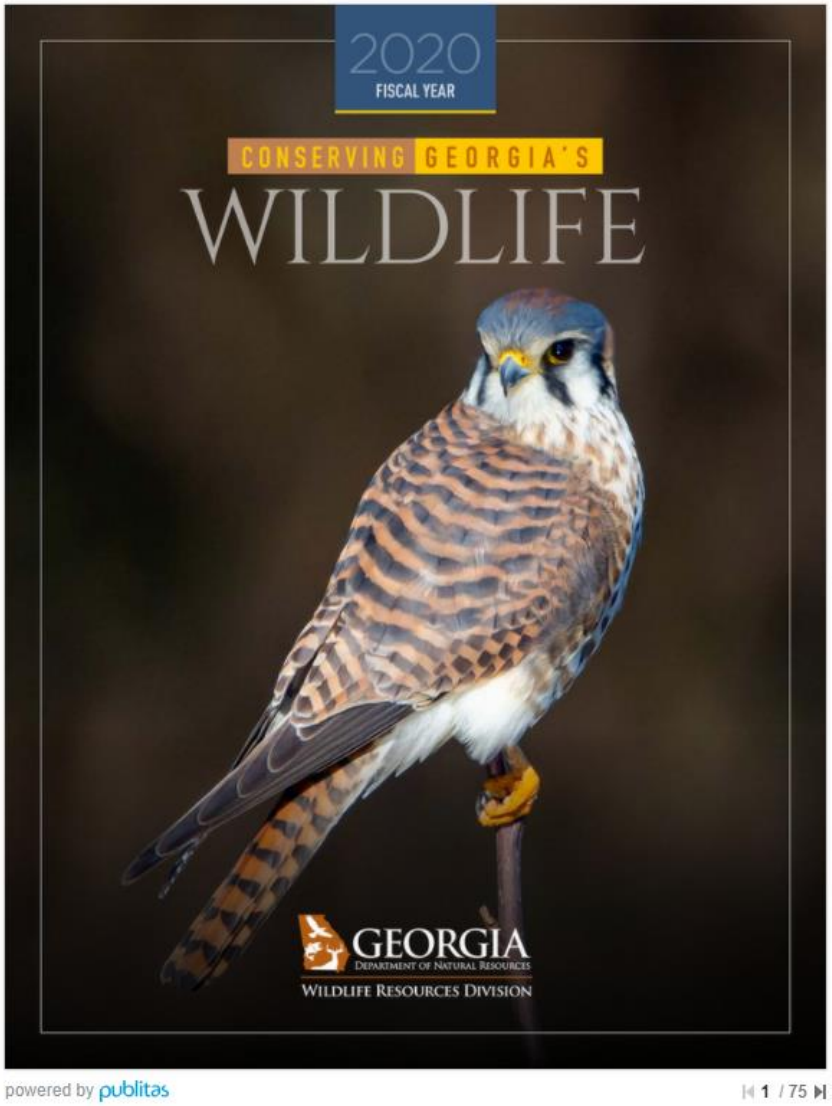
Georgia's Native Freshwater Fishes

Brett Albanese
Wildlife Conservation Section
Wildlife Resources Division
Georgia Department of Natural Resources

Wildlife Conservation Section

Our Mission: Conserve native wildlife species through public education, research and management.

