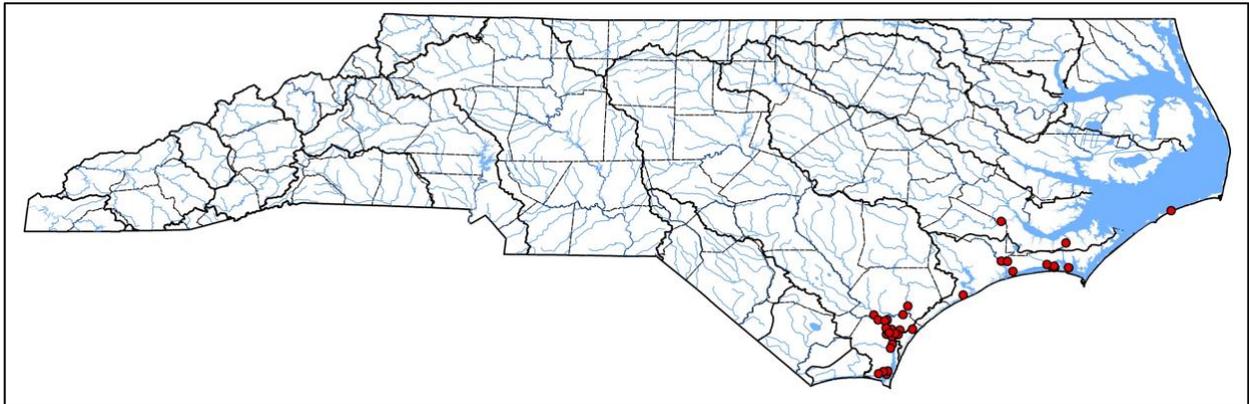


## Sleeper (Eleotridae) Diversity in North Carolina By the [NCFishes.com](http://NCFishes.com) Team

The Family Eleotridae is a small family of just three species inhabiting North Carolina's shallow coastal waters. These species, unknown to most, are: Fat Sleeper, *Dormitator maculatus*, Largescaled Spinycheek Sleeper, *Eleotris amblyopsis*, and Emerald Sleeper, *Erotelis smaragdus* ([NCFishes.com](http://NCFishes.com); Tracy et al. 2020). [Please note: Tracy et al. (2020) may be downloaded for **free** at: <https://trace.tennessee.edu/sfcproceedings/vol1/iss60/1>.] The Fat Sleeper and Largescaled Spinycheek Sleeper don't venture very far inland, but both species can be found in some of the smaller tributaries to the lower Cape Fear and Neuse rivers. [Note: see Supplemental Maps 1-3, page 7, showing North Carolina's 100 counties, 21 river basins, and 4 physiographic regions.]

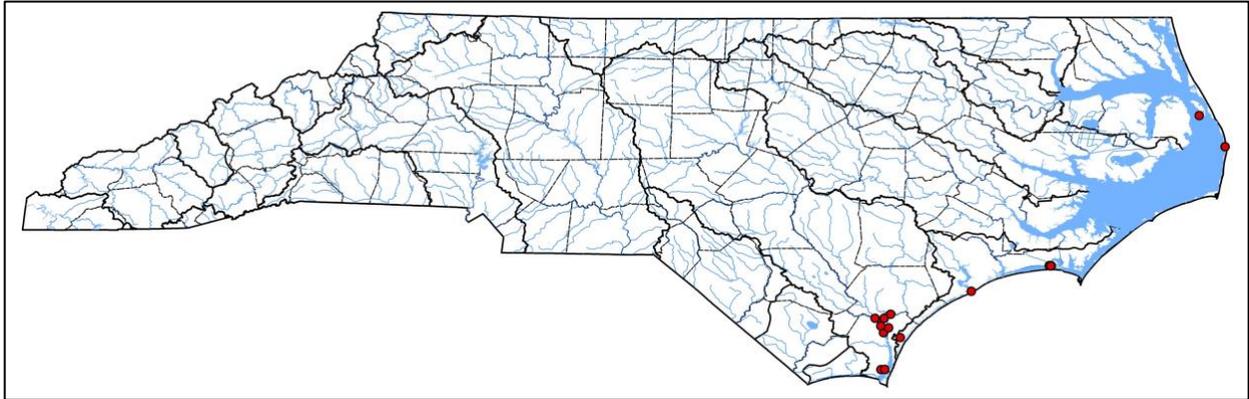
Because of their lack of commercial or recreational importance, none of the species is a federally- or state-listed species (NCAC 2017; NCNHP 2020; NCWRC 2017). And due to their obscurity, they really don't have any common or vernacular names other than the American Fisheries Society-accepted common names listed previously (Page et al. 2013). But like all organisms, each of the scientific (Latin) names actually means something (please refer to The Meanings of the Scientific Names of Sleepers, page 6).

