

Denait Araya

Bluehead_chub_LM28

LOCATION

The *Nocomis leptocephalus* sample (LM28) was collected from Little Mulberry Park. This park is located in Gwinnett County, GA. This location's specific coordinates are Latitude: 34.035000 and Longitude: -83.887670.

SHANNON DIVERSITY INDEX

The Shannon Diversity Index was calculated for Little Mulberry Park, using the equation $H' = -\sum P_i \ln p_i$. The H' value for Little Mulberry Park is 1.075897, with a variance (Var H') of 0.006783.



Figure 1. Photo of sample species: *Nocomis leptocephalus*.

TAXONOMY

Kingdom: Animalia

Phylum: Chordata

Class: Actinopterygii

Order: Cypriniformes

Family: Cyprinidae

Genus: *Nocomis*

Species: *Nocomis Leptocephalus*

MORPHOLOGY

The Bluehead Chub typically has a relative body in proportion to its size. Some of the physical characteristics of this species include a horizontally positioned mouth, accompanied by a short snout [1]. In addition, the body of a Bluehead Chub is known for having a brassy green color with a black strip along the mid-side [2]. When Bluehead chubs reach their adult size, they can range anywhere from 2.8 to 6.7 inches [1].

ECOLOGY OF SPECIES

Habitat

The Bluehead Chub usually prefers streams that are small, ranging from moderate to high gradients [1]. Their habitats require small stones which are essential for building nests and protecting the fertilized eggs [1]. Typically, this species is found in the Atlantic slope drainages, ranging from the lower Chesapeake basin to the Altamaha River drainage in Georgia [1]. In addition, some of their Native ranges are Lower tributaries of the Mississippi River and Louisiana [3].

Reproduction/lifecycle

Bluehead Chubs spawn during the Spring season. They are known for engaging in external fertilization which includes females releasing eggs onto the bottom while the males release sperm to fertilize the eggs [4]. In addition, the males construct a gravel nest so that the females have a place to deposit the eggs [4]. The eggs are then supervised by the males until they hatch [4].

Interaction

Within the southeastern region of the United States, reproductive interactions between the bluehead chub and yellowfin shiner are mutualistic [5]. This is because the shiner relies on the Bluehead Chub's nest for spawning and in return the Chub benefits from the shiner's eggs because it lowers the predation risk on their eggs [5].

GENOMIC SEQUENCE

TTCCCTTTNATCTTGTATCTGGTGCCTGAGCTGGAATAGTGGGAACCGCTTTAAGCCT
CCTTATTCGAGCCGAATTAAG

CCAACCCGGATCACTCCTGGGTGATGACCAGATTTATAATGTAATCGTCACTGCCCAC
GCCTTCGTAATAATTTCTTTA

TAGTAATGCCAATTCTGATCGGCGGGTTTGGGAATTGGCTTGTACCTCTAATAATTGGT
GCACCAGACATAGCATTCCC

ACGAATAAATAACATAAGCTTCTGACTCCTACCCCATCATTCTGTTACTGTTAGCCT
CTTCTGGTGTGAGGCTGGG

GCTGGGACAGGTTGAACCGTATACCCTCCTCTCGCAGGCAACCTCGCCCACGCAGGA
GCATCAGTAGATCTTACGAT

CTTCTCTTTCATTTAGCAGGTGTGTCATCAATTTTAGGAGCAGTTAACTTTATTACCA
CAATCATTAAACATGAAACCCC

CAGCCATTTCCCAATATCAAACACCTCTCTTTGTATGAGCCGTACTIONTGTAACCGCTGTT
CTTCTACTTCTATCGCTACCTG
TCCTGGCTGCGGGTATTACAATACTTCTCACTGATCGTAACCTAAACACCACATTTTTT
GACCCCGCAGGCGGAGGAG

ACCCAATCCTGTACCAACACCTATTCTGATTCTTCGGTCACCCTGAAGTGTCATACTGT
TTTTCCGNNNNNNNN

REFERENCES

- [1] “Bluehead.” *Outdoor Alabama*,
www.outdooralabama.com/chub/bluehead#:~:text=CHARACTERISTICS%3A%20The%20bluehead%20chub%20is.
- [2] “Bluehead Chub.” *Discover Fishes*,
www.floridamuseum.ufl.edu/discover-fish/florida-fishes-gallery/bluehead-chub/#:~:text=Nocomis%20leptocephalus.
- [3] “Bluehead Chub (Nocomis Leptocephalus) - Species Profile.” *USGS Nonindigenous Aquatic Species Database*, nas.er.usgs.gov/queries/factsheet.aspx?SpeciesID=575.
- [4] “Bluehead Chub.” *Wikipedia*, 4 Feb. 2024, en.wikipedia.org/wiki/Bluehead_chub#Habitat.
Accessed 22 Apr. 2024.
- [5] Kim, Seoghyun, et al. “Diverse Reproductive Patterns of Bluehead Chub (Nocomis Leptocephalus) and Their Relationships with Nest Size and Interactions with an Associate, Yellowfin Shiner (Notropis Lutipinnis).” *Environmental Biology of Fishes*, vol. 103, no. 7, 5 June 2020, pp. 783–794, <https://doi.org/10.1007/s10641-020-00980-x>.
Accessed 3 Nov. 2021.