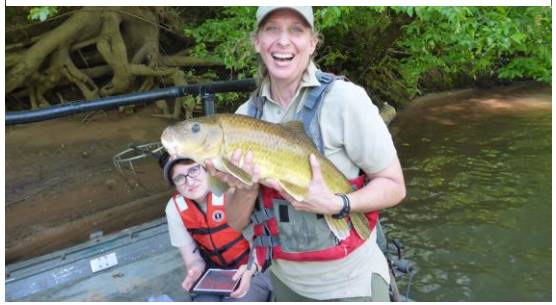


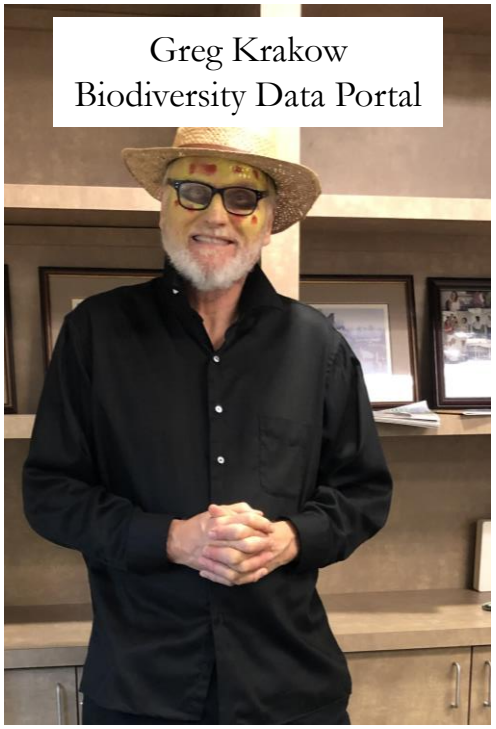


https://georgiawildlife.com/

Freshwater Biodiversity Program

Paula Marcinek, Program Manager
Robust Redhorse





Greg Krakow
Biodiversity Data Portal

Ani Escobar, Coosa Basin

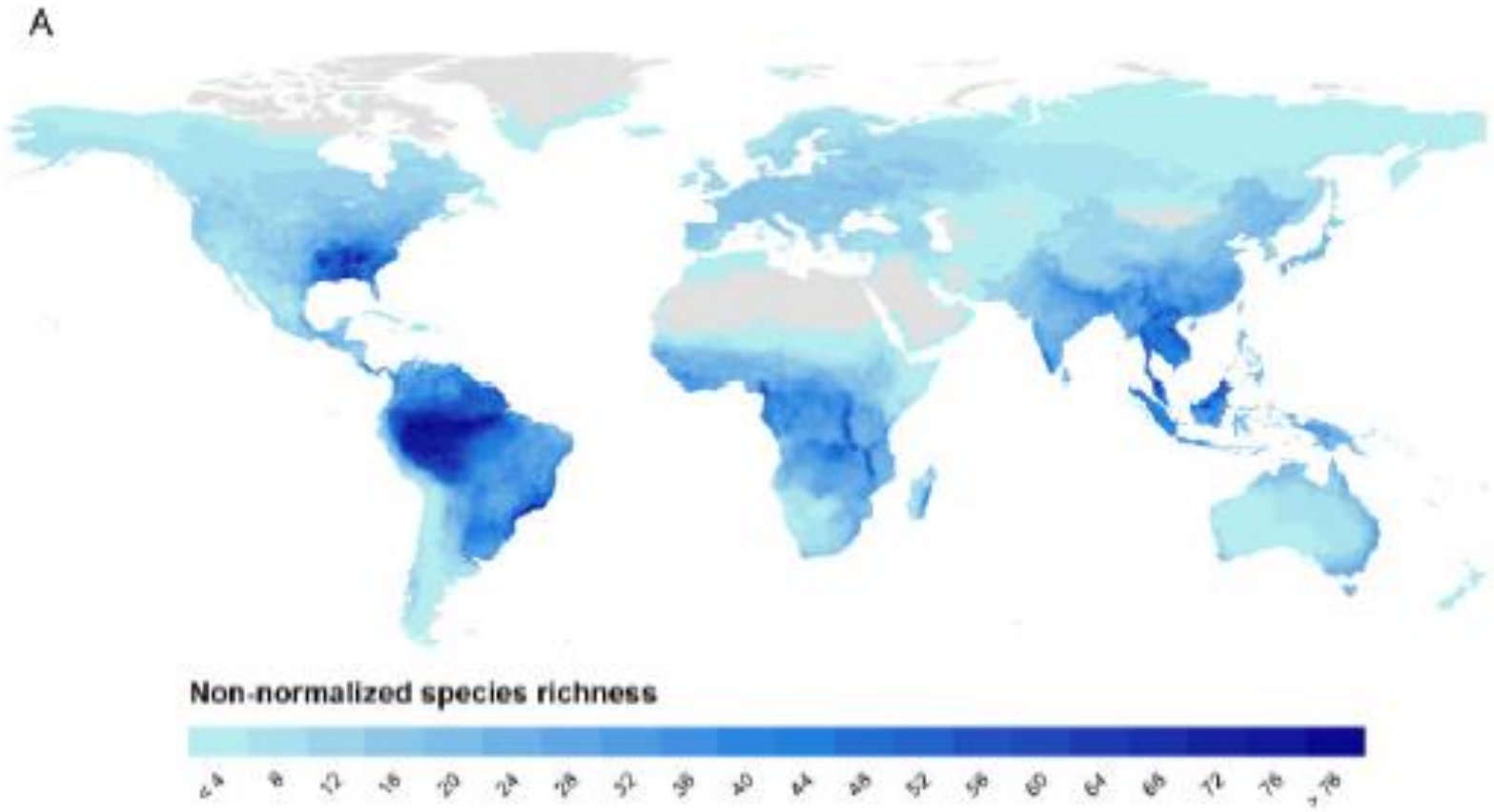
Matt Rowe,
Mussels and Snails

Zach Abouhamdan, Database Manager

Brett Albanese
SWAP, Fish Sentimentalist

Deb Weiler, Wonder Woman

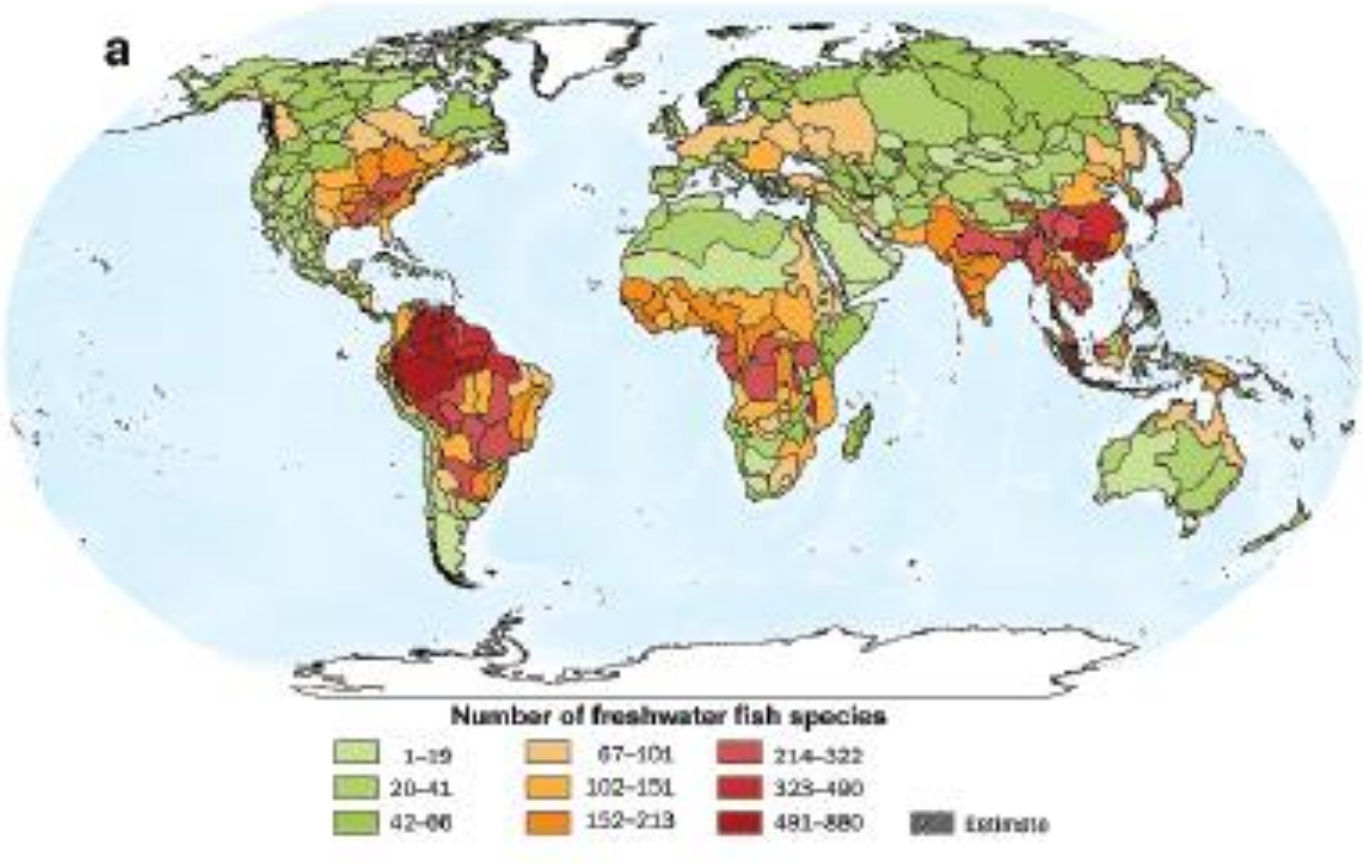
Hot Spot!