In North Carolina, Fat Sleeper appears restricted to shallow fresh and estuarine waters including coastal streams, ponds, and ditches in the Cape Fear, White Oak, Neuse, and Tar basins as far north as Ocracoke Island on the Cape Hatteras National Seashore, Dare County (Map 1; Ross and Rohde 2004; Tracy et al. 2020). In South Carolina, the Fat Sleeper is often found in coastal fresh waters, but is more common in brackish waters, especially in areas of low salinity (Rohde et al. 2009). It may reach a length of 380 mm (15 inches), but is seldom longer than 250 mm (10 inches) (Rohde et al. 2009).



**Map 1. Distribution of Fat Sleeper, *Dormitator maculatus*. Map originally appeared in Tracy et al. (2020).**

Largescaled Spinycheek Sleeper is found in the Cape Fear, White Oak, and Albemarle basins as far north as off of Roanoke Island in the Croatan Sound, Dare County (Map 2). In South Carolina, the Largescaled Spinycheek Sleeper tolerates a wide range of salinity and has been found in fresh and brackish water and in low-salinity upper estuaries, often over a mud substrate (Rohde et al. 2009; Ross and Rohde 2004). It reaches a length of 250 mm (10 inches) (Rohde et al. 2009).



**Map 2. Distribution of Largescaled Spinycheek Sleeper, *Eleotris amblyopsis*. Map originally appeared in Tracy et al. (2020).**

The Emerald Sleeper is extremely rare in North Carolina – it is only known from two specimens (Ross and Rohde 2004). The first specimen was collected at night on March 04, 1987 from the intake canal of the Brunswick Nuclear Plant in Brunswick County, which opens onto the lower Cape Fear River estuary near Southport. This 67 mm Standard Length specimen was vouchered in the formerly Carolina Power and Light Company fish collection, but it cannot be located (Kyle Hussey, Duke Energy, pers. comm.). The second specimen was collected by trawl on May 18, 1993 at the northwest end of Masonboro Island in New Hanover County. This 92 mm Standard Length specimen was gifted to the Florida Museum of Natural History (UF Catalogue No. 96684). No other specimens have been collected from North Carolina waters since then. The closest known localities are from Volusia County, Florida (Fishnet 2, <http://www.fishnet2.net/>, accessed February 19, 2021).

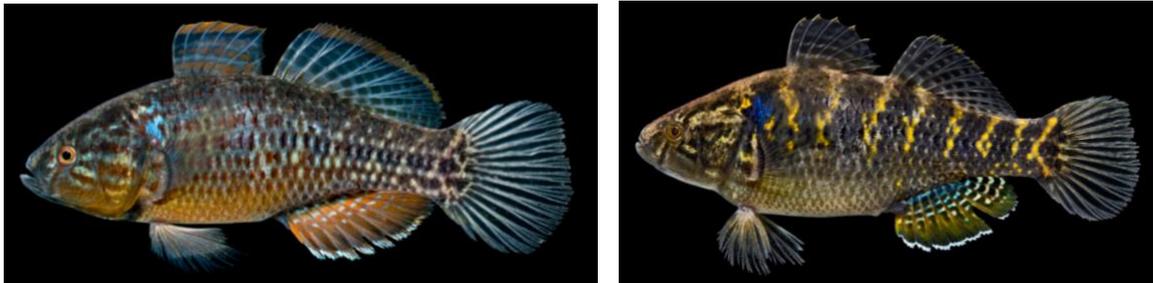
The identification of Sleepers is fairly straight-forward. Key characteristics for their proper identification include the number of dorsal fin spines, dorsal fin rays, and pectoral fin rays; the lateral series scale count; the presence or absence of a preopercular spine; the presence of cycloid or ctenoid scales; and the length of the anterior extension of the caudal fin (please refer to the Identification Key to the Sleepers (Family Eleotridae) in North Carolina).