Source: Collen et al. 2014. Global patterns of freshwater species diversity, threat and endemism. Global Ecology and Biogeography 23: 40–51

There is a movie about it…..

Globally Significant Freshwater Fish Diversity



Source: Abell et al. 2008. Freshwater Ecoregions of the World, A New Map of Biogeographic Units for Freshwater Biodiversity Conservation. Bioscience 58: 404-414.

Georgia's Freshwater Fish Diversity

- Georgia has 266 native freshwater fish species, making it the 3rd richest state for fish diversity.

Source: Georgia's 2015 State Wildlife Action Plan, available online at https://georgiawildlife.com/WildlifeActionPlan, with updates from individual Georgia DNR Biologists and Chris Skelton in August 2019.

Still Documenting the Fauna!

Florida Sand Darter
(Ammocrypta bifascia)
Flint River, 2013

Photo by Christine Fallon, UGA Ecology

Still Documenting the Fauna!

Etowah Bridled Darter
Percina freemanorum

Near et al. 2021. A New Species of Bridled Darter Endemic to the Etowah River System in Georgia (Percidae: Etheostomatinae: Percina). Bulletin of the Peabody Museum of Natural History 24 62(1)

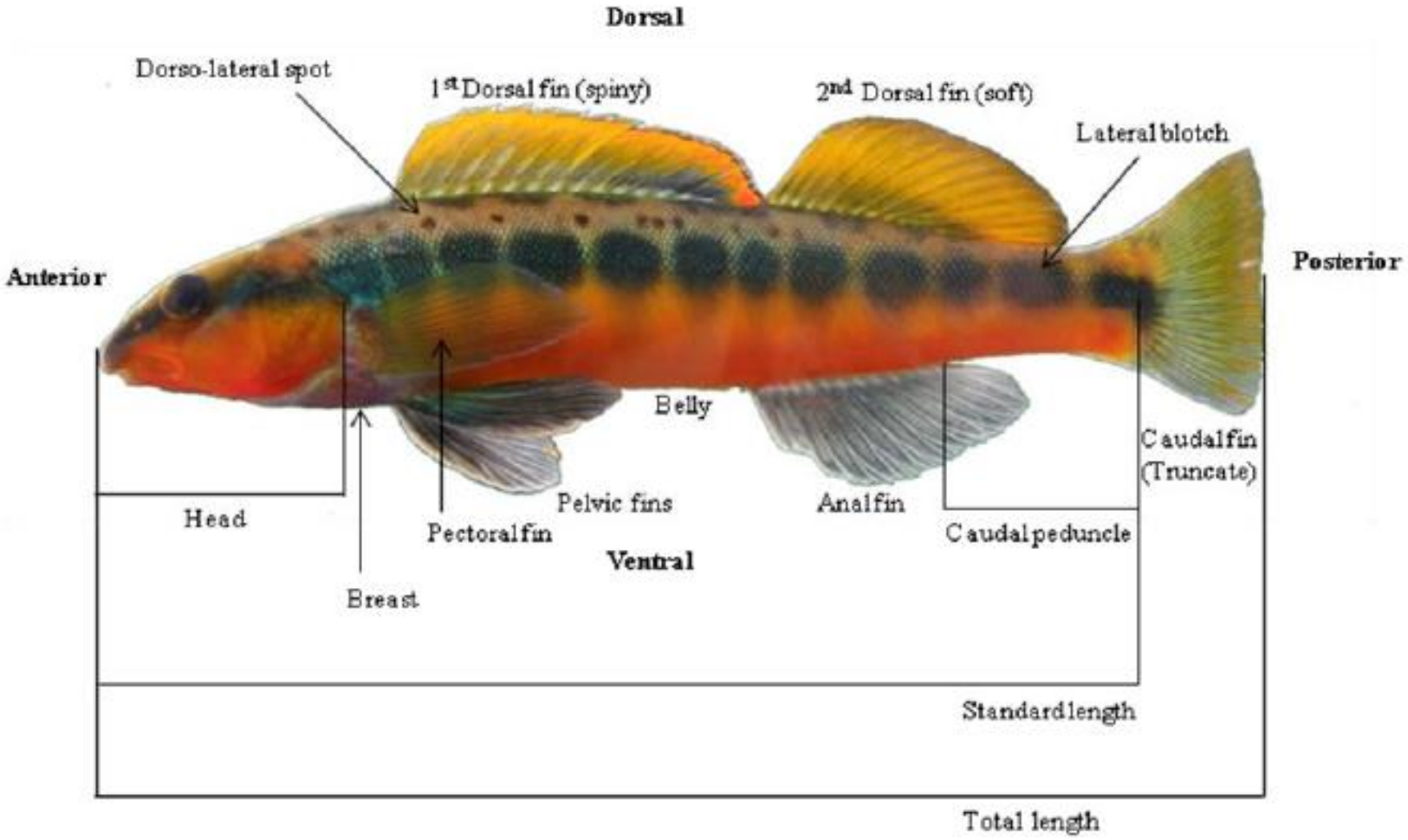
Today's Field Trip

1. Collect and observe fishes in Dukes Creek, a tributary to the Chattahoochee River in the Blue Ridge Ecoregion.

   - Naturally low diversity
   - More species and many endemics downstream

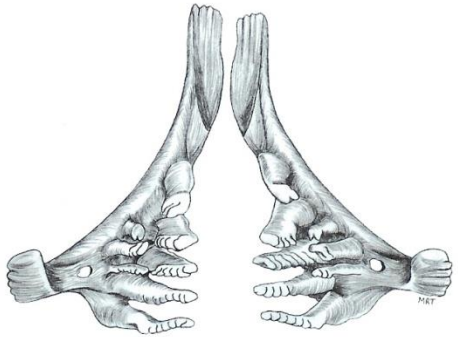
1. Learn to recognize some families of fish and a few key species as well.