If you have troubles with your identifications, just send us (<https://ncfishes.com/contact/>) an e-mail and include as many quality digital photographs as you can along with all the pertinent locality descriptors so that we will know from where the fish came.

**Identification Key to the Freshwater and Marine Sleepers (Family Eleotridae)  
in North Carolina**

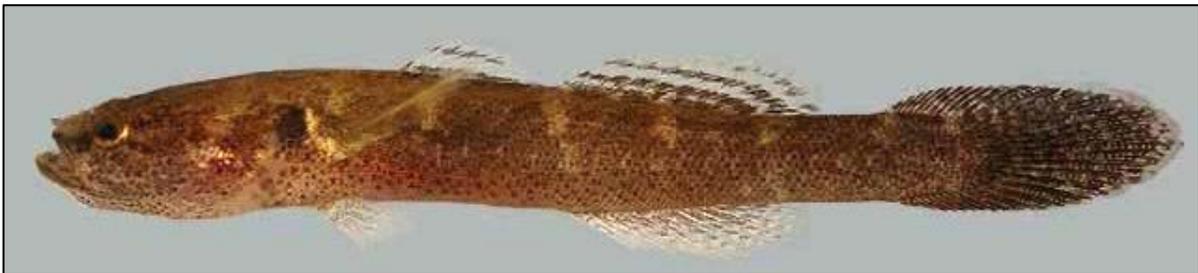
(Please refer to [NCFishes.com](http://NCFishes.com) for pictures and identifying characteristics all species)  
(Identification Key adapted from Murdy and Hoese (2002) and Ross and Rohde (2004))

- 1a. No blueish spot above the opercle and anal fin without blueish bars. First dorsal fin with six spines. Preopercle spine present (concealed, often covered with skin). Pectoral rays 16-18 (usually 17). Scales small, > 50 in lateral series .....2
- 1b. Blotch just above the opercle ringed in light blue with blueish bars on the anal fin (Figure 1). First dorsal fin with seven spines. Preopercular spine absent. Pectoral rays 14. Scales large, 33-36 in lateral series ..... Fat Sleeper, *Dormitator maculatus\**



**Figure 1. Fat Sleeper. Left – Male; Right – Female.**

- 2a. Dorsum and sides not contrasting with one another (Figure 2). Caudal fin extending anteriorly onto body (Figure 2). Body very slender, elongate, and terete, the depth contained 7-9 times in Standard Length. Second dorsal fin with 12 rays. Scales cycloid and smooth, > 90 in lateral series ..... Emerald Sleeper, *Erotelis smaragdus*
- 2b. Pale dorsum in contrast to darker sides (Figure 3). Caudal fin not extending anteriorly on body; body depth moderate (Figure 3). Second dorsal fin with nine rays. Scales ctenoid and rough on posterior part of body, 40-65 in lateral series .....Largescaled Spinycheek Sleeper, *Eleotris amblyopsis*



**Figure 2. Emerald Sleeper. Photograph courtesy of the Smithsonian Tropical Research Institute’s Shorefishes of the Greater Caribbean online information system, <https://biogeodb.stri.si.edu/caribbean/en/pages/random/2707>, accessed 02/08/2021.**



**Figure 3. Largescaled Spinycheek Sleeper.**

\*Fat Sleeper may be confused with Banded Pygmy Sunfish, *Elassoma zonatum*, (<https://ncfishes.com/freshwater-fishes-of-north-carolina/elassoma-zonatum/>) whose distributions overlap one another. However, Fat Sleeper has two separated dorsal fins and a scaled head, whereas the Banded Pygmy Sunfish has a single dorsal fin and an unscaled head (Figures 4 and 5) (Rohde et al. 2009).