Fish Parts


Dorsal
Dorso-lateral spot
1st Dorsal fin (spiny)
2nd Dorsal fin (soft)
Lateral blotch
Anterior
Posterior
Belly
Caudal fin
(Truncate)
Head
Pelvic fins
Anal fin
Pectoral fin
Caudal peduncle
Ventral
Breast
Standard length
Total length

Minnow Family (Leuciscidae)

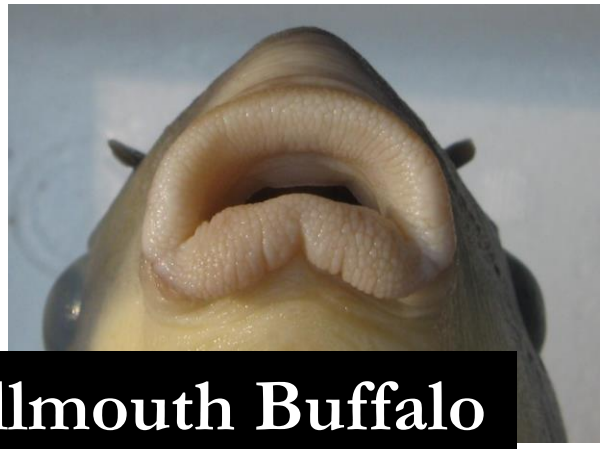
1. 1 Soft Dorsal Fin (No Spines)
2. No Teeth in Mouth but Pharyngeal Teeth or “Throat Teeth”
3. The Largest Family of Fishes in GA



Sucker Family: Catostomidae

Just like minnows, but with thick fleshy lips on the bottom of their heads to vacuum food from the bottom.

Spotted Sucker



Smallmouth Buffalo

Sicklefin Redhorse

Sicklefin Redhorse

Catfish Family: Ictaluridae

1. Barbels or “Whiskers”
2. Spines
3. No Scales
4. Fleshy Fin Above Tail called the “Adipose Fin”


Flathead Catfish


Channel Catfish


Spotted Bullhead


Frecklebelly Madtom

Sunfish Family: Centrarchidae

1. **Combined Spiny and Soft Dorsal Fins**
2. **Build Circular Nests**
3. **Important Predators and Sport Fishes**

Pit Nests

Redbreast Sunfish

Redeye Bass

Crappie

Darter Family: Percidae

1. 2 Separate Dorsal Fins
2. 2nd Largest Family of Fishes in NA
3. Most are Small
4. Most Live in Rivers
5. Pretty!

Etowah Darter

Coldwater Darter

Tangerine Darter

Holiday Darter

Fishes Endemic to the ACF (Apalachicola, Chattahoochee, and Flint Rivers)

Bluestripe Shiner

Broadstripe Shiner

Highscale Shiner (nearly endemic)
Photo by Pat O'Neil

Apalachee Shiner
Photo by Alan Cressler

Bluefin Stoneroller
Photo by Alan Cressler

More Fishes Endemic to the ACF (Apalachicola, Chattahoochee, and Flint Rivers)

Apalachicola Redhorse

Greater Jumprock

Plate 5. *Micropterus cataractae*. Georgia, Dougherty County, Flint River, about 7 mi. S of Albany, 14 April 1989. © Joseph R. Tomelleri.

Shoal Bass

Chattahoochee Bass

Halloween Darter

Chattahoochee Sculpin

Georgia Biodiversity Portal

Georgia Biodiversity Portal

Georgia Biodiversity Portal

Fishes | GEORGIA BIODIVERSITY PORTAL | What is Biodiversity Conservation Data? | GEORGIA WILDLIFE RESOURCES DIVISION

All Rare Fishes within Upper Chattahoochee (03130001) HUC8 Watershed

CSV Excel Less Columns Rows filtered / total: 6 / 6 -- Records updated February 3, 2023

Scientific Name	Common Name	GA Prot	US Prot	GRank
filter column...	filter column...	filter colu	filter colu	filter col
Micropterus cataractae	Shoal Bass			G3
Notropis hypsilepis	Highscale Shiner			G3
Percina crypta	Halloween Darter			
Micropterus chattahoochae	Chattahoochee Bass			
Cyprinella callitaenia	Bluestripe Shiner			
Moxostoma sp. 1	Apalachicola Redhorse			

Photo by Noel Burkhead. Image may be subject to copyright.

RANGE MAP | EXPLORER | *About*

Percina crypta Freeman, Freeman and Burkhead, 2008

Halloween Darter

Federal Protection: No US federal protection
State Protection: Threatened
Global Rank: G2
State Rank: S2
Element Locations Tracked in Biotics: Yes
SWAP High Priority Species (SGCN): Yes
Element Occurrences (EOs) in Georgia: 19
Habitat Summary for element in Georgia: Larger streams in riffle/shoal habitat

Description

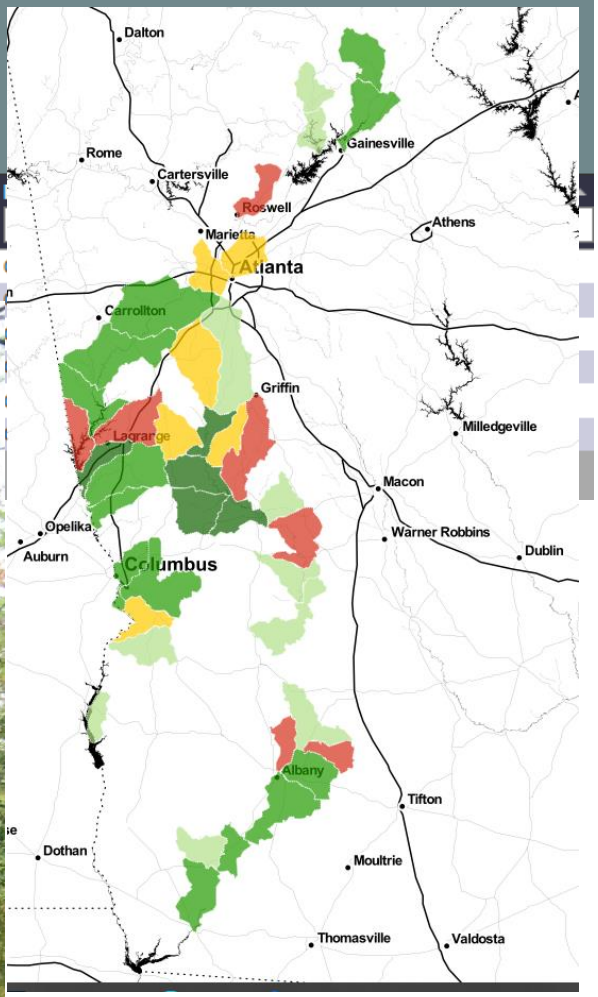
A large darter marked with 7 -13 dark lateral bars, 7 closely spaced rectangular dorsal saddles, and a broad bar under the eye. Adults are 100 - 130 mm (4 - 5 inches) total length. The sides and dorsum are tinged amber or gold between the saddles and bars; the venter is dusky in males, suffused with pink, and females have small blotches or scrawl marks between the ventral extensions of the lateral bars. The first dorsal fin in males is edged in black with an orange submarginal band and dusky base. Females also have a submarginal orange band in the first dorsal fin. All other fins are banded, or dusky in nuptial males, and often washed in yellow.

Similar Species

The Halloween darter can be separated most easily from the co-occurring blackbanded darter *Percina nigrofasciata* by examining the spacing between the dorsal saddles. The Halloween darter has the dorsal saddles placed close together, separated at most by the width of a saddle, and usually much closer together than one-saddle width, especially on the caudal peduncle. The dorsal saddles on the blackbanded darter are separated by more than one-saddle width, including on the caudal peduncle. Other characters that distinguish the Halloween darter from the blackbanded darter include possession of usually a single enlarged scale between the pelvic fin bases (versus two or more scales in the blackbanded darter) and pectoral fin rays strongly banded (versus fins clear or pectoral rays lightly tessellated in the blackbanded darter). The Halloween darter may also be found with the Gulf Darter *Etheostoma swaini*, which is a smaller darter that lacks dark lateral bars and the orange fin coloration found on the Halloween darter.

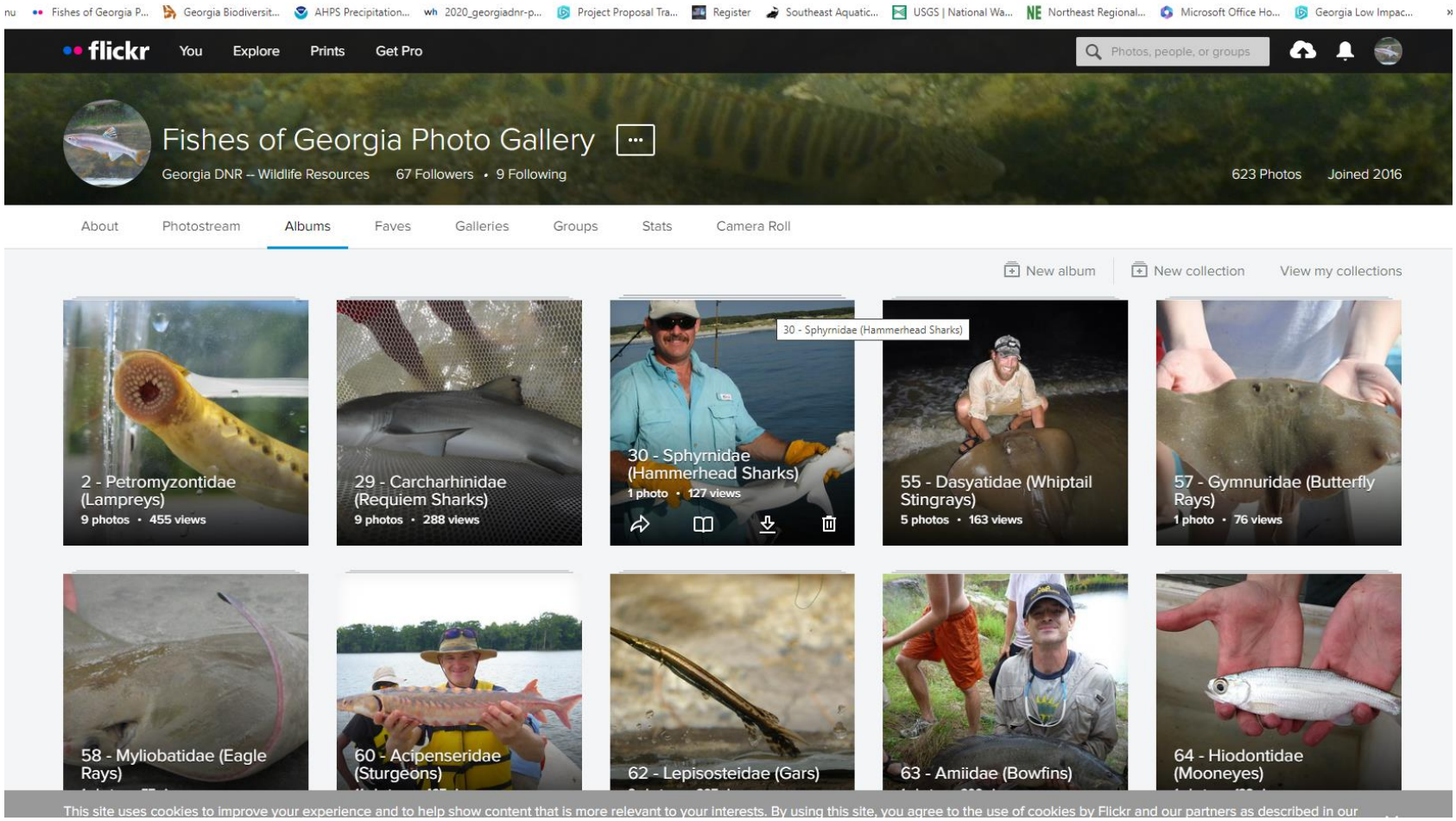
Habitat

The Halloween darter inhabits riffles or shoals in the Flint and Chattahoochee River mainstems and



Bluestripe Shiner Range

Fishes of Georgia Photo Gallery on Flickr



Quick Guide to Georgia Fish Families

Quick Guide to Georgia Fish Families
All Georgia Freshwater Familes
Marine Families Captured on Sapelo Island
March 2023 Version

This guide follows the families recognized in Eschmeyer's Catalog of Fishes (https://www.calacademy.org/scientists/catalog-of-fishes-classification
Families are arranged from more ancestral to derived, but there is substantial uncertainty in the placement of derived families.