**Figure 4. Fat Sleeper with white arrows pointing to a scaled head and separate dorsal fins.**



**Figure 5. Banded Pygmy Sunfish with white arrows pointing to a naked (unscaled) head and a single dorsal fin.**

## References

- Murdy, E.O. and D.F. Hoese. (FAO 2002). 2002. Eleotridae. Sleepers. pp 1778-1780. Carpenter, K.E. (ed.). The living marine resources of the Western Central Atlantic. Volume 3. Bony fishes part 2 (Opistognathidae to Molidae), sea turtles and marine mammals. Food and Agriculture Organization of the United Nations, Rome, Italy. 4099p. (Available at: [FAO 2002](#)).
- North Carolina Administrative Code (NCAC). 2017. Subchapter 10I - Endangered and threatened species. Amended effective October 01, 2017. North Carolina Administrative Code. Raleigh, NC.
- North Carolina Natural Heritage Program (NCNHP). 2020. Natural Heritage Program list of rare animal species of North Carolina 2020. North Carolina Natural Heritage Program. North Carolina Department of Natural and Cultural Resources. Raleigh, NC. 167p. Available at: [NCNHP 2020 Rare Animal List.pdf](#).
- North Carolina Wildlife Resources Commission (NCWRC). 2017. Protected wildlife species of North Carolina. North Carolina Wildlife Resources Commission. Raleigh, NC. 9p.
- Page, L.M., H. Espinosa-Pérez, L.T. Findley, C.R. Gilbert, R.N. Lea, N.E. Mandrak, R.L. Mayden, and J.S. Nelson. 2013. Common and scientific names of fishes from the United States, Canada, and Mexico. 7<sup>th</sup> edition. American Fisheries Society, Special Publication 34, Bethesda, MD. 384p.
- Rohde, F.C., R.G. Arndt, J.W. Foltz, and J.M. Quattro. 2009. Freshwater fishes of South Carolina. University of South Carolina Press, Columbia, SC. 430p.
- Ross, S.W., and F.C. Rohde. 2004. The gobioid fishes of North Carolina (Pisces: Gobioidae). Bulletin of Marine Science 74:287-323.
- Tracy, B. H., F.C. Rohde, and G.M. Hogue. 2020. An annotated atlas of the freshwater fishes of North Carolina. Southeastern Fishes Council Proceedings No. 60. 198p. (Available at: <https://trace.tennessee.edu/sfcproceedings/vol1/iss60/1>).
- 

## Glossary

(Adapted from Rohde et al. (2009))

Ctenoid Scales – Thins, light, flexible scale with numerous small backward-pointing “teeth” on the outer edge

Cycloid Scales – Thin, light, flexible scale lacking small, rear-pointing teeth

Hypural Plate – Expanded bone that form the support for the caudal fin rays. The endo of the plate usually appears as a crease across the caudal peduncle

Preopercular Spine – Spine on the I-shaped bone located on the front portion of the gill cover and forming the posterior boundary of the cheek.

Standard Length (SL) – Distance from the anteriormost point on a fish to the posterior end of the bony caudal fin base (hypural plate)

## The Meanings of the Scientific Names of Sleepers

Adopted from the ETYFish Project by Christopher Scharpf and Kenneth J. Lazara,  
accessed February 09, 2021, <http://www.etyfish.org/>

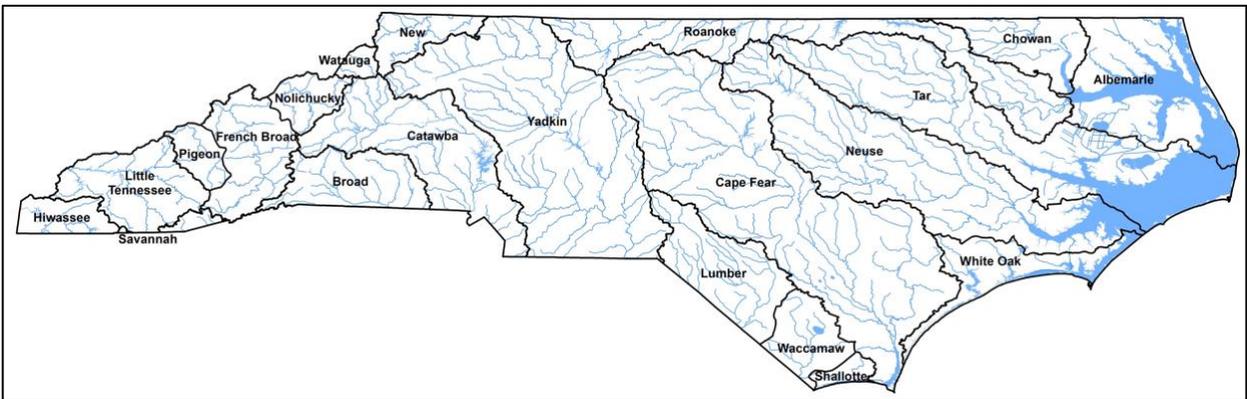
### Family ELEOTRIDAE Bonaparte 1835, Sleepers