Class Petromyzonti (Lampreys)

Petromyzontidae (northern lampreys): true jaws absent, elongate body with long dorsal fin but no paired fins, gill pores present. Extended larval stage (ammocoete) has flaps of skin (oral hood) surrounding mouth. Adult mouth is a sucking disc. Teeth are more prominent on the sucking discs of parasitic lampreys. Primarily freshwater.

Cynoglossidae (toungefishes): eyes on left side of body, caudal fin pointed and continuous with dorsal and anal fins, small closely-spaced eyes, shaped like a tongue. Marine but some species may enter freshwater.

Monacanthidae (filefishes): Filelike dorsal spine. Small scales cover prickly body. Marine. Photo by Andrew Davis Tucker. Hand captured by Dr. Susan Wilde in May 2015. Seriously.

Tetraodontidae (puffers): four fused teeth in jaws, inflatable body that is smooth or with only short prickles. Primarily Marine.

Subscribe to the Georgia Wild Newsletter

IN THIS ISSUE

- Welcoming whip-poor-wills
- Plant for pollinators
- Right whale season in review
- Help DNR monitor bats

Subscribe to Georgia Wild, DNR Wildlife Conservation's free e-newsletter!

GeorgiaWildlife.com/GaWild

ASSOCIATION *for*
CONSERVATION
INFORMATION, INC.

Thank You!

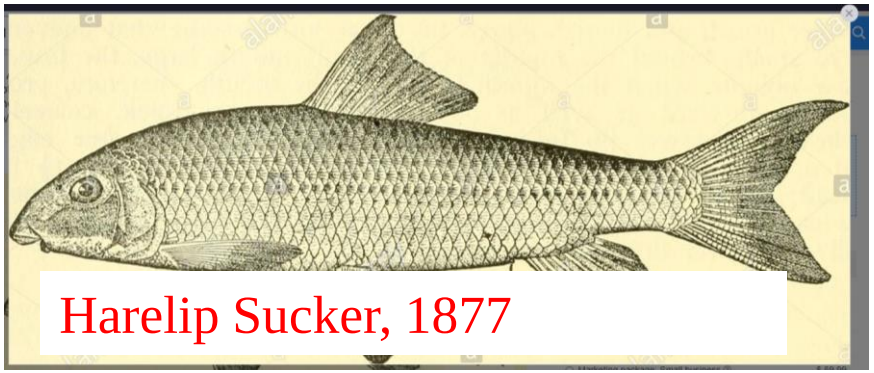
- Our most important source of funding

Track 8: Extinction is Forever, Extirpation Maybe Not

Spotfin Chub, 1877

Yellowfin Madtom, 1893

Ashy Darter, 1953

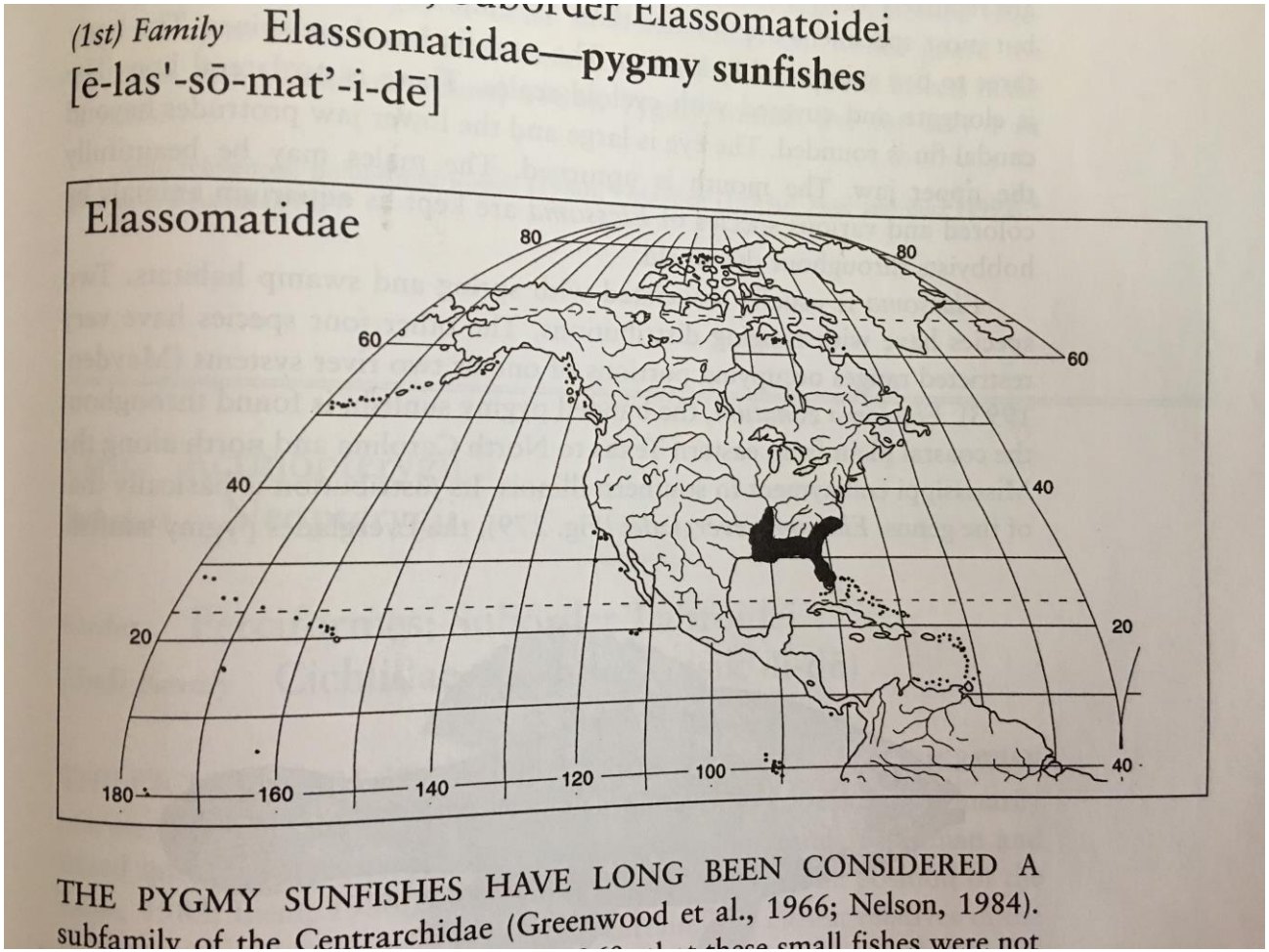


Harelip Sucker, 1877

Blotchside Logperch, pre 1861

Gulf Sturgeon, 1887

Track 2: Good things come in small packages!



(1st) Family Elassomatidae—pygmy sunfishes
[ē-las'-sō-mat'-i-dē]

Elassomatidae

80 80 60 60 40 40 20 20 180 160 140 120 100 40

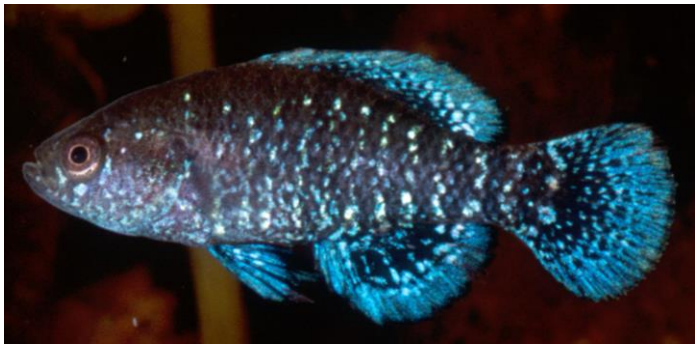
THE PYGMY SUNFISHES HAVE LONG BEEN CONSIDERED A subfamily of the Centrarchidae (Greenwood et al., 1966; Nelson, 1984).

7 species in the world!

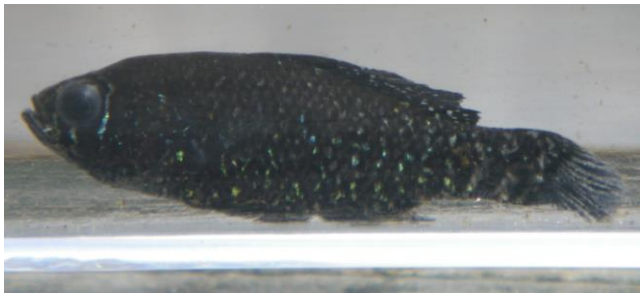
5 Pygmy Sunfishes in Georgia

Elassoma gilberti , Photo by Gerald Pottern

Elassoma okefenokee, Photo by Georgia DNR



Elassoma okatie , Photo by David Scott

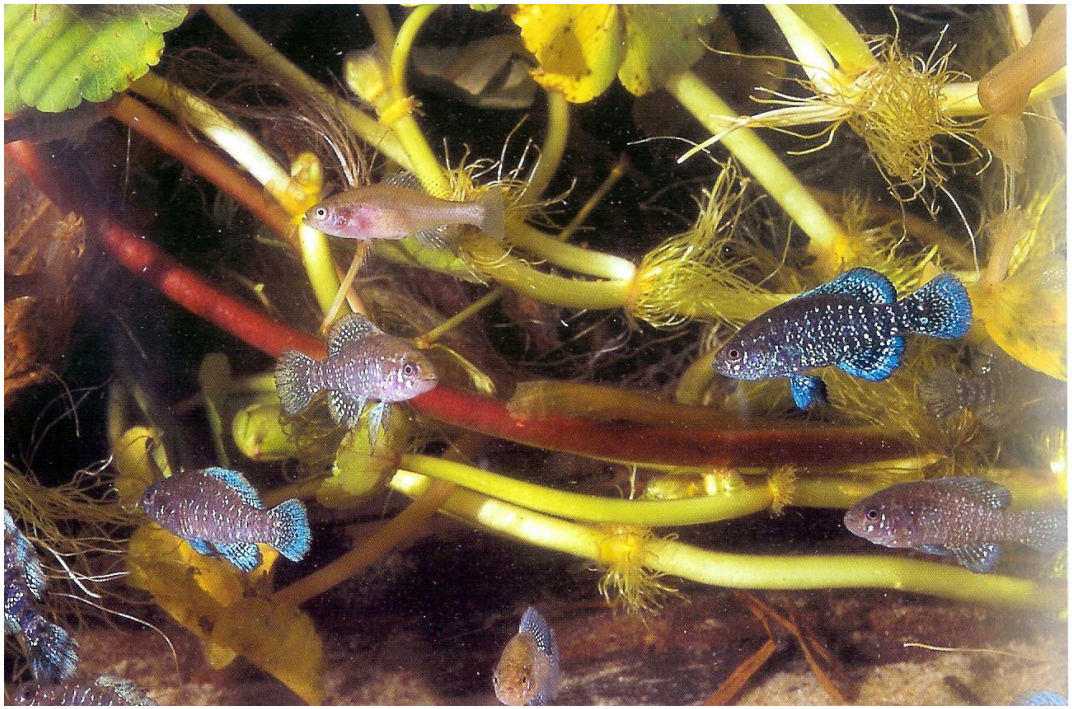


Elassoma evergladei, Photo by Georgia DNR

Elassoma zonatum , Photo by Dave Neely

Elassoma sp???, Photo by Georgia DNR

Wiggle-Waggle Dance



https://www.youtube.com/watch?v=Y9E6cAtHmHA

Who is bringing the food?

- Naturally low productivity (high gradient, shaded, cool, acidic)
- But these streams still support a lot of life!

Oecologia (2009) 159:583–595
DOI 10.1007/s00442-008-1249-x

ECOSYSTEM ECOLOGY - ORIGINAL PAPER

Pacific salmon effects on stream ecosystems: a quantitative synthesis

David J. Janetski · Dominic T. Chaloner ·
Scott D. Tiegs · Gary A. Lamberti


Photo by Ann Chamberlain

Common Name	Scientific Name	2016 (2.5 Days)
Silver Redhorse	M. anisurum	4
River Redhorse	M. carinatum	6
Black Redhorse	M. duquesnei	181
Golden Redhorse	M. erythrurum	162
Sicklefin Redhorse	Moxostoma sp.	66
Total		419

Do suckers transfer nutrients to streams?

- Iteroparous
- Large migrations
- Feed and excrete during spawning
- Eggs and larvae
- Some die

Ecosystems (2014) 17: 522–534
DOI: 10.1007/s10021-013-9739-z

ECOSYSTEMS

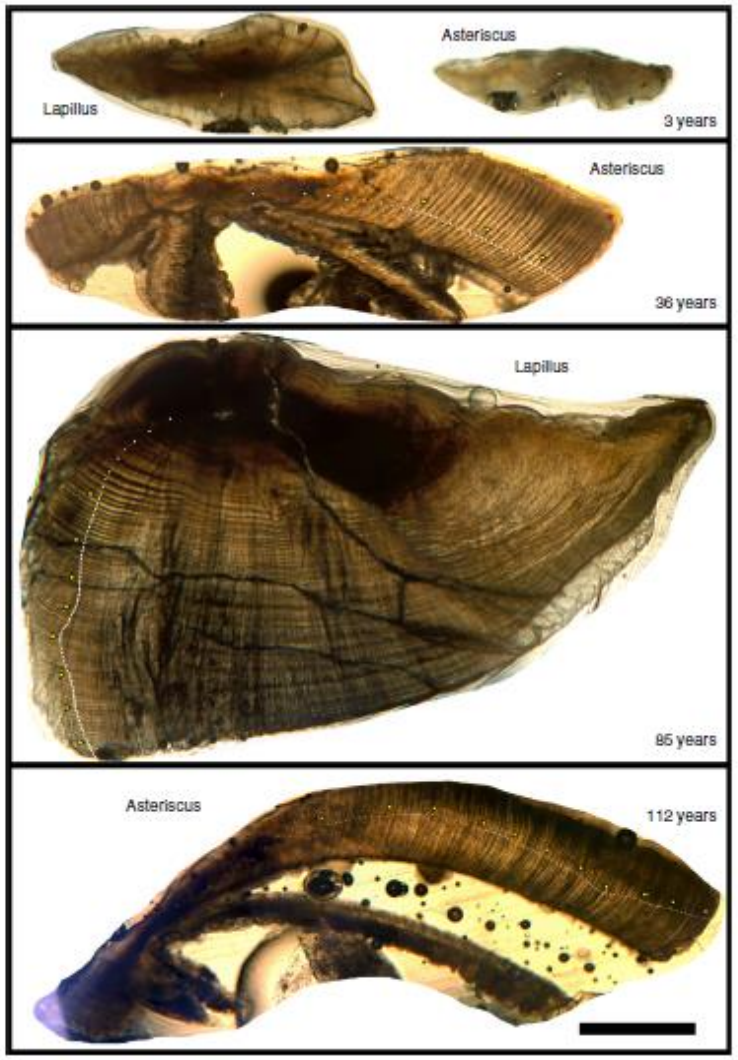
Nutrient Subsidies from Iteroparous Fish Migrations Can Enhance Stream Productivity

Evan S. Childress,[1,2]* J. David Allan,[1] and Peter B. McIntyre[1,2]

- Elevated nutrient concentrations 3-5 X
- Doubled algal growth
- 18% of Caddisfly tissue was sucker derived

Tennessee Tech Study, 2021-2022 (Kit Wheeler and Ryan Hudson)

Man, you are so old!



ioned otoliths. Thin-sectioned lapillus and asteriscus otoliths from four Bigmouth Buffalo (*Ictiobus cyprinellus*) with age esti
nd 112 years at the time of collection. White dots indicate annual growth bands and yellow triangles decade counts. All oto

Source: Lackmann et al. 2019. Bigmouth Buffalo *Ictiobus cyprinellus* sets freshwater teleost record as improved age analysis reveals centenarian longevity. Communications Biology 2:197

Gratuitous….

Challenge

Google Conasauga River Snorkeling

Cool off river snorkeling; connect with nature

In clear, cool streams across the national forest, visitors are viewing wildlife in a whole new way by freshwater river snorkeling. Any clear river will do- just bring a swim suit, a snorkel and mask, and your sense of adventure.

Where can I start?

For first time snorkelers, the abundant aquatic life on the Conasauga River is a great place to start. Near the Georgia-Tennessee state line is a premier snorkeling area known as the **Conasauga Snorkel Hole**. Several thousand fish will be present on any given day. The experience is like swimming in an aquarium full of fish. Turtles, tadpoles and salamanders are all usually present. Freshwater drum as large as 6 pounds swim in schools in the deep pools; sporting fish, such as bass and bream, are seen in their natural habitats. Colorful darters and shiners may be seen spawning and feeding. Remember, enjoy the wildlife but do not harm them or take them home with you.

A forest visitor snorkels on the Conasauga River near Cisco, Georgia. Credit: USFS/ Holly Krake

Why so special?

The Conasauga Watershed contains 76 native fish- more than the Columbia Watershed and Colorado Watershed combined! The ancient age of the Southern Appalachian Mountains has enabled aquatic species in small watersheds to attain extreme levels of diversity compared to the much larger western watersheds. Salamanders, mussels, snails, crayfish and other invertebrates show similar levels of diversity to fish. Additionally the Conasauga River provides clean drinking water for numerous communities and businesses.

Track 9: Who cares?

- Humans depend on biological diversity for
  - Clean air and water
  - Assimilation of waste products
  - Production of food and fiber
  - Support fisheries, hunting and wildlife
  - Regulation of climate (i.e., carbon storage)
  - Exercise, nature study, mental health, spirituality