- i. ***Dormitator* Gill 1861** - Latin for “one who sleeps,” derived from “*dormeur*,” vernacular used in the early 19<sup>th</sup> century French colonies of South America and source of the English vernacular “sleeper,” presumably referring to their seemingly lethargic behavior (see *Eleotris*)
  - a. ***Dormitator maculatus* (Bloch 1792)** - spotted, described as having brown spots on head and sides and black spots on belly
- ii. ***Eleotris* Bloch & Schneider 1801** - according to Valenciennes (1837), derived from a Greek name for an unidentified fish from the Nile, whereas Jordan & Gilbert (1883) claim that name derives from the Greek *eleos* (bewildered), perhaps alluding to the vernacular “sleeper,” which appears to be an English translation of the vernacular “*dormeur*” used in the early 19<sup>th</sup> century French colonies of South America; Valenciennes stated that *dormeurs* are “usually lazy fish, which stand quietly in the mud or rocks holes” (translation)
  - a. ***Eleotris amblyopsis* (Cope 1871)** - *amblys*, blunt; *opsis*, face, referring to its prominent chin
- iii. ***Erotelis* Poey 1860** - anagram of *Eleotris*, a closely related genus
  - a. ***Erotelis smaragdus* (Valenciennes 1837)** - emerald, alluding to *esmeralda negra*, its common name in Havana, Cuba (type locality)

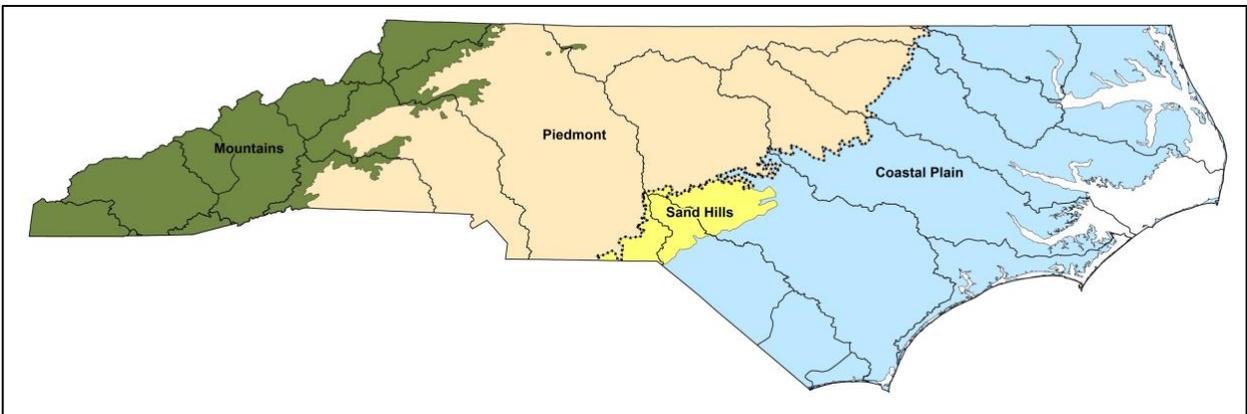
## Supplemental Maps



Map No. 1. North Carolina's 100 counties. Map originally appeared in Tracy et al. (2020).



Map No. 2. North Carolina's 21 river basins. Map originally appeared in Tracy et al. (2020).



Map No. 3. North Carolina's four physiographic regions. Map originally appeared in Tracy et al. (2